

TIPS VENDOR AGREEMENT

PART 1 ONLY

Between VSC Fire & Security and _____
(Company Name)

THE INTERLOCAL PURCHASING SYSTEM (TIPS), a Department of Texas Education Service Center Region 8 for **TIPS RFP 210503 Networking Equipment, Software, and Services PART 1 ONLY**

General Information

The Vendor Agreement (“Agreement”) made and entered into by and between The Interlocal Purchasing System (hereinafter “TIPS”) a government cooperative purchasing program authorized by the Region 8 Education Service Center, having its principal place of business at 4845 US Hwy 271 North, Pittsburg, Texas 75686 and the TIPS Vendor. This Agreement consists of the provisions set forth below, including provisions of all attachments referenced herein. In the event of a conflict between the provisions set forth below and those contained in any attachment, the provisions set forth shall control unless otherwise agreed by the parties in writing and by signature and date on the attachment.

A Purchase Order (“PO”), Agreement or Contract is the TIPS Member’s approval providing the authority to proceed with the negotiated delivery order under the Agreement. Special terms and conditions as agreed between the Vendor and TIPS Member should be added as addendums to the Purchase Order, Agreement or Contract. Items such as certificate of insurance, bonding requirements, small or disadvantaged business goals are some, but not all, of the possible addendums.

Terms and Conditions

Freight

All quotes to Members shall provide a line item for cost for freight or shipping regardless if there is a charge or not. If no charge for freight or shipping, indicate by stating “No Charge”, “\$0”, “included in price” or other similar indication. Otherwise, all shipping, freight or delivery charges shall be passed through to the TIPS Member at cost with no markup and said charges shall be agreed by the TIPS Member unless alternative shipping terms are agreed by TIPS as a result of the proposal award.

Warranty Conditions

All new supplies equipment and services shall include **manufacturer's minimum standard warranty** unless otherwise agreed to in writing. Vendor shall be legally permitted to sell all products offered for sale to TIPS Members if the offering is included in the Request for Proposal (“RFP”) category. All goods proposed and sold shall be new unless clearly stated in writing.

Customer Support

The Vendor shall provide timely and accurate customer support for orders to TIPS Members as agreed by the Parties. Vendors shall respond to such requests within a commercially reasonable time after receipt of

the request. If support and/or training is a line item sold or packaged with a sale, support shall be as agreed with the TIPS Member.

Agreements

Agreements for purchase will normally be put into effect by means of a purchase order(s) executed by authorized agents of the TIPS Member participating government entities, but other means of placing an order may be used at the Member's discretion.

Tax exempt status

Most TIPS Members are tax exempt and the related laws and/or regulations of the controlling jurisdiction(s) of the TIPS Member shall apply.

Assignments of Agreements

No assignment of this Agreement may be made without the prior notification of TIPS. Written approval of TIPS shall not be unreasonably withheld. Payment for delivered goods and services can only be made to the awarded Vendor, Vendor designated reseller or vendor assigned company.

Disclosures

- Vendor and TIPS affirm that he/she, or any authorized employees or agents, has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor or service to a public servant in connection with this Agreement.
- Vendor shall attach, in writing, a complete description of any and all relationships that might be considered a conflict of interest in doing business with the TIPS program.
- The Vendor affirms that, to the best of his/her knowledge, the offer has been arrived at independently, and is submitted without collusion with anyone to obtain information or gain any favoritism that would in any way limit competition or give an unfair advantage over other vendors in the award of this Agreement.

Term of Agreement and Renewals

The Agreement with TIPS is for approximately three (3) years with an option for renewal for an additional one (1) consecutive year. If TIPS offers the renewal extension year, the Vendor will be notified by email to the primary contact of the awarded Vendor and shall be deemed accepted by the Vendor unless the awarded Vendor notifies TIPS of its objection to the additional term. TIPS may or may not exercise the available extension(s) provided in the original solicitation beyond the base three-year term. Whether or not to offer the extension is at the sole discretion of TIPS.

“Start Date” for Term Calculation Purposes Only: Regardless of actual award/effective date of Contract, for Agreement “term” calculation purposes only, the Agreement “start date” is the last day of the month that Award Notifications are anticipated as published in the Solicitation

Example: *If the anticipated award date published in the Solicitation is May 22, 2020 but extended negotiations delay award until June 27, 2020 The end date of the resulting initial “three-year” term Agreement, (which is subject to an extension(s)) will still be May 31, 2023.*

“Termination Date”: The scheduled Agreement “termination date” shall be the last day of the month of the month of the Original Solicitation’s Anticipated Award Date plus three years.

Example: *If the original term is approximately three years, and the solicitation provides an anticipated award date of May 22, 2020, the expiration date of the original three-year term shall be May 31, 2023.*

Extensions: Any extensions of the original term shall begin on the next day after the day the original term expires.

Example Following the Previous Example: *If TIPS offers a one-year extension, the expiration of the extended term shall be May 31, 2024.*

TIPS may offer to extend Vendor Agreements to the fullest extent the original Solicitation permits.

Automatic Renewal Clauses Incorporated in Awarded Vendor Agreements with TIPS Members Resulting from the Solicitation and with the Vendor Named in this Agreement.

No Agreement for goods or services with a TIPS Member by the awarded vendor named in this Agreement that results from the solicitation award named in this Agreement, may incorporate an automatic renewal clause that exceeds month to month terms with which the TIPS Member must comply. All renewal terms incorporated in an Agreement by the vendor with the TIPS Member shall only be valid and enforceable when the vendor receives written confirmation by purchase order, executed Agreement or other written instruction issued by the TIPS Member for any renewal period. The purpose of this clause is to avoid a TIPS Member inadvertently renewing an Agreement during a period in which the governing body of the TIPS Member has not properly appropriated and budgeted the funds to satisfy the Agreement renewal. This term is not negotiable and any Agreement between a TIPS Member and a TIPS awarded vendor with an automatic renewal clause that conflicts with these terms is rendered void and unenforceable.

Shipments

The Vendor shall ship, deliver or provide ordered products or services within a commercially reasonable time after the receipt of the order from the TIPS Member. If a delay in said delivery is anticipated, the Vendor shall notify TIPS Member as to why delivery is delayed and shall provide an estimated time for completion of the order. TIPS or the requesting entity may cancel the order if estimated delivery time is not acceptable or not as agreed by the parties.

Invoices

Each invoice or pay request shall include the TIPS Member’s purchase order number or other identifying designation as provided in the order by the TIPS Member. If applicable, the shipment tracking number or pertinent information for verification of TIPS Member receipt shall be made available upon request.

Payments

The TIPS Member will make payments directly to the Vendor, the Vendor Assigned Dealer or as agreed by the Vendor and the TIPS Member after receiving invoice and in compliance with applicable payment statute(s), whichever is the greater time or as otherwise provided by an agreement of the parties.

Pricing

Price increases will be honored according to the terms of the solicitation. All pricing submitted to TIPS shall include the participation fee, as provided in the solicitation, to be remitted to TIPS by the Vendor. Vendor will not show adding the fee to the invoice presented to TIPS Member customer.

Participation Fees and Reporting of Sales to TIPS by Vendor

The Participation Fee that was published as part of the Solicitation and the fee published is the legally effective fee, along with any fee conditions stated in the Solicitation. Collection of the fees by TIPS is required under Texas Government Code §791.011 Et seq. Fees are due on all TIPS purchases reported by either Vendor or Member. Fees are due to TIPS upon payment by the Member to the Vendor, Reseller or Vendor Assigned Dealer. Vendor, Reseller or Vendor Assigned Dealer agrees that the participation fee is due to TIPS for all Agreement sales immediately upon receipt of payment including partial payment, from the Member Entity and must be paid to TIPS at least on a monthly basis, specifically within 31 calendar days of receipt of payment, if not more frequently, or as otherwise agreed by TIPS in writing and signed by an authorized signatory of TIPS. Thus, when an awarded Vendor, Reseller or Vendor Assigned Dealer receives any amount of payment, even partial payment, for a TIPS sale, the legally effective fee for that amount is immediately due to TIPS from the Vendor and fees due to TIPS should be paid at least on a monthly basis, specifically within 31 calendar days of receipt of payment, if not more frequently.

Reporting of Sales to TIPS by Vendor

Vendor is required to report all sales under the TIPS contract to TIPS. When a public entity initiates a purchase with a TIPS Awarded Vendor, if the Member inquires verbally or in writing whether the Vendor holds a TIPS Contract, it is the duty of the Vendor to verify whether or not the Member is seeking a TIPS purchase. Once verified, the Vendor must include the TIPS Contract number on any communications and related sales documents exchanged with the TIPS Member entity. To report sales, the Vendor must login to the TIPS Vendor Portal online at https://www.tips-usa.com/vendors_form.cfm and click on the PO's and Payments tab. Pages 3-7 of the [Vendor Portal User Guide](#) will walk you through the process of reporting sales to TIPS. Please refer to the TIPS [Accounting FAQ's](#) for more information about reporting sales and if you have further questions, contact the Accounting Team at accounting@tips-usa.com. The Vendor or vendor assigned dealers are responsible for keeping record of all sales that go through the TIPS Agreement and submitting same to TIPS. Failure to render the participation fee to TIPS shall constitute a breach of this agreement with our parent governmental entity, Texas Education Service Center Region 8, as established by the Texas legislature and shall be grounds for termination of this agreement and any other agreement held with TIPS and possible legal action. Any overpayment of participation fees to TIPS by a Vendor will be refunded to the Vendor within ninety (90) days of receipt of notification if TIPS receives written notification of the overpayment not later than the expiration of six (6) months from the date of overpayment and TIPS determines that the amount was not legally due to TIPS pursuant to this agreement and applicable law. It is the Vendor's responsibility to identify which sales are TIPS Agreement sales and pay the correct participation fee due for TIPS Agreement sales. Any notification of overpayment received by TIPS after the expiration of six (6) months from the date of overpayment will be non-refundable. Region 8 ESC and TIPS reserve the right to extend the six (6) month deadline to notify if approved by the Region 8 ESC Board of Directors. TIPS reserves all rights under the law to collect the fees due. Please contact TIPS at tips@tips-usa.com or call (866) 839-8477 if you have questions about paying fees.

Indemnity

The Vendor agrees to indemnify and hold harmless and defend TIPS, TIPS Member(s), officers and employees from and against all claims and suits by third parties for damages, injuries to persons (including death), property damages, losses, and expenses including court costs and reasonable attorney's fees, arising out of, or resulting from, Vendor's performance under this Agreement, including all such causes of action based upon common, constitutional, or statutory law, or based in whole or in part, upon allegations of negligent or intentional acts on the part of the Vendor, its officers, employees, agents, subcontractors, licensees, or invitees. Parties found liable shall pay their proportionate share of damages as agreed by the parties or as ordered by a court of competent jurisdiction over the case. **NO LIMITATION OF LIABILITY FOR DAMAGES FOR PERSONAL INJURY OR PROPERTY DAMAGE ARE PERMITTED OR AGREED BY TIPS/ESC REGION 8.** Per

Texas Education Code §44.032(f), and pursuant to its requirements only, reasonable Attorney's fees are recoverable by the prevailing party in any dispute resulting in litigation.

State of Texas Franchise Tax

By signature hereon, the Vendor hereby certifies that he/she is not currently delinquent in the payment of any franchise taxes owed the State of Texas under Chapter 171, Tax Code.

Miscellaneous

The Vendor acknowledges and agrees that continued participation in TIPS is subject to TIPS sole discretion and that any Vendor may be removed from the participation in the Program at any time with or without cause. Nothing in the Agreement or in any other communication between TIPS and the Vendor may be construed as a guarantee that TIPS or TIPS Members will submit any orders at any time. TIPS reserves the right to request additional proposals for items or services already on Agreement at any time.

Purchase Order Pricing/Product Deviation

If a deviation of pricing/product on a Purchase Order or contract modification occurs between the Vendor and the TIPS Member, TIPS must be notified within five (5) business days of receipt of change order.

Termination for Convenience of TIPS Agreement Only

TIPS reserves the right to terminate this agreement for cause or no cause for convenience with a thirty (30) days prior written notice. Termination for convenience is conditionally required under Federal Regulations 2 CFR part 200 if the customer is using federal funds for the procurement. All purchase orders presented to the Vendor, but not fulfilled by the Vendor, by a TIPS Member prior to the actual termination of this agreement shall be honored at the option of the TIPS Member. The awarded Vendor may terminate the agreement with ninety (90) days prior written notice to TIPS 4845 US Hwy North, Pittsburg, Texas 75686. The vendor will be paid for goods and services delivered prior to the termination provided that the goods and services were delivered in accordance with the terms and conditions of the terminated agreement. This termination clause does not affect the sales agreements executed by the Vendor and the TIPS Member customer pursuant to this agreement. TIPS Members may negotiate a termination for convenience clause that meets the needs of the transaction based on applicable factors, such as funding sources or other needs.

TIPS Member Purchasing Procedures

Usually, purchase orders or their equal are issued by participating TIPS Member to the awarded vendor and should indicate on the order that the purchase is per the applicable TIPS Agreement Number. Orders are typically emailed to TIPS at tipspo@tips-usa.com.

- Awarded Vendor delivers goods/services directly to the participating member.
- Awarded Vendor invoices the participating TIPS Member directly.
- Awarded Vendor receives payment directly from the participating member.
- Fees are due to TIPS upon payment by the Member to the Vendor. Vendor agrees to pay the participation fee to TIPS for all Agreement sales upon receipt of payment including partial payment, from the Member Entity or as otherwise agreed by TIPS in writing and signed by an authorized signatory of TIPS.

Licenses

Awarded Vendor shall maintain, in current status, all federal, state and local licenses, bonds and permits required for the operation of the business conducted by awarded Vendor. Awarded Vendor shall remain reasonably fully informed of and in compliance with all ordinances and regulations pertaining to the lawful

provision of goods or services under the Agreement. TIPS and TIPS Members reserves the right to stop work and/or cancel an order or terminate this or any other sales Agreement of any awarded Vendor whose license(s) required for performance under this Agreement have expired, lapsed, are suspended or terminated subject to a 30-day cure period unless prohibited by applicable statute or regulation.

Novation

If awarded Vendor sells or transfers all assets, rights or the entire portion of the assets or rights required to perform this Agreement, a successor in interest must guarantee to perform all obligations under this Agreement. A simple change of name agreement will not change the Agreement obligations of awarded vendor. TIPS will consider Contract Assignments on a case by case basis. TIPS must be notified within five (5) business days of the transfer of assets or rights.

Site Requirements (*only when applicable to service or job*)

Cleanup: When performing work on site at a TIPS Member's property, awarded Vendor shall clean up and remove all debris and rubbish resulting from their work as required or directed by TIPS Member or as agreed by the parties. Upon completion of work, the premises shall be left in good repair and an orderly, neat, clean and unobstructed condition.

Preparation: Awarded Vendor shall not begin a project for which TIPS Member has not prepared the site, unless awarded Vendor does the preparation work at no cost, or until TIPS Member includes the cost of site preparation in a purchase order. Site preparation includes, but is not limited to: moving furniture, installing wiring for networks or power, and similar pre-installation requirements.

Registered sex offender restrictions: For work to be performed at schools, awarded Vendor agrees that no employee of a subcontractor who has been adjudicated to be a registered sex offender will perform work at any time when students are, or reasonably expected to be, present unless otherwise agreed by the TIPS Member. Awarded Vendor agrees that a violation of this condition shall be considered a material breach and may result in the cancellation of the purchase order at the TIPS Member's discretion. Awarded Vendor must identify any additional costs associated with compliance of this term. If no costs are specified, compliance with this term will be provided at no additional charge. **Safety measures:** Awarded Vendor shall take all reasonable precautions for the safety of employees on the worksite, and shall erect and properly maintain all necessary safeguards for protection of workers and the public. Awarded Vendor shall post warning signs against all hazards created by the operation and work in progress. Proper precautions shall be taken pursuant to state law and standard practices to protect workers, general public and existing structures from injury or damage.

Safety Measures

Awarded Vendor shall take all reasonable precautions for the safety of employees on the worksite, and shall erect and properly maintain all necessary safeguards for protection of workers and the public. Awarded vendor shall post warning signs against all hazards created by the operation and work in progress. Proper precautions shall be taken pursuant to state law and standard practices to protect workers, general public and existing structures from injury or damage.

Smoking

Persons working under Agreement shall adhere to the TIPS Member's or local smoking statutes, codes or policies.

Marketing

Awarded Vendor agrees to allow TIPS to use their name and logo within TIPS website, marketing materials and advertisement subject to any reasonable restrictions provided to TIPS in the Proposal to the

Solicitation. The Vendor may submit an acceptable use directive for Vendor's names and logos with which TIPS agrees to comply. Any use of TIPS name and logo or any form of publicity, inclusive of press release, regarding this Agreement by awarded vendor must have prior approval from TIPS which will not be unreasonably withheld. Request may be made by email to TIPS@TIPS-USA.COM.

Supplemental Agreements

The TIPS Member entity participating in the TIPS Agreement and awarded Vendor may enter into a separate Supplemental Agreement or contract to further define the level of service requirements over and above the minimum defined in this Agreement such as but not limited to, invoice requirements, ordering requirements, specialized delivery, etc. Any Supplemental Agreement or contract developed as a result of this Agreement is exclusively between the TIPS Member entity customer and the Vendor. TIPS, its agents, TIPS Members and employees not a party to the Supplemental Agreement with the TIPS Member customer, shall not be made party to any claim for breach of such agreement unless named and agreed by the Party in question in writing in the agreement. If a Vendor submitting a Proposal requires TIPS and/or TIPS Member to sign an additional agreement, those agreements shall comply with the award made by TIPS to the Vendor. Supplemental Vendor's Agreement documents may not become part of TIPS' Agreement with Vendor unless and until an authorized representative of TIPS reviews and approves it. TIPS review and approval may be at any time during the life of this Vendor Agreement. TIPS permits TIPS Members to negotiate additional terms and conditions with the Vendor for the provision of goods or services under the Vendor's TIPS Agreement so long as they do not materially conflict with this Agreement.

Survival Clause

All applicable sales, leases, Supplemental Agreements, contracts, software license agreements, warranties or service agreements that were entered into between Vendor and TIPS or the TIPS Member Customer under the terms and conditions of this Agreement shall survive the expiration or termination of this Agreement. All Orders, Purchase Orders issued or contracts executed by TIPS or a TIPS Member and accepted by the Vendor prior to the expiration or termination of this agreement, shall survive expiration or termination of the Agreement, subject to previously agreed terms and conditions agreed by the parties or as otherwise specified herein relating to termination of this agreement.

Legal obligations

It is the responding Vendor's responsibility to be aware of and comply with all local, state and federal laws governing the sale of products/services identified in the applicable Solicitation that resulted in this Vendor Agreement and any awarded Agreement thereof. Applicable laws and regulations must be followed even if not specifically identified herein.

Audit rights

Due to transparency statutes and public accountability requirements of TIPS and TIPS Members', the awarded Vendor shall, at their sole expense, maintain appropriate due diligence of all purchases made by TIPS Member that utilizes this Agreement. TIPS and Region 8 ESC each reserve the right to audit the accounting of TIPS related purchases for a period of three (3) years from the time such purchases are made. This audit right shall survive termination of this Agreement for a period of one (1) year from the effective date of termination. In order to ensure and confirm compliance with this agreement, TIPS shall have authority to conduct audits of Awarded Vendor's pricing or TIPS transaction documentation with TIPS Members with 30 days' notice unless the audit is ordered by a Court Order or by a Government Agency with authority to do so without notice. Notwithstanding the foregoing, in the event that TIPS is made aware of any pricing being offered to eligible entities that is materially inconsistent with the pricing under this agreement, TIPS shall have the ability to conduct the audit internally or may engage a third- party auditing

firm to investigate any possible non-compliant conduct or may terminate the Agreement according to the terms of this Agreement. In the event of an audit, the requested materials shall be reasonably provided in the time, format and at the location acceptable to Region 8 ESC or TIPS. TIPS agrees not to perform a random audit the TIPS transaction documentation more than once per calendar year, but reserves the right to audit for just cause or as required by any governmental agency or court with regulatory authority over TIPS or the TIPS Member.

Force Majeure

If by reason of Force Majeure, either party hereto shall be rendered unable wholly or in part to carry out its obligations under this Agreement then such party shall give notice and full particulars of Force Majeure in writing to the other party within a reasonable time after occurrence of the event or cause relied upon, and the obligation of the party giving such notice, so far as it is affected by such Force Majeure, shall be suspended during the continuance of the inability then claimed, except as hereinafter provided, but for no longer period, and such party shall endeavor to remove or overcome such inability with all reasonable dispatch.

Choice of Law

The Agreement between the Vendor and TIPS/ESC Region 8 and any addenda or other additions resulting from this procurement process, however described, shall be governed by, construed and enforced in accordance with the laws of the State of Texas, regardless of any conflict of laws principles.

Venue, Jurisdiction and Service of Process

Any Proceeding arising out of or relating to this procurement process or any contract issued by TIPS resulting from or any contemplated transaction shall be brought in a court of competent jurisdiction in Camp County, Texas and each of the parties irrevocably submits to the exclusive jurisdiction of said court in any such proceeding, waives any objection it may now or hereafter have to venue or to convenience of forum, agrees that all claims in respect of the Proceeding shall be heard and determined only in any such court, and agrees not to bring any proceeding arising out of or relating to this procurement process or any contract resulting from or any contemplated transaction in any other court. The parties agree that either or both of them may file a copy of this paragraph with any court as written evidence of the knowing, voluntary and freely bargained for agreement between the parties irrevocably to waive any objections to venue or to convenience of forum. Process in any Proceeding referred to in the first sentence of this Section may be served on any party anywhere in the world. Venue for any dispute resolution process, other than litigation, between TIPS and the Vendor shall be located in Camp or Titus County, Texas.

Project Delivery Order Procedures

The TIPS Member having approved and signed an interlocal agreement, or other TIPS Membership document, may make a request of the awarded Vendor under this Agreement when the TIPS Member desires goods or services awarded to the Vendor. Notification may occur via phone, the web, courier, email, fax, or in person. Upon notification of a pending request, the awarded Vendor shall acknowledge the TIPS Member's request as soon as possible, but must make contact with the TIPS Member within two working days.

Status of TIPS Members as Related to This Agreement

TIPS Members stand in the place of TIPS as related to this agreement and have the same access to the proposal information and all related documents. TIPS Members have all the same rights under the awarded Agreement as TIPS.

Vendor's Resellers as Related to This Agreement

Vendor's Named Resellers ("Resellers") under this Agreement shall comply with all terms and conditions of this agreement and all addenda or incorporated documents. All actions related to sales by Authorized Vendor's Resellers under this Agreement are the responsibility of the awarded Vendor. If Resellers fail to report sales to TIPS under your Agreement, the awarded Vendor is responsible for their contractual failures and shall be billed for the fees. The awarded Vendor may then recover the fees from their named reseller.

Support Requirements

If there is a dispute between the awarded Vendor and TIPS Member, TIPS or its representatives may, at TIPS sole discretion, assist in conflict resolution if requested by either party. TIPS, or its representatives, reserves the right to inspect any project and audit the awarded Vendor's TIPS project files, documentation and correspondence related to the requesting TIPS Member's order. If there are confidentiality requirements by either party, TIPS shall comply to the extent permitted by law.

Incorporation of Solicitation

The TIPS Solicitation which resulted in this Vendor Agreement, whether a Request for Proposals, the Request for Competitive Sealed Proposals or Request for Qualifications solicitation, or other, the Vendor's response to same and all associated documents and forms made part of the solicitation process, including any addenda, are hereby incorporated by reference into this Agreement as if copied verbatim.

SECTION HEADERS OR TITLES

THE SECTION HEADERS OR TITLES WITHIN THIS DOCUMENT ARE MERELY GUIDES FOR CONVENIENCE AND ARE NOT FOR CLASSIFICATION OR LIMITING OF THE RESPONSIBILITIES OF THE PARTIES TO THIS DOCUMENT.

STATUTORY REQUIREMENTS

Texas governmental entities are prohibited from doing business with companies that fail to certify to this condition as required by Texas Government Code Sec. 2270.

By executing this agreement, you certify that you are authorized to bind the undersigned Vendor and that your company (1) does not boycott Israel; and (2) will not boycott Israel during the term of the Agreement.

You certify that your company is not listed on and does not and will not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations per Texas Gov't Code 2270.0153 found at <https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf>

You certify that if the certified statements above become untrue at any time during the life of this Agreement that the Vendor will notify TIPS within three (3) business day of the change by a letter on Vendor's letterhead from and signed by an authorized representative of the Vendor stating the non-compliance decision and the TIPS Agreement number and description at:

Attention: General Counsel
ESC Region 8/The Interlocal Purchasing System (TIPS)
4845 Highway 271 North
Pittsburg, TX,75686
And by an email sent to bids@tips-usa.com

Insurance Requirements

The undersigned Vendor agrees to maintain the below minimum insurance requirements for TIPS Contract Holders:

General Liability	\$1,000,000 each Occurrence/ Aggregate
Automobile Liability	\$300,000 Includes owned, hired & non-owned
Workers' Compensation	Statutory limits for the jurisdiction in which the Vendor performs under this Agreement.
Umbrella Liability	\$1,000,000

When the Vendor or its subcontractors are liable for any damages or claims, the Vendor's policy, when the Vendor is responsible for the claim, must be primary over any other valid and collectible insurance carried by the Member. Any immunity available to TIPS or TIPS Members shall not be used as a defense by the contractor's insurance policy. The coverages and limits are to be considered minimum requirements and in no way limit the liability of the Vendor(s). Insurance shall be written by a carrier with an A-; VII or better rating in accordance with current A.M. Best Key Rating Guide. Only deductibles applicable to property damage are acceptable, unless proof of retention funds to cover said deductibles is provided. "Claims made" policies will not be accepted. Vendor's required minimum coverage shall not be suspended, voided, cancelled, non-renewed or reduced in coverage or in limits unless replaced by a policy that provides the minimum required coverage except after thirty (30) days prior written notice by certified mail, return receipt requested has been given to TIPS or the TIPS Member if a project or pending delivery of an order is ongoing. Upon request, certified copies of all insurance policies shall be furnished to the TIPS or the TIPS Member.

Special Terms and Conditions

- **Orders:** All Vendor orders received from TIPS Members must be emailed to TIPS at tipspo@tips-usa.com. Should a TIPS Member send an order directly to the Vendor, it is the Vendor's responsibility to forward a copy of the order to TIPS at the email above within 3 business days and confirm its receipt with TIPS.
- **Vendor Encouraging Members to bypass TIPS agreement:** Encouraging TIPS Members to purchase directly from the Vendor or through another agreement, when the Member has requested using the TIPS cooperative Agreement or price, and thereby bypassing the TIPS Agreement is a violation of the terms and conditions of this Agreement and will result in removal of the Vendor from the TIPS Program.
- **Order Confirmation:** All TIPS Member Agreement orders are approved daily by TIPS and sent to the Vendor. The Vendor should confirm receipt of orders to the TIPS Member (customer) within 3 business days.
- **Vendor custom website for TIPS:** If Vendor is hosting a custom TIPS website, updated pricing when effective. TIPS shall be notified when prices change in accordance with the award.
- **Back Ordered Products:** If product is not expected to ship within the time provided to the TIPS Member by the Vendor, the Member is to be notified within 3 business days and appropriate action taken based on customer request.

The TIPS Vendor Agreement Signature Page is inserted here.

TIPS Vendor Agreement Signature Form

RFP 210503 Networking Equipment, Software, and Services

PART 1 ONLY

Company Name VSC Fire & Security

Address 185 Arena Road

City Cabot State AR Zip 72023

Phone 5015193423 Fax 501-978-7493

Email of Authorized Representative revatt@vscfire.com

Name of Authorized Representative Rob Evatt

Title VP / Division Manager

Signature of Authorized Representative 

Date 6-16-2021

TIPS Authorized Representative Name David Fitts

Title Executive Director

TIPS Authorized Representative Signature David Wayne Fitts

Approved by ESC Region 8 David Wayne Fitts

Date July 22, 2021

NOTICE TO MEMBERS REGARDING ATTRIBUTE RESPONSES

TIPS VENDORS RESPOND TO ATTRIBUTE QUESTIONS AS PART OF TIPS COMPETITIVE SOLICITATION PROCESS. THE VENDOR'S RESPONSES TO ATTRIBUTE QUESTIONS ARE INCLUDED HEREIN AS "SUPPLIER RESPONSE." PLEASE BE ADVISED THAT DEVIATIONS, IF ANY, IN VENDOR'S RESPONSE TO ATTRIBUTE QUESTIONS MAY NOT REFLECT VENDOR'S FINAL ATTRIBUTE RESPONSE, WHICH IS SUBJECT TO NEGOTIATIONS PRIOR TO AWARD. PLEASE CONTACT THE TIPS OFFICE AT 866-839-8477 WITH QUESTIONS OR CONCERNS REGARDING VENDOR ATTRIBUTE RESPONSE DEVIATIONS. PLEASE KEEP IN MIND THAT TIPS DOES NOT PROVIDE LEGAL COUNSEL TO MEMBERS. TIPS RECOMMENDS THAT YOU CONSULT YOUR LEGAL COUNSEL WHEN EXECUTING CONTRACTS WITH OR MAKING PURCHASES FROM TIPS VENDORS.



210503

**VSC Fire and Security
Supplier Response**

Event Information

Number: 210503
Title: Networking Equipment, Software, and Services (2 Part with JOC)
Type: Request for Proposal
Issue Date: 5/6/2021
Deadline: 6/18/2021 03:00 PM (CT)
Notes: This is a 2 PART solicitation. PART 1 is for projects that are not considered construction or a public work. It includes, but is not limited to, parts, supplies, maintenance services and repairs. PART 2 Job Order Contract (JOC) is for projects considered construction or public work projects. The determination of whether or not a project requires a PART 2 JOC is the responsibility of the TIPS member entity. Vendors are encouraged to respond to BOTH PARTS 1 and 2 to meet the needs of our members, but responses to both parts is not required.

IF YOU CURRENTLY HOLD TIPS CONTRACT(S) 18050101 NETWORKING EQUIPMENT, SOFTWARE AND SERVICES (PART 1) AND/OR 18050102 NETWORKING EQUIPMENT, SOFTWARE AND SERVICES (PART 2), YOU MUST RESPOND TO THIS SOLICITATION TO PREVENT LAPSE OF CONTRACT UNLESS YOU HOLD ANOTHER CURRENT TIPS CONTRACT THAT COVERS ALL OF YOUR NETWORKING OFFERINGS. THIS AWARDED CONTRACT WILL REPLACE YOUR EXPIRING TIPS CONTRACT(S) 18050101 NETWORKING

**EQUIPMENT, SOFTWARE AND SERVICES (PART 1) AND/OR
18050102 NETWORKING EQUIPMENT, SOFTWARE AND
SERVICES (PART 2).**

Contact Information

Address: Region 8 Education Service Center
4845 US Highway 271 North
Pittsburg, TX 75686
Phone: +1 (866) 839-8477
Email: bids@tips-usa.com

VSC Fire and Security Information

Contact: Rob Evatt
Address: 185 Arena Road
Cabot, AR 72023
Phone: (501) 519-3423
Fax: (501) 843-9862
Toll Free: (800) 346-2180
Email: revatt@vscfire.com
Web Address: www.vscfs.com

By submitting your response, you certify that you are authorized to represent and bind your company.

Rob Evatt

Signature

Submitted at 6/16/2021 2:08:42 PM

revatt@vscfire.com

Email

Requested Attachments

Agreement Signature Form PART 1 ONLY 2 (signed)- 210503 Agreement Signature Form PART 1 ONLY.pdf

If you have not taken exception or deviation to the agreement language in the solicitation attributes, download the AGREEMENT SIGNATURE FORM from the "ATTACHMENTS" tab. This PDF document is a fillable form. Download the document to your computer, fill in the requested company information, print the file, SIGN the form, SCAN the completed and signed AGREEMENT SIGNATURE FORM, and upload here.

If you have taken exception to any of the agreement language and noted the exception in the deviations section of the attributes for the agreement, complete the AGREEMENT SIGNATURE FORM, but DO NOT SIGN until those deviations have been negotiated and resolved with TIPS management. Upload the unsigned form here, because this is a required document.

Vendor Agreement PART 1 ONLY 3 - 210503 Vendor Agreement - PART 1 ONLY.pdf

The vendor must download the Vendor Agreement from the attachment tab, fill in the requested information and upload the completed agreement.

DO NOT UPLOAD encrypted or password protected files.

Vendor Agreement PART 2 ONLY 3.1 - 210503 Vendor Agreement JOC_PART 2 ONLY.pdf

If proposing on Part 2, the vendor must download the Vendor Agreement from the attachment tab, fill in the requested information and upload the completed agreement.

DO NOT UPLOAD encrypted or password protected files.

Agreement Signature Form PART 2 ONLY 4 (signed) - 210503 Agreement Signature Form PART 2 ONLY.pdf

If proposing on Part 2, the vendor must download the Vendor Agreement from the attachment tab, fill in the requested information and upload the completed agreement.

DO NOT UPLOAD encrypted or password protected files.

Pricing Form 1 PART 1 ONLY 4.1 - 210503 Pricing Form 1 PART 1 ONLY.xlsx

The vendor must download the PRICING SPREADSHEET SHEET from the attachment tab, fill in the requested information and upload the completed spreadsheet.

DO NOT UPLOAD encrypted or password protected files.

Pricing Form 2 PART 1 ONLY 6 - 210503 Pricing Form 2 PART 1 ONLY.xlsx

The vendor must download the PRICING SPREADSHEET SHEET from the attachment tab, fill in the requested information and upload the completed spreadsheet.

DO NOT UPLOAD encrypted or password protected files.

OPTIONAL - PART 2 - JOC

7 - 210503 PART 2 JOC Pricing of Itemized List of Means Non-Prepriced Items.xlsx

Pricing of Itemized List of RS Means Non-Prepriced Items

The Vendor may download the optional Pricing of Itemized List of RS Means Non-Prepriced Items form from the attachment tab, fill in the requested information, and upload the completed spreadsheet. DO NOT UPLOAD encrypted or password protected files.

Reference Form (PARTS 1 & 2)

8 - Reference_Form.xls

Valid Reference Email addresses are REQUIRED on the spreadsheet. The vendor must download the References spreadsheet from the attachment tab, fill in the requested information and upload the completed spreadsheet. DO NOT UPLOAD encrypted or password protected files.

Proposed Goods and Services

9 - Proposed goods and services.pdf

Please upload one or more documents or sheets describing your offerings, line cards, catalogs, links to offerings OR list links to your offerings that illustrate the catalog of proposed lines of goods and or services you carry and offer under this proposal. It does not have to be exhaustive but should, at a minimum tell us what you are offering. It could be as simple as a sheet with your link to your online catalog of goods and services.

D/M/WBE Certification OPTIONAL*No response*

D/M/WBE Certification documentation may be scanned and uploaded if you desire to claim your status as one of the identified enterprises. (Disadvantaged Business Enterprise, Minority Business Enterprise and/or Woman Business Enterprise) If vendor has more than one certification scan into one document. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Warranty

11 - VSC Sample Warranty.pdf

Warranty information (if applicable) must be scanned and uploaded. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Supplementary

12 - Supplementary.pdf

Supplementary information can be scanned and uploaded. (Company information, brochures, catalogs, etc.) (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

All Other Certificates

13 - All other certs.pdf

All Other Certificates (if applicable) must be scanned and uploaded. If vendor has more than one other certification scan into one document. (PDF Format ONLY)
DO NOT UPLOAD encrypted or password protected files.

Logo and Other Company Marks

VSC ON BLACK.JPG

Conflict of Interest Form CIQ- ONLY REQUIRED IF A CONFLICT EXISTS PER THE INSTRUCTIONS*No response*

ONLY REQUIRED IF A CONFLICT EXISTS PER THE INSTRUCTIONS

Conflict of Interest Form for Vendors that are required to submit the form. The Conflict of Interest Form is included in the Base documents or can be found at <https://www.tips-usa.com/assets/documents/docs/CIQ.pdf>.

Certificate of Corporate Offerer - COMPLETE ONLY IF OFFERER IS A CORPORATION

16 - Corporate Office Form.pdf

COMPLETE AND UPLOAD FORM IN ATTACHMENTS SECTION ONLY IF OFFERER IS A CORPORATION

Lobbying Report Standard Form-LLL, "disclosure Form to Report Lobbying,"*No response*

If you answered "I HAVE Lobbied per above" to attribute #66, please download and complete and upload the Standard Form-LLL, "disclosure Form to Report Lobbying," in the Response attachments section.

Confidentiality Form

18 - 210503 CONFIDENTIALITY CLAIM FORM.pdf

REQUIRED CONFIDENTIALITY FORM. Complete the form according to your company requirements, make any desired attachments and upload to the appropriate section under "Response Attachments" THIS FORM DETERMINES HOW ESC8/TIPS RESPONDS TO LEGAL PUBLIC INFORMATION REQUESTS.

REQUIRED IF YOU ARE PROPOSING ON PART 2 -Attach the Bonding Capacity Letter from Surety/Insurance Company. if you do not have one available at time of proposal, attached a letter stating it will be submitted when received to prove bonding capacity. No award can be made until official bonding capacity letter is received by TIPS.

Current W-9 Tax Form

You are required by TIPS to upload a current W-9 Internal Revenue Service (IRS) Tax Form for your entity. This form will be utilized by TIPS to properly identify your entity. Additionally, if not designated "Confidential" in your proposal response, this W-9 may be accessed by TIPS Members for the purpose of making TIPS purchases from you in the event that you are awarded. If you wish to designate your required W-9 confidential, please do so according to the terms of the Confidentiality Claim Form which is an attachment to this solicitation.

Bid Attributes

1	Yes - No Disadvantaged/Minority/Women Business Enterprise - D/M/WBE (Required by some participating governmental entities) Vendor certifies that their firm is a D/M/WBE? Vendor must upload proof of certification to the "Response Attachments" D/M/WBE CERTIFICATES section. <input type="text" value="No"/>
2	Yes - No Historically Underutilized Business - HUB (Required by some participating governmental entities) Vendor certifies that their firm is a HUB as defined by the State of Texas at https://comptroller.texas.gov/purchasing/vendor/hub/ or in a HUBZone as defined by the US Small Business Administration at https://www.sba.gov/offices/headquarters/ohp Proof of one or both may be submitted. Vendor must upload proof of certification to the "Response Attachments" HUB CERTIFICATES section. <input type="text" value="No"/>
3	Yes - No The Vendor can provide services and/or products to all 50 US States? <input type="text" value="No"/>
4	States Served: If answer is NO to question #3, please list which states can be served. (Example: AR, OK, TX) <input type="text" value="AR, TX, OK, MO, MS, KS, TN, MS, AL, GA, FL, SC, NC, VA, WV, MD, DC"/>

5	Company and/or Product Description:
	This information will appear on the TIPS website in the company profile section, if awarded a TIPS contract. (Limit 750 characters.)
	VSC Fire and Security is a full service Life Safety, Security and Technology company founded in 1958. VSC has 20 offices maintaining customer relations in 16 states and the District of Columbia. VSC specializes in commercial / industrial design and installation of the following: Sprinkler systems, fire alarm, chemical / foam suppression, access control, video surveillance, backflows, IOT cabling, fiber optics, hand held extinguisher, intercom, intrusion systems, nurse call and BDA emergency signal amplification. VSC also offers service after the sale with 24-monitoring, inspections, preventative maintenance, off-site database management, video verification, and cloud-based security services. VSC employs over 1,100 people and uses "in-house" personnel for all disciplines of design, installation, service and inspections. Many VSC employees have NICET and BICSI certifications in fire alarm, suppression, sound, cctv, structured cabling, sprinkler or inspections. In addition to national certifications, VSC technicians are also factory certified on system they install.

6	Primary Contact Name
	Primary Contact Name <input type="text" value="Rob Evatt"/>

7	Primary Contact Title
	Primary Contact Title <input type="text" value="VP / Division manager"/>

8	Primary Contact Email
	Primary Contact Email <input type="text" value="revatt@vscfire.com"/>

9	Primary Contact Phone
	Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477
	<input type="text" value="5015193423"/>

10	Primary Contact Fax
	Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477
	<input type="text" value="5018439862"/>

11	Primary Contact Mobile
	Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477
	<input type="text" value="5015193423"/>

12	Secondary Contact Name
	Secondary Contact Name <input type="text" value="Brent Blankinship"/>

1 3	Secondary Contact Title Secondary Contact Title <input type="text" value="VP / Division Manager"/>
1 4	Secondary Contact Email Secondary Contact Email <input type="text" value="bblankinship@vscfire.com"/>
1 5	Secondary Contact Phone Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477 <input type="text" value="5012592977"/>
1 6	Secondary Contact Fax Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477 <input type="text" value="6782520601"/>
1 7	Secondary Contact Mobile Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477 <input type="text" value="5012592977"/>
1 8	Admin Fee Contact Name Admin Fee Contact Name. This person is responsible for paying the admin fee to TIPS. <input type="text" value="Amanda Winkley-Bland"/>
1 9	Admin Fee Contact Email Admin Fee Contact Email <input type="text" value="awinkley@vscfire.com"/>
2 0	Admin Fee Contact Phone Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477 <input type="text" value="5018439392"/>
2 1	Purchase Order Contact Name Purchase Order Contact Name. This person is responsible for receiving Purchase Orders from TIPS. <input type="text" value="Amanda Winkley-Bland"/>
2 2	Purchase Order Contact Email Purchase Order Contact Email <input type="text" value="awinkley@vscfire.com"/>
2 3	Purchase Order Contact Phone Enter 10 digit phone number. (No dashes or extensions) Example: 8668398477 <input type="text" value="5018439392"/>

2 4	<p>Company Website</p> <p>Company Website (Format - www.company.com)</p> <input type="text" value="www.vscfire.com"/>
2 5	<p>Federal ID Number</p> <p>Federal ID Number also known as the Employer Identification Number (EIN). Numeric only. (Format: 123456789)</p> <input type="text" value="54-154312"/>
2 6	<p>Primary Address</p> <p>Primary Address</p> <input type="text" value="185 Arena Road"/>
2 7	<p>Primary Address City</p> <p>Primary Address City</p> <input type="text" value="Cabot"/>
2 8	<p>Primary Address State</p> <p>Primary Address State (2 Digit Abbreviation)</p> <input type="text" value="Arkansas"/>
2 9	<p>Primary Address Zip</p> <p>Primary Address Zip</p> <input type="text" value="72113"/>
3 0	<p>Search Words:</p> <p>Please list search words to be posted in the TIPS database about your company that TIPS website users might search. Words may be product names, manufacturers, or other words associated with the category of award. YOU MAY NOT LIST NON-CATEGORY ITEMS. (Limit 500 words) (Format: product, paper, construction, manufacturer name, etc.)</p> <input type="text" value="sprinkler, fire, alarm, mass, notification, detection, backflow, suppression, clean agent, fiber, BDA, emergency services, extinguisher, intercom, pa system, structured cabling, UTG, Surveillance, cctv, IP Video, POE, Access control, Nursecall, Monitoring, Inspection, Honeywell, FCI, Notifier, Siemens, Fike, Ansul, AMES, Zurn, Victaulic, Viking, Belden, Commscope, Panduit, Valcom, Bogen, Bosch, Tektone, Avigilon, aiphone, watermist, cornell, DSC, Ademco, DMP, CREE, RS2, Open Path, Open Options, DSX, Alarm.com, Audio, alert, data, WAP, IOT, Farenhyt, Vesda, Bicsi, Nicet"/>
3 1	<p>Do you want TIPS Members to be able to spend Federal grant funds with you if awarded? Is it your intent to be able to sell to our members regardless of the fund source, whether it be local, state or federal?</p> <p>Most of our members receive Federal Government grants and they make up a significant portion of their budgets. The members need to know if your company is willing to sell to them when they spend federal budget funds on their purchase. There are attributes that follow that are provisions from the federal regulations in 2 CFR part 200. Your answers will determine if your award will be designated as Federal or Education Department General Administrative Regulations (EDGAR)compliant.</p> <p>Do you want TIPS Members to be able to spend Federal grant funds with you if awarded and is it your intent to be able to sell to our members regardless of the fund source, whether it be local, state or federal?</p> <input type="text" value="Yes"/>

3
2

Yes - No

Certification of Residency - The vendor's ultimate parent company or majority owner:

(A) has its principal place of business in Texas;

OR

(B) employs at least 500 persons in Texas?

This question is required as a data gathering function for information to our members making purchases with awarded vendors. Does not affect scoring with TIPS.

3
3

Company Residence (City)

Vendor's principal place of business is in the city of?

3
4

Company Residence (State)

Vendor's principal place of business is in the state of?

3
5

Discount Offered - CAUTION READ CAREFULLY BECAUSE VENDORS FREQUENTLY MAKE MISTAKES ON THIS ATTRIBUTE QUESTION

Remember this is a MINIMUM discount percentage so, be sure the discount percentage inserted here can be applied to ANY OFFERING OF GOODS OR SERVICES THROUGH OUT THE LIFE OF THE CONTRACT

CAUTION: BE CERTAIN YOU CAN HONOR THIS MINIMUM DISCOUNT PERCENTAGE ON ANY OFFERED SERVICE OR GOOD NOW OR DURING THE LIFE OF THE CONTRACT.

What is the MINIMUM percentage discount off of any item or service you offer to TIPS Members that is in your regular catalog (as defined in the solicitation specifications document), website, store or shelf pricing or when adding new goods or services to your offerings during the life of the contract? The resulting price of any goods or services Catalog list prices after this discount is applied is a ceiling on your pricing and not a floor because, in order to be more competitive in the individual circumstance, you may offer a larger discount depending on the items or services purchased and the quantity at time of sale.

Must answer with a number between 0% and 100%.

**3
6** Yes - No

If awarded on Part 1 of the TIPS Contract, for the duration of the Contract, Vendor agrees to provide catalog pricing, as defined in the solicitation and below, to TIPS upon request for any goods and services offered on PART 1 of the Vendor's TIPS Contract, if any.

"Catalog" means the available list of tangible personal property or services, in the most current listing, regardless of date, during the life of the contract, that takes the form of a catalog, price list, schedule, shelf price or other form that:

- A. is regularly maintained by the manufacturer or Vendor of an item; and
- B. is either published or otherwise available for inspection by a customer during the purchase process;
- C. to which the minimum discount proposed by the proposing Vendor may be applied.

YES

**3
7** TIPS administration fee

By submitting a proposal, I agree that all pricing submitted to TIPS shall include the participation fee, as designated in the solicitation or as otherwise agreed in writing and shall be remitted to TIPS by the Vendor or the vendor's named resellers and as agreed in the Vendor agreement. I agree that the fee shall not and will not be added by the vendor as a separate line item on a TIPS member invoice, quote, proposal or any other written communications with the TIPS member.

**3
8** REQUIRED FOR PART 2 JOC - PRICING OF Regular Hours Coefficient

What is your regular hours coefficient for the RS Means Price Book? (FAILURE TO RESPOND PROHIBITS PART 2 JOC EVALUATION)

Remember that this is a ceiling price proposed. You can discount lower than your proposed contract coefficient, but not higher.

This is one of three pricing questions that are required for consideration for award on this solicitation. Please consider your answer carefully. An explanation of the TIPS scoring of pricing is included in the attachments for your information.

The below is an Example of how pricing model works (not intended to influence your proposed coefficient, you should propose a coefficient that you determine is right for your business):

To propose the exact pricing as the RS Means Unit Price Book, you would insert a 1.0 and to propose a 5% discount for the RS Means Price Book would be a .95 regular hours coefficient and so on.

0.95

**3
9** REQUIRED FOR PART 2 JOC - PRICING OF After Hours Coefficient

What is your after hours coefficient for the RS Means Price Book for work performed after normal working hours? (FAILURE TO RESPOND PROHIBITS PART 2 JOC EVALUATION)

Remember that this is a ceiling price proposed. You can discount to any TIPS Member customer a lower coefficient than your proposed contract coefficient, but not higher.

This is one of three pricing questions that are required for consideration for award on this solicitation. Please consider your answer carefully. An explanation of the TIPS scoring of pricing titled "Pricing Coefficient Instruction" is included in the attachments for your information.

The below is an EXAMPLE of how the pricing model works (It is not intended to influence your proposed coefficient, you should propose a coefficient that you determine is reasonable for your business for the life of the contract): The most common after hours coefficient is time and a half of the RS Means Unit Price Book prices. To illustrate this coefficient, if your regular hours coefficient is .95, your after hours coefficient would be 1.45.

1.45

40 REQUIRED FOR 2 PART JOC - PRICING for Markup of Non-Prepriced Items in RS Means Unit Price Book

What is your proposed Markup Percentage on materials not found in the RS Means Price Book? (FAILURE TO RESPOND PROHIBITS PART 2 JOC EVALUATION)

If any materials being utilized for a project cannot be found in the RS Means Price Book, this question is what is the markup percentage on those materials?

When answering this question please insert the number that represents your percentage of proposed markup. Example: if you are proposing a 30 percent markup, please insert the number "30".

Remember that this is a ceiling markup. You may markup a lesser percentage to the TIPS Member customer when pricing the project, but not a greater percentage.

EXAMPLE: You need special materials that are not in the RS Means Unit Price Book for a project. You would buy the materials and mark them up to the TIPS Member customer by the percentage you propose in this question. If the materials cost you, the contractor, \$100 and you proposed a markup on this question for the material of 30 percent, then you would charge the TIPS Member customer \$130 for the materials.

41 Yes - No

Vendor agrees to remit to TIPS the required administration fee or, if resellers are named, guarantee the fee remittance by or for the reseller named by the vendor?

TIPS/ESC Region 8 is required by Texas Government Code § 791 to be compensated for its work and thus, failure to agree shall render your response void and it will not be considered.

42 Yes - No

Do you offer additional discounts to TIPS members for large order quantities or large scope of work?

43 Years experience in this category of goods or services.

Company years experience in this category of goods or services?

44 Resellers:

Does the vendor have resellers that it will name under this contract?

Resellers are defined as other companies that sell your products under an agreement with you, as the awarded vendor of TIPS.

EXAMPLE: BIGmart is a reseller of ACME brand televisions. If ACME were a TIPS awarded vendor, then ACME would list BIGmart as a reseller.

(If applicable, Vendor should add all Authorized Resellers within the TIPS Vendor Portal upon award).

4 5	Right of Refusal Does the proposing vendor wish to reserve the right not to perform under the awarded agreement with a TIPS member at vendor's discretion? <input type="text" value="Yes"/>
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4 6	NON-COLLUSIVE BIDDING CERTIFICATE By submission of this bid or proposal, the Bidder certifies that: 1) This bid or proposal has been independently arrived at without collusion with any other Bidder or with any Competitor; 2) This bid or proposal has not been knowingly disclosed and will not be knowingly disclosed, prior to the opening of bids, or proposals for this project, to any other Bidder, Competitor or potential competitor: 3) No attempt has been or will be made to induce any other person, partnership or corporation to submit or not to submit a bid or proposal; 4) The person signing this bid or proposal certifies that he has fully informed himself regarding the accuracy of the statements contained in this certification, and under the penalties being applicable to the Bidder as well as to the person signing in its behalf. Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered.
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4 7	CONFLICT OF INTEREST QUESTIONNAIRE - FORM CIQ -Do you have any CONFLICT OF INTEREST TO REPORT OR DISCLOSE under this statutory requirement? Do you have any CONFLICT OF INTEREST TO REPORT OR DISCLOSE under this statutory requirement? YES or NO If you have a conflict of interest as described in this form or the Local Government Code Chapter 176, cited therein- you are required to complete and file with TIPS. The Form CIQ is one of the attachments to this solicitation. There is an optional upload for this form provided if you have a conflict and must file the form <input type="text" value="No"/>
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4 8	Filing of Form CIQ If yes (above), have you filed a form CIQ by uploading the form to this RFP as directed above? <input type="text" value="No response"/>
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4 9	Regulatory Standing I certify to TIPS for the proposal attached that my company is in good standing with all governmental agencies Federal or state that regulate any part of our business operations. If not, please explain in the next attribute question. <input type="text" value="Yes"/>
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5 0	Regulatory Standing Regulatory Standing explanation of no answer on previous question. <input type="text" value="No response"/>
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Antitrust Certification Statements (Tex. Government Code § 2155.005)

By submission of this bid or proposal, the Bidder certifies that:

I affirm under penalty of perjury of the laws of the State of Texas that:

(1) I am duly authorized to execute this contract on my own behalf or on behalf of the company, corporation, firm, partnership or individual (Company) listed below;

(2) In connection with this bid, neither I nor any representative of the Company has violated any provision of the Texas Free Enterprise and Antitrust Act, Tex. Bus. & Comm. Code Chapter 15;

(3) In connection with this bid, neither I nor any representative of the Company has violated any federal antitrust law;

(4) Neither I nor any representative of the Company has directly or indirectly communicated any of the contents of this bid to a competitor of the Company or any other company, corporation, firm, partnership or individual engaged in the same line of business as the Company.

Suspension or Debarment Instructions

Instructions for Certification:

1. By answering yes to the next Attribute question below, the vendor and prospective lower tier participant is providing the certification set out herein in accordance with these instructions.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification in addition to other remedies available to the federal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and / or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participants,” “person,” “primary covered transaction,” “principal,” “proposal” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this form that it will include this clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction” without modification in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible or voluntarily excluded from participation in this transaction, in addition to other remedies available to the federal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and / or debarment.

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Suspension or Debarment Certification

By answering yes, you certify that no federal suspension or debarment is in place, which would preclude receiving a federally funded contract as described above.

Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government-wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

By answering yes, you certify that no federal suspension or debarment is in place, which would preclude receiving a federally funded contract as described above.

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4

Non-Discrimination Statement and Certification

In accordance with Federal civil rights law, all U.S. Departments, including the U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at [How to File a Program Discrimination Complaint](#) and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

(Title VI of the Education Amendments of 1972; Section 504 of the Rehabilitation Act of 1973; the Age Discrimination Act of 1975; Title 7 CFR Parts 15, 15a, and 15b; the Americans with Disabilities Act; and FNS Instruction 113-1, Civil Rights Compliance and Enforcement – Nutrition Programs and Activities)

All U.S. Departments, including the USDA are equal opportunity provider, employer, and lender.

Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered. I certify that in the performance of a contract with TIPS or its members, that our company will conform to the foregoing anti-discrimination statement and comply with the cited and all other applicable laws and regulations.

Yes, I certify (Yes)

5 2 CFR PART 200 Contract Provisions Explanation

Required Federal contract provisions of Federal Regulations for Contracts for contracts with ESC Region 8 and TIPS Members:

The following provisions are required to be in place and agreed if the procurement is funded in any part with federal funds.

The ESC Region 8 and TIPS Members are the subgrantee or Subrecipient by definition. Most of the provisions are located in 2 CFR PART 200 - Appendix II to Part 200—Contract Provisions for Non-Federal Entity Contracts Under Federal Awards at 2 CFR PART 200. Others are included within 2 CFR part 200 et al.

In addition to other provisions required by the Federal agency or non-Federal entity, all contracts made by the non-Federal entity under the Federal award must contain provisions covering the following, as applicable.

5 2 CFR PART 200 Contracts

Contracts for more than the simplified acquisition threshold currently set at \$250,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Notice: Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does vendor agree?

5 2 CFR PART 200 Termination

Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be effected and the basis for settlement. (All contracts in excess of \$10,000)

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members reserves the right to terminate any agreement in excess of \$10,000 resulting from this procurement process for cause after giving the vendor an appropriate opportunity and up to 30 days, to cure the causal breach of terms and conditions. ESC Region 8 and TIPS Members reserves the right to terminate any agreement in excess of \$10,000 resulting from this procurement process for convenience with 30 days notice in writing to the awarded vendor. The vendor would be compensated for work performed and goods procured as of the termination date if for convenience of the ESC Region 8 and TIPS Members. Any award under this procurement process is not exclusive and the ESC Region 8 and TIPS reserves the right to purchase goods and services from other vendors when it is in the best interest of the ESC Region 8 and TIPS.

Does vendor agree?

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2 CFR PART 200 Clean Air Act

Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of \$250,000 must contain a provision that requires the non-Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

Pursuant to the Clean Air Act, et al above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires that the proposer certify that during the term of an award by the ESC Region 8 and TIPS Members resulting from this procurement process the vendor agrees to comply with all of the above regulations, including all of the terms listed and referenced therein.

Does vendor agree?

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2 CFR PART 200 Byrd Anti-Lobbying Amendment

Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding \$100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires the proposer certify that during the term and during the life of any contract with ESC Region 8 and TIPS Members resulting from this procurement process the vendor certifies to the terms included or referenced herein.

Does vendor agree?

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2 CFR PART 200 Federal Rule

Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subgrants of amounts in excess of \$250,000)

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, ESC Region 8 and TIPS Members requires the proposer certify that in performance of the contracts, subcontracts, and subgrants of amounts in excess of \$250,000, the vendor will be in compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h)), section 508 of the Clean Water Act (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15).

Does vendor certify that it is in compliance with the Clean Air Act?

6 **2 CFR PART 200 Procurement of Recovered Materials**

1

A non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Does vendor certify that it is in compliance with the Solid Waste Disposal Act as described above?

6 **2 CFR PART 200 Rights to Inventions**

2

If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to the above, when the foregoing applies to ESC Region 8 and TIPS Members, Vendor certifies that during the term of an award resulting from this procurement process, Vendor agrees to comply with all applicable requirements as referenced in the Federal rule above.

Does vendor agree?

6 **2 CFR PART 200 Domestic Preferences for Procurements**

3

As appropriate and to the extent consistent with law, the non-Federal entity should, to the greatest extent practicable under a Federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. For purposes of 2 CFR Part 200.322, "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States. Moreover, for purposes of 2 CFR Part 200.322, "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum, plastics and polymer-based products such as polyvinyl chloride pipe, aggregates such as concrete, glass, including optical fiber, and lumber.

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, Vendor certifies that to the greatest extent practicable Vendor will provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products).

Does vendor agree?

6 4 2 CFR PART 200 Ban on Foreign Telecommunications

Federal grant funds may not be used to purchase equipment, services, or systems that use “covered telecommunications” equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. “Covered telecommunications” means purchases from Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities), and video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members, Vendor certifies that Vendor will not purchase equipment, services, or systems that use “covered telecommunications”, as defined by 2 CFR §200.216 equipment or services as a substantial or essential component of any system, or as critical technology as part of any system.

Does vendor agree?

6 5 2 CFR PART 200 Equal Employment Opportunity

Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of “federally assisted construction contract” in 41 CFR Part 60-1.3 must include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, “Equal Employment Opportunity” (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, “Amending Executive Order 11246 Relating to Equal Employment Opportunity,” and implementing regulations at 41 CFR part 60, “Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor.”

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does vendor agree?

6 6 2 CFR PART 200 Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)

[Applicable ONLY to contracts in excess of \$100,000 involving mechanics or laborers.] Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

Pursuant to the above, when federal funds are expended by ESC Region 8 and TIPS Members on qualifying contracts, Vendor certifies that Vendor will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by the District resulting from this procurement process.

Does vendor agree?

67 Certification Regarding Lobbying

Applicable to Grants, Subgrants, Cooperative Agreements, and Contracts Exceeding \$100,000 in Federal Funds

Submission of this certification is a prerequisite for making or entering into this transaction and is imposed by section 1352, Title 31, U.S. Code. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all covered subawards exceeding \$100,000 in Federal funds at all appropriate tiers and that all subrecipients shall certify and disclose accordingly.

68 Lobbying Report Standard Form-LLL, "disclosure Form to Report Lobbying,"

ONLY IF you answered "I HAVE Lobbied per above" to attribute above titled "[Certification Regarding Lobbying](#)", please download and complete and upload the Standard Form-LLL, "disclosure Form to Report Lobbying," in the Response attachments section.

69 Subcontracting with small and minority businesses, women's business enterprises, and labor surplus area firms.

Do you ever anticipate the possibility of subcontracting any of your work under this award if you are successful?

IF NO, DO NOT ANSWER THE NEXT ATTRIBUTE QUESTION. . IF YES, and ONLY IF YES, you must answer the next question YES if you want a TIPS Member to be authorized to spend Federal Grant Funds for Procurement.

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ONLY IF YES TO THE PREVIOUS QUESTION OR if you ever do subcontract any part of your performance under the TIPS Agreement, do you agree to comply with the following federal requirements?

ONLY IF YES TO THE ABOVE QUESTIONS OR if you ever do subcontract any part of your performance under the TIPS Agreement,

do you agree to comply with the following federal requirements?

Federal Regulation 2 CFR §200.321 Contracting with small and minority businesses, women's business enterprises, and labor surplus area firms. (a)The non-Federal entity must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible.

(b) Affirmative steps must include:(1) Placing qualified small and minority businesses and women's business enterprises on solicitation lists;

(2) Assuring that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;

(3) Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

(4) Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises;

(5) Using the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce ; and

(6) Requiring the prime contractor, if subcontracts are to be let, to take the affirmative steps listed in paragraphs(1) through (5) of this section.

No response

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If proposing on PART 2, Davis-Bacon Act compliance.

IF proposing on PART 2, Texas Statute requires compliance with Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of \$2,000 awarded by non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part S, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act {40 U.S.C. 314S), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non-Federal entity must report all suspected or reported violations to the Federal awarding agency.

BY SUBMITTING A PROPOSAL FOR PART 2 OF THIS SOLICITATION, the Vendor agrees, AS REQUIRED BY LAW, to comply with the Davis Bacon Act, IF APPLICABLE and if proposing on PART 2 of this solicitation.

**7
2** **Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708)**

Where applicable, all contracts awarded by the non-Federal entity in excess of \$100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.

By submitting a proposal to PART 2 of this solicitation and IF the customer is utilizing federal funds as described above, the Vendor agrees to comply with the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708).

**7
3** **Indemnification**

The ESC Region 8 and TIPS is a Texas Political Subdivision and a local governmental entity; therefore, is prohibited from indemnifying third parties pursuant to the Texas Constitution (Article 3, Section 52) except as specifically provided by law or as ordered by a court of competent jurisdiction. A provision in a contract to indemnify or hold a party harmless is a promise to pay for any expenses the indemnified party incurs, if a specified event occurs, such as breaching the terms of the contract or negligently performing duties under the contract. Article III, Section 49 of the Texas Constitution states that "no debt shall be created by or on behalf of the State ... " The Attorney General has counseled that a contractually imposed obligation of indemnity creates a "debt" in the constitutional sense. Tex. Att'y Gen. Op. No. MW-475 (1982). Contract clauses which require the System or institutions to indemnify must be deleted or qualified with "to the extent permitted by the Constitution and Laws of the State of Texas." Liquidated damages, attorney's fees, waiver of vendor's liability, and waiver of statutes of limitations clauses should also be deleted or qualified with "to the extent permitted by the Constitution and laws of State of Texas."

Do you agree to these terms?

