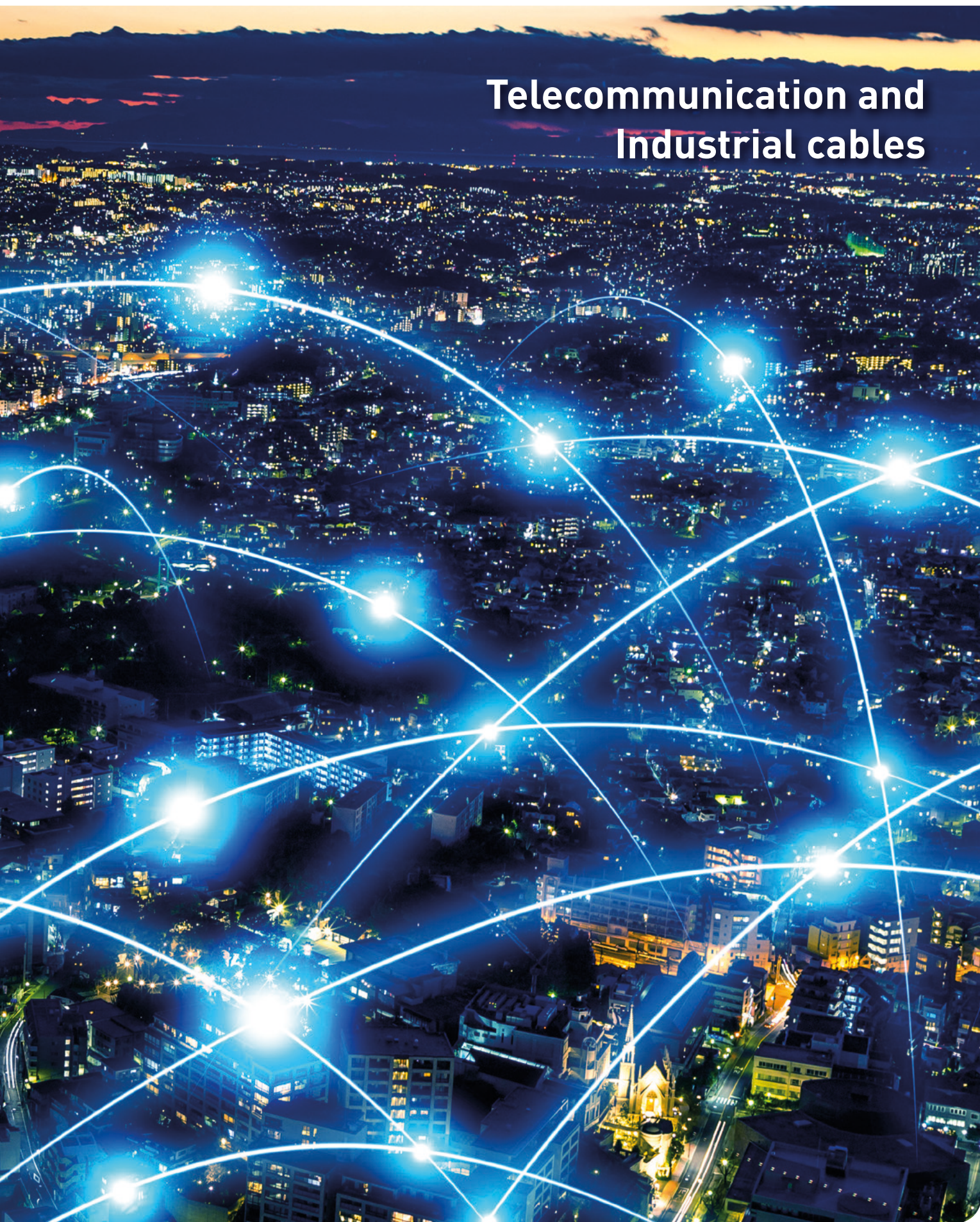


10/2018

# HELKAMA

THE PERFECT CONNECTION

## Telecommunication and Industrial cables





# Fiber optic cables

## FMS, FMMS

- Single or dual fiber installation cables for indoor cabling
- For housing and industrial use

