

Belden IndustrialTuff® Cables

Introduction

Tough Cables for Tough Environments

Today, more than ever, manufacturing productivity depends upon seamless data communication and automation systems. And both depend upon high-performance cabling solutions.

Depend on Belden

Belden has developed the world's most comprehensive line of industrial cabling solutions for applications like yours: whether you are networking your factory floor or your process equipment and devices to their controllers...and on to the control room, or relaying data between the control room, the engineering department, and remote manufacturing sites — or, all of the above. From your petrochemical, automotive manufacturing, pharmaceutical, power generation, pulp and paper, metals, food and beverage, or general manufacturing plant to your corporate headquarters — and everywhere in between — Belden has your cabling solution.

Most importantly you can have the peace-of-mind that is inherent with the use of Belden products since all Belden cables are manufactured in ISO 9001:2000 certified facilities to the industry's highest standards of quality, utilizing the most advanced equipment, systems, controls and processes available.

Belden cables give you the performance you need day after dependable day.

Innovative Technology

Bonded-Pairs

Many DataTuff® Industrial Ethernet cables feature Belden's patented bonded-pair technology. Bonded-pairs provide *Installable Performance*® — superior electrical performance even after the stresses of installation. Bonded-pairs exhibit the most robust and reliable electrical performance in the industry.

Shielding

The evolution of technology maintains steady demand for sophisticated cable shielding. Belden meets that demand with innovative shielding and shield effectiveness testing methods to supply you with high quality, dependable cable.

Belden's exclusive patented Beldfoil® design, with its aluminum/polyester foil, was the first shield to offer 100 percent cable protection against radiated emission and ingress at audio and radio frequencies.

Armoring

Belden's innovative armoring technology delivers maximum physical protection in harsh environments. Additional benefits include reduced cost of conduit, easier installation and re-routing, plus additional shielding.

Belden has the capability to protect data, electronic, instrumentation and control cables with interlocking steel or aluminum armor as well as continuous corrugated aluminum armor. Smooth or corrugated protective metal tapes are also available.

Insulation and Jacket

Belden formulates many of its own insulations and jacket compounds. As a result, they provide superior performance under a variety of hostile environmental conditions. See "Technical Information" at the back of this section for further details.

Intrinsically Safe Wiring

In accordance with NEC Article 504, intrinsically safe cables are colored blue for easy identification. Belden offers several industrial cables in intrinsically safe blue to meet your requirements for intrinsically safe wiring. Contact the NEC and/or your local inspector for specific guidelines.

Custom Capabilities

Most of our Industrial cables are available from stock. Many of these are available off the shelf from distributors. If you have a new or unusual application or you cannot find an Industrial cable in this catalog section that meets your technical requirements, contact Technical Support at 1-800-BELDEN-1.

To Specify Part Number:

1	2	3456
Overall Jacket Type	Armor Type	Core Trade Number

Overall Jacket Type Armor Type

Code	Material	Code	Material
1	PVC	2	Aluminum Interlock
3	CPE	3	Steel Interlock
4	TPE	8	Continuous Corrugated Aluminum
5	HDPE		
6	Oil Res II		
7	Haloarrest®		

