



**General Cable**

# Cable Solutions

FOR THE INDUSTRIAL AUTOMATION MARKET



- Industrial Ethernet
- Industrial Communication Protocols
- Instrumentation and Control
- Portable Power and Cord
- Variable Frequency Drive

# Industrial Automation

SERVING THE NEEDS OF THE INDUSTRIAL AUTOMATION MARKET

This catalog contains in-depth information on the most comprehensive line of automation cables available today. It features the latest information on products, along with detailed technical and specification data in indexed sections — with an easy-to-use “spec-on-a-page” format. The “spec-on-a-page” format was developed to meet your needs. It features up-to-the-minute product information, from applications and constructions to detailed technical and specification data. There’s also a comprehensive technical section for additional assistance. And, of course, if you need any further data, General Cable’s Customer Service staff provides the answers you need quickly and efficiently.

## QUALITY

General Cable is committed to meeting customer requirements through continuous quality improvements. As a significant part of our commitment to quality, General Cable’s manufacturing facilities are certified to the ISO 9001:2000 quality standard. Our telecommunications cable manufacturing facility has received TL 9000 quality standards registration as a supplement to the ISO program. This quality system is based on the ISO 9001 program with added telecommunications-specific performance metrics. We strive to provide value optimization through innovation and quality solutions.



- Our in-house testing capabilities are extensive, with strict adherence to our product specifications as well as industry standards.
- Cables are safety listed and verified.
- Third-party testing labs like ETL and UL are utilized to quantify and confirm our quality and provide final qualification data that sets the foundation for our extended product warranty.
- General Cable products have stood the test of time with proven reliability and performance.

## CUSTOMER SERVICE

General Cable is dedicated to customer service and satisfaction. Call our team of professionally trained sales associates with any questions to meet your application needs.

**800-950-3512 GENERALCABLE.COM**



All information in this catalog is presented solely as a guide to product selection and is believed to be reliable. All printing errors are subject to correction in subsequent releases of this catalog. Although General Cable has taken precautions to ensure the accuracy of the product specifications at the time of publication, the specifications of all products contained herein are subject to change without notice.

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# Here to Serve

For more than 165 years, General Cable has provided wire and cable solutions that keep goods moving, products assembled and services delivered around the world. Through innovative design and engineering expertise, General Cable delivers the wire and cables that maintain ongoing productivity for an array of industrial automation and electrical distribution customers that represent a virtual “who’s who” of the markets we serve.

General Cable recognizes and values the importance of total customer satisfaction, and we have the experience and know-how to achieve it. Our people may come to work for us, but on the job, our *Wire Wizards* work for you. Put us to work and see what we can do for you.

AUTOMOTIVE & CONSUMER PRODUCTS • HEALTH CARE & MEDICAL DEVICE MANUFACTURERS • PULP & PAPER INDUSTRIAL EQUIPMENT MANUFACTURERS • LIFTS & CRANES • MAINTENANCE & REPAIR OPERATIONS MINING EQUIPMENT MANUFACTURERS • PLANTS & FACILITIES MANAGEMENT • PUMPS & FOUNTAINS PORTABLE & TEMPORARY POWER GENERATION • MILITARY • REFRIGERATION & FREEZER MANUFACTURERS



# World-Wide Single Source Solutions

As a Fortune 500 company with approximately 14,000 associates globally and 38 manufacturing facilities operating in core markets around the world, General Cable is positioned to meet the needs of today's industrial automation and electrical distribution customers with a diverse, industry-leading global product offering—whenever and wherever it's needed. Our products comply with major safety and performance standards and regulations around the world—from UL, IEEE, ODVA and IEC to TIA, TÜV, RoHS and CSA.

Whether it's data, power, signal or control in the office, on the factory floor, inside the wind turbine or onboard an oil rig, General Cable has the electronic, industrial, data, fiber and specialty cable to keep power and information flowing and goods and services moving while ensuring maximum safety, value and long-term reliability. From special wire colors, print legends and TRU-Mark® sequential footage marking to unique materials and manufacturing requirements, General Cable has the people, equipment and experience to produce the custom cable you need.

## World-Class Service & Support

Uniquely positioned to respond to the evolving needs of industrial applications, General Cable works side-by-side with customers to design innovative, cost-effective solutions that meet exact specifications while providing value-added services. Backed by an organization that is flexible and responsive with a commitment to maintaining lasting customer relationships, you can count on General Cable for superior service and support.

- Innovative cable designs for any industrial application
- Superior engineering expertise and production processes
- Advanced vertical integration capabilities
- Strong supply chain and inventory support
- Dedicated service, technical support and sales expertise

## Commitment to Quality & the Environment

General Cable is always searching for new and better ways to put quality in your product. The right mix of R&D experience, manufacturing expertise and stringent testing by the most qualified team of engineers ensures that every cable meets industry standards and offers the highest quality possible. Our Lean Six Sigma philosophy eliminates waste, non-value-added processes and sources of variation while reducing cycle-time and improving capacity, space utilization and productivity.

- ISO 9001 certified manufacturing facilities
- Ongoing process control and production management
- Quality assurance initiatives and rigorous performance standards
- R&D and innovative material development expertise
- Stringent in-house and third-party testing

General Cable is an environmentally conscious company committed to reducing and, where possible, eliminating hazardous substances. Through environmentally sound materials and production processes, our facilities have fully implemented an ISO 14001-equivalent environmental management system with strict oversight. All applicable products meet RoHS standards, and we consistently work to comply with evolving REACH requirements pertaining to wire and cable products and materials. Our revolutionary **17 FREE®** line of halogen-free datacom, fiber, cord and electronics cables features substantiated green properties and may qualify for credits under environmental incentive programs.

# Condensed Production Capabilities – Copper Products

## Conductor:

**Size Range (Multi-Conductor):** 26 AWG thru 4/0 AWG

**Size Range (Single Conductor):** 28 AWG thru 1000 kcmil

**Construction:** Stranded and Solid

**Material:** Copper, Copper Covered Steel, Galvanized Steel, Copper Alloy, Silver Plated Copper

**Coating:** Tin, Silver, Nickel

## Insulation:

### Low Temp Ranges:

**Ethylene Propylene Rubber:** Flexible (-40°C to +105°C)

**Tyrene Butadiene Rubber:** Flexible (-55°C to +60°C)

### PVC:

– Semi-Rigid, Conventional, Flexible, Clear, PVC/Nylon (-35°C to +105°C)

– For Plenum Cables, 75°C

**Polyethylene:** LD, HD, Solid, Chemical Foam, Gas Injection, Flame-Retardant (-76°C to +80°C)

**Polypropylene:** Solid, Chemical Foam (-25°C to +105°C)

**Zero-Halogen Polyolefin:** Solid or Foam (-40°C to +105°C)

### High Temp Ranges:

FEP (-100°C to +200°C), PVDF (-40°C to +150°C), Halar (-74°C to +150°C), Tefzel® (-50°C to +150°C), PVC (-40°C to +105°C), TPR (-65°C to +125°C), Hytrel® (-40°C to +105°C), Nylon (-65°C to +125°C)

## Identification:

Stripes or number printing, multiple color combinations using 1, 2 or 3 spiral stripes, number/legend printing (online), band marking (online or offline), up to 144 color combinations plus 1 or 2 spiral or parallel TRU-Mark® sequential footage marking

**Twinning:** 10 AWG thru 28 AWG

## Cabling:

500 MCM thru 28 AWG, 2 to 100 conductors, 1.25" maximum cable core diameter

## Shielding:

Braid or serve; combination of braid and aluminum shield, braid coverage up to 98%

**Materials:** Nylon, Fiberglass, Tinned Copper, Bare Copper, Silver Plated Copper, Aluminum, Bronze, Kevlar®, Aluminum and Aluminum Mylar® Tape Options

## Jacketing:

Up to 3.75" in cable diameter, 108" max. reel take-up

**CPE:** Flexible, oil resistance, flame-retardant (-50°C to +105°C)

**Neoprene:** Flexible, oil resistance, flame-retardant (-55°C to +90°C)

**Silicone:** High temperature ignition wire jacket (200°C)

**PVC:** Conventional, flexible, oil resistance, UV-resistant

**Polyolefin:** LD, MD, HD, solid, flame-retardant, zero-halogen

**Other:** TPR, Polyurethane, FR-Polyurethane, FEP, Halar, SOLEF, Tefzel

## Packaging:

– Reels, Plastic or Wood up to 72" diameter

– Reel-in-a-Box

– Spool-Pac®

– Pull-Pac®

## Testing:

– Complete mechanical and electrical/electronic testing

– Capabilities in accordance with UL, CSA, ETL and MSHA requirements

– General Cable's Willimantic, CT; Highland Heights, KY; and Indianapolis, IN laboratories have a wide range of mechanical test capabilities, including fire testing

## Certifications:

– UL Listed                      – MSHA

– CSA Approvals              – TÜV

– ETL                              – RoHS/CE Compliant

– IEEE                             – REACH

– AWM

– ODVA

– TIA

Please consult your General Cable representative for additional information on product designs and constructions.

# Applications & Products

## Manufacturing Floor

### Carol® Brand Cord

- Type S00W – 300 V and 600 V Rubber Portable Cord
- Type SE00W – 600 V Plastic Portable Cord (junior available)
- Type ST0W – 600 V Plastic Portable Cord (junior available)
- Welding Cable
- Bus Drop Cable
- MTW Hook-Up Wire
- Industrial Flex Cables – 2 kV
- Type S00W – 300 V and 600 V Rubber Portable Cord with 17 FREE®

### Industrial & Specialty

- Instrumentation Tray Cables – 300 V and 600 V
- Control & Power Tray Cables – 600 V
- Variable Frequency Drive (VFD) Cables
- CCW® Armored Power and Instrumentation Cables
- Single Conductor Low-Voltage Cables
- Medium-Voltage Power Cables – 2.4 kV – 35 kV
- Industrial Armored Cables – 600 V – 35 kV

### NextGen® Brand Fiber

- LSZH Tight Buffer Distribution
- LSZH Loose Tube
- LSZH Heavy-Duty Breakout
- LSZH Heavy-Duty Armored Breakout
- LSZH Extra-Heavy-Duty Breakout
- LSZH Extra-Heavy-Duty Armored Breakout

### Carol® Brand Electronics

- EXZEL® High-Endurance Multi-Conductor & Multi-Pair Cable (Foil, Braid Shield)
- EXZEL High-Endurance LSZH Multi-Conductor & Multi-Pair Cable (Foil, Braid Shield)
- Communication and Control Multi-Conductor & Multi-Pair Cable (Unshielded, Shielded)
- Power Limited Tray Cable
- Coaxial Cable – Types RG-6, RG-11 and RG-59 Plenum Rated
- Twinaxial Cable
- DeviceNet Cable
- PVC Hook-Up Wire
- Computer Multi-Conductor & Multi-Pair Cable (Unshielded, Shielded)
- Type RG-59 Standard & Siamese Coaxial Cables with 17 FREE

### Datacom

- Carol Brand & GenSPEED® Category 6 Cable – UTP and F/UTP (ScTP)
- Carol Brand & GenSPEED Category 5e Cable – UTP and F/UTP (ScTP)
- GenSPEED Category 6 and 5e Cable with 17 FREE

## Data Center

### Datacom

- GenSPEED® 10 MTP™ Category 6A 10 Gig Cable
- Carol Brand & GenSPEED Category 6 Cable – UTP and F/UTP (ScTP)
- Central Office Cable
- GenSPEED 10,000 Category 6a and 6 with 17 FREE

### Carol® Brand Electronics

- Access Control Cable
- Type RG-59 Standard and Siamese Coaxial Cables with 17 FREE

### NextGen® Brand Fiber

- Tight Buffer Distribution
- Tight Buffer Distribution Interlock Armored
- Tight Buffer Breakout
- Tight Buffer Simplex
- Tight Buffer Duplex
- Loose Tube
- LSZH Tight Buffer Distribution with 17 FREE

### Industrial

- Single Conductor Low-Voltage for Battery Back-Up

## Back Office

### Datacom

- Carol Brand & GenSPEED Category 6 Cable – UTP and F/UTP (ScTP)
- Carol Brand & GenSPEED Category 5e Cable – UTP and F/UTP (ScTP)
- Central Office Cable
- GenSPEED Category 6 and 5e Cable with 17 FREE

### NextGen® Brand Fiber

- Tight Buffer Distribution
- Tight Buffer Distribution Interlock Armored
- Tight Buffer Breakout
- Tight Buffer Simplex
- Tight Buffer Duplex
- Loose Tube
- LSZH Tight Buffer Distribution with 17 FREE

### Carol® Brand Electronics

- Fire Alarm Cable
- Coaxial Cable – Types RG-6 and RG-59

### Carol® Brand Cord

- Thermostat Wire – 105 V
- Lamp Cord
- Cordsets

## Conference/Training Center

### Gepco® Brand Commercial Cables

- Component Video RGB Coaxial Cable
- Composite Access Control Cable – Video + Audio or Data
- High-Definition Coaxial Cable – HDTV
- Speaker & Control Multi-Conductor Cable – Shielded, Unshielded
- Microphone Cable
- Automation Control Cable
- Lighting Control Cable

## Security Office

### Carol® Brand Electronics

- Access Control Cable
- Security Multi-Conductor Cable – Shielded
- Coaxial Cable – Types RG-6, RG-11 and RG-59
- Burglar Alarm Cable

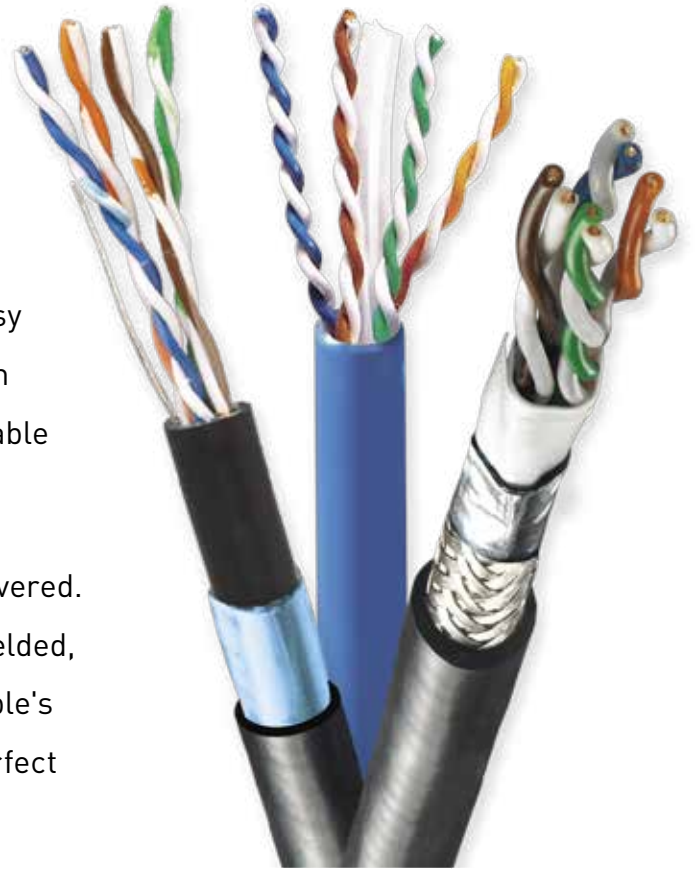
### Datacom

- GenSPEED 10 MTP Category 6A 10 Gig Cable
- Carol Brand & GenSPEED Brand Category 6 Cable
- Central Office Cable
- GenSPEED 10,000 Category 6a and 6 with 17 FREE

# Industrial Ethernet

The presence of harsh conditions and demanding applications in industrial environments makes choosing a high quality industrial Ethernet cable with the appropriate features critical. General Cable's new line of industrial Ethernet wire makes that decision easy by providing cables that meet the needs of harsh conditions on the plant floor by offering sustainable solutions in Category 5e and 6 cables.

Whatever your needs, General Cable has you covered. Whether it's a Category 5e or Category 6, unshielded, shielded, armored or outside plant, General Cable's offering of industrial Ethernet product is the perfect cable for an imperfect environment.



Part Number	Product Construction				Conductor Type	Jacket Grade	600 V AWM	CMR
	Category	Pairs	Shielded	Unshielded				
<b>GCR1402</b>	5e - UTP	2		•	Solid	Industrial - PVC	•	•
<b>GCR1404</b>	5e - UTP	4		•	Solid	Industrial - PVC	•	•
<b>GCR1408</b>	5e - UTP PLTC	4		•	Solid	Industrial - PVC	•	•
<b>GCR1410</b>	5e - UTP, Armored	4		•	Solid	Interlocked Armor	•	•
<b>GCR1403</b>	5e - F/UTP	2	•		Solid	Industrial - PVC	•	•
<b>GCR1419</b>	5e - F/UTP	4	•		Solid	Industrial - PVC		•
<b>GCR1405</b>	5e - F/UTP Enhanced	4	•		Solid	Industrial - PVC	•	•
<b>GCR1407</b>	5e - SF/UTP Enhanced	4	•		Solid	Industrial - PVC	•	•
<b>5136100</b>	5e - OSP	4		•	Solid	OSP - Halogen Free		
<b>5136101</b>	5e - OSP, Armored	4		•	Solid	OSP - Halogen Free Armor		
<b>GCR1440</b>	6 - UTP	4		•	Solid	Industrial - PVC		•
<b>GCR1450</b>	6 - UTP Enhanced	4		•	Solid	Industrial - PVC	•	•
<b>GCR1452</b>	6 - F/UTP	4	•		Solid	Industrial - PVC	•	•
<b>7136100</b>	6 - OSP	4		•	Solid	OSP - Halogen Free		

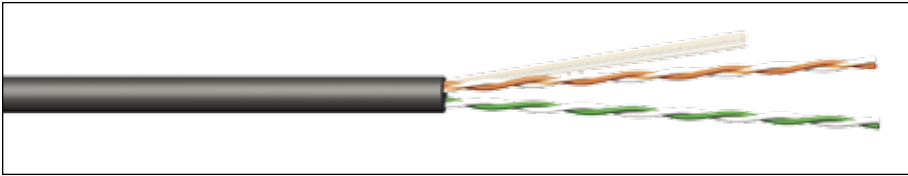


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# Industrial Ethernet Category 5e - 2 Pair Unshielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- UV RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Third-party verified for guaranteed performance
- TRU-Mark® print legend
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\*GENERAL CABLE\* GCR1402 INDUSTRIAL CAT 5E 2PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C UV RES---VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E AWM 21047 75C 600 V---FT4 OIL RES ODVA ETHERNET/IP (TM) VEN 1293 PAT 5767441 ##-## ##### CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1402	7507	0.200	5.080	18	8	2	24	1: Orange/White, Orange 2: Green/White, Green	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR (dB/100 m)		PSACR (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0								
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8								
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0								
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3								
300	41.0	28.1	25.1	—	—	14.3	11.3	16.6								
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3								

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	20 lbs.
Minimum Bend Radius	0.25"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 5e - 4 Pair Unshielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 2570 (UL: 80°C, 60 V)
- SUN RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)
- UL OIL RES I and II per UL 13

**Features and Benefits:**

- Third-party verified for guaranteed performance
- TRU-Mark® print legend
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* FEET GENERAL CABLE \* GCR1404 INDUSTRIAL CATEGORY 5E 4PR/23AWG RISER CABLE C(UL)US CMX OUTDOOR - CMR 75C VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E --- AWM 2570 80C 600V --- SUN RES OIL RES I and II FT4 ETHERNET/IP (TM) VEN 1293 \*\*\* \*\*AAAAA CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1404	7500	0.255	6.477	24	11	4	23	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m) max.	Next (dB) min.	PSNext (dB) min.	ACR (dB/100 m) min.	PSACR (dB/100 m) min.	ACRF (dB/100 m) min.	PSACRF (dB/100 m) min.	Return Loss (dB) min.
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3
300	41.0	28.1	25.1	—	—	14.3	11.3	16.6
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-20° C to +75° C
Operation Temperature Rating	-40° C to +75° C



# Industrial Ethernet Category 5e - 4 Pair PLTC Unshielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- NEC/CEC Type PLTC (UL 13)
- UL AWM Style 2570 (UL: 80°C, 600 V)
- SUN RES per UL 444 and UL 13
- UL OIL RES I and II per UL 13
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* FEET GENERAL CABLE® GCR1408 INDUSTRIAL CAT 5E CATEGORY 5E 4PR/22AWG RISER CABLE C(UL)US CMX OUTDOOR - CMR 75C VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E---AWM 2570 80C 600 V---(UL) PLTC SUN RES OIL RES I---FT4 ETHERNET/IP (TM) PAT 5767441  
 \*\*.\* \*AAAAA CAT 5

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1408	7503	0.295	7.490	38	14	4	22	1: White/Blue, Blue 2: White/Orange, Orange 3: White/Green, Green 4: White/Brown, Brown	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.042	1.070	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR (dB/100 m)	PSACR (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	21.6
200	32.4	30.8	27.8	—	—	17.8	14.8	21.0
250	36.9	29.3	26.3	—	—	15.8	12.8	20.5
300	41.0	28.1	25.1	—	—	14.3	11.3	20.1
350	44.9	27.1	24.1	—	—	12.9	9.9	19.8

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

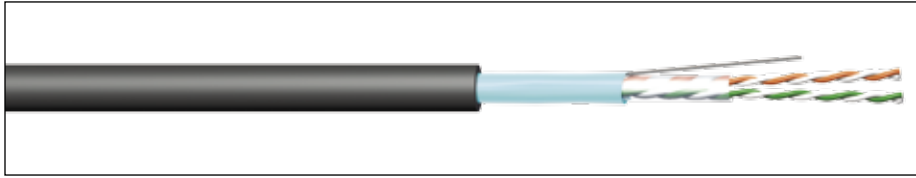
Maximum DC Resistance	5.6 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	40 lbs.
Minimum Bend Radius	1.2"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-25°C to +75°C



# Industrial Ethernet Category 5e - 2 Pair F/UTP Shielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- Noisy (EMI) Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- SUN RES per UL 444
- UL OIL RES I and II
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Foil shield reduces electromagnetic interference (EMI) for optimal performance
- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* FEET GENERAL CABLE F GCR1403 INDUSTRIAL F/UTP CAT 5E 2PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C SUN RES VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E AWM 21047 75C 600 V---FT4 OIL RES II ODVA ETHERNET/IP (TM) VEN 1293 PAT 5767441 \*\*.\* \*AAAAA CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1403	7506	0.230	5.842	23	10	2	24	1: Orange/White, Orange 2: Green/White, Green	HDPE	100% F/UTP	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR (dB/100 m)	PSACR (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3
300	41.0	28.1	25.1	—	—	14.3	11.3	16.8
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

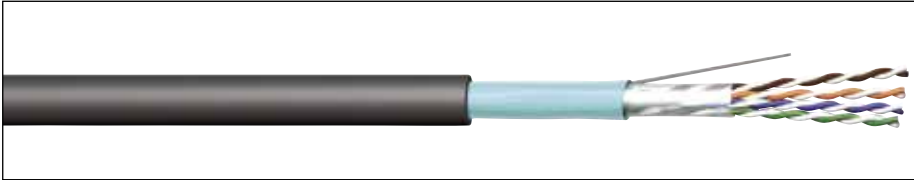
Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedence (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	20 lbs.
Minimum Bend Radius	0.5"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 5e - 4 Pair F/UTP Shielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- Noisy (EMI) Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- SUN RES per UL 444
- UL OIL RES I and II
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)
- MSHA Signaling Cable P-07-KA140025-MSHA

**Features and Benefits:**

- Foil shield reduces electromagnetic interference (EMI) for optimal performance
- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* GENERAL CABLE® GCR1419 INDUSTRIAL F/UTP CAT 5E 4PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C SUN RES VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E---FT4 OIL RES II P-07-KA140022-MSHA ODVA ETHERNET/IP (TM) VEN 1293 PAT 5767441 ##-## ##### CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1419	7508	0.270	6.858	34	15	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	100% F/UTP	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR (dB/100 m)		PSACR (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0								
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8								
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0								
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3								
300	41.0	28.1	25.1	—	—	14.3	11.3	16.8								
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3								

Values over 100 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

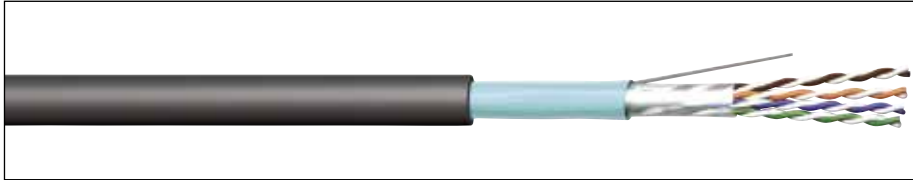
Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 5e - 4 Pair Enhanced F/UTP Shielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- Noisy (EMI) Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- SUN RES per UL 444
- UL OIL RES I and II
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)
- MSHA Signaling Cable P-07-KA140025-MSHA

**Features and Benefits:**

- Foil shield reduces electromagnetic interference (EMI) for optimal performance
- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* GENERAL CABLE \* GCR1405 INDUSTRIAL F/UTP CAT 5E 4PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C SUN RES VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E AWM 21047 75C 600 V---FT4 OIL RES II P-07-KA140025-MSHA ODVA ETHERNET/IP (TM) VEN 1293 PAT 5767441 ##-## ##### CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1405	7501	0.270	6.858	34	15	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	100% F/UTP	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR (dB/100 m)		PSACR (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0								
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8								
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0								
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3								
300	41.0	28.1	25.1	—	—	14.3	11.3	16.8								
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3								

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

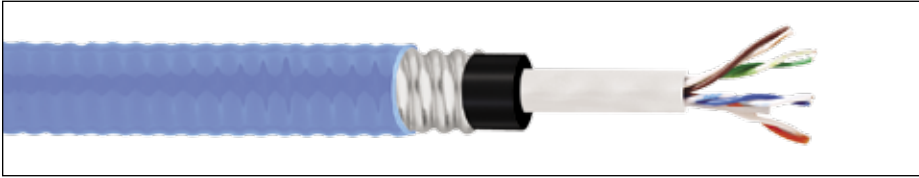
Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 5e - 4 Pair CCW<sup>®</sup>



**Applications:**

- For high speed data transmission. Tested to 100 MHz
- CID1 applications
- Recognized for use in Class I and III, Divisions 1 and 2; Class II, Division 2; or Class 1, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- Installed indoors or outdoors, in wet or dry locations, in a raceway, as aerial cable on a messenger, in cable trays, or for direct burial

**Compliances:**

- TIA/EIA 568-B.2 Category 5e
- UL Listed, NEC Type ITC-HL, 300 V, CT USE, SUN RES, DIR BUR, -40°C

**Features and Benefits:**

- CCW armor provides an impervious barrier to moisture, gas and liquids
- Meets cold bend at -55°C
- Insulation and inner jacket passes ASTM D746-04 brittleness temperature impact test at -73°C
- Arctic-grade PVC inner sheath and outer jacket passes ASTM D746-04 brittleness temperature impact test at -60°C

CATALOG NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
	INCHES	mm	LBS	kg								INCHES	mm	
9899.CT02104000	0.930	23.62	382	173	4	21	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	Fluoropolymer	Unshielded	Polyester	Fluoropolymer	0.180	4.57	Light Blue

Frequency (MHz)	Insertion Loss (dB/100 m) max.	Next (dB/100 m) min.	PSNext (dB/100 m) min.	ACRF (dB/100 m) min.	PSACRF (dB/100 m) min.	Char. Impedance (Ohms) (+/-15)	Return Loss (dB) min.
1	2.0	66.3	65.3	63.8	60.8	100	20.0
4	4.1	56.3	53.3	51.7	48.7	100	23.0
8	5.8	51.8	48.8	45.7	42.7	100	24.5
10	6.5	50.3	47.3	43.8	40.8	100	25.0
16	8.2	47.3	44.3	39.7	36.7	100	25.0
20	9.3	45.8	42.8	37.7	34.7	100	25.0
25	10.4	44.3	41.3	35.8	32.8	100	24.3
31.25	11.7	42.9	39.9	33.9	30.9	100	23.6
62.5	17.0	38.4	35.4	27.8	24.8	100	21.5
100	22.0	35.3	32.3	23.8	20.8	100	20.1

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	9.3 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	5%
Nominal Velocity of Propagation	70%
Characteristic Impedance (Frequency 1-350 MHz)	Ohms: 100±15





# Industrial Ethernet Category 5e - 4 Pair SF/UTP Shielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- Noisy (EMI) Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- SUN RES per UL 444
- UL OIL RES I and II
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Foil shield reduces electromagnetic interference (EMI) for optimal performance
- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings
- Industrial-grade oil- and sunlight-resistant jacket
- Additional braid shield for added low frequency EMI protection

**Print Legend:**

\*\*\*\* GENERAL CABLE \* GCR1407 INDUSTRIAL SF/UTP CAT 5E 4PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C SUN RES VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E AWM 21047 75C 600 V--- FT4 OIL RES II ODVA ETHERNET/IP (TM) VEN 1293 PAT 5767441 ##-## ##### CAT 5E\*AAAAA:

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1407	7502	0.305	7.239	47	21	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	100%/80% SF/UTP	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR (dB/100 m)		PSACR (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.7	23.6								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	26.0								
16	8.2	47.3	44.3	39.0	36.1	39.7	36.7	26.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	26.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	25.5								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	25.0								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	23.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	22.5								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	18.8								
200	32.4	30.8	27.8	—	—	17.8	14.8	18.0								
250	36.9	29.3	26.3	—	—	15.8	12.8	17.3								
300	41.0	28.1	25.1	—	—	14.3	11.3	16.8								
350	44.9	27.1	24.1	—	—	12.9	9.9	16.3								

Values over 200 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-200 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	40 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 5e Outside Plant Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Non-armored design is recommended for duct installation

**Compliances:**

- ANSI/TIA 568-C.2
- UL 444
- RoHS Compliant Directive 2011/65/EU
- ANSI/TIA 862 (Building Automation)
- ICEA S-90-661
- ISO/IEC 11801 Ed. 2.0 (Class D)
- Telcordia (Bellcore) Specification GR-421-CORE Water Penetration Requirements

**Features and Benefits:**

- Protects against environmental elements that can cause electrical performance failures
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Prevents moisture migration
- Made in U.S.A.
- Gel-filled construction to prevent moisture migration in underground and wet applications

**Print Legend:**

XXXXXX FEET CAT 5e GENERAL CABLE (F) 4PR24AWG  
GENSPEED 5000 OUTDOOR - DIR BUR UTP CAT.5e  
AAAAA PAT 5767441 MO/YR

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
5136100	N/A	0.230	5.842	25	11	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	UV and Abrasion Resistant Zero-Halogen Polyethylene	0.032	0.813	Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR* (dB/100 m)		PSACR* (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.8	23.0								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	25.0								
16	8.2	47.2	44.2	39.0	36.0	39.7	36.7	25.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.8	25.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	24.3								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	23.6								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.9	21.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	20.1								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	—								
200	32.4	30.8	27.8	—	—	17.8	14.8	—								
250	36.9	29.3	26.3	—	—	15.8	12.8	—								
300	41.0	28.1	25.1	—	—	14.3	11.3	—								
350	44.9	27.1	24.1	—	—	12.9	9.9	—								

Values above 100 MHz are for informational purposes.  
\*PSACR & ACR not specified in ANSI/TIA 568-C.2.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	9.38 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	4%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	69% Speed of Light
Characteristic Impedance (Frequency 1-100 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-30°C to +60°C
Operation Temperature Rating	-45°C to +80°C



# Industrial Ethernet Category 5e - 4 Pair Outside Plant Armored Cable



**Applications:**

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

**Compliances:**

- ANSI/TIA 568-C.2
- UL 444
- RoHS Compliant Directive 2011/65/EU
- ANSI/TIA 862 (Building Automation)
- ICEA S-90-661
- ISO/IEC 11801 Ed. 2.0 (Class D)
- Telcordia (Bellcore) Specification GR-421-CORE Water Penetration Requirements

**Features and Benefits:**

- Protects against environmental elements that can cause electrical performance failures
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Prevents moisture migration
- Made in U.S.A.
- Gel-filled construction to prevent moisture migration in underground and wet applications

**Print Legend:**

XXXXXX FEET CAT 5e GENERAL CABLE (F) 4PR24AWG GENSPEED 5000 ARMORED OUTDOOR - DIR BUR UTP CAT.5e AAAAA Pat 5767441 MO/YR

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
5136101	N/A	0.340	8.636	50	23	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Aluminum Armor	Polyester	UV Abrasion-Resistant Polyethylene	0.032	0.813	Black

Frequency (MHz)	Insertion Loss (dB/100 m)		Next (dB)		PSNext (dB)		ACR* (dB/100 m)		PSACR* (dB/100 m)		ACRF (dB/100 m)		PSACRF (dB/100 m)		Return Loss (dB)	
	max.		min.		min.		min.		min.		min.		min.		min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0								
4	4.1	56.3	53.3	52.2	49.2	51.7	48.8	23.0								
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	25.0								
16	8.2	47.2	44.2	39.0	36.0	39.7	36.7	25.0								
20	9.3	45.8	42.8	36.5	33.5	37.7	34.8	25.0								
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	24.3								
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	23.6								
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.9	21.5								
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	20.1								
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	-								
200	32.4	30.8	27.8	-	-	17.8	14.8	-								
250	36.9	29.3	26.3	-	-	15.8	12.8	-								
300	41.0	28.1	25.1	-	-	14.3	11.3	-								
350	44.9	27.1	24.1	-	-	12.9	9.9	-								

Values above 100 MHz are for informational purposes.  
\*PSACR & ACR not specified in ANSI/TIA 568-C.2.

**ELECTRICAL CHARACTERISTICS**

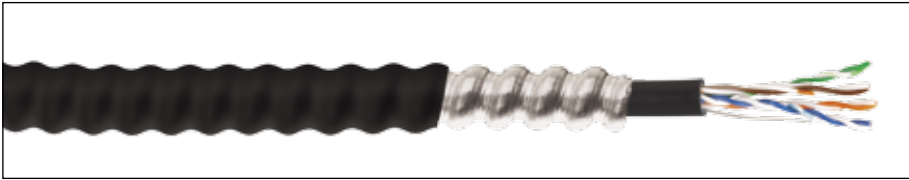
Maximum DC Resistance	9.38 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	4%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	69% Speed of Light
Characteristic Impedance (Frequency 1-100 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-30°C to +60°C
Operation Temperature Rating	-45°C to +80°C



# Industrial Ethernet Category 5e Interlocking Armored Cable



**Applications:**

- IEEE 802.3: 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- ODVA EtherNet/IP™

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 5e
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- UV RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Protects against environmental elements that can cause electrical performance failures
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Prevents moisture migration
- Made in U.S.A.

**Print Legend:**

\*\*\* GENERAL CABLE F GCR1410 INDUSTRIAL ARMORED CAT 5E 4PR/24AWG RISER C(UL) US CMX OUTDOOR - CMR 75C UV RES VERIFIED (UL) ANSI/TIA-568C.2 CAT 5E AWM 21074 75C 600 V---FT4 OIL RES ODVA ETHERNET/IP™ VEN 1293 PAT 5767441 ##### CAT 5E

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1410	7508	0.270	6.858	34	15	4	24	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR* (dB/100 m)	PSACR* (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	
1	2.0	65.3	62.3	63.3	60.3	63.8	60.8	20.0
4	4.1	56.3	53.3	52.2	49.2	51.7	48.8	23.0
10	6.5	50.3	47.3	43.8	40.8	43.8	40.8	25.0
16	8.2	47.2	44.2	39.0	36.0	39.7	36.7	25.0
20	9.3	45.8	42.8	36.5	33.5	37.7	34.7	25.0
25	10.4	44.3	41.3	33.9	30.9	35.8	32.8	24.3
31.25	11.7	42.9	39.9	31.2	28.2	33.9	30.9	23.6
62.5	17.0	38.4	35.4	21.4	18.4	27.8	24.8	21.5
100	22.0	35.3	32.3	13.3	10.3	23.8	20.8	20.1
155	28.1	32.4	29.4	4.4	1.4	20.0	17.0	—
200	32.4	30.8	27.8	—	—	17.8	14.8	—
250	36.9	29.3	26.3	—	—	15.8	12.8	—
300	41.0	28.1	25.1	—	—	14.3	11.3	—
350	44.9	27.1	24.1	—	—	12.9	9.9	—

Values above 100 MHz are for informational purposes.  
\*PSACR & ACR not specified in ANSI/TIA 568-C.2.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	9.38 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	69% Speed of Light
Characteristic Impedance (Frequency 1-100 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Nominal Cable Diameter	0.340"
Nominal Cable Weight	50 lbs.
Maximum Pulling Force	25 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-30°C to +60°C
Operation Temperature Rating	-40°C to +80°C



# Industrial Ethernet Category 6 - 4 Pair Unshielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 6
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UV RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- TRU-Mark® print legend
- Third-party verified for guaranteed performance
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* GENERAL CABLE \* GCR1440 INDUSTRIAL CAT 6 4PR/23AWG RISER C(UL)US CMX OUTDOOR - CMR 75C VERIFIED (UL) ANSI/TIA-568C.2 CAT-6---FT4 OIL RES UV RES PAT 5767441 ##-## ##### CAT 6

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1440	7509	0.270	6.858	38	17	4	23	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR (dB/100 m)	PSACR (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.0	74.3	72.3	72.3	70.3	67.8	64.8	20.0
4	3.8	65.3	63.3	61.5	59.3	55.7	52.8	23.6
10	6.0	59.3	57.3	53.3	51.3	47.8	44.8	26.0
16	7.6	56.2	54.2	48.7	46.7	43.7	40.7	26.0
20	8.5	54.8	52.8	46.3	44.3	41.7	38.8	26.0
31.25	10.7	51.9	49.9	41.2	39.2	37.9	34.9	26.0
62.5	15.4	47.4	45.4	32.0	29.9	31.8	28.9	25.5
100	19.8	44.3	42.3	24.5	22.5	27.8	24.8	22.5
150	24.7	41.7	39.7	16.9	14.9	24.3	21.3	18.9
200	29.0	39.8	37.8	10.8	8.8	21.8	18.8	18.0
250	32.8	38.3	36.3	5.5	3.5	19.8	16.8	17.3
350	39.8	36.1	34.1	-	-	16.9	13.9	16.3
500	48.9	33.8	31.8	-	-	13.8	10.8	15.2

Values over 250 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedance (Frequency 1-350 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	41 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-10°C to +60°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 6 - 4 Pair Enhanced Unshielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 6
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- UV RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- TRU-Mark® print legend
- Third-party verified for guaranteed performance
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

\*\*\*\* GENERAL CABLE \* GCR1450 INDUSTRIAL CAT 6 4PR/23AWG RISER C(UL)US CMX OUTDOOR - CMR 75C VERIFIED (UL) ANSI/TIA-568C.2 CAT-6 AWM 21047 75C 600 V---FT4 OIL RES UV RES PAT 5767441 ##-## ##### CAT 6

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1450	7504	0.270	6.858	38	17	4	23	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR (dB/100 m)	PSACR (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.0	79.3	77.3	77.3	75.3	72.8	69.8	20.0
4	3.8	70.2	68.3	66.5	64.5	60.7	57.7	23.6
10	5.9	64.3	62.3	58.4	56.4	52.8	49.8	26.0
16	7.5	61.3	59.3	53.8	51.7	48.7	45.7	26.0
20	8.4	59.8	57.6	51.4	49.4	46.7	43.7	26.0
31.25	10.6	56.9	54.9	46.3	44.3	42.9	39.9	26.0
62.5	15.3	52.4	50.4	37.1	35.1	36.8	33.8	25.5
100	19.7	49.3	47.3	29.6	27.6	32.8	29.8	22.5
150	24.7	46.7	44.7	22.0	20.0	29.3	26.3	21.6
200	29.0	44.8	42.8	15.8	13.8	26.8	23.8	21.0
250	32.6	43.3	41.3	10.7	8.7	24.8	21.6	20.5
350	39.5	41.2	39.2	1.7	-	21.9	18.9	19.8
500	48.6	38.8	36.6	-	-	18.8	15.8	19.0

Values over 350 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	8.9 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	3%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedence (Frequency 1-350 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	41 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 6 - 4 Pair F/UTP Shielded Twisted Pair Cable



**Applications:**

- IEEE 802.3: 1000 BASE-T, 100 BASE-TX, 10 BASE-T, PoE, PoE+
- CDDI, Token Ring, ATM
- Broadband and Baseband Analog Video
- Voice, T1
- Harsh Industrial Environments
- Noisy (EMI) Environments

**Compliances:**

- UL Verified to ANSI/TIA 568-C.2 Category 6
- NEC/CEC Type: UL Listed CMX OUTDOOR - CMR
- NEC/CEC Type CMR (UL 1666)
- UL AWM Style 21047 (UL: 75°C, 600 V)
- UV RES per UL 444
- RoHS II Compliant (EU DIRECTIVE 2011/65/EU)

**Features and Benefits:**

- Foil shield reduces electromagnetic interference (EMI) for optimal performance
- Third-party verified for guaranteed performance
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Industrial-grade oil- and sunlight-resistant jacket

**Print Legend:**

4 PAIR 23 AWG SCREENED TWISTED PAIR (SCTP) CABLE, FOR HIGH SPEED DATA TRANSMISSION AND IS TESTED TO 500 MHZ. THIS CABLE IS CMX OUTDOOR - CMR RATED AND UL VERIFIED TO CATEGORY 6 ELECTRICALS.

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
GCR1452	7505	0.385	8.509	46	21	4	23	1: White, Blue 2: White, Orange 3: White, Green 4: White, Brown	HDPE	100% Foil	Non-Applicable	Oil- and Sunlight-Resistant PVC	0.032	0.813	Red, Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR (dB/100 m)	PSACR (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.1	74.3	72.0	72.2	70.2	67.8	64.8	20.0
4	3.8	65.3	63.3	61.5	59.5	55.8	52.8	23.6
10	5.9	59.3	57.3	53.4	51.4	47.8	44.8	26.0
16	7.5	56.2	54.2	48.8	46.8	43.7	40.7	26.0
20	8.4	54.8	52.8	46.4	44.4	41.8	38.8	26.0
31.25	10.5	51.9	49.9	41.4	39.4	37.9	34.9	25.5
62.5	15.0	47.4	45.4	32.4	30.4	31.9	28.9	23.5
100	19.1	44.3	42.3	25.2	23.2	27.8	24.8	22.5
150	23.7	41.7	39.7	18.0	16.0	24.3	21.3	18.9
200	27.6	39.8	37.8	12.2	10.2	21.8	18.8	18.0
250	31.1	38.3	36.3	7.2	5.2	19.8	19.8	17.3
300	34.3	37.1	35.1	2.9	0.9	18.3	18.3	16.8
400	40.1	35.3	33.3	—	—	15.8	15.8	15.9
500	45.3	33.8	31.8	—	—	13.8	13.8	15.2

Values over 350 Mhz are for informational purposes.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	9.38 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	4%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	35 ns/100 m
Nominal Velocity of Propagation	70% Speed of Light
Characteristic Impedence (Frequency 1-350 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Maximum Pulling Force	40 lbs.
Minimum Bend Radius	2.50"
Installation Temperature Rating	-20°C to +75°C
Operation Temperature Rating	-40°C to +75°C



# Industrial Ethernet Category 6 - 4 Pair Outside Plant Cable



**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
- Duct and conduit installations
- Not to be used aerially or direct buried

**Compliances:**

- ANSI/TIA 568-C.2
- UL 444
- RoHS Compliant Directive 2011/65/EU
- ANSI/TIA 862 (Building Automation)
- ICEA S-116-732
- ICEA S-102-700
- ISO/IEC 11801 Ed. 2.0 (Class E)
- Telcordia (Bellcore) Specification GR-421-CORE Water Penetration Requirement

**Features and Benefits:**

- Innovative cross-web design allowing for maximum pair separation, increasing key electrical performance parameters
- Gel-filled construction to prevent moisture migration in underground and wet applications
- Wide temperature range for extreme weather environments
- TRU-Mark® print legend contains footage markings from 1000' to 0'
- Made in U.S.A.

**Print Legend:**

XXXXXX FEET CAT 6 GENERAL CABLE (F) 4PR23AWG GENSPEED 6000 OUTDOOR - DIR BUR UTP CAT.6 AAAAA PAT 5767441 MO/YR

CATALOG NUMBER	SPEC NUMBER	NOMINAL O.D.		CABLE WEIGHT MFT		NO. PAIRS	COND. AWG SIZE	PAIR COLOR CODE	INSULATION MATERIAL	SHIELD COVERAGE	RIPCORD	JACKET MATERIAL	JACKET THICKNESS		JACKET COLORS
		INCHES	mm	LBS	kg								INCHES	mm	
7136100	N/A	0.250	6.350	32	14.5	4	23	1: Blue/White, Blue 2: Orange/White, Orange 3: Green/White, Green 4: Brown/White, Brown	HDPE	Unshielded	Polyester	UV and Abrasion Resistant Zero-Halogen Polyethylene	0.032	0.813	Black

Frequency (MHz)	Insertion Loss (dB/100 m)	Next (dB)	PSNext (dB)	ACR* (dB/100 m)	PSACR* (dB/100 m)	ACRF (dB/100 m)	PSACRF (dB/100 m)	Return Loss (dB)
	max.	min.	min.	min.	min.	min.	min.	min.
1	2.0	74.3	72.3	72.3	70.3	67.8	64.8	20.0
4	3.8	65.3	63.3	61.5	59.3	55.8	52.8	23.0
10	6.0	59.3	57.3	53.3	51.3	47.8	44.8	25.0
16	7.6	56.2	54.2	48.7	46.7	43.7	40.7	25.0
20	8.5	54.8	52.8	46.3	44.3	41.8	38.8	25.0
31.25	10.7	51.9	49.9	41.2	39.2	37.9	34.9	23.6
62.5	15.4	47.4	45.4	32.0	29.9	31.9	28.9	21.5
100	19.8	44.3	42.3	24.5	22.5	27.8	24.8	20.1
200	29.0	39.8	37.8	10.8	8.8	24.3	18.8	18.0
250	32.8	38.3	36.3	5.5	3.5	21.8	16.8	17.3

\*PSACR & ACR not specified in ANSI/TIA 568-C.2.

**ELECTRICAL CHARACTERISTICS**

Maximum DC Resistance	9.38 Ohms/100 m @ 20° C
Maximum DC Resistance Unbalance, Ind Pair	4%
Maximum Mutual Capacitance	17 pF/ft @ 1 KHz
Maximum Delay Skew	45 ns/100 m
Nominal Velocity of Propagation	69% Speed of Light
Characteristic Impedance (Frequency 1-250 MHz)	Ohms: 100±15

**MECHANICAL CHARACTERISTICS**

Nominal Cable Diameter	0.250"
Nominal Cable Weight	32 lbs.
Maximum Pulling Force	32 lbs.
Minimum Bend Radius	1.00"
Installation Temperature Rating	-30°C to +60°C
Operation Temperature Rating	-45°C to +80°C





# Optical Fiber Code Cross-Reference

FIBER TYPE	NEXTGEN® BRAND	CORNING® OPTICAL FIBER	DESCRIPTION
Standard Loose Tube SM	AQ	SMF-28® Ultra	Full spectrum, low water peak singlemode, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Performance Loose Tube SM	AT	SMF-28® Ultra	Full spectrum, high performance low water peak singlemode with 0.35/0.25 attenuation, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Tight Buffer SM	AP	SMF-28® Ultra	Full spectrum, low water peak singlemode with 900 µm PVC buffer, ITU-T Recommendation G.657.A1, IEC 60793-2-50 for B1.3 and B6_a1 class fibers, TIA/EIA-492CAAB and Telcordia GR-20-CORE, Issue 3
Long-Haul SM	AL	LEAF® Fiber	Large $A_{eff}$ , low water peak, NZ-DSF singlemode, ITU-T G.655
Ultra-Bendable SM	AZ	ClearCurve® ZBL	Full spectrum with best macrobending performance, ITU-T G.652.D and ITU-T G.657.A
62.5 µm MM	CG	InfiniCor® 300 Fiber	1 Gb/s ≤ 300 m at 850 nm, OM1* 1 Gb/s ≤ 550 m at 1300 nm
62.5 µm MM	CL	InfiniCor® CL™ 1000 Fiber	1 Gb/s ≤ 500 m at 850 nm, OM1* 1 Gb/s ≤ 1000 m at 1300 nm
Ultra-bendable 50 µm MM	BI	ClearCurve® OM2 Fiber	10 Gb/s ≤ 150 m at 850 nm, OM2* 1 Gb/s ≤ 750 m at 850 nm
Ultra-bendable 50 µm MM	BE	ClearCurve® OM3 Fiber	10 Gb/s ≤ 300 m at 850 nm, OM3* 1 Gb/s ≤ 1000 m at 850 nm
Ultra-bendable 50 µm MM	BL	ClearCurve® OM4 Fiber	10 Gb/s ≤ 550 m at 850 nm, OM4* 1 Gb/s ≤ 1100 m at 850 nm
Ultra-bendable 50 µm MM	BM	ClearCurve® OM4 Fiber	10 Gb/s ≤ 600 m at 850 nm, OM4+* 1 Gb/s ≤ 1100 m at 850 nm

\* Designation per ISO 11801 Fiber Standards

SMF-28 Ultra is a trademark and Corning, LEAF, InfiniCor and Plus Corning Optical Fiber are registered trademarks of Corning Incorporated, Corning, NY, U.S.A.

