



## Cables

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# Bulk Wire Overview

Bulk wires are essential for industrial and commercial control panels, machines, equipment, instrumentation, and automation systems. Therefore, it is extremely important to select the correct and best wire and cable that meet specific system and application requirements as specified by the National Electrical Code (NEC) and local codes where applicable.



## Important Shopping Considerations for Wire

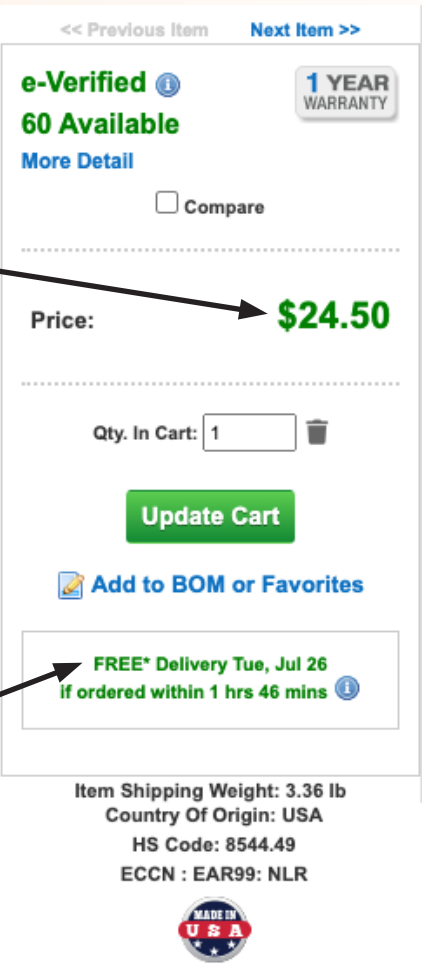
### Be aware of costly hidden costs and charges

Industrial facilities constantly buy wire for new installations, repairs, additions and upgrades. When visiting a supplier website for your next bulk wire purchase, make sure they provide true savings and not surprise charges and fees. BE AWARE that the price offered may NOT be the true wire price due to hidden charges and inflated shipping costs. AutomationDirect works diligently to provide the best and easiest shopping experience you can find, with no surprises and clear to understand charges.

Clear electronically  
verified stock status

Low Bulk Pricing

Free shipping for  
orders over \$49



No Hidden  
Costs or  
Surprise  
Inflated  
Charges



Fast, easy  
online wire  
ordering



Great wire prices with FREE  
shipping for orders over \$49,  
with no cutting fees or other  
hidden fees

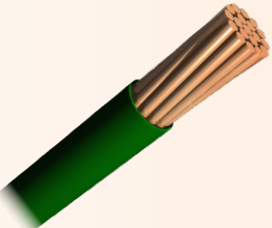
## Electrical Hook-Up Wire Types

Electrical hook-up wire consists of a single-conductor wire available in various types of insulations to meet different use requirements.

### MTW (Machine Tool Wire) Wire - 600V Rated

MTW and THHN wires are recommended by the National Fire Protection Agency (NFPA) for use inside control panels. However, MTW is often preferred for control cabinets, machine tools, and appliances installations because of its ease of handling.

- Available in various AWG single-conductor wire sizes and colors
- Available with spiral striped insulation (NFPA standard 79)
- Available in 500 ft, 1,000 ft, and 2,500 ft spools

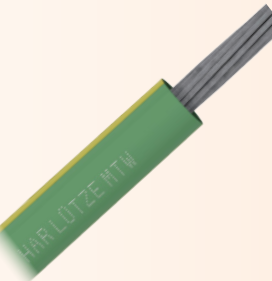


### HAR/MTW Approved Wire - 300 to 750V Rated



HAR/MTW wire meets the Harmonized European standards (HAR) and UL Machine Tool Wire (MTW). These wires are primarily used for control cabinets and for machine tool and appliance wiring applications. In addition, this wire is recommended by the National Fire Protection Agency (NFPA) standard 79 and the National Electric Code (NEC).

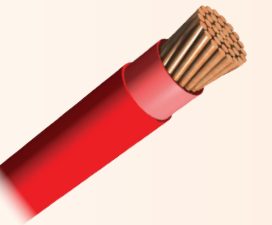
- Available in various AWG single-conductor wire sizes and colors
- Striped version available for some colors and gauges
- Sold in 328ft boxed coils



### TFFN (Thermoplastic Flexible Fixture Nylon) Wire - 600V Rated

TFFN type stranded wire is primarily used as fixture wire as specified by the National Electrical Code (NEC). This conductor's slick nylon outer jacket allows for easy pulling, is suitable for use in wet or dry locations, and is rated gasoline and oil resistant II.

