



Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 - Info Technology

Proc Folder: 260530

Doc Description: Computer Data Cable (Copper/Fiber) & Fittings (OT1733)

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2016-12-13	2017-01-10 13:30:00	CRFQ 0210 ISC1700000013	1

BID RECEIVING LOCATION

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

WV 25305

US

VENDOR

Vendor Name, Address and Telephone Number:

GRAYBAR ELECTRIC
1010 YOUNG STREET
CHARLESTON, WV 25301

01/10/17 12:03:31
Purchasing Division

FOR INFORMATION CONTACT THE BUYER

Stephanie L Gale

(304) 558-8801

stephanie.l.gale@wv.gov

Signature X

Ken Hyslop

FEIN #

130794380001

DATE

1-10-17

All offers subject to all terms and conditions contained in this solicitation

INVOICE TO		SHIP TO	
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US		WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	E-Catalog	0.00000	LS		4674,023.40

Comm Code	Manufacturer	Specification	Model #
26121634			

Extended Description :
E-Catalog

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions Due	2016-12-21

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. REVIEW DOCUMENTS THOROUGHLY: The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. MANDATORY TERMS: The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. PREBID MEETING: The item identified below shall apply to this Solicitation.

☒ A pre-bid meeting will not be held prior to bid opening

☐ A ~~NON-MANDATORY PRE-BID~~ meeting will be held at the following place and time:

☐ A ~~MANDATORY PRE-BID~~ meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing.

Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. VENDOR QUESTION DEADLINE: Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are nonbinding.

Submitted e-mails should have solicitation number in the subject line.

Question Submission Deadline: December 21, 2016

Submit Questions to: **Stephanie Gale**

2019 Washington Street, East

Charleston, WV 25305

Fax: (304) 558-4115 (Vendors should not use this fax number for bid submission)

Email: Stephanie.L.Gale@wv.gov

5. VERBAL COMMUNICATION: Any verbal communication between the Vendor and any State personnel is not binding, including verbal communication at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. BID SUBMISSION: All bids must be submitted electronically through wvOASIS or signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The Purchasing Division will not accept bids, modification of bids, or addendum acknowledgment forms via e-mail. Acceptable delivery methods include electronic submission via wvOASIS, hand delivery, delivery by courier, or facsimile.

The bid delivery address is:
Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

A bid that is not submitted electronically through wvOASIS should contain the information listed below on the face of the envelope or the bid may be rejected by the Purchasing Division.:

SEALED BID:
BUYER:
SOLICITATION NO.:
BID OPENING DATE:
BID OPENING TIME:
FAX NUMBER:

The Purchasing Division may prohibit the submission of bids electronically through wvOASIS at its sole discretion. Such a prohibition will be contained and communicated in the wvOASIS system resulting in the Vendor's inability to submit bids through wvOASIS. Submission of a response to an Expression of Interest or Request for Proposal is not permitted in wvOASIS.

For Request For Proposal ("RFP") Responses Only: In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus _____ convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: (This only applies to CRFP)

- ☐ Technical
☐ Cost

7. BID OPENING: Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when confirmation of delivery is provided by wvOASIS (in the case of electronic submission) or when the bid is time stamped by the official Purchasing Division time clock (in the case of hand delivery).

Bid Opening Date and Time: January 10, 2017 @ 1:30pm

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. ADDENDUM ACKNOWLEDGEMENT: Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. BID FORMATTING: Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

10. ALTERNATES: Any model, brand, or specification listed in this Solicitation establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. EXCEPTIONS AND CLARIFICATIONS: The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

13. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the \$125 fee, if applicable.

14. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

15. PREFERENCE: Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Vendor Preference Certificate form has been attached hereto to allow Vendor to apply for the preference. Vendor's failure to submit the Vendor Preference Certificate form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

16. SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES: For any solicitations publicly advertised for bid, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to contract award to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

17. WAIVER OF MINOR IRREGULARITIES: The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

18. ELECTRONIC FILE ACCESS RESTRICTIONS: Vendor must ensure that its submission in wvOASIS can be accessed by the Purchasing Division staff immediately upon bid opening. The Purchasing Division will consider any file that cannot be immediately opened and/or viewed at the time of the bid opening (such as, encrypted files, password protected files, or incompatible files) to be blank or incomplete as context requires, and are therefore unacceptable. A vendor will not be permitted to unencrypt files, remove password protections, or resubmit documents after bid opening if those documents are required with the bid.

19. NON-RESPONSIBLE: The Purchasing Division Director reserves the right to reject the bid of any vendor as Non-Responsible in accordance with W. Va. Code of State Rules § 148-1-5.3, when the Director determines that the vendor submitting the bid does not have the capability to fully perform, or lacks the integrity and reliability to assure good-faith performance.”

20. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part in accordance with W. Va. Code of State Rules § 148-1-4.5. and § 148-1-6.4.b.”

21. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor’s entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled “confidential,” “proprietary,” “trade secret,” “private,” or labeled with any other claim against public disclosure of the documents, to include any “trade secrets” as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

GENERAL TERMS AND CONDITIONS:

1. CONTRACTUAL AGREEMENT: Issuance of a Award Document signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. DEFINITIONS: As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

2.1. "Agency" or "Agencies" means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

2.2. "Bid" or "Proposal" means the vendors submitted response to this solicitation.

2.3. "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods or services requested in the Solicitation.

2.4. "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

2.5. "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

2.6. "Award Document" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the contract holder.

2.7. "Solicitation" means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.

2.8. "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

2.9. "Vendor" or "Vendors" means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. CONTRACT TERM; RENEWAL; EXTENSION: The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☒ **Term Contract**

Initial Contract Term: This Contract becomes effective on
upon award _____ and extends for a period of one (1) year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal should be submitted to the Purchasing Division thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to three (3) successive one (1) year periods or multiple renewal periods of less than one year, provided that the multiple renewal periods do not exceed thirty-six (36) months in total. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Delivery Order Limitations: In the event that this contract permits delivery orders, a delivery order may only be issued during the time this Contract is in effect. Any delivery order issued within one year of the expiration of this Contract shall be effective for one year from the date the delivery order is issued. No delivery order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within _____ days.

☐ **Fixed Period Contract with Renewals:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and part of the Contract more fully described in the attached specifications must be completed within _____ days.

Upon completion, the vendor agrees that maintenance, monitoring, or warranty services will be provided for one year thereafter with an additional _____ successive one year renewal periods or multiple renewal periods of less than one year provided that the multiple renewal periods do not exceed _____ months in total. Automatic renewal of this Contract is prohibited.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Award Document until all of the goods contracted for have been delivered, but in no event will this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. NOTICE TO PROCEED: Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Award Document will be considered notice to proceed.

5. QUANTITIES: The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☒ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. EMERGENCY PURCHASES: The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute a breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

7. REQUIRED DOCUMENTS: All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND (Construction Only):** Pursuant to the requirements contained in W. Va. Code § 5-22-1(c), All Vendors submitting a bid on a construction project shall furnish a valid bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of _____. The performance bond must be received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under \$100,000. Personal or business checks are not acceptable.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☐ **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

☐ **Commercial General Liability Insurance:** In the amount of _____ or more.

☐ **Builders Risk Insurance:** In an amount equal to 100% of the amount of the Contract.

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The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

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The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

8. WORKERS' COMPENSATION INSURANCE: The apparent successful Vendor shall comply with laws relating to workers compensation, shall maintain workers' compensation insurance when required, and shall furnish proof of workers' compensation insurance upon request.

9. LITIGATION BOND: The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or \$5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

10. LIQUIDATED DAMAGES: Vendor shall pay liquidated damages in the amount of

for _____.

This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

11. ACCEPTANCE: Vendor's signature on its bid, or on the certification and signature page, constitutes an offer to the State that cannot be unilaterally withdrawn, signifies that the product or service proposed by vendor meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise indicated, and signifies acceptance of the terms and conditions contained in the Solicitation unless otherwise indicated.

12. PRICING: The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

13. PAYMENT: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears.

14. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

15. TAXES: The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

16. ADDITIONAL FEES: Vendor is not permitted to charge additional fees or assess additional charges that were not either expressly provided for in the solicitation published by the State of West Virginia or included in the unit price or lump sum bid amount that Vendor is required by the solicitation to provide. Including such fees or charges as notes to the solicitation may result in rejection of vendor's bid. Requesting such fees or charges be paid after the contract has been awarded may result in cancellation of the contract.

17. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

18. CANCELLATION: The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may also cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-6.1.e.

19. TIME: Time is of the essence with regard to all matters of time and performance in this Contract.

20. APPLICABLE LAW: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

21. COMPLIANCE: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendor acknowledges that it has reviewed, understands, and will comply with all applicable laws, regulations, and ordinances.

22. ARBITRATION: Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

23. MODIFICATIONS: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any change to existing contracts that adds work or changes contract cost, and were not included in the original contract, must be approved by the Purchasing Division and the Attorney General's Office (as to form) prior to the implementation of the change or commencement of work affected by the change.

24. WAIVER: The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

25. SUBSEQUENT FORMS: The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

26. ASSIGNMENT: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

27. WARRANTY: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

28. STATE EMPLOYEES: State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

29. BANKRUPTCY: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

30. PRIVACY, SECURITY, AND CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in <http://www.state.wv.us/admin/purchase/privacy/default.html>.

31. YOUR SUBMISSION IS A PUBLIC DOCUMENT: Vendor's entire response to the Solicitation and the resulting Contract are public documents. As public documents, they will be disclosed to the public following the bid/proposal opening or award of the contract, as required by the competitive bidding laws of West Virginia Code §§ 5A-3-1 et seq., 5-22-1 et seq., and 5G-1-1 et seq. and the Freedom of Information Act West Virginia Code §§ 29B-1-1 et seq.

DO NOT SUBMIT MATERIAL YOU CONSIDER TO BE CONFIDENTIAL, A TRADE SECRET, OR OTHERWISE NOT SUBJECT TO PUBLIC DISCLOSURE.

Submission of any bid, proposal, or other document to the Purchasing Division constitutes your explicit consent to the subsequent public disclosure of the bid, proposal, or document. The Purchasing Division will disclose any document labeled "confidential," "proprietary," "trade secret," "private," or labeled with any other claim against public disclosure of the documents, to include any "trade secrets" as defined by West Virginia Code § 47-22-1 et seq. All submissions are subject to public disclosure without notice.

32. LICENSING: In accordance with West Virginia Code of State Rules § 148-1-6.1.e, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

33. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Award Document from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

34. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid or offer was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid or offer for the same material, supplies, equipment or services; (2) that its bid or offer is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this Solicitation in its entirety; understands the requirements, terms and conditions, and other information contained herein.

Vendor's signature on its bid or offer also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency. The individual signing this bid or offer on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or offer or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

35. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, etc. and the filing of all necessary documents, forms, and returns pertinent to all of the foregoing.

Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

36. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

37. PURCHASING AFFIDAVIT: In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of \$1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.

38. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). Any extension of this Contract to the aforementioned Other Government Entities must be on the same prices, terms, and conditions as those offered and agreed to in this Contract, provided that such extension is in compliance with the applicable laws, rules, and ordinances of the Other Government Entity. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

39. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire an interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

40. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☒ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

41. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision. The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304) 558-9911 for more information.

42. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

- a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.
- b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open hearth, basic oxygen, electric furnace, Bessemer or other steel making process. The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:
- c. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars (\$2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or
- d. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

43. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars (\$50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products. This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

DESIGNATED CONTACT: Vendor appoints the individual identified in this Section as the Contract Administrator and the initial point of contact for matters relating to this Contract.

(Name, Title)

(Printed Name and Title)

(Address)

(Phone Number) / (Fax Number)

(email address)

CERTIFICATION AND SIGNATURE: By signing below, or submitting documentation through wvOASIS, I certify that I have reviewed this Solicitation in its entirety; that I understand the requirements, terms and conditions, and other information contained herein; that this bid, offer or proposal constitutes an offer to the State that cannot be unilaterally withdrawn; that the product or service proposed meets the mandatory requirements contained in the Solicitation for that product or service, unless otherwise stated herein; that the Vendor accepts the terms and conditions contained in the Solicitation, unless otherwise stated herein; that I am submitting this bid, offer or proposal for review and consideration; that I am authorized by the vendor to execute and submit this bid, offer, or proposal, or any documents related thereto on vendor's behalf; that I am authorized to bind the vendor in a contractual relationship; and that to the best of my knowledge, the vendor has properly registered with any State agency that may require registration.