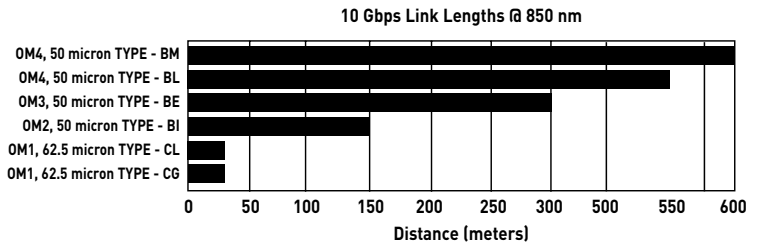
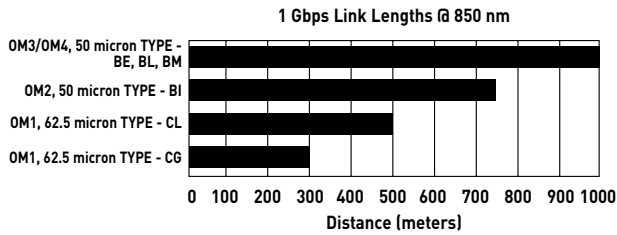


# Fiber Specification and Selection

## MULTIMODE FIBER SELECTION GUIDE

Optical Characteristics:		50/125 PRODUCT FAMILY				62.5/125 PRODUCT FAMILY		UNITS
		OM2 Type-BI	OM3 Type-BE	OM4 Type-BL	OM4 Type-BM	OM1 Type-CG	OM1 Type-CL	
Maximum Finished Cable Attenuation Coefficient	@850 nm	3.0	3.0	3.0	3.0	3.5	3.5	dB/km
	@1300 nm	1.0	1.0	1.0	1.0	1.0	1.0	dB/km
Overfill Launch Bandwidth	@850 nm	700	1500	1500	1500	200	200	MHz.km
	@1300 nm	500	500	500	500	500	500	MHz.km
Laser Bandwidth	@850 nm	850	2000	4700	5350*	220	385	MHz.km
Gigabit Ethernet Link Length (1 Gbps)	1000 BASE-SX (850 nm)	750	1000	1100	1100	300	500	meters
	1000 BASE-LX (1300 nm)	550	550	550	550	550	1000	meters
10 Gigabit Ethernet Link Length (10 Gbps)	10G BASE-SR (850 nm)	150	300	550	600	33	33	meters

\* Using 3.0 dB cable attenuation and 0.7 dB connector allocation



## SINGLEMODE FIBER SELECTION GUIDE

FIBER DESCRIPTION	FIBER TYPE	TYPICAL ATTENUATION (dB/km)				GIGABIT ETHERNET DISTANCE (METERS)	10 GIGABIT ETHERNET DISTANCE (METERS)	
		1310 nm	1383 nm	1550 nm	1625 nm	1310 nm	1310 nm	1550 nm
<b>OS2 SINGLEMODE - LOOSE TUBE</b>								
Premium	AQ	0.40	0.40	0.30	0.35	10,000	5,000	30,000
High Performance	AT	0.35	0.35	0.25	0.30	10,000	5,000	30,000
<b>OS2 SINGLEMODE - TIGHT BUFFER</b>								
Distribution	AP	0.65	-	0.65	-	10,000	5,000	30,000
Breakout	AP	1.00	-	1.00	-	10,000	5,000	30,000

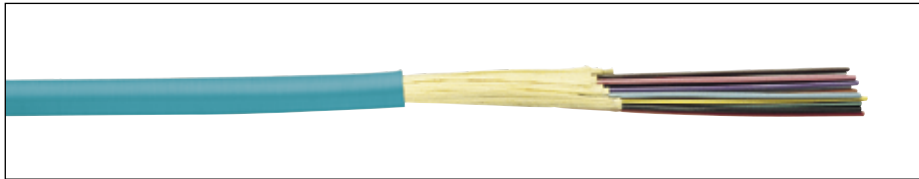
## SPECIALTY FIBERS – SINGLEMODE

FIBER DESCRIPTION	FIBER TYPE	TYPICAL ATTENUATION (dB/km)				TYPICAL APPLICATION
		1310 nm	1383 nm	1550 nm	1625 nm	
<b>Singlemode (NZDS)</b>						
Large Effective Area	AL	-	-	0.30	0.30	DWDM
<b>Singlemode</b>						
Bend-Insensitive	AZ	0.40	0.40	0.30	0.30	SMALL BEND RADIUS

Use the code in the "Fiber Type" column to replace the XX notation in the catalog number shown on the catalog page. This identifies the fiber that will be provided with the cable choice.

The fibers in all completed cables are tested 100% at the factory for attenuation, and each fiber must meet the minimum requirements specified by the customer.

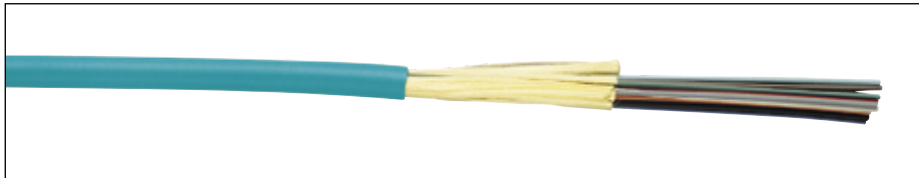
# Tight Buffer Distribution Riser Cable Type OFNR, CSA FT4, Indoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021PNR	2	—	0.19	5	14	20	225	1000	65	290
XX0061PNR	6	—	0.20	5	18	27	225	1000	65	290
XX0121PNR	12	—	0.25	6	24	36	320	1425	112	500
XX0241P1R	24	4	0.34	9	47	70	330	1425	112	500

XX denotes glass type.  
NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.  
\*Not for aerial or direct burial applications.

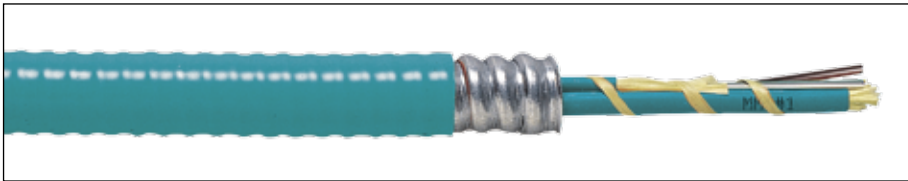
# Tight Buffer Distribution Plenum Cable Type OFNP, CSA FT6, Indoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021PNU	2	—	0.17	4	12	17	225	1000	65	290
XX0061PNU	6	—	0.18	5	16	24	225	1000	65	290
XX0121PNU	12	—	0.22	6	23	34	320	1423	112	500
XX0241PNU	24	—	0.32	8	45	67	320	1423	112	500

XX denotes glass type.  
NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.  
\*Not for aerial or direct burial applications.

## Tight Buffer Distribution Interlock Armored Riser Cable Type OFCR, CSA FT4, Indoor\*



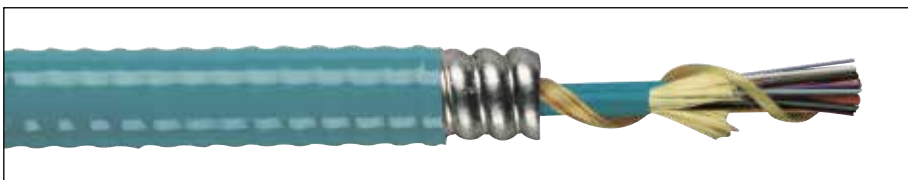
CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021PNR-ILRA	2	—	0.52	13	85	126	550	2447	165	734
XX0041PNR-ILRA	4	—	0.57	14	95	141	550	2447	165	734
XX0061PNR-ILRA	6	—	0.57	14	98	146	550	2447	165	734
XX0121PNR-ILRA	12	—	0.57	14	104	155	550	2447	165	734
XX0241PNR-ILRA	24	—	0.67	17	144	214	550	2447	165	734

XX denotes glass type.

NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.

\*Not for aerial or direct burial applications.

## Tight Buffer Distribution Interlock Armored Plenum Cable Type OFCP, CSA FT6, Indoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021PNU-ILPA	2	—	0.49	12	80	119	550	2447	165	734
XX0041PNU-ILPA	4	—	0.49	12	82	122	550	2447	165	734
XX0061PNU-ILPA	6	—	0.49	12	84	125	550	2447	165	734
XX0121PNU-ILPA	12	—	0.49	12	100	149	550	2447	165	734
XX0241PNU-ILPA	24	—	0.59	15	138	205	550	2447	165	734

XX denotes glass type.

NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.

\*Not for aerial or direct burial applications.

# Tight Buffer Distribution Riser Cable Type OFNR, CSA FT4, Indoor/Outdoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021ANR.BK	2	—	0.19	5	14	20	300	1334	90	400
XX0061ANR.BK	6	—	0.20	6	18	27	320	1423	96	427
XX0121ANR.BK	12	—	0.25	6	24	36	400	1780	120	534
XX0241ANR.BK	24	—	0.34	9	47	70	320	1425	112	500

XX denotes glass type.  
NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.  
\*Not for aerial or direct burial applications.

# Tight Buffer Distribution Plenum Cable Dry Water Block, Type OFNP, CSA FT6, Indoor/Outdoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF SUB-UNITS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0021ANU.BK	2	—	0.17	4	11.7	17.4	300	1334	90	400
XX0061ANU.BK	6	—	0.20	5	16.0	23.8	320	1423	96	427
XX0121ANU.BK	12	—	0.23	6	22.7	33.8	400	1780	120	534
XX0241ANU.BK	24	—	0.32	8	45.0	67.0	320	1423	112	500

XX denotes glass type.  
NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.  
\* Not for aerial or direct burial applications.

# Loose Tube Single Jacket Plenum Cable Type OFNP, CSA FT6, Indoor/Outdoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF LOOSE TUBES	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
			IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
							LBS	N	LBS	N
XX0064M1D-DT	6	1	0.31	8	48	71	300	1334	100	445
XX0124M1D-DT	12	2	0.31	8	47	69	300	1334	100	445
XX0244M1D-DT	24	4	0.31	8	44	65	300	1334	100	445

XX denotes glass type.  
NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.  
\* Not for aerial or direct burial applications.



# Loose Tube Single Jacket Cable Outdoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF LOOSE TUBES	NO. OF FILLERS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
				IN	MM	LBS/1000'	KG/KM	INSTALLATION		IN-SERVICE	
								LBS	N	LBS	N
XX0124M1A-DWB	12	1	4	0.44	11.1	55	82	600	2700	180	800
XX0244M1A-DWB	24	2	3	0.44	11.1	55	82	600	2700	180	800
XX0484M1A-DWB	48	4	1	0.44	11.1	55	82	600	2700	180	800
XX0724M1A-DWB	72	6	0	0.47	12.0	66	98	600	2700	180	800

XX denotes glass type.

NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.

\* Not for aerial or direct burial applications.

# Loose Tube Dual Jacket Cable Outdoor\*



CATALOG NUMBER	FIBER COUNT	NO. OF LOOSE TUBES	NO. OF FILLERS	NOMINAL CABLE DIAMETER		NOMINAL CABLE WEIGHT		MAXIMUM TENSILE LOAD			
				IN	mm	LBS/1000'	kg/km	INSTALLATION		IN-SERVICE	
								LBS	N	LBS	N
XX0124H1A-DWB	12	1	4	0.51	13.0	78	116	600	2700	180	800
XX0244H1A-DWB	24	2	3	0.51	13.0	78	116	600	2700	180	800
XX0484H1A-DWB	48	4	1	0.51	13.0	78	116	600	2700	180	800
XX0724H1A-DWB	72	6	0	0.54	13.7	90	134	600	2700	180	800

XX denotes glass type.

NOTE: More fiber counts are available upon request. See Fiber Optic Catalog for complete product information.

# Industrial Communication Protocol Cables

No matter if your design is brand new or you are repairing an older design, General Cable has you covered with our comprehensive list of protocol cables. Be certain that cabling will not cause you downtime.

General Cable's list of protocol cables includes CC-Link®, ControlNet®, DataHighway®, DeviceNet®, Foundation Fieldbus, Interbus®-S, LonWorks®, Modbus, Profibus®, RS-485/HART/Can Open, Seriplex® and Smart Distribution System.



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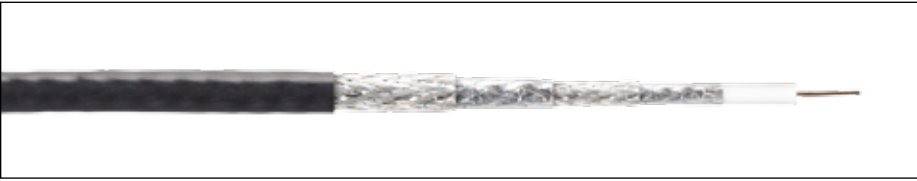
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## PROTOCOL

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	C7112AF	22 AWG 1 Pair Copper Braid Flex	39	
	C7114A	22 AWG 2 Pair Copper Braid	39	
	C7114AF	22 AWG 2 Pair Copper Braid Flex	39	
	C7116A	22 AWG 3 Pair Copper Braid	39	
	C7116AF	22 AWG 3 Pair Copper Braid Flex	39	
	C7118A	22 AWG 4 Pair Copper Braid	39	
	C7118AF	22 AWG 4 Pair Copper Braid Flex	39	
	C4841A	24 AWG 1 Pair Foil + Braid	39	
	C4842A	24 AWG 2 Pair Foil + Braid	39	
	C4843A	24 AWG 3 Pair Foil + Braid	39	
	C4844A	24 AWG 4 Pair Foil + Braid	39	
	C4851A	24 AWG 1 Pair Foil + Braid Plenum	40	
	C4852A	24 AWG 2 Pair Foil + Braid Plenum	40	
	GCR1301	18 AWG 2 Pair Foil + Copper Braid PVC	40	
	C2534A	18 AWG 1 Pair Foil PVC	40	
	C8123	18 AWG 1 Pair Foil Low-Smoke PVC	40	
	C8101	18 AWG 1 Pair Foil FEP	40	
	<b>Multi-Paired Unshielded</b>	C8661	16 AWG 1 Pair Unshielded	41
		C8621	16 AWG 1 Pair Unshielded Plenum	41
		C8641	22 AWG 1 Pair Unshielded	41
		C8601	22 AWG 1 Pair Plenum	41

# Coax



**Product Construction:**

**Conductors:**

- Copper per ASTM B3
- Copper-clad steel per ASTM B869

**Insulation:**

- Gas Injected Foam Polyethylene or Gas Injected Foam FEP

**Shield:**

- Aluminum quad shield or tin copper quad shield

**Applications:**

- ODVA ControlNet™
- Industrial type applications
- Interlocked armored (steel or aluminum)
- Continuous Corrugated Welded Aluminum Armor (CCW) for harsh environments

**Compliances:**

- CL2R, CMR, CMG and CATVR
- CL2P, CMP and CATVP
- RoHS/CE
- UL or ETL
- FT4 or FT6

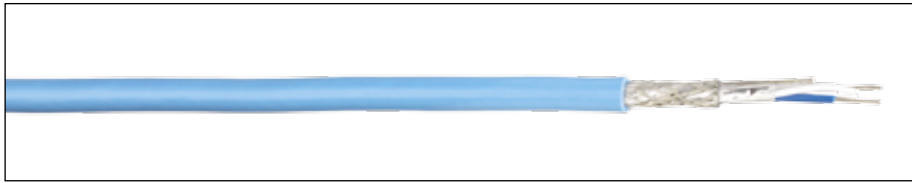
**Packaging:**

- 1000' reels
- Multiple colors available

CATALOG NUMBER NEC-TYPE	AWG TYPE DCR (Nom.)	INSULATION TYPE	INSULATION NOMINAL O.D.		SHIELD TYPE DCR (Nom.)	JACKET TYPE	COAX NOMINAL O.D.		OVERALL ARMOR TYPE	NOM. CAP. pF/FT	VELOCITY OF PROPAGATION (NOM.)	NOM. IMP. OHMS	NOMINAL ATTENUATION	
			INCHES	mm			INCHES	mm					MHz	dB/100'
<b>GCR1309</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	18 Solid CCS (28.9 Ohm)	Foam Polyethylene	0.180	4.57	Quad Shield 100% Foil Bonded, 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVC	0.298	7.57	N/A	16.20	83%	75	1	0.35
													10	0.59
													100	1.97
													200	2.82
													500	4.58
1000	6.59													
3000	12.65													
<b>GCR1309A</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	18 Solid CCS (28.9 Ohm)	Foam Polyethylene	0.180	4.57	Quad Shield 100% Foil Bonded, 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVC	0.590	14.99	Aluminum Interlock Armor/PVC	16.20	83%	75	1	0.35
													10	0.59
													100	1.97
													200	2.82
													500	4.58
1000	6.59													
3000	12.65													
<b>GCR1309CC</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	18 Solid CCS (28.9 Ohm)	Foam Polyethylene	0.180	4.57	Quad Shield 100% Foil Bonded, 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVC	0.560	14.22	Aluminum CCW® Armor/PVC	16.20	83%	75	1	0.35
													10	0.59
													100	1.97
													200	2.82
													500	4.58
1000	6.59													
3000	12.65													
<b>GCR1309F</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	20 105/40 BC (10.5 Ohm)	Foam Polyethylene	0.183	4.64	Quad Shield 100% Foil Bonded 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVC	0.300	7.62	N/A	16.20	83%	75	1	0.25
													10	0.81
													100	2.64
													200	3.83
													500	6.30
1000	9.32													
3000	17.90													
<b>GCR1309FC</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	20 105/40 BC (10.5 Ohm)	Foam Polyethylene	0.183	4.64	Quad Shield 100% Foil Bonded, 60% TC-Braid, 100% Foil, 40% TC-Braid (2.9 Ohm)	PVC	0.295	7.49	N/A	16.20	83%	75	1	0.25
													10	0.81
													100	2.64
													200	3.83
													500	6.30
1000	9.32													
3000	17.90													
<b>GCR1309S</b> RG 6/U Type NEC-CL2R, CMR, CATVR & CMG/FT4 -20C to +80C	18 Solid CCS (28.9 Ohm)	Foam Polyethylene	0.180	4.57	Quad Shield 100% Foil Bonded, 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVC	0.590	14.99	Galvanized Steel Interlock Armor/PVC	16.20	83%	75	1	0.35
													10	0.59
													100	1.97
													200	2.82
													500	4.58
1000	6.59													
3000	12.65													
<b>GCR1309P</b> RG 6/U Type NEC-CL2P, CMP, CATVP/FT6 -40C to +150C	18 Solid CCS (28.9 Ohm)	Foam FEP	0.170	4.32	Quad Shield 100% Foil Bonded, 60% AL-Braid, 100% Foil, 40% AL-Braid (5.2 Ohm)	PVDF	0.274	6.96	N/A	16.20	83%	75	1	0.36
													10	0.66
													100	2.10
													200	3.10
													500	5.00
1000	7.30													
3000	14.28													



# Twinax



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33

**Insulation:**

- Premium grade Polyethylene
- Premium grade LSZH
- Premium grade FEP (GCR1314P)
- Premium grade Polyolefin (GCR1300)

**Jacket:**

- PVC
- FEP (GCR1314P)
- LSZH-Polyolefin (GCR1314ZH)
- Polyethylene (GCR1314D)

**Shield:**

- Overall foil shield and tinned copper braid

**Applications:**

- Data Highway and Data Highway Plus (DH+) applications
- Interlocked armored (steel or aluminum)
- Continuous Corrugated Welded Aluminum Armor (CCW) for harsh and HL environments

**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF COND.	AWG TYPE DCR (NOM) PER/MFT	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE DCR (NOM.)	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		OVERALL ARMOR TYPE	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	COND. COLOR CODE
			INCHES	mm				INCHES	mm	INCHES	mm					
GCR1300	2	18 7/26 TC (6.9 Ohm)	0.108	2.74	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.2 Ohm)	PVC	0.048	1.22	0.336	8.53	N/A	19.50	78.00	TC, PLTC, ITC, CMG FT4 -40C to +80C	Blue, White
GCR1314	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	PVC	0.035	0.89	0.242	6.15	N/A	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1314A	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	PVC	0.035	0.89	0.558	14.17	Aluminum Interlock Armor/PVC	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1314D (Gel Water Block)	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	Polyethylene	0.035	0.89	0.242	6.15	N/A	19.70	78.00	-60C to +80C	Blue, Natural
GCR1314F	2	20 41/30 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 85% Tinned Copper Braid (3.0 Ohm)	PVC	0.035	0.89	0.242	6.15	N/A	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1314P	2	20 7/28 TC (9.5 Ohm)	0.072	1.83	FEP	100% Flex Foil + 76% Tinned Copper Braid (3.6 Ohm)	FEP	0.016	0.41	0.203	5.16	N/A	19.70	78.00	CL2P, CMP -70C to +200C	Blue, Natural
GCR1314S	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	PVC	0.035	0.89	0.558	14.17	Galvanized Steel Interlock Armor/PVC	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1314T	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	PVC	0.100	2.54	0.380	9.65	N/A	19.70	78.00	PLTC-ER, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1314ZH	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	LSZH	100% Flex Foil + 85% Tinned Copper Braid (3.0 Ohm)	LSZH	0.035	0.89	0.242	6.15	N/A	19.70	78.00	CL2, CM -20C to +80C	Blue, Natural
GCR1314CC	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 60% Tinned Copper Braid (3.9 Ohm)	PVC	0.035	0.89	0.510	12.95	Aluminum (CCW <sup>®</sup> ) Armor/PVC	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1324	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 85% Tinned Copper Braid (3.9 Ohm)	PVC	0.060	1.52	0.385	9.78	N/A	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural
GCR1324A	2	20 7/28 TC (9.5 Ohm)	0.078	1.98	Polyethylene	100% Flex Foil + 85% Tinned Copper Braid (3.9 Ohm)	PVC	0.065	1.65	0.750	19.05	Aluminum Armor/PVC	19.70	78.00	CL2, CM, AWM 2464 -20C to +80C	Blue, Natural



# Multi-Paired, Shielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33
- Fully annealed solid bare copper per ASTM B3

**Insulation:**

- Polyolefin and Foam Injected Polyolefin
- Foam HDPE
- PVC

**Jacket:**

- PVC
- Fluoropolymer

**Shield:**

- Flex Foil
- Tinned copper braid

**Applications:**

- High speed Profibus DP communication for use in factory automation systems
- CC-Link applications
- SDS applications
- Interlocked armored (steel or aluminum)
- Industrial type applications
- Recognized for use in Class I and III, Divisions 1 and 2; Class II, Division 2; or Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505 (9899.PB02201000 only)
- Recognized for use in Class I, II and III, Divisions 1 and 2; or Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505 (9899.FB01801120, 9899.FB01802120, 9899.FB01804120, 9899.FB01601118, 9899.FB01602118, 9899.FB01604118 only)

**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
GCR1302	1	18	7/26 TC	0.106	2.69	FR-Polyolefin	100% Flex Foil	PVC	0.038	0.97	0.290	7.37	65%	24.0	100.0	PLTC-ER, ITC, CM, CMG c(UL) FT4 -40C to +75C/300 V	Blue, Orange
GCR1303	1	22	7/30 TC	0.060	1.52	Polyolefin	100% Flex Foil	PVC	0.035	0.89	0.196	4.98	66%	22.0	100.0	CM, c(UL) -20C to +75C/300 V	Blue, Orange
GCR1304	1	22	Solid	0.103	2.62	Foam-Polyolefin	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.038	0.97	0.315	8.00	78%	8.5	150.0	PLTC, CM, CMG c(UL), FT4, AWM 20201 -20C to +75C/600 V	Red, Green
GCR1304F	1	22	19/34 TC	0.110	2.79	Foam-Polyolefin	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.038	0.97	0.321	8.15	78%	8.5	150.0	PLTC, CM, CMG c(UL), FT4, AWM 20201 -20C to +75C / 600V	Red, Green
GCR1315	3	20	7/28 TC	0.096	2.44	Foam-HDPE	100% Flex Foil + 78% Tinned Copper Braid	PVC	0.035	0.89	0.300	7.62	78%	12.5	110.0	CM, c(UL) -20C to +75C	Blue, Yellow, White
GCR1316	2 (Power)	18	7/26 TC	0.078	1.98	PVC	N/A	PVC	0.053	1.35	0.512	13.00	53%	N/A	N/A	PLTC, CM, c(UL) -20C to +75C	Black, White
	3 (Signal)	20	7/28 TC	0.096	2.44	Foam-HDPE	100% Flex Foil + 78% Tinned Copper Braid						78%	12.5	110.0		Blue, Yellow, White
GCR1332	2	16 (Power)	19/0117 TC	0.120	3.05	PVC	100% Foil, over each pair	PVC	0.042	1.07	0.398	10.11	53%	N/A	N/A	CL2, CM, c(UL), AWM 2464 -20C to +80C/300 V	Black, Brown
		20 (Data)	19/32 TC	0.126	3.20	Foam-Polyolefin							78%	12.0	120.0		Black, White
GCR1334	2	22 (Power)	19/34 TC	0.063	1.60	PVC	100% Foil, over each pair	PVC	0.035	0.89	0.290	7.37	53%	N/A	N/A	CL2, CM, c(UL), AWM 2464 -20C to +80C / 300V	Brown, Blue
		22 (Data)	19/34 TC	0.101	2.57	Foam-Polyolefin							78%	12.0	120.0		Black, White



# Multi-Paired, Shielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33
- Fully annealed solid bare copper per ASTM B3

**Insulation:**

- Polyolefin and Foam Injected Polyolefin
- Foam HDPE
- PVC

**Jacket:**

- PVC
- Fluoropolymer

**Shield:**

- Flex Foil
- Tinned copper braid

**Applications:**

- High speed Profibus DP communication for use in factory automation systems
- CC-Link applications
- SDS applications
- Interlocked armored (steel or aluminum)
- Industrial type applications
- Recognized for use in Class I and III, Divisions 1 and 2; Class II, Division 2; or Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505 (9899.PB02201000 only)
- Recognized for use in Class I, II and III, Divisions 1 and 2; or Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505 (9899.FB01801120, 9899.FB01802120, 9899.FB01804120, 9899.FB01601118, 9899.FB01602118, 9899.FB01604118 only)

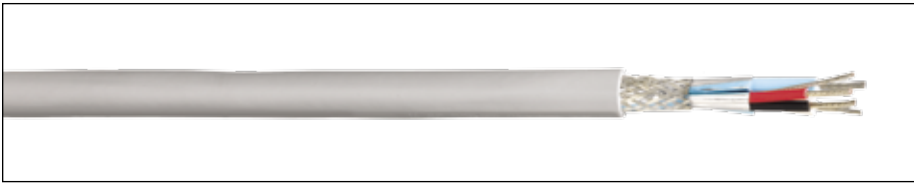
**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
9899.PB02201000	1	22	Solid	0.106	2.69	Fluoropolymer	65% Tinned Copper Braid	Inner: Fluoropolymer Outer: PVC	0.038	0.97	0.940	23.88	78%	8.5	100.0	ITC-HL, 300 V, CT Use, CSA FT4, IEEE 1202	Red, Green
9899.FB01801120	1	18	7/26 TC	0.106	2.69	XLPE	100% Foil, over ea. pair	Inner: PVC Outer: PVC	0.040	1.01	0.640	16.13	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange
9899.FB01802120	2	18	7/26 TC	0.480	12.07	XLPE	100% Overall Shield	Inner: PVC Outer: PVC	Inner: .040 Outer: .050	Inner: 1.01 Outer: 1.27	0.900	22.73	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange
9899.FB01804120	4	18	7/26 TC	0.570	14.48	XLPE	100% Overall Shield	Inner: PVC Outer: PVC	Inner: .040 Outer: .050	Inner: 1.01 Outer: 1.27	0.990	25.02	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange
9899.FB01601118	1	16	7/26 TC	0.290	7.37	XLPE	100% Overall Shield	Inner: PVC Outer: PVC	Inner: .040 Outer: .050	Inner: 1.01 Outer: 1.27	0.660	16.76	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange
9899.FB01602118	2	16	7/26 TC	0.520	13.21	XLPE	100% Overall Shield	Inner: PVC Outer: PVC	Inner: .040 Outer: .050	Inner: 1.01 Outer: 1.27	0.940	23.88	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange
9899.FB01604118	4	16	7/26 TC	0.620	15.75	XLPE	100% Overall Shield	Inner: PVC Outer: PVC	Inner: .040 Outer: .050	Inner: 1.01 Outer: 1.27	1.080	27.31	TBD	TBD	100.0	MC-HL, 600 V, SUN RES, DIR BUR, -40°C	Blue, Orange



# Multi-Paired, Shielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33

**Insulation**

- Polyolefin and Foam Injected Polyolefin
- PVC/Nylon
- PVC

**Jacket**

- PVC
- CPE (GCR1308)
- LSZH (C9530ZH)

**Shield**

- Flex Foil
- Tinned copper braid

**Applications:**

- ODVA DeviceNet™ applications
- Industrial type applications
- CPE jacket for harsh industrial environments

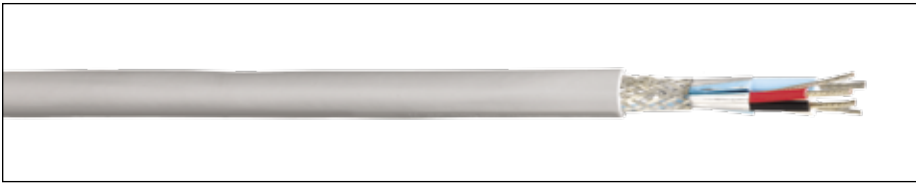
**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
GCR1305	2	15 (Power)	19/28 TC	0.107	2.72	PVC	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.060	1.52	0.475	12.07	53%	N/A	N/A	PLTC, CL2, CM C(UL), AWM 20201 -20C to +75C/600 V	Black, Red
		18 (Data)	19/30 TC	0.155	3.94	Foam-Polyolefin											White, Lt. Blue
GCR1305F	2	15 (Power)	65/33 TC	0.110	2.79	PVC	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.060	1.52	0.480	12.19	53%	N/A	N/A	PLTC, CL2, CM C(UL), AWM 20201 -20C to +75C/600 V	Black, Red
		18 (Data)	65/36 TC	0.156	3.96	Foam-Polyolefin											White, Lt. Blue
GCR1306	2	15 (Power)	19/28 TC	0.107	2.72	PVC	100% Flex Foil each pair, o/a 65% TC Braid	CPE	0.060	1.52	0.475	12.07	53%	N/A	N/A	PLTC, CL2, CM CMG C(UL) -40C to +75C/300 V	Black, Red
		18 (Data)	19/30 TC	0.155	3.94	Foam-Polyolefin											White, Lt. Blue
GCR1307	2	22 (Power)	19/34 TC	0.061	1.55	PVC	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.035	0.89	0.280	7.11	53%	N/A	N/A	PLTC, CL2, CM C(UL), AWM 20201 -20C to +75C/600 V	Black, Red
		24 (Data)	19/36 TC	0.077	1.96	Foam-Polyolefin											White, Lt. Blue
GCR1307F	2	22 (Power)	41/38 TC	0.060	1.52	PVC	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.035	0.89	0.280	7.11	53%	N/A	N/A	PLTC, CL2, CM C(UL), AWM 20201 -20C to +75C/600 V	Black, Red
		24 (Data)	41/40 TC	0.077	1.96	Foam-Polyolefin											White, Lt. Blue
GCR1308	2	22 (Power)	19/34 TC	0.061	1.55	PVC	100% Flex Foil each pair, o/a 65% TC Braid	CPE	0.040	1.02	0.285	7.24	53%	N/A	N/A	CL2, CM CMG C(UL) -40C to +75C/300 V	Black, Red
		24 (Data)	19/36 TC	0.077	1.96	Foam-Polyolefin											White, Lt. Blue
GCR1311	2	16 (Power)	19/29 TC	0.098	2.49	PVC/Nylon	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.065	1.65	0.525	13.34	55%	N/A	N/A	TC-ER -40C to +75C/600 V	Black, Red
		18 (Data)	19/30 TC	0.178	4.52	Foam FR-Polyolefin											White, Lt. Blue
GCR1312	2	15 (Power)	19/28 TC	0.105	2.67	PVC/Nylon	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.060	1.52	0.460	11.68	55%	N/A	N/A	TC-ER -40C to +75C/600 V	Black, Red
		18 (Data)	19/30 TC	0.139	3.53	Foam-FEP											White, Lt. Blue
GCR1313	2	16 (Power)	19/29 TC	0.098	2.49	PVC/Nylon	Unshielded	PVC	0.060	1.52	0.430	10.92	55%	N/A	N/A	TC-ER, CSA AWM VII A/B FT1 -40C to +75C/600 V	Black, Red
		18 (Data)	19/30 TC	0.139	3.53	FR-Polyolefin											White, Lt. Blue
GCR1317	2	18 (Power)	19/30 TC	0.081	2.06	PVC	100% Flex Foil each pair, o/a 65% TC Braid	PVC	0.052	1.32	0.385	9.78	55%	N/A	N/A	PLTC, CL2, CMG C(UL) FT4, AWM 20201 -20C to +75C/600 V	Black, Red
		20 (Data)	19/32 TC	0.126	3.20	Foam-Polyolefin											White, Lt. Blue
C9530ZH	2	20 AWG	7/28 TC	0.070	1.78	LSZH	100% Flex Foil + 85% TC Braid	LSZH	0.042	1.07	0.35	8.89	66%	22.0	70.0	UL-CL3, PLTC-ER, CM C(UL) -40C to +105C	Black, Red Black, White



# Multi-Paired, Shielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33

**Insulation:**

- Foam HDPE
- PVC
- HD - Polyethylene (GCR1319)
- SR-PVC (GCR1318)

**Jacket:**

- PVC

**Shield:**

- Overall Flexfoil shield
- Tinned copper braid (GCR1318 & GCR1319)

**Applications:**

- Seriplex applications
- Interbus-S applications
- Interlocked armored (steel or aluminum)
- Industrial type applications

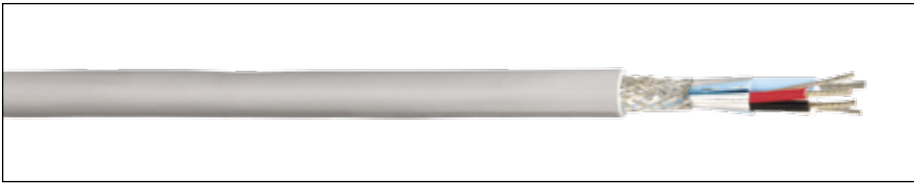
**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		OVERALL ARMOR TYPE	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
C8651	1	22	7/.0096 BC	0.059	1.49	Foam-HDPE	100% Flex Foil over all	PVC	0.030	0.76	0.195	4.95	N/A	14.5	100.0	CM, CSA, c(UL), NEC -20C to +75C	White/Blue, Blue
C8611	1	22	7/.0096 BC	0.059	1.49	Foam-FEP	100% Flex Foil over all	Flexguard	0.015	0.38	0.160	4.06	N/A	14.5	100.0	CMP, CSA, c(UL) -10C to +75C	White/Blue, Blue
GCR1330	2	18 (Power)	16/30 TC	0.096	2.44	Foam-HDPE	100% Flex Foil over all	PVC	0.035	0.89	0.308	7.82	N/A	11.5	120.0	CM, CL2, AWM 20201 -20C to +75C/600 V	Black, Red
		22 (Data)	7/30 TC	0.096	2.44	Foam-HDPE								9.0	150.0		Green, White
GCR1330A	2	18 (Power)	16/30 TC	0.096	2.44	Foam-HDPE	100% Flex Foil over all	PVC	0.035	0.89	0.600	15.24	Aluminum Interlock Armor/ PVC	11.5	120.0	CM, CL2, AWM 20201 -20C to +75C/600 V	Black, Red
		22 (Data)	7/30 TC	0.096	2.44	Foam-HDPE								9.0	150.0		Green, White
GCR1331	2	16 (Power)	26/30 TC	0.110	2.79	Foam-HDPE	100% Flex Foil over all	PVC	0.045	1.14	0.360	9.14	N/A	16.0	120.0	CM, CL2, AWM 20201 -20C to +75C/600 V	Black, Red
		22 (Data)	7/30 TC	0.110	2.79	Foam-HDPE								9.0	150.0		Green, White
GCR1331A	2	16 (Power)	26/30 TC	0.110	2.79	Foam-HDPE	100% Flex Foil over all	PVC	0.045	1.14	0.690	17.53	Aluminum Interlock Armor/ PVC	16.0	120.0	CM, CL2, AWM 20201 -20C to +75C/600 V	Black, Red
		22 (Data)	7/30 TC	0.110	2.79	Foam-HDPE								9.0	150.0		Green, White
GCR1333	3	16 (Control)	26/30 TC	0.105	2.67	Foam-HDPE	100% Flex Foil over all	PVC	0.040	1.02	0.434	11.02	N/A	28.0	N/A	CL2, AWM 20201 -20C to +75C/600 V	White/Orange, White/Blue
		22 (Data)	7/30 TC	0.110	2.79	Foam-HDPE								16.0	N/A		Green, White
		12 (Power)	65/30 TC	0.122	3.10	PVC								N/A	N/A		Black, Red
GCR1333A	3	16 (Control)	26/30 TC	0.105	2.67	Foam-HDPE	100% Flex Foil over all	PVC	0.040	1.02	0.770	19.56	Aluminum Interlock Armor/ PVC	28.0	N/A	CL2, AWM 20201 -20C to +75C/600 V	White/Orange, White/Blue
		22 (Data)	7/30 TC	0.110	2.79	Foam-HDPE								16.0	N/A		Green, White
		12 (Power)	65/30 TC	0.122	3.10	PVC								N/A	N/A		Black, Red
GCR1318	3/C 18	18 (Power)	7/26 TC	0.068	1.73	SR-PVC	100% Flex Foil + 90% Tinned Copper Braid	TPU Polyurethane	0.035	0.89	0.333	8.46	53%	N/A	N/A	AWM 20233 -40C to +80C/300 V	Blue, Red, Green/Yellow
	3/P 24	24 (Data)	7/32 TC	0.048	1.22	HD-Polyethylene											66%
GCR1319	3	24	7/32 TC	0.048	1.22	HD-Polyethylene	100% Flex Foil + 90% Tinned Copper Braid	TPU Polyurethane	0.035	0.89	0.275	6.99	66%	15.4	100.0	AWM 20233 -40C to +80C/300 V	White, Brown Pink, Gray Yellow, Green



# Multi-Paired, Shielded/Individually Shielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper per ASTM B33

**Insulation:**

- Foam-Polyethylene
- Polypropylene
- FEP
- Foam - HDPE
- Polyolefin (GCR1301)

**Jacket:**

- PVC
- Flexguard
- FEP (C8101)

**Shield:**

- Flexfoil with tinned copper braid
- Flexfoil

**Applications:**

- Modbus applications
- HART® applications
- RS-485 applications
- Interlocked armored (steel or aluminum)
- Industrial type applications

**Compliances:**

- UL, c(UL)
- See below for individual product compliances

**INDIVIDUALLY FOIL SHIELDED**

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		OVERALL ARMOR TYPE	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
GCR1310	1.5	22	7/30 TC	0.090	2.29	Foam-Polyethylene/PVC	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.285	7.24	N/A	11.0	120.0	PLTC, CM CMG C(UL), FT4 -20C to +75C/300 V	1/P: White/Orange Orange/White 1/C: Blue/White
GCR1320	3	22	7/30 TC	0.052	1.32	Polypropylene	100% Flex Foil over each pair	PVC	0.035	0.89	0.280	7.11	N/A	30.0	50.0	CM, AWM 2919 -20C to +80C/300 V	Black, Red Black, White Black, Green
GCR1320A	3	22	7/30 TC	0.052	1.32	Polypropylene	100% Flex Foil over each pair	PVC	0.035	0.89	0.590	14.99	Aluminum Interlock Armor/PVC	30.0	50.0	CM, AWM 2919 -20C to +80C/300 V	Black, Red Black, White Black, Green
GCR1320S	3	22	7/30 TC	0.052	1.32	Polypropylene	100% Flex Foil over each pair	PVC	0.035	0.89	0.590	14.99	Galvanized Steel Interlock Armor/PVC	30.0	50.0	CM, AWM 2919 -20C to +80C/300 V	Black, Red Black, White Black, Green
GCR1320P	3	22	7/30 TC	0.050	1.27	FEP	100% Flex Foil over each pair	Flex-Guard	0.015	0.38	0.234	5.94	N/A	30.0	50.0	CMP c(UL) -10C to +75C/300 V	Black, Red Black, White Black, Green
GCR1320FP	3	22	7/30 TC	0.050	1.27	FEP	100% Flex Foil over each pair	FEP	0.015	0.38	0.230	5.84	N/A	30.0	50.0	CMP c(UL) -70C to +200C/300 V	Black, Red Black, White Black, Green



# Multi-Paired, Shielded/Individually Shielded

### OVERALL FOIL AND BRAID SHIELD

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
C7112A	1	22	7/30 TC	0.078	1.98	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.038	0.97	0.255	6.48	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White
C7112AF	1	22	26/36 TC	0.078	1.98	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.038	0.97	0.255	6.48	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White
C7114A	2	22	7/30 TC	0.066	1.68	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.330	8.38	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White
C7114AF	2	22	26/36 TC	0.066	1.68	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.330	8.38	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White
C7116A	3	22	7/30 TC	0.062	1.57	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.335	8.51	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White
C7116AF	3	22	26/36 TC	0.062	1.57	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.335	8.51	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White
C7118A	4	22	7/30 TC	0.062	1.57	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.365	9.27	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White, White/Brown, Brown/White
C7118AF	4	22	26/36 TC	0.062	1.57	Foam-HDPE	100% Flex Foil + 65% Tinned Copper Braid	PVC	0.045	1.14	0.365	9.27	76%	11.0	120.0	PLTC, CM c(UL) -20C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White, White/Brown, Brown/White
C4841A	1	24	7/30 TC	0.072	1.83	Polyethylene	100% Flex Foil + 90% Tinned Copper Braid	PVC	0.035	0.89	0.235	5.97	76%	14.6	120.0	CM, CMH c(UL), AWM 2919 -20C to +80C/300 V	White/Blue, Blue/White
C4842A	2	24	7/32 TC	0.072	1.83	Polyethylene	100% Flex Foil + 90% Tinned Copper Braid	PVC	0.035	0.89	0.304	7.72	76%	11.7	120.0	CM, CMH c(UL), AWM 2919 -20C to +80C/300 V	White/Blue, Blue/White, White/Orange, Orange/White
C4843A	3	24	7/32 TC	0.072	1.83	Polyethylene	100% Flex Foil + 90% Tinned Copper Braid	PVC	0.035	0.89	0.360	9.14	76%	11.9	120.0	CM, CMH c(UL), AWM 2919 -20C to +80C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White
C4844A	4	24	7/32 TC	0.072	1.83	Polyethylene	100% Flex Foil + 90% Tinned Copper Braid	PVC	0.035	0.89	0.390	9.91	76%	11.9	120.0	CM, CMH c(UL), AWM 2919 -20C to +80C/300 V	White/Blue, Blue/White, White/Orange, Orange/White, White/Green, Green/White, White/Brown, Brown/White



# Multi-Paired, Shielded/Individually Shielded

### OVERALL FOIL AND BRAID SHIELD (CONT'D.)

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
C4851A	1	24	7/32 TC	0.076	1.93	Foam-FEP	100% Flex Foil + 90% Tinned Copper Braid	Flex-guard	0.015	0.38	0.210	5.33	78%	12.0	120.0	CMP c(UL) -10C to +75C/300 V	White/Blue, Blue/White
C4852A	2	24	7/32 TC	0.062	1.57	Foam-FEP	100% Flex Foil + 90% Tinned Copper Braid	Flex-guard	0.015	0.38	0.263	6.68	78%	12.0	120.0	CMP c(UL) -10C to +75C/300 V	White/Blue, Blue/White, White/Orange, Orange/White
GCR1301	2	18	7/26 TC	0.164	4.17	Polyolefin	100% Flex Foil + 60% Tinned Copper Braid (3.2 Ohm)	PVC	0.055	1.40	0.460	11.68	N/A	12.0	124.0	TC, PLTC, ITC, CMG, FT4 -40C to +80C	Blue, White

### OVERALL FOIL SHIELD

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	SHIELD TYPE	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm				INCHES	mm	INCHES	mm					
C2534A	1	18	16/30 TC	0.078	1.98	Polyethylene	100% Flex Foil	PVC	0.020	0.51	0.205	5.21	66%	25.5	60.0	CM, CMH c(UL), AWM 2092 -20C to +80C/300 V	Black, Natural
C8123	1	18	19/30 TC	0.064	1.63	FEP	100% Flex Foil	Flex-guard	0.015	0.38	0.160	4.06	69%	40.0	38.0	CMP c(UL) -10C to +75C/300 V	Black, Red
C8101	1	18	19/30 TC	0.064	1.63	FEP	100% Flex Foil	FEP	0.015	0.38	0.160	4.06	69%	40.0	38.0	CMP c(UL) -70C to +200C/300 V	Black, Red



# Multi-Paired, Unshielded



**Product Construction:**

**Conductor:**

- Fully annealed stranded tinned copper or bare copper per ASTM B33

**Insulation:**

- PVC
- HDPE
- Flexguard

**Jacket:**

- PVC
- Flexguard

**Applications:**

- LonWorks applications
- Industrial type applications

**Compliances:**

- UL, c(UL)
- See below for individual product compliances

CATALOG NUMBER	NO. OF PAIRS	AWG SIZE	COND. STRAND	INSULATION NOMINAL O.D.		INSULATION MATERIAL	JACKET TYPE	NOM. JACKET THICKNESS		CABLE NOMINAL O.D.		VEL. OF PROP.	NOM. CAP. pF/FT	NOM. IMP. OHMS	NEC UL C(UL)US TYPE	PAIRS COLOR CODE
				INCHES	mm			INCHES	mm	INCHES	mm					
C8661	1	16	19/.0117 TC	0.088	2.23	PVC	PVC	0.032	0.81	0.246	6.24	69%	30.0	65.0	CM, CL2, CSA FT4 (-20C to +75C)	Black, White
C8621	1	16	19/.0117 TC	0.088	2.23	Flexguard	Flexguard	0.015	0.38	0.182	4.57	69%	35.0	55.0	CL2P, CMP, CSA FT6 (-10C to +75C)	Black, White
C8641	1	22	7/.0096 BC	0.049	1.24	HDPE	PVC	0.022	0.56	0.145	3.68	69%	17.0	100.0	CM, CSA FT4 (-20C to +75C)	White/Blue, Blue
C8601	1	22	7/.0096 BC	0.049	1.24	Flexguard	Flexguard	0.015	0.38	0.130	3.30	69%	17.0	100.0	CMP, CSA FT6 (-10C to +75C)	White/Blue, Blue



# Industrial Instrumentation and Control

Generating power and enhancing control. General Cable is recognized worldwide for leadership and breadth in power, control and instrumentation cable products. Our solutions span a very broad range of manufacturing and industrial distribution applications, engineered to perform reliably in the most demanding environments. Our industry-certified cables for industrial instrumentation, power and control serve the full spectrum of customer requirements. As demand drives investment in renewable wind, solar and hydroelectric energy sources, General Cable is there, a pioneer and trusted provider.



