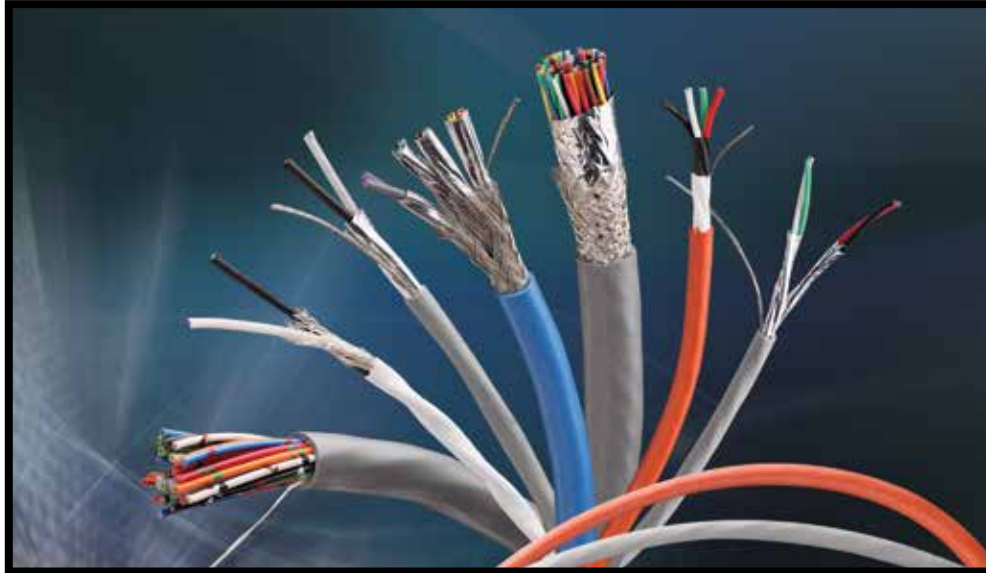


CB 0017

### Belden® Classics

Belden's Classic Line includes a select number of high quality, high reliability Multi-conductor and Paired Cables. These known performers meet or exceed UL standards and have been used worldwide for decades.



### **Belden Classics Cables Provide Best-in-class Performance for a Wide Range of Applications: Industrial, Video, Sound and Security, and Interconnect**

Belden Classic products are manufactured in a wide variety of gauge (AWG) sizes, insulation materials, shielding configurations, and jacketing materials, including Plenum and High-temperature versions. These Multi-conductor and Paired products offer best-in-class performance and reliability in many different systems.

Features/benefits of the Classic line include:

- Unsurpassed quality and reliability
- Robust designs that meet or exceed UL standards
- Proven performance in installations worldwide
- Broad range of AWG sizes, shielding options, conductor and pair counts
- Convenient put-up options
- Polyolefin insulations provide lower capacitance performance when compared to cables with PVC insulations
- Tefzel, TFE and FEP insulation and jacket constructions offer higher temperature ratings
- Global availability through a network of Belden distributors

#### **Shielding**

Belden meets the demand for highly effective shielding technology with innovative, EMI/RFI-protective foil and braid designs like Beldfoil®. Belden's patented Beldfoil shield is an aluminum/polyester foil construction that yields a lightweight, strong, flexible and thin shield that provides extra insulation and 100% shield coverage.

Beldfoil is ideally suited for multiple-pair, individually shielded audio, communication, and data cables.

#### **Product Consistency**

By manufacturing our products in ISO-certified, state-of-the-art manufacturing facilities, Belden assures that quality is built into each and every product. Precise diameter control of insulation and jacket diameters and concentric wall thickness assures fast, reliable manufacturing in high-speed automated equipment, and ease of termination and assembly in the field.

#### **Cable Performance Benefits**

Belden offers one of the broadest lines of UL Listed, NEC and CEC multi-conductor cables available from any single source. Paired designs allow balanced signal transmission which results in lower crosstalk through common mode rejection. Due to the improved noise immunity of twisted pairs, they generally permit higher data speeds than traditional multi-conductor cables.

Belden Multi-conductor and Paired products deliver low voltage analog data signals within enclosures, from controllers and I/Os to devices such as temperature and pressure sensors, relays, valves, meters, thermocouples, solenoids, actuators, contacts, push buttons, and alarms. They also are applicable for computers, communications, instrumentation, sound, control, audio, data transmission, and many more applications.

## Applications and Selection Criteria for Belden Classics

Because of the wide array of industry standards and approvals garnered by the Belden Classic product line, it is suitable for many applications, which include, but are not limited to:

- **RS-232, RS-422/423, & RS-485 - Computer & CAD / CAM**
  - Low speed data communication from microprocessor to device utilizing simple commands (On, Off, Stop, Start)
- **Control & Instrumentation**
  - Analog signals for machine control (Sensors, Valves, Switches)
- **Fire Alarm/Security**
  - Detection monitoring systems for fire and intrusion
- **Power Supply**
  - Low voltage power and control of devices

- **Audio**
  - Analog signals for system and speaker interconnection
- **Computer/P.O.S.**
  - Low speed data for Point-of-Sale equipment

In any cable installation the conductor, insulation, jacket, and shielding are all important attributes that must be carefully selected when determining the proper cable construction. These physical attributes can determine the UL listing, temperature rating, voltage rating, signal attenuation, cable impedance, and cable capacitance – some or all of which may be of importance to your installation. Belden's broad Classics Cable offering will frequently feature the specific construction that you are looking for as a standard product.

