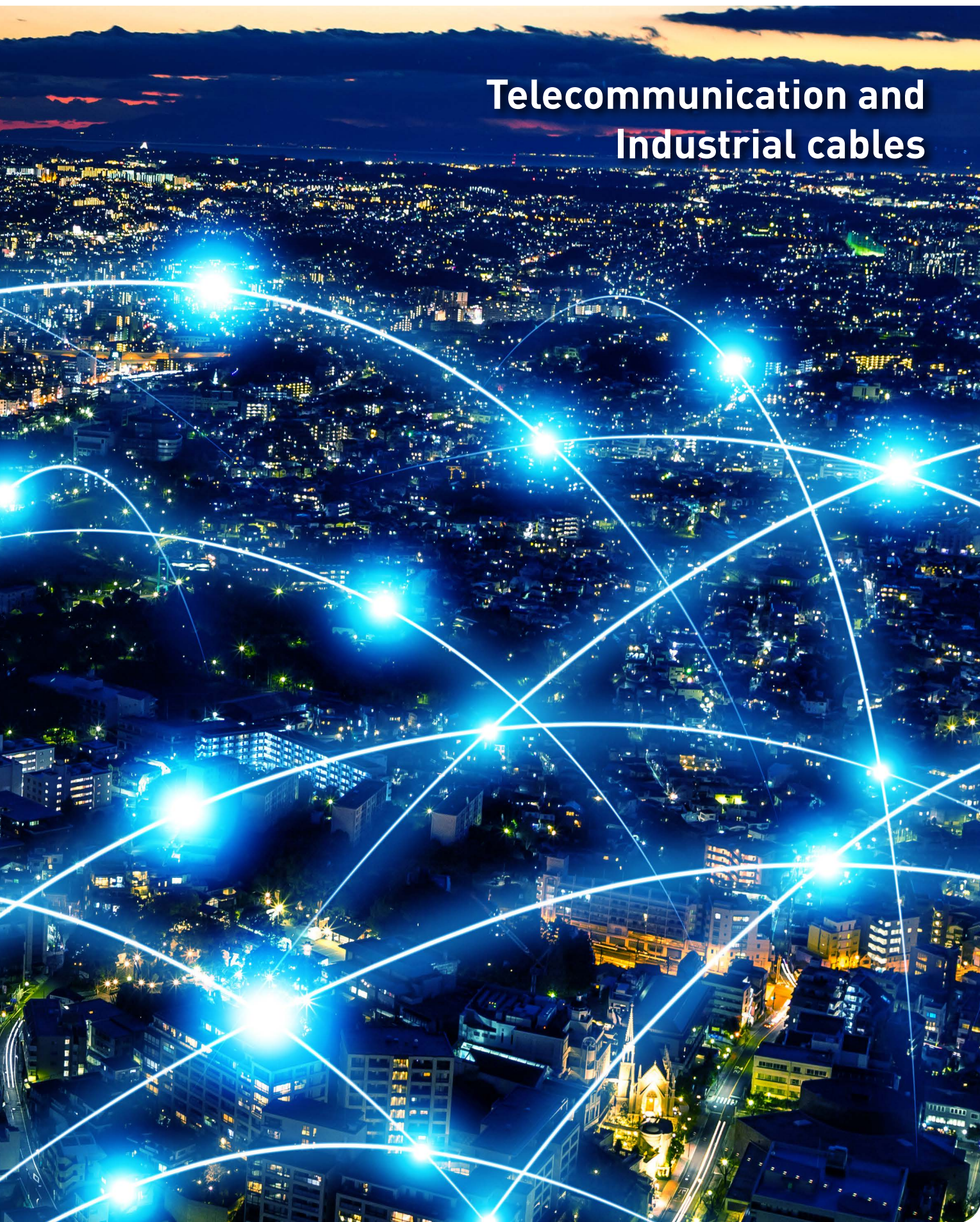


9/2018

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. Fibers are protected by polypropylene slotted core and swellable tapes against mechanical stresses and water. For indoor and outdoor solutions. No grease, which means easy to install at site. FXMMS cable is without swellable tape.