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	4780	TC-Flex Tray Cable 14 AWG - 10 AWG, UL Type WTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Torsion-Resistant, Flame-Retardant, -40°C to +90°C	58
	4785	TC-Flex Tray Cable 18 AWG - 16 AWG, UL Type WTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Flame-Retardant, -40°C to +90°C	59
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# FREP®

## FR-EPR/CPE, Instrumentation, Shielded 600 V, UL Type TC, Overall Shielded Pairs/Triads

**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1: Pairs - black and white; Triads - black, white and red. One conductor in each pair or triad is printed alpha-numerically for easy identification

**Shield:**

**Overall shielded pairs/triads**

- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, thermoplastic Chlorinated Polyethylene (CPE)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/PS/TS XXAWG EPR/CPE SHIELDED (UL) TYPE TC 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Excellent flame resistance—burns to an ash; does not exhibit thermoplastic drip
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- RoHS Compliant

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF PAIRS/TRIADS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**OVERALL SHIELDED PAIRS/TRIADS  
18 AWG CONDUCTORS**

287650*	1	18	7W	0.025	0.64	0.045	1.14	0.300	7.62	13	19	42	63
325250*	1 TRI	18	7W	0.025	0.64	0.045	1.14	0.315	8.00	18	26	53	79
337010*	2	18	7W	0.025	0.64	0.045	1.14	0.420	10.67	23	34	75	112
337020*	4	18	7W	0.025	0.64	0.045	1.14	0.490	12.45	44	65	117	174
337030*	8	18	7W	0.025	0.64	0.060	1.52	0.675	17.15	86	127	224	333
337040*	12	18	7W	0.025	0.64	0.060	1.52	0.775	19.69	127	189	305	454
294580*	16	18	7W	0.025	0.64	0.080	2.03	0.925	23.50	169	251	425	632
337050*	20	18	7W	0.025	0.64	0.080	2.03	1.025	26.04	210	313	510	759
337060*	24	18	7W	0.025	0.64	0.080	2.03	1.105	28.07	252	375	604	899
337070*	36	18	7W	0.025	0.64	0.080	2.03	1.360	34.54	377	561	865	1287
337080*	50	18	7W	0.025	0.64	0.080	2.03	1.555	39.50	523	778	1144	1703

**OVERALL SHIELDED PAIRS/TRIADS  
16 AWG CONDUCTORS**

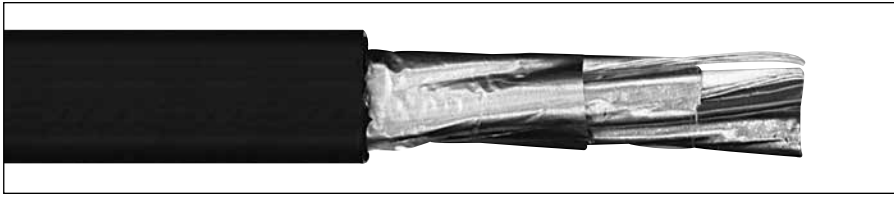
314960	1	16	7W	0.025	0.64	0.045	1.14	0.320	8.13	18	28	52	77
279690	1 TRI	16	7W	0.025	0.64	0.045	1.14	0.335	8.51	26	39	66	98
283170*	2	16	7W	0.025	0.64	0.045	1.14	0.460	11.68	36	54	95	141
283180*	4	16	7W	0.025	0.64	0.060	1.52	0.560	14.22	69	103	171	254
337090*	8	16	7W	0.025	0.64	0.060	1.52	0.740	18.80	135	201	294	438
283190*	12	16	7W	0.025	0.64	0.080	2.03	0.900	22.86	202	300	438	652
337100*	16	16	7W	0.025	0.64	0.080	2.03	1.015	25.78	268	399	560	833
337110*	20	16	7W	0.025	0.64	0.080	2.03	1.130	28.70	335	498	680	1012
337120*	24	16	7W	0.025	0.64	0.080	2.03	1.215	30.86	401	597	807	1201
337130*	36	16	7W	0.025	0.64	0.080	2.03	1.505	38.23	601	894	1160	1726
337140*	50	16	7W	0.025	0.64	0.080	2.03	2.095	53.21	834	1241	1702	2533

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

# FREP®

FR-EPR/CPE, Instrumentation, Shielded  
600 V, UL Type TC, Individual and Overall Shielded Pairs



CATALOG NUMBER	NO. OF PAIRS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**INDIVIDUAL AND OVERALL SHIELDED PAIRS  
18 AWG CONDUCTORS**

279700	2	18	7W	0.025	0.64	0.045	1.14	0.473	12.01	27	41	83	124
279710	4	18	7W	0.025	0.64	0.060	1.52	0.586	14.88	53	78	152	226
279720*	8	18	7W	0.025	0.64	0.060	1.52	0.751	19.08	103	153	259	385
279730*	12	18	7W	0.025	0.64	0.080	2.03	0.948	24.08	153	228	398	592
279740*	16	18	7W	0.025	0.64	0.080	2.03	1.050	26.67	206	307	502	747
319270*	20	18	7W	0.025	0.64	0.080	2.03	1.185	30.10	254	378	623	927
279750*	24	18	7W	0.025	0.64	0.080	2.03	1.220	30.99	311	463	709	1055
337240*	36	18	7W	0.025	0.64	0.080	2.03	1.474	37.44	461	687	1008	1500
337250*	50	18	7W	0.025	0.64	0.110	2.79	1.780	45.21	640	952	1454	2164

**INDIVIDUAL AND OVERALL SHIELDED PAIRS  
16 AWG CONDUCTORS**

280500	2	16	7W	0.025	0.64	0.045	1.14	0.500	12.70	40	59	103	153
280520	4	16	7W	0.025	0.64	0.060	1.52	0.650	16.51	77	114	189	281
280530	6	16	7W	0.025	0.64	0.060	1.52	0.755	19.18	115	171	268	399
280540	8	16	7W	0.025	0.64	0.060	1.52	0.840	21.34	151	225	330	491
279760	12	16	7W	0.025	0.64	0.080	2.03	1.065	27.05	226	337	506	753
280990*	16	16	7W	0.025	0.64	0.080	2.03	1.185	30.10	305	453	643	957
337260*	20	16	7W	0.025	0.64	0.080	2.03	1.320	33.53	380	566	777	1156
279770*	24	16	7W	0.025	0.64	0.080	2.03	1.485	37.72	455	677	932	1387
288260*	36	16	7W	0.025	0.64	0.080	2.03	1.760	44.70	683	1016	1410	2098
288250*	50	16	7W	0.025	0.64	0.110	2.79	2.035	51.69	946	1408	1883	2802

Dimensions and weights are nominal; subject to industry tolerances.  
\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1: Pairs - black and white. One conductor in each pair is printed alpha-numerically for easy identification

**Shield:**

**Individual and overall shielded pairs**

- Individual pairs are 100% individually shielded with Flexfoil® aluminum/polyester in contact with stranded tinned copper drain wire
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, thermoplastic Chlorinated Polyethylene (CPE)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/SPS XXAWG EPR/CPE SHIELDED (UL) TYPE TC 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Excellent flame resistance—burns to an ash; does not exhibit thermoplastic drip
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- RoHS Compliant

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



# FREP®

## FR-EPR/CPE, Instrumentation, Shielded

### 600 V, UL Type TC, Individual and Overall Shielded Triads

**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1: Triads - black, white and red. One conductor in each triad is printed alpha-numerically for easy identification

**Shield:**

**Individual and overall shielded triads**

- Individual triads are 100% shielded with Flexfoil® aluminum/polyester in contact with stranded tinned copper drain wire
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, thermoplastic Chlorinated Polyethylene (CPE)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/STS XXAWG EPR/CPE SHIELDED (UL) TYPE TC 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Excellent flame resistance—burns to an ash; does not exhibit thermoplastic drip
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- RoHS Compliant

**Flame Test Compliances:**

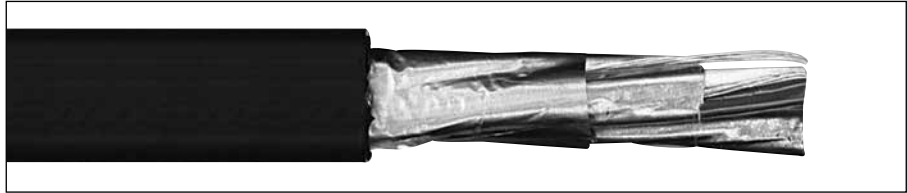
- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF TRIADS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**INDIVIDUAL AND OVERALL SHIELDED TRIADS  
18 AWG CONDUCTORS**

337150*	2 TRI	18	7W	0.025	0.64	0.060	1.52	0.560	14.22	38	57	127	189
319250*	4 TRI	18	7W	0.025	0.64	0.060	1.52	0.640	16.26	73	109	201	299
319260*	8 TRI	18	7W	0.025	0.64	0.080	2.03	0.825	20.96	144	214	343	510
337160*	12 TRI	18	7W	0.025	0.64	0.080	2.03	1.065	27.05	218	324	528	786
294540*	16 TRI	18	7W	0.025	0.64	0.080	2.03	1.180	29.97	290	431	675	1005
337170*	20 TRI	18	7W	0.025	0.64	0.080	2.03	1.310	33.27	361	538	825	1228
337180*	24 TRI	18	7W	0.025	0.64	0.080	2.03	1.500	38.10	433	645	972	1447
337190*	36 TRI	18	7W	0.025	0.64	0.080	2.03	1.740	44.20	649	965	1470	2188

**INDIVIDUAL AND OVERALL SHIELDED TRIADS  
16 AWG CONDUCTORS**

280950*	2 TRI	16	7W	0.025	0.64	0.060	1.52	0.615	15.62	57	84	159	237
280960*	4 TRI	16	7W	0.025	0.64	0.060	1.52	0.705	17.91	108	160	249	371
280970*	8 TRI	16	7W	0.025	0.64	0.080	2.03	0.850	21.59	217	323	472	702
287410*	12 TRI	16	7W	0.025	0.64	0.080	2.03	1.160	29.46	328	487	683	1016
337200*	16 TRI	16	7W	0.025	0.64	0.080	2.03	1.290	32.77	436	649	879	1308
337210*	20 TRI	16	7W	0.025	0.64	0.080	2.03	1.380	35.05	545	811	1058	1575
337220*	24 TRI	16	7W	0.025	0.64	0.080	2.03	1.615	41.02	653	972	1266	1884
337230*	36 TRI	16	7W	0.025	0.64	0.110	2.79	1.920	48.77	979	1457	1918	2854

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.



# GenFree®

XLPE/LSZH, Instrumentation, Shielded  
600 V, UL Type TC-LS, Overall Shielded Pairs/Triads



CATALOG NUMBER	NO. OF PAIRS/TRIADS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**OVERALL SHIELDED PAIRS/TRIADS  
18 AWG CONDUCTORS**

393710*	1	18	7W	0.030	0.76	0.045	1.14	0.315	8.00	13	19	46	68
393720*	1 TRI	18	7W	0.030	0.76	0.045	1.14	0.340	8.64	18	26	58	86
393730*	2	18	7W	0.030	0.76	0.045	1.14	0.450	11.43	23	34	88	131
393740*	4	18	7W	0.030	0.76	0.045	1.14	0.560	14.22	44	65	144	214
393750*	8	18	7W	0.030	0.76	0.060	1.52	0.750	19.05	86	127	263	391
393760*	12	18	7W	0.030	0.76	0.080	2.03	0.850	21.59	127	189	358	533
393770*	16	18	7W	0.030	0.76	0.080	2.03	1.010	25.65	169	251	461	686
393780*	20	18	7W	0.030	0.76	0.080	2.03	1.085	27.56	210	313	600	893
393790*	24	18	7W	0.030	0.76	0.080	2.03	1.210	30.73	252	375	701	1043
393800*	36	18	7W	0.030	0.76	0.080	2.03	1.500	38.10	377	561	1005	1496
393810*	50	18	7W	0.030	0.76	0.080	2.03	2.570	65.28	523	778	1603	2386

**OVERALL SHIELDED PAIRS/TRIADS  
16 AWG CONDUCTORS**

393820*	1	16	7W	0.030	0.76	0.045	1.14	0.345	8.76	18	28	32	48
393830*	1 TRI	16	7W	0.030	0.76	0.045	1.14	0.360	9.14	26	39	72	107
393840*	2	16	7W	0.030	0.76	0.045	1.14	0.560	14.22	36	54	121	180
393850*	4	16	7W	0.030	0.76	0.060	1.52	0.650	16.51	69	103	186	277
393860*	8	16	7W	0.030	0.76	0.060	1.52	0.810	20.57	135	201	324	482
393870*	12	16	7W	0.030	0.76	0.080	2.03	1.000	25.40	202	300	486	723
393880*	16	16	7W	0.030	0.76	0.080	2.03	1.120	28.45	268	399	616	917
393890*	20	16	7W	0.030	0.76	0.080	2.03	1.170	29.72	335	498	734	1092
393900*	24	16	7W	0.030	0.76	0.080	2.03	1.440	36.58	401	597	894	1330
393910*	36	16	7W	0.030	0.76	0.080	2.03	1.650	41.91	601	894	1254	1866
393920*	50	16	7W	0.030	0.76	0.110	2.79	2.020	51.31	834	1241	1800	2679

Dimensions and weights are nominal; subject to industry tolerances.  
\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 1: Pairs - black and white; Triads - black, white and red. One conductor in each pair or triad is printed alpha-numerically for easy identification

**Shield:**

- Overall shielded pairs/triads
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant, Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) GENFREE® XX/PS/TS XXAWG XLPE/LSZH SHIELDED (UL) TYPE TC-LS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways, aerial or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC-LS, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- ICEA T-33-655
- RoHS Compliant

**Flame Test Compliances:**

- UL 1581
- UL 1685 Vertical Flame Test
- IEEE 1202

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



# GenFree®

## XLPE/LSZH, Instrumentation, Shielded

### 600 V, UL Type TC-LS, Individual and Overall Shielded Pairs

**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 1: Pairs - black and white. One conductor in each pair is printed alpha-numerically for easy identification

**Shield:**

**Individual and overall shielded pairs**

- Individual pairs are 100% individually shielded with Flexfoil® aluminum/polyester in contact with stranded tinned copper drain wire
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) GENFREE® XX/SPS XXAWG XLPE/LSZH SHIELDED (UL) TYPE TC-LS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways, aerial or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC-LS, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- ICEA T-33-655
- RoHS Compliant

**Flame Test Compliances:**

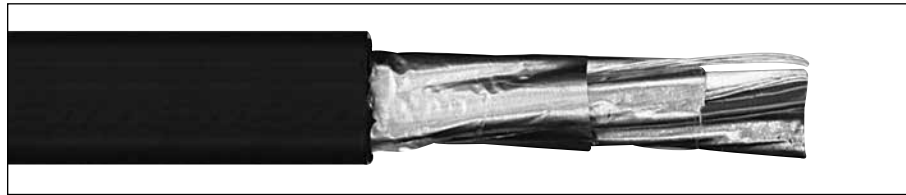
- UL 1581
- UL 1685 Vertical Flame Test
- IEEE 1202

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF PAIRS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**INDIVIDUAL AND OVERALL SHIELDED PAIRS  
18 AWG CONDUCTORS**

393930*	2	18	7W	0.030	0.76	0.045	1.14	0.510	12.95	27	41	92	137
393940*	4	18	7W	0.030	0.76	0.060	1.52	0.630	16.00	53	78	167	249
393950*	8	18	7W	0.030	0.76	0.080	2.03	0.855	21.72	103	153	326	485
393960*	12	18	7W	0.030	0.76	0.080	2.03	1.030	26.16	153	228	441	656
393970*	16	18	7W	0.030	0.76	0.080	2.03	1.140	28.96	206	307	554	824
393980*	20	18	7W	0.030	0.76	0.080	2.03	1.265	32.13	254	378	676	1006
393990*	24	18	7W	0.030	0.76	0.080	2.03	1.450	36.83	311	463	795	1183
394000*	36	18	7W	0.030	0.76	0.010	2.79	1.650	41.91	461	687	1118	1664
394010*	50	18	7W	0.030	0.76	0.010	2.79	2.085	52.96	640	952	1616	2405

**INDIVIDUAL AND OVERALL SHIELDED PAIRS  
16 AWG CONDUCTORS**

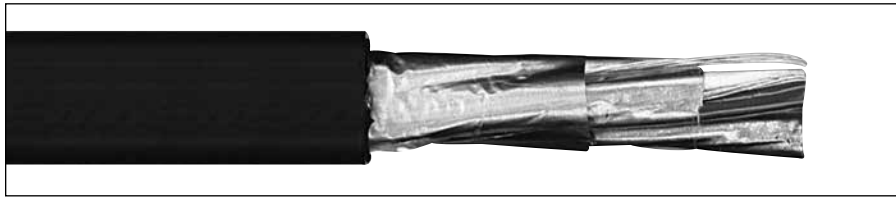
394020*	2	16	7W	0.030	0.76	0.060	1.52	0.585	14.86	40	59	130	193
394030*	4	16	7W	0.030	0.76	0.060	1.52	0.675	17.15	77	114	204	304
394040*	6	16	7W	0.030	0.76	0.060	1.52	0.800	20.32	115	171	301	447
394050*	8	16	7W	0.030	0.76	0.080	2.03	0.915	23.24	151	225	394	586
394060*	12	16	7W	0.030	0.76	0.080	2.03	1.110	28.19	226	337	548	816
394070*	16	16	7W	0.030	0.76	0.080	2.03	1.350	34.29	305	453	713	1061
394080*	20	16	7W	0.030	0.76	0.080	2.03	1.365	34.67	380	566	850	1265
394090*	24	16	7W	0.030	0.76	0.080	2.03	1.570	39.88	455	677	1001	1490
394100*	36	16	7W	0.030	0.76	0.110	2.79	1.980	50.29	683	1016	1548	2304
394110*	50	16	7W	0.030	0.76	0.110	2.79	2.165	54.99	946	1408	2020	3006

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

# GenFree®

XLPE/LSZH, Instrumentation, Shielded  
600 V, UL Type TC-LS, Individual and Overall Shielded Triads



**Product Construction:**

**Conductor:**

- 18 AWG and 16 AWG tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 1: Triads - black, white and red. One conductor in each triad is printed alpha-numerically for easy identification

**Shield:**

- **Individual and overall shielded triads**
- Individual triads are 100% shielded with Flexfoil® aluminum/polyester in contact with stranded tinned copper drain wire
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) GENFREE® XX/STS XXAWG XLPE/LSZH SHIELDED (UL) TYPE TC-LS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways, aerial or direct burial
- In wet or dry locations
- Permitted for use in Class 1, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC-LS, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- ICEA T-33-655
- RoHS Compliant

**Flame Test Compliances:**

- UL 1581
- UL 1685 Vertical Flame Test
- IEEE 1202

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF TRIADS	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**INDIVIDUAL AND OVERALL SHIELDED TRIADS  
18 AWG CONDUCTORS**

394120*	2 TRI	18	7W	0.030	0.76	0.060	1.52	0.595	15.11	38	57	150	223
394130*	4 TRI	18	7W	0.030	0.76	0.060	1.52	0.690	17.53	74	110	231	344
394140*	8 TRI	18	7W	0.030	0.76	0.080	2.03	0.940	23.88	145	216	435	647
394150*	12 TRI	18	7W	0.030	0.76	0.080	2.03	1.135	28.83	217	323	612	911
394160*	16 TRI	18	7W	0.030	0.76	0.080	2.03	1.265	32.13	289	430	773	1150
394170*	20 TRI	18	7W	0.030	0.76	0.080	2.03	1.405	35.69	361	537	935	1391
394180*	24 TRI	18	7W	0.030	0.76	0.080	2.03	1.565	39.75	432	643	1097	1633
394190*	36 TRI	18	7W	0.030	0.76	0.110	2.79	1.860	47.24	647	963	1662	2473

**INDIVIDUAL AND OVERALL SHIELDED TRIADS  
16 AWG CONDUCTORS**

394200*	2 TRI	16	7W	0.030	0.76	0.060	1.52	0.640	16.26	57	84	183	272
394210*	4 TRI	16	7W	0.030	0.76	0.060	1.52	0.745	18.92	111	165	494	735
394220*	8 TRI	16	7W	0.030	0.76	0.080	2.03	1.015	25.78	219	326	549	817
394230*	12 TRI	16	7W	0.030	0.76	0.080	2.03	1.230	31.24	328	487	777	1156
394240*	16 TRI	16	7W	0.030	0.76	0.080	2.03	1.370	34.80	437	650	988	1470
394250*	20 TRI	16	7W	0.030	0.76	0.080	2.03	1.525	38.74	545	811	1120	1667
394260*	24 TRI	16	7W	0.030	0.76	0.110	2.79	1.760	44.70	654	973	1530	2277
394270*	36 TRI	16	7W	0.030	0.76	0.110	2.79	2.015	51.18	979	1457	2142	3188

Dimensions and weights are nominal; subject to industry tolerances.  
\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.



# FREP®

FR-EPR/CPE, Control, Unshielded  
600 V, UL Type TC-ER<sup>1</sup>—E-2 Color Code

**Product Construction:**

**Conductor:**

- 14 AWG thru 10 AWG fully annealed stranded tinned copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1, Table E-2 (does not include white or green)

**Jacket:**

- Lead-free, flame-retardant thermoplastic Chlorinated Polyethylene (CPE)

**Print**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/C XXAWG EPR/CPE (UL) TYPE TC-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for Exposed Run (ER) use in accordance with NEC for 3 or more conductors
- Approved for direct burial
- Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Sunlight- and weather-resistant
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Low coefficient of friction for easy pulling
- Excellent flame resistance—burns to ash; does not exhibit thermoplastic drip
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C
- Meets the crush and impact requirements of Type MC cable for 3 or more conductors

**Compliances:**

**Industry Compliances:**

- UL 44 Type XHHW-2
- UL 1277 Type TC-ER for 3 or more conductors, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57

**Flame Test Compliances:**

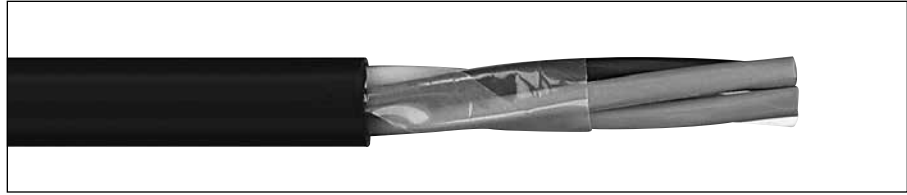
- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**14 AWG CONDUCTORS**

279560	2 Flat	14	7W	0.030	0.76	0.045	1.14	.365 x .230	9.30 x 5.80	26	38	61	91
305320*	2	14	7W	0.030	0.76	0.045	1.14	0.370	9.40	26	39	71	106
280180	3	14	7W	0.030	0.76	0.045	1.14	0.390	9.91	39	59	92	137
280190	4	14	7W	0.030	0.76	0.045	1.14	0.425	10.80	53	78	115	171
279870	5	14	7W	0.030	0.76	0.045	1.14	0.465	11.81	66	98	139	207
280200	7	14	7W	0.030	0.76	0.045	1.14	0.505	12.83	92	137	173	257
280210	9	14	7W	0.030	0.76	0.060	1.52	0.620	15.75	118	176	240	357
279880	12	14	7W	0.030	0.76	0.060	1.52	0.700	17.78	158	235	301	448
279580	19	14	7W	0.030	0.76	0.060	1.52	0.815	20.70	250	372	468	696
279590	25	14	7W	0.030	0.76	0.080	2.03	0.935	23.75	323	481	624	929
347080*	30	14	7W	0.030	0.76	0.080	2.03	1.030	26.16	387	576	747	1112
279600	37	14	7W	0.030	0.76	0.080	2.03	1.110	28.19	466	694	875	1302

**12 AWG CONDUCTORS**

279840	2 Flat	12	7W	0.030	0.76	0.045	1.14	.400 x .245	10.20 x 6.20	40	60	82	122
307690*	2	12	7W	0.030	0.76	0.045	1.14	0.410	10.41	41	61	94	140
280170	3+ Grnd	12	7W	0.030	0.76	0.045	1.14	0.435	11.05	85	127	148	220
280300	3	12	7W	0.030	0.76	0.045	1.14	0.435	11.05	64	95	124	185
280310	4	12	7W	0.030	0.76	0.045	1.14	0.475	12.07	85	127	157	234
280320	5	12	7W	0.030	0.76	0.045	1.14	0.520	13.21	106	158	191	284
279890	7	12	7W	0.030	0.76	0.060	1.52	0.595	15.11	149	221	268	399
280330	9	12	7W	0.030	0.76	0.060	1.52	0.695	17.65	191	285	337	502
280340	12	12	7W	0.030	0.76	0.060	1.52	0.765	19.43	247	368	428	637
279610	19	12	7W	0.030	0.76	0.080	2.03	0.940	23.88	391	582	688	1024
295400*	25	12	7W	0.030	0.76	0.080	2.03	1.095	27.81	515	767	854	1271
347100*	30	12	7W	0.030	0.76	0.080	2.03	1.150	29.21	618	920	1002	1491
301870	37	12	7W	0.030	0.76	0.080	2.03	1.240	31.50	762	1134	1240	1845

**10 AWG CONDUCTORS**

279570	2 Flat	10	7W	0.030	0.76	0.045	1.14	.445 x .270	11.30 x 6.90	64	95	113	168
305340*	2	10	7W	0.030	0.76	0.045	1.14	0.455	11.56	65	97	128	190
279680	3+ Grnd	10	7W	0.030	0.76	0.045	1.14	0.485	12.32	134	199	225	335
280410	3	10	7W	0.030	0.76	0.045	1.14	0.485	12.32	100	150	172	256
279900	4	10	7W	0.030	0.76	0.060	1.52	0.560	14.22	134	199	234	348
279620	5	10	7W	0.030	0.76	0.060	1.52	0.615	15.62	167	249	284	423
279630	7	10	7W	0.030	0.76	0.060	1.52	0.670	17.02	234	349	381	567
279640	9	10	7W	0.030	0.76	0.060	1.52	0.760	19.30	295	440	464	691
279650	12	10	7W	0.030	0.76	0.080	2.03	0.905	22.99	402	598	651	696

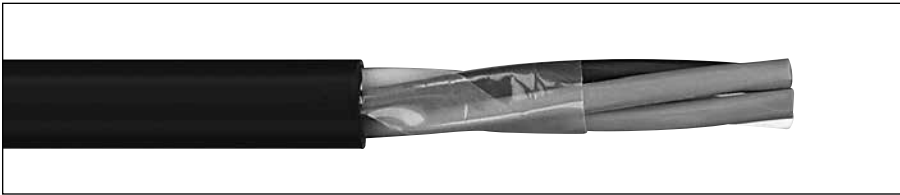
Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.

# FREP®

FR-EPR/CPE, Control, Unshielded  
600 V, UL Type TC-ER<sup>1</sup>—E-1 Color Code



**Product Construction:**

**Conductor:**

- 14 AWG thru 10 AWG fully annealed stranded tinned copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1, Table E-1 (includes white or green)

**Jacket:**

- Lead-free, flame-retardant thermoplastic Chlorinated Polyethylene (CPE)

**Print**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/C XXAWG EPR/CPE (UL) TYPE TC-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for Exposed Run (ER) use in accordance with NEC for 3 or more conductors
- Approved for direct burial
- Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Sunlight- and weather-resistant
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Low coefficient of friction for easy pulling
- Excellent flame resistance—burns to ash; does not exhibit thermoplastic drip
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C
- Meets the crush and impact requirements of Type MC cable for 3 or more conductors

**Compliances:**

- Industry Compliances:**
- UL 44 Type XHHW-2
  - UL 1277 Type TC-ER for 3 or more conductors, UL File # E57179
  - UL 1581
  - ICEA S-73-532/NEMA WC57

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**14 AWG CONDUCTORS**

280590	2 Flat	14	7W	0.030	0.76	0.045	1.14	.365 x .230	9.30 x 5.80	26	38	61	91
280230	3	14	7W	0.030	0.76	0.045	1.14	0.390	9.91	39	59	92	137
280240	4	14	7W	0.030	0.76	0.045	1.14	0.425	10.80	53	78	115	171
280250	5	14	7W	0.030	0.76	0.045	1.14	0.465	11.81	66	98	139	207
280260	7	14	7W	0.030	0.76	0.045	1.14	0.505	12.83	92	137	173	257
280270	9	14	7W	0.030	0.76	0.060	1.52	0.620	15.75	118	176	240	357
280280	12	14	7W	0.030	0.76	0.060	1.52	0.700	17.78	158	235	301	448
280290*	19	14	7W	0.030	0.76	0.060	1.52	0.815	20.70	250	372	468	696
385350*	25	14	7W	0.030	0.76	0.080	2.03	0.935	23.75	323	481	624	929
385360*	30	14	7W	0.030	0.76	0.080	2.03	1.030	26.16	387	576	747	1112
385370*	37	14	7W	0.030	0.76	0.080	2.03	1.110	28.19	466	694	875	1302

**12 AWG CONDUCTORS**

279850	2 Flat	12	7W	0.030	0.76	0.045	1.14	400 x .245	10.20 x 6.20	42	63	82	122
280350*	2	12	7W	0.030	0.76	0.045	1.14	0.410	10.41	42	63	94	140
280360	3	12	7W	0.030	0.76	0.045	1.14	0.435	11.05	64	95	124	185
279910	4	12	7W	0.030	0.76	0.045	1.14	0.475	12.07	85	127	157	234
280370	5	12	7W	0.030	0.76	0.045	1.14	0.520	13.21	106	158	191	284
280380	7	12	7W	0.030	0.76	0.060	1.52	0.595	15.11	149	221	268	399
280390*	9	12	7W	0.030	0.76	0.060	1.52	0.695	17.65	191	285	337	502
280400	12	12	7W	0.030	0.76	0.060	1.52	0.765	19.43	247	368	428	637
383930*	19	12	7W	0.030	0.76	0.080	2.03	0.940	23.88	391	582	688	1024
383940*	25	12	7W	0.030	0.76	0.080	2.03	1.095	27.81	515	767	854	1271
383950*	30	12	7W	0.030	0.76	0.080	2.03	1.150	29.21	618	920	1002	1491
330800*	37	12	7W	0.030	0.76	0.080	2.03	1.240	31.50	762	1134	1240	1845

**10 AWG CONDUCTORS**

280600*	2 Flat	10	7W	0.030	0.76	0.045	1.14	.445 x .270	11.30 x 6.90	64	95	113	168
280420*	2	10	7W	0.030	0.76	0.045	1.14	0.455	11.56	65	97	128	190
279920	3	10	7W	0.030	0.76	0.045	1.14	0.485	12.32	100	150	172	256
279930	4	10	7W	0.030	0.76	0.060	1.52	0.560	14.22	134	199	234	348
330990*	5	10	7W	0.030	0.76	0.060	1.52	0.615	15.62	167	249	284	423
280430*	7	10	7W	0.030	0.76	0.060	1.52	0.670	17.02	234	349	381	567
382880*	9	10	7W	0.030	0.76	0.060	1.52	0.760	19.30	295	440	464	691
383970*	12	10	7W	0.030	0.76	0.080	2.03	0.950	22.99	402	598	651	969

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.



# FREP®

## FR-EPR/CPE, Control, Shielded

### 600 V, UL Type TC-ER<sup>1</sup>, Overall Shielded—E-2 Color Code

**Product Construction:**

**Conductor:**

- 16 AWG thru 10 AWG fully annealed stranded tinned copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 1, Table E-2 (does not include white or green)

**Shield:**

- Overall shielded multi-conductor cable
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant thermoplastic Chlorinated Polyethylene (CPE)

**Print**

- GENERAL CABLE® (PLANT OF MFG) SHIELDED FREP® XX/C XXAWG EPR/CPE (UL) TYPE TC-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceway and direct burial
- In wet or dry locations
- Permitted for Exposed Run (ER) use in accordance with NEC for 3 or more conductors
- Approved for direct burial
- Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Sunlight- and weather-resistant
- Excellent moisture resistance
- Excellent resistance to compression cuts and heat deformation
- Low coefficient of friction for easy pulling
- Excellent flame resistance—burns to ash; does not exhibit thermoplastic drip
- Excellent low temperature cold bend characteristics
- Meets cold bend test at -40°C
- Meets the crush and impact requirements of Type MC cable for 3 conductors or more

**Compliances:**

**Industry Compliances:**

- UL 44 Type XHHW-2
- UL 1277 Type TC-ER for 3 or more conductors, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57

**Flame Test Compliances:**

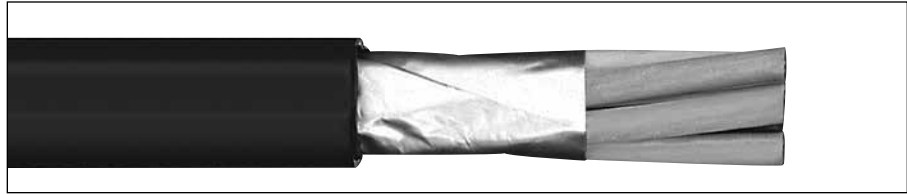
- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**OVERALL SHIELDED 16 AWG CONDUCTORS**

<b>280470</b>	2	16	7W	0.025	0.64	0.045	1.14	0.320	8.13	19	28	52	77
<b>280490</b>	3	16	7W	0.025	0.64	0.045	1.14	0.335	8.51	27	40	66	98

**OVERALL SHIELDED 14 AWG CONDUCTORS**

<b>280980*</b>	2	14	7W	0.030	0.76	0.045	1.14	0.375	9.53	29	43	74	110
<b>354800*</b>	3	14	7W	0.030	0.76	0.045	1.14	0.395	10.03	42	63	95	141
<b>305330*</b>	4	14	7W	0.030	0.76	0.045	1.14	0.430	10.92	55	82	118	176
<b>354810*</b>	5	14	7W	0.030	0.76	0.045	1.14	0.470	11.94	68	101	142	211
<b>354820*</b>	7	14	7W	0.030	0.76	0.045	1.14	0.510	12.95	94	140	176	262
<b>367120*</b>	9	14	7W	0.030	0.76	0.060	1.52	0.625	15.88	121	180	243	362
<b>354830*</b>	12	14	7W	0.030	0.76	0.060	1.52	0.705	17.91	160	238	304	452
<b>305360*</b>	19	14	7W	0.030	0.76	0.060	1.52	0.820	20.83	252	375	471	701
<b>367130*</b>	25	14	7W	0.030	0.76	0.080	2.03	0.940	25.53	325	484	627	933
<b>367140*</b>	30	14	7W	0.030	0.76	0.080	2.03	1.035	26.29	389	579	750	1116
<b>367150*</b>	37	14	7W	0.030	0.76	0.080	2.03	1.115	28.32	468	696	878	1307

**OVERALL SHIELDED 12 AWG CONDUCTORS**

<b>367160*</b>	2	12	7W	0.030	0.76	0.045	1.14	0.415	10.45	43	64	97	144
<b>367170*</b>	3	12	7W	0.030	0.76	0.045	1.14	0.440	11.18	66	98	127	189
<b>326650*</b>	4	12	7W	0.030	0.76	0.045	1.14	0.480	12.19	87	129	160	238
<b>367180*</b>	5	12	7W	0.030	0.76	0.045	1.14	0.525	13.34	108	162	194	289
<b>326660*</b>	7	12	7W	0.030	0.76	0.060	1.52	0.600	15.24	151	225	271	403
<b>367190*</b>	9	12	7W	0.030	0.76	0.060	1.52	0.700	17.78	193	287	340	506
<b>326640*</b>	12	12	7W	0.030	0.76	0.060	1.52	0.770	19.56	249	371	431	641
<b>326670*</b>	19	12	7W	0.030	0.76	0.080	2.03	0.945	24.00	393	585	691	1028
<b>367200*</b>	25	12	7W	0.030	0.76	0.080	2.03	1.100	27.94	517	769	857	1275
<b>367210*</b>	30	12	7W	0.030	0.76	0.080	2.03	1.155	29.80	620	923	1005	1496
<b>367220*</b>	37	12	7W	0.030	0.76	0.080	2.03	1.245	31.62	764	1137	1243	1850

**OVERALL SHIELDED 10 AWG CONDUCTORS**

<b>311900*</b>	2	10	7W	0.030	0.76	0.045	1.14	0.460	11.68	68	101	131	195
<b>367230*</b>	3	10	7W	0.030	0.76	0.045	1.14	0.490	12.45	103	155	175	260
<b>311910*</b>	4	10	7W	0.030	0.76	0.060	1.52	0.565	14.35	136	202	237	353
<b>367240*</b>	5	10	7W	0.030	0.76	0.060	1.52	0.620	15.75	170	253	287	427
<b>367250*</b>	7	10	7W	0.030	0.76	0.060	1.52	0.675	17.15	237	353	384	571
<b>367260*</b>	9	10	7W	0.030	0.76	0.060	1.52	0.765	19.43	298	443	467	695
<b>367270*</b>	12	10	7W	0.030	0.76	0.080	2.03	0.910	23.11	404	601	654	973

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.

**FREP®**  
FR-EPR/CPE, Low-Voltage Power, Unshielded  
600 V, UL Type TC-ER<sup>1</sup> – Method 4 Color Code



**Product Construction:**

**Conductor:**

- 14 AWG thru 750 kcmil tinned, annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Flame-Retardant Ethylene Propylene Rubber (FR-EPR) Type II
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- Uninsulated tinned annealed copper per ASTM B3
- Class B stranding per ASTM B8

**Jacket:**

- Lead-free, flame-retardant thermoplastic Chlorinated Polyethylene (CPE)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) FREP® XX/C XXAWG WITH GRND EPR/CPE (UL) TYPE TC-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways or direct burial
- In wet or dry locations
- Permitted for Exposed Run (ER) use in accordance with NEC for 3 or more conductors
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Excellent moisture resistance
- Excellent resistance to crush, compression cuts and heat deformation

**Features (cont'd.):**

- Excellent low temperature cold bend characteristics
- Excellent flame resistance—burns to ash; does not exhibit thermoplastic drip
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -40°C

**Compliances:**

**Industry Compliances:**

- UL 44 Type XHHW-2
- UL 1277 Type TC-ER, UL File # E57179
- UL 1581
- ICEA S-95-658/NEMA WC70

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- CSA FT4
- ICEA T-29-520

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	GROUND WIRE SIZE (AWG)	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
					INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km
<b>14 AWG - 750 kcmil CONDUCTORS</b>														
383830*	3	14	7W	14	0.030	0.76	0.045	1.14	0.390	9.91	55	82	118	176
296450*	3	12	7W	12	0.030	0.76	0.045	1.14	0.435	11.05	87	129	160	238
296440*	3	10	7W	10	0.030	0.76	0.060	1.52	0.485	12.32	136	202	237	353
279660	3	8	7W	10	0.045	1.14	0.060	1.52	0.655	16.64	190	283	314	467
279670	4	8	7W	10	0.045	1.14	0.060	1.52	0.720	18.29	242	360	393	585
283210	3	6	7W	8	0.045	1.14	0.060	1.52	0.740	18.80	297	442	456	679
300380	4	6	7W	8	0.045	1.14	0.060	1.52	0.790	20.07	384	571	561	835
283200	3	4	7W	8	0.045	1.14	0.060	1.52	0.825	22.35	442	658	642	955
295390	4	4	7W	8	0.045	1.14	0.060	1.52	0.950	24.13	578	861	822	1223
293600	3	2	7W	6	0.045	1.14	0.080	2.03	1.010	25.65	703	1046	979	1457
295890	4	2	7W	6	0.045	1.14	0.080	2.03	1.090	27.69	919	1368	1235	1838
297730*	3	1	19W	6	0.055	1.40	0.080	2.03	1.120	28.45	872	1298	1021	1594
356740*	4	1	19W	6	0.055	1.40	0.080	2.03	1.235	31.37	1136	1691	1521	2264
283220	3	1/0	19W	6	0.055	1.40	0.080	2.03	1.225	31.12	1069	1591	1439	2142
294530*	4	1/0	19W	6	0.055	1.40	0.080	2.03	1.330	33.78	1413	2103	1820	2709
284560	3	2/0	19W	6	0.055	1.40	0.080	2.03	1.300	33.02	1340	1994	1720	2560
295360*	4	2/0	19W	6	0.055	1.40	0.080	2.03	1.440	36.58	1760	2619	2208	3286
325700*	3	3/0	19W	4	0.055	1.40	0.080	2.03	1.420	36.07	1717	2555	2176	3238
365750*	4	3/0	19W	4	0.055	1.40	0.080	2.03	1.570	39.88	2245	3341	2788	3405
325110	3	4/0	19W	4	0.055	1.40	0.080	2.03	1.540	39.12	2130	3170	2614	3890
346980*	4	4/0	19W	4	0.055	1.40	0.110	2.79	1.790	45.47	2796	4161	3495	5201
300780	3	250	37W	4	0.065	1.65	0.110	2.79	1.760	44.70	2494	3712	3184	4738
346990*	4	250	37W	4	0.065	1.65	0.110	2.79	1.915	48.64	3282	4884	4019	5981
325120	3	350	37W	3	0.065	1.65	0.110	2.79	1.960	49.78	3474	5170	4187	6231
347000*	4	350	37W	3	0.065	1.65	0.110	2.79	2.165	54.99	4577	6811	5436	8090
298020	3	500	37W	2	0.065	1.65	0.110	2.79	2.245	57.02	4934	7343	5847	8702
14407.546500*	4	500	37W	2	0.065	1.65	0.110	2.79	2.475	62.87	6509	9687	7607	11321
14407.247000*	3	750	61W	1	0.080	2.03	0.140	3.56	2.810	71.37	7278	10831	9145	13610
14407.547000*	4	750	61W	1	0.080	2.03	0.140	3.56	3.115	79.12	9712	14453	11805	17569

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.



# GenFree®

## XLPE/LSZH, Control

### 600 V, UL Type TC-LS-ER<sup>1</sup> – E-2 Color Code

**Product Construction:**

**Conductor:**

- 14 AWG thru 10 AWG stranded tinned copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 1, Table E-2 (does not include white or green)

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant, Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print**

- GENERAL CABLE® (PLANT OF MFG) GENFREE® XX/C XXAWG XLPE/LSZH (UL) TYPE TC-LS-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways, aerial or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with the NEC for 3 or more conductors

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire
- Meets the crush and impact requirements of Type MC cable for 3 or more conductors

**Compliances:**

**Industry Compliances:**

- UL 44 Type XHHW-2
- UL 1277 Type TC-LS-ER, UL File # E57179
- UL 1581
- ICEA S-73-532/NEMA WC57
- ICEA T-33-655
- RoHS Compliant

**Flame Test Compliances:**

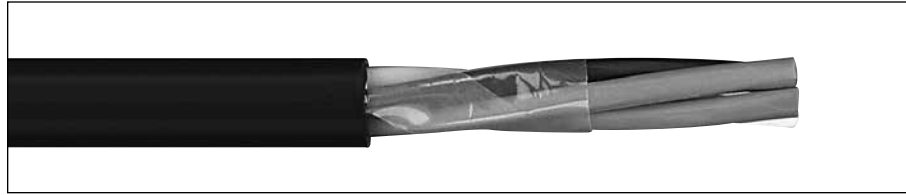
- UL 1581/UL 2556
- UL 1685 Vertical Flame Test
- IEEE 1202

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels



CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**14 AWG CONDUCTORS**

<b>394280*</b>	2 Flat	14	7W	0.030	0.76	0.045	1.14	.365 x .230	9.30 x 5.80	26	38	61	91
<b>394290*</b>	2	14	7W	0.030	0.76	0.045	1.14	0.370	9.40	26	39	71	106
<b>394300*</b>	3	14	7W	0.030	0.76	0.045	1.14	0.390	9.91	39	59	92	137
<b>394310*</b>	4	14	7W	0.030	0.76	0.045	1.14	0.425	10.80	53	78	115	171
<b>394320*</b>	5	14	7W	0.030	0.76	0.045	1.14	0.465	11.81	66	98	139	207
<b>394330*</b>	7	14	7W	0.030	0.76	0.045	1.14	0.505	12.83	92	137	173	257
<b>394340*</b>	9	14	7W	0.030	0.76	0.060	1.52	0.620	15.75	118	176	240	357
<b>394350*</b>	12	14	7W	0.030	0.76	0.060	1.52	0.700	17.78	158	235	301	448
<b>394360*</b>	19	14	7W	0.030	0.76	0.060	1.52	0.815	20.70	250	372	468	696
<b>394370*</b>	25	14	7W	0.030	0.76	0.080	2.03	0.935	23.75	323	481	624	929
<b>394380*</b>	30	14	7W	0.030	0.76	0.080	2.03	1.030	26.16	387	576	747	1112
<b>394390*</b>	37	14	7W	0.030	0.76	0.080	2.03	1.110	28.19	466	694	875	1302

**12 AWG CONDUCTORS**

<b>394400*</b>	2 Flat	12	7W	0.030	0.76	0.045	1.14	.400 x .245	10.20 x 6.20	40	60	82	122
<b>394410*</b>	2	12	7W	0.030	0.76	0.045	1.14	0.410	10.41	41	61	94	140
<b>394420<sup>2*</sup></b>	3+ Grnd	12	7W	0.030	0.76	0.045	1.14	0.435	11.05	85	127	148	220
<b>394430*</b>	3	12	7W	0.030	0.76	0.045	1.14	0.435	11.05	64	95	124	185
<b>394440*</b>	4	12	7W	0.030	0.76	0.045	1.14	0.475	12.07	85	127	157	234
<b>394450*</b>	5	12	7W	0.030	0.76	0.045	1.14	0.520	13.21	106	158	191	284
<b>394460*</b>	7	12	7W	0.030	0.76	0.060	1.52	0.595	15.11	149	221	268	399
<b>394470*</b>	9	12	7W	0.030	0.76	0.060	1.52	0.695	17.65	191	285	337	502
<b>394480*</b>	12	12	7W	0.030	0.76	0.060	1.52	0.765	19.43	247	368	428	637
<b>394490*</b>	19	12	7W	0.030	0.76	0.080	2.03	0.940	23.88	391	582	688	1024
<b>394500*</b>	25	12	7W	0.030	0.76	0.080	2.03	1.095	27.81	515	767	854	1271
<b>394510*</b>	30	12	7W	0.030	0.76	0.080	2.03	1.150	29.21	618	920	1002	1491
<b>394520*</b>	37	12	7W	0.030	0.76	0.080	2.03	1.240	31.50	762	1134	1240	1845

**10 AWG CONDUCTORS**

<b>394530*</b>	2 Flat	10	7W	0.030	0.76	0.045	1.14	.445 x .270	11.30 x 6.90	64	95	113	168
<b>394540*</b>	2	10	7W	0.030	0.76	0.045	1.14	0.455	11.56	65	97	128	190
<b>394550<sup>2*</sup></b>	3+ Grnd	10	7W	0.030	0.76	0.045	1.14	0.485	12.32	134	199	225	335
<b>394560*</b>	3	10	7W	0.030	0.76	0.045	1.14	0.485	12.32	100	150	172	256
<b>394570*</b>	4	10	7W	0.030	0.76	0.060	1.52	0.560	14.22	134	199	234	348
<b>394580*</b>	5	10	7W	0.030	0.76	0.060	1.52	0.615	15.62	167	249	284	423
<b>394590*</b>	7	10	7W	0.030	0.76	0.060	1.52	0.670	17.02	234	349	381	567
<b>394600*</b>	9	10	7W	0.030	0.76	0.060	1.52	0.760	19.30	295	440	464	691
<b>394610*</b>	12	10	7W	0.030	0.76	0.080	2.03	0.905	22.99	402	598	651	966

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

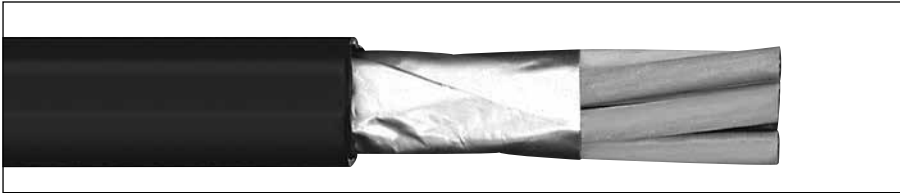
<sup>1</sup> Approved as -ER for Exposed Run applications of 3 or more conductors as defined by the NEC.