(Company)

(Authorized Signature) (Representative Name, Title)

(Printed Name and Title of Authorized Representative)

(Date)

(Phone Number) (Fax Number)

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

SPECIFICATIONS

- 1. PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Office of Technology, hereinafter referred to as "WVOT," to establish an open-end e-Catalog contract to provide computer data cable (copper/fiber) and fittings. The contract will include Category 5E and Category 6 Plenum & Non Plenum cable, Patch Panels, Modular Connectors, Single-Mode & Multi-Mode fiber, and accessories.
- 2. DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.
 - 2.1 "Contract Item" or "Contract Items"** means the list of items identified in Section 3.1 below and on the Pricing Pages.
 - 2.2 "Pricing Pages"** means the schedule of prices, estimated order quantity, and totals contained in wvOASIS or attached hereto as Exhibit A, and used to evaluate the Solicitation responses.
 - 2.3 "Solicitation"** means the official notice of an opportunity to supply the State with goods or services that is published by the Purchasing Division.
- 3. GENERAL REQUIREMENTS:**
 - 3.1 Contract Items and Mandatory Requirements:** Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.
 - 3.1.1 Category 5e Non-Plenum Cable (Item/Row 32 on E-Catalog Pricing Page)**
 - 3.1.1.1** Must be unshielded twisted pair cable tested to 200 MHz and ETL verified to Category 5e.
 - 3.1.1.2** Category 5e cable must consist of #24 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a ripcord under an overall jacket throughout the length of the cable.
 - 3.1.1.3** Category 5e cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft lengths per box.
 - 3.1.1.4** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
 - 3.1.1.5** Outer jacket of Category 5e cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black & violet.
 - 3.1.1.6** Category 5e Non-Plenum cable must have "CMR" printed on cable, indicating it is riser Non-Plenum cable.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.1.7** All cable must be 14 dB Minimum ACR @ 100 MHz – Proven support for Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSLX3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps.
- 3.1.1.8** Must be 4 dB Minimum – Improvement in Near End Crosstalk vs. TIA/EIA-568-B Category 5.
- 3.1.1.9** Must be ETL Verified to Category 5e.
- 3.1.1.10** Must be .45 ns/meter Maximum Skew – Tightly controlled propagation delay.
- 3.1.1.11** Must be engineered for Future Applications – Tested for all parameters specified...for 4 pair UTP in TIA/EIA-568-B.2, including PS-NEXT, Return Loss, ELFEXT and PS-ELFEXT.
- 3.1.2 Category 5e Plenum Cable (Item/Row 33 on E-Catalog Pricing Page)**
 - 3.1.2.1** Must be unshielded twisted pair cable tested to 200 MHz and ETL verified to Category 5e.
 - 3.1.2.2** Category 5e cable must consist of #24 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a ripcord under an overall jacket throughout the length of the cable.
 - 3.1.2.3** Category 5e cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft lengths per box.
 - 3.1.2.4** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
 - 3.1.2.5** Outer jacket of Category 5e cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black & violet.
 - 3.1.2.6** All cable must be 14 dB Minimum ACR @ 100 MHz – Proven support for Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, 100 Mbps Fast Ethernet / 100BASE-T / IEEE 802.3, ANSLX3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps Token Ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz Broadband Video and standards under development such as ATM at 622 Mbps.
 - 3.1.2.7** Must be 4 dB Minimum – Improvement in Near End Crosstalk vs. TIA/EIA-568-B Category 5.
 - 3.1.2.8** Must be ETL Verified to Category 5e.
 - 3.1.2.9** Must be .45 ns/meter Maximum Skew – Tightly controlled propagation delay.
 - 3.1.2.10** Must be engineered for Future Applications – Tested for all parameters specified...for 4 pair UTP in TIA/EIA-568-B.2, including PS-NEXT, Return Loss, ELFEXT and PS-ELFEXT.
 - 3.1.2.11** Category 5e Plenum cable must have "CMP" printed on cable, indicating it is Plenum cable.

- Revised 10/27/2014**

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.3.17** Materials must consist of: Connector body is high-impact, fire-retardant plastic rated UL 94V-0. Spring wire contacts are high-quality phosphor bronze, plated with 50 micro-inches of gold over 100 micro inches of nickel for lowest contact resistance, maximum life. Connector 110-style IDC contacts are solder-plated phosphor bronze.
- 3.1.3.18** Must support use in any Category 5e housing Category 5e UTP connectivity in surface mount, flush mount, or modular furniture outlets and field configurable patch panels and patch blocks.
- 3.1.3.19** Must be capable to be used in conjunction with other snap-in modules for voice/data and video applications over UTP, coax and fiber.
- 3.1.3.20** Must be designed for cable termination with a 110 punch down tool.
- 3.1.3.21** Detailed installation instructions must be included in the standard pack.
- 3.1.3.22** IDCs must be arranged to minimize untwisting.
- 3.1.4 Category 5e Non-Plenum Enhanced Cable (Item/Row 35 on E-Catalog Pricing Page)**
 - 3.1.4.1** Must provide unshielded twisted pair cable tested to 400 MHz and ETL verified to Category 5e.
 - 3.1.4.2** Category 5e cable must exceed TIA/EIA 568-B.2 Category 5e & ISO/IEC 11801 Category 5e horizontal cable specs.
 - 3.1.4.3** Category 5e cable must consist of #24 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a ripcord under an overall jacket throughout the length of the cable.
 - 3.1.4.4** Category 5e cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft. lengths per box.
 - 3.1.4.5** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
 - 3.1.4.6** Outer jacket of Category 5e cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black, & violet.
 - 3.1.4.7** Category 5e Non-Plenum cable must have "CMR" printed on cable, indicating it is riser Non-Plenum cable.
 - 3.1.4.8** Must meet 20 dB minimum ACR @ 100 MHz – proven support for Gigabit Ethernet / 1000BASE-T / IEEE 802.3ab, ATM up to 155 Mbps, 100 Mbps fast ethernet / 100BASE-T / IEEE 802.3, ansi.x3.263 FDDI TP-PMD, Ethernet / 10BASE-T / IEEE 802.3, 4 & 16 Mbps token ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz broadband video and standards under development such as ATM at 622 Mbps and 1.2 Gbps.
 - 3.1.4.9** Must meet 5 dB minimum – improvement in Near End Crosstalk vs. standard Category 5e NEXT.
 - 3.1.4.10** Must meet return loss – Category 5e Standard.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.4.11** Must provide .25 ns/meter Maximum Skew – tightly controlled propagation delay.
- 3.1.4.12** Enhanced Performance Parameters – All electrical characteristics must be proven to exceed TIA/EIA 568-B Category 5e requirements: Near End Crosstalk, Characteristic Impedance, Insertion Loss, and Delay Skew. Must also exceeds TIA/EIA-568-B.2 Category 5e requirements: Power Sum NEXT, and Far End Crosstalk – ELFEXT and PS-ELFEXT.

3.1.4.13 Electrical Characteristics

- 3.1.4.13.1** Standards: Must exceed TIA/EIA-568-B.2 Category 5e & ISO/IEC 11801:2002 Category 5e Horizontal cable
- 3.1.4.13.2** Conductor DCR must meet: 8.9ohms/100m (27.1 _/Mft) Max
- 3.1.4.13.3** DCR Unbalance must meet: 3% max
- 3.1.4.13.4** Mutual Capacitance must meet: 46 pF/m (14 pF/ft) NOM
- 3.1.4.13.5** Capacitance Unbalance pair/ground must meet: 66 pF/100m (200 pF/Mft) MAX
- 3.1.4.13.6** Characteristic Impedance must meet: 66 pF/100m (200 pF/Mft) MAX
- 3.1.4.13.7** Input Impedance must meet: 100 ohms15% (1-100 MHz); 100 ohms 22% (>100-200 MHz)
- 3.1.4.13.8** Propagation Delay must meet: 506 + 36/ \sqrt{f} ns/100m max
- 3.1.4.13.9** Delta Delay (skew) must meet: 25 ns/100m MAX
- 3.1.4.13.10** Nominal Velocity of Propagation (NVP) must meet: Non-Plenum 68%

3.1.5 Category 5e Plenum Enhanced Cable (Item/Row 36 on E-Catalog Pricing Page)

- 3.1.5.1** Must provide unshielded twisted pair cable tested to 400 MHz and ETL verified to Category 5e.
- 3.1.5.2** Category 5e cable must exceed TIA/EIA 568-B.2 Category 5e & ISO/IEC 11801 Category 5e horizontal cable specs.
- 3.1.5.3** Category 5e cable must consist of #24 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a ripcord under an overall jacket throughout the length of the cable.
- 3.1.5.4** Category 5e cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft. lengths per box.

REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)

- 3.1.5.5** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
- 3.1.5.6** Outer jacket of Category 5e cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black, & violet.
- 3.1.5.7** Category 5e Plenum cable must have "CMP" printed on cable, indicating it is Plenum cable.
- 3.1.5.8** Category 5e Plenum cable must use dual insulation - considered FEP on all 4 pairs and insulation is a dual layer of FRPE and FEP.
- 3.1.5.9** All Plenum cable must be 4x4 Plenum construction.
- 3.1.5.10** Must meet 20 dB minimum ACR @ 100 MHz – proven support for Gigabit Ethernet / 1000BASE-T/ IEEE 802.3ab, ATM up to 155 Mbps, 100 Mbps fast ethernet / 100BASE-T/ IEEE 802.3, ansi.x3.263 FDDI TP-PMD, Ethernet /10BASE-T / IEEE 802.3, 4 & 16 Mbps token ring / IEEE 802.5, T1/E1, xDSL, ISDN, 550 MHz broadband video and standards under development such as ATM at 622 Mbps and 1.2 Gbps.
- 3.1.5.11** Must meet 5 dB minimum – improvement in Near End Crosstalk vs. standard Category 5e NEXT.
- 3.1.5.12** Must meet return loss – Category 5e Standard.
- 3.1.5.13** Must provide .25 ns/meter Maximum Skew – tightly controlled propagation delay.
- 3.1.5.14** Enhanced Performance Parameters – All electrical characteristics must be proven to exceed TIA/EIA 568-B Category 5e requirements: Near End Crosstalk, Characteristic Impedance, Insertion Loss, and Delay Skew. Must also exceeds TIA/EIA-568-B.2 Category 5e requirements: Power Sum NEXT, and Far End Crosstalk – ELFEXT and PS-ELFEXT.
- 3.1.5.15 Electrical Characteristics**
 - 3.1.5.15.1** Standards: Must exceed TIA/EIA-568-B.2 Category 5e & ISO/IEC 11801:2002 Category 5e Horizontal cable
 - 3.1.5.15.2** Conductor DCR must meet: 8.9ohms/100m (27.1 _/Mft) Max
 - 3.1.5.15.3** DCR Unbalance must meet: 3% max
 - 3.1.5.15.4** Mutual Capacitance must meet: 46 pF/m (14 pF/ft) NOM
 - 3.1.5.15.5** Capacitance Unbalance pair/ground must meet: 66 pF/100m (200 pF/Mft) MAX
 - 3.1.5.15.6** Characteristic Impedance must meet: 66 pF/100m (200 pF/Mft) MAX

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.5.15.7** Input Impedance must meet: 100 ohms $\pm 15\%$ (1-100 MHz); 100 ohms $\pm 22\%$ (>100 -200 MHz)
- 3.1.5.15.8** Propagation Delay must meet: 506 + $36/\sqrt{f}$ ns/100m max
- 3.1.5.15.9** Delta Delay (skew) must meet: 25 ns/100m MAX
- 3.1.5.15.10** Nominal Velocity of Propagation (NVP) must meet: Plenum 72%;

**3.1.6 Category 5e Modular Enhanced Connectors/Quick Port
(Item/Row 37 On E-Catalog Pricing Page)**

- 3.1.6.1** The Category 5e connector shall meet or exceed the requirements for Category 5e described in TIA/EIA-568-B as well as the Class E requirements described in ISO/IEC 11801.
- 3.1.6.2** The modular connector shall be individual snap-in style.
- 3.1.6.3** The connector must include unique pair separation towers allowing for quicker and easier terminations.
- 3.1.6.4** The connector shall be 180° configuration such that the punch field is in the back, allowing for rear termination.
- 3.1.6.5** Rear termination field shall include pointed pair separation towers to promote easier installation.
- 3.1.6.6** All plastics used in construction of the connector bodies must be fire retardant with a UL flammability rating of 94V-0.
- 3.1.6.7** Termination of all connectors shall be 110-type insulation displacement connectors (IDC).
- 3.1.6.8** The connector shall provide a cutting ledge directly adjacent to the 110-style IDC's against which the wires can be directly terminated and cut in one action.
- 3.1.6.9** Connector wiring shall be universal and wiring label shall provide installation color codes for T568B wiring schemes.
- 3.1.6.10** A selection of 13 different colors must be available for the Category 5e connector, including: ivory, white, grey, black, orange, blue, bright red, dark red, yellow, green, purple, almond, and brown in order to identify ports for different applications.
- 3.1.6.11 Standards:**

The Category 5E modular connector must meet or exceed the Category 5E requirements for channel/component level performance per TIA/EIA-568-B and ISO/IEC 11801.
Components certified per cULus and ACA requirements.
- 3.1.6.12 Physical:**

Must meet dimensions: .885"H x .635"W x 1.211"D Must provide materials meeting: Connector body is high-impact, fire-retardant plastic rated UL 94V-0. Spring wire contacts are high quality copper-based alloy, plated with 50 micro-inches of gold over 100 micro-inches of nickel for lowest electrical contact resistance and maximum life.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

3.1.6.13 Must provide features:

Universal T568B wiring labels for 110-style IDC terminations. Must be available in 13 different TIA/EIA 606-A compatible colors. 180° configuration allowing for rear termination. Unique pair separation towers designed to minimize untwisting and to speed installation.

