

HITRONIC® HRM-FD Breakout Cable

DB_HRM-FD_EN (version 3.0)
valid from: 01.09.2014

1. Product Description

Cable designation: A/J-V(ZN)H(ZN)11Y or U-V(ZN)H(ZN)11Y

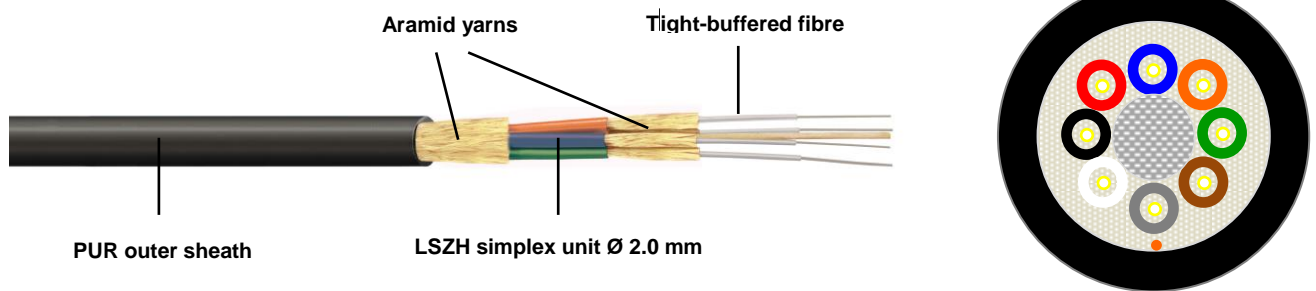
Universal mobile breakout cable for direct connector assembly (based on military norm MIL-C-85045), with up to 12 tight-buffered simplex units, flame-retardant and halogen-free sheaths, high flexibility, UV-resistant, and excellent mechanical resistance

2. Application

For use in outdoors or indoors, as links between moving parts

Methods of deployment: laying in drag chains, trunking, ducts, trays, building riser, empty plastic pipes, raised floors and plenums for short distances

3. Product Design



Cable core	Up to 12 tight-buffered simplex units enclosed by individual aramid fibres and LSZH sheaths (Ø 2.0 mm), and an overall PUR outer sheath
Cable inner sheath	LSZH, halogen-free, flame-retardant, low smoke
Cable outer sheath	Polyurethane (PUR), halogen-free, flame-retardant, UV-resistant
Colour of inner sheath	Blue, orange, green, brown, grey, white, red, black, yellow, violet, pink, turquoise
Colour of outer sheath	Black
Identification of simplex units	Colour-coded (refer to colour of inner sheath)
Strain relief	Aramid yarns
Type of armouring	-

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4. Optical and Physical Properties of Cabled Fibre (and Bare Fibre)

Multimode fibre		50/125 µm	50/125 µm	50/125 µm	62.5/125 µm	
		OM4	OM3	OM2	OM1	
Attenuation	@ 850 nm	dB/km	≤ 3.5 (2.5)	≤ 3.5 (2.5)	≤ 3.5 (2.5)	≤ 3.5 (3.0)
	@ 1300 nm	dB/km	≤ 1.5 (0.7)	≤ 1.5 (0.7)	≤ 1.5 (0.7)	≤ 1.5 (0.7)
Bandwidth	@ 850 nm	MHz-km	≥ 3500	≥ 1500	≥ 500	≥ 200
	@ 1300 nm	MHz-km	≥ 500	≥ 500	≥ 500	≥ 500
Numerical aperture			0.2 ± 0.015	0.2 ± 0.015	0.2 ± 0.015	0.275 ± 0.015
Core diameter		µm	50 ± 2.0	50 ± 2.0	50 ± 2.0	62.5 ± 2.5
Cladding diameter		µm	125 ± 1.0	125 ± 1.0	125 ± 1.0	125 ± 2
Primary coating diameter		µm	242 ± 5	242 ± 5	242 ± 5	245 ± 10
Single-mode fibre			9/125 µm			
(ITU-T G.652.D)						
Attenuation	@ 1310 nm	dB/km				≤ 0.4 (0.35)
	@ 1550 nm	dB/km				≤ 0.4 (0.21)
Chromatic dispersion	@ 1310 nm	ps/(nm-km)				≤ 3.0
	@ 1550 nm	ps/(nm-km)				≤ 18
Zero dispersion wavelength		Nm				1300 – 1322
Cut-off wavelength		Nm				≤ 1260
PMD		ps/km				≤ 0.1
Mode field diameter		µm				9.0 ± 0.4
Cladding diameter		µm				125 ± 1
Primary coating diameter		µm				242 ± 7

