

Product Datasheet
fiber optic cable: InSky OPGW AP 48U (4x12) 14.1mm 99kA2·s 62kN

Order information

Design	Part number
InSky OPGW AP 48U (4x12) 14.1mm 99kA2·s 62kN	0313-91474

Features



Highly corrosion-resistant: ACS wires and aluminum pipe



Aluminum alloy wires provide conductivity for fault current

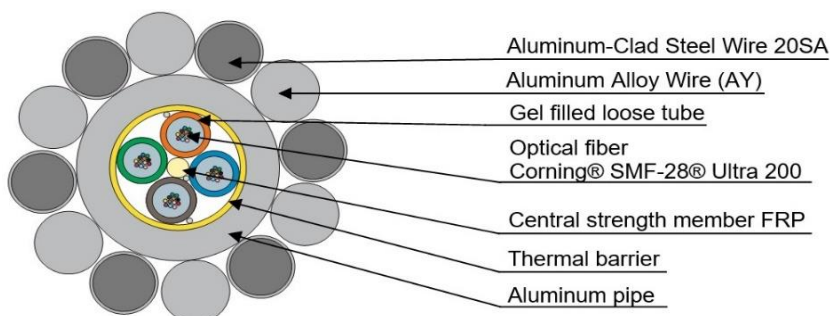


Optical ground wire shields high-voltage conductors from lightning strikes



Convenient splice preparation

Design



Design element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	AC-PLT	1	8.40	0.3307
1st stranded layer	20% ACS wire/AY-wire	6/6	2.85	0.1122

Technical Specifications

Mechanical	Metric	Customary
Cable diameter ± 0.2 mm (0.008 in)	14.1 mm	0.555 in
Cable unit weight	470 kg/km	0.316 lb/ft
Rated breaking strength (RBS)	62.1 kN	13 970 lb
Maximum rated design tension (MRDT) (63% RBS) with 0.2% fiber strain	38.7 kN	8 702 lb
Zero fiber strain margin (ZFSM) (49% RBS)	30.3 kN	6 813 lb
Cross-sectional area of ACS wire	38.3 mm ²	0.059 in ²
Cross-sectional area of AY-wire / Aluminum Pipe	38.28 / 32.52 mm ²	0.059 / 0.05 in ²
Cable total cross-sectional area	109.1 mm ²	0.169 in ²
Modulus of Elasticity, initial	64.0 kN/mm ²	9 284 ksi
Modulus of Elasticity, final	94.5 kN/mm ²	13 708 ksi
Temperature coefficient of linear expansion	16.94 E ⁻⁶ /°C	9.41 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-1439	-
Lay direction of outer layer	Left	-

Technical Specifications

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.365 Ω /km	0.5874 Ω /mile
Short circuit capacity	99.4 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	14.1 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.3757 Ω /km	0.6046 Ω /mile
AC resistance at 50°C (122°F)	0.4079 Ω /km	0.6564 Ω /mile
AC resistance at 75°C (167°F)	0.4401 Ω /km	0.7082 Ω /mile
Geometric Mean Radius (GMR)	3.1055 mm	0.0102 ft
Inductive Reactance (Xa) @ 60 Hz	0.3458 Ω /km	0.5565 Ω /mile
Capacitive Reactance (X'a) @ 60 Hz	0.1798 M Ω -km	0.1117 M Ω -mile

Optical	
ITU-T fiber compliance	G.652D & G.657.A1
Fiber manufacturer	Corning SMF-28 ULTRA 200
Fiber count (Actual/Maximum)	48/48
Fibers per loose tube	12

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

Loose tubes: 1-4

Optical fibers: 1-12



Other colors upon request

Fiber Dimensional Specifications:	
Core-Clad Concentricity	0.5 μ m
Cladding Diameter	125 $\pm$ 0.7 μ m
Cladding Non-Circularity	0.7%
Coating Diameter	200 $\pm$ 5 μ m

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	8 990 m	29 495 ft
Minimum bending radius, no load (tension < 5% RBS)	203 mm	8 in
Minimum bending radius, loaded (tension $\geq$ 5% RBS)	229 mm	9 in
Standard sheave diameter: first, last, angles $\geq$ 60°	584 mm	23 in
Standard sheave diameter: tangents and angles $\leq$ 60°	356 mm	14 in

Operating parameters	Metric	Customary
Operating 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
Design Life	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.)	38.7 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 $\geq 40 \times$ 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