### Conductor Selection

The type of conductor selected is very important for the integrity of the cable. For example, if it is a fixed installation, solid conductors may be used. However, any system that requires motion (i.e., flexing of the cable) should be installed with a cable that has stranded conductors.

The size of the conductor is also an important consideration. Its selection should be based primarily on the amount of current that will need to flow through it, the equipment being used, the temperature of the area where the installation is located, and the number of conductors required. Additionally, the size of the conductor will rely on the amount of signal attenuation that the system can tolerate. This will only be a factor for applications that require long runs of cable (e.g., CCTV applications). The table below outlines the ideal strand counts for different conductor AWG sizes for various applications.

## Ideal Strand Counts For Different Conductor Sizes

Typical Application	American Wire Gauge (AWG)							
	12	14	16	18	20	22	24	26
<b>Fixed Services</b> Hook-up Wire Cable in Raceway	19x25	Solid or 19x27	Solid or 19x29	Solid or 7x26 or 16x30	Solid or 7x28 or 10x30	Solid or 7x30	Solid or 7x32	Solid or 7x34
<b>Moderate Flexing</b> Frequently Disturbed For Maintenance	65x30	19x27 or 42x30	19x29 or 26x30	16x30 or 42x34	7x28, 10x30, 19x32 or 26x34	7x30 or 19x34	7x32 or 10x34	7x34
<b>Severe Flexing</b> Microphone Test Prods	165x34	105x34	65x34 or 105x36	42x34 or 65x36	26x34 or 42x36	19x34 or 26x36	19x36 or 42x40	7x34 or 10x36
<b>Most Severe Duty</b> Mercury Switches	259x36 (7x37 Rope Lay)*	168x36 (7x24 Rope Lay)*	105x36 (7x15 Rope Lay)*	63x36 (7x9 Rope Lay)*	105x40 (3x35 Rope Lay)*	(Consider Braid or Tinsel)		

Note: For a given AWG wire size (based on equal cross-sectional area of conductor), limpness and flex life are increased by use of a large number of fine strands.

\*Rope lay is several stranded groups cabled together. For example: 12 AWG, 259x36 is 7 cords each consisting of 37 strands of 36 AWG.

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## Insulation and Jacket Selection

The insulation and jacket should be chosen largely based on the temperature and

environment in which the system is present, just like the applications discussed previously. The tables below identify which compounds are suitable (or not suitable) for a wide

array of different environmental conditions, which can be present in various vertical markets.

## Comparative Properties of Plastic Insulating and Jacketing Compounds

Properties	PVC	LDPE	Cellular Polyethylene	HDPE	Polypropylene	Cellular Polypropylene	PUR	Nylon	CPE	Flamarrest®	FEP Teflon®	Tefzel® (ETFE)	PTFE Teflon	Solef® / Kynar® (PVDF) / PVF	Halar® (E-CTFE)
Oxidation Resistance	E	E	E	E	E	E	E	E	E	E	O	E	O	O	O
Heat Resistance	G-E	G	G	E	E	E	G	E	E	G-E	O	E	O	O	O
Oil Resistance	F	G-E	G	G-E	F	F	E	E	E	F	O	E	E-O	E	O
Low-Temperature Flexibility	P-G	E	E	E	P	P	G	G	E	P-G	O	E	O	F	O
Weather, Sun Resistance	G-E	E	E	E	E	E	G	E	E	G	O	E	O	E-O	O
Ozone Resistance	E	E	E	E	E	E	E	E	E	E	E	E	O	E	E
Abrasion Resistance	F-G	G	F	E	F-G	F-G	O	E	E-O	F-G	E	E	O	E	E
Electrical Properties	F-G	E	E	E	E	E	P	P	E	G	E	E	E	G-E	E
Flame Resistance	E	P	P	P	P	P	P	P	E	E	O	G	E	E	E-O
Nuclear Radiation Resistance	F	G-E	G	G-E	F	F	G	F-G	O	F	P-G	E	P	E	E
Water Resistance	F-G	E	E	E	E	E	P-G	P-F	O	F	E	E	E	E	E
Acid Resistance	G-E	G-E	G-E	E	E	E	F	P-F	E	G	E	E	E	G-E	E
Alkali Resistance	G-E	G-E	G-E	E	E	E	F	E	E	G	E	E	E	E	E
Aliphatic Hydrocarbons Resistance (Gasoline, Kerosene, etc.)	P	G-E	G	G-E	P-F	P	P-G	G	E	P	E	E	E	E	E
Aromatic Hydrocarbons Resistance (Benzol, Toluol, etc.)	P-F	P	P	P	P-F	P	P-G	G	G-E	P-F	E	E	E	G-E	E
Halogenated Hydrocarbons Resistance (Degreaser Solvents)	P-F	G	G	G	P	P	P-G	G	E	P-F	E	E	E	G	E
Alcohol Resistance	P-F	E	E	E	E	E	P-G	P	E	G	E	E	E	E	E
Underground Burial	P-G	G	N/A	E	N/A	N/A	G	P	E-O	P	E	E	E	E	E

CPE = Chlorinated Polyethylene • HDPE = High-density Polyethylene • LDPE = Low-density Polyethylene • PUR = Polyurethane

These ratings are based on average performance of general purpose compounds. Any given property can usually be improved by the use of selective compounding.