<sup>2</sup> This construction does not require an -ER mark.



# GenFree®

XLPE/LSZH, Control, Shielded  
600 V, UL Type TC-LS-ER<sup>1</sup>, Overall Shielded—E-2 Color Code



**Product Construction:**

**Conductor:**

- 16 AWG thru 10 AWG stranded tinned copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 1, Table E-2 (does not include white or green)

**Shield:**

- Overall shielded multi-conductor cable
- Overall shield is Flexfoil® aluminum/polymer in contact with stranded tinned copper drain wire

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant, Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print**

- GENERAL CABLE® (PLANT OF MFG) SHIELDED GENFREE® XX/C XXAWG XLPE/LSZH (UL) TYPE TC-LS-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceway, aerial and direct burial
- In wet or dry locations
- Permitted for use in Class 1, Division 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with the NEC for 3 or more conductors

**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical and electrical properties
- Excellent moisture resistance
- Excellent resistance to compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire
- Meets the crush and impact requirements of Type MC cable for 3 or more conductors

**Compliances:**

- Industry Compliances:**
  - UL 44 Type XHHW-2
  - UL 1277 Type TC-LS-ER, UL File # E57179
  - UL 1581/UL 2556
  - ICEA S-73-532/NEMA WC57
  - ICEA T-33-655
  - RoHS Compliant
- Flame Test Compliances:**
  - UL 1581/UL 2556
  - UL 1685 Vertical Flame Test
  - IEEE 1202
- Other Compliances:**
  - EPA 40 CFR, Part 261 for leachable lead content per TCLP
  - OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG)	COND. STRAND	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
				INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**OVERALL SHIELDED MULTI-CONDUCTORS  
16 AWG CONDUCTORS**

394960*	2	16	7W	0.025	0.64	0.045	1.14	0.320	8.13	19	28	52	77
394630*	3	16	7W	0.025	0.64	0.045	1.14	0.335	8.51	27	40	66	98

**OVERALL SHIELDED MULTI-CONDUCTORS  
14 AWG CONDUCTORS**

394640*	2	14	7W	0.030	0.76	0.045	1.14	0.375	9.53	29	43	74	110
394650*	3	14	7W	0.030	0.76	0.045	1.14	0.395	10.03	42	63	95	141
394660*	4	14	7W	0.030	0.76	0.045	1.14	0.430	10.92	55	82	118	176
394670*	5	14	7W	0.030	0.76	0.045	1.14	0.470	11.94	68	101	142	211
394680*	7	14	7W	0.030	0.76	0.045	1.14	0.510	12.95	94	140	176	262
394690*	9	14	7W	0.030	0.76	0.060	1.52	0.625	15.88	121	180	243	362
394700*	12	14	7W	0.030	0.76	0.060	1.52	0.705	17.91	160	238	304	452
394710*	19	14	7W	0.030	0.76	0.060	1.52	0.820	20.83	252	375	471	701
394720*	25	14	7W	0.030	0.76	0.080	2.03	0.940	25.53	325	484	627	933
394730*	30	14	7W	0.030	0.76	0.080	2.03	1.035	26.29	389	579	750	1116
394740*	37	14	7W	0.030	0.76	0.080	2.03	1.115	28.32	468	696	878	1307

**OVERALL SHIELDED MULTI-CONDUCTORS  
12 AWG CONDUCTORS**

394750*	2	12	7W	0.030	0.76	0.045	1.14	0.415	10.45	43	64	97	144
394760*	3	12	7W	0.030	0.76	0.045	1.14	0.440	11.18	66	98	127	189
394770*	4	12	7W	0.030	0.76	0.045	1.14	0.480	12.19	87	129	160	238
394780*	5	12	7W	0.030	0.76	0.045	1.14	0.525	13.34	108	162	194	289
394790*	7	12	7W	0.030	0.76	0.060	1.52	0.600	15.24	151	225	271	403
394800*	9	12	7W	0.030	0.76	0.060	1.52	0.700	17.78	193	287	340	506
394810*	12	12	7W	0.030	0.76	0.060	1.52	0.770	19.56	249	371	431	641
394820*	19	12	7W	0.030	0.76	0.080	2.03	0.945	24.00	393	585	691	1028
394830*	25	12	7W	0.030	0.76	0.080	2.03	1.100	27.94	517	769	857	1275
394840*	30	12	7W	0.030	0.76	0.080	2.03	1.155	29.80	620	923	1005	1496
394850*	37	12	7W	0.030	0.76	0.080	2.03	1.245	31.62	764	1137	1243	1850

**OVERALL SHIELDED MULTI-CONDUCTORS  
10 AWG CONDUCTORS**

394860*	2	10	7W	0.030	0.76	0.045	1.14	0.460	11.68	68	101	131	195
394870*	3	10	7W	0.030	0.76	0.045	1.14	0.490	12.45	103	155	175	260
394880*	4	10	7W	0.030	0.76	0.060	1.52	0.565	14.35	136	202	237	353
394890*	5	10	7W	0.030	0.76	0.060	1.52	0.620	15.75	170	253	287	427
394900*	7	10	7W	0.030	0.76	0.060	1.52	0.675	17.15	237	353	384	571
394910*	9	10	7W	0.030	0.76	0.060	1.52	0.765	19.43	298	443	467	695
394920*	12	10	7W	0.030	0.76	0.080	2.03	0.910	23.11	404	601	654	973

Dimensions and weights are nominal; subject to industry tolerances.  
 \* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.  
<sup>1</sup> Approved as -ER for Exposed Run applications of 3 or more conductors as defined by the NEC.



# GenFree®

## XLPE/LSZH, Low-Voltage Power, Unshielded

### 600 V, UL Type TC-LS-ER—Method 4 Color Code

**Product Construction:**

**Conductor:**

- 14 AWG thru 750 kcmil tinned annealed copper per ASTM B33
- Class B stranding per ASTM B8

**Insulation:**

- Lead-free, flame-retardant, low-smoke Cross-linked Polyethylene (XLPE)
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- Uninsulated bare annealed copper per ASTM B3
- Class B stranding per ASTM B8

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant, Low-Smoke, Zero-Halogen Polyolefin (LSZH)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) GENFREE® XX/C XXAWG XLPE/LSZH (UL) TYPE TC-LS-ER XHHW-2 CDRS 90°C WET OR DRY 600 V DIR BUR SUN RES ROHS DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Applications:**

- In free air, raceways, aerial or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with the NEC



**Features:**

- Rated at 90°C wet or dry
- Ripcord applied to all cables with jacket thickness of 60 mils or less
- Excellent physical, thermal and electrical properties
- Excellent moisture resistance
- Excellent resistance to crush, compression and impact
- Chemical-resistant
- Low coefficient of friction for easy pulling
- Sunlight- and weather-resistant
- Meets cold bend test at -30°C
- Low-Smoke, Zero-Halogen jacket is environmentally safe
- Low-Smoke, Zero-Halogen jacket reduces the amount of toxic and corrosive gases emitted during combustion, providing a safer environment for personnel and equipment during the hazards of fire

**Compliances:**

**Industry Compliances:**

- UL 44 Type XHHW-2
- UL 1277 Type TC-LS-ER, UL File # E57179
- UL 1581/UL 2556
- ICEA S-95-658/NEMA WC70
- ICEA T-33-655
- RoHS Compliant

**Flame Test Compliances:**

- UL 1581/UL 2556
- UL 1685 Vertical Flame Test
- IEEE 1202

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	GROUND WIRE SIZE (AWG)	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
					INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km
<b>14 AWG - 750 kcmil CONDUCTORS</b>														
394930*	3	14	7W	14	0.030	0.76	0.045	1.14	0.390	9.91	55	82	118	176
394940*	3	12	7W	12	0.030	0.76	0.045	1.14	0.435	11.05	87	129	160	238
394950*	3	10	7W	10	0.030	0.76	0.045	1.14	0.485	12.32	124	184	194	289
14428.030800*	3	8	7W	10	0.045	1.14	0.060	1.52	0.655	16.64	190	283	314	467
14428.040800*	4	8	7W	10	0.045	1.14	0.060	1.52	0.720	18.29	242	360	393	585
14428.030600*	3	6	7W	8	0.045	1.14	0.060	1.52	0.740	18.80	297	442	456	679
14428.040600*	4	6	7W	8	0.045	1.14	0.060	1.52	0.790	20.07	384	571	561	835
14428.030400*	3	4	7W	8	0.045	1.14	0.080	2.03	0.880	22.35	442	658	642	955
14428.040400*	4	4	7W	8	0.045	1.14	0.080	2.03	0.950	24.13	578	861	822	1223
14428.030200*	3	2	7W	6	0.045	1.14	0.080	2.03	1.010	25.65	703	1046	979	1457
14428.040200*	4	2	7W	6	0.045	1.14	0.080	2.03	1.090	27.69	919	1368	1235	1838
14428.030100*	3	1	19W	6	0.055	1.40	0.080	2.03	1.120	28.45	872	1298	1021	1594
14428.040100*	4	1	19W	6	0.055	1.40	0.080	2.03	1.235	31.37	1136	1691	1521	2264
14428.035100*	3	1/0	19W	6	0.055	1.40	0.080	2.03	1.225	31.12	1069	1591	1439	2142
14428.045100*	4	1/0	19W	6	0.055	1.40	0.080	2.03	1.330	33.78	1413	2103	1820	2709
14428.035200*	3	2/0	19W	6	0.055	1.40	0.080	2.03	1.300	33.02	1340	1994	1720	2560
14428.045200*	4	2/0	19W	6	0.055	1.40	0.080	2.03	1.440	36.58	1760	2619	2208	3286
14428.035300*	3	3/0	19W	4	0.055	1.40	0.080	2.03	1.420	36.07	1717	2555	2176	3238
14428.045300*	4	3/0	19W	4	0.055	1.40	0.080	2.03	1.570	39.88	2245	3341	2788	3405
14428.035400*	3	4/0	19W	4	0.055	1.40	0.080	2.03	1.540	39.12	2130	3170	2614	3890
14428.045400*	4	4/0	19W	4	0.055	1.40	0.110	2.79	1.790	45.47	2796	4161	3495	5201
14428.036000*	3	250	37W	4	0.065	1.65	0.110	2.79	1.760	44.70	2494	3712	3184	4738
14428.046000*	4	250	37W	4	0.065	1.65	0.110	2.79	1.915	48.64	3282	4884	4019	5981
14428.036200*	3	350	37W	3	0.065	1.65	0.110	2.79	1.960	49.78	3474	5170	4187	6231
14428.046200*	4	350	37W	3	0.065	1.65	0.110	2.79	2.165	54.99	4577	6811	5436	8090
14428.036500*	3	500	37W	2	0.065	1.65	0.110	2.79	2.245	57.02	4934	7343	5847	8702
14428.046500*	4	500	37W	2	0.065	1.65	0.110	2.79	2.475	62.87	6509	9687	7607	11321
14428.037000*	3	750	61W	1	0.080	2.03	0.140	3.56	2.810	71.37	7278	10831	9145	13610
14428.047000*	4	750	61W	1	0.080	2.03	0.140	3.56	3.115	79.12	9712	14453	11805	17569

Dimensions and weights are nominal; subject to industry tolerances.  
\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

# TC-Flex™ Tray Cable 18 AWG (1,0 mm<sup>2</sup>) – 16 AWG (1,5 mm<sup>2</sup>)

UL Type WTTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Torsion-Resistant, Flame-Retardant, -40°C to +90°C



**Applications (cont'd.):**

- (UL) MTW cables for machine tool and wire up to 600 V as power and control cables in accordance with UL 1063
- (CSA) CIC/TC cables for use up to 600 V in cable trays and other applications when installed in accordance with the Canadian Electrical Code, Part I
- (CSA) AWM cables for use up to 1000 V as equipment wiring in accordance with the Canadian Electrical Code, Part I

**Product Construction:**

**Conductors:**

- 18 AWG (1,0 mm<sup>2</sup>) and 16 AWG (1,5 mm<sup>2</sup>) fully annealed flexible stranded bare copper with Class 5 stranding per EN 60228 (IEC 60228)

**Insulation:**

- Polyvinyl Chloride (PVC) insulation with Polyamide (nylon) jacket per UL 83

**Conductor Identification:**

- Conductors are black with printed numbers and green/yellow grounding conductor

**Cable Assembly:**

- Conductors cabled with non-hygroscopic fillers to make the cable suitably round

**Jacket:**

- Black, flexible, flame-retardant, sunlight- and oil-resistant Polyvinyl Chloride (PVC) jacket

**Print:**

- GENERAL CABLE® TC-FLEX™ XX/C XXAWG (XXMM<sup>2</sup>) (UL) TC-ER TYPE TFFN 90°C DRY 600 V SUN RES DIR BUR OIL RES I/II OR MTW OR WTTTC 1000 V 90°C DRY c(UL) CIC/TC PVC/N 90°C FT4 --- CSA AWM I/II A/B 90°C 1000 V – ROHS CE – MADE IN USA DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARKER

**Minimum Bending Radius:**

- 4x O.D. for fixed installation
- 8x O.D. for flexing applications

**Torsion:**

- 10,000 cycles at -40°C, +/- 150° twist per meter, cable weight compensated to 20 meters

**Applications:**

- In free air, raceways or direct burial
- (UL) WTTTC cables for use up to 1000 V in wind turbine generator applications in accordance with UL Subject 6140
- (UL) TC-ER cables for use up to 600 V as power and control cables in accordance with NEC® Article 336

**Specifications:**

**Design Adherence:**

- UL 66 & UL 83/CSA C22.2 No. 75-08 Thermoplastic Insulated Wires
- UL 1063/MTW Machine Tool Wire
- UL 1277 Power and Control Tray Cables
- UL 2277 Wind Turbine Tray Cables
- CSA C22.2 No. 230-09 Tray Cables
- CSA C22.2 No. 239-09 Control and Instrumentation Cables
- CSA C22.2 No. 210-11 Appliance Wiring Material Products

**Flame Tests:**

- IEEE 1202/CSA FT4

**Compliances:**

- Type TC-ER 90°C Dry, 75°C Wet, 600 V
- Type MTW
- Type WTTTC 90°C, 1000 V
- Type CIC/TC 90°C, 600 V
- Type AWM I/II A/B, 90°C, 1000 V FT4
- RoHS Compliant

CATALOG NUMBER	NO. OF COND. INC. GRND.	NOM. INS. THICKNESS		NOM. JACKET THICKNESS		NOM. CABLE O.D.		NOM. COPPER WEIGHT		NOM. CABLE WEIGHT		90°C AMP. @ 30°C AMBIENT <sup>1</sup>
		INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km	
<b>18 AWG (1,0 mm<sup>2</sup>) 19 Strands</b>												
4775.03018	3	0.021	0.53	0.048	1.22	0.313	7.9	18	26	50	74	8
4775.04018	4	0.021	0.53	0.048	1.22	0.338	8.6	23	35	61	90	8
4775.05018	5	0.021	0.53	0.048	1.22	0.363	9.2	29	43	72	107	8
4775.07018	7	0.021	0.53	0.048	1.22	0.409	10.4	41	61	93	138	8
4775.09018*	9	0.021	0.53	0.048	1.22	0.448	11.4	53	78	114	169	7
4775.12018	12	0.021	0.53	0.048	1.22	0.497	12.6	70	104	144	214	7
4775.16018	16	0.021	0.53	0.063	1.60	0.578	14.7	94	139	197	294	6
4775.19018	19	0.021	0.53	0.063	1.60	0.623	15.8	111	165	229	340	6
4775.25018*	25	0.021	0.53	0.063	1.60	0.697	17.7	146	217	289	429	6
4775.30018*	30	0.021	0.53	0.063	1.60	0.735	18.7	175	261	336	500	5
4775.37018*	37	0.021	0.53	0.063	1.60	0.789	20.0	216	322	402	598	5
<b>16 AWG (1,5 mm<sup>2</sup>) 28 Strands</b>												
4775.03016	3	0.021	0.53	0.048	1.22	0.339	8.6	26	39	63	93	10
4775.04016	4	0.021	0.53	0.048	1.22	0.367	9.3	35	52	77	115	10
4775.05016	5	0.021	0.53	0.048	1.22	0.396	10.1	44	66	92	137	10
4775.07016	7	0.021	0.53	0.048	1.22	0.448	11.4	62	92	121	179	10
4775.09016*	9	0.021	0.53	0.048	1.22	0.491	12.5	79	118	149	221	9
4775.12016	12	0.021	0.53	0.063	1.60	0.577	14.6	106	157	204	304	9
4775.16016	16	0.021	0.53	0.063	1.60	0.634	16.1	141	210	259	385	7
4775.19016	19	0.021	0.53	0.063	1.60	0.686	17.4	167	249	301	448	7
4775.25016	25	0.021	0.53	0.063	1.60	0.769	19.5	220	328	383	570	7
4775.30016*	30	0.021	0.53	0.063	1.60	0.812	20.6	264	393	448	666	6
4775.37016*	37	0.021	0.53	0.085	2.16	0.917	23.3	326	485	573	853	6

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Ampacities provided are for open cable runs, in a raceway, directly buried, or as aerial cable supported on a messenger in accordance with NEC® Articles 336.80 and 392.11, Table 310.16 and are derated in accordance with NEC® 310.15.B.2.



# TC-Flex™ Tray Cable 14 AWG (2,5 mm<sup>2</sup>) – 10 AWG (6,0 mm<sup>2</sup>)

UL Type WTTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Torsion-Resistant, Flame-Retardant, -40°C to +90°C

**Product Construction:**

**Conductors:**

- 14 AWG (2,5 mm<sup>2</sup>) thru 10 AWG (6,0 mm<sup>2</sup>) fully annealed flexible stranded bare copper with Class 5 stranding per EN 60228 (IEC 60228)

**Insulation:**

- Polyvinyl Chloride (PVC) insulation with Polyamide (nylon) jacket per UL 83

**Conductor Identification:**

- Conductors are black with printed numbers and green/yellow grounding conductor

**Cable Assembly:**

- Conductors cabled with non-hygroscopic fillers to make the cable suitably round

**Jacket:**

- Black, flexible, flame-retardant, sunlight- and oil-resistant Polyvinyl Chloride (PVC) jacket

**Print:**

- GENERAL CABLE® TC-FLEX™ XX/C XXAWG (XXMM<sup>2</sup>) (UL) TC-ER TYPE THHN/THWN 90°C DRY 75°C WET 600 V SUN RES DIR BUR OIL RES I/II OR MTW OR WTTTC 1000 V 90°C DRY c(UL) CIC/TC PVC/N 90°C FT4 --- CSA AWM I/II A/B 90°C 1000 V – ROHS CE – MADE IN USA DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARKER

**Minimum Bending Radius:**

- 4x O.D. for fixed installation
- 8x O.D. for flexing applications

**Torsion:**

- 10,000 cycles at -40°C, +/- 150° twist per meter, cable weight compensated to 20 meters

**Applications:**

- In free air, raceways or direct burial
- (UL) WTTTC cables for use up to 1000 V in wind turbine generator applications in accordance with UL Subject 6140
- (UL) TC-ER cables for use up to 600 V as power and control cables in accordance with NEC® Article 336
- (UL) MTW cables for machine tool and wire up to 600 V as power and control cables in accordance with UL 1063
- (CSA) CIC/TC cables for use up to 600 V in cable trays and other applications when installed in accordance with the Canadian Electrical Code, Part I
- (CSA) AWM cables for use up to 1000 V as equipment wiring in accordance with the Canadian Electrical Code, Part I

**Specifications:**

**Design Adherence:**

- UL 66 & UL 83/CSA C22.2 No. 75-08 Thermoplastic Insulated Wires
- UL 1063/MTW Machine Tool Wire
- UL 1277 Power and Control Tray Cables
- UL 2277 Wind Turbine Tray Cables
- CSA C22.2 No. 230-09 Tray Cables
- CSA C22.2 No. 239-09 Control and Instrumentation Cables
- CSA C22.2 No. 210-11 Appliance Wiring Material Products

**Flame Tests:**

- IEEE 1202/CSA FT4

**Compliances:**

- Type TC-ER 90°C Dry, 75°C Wet, 600 V
- Type MTW
- Type WTTTC 90°C, 1000 V
- Type CIC/TC 90°C, 600 V
- Type AWM I/II A/B, 90°C, 1000 V FT4
- RoHS Compliant



CATALOG NUMBER	NO. OF COND. INC. GRND.	NOM. INS. THICKNESS		NOM. JACKET THICKNESS		NOM. CABLE O.D.		NOM. COPPER WEIGHT		NOM. CABLE WEIGHT		90°C AMP. @ 30°C AMBIENT <sup>1</sup>
		INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km	

**14 AWG (2,50 mm<sup>2</sup>) 46 Strands**

4780.03014	3	0.021	0.53	0.048	1.22	0.375	9.5	43	65	85	126	18
4780.04014	4	0.021	0.53	0.048	1.22	0.408	10.4	58	86	106	158	18
4780.05014	5	0.021	0.53	0.048	1.22	0.442	11.2	72	108	128	190	18
4780.07014	7	0.021	0.53	0.048	1.22	0.502	12.8	101	151	170	253	18
4780.09014*	9	0.021	0.53	0.063	1.60	0.583	14.8	130	194	226	336	16
4780.12014*	12	0.021	0.53	0.063	1.60	0.647	16.4	174	259	289	429	16
4780.19014*	19	0.021	0.53	0.063	1.60	0.774	19.7	275	410	432	642	12
4780.25014*	25	0.021	0.53	0.085	2.16	0.915	23.2	362	539	587	874	12
4780.30014*	30	0.021	0.53	0.085	2.16	0.965	24.5	435	647	686	1,021	10
4780.37014*	37	0.021	0.53	0.085	2.16	1.036	26.3	536	798	826	1,229	10

**12 AWG (4,0 mm<sup>2</sup>) 56 Strands**

4780.03012	3	0.021	0.53	0.048	1.22	0.435	11.1	72	108	123	183	25
4780.04012	4	0.021	0.53	0.048	1.22	0.476	12.1	97	144	155	231	25
4780.05012	5	0.021	0.53	0.048	1.22	0.517	13.1	121	180	188	280	25
4780.07012*	7	0.021	0.53	0.063	1.60	0.622	15.8	169	252	269	401	25
4780.09012*	9	0.021	0.53	0.063	1.60	0.684	17.4	217	323	335	498	20
4780.12012*	12	0.021	0.53	0.063	1.60	0.763	19.4	290	431	431	642	20
4780.19012*	19	0.021	0.53	0.085	2.16	0.964	24.5	459	683	689	1,025	17
4780.25012*	25	0.021	0.53	0.095	2.41	1.103	28.0	604	898	901	1,341	17
4780.30012*	30	0.021	0.53	0.095	2.41	1.164	29.6	724	1,078	1,057	1,572	14
4780.37012*	37	0.021	0.53	0.095	2.41	1.252	31.8	893	1,329	1,275	1,897	14

**10 AWG (6,0 mm<sup>2</sup>) 82 Strands**

4780.03010	3	0.027	0.69	0.048	1.22	0.491	12.5	109	162	172	256	35
4780.04010	4	0.027	0.69	0.063	1.60	0.567	14.4	146	217	234	348	35
4780.05010	5	0.027	0.69	0.063	1.60	0.618	15.7	182	271	284	422	35
4780.07010*	7	0.027	0.69	0.063	1.60	0.705	17.9	255	379	381	568	35
4780.09010*	9	0.027	0.69	0.063	1.60	0.779	19.8	327	487	477	710	30
4780.12010*	12	0.027	0.69	0.085	2.16	0.915	23.2	437	650	654	973	30
4780.19010*	19	0.027	0.69	0.095	2.41	1.119	28.4	691	1,029	1,007	1,499	25
4780.25010*	25	0.027	0.69	0.095	2.41	1.259	32.0	910	1,354	1,293	1,925	20
4780.30010*	30	0.027	0.69	0.095	2.41	1.331	33.8	1,092	1,625	1,524	2,268	20

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Ampacities provided are for open cable runs, in a raceway, directly buried, or as aerial cable supported on a messenger in accordance with NEC® Articles 336.80 and 392.11, Table 310.16 and are derated in accordance with NEC® 310.15.B.2.

# TC-Flex™ Shielded Tray Cable

18 AWG (1,0 mm<sup>2</sup>) – 16 AWG (1,5 mm<sup>2</sup>)  
UL Type WTTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Flame-Retardant, -40°C to +90°C



**Applications (cont'd.):**

- (CSA) CIC/TC cables for use up to 600 V in cable trays and other applications when installed in accordance with the Canadian Electrical Code, Part I
- (CSA) AWM cables for use up to 1000 V as equipment wiring in accordance with the Canadian Electrical Code, Part I

**Specifications:**

**Design Adherence:**

- UL 66 & UL 83/CSA C22.2 No. 75-08 Thermoplastic Insulated Wires
- UL 1063/MTW Machine Tool Wire
- UL 1277 Power and Control Tray Cables
- UL 2277 Wind Turbine Tray Cables
- CSA C22.2 No. 230-09 Tray Cables
- CSA C22.2 No. 239-09 Control and Instrumentation Cables
- CSA C22.2 No. 210-11 Appliance Wiring Material Products

**Flame Tests:**

- IEEE 1202/CSA FT4

**Compliances:**

- Type TC-ER 90°C Dry, 75°C Wet, 600 V
- Type MTW
- Type WTTTC 90°C, 1000 V
- Type CIC/TC 90°C, 600 V
- Type AWM I/II A/B, 90°C, 1000 V FT4
- RoHS Compliant

**Product Construction:**

**Conductors:**

- 18 AWG (1,0 mm<sup>2</sup>) and 16 AWG (1,5 mm<sup>2</sup>) fully annealed flexible stranded bare copper with Class 5 stranding per EN 60228 (IEC 60228)

**Insulation:**

- Polyvinyl Chloride (PVC) insulation with Polyamide (nylon) jacket per UL 83

**Conductor Identification:**

- Conductors are black with printed numbers and green/yellow grounding conductor

**Cable Assembly:**

- Conductors cabled with non-hygroscopic fillers to make cable suitably round

**Shield:**

- Aluminum/Mylar foil shield providing 100% coverage combined with a tinned copper braid with 85% nom. coverage

**Jacket:**

- Black, flexible, flame-retardant, sunlight- and oil-resistant Polyvinyl Chloride (PVC) jacket

**Print:**

- GENERAL CABLE® TC-FLEX™ XX/C XXAWG (XXMM<sup>2</sup>) SHIELDED (UL) TC-ER TYPE TFFN 90°C DRY 600 V SUN RES DIR BUR OIL RES I/II OR MTW OR WTTTC 1000 V 90°C DRY c(UL) CIC/TC PVC/N 90°C FT4 --- CSA AWM I/II A/B 90°C 1000 V – ROHS CE – MADE IN USA DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARKER

**Minimum Bending Radius:**

- 4x O.D. for fixed installation
- 8x O.D. for flexing applications

**Applications:**

- In free air, raceways or direct burial
- (UL) WTTTC cables for use up to 1000 V in wind turbine generator applications in accordance with UL Subject 6140
- (UL) TC-ER cables for use up to 600 V as power and control cables in accordance with NEC® Article 336
- (UL) MTW cables for machine tool and wire up to 600 V as power and control cables in accordance with UL 1063

CATALOG NUMBER	NO. OF COND. INC. GRND.	NOM. INS. THICKNESS		NOM. JACKET THICKNESS		NOM. CABLE O.D.		NOM. COPPER WEIGHT		NOM. CABLE WEIGHT		90°C AMP. @ 30°C AMBIENT <sup>1</sup>
		INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km	
<b>18 AWG (1,0 mm<sup>2</sup>) 19 Strands</b>												
4785.03018*	3	0.021	0.53	0.048	1.22	0.334	8.5	30	44	63	93	8
4785.04018	4	0.021	0.53	0.048	1.22	0.359	9.1	41	62	79	118	8
4785.05018*	5	0.021	0.53	0.048	1.22	0.384	9.8	49	72	92	136	8
4785.07018*	7	0.021	0.53	0.048	1.22	0.430	10.9	64	95	116	173	8
4785.09018*	9	0.021	0.53	0.048	1.22	0.469	11.9	79	117	140	208	7
4785.12018*	12	0.021	0.53	0.048	1.22	0.518	13.2	100	149	174	258	7
4785.19018*	19	0.021	0.53	0.063	1.60	0.644	16.4	148	221	266	395	6
4785.25018*	25	0.021	0.53	0.063	1.60	0.718	18.2	189	281	331	492	6
4785.30018*	30	0.021	0.53	0.063	1.60	0.756	19.2	221	329	381	567	5
4785.37018*	37	0.021	0.53	0.063	1.60	0.810	20.6	268	399	453	674	5
<b>16 AWG (1,5 mm<sup>2</sup>) 28 Strands</b>												
4785.03016*	3	0.021	0.53	0.048	1.22	0.360	9.1	44	66	81	121	10
4785.04016	4	0.021	0.53	0.048	1.22	0.388	9.8	56	83	98	146	10
4785.05016*	5	0.021	0.53	0.048	1.22	0.417	10.6	66	99	114	170	10
4785.07016*	7	0.021	0.53	0.048	1.22	0.469	11.9	88	131	147	218	10
4785.09016*	9	0.021	0.53	0.048	1.22	0.512	13.0	109	162	178	265	9
4785.12016*	12	0.021	0.53	0.063	1.60	0.598	15.2	139	207	238	354	9
4785.19016*	19	0.021	0.53	0.063	1.60	0.707	18.0	210	312	343	510	7
4785.25016*	25	0.021	0.53	0.063	1.60	0.790	20.1	269	401	431	641	7
4785.30016*	30	0.021	0.53	0.085	2.16	0.877	22.3	318	473	533	793	6
4785.37016*	37	0.021	0.53	0.085	2.16	0.938	23.8	385	573	632	940	6

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Ampacities provided are for open cable runs, in a raceway, directly buried, or as aerial cable supported on a messenger in accordance with NEC® Articles 336.80 and 392.11, Table 310.16 and are derated in accordance with NEC® 310.15.B.2.



# TC-Flex™ Shielded Tray Cable 14 AWG (2,5 mm<sup>2</sup>) – 2 AWG (35,0 mm<sup>2</sup>)

UL Type WTTTC 1000 V or Type TC-ER 600 V or Type MTW and c(UL) CIC/TC 600 V FT4 or CSA AWM 90°C 1000 V, Flexible, Oil Res I/II, Sunlight- and Flame-Retardant, -40°C to +90°C

**Product Construction:**

**Conductors:**

- 14 AWG (2,5 mm<sup>2</sup>) thru 2 AWG (35,0 mm<sup>2</sup>) fully annealed flexible stranded bare copper with Class 5 stranding per EN 60228 (IEC 60228)

**Insulation:**

- Polyvinyl Chloride (PVC) insulation with Polyamide (nylon) jacket per UL 83

**Conductor Identification:**

- Conductors are black with printed numbers and green/yellow grounding conductor

**Cable Assembly:**

- Conductors cabled with non-hygroscopic fillers to make the cable suitably round

**Shield:**

- Aluminum/Mylar foil shield providing 100% coverage in combination with a tinned copper braid providing 85% nominal coverage

**Jacket:**

- Black, flexible, flame-retardant, sunlight- and oil-resistant Polyvinyl Chloride (PVC) jacket

**Print:**

- GENERAL CABLE® TC-FLEX™ XX/C XXAWG (XXMM) SHIELDED (UL) TC-ER TYPE THHN/THWN 90°C DRY 75°C WET 600 V SUN RES DIR BUR OIL RES I/II OR MTW OR WTTTC 1000 V 90°C DRY c(UL) CIC/TC PVC/N 90°C FT4 --- CSA AWM I/II A/B 90°C 1000 V – ROHS CE – MADE IN USA DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARKER

**Minimum Bending Radius:**

- 4x O.D. for fixed installation
- 8x O.D. for flexing applications

**Applications:**

- In free air, raceways or direct burial
- (UL) WTTTC cables for use up to 1000 V in wind turbine generator applications in accordance with UL Subject 6140
- (UL) TC-ER cables for use up to 600 V as power and control cables in accordance with NEC® Article 336
- (UL) MTW cables for machine tool and wire up to 600 V as power and control cables in accordance with UL 1063
- (CSA) CIC/TC cables for use up to 600 V in cable trays and other applications when installed in accordance with the Canadian Electrical Code, Part I
- (CSA) AWM cables for use up to 1000 V as equipment wiring in accordance with the Canadian Electrical Code, Part I

**Specifications:**

**Design Adherence:**

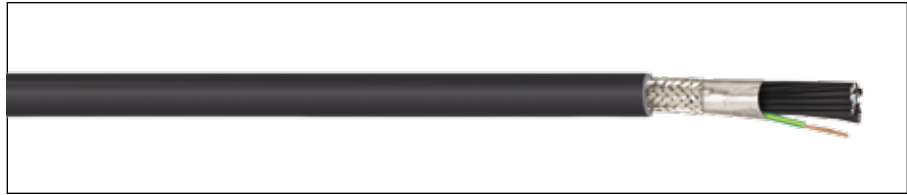
- UL 66 & UL 83/CSA C22.2 No. 75-08 Thermoplastic Insulated Wires
- UL 1063/MTW Machine Tool Wire
- UL 1277 Power and Control Tray Cables
- UL 2277 Wind Turbine Tray Cables
- CSA C22.2 No. 230-09 Tray Cables
- CSA C22.2 No. 239-09 Control and Instrumentation Cables
- CSA C22.2 No. 210-11 Appliance Wiring Material Products

**Flame Tests:**

- IEEE 1202/CSA FT 4

**Compliances:**

- Type TC-ER 90°C Dry, 75°C Wet, 600 V
- Type MTW
- Type WTTTC 90°C, 1000 V
- Type CIC/TC 90°C, 600 V
- Type AWM I/II A/B, 90°C, 1000 V FT4
- RoHS Compliant



CATALOG NUMBER	NO. OF COND. INC. GRND.	NOM. INS. THICKNESS		NOM. JACKET THICKNESS		NOM. CABLE O.D.		NOM. COPPER WEIGHT		NOM. CABLE WEIGHT		90°C AMP. @ 30°C AMBIENT <sup>1</sup>
		INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km	

**14 AWG (2,50 mm<sup>2</sup>) 46 Strands**

4790.03014*	3	0.021	0.53	0.048	1.22	0.396	10.1	64	95	106	158	18
4790.04014	4	0.021	0.53	0.048	1.22	0.429	10.9	81	121	118	176	18
4790.05014*	5	0.021	0.53	0.048	1.22	0.463	11.8	98	146	139	206	18
4790.07014*	7	0.021	0.53	0.063	1.60	0.553	14.1	132	196	192	285	18
4790.09014*	9	0.021	0.53	0.063	1.60	0.604	15.3	164	244	230	342	16
4790.12014*	12	0.021	0.53	0.063	1.60	0.668	17.0	214	318	287	427	16
4790.19014*	19	0.021	0.53	0.063	1.60	0.795	20.2	325	483	412	613	12
4790.25014*	25	0.021	0.53	0.085	2.16	0.936	23.8	421	627	555	826	12
4790.30014*	30	0.021	0.53	0.085	2.16	0.986	25.0	498	741	639	951	10
4790.37014*	37	0.021	0.53	0.085	2.16	1.057	26.8	605	901	757	1,127	10

**12 AWG (4,0 mm<sup>2</sup>) 56 Strands**

4790.03012*	3	0.021	0.53	0.048	1.22	0.456	11.6	98	146	149	221	25
4790.04012	4	0.021	0.53	0.048	1.22	0.497	12.6	126	187	184	274	25
4790.05012*	5	0.021	0.53	0.063	1.60	0.568	14.4	153	228	235	350	25
4790.07012*	7	0.021	0.53	0.063	1.60	0.643	16.3	208	309	308	458	25
4790.09012*	9	0.021	0.53	0.063	1.60	0.705	17.9	261	388	378	562	20
4790.12012*	12	0.021	0.53	0.063	1.60	0.784	19.9	340	506	480	715	20
4790.19012*	19	0.021	0.53	0.085	2.16	0.985	25.0	525	781	754	1,122	17
4790.25012*	25	0.021	0.53	0.095	2.41	1.124	28.5	680	1,012	976	1,453	17
4790.30012*	30	0.021	0.53	0.095	2.41	1.185	30.1	807	1,201	1,138	1,693	14
4790.37012*	37	0.021	0.53	0.095	2.41	1.273	32.3	986	1,468	1,366	2,033	14

**10 AWG (6,0 mm<sup>2</sup>) 82 Strands**

4790.03010*	3	0.027	0.69	0.063	1.60	0.542	13.8	139	208	216	321	35
4790.04010	4	0.027	0.69	0.063	1.60	0.588	14.9	179	267	268	399	35
4790.05010*	5	0.027	0.69	0.063	1.60	0.639	16.2	219	326	321	477	35
4790.07010*	7	0.027	0.69	0.063	1.60	0.726	18.4	299	445	425	633	35
4790.09010*	9	0.027	0.69	0.063	1.60	0.800	20.3	378	562	527	784	30
4790.12010*	12	0.027	0.69	0.085	2.16	0.936	23.8	496	739	713	1,061	30
4790.19010*	19	0.027	0.69	0.095	2.41	1.145	29.1	767	1,142	1,083	1,611	25
4790.25010*	25	0.027	0.69	0.095	2.41	1.285	32.6	999	1,486	1,381	2,055	20
4790.30010*	30	0.027	0.69	0.095	2.41	1.357	34.5	1,189	1,769	1,620	2,410	20

**8 AWG (10 mm<sup>2</sup>) 74 strands**

4790.04008	4	0.039	0.99	0.063	1.60	0.735	18.7	280	417	412	613	55
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**6 AWG (16 mm<sup>2</sup>) 119 Strands**

4790.04006	4	0.039	0.99	0.085	2.16	0.914	23.2	435	647	632	941	75
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**4 AWG (21 mm<sup>2</sup>) 413 Strands**

4790.04004	4	0.050	1.27	0.095	2.41	1.094	27.8	586	872	867	1,290	90
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**2 AWG (35 mm<sup>2</sup>) 665 Strands**

4790.04002	4	0.050	1.27	0.110	2.79	1.289	32.7	928	1,381	1,294	1,926	130
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\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Ampacities provided are for open cable runs, in a raceway, directly buried, or as aerial cable supported on a messenger in accordance with NEC® Articles 336.80 and 392.11, Table 310.16 and are derated in accordance with NEC® 310.15.B.2.

# Portable & Temporary Power Cord

General Cable's Carol® Brand is the most recognized name in flexible cords for temporary power. The extensive line includes portable cord, portable power cable and premium-grade cable for commercial and industrial applications.



## Rubber Cord

Thermoset rubber cord products have evolved over the last 50 years from simple and unsophisticated to a product line where specialized, technologically advanced products are in demand for exacting commercial and industrial applications.

No longer are rubber cord products used only in applications where flexibility is needed. Today, typical applications require cord to perform well in environments of extreme heat and cold as well as on job sites and factory floors where resistance to oil, chemicals and abrasion is required.

General Cable's role as the producer of premier Carol Brand rubber cord products is to ensure that new product development, product innovation and quality not only keep pace with industry requirements but also set the trends.

Our rubber cord products carry a full range of listings and certifications with Underwriters Laboratories, Inc. and the Canadian Standard Association. In addition, many products meet or exceed the requirements of OSHA, MSHA and other relevant industry standards.

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# Super Vu-Tron® Type SO

90°C, 600 Volt



**Product Construction:**

**Conductors:**

- 18 through 10 AWG stranded bare copper

**Insulation:**

- Premium-grade 90°C EPDM

**Jacket:**

- Super Vu-Tron®, black
- Temperature range: -40°C to +90°C

**Jacket Marking:**

- (SIZE) TYPE SO 600 VOLT CAROL SUPER VU-TRON® 90°C P-123-MSHA<sup>(1)</sup> (TRU-MARK SEQUENTIAL FOOTAGE)

**Applications:**

- Portable tools and equipment
- Portable appliances
- Small motors and associated machinery
- Flexible power leads

**Features:**

- Excellent resistance to oil and moisture
- Good tensile strength, elongation and aging characteristics
- High flexibility
- Excellent abrasion resistance
- Ozone-, sunlight (UV)- and weather-resistant
- TRU-Mark® sequential footage marking

**Industry Approvals:**

- MSHA Approved<sup>(1)</sup>
- RoHS Compliant

**Packaging:**

- Lengths cut to order



TYPE SO, NON-UL – 600 VOLT

CATALOG NUMBER	AWG SIZE	COND. STRAND	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(6)</sup>
			INCHES	mm	INCHES	mm		
<b>77493*</b>	18	16/30	0.030	0.76	0.180	4.57	10	19
<b>77483*</b>	16	26/30	0.030	0.76	0.200	5.08	13	25
<b>77473*</b>	14	41/30	0.045	1.14	0.240	6.09	18	40
<b>77463*</b>	12	65/30	0.045	1.14	0.265	6.60	25	50
<b>77453*<sup>(1)</sup></b>	10	104/30	0.045	1.14	0.305	7.75	30	75

† Ampacities based on NEC Table 400.5(A)(1).

\* Non-stock item; minimum quantity purchase required.

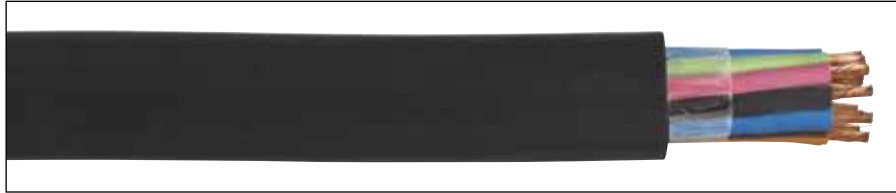
<sup>(6)</sup> Actual shipping weight may vary.

<sup>(1)</sup> Only 10 AWG construction is MSHA Approved.



# Super Vu-Tron® Multi-Conductor Type S00W

90°C, 600 Volt, UL/CSA Portable Cord



**Product Construction:**

**Conductors:**

- 18 and 16 AWG fully annealed stranded bare copper

**Insulation:**

- Premium-grade, color-coded 90°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® 90°C, black
- Temperature range: -40°C to +90°C

**Jacket Marking:**

- CAROL SUPER VU-TRON® (SIZE) (mm<sup>2</sup>) 90°C (UL) WATER RESISTANT SOOW CSA (-40°C) FT2 P-7K-123033 MSHA 600 VOLT ROHS MADE IN USA

**Applications:**

- Control circuits
- Tools
- Heavy industrial, processing and construction equipment

**Features:**

- Extra-flexible stranding
- Abrasion-resistant
- Resists oils and solvents
- Flame-resistant
- Ozone-resistant
- 90°C rated conductors and jacket
- Water-resistant\*
- UL Listed and CSA Certified for indoor and outdoor use
- Ozone-, sunlight (UV)- and weather-resistant

**Industry Approvals:**

- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- RoHS Compliant

**Packaging:**

- 5- through 8-conductor available on 250' (76.2 m), 500' (152.4 m), and 1000' (304.8 m) reels
- 9+ cond. available on long-length reels
- Other put-ups available on special order

\*Suitable for immersion in water if properly sealed and terminated.

**TYPE S00W – 600 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(S)</sup>
				INCHES	mm	INCHES	mm		
09805	5	18	16/30	0.030	0.76	0.465	11.81	5.6	131
09806	6	18	16/30	0.030	0.76	0.495	12.57	5.6	142
09807	7	18	16/30	0.030	0.76	0.520	13.21	5.6	161
09808	8	18	16/30	0.030	0.76	0.530	13.46	4.9	173
09810	10	18	16/30	0.030	0.76	0.595	15.11	4.9	221
09812	12	18	16/30	0.030	0.76	0.600	15.24	3.5	235
09814	14	18	16/30	0.030	0.76	0.630	16.00	3.5	262
09816	16	18	16/30	0.030	0.76	0.700	17.78	3.5	306
09818*	18	18	16/30	0.030	0.76	0.760	19.30	3.5	341
09820	20	18	16/30	0.030	0.76	0.795	20.19	3.5	377
09822*	22	18	16/30	0.030	0.76	0.805	20.45	3.1	400
09824	24	18	16/30	0.030	0.76	0.850	21.59	3.1	453
09827*	27	18	16/30	0.030	0.76	0.865	21.97	3.1	475
09830*	30	18	16/30	0.030	0.76	0.915	23.24	3.1	524
09605	5	16	26/30	0.030	0.76	0.495	12.57	8.0	152
09606	6	16	26/30	0.030	0.76	0.520	13.21	8.0	184
09607	7	16	26/30	0.030	0.76	0.540	13.72	8.0	210
09608	8	16	26/30	0.030	0.76	0.575	14.61	7.0	228
09609	9	16	26/30	0.030	0.76	0.600	15.24	7.0	255
09610	10	16	26/30	0.030	0.76	0.620	15.75	5.0	260
09612	12	16	26/30	0.030	0.76	0.660	16.76	5.0	319
09614	14	16	26/30	0.030	0.76	0.730	18.54	5.0	343
09616	16	16	26/30	0.030	0.76	0.740	18.80	5.0	367
09618*	18	16	26/30	0.030	0.76	0.770	19.56	5.0	405
09620	20	16	26/30	0.030	0.76	0.810	20.57	5.0	444
09622*	22	16	26/30	0.030	0.76	0.900	22.86	4.5	510
09624	24	16	26/30	0.030	0.76	0.925	23.50	4.5	547
09626*	26	16	26/30	0.030	0.76	0.965	24.51	4.5	611
09630	30	16	26/30	0.030	0.76	1.010	25.65	4.5	685

† Values shown are for current-carrying conductors. A grounding conductor, or one which carries only the unbalance current from other conductors, is NOT counted in determining current carrying capacity. Ampacities based on NEC Table 400.5(A)(1).

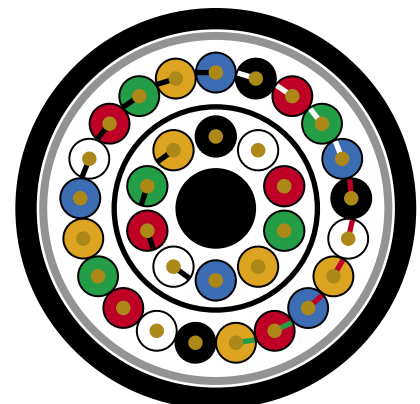
\* Non-stock item; minimum quantity purchase required.

<sup>(S)</sup>Actual shipping weight may vary.

**COLOR CODE CHART**

NO. OF COND.	COLOR	TRACER	NO. OF COND.	COLOR	TRACER	NO. OF COND.	COLOR	TRACER
1	Black	—	8	Red	Black	15	Blue	White
2	White	—	9	Green	Black	16	Black	Red
3	Red	—	10	Orange	Black	17	White	Red
4	Green	—	11	Blue	Black	18	Orange	Red
5	Orange	—	12	Black	White	19	Blue	Red
6	Blue	—	13	Red	White	20	Red	Green
7	White	Black	14	Green	White	21	Orange	Green

Note: Colors repeat after 21 conductors.