3.1.6.14 Must meet following design:

For use in any Category 5e housing to support Category 5e UTP connectivity in surface mount, flush mount, or modular furniture outlets and field configurable patch panels. Can be used in conjunction with other snap-in modules for voice/data and video applications over UTP, coax and fiber. Must be designed for cable termination with a 110 punch down tool. Detailed installation instructions must be included in the standard pack. IDCs must be arranged to minimize untwisting.

3.1.7 Category 5E Patch Panels (Items/Rows 50, 51 & 52 on E-Catalog Pricing Page)

3.1.7.1 The Category 5e patch panel shall meet or exceed the requirements for Category 5e described in TIA/EIA-568-B as well as the Class E requirements described in ISO/IEC 11801-B.

3.1.7.2 The panels shall feature T568B wiring configurations, white IDC 110-punchdown modules, mounting standoffs for cable management bars, color-coded front window labeling, and a termination standoff for patch panel earthing/grounding.

3.1.7.3 The panels shall have universal T568B wiring card for terminations.

3.1.7.4 The panels shall be made of 16 gauge steel, and shall have a black painted finish with white silk-screening.

3.1.7.5 The plastic elements shall be fire-retardant with a UL flammability rating of 94V-0.

3.1.7.6 The panel shall be offered in 12-, 24-, 48-port configurations as well as 12-port Patch Block for wall mount applications.

3.1.7.7 The patch panel shall be configured with six port modules.

3.1.7.8 The 110 termination on the rear of the panel must follow normal installation color sequence (blue, orange, green, brown) from left to right; and must be designed for use in high megabit applications such as Gigabit Ethernet.

3.1.7.9 Category 5e patch panels must be designed for use on 19" standard racks and cabinets and must allow for standard 110 terminations on the rear of the panel and must follow the normal installation color sequence (blue, orange, green, brown) from left to right; and must be designed for use in high megabit applications such as Gigabit Ethernet.

3.1.7.10 Must have Universal T568B wiring cards for 110 style IDC terminations

3.1.7.11 Must have color-coded front labeling for easy port identification

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.7.12** Must have grounding standoff for optional earthing/grounding.
- 3.1.7.13** Must meet all applicable standards: UL Listed; meets or exceeds all TIA/EIA-568-B for Category 5e requirements; and meets FCC Part 68.
- 3.1.7.14** Must meet dimensions: 12-, 24-Port - 1.75"H x 19"W x 1.31"D; 48 Port - 3.5"H x 19"W x 1.31"D 12-port Patch Block – 10.0"H x 2.3"W x 1.474"D; Capacity: 12-, 24-, 48-port and 12-Port Patch Block; Materials: 16 gauge steel, painted black, PCB and plastic components are rated UL 94V-0.
- 3.1.7.15** Must have centralized labeling (available on 48-port), promotes greater visibility of labels when patch cords are routed into horizontal cable management above and below the patch panel.
- 3.1.7.16** Connector modules must be grouped in sets of six.
- 3.1.8 Category 6 Non-Plenum Enhanced Cable (Item/Row 55 on E-Catalog Pricing Page)**
 - 3.1.8.1** Must provide enhanced unshielded twisted pair (UTP) Category 6 cable for use in horizontal cabling systems per TIA/EIA 568-B and ISO/IEC 11801 Class E. tested to 650 MHz and ETL verified to TIA/EIA 568-B.2-1 Category 6.
 - 3.1.8.2** The cable must exceed TIA/EIA 568-B.2-1 and ISO/IEC 11801 Category 6 electrical characteristics.
 - 3.1.8.3** The cable must consist of #23 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a core separator (spinal spacer) and a ripcord under an overall jacket throughout the length of the cable.
 - 3.1.8.4** Outer jacket of Category 6 cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black, & violet.
 - 3.1.8.5** Category 6 cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft. lengths per box.
 - 3.1.8.6** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
 - 3.1.8.7** Category 6 Non-Plenum cable must have "CMR" printed on cable, indicating it is riser Non-Plenum cable.
 - 3.1.8.8** Must be able to support the following applications: IEEE 802.3 10BASE-T (Ethernet), 100BASE-T(Fast Ethernet), and 1000BASE-T (Gigabit Ethernet), IEEE 802.3AF Power Over Ethernet for VoIP, ANSI.x3.263 FDDI TP- PMD, IEEE 802.5 4 and 16 Mbps Token Ring, ATM up to 155 Mbps, 550 MHz broadband video and standards under development such as ATM at 622 Mbps, and 1.2 & 2.4 Gbps

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.8.9** Must meet or exceed the following industry approval standards:
TIA/EIA 568-b.2-1 Category 6 & ISO/IEC 11801:2002 Category 6
Horizontal cable.
- 3.1.8.10** Must meet or exceed the following: NP: UL/cUL type CMR.
- 3.1.8.11** Must be ETL verified to TIA/EIA 568-B.2-1 Category 6.
- 3.1.8.12** Must provide construction primaries: Conductor: 23 AWG (.6 mm) solid
bare copper NP: thermoplastic polyolefin.
- 3.1.8.13** Must provide pair assembly: 2 primaries twisted in varied lays.
- 3.1.8.14** Must provide Cable assembly: 4 pairs cabled together with a Flexweb
Core Separator.
- 3.1.8.15** Must provide Jacket: NP: no lead flame retardant thermoplastic nominal
cable od: NP: .225" (5.7 mm).
- 3.1.8.16** Must provide cable of weight: NP: 30 lbs/1000ft (45 kg/km).
- 3.1.8.17** Must meet bending radius: pl: 1" (25 mm) min (4 x cable od).
- 3.1.8.18** Must meet pulling tension: 25 lbf (110 n) max.
- 3.1.8.19** Must meet operating temp.: -20°C to +60°C (-4°F to +140°F).
- 3.1.8.20** Must have storage temp.: -20°C to +75°C (-4°F to +167°F).
- 3.1.8.21** Must meet installation: 0°C to +60°C (+32°F to +140°F).
- 3.1.8.22** Must meet electrical characteristics standards: exceeds TIA/EIA-568-
b.2-1 Category 6, ISO/IEC 11801:2002 Category 6 & IEC 61156-5
Category 6 Horizontal cable.
- 3.1.8.23** Conductor DCR must meet: 7.8ohms/100m (23.8ohms/mft) max.
- 3.1.8.24** DCR unbalance must meet: 3% max.
- 3.1.8.25** Mutual Capacitance must meet: 46 pF/m (14 pF/ft) nom.
- 3.1.8.26** Capacitance Unbalance pair/ground must meet: 66 pF/100m (200
pF/Mft) MAX.
- 3.1.8.27** Characteristic impedance must meet: 100 ± 15% (1-350 MHz).
- 3.1.8.28** Input impedance must meet: 100 ohms ± 15% (1-100 MHz) 100 ohms ±
18% (>100-200 MHz) 100 ohms ± 22% (>200-350 MHz).
- 3.1.8.29** Must meet return loss (RL): 20 + 7 log₁₀ (f) dB min (1-10 MHz) 27 dB
min (>10-20 MHz) 27 - 5.58 log₁₀ (f/20) dB min (>20 MHz).
- 3.1.8.30** Must meet insertion loss (attenuation): 1.795 □□f + .017 f + .20
dB/100m MAX.
- 3.1.8.31** Must provide Near End Crosstalk (NEXT): 48.3 - 15 log₁₀ (f/100)
dB/100m min.
- 3.1.8.32** Must provide Power Sum Near End Crosstalk (PS-NEXT): 46.3 - 15
log₁₀ (f/100) dB/100m MIN.
- 3.1.8.33** Must meet Propagation Delay: 534 + 36 / □□f ns/100m MAX.
- 3.1.8.34** Must provide Delta Delay (Skew): 25 ns/100m MAXIMUM SKEW **
tightly controlled propagation delay.
- 3.1.8.35** Nominal Velocity of Propagation (NVP): 68% Non-Plenum.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

where f = frequency in MHz from .772 to 350 MHz, except for ELFEXT and PS-ELFEXT from 1 to 350 MHz.

