

Communication, Control, and Industrial Cable



Get control of demanding applications



Communication and control are critical to any electronic system. Whether it's the monitoring and control of a wind turbine, communication between drive and motor on the factory floor, or interconnections of CAD

systems in an engineering department, the proper communication and control cable is

critical to maintaining high signal integrity.



The broad range of communication and control cables from Alpha Wire means you can find the right cable for your application. Our cables meet special needs, such as low-capacitance cables for extended transmission of digital signals, such as the extra flexibility of rubber insulation and jackets, or excellent shielding for electrically noisy environments.

We combine a wide range of insulation materials, shielding variations, conductor counts and gauges, as well as other options to create cables suited to any application. From traditional RS-232 connections to high-speed telemetry and data



recording to high-fidelity microphone systems, our experience

in materials and expertise in manufacturing means cable

built to perform electrically, mechanically, and environmentally. We know that a cable is not simply a cable: it is the conduit over which your critical signals pass.

Our communication and control line includes three main categories:

- **Industrial series cable:** *factory-tough cable configured for standard factory needs, such as drive interconnections, conveyors, or automation networks*
- **Communication and control:** *round multiconductor and multipair cable in configurations suited to nearly any application*
- **Flat cable:** *planar multiconductor cable used primarily inside cabinets or equipment*

Flat cable

The planar geometry of flat cable can save significant space in board-to-board and other interconnects within equipment or cabinets. We offer extruded flat cable with both 0.050 and 0.025 pitch for fast, easy mass termination with IDC connectors.

Flat cables inherently offer excellent signal transmission characteristics, with low capacitance, crosstalk, and skew. For applications requiring additional protection, we also offer shielded and twisted-to-flat configurations for the improved crosstalk performance of twisted pairs.



Pitch	Conductors	Conductor Range	Configurations
0.050	28 AWG tinned, stranded copper	9 - 64	Unshielded extruded Bonded rainbow cable Twisted to flat Round to flat with foil/braid shielding Foil shielded with overall jacket
0.025	30 AWG solid copper	26 - 60	Unshielded extruded

Series V VFD cable drives performance

Series V VFD cable is designed specifically for the needs of variable-frequency drives, combating the continuous dielectric stresses that cause other cables to fail. Specially formulated XLPE insulated conductors improve performance and signal integrity. Series V cable will not degrade under heavy electrical load and easily copes with harmonics, corona discharges, and power distortion. The cable's round geometry ensures a symmetrical profile and a corresponding roundness to the foil/braid shield to deliver the low capacitance that allows longer cable runs. The cable is available with or without a braid pair.

FIT® heat-shrink products

A perfect complement to our communication, control, and industrial cables, FIT preferred heat-shrink products are made from premium compounds under the tightest manufacturing controls. This means FIT will consistently have excellent physical characteristics, such as low longitudinal shrinkage and wide temperature ranges, while providing a clean and neat appearance when used alone or on OEM equipment.



The FIT line consists of 23 different tubing types, each



designed with unique attributes that offer tubing

solutions for the broadest possible range of applications and environments. FIT products are always in stock and come in an unprecedented variety of package sizes.

Industrial Series Cable

Applications	Alpha Wire Product	Features
Stationary Cable trays Light to moderate flex	Series M control cable	18 - 8 AWG 3 - 65 conductors PVC/nylon insulation Oil-resistant PVC jacket UL Type TC-ER (600 V) UL Type MTW (600V) UL Type WTTC (600V) UL Type PLTC (300 V) (18-12AWG only) Direct burial Sunlight resistant UL Oil Res. I
Cable trays Light to moderate flex Enhanced flexibility and routability	Series P enhanced control cable	Improved oil and chemical resistance 18 - 8 AWG 3 - 65 conductors PVC/nylon insulation Oil-resistant thermoplastic elastomer jacket UL Type TC-ER (600 V) UL Type PLTC (300 V) (18-12AWG only) Sunlight resistant UL Oil Res. I/II
High-flex cable track	Series F continuous flex control cable	Up to 20 million continuous rolling flex cycles 28 - 8 AWG 3 - 65 conductors PVC/nylon insulation Thermoplastic elastomer jacket UL Type TC-ER (600 V) UL Type PLTC (300 V) (18-12AWG only) Sunlight resistant UL Oil Res. I/II
Servomotors Servodrives	Series S and SF servo power and control cables	<p>Power cable 4-conductor power cable, with or without brake pair 18 - 8 AWG Thermoplastic elastomer jacket SF Series offers increased flexibility UL Type TC-ER (600V) UL Type WTTC (600V) Sunlight resistant UL Oil Res I/II</p> <p>Control cable 3 to 6 pairs for resolver applications 9 conductors for encoder applications 20 AWG Polyolefin insulation Thermoplastic elastomer jacket</p>
Variable-frequency drives	Series V VFD cable	4-conductor cable 16 to 4/0 AWG 14-AWG brake pair Cross-linked polyethylene insulation PVC jacket Small diameter Low capacitance for improved signal transmission UL Type TC-ER (600 V) CSA I/II A/B 1000V FT4 Direct burial Sunlight resistant
Industrial automation	ControlNet™ cable	Low-loss RG-6/U 75-ohm coaxial cable Double braid/foil shielding for maximum signal integrity and run length
	RS-485 cable	1 to 4 pairs Braid/foil shield to reduce electrical noise sensitivity UL Type PLTC Open Wiring (300 V) Sunlight resistant
	DeviceNet™ cable	Power and data in a rugged two-pair cable Sunlight resistant Available for ODVA thick and thin trunks Compliant with Allen-Bradley part numbers 1485 CPI-A and 1485 CPI-C
	Fieldbus and PROFIBUS™ cable	100-ohm impedance for Types A and B Fieldbus 150-ohm impedance for High-Speed Fieldbus and PROFIBUS DP
	Industrial twinax cable	Meets the requirements of Allen-Bradley Data Highway Networks