PLC/DCS Cable Cross Reference Guide

PLC/DCS Manufacturer	System Name	Belden Part Number		
ABB/Bailey Controls	FOUNDATION Fieldbus	See Protocol listings on page 8.6		
	Industrial IT 800 X A	9880 Network Trunk Cable		
	Infinet	9880 Network Trunk Cable 9463 Blue Hose® (Standard)		
	Masterpiece 200	9880 Network Trunk Cable 9907 Thin Network Trunk Cable		
	MICRO-DCI	3105A 1-Pair, RS-485		
	MICROLINK	9860 Twinax, 16 AWG, 124 Ohm		
	Modcell	3105A 1-Pair, RS-485		
	Profibus DP & PA	See Protocol listings on page 8.6		
	Allen-Bradley/Rockwell Automation	ControlNet™	See Protocol listings on page 8.6	
		DeviceNet™	See Protocol listings on page 8.6	
DH, DH+, Remote I/O		9463 Blue Hose (Standard) 9463F Flexible Version (9463) 129463 Aluminum Armor (9463) 139463 Steel Armor (9463) 189463 Continuous Armor (9463) YR28826 Dual Version (9463) YC39151 Dual Armored (9463) 9463DB Direct Burial (9463) YR29565 Various Color Jackets (9463) 3072F 600V TC Rated (9463) YR41104 Low Smoke, Halogen Free YR28764 Super Thick (PLTC) 89463 FEP 200°C, Plenum		
DH-485		3074F 600V Tray Cable 3106A 1.5-Pair, RS-485 (PLTC) 9842 2-Pair, RS-485 YM39500 Flexible Version (3106A)		
Industrial Ethernet		See Protocol listings on page 8.6		
Longline Communications		8723 Interface Cable 88723 Plenum Version		
Cutler-Hammer/Westinghouse		IMPACC System	YR29090 Proprietary Trunk Cable	
		I/O System	9463 Blue Hose (Standard)	
Emerson Process Management <small>(Fisher/Rosemont Systems) —</small>		DeviceNet	See Protocol listings on page 8.6	
		FOUNDATION Fieldbus <small>(Type SP50 ISA/IEC)</small>	See Protocol listings on page 8.6	
		HART	See Protocol listings on page 8.6	
		Industrial Ethernet	See Protocol listings on page 8.6	
		Modbus	See Protocol listings on page 8.6	
		Profibus DP	See Protocol listings on page 8.6	
		Provox Plus	3091A RG-11 Quad Shield PVC 3131A RG-6 Quad Shield PVC	
		RS-485	See Protocol listings on page 8.6	
		GE Fanuc — I/O Bus	DeviceNet	See Protocol listings on page 8.6
			Genius 9030, 9070 PAC System	YR29841 PLTC Version 9182 Communications Bus 89182 Plenum Version
Interbus®-S			See Protocol listings on page 8.6	
Modbus®			See Protocol listings on page 8.6	
Profibus			See Protocol listings on page 8.6	

PLC/DCS Manufacturer	System Name	Belden Part Number	
GE Fanuc — Sensor Device Networks	DeviceNet	See Protocol listings on page 8.6	
	SDS	See Protocol listings on page 8.6	
Honeywell	Access 4000 System	9248 RG-6 PVC	
	FOUNDATION Fieldbus <small>(Type SP50 ISA/IEC)</small>	See Protocol listings on page 8.6	
	IPC 620 System I/O	9271 Twinax, 25 AWG, 124 Ohm	
	IPC 620 System	9729 Up to 4,000 ft.	
	Serial Interface	9182 Up to 10,000 ft. 89182 Plenum	
	Series C	RS-485 Foundation Fieldbus Industrial Ethernet	
	3000 UCN & LCN	3131A RG-6 Quad Shield PVC	
		3094A RG-11 Quad Shield PVC	
	Honeywell Microswitch Division	Smart Distributed System	3086A Mini 3087A Micro
		FOUNDATION Fieldbus <small>(Type SP50 ISA/IEC)</small>	See Protocol listings on page 8.6
Invensys/Foxboro	I/A Series Carrier Band	8233 Small Trunk 3095A Plenum 9290 Drop Cable	
	I/A Series Fieldbus	9207 Twinax 89207 200°C, Plenum 3073F 600V Tray Cable	
	I/A Series Node Bus	9880 Trunk Cable 89880 Plenum Version	
	Industrial Ethernet	See Protocol listings on page 8.6	
	Limitorque	DCC100	3105A Actuator Bus Cable, 1-Pair, RS-485
		Matsushita	FP Series C-NET 9207 Twinax, 20 AWG, Stranded, 100 Ohm 9860 Twinax, 16 AWG, Solid, 124 Ohm
	Matsushita	FP Series MEWNET-F	9207 Twinax, 20 AWG, Stranded, 100 Ohm 9860 Twinax, 16 AWG, Solid, 124 Ohm
		FP Series MEWNET-H	9248 RG-6, 75 Ohm, 18 AWG
		FP Series MEWNET-TR	9207 Twinax, 20 AWG, Stranded, 100 Ohm
			9860 Twinax, 16 AWG, Solid, 124 Ohm
FP Series MEWNET-W		9207 Twinax, 20 AWG, Stranded, 100 Ohm	
		9806 4-Pair, RS-232, RS-422	
FP Series MEWNET-W2		9207 Twinax, 20 AWG, Stranded, 100 Ohm 9860 Twinax, 16 AWG, Solid, 124 Ohm	
		FP Series TRNET	9207 Twinax, 20 AWG, Stranded, 100 Ohm 9860 Twinax, 16 AWG, Solid, 124 Ohm

