

ICS IE ToughCat 7

S/FTP Installation Cable for tougher environments



Application

Generic Data transmission. This cable is a **Cat7 S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units.

Standards

EN 50173-1; EN 50288-4-1
ISO/IEC 11801; IEC 61156-5
Power over Ethernet(PoE/PoE+)
Det Norske Veritas (DNV GL) Class Program DNVGL-CP-0403 and Lloyd Register approval system, 2002

Fire rating

LSHF-FR(SHF1) : IEC 60754-2; IEC 61034, IEC 60332-3-24, EN 50399 Class D_{cas}2d1a1

Chemical resistance

Mineral oils IRM 902 (IEC60811-404) : 7 days/23°C, 4 hours/70°C
Diesel - IRM 903 (IEC60811-404) : 7 days/23°C, 4 hours/70°C

Certification

This cable is certified by: Det Norske Veritas (DNV), Lloyds Register and American Bureau of Shipping (ABS)

Construction

Conductor	Stranded copper wire Ø 0.27 mm ² , AWG23
Insulation	PE, Ø 1.6 mm
Twisting	2 cores to the pair
Cable lay up	4 pairs
Pair screen	Al-laminated plastic foil around each pair
Overall screen	Copper braid, tinned Ø 6,6 mm
Sheath	Oil resistant, Fire retardant and halogen free LSHF-FR, SHF1, acc. to IEC60092-360. Standard colour Grey RAL7035

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Mechanical Properties

Bending radius	Installation	8 x D
	Installed	4 x D
Temperature range	During operation	-40°C to + 85°C
	During installation	-15°C to + 50°C
Fire load	4 pair	670 MJ/km
Maximum tensile load	During operation	No load
	During installation	140 N

Electrical Properties

at 20°C

DC loop resistance		≤ 138 Ω/km
Resistance unbalance		≤ 2%
Insulation resistance	(500 V)	≥ 5000 MΩxkm
Capacitance	at 800 Hz	Nom. 43 nF/km
Capacitance unbalance	(pair to ground)	≤ 1500 pF/km
Mean Characteristic impedance	@ 100 MHz)	100 ± 5 Ω
Nominal velocity of propagation		0,76c
Propagation delay		≤ 450 ns/100 m
Delay skew		≤ 15 ns/100 m
Transfer impedance	at 1 MHz	≤ 10 mΩ /m
	at 10 MHz	≤ 8 mΩ /m
	at 30 MHz	≤ 10 mΩ /m
Coupling attenuation		≥ 85 dB
Segregation classification	Acc. to EN 50174-2	"D"

Nominal Transmission characteristics

at 20°C

F (MHz)	Attenuation (dB/100m)	NEXT (dB)	ACR (dB/100m)	Return loss (dB)	PS-NEXT (dB)	PS-ACR (dB/100m)	ELFEXT (dB/100m)	PS-ELFEXT (dB/100m)
1	2,0	90	88		87	85	85	82
4	3,6	90	86	27	87	83	85	82
10	5,5	90	84	30	87	81	79	76
16	7,5	90	82	30	87	79	75	72
20	7,7	90	82	30	87	79	73	70
31.25	9,8	90	80	30	87	77	69	66
62.50	14,0	86	72	30	83	69	63	60
100	17,9	83	65	30	80	62	59	56
155.00	22,4	81	59	26	78	55	57	54
200.00	25,6	78	52	25	75	49	53	50
250.00	28,8	77	48	25	74	45	51	48
300.00	31,6	73	41	23	70	38	47	44
600.00	45,7	71	25	20	68	22	44	41

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Technical data

Reference code	Description	Colour	Euro class	Fire load		Outer diameter (mm)	Weight kg/km
				MJ/km	kWh/m		
60011617	ToughCat C7 LSHF-FR 4x2/0.27mm2	Grey RAL7035	D _{ca}	670	0,186	8,1	75

Product Code Table

Product Description	PG Reference Code	PG Part Number
ToughCat C7 LSHF-FR 4x2/0.27mm2	60011617	60011617
ToughCat C7 LSHF-FR 4x2/0.27mm2 500DP	60011617	60015820
ToughCat C7 LSHF-FR 4x2/0.27mm2 1000DP	60011617	60030363

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