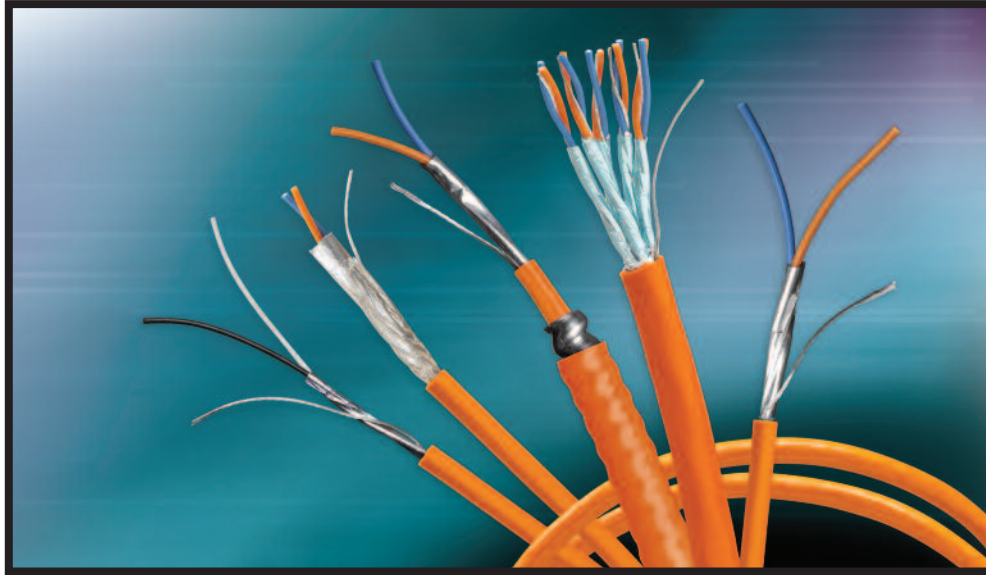


**NP 244**

**Fieldbus® Cables**

New Fieldbus Type A single-pair and multi-pair cables and foil/braid constructions provide installation flexibility in many different environments and where multiple or extended cable runs are required.



**Belden® Expands Its Line of DataBus® Cables for Fieldbus Applications with Type A 600V TC-ER Single- and Multi-pair Constructions, as well as 300V Low Smoke Zero Halogen Single- and Multi-pair Designs**

**Fieldbus Specification IEC 61158-2 (ISA/SP-50)**

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 reduce 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. And, since the wire pair can support multiple functions within a single device (such as diagnostics, control and auto error correction), the twisted pair cable becomes the integral part of a more efficient, more reliable, and more cost-effective industrial control system.

**Why FOUNDATION Fieldbus?**

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 (HSE) for plant operations. This, in turn, removes the constraints on device and sub-system interoperability.

**Fieldbus Cabling Features**

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 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

Because of the superior features of Belden DataBus cables, distance limitations can be exceeded without any system enhancements or any sacrifice in system performance. Belden 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
- Standard multi-pair cables available in 2 to 24 pairs in 300V and LSZH or 600V designs
- Versions available with Beldfoil® shields and Beldfoil Plus Braid shields
- PLTC-ER and TC-ER versions available
- Easily identifiable Orange jacket
- Blue jacket available for Intrinsically Safe applications
- Suitable for use in Class 1, Div. 2 applications
- RoHS compliant and CE approved

## Fieldbus High Speed Ethernet (HSE) Cables

Fieldbus has chosen Ethernet for HSE control backbone 100Mb/s transmissions. To help you with your selection of Category 5e and Category 6 cables, Belden offers its DataTuff® Industrial Ethernet Cable Selection Guide. For more information on Belden DataTuff cables, please call Belden or ask for the Industrial Ethernet New Product Bulletin.