Teflon and Tefzel are DuPont trademarks.  
Halar is a Solvay Solexis trademark.  
Solef is a Solvay trademark.

Kynar is a Atofina Chemical Corporation trademark.

Legend
P Poor
F Fair
G Good
E Excellent
O Outstanding

## Comparative Properties of Rubber Insulations

Properties	Rubber	Neoprene	CSPE*	EPDM	Silicone
Oxidation Resistance	F	G	E	E	E
Heat Resistance	F	G	E	E	O
Oil Resistance	P	G	G	P	F-G
Low-Temperature Flexibility	G	F-G	F	G-E	O
Weather, Sun Resistance	F	G	E	E	O
Ozone Resistance	P	G	E	E	O
Abrasion Resistance	E	G-E	G	G	P
Electrical Properties	G	P	G	E	G
Flame Resistance	P	G	G	P	F-G
Nuclear Radiation Resistance	F	F-G	E	G	E
Water Resistance	G	E	E	G-E	G-E
Acid Resistance	F-G	G	E	G-E	F-G
Alkali Resistance	F-G	G	E	G-E	F-G
Aliphatic Hydrocarbons Resistance (Gasoline, Kerosene, etc.)	P	G	F	P	P-F
Aromatic Hydrocarbons Resistance (Benzol, Toluol, etc.)	P	P-F	F	F	P
Halogenated Hydrocarbons Resistance (Degreaser Solvents)	P	P	P-F	P	P-G
Alcohol Resistance	G	F	G	P	G

CSPE = Chlorosulfonated Polyethylene • EPDM = Ethylene-Propylene-Diene Monomer

\* Formerly Hypalon - a DuPont trademark.

## Nominal Temperature Range for Various Insulating and Jacketing Compounds

Compound	Normal Low	Normal High	Special Low	Special High
Chlorosulfonated Polyethylene (Hypalon®)	-20°C	90°C	-40°C	105°C
EPDM (Ethylene-Propylene-Diene Monomer)	-55°C	105°C	—	150°C
Neoprene	-20°C	60°C	-55°C	90°C
Polyethylene (Solid and Foamed)	-60°C	80°C	—	—
Polypropylene (Solid and Foamed)	-40°C	105°C	—	—
Rubber	-30°C	60°C	-55°C	75°C
FEP Teflon®	-70°C	200°C	—	—
PVC	-20°C	80°C	-55°C	105°C
Silicone	-80°C	150°C	—	200°C
Halar®	-70°C	150°C	—	—
Tefzel®	-65°C	150°C	—	—
PTFE Teflon	-70°C	260°C	—	—
CPE	-35°C	90°C	-45°C	105°C
Solef®/Kynar®	-20°C	150°/125°C	-40°C	150°/150°C
Flamarrest®	-20°C	75°C	—	—

## Shield Selection

The selection of shielding is also critical to the application for which the cable will be installed. While unshielded cables should be satisfactory for most alarm circuits, DC control lines, and low impedance lines, shielding is normally required for closed-circuit television (CCTV), microphone lines, and other high-impedance, low-level signals. For installations where noise or other electrical interference could be problematic, shielding should be used to prevent external signals from entering the cable, and vice versa. The table at right illustrates different types of shields and their features and benefits.

## Cable Impedance

While most installations may not have requirements for the capacitance or impedance of the cable, it could potentially become a factor with CCTV or data transmission systems. If the impedance of the cable is not matched to the impedance of the system (e.g. CCTV monitor), then there could be a degradation of the performance of the system. Moreover, these systems (like most data transmission systems) may require cables with low capacitance in order to function properly.

## Cable Shield Qualities

	Copper Braid	Copper Wrapped	Conductive Textile	Aluminum Polyester	Conductive Plastic	Foil & Braid
Shield Effectiveness at Audio Frequencies	Good	Good	Fair	Excellent	Good	Excellent
Shield Effectiveness at Radio Frequencies	Good	Poor	Poor	Excellent	Poor	Excellent
Normal Percent of Coverage	60-95%	90-97%	100%	100%	100%	100%
Fatigue Life	Good	Fair	Excellent	Fair*	Good	Good
Tensile Strength	Excellent	Fair	Poor	Poor	Poor	Good
Termination Method	Comb & Pigtail	Pigtail	Drain Wire	Drain Wire	Drain Wire	Comb & Pigtail

\* Special techniques can provide excellent fatigue life for use in high flex applications.

## Unique Story

Several years ago, Belden's engineering team demonstrated that despite the short transmission distance that typically hampers the use of RS-232 transmission, our cables could help the customer reach even greater distances. The study looked at some of our more popular designs, and even with the limitation of transmitting data over a network at full utilization that experiences crosstalk, the cables still functioned at remarkable distances – some at an order of magnitude higher than the norm.