5. Thermal Properties

Operating temperature	-40°C to +70°C
Installation temperature	0°C to +50°C
Storage temperature	-40°C to +70°C

6. Mechanical Properties

Max. number of fibres	12	
Simplex cable diameter (mm)	2.0	
Outer cable diameter (mm)	refer to range overview	
Cable weight	refer to range overview	
Min. bending radius (mm)	without tensile load	15 x D
	with tensile load	20 x D
Max. tensile strength (N)	long-term	refer to range overview
	short-term	
Max. crush resistance (N)	2000	
Fire load (MJ/m) for cable diameter 13mm	4.26	

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7. Chemical Properties

LSZH inner sheath	Flame-retardant (IEC 60332-3), halogen-free, low smoke
PUR outer sheath	Flame-retardant (IEC 60332-3), halogen-free, UV-resistant

8. EC Directives

Not applicable for fibre optics

9. Approvals

- RoHS
- Environmental and mechanical tests comply to EN 187000 and IEC 60794
- Fire resistance tested according to IEC 60332-1, IEC 60332-3
- Halogen free according to IEC 60754-1

10. Product Range Overview

Article number	Article designation		No. of Fibres	Outer Ø (mm)	Weight (kg/km)	Tensile Strength long/short (N)
Multimode 50/125 µm OM4						
26300402	HITRONIC® HRM-FD800	2G 50/125 OM4	2	7.8 ± 0.3	50	800/1450
26300404	HITRONIC® HRM-FD1000	4G 50/125 OM4	4	7.8 ± 0.3	50	1000/1800
26300408	HITRONIC® HRM-FD1400	8G 50/125 OM4	8	10.4 ± 0.5	93	1400/2500
26300412	HITRONIC® HRM-FD1800	12G 50/125 OM4	12	13.0 ± 0.5	98	1800/3250
Multimode 50/125 µm OM3						
26300302	HITRONIC® HRM-FD800	2G 50/125 OM3	2	7.8 ± 0.3	50	800/1450
26300304	HITRONIC® HRM-FD1000	4G 50/125 OM3	4	7.8 ± 0.3	50	1000/1800
26300308	HITRONIC® HRM-FD1400	8G 50/125 OM3	8	10.4 ± 0.5	93	1400/2500
26300312	HITRONIC® HRM-FD1800	12G 50/125 OM3	12	13.0 ± 0.5	98	1800/3250
Multimode 50/125 µm OM2						
26300202	HITRONIC® HRM-FD800	2G 50/125 OM2	2	7.8 ± 0.3	50	800/1450
26300204	HITRONIC® HRM-FD1000	4G 50/125 OM2	4	7.8 ± 0.3	50	1000/1800
26300208	HITRONIC® HRM-FD1400	8G 50/125 OM2	8	10.4 ± 0.5	93	1400/2500
26300212	HITRONIC® HRM-FD1800	12G 50/125 OM2	12	13.0 ± 0.5	98	1800/3250
Multimode 62.5/125 µm OM1						
26300102	HITRONIC® HRM-FD800	2G 62.5/125	2	7.8 ± 0.3	50	800/1450
26300104	HITRONIC® HRM-FD1000	4G 62.5/125	4	7.8 ± 0.3	50	1000/1800
26300108	HITRONIC® HRM-FD1400	8G 62.5/125	8	10.4 ± 0.5	93	1400/2500
26300112	HITRONIC® HRM-FD1800	12G 62.5/125	12	13.0 ± 0.5	98	1800/3250
Single-mode 9/125 µm OS2						
26300902	HITRONIC® HRM-FD800	2E 9/125 OS2	2	7.8 ± 0.3	50	800/1450
26300904	HITRONIC® HRM-FD1000	4E 9/125 OS2	4	7.8 ± 0.3	50	1000/1800
26300908	HITRONIC® HRM-FD1400	8E 9/125 OS2	8	10.4 ± 0.5	93	1400/2500
26300912	HITRONIC® HRM-FD1800	12E 9/125 OS2	12	13.0 ± 0.5	98	1800/3250