



CABLES FOR SYSTEMS
PHOTOVOLTAICS

Sun, rain, heat or cold. Choose
Condumax and make your
system last.



SOLARMAX FLEX cable

0,6/1 kVAC (1,8 kVDC)

A NEW ERA FOR THE
**PHOTOVOLTAICS
SYSTEMS.**



NBR 16612 and EN 50618

SUPPORTS:

- Large power swings
- UV radiation
- Bad weather
- High and low temperatures
- Acid and alkaline solutions

SOLARMAX FLEX CABLE 0,6/1 kVAC (1,8 kVDC)

NBR 16.612 / EN 50.618

120 °C

Used in photovoltaic generation systems, whether or not connected to the electrical grid, in the interconnection between modules: charge controller modules, string box modules, inverter modules, string box – inverter and interconnection with batteries.

Conductor

Made of tinned electrolytic copper wires, soft temper, class 5 stringing, in accordance with IEC 60228.

Isolation

HEPR - Non-halogenated elastomeric thermosetting compound, UV resistant, in white, in accordance with NBR 16,612 and EN 50.618.

Coverage

XLPO HFFR - Non -halogenated elastomeric thermosetting compound, with low smoke emission, flame retardant, UV resistant, according to NBR 16.612 and EN 50.618.

Identification

Black, red and green/yellow.

Maximum conductor temperatures

- Room temperature: -40 to 90 °C
- Maximum conductor temperature: 120 °C (20,000 hours)
- Short circuit temperature: 250 °C (5 sec.)

Working voltage

AC (U₀/U) – 600/1.000 V

DC (U) – 1.800 V

Complementary Features

- Excellent mechanical and electrical properties
- Excellent thermal properties (120 °C in conductor – 20,000 hours according to NBR 16.612 and EN 50.618)
- Excellent resistance to weathering and UV
- Excellent flexibility
- Flame retardant
- Low smoke emission
- Halogen-free
- Resistance to acid and alkaline solutions
- Resistance to low temperatures (-40 °C)
- Heavy metal free (RoHS)

Standards

- IEC 60228 – Conductors of insulated cables
- NBR 16.612 - Power cables for photovoltaic systems, non-halogenated, insulated, with cover, for voltage up to 1.8 kV DC between conductors
- EN 50.618/2014 - Electric cables for photovoltaic systems
- IEC 60216-1 – Electrical Insulating materials – Thermal endurance properties – Part 1 – Ageing procedures and evaluation of test results
- IEC 60216-2 – Electrical Insulating materials – Thermal endurance properties – Part 2 – Determination of thermal endurance properties of electrical insulating materials



AL MAXLINK CABLE 0.6/1 kVAC (1.8 kVDC)

Unipolar and multiple

NBR 7287

90 °C

Conductor

Made of bare aluminum wires, alloy 1350, tempering H19, class 2 stringing, compact round, meeting the requirements of the NBR NM 280 standard. Availability of conductor blocked against longitudinal water penetration.

Isolation

XLPE 90 °C – Thermosetting compound made of cross-linked polyethylene, in black.

Coverage

PVC ST2 - Polyvinyl chloride thermoplastic compound, flame resistant, with UV protection.

Identification

Veins: black with printed numbers or colored.

External: black, blue and green.

Note: other colors upon request.

OPTION WITH UV PROTECTION AVAILABLE,
CONTACT US.

Maximum conductor temperatures

- 90°C in continuous use
- 130°C overload
- 250 °C in short circuit

Working voltage

AC (U_o/U) – 600/1.000 V
DC (U) – 1.800 V

Applicable Standards

NBR 7287 - Power cables with solid extruded cross-linked polyethylene (XLPE) insulation for insulation voltages from 1 kV to 35 kV.

NBR NM 280 - Insulated cable conductors.

NBR NM-IEC 60332-1 - Test methods on electrical cables under fire conditions - Part 1: test on a single conductor or insulated cable in a vertical position.

SAFETYMAX AL CABLE 0.6/1 kVAC (1.8 kVDC)

Unipolar and multiple

NBR 13248

90 °C

Conductor

Made of bare aluminum wires, alloy 1350, tempering H19, class 2 stringing, compact round, meeting the requirements of the NBR NM 280 standard. Availability of conductor blocked against longitudinal water penetration.

Insulation

XLPE 90 °C - Thermosetting compound made of cross-linked polyethylene.