## Custom Cable Constructions

As always with Belden industrial cables, custom constructions are available:

- Aluminum or Steel Interlocked Armor
- CPE jacket or LSOH jacket
- Various jacket colors

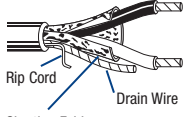
- Alternate Black and White color-coded pairs
- Multi-pair Type B 22 AWG, PLTC-rated, individually and/or overall shielded

## Industrial Data Solutions® – Industrial Data DataBus for Fieldbus IEC 61158-2 (ISA/SP-50)

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Weight		Conductor (stranding) Nom. DCR	Shielding Materials	Nominal OD		Nom. Imp. (Ω)	Nom. Vel. of Prop.	Nominal Capacitance		Maximum Attenuation		
				Ft.	m	Lbs.	kg			Inch	mm			pF/Ft.	pF/m	MHz	dB/ 100 Ft.	dB/ 100m

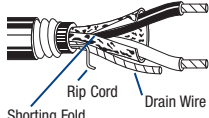
### Fieldbus • 18 AWG Stranded (7x26) TC • Beldfoil (100% Shield Coverage) • TC Drain Wire

#### Polyolefin Insulation • Orange or Intrinsically Safe Blue Sunlight- and Oil-resistant PVC Jacket (Color Code: Blue, Orange)

<b>Type A</b> 300V 105°C 	<b>3076F</b> NEC: PLTC-ER CM ITC CEC: CM	1	250	76.2	14.0	6.4	18 AWG	100%	.292	7.42	100 @	66%	24.0	78.7	.039	.091	.299
		500	152.4	25.5	11.6	(7x26)	Beldfoil	31.25									
		1000 <sup>▲</sup>	304.8	48.0	21.8	Tinned	Shield	KHz									
		2500	762.0	117.5	53.3	Copper											
		5000 <sup>†</sup>	1524.0	245.0	111.2	5.9Ω/M'			123076F — Aluminum Interlocked Armor 133076F — Steel Interlocked Armor YM47023 — CPE Jacketed Version YM46698 — Black & White Color-coded Pairs YM47090 — Various Jacket Colors								

▲ Blue is only available in 1,000 ft. put-up  
 † Final put-up length may vary ±10% from length shown.

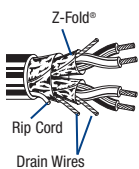
### Continuously Corrugated AL Armor • Polyolefin Insulation • PVC Inner and Orange Sunlight- and Oil-resistant PVC Outer Jacket

<b>Type A</b> 300V 105°C 	<b>183076F</b> NEC: PLTC CM ITC CEC: CM	1	2000 <sup>†</sup>	609.6	322	146.1	18 AWG	100%	.562	14.30	100 @	66%	24.0	78.7	.039	.08	.26
		500	152.5	69.2	(7x26)	Beldfoil	31.25										
						Tinned	Shield	KHz									
						Copper											
						5.9Ω/M'			Nominal Core O.D. .292 7.42								

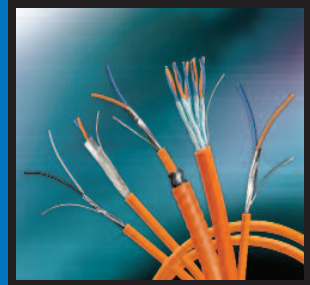
† Final put-up length may vary ±10% from length shown.

### Fieldbus • 18 AWG Stranded (7x26) TC + Individually Foil Shielded Pairs + Overall Beldfoil (100% Shield Coverage) • TC Drain Wires

#### PO Insulation • Orange or Intrinsically Safe Blue/Sunlight- and Oil-resistant PVC Jacket (Color Code: Blue, Orange and Numbered)

<b>MULTI-PAIR TYPE A</b> 300V 90°C 	<b>1327A</b> NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	2	1000	304.8	93.0	42.2	18 AWG	Individually	.44	11.18	100 @	66%	24.0	78.7	.039	.091	.299
		1640	500.0	152.5	69.2	(7X26)	Foil Shielded Pairs + 100% Overall Beldfoil Shield	31.25 KHz									
<b>1328A</b> NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	5 1000 304.8 164.0 74.5 1640 500.0 288.6 131.0	18 AWG	Individually	.55	13.87	100 @	66%	24.0	78.7	.039	.091	.299					
		(7X26)	Foil Shielded Pairs + 100% Overall Beldfoil Shield	31.25 KHz													

• AL = Aluminum • DCR = DC Resistance • FHDPE = Foamed High Density Polyethylene • PO = Polyolefin • TC = Tinned Copper



**Industrial Data Solutions – Industrial Data**  
DataBus for Fieldbus IEC 61158-2 (ISA/SP-50)

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Weight		Conductor (stranding) Nom. DCR	Shielding Materials	Nominal OD		Nom. Imp. (Ω)	Nom. Vel. of Prop.	Nominal Capacitance		Maximum Attenuation	
				Ft.	m	Lbs.	kg			Inch	mm			pF/Ft.	pF/m	MHz	dB/100 Ft.