# Super Vu-Tron® Multi-Conductor Type S00W

90°C, 600 Volt, UL/CSA Portable Cord

**Product Construction:**

**Conductors:**

- 14 through 10 AWG fully annealed stranded bare copper

**Insulation:**

- Premium-grade, color-coded 90°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® 90°C, black
- Temperature range: -40°C to +90°C

**Jacket Marking:**

- CAROL SUPER VU-TRON® (SIZE) (mm<sup>2</sup>) 90°C (UL) WATER RESISTANT S00W CSA (-40°C) FT2 P-7K-123033 MSHA 600 VOLT ROHS MADE IN USA

**Applications:**

- Control circuits
- Tools
- Heavy industrial, processing and construction equipment

**Features:**

- Extra-flexible stranding
- Abrasion-resistant
- Resists oils and solvents
- Flame-resistant
- Ozone-resistant
- 90°C rated conductors and jacket
- Water-resistant\*
- UL Listed and CSA Certified for indoor and outdoor use
- Ozone-, sunlight (UV)- and weather-resistant

**Industry Approvals:**

- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- RoHS Compliant

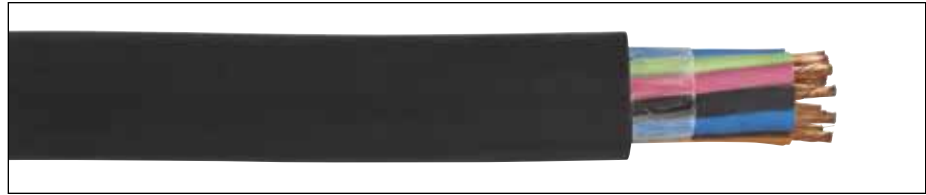
**Packaging:**

- 5- through 8-conductor available on 250' (76.2 m), 500' (152.4 m), and 1000' (304.8 m) reels
- 9+ cond. available on long-length reels
- Other put-ups available on special order

\* Suitable for immersion in water if properly sealed and terminated.

**COLOR CODE CHART**

NO. OF COND.	COLOR	TRACER	NO. OF COND.	COLOR	TRACER
1	Black	—	12	Black	White
2	White	—	13	Red	White
3	Red	—	14	Green	White
4	Green	—	15	Blue	White
5	Orange	—	16	Black	Red
6	Blue	—	17	White	Red
7	White	Black	18	Orange	Red
8	Red	Black	19	Blue	Red
9	Green	Black	20	Red	Green
10	Orange	Black	21	Orange	Green
11	Blue	Black	Note: Colors repeat after 21 conductors. Refer to page 63 for color diagram.		



**TYPE S00W – 600 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(6)</sup>
				INCHES	mm	INCHES	mm		
09405	5	14	41/30	0.045	1.14	0.645	16.26	12.0	266
09406	6	14	41/30	0.045	1.14	0.710	18.03	12.0	313
09407	7	14	41/30	0.045	1.14	0.755	19.18	12.0	326
09408	8	14	41/30	0.045	1.14	0.810	20.57	10.5	366
09409*	9	14	41/30	0.045	1.14	0.860	21.84	10.5	419
09410	10	14	41/30	0.045	1.14	0.875	22.23	10.5	436
09412	12	14	41/30	0.045	1.14	0.900	22.86	7.5	516
09414	14	14	41/30	0.045	1.14	1.000	25.40	7.5	597
09416	16	14	41/30	0.045	1.14	1.030	26.16	7.5	658
09418*	18	14	41/30	0.045	1.14	1.100	27.94	7.5	720
09420	20	14	41/30	0.045	1.14	1.155	29.34	7.5	799
09424	24	14	41/30	0.045	1.14	1.260	32.00	6.7	998
09428*	28	14	41/30	0.045	1.14	1.330	33.78	6.7	1080
09430*	30	14	41/30	0.045	1.14	1.335	33.97	6.0	1146
09205	5	12	65/30	0.045	1.14	0.715	18.16	16.0	326
09206	6	12	65/30	0.045	1.14	0.740	18.80	16.0	362
09207	7	12	65/30	0.045	1.14	0.790	20.07	16.0	415
09208	8	12	65/30	0.045	1.14	0.825	20.96	14.0	464
09209	9	12	65/30	0.045	1.14	0.900	22.86	14.0	510
09210	10	12	65/30	0.045	1.14	0.950	24.13	14.0	602
09212	12	12	65/30	0.045	1.14	1.010	25.65	10.0	662
09214	14	12	65/30	0.045	1.14	1.020	25.91	10.0	724
09216	16	12	65/30	0.045	1.14	1.135	28.83	10.0	869
09218*	18	12	65/30	0.045	1.14	1.175	29.85	10.0	912
09220	20	12	65/30	0.045	1.14	1.175	29.84	10.0	977
09224	24	12	65/30	0.045	1.14	1.360	34.54	9.0	1236
09226	26	12	65/30	0.045	1.14	1.380	35.05	9.0	1309
09227*	27	12	65/30	0.045	1.14	1.390	35.30	9.0	1335
09228*	28	12	65/30	0.045	1.14	1.455	36.95	9.0	1375
09230	30	12	65/30	0.045	1.14	1.455	36.96	9.0	1512
09005	5	10	104/30	0.045	1.14	0.770	19.56	20.0	423
09006	6	10	104/30	0.045	1.14	0.875	22.23	20.0	508
09007	7	10	104/30	0.045	1.14	0.900	22.86	20.0	549
09008*	8	10	104/30	0.045	1.14	0.935	23.75	17.5	625
09010	10	10	104/30	0.045	1.14	1.020	25.91	17.5	755
09012	12	10	104/30	0.045	1.14	1.070	27.18	12.5	867
09016*	16	10	104/30	0.045	1.14	1.230	31.24	12.5	1142
09020*	20	10	104/30	0.045	1.14	1.325	33.66	12.5	1445

† Values shown are for current-carrying conductors. A grounding conductor, or one which carries only the unbalance current from other conductors, is NOT counted in determining current carrying capacity. Ampacities based on NEC Table 400.5(A)(1).

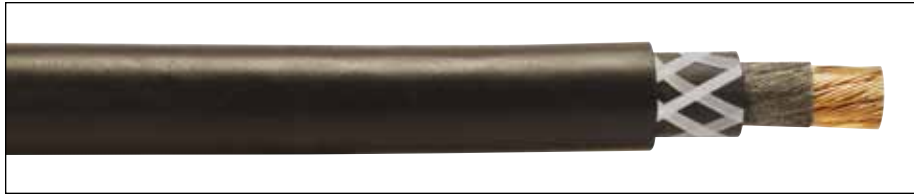
\* Non-stock item; minimum quantity purchase required.

<sup>(6)</sup> Actual shipping weight may vary.



# Super Vu-Tron® Single Conductor

90°C (UL), Type W, 2000 Volt and Type RHH/RHW  
600 Volt Portable Power Cable



**Product Construction:**

**Conductor:**

- 8 AWG through 500 kcmil fully annealed stranded bare copper

**Insulation:**

- Premium-grade 90°C EPDM

**Jacket:**

- Super Vu-Tron® 90°C, black
- Temperature range: -40°C to +90°C
- Voltage rating:  
600 volts Type RHH/RHW  
2000 volts Type W
- An open polyester braid reinforcement is applied between the insulation and jacket for mechanical strength

**Jacket Marking:**

- 8-1 AWG: CAROL SUPER VU-TRON® TYPE W PORTABLE POWER CABLE (UL) DRY 90°C WET 75°C 2000 V SUNLIGHT RESISTANT P-7K-123049-MSHA (SIZE) TYPE RHH OR RHW (UL) 600 V MADE IN USA
- 1/0-500 kcmil: CAROL SUPER VU-TRON® TYPE W PORTABLE POWER CABLE (UL) DRY 90°C WET 75°C 2000 V SUNLIGHT RESISTANT P-7K-123049-MSHA (SIZE) TYPE RHH OR RHW (UL) 600 V FOR CT USE --- CSA TYPE W (-40°C) 2 KV FT5 MADE IN USA

**Applications:**

- Portable power systems
- Entertainment industry activities such as theatre, television, night clubs, motion pictures, mobile communication vans, spotlights and sound systems
- Other similar applications that would require permanent or temporary power
- Permanent wiring of 600 volt power supplies, hoists, cranes and other applications where flexible power leads must be installed in conduit or raceways

**Features:**

- Water-resistant\*
- Sunlight-resistant
- Designed to withstand severe environmental conditions
- Withstands exposure to oil, acids, alkalies, heat, flame, moisture and chemicals
- Meets or exceeds flame test requirements of MSHA and UL

**Industry Approvals:**

- UL Type W
- UL Type RHH or RHW
- MSHA Approved
- RoHS Compliant

**Packaging:**

- Lengths cut to order

\* Suitable for immersion in water if properly sealed and terminated.

**TYPE W 2000 VOLT (UL) AND TYPE RHH/RHW 600 VOLT (UL)**

CATALOG NUMBER	NO. OF COND.	AWG OR kcmil	COND. STRAND	NOMINAL COND. O.D.		NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS		APPROX. NET WT. LBS/ M <sup>(5)</sup>
				INCHES	mm	INCHES	mm	INCHES	mm	(1)	(2)	
83008*	1	8	133	0.160	4.06	0.060	1.52	0.470	11.94	55	80	145
83006	1	6	259	0.198	5.03	0.060	1.52	0.545	13.84	75	105	205
83004	1	4	259	0.245	6.22	0.060	1.52	0.595	15.11	95	140	270
83002	1	2	259	0.294	7.47	0.060	1.52	0.670	17.02	130	190	380
83001	1	1	259	0.346	8.79	0.080	2.03	0.730	18.54	150	220	465
83010	1	1/0†	259	0.384	9.75	0.080	2.03	0.790	20.07	170	260	550
83020	1	2/0†	259	0.441	11.20	0.080	2.03	0.865	21.97	195	300	675
83030	1	3/0†	259	0.482	12.24	0.080	2.03	0.910	23.11	225	350	790
83040	1	4/0†	259	0.555	14.10	0.080	2.03	0.960	24.38	260	405	940
83250	1	250†	627	0.615	15.62	0.105	2.67	1.045	26.54	290	455	1125
83350	1	350†	855	0.725	18.42	0.105	2.67	1.145	29.08	350	570	1465
83500	1	500†	1235	0.880	22.35	0.105	2.67	1.315	33.40	430	700	2010

\* Non-stock item; minimum quantity purchase required.

<sup>(1)</sup> Ampacities based on 90°C conductor and 30°C ambient temperature based on Table 310-16 in the National Electrical Code® for RHH/RHW with not more than three current-carrying conductors in raceway, cable or earth.

<sup>(2)</sup> Ampacities based on 90°C conductor and 30°C ambient temperature based on Table 310-17 and Table 400.5(A)(2) in the National Electrical Code® for single-conductor cables.

<sup>(5)</sup> Actual shipping weight may vary.

† Designated for CT use.



# Super Vu-Tron® Multi-Conductor Type W Round

## 90°C (UL), Type W, 2000 Volt Portable Power Cable

**Product Construction:**

**Conductor:**

- 8 AWG through 500 kcmil fully annealed stranded bare copper

**Insulation:**

- Premium-grade, color-coded 90°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® 90°C, black
- Temperature range: -40°C to +90°C

**Jacket Marking:**

- SIZES SMALLER THAN 2-1/4" – CAROL SUPER VU-TRON® (SIZE) TYPE W PORTABLE POWER CABLE (UL) 2000 V DRY 90°C WET 75°C SUN RES P-7K-123049-MSHA---CSA TYPE W (-40°C) 2 KV FT5 MADE IN USA
- SIZES 2-1/4" AND LARGER – (SIZE) TYPE W CAROL SUPER VU-TRON® 90°C DRY AND WATER RESISTANT 75°C 2000 V SUN RES (UL) P-7K-123049 MSHA LR27161 MADE IN USA

**Applications:**

- Industrial and light- to medium-duty mining applications
- Heavy-duty service as power supply cable
- AC systems (grounded and ungrounded)
- Mobile and portable electrical equipment
- Motor and battery leads
- 2-conductor cables—use on DC or AC single-phase systems where grounding is not required
- 3-conductor cables—use on AC systems where no grounding is required or on DC systems with one conductor for grounding
- 4-conductor cables—use on two- or three-phase AC systems with one conductor used for grounding
- 5-conductor cables—use in applications where separating the system neutral from the frame ground is required

**Features:**

- Withstands severe environmental conditions
- Suitable for immersion in water\*
- Indent-printed for easy identification
- Withstands exposure to oil, acids, alkalis, heat, moisture and most chemicals
- Rope lay stranding for maximum flex life
- Excellent impact resistance
- Cable core bound for superior flexibility and toughness
- Sunlight-resistant

**Industry Approvals:**

- CSA
- MSHA Approved
- UL Type W
- RoHS Compliant

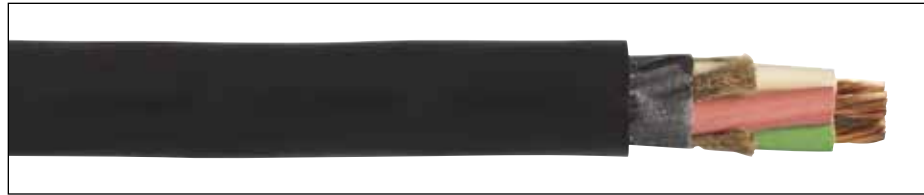
**Packaging:**

- Lengths cut to order

\* Suitable for immersion in water if properly sealed and terminated.

**COLOR CODE CHART**

NO. OF CONDUCTORS	COLOR**
2	Black, White
3	Black, White, Green
4	Black, White, Red, Green
5	Black, White, Red, Green, Orange



CATALOG NUMBER	NO. OF COND.	AWG OR kcmil	COND. STRAND	NOMINAL COND. O.D.		NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS <sup>(1)</sup>	APPROX. NET WT. LBS/M <sup>(5)</sup>
				INCHES	mm	INCHES	mm	INCHES	mm		
<b>2 CONDUCTOR – TYPE W – 2000 VOLT</b>											
81312	2	8	133	0.160	4.06	0.060	1.52	0.770	19.56	74	325
81622	2	6	259	0.198	5.03	0.060	1.52	0.910	23.11	99	470
81642	2	4	259	0.245	6.22	0.060	1.52	1.020	25.91	130	620
81662	2	2	259	0.297	7.54	0.080	2.03	1.210	30.73	174	935
81372*	2	1	259	0.353	8.97	0.080	2.03	1.370	34.80	202	1305
81382*	2	1/0	259	0.385	9.78	0.080	2.03	1.435	36.45	234	1555
81392*	2	2/0	259	0.442	11.23	0.080	2.03	1.555	39.50	271	1860
81402*	2	3/0	259	0.480	12.19	0.080	2.03	1.670	42.42	313	2230
81412*	2	4/0	259	0.555	14.10	0.080	2.03	1.815	46.10	361	2655
<b>3 CONDUCTOR – TYPE W – 2000 VOLT</b>											
81313	3	8	133	0.160	4.06	0.060	1.52	0.945	24.00	74	470
81623	3	6	259	0.198	5.03	0.060	1.52	1.020	25.91	99	625
81643	3	4	259	0.245	6.22	0.060	1.52	1.135	28.83	130	810
81663	3	2	259	0.297	7.54	0.080	2.03	1.345	34.16	174	1190
81373*	3	1	259	0.353	8.97	0.080	2.03	1.455	36.96	202	1655
81383	3	1/0	259	0.385	9.78	0.080	2.03	1.585	40.26	234	1965
81393	3	2/0	259	0.442	11.23	0.080	2.03	1.675	42.55	271	2350
81403*	3	3/0	259	0.480	12.19	0.080	2.03	1.815	46.10	313	2890
81413*	3	4/0	259	0.555	14.10	0.080	2.03	1.950	49.53	361	3285
81423*	3	250	627	0.615	15.62	0.095	2.41	2.390	60.71	402	5070
81443*	3	350	855	0.725	18.42	0.095	2.41	2.680	68.07	495	6570
81473*	3	500	1235	0.880	22.35	0.095	2.41	3.030	76.96	613	8700
<b>4 CONDUCTOR – TYPE W – 2000 VOLT</b>											
81314	4	8	133	0.160	4.06	0.060	1.52	0.980	24.89	65	615
81624	4	6	259	0.198	5.03	0.060	1.52	1.070	27.18	87	800
81644	4	4	259	0.245	6.22	0.060	1.52	1.210	30.73	114	1040
81664	4	2	259	0.297	7.54	0.080	2.03	1.435	36.45	152	1580
81374	4	1	259	0.353	8.97	0.080	2.03	1.595	40.51	177	2045
81384	4	1/0	259	0.385	9.78	0.080	2.03	1.705	43.31	205	2430
81394	4	2/0	259	0.442	11.23	0.080	2.03	1.845	46.86	237	2950
81404	4	3/0	259	0.480	12.19	0.080	2.03	1.965	49.91	274	3430
81414	4	4/0	259	0.555	14.10	0.080	2.03	2.145	54.48	316	3885
<b>5 CONDUCTOR – TYPE W – 2000 VOLT</b>											
81315	5	8	133	0.160	4.06	0.060	1.52	1.030	26.16	52	650
81625	5	6	259	0.198	5.03	0.060	1.52	1.170	29.72	69	915
81645	5	4	259	0.245	6.22	0.060	1.52	1.360	34.54	91	1320
81665	5	2	259	0.297	7.54	0.080	2.03	1.595	40.51	121	1925
81375*	5	1	259	0.353	8.97	0.080	2.03	1.820	46.23	141	2675
81385	5	1/0	259	0.385	9.78	0.080	2.03	1.900	48.26	164	2885
81395*	5	2/0	259	0.442	11.23	0.080	2.03	2.060	52.32	189	3630
81405*	5	3/0	259	0.480	12.19	0.080	2.03	2.260	57.40	219	4900
81415*	5	4/0	259	0.555	14.10	0.080	2.03	2.460	62.48	252	5980

<sup>(1)</sup> Ampacities based on 90°C conductor and 30°C ambient temperature per Table 400.5(A)(2) of the National Electrical Code®.

\* Non-stock item; minimum quantity purchase required.

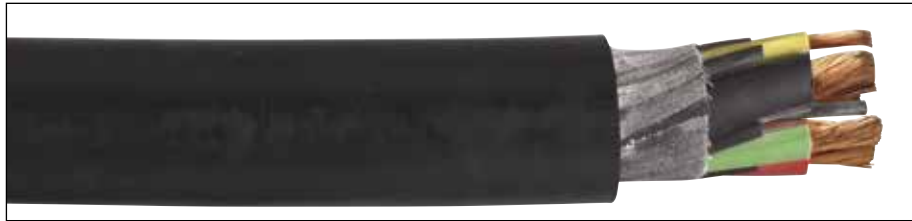
\*\* Green conductor for grounding only.

<sup>(5)</sup> Actual shipping weight may vary.



# Super Vu-Tron® Type G and Type G-GC Round

90°C (UL), 2000 Volt Portable Power Cable



### 3 CONDUCTOR – TYPE G-GC – 2000 VOLT

CATALOG NUMBER	NO. OF COND.	AWG OR kcmil	COND. STRAND	NOMINAL COND. O.D.		YELLOW GROUND CHECK AWG SIZE	GREEN GROUND COND. AWG SIZE	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURR. AMPS <sup>(1)</sup>	APPROX. NET WT. LBS/M <sup>(5)</sup>
				INCHES	mm			INCHES	mm	INCHES	mm		
82313	3	8	133	0.160	4.06	10	2#10	0.060	1.52	0.965	24.51	65	600
82623	3	6	259	0.198	5.03	10	2#10	0.060	1.52	1.025	26.04	87	770
82643	3	4	259	0.245	6.22	10	2#8	0.060	1.52	1.130	28.70	114	1015
82663	3	2	259	0.297	7.54	8	2#7	0.080	2.03	1.345	34.16	152	1480
82373	3	1	259	0.353	8.97	8	2#6	0.080	2.03	1.455	36.96	177	1795
82383	3	1/0	259	0.385	9.78	8	2#5	0.080	2.03	1.585	40.26	205	2245
82393	3	2/0	259	0.442	11.23	8	2#4	0.080	2.03	1.675	42.55	237	2570
82403	3	3/0	259	0.480	12.19	8	2#3	0.080	2.03	1.810	45.97	274	3230
82413	3	4/0	259	0.555	14.10	8	2#2	0.080	2.03	1.950	49.53	316	3700
82423 <sup>(2)*</sup>	3	250	627	0.615	15.62	8	2#2	0.095	2.41	2.390	60.71	352	6060
82443 <sup>(2)*</sup>	3	350	855	0.725	18.42	8	2#1/0	0.095	2.41	2.680	68.07	433	7400
82473 <sup>(2)*</sup>	3	500	1235	0.880	22.35	8	2#2/0	0.095	2.41	3.030	76.96	536	10100

### 4 CONDUCTOR – TYPE G – 600/2000 VOLT

CATALOG NUMBER	NO. OF COND.	AWG OR kcmil	COND. STRAND	NOMINAL COND. O.D.		GREEN COND. AWG SIZE	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS <sup>(1)</sup>	APPROX. NET WT. LBS/M <sup>(5)</sup>
				INCHES	mm		INCHES	mm	INCHES	mm		
82314	4	8	133	0.160	4.06	4#12	0.060	1.52	1.045	26.54	52	690
82624	4	6	259	0.198	5.03	4#12	0.060	1.52	1.125	28.58	70	880
82644	4	4	259	0.245	6.22	4#10	0.060	1.52	1.225	31.12	91	1160
82664	4	2	259	0.297	7.54	4#9	0.080	2.03	1.435	36.45	122	1720
82374*	4	1	259	0.353	8.97	4#8	0.080	2.03	1.590	40.39	142	2200
82384	4	1/0	259	0.385	9.78	4#7	0.080	2.03	1.730	43.94	164	2705
82394	4	2/0	259	0.442	11.23	4#6	0.080	2.03	1.855	47.12	190	3190
82404	4	3/0	259	0.480	12.19	4#5	0.080	2.03	2.040	51.82	219	4005
82414	4	4/0	259	0.555	14.10	4#4	0.080	2.03	2.145	54.48	253	4560

<sup>(1)</sup> Ampacities based on 90°C conductor and 30°C ambient temperature per Table 400.5(A)(2) of the National Electrical Code®.

<sup>(2)</sup> UL Listed and c(UL) Certified.

\* Non-stock item; minimum quantity purchase required.

<sup>(5)</sup> Actual shipping weight may vary.

#### Product Construction:

##### Conductor:

- 8 AWG through 500 kcmil fully annealed stranded bare copper

##### Insulation:

- Premium-grade, color-coded 90°C EPDM
- Color code: See chart below
- Insulated grounds and ground checks

##### Jacket:

- Super Vu-Tron® 90°C, black
- Temperature range: -40°C to +90°C

##### Jacket Marking:

- TYPE G-GC (4/0 AND SMALLER) – CAROL SUPER VU-TRON® SIZE (mm<sup>2</sup>) TYPE G-GC PORTABLE POWER CABLE (UL) 2000 V DRY 90°C WET 75°C SUN RES P-7K-123049-MSHA --- CSA TYPE G-CG (-40°C) 2 KV FT5 MADE IN USA
- TYPE G-GC (LARGER THAN 4/0) - (SIZE) TYPE G-GC CAROL SUPER VU-TRON® 90°C DRY AND WATER RESISTANT 75°C 2000 V SUN RES (UL) P-7K-123049 MSHA LR27161 MADE IN USA
- TYPE G - CAROL SUPER VU-TRON® SIZE (mm<sup>2</sup>) TYPE G PORTABLE POWER CABLE (UL) 600/2000 V DRY 90°C WET 75°C SUN RES P-7K-123049 MSHA --- CSA TYPE G (-40°C) 2 KV FT5 MADE IN USA

#### Applications:

- Industrial and light- to medium-duty mining applications
- Heavy-duty service as power supply cable
- Mobile and portable electrical equipment
- 3- and 4-conductor—use on three-phase AC systems where grounding is required

#### Features:

- Excellent impact and abrasion resistance
- Withstands exposure to oil, acids, alkalies, heat, moisture and most chemicals
- Suitable for immersion in water\*
- Indent-printed for easy identification
- Rope lay stranding for maximum flex life
- Cable core bound for superior flexibility and toughness
- Non-wicking rubber fillers (G-GC)
- Canadian color code available upon request
- Sunlight-resistant

#### Industry Approvals:

- UL Type G, G-GC
- CSA
- MSHA Approved
- RoHS Compliant

#### Packaging:

- Lengths cut to order

\* Suitable for immersion in water if properly sealed and terminated.

#### COLOR CODE CHART

NO. OF CONDUCTORS	COLOR
3	Black, White, Red
4	Black, White, Red, Orange



# Super Vu-Tron<sup>®</sup> Canadian Type G-GC Round

90°C, 2000 Volt Portable Power Cable

**Product Construction:**

**Conductor:**

- 6 AWG through 4/0 AWG fully annealed stranded bare copper

**Insulation:**

- Premium-grade, color-coded 90°C EPDM
- Color code: See chart below
- Insulated yellow ground check

**Jacket:**

- Super Vu-Tron<sup>®</sup> 90°C, black
- Temperature range: -40°C to +90°C

**Jacket Marking:**

- CAROL SUPER VU-TRON<sup>®</sup> SIZE (mm<sup>2</sup>)  
TYPE G-GC 2 KV 90°C (-40°C) FT5 CSA LR92874  
P-7K-123049-MSHA MADE IN USA



**3 CONDUCTOR – TYPE G-GC – 2000 VOLT**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOMINAL COND. O.D.		YELLOW GROUND CHECK AWG SIZE	GROUND COND. AWG SIZE	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURR. AMPS <sup>(1)</sup>	APPROX. NET WT. LBS/ M <sup>(2)</sup>
				INCHES	mm			INCHES	mm	INCHES	mm		
83103	3	8	133	0.160	4.06	10	2#10	0.060	1.52	0.945	24.00	65	827
83113	3	6	259	0.198	5.03	10	2#10	0.060	1.52	1.025	26.04	87	770
83123	3	4	259	0.245	6.22	10	2#8	0.060	1.52	1.140	28.96	114	1015
83133	3	2	259	0.297	7.54	8	2#6	0.080	2.03	1.345	34.16	152	1480
83143	3	1	259	0.353	8.97	8	2#6	0.080	2.03	1.455	36.96	177	1795
83153	3	1/0	259	0.385	9.78	8	2#4	0.080	2.03	1.585	40.26	205	2245
83163	3	2/0	259	0.442	11.23	8	2#4	0.080	2.03	1.685	42.80	237	2570
83183	3	4/0	259	0.555	14.10	8	2#2	0.080	2.03	1.975	50.17	316	3700

<sup>(1)</sup> Ampacity rating based on CEC/CSA.

<sup>(2)</sup> Actual shipping weight may vary.

**Applications:**

- Industrial and light- to medium-duty mining applications
- Heavy-duty service as power supply cable
- Mobile and portable electrical equipment
- 3- and 4-conductor—use on three-phase AC systems where grounding is required

**Features:**

- Excellent impact and abrasion resistance
- Withstands exposure to oil, acids, alkalis, heat, moisture and most chemicals
- Indent-printed for easy identification
- Rope lay stranding for maximum flex life
- Cable core bound for superior flexibility and toughness
- Non-wicking rubber fillers (GGC)
- Canadian color code
- Sunlight-resistant

**Industry Approvals:**

- CSA Flexible Cord - C22.2-96
- MSHA Approved
- RoHS Compliant

**Packaging:**

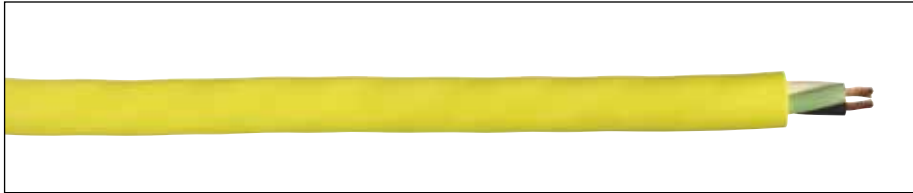
- Lengths cut to order

**COLOR CODE CHART**

NO. OF CONDUCTORS	COLOR
3	Black, Red, Blue

# Super Vu-Tron® III Types SJOOW/SOOW

105°C, 300 and 600 Volt, UL/CSA Portable Cord



**Product Construction:**

**Conductors:**

- 18 through 10 AWG fully annealed stranded bare copper

**Insulation:**

- Premium-grade, color-coded, oil-resistant 105°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® III, yellow
- Temperature range: -50°C to +105°C UL/CSA
- Voltage rating: 300 volts Type SJOOW, 600 volts Type SOOW

**Jacket Marking:**

- SUPER VU-TRON® III SJOOW - CAROL SUPER VU-TRON® III (SIZE) (mm<sup>2</sup>) 105°C (UL) WATER RESISTANT SJOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 300 VOLT ROHS MADE IN USA (TRU-MARK SEQUENTIAL FOOTAGE)
- SUPER VU-TRON® III SOOW - CAROL SUPER VU-TRON® III (SIZE) (mm<sup>2</sup>) 105°C (UL) WATER RESISTANT SOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 600 VOLT ROHS MADE IN USA (TRU-MARK SEQUENTIAL FOOTAGE)

**Applications:**

- Machine tools
- Power tools
- Dockside power applications
- Motor leads
- Portable machinery
- Cranes
- Submersible pumps

**Features:**

- Excellent flexibility in cold temperatures
- Last longer in flex applications
- Integral Flexfill®
- Ozone-, sunlight (UV)- and weather-resistant
- UL Listed and CSA Certified for indoor and outdoor use
- Water-resistant\*
- Safety-colored
- High heat and flame resistance
- Resistant to oils, acids and chemicals
- Excellent abrasion and cut resistance
- TRU-Mark® sequential footage marking

**Industry Approvals:**

- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- RoHS Compliant

**Packaging:**

- 250' (76.2 m), 500' (152.4 m), 1000' (304.8 m)
- Other put-ups available on special order

\* Suitable for immersion in water if properly sealed and terminated.

**TYPE SJOOW – 300 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(S)</sup>	STD. CTN.
				INCHES	mm	INCHES	mm			
02001*	2	18	41/34	0.030	0.76	0.310	8.00	10	56	1000'
02002*	3	18	41/34	0.030	0.76	0.320	8.12	10	65	1000'
02003*	4	18	41/34	0.030	0.76	0.345	8.76	7	80	250'
02004*	2	16	65/34	0.030	0.76	0.315	8.00	13	68	1000'
02005*	3	16	65/34	0.030	0.76	0.335	8.51	13	80	250'
02006*	4	16	65/34	0.030	0.76	0.370	9.40	10	95	250'
02007*	2	14	41/30	0.030	0.76	0.370	9.40	18	90	250'
02008*	3	14	41/30	0.030	0.76	0.375	9.52	18	110	250'
02009*	4	14	41/30	0.030	0.76	0.405	10.29	15	130	250'

**TYPE SOOW – 600 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOMINAL INS. THICKNESS		NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(S)</sup>	STD. CTN.
				INCHES	mm	INCHES	mm			
02031*	2	18	41/34	0.030	0.76	0.365	9.27	10	75	250'
02032*	3	18	41/34	0.030	0.76	0.375	9.53	10	80	250'
02033*	4	18	41/34	0.030	0.76	0.400	10.16	7	110	250'
02034*	2	16	65/34	0.030	0.76	0.370	9.40	13	75	250'
02035*	3	16	65/34	0.030	0.76	0.395	10.80	13	100	250'
02036*	4	16	65/34	0.030	0.76	0.425	10.80	10	120	250'
02021*	5	16	65/34	0.030	0.76	0.515	13.08	8	150	250'
02037*	2	14	41/30	0.045	1.14	0.510	12.95	18	155	250'
02038*	3	14	41/30	0.045	1.14	0.525	13.34	18	165	250'
02039*	4	14	41/30	0.045	1.14	0.575	14.61	15	215	250'
02022*	5	14	41/30	0.045	1.14	0.675	17.15	12	285	250'
02041*	2	12	65/30	0.045	1.14	0.590	14.99	25	200	250'
02042*	3	12	65/30	0.045	1.14	0.600	15.24	25	250	250'
02043*	4	12	65/30	0.045	1.14	0.650	16.51	20	280	250'
02023*	5	12	65/30	0.045	1.14	0.730	18.54	16	315	250'
02045*	3	10	104/30	0.045	1.14	0.660	16.76	30	320	250'
02046*	4	10	104/30	0.045	1.14	0.710	18.03	25	375	250'
02024*	5	10	104/30	0.045	1.14	0.770	19.56	20	432	250'

\* Non-stock item available by special order; minimum quantity purchase required.  
 † Green conductor for grounding only. Ampacities based on NEC Table 400.5(A)(1).  
 (S) Actual shipping weight may vary.

**COLOR CODE CHART**

NO. OF CONDUCTORS	COLOR
2	Black, White
3	Black, White, Green
4	Black, White, Red, Green
5	Black, White, Red, Green, Orange



# Super Vu-Tron® Supreme Types SJOOW/SOOW

105°C, 300 and 600 Volt, UL/CSA Portable Cord



**Product Construction:**

**Conductors:**

- 18 through 10 AWG fully annealed stranded tinned copper

**Insulation:**

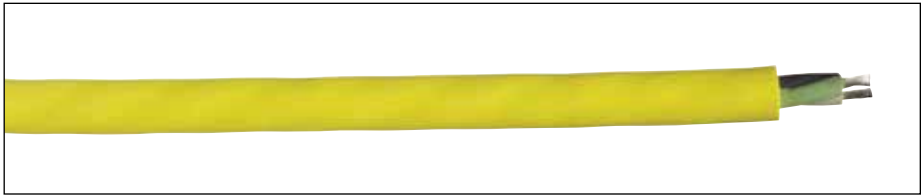
- Premium-grade, color-coded, oil-resistant 105°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® Supreme, yellow
- Temperature range: -50°C to +105°C UL/CSA
- Voltage rating: 300 volts Type SJOOW, 600 volts Type SOOW

**Jacket Marking:**

- SUPER VU-TRON® SUPREME SJOOW - CAROL SUPER VU-TRON® SUPREME (SIZE) (mm<sup>2</sup>) 105°C (UL) WATER RESISTANT SJOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 300 VOLT ROHS MADE IN USA (TRU-MARK SEQUENTIAL FOOTAGE)
- SUPER VU-TRON® SUPREME SOOW - CAROL SUPER VU-TRON® SUPREME (SIZE) (mm<sup>2</sup>) 105°C (UL) WATER RESISTANT SOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 600 VOLT ROHS MADE IN USA (TRU-MARK SEQUENTIAL FOOTAGE)



**TYPE SJOOW – 300 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	STRAND O.D.	NOM. INS. THICKNESS		JACKET NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(S)</sup>	COPPER WT. LBS/M'	STD. CTN.
					INCHES	mm	INCHES	mm				
02601	2	18	41/34	.048"	0.030	0.76	0.310	7.87	10	56	10	1000'
02602	3	18	41/34	.048"	0.030	0.76	0.320	8.13	10	66	15	1000'
02603	4	18	41/34	.048"	0.030	0.76	0.345	8.76	7	79	20	250'
02604	2	16	65/34	.057"	0.030	0.76	0.315	8.00	13	62	16	1000'
02605	3	16	65/34	.057"	0.030	0.76	0.335	8.51	13	77	24	250'
02606	4	16	65/34	.057"	0.030	0.76	0.370	9.40	10	98	32	250'
02607	2	14	105/34	.077"	0.030	0.76	0.370	9.40	18	75	24	250'
02608	3	14	105/34	.077"	0.030	0.76	0.375	9.53	18	99	36	250'
02609	4	14	105/34	.077"	0.030	0.76	0.405	10.29	15	122	48	250'

**TYPE SOOW – 600 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOM. INS. THICKNESS		JACKET NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M <sup>(S)</sup>	COPPER WT. LBS/M'	STD. CTN.
				INCHES	mm	INCHES	mm				
02631*	2	18	41/34	0.030	0.76	0.365	9.27	10	75	10	250'
02632	3	18	41/34	0.030	0.76	0.375	9.53	10	84	15	250'
02633*	4	18	41/34	0.030	0.76	0.400	10.16	7	110	21	250'
02634	2	16	65/34	0.030	0.76	0.370	9.40	13	80	16	250'
02635	3	16	65/34	0.030	0.76	0.395	10.03	13	96	24	250'
02636	4	16	65/34	0.030	0.76	0.425	10.80	10	118	32	250'
02621	5	16	65/34	0.030	0.76	0.515	13.08	8	166	40	250'
02637*	2	14	105/34	0.045	1.14	0.510	12.95	18	153	24	250'
02638	3	14	105/34	0.045	1.14	0.525	13.34	18	164	36	250'
02639	4	14	105/34	0.045	1.14	0.575	14.61	15	204	48	250'
02622*	5	14	105/34	0.045	1.14	0.675	17.15	12	279	60	250'
02641*	2	12	168/34	0.045	1.14	0.590	14.99	25	198	38	250'
02642	3	12	168/34	0.045	1.14	0.600	15.24	25	224	57	250'
02643	4	12	168/34	0.045	1.14	0.650	16.51	20	270	76	250'
02623*	5	12	168/34	0.045	1.14	0.730	18.54	16	308	96	250'
02645	3	10	259/34	0.045	1.14	0.660	16.76	30	295	99	250'
02646	4	10	259/34	0.045	1.14	0.710	18.03	25	365	132	250'
02624*	5	10	259/34	0.045	1.14	0.770	19.56	20	422	168	250'

**Applications:**

- Machine tools
- Power tools
- Dockside power applications
- Motor leads
- Portable machinery
- Cranes
- Submersible pumps
- Where water immersion is required
- Severe environment OEM/MRO applications

**Features:**

- Excellent flexibility in cold temperatures
- Lasts longer in flex applications (extra-flexible Class M stranding)
- Integral Flexfill®
- Ozone-, sunlight (UV)- and weather-resistant
- UL Listed and CSA Certified for indoor and outdoor use
- Water-resistant\*
- Safety-colored, with high-visibility yellow jacket
- High heat and flame resistance
- Resistant to sunlight, oils, acids and chemicals
- Excellent abrasion and cut resistance
- TRU-Mark® sequential footage marking
- Tinned copper conductors – corrosion/oxidation-resistant

**Industry Approvals:**

- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- 250' (76.2 m), 500' (152.4 m), 1000' (304.8 m)
- Other put-ups available on special order

\* Suitable for immersion in water if properly sealed and terminated.

**TOP PERFORMANCE IN THE TOUGHEST ENVIRONMENTS**

Volume change (%) of SUPER VU-TRON® SUPREME after 28 days at room temperature in the following materials			
ACETIC ACID (30%)	+19.00	LINSEED OIL	+1.04
AMMONIA HYDROXIDE	+3.12	LUBE OIL	-1.82
ASTM 3 OIL	+0.26	MILK	+4.16
BEER	+4.42	NITRIC ACID (10%)	+7.29
BLEACH WATER	+2.60	SAE 30 OIL	-1.30
BUTYL ALCOHOL	-1.82	SKYDROL 500	+17.10
CORN OIL	0.00	SODIUM HYDROXIDE	+10.90
FORMALDEHYDE	+3.38	SULFURIC ACID (10%)	+2.34
GLYCOL (ANTI-FREEZE)	-2.60	TOLUENE	+30.20
HYDROCHLORIC ACID (20%)	+10.60	UNLEADED GAS	+22.10
JP-4	+10.90	WATER	+2.86
KEROSENE	+10.60		

\* Non-stock item; minimum quantity purchase required.

† Green conductor for grounding only. Ampacities based on NEC Table 400.5(A)(1).

(S) Actual shipping weight may vary.

**COLOR CODE CHART**

NO. OF CONDUCTORS	COLOR
2	Black, White
3	Black, White, Green/Yellow
4	Black, White, Red, Green/Yellow
5	Black, White, Red, Green/Yellow, Orange



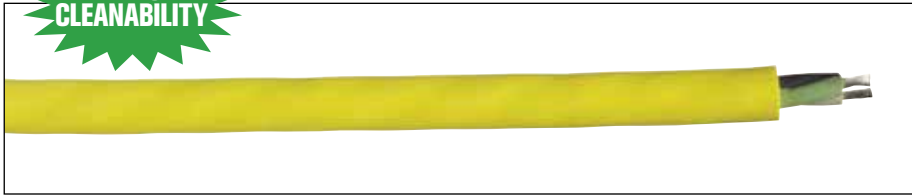


# Super Vu-Tron® Supreme Types SJOOW/SOOW with GenClean™

105°C, 300 and 600 Volt, UL/CSA Portable Cord



**ENHANCED CLEANABILITY**



**Product Construction:**

**Conductors:**

- 18 through 10 AWG fully annealed stranded tinned copper

**Insulation:**

- Premium-grade, color-coded, oil-resistant 105°C EPDM
- Color code: See chart below

**Jacket:**

- Super Vu-Tron® Supreme, yellow, with GenClean™ technology
- Temperature range: -50°C to +105°C UL/CSA
- Voltage rating: 300 volts Type SJOOW, 600 volts Type SOOW

**Jacket Marking:**

- SUPER VU-TRON® SUPREME SJOOW - CAROL SUPER VU-TRON® SUPREME FEATURING GENCLEAN™ JACKET (SIZE) (mm²) 105°C (UL) WATER RESISTANT SJOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 300 VOLT ROHS MADE IN USA
- SUPER VU-TRON® SUPREME SOOW - CAROL SUPER VU-TRON® SUPREME FEATURING GENCLEAN™ JACKET (SIZE) (mm²) 105°C (UL) WATER RESISTANT SOOW CSA (-50°C) FT1 --- P-07-KA120015-MSHA 600 VOLT ROHS MADE IN USA

**TYPE SJOOW – 300 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	STRAND O.D.	NOM. INS. THICKNESS		JACKET NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M' (S)	COPPER WT. LBS/M'	STD. CTN.
					INCHES	mm	INCHES	mm				
GC601	2	18	41/34	.048"	0.030	0.76	0.310	7.87	10	56	10	1000'
GC602	3	18	41/34	.048"	0.030	0.76	0.320	8.13	10	66	15	1000'
GC603	4	18	41/34	.048"	0.030	0.76	0.345	8.76	7	79	21	250'
GC604	2	16	65/34	.057"	0.030	0.76	0.315	8.00	13	62	16	1000'
GC605	3	16	65/34	.057"	0.030	0.76	0.335	8.51	13	77	24	250'
GC606	4	16	65/34	.057"	0.030	0.76	0.370	9.40	10	98	32	250'
GC607	2	14	105/34	.077"	0.030	0.76	0.370	9.40	18	75	24	250'
GC608	3	14	105/34	.077"	0.030	0.76	0.375	9.53	18	99	36	250'
GC609	4	14	105/34	.077"	0.030	0.76	0.405	10.29	15	122	48	250'

**TYPE SOOW – 600 VOLT – UL/CSA**

CATALOG NUMBER	NO. OF COND.	AWG SIZE	COND. STRAND	NOM. INS. THICKNESS		JACKET NOMINAL O.D.		CURRENT AMPS†	APPROX. NET WT. LBS/M' (S)	COPPER WT. LBS/M'	STD. CTN.
				INCHES	mm	INCHES	mm				
GC631*	2	18	41/34	0.030	0.76	0.365	9.27	10	75	10	250'
GC632	3	18	41/34	0.030	0.76	0.375	9.53	10	84	15	250'
GC633*	4	18	41/34	0.030	0.76	0.400	10.16	7	110	21	250'
GC634	2	16	65/34	0.030	0.76	0.370	9.40	13	80	16	250'
GC635	3	16	65/34	0.030	0.76	0.395	10.03	13	96	24	250'
GC636	4	16	65/34	0.030	0.76	0.425	10.80	10	118	32	250'
GC621	5	16	65/34	0.030	0.76	0.515	13.08	8	166	40	250'
GC637*	2	14	105/34	0.045	1.14	0.510	12.95	18	153	24	250'
GC638	3	14	105/34	0.045	1.14	0.525	13.34	18	164	36	250'
GC639	4	14	105/34	0.045	1.14	0.575	14.61	15	204	48	250'
GC622*	5	14	105/34	0.045	1.14	0.675	17.15	12	279	60	250'
GC641*	2	12	168/34	0.045	1.14	0.590	14.99	25	198	38	250'
GC642	3	12	168/34	0.045	1.14	0.600	15.24	25	224	57	250'
GC643	4	12	168/34	0.045	1.14	0.650	16.51	20	270	76	250'
GC623*	5	12	168/34	0.045	1.14	0.730	18.54	16	308	96	250'
GC645	3	10	259/34	0.045	1.14	0.660	16.76	30	295	99	250'
GC646	4	10	259/34	0.045	1.14	0.710	18.03	25	365	132	250'
GC624*	5	10	259/34	0.045	1.14	0.770	19.56	20	422	168	250'

**Target Applications/Markets:**

- Food/beverage manufacturing
- Marine manufacturing
- Manufactured structures
- Severe environments
- Docksides power
- Health care

**Features:**

- Cleanable rubber jacket
- Excellent flexibility in cold temperatures
- Lasts longer in flex applications (extra-flexible Class M stranding)
- Integral Flexfill®
- Enhanced cleanability
- Reduced scuffing
- Ozone-, sunlight (UV)- and weather-resistant
- UL Listed and CSA Certified for indoor and outdoor use
- Water-resistant\*
- Safety-colored, with high-visibility yellow jacket
- High heat and flame resistance
- Resistant to sunlight, oils, acids and chemicals
- Excellent abrasion and cut resistance
- Tinned copper conductors – corrosion/oxidation-resistant

**Industry Approvals:**

- UL Flexible Cord - UL 62
- CSA Flexible Cord - C22.2-49
- MSHA Approved
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- 250' (76.2 m), 500' (152.4 m), 1000' (304.8 m)
- Other put-ups available on special order

\* Suitable for immersion in water if properly sealed and terminated.

**TOP PERFORMANCE IN THE TOUGHEST ENVIRONMENTS**

Volume change (%) of SUPER VU-TRON® SUPREME after 28 days at room temperature in the following materials		
ACETIC ACID (30%)	+19.00	LINSEED OIL +1.04
AMMONIA HYDROXIDE	+3.12	LUBE OIL -1.82
ASTM 3 OIL	+0.26	MILK +4.16
BEER	+4.42	NITRIC ACID (10%) +7.29
BLEACH WATER	+2.60	SAE 30 OIL -1.30
BUTYL ALCOHOL	-1.82	SKYDROL 500 +17.10
CORN OIL	0.00	SODIUM HYDROXIDE +10.90
FORMALDEHYDE	+3.38	SULFURIC ACID (10%) +2.34
GLYCOL (ANTI-FREEZE)	-2.60	TOLUENE +30.20
HYDROCHLORIC ACID (20%)	+10.60	UNLEADED GAS +22.10
JP-4	+10.90	WATER +2.86
KEROSENE	+10.60	

\* Non-stock item; minimum quantity purchase required.  
 † Green conductor for grounding only. Ampacities based on NEC Table 400.5(A)(1).

© Actual shipping weight may vary.

**COLOR CODE CHART**

NO. OF CONDUCTORS	COLOR
2	Black, White
3	Black, White, Green/Yellow
4	Black, White, Red, Green/Yellow
5	Black, White, Red, Green/Yellow, Orange



# Industrial Cable Solutions for Variable Frequency Drives

Tough challenges call for innovative solutions, and General Cable is your worldwide source for new products and a wide range of industry-leading industrial cables. General Cable provides a line of cables for Variable Frequency Drives (VFD) in both unarmored and armored designs as well as in many power ratings.

The following highlights the features and benefits of specially engineered cable designs for use with AC motors controlled by pulse-width modulated inverters in VFD applications rated up to 1000 V, 2000 V, 5 kV and 8 kV:

## CVTC® VFD Low-Voltage Power Type TC-ER

Compressed stranding to reduce overall cable diameter

Dual copper tape shields provide maximum shield coverage required for Variable Frequency Drive applications

Symmetrically placed annealed bare copper grounding conductors in direct contact with shield

Designed to reduce the risk of Electromagnetic Interference (EMI), which can lead to malfunction

Meets crush and impact requirements of Type MC cable

Permitted for use in Class I, Division 2 industrial hazardous locations per NEC



## CCW® VFD Low- & Medium-Voltage Power Type MC-HL

Compact or compressed stranding to reduce conductor size

XLPE insulation with high impulse voltage breakdown level resists degradation

Symmetrically placed annealed bare copper grounding conductors in direct contact with shield

Compact conductors provide reduced conductor size

Pure EPR insulation system has outstanding corona resistance and high dielectric strength, providing electrical stability under stress

Triple Extrusion applies strand shield, EPR insulation and insulation shield in one operation, eliminating exposure to contamination and providing maximum control and consistency



### Additional Benefits of CCW® VFD Low- & Medium-Voltage Power Cable

Continuously Corrugated Welded armor:

- Provides impervious barrier to moisture, gas and liquids
- Provides EMI shielding performance
- Factory assembled and tested for use as an economical, rugged and reliable alternative to cable in conduit wiring systems

Armored constructions suitable for use in Class I, II, & III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505

### VFD Cable Advantages in Industrial Automation Applications

Today's manufacturing and processing environments are relying on increased automation to improve productivity. As a result, there is more focus and awareness around minimizing downtime and improving safety. The use of Variable Frequency Drive (VFD) cable in industrial automation applications provides a reliable solution to address these issues.