Coverage

SHF1 - Non-halogenated thermoplastic polyolefin compound, with low smoke emission, with special characteristics regarding the non-propagation and self-extinguishing of fire, with UV protection.

Identification

Veins: black with printed numbers or colored.

External: black, blue and green.

Note: other colors upon request.

OPTION WITH UV PROTECTION AVAILABLE,
CONTACT US.

Maximum conductor temperatures

- 90°C in continuous use
- 130°C overload
- 250 °C in short circuit

Working voltage

AC (U_o/U) – 600/1.000 V
DC (U) – 1.800 V

Applicable Standards

NBR 13248 - Power cables with extruded insulation for voltages from 1 kVa to 35 kV - Construction requirements

NBR NM 280 - Insulated cable conductors

NBR 6245 - Electrical wires and cables - Determination of the oxygen index

NBR NM-IEC 60332-3 - Test methods for electrical cables under fire conditions - Part 3: vertical flame propagation test on conductors or cables in vertically mounted bundles.

BARE COPPER CABLE

NBR 5349 / NBR 6524

Conductor

Made of electrolytic bare copper wires, soft, semi-hard or hard tempering, class 2, 2A and 3A stringing.

Application

Used in grounding systems and transmission lines.

Applicable Standards

NBR 5349 - Bare soft copper cables for electrical purposes.

NBR 6524 - Hard and semi-hard copper wires and cables with or without protective covering for aerial installations.

ALUMINUM CABLE - AC / AAC

NBR 7271

Conductor

Made of bare aluminum wires, alloy 1350, tempering H19, class 2 stringing, normal round.

Greased cable option.

Application

Used on overhead lines for power transmission and distribution.

Applicable Standards

NBR 7271 - Bare aluminum cables for overhead lines - Specification.

NBR 5118 - Bare 1350 aluminum wires with circular section for electrical purposes.

ALUMINUM CABLE WITH STEEL CORE CAA / ACSR

NBR 7270

Conductor

- Aluminum: Made of bare aluminum wires, alloy 1350, tempering H19, class 2 stringing, normal round.
 - Steel: Made from class 1 or 2 zinc-plated steel wire or wires.
- Greased cable option.

Application

Used on overhead lines for power transmission and distribution.

Applicable Standards

NBR 7270 - Bare aluminum cables with zinc-plated steel core for overhead lines - Specification.

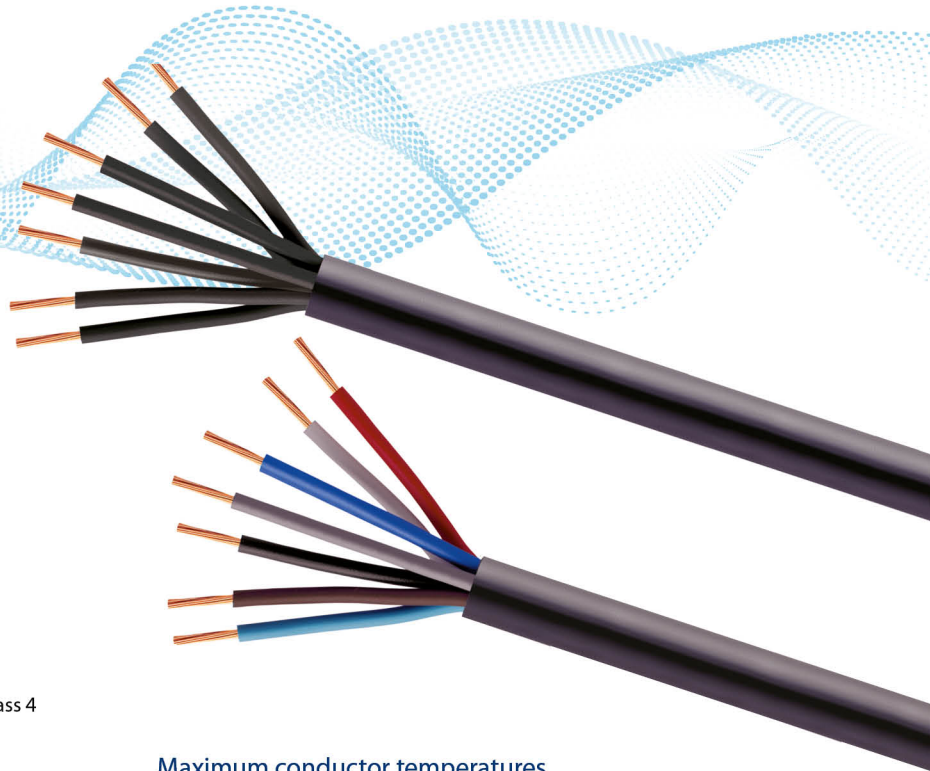
NBR 5118 - Bare 1350 aluminum wires with circular section for electrical purposes.

