

## Data sheet

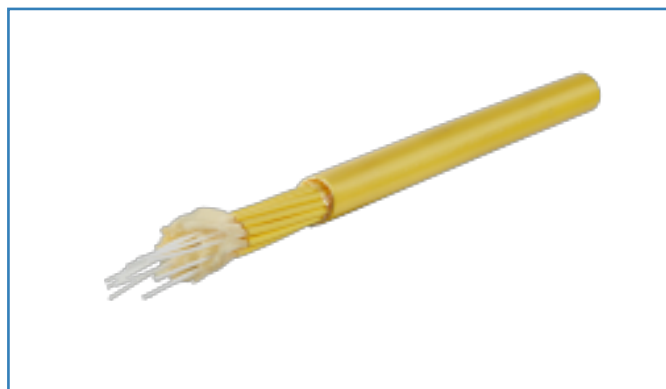
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**OpDAT breakout cable 12x1 OS2 - bend insensitive, class D<sub>ca</sub>  
s1 d1 a1**

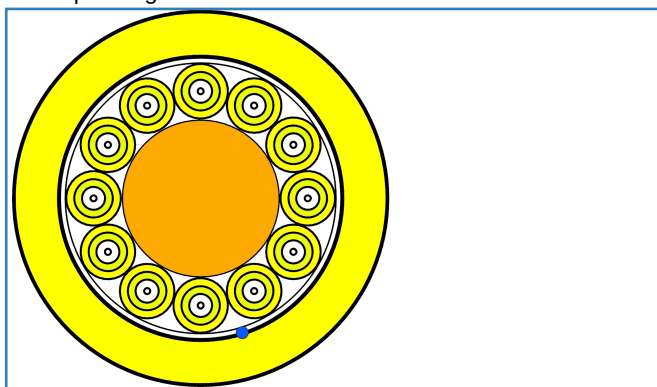
P/N  
**150B12900000M**  
EAN **4251122190490**

2018-10-01

### Illustrations



Principle diagram



See enlarged drawings at the end of document



### Product specification

- connection cable I-V(ZN)HH
- breakout cable for direct connector termination for indoors and outdoors
- bend insensitive fiber
- cable jacket: LSHF-FR
- UV resistant, metal-free, longitudinally watertight
- cable structure: several separately strain relieved cables in one outer jacket
- strain relief: Aramid
- applicable standards: EN 50173-1, ISO 11801 2nd edition, IEC 60794-2, IEC 60794-2-10, EN 187000
- fire behaviour: class D<sub>ca</sub> s1 d1 a1 acc. to EN 50399 (Klassifizierung nach EN 13501-6)

#### Variants:

|                      |                           |
|----------------------|---------------------------|
| Number of OS2 fibers | 4x1, 8x1, 12x1, 24x1      |
| Number of OM5 fibers | 4x1, 8x1, 12x1            |
| Number of OM4 fibers | 2x1, 4x1, 8x1, 12x1, 24x1 |
| Number of OM3 fibers | 4x1, 8x1, 12x1, 24x1      |

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## Technical Data

### General Data

#### Fields of application

|                                   |                                                                            |
|-----------------------------------|----------------------------------------------------------------------------|
|                                   | Structured building cabling, Office<br>Fiber to the Desk, yes, Data center |
| Design                            | Installation cables                                                        |
| Transmission technology           | Fiber optic                                                                |
| Color                             | yellow                                                                     |
| Color coding fiber/ wire(s)       | see table                                                                  |
| Mode type of the fiber            | Multimode                                                                  |
| Fiber class                       | OS2 (IEC 60793-2-50 B6_a, B6_b & ITU-T G.657.A2, G.657.B2, G.652.D)        |
| Cable Type                        | Breakout                                                                   |
| Number of cables/ cores           | 1                                                                          |
| Number of fibres each cable/ wire | 12                                                                         |
| Fiber construction                | 9/125 µm                                                                   |
| Weight                            | 160 kg/km                                                                  |

### Connections/interfaces

|                                     |               |
|-------------------------------------|---------------|
| Connector technology interface 1    | Free line end |
| Connector technology interface 2    | Free line end |
| Cable sheath diameter (min. - max.) |               |
| Cable sheath diameter               | 12.50 mm      |
| Cable sheath diameter               | 0.472 in.     |

### Optical characteristics

#### Attenuation of the fiber

|                                                  |                 |
|--------------------------------------------------|-----------------|
| Attenuation of the fiber in the cable at 1310 nm | max. 0.38 dB/km |
| Attenuation of the fiber in the cable at 1550 nm | max. 0.23 dB/km |
| Attenuation of the fiber in the cable at 1625 nm | max. 0.25 dB/km |

### Mechanical characteristics

|                                  |                |
|----------------------------------|----------------|
| strain relief                    | aramide fibres |
| Maximum installation load (max.) | 2300 N         |
| Maximum installation load        | 150.00 mm      |
| Maximum installation load        | 5.906 in.      |
| Crush (compressive strength)     | 1500 N         |
| Fire load                        | 2500 MJ/km     |



