

Data sheet

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OpDAT universal cable 4x12 OM4 - bend insensitive, class E_{ca}

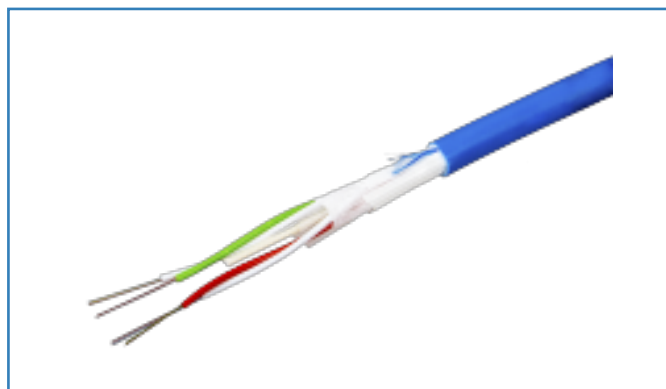
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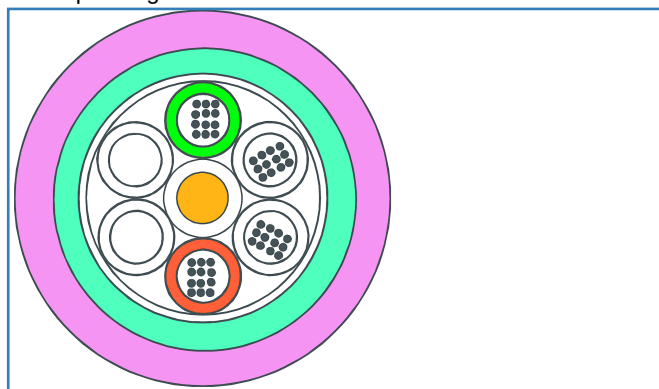
EAN 4251122191251

2018-06-03

Illustrations



Principle diagram



See enlarged drawings at the end of document



Product specification

- installation cable U-DQ(ZN)BH
- universal fiber optic cable for indoors/outdoors with central or stranded loose tube
- bend insensitive fiber
- UV-resistant, metal-free, longitudinally waterproof, tensile strength and rodent repellent
- cable jacket: LSHF
- cable structure: filled loose tubes
- cable diameter for central loose tube 7.5 mm with 2 to 12 fibers per loose tube
- cable diameter for central loose tube 8.0 mm with 24 fibers per loose tube
- cable diameter with stranded loose tube 11.0 mm
- strain relief: longitudinally waterproof wrapping, glass roving elements
- stranded loose tubes: loose tubes grouped around a glass fiber reinforced plastic stick with a dia. of 2.5 mm
- for laying in ducts or directly in the ground in a suitable layer of sand
- applicable standards: EN 50173-1, ISO 11801 2nd edition, IEC 60794-1, EN 187000
- fire behaviour: Class E_{ca} (classification acc. to EN 13501-6)

Variant:

Number of OM5 fibers	1x4, 1x8, 1x12, 1x24, 4x12
Number of OM4 fibers	1x4, 1x8, 1x12, 1x24, 4x12
Number of OM3 fibers	1x4, 1x8, 1x12, 1x24, 4x12
Number of OM2 fibers	1x4, 1x8, 1x12



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General Data

Fields of application

	Structured building cabling, Office Data center
Design	Installation cables
Transmission technology	Fiber optic
Color	blue or violet
Color coding fiber/ wire(s)	see table
Mode type of the fiber	Multimode
Fiber class	OM4 (ISO/IEC 11801/EN 50173 & IEC 60793-2-10/EN 60793-2-10 A1.a.3)
Number of cables/ cores	4
Number of fibres each cable/ wire	12
Fiber construction	50/125 µm
Weight	130.00 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	11.00 mm
Cable sheath diameter	0.433 in.

Mechanical characteristics

strain relief	glasrooving elements
Maximum installation load (max.)	5000 N
Maximum installation load	150 mm
Maximum installation load	5.906 in.
Impact resistance	20 J
Crush (compressive strength)	3000 N
Fire load	2000 MJ/km



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Technical Data

Materials and material properties

Material - Cable jacket	LSHF-FR
Bend insensitivity	yes
Tensile strength	yes
Rodent protection	yes
Flame retardancy	yes
Halogen free	yes
UV-resistance	yes
Longitudinal water tightness	pass, no water on free end
Laser-optimized	yes

Environmental conditions

Temperature (min. - max.)	
Temperature - Storage °C	-40 - 70 °C
Temperature - Storage °F	-40 - 158 °F
Temperature - Operating °C	-40 - 70 °C
Temperature - Operating °F	-40 - 158 °F

Approvals

RoHS	compliant
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The product meets the following standards