3.1.9 Category 6 Plenum Enhanced Cable (Item/Row 56 on E-Catalog Pricing Page)

- 3.1.9.1** Must provide enhanced unshielded twisted pair (UTP) Category 6 cable for use in horizontal cabling systems per TIA/EIA 568-B and ISO/IEC 11801 Class E, tested to 650 MHz and ETL verified to TIA/EIA 568-B.2-1 Category 6.
- 3.1.9.2** The cable must exceed TIA/EIA 568-B.2-1 and ISO/IEC 11801 Category 6 electrical characteristics.
- 3.1.9.3** The cable must consist of #23 AWG solid bare copper insulated conductors, assembled into four tightly twisted pairs, with a core separator (spinal spacer) and a ripcord under an overall jacket throughout the length of the cable.
- 3.1.9.4** Outer jacket of Category 6 cable must be available in selection of 10 colors which include white, blue, pink, yellow, gray, green, red, orange, black, & violet.
- 3.1.9.5** Category 6 cable must be packaged directly in an easy pull box and dispense in a tangle-free payout (as if on a reel) in 1,000 ft. lengths per box.
- 3.1.9.6** Cable must contain printed descending footage markers from 1,000 to 0 in each 1,000 ft. box.
- 3.1.9.7** Category 6 Plenum cable must have "CMP" printed on cable, indicating it is Plenum cable.
- 3.1.9.8** Category 6 Plenum cable must use dual insulation - considered FEP on all 4 pairs and insulation is a dual layer of FRPE and FEP.
- 3.1.9.9** All Plenum cable must be 4x4 Plenum construction.
- 3.1.9.10** Must be able to support the following applications: IEEE 802.3 10BASE-T (Ethernet), 100BASE-T (Fast Ethernet), and 1000BASE-T (Gigabit Ethernet), IEEE 802.3AF Power Over Ethernet for VoIP, ANSI x3.263 FDDI TP- PMD, IEEE 802.5 4 and 16 Mbps Token Ring, ATM up to 155 Mbps, 550 MHz broadband video and standards under development such as ATM at 622 Mbps, and 1.2 & 2.4 Gbps
- 3.1.9.11** Must meet or exceed the following industry approval standards: TIA/EIA 568-b.2-1 Category 6 & ISO/IEC 11801:2002 Category 6 Horizontal cable.
- 3.1.9.12** Must meet or exceed the following: PL: UL/cUL type CMP.
- 3.1.9.13** Must be ETL verified to TIA/EIA 568-B.2-1 Category 6.
- 3.1.9.14** Must provide construction primaries: Conductor: 23 AWG (.6 mm) solid bare copper PL: dual insulation, FEP on all 4 pairs.
- 3.1.9.15** Must provide pair assembly: 2 primaries twisted in varied lays.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.9.16 Must provide Cable assembly: 4 pairs cabled together with a Flexweb Core Separator.
- 3.1.9.17 Must provide Jacket: PL: no lead Plenum rated thermoplastic. PL: .228" (5.79 mm).
- 3.1.9.18 Must provide cable of weight: PL: 33 lbs/1000ft (49 kg/km).
- 3.1.9.19 Must meet bending radius: pl: 1" (25 mm) min (4 x cable od).
- 3.1.9.20 Must meet pulling tension: 25 lbf (110 n) max.
- 3.1.9.21 Must meet operating temp.: -20°C to +60°C (-4°F to +140°F).
- 3.1.9.22 Must have storage temp.: -20°C to +75°C (-4°F to +167°F).
- 3.1.9.23 Must meet installation: 0°C to +60°C (+32°F to +140°F).
- 3.1.9.24 Must meet electrical characteristics standards: exceeds TIA/EIA-568-b.2-1 Category 6, ISO/IEC 11801:2002 Category 6 & IEC 61156-5 Category 6 Horizontal cable.
- 3.1.9.25 Conductor DCR must meet: 7.8ohms/100m (23.8ohms/mft) max.
- 3.1.9.26 DCR unbalance must meet: 3% max.
- 3.1.9.27 Mutual Capacitance must meet: 46 pF/m (14 pF/ft) nom.
- 3.1.9.28 Capacitance Unbalance pair/ground must meet: 66 pF/100m (200 pF/Mft) MAX.
- 3.1.9.29 Characteristic impedance must meet: 100 ± 15% (1-350 MHz).
- 3.1.9.30 Input impedance must meet: 100 ohms ± 15% (1-100 MHz) 100 ohms ± 18% (>100-200 MHz) 100 ohms ± 22% (>200-350 MHz).
- 3.1.9.31 Must meet return loss (RL): 20 + 7 log₁₀ (f) dB min (1-10 MHz) 27 dB min (>10-20 MHz) 27 - 5.58 log₁₀ (f/20) dB min (>20 MHz).
- 3.1.9.32 Must meet insertion loss (attenuation): 1.795 □□f + .017 f + .20 dB/100m MAX.
- 3.1.9.33 Must provide Near End Crosstalk (NEXT): 48.3 - 15 log₁₀ (f/100) db/100m min.
- 3.1.9.34 Must provide Power Sum Near End Crosstalk (PS-NEXT): 46.3 - 15 log₁₀ (f/100) dB/100m MIN.
- 3.1.9.35 Must meet Propagation Delay: 534 + 36 / □f ns/100m MAX.
- 3.1.9.36 Must provide Delta Delay (Skew): 25 ns/100m MAXIMUM SKEW – tightly controlled propagation delay.
- 3.1.9.37 Nominal Velocity of Propagation (NVP): 72% Plenum where f= frequency in MHz from .772 to 350 MHz, except for ELFEXT and PS-ELFEXT from 1 to 350 MHz.
- 3.1.10 Category 6 Modular Connectors/Quick Port (Item/Row 57 on E-Catalog Pricing Page)
 - 3.1.10.1 The Category 6 modular connector shall meet or exceed the requirements for channel and component-level performance described in TIA/EIA-568-B.2-1 Category 6 standards.
 - 3.1.10.2 The modular connector shall be individual snap-in style.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.10.3** The connectors shall also be in compliance with all National Electrical Codes; compliant with FCC Part 68; UL listed; and independently verified.
- 3.1.10.4** The connector shall have the ability to support high megabit and shared-sheath applications.
- 3.1.10.5** All plastics used in construction of the connector bodies must be fire-retardant with a UL flammability rating of 94V-0.
- 3.1.10.6** The Category 6 connector includes unique pair separation towers allowing for quicker and easier terminations.
- 3.1.10.7** The connector is configured in a 180° configuration such that the punch field is in the back, allowing for rear termination.
- 3.1.10.8** Termination of all connectors shall be 110-type insulation displacement connectors (IDC).
- 3.1.10.9** The connector shall provide a ledge directly adjacent to the 110-style termination against which the wires can be directly terminated and cut in one action by the installation craftsman. Connector wiring is universal and will accommodate installation color codes for T568B wiring schemes.
- 3.1.10.10** The termination field shall be in the rear for easy access. The modular connector shall fit all other installed telecommunications wall plates, outlets and field-configurable patch panels and patch blocks.
- 3.1.10.11** A selection of 13 colors must be available for the Category 6 connector, which include ivory, white, grey, black, orange, blue, bright red, dark red, yellow, green, purple, almond & brown in order to identify ports for different applications.
- 3.1.10.12** Category 6 modular connectors must meet or exceed the requirements for channel and component-level performance for TIA/EIA Category 6, cULus Listed, NOM and ACA.
- 3.1.10.13** Must meet dimensions: .901"H x .575"W x 1.246"D.
- 3.1.10.14** Must provide materials: Connector body is high-impact, fire-retardant plastic rated UL 94V-0. Spring wire contacts are high quality copper-based alloy, plated with 50 micro-inches of gold over 100 micro inches of nickel for lowest contact resistance, maximum life.
- 3.1.10.15** Must include full selection of TIA/EIA-606 compatible colors, which include ivory, white, grey, black, orange, blue, bright red, dark red, yellow, green, purple, almond, and brown.
- 3.1.10.16** For use in any Category 6 housing to support Category 6 UTP connectivity in surface mount, flush mount, or modular furniture outlets and field configurable patch panels.
- 3.1.10.17** Can be used in conjunction with other snap-in modules for voice/data and video applications over UTP, coax and fiber.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.10.18** Connector must be available in 13 colors, which include ivory, white, grey, black, orange, blue, bright red, dark red, yellow, green, purple, almond & brown in order to identify ports for different applications.
 - 3.1.10.19** Must be designed for cable termination with a 110 punch down tool.
 - 3.1.10.20** Detailed installation instructions must be included in the standard pack.
 - 3.1.10.21** IDCs must be arranged to minimize untwisting.
- 3.1.11 Category 6 Patch Panels (Items/Rows 67, 68 & 69 on E-Catalog Pricing Page)**
- 3.1.11.1** The Category 6 patch panel shall meet or exceed the requirements for Category 6 described in TIA/EIA-568-B.2-1 as well as the Class E requirements described in ISO/IEC 11801-B.
 - 3.1.11.2** The panels shall feature T568B wiring configurations, white IDC 110-punchdown modules, mounting standoffs for cable management bars, color-coded front window labeling, and a termination standoff for patch panel earthing/grounding.
 - 3.1.11.3** The panels shall have universal T568B wiring card for terminations.
 - 3.1.11.4** The panels shall be made of 16 gauge steel, and shall have a black painted finish with white silk-screening.
 - 3.1.11.5** The plastic elements shall be fire-retardant with a UL flammability rating of 94V-0.
 - 3.1.11.6** The panel shall be offered in 12-, 24, 48-port configurations as well as an 89D 12-port configuration.
 - 3.1.11.7** The patch panel shall be configured with six port modules.
 - 3.1.11.8** The 110 termination on the rear of the panel must follow normal installation color sequence (blue, orange, green, brown) from left to right; and must be designed for use in high megabit applications such as Gigabit Ethernet.
 - 3.1.11.9** Category 6 patch panels must be designed for use on 19" standard racks and cabinets; must allow for standard 110 terminations on the rear of the panel and must follow the normal installation color sequence (blue, orange, green, brown) from left to right; and must be designed for use in high megabit applications such as Gigabit Ethernet.
 - 3.1.11.10** Must provide universal T568B wiring cards for 110 style IDC terminations.
 - 3.1.11.11** Must be color-coded front labeling for easy port identification (TIA-606-A compliant).
 - 3.1.11.12** Must provide grounding standoff for optional earthing/grounding.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 3.1.11.13** Category 6 patch panels must meet or exceed the Category 6/Class E requirements for channel/component level performance per TIA/EIA-568-B.2-1 and ISO/IEC 11801-B. Components certified per cULus, NOM and ACA requirements.
- 3.1.11.14** Must meet dimensions: 12-, 24-Port - 1.725"H x 19"W x 1.474"D 48 Port - 3.475"H x 19"W x 1.474"D 12-port Patch Block – 10.0"H x 2.3"W x 1.474"D
- 3.1.11.15** Must meet capacity: 12-, 24-, 48-port and 12-Port Patch Block
- 3.1.11.16** Must provide materials: 16 gauge steel, painted black, PCB and plastic components are rated UL94V-0
- 3.1.11.17** Must provide color coded front window labeling for easy port identification.
- 3.1.11.18** Must provide mounts on 19" equipment racks.
- 3.1.11.19** Must provide panel offered in 12-, 24-, 48-Port configurations and Universal 12-port U89 Block for wall mount applications.
- 3.1.11.20** Must provide connector modules are in groups of six.
- 3.1.11.21** Must include rear cable management bars.

4. CONTRACT AWARD:

- 4.1 Contract Award:** The Contract is intended to provide WVOT with a purchase price on all Contract Items. The Contract shall be awarded to the Vendor that provides the Contract Items meeting the required specifications for the lowest overall total cost as shown on the Pricing Pages.
- 4.2 Pricing Pages: Attachment A/Pricing Page/E-Catalog Spreadsheet:** Vendor should complete the Attachment A/Pricing Page/E-Catalog Spreadsheet by providing the following information, per each Contract Item bid. Vendor should not modify or add any information into the Column Headers. Vendor should not place formulas or any type of Excel calculations into the List Price column, only the actual bid price, per each Contract Item Bid.

Column A – Vendor Customer Code should identify the Vendor's wvOasis vendor/customer number. If the Vendor does not know this number, please leave the column blank.

Column B – Supplier Part Number should identify the Supplier's part number.

Column C – Supplier Name should identify the name of the Vendor who is supplying the product/service.

Column D – Manufacturer Name should identify the Manufacturer of the product/service.

Column E – Manufacturer Part Number should identify the Manufacturer's part number for the product/service.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

Column H – Extended Description Vendor should provide any additional description to the product/service.

Column I – Estimated Quantities Vendor should note that these are estimates only.

Column K – List Price shall identify the Vendor's unit price per Contract Item bid.

Column L – Delivery Days should identify the number of days required for delivery.

Vendor may bid any or all Contract Items on Attachment A/Pricing Page/E-Catalog Spreadsheet. Bidding on any one Contract Item may not be conditioned on the acceptance of the bid on any other Contract Item or Items.

The Attachment A/Pricing Page/E-Catalog Spreadsheet contains a list of the Contract Items and estimated purchase volume. The estimated purchase volume for each item represents the approximate volume of anticipated purchases only, so that vendor/s can provide their best price based on estimated volume. No future use of the Contract or any individual item is guaranteed or implied.

Vendor should electronically enter their total bid amount as indicated in Attachment A/Pricing Page/E-Catalog spreadsheet into the Commodity Pricing Page in wvOASIS, if available, or by attaching the electronic Excel document. In most cases, the Vendor can request an electronic copy of the Pricing Pages for bid purposes by sending an email request to the following address: Stephanie.L.Gale@wv.gov

5. ORDERING AND PAYMENT:

5.1 Ordering: Vendor shall accept orders through wvOASIS, regular mail, facsimile, e-mail, or any other written form of communication. Vendor may, but is not required to, accept on-line orders through a secure internet ordering portal/website. If Vendor has the ability to accept on-line orders, it should include in its response a brief description of how Agencies may utilize the on-line ordering system. Vendor shall ensure that its on-line ordering system is properly secured prior to processing Agency orders on-line.

5.2 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia.

6. DELIVERY AND RETURN:

6.1 Delivery Time: Vendor shall deliver standard orders within five (5) working days after orders are received. Vendor shall deliver emergency orders within two (2) working day(s) after orders are received. Vendor shall ship all orders in accordance with the above schedule and shall not hold orders until a minimum delivery quantity is met. Graybar reads and take exception. Delivery will be determined at time of order placement.

6.2 Late Delivery: The Agency must be notified in writing if orders will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

- 6.3 Delivery Payment/Risk of Loss:** Standard order delivery shall be F.O.B. destination to the Agency's location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery. The Agency will pay delivery charges on all emergency orders provided that Vendor invoices those delivery costs as a separate charge with the original freight bill attached to the invoice.
- 6.4 Return of Unacceptable Items:** If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.
- 6.5 Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items. Graybar reads and takes exception. Manufactures restocking fees may apply.

7. VENDOR DEFAULT:

7.1 The following shall be considered a vendor default under this Contract.

- 7.1.1** Failure to provide Contract Items in accordance with the requirements contained herein.
- 7.1.2** Failure to comply with other specifications and requirements contained herein.
- 7.1.3** Failure to comply with any laws, rules, and ordinances applicable to the Contract Services provided under this Contract.
- 7.1.4** Failure to remedy deficient performance upon request.