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## Technical Data

### Materials and material properties

|                         |         |
|-------------------------|---------|
| Material - Cable jacket | LSHF-FR |
| Bend insensitivity      | yes     |
| Flame retardancy        | yes     |
| Halogen free            | yes     |
| Metallfrei              | yes     |
| UV-resistance           | yes     |

### Environmental conditions

|                               |              |
|-------------------------------|--------------|
| Temperature (min. - max.)     |              |
| Temperature - Storage °C      | -40 - 70 °C  |
| Temperature - Storage °F      | -40 - 158 °F |
| Temperature - Operating °C    | -20 - 70 °C  |
| Temperature - Operating °F    | -4 - 158 °F  |
| Temperature - Installation °C | -20 - 70 °C  |
| Temperature - Installation °F | -4 - 158 °F  |

### Approvals

|      |           |
|------|-----------|
| RoHS | compliant |
|------|-----------|

### The product meets the following standards

|                                                                              |                                   |
|------------------------------------------------------------------------------|-----------------------------------|
| Generic cabling systems                                                      |                                   |
| General requirements                                                         | ISO/IEC 11801                     |
| Optical fibers: Generic specification                                        |                                   |
| Cross reference table for optical cable test procedures                      | ISO/IEC 60794-1-2                 |
| Optical fibers: Indoor optical cables                                        |                                   |
| Sectional specification for class B single-mode fibres                       | ISO/IEC 60793-2-50 type B6_a/B6_b |
| Test on gases evolved during combustion of materials from cables             |                                   |
| Determination of acidity (by measuring the pH value) and conductivity        | IEC 60754-2                       |
| Tests on electric and optical fibre cables under fire conditions             |                                   |
| Test for vertical flame propagation for a single insulated wire or cable     | DIN EN 60332-1-2                  |
| Test for vertical flame spread of vertically-mounted bunched wires or cables | ISO/IEC 60332-3-24                |
| Measurement of smoke density of cables burning                               | ISO/IEC 61034                     |



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### Technical Data

#### The product meets the following standards

Common test methods for cables under fire conditions

|                        |                                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------------|
| Fire behaviour - class | fire behaviour: Class D <sub>ca</sub> s1 d1 a1 acc. to EN 50399 (classification acc. to EN 13501-6) |
| ITU-T standard         | ITU-T G.657.A2 and G.657.B2, compatible with ITU-T G.652.D                                          |

#### Packing details

|                                 |                       |
|---------------------------------|-----------------------|
| Type of packaging               | 0 meter               |
| Packaging dimension (W x H x D) | 0.00 x 0.00 x 0.00 mm |



# P | Cabling

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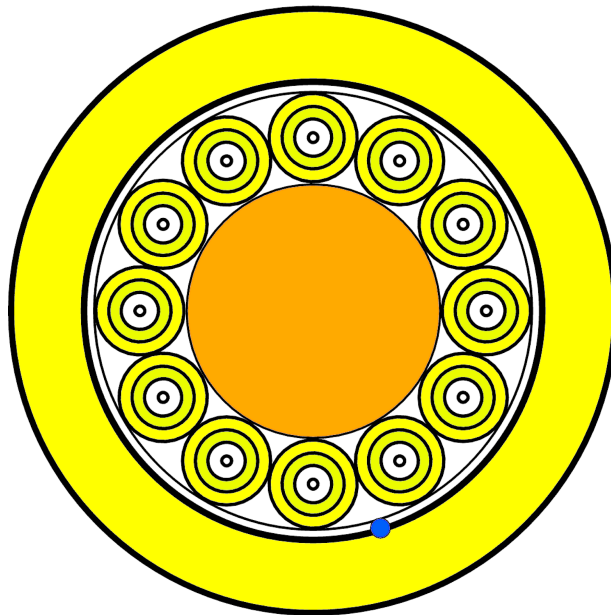
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Principle diagram



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### Fiber color coding

| Fiber color code |    |           |
|------------------|----|-----------|
|                  | 1  | red       |
|                  | 2  | green     |
|                  | 3  | blue      |
|                  | 4  | yellow    |
|                  | 5  | white     |
|                  | 6  | grey      |
|                  | 7  | brown     |
|                  | 8  | violet    |
|                  | 9  | turquoise |
|                  | 10 | black     |
|                  | 11 | orange    |
|                  | 12 | pink      |



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### Technical Data

#### General Data

|                         |                                                                      |
|-------------------------|----------------------------------------------------------------------|
| Transmission technology | Fiber optic                                                          |
| Mode type of the fiber  | Single mode                                                          |
| Fiber class             | OS2 (IEC 60793-2-50 B.1.3, B6_b & ITU-T G.657.A2, G.657.B2, G.652.D) |
| Fiber construction      | 9/125 $\mu\text{m}$                                                  |