Customary transmission distance ~ 65 feet. Belden cables exceed this distance by a healthy margin, even at full utilization with crosstalk:

- 9948 Series → at least 400 feet
- 9543 Series → at least 400 feet
- 9836 Series → at least 658 feet
- 9937 Series → at least 824 feet
- 8112 Series → at least 833 feet

Transmission distance is one of the greatest limitations of RS-232 serial data transmission – and Belden cables help overcome it!

## Belden Classic Computer Cables – High and Low Temperature

Shielding			Overall Beldfoil			Overall Foil/Braid			Individual Foil	Individual Foil + Overall Foil/Braid
Insulation			SRPVC, PVC or <b>PEP</b>	PE (15.5 pF/ft)	Datalene or <b>FFEP</b> (11.0-13.5 pF/ft)	SRPVC	PE, PP, or <b>PEP</b> (15.5 pF/ft)	Datalene, PE, or <b>FFEP</b> (11.0-13.5 pF/ft)	Datalene or <b>FFEP</b> (11.0-13.5 pF/ft)	Datalene or <b>FFEP</b> (11.0-13.5 pF/ft)
AWG	Cond	Pair								
28		2			8132FO <sup>1,4</sup>		9804 <sup>1,2</sup>	8132 <sup>1,4</sup>		
		3					9805 <sup>1,2</sup>	8133 <sup>1,4</sup>		
		4			8134FO <sup>1,4</sup>		9806 <sup>1,2</sup>	8134 <sup>1,4</sup>		
		5			8135FO <sup>1,4</sup>		9807 <sup>1,2</sup>	8135 <sup>1,4</sup>		
		7					9808 <sup>1,2</sup>			
		8			8138FO <sup>1,4</sup>			8138 <sup>1,4</sup>		
		9					9809 <sup>1,2</sup>			
		12					9812 <sup>1,2</sup>			
		12½			8142FO <sup>1,4</sup>			8142 <sup>1,4</sup>		
		13					9813 <sup>1,2</sup>			
		18					9819 <sup>1,2</sup>	8148 <sup>1,4</sup>		
		25					9825 <sup>1,2</sup>	8155 <sup>1,4</sup>		
		31					9814 <sup>1,2</sup>			
	26	4		1211A <sup>5</sup>						
6			1212A <sup>5</sup>							
8			1213A <sup>5</sup>							
16			1214A <sup>5</sup>							

