

Product Datasheet
fiber optic cable InSky OPGW S 48U 16.4mm 172kA2·s 113kN

Order information

Design	Part number
InSky OPGW S 48U 16.4mm 172kA2·s 113kN	0113-45413

Features



ACS wires are highly corrosion-resistant

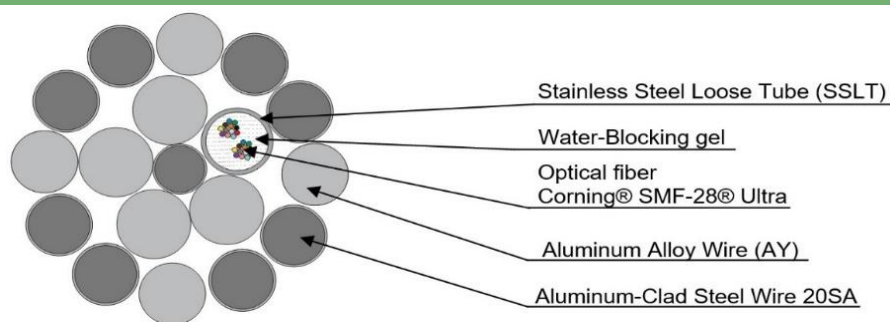


Aluminum alloy wires provide conductivity for fault current



Optical ground wire shields high-voltage conductors from lightning strikes

Design



Design element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	20% ACS wire	1	2.60	0.1024
1st stranded layer	AY-wire/SSLT	4/1	3.60	0.1417
2nd stranded layer	20% ACS wire/AY-wire	8/4	3.30	0.1299

Technical Specifications

Mechanical	Metric	Customary
Cable diameter	16.4 mm	0.646 in
Cable unit weight	722 kg/km	0.485 lb/ft
Rated breaking strength (RBS) (without SSLT's)	113.5 kN	25 522 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	90.4 kN	20 326 lb
Zero fiber strain margin (ZFSM) (80% RBS)	90.4 kN	20 326 lb
Cross-sectional area of ACS wire	75.8 mm ²	0.118 in ²
Cross-sectional area of AY wire	74.9 mm ²	0.116 in ²
Cable total cross-sectional area	150.7 mm ²	0.234 in ²
Modulus of Elasticity, initial	89.4 kN/mm ²	12 969 ksi
Modulus of Elasticity, final	108.5 kN/mm ²	15 739 ksi
Temperature coefficient of linear expansion	15.63 E ⁻⁶ /°C	8.68 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-1460	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.318 Ω/km	0.5119 Ω/mile
Short circuit capacity	171.5 kA ² -s	-
Basis: Initial cable temp = 40°C (104°F), Final = 210°C (410°F), Duration = 0.5 s		
Short current circuit for 0.5 s	18.5 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.3273 Ω/km	0.5268 Ω/mile
AC resistance at 50°C (122°F)	0.3554 Ω/km	0.5720 Ω/mile
AC resistance at 75°C (167°F)	0.3835 Ω/km	0.6172 Ω/mile
Geometric Mean Radius (GMR)	3.2713 mm	0.0107 ft
Inductive Reactance (Xa) @ 60 Hz	0.3419 Ω/km	0.5502 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
Fiber count (Actual/Maximum)		48/48
Fibers per SSLT		48

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

1  Blue	2  Orange	3  Green	4  Brown	5  Slate	6  White	7  Red	8  Black	9  Yellow	10  Violet	11  Rose	12  Aqua
13  Blue	14  Orange	15  Green	16  Brown	17  Slate	18  White	19  Red	20  Natural	21  Yellow	22  Violet	23  Rose	24  Aqua
1 ring											
25  Blue	26  Orange	27  Green	28  Brown	29  Slate	30  White	31  Red	32  Natural	33  Yellow	34  Violet	35  Rose	36  Aqua
2 rings											

Color identification of the binding yarns for bundles 1-4 of 12 fibers:

1  Blue	2  Orange	3  Green	4  Brown
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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 reel length	5 640 m	18 504 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.)	90.4 kN	$\Delta\alpha^* < 0.20$ dB/test fiber km; - no damage
Crush (IEEE 1138-2009 p.6.4.2.2.)	1.0 kN/cm	$\Delta\alpha^* < 0.05$ dB/ fiber; - no damage
Twist (IEEE 1138-2009 p.6.4.2.4.)	2 cycles @ twist angle $\pm 90^\circ$ per 1 m	$\Delta\alpha^* < 0.10$ 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	$\Delta\alpha^* < 0.20$ 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

- Standard packing is non-returnable wooden reels
- Reel diameter ≥ 40 x cable OD
- ≥ 2 m of inside end of cable is affixed to flange
- Cable ends are sealed with waterproof covers
- 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
- Flange marking includes: manufacturer's name and website, rotation direction, cable end indication, shipping and handling summary, labels "Fragile" and "Handle with care"
- 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
- 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