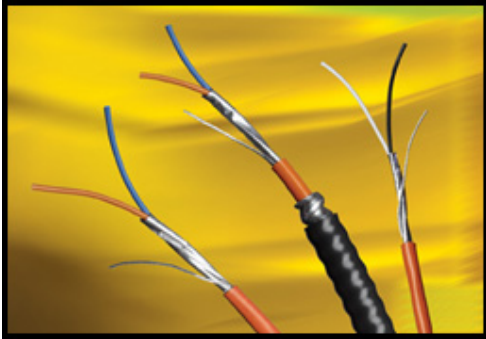Fieldbus is an all-digital, serial, two-way communications protocol that standardizes the interconnection of field devices at a communications rate of 31.25 kB/s. The field devices are made accessible to communication networks (running at 1 or 2.5 Mb/s), through use of linking devices. Because a simple twisted pair of wires can carry the signals between the field devices and the networks, Fieldbus users can reduced the amount of I/O and control equipment (due to distribution of control into the field devices), plus they can use fewer Intrinsically Safe (IS) barriers, cabinets, cables and connectors.

With FOUNDATION Fieldbus, end users have the freedom to implement tightly integrated digital control based on a unified system architecture and a high-speed backbone, like Fieldbus High-speed Ethernet (HSE), for plant operations. This, in turn, removes the constraints on device and sub-system interoperability.

DataBus Cables for FOUNDATION Fieldbus - Features and Benefits

The number of devices possible on a fieldbus link will vary depending on factors such as the power consumption of each device, the use of repeaters, signal attenuation, type of cable used and distance.

The table below provides suggested transmission distances (cable lengths) for each type of fieldbus cable.

Fieldbus Type	Communication Rate	Transmission Distance Ft. / m
A	31.25 Kb/s	6,232 / 1900
B	31.25 Kb/s	3,936 / 1200
High Speed	1.0 Mhz	2,460 / 750
	2.5 Mhz	1,640 / 500

Belden FOUNDATION Fieldbus cable features include:

- Compliant with Fieldbus Spec IEC 61158-2 (ISA/SP-50)
- Excellent electrical characteristics
- Low capacitance (for long runs)
- Versions in 22, 18, 16 and 14 AWG stranded tinned copper conductors
- Multi-pair cables available in 2 to 24 pairs
- Versions available with Beldfoil® shields and Beldfoil Plus Braid shields
- PLTC-ER versions available
- Easily identifiable Orange jacket
- Blue jacket available for Intrinsically Safe applications
- Suitable for use in Class 1, Div. 2 hazardous locations
- RoHS compliant and CE approved

Belden also offers custom constructions, i.e., with aluminum or Steel Interlocked Armor, CPE or LSOH jackets, 600V/TC rated cables, etc.

For High-speed Ethernet control backbone 100Mb/s transmissions, fieldbus specifies Ethernet cables. To help you with your selection of Category 5e and Category 6 cables, see [Belden Product Bulletin 231](#).

DataBus Fieldbus Type A 300V, 105°C, 1-Pair Cables with 18 AWG Stranded (7 x 26) Tinned Copper Conductors, 100% Beldfoil Shield, Drain Wire

CC-Link Certified Data Cable - Mitsubishi DataBus
[3076F](#) 1 Pair, Polyolefin Insulation, Orange or IS Blue PVC Jacket ***Enhanced Temperature Range***
[183076F](#) 1 Pair, Continuously Corrugated AL Armor, Polyolefin Insulation, Inner/Outer PVC Jacket

DataBus Fieldbus Type A 300V, 90°C Multi-Pair Cables with 18 AWG Stranded (7x26) Tinned Copper Conductors, Overall Beldfoil Shield (100% Coverage), Drain Wire
[1327A](#) 2 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1328A](#) 5 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1329A](#) 8 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1330A](#) 12 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1331A](#) 16 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1332A](#) 20 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1333A](#) 24 Pairs, Polyolefin Insulation, Orange or IS Blue PVC Jacket

DataBus Fieldbus Type A 300V, 90°C 1-Pair Cables, Beldfoil Shield (100% Coverage) + Tinned Copper Braid, Drain Wire
[1334A](#) 1-Pair, 18 AWG Stranded (7x26) Tinned Copper Conductors, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1335A](#) 1-Pair, 16 AWG Stranded (7x26) Tinned Copper Conductors, Polyolefin Insulation, Orange or IS Blue PVC Jacket
[1336A](#) 1-Pair, 14 AWG Stranded (7x26) Tinned Copper Conductors, Polyolefin Insulation, Orange or IS Blue PVC Jacket

DataBus Fieldbus Type B 1-Pair Cable
[3077F](#) 1 Pair, 22 AWG Stranded (7x30) Tinned Copper Conductors, Polyolefin Insulation, Beldfoil Shield (100% Coverage) with Drain Wire, Orange PVC Jacket

DataBus Fieldbus High Speed 1-Pair Cables
[3078F](#) 1-Pair, 22 AWG Stranded (7x30) Tinned Copper Conductors, Foam High Density Polyethylene Insulation, Beldfoil Shield (100% Coverage) with Drain Wire, Orange PVC Jacket

Custom cables are available upon request which can utilize any number of construction features such as:

- Armoring: Aluminum Interlock, Steel Interlock, and Continuous Corrugated Aluminum
- Armor Tapes: Corrugated Copper, Aluminum, and Steel
- Jackets: PVC, CPE, LDPE, TPE, HDPE, Fluorocopolymer, Oil Res II, Low Smoke Zero Halogen (LSZH), Haloarrest®, and Polyurethane
- Shielding: Overall Beldfoil®, Duofoil®, TC Braid, TC Double Braid, Individual Beldfoil Copper Tape Shields, and "French Braid"
- Insulations: Datalene®, XLPE, FEP, Polypropylene, Foam FEP, HDPE, PVC, TPE, and PVC-Nylon
- Conductors: Solid BC, Stranded BC, Solid Bare Copper-covered Steel, and Stranded TC

Hirschmann Active Devices

Representing experience and expertise in automation technology, Hirschmann products have been designed to ensure hassle-free data communication under even the toughest conditions.

For FOUNDATION Fieldbus application, Hirschmann offers a wide range of industrial-grade switches (OpenRail, MACH, MICE, PowerMICE), media converters, and management software for FOUNDATION Fieldbus HSE.

See also Hirschmann.

For information on other protocols see our Industrial PLC/DCS Cable Cross-reference.