1 RS-232

2 RS-422 (100 Ohm Impedance)

3 RS-423 (100 Ohm Impedance)

4 RS-485 (120 Ohm Impedance)

5 Molex SEMMCONN and AMP SDL Connectors

6 Digital Audio Applications

7 Computer P.O.S.

BLACK Low Temperature

RED High Temperature

\* Solid Conductors

† 75 Ohm Impedance

†† 70 Ohm Impedance

# Be Certain with Belden



## Belden Classic Computer Cables - High and Low Temperature (continued)

Shielding			Overall Beldfoil			Overall Foil/Braid			Individual Foil	Individual Foil + Overall Foil/Braid	
Insulation			SRPVC, PVC or FEP	PE (15.5 pF/ft)	Datalene or FEP (11.0-13.5 pF/ft)	SRPVC	PE, PP, or FEP (15.5 pF/ft)	Datalene, PE, or FEP (11.0-13.5 pF/ft)	Datalene or FEP (11.0-13.5 pF/ft)	Datalene or FEP (11.0-13.5 pF/ft)	
AWG	Cond	Pair									
24	3		9533 <sup>1</sup>			9608 <sup>1</sup>	9925 <sup>1,3</sup>				
	4		9534 <sup>1</sup>			9609 <sup>1</sup>	9927 <sup>1,3</sup>				
	5		9535 <sup>1</sup>			9610 <sup>1</sup>	9929 <sup>1,3</sup>				
	6		9536 <sup>1</sup>			9611 <sup>1</sup>	9931 <sup>1,3</sup>				
	7		9537 <sup>1</sup>			9612 <sup>1</sup>	9932 <sup>1,3</sup>				
	8		9538 <sup>1</sup>			9613 <sup>1</sup>	9933 <sup>1,3</sup>				
	9		9539 <sup>1</sup>			9614 <sup>1</sup>	9934 <sup>1,3</sup>				
	10		9540 <sup>1</sup>			9615 <sup>1</sup>	9935 <sup>1,3</sup>				
	15		9541 <sup>1</sup>			9616 <sup>1</sup>	9936 <sup>1,3</sup>				
	20		9542 <sup>1</sup>								
	25		9543 <sup>1</sup>			9617 <sup>1</sup>	9937 <sup>1,3</sup>				
	30		9544 <sup>1</sup>								
	37					9618 <sup>1</sup>	9938 <sup>1,3</sup>				
	40		9545 <sup>1</sup>								
	50		9546 <sup>1</sup>			9619 <sup>1</sup>					
		1		9501 <sup>1,1</sup>	88641 <sup>1</sup>	82641 <sup>1</sup>			9841 <sup>4</sup>	89841 <sup>4</sup>	82841 <sup>4</sup>
		2		9502 <sup>1,1</sup>	82502 <sup>1</sup>		1419A <sup>1,2</sup>	88102 <sup>1,2</sup>	8332 <sup>1,1</sup>	9829 <sup>1,2</sup>	
		3		9503 <sup>1,1</sup>	89503 <sup>1</sup>	82503 <sup>1</sup>	9680 <sup>1,2</sup>	1420A <sup>1,2</sup>	88103 <sup>1,2</sup>	8333 <sup>1,1</sup>	9830 <sup>1,2</sup>
		4		9504 <sup>1,1</sup>	89504 <sup>1</sup>	82504 <sup>1</sup>	9681 <sup>1,2</sup>	1421A <sup>1,2</sup>	88104 <sup>1,2</sup>	8334 <sup>1,1</sup>	9831 <sup>1,2</sup>
		5		9505 <sup>1,1</sup>	89505 <sup>1</sup>	82505 <sup>1</sup>		1422A <sup>1,2</sup>	88105 <sup>1,2</sup>	8335 <sup>1,1</sup>	9832 <sup>1,2</sup>
		6		9506 <sup>1,1</sup>	82506 <sup>1</sup>		9682 <sup>1,2</sup>	1423A <sup>1,2</sup>	88106 <sup>1,2</sup>	8336 <sup>1,1</sup>	9839 <sup>1,2</sup>
		7		9507 <sup>1,1</sup>						8337 <sup>1,1</sup>	9833 <sup>1,2</sup>
		7½						88107 <sup>1,2</sup>			
		8		9508 <sup>1,1</sup>							8108 <sup>1,2</sup>
		9		9509 <sup>1,1</sup>	82509 <sup>1</sup>		9683 <sup>1,2</sup>	88109 <sup>1,2</sup>		9834 <sup>1,2</sup>	9732 <sup>2,6</sup>
		10		9510 <sup>1,1</sup>						9835 <sup>1,2</sup>	8110 <sup>1,2</sup>
		12								9836 <sup>1,2</sup>	9734 <sup>2,6</sup>
		12½			82512 <sup>1</sup>		9684 <sup>1,2</sup>	1424A <sup>1,2</sup>	88112 <sup>1,2</sup>	8342 <sup>1,1</sup>	8112 <sup>1,2</sup>
		15		9515 <sup>1,1</sup>				1425A <sup>1,2</sup>		8345 <sup>1,1</sup>	8115 <sup>1,2</sup>
		17									9735 <sup>2,6</sup>
	18								8348 <sup>1,1</sup>	9837 <sup>1,2</sup>	
	18½						88118 <sup>1,2</sup>			8118 <sup>1,2</sup>	
	19		9519 <sup>1,1</sup>							89758 <sup>1,2,6</sup>	
	25		9525 <sup>1,1</sup>				88125 <sup>1,2</sup>	8355 <sup>1,1</sup>		9737 <sup>2,6</sup>	
	27									8125 <sup>1,2</sup>	
	50		9550 <sup>1,1</sup>							9738 <sup>2,6</sup>	
22	3						9939 <sup>1</sup>				
	4						9940 <sup>1</sup>				
	5						9941 <sup>1</sup>				
	6						9942 <sup>1</sup>				
	7						9943 <sup>1</sup>				
	8						9944 <sup>1</sup>				
	9						9945 <sup>1</sup>				
	10						9946 <sup>1</sup>				
	15						9947 <sup>1</sup>				
	25						9948 <sup>1</sup>				
	37						9949 <sup>1</sup>				
	50						9950 <sup>1</sup>				
		2					8302 <sup>††,1</sup>	1268A <sup>†,*</sup>	9855 <sup>†,*</sup>	9696 <sup>†,*</sup>	1269A <sup>†,*</sup>
		3					8303 <sup>††,1</sup>				
		4					8304 <sup>††,1</sup>				
		5					8305 <sup>††,1</sup>				
		6					8306 <sup>††,1</sup>				
		7					8307 <sup>††,1</sup>				
		8					8308 <sup>††,1</sup>				
		10					8310 <sup>††,1</sup>				
	12					8312 <sup>††,1</sup>					
	15					8315 <sup>††,1</sup>					
	18					8318 <sup>††,1</sup>					
	25					8325 <sup>††,1</sup>					

1 RS-232  
 2 RS-422 (100 Ohm Impedance)  
 3 RS-423 (100 Ohm Impedance)  
 4 RS-485 (120 Ohm Impedance)  
 5 Molex SEMMCONN and AMP SDL Connectors  
 6 Digital Audio Applications  
 7 Computer P.O.S.  
 BLACK Low Temperature  
 RED High Temperature  
 \* Solid Conductors  
 † 75 Ohm Impedance  
 †† 70 Ohm Impedance