Yes, I Agree (Yes)

**7
4** **Remedies**

The parties shall be entitled to exercise any right or remedy available to it either at law or in equity, subject to the choice of law, venue and service of process clauses limitations agreed herein. Nothing in this agreement shall commit the TIPS to an arbitration resolution of any disagreement under any circumstances. Any Claim arising out of or related to the Contract, except for those specifically waived under the terms of the Contract, may, after denial of the Board of Directors, be subject to mediation at the request of either party. Any issues not resolved hereunder MAY be referred to non-binding mediation to be conducted by a mutually agreed upon mediator as a prerequisite to the filing of any lawsuit over such issue(s). The parties shall share the mediator's fee and any associated filing fee equally. Mediation shall be held in Camp or Titus County, Texas. Agreements reached in mediation shall be reduced to writing, and will be subject to the approval by the District's Board of Directors, signed by the Parties if approved by the Board of Directors, and, if signed, shall thereafter be enforceable as provided by the laws of the State of Texas.

Do you agree to these terms?

**7
5** **Remedies Explanation of No Answer**

**7
6** **Choice of Law**

The agreement between the Vendor and TIPS/ESC Region 8 and any addenda or other additions resulting from this procurement process, however described, shall be governed by, construed and enforced in accordance with the laws of the State of Texas, regardless of any conflict of laws principles.
THIS DOES NOT APPLY to a vendor's agreement entered into with a TIPS Member, as the Member may be located outside Texas.

Do you agree to these terms?

**7
7** **Venue, Jurisdiction and Service of Process**

Any proceeding, involving Region 8 ESC or TIPS, arising out of or relating to this procurement process or any contract issued by TIPS resulting from or any contemplated transaction shall be brought in a court of competent jurisdiction in Camp County, Texas and each of the parties irrevocably submits to the exclusive jurisdiction of said court in any such proceeding, waives any objection it may now or hereafter have to venue or to convenience of forum, agrees that all claims in respect of the Proceeding shall be heard and determined only in any such court, and agrees not to bring any proceeding arising out of or relating to this procurement process or any contract resulting from or any contemplated transaction in any other court. The parties agree that either or both of them may file a copy of this paragraph with any court as written evidence of the knowing, voluntary and freely bargained for agreement between the parties irrevocably to waive any objections to venue or to convenience of forum. Process in any Proceeding referred to in the first sentence of this Section may be served on any party anywhere in the world. Any dispute resolution process other than litigation shall have venue in Camp County or Titus County Texas.

Do you agree to these terms?

**7
8** **Alternative Dispute Resolution Explanation of No Answer**

**7
9** **Infringement(s)**

The successful vendor will be expected to indemnify and hold harmless the TIPS and its employees, officers, agents, representatives, contractors, assignees and designees from any and all third party claims and judgments involving infringement of patent, copyright, trade secrets, trade or service marks, and any other intellectual or intangible property rights attributed to or claims based on the Vendor's proposal or Vendor's performance of contracts awarded and approved.

Do you agree to these terms?

**8
0** **Infringement(s) Explanation of No Answer**

**8
1** **Acts or Omissions**

The successful vendor will be expected to indemnify and hold harmless the TIPS, its officers, employees, agents, representatives, contractors, assignees and designees from and against any and all liability, actions, claims, demands or suits, and all related costs, attorney's fees and expenses arising out of, or resulting from any acts or omissions of the vendor or its agents, employees, subcontractors, or suppliers in the execution or performance of any agreements ultimately made by TIPS and the vendor.

Do you agree to these terms?

8
2 **Acts or Omissions Explanation of No Answer**

No response

8
3 **Contract Governance**

Any contract made or entered into by the TIPS is subject to and is to be governed by Section 271.151 et seq, Tex Loc Gov't Code. Otherwise, TIPS does not waive its governmental immunities from suit or liability except to the extent expressly waived by other applicable laws in clear and unambiguous language.

Yes, I Agree (Yes)

8
4 **Payment Terms and Funding Out Clause**

Payment Terms:

TIPS or TIPS members shall not be liable for interest or late payment fees on past due balances at a rate higher than permitted by the laws or regulations of the jurisdiction of the TIPS Member.

Funding Out Clause:

Vendor agrees to abide by the laws and regulations, including Texas Local Government Code § 271.903, or any statutory or regulatory limitations of the jurisdiction of any TIPS Member which governs contracts entered into by the Vendor and TIPS or a TIPS Member that requires all contracts approved by TIPS or a TIPS Member are subject to the budgeting and appropriation of currently available funds by the entity or its governing body.

See statute(s) for specifics or consult your legal counsel.

Not a negotiable term. Failure to agree will render your proposal non-responsive and it will not be considered.

Do you agree to these terms?

Yes, I Agree (Yes)

8
5 **Insurance and Fingerprint Requirements Information**

Insurance

If applicable and your staff will be on TIPS member premises for delivery, training or installation etc. and/or with an automobile, you must carry automobile insurance as required by law. You may be asked to provide proof of insurance.

Fingerprint

It is possible that a vendor may be subject to Chapter 22 of the Texas Education Code. The Texas Education Code, Chapter 22, Section 22.0834 & 22.08341. Statutory language may be found at: <http://www.statutes.legis.state.tx.us/>

If the vendor has staff that meet both of these criterion:

- (1) will have continuing duties related to the contracted services; and
- (2) has or will have direct contact with students

Then you have "covered" employees for purposes of completing the attached form.

TIPS recommends all vendors consult their legal counsel for guidance in compliance with this law. If you have questions on how to comply, see below. If you have questions on compliance with this code section, contact the Texas Department of Public Safety Non-Criminal Justice Unit, Access and Dissemination Bureau, FAST-FACT at NCJU@txdps.state.tx.us and you should send an email identifying you as a contractor to a Texas Independent School District or ESC Region 8 and TIPS. Texas DPS phone number is (512) 424-2474.

See form in the next attribute to complete entitled:
Texas Education Code Chapter 22 Contractor Certification for Contractor Employees

Texas Education Code Chapter 22 Contractor Certification for Contractor Employees

Introduction: Texas Education Code Chapter 22 requires entities that contract with school districts to provide services to obtain criminal history record information regarding covered employees. Contractors must certify to the district that they have complied. Covered employees with disqualifying criminal histories are prohibited from serving at a school district.

Definitions: Covered employees: Employees of a contractor or subcontractor who have or will have continuing duties related to the service to be performed at the District and have or will have direct contact with students. The District will be the final arbiter of what constitutes direct contact with students. Disqualifying criminal history: Any conviction or other criminal history information designated by the District, or one of the following offenses, if at the time of the offense, the victim was under 18 or enrolled in a public school:

(a) a felony offense under Title 5, Texas Penal Code; (b) an offense for which a defendant is required to register as a sex offender under Chapter 62, Texas Code of Criminal Procedure; or (c) an equivalent offense under federal law or the laws of another state.

I certify that:

NONE (Section A) of the employees of Contractor and any subcontractors are covered employees, as defined above. If this box is checked, I further certify that Contractor has taken precautions or imposed conditions to ensure that the employees of Contractor and any subcontractor will not become covered employees. Contractor will maintain these precautions or conditions throughout the time the contracted services are provided.

OR

SOME (Section B) or all of the employees of Contractor and any subcontractor are covered employees. If this box is checked, I further certify that:

(1) Contractor has obtained all required criminal history record information regarding its covered employees. None of the covered employees has a disqualifying criminal history.

(2) If Contractor receives information that a covered employee subsequently has a reported criminal history, Contractor will immediately remove the covered employee from contract duties and notify the District in writing within 3 business days.

(3) Upon request, Contractor will provide the District with the name and any other requested information of covered employees so that the District may obtain criminal history record information on the covered employees.

(4) If the District objects to the assignment of a covered employee on the basis of the covered employee's criminal history record information, Contractor agrees to discontinue using that covered employee to provide services at the District.

Noncompliance or misrepresentation regarding this certification may be grounds for contract termination.

None

8 **Texas Business and Commerce Code § 272 Requirements as of 9-1-2017**

7 SB 807 prohibits construction contracts to have provisions requiring the contract to be subject to the laws of another state, to be required to litigate the contract in another state, or to require arbitration in another state. A contract with such provisions is voidable. Under this new statute, a "construction contract" includes contracts, subcontracts, or agreements with (among others) architects, engineers, contractors, construction managers, equipment lessors, or materials suppliers. "Construction contracts" are for the design, construction, alteration, renovation, remodeling, or repair of any building or improvement to real property, or for furnishing materials or equipment for the project. The term also includes moving, demolition, or excavation. BY RESPONDING TO THIS SOLICITATION, AND WHEN APPLICABLE, THE PROPOSER AGREES TO COMPLY WITH THE TEXAS BUSINESS AND COMMERCE CODE § 272 WHEN EXECUTING CONTRACTS WITH TIPS MEMBERS THAT ARE TEXAS GOVERNMENT ENTITIES.

8 **Texas Government Code 2270 Verification Form**

8 Texas Government Code 2270 Verification Form

If (a) Vendor is not a sole proprietorship; (b) Vendor has ten (10) or more full-time employees; and (c) this Agreement has a value of \$100,000 or more, the following certification shall apply; otherwise, this certification is not required. Pursuant to Chapter 2270 of the Texas Government Code, the Vendor hereby certifies and verifies that neither the Vendor, nor any affiliate, subsidiary, or parent company of the Vendor, if any (the "Vendor Companies"), boycotts Israel, and the Vendor agrees that the Vendor and Vendor Companies will not boycott Israel during the term of this Agreement. For purposes of this Agreement, the term "boycott" shall mean and include refusing to deal with, terminating business activities with, or otherwise taking any action that is intended to penalize, inflict economic harm on, or limit commercial relations with Israel, or with a person or entity doing business in Israel or in an Israeli-controlled territory, but does not include an action made for ordinary business purposes.

Our company is not listed on and we do not do business with companies that are on the Texas Comptroller of Public Accounts list of Designated Foreign Terrorists Organizations per Texas Gov't Code 2270.0153 found at <https://comptroller.texas.gov/purchasing/docs/foreign-terrorist.pdf>

I swear and affirm that the above is true and correct.

YES

8 **Logos and other company marks**

9 Please upload your company logo to be added to your individual profile page on the TIPS website. If any particular specifications are required for use of your company logo, please upload that information under the "Logo and Other Company Marks" section under the "Response Attachment" tab. Preferred Logo Format: 300 x 225 px - .png, .eps, .jpeg preferred

Potential uses of company logo:

- * Your Vendor Profile Page of TIPS website
- * Potentially on TIPS website scroll bar for Top Performing Vendors
- * TIPS Quarterly eNewsletter sent to TIPS Members
- * Co-branding Flyers and or email blasts to our TIPS Members (Permission and approval will be obtained before publishing)

9 0	Solicitation Deviation/Compliance Does the vendor agree with the General Conditions Standard Terms and Conditions or Item Specifications listed in this proposal invitation? <input type="text" value="Yes"/>
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9 1	Solicitation Exceptions/Deviations Explanation If the bidder intends to deviate from the General Conditions Standard Terms and Conditions or Item Specifications listed in this proposal invitation, all such deviations must be listed on this attribute, with complete and detailed conditions and information included or attached. TIPS will consider any deviations in its proposal award decisions, and TIPS reserves the right to accept or reject any bid based upon any deviations indicated below or in any attachments or inclusions. In the absence of any deviation entry on this attribute, the proposer assures TIPS of their full compliance with the Standard Terms and Conditions, Item Specifications, and all other information contained in this Solicitation. <input type="text" value="No response"/>
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9 2	Agreement Deviation/Compliance Does the vendor agree with the language in the Vendor Agreement? <input type="text" value="Yes"/>
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9 3	Agreement Exceptions/Deviations Explanation If the proposing Vendor desires to deviate from the Vendor Agreement language, all such deviations must be listed on this attribute, with complete and detailed conditions and information included. TIPS will consider any deviations in its proposal award decisions, and TIPS reserves the right to accept or reject any proposal based upon any deviations indicated below. In the absence of any deviation entry on this attribute, the proposer assures TIPS of their full compliance with the Vendor Agreement. <input type="text" value="No response"/>
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9 4	Long Term Cost Evaluation Criterion on PART 1 EVALUATION ONLY READ CAREFULLY and see in the RFP document under "Proposal Scoring and Evaluation". Points will be assigned to this criterion based on your answer to this Attribute. Points are awarded if you agree not increase your catalog prices (as defined herein) more than X% annually over the previous year for the life of the contract, unless an exigent circumstance exists in the marketplace and the excess price increase which exceeds X% annually is supported by documentation provided by you and your suppliers and shared with TIPS, if requested. If you agree NOT to increase prices more than 5%, except when justified by supporting documentation, you are awarded 10 points; if 6% to 14%, except when justified by supporting documentation, you receive 1 to 9 points incrementally. Price increases 14% or greater, except when justified by supporting documentation, receive 0 points. <input type="text" value="price increases will be < 5% annually per question"/>
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**9
5** **Felony Conviction Notice**

Texas Education Code, Section 44.034, Notification of Criminal History, Subsection (a), states “a person or business entity that enters into a contract with a school district must give advance notice to the district if the person or an owner or operator of the business entity has been convicted of a felony. The notice must include a general description of the conduct resulting in the conviction of a felony.” Subsection (b) states “a school district may terminate a contract with a person or business entity if the district determines that the person or business entity failed to give notice as required by Subsection (a) or misrepresented the conduct resulting in the conviction. The district must compensate the person or business entity for services performed before the termination of the contract.” (c) This section does not apply to a publicly held corporation. The person completing this proposal certifies that they are authorized to provide the answer to this question.

Select A., B. or C.

A. My firm is a publicly held corporation; therefore, this reporting requirement is not applicable.

OR B. My firm is not owned nor operated by anyone who has been convicted of a felony, OR

C. My firm is owned or operated by the following individual(s) who has/have been convicted of a felony. (if you answer C below, you are required to provide information in the next attribute.

**9
6** **If you answered C. My Firm is owned or operated by a felon to the previous question, you are REQUIRED TO ANSWER THE FOLLOWING QUESTIONS.**

If you answered C. My Firm is owned or operated by a felon to the previous question, you must provide the following information.

1. Name of Felon(s)
2. The named person's role in the firm, and
3. Details of Conviction(s).

**9
7** **Required Confidentiality Claim Form**

Required Confidentiality Claim Form

This form is required by TIPS. By submitting a response to this solicitation you agree to download from the “Attachments” section, complete according to the instructions on the form, then uploading the completed form, with any confidential attachments, if applicable, to the “Response Attachments” section titled “Confidentiality Form” in order to provide to TIPS the completed form titled, “CONFIDENTIALITY CLAIM FORM”. By completing this process, you provide us with the information we require to comply with the open record laws of the State of Texas as they may apply to your proposal submission. If you do not provide the form with your proposal, an award will not be made if your proposal is qualified for award, until TIPS has an accurate, completed form from you.

Read the form carefully before completing and if you have any questions, email Rick Powell at TIPS at

rick.powell@tips-usa.com

**9
8** **Choice of Law clauses for TIPS Members**

If the vendor is awarded a contract with TIPS under this solicitation, the vendor agrees to make any Choice of Law clauses in any contract or agreement entered into between the awarded vendor and with a TIPS member entity to read as follows: "Choice of law shall be the laws of the state where the customer resides" or words to that effect.

**9
9** **Venue of dispute resolution with a TIPS Member**

In the event of litigation or use of any dispute resolution model when resolving disputes with a TIPS member entity as a result of a transaction between the vendor and TIPS or the TIPS member entity, the Venue for any litigation or other agreed upon model shall be in the state and county where the customer resides unless otherwise agreed by the parties at the time the dispute resolution model is decided by the parties.

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Indemnity Limitation with TIPS Members

Texas and other states restrict by law or state Constitution the ability of a governmental entity to indemnify others. TIPS requires that any contract entered into between a vendor and TIPS or a TIPS Member as a result of an award under this Solicitation limit the requirement that the Customer indemnify the Vendor by either eliminating any such indemnity requirement clauses in any agreements, contracts or other binding documents **OR** by prefacing all indemnity clauses required of TIPS or the TIPS Member entity with the following: "To the extent permitted by the laws or the Constitution of the state where the customer resides, ".

Agreement is a required condition to award of a contract resulting from this Solicitation.

Agreed

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Arbitration Clauses

Except for certain circumstances, TIPS forbids a mandatory arbitration clause in any contract or agreement entered into between the awarded vendor with TIPS or a TIPS member entity. Does the vendor agree to exclude any arbitration requirement in any contracts or agreement entered into between TIPS or a TIPS member entity through an awarded contract with TIPS?

Agreement is a required condition to award of a contract resulting from this Solicitation.

Agreed

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2

Upload of Current W-9 Required

Please note that you are required by TIPS to upload a current W-9 Internal Revenue Service (IRS) Tax Form for your entity. This form will be utilized by TIPS to properly identify your entity. Additionally, if not designated "Confidential" in your proposal response, this W-9 may be accessed by TIPS Members for the purpose of making TIPS purchases from you in the event that you are awarded. If you wish to designate your required W-9 confidential, please do so according to the terms of the Confidentiality Claim Form which is an attachment to this solicitation.

CERTIFICATION BY CORPORATE OFFERER

COMPLETE ONLY IF OFFERER IS A CORPORATION,
THE FOLLOWING CERTIFICATE SHOULD BE EXECUTED AND INCLUDED AS PART OF
PROPOSAL FORM/PROPOSAL FORM.

OFFERER: VSC Fire and Security, Inc.
(Name of Corporation)

Kevin Bunting certify that I am the Secretary of the Corporation
I, (Name of Corporate Secretary)

named as OFFERER herein above; that

Rob Evatt
(Name of person who completed proposal document)

who signed the foregoing proposal on behalf of the corporation offerer is the authorized person that is acting as

VP/Division Manager
(Title/Position of person signing proposal/offer document within the corporation)

of the said Corporation; that said proposal/offer was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

CORPORATE SEAL if available

[Signature]
SIGNATURE

3/1/21
DATE

Required Confidential Information Status Form

VSC Fire & Security

Name of company

Rob Evatt - VP/Division Manager

Printed Name and Title of authorized company officer declaring below the confidential status of material

185 Arena Road Cabot AR 72023 501519-3423

Address City State ZIP Phone

ALL VENDORS MUST COMPLETE THE ABOVE SECTION

CONFIDENTIAL INFORMATION SUBMITTED IN RESPONSE TO COMPETITIVE PROCUREMENT REQUESTS OF EDUCATION SERVICE CENTER REGION 8 AND TIPS (ESC8) IS GOVERNED BY TEXAS GOVERNMENT CODE, CHAPTER 552

If you consider any portion of your proposal to be confidential information and not subject to public disclosure pursuant to Chapter 552 Texas Gov't Code or other law(s), you **must attach a copy of all claimed confidential materials within your proposal and put this COMPLETED form as a cover sheet to said materials then scan, name "CONFIDENTIAL" and upload with your proposal submission.** (You must include all the confidential information in the submitted proposal. The copy uploaded is to indicate which material in your proposal, if any, you deem confidential in the event the receives a Public Information Request.) ESC8 and TIPS will follow procedures of controlling statute(s) regarding any claim of confidentiality and shall not be liable for any release of information required by law. Upon your claim and your defense to the Office of Texas Attorney General is required to make the final determination whether the information submitted by you and held by ESC8 and TIPS is confidential and exempt from public disclosure.

ALL VENDORS MUST COMPLETE ONE OF THE TWO OPTIONS BELOW.

OPTION 1:

I DO CLAIM parts of my proposal to be confidential and **DO NOT** desire to expressly waive a claim of confidentiality of all information contained within our response to the solicitation. The attached contains material from our proposal that I classify and deem confidential under Texas Gov't Code Sec. 552 or other law(s) and I invoke my statutory rights to confidential treatment of the enclosed materials.

IF CLAIMING PARTS OF YOUR PROPOSAL CONFIDENTIAL, YOU MUST ATTACH THE SHEETS TO THIS FORM AND LIST THE NUMBER OT TOTAL PAGES THAT ARE CONFIDENTIAL.

ATTACHED ARE COPIES OF _____ PAGES OF CLAIMED CONFIDENTIAL MATERIAL FROM OUR PROPOSAL THAT WE DEEM TO BE NOT PUBLIC INFORMATION AND WILL DEFEND THAT CLAIM TO THE TEXAS ATTORNEY GENERAL IF REQUESTED WHEN A PUBLIC INFORMATION REQUEST IS MADE FOR OUR PROPOSAL.

Signature _____ Date _____

OR

OPTION 2:

I DO NOT CLAIM any of my proposal to be confidential, complete the section below.

Express Waiver: I desire to expressly waive any claim of confidentiality as to any and all information contained within our response to the competitive procurement process (e.g. RFP, CSP, Bid, RFQ, etc.) by completing the following and submitting this sheet with our response to Education Service Center Region 8 and TIPS.

Signature Robert T. Evatt Jr Digitally signed by Robert T. Evatt Jr Date: 2021.06.16 14:05:33 -05'00' _____ Date _____

CERTIFICATE OF ACHIEVEMENT

This certifies that

Rob Evatt
VSC Fire & Security

has successfully completed

SP3802 - Certifying and Troubleshooting Premises Cabling Systems ACT II


James Donovan
Approval

BICSI Recognized Continuing Education Credits (CECs)
3 Event ID: OV-COMM-OC-0720-3

19th May 2021
Date Issued

This certificate shall expire three (3) years from the date above

BJ826743US201ES0
Certificate

This certificate is a record of training completed and is provided for information purposes only. The certificate shall not be construed to create, indicate, infer or imply any status, partnership, membership of the CommScope PartnerPRO Program or any other relationship between CommScope and the above named company. Furthermore, the above named company does not have any right, power or authority to represent, act, or create any obligations, express or implied, on behalf of or for CommScope. For more details on CommScope's PartnerPRO program please visit www.commscope.com/PartnerPRO.

CERTIFICATE OF ACHIEVEMENT

This certifies that

Rob Evatt
VSC Fire & Security

has successfully completed

SP3801R - Installation Recertification Training ACT I


James Donovan
Approval

BICSI Recognized Continuing Education Credits (CECs)
2 Event ID: OV-COMM-OC-0720-4

18th May 2021
Date Issued

This certificate shall expire three (3) years from the date above

BJ826570US201ES6
Certificate

This certificate is a record of training completed and is provided for information purposes only. The certificate shall not be construed to create, indicate, infer or imply any status, partnership, membership of the CommScope PartnerPRO Program or any other relationship between CommScope and the above named company. Furthermore, the above named company does not have any right, power or authority to represent, act, or create any obligations, express or implied, on behalf of or for CommScope. For more details on CommScope's PartnerPRO program please visit www.commscope.com/PartnerPRO.

CERTIFICATE OF ACHIEVEMENT

This certifies that

Rob Evatt
VSC Fire & Security

has successfully completed

SP3000 - Structured Cabling Infrastructure Design ACT III

27th May 2021
Date Issued

BJ828002US201E54
Certificate


James Donovan
Approval

BJCSI Recognized Continuing Education Credits (CECs)
9 Event ID: OV-COMMS-IL0818-1

This certificate shall expire three (3) years from the date above

This certificate is a record of training completed and is provided for information purposes only. The certificate shall not be construed to create, indicate, infer or imply any status, partnership, membership of the CommScope PartnerPRO Program or any other relationship between CommScope and the above named company. Furthermore, the above named company does not have any right, power or authority to represent, act, or create any obligations, express or implied, on behalf of or for CommScope. For more details on CommScope's PartnerPro program please visit www.commscope.com/PartnerPRO.

Utility Grade
INFRASTRUCTURE™
by Anixter

ANIXTER

Anixter's UTG-Certified Integrator Program Certificate of Completion

is presented to

Rob Evatt

VSC Fire

for successfully completing coursework and earning
the designation of UTG-Certified Integrator.

UTG-Certified Integrators are Anixter partners who are committed to offering best-in-class, innovative and future-ready solutions in order to maximize end-user technology lifecycles and return on investment.



Andy Chacon, Vice President of Marketing

August 6th, 2020

Date

CERTIFICATE OF COMPLETION

This is to certify that

Rob Evatt

has completed

UTG - Certified Integrator Training
Course I: Intersection of Convergence

Completion date

February 25, 2020



Utility Grade
INFRASTRUCTURE™

by Anixter

ANIXTER

CERTIFICATE OF COMPLETION

This is to certify that

Rob Evatt

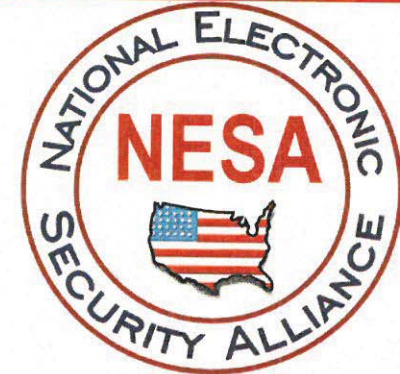
has completed

**UTG - Certified Integrator Training
Course II: Building the 4th Utility**

Completion date

February 25, 2020





This certifies that

Rob Evatt

has met the training requirements for

Electronics

certification by the

Arkansas Security Alarm Association

A handwritten signature in black ink, appearing to be "R. Evatt", is written over a horizontal line.

Signature

2/26/2008

Date



FIRE-SECURITY

- SPRINKLER SYSTEMS
- FIRE ALARM SYSTEMS
- BACKFLOW PREVENTION
- CLEAN AGENT SUPPRESSION
- FIBER FUSION AND TERMINATION
- BI-DIRECTIONAL AMPLIFICATION
- HAND HELD FIRE EXTINGUISHER
- KITCHEN HOOD SUPPRESSION
- INTERCOM / PUBLIC ADDRESS
- STRUCTURED CABLING
- VIDEO SURVEILLANCE
- INTRUSION SYSTEMS
- POE LED LIGHTING
- ACCESS CONTROL
- PHONE SYSTEMS
- SOUND SYSTEMS
- NURSE CALL

VIDEO VERIFICATION

CLOUD BASED ACCESS CONTROL

MONITORING, TESTING & INSPECTIONS

WWW.VSCFIRE.COM



YOUR WORLD. PROTECTED.





Cabot, AR: 501-843-9392
 Rogers, AR 479-986-9090
 Jonesboro, AR: 870-203-9880
 Texarkana, TX 430-200-4715

VSC Fire And Security is an all encompassing company when it comes to your buildings' fire protection, detection, communications and security needs. From sprinkler systems, fire alarm and data cabling to card access, cameras, intercom or other low voltage solutions, we have the ability to design, install, monitor and maintain your systems. VSC has over 30 years of experience in protecting your company's assets. With three locations in Arkansas and one in Texas, VSC provides fast, reliable and quality service.

FIRE SPRINKLER • FIRE ALARM • CHEMICAL SUPPRESSION

Our name says it first and foremost. We are Arkansas' leader in sprinkler systems, fire alarm, fire suppression and security



STRUCTURED CABLING

In todays ever-changing technology based world, it is essential to have a business partner that can guide you through the needs of your network cabling. Data, cameras, wireless or DAS we are here to help with your cabling needs.



We have partnered with the best names in CCTV and Card Access Control



VSC is one of the states leaders in low voltage installation. Systems such as burglar alarm, intercom, area of rescue and nurse call help to round out our offerings to suit your needs.



Our service continues well past the installation. We can maintain your systems will our wide array of services



TRAINING, CERTIFICATIONS AND ASSOCIATIONS

At VSC we believe in on-going training and education for our employees. On staff we have NICET Technicians in Fire Alarm, Sprinkler, Testing and Suppression. We also employ an RCDD and BICSI certified technicians. We are proud members of many organizations such as BICSI, NFPA and ABC



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EDUCATION

The education market is one of the most diverse markets VSC lends itself to. To be used as a building system or as a learning tool for the students, there are a variety of technology based applications to be found in Pre-K, K-12, Universities and Trade Schools. Below is a sample of what VSC offers for your location.

- FIRE ALARM
- STRUCTURED CABLING
- FIBER OPTICS
- VIDEO SURVEILLIANCE
- ACCESS CONTROL
- INTERCOM
- INTRUSION DETECTION
- WIRELESS NETWORK
- PHONE SYSTEMS

With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.

Honeywell



MOHAWK
Cabling Excellence for Open Architecture



comCables

Panasonic



BOGEN
Public Address • Educational Communication Systems • Background & Foreground Music Systems

ADEMCO
A Honeywell Company



Honeywell

THE POWER OF CONNECTED

Farenhyt™ Series

BELDEN
SENDING ALL THE RIGHT SIGNALS®

COMMSCOPE®

Uniprise

exacq®
Technologies

AVIGILON
THE BEST EVIDENCE™

Honeywell
Integrated Security
Silver Certified Integrator



VALCOM

DSC®

NEC
Empowered by Innovation

NICET Certified design staff and technicians, along with manufacturer training ensures a quality installation.

We are also TIPS TAPS Partners and members of ASPMA!!!



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RETAIL

Security and shrinkage are major concerns in the retail market. VSC has partnered with some of the industry leading manufacturers of cameras, asset tracking, and intrusion detection to help you have piece of mind with your products, employees, and customers. These systems can be stand alone or interconnected to offer an even higher level of security.

- INTRUSION DETECTION
- VIDEO SURVEILLANCE
- ACCESS CONTROL
- DOOR ENTRY INTERCOM
- PHONE SYSTEMS
- VIDEO MONITORING
- OVERHEAD MUSIC
- FIRE ALARM



With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.

Licensed & Certified design staff and technicians, along with manufacturer training ensures a quality installation. Contact us today to learn more about these products and how we can help you protect your assets and supply technology needs



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HEALTHCARE

Low voltage systems in the Healthcare market are used by not only the employees, but also the patients and visitors at the locations. Items such as CCTV and Access control monitor the security of the location, and Nurse Call and Patient Stations are direct interfaces between the staff and patients. Cabling installation and HIPPA required Sound Masking are also items provided by VSC

- FIRE ALARM
- NURSE CALL
- VIDEO SURVEILLANCE
- ACCESS CONTROL
- STRUCTURED CABLING
- CHEMICAL SUPPRESSION
- SOUND MASKING

With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.



At VSC we believe in certification and continuing education for our design and install team. With critical systems and infrastructure, use a team that you can count on. Contact us today to learn more about these products and how we can help you protect your assets and supply technology needs



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INDUSTRIAL

Life Safety is an extreme concern in industrial situations. You need to feel secure that your facility is not only being protected, but that your employees, contractors and visitors are notified of emergency situations. Proactive security such as CCTV and Access Control aid in maintaining a safe and security location. Let VSC help you design and maintain safety for your location.

- FIRE ALARM
- MASS NOTIFICATION
- CHEMICAL SUPPRESSION
- VIDEO SURVEILLIANCE
- ACCESS CONTROL
- STRUCTURED CABLING
- FIBER OPTICS
- PUBLIC ADDRESS



Technologies



With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.

Correct design and installation starts with proper certification and licensing. VSC fully understands those areas of concern for your location. Use our expertise to your advantage. Contact us today to learn more about these products and how we can help protect your assets and supply technology needs



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GENERAL CONSTRUCTION

As a General Contractor or Electrical Contractor, you need a Low Voltage Partner you can count on. VSC has partnered with manufactures of many different types of systems found in new construction and remodels. We are staffed to handle both small and large scale projects. Our team of NICET and Manufacturer Certified design and installation staff will help you with competitive pricing, project management and a professional installation.

- FIRE ALARM
- STRUCTURED CABLING
- VIDEO SURVELLIANCE
- ACCESS CONTROL
- INTERCOM
- AREA OF REFUGE
- AUDIO / VIDEO
- CHEMICAL SUPPRESSION

With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.



Certifications, Experience, Staff, Knowledge and Product Options are just a few of the reasons to choose VSC as your construction partner. Contact us today to learn more about these products and how we can help you protect your assets and supply technology needs



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ASSEMBLY AREAS

Any area that assembles a large group of people has to have special consideration with low voltage systems. Religious buildings, auditoriums, concert halls, amusement parks and other places of large gatherings employ many low voltage systems and interconnections of those systems. VSC can manage the layout of the systems for code compliance and ease of operation.

- FIRE ALARM
- MASS NOTIFICATION
- VIDEO SURVEILLIANCE
- ACCESS CONTROL
- STRUCTURED CABLING
- FIBER OPTICS
- PUBLIC ADDRESS
- AUDIO / VIDEO



With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.

NICET, BICSI and manufacturer certifications along with TIPS TAPS purchasing make VSC the company you can partner with to deliver safety, security and technology for your venue. Contact us today to learn more about these products and how we can help you protect your assets and supply technology needs



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FACTORY / MANUFACTURING

Systems installed by VSC can help to minimize downtime, increase security and protect your assets. Interconnection lends itself to an automation of your low voltage systems that work together to save you money. Talk to us about ways to not only keep your workplace safe, but also find ways to increase productivity.

- FIRE ALARM
- VIDEO SURVEILLIANCE
- ACCESS CONTROL
- STRUCTURED CABLING
- FIBER OPTICS
- PUBLIC ADDRESS
- CHEMICAL SUPPRESSION

With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.



We have the ability and the experience to bring low voltage systems to you that you can count on. NICET certified designers, and manufacturer certified technicians are a winning combination for you. Contact us today to learn more about these products and how we can help you protect your assets and supply



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HOTEL / DORMATORY

Residential long stay locations can have varied levels of low voltage system available to them. Some are mandatory to meet local codes, some are for the security of the residents and some increase the enjoyment of the resident experience. VSC offers multiple types of technology to meet the required needs of your location

- FIRE ALARM
- DOOR ENTRY SYSTEMS
- VIDEO SURVEILLIANCE
- ACCESS CONTROL
- STRUCTURED CABLING
- PHONE SYSTEMS
- AUDIO / VIDEO
- FIBER OPTICS
- PUBLIC ADDRESS

With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.



Contact us today to see how our trained staff can assist you. Certified designers and installation teams assure you of a finished product that meets your needs, keeps your tenants safe, and helps to maintain a pleasant atmosphere. Contact us today to learn more about these products and how we can help you



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DATA CENTER / I.T. ROOM

Data Center and I.T. rooms require a level of expertise to not only design and install the correct systems, but also have them integrate together. Many of our systems offer redundancy, fast response and certified installation that guarantee the success of your communication and the safety of the data and people in your building.

- STRUCTURED CABLING
- FIBER OPTICS
- FIRE ALARM
- CHEMICAL SUPPRESSION
- ACCESS CONTROL
- VIDEO SURVEILLANCE
- SOUND MASKING
- DOOR ENTRY



THE POWER OF CONNECTED
 Farenhyt™ Series



With all our products we offer full design and engineering services. We can also help with post installation, with services such as Monitoring, Preventative Maintenance, and Annual Inspection.

VSC is qualified to help you with your needs. On staff we have an RCDD, NICET Design, and installation staff for both Fire Alarm and Fire Suppression. Rest assured you are getting a quality partner with VSC. Contact us today to learn more about these products and how we can help you protect your assets and



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Panduit **Products**



Panduit AV In-Wall Box – Small

CMBBSWH

Ideal for installing active equipment and managing cables behind a flat panel display or projection screen. Small version offers equipment mounting area of 7.25" x 14".



Panduit AV In-Wall Box – Large

CMBBLWH

Ideal for installing active equipment and managing cables behind a flat panel display or projection screen. Large version offers equipment mounting area of 14" x 14".



Panduit TX6A™ 10Gig UTP Patch Cable

UTP6A Series

Category 6A UTP patch cables that include patented MaTriX technology to suppress alien crosstalk for cost effective transmission of AV over IP, HDBaseT, and network data.



Panduit TX6A™ 10Gig Shielded Patch Cable

STP6X Series

Shielded twisted pair cables that offer high performance and excellent EMI suppression for reliable transmission of AV over IP, HDBaseT, and network data.



Panduit Mini-Com® HDMI and USB Coupler Modules

CMHDMI • CMUSBAA

HDMI and USB couplers that allow Panduit Mini-Com® table box frames to be customized to suit connectivity requirements.



Panduit NetKey® HDMI and USB Coupler Modules

NKHDMI • NKUSBAA

HDMI and USB couplers that allow Panduit NetKey® table box frames to be customized to suit connectivity requirements.



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**Utility Grade
INFRASTRUCTURESM**
by Anixter

ANIXTER



UTG TECHNICAL APPLICATION GUIDE

Build. Connect. Power. Protect. Services. Worldwide.



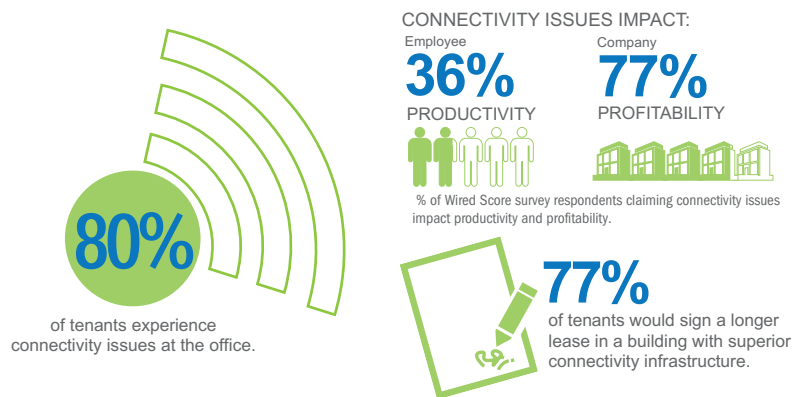
This Application Guide will provide you with a better understanding of why utility grade infrastructure is required to facilitate digital transformation for today's leading organizations. It will also detail unique aspects of Anixter's Utility Grade INFRASTRUCTURESM (UTG) program, including how it is superior to existing solutions, testing and performance attributes, UTG innovation partners and the UTG certified integrator program.

For more information on Utility Grade INFRASTRUCTURESM by Anixter, please contact your local Anixter representative or visit anixter.com/UTG.

THE NEED FOR UTILITY GRADE

There's a revolution happening all around us. Building technology is rapidly evolving to meet productivity and efficiency demands of building owners, managers and tenants alike. Essential to keeping up with this rate of technology change is a future-ready infrastructure layer that supports seamless connectivity, building automation and control, as well as the convergence of information technology (IT) and operational technology (OT) applications across a common platform.

The question is... HOW WILL YOUR BUILDING INFRASTRUCTURE EVOLVE?



- Wired Score, The Value of Connectivity

ENABLING DIGITAL TRANSFORMATION

Estimates say the number of buildings worldwide is going to double by 2060¹, and combined with the number of connected devices growing to 75 billion in the next six years², these spaces are transforming to keep up with our reliance on technology for business and personal use.

All of these devices require network connectivity, which helps facilitate convergence and digital transformation that allows organizations to operate with speed, agility and interoperability across multiple systems.

Building on the trend of convergence over the past few decades with voice and data and video surveillance migrating to a common network, we are now at an intersection where more building subsystems and endpoint devices will become network enabled.

This has the potential to put an enormous strain on the network, not to mention overwhelm an IT department's management of disparate building subsystems, especially given traditionally fragmented ways of operating. We have reached a tipping point where we must look for more cost-effective models that will support future applications and can be managed over a common building platform.

A reliable and resilient network allows an organization to meet their goals, whether that is attracting premium tenants and employees, simplifying the management of multiple building systems or enhancing collaboration and workforce productivity.

BUILDING THE 4TH UTILITY

With all of these competing demands, more and more we are seeing the adoption of a 4th utility approach to information.

Building owners and managers have gone from only supplying electricity, gas and water to workplaces, to planning for telecommunications infrastructure that can support advanced technology.

Cabling infrastructure can often be value engineered to reduce costs, but this approach won't support the evolution of building technology and provide the performance and reliability expected in a utility.

UNDERSTANDING STAKEHOLDER GOALS

Critical to making the right selection for your building infrastructure is an understanding of key drivers of stakeholders within a facility.

DEVELOPERS AND BUILDING OWNERS

- Address higher tenant expectations
- Attract long-term, premium tenants
- Provide superior connectivity infrastructure
- Extend building system life cycle



END USERS AND TENANTS

- Provide seamless connectivity for visitors and staff
- Attract and retain talent
- Enhance workforce productivity and space utilization
- Access real-time data for automation and control
- Protect against cyber threats



ARCHITECTS, CONSULTANTS AND ENGINEERS

- Design for accelerated rate of technology change
- Offer future-ready solutions for industry-leading companies
- Provide definitive, beyond-standards tested solutions
- Simplify specification and design process



INSTALLERS AND INTEGRATORS

- Install, test and certify future-ready solutions
- Meet accelerated construction schedules
- Reduce unproductive labor at jobsite
- Simplify convergence of systems
- Solution proficiency from design to install



97%

of organizations are currently planning digital transformation initiatives.

- MuleSoft, 2019 Connectivity Benchmark Report

¹ Organization for Economic Co-Operation and Development

² IHS, IoT Platforms: Enabling the Internet of Things

Utility Grade INFRASTRUCTURESM is a new technology platform, assurance program and design approach that redefines the infrastructure layer to support building subsystems, technologies and applications.

Developed alongside leading manufacturers, and third-party tested and verified by UL, the UTG program offers UTG-rated cabling solutions built to support your building's specific application, performance and life cycle needs.



UTG TECHNOLOGY STACK

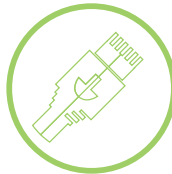
As part of the Utility Grade INFRASTRUCTURE Platform, the UTG Technology Stack identifies the foundational elements of a common building platform that support the convergence of various IT and OT building subsystems.

Every network-enabled device requires connectivity, power and security. UTG provides a specable, interoperable and future-ready solution, addressing these elements across all building systems.

Foundational elements of UTG include:

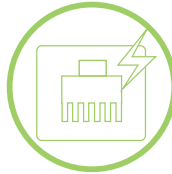
UTILITY-READY STRUCTURED CABLING

Core to the UTG program is offering new UTG-rated cabling solutions from world-class manufacturers.



ADVANCED POWER DELIVERY

UTG will address advanced power delivery through definitive testing of UTG-rated cabling solutions. These UL-verified solutions will include design recommendations and increased bundling sizes to support more PoE applications.



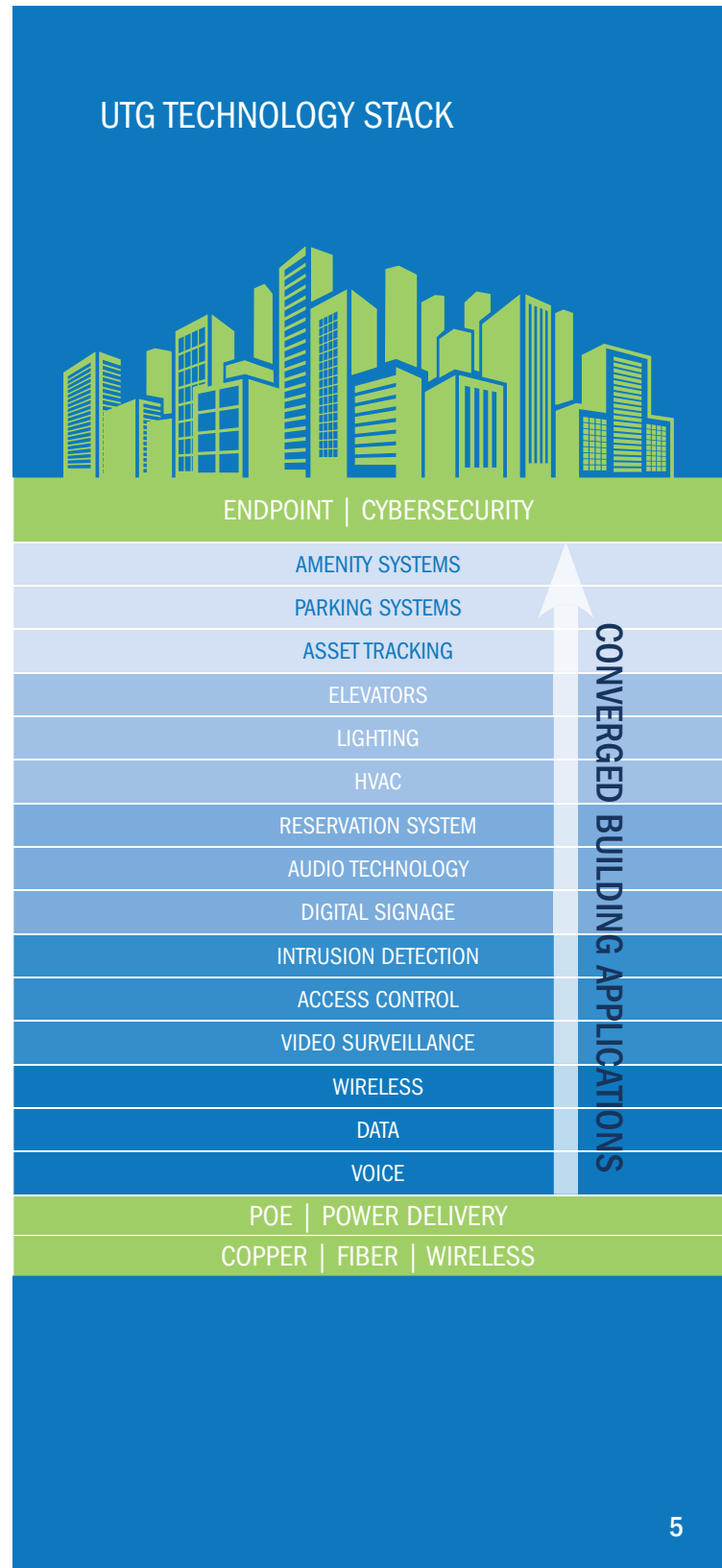
ENHANCED CYBERSECURITY

As more devices come onto the network, the potential for cyber threats needs to be accounted for. Future phases of the UTG program will offer best practices and solutions that provide enhanced cyber protection for converged building applications.



PHASES OF UTG

Phase I of the Utility Grade INFRASTRUCTURE program will launch with UTG-rated cabling solutions, while Phase II will add technologies that support applications in the UTG Technology Stack.



UTG FRAMEWORK AND RATINGS

The UTG program includes a framework that defines the Technology Layer, Test Specification and UTG Levels Ratings. The next few pages of this guide dive deeper into testing and relevant application tables, but it's important to understand how UTG Ratings work.

As part of a common platform, every technology family or layer will have a unique identifier, such as:

UTG[C4P] stands for:

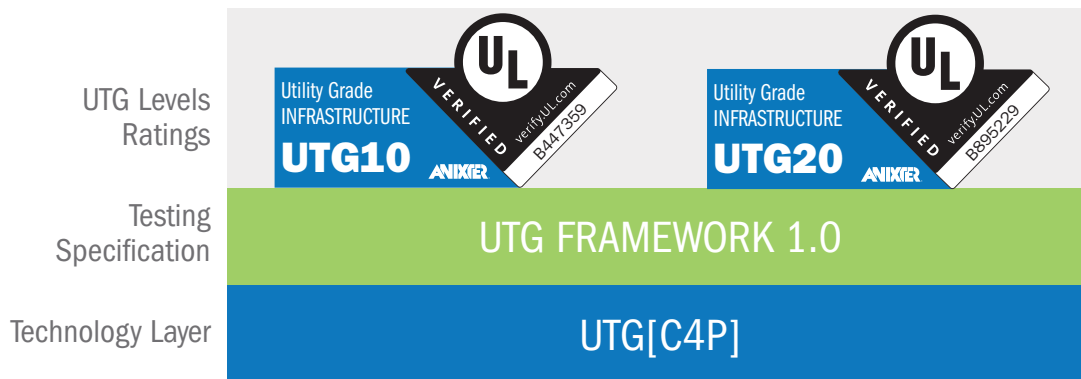
- UTG: Utility Grade INFRASTRUCTURE
- C: Copper
- 4p: 4 pair

The first release will start with a 4-pair copper solution, made up of a full UTG-rated Channel, including cable, patch panels, connectivity and patch cords. This will be independently tested to a beyond-standards specification by UL, which forms the basis of the UTG Framework 1.0.

Each technology as part of Utility Grade INFRASTRUCTURE will offer a potential of three UTG-rated solutions depending on your specific application, performance and life cycle needs.

- UTG10
- UTG20
- UTG30 (future)

Be sure to review the application and attribute table on page 8 for more on the capabilities of each UTG-rated solution.



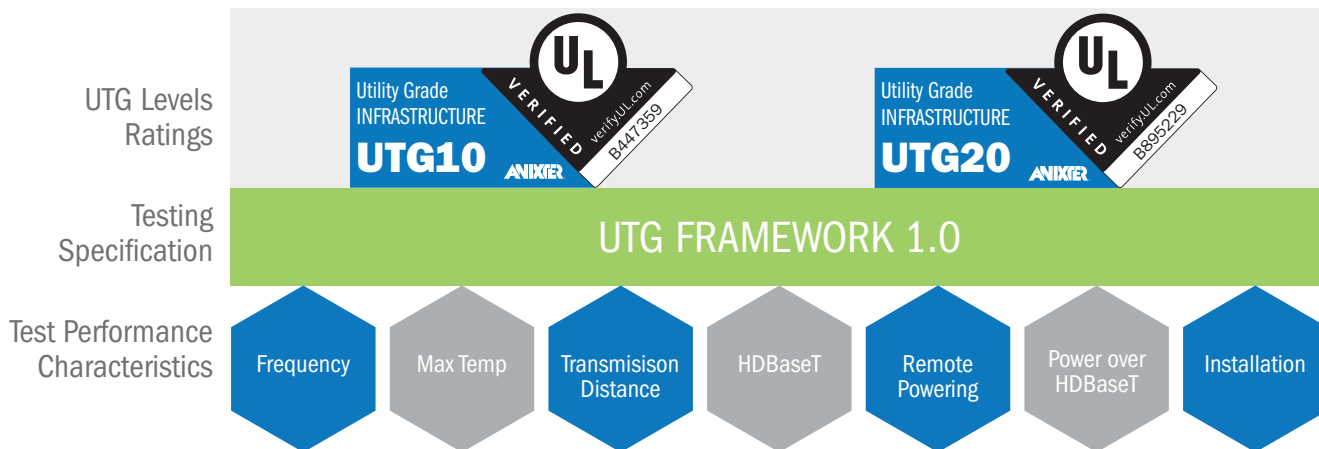
UTG FRAMEWORK AND TESTING

The UTG Test Framework has been developed by industry experts to characterize the attributes and construction for a future-ready, utility grade solution that will provide short-term and long-term benefits. UTG has been designed as the common infrastructure for the built environment by utilizing real-life definitive application testing as well as industry-first, UTG-exclusive testing protocols.

UTG ratings include a number of performance characteristics, such as:

- Higher frequency measurement
- Elevated maximum temperature, including jacket and operating temperature
- Extended transmission distances
- Full channel HDBaseT and Power over HDBaseT (PoH)
- Superior cable bundle performance under load (remote powering)
- HD and 4K UHD video
- Flexibility for installation

Each UTG rating will provide verified applications assurance and simplifies the specification and design process as a common building platform.



THE UTG DIFFERENCE

Although UTG cabling is 4-pair unshielded twisted pair and meets and exceeds all category standards, the manufacturers have developed cabling to meet the higher test specification of the UTG framework.

Based on the UTG Framework performance characteristics on the previous page, this comparison chart summarizes how the UTG10 and UTG20 solutions exceed the performance of standard category cabling.

ATTRIBUTES AND APPLICATIONS			
	OPTIMIZING OPERATIONAL TECHNOLOGY PERFORMANCE	OPTIMIZING HIGH-PERFORMANCE APPLICATIONS	
STANDARDS AND VERIFICATION			
Industry standards	Exceeds ANSI/TIA + UL Verified	Exceeds ANSI/TIA + UL Verified	DELIVERS BEYOND STANDARDS AND UL VERIFIED PERFORMANCE
Test method	UTG Bear Attack (BERetAC)	UTG Bear Attack (BERetAC)	
TRANSMISSION DISTANCE			
Maximum horizontal distance @ 10Mbps	185m	185m	SUPPORTS EXTENDED TRANSMISSION DISTANCES (Potential Savings on Square Footage and Construction Costs)
Maximum horizontal distance @ 100Mbps	150m	150m	
Maximum horizontal distance @ 1Gbps	Up to at least 100m	Up to at least 100m	
Maximum horizontal distance @ 10Gbps	37-50m	100m	
BANDWIDTH + SPEED			
Maximum data transmission speed	10Gbps @ 37-50m	10Gbps @ 100m	DELIVERS HIGHER BANDWIDTH CAPABILITIES
Maximum bandwidth	425 MHz	500-625 MHz	
APPLICATIONS			
Video Surveillance			
1080p HD	150m	150m	SUPPORTS HIGHER FRAMES PER SECOND (FPS) AND LOWER COMPRESSION
4K UHD	150m	150m	
PoE			
Type I - 15.4W	Up to at least 150m	Up to at least 150m	INCREASES DISTANCES AND BUNDLING SIZES FOR MORE POE APPLICATIONS
Type II - 30W	Up to at least 150m	Up to at least 150m	
Type III - 60W	Up to at least 100m	Up to at least 100m	
Type IV - 100W	Up to at least 100m	Up to at least 100m	
Max Bundle Size (0.5 Amps) @ 45C ambient	90 cables	150 cables	
HDBaseT			
1080p HD	100m	100m	SUPPORTS 4K UHD STREAMING AT EXTENDED DISTANCES
4K UHD	100m	100m	
PoH	100m	100m	
Wireless			
Wi-Fi (IEEE 802.11ac)	10Gbps @ 37-50m	10Gbps @ 100m	SUPPORTS NEXT-GENERATION WI-FI TECHNOLOGY
Wi-Fi (IEEE 802.11ax)	10Gbps @ 37-50m	10Gbps @ 100m	
MECHANICAL			
Installation flexibility	Flex Force Level 1,2,3	Flex Force Level 1,2,3	SIMPLIFIES INSTALLATION FOR INTEGRATORS

Figures above are based on verified independent testing from UL. Actual performance may vary based on a number of factors.

For final parameters for the extended applications assurance warranty (page 13), please consult manufacturer specifications on UTG-rated solutions.

APPLICATION AND ATTRIBUTE TABLES

UTG solutions are developed and tested to eliminate guesswork out of media selection. This will allow you to utilize a 4th utility approach, providing greater performance and reliability beyond industry standards, while also extending your infrastructure to better align with building system life cycles.

BEYOND STANDARDS | UL VERIFIED

Standards and Verification

	UTG10	UTG20
Industry standards	Exceeds ANSI/TIA + UL Verified	Exceeds ANSI/TIA + UL Verified
Test method	UTG Bear Attack (BERetAC)	UTG Bear Attack (BERetAC)

Beginning with baseline TIA infrastructure standards, UTG exceeds these attributes through definitive UL testing. Anixter and UL developed an industry-first UTG Bear Attack (BERetAC) Test MethodSM, which combines bit error rate(BER), elevated temperature(et) and alien crosstalk(AC), while simultaneously delivering data, video and power over an unshielded twisted-pair (UTP) cabling system.

The UTG Bear Attack Test Method is particularly important to ensure optimal support of high-performance applications, typically addressed with UTG20 rated solutions.

SUPPORTS EXTENDED TRANSMISSION DISTANCES

Transmission Distance

	UTG10	UTG20
Maximum horizontal distance @ 10Mbps	185m	185m
Maximum horizontal distance @ 100Mbps	150m	150m
Maximum horizontal distance @ 1Gbps	Up to at least 100m	Up to at least 100m
Maximum horizontal distance @ 10Gbps	37-50m	100m

With increased convergence of IT and OT applications, it is essential to support low and high bit rate edge devices at greater distances. UTG10 and UTG20 can support low bit rate devices like OT and physical security applications at up to 150m, while also supporting increased distances for high bit rate IP-based applications.

The ability to greatly increase transmission distances can also lead to a reduction in the number of telecommunications rooms required, resulting in potential savings on square footage requirements and construction costs.

DELIVERS HIGHER BANDWIDTH CAPABILITIES

Bandwidth and Speed

	UTG10	UTG20
Maximum data transmission speed	10Gbps @ 37-50m	10Gbps @ 100m
Maximum bandwidth	425 MHz	500-625 MHz

UTG10 and UTG20 cables have not only been swept for bandwidth, but we also extended the limit lines during testing to ensure operation at these parameters. This provides more headroom margin for connectivity performance and consistency.

OPTIMIZING OPERATIONAL TECHNOLOGY PERFORMANCE

SQUARE FOOTAGE AND CONSTRUCTION COST SAVINGS

REAL ESTATE AND TELECOMMUNICATIONS ROOMS (TR)

Ethernet standards typically limit transmission distance to 100m, creating challenges with IoT sensors and other applications distributed across a building. UTG-rated cabling solutions support extended transmission distances with OT applications, creating an opportunity to reduce the number of TRs required.

Based on industry averages, this could mean tremendous savings on square footage and construction costs.

TRs NEEDED / SQ. FT.

Cat 5E, 6

1TR/10,000 sq. ft.

UTG10, UTG20

1TR/15,000 sq. ft.

ESTIMATED CONSTRUCTION COSTS

Cat 5E, 6

\$75,000 for 30,000 sq. ft. Building

UTG10, UTG20

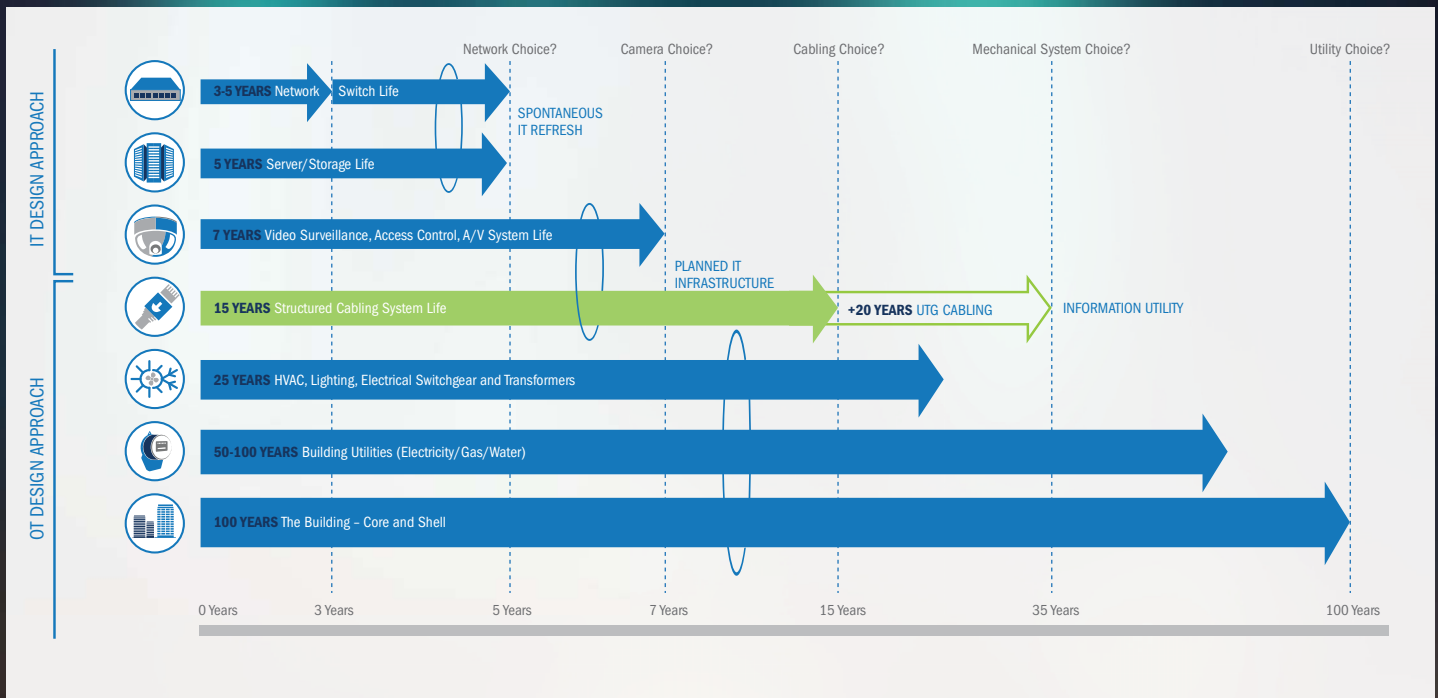
\$50,000 for 30,000 sq. ft. Building

● **APPROXIMATELY**
\$25,000 SAVINGS
PER 30,000 SQ. FT. BUILDING

EXTENDING TECHNOLOGY REFRESHES

Another key component of generating cost savings and return on investment is better alignment of your infrastructure with the built environment. The various systems that make up a modern building have very contrasting life spans and are specified and designed by different stakeholders.

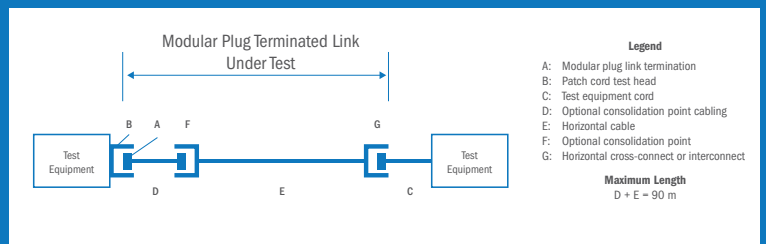
As the chart below outlines, UTG offers a high-performance structured cabling system that accounts for both information technology and operational technology applications, while supporting business resiliency and multiple technology refreshes.



MPTL - ABOVE-CEILING DESIGN CONSIDERATIONS

UTG supports the recent TIA-568.2-D standard for a modular plug terminated link (MPTL), making the transition much easier when connecting various ceiling-based technologies, such as intelligent lighting, surveillance cameras, access points and sensors.

The horizontal connection point or consolidation point along with field terminatable modular plugs provides a practical way of connecting more end points and devices. Utility Grade INFRASTRUCTURE leverages longer distance capabilities, offering savings in total cost of material, installation and ownership.



Source: TIA-568.2-D

TECHNOLOGY APPLICATIONS

SUPPORTS HIGHER FPS AND LOWER COMPRESSION

Video Surveillance

	UTG10	UTG20
1080p HD	150m	150m
4K UHD	150m	150m

In addition to supporting higher frames per second, UTG extends distance and power for camera applications, simplifying installation methods utilizing direct device connection with a modular plug terminated link (MPTL) – see figure to the left at bottom of page 10.

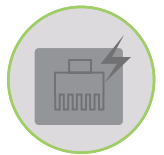


INCREASES DISTANCES AND BUNDLING SIZES TO SUPPORT MORE PoE APPLICATIONS

Remote Powering (PoE)

	UTG10	UTG20
Type I - 15.4W	Up to at least 150m	Up to at least 150m
Type II - 30W	Up to at least 150m	Up to at least 150m
Type III - 60W	Up to at least 100m	Up to at least 100m
Type IV - 100W	Up to at least 100m	Up to at least 100m
Max Bundle Size (0.5 Amps) @ 45C ambient	90 cables	150 cables

PoE represents the ability to remotely power and manage intelligent devices, while reducing traditional electrical infrastructure cost and plug loads. UTG10 and UTG20 cables eliminate degradation of insertion loss and maintains performance at longer distances with edge devices, while still meeting code compliance.



