

NP 131E

Optical Wind Tower Cables

Belden®'s torsion resistant fiber-optic data transmission cables offer maximum reliability and uptime for wind parks



The new Belden Wind Tower Cable Delivers Superior Data Transmission Performance Suited for Harsh Environments and Energy-dense Areas

- Maximum reliability and uptime of wind park
- Long lifetime for excellent return on investment
- Cables & switches available from a single supplier
- Customized solutions developed according to your requirements
- Fulfillment of all necessary standards

Belden has introduced a new fiber-optic data transmission product line specifically designed for use in on-shore and off-shore applications in harsh environments. Belden fiber-optic cables are halogen-free and highly flexible for ease of installation.

Applications

Belden fiber-optic data transmission cables make a significant contribution to the efficiency of individual wind turbines and the quality of installation and maintenance of the overall wind park as well as maximum safety and security.

Installed vertically in the tower of a wind turbine as the tower data communication cable, the Belden fiber-optic cable guides the data communication between the bottom box at the ground level to the top box within the nacelle of the tower. On both sides a fan-out is used to connect the fibres to the equipment.

Benefits

Many years of experience and a deep understanding of the energy market enabled Belden to develop this new high performance cabling solution for optimum reliability. Designed for long-term use in extremely harsh environments, both on-shore and off-shore, Belden wind tower cables are a tried and tested highest quality industrial product with a high data transmission capacity for reliable monitoring and control in energy-dense areas.

Belden is able to offer a complete structured cabling solution for wind parks, consisting of the MIPP™ (Modular Industrial Patch Panel) which is placed inside the bottom cabinet of the of the wind tower, together with managed compact or modular Hirschmann™ industrial rail switches, patchcords, the tower cable and loose tube fiber cables. Thanks to the design of all components, space can be saved and maximum availability is guaranteed even in harsh environments. Used in combination with modular industrial patch panels these cables ensure maximum uptime and safety available for power generation.

Advantages at a Glance

- Suitable for vertical installation
- Torsion according to IEC 60794-1-2-E7
- High abrasion- and chemical resistance against oil, acids and alkalies
- Available in different versions based on different fiber types: OM2, OM3, OM4, and SM
- Available in different fiber counts: 4, 8, 12
- Operating temperature range: -55°C to +85°C
- Dimensions: GWRTx04 = 9.2 mm, GWRTx08 = 10.0 mm, GWRTx12 = 10.5 mm
- The cable consists of two fan-out with fiber connectors, (LC, SC or other customer specific connector types), and is delivered on the requested length per Tower.
- Flame retardancy (UL1685, FT1 and FT4 and IEC 60332-1)
- Torsion: IEC 60794-1-2-E7; (130°/m at -40°C, 20,000 cycles)
- Fully compatible with the Belden® MIPP and with all Hirschmann™ compact or modular Ethernet switches

A new product to serve your needs. Be certain.

Wind Tower Cable

Mobile, Tactical – Indoor/Outdoor, Heavy Duty, Improved Rodent Protection

Description	Part No.	UL NEC/ C(UL) CEC Type IEC	No. of Fibers	Standard Lengths		Standard Unit Weight		Fiber Size µm	Nominal Buffer OD		Strength Members	Nominal OD		Pulling Tension Long Term N	Crush Resistance kN/m	Torsion	Energy kJ/m	Bending radii cable (mm)	
				Ft.	m	Lbs.	kg		Inch	mm		Inch	mm					Static	Dyna- mic

GWRT • Intex Mobile • Tight buffer • A/I-VQ(ZN)11Y(ZN)11Y

Dry construction • PUR Jacket																			
-55°C to +85°C		FT1, FT4 IEC 60332-1 (EN 50265-2-1)		6.888 (± 328)	2.100 (± 100)			Ø 280 ± 15	0.035	0.90	Longitudinal Watertight- ness; Swellable Reinforced yarn		1600	50	Cable +/- 130°/m at -40°C; 20000 cycles (load: 55N)				
GWRTx04				4		194.0	88.0					0.36	9.2				1180	138	184
GWRTx08				8		218.3	99.0					0.39	10.0				1690	150	200
GWRTx12				12		297.6	135.0					0.41	10.5				2470	158	210

European Partnumber Coding, Position 5	Fibre-Type	Mode-Field/ Cladding Diameter (µm)	Wave-length (nm)	Attenuation average/max. (dB/km)	Dispersion (ps/nm-km)	PMD (ps/km)	Cable Cut-off Wave-length (nm)
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Characteristics (cabled) Single-Mode • Matched-Cladded optical fibres according to ITU

A	9/125	8.9 ± 0.4	1310	0.35/0.5	≤ 3.5	≤ 0.2	≤ 1260
	G.657A	125 ± 0.3	1550	0.21/0.3	≤ 18.0		
			1625	0.24/0.4			

European Partnumber Coding, Position 5	Fibre-Type	Core/ Cladding Diameter (µm)	Wave-length (nm)	Attenuation average/max. (dB/km)	Bandwidth (MHz.km)	Ethernet Performance (m)		Num. Apert. (µm)
						1 GBE	10 GBE	

Characteristics (cabled) Multi-Mode • Graded-Index optical fibres according to IEC 60793

1	62.5/125 OM1	62.5 ± 2.5	850	2.7/3.2	≥ 200	275	33	0.275 ± 0.015
		125 ± 1	1300	0.6/1.1	≥ 600	550	n.a.	
2	50/125 OM2	50 ± 2.5	850	2.3/2.8	≥ 600	600	82	0.20 ± 0.015
		125 ± 1	1300	0.6/0.9	≥ 1200	600	n.a.	
D	50/125 OM3 Flex	50 ± 2.5	850	2.5/3.0	≥ 1500	900	300	0.20 ± 0.015
		125 ± 1	1300	0.5/1.0	≥ 500	550	n.a.	
E	50/125 OM4 Flex	50 ± 2.5	850	2.5/3.0	≥ 6000	900	550	0.20 ± 0.015
		125 ± 1	1300	0.5/1.0	≥ 500	550	n.a.	

Always Stay Ahead with Belden

In a highly competitive environment, it is crucial to have reliable partners who are able to add value to your business. When it comes to signal transmissions, Belden is the number one solutions provider. We understand your business and want to know your specific challenges and targets to see how effective signal transmission solutions can push you ahead of the competition. By combining the strengths of our three leading brands, Belden®; Hirschmann™; and Lumberg Automation™, we are able to offer the solution you need. Today it may be a single cable, a switch or a connector, thus solving a specific issue; tomorrow it can be a complex range of integrated applications, systems and solutions.

We guarantee the superior performance of your mission-critical systems, even in the most demanding circumstances. If signal transmission is vital to your business, get in touch with the partner that delivers. Be certain. Belden.

Designed for on-shore and off-shore applications, Belden® fiber-optic data transmission cables maximize uptime of the wind park.