## Belden Classic Audio, Control and Instrumentation Cables – High and Low Temperature

Shielding			Unshielded				Overall Beldfoil				Overall Foil/Braid		Individual Foil		Overall Braid			
AWG	Cond	Pair																
24	1														83304E <sup>7</sup>			
	2														83318E <sup>7</sup>			
	3										83503 <sup>1</sup>				83333E <sup>7</sup>			
	4										83504 <sup>1</sup>				83348E <sup>7</sup>			
	6										83506 <sup>1</sup>							
	9										83509 <sup>1</sup>							
	12										83512 <sup>1</sup>							
	15										83515 <sup>1</sup>							
		1						8641 <sup>1</sup> 88641 <sup>1</sup> 82641 <sup>1</sup>										
		2	9562 <sup>1,*</sup>															
		3										9990 <sup>1</sup>						
		6	9566 <sup>1,*</sup>									9991 <sup>1</sup>						
		9										9992 <sup>1</sup>						
		10	9570 <sup>1,*</sup>															
		12										9993 <sup>1</sup>						
	25	9585 <sup>1,*</sup>									9995 <sup>1</sup>							
22	1														83305E <sup>7</sup> 9965 <sup>8</sup>			
	2		8442 <sup>1</sup>	8795 <sup>1,*</sup>	88442 <sup>1</sup>	82442 <sup>1</sup>	83394 <sup>2</sup>				83552 <sup>1</sup>			83319E <sup>7</sup> 9966 <sup>8</sup>				
	3		8443 <sup>1</sup>	8794 <sup>1,*</sup>			83395 <sup>2</sup>	9770 <sup>1</sup>	8771 <sup>1</sup>				83334E <sup>7</sup> 8735 <sup>1</sup> 9967 <sup>8</sup>					
	4		8444 <sup>1</sup>	9794 <sup>1,*</sup>	88444 <sup>1</sup>	82444 <sup>1</sup>	83396 <sup>2</sup>				83554 <sup>1</sup>			83349E <sup>7</sup> 9968 <sup>8</sup>				
	5		8445 <sup>1</sup>															
	6		9576 <sup>6,*</sup>										83556 <sup>1</sup>					
	7		9430 <sup>1</sup>															
	8		9421 <sup>1</sup>															
	9		9423 <sup>1</sup>									83559 <sup>1</sup>						
	10		8456 <sup>1</sup>															
	12		8457 <sup>1</sup>									83562 <sup>1</sup>						
	15		8458 <sup>1</sup>															
	19											83569 <sup>1</sup>						
	20		9431 <sup>1</sup>															
	25		8459 <sup>1</sup>															
	30		9432 <sup>1</sup>															
	40		9433 <sup>1</sup>															
	50		9434 <sup>1</sup>															
		1	8740 <sup>1,*</sup>	88442 <sup>1</sup> 82442 <sup>1</sup>				9414 <sup>1</sup>	9462 <sup>1</sup>	8761 <sup>1</sup>	9461 <sup>1</sup>	88761 <sup>1</sup>				87761 <sup>1</sup> 82761 <sup>1</sup>		
		2	8741 <sup>1,*</sup>	9744 <sup>1</sup>	88741 <sup>1</sup>	82741 <sup>1</sup>	9302 <sup>1,*</sup>		9184 <sup>1,*</sup>					9406 <sup>1</sup>	8723 <sup>1</sup>	88723 <sup>1</sup> 87723 <sup>1</sup> 82723 <sup>1</sup>		
		3	8742 <sup>1,*</sup>	9745 <sup>1</sup>	82742 <sup>1</sup>									8767 <sup>1,*</sup>	8777 <sup>1</sup>	8777NH <sup>1</sup>	88777 <sup>1</sup> 87777 <sup>1</sup> 82777 <sup>1</sup>	
		4	8757 <sup>1,*</sup>	9746 <sup>1</sup>	88757 <sup>1</sup>	82757 <sup>1</sup>	9305 <sup>1,*</sup>											
	6	8743 <sup>1,*</sup>	8747 <sup>1</sup>	82743 <sup>1</sup>		9306 <sup>1,*</sup>							8768 <sup>1,*</sup>	8778 <sup>1</sup>	88778 <sup>1</sup> 87778 <sup>1</sup> 82778 <sup>1</sup>			
	8	9160 <sup>1,*</sup>																
	9	8744 <sup>1,*</sup>	8748 <sup>1</sup>					9309 <sup>1,*</sup>				8764 <sup>1,*</sup>	8774 <sup>1</sup>					
	11										8775 <sup>1</sup>							
	12		9747 <sup>1</sup>									9768 <sup>1</sup>						
	15		8749 <sup>1</sup>					9315 <sup>1,*</sup>				8766 <sup>1,*</sup>	8776 <sup>1</sup>					
	17										9769 <sup>1</sup>							
	19						9319 <sup>1,*</sup>				8769 <sup>1</sup>							
	27		8750 <sup>1</sup>					9327 <sup>1,*</sup>				8773 <sup>1</sup>						
	37										9767 <sup>1</sup>							
	51						8751 <sup>1,*</sup>											

