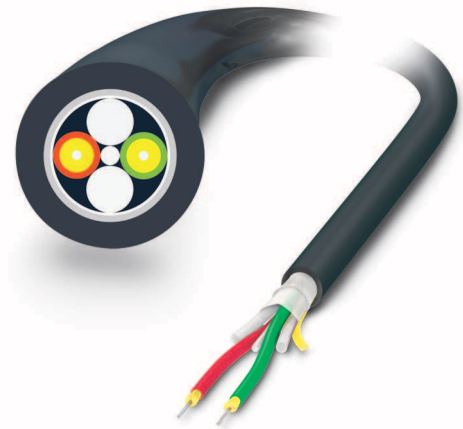# PSM-LWL-HCSO-200/230

HCS cable, duplex 200/230 µm
for fixed outdoor installation

Data sheet
100328_en_03   © PHOENIX CONTACT 2012-09-27

1   Description

The **PSM-LWL-HCSO-200/230** fiber optic cable is a robust cable for outdoor installation.

1.1   Properties

– Robust round cable for outdoor installation
– Polyethylene (PE) outer sheath
– Watertight lengthwise
– 2.9 mm single wires made from highly flexible FRNC material
– Halogen-free, ozone and UV resistant
– Integrated vapor barrier
– Glass yarn as rodent protection
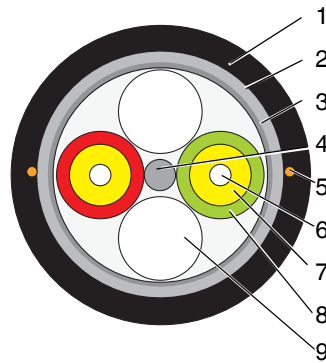– Suitable for burial in the ground

1.2   Structure

Figure 1   Cross section drawing

1   PE outer sheath
2   Glass yarn as rodent protection
3   Swelling fleece
4   Central supporting element
5   Tearing wire
6   Fiber with coating
7   Aramide yarn as strain relief
8   Single-wire sheath
9   Blind element

ℹ️   Make sure you always use the latest documentation.
It can be downloaded at www.phoenixcontact.net/catalog.

ℹ️   This data sheet is valid for all products listed on the following page:

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INSPIRING INNOVATIONS

2 Ordering data

Cables

Description	Type	Order No.	Pcs. / Pkt.
HCS cable, duplex 200/230 µm, for outdoor installation, by the meter without plug	PSM-LWL-HCSO-200/230	2799445	1
HCS cable, duplex 200/230 µm, for outdoor installation, assembled with plugs (IP20 heads only)	FOC-HCSO-1015/IP20/...	2901557	1
HCS cable, duplex 200/230 µm, for outdoor installation, assembled with plugs	FOC-HCSO-1015/..	1402192	1

Accessories

Description	Type	Order No.	Pcs. / Pkt.
Fiber optic plug-in connector, F-SMA plug set, for HCS fibers, consisting of four quick mounting plugs with bend protection	PSM-SET-FSMA/4-HCS	2799487	1
Fiber optic plug-in connector, B-FOC (ST) plug set, for HCS fibers, consisting of four quick mounting plugs with bend protection	PSM-SET-B-FOC/4-HCS	2708481	1
Fiber optic plug-in connector, SCRJ plug set for HCS fibers, consisting of two duplex quick mounting plugs with bend protection	PSM-SET-SCRJ-DUP/2-HCS	2313070	1
HCS assembly kit, for SCRJ quick mounting plugs, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers	PSM-HCS-KONFTOOL/SC-RJ	2708876	1
HCS assembly kit, for B-FOC (ST) quick mounting plugs, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS and HCS GI fibers, and documentation	PSM-HCS-KONFTOOL/B-FOC	2708465	1
HCS assembly kit, for F-SMA quick mounting plugs, including stripping blade, stripping pliers, aramide yarn scissors, fiber stripper, microscope, fiber cleaving tool for standard HCS fibers, and documentation	PSM-HCS-KONFTOOL	2799526	1
Fiber cleaving tool, for HCS fibers, pin arrangement: F-SMA for the assembly of F-SMA quick mounting plugs, supplements PSM-HCS-KONFTOOL...	PSM-HCS-CLEAVETOOL	2744995	1
Fiber cleaving tool, for HCS fibers, pin arrangement: B-FOC (ST) for the assembly of B-FOC quick mounting plugs, supplements PSM-HCS-KONFTOOL...	PSM-HCS-CLEAVETOOL/B-FOC	2708478	1
Fiber cleaving tool, for HCS fibers, pin arrangement: SCRJ or SC duplex for the assembly of SC quick mounting plugs, supplements PSM-HCS-KONFTOOL...	PSM-HCS-CLEAVETOOL/SCRJ	2313122	1
Fiber optic measuring case, consisting of an optical power meter, F-SMA and B-FOC adapters, reference fibers, and operating instructions	PSM-FO-POWERMETER	2799539	1
Fiber optic measuring case supplementary set, for devices with SCRJ interface, consisting of one-meter polymer reference fiber (SC Simplex to F-SMA plug), one-meter HCS GI reference fiber (SC Simplex to B-FOC plug), and SCRJ coupling	PSM-FO-POWERMETER SCRJ-SET	2901560	1

