

Product Preliminary Datasheet

fiber optic cable InSky OPGW S 96U (2x48) 16.0mm 149kA2-s 88kN

Please note: this design has not been put in production. All values are nominal. The datasheet parameters might be revised after trials. The leadtime for this design should be agreed separately. Make sure you are informed about all updates and consent to production parameters.

Order information

Design	Part number
InSky OPGW S 96U (2x48) 16.0mm 149kA2-s 88kN	0113-58856

Features



ACS wires are highly corrosion-resistant

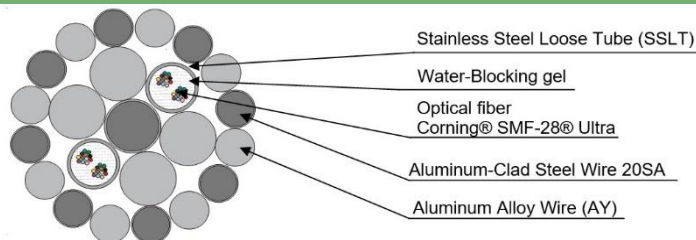


Aluminum alloy wires provide conductivity for fault current



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	3.70	0.1457
1st stranded layer	AY-wire/SSLT	4/2	3.60	0.1417
2nd stranded layer	20% ACS wire/AY-wire	8/8	2.55	0.1004

Technical Specifications

Mechanical	Metric	Customary
Cable diameter ± 0.2 mm (0.008 in)	16.0 mm	0.630 in
Cable unit weight	618 kg/km	0.415 lb/ft
Rated breaking strength (RBS) (without SSLT's)	88.3 kN	19 851 lb
Maximum rated design tension (MRDT) (81% RBS) with 0% fiber strain	71.5 kN	16 077 lb
Zero fiber strain margin (ZFSM) (81% RBS)	71.5 kN	16 077 lb
Cross-sectional area of ACS wire	55.8 mm ²	0.086 in ²
Cross-sectional area of AY-wire	81.57 mm ²	0.126 in ²
Cable total cross-sectional area	137.3 mm ²	0.213 in ²
Modulus of Elasticity, initial	77.7 kN/mm ²	11 271 ksi
Modulus of Elasticity, final	98.0 kN/mm ²	14 216 ksi
Temperature coefficient of linear expansion	16.66 E ⁻⁶ /°C	9.25 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-1455	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.323 Ω /km	0.5193 Ω /mile
Short circuit capacity	149.2 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	17.3 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.3321 Ω /km	0.5344 Ω /mile
AC resistance at 50°C (122°F)	0.3605 Ω /km	0.5802 Ω /mile
AC resistance at 75°C (167°F)	0.3890 Ω /km	0.6260 Ω /mile
Geometric Mean Radius (GMR)	3.5558 mm	0.0117 ft
Inductive Reactance (Xa) @ 60 Hz	0.3356 Ω /km	0.5401 Ω /mile
Capacitive Reactance (X'a) @ 60 Hz	0.1738 M Ω -km	0.1080 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	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											
37  Blue	38  Orange	39  Green	40  Brown	41  Slate	42  White	43  Red	44  Natural	45  Yellow	46  Violet	47  Rose	48  Aqua
3 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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Color identification of SSLT's:

1  Blue	2  Orange
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Other colors upon request

Fiber Dimensional Specifications:

Core-Clad Concentricity	$\leq 0.5 \mu\text{m}$
Cladding Diameter	$125 \pm 0.7 \mu\text{m}$
Cladding Non-Circularity	$\leq 12 \mu\text{m}$
Coating Diameter	$242 \pm 5 \mu\text{m}$

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	5 620 m	18 438 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°	406 mm	16 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.)	71.5 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 hour	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

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