FXOVDU

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

Fiber trunk cables

For telecom applications for towers and under-ground solutions, where multiple fibers are needed.

Fiber optic cables

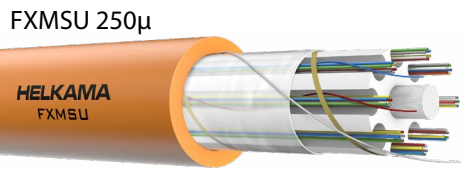
Installation Cables with Aramid yarns

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



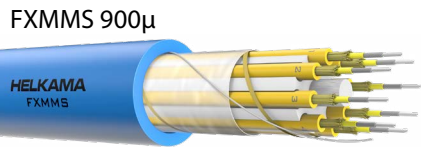
Indoor/Outdoor Cable with PP slotted core

FXMSU	6-48 fibers	250µ
	4-4 fibers	900µ



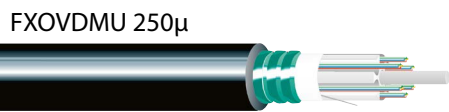
Installation Cable with PP slotted core

FXMMS	2-8 fibers	900µ
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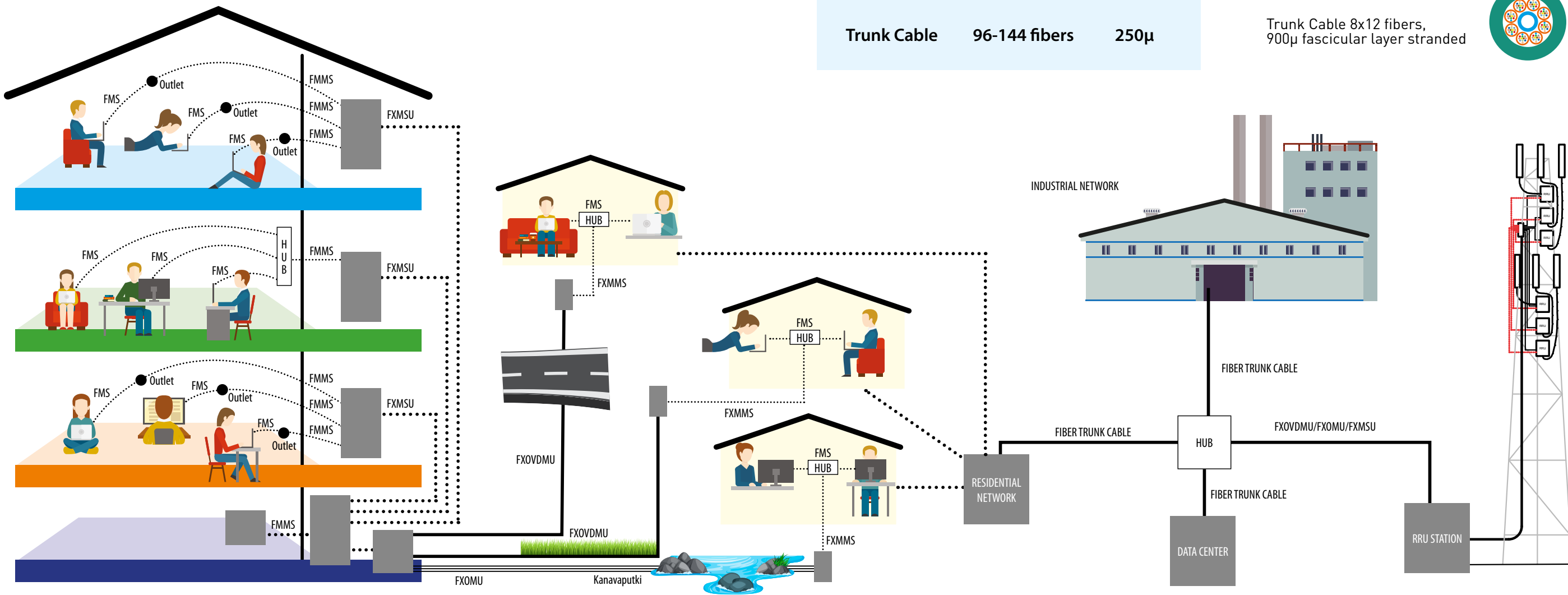
Direct burial and duct cable, steel tape protection