#### Transmission characteristics

|                                                                             |                                 |
|-----------------------------------------------------------------------------|---------------------------------|
| Chromatic dispersion coefficient                                            |                                 |
| Chromatic dispersion coefficient - In the interval 1285 nm - 1330 nm (max.) | max.  3.7  ps/km * nm           |
| Chromatic dispersion coefficient - At 1550 nm (max.)                        | max. 18.5 ps/km * nm            |
| Chromatic dispersion coefficient - At 1625 nm (max.)                        | max. 23.0 ps/km * nm            |
| Dispersion null wavelength, $\lambda_{D0}$                                  | 1300-1324 nm                    |
| Zero dispersion slope (max.)                                                | 0.092 ps/(nm <sup>2</sup> * km) |
| Polarisation mode dispersion (PMD) coefficient, cabled (min.)               | 0.1                             |
| PMDQ Link Design Value (min.)                                               | 0.06 ps/vkm                     |
| Threshold wavelength (max.)                                                 | 1260                            |

#### Connections/interfaces

|                                    |                               |
|------------------------------------|-------------------------------|
| Connector technology interface 1   | Free line end                 |
| Connector technology interface 2   | Free line end                 |
| Core-/ Fiber cladding diameter     | 125.0 $\pm$ 0.7 $\mu\text{m}$ |
| Primary coating diameter - colored | 242 $\pm$ 7 $\mu\text{m}$     |

#### Optical characteristics

|                                                  |                 |
|--------------------------------------------------|-----------------|
| Attenuation of the fiber                         |                 |
| Attenuation of the fiber in the cable at 1310 nm | max. 0.38 dB/km |
| Attenuation of the fiber in the cable at 1383 nm | max. 0.38 dB/km |
| Attenuation of the fiber in the cable at 1550 nm | max. 0.23 dB/km |
| Attenuation of the fiber in the cable at 1625 nm | max. 0.25 dB/km |

#### Mechanical characteristics

|                                           |                                                 |
|-------------------------------------------|-------------------------------------------------|
| Proof stress level                        | min. 0.7 ( $\sim$ 1 %) GPa                      |
| Strip force (peak)                        | 1.2 $\leq$ F <sub>peak.strip</sub> $\leq$ 8.9 N |
| 10 turns on a mandrel R= 15 mm, @ 1550 nm | 0.03 dB                                         |



### Technical Data

#### Mechanical characteristics

|                                                                 |                |
|-----------------------------------------------------------------|----------------|
| 10 turns on a mandrel R= 15 mm, @ 1625 nm                       | 0.1 dB         |
| 1 turn on a mandrel R= 10 mm, @ 1550 nm                         | 0.1 dB         |
| 1 turn on a mandrel R= 10 mm, @ 1625 nm                         | 0.2 dB         |
| 1 turn on a mandrel R= 7.5 mm, @ 1550 nm                        | 0.5 dB         |
| 1 turn on a mandrel R= 7.5 mm, @ 1625 nm                        | 1.0 dB         |
| Fiber cladding non-circularity                                  | max. 0.7 %     |
| Core (MDF)-cladding concentricity error                         | max. 0.5 µm    |
| Primary coating concentricity error                             | max. 5 %       |
| Primary coating-cladding concentricity error                    | max. 12        |
| Inhomogeneity of OTDR measurement report at 1310 nm und 1550 nm | max. 0.1 dB/km |
| Group refractive index                                          |                |
| Group refractive index at 1310 nm                               | 1.467          |
| Group refractive index at 1550 nm and 1625 nm                   | 1.468          |

#### The product meets the following standards

|                                                        |                                                |
|--------------------------------------------------------|------------------------------------------------|
| Generic cabling systems                                |                                                |
| General requirements                                   | ISO/IEC 11801   DIN EN 50173-1 : 2007 cat. OS2 |
| Optical fibers: Measuring methods and test procedures  |                                                |
| Fibre geometry                                         | ISO/IEC 60793-1-20                             |
| Coating geometry                                       | ISO/IEC 60793-1-21                             |
| Length measurement                                     | ISO/IEC 60793-1-22                             |
| Fibre proof test                                       | ISO/IEC 60793-1-30                             |
| Coating strippability                                  | ISO/IEC 60793-1-32                             |
| Attenuation                                            | ISO/IEC 60793-1-40                             |
| Chromatic dispersion                                   | ISO/IEC 60793-1-42                             |
| Threshold wavelength                                   | ISO/IEC 60793-1-44                             |
| Mode field diameter                                    | ISO/IEC 60793-1-45                             |
| Macrobending loss                                      | ISO/IEC 60793-1-47                             |
| Polarization mode dispersion                           | ISO/IEC 60793-1-48                             |
| Optical fibers: Indoor optical cables                  |                                                |
| Sectional specification for class B single-mode fibres | ISO/IEC 60793-2-50 type B6_a/B6_b              |





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### Technical Data

#### The product meets the following standards

Optical fibers: Outdoor optical fibre cables

Outdoor cables ISO/IEC 60794-3

ITU-T standard G.657.A2, G.652.B2, G.652.A, B, C, D

#### Packing details

Type of packaging 0

Packaging dimension (W x H x D) 0.00 x 0.00 x 0.00 mm

