

Optical Ground Wire (OPGW)

Fiber Specifications (Dimensional Specifications)		
Glass Geometry	Wavelength (nm)	Maximum Value (dB/km)
	Fiber Curl	≥ 4.0 m radius of curvature
	Core - Clad Concentricity	≤ 0.5 μm
Coating Geometry	Coating Diameter	Coating Cladding Concentricity
	242 ± 5 μm	< 12 μm

Fiber Specifications		
Environmental Test	Test Condition	Induced Attenuation 1150 nm & 1625 nm (dB/km)
Temperature Dependency	-60 °C to +85 °C*	≤ 0.05
Temperature Humidity Cycling	-10 °C to +85 °C up to 98% RH	≤ 0.05
Water Immersion	23 °C ± 2 °C	≤ 0.05
Heat Aging	85 °C ± 2 °C	≤ 0.05
Damp Heat	85 °C at 85% RH	≤ 0.05

Dispersion	Wavelength (nm)	Dispersion Value (ps/(nm.km))
	1530	2.0 - 5.5
	1565	4.5 - 6.0
	1625	5.8 - 11.2

* Reference Temperature = +23 °C
Operating Temperature Range = -60 °C to +85 °C

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		Fiber Specifications (Optical Specifications)						
		Comparison of ITU-T G.655 and ITU-T G.652 Standards						
		ITU-T G.655			ITU-T G.652			
		G.655.C	G.655.D	G.655.E	G.652.A	G.652.B	G.652.C	G.652.D
Attribute	Details	Value	Value	Value	Value	Value	Value	Value
Mode field diameter	Wavelength	1550 nm	1550 nm	1550 nm	1310 nm	1310 nm	1310 nm	1310 nm
	Range of Nominal Values	8-11 μ m	8-11 μ m	8-11 μ m	8.6-9.5 μ m	8.6-9.5 μ m	8.6-9.5 μ m	8.6-9.5 μ m
	Tolerance	\pm 0.7 μ m	\pm 0.6 μ m	\pm 0.6 μ m	\pm 0.6 μ m	\pm 0.6 μ m	\pm 0.6 μ m	\pm 0.6 μ m
Cladding diameter	Nominal	125 μ m	125 μ m	125 μ m	125 μ m	125 μ m	125 μ m	125 μ m
	Tolerance	\pm 1 μ m	\pm 1 μ m	\pm 1 μ m	\pm 1 μ m	\pm 1 μ m	\pm 1 μ m	\pm 1 μ m
Core concentricity error	Maximum	0.8 μ m	0.6 μ m	0.6 μ m	0.6 μ m	0.6 μ m	0.6 μ m	0.6 μ m
Cladding non-circularity	Maximum	2.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Cable cut-off wavelength	Maximum	1450 nm	1450 nm	1450 nm	1260 nm	1260 nm	1260 nm	1260 nm
Macrobend loss	Radius	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm	30 mm
	Number of turns	100	100	100	100	100	100	100
	Maximum at 1625 nm	0.50 dB	0.1 dB	0.1 dB	0.1 dB	0.1 dB	0.1 dB	0.1 dB
Attenuation coefficient	Maximum at 1550 nm	0.35 dB/km	0.35 dB/km	0.35 dB/km	0.4 dB/km	0.35 dB/km	0.30 dB/km	0.30 dB/km
	Maximum at 1625 nm	0.4 dB/km	0.4 dB/km	0.4 dB/km	-	0.4 dB/km	-	-
	Maximum at 1310 nm	-	-	-	0.5 dB/km	0.4 dB/km	-	-
	Maximum at 1310 to 1625 nm	-	-	-	-	-	0.4 dB/km	0.4 dB/km
	Maximum at 1383 nm \pm 3 nm	-	-	-	-	-	0.4 dB/km	0.4 dB/km
PMD coefficient	M	20 cables	20 cables	20 cables	20 cables	20 cables	20 cables	20 cables
	Q	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
	Maximum PMDQ	0.20 ps/ \sqrt km	0.20 ps/ \sqrt km	0.20 ps/ \sqrt km	0.5 ps/ \sqrt km	0.2 ps/ \sqrt km	0.5 ps/ \sqrt km	0.2 ps/ \sqrt km

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Fiber Specifications (Optical Specifications)

		Without Color Ring		With S60 Color Ring		With D60 Color Ring		With T60 Color Ring	
		Fiber No.	Color	Fiber No.	Color	Fiber No.	Color	Fiber No.	Color
Color Identification of Fiber in the Stainless Steel Tube Unit		1	Red	13	Red	25	Red	37	Red
		2	Green	14	Green	26	Green	38	Green
		3	Blue	15	Blue	27	Blue	39	Blue
		4	Yellow	16	Yellow	28	Yellow	40	Yellow
		5	Gray	17	Gray	29	Gray	41	Gray
		6	Brown	18	Brown	30	Brown	42	Brown
		7	Violet	19	Violet	31	Violet	43	Violet
		8	Aqua	20	Aqua	32	Aqua	44	Aqua
		9	Black	21	Black (White)	33	Black (White)	45	Black (White)
		10	Orange	22	Orange	34	Orange	46	Orange
		11	White	23	White	35	White	47	White
		12	Pink	24	Pink	36	Pink	48	Pink
Color Ring Method	S60	Use a single black ring on the fiber surface with 60 mm alternation.							
	D60	Use a double black ring on the fiber surface with 60 mm alternation.							
	T60	Use a triple black ring on the fiber surface with 60 mm alternation.							
Note	The colors can be changed according to customer's request.								
	Use white rings on the black colored fibers.								

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Optical Ground Wire (OPGW) (IEEE 1138, ITU-T G.655, ITU-T G.652)											
Type of OPGW	Fiber No.	Total Diameter (mm)	Area (mm ²)	Weight of Conductor (kg/km)	Rated Strength (kN)	Coefficient of Linear Expansion *10 ⁶ (1/°C)	Modulus of Elasticity (final) (kg/mm ²)	DC Resistance at 20 °C (Ω/km)	Short circuit current 20 °C - 200 °C at 0.5 s (kA)	Short Circuit Capacity (at 0.5 s) (kA ² .s)	
OPGW 8/SMF /48Core (ACS: 6*2.70 SS tube: 1*2.70)	48	8.1	34.4	259.00	40.00	13.00	16519	2.49	3.59	6.45	
OPGW 10.5 /SMF /48Core (ACS: 6*3.50 SS tube: 1*3.50)	48	10.5	57.7	416.90	68.60	13.00	16111	1.469	6.9	23.8	
OPGW 10.5 /NZDSF /24Core (ACS: 6*3.50 SS tube: 1*3.50)	24	10.5	57.7	406	68.60	12.5	16111	1.469	6.9	23.8	
OPGW 12/SMF/48Core (ACS: 6*4.00 SS tube: 1*4.00)	48	12	75.4	533	89.6	12.6	16519	1.125	8.5	36.13	
OPGW 12/NZDSF/24Core (ACS: 6*4.00 SS tube: 1*4.00)	24	12	75.4	533	89.5	12.6	16519	1.125	8.5	36.13	
OPGW 13.5/NZDSF/24Core (ACS: 6*3.00+15*2.25 SS tube: 1*3.00)	24	13.5	102.1	712	123.1	13	16836	0.831	12.2	74.42	
OPGW 16/NZDSF/36Core (AA: 16*2.52-ACS: 10*2.52 SS tube: 1*5.80) (with Grease)	36	15.9	146.5	630	84.8	17.3	9891	0.282	22.4	250.88	