7.2 The following remedies shall be available to Agency upon default.

- 7.2.1** Immediate cancellation of the Contract.
- 7.2.2** Immediate cancellation of one or more release orders issued under this Contract.

**REQUEST FOR QUOTATION
COMPUTER DATA CABLE (COPPER/FIBER) & FITTINGS (OT1733)**

7.2.3 Any other remedies available in law or equity.

8. MISCELLANEOUS:

- 8.1 No Substitutions:** Vendor shall supply only Contract Items submitted in response to the Solicitation unless a contract modification is approved in accordance with the provisions contained in this Contract.
- 8.2 Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response. Graybar reads and takes exception. All items are not stocked by Graybar and some have manufacture minimum order quantities.
- 8.3 Reports:** Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.
- 8.4 Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Brian Paxton

Telephone Number: 304-206-3600

Fax Number: 304-344-2371

Email Address: brian.paxton@graybar.com

STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT**

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

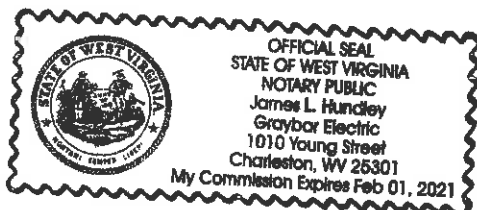
"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (W. Va. Code §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:Vendor's Name: Graybar ElectricAuthorized Signature: [Signature] Date: 1-10-17State of West VirginiaCounty of Kanawha, to-wit:Taken, subscribed, and sworn to before me this 10th day of January, 2017.My Commission expires Feb 1st, 2021.

AFFIX SEAL HERE

NOTARY PUBLIC

[Signature]
Purchasing Affidavit (Revised 07/01/2012)

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with *West Virginia Code*, §5A-3-37. (Does not apply to construction contracts). *West Virginia Code*, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the *West Virginia Code*. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Vendor Preference, if applicable.

1. **Application is made for 2.5% vendor preference for the reason checked:**
☐ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
☐ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or,
☐ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; or,
2. **Application is made for 2.5% vendor preference for the reason checked:**
☐ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
3. **Application is made for 2.5% vendor preference for the reason checked:**
☐ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; or,
4. ☒ **Application is made for 5% vendor preference for the reason checked:**
☒ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; or,
5. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
☐ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; or,
6. **Application is made for 3.5% vendor preference who is a veteran for the reason checked:**
☐ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.
7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**
☐ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (*West Virginia Code*, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Graybar Electric

Signed: Kenn Rye

Date: 1-10-17

Title: Sales Rep



Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Request for Quotation
21 - Info Technology

Proc Folder: 260530

Doc Description: Addendum 1 - Computer Data Cable

Proc Type: Central Master Agreement

Date Issued	Solicitation Closes	Solicitation No	Version
2016-12-29	2017-01-10 13:30:00	CRFQ 0210 ISC1700000013	2

BID RECEIVING LOCATION

BID CLERK

DEPARTMENT OF ADMINISTRATION

PURCHASING DIVISION

2019 WASHINGTON ST E

CHARLESTON

US

WV 25305

VENDOR

Vendor Name, Address and Telephone Number:

FOR INFORMATION CONTACT THE BUYER

Stephanie L Gale

(304) 558-8801

stephanie.l.gale@wv.gov

Signature X

FEIN #

130794380001

DATE

1-10-17

All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION:

Addendum 1 - To attach responses to technical questions.

No other changes made.

INVOICE TO		SHIP TO
DEPARTMENT OF ADMINISTRATION OFFICE OF TECHNOLOGY 1900 KANAWHA BLVD E, BLDG 5 10TH FLOOR CHARLESTON WV25305 US		WV OFFICE OF TECHNOLOGY BLDG 5, 10TH FLOOR 1900 KANAWHA BLVD E CHARLESTON WV 25304 US

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	E-Catalog	0.00000	LS		

Comm Code	Manufacturer	Specification	Model #
26121634			

Extended Description :

E-Catalog - If Vendor is submitting a bid online, Vendor should enter \$0.00 in the Oasis commodity line. Vendor shall enter pricing into the Attachment A Pricing Excel page. See section 18 of Instructions to Bidders.

SCHEDULE OF EVENTS

Line	Event	Event Date
1	Technical Questions Due	2016-12-21

SOLICITATION NUMBER: CRFQ ISC1700000013
Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☐ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

Description of Modification to Solicitation:

1. Attach technical questions and response.

No other changes made.

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

Addendum 1 – Attachment A

CRFQ ISC17000000013 Computer Data Cable (Copper/Fiber) & Fittings (OT1733)

- 1) Can you provide the excel file that was used to create the data table on pages 39-44?**

WVOT Response: Per 4.2 of the Specifications, the Purchasing Division Senior Buyer, Stephanie Gale, can provide an electronic copy of the pricing page. In addition, the file is available as an Attachment via the Vendor Self Service site (wvOASIS.gov).

- 2) Is there a list of approved manufacturers for this project?**

WVOT Response: No.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ISC1700000013

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:

(Check the box next to each addendum received)

- | | |
|----------------------------------------------------|------------------------------------------|
| <input checked="" type="checkbox"/> Addendum No. 1 | <input type="checkbox"/> Addendum No. 6 |
| <input type="checkbox"/> Addendum No. 2 | <input type="checkbox"/> Addendum No. 7 |
| <input type="checkbox"/> Addendum No. 3 | <input type="checkbox"/> Addendum No. 8 |
| <input type="checkbox"/> Addendum No. 4 | <input type="checkbox"/> Addendum No. 9 |
| <input type="checkbox"/> Addendum No. 5 | <input type="checkbox"/> Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

GRAYBAR ELECTRIC
Company
K. A. Papp
Authorized Signature
1-15-17
Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.
Revised 6/8/2012

GenSPEED® 5500 Premium Category 5e Cable

Enhanced Transmission Throughput

Features and Benefits

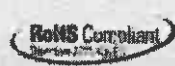
- Ensures increased headroom for future applications, lower bit-error rates, and higher signal transmission quality
- Enhanced signal-to-noise ratio, improving bit-error rate
- Performance guaranteed to 350 MHz
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Third-party verified for guaranteed performance
- Made in U.S.A.

Applications

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video

Standard Compliances

- ANSI/TIA 568-C.2
- NEC/CEC Type CMR (UL 1866) for Non-Plenum
- NEC/CEC Type CMP (NFPA 262) for Plenum
- UL 444
- RoHS Compliant Directive 2011/65/EU
- ANSI/TIA 962 (Building Automation)
- ICEA S-90-661
- ISO/IEC 11801 Ed. 2.0 (Class D)



Data subject to change without notice.

CONSTRUCTION

Conductors

- 23 AWG CMR solid bare annealed copper
- 24 AWG CMP solid bare annealed copper

Insulation

- Non-Plenum: Polyolefin
- Plenum: Fluoropolymer

Color Code

- Pair 1: Blue-White/Blue
- Pair 2: Orange-White/Orange
- Pair 3: Green-White/Green
- Pair 4: Brown-White/Brown

Rip Cord

- Applied longitudinally under jacket

Jacket

- Non-Plenum: Flame-Retardant PVC
- Plenum: Low-Smoke, Flame-Retardant PVC

PHYSICAL DATA

	CMR (Non-Plenum)	CMP (Plenum)
Nominal Cable Diameter (in)	0.220	0.190
Nominal Cable Weight (lbs/1000 ft)	24	21
Minimum Bend Radius (in)	1.0	1.0
Maximum Pulling Force (lbs)	25	25
Temperature Rating (°C)		
Installation:	0 to +60	0 to +60
Operation:	-20 to +75	-20 to +75

PART NUMBERS

Standard packaging: 1000' Pull-Pac® II

Jacket Color	Pull-Pac® II		Spool-Pac®		Spool	
	CMR (Non-Plenum)	CMP (Plenum)	CMR (Non-Plenum)	CMP (Plenum)	CMR (Non-Plenum)	CMP (Plenum)
Blue	6133299	6131278	6133403	6131433	6133282	6131282
White	6133255	6131361	6133339	6131449	6133492	6131618
Yellow	6133289	6131546	6133369	6131379	6133348	6131382
Gray	6133200	6131418	6133331	6131619	6133334	
Red	6133274	6131477		6131635		
Orange	6133746	6131422	6133383	6131576		
Green	6133512	6131547	6133615	6131575	6133616	6131757
Black	6133696	6131683		6131829		
Pink	6133290	6131709	6133447	6131478	6133341	
Purple	6133445	6131710	6133446			

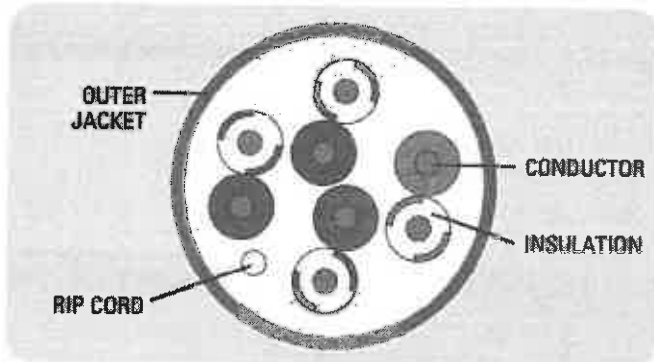
Note: Bulk reels are available as a special request with a maximum allowable length of 3000 feet per reel. Minimum run and lead time may apply.

Non-stock items may be subject to minimum order quantities.

ELECTRICAL PERFORMANCE

Frequency MHz	PSACR* (min)	ACR* (min)	Insertion Loss (max)	PSNEXT (min)	NEXT (min)	PSACRF (min)	ACRF (min)	Return Loss (min)
1	66.3	68.3	2.0	68.3	70.3	62.0	65.0	20.0
4	55.4	57.4	3.9	59.3	61.3	50.0	53.0	23.0
10	47.1	49.1	6.2	53.3	55.3	42.0	45.0	25.0
16	42.3	44.3	7.9	50.2	52.2	37.9	40.9	25.0
20	39.9	41.9	8.9	48.8	50.8	36.0	39.0	25.0
25	37.4	39.4	10.0	47.3	49.3	34.0	37.0	24.3
31.25	34.7	36.7	11.2	45.9	47.9	32.1	35.1	23.6
62.5	25.1	27.1	16.3	41.4	43.4	26.1	29.1	21.5
100	17.3	19.3	21.0	38.3	40.3	22.0	25.0	20.1
155	8.6	10.6	26.9	35.4	37.4	18.2	21.2	18.8
200	2.8	4.8	31.0	33.8	35.8	16.0	19.0	18.0
250	—	—	35.3	32.3	34.3	14.0	17.0	17.3
300	—	—	39.2	31.1	33.1	12.5	15.5	16.8
350	—	—	42.9	30.1	32.1	11.1	14.1	16.3

Note: Values are expressed in dB per 100 m (328 ft.) length @ 20°C.
 *PSACR & ACR not specified in ANSI/TIA 568-C.2

**GenSPEED® 5500 PREMIUM CATEGORY 5e
 CROSS-SECTION**
**ELECTRICAL CHARACTERISTICS**

DC Resistance (max) Ohms/100 m (328 ft) @ 20°C	8.9
DC Resistance Unbalance (max) Individual Pair %	3.0
Delay Skew (max) ns/100 m	45
Nom. Velocity of Propagation % Speed of Light	CMP: 72 CMR: 70
Characteristic Impedance Frequency (f): 1-350 MHz	Ohms 100 ± 15

GenSPEED® 6000 Enhanced Category 6 Cable

Optimally Balanced Enhanced Performance

Features and Benefits

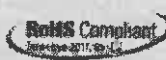
- Innovative cross-web design allowing for maximum pair separation, increasing key electrical performance parameters
- Performance guaranteed to 350 MHz
- Improved cable temperature rating (90°C Plenum, 75°C Riser) for greater protection against increased operating temperatures
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Third-party verified for guaranteed performance
- Made in U.S.A.

Applications

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- ANSI/TIA 854: 1000 BASE-TX
- CDDI, Token Ring, ATM
- Digital Video
- Broadband and Baseband Analog Video

Standard Compliances

- ANSI/TIA 568-C.2
- NEC/CEC Type CMR (UL 1666) for Non-Plenum
- NEC/CEC Type CMP (NFPA 262) for Plenum
- UL Listed CMP-LP (0.5A) for Plenum*
- UL 444
- RoHS Compliant Directive 2011/35/EU
- ANSI/TIA 862 (Building Automation)
- ICEA S-116-732
- ICEA S-102-700
- ISO/IEC 11801 Ed. 2.0 (Class E)



*0.5A is the ampacity rating of the cable, which equates to 100 watts using 60 volts over four pairs.

