

Product Datasheet
fiber optic cable: InSky OPGW AP 48U (4x12) 17.6mm 232kA2-s 91kN

Order information

Design

InSky OPGW AP 48U (4x12) 17.6mm 232kA2-s 91kN

Part number

0313-78317

Features



Highly corrosion-resistant: ACS wires and aluminum pipe



Aluminum alloy wires provide conductivity for fault current

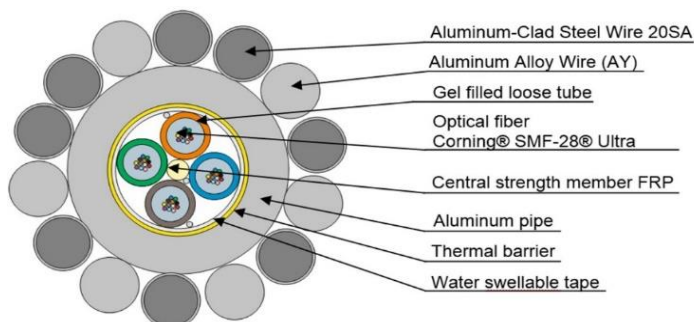


Optical ground wire shields high-voltage conductors from lightning strikes



Convenient splice preparation

Design



Design element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	AC-PLT	1	11.45	0.4508
1st stranded layer	20% ACS wire/AY-wire	8/6	3.05	0.1201

Technical Specifications

Mechanical	Metric	Customary
Cable diameter ± 0.2 mm (0.008 in)	17.6 mm	0.691 in
Cable unit weight	720 kg/km	0.484 lb/ft
Rated breaking strength (RBS)	91.6 kN	20 594 lb
Maximum rated design tension (MRDT) (67% RBS) with 0.2% fiber strain	60.9 kN	13 693 lb
Zero fiber strain margin (ZFSM) (56% RBS)	50.9 kN	11 445 lb
Cross-sectional area of ACS wire	58.4 mm ²	0.091 in ²
Cross-sectional area of AY-wire / Aluminum Pipe	43.84 / 64.48 mm ²	0.068 / 0.1 in ²
Cable total cross-sectional area	166.8 mm ²	0.258 in ²
Modulus of Elasticity, initial	59.1 kN/mm ²	8 573 ksi
Modulus of Elasticity, final	93.2 kN/mm ²	13 520 ksi
Temperature coefficient of linear expansion	16.92 E ⁻⁶ /°C	9.40 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)	0.235 Ω /km	0.3789 Ω /mile
Short circuit capacity	232.1 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	21.5 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.2423 Ω /km	0.3899 Ω /mile
AC resistance at 50°C (122°F)	0.2630 Ω /km	0.4233 Ω /mile
AC resistance at 75°C (167°F)	0.2837 Ω /km	0.4566 Ω /mile
Geometric Mean Radius (GMR)	3.4674 mm	0.0114 ft
Inductive Reactance (Xa) @ 60 Hz	0.3375 Ω /km	0.5432 Ω /mile
Capacitive Reactance (X'a) @ 60 Hz	0.1694 M Ω -km	0.1052 M Ω -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 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	242 $\pm$ 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	6 070 m	19 915 ft
Minimum bending radius, no load (tension < 5% RBS)	229 mm	9 in
Minimum bending radius, loaded (tension $\geq$ 5% RBS)	279 mm	11 in
Standard sheave diameter: first, last, angles $\geq$ 60°	711 mm	28 in
Standard sheave diameter: tangents and angles $\leq$ 60°	457 mm	18 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	Acceptance criteria
MRDT test (IEEE 1138-2021 p.6.5.1.3.)	60.9 kN	no change dB/test fiber km
Crush (IEEE 1138-2021 p.6.5.2.2.)	1.0 kN/cm	$\Delta\alpha^* < 0.05$ dB/ fiber; - no damage
Twist (IEEE 1138-2021 p.6.5.2.4.)	2 cycles @ twist angle $\pm 90^\circ$ per 1 m	$\Delta\alpha^* < 0.10$ dB/test fiber km
Water ingress test (IEEE 1138-2021 p.6.5.3.5.)	1 m for 1 hours	No water through end of cable
Temperature cycling** (IEEE 1138-2021 p.6.5.3.7.)	-50°C to +85°C for 2 cycles over ≥ 16 hours	$\Delta\alpha^* < 0.20$ dB/test fiber km
Seepage of flooding compound (IEEE 1138-2021 p.6.5.3.6.)	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