### When Are VFD Cables Needed?

Whenever you are installing a VFD system, VFD cables should be strongly considered for use between the inverter and the motor. Standard power cable is not designed to handle the high frequency components of the drive's inverter output. Some applicable market applications are shown in the chart below.

### Why Are VFD Cables Needed?

Many problems that are common in VFD systems can be fixed or their impact lessened by simply using a properly terminated VFD cable. These problems include but are not limited to:

- intermittent issues with other factory control or communication systems
- alarm system malfunctions
- premature motor bearing failure
- premature cable failure
- drive failure and drive problems
- shock hazards (to maintenance and other personnel)

### How Does a VFD Cable Address These Issues?

VFD cable features a properly designed overall electrical shield, symmetrically designed conductors, and thermoset insulation with a low dielectric constant.

### Proper Shielding

VFD cable is designed with an overall electrical shield in the form of armor, copper tape or a copper braid. General Cable offers all three designs so you can choose the construction that best meets your needs. However, not all shields are created equal. The shield must be designed to effectively handle the high frequency components of the inverter waveform and minimize inductive loading.

This shield, along with proper cable termination, will minimize electromagnetic radiation broadcast from the cable. Unshielded cable acts like a broadcast antenna, radiating these unwanted electrical signals in the form of noise throughout your plant. This radiation can cause issues with alarm systems, other control and communication systems, and other drives. As factories become more automated, these issues become more prevalent.

Shielding also minimizes electromagnetic induction (a signal produced in nearby electrical circuits when they are exposed to a varying magnetic field). It has been shown that when unshielded inverter-motor

MARKETS	VFD OFFERING		
	Unarmored VFD (CVTC®)	Armored VFD (CCW®)	Applications
Marine		X	Fluid/flow control – process pumps/drilling and pumps (Note: TYPE P VFD cable for flex applications)
Power & Energy Management	X	X	Process & flow control, cooling towers
Pulp & Paper	X	X	Conveyors, process equipment
Automotive & Tire	X	X	Material handling, process equipment, conveyors
Global Machine & Equip	X	X	Packaging, material handling, equipment, cranes, conveyors
Oil, Gas & Petrochemical	X	X	Fluid/flow control – process pumps and cooling towers, terminals and pipelines
Specialty Chemical	X	X	Fluid/flow control, process pumps, rotary equipment
Water & Waste	X	X	Process/flow control pumps, rotary equipment

cables are installed in tray, a potentially lethal current can be induced in a cable that is locked out from the electromagnetic induction generated by the other energized cables in the tray. Many people feel that human safety alone justifies the utilization of VFD cables for their motor-inverter connections.

Shielding also has the effect of reducing the risk of premature motor bearing failure by providing a low impedance path for common mode current to return to the inverter frame. Without this low impedance path, the current can end up flowing through motor bearings, causing bearing fluting.<sup>1</sup>

### **Proper Conductor Design**

Common mode (CM) current is a frequent cause of drive system issues (including false trips). One way to deal with CM current is to direct it back to the inverter frame via the shield. Some VFD cables go further and actually reduce the generation of CM current. A cable designed with a symmetrical relationship between the phase conductors and the grounds provides the cancellation effects that will minimize the CM current in the system. These designs typically have three phase conductors with three ground conductors in the interstices of the phase conductors.

### **Proper Insulation**

Cable insulation also plays a critical role in keeping your VFD system performing reliably. VFD cables should have a thermoset, cross-linked insulation which will provide more protection than less expensive PVC insulation. General Cable uses thermoset, cross-linked insulations in all their VFD cable constructions. Using THHN cable as your inverter motor cable is not recommended. The PVC insulation on THHN cable possesses two undesirable characteristics in VFD applications:

- (1) It is hydroscopic, meaning it can absorb moisture from the air, which drops its dielectric withstand to as low as 55% of its rated voltage.
- (2) It can experience cold-flow, causing the insulation to displace when under pressure, resulting in the reduction of insulation wall thickness.

Furthermore, THHN cable is rated for 600 volts RMS or 850 volts peak, but reflected waves (standing waves) in VFD cables can reach 1300 volts in a run as short as 35 feet. The 1300 volts places a lot of stress on a cable that is rated for 850 volts. When you factor in the decreased insulation strength due to moisture and the decreased wall thickness, you may experience problems.

In addition, PVC insulated cables have a high capacitance associated with them, causing the cable to leak current through the insulation, resulting in false trips. The cables also have a higher charging current associated with them, which requires a drive with more power (and more cost). In order to minimize these problems, choose a cable with thermoset insulation that is rated to handle the peak standing wave voltage.

### **The Right Cable Solution for VFD Applications**

VFD cable offers three key attributes to mitigate the issues that arise in these applications: shielding, robust insulation and symmetrical design. VFD cable is a more expensive alternative to standard power cables, but in today's environment with increased automation, more focus on safety and limited tolerance for downtime, it proves to be a very wise investment.

<sup>1</sup> Bearing fluting is addressed in further detail in the white paper *General Cable VFD Cables, An Overview of Variable Frequency Drive Cables*, November 2013.

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## VARIABLE FREQUENCY DRIVE

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**CCW® Armored Power, 3/C VFD and 4/C**

UL Type MC-HL, CSA Type HL, XLPE, 600 V, 90°C, Cable Tray Use, Sunlight-Resistant Direct Burial, UL Marine Shipboard Cable, ABS CWCMC

**Product Construction:**

- Bare annealed copper per ASTM B3
- 10 AWG and smaller are Class B compressed stranding per ASTM B8
- 8 AWG and larger are compact stranding per ASTM B496

**Insulation:**

- Cross-linked Polyethylene (XLPE) insulation per ICEA S-95-658 and UL 44, Listed XHHW-2
- 6 AWG and smaller are color-coded per ICEA Method 1, Table E2
- 4 AWG and larger are black with printed numbers per ICEA Method 4
- Color-coded per CSA C22.2 No. 123 where applicable

**Grounding Conductor(s):**

- Class B stranded bare annealed copper per ASTM B3 and B8
- Where specified, single or three split grounding wires are sized in accordance with NEC Table 250.122

**Cable Assembly:**

- Insulated conductors and grounding wire(s) are cabled together with non-hygroscopic fillers when required
- A binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1569 and UL 2225
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C
- Meets CSA Low Acid Gas requirements

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- For use as services, feeders and branch circuits for power, lighting, control, and signal circuits in accordance with NEC Articles 330 and 725
- Installed indoors or outdoors, wet or dry locations, directly buried, embedded in concrete, in a raceway, as aerial cable on a messenger, in cable trays, or as exposed runs secured to supports in accordance with NEC Article 330
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- 3-conductor CCW power cables with three grounding wires are recommended for use with pulse-width modulated AC drives
- CCW armor provides an impervious barrier to moisture, gas and liquids
- CCW armor provides EMI shielding performance
- Factory assembled and tested cable for use as an alternative to cable in conduit wiring systems

**Features (cont'd.):**

- Meets cold impact at -40°C
- 90°C continuous operating temperature, wet or dry
- 130°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-95-658/WC70 Standard for Non-Shielded Power Cable, 2 kV or Less
- UL 44 Rubber Insulated Wires and Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable
- CSA C22.2 No. 123 Metal Sheathed Cables
- CSA C22.2 No. 174 Cables and Cable Glands for Use in Hazardous Locations

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1581 (70,000 BTU/hr)
- IEC 60332-3 Cat. A

**Compliances:**

- UL Type MC-HL, XHHW-2, SUN RES, CT USE, DIR BUR, -40°C, UL File # E90496
- UL Listed Marine Shipboard, UL File # E85994
- American Bureau of Shipping (ABS) Listed for CWCMC
- CSA certified<sup>1</sup> Type RA90, XLPE, HL, SR, FT4, and -40°C, CSA File # 7319
- RoHS Compliant

<sup>1</sup> Standard cables are also marked CSA Type RA90, except four (4) conductor cables which require a different color code, which may be special-ordered.

# CCW<sup>®</sup> Armored Power, 3/C VFD and 4/C

UL Type MC-HL, CSA Type HL, XLPE, 600 V, 90°C, Cable Tray Use, Sunlight-Resistant Direct Burial, UL Marine Shipboard Cable, ABS CWCMC

CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NO. OF COND.	INSULATION THICKNESS		BARE GROUND (AWG)	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		CROSS-SECTIONAL AREA <sup>1</sup> SQ. IN.	APPROXIMATE NET WEIGHT		90°C AMPACITY @ 30°C AMBIENT <sup>2</sup>
			mils	mm		INCHES	mm	INCHES	mm	mils	mm	INCHES	mm		LBS/1000 FT	kg/1000 m	
9600.01403318	14 (7/W) (2.08 mm <sup>2</sup> )	3	30	0.76	3 x #18	0.33	8.4	0.53	13.5	50	1.27	0.64	16.3	0.33	163	242	15
9600.01404318		4	30	0.76	3 x #18	0.37	9.4	0.58	14.7	50	1.27	0.69	17.5	0.38	226	336	15
9600.01203316	12 (7/W) (3.31 mm <sup>2</sup> )	3	30	0.76	3 x #16	0.37	9.4	0.58	14.7	50	1.27	0.69	17.5	0.38	243	362	20
9600.01204316		4	30	0.76	3 x #16	0.45	11.4	0.67	17.0	50	1.27	0.78	19.8	0.48	291	433	20
9600.01003314	10 (7/W) (5.26 mm <sup>2</sup> )	3	30	0.76	3 x #14	0.41	10.4	0.62	15.7	50	1.27	0.73	18.5	0.42	305	454	30
9600.01004314		4	30	0.76	3 x #14	0.45	11.4	0.67	17.0	50	1.27	0.78	19.8	0.48	354	527	30
9600.00803314	8 (7/W) (8.36 mm <sup>2</sup> )	3	45	1.14	3 x #14	0.50	12.7	0.71	18.0	50	1.27	0.81	20.6	0.52	392	583	55
9600.00804110		4	45	1.14	1 x #10	0.58	14.7	0.80	20.3	50	1.27	0.90	22.9	0.64	473	704	44
9600.00603312	6 (7/W) (13.3 mm <sup>2</sup> )	3	45	1.14	3 x #12	0.58	14.7	0.80	20.3	50	1.27	0.90	22.9	0.64	534	795	75
9600.00604108		4	45	1.14	1 x #8	0.66	16.8	0.89	22.6	50	1.27	0.99	25.1	0.78	641	954	60
9600.00403312	4 (7/W) (21.2 mm <sup>2</sup> )	3	45	1.14	3 x #12	0.68	17.3	0.89	22.6	50	1.27	0.99	25.1	0.78	716	1,066	95
9600.00404108		4	45	1.14	1 x #8	0.77	19.6	0.97	24.6	50	1.27	1.08	27.4	0.93	860	1,280	76
9600.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	45	1.14	3 x #10	0.80	20.3	1.02	25.9	50	1.27	1.13	28.7	1.02	1,013	1,507	130
9600.00204106		4	45	1.14	1 x #6	0.92	23.4	1.15	29.2	50	1.27	1.26	32.0	1.26	1,267	1,885	104
9600.00103310	1 (19/W) (42.4 mm <sup>2</sup> )	3	55	1.40	3 x #10	0.92	23.4	1.15	29.2	50	1.27	1.26	32.0	1.26	1,119	1,666	150
9600.00104106		4	55	1.40	1 x #6	1.04	26.4	1.29	32.8	50	1.27	1.40	35.6	1.56	1,526	2,272	120
9600.11003310	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	55	1.40	3 x #10	1.00	25.4	1.24	31.5	50	1.27	1.34	34.0	1.43	1,496	2,226	170
9600.11004106		4	55	1.40	1 x #6	1.12	28.4	1.37	34.8	50	1.27	1.48	37.6	1.74	1,862	2,771	136
9600.21003310	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	55	1.40	3 x #10	1.09	27.7	1.34	34.0	50	1.27	1.44	36.6	1.65	1,801	2,681	195
9600.21004106		4	55	1.40	1 x #6	1.23	31.2	1.51	38.4	60	1.52	1.64	41.7	2.14	2,351	3,498	156
9600.31003308	3/0 (19/W) (85.0 mm <sup>2</sup> )	3	55	1.40	3 x #8	1.21	30.7	1.47	37.3	60	1.52	1.58	40.1	1.99	2,262	3,367	225
9600.31004104		4	55	1.40	1 x #4	1.36	34.5	1.65	41.9	60	1.52	1.78	45.2	2.52	2,921	4,346	180
9600.41003308	4/0 (19/W) (107 mm <sup>2</sup> )	3	55	1.40	3 x #8	1.33	33.8	1.60	40.6	60	1.52	1.73	43.9	2.38	2,722	4,051	260
9600.41004104		4	55	1.40	1 x #4	1.49	37.8	1.78	45.2	60	1.52	1.91	48.5	2.90	3,491	5,194	208
9600.25003308	250 (37/W) (127 mm <sup>2</sup> )	3	65	1.65	3 x #8	1.48	37.6	1.74	44.2	60	1.52	1.87	47.5	—	3,195	4,755	290
9600.25004104		4	65	1.65	1 x #4	1.64	41.7	1.96	49.8	60	1.52	2.09	53.1	—	4,142	6,164	232
9600.35003307	350 (37/W) (177 mm <sup>2</sup> )	3	65	1.65	3 x #7	1.66	42.2	1.96	49.8	60	1.52	2.09	53.1	—	4,284	6,376	350
9600.35004103		4	65	1.65	1 x #3	1.89	48.0	2.19	55.6	75	1.91	2.35	59.7	—	5,536	8,238	280
9600.50003306	500 (37/W) (253 mm <sup>2</sup> )	3	65	1.65	3 x #6	1.94	49.3	2.28	57.9	75	1.91	2.44	62.0	—	6,035	8,981	430
9600.50004102		4	65	1.65	1 x #2	2.14	54.4	2.49	63.2	75	1.91	2.65	67.3	—	7,704	11,464	344
9600.75003305	750 (61/W) (380 mm <sup>2</sup> )	3	80	2.03	3 x #5	2.37	60.2	2.75	69.9	75	1.91	2.92	74.2	—	8,854	13,176	535
9600.75004101		4	80	2.03	1 x #1	2.61	66.3	3.03	77.0	85	2.16	3.21	81.5	—	11,449	17,037	428
9600.100031110	1000 (61/W) (507 mm <sup>2</sup> )	3	80	2.03	1 x #1/0	2.67	67.8	3.11	79.0	85	2.16	3.30	83.8	—	11,611	17,280	615
9600.100041110		4	80	2.03	1 x #1/0	3.07	78.0	3.63	92.2	85	2.16	3.81	96.8	—	15,377	22,883	492

Dimensions and weights are nominal; subject to industry tolerances.

<sup>1</sup> Cross-sectional area for cable tray fill is in accordance with NEC Section 392.22.

<sup>2</sup> Ampacities in accordance with NEC Article 310 and Table 310.15(B)(16).

Note: Three (3) conductors, 6 AWG and smaller are also marked CSA Type RA90. One (1) AWG and larger are also marked CSA Type RA90.



**CCW<sup>®</sup> Armored Power, 3/C VFD and 4/C**

UL Type MC-HL, XLPE, 600 V, 90°C, Cable Tray Use, Sunlight-Resistant Direct Burial, UL Marine Shipboard Cable, ABS CWCMC, Arctic-Grade

**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- 10 AWG and smaller are Class B compressed stranding per ASTM B8
- 8 AWG and larger are compact stranding per ASTM B496

**Insulation:**

- Cross-linked Polyethylene (XLPE) insulation per ICEA S-95-658 and UL 44, Listed XHHW-2
- 6 AWG and smaller are color-coded per ICEA Method 1, Table E2
- 4 AWG and larger are black with printed numbers per ICEA Method 4
- Color-coded per CSA C22.2 No. 123 where applicable

**Grounding Conductor:**

- Class B stranded bare annealed copper per ASTM B3 and B8
- Where specified, single or three split grounding wires are sized in accordance with NEC Table 250.122

**Cable Assembly:**

- Insulated conductors and grounding wire are cabled together with non-hydroscopic fillers when required
- A binder tape, when required, is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL Standards 1569 and 2225
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -60°C

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- For use as services, feeders and branch circuits for power, lighting, control, and signal circuits in accordance with NEC Articles 330 and 725
- Installed indoors or outdoors, wet or dry locations, directly buried, embedded in concrete, in a raceway, as aerial cable on a messenger, in cable trays, or as exposed runs secured to supports in accordance with NEC Article 330
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- 3-conductor CCW power cables with three grounding wires are recommended for use with pulse-width modulated AC drives
- CCW armor provides an impervious barrier to moisture, gas and liquids
- CCW armor provides EMI shielding performance
- Factory assembled and tested cable for use as an alternate to cable in conduit wiring systems

**Features (cont'd.):**

- Meets cold bend at -55°C
- 90°C continuous operating temperature, wet or dry
- 130°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-95-658/WC70 Standard for Non-Shielded Power Cable, 2 kV or Less
- UL 44 Rubber Insulated Wires and Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable
- CSA C22.2 No. 123 Metal Sheathed Cables
- CSA C22.2 No. 174 Cables and Cable Glands for Use in Hazardous Locations

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1581 (70,000 BTU/hr)
- IEC 60332-3 Cat. A

**Compliances:**

- UL Type MC-HL, XHHW-2, SUN RES, CT USE, DIR BUR, -40°C, UL File # E90496
- UL Listed Marine Shipboard, UL File # E85994
- American Bureau of Shipping (ABS) Listed for CWCMC
- RoHS Compliant





# CCW<sup>®</sup> Armored Power, 3/C VFD and 4/C

UL Type MC-HL, XLPE, 600 V, 90°C, Cable Tray Use, Sunlight-Resistant  
Direct Burial, UL Marine Shipboard Cable, ABS CWCMC, Arctic-Grade

CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NO. OF COND.	INSULATION THICKNESS		BARE GROUND (AWG)	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		CROSS-SECTIONAL AREA <sup>1</sup> SQ. IN.	APPROXIMATE NET WEIGHT		90°C AMPACITY @ 30°C AMBIENT <sup>2</sup>
			mils	mm		INCHES	mm	INCHES	mm	mils	mm	INCHES	mm		LBS/1000 FT	kg/1000 m	
9605.01403318	14 (7/W) (2.08 mm <sup>2</sup> )	3	30	0.76	3 x #18	0.33	8.4	0.53	13.5	50	1.27	0.64	16.3	0.33	163	242	15
9605.01404216		4	30	0.76	2 x #16	0.33	8.4	0.51	13.0	50	1.27	0.62	15.7	0.30	221	330	15
9605.01404318		4	30	0.76	3 x #18	0.37	9.4	0.58	14.7	50	1.27	0.69	17.5	0.38	226	336	15
9605.01203316	12 (7/W) (3.31 mm <sup>2</sup> )	3	30	0.76	3 x #16	0.37	9.4	0.58	14.7	50	1.27	0.69	17.5	0.38	243	362	20
9605.01204316		4	30	0.76	3 x #16	0.45	11.4	0.67	17.0	50	1.27	0.78	19.8	0.48	291	433	20
9605.01003314	10 (7/W) (5.26 mm <sup>2</sup> )	3	30	0.76	3 x #14	0.41	10.4	0.62	15.7	50	1.27	0.73	18.5	0.42	305	454	30
9605.01004314		4	30	0.76	3 x #14	0.45	11.4	0.67	17.0	50	1.27	0.78	19.8	0.48	354	527	30
9605.00803314	8 (7/W) (8.36 mm <sup>2</sup> )	3	45	1.14	3 x #14	0.50	12.7	0.71	18.0	50	1.27	0.81	20.6	0.52	392	583	55
9605.00804110		4	45	1.14	1 x #10	0.58	14.7	0.80	20.3	50	1.27	0.90	22.9	0.64	473	704	44
9605.00804212		4	45	1.14	2 x #12	0.57	14.5	0.77	19.6	50	1.27	0.88	22.4	0.61	491	731	44
9605.00603312	6 (7/W) (13.3 mm <sup>2</sup> )	3	45	1.14	3 x #12	0.58	14.7	0.80	20.3	50	1.27	0.90	22.9	0.64	534	795	75
9605.00604108		4	45	1.14	1 x #8	0.66	16.8	0.89	22.6	50	1.27	0.99	25.1	0.78	641	954	60
9605.00604210		4	45	1.14	2 x #10	0.66	16.8	0.88	22.4	50	1.27	0.99	25.1	0.78	679	1,012	60
9605.00403312	4 (7/W) (21.2 mm <sup>2</sup> )	3	45	1.14	3 x #12	0.68	17.3	0.89	22.6	50	1.27	0.99	25.1	0.78	716	1,066	95
9605.00404108		4	45	1.14	1 x #8	0.77	19.6	0.97	24.6	50	1.27	1.08	27.4	0.93	860	1,280	76
9605.00404210		4	45	1.14	2 x #10	0.76	19.3	1.00	25.4	50	1.27	1.11	28.2	0.97	950	1,415	76
9605.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	45	1.14	3 x #10	0.80	20.3	1.02	25.9	50	1.27	1.13	28.7	1.02	1,013	1,507	130
9605.00204106		4	45	1.14	1 x #6	0.92	23.4	1.15	29.2	50	1.27	1.26	32.0	1.26	1,267	1,885	104
9605.00204208		4	45	1.14	2 x #8	0.89	22.6	1.16	29.5	50	1.27	1.27	32.3	1.27	1,371	2,043	104
9605.00103310	1 (19/W) (42.4 mm <sup>2</sup> )	3	55	1.40	3 x #10	0.92	23.4	1.15	29.2	50	1.27	1.26	32.0	1.26	1,119	1,666	150
9605.00104106		4	55	1.40	1 x #6	1.04	26.4	1.29	32.8	50	1.27	1.40	35.6	1.56	1,526	2,272	120
9605.11003310	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	55	1.40	3 x #10	1.00	25.4	1.24	31.5	50	1.27	1.34	34.0	1.43	1,496	2,226	170
9605.11004106		4	55	1.40	1 x #6	1.12	28.4	1.37	34.8	50	1.27	1.48	37.6	1.74	1,862	2,771	136
9605.21003310	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	55	1.40	3 x #10	1.09	27.7	1.34	34.0	50	1.27	1.44	36.6	1.65	1,801	2,681	195
9605.21004106		4	55	1.40	1 x #6	1.23	31.2	1.51	38.4	60	1.52	1.64	41.7	2.14	2,351	3,498	156
9605.31003308	3/0 (19/W) (85.0 mm <sup>2</sup> )	3	55	1.40	3 x #8	1.21	30.7	1.47	37.3	60	1.52	1.58	40.1	1.99	2,262	3,367	225
9605.31004104		4	55	1.40	1 x #4	1.36	34.5	1.65	41.9	60	1.52	1.78	45.2	2.52	2,921	4,346	180
9605.41003308	4/0 (19/W) (107 mm <sup>2</sup> )	3	55	1.40	3 x #8	1.33	33.8	1.60	40.6	60	1.52	1.73	43.9	2.38	2,722	4,051	260
9605.41004104		4	55	1.40	1 x #4	1.49	37.8	1.78	45.2	60	1.52	1.91	48.5	2.87	3,491	5,194	208
9605.25003308	250 (37/W) (127 mm <sup>2</sup> )	3	65	1.65	3 x #8	1.48	37.6	1.74	44.2	60	1.52	1.87	47.5	2.75	3,195	4,755	290
9605.25004104		4	65	1.65	1 x #4	1.64	41.7	1.96	49.8	60	1.52	2.09	53.1	3.43	4,142	6,164	232
9605.35003307	350 (37/W) (177 mm <sup>2</sup> )	3	65	1.65	3 x #7	1.66	42.2	1.96	49.8	60	1.52	2.09	53.1	3.43	4,284	6,376	350
9605.35003306		3	65	1.65	3 x #6	1.63	41.4	1.95	49.5	60	1.52	2.09	53.1	3.43	4,329	6,443	350
9605.35004103		4	65	1.65	1 x #3	1.89	48.0	2.19	55.6	75	1.91	2.35	59.7	4.34	5,536	8,238	280
9605.50003306	500 (37/W) (253 mm <sup>2</sup> )	3	65	1.65	3 x #6	1.94	49.3	2.28	57.9	75	1.91	2.44	62.0	4.68	6,035	8,981	430
9605.50004102		4	65	1.65	1 x #2	2.14	54.4	2.49	63.2	75	1.91	2.65	67.3	5.52	7,704	11,464	344
9605.75003305	750 (61/W) (380 mm <sup>2</sup> )	3	80	2.03	3 x #5	2.37	60.2	2.75	69.9	75	1.91	2.92	74.2	6.70	8,854	13,176	535
9605.75003304		3	80	2.03	3 x #4	2.32	58.9	2.71	68.8	75	1.91	2.86	72.6	6.42	8,926	13,293	535
9605.75004101		4	80	2.03	1 x #1	2.61	66.3	3.03	77.0	85	2.16	3.21	81.5	8.09	11,449	17,037	428
9605.100031110	1000 (61/W) (507 mm <sup>2</sup> )	3	80	2.03	1 x #1/0	2.67	67.8	3.11	79.0	85	2.16	3.30	83.8	8.55	11,611	17,280	615
9605.100041110		4	80	2.03	1 x #1/0	3.07	78.0	3.63	92.2	85	2.16	3.81	96.8	11.40	15,377	22,883	492

Dimensions and weights are nominal; subject to industry tolerances.  
<sup>1</sup> Cross-sectional area for cable tray fill is in accordance with NEC Section 392.22.  
<sup>2</sup> Ampacities in accordance with NEC Article 310 and Table 310.15(B)(16).



# CCW<sup>®</sup> Armored Power, 3/C VFD

UL Type MC-HL, XLPE, 2000 V, 90°C, Cable Tray Use, Sunlight-Resistant, Direct Burial  
UL Marine Shipboard Cable, ABS CWCMC

**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- 10 AWG and smaller are Class B compressed stranding per ASTM B8
- 8 AWG and larger are compact standing per ASTM B496

**Insulation:**

- Cross-linked Polyethylene (XLPE) insulation, 2000 V thicknesses per ICEA S-95-658
- Color-coded black with printed numbers per ICEA Method 4

**Grounding Conductors:**

- Class B stranded bare annealed copper per ASTM B3 and B8
- Three (3) split grounding wires per specification 9615 exceed the minimum required in NEC Table 250.122

**Cable Assembly:**

- Insulated conductors and grounding wires are cabled together with non-hygroscopic fillers when required
- A binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1569 and UL 2225
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC) — Black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires is the preferred wiring method for use with AC motors controlled by pulse-width modulated Inverters in VFD applications
- CCW armored cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502 and 503
- For use as services, feeders and branch circuits for power, lighting, control, and signal circuits in accordance with NEC Articles 330 and 725
- Installed indoors or outdoors, wet or dry locations, directly buried, embedded in concrete, in a raceway, as aerial cable on a messenger, in cable trays, or as exposed runs secured to supports in accordance with NEC Article 330
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- 90°C, 2000 V rated XLPE insulation with a dielectric constant less than 3.0 to withstand momentary voltage spikes common in certain VFD applications
- Three (3) oversized, symmetrical grounding wires recommended for use with pulse-width modulated AC drives
- CCW armor provides an impervious barrier to moisture, gas and liquids

**Features (cont'd.):**

- CCW armor provides EMI shielding performance
- Factory assembled and tested cable for use as an alternative to cable in conduit wiring systems
- Meets cold impact at -40°C
- 90°C continuous operating temperature, wet or dry
- 130°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-95-658/WC70 Standard for Non-Shielded Power Cable, 2 kV or Less
- UL 44 Rubber Insulated Wires and Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1581 (70,000 BTU/hr)
- IEC 332-3 Cat. A

**Compliances:**

- UL Type MC-HL, SUN RES, CT USE, DIR BUR, -40°C, UL File # E90496
- UL Listed Marine Shipboard, UL File # E85994
- American Bureau of Shipping (ABS) Listed for CWCMC
- RoHS Compliant

# CCW<sup>®</sup> Armored Power, 3/C VFD

UL Type MC-HL, XLPE, 2000 V, 90°C, Cable Tray Use, Sunlight-Resistant, Direct Burial  
UL Marine Shipboard Cable, ABS CWCMC

CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NO. OF COND.	INSULATION THICKNESS		BARE GROUND (AWG)	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		90°C AMPACITY @ 30°C AMBIENT <sup>1</sup>
			mils	mm		INCHES	mm	INCHES	mm	mils	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	
9615.01403318	14 (7/W) (2.08 mm <sup>2</sup> )	3	60	1.52	3 x #18	0.44	11.1	0.62	15.2	50	1.27	0.73	17.9	267	397	15
9615.01203316	12 (7/W) (3.31 mm <sup>2</sup> )	3	60	1.52	3 x #16	0.47	11.9	0.66	16.2	50	1.27	0.77	18.9	324	482	20
9615.01003314	10 (7/W) (5.26 mm <sup>2</sup> )	3	60	1.52	3 x #14	0.53	13.3	0.73	17.8	50	1.27	0.84	20.5	400	595	30
9615.00803314	8 (7/W) (8.36 mm <sup>2</sup> )	3	70	1.78	3 x #14	0.65	16.5	0.86	21.1	50	1.27	0.97	23.8	524	780	55
9615.00603312	6 (7/W) (13.3 mm <sup>2</sup> )	3	70	1.78	3 x #12	0.71	18.0	0.96	23.4	50	1.27	1.07	26.1	697	1,037	75
9615.00403312	4 (7/W) (21.2 mm <sup>2</sup> )	3	70	1.78	3 x #12	0.81	20.6	1.09	26.6	50	1.27	1.23	30.1	1,000	1,488	95
9615.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	70	1.78	3 x #10	0.94	23.9	1.25	30.6	50	1.27	1.36	33.3	1,285	1,912	130
9615.00103310	1 (19/W) (42.4 mm <sup>2</sup> )	3	90	2.29	3 x #10	1.13	28.7	1.48	36.1	50	1.27	1.59	38.8	1,595	2,374	150
9615.11003310	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	90	2.29	3 x #10	1.21	30.6	1.55	38.0	60	1.52	1.68	41.2	1,930	2,872	170
9615.21003306	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	90	2.29	3 x #6	1.30	32.9	1.68	41.0	60	1.52	1.81	44.2	2,507	3,731	195
9615.41003304	4/0 (19/W) (107 mm <sup>2</sup> )	3	90	2.29	3 x #4	1.53	38.7	1.91	46.7	60	1.52	2.04	49.9	3,590	5,342	260
9615.25003304	250 (37/W) (127 mm <sup>2</sup> )	3	105	2.67	3 x #4	1.71	43.4	2.12	51.8	60	1.52	2.25	55.1	4,150	6,176	290
9615.35003302	350 (37/W) (177 mm <sup>2</sup> )	3	105	2.67	3 x #2	1.93	48.9	2.41	58.9	75	1.91	2.57	62.8	5,214	7,759	350
9615.50003301	500 (37/W) (253 mm <sup>2</sup> )	3	105	2.67	3 x #1	2.20	55.8	2.68	65.5	75	1.91	2.84	69.5	6,977	10,382	430

Dimensions and weights are nominal; subject to industry tolerances.  
<sup>1</sup> Ampacities in accordance with NEC Article 310 and Table 310.15(B)(16).



# CCW<sup>®</sup> Armored Power, 1000 V, 3/C VFD

CSA Type RA90, XLPE, 1000 V, 90°C, Cable Tray Use, Sunlight-Resistant Direct Burial, FT4, -40°C, AG14, HL

**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- Sizes 10 AWG and smaller are Class B compressed stranding per ASTM B8
- Sizes 8 AWG and larger are compact stranding per ASTM B496

**Insulation:**

- Cross-linked Polyethylene (XLPE) insulation rated 1000 Volts, RW90 per CSA C22.2 No. 38
- Sizes 2 AWG and smaller utilize a single color insulation: black, red and blue
- Sizes 1 AWG and larger utilize black insulation with printed number/color, 1-black, 2-red, 3-blue

**Bonding/Grounding Conductors:**

- Class B stranded bare annealed copper per ASTM B3 and B8
- Three (3) symmetrical grounding wires are sized in accordance with CEC Table 16

**Cable Assembly:**

- Three symmetrical grounding wires are cabled within the interstices of the phase conductors
- Non-hygroscopic fillers when required
- A binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per C22.2 No. 123

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), black
- Meets CSA Low Gas Emission requirements, AG14

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use in industrial and commercial installations including hazardous locations in accordance with the CEC
- Can be installed in wet or dry locations, indoors or outdoors, in cable trays, in a raceway, or direct buried in accordance with the CEC

**Features:**

- 90°C, 1000 V wet or dry XLPE insulation and three (3) symmetrical grounding wires, recommended for use with pulse-width modulated AC drives
- XLPE insulation has a dielectric constant less than 3.0 to withstand momentary voltage spikes common with VFD applications

**Features (cont'd.):**

- CCW armor provides an impervious barrier to moisture, gas and liquids
- CCW armor provides EMI shielding performance
- Factory assembled and tested cable for use as an alternative to cable in conduit wiring systems
- Meets cold impact at -40°C
- 90°C continuous operating temperature, wet or dry
- 130°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- CSA C22.2 No. 38 Thermoset-Insulated Wires and Cables
- CSA C22.2 No. 123 Metal Sheathed Cables
- CSA C22.2 No. 174 Cables and Cable Glands for Use in Hazardous Locations

**Flame Tests:**

- CSA FT4
- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- IEEE 1202 (70,000 BTU/hr)

**Compliances:**

- CSA Certified Type RA90, XLPE, HL, SR, FT4, AG14 and -40°C, CSA File # 7319
- RoHS Compliant

# CCW<sup>®</sup> Armored Power, 1000 V, 3/C VFD

CSA Type RA90, XLPE, 1000 V, 90°C, Cable Tray Use, Sunlight-Resistant  
Direct Burial, FT4, -40°C, AG14, HL

CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NO. OF COND.	INSULATION THICKNESS		BARE GROUND COND. (AWG)	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		MIN. BEND RADIUS <sup>1</sup>		90°C AMPACITY @ 30°C AMBIENT <sup>2</sup>
			mils	mm		INCHES	mm	INCHES	mm	mils	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	INCHES	mm	
9675.01203318	12 (7/W) (3.31 mm <sup>2</sup> )	3	45	1.14	3 x #18	0.40	10.2	0.60	15.3	50	1.27	0.70	17.8	249	370	7.0	178	30
9675.01003316	10 (7/W) (5.26 mm <sup>2</sup> )	3	45	1.14	3 x #16	0.45	11.5	0.63	16.1	50	1.27	0.73	18.6	299	445	7.3	185	40
9675.00803314	8 (7/W) (8.36 mm <sup>2</sup> )	3	45	1.14	3 x #14	0.50	12.7	0.76	19.2	50	1.27	0.86	21.9	417	620	8.6	218	55
9675.00603312	6 (7/W) (13.3 mm <sup>2</sup> )	3	60	1.52	3 x #12	0.64	16.3	0.91	23.2	50	1.27	1.02	26.0	601	895	12.2	311	75
9675.00403312	4 (7/W) (21.2 mm <sup>2</sup> )	3	60	1.52	3 x #12	0.74	18.7	0.98	24.8	50	1.27	1.08	27.4	763	1,135	12.9	329	95
9675.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	60	1.52	3 x #10	0.86	21.8	1.18	29.9	50	1.27	1.28	32.5	1,122	1,670	15.4	390	130
9675.00103310	1 (19/W) (42.4 mm <sup>2</sup> )	3	80	2.03	3 x #10	1.01	25.7	1.36	34.6	50	1.27	1.46	37.1	1,404	2,090	17.5	445	145
9675.11003310	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	80	2.03	3 x #10	1.09	27.8	1.42	36.0	50	1.27	1.52	38.6	1,623	2,415	18.2	462	170
9675.21003310	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	80	2.03	3 x #10	1.18	30.0	1.56	39.6	50	1.27	1.66	42.2	2,043	3,040	20.0	506	195
9675.41003308	4/0 (19/W) (107 mm <sup>2</sup> )	3	80	2.03	3 x #8	1.40	35.5	1.75	44.4	50	1.27	1.85	47.0	2,950	4,390	22.2	564	260
9675.25003308	250 (37/W) (127 mm <sup>2</sup> )	3	90	2.29	3 x #8	1.49	37.8	1.90	48.2	50	1.27	2.01	51.1	3,380	5,030	24.1	612	290
9675.35003308	350 (37/W) (177 mm <sup>2</sup> )	3	90	2.29	3 x #8	1.74	44.3	2.22	56.4	50	1.27	2.33	59.2	4,465	6,645	27.9	710	350
9675.50003306	500 (37/W) (253 mm <sup>2</sup> )	3	90	2.29	3 x #6	2.00	50.9	2.48	63.0	50	1.27	2.59	65.8	6,152	9,155	31.0	789	430

Dimensions and weights are nominal; subject to industry tolerances.  
<sup>1</sup> Minimum bend radius per Canadian Electrical Code, Part I, Section 12-712.  
<sup>2</sup> Ampacity per Table #2, Canadian Electrical Code.



**CCW<sup>®</sup> Armored Power, 2.4 kV, Nonshielded, 3/C VFD**UL Type MC-HL or MV-90, EPR, 105°C, Cable Tray Use, Sunlight-Resistant  
Direct Burial, ABS CWCMC**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- Compact stranding per ASTM B496

**Extruded Strand Shield (ESS):**

- Extruded thermoset semi-conductor stress control layer over conductor per ICEA S-96-659 and UL 1072

**Insulation:**

- 90 mils Ethylene Propylene Rubber (EPR) insulation per ICEA S-96-659 and UL 1072
- Insulation is printed 1-black, 2-red and 3-blue for phase identification

**Grounding Conductors:**

- Three (3) split Class B stranded bare annealed copper grounding conductors
- Sized in accordance with UL 1072 and NEC Table 250.122

**Cable Assembly:**

- Insulated and grounding conductors are cabled together with non-hygroscopic fillers when required
- Binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1072 and UL 1569
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), yellow
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored medium-voltage power cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use on feeders and branch circuits in industrial power distribution systems per NEC Articles 328 and 330
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- Installed on metal racks, troughs, in raceways, in cable trays or secured to supports spaced not more than six feet apart
- Installed in both exposed and concealed work, wet or dry locations, directly buried or embedded in concrete
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- CCW armor provides an impervious barrier to moisture, gas and liquids and meets the grounding requirements of UL 1072 and the NEC
- Factory assembled and tested cable for use as an alternative to cable in conduit wiring systems

**Features (cont'd.):**

- General Cable's EPR insulation system has outstanding corona resistance and high dielectric strength, and it provides electrical stability under stress
- Cable meets cold impact at -40°C
- 90°C continuous operating temperature, wet or dry
- 140°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-96-659/WC71 Standard for Nonshielded Cables Rated 2001 – 5000 Volts
- UL 1072 Medium-Voltage Power Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1072
- IEC 60332-3 Category A

**Compliances:**

- UL Type MV-90 or MC-HL, SUN RES, CT USE, DIR BUR, -40°C, FT4, UL File # E90501
- UL Listed Marine Shipboard, UL File # E85994
- American Bureau of Shipping (ABS) Listed for CWCMC

# CCW<sup>®</sup> Armored Power, 2.4 kV, Nonshielded, 3/C VFD

UL Type MC-HL or MV-90, EPR, 105°C, Cable Tray Use, Sunlight-Resistant  
Direct Burial, ABS CWCMC

CATALOG NUMBER	COND. SIZE	NO. OF COND.	INSULATION THICKNESS		NOMINAL O.D. OVER INSULATION		BARE GROUND	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		AMPACITY	
	AWG (kcmil)		mils	mm	INCHES	mm	AWG	INCHES	mm	INCHES	mm	mils	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	IN AIR <sup>1</sup>	DIRECT BURIAL <sup>2</sup>
<b>3/C WITH GROUND MC-HL OR MV-90, 90 MILS EPR, 2.4 KV, YELLOW JACKET</b>																			
9700.00803312	8 (7/W) (8.36 mm <sup>2</sup> )	3	90	2.3	0.36	9.1	3 x #12	0.77	19.6	0.97	24.6	50	1.27	1.08	27.4	570	848	59	85
9700.00603310	6 (7/W) (13.3 mm <sup>2</sup> )	3	90	2.3	0.38	9.6	3 x #10	0.85	21.6	1.06	26.9	50	1.27	1.17	29.7	745	1,109	79	105
9700.00403310	4 (7/W) (21.2 mm <sup>2</sup> )	3	90	2.3	0.43	10.8	3 x #10	0.97	24.6	1.19	30.2	50	1.27	1.30	33.0	965	1,436	105	135
9700.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	90	2.3	0.48	12.1	3 x #10	1.10	27.9	1.34	34.0	50	1.27	1.45	36.8	1,275	1,897	140	180
9700.00103308	1 (19/W) (42.4 mm <sup>2</sup> )	3	90	2.3	0.52	13.1	3 x #8	1.16	29.5	1.42	36.1	50	1.27	1.53	38.9	1,525	2,269	160	200
9700.11003308	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	90	2.3	0.55	13.9	3 x #8	1.23	31.2	1.51	38.4	60	1.52	1.65	41.9	1,840	2,738	185	230
9700.21003308	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	90	2.3	0.59	14.9	3 x #8	1.33	33.8	1.60	40.6	60	1.52	1.73	43.9	2,165	3,222	215	260
9700.41003307	4/0 (19/W) (107 mm <sup>2</sup> )	3	90	2.3	0.69	17.4	3 x #7	1.53	38.9	1.83	46.5	60	1.52	1.96	49.8	3,080	4,584	285	335
9700.25003307	250 (37/W) (127 mm <sup>2</sup> )	3	90	2.3	0.74	18.7	3 x #7	1.64	41.7	1.96	49.8	60	1.52	2.09	53.1	3,475	5,171	320	365
9700.35003306	350 (37/W) (177 mm <sup>2</sup> )	3	90	2.3	0.83	21.0	3 x #6	1.86	47.2	2.19	55.6	60	1.52	2.32	58.9	4,710	7,009	395	440
9700.50003305	500 (37/W) (253 mm <sup>2</sup> )	3	90	2.3	0.95	24.0	3 x #5	2.10	53.3	2.45	62.2	75	1.91	2.61	66.3	6,410	9,539	485	530
9700.75003304	750 (61/W) (380 mm <sup>2</sup> )	3	90	2.3	1.12	28.3	3 x #4	2.51	63.8	2.93	74.4	75	1.91	3.10	78.7	9,225	13,728	615	650
9700.10003304	1000 (61/W) (507 mm <sup>2</sup> )	3	90	2.3	1.27	32.2	3 x #4	2.90	73.7	3.41	86.6	80	2.03	3.59	91.2	12,080	17,977	705	730

Dimensions and weights are nominal, subject to industry tolerances.

<sup>1</sup> In-air ampacities are per NEC Table 310.60(C)(71) for three insulated copper conductors rated 90°C, cabled with an overall covering and isolated in air at 40°C ambient temperature.

<sup>2</sup> Direct burial ampacities are per NEC Table 310.60(C)(83) for three insulated copper conductors rated 90°C, cabled within an overall covering and directly buried in earth at 20°C ambient earth temperature.



**CCW<sup>®</sup> Armored Power, 5 kV 133%/8 kV 100%, Shielded, 3/C VFD**

UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use, Sunlight-Resistant Direct Burial, ABS CWCMC

**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- Compact stranding per ASTM B496

**Extruded Strand Shield (ESS):**

- Extruded thermoset semi-conductor stress control layer over the conductor per ICEA S-93-639 and UL 1072

**Insulation:**

- 115 mils Ethylene Propylene Rubber (EPR) insulation per ICEA S-93-639 and UL 1072

**Extruded Insulation Shield (EIS):**

- Thermoset semi-conducting polymeric layer, free stripping from the insulation per ICEA S-93-639 and UL 1072

**Shield:**

- 5 mil annealed bare copper tape with 25% overlap

**Phase Identification:**

- Color-coded polymeric identification tape laid under the shield — black, red and blue

**Grounding Conductors:**

- Three (3) split Class B stranded bare annealed copper grounding conductors
- Sized in accordance with UL 1072 and NEC Article 250

**Cable Assembly:**

- Insulated and grounding conductors are cabled together with non-hygroscopic fillers when required
- Binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1072 and UL 1569
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), yellow
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored medium-voltage power cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use on feeders and branch circuits in industrial power distribution systems per NEC Articles 328 and 330
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- Installed on metal racks, troughs, in raceways, in cable trays or secured to supports spaced not more than six feet apart
- Installed in both exposed and concealed work, wet or dry locations, directly buried or embedded in concrete
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- CCW armor provides an impervious barrier to moisture, gas and liquids and meets the grounding requirements of UL 1072 and the NEC

**Features (cont'd.):**

- Triple Extrusion: The strand shield, EPR insulation and insulation shield are all extruded in one operation
- General Cable's EPR insulation system has outstanding corona resistance and high dielectric strength, and it provides electrical stability under stress
- Cable meets cold impact at -40°C
- 105°C continuous operating temperature, wet or dry
- 140°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-93-639/WC74, 5-46 kV Shielded Power Cable
- AEIC CS8 Specification for Shielded Power Cable, 5-46 kV
- UL 1072 Medium-Voltage Power Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable
- CSA 68.10

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1072
- IEC 60332-3 Category A

**Compliances:**

- UL Type MV-105 or MC-HL, SUN RES, CT USE, DIR BUR, -40°C, FT4, UL File # E90501
- UL Listed Marine Shipboard, UL File # E85994
- CSA Type HL, SR, FT4, -40°C, CSA File # 27161
- American Bureau of Shipping (ABS) Listed for CWCMC



**CCW<sup>®</sup> Armored Power, 5 kV 133%/8 kV 100%, Shielded, 3/C VFD**  
UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use, Sunlight-Resistant Direct Burial, ABS CWCMC

CATALOG NUMBER	COND. SIZE	NO. OF COND.	INSULATION THICKNESS		NOMINAL O.D. OVER INSULATION		BARE GROUND	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		5 kV <sup>3</sup> AMPACITY	
	AWG (kcmil)		mils	mm	INCHES	mm	AWG	INCHES	mm	INCHES	mm	mils	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	IN AIR <sup>1</sup>	DIRECT BURIAL <sup>2</sup>
<b>3/C WITH GROUND MC-HL OR MV-105, 115 MILS EPR, 5 kV 133% AND 8 kV 100% INSULATION LEVEL</b>																			
9800.00603310	6 (7/W) (13.3 mm <sup>2</sup> )	3	115	2.9	0.43	10.9	3 x #10	1.15	29.2	1.37	34.8	50	1.27	1.48	37.6	1,121	1,668	88	115
9800.00403310	4 (7/W) (21.2 mm <sup>2</sup> )	3	115	2.9	0.48	12.2	3 x #10	1.24	31.5	1.51	38.4	60	1.52	1.65	41.9	1,418	2,110	115	150
9800.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	115	2.9	0.53	13.5	3 x #10	1.37	34.8	1.64	41.7	60	1.52	1.78	45.2	1,731	2,576	154	190
9800.00103308	1 (19/W) (42.4 mm <sup>2</sup> )	3	115	2.9	0.57	14.5	3 x #8	1.47	37.3	1.69	42.9	60	1.52	1.82	46.2	1,978	2,944	180	215
9800.11003308	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	115	2.9	0.60	15.2	3 x #8	1.56	39.6	1.78	45.2	60	1.52	1.91	48.5	2,259	3,362	205	245
9800.21003308	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	115	2.9	0.64	16.3	3 x #8	1.61	40.9	1.92	48.8	60	1.52	2.05	52.1	2,626	3,908	240	280
9800.41003307	4/0 (19/W) (107 mm <sup>2</sup> )	3	115	2.9	0.74	18.8	3 x #7	1.82	46.2	2.15	54.6	60	1.52	2.28	57.9	3,650	5,432	320	360
9800.25003306	250 (37/W) (127 mm <sup>2</sup> )	3	115	2.9	0.80	20.3	3 x #6	2.01	51.1	2.23	56.6	60	1.52	2.36	59.9	4,060	6,042	355	395
9800.35003306	350 (37/W) (177 mm <sup>2</sup> )	3	115	2.9	0.89	22.6	3 x #6	2.10	53.3	2.45	62.2	75	1.91	2.61	66.3	5,045	7,508	440	475
9800.50003305	500 (37/W) (253 mm <sup>2</sup> )	3	115	2.9	1.01	25.7	3 x #5	2.39	60.7	2.75	69.9	75	1.91	2.92	74.2	7,137	10,621	545	570
9800.75003304	750 (61/W) (380 mm <sup>2</sup> )	3	115	2.9	1.19	30.2	3 x #4	3.07	78.0	3.32	84.3	85	2.16	3.50	88.9	10,268	15,280	685	700
9800.10003304	1000 (61/W) (507 mm <sup>2</sup> )	3	115	2.9	1.34	34.0	3 x #4	3.43	87.1	3.76	95.5	85	2.16	3.94	100.1	13,051	19,422	790	785

Dimensions and weights are nominal; subject to industry tolerances.