**Fieldbus • 18 AWG Stranded (7x26) TC + Individually Foil Shielded Pairs + Overall Beldfoil (100% Shield Coverage) • TC Drain Wires**

<b>PO Insulation • Orange or Intrinsically Safe Blue/Sunlight- and Oil-resistant PVC Jacket (Color Code: Blue, Orange and Numbered)</b>																	
<b>MULTI-PAIR TYPE A</b> 	<b>1329A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	8	1000 1640	304.8 500.0	295.0 442.8	133.9 201.0	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	Individually Foil Shielded Pairs + 100% Overall Beldfoil Shield	.67 17.02	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299
	<b>1330A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	12	1000 1640	304.8 500.0	387.0 598.6	179.7 271.8	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	Individually Foil Shielded Pairs + 100% Overall Beldfoil Shield	.81 20.57	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299
	<b>1331A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	16	1000 1640	304.8 500.0	494.0 788.8	224.3 358.1	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	Individually Foil Shielded Pairs + 100% Overall Beldfoil Shield	.92 23.37	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299
	<b>1332A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	20	1000 1640	304.8 500.0	589.0 936.4	267.4 425.1	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	Individually Foil Shielded Pairs + 100% Overall Beldfoil Shield	1.02 25.91	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299
	<b>1333A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	24	1000 1640	304.8 500.0	675.0 1110.3	306.5 504.1	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	Individually Foil Shielded Pairs + 100% Overall Beldfoil Shield	1.14 28.96	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299

**Fieldbus • 18 AWG Stranded (7x26) TC • Beldfoil (100% Shield Coverage) + 65% TC Braid • TC Drain Wire**

<b>Polyolefin Insulation • Orange or Intrinsically Safe Blue Sunlight- and Oil-resistant PVC Jacket (Color Code: Blue, Orange)</b>																	
<b>Type A</b> 300V 90°C 	<b>1334A</b>	NEC: PLTC ITC, CMG CEC: CMG, FT4 IEC 60332-3-24 (Cat C) IEEE 1202/383	1	394 1000 1640 3280	120.1 304.8 500.0 1000.0	21.7 50.0 80.4 160.7	9.9 22.7 36.5 73.0	18 AWG (7X26) Tinned Copper 5.9Ω/M' 19.4Ω/km	100% Beldfoil + 65% TC Braid	.28 7.11	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299

**Fieldbus • 16 AWG Stranded (7x24) TC • Overall Beldfoil (100% Shield Coverage) + 65% TC Braid • TC Drain Wire**

<b>Polyolefin Insulation • Orange or Intrinsically Safe Blue Sunlight- and Oil-resistant PVC Jacket (Color Code: Blue, Orange)</b>																	
<b>*Type A</b> 300V 90°C 	<b>1335A</b>	NEC: PLTC ITC, CM CEC: CM, FT1 IEC 60332-3-24 (Cat C)	1	394 1000 1640 3280	120.1 304.8 500.0 1000.0	27.2 65.0 106.6 213.2	12.3 29.5 48.4 96.8	16 AWG (7X24) Tinned Copper 3.7Ω/M' 12.2Ω/km	100% Beldfoil + 65% TC Braid	.34 8.64	100 @ 31.25 KHz	66%	24.0	78.7	.039	.091	.299

DCR = DC Resistance • FHDPE = Foamed High Density Polyethylene • PO = Polyolefin • TC = Tinned Copper

\* Although Type A specification references nominal 18 AWG, Belden 1335A and 1336A meet all other Type A requirements.

## Industrial Data Solutions – Industrial Data

### DataBus for Fieldbus IEC 61158-2 (ISA/SP-50)

Description	Part No.	UL NEC/ C(UL) CEC Type	No. of Pairs	Standard Lengths		Standard Unit Weight		Conductor (stranding) Nom. DCR	Shielding Materials	Nominal OD		Nom. Imp. (Ω)	Nom. Vel. of Prop.	Nominal Capacitance		Maximum Attenuation	
				Ft.	m	Lbs.	kg			Inch	mm			pF/Ft.	pF/m	MHz	dB/ 100 Ft.