SUPPORTS 4K STREAMING AT EXTENDED DISTANCES

HDBaseT and 10Gbps SDVoE

	UTG10	UTG20
1080p HD	100m	100m
4K UHD	100m	100m
PoH	100m	100m

Superior connectivity is necessary to support the rapid evolution of video technology. Within the industry, there are limitations with electronics and cabling meeting HDBaseT requirements, but UTG solutions are verified to deliver 4K streaming at a full 100m application distance, in addition to power and video over the same cable via PoH.



SUPPORTS NEXT-GENERATION WI-FI TECHNOLOGY

Wireless

	UTG10	UTG20
Wi-Fi (IEEE 802.11ac)	10Gbps @ 37-50m	10Gbps @ 100m
Wi-Fi (IEEE 802.11ax)	10Gbps @ 37-50m	10Gbps @ 100m

UTG20 is optimized for next-generation Wi-Fi, verified to deliver 10Gbps @ 100m with extended headroom. This is the preferred choice for seamless connectivity throughout a building supporting multiple wireless streams.



PROVIDES EASE OF INSTALLATION FOR INTEGRATORS

Mechanical

	UTG10	UTG20
Installation flexibility	Flex Force Level 1,2,3	Flex Force Level 1,2,3

As part of the UTG framework, UL developed industry-first test parameters around installation readiness. This is to ensure a UTG-rated solution will be craft friendly for installation, flexibility and consistency.

Each UTG-rated cable will include a Flex Force rating based on a range of ounce-feet, highlighting the ease of handling for pulling, installing and terminating.

Flex Force Testing
Flex Force Rating
Craft Friendliness

UTG FLEX FORCE TABLE		
FLEX FORCE 3 46-60 oz-ft	FLEX FORCE 2 31-45 oz-ft	FLEX FORCE 1 16-30 oz-ft
GOOD	BETTER	BEST

SIMPLIFYING SPECIFICATION AND DESIGN

VALUE OF UTG FOR ARCHITECTS, CONSULTANTS AND ENGINEERS

Essential to meeting the demands of aggressive timelines and construction schedules is the simplification of the specification and design process without compromising on quality.

This simplification also provides a place for network infrastructure to be part of the early design phase of a project, where it can be considered as a utility alongside electricity, gas and water.

As part of the UTG program, Anixter has developed thorough specification verbiage for both UTG10 and UTG20 solutions. In addition to key product details, the boilerplate specification includes guidance on:

- Supply chain solutions
- Certified integrators
- Application assurance warranty

This will aid in presenting a solution to meet all of the challenges of the developer, and eliminates concerns around LP compliance and the need for niche cables.



UTG CERTIFICATION PROGRAM

VALUE OF UTG FOR CERTIFIED INSTALLATION

Beyond the performance of the cabling itself, an important part of a successful UTG deployment is how well the solution is designed, installed and commissioned to meet the specific needs of the project.

Utility Grade INFRASTRUCTURE also includes a dedicated UTG integrator program that can support certified installation of all of the systems within a converged building.

By utilizing a UTG-certified installer, you will have access to a partner with thorough training on the solution with the ability to provide an extended warranty and on-demand support.

FIELD TEST AND MEASUREMENT

UTG-certified installers will have the ability to field test and certify to the UTG Framework. This will verify you are achieving optimal performance with the solution.

UTG-specific test parameters have been developed by field test and measurement manufacturers and will be available industry-wide alongside UTG cabling deployments.

UTG APPLICATIONS ASSURANCE WARRANTY

UTG-rated solutions offer an extended applications assurance warranty based on the performance test results verified by UL referenced in this document. Provided exclusively by UTG innovation partners, this will offer the design capabilities and guarantees you need to migrate your infrastructure with confidence.

Important: The extended applications assurance warranty is only available when utilizing UTG-certified integrators.

UTG ECOSYSTEM

Utility Grade INFRASTRUCTURE is dependent on an ecosystem of partners who offer product, testing and industry validation.

Utility Grade INFRASTRUCTURE SM																
INNOVATION PARTNERS	SOLUTION DEVELOPMENT															
TEST AND VERIFICATION PARTNERS	UL															
CONVERGENCE PARTNERS	VOICE	DATA	VIDEO	WIRELESS	VIDEO SURVEILLANCE	ACCESS CONTROL	INTRUSION DETECTION	DIGITAL SIGNAGE	AUDIO TECHNOLOGY	RESERVATION SYSTEM	HVAC	LIGHTING	ELEVATORS	ASSET TRACKING	PARKING SYSTEMS	AMENITY SYSTEMS
	ELECTRICAL CONTRACTOR	DATA CONTRACTOR	SECURITY CONTRACTOR	WIRELESS INTEGRATOR	SECURITY INTEGRATOR	PRO A/V INTEGRATOR	BMS INTEGRATOR	HVAC CONTRACTOR	LIGHTING CONTRACTOR	ARCHITECT	CONSULTANT	ENGINEER				

Members of the UTG Ecosystem include:

- **Innovation partners**
Manufacturers who have developed specific UTG solutions
- **Independent test and verification**
Performed by UL
- **Convergence partners**
Manufacturers of interoperable building technologies that will be part of Phase II of the program
- **Channel partners**
Architects, consultants and engineers, as well as a specialized group of UTG-certified installers

In total, this ecosystem has the ability to change the way organizations approach building the 4th utility.

INNOVATION PARTNERS

UTG has been co-developed alongside world-class global partners. They have defined and manufactured critical UTG components necessary to form a best-in-class Utility Grade INFRASTRUCTURE, as well as provide key testing and validation of the solution.

More information on each innovation partner is available at anixter.com/utg.

UTG CABLING SOLUTIONS



UTG TESTING SOLUTIONS

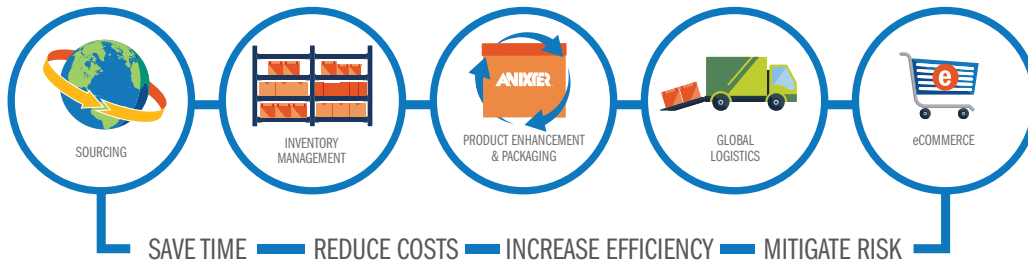


UTG INDUSTRY VALIDATION





ANIXTER SUPPLY CHAIN SOLUTIONS: Reducing costs, saving time, improving productivity and mitigating risks – it’s our goal on every project. With our customizable Supply Chain Solutions, you can eliminate costs, address sustainability requirements, enhance focus on your core competencies and stay competitive in the marketplace. For more information, contact your local Anixter sales representative or visit anixter.com/services.



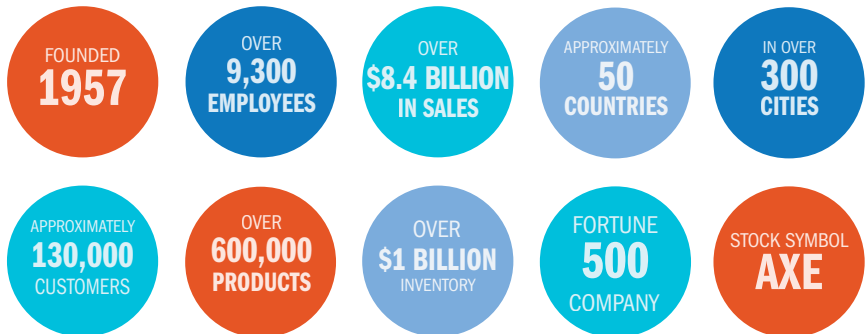
TECHNICAL EXPERTISE

From best practices and product questions, to proof-of-concept testing and application demonstrations, our technical experts are ready to help you simplify evaluation, selection and compliance challenges, so you can build a future-ready Utility Grade INFRASTRUCTURE with confidence.

GLOBAL REACH. LOCAL ADVANTAGE.

With Anixter, you get a true local partner around the world. No other distributor of our kind can claim an in-country presence in approximately 50 countries and in over 300 cities.

We do business in more than 35 currencies and 30 languages, which means we are uniquely positioned to help facilitate your project in the local environment, reduce risks and keep costs down.



About Anixter: anixter.com/aboutus
Legal Statement: anixter.com/legalstatement

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Anixter Inc. World Headquarters
 2301 Patriot Boulevard
 Glenview, Illinois 60026
 224.521.8000

1.800.ANIXTER | anixter.com



Build. Connect. Power. Protect. Services. Worldwide.



HPE SERVERS AND STORAGE: PORTFOLIO AT A GLANCE

April 2020

OVERVIEW

- View the HPE server and storage portfolio at a high level
- Find the right products to drive infrastructure transformation
- Compare key specifications across the product line

TRANSFORM IT WITH SOFTWARE-DEFINED INFRASTRUCTURE

Cloud is not a destination; it's a model for a better way of doing things. To ensure your private cloud experience mirrors that of the public cloud, you need a partner who can help you build private clouds and manage hybrid cloud successfully, with the flexibility to adapt to changing business needs, by transforming your technology, people, and processes and economics. HPE is uniquely positioned to accelerate your hybrid cloud strategy through world-class software-defined IT solutions, proven hybrid cloud expertise, and flexible consumption and economic options—all supporting your choice of clouds, workloads, and tools. hpe.com/us/en/solutions/data-center-infrastructure.html

HPE SYNERGY

Gain efficiency and control, and deploy IT resources quickly for any workload through a single interface. HPE Synergy, a powerful software-defined solution, enables you to compose fluid pools of physical and virtual compute, storage, and fabric resources into any configuration for any application. Learn more at hpe.com/synergy

THE HPE SERVER FAMILY (hpe.com/servers)

Innovation based on standards

Fundamental to establishing a converged infrastructure are your underlying platform choices. Whether it is a departmental server, an enterprise data center, or anything in between, HPE is committed to meeting your exact needs. Only HPE has the breadth of innovation, open partnerships, and depth of expertise to bring it all together.

Our portfolio includes:

HPE ProLiant servers—The world's most secure industry standard servers,¹ HPE ProLiant Gen10 servers coupled with HPE OneView, HPE InfoSight, and HPE OneSphere deliver software-defined compute to accelerate application performance, infrastructure and application deployment, and improve server operations. Our wide selection of multicore, multiprocessor servers, and server blades meet needs ranging from those of cost-sensitive growing businesses to the performance and scalability demands of global enterprises. ProLiant servers support the industry's leading operating systems and applications for data centers of all sizes. hpe.com/info/proliant-dl-servers, hpe.com/info/towerservers, hpe.com/info/blades

HPE BladeSystem—HPE BladeSystem lets you transform legacy infrastructure and scale business performance while optimizing costs. With the powerful HPE OneView management, BladeSystem puts your business on an agile, secure foundation and on the path to a composable experience. hpe.com/info/bladestem

HPE Apollo—The HPE Apollo high-density server family is built for the highest levels of performance, scale, and efficiency. They are rack-scale compute, storage, networking, power and cooling—massively scale-up and scale-out solutions, ideal for your Big Data analytics, object storage, high performance computing (HPC), and artificial intelligence (AI) workloads. hpe.com/info/apollo

HPE Mission Critical Solutions—When you need real-time business and maximum uptime, HPE Mission Critical Solutions are your ideal choice. This portfolio is unparalleled for its resiliency, availability, and security for mission-critical environments where business continuity is expected.

For industries that never stop, HPE NonStop Systems are uniquely designed for the very highest level of availability: an integrated solution stack with massive scalability, data integrity, and low TCO. hpe.com/info/nonstop. For your most demanding and critical SAP HANA®, Oracle and SQL Server workloads, HPE Superdome Flex delivers an unmatched combination of performance, availability, and reliability for mission-critical environments of any size. This is also an ideal platform to tackle AI and HPC workloads holistically. hpe.com/superdome. For workloads vital to your enterprise, HPE Integrity i6 servers with HP-UX are designed for always-on business: a highly integrated UNIX® system delivering mission-critical availability, stability, and predictable performance. hpe.com/info/hpux.

HPE Server Options—Strengthen the foundation of your data center with high-caliber products that enhance system performance and functionality. HPE memory, drives, processors, racks, and power and cooling offerings are easy to manage and are tailored for ProLiant, Integrity, and HPE storage systems. With HPE Qualified Options, you can be confident in your whole infrastructure. hpe.com/info/serveroptions

HPE Data Center Network solutions—Built from HPE FlexNetwork Architecture, HPE Data Center Network solutions meet the demanding needs of today's highly virtualized, large-scale application environments. HPE FlexFabric Data Center is the network foundation for the servers, storage, and software of converged infrastructure. This robust networking foundation helps you improve service levels and agility, enhance business continuity, and reduce operating costs. hpe.com/networking/datacenter

Partner Software—HPE tests, certifies, and supports a broad range of partner OS and virtualization software on HPE ProLiant servers. HPE resells and provides service and support for Microsoft Windows Server, Red Hat® Enterprise Linux®, SUSE Linux Enterprise Server, Canonical Ubuntu Server, and VMware®. HPE also resells Cloudera, Hortonworks, Scality, and Cleversafe with support provided by the partner. For more information, visit the OS and Virtualization website. hpe.com/info/ossupport

HPE Server Management is an agile infrastructure management solution for accelerating IT service delivery and support. We provide a comprehensive set of server management capabilities designed to manage the lifecycle for the HPE Server portfolio to reduce the time, complexity, and cost of everyday IT management. hpe.com/us/en/servers/management

hpe.com/info/rackservers
hpe.com/info/towerservers
[Security](#)
[Benchmarks](#)

HPE MOONSHOT SYSTEMS

HPE Moonshot is an integrated, workload-optimized, software-defined server system, delivered in a compact, energy efficient form factor. Moonshot infrastructure design delivers breakthrough efficiency and scale by replacing general purpose computing with more energy-efficient System-on-Chip (SoC) containing integrated accelerators tailored for specific workloads. This enables better resource efficiency, while reducing operational cost and improving IT set up and maintenance simplicity.

For more information: hpe.com/info/moonshot

HPE EDGELINE CONVERGED EDGE SYSTEMS

HPE Edgeline Converged Edge Systems is the industry first product category that combines uncompromised IT systems (Intel® Xeon® compute, storage and management) with Operational Technology (OT) Systems (control systems, data capture and industrial networks) in a ruggedized form factor capable to run analytics in virtually any edge environment. HPE Edgeline enable new applications and deliver dramatic improvements in operating cost, speed, reliability and security, while saving time, space, and energy.

For more information: hpe.com/info/edgeline

HPE POINTNEXT SERVICES

Achieve maximum return from your IT investment

Get the expertise you need at every step of the IT journey with [HPE Pointnext Services and Support](#). We help you lower your risks and costs using proven best practices, automation, and methodologies that have been tested and refined by HPE experts through thousands of implementations and deployments globally. With Advisory Services, we focus on your business outcomes and goals, partnering with you to design your transformation and build a road map tuned to your unique challenges. Our professional, operational and technical services can be leveraged to speed up time-to-production, boost performance, and accelerate your business.

HPE Pointnext Services specializes in flawless and on-time implementation, on-budget execution, and creative configurations that get the most out of software and hardware alike. We collaborate with your IT team from technical design to implementation, build to migration, distribution, and finally to operational consulting and service.

- [Integration and performance services](#) provide resources to help you get your systems up and running quickly and augment your IT staff for projects.
- [HPE Foundation Care](#) provides fast problem resolution with comprehensive coverage and access to experts.
- [HPE Proactive Care](#) provides proactive problem prevention and an enhanced support experience for your systems.
- [HPE Datacenter Care](#) helps businesses run their IT operations by optimizing day-to-day tasks, integrating technology management and streamlining to a more agile cloud-like model.

Consume IT services on your terms, getting the specific value that you need for your business. [HPE GreenLake](#) enables you to scale easily by adding capacity in minutes, not months. You pay only for what you actually need, creating true pay-per-use outcomes. Simplify your IT planning, capacity forecasting, and cost allocation with [HPE GreenLake](#).

Learn more about [HPE Pointnext Services and Solutions](#) for your business.

¹ Based on external firm conducting cybersecurity penetration testing of three server products from three manufacturers, September 2019

HPE PROLIANT SERVERS—10, 100, 300, 500 SERIES

HPE ProLiant servers



MicroServer Gen10 Plus



MicroServer Gen10



ML30 Gen10



DL20 Gen10



ML110 Gen10



DL160 Gen10



DL180 Gen10

ML/DL100 series: Small scale server: Easy to buy and deploy










ML/DL100 series: Right-sized server: Balance of performance, efficiency, and manageability

	MicroServer Gen10 Plus	MicroServer Gen10	ML30 Gen10	DL20 Gen10	ML110 Gen10	DL160 Gen10	DL180 Gen10
Number of processors	1	1	1	1	1	1 or 2	1 or 2
Cores per processor	2/4	2/4	2/4/6	2/4/6	4/6/8/10/12/14/16	4/6/8/10/12/14/16/18/20/22/24	4/6/8/10/12/14/16/18/20/22/24
Processors supported	Intel Xeon E2200 series Intel® Pentium® G5400 series	AMD Opteron X3421 AMD Opteron X3216	Intel Xeon E-2100 series; Intel® Core™ i3-8300; Intel Pentium G5400	Intel Xeon E-2100 Series; Intel Core i3-8300; Intel Pentium G5400	Intel Xeon Scalable processor 5200, 4200, and 3200 series; Intel Xeon Scalable processor 5100, 4100, and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 4100 and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 4100 and 3100 series
Maximum processor frequency	3.8 GHz	3.4 GHz	3.8 GHz	3.8 GHz	3.8 GHz	3.8 GHz	3.8 GHz
Cache	Up to 8 MB L3	2 MB L2	Up to 12 MB L3	Up to 12 MB L3	Up to 22 MB	Up to 35.75 MB	Up to 35.75 MB
Maximum memory	32 GB (2 DIMM slots)	32 GB (2 DIMM slots)	64 GB (4 DIMM slots)	64 GB (4 DIMM slots)	192 GB (6 DIMM slots)	1 TB (16 DIMM slots)	1 TB (16 DIMM slots)
Persistent memory	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maximum storage drive bays	4 NHP LFF or 4 NHP SFF HDD/SSD	(4) LFF SATA Non-hot plug	(8) SFF SAS/SATA hot plug (4) LFF SAS/SATA hot plug (4) LFF SATA Non-hot plug (1) M.2 NVMe SSD	(4) SFF + (2) SFF (2) LFF hot plug (2) LFF Non-hot plug	(16) SFF SAS/SATA HDD/SSD, (8) LFF SAS/SATA HDD/SSD, or (8) NHP LFF SATA HDD	8 + 2 SFF or 4 LFF HDD/SSD + M.2 SATA support	(8) + (24) SFF or (12) LFF SAS/SATA HDD/SSD + (2) SFF rear enablement kit + M.2 SATA support
Maximum internal storage	16 TB	16 TB	61.44 TB	91.8 TB	96 TB	48 TB	144 TB
I/O slots	Up to 1 PCIe 3.0	Up to 2 PCIe 3.0	Up to 4 PCIe 3.0	Up to 2 PCIe 3.0	Up to 5 PCIe 3.0	Up to 3 PCIe 3.0	Up to 6 PCIe 3.0
GPU	Optional Radeon Pro WX 2100	Optional AMD Radeon Pro WX 2100	NVIDIA® P2000 or AMD WX 2100	N/A	NVIDIA Quadro P2000 and AMD Radeon Pro WX 2100	N/A	NVIDIA P2000
Operating systems and virtualization software supported	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), VMware, Hyper-V, and ClearOS	ClearOS, Microsoft Windows Server	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, Hyper-V, and ClearOS	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, and Hyper-V	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, and Hyper-V
Management	HPE iLO 5, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE InfoSight	N/A	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, HPE InfoSight, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight
Form factor/chassis depth	Ultra Micro Tower/9.65"	Ultra Micro Tower/10"	Micro ATX Tower (4U)/18.71"	Rack (1U)/15.05"	Tower (4.5U)/19"	Rack (1U)/24.1"	Rack (2U)/24.99"
Warranty—year(s) (parts/labor/on-site)	1/1/1	1/1/1	3/1/1 or 3/3/3 (depending on region)	3/3/3	3/3/3	3/3/3	3/3/3



HPE PROLIANT SERVERS—10, 100, 300, 500 SERIES (CONTINUED)





HPE ProLiant servers

ML/DL300 series: Versatile server: Industry-leading portfolio offering flexible choices for mult workload compute and storage								DL500 series: Scalable performance for business-critical workloads	
									
ML350 Gen10	DL325 Gen10	DL325 Gen10 Plus	DL360 Gen10	DL380 Gen10	DL385 Gen10	DL385 Gen10 Plus	DL560 Gen10	DL580 Gen10	
Number of processors	1 or 2	1	1	1 or 2	1 or 2	1 or 2	1, 2, or 4	1, 2, 3, or 4	
Cores per processor	4/6/8/10/12/14/16/18/20/22/24/26/28	8/16/24/32/64	8/16/24/32/64	4/6/8/10/12/14/16/18/22/24/26/28	4/6/8/10/12/14/16/18/20/22/24/26/28	8/16/24/32/64	4/6/8/10/12/14/16/18/20/22/24/26/28	4/6/8/10/12/14/16/18/20/22/24/26/28	
Processors supported	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series* Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	AMD EPYC 7000 series processors	AMD EPYC 7000 Series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	Intel Xeon Scalable processor 8200, 6200, 5200, 4200, 3200 series; Intel Xeon Scalable processor 8100, 6100, 5100, 4100, and 3100 series	AMD EPYC 7000 series processors	AMD EPYC 7000 Series	Intel Xeon Scalable processor 8200, 6200, 5200 series; Intel Xeon Scalable processor 8100, 6100, and 5100 series	
Maximum processor frequency	3.8 GHz	3.4 GHz	3.4 GHz	3.8 GHz	3.8 GHz	3.4 GHz	3.8 GHz	3.8 GHz	
Cache	Up to 38.5 MB	Up to 256 MB L3	Up to 256 MB	Up to 38.5 MB	Up to 38.5 MB	Up to 256 MB L3	Up to 256 MB	Up to 38.5 MB	
Maximum memory	3 TB (24 DIMM slots)	2 TB (16 DIMM slots)	4 TB/3200 MT/s	3 TB (24 DIMM slots)	3 TB (24 DIMM slots)	4 TB (32 DIMM slots)	8 TB/3200 MT/s	6 TB (48 DIMM slots)	
Persistent memory	N/A	N/A	N/A	Up to (12) 16 GB NVDIMMs option (192 GB max)**	Up to (24) 16 GB NVDIMMs option (384 GB max)**	N/A	N/A	Up to (24) 16 GB NVDIMMs option (384 GB max)**	
Maximum storage drive bays	(24) SFF SAS/SATA HDD/SSD, (12) LFF SAS/SATA HDD/SSD, (8) NVMe SSD option, or (12) NHP LFF SATA HDD	(4) LFF SAS/SATA HDD/SSD, (8) SFF SAS/SATA HDD/SSD + (2) SFF SAS/SATA HDD/SSD (10) SFF NVMe	Up to 12 LFF/24 SFF/24 NVMe	(10) NVMe + (1) SFF or (8) + (2) + (1) SFF or (4) LFF + (1) SFF SAS/SATA HDD/SSD M.2 SATA/PCIe enabled, optional dual uFF M.2 Enablement Kits	(24) + (6) SFF SAS/SATA HDD/SSD or (12) + (4) + (3) LFF + (2) SFF SAS/SATA HDD/SSD or 20 NVMe PCI SSD, M.2 enabled, optional dual uFF M.2 Enablement Kits	(8) LFF SAS/SATA HDD/SSD + UMB (12) LFF SAS/SATA/SSD + (4) LFF mid-plane + (3) LFF + (2) SFF rear drive bay (total 19 LFF + 2 SFF drives) (8) SFF SAS/SATA/SSD + optional UMB, SFF, or NVMe drive bay options (24) SFF SAS/SATA HDD/SSD + (6) SFF rear drives (total of 30 SFF drives) (24) NVMe PCI	38 SFF/20 LFF + 2 SFF max. HDD/SSD, 32 NVMe (x4) PCIe SSD	(24) SFF SAS/SATA HDD/SSD or (12) NVMe PCI SSD (optional), M.2 enabled, optional dual uFF enablement kits	
Maximum internal storage	184 TB	154 TB	Up to 2 Single Width Active only	42+ TB	197+ TB	459 TB	184 TB	368 TB	
I/O slots	Up to 8 PCIe 3.0	3 PCIe 3.0	Up to 3 PCIe 4.0	Up to 3 PCIe 3.0	Up to 8 PCIe 3.0	8 PCIe 3.0	Up to 8 PCIe 4.0 + M.2 support in PCIe slot	Up to 8 PCIe 3.0	
GPU	FL/FH double-wide and single-wide active and passive (4)	N/A	Up to 2 Single Width Active only	Single-wide and active to 9.5" (2) in length, up to 150W each	Single-wide (5)/double-wide (3) and active/passive up to 10.5"	Single-wide (5)/double-wide (3) and active/passive up to 10.5 cards	Single-/double-wide (8) and active/passive up to 10.5" (3)	HL/FH (2)	
Operating systems and virtualization software supported	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, Hyper-V, and ClearOS	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	ClearOS, Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	
Management	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, HPE iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, HPE iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	HPE iLO 5, HPE OneView Standard, Intelligent Provisioning, Smart Update Manager, RESTful Interface Tool, iLO Amplifier Pack Optional: HPE iLO Advanced, HPE OneView Advanced, HPE InfoSight	
Form factor/chassis depth	Tower (4U)/25.5" or Rack (5U)/25.5"	Rack (1U)/24.2"	1U, 31.8" (Up to 8 LFF/20 SFF) or 39.3" (12 LFF/24 SFF)	Rack (1U)/27.81" (SFF), 29.5" (LFF)	Rack (2U)/26.75" (SFF), 28.75" (LFF)	Rack (2U)/28.75"	Rack (2U)/26.75" (SFF), 28.75" (LFF)	Rack (2U)/29.75" (SFF)	
Warranty—year(s) (parts/labor/on-site)	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	3/3/3	

* Intel Speed Select, 1-socket Optimized, NFV Optimized and VM Density Optimized processors.
 ** Supported on first generation Intel Xeon Scalable processors.



HPE SYNERGY AND BLADESYSTEM COMPUTE AND STORAGE MODULES

Compute Modules				Storage Modules		Frames	
							
SY480 Gen10*		SY660 Gen10*		D3940 Storage Module		HPE Synergy 12000 Frame	
Number of processors	1 or 2		2 or 4		Max. Drive quantity supported	1 to 40 small form factor (SFF) drives	
Processors supported	Intel Xeon Scalable processors family—1st Generation****	Intel Xeon Scalable processors family—2nd Generation*****	Intel Xeon Scalable processors family—1st Generation****	Intel Xeon Scalable processors family—2nd Generation*****	Fabric	Supports 6G SATA and 12G SAS	
Processors—Cores available	4 to 28		4 to 28		Controller model	HPE Smart Array P416i6-m 12G SAS Mezzanine Controller	
Processors—Frequency	1.7 to 3.6 GHz	1.8 to 3.8 GHz	2.0 to 3.6 GHz	1.8 to 3.8 GHz	Controller RAID options	RAID 0, 1, 5, 6, 10, 50, 60, 1 ADM, 10 ADM, and HBA mode	
Memory slots	24		48		Interconnect module	HPE Synergy 12 Gb SAS Connection Module with 12 internal ports	
Memory capacity—Per socket	Up to 1.5 TB***	Up to 1, 2, or 4.5 TB***	Up to 6 TB***	Up to 1, 2, or 4.5 TB***	Drive mix	Choice to mix and match SAS/SATA, SSD/HDDs in each storage module, provisioned with servers in the same Synergy frame	
Memory speed	DDR4 @ 2666 MT/s**	DDR4 @ 2933 MT/s**	DDR4 @ 2666 MT/s**	DDR4 @ 2933 MT/s**	Logical array limitation	Must be composed with a single drive type	
Persistent memory	N/A	Intel (256 GB, 512 GB, 1 TB)***	N/A	Intel (256 GB, 512 GB, 1 TB)***	Max. SAS storage capacity per module	612 Terabytes (with 40 x 15.3 TB SAS RI SSDs)	
Operating systems supported**	MS Win, RHEL, SLES**		MS Win, RHEL, SLES**		Max. storage capacity per frame	3 Petabytes	
Network ports	Up to 3 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration		Up to 6 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration		Max. drives per frame	200 drives	
Drives supported	2 SFF SAS/SATA or 2 SFF NVMe (optional) or 2 M.2 SATA and 2 Dual uFF, hot plug, depending on model		0 to 4 SFF SAS/SATA/NVMe SSDs and/or up to 8 uFF Flash and/or up to 4 internal M.2 drives		Max. storage modules per frame	5 HPE Synergy D3940 storage modules	
Maximum internal storage	Up to 2 Drives + 40 w/ D3940 (up to 5 storage modules per frame) 204 max. drives per frame		Up to 4 Drives + 40 w/ D3940 (up to 4 storage modules per frame) 168 max. drives per frame		Composable storage	HPE OneView	
I/O slots	Up to 3 available		Up to 6 available		Recommended HA storage/fault tolerance	SAS SFF redundant paths require additional I/O module and SAS connection module. (SATA drives have a single port limitation, making them more vulnerable to failure than SAS drives.)	
Management	HPE OneView		HPE OneView		RAID	Support of RAID 0, 1, 5, 6, 10, 60, 1 ADM, 10 ADM presentation to OS as a volume and Software RAID	
Form factor	Half-height, 12 per enclosure (mixing allowed)		Full-height, 6 per enclosure (mixing allowed)				
Warranty—year(s) (parts/labor/on-site)	3/3/3		3/3/3				





* For more details please review QuickSpecs at hpe.com/v2/GetDocument.aspx?docname=a00008520enw and hpe.com/v2/GetDocument.aspx?docname=a00008522enw.

** For more information on HPE's certified and supported ProLiant servers for OS and Virtualization software and latest listing of software drivers available for your server, please visit our Support Matrix at hpe.com/info/ossupport.

*** Capacity and Speed of Memory is highly dependent on version #, number of slots occupied and processor selected. See Memory Population Tables in individual Compute QuickSpecs for details.

**** Intel Xeon Scalable Family 100 Series (s1##aa) Bronze, Silver, Gold, and Platinum shelves.

***** Intel Xeon Scalable Family 200 Series (s2##aa) Bronze, Silver, Gold, and Platinum shelves.

BladeSystem		HPE storage blades		Enclosures	
				 	
BL460c Gen10*		HPE D2500sb Storage Blade		HPE BladeSystem c3000 Platinum Enclosure HPE BladeSystem c7000 Platinum Enclosure	
Number of processors	1 or 2		Processors supported	N/A	
Processors supported	4 to 26	4 to 26	Drives supported	Up to 12 hot plug SFF SAS or SATA HDDs or SAS/SATA SSDs	
Processors—Cores available	Intel Xeon Scalable processors family—1st Generation****		Maximum capacity	12 drives per storage blade and up to 8 storage blades in an enclosure provides an additional 368.64 TB maximum capacity to the HPE ProLiant BL460c Gen10 server blades	
Processors—Frequency	1.7 to 3.6 GHz		RAID support	RAID 0, 1, 5, 6, 10, 50, 60, 1 Advanced Data Mirroring (ADM), and 10 ADM	
Memory slots	16		Form factor	Half-height, single-wide storage blade	
Memory capacity—Per socket	Up to 1 TB***		Warranty—year(s) (parts/labor/on-site)	3/0/0 with warranty upgrade options	
Memory speed	DDR4 @ 2666 MT/s**				
Persistent memory	N/A				
Operating systems supported**	MS Win, RHEL, SLES**				
Network ports	Up to 2 Mezzanine Slots for SAS, Ethernet, or Fibre Channel depending on configuration				
Drives supported	2 SFF SAS/SATA or 2 SFF NVMe (optional) or 2 M.2 SATA and 2 Dual uFF, hot plug, depending on model				
Maximum internal storage	Up to 2 Drives + 12 w/Expansion Drive				
I/O slots	Up to 2 available				
Management	OA, HPE OneView				
Form factor	Half-height, 16 per enclosure (mixing allowed)				
Warranty—year(s) (parts/labor/on-site)	3/3/3				
Device bays	Up to 8 half-height blades up to 4 full-height blades Mixed configurations supported		Device bays	Up to 8 half-height blades up to 4 full-height blades Mixed configurations supported	
Interconnect bays	4 Interconnect bays. Interconnect bays with support for any I/O fabric.		Interconnect bays	8 Interconnect bays with support for any I/O fabric	
Power	Choice of up to 6 hot plug power supply kits: Single-phase VAC up to 1200W each or -48 VDC up to 1200W each		Power	Choice of up to 6 hot plug power supply kits: Single-phase VAC up to 1200W each or -48 VDC up to 1200W each	
Cooling	Cooling Centralized redundant fans up to 6 Active Cool fans		Cooling	Centralized redundant fans up to 10 Active Cool fans	
Management/Appliances	Single Onboard Administrator—LAN and serial access. Redundant Onboard Administrator—LAN and serial access, optional HPE OneView		Management/Appliances	Single Onboard Administrator—LAN and serial access. Redundant Onboard Administrator—LAN and serial access, optional HPE OneView	
Height	Rack Height (6U)		Height	Rack Height (10U)	

* For more details please review QuickSpecs at h20195.www2.hpe.com/v2/GetDocument.aspx?docname=a00008517enw.








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*** Capacity and Speed of Memory is highly dependent on version #, number of slots occupied and processor selected. See Memory Population Tables in individual Compute QuickSpecs for details.

**** Intel Xeon Scalable Family 100 Series (s1##aa) Bronze, Silver, Gold, and Platinum shelves.

***** Intel Xeon Scalable Family 200 Series (s2##aa) Bronze, Silver, Gold, and Platinum shelves.








HPE APOLLO COMPUTE SYSTEMS

HPE Apollo 70		HPE Apollo 2000 Gen10 System		HPE Apollo 2000 Gen10 Plus System	
 <p>HPE Apollo 70 System</p>		 <p>HPE Apollo 2000 System</p>		 <p>HPE Apollo 2000 Gen10 Plus System</p>	
 <p>HPE AR44z server</p>		 <p>HPE ProLiant XL170r Gen10 server</p>		 <p>HPE ProLiant XL190r Gen10 server</p>	
 <p>HPE AR64z server</p>					
Density/Scale	2U System, up to (4) 1U half width trays	Density/Scale	2U system, up to (4) 1U half width trays	Density/Scale	2U system, up to (4) 1U half width trays
Processor	Marvell Thunder X2 processor; 28 or 32 cores; 165W or 180W	Processor	Up to two Intel Xeon Scalable Processors per server node, up to 150W; -F support on CPU 0	Processor	Up to two AMD EPYC 7002 series Processors per server node, Up to 200W+
Memory (type, channels, slots)	Supports up to 2666 MT/s DDR4; 8 channels, 16 slots	Memory (type, channels, slots)	Supports up to 2666/2933 MT/s DDR4 SmartMemory; 6 channels, 16 slots	Memory (type, channels, slots)	Supports up to 3200 MT/s DDR4 SmartMemory; 8 channels, 16 slots
Storage	Internal storage up to 8 LFF hot-plug SATA; 2 internal 2280 M.2	Storage	Dependent on chassis selection (r2200, r2600, or r2800) 6 SFF HDD/SSD or up to 2 NVMe SSD option, 3 LFF HDD; 2 internal 2280 M.2 optional kit	Storage	Dependent on chassis selection (n2600 with multiback plane options including no backplane or up to 24 SFF drives) 6 SFF HDD/SSD or up to 2 NVMe SSD options 2 internal 22110 M.2 optional kit w/ HW RAID NVMe
GPU Support	N/A	GPU Support	N/A	GPU Support	N/A
System management	HPE Performance Cluster Manager (HPCM)	System management	HPE Performance Cluster Manager (HPCM), UEFI	System management	HPE Performance Cluster Manager (HPCM)
OS Support	SUSE Linux Enterprise Server (SLES), Red Hat Enterprise Linux (RHEL)	OS Support	Windows Server 2012 R2/2016/2019 (Most Recent Version), VMware ESXi™ 6.0 U3/6.5 U2/6.7 U1, Red Hat Enterprise Linux (RHEL) 7.6, SUSE Linux Enterprise Server (SLES) 12 SP4/15 SP1, CentOS	OS Support	Windows Server 2012 R2/2016/2019 (Most Recent Version), VMware ESXi 6.0 U3/6.5 U2/6.7 U1, Red Hat Enterprise Linux (RHEL) 7.6, SUSE Linux Enterprise Server (SLES) 12 SP4/15 SP1, CentOS, Ubuntu, Citrix XenServer
Power Supply—Hot Plug	Two 1600W platinum power supplies	Power Supply—Hot Plug	Two 800W/1400W, 277 VAC/1600W, 2200W (2018) HPE Apollo Platform Manager option for rack level management	Power Supply—Hot Plug	Two 1600W/3000W HPE Apollo Platform Manager option for rack level management
Interconnect	choice of Ethernet (10 Gigabit), InfiniBand EDR/Ethernet 100 Gb	Interconnect	choice of 1 Gigabit, 10 Gigabit, 25 Gigabit, InfiniBand, Omni-Path or FlexileLOM	Interconnect	choice of Ethernet (1 Gigabit to 100 Gigabit, InfiniBand (100 Gb HDR or 200 Gb HDR) InfiniBand
Cooling	(8) Single rotor fans (standard)	Cooling	(4) Single rotor fans (standard) and an additional 4 rotor fans can be added for redundancy	Cooling	(5) Single rotor fans (standard) and an additional 2 rotor fans can be added for additional cooling
Security	N/A	Security	iLO 5 Silicon Root of Trust, iLO Advanced (Optional)	Security	iLO 5 Silicon Root of Trust, iLO Advanced (Optional)
Storage Controller	Integrated SATA controller	Storage Controller	(1) HPE Smart Array S100i; optional HPE Smart Array PCIe card	Storage Controller	(1) HPE Smart Array S100i; optional HPE Smart Array PCIe card
Warranty (parts, labor, on-site support)	3/3/3	Warranty (parts, labor, on-site support)	3/3/3	Warranty (parts, labor, on-site support)	3/3/3
QuickSpecs URL	h20195.www2.hp.com/v2/gethtml.aspx?docname=a00039978enw	QuickSpecs URL	h20195.www2.hp.com/v2/gethtml.aspx?docname=a00022816enw h20195.www2.hp.com/v2/gethtml.aspx?docname=a00022817enw h20195.www2.hp.com/v2/gethtml.aspx?docname=a00019876enw	QuickSpecs URL	hpe.com/h20195/v2/GetDocument.aspx?docname=a00056110enw







HPE APOLLO COMPUTE SYSTEMS




HPE SGI 8600 SYSTEM

HPE Apollo 4200 Gen10 System		HPE Apollo 4510 Gen10 System		HPE Apollo 6000 Gen10 System		HPE Apollo 6500 Gen10 System		HPE SGI 8600 SYSTEM				
 <p>HPE Apollo 4200 Gen10 Server</p>		 <p>HPE Apollo 4510 Gen10 System</p>		 <p>HPE Apollo 6000 Gen10 System</p>		 <p>HPE Apollo 6500 Gen10 System</p>		   <p>HPE XA730i Gen10 Server HPE XA780i Gen10 Server HPE XA760i Gen10 Server</p>				
Form factor	2U rack server	4U shared infrastructure chassis		Density/Scale		12U system, Up to (24) 1U half width trays		Density/Scale		4U system		
Storage type	Front: Up to 24 LFF or 48 SFF in the two front HDD Cages Optional Rear HDD Cages: 4 LFF, 2 SFF + 2 HHHL PCIe (supports [2] uFF Dual M.2), or 6 NVMe Optional M.2 kits	Up to 960 TB per server (60 x 16 TB HDD) Over 9 PB in 42U rack (10 servers 16 TB HDD)		Processor		Up to two Intel Xeon Scalable Processors		Processor		Up to two Intel Xeon Scalable Processors		
Storage capacity	Up to 392 TB (24 + 4 LFF 14 TB HDD) Up to 78 PB per 42U rack (20 servers 14 TB HDD)	Up to 960 TB per server (60 x 16 TB HDD) Over 9 PB in 42U rack (10 servers 16 TB HDD)		Memory (type, channels, slots)		Supports up to 2666/2933 MT/s DDR4 SmartMemory, 16 DIMM slots		Memory (type, channels, slots)		Supports up to 2933 MT/s DDR4 SmartMemory 3 TB Max, 24 DIMM slots		
Storage controller	(1) HPE Smart Array S100i; optional HPE Smart Array cards; Up to 3 HPE Smart Array Gen10 Controllers	(1) HPE Smart Array S100i; optional HPE Smart Array cards		Storage		Up to 4 SAS/SATA/NVMe		Storage		Up to 16 SAS/SATA SSD, or up to 4 NVMe SSD (optional), M.21		
Processor family	Intel Xeon Scalable processors (8100, 6100/6200, 5100/5200, and 4100/4200 series)	Intel Xeon Scalable processors (8100, 6100/6200, 5100/5200, and 4100/4200 series)		GPU Support		N/A		GPU Support		Up to 8 PCIe or SXM-2 NVLink GPU, New supporting NVIDIA Quadro RTX GPU		
Processor number	One or two per server	One or two per server		System management		HPE Performance Cluster Manager (HPCM)		OS Support		HPE Performance Cluster Manager (HPCM), HPE Container Platform		
Processor cores available	Up to 28 cores/165W	Up to 26 cores/150W		OS Support		Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), VMware, CentOS		Power Supply—Hot Plug		HPE Apollo Power Shelf supports 1–3 HPE Apollo a6000 Chassis depending on power load; holds up to 6 power supplies: 2650W Platinum hot-plug (15.9 kW non-redundant) or 2400W Platinum hot-plug (14.4 kW non-redundant); power can be managed by an HPE Advanced Power Manager (APM) option at the server, chassis or power shelf level		
Memory	Supports up to 2933 MT/s DDR4 SmartMemory 1 TB max. with 64 GB LRDIMM @ 2933 MT/s, 16 DIMM slots	Supports up to 2933 MT/s DDR4 SmartMemory 1 TB max. with 64 GB LRDIMM @ 2933 MT/s, 16 DIMM slots		Interconnect		Integrated 10 Gb Ethernet, EDR and Omni-Path fabric options		Cooling		(5) Dual rotor fans (standard)		
Networking	Embedded dual 1 Gb NIC, PCIe Standup (1) 16x PCIe Gen3 slots from each processor)	2 x 1GbE embedded + Choice of FlexibleLOM + Standup		Cooling		(5) Dual rotor fans (standard)		Security		iLO 5 Silicon Root of Trust, iLO Advanced (Optional)		
Expansion slots	Up to 5 Low Profile PCIe Slots or up to 6 slots including 2 FHHL PCIe from riser support (extended from Slot 2) with 2 processors	Up to (3) PCIe slots: (1) LP PCIe slot and (2) FHHL PCIe slots; Two riser options		Security		iLO 5 Silicon Root of Trust, iLO Advanced (Optional)		Storage Controller		(1) HPE Smart Array S100i; optional HPE Flexible Smart Array and Smart Array PCIe card		
Operating systems and virtualization SW	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware	Microsoft Windows Server, Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), and VMware		Storage Controller		Embedded chipset SATA (s114); optional HPE Smart Array PCIe card		Warranty (parts, labor, on-site support)		3/3/3		
Management Recommended for Management at scale	HPE iLO 5 Management (standard), (2) iLO dedicated management ports; Intelligent Provisioning (standard), UEFI, iLO Advanced (optional), HPE OneView Advanced (optional)	HPE iLO 5 Management (standard), (2) iLO dedicated management ports; Intelligent Provisioning (standard), UEFI, iLO Advanced (optional), HPE OneView Advanced (optional)		Warranty (parts, labor, on-site support)		3/3/3		QuickSpecs URL		h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016640enw		
Chassis (series)	HPE Apollo 4200	HPE Apollo 4510 Chassis		QuickSpecs URL		h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00016634enw h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016641enw		QuickSpecs URL		h20195.www2.hpe.com/v2/gethtml.aspx?docname=a00039976enw		
Systems fans features	Up to 10 fans with optional redundant fan kit (for redundancy)	Hot plug rear serviceable N + 1 redundant dual fan modules		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00056091enw		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021866enw		
Power supply type	(2) HPE 800W or 1600W, Flex Slot Power Supplies (AC/DC/277 VAC)	(4) HPE 800W or 1600W, Flex Slot Power Supplies (AC/DC/277 VAC) HPE Apollo Platform Manager option for rack level management		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016641enw		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016640enw		
Warranty	3/3/3	3/3/3		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00056091enw		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016640enw		
QuickSpecs URL	h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00056091enw	h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00021866enw		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016641enw		QuickSpecs URL		h20195.www2.hpe.com/v2/getdocument.aspx?docname=a00016640enw		



HPE MOONSHOT SYSTEMS AND EDGLINE CONVERGED EDGE SYSTEMS

HPE Moonshot 1500		
		
Chassis size	4.3U; 18.96 x 44.33 x 89.97 cm, holds up to olds up to forty-five (45) ProLiant Server Blades. Switches, uplinks, power supplies, fans, and a chassis management module are all designed to fit into the HPE Moonshot 1500 System.	
Compute nodes	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  ProLiant m700p Blade </div> <div style="text-align: center;">  ProLiant m710x Server Blade </div> <div style="text-align: center;">  ProLiant m510 Server Blade </div> </div>	
SoC	4 processors x AMD Opteron X2170 APU, 2.4 GHz, (4) x86 cores	Intel Xeon E3-1585L v5 "Skylake-H" (3.0 GHz base, 3.7 GHz/all-core turbo) 8 MB shared level 3 Cache and 128 MB L4 cache (eDRAM)
GPU	Integrated GPU with AMD Radeon HD 8000 Series Graphics Base Frequency: 655 MHz Boost Frequency: 800 MHz	Integrated Intel Iris Pro P580 GT4e GPU with 72 execution unit iLO 4 Remote Console
Network controller	Broadcom BCM5720 Ethernet Controller	Mellanox ConnectX-3 Pro, Dual 10GbE NIC with RoCE
Memory	SDRAM DDR3 PC3-12800 (1600 MHz), four (4) SODIMM 32 or 64 GB (8 or 16 GB per SoC)	(4) DDR4 ECC SODIMMs (2133/2400 MHz) (8 GB, 16 GB) Maximum Configuration 64 GB (4 x 16 GB)
Onboard storage	64 GB, 120 GB, or 240 GB M.2 industrial grade SSD Maximum internal storage: 960 GB (1 x 240 GB per SoC)	Five (5) M.2 Modules (1)—SATA M.2 (2242)—120 GB or 240 GB (4)—NVMe M.2 (2280): up to 2 TB each, 8 TB maximum
External storage	iSCSI with iSER acceleration	
Workload	Hosted Desktop Infrastructure	Workspace Application Delivery, Video Transcoding, Big Data Analytics
Server blade management	Moonshot iLO chassis manager	HPE iLO 4 (Remote Console with vKVM and vMedia) HPE Trusted Platform Module (TPM) embedded
Server blade power	Maximum: 90W	Typical: 90W
Compatible OS	Windows 7/8.1/10	Windows 7/8.1/10, Windows Server 2012/2012 R2/2016 RHEL/CentOS, Ubuntu, SLES Hyper-V, XenServer, RHEL KVM, VMware ESXi
Chassis networking	Comware Switches: Moonshot-45Gc Switch, Moonshot-45XGc Switch, Moonshot-180XGc Switch	
Switches		
Moonshot-45G Switch Module	N/A	45 port—1 GB switch for Moonshot 1500, Fast Path Firmware, supports single only single node blades—m510 and m710x
Moonshot-45XGc Switch Module	N/A	45 port—10 GB switch for Moonshot 1500, 10 GB blades can run on 10 GB or 1 GB, and 1 GB blades will run at 1 GB only, Comware 7 firmware
Moonshot-180XGc Switch Module	m700p blades will run on 1 GB, for 10 blades 710x or m510 the networking bandwidth can be set to 10 GB, Comware 7 firmware, supports all blades	
Uplinks		
Moonshot-6SFP Uplink Module	Use up to two 4-port HPE Moonshot-4QSFP+ Uplink Modules with four 40GbE QSFP+ ports. Each uplink module delivers 160GbE of aggregate bandwidth to connect the HPE Moonshot System to an external network. Supports Moonshot-45Gc Switch.	
Moonshot-4QSFP+ Uplink Module	The 45XGc Switch Module is a performance 45 port—10 Gb switch for the Moonshot 1500 chassis. 10 Gb blades can run at 1 Gb or 10 Gb and 1 Gb blades will run at 1 Gb. This switch uses Comware 7 firmware. Supports Moonshot-180XGc Switch.	
Moonshot-16SFP+ Uplink Module	Use up to two 16-port HPE Moonshot-16SFP+ Uplink Modules with sixteen 10GbE SFP+ ports. Each uplink module delivers 160GbE of aggregate bandwidth to connect the HPE Moonshot system to an external network. Supports Moonshot-180XGc Switch.	
Chassis management	iLO Chassis Management, supports the HPE RESTful Interface Tool	
Chassis power	1500W redundant power supply	
Chassis warranty	Chassis Warranty includes 3-Year Parts, 3-Year Labor, 3-Year On-site support	





HPE Edgeline			
New			
  			
	HPE Edgeline EL300 Converged Edge System	HPE Edgeline EL1000 Converged Edge System	HPE Edgeline EL4000 Converged Edge System
Environmental	<ul style="list-style-type: none"> Operating temp: -30 to 70°C Shock and Vibration tested Passively cooled. IP50 rated MIL-STD-810G 	<ul style="list-style-type: none"> Operating temp: 0 to 55°C Shock and Vibration tested NEBS Level 3 	<ul style="list-style-type: none"> Operating temp: 0 to 55°C Shock and Vibration tested MIL-STD-810G NEBS Level 33
Compute	<ul style="list-style-type: none"> One Intel® Core™ i5 Up to 4 x86 cores per system VPU Option for vision processing 	<ul style="list-style-type: none"> One HPE m510 (Intel Xeon D "Broadwell-DE" 8C/16C) or m710x (Intel Xeon E3-1585L v5 "Skylake-H" + workstation GPU) compute blade Up to 16 Xeon cores per system Hot-swappable VPU Option for vision processing Additional GPU options from NVIDIA and AMD 	<ul style="list-style-type: none"> Four HPE m510 (Intel Xeon D "Broadwell-DE" 8C/16C) or m710x (Intel Xeon E3 4C + workstation GPU) compute blades Up to 64 Xeon cores per system Mix-and-match, hot-swappable VPU Option for vision processing Additional GPU options from NVIDIA and AMD
Memory	Up to 32 GB per system	Up to 128 GB per system	Up to 512 GB per system (across four compute blades)
Storage	Up to 3 TB using M.2 SSDs	<ul style="list-style-type: none"> Up to 16 TB on compute blades and extended storage adapters Up to 22 TB using two SFF drives 	Up to 48 TB on four compute blades and four extended storage adapters
Networking	Up to six 1GbE ports, with Time Sensitive Network (TSN)	Up to two 10GbE ports with RDMA over Converged Ethernet (RoCE)	Up to eight 10GbE ports with RDMA over Converged Ethernet (RoCE), and optional 25 Gb, 100 Gb Ethernet NICs
Converged OT and other I/O interfaces	<ul style="list-style-type: none"> HPE Edgeline OT Link One daughter card option supporting CAN bus, GbE TSN, GPIO or Modbus etc., for Converged OT Two M.2 slots, each with a SIM slot for Wi-Fi, BT and LTE connectivity 	<ul style="list-style-type: none"> HPE Edgeline OT Link Two full-height half-length (FHHL) PCIe cards or PXI/PXle modules for Converged OT Two mini-PCIe slots, each with a SIM slot Wi-Fi, BT and LTE connectivity 	<ul style="list-style-type: none"> HPE Edgeline OT Link Four full-height half-length (FHHL) PCIe cards or PXIe modules for Converged OT
Security	Silicon Root of Trust Trusted Platform Module (TPM)	Trusted Platform Module (TPM)	Trusted Platform Module (TPM)
Systems management	<ul style="list-style-type: none"> HPE Edgeline iSM, EIM Redfish, CLI, WebGUI 	<ul style="list-style-type: none"> HPE iLO 4, EIM Redfish, CLI, WebGUI 	<ul style="list-style-type: none"> HPE iLO 4, EIM Redfish, CLI, WebGUI
Power	Typical: 30W AC (with external AC power supply) and DC input options	Typical: 100–150W, AC and DC input options	Typical: 400–600W, AC and DC input options



HPE MISSION CRITICAL SOLUTIONS





HPE Mission Critical x86 Servers

HPE Integrity Servers with HP-UX

								
Processors supported	Intel Xeon Scalable processors family—1st Generation Gold and Platinum	Intel Xeon Scalable processors family—2nd Generation—Gold and Platinum	Intel Itanium® 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9700 (i6)	Intel Itanium 9740 (i6)	Intel Itanium 9740 (i6)
Number of processors	Four Intel Xeon Scalable Platinum or Gold processors per chassis, 1–8 chassis, 4–32 processors single system	1–2	2–4 processors	4–8 processors	1–2 processors	2–16	2–16	2–32
Maximum number of cores	896 (Max. 112 per 4-socket chassis)	16 cores	32 cores	64 cores	16 cores	128 (64 max. per nPar)	128	256
Scalable processor chipset	HPE Superdome Flex ASIC	N/A	N/A	N/A	Intel 7500 IOH	sx3000	sx3000	sx3000
Operating system supported	Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Linux, Oracle VM, VMware, Microsoft Windows Server	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3, VSI OpenVMS V8.4–2L1	HP-UX 11i v3*	HP-UX 11i v3*	HP-UX 11i v3*
Maximum memory	4.8 TB shared memory (Max. 6 TB per 4-socket chassis)	384 GB (2.4 TB Maximum Internal Storage)	768 GB (4.8 TB Maximum Internal Storage)	1.5 TB (9.6 TB Maximum Internal Storage)	384 GB	4 TB DDR3 (256 x 16 GB)	4 TB DDR3 (256 x 16 GB)	8 TB DDR3 (512 x 16 GB)
Memory speed	DDR4 @ 2666 MT/s	DDR4 @ 2933 MT/s	N/A	N/A	N/A	N/A	N/A	N/A
Persistent memory	N/A	HPE DC Persistent Memory (128, 256, and 512 GB)	N/A	N/A	N/A	N/A	N/A	N/A
I/O slots	128 max. (16 or 12 LP PCIe I/O slots per 4-socket chassis)	3 mezzanine slots	6 mezzanine slots	12 mezzanine slots	6 Gen2 PCIe	48 external PCIe x8 Gen2	96 external PCIe x8 Gen2	96 external PCIe x8 Gen2
Internal hard disk drives	Per 4-socket chassis: 4x HDD/SSD bays and 1x DVD-R/DVD-RW bay	2 SFF hot plug SAS	4 SFF hot plug SAS	8 SFF hot plug SAS	Up to 8	N/A	N/A	N/A
Hard partitions (nPars)	Multiple 4, 8, 12, or 16-socket electrically isolated HPE nPartitions (HPE nPars) supported per rack	Supported	Supported	Supported	N/A	1–8	1–8	1–16
Management	Rack Management Controller (RMC), Redfish API, HPE OneView	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Insight Online, HPE Systems Insight Manager, HPE Integrity iLO 3	HPE Systems Insight Manager, HPE Integrity iLO 3	Superdome Onboard Administrator (OA), HPE Systems Insight Manager	Superdome Onboard Administrator (OA), HPE Systems Insight Manager	Superdome Onboard Administrator (OA), HPE Systems Insight Manager
Rack height (EIA unit)	Multiple size racks supported depending on configuration. Refer to QuickSpecs for details. 5U per 4-socket Base or Expansion Chassis.	Full-height server blade: 8 per 10U enclosure; 4 per 6U enclosure	Double width, full-height server blade: 4 per 10U enclosure; 2 per 6U enclosure	Quad width, full-height server blade; 2 per 10U enclosure; 1 per 6U enclosure	2U	18U enclosure; 4U I/O expansion enclosure; standard rack door	1 x 18U enclosures; 4U I/O expansion enclosure; door active display	2 x 18U enclosures; 4U I/O expansion enclosure; door active display
For more information on HPE Superdome Flex, please visit: hpe.com/superdome		For more information on HPE's Mission Critical Integrity servers, please refer hpe.com/info/integrity		* HP-UX 11i v3 2017 update and above required for i6 server				

HPE NonStop systems

Ultra-robust systems that deliver 24x7 continuous availability, unrivaled data integrity, and the capacity to handle the most-demanding processing-intensive workloads.

				
Processor Supported	Intel® Xeon® Silver 4100 series processors	Intel Xeon Gold 6100 series processors	HPE NonStop servers for Telco-use	
NonStop CPUs per system	Minimum: 2 Maximum: 4	Minimum: 2 Maximum: 16	NS3 DC X2	NS7 CG X2
Software licensing	1 or 2-core software licensing	2, 4, or 6-core software licensing	Number of processors	2–4
RAM	Per CPU: • Minimum 32 GB • Maximum 64 GB Per system: • Maximum 256 GB	Per CPU: • Minimum 64 GB • Maximum 192 GB Per system: • Maximum 3.0 TB	Maximum number of cores	8
NonStop OS	L-series	L-series	Processors supported	E5-2600 series processor
System Interconnect	InfiniBand	InfiniBand	Maximum memory	256 GB (per node)
Clustering	Expand-over-IP	NonStop X Cluster Solution (NSXCS), Expand-over-IP	Drives supported	Up to 100
I/O controllers (Maximum number of CLIMs)	8	56	Maximum internal storage	40 TB
Telco industry hardware choices	-48 VDC, seismic rack	-48 VDC, seismic rack NEBS level 3 certified	Rack height	Delivered in 36U CG seismic rack(s)
			Operating systems supported	NonStop OS (L-series)
			Blades per enclosure	4
				16

For more information on HPE's Integrity NonStop systems, please refer hpe.com/info/nonstop



THE HPE STORAGE FAMILY

HPE delivers an intelligent data platform that predicts and prevent issues across your full IT stack with the ability to learn and self-adjust in real time. Hybrid by design, it makes your data accessible and usable across all cloud environments, turning your data challenges into business opportunities.

The Intelligent Data Platform by HPE is AI-driven, built for the cloud and delivered as a service:

AI-driven: Reduce the burden of managing infrastructure and gain context-awareness of your data throughout its lifecycle.

Built for cloud: Run any workload, anywhere you need it with seamless data mobility and native integration to public cloud.

As a service: Pay-per-use elastic capacity that grows ahead of your business, delivered as a service on-premises.

Explore how your enterprise might take advantage of intelligent storage to meet the dynamic challenges ahead.

- **(New) HPE Primera:** The world's most intelligent storage for mission-critical apps² that delivers extreme resiliency and performance with the agility of the cloud. Powered by the intelligence of HPE InfoSight, HPE Primera delivers instant access to data with storage that sets up in minutes, upgrades transparently, and is delivered as a service. Plus, it's backed by a 100% availability guarantee.³
- **(New) HPE Nimble Storage dHCI:** HPE Nimble Storage dHCI is an intelligent platform with the flexibility of converged and the simplicity of HCI. Built with HPE ProLiant and HPE Nimble Storage, this platform provides the flexibility to scale compute and storage independently for unpredictable growth and the data resiliency and performance needed for business-critical apps.
 - Hardware consists of HPE Nimble Storage AF and HF platforms, and HPE ProLiant DL360 and DL 380. Please refer to the HPE Nimble Storage and HPE ProLiant sections for more information.
- **HPE MSA Storage:** Flash-enabled arrays that raise the entry storage bar, making application acceleration possible for a wide range of budgets.
- **HPE StoreEasy:** A leading NAS product family under \$15K USD, which is an easy-to-manage centralized, space for securely storing documents, images, audio, and video files.
- **HPE Nimble Storage:** HPE Nimble Storage leverages flash storage and predictive analytics to eliminate the gap and guarantee 99.9999% availability, delivering the best all-flash capacity per TB in the industry—and future-proofing design for value today and tomorrow.
- **HPE SimpliVity:** An enterprise-grade hyperconverged platform that speeds application performance, improves efficiency and resiliency, and restores VMs in seconds.
- **HPE 3PAR StoreServ Storage:** Tier 1 all-flash data storage array that can scale from midsize to the largest enterprises and service providers, enabling high service levels and instant application provisioning.
- **HPE XP8:** Designed for applications requiring 100% data availability, the HPE XP8 Storage combines a seven-nines platform (99.99999%) of fully online, scalable, and redundant hardware, with ultra-high-performance, and advanced data replication, and disaster recovery (DR) along with online data migration capabilities.
- **HPE StoreOnce:** Intelligent storage that transforms your hybrid cloud data protection with greater simplicity, performance and agility at lower cost than traditional solutions.
- **HPE StoreEver:** As your business's data continues to grow, trust HPE proven tape solutions to retain your valuable data for longer and for less.
- **HPE StoreFabric:** HPE StoreFabric modernizes your storage network with a broad selection of trusted products focused on performance, SAN automation, and resiliency solutions.



All-Flash and Hybrid Storage

All-flash and hybrid storage with intelligence that makes it smarter and simpler to use.



Data Protection and Archive Storage

Flash storage-integrated, built-for-cloud data protection delivering unparalleled backup, archive, and disaster recovery for your enterprise apps.



File-based Storage

Secure, tailored, and economic solutions to address storage requirements for NAS and file-based storage.



Storage Networking

A superior storage networking experience with a broad selection of trusted HPE StoreFabric products focused on performance, SAN automation, and resiliency solutions.

² HPE Storage Substantiation

³ HPE 100% Availability Guarantee



HPE PRIMERA



New

The HPE Primera 600 series redefines what's possible in mission-critical storage by delivering the agility of the cloud while raising the bar on resiliency and performance. Built upon proven resiliency and powered by HPE InfoSight, HPE Primera delivers instant access to data with storage that sets up in minutes, upgrades transparently, and is delivered as a service.