<sup>1</sup> In-air ampacities are per NEC Table 310.60(C)(71) for three insulated copper conductors rated 105°C, cabled with an overall covering and isolated in air at 40°C ambient temperature.

<sup>2</sup> Direct burial ampacities are per NEC Table 310.60(C)(83) for three insulated copper conductors rated 105°C, cabled within an overall covering and directly buried in earth at 20°C ambient earth temperature.

<sup>3</sup> For 8 kV ampacities, refer to NEC Tables 310.60(C)(71) and 310.60(C)(83) for cables listed 5001-35,000 volts.



**CCW<sup>®</sup> Armored Power, 5 kV 133%/8 kV 100%, Shielded, 3/C VFD**

UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use

Sunlight-Resistant, Direct Burial, UL Marine Shipboard Cable, ABS CWCMC, Arctic-Grade

**Product Construction:****Conductor:**

- Bare annealed copper per ASTM B3
- Compact stranding per ASTM B496

**Extruded Strand Shield (ESS):**

- Extruded thermoset semi-conductor stress control layer over the conductor per ICEA S-93-639 and UL 1072

**Insulation:**

- 115 mils Ethylene Propylene Rubber (EPR) insulation per ICEA S-93-639 and UL 1072

**Extruded Insulation Shield (EIS):**

- Thermoset semi-conducting polymeric layer, free stripping from the insulation per ICEA S-93-639 and UL 1072

**Shield:**

- 5 mil annealed bare copper tape with 25% overlap

**Phase Identification:**

- Color-coded polymeric identification tape laid under the shield – black, red and blue

**Grounding Conductors:**

- Three (2) split Class B stranded bare annealed copper grounding conductors
- Sized in accordance with UL 1072 and NEC Article 250

**Cable Assembly:**

- Insulated and grounding conductors are cabled together with non-hydroscopic fillers when required
- Binder tape is applied over the cabled core

**CCW Armor:**

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL Standards 1569 and 2225
- CCW armor conductivity meets the grounding requirements of NEC Article 250

**Jacket:**

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -60°C

**Applications:**

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored medium-voltage power cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use on feeders and branch circuits for power distribution systems per NEC Articles 328 and 330
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- Installed on metal racks, troughs, in raceways, in cable trays or secured to supports spaced not more than six feet apart
- Installed in both exposed and concealed work, wet or dry locations, directly buried or embedded in concrete
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

**Features:**

- CCW armor provides an impervious barrier to moisture, gas and liquids and meets grounding requirements of UL 1072 and the NEC

**Features (cont'd.):**

- Triple Extrusion: The strand shield, EPR insulation and insulation shield are all extruded in one operation
- General Cable's EPR insulation system has outstanding corona resistance and high dielectric strength, and it provides electrical stability under stress
- Meets cold bend at -55°C
- 105°C continuous operating temperature, wet or dry
- 140°C emergency rating
- 250°C short circuit rating

**Specifications:****Design Adherence:**

- ICEA S-93-639/WC74, 5-46 kV Shielded Power Cables
- AEIC CS8 Specification for Shielded Power Cable, 5 – 46 kV
- UL 1072 Medium-Voltage Power Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable
- CSA C68.10

**Flame Tests:**

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1581 (70,000 BTU/hr)
- IEC 60332-3 Cat. A

**Compliances:**

- UL Type MV-105 or UL Type MC-HL, SUN RES, CT USE, DIR BUR, -40°C, FT4, UL File # E90501
- UL Listed Marine Shipboard, UL File # E85994
- CSA Type HL, SR, FT4, -40°C, CSA File # 27161
- American Bureau of Shipping (ABS) Listed for CWCMC

# CCW<sup>®</sup> Armored Power, 5 kV 133%/8 kV 100%, Shielded, 3/C VFD

UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use  
Sunlight-Resistant, Direct Burial, UL Marine Shipboard Cable, ABS CWCMC, Arctic-Grade



CATALOG NUMBER	COND. SIZE (AWG/kcmil)	NO. OF COND.	INSULATION THICKNESS		NOMINAL O.D. OVER INSULATION		BARE GROUND (AWG)	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		5 kV <sup>3</sup> AMPACITY		
			mils	mm	INCHES	mm		INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	IN AIR <sup>1</sup>	DIRECT BURIAL <sup>2</sup>	
<b>3/C WITH GROUND MC-HL OR MV-105, 115 MILS EPR, 5 kV 133% AND 8 kV 100% INSULATION LEVEL</b>																				
9805.00603310	6 (7/W) (13.3 mm <sup>2</sup> )	3	115	2.9	0.43	10.9	3 x #10	1.15	29.2	1.37	34.8	50	1.27	1.48	37.6	1,121	1,668	88	115	
9805.00403310	4 (7/W) (21.2 mm <sup>2</sup> )	3	115	2.9	0.48	12.2	3 x #10	1.24	31.5	1.51	38.4	60	1.52	1.65	41.9	1,418	2,110	115	150	
9805.00203310	3 (7/W) (33.6 mm <sup>2</sup> )	3	115	2.9	0.53	13.5	3 x #10	1.37	34.8	1.64	41.7	60	1.52	1.78	45.2	1,731	2,576	154	190	
9805.00103308	1 (19/W) (42.4 mm <sup>2</sup> )	3	115	2.9	0.57	14.5	3 x #8	1.47	37.3	1.69	42.9	60	1.52	1.82	46.2	1,978	2,944	180	215	
9805.11003308	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	115	2.9	0.60	15.2	3 x #8	1.56	39.6	1.78	45.2	60	1.52	1.91	48.5	2,259	3,362	205	245	
9805.21003308	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	115	2.9	0.64	16.3	3 x #8	1.61	40.9	1.92	48.8	60	1.52	2.05	52.1	2,626	3,908	240	280	
9805.41003307	4/0 (19/W) (107 mm <sup>2</sup> )	3	115	2.9	0.74	18.8	3 x #7	1.82	46.2	2.15	54.6	60	1.52	2.28	57.9	3,650	5,432	320	360	
9805.25003306	250 (37/W) (127 mm <sup>2</sup> )	3	115	2.9	0.80	20.3	3 x #6	2.01	51.1	2.23	56.6	60	1.52	2.36	59.9	4,060	6,042	355	395	
9805.35003306	350 (37/W) (177 mm <sup>2</sup> )	3	115	2.9	0.89	22.6	3 x #6	2.10	53.3	2.45	62.2	75	1.91	2.61	66.3	5,045	7,508	440	475	
9805.50003305	500 (37/W) (253 mm <sup>2</sup> )	3	115	2.9	1.01	25.7	3 x #5	2.39	60.7	2.75	69.9	75	1.91	2.92	74.2	7,137	10,621	545	570	
9805.75003304	750 (61/W) (380 mm <sup>2</sup> )	3	115	2.9	1.19	30.2	3 x #4	3.07	78.0	3.32	84.3	85	2.16	3.50	88.9	10,268	15,280	685	700	
9805.10003304	1000 (61/W) (507 mm <sup>2</sup> )	3	115	2.9	1.34	34.0	3 x #4	3.43	87.1	3.76	95.5	85	2.16	3.94	100.1	13,051	19,422	790	785	

Dimensions and weights are nominal; subject to industry tolerances.  
<sup>1</sup> In-air ampacities are per NEC Table 310.60(C)(71) for three insulated copper conductors rated 105°C, cabled with an overall covering and isolated in air at 40°C ambient temperature.  
<sup>2</sup> Direct burial ampacities are per NEC Table 310.60(C)(83) for three insulated copper conductors rated 105°C, cabled within an overall covering and directly buried in earth at 20°C ambient earth temperature.  
<sup>3</sup> For 8 kV ampacities, refer to NEC Tables 310.60(C)(71) and 310.60(C)(83) for cables listed 5,001-35,000 volts.



# CCW<sup>®</sup> Armored Power, 8 kV 133%, Shielded, 3/C VFD

UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use, Sunlight-Resistant Direct Burial, ABS CWCMC



## Product Construction:

### Conductor:

- Bare annealed copper per ASTM B3
- Compact stranding per ASTM B496

### Extruded Strand Shield (ESS):

- Extruded thermoset semi-conductor stress control layer over the conductor per ICEA S-93-639 and UL 1072

### Insulation:

- 140 mils Ethylene Propylene Rubber (EPR) insulation per ICEA S-93-639 and UL 1072

### Extruded Insulation Shield (EIS):

- Thermoset semi-conducting polymeric layer, free stripping from the insulation per ICEA S-93-639 and UL 1072

### Shield:

- 5 mil annealed bare copper tape with 25% overlap

### Phase Identification:

- Color-coded polymeric identification tape laid under the shield - black, red and blue

### Grounding Conductors:

- Three (3) split Class B stranded bare annealed copper grounding conductors
- Sized in accordance with UL 1072 and NEC Article 250

### Cable Assembly:

- Insulated and grounding conductors are cabled together with non-hygroscopic fillers when required
- Binder tape is applied over the cabled core

### CCW Armor:

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1072 and UL 1569
- CCW armor conductivity meets the grounding requirements of the NEC

## Jacket:

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC), yellow
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C

## Applications:

- Variable Frequency Drives: 3-conductor CCW armored cables with three (3) symmetrical grounding wires are the preferred wiring method for use with AC motors controlled by pulse-width modulated inverters in VFD applications
- CCW armored medium-voltage power cables offer an economical, rugged and reliable alternative to labor-intensive cable in conduit wiring methods
- For use on feeders and branch circuits in industrial power distribution systems per NEC Articles 328 and 330
- For use in Class I, II and III, Divisions 1 and 2; and Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505
- Installed on metal racks, troughs, in raceways, in cable trays or secured to supports spaced not more than six feet apart
- Installed in both exposed and concealed work, wet or dry locations, directly buried or embedded in concrete
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

## Features:

- CCW armor provides an impervious barrier to moisture, gas and liquids and meets the grounding requirements of UL 1072 and the NEC

## Features (cont'd.):

- Triple Extrusion: The strand shield, EPR insulation and insulation shield are all extruded in one operation
- General Cable's EPR insulation system has outstanding corona resistance and high dielectric strength, and it provides electrical stability under stress
- Cable meets cold impact at -40°C
- 105°C continuous operating temperature, wet or dry
- 140°C emergency rating
- 250°C short circuit rating

## Specifications:

### Design Adherence:

- ICEA S-93-639/WC74, 5-46 kV Shielded Power Cable
- AEIC CS8 Specification for Shielded Power Cable, 5-46 kV
- UL 1072 Medium-Voltage Power Cables
- UL 1569 Metal Clad Cables
- UL 2225 Cables and Cable Fittings for Use in Hazardous Locations
- UL 1309 Marine Shipboard Cable
- CSA 68.10

### Flame Tests:

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1072
- IEC 60332-3 Category A

### Compliances:

- UL Type MV-105 or MC-HL, SUN RES, CT USE, DIR BUR, -40°C, FT4, UL File # E90501
- UL Listed Marine Shipboard, UL File # E85994
- CSA Type HL, SR, FT4, -40°C, CSA File # 27161
- American Bureau of Shipping (ABS) Listed for CWCMC

**CCW® Armored Power, 8 kV 133%, Shielded, 3/C VFD**  
UL Type MC-HL or MV-105, CSA Type HL, EPR, 105°C, Cable Tray Use, Sunlight-Resistant Direct Burial, ABS CWCMC

CATALOG NUMBER	COND. SIZE	NO. OF COND.	INSULATION THICKNESS		NOMINAL O.D. OVER INSULATION		BARE GROUND	NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		APPROXIMATE NET WEIGHT		AMPACITY	
	AWG (kcmil)		mils	mm	INCHES	mm	AWG	INCHES	mm	INCHES	mm	mils	mm	INCHES	mm	LBS/1000 FT	kg/1000 m	IN AIR <sup>1</sup>	DIRECT BURIAL <sup>2</sup>
<b>3/C WITH GROUND MC-HL OR MV-105, 140 MILS EPR, 8 kV 133% INSULATION LEVEL</b>																			
9815.00603310	6 (7/W) (13.3 mm <sup>2</sup> )	3	140	3.6	0.48	12.2	3 x #10	1.20	30.5	1.60	40.6	60	1.52	1.73	43.9	1,350	2,009	105	120
9815.00403310	4 (7/W) (21.2 mm <sup>2</sup> )	3	140	3.6	0.53	13.5	3 x #10	1.29	32.8	1.70	43.2	60	1.52	1.83	46.5	1,600	2,381	135	155
9815.00203310	2 (7/W) (33.6 mm <sup>2</sup> )	3	140	3.6	0.58	14.7	3 x #10	1.42	36.1	1.85	47.0	60	1.52	1.98	50.3	2,000	2,976	185	200
9815.00103308	1 (19/W) (42.4 mm <sup>2</sup> )	3	140	3.6	0.62	15.7	3 x #8	1.52	38.6	1.93	49.0	60	1.52	2.06	52.3	2,275	3,386	210	225
9815.11003308	1/0 (19/W) (53.5 mm <sup>2</sup> )	3	140	3.6	0.65	16.5	3 x #8	1.61	40.9	2.03	51.6	60	1.52	2.16	54.9	2,600	3,869	240	255
9815.21003308	2/0 (19/W) (67.4 mm <sup>2</sup> )	3	140	3.6	0.69	17.5	3 x #8	1.66	42.2	2.14	54.4	60	1.52	2.27	57.7	2,950	4,390	275	290
9815.41003307	4/0 (19/W) (107 mm <sup>2</sup> )	3	140	3.6	0.79	20.1	3 x #7	1.87	47.5	2.40	61.0	75	1.91	2.56	65.0	4,025	5,990	360	375
9815.25003306	250 (37/W) (127 mm <sup>2</sup> )	3	140	3.6	0.85	21.6	3 x #6	2.06	52.3	2.59	65.8	75	1.91	2.75	69.9	4,600	6,846	400	410
9815.35003306	350 (37/W) (177 mm <sup>2</sup> )	3	140	3.6	0.94	23.9	3 x #6	2.15	54.6	2.85	72.4	75	1.91	3.01	76.5	5,800	8,631	490	495
9815.50003305	500 (37/W) (253 mm <sup>2</sup> )	3	140	3.6	1.06	26.9	3 x #5	2.44	62.0	3.19	81.0	85	2.16	3.37	85.6	7,800	11,608	600	590
9815.75003304	750 (61/W) (380 mm <sup>2</sup> )	3	140	3.6	1.26	32.0	3 x #4	3.19	81.0	3.68	93.5	85	2.16	3.86	98.0	10,750	15,998	745	720
9815.10003304	1000 (61/W) (507 mm <sup>2</sup> )	3	140	3.6	1.42	36.1	3 x #4	3.48	88.4	3.98	101.1	85	2.16	4.16	105.7	13,550	20,165	860	810

Dimensions and weights are nominal; subject to industry tolerances.

<sup>1</sup> In-air ampacities are per NEC Table 310.60(C)(71) for three insulated copper conductors rated 105°C, cabled with an overall covering and isolated in air at 40°C ambient temperature.

<sup>2</sup> Direct burial ampacities are per NEC Table 310.60(C)(83) for three insulated copper conductors rated 105°C, cabled within an overall covering and directly buried in earth at 20°C ambient earth temperature.



# CVTC® VFD - Flexible Motor Supply Cable

XLPE/PVC, Low-Voltage Power, Al/Polyester/Al + TC Braid Shielded, 1000 V UL Flexible Motor Supply and WTTC, 600 V UL Type TC-ER—Method 4 Color Code w/Green/Yellow Ground

**Product Construction:**

**Conductor:**

- 16 AWG thru 10 AWG tinned copper per ASTM B33. Class K stranding per ASTM B172
- 8 AWG thru 2 AWG tinned copper per ASTM B33. Class H stranding per ASTM B173

**Insulation:**

- Flame-retardant Cross-linked Polyethylene (XLPE) 90°C, VW-1
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- One full-sized green/yellow insulated ground, same AWG size as circuit conductors

**Metallic Shield:**

- Overall aluminum/polyester/aluminum shield with 25% minimum overlap in conjunction with overall tinned copper braid with 85% coverage and full-sized tinned copper drain wire(s)

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Polyvinyl Chloride (PVC), black

**Print:**

- GENERAL CABLE® (PLANT OF MFG) CVTC® VFD XX/C XXAWG SHIELDED WITH GRND XLPE/PVC TYPE RHH OR RHW-2\* CDRS 90°C WET OR DRY 600 V TYPE TC-ER OR 1000 V FLEX MOTOR SUPPLY OR 1000 V WTTC SUN RES (UL) DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

\* 16 AWG conductors are not listed as RHH or RHW-2



**Options:**

- Colored jackets available upon request
- 2000 V rated designs

**Applications:**

- For use with AC motors controlled by pulse-width modulated inverter in VFD applications rated up to 1000 V
- In free air, raceways or direct burial
- For use in aerial, conduit, open tray and underground duct/installations
- Permitted for use in Class I, Div. 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with NEC

**Features:**

- Rated at 90°C wet or dry
- Combination foil/braid shield provides maximum shield coverage required for Variable Frequency Drive (VFD) applications
- Meets cold bend test at -25°C
- TC-ER listing meets crush and impact requirements for Type MC cables
- Abrasion- and chemical-resistant
- Stable electrical properties over a broad temperature range
- UV/sunlight-resistant

**Features (cont'd.):**

- Flexible strand conductors for all sizes to allow for ease of installation and long-term performance in light duty flexing applications

**Compliances:**

- **Industry Compliances:**
  - UL 2277 1000 V Flexible Motor Supply Cable and 1000 V Wind Turbine Tray Cable
  - UL 1277 600 V Type TC-ER UL File # E57179
  - UL 44 Type RHH or RHW-2 conductors
  - ICEA S-95-658/NEMA WC70

**Flame Test Compliances:**

- UL 1581 VW-1
- IEEE 1202/CSA FT4
- UL 1685

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	INSULATED GROUND WIRE SIZE (AWG)	DRAIN WIRE NUMBER X SIZE (AWG)	NOMINAL CONDUCTOR DIAMETER		MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		NET WEIGHT	
						INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km
<b>16 AWG - 2 AWG MULTI-CONDUCTORS</b>															
438070	3	16	26W	16	1 x 16	0.057	1.40	0.045	1.14	0.045	1.14	0.535	13.59	175	260
438080	3	14	41W	14	1 x 14	0.071	1.80	0.045	1.14	0.060	1.52	0.608	15.44	213	317
438090	3	12	65W	12	1 x 12	0.088	2.20	0.045	1.14	0.060	1.52	0.653	16.59	285	424
438100	3	10	105W	10	1 x 10	0.112	2.80	0.045	1.14	0.060	1.52	0.690	17.53	362	539
438110	3	8	133W	8	4 x 14	0.164	4.17	0.060	1.52	0.080	2.03	0.931	23.65	638	949
438120	3	6	133W	6	4 x 12	0.204	5.18	0.060	1.52	0.080	2.03	1.028	26.11	894	1330
438130	3	4	133W	4	4 x 10	0.260	6.60	0.060	1.52	0.080	2.03	1.163	29.54	1202	1789
438140	3	2	133W	2	4 x 8	0.327	8.31	0.060	1.52	0.080	2.03	1.314	33.38	1665	2478

Dimensions and weights are nominal, subject to industry tolerances.

# CVTC® VFD - Flexible Motor Supply Cable

XLPE/PVC, Low-Voltage Power, Al/Polyester/Al TC Braid Shielded, 1000 V UL Flexible Motor Supply and WTTC, 600 V UL Type TC-ER— Method 4 Color Code w/Green/Yellow Ground and Signal Pair



**Product Construction:**

**Conductor:**

- 16 AWG to 10 AWG tinned copper per ASTM B33
- Class K stranding per ASTM B172

**Insulation:**

- Flame-retardant Cross-linked Polyethylene (XLPE) 90°C, VW-1
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- One full-sized green/yellow insulated ground, same AWG size as circuit conductors

**Metallic Shield:**

- Overall aluminum/polyester/aluminum shield with 25% minimum overlap in conjunction with overall tinned copper braid with 85% coverage and full-sized tinned copper drain wire(s)

**Signal Pair for Brake:**

- One 16 AWG (26 x 30) tinned copper signal pair with an overall aluminum foil shield and 18 AWG drain wire
- Black/White color code

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Polyvinyl Chloride (PVC), black

**Print:**

- GENERAL CABLE® (PLANT OF MFG) CVTC® VFD XX/C XXAWG SHIELDED WITH GRND XLPE/PVC TYPE RHH OR RHW-2\* CDRS 90°C WET OR DRY 600 V TYPE TC-ER OR 1000 V FLEX MOTOR SUPPLY OR 1000 V WTTC SUN RES (UL) DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

\* 16 AWG conductors are not listed as RHH or RHW-2

**Options:**

- Colored jackets available upon request
- 2000 V rated designs

**Applications:**

- For use with AC motors controlled by pulse-width modulated inverter in VFD applications rated up to 1000 V
- In free air, raceways or direct burial
- For use in aerial, conduit, open tray and underground duct/installations
- Permitted for use in Class I, Div. 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with NEC

**Features:**

- Rated at 90°C wet or dry
- Combination foil/braid shield provides maximum shield coverage required for Variable Frequency Drive (VFD) applications
- Meets cold bend test at -25°C
- TC-ER listing meets crush and impact requirements for Type MC cables
- Abrasion- and chemical-resistant
- Stable electrical properties over a broad temperature range
- UV/sunlight-resistant
- Flexible strand conductors for all sizes to allow for ease of installation and long-term performance in light duty flexing applications

**Compliances:**

**Industry Compliances:**

- UL 2277 1000 V Flexible Motor Supply Cable and 1000 V Wind Turbine Tray Cable
- UL 1277 600 V Type TC-ER UL File # E57179
- UL 44 Type RHH or RHW-2 conductors
- ICEA S-95-658/NEMA WC70

**Flame Test Compliances:**

- UL 1581 VW-1
- IEEE 1202/CSA FT4
- UL 1685

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	INSULATED GROUND WIRE SIZE (AWG)	DRAIN WIRE SIZE (AWG)	SIGNAL PAIR (AWG)	NOMINAL CONDUCTOR DIAMETER		MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		NET WEIGHT	
							INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km
<b>16 AWG - 10 AWG MULTI-CONDUCTORS</b>																
438150*	3	16	26W	16	16	16	0.057	1.40	0.045	1.14	0.060	1.52	0.750	19.05	324	482
438160*	3	14	41W	14	14	16	0.071	1.80	0.045	1.14	0.060	1.52	0.823	20.90	340	506
438170*	3	12	65W	12	12	16	0.088	2.20	0.045	1.14	0.080	2.03	0.909	23.09	438	652
438180*	3	10	105W	10	10	16	0.112	2.80	0.045	1.14	0.080	2.03	0.997	25.32	563	838

Dimensions and weights are nominal, subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult customer service for price and delivery.



# CVTC® VFD - Flexible Motor Supply Cable

XLPE/PVC, Low-Voltage Power, Dual Copper Tape Shielded, 1000 V UL Flexible Motor Supply and WTTC, 600 V UL Type TC-ER—Method 4 Color Code

**Product Construction:**

**Conductor:**

- 1 AWG thru 4/0 AWG tinned copper
- Class I stranding per ASTM B33, B172

**Insulation:**

- Flame-retardant Cross-linked Polyethylene (XLPE) 90°C, VW-1
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- Three symmetrical stranded annealed bare copper grounds per ASTM B8

**Metallic Shield:**

- Two spirally applied 2 mil copper tapes providing 100% coverage

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Polyvinyl Chloride (PVC), black

**Print:**

- GENERAL CABLE® (PLANT OF MFG) CVTC® VFD XX/C XXAWG SHIELDED WITH GRND XLPE/PVC TYPE XHHW-2 CDRS 90°C WET OR DRY 600 V TYPE TC-ER OR 1000 V FLEX MOTOR SUPPLY OR 1000 V WTTC SUN RES (UL) DAY/MONTH/YEAR OF MFG SEQUENTIAL FOOTAGE MARK

**Options:**

- Colored jackets available upon request



**Applications:**

- For use with AC motors controlled by pulse-width modulated inverter in VFD applications rated up to 1000 V
- In free air, raceways or direct burial
- For use in aerial, conduit, open tray and underground duct/installations
- Permitted for use in Class I, Div. 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with NEC

**Features:**

- Rated at 90°C wet or dry
- Dual copper tape shield provides 100% shield coverage
- Meets cold bend test at -25°C
- TC-ER rating meets crush and impact requirements for Type MC cables
- Abrasion- and chemical-resistant
- Stable electrical properties over a broad temperature range
- UV/sunlight-resistant

**Features (cont'd.):**

- Flexible strand conductors for all sizes to allow for ease of installation

**Compliances:**

**Industry Compliances:**

- UL 2277 1000 V Flexible Motor Supply Cable and 1000 V Wind Turbine Tray Cable
- UL 1277 600 V Type TC-ER UL File # E57179
- UL 44 Type XHHW-2 conductors
- ICEA S-95-658/NEMA WC70

**Flame Test Compliances:**

- UL 1581 VW-1
- IEEE 1202/CSA FT4
- UL 1685

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	GROUND WIRE SIZE (AWG)	NOMINAL CONDUCTOR DIAMETER		MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		NET WEIGHT	
					INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km

**1 AWG - 4/0 AWG MULTI-CONDUCTORS**

<b>438190*</b>	3	1	224W	3 x 6	0.380	9.65	0.055	1.40	0.080	2.03	1.205	30.61	1610	2396
<b>438200</b>	3	1/0	273W	3 x 4	0.410	10.41	0.055	1.40	0.080	2.03	1.295	32.89	2020	3006
<b>438210</b>	3	2/0	323W	3 x 4	0.470	11.90	0.055	1.40	0.080	2.03	1.408	35.76	2325	3460
<b>438220*</b>	3	3/0	456W	3 x 4	0.549	13.94	0.055	1.40	0.080	2.03	1.524	38.71	2680	3988
<b>438230</b>	3	4/0	551W	3 x 2	0.593	14.70	0.055	1.40	0.110	2.80	1.682	42.72	3694	5497

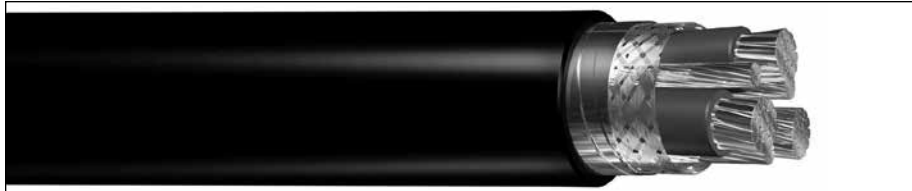
Dimensions and weights are nominal, subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult customer service for price and delivery.



# CVTC® VFD

XLPE/PVC, Low-Voltage Power, Shielded  
2000 V, UL Type TC-ER<sup>1</sup> – Method 4 Color Code



**Features:**

- Rated at 90°C wet or dry
- Dual shield provides maximum shield coverage required for Variable Frequency Drive (VFD) applications
- Meets cold bend test at -25°C
- Meets crush and impact requirements to Type MC cable
- Abrasion- and chemical-resistant
- Excellent electrical properties
- Sunlight- and weather-resistant

**Product Construction:**

**Conductor:**

- 14 AWG thru 500 kcmil fully annealed tinned stranded copper
- Class B stranding per ASTM B8

**Insulation:**

- Flame-retardant Cross-linked Polyethylene (XLPE)—90°C, VW-1
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- 3 symmetrically placed annealed tinned copper conductors in direct contact with shield
- Class B stranding per ASTM B8

**Dual Shield:**

- Overall tinned copper braided shield in conjunction with an aluminum/polymer tape shield

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Polyvinyl Chloride (PVC)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) CVTC® VFD XX/C XXAWG WITH GRND FR-XLP/PVC (UL) TYPE TC-ER RHH or RHW-2 CDRS 90°C WET OR DRY 2000 V DIR BUR SUN RES DAY/MONTH/YEAR SEQUENTIAL FOOTAGE MARK

**Applications:**

- For use with AC motors controlled by pulse-width modulated inverter in VFD applications rated up to 2000 volts. These motor drive systems require cables that are designed to prevent radio frequency interference (RFI) which can lead to malfunction
- In raceways, cable trays or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with NEC

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC-ER, UL File # E57179
- UL Type RHH or RHW-2 conductors per UL 44

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- ICEA T-29-520 (210,000 BTU/hr)

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	GROUND WIRE SIZE (AWG)	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
					INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km
<b>14 AWG - 500 kcmil MULTI-CONDUCTORS</b>														
384730*	3	14	7W	3 x 18	0.060	1.52	0.060	1.52	0.565	14.35	79	118	190	283
384740*	3	12	7W	3 x 16	0.060	1.52	0.060	1.52	0.605	15.37	114	170	236	351
384750*	3	10	7W	3 x 14	0.060	1.52	0.060	1.52	0.665	16.89	172	256	313	466
384760*	3	8	7W	3 x 14	0.070	1.78	0.060	1.52	0.785	19.94	234	348	420	625
384770*	3	6	7W	3 x 12	0.070	1.78	0.080	2.03	0.910	23.11	354	527	605	900
384780*	3	4	7W	3 x 12	0.070	1.78	0.080	2.03	1.010	25.65	507	755	800	1191
384790*	3	2	7W	3 x 10	0.070	1.78	0.080	2.03	1.315	28.83	783	1165	1126	1676
384800*	3	1/0	19W	3 x 6	0.090	2.29	0.080	2.03	1.390	35.31	1251	1861	1832	2726
384810*	3	2/0	19W	3 x 6	0.090	2.29	0.080	2.03	1.490	37.85	1511	2248	2134	3175
384820*	3	3/0	19W	3 x 5	0.090	2.29	0.080	2.03	1.595	40.51	1897	2823	2553	3799
384830*	3	4/0	19W	3 x 4	0.090	2.29	0.110	2.79	1.775	45.09	2355	3504	3254	4842
384840*	3	250	37W	3 x 4	0.105	2.67	0.110	2.79	1.940	49.28	2719	4046	3726	5544
384850*	3	350	37W	3 x 2	0.105	2.67	0.110	2.79	2.160	54.86	3883	5778	5040	7500
384860*	3	500	37W	3 x 1	0.105	2.67	0.110	2.79	2.440	61.98	5507	8194	6809	10132

Dimensions and weights are nominal; subject to industry tolerances.  
 \* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.  
<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.



# CVTC® VFD

## XLPE/PVC, Low-Voltage Power, Copper Tape Shielded 2000 V, UL Type TC-ER<sup>1</sup> – Method 4 Color Code

**Product Construction:**

**Conductor:**

- 14 AWG thru 500 kcmil fully annealed bare stranded copper
- Class B stranding per ASTM B8

**Insulation:**

- Flame-retardant Cross-linked Polyethylene (XLPE) –90°C, VW-1
- Color-coded per ICEA Method 4; individual conductors colored black with conductor number surface printed in contrasting ink

**Ground:**

- 3 symmetrically placed annealed bare copper conductors in direct contact with shield
- Class B stranding per ASTM B8

**Metallic Shield:**

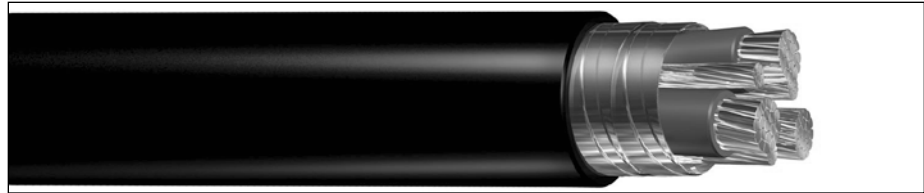
- Overall 5 mil annealed bare copper tape shield with 50% overlap

**Jacket:**

- Lead-free, flame-retardant, sunlight-resistant Polyvinyl Chloride (PVC)

**Print:**

- GENERAL CABLE® (PLANT OF MFG) CVTC® VFD XX/C XXAWG WITH GRNDS FR-XLP/PVC (UL) TYPE TC-ER RHH or RHW-2 CDRS 90°C WET OR DRY 2000 V DIR BUR SUN RES DAY/MONTH/YEAR SEQUENTIAL FOOTAGE MARK



**Applications:**

- For use with AC motors controlled by pulse-width modulated inverter in VFD applications rated up to 2000 volts. These motor drive systems require cables that are designed to prevent radio frequency interference (RFI) which can lead to malfunction
- In raceways, cable trays or direct burial
- In wet or dry locations
- Permitted for use in Class I, Division 2 industrial hazardous locations per NEC
- Permitted for Exposed Run (ER) use in accordance with NEC

**Features:**

- Rated at 90°C wet or dry
- Overlapped bare copper tape shield provides necessary shield coverage required for Variable Frequency Drive (VFD) applications
- Meets cold bend test at -25°C
- Meets crush and impact requirements for Type MC cable
- Abrasion- and chemical-resistant
- Excellent electrical properties
- Sunlight- and weather-resistant

**Compliances:**

**Industry Compliances:**

- UL 1277 Type TC-ER, 2000 V, UL File # E57179
- UL Type RHH or RHW-2 conductors per UL 44

**Flame Test Compliances:**

- UL 1581/UL 2556 VW-1
- UL 1685 Vertical Flame Test
- IEEE 383
- IEEE 1202
- ICEA T-29-520 (210,000 BTU/hr)

**Other Compliances:**

- EPA 40 CFR, Part 261 for leachable lead content per TCLP
- OSHA Acceptable
- RoHS Compliant

**Packaging:**

- Material cut to length and shipped on non-returnable wood reels

CATALOG NUMBER	NO. OF COND.	COND. SIZE (AWG/kcmil)	COND. STRAND	GROUND WIRE SIZE (AWG)	MINIMUM AVG. INSULATION THICKNESS		MINIMUM AVG. JACKET THICKNESS		NOMINAL CABLE O.D.		COPPER WEIGHT		NET WEIGHT	
					INCHES	mm	INCHES	mm	INCHES	mm	LBS/1000 FT	kg/km	LBS/1000 FT	kg/km

**14 AWG - 500 kcmil MULTI-CONDUCTORS**

395070V	3	14	7W	3 x 18	0.060	1.52	0.060	1.52	0.580	14.73	91	135	212	315
395080V	3	12	7W	3 x 16	0.060	1.52	0.060	1.52	0.615	15.37	127	189	260	387
395090V	3	10	7W	3 x 14	0.060	1.52	0.060	1.52	0.670	17.02	183	272	329	490
395100V	3	8	7W	3 x 14	0.070	1.78	0.060	1.52	0.770	19.56	246	366	441	656
395110V	3	6	7W	3 x 12	0.070	1.78	0.080	2.03	0.895	22.73	368	548	618	920
395120V	3	4	7W	3 x 12	0.070	1.78	0.080	2.03	0.995	25.27	522	777	830	1235
395130V	3	2	7W	3 x 10	0.070	1.78	0.080	2.03	1.125	28.58	801	1192	1152	1714
395140V	3	1/0	19W	3 x 6	0.090	2.29	0.080	2.03	1.385	35.18	1348	2006	1853	2757
395150V	3	2/0	19W	3 x 6	0.090	2.29	0.080	2.03	1.480	37.59	1616	2405	2169	3227
395160V*	3	3/0	19W	3 x 5	0.090	2.29	0.080	2.03	1.590	40.39	2010	2991	2619	3897
395170V	3	4/0	19W	3 x 4	0.090	2.29	0.110	2.79	1.780	45.21	2517	3745	3241	4823
395180V*	3	250	37W	3 x 4	0.105	2.67	0.110	2.79	1.940	49.28	2895	4308	3763	5599
395190V	3	350	37W	3 x 2	0.105	2.67	0.110	2.79	2.160	54.86	4089	6084	5109	7602
395200V	3	500	37W	3 x 1	0.105	2.67	0.110	2.79	2.455	62.36	5693	8471	6933	10316

Dimensions and weights are nominal; subject to industry tolerances.

\* Non-stock item; minimum runs apply. Please consult Customer Service for price and delivery.

<sup>1</sup> Approved as TYPE TC-ER for Exposed Run applications of 3 or more conductors as defined by NEC.

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# Industrial Automation General Cable to Belden Cross-Reference

General Cable, a leading wire and cable innovator for over 170 years, knows that factory productivity is key to your business success. Trusting your automation infrastructure puts your mind at ease. General Cable is proud to introduce its new line of DeviceNet™, ControlNet™ and Industrial Ethernet products. As *One Company* and one source, General Cable is ready to respond to your changing requirements and help you achieve continuous productivity savings.

### CAN OPEN/HART/RS-485 SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
24 AWG 1 Pair Tinned Copper Foil and Braid Shield	C4841A	9841
24 AWG 2 Pair Tinned Copper Foil and Braid Shield	C4842A	9842
24 AWG 3 Pair Tinned Copper Foil and Braid Shield	C4843A	9843
24 AWG 4 Pair Tinned Copper Foil and Braid Shield	C4844A	9844
24 AWG 1 Pair Tinned Copper Foil and Braid Shield Plenum	C4851A	82841
24 AWG 2 Pair Tinned Copper Foil and Braid Shield Plenum	C4852A	82842
22 AWG 1 Pair LO-CAP® Tinned Plated Copper Braid	C7112A	3105A
22 AWG 2 Pair LO-CAP Tinned Plated Copper Braid	C7114A	3107A
22 AWG 3 Pair LO-CAP Tinned Plated Copper Braid	C7116A	3108A
22 AWG 4 Pair LO-CAP Tinned Plated Copper Braid	C7118A	3109A
22 AWG 1 Pair + 1 Conductor LO-CAP Tinned Copper Braid and Foil Shield	GCR1310	3106A

### CONTROLNET™ SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
18 AWG RG-6 ControlNet Quad Shield	GCR1309	3092A
18 AWG RG-6 ControlNet Quad Shield Aluminum Braid Flex Shield	GCR1309F	3092F
18 AWG RG-6 ControlNet Quad Shield Copper Braid	GCR1309FC	YR28690
18 AWG RG-6 ControlNet Quad Shield Plenum	GCR1309P	3093A
18 AWG RG-6 ControlNet Quad Shield Aluminum Armored	GCR1309A	123092A
18 AWG RG-6 ControlNet Quad Shield Steel Armor	GCR1309S	133092A
18 AWG RG-6 ControlNet Quad Shield CCW®	GCR1309CC	183092A

### DATA HIGHWAY & DATA HIGHWAY PLUS SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
18 AWG 2 Conductor Dual Shielded Twinaxial	GCR1300	3072F
20 AWG 2 Conductor Dual Shielded Twinaxial	GCR1314	9463
20 AWG 2 Conductor Dual Shielded Twinaxial Aluminum Armor	GCR1314A	129463
20 AWG 2 Conductor Dual Shielded Twinaxial CCW®	GCR1314CC	189463
20 AWG 2 Conductor Dual Shielded Twinaxial Direct Burial	GCR1314D	9463DB
20 AWG 2 Conductor Dual Shielded Twinaxial Flexible Jacket	GCR1314F	9463F
20 AWG 2 Conductor Dual Shielded Twinaxial Plenum	GCR1314P	89463
20 AWG 2 Conductor Dual Shielded Twinaxial Steel Armor	GCR1314S	139463
20 AWG 2 Conductor Heavy Duty Tough Shielded Twinaxial	GCR1314T	YR28764
20 AWG 2 Conductor Dual Shielded Low-Smoke Zero-Halogen	GCR1314ZH	YR41104

### DEVICENET™ SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
15 AWG 2 Conductor + 18 AWG 2 Conductor Shielded DeviceNet	GCR1305	3082A
15 AWG 2 Conductor + 18 AWG 2 Conductor Shielded Flexible DeviceNet	GCR1305F	3082F
15 AWG 2 Conductor + 18 AWG 2 Conductor Shielded CPE DeviceNet	GCR1306	3083A
22 AWG 2 Conductor + 24 AWG 2 Conductor Shielded DeviceNet	GCR1307	3084A
22 AWG 2 Conductor + 24 AWG 2 Conductor Shielded Flexible DeviceNet	GCR1307F	3084F
22 AWG 2 Conductor + 24 AWG 2 Conductor Shielded CPE DeviceNet	GCR1308	3085A
16 AWG 2 Conductor + 18 AWG 2 Conductor Individually Shielded DeviceNet	GCR1311	7896A
15 AWG 2 Conductor + 18 AWG 2 Conductor Individually Shielded DeviceNet	GCR1312	7897A
16 AWG 2 Conductor + 18 AWG 2 Conductor Unshielded DeviceNet	GCR1313	7900A
18 AWG 2 Conductor + 20 AWG 2 Conductor Shielded DeviceNet	GCR1317	7895A



Please consult your General Cable representative for additional information (800) 950-3512

# Industrial Automation General Cable to Belden Cross-Reference

## CC-LINK SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
20 AWG 3 Conductor Dual Shielded CC-Link	GCR1315	1348A
20 AWG 3 Conductor Shielded + 18 AWG 2 Conductor Composite & CC-Link	GCR1316	1349A

## INDUSTRIAL ETHERNET SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable Waterblocked	5136100	7934A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable Waterblocked Armored	5136101	
23 AWG 4 Pair Multi-Conductor Category 6 Industrial Ethernet UTP Cable Waterblocked	7136100	
24 AWG 2 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable 600 V UL AWM	GCR1402	7932A
24 AWG 2 Pair Multi-Conductor Category 5e Industrial Ethernet F/UTP Cable Shielded 600 V UL AWM	GCR1403	7933A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable 600 V UL AWM	GCR1404*	7918A/7923A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet F/UTP Cable Shielded, 600 V UL AWM	GCR1405*	7929A/7958A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet SF/UTP Cable 600 V UL AWM	GCR1407	7921A/7957A
22 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable PLTC 600 V UL AWM	GCR1408	7922A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet UTP Cable Armored	GCR1410	121700A
24 AWG 4 Pair Multi-Conductor Category 5e Industrial Ethernet F/UTP Cable 600 V UL AWM	GCR1419	7919A
23 AWG 4 Pair Multi-Conductor Category 6 Industrial Ethernet UTP Cable 600 V UL AWM	GCR1440	7940A
23 AWG 4 Pair Multi-Conductor Category 6 Industrial Ethernet UTP Cable Enhanced 600 V UL AWM	GCR1450	7927A
23 AWG 4 Pair Multi-Conductor Category 6 Industrial Ethernet UTP Cable Shielded 600 V UL AWM	GCR1452	7953A

\* MSHA rating pending approval.

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 ControlNet™ is a trademark of Open DeviceNet™ Vendor Assoc.  
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## FOUNDATION™ FIELDBUS SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
18 AWG 1 Pair Shielded Foundation Fieldbus or Profibus	GCR1302	3076F
22 AWG 1 Pair Shielded Foundation Fieldbus	GCR1303	3077F

## INTERBUS/LONWORKS®/MODBUS/PROFIBUS OP-FMS-PA SERIPLEX®/SMART DISTRIBUTED SYSTEM

PART DESCRIPTION	GENERAL CABLE CATALOG NUMBER	BELDEN EQUIVALENT
24 AWG 3 Pair + 18 AWG 3 Conductor Shielded Interbus	GCR1318	3119A
24 AWG 3 Pair Shielded Interbus	GCR1319	3120A
22 AWG 3 Pair Individually Shielded Modbus	GCR1320	8777
22 AWG 3 Pair Individually Shielded LS PVC Jacket	GCR1320P	82777
22 AWG 3 Pair Individually Shielded Aluminum Armor Modbus	GCR1320A	128777
22 AWG 3 Pair Flexible Individually Shielded Plenum Modbus	GCR1320FP	88777
22 AWG 3 Pair Individually Shielded Steel Armor Modbus	GCR1320S	138777
22 AWG 2 Conductor Shielded Profibus	GCR1304	3079A
22 AWG 2 Conductor Shielded Flexible Profibus	GCR1304F	3079E
18 AWG 2 Conductor + 22 AWG 2 Conductor Shielded Seriplex	GCR1330	3124A
18 AWG 2 Conductor + 22 AWG 2 Conductor Shielded Aluminum Armored Seriplex	GCR1330A	123124A
16 AWG 2 Conductor + 22 AWG 2 Conductor Shielded Seriplex	GCR1331	3125A
16 AWG 2 Conductor + 22 AWG 2 Conductor Shielded Aluminum Armored Seriplex	GCR1331A	123125A
16 AWG 2 Conductor + 22 AWG 2 Conductor + 12 AWG 2 Conductor Shielded Seriplex	GCR1333	3126A
16 AWG 2 Conductor + 22 AWG 2 Conductor + 12 AWG 2 Conductor Shielded Aluminum Armored Seriplex	GCR1333A	123126A
16 AWG 1 Pair + 20 AWG 1 Pair Individually Shielded SDS	GCR1332	3086A
22 AWG 2 Pair Individually Shielded SDS	GCR1334	3087A

# Industrial Communication Protocol Cables Cross-Reference

CANOpen® Network Cables typically are 2 pairs, either 24 AWG or 22 AWG. The final decision on the wire size, capacitance, impedance, shielding, and other electrical specifications is a function of the application. General Cable Corporation cannot specify a specific cable for these applications. General Cable Corporation offers different cable constructions to function in many CANOpen® applications.

### CANOpen® NETWORK CABLES OPTIONS

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	UL/CSA LISTINGS	PAGE NUMBER
C4842A	9842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4842A -- 75C E105765-H CM (UL) C(UL) CMH OR 80CAWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4852A	82842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4852A -- 2/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	CMP c(UL)	40
C7114A	3107A	2 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114A -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7114AF		2 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114AF -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39

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Guidelines for the environment of automation applications may be classified by ANSI/TIA 1005. Levels (MICE) Mechanical, Ingress, Climatic, Chemical and Electromagnetic.

