

Product Datasheet
fiber optic cable InSky OPGW S 96U (3x32) 14.4mm 88kA2-s 56kN

Order information

Design

InSky OPGW S 96U (3x32) 14.4mm 88kA2-s 56kN

Part number

0113-86816

Features



ACS wires are highly corrosion-resistant

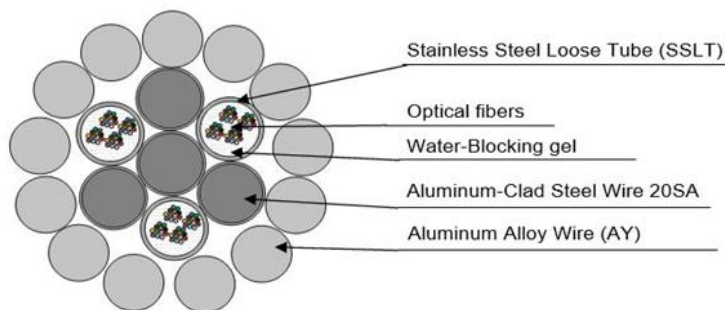


Aluminum alloy wires provide conductivity for fault current



Optical ground wire shields high-voltage conductors from lightning strikes

Design



Design element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Central member	20% ACS wire	1	3.05	0.1201
1st stranded layer	20% ACS wire/SSLT	3/3	3.00	0.1181
2nd stranded layer	AY-wire	13	2.67	0.1051

Technical Specifications

Mechanical	Metric	Customary
Cable diameter ± 0.2 mm (0.008 in)	14.4 mm	0.567 in
Cable unit weight	446 kg/km	0.299 lb/ft
Rated breaking strength (RBS) (without SSLT's)	56.5 kN	12 714 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	44.9 kN	10 096 lb
Zero fiber strain margin (ZFSM) (80% RBS)	44.9 kN	10 096 lb
Cross-sectional area of ACS wire	33.8 mm ²	0.052 in ²
Cross-sectional area of AY-wire	72.8 mm ²	0.113 in ²
Cable total cross-sectional area	106.6 mm ²	0.165 in ²
Modulus of Elasticity, initial	66.9 kN/mm ²	9 705 ksi
Modulus of Elasticity, final	88.8 kN/mm ²	12 882 ksi
Temperature coefficient of linear expansion	17.83 E ⁻⁶ /°C	9.90 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-430	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.393 Ω /km	0.6318 Ω /mile
Short circuit capacity	88.0 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	13.2 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.4041 Ω /km	0.6503 Ω /mile
AC resistance at 50°C (122°F)	0.4388 Ω /km	0.7061 Ω /mile
AC resistance at 75°C (167°F)	0.4735 Ω /km	0.7620 Ω /mile
Geometric Mean Radius (GMR)	3.7328 mm	0.0122 ft
Inductive Reactance (Xa) @ 60 Hz	0.3320 Ω /km	0.5342 Ω /mile
Capacitive Reactance (X'a) @ 60 Hz	0.1788 M Ω -km	0.1111 M Ω -mile

Optical		
ITU-T fiber compliance		G.652D & G.657.A1
Fiber manufacturer		Corning SMF-28 ULTRA
Fiber count (Actual/Maximum)		96/96
Fibers per SSLT		32

Color identification of 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	2 rings			

Color identification of the binding yarns for bundles 1-2 of 12 fibers and 1 of 8 fibers in each:

1  Blue	2  Orange	3  Green
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Color identification of SSLT's:

1  Blue	2  Orange	3  Green
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Other colors upon request

OPGW marking example

Marking is made on each 2 feet of cable

00001 FT	INCAB	InSky OPGW S 96U (3x32) 14.4mm 88kA2·s 56kN	2022
00001 FT	Length marking unit	14.4 mm	OPGW diameter
InSky OPGW	Optical ground wire trade name	88 kA ² ·s	Short circuit capacity
S	Stranded stainless steel tube	56 kN	Rated breaking strength (RBS)
96	Fiber count	2022	Year of production
U	Fiber type		

Customized marking 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	8 110 m	26 608 ft
Minimum bending radius, no load (tension < 5% RBS)	203 mm	8 in
Minimum bending radius, loaded (tension ≥ 5% RBS)	229 mm	9 in
Standard sheave diameter: first, last, angles ≥ 60°	584 mm	23 in
Standard sheave diameter: tangents and angles ≤ 60°	381 mm	15 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.)	44.9 kN	no change dB/test fiber km
Crush (IEEE 1138-2021 p.6.5.2.2.)	1.0 kN/cm	Δα* < 0.05 dB/ fiber; - no damage
Twist (IEEE 1138-2021 p.6.5.2.4.)	2 cycles @ twist angle ±90° per 1 m	Δα* < 0.10 dB/test fiber km
Water ingress test (IEEE 1138-2021 p.6.5.3.5.)	1 m for 1 hour	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	Δα* < 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

1. Standard packing is non-returnable wooden reels
2. Reel diameter $\geq 40 \times$ 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