Hardware summary	 HPE Primera A630	 HPE Primera A650	 HPE Primera A670
Number of Controller Nodes	2	2 or 4	2 or 4
CPUs per node	1	2	2
Maximum Host Ports	16 ports	48 ports	48 ports
16 GB or 32 Gb/s Fibre Channel Host Ports	0–16 ports	0–48 ports	0–48 ports
Built-in 10GbE Ports per node	2	2	2
Max. number of SSDs	144	384	576
Max. Raw Capacity (SSD only)	250 TiB	800 TiB	1600 TiB
Max. number of Add-on Drive Enclosures	5 enclosures (A630)	14 enclosures (A650)	22 enclosures (A670)
Capacity	250 TiB (SSD only)	800 TiB (SSD only)	1600 TiB (SSD only)
Cache	128 GiB	256 GiB	512 GiB/1 TiB
Storage Controller	HPE Primera A630 Controller	HPE Primera A650 Controller	HPE Primera A670 Controller
Minimum dimensions	HPE Primera 630: 483 x 839 x 87.5 cm (W/D/H)	HPE Primera 650: 483 x 839 x 174 cm (W/D/H)	HPE Primera 670: 483 x 839 x 174 cm (W/D/H)
Weight (weight includes chassis, controllers, and PCBM, no drives or adapters)	HPE Primera 630: 33.6 kg	HPE Primera 650 2N: 47.3 kg HPE Primera 650 4N: 67.3 kg	HPE Primera 670 2N: 47.3 kg HPE Primera 670 4N: 67.3 kg
Product number (SKU)			N9Z46A (2-way Storage Base) N9Z47A (4-way Storage Base)
Drive description			SAS SFF FIPS Encrypted SSD; SAS SFF SSD;
Enclosures			HPE Primera 2U24 SFF SAS Drive Enclosure
Maximum drives per enclosure			HPE Primera 600 2-way Storage Base: 24; HPE Primera 600 4-way Storage Base: 48; HPE Primera 2U24 SFF SAS Drive Enclosure: 24
Host interface			32 Gb/s Fibre Channel; 16 Gb/s Fibre Channel
Availability features			Redundant power and cooling modules with battery and fans; A minimum of dual redundant controllers, max. of four controllers for added redundancy; RAID 6 for data protection
Compatible operating systems			Microsoft Windows Server 2012; Microsoft Windows Server 2012 R2; Microsoft Windows Server 2016; Microsoft Windows Server 2019; Microsoft Windows Hyper-V; HP-LUX; SUSE Linux Enterprise Server (SLES); Red Hat Enterprise Linux (RHEL); VMware ESX® and ESXi; Oracle Solaris; Oracle UEX; Oracle Linux; Citrix® XenServer; IBM AIX; HPE OpenVMS; Apple OS X; HPE OpenVMS is a registered release only
Warranty			3/0/0 (3-year parts only); 5/0/0 (for SSDs)




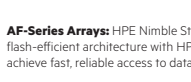
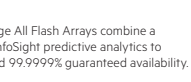


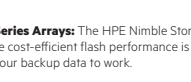

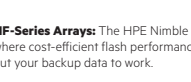
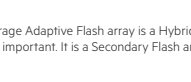
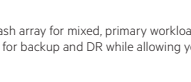

HPE MODULAR SMART ARRAY (MSA)

New			
			
Description	The HPE MSA 1050 SAN Storage brings affordable flash storage down to the most price sensitive customers	The HPE MSA 2050 SAN Storage is a flash ready system designed for affordable application acceleration ideal for small and remote office deployments	The HPE MSA 2052 SAN Storage is a hybrid flash system designed for affordable application acceleration for small and remote office deployments
Capacity	307 TB SFF or 576 TB LFF maximum raw capacity, depending on model	614 TB SFF or 1152 TB LFF, maximum raw capacity, depending on model	
Drive description	96 SFF or 48 LFF maximum including expansion, depending on model	192 SFF SAS/MDL SAS/SSD or 96 LFF SAS/MDL SAS/SSD, maximum including expansion, supported, depending on model	
Host interface	8 Gb Fibre Channel, 4-ports per system or 1 Gb iSCSI, 4-ports per system or 10 Gb iSCSI, 4-ports per system or 12 Gb SAS, 4-ports per system depending on model	16 Gb/8 Gb Fibre Channel 8-ports per system or 1GbE/10GbE iSCSI 8-ports per system or 12 Gb SAS 8-ports per system are supported depending on model	
Storage controller	2 HPE MSA 1050 2-port 8 Gb FC Controllers or 2 HPE MSA 1050 2-port 1 Gb iSCSI Controllers or 2 HPE MSA 1050 2-port 10 Gb iSCSI Controllers or 2 HPE MSA 1050 2-port 12 Gb SAS Controllers, depending on model	Two HPE MSA 2050 SAN controllers or two HPE MSA 2050 SAS controllers, supported, depending on model	
Storage expansion options	HPE MSA 2050 SFF Disk Enclosure or HPE MSA 2050 LFF Disk Enclosure	HPE MSA 2050 LFF Disk Enclosure or HPE MSA 2050 SFF Disk Enclosure or the HPE MSA 2050 SAN DC-Power Carrier Grade SFF Disk Enclosure	HPE MSA 2050 LFF Disk Enclosure or HPE MSA 2050 SFF Disk Enclosure
	N/A	Clustering support	
	N/A	Windows, Linux, HP-UX	
	N/A		
SAN backup support	Yes	Yes	
Systems Insight Manager support	Yes	Yes	
Compatible operating systems	Microsoft Windows Server 2019, Microsoft Windows Server 2016, Microsoft Windows Server 2012, Red Hat Linux, SUSE SLES Linux (2 versions of Linux OS), VMware, HP-UX. Detailed information available at: hpe.com/storage/spock		
Form factor	2U rack height		
Minimum dimensions (H x W x D)	8.9 x 49.5 x 44.7 cm		
Weight	17.55 kg		
Warranty	Three-year limited warranty, parts exchange next business day delivery. For more warranty information, refer to h20564.www2.hp.com/hpsc/wc/public/home		

HPE SIMPLIVITY

New			
			
Description	HPE SimpliVity 380, based on the HPE ProLiant DL380 Gen10 Servers, is a compact, scalable 2U rack-mounted building block that delivers server, storage, and storage networking services.	HPE SimpliVity 325 Gen10, based on the HPE ProLiant DL325 Gen10 Servers, is a compact, scalable, 1U rack-mounted building block that delivers integrated server, storage, and storage networking services. The HPE SimpliVity 325 Gen10 Server is the secure and versatile single socket server for virtualization and I/O intensive workloads is ideal for remote office or space-constrained locations.	The HPE SimpliVity 2600 VDI solution dramatically simplifies IT by combining infrastructure and advanced data services for virtualized workloads into a building block that delivers server, storage, and storage networking services.
Node/Chassis size	2U	1U	2U, up to 4 nodes per chassis
Processors	2x Intel Xeon Scalable processors are 8 to 28 cores selectable, 1 or 2 CPU options	1x AMD EPYC 7000 Processor Family 16 to 32 cores selectable, 1 CPU option slot	2x Intel Xeon Scalable processors 12 to 22 cores selectable, 1 or 2 CPU options
Memory	144 GB to 1536 GB per node selectable	256 GB to 2048 GB per node selectable	128 GB to 768 GB per node selectable
Storage	Two All Flash Storage Options (4000/6000 Series) and 5 Capacity Points: Extra Small—5 x 960 GB SSD Kit Small—5 x 1.92 TB SSD Kit Medium—9 x 1.92 TB SSD Kit Large—12 x 1.92 TB SSD Kit Extra Large—12 x 3.84 TB SSD Kit (Series 4000 only)	Extra Small—4 x 1.92 TB SSD Kit (4.6 TB usable) Small—6 x 1.92 TB SSD Kit (7.5 TB usable)	6 x 1.92 TB SSD Kit (1 kit per node)
Network ports	Ethernet 1 Gb LOM embedded, choice of 2 x 10 Gb FLOM	Embedded Ethernet 4 x 1GbE LOM embedded, 10 Gb FLOM	Dual port 1GbE Media Module Adapter dual port 10GbE PCI NIC
Power supplies	Dual power supplies provide highly available power HPE 800W FS Universal Ht Plg Pwr Supply Kit HPE 1600W FS Plat Ht Plg LH Pwr Supply Kit HPE 800W FS Plat Ht Plg Pwr Supply Kit HPE 800W FS -48 VDC Ht Plg Pwr Supply Kit HPE 800W FS Ti Ht Plg Pwr Supply Kit	Dual power supplies provide highly available power HPE 500W FS Plat Hot Plug LH Power Supply Kit HPE 800W FS Plat Hot Plug Power Supply Kit HPE 800W FS -48 VDC Hot Plug Power Supply Kit HPE 800W FS Titanium Hot Plug Power Supply Kit HPE 800W FS Universal Hot Plug Power Supply Kit HPE 1600W FS Platinum Hot Plug LH Power Supply Kit	Dual power supplies provide highly available power HPE 1600W Flex Slot Platinum hot plug LH Power Supply Kit HPE 1800W-2200W Flex Slot Platinum hot plug LH Power Supply Kit
Hardware warranty	Server Warranty includes 3-year Parts, 3-year Labor, 3-year On-site support with next business day response	Server Warranty includes 3-year Parts, 3-year Labor, 3-year On-site support with next business day response	Server Warranty includes 3-year Parts, 3-year Labor, 3-year On-site support with next business day response
Hardware support	3-year HPE SimpliVity 380 Gen10 solution support (required)	3-year HPE SimpliVity 325 Gen10 solution support (required)	3-year HPE SimpliVity 2600 solution support (required)

HPE NIMBLE STORAGE

New							New							
														
Raw capacity (TB/TiB)	6-46/5-42	11-46/10-42	11-184/10-167	11-553/10-502	23-1106/21-1005	4423/4023	21-210/19-191	11-211/10-192	21-1260/19-1146	21-504/19-458	21-1260/19-1146	21-1260/19-1146	21-1260/19-1146	5040/4584
Usable capacity (TB/TiB)	3-25/2-23	17-33/15-30	8-136/7-124	8-407/7-370	17-815/15-741	3260/2965	16-169/14-153	7-164/6-149	16-1016/14-924	16-406/14-369	16-1016/14-924	16-1016/14-924	16-1016/14-924	4065/3697
Effective capacity (TB/TiB)	14-128/13-116	82-168/75-153	40-682/36-620	40-2037/36-1853	82-4075/75-3706	16303/14827	81-845/74-768	34-821/31-746	32-2032/29-1848	81-2030/74-1846	32-2030/28-1846	81-5080/74-4621	32-2030/28-1846	326-20324/297-18484
Max. # of expansion shelves	1	1	1	2	2	8	6	6	6	6	6	6	6	24
Flash capacity (TB/TiB)	N/A	N/A	N/A	N/A	N/A	N/A	1.4-28/1.3-25	0.9-28/0.8-25	0.7-28/0.6-25	1.4-60/1.3-54	1.4-60/1.3-54	1.4-156/1.3-142	1.4-156/1.3-142	624/567
RAID level	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity	Triple+ Parity
Onboard iSCSI/Mgmt. 1 Gb/10 Gb ports per array	4	4	4	4	4	16	4	4	4	4	4	4	4	16
Optional iSCSI 1 Gb ports per array	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Optional iSCSI 10 Gb ports per array	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Optional FC 8 Gb/16 Gb ports per array	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	4, 8, 12, 16, 20, 24	96
Max. power requirement (watts/kVA)	600/0.667	650/0.722	800/0.889	850/0.944	1200/1.333	4800/5.332	750/0.833	650/0.722	750/0.833	850/0.944	850/0.944	900/1.000	900/1.000	3600/4.000
Thermal (BTU)	1968	2132	2624	2788	3936	15744	2460	2132	2460	2788	2788	2952	2952	11,808



HPE 3PAR STORESERV STORAGE

New



HPE 3PAR StoreServ 8000 Storage: Enterprise Tier 1 storage at a midrange price. HPE 3PAR StoreServ 8000 Storage delivers the performance advantages of a purpose-built, flash-optimized architecture without compromising resiliency, efficiency, or data mobility.



The HPE 3PAR StoreServ 9000 Storage: Enterprise-class flash array that helps you consolidate primary storage workloads—for file, block, and object—without compromising performance, scalability, data services, or resiliency.



The HPE 3PAR StoreServ 20000 Storage: Enterprise flash arrays for massive consolidation of demanding workloads with greater than 3 million IOPS, sub-millisecond latencies, a 4x density advantage, and scalability to 24 PB of usable capacity.

Model	8200	8400	8440	8450	9450	20450	20800	20850	20840
Number of Controller Nodes	2	2 or 4	2 or 4	2 or 4	2 or 4	2 or 4		2, 4, 6, or 8	
HPE 3PAR Gen5 ASICs	2	2 or 4	2 or 4	2 or 4	4 or 8	4 or 8		4, 8, 12, or 16	
Processors	2 x 6-core 2.2 GHz	2-4 x 6-core 2.2 GHz	2-4 x 10-core 2.4 GHz	2-4 x 10-core 2.4 GHz	4-8 x 10-core 2.4 GHz	4-8 x 8-core 2.5 GHz	4-16 x 8-core 2.5 GHz	4-16 x 10-core 2.4 GHz	
Total Cache	832 GiB	1664 GiB	8384 GiB	384 GiB	896 GiB	0.9-1.8 TiB	0.6-34.5 TiB	0.9-3.6 TiB	0.9-51.6 TiB
Flash Cache (optional)	768 GiB	1536 GiB	8000 GiB	N/A	N/A	N/A	0-32 TiB	N/A	0-48 TiB
On-Node Cache	64 GiB	128 GiB	384 GiB	384 GiB		896-1792 GiB	640-2560 GiB	896-3584 GiB	896-3584 GiB
Total Cache per node pair	832 GiB	832 GiB	4192 GiB	192 GiB	448 GiB				
Flash Cache per node pair	768 GiB	768 GiB	4000 GiB	N/A					
On-Node Cache per node pair	64 GiB	64 GiB	192 GiB	192 GiB					
Maximum Host Ports	12 ports	24 ports	24 ports	24 ports	80 ports	80 ports		160 ports	
16 Gb/s Fibre Channel Host Ports	4-12 ports	4-24 ports	4-24 ports	4-24 ports	0-80 ports	0-80 ports		0-160 ports	
10 Gb/s iSCSI Host Ports	0-4 ports	0-8 ports	0-8 ports	0-8 ports	0-40 ports	0-40 ports		0-80 ports	
10 Gb/s FCoE Host Ports	0-4 ports	0-8 ports	0-8 ports	0-8 ports					
10 Gb/s Ethernet Ports for File Persona	N/A	N/A	N/A	N/A	0-24 ports			0-48 ports	
1 Gb/s Ethernet Adapter	0-8 ports	0-16 ports	0-16 ports	0-16 ports		N/A	N/A	N/A	N/A
10 Gb/s Ethernet Adapter	0-4 ports	0-8 ports	0-8 ports	0-8 ports		N/A	N/A	N/A	N/A
Maximum Initiators Supported	2048	4096	4096	4096		N/A	N/A	N/A	N/A
Built-in 1GbE Ports	2	2-4	2-4	2-4	2-4 ports	N/A	N/A	N/A	N/A
Built-in 10GbE Ports	N/A	N/A	N/A	N/A		2-4 ports	N/A	2-8 ports	
2U Controller Node Drive Capacity	24	24	24	24	N/A	N/A	N/A	N/A	N/A
Number of Hard Disk Drives	6-240	6-576	6-960	N/A	N/A	N/A	6-2304 drives	N/A	6-2304 drives
Number of Solid State Drives	6-120	6-240	6-480	6-480	6-576	6-576	6-1152	6-1152	6-1152
Max. Raw Capacity (approx.)	1000 TiB	2400 TiB	4000 TiB	3351 TiB	6000 TiB	1.925-4021 TiB	1.925-9600 TiB	1.925-8043 TiB	1.925-9600 TiB
Max. Raw Capacity (SSD only)	838 TiB	1676 TiB	3351 TiB	3351 TiB		1.925-4021 TiB	1.925-8043 TiB	1.925-8043 TiB	1.925-8043 TiB
Usable File Capacity	2-256 TiB	2-512 TiB	2-512 TiB	2-512 TiB	2-512 TiB	2-512 TiB		2-1024 TiB	

Capacity details	8200	8400	8440	8450	9450	20450	20800	20850	20840
RAID Levels	RAID 0, 1, 5, 6					RAID 0, 1, 5, MP			
RAID 5 Data to Parity Ratios	2:1-8:1					2:1-8:1			
RAID 6 Data to Parity Ratios	4:2, 6:2, 8:2, 10:2, 14:2					4:2, 6:2, 8:2, 10:2, 12:2, 14:2			
Drive Capacities (SSDs)	400 GB SSD, 920 GB SSD, 1.92 TB SSD, 3.84 TB SSD, 7.68 TB SSD, 15.36 TB SSD					400 GB SSD, 1.92 TB SSD, 3.84 TB SSD, 7.68 TB SSD, 15.36 TB SSD			
Drive Capacities (HDDs)	300 15K SAS, 600 15K SAS, 600 10K SAS, 1200 10K SAS, 1800 10K SAS, 2000 7.2K SAS, 4000 7.2K NL, 6000 7.2K NL, 8000 7.2K NL				N/A	N/A	300 15K SAS, 600 15K SAS, 600 10K SAS, 1200 10K SAS, 1800 10K SAS, 2000 7.2K SAS NL, 4000 7.2K SAS NL, 6000 7.2K SAS NL, 8000 7.2K SAS NL	N/A	300 15K SAS, 600 15K SAS, 600 10K SAS, 1200 10K SAS, 1800 10K SAS, 2000 7.2K SAS NL, 4000 7.2K SAS NL, 6000 7.2K SAS NL, 8000 7.2K SAS NL
Number of Add-on Drive Enclosures	0-9 enclosures	0-22 enclosures	0-38 enclosures	0-18 enclosures	2-48 enclosures	2-48 enclosures	2-96 enclosures		
Support for HPE 3PAR StoreServ File Controller v3	Yes								

Gateway



The HPE 3PAR StoreServ File Controller provides an efficient, bulletproof, and effortless way to provide file services from any model of HPE 3PAR StoreServ Storage.

Processor/Cache Memory		Intel Xeon E5-2609 v3 (1.9 GHz/6-core/15 MB/BSW) Processor (SKU K2R67A)
		Intel Xeon E5-2609 v4 (1.7 GHz/8-core/15 MB/BSW) Processor (SKU Q0F57A)
Memory	Type Standard	DDR4 Registered (RDIMM) standard 32 GB (4 x 8 GB)
	DIMM Sockets	16
Network Controller	NIC Ports	2 x 1GbE
Storage Controller	Controller(s)	HPE Dynamic Smart Array B140i Controller
	RAID	0, 1, 1+0, and 5
Storage	Hard Drives (Internal)	24 x 2.5" (Small Form Factor) hot plug bays in the HPE 3PAR StoreServ File Controller v3 System chassis
	Hard Drives (External)	2 x 6G SATA Solid State Drives containing factory installed OS. Configured as RAID 1 mirrored pair
Power Supply		2 x 800W Platinum hot plug Power Supply (located in HPE 3PAR StoreServ File Controller v3 System chassis)
Power Cords		Note: The HPE 3PAR StoreServ File Controller v3 Systems are primarily connected to PDUs in data center racks and ship standard with a PDU 6-foot C14 to C13 power cord (142258-001)
System Fans		8 (4+4 redundancy) non-hot plug in HPE 3PAR StoreServ File Controller v3 System chassis
Form Factor	HPE 3PAR StoreServ File Controller v3 System—2U rack mount chassis	
	HPE 3PAR StoreServ File Controller v3 Single Node—2U single slot tray (one or two nodes per chassis)	
	HPE 3PAR StoreServ File Controller WSS2016 v3 Single Node—2U single slot tray (one or two nodes per chassis)	

HPE XP8 Storage

HPE XP8 Storage: Resilient mission critical storage for enterprise applications at scale that enables you to optimize and deploy with extreme confidence.



Drive	SAS SFF SSD and HDD, LFF HDD, FMD (Flash Module Device) NVMe SFF
Storage Capacity	69 PB Raw, ~60 PB Usable, 255 PB External Storage
Host Interface	16 Gb FICON SW FC (192 Ports), 16 Gb FICON LW FC (192 Ports), 16/32 Gb FC HBA (192 Ports), 10G iSCSI (96 Ports)
Cache	6 TB Maximum supported cache capacity 32 GiB or 64 GiB Memory with Back-up Modules
Compatible Operating Systems	VMware, HP-LUX, IBM AIX, Linux, Mainframe, Microsoft Windows, Oracle Solaris
Availability Features	All active components are redundant, and hot-swappable. On-line scalable fully redundant hardware platform with unique High Availability SW solutions for complete business continuity and data protection. Supports multiple RAID levels for data protection.
RAID Support	RAID 1 (2D + 2P), RAID 1 (4D + 4P), RAID 5 (3D + 1P), RAID 5 (7D + 1P), RAID 6 (6D + 2P), RAID 6 (14D + 2P)
Warranty Standard Statement	Warranty level of hardware reactive support is 3-years, 24x7, with 4-hour on-site response.
Weight (Imperial)	326.5 lb. HPE XP8 Performance Disk Controller Chassis Pair (includes chassis, controllers, PCB, no drives or adapters).
Weight (metric)	148.1 kg HPE XP8 Performance Disk Controller Chassis Pair (includes chassis, controllers, PCB, no drives or adapters).
Product Dimensions (Imperial)	HPE XP8 Performance Disk Controller Chassis 19 x 30 x 17.1 in. (W/D/H)
Product Dimensions (metric)	HPE XP8 Performance Disk Controller Chassis 483 x 763 x 434 mm (W/D/H)







HPE STOREONCE

Hardware				Software			
Description	New				New		
Overview product specifications	3620	3640	5200	5250	5650		
Form factor	2U Rack	2U Scalable Rack	4U Scalable Rack	7U to 12U Scalable Rack	7U to 22U Scalable Rack		
Total capacity (raw)	48 TB	Up to 144 TB	Up to 288 TB	Up to 1120 TB	Up to 2240 TB		
Local usable capacity	Up to 31.5 TB	Up to 108 TB	Up to 216 TB	Up to 864 TB	Up to 1.7 PB		
Effective local usable capacity	Up to 630 TB (with 20:1 deduplication)	2.16 PB (with 20:1 deduplication)	4.32 PB (with 20:1 deduplication)	17.3 PB (with 20:1 deduplication)	34 PB (with 20:1 deduplication)		
Maximum Cloud Bank Storage usable capacity	63 TB	216 TB	432 TB	1.7 PB	3.5 PB		
Effective Cloud Bank Storage capacity	1.26 PB (with 20:1 deduplication)	4.32 PB (with 20:1 deduplication)	8.6 PB (with 20:1 deduplication)	34 PB (with 20:1 deduplication)	70 PB (with 20:1 deduplication)		
Effective total usable capacity	1.9 PB (with 20:1 deduplication)	6.48 PB	13 PB	51 PB (with 20:1 deduplication) Maximum write performance	104 PB (with 20:1 deduplication)		
Maximum write performance	6 TB/hour	7 TB/hour	17 TB/hour	22 TB/hour	27 TB/hour		
Maximum catalyst write performance	14 TB/hour	18 TB/hour	33 TB/hour	41 TB/hour	47 TB/hour		
Maximum fan-in/backups targets	24	24	32	32/64	50/192		

Performance			
	Min. config.	Max. config.	To scale from minimum configuration
Local capacity	4 TB	500 TB	100 MB vRAM per TB
Cloud Bank Storage capacity	N/A	1 PB	100 MB vRAM per TB
Max. backup performance	2 TB/hr	36 TB/hr	1 vCPU + 300 IOPS per TB/hr
Max. concurrency	16 streams	256 streams	500 MB vRAM per stream
Maximum backup targets	4 stores	32 stores	1 GB vRAM per store
Fan-in ratio	8 sources	8 sources	N/A
Minimum vRAM	24 GB	320 GB	N/A
Minimum CPU	2	36	N/A
IOPS	600	10,800	N/A
Dedicated hard drives	4	72	N/A

HPE StoreOnce VSA Backup: As a software defined backup target, StoreOnce VSA can be configured to provide the capacity and performance needed to meet the data protection requirements.

HPE STOREEVER

Autoloader	MSL	Enterprise tape libraries			
New		New		New	
 HPE StoreEver MSL 1/8 0-drive	 HPE StoreEver MSL2024	 HPE StoreEver MSL3040	 HPE StoreEver MSL6480	 HPE T950	 HPE TFinity ExaScale
Maximum number of tape drives (Half-height)	1	2	21	42	120 (Full-height) 144 (Full-height)
Drives type	LTO-8 Ultrium 30750 LTO-7 Ultrium 15000 LTO-6 Ultrium 6250 LTO-5 Ultrium 3000	LTO-8 Ultrium 30750, LTO-7 Ultrium 15000, LTO-6 Ultrium 6250, LTO-5 Ultrium 3000	LTO-8 Ultrium 30750; LTO-7 Ultrium 15000; LTO-6 Ultrium 6250	LTO-8 Ultrium 30750; LTO-7 Ultrium 15000; LTO-6 Ultrium 6250; LTO-5 Ultrium 3000	LTO-8, LTO-7 and LTO-6, or TS11xx LTO-8, LTO-7 and LTO-6, or TS11xx
Maximum number of tape slots (Half-height)	8	24	280	560	10,020 LTO 7,614 TS11xx 53,460 LTO 40,680 TS11xx
Maximum capacity (2.5:1 compression with LTO-8)	240 TB	720 TB	8.4 PB	16.8 PB	300.6 PB (using LTO-8 drives and media) 1.6 EB (using LTO-8 drives and media)
Maximum sustained transfer rate (native)	Up to 1.08 TB/hr per drive	Up to 2.16 TB/hr with 2 LTO-8 drives	Up to 22.5 TB/hr with 21 LTO-8 drives	Up to 45.4 TB/hr with 42 LTO-8 drives	Up to 155.52 TB/hour with maximum configuration of LTO-8 drives 186.6 TB/hour with maximum configuration of LTO-8 drives
Form factor	1U	2U	3U-21U	6U-42U	47U (Full-height) 47U (Full-height)
Interface	8 Gb Native Fibre Channel; 6 Gb/s SAS	8 Gb Fibre Channel; 6 Gb/s SAS;	8 Gb Fibre Channel; 6 Gb/s SAS	8 Gb Fibre Channel; 6 Gb/s SAS	8 Gb/s FC 8 Gb/s FC
Warranty—year(s) (parts/labor/on-site)	1/0/0	1/0/0	1/1/1	1/1/1	Refer to Spectra Logic Refer to Spectra Logic

HPE STORAGE MEDIA

New				
Category	LTO Ultrium	LTO Ultrium	LTO Ultrium	LTO Ultrium
Product Line	7A	7A	7A	7A
Product Name	HPE LTO-8 Ultrium 30 TB RW 20 Data Cartridges	HPE LTO-7 Ultrium 15 TB RW 20 Data Cartridges	HPE LTO-6 Ultrium 6.25 TB MP RW 20 Data Cartridges	HPE LTO-5 Ultrium 3 TB RW 20 Data Cartridges
Product No. with Option	Q2078AA	C7977AN	C7976AN	C7975AN
SAP* (Yes/No)	Yes	Yes	Yes	Yes
Single Unit UPC	1 90017 34459 1	1 90017 34460 7	1 90017 34461 4	1 90017 34462 1
Unit JAN code	4 549821 271184	4 549821 271191	4 549821 271207	4 549821 271214
Unit Dimensions (inches)	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8	L 12.36 x W 10.03 x H 5.8
Unit Dimensions (cm)	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8	L 31.4 x W 25.5 x H 14.8
Unit Weight (lbs)	12.67	12.67	12.67	12.67
Unit Weight (grams)	5747.00	5747.00	5747.00	5747.00
30 Word Description	HPE LTO-8 Ultrium 30 TB RW 20, Data Cartridges, 20 Pk	HPE LTO-7 Ultrium 15 TB RW 20, Data Cartridges, 20 Pk	HPE LTO-6 Ultrium 6.25 TB MP RW 20, Data Cartridges, 20 Pk	HPE LTO-5 Ultrium 3 TB RW 20, Data Cartridges, 20 Pk
Warranty (if not included in data sheet)	A142—2X (limited lifetime)	A142—2X (limited lifetime)	A142—2X (limited lifetime)	A142—2X (limited lifetime)



HPE STOREEASY

New

HPE StoreEasy 1x60 Storage: Whether you are a small, medium, or large distributed organization with remote offices, you need reliable, cost-efficient storage that can keep pace with users and growing volumes of file data without getting in the way of how your organization operates.

HPE Storage File Controller: An optimized, efficient, secure, and highly available file services gateway to address the file storage challenges of customers' medium to large organizations and their SAN environments.



StoreEasy 1460 (all models)



StoreEasy 1560 (all models)



StoreEasy 1660 Performance Model only



StoreEasy 1860 Performance Model only







HPE Storage File Controller

Processor/Cache Memory		Intel® Xeon® Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Silver 4112 (2.6 GHz/4-core/85W) Processor	Intel Xeon Silver 4112 (2.6 GHz/4-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W), second processor optional
				StoreEasy 1660 (all others models)	StoreEasy 1860 (all others models)	HPE Storage Performance File Controller
				Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Bronze 3104 (1.7 GHz/6-core/85W) Processor	Intel Xeon Silver 4110 (2.1 GHz/8-core/85W), second processor optional
Memory	Type	DDR4-2666 CAS-19-19-19 Registered (RDIMM)				
	Maximum (by O/S license)	24 TB (WSS2016)				
	Standard	8 GB (1 x 8 GB)	8 GB (1 x 8 GB)	16 GB (1 x 16 GB)	16 GB (1 x 16 GB)	16 GB-32 GB (1 x 16 GB or 1 x 32 GB)
	DIMM Sockets	24	6	24	24	24
Network Controller	NIC ports	4	2	4	4	4 x 1GbE ports plus FlexibleLOM expansion
	Controller	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	1 Gb Ethernet 4-port	N/A
Storage Controller	Controller(s)	HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2 GB Cache/SmartCache) 12G SAS Modular Controller for data and OS drives	HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2 GB Cache/SmartCache) 12G SAS Modular Controller for data and OS drives	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4 GB Cache/SmartCache) 12G SAS Modular Controller for data drives; HPE Smart Array S100i SR Gen10 SW RAID for OS drives only	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4 GB Cache/SmartCache) 12G SAS Modular Controller for data drives; HPE Smart Array S100i SR Gen10 SW RAID for OS drives only	HPE Smart Array S100i SR Gen10 SW RAID
	RAID (for data drives using Smart Array controller)	RAID 0, 1, 5, 6, 10, 50, 60 1 ADM, 10 ADM (Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	RAID 0, 1, 5, 6, 10, 50, 60 1 ADM, 10 ADM (Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	RAID 0, 1, 5, 6, 10, 50, 60 1 ADM, 10 ADM (Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	RAID 0, 1, 5, 6, 10, 50, 60 1 ADM, 10 ADM (Advanced Data Mirroring) on Smart Array P816i—Not all RAID levels recommended or supported on StoreEasy	0, 1, 1+0, and 5 N/A
	Internal SAS connectors	8 SAS lanes across 2 x4 internal Mini-SAS ports	8 SAS lanes across 2 x4 internal Mini-SAS ports	16 SAS lanes across 4 x4 internal Mini-SAS ports	16 SAS lanes across 4 x4 internal Mini-SAS ports	N/A
	External SAS connectors	None	None	None	None	N/A
Storage	Hard Drives Internal	4 LFF (3.5") hot plug bays in front	4 LFF (3.5") hot plug bays standard and 4 additional LFF (3.5") hot plug bays optional (total of 8 internal LFF bays maximum)	12 LFF (3.5") hot plug bays in front and optional 4 LFF hot plug bays in mid-chassis drive cage (total of 16 internal LFF bays maximum)	24 SFF (2.5") hot plug bays in front and optional 4 SFF hot plug bays in rear drive cage (total of 28 SFF internal bays maximum)	2 x 240 GB SATA SFF SSDs for Operating System (configured as RAID 1 mirrored pair)
	External	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Support for external D3X10 and D6020 Disk Enclosures requires optional Smart Array controller with external port	Designed for attach to Fibre Channel (HBA required) or iSCSI (Microsoft iSCSI initiator included) arrays
Maximum Storage Capacity (raw)	Internal	32 TB	64 TB (with optional card cage and 4 x 12 TB LFF HDDs)	192 TB (with optional mid-chassis cage and 16 x 12 TB LFF HDDs)	67.2 TB (with optional rear cage and 28 x 2.4 TB SFF HDDs)	(Internal) N/A (External) depends on external array
	External	Depends on number of Smart Arrays with external ports and type of external storage enclosure used				
Power Supply		1 x 500 watts Platinum, hot plug (2nd redundant power supply optional)	1 x 500 watts Platinum, hot plug (2nd redundant power supply optional)	2 x 800 watts Platinum, hot plug	2 x 800 watts Platinum, hot plug	2 x 500W Platinum hot plug Power Supply
Power Cords		One high voltage power cords (IEC C13 to C14) standard; two if second power supply added		Two high voltage power cords (IEC C13 to C14) standard	Two high voltage power cords (IEC C13 to C14) standard	Note: The HPE Storage File Controllers are primarily connected to PDUs in data center racks and ship standard with a PDU 6-foot C14 to C13 power cord (142258-001)
System Fans		Single processor system includes 5 hot plug, redundant fans, standard dual processor system includes 7 hot plug redundant fans	2 non-hot plug redundant fans, standard	6 hot plug, high-performance, redundant fans, standard	6 hot plug, high-performance, redundant fans, standard	Single processor system includes 5 hot plug, redundant fans, standard. Dual processor system includes 7 hot plug redundant fans.
Form Factor		1U rack mount (includes rail kit)	Tower (4.5U) Note: Sliding Shelf—874578-821 is optional to support rack form factor.	2U rack mount (includes rail kit)	2U rack mount (includes rail kit)	1U rack mount (includes rail kit)





HPE STOREFABRIC



Enterprise-level Gen6 32 Gb Fibre Channel Director Switches

				
Product name	HPE StoreFabric SN8600B 8-Slot Power Pack+ SAN Director Switch	HPE StoreFabric SN8600B 4-Slot Power Pack+ SAN Director Switch	HPE StoreFabric SN8500C 8-slot SAN Director Switch	HPE StoreFabric SN8500C 4-slot SAN Director Switch
Port speed/Performance	Up to 32 Gb FC	Up to 32 Gb FC	Up to 64 Gb FC	Up to 64 Gb FC
Ports	Up to 384 ports (equivalent to 512 with ICLs) at 32 Gb. It can accommodate up to 8 HPE 48-port blades and comes pre-bundled with HPE Power Pack+ Software	Up to 192 ports (equivalent to 256 with ICLs) at 32 Gb. It can accommodate up to 4 HPE 48-port FC blades and comes pre-bundled with HPE Power Pack+ Software	Up to 384 ports (equivalent to 512 with ICLs) at 32 Gb. It can accommodate up to 8 HPE 48-port blades.	Up to 192 32 Gbps Fibre Channel or 10 Gbps FCoE ports. It can accommodate up to 4 HPE 48-port blades.
Aggregate switch bandwidth	16.2 Tbps aggregate chassis bandwidth 12.2 Tbps FC port bandwidth (384 ports x 32 Gb) 4.096 Tbps ICL bandwidth (32 x 128 Gbps) 1.5 Gb slot bandwidth	8.1 Tbps aggregate chassis bandwidth 6.1 Tbps FC port bandwidth (192 ports x 32 Gb) 2.048 Tbps ICL bandwidth (32 x 128 Gbps) 1.5 Gb slot bandwidth	Up to 24 Tbps front-panel, Fibre Channel switching bandwidth and 21 Tbps of FCoE bandwidth; per chassis: Up to 384 2/4/8 Gbps, 4/8/16 Gbps, 8/16/32 Gbps or 10 Gbps Fibre Channel ports	Up to 12 Tbps front-panel, Fibre Channel, line-rate, non-blocking system-level switching capacity
Encryption capability	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight	AES 256-bit, data at rest and data in flight
Protocol support	FC, FCIP	FC, FCIP	FC, FCoE	FC, FCoE
Frame/Enclosure supported	N/A	N/A	N/A	N/A
Availability	Supports "five nines" availability (i.e., 99.999%), redundant hot-swappable components	Supports "five nines" availability (i.e., 99.999%), redundant hot-swappable components	Fully redundant components, including fabric modules, supervisors, and power supplies	Fully redundant components, including fabric modules, supervisors, and power supplies
Media types	N/A	N/A	N/A	N/A
Form factor	14U	9U	14U	9U
Warranty	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)	(3–3–3 hardware warranty)



Entry-level switches

		
Product name	HPE SN3600B 32 Gb FC Switch	HPE SN6610C 32 Gb FC Switch
Port speed/Performance	32 Gb FC	32 Gb FC
Ports	8–24 FC Enabled device ports—24 max.	8–32 FC enabled device ports—32 max.
Aggregate switch bandwidth	256–768 Gb end-to-end full duplex	1024 end-to-end full duplex
Encryption capability	N/A	N/A
Protocol support	4/8/16/32 Gb FC	4/8/16/32 Gb FC
Frame/Enclosure supported	N/A	N/A
Availability	Integrated single power supply and 4 built-in cooling fans	Integrated single power supply and 2 built cooling fans
Media types	B-series 16 Gb, 32 Gb SFP+	C-series 32 Gb, 32 Gb SFP+
Form factor	1U	1U
Warranty	(3–3–3 hardware warranty)	(1–1–1 hardware warranty)



Mid-level switches

		
Product name	HPE StoreFabric SN6600B 32 Gb FC Switch	HPE SN6620C 32 Gb FC Switch
Port speed/Performance	32 Gb FC	32 Gb FC
Ports	24–64 FC device ports	24–48 FC enabled device ports—48 max.
Aggregate switch bandwidth	2 Tb/s maximum	1536 end-to-end full duplex
Encryption capability	In-flight encryption	N/A
Protocol support	4/8/10/16/32 Gb FC	4/8/16/32 Gb FC
Frame/Enclosure supported	N/A	N/A
Availability	Two integrated redundant, hot-swappable power supplies with integrated cooling fans	Integrated single power supply and 2 built cooling fans
Media types	B-series 16 Gb SFP+, 32 Gb SFP+	C-series 16 Gb, 16 Gb SFP+, 32 Gb, 32 Gb SFP+
Form factor	1U	1U
Warranty	(3–3–3 hardware warranty)	(1–1–1 hardware warranty)

Enterprise switch

		
Product name	HPE StoreFabric SN6650B FC Switch	HPE SN6630C FC Switch
Port speed/Performance	32 Gb FC	32 Gb FC
Ports	48–128 FC enabled device ports—32 max.	48–96 FC enabled device ports—96 max.
Aggregate switch bandwidth	4.096 Tbps end-to-end full duplex	3 Tbps end-to-end full duplex
Encryption capability	In-flight encryption	N/A (No Encryption)
Protocol support	4/8/16/32 Gb FC	4/8/16/32 Gb FC
Frame/Enclosure supported	N/A	N/A
Availability	Integrated dual power supply and 2 built cooling fans	Integrated dual power supply and 2 built cooling fans
Media types	B-series 32 Gb, 32 Gb SFP+	C-series 16 Gb, 16 Gb SFP+, 32 Gb, 32 Gb SFP+
Form factor	2U	2U
Warranty	(1–1–1 hardware warranty)	(1–1–1 hardware warranty)

Embedded switches

		
Product name	Brocade 16 Gb FC Switch Module for HPE Synergy	Brocade 16 Gb SAN Switch for HPE BladeSystem c-Class
Port speed/Performance	16 Gb FC	16 Gb FC
Ports	12–24 FC device ports depending on model (12 downlinks, 24 uplinks)	16–28 FC device ports depending on model (16 downlinks, 12 uplinks)
Aggregate switch bandwidth	384 Gbps maximum depending on model	448 Gbps depending on model
Encryption capability	N/A	N/A
Protocol support	FC	FC
Frame/Enclosure supported	HPE Synergy Frame	HPE BladeSystem c-Class
Availability	Hot pluggable, non-disruptive upgrades, redundant switches	Redundant switches per BladeSystem for high availability; hot-swappable; hot-code load activation
Media types	B-series 16 Gb SFP+ and 8 Gb SFP+ optical transceivers, Quad Small Form Pluggable (QSFP)	B-series 16 Gb SFP+ and 8 Gb SFP+ optical transceivers
Form factor	Embedded	Embedded
Warranty	(3–3–3 hardware warranty)	1-year parts, 1-year labor, 1-year on-site

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Belden® Copper Catalog



Our End-to-End Expertise
Your End-to-End Solution

Belden Copper Systems

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Introducing **REVConnect[®]** **Systems**



Industry-leading, end-to-end structured cabling solutions with best-in-class performance guarantees in all categories.

- Reliable network performance
- Maximum network speed and uptime
- Reduced installation time and costs
- Simplified deployment
- Versatility in supporting applications
- Maximized bundle sizes under full PoE load

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Faster.
Easier.
Better.



Belden Copper Systems Provide Reliable, End-to-End Networking Performance

Cabling is the core foundation of every network – its ability to provide high-performance, reliable transmission is essential for carrying out day-to-day business operations. From critical data center links that connect network switches and servers, to horizontal and backbone links that deliver voice, data and video for networking, communications, audio visual, security and building management applications, Belden has end-to-end copper cabling systems to address your current networking challenges while providing bandwidth and scalability for the needs of the future.



LEED documents are available for several products. See specific product pages for LEED document retrieval instructions.

Cable products compliant with Living Building Challenge requirements are on page 68.

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REVConnect®
Systems



Five different levels of Belden Copper Systems to meet customers' specific needs.

Representing Networking Leadership at Every Turn

REVConnect Systems offer industry-leading, end-to-end structured cable solutions with best-in-class performance guarantees in all categories. This provides greater peace of mind in knowing that your network infrastructure will support increasing demands. REVConnect components are designed for seamless compatibility, easy installation and in support of current and next-generation network applications. REVConnect Systems offer unmatched system reliability, ease of deployment and application versatility.

REVConnect 10GXS System

Ideal for demanding applications, Belden's REVConnect 10GXS System combines high-performance connectivity with the best mechanical and electrical characteristics possible in a Category 6A cable. This system supports mission-critical smart buildings, data centers, efficient 100W PoE applications and noisy environments that present lots of signal interference.

REVConnect 10GXW System

The REVConnect 10GXW System offers outstanding noise immunity and reliability. Its cable and connectivity are designed to support multi-gigabit, in-building wireless applications (up to 10G), such as Wi-Fi 6 and small cells, as well as smart building applications and MPTL device connections in the extended LAN.

REVConnect 3600 System

The REVConnect 3600 System offers the best price-performance ratio of any end-to-end Category 6 system on the market. With guaranteed performance to 300 MHz, the REVConnect 3600 System offers headroom beyond the TIA/EIA Category 6 standard to support any current IP-based application, including VoIP, PoE, wireless access points and building automation systems. Increased performance guarantees across all electrical parameters, combined with a compact size and REVConnect Connectivity for rapid deployment with less rework, make the REVConnect 3600 System the most cost-effective solution for high-traffic and high bit-rate applications throughout the LAN.

REVConnect 2400 System

The REVConnect 2400 System offers moderate communications performance for general business applications and transactions, including advanced file sharing and downloads. It offers increased performance guarantees across all electrical parameters and a guaranteed bandwidth of 250 MHz to support 10/100/1000BASE-T applications with enhanced, error-free Category 6 performance. With cables, modular jacks, cords, patch panels and a cross-connect system, the REVConnect 2400 System is an ideal market-entry solution for businesses ready for reliable, end-to-end Category 6 performance.

REVConnect 1200 System

For networks requiring only Category 5e performance, the REVConnect 1200 System is the best-performing Category 5e system available. The REVConnect 1200 System exceeds all requirements for Category 5e performance with guaranteed bandwidth to 160 MHz—more bandwidth than typical Category 5e systems. Ideal for budget-conscious and short-term investments, the REVConnect 1200 System is robust enough to support a variety of basic business applications in standard environments, including basic PoE.

Faster.
Easier.
Better.



Belden REVConnect Systems – Performance and Component Selection Matrix

System	10GXS System	10GXW System	3600 System	2400 System	1200 System
Performance Standard	Category 6A		Category 6		Category 5e
Available Bandwidth	625 MHz	500 MHz	300 MHz	250 MHz	160 MHz
Cable Selection	10GXS Series	10GXW Series	3600 Series	2400 Series	1200 Series
Connectivity Selection	10GX REVConnect Wall-Mount System		GigaBIX Cross-Connect		BIX and 110 Cross-Connect
	10GX Modular Patch Panels 10GX Modular Jacks 10GX Modular Patch Cords		CAT6+ Modular Patch Panels CAT6+ Modular Jacks CAT6+ Modular Patch Cords		CAT5E Modular Patch Panels CAT5E Modular Jacks CAT5E Modular Patch Cords
	REVConnect, KeyConnect and Flex Modular Patch Panels MediaFlex, KeyConnect, Interface and MDVO Outlet Hardware <i>(Configurable with appropriate modules)</i>				

Best-in-Class Support and Warranties*

All Belden REVConnect Systems are backed by expert service and technical support, and a commitment to delivering high-performance, reliable transmission solutions. Belden backs certified systems with two unique, best-in-class warranties for complete peace of mind: a 25-Year Product Warranty and a Lifetime Application Assurance Program. From the date of installation, the 25-Year Product Warranty warrants against defects in materials and workmanship, and guarantees that components meet or exceed all applicable standards. Under the Lifetime Application Assurance Program, Belden warrants that each certified REVConnect System will deliver its specified throughput rate and minimum bandwidth capabilities, and be capable of operating the applications that the system was originally designed to support, as well as any new applications, for the lifetime of the installed system.

*When installed by a Belden Certified Partner

Contact Belden Today

For more information about Belden Copper Systems, call **1.800.BELDEN.1** (800.235.3361) or visit www.belden.com.

Belden REVConnect Shielded Systems – Performance and Component Selection Matrix

Shielded System	10GX Shielded System	2400 Shielded System	1200 Shielded System
Performance Standard	Category 6A	Category 6	Category 5e
Available Bandwidth	625 MHz	250 MHz	160 MHz
Cable Selection	10GX Shielded Series	2400 Shielded Series	1200 Shielded Series
Connectivity Selection	10GX Shielded Modular Jacks 10GX Shielded Modular Patch Cords	CAT6+ Shielded Modular Jacks CAT6+ Shielded Modular Patch Cords	CAT5E Shielded Modular Jacks CAT5E Shielded Modular Patch Cords
	REVConnect, KeyConnect, and Flex Modular Patch Panels MediaFlex Faceplates, KeyConnect Faceplates and Adapters <i>(Configurable with appropriate modules)</i>		

REVConnect Modules are compatible with KeyConnect footprints

Top-Quality Flagship Innovations Provide the Ultimate Value

Belden Copper System components include several innovative technologies designed to ensure cost-effective, easy deployment and maximum performance and reliability, while meeting current and future needs for capacity and scalability.

Belden Bonded-Pair Cables

Available for each Copper System, Belden Bonded-Pair Cables feature a patented design that bonds the individual conductors along their longitudinal axis for extremely uniform spacing that maintains pair geometry and consistent electrical performance. With higher pulling tensions and tighter bend radii, Belden Bonded-Pair Cables are better suited to withstand the rigors of real-world installations and accommodate high-density data center applications that experience a great deal of cable bending in and around patch panels. Because Belden Bonded-Pair Cables avoid gaps along the twisted pairs, they provide improved return loss and balance performance that makes them less susceptible to electromagnetic and radio frequency interference (EMI/RFI) in noisy environments. This innovative Belden technology is ideal for high-frequency 10G and broadband video applications, as well as any mission-critical situations where dropped signals are not an option.



Pre-Terminated Assemblies Systems

REVConnect Pre-Term Assemblies provide a rapid deployment infrastructure solution for today's data centers and enterprise LANs, with a compact copper pre-term bundle OD. They save time on the long process of field termination and offer a more cost-effective, proven-quality and flexible plug-and-play solution. REVConnect Pre-Terminated Assemblies, using our unique Bonded Pairs cable, are terminated with our award-winning REVConnect termination. Universal Core can be terminated with Jack or RJ45 Plug, providing a versatile solution to End Users. Compact Pulling Eye OD, makes pulling the cable easier for contractors during installation. Enable faster and more efficient deployment when paired with our REVConnect Preloaded Patch Panels. Providing a true Plug & Play and MAC-Friendly solution. (MAC = Moves added and Changes) Future-proofing your network for high-bandwidth applications. They can be deployed in Plenum space to link Wireless Access Points to Consolidation, or to Workstation area.



REVConnect Modularity

Our REVConnect modules feature the same footprint as our existing KeyConnect line, allowing them to be used with our existing line of patch panels, faceplates, adapters and boxes. REVConnect jacks are available in 10GX, CAT6+, and CAT5E, shielded and unshielded, to suit any network performance level.



Each modular component of the REVConnect and KeyConnect series fits together seamlessly to accommodate any application—from the data center to the workstation. Designed with superior signal transmission performance, REVConnect and KeyConnect Modules can be easily inserted and removed from any keystone-style opening, providing design flexibility, reduced installation time and the ability to reconfigure as needs change. For data centers and telecommunications rooms, modular KeyConnect Patch Panels can be preloaded or configured using any REVConnect or KeyConnect Modules for any level of density, including a 48-port/1U configuration. The modules can also be used with front-loading Belden MediaFlex Outlets for mixing and matching with Multimedia Modules. REVConnect and KeyConnect components come in a variety of colors and styles, including more than 19 colors of jacks, stainless steel faceplates, single-gang and double-gang configurations, and boxes equipped with protective shutters.



Best Design and Installation Partners

Well positioned as a leading single-source provider, Belden's PartnerAlliance program is a top-quality global network consisting of fully trained Certified System Vendors (CSVs), Networking and AV installation partners. Belden recruits and qualifies only the best partners to design, deliver and install certified systems backed by our industry-leading warranties. Belden invests heavily in evaluating, training and qualifying our partners so they have the knowledge and expertise necessary to ensure that the design and installation of each Belden system is optimized for the required standards, technology environment and lifespan of the network.

SECTION ONE

Category 6A REVConnect Systems

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REVConnect Systems offer industry-leading, end-to-end structured cabling solutions with best-in-class performance guarantees in all categories. Combined with REVConnect Connectivity, which utilizes a single termination process for all components, REVConnect Systems ensure that your network infrastructure investment brings to life the technology and applications of today and tomorrow.

REVConnect 10GXW and 10GXS Systems serve as the gold standard for Category 6A performance and ease of deployment.

Belden's REVConnect 10GXS System supports high-density, high-bandwidth, mission-critical applications and can exceed 100 m channel requirements in certain applications (maximum channel length of up to 185 m).

Belden's REVConnect 10GXW System offers the smallest and lightest horizontal Category 6A cable available for easy installation and to maximize the number of cables that can be installed within a conduit. It's ideal for in-building Wi-Fi and indoor small cell deployment.

The REVConnect 10GXS and 10GXW Systems are based on Belden's innovative enabling technologies:

REVConnect technology, offers revolutionary connectivity that features insulation-piercing contacts for a stable and reliable termination, superior electrical performance and support for high POE wattage.

EquiSpine maintains structural integrity, which improves cable roundness and optimizes electrical performance.

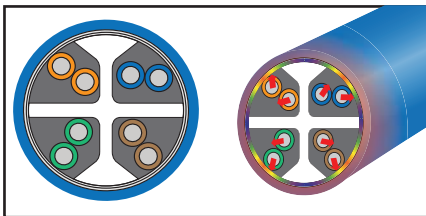
EquiBlock Barrier Technology improves heat transfer and blocks noise coupling.

Bonded-Pair technology offers uniform spacing of conductors for exceptional structural stability and superior electrical performance.

MatriX IDC technology positions each IDC at a right angle to its adjacent IDC to cancel alien crosstalk and provide stable, high performance in high-density environments.

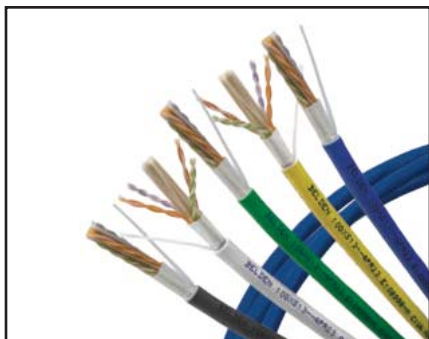
FleXPoint PCB technology positions the compensation circuitry in 10GX Modular Jacks directly at the plug's point of contact for better crosstalk performance.

Dual-Flex PCB technology in the RJ45 Coupler of 10GX Pre-Terminated Cabling Systems ensures an uninterrupted electrical path for enhanced reliability.



EquiSpine™ Design and EquiBlock™ Barrier Effects

10GXS Cables Nonbonded-Pair and Bonded-Pair



10GXS System Cables

The demand for 10 Gb/s performance is growing. Emerging applications are poised to take advantage of higher 10 Gb/s speeds and call for higher power delivered over the cable. With an effective diameter of just 0.265" for CMP and 0.273" for CMR, 10GXS Cables have proven performance that exceeds Category 6A requirements for 100 m channels. These cables are ideal for LANs and enterprise data centers that require high-density and high-bandwidth connections for current and emerging network applications.



Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff

Applications:

- 10GBASE-T Ethernet
- 1000BASE-T, 2.5 Gb/s and 5 Gb/s Ethernet
- PoE PSE Type 1 (15W), PSE Type 2 (30W), PSE Type 3 (60W), PSE Type 4 (100W)
- Wi-Fi 6, Wi-Fi 5 (IEEE 802.11ac Wave 1 and Wave 2)
- Eliminates length de-rating up to 60°C for 10GBASE-T
- HDBaseT



Shaded part numbers indicate LP-Certification by UL

Category 6A, 10GXS Cables

Description		Belden Part Number					
		Nonbonded-Pair			Bonded-Pair		
Color	Length	UnReel	Spool-in-Box	Spool	UnReel	Spool-in-Box	Spool
10GXS Cables, UTP, 4-pair, 23 AWG, Plenum-CMP							
Red	1000 ft (305 m)	10GXS13002U1000	10GXS13002A1000	10GXS13 0021000	10GXS33002U1000	10GXS33002A1000	10GXS33 0021000
Orange	1000 ft (305 m)	10GXS13003U1000	10GXS13003A1000	10GXS13 0031000	10GXS33003U1000	10GXS33003A1000	10GXS33 0031000
Yellow	1000 ft (305 m)	10GXS13004U1000	10GXS13004A1000	10GXS13 0041000	10GXS33004U1000	10GXS33004A1000	10GXS33 0041000
Green	1000 ft (305 m)	10GXS13005U1000	10GXS13005A1000	10GXS13 0051000	10GXS33005U1000	10GXS33005A1000	10GXS33 0051000
Blue	1000 ft (305 m)	10GXS13D15U1000	10GXS13D15A1000	10GXS13 D151000	10GXS33D15U1000	10GXS33D15A1000	10GXS33 D151000
Purple	1000 ft (305 m)	10GXS13007U1000	10GXS13007A1000	10GXS13 0071000	10GXS33007U1000	10GXS33007A1000	10GXS33 0071000
Gray	1000 ft (305 m)	10GXS13008U1000	10GXS13008A1000	10GXS13 0081000	10GXS33008U1000	10GXS33008A1000	10GXS33 0081000
White	1000 ft (305 m)	10GXS13009U1000	10GXS13009A1000	10GXS13 0091000	10GXS33009U1000	10GXS33009A1000	10GXS33 0091000
Black	1000 ft (305 m)	10GXS13010U1000	10GXS13010A1000	10GXS13 0101000	10GXS33010U1000	10GXS33010A1000	10GXS33 0101000
10GXS Cables, UTP, 4-pair, 23 AWG, Riser-CMR							
Red	1000 ft (305 m)	10GXS12002U1000	10GXS12002A1000	10GXS12 0021000	10GXS32002U1000	10GXS32002A1000	10GXS32 0021000
Orange	1000 ft (305 m)	10GXS12003U1000	10GXS12003A1000	10GXS12 0031000	10GXS32003U1000	10GXS32003A1000	10GXS32 0031000
Yellow	1000 ft (305 m)	10GXS12004U1000	10GXS12004A1000	10GXS12 0041000	10GXS32004U1000	10GXS32004A1000	10GXS32 0041000
Green	1000 ft (305 m)	10GXS12005U1000	10GXS12005A1000	10GXS12 0051000	10GXS32005U1000	10GXS32005A1000	10GXS32 0051000
Blue	1000 ft (305 m)	10GXS12006U1000	10GXS12006A1000	10GXS12 0061000	10GXS32006U1000	10GXS32006A1000	10GXS32 0061000
Purple	1000 ft (305 m)	10GXS12007U1000	10GXS12007A1000	10GXS12 0071000	10GXS32007U1000	10GXS32007A1000	10GXS32 0071000
Gray	1000 ft (305 m)	10GXS12008U1000	10GXS12008A1000	10GXS12 0081000	10GXS32008U1000	10GXS32008A1000	10GXS32 0081000
White	1000 ft (305 m)	10GXS12009U1000	10GXS12009A1000	10GXS12 0091000	10GXS32009U1000	10GXS32009A1000	10GXS32 0091000
Black	1000 ft (305 m)	10GXS12010U1000	10GXS12010A1000	10GXS12 0101000	10GXS32010U1000	10GXS32010A1000	10GXS32 0101000
10GXS Cables, UTP, 4-pair, 23 AWG, LSZH							
Blue	1000 ft (305 m)	*	*	10GXS24 0061000	*	*	*
Purple	1000 ft (305 m)	*	*	10GXS24 0071000	*	*	*
White	1000 ft (305 m)	*	*	10GXS24 0091000	*	*	*

*Not available

Faster.
Easier.
Better.



10GXW Cables

Nonbonded-Pair

Combining the Category 6A performance you need with the Belden quality and reliability you expect, the REVConnect 10GXW System offers best-in-class noise immunity with 4 dB of PSANEXT and 10 dB of PSAACRF headroom. Superior design and manufacturing capabilities ensure system performance that eliminates slow network speeds and maximizes uptime in wireless environments. As the smallest, lightest horizontal Category 6A cable available, it's easy to deploy and maximizes the number of cables that can be installed in conduit.

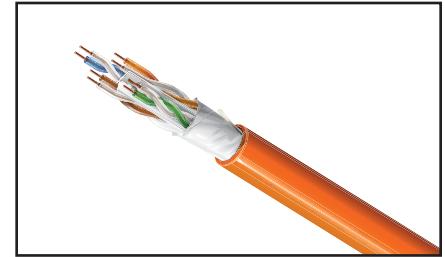
The system supports high-density, high-bandwidth applications and can exceed 100 m channel requirements in certain applications (maximum channel length of up to 140 m).

The REVConnect 10GXW System also includes connectivity components that feature Belden's innovative, game-changing REVConnect Connectivity, which supports reliable, easy terminations using a single method for all Category 5e, 6 and 6A RJ45 connections and components.

Applications:

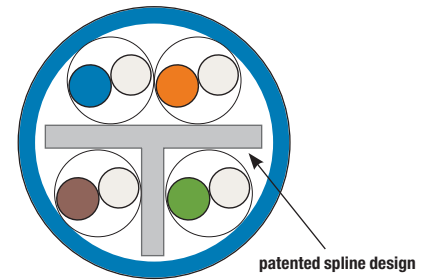
- In-building Wi-Fi 6 and Wi-Fi 5
- Indoor small cell deployment
- Network-connected devices for smart building applications
- Multi-gigabit applications of the future (up to 10 Gb/s)

 Shaded part numbers indicate LP-Certification by UL



10GXW12

Legend



Category 6A, 10GXW Cables

Description		Belden Part Number
Color	Length	Nonbonded-Pair
Spool		
10GXW Cables, 0.250" OD, UTP, Plenum-CMP		
Red	1000 ft (305 m)	10GXW13 0021000
Orange	1000 ft (305 m)	10GXW13 0031000
Yellow	1000 ft (305 m)	10GXW13 0041000
Green	1000 ft (305 m)	10GXW13 0051000
Blue	1000 ft (305 m)	10GXW13 D151000
Gray	1000 ft (305 m)	10GXW13 0081000
White	1000 ft (305 m)	10GXW13 0091000
Black	1000 ft (305 m)	10GXW13 0101000
10GXW Cables, 0.260" OD, UTP, Riser-CMR		
Red	1000 ft (305 m)	10GXW12 0021000
Orange	1000 ft (305 m)	10GXW12 0031000
Yellow	1000 ft (305 m)	10GXW12 0041000
Green	1000 ft (305 m)	10GXW12 0051000
Blue	1000 ft (305 m)	10GXW12 0061000
Gray	1000 ft (305 m)	10GXW12 0081000
White	1000 ft (305 m)	10GXW12 0091000
Black	1000 ft (305 m)	10GXW12 0101000

10GX Patch Panels

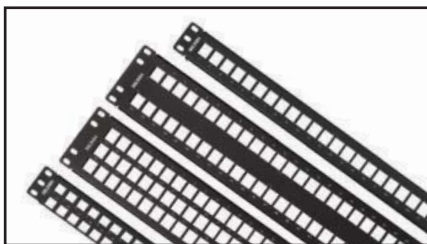
REVConnect and KeyConnect Preloaded and Modular



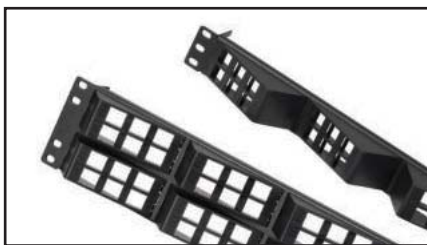
REVConnect Preloaded Patch Panels (10GX shown)



10GX KeyConnect Patch Panel (Preloaded)



KeyConnect Patch Panel (Empty)



KeyConnect AngleFlex Patch Panel (Empty)



KeyConnect Front Access Patch Panel, 24-port 1U (Empty)

10GX Patch Panels are available in REVConnect and KeyConnect styles, as well as Belden's unique AngleFlex design. Configurations include 24-port 1U, 48-port 2U and 48-port 1U in flat and angled designs. Preloaded panels are available with RJ45 jacks or couplers.

Benefits

- Performance up to 625 MHz
- Flat, Angled and AngleFlex options available
- Quick and easy termination with REVConnect termination tool (REVConnect patch panels)
- Front access options (REVConnect patch panels) for additional versatility

Features

- REVConnect Patch Panels feature Belden's revolutionary REVConnect core technology
- REVConnect Patch Panels are compatible with color icons and dust covers
- KeyConnect Patch Panels feature Belden's 10GX Connectors with FlexPoint PCB technology and Matrix IDC technology
- Single-port modularity on REVConnect and KeyConnect standard densities
- Labeling and cable management accessories included with all patch panels

For color icons and dust covers please see page 62.