## FXMSU, FXMMS

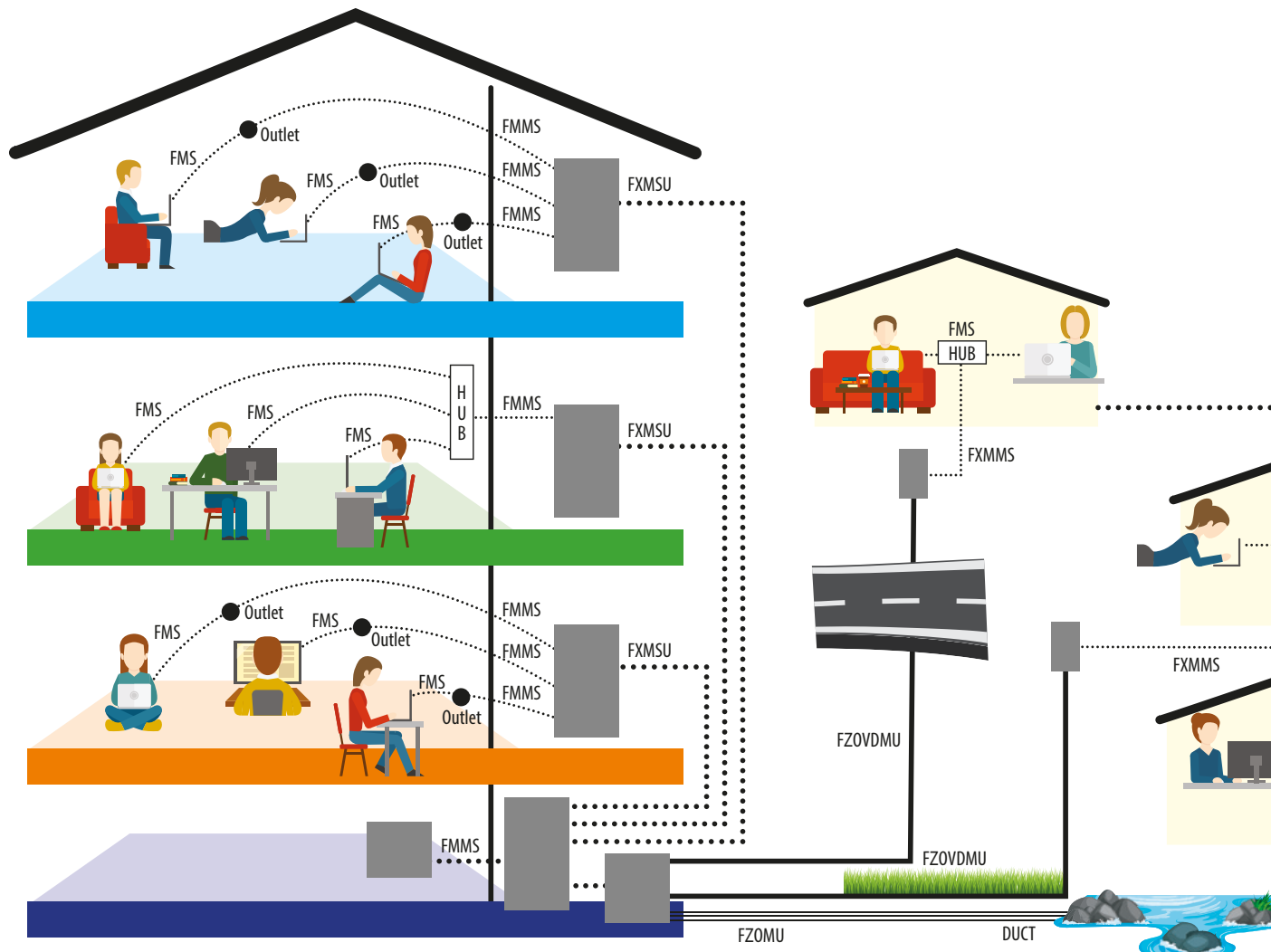
- Excellent tensile and crush strength
- Polypropylene slotted core and swellable tape protect the fibers from mechanical stress and water
- No grease, enabling easy installation at site
- FXMMS cable without swellable tape

## FZOVDMU

- Slotted core design
- Typical solutions for direct burial and duct installations
- Improved mechanical protection by corrugated steel tape

## Fiber trunk cables

- For telecom applications in towers and underground solutions, where multiple fibers are needed



# Fiber optic cables

## Installation Cables with Aramid yarns

FMS 1	1 fiber	900 µm/2,0 mm
FMS 2	2 fibers	900 µm/2,0 mm
FMMS	2 fibers	900 µm/2,0 mm

