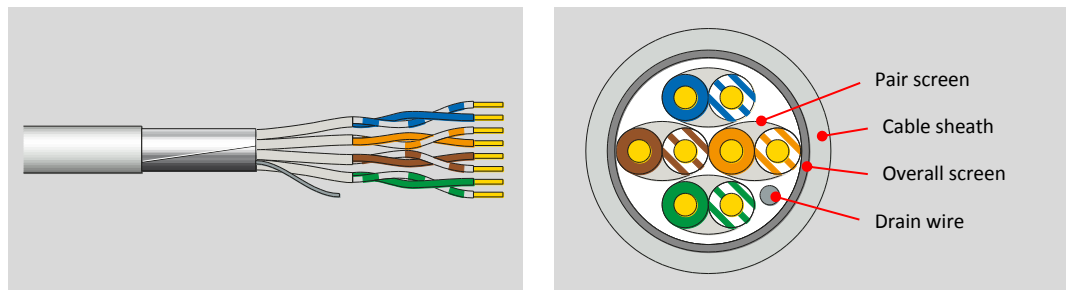


R&Mfreenet F/FTP Cat.7 650 MHz



Cable reference	Part number	R320249
	Source code	B / V
	R&M positioning	Cat.7, Level 1

Cable construction	Conductor	Bare solid copper wire AWG23 (\varnothing 0.56 mm)
	Insulation	Polyethylene \varnothing 1.35 mm
	Twisting	2 wires to the pair
	Cable lay up	4 pairs to the core
	Pair screen	Alu / polyester tape
	Overall screen	Alu / polyester tape, tin plated copper wire, AWG26
	Sheath	LSZH, gray RAL 7035



Application

Primary (Campus), Secondary (Riser), Tertiary (Horizontal)
 IEEE 802.3an: 10Base-T; 100Base-TX; 1000Base-T; 10GBase-T
 IEEE 802.5 16 MB; ISDN; TPDDI; ATM
 IEEE 802.3af-2002: POE; IEEE 802.3at: POE+
 Confirming to European regulation "CPR" EN 50575

Standards

ISO/IEC 11801 2nd ed.; EN 50173-1
 IEC 61156-5 2nd ed.; EN 50288-10-1

Fire rating

LSZH
 IEC 60332-1; IEC 60754-2; IEC 61034
 EN50575; Dca-s2,d2,a1; DOP E7000

Technical Data	Cable designation	F/FTP Cat.7 650MHz 4PxAWG23
	Packaging	Drum 500 m
	Outer diameter	Nominal 7.3 mm
	Weight	53 kg / km
	Thermal load	501 MJ / km
	Segregation class	c
	Tensile force	100 N

Mechanical Properties	Bending radius	\geq 35 mm during operation (without load)
		\geq 70 mm during installation (with load)
	Temperature range	During operation -20°C...+ 60°C
	During installation 0°C...+ 50°C	



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Datasheets may change without prior notice

15.03.2017 / V2.3 / Ri

R&Mfreenet F/FTP Cat.7 650MHz 4PxAWG23 LSZH Dca NVP=76% ISO/IEC 11801 <source code> <batch no.> <dd/mm/yy> <meter> m



Convincing cabling solutions

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Electrical Properties
(at 20°C ± 5°C)





DC loop resistance		≤ 16.5 Ω / 100 m
Resistance unbalance		≤ 2 %
Test voltage	DC, 1 min, core/core	1000 V
Insulation resistance	500 V	≥ 5000 MΩ * km
Capacitance		43 pF / m nom.
Capacitance unbalance		≤ 1500 pF / km
Mean characteristic impedance	At 100 MHz	100 ± 5 Ω
Nominal velocity of propagation		Approx. 76 %
Propagation delay	At 1 MHz	≤ 500 ns / 100 m
Delay skew		≤ 20 ns / 100 m
Coupling attenuation		≥ 70 dB
Transfer impedance	At 1 MHz	≤ 20 mΩ / m
	At 10 MHz	≤ 50 mΩ / m
	At 100 MHz	≤ 100 mΩ / m
Balance TCL	At 1 MHz	≥ 40 dB
	At 10 MHz	≥ 40 dB
	At 100 MHz	≥ 20 dB
PS-Alien NEXT	At 100 MHz	Min. 75 dB
		Typ. 80 dB

Typical transmission characteristics (at 20°C)

f (MHz)	Attenuation (dB/100 m)		NEXT (dB)		PS-NEXT (dB)		ACR-F ¹⁾ (dB/100 m)		PS-ACR-F ¹⁾ (dB/100 m)		Return loss (dB)	
	Max	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ	Min	Typ
4	3.6	3.4	93.4	100	90.4	97	82	105	79	102	23	27
10	5.7	5.4	87.4	100	84.4	97	74	97	71	94	25	30
20	8.1	7.7	82.9	100	79.9	97	68	91	65	88	25	30
62.5	14.5	13.7	75.5	100	72.5	97	58.1	81	55.1	78	21.5	30
100	18.5	17.4	72.4	100	69.4	97	54	77	51	74	20.1	30
250	30.2	28.1	66.4	90	63.4	87	46	69	43	66	17.3	24
500	44.1	44.8	61.9	85	58.9	82	40	61	37	58	17.3	22
600	48.9	44.8	60.7	85	57.7	82	38.4	61	35.4	58	17.3	22
650	-	55.5	-	75	-	72	-	53	-	50	-	16

¹⁾ ACR-F was formerly known as ELFEXT.

Recommended connection technique

Module		Perm. Link Class D	Perm. Link Class E	Channel Class E _A	Perm. Link Class E _A	Short Link Class E _A
	Cat.5e/s	✓	-	-	-	-
	Cat.6 Real10/s	✓	✓	✓	-	-
	Cat.6A/s	✓	✓	✓	✓	✓
	Cat.6A EL/s	✓	✓	✓	✓	✓

Third party certificate 3P Third Party Testing