Data subject to change without notice.



CONSTRUCTION

Conductors

- 23 AWG solid bare annealed copper

Insulation

- Non-Plenum: Polyolefin
- Plenum: Fluoropolymer

Color Code

- Pair 1: Blue-White/Blue
- Pair 2: Orange-White/Orange
- Pair 3: Green-White/Green
- Pair 4: Brown-White/Brown

Separator

- Cross-web

Rip Cord

- Applied longitudinally under jacket

Jacket

- Non-Plenum: Flame-Retardant PVC
- Plenum: Low-Smoke, Flame-Retardant PVC

PHYSICAL DATA

	CMR (Non-Plenum)	CMP (Plenum)
Nominal Cable Diameter (in)	0.235	0.215
Nominal Cable Weight (lbs/1000 ft)	28	28
Minimum Bend Radius (in)	1.0	1.0
Maximum Pulling Force (lbs)	32	32
Temperature Rating (°C)		
Installation:	0 to +60	0 to +60
Operation:	-20 to +75	-20 to +90

PART NUMBERS

Standard packaging: 1000' Pull-Pac® II

Jacket Color	Pull-Pac® II		Spool-Pac®		Spool	
	CMR (Non-Plenum)	CMP (Plenum)	CMR (Non-Plenum)	CMP (Plenum)	CMR (Non-Plenum)	CMP (Plenum)
Blue	7133900	7131900	7133940	7131940	7133960	7131960
White	7133901	7131901	7133941	7131941	7133961	7131961
Yellow	7133902	7131902	7133942	7131942	7133962	7131962
Gray	7133903	7131903	7133943	7131943	7133963	7131963
Red	7133904	7131904	7133944	7131944	7133964	7131964
Orange	7133905	7131905	7133945	7131945	7133965	7131965
Green	7133906	7131906	7133946	7131946	7133966	7131966
Black	7133907	7131907	7133947	7131947	7133967	7131967
Pink	7133908	7131908	7133948	7131948	7133968	7131968
Purple	7133909	7131909	7133949	7131949	7133969	7131969

Note: Bulk reels are available as a special request with a maximum allowable length of 3000 feet per reel. Minimum run and lead time may apply.

Non-stock items may be subject to minimum order quantities.

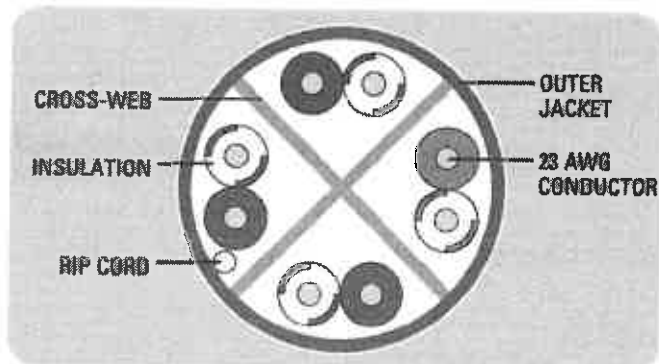
ELECTRICAL PERFORMANCE

Frequency MHz	PSACR* (min)	ACR* (min)	Insertion Loss (max)		PSNEXT (min)		NEXT (min)	
	Guaranteed	Guaranteed	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed
1	75.3	77.3	2.0	2.0	72.3	77.3	74.3	79.3
4	64.5	66.5	3.8	3.8	63.3	68.3	65.3	70.3
10	56.4	58.4	6.0	5.9	57.3	62.3	59.3	64.3
16	51.7	53.8	7.6	7.5	54.2	59.3	56.2	61.3
20	49.4	51.4	8.5	8.4	52.8	57.8	54.8	59.8
31.25	44.3	46.3	10.7	10.6	49.9	54.9	51.9	56.9
62.5	35.1	37.1	15.4	15.3	45.4	50.4	47.4	52.4
100	27.6	29.6	19.8	19.7	42.3	47.3	44.3	49.3
150	20.0	22.0	24.7	24.7	39.7	44.7	41.7	46.7
200	13.8	15.8	29.0	29.0	37.8	42.8	39.8	44.8
250	8.7	10.7	32.8	32.6	36.3	41.3	38.3	43.3
350	—	1.7	—	39.5	—	39.2	—	41.2
500	—	—	—	48.6	—	36.8	—	38.8

Note: Values are expressed in dB per 100 m (328 ft.) length @ 20°C. Results beyond 350 MHz for reference only.
 *PSACR & ACR not specified in ANSI/TIA 568-C.2

Frequency MHz	PSACRF (min)		ACRF (min)		Return Loss (min)		TCL (min)		ELTCTL (min)	
	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed	TIA 568-C.2	Guaranteed
1	64.8	69.8	67.8	72.8	20.0	20.0	40.0	40.0	35.0	35.0
4	52.8	57.7	55.7	60.7	23.0	23.6	40.0	40.0	23.0	23.0
10	44.8	49.8	47.8	52.8	25.0	26.0	40.0	40.0	15.0	15.0
16	40.7	45.7	43.7	48.7	25.0	26.0	38.0	38.0	10.9	10.9
20	38.8	43.7	41.7	46.7	25.0	26.0	37.0	37.0	9.0	9.0
31.25	34.9	39.9	37.9	42.9	23.6	25.0	35.1	35.1	—	5.1
62.5	28.9	33.8	31.8	36.8	21.5	23.5	32.0	32.0	—	5.0
100	24.8	29.8	27.8	32.8	20.1	22.5	30.0	30.0	—	5.0
150	21.3	26.3	24.3	29.3	18.9	21.6	28.2	28.2	—	5.0
200	18.8	23.8	21.8	26.8	18.0	21.0	27.0	27.0	—	5.0
250	16.8	21.8	19.8	24.8	17.3	20.5	26.0	26.0	—	5.0
350	—	18.9	—	21.9	—	19.8	—	—	—	—
500	—	15.8	—	18.8	—	19.0	—	—	—	—

Note: Values are expressed in dB per 100 m (328 ft.) length @ 20°C. Results beyond 350 MHz for reference only.

GenSPEED® 6000 ENHANCED CATEGORY 6 CROSS-SECTION**ELECTRICAL CHARACTERISTICS**

	Max.	Nom.
DC Resistance Ohms/100 m (328 ft) @ 20°C	9.38	7.20
DC Resistance Unbalance Individual Pair %	4.00	< 1
Delay Skew ns/100 m	45	CMP: 30 CMR: 40
Nom. Velocity of Propagation % Speed of Light	CMP: 70 CMR: 68	
Characteristic Impedance Frequency (f): 1-500 MHz	Ohms 100 ± 15	

VENDOR CUSTOMER CODE	SUPPLIER PART NUMBER	SUPPLIER NAME	MANUFACTURER NAME	MANUFACTURER PART NUMBER	COMMODITY CODE	ITEM DESCRIPTION	EXTENDED DESCRIPTION
		Graybar	T&B	L-8-40-9-C	26121634	PLASTIC CABLE TIES; 7 15/16" IN LENGTH, 100PK M PART # 3-M06226 OR EQUAL	3-
		Graybar	Erico	CAT32HP	26121634	CABLE SUPPORT J-HOOK; ERICO PART # CAT32 OR EQUAL	
		Graybar	3M	1700-3/4X60FT	26121634	ELECTRICAL TAPE; 3-M SCOTCH SUPER 88 3M PART # 88-SUPER-3/4" X 66FT OR EQUAL	
		Graybar	3M	MP+STICK	26121634	3M MOLDABLE PUTTY STIX PART # 3M-MPS-2+ OR EQUAL	
		Graybar	ARLINGTON	LV1	26121634	SINGLE GANG LOW VOLTAGE MOUNTING BRACKETS; ARLINGTON PART # LV-1 OR EQUAL	
		Graybar	VELCRO	189645	26121634	3/4"W X 25YDS LONG BLACK VELCRO IN A ROLL VELCRO PART# 189645 OR EQUAL	
		Graybar	3M	STD-0-9	26121634	WIRE MARKER DISPENSER 0 THRU 9 ON A ROLL 3-M PART # STD-0-9 (FILLED) OR EQUAL	
		Graybar	3M	SDR-0	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 0 PART# SDR-0 OR EQUAL	
		Graybar	3M	SDR-1	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 1 PART# SDR-1 OR EQUAL	
		Graybar	3M	SDR-2	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 2 PART# SDR-2 OR EQUAL	
		Graybar	3M	SDR-3	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 3 PART# SDR-3 OR EQUAL	
		Graybar	3M	SDR-4	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 4 PART# SDR-4 OR EQUAL	
		Graybar	3M	SDR-5	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 5 PART# SDR-5 OR EQUAL	
		Graybar	3M	SDR-6	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 6 PART# SDR-6 OR EQUAL	
		Graybar	3M	SDR-7	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 7 PART# SDR-7 OR EQUAL	
		Graybar	3M	SDR-8	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 8 PART# SDR-8 OR EQUAL	
		Graybar	3M	SDR-9	26121634	WIREDARKER NUMBER REFILL FOR STD-0-9 NUMBER 9 PART# SDR-9 OR EQUAL	
		Graybar	CHATSWORTH	13911-703	26121634	VERTICAL WIRE MANAGER FOR 19" OR 23" RELAY RACKS MOUNTING HARDWARE INCLUDED CHATSWORTH PART# 12096-703 OR EQUAL	
		Graybar	CHATSWORTH	55053-703	26121634	DISTRIBUTION RACKS; ALUMINUM BASE COLOR OF BLACK MUST BE APPROXIMATELY 15" IN DEPTH; APPROXIMATELY 20" IN WIDTH; & 84" HEIGHT GREAT LAKES PART# GLRR-1984BA OR EQUAL	
		Graybar	CHATSWORTH	CP3099450	26121634	84" NETWORKING CABINET; CABINET WILL INCLUDE THE FOLLOWING: CASTERS, LEVELERS, GROUND LUG, TWO PAIR SQUARE HOLE RAILS, M6 HARDWARE, BOTTOM GLAND, TOP GLAND, 10IN FAN TOP, PERFORATED MESH FRONT DOOR, PERFORATED MESH REAR DOOR, TWO SOLID SIDE PANELS, TWO 9411-1802 POWER STRIPS INTERNAL 8729-PD-3 FRONT, 8429-PR-3-0001 SPOTWELDED REAR TWO 8436-01-SP-3 SIDES. BELDEN PART# XDP84-3-1S0046 OR EQUAL	
		Graybar	CHATSWORTH	CP3099451	26121634	72" NETWORKING CABINET; CABINET WILL INCLUDE THE FOLLOWING: CASTERS, LEVELERS, GROUND LUG, TWO PAIR SQUARE HOLE RAILS, M6 HARDWARE, BOTTOM GLAND, TOP GLAND, 10IN FAN TOP, PERFORATED MESH FRONT DOOR, PERFORATED MESH REAR DOOR, TWO SOLID SIDE PANELS, TWO 9411-1802 POWER STRIPS INTERNAL 8729-PD-3 FRONT, 8429-PR-3-0001 SPOTWELDED REAR TWO 8436-01-SP-3 SIDES. BELDEN PART# XDP72-3-1S0012 OR EQUAL	