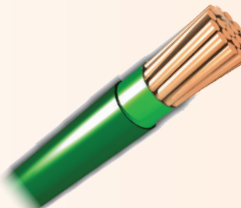
- Available in various AWG stranded wire sizes and colors
- Available in 500 ft spools and some sizes available in 2,500 ft reels



### THHN (Thermoplastic High Heat Nylon) Wire - 600V Rated

Type THHN stranded wire is intended for general purpose applications. The slick nylon outer jacket allows for easy pulling, is suitable for use in wet or dry locations, and is rated gasoline and oil resistant II.

- Available in various stranded wire sizes and colors
- Available in 500 ft spools and some sizes available in 2,500 ft reels

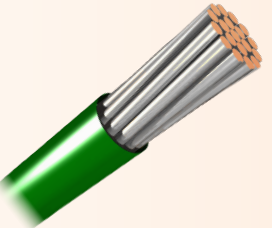


### AWM (Appliance Wiring Material) Wire - 300V Rated



Type AWM wire is primarily used in control cabinets, machine tool applications, and appliance wiring applications.

- Available in various AWG single-conductor wire sizes and colors
- Available with spiral striped insulation (NFPA standard 79)
- Available in 500 ft or 1,000 ft spools









# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

(minimum and maximum lengths apply)

## Power Cables

### Flexible Portable Cords Southwire®

Flexible portable cord is also known as service cord and consists of a cable with multiple conductors used for electrical power connections requiring flexibility. Flexible portable cords are classified according to their UL and CSA designations to easily identify the proper portable cord needed for your specific application.

Commonly used UL and CSA designations for flexible portable cords include:

- S** = Severe service (600 Volt Cords)
- SJ** = Junior severe service (300 Volt Cords)
- E** = Thermoplastic elastomer
- OO** = Oil-Resistant outer jacket and oil-resistant interior insulation
- W** = Weather and water resistant (This is NOT the same W designation as the UL Type W portable Cord, which is also available)

Flexible portable cord types offered by AutomationDirect include the following:

- SOOW:** Designated for severe service of up to 600V, oil-resistant outer jacket and interior insulation, and weather and water resistant. Common applications\* include but are not limited to: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 11
- SJOOW:** Designated for junior severe service of up to 300V, oil-resistant outer jacket and interior insulation, and weather and water resistant. Common applications\* include but are not limited to: 1, 2, 3, 5, 6, and 9
- SJEOOW:** Designated for junior severe service of up to 300V, with thermoplastic elastomer jacket for wider continuous temperature range, oil-resistant outer jacket and interior insulation, and weather and water resistant. Common applications\* include but are not limited to: 1, 2, 3, and 9
- SEOOW:** Designated for severe service of up to 600V, with thermoplastic elastomer jacket, oil-resistant outer jacket and interior insulation, and weather and water resistant. Common applications\* include but are not limited to: 1, 2, 3, 5, and 9
- Type W:** Designated for severe service of up to 2000V, resistant to oil, acid alkalis, heat, moisture, and most chemicals (Type W cord is NOT the same as the UL Type W designation for portable cords). Common applications\* include but are not limited to: 1, 3, 7, and 8

### Large Gauge MTW Cable

Direct Wire's ALL-FLEX multipurpose 1kV rated flexible power cable MTW and THHW ratings make it suitable for wet and dry locations and for use in conduits, ducts, troughs and control panels. This cable is resistant to battery acid, crushing force, diesel fuel, engine coolant, engine oil, ethanol, extreme temperatures, flame, gasoline, power-steering fluid, transmission fluid, and oil. Common applications include but are not limited to control panels, power feed for VFDs / servo systems / motors, marine board applications, UPS systems, transformers, battery chargers, and more.

### DLO/RHH/RHW-2 Flexible Power Cable Southwire®

Type DLO, RHH, RHW-2 cable was initially developed for wiring diesel-electric locomotive trains. These heavy duty 2kV cables were used as power leads in traction motors and as open wiring to the diesel electric motors. Today, due to their rugged construction, Southwire DLO cables are also used in drilling rigs, earth moving equipment, and a variety of other industrial applications. These cables are also rated for direct burial and cable tray applications with flame retardant features. Other applications include general building wiring, deep well submersible pump cable, petrochemical drilling rigs, mining operations, wind turbines, battery power cable, control panel power distribution, earth moving equipment, heavy-duty flexible power cables, portable or fixed installations, and many more.

### Common Applications\*

(Depending on cable classification)

1. **Electrical power connections requiring flexibility**
2. **Indoor / outdoor applications**
3. **Industrial machinery wiring**
4. **Large appliances**
5. **Heavy duty tools**
6. **Motors, VFDs and servo supply**
7. **Temporary electrical power and lighting for construction sites**
8. **Light- to medium-duty mining**
9. **Mobile / portable equipment**
10. **Battery leads**
11. **Marine dockside power**



Flexible Portable Cord



Large Gauge MTW Cable



DLO/RHH Flexible Power Cable

## Tray-Rated Cable

The National Electrical Code (NEC) Article 336 defines tray cable as “a factory assembly of two or more insulated conductors, with or without associated bare or covered grounding conductors under a nonmetallic sheath, for installation in cable trays, in raceways, or where supported by a messenger wire.” Our tray cables are high-quality flexible cables that have endured rigorous testing, have a robust jacket that withstands heavy abrasion, impact and crush, and do not require the use of conduit. This results in savings for installation and maintenance by eliminating conduit costs, while allowing quicker and simpler routing.

