## **Detailed Specifications & Technical Data**



ENGLISH MEASUREMENT VERSION

### 8451 Multi-Conductor - Single-Pair Cable

For more Information please call

1-800-Belden1



#### **General Description:**

22 AWG stranded (7x30) TC conductors, polypropylene insulation, paper wrap, twisted pair, overall Beldfoil shield (100% coverage), 22 AWG stranded TC drain wire, PVC jacket.

Physical Characteristics (Overall)	
Conductor	
AWG: # Pairs AWG Stranding Conductor Material	
1 22 7x30 TC - Tinned Copper	
Total Number of Conductors:	2
Insulation	
Insulation Material:	
Insulation Material         Wall Thickness (in.)           PP - Polypropylene         .008	
Outer Shield Outer Shield Material:	
Outer Shield Trade Name Type Outer Shield Material	Coverage (%)
Beldfoil® (Z-Fold®) Tape Aluminum Foil-Polyester Tap	pe 100
Outer Shield Drain Wire AWG:	
AWG         Stranding         Drain Wire Conductor Material           22         7x30         TC - Tinned Copper	
Outer Jacket	
Outer Jacket Material:	
Outer Jacket Material PVC - Polyvinyl Chloride	
Overall Cable	
Overall Nominal Diameter: Pair Pair Pair	0.138 in.
Pair Pair Color Code Chart: Number Color 1 Black & Red	0.138 in.
Pair Pair Color Code Chart: Number Color	0.138 in.
Pair Pair Color Code Chart: Number Color 1 Black & Red	0.138 in. -20°C To +75°C
Pair Pair Color Code Chart: Number Color 1 Black & Red Mechanical Characteristics (Overall)	
Pair Pair Color Code Chart: Number Color 1 Black & Red Mechanical Characteristics (Overall) Operating Temperature Range:	-20°C To +75°C
Pair Pair Color Code Chart:          Number       Color         1       Black & Red         Mechanical Characteristics (Overall)         Operating Temperature Range:         Bulk Cable Weight:	-20°C To +75°C 15 lbs/1000 ft.
Pair Pair Color Code Chart:          Number Color         1       Black & Red         Mechanical Characteristics (Overall)         Operating Temperature Range:         Bulk Cable Weight:         Max. Recommended Pulling Tension:	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in.
Pair Pair Color Code Chart:          Number Color         1       Black & Red         Mechanical Characteristics (Overall)         Operating Temperature Range:         Bulk Cable Weight:         Max. Recommended Pulling Tension:         Min. Bend Radius/Minor Axis:	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in.
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in.
Pair Pair Color Code Chart:          Number Color         1       Black & Red         Mechanical Characteristics (Overall)         Operating Temperature Range:         Bulk Cable Weight:         Max. Recommended Pulling Tension:         Min. Bend Radius/Minor Axis:         Applicable Specifications and Agency Complianc         Applicable Standards & Environmental Programs	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. <b>2e (Overall)</b>
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification:	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. <b>ce (Overall)</b>
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification: CEC/C(UL) Specification:	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. <b>ce (Overall)</b> CMR CMG
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification: CEC/C(UL) Specification: EU Directive 2011/65/EU (ROHS II):	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. cMR CMR CMG Yes
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification: CEC/C(UL) Specification: EU Directive 2011/65/EU (ROHS II): EU CE Mark:	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. <b>ce (Overall)</b> CMR CMR CMG Yes Yes
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification: CEC/C(UL) Specification: EU Directive 2011/65/EU (ROHS II): EU CE Mark: EU Directive 2000/53/EC (ELV):	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. cMR CMR CMG Yes Yes Yes
Pair Pair Color Code Chart: Number Color Black & Red Mechanical Characteristics (Overall) Operating Temperature Range: Bulk Cable Weight: Max. Recommended Pulling Tension: Min. Bend Radius/Minor Axis: Applicable Specifications and Agency Complianc Applicable Standards & Environmental Programs NEC/(UL) Specification: EU Directive 2011/65/EU (ROHS II): EU Directive 2000/53/EC (ELV): EU Directive 2002/95/EC (RoHS):	-20°C To +75°C 15 lbs/1000 ft. 27 lbs. 1.500 in. <b>ce (Overall)</b> CMR CMG Yes Yes Yes Yes