		Graybar	CHATSWORTH	CP3099452	26121634	84" NETWORKING CABINET; BASE UNIT WITH LOUVERED TOP; PLEXIGLAS VENTED FRONT DOOR W/LOCK; UPPER HALF LOUVERED STEEL REAR DOOR W/LOCK; SOLID REMOVABLE SIDE PANELS; TWO PAIR 19" MOUNTING RAILS W/BRACKETS & MOUNTING SCREWS; COLOR BLACK OR GREY; 16 POSITION POWER STRIP W/ CIRCUIT BREAKER & 12' CORD; CASTERS; 84"H X 29" W X 36" D; GREAT LAKES PART # 840E-2936WVCC OR EQUAL	
		Graybar	CHATSWORTH	CP3099453	26121634	72" NETWORKING CABINET; BASE UNIT WITH LOUVERED TOP; PLEXIGLAS VENTED FRONT DOOR W/LOCK; UPPER HALF LOUVERED STEEL REAR DOOR W/LOCK; PAIR OF SOLID REMOVABLE SIDE PANELS; TWO PAIR 19" MOUNTING RAILS W/BRACKETS & MOUNTING SCREWS; COLOR BLACK OR GREY; 16 POSITION POWER STRIP W/ CIRCUIT BREAKER & 12' CORD; CASTERS; 72"H X 29" W X 36" D; GREAT LAKES PART # 720E-2936WVCC OR EQUAL	
		Graybar	GREAT LAKES	GL480E-2432L	26121634	48" NETWORKING CABINET; BASE UNIT WITH LOUVERED TOP; PLEXIGLAS VENTED FRONT DOOR W/LOCK; UPPER HALF LOUVERED STEEL REAR DOOR W/LOCK; PAIR OF SOLID REMOVABLE SIDE PANELS; TWO PAIR 19" MOUNTING RAILS W/BRACKETS & MOUNTING SCREWS; COLOR BLACK OR GREY; 6 POSITION POWER STRIP W/ CIRCUIT BREAKER & 12' CORD; CASTERS; 48"H X 24" W X 32" D; GREAT LAKES PART # 480E-2432WVCC OR EQUAL	
		Graybar	CHATSWORTH	40117-719	26121634	STATIONARY SHELVES FOR 19" MOUNTING IN NETWORKING CABINETS; GREAT LAKES PART # 7206-FM OR EQUAL	
		Graybar	GREAT LAKES	TPE-24F	26121634	FAN ASSEMBLY W/FAN GUARDS & THREE 75 CFM FANS FOR NETWORKING CABINETS; GREAT LAKES PART # TPE-24F OR EQUAL	
		Graybar	WIREMOLD	2800	26121634	RACEWAY MOLDING; ONE-PIECE; NON-METALLIC; 3/4" WIDTH; 6 FT. LENGTH; DEKDUCT PART # 043-LD00 OR EQUAL	
		Graybar	GENERAL	2131505	26121634	25 PAIR PLENUM CATEGORY 3 CABLE SUPERIOR ESSEX PART# WCETEL24/25PC3P OR EQUAL	
		Graybar	ESSEX	18-599-36	26121634	50 PAIR PLENUM CATEGORY 3 CABLE SUPERIOR ESSEX PART# WCETEL24/50PC3P OR EQUAL	
		Graybar	ESSEX	18-799-36	26121634	100 PAIR PLENUM CATEGORY 3 CABLE SUPERIOR ESSEX PART# WCETEL24/100PC3P OR EQUAL	
		Graybar	GENERAL	5133255E	26121634	CAT. 5e MIN COMPLIANT PVC CABLE; NON-PLENUM; WHITE IN COLOR; 1,000 FT. PER EASY PULL BOX; MOHAWK PART # M57554 OR EQUAL	
		Graybar	GENERAL	5131361E	26121634	CAT. 5e MIN COMPLIANT CABLE; PLENUM; WHITE IN COLOR; 1,000 FT. PER EASY PULL BOX; MOHAWK PART # M57547 OR EQUAL	
		Graybar	LEVITON	5G-108-RW5	26121634	QUICK PORT 8P8C MODULAR RJ45 JACKS FOR CAT5e MIN COMPLIANT; WHITE IN COLOR BUT SELECTION OF COLORS MUST BE AVAILABLE; LEVITON PART # 5G108-RW5 OR EQUAL	
		Graybar	GENERAL	6133299	26121634	CAT. 5E ENHANCED CABLE; NON-PLENUM RISER RATED; EASY PULL BOX ONLY; 1000 FT. PER BOX; SELECTION OF COLORS MUST BE AVAILABLE FOR OUTER JACKET; ELECTRICAL CHARACTERISTICS / SPECIFICATIONS SHEET MUST BE SUPPLIED. MEGALAN 400 MOHAWK PART# M56167 OR EQUAL	
		Graybar	GENERAL	6131278	26121634	CAT. 5E ENHANCED CABLE; PLENUM; EASY PULL BOX ONLY; 1000 FT. PER BOX; SELECTION OF COLORS MUST BE AVAILABLE FOR OUTER JACKET; ELECTRICAL CHARACTERISTICS / SPECIFICATIONS SHEET MUST BE SUPPLIED. MEGALAN 400 MOHAWK PART# M56168 OR EQUAL	

	Graybar	LEVITON	5G110-RO5	26121634	QUICK PORT 8P8C MODULAR RJ45 JACKS FOR CAT5E ENHANCED; ORANGE IN COLOR BUT SELECTION OF COLORS MUST BE AVAILABLE; LEVITON PART # 5G110-RO5 OR EQUAL
	Graybar	ALLEN TEL	AT1507-REC	26121634	CAT 5E ENHANCED 7FT CROSSOVER CABLE RED IN COLOR QUIKTRON PART# 553-130-007 OR EQUAL
	Graybar	ALLEN TEL	BL501E-*	26121634	CAT 5E ENHANCED 350MHZ PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 1 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART# 570-110-001 OR EQUAL
	Graybar	ALLEN TEL	BL503E-*	26121634	CAT. 5E GIGAMAX PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 3 FOOT LENGTH; LEVITON PART# 5G460-03* (* - COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL505E-*	26121634	CAT. 5E GIGAMAX PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 5 FOOT LENGTH; LEVITON PART# 5G460-05* (* - COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL507E-*	26121634	CAT. 5E GIGAMAX PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 7 FOOT LENGTH; LEVITON PART# 5G460-07* (* - COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL510E-*	26121634	CAT. 5E GIGAMAX PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 10 FOOT LENGTH; LEVITON PART# 5G460-10* (* - COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL514E-*	26121634	CAT. 5E GIGAMAX PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 15 FOOT LENGTH; LEVITON PART# 5G460-15* (* - COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL525E-*	26121634	CAT. 5E ENHANCED 350MHZ PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 25 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART # 551-XXX-025 OR EQUAL (XXX=COLOR)
	Graybar	ALLEN TEL	BL550E-*	26121634	CAT 5E ENHANCED 350MHZ PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 50 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART# 551-XXX-050 OR EQUAL (XXX=COLOR)
	Graybar	ALLEN TEL	BL5100E-*	26121634	CAT. 5E ENHANCED 350MHZ PATCH CABLES; RJ45M TO RJ45M BOOTED; NON-KEYED; 100 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART# 551-XXX-100 OR EQUAL (XXX=COLOR)
	Graybar	LEVITON	49255-H48	26121634	QUICK PORT HIGH DENSITY 48-PORT PATCH PANEL W/CABLE MANAGEMENT BAR LEVITON PART# 49255-H48 OR EQUAL
	Graybar	LEVITON	49255-H24	26121634	QUICK PORT HIGH DENSITY 24-PORT PATCH PANEL W/CABLE MANAGEMENT BAR LEVITON PART# 49255-H24 OR EQUAL
	Graybar	LEVITON	5G596-U48	26121634	48-PORT 8P8C RJ45 CAT.5E RACKMOUNT PATCH PANEL; MUST BE CAT5E ENHANCED CERTIFIED; LEVITON PART# 5G596-U48 OR EQUAL
	Graybar	LEVITON	5G596-U24	26121634	24-PORT 8P8C RJ45 CAT.5E RACKMOUNT PATCH PANEL; MUST BE CAT5E ENHANCED CERTIFIED; LEVITON PART # 5G596-U24 OR EQUAL
	Graybar	LEVITON	5G596-U89	26121634	12-PORT 8P8C RJ45 CAT5E WALL MT. PATCH PANEL; MUST BE CAT5E ENHANCED CERTIFIED; LEVITON PART # 5G596-U89 OR EQUAL
	Graybar	ALLEN TEL	AT55HM-3	26121634	2-POSITION HINGED FIXED BRACKETS FOR WALL; DATATEL PART # HPM-2 OR EQUAL
	Graybar	ALLEN TEL	AT55WMP	26121634	WIRE MANAGER; STANDARD INTERBAY CORD MANAGER; DATATEL PART # HCM-1D OR EQUAL
	Graybar	GENERAL	7133900	26121634	CAT 6 ENHANCED CABLE; NON-PLENUM; EASY PULL BOX ONLY; 1,000 FT. PER BOX; SELECTION OF COLORS MUST BE AVAILABLE FOR OUTER JACKET; ELECTRICAL CHARACTERISTICS / SPECIFICATIONS SHEET MUST BE SUPPLIED. CAT 6 ADVANCENET MOHAWK PART# M57202 OR EQUAL

	Graybar	GENERAL	7131900	26121634	CAT 6 ENHANCED CABLE; PLENUM; EASY PULL BOX ONLY; 1,000 FT. PER BOX; SELECTION OF COLORS MUST BE AVAILABLE FOR OUTER JACKET; ELECTRICAL CHARACTERISTICS / SPECIFICATIONS SHEET MUST BE SUPPLIED. CAT 6 ADVANCENET MOHAWK PART# M57193 OR EQUAL
	Graybar	LEVITON	61110-RL6	26121634	QUICKPORT CAT6 EXTREME 8P8C RJ45 SNAP-IN CONNECTOR; BLUE IN COLOR BUT SELECTION OF COLORS MUST BE AVAILABLE; LEVITON PART # 61110-RL6 OR EQUAL
	Graybar	ALLEN TEL	AT1607-35076	26121634	CAT 6 EXTREME 7FT CROSSOVER CABLE RED IN COLOR QUIKTRON PART # 538-130-007 OR EQUAL
	Graybar	ALLEN TEL	BL601-*	26121634	CAT. 6 EXTREME 650MHZ PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 1 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART# 576-XXX-001 OR EQUAL (XXX=COLOR)
	Graybar	ALLEN TEL	BL603-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 3 FOOT LENGTH; LEVITON PART # 62460-03* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL605-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 5 FOOT LENGTH; LEVITON PART # 62460-05* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL607-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 7 FOOT LENGTH; LEVITON PART # 62460-07* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL610-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 10 FOOT LENGTH; LEVITON PART # 62460-10* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL614-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 15 FOOT LENGTH; LEVITON PART # 62460-15* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL625-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 20 FOOT LENGTH; LEVITON PART # 62460-20* (*-COLOR) OR EQUAL
	Graybar	ALLEN TEL	BL650-*	26121634	CAT. 6 EXTREME PATCH CABLES; RJ45M TO RJ45M; NON-KEYED; 50 FOOT LENGTH; SELECTION OF COLORS SHALL BE AVAILABLE FOR OUTER JACKET QUIKTRON PART# 576-XXX-050 OR EQUAL (XXX=COLOR)
	Graybar	LEVITON	69586-U48	26121634	48-PORT 8P8C RJ45 PATCH PANEL; MUST BE CAT. 6 ENHANCED CERTIFIED; LEVITON PART # 69586-U48 OR EQUAL
	Graybar	LEVITON	69586-U24	26121634	24-PORT 8P8C RJ45 PATCH PANEL; MUST BE CAT. 6 ENHANCED CERTIFIED; LEVITON PART # 69586-U24 OR EQUAL
	Graybar	LEVITON	69586-U89	26121634	12-PORT 8P8C RJ45 CAT6 WALL MT. PATCH PANEL; MUST BE CAT6 ENHANCED CERTIFIED; LEVITON PART # 69586-U89 OR EQUAL
	Graybar	LEVITON	41089-2*P	26121634	2-PORT SURFACE MOUNT BOX; LEVITON PART # 41089-2*P (*-COLOR) OR EQUAL
	Graybar	LEVITON	86014	26121634	SINGLE GANG IVORY BLANK WALL PLATE; LEVITON PART# 86014 OR EQUAL
	Graybar	LEVITON	88014	26121634	SINGLE GANG WHITE BLANK WALL PLATE; LEVITON PART# 88014 OR EQUAL
	Graybar	LEVITON	41080-1*P	26121634	1-PORT WALLPLATES; LEVITON PART # 41080-1*P (*-COLOR) OR EQUAL
	Graybar	LEVITON	41080-2*P	26121634	2-PORT WALLPLATES; LEVITON PART # 41080-2*P (*-COLOR) OR EQUAL
	Graybar	LEVITON	41080-3*P	26121634	3-PORT WALLPLATES; LEVITON PART # 41080-3*P (*-COLOR) OR EQUAL
	Graybar	LEVITON	41080-4*P	26121634	4-PORT WALLPLATES; LEVITON PART # 41080-4*P (*-COLOR) OR EQUAL
	Graybar	LEVITON	41080-6*P	26121634	6-PORT WALLPLATES; LEVITON PART # 41080-6*P (*-COLOR) OR EQUAL
	Graybar	GENERAL	CG0061ANU.BK	26121634	FIBER OPTIC CABLE 6-STRAND I/O PLENUM RATED MULTIMODE 62.5/125 OCC PART # DX06-045K-VLS/900-OFNP OR CORNING PART # 006K6P-31130-29 OR EQUAL