Generic cabling systems	
General requirements	ISO/IEC 11801 DIN EN 50173-1
Optical fibers: Product specifications	
Sectional specification for category A1 multimode fibres	ISO/IEC 60793-2-10 (A1a.3)
Optical fibers: Generic specification	
Cross reference table for optical cable test procedures	ISO/IEC 60794-1-2
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	ISO/IEC 60332-1-2
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



Klasse E_{ca} (Klassifizierung nach EN 13501-6)

ITU-T standard

G.651.1

Classifications

ETIM 5.0

EC000034

Packing details

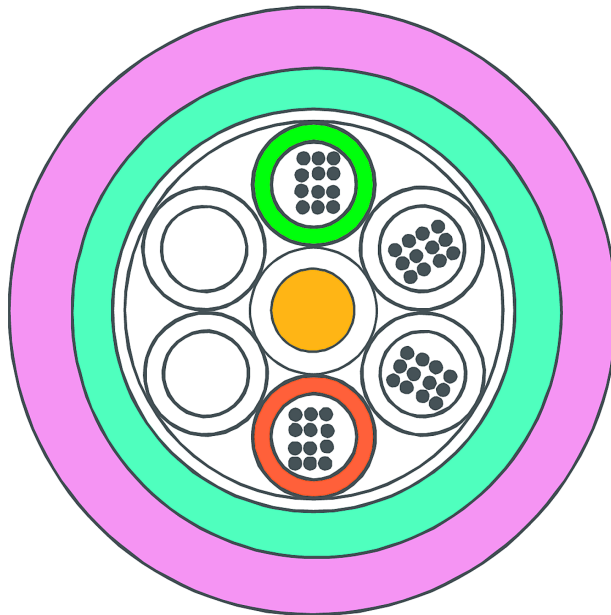
Type of packaging

meter



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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



Technical Data

General Data

Transmission technology	Fiber optic
Mode type of the fiber	Multimode
Fiber class	OM4 (ISO/IEC 11801/EN 50173 & IEC 60793-2-10/EN 60793-2-10 A1.a.3)
Fiber construction	50/125 μ m

Transmission characteristics

Transmission rate up to 10 GBit (Gigabit-Ethernet)	IEEE 802.3an
Transmission rate up to 100 GBit	IEEE 802.3ba
Reach	
Reach 1000BASE LX	550 m
Reach 1000BASE SX	1100 m
Overfilled (OFL) modal bandwidth at 850 nm (min.)	3500 MHz * km
Overfilled (OFL) modal bandwidth at 1300 nm (min.)	500 MHz * km
Effective modal bandwidth (EMB) at 850 nm (min.)	4700 MHz * km

Connections/interfaces

Connector technology interface 1	Free line end
Connector technology interface 2	Free line end
Fiber core diameter	50 $\pm$ 2 μ m
Core-/ Fiber cladding diameter	125.0 $\pm$ 1.0 μ m
Primary coating diameter - colored	250 $\pm$ 15 μ m
Primary coating diameter - uncolored	242 $\pm$ 5 μ m

Optical characteristics

Attenuation of the fiber	
Attenuation of the fiber in the cable at 850 nm	max. 2.5 dB/km
Attenuation of the fiber in the cable at 1300 nm	max. 0.7 dB/km
Maximum value of cable attenuation at 850 nm	3.0 dB/km
Maximum value of cable attenuation at 1300 nm	1.0 dB/km

Mechanical characteristics

Proof stress level	min. 0.7 ($\sim$ 1 %) GPa
Typische durchschnittliche Abziehkraft	1.7 N
Strip force (peak)	1.3 $\leq$ F _{peak.strip} $\leq$ 8.9 N
Fiber cladding non-circularity	max. 0.7 %



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Technical Data

Mechanical characteristics

Core non-circularity	max. 5 %
Core (MDF)-cladding concentricity error	max. 1 µm
Primary coating concentricity error	max. 5 %
Primary coating-cladding concentricity error	max. 6
Inhomogeneity of OTDR measurement report at 1310 nm und 1550 nm	max. 0.1 dB/km
Group refractive index	
Gruppen-Brechungsindex bei 850 nm	1.482
Gruppen-Brechungsindex bei 1300 nm	1.477
Numerical aperture	0.200 ± 0.015

Materials and material properties

Bend insensitivity	yes
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Approvals

RoHS	compliant
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The product meets the following standards

Generic cabling systems	
General requirements	ISO/IEC 11801 cat. OM4 TIA/EIA 568-C
Data centers	ISO/IEC 24764
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
Bandbreite	ISO/IEC 60793-1-41
Numerical aperture	ISO/IEC 60793-1-43
Gruppenlaufzeitdifferenz	ISO/IEC 60793-1-49
Optical fibers: Product specifications	
Sectional specification for category A1 multimode fibres	ISO/IEC 60793-2-10 (A1a.3)
ITU-T standard	G.651.1
TIA/ANSI-492	AAAD