# **Detailed Specifications & Technical Data**





### 8451 Multi-Conductor - Single-Pair Cable

CA Prop 85 (CJ for Wire 3 Cable):     Yes       MI Coder 33 (China Ro15):     Yes       UL Flame Test:     UL 1666 Verical Shaft       CSA Flame Test:     FI4       Pomum     Perum (Wh):       Non-Cable     No       Electrical Characteristics (Overall)     No       Non-Aracteristic Impedance:     No       Impedance (Mint)     No       Inductance:     Non-Cable Shaft       Non-Capacitance Conductor to Conductor:     Non-Spacitance (Pff)       3d     Non-Spacitance (Pff)       3d     Non-Spacitance (Pff)       3d     Non-Spacitance (Pff)       15     Spacitance (Pff)       15     Spacitance (Pff)       15     Spacitance (Pff)       15     Spacitance (Pff)       16     Spacitance (Pff)       15     Spacitance (Pff)       16     Spacitance (Pff)       15     Spacitance (Pff)       16     Spacitance (Pff)       16     Spacitance (Pff)       16     Spacitance (Pff)       16		
Flame Test     UL 1966 Vertical Shaft       GRA Flame Test:     UL 1966 Vertical Shaft       GRA Flame Test:     FT4       Plenum (YiN):     No       Electrical Characteristics (Overall)     No       Nom. Abracteristic Impedance (Onm)	CA Prop 65 (CJ for Wire & Cable):	Yes
U. Flame Test:         UL 1666 Vertical Shaft           ESA Flame Test:         F14           Penum (Y/N):         No           Entrice (Characteristics (Overall)         No           Source Characteristics (Overall)         No           Nom: Characteristics (Overall)         No           Momentations (PM)         Source Notations (PM)           3d         Nom           Nom: Separatines Conductor to Conductor:         Source Notations (PM)           3d         Source Notations (PM)           3d <th>MII Order #39 (China RoHS):</th> <th>Yes</th>	MII Order #39 (China RoHS):	Yes
CSA Flame Test:         FT4           Plenum/Non-Plenum         No           Plenum/Yny:         No           Electrical Characteristics (Overall)         No           Nom. Characteristics (Overall)         No           Mom. Characteristics (Overall)         No           Af         Impedance (Min)           45         Impedance (Min)           45         Impedance (Min)           45         Impedance (Min)           47         Impedance (Min)           57         Impedance (Min)           58         Impedance	Flame Test	
Plenum/Von-Plenum Penum (YiN): No Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Unit) 45 Nom. Inductance: Inductance (Unit) 17 Nom. Capacitance Conductor to Conductor: Capacitance Conductor to Conductor & Shield: Capacitance Fortil 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Fortil) 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Fortil) 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Fortil) 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Fortil) 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Fortil) 34 Nom. Capacitance Cond. to Other Conductor & Shield: Capacitance (Cond. to Other Cond. to O	UL Flame Test:	UL1666 Vertical Shaft
Plenum (Yi): Not   Contractoristics (Overall)   Nom. Naractifistic Impedance:   Impedance (Onin)   4	CSA Flame Test:	FT4
Electrical Characteristics (Overall) Nom. Characteristic Impedance: Impedance (Ohm) 46 Nom. Inductance: Inductance (HIM) 17 Nom. Sepacitance Conductor to Conductor: Capacitance (PfM) 34 Nom. Capacitance (Conductor & Shield: Capacitance (Conductor & Shield: Capacitance (Conductor of Conductor & Shield: Capacitance (Conductor of Propagation: VP (%) 86 Nominal Delay: Delay (nsM) 1.5 Nominal Outer Shield DC Resistance: DCR @ 20° (Ohm/1000 ft) 14.1 Nominal Outer Shield DC Resistance: DCR @ 20° (Ohm/1000 ft) 14.1 Nominal Outer Shield DC Resistance: DCR @ 20° (Ohm/1000 ft) 14.1 Max. Operating Voltage - UL: Voltage 30 VTMS Max. Recommended Current: Current	Plenum/Non-Plenum	
Nom. Characteristic Impedance:         Impedance (Ohm)         45         Mom. Inductance:         Inductance (uHft)         17         Nom. Capacitance Conductor to Conductor:         Capacitance (pFft)         34         Som. Capacitance (pFff)         34         Som. Capacitance (pFff)         37         Som. Capacitance (pFff)         67         Som.         Som.         Intel Velocity of Propagation:         VP (%)         66         Nom.         Intel Velocity of Propagation:         VP (%)         67         Sominal Delay:         Delay (ns/ft)         1.5         Som.         Som.         Som Conductor DC Resistance:         DR2 20°C (Ohm/1000 ff)         14.5         Sominal Outer Shield DC Resistance:         DR2 20°C (Ohm/1000 ff)         14.1         Max. Operating Voltage - UL:         Voltage         300 vTMS         Succommended Current:         Current         Current	Plenum (Y/N):	No
Nom. Characteristic Impedance:         Impedance (Ohm)         45         Mom. Inductance:         Inductance (uHft)         17         Nom. Capacitance Conductor to Conductor:         Capacitance (pFft)         34         Som. Capacitance (pFff)         34         Som. Capacitance (pFff)         37         Som. Capacitance (pFff)         67         Som.         Som.         Intel Velocity of Propagation:         VP (%)         66         Nom.         Intel Velocity of Propagation:         VP (%)         67         Sominal Delay:         Delay (ns/ft)         1.5         Som.         Som.         Som Conductor DC Resistance:         DR2 20°C (Ohm/1000 ff)         14.5         Sominal Outer Shield DC Resistance:         DR2 20°C (Ohm/1000 ff)         14.1         Max. Operating Voltage - UL:         Voltage         300 vTMS         Succommended Current:         Current         Current	Electrical Characteristics (Overall)	
