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Product Datasheet
fiber optic cable InSky OPGW S 144U (3x48) 16.4mm 146kA2·s 82kN

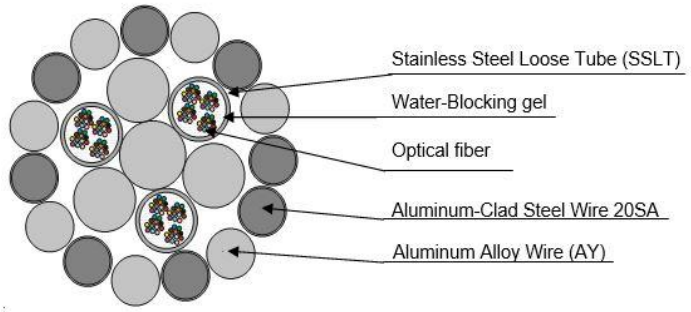
Order information

Design	Part number
InSky OPGW S 144U (3x48) 16.4mm 146kA2·s 82kN	0113-92480

Features

- ACS wires are highly corrosion-resistant
- Aluminum alloy wires provide conductivity for fault current
- Optical ground wire shields high-voltage conductors from lightning strikes

Design



Design element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	AY wire	1	3.65	0.1437
1st stranded layer	AY-wire/SSLT	3/3	3.65	0.1437
2nd stranded layer	20% ACS wire/AY-wire	8/7	2.73	0.1075

Technical Specifications

Mechanical	Metric	Customary
Cable diameter ± 0.2 mm (0.008 in)	16.4 mm	0.646 in
Cable unit weight	615 kg/km	0.413 lb/ft
Rated breaking strength (RBS) (without SSLT's)	82.2 kN	18 488 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	65.3 kN	14 683 lb
Zero fiber strain margin (ZFSM) (80% RBS)	65.3 kN	14 683 lb
Cross-sectional area of ACS wire	53.0 mm²	0.082 in²
Cross-sectional area of AY-wire	82.83 mm²	0.128 in²
Cable total cross-sectional area	135.9 mm²	0.211 in²
Modulus of Elasticity, initial	73.8 kN/mm²	10 706 ksi
Modulus of Elasticity, final	95.4 kN/mm²	13 839 ksi
Temperature coefficient of linear expansion	16.93 E^{-6}/°C	9.41 E^{-6}/°F
Southwire Sag10™ coefficient chart number	1-1439	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.323 Ω/km	0.5191 Ω/mile
Short current circuit capacity	145.6 kA²·s	-
Basis: Initial cable temp = 40°C (104°F), Final = 210°C (410°F), Duration = 0.5 s		
Short current circuit for 0,5 sec	17.1 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.3320 Ω/km	0.5343 Ω/mile
AC resistance at 50°C (122°F)	0.3605 Ω/km	0.5802 Ω/mile
AC resistance at 75°C (167°F)	0.3891 Ω/km	0.6261 Ω/mile
Geometric Mean Radius (GMR)	3.4879 mm	0.0114 ft
Inductive Reactance (Xa) @ 60 Hz	0.3371 Ω/km	0.5424 Ω/mile
Capacitive Reactance (X'a) @ 60 Hz	0.1726 MΩ-km	0.1072 MΩ-mile

Optical	
ITU-T fiber compliance	G.652D & G.657.A1
Fiber manufacturer	Corning SMF-28 ULTRA
Number of optical fibers in total (Actual/Maximum)	144/144
Number of optical fibers per SSLT	48

Color identification of loose tubes / optical fibers is according to ANSI/TIA-598-D-2014

Color identification of the binding yarns for bundles 1-2 of 12 fibers:

Color identification of SSLT's:

Other colors upon request

Fiber Dimensional Specifications:	
Core-Clad Concentricity	≤0.5 µm
Cladding Diameter	125 ± 0.7 µm
Cladding Non-Circularity	≤12 µm
Coating Diameter	242 ± 5 µm

Final Maximum Individual Attenuation Limits:	
Wavelength	dB/km
1310 nm	0.34
1383 nm	0.34
1490 nm	0.23
1550 nm	0.20
1625 nm	0.22

Reel Packing and Handling	Metric	Customary
Maximum available reel length	5 470 m	17 946 ft
Minimum bending radius, no load (tension < 5% RBS)	229 mm	9 in
Minimum bending radius, loaded (tension ≥ 5% RBS)	254 mm	10 in
Standard sheave diameter: first, last, angles ≥ 60°	660 mm	26 in
Standard sheave diameter: tangents and angles ≤ 60°	432 mm	17 in

Operating parameters	Metric	Customary
Operation temperature	-50°C … +85°C	-58°F … +185°F
Installation temperature	-30°C … +50°C	-22°F … +122°F
Transportation and storage temperature	-50°C … +70°C	-58°F … +158°F
Life time	50 years	

Standards	International	USA
ACS wire	IEC 61232	ASTM B415
AY wire	IEC 60104	ASTM B398
OPGW cable	IEC 60794	IEEE 1138

Key Performance Testing

Parameter	Nominal value	Evaluation criterion
Strain margin test (IEEE 1138-2009 p.6.4.1.3.)	65.3 kN	Δα* < 0.20 dB/test fiber km; - no damage
Crush (IEEE 1138-2009 p.6.4.2.2.)	1.0 kN/cm	Δα* < 0.05 dB/ fiber; - no damage
Twist (IEEE 1138-2009 p.6.4.2.4.)	2 cycles @ twist angle ±90° per 1 m	Δα* < 0.10 dB/test fiber km
Water ingress test (IEEE 1138-2009 p.6.4.3.5.)	1 m for 1 hours	No water through end of cable
Temperature cycling** (IEEE 1138-2009 p.6.4.3.7.)	-50°C to +85°C for 2 cycles over ≥ 16 hours	Δα* < 0.20 dB/test fiber km
Seepage of flooding compound (IEEE 1138-2009 p.6.4.3.6.)	65°C	No dripped compound

* - attenuation increase at standard wavelengths

** - other temperature range upon request

Reel Packing and Marking Notes

1. Standard packing is non-returnable wooden reels
2. Reel diameter ≥ 40 x cable OD
3. ≥ 2 m of inside end of cable is affixed to flange
4. Cable ends are sealed with waterproof covers
5. Label on the outer flange of the reel contains the following information:
   cable type, customer's name and PO, reel number, production date, cable length, cable weight net/gross
6. Flange marking includes: manufacturer's name and website, rotation direction, cable end indication,
   shipping and handling summary, labels "Fragile" and "Handle with care"
7. A Cable Passport is attached to each reel and provides the following information:
   cable type, technical standard number, cable length, fiber type, fiber coloring, fibers/tube, tube identification coloring, final attenuation for all fibers, refractive index of the fiber, fiber manufacturer and production date
8. Each Cable Passport is affixed to the inner flange. Additional information can be included on the Cable Passport upon request

All values are nominal and are subject to normal manufacturing tolerances and to change without notice