

Product Datasheet
fiber optic cable:
InSky OPGW S 72U (3x24) 13.0mm 56kA2-s 72kN

Order information

Design	Part number
InSky OPGW S 72U (3x24) 13.0mm 56kA2-s 72kN	0113-53058

Features



ACS wires are highly corrosion-resistant

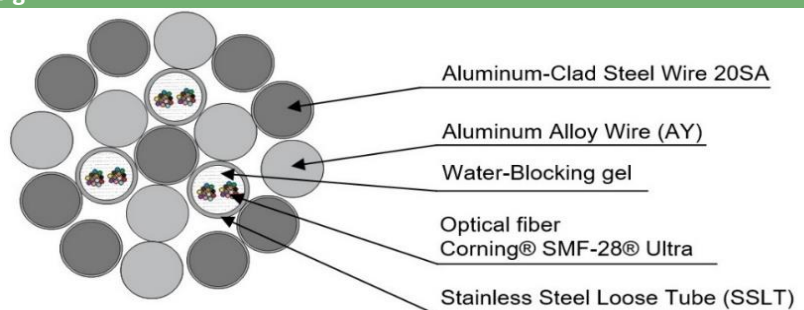


Aluminum alloy wires provide conductivity for fault current



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	3/3	2.60	0.1024
2nd stranded layer	20% ACS wire/AY-wire	8/4	2.60	0.1024

Technical Specifications

Mechanical	Metric	Customary
Cable diameter	13.0 mm	0.512 in
Cable unit weight	464 kg/km	0.312 lb/ft
Rated breaking strength (RBS) (without SSLT's)	72.3 kN	16 261 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	56.4 kN	12 681 lb
Zero fiber strain margin (ZFSM) (80% RBS)	56.4 kN	12 681 lb
Cross-sectional area of ACS wire	52.3 mm ²	0.081 in ²
Cross-sectional area of AY wire	37.2 mm ²	0.058 in ²
Cable total cross-sectional area	89.5 mm ²	0.139 in ²
Modulus of Elasticity, initial	91.5 kN/mm ²	13 273 ksi
Modulus of Elasticity, final	113.2 kN/mm ²	16 421 ksi
Temperature coefficient of linear expansion	15.17 E ⁻⁶ /°C	8.42 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-1444	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.585 Ω/km	0.9415 Ω/mile
Short circuit capacity	55.8 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	10.6 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.6022 Ω/km	0.9692 Ω/mile
AC resistance at 50°C (122°F)	0.6543 Ω/km	1.0530 Ω/mile
AC resistance at 75°C (167°F)	0.7064 Ω/km	1.1368 Ω/mile
Geometric Mean Radius (GMR)	2.2042 mm	0.0072 ft
Inductive Reactance (Xa) @ 60 Hz	0.3717 Ω/km	0.5981 Ω/mile
Capacitive Reactance (X'a) @ 60 Hz	0.1837 MΩ·km	0.1141 MΩ·mile

Optical		
ITU-T fiber compliance		G.652D & G.657.A1
Fiber manufacturer		Corning SMF-28 ULTRA
Fiber count (Actual/Maximum)		72/72
Fibers per SSLT		72

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

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

1  Blue	2  Orange
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Color identification of SSLT's:

1  Blue	2  Orange	3  Green
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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	10 780 m	35 367 ft
Minimum bending radius, no load (tension < 5% RBS)	178 mm	7 in
Minimum bending radius, loaded (tension ≥ 5% RBS)	203 mm	8 in
Standard sheave diameter: first, last, angles ≥ 60°	533 mm	21 in
Standard sheave diameter: tangents and angles ≤ 60°	330 mm	13 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
Tensile strength (IEC 60794-1-21 method E1)	56.4 kN	$\Delta\alpha^* \leq 0.05$ dB; no damage
Crush (IEC 60794-1-21 method E3)	1.0 kN/cm	
Repeated bending (IEC 60794-1-21 method E6)	20 cycles @ bending radius $\pm 90^\circ$	
Torsion (IEC 60794-1-21 method E7)	10 cycles @ torsion angle $\pm 360^\circ$ applied over 4 m	
Impact (IEC 60794-1-21 method E4)	Impact energy 20 J	
Water penetration (IEC 60794-1-22 method F5B)	3 m for 24 hours	No water through end of cable
Temperature cycling** (IEC 60794-1-22 method F1)	-50°C to +85°C for 3 cycles over ≥ 24 hours	$\Delta\alpha^* \leq 0.05$ dB/km
Compound flow (IEC 60794-1-21 method E14)	70°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