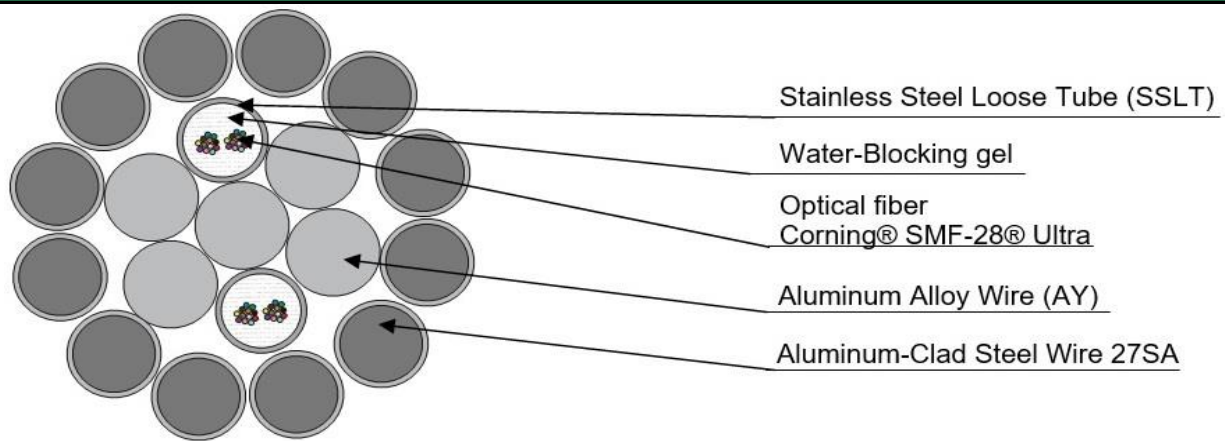




Product Datasheet № 0113-004578
Optical Ground Wire (OPGW)

OPGW-S-48 G.652D (2x24) - 16,4mm - 155kA²·s - 114kN

Construction



Design

Construction element	Material	Count	Diameter	
			Metric (mm)	Customary (inches)
Center member	AY wire	1	3.28	0.1291
1st stranded layer	AY wire/SSLT	4/2	3.28	0.1291
2nd stranded layer	27% ACS wire	12	3.28	0.1291

Technical Specifications

Mechanical	Metric	Customary
Cable diameter	16.4 mm	0.646 in
Cable unit weight	774 kg/km	0.520 lb/ft
Rated breaking strength (RBS) (without SSLT's)	114.7 kN	25,786 lb
Maximum rated design load (MRDL) (80% RBS)	91.7 kN	20,629 lb
Cross-sectional area of ACS wire	105.2 mm ²	0.163 in ²
Cross-sectional area of AY wire	42.2 mm ²	0.065 in ²
Cable total cross-sectional area	147.4 mm ²	0.228 in ²
Modulus of Elasticity, initial	12.7 kN/mm ²	1,842 ksi
Modulus of Elasticity, final	111.1 kN/mm ²	16,117 ksi
Temperature coefficient of linear expansion	15,01 E-6/°C	8,34 E-6/°F
Southwire Sag10™ coefficient chart number	1-1427	-
Lay direction of outer layer	Left	-

Electrical	Metric	Customary
DC resistance at 20°C (68°F)	0.352 Ω/km	0.5664 Ω/mile
Short current circuit capacity	155.4 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 sec	17.6 kA	-
R_{ac}/R_{dc} ratio	1.012	-
AC resistance at 25°C (77°F)	0.3622 Ω /km	0.5830 Ω /mile
AC resistance at 50°C (122°F)	0.3934 Ω /km	0.6331 Ω /mile
AC resistance at 75°C (167°F)	0.4246 Ω /km	0.6833 Ω /mile
Geometric Mean Radius (GMR)	2.2813 mm	0.0075 ft
Inductive Reactance (X_a) @ 60 Hz	0.3691 Ω /km	0.5940 Ω /mile
Capacitive Reactance (X'_a) @ 60 Hz	0.1726 M Ω -km	0.1072 M Ω -mile

Optical

ITU-T fiber compliance	G.652D & G.657.A1
Fiber manufacturer	Corning
Number of optical fibers in total (Actual/Maximum)	48/72
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

Color identification of SSLT's:

Tube	Color of added identification yarn
1	Blue
2	Orange

Note: Other colors on request

Fiber Dimensional Specifications:

ITU-T fiber compliance	G.652D
Core-Clad Concentricity	0.5 μ m
Cladding Diameter	125 $\pm$ 0.7 μ m
Cladding Non-Circularity	0.7%
Coating Diameter	242 $\pm$ 5 μ 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

Packaging and Handling	Metric	Customary
Maximum available reel length	7,924 m	26,000 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	-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
Design life	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 60794-1-2 method E1)	91.7 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	
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
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 ≥ 40x cable OD. ≥ 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.