45           Nom. Inductance (µH/f)           17           Nom. Capacitance Conductor to Conductor:           Capacitance (pF/f)           34           Nom. Capacitance (pF/f)           37           38           Nom. Capacitance (pF/f)           67           68           Nominal Velocity of Propagation:           VP (%)           68           Nominal Delay:           Delay (nf/f)           1.5           Nom. Capacitance:           DCR @ 20°C (Ohm/1000 f)           14.5           Nominal Outer Shield DC Resistance:           DCR @ 20°C (Ohm/1000 f)           14.1           Max. Operating Voltage - UL:           Vax (Notage           300 VTMMS           Max. Recommended Current:           Current		
Inductance (µH/I)         17         Nom. Capacitance (pF/ft)         34         Nom. Capacitance (pF/ft)         67         67         66         Nominal Velocity of Propagation:         VP (%)         66         Nominal Delay:         Delay (nsft)         1.5         Nom. Conductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         1.4.5         Nominal Outer Shield DC Resistance:         Nominal Outer Shield DC Resistance:         Nominal Outer Shield DC Resistance:		
17         Nom.: Capacitance Conductor to Conductor:         Capacitance (pFft) 34         Nom.: Capacitance cond. to Other Conductor & Shield:         Capacitance (pFft) 67         Nom.ital Velocity of Propagation:         VP (%) 66         Nom.inal Delay:         Delay (nsft) 1.5         Nom. Conductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft) 14.5         Nom. Solductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft) 14.5         Nom. Solductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft) 14.5         Nom. Solductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft) 14.5         Max. Operating Voltage - UL:         Voltage 300 V RMIS         Max. Recommended Current:         Current	Nom. Inductance:	
Capacitance (pF/ft)           34           Nom. Capacitance (pF/ft)           67           Nominal Velocity of Propagation:           VP (%)           66           Nominal Delay:           Delay (ns/ft)           1.5           Nom: conductor DC Resistance:           DCR @ 20°C (Ohm/100 ft)           14.5           Nominal Outer Shield DC Resistance:           DCR @ 20°C (Ohm/100 ft)           14.1           Max: Coperating Voltage - UL:           Voltage           300 V RMS           Max: Recommended Current:           Current		
Capacitance (pF/ft)           34           Nom. Capacitance (pF/ft)           67           Nominal Velocity of Propagation:           VP (%)           66           Nominal Delay:           Delay (ns/ft)           1.5           Nom: conductor DC Resistance:           DCR @ 20°C (Ohm/100 ft)           14.5           Nominal Outer Shield DC Resistance:           DCR @ 20°C (Ohm/100 ft)           14.1           Max: Coperating Voltage - UL:           Voltage           300 V RMS           Max: Recommended Current:           Current	Nom, Capacitance Conductor to Conductor:	
Nom. Capacitance Cond. to Other Conductor & Shield:         Capacitance (pF/ft)         67         Nominal Velocity of Propagation:         VP (%)         66         Nominal Delay:         Delay (ns/ft)         1.5         Nom. Conductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         14.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         14.1         Max. Operating Voltage - UL:         Voltage 300 V RMS         Max. Recommended Current:		
Capacitance (pF/ft)   67   Nominal Velocity of Propagation:   VP (%)   66   Nominal Delay:   Delay (ns/ft)   1.5   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.5   Nominal Outer Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.1   14.1   14.2   Max. Operating Voltage - UL:   Voltage   300 V RMS   Max. Recommended Current:   Current	34	
67         Nominal Velocity of Propagation:         VP (%)         66         Nominal Delay:         Delay (ns/ft)         1.5         Nom. Conductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         14.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         14.1         Max. Operating Voltage - UL:         Voltage 300 V RMS         Max. Recommended Current:         Current	Nom. Capacitance Cond. to Other Conductor & Shield:	
VP (%)         66           Nominal Delay:         Delay (ns/ft)           1.5         0           Nom. Conductor DC Resistance:         DCR @ 20°C (Ohm/1000 ft)           14.5         0           Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)           14.1         0           Max. Operating Voltage - UL:         Voltage           300 V RMS         0           Max. Recommended Current:         Current		
Delay (ns/ft)   1.5   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.5   Nominal Outer Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.1   Max. Operating Voltage - UL:   Voltage   300 V RMS   Max. Recommended Current:   Current	VP (%)	
Delay (ns/ft)   1.5   Nom. Conductor DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.5   Nominal Outer Shield DC Resistance:   DCR @ 20°C (Ohm/1000 ft)   14.1   Max. Operating Voltage - UL:   Voltage   300 V RMS   Max. Recommended Current:   Current	Nominal Delay:	
DCR @ 20°C (Ohm/1000 ft) 14.5 Nominal Outer Shield DC Resistance: DCR @ 20°C (Ohm/1000 ft) 14.1 Max. Operating Voltage - UL: Voltage 300 V RMS Max. Recommended Current: Current	Delay (ns/ft)	
14.5         Nominal Outer Shield DC Resistance:         DCR @ 20°C (Ohm/1000 ft)         14.1         Max. Operating Voltage - UL:         Voltage         300 V RMS         Max. Recommended Current:         Current	Nom. Conductor DC Resistance:	
DCR @ 20°C (Ohm/1000 ft) 14.1 Max. Operating Voltage - UL: Voltage 300 V RMS Max. Recommended Current: Current		
14.1         Max. Operating Voltage - UL:         Voltage         300 V RMS         Max. Recommended Current:         Current	Nominal Outer Shield DC Resistance:	
Max. Operating Voltage - UL: Voltage 300 V RMS Max. Recommended Current: Current		
Voltage 300 V RMS Max. Recommended Current: Current		
Max. Recommended Current: Current	Voltage	
Current		
2.9 Amps per conductor @ 25°C		
	2.9 Amps per conductor @ 25°C	
	Notes (Overall)	