1 Audio, Control & Instrumentation Cables

2 Special High Temperature Control & Instrumentation Cables

3 Circuit Integrity (CI) Fire Alarm Cables

4 Circuit Integrity In Conduit (CIC) Fire Alarm Cables

5 Rubber and Oil-Resistant Rubber SO Power & Control Cables

6 Fire Alarm Cables

7 MIL-W-16878/4 (Type E) Control & Instrumentation Cables

8 MIL-W-16878 (Type B) Communication & Instrumentation Cables

\* Solid Conductors

\*\* Solid Conductors, Suitable For Direct Burial

BLACK Low Temperature

RED High Temperature



## Belden Classic Audio, Control and Instrumentation Cables – High and Low Temperature (continued)

Shielding			Unshielded			Overall Beldfoil			Overall Foil/Braid	Individual Foil	Overall Braid	
AWG	Cond	Pair										
20	1										83306E <sup>7</sup> 9961 <sup>8</sup>	
	2			85220 <sup>2</sup>		9802 <sup>1, **</sup>		85230 <sup>2</sup> 83393 <sup>2</sup>	83602 <sup>1</sup>		83320E <sup>7</sup> 9962 <sup>8</sup>	
	3					9803 <sup>1, **</sup>	8772 <sup>1</sup>	85240 <sup>2</sup>			83335E <sup>7</sup> 9963 <sup>8</sup>	
	4		9444 <sup>1</sup> 8484 <sup>1</sup>						83604 <sup>1</sup>		83350E <sup>7</sup> 9964 <sup>8</sup>	
	5		9445 <sup>1</sup>									
	6								83606 <sup>1</sup>		9260 <sup>1</sup>	
	7		9439 <sup>1</sup>									
	9		9455 <sup>1</sup>						83609 <sup>1</sup>			
	10					9890 <sup>1, **</sup>						
	12		9457 <sup>1</sup>						83612 <sup>1</sup>		9261 <sup>1</sup>	
	15		9458 <sup>1</sup>			9894 <sup>1, **</sup>						
		1	8205 <sup>1</sup>			8762 <sup>1</sup> 9464 <sup>1</sup> 9154 <sup>1</sup>						
		2								9402 <sup>1</sup>		
		3	9750 <sup>1</sup>							9873 <sup>1</sup> 9883 <sup>1</sup>		
		4						85164 <sup>2</sup>				
	6	9751 <sup>1</sup>							9874 <sup>1</sup> 9886 <sup>1</sup>			
	8						85168 <sup>2</sup>					
	9	9752 <sup>1</sup>							9875 <sup>1</sup>			
	11								9876 <sup>1</sup>			
	12								9877 <sup>1</sup>			
	15	9755 <sup>1</sup>							9879 <sup>1</sup>			
18	2		9571 <sup>6, *</sup>	5320UM <sup>3, *</sup>	5320UZ <sup>4, *</sup>	9574 <sup>6, *</sup>	5300FM <sup>3</sup> 5320FM <sup>3, *</sup>	5320FZ <sup>4, *</sup>	83652 <sup>1</sup>		83307E <sup>7</sup>	
	3						8770 <sup>1</sup> 88770 <sup>1</sup>		83653 <sup>1</sup>		83321E <sup>7</sup>	
	4		8489 <sup>1</sup>	5322UM <sup>3, *</sup> 88489 <sup>1</sup> 82489 <sup>1</sup>		9578 <sup>6, *</sup>	5302FM <sup>3</sup> 5322FM <sup>3, *</sup> 9418 <sup>1</sup>	89418 <sup>1</sup> 82418 <sup>1</sup>	83654 <sup>1</sup>		83336E <sup>7</sup>	
	5		8465 <sup>1</sup>								83351E <sup>7</sup>	
	6			5324UM <sup>3, *</sup>			5304FM <sup>3</sup> 5324FM <sup>3, *</sup>		83656 <sup>1</sup>			
	7		8467 <sup>1</sup>									
	8			5326UM <sup>3, *</sup>			5306FM <sup>3</sup> 5326FM <sup>3, *</sup>					
	9		8469 <sup>1</sup>						83659 <sup>1</sup>			
	12		8466 <sup>1</sup>						83662 <sup>1</sup>			
	15		8468 <sup>1</sup>									
	19		8619 <sup>1</sup>									
	25		9626 <sup>1</sup>									
		1	8461 <sup>1</sup> 9740 <sup>1</sup>	89740 <sup>1</sup> 87740 <sup>1</sup> 82740 <sup>1</sup>		8760 <sup>1</sup>	8760NH <sup>1</sup> 9460 <sup>1</sup>	88760 <sup>1</sup> 87760 <sup>1</sup> 82760 <sup>1</sup>				8208 <sup>1</sup>
		2		9156 <sup>1</sup>								
		3		8690 <sup>1</sup>						9773 <sup>1</sup>		
	4		9157 <sup>1</sup>									
	5		9159 <sup>1</sup>									
	6		8691 <sup>1</sup>						9774 <sup>1</sup>			
	8		9161 <sup>1</sup>									
	9		8692 <sup>1</sup>						9775 <sup>1</sup>			
	12		9741 <sup>1</sup>						9776 <sup>1</sup>			
	15		9742 <sup>1</sup>						9777 <sup>1</sup>			
	19		9743 <sup>1</sup>									