		Graybar			26121634	FIBER OPTIC CABLE 6-STRAND INDOOR/OUTDOOR ARMORED MULTIMODE 62.5/125 OCC PART # DX06-055D-WLS/900-OFCE- IAD OR CORNING PART # 006K8F-31130-A1 OR EQUAL	
		Graybar	GENERAL	CG0061M1M-ILRA	26121634	FIBER OPTIC CABLE 6-STRAND INDOOR/OUTDOOR ARMORED PLENUM COATED MULTIMODE 62.5/125 OCC PART # DX06-050K-WLS/900-OFCE- IAK OR CORNING PART # 006K8P-31130-A3 OR EQUAL	
		Graybar	GENERAL	CG0061ANU-ILPA	26121634	FIBER OPTIC CABLE 6-STRAND OUTDOOR AERIAL W/ 1/4" MESSENGER MULTIMODE 62.5/125 OCC PART # MX06-090A-WLS/900-JGS OR CORNING PART # 006KWA-T4130D20 OR EQUAL	
		Graybar	CORNING	006KUA-T4130D20	26121634	FIBER OPTIC CABLE 6-STRAND INDOOR/OUTDOOR MULTIMODE 50/125 OCC PART # DX006-055D-ALS/900-OFNR OR CORNING PART # 006C8F-31131-24 OR EQUAL	
		Graybar	GENERAL	BI0061ANR.BK	26121634	FIBER OPTIC CABLE 6-STRAND I/O PLENUM RATED MULTIMODE 50/125 OCC PART # DX006-045K-ALS/900-OFNP OR CORNING PART # 006C8P-31131-29 OR EQUAL	
		Graybar	GENERAL	BI0061ANU.BK	26121634	FIBER OPTIC CABLE 6-STRAND I/O 50UM MULTIMODE ARMORED OCC PART # DX06-056D-ALS/900-OFCE- IAD OR CORNING PART # 006C8F-31131-A1 OR EQUAL	
		Graybar	GENERAL	BI0061ANR-ILRA	26121634	FIBER OPTIC CABLE 6-STRAND INDOOR/OUTDOOR ARMORED PLENUM COATED 50UM MULTIMODE OCC PART # DX06-050K-ALS/900-OFCE- IAK OR CORNING PART # 006C8P-31131-A3 OR EQUAL	
		Graybar	GENERAL	BI0061ANU-ILPA	26121634	FIBER OPTIC CABLE 24-STRAND I/O SINGLEMODE 9/125 OCC PART # DX24- 085D-SLX/900-OFNR-WB OR CORNING PART # 024E8F-31131-24 OR EQUAL	
		Graybar	GENERAL	AP0241ANR.BK	26121634	FIBER OPTIC CABLE 12-STRAND I/O SINGLEMODE 9/125 OCC PART # DX12- 065D-SLX/900-OFNR-WB OR CORNING PART # 012E8F-31131-24 OR EQUAL	
		Graybar	GENERAL	AP0121ANR.BK	26121634	FIBER OPTIC CABLE 6-STRAND I/O SINGLEMODE 9/125 OCC PART # DX06- 055D-SLX/900-OFNR-WB OR CORNING PART # 006E8F-31131-24 OR EQUAL	
		Graybar	GENERAL	AP0061ANR.BK	26121634	FIBER OPTIC CABLE 24-STRAND I/O PLENUM RATED SINGLEMODE 9/125 OCC PART # DX24-070K-SLX/900-OFNP- WB OR CORNING PART # 024E8P-31131-29 OR EQUAL	
		Graybar	GENERAL	AP0241ANU.BK	26121634	FIBER OPTIC CABLE 12-STRAND I/O PLENUM RATED SINGLEMODE 9/125 OCC PART # DX12-060K-SLX/900-OFNP- WB OR CORNING PART # 012E8P-31131-29 OR EQUAL	
		Graybar	GENERAL	AP0121ANU.BK	26121634	FIBER OPTIC CABLE 6-STRAND I/O PLENUM RATED SINGLEMODE 9/125 OCC PART # DX06-045K-SLX/900-OFNP- WB OR CORNING PART # 006E8P-31131-29 OR EQUAL	
		Graybar	GENERAL	AP0061ANU.BK	26121634	FIBER OPTIC CABLE 24-STRAND I/O ARMORED SINGLEMODE 9/125 OCC PART # DX24-085D-SLX/900-OFCE- IAD OR CORNING PART # 024E8F-31131-A1 OR EQUAL	
		Graybar	GENERAL	AP0241ANR-ILRA	26121634	FIBER OPTIC CABLE 12-STRAND I/O ARMORED SINGLEMODE 9/125 OCC PART # DX12-070D-SLX/900-OFCE- IAD OR CORNING PART # 012E8F-31131-A1 OR EQUAL	
		Graybar	GENERAL	AP0121ANR-ILRA	26121634	FIBER OPTIC CABLE 6-STRAND I/O ARMORED SINGLEMODE 9/125 OCC PART # DX06-060D-SLX/900-OFCE- IAD OR CORNING PART # 006E8F-31131-A1 OR EQUAL	

	Graybar	GENERAL	AP0241ANU-ILPA	26121634	FIBER OPTIC CABLE 24-STRAND I/O ARMORED PLENUM RATED SINGLEMODE 9/125 OCC PART # DX24-070K-SLX/900-OFCP-IAK OR CORNING PART # 024E8P-31131-A3 OR EQUAL	
	Graybar	GENERAL	AP0121ANU-ILPA	26121634	FIBER OPTIC CABLE 12-STRAND I/O ARMORED PLENUM RATED SINGLEMODE 9/125 OCC PART # DX12-060K-SLX/900-OFCP-IAK OR CORNING PART # 012E8P-31131-A3 OR EQUAL	
	Graybar	GENERAL	AP0061ANU-ILPA	26121634	FIBER OPTIC CABLE 6-STRAND I/O ARMORED PLENUM RATED SINGLEMODE 9/125 OCC PART # DX06-050K-SLX/900-OFCP-IAK OR CORNING PART # 006E8P-31131-A3 OR EQUAL	
	Graybar	MULTILINK	10=4323	26121634	MULTILINK 1U RACKMOUNT FIBER ENCLOSURE MULTILINK PART# FRM-1RU-2X-SO OR EQUAL	
	Graybar	MULTILINK	10=4327	26121634	MULTILINK 2U RACKMOUNT FIBER ENCLOSURE MULTILINK PART# FRM-2RU-4X-SO OR EQUAL	
	Graybar	MULTILINK	045-799-10	26121634	MULTILINK 3U RACKMOUNT FIBER ENCLOSURE MULTILINK PART# FRM-3RU-9X-TS OR EQUAL	
	Graybar	MULTILINK	10=7666	26121634	MULTILINK BLANK MODULE; FITS RACK MOUNT ENCLOSURES MULTILINK PART # MFMB-600B8-BLK OR EQUAL	
	Graybar	LEVITON	5R1UL-F03	26121634	1U RACKMOUNT FIBER ENCLOSURE LEVITON PART# 5R1UA-A03 OR EQUAL	
	Graybar	LEVITON	5R2UL-F06	26121634	2U RACKMOUNT FIBER ENCLOSURE LEVITON PART# 5R2UA-A06 OR EQUAL	
	Graybar	LEVITON	5R3UL-F12	26121634	3U RACKMOUNT FIBER ENCLOSURE LEVITON PART# 5R3UA-A12 OR EQUAL	
	Graybar	LEVITON	5W110-N	26121634	SMALL EMPTY FIBER WALL MOUNT ENCLOSURE ONLY 8"HIGH X 13"WIDE X 3.5"DEEP LEVITON PART# 5W110-00N OR EQUAL	
	Graybar	ALLEN TEL	GBLCC-D3-01	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 1 METER LC TO SC	
	Graybar	ALLEN TEL	GBLCC-D3-01	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 1 METER LC TO LC	
	Graybar	ALLEN TEL	GBMFC-D3-01	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 1 METER SC TO MTRJ	
	Graybar	ALLEN TEL	GBMFL-D3-01	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 1 METER LC TO MTRJ	
	Graybar	ALLEN TEL	GBLCC-D3-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 2 METER LC TO SC	
	Graybar	ALLEN TEL	GBLCC-D3-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 2 METER LC TO LC	
	Graybar	ALLEN TEL	GBMFC-D3-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 2 METER SC TO MTRJ	
	Graybar	ALLEN TEL	GBMFL-D3-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 2 METER LC TO MTRJ	
	Graybar	ALLEN TEL	GBLCC-D3-03	26121634	DUPLEX FIBER OPTIC JUMPERS, 50/125 3 METER LC TO LC	
	Graybar	ALLEN TEL	GBLCC-D3-03	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 1 METER LC TO SC	
	Graybar	ALLEN TEL	GBLCC-D1-01	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 1 METER LC TO LC	
	Graybar	ALLEN TEL	GBLCC-D1-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 2 METER LC TO SC	
	Graybar	ALLEN TEL	GBLCC-D1-02	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 2 METER LC TO LC	
	Graybar	ALLEN TEL	GBLCC-D1-03	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 3 METER LC TO SC	
	Graybar	ALLEN TEL	GBLCC-D1-03	26121634	DUPLEX FIBER OPTIC JUMPERS, 9/125 3 METER LC TO LC	
	Graybar	LYNN	MC-100SC-MM	26121634	ETHERNET 10BASE-T TO 10BASE-FL STAND-ALONE MEDIA CONVERTER; TRANSITION NETWORKS PART# E-TBT-FRL-05 OR EQUAL	
	Graybar	LYNN	MC100SC-MM	26121634	FAST ETHERNET 100BASE-TX TO 100BASE-FX STAND-ALONE MEDIA CONVERTER; TRANSITION NETWORKS PART# E-100BTX-FX-05 OR EQUAL	
	Graybar	ALLEN TEL	GBLCC-D4-05	26121634	5 METER OM4 DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER
	Graybar	ALLEN TEL	GBLCC-D4-10	26121634	10 METER OM4 DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER
	Graybar	ALLEN TEL	GBLCC-D4-15	26121634	15 METER OM4 DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER
	Graybar	ALLEN TEL	GBLCC-D1-05	26121634	5 METER SINGLE MODE DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER

		Graybar	ALLEN TEL	GBLC2-D1-10	26121634	10 METER SINGLEMODE DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER
		Graybar	ALLEN TEL	GBLC2-D1-15	26121634	15 METER SINGLEMODE DUPLEX FIBER OPTIC JUMPER	LC-LC DUPLEX JUMPER
		Graybar	MULTILINK	70506K	26121634	2000 MULTILINK SSTA SPLICE TRAYS	
		Graybar	MULTILINK	072-059-10	26121634	1120 MULTILINK SSTA SPLICE TRAYS	
		Graybar	MULTILINK	065-245-10	26121634	MLCDG-12-MM-P-BLK - 12 PORT LC CONNECTOR PANEL MM	
		Graybar	MULTILINK	065-246-10	26121634	MLCQG-24MM-P-BLK - 24 PORT LC CONNECTOR PANEL MM	
		Graybar	MULTILINK	10-9709	26121634	MLCD-12-SM-C-BLK - 12 PORT LC CONNECTOR PANEL SM	
		Graybar	MULTILINK	065-244-10	26121634	MLCQ-24-SM-C-BLK - 24 PORT LC CONNECTOR PANEL SM	
		Graybar	QUIKTRON	806-0L1-009-55L	26121634	1-3 METER OM4 LC 6 STRAND FIBER PIGTAILS	3 METER
		Graybar	QUIKTRON	812-0L1-009-55L	26121634	1-3 METER OM4 LC 12 STRAND FIBER PIGTAILS	3 METER
		Graybar	QUIKTRON	824-0L1-009-55L	26121634	1-3 METER OM4 LC 24 STRAND FIBER PIGTAILS	3 METER
		Graybar	QUIKTRON	V06-0L1-009S	26121634	1-3 METER SM LC 6 STRAND FIBER PIGTAILS	3 METER
		Graybar	QUIKTRON	V12-0L1-009S	26121634	1-3 METER SM LC 12 STRAND FIBER PIGTAILS	3 METER
		Graybar	QUIKTRON	824-0L1-009S	26121634	1-3 METER SM LC 24 STRAND FIBER PIGTAILS	3 METER
		Graybar	SUMITOMO	FPS-1	26121634	50 PIECE PACK OF SPLICE SLEEVES - 60 MILLIMETER	