FEP = Fluorinated Ethylene-propylene

PLC/DCS Cable Cross Reference Guide *(continued)*

PLC/DCS Manufacturer	System Name	Belden Part Number		
Mitsubishi Electric Automation	CC-Link	See Protocol listings on page 8.6		
	DeviceNet	See Protocol listings on page 8.6		
	Melsecnet II (10/10H)	1505A	Precision RG-59/U Coax	
		1505F	High-Flex 1505A	
		1506A	Plenum Precision RG-59/U, Outdoor, Direct Burial	
		8241	Standard RG-59/U Coax	
		8241F	High-Flex 8241F	
	Modbus	See Protocol listings on page 8.6		
	Profibus DP	See Protocol listings on page 8.6		
	Serial Communications	8777 Control and Instrumentation Interconnect Cable		
Modicon/Schneider AEG	Industrial Ethernet	See Protocol listings on page 8.6		
	Modbus	8777	Modem Drop Cable, 22 AWG, 3-Pair	
		128777	Aluminum Armor (8777)	
		138777	Steel Armor (8777)	
		88777	FEP 200°C, Plenum	
	Modbus II	3092A	RG-6 Quad Shield PVC	
		3132A	RG-6 Quad Shield, 150°C, Plenum	
		3092F	RG-6 Quad Shield PVC, Flexible Version	
		123092A	Aluminum Armor (3092A)	
	Modbus Plus	133092A	Steel Armor (3092A)	
		YM29560	24 AWG, 1-Pair, RS-485	
		YC39000	Aluminum Armor (YM29560)	
		YC39222	Steel Armor (YM29560)	
	Remote I/O	YQ29258	24 AWG, 1-Pair, 150°C, Plenum	
		3092A	RG-6 Quad Shield PVC	
			RG-6 Quad Shield PVC, Flexible Version	
		3092F	Aluminum Armor (3092A)	
			Steel Armor (3092A)	
		123092A	Aluminum Armor, RG-6 Quad Shield PVC	
			Aluminum Armor, RG-6 Quad Shield, 150°C, Plenum	
3094A		RG-11 Quad Shield PVC		
		Aluminum Armor (3094A)		
123094A		Steel Armor (3094A)		
		RG-11 Quad Shield, 150°C, Plenum		
Omron		ComboBus/D (DeviceNet™)	See DeviceNet Protocol listings on page 8.6	
		ComboBus/S	9409	18 AWG, 1-Pair, 300V PLTC Control
			9318	18 AWG, 1-Pair, 300V PLTC Control, Shielded
			3073	600V Tray Cable, Twinax
89740			18 AWG, 1-Pair, 300V, Control	

PLC/DCS Manufacturer	System Name	Belden Part Number
Omron <i>(continued)</i>	Controller Link	9207 Twinax
		89207 Twinax, 200°C, Plenum
		9815 Twinax, 100 Ohm, Direct Burial
		3073F 600V Tray Cable, Twinax
		3073F 600V Tray Cable, Twinax
	SYSBUS-2	3073F 600V Tray Cable, Twinax
	SYSMAC BUS	9841 22 AWG, 1-Pair, RS-485
		3105A 22 AWG, 1-Pair, RS-485
	SYSMAC LINK	9231 RG-59U Coax
	Phoenix Contact	DeviceNet
Industrial Ethernet		See Protocol listings on page 8.6
Interbus®-S		See Protocol listings on page 8.6
Profibus DP FMS & PA		See Protocol listings on page 8.6
Reliance/A-B	Auto Max Distributed Power	M98021 2-Fiber Breakout
		I100255 2-Fiber Loose Tube PVC
		I100266 2-Fiber Loose Tube CPE
	R-Net	9259 RG-59 PVC
	89259 RG-59, 200°C, Plenum	
Rotork Siemens/Moore	Pakscan II E RS-485 FMC (Field Mountable Controller)	3105A 22 AWG, 1-Pair, RS-485
		3105A 1-Pair, RS-485
		3106A 1.5-Pair, RS-485
		3107A 2-Pair, RS-485
		3108A 3-Pair, RS-485
		3109A 4-Pair, RS-485
	FOUNDATION Fieldbus (Type SP50 ISA/IEC)	See Protocol listings on page 8.6
	Hiway	9860 Network Trunk Cable
	Industrial Ethernet	See Protocol listings on page 8.6
	MODULNET	3094A RG-11 Quad Shield PVC
3131A RG-6 Quad Shield PVC		
Profibus DP & FMS (Purple)	See Protocol listings on page 8.6	
Profibus PA (Blue)	See Protocol listings on page 8.6	
SINEC Series H1	9907 Thin Network Trunk Cable	
	9880 Network Trunk Cable	
SINEC Series H2B	3131A RG-6 Quad Shield	
	3094A RG-11 Quad Shield	
SINEC Series L1	3107A 2-Pair, RS-485	
SINEC Series L2	3079A 300V Twinax	
Thicknet Ethernet Trunk	9880 Network Trunk Cable	
	129880 Aluminum Interlocked Armor Trunk	
	139880 Steel Interlocked Armor Trunk	
Thinnet Ethernet Trunk	9907 Thin Network Trunk Cable	