FXOVDU	6-48 fibers	250µ
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Trunk Cable	96-144 fibers	250µ
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Trunk Cable 8x12 fibers, 900µ fascicular layer stranded



Hybrid cables

HELKAMA mobile networks solutions

Hybrid solution

- Main feed power and fiber cable, type Helkama Hybrid
- Lower end fiber connectors are single mode LC
- Lower end conductors peeled
- DIVIDER
- Power jumpers, type Helkama LKSM-HF, conductors peeled
- Fiber optic jumpers, connectors are single mode LC

Helkama solution with separate power and fiber optic cables

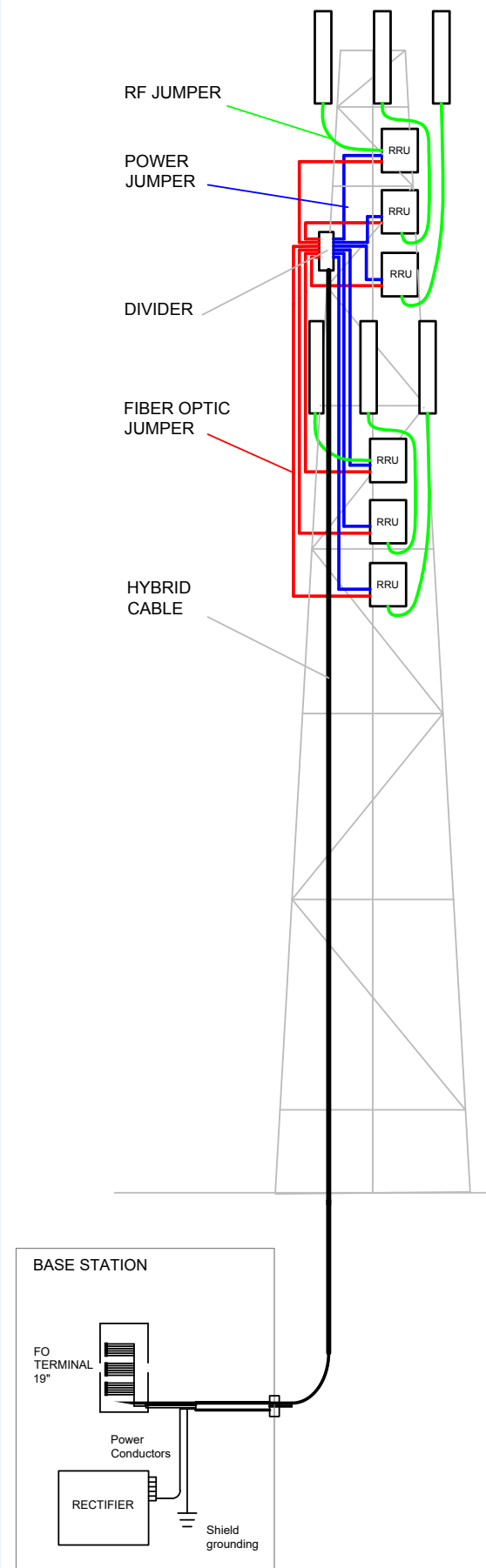
- Main feed power cable, type Helkama LKSM-HF
- Main feed fiber optical cable, type Helkama FXMSU
- DIVIDER
- Power jumpers, type Helkama LKSM-HF, conductors peeled
- Fiber optic jumpers, connectors are single mode LC