Category 6A, 10GX Preloaded Patch Panels

Description	Belden Part Number	
	White	Black
10GX REVConnect Patch Panels (Preloaded)		
10GX REVConnect Patch Panel 24-port 1U (Preloaded)	RVAPPF1U24WH	RVAPPF1U24BK
10GX REVConnect Patch Panel 48-port 2U (Preloaded)	RVAPPF2U48WH	RVAPPF2U48BK
10GX REVConnect Angled Patch Panel 24-port 1U (Preloaded)	RVAPPA1U24WH	RVAPPA1U24BK
10GX REVConnect Angled Patch Panel 48-port 2U (Preloaded)	RVAPPA2U48WH	RVAPPA2U48BK
10GX KeyConnect Patch Panels (Preloaded)		
	Titanium	Black
10GX KeyConnect Patch Panel, 24-port 1U (Preloaded)	AX103254	—
10GX KeyConnect Patch Panel, 48-port 2U (Preloaded)	AX103256	—
10GX KeyConnect Angled Patch Panel, 48-port 1U (Preloaded)	—	AX105365
10GX Ultra-High-Density Patch Panels (Preloaded)		
	Titanium	—
10GX Ultra-High-Density Patch Panel, 48-port 1U (Preloaded)	AX103264	—

Modular Patch Panels (Empty)

Description	Belden Part Number	
	White	Black
REVConnect Modular Patch Panels (Empty)		
REVConnect Modular Patch Panel 24-port, 1U (Empty)	RVMPPF1U24BK	RVMPPF1U24WH
REVConnect Modular Patch Panel 48-port, 2U (Empty)	RVMPPF2U48BK	RVMPPF2U48WH
REVConnect Angled Modular Patch Panel 24-port, 1U (Empty)	RVMPPA1U24BK	RVMPPA1U24WH
REVConnect Angled Modular Patch Panel 48-port, 2U (Empty)	RVMPPA2U48BK	RVMPPA2U48WH
KeyConnect Modular Patch Panels (Empty)		
KeyConnect Patch Panel, 24-port, 1U (Empty)	—	AX103114
KeyConnect Patch Panel, 48-port, 2U (Empty)	—	AX103115
KeyConnect Patch Panel, 72-port, 2U (Empty)	—	AX103116
KeyConnect Patch Panel, 48-port, 1U (Empty)	—	AX103121
KeyConnect Angled Patch Panel, 24-port, 1U (Empty)	—	AX104599
KeyConnect Angled Patch Panel, 48-port, 2U (Empty)	—	AX104601
KeyConnect Angled Patch Panel, 48-port, 1U (Empty)	—	AX104600
KeyConnect AngleFlex Patch Panel, 24-port, 1U (Empty)	—	AX103248
KeyConnect AngleFlex Patch Panel, 48-port, 2U (Empty)	—	AX103249

Front Access Modular Patch Panels and Accessories

Description	Belden Part Number
KeyConnect Front Access Patch Panels (Empty)	
KeyConnect Front Access Patch Panel, 24-port, 1U, Black (Empty)	AX106288
KeyConnect Front Access Patch Panel, 48-port, 2U, Black (Empty)	AX106289
KeyConnect Front Access Patch Panel, 72-port, 2U, Black (Empty)	AX106290
Labeling Kit (12 strips and LabelFlex sheets for 96 ports) (Empty)	AX106291
Spare Bezel Kit for Front Access Patch Panel, 24-Pack (Empty)	AX106292-B24

Faster.
Easier.
Better.



10GX Connectors, Tools and Accessories

REVConnect, KeyConnect and MDVO

10GX Connectors are available in two termination styles: Belden's new REVConnect System and standard punchdown in KeyConnect or MDVO styles. REVConnect and KeyConnect have a keystone footprint and are designed to be used with any KeyConnect Patch Panels and with KeyConnect or MediaFlex Workstation Outlets.

Benefits

- REVConnect: Safe connectivity for air-handling spaces
- REVConnect: Offers great versatility and labor savings
- Easy termination and network administration

Features

- REVConnect: Plenum rated - meets UL 2043 requirements
- REVConnect: Requires no pair separation; the best connector for Bonded-Pair and Nonbonded-Pair cable
- REVConnect: Terminates four pairs simultaneously with REVConnect Universal Termination Tool
- KeyConnect/MDVO offer 10GX enabling technologies: Matrix IDC, X-Bar and FlexPoint PCB
- Meets and exceeds Category 6A component performance with guaranteed usable bandwidth up to 625 MHz

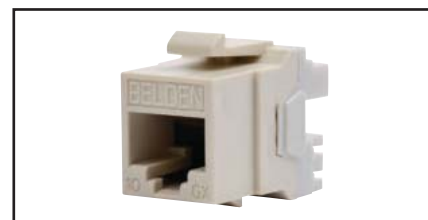
Category 6A, 10GX Modular Jacks

Description	Belden Part Number			
	REVConnect		Punchdown	
Color	Single Pack	Bulk Pack (24 Connectors)	KeyConnect	MDVO
Gray	RVAMJKUGY-S1	RVAMJKUGY-B24	AX102280	AX102269
Almond	RVAMJKUAL-S1	RVAMJKUAL-B24	AX102281	AX102270
Electric White	RVAMJKUEW-S1	RVAMJKUEW-B24	AX102282	AX102271*
Black	RVAMJKUBK-S1	RVAMJKUBK-B24	AX102283	AX102272
Ivory	RVAMJKUIV-S1	RVAMJKUIV-B24	AX103073	AX102562
Brown	RVAMJKUBR-S1	RVAMJKUBR-B24	AX104158	—
Red	RVAMJKURD-S1	RVAMJKURD-B24	AX104153	—
Orange	RVAMJKUOR-S1	RVAMJKUOR-B24	AX104152	—
Yellow	RVAMJKUYL-S1	RVAMJKUYL-B24	AX104154	—
Green	RVAMJKUGN-S1	RVAMJKUGN-B24	AX104155	—
Blue	RVAMJKUBL-S1	RVAMJKUBL-B24	AX104156	—
Purple	RVAMJKUPR-S1	RVAMJKUPR-B24	AX104157	—
TIA Brown	RVAMJKUTN-S1	RVAMJKUTN-B24	AX102290	AX102279
TIA Red	RVAMJKUTR-S1	RVAMJKUTR-B24	AX102285	AX102274
TIA Orange	RVAMJKUTO-S1	RVAMJKUTO-B24	AX102284	AX102273
TIA Yellow	RVAMJKUTY-S1	RVAMJKUTY-B24	AX102286	AX102275
TIA Green	RVAMJKUTG-S1	RVAMJKUTG-B24	AX102287	AX102276
TIA Blue	RVAMJKUTB-S1	RVAMJKUTB-B24	AX102288	AX102277
TIA Purple	RVAMJKUTP-S1	RVAMJKUTP-B24	AX102289	AX102278

*MDVO style jack is white. Color-coded icons and other accessories are available on page 62 and 63.



REVConnect Jacks Available in 19 Colors



AX102281, 10GX KeyConnect Modular Jack



RVAFPUBK-S1, 10GX REVConnect Field-Mount UTP Plug



RVAFFPUBK18-S1, 10GX REVConnect FlexPlug

10GX REVConnect Plugs, Tools and Accessories

Description	Single Pack	Bulk Pack
10GX REVConnect Plugs		
10GX UTP REVConnect Plug, Black	RVAFPUBK-S1	RVAFPUBK-B24
10GX STP REVConnect Plug	RVAFPSME-S1	RVAFPSME-B24
10GX UTP REVConnect FlexPlug, Black	RVAFFPUBK18-S1	—
10GX UTP REVConnect FlexPlug, Electric White	RVAFFPUW18-S1	—
REVConnect Termination Tool and Accessories		
Universal Termination Tool	RVUTT01	—
Tool Blade Replacement Set	RVUTB01	—
Tool Belt Clip	RVUTC01	—
Replacement Cable Prep Tool	RVUCT01	—
REVConnect Spare Cores		
Replacement Caps and Cable Managers, 50 in pack	—	RVUC0EW-B50

KeyConnect/MDVO Replacement X-Bars

Description	Belden Part Number
Replacement X-Bars, bag of 24 pieces	PX103838R

10GX Modular Patch Cords

Bonded-Pair



10GX Modular Cords

10GX Modular Patch Cords are designed based on a patented plug management bar that allows for excellent control of internal plug NEXT. Bonded-Pair design offers very good alien crosstalk performance while maintaining important mechanical characteristics, such as flexibility. With a very small footprint, they are fully compatible with the highest-density hubs that utilize RJ45 jack connections.

Benefits

- Meets and exceeds Category 6A component performance with guaranteed usable bandwidth up to 625 MHz
- Maximum return loss (RL) performance under all patching conditions
- Superior ruggedness and durability

Category 6A, 10GX Modular Patch Cords

Description	Belden Part Number					
	Bonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
10GX Modular Patch Cords, UTP, 4-pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	CA21104002	CA21105002	CA21106002	CA21108002	CA21109002	CA21100002
4 ft (1.2 m)	CA21104004	CA21105004	CA21106004	CA21108004	CA21109004	CA21100004
7 ft (2.1 m)	CA21104007	CA21105007	CA21106007	CA21108007	CA21109007	CA21100007
10 ft (3.0 m)	CA21104010	CA21105010	CA21106010	CA21108010	CA21109010	CA21100010
15 ft (4.6 m)	CA21104015	CA21105015	CA21106015	CA21108015	CA21109015	CA21100015
25 ft (7.6 m)	CA21104025	CA21105025	CA21106025	CA21108025	CA21109025	CA21100025
XXX ft	CA21104XXX	CA21105XXX	CA21106XXX	CA21108XXX	CA21109XXX	CA21100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6A, Tailored 10GX Modular Patch Cords

CA	21	1	06	007	
Performance	Cable	Termination	Colors	Length	
CA Category 6A (10GX)	21 UTP, Bonded-Pair, 24 AWG Solid, CMR 22 UTP, Bonded-Pair, 24 AWG Solid, CMP	1 T568A/B-T568A/B 4 Crossover T568A -T568B 5 Crossover IEEE 6 Rollover	01 Brown 02 Red 03 Orange 04 Yellow 05 Green 06 Blue 07 Purple 08 Gray 09 White 00 Black	12 TIA Red 13 TIA Orange 14 TIA Yellow 15 TIA Green 16 TIA Blue 17 TIA Purple	001 1 ft (0.3 m) 002 2 ft (0.6 m) 003 3 ft (0.9 m) 004 4 ft (1.2 m) 005 5 ft (1.5 m) XXX XXX ft

Notes:

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CA21106007 – 10GX Patch Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



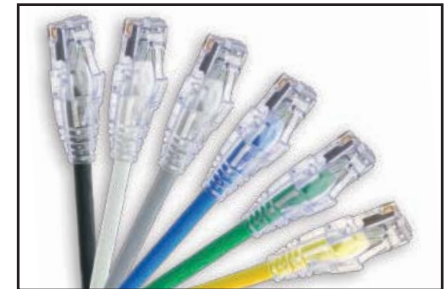
Category 6A, Small-Diameter Patch Cords

Nonbonded-Pair (28 AWG)

Small-Diameter Patch Cords offer a great solution for large data center cross-connects and server enclosures, as well as for enterprise networks installed in crowded telecom rooms. The 28 AWG stranded conductors provide standards-compliant performance when up to 20.7 ft (6.3 m) of patch cord is used in a standard 295 ft (90 m) channel.

Benefits

- Reduces congestion and allows tight bend radius and improve airflow
- Easier access for maintenance
- Improves overall network administration



Small-Diameter Patch Cords

Category 6A, Small-Diameter Patch Cords

Description	Belden Part Number					
	Nonbonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
Small-Diameter Patch Cord, UTP, 28 AWG Stranded, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	CAD1104002	CAD1105002	CAD1106002	CAD1108002	CAD1109002	CAD1100002
4 ft (1.2 m)	CAD1104004	CAD1105004	CAD1106004	CAD1108004	CAD1109004	CAD1100004
7 ft (2.1 m)	CAD1104007	CAD1105007	CAD1106007	CAD1108007	CAD1109007	CAD1100007
10 ft (3.0 m)	CAD1104010	CAD1105010	CAD1106010	CAD1108010	CAD1109010	CAD1100010
15 ft (4.6 m)	CAD1104015	CAD1105015	CAD1106015	CAD1108015	CAD1109015	CAD1100015
20 ft (6.1 m)	CAD1104020	CAD1105020	CAD1106020	CAD1108020	CAD1109020	CAD1100020
XXX ft	CAD1104XXX	CAD1105XXX	CAD1106XXX	CAD1108XXX	CAD1109XXX	CAD1100XXX

Use XXX to specify length in feet - 001-050 ft in increments of 1 ft.

Other colors available with minimum order quantity (may require longer lead times.) Call customer service for additional information. Longer lengths available.

Category 6A, Tailored Small-Diameter Patch Cords

CA		D1		1		06		007	
Performance		Cable		Termination		Colors		Length	
CA	Category 6A (10GX)	D1	UTP, Nonbonded-Pair, 28 AWG Stranded, CMR	1	T568A/B-T568A/B	02	Red	001	1 ft (0.3 m)
				4	Crossover T568A-T568B	04	Yellow	002	2 ft (0.6 m)
				5	Crossover IEEE	05	Green	003	3 ft (0.9 m)
				6	Rollover	06	Blue	004	4 ft (1.2 m)
						08	Gray	005	5 ft (1.5 m)
						09	White	XXX	XXX ft
						00	Black		

Notes:

Use XXX to specify length in feet - 001-050 ft in increments of 1 ft.

Example:

CAD1106007 – Small-Diameter Patch Cord, UTP, Nonbonded-Pair, 28 AWG Stranded, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

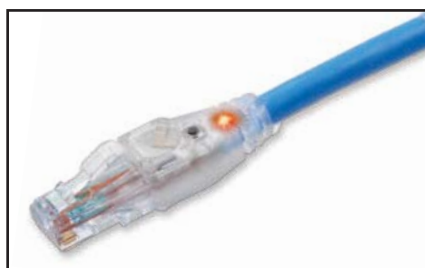
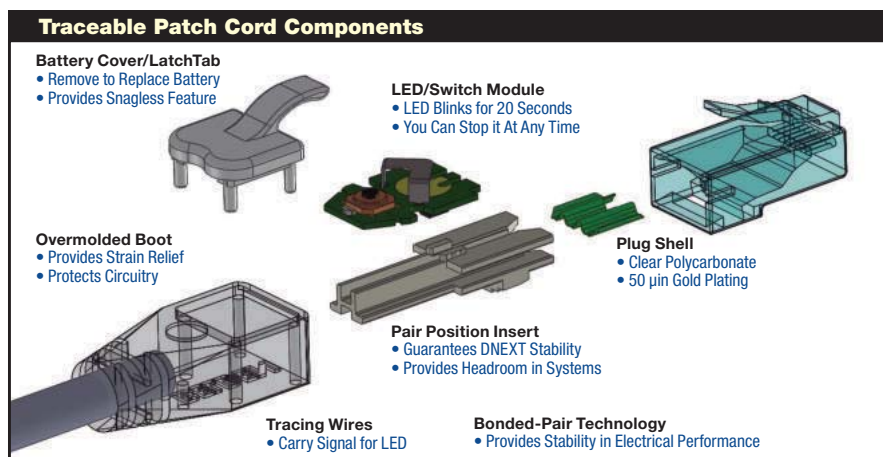
10GX Traceable Patch Cords

Bonded-Pair

10GX Traceable Patch Cords feature a highly efficient, bright LED with a battery life expectancy of seven years, or 1,000 activations (battery is also replaceable). When activated, the LED blinks for 20 seconds and can be stopped at any time with a second press of the button. The LED and its tracing wires are integrated right into the patch cord, eliminating the need for a separate power source.

Features

- Bonded-Pair technology for extra robustness, performance and reliability
- Bar code tagging on each end of the cord is compatible with DCIM systems
- Low-profile plug boot supports ultra-high-density 48-port 1U patch panels
- 100% factory tested and certified



10GX Traceable Patch Cord

Category 6A, 10GX Traceable Patch Cords

Description	Belden Part Nuber					
	Bonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
10GX Traceable Patch Cords, UTP, 4-Pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	CAT1104002	CAT1105002	CAT1106002	CAT1108002	CAT1109002	CAT1100002
4 ft (1.2 m)	CAT1104004	CAT1105004	CAT1106004	CAT1108004	CAT1109004	CAT1100004
7 ft (2.1 m)	CAT1104007	CAT1105007	CAT1106007	CAT1108007	CAT1109007	CAT1100007
10 ft (3.0 m)	CAT1104010	CAT1105010	CAT1106010	CAT1108010	CAT1109010	CAT1100010
15 ft (4.6 m)	CAT1104015	CAT1105015	CAT1106015	CAT1108015	CAT1109015	CAT1100015
25 ft (7.6 m)	CAT1104025	CAT1105025	CAT1106025	CAT1108025	CAT1109025	CAT1100025
XXX ft	CAT1104XXX	CAT1105XXX	CAT1106XXX	CAT1108XXX	CAT1109XXX	CAT1100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6A, Tailored 10GX Traceable Patch Cords

CA	T1	1	06	007
Performance	Cable	Termination	Colors	Length
CA Category 6A (10GX)	T1 Traceable, UTP, Bonded-Pair, 24 AWG Solid, CMR	1 T568A/B-T568A/B 4 Crossover T568A -T568B 5 Crossover IEEE 6 Rollover	01 Brown 02 Red 03 Orange 04 Yellow 05 Green 06 Blue 07 Purple 08 Gray 09 White 00 Black	12 TIA Red 13 TIA Orange 14 TIA Yellow 15 TIA Green 16 TIA Blue 17 TIA Purple
				001 1 ft (0.3 m) 002 2 ft (0.6 m) 003 3 ft (0.9 m) 004 4 ft (1.2 m) 005 5 ft (1.5 m) XXX XXX ft

Notes:

Use XXX to specify length in feet 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CAT1106007 – 10GX Traceable Patch Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



10GX Modular Pigtails

Nonbonded-Pair and Bonded-Pair

10GX Modular Pigtails are available in both Bonded-Pair and Nonbonded-Pair cable styles for field installation preferences. They are available in dark and TIA/EIA-606 standard colors, and feature a snagless overmolded boot for high-performing strain relief. All performance characteristics have been set to guarantee transmission performance up to 625 MHz.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability
- Meets and exceeds Category 6A component performance with guaranteed usable bandwidth up to 625 MHz



10GX Modular Pigtail (connector end)



10GX Modular Pigtail

Category 6A, 10GX Modular Pigtails

Description	Belden Part Number		
	Nonbonded-Pair		
Length	Blue	Gray	White
10GX Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568A-Open, Plenum-CMP			
15 ft (4.6 m)	CA32206015	CA32208015	CA32209015
25 ft (7.6 m)	CA32206025	CA32208025	CA32209025
35 ft (10.6 m)	CA32206035	CA32208035	CA32209035
50 ft (15.2 m)	CA32206050	CA32208050	CA32209050
XXX ft	CA32206XXX	CA32208XXX	CA32209XXX
10GX Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568A-Open, Riser-CMR			
15 ft (4.6 m)	CA31206015	CA31208015	CA31209015
25 ft (7.6 m)	CA31206025	CA31208025	CA31209025
35 ft (10.6 m)	CA31206035	CA31208035	CA31209035
50 ft (15.2 m)	CA31206050	CA31208050	CA31209050
XXX ft	CA31206XXX	CA31208XXX	CA31209XXX
10GX Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568B-Open, Plenum-CMP			
15 ft (4.6 m)	CA32306015	CA32308015	CA32309015
25 ft (7.6 m)	CA32306025	CA32308025	CA32309025
35 ft (10.6 m)	CA32306035	CA32308035	CA32309035
50 ft (15.2 m)	CA32306050	CA32308050	CA32309050
XXX ft	CA32306XXX	CA32308XXX	CA32309XXX
10GX Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568B-Open, Riser-CMR			
15 ft (4.6 m)	CA31306015	CA31308015	CA31309015
25 ft (7.6 m)	CA31306025	CA31308025	CA31309025
35 ft (10.6 m)	CA31306035	CA31308035	CA31309035
50 ft (15.2 m)	CA31306050	CA31308050	CA31309050
XXX ft	CA31306XXX	CA31308XXX	CA31309XXX

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6A, Tailored 10GX Modular Pigtails

CA	31	3	06	030
Performance	Cable	Termination	Colors	Length
CA Category 6A (10GX)	21 UTP, Bonded-Pair, 24 AWG Solid, CMR	2 T568A-Open	01 Brown	015 15 ft (4.6 m)
	22 UTP, Bonded-Pair, 24 AWG Solid, CMP	3 T568B-Open	02 Red	016 16 ft (4.9 m)
	31 UTP, Nonbonded-Pair, 24 AWG Solid, CMR		03 Orange	017 17 ft (5.2 m)
	32 UTP, Nonbonded-Pair, 24 AWG Solid, CMP		04 Yellow	018 18 ft (5.5 m)
			05 Green	019 19 ft (5.8 m)
			06 Blue	020 20 ft (6.1 m)
			07 Purple	XXX XXX ft
			08 Gray	
			09 White	
			00 Black	
			12 TIA Red	
			13 TIA Orange	
			14 TIA Yellow	
			15 TIA Green	
			16 TIA Blue	
			17 TIA Purple	

Notes:

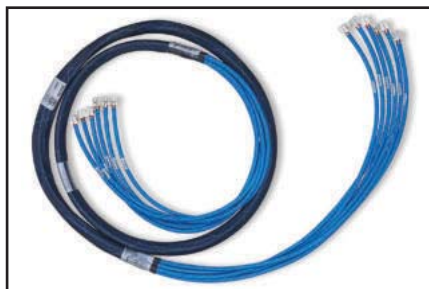
Use XXX to specify length in feet 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CA31306030 – 10GX Pigtail, UTP, Nonbonded-Pair, 24 AWG Solid, CMR, T568B-Open, Blue, 30 ft (9.5 m)

10GX REVConnect Pre-Terminated Cabling System

Couplers and Cable Assemblies



10GX REVConnect Pre-Terminated Cable Assemblies

The 10GX Pre-Terminated Cabling System guarantees Category 6A performance and headroom without tradeoffs or compromises on performance or reliability.

Proven modular components are the cornerstone of the system, including 10GX REVConnect Pre-Term Assemblies and 10GX REVConnect Couplers, Jacks and/or RJ45 Plugs. Bonded-Pair technology ensures that the cable assemblies

offer exceptional structural stability and unflinching electrical performance. The patented Dual-Flex design ensures controlled plug/jack mated connections on both sides of the coupler. This provides an uninterrupted electrical path for superior connector reliability and transmission performance.



10GX REVConnect Coupler

10GX REVConnect Preloaded Patch Panels

Description	Belden Part Number	
	Black	White
10GX Preloaded Patch Panels		
10GX REVConnect Patch Panel 24-port, 1U (Preloaded)	RVAPPF1U24WH	RVAPPF1U24BK
10GX REVConnect Patch Panel 48-port, 2U (Preloaded)	RVAPPF2U48WH	RVAPPF2U48BK
10GX REVConnect Angled Patch Panel 24-port, 1U (Preloaded)	RVAPPA1U24WH	RVAPPA1U24BK
10GX REVConnect Angled Patch Panel 48-port, 2U (Preloaded)	RVAPPA2U48WH	RVAPPA2U48BK
10GX Coupler Preloaded Patch Panels		
10GX REVConnect Coupler Patch Panel 24-port, 1U (Preloaded)	RVACPF1U24BK	—
10GX REVConnect Coupler Patch Panel 48-port, 2U (Preloaded)	—	RVACPF2U48BK

Category 6A, 10GX RJ45 Couplers

Description	Belden Part Number
10GX REVConnect Coupler Black T568A/B (includes 1 core)	RVACPKUBK-S1
10GX REVConnect Coupler Black T568A/B Bulk Pack (includes 24 cores)	RVACPKUBK-B24

Category 6A, 10GX REVConnect Pre-Terminated Assemblies

Bundle Type	# of Cables	Category	Unshielded/ Shielded	Termination Type	Wiring Scheme	Fire Rating	Colors	Length
C	B	06	A	U	C	T	R	B
B Braided Sleeve	01 1 Cable	6 Cat6	U UTP	C RC Core to Core	T T568A/B-T568A/B	R Riser	B Blue	006 6 ft (1.8 m)
N* No Sleeve, Single Cable, Core to Core	06 6 Cables	A Cat6A		1 RC Core to RJ45 Plug	A T568A-OPEN	P Plenum	S Gray	007 7 ft (2.1 m)
	08 8 Cables			3 RC Core to Open	B T568B-OPEN		W White	008 8 ft (2.4 m)
	12 12 Cables						N Black	009 9 ft (2.7 m)
								010 10 ft (3 m)
								XXX XXX ft

Notes:

Use **XXX** to specify length in feet 006-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

*Selection N is only available with **01**=1 Cable and **C**=Core to Core in length in feet 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CB06AUCTRB006 – 10GX REVConnect Pre-Terminated Trunk, Braided Sleeve, 6 Cables, CAT6A, Unshielded, Core to Core, T568A/B, Riser, Blue Jacket, 6 ft

Faster.
Easier.
Better.



10GX Pre-Terminated Cabling System

Patch Panels, Couplers and Cable Assemblies

The 10GX Pre-Terminated Cabling System delivers rapid deployment coupled with guaranteed Category 6A performance and headroom, without the need for tradeoffs or compromise in performance and reliability.

Proven modular components are the cornerstone of the systems, including 10GX Pre-Terminated Cable Assemblies and 10GX RJ45 Modular Couplers. These components rely on unique enabling technologies: Bonded-Pair ensure that the cable assemblies boast exceptional structural stability and unfailing electrical performance while the patented Dual-Flex

design ensures controlled plug/jack mated connection on both sides of the coupler to provide an uninterrupted electrical path for superior connector reliability and transmission performance.

With simple planning, easy ordering and rapid delivery, the 10GX Pre-Terminated Cabling System can reduce installation time and labor costs by as much as 90%. In addition, this system supports plug-and-play installation and component reusability, resulting in lower installed costs and less waste.



10GX Pre-Terminated Cable Assemblies

Category 6A, 10GX Preloaded Coupler Patch Panels

Description	Belden Part Number	
	Titanium	Black
10GX KeyConnect Coupler Patch Panels (Preloaded)		
10GX KeyConnect Coupler Patch Panel, 24-port, 1U, Titanium (Preloaded)	AX104141	—
10GX KeyConnect Coupler Patch Panel, 48-port, 2U, Titanium (Preloaded)	AX104142	—
10GX KeyConnect Coupler Patch Panel, 48-port, 1U, Titanium (Preloaded)	AX104592	—
10GX KeyConnect AngleFlex Coupler Patch Panel, 24-port, 1U, Black (Preloaded)	—	AX104569
10GX KeyConnect AngleFlex Coupler Patch Panel, 48-port, 2U, Black (Preloaded)	—	AX104571
10GX KeyConnect Angled Coupler Patch Panel, 24-port, 1U, Black (Preloaded)	—	AX105300
10GX KeyConnect Angled Coupler Patch Panel, 48-port, 2U, Black (Preloaded)	—	AX105301
10GX KeyConnect Angled Coupler Patch Panel, 48-port, 1U, Black (Preloaded)	—	AX105348
10GX KeyConnect Vertical Mount Patch Panel (Preloaded)		
10GX KeyConnect Vertical Mount Patch Panel, 8-port, Black (Preloaded)	—	AX105366*

Empty Patch Panels can be used when colored couplers are used
*Mount in XZUK01 and XZUK02 brackets



10GX KeyConnect Patch Panels (Preloaded)

Category 6A, 10GX KeyConnect RJ45 Couplers

Belden Part Number						
Orange	Red	Yellow	Green	Blue	White	Black
AX104015	AX104016	AX104017	AX104018	AX104019	AX104023	AX104024

Complete the 10GX Pre-Terminated System with 10GX Modular Patch Cords; see page 12 for ordering information.



10GX RJ45 Coupler

Category 6A, 10GX Pre-Terminated Trunks

CA	21	1	06	020	A06
Performance	Cable	Termination	Colors	Length	# of Cables
CA Category 6A (10GX)	21 UTP, Bonded-Pair, 24 AWG Solid, CMR 22 UTP, Bonded-Pair, 24 AWG Solid, CMP	1 T568A/B-T568A/B	06 Blue 08 Gray 09 White 00 Black	006 6 ft (1.8 m) 007 7 ft (2.1 m) 008 8 ft (2.4 m) 009 9 ft (2.7 m) 010 10 ft (3 m) XXX XXX ft	A06 6 Cables A08 8 Cables

Notes:

Use **XXX** to specify length in feet 006-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. If length is longer than 220 ft, 23 AWG cables are used. Other colors available upon request.

Example:

CA21106020A06 – 10GX Pre-Terminated Trunk (bundle six cables), UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 20 ft (6 m)



10GX REVConnect Wall-Mount Termination Kit Coupler 96-Port



10GX REVConnect Wall-Mount Termination Module Jack 16-Port



REVConnect Wall-Mount Patch Cable Management Channel



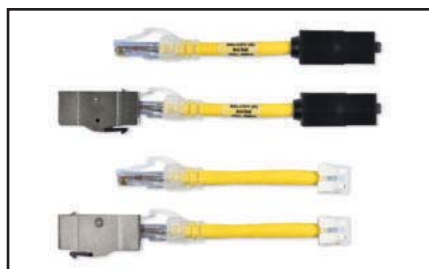
REVConnect Wall-Mount Cable Dressing Module



REVConnect Wall-Mount Horizontal Channel Kit



10GX REVConnect Coupler



REVConnect Core Test Adapters

10GX REVConnect Wall-Mount System

Connecting Components, Accessories, X-Connect Cables and Frames

The 10GX REVConnect Wall-Mount System is a very high-density, flexible cross-connect system that meets Category 6A performance when using 10GXS Cable terminated with REVConnect Cores as jumpers between user and equipment ports. As the basic component of the system, the REVConnect Coupler (core-to-core connector) is surrounded by cable dressing and patch cable

management accessories. When used in a "cut-to-length" fashion (10GXS Cable + cores), the 10GX REVConnect Wall-Mount System provides installed cost savings of up to 40% compared to other Category 6A wall-mount cross-connect systems, and reduces operating costs by over 45% by allowing higher termination density and eliminating patch cord slack management.

Category 6A, 10GX REVConnect Wall-Mount System

Description	Belden Part Number
Termination Kits	
10GX REVConnect Wall-Mount Termination Kit Coupler 96-Port (includes 100 cores)	RVAXCTK96CBK
10GX REVConnect Wall-Mount Termination Module Coupler 16-Port (includes 16 cores)	RVAXCTM16CBK
10GX REVConnect Wall-Mount Termination Kit Jack 96-Port (includes 100 cores)	RVAXCTK96JBK
10GX REVConnect Wall-Mount Termination Module Jack 16-Port (includes 16 cores)	RVAXCTM16JBK
Mounts	
REVConnect Wall-Mount Connectivity Mount 96-Port (empty)	RVUXCMT96E
REVConnect Wall-Mount Connectivity Module 16-Port (empty)	RVUXCCM16E
Cable Management Accessories	
REVConnect Wall-Mount Cable Dressing Module	RVUCADM
REVConnect Wall-Mount Patch Cable Management Channel	RVUPCMC
REVConnect Wall-Mount Horizontal Channel Kit	RVUHOCK
REVConnect Couplers	
10GX REVConnect Coupler Black T568A/B (includes 1 core)	RVACPUBK-S1
10GX REVConnect Coupler Black T568A/B Bulk Pack (includes 25 cores)	RVACPUBK-B24
10GX REVConnect Spare Cores, 50 in pack	RVUCOEW-B50
Cross-Connect Cables	
10GXS Cables, UTP 4-Pair, 23 AWG, Riser-CMR, Nonbonded-Pair (various colors available)	10GXS12XXXA1000
10GXS Cables, UTP 4-Pair, 23 AWG, Riser-CMR, Bonded-Pair (various colors available)	10GXS32XXXA1000

Use **XXX** to specify color of cable. See color selector below for available colors.

REVConnect Test Adapters

Description	Belden Part Number
REVConnect Coupler Test Kit	RVUTA01
REVConnect Coupler Test Adapter 10GXS, 4 inch	RVUTA02
REVConnect Flexplug Test Kit	RVUTA21
REVConnect Flexplug Test Adapter 10GXS, 4 inch	RVUTA22

For testing instructions, see the [REVConnect Testing Guidelines](#) document.

Color Selector	
002	Red
003	Orange
004	Yellow
005	Green
D15	Blue
007	Purple
008	Gray
009	White
010	Black

Faster.
Easier.
Better.



10GX Shielded Cables

Nonbonded-Pair and Bonded-Pair

The 10GX Shielded System provides 625 MHz of proven channel bandwidth and a data rate of 10G per second. With a thick, 100% coverage foil shield, your 10G of data is protected from harsh EMI environments.

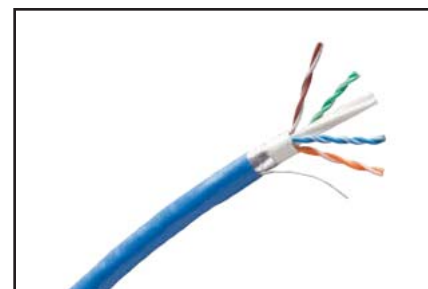
Adding a shield to a high-performance Category 6A cable is not as easy as it seems. Any metallic shield changes the electrical performance of the cable; if the shield is not smooth, performance becomes unpredictable. Our design utilizes an inner and outer jacket to sandwich the foil into having a smooth surface. This eliminates adverse PSNEXT and RL effects seen with most other 10G cable products.



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff

Applications:

- 10GBASE-T, and any other Ethernet application in high-noise environments (EMI)
- 10GBASE-T Full Power Implementation (IEEE 802.3an)
- 10GBASE-T Low Power Implementation (Short Reach Mode) (IEEE 802.3an)
- 1000BASE-T Applications (IEEE 802.3ab)
- PoE PSE Type 1 (15W), PSE Type 2 (30W), PSE Type 3 (60W), PSE Type 4 (100W)
- Broadband Video (CATV) and High Speed Internet (DOCSIS) over UTP up to 860 MHz



10GX Shielded Cable



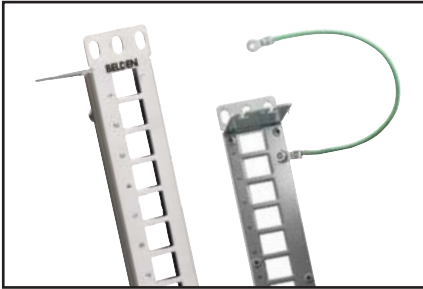
Shaded part numbers indicate LP-Certified by UL

Category 6A, 10GX Shielded Cables

Description		Belden Part Number	
		Nonbonded-Pair	Bonded-Pair
Color	Length	Spool	Spool
10GX Shielded Cables, F/UTP, 4-pair, 23 AWG, Plenum-CMP			
Red	1000 ft (305 m)	Available	Available
Orange	1000 ft (305 m)	Available	Available
Yellow	1000 ft (305 m)	10GX53F 0041000	10GX63F 0041000
Green	1000 ft (305 m)	Available	Available
Blue	1000 ft (305 m)	10GX53F D151000	10GX63F D151000
Purple	1000 ft (305 m)	Available	Available
Gray	1000 ft (305 m)	10GX53F 0081000	10GX63F 0081000
White	1000 ft (305 m)	10GX53F 0091000	10GX63F 0091000
Black	1000 ft (305 m)	10GX53F 0101000	10GX63F 0101000
10GX Shielded Cables, F/UTP, 4-pair, 23 AWG, Riser-CMR			
Red	1000 ft (305 m)	Available	Available
Orange	1000 ft (305 m)	Available	Available
Yellow	1000 ft (305 m)	10GX52F 0041000	10GX62F 0041000
Green	1000 ft (305 m)	Available	Available
Blue	1000 ft (305 m)	10GX52F 0061000	10GX62F 0061000
Purple	1000 ft (305 m)	Available	Available
Gray	1000 ft (305 m)	10GX52F 0081000	10GX62F 0081000
White	1000 ft (305 m)	10GX52F 0091000	10GX62F 0091000
Black	1000 ft (305 m)	10GX52F 0101000	10GX62F 0101000

10GX Shielded System

Patch Panels, Jacks, Plugs and Patch Cords



10GX Shielded Modular Patch Panel (Empty)



10GX Shielded REVConnect Modular Jack and Plug



10GX Shielded Modular Patch Cords

10GX Shielded Patch Panels are robust, all-metal modular patch panels that provide a flexible, versatile and high-density termination solution for data center and teleco room installations. They come with a ground wire to guarantee shielding integrity (per ANSI/TIA-607-C) and cable management brackets for neat cable dressing. They can be configured using 10GX Shielded Modular Jacks available in REVConnect and KeyConnect styles.

The 10GX REVConnect module is a rugged, easy-to-install connector. Its termination features a universal core that accepts a jack or plug to support connections in a keystone outlet or direct connections into devices.

10GX Modular Patch Cords are designed around a patented plug management bar design that allows for very good control of internal plug NEXT. It offers excellent alien crosstalk performance while maintaining flexibility.

Category 6A, 10GX Shielded Modular Patch Panels

Description	Belden Part Number
KeyConnect Shielded Patch Panel, 24-port, 1U, Titanium (Empty)	AX104563
KeyConnect Shielded Patch Panel, 48-port, 2U, Titanium (Empty)	AX104564
KeyConnect Shielded Angled Patch Panel, 24-port, 1U, Titanium (Empty)	AX104622
KeyConnect Shielded Angled Patch Panel, 48-port, 2U, Titanium (Empty)	AX104623

Category 6A, 10GX Shielded Modular Jacks

Description	Belden Part Number
10GX Shielded KeyConnect Modular Jack, Metallic	AX104562
10GX Shielded REVConnect Modular Jack, Single Pack	RVAMJKSME-S1
10GX Shielded REVConnect Modular Jack, Bulk Pack	RVAMJKSME-B24

Color-coded icons and other accessories are available on page 62 and 63.

Category 6A, 10GX Shielded Modular Plugs

Description	Belden Part Number
10GX Shielded REVConnect Modular Plug, Single Pack	RVAFPSME-S1
10GX Shielded REVConnect Modular Plug, Bulk Pack	RVAFPSME-B24

Category 6A, 10GX Shielded Modular Patch Cords

Description	Belden Part Number			
	Bonded-Pair			
	Blue	Gray	White	Black
10GX Shielded Modular Patch Cords, F/UTP, 4-pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR				
2 ft (0.6 m)	CAF1106002	CAF1108002	CAF1109002	CAF1100002
4 ft (1.2 m)	CAF1106004	CAF1108004	CAF1109004	CAF1100004
7 ft (2.1 m)	CAF1106007	CAF1108007	CAF1109007	CAF1100007
10 ft (3.0 m)	CAF1106010	CAF1108010	CAF1109010	CAF1100010
15 ft (4.6 m)	CAF1106015	CAF1108015	CAF1109015	CAF1100015
25 ft (7.6 m)	CAF1106025	CAF1108025	CAF1109025	CAF1100025
XXX ft	CAF1106XXX	CAF1108XXX	CAF1109XXX	CAF1100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6A, Tailored 10GX Shielded Modular Patch Cords

CA	F1	1	06	007
Performance	Cable	Termination	Colors	Length
CA Category 6A (10GX)	F1 Shielded, Bonded-Pair, 24 AWG Solid, CMR F2 Shielded, Bonded-Pair, 24 AWG Solid, CMP	1 T568A/B-T568A/B 4 Crossover T568A-T568B 5 Crossover IEEE 6 Rollover	01 Brown 02 Red 03 Orange 04 Yellow 05 Green 06 Blue 07 Purple 08 Gray 09 White 00 Black	001 1 ft (0.3 m) 002 2 ft (0.6 m) 003 3 ft (0.9 m) 004 4 ft (1.2 m) 005 5 ft (1.5 m) XXX XXX ft

Notes:

Use XXX to specify length in feet 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CAF1106007 – 10GX Modular Cord, Shielded, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



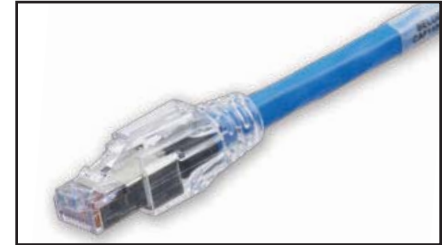
10GX Shielded System (continued)

Pigtails

10GX Shielded Modular Pigtails are available in Bonded-Pair for field installation. All performance characteristics have been set to guarantee transmission performance up to 625 MHz.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability



10GX Shielded Modular Pigtail (connector end)

Category 6A, 10GX Shielded Modular Pigtails

Description	Belden Part Number			
	Bonded-Pair			
Length	Blue	Gray	White	Black
10GX Shielded Pigtails, F/UTP, 4-pair, 24 AWG Solid, T568A-Open, Plenum-CMP				
15 ft (4.6 m)	CAF2206015	CAF2208015	CAF2209015	CAF2200015
25 ft (7.6 m)	CAF2206025	CAF2208025	CAF2209025	CAF2200025
XXX ft	CAF2206XXX	CAF2208XXX	CAF2209XXX	CAF2200XXX
10GX Shielded Pigtails, F/UTP, 4-pair, 24 AWG Solid, T568A-Open, Riser-CMR				
15 ft (4.6 m)	CAF1206015	CAF1208015	CAF1209015	CAF1200015
25 ft (7.6 m)	CAF1206025	CAF1208025	CAF1209025	CAF1200025
XXX ft	CAF1206XXX	CAF1208XXX	CAF1209XXX	CAF1200XXX
10GX Shielded Pigtails, F/UTP, 4-pair, 24 AWG Solid, T568B-Open, Plenum-CMP				
15 ft (4.6 m)	CAF2306015	CAF2308015	CAF2309015	CAF2300015
25 ft (7.6 m)	CAF2306025	CAF2308025	CAF2309025	CAF2300025
XXX ft	CAF2306XXX	CAF2308XXX	CAF2309XXX	CAF2300XXX
10GX Shielded Pigtails, F/UTP, 4-pair, 24 AWG Solid, T568B-Open, Riser-CMR				
15 ft (4.6 m)	CAF1306015	CAF1308015	CAF1309015	CAF1300015
25 ft (7.6 m)	CAF1306025	CAF1308025	CAF1309025	CAF1300025
XXX ft	CAF1306XXX	CAF1308XXX	CAF1309XXX	CAF1300XXX

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6A, Tailored 10GX Shielded Modular Pigtails

CA		F1		2		06		030	
Performance		Cable		Termination		Colors		Length	
CA	Category 6A (10GX)	F1	Shielded Bonded-Pair, 24 AWG Solid, CMR	2	T568A-Open	01	Brown	015	15 ft (4.6 m)
		F2	Shielded Bonded-Pair, 23 AWG Solid, CMP	3	T568B-Open	02	Red	016	16 ft (4.9 m)
						03	Orange	017	17 ft (5.2 m)
						04	Yellow	018	18 ft (5.5 m)
						05	Green	019	19 ft (5.8 m)
						06	Blue	020	20 ft (6.1 m)
						07	Purple	XXX	XXX ft
						08	Gray		
						09	White		
						00	Black		

Notes:

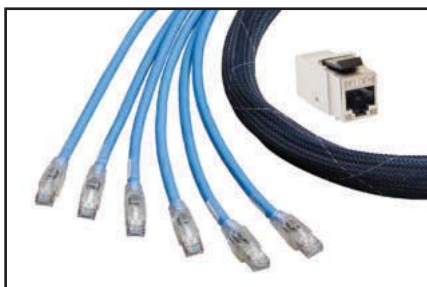
Use XXX to specify length in feet 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CAF1206030 – 10GX Shielded Modular Pigtail, F/UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A-Open, Blue, 30 ft (9.5 m)

10GX Shielded Pre-Terminated Cabling System

Couplers, Accessories and Cable Assemblies



10GX Shielded Pre-Terminated Cable System



10GX Shielded KeyConnect RJ45 Coupler

The 10GX Shielded Pre-Terminated Cabling System delivers rapid deployment coupled with guaranteed Category 6A performance and headroom, without the need for tradeoffs or compromise in performance and reliability. Bringing a new level of ease and convenience to cabling system design, ordering and installation, the system allows users to deploy high-performance 10G networks with optimal speed and efficiency. Proven modular components are the cornerstone of the system, including 10GX Shielded Pre-Terminated Cable Assemblies and 10GX Shielded RJ45 Modular Couplers. These components rely on unique enabling technologies: Belden's Bonded-Pair technologies ensure that the cable assemblies

boast exceptional structural stability and unflinching electrical performance while the patented Dual-FleX design ensures controlled plug/jack mated connections on both sides of the coupler to provide an uninterrupted electrical path for superior connector reliability and transmission performance.

With simple planning, easy ordering and rapid delivery, the 10GX Shielded Pre-Terminated Cabling System will drastically reduce installation time and labor costs. In addition, this system supports plug-and-play installation and component reusability, resulting in lower installation costs and less waste.

Category 6A, 10GX Shielded RJ45 Coupler

Description	Belden Part Number
10GX KeyConnect Shielded RJ45 Coupler	AX104501

Complete the 10GX Pre-Terminated System with 10GX Modular Patch Cords, see page 12 for ordering information.

Color-Coded Icon Kit

Belden Part Number							
Red	Orange	Yellow	Green	Blue	Purple	White	Black
KeyConnect Color-coded Icon Kit for Shielded Jacks and Couplers							
AX104632-RD	AX104632-OR	AX104632-YE	AX104632-GN	AX104632-BL	AX104632-PR	AX104632-EW	AX104632-BK

Category 6A, Tailored 10GX Shielded Pre-Terminated Trunks

CA	F1	1	06	020	A06
Performance	Cable	Termination	Colors	Length	# of Cables
CA Category 6A (10GX)	F1 Shielded, Bonded-pair, 24 AWG Solid, CMR F2 Shielded, Bonded-pair, 23 AWG Solid, CMP	1 T568A/B-T568A/B	06 Blue 08 Gray 09 White 00 Black	006 6 ft (1.8 m) 007 7 ft (2.1 m) 008 8 ft (2.4 m) 009 9 ft (2.7 m) 010 10 ft (3 m) XXX XXX ft	A06 6 Cables A08 8 Cables

Notes:

Use xxx to specify length in feet 006-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CAF1106020A06 – 10GX Shielded Pre-Terminated Trunk (bundle six cables), F/UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 20 ft (2.1 m)



SECTION TWO

Category 6 REVConnect Systems

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Belden offers two beyond-standards REVConnect Category 6 (CAT6+) copper systems to support a variety of price-performance ratios, applications, environments and operational lifespans: the REVConnect 3600 System and REVConnect 2400 System. Each Category 6 system is comprised of DataTwist Cable with various guaranteed bandwidth levels and application recommendations, preloaded and modular KeyConnect Patch Panels, CAT6+ Modular Jacks and CAT6+ Modular Patch Cords.

The REVConnect 3600 System offers the best price-performance ratio of any end-to-end Category 6 system on the market. With guaranteed performance to 300 MHz, the 3600 System offers headroom beyond the TIA/EIA Category 6 standard.

The REVConnect 2400 System offers a guaranteed bandwidth of 250 MHz to support enhanced, error-free Category 6 performance for reliable business applications and transactions.

Belden's 3600 Pre-Terminated Cabling System features proven modular components and an intuitive plug-and-play installation that delivers

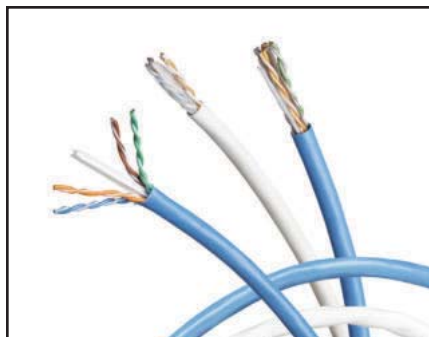
rapid deployment and guaranteed Category 6 performance and headroom.

Based on proven reliable BIX technology, the space-saving GigaBIX Category 6 Cross-Connect System offers easy installation and cable management for high-density applications.

With 2400 Shielded Cables, Shielded Patch Panels and CAT6+ Shielded Modular Jacks and Cords, Belden also offers an end-to-end Category 6 shielded system that provides better noise immunity to improve data throughput in harsh EMI environments.

3600 Cables


Nonbonded-Pair and Bonded-Pair



3600 Cable


3600 Cables provide increased bandwidth and signal-to-noise margins with smaller-diameter and higher-performance over other Category 6 cables.

3600 Cables have descending-distance marking for cable length that reduces waste. Matching tip and ring are color-coded for easy installation. Available in Spool-in-Box packaging for easier installation, handling and inventory management.

 Information about products contributing to LEED points is available at www.belden.com/leed

Features

- Central spline design separates pairs and maintains stable pair position, improving crosstalk and impedance/RL performance
- Increased bandwidth and signal-to-noise margins
- Optimized balance of transmission performance for simultaneous parallel transmission protocols
- Size minimized for compact installations
- PoE PSE Type 1 (15W), PSE Type 2 (30W), PSE Type 3 (60W), PSE Type 4 (100W)
- When used with 3600 System, the channel provides at least 300 MHz of bandwidth

 Shaded part numbers indicate LP-Certified by UL

3600 Cables

Description		Belden Part Number					
		Nonbonded-Pair			Bonded-Pair		
Color	Length	UnReel	Spool-in-Box	Spool	UnReel	Spool-in-Box	Spool
3600 Cables, UTP, 4-pair, 23 AWG, Plenum-CMP							
Red	1000 ft (305 m)	Available	3613 002A1000	Available	Available	3633 002A1000	3633 0021000
Orange	1000 ft (305 m)	3613 003U1000	3613 003A1000	3613 0031000	Available	3633 003A1000	3633 0031000
Yellow	1000 ft (305 m)	3613 004U1000	3613 004A1000	3613 0041000	Available	3633 004A1000	3633 0041000
Green	1000 ft (305 m)	3613 005U1000	3613 005A1000	3613 0051000	Available	3633 005A1000	3633 0051000
Blue	1000 ft (305 m)	3613 D15U1000	3613 D15A1000	3613 D151000	3633 D15U1000	3633 D15A1000	3633 D151000
Purple	1000 ft (305 m)	3613 007U1000	3613 007A1000	Available	Available	Available	Available
Gray	1000 ft (305 m)	3613 008U1000	3613 008A1000	3613 0081000	3633 008U1000	3633 008A1000	3633 0081000
White	1000 ft (305 m)	3613 009U1000	3613 009A1000	3613 0091000	3633 009U1000	3633 009A1000	3633 0091000
Black	1000 ft (305 m)	Available	3613 010A1000	3613 0101000	Available	3633 010A1000	3633 0101000
Yellow	2500 ft (762 m)	*	*	3613 0042500	*	*	*
Green	2500 ft (762 m)	*	*	3613 0052500	*	*	*
Blue	2500 ft (762 m)	*	*	3613 D152500	*	*	*
White	2500 ft (762 m)	*	*	3613 0092500	*	*	*
Black	2500 ft (762 m)	*	*	3613 0102500	*	*	*
3600 Cables, UTP, 4-pair, 23 AWG, Riser-CMR							
Red	1000 ft (305 m)	Available	Available	Available	Available	Available	Available
Orange	1000 ft (305 m)	3612 003U1000	3612 003A1000	Available	Available	3632 003A1000	Available
Yellow	1000 ft (305 m)	3612 004U1000	3612 004A1000	3612 0041000	Available	3632 004A1000	3632 0041000
Green	1000 ft (305 m)	3612 005U1000	3612 005A1000	3612 0051000	Available	3632 005A1000	3632 0051000
Blue	1000 ft (305 m)	3612 006U1000	3612 006A1000	3612 0061000	3632 006U1000	3632 006A1000	3632 0061000
Purple	1000 ft (305 m)	Available	3612 007A1000	Available	Available	Available	Available
Gray	1000 ft (305 m)	3612 008U1000	3612 008A1000	3612 0081000	3632 008U1000	3632 008A1000	3632 0081000
White	1000 ft (305 m)	3612 009U1000	3612 009A1000	3612 0091000	3632 009U1000	3632 009A1000	3632 0091000
Black	1000 ft (305 m)	Available	3612 010A1000	3612 0101000	Available	3632 010A1000	3632 0101000
Yellow	2500 ft (762 m)	*	*	3612 0042500	*	*	*
Blue	2500 ft (762 m)	*	*	3612 0062500	*	*	*
White	2500 ft (762 m)	*	*	3612 0092500	*	*	*
3600 Cables, UTP, 4-pair, 23 AWG, LSZH							
Blue	1000 ft (305 m)	*	3624 006A1000	Available	*	*	*
Purple	1000 ft (305 m)	*	3624 007A1000	Available	*	*	*
White	1000 ft (305 m)	*	3624 009A1000	Available	*	*	*

*Not available

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2400 Cables

Nonbonded-Pair and Bonded-Pair

2400 Cables consists of 4-pair UTP cables that exceed Category 6 requirements as per ANSI/TIA-568-C.2. When used as the horizontal cable in the REVConnect 2400 System, the channel provides at least 250 MHz of bandwidth.



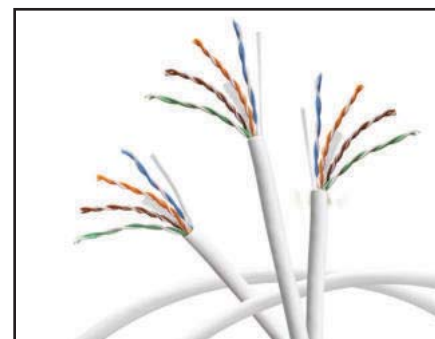
Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff



Shaded part numbers indicate LP-Certified by UL



2400 Cable

2400 Cables

Description		Belden Part Number					
		Nonbonded-Pair			Bonded-Pair		
Color	Length	UnReel	Spool-in-Box	Spool	UnReel	Spool-in-Box	Spool
2400 Cables, UTP, 4-pair, 23 AWG, Plenum-CMP							
Red	1000 ft (305 m)	Available	2413 002A1000	Available	2433 002U1000	2433 002A1000	2433 0021000
Orange	1000 ft (305 m)	2413 003U1000	2413 003A1000	2413 0031000	2433 003U1000	2433 003A1000	2433 0031000
Yellow	1000 ft (305 m)	2413 004U1000	2413 004A1000	2413 0041000	2433 004U1000	2433 004A1000	2433 0041000
Green	1000 ft (305 m)	2413 005U1000	2413 005A1000	2413 0051000	2433 005U1000	2433 005A1000	2433 0051000
Blue	1000 ft (305 m)	2413 D15U1000	2413 D15A1000	2413 D151000	2433 D15U1000	2433 D15A1000	2433 D151000
Purple	1000 ft (305 m)	2413 007U1000	2413 007A1000	Available	2433 007U1000	2433 007A1000	2433 0071000
Gray	1000 ft (305 m)	2413 008U1000	2413 008A1000	2413 0081000	2433 008U1000	2433 008A1000	2433 0081000
White	1000 ft (305 m)	2413 009U1000	2413 009A1000	2413 0091000	2433 009U1000	2433 009A1000	2433 0091000
Black	1000 ft (305 m)	2413 010U1000	2413 010A1000	2413 0101000	2432 010U1000	2432 010A1000	2433 0101000
Yellow	2500 ft (762 m)	*	*	2413 0042500	*	*	*
Green	2500 ft (762 m)	*	*	2413 0052500	*	*	*
Blue	2500 ft (762 m)	*	*	2413 D152500	*	*	*
White	2500 ft (762 m)	*	*	2413 0092500	*	*	*
Black	2500 ft (762 m)	*	*	2413 0102500	*	*	*
2400 Cables, UTP, 4-pair, 23 AWG, Riser-CMR**							
Red	1000 ft (305 m)	Available	2412 002A1000	Available	2432 002U1000	2432 002A1000	2432 002A1000
Orange	1000 ft (305 m)	2412 003U1000	2412 003A1000	Available	2432 003U1000	2432 003A1000	2432 003A1000
Yellow	1000 ft (305 m)	2412 004U1000	2412 004A1000	2412 0041000	2432 004U1000	2432 004A1000	2432 004A1000
Green	1000 ft (305 m)	2412 005U1000	2412 005A1000	2412 0051000	2432 005U1000	2432 005A1000	2432 005A1000
Blue	1000 ft (305 m)	2412 006U1000	2412 006A1000	2412 0061000	2432 006U1000	2432 006A1000	2432 006A1000
Purple	1000 ft (305 m)	2412 007U1000	2412 007A1000	Available	2432 007U1000	2432 007A1000	2432 007A1000
Gray	1000 ft (305 m)	2412 008U1000	2412 008A1000	2412 0081000	2432 008U1000	2432 008A1000	2432 008A1000
White	1000 ft (305 m)	2412 009U1000	2412 009A1000	2412 0091000	2432 009U1000	2432 009A1000	2432 009A1000
Black	1000 ft (305 m)	2412 010U1000	2412 010A1000	2412 0101000	2432 010U1000	2432 010A1000	2432 010A1000
Yellow	2500 ft (762 m)	*	*	2412 0042500	*	*	*
Blue	2500 ft (762 m)	*	*	2412 0062500	*	*	*
White	2500 ft (762 m)	*	*	2412 0092500	*	*	*
2400 Cables, UTP, 4-pair, 23 AWG, LSZH							
Blue	1000 ft (305 m)	*	Available	2424 0061000	*	*	*
Purple	1000 ft (305 m)	*	Available	2424 0071000	*	*	*
White	1000 ft (305 m)	*	Available	2424 0091000	*	*	*

*Not available

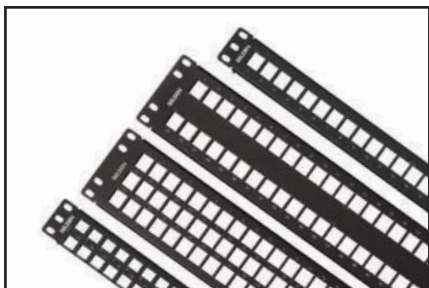
**2412 LP-certification available upon request only



REVConnect Preloaded Patch Panels (10GX shown)



CAT6+ HD Patch Panel



Modular Patch Panels (Empty)



KeyConnect AngleFlex Patch Panels

CAT6+ Patch Panels

Preloaded and Modular

CAT6+ Patch Panels are available in REVConnect and KeyConnect styles, as well as HD-110 and AngleFlex designs. Configurations include 24-port 1U, 48-port 2U and 48-port 1U in flat and angled designs. Preloaded panels are available with RJ45 jacks or couplers.

Benefits

- Performance supports REVConnect 2400 and 3600 Systems
- Flat, Angled and AngleFlex options available
- Quick and easy termination with REVConnect termination tool (REVConnect patch panels)
- Front access options (REVConnect patch panels) for additional versatility

Features

- REVConnect Patch Panels feature Belden's revolutionary REVConnect core technology
- REVConnect Patch Panels compatible with color icons and dust covers
- KeyConnect Patch Panels feature Belden CAT6+ KeyConnect Connectors with patented leadframe technology
- Single-port modularity on REVConnect and KeyConnect standard densities
- Labeling and cable management accessories included with all patch panels

For color icons and dust covers please see page 62.

Category 6, CAT6+ Preloaded Patch Panels

Description	Belden Part Number	
	White	Black
CAT6+ REVConnect Patch Panels (Preloaded)		
CAT6+ REVConnect Patch Panel 24-port, 1U (Preloaded)	RV6PPF1U24WH	RV6PPF1U24BK
CAT6+ REVConnect Patch Panel 48-port, 2U (Preloaded)	RV6PPF2U48WH	RV6PPF2U48BK
CAT6+ REVConnect Angled Patch Panel 24-port, 1U (Preloaded)	RV6PPA1U24WH	RV6PPA1U24BK
CAT6+ REVConnect Angled Patch Panel 48-port, 2U (Preloaded)	RV6PPA2U48WH	RV6PPA2U48BK
CAT6+ KeyConnect Patch Panels (Preloaded)		
		Black
CAT6+ KeyConnect Patch Panels, 24-port, 1U (Preloaded)	—	AX103253
CAT6+ KeyConnect Patch Panels, 48-port, 2U (Preloaded)	—	AX103255
CAT6+ KeyConnect Angled Patch Panel, 24-port, 1U (Preloaded)	—	AX105360
CAT6+ KeyConnect Angled Patch Panel, 48-port, 2U (Preloaded)	—	AX105361
CAT6+ KeyConnect Angled Patch Panel, 48-port, 1U (Preloaded)	—	AX105362
CAT6+ HD Patch Panels (Preloaded)		
		Black
CAT6+ HD-110 Patch Panel, 24-port, 1U (Preloaded)	—	AX105520
CAT6+ HD-110 Patch Panel, 48-port, 2U (Preloaded)	—	AX105521
CAT6+ Ultra-High-Density Patch Panel (Preloaded)		
		Black
CAT6+ Ultra-High-Density Patch Panel, 48-port, 1U (Preloaded)	—	AX103263

Modular Patch Panels (Empty)

Description	Belden Part Number	
	White	Black
REVConnect Modular Patch Panels (Empty)		
REVConnect Modular Patch Panel 24-port, 1U (Empty)	RVMPPF1U24BK	RVMPPF1U24WH
REVConnect Modular Patch Panel 48-port, 2U (Empty)	RVMPPF2U48BK	RVMPPF2U48WH
REVConnect Angled Modular Patch Panel 24-port, 1U (Empty)	RVMPPA1U24BK	RVMPPA1U24WH
REVConnect Angled Modular Patch Panel 48-port, 2U (Empty)	RVMPPA2U48BK	RVMPPA2U48WH
KeyConnect Modular Patch Panels (Empty)		
		Black
KeyConnect Modular Patch Panel, 24-port, 1U (Empty)	—	AX103114
KeyConnect Modular Patch Panel, 48-port, 1U (Empty)	—	AX103121
KeyConnect Modular Patch Panel, 48-port, 2U (Empty)	—	AX103115
KeyConnect Modular Patch Panel, 72-port, 2U (Empty)	—	AX103116
KeyConnect Modular Patch Panel, 96-port, 3U (Empty)	—	AX105371
KeyConnect Angled Patch Panel, 24-port, 1U (Empty)	—	AX104599
KeyConnect Angled Patch Panel, 48-port, 2U (Empty)	—	AX104601
KeyConnect Angled Patch Panel, 48-port, 1U (Empty)	—	AX104600
KeyConnect AngleFlex Patch Panel, 24-port, 1U (Empty)	—	AX103248
KeyConnect AngleFlex Patch Panel, 48-port, 2U (Empty)	—	AX103249

Front Access Modular Patch Panels and Accessories

Description	Belden Part Number
KeyConnect Front Access Patch Panels (Empty)	
KeyConnect Front Access Patch Panel, 24-port, 1U, Black (Empty)	AX106288
KeyConnect Front Access Patch Panel, 48-port, 2U, Black (Empty)	AX106289
KeyConnect Front Access Patch Panel, 72-port, 2U, Black (Empty)	AX106290
Labeling Kit (12 strips and LabelFlex sheets for 96 ports) (Empty)	AX106291
Spare Bezel Kit for Front Access Patch Panel, 24-Pack (Empty)	AX106292-B24

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CAT6+ Connectors, Tools and Accessories

REVConnect, KeyConnect and MDVO

CAT6+ Connectors are available in two termination styles: Belden's new REVConnect System and standard punchdown in KeyConnect or MDVO styles. REVConnect and KeyConnect have a keystone footprint and are designed to be used with any KeyConnect Patch Panels and with KeyConnect or MediaFlex Workstation Outlets.