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PLC/DCS Cable Cross Reference Guide *(continued)*

PLC/DCS Manufacturer	System Name	Belden Part Number	
Smar	FOUNDATION Fieldbus (Type SP50 ISA/IEC)	See Protocol listings on page 8.6	
	Industrial Ethernet	See Protocol listings on page 8.6	
	Profibus DP FMS & PA	See Protocol listings on page 8.6	
	RS-485	See Protocol listings on page 8.6	
Square D/ Schneider AEG	FIP/Fieldbus	3079A 22 AWG, 1-Pair, Shielded 123079A Aluminum Armor (3079A)	
	Industrial Ethernet	See Protocol listings on page 8.6	
	Model 50, RS-422 Cable	8760 18 AWG, 1-Pair, Shielded 128760 Aluminum Armor (8760)	
	Passport I/O – I/O Net	3105A 22 AWG, 1-Pair, RS-485 123105A Aluminum Armor (3105A)	
		3106A 22 AWG, 1.5-Pair, RS-485 123106A Aluminum Armor (3106A)	
		9841 24 AWG, 1-Pair, RS-485 9842 24 AWG, 2-Pair, RS-485	
		Power Logic	9841 24 AWG, 1-Pair, RS-485 9842 24 AWG, 2-Pair, RS-485
	Square D/ Schneider AEG	Seriplex®	3124A CBL-1822-P20
			3125A CBL-1622-P16
			3126A CBL-162212-P16
123124A Aluminum Armor (3124A)			
123125A Aluminum Armor (3125A)			
123126A Aluminum Armor (3126A)			
9463 Blue Hose® (Standard)			
9463F Flexible Version (9463)			
129463 Aluminum Armor (9463)			
139463 Steel Armor (9463)			
189463 Continuous Armor (9463)			
YR28826 Dual Version (9463)			
9463DB Direct Burial (9463)			
YR29565 Various Color Jackets 9463)			
SY/Net Network Trunk Cable			3072F 600V TC Rated (9463)
			YR41194 Low-Smoke, Halogen-Free
			YR28764 Super Thick (PLTC)
	89463 FEP 200°C, Plenum		
SY/Net TNIM Cable	9272 20 AWG, 1-Pair, Shielded		
	89272 FEP 200°C, Plenum		

PLC/DCS Manufacturer	System Name	Belden Part Number
Yokogawa — CENTUM	DeviceNet™	See Protocol listings on page 8.6
	FOUNDATION Fieldbus (Type SP50 ISA/IEC)	See Protocol listings on page 8.6
	HART	See Protocol listings on page 8.6
	Industrial Ethernet	See Protocol listings on page 8.6
	Profibus	See Protocol listings on page 8.6
Yokogawa — FA-M3	RS-485	See Protocol listings on page 8.6
	DeviceNet	See Protocol listings on page 8.6
	Industrial Ethernet	See Protocol listings on page 8.6
	Modbus	See Protocol listings on page 8.6
	Profibus	See Protocol listings on page 8.6
Yokogawa — STARDOM	RS-485	See Protocol listings on page 8.6
	DeviceNet	See Protocol listings on page 8.6
	FOUNDATION Fieldbus (Type SP50 ISA/IEC)	See Protocol listings on page 8.6
	HART	See Protocol listings on page 8.6
	Industrial Ethernet	See Protocol listings on page 8.6
Westinghouse	Profibus	See Protocol listings on page 8.6
	RS-485	See Protocol listings on page 8.6
	WDPF	9292 RG-11 PVC

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