

LIBRA CABLES

POWERING YOUR WORLD

SOLAR CABLES

FOR PHOTOVOLTAIC (PV) MODULES & SOLAR POWER PLANTS (H1Z2Z2-K)

ABOUT LIBRA CABLES

Libra Cables, a division of Libra Contractors based in Karachi, Pakistan, is committed to delivering highly reliable cable solutions. Solar power gets attention due to being the most promising environment-friendly source, allowing energy production decentralization and declining CapEx costs.

APPLICATION

Single Core Solar PV cable intended for the interconnection within photovoltaic systems such as solar panel arrays. This versatile single-conductor cable is highly flexible and compatible with all major connectors. Suitable for wet, damp, and humid locations as well as installations requiring low smoke emissions and halogen-free properties.

CONSTRUCTION

- **Conductor:** Class 5 (flexible) tinned copper, based on IEC 60228
- **Insulation:** Cross Linked, Halogen-Free, Flame-Retardant Polyolefin (XLPO) Compound
- **Sheath:** Cross Linked, Halogen-Free, Flame-Retardant Polyolefin (XLPO) Compound

KEY FEATURES & CHARACTERISTICS

- **Estimated Lifetime:** 30 years based on EN 60216-2
- **Outdoor Durability:** Wide thermal range (-40°C to +120°C) and ozone resistant
- **UV Resistance:** Full protection as per EN 50618
- **Halogen-Free:** Low Smoke Emission & Low Toxicity/Corrosivity during fire
- **Fire Properties:** Flame retardant to IEC 60332-1-2

- **Electrical Rating:** AC 600/1000 V / DC 1500/1500 V
- **Max Voltage:** 1.8 kV DC conductor/conductor
- **Test Voltage:** 6.5 kV AC / 15 kV DC for 5 minutes
- **Bending Radius:** Fixed: 4 x overall diameter | Flexing: 5 x overall diameter

TABLE 1: DIMENSIONAL AND INSULATION RESISTANCE VALUES

Nominal Cross Section (mm ²)	Thickness of Insulation (mm)	Thickness of Sheath (mm)	Mean Overall Diameter (mm)	Min Insulation Res @ 20°C (MΩ.km)	Min Insulation Res @ 90°C (MΩ.km)
1 x 1.5	0.7	0.8	5.4	860	0.86
1 x 2.5	0.7	0.8	5.9	690	0.69
1 x 4	0.7	0.8	6.6	580	0.58
1 x 6	0.7	0.8	7.4	500	0.50
1 x 10	0.7	0.8	8.8	420	0.42
1 x 16	0.7	0.9	10.1	340	0.34
1 x 25	0.9	1.0	12.5	340	0.34
1 x 35	0.9	1.1	14.0	290	0.29
1 x 50	1.0	1.2	16.3	270	0.27

TABLE 2: ELECTRICAL CHARACTERISTICS

Nominal Cross Sectional Area (mm ²)	Max Diameter of Wires in Conductor (mm)	Max Resistance of Metal-Coated Conductor @ 20°C (Ω/km)	Short Circuit Current Rating for 1 Sec (kA)
1.5	0.26	13.7	0.189
2.5	0.26	8.21	0.315
4	0.31	5.09	0.504
6	0.31	3.39	0.756
10	0.41	1.95	1.260
16	0.41	1.24	2.016
25	0.41	0.795	3.150
35	0.41	0.565	4.410
50	0.41	0.393	6.300

TABLE 3: CURRENT CARRYING CAPACITY OF PV CABLES

Nominal Cross Sectional Area (mm ²)	Single Cable Free in Air (A)	Single Cable On a Surface (A)	Two Loaded Cables Touching, On a Surface (A)
1.5	29	30	24
2.5	39	41	33
4	55	52	44
6	70	67	57
10	98	93	79
16	125	132	107
25	176	167	142
35	218	207	176
50	276	262	221

*Ambient temperature: 60°C. Max conductor temperature: 120°C.

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