FMS 2 900 µm



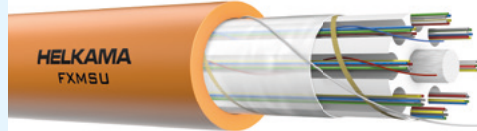
FMMS 900 µm



## Indoor/Outdoor Cable with PP slotted core

FXMSU	6–48 fibers	250 µm
	4–24 fibers	900 µm

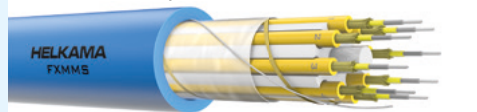
FXMSU 250 µm



## Installation Cable with PP slotted core

FXMMS	2–8 fibers	900 µm/2,0 mm
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FXMMS 900 µm/2,0 mm



## Direct burial and duct cable, steel tape protection

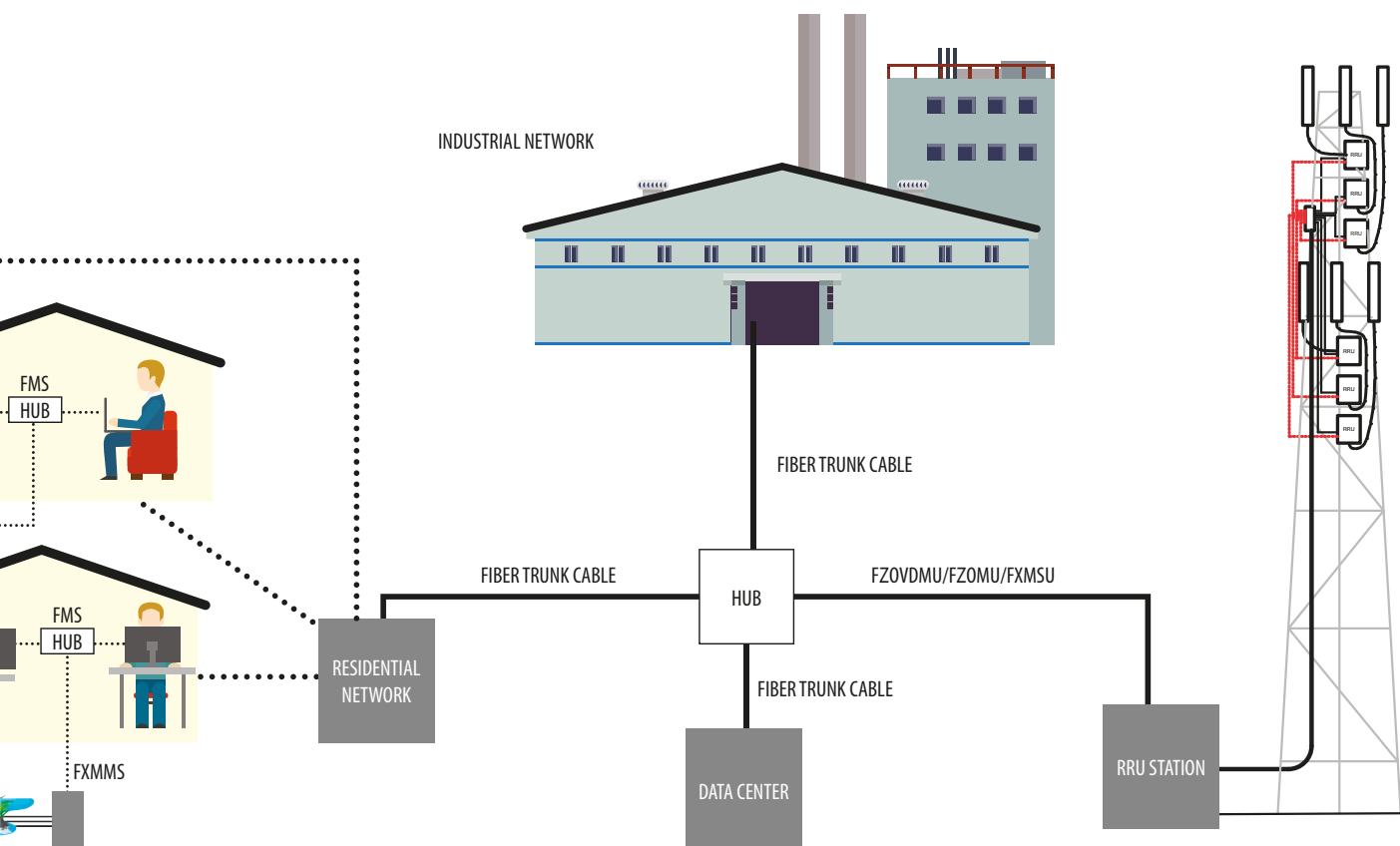
FZOVD MU	6–48 fibers	250 µm
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FZOVD MU 250 µm



