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Product Datasheet
OPGW S 96U (2x48) 16.4mm 149kA2·s 110kN

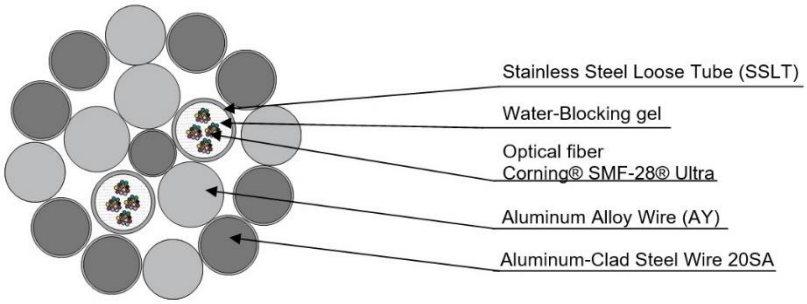
Order information

Design	Part number
OPGW S 96U (2x48) 16.4mm 149kA2·s 110kN	0113-45424

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

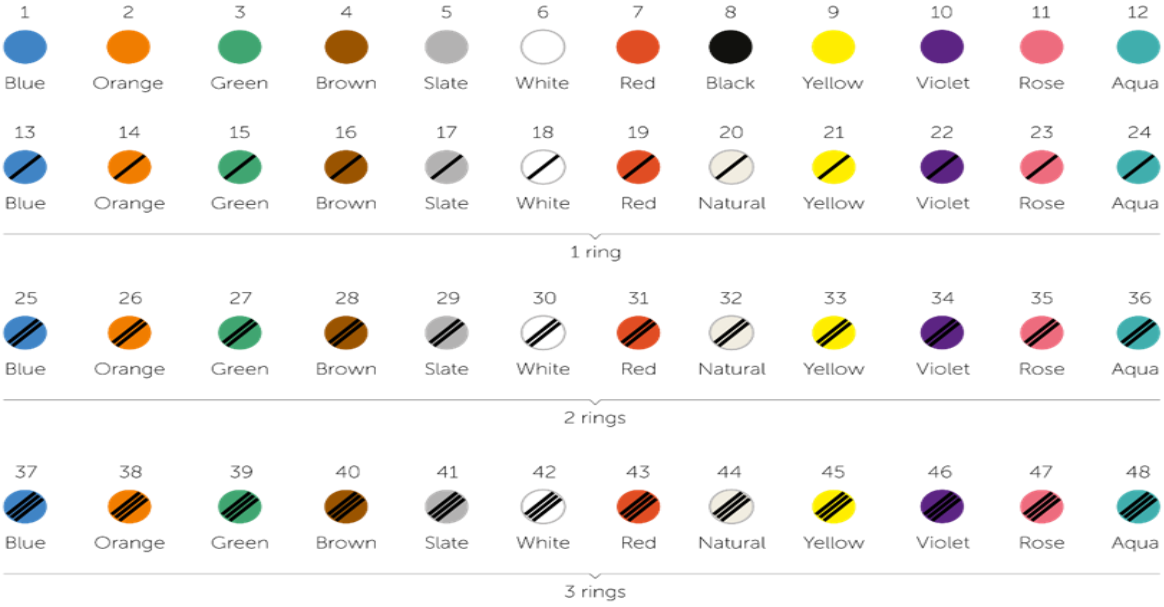
Technical Specifications

Mechanical	Metric	Customary
Cable diameter	16.4 mm	0.646 in
Cable unit weight	718 kg/km	0.482 lb/ft
Rated breaking strength (RBS) (without SSLT's)	110.7 kN	24 899 lb
Maximum rated design tension (MRDT) (80% RBS) with 0% fiber strain	87.9 kN	19 764 lb
Zero fiber strain margin (ZFSM) (80% RBS)	87.9 kN	19 764 lb
Cross-sectional area of ACS wire	77.9 mm^2	0.121 in^2
Cross-sectional area of AY wire	64.7 mm^2	0.100 in^2
Cable total cross-sectional area	142.6 mm^2	0.221 in^2
Modulus of Elasticity, initial	91.4 kN/mm^2	13 259 ksi
Modulus of Elasticity, final	111.6 kN/mm^2	16 189 ksi
Temperature coefficient of linear expansion	15.36 $E^{-6}/°C$	8.53 $E^{-6}/°F$
Southwire Sag10™ coefficient chart number	1-420	-
Lay direction of outer layer	Left	-

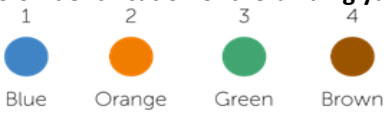
Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.351 Ω/km	0.5647 Ω/mile
Short circuit capacity	148.7 kA²·s	-
Basis: Initial cable temp = 40°C (104°F), Final = 210°C (410°F), Duration = 0.5 s		
Short current circuit for 0.5 s	17.2 kA	-
Rac/Rdc ratio	1.012	-
AC resistance at 25°C (77°F)	0.3612 Ω/km	0.5813 Ω/mile
AC resistance at 50°C (122°F)	0.3923 Ω/km	0.6314 Ω/mile
AC resistance at 75°C (167°F)	0.4235 Ω/km	0.6815 Ω/mile
Geometric Mean Radius (GMR)	2.9306 mm	0.0096 ft
Inductive Reactance (Xa) @ 60 Hz	0.3502 Ω/km	0.5636 Ω/mile
Capacitive Reactance (X'a) @ 60 Hz	0.1726 MΩ-km	0.1072 MΩ-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



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



Color identification of SSLT's:

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	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	87.9 kN	Δα* ≤ 0.05 dB; no damage
Crush	1.0 kN/cm	
Repeated bending (IEC 60794-1-22 method E6)	20 cycles @ bending radius ±90°	
Torsion (IEC 60794-1-22 method E7)	10 cycles @ torsion angle ±360° applied over 4 m	
Impact (IEC 60794-1-22 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 60794-1-23 method F1)	-50°C to +85°C for 3 cycles over ≥ 24 hours	Δα* ≤ 0.05 dB/km
Compound flow (IEC 60794-1-22 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 ≥ 40 x 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