

Product Preliminary Datasheet
fiber optic cable: InSky OPGW
OPGW S 60N/60U (2x48)(1x24) 16.4mm 127kA2·s 107kN

Order information

Design	Part number
OPGW S 60N/60U (2x48)(1x24) 16.4mm 127kA2·s 107kN	0113-90825

Features



ACS wires are highly corrosion-resistant

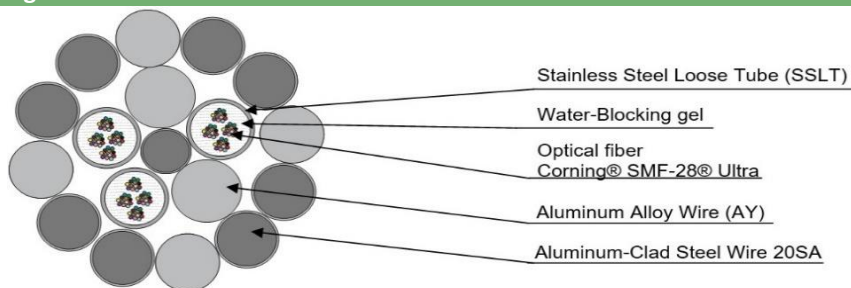


Aluminum alloy wires provide conductivity for fault current



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	2/3	3.60	0.1417
2nd stranded layer	20% ACS wire/AY-wire	8/4	3.30	0.1299

Technical Specifications

Mechanical	Metric	Customary
Cable diameter	16.4 mm	0.646 in
Cable unit weight	714 kg/km	0.480 lb/ft
Rated breaking strength (RBS) (without SSLT's)	107.8 kN	24,231 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	85.2 kN	19,157 lb
Zero fiber strain margin (ZFSM) (80% RBS)	85.2 kN	19,157 lb
Cross-sectional area of ACS wire	80.0 mm ²	0.124 in ²
Cross-sectional area of AY wire	54.6 mm ²	0.085 in ²
Cable total cross-sectional area	134.5 mm ²	0.209 in ²
Modulus of Elasticity, initial	93.4 kN/mm ²	13,549 ksi
Modulus of Elasticity, final	114.9 kN/mm ²	16,668 ksi
Temperature coefficient of linear expansion	15.07 E ⁻⁶ /°C	8.37 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)	0.391 Ω/km	0.6300 Ω/mile
Short circuit capacity	126.7 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	15.9 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.4030 Ω/km	0.6485 Ω/mile
AC resistance at 50°C (122°F)	0.4379 Ω/km	0.7047 Ω/mile
AC resistance at 75°C (167°F)	0.4728 Ω/km	0.7608 Ω/mile
Geometric Mean Radius (GMR)	2.5898 mm	0.0085 ft
Inductive Reactance (Xa) @ 60 Hz	0.3595 Ω/km	0.5786 Ω/mile
Capacitive Reactance (X'a) @ 60 Hz	0.1726 MΩ·km	0.1072 MΩ·mile

Optical		
ITU-T fiber compliance	G.655 / G.652D	
Fiber manufacturer	OFS True Wave RS LWP/Corning SMF-28 ULTRA	
Fiber count (Actual/Maximum)	120/144	
Fibers per SSLT	48	

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

1	2	3	4	5	6	7	8	9	10	11	12
											
Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua

Color identification of the binding yarns for bundles 1-4 of 12 fibers in each:

1	2	3	4
			
Blue	Orange	Green	Brown

Color identification of SSLT's:

1	2	3
		
Blue	Orange	Green

Tube	Fibers type	Fiber count
1	G.655 OFS True Wave RS LWP	48
2	G.655 OFS True Wave RS LWP	12
	Corning SMF-28 ULTRA	12
3	Corning SMF-28 ULTRA	48

Other colors upon request

Fiber Dimensional Specifications:	G.655	G.652D
Core-Clad Concentricity	≤0.5 μm	≤0.5 μm
Cladding Diameter	125 ± 0.7 μm	125 ± 0.7 μm
Cladding Non-Circularity	≤12 μm	≤12 μm
Coating Diameter	242 ± 5 μm	242 ± 5 μm

Final Maximum Individual Attenuation Limits:		
Wavelength	dB/km	dB/km
1310 nm	-	0.34
1383 nm	-	0.34
1490 nm	-	0.23
1550 nm	0.22	0.20
1625 nm	0.24	0.22

Reel Packing and Handling	Metric	Customary
Maximum reel length	5,640 m	18,504 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°	432 mm	17 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)	85.2 kN	Δα* ≤ 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 ±90°	
Torsion (IEC 60794-1-21 method E7)	10 cycles @ torsion angle ±360° 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	Δα* ≤ 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

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