Benefits

- REVConnect: Safe connectivity for air-handling spaces
- REVConnect: Offers great versatility and labor savings
- Easy termination and network administration
- Performance margins for all Gigabit network applications

Features

- REVConnect: Plenum rated - meets UL 2043 requirements
- REVConnect: Requires no pair separation; the best connector for Bonded-Pair and Nonbonded-Pair cable
- REVConnect: Terminates four pairs simultaneously with REVConnect Universal Termination Tool
- KeyConnect/MDVO: Compatible with Belden's Rapid Termination Tool
- Meets and exceeds all Category 6 component performance

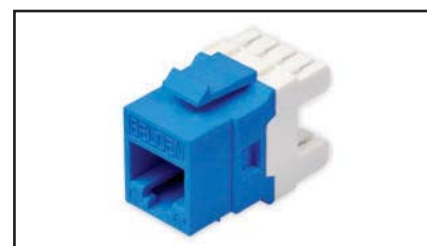


REVConnect Jacks Available in 19 Colors

Category 6, CAT6+ Modular Jacks

Color	Belden Part Number				
	REVConnect Jacks		Punchdown Jacks		
	Single Pack	Bulk Pack (24 Connectors)	KeyConnect	Bulk Pack (24 Connectors)	MDVO
Gray	RV6MJKUGY-S1	RV6MJKUGY-B24	AX101318	AX101318-B24	AX101063
Almond	RV6MJKUAL-S1	RV6MJKUAL-B24	AX101319	AX101319-B24	AX101064
Electric White	RV6MJKUEW-S1	RV6MJKUEW-B24	AX101320	AX101320-B24	AX101065*
Black	RV6MJKUBK-S1	RV6MJKUBK-B24	AX101321	AX101321-B24	AX101066
Ivory	RV6MJKUIV-S1	RV6MJKUIV-B24	AX103076	AX103076-B24	AX102563
Brown	RV6MJKUBR-S1	RV6MJKUBR-B24	AX104195	AX104195-B24	—
Red	RV6MJKURD-S1	RV6MJKURD-B24	AX104190	AX104190-B24	—
Orange	RV6MJKUOR-S1	RV6MJKUOR-B24	AX104189	AX104189-B24	—
Yellow	RV6MJKUYL-S1	RV6MJKUYL-B24	AX104191	AX104191-B24	—
Green	RV6MJKUGN-S1	RV6MJKUGN-B24	AX104192	AX104192-B24	—
Blue	RV6MJKUBL-S1	RV6MJKUBL-B24	AX104193	AX104193-B24	—
Purple	RV6MJKUPR-S1	RV6MJKUPR-B24	AX104194	AX104194-B24	—
TIA Brown	RV6MJKUTN-S1	RV6MJKUTN-B24	AX101328	—	AX101073
TIA Red	RV6MJKUTR-S1	RV6MJKUTR-B24	AX101323	—	AX101068
TIA Orange	RV6MJKUTO-S1	RV6MJKUTO-B24	AX101322	—	AX101067
TIA Yellow	RV6MJKUTY-S1	RV6MJKUTY-B24	AX101324	—	AX101069
TIA Green	RV6MJKUTG-S1	RV6MJKUTG-B24	AX101325	—	AX101070
TIA Blue	RV6MJKUTB-S1	RV6MJKUTB-B24	AX101326	—	AX101071
TIA Purple	RV6MJKUTP-S1	RV6MJKUTP-B24	AX101327	—	AX101072

*MDVO style jack is white. Color-coded icons and other accessories are available on page 62 and 63.



AX104193, KeyConnect Jack



RVUTT01, REVConnect Termination Tool; includes one Cable Prep Tool and spare blade set

REVConnect Plugs, Tools and Accessories

Description	Belden Part Number
CAT6+ REVConnect Plugs	
CAT6+ UTP REVConnect FlexPlug, Black	RV6FFPUBK18-S1
CAT6+ UTP REVConnect FlexPlug, Electric White	RV6FFPUEW18-S1
REVConnect Termination Tool and Accessories	
Universal Termination Tool	RVUTT01
Tool Blade Replacement Set	RVUTB01
Tool Belt Clip	RVUTC01
Replacement Cable Prep Tool	RVUCT01
REVConnect Spare Cores	
Replacement Caps and Cable Managers (50 of each in pack)	RVUCOEW-B50

KeyConnect/MDVO Replacement T-Bars

Description	Belden Part Number
Replacement T-Bars, bag of 24 pieces	PX103356R



Flex Plug

CAT6+ Modular Patch Cords

Bonded-Pair



CAT6+ Modular Patch Cords

CAT6+ Modular Patch Cords are made with Belden's patented Bonded-Pair cables, offering the best combination of transmission performance and physical integrity. Solid conductors improve attenuation and are needed in long patch cords to eliminate the need for cable de-rating in open-office cabling. They feature improved strain relief and a flexible boot for optimum protection in high-density installations.

Benefits

- Wrap-around label on each cord for easier product identification and length sorting
- Maximum RL performance under all patching conditions
- Superior ruggedness and durability

Category 6, CAT6+ Modular Patch Cords

Description	Belden Part Number					
	Bonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
CAT6+ Modular Patch Cords, UTP, 4-pair, 24 AWG Solid, T568A/B-T568A/B, CMR						
2 ft (0.6 m)	C601104002	C601105002	C601106002	C601108002	C601109002	C601100002
4 ft (1.2 m)	C601104004	C601105004	C601106004	C601108004	C601109004	C601100004
7 ft (2.1 m)	C601104007	C601105007	C601106007	C601108007	C601109007	C601100007
10 ft (3.0 m)	C601104010	C601105010	C601106010	C601108010	C601109010	C601100010
15 ft (4.6 m)	C601104015	C601105015	C601106015	C601108015	C601109015	C601100015
25 ft (7.6 m)	C601104025	C601105025	C601106025	C601108025	C601109025	C601100025
XXX ft	C601104XXX	C601105XXX	C601106XXX	C601108XXX	C601109XXX	C601100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6, Tailored CAT6+ Modular Patch Cords

C6	
Performance	Category 6, CAT6+

01	
Cable	UTP, Bonded-pair, 24 AWG Solid, CMR
02	UTP, Bonded-pair, 24 AWG Solid, CMP

1	
Termination	T568A/B-T568A/B
4	Crossover T568A -T568B
5	Crossover IEEE
6	Rollover

06	
Colors	
01	Brown
02	Red
03	Orange
04	Yellow
05	Green
06	Blue
07	Purple
08	Gray
09	White
00	Black

007	
Length	
001	1 ft (0.3 m)
002	2 ft (0.6 m)
003	3 ft (0.9 m)
004	4 ft (1.2 m)
005	5 ft (1.5 m)
XXX	XXX ft

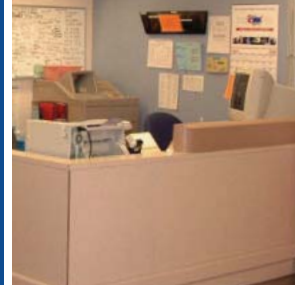
Notes:

Use XXX to specify length in feet 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C601106007 – CAT6+ Modular Patch Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



Category 6, Small-Diameter Patch Cords

Nonbonded-Pair (28 AWG)

CAT6+ Small-Diameter Patch Cords offer a great solution for large data center cross-connects and server enclosures, as well as for enterprise networks installed in crowded telcom rooms. The 28 AWG stranded conductors provide standards-compliant performance when up to 20.7 ft (6.3 m) of patch cord is used in a standard 295 ft (90 m) channel.

Benefits

- Reduces congestion and allows tight bend radius and improved airflow
- Easier access for maintenance
- Improves overall network administration



CAT6+ Small-Diameter Patch Cords

Category 6, Small-Diameter Patch Cords

Description	Belden Part Number					
	Nonbonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
Small-Diameter Patch Cords, UTP, 28 AWG Stranded, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	C6D1104002	C6D1105002	C6D1106002	C6D1108002	C6D1109002	C6D1100002
4 ft (1.2 m)	C6D1104004	C6D1105004	C6D1106004	C6D1108004	C6D1109004	C6D1100004
7 ft (2.1 m)	C6D1104007	C6D1105007	C6D1106007	C6D1108007	C6D1109007	C6D1100007
10 ft (3.0 m)	C6D1104010	C6D1105010	C6D1106010	C6D1108010	C6D1109010	C6D1100010
15 ft (4.6 m)	C6D1104015	C6D1105015	C6D1106015	C6D1108015	C6D1109015	C6D1100015
20 ft (6.1 m)	C6D1104020	C6D1105020	C6D1106020	C6D1108020	C6D1109020	C6D1100020
XXX ft.	C6D1104XXX	C6D1105XXX	C6D1106XXX	C6D1108XXX	C6D1109XXX	C6D1100XXX

Use XXX to specify length in feet 001-050 ft in increments of 1 ft.

Other colors available with minimum order quantity (may require longer lead times.) Call customer service for additional information. Longer lengths available.

Category 6, Tailored Small-Diameter Patch Cords

C6
Performance
C6 Category 6, CAT6+

D1
Cable
D1 UTP, Nonbonded-Pair, 28 AWG Stranded, CMR

1
Termination
1 T568A/B-T568A/B
4 Crossover T568A -T568B
5 Crossover IEEE
6 Rollover

06
Colors
02 Red
04 Yellow
05 Green
06 Blue
08 Gray
09 White
00 Black

007
Length
001 1 ft (0.3 m)
002 2 ft (0.6 m)
003 3 ft (0.9 m)
004 4 ft (1.2 m)
005 5 ft (1.5 m)
XXX XXX ft

Notes:

Use XXX to specify length in feet 001-050 ft in increments of 1 ft.

Example:

C6D1106007 – Small-Diameter Patch Cord, UTP, Nonbonded-Pair, 28 AWG Stranded, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

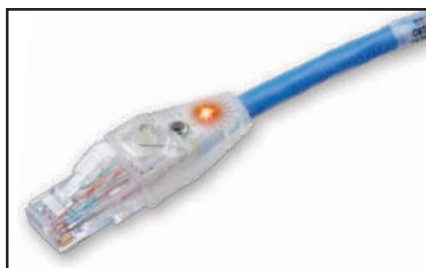
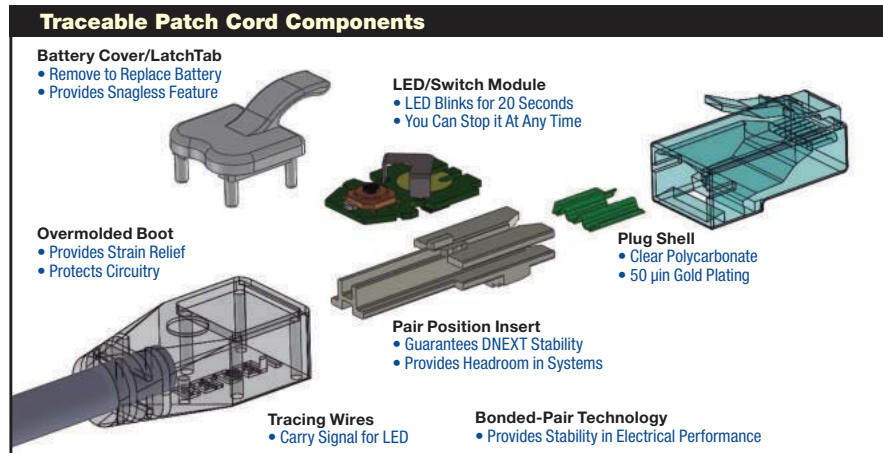
CAT6+ Traceable Patch Cords

Bonded-Pair

CAT6+ Traceable Patch Cords feature a highly efficient, bright LED with a battery life expectancy of seven years, or 1,000 activations (battery is also replaceable). When activated, the LED blinks for 20 seconds and can be stopped at any time with a second press of the button. The LED and its tracing wires are integrated right into the patch cord, eliminating the need for a separate power source.

Features

- Belden Bonded-Pair technology for extra robustness, performance and reliability
- Barcode tagging on each end of the cord is compatible with DCIM systems
- 100% factory tested and certified



CAT6+ Traceable Patch Cord

Category 6, CAT6+ Traceable Patch Cords

Description	Belden Part Number					
	Bonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
CAT6+ Traceable Patch Cords, UTP, 4-Pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	C6T1104002	C6T1105002	C6T1106002	C6T1108002	C6T1109002	C6T1100002
4 ft (1.2 m)	C6T1104004	C6T1105004	C6T1106004	C6T1108004	C6T1109004	C6T1100004
7 ft (2.1 m)	C6T1104007	C6T1105007	C6T1106007	C6T1108007	C6T1109007	C6T1100007
10 ft (3.0 m)	C6T1104010	C6T1105010	C6T1106010	C6T1108010	C6T1109010	C6T1100010
15 ft (4.6 m)	C6T1104015	C6T1105015	C6T1106015	C6T1108015	C6T1109015	C6T1100015
25 ft (7.6 m)	C6T1104025	C6T1105025	C6T1106025	C6T1108025	C6T1109025	C6T1100025
XXX ft	C6T1104XXX	C6T1105XXX	C6T1106XXX	C6T1108XXX	C6T1109XXX	C6T1100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6, Tailored CAT6+ Traceable Patch Cords

C6
Performance
C6 Category 6, CAT6+

T1
Cable
T1 Traceable, UTP, Bonded-Pair, 24 AWG Solid, CMR

1
Termination
1 T568A/B-T568A/B
4 Crossover T568A -T568B
5 Crossover IEEE
6 Rollover

06	
Colors	
01 Brown	12 TIA Red
02 Red	13 TIA Orange
03 Orange	14 TIA Yellow
04 Yellow	15 TIA Green
05 Green	16 TIA Blue
06 Blue	17 TIA Purple
07 Purple	
08 Gray	
09 White	
00 Black	

007
Length
001 1 ft (0.3 m)
002 2 ft (0.6 m)
003 3 ft (0.9 m)
004 4 ft (1.2 m)
005 5 ft (1.5 m)
XXX XXX ft

Notes:

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C6T1106007 – CAT6+ Traceable Patch Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



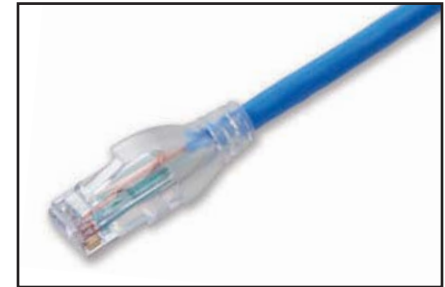
CAT6+ Modular Pigtails

Nonbonded-Pair and Bonded-Pair

CAT6+ Modular Pigtails feature a snagless overmolded boot for high-performing strain relief. All pigtails feature solid conductors to improve attenuation and eliminate the need for cable de-rating in open-office cabling.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability



CAT6+ Modular Pigtail (connector end)



CAT6+ Modular Pigtail

Category 6, CAT6+ Modular Pigtails

Description	Belden Part Number		
	Nonbonded-Pair		
Length	Blue	Gray	White
CAT6+ Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568A-Open, Plenum-CMP			
15 ft (4.6 m)	C632206015	C632208015	C632209015
25 ft (7.6 m)	C632206025	C632208025	C632209025
35 ft (10.6 m)	C632206035	C632208035	C632209035
50 ft (15.2 m)	C632206050	C632208050	C632209050
XXX ft	C632206XXX	C632208XXX	C632209XXX
CAT6+ Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568A-Open, Riser-CMR			
15 ft (4.6 m)	C631206015	C631208015	C631209015
25 ft (7.6 m)	C631206025	C631208025	C631209025
35 ft (10.6 m)	C631206035	C631208035	C631209035
50 ft (15.2 m)	C631206050	C631208050	C631209050
XXX ft	C631206XXX	C631208XXX	C631209XXX
CAT6+ Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568B-Open, Plenum-CMP			
15 ft (4.6 m)	C632306015	C632308015	C632309015
25 ft (7.6 m)	C632306025	C632308025	C632309025
35 ft (10.6 m)	C632306035	C632308035	C632309035
50 ft (15.2 m)	C632306050	C632308050	C632309050
XXX ft	C632306XXX	C632308XXX	C632309XXX
CAT6+ Modular Pigtails, UTP, 4-pair, 23 AWG Solid, T568B-Open, Riser-CMR			
15 ft (4.6 m)	C631306015	C631308015	C631309015
25 ft (7.6 m)	C631306025	C631308025	C631309025
35 ft (10.6 m)	C631306035	C631308035	C631309035
50 ft (15.2 m)	C631306050	C631308050	C631309050
XXX ft	C631306XXX	C631308XXX	C631309XXX

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6, Tailored CAT6+ Modular Pigtails

C6	31	2	06	007
Performance	Cable	Termination	Colors	Length
C6 Category 6, CAT6+	01 UTP, Bonded-Pair, 24 AWG Solid, CMR	2 T568A-Open	01 Brown	015 15 ft (4.6 m)
	02 UTP, Bonded-Pair, 24 AWG Solid, CMP	3 T568B-Open	02 Red	016 16 ft (4.9 m)
	31 UTP, Nonbonded-Pair, 24 AWG Solid, CMR		03 Orange	017 17 ft (5.2 m)
	32 UTP, Nonbonded-Pair, 24 AWG Solid, CMP		04 Yellow	018 18 ft (5.5 m)
			05 Green	019 19 ft (5.8 m)
			06 Blue	020 20 ft (6.1 m)
			07 Purple	XXX XXX ft
			08 Gray	
			09 White	
			00 Black	

Notes:

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C631206007 – CAT6+ Modular Pigtail, UTP, Nonbonded-Pair, 23 AWG Solid, CMR, T568A-OPEN, Blue, 7 ft (2.1 m)

CAT6+ REVConnect Pre-Terminated Cabling System Couplers and Cable Assemblies



CAT6+ REVConnect Pre-Terminated Cable Assemblies



CAT6+ REVConnect Pre-Terminated Cable Assembly (1 cable)

The 3600 Pre-Terminated Cabling System guarantees Category 6 performance and headroom without tradeoffs or compromises on performance or reliability.

Proven modular components are the cornerstone of the system, including 3600 REVConnect Pre-Term Assemblies and CAT6+ REVConnect Couplers, Jacks and/or RJ45 Plugs. Bonded-Pair technology ensures that the cable assemblies

offer exceptional structural stability and unflinching electrical performance. The patented Dual-FleX design ensures controlled plug/jack mated connections on both sides of the coupler. This provides an uninterrupted electrical path for superior connector reliability and transmission performance.

Category 6, CAT6+ REVConnect Preloaded Patch Panels

Description	Belden Part Number	
	Black	White
Category 6 Preloaded Patch Panels		
CAT6+ REVConnect Patch Panel 24-port, 1U (Preloaded)	RV6PPF1U24WH	RV6PPF1U24BK
CAT6+ REVConnect Patch Panel 48-port, 2U (Preloaded)	RV6PPF2U48WH	RV6PPF2U48BK
CAT6+ REVConnect Angled Patch Panel 24-port, 1U (Preloaded)	RV6PPA1U24WH	RV6PPA1U24BK
CAT6+ REVConnect Angled Patch Panel 48-port, 2U (Preloaded)	RV6PPA2U48WH	RV6PPA2U48BK

Category 6, CAT6+ REVConnect Pre-Terminated Assemblies

C	B	06	6	U	C	T	R	B	006
Bundle Type	# of Cables	Category	Unshielded/Shielded	Termination Type	Wiring Scheme	Fire Rating	Colors	Length	
B Braided Sleeve	01 1 Cable	6 Cat6	U FTP (F/UTP)	C RC Core to Core	T T568A/B–T568A/B	R Riser	B Blue	006 6 ft (1.8 m)	
N* No Sleeve, Single Cable, Core to Core	06 6 Cables	A Cat6A		1 RC Core to RJ45 Plug	A T568A-OPEN	P Plenum	S Gray	007 7 ft (2.1 m)	
	08 8 Cables			3 RC Core to Open	B T568B-OPEN		W White	008 8 ft (2.4 m)	
	12 12 Cables						N Black	009 9 ft (2.7 m)	
								010 10 ft (3 m)	
								XXX XXX ft	

Notes:

Use **XXX** to specify length in feet 006-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

*Selection N is only available with **01**=1 Cable and **C**=Core to Core in length in feet 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

CB066UCTRB006 – CAT6+ REVConnect Pre-Terminated Trunk, Braided Sleeve, 6 Cables, CAT6+, Unshielded, Core to Core, T568A/B, Riser, Blue Jacket, 6 ft.

Faster.
Easier.
Better.



CAT6+ Pre-Terminated Cabling System

Patch Panels, Couplers and Cable Assemblies

The CAT6+ Pre-Terminated Cabling System delivers rapid deployment coupled with guaranteed Category 6 performance and headroom, without the need for tradeoffs or compromise in performance and reliability.

Proven modular components are the cornerstone of the system, including 3600 Pre-Terminated Cable Assemblies and CAT6+ RJ45 Modular Couplers. These components rely on unique enabling technologies: Belden's Bonded-Pair technologies ensure that cable assemblies boast exceptional structural stability and unflinching

electrical performance while the patented plug management bar design allows for excellent control of internal plug NEXT and superior plug/jack mated-pair performance.

With simple planning, easy ordering and rapid delivery, the CAT6+ Pre-Terminated Cabling System can reduce installation time and labor costs by as much as 90%. In addition, this system supports plug-and-play installation and component reusability, resulting in lower installed costs and less waste.



CAT6+ KeyConnect Pre-Terminated Patch Panels (Preloaded)

Category 6, CAT6+ Preloaded Coupler Patch Panels

Description	Belden Part Number
CAT6+ KeyConnect Coupler Patch Panels (Preloaded)	
CAT6+ KeyConnect Coupler Patch Panel, 24-port, 1U, Black (Preloaded)	AX104227
CAT6+ KeyConnect Coupler Patch Panel, 48-port, 2U, Black (Preloaded)	AX104228
CAT6+ KeyConnect Coupler Patch Panel, 48-port, 1U, Black (Preloaded)	AX104591
CAT6+ KeyConnect AngleFlex Coupler Patch Panel, 24-port, 1U, Black (Preloaded)	AX104568
CAT6+ KeyConnect AngleFlex Coupler Patch Panel, 48-port, 2U, Black (Preloaded)	AX104570
CAT6+ KeyConnect Angled Coupler Patch Panels (Preloaded)	
CAT6+ KeyConnect Angled Coupler Patch Panel, 24-port, 1U, Black (Preloaded)	AX105349
CAT6+ KeyConnect Angled Coupler Patch Panel, 48-port, 2U, Black (Preloaded)	AX105350
CAT6+ KeyConnect Angled Coupler Patch Panel, 48-port, 1U, Black (Preloaded)	AX105351
CAT6+ KeyConnect Vertical Mount Patch Panels (Preloaded)	
CAT6+ KeyConnect Vertical Mount Patch Panel, 8-Port, Black (Preloaded)	AX105367*

Empty Patch Panels can be used when colored couplers are used
*Mount in XZUK01 and XZUK02 brackets



CAT6+ RJ45 Coupler

Category 6, CAT6+ KeyConnect RJ45 Couplers

Belden Part Number						
Orange	Red	Yellow	Green	Blue	White	Black
AX104206	AX104207	AX104208	AX104209	AX104210	AX104214	AX104215

Complete the 3600 Pre-Terminated System with CAT6+ Modular Patch Cords, see page 28 for ordering information.



3600 Pre-Terminated Cable Assembly

Category 6, CAT6+ Pre-Terminated Trunks

C6	01	1	06	020	A06
Performance	Cable	Termination	Colors	Length	# of Cables
C6 Category 6, CAT6+	01 UTP, Bonded-pair, 24 AWG Solid, CMR 02 UTP, Bonded-pair, 23 AWG Solid, CMP	1 T568A/B-T568A/B	06 Blue 08 Gray 09 White 00 Black	006 6 ft (1.8 m) 007 7 ft (2.1 m) 008 8 ft (2.4 m) 009 9 ft (2.7 m) 010 10 ft (3 m) XXX XXX ft	A06 6 Cables A08 8 Cables

Notes:

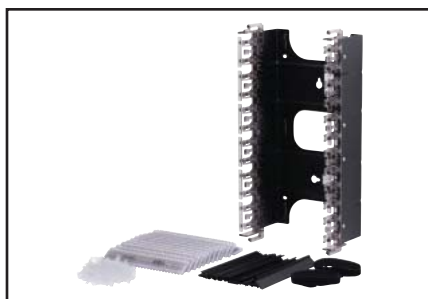
Use XXX to specify length in feet - 006-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. If length is longer than 220 ft, 23 AWG cables are used.

Example:

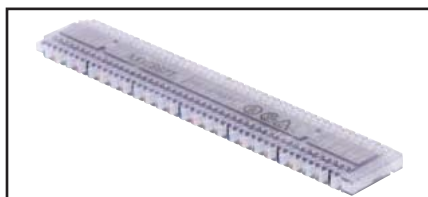
C601106020A06 – CAT6+ Pre-Terminated Trunk (bundle of six cables), UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 20 ft (2.1 m)

CAT6+ GigaBIX IDC System

Kits, Components, Accessories and Patch Cords



GigaBIX Termination Kit, 72-port



GigaBIX Connector, 6-port



CAT6+ GigaBIX Patch Cord, BIX-BIX, 4 ft



GigaBIX Cable Management Module and Patch Cord Organizer

The Belden GigaBIX Cross-Connect System takes advantage of the proven reliability of BIX technology to provide high-performance connections for data networks. This uniquely designed system allows for very high termination density, while maintaining ease of administration to accommodate moves, adds and changes.

Advantages of the Belden GigaBIX Cross-Connect System include easy installation and cable management, coupled with the industry's best performance-to-price ratio for high-density connectivity. The system allows up to 300 pairs to be terminated in a very small area—a real space-saving advantage in today's office environment where real estate is at a premium.

Category 6, GigaBIX IDC System

Description	Belden Part Number
GigaBIX Termination Kits	
GigaBIX Termination Kit, 72-port	AX101470
GigaBIX Termination Kit, 300-pair	AX101471
GigaBIX Rack Mount Termination Kit, 48-port	AX101985
GigaBIX Connecting Components	
GigaBIX Connector, 6-port	AX101447
GigaBIX Connector, 25-pair	AX101448
GigaBIX Mount, 12-connector	AX101472
GigaBIX Rack Mount Panel, 48-port, 3U, Empty	AX101986
GigaBIX Wire Guard	AX101486
GigaBIX Designation Strip	AX101483
GigaBIX Termination Bar	AX101719
GigaBIX Cable Management Accessories	
GigaBIX Cable Management Module	AX101469
GigaBIX Patch Cord Organizer	AX101468
GigaBIX Patch Cord Organizer, Cover	AX101521
GigaBIX Horizontal Channel Plate	AX101520
GigaBIX Management Ring	AX101478
GigaBIX Management Ring Adapter	AX102190
GigaBIX/MediaFlex Adapter	AX101987
GigaBIX/MediaFlex Designation Strip	AX107277
10GX IDC Connecting Block Holder 6 positions	AX102677
GigaBIX Color-Coded Clip, Red	AX102151
GigaBIX Color-Coded Clip, Yellow	AX102152
GigaBIX Color-Coded Clip, Green	AX102153
GigaBIX Color-Coded Clip, Blue	AX102154
GigaBIX Color-Coded Clip, Gray	AX102146
GigaBIX Color-Coded Clip, White	AX102148
GigaBIX Color-Coded Clip, Black	AX102149
GigaBIX Frames and Accessories	
GigaBIX Frame, 1152 ports/4800 pairs	AX102073
GigaBIX Deep Frame, 1152 ports/4800 pairs	AX104474
GigaBIX Frame End Kit	AX102082
GigaBIX Frame Overhead Kit	AX102145
Cross-Connect Wire	
GigaBIX 4-pair XC Wire, Spool-in-a-Box	XCGB4 000A1000
GigaBIX 4-pair XC Wire, Reel	XCGB4 000I000

Category 6, CAT6+ GigaBIX Patch Cords

Description	Belden Part Number		
	BIX-BIX	BIX-8MOD T568A-ISDN	BIX-8MOD T568B-ALT
4 ft (1.2 m)	AX101945	AX101951	AX101957
6 ft (1.8 m)	AX101946	AX101952	AX101958
8 ft (2.4 m)	AX101947	AX101953	AX101959
10 ft (3.0 m)	AX101948	AX101954	AX101960
15 ft (4.6 m)	AX101949	AX101955	AX101961
25 ft (7.6 m)	AX101950	AX101956	AX101962

Faster.
Easier.
Better.



Category 6, 2400 Shielded Cables

Nonbonded-Pair

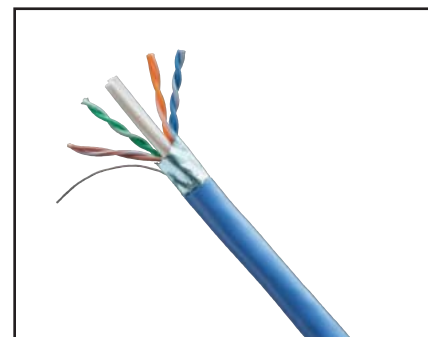
2400 Shielded Cable consists of 4-pair F/UTP cables that exceed Category 6 ANSI/TIA/568-C.2 requirements. When used as the horizontal cable in the 2400 Shielded System, the channel provides at least 250 MHz of bandwidth. 2400 F/UTP shielded cable has a thick, 100% coverage foil shield. This shield protects your system from harsh EMI environments, improving your data throughput.



Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff



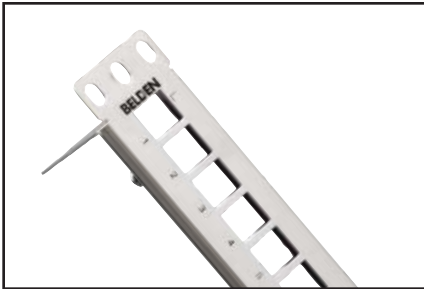
2400 Shielded Cable

Category 6, 2400 Shielded Cables

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	Spool-in-Box	Spool
2400 Shielded Cables, F/UTP, 4-pair, 23 AWG, Plenum-CMP			
Red	1000 ft (305 m)	Available	2413F 0021000
Orange	1000 ft (305 m)	Available	2413F 0031000
Yellow	1000 ft (305 m)	Available	2413F 0041000
Green	1000 ft (305 m)	Available	2413F 0051000
Blue	1000 ft (305 m)	Available	2413F D151000
Purple	1000 ft (305 m)	Available	Available
Gray	1000 ft (305 m)	Available	2413F 0081000
White	1000 ft (305 m)	Available	2413F 0091000
Black	1000 ft (305 m)	Available	2413F 0101000
2400 Shielded Cables, F/UTP, 4-pair, 23 AWG, Riser-CMR			
Red	1000 ft (305 m)	Available	2412F 0021000
Orange	1000 ft (305 m)	Available	2412F 0031000
Yellow	1000 ft (305 m)	Available	2412F 0041000
Green	1000 ft (305 m)	Available	2412F 0051000
Blue	1000 ft (305 m)	Available	2412F 0061000
Purple	1000 ft (305 m)	Available	Available
Gray	1000 ft (305 m)	Available	2412F 0081000
White	1000 ft (305 m)	Available	2412F 0091000
Black	1000 ft (305 m)	Available	2412F 0101000

CAT6+ Shielded System

Patch Panels, Jacks and Patch Cords

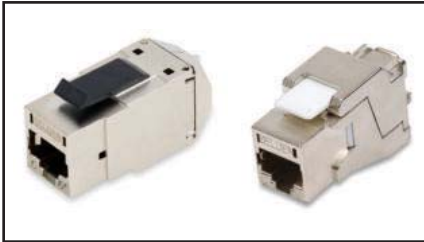


CAT6+ Shielded Modular Patch Panel (Empty)

CAT6+ Shielded Patch Panels provide a flexible, versatile and high-density termination solution for data center and telecom room installations. They come with a ground wire to guarantee shielding integrity (per ANSI/TIA-607-C) and cable management brackets for neat cable dressing. They can be configured using 10GX Shielded Modular Jacks available in REVConnect and KeyConnect styles.

The CAT6+ REVConnect module is a rugged, easy-to-install connector. Its termination features a universal core that accepts a jack or plug to support connections in a keystone outlet or direct connections into devices.

CAT6+ Shielded Modular Patch Cords are designed to be used within the 2400 Shielded System. They offer the best combination of transmission performance and shielding integrity.



CAT6+ Shielded REVConnect and KeyConnect Modular Jacks

Category 6, CAT6+ Shielded Modular Patch Panels

Description	Belden Part Number
CAT6+ KeyConnect Shielded Patch Panel, 24-port, 1U, Titanium (Empty)	AX104563
CAT6+ KeyConnect Shielded Patch Panel, 48-port, 2U, Titanium (Empty)	AX104564
CAT6+ KeyConnect Shielded Angled Patch Panel, 24-port, 1U, Titanium (Empty)	AX104622
CAT6+ KeyConnect Shielded Angled Patch Panel, 48-port, 2U, Titanium (Empty)	AX104623

Category 6, CAT6+ Shielded Modular Jacks

Description	Belden Part Number
CAT6+ Shielded KeyConnect Modular Jack, Metallic	AX104596
CAT6+ Shielded REVConnect Modular Jack, Single Pack	RV6MJKSME-S1
CAT6+ Shielded REVConnect Modular Jack, Bulk Pack	RV6MJKSME-B24

Color-coded icons and other accessories are available on page 62 and 63.



CAT6+ Shielded Modular Patch Cords

Category 6, CAT6+ Shielded Modular Patch Cords

Description	Belden Part Number			
	Nonbonded-Pair			
Length	Blue	Gray	White	Black
CAT6+ Shielded Modular Patch Cords, 4-pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR				
2 ft (0.6 m)	C6F1106002	C6F1108002	C6F1109002	C6F1100002
4 ft (1.2 m)	C6F1106004	C6F1108004	C6F1109004	C6F1100004
7 ft (2.1 m)	C6F1106007	C6F1108007	C6F1109007	C6F1100007
10 ft (3.0 m)	C6F1106010	C6F1108010	C6F1109010	C6F1100010
15 ft (4.6 m)	C6F1106015	C6F1108015	C6F1109015	C6F1100015
25 ft (7.6 m)	C6F1106025	C6F1108025	C6F1109025	C6F1100025
XXX ft	C6F1106XXX	C6F1108XXX	C6F1109XXX	C6F1100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6, Tailored CAT6+ Shielded Modular Patch Cords

C6	F1	1	06	007
Performance	Cable	Termination	Colors	Length
C6 Category 6, CAT6+	F1 Shielded, Nonbonded-Pair, 24 AWG Solid, CMR	1 T568A/B-T568A/B 4 Crossover T568A -T568B 5 Crossover IEEE 6 Rollover	02 Red 04 Yellow 05 Green 06 Blue 08 Gray 09 White 00 Black	001 1 ft (0.3 m) 002 2 ft (0.6 m) 003 3 ft (0.9 m) 004 4 ft (1.2 m) 005 5 ft (1.5 m) XXX XXX ft

Notes:

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C6F1106007 - CAT6+ Shielded Modular Cord, Nonbonded-Pair, 24 AWG Solid, CMR, T56A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



Category 6, CAT6+ Shielded System (continued)

Pigtails

CAT6+ Shielded Modular Pigtails feature solid conductors to improve attenuation and to eliminate the need for cable de-rating in open-office cabling.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability



CAT6+ Shielded Modular Pigtail (connector end)

Category 6, CAT6+ Shielded Modular Pigtails

Description	Belden Part Number	
	Nonbonded-Pair	
Length	Blue	Gray
CAT6+ Shielded Modular Pigtails, 4-pair, 24 AWG Solid, T568A-Open, Riser-CMR		
15 ft (4.6 m)	C6F1206015	C6F1208015
25 ft (7.6 m)	C6F1206025	C6F1208025
35 ft (10.6 m)	C6F1206035	C6F1208035
50 ft (15.2 m)	C6F1206050	C6F1208050
XXX ft	C6F1206XXX	C6F1208XXX
CAT6+ Shielded Modular Pigtails, 4-pair, 24 AWG Solid, T568B-Open, Riser-CMR		
15 ft (4.6 m)	C6F1306015	C6F1308015
25 ft (7.6 m)	C6F1306025	C6F1308025
35 ft (10.6 m)	C6F1306035	C6F1308035
50 ft (15.2 m)	C6F1306050	C6F1308050
XXX ft	C6F1306XXX	C6F1308XXX

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 6, Tailored CAT6+ Shielded Pigtails

C6	F1	2	06	030
Performance	Cable	Termination	Colors	Length
C6 Category 6, CAT6+	F1 Shielded Nonbonded-Pair, 24 AWG Solid, CMR	2 T568A-Open 3 T568B-Open	02 Red 04 Yellow 05 Green 06 Blue 08 Gray 09 White 00 Black	015 15 ft (4.6 m) 016 16 ft (4.9 m) 017 17 ft (5.2 m) 018 18 ft (5.5 m) 019 19 ft (5.8 m) 020 20 ft (6.1 m) XXX XXX ft

Notes:

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

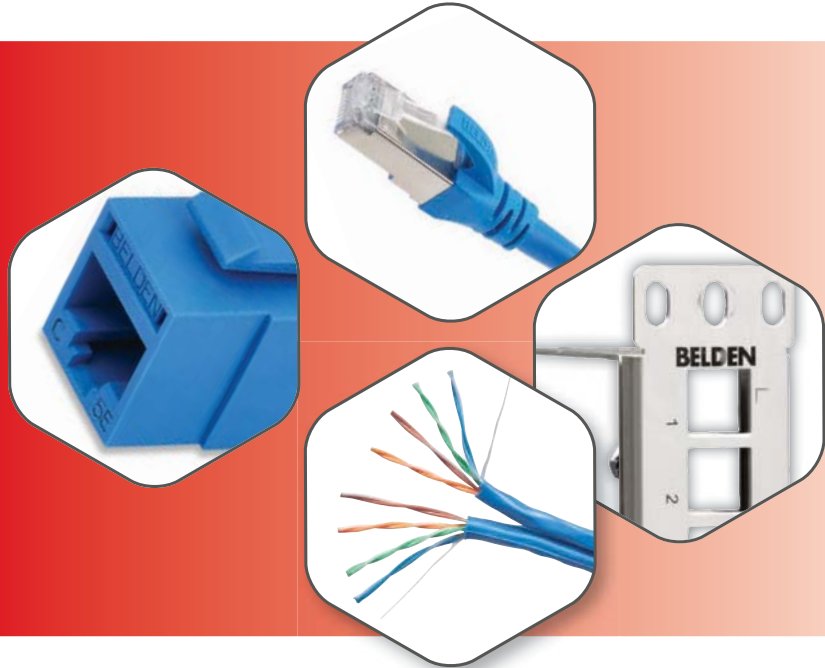
C6F1206030 – CAT6+ Shielded Pigtail, Nonbonded-Pair, 24 AWG Solid, CMR, T568A-Open, Blue, 30 ft (9.5m)



SECTION THREE

Category 5e REVConnect Systems

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1200 Shielded Cables	48
CAT5E Shielded System	49-50



The REVConnect 1200 System is the best performing Category 5e system available, exceeding all requirements for Category 5e performance with guaranteed bandwidth to 160 MHz. The system is comprised of Nonbonded-Pair or Bonded-Pair 1200 Cable, KeyConnect Patch Panels and CAT5E Modular Jacks and Cords. A BIX Cross-Connect System, 110 Cross-Connect System and end-to-end shielded system are also available as part of Belden's comprehensive Category 5e offering. The REVConnect 1200 System features several Belden innovations that ease installation and management, ensure maximum performance and support a variety of environments.

1200 Bonded-Pair Enhanced Category 5e Cable is available in plenum and non-plenum versions. Using patented Bonded-Pair technology, DataTwist 1200 cable offers superior electrical performance that exceeds Category 5e performance.

1200 Banana Peel® Enhanced Category 5e Cable uses a unique patented design that bundles six DataTwist Bonded-Pair Category 5e Cables to a center spline, offering a smaller size for easier termination and installation.

CAT5E HD Patch Panels combine punch down connectors with standard modular jacks to speed installation. CAT5E HD Patch Boxes, available in BIX and 110 configurations, hold a 12-port universal connector module in a compact and robust metal enclosure.

CAT5E KeyConnect Modular Jacks feature patented Encapsulated Lead Frame technology that offers excellent long-term reliability as well as extremely stable transmission performance.

Faster.
Easier.
Better.



1200 Cables

Nonbonded-Pair, Bonded-Pair

1200 Cable Series consists of 4-pair UTP cables that exceed Category 5e ANSI/TIA/EIA-568-C.2 requirements. When used as the horizontal cable in the Belden REVConnect 1200 System, the channel provides 160 MHz of bandwidth.

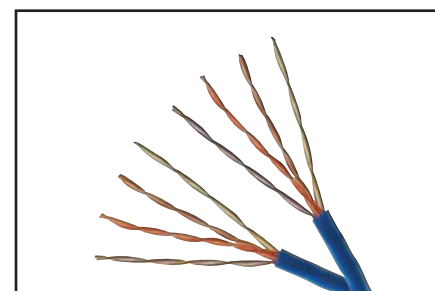
1200 Banana Peel® Enhanced Category 5e Cable is a patented design that effectively bundles six 1200 Bonded-Pair Category 5e Cables to a center spline, eliminating the need for an overall

jacket. The elimination of the outer jacket means simpler termination by peeling the cables directly off the spline, as well as a decrease in size and relative bend radius.

Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff



1200 UTP Cable

Category 5e, DataTwist 1200 Cables

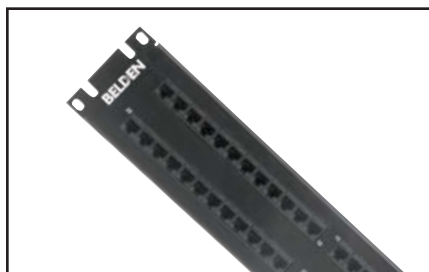
Description		Belden Part Number			
		Nonbonded-Pair		Bonded-Pair (DT350)	
Color	Length	UnReel Box	Spool	UnReel Box	Spool
1200 Cables, UTP, 4-pair, 24 AWG, Plenum-CMP					
Red	1000 ft (305 m)	Available	Available	1701A 002U1000	1701A 002I000
Orange	1000 ft (305 m)	1213 003U1000	Available	1701A 003U1000	1701A 003I000
Yellow	1000 ft (305 m)	1213 004U1000	Available	1701A 004U1000	1701A 004I000
Green	1000 ft (305 m)	1213 005U1000	Available	1701A 005U1000	1701A 005I000
Blue	1000 ft (305 m)	1213 D15U1000	1213 D15I000	1701A D15U1000	1701A D15I000
Purple	1000 ft (305 m)	1213 007U1000	Available	1701A B02U1000	1701A B02I000
Gray	1000 ft (305 m)	1213 008U1000	Available	1701A 008U1000	Available
White	1000 ft (305 m)	1213 009U1000	1213 009I000	1701A 009U1000	1701A 009I000
Black	1000 ft (305 m)	1213 010U1000	Available	1701A 010U1000	1701A 010I000
Pink	1000 ft (305 m)	1213 012U1000	Available	Available	Available
Natural	1000 ft (305 m)	Available	Available	1701A 877U1000	1701A 877I000
Blue	2500 ft (762 m)	Available	1213 D152500	Available	Available
White	2500 ft (762 m)	Available	1213 0092500	Available	Available
1200 Cables, UTP, 4-pair, 24 AWG, Riser-CMR					
Red	1000 ft (305 m)	Available	Available	1700A 002U1000	1700A 002I000
Orange	1000 ft (305 m)	1212 003U1000	Available	1700A 003U1000	1700A 003I000
Yellow	1000 ft (305 m)	1212 004U1000	Available	1700A 004U1000	1700A 004I000
Green	1000 ft (305 m)	1212 005U1000	Available	1700A 005U1000	1700A 005I000
Blue	1000 ft (305 m)	1212 006U1000	1212 006I000	1700A 006U1000	1700A 006I000
Purple	1000 ft (305 m)	Available	Available	1700A B02U1000	1700A B02I000
Lt. Gray	1000 ft (305 m)	Available	Available	1700A F2VU1000	1700A F2V1000
Gray	1000 ft (305 m)	1212 008U1000	Available	1700A 008U1000	Available
White	1000 ft (305 m)	1212 009U1000	1212 009I000	1700A 009U1000	1700A 009I000
Black	1000 ft (305 m)	1212 010U1000	Available	1700A 010U1000	1700A 010I000
Blue	2500 ft (762 m)	Available	1212 0062500	Available	Available
1200 Cables, UTP, 4-pair, 24 AWG, LSZH					
Purple	1000 ft (305 m)	1224 007U1000	Available	Available	Available

Enhanced Category 5e, 1200 Banana Peel Cables

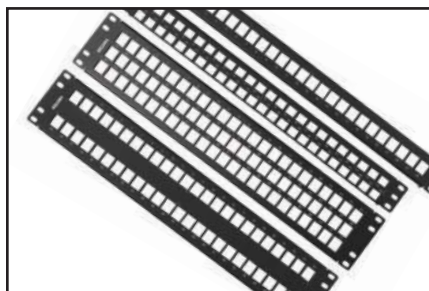
Description		Belden Part Number
		Bonded-Pair
Color	Length	Spool
1200 Banana Peel Cables, UTP, Plenum-CMP, 6-pack		
Blue	500 ft (152 m)	1701S6 D15500
Blue	1000 ft (305 m)	1701S6 D151000
1200 Banana Peel Cables, UTP, Riser-CMR, 6-pack		
Blue	500 ft (152 m)	1700S6 006500
Lt. Gray	500 ft (152 m)	1700S6 F2V500
Blue	1000 ft (305 m)	1700S6 0061000
Lt. Gray	1000 ft (305 m)	1700S6 F2V1000



REVConnect Preloaded Patch Panels (10GX shown)



CAT5E HD Patch Panels



KeyConnect Patch Panels (Empty)



KeyConnect AngleFlex Patch Panels

CAT5E Patch Panels

Preloaded and Modular

CAT5E Patch Panels are available in REVConnect and KeyConnect styles, as well as HD-BIX and HD-110. Configurations include 24-port 1U, 48-port 2U and 48-port 1U in flat and angled designs. Preloaded panels are available with RJ45 jacks.

Benefits

- Performance up to 160 MHz (1200 System)
- Flat and angled options available
- Quick and easy termination with REVConnect termination tool (REVConnect patch panels)
- Front access options (REVConnect patch panels) for additional versatility

Features

- REVConnect patch panels feature Belden's revolutionary REVConnect core technology
- REVConnect Patch Panels compatible with color icons and dust covers
- KeyConnect patch panels feature Belden CAT5E KeyConnect connectors with patented leadframe technology
- Single-port modularity on REVConnect and KeyConnect standard densities
- Labeling and cable management accessories included with all patch panels

For color icons and dust covers please see page 62.

Category 5e, CAT5E Preloaded Patch Panels

Description	Belden Part Number	
	White	Black
CAT5E REVConnect Patch Panels (Preloaded)		
CAT5E REVConnect Patch Panel 24-port, 1U (Preloaded)	RV5PPF1U24WH	RV5PPF1U24BK
CAT5E REVConnect Patch Panel 48-port, 2U (Preloaded)	RV5PPF2U48WH	RV5PPF2U48BK
CAT5E REVConnect Angled Patch Panel 24-port, 1U (Preloaded)	RV5PPA1U24WH	RV5PPA1U24BK
CAT5E REVConnect Angled Patch Panel 48-port, 2U (Preloaded)	RV5PPA2U48WH	RV5PPA2U48BK
CAT5E KeyConnect Patch Panels (Preloaded)		
		Black
CAT5E KeyConnect Patch Panel, 24-port, 1U (Preloaded)	—	AX104013
CAT5E KeyConnect Patch Panel, 48-port, 2U (Preloaded)	—	AX104014
CAT5E KeyConnect Angled Patch Panel, 24-port, 1U (Preloaded)	—	AX105357
CAT5E KeyConnect Angled Patch Panel, 48-port, 2U (Preloaded)	—	AX105358
CAT5E KeyConnect Angled Patch Panel, 48-port, 1U (Preloaded)	—	AX105359
CAT5E HD Patch Panels (Preloaded)		
		Black
CAT5E HD-BIX Patch Panel, 24-port, 1U (Preloaded)	—	AX103260
CAT5E HD-BIX Patch Panel, 48-port, 2U (Preloaded)	—	AX103261
CAT5E HD-110 Patch Panel, 24-port, 1U (Preloaded)	—	AX103258
CAT5E HD-110 Patch Panel, 48-port, 2U (Preloaded)	—	AX103259
CAT5E Ultra-High-Density Patch Panel (Preloaded)		
		Black
CAT5E Ultra-High-Density Patch Panel, 48-port, 1U (Preloaded)	—	AX103262

Modular Patch Panels (Empty)

Description	Belden Part Number	
	White	Black
REVConnect Modular Patch Panels (Empty)		
REVConnect Modular Patch Panel 24-port, 1U (Empty)	RVMPFF1U24BK	RVMPFF1U24WH
REVConnect Modular Patch Panel 48-port, 2U (Empty)	RVMPFF2U48BK	RVMPFF2U48WH
REVConnect Angled Modular Patch Panel 24-port, 1U (Empty)	RVMPFA1U24BK	RVMPFA1U24WH
REVConnect Angled Modular Patch Panel 48-port, 2U (Empty)	RVMPFA2U48BK	RVMPFA2U48WH
KeyConnect Modular Patch Panels (Empty)		
		Black
KeyConnect Patch Panel, 24-port, 1U (Empty)	—	AX103114
KeyConnect Patch Panel, 48-port, 2U (Empty)	—	AX103115
KeyConnect Patch Panel, 72-port, 2U (Empty)	—	AX103116
KeyConnect Patch Panel, 48-port, 1U (Empty)	—	AX103121
KeyConnect Angled Patch Panel, 24-port, 1U (Empty)	—	AX104599
KeyConnect Angled Patch Panel, 48-port, 2U (Empty)	—	AX104601
KeyConnect Angled Patch Panel, 48-port, 1U (Empty)	—	AX104600
KeyConnect AngleFlex Patch Panel, 24-port, 1U (Empty)	—	AX103248
KeyConnect AngleFlex Patch Panel, 48-port, 2U (Empty)	—	AX103249

Front Access Patch Panels and Accessories

Description	Belden Part Number
KeyConnect Front Access Patch Panels (Empty)	
KeyConnect Front Access Patch Panel, 24-port, 1U, Black (Empty)	AX106288
KeyConnect Front Access Patch Panel, 48-port, 2U, Black (Empty)	AX106289
KeyConnect Front Access Patch Panel, 72-port, 2U, Black (Empty)	AX106290
Labeling Kit (12 strips and LabelFlex sheets for 96 ports) (Empty)	AX106291
Spare Bezel Kit for Front Access Patch Panel, 24-Pack (Empty)	AX106292-B24

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Category 5e, Patch Panels and Boxes

Modular and HD

Flex Patch Panels provide a flexible and versatile termination solution using MDVO modules for telecom room rack-mounted installations.

CAT5E HD Patch Boxes are available in BIX and 110 configurations, and hold one 12-port universal connector module in a compact and robust metal enclosure. The patch box features

a hinged cover and support brackets to secure cables and maintain patch cord bend radius.

Modular Patch Boxes (in KeyConnect and MDVO) can be custom configured in the field using up to 12 Modular Jacks or Multimedia Modules. Modules are ordered separately.

Modular Patch Panels MDVO Style

Description	Belden Part Number
Flex Patch Panels (Empty)	
Flex Patch Panel, 24-port, 1U, Black (Empty)	AX101456
Flex Patch Panel, 48-port, 2U, Black (Empty)	AX101458

Modular Patch Boxes, Replacement Modules and Accessories

Description	Belden Part Number
Modular Patch Boxes Patch Boxes	
KeyConnect Patch Box, 12-port, Black (Empty)	AX107477
MDVO Patch Box, 12-port, Black (Empty)	AX100282
CAT5E HD Patch Boxes	
CAT5E HD-BIX Patch Box, 12-port, Black, T568A/B	AX100284
CAT5E HD-110 Patch Box, 12-port, Black, T568B/A	AX100491
CAT5E HD-BIX Replacement Module (for HD Patch Panels and HD Patch Boxes)	AX100458
CAT5E HD-110 Replacement Module (for HD Patch Panels and HD Patch Boxes)	AX100461
Patch Panel Accessories	
Label Holder for patch panel port ID, 5.5 inch long (140 mm), 100 units/pack	AX102782
Label Holder for patch panel port ID, 7.4 inch long (188 mm), 100 units/pack	AX101093
Label Holder for patch panel port ID, 17 inch long (432 mm), 100 units/pack	AX105391
Rear Cable Tie Bar for KeyConnect Patch Panels (between brackets)	AX104303
Short Bracket Kit for KeyConnect Patch Panels (Rear Cable Management)	AX104454
Rear Cable Bracket Kit for HD-series Patch Panels	AX100463
Cable Tie Bar for cable management (rack mounting)	AX101173
Cable Tie Bar for HD-Series Patch Panels	AX100780
Angled management bar with cable clips (rack mounting)	AX102641
Patch Cord/Cable Support Bracket (rack mounting)	AX100789



Flex Patch Panel, 24-port, 1U, Black (Empty)



KeyConnect Patch Box



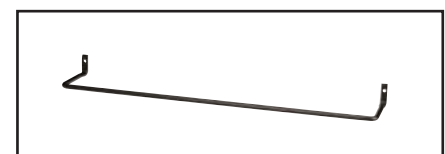
MDVO Patch Box



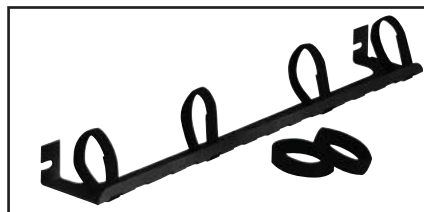
HD Patch Box, Open



Rear Cable Bracket Kit for HD-series Patch Panels



Cable Tie Bar for cable management (rack mounting)



Patch Cord/Cable Support Bracket

CAT5E Connectors, Tools and Accessories

REVConnect, KeyConnect and MDVO



REVConnect Jack Housings available in 19 colors



REVConnect Termination Tool; includes one Cable Prep Tool and spare blade set



KeyConnect CAT5E Jack and T-Bar

CAT5E Connectors are available in two termination styles: Belden's new REVConnect System and standard punchdown in KeyConnect or MDVO styles. REVConnect and KeyConnect have a keystone footprint and are designed to be used with any KeyConnect Patch Panels and with KeyConnect or MediaFlex Workstation Outlets.

Benefits

- REVConnect: Safe connectivity for air-handling spaces
- REVConnect: Offers great versatility and labor savings
- Provides excellent durability and performance stability

Features

- REVConnect: Plenum rated - meets UL 2043 requirements
- REVConnect: Requires no pair separation; the best connector for Bonded-Pair and Nonbonded-Pair cable
- REVConnect: Terminates four pairs simultaneously with REVConnect Universal Termination Tool
- KeyConnect/MDVO: Compatible with Belden's Rapid Termination Tool
- Meets and exceeds all Category 5e component performance

Category 5e, CAT5E Modular Jacks

Description	Belden Part Number				
	REVConnect Jacks		Punchdown Jacks		
Color	Single Pack	Bulk Pack (24 Connectors)	KeyConnect	Bulk Pack (24 Connectors)	MDVO
Gray	RV5MJKUGY-S1	RV5MJKUGY-B24	AX101307	AX101307-B24	AX101044
Almond	RV5MJKUAL-S1	RV5MJKUAL-B24	AX101308	AX101308-B24	AX101045
Electric White	RV5MJKUEW-S1	RV5MJKUEW-B24	AX101309	AX101309-B24	AX101046*
Black	RV5MJKUBK-S1	RV5MJKUBK-B24	AX101310	AX101310-B24	AX101047
Ivory	RV5MJKUIV-S1	RV5MJKUIV-B24	AX103079	AX103079-B24	AX102564
Brown	RV5MJKUBR-S1	RV5MJKUBR-B24	AX104188	AX104188-B24	—
Red	RV5MJKURD-S1	RV5MJKURD-B24	AX104183	AX104183-B24	—
Orange	RV5MJKUOR-S1	RV5MJKUOR-B24	AX104182	AX104182-B24	—
Yellow	RV5MJKUYL-S1	RV5MJKUYL-B24	AX104184	AX104184-B24	—
Green	RV5MJKUGN-S1	RV5MJKUGN-B24	AX104185	AX104185-B24	—
Blue	RV5MJKUBL-S1	RV5MJKUBL-B24	AX104186	AX104186-B24	—
Purple	RV5MJKUPR-S1	RV5MJKUPR-B24	AX104187	AX104187-B24	—
TIA Brown	RV5MJKUTN-S1	RV5MJKUTN-B24	AX101317	—	AX101054
TIA Red	RV5MJKUTR-S1	RV5MJKUTR-B24	AX101312	—	AX101049
TIA Orange	RV5MJKUTO-S1	RV5MJKUTO-B24	AX101311	—	AX101048
TIA Yellow	RV5MJKUTY-S1	RV5MJKUTY-B24	AX101313	—	AX101050
TIA Green	RV5MJKUTG-S1	RV5MJKUTG-B24	AX101314	—	AX101051
TIA Blue	RV5MJKUTB-S1	RV5MJKUTB-B24	AX101315	—	AX101052
TIA Purple	RV5MJKUTP-S1	RV5MJKUTP-B24	AX101316	—	AX101053

*MDVO jack is white. Color-coded icons and other accessories are available on page 62 and 63.

REVConnect Tools and Accessories

Description	Belden Part Number
Universal Termination Tool	RVUTT01
Tool Blade Replacement Set	RVUTB01
Tool Belt Clip	RVUTC01
Replacement Cable Prep Tool	RVUCT01

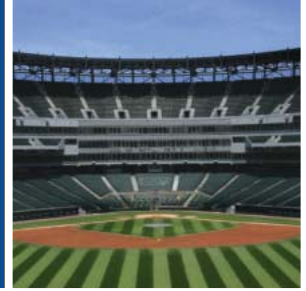
REVConnect Spare Cores

Replacement Caps and Cable Managers (50 of each in pack)	RVUCOEW-B50
--	-------------

KeyConnect/MDVO Replacement T-Bars

Description	Belden Part Number
Replacement T-Bars, bag of 24 pieces	PX103356R

Faster.
Easier.
Better.



CAT5E EZ-MDVO Modular Jacks

KeyConnect and MDVO

The EZ-MDVO Module is built with a patented leadframe design and encapsulated insulation displacement contacts, ensuring reliable connections and performance well above Category 5e standards. The unique EZ-MDVO module termination cap allows for a simple and fast "press-fit" installation while ensuring consistent wire termination every time it is snap-locked. The module termination cap is color coded to facilitate wire arrangement and speed up installation time. The termination cap is printed with T568A/B color codes.

The KeyConnect version has a keystone footprint, and is designed to be used with KeyConnect and AngleFlex Patch Panels and with KeyConnect and MediaFlex Workstation Outlets. MDVO is designed to be used with Flex Patch Panels, as well as Interface and MediaFlex Workstation Outlets. The modular jacks can also be mixed and matched with a wide variety of adapters and boxes to suit practically any installation configuration for workstation outlet, consolidation point and telecommunications closet applications.



CAT5E EZ-MDVO Modular Jack, MDVO



CAT5E EZ-MDVO Modular Jack, MDVO

Category 5e, CAT5E Modular Jacks

Description	Belden Part Number	
	KeyConnect	MDVO
EZ-MDVO CAT5E Modular Jacks		
Gray	AX100577	AX100645
Almond	AX100578	AX100646
White	AX100579	AX100647
Black	AX100580	AX100648
Orange, TIA 606	AX100581	AX100649
Red, TIA 606	AX100582	AX100650
Yellow, TIA 606	AX100583	AX100651
Green, TIA 606	AX100584	AX100652
Blue, TIA 606	AX100585	AX100653
Purple, TIA 606	AX100586	AX100654
Brown, TIA 606	AX100587	AX100655

Color-coded icons and other accessories are available on page 62.

CAT5E Modular Patch Cords

Bonded-Pair



CAT5E Modular Patch Cords

CAT5E Modular Patch Cords are made with Belden's patented robust design Bonded-Pair cables. They offer the best combination of transmission performance and physical integrity.

Features

- Made with small-diameter Bonded-Pair cable for greater flexibility and higher-density installations
- Solid conductors improve attenuation and are needed in long patch cords and pigtails to eliminate the need for cable de-rating in open-office cabling
- Improved strain relief and a flexible boot for optimum protection in high-density installations
- Wrap-around labels on each cord provide easier product identification and length sorting

Category 5e, CAT5E Modular Patch Cords

Description	Belden Part Number					
	Bonded-Pair					
Length	Yellow	Green	Blue	Gray	White	Black
CAT5E Modular Patch Cords, UTP, 4-pair, 24 AWG Solid, T568A/B-T568A/B, Riser-CMR						
2 ft (0.6 m)	C501104002	C501105002	C501106002	C501108002	C501109002	C501100002
4 ft (1.2 m)	C501104004	C501105004	C501106004	C501108004	C501109004	C501100004
7 ft (2.1 m)	C501104007	C501105007	C501106007	C501108007	C501109007	C501100007
10 ft (3.0 m)	C501104010	C501105010	C501106010	C501108010	C501109010	C501100010
15 ft (4.6 m)	C501104015	C501105015	C501106015	C501108015	C501109015	C501100015
25 ft (7.6 m)	C501104025	C501105025	C501106025	C501108025	C501109025	C501100025
XXX ft	C501104XXX	C501105XXX	C501106XXX	C501108XXX	C501109XXX	C501100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 5e, Tailored CAT5E Modular Patch Cords

C5		01		1		06		007	
Performance		Cable		Termination		Colors		Length	
C5	Category 5e, CAT5E	01	UTP, Bonded-Pair, 24 AWG Solid, CMR	1	T568A/B-T568A/B	01	Brown	001	1 ft (0.3 m)
		02	UTP, Bonded-Pair, 24 AWG Solid, CMP	4	Crossover T568A -T568B	02	Red	002	2 ft (0.6 m)
				5	Crossover IEEE	03	Orange	003	3 ft (0.9 m)
				6	Rollover	04	Yellow	004	4 ft (1.2 m)
						05	Green	005	5 ft (1.5 m)
						06	Blue	XXX	XXX ft
						07	Purple		
						08	Gray		
						09	White		
						00	Black		

Notes:

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C501106007 - CAT5E Modular Cord, UTP, Bonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

Faster.
Easier.
Better.



