



Cat.8.1 Trunk Cables

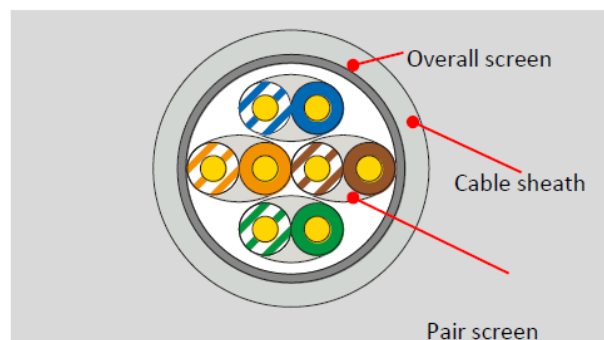
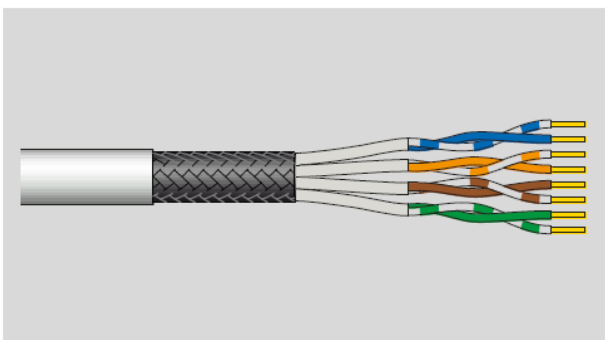
R&Mfreenet Cat.8.1 high end Trunk Cable to be used for datacenter solutions. Production according customer requirements up to 26m. Using a RJ45 jacks with IDC technology they are suitable for power delivery (PoE) up to the highest levels. They are suitable for ultra high data rate applications and frequencies of up to 2000 MHz.

Features of Cat.8.1 trunk cables

- Fulfills the requirements of Category 8.1, Class I (2000MHz) according to the present standard of the ISO/IEC 11801
- Supports PoE (IEEE 802.3af), PoEP (IEEE 802.3at), 4Ppoe (IEEE 802.3bt) and is compatible to IEC 60512-99-001/002 up to type 3
- Supports 3rd party remote powering applications like UPoE and POH
- IDC wire termination according to IEC 60352-3
- Tested according to IEC 61935-2
- Each individual trunk cable is factory tested
- Impedance of 100Ω
- LSFRZH jacket material with optional CPR classes Dca and B2ca
- Patch cord attenuation factor 2 (AWG 26)



Cable specifications and construction



Application Primary (Campus), Secondary (Riser), Tertiary (Horizontal)
 IEEE 802.3an: 10Base-T; 100Base-TX; 1000Base-T;
 IEEE 802.3bq: 10GBASE-T over Class-EA 100 m channel; 25GBASE-T over Class-FA 30 m channel; 40GBASE-T over Class-I 30 m channel
 IEEE 802.5 16 MB; ISDN; TPDDI; ATM; CATV; SOHO-
 Cabling IEEE 802.3af-2002: POE; IEEE 802.3at: POE+;
 IEEE 802.3bt: 4PPOE
 Cisco Universal Power Over Ethernet (UPOE)
 Power over HDBaseTTM (PoH) Confirming to European regulation "CPR" EN 50575

Standards ISO/IEC 11801 2nd ed.; EN 50173-1 ; ISO/IEC TR 11801-99-1 IEC 61156-5; EN50288-12-1 ; IEC 61156-9 (46C/1037E/FDIS) Power over Ethernet (PoE) / Type 1-4

Fire rating LSFRZH-B2 IEC 60332-1; IEC 60332-3-24; IEC 60754-2; IEC 61034

Technical Data

Cable designation	S/FTP Cat8.2/Cat.8 2000MHz 4PxAWG22
Packaging	Drum 500 m
Outer diameter	Nominal 8.5mm
Weight	80 kg / km
Thermal load	768 MJ / km
Segregation class	D
Tensile force	180 N

Mechanical Properties

Bending radius	≥ 34 mm during operation (without load)
	≥ 68 mm during installation (with load)
Temperature range	During operation -20°C...+ 60°C
	During installation 0°C...+ 50°C

