



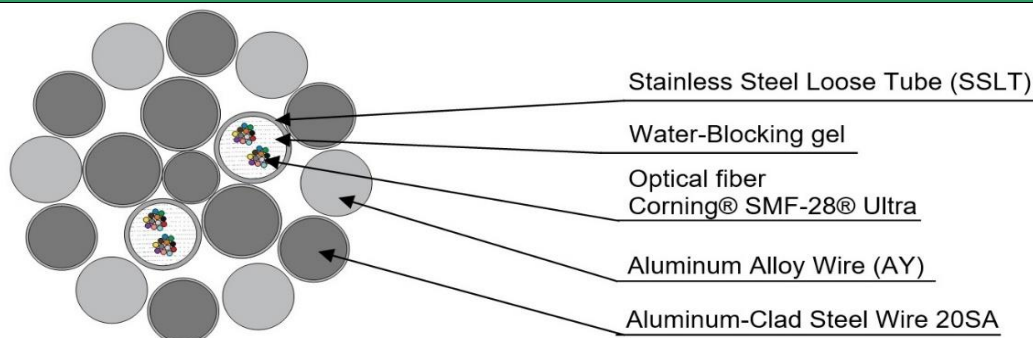
Product Datasheet № 0113-004930

Optical Ground Wire (OPGW)

OPGW-S-48 G.652D (2x24) - 13,9mm - 70kA²·s - 89kN

Part number # 0113-46913

Construction



Design

Construction element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	20% ACS wire	1	2,16	0,0850
1st stranded layer	20% ACS wire/SSLT	3/2	3,05	0,1201
2nd stranded layer	20% ACS wire/AY-wire	6/6	2,80	0,1102

Technical Specifications

Mechanical	Metric	Customary
Cable diameter	13,9 mm	0,546 in
Cable unit weight	559 kg/km	0,376 lb/ft
Rated breaking strength (RBS) (without SSLT's)	89,0 kN	20 021 lb
Maximum rated design load (MRDL) (80% RBS)	70,9 kN	15 942 lb
Cross-sectional area of ACS wire	66,0 mm ²	0,102 in ²
Cross-sectional area of AY wire	36,9 mm ²	0,057 in ²
Cable total cross-sectional area	103,0 mm ²	0,160 in ²
Modulus of Elasticity, initial	97,8 kN/mm ²	14 187 ksi
Modulus of Elasticity, final	118,0 kN/mm ²	17 117 ksi
Temperature coefficient of linear expansion	14,67 E ⁻⁶ /°C	8,15 E ⁻⁶ /°F
Southwire Sag10™ coefficient chart number	1-1450	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0,533 Ω/km	0,8585 Ω/mile
Short current circuit capacity	70,3 kA ² ·s	-
Basis: Initial cable temp = 40°C (104°F), Final = 210°C (410°F), Duration = 1 s		
Short current circuit for 1 sec	8,4 kA	-
R _{ac} /R _{dc} ratio	1,012	-

AC resistance at 25°C (77°F)	0,5490 Ω/km	0,8835 Ω/mile
AC resistance at 50°C (122°F)	0,5961 Ω/km	0,9593 Ω/mile
AC resistance at 75°C (167°F)	0,6431 Ω/km	1,0350 Ω/mile
Geometric Mean Radius (GMR)	2,2322 mm	0,0073 ft
Inductive Reactance (X_a) @ 60 Hz	0,3707 Ω/km	0,5966 Ω/mile
Capacitive Reactance (X'_a) @ 60 Hz	0,1806 MΩ-km	0,1122 MΩ-mile

Optical

ITU-T fiber compliance	G.652D & G.657.A1
Fiber manufacturer	Corning
Number of optical fibers in total (Actual/Maximum)	48/48
Number of optical fibers per SSLT	24

Color identification of the fibers in each SSLT:

Fiber	Color of the fibers 1-12	Fiber	Color of the fibers 13-24
1	Blue	13	Blue + 1 ring
2	Orange	14	Orange + 1 ring
3	Green	15	Green + 1 ring
4	Brown	16	Brown + 1 ring
5	Gray	17	Gray + 1 ring
6	White	18	White + 1 ring
7	Red	19	Red + 1 ring
8	Black	20	Natural + 1 ring
9	Yellow	21	Yellow + 1 ring
10	Purple	22	Purple + 1 ring
11	Pink	23	Pink + 1 ring
12	Turquoise	24	Turquoise + 1 ring

Note: Other colors on request

Color identification of SSLT's:

Tube	Color of added identification yarn
1	Blue
2	Orange

Fiber Dimensional Specifications:

Core-Clad Concentricity	0.5 μm
Cladding Diameter	125 ± 0.7 μm
Cladding Non-Circularity	0,7%
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

Packaging and Handling

	Metric	Customary
Maximum available reel length	7 380 m	24 213 ft
Minimum bending radius, no load (tension < 5% RBS)	203 mm	8 in

Minimum bending radius, loaded (tension $\geq$ 5% RBS)	229 mm	9 in
Standard sheave diameter: first, last, angles $\geq$ 60°	559 mm	22 in
Standard sheave diameter: tangents and angles $\leq$ 60°	356 mm	14 in

Operation parameters	Metric	Customary
Operation temperature	-60°C ... +85°C	-76°F ... +185°F
Installation temperature	-30°C ... +50°C	-22°F ... +122°F
Transportation and storage temperature	-60°C ... +70°C	-76°F ... +158°F
Life time	50 years	

Standards	Metric	Customary
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 60794-1-2 method E1)	70,9 kN	$\Delta\alpha^* \leq 0,05$ dB; no damage
Crush (IEC 60794-1-2 method E3)	1,0 kN/cm	
Repeated bending (IEC 60794-1-2 method E6)	20 cycles @ bending radius $\pm 90^\circ$	
Torsion (IEC 60794-1-2 method E7)	10 cycles @ torsion angle $\pm 360^\circ$ applied over 4 m	
Impact (IEC 60794-1-2 method E4)	Impact energy 20 J	
Water penetration (IEC 60794-1-2 method F5B)	3 m for 24 hours	No water through end of cable
Temperature cycling** (IEC 60794-1-2 method F1)	-60°C to +85°C for 3 cycles over	$\Delta\alpha \leq 0,05$ dB/km
Compound flow (IEC 60794-1-2 method E14)	70°C	No dripped compound

* - attenuation increase at standard wavelengths.

** - other temperature range on request.

Packing and Marking Notes

- Standard packaging is non-returnable wooden reels.
- Drum diameter $\geq$ 40x cable OD.
- $\geq$ 2 m inside end of the cable is affixed to flange.
- Cable ends sealed with waterproof covers.
- Flange labelling will include the cable type, production date, ordered/actual cable lengths, gross weight.
- Additional flange marking: drum number, notice "do not lay flat!", rotation direction
- Certificate of Compliance (CoC) for each reel contains type of the cable, technical standard number, cable length, fiber type, fiber coloring, fibers/SSLT, SSLT identification coloring, final attenuation for all fibers, refractive index of the fiber, fiber manufacturer and production date.
- CoC in plastic bag is fixed on the inner flange. Additional information for the CoC upon request.

All values are nominal and are subject to normal manufacturing tolerances and to change without notice.