Trunk Cable	96–144 fibers	250 µm
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Trunk Cable 8x12 fibers,  
250 µm loose tube construction



# Hybrid cables

## HELKAMA mobile networks solutions

### Hybrid solution

- Helkama Hybrid main feed power and fiber optic cable
- Single mode LC lower end fiber optic connectors
- Peeled lower end conductors
- Divider
- Helkama power jumpers with peeled conductors
- Fiber optic jumpers with single mode LC connectors

### Helkama solution with separate power and fiber optic cables

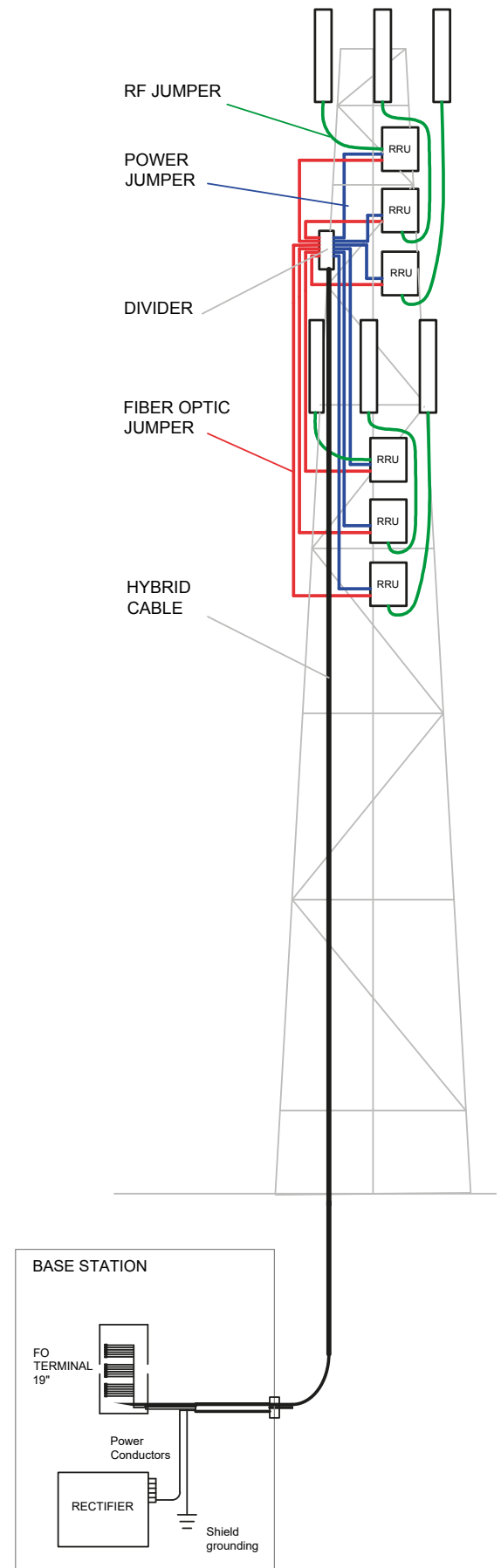
- Helkama main feed power cable
- Helkama FXMSU main feed fiber optic cable
- Divider
- Helkama power jumpers with peeled conductors
- Fiber optic jumpers with single mode LC connectors

### Conventional solution with separate cables

- Separate power and fiber optic cables for each remote radio unit

### Helkama solutions for wireless network

Combining all power and optical cables into one Hybrid cable creates remarkable savings in weight, wind area, installation time and material costs. Using a hybrid cable shortens installation time by reducing cable tray sizes and the amount of clamps needed in tower or rooftop solutions. By using the Hybrid Solution the installation team can finalize double the amount of installations compared to using the conventional solution with separate cables.





# Hybrid cables



## Divider options

Separates fibers and/or conductors of the hybrid cable for own terminals. Installation for telecom link stations in both outdoor and indoor locations.

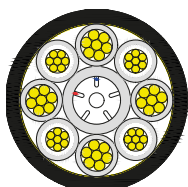
**Type 1:** DIVIDER PRO is easily expandable after installation. Body anodized aluminum, black with metallic fittings. Special hybrid cable clamp at the lower part for supporting the cable during assembly. Maximum pulling force 2 kN during installation.

