

AN 105E

**Successful Single-source Structured Cabling Solution for Wind Turbines**

Maximum uptime and productivity is ensured by using structured cabling solutions for wind turbines with highly reliable components that perfectly match each other



**For Optimal Reliability, Belden Provides an End-to-end Structured Cabling Solution for Wind Turbines Including Optical Tower Cable, Central Loose Tube Cables, Patch Cords, Hirschmann™ Modular Industrial Switches MICE and Modular Industrial Patch Panel MIPP™.**

- **Maximum reliability:** a high quality solution with perfectly matching components from a single source
- **Cost efficiency:** compact design allows for the maximum use of cabinet space
- **Time savings** through organised and structured termination of cables
- **Flexibility:** further system changes are easily accommodated
- **Failure reduction:** ports can be easily marked
- **Reduced effort:** easy and fast splicing as well as splicing of fibers or terminating with FiberExpress™ Brilliance Connectors

Industrial switch MICE, connected with Belden patchcords, the optic tower cable and central loose tube cables. The optic tower cable ensures reliable communication between the Hirschmann™ switches in the top and bottom cabinets of the wind turbine. The central loose tube cables enable undisturbed transmission between the different wind turbines, meteo and control station within the wind park. The Modular Industrial Patch Panel MIPP™ and the patchcords together support the structuring of the cables within the cabinet.

**System Requirements**

- Industrial solution/protection against the harsher industrial environments
- Wide temperature range from -20°C to +70°C
- Industrial environment with oil and acids
- High port density for maximum efficiency
- Long predictive lifetime >30 years
- Fulfillment of all safety and security regulations
- Fast Ethernet
- Network supervision
- MRP (IEC-ring functionality)
- Termination of cables in an organised and structured manner. Available in a choice of modules suitable for both fiber and copper cables
- DIN rail mountable/IP20 housings

The Belden structured cabling solution for wind turbines delivers increased efficiency and improved quality of installation and maintenance as well as maximum safety and security.

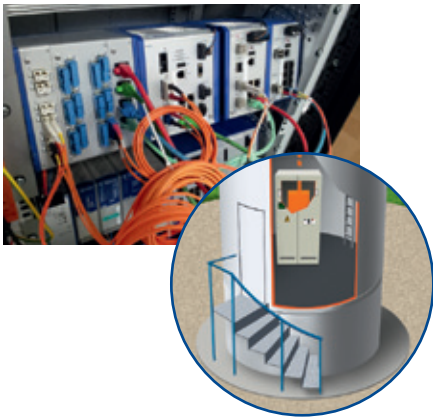
Our solution incorporates a Modular Industrial Patch Panel MIPP™, matching industrial copper or fiber cables and a Hirschmann™ Modular Industrial switch MICE for a complete structured cabling system that ensures maximum uptime available for power generation. Thanks to the design of all components, space can be saved and maximum availability is guaranteed even in harsh industrial environments.

The Belden Modular Industrial Patch Panel MIPP™ is placed inside a cabinet inside the bottom of the wind turbine tower, together with a managed Hirschmann™ Modular



**Be certain.  
Belden.**

**Belden® Solution**



For wind turbine applications, Belden designed a solution based on our Modular Industrial Patch Panel MIPP™. Thanks to the design of all components, space saving can be achieved and maximum availability is guaranteed even in harsh environments.

- Industrial high class components which enable space saving and ensure a cost-efficient and highly available cabling connection
- Structured and organized cabling with clear labeling and numbering to achieve an efficient cabling system that can be easily adapted to the most varied network topologies

- Clear structure of the cables in the cabinet increases safety and security as the service team will only need to touch the cables indicated
- Robust Modular Industrial Patch Panel MIPP™ and Hirschmann™ Modular Industrial switch MICE support the flexibility of the complete system
- Industrial DIN rail solution that is developed for harsh environments
- Reduced design complexities
- Fast Ethernet

**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.

**Product Details**

**Modular Industrial Patch Panel MIPP™**

- Industrial modular metal housing, flexible cable entry
- Up to 6 removable modules
- Compact modular design for fiber and/or copper

**Hirschmann™ Modular Industrial switch MICE**

- Flexible and modular fast Ethernet switches with different media modules
- Easy adaption to the most varied network topologies
- Industrial layer 2 and 3 switch

**Central loose tube cables**

- Improved rodent protection
- Easy to install in ducts, tunnels and trenches and/or tubes

**Industrial data cables**

- Comprehensive range of Industrial Data Solutions® comprises cables for all types of Fieldbus and Industrial Ethernet applications

**FiberExpress™ Brilliance Connectors**

- Both field-installable and epoxy field-mountable connectors
- Quick installation in the field

**Optical tower cables**

- Highly flexible cable suitable for vertical installation
- Torsion proofed according to IEC 60794-1-2-E7
- High abrasion- and chemical resistance against oil, acids and alkalis



**Why Belden**

- Belden is able to develop the planning and training support of the complete system to provide and support a tested industrial structured communication solution
- Industrial Ethernet network system with market leading Hirschmann™ switches and high performance Belden cabling for optimum reliability

- Highest flexibility and product range to ensure the right solution
- Highest availability and productivity of the complete system
- Cost efficient and future proofed solutions
- Products that perfectly match one another
- High-end quality
- Broad experience in the wind market with in-depth understanding of the requirements