**Electrical Properties
(at 20°C ± 5°C)**

DC loop residence		≤ 13 Ω / 100 m
Resistance unbalance		≤ 1 %
Test voltage	DC, 1 min, core/core	1000 V
Insulation resistance	500 V	≥ 5000 MΩ * km
Capacitance	At 800 Hz	43 pF / m nom.
Capacitance unbalance		≤ 1.2 pF / m
Mean characteristic impedance @ 100 MHz		100 ± 5 Ω
Nominal velocity of propagation		Approx. 73 %
Propagation delay	At 1 MHz	≤ 500 ns / 100 m
Delay skew		≤ 20 ns / 100 m
Coupling attenuation		≥ 85 dB
Transfer impedance	At 1 MHz	≤ 5 mΩ / m
	At 10 MHz	≤ 5 mΩ / m
	At 100 MHz	≤ 20 mΩ / m
Balance TCL	At 1 MHz	≥ 40 dB
	At 10 MHz	≥ 40 dB
	At 100 MHz	≥ 28 dB
	At 1000 MHz	≥ 13 dB
PS-Alien NEXT	At 1 MHz	≥ 80 dB
	At 10 MHz	≥ 80 dB
	At 100 MHz	≥ 80 dB
	At 1000 MHz	≥ 72,5 dB

Typical transmission characteristics (at 20°C)

f (MHz)	Attenuation (dB/100 m)		NEX T (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	3.7	3.5	78	95	75,0	92,0	78	98	75	95	17	30
10	5.8	5.4	78	95	75,0	92,0	78	97	75	94	25	35
20	8.2	7.6	78	95	75,0	92,0	74.6	96	71.6	93	25	32
62.5	14.5	13.5	78	95	75,0	92,0	64.7	94	61.7	91	23.6	30
100	18.5	17.1	75.4	95	72,4	92,0	60.6	90	57.6	87	22.2	27
250	29.7	27.6	69.4	90	66,4	87,0	52.6	83	49.6	83	19.4	23
600	47.1	44.0	63.7	85	60,7	82,0	45	80	42	77	16.8	20
1000	61.9	58.2	60.4	78	57,4	75,0	40.6	75	37.6	72	15.2	18
1500	77.2	72.9	57.8	75	54,8	72,0	37.1	66	34.1	63	14.0	17
2000	90.5	85.8	55.9	72	52,9	69,0	34.6	59	31.6	56	13.1	16

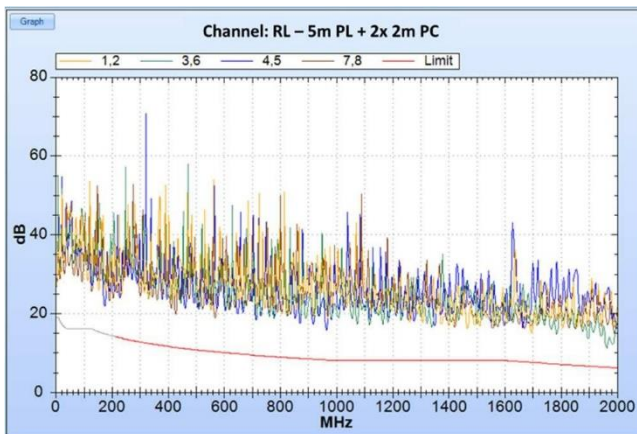
1) ACR-F was formerly known as ELFEXT.

RJ45 jack Module specifications

- Attains Cat 8.1 values together with Cat 8.1 patch cables as specified in standard ISO/IEC 11801 and EN50173-1
- When installed as part of an R&M Cat 8.1 shielded channel or permanent link, it meets the IEEE 802.3bq requirements for 40GBASE-T performance, as well as the requirements for Class I performance according to ISO/IEC 11801 and Cat 8.1 performance according to TIA/EIA 568.2-D.
- Supports extended reach of 25G transmission according to ISO/IEC TR11801-9909
- Very good margins on class EA permanent link limits
- Supports PoE (IEEE 802.3af), PoEP (IEEE 802.3at), 4PpoE (IEEE 802.3bt) and is tested according to IEC 60512-99-001/002 up to type 3 and 3rd party remote powering like UPoE
- Gold-plated contact area and tin-plated insulation displacement contact area
- Capacitive and inductive compensation
- Compatible with Cat 8.1 and full mechanical and electrical backwards compatibility with Cat 6A, 6 and 5e standard patch cords
- Automatic cutting of wires for precise, consistent termination
- X-Separator isolates pairs from each other, minimizing influence of cable termination on NEXT performance
- Use of all four sides of modules maximizes distance between pairs for optimum performance
- Unique termination design maximizes space for routing wires without sacrificing density
- Equipped with gauge to prevent RJ11/12 insertion



Typical Return Loss Cat. 8.1 S/FTP 5m Permanent Link with 2m Patch Cords



Typical NEXT Cat. 8.1 S/FTP 5m Permanent Link with 2m Patch Cords