**Type 2:** DIVIDER LITE: Power and Fiber jumpers are fixed installed and not expandable after installation. Body black PE plastic, bottom plate anodized aluminum with metallic fittings. Separate cabling stocking at the lower part for supporting the cable during assembly. Maximum pulling force 2 kN during installation.

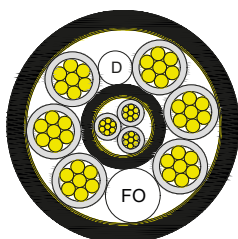
## TYPICAL HYBRID CABLE CONSTRUCTIONS



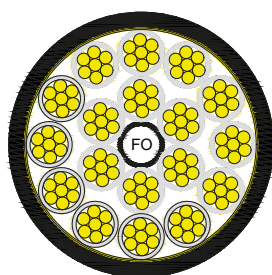
Hybrid jumper



2+2RRU system



3RRU + FO6 + Alarm cable



9RRU + FO18



# Instrumentation pair cables

RE-2X(St)H	1–24 pairs	EN 50288-7
RE-2X(St)H PiMF	1–24 pairs	EN 50288-7



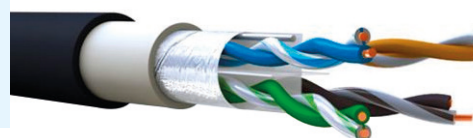
KLM-LSZH	2 or 4 pairs	SFS 2751
KLMA-LSZH	2 or 4 pairs	SFS 2755



NOVAK-HF	2–24 pairs	EN 50288-7
KJAAM-HF	1–24 pairs	EN 50288-7



CAT 6A, CAT 7	4 pairs	IEC 61156-6
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## Fire resistant cables (IEC 60331)

### INSTRUMENTATION PAIR CABLES

Lifecord-FRHF(i)	300 V	2–24 pairs	EN 50288-7
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Lifecord-FRHF(i)



Lifecord-FRHF(c)	300 V	1–24 pairs	EN 50288-7
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Lifecord-FRHF(c)



Fireline 750	500 V	2–19 pairs	EN 50288-7
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Fireline 750



### FIBER OPTIC CABLE

Lifecord-FRHF(f)	2–24 fibers	250 µm
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Lifecord-FRHF(f)



### Definitions:

- (i) = individual screen and drain wire
- (c) = common screen and drain wire
- (f) = fiber optic cable



# Power cables

**LIGHT DUTY CABLES 300 V**  
2x0,5 mm<sup>2</sup>–4x0,75 mm<sup>2</sup>

EN 50525-3-11

H-Flex PWR



**HEAVY DUTY CABLES 1 kV**  
1x1,0 mm<sup>2</sup>–5x185 mm<sup>2</sup>

EN 50525-3-11

H-Flex PWR C



**Definition:**

**C = shielded construction**

## General technical information

<b>Conductors</b>	Bare copper Class 1, 2 or 5; Aluminum Class 2 or 5
<b>Insulation plastic</b>	MDPE or XLPE
<b>Braiding/Copper tape</b>	Power cables with "C" indication have 94% braiding coverage Hybrid cables have copper tape with 100% coverage
<b>Sheath</b>	LSZH standard, LSZH-XL for oil resistant, PUR for abrasion resistant
<b>Rip cord</b>	For all cables with power conductors > 10 mm <sup>2</sup>
<b>Bending radius</b>	For fixed installation R = 6 x cable diameter
<b>Fiber optic characteristics</b>	Acc to ITU-T G.652.D / G.657.A1/A2/B3, standard types OS2/OM1/OM3/OM4
<b>Temperature ratings</b>	All standard cables max conductor temperature 90 °C, 120 °C on request

## HELKAMA BICA OY

Helkama manufactures telecom, industrial, marine and offshore cables.

Backed up by 50 years of experience and Finnish maritime tradition, our products are tested in the harshest conditions and designed to meet all relevant standards.

We serve our customers promptly, reliably and flexibly. When you need your challenges to turn into solutions, choose Helkama.

**We enable the perfect connection for your business.**

**ТОВ «ТЕХНОЕЛЕКТРО»**  
61166, м Харків, пр.Науки, 40,  
к.530а.  
тел.: +38 (067) 376-84-96,  
(099) 184-62-14, (050) 302-90-33  
Viber, WhatsApp, Telegram:  
+38-099-184-62-14  
e-mail: [info@tekhar.com](mailto:info@tekhar.com)  
URL: [www.tekhar.com](http://www.tekhar.com)  
skype: alex19749