CAT5E Modular Pigtails

Nonbonded-Pair and Bonded-Pair

CAT5E Modular Pigtails are available in both Nonbonded and Bonded-Pair cable styles for field installation preferences. They feature a snagless overmolded boot for high-performing strain relief. All pigtails feature solid conductors to improve attenuation and eliminate the need for cable de-rating in open-office cabling.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability

Category 5e, CAT5E Modular Pigtails

Description	Belden Part Number		
	Nonbonded-Pair		
Length	Blue	Gray	White
CAT5E Modular Pigtails, UTP, 4-pair, 24 AWG Solid, T568A-Open, Plenum-CMP			
15 ft (4.6 m)	C532206015	C532208015	C532209015
25 ft (7.6 m)	C532206025	C532208025	C532209025
35 ft (10.6 m)	C532206035	C532208035	C532209035
50 ft (15.2 m)	C532206050	C532208050	C532209050
XXX ft	C532206XXX	C532208XXX	C532209XXX
CAT5E Modular Pigtails, UTP, 4-pair, 24 AWG Solid, T568A-Open, Riser-CMR			
15 ft (4.6 m)	C531206015	C531208015	C531209015
25 ft (7.6 m)	C531206025	C531208025	C531209025
35 ft (10.6 m)	C531206035	C531208035	C531209035
50 ft (15.2 m)	C531206050	C531208050	C531209050
XXX ft	C531206XXX	C531208XXX	C531209XXX
CAT5E Modular Pigtails, UTP, 4-pair, 24 AWG Solid, T568B-Open, Plenum-CMP			
15 ft (4.6 m)	C532306015	C532308015	C532309015
25 ft (7.6 m)	C532306025	C532308025	C532309025
35 ft (10.6 m)	C532306035	C532308035	C532309035
50 ft (15.2 m)	C532306050	C532308050	C532309050
XXX ft	C532306XXX	C532308XXX	C532309XXX
CAT5E Modular Pigtails, UTP, 4-pair, 24 AWG Solid, T568B-Open, Riser-CMR			
15 ft (4.6 m)	C531306015	C531308015	C531309015
25 ft (7.6 m)	C531306025	C531308025	C531309025
35 ft (10.6 m)	C531306035	C531308035	C531309035
50 ft (15.2 m)	C531306050	C531308050	C531309050
XXX ft	C531306XXX	C531308XXX	C531309XXX

Use XXX to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 5e, Tailored CAT5E Modular Pigtails

C5	31	2	06	007
Performance	Cable	Termination	Colors	Length
C5 Category 5e, CAT5E	01 UTP Bonded-Pair, 24 AWG Solid, CMR 02 UTP Bonded-Pair, 24 AWG Solid, CMP 31 UTP Nonbonded-Pair, 24 AWG Solid, CMR 32 UTP Nonbonded-Pair, 24 AWG Solid, CMP	2 T568A-Open 3 T568B-Open	01 Brown 02 Red 03 Orange 04 Yellow 05 Green 06 Blue 07 Purple 08 Gray 09 White 00 Black	12 TIA Red 13 TIA Orange 14 TIA Yellow 15 TIA Green 16 TIA Blue 17 TIA Purple
				015 15 ft (4.6 m) 016 16 ft (4.9 m) 017 17 ft (5.2 m) 018 18 ft (5.5 m) 019 19 ft (5.8 m) 020 20 ft (6.1 m) XXX XXX ft

Notes:

Use xxx to specify length in feet - 015-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C531206007 – CAT5E Modular Pigtail, UTP, Nonbonded-Pair, 24 AWG Solid, CMR, T568A-Open, Blue, 7 ft (2.1 m)



CAT5E Modular Pigtail (connector end)



CAT5E Modular Pigtail

BIX Cross-Connect System

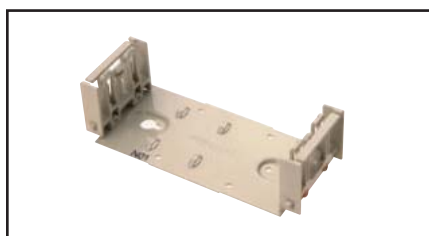
Components, Patch Cords, Wires and Accessories



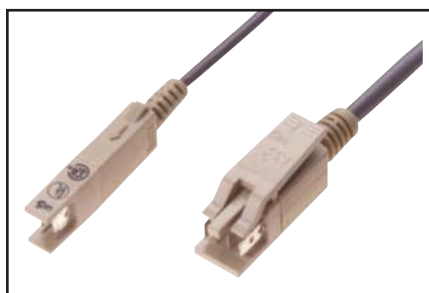
Distribution Connector



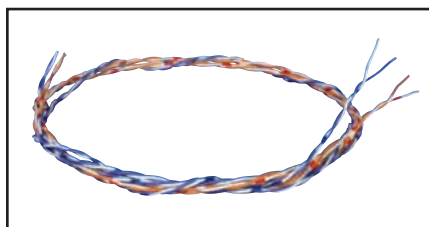
BIX Mount, 300-pair



BIX Mount, 50-pair



BIX Patch Cord, 1-Pair and 2-Pair



B-Plus Cross-Connect Wire

The Belden BIX Cross-Connect System takes advantage of the proven reliability of BIX technology to provide high-performance connections for voice and data networks. This uniquely designed system allows for very high termination density while maintaining ease of administration to accommodate MACs.

Advantages of the Belden BIX Cross-Connect System include easy installation and cable management, coupled with the industry's best performance-to-price ratio for high-density connectivity. The system allows for multiple mounting options of various connectors used in voice and data distribution systems.

BIX Cross-Connect System

Description	Belden Part Number		
BIX Connectors			
BIX Distribution Connector, 5-pair Marking	A0266828		
BIX Distribution Connector, 4-pair Marking	A0393146		
BIX Multiplying Connector, QCBIX2A, 25-pair, 12x2-pair	A0269923		
BIX Multiplying Connector, QCBIX5A, 25-pair, 5x5-pair	A0266827		
BIX Multiplying Connector, QCBIX7A, 25-pair, 2x2-pair and 3x7-pair	A0269925		
BIX Modular Jack Connector, NXXCBMC6U, 6-port, Category 5e, T568A/B Coded	AX100798		
BIX Modular Jack Connector, QCBIX36D, 6-port, USOC, 8-pin	A0341173		
BIX Modular Jack Connector, QCBIX36C, 8-port, USOC, 6-pin	A0330864		
BIX Modular Jack Connector, QCBIX36B, 12-port, USOC, 4-pin	A0330863		
BIX Mounts and Accessories			
BIX Mount, QMBIX12E, 300-pair	A0340836		
BIX Mount, QMBIX10A, 250-pair	A0270164		
BIX Mount, 50-pair	A0284798		
BIX Mount with Locking Cover, 50-pair	A0277853		
BIX Mount with Snap-on Cover, 50-pair	A0277854		
BIX Locking Cover, for QMBIX12E, 300-pair	A0340838		
BIX Locking Cover, for QMBIX10A, 250-pair	A0285986		
BIX Cover, QMBIX10A, Stand-alone Installation, locking	A0276396		
BIX Cover, QMBIX10A, Stand-alone Installation, non-locking	A0276394		
BIX Distribution Ring	A0270168		
BIX Designation Strip, White	A0270169		
BIX Patch Cords			
	1-Pair	2 Pair	
4 ft (1.2 m)	A0410469	A0410494	
7 ft (2.1 m)	A0410471	A0410495	
10 ft (3.0 m)	A0410473	A0410496	
15 ft (4.6 m)	A0410475	A0410497	
25 ft (7.6 m)	A0410493	—	
For 4-pair connections, please see the GigaBIX Patch Cord section (Modular Patch Cords page 34).			
CAT5E GigaBIX Patch Cords, Gray			
4 ft (1.2 m)	AX101963	AX101969	AX101975
6 ft (1.8 m)	AX101964	AX101970	AX101976
8 ft (2.4 m)	AX101965	AX101971	AX101977
10 ft (3.0 m)	AX101966	AX101972	AX101978
15 ft (4.6 m)	AX101967	AX101973	AX101979
25 ft (7.6 m)	AX101968	AX101974	AX101980
BIX Cross-Connect Wire			
1-pair, Wh/Bl, 1000 ft (305 m), K-Carton	XCB1 D87K1000		
1-pair, Wh/Bl, 1000 ft (305 m), Spool (S77)	XCB1 D871000		
1-pair, Z XC Wire, Bl/Ye, 1000 ft (305 m)	XCZ1 E031000		
1-pair, Z XC Wire, Bl/Rd, 1000 ft (305 m)	XCZ1 D921000		
2-pair, Wh/Bl/Wh/Or, 1000 ft (305 m), K-Carton	XCB2 042K1000		
2-pair, Wh/Gr/Wh/Or, 1000 ft (305 m), K-Carton	XCB2 A5RK1000		
4-pair, Wh/Bl/Wh/Or/Wh/Gr/Wh/Br, 152 m (500 ft), K-Carton	XCB4 000K500		
BIX Tools and Accessories			
BIX Connecting Tool	A0270165		
BIX Tool Pouch	C0054642		
BIX Test Probe, 1-pair	A0270166		
BIX Special Service Guard, 1-pair, Red	A0270172		
BIX Bridging Clip, 1-pair, Gray	A0325091		
BIX Rack Bracket Kit 19 in	A0352331		

Faster.
Easier.
Better.



110 Cross-Connect System

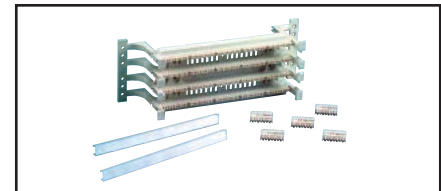
Kits, Components, Patch Cords, Wires and Accessories

The Belden 110 Cross-Connect System uses high reliability Insulation Displacement Connection (IDC) contacts to provide high-performance connections for voice and data networks. This industry-standard 110 system allows for very high termination density

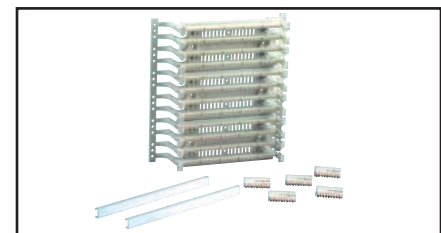
while maintaining ease of administration to accommodate MACs. The system allows for multiple mounting options of 4-pair and 5-pair connecting blocks used in voice and data distribution systems.

110 Cross-Connect System

Description	Belden Part Number		
110 Cross-Connect Kit			
110 Cross-Connect Kit, 100-pair, with 4-pair Connecting Blocks	AX100693-S		
110 Cross-Connect Kit, 100-pair, with 5-pair Connecting Blocks	AX100694-S		
110 Cross-Connect Kit, 300-pair, with 4-pair Connecting Blocks	AX100695-S		
110 Cross-Connect Kit, 300-pair, with 5-pair Connecting Blocks	AX100696-S		
110 Cross-Connect Connecting Components			
110 Connecting Block, 110C4, 4-pair	AX100707-S		
110 Connecting Block, 110C5, 5-pair	AX100708-S		
110 Wiring Block, 100-pair, without legs	AX100690-S		
110 Wiring Block, 100-pair, with legs	AX100691-S		
110 Wiring Block, 300-pair, with legs	AX100692-S		
110 Patch Cord Connector, 4-pair	AX100711-S		
110 Patch Cord Connector, 2-pair	AX100710-S		
110 Patch Cord Connector, 1-pair	AX100709-S		
110 Designation Strip	AX100721-S		
110 Cross-Connect Cable Management Accessories			
110 Cable Management Trough, without legs	AX100705-S		
110 Cable Management Trough, with legs	AX100706-S		
110 Cable Management Ring, Small 5.7 in (144.8 mm)	AX100703-X		
110 Cable Management Ring, Large 8.5 in (216 mm)	AX100704-X		
	110-110	110-8MOD (T568A-ISDN)	110-8MOD (T568B-ALT)
110 Cross-Connect Patch Cords, Category 5e, 4-pair			
4 ft (1.2 m)	AX300001-S	AX300010-S	AX300008-S
6 ft (1.8 m)	AX300002-S	AX300009-S	AX300005-S
8 ft (2.4 m)	AX300025-S	AX300029-S	AX300011-S
10 ft (3.0 m)	AX300026-S	AX300030-S	AX300034-S
20 ft (6.1 m)	AX300027-S	AX300032-S	AX300017-S
10 Patch Cords, 110-110, Category 5e		1-Pair	2-Pair
2 ft (0.6 m)		AX300039-S	AX300036-S
4 ft (1.2 m)		AX300006-S	AX300013-S
6 ft (1.8 m)		AX300007-S	AX300014-S
8 ft (2.4 m)		AX300012-S	AX300015-S
10 ft (3.0 m)		AX300021-S	AX300037-S
20 ft (6.1 m)		AX300040-S	AX300038-S



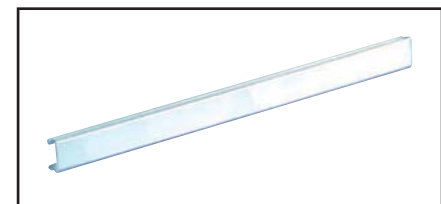
110 Cross-Connect Kit, 100-pair



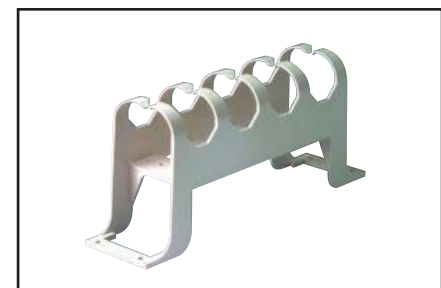
110 Cross-Connect Kit, 300-pair



110 Patch Cords, 110-110



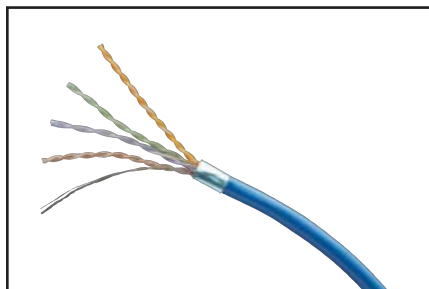
110 Designation Strips



Cable Management Trough with Legs

1200 Shielded Cables

Nonbonded-Pair



1200 Shielded Cable

1200 Shielded Cable consists of 4-pair F/UTP cables that exceed Category 5e ANSI/TIA/EIA-568-C.2 requirements. When used as the horizontal cable in the Belden REVConnect1200 Shielded System, the channel provides 160 MHz of bandwidth. 1200 F/UTP shielded cable has a thick, 100% coverage foil shield. This shield protects your system from harsh EMI environments, improving your data throughput.



Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff

Category 5e, 1200 Shielded Cables

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	Spool-in-Box	Spool
1200 Shielded Cables, F/UTP, 4-pair, 24 AWG, Plenum-CMP			
Red	1000 ft (305 m)	1213F 002A1000	1213F 0021000
Orange	1000 ft (305 m)	1213F 003A1000	1213F 0031000
Yellow	1000 ft (305 m)	1213F 004A1000	1213F 0041000
Green	1000 ft (305 m)	1213F 005A1000	1213F 0051000
Blue	1000 ft (305 m)	1213F D15A1000	1213F D151000
Gray	1000 ft (305 m)	1213F 008A1000	1213F 0081000
White	1000 ft (305 m)	1213F 009A1000	1213F 0091000
Black	1000 ft (305 m)	1213F 010A1000	1213F 0101000
1200 Shielded Cables, F/UTP, 4-pair, 24 AWG, Riser-CMR			
Red	1000 ft (305 m)	1212F 002A1000	1212F 0021000
Orange	1000 ft (305 m)	1212F 003A1000	1212F 0031000
Yellow	1000 ft (305 m)	1212F 004A1000	1212F 0041000
Green	1000 ft (305 m)	1212F 005A1000	1212F 0051000
Blue	1000 ft (305 m)	1212F 006A1000	1212F 0061000
Gray	1000 ft (305 m)	1212F 008A1000	1212F 0081000
White	1000 ft (305 m)	1212F 009A1000	1212F 0091000
Black	1000 ft (305 m)	1212F 010A1000	1212F 0101000

Faster.
Easier.
Better.



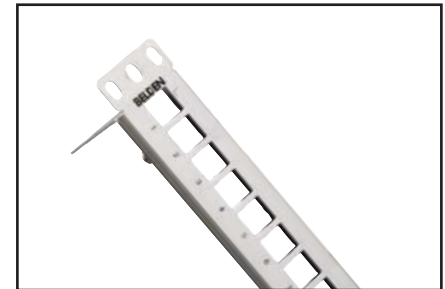
CAT5E Shielded System

Patch Panels, Jacks and Patch Cords

KeyConnect Shielded Patch Panels provide a flexible, versatile and high-density termination solution for data center and teleco room installations. They come with a ground wire to guarantee shielding integrity (per ANSI/TIA-607-C) and cable management brackets for neat cable dressing. They can be configured using 10GX Shielded Modular Jacks available in REVConnect and KeyConnect styles.

The CAT5E REVConnect module is a rugged, easy-to-install connector. Its termination features a universal core that accepts a jack or plug to support connections in a keystone outlet or direct connections into devices.

CAT5E Shielded Modular Cords are designed to be used within the Belden 1200 Shielded System. These modular cords offer the best combination of transmission performance and shielding integrity.



Shielded Modular Patch Panel (Empty)



CAT5E Shielded REVConnect Modular Jack (Left),
CAT5E Shielded KeyConnect Modular Jack (Right)

KeyConnect Shielded Modular Patch Panels

Description	Belden Part Number
KeyConnect Shielded Patch Panel, 24-port, 1U, Titanium (Empty)	AX104563
KeyConnect Shielded Patch Panel, 48-port, 2U, Titanium (Empty)	AX104564
KeyConnect Shielded Angled Patch Panel, 24-port, 1U, Titanium (Empty)	AX104622
KeyConnect Shielded Angled Patch Panel, 48-port, 2U, Titanium (Empty)	AX104623

Category 5e, CAT5E Shielded Modular Jacks

Description	Belden Part Number
CAT5E Shielded REVConnect Modular Jack, Single Pack	RV5MJKSME-S1
CAT5E Shielded REVConnect Modular Jack, Bulk Pack	RV5MJKSME-B24
CAT5E Shielded KeyConnect Modular Jack, Metallic	AX104595

Color-coded icons and other accessories are available on page 62 and 63.

Category 5e, CAT5E Shielded Modular Patch Cords

Description	Belden Part Number			
	Nonbonded-Pair			
Length	Blue	Gray	White	Black
CAT5E Shielded Modular Patch Cords, 4-pair, 24 AWG Solid, T568A/B - T568A/B, Riser-CMR				
2 ft (0.6 m)	C5F1106002	C5F1108002	C5F1109002	C5F1100002
4 ft (1.2 m)	C5F1106004	C5F1108004	C5F1109004	C5F1100004
7 ft (2.1 m)	C5F1106007	C5F1108007	C5F1109007	C5F1100007
10 ft (3.0 m)	C5F1106010	C5F1108010	C5F1109010	C5F1100010
15 ft (4.6 m)	C5F1106015	C5F1108015	C5F1109015	C5F1100015
25 ft (7.6 m)	C5F1106025	C5F1108025	C5F1109025	C5F1100025
XXX ft	C5F1106XXX	C5F1108XXX	C5F1109XXX	C5F1100XXX

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.



CAT5E Shielded Modular Patch Cords

Category 5e, Tailored CAT5E Shielded Modular Patch Cords

C5	F1	1	06	007																																		
Performance	Cable	Termination	Colors	Length																																		
C5 Category 5e, CAT5E	F1 Shielded, Nonbonded-Pair, 24 AWG Solid, CMR	<table border="1"> <tr><td>1</td><td>T568A/B-T568A/B</td></tr> <tr><td>4</td><td>Crossover T568A -T568B</td></tr> <tr><td>5</td><td>Crossover IEEE</td></tr> <tr><td>6</td><td>Rollover</td></tr> </table>	1	T568A/B-T568A/B	4	Crossover T568A -T568B	5	Crossover IEEE	6	Rollover	<table border="1"> <tr><td>02</td><td>Red</td></tr> <tr><td>04</td><td>Yellow</td></tr> <tr><td>05</td><td>Green</td></tr> <tr><td>06</td><td>Blue</td></tr> <tr><td>08</td><td>Gray</td></tr> <tr><td>09</td><td>White</td></tr> <tr><td>00</td><td>Black</td></tr> </table>	02	Red	04	Yellow	05	Green	06	Blue	08	Gray	09	White	00	Black	<table border="1"> <tr><td>001</td><td>1 ft (0.3 m)</td></tr> <tr><td>002</td><td>2 ft (0.6 m)</td></tr> <tr><td>003</td><td>3 ft (0.9 m)</td></tr> <tr><td>004</td><td>4 ft (1.2 m)</td></tr> <tr><td>005</td><td>5 ft (1.5 m)</td></tr> <tr><td>XXX</td><td>XXX ft</td></tr> </table>	001	1 ft (0.3 m)	002	2 ft (0.6 m)	003	3 ft (0.9 m)	004	4 ft (1.2 m)	005	5 ft (1.5 m)	XXX	XXX ft
1	T568A/B-T568A/B																																					
4	Crossover T568A -T568B																																					
5	Crossover IEEE																																					
6	Rollover																																					
02	Red																																					
04	Yellow																																					
05	Green																																					
06	Blue																																					
08	Gray																																					
09	White																																					
00	Black																																					
001	1 ft (0.3 m)																																					
002	2 ft (0.6 m)																																					
003	3 ft (0.9 m)																																					
004	4 ft (1.2 m)																																					
005	5 ft (1.5 m)																																					
XXX	XXX ft																																					

Notes:

Use XXX to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C5F1106007 – CAT5E Shielded Modular Cord, Nonbonded-Pair, 24 AWG Solid, CMR, T568A/B-T568A/B, Blue, 7 ft (2.1 m)

CAT5E Shielded System (continued)

Pigtails



CAT5E Shielded Modular Pigtail (connector end)

CAT5E Shielded Modular Pigtails feature solid conductors to improve attenuation and to eliminate the need for cable de-rating in open-office cabling.

Benefits

- Maximum RL performance under all patching conditions
- Superior ruggedness and durability

Category 5e, CAT5E Shielded Modular Pigtails

Description	Belden Part Number	
	Nonbonded-Pair	
Length	Blue	Gray
CAT5E Shielded Pigtails, 4-pair, 24 AWG Solid, T568A - Open, CMR		
15 ft (4.6 m)	C5F1206015	C5F1208015
25 ft (7.6 m)	C5F1206025	C5F1208025
35 ft (10.6 m)	C5F1206035	C5F1208035
50 ft (15.2 m)	C5F1206050	C5F1208050
XXX ft	C5F1206XXX	C5F1208XXX

Use **XXX** to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft. For other configurations please refer to the configurator below.

Category 5e, Tailored CAT5E Shielded Modular Pigtails

C5	F1	2	06	030
Performance	Cable	Termination	Colors	Length
C5 Category 5e, CAT5E	F1 Shielded Nonbonded-Pair, 24 AWG Solid, CMR	2 T568A-Open 3 T568B-Open	02 Red 04 Yellow 05 Green 06 Blue 08 Gray 09 White 00 Black	015 15 ft (4.6 m) 016 16 ft (4.9 m) 017 17 ft (5.2 m) 018 18 ft (5.5 m) 019 19 ft (5.8 m) 020 20 ft (6.1 m) XXX XXX ft

Notes:

Use **XXX** to specify length in feet - 001-100 ft in increments of 1 ft, 105-295 ft in increments of 5 ft.

Example:

C5F1206030 – CAT5E Shielded Pigtail, Nonbonded-Pair, 24 AWG Solid, CMR, T568A-Open, Blue, 30 ft (9.5 m)

SECTION FOUR

Workstation Outlets

Table of Contents	Page
Workstation Outlets	51-65
KeyConnect Stainless Steel and Tamper-Resistant Faceplates	52
KeyConnect Adapters and Boxes and Media Boxes	53
Multimedia Modules, Field-Crimpable Kits, REVConnect Plugs and Accessories	54
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Belden offers a wide variety of workstation outlet systems designed for maximum flexibility, durability, aesthetics and manageability. These systems are available using Belden KeyConnect modularity, MediaFlex flexibility and MDVO options. They come in a wide range of styles, colors and configurations, including single-gang and double-gang faceplates, stainless steel faceplates, adapters and boxes and multimedia outlets and inserts. Several innovative tools and accessories that ease termination and simplify network administration are also available.

KeyConnect Series feature a variety of faceplates, adapters and boxes that are compatible with all REVConnect, KeyConnect and Multimedia Modules. Each modular component of the KeyConnect Workstation Outlet System seamlessly fits together to accommodate any surface mount, furniture or standard electrical plate outlet installation.

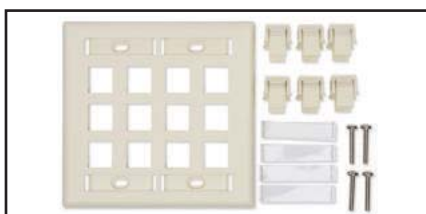
MediaFlex Series includes a full line of modular faceplates, adapter boxes and inserts that offer the ultimate flexibility in configuring multimedia workstation outlets. They feature a front access design that allows inserts to be easily snapped in and out of openings for fast installation and upgrades.

MDVO Outlet Systems include a wide range of flush and angled entry faceplates, surface adapter boxes, multimedia outlet boxes, multi-user outlet boxes and modular furniture adapters that accept MDVO modules to support diverse configurations of voice, data and multimedia applications.

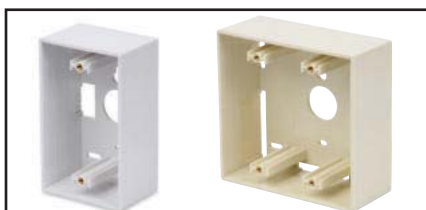
The LabelFlex Solution simplifies network management by enabling installers to quickly produce application-specific labels for most Belden products, including Modular Jack Connectors, Cross-Connect Systems, Patch Panels, KeyConnect series, MediaFlex series and cable applications.



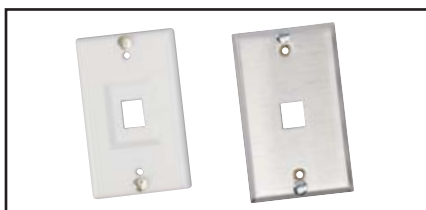
AX102655, KeyConnect Single-gang, 2-port Faceplate, Electrical White



AX102256, KeyConnect Double-gang, 12-port Faceplate, Almond



AX102657, KeyConnect Single-gang Back Box, Electrical White
AX104130, KeyConnect Double-gang Back Box, Almond



AX104126, Recessed Port
AX102005, Flush Jack



AX104687, KeyConnect Tamper-Resistant Faceplate
AX104688, KeyConnect Tamper-Resistant Faceplate

Workstation Outlets

KeyConnect Stainless Steel and Tamper-Resistant Faceplates

Compatible with all REVConnect and Multimedia Modules, KeyConnect Faceplates are designed for maximum flexibility, durability, aesthetics and manageability. They are available in a variety of styles, colors and port configurations to meet all work area outlet application needs, and they provide for easy outlet identification.

Belden offers two Tamper-Resistant Faceplates for various applications:

The KeyConnect Water-Resistant Outlet features a wall-mounting gasket and patch cord entry seal, and is designed for the healthcare environment.

The KeyConnect Secure Outlet is designed for any application where access to network connections needs to be controlled.

Features and Benefits

- KeyConnect Faceplates are compatible with all KeyConnect and REVConnect jacks and multimedia modules
 - Fire-retardant plastic with UV stabilizer for protection against color degradation
 - Top and bottom labeling windows for easy outlet identification
 - Compatible with LabelFlex labeling solution
- KeyConnect Faceplates are available with mounting studs for wall-mount phone installation
 - Available in stainless steel and white plastic
- Tamper-Resistant Faceplates prevent casual access
- Water-Resistant Outlets resist fluids, cleaning products and dust for maximum uptime

KeyConnect Faceplates

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
KeyConnect Faceplates				
1-port, with ID Windows, Single-gang	AX107021	AX103922	AX102660	AX104160
2-port, with ID Windows, Single-gang	AX107022	AX103923	AX102655	AX104161
4-port, with ID Windows, Single-gang	AX107023	AX102248	AX102249	AX104163
6-port, with ID Windows, Single-gang	AX107024	AX102250	AX102251	AX104164
6-port, with ID Windows, Double-gang	AX107025	AX102670	AX102671	AX104166
12-port, with ID Windows, Double-gang	—	AX102256	AX102257	—
Single-gang Back Box, 1.89 in	AX106682	AX104127	AX102657	AX106683
Double-gang Back Box, 1.89 in	AX106684	AX104130	AX104131	AX106685

Contact customer service for other colors and configurations
Blank inserts included (50% of ports)

KeyConnect Stainless Steel Faceplates

Description	Belden Part Number	
	With ID Window	Without ID Window
KeyConnect Stainless Steel Faceplates		
1-port, Single-gang	AX104230	AX102006
2-port, Single-gang	AX104231	AX102007
4-port, Single-gang	AX104232	AX102009
6-port, Single-gang	AX104233	AX102010
4-port, Double-gang	AX104479	—
6-port, Double-gang	AX104480	—
12-port, Double-gang	AX104234	AX102013

KeyConnect Wall Mount Phone Plates

Stainless Steel, Recessed Port	AX104126
Stainless Steel, Flush Port	AX102005
Electrical White Plastic, Recessed Port	AX102902

KeyConnect Tamper-Resistant Faceplates

Description	Belden Part Number
KeyConnect Faceplate Kit	
4-port, Single-gang with Locking Cover, Patch Cord Seal and Wall Gasket (Dust and Water Resistant)	AX104687
4-port, Single-gang with Locking Cover (Secure Outlet)	AX104688
Secure Screw Driver Bit (Drilled Spanner 1/4")	AX104689

Faster.
Easier.
Better.



Workstation Outlets (continued)

KeyConnect Adapters, Boxes and Media Boxes

KeyConnect Adapters and Boxes in various styles, sizes and colors provide flexible surface mount, modular furniture and standard electrical plate outlet installation, including high-density workstation outlets. Some models comply to UL2043 for use in plenum space.

Features and Benefits

- KeyConnect Adapters available in Deco and 106 styles for use with standard electrical plates
- KeyConnect Modular Furniture Adapters available in 3- and 4-port configurations for high-density workstation outlets in office furniture. Opening complies with ANSI/TIA-569-D standard.
- KeyConnect Adapters available in almond,

electrical white and black to match electrical plates and suit any office décor

- KeyConnect Boxes are available in 1- 2- 4- and 6-port configurations for design flexibility
- KeyConnect Boxes equipped with port shutters to provide dust protection to UTP jacks
- Fire-retardant plastic with UV stabilizer for protection against color degradation
- KeyConnect Adapters are compatible with all KeyConnect UTP and Multimedia Modules

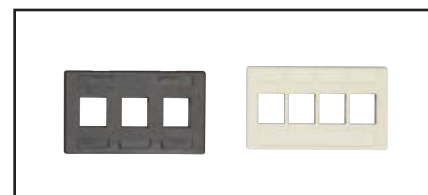
KeyConnect Adapters and Boxes

Description	Belden Part Number				
	Dark Gray	Gray	Almond	Elec. White	Black
KeyConnect Adapters					
Modular Furniture Adapter, 3-port	AX104457	AX107029	AX103925	AX102291	AX102292
Modular Furniture Adapter, 4-port	AX104459	AX107034	AX103926	AX102900	AX102901
Deco Adapter, Blank	AX106572-GY	—	AX106572-AL	AX106572-EW	AX106572-BK
Deco Adapter, 2-port	AX106573-GY	—	AX106573-AL	AX106573-EW	AX106573-BK
Deco Adapter, 3-port	AX106574-GY	—	AX106574-AL	AX106574-EW	AX106574-BK
Deco Adapter, 4-port	AX106575-GY	—	AX106575-AL	AX106575-EW	AX106575-BK
Deco Adapter, 6-port	AX106576-GY	—	AX106576-AL	AX106576-EW	AX106576-BK
106 Adapter, 2-port	AX104475	—	AX104120	AX104121	AX104122
106 Adapter, 4-port	AX104476	—	AX104123	AX104124	AX104125
KeyConnect Side-Entry Boxes, with Shutter Door ID Window					
1-port (Compliant with UI2043 standard)	AX104458	AX107030	AX104132	AX102651	—
2-port (Compliant with UI2043 standard)	—	AX107031	AX104133	AX102652	—
4-port (Compliant with UI2043 standard)	—	AX107032	AX104134	AX102653	—
6-port (Compliant with UI2043 standard)	—	AX107033	AX104135	AX102654	—
KeyConnect Side-Entry Boxes, without Shutter Door					
1-port	AX105352-GS	—	AX105352-AL	AX105352-EW	AX105352-BK
2-port	—	—	AX105353-AL	AX105353-EW	AX105353-BK
4-port	—	—	AX105354-AL	AX105354-EW	AX105354-BK
6-port	—	—	AX105355-AL	AX105355-EW	AX105355-BK

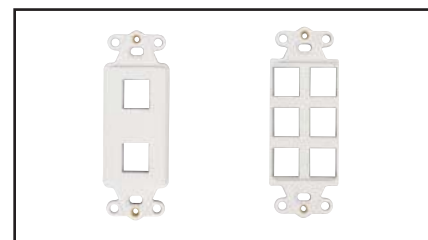
Contact customer service for other colors and configurations
Blank Inserts included (50% of ports)

KeyConnect 6-port Media Boxes

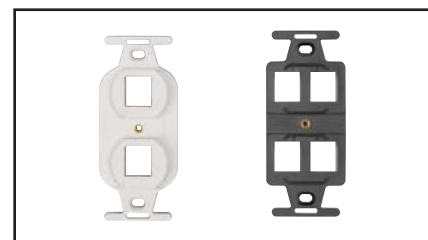
Description	Color	Belden Part Number
KeyConnect 6-port Media Box (Compliant with UL2043 standard)	Black	AX106512-BK
KeyConnect 6-port Media Box (Compliant with UL2043 standard)	Electric White	AX106512-EW



AX102292, KeyConnect Modular Furniture Adapter, 3-port, Black
AX103926, KeyConnect Modular Furniture Adapter, 4-port, Almond



AX106573-EW, KeyConnect Deco Adapter, 2-port, Electrical White
AX106576-EW, KeyConnect Deco Adapter, 6-port, Electrical White



AX104121, KeyConnect 106 Adapter, 2-port, Electrical White
AX104125, KeyConnect 106 Adapter, 4-port, Black



AX104134, KeyConnect Side Entry Box, 4-port, Electrical Almond



AX106512-BK, KeyConnect 6-port Media Box

Workstation Outlets (continued)

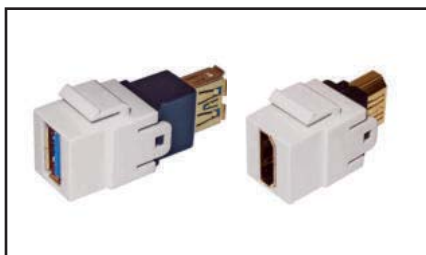
Multimedia Modules, Field-Crimpable Kits, REVConnect Plugs, Accessories



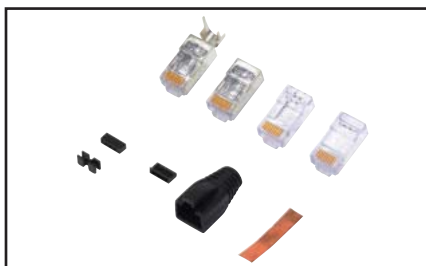
AX105334-EW, 3.5mm Audio Coupler
AX105336-EW, S-video Coupler



RCA Gold-plated Couplers - AX105341-EW, AX105340-EW,
AX105339-EW, AX105337-EW, AX105338-EW



AX105342-EW, USB 3.0 Coupler
AX105345-EW, HDMI Coupler



C6PFCU-B25, Field Crimpable Plugs



RVAFPSME-S1, 10GX STP REVConnect Plug
RVAFPUBK-S1 10GX UTP REVConnect Plug

KeyConnect Multimedia Modules

Description	Belden Part Number			
	Dark Gray	Almond	Elec. White	Black
KeyConnect Multimedia Modules, Copper				
3.5mm Audio Coupler, F/F, Gold	—	AX105334-AL	AX105334-EW	AX105334-BK
3.5mm Audio Coupler, F/Solder, Gold	—	AX105335-AL	AX105335-EW	AX105335-BK
S-video Coupler, F/F	—	AX105336-AL	AX105336-EW	AX105336-BK
RCA Gold-plated Coupler, F/F, Red	—	AX105337-AL	AX105337-EW	AX105337-BK
RCA Gold-plated Coupler, F/F, White	—	AX105338-AL	AX105338-EW	AX105338-BK
RCA Gold-plated Coupler, F/F, Yellow	—	AX105339-AL	AX105339-EW	AX105339-BK
RCA Gold-plated Coupler, F/F, Green	—	AX105340-AL	AX105340-EW	AX105340-BK
RCA Gold-plated Coupler, F/F, Blue	—	AX105341-AL	AX105341-EW	AX105341-BK
Video F Coax 3GHz, Recessed, Gold-Plated	—	AX105346-AL	AX105346-EW	AX105346-BK
Video F Coax, Recessed	—	AX102903	AX102904	AX102905
Video F Coax, Flush	AX105384	AX102906	AX102907	AX102908
Video BNC Coax, Flush	—	AX104573	AX104575	AX104574
USB 3.0 Coupler, A to A	—	AX105342-AL	AX105342-EW	AX105342-BK
USB 2.0 Coupler, B to B	—	AX105344-AL	AX105344-EW	AX105344-BK
HDMI Coupler (Version 1.4)	—	AX105345-AL	AX105345-EW	AX105345-BK
KeyConnect Multimedia Modules, Fiber				
LC Duplex OM1 (Beige Adapter)	—	AX102415	AX102416	AX102417
LC Duplex OM3 (Aqua Adapter)	—	AX104937	AX104938	AX104939
LC Duplex OM4 (Erika Purple Adapter)	—	AX105641-AL	AX105641-EW	AX105641-BK
LC Duplex SM (Blue Adapter)	—	AX102419	AX102420	AX102421
LC Duplex SM/APC (Green Adapter)	—	AX105642-AL	AX105642-EW	AX105642-BK
SC Simplex OM1 (Beige Adapter)	—	AX102683	AX102684	AX102685
SC Simplex OM3 (Aqua Adapter)	—	AX105643-AL	AX105643-EW	AX105643-BK
SC Simplex SM (Blue Adapter)	—	AX102686	AX102687	AX102688
SC/APC Simplex SM (Green Adapter)	—	AX105374-AL	AX105374-EW	AX105374-BK
ST (Metal) Compatible MM/SM	—	AX102242	AX102243	AX102244

RJ45 Field Crimpable Plug Kits and Accessories

Description	Belden Part Number
Category 5e/Category 6 RJ45 Plugs, UTP, 25 per kit	C6PFCU-B25
Category 6/Category 6A RJ45 Plugs, UTP, 25 per kit	CAPFCU-B25
Category 5e RJ45 Plugs, F/UTP, 25 per kit	C5PFCF-B25
Category 6/Category 6A RJ45 Plugs, F/UTP, 25 per kit	CAPFCF-B25
Flexible Boots for 6mm OD, 100 per pack	CB6MMBK-B100
Flexible Boots for 7mm OD, 100 per pack	CB7MMBK-B100
Flexible Boots for 8mm OD, 100 per pack	CB8MMBK-B100
RJ45 Termination Crimp Tool	CTPFC01

All field crimpable RJ45 plugs outlined in the table above are not included in the 25-Year Belden System Warranty. For qualifying plugs, please see page 11.

REVConnect Plugs and Accessories

Description	Part Number
Mod.Plug Terminated Link (MPTL) Test Adapter	AX104552
10GX STP REVConnect Plug	RVAFPSME-S1
10GX STP REVConnect Plug 24-pack	RVAFPSME-B24
10GX UTP REVConnect Plug	RVAFPUBK-S1
10GX UTP REVConnect Plug 24-pack	RVAFPUBK-B24
Universal Termination Tool	RVUTT01
Tool Blade Replacement Set	RVUTB01
Tool Belt Clip	RVUTC01
Replacement Cable Prep Tool	RVUCT01
10GX UTP REVConnect FlexPlug, Black	RVAFPUBK18-S1
10GX UTP REVConnect FlexPlug, Electric White	RVAFPUEW18-S1
CAT6+ UTP REVConnect FlexPlug, Black	RV6FFPUBK18-S1
CAT6+ UTP REVConnect FlexPlug, Electric White	RV6FFPUEW18-S1

REVConnect Spare Cores	
Replacement Caps and Cable Managers (50 of each in pack)	RVUCOEW-B50

Faster.
Easier.
Better.



Workstation Outlets (continued)

MediaFlex Faceplate Kits, Plates, Adapter Boxes

MediaFlex Faceplate Kit for KeyConnect modules offers flexibility in configuring multimedia workstation outlets for current and future network needs. The front access design of the outlets offers easy installation and upgrades while multiple colors, single-gang and double-gang configurations and labeling capabilities meet work area aesthetics, density and identification needs.

The MDVO pre-configured MediaFlex Faceplate Kits include a plate, flush MDVO inserts, filler inserts, MDVO blanks, labeling window covers, labeling paper and all necessary mounting screws.

MediaFlex Plates are one part of the comprehensive line of plates and inserts that snap together to create a full line of modular workstation outlets.

MediaFlex Plates can be mounted over standard NEMA-type outlet boxes and rings to provide support for a variety of MediaFlex Adapters and

Inserts. The fully modular construction, combined with the front access design, provides extensive configuration flexibility for current and future network needs. MediaFlex Plates are available in single-gang and double-gang configurations.

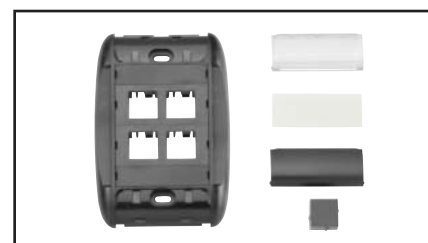
The double-gang faceplate comes with a stand-off ring. This ring allows for easy mounting with virtually any industry electrical box or mud/adapter ring, providing added installation flexibility.

Each plate has the capacity of up to six ports per single-gang and 12 ports per double-gang.

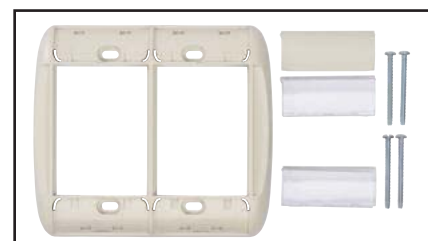
MediaFlex Surface Adapter Boxes can be mounted over standard NEMA-type outlet boxes and rings to provide support for the MediaFlex plates. The MediaFlex Surface Adapter Boxes are available as a double-gang configuration. The double-gang box allows more room for cable management and bend radius control.



AX101779, MediaFlex Faceplate Kit, MDVO, 2 port



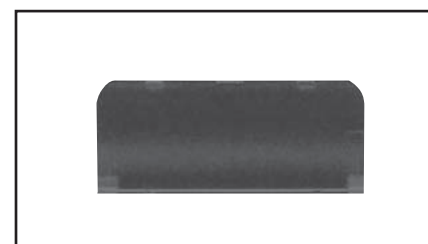
AX101785, MediaFlex Faceplate Kit, MDVO, 4 port



AX101870, MediaFlex Plate, Double-gang



AX101874, MediaFlex Adapter Box, Double-gang



AX101777, Labeling Window Cover for MediaFlex Plates

MediaFlex Faceplate Kits

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MediaFlex Faceplate Kit, KeyConnect				
2-port, Flush, Single-gang	AX104493	AX104494	AX104495	AX104496
4-port, Flush, Single-gang	AX104485	AX102428	AX102429	AX104489
6-port, Flush, Single-gang	AX104486	AX102430	AX102431	AX104490
2-port, Angled, Single-gang	AX104497	AX104498	AX104499	AX104500
4-port, Angled, Single-gang	AX104487	AX102432	AX102433	AX104491
6-port, Flush, Double-gang	-	AX102523	AX102524	-
8-port, Flush, Double-gang	-	AX102519	AX102520	-
12-port, Flush, Double-gang	AX104488	AX102434	AX102435	AX104492
6-port, Angled, Double-gang	-	AX102521	AX102522	-
8-port, Angled, Double-gang	-	AX102436	AX102437	-
MediaFlex Faceplate Kit, MDVO				
2-port, Flush	AX101778	AX101779	AX101780	AX101781
4-port, Flush	AX101782	AX101783	AX101784	AX101785
6-port, Flush	AX101786	AX101787	AX101788	AX101789

Blank Inserts included (50% of ports)

MediaFlex Plates and Adapter Boxes

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MediaFlex Plates				
Single-gang	AX101745	AX101746	AX101747	AX101748
Double-gang	AX101869	AX101870	AX101871	AX101872
MediaFlex Surface Adapter Boxes				
Single-gang	AX102480	AX102481	AX102482	AX102483
Double-gang	AX101873	AX101874	AX101875	AX101876
MediaFlex ID Windows Covers				
Rounded edge covers, bag of 25	AX101774	AX101775	AX101776	AX101777

Contact customer service for other colors and configurations.

Workstation Outlets (continued)

MediaFlex Angled Edge Faceplate Kits, Faceplates, Adapter Boxes



AX106631, MediaFlex Angled Edge Faceplate Kit, KeyConnect Style, 2-port Angled Insert

The MediaFlex Faceplate Kits are offered for KeyConnect or MDVO modules. Our newest line of MediaFlex features a 90-degree edge to match aesthetics when installing next to electrical and other faceplates.

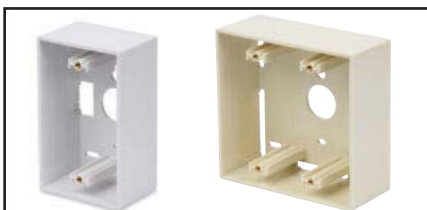
The MediaFlex Faceplate Kit for KeyConnect modules offers flexibility in configuring multimedia workstation outlets for current and future network needs. The front access design of the outlets offers easy installation and

upgrades while multiple colors, single-gang and double-gang configurations and labeling capabilities meet work area aesthetics, density and identification needs.

The MDVO pre-configured MediaFlex Faceplate Kits include a plate, flush MDVO inserts, filler inserts, MDVO blank, labeling window covers, labeling paper and all necessary mounting screws.



AX106674, MediaFlex Angled Edge Faceplate, Double-gang



AX102657, KeyConnect Single-gang Back Box, Electrical White
AX104130, KeyConnect Double-gang Back Box, Almond

MediaFlex Angled Edge Faceplate Kits

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MediaFlex Angled Edge Faceplate Kit, KeyConnect				
2-port, Flush, Single-gang	AX106617	AX106618	AX106619	AX106620
4-port, Flush, Single-gang	AX106621	AX106622	AX106623	AX106624
6-port, Flush, Single-gang	AX106625	AX106626	AX106627	AX106628
2-port, Angled, Single-gang	AX106629	AX106630	AX106631	AX106632
4-port, Angled, Single-gang	AX106633	AX106634	AX106635	AX106636
6-port, Flush, Double-gang	AX106637	AX106638	AX106639	AX106640
8-port, Flush, Double-gang	AX106641	AX106642	AX106643	AX106644
12-port, Flush, Double-gang	AX106645	AX106646	AX106647	AX106648
6-port, Angled, Double-gang	AX106649	AX106650	AX106651	AX106652
8-port, Angled, Double-gang	AX106653	AX106654	AX106655	AX106656
MediaFlex Angled Edge Faceplate Kit, MDVO				
2-port, Flush	AX106657	AX106658	AX106659	AX106660
4-port, Flush	AX106661	AX106662	AX106663	AX106664
6-port, Flush	AX106665	AX106666	AX106667	AX106668

Blank Inserts included (50% of ports)

MediaFlex Angled Edge Faceplates

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MediaFlex Angled Edge Faceplates				
Single-gang	AX106669	AX106670	AX106671	AX106672
Double-gang	AX106673	AX106674	AX106675	AX106676

KeyConnect Surface Adapter Boxes

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
Back Boxes				
Single-gang	AX106682	AX104127	AX102657	AX106683
Double-gang	AX106684	AX104130	AX104131	AX106685

Faster.
Easier.
Better.



Workstation Outlets (continued)

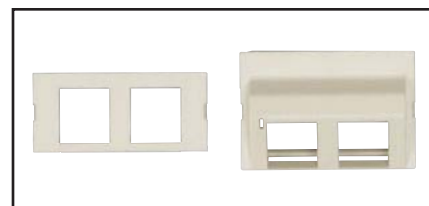
MediaFlex Inserts, Multimedia Inserts

MediaFlex Module Inserts, along with MediaFlex Multimedia Inserts and MediaFlex Filler Inserts, allow for the easy configuration of outlets. All inserts are front loaded and easily snapped in and out of the MediaFlex Plates for simple installation and maintenance. MediaFlex Module Inserts are available in a 2-port configuration in flush and angled versions for KeyConnect and MDVO modules. The inserts are two units high for the flush version and three units high for the angled version. Three flush inserts or two angled inserts are required to fully populate a single-gang MediaFlex Plate.

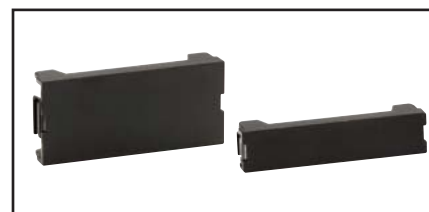
MediaFlex Filler Inserts are used to fill unused spaces in low-density workstation outlets. They are available in one unit and two unit sizes.

MediaFlex Multimedia Inserts provide optimum flexibility in configuring multimedia workstation outlets that respond to any present or future network needs. MediaFlex Multimedia Inserts, along with other MediaFlex Inserts, allow for easy configuration of outlets. All inserts are front loaded and easily snapped in and out of the MediaFlex Plates for easy installation and maintenance.

MediaFlex Multimedia Inserts are available in angled versions only to allow for proper management of cable bend radius. The inserts are three units high; two inserts are required to fully populate a single-gang faceplate and four inserts will fully populate a double-gang faceplate.



MediaFlex Inserts for KeyConnect Modules: AX102410, Flush, 2-port, Almond and AX102412, Angled, 2-port, Almond



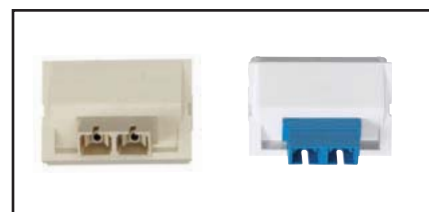
AX101764, MediaFlex Filler Insert, 2-unit
AX101760, MediaFlex Filler Insert, 1-unit



AX101752, MediaFlex Insert, 2-port, Flush, 2-unit
AX101756, MediaFlex MDVO Insert, 2-port, Angled, 3-unit



AX101878, MediaFlex RCA Inserts, 3-port, Almond
AX101882, MediaFlex SVHS Inserts, 1-port, Almond
AX101886, MediaFlex SVGA Inserts, 1-port, Almond



AX101940, MediaFlex SC Duplex Multimode Insert, Almond
AX101937, MediaFlex SC Duplex Singlemode Insert, White

MediaFlex Inserts

Description	Belden Part Number	
	KeyConnect	MDVO
MediaFlex Module Insert		
2-port, Flush, Gray, bag of 10 pieces	AX104482	AX101749
2-port, Angled, Gray, bag of 10 pieces	AX104483	AX101753
2-port, Flush, Almond, bag of 10 pieces	AX102410	AX101750
2-port, Angled, Almond, bag of 10 pieces	AX102412	AX101754
2-port, Flush, Elec. White, bag of 10 pieces	AX102411	AX101751
2-port, Angled, Elec. White, bag of 10 pieces	AX102413	AX101755
2-port, Flush, Black, bag of 10 pieces	AX102737	AX101752
2-port, Angled, Black, bag of 10 pieces	AX102738	AX101756
MediaFlex Filler Insert		
	1-Unit	2-Unit
Gray, bag of 10 pieces	AX101757	AX101761
Almond, bag of 10 pieces	AX101758	AX101762
Elec. White, bag of 10 pieces	AX101759	AX101763
Black, bag of 10 pieces	AX101760	AX101764

MediaFlex Multimedia Inserts

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MediaFlex Multimedia Insert, Copper				
3-port RCA	AX101877	AX101878	AX101879	AX101880
SVHS Module	AX101881	AX101882	AX101883	AX101884
SVGA Module (IDC interface)	AX101885	AX101886	AX101887	AX101888
SVGA Feed Through	AX102334	AX102335	AX102336	AX102337
SVGA Feed Through, 3.5 mm Audio	AX105158-GY	AX105158-AL	AX105158-EW	AX105158-BK
MediaFlex Multimedia Insert, Fiber				
Duplex SC Multimode	AX101939	AX101940	AX101941	AX101942
Duplex SC Singlemode	AX101935	AX101936	AX101937	AX101938
SC/APC Simplex SM (Green Adapter)	-	AX105374-AL	AX105374-EW	AX105374-BK

Contact customer service for other colors and configurations.

Workstation Outlets (continued)

Interface Plates, MDVO Faceplates



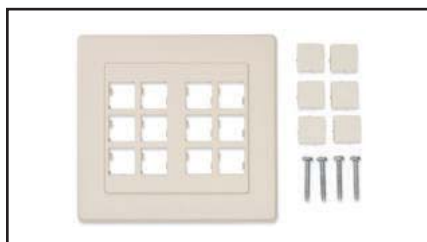
AX101431, Interface Plate, 2-port, shown here with modules



AX101438, Interface Plate, 4-port, with modules and AX101441, Interface Plate, 6-port with modules



A0405257, MDVO Faceplate, 1-port



A0620807, MDVO Faceplate, 12-port



A0645267, MDVO Angled Entry Faceplate

Interface Plates combine flexibility and ease of use in workarea installations. They are designed to accept the EZ-MDVO and other MDVO, UTP and MDVO multimedia modules. The Interface Plates are available in single-gang and can accept up to six modules. They also have labeling capabilities using built-in labeling windows. The faceplates can be attached to standard electrical boxes or wall-mounting hardware for flush-mount installations. The faceplates can also fit over the Interface Adapter Boxes for surface-mount installations.

The MDVO Angled Entry Faceplate offers better patch cord protection than traditional faceplates and optimizes patch cord bend radius control. The MDVO Angled Entry Faceplate can accept up to four EZ-MDVO or MDVO Multimedia Modules. The faceplate can be attached to standard electrical boxes or wall-mounting hardware for flush-mount installations. The faceplate can also fit over the Interface Surface Adapter Box for surface-mount installations.

Interface Plates

Description	Belden Part Number
Interface Plate, Flush	
Interface Plate, Flush, 2-port, Gray	AX101431
Interface Plate, Flush, 2-port, Almond	AX101432
Interface Plate, Flush, 2-port, White	AX101433
Interface Plate, Flush, 2-port, Black	AX101434
Interface Plate, Flush, 4-port, Gray	AX101435
Interface Plate, Flush, 4-port, Almond	AX101436
Interface Plate, Flush, 4-port, White	AX101437
Interface Plate, Flush, 4-port, Black	AX101438
Interface Plate, Flush, 6-port, Gray	AX101439
Interface Plate, Flush, 6-port, Almond	AX101440
Interface Plate, Flush, 6-port, White	AX101441
Interface Plate, Flush, 6-port, Black	AX101442

Blank Inserts included (50% of ports)

MDVO Faceplate

Description	Belden Part Number
MDVO Faceplate Flush	
MDVO Faceplate, Flush, 1-port, Single-gang, Gray	A0405255
MDVO Faceplate, Flush, 1-port, Single-gang, Almond	A0405256
MDVO Faceplate, Flush, 1-port, Single-gang, White	A0405257
MDVO Faceplate, Flush, 1-port, Single-gang, Black	A0405258
MDVO Faceplate, Flush, 8-port, Single-gang, Gray	A0405294
MDVO Faceplate, Flush, 8-port, Single-gang, Almond	A0405295
MDVO Faceplate, Flush, 8-port, Single-gang, White	A0405296
MDVO Faceplate, Flush, 8-port, Single-gang, Black	A0405298
MDVO Faceplate, Flush, 12-port, Double-gang, Gray	A0620806
MDVO Faceplate, Flush, 12-port, Double-gang, Almond	A0620807
MDVO Faceplate, Flush, 12-port, Double-gang, White	A0620808
MDVO Faceplate, Flush, 12-port, Double-gang, Black	A0620809

MDVO Angled Entry Faceplate

MDVO Angled Entry Faceplate, 4-port, Gray	A0645267
MDVO Angled Entry Faceplate, 4-port, Almond	A0645268
MDVO Angled Entry Faceplate, 4-port, White	A0645269
MDVO Angled Entry Faceplate, 4-port, Black	A0645270

Blank Inserts included (50% of ports)

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Workstation Outlets (continued)

Interface Surface Adapter Boxes, MDVO Adapters

The Interface/MDVO Surface Adapter Box allows surface mounting of Interface Plates as well as MDVO flush and angled entry faceplates. The box can be mounted on any flat surface or attached to standard electrical boxes or wall-mounting hardware for additional storage space ordered separately.

The MDVO 106 Adapters are designed for installations using standard NEMA-style

faceplates, also referred to as 106-type or duplex wall plates.

The MDVO Deco Adapter is designed for installations using Deco style wall plates.

MDVO Modular Furniture Adapters are the ideal outlet adapters for open-office furniture applications.

Interface/MDVO Surface Adapter Box

Description	Belden Part Number
Single-gang	
Interface/MDVO Surface Adapter Box, Single-gang, Gray	AX101474
Interface/MDVO Surface Adapter Box, Single-gang, Almond	AX101475
Interface/MDVO Surface Adapter Box, Single-gang, White	AX101476
Interface/MDVO Surface Adapter Box, Single-gang, Black	AX101477

Blank Inserts included (50% of ports)

Interface/MDVO Side Entry Box

Description	Belden Part Number
Single-gang	
MDVO Side Entry Box, 2-port, Gray	A0645271
MDVO Side Entry Box, 2-port, Almond	A0645272
MDVO Side Entry Box, 2-port, White	A0645273
MDVO Side Entry Box, 2-port, Black	A0645274

Blank Inserts included (50% of ports)

MDVO Adapters

Description	Belden Part Number
106 Adapter, Deco Adapter, Furniture Adapter	
MDVO 106 Adapter, 2-port, Gray	AX100304
MDVO 106 Adapter, 2-port, Almond	AX100305
MDVO 106 Adapter, 2-port, White	AX100306
MDVO 106 Adapter, 2-port, Black	AX100307
MDVO 106 Adapter, 4-port, Gray	AX100308
MDVO 106 Adapter, 4-port, Almond	AX100309
MDVO 106 Adapter, 4-port, White	AX100310
MDVO 106 Adapter, 4-port, Black	AX100311
MDVO Deco Adapter, 3-port, Gray	A0409651
MDVO Deco Adapter, 3-port, Almond	A0409652
MDVO Deco Adapter, 3-port, White	A0409653
MDVO Deco Adapter, 3-port, Black	A0409654
MDVO Modular Furniture Adapter, 3-port, Gray	A0407071
MDVO Modular Furniture Adapter, 3-port, Almond	A0407072
MDVO Modular Furniture Adapter, 3-port, White	A0407073
MDVO Modular Furniture Adapter, 3-port, Black	A0407074
MDVO Modular Furniture Adapter, 4-port, Gray	AX100925
MDVO Modular Furniture Adapter, 4-port, Almond	AX100926
MDVO Modular Furniture Adapter, 4-port, White	AX100927
MDVO Modular Furniture Adapter, 4-port, Black	AX100928

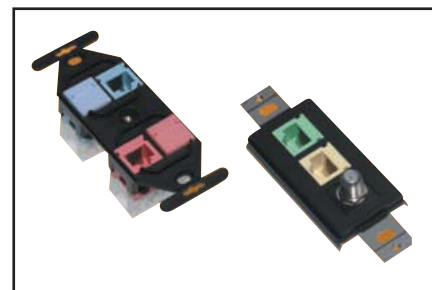
Blank Inserts included (50% of ports)



AX101474, Interface/MDVO Surface Adapter Box



A0645271, MDVO Side Entry Box, shown here with modules

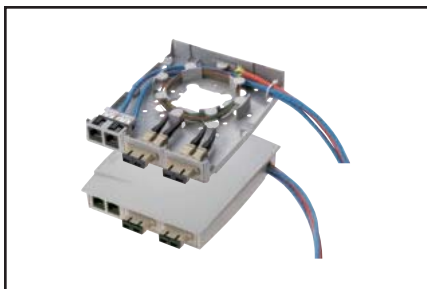


AX100311, MDVO 106 Adapter, 4-port, shown here with modules
A0409654, MDVO Deco Adapter, shown here with modules



AX100925, MDVO Modular Furniture Adapter, 4-port, shown here with modules

Workstation Outlets (continued) Multimedia Outlet Boxes, Modules, Adapters

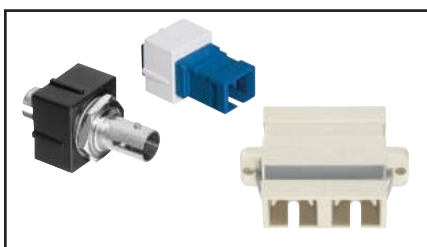


A0643206, MDVO Multimedia Outlet Box, shown here as terminated

The Multimedia Outlet Box brings unique versatility to multimedia work area installations. The box design provides cable management and helps maintain cable bend radius. The outlet box's low-profile design and side entry offers better protection for patch cords. The outlet box can accept up to six Modular Jacks or Multimedia Modules using 2-port inserts and three SC Duplex adapters using special bezel, or three SC Duplex adapters. The Multimedia Outlet Box can be mounted directly on the wall or attached to standard electrical boxes. Included with the

Multimedia box are three SC Duplex Mounting bezels and three Modular Jack Adapters.

Multimedia Modules address audio video and fiber applications. Fiber modules are available for LC Duplex, SC Simplex, SC Duplex and ST Compatible for multimode and singlemode connections. The SC Duplex Adapter is a fiber adapter sleeve with flanges that mount into the SC Duplex mounting bezel (included in the Multimedia Outlet box). Audio video modules are available for SVHS, RCA, BNC and Video F connection in KeyConnect and MDVO footprint.