3 Technical data

General data

Cable type	HCS, 200/230 µm
Cable abbreviation	AT-VQHB2Y 2K200/230 10A17+8B20
Cable length	Free input (1.0 ... 1000.0 m)
Weight	97 kg/km
Temperature range	
Installation	-5°C ... +50°C
Operation	-20°C ... +70°C
Storage	-25°C ... +70°C
Altitude	5000 m

Fibers

Type	200/230 µm step index profile	
Attenuation	0°C ... +70°C	-20°C ... 0°C
At 650 nm	≤ 10 dB/km	≤ 14 dB/km
At 850 nm	≤ 8 dB/km	≤ 12 dB/km
Bandwidth length product		
At 650 nm	≥ 17 MHz x km	
At 850 nm	≥ 20 MHz x km	
Numerical aperture	0.37	

Single wires

Material	Copolymer (FRNC), flame resistant, halogen-free
Color	Red and green
Wire diameter	2.9 mm ±0.1 mm (for 3 mm crimping)
Strain relief elements, outer sheath	Non-metallic, aramide yarn
Stranding	Two single elements and two blind elements stranded around fiberglass cable core and wrapped in fleece

Outer sheath

Material	Polyethylene (PE)
Color	Black
Diameter	10.5 mm
Rodent protection	Glass yarn
Strain relief elements	Non-metallic, aramide yarn
Lengthwise waterproofing	with wadding, IEC 60794-1-2
Imprint	PHOENIX CONTACT FOC L (date MM/YY) AT-VQH(B)2Y 2K200/230 10A17 + 8B20 LG and running length specification in m
Tearing wire	Two tearing wires beneath outer sheath

Mechanical properties according to IEC 60794-1-2

		Cables		Single wires	
Bending radius	Method E11, test type A	Temporary	At least 150 mm	Temporary	At least 30 mm
		Permanent	At least 200 mm	Permanent	At least 50 mm
Tensile strength	Method E1	Temporary	Maximum 1500 N		
		Permanent	Maximum 200 N		
Lateral strength	Method E3	Temporary	Maximum 500 N/cm		
		Permanent	Maximum 300 N/cm		
Impact strength	Method E4	At least 1.5 Nm, 3 impacts			
Lengthwise waterproofing	Method F5, test type B	1 m cable, 1 m water column, 24 hours			

Material properties

Resistance to oil	Limited level of resistance to oil, gasoline, acids, and lyes
Paint or varnish coating	Free from substances that would ruin a paint or varnish coating according to central standard P-VW 3.10.757 65 0 of VW, Audi, Seat
Halogen-free	According to IEC 60754-2 A1
Resistance to ozone	DIN VDE 0472-805, test type B
UV resistance	According to DIN EN ISO 4892-2, method A
Fire load	1.68 MJ/m (0.47 kWh/m)
Fumes	No toxic or corrosive fumes
RoHS conformance	Cable meets EU directive 2002/95/EC