#### Notes (Overall)

Notes: Unique paper separator facilitates jacket stripping.

#### Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
8451 008U1000	1,000 FT	16.000 LB	GRAY		2 #22 PP SHLD PVC FR
8451 008U500	500 FT	8.500 LB	GRAY		2 #22 PP SHLD PVC FR
8451 0081000	1,000 FT	16.000 LB	GRAY	С	2 #22 PP SHLD PVC FR
8451 008500	500 FT	8.000 LB	GRAY		2 #22 PP SHLD PVC FR
8451 010U1000	1,000 FT	16.000 LB	BLACK		2 #22 PP SHLD PVC FR
8451 010U500	500 FT	8.500 LB	BLACK		2 #22 PP SHLD PVC FR
8451 010100	100 FT	2.200 LB	BLACK		2 #22 PP SHLD PVC FR
8451 0101000	1,000 FT	16.000 LB	BLACK	С	2 #22 PP SHLD PVC FR
8451 01010000	10,000 FT	160.000 LB	BLACK		2 #22 PP SHLD PVC FR
8451 01015000	15,000 FT	240.000 LB	BLACK		2 #22 PP SHLD PVC FR
8451 010500	500 FT	8.000 LB	BLACK		2 #22 PP SHLD PVC FR
8451 0105000	5,000 FT	80.000 LB	BLACK		2 #22 PP SHLD PVC FR

## **Detailed Specifications & Technical Data**





### 8451 Multi-Conductor - Single-Pair Cable

Revision Number: 1 Revision Date: 07-30-2013

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