A0407010, MDVO ST Compatible Fiber Module
A0407005, MDVO SC Fiber Module
A0649254, SC Duplex Adapter

Multimedia Outlet Boxes

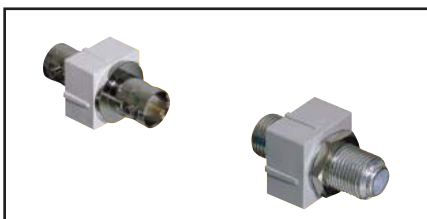
Description	Belden Part Number	
	KeyConnect	MDVO
Multimedia Outlet Boxes		
Multimedia Outlet Box, 6-port, Gray	AX107293	A0643205
Multimedia Outlet Box, 6-port, Almond	AX107294	A0643206
Multimedia Outlet Box, 6-port, White	AX107295	A0643207
Multimedia Outlet Box, 6-port, Black	AX107296	A0643208

Blank Inserts included (50% of ports)

MDVO Modules

Description	Belden Part Number			
	Gray	Almond	Elec. White	Black
MDVO Multimedia Modules, Copper				
Coaxial, BNC	A0406995	A0406996	A0406997	A0406998
Coaxial, VIDEO F	A0406999	A0407000	A0407001	A0407002
RCA, Feedthrough, White Insert	AX101823	AX101824	AX101825	AX101826
RCA, Feedthrough, Yellow Insert	AX101827	AX101828	AX101829	AX101830
RCA, Feedthrough, Red Insert	AX101831	AX101832	AX101833	AX101834
RCA, Feedthrough, Black Insert	AX101835	AX101836	AX101837	AX101838
SVHS, Feedthrough	AX101839	AX101840	AX101841	AX101842
3.5 mm Stereo	AX102624	AX102625	AX102626	AX102627
MDVO Multimedia Modules, Fiber				
LC Duplex Multimode	AX102209	AX102210	AX102211	AX102212
LC Duplex Singlemode	AX102213	AX102214	AX102215	AX102216
SC Simplex, Multimode	A0407003	A0407004	A0407005	A0407006
ST Compatible, Multimode	A0407007	A0407008	A0407009	A0407010

Custom multimedia connectors are also available, please contact customer service for more details.



A0406997, MDVO BNC Coaxial Module
A0406999, MDVO Video F Coaxial Module

SC Duplex Adapter

Description	Belden Part Number
SC Duplex Adapter	
SC Duplex Adapter, Multimode, Beige	A0649254



A0407001, MDVO Coaxial, VIDEO F

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Workstation Outlets (continued)

Multi-User Outlet Box, Adapter Strips, CAT5E BIX DVO Outlets

The Multi-User Outlet Box design allows for mixed-media installations with a choice of connection strips. The box can accept either one or two 12-port MDVO Adapter Strips, CAT5E Connector Module Strips (BIX or 110), or a combination of both for a maximum of 24 connections.

CAT5E BIX DVO Workstation Outlets are robust and installer-friendly products, combining

punchdown connectors with standard modular jacks. The outlet's unique, completely enclosed housing protects the connectors and allows the wires to be front-terminated on BIX Insulation Displacement Connectors (IDC). The snap-on cover plate allows easy access and eliminates visible mounting screws.

CAT5E BIX DVO Workstation Outlets offer headroom over the Category 5e cabling standard.

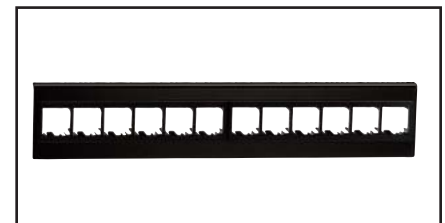


AX100222, Multi-User Outlet Box, shown here with modules

Multi-User Outlet Box

Description	Belden Part Number			
	Gray	Almond	White	Black
Multi-User Outlet Box and Adapter Strips				
Multi-User Outlet Box, 24-port	AX100219	AX100220	AX100221	AX100222

Adapter strip not included



AX100223, MDVO Adapter Strip, 12-port

Adapter Strips

Description	Belden Part Number
Adapter Strips for Multi-User Outlet Box	
Adapter Strip, KeyConnect, 12-port, Empty, Black	AX104615
Adapter Strip, MDVO, 12-port, Empty, Black	AX100223
CAT5E HD-BIX Connector Module Strip, Universal Wiring 12-port, T568A/B	AX100224
CAT5E HD-110 Connector Module Strip, Universal Wiring 12-port, T568B/A	AX100494

Blank inserts included (50% of ports)

CAT5E BIX DVO Outlets

Description	Belden Part Number			
	Gray	Almond	White	Black
Surface and Flush Mount				
Surface, T568A, 1-port	AX100382	AX100383	AX100384	AX100385
Surface, T568A, 2-port	AX100390	AX100391	AX100392	AX100393
Surface, T568A, 4-port	AX100398	AX100399	AX100400	AX100401
Flush, T568A, 1-port	AX100334	AX100335	AX100336	AX100337
Flush, T568A, 2-port	AX100342	AX100343	AX100344	AX100345
Flush, T568A, 4-port	AX100350	AX100351	AX100352	AX100353



CAT5E BIX DVO Outlets

Workstation Outlets (continued)

Accessories



A0405538, MDVO Blank

MDVO Blank Inserts can be used in any MediaFlex outlets, Interface plates, MDVO faceplates, adapters or boxes to fill in unused ports.

The Colored Bezels are plastic inserts that fit over the face of MDVO modules to modify their color. They are particularly useful in installations where the churn rate is high and color identification of outlets is critical (segmented network with security levels, for example). They also contribute to simplifying the management of the cabling infrastructure by using only one color of module for MACs.

ID tabs are color-coded identification caps that can be inserted over the MDVO modules. The ID tabs are available as blank, data or voice coded. They are available in 11 colors to facilitate identification and match modern office décor. The flexible identification cap also acts as a protective cover, eliminating exposure to dust and other contaminants when the module is not in use.

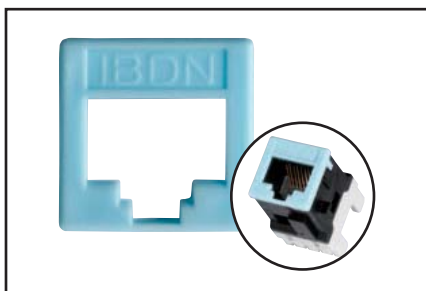
KeyConnect accessories include blank inserts available in almond, white and black, as well as Dust Covers in clear plastic to protect unused ports.



AX100196, ID Tab Data

MDVO Accessories

Description	Belden Part Number			
	Gray	Almond	White	Black
MDVO Blank Inserts				
MDVO Blank Insert	A0405536	A0405537	A0405538	A0405539
MDVO ID Tabs				
	Blank	Data	Voice	Colored Bezel
Gray	AX100182	AX100193	AX100204	AX102014
Almond	AX100183	AX100194	AX100205	AX102015
White	AX100184	AX100195	AX100206	AX102016
Black	AX100185	AX100196	AX100207	AX102017
Orange	AX100186	AX100197	AX100208	AX102018
Red	AX100187	AX100198	AX100209	AX102019
Yellow	AX100188	AX100199	AX100210	AX102020
Green	AX100189	AX100200	AX100211	AX102021
Blue	AX100190	AX100201	AX100212	AX102022
Purple	AX100191	AX100202	AX100213	AX102023
Brown	AX100192	AX100203	AX100214	AX102024
MDVO Accessories				Clear
Interface Plate ID Window label and clear cover, 50 pieces per bag				AX101868



AX102022, Colored Bezel

KeyConnect Accessories

Description	Belden Part Number				
	Dark Gray	Gray	Almond	White	Black
KeyConnect Blank Inserts					
KeyConnect Blank Insert	AX104456	AX107026	AX102261	AX102262	AX102263
KeyConnect Accessories					Clear
KeyConnect Dust Covers, Clear, bag of 50 units					AX101790
KeyConnect ID Window label and clear cover, 100 pieces per bag					AX104680



AX101790, Dust Cover, AX102263, KeyConnect Blank Insert

KeyConnect Color-Coded Icon Kit

Belden Part Number							
Red	Orange	Yellow	Green	Blue	Purple	White	Black
KeyConnect Color-Coded Icon Kit for Shielded Jacks and Couplers							
AX104632-RD	AX104632-OR	AX104632-YE	AX104632-GN	AX104632-BL	AX104632-PR	AX104632-EW	AX104632-BK

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Workstation Outlets (continued)

REVConnect and KeyConnect Tools and Accessories

The REVConnect Connectivity System is supported by a single, universal core termination. The core supports the user's choice of connectivity: Category 5e through Category 6A, shielded and unshielded, and even Category 6A Field-Mountable Plugs. The REVConnect Termination Tool is the only tool required to perform the termination, including cable preparation.

- Rubber handle grips for comfort
- Includes a cable stripper and crossweb guillotine tool in the handle
- Additional blade set included with each tool
- Replacement blades and cable preparation tools available
- Tool belt clip available for hands-free carrying
- Terminates REVConnect core for all Belden cables and all REVConnect modules

Key Specifications

- Rugged design withstands tens of thousands of terminations
- Go-no-go functionality only allows a termination when the core is properly seated inside the tool



RVUTT01, REVConnect Termination Tool; includes one Cable Prep Tool and spare blade set

REVConnect Jack Accessories (for both UTP and shielded)*

Description	Belden Part Number	
	Color Icon (Pack of 24)	Dust Cap (Pack of 24)
Gray	RVUICGY-B24	RVUDCGY-B24
Almond	RVUICAL-B24	RVUDCAL-B24
Electric White	RVUICEW-B24	RVUDCEW-B24
Black	RVUICBK-B24	RVUDCBK-B24
Ivory	RVUICIV-B24	RVUDCIV-B24
Brown	RVUICBR-B24	RVUDCBR-B24
Red	RVUICRD-B24	RVUDCRD-B24
Orange	RVUICOR-B24	RVUDCOR-B24
Yellow	RVUICYL-B24	RVUDCYL-B24
Green	RVUICGN-B24	RVUDCGN-B24
Blue	RVUICBL-B24	RVUDCBL-B24
Purple	RVUICPR-B24	RVUDCPR-B24
TIA Brown	RVUICTN-B24	RVUDCTN-B24
TIA Red	RVUICTR-B24	RVUDCTR-B24
TIA Orange	RVUICTO-B24	RVUDCTO-B24
TIA Yellow	RVUICTY-B24	RVUDCTY-B24
TIA Green	RVUICTG-B24	RVUDCTG-B24
TIA Blue	RVUICTB-B24	RVUDCTB-B24
TIA Purple	RVUICTP-B24	RVUDCTP-B24



RVUCT01, Cable Prep Insert



AX105566, Tool Assembly for KeyConnect Jacks

REVConnect Universal Termination Tool and Accessories

Description	Belden Part Number
Installation Tool Kit*	RVUTIK01
Universal Termination Tool	RVUTT01
Tool Blade Replacement Set	RVUTB01
Tool Belt Clip	RVUTC01
Replacement Cable Prep Tool	RVUCT01

*Installation tool kit includes scissors, marker, universal termination tool, tool blade replacement set, tool belt clip, carrying case, bulk pack of 50 cores and installation guides.

Rapid Termination Tool (RTT)

Description	Belden Part Number
Tool Assembly for KeyConnect/MDVO Jacks	AX105566
Tool Headset for KeyConnect/MDVO Jacks	AX105568
Tool Pouch	AX105569



RVUTIK01, REVConnect Installation Tool Kit

*For color options see <https://www.belden.com/products/enterprise/copper/faceplates-boxes/colors>

Workstation Outlets (continued)

Tools



AX100749, 110 Connecting Tool

The 110 Connecting Tool is a no-impact connecting tool used to terminate cables, pigtails or cross-connect wires on any KeyConnect module or 110 product. The 110 Tool is a spring-activated hand tool. A single forward movement will seat the wire into the IDC clip and cut off the excess wire. The tool will terminate 22, 24 and 26 AWG plastic insulated solid copper conductors.

Modules or MediaFlex Inserts during pair placement and wire termination. Cable retainers on each end of the station will secure and hold cables during the pair placement process. The flat bottom surface provides the required stability to safely terminate modules. The tool is made of very durable plastic; its low profile makes it an easy tool to use and carry.



1797B 009, Cable Preparation Tool

The Bonded-Pair Cable Preparation Tool makes it faster and easier to prepare cables for connector termination. This tool is ideal for use with Belden Bonded-Pair Cables, providing special features that help separate twisted pairs. It can also be used to prepare any Nonbonded-pair cable for installation.

The Outlet Release Tool is a convenient tool for servicing MediaFlex and Interface outlets. Its bent tip allows for easy front removal of MediaFlex inserts, especially when used in Angled Entry plates. It is also very useful for extracting KeyConnect Modules from miscellaneous mounting hardware.

The Termination Station is an ergonomically designed holder that provides stability to the KeyConnect Module during termination. The station has pockets with locking features that steadily hold either MDVO or KeyConnect

The Patch Cord Tool allows to connect and disconnect RJ45 patch cords installed in very high-density environments (48-port, 1U patch panels and high-density networking equipment).



AX101852, Termination Station

Tools

Description	Belden Part Number
110 Connecting Tool	AX100749
Bonded-Pair Cable Preparation Tool	1797B 009
Termination Station	AX101852
Outlet Release Tool	AX101185
Patch Cord Tool	AX102775



AX101185, Outlet Release Tool



AX102775, Patch Cord Tool

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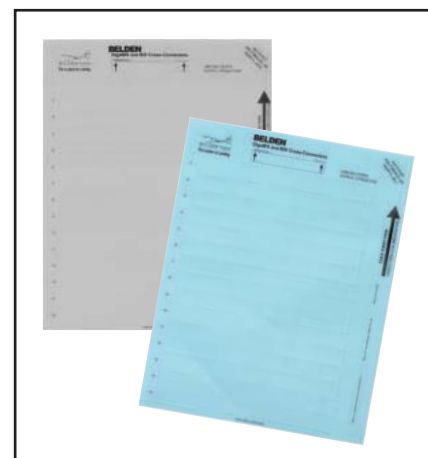
Workstation Outlets (continued)

LabelFlex Labels

The LabelFlex solution is aimed at simplifying network management. Using the labeling system (software and label types), you can rapidly produce quality, application-specific labels for most Belden products in a fraction of the time needed for traditional methods.

Copper and Fiber Patch Panels

Description	Belden Part Number
REVConnect Patch Panels	
64 labels per sheet, 10 sheets per pack, white	AX107527
KeyConnect Patch Panels	
24 labels per sheet, 5 sheets per pack, white	AX102299
KeyConnect Ultra-High-Density Patch Panels	
24 labels per sheet, 5 sheets per pack, white	AX103275
AngleFlex Patch Panels and 10GX IDC Patch Panels	
180 labels per sheet, 5 sheets per pack, white	AX103257
HD-Series Patch Panels	
18 labels per sheet, 5 sheets per pack, white	AX101554
28 labels per sheet, 5 sheets per pack, white	AX103265
Flex Patch Panels	
28 labels per sheet, 5 sheets per pack, white	AX101551
LabelFlex for FX ECX Patch Panels	
4 labels per sheet, 10 sheets per pack, white	ECX-LBF-PK10



LabelFlex Labels

Copper and Fiber Cables

Description	Belden Part Number
Fiber Flag Labels	
60 labels per sheet, 10 sheets per pack, print area 0.39x0.79 in., white	AX107692
24 labels per sheet, 10 sheets per pack, print area 0.39x0.79 in., white	AX107693
42 labels per sheet, 10 sheets per pack, print area 1.18x0.39 in., white	AX107721
Cable Labels	
72 labels per sheet, 25 sheets per pack, cable OD 0.20 in. Print Area 0.98x0.32 in., white	AX107694
48 labels per sheet, 25 sheets per pack, cable OD 0.24 in. Print Area 0.98x0.47 in., white	AX101555
48 labels per sheet, 25 sheets per pack, cable OD 0.24 in. Print Area 0.98x0.75 in., white	AX107695
24 labels per sheet, 25 sheets per pack, cable OD 0.24 in. Print Area 1.97x0.75 in., white	AX107696
24 labels per sheet, 25 sheets per pack, cable OD 0.67 in. Print Area 0.98x0.98 in., white	AX107697
24 labels per sheet, 25 sheets per pack, cable OD 0.51 in. Print Area 0.98x0.78 in., white	AX101556
8 labels per sheet, 25 sheets per pack, cable OD 0.79 in. Print Area 1.97x0.79 in., white	AX107698
16 labels per sheet, 25 sheets per pack, cable OD 0.79 in. Print Area 0.98x0.79 in., white	AX107699
32 labels per sheet, 25 sheets per pack, cable OD 0.39 in. Print Area 0.98x0.75 in., white	AX107719
16 labels per sheet, 25 sheets per pack, cable OD 0.39 in. Print Area 1.97x0.75 in., white	AX107720
Cable Tie-on Labels	
48 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 2.36x0.51 in., white	AX107700
48 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 2.36x0.51 in., yellow	AX107701
32 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 3.54x0.51 in., white	AX107702
32 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 3.54x0.51 in., yellow	AX107703
22 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 3.54x0.79 in., white	AX107704
22 labels per sheet, 10 sheets per pack, cable OD 0.39 in. Print Area 3.54x0.79 in., yellow	AX107705

Download:
FREE LabelFlex software at:
www.belden.com/labelflex

Miscellaneous Labels

Description	Belden Part Number
Cabinet Labels	
96 labels per sheet, 10 sheets per pack, label 1.89x0.35 in., white	AX107711
144 labels per sheet, 10 sheets per pack, label 0.94x0.47 in., white	AX107712
30 labels per sheet, 10 sheets per pack, label 2.16x0.87 in., white	AX107713

Workstation Outlets

Description	Belden Part Number
KeyConnect/Interface Workstation Outlets	
80 labels per sheet, 5 sheets per pack, white	AX101552
MediaFlex Workstation Outlets	
30 labels per sheet, 10 sheets per pack, white	AX101821
Workstation Modules	
450 labels per sheet, 5 sheets per pack, white	AX101553

10GX REVConnect Wall-Mount System, BIX, GIGABIX and 110 Cross-Connect Labels

Description	Belden Part Number										
	Gray	White	Orange	Red	Yellow	Green	Blue	Purple	Brown	Silver	
10GX REVConnect Wall-Mount System, BIX and GIGABIX Labels											
15 labels per sheet, 5 sheets per pack in.	AX101532	AX101533	AX101534	AX101535	AX101536	AX101537	AX101538	AX101539	AX101540	AX101541	
BIX Modular Jack Connector Labels											
28 labels per sheet, 5 sheets per pack in.	AX101542	AX101543	AX101544	AX101545	AX101546	AX101547	AX101548	AX101549	AX101550	AX101584	
110 Cross-Connect Labels											
18 labels per sheet, 5 sheets per pack in.	AX101557	AX101558	AX101559	AX101560	AX101561	AX101562	AX101563	AX101564	AX101565		

SECTION FIVE

Data & Power Beyond PoE

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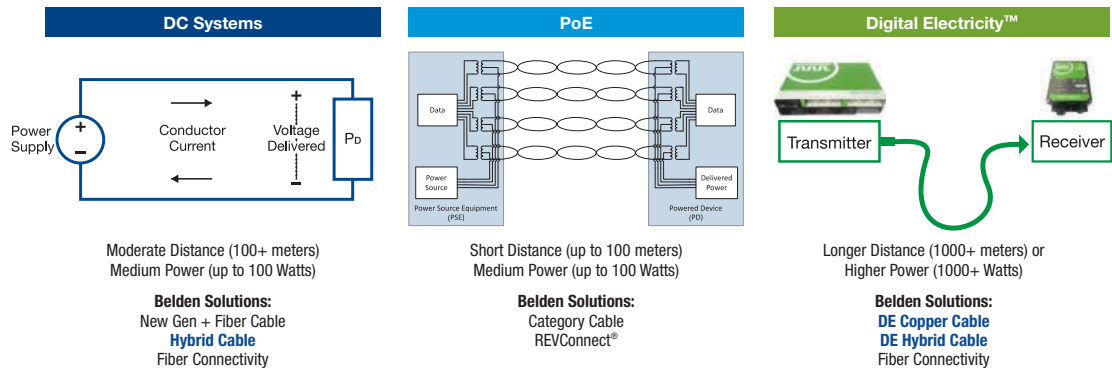
Although Power over Ethernet (PoE) technology can carry up to 100W over a data cable for up to 100 m, PoE doesn't offer the power or distance capabilities required by many of today's applications.

Belden offers solutions to support remote power when PoE is unable to reach and standard power is unavailable or too costly to install. Hybrid offerings combine power and data transmission in one cable, lowering installation and labor costs by requiring only a single cable pull. Hybrid cable construction also reduces the number of cables installers need to stock.

As the only application-specific solution tailored to support the demands of Digital Electricity™, Belden's **Digital Electricity (DE)** Cables safely transmit higher power or longer distance than PoE applications.

FiberExpress Hybrid Copper-Fiber Cables safely transmit up to 100W of low-voltage power and data over long distances (up to 1,000 m) to remote locations in indoor and indoor/outdoor applications. Fiber strands that meet today's technology-driven data demands are paired with copper conductors to provide necessary power.

Remote Power Delivery Systems



Faster.
Easier.
Better.



Digital Electricity™ Cables

Twisted pairs provide improved electrical performance, easy identification and quick installation. Hybrid cables reduce stock (only one cable to manage) and labor costs with only one cable to pull. Digital Electricity optimized cables are designed to effectively and safely carry data and large amounts of power across long distances.

Applications:

- Distributed Antenna Systems (DAS)
- Passive Optical Networks (PON)
- Power over longer distances
- Security (Cameras)
- Wireless Access Points (WAP)



Digital Electricity Fiber Optical Hybrid Copper-Fiber Cable

Digital Electricity™ Copper Cables (Power Transmission)

Building a SmartPart Number

Fixed Letter Series	1. Choose Application	2. Choose Rating/Type	3. Choose Gauge Size	4. Choose Pair Count	5. Choose Shielding																										
DE	I	P	18	4	U																										
	<table border="1"> <thead> <tr><th>Application</th></tr> </thead> <tbody> <tr><td>I Indoor</td></tr> <tr><td>D Indoor/Outdoor</td></tr> <tr><td>W Waterblocked-Indoor/Outdoor</td></tr> </tbody> </table>	Application	I Indoor	D Indoor/Outdoor	W Waterblocked-Indoor/Outdoor	<table border="1"> <thead> <tr><th>Rating/Type</th></tr> </thead> <tbody> <tr><td>I Indoor</td></tr> <tr><td>P Plenum</td></tr> <tr><td>N General Purpose/Wet Locations</td></tr> <tr><td>L LSZH</td></tr> </tbody> </table>	Rating/Type	I Indoor	P Plenum	N General Purpose/Wet Locations	L LSZH	<table border="1"> <thead> <tr><th>AWG</th></tr> </thead> <tbody> <tr><td>12 12</td></tr> <tr><td>14 14</td></tr> <tr><td>16 16</td></tr> <tr><td>18 18</td></tr> <tr><td>20 20</td></tr> <tr><td>22 22</td></tr> <tr><td>24 24</td></tr> </tbody> </table>	AWG	12 12	14 14	16 16	18 18	20 20	22 22	24 24	<table border="1"> <thead> <tr><th>Pair Count¹</th></tr> </thead> <tbody> <tr><td>2 2 Pairs</td></tr> <tr><td>4 4 Pairs</td></tr> <tr><td>8 8 Pairs</td></tr> <tr><td>10 10 Pairs</td></tr> </tbody> </table>	Pair Count ¹	2 2 Pairs	4 4 Pairs	8 8 Pairs	10 10 Pairs	<table border="1"> <thead> <tr><th>Shielding</th></tr> </thead> <tbody> <tr><td>U Unshielded</td></tr> <tr><td>F Foil Shield</td></tr> <tr><td>D Dual Shield (Foil+90% TC Braid)</td></tr> </tbody> </table>	Shielding	U Unshielded	F Foil Shield	D Dual Shield (Foil+90% TC Braid)
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F Foil Shield																															
D Dual Shield (Foil+90% TC Braid)																															

1. Up to 10-pair for Indoor Plenum and 24-pair for Indoor/Outdoor and Waterblocked

* Plenum default jacket color is Apple Green. Indoor/Outdoor and Waterblocked default jacket color is black. Default reel size is 2000 ft. Other colors and lengths available upon request.

Examples:

DEIP168U - Digital Electricity optimized copper cable, Indoor, Plenum-rated, 16 AWG, 8 Stranded Tinned-Copper Pairs, Unshielded, 2000 Ft Reel, Apple Green Jacket

DEDN148U - Digital Electricity optimized copper cable, Indoor/Outdoor, CL3-rated, Sun Res, Wet Locations, 14 AWG, 8 Stranded Tinned-Copper Pairs, Unshielded, 2000 Ft Reel, Black Jacket

DEWN164U - Digital Electricity optimized copper cable, Waterblocking tape for best protection below-grade, in-conduit, CM-rated, 16 AWG, 4 Stranded Tinned-Copper Pairs, Unshielded, 2000 Ft Reel, Black Jacket

Digital Electricity™ Hybrid Copper-Fiber Cables (Data & Power Transmission)

Building a SmartPart Number

Fixed Letter Series	1. Choose Cable Location	2. Choose Rating/Type	3. Choose Copper Type	4. Choose Pair Count	5. Choose Cable Shielding	6. Choose Fiber Type	7. Choose Family	8. Choose Fiber Count	9. Choose Fiber Sub-Unit Configuration																																	
DH	I	P	16	2	U	3	B	02	C																																	
<table border="1"> <thead> <tr><th>FX Fiber Cable</th></tr> </thead> <tbody> <tr><td>DH Hybrid DE</td></tr> </tbody> </table>	FX Fiber Cable	DH Hybrid DE	<table border="1"> <thead> <tr><th>Location</th></tr> </thead> <tbody> <tr><td>I Indoor</td></tr> <tr><td>W Waterblocked-Indoor/Outdoor</td></tr> </tbody> </table>	Location	I Indoor	W Waterblocked-Indoor/Outdoor	<table border="1"> <thead> <tr><th>Rating/Type</th></tr> </thead> <tbody> <tr><td>P Plenum CMP-OF</td></tr> </tbody> </table>	Rating/Type	P Plenum CMP-OF	<table border="1"> <thead> <tr><th>Copper Type</th></tr> </thead> <tbody> <tr><td>16 16 AWG</td></tr> <tr><td>18 18 AWG</td></tr> <tr><td>20 20 AWG</td></tr> </tbody> </table>	Copper Type	16 16 AWG	18 18 AWG	20 20 AWG	<table border="1"> <thead> <tr><th>Pair Count</th></tr> </thead> <tbody> <tr><td>2 2 Pairs</td></tr> <tr><td>4 4 Pairs</td></tr> <tr><td>8 8 Pairs</td></tr> </tbody> </table>	Pair Count	2 2 Pairs	4 4 Pairs	8 8 Pairs	<table border="1"> <thead> <tr><th>Shielding</th></tr> </thead> <tbody> <tr><td>U Unshielded</td></tr> </tbody> </table>	Shielding	U Unshielded	<table border="1"> <thead> <tr><th>Fiber Type</th></tr> </thead> <tbody> <tr><td>3 OM3</td></tr> <tr><td>4 OM4</td></tr> <tr><td>S OS2 (G.657.A1)</td></tr> </tbody> </table>	Fiber Type	3 OM3	4 OM4	S OS2 (G.657.A1)	<table border="1"> <thead> <tr><th>Family</th></tr> </thead> <tbody> <tr><td>B Breakout</td></tr> <tr><td>D Distribution</td></tr> </tbody> </table>	Family	B Breakout	D Distribution	<table border="1"> <thead> <tr><th>Fiber Count</th></tr> </thead> <tbody> <tr><td>02 2 Fibers</td></tr> <tr><td>04 4 Fibers</td></tr> <tr><td>06 6 Fibers</td></tr> <tr><td>12 12 Fibers</td></tr> </tbody> </table>	Fiber Count	02 2 Fibers	04 4 Fibers	06 6 Fibers	12 12 Fibers	<table border="1"> <thead> <tr><th>Sub-Unit Type/Configuration</th></tr> </thead> <tbody> <tr><td>C 3.0 mm Sub (1F x 900 µm)</td></tr> <tr><td>B 2.0mm Sub (1F x 900 µm)</td></tr> <tr><td>J 1 Fiber Distribution Tube (900 µm)</td></tr> </tbody> </table>	Sub-Unit Type/Configuration	C 3.0 mm Sub (1F x 900 µm)	B 2.0mm Sub (1F x 900 µm)	J 1 Fiber Distribution Tube (900 µm)
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J 1 Fiber Distribution Tube (900 µm)																																										

* Plenum default jacket color is Apple Green. Waterblocked-Indoor/Outdoor default jacket color is black. Length specified at the time of order.

Examples:

DHIP162U4B02C - Digital Electricity optimized hybrid, Indoor, 16 AWG, 2 Stranded Tinned-Copper Pairs, OM4, Breakout, 2 Fiber Strands, 3.0 mm Subunit, Unshielded, Plenum Rated, Apple Green Jacket

DHIP182USD06J - Digital Electricity optimized hybrid, Indoor, 18 AWG, 2 Stranded Tinned-Copper Pairs, OS2, Distribution, 6 Fiber Strands, 1 fiber distribution tube, Unshielded, Plenum Rated, Apple Green Jacket



Fiber Optical Hybrid Copper-Fiber Cable

FiberExpress Hybrid Copper-Fiber Cables

Tight Buffer — Indoor, Riser and Plenum Rated

Take advantage of the benefits of DC power and fiber in one cable, safely transmitting up to 100W of low-voltage power and data over long distances (up to 1000 m) to remote locations where standard power is unavailable or too costly to install. Cables can be used for indoor (plenum and riser) and indoor/outdoor (plenum and riser) applications, and also reduce inventory costs through stocking and managing one cable vs. two.

Applications:

- DAS
- POLAN/PON
- Power over longer distances
- Entrance space
- Pre-term

Standard FX Hybrid Copper-Fiber Cables

# Conductors x AWG	Belden Part Number					
	OM3		OM4		OS2	
	Breakout (2F)	Distribution (6F)	Breakout (2F)	Distribution (6F)	Breakout (2F)	Distribution (6F)
Indoor Plenum						
2 x 14	HI3B0020214PC	HI3D0060214PJ	HI4B0020214PC	HI4D0060214PJ	HISB0020214PC	HISD0060214PJ
2 x 16	HI3B0020216PC	HI3D0060216PJ	HI4B0020216PC	HI4D0060216PJ	HISB0020216PC	HISD0060216PJ
2 x 18	HI3B0020218PC	HI3D0060218PJ	HI4B0020218PC	HI4D0060218PJ	HISB0020218PC	HISD0060218PJ
Indoor/Outdoor Plenum						
2 x 14	HD3B0020214PC	HD3D0060214PJ	HD4B0020214PC	HD4D0060214PJ	HDSB0020214PC	HSD0060214PJ
2 x 16	HD3B0020216PC	HD3D0060216PJ	HD4B0020216PC	HD4D0060216PJ	HDSB0020216PC	HSD0060216PJ
2 x 18	HD3B0020218PC	HD3D0060218PJ	HD4B0020218PC	HD4D0060218PJ	HDSB0020218PC	HSD0060218PJ
Indoor Riser						
2 x 14	HI3B0020214RB	HI3D0020214RJ	HI4B0020214RB	HI4D0020214RJ	HISB0020214RB	HISD0020214RJ
2 x 16	HI3B0020216RB	HI3D0020216RJ	HI4B0020216RB	HI4D0020216RJ	HISB0020216RB	HISD0020216RJ
2 x 18	HI3B0020218RB	HI3D0020218RJ	HI4B0020218RB	HI4D0020218RJ	HISB0020218RB	HISD0020218RJ

Tailored FX Hybrid Copper-Fiber Cables

Building a SmartPart Number

1. Choose FX Fiber Cable	2. Choose Fiber Type	3. Choose Family	4. Choose Fiber Count	5. Choose Conductor Count	6. Choose Copper Type	7. Choose Fire Rating	8. Choose Sub-Unit Type/ Configuration
HI	S	D	006	02	14	R	J

FX Fiber Cable	Fiber Type	Family	Fiber Count	Conductor Count	Copper Type	Fire Rating	Sub-Unit Type/ Configuration
HI Indoor Hybrid Cable	1 OM1	B Breakout	Breakout	02 2 Conductors	12 12 AWG	P Plenum	B 2.0 mm Sub (1F x 900 μm)
HD Indoor/Outdoor Hybrid Cable	3 OM3	D Distribution	001 1 Fiber		14 14 AWG	R Riser	C 3.0 mm Sub (1F x 900 μm)
	4 OM4		002 2 Fibers		16 16 AWG	F Riser AIA	Breakout
	S OS2 (G.657.A1)		Distribution		18 18 AWG		Distribution : Unitized
	B G.657.A2/B2		006 6 Fibers		20 20 AWG		J 1 Fiber Distribution Tube (900 μm)
	C G.657.B3						

For an exhaustive selection, contact Belden customer service or your local Belden representative for more details.

Examples:

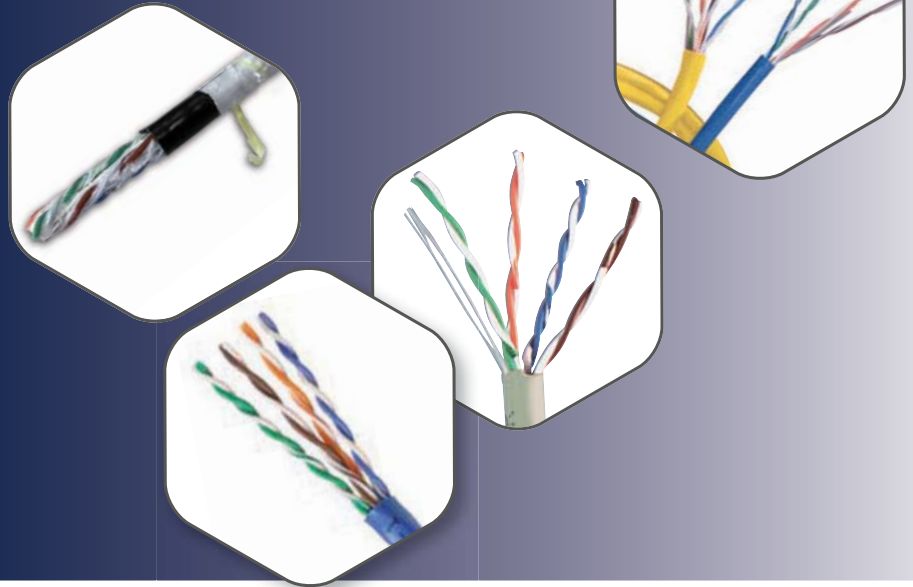
HISD0060214RJ - FX Hybrid Indoor, OS2, Distribution, 6 Fibers x 900 μm, 02 x 14 AWG, CL3R-OF, 1 fiber distribution tube, Yellow Jacket

HI4D0020212PJ - FX Hybrid Indoor, OM4, Distribution, 2 Fibers x 900 μm, 02 x 12 AWG, CL3P-OF, 1 fiber distribution tube, Erika Violet Jacket

SECTION SIX

Miscellaneous Cables

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Category 5e, Backbone Indoor Cables and Category 6, MediaTwist Cables	75



Belden understands that not every application is the same and unique situations and environments may call for a different cable solution. That's why our Copper Solutions Catalog also includes a variety of additional Belden quality cables to meet specific customer needs. From shielded, bundled Siamese and limited combustible cables, to outside plant, multi-pair and patch cables, Belden has the copper cable you need for a variety of voice, data and control applications.

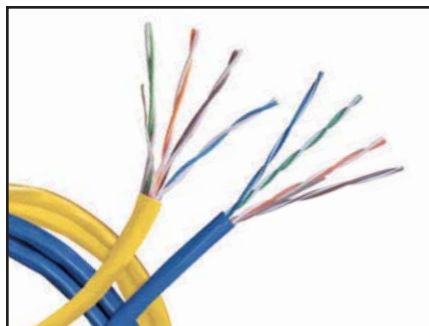
DataTwist Category 6, 5e and 5 Cables are available in shielded (F/UTP) plenum and non-plenum varieties with several color and packaging options to ease installation, handling and identification.

DataTwist 1200 Bonded-Pair UTP Siamese Cables come bundled with two 4-pair cables for easy break-out and identification.

Limited Combustible Cable is a plenum cable that provides the ultimate in fire and smoke safety. These cables are specifically engineered to meet NFPA requirements for a Limited Combustible cable while offering beyond-standards performance for Category 6 and 5e.

DataTwist Outside Plant (OSP) Cables are available in Category 6 and Category 5e cables and feature a thick polyethylene jacket for better moisture and cut-through resistance.

Backbone Indoor Cables are available in Plus 25-pair Category 5e backbone cables for highspeed applications or in DataTwist Category 3 UTP multi-pair cables, including up to 300-pair count cables for large voice communication systems.



DataTwist 5e Cable

DataTwist 5e Cable, Category 5e

Nonbonded-Pair

DataTwist® 5e Cables are easy to install and offer all the performance you need to meet ANSI/TIA-568-C.2 Category 5e standards. DataTwist 5e Cables are available in plenum and non-plenum versions, and several color and packaging options to make installation, handling and identification easier. Made to the highest-quality standards in the industry, DataTwist 5e Cables support all applications that operate using Category 5e standards.



Information about products contributing to LEED points is available at www.belden.com/leed



ReelTuff Packaging is available for some part numbers. Get more information at www.belden.com/reeltuff

Category 5e, DataTwist 5e Cables

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	UnReel Box	Spool
Category 5e, DataTwist 5e, UTP, 2-pair, 24 AWG, Plenum-CMP			
Blue	1000 ft (305 m)	Available	1590A D151000
Category 5e, DataTwist 5e, UTP, 2-pair, 24 AWG, Riser-CMR			
Blue	1000 ft (305 m)	1588A 006U1000	1588A 0061000
Gray	1000 ft (305 m)	1588A F6HU1000	1588A F6H1000
Category 5e, DataTwist 5e, UTP, 4-pair, 24 AWG, Plenum-CMP			
Red	1000 ft (305 m)	1585A 002U1000	1585A 0021000
Orange	1000 ft (305 m)	1585A 003U1000	1585A 0031000
Yellow	1000 ft (305 m)	1585A 004U1000	1585A 0041000
Green	1000 ft (305 m)	1585A 005U1000	1585A 0051000
Blue	1000 ft (305 m)	1585A D15U1000	1585A D151000
Gray	1000 ft (305 m)	1585A 008U1000	1585A 0081000
White	1000 ft (305 m)	1585A 009U1000	1585A 0091000
Black	1000 ft (305 m)	1585A 010U1000	1585A 0101000
Category 5e, DataTwist 5e, UTP, 4-pair, 24 AWG, Riser-CMR			
Red	1000 ft (305 m)	1583A 002U1000	1583A 0021000
Orange	1000 ft (305 m)	1583A 003U1000	1583A 0031000
Yellow	1000 ft (305 m)	1583A 004U1000	1583A 0041000
Green	1000 ft (305 m)	1583A 005U1000	1583A 0051000
Blue	1000 ft (305 m)	1583A 006U1000	1583A 0061000
Gray	1000 ft (305 m)	1583A 008U1000	1583A 0081000
White	1000 ft (305 m)	1583A 009U1000	1583A 0091000
Black	1000 ft (305 m)	1583A 010U1000	1583A 0101000

Other standard colors are available upon request.

Faster.
Easier.
Better.



1200 Siamese Cables

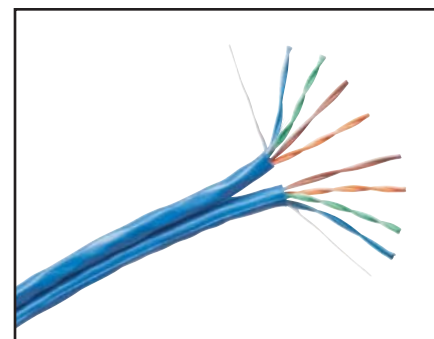
Bonded-Pair

1200 Bonded-Pair provides superior electrical performance “on-the-reel” and in the wall. 1200 Bonded-Pair Cables are available in plenum and non-plenum versions. They ensure superior Installable Performance® by utilizing the patented Bonded-Pair design. They exceed the full range of industry performance criteria, both electrically

and physically. 1200 Bonded-Pair Enhanced Category 5e Cable sets a new precedent for cabling with confidence.



Information about products contributing to LEED points is available at www.belden.com/leed



1200 Siamese Cable

1200 Siamese Cables

Description		Belden Part Number	
		Bonded-Pair (DT350)	
Color	Length	Spool	
Category 5e, 1200 Cables, UTP, 2x4-pair Siamese, 24 AWG, Plenum-CMP			
Blue	1000 ft (305 m)	1703A D151000	
Natural	1000 ft (305 m)	1703A 8771000	
Category 5e, 1200 Cables, UTP, 2x4-pair Siamese, 24 AWG, Riser-CMR			
Blue	1000 ft (305 m)	1702A 0061000	
Lt. Gray	1000 ft (305 m)	1702A F2V1000	

Alternative colors, lengths and packaging are available, please contact customer service for more details.

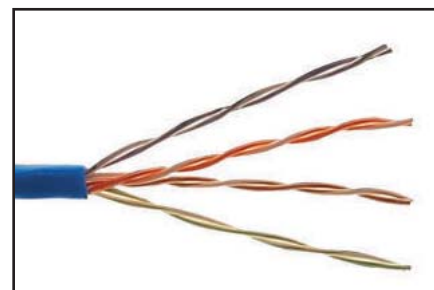
Category 6, 5e, Limited Combustible Cables

Nonbonded-Pair and Bonded-Pair

DataTwist Limited Combustible Cable is a revolutionary UTP cable engineered specifically to meet the NFPA requirements for a Limited Combustible cable and perform beyond requirements per ANSI/TIA/EIA-568-C.2. Available only in a plenum version, the

DataTwist Limited Combustible Cable is the next generation of cable technology - providing the ultimate in fire and smoke safety.

These Limited Combustible cables meet the requirements for the Living Building Challenge.



DataTwist 6 Limited Combustible Cable

Category 6, 5e, DataTwist Limited Combustible Cables

Description	Belden Part Number				
	Nonbonded-Pair		Bonded-Pair		
	UnReel	Spool	UnReel	Spool	
Category 6, DataTwist 6, 4-Pair, 23 AWG, Plenum-CMP FHC 25/50 (CMP-50)					
Blue	1000 ft (305 m)	*	*	7813LC 006U1000	7813LC 0061000
White	1000 ft (305 m)	*	*	7813LC 009U1000	7813LC 0091000
Category 5e, DataTwist 5e, 4-Pair, 24 AWG, Plenum-CMP FHC 25/50 (CMP-50)					
Blue	1000 ft (305 m)	1585LC 006U1000	1585LC 0061000	*	*
White	1000 ft (305 m)	1585LC 009U1000	1585LC 0091000	*	*
Category 5e, DataTwist 1200, 4-Pair, 24 AWG, Plenum-CMP FHC 25/50 (CMP-50)					
Blue	1000 ft (305 m)	1701LC 006U1000	1701LC 0061000	*	*
White	1000 ft (305 m)	1701LC 009U1000	1701LC 0091000	*	*

Alternative colors, lengths and packaging are available, please contact customer service for more details.

*Not available



Outside Plant, Gel-filled

Category 6A, 6, 5e, Indoor/Outdoor (I/O) and Outdoor Cables Nonbonded-Pair, Bonded-Pair

Category 6A, 6 and 5e Outside Plant (OSP) Cables are 100% gel-filled with a non-sticky PP compound that is easy to remove when terminating. Each product also has a thick polyethylene or PVC jacket for better moisture and cut-through resistance. All products on this

page meet or exceed ANSI/TIA-568-C.2 and ANSI/ICEA S-56-434 requirements. The OSP versions comply with ANSI/ICEA S-99-689 and ANSI/ICEA S-107-704 Water Penetration Test, and the CMR/CMX versions comply with ANSI/ICEA S-100-685.

Indoor/Outdoor CM-LS and OSP Cables (Suitable for Wet Locations)

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	Shielded (F/UTP)	Unshielded (UTP)
Category 6A, 4-Pair, 23 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	2141A 0101000	2147A 0101000
Category 6, 4-Pair, 23 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	2140A 0101000	2143A 0101000
Category 5e, 4-Pair, 24 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	*	2137A 0101000
Category 5e, Corrugated Aluminum Tape, 25-pair, 24 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	2139A 0101000	*

*Not available

Indoor/Outdoor CMR/CMX Outdoor Cables (Sunlight Resistant)

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	Shielded (F/UTP)	Unshielded (UTP)
Category 6A (10GX)**, 4-Pair, 23 AWG, PVC Jacket			
Black	1000 ft (305 m)	2142A 0101000	2148A 0101000
Category 6 (2400)**, 4-Pair, 23 AWG, PVC Jacket			
Black	1000 ft (305 m)	2149A 0101000	2146A 0101000
Category 5e, 4-Pair, 24 AWG, PVC Jacket			
White	1000 ft (305 m)	*	1594A 0091000
Black	1000 ft (305 m)	2138A 0101000	1594A 0101000

*Not available

**10GX and DataTwist 2400 Cables maybe used for 25-Year Belden System Warranty.

Outside Plant OSP Cables (Suitable for Wet Locations)

Description		Belden Part Number	
		Nonbonded-Pair	
Color	Length	Shielded (F/UTP)	Unshielded (UTP)
Category 6A, 4-Pair, 23 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	OSP6AF 0101000	OSP6AU 0101000
Category 6, 4-Pair, 23 AWG (F/UTP), 24 AWG (UTP), Gel Filled, PE Jacket			
Black	1000 ft (305 m)	OSP6F 0101000	OSP6U 0101000
Category 5e, 4-Pair, 24 AWG, Gel Filled, PE Jacket			
Black	1000 ft (305 m)	*	7997A 0101000

*Not available

Faster.
Easier.
Better.



Category 3, Horizontal and Backbone Indoor Cables

DataTwist 3, D-Inside Wire and ATMM/ARMM

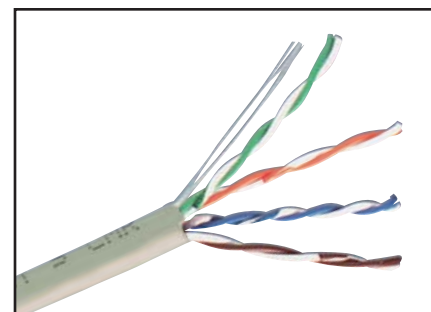
DataTwist 3 Cable is a high-value UTP cable engineered specifically to perform to Category 3 requirements per ANSI/TIA-568-C.2. DataTwist 3, D-Inside Wire, D-Flex Plenum and the ATMM Cable

Series are rugged multi-pair cable series that meet and exceed ANSI/TIA-568-C.2 and CSA T529-95 specifications, and are perfect for use in networking and communication systems.

Category 3, Horizontal and Backbone Indoor Cable

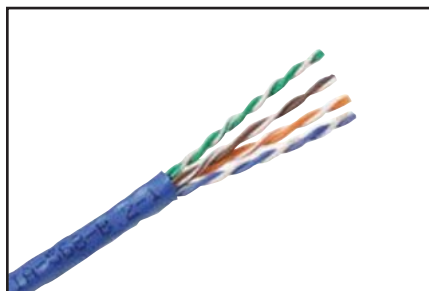
Description			Belden Part Number	
# Pairs	Color	Length	Nonbonded-Pair	
			UnReel Box	Spool
DataTwist 3, UTP, 24 AWG, Plenum-CMP				
2	White	1000 ft (305 m)	1243A2 009U1000	*
4	White	1000 ft (305 m)	1245A2 009U1000	*
DataTwist 3, UTP, 24 AWG, Riser-CMR				
2	Gray	1000 ft (305 m)	1227A1 008U1000	*
2	White	1000 ft (305 m)	1227A1 Q5HU1000	*
4	Gray	1000 ft (305 m)	1229A1 008U1000	*
25	Gray	1000 ft (305 m)	*	1232A1 0081000
D-Inside Wire, UTP, 24 AWG, Plenum-CMP				
3	Lt. Olive Gray	1500 ft (457 m)	DFLEX3 732U1500	*
4	White	1000 ft (305 m)	DFLEX4 009U1000	*
4	Lt. Olive Gray	1000 ft (305 m)	DFLEX4 732U1000	*
4	Lt. Olive Gray	1500 ft (457 m)	DFLEX4 732U1500	*
25	Lt. Olive Gray	1000 ft (305 m)	*	DPLN25 7321000
25	Lt. Olive Gray	Cut to any Length	*	DPLN25 732CUT
50	Lt. Olive Gray	Cut to any Length	*	DPLN50 732CUT
100	Lt. Olive Gray	Cut to any Length	*	DPLN100 732CUT
200	Lt. Olive Gray	Cut to any Length	*	DPLN200 732CUT
300	Lt. Olive Gray	Cut to any Length	*	DPLN300 732CUT
D-Inside Wire, UTP, 24 AWG, Riser-CMR				
2	Lt. Olive Gray	2500 ft (762 m)	DIW2 732U2500	*
3	Lt. Olive Gray	1500 ft (457 m)	DIW3 732U1500	*
4	Lt. Olive Gray	1000 ft (305 m)	DIW4 732U1000	*
4	Lt. Olive Gray	1500 ft (457 m)	DIW4 732U1500	*
6	Lt. Olive Gray	1000 ft (305 m)	*	DIW6 7321000
12	Lt. Olive Gray	1000 ft (305 m)	*	DIW12 7321000
25	Lt. Olive Gray	500 ft (152 m)	*	DIW25 732500
25	Lt. Olive Gray	1000 ft (305 m)	*	DIW25 7321000
25	Lt. Olive Gray	Cut to any Length	*	DIW25 732CUT
50	Lt. Olive Gray	1000 ft (305 m)	*	DIW50 7321000
50	Lt. Olive Gray	2500 ft (762 m)	*	DIW50 7322500
50	Lt. Olive Gray	Cut to any Length	*	DIW50 732CUT
100	Lt. Olive Gray	Cut to any Length	*	DIW100 732CUT
200	Lt. Olive Gray	Cut to any Length	*	DIW200 732CUT
300	Lt. Olive Gray	Cut to any Length	*	DIW300 732CUT
ATMM/ARMM, Armored, 24 AWG, Riser-CMR				
25	Gray	Cut to any Length	*	ATMM25 008CUT
50	Gray	Cut to any Length	*	ATMM50 008CUT
100	Gray	Cut to any Length	*	ATMM100 008CUT
200	Gray	Cut to any Length	*	ATMM200 008CUT
300	Gray	Cut to any Length	*	ATMM300 008CUT
400	Gray	Cut to any Length	*	ATMM400 008CUT

*Not available



D-Inside Series Riser Cable

Miscellaneous Cables



DataTwist Patch Cable

Patch Cable, Category 6 and 5e Nonbonded-Pair and Bonded-Pair

DataTwist Patch cables are flexible 4-pair products designed to be used in the work area, between patch panels or as equipment cords. Whether Category 6 or 5e, these products exceed Category 6 or Category 5e requirements as per ANSI/TIA-568-C.2.

Our high-end products, 1752A and 1875GB, are the premier patch cable products in the industry. Bonded-Pair technology gives these flexible cables rock-solid RL performance when flexed or

moved. Bonded-Pairs also improve the cable's balance, which reduces the effects of noisy environments. These products also incorporate fused stranded conductors. Fusing the strands helps ensure that ambient moisture/humidity will not affect insertion loss.



Information about products contributing to LEED points are available at www.belden.com/leed

Category 6, Patch Cables

Description		Belden Part Number			
		Nonbonded-Pair		Bonded-Pair	
Color	Length	Spool-in-Box	Spool	Spool-in-Box	Spool
Category 6, MediaTwist, 4-pair Patch Cables, 24 AWG Stranded, Riser-CMR					
Yellow	1000 ft (305 m)	*	*	Available	1875GB 0041000
Green	1000 ft (305 m)	*	*	1875GB 005A1000	1875GB 0051000
Blue	1000 ft (305 m)	*	*	1875GB 006A1000	1875GB 0061000
Purple	1000 ft (305 m)	*	*	1875GB 007A1000	Available
Lt. Gray	1000 ft (305 m)	*	*	Available	1875GB F2V1000
Gray	1000 ft (305 m)	*	*	Available	1875GB F6H1000
White	1000 ft (305 m)	*	*	Available	1875GB 0091000
Black	1000 ft (305 m)	*	*	Available	1875GB 0101000
Category 6, DataTwist 6, 4-pair Patch Cables, 24 AWG, Riser-CMR					
Red	1000 ft (305 m)	Available	7883A 0021000	*	*
Orange	1000 ft (305 m)	Available	7883A 0031000	*	*
Yellow	1000 ft (305 m)	Available	7883A 0041000	*	*
Green	1000 ft (305 m)	Available	7883A 0051000	*	*
Blue	1000 ft (305 m)	Available	7883A 0061000	*	*
Purple	1000 ft (305 m)	Available	7883A 0071000	*	*
Lt. Gray	1000 ft (305 m)	Available	7883A F2V1000	*	*
White	1000 ft (305 m)	Available	7883A 0091000	*	*
Black	1000 ft (305 m)	Available	7883A 0101000	*	*

*Not available. Other standard colors are available upon request.

Category 5e, Patch Cables

Description		Belden Part Number			
		Nonbonded-Pair		Bonded-Pair	
Color	Length	UnReel	Spool	Spool-in-Box	Spool
Category 5e, DataTwist 1200 (DT350), 4-pair Patch Cables, 24 AWG Stranded, CM					
Red	1000 ft (305 m)	*	*	1752A 002U1000	1752A 0021000
Orange	1000 ft (305 m)	*	*	1752A 003U1000	1752A 0031000
Yellow	1000 ft (305 m)	*	*	1752A 004U1000	1752A 0041000
Green	1000 ft (305 m)	*	*	1752A 005U1000	1752A 0051000
Blue	1000 ft (305 m)	*	*	1752A 006U1000	1752A 0061000
Purple	1000 ft (305 m)	*	*	1752A 007U1000	1752A 0071000
Lt. Gray	1000 ft (305 m)	*	*	1752A F2VU1000	1752A F2V1000
Black	1000 ft (305 m)	*	*	1752A 010U1000	1752A 0101000
Category 5e, DataTwist 5e, 4-pair Patch Cables, 24 AWG Stranded, CM					
Red	1000 ft (305 m)	1592A 002U1000	1592A 0021000	*	*
Orange	1000 ft (305 m)	1592A 003U1000	1592A 0031000	*	*
Yellow	1000 ft (305 m)	1592A 004U1000	1592A 0041000	*	*
Green	1000 ft (305 m)	1592A 005U1000	1592A 0051000	*	*
Blue	1000 ft (305 m)	1592A 006U1000	1592A 0061000	*	*
Purple	1000 ft (305 m)	1592A 007U1000	1592A 0071000	*	*
Lt. Gray	1000 ft (305 m)	1592A F2VU1000	1592A F2V1000	*	*
White	1000 ft (305 m)	1592A 009U1000	1592A 0091000	*	*
Black	1000 ft (305 m)	1592A 010U1000	1592A 0101000	*	*

*Not available. Other standard colors are available upon request.

Faster.
Easier.
Better.



Category 5e, Backbone Indoor Cables

Nonbonded-Pair

Available in plenum and non-plenum versions, 25-pair Category 5e backbone cables are designed for high-speed applications. These cables meet and exceed Category 5e

transmission characteristics, including the Power Sum Near End Crosstalk (NEXT) requirements of ANSI/TIA-568-C.2 Standard for Commercial Building Telecommunications Wiring.

Category 5e, Backbone Indoor Cables

Description		Belden Part Number	
Color	Length	Nonbonded-Pair	
		Spool	
Category 5e, Backbone Indoor Cables, 25-pair, 24 AWG, Plenum-CMP			
Gray	1000 ft (305 m)	IBDN25P 0081000	
Category 5e, Backbone Indoor Cables, 25-pair, 24 AWG, Riser-CMR			
Blue	500 ft (152 m)	IBDN25R 0065000	
Blue	1000 ft (305 m)	IBDN25R 0061000	
Gray	1000 ft (305 m)	IBDN25R 0081000	



IBDN25R, 25-pair Cat5e Cable

Category 6, MediaTwist Cables

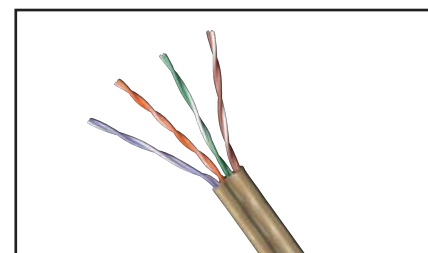
Bonded-Pair

MediaTwist, part of the 2400 System, is engineered to exceed ANSI/TIA-568-C.2 Category 6 requirements. The exceptional physical uniformity of MediaTwist translates into premier electrical performance. Available in plenum and non-plenum versions, MediaTwist has taken Bonded-Pair technology a step further.

Its unique crescent-shape design ensures that pair-to-pair movement is minimized during installation. The innovative design of MediaTwist provides stable crosstalk and impedance performance before and after installation. This results in improved signal integrity and reduced signal radiation, making MediaTwist an excellent choice for your Category 6 cable.



Information about products contributing to LEED points is available at www.belden.com/leed



MediaTwist Cable

Category 6, MediaTwist Cables

Description		Belden Part Number	
Color	Length	Bonded-Pair	
		Spool-in-Box	Spool
MediaTwist Cables, UTP, 4-Pair, 23 AWG, Plenum-CMP			
Red	1000 ft (305 m)	1874A 002A1000	1874A 0021000
Orange	1000 ft (305 m)	1874A 003A1000	1874A 0031000
Yellow	1000 ft (305 m)	1874A 004A1000	1874A 0041000
Green	1000 ft (305 m)	1874A 005A1000	1874A 0051000
Blue	1000 ft (305 m)	1874A D15A1000	1874A D151000
Purple	1000 ft (305 m)	1874A 007A1000	1874A 0071000
Gray	1000 ft (305 m)	1874A F6HA1000	1874A F6H1000
White	1000 ft (305 m)	1874A 009A1000	1874A 0091000
Black	1000 ft (305 m)	1874A 010A1000	1874A 0101000
Natural	1000 ft (305 m)	1874A 877A1000	1874A 8771000
MediaTwist Cables, UTP, 4-Pair, 23 AWG, Riser-CMR			
Red	1000 ft (305 m)	1872A 002A1000	1872A 0021000
Orange	1000 ft (305 m)	1872A 003A1000	1872A 0031000
Yellow	1000 ft (305 m)	1872A 004A1000	1872A 0041000
Green	1000 ft (305 m)	1872A 005A1000	1872A 0051000
Blue	1000 ft (305 m)	1872A 006A1000	1872A 0061000
Purple	1000 ft (305 m)	1872A 007A1000	1872A 0071000
Gray	1000 ft (305 m)	1872A F6HA1000	1872A F6H1000
White	1000 ft (305 m)	1872A 009A1000	1872A 0091000
Black	1000 ft (305 m)	1872A 010A1000	1872A 0101000

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10GX52F 0061000	19	10GXS12003U1000	8	10GXW12 0021000	9	1213F 0051000	48	1592A 0051000	74
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10GX53F 0091000	19	10GXS12006U1000	8	10GXW12 0091000	9	1224 007U1000	39	1592A F2VU1000	74
10GX53F 0101000	19	10GXS12007A1000	8	10GXW12 0101000	9	1227A1 008U1000	73	1594A 0091000	72
10GX53F D151000	19	10GXS12007U1000	8	10GXW13 0021000	9	1227A1 Q5HU1000	73	1594A 0101000	72
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10GX62F 0061000	19	10GXS12008U1000	8	10GXW13 0041000	9	1232A1 0081000	73	1700A 003U1000	39
10GX62F 0081000	19	10GXS12009A1000	8	10GXW13 0051000	9	1243A2 009U1000	73	1700A 004U1000	39
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10GXS13 0081000	8	10GXS32003A1000	8	1212F 010A1000	48	1585A 008U1000	70	1701A 003U1000	39
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10GXS33D15U1000	8	10GXS33008A1000	8	1213F 008A1000	48	1592A 007U1000	74	1703A 8771000	71
10GXS33 D151000	8	10GXS33008U1000	8	1213F 009A1000	48	1592A 009U1000	74	1703A D151000	71
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10GXS12002U1000	8	10GXS33009U1000	8	1213F 0021000	48	1592A 0021000	74	1752A 003U1000	74
		10GXS33010A1000	8	1213F 0031000	48	1592A 0031000	74	1752A 004U1000	74

Faster.
Easier.
Better.

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1752A 006U1000	74	2141A 0101000	72	2413 0102500	25	3612 006A1000	24	3633 003A1000	24
1752A 007U1000	74	2142A 0101000	72	2413 D15A1000	25	3612 006U1000	24	3633 004A1000	24
1752A 010U1000	74	2143A 0101000	72	2413 D15U1000	25	3612 007A1000	24	3633 005A1000	24
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1752A 0101000	74	2412 003U1000	25	2413F 0081000	35	3612 0042500	24	3633 0031000	24
1752A F2V1000	74	2412 004A1000	25	2413F 0091000	35	3612 0051000	24	3633 0041000	24
1752A F2VU1000	74	2412 004U1000	25	2413F 0101000	35	3612 0061000	24	3633 0051000	24
1797B 009	64	2412 005A1000	25	2413F D151000	35	3612 0062500	24	3633 0081000	24
1872A 002A1000	75	2412 005U1000	25	2424 0061000	25	3612 0081000	24	3633 0091000	24
1872A 003A1000	75	2412 006A1000	25	2424 0071000	25	3612 0091000	24	3633 0101000	24
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RV5PPF2U48BK	40	RV6PPA1U24WH	26, 32	RVAMJKUTN-B24	11	RVUDCRD-B24	63	XCGB4 0001000	34
RV5PPF2U48WH	40	RV6PPA2U48BK	26, 32	RVAMJKUTN-S1	11	RVUDCTB-B24	63	XCGB4 000A1000	34
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RV6MJKSME-B24	36	RV6PPF1U24WH	26, 32	RVAMJKUTP-B24	11	RVUDCTO-B24	63		
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GLOBAL LOCATIONS

For worldwide sales and technical support, visit: www.belden.com



UNITED STATES

Division Headquarters

401 Pennsylvania Parkway, #200
Indianapolis, IN
USA
Phone: (1)-317-818-6300
Inside Sales: 800-235-3361
Fax: (1)-317-818-6382
info@belden.com

CANADA

National Business Center

Belden Canada Inc.
2310 Alfred-Nobel
St-Laurent Quebec H4S 2B4
Canada
Phone: 514-822-2345
Fax: 514-822-7979
info@belden.com

MEXICO

Regional Office

Insurgentes Sur #1602
Piso 1 Oficina 102
Col. Crédito Constructor
Del. Benito Juárez, C.P. 03940
Mexico
Phone: +52 55-5523-7733
Fax: +52 55-5528-8077
marketingla@belden.com