**Fieldbus • 14 AWG** Stranded (7x22) TC • Overall Beldfoil (100% Shield Coverage) + 65% TC Braid • TC Drain Wire

**Polyolefin Insulation • Orange or Intrinsically Safe Blue Sunlight- and Oil-resistant PVC Jacket** (Color Code: Blue, Orange)

<b>*Type A</b> 300V 90°C 	<b>1336A</b> NEC: PLTC ITC CEC: FT1 IEC 60332-3-24 (Cat C)	1	394	120.1	41.0	18.6	14 AWG	100%	.43	10.92	100 @	66%	24.0	78.7	.039	.091	.299	
		1000	304.8	103.0	46.8	(7X22)	Beldfoil +	31.25										
		1640	500.0	170.6	77.5	Tinned Copper	65% TC											
		3280	1000.0	351.0	159.4	2.5Ω/M' 8.2Ω/km	Braid											

**Fieldbus • 22 AWG** Stranded (7x30) TC • Beldfoil (100% Shield Coverage) • TC Drain Wire

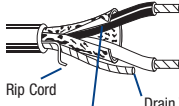
**Polyolefin Insulation • Orange Sunlight-resistant PVC Jacket** (Color Code: Blue, Orange)

<b>Type B</b> 300V 105°C 	<b>3077F</b> NEC: PLTC CM ITC CEC: CM CM	1	500†	152.4	11.0	5.0	22 AWG	100%	.196	4.97	100 @	66%	23.5	77.1	.039	.152	.499		
		1000†	304.8	23.0	10.4	(7x30)	Beldfoil	31.25											
							Tinned Copper	Shield											
							17.1Ω/M' 56.1Ω/km												

123077F — Aluminum Interlocked Armor  
 133077F — Steel Interlocked Armor  
 CPE and LSOH Jacket Optional

† Final put-up length may vary ± 10% from length shown.

**FHDPE Insulation • Orange Sunlight-resistant PVC Jacket** (Color Code: Blue, Orange)

<b>High Speed</b> 300V 75°C 	<b>3078F</b> NEC: PLTC CM CEC: CM CM	1	250	76.2	10.0	4.5	22 AWG	100%	.351	8.92	150 @	78%	8.5	27.9	.250	.198	.649	
		500	152.4	23.0	10.4	(7x30)	Beldfoil	1 MHz										
		1000	304.8	44.0	20.0	Tinned Copper	Shield											
		2500	762.0	115.0	52.2	17.1Ω/M' 56.0Ω/km												

123078F — Aluminum Interlocked Armor  
 133078F — Steel Interlocked Armor  
 CPE and LSOH Jacket Optional

\* Although Type A specification references nominal 18 AWG, Belden 1335A and 1336A meet all other Type A requirements.

### \*\*600V TC-ER Fieldbus Type A

**18 AWG** Stranded TC • Individually Foil Shielded Pairs • Overall Beldfoil (100% Shield Coverage) • TC Drain Wires  
 • Insulated Green/Yellow PVC Ground

**Polyolefin Insulation • Sunlight- and Oil-resistant PVC Jacket** (Color Code: Blue, Orange and Numbered)

TC-ER CM FT1 IEC60332-3C	No. of Pairs	1	2	5	8	12	16	20	24
	Part Number	1337A	1338A	1339A	1340A	S11341A	S11342A	S11343A	S11344A

### \*\*300V LSZH Fieldbus Type A

**18 AWG** Stranded TC • Individually Foil Shielded Pairs • Overall Beldfoil (100% Shield Coverage) • TC Drain Wires

**Polyolefin Insulation • LSZH Jacket** (Color Code: Blue, Orange and Numbered)

PLTC ITC CM FT1 IEC60332-3C	No. of Pairs	1	2	5	8	12	16	20	24
	Part Number	S3076NH	S1327NH	S1328NH	S1329NH	S1330NH	S1331NH	S1332NH	S1333NH

DCR = DC Resistance • FHDPE = Foamed High Density Polyethylene • LSZH = Low Smoke Zero Halogen • TC = Tinned Copper

\*\* Minimum order quantity applies.