New Product Bulletin

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.

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

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

### Characteristics (cabled) Single-Mode • Matched-Cladded optical fibres according to ITU

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
<th>UL NEC/ C(UL) CEC Type IEC</th>
<th>No. of Fibers</th>
<th>Standard Lengths</th>
<th>Standard Unit Weight</th>
<th>Fiber Size</th>
<th>Nominal Buffer OD</th>
<th>Strength Members</th>
<th>Nominal OD</th>
<th>Pulling tension Long term N</th>
<th>Crush Resistance kN/m</th>
<th>Torsion</th>
<th>Energy kJ/m</th>
<th>Bending radii cable (mm)</th>
<th>Static</th>
<th>Dynamic</th>
</tr>
</thead>
<tbody>
<tr>
<td>GWRTx04</td>
<td>4</td>
<td>FT1, FT4</td>
<td>6.888</td>
<td>2.100</td>
<td>0.035</td>
<td>Ø 280</td>
<td>0.90</td>
<td>1600</td>
<td>50</td>
<td>Cable +/- 130°/m at -40°C: 20000 cycles (load: 55N)</td>
<td>1180</td>
<td>138</td>
<td>184</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GWRTx08</td>
<td>8</td>
<td>IEC 60332-1 (EN 50265-2-1)</td>
<td>6.888</td>
<td>2.100</td>
<td>0.035</td>
<td>Ø 280</td>
<td>0.90</td>
<td>1600</td>
<td>50</td>
<td>Cable +/- 130°/m at -40°C: 20000 cycles (load: 55N)</td>
<td>1180</td>
<td>138</td>
<td>184</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GWRTx12</td>
<td>12</td>
<td></td>
<td>297.6</td>
<td>135.0</td>
<td>0.36</td>
<td>88.0</td>
<td>9.2</td>
<td>194.0</td>
<td>0.41</td>
<td>10.5</td>
<td>2470</td>
<td>158</td>
<td>210</td>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Part No.</th>
<th>Core/ Cladding Diameter (µm)</th>
<th>Wave-length (nm)</th>
<th>Attenuation average/max. (dB/km)</th>
<th>Bandwidth (MHz.km)</th>
<th>Ethernet Performance (m)</th>
<th>Num. Apert. (µm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>62.5/125 OM1</td>
<td>62.5 ± 2.5</td>
<td>850</td>
<td>2.7/3.2</td>
<td>≥ 200</td>
<td>275</td>
<td>33</td>
</tr>
<tr>
<td>2</td>
<td>50/125 OM2</td>
<td>50 ± 2.5</td>
<td>850</td>
<td>2.3/2.8</td>
<td>≥ 600</td>
<td>600</td>
<td>82</td>
</tr>
<tr>
<td>D</td>
<td>50/125 OM3 Flex</td>
<td>50 ± 2.5</td>
<td>850</td>
<td>2.5/3.0</td>
<td>≥ 1500</td>
<td>900</td>
<td>300</td>
</tr>
<tr>
<td>E</td>
<td>50/125 OM4 Flex</td>
<td>50 ± 2.5</td>
<td>850</td>
<td>2.5/3.0</td>
<td>≥ 6000</td>
<td>900</td>
<td>550</td>
</tr>
</tbody>
</table>

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.

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