Conventional solution with separate cables

- Power and fiber cables for each remote radio are separate

Helkama solutions for wireless network

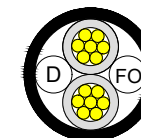
Combining all power and optical cables into one Hybrid cable there is remarkable savings in weight, wind area, installation time and minimizing cable trays and clamps in tower or rooftop solution. Hybrid Solution direct material cost is less in all solutions when number of radios multiplying with the tower height gives index more than 210. Examples: 3 RRU x 70m or 6 RRU x 35m or 9 RRU x 23,5m. Whenever the index is less than 210, then separate cables is beneficial for separate power and fibers cabling. In above example clamps and installation time has not taken into account, which makes the Hybrid Solution even more beneficial. Or other way saying: using Hybrid Solution the installation team can finalize double amount of installations comparing with the separate installations.



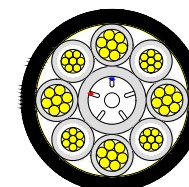
Hybrid cables



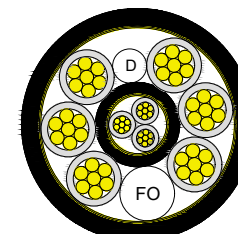
TYPICAL HYBRID CABLE CONSTRUCTIONS



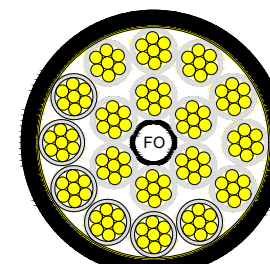
Hybrid jumper



2+2RRU system



3RRU + FO6 + Alarm cable



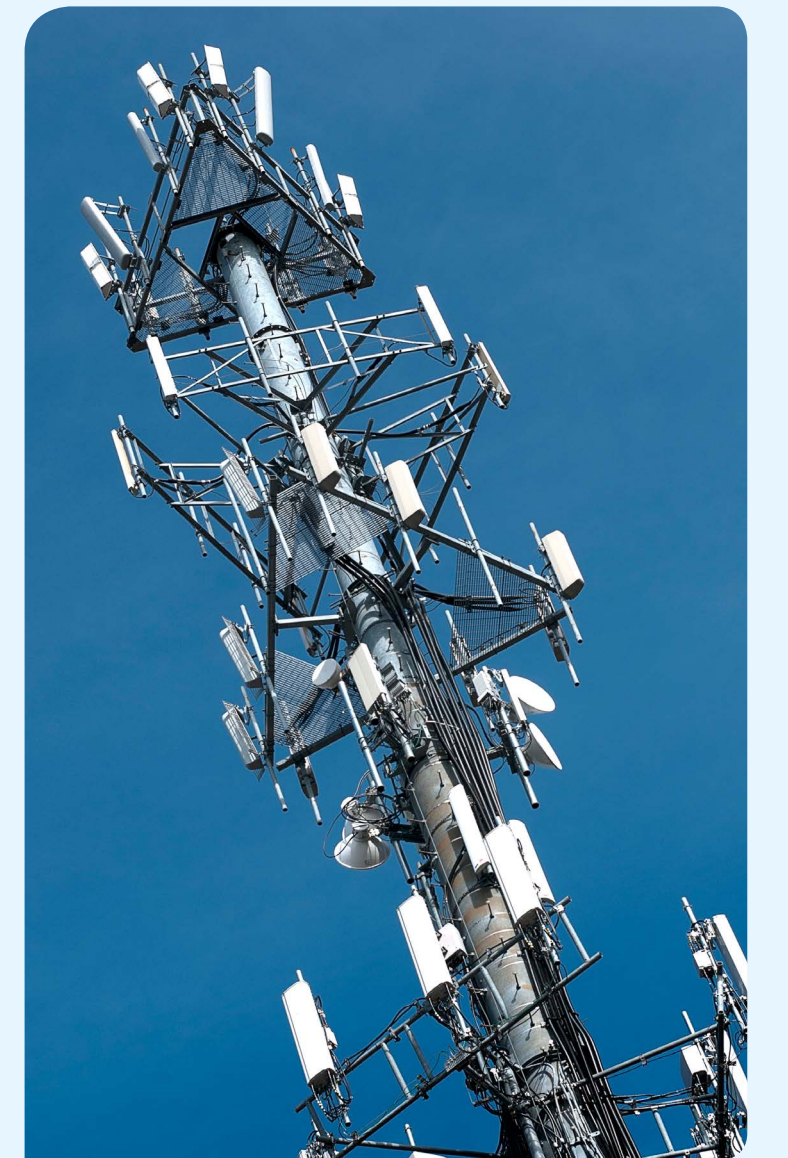
9RRU + FO18

Divider options





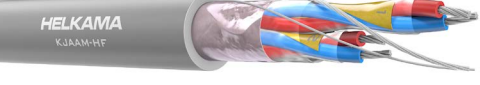

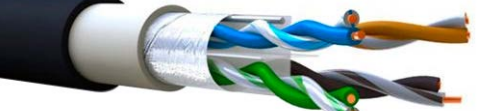

Separates hybrid cables' fibers and/or conductors for own terminals. Installation for telecom link stations for outdoor and indoor locations.

Type1: DIVIDER PRO is easily expandable after installation. Divider body is anodized aluminum, black color with metallic fittings. Special hybrid cable clamp at the lower part for supporting the cable during assembly. Maximum pulling force 2 kN during installation.