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\* Solid Conductors

\*\* Solid Conductors, Suitable For Direct Burial

BLACK Low Temperature

RED High Temperature



## Belden Classic Audio, Control and Instrumentation Cables – High and Low Temperature (continued)

Shielding			Unshielded				Overall Beldfoil				Overall Foil/Braid	Individual Foil	Overall Braid
AWG	Cond	Pair											
16	1												9951 <sup>8</sup> 83308E <sup>7</sup>
	2		9572 <sup>6*</sup> 5200UZ <sup>4</sup> 5220UM <sup>3*</sup> 5220UZ <sup>4*</sup>	85102 <sup>2</sup> 85221 <sup>2</sup> 85103 <sup>2</sup>			9575 <sup>6*</sup> 5200FM <sup>3</sup> 5220FM <sup>3*</sup> 5200FZ <sup>4</sup> 5220FZ <sup>4*</sup>	85231 <sup>2</sup>	83702 <sup>1</sup>		9952 <sup>8</sup> 83322E <sup>7</sup>		
	3								8618 <sup>1</sup> 85241 <sup>2</sup>	83703 <sup>1</sup>		9953 <sup>8</sup> 83337E <sup>7</sup>	
	4		8620 <sup>1</sup>	5222UM <sup>3*</sup>			9579 <sup>6*</sup> 5202FM <sup>3</sup> 5222FM <sup>3*</sup>	5222FZ <sup>4*</sup>	83704 <sup>1</sup>		9954 <sup>8</sup> 83352E <sup>7</sup>		
	5		9620 <sup>1</sup> 9420 <sup>5</sup>										
	6										83706 <sup>1</sup>		
	7		8621 <sup>1</sup> 9422 <sup>5</sup>										
	8		9721 <sup>1</sup>										
	9		9621 <sup>1</sup> 9424 <sup>5</sup>							83709 <sup>1</sup>			
	12		8622 <sup>1</sup> 9425 <sup>5</sup>							83712 <sup>1</sup>			
	15		8623 <sup>1</sup>							83715 <sup>1</sup>			
	16		9427 <sup>5</sup>										
	19		8624 <sup>1</sup>							83719 <sup>1</sup>			
	20		9429 <sup>5</sup>										
	25		9622 <sup>1</sup>										
	1	8471 <sup>1</sup>					8719 <sup>1</sup>						
14	2		9580 <sup>6*</sup>	5120UM <sup>3*</sup> 5100UZ <sup>4</sup> 5120UZ <sup>4*</sup>			9581 <sup>6*</sup> 5120FM <sup>3*</sup> 5120FZ <sup>4*</sup> 5100FM <sup>3</sup> 5100FZ <sup>4</sup>		83752 <sup>6</sup>				
	3								83753 <sup>6</sup>				
	4		8627 <sup>1</sup> 5122UM <sup>3*</sup>			5122FM <sup>3*</sup> 5122FZ <sup>4*</sup> 5102FM <sup>3</sup>		83754 <sup>6</sup>					
	5		9623 <sup>1</sup>										
	6										83756 <sup>6</sup>		
	7		8628 <sup>1</sup>										
	12		8629 <sup>1</sup>										
	1	8473 <sup>1</sup>					8720 <sup>1</sup>						
12	2		9582 <sup>6*</sup> 5000UZ <sup>4</sup> 5020UZ <sup>4*</sup> 5020UM <sup>3*</sup>			9583 <sup>6*</sup> 5000FM <sup>3</sup> 5020FM <sup>3*</sup> 5000FZ <sup>4</sup> 5020FZ <sup>4*</sup>		83802 <sup>6</sup>					
	3								83803 <sup>6</sup>				
	4		5022UM <sup>3*</sup>			5002FM <sup>3</sup> 5022FM <sup>3*</sup> 5022FZ <sup>4*</sup>		83804 <sup>6</sup>					
	6										83806 <sup>6</sup>		
		1	8477 <sup>1</sup>					8718 <sup>1</sup>					

### Find the Right Product for Your Application

Belden Classic products are available from stock from Belden distributors. If the products above do not fit your application, Belden can also engineer specific constructions for your application.

Belden has recently introduced a new process for quoting, manufacturing, and delivering custom cable constructions. Our new process assures that when a request for quote is submitted to our newly formed "Quotation Services" group, the customer will be rewarded with:

- Quick Quote Turnaround Time
- Market Intuitive Pricing
- Low Minimum Order Quantities
- Short Product Delivery Lead Times

Please contact your Belden Sales Representative for further details.

### Other Legacy Products

In addition to our Classic products, Belden also manufactures the following legacy constructions:

#### Hook-Up Et Lead Wire

- Many plastic and rubber insulations are included in Belden's product offering
- A wide variety of UL, CSA, and MIL-Spec designs are available
- A complete range of colors and AWG sizes can be ordered

#### Computer Coaxial Et Twinaxial Cable

- 50 Ohm, 75 Ohm, and 93 Ohm coaxial cable constructions for computer applications are available as standard product
- 78 Ohm, 100 Ohm, 124 Ohm, and 150 Ohm twinaxial cable constructions for computer applications are available as standard product

#### Portable Cordage

#### Molded Cable Assemblies

#### Flat Cable

#### IBM Cable

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