### Southwire VNTC Tray Cable

The name VNTC stands for Vinyl Nylon Tray Cable and our VNTC 600 Volt cable Type TC-ER provides reliable control signal transmission for wet and/or dry hazardous locations. This unshielded cable has a PVC outer jacket that protects against sunlight, oil, and flames, and PVC/Nylon insulated conductors that are coded with standardized colors. In addition, these cables are suited for conduits, ducts, troughs, trays, direct burial, aerial supported by messenger, and where superior electrical properties are desired.

### Southwire Power Machine Tray Cable

This Southwire power machine tray cable is a multi-conductor power/control cable that is easily routed using raceways or cable trays. This cable is ideal for stationary and flexible applications that have limited mechanical stress and free movement without any tensile stress, loads or forced movements. The Tray Cable Exposed Run (TC-ER) rating indicates that this cable can be installed in the cable tray, but it can also be installed between the tray and the utilization equipment or device without the need for metal conduit and/or armor, resulting in installation and maintenance savings. This cable's TPE outer jacket is a flexible, premium grade Thermoplastic Elastomer (TPE) that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors.

### igus Tray-Rated Continuous Flexing Control Cable

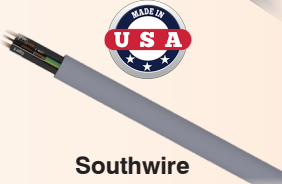
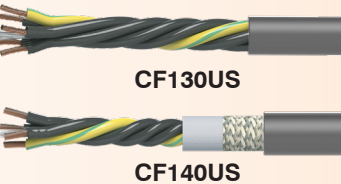
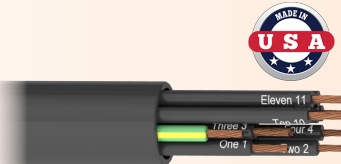
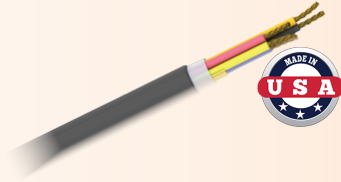
igus' series CF130US (unshielded) and CF140US (shielded) cables allow for accurate process signal transmissions in control applications requiring continuous movement or cable flexing. These TC-ER rated cables are designed, tested, and manufactured for use in continuous flexing and fixed tray applications. In addition, they can be used in exposed runs and the pressure-extruded PVC outer jacket is sunlight, oil and flame resistant.

## Control and Signal Cable

### LUTZE and Southwire Flexible Control Cables



LUTZE Silflex® and Southwire flexible control cables are available in unshielded and shielded versions and feature individual non-tin coated stranded conductors for flexibility, with black PVC/Nylon insulation marked with numbers for easy identification. These cables also feature a green with yellow stripe ground conductor included in the conductor count. Shielded versions use an overall aluminum mylar foil tape with drain wire and tinned copper braid for maximum effectiveness against external electrical noise interference. The outer jacket is PVC and resistant to sunlight, oil, and moisture penetration, making these cables suitable for indoor/outdoor wet and dry locations. Although not suitable for continuous flexing applications, they are ideal for stationary and flexible applications with limited mechanical stress and free movement without tensile stress, loads or forced movements. Their multiple ratings meet a wide range of industrial applications including installations between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor. In addition, these cables are rated for Machine Tool Wire (MTW), meet NFPA 79, Wind Turbine Tray Cable UL Type WTTC, Class 1 Division 2 Hazardous Locations and Direct Burial.





# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

## Control and Signal Cable

### LUTZE Continuous Flexing Control Cable



LUTZE SUPERFLEX® unshielded control cables feature individual bare copper and stranded conductors for flexibility, with black PVC/Nylon insulation marked with numbers for easy identification. These cables also include a green with yellow stripe ground conductor in the conductor count. The outer SUPERFLEX jacket is made of specially formulated PVC material which covers a high-glide TPE insulation that is resistant to sunlight, oil, and moisture penetration suitable for indoor/outdoor wet and dry locations. These cables are ideal for constant linear motion used with C-Track drag chain installations and for continuous flexing applications when there is limited mechanical stress and the cables are free to move without any tensile stress, loads, or forced movements.

### LUTZE 24VDC Flexible Control Cable



LUTZE Silflex® 24VDC unshielded flexible control cable is ideal for stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements. The individual conductors have blue (blue conductors for 24VDC circuits per NFPA 79 and UL508A) PVC/Nylon insulation and are marked with identification numbers, including an equal sized green/yellow ground. These cables are also rated for Type TC-ER, Type MTW, Class 2 Division 2, direct burial, wet and dry location, oil and sunlight resistant.