NBR 6756 - Zinc-plated steel wires for the core of aluminum and aluminum alloy cables.

FLEX CONTROL CABLE

NBR 7289

70 °C



Flexible Conductor

Made of electrolytic bare copper wires, soft tempering, class 4 (1.00 to 6.00 mm²) and class 5 (10.00 mm²) stringing.

Tinned conductors, upon request.

Insulation

PVC-A 70 °C - Thermoplastic polyvinyl chloride compound, with special characteristics regarding the non-propagation and self-extinguishing of fire.

Identification

Numbered or colored black veins.

Coverage

PVC ST1 - Thermoplastic compound of polyvinyl chloride, in black, with special characteristics regarding the non-propagation and self-extinguishing of fire.

Voltage

1,00 mm²: 500V

1,50 a 10,00 mm²: 1 kV

Maximum conductor temperatures

- 70 °C in continuous use.
- 100 °C overload.
- 160 °C in short circuit

Application

Used in command, control and signaling circuits, in industrial and commercial installations, electrical power station, substations, machine control and equipment in general.

Applicable Standards

NBR 7289 - Control cables with extruded PE or PVC insulation for voltages up to 1 kV.

NBR NM 280 - Insulated cable conductors.

NBR 6245 - Determination of the Oxygen Index - test method.

NBR NM-IEC 60332-3 - Test methods for electrical cables under fire conditions - Part 3: vertical flame propagation test on conductors or cables in vertically mounted bundles.

BFC Copper
Tape Shielding



BMC Copper Wire
Mesh Shielding



BFA Aluminized
Polyester Tape
Shielding



SAFETYMAX FLEX CABLE 0.6/1 KV (1.8 KVDC)

Unipolar and multiple

NBR 13248

90 °C

Flexible Conductor

Made of electrolytic bare copper wires, soft tempering, class 4 (1.50 to 6.00 mm²) and class 5 (10.00 to 120.00 mm²) stringing.

Insulation

Thermosetting polyolefin compound HEPR 90 °C, non-halogenated, with low smoke emission.

Identification

2 Conductors: Black, Light blue.

3 Conductors: Black, Light Blue, White.

4 Conductors: Black, Light Blue, White, Red.

Notes: other colors, upon request.

Coverage

SHF1 - Non-halogenated thermoplastic polyolefin compound, with low smoke emission, with special characteristics regarding the non-propagation and self-extinguishing of fire.

Maximum conductor temperatures

- 90 °C in continuous use.
- 130 °C overload.
- 250 °C in short circuit

Application

SafetyMax cables are non-halogenated and have low smoke and toxic gas emission characteristics, in addition to not spreading fire. Used in facilities in places with high occupancy density of people and difficult escape conditions, such as: Cinemas, Shopping Centers, Restaurants, Supermarkets, Hospitals, Train/Subway, Educational/Sports/Fair Establishments, as well as in electronics and computing areas, as recommended by NBR 5410.

Applicable Standards

NBR 13248 - Power cables and insulated conductors without covering, non-halogenated and with low smoke emission, for voltages up to 1 kV - Performance requirements

NBR NM 280 - Insulated cable conductors.

NBR 6245 - Determination of the Oxygen Index - test method.

NBR NM-IEC 60332-3 - Test methods for electrical cables under fire conditions - Part 3: vertical flame propagation test on conductors or cables in vertically mounted bundles.

MAXLINK G-FLEX CABLE 0.6/1 KV (1.8 KVDC)

Unipolar and multiple

NBR 7286

90 °C

Flexible Conductor

Made of electrolytic bare copper wires, soft tempering, class 4 (1.50 to 6.00 mm²) and class 5 (10.00 to 120.00 mm²).

Insulation

HEPR 90 °C - Thermosetting compound made of ethylene propylene (high module).

Identification

2 Conductors: Black, Light blue.

3 Conductors: Black, Light Blue, White.

4 Conductors: Black, Light Blue, White, Red.

Note: other colors upon request.

Coverage

PVC ST2 - Thermoplastic polyvinyl chloride compound, in black, flame resistant.