Type2: DIVIDER LITE: Power and Fiber jumpers are fixed installed, not expandable. Divider body is PE plastic, black color, 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.







Instrumentation pair cables

RE-2X(St)H RE-2X(St)H PiMF	1-24 pairs 1-24 pairs	EN 50288-7 EN 50288-7		
KLM-LSZH KLMA-LSZH	2 or 4 pairs 2 or 4 pairs	SFS 2755 SFS 2755		
NOVAK-HF KJAAM-HF	2-24 pairs 1-24 pairs	EN 50288-7 EN 50288-7		
CAT 6A, CAT 7	4 pairs	IEC 61156-6		

Fire resistant cables

acc to IEC 60331-

INSTRUMENTATION PAIR CABLES EN 50288-7			RFA(i)-Lifecord	
RFA(i)-Lifecord	300V	2-24 pairs		
RFA(c)-Lifecord	300V	1-24 pairs		RFA(c)-Lifecord
RFE(i)-Lifecord	300V	2-24 pairs		
RFE(c)-Lifecord	300V	1-24 pairs		
Fireline 750	500V	2-19 pairs		Fireline 750
FIBER OPTIC CABLE			FXOVDMU-Lifecord	
FXOVDMU-Lifecord	2-24 fibers	250µ		

Definitions:

RFA = with Al foil under the sheath
(i) = individual earthing wires

RFE = with Copper shield under the sheath
(c) = common earthing wire

Power cables

EN 50525-3-11

LIGHT DUTY CABLES 300V
2x0,5mm²-4x0,75mm²

ORDINARY DUTY CABLES 500V
2x0,75mm²-5x4,0mm²

HEAVY DUTY CABLES 1 kV
1x1,0mm²-5x185mm²

Definition:
"C" shielded construction

H-Flex PWR



H-Flex PWR C



General information

Conductors	Bare copper Class 1, 2 or 5; Aluminum Class 2 or 5
Insulation plastic	MDPE or XLPE
Braiding/Copper tape	Power cables with "C" indication have 94 % braiding coverage Hybrid cables have copper tape with 100 % coverage
Sheath	SHF1 standard, SHF2 for oil resistant, PUR for abrasion resistant
Rip cord	For all cables with power conductors >10mm ²
Bending radius	For fixed installation R = 6 x cable diameter
Fiber optic characteristics	Acc to ITU-T G.652.D / G657.A1/A2/B3, standard types SM/GK/OM3/OM4
Temperature ratings	All standard cables max conductor temperature 90C, 120C 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.

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