### LUTZE Food and Beverage Rated Flexible Control Cable



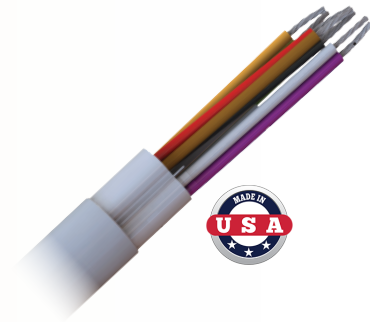
LUTZE SILFLEX® FBP series FDA approved flexible control cable is available in shielded or unshielded versions and provide the ultimate solution for the challenges that food and beverage machine builders and processing companies face today. These cables meet UL and FDA requirements, streamlining inspections and reducing the need for exceptions to 21 CFR, are used in contact and splash zones, and have a Phthalate free jacket.

LUTZE's patent-pending food safe design reduces cabling as a contamination risk and has been third party evaluated by Ecolab for resistance to commonly used cleaning agents. The reduced cable diameters and flexibility allow for easy routing and installation and these cables can be run without conduit in some areas due to the external wiring approval, washdown certification, and food-contact rating. Also, these cables are resistant to oils and fats that are common to food processing and are compliant with California Proposition 65.

### Quabbin 600V Control Cable



Quabbin 600V control cables are available in unshielded and shielded versions and are ideal for use in control panels, conduits, and where superior electrical properties are required. These cables provide significant cost savings and are designed with a smaller diameter that reduces the space required inside panels and conduits. Their individual color coded stranded tinned copper conductors provide flexibility and the conductor insulation and overall insulation jacket are made of polyvinyl chloride (PVC). Most common applications include internal or external interconnection for industrial controls and instrumentation applications, HVAC controls, appliance controls, and applications with mixed voltage/signal environments.



## Control and Signal Cable (continued)

### igus Chainflex® High Flexing and Continuous Flexing Control and Signal Cable



igus CF9 (unshielded) and CF10 series (shielded) high flexing multi-conductor control and signal cables are constructed with individual non-tin coated stranded copper conductors and are ideal for high flexing applications. Each individual conductor is marked with white numbers for easy identification and include a green-yellow colored ground conductor. The outer jacket is a low-adhesion pressure extruded slate gray TPE mixture that provides resistance to sunlight, oil penetration, and flame-retardant.

igus CF5 (unshielded) and CF6 (shielded) series multi-conductor continuous flexing control and signal cables are constructed with individual non-tin coated stranded copper conductors for continuous flexing applications. These cables have same construction as the CF9 and CF10 series and also use the Chainflex system.

igus CF211 and CF11 series continuous flexing control and signal cables are available with shielded conductors in twisted pairs. Individual conductors are non-tin coated stranded copper for flexing applications and have a mechanically high-quality color-coded TPE mixture insulation. They are available in a halogen-free PUR, halogen-free PVC or standard PVC casing, all of which are low-adhesion highly abrasion resistant and adapted to suit the requirements in e-chains®. These cables are resistant to sunlight, oil penetration, are flame retardant, and are an excellent choice to connect low-voltage signal devices like encoders, position sensors and analog signals or for applications requiring a continuous flexing cable with a signal of less than 300 volt.

Unshielded Chainflex cables have a tear strip underneath the outer jacket, while the shielded Chainflex cables have it underneath the inner jacket. The Chainflex system allows for the jacket to be opened like a zipper to the desired length by pulling on the special tear strip to save time and effort for assemblers and electricians, with no need for additional tools. Both series are specifically designed, tested, and manufactured for continuous flexing, high mechanical load application requirements.

The difference between high and continuous flexing is that continuous flexing cable is designed to provide reliable service life when used between 5 million and 10 million cycles, while high flexing cables are designed to provide reliable service life that can exceed 10 million flex cycles.



# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

(minimum and maximum lengths apply)

## Control and Signal Cable (continued)

### Quabbin Low-Voltage Control and Signal Cable



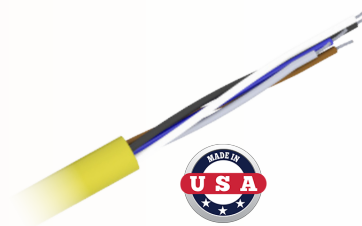
Quabbin low-voltage control and signal 150, 300 and 600 Volt rated cable is available in unshielded or shielded versions with individual stranded tinned copper conductors that have color coded insulation for easy identification and a industry standard PVC chrome grey jacket. The shielded versions include an overall aluminum mylar foil tape with a tinned copper drain wire for maximum effectiveness against external electrical noise interference, which makes them ideal for low-voltage control signals and audio applications. The 4-conductor unshielded versions are designed to work directly with our SureStep<sup>®</sup> STP-DRV drives for applications where a longer cable is required.



### LUTZE IO-LINK Control and Signal Cable



LUTZE IO-LINK unshielded control and signal cable is ideal for connecting IO-LINK devices to a main controller, and can also be used for conventional applications where IO-LINK is not required. The PVC/nylon insulation provides good resistance to oil, allows for use in wet, damp and dry locations; the cable's flexibility allows for easy installations. This cable is Tray Cable Exposed Run rated (UL Type TC-ER and PLTC-ER), so it can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor, resulting in installation and maintenance savings. LUTZE IO-LINK cable is available in various AWG sizes and with up to 5 conductors.



## Instrumentation Cable



### Quabbin and Southwire Instrumentation Cable



Instrumentation cables from Quabbin and Southwire are 300V UL cables with twisted pair conductors that have an overall shield or have individually shielded twisted pair conductors with an overall shield. The overall shielded has an aluminum/polyester foil with 100% coverage and a tinned copper continuous drain wire for protection against external electrical noise interference.

The Individual conductor pairs are stranded non-tin coated copper with black and white premium grade PVC insulation and marked with alpha-numeric print for easy identification. The outer jacket is a black premium grade PVC that is sunlight and moisture resistant. A convenient orange PVC insulated communications conductor is included with certain multipair cable gauges.

Our instrumentation cables are Type ITC (Instrumentation Tray Cables) and Type PLTC (Power Limited Tray Cables) rated. Type ITC cables can be used for instrumentation and control circuits operating at 150 volts or less and 5 amperes or less. Use Type PLTC cables for Class 2 / Class 3 remote-control, signaling, and power-limited circuits. Both Types are permitted for use in hazardous locations.



## Data Communications Cable

### Quabbin Continuous Flexing Profinet Cable



Quabbin DataMax Extreme continuous flexing Profinet cable is specifically designed and tested for continuous flexing industrial applications. These cables have pressure extruded over-the-cable core jackets that were developed to survive the many industrial hazards that commercial jackets will not and effectively "lock" the conductor pairs in place. The jacket construction provides very stable electrical performance, even when the cable is impacted, bent, or repeatedly flexed. In addition, the pressure extrusion provides a very smooth, round, and firm jacket profile that is crush resistant and ideal for obtaining a reliable termination and seal when installing connectors.

Quabbin has performed extensive testing to ensure the DataMax industrial Profinet cable can withstand up to 10 million cycles in a flex testing device that simulates an unsupported bend, simulating a situation the cable would be exposed to on a robotic arm. This cable withstands the rigors of continuous flexing applications and the harsh environments found in industrial installations and performs above industry standards, thereby reducing downtime and increasing productivity. In addition, they fully comply with POE and Cat5e industrial communication specifications.

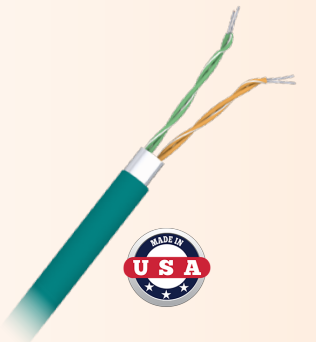
Quabbin DataMax Extreme Profinet cable is designed to support industrial applications using Profinet Type B and C communications.



### Quabbin Industrial Ethernet Cable



Quabbin DataMax Extreme industrial Ethernet cables feature a jacket designed to survive the many industrial hazards that typical commercial jackets will not withstand. The UL Type CMX outdoor-CMR rating indicates that these cables can be installed outside and are resistant to sun and rain exposure, in addition to being flame resistant. These cables are also available in PLTC rated styles for applications requiring cable tray installations without the need for conduit.



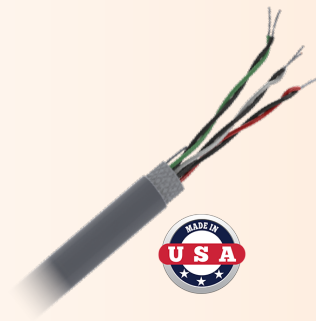
### Quabbin RS-485, RS-422, and RS-232 Cable



Quabbin data communications cable is a high quality, low-capacitance data cable designed with impedances specific for communication applications in industrial environments. The tinned copper conductors are twisted pairs that help reduce electrical noise sensitivity and are available in various pair combinations with color-coded versions.

The polyethylene conductor insulation provides a very high insulation resistance with a low, stable dielectric constant that results in lower capacitance and excellent propagation velocity for superior signal transmission. These data cables have an overall foil shield with a drain wire that effectively protects from radiated or conducted electromagnetic interference (EMI) and are also available with a woven braided layer.

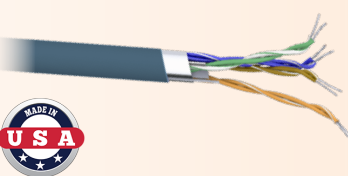
The RS-422 data cables have a woven braid second shield layer ideal for minimizing low frequency interference while providing superior structural integrity to the overall cable.



### Quabbin Commercial Ethernet Cable



Quabbin DataMax<sup>®</sup> commercial Ethernet cables are available in Cat5e, 6, 6a or 6e. This cable is round and smooth, compatible with most popular plugs for quick termination and flexibility for easy manipulation between devices while increasing the durability. These cables exceed the ANSI/TIA-568-C.2 requirements, are compatible with Cat 5e and 5 hardware, and are suitable for applications from 10 Base-T to 1000 Base-T (Gigabit Ethernet). Certain cables offer Mil-spec color coding.





# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

(minimum and maximum lengths apply)

## Data and Communications Cable (continued)

### Quabbin Continuous Flexing Industrial Ethernet Cable



Quabbin DataMax Extreme continuous flexing industrial Ethernet cable are available in shielded or unshielded Cat5e, Cat6 and Cat6a versions with jackets that consist of either a TPE that withstands mechanical loads and provide chemical and extreme temperature resistance; an FR-TPE, which adds flame retardant feature; or ZHFR, which adds zero Halogen flame retardant feature. The pressure extruded jacket provides a very smooth, round and firm crush resistant profile that effectively “locks” the conductor pairs in place while providing stable electrical performance even when impacted, bent, or repeatedly flexed, while providing reliable terminations and seal during connector installations. These cables have been extensively tested for 10 million cycles with a flex testing device simulating a robotic arm with an unsupported bend, resulting in above industry standards and thereby reducing downtime and increasing productivity. These cables are TIA 568-C.2 and TIA 1005 industrial communication standards compliant and are designed for use in Cat5e and Cat6/6a EtherNet/IP systems.

### LUTZE Flexible Ethernet Cable



LUTZE flexible industrial Ethernet cable is available in shielded Cat5e and Cat6a versions that include twisted pair individual copper conductors covered with color coded polyolefin insulation, and an overall PVC green or teal jacket designed for flexing applications and resistance to oil. These 300V rated cables are available in various twisted pair configurations and AWG sizes depending on part number, and a Cat6a version is available for the Profinet protocol. This cable is ideal for industrial Ethernet systems, harsh industrial environments, and automation, transport, conveyor, and machine tool applications.

Also available is a shielded Cat6a light industrial duty version with 4 twisted pairs, HDPE conductor insulation, and an oil resistant PVC teal colored jacket. This cable is ideal for stationary Ethernet systems.

### LUTZE MOTIONFLEX® Flexible Ethernet Cable



LUTZE MOTIONFLEX® high-flex industrial Ethernet cable is available in shielded Cat5e and Cat6a versions and includes twisted pair individual copper conductors covered with color coded high-density polyethylene (HDPE) insulation, and an overall TPE teal jacket designed for sunlight and extreme oil resistance. MOTIONFLEX cables are independently tested and certified by **ECOLab** for resistance to common cleaning agents and chemicals used in food and beverage washdown procedures. Use these cables for industrial Ethernet systems, harsh industrial environments, and automation, transport, conveyor, and machine tool applications. In addition, these cables are suitable for motion applications with repetitive movement, Ecolab flexing and torsion stress, and are compatible with C-track applications.

### LUTZE SUPERFLEX® PROFIBUS High Flexible Cable



LUTZE SUPERFLEX® PROFIBUS high flexible industrial Ethernet cable is available with 1 twisted pair of individual copper conductors covered with color coded polyolefin conductor insulation and an overall special PUR purple jacket that is flame retardant. Use this cable for continuous flexing applications, including drag chain or free movement in automation technology, transport, conveyor, and machine tool applications requiring NFPA 79 compliance.

### LUTZE PROFIBUS Flexible Cable



LUTZE PROFIBUS flexible shielded industrial cable is available with 1 twisted pair of individual copper conductors covered with color coded polyolefin insulation, and an overall PVC purple jacket. LUTZE 300V raed PROFIBUS cable is ideal for stationary industrial field bus systems, and automation, transport, conveyor, and machine tool applications requiring NFPA 79 compliance.

## Data and Communications Cable (continued)

### igus Continuous Flexing Profibus Cable



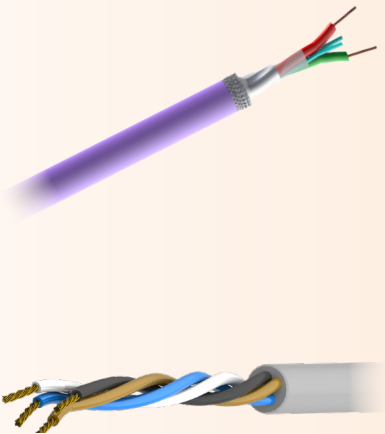
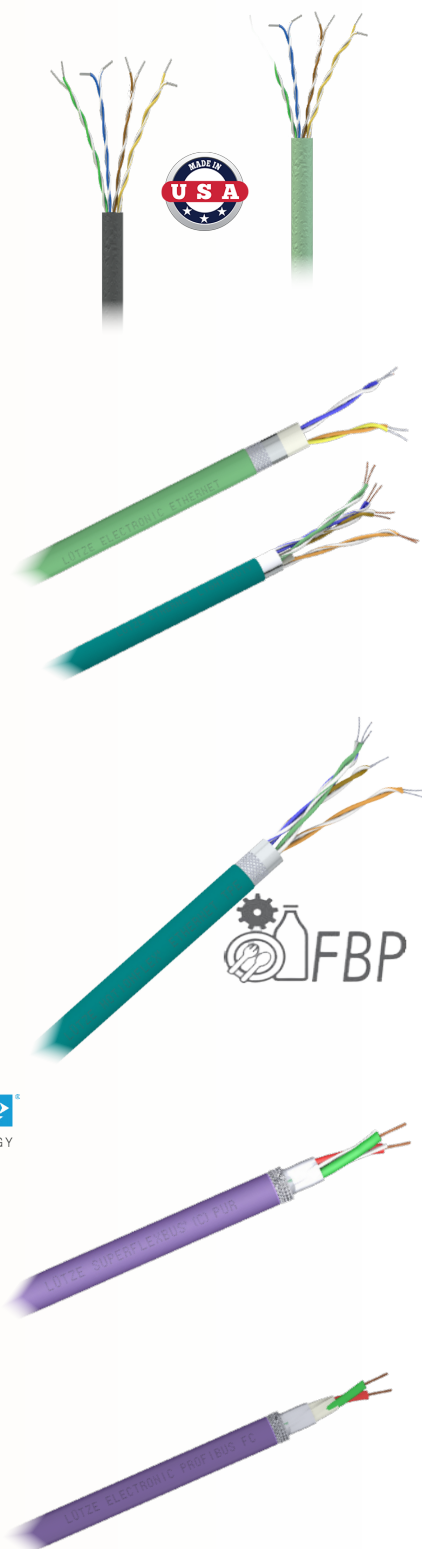
igus CFBUS series continuous flexing Profibus cable is available in twisted pair cable with non-tin coated stranded copper individual conductors for flexing applications. The conductor insulation is a mechanically high-quality red and green TPE mixture and the outer jacket is a low-adhesion pressure extruded purple PVC mixture that is resistant to sunlight, oil penetration, and is flame retardant. This cable is specifically designed, tested, and manufactured for bus connection for machining units, packaging machines, handling and indoor cranes.

### AutomationDirect Sensor / Actuator Cable



AutomationDirect flexible multi-conductor sensor/actuator cable has individual unshielded non-tin coated stranded copper conductors for flexibility, with color coded PVC insulation for easy identification. The flexible PVC outer jacket is pressure extruded for optimal roundness and is available in either gray or yellow colors.

Although not suitable for continuous flexing applications, these cables are ideal for stationary and flexible industrial factory automation applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements. These cables carry both UL and CSA approvals and can easily be terminated using field wireable connectors.



# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

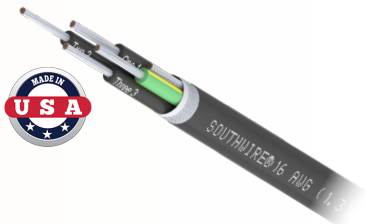
(minimum and maximum lengths apply)

## VFD and Servo Motor Cable

### Southwire Variable Frequency Drive (VFD) Cable



VFDs control the speed and torque of AC motors by varying the frequency of the voltage to the motor. However, the VFD does not send a pure sine-wave frequency to the motor; they use a series of pulses which vary in frequency in a technique called pulse-width modulation (PWM). While PWM is an excellent way to control a motor, it creates several issues that can affect the motor’s life and power quality, as well as create electromagnetic interference (EMI) and reduce the life of the cable. By using Southwire VFDC series variable frequency drive (VFD) cable, it is possible to limit the effect of high frequencies from equipment surrounding the VFD, which will help prevent costly machine downtime.



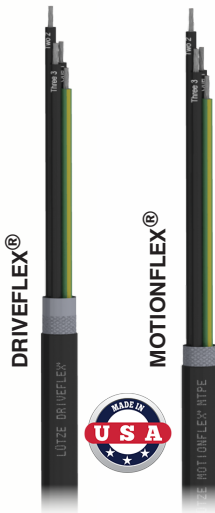
### LUTZE Variable Frequency Drive (VFD) Cables



LUTZE DRIVEFLEX<sup>®</sup> variable frequency drive (VFD) cable is ideal for use with any VFD or servo drive and motor combination for stationary applications. This cable is a Tray Cable-Exposed Run (TC-ER) cable, which means that it can be used with or without conduit, making installations more cost-effective by reducing cost of labor and materials. The outer jacket is oil and sunlight resistant and suitable for dry, damp, wet and direct burial locations. With their multiple approvals and ratings, these cables can be used for most all stationary drive and motor applications.