Maximum conductor temperatures

- 90 °C in continuous use.
- 130 °C overload.
- 250 °C in short circuit

Working voltage

AC (U₀/U) - 600/1.000 V

DC (U) - 1.800 V

Applicable Standards

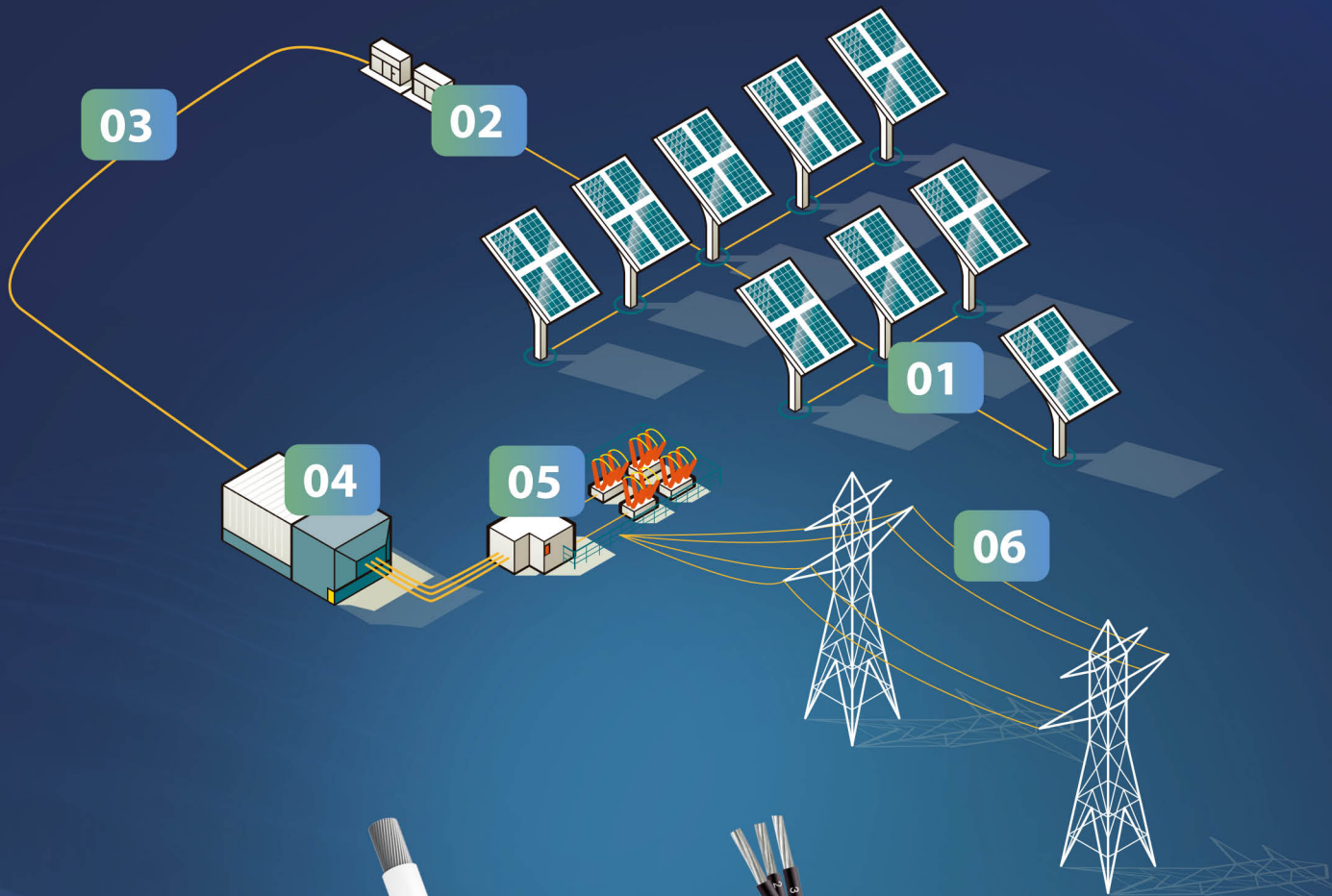
NBR 7286 - Power cables with extruded ethylene propylene rubber (EPR) insulation for voltages from 1 kV to 35 kV.

NBR NM 280 - Insulated cable conductors.

NBR NM-IEC 60332-1 - Test methods on electrical cables