CC-Link cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### CC-LINK CABLES

MITSUBISHI PART NUMBER	GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
BA1SJ61-5	GCR1315	1348A	3 Cond. 20 AWG (7x28) BC, OFS + Braid 78% TC/PVC Print Legend: GENERAL CABLE (F) -- GCR1315 -- 3/C 20 AWG SHIELDED (UL) TYPE CM 75C --- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	CC-Link Cable Version 1.10, 2.0, industrial environments, relatively clean, minimum temperature changes	CM, c(UL)	34
BA1SJ61-P	GCR1316	1349A	Data: 3 Cond. 20 AWG (7x28) BC, OFS + Braid 78% TC/PVC Power: 2 Cond. 18 AWG (7x26) BC Print Legend: GENERAL CABLE (F) -- GCR1316 -- 1/PR18 AWG + 1/PR20 SHIELDED (UL) TYPE PLTC OR CM 75C -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	CC-Link Cable Version 1.10, 2.0, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	34

CC-Link Cables: reference CC-Link Partner Association

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**Please consult your General Cable representative for additional information (800) 950-3512**



# Industrial Communication Protocol Cables

## Cross-Reference

ControlNet™ cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### ControlNet™ CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1309	3092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC Print Legend: GENERAL CABLE (F) – GCR1309 – ODVA ControlNet™ VEN #1293 RG6/U TYPE 75 OHM QUAD SHIELD – 3.0 GHZ – 18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE-- MADE IN USA AAAAA MM/YY XXXXFT	Industrial environments, relatively clean, minimum temperature changes	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309P	3093A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVDF Print Legend: GENERAL CABLE (F) – GCR1309P -- ODVA ControlNet™ VEN #1293 RG-6/U TYPE 75 OHM QUAD SHIELD – 3.0 GHZ – 18 AWG 150C (ETL) CL2P - CATVP OR CMP c(ETL)us FT6 3084997 – ROHS/CE – MADE IN USA AAAAA MM/YY XXXXFT	Plenum rated, FEP/PVDF construction, suitable for high and low temperatures (-40°C+150°C)	CL2P, CMP, CATVP, FT6 c(ETL)	32
GCR1309F	3092F	RG-6/U 20 AWG (105x40) BC, Quad Shield OFS(2) 60/40% AL Braid/PVC Print Legend: GENERAL CABLE (F) – GCR1309F -- ODVA ControlNet™ VEN #1293 RG-6/U TYPE 75 OHM FLEXIBLE QUAD SHIELD – 3.0 GHZ – 20 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE-- MADE IN USA AAAAA MM/YY XXXXFT	High Flex version of GCR1309 (note higher attenuation)	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309FC	YR28690*	RG-6/U 20 AWG (105x40) BC, Quad Shield OFS(2) 65/60% TC Braid/PVC Print Legend: GENERAL CABLE (F) – GCR1309FC -- ODVA ControlNet™ VEN #1293 RG-6/U TYPE FLEXIBLE 75 OHM QUAD SHIELD – 20 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE – MADE IN USA AAAAA MM/YY XXXXFT	High Flex version of GCR1309 higher braid coverage for improved noise immunity (note higher attenuation)	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309A	123092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/AIA/PVC Print Legend: GENERAL CABLE (F) – GCR1309A -- ODVA ControlNet™ VEN #1293 ALUM-ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR – 3.0 GHZ – 18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Aluminum Interlock Armor (AIA), PVC jacket, alternative to conduit installation, additional mechanical and electrical shielding	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309S	133092A*	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/GSIA/PVC Print Legend: GENERAL CABLE (F) – GCR1309S – ODVA ControlNet™ VEN #1293 STEEL ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR – 3.0 GHZ – 18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Galvanized Steel Interlock Armor (GSIA), PVC jacket, alternate to conduit installation, additional mechanical and crush resistance, electrical shielding	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309CC	183092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/CCW/PVC Print Legend: GENERAL CABLE (F) – GCR1309CC -- ODVA ControlNet™ VEN #1293 CCW-ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR – 3.0 GHZ – 18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EM), impervious to moisture and dust	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32

ControlNet™ is a trademark of Open DeviceNet Vendor Association, Inc. (ODVA)

\* Belden special make-to-order cables.

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# Industrial Communication Protocol Cables Cross-Reference

DeviceNet™ cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### DeviceNet™ CABLES

ROCKWELL AUTOMATION CABLE TYPE	GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
1485C-P1A	GCR1305	3082A	Power: 1 pr 15 AWG (19x28) TC OFS, Data: 1 pr 18 AWG (19x30) TC OFS, + Braid 65% TC/PVC Thick, ODVA Class 2 Print Legend: GENERAL CABLE (F) – GCR1305 – ODVA DEVICENET™ VEN #1293 THICK CABLE -- 1/PR18 AWG + 1/PR16 SHIELDED (UL) TYPE PLTC OR CM CMG C(UL)US FT4 75C SUN RES OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Industrial environments, relatively clean, minimum temperature changes	CM, c(UL), CL2, PLTC-ER, AWM 20201 600 V, CSA AWM I/IIA 80°C, FT4	36
1485C-F1A	GCR1305F	3082F	Power: 1 pr 15 AWG (65x33) TC OFS, Data: 1 pr 18 AWG (65x36) TC OFS, + Braid 65% TC/PVC Thick, ODVA Class 2 Print Legend: GENERAL CABLE (F) – GCR1305F – ODVA DEVICENET™ VEN #1293 FLEXIBLE THICK CABLE --1/PR18 AWG + 1/PR16 SHIELDED (UL) TYPE PLTC OR CM CMG C(UL)US FT4 75C SUN RES OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	High Flex version of GCR1305	CM, c(UL), CL2, PLTC-ER, AWM 20201 600 V, CSA AWM I/IIA 80°C, FT4	36
1485C-P1A	GCR1306	3083A	Power: 1 pr 15 AWG (19x28) TC OFS, Data: 1 pr 18 AWG (19x30) TC OFS, + Braid 65% TC/CPE Thick, ODVA Class 2 Print Legend: GENERAL CABLE (F) – GCR1306 – ODVA DEVICENET™ VEN #1293 THICK CABLE -- 1/PR18 AWG +1/PR16 SHIELDED (UL) TYPE PLTC-ER OR CL2 OR CMG c(UL)us FT4 75C SUN RES OIL RES -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Same as GCR1305 except CPE jacket for extremely harsh industrial environments	CM, c(UL), CL2, PLTC-ER, AWM 20201 600 V, CSA AWM I/IIA 80°C, FT4	36
1485C-P1B (ODVA Type V)	GCR1312	7897A	Power: 1 pr 15 AWG (19x28) TC OFS, Data: 1 pr 18 AWG (19x30) TC OFS, + Braid 65% TC/PVC Thick, ODVA Cable II, Class 1 Print Legend: GENERAL CABLE (F) – GCR1312 – ODVA DEVICENET™ VEN #1293 CABLE-II THICK CABLE 1/PR18 AWG & 1/PR15 AWG SHIELDED (UL) TYPE TC-ER 75C 600 V SUN RES OIL RES -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Class 1, 600 V rated for cable tray use and able to occupy the same tray or conduit as 600 V rated cables	TC-ER, CSA AWM I/II A/B 80°C FT1	36
1485C-P1B (ODVA Type V)	GCR1311	7896A	Power: 1 pr 16 AWG (19x29) TC Ind Shield, Data: 1 pr 18 AWG (19x30) TC Ind Shield, + Braid 65% TC/PVC Thick, ODVA Cable V, Class 1 Print Legend: GENERAL CABLE (F) – GCR1311 – ODVA DEVICENET™ VEN #1293 CABLE-V THICK CABLE 1/PR18 AWG & 1/PR16 AWG SHIELDED (UL) TYPE TC-ER 75C 600 V SUN RES OIL RES DIR BUR -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Class 1, 600 V rated for cable tray use and able to occupy the same tray or conduit as 600 V rated cables	TC-ER, CSA AWM I/II A/B 80°C FT1	36
2100H-DNRC1 (ODVA Type IV)	GCR1313	7900A	Power: 1 pr 18 AWG (19x30) TC, Data: 1 pr 20 AWG (19x32) TC Unshielded/PVC Thick, ODVA Cable IV, Class 1 Print Legend: GENERAL CABLE (F) – GCR1313 – ODVA DEVICENET™ VEN #1293 CABLE-IV THICK CABLE 1/PR18 AWG & 1/PR16 AWG (UL) TYPE TC-ER 75C SUN RES OIL RES -- ROHS/CE --MADE IN USA AAAAA MO/YR XXXXXFT	Drop Cable Class 1, 600 V rated for cable tray use and able to occupy the same tray or conduit as 600 V rated cables: note unshielded	TC-ER, CSA AWM I/II A/B 80°C FT1	36
	GCR1317	7895A	Power: 1 pr 18 AWG (19x30) TC OFS, Data: 1 pr 20 AWG (19x32) TC OFS, + Braid 65% TC/PVC Thick, ODVA Cable III, Class 2 Print Legend: GENERAL CABLE (F) – GCR1317 – ODVA DEVICENET™ VEN #1293 CABLE-III 1/PR18 AWG + 1/PR 20 AWG SHIELDED (UL) TYPE PLTC OR CM CMG C(UL) FT4 75C SUN RES OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Mid Cable III, Class 2 300 V rated, can be used for trunk or drop applications	CM, CMG, c(UL), PLTC-ER, AWM 20201 600 V, FT4	36

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# Industrial Communication Protocol Cables

## Cross-Reference

### DeviceNet™ CABLES

ROCKWELL AUTOMATION CABLE TYPE	GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
1485C-P1CG	GCR1307	3084A	Power: 1 pr 22 AWG (19x34) TC OFS, Data: 1 pr 24 AWG (19x36) TC OFS, + Braid 65% TC/PVC, ODVA Class 2 Thin Cable Print Legend: GENERAL CABLE (F) -- GCR1307 -- ODVA CABLE-1 DEVICENET™ VEN #1293 THIN CABLE -- 1/PR22 AWG + 1/PR24 AWG SHIELDED (UL) TYPE CL2 OR CM CMG c(UL)us FT4 75C OR AWM 20201 600 V -- CSA AWM I/II A 80C 300 V FT4 -- SUN RES ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Thin Cable, Class 2 300 V rated, can be used for trunk or drop applications	CL2, CM, CMG, c(UL), CSA AWM I/II A/B 80°C FT1	36
1485C-F1G	GCR1307F	3084F	Power: 1 pr 22 AWG (19x34) TC OFS, Data: 1 pr 24 AWG (19x36) TC OFS, + Braid 65% TC/PVC, ODVA Class 2 Thin Cable Print Legend: GENERAL CABLE (F) -- GCR1307F -- ODVA CABLE-1 DEVICENET™ VEN #1293 FLEXIBLE THIN CABLE -- 1/PR22 AWG + 1/PR24 AWG SHIELDED (UL) TYPE CL2 OR CM CMG c(UL)us FT4 75C OR AWM 20201 600 V -- SUN RES ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	High Flex version of GCR1307	CL2, CM, CMG, c(UL), CSA AWM I/II A/B 80°C FT1	36
1485C-P1C	GCR1308	3085A	Power: 1 pr 22 AWG (19x34) TC OFS, Data: 1 pr 24 AWG (19x36) TC OFS, + Braid 65% TC/CPE, ODVA Class 2 Thin Cable Print Legend: GENERAL CABLE (F) -- GCR1308 -- ODVA CABLE-1 DEVICENET™ VEN #1293 THIN CABLE -- 1/PR22 AWG + 1/PR24 AWG SHIELDED (UL) TYPE CL2 OR CM C(UL) 75C SUN RES OIL RES DIR BUR -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Same as GCR1307 except CPE jacket for extremely harsh industrial environments	CL2, CM, CMG, c(UL), CSA AWM I/II A/B 80°C FT1	36

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# Industrial Communication Protocol Cables

## Cross-Reference

Foundation™ Fieldbus cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### FOUNDATION™ FIELDBUS CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1302	3076F	1 pr 18 AWG (7x26) TC OFS, PVC Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (F) – GCR1302 -- FIELDBUS 1/PR 18 AWG SHIELDED (UL) TYPE PLTC OR ITC OR CM CMG C(UL) US FT4 75C -- SUN RES OIL RES --- ROHS/CE – MADE IN USA AAAAA MO/YR XXXXXFT	Industrial environments, relatively clean, minimum temperature changes, trunk and/or spur	CM, c(UL), ITC-ER, CMG 80°C, FT4	34
GCR1303	3077F	1 pr 22 AWG (7x30) TC OFS, PVC Foundation™ Fieldbus Type B Print Legend: GENERAL CABLE (F) – GCR1303 -- FIELDBUS 1/PR 22 AWG SHIELDED (UL) TYPE CM 75C -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	Industrial environments, relatively clean, minimum temperature changes, spur connections only	CM, c(UL), ITC-ER, CMG 80°C, FT4	34
9899.FB01801120	*183076F	1 pr 18 AWG (7x 0.152") TC, XLPE Ins. OFS, PVC/CCW/PVC Black Jacket, Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (WC) CCW ARCTIC ARMOR FIELDBUS 1 PAIR 18 AWG CU SHIELDED 600 V (UL) TYPE MC-HL 90C-40C SUN RES OR ABS TYPE CWC MC DAY/MONTH/YEAR XXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +90° -40°C, direct burial	MC-HL 600 V, Sun Res, Direct Burial, CSA FT4, IEEE 1202	35
9899.FB01802120	-	2 pr 18 AWG (7x0.152") TC, XLPE Ins. IFS +OFS, PVC/CCW/PVC Black Jacket, Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (WC) CCW ARCTIC ARMOR FIELDBUS 2 PAIR 18 AWG CU SHIELDED 600 V (UL) TYPE MC-HL 90C-40C SUN RES OR ABS TYPE CWC MC DAY/MONTH/YEAR XXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +90° -40°C, direct burial	MC-HL 600 V, Sun Res, Direct Burial, CSA FT4, IEEE 1202	35
9899.FB01804120	-	4 pr 18 AWG (7x0.152") TC, XLPE Ins. IFS +OFS, PVC/CCW/PVC Black Jacket, Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (WC) CCW ARCTIC ARMOR FIELDBUS 4 PAIR 18 AWG CU SHIELDED 600 V (UL) TYPE MC-HL 90C-40C SUN RES OR ABS TYPE CWC MC DAY/MONTH/YEAR XXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +90° -40°C, direct burial	MC-HL 600 V, Sun Res, Direct Burial, CSA FT4, IEEE 1202	35
9899.FB01602118	-	2 pr 16 AWG (7x0.192") TC, XLPE Ins. IFS +OFS, PVC/CCW/PVC Black Jacket, Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (WC) CCW ARCTIC ARMOR FIELDBUS 2 PAIR 16 AWG CU SHIELDED 600 V (UL) TYPE MC-HL 90C-40C SUN RES OR ABS TYPE CWC MC DAY/MONTH/YEAR XXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +90° -40°C, direct burial	MC-HL 600 V, Sun Res, Direct Burial, CSA FT4, IEEE 1202	35
9899.FB01604118	-	4 pr 16 AWG (7x0.192") TC, XLPE Ins. IFS +OFS, PVC/CCW/PVC Black Jacket, Foundation™ Fieldbus Type A Print Legend: GENERAL CABLE (WC) CCW ARCTIC ARMOR FIELDBUS 4 PAIR 16 AWG CU SHIELDED 600 V (UL) TYPE MC-HL 90C-40C SUN RES OR ABS TYPE CWC MC DAY/MONTH/YEAR XXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +90° -40°C, direct burial	MC-HL 600 V, Sun Res, Direct Burial, CSA FT4, IEEE 1202	35

Foundation™ is a trademark of Fieldbus Foundation      \*Belden 183076F has an orange jacket color

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# Industrial Communication Protocol Cables

## Cross-Reference

The final decision on the number of pairs, wire size, capacitance, impedance, shielding, and other electrical specifications is a function of the application. General Cable Corporation cannot specify a specific cable for these applications. General Cable Corporation offers different cable constructions to function in many HART® applications.

### HART® NETWORK CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	UL/CSA LISTINGS	PAGE NUMBER
C4841A	9841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4841A -- 75C E105765-H CM (UL) C(UL) CMH OR 80CAWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4851A	82841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4851A -- 1/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	CMP c(UL)	40
C4842A	9842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4842A -- 75C E105765-H CM (UL) C(UL) CMH OR 80CAWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4852A	82842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4852A -- 2/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	CMP c(UL)	40
C4843A	9843	3 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4843A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4844A	9844	4 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4844A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C7112A	3105A	1 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7112A -- 1/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7114A	3107A	3 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114A -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7116A	3108A	3 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116A -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7116AF		3 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116AF -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7118A	3109A	4 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118A -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7118AF		4 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118AF -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C2534A	8760	1 pr 18 AWG (16x30) TC, OFS/PVC Print Legend: CAROL® 18 AWG -- C2534A -- 75C E105765-H CM (UL) C(UL) CMH OR AWM STYLE 2092 --ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2092	40
C8123	82760	1 pr 18 AWG (16x30) TC, OFS/LS PVC Print Legend: CAROL® 18 AWG -- C2534A -- 75C E105765-H CM (UL) C(UL) CMH OR AWM STYLE 2092 -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CMP c(UL)	40
C8101	88760	1 pr 18 AWG (16x30) TC, OFS/FEP (high and low temperatures (-70°C+200°C), corrosive environments) Print Legend: GENERAL CABLE (F) - C8101 - 2C 18 AWG SHIELDED CMP (UL) C(UL) FEP/FEP--GAS AND OIL RESISTANT --- ROHS AAAAA*	CMP c(UL)	40

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# Industrial Communication Protocol Cables Cross-Reference

Interbus cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### INTERBUS CABLES

PHOENIX CONTACT PART NUMBER	GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
E-T-2723149	GCR1319	3120A	Data: 3 pr 24 AWG (7x32) TC OFS + Braid 90% TC/TPU Print Legend: GENERAL CABLE (F) - GCR1319 - 3/PR 24 AWG SHIELDED AWM STYLE 20233 80C 300 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Interbus cable, industrial environments, relatively clean, minimum temperature changes	AWM 20233 80°C 300 V	37
E-T-2723152	GCR1318	3119A	Data: 3 pr 24 AWG (7x32) TC OFS + Braid 90% TC/TPU, Power: 3 Cond. 18 AWG (7x26) TC Print Legend: GENERAL CABLE (F) - GCR1318 - 3/C 18 AWG + 3/PR 24 AWG SHIELDED AWM STYLE 20233 80C 300 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Interbus cable, industrial environments, relatively clean, minimum temperature changes	AWM 20233 80°C 300 V	37

Interbus System developed by Phoenix Contact.  
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LonWorks® based communications protocol is one of the most widely deployed technologies worldwide. LonWorks is suited to be used with different types of cables such as twisted pair cables, power line, RF, fiber optics and industrial Ethernet cables. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### LonWorks® CABLE CONSTRUCTION OPTIONS

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
C8601		1 pr 22 AWG (7x.0096") BC, UTP Level 4 Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 22 AWG UTP LEVEL-4 TYPE CMP (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CMP c(UL)	41
C8611		1 pr 22 AWG (7x.0096") BC, ScTP Level 4 Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 22 AWG SCREENED STP LEVEL-4 TYPE CMP (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CMP c(UL)	37
C8641		1 pr 22 AWG (7x.0096") BC, UTP Level 4 Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 22 AWG UTP LEVEL-4 TYPE CM (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CM c(UL)	41
C8651		1 pr 22 AWG (7x.0096") BC, ScTP Level 4 Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 22 AWG SCREENED STP LEVEL-4 TYPE CM (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CM c(UL)	37
C8621	85102	1 pr 16 AWG (19x.0116") TC Unshielded Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 16 AWG (UL) TYPE CL2P OR CMP (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CL2P, CMP c(UL)	41
C8661	8471	1 pr 16 AWG (19x.0116") TC Unshielded Print Legend: XXXX/XXXX feet ECHELON GUIDELINE COMPLIANT 16 AWG (UL) TYPE CL2 OR CM CMG (UL) c(UL) 75C E105765-F ROHS/CE AAAAA	Industrial environments	CM c(UL)	41
GCR1404	7918A/7923A	4 UTP 24 AWG SBC, Category 5e Print Legend: **** GENERAL CABLE * GCR1404 INDUSTRIAL CAT 5E 4PR/24AWG RISER C(UL)US CMX OUTDOOR - CMR 75C UV RES VERIFIED (UL) ANSI/TIA-568C.2 CAT-5E AWM 21047 75C 600V-- FT4 OIL RES P-07-KA140022-MSHA ODVA ETHERNET/IP™ VEN 1293 PAT 5767441 CAT 5E	Industrial Ethernet environments	CMR c(UL) 600 V	9
C2104A	8917	1 C 16 AWG (26x30) TC PVC Insulation Print Legend: CAROL 16 AWG RU AWM 105C VW-1 600 V E18621-8 --- CSA TEW 105C LL69381 --- MADE IN USA	Jumper wire	AWM 1015, CSA TEW 600 V	-

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# Industrial Communication Protocol Cables

## Cross-Reference

Modbus cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### MODBUS CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1320	8777	3pr 22 AWG (7x30) TC, Ind Shield prs./PVC Print Legend: GENERAL CABLE (F) – GCR1320 – 3/PR 22 AWG SHIELDED (UL) TYPE CM OR AWM 2919 -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	RS-232, industrial environments, relatively clean, minimum temperature changes	CM, c(UL) AWM 2919	38
GCR1320P	82777	3pr 22 AWG (7x30) TC, Ind Shield prs./LS PVC Print Legend: GENERAL CABLE (F) – GCR1320P -- 3PR 22 AWG SHIELDED CMP (UL) c(UL)us 75C – ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Plenum rated, (-10°C+75°C), RS-232, light industrial environments, relatively clean, minimum temperature changes	CMP c(UL)	38
GCR1320FP	88777	3pr 22 AWG (7x30) TC, Ind Shield prs./FEP Print Legend: GENERAL CABLE (F) – GCR1320FP -- 3PR 22 AWG SHIELDED CMP (UL) c(UL)us FEP/FEP --- GAS AND OIL RESISTANCE -- ROHS/CE – MADE IN USA XXXXFT	Plenum rated, FEP/FEP construction, RS-232, suitable for high and low temperatures (-70°C+200°C), corrosive environments	CMP c(UL)	38
GCR1320A	128777	3pr 22 AWG (7x30) TC, Ind Shield prs./PVC/AIA/PVC Print Legend: GENERAL CABLE (F) – GCR1320A – ARMORED 3/PR 22 AWG SHIELDED (UL) TYPE CM OR AWM 2919 -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Aluminum Interlock Armor (AIA), PVC jacket, RS-232, alternative to conduit installation, additional mechanical and electrical shielding	CM, c(UL) AWM 2919	38
C4841A	9841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4841A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	RS-485, industrial environments, relatively clean, minimum temperature changes	CM, CMH c(UL) AWM 2919	39
C4851A	82841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4851A -- 1/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA – MM/YY AAAAA XXXXXFT	Plenum rated, (-10°C+75°C), RS-485, light industrial environments, relatively clean, minimum temperature changes	CMP c(UL)	40
C4842A	9842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4842A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	RS-485, industrial environments, relatively clean, minimum temperature changes	CM, CMH c(UL) AWM 2919	39
C4852A	82842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4852A -- 2/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA – MM/YY AAAAA XXXXXFT	Plenum rated, (-10°C+75°C), RS-485, industrial environments, relatively clean, minimum temperature changes	CMP c(UL)	40
C4843A	9843	3 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4843A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	RS-485, industrial environments, relatively clean, minimum temperature changes	CM, CMH c(UL) AWM 2919	39
C4844A	9844	4 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4844A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	RS-485, industrial environments, relatively clean, minimum temperature changes	CM, CMH c(UL) AWM 2919	39
C7112A	3105A	1 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7112A -- 1/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- ROHS/CE -- MADE IN USA – MM/YY AAAAA XXXXXFT	RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39

\* Belden special make-to-order cables.

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# Industrial Communication Protocol Cables Cross-Reference

## MODBUS CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
C7112AF		1 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7112AF -- 1/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	High Flex version of C7112A, RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
GCR1310	3106A	1.5pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC, Sun Res Oil Res Print Legend: GENERAL CABLE (F) - GCR1310 -- 3/C 22 AWG RS-485 SHIELDED (UL) TYPE PLTC OR CM C(UL) FT1 SUN RES -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	RS-485, industrial environments, relatively clean, minimum temperature changes	CL2, CM, c(UL), CSA AWM I/II A 80°C, FT1	38
C7114A	3107A	2 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114A -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
C7114AF		2 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114AF -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	High Flex version of C7114A, RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
C7116A	3108A	3 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116A -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
C7116AF		3 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116AF -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	High Flex version of C7116A, RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
C7118A	3109A	4 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118A -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
C7118AF		4 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118AF -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	High Flex version of C7118A, RS-485, industrial environments, relatively clean, minimum temperature changes	PLTC, CM c(UL)	39
GCR1309	3092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC Print Legend: GENERAL CABLE (F) - GCR1309 - ODVA ControlNet™ VEN #1293 RG-6/U TYPE 75 OHM QUAD SHIELD - 3.0 GHZ - 18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 - ROHS/CE-- MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, industrial environments, relatively clean, minimum temperature changes	CL2R, CMR, CMG, CATVR, FT4 c(ETL)	32
GCR1309P	3093A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVDF Print Legend: GENERAL CABLE (F) - GCR1309P - ODVA ControlNet™ VEN #1293 RG-6/U TYPE 75 OHM QUAD SHIELD - 3.0 GHZ - 18 AWG 150C (ETL) CL2P - CATVP OR CMP c(ETL)us FT6 3084997 - ROHS/CE - MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, plenum rated, FEP/PVDF construction, suitable for high and low temperatures (-40°C+150°C)	CL2P, CMP, CATVP, FT6, c(ETL)	32
GCR1309F	3092F	RG-6/U 20 AWG (105x40) BC, Quad Shield OFS(2) 60/40% AL Braid/PVC Print Legend: GENERAL CABLE (F) - GCR1309F - ODVA ControlNet™ VEN #1293 RG-6/U TYPE 75 OHM FLEXIBLE QUAD SHIELD - 3.0 GHZ - 20 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 - ROHS/CE-- MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, High Flex version of GCR 1309 (note higher attenuation)	CL2R, CMR, CMG, FT4, CATVR c(ETL)	32
GCR1309A	123092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/AI/PVC Print Legend: GENERAL CABLE (F) - GCR1309A - ODVA ControlNet™ VEN #1293 ALUM-ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR - 3.0 GHZ -18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 - ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, Aluminum Interlock Armor (AIA), PVC jacket, alternative to conduit installation, additional mechanical and electrical shielding	CL2R, CMR, CMG, FT4, CATVR c(ETL)	32

\* Belden special make-to-order cables.

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# Industrial Communication Protocol Cables

## Cross-Reference

### MODBUS CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1309S	133092A*	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/GSIA/PVC Print Legend: GENERAL CABLE (F) – GCR1309S – ODVA ControlNet™ VEN #1293 STEEL ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR – 3.0 GHZ –18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, Galvanized Steel Interlock Armor (GSIA), PVC jacket, alternate to conduit installation, additional mechanical and crush resistance, electrical shielding	CL2R, CMR, CMG, CATVR c(ETL)	32
GCR1309CC	183092A	RG-6/U 18 AWG CCS, Quad Shield OFS(2) 60/40% AL Braid/PVC/CCW/PVC Print Legend: GENERAL CABLE (F) – GCR1309CC -- ODVA ControlNet™ VEN #1293 CCW-ARMORED RG-6/U TYPE 75 OHM QUAD SHIELD SUN RES DIR BUR – 3.0 GHZ –18 AWG 75C (ETL) CL2R - CATVR OR CMR c(ETL)us CMG FT4 3084997 – ROHS/CE -- MADE IN USA AAAAA MM/YY XXXXFT	Remote I/O, Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust	CL2R, CMR, CMG, FT4, CATVR c(ETL)	32

\* Belden special make-to-order cables.

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Profibus DP and Profibus PA cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### Profibus DP CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1304	3079A	1 pr 22 AWG (solid) BC OFS + 65% TC Braid, 150Ω imp. PVC, Profibus DP Type A Print Legend: GENERAL CABLE (F) – GCR1304 -- PROFIBUS 1/PR 22 AWG SHIELDED (UL) TYPE PLTC OR CM CMG c(UL)us FT4 75C -- SUN RES OR AWM 20201 600 V – ROHS/CE – MADE IN USA AAAAA MO/YR XXXXXXFT	Industrial environments, relatively clean, minimum temperature changes, trunk and/or spur	CM, c(UL), PLTC-ER, CMG 80°C, FT4, AWM 20201 600 V	34
GCR1304F	3079E	1 pr 22 AWG (19x34) TC OFS + 65% TC Braid, 150Ω imp. PVC, Profibus DP Type A Print Legend: GENERAL CABLE (F) – GCR1304F -- PROFIBUS FLEXIBLE 1/PR 22 AWG SHIELDED (UL) TYPE PLTC OR CM CMG c(UL)us FT4 75C -- SUN RES OR AWM 20201 600 V – ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	High Flex version of GCR 1304 light industrial environments, relatively clean, minimum temperature changes, spur connections only	CM, c(UL), PLTC-ER, CMG 80°C, FT4, AWM 20201 600 V	34
9899.PB02201000	183079A	1 pr 22 AWG (solid) BC OFS + 65% TC Braid, 150Ω imp. Fluoropolymer Ins/Fluoropolymer Inner Jacket/CCW/PVC Outer Jacket Purple Profibus DP Type A Print Legend: GENERAL CABLE (WC) CCW PROFIBUS 1 PAIR 22 AWG CU FEP INSUL (UL) TYPE ITC-HL -40C DIR BUR SUN RES 105C FT4/IEEE 1202 DAY/MONTH/YEAR XXXXXXFT	Continuously Corrugated Welded Armor (CCW) provides mechanical protection, electrical shielding (EMI), impervious to moisture and dust, trunk and/or spur Arctic Armor grade +105° -40°C, direct burial	ITC-HL, 300 V, CT use, CSA FT4, IEEE 1202	35
GCR1302	3076F**	1 pr 18 AWG (7x26) TC OFS, PVC Foundation™ Fieldbus Type A per ISA/SP 50 for Profibus PA applications Print Legend: GENERAL CABLE (F) – GCR1302 -- FIELDBUS 1/PR 18 AWG SHIELDED (UL) TYPE PLTC OR ITC OR CM CMG c(UL) US FT4 75C -- SUN RES OIL RES --- ROHS/CE – MADE IN USA AAAAA MO/YR XXXXXXFT	Industrial environments, relatively clean, minimum temperature changes, trunk and/or spur	CM, c(UL), ITC-ER, CMG 80°C, FT4	34

Guidelines for the environment of automation applications may be classified by ANSI/TIA 1005. Levels (MICE) Mechanical, Ingress, Climatic, Chemical and Electromagnetic.

\*\*Note: Profibus PA Type A and Type B cables and Foundation™ Fieldbus Cable Type A and Type B are in accordance with IEC 61158-2. Profibus PA Type A cable and Foundation™ Fieldbus Type A cables can be used, but note the color code of the conductors are not the same. ISA Standard SP50 requires the color code of the conductors to be orange(+) and blue(-) with an orange jacket or sheath. The inner conductors color code for Profibus PA are red(+) and green(-). The electrical specifications are the same in accordance with IEC 61158-2.

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# Industrial Communication Protocol Cables Cross-Reference

RS-485 cables are used extensively in industrial environments. Typical applications include process automation (chemicals, paper mills), factory automation, HVAC, security, motion control and motor controls.

RS-485 network cables typically are either 24 AWG or 22 AWG. The final decision on the number of pairs, wire size, capacitance, impedance, shielding, and other electrical specifications is a function of the application. General Cable Corporation cannot specify a specific cable for these applications. General Cable Corporation offers different cable constructions to function in many RS-485 applications.

### RS-485 NETWORK CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	UL/CSA LISTINGS	PAGE NUMBER
C4841A	9841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4841A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4851A	82841	1 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4851A -- 1/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	CMP c(UL)	40
C4842A	9842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4842A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4852A	82842	2 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/LS PVC Print Legend: CAROL® -- C4852A -- 2/PR 24 AWG SHIELDED LOW CAP RS-485 TYPE CMP (UL) C(UL) 75C E105765-F -- ROHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	CMP c(UL)	40
C4843A	9843	3 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4843A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C4844A	9844	4 pr 24 AWG (7x32) TC, OFS + 90% TC Braid/PVC Print Legend: CAROL® 24 AWG -- C4844A -- 75C E105765-H CM (UL) C(UL) CMH OR 80C AWM STYLE 2919 30 V LOW VOLTAGE COMPUTER CABLE -- ROHS/CE -- MADE IN USA (date code - MM/YY) (sequential footage)	CM, CMH c(UL) AWM 2919	39
C7112A	3105A	1 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7112A -- 1/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7112AF		1 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7112AF -- 1/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
GCR1310	3106A	1.5pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC, Sun Res Oil Res Print Legend: GENERAL CABLE (F) -- GCR1310 -- 3/C 22 AWG RS-485 SHIELDED (UL) TYPE PLTC OR CM CMG C(UL)US FT4 75C SUN RES -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	CL2, CM, c(UL), CSA AWM I/II A 80°C, FT1	38
C7114A	3107A	2 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114A -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7114AF		2 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7114AF -- 2/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7116A	3108A	3 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116A -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7116AF		3 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7116AF -- 3/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA -- MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39

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# Industrial Communication Protocol Cables

## Cross-Reference

### RS-485 NETWORK CABLES

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	UL/CSA LISTINGS	PAGE NUMBER
C7118A	3109A	4 pr 22 AWG (7x30) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118A -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
C7118AF		4 pr 22 AWG (26x36) TC, OFS + 65% TC Braid/PVC Print Legend: CAROL® -- C7118AF -- 4/PR 22 AWG SHIELDED LOW CAP RS-485 (UL) PLTC OR CM C(UL) 75C E60233-F -- RoHS/CE -- MADE IN USA - MM/YY AAAAA XXXXXFT	PLTC, CM c(UL)	39
GCR1301	3704F	1 pr 18 AWG (7x26) TC, OFS + 60% TC Braid/PVC, Sun Res Oil Res, Direct Burial Print Legend: GENERAL CABLE (F) - GCR1301 -- 1/PR 18 AWG SHIELDED LOW CAP (UL) TYPE TC 600 V 75C DRY OR PLTC OR ITC OR CMG C(UL)US FT4 -- SUN RES OIL RES DIR BUR --- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	TC-ER, PLTC, ITC-ER, CSA CMG, FT4	40

Guidelines for the environment of automation applications may be classified by ANSI/TIA 1005. Levels (MICE) Mechanical, Ingress, Climatic, Chemical and Electromagnetic.

Smart Distributed Systems (SDS) cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### SMART DISTRIBUTED SYSTEM (SDS) CABLE

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1332	3086A	Power: 1 pr 16 AWG (19x0.0117") TC, OFS Data: 1 pr 20 AWG (19x32) TC OFS, Common Drain Wire, 120Ω imp. PVC Print Legend: GENERAL CABLE (F) - GCR1332 - 1/PR 16 AWG + 1/PR 20 AWG SHIELDED (UL) TYPE CL2 OR AWM 2464 300 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Light industrial environments, relatively clean, minimum temperature changes, trunk and/or branch	CL2, AWM 2464 300 V	34
GCR1334	3087A	Power: 1 pr 22 AWG (19x34) TC, OFS Data: 1 pr 22 AWG (19x34) TC OFS, Common Drain Wire, 120Ω imp. PVC Print Legend: GENERAL CABLE (F) - GCR1334 - SYSTEM (SOS) - 2/PR 22 AWG SHIELDED (UL) TYPE CL2 OR AWM 2464 300 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXFT	Light industrial environments, relatively clean, minimum temperature changes, branch	CL2, AWM 2464 300 V	34

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# Industrial Communication Protocol Cables Cross-Reference

Seriplex® cables are used extensively in industrial environments. The cable application is dependent on where the cables are to be residing. Factory floor environments can range from general light duty, clean environments to more severe environments that may be subject to moisture, chemicals, extreme temperature ranges, physical or outdoor environments that could cause premature failure of a cable that was just designed for indoor enterprise applications.

### SERIPLEX® CABLE CONSTRUCTION OPTIONS

GCC PART NUMBER	BELDEN PART NUMBER	CABLE DESCRIPTION	APPLICATIONS	UL/CSA LISTINGS	PAGE NUMBER
GCR1330	3124A	Power: 1 pr 18 AWG (16x30) TC, Data: 1 pr 22 AWG (7x30) TC OFS/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1330 -- 2/C 18 AWG + 2/C 22 AWG SHIELDED (UL) TYPE CL2 OR CM c(UL)us OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Industrial environments, relatively clean, minimum temperature changes	CM, c(UL), CL2, AWM 20201 600 V, 80°C	37
GCR1330A	123124A	Power: 1 pr 18 AWG (16x30) TC, Data: 1 pr 22 AWG (7x30) TC OFS/PVC/AIA/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1330A -- ARMORED 2/C 18 AWG + 2/C 22 AWG SHIELDED (UL) TYPE CL2 OR CM c(UL)us OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Aluminum Interlock Armor (AIA), PVC jacket, alternative to conduit installation, additional mechanical and electrical shielding	CM, c(UL), CL2, AWM 20201 600 V, 80°C	37
GCR1331	3125A	Power: 1 pr 16 AWG (26x30) TC, Data: 1 pr 22 AWG (7x30) TC OFS/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1331 -- 2/C 16 AWG + 2/C 22 AWG SHIELDED (UL) TYPE CL2 OR CM c(UL)us OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Industrial environments, relatively clean, minimum temperature changes	CM, c(UL), CL2, AWM 20201 600 V, 80°C	37
GCR1331A	123125A	Power: 1 pr 16 AWG (26x30) TC, Data: 1 pr 22 AWG (7x30) TC OFS/PVC/AIA/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1331A -- ARMORED 2/C 16 AWG + 2/C 22 AWG SHIELDED (UL) TYPE CL2 OR CM c(UL)us OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Aluminum Interlock Armor (AIA), PVC jacket, alternative to conduit installation, additional mechanical and electrical shielding	CM, c(UL), CL2, AWM 20201 600V, 80°C	37
GCR1333	3126A	Power: 1 pr 12 AWG (65x30) TC, Data: 1 pr 22 AWG (7x30) TC, Control: 1 pr 16 AWG (26x30) OFS/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1333 -- 2/C 16 AWG + 2/C 22 AWG + 2/C 12 AWG SHIELDED (UL) TYPE CL2 OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Industrial environments, relatively clean, minimum temperature changes	CL2, AWM 20201 600 V, 80°C	37
GCR1333A	123126A	Power: 1 pr 12 AWG (65x30) TC, Data: 1 pr 22 AWG (7x30) TC, Control: 1 pr 16 AWG (26x30) OFS/PVC/AIA/PVC, SquareD/Seriplex Print Legend: GENERAL CABLE (F) – GCR1333A -- ARMORED 2/C 16 AWG + 2/C 22 AWG + 2/C 12 AWG SHIELDED (UL) TYPE CL2 OR AWM 20201 600 V -- ROHS/CE -- MADE IN USA AAAAA MO/YR XXXXXXFT	Aluminum Interlock Armor (AIA), PVC jacket, alternative to conduit installation, additional mechanical and electrical shielding	CL2, AWM 20201 600 V, 80°C	37

Guidelines for the environment of automation applications may be classified by ANSI/TIA 1005. Levels (MICE) Mechanical, Ingress, Climatic, Chemical and Electromagnetic.

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C2534A.....	40	GCR1301.....	40	GCR1403.....	11		
C4841A.....	39	GCR1302.....	34	GCR1404.....	9		
C4842A.....	39	GCR1303.....	34	GCR1405.....	13		
C4843A.....	39	GCR1304.....	34	GCR1407.....	15		
C4844A.....	39	GCR1304F.....	34	GCR1408.....	10		
C4851A.....	40	GCR1305.....	36	GCR1410.....	18		
C4852A.....	40	GCR1305F.....	36	GCR1419.....	12		
C7112A.....	39	GCR1306.....	36	GCR1440.....	19		
C7112AF.....	39	GCR1307.....	36	GCR1450.....	20		
C7114A.....	39	GCR1307F.....	36	GCR1452.....	21		
C7114AF.....	39	GCR1308.....	36	XX0021ANR.BK.....	27		
C7116A.....	39	GCR1309.....	32	XX0021ANU.BK.....	27		
C7116AF.....	39	GCR1309A.....	32	XX0021PNR.....	25		
C7118A.....	39	GCR1309CC.....	32	XX0021PNR-ILRA.....	26		
C7118AF.....	39	GCR1309F.....	32	XX0021PNU.....	25		
C8101.....	40	GCR1309FC.....	32	XX0021PNU-ILPA.....	26		
C8123.....	40	GCR1309P.....	32	XX0041PNR-ILRA.....	26		
C8601.....	41	GCR1309S.....	32	XX0041PNU-ILPA.....	26		
C8611.....	37	GCR1310.....	38	XX0061ANR.BK.....	27		
C8621.....	41	GCR1311.....	36	XX0061ANU.BK.....	27		
C8641.....	41	GCR1312.....	36	XX0061PNR.....	25		
C8651.....	37	GCR1313.....	36	XX0061PNR-ILRA.....	26		
C8661.....	41	GCR1314.....	33	XX0061PNU.....	25		
C9530ZH.....	36	GCR1314A.....	33	XX0061PNU-ILPA.....	26		
GC601.....	71	GCR1314CC.....	33	XX0064M1D-DT.....	27		
GC602.....	71	GCR1314D.....	33	XX0121ANR.BK.....	27		
GC603.....	71	GCR1314F.....	33	XX0121ANU.BK.....	27		
GC604.....	71	GCR1314P.....	33	XX0121PNR.....	25		
GC605.....	71	GCR1314S.....	33	XX0121PNR-ILRA.....	26		
GC606.....	71	GCR1314T.....	33	XX0121PNU.....	25		
GC607.....	71	GCR1314ZH.....	33	XX0121PNU-ILPA.....	26		
GC608.....	71	GCR1315.....	34	XX0124H1A-DWB.....	28		
GC609.....	71	GCR1316.....	34	XX0124M1A-DWB.....	28		
GC621.....	71	GCR1317.....	36	XX0124M1D-DT.....	27		

# One Company Connecting The World

## POWERFUL PRESENCE · PRODUCTS PERFORMANCE · PEOPLE

General Cable has been a wire and cable innovator for over 170 years, always dedicated to connecting and powering people's lives. Today, with approximately 14,000 employees and approaching \$6 billion in revenues, we are one of the largest wire and cable manufacturers in the world.

Our company serves customers through a network of 38 manufacturing facilities in our core markets and has worldwide sales representation and distribution. We are dedicated to the production of high-quality aluminum, copper and fiber optic wire and cable and systems solutions for the energy, construction, industrial, specialty and communications sectors. With a vast portfolio of products to meet thousands of diverse application requirements, we continue to invest in research and development in order to maintain and extend our technology leadership by developing new materials, designing new products, and creating new solutions to meet tomorrow's market challenges.

In addition to our strong brand recognition and strengths in technology and manufacturing, General Cable is also competitive in such areas as distribution and logistics, marketing, sales and customer service. This combination enables us to better serve our customers globally and as they expand into new geographic markets.

**General Cable offers our customers all the strengths and value of a large company, but our people give us the agility and responsiveness of a small one. We service you globally and locally.**



Visit our Website at  
[www.generalcable.com](http://www.generalcable.com)





# Corporate Social Responsibility

CREATING SHARED VALUE

General Cable believes corporate social responsibility (CSR) is about creating shared value. That means keeping a dual focus in our business decisions: what is good for us as a company and what contributes to the greater good of the communities in which we live and work.



## SAFETY

### Working safer by working together

General Cable has one worldwide safety vision and goal – **ZERO & BEYOND**. We measure safety performance globally, share best practices and implement sound health and safety management systems. Many of our facilities worldwide are OHSAS 18001 (safety management system) certified. All North American facilities have implemented an equivalent health and safety management system. General Cable was a pioneer in obtaining the OHSAS 18001 Certificate for Occupational Health and Safety Management Systems in Europe and North Africa.



## SUSTAINABILITY

### Responsible practices in daily operations

As a global leader in the wire and cable industry, General Cable recognizes its role and responsibility in promoting sustainability. Our strongest business value is continuous improvement in all areas of our company. Across our many businesses, the quest to introduce new and better products through continuous improvement in environmental designs reflects our commitment to achieving industry-leading standards and responding proactively to global environmental issues. General Cable was the first cable manufacturer to obtain certification for its environmental management system, in accordance with the ISO 14001 and EMAS Standards.



## CITIZENSHIP

### A commitment to being good citizens

Being responsible citizens in our communities is of the utmost importance to us. Unequivocal honesty, integrity, forthrightness and fair dealing have long been part of General Cable's core values and are expected globally in all of our business relationships with our customers, employees, suppliers, neighbors and competitors. Our company leaders and employees strive to make a difference throughout a host of volunteer activities and financial support, improving the communities in which we live and work.



## INNOVATION

### Technologies that power and connect the world

General Cable is delivering innovation that matters. We are focusing on R&D expertise and investing in developing wire and cable solutions that meet the challenges confronting our customers and the world. In working together and using all the ingenuity and creativity we have, we will reach the goal of being the preeminent supplier of wire and cabling solutions in the industry, with both green constructions and designs for the ever-growing renewable energy market.



A commitment to achieving industry-leading standards and responding proactively to environmental global issues.

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Visit [www.GeneralCableCSR.com](http://www.GeneralCableCSR.com)  
to learn more.



# Notes



# MINIMIZE YOUR RISK

## Drive Cables that Provide Control & Ensure Confidence

**Selecting the proper drive cables for Variable Frequency Drive (VFD) applications reduces the risk of electromagnetic interference (EMI), high ground currents and reflected waves in your cable systems.**

General Cable's line of CVTC® VFD Type TC-ER unarmored and CCW® VFD Type MC-HL (continuously corrugated welded) armored cables is specially engineered and designed to handle the challenges presented in a VFD environment. Delivering reliable performance for sustained and continuous operations, General Cable's VFD cables are used in a wide range of applications.



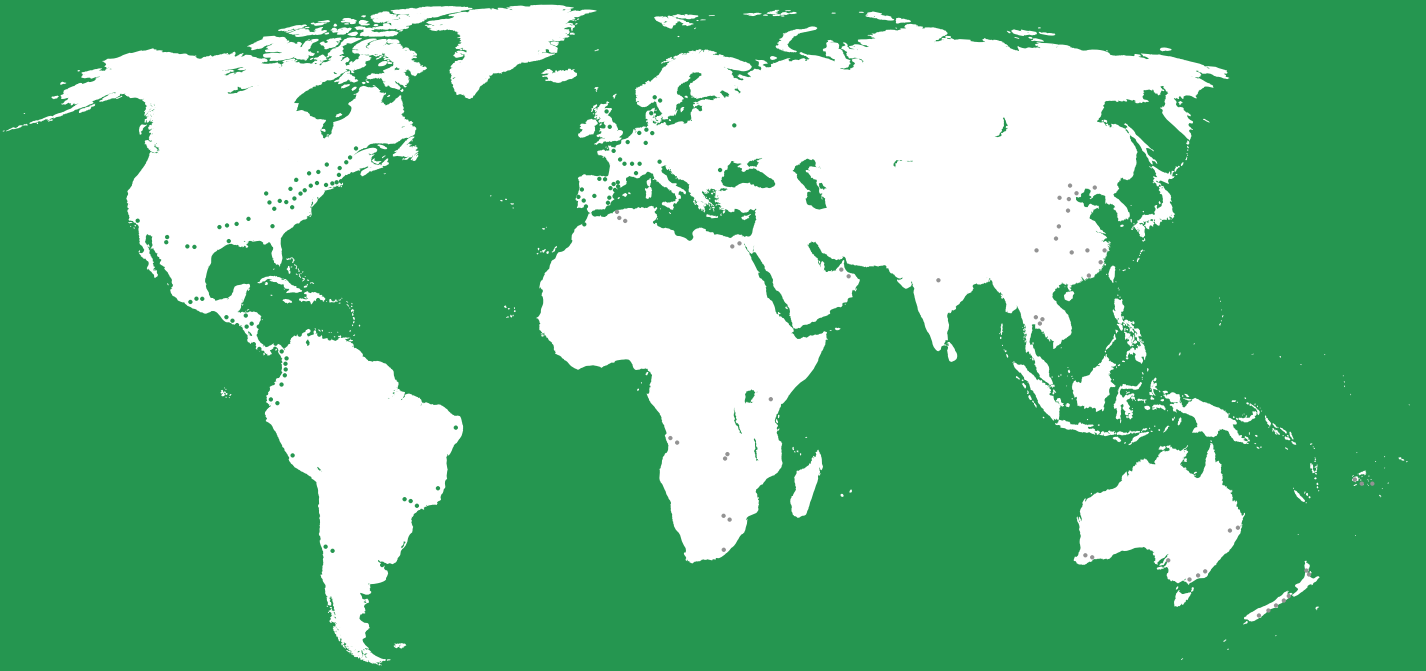
**General Cable has the people, equipment and experience to help define the right solution for your VFD application. Give us a call!**



 **General Cable**

[www.generalcable.com](http://www.generalcable.com) 1.888.593.3355

## Global Reach



General Cable, a leading wire and cable innovator for over 170 years, serves customers through a network of 38 manufacturing facilities in our core markets and has worldwide sales representation and distribution. The Company is dedicated to the production of high-quality aluminum, copper and fiber optic wire and cable and systems solutions for the energy, construction, industrial, specialty and communications sectors. In addition to our strong brand recognition and strengths in technology and manufacturing, General Cable is also competitive in such areas as distribution and logistics, marketing, sales and customer service. This combination enables General Cable to better serve its customers as they expand into new geographic markets.

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