LUTZE MOTIONFLEX<sup>®</sup> variable frequency drive (VFD) cable is ideal for use with any VFD and motor combination for continuous motion applications. Designed for torsional, linear motion and cable tray applications, this cable is Tray Cable - Exposed Run (TC-ER) rated, meaning that it can be used with or without conduit, making the installations more cost effective. The outer jacket is oil and sunlight resistant and suitable for dry, damp, wet and direct burial locations. This cable also has approvals required for most all motion drive and motor applications.

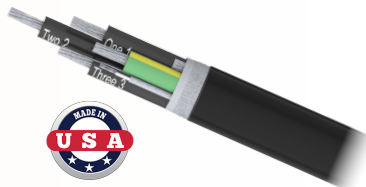
Both series include four conductors with printed numbers for easy identification, plus a green with yellow stripe ground conductor of same gauge. Each conductor has cross-linked Polyethylene (XLPE) insulation type XHHW-2, which is oil and sun resistant, and is suitable for dry, damp, or wet locations, and for direct burial.



### Southwire VFD/Servo Cable with Signal Pair



Southwire VFD-SC series VFD / servo cable is the same high-quality cable as our VFDC series mentioned above, with the additional feature of having a shielded 16 AWG signal pair allowing this cable to be used with motors and drives requiring brake control or feedback from devices like temperature or position sensors. Having the integral signal pair allows this cable to be used with our SureServo drives and motors up to 3kW.



### LUTZE Servo Motor Cable



LUTZE Silflex<sup>®</sup> servo motor cable is ideal for use with any servo drive and motor combination, whether you need a signal pair for a brake or feedback. This cable is available with or without the shielded signal pair and is Tray Cable - Exposed Run (TC-ER) rated, meaning that it can be used with or without conduit, making the installations more cost-effective by reducing the cost of labor and materials. The TPE jacket is oil and sunlight resistant and suitable for dry, damp, wet and direct burial locations.



# Bulk and Cut To Length Multi-Conductor Cable Overview (continued)

(minimum and maximum lengths apply)

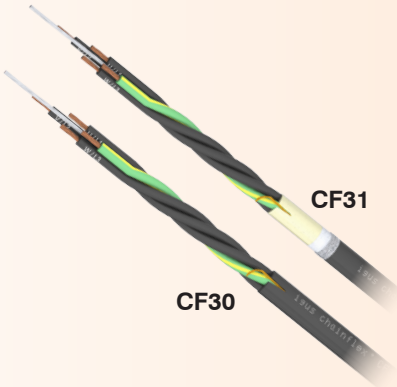
## Motor Supply Cable

### igus Chainflex Motor Supply Cable



igus CF30 (unshielded) and CF31 (shielded) series motor supply cables are ideal for use in continuous flexing applications. Unshielded Chainflex<sup>®</sup> cables have a tear strip underneath the outer jacket, shielded Chainflex<sup>®</sup> cables have it underneath the inner jacket. This tear strip allows for the jacket to be opened like a zipper to the desired length. This saves time for assemblers and electricians and requires no additional tools.

igus Chainflex cables have individual non-tin coated stranded copper conductors for flexing applications and each conductor is marked with white numbers for easy identification, with a green-yellow ground conductor included in the conductor count. The low-adhesion pressure extruded PVC outer jacket provides resistance to sunlight, oil penetration, and is flame retardant.

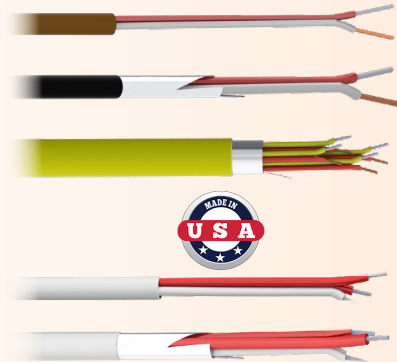


## Thermocouple / RTD Extension Cable

### TE Wire and Cable Thermocouple Extension Cable



TE Wire and Cable’s thermocouple extension cable provides an easy and reliable way to extend thermocouple wiring as needed. These cables are available for Type J, Type K and Type T thermocouples and are also available in multi-pair cable versions for Type J and Type K extension cables. Insulation types include PVC, fiberglass, FEP Teflon, and braided vitreous silica versions with standard ASTM/ANSI color coding.



### TE Wire and Cable RTD Extension Cable



TE Wire and Cable’s RTD extension cable provides an easy and reliable way to extend RTD wiring as needed. These cables offer superior performance compared to “off-the-shelf” cable and are available with PVC insulation and FEP Teflon with aluminum Mylar shield and copper drain wire.