Get control of your communication and control applications

Our line-up of standard communication and control cables gives you maximum choice and fewer tradeoffs. By offering you a comprehensive collection of insulation/jacketing materials, shielding options, and conductor counts, you can easily select the cable that meets your most demanding needs. We have cables that go beyond the ordinary to satisfy rigorous requirements of EMI performance, transmission distances, flexibility, and temperature extremes.

Communication & Control Cable

Insulation/Jacket Materials

PVC: most popular general-purpose material, inherently flame resistant and abrasion resistant

Irradiated PVC: better resistance to soldering than standard PVC

Semirigid PVC: better physical properties, such as abrasion resistance, than standard PVC

Rubber: extremely flexible for applications such as portable cordage

Polyethylene: better electrical properties and less flexibility than PVC; excellent water resistance for outdoor and direct burial

Polypropylene: better electrical properties and less flexibility than PVC

Foam PP and PE: used as an insulation to achieve mid- and low-capacitance cable to allow longer transmission distances with excellent signal integrity

Teflon® PTFE/FEP: premium material with excellent high temperature range, electrical properties, and chemical resistance

Plenum-rated PVC: for use in plenum spaces

Shielding Options

Unshielded: used where noise is not an issue

Overall foil shield: used for moderate EMI levels; good high-frequency shielding

Overall foil/braid: excellent performance for high EMI levels

Individual foil-shielded pairs: offer both crosstalk protection and moderate EMI performance

Individual foil-shielded pairs with overall foil/braid: crosstalk protection and excellent EMI protection

No. of Conductors

1 - 50 single conductors

1 - 50 pairs

Typical applications for communication and control cable include:

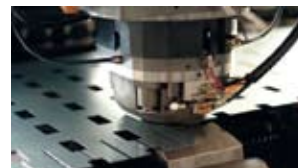
- *Audio systems: speakers, microphones, intercoms*
- *Broadcast and studio*
- *Data transmission: RS-232, 422, 485*
- *CAD/CAM*
- *Computer peripherals*
- *Business machines*
- *Security systems: alarms, cameras, sensors*
- *Control systems*
- *Instrumentation systems*
- *Point-of-sale systems*
- *Banking systems*

Industrial series cable from the factory floor to process control

Alpha Wire's industrial series cables are well suited to the widest range of industrial applications. We offer a range of cables for general needs such as control wiring in both stationary and moving components. We also offer application-specific configurations for use with drives, servo systems, and factory protocols.

Typical applications for industrial cable include:

- *High-flexibility applications*
- *Factory equipment interconnects*
- *Robotics*
- *Machine tools*
- *Automotive assembly equipment*
- *Conveyor systems*
- *Control panels*
- *Transfer shuttles*
- *Automated pick-and-place systems*
- *PLC controlled equipment*
- *Automated handling systems*
- *Control/monitoring of speed and position in servo systems*



The cables you trust. The service you deserve.

Every application is critical and wire failure is not an option when the safety of your equipment and personnel is paramount. Specify Alpha communication, control, and industrial cable for harsh environments and crucial applications; since the integrity of your system is only as robust as the products you use.

Superior availability

Alpha offers communication, control, and industrial cable from stock in most sizes and constructions, in both small and large put-ups, so you can order it when you need it. Our products are available for same-day shipment, eliminating long lead times.

Service and support, second-to-none

Selecting the correct cable for your critical application is essential to overall system reliability, performance, and safety. So we make it easy for you select the right Alpha cable for your specific application. Our online resources include a wire and cable selection guide, technical information, full product catalog, and a distributor locator to make it easy to select and get the cable you need. Can't find what you're looking for? Design the cable to your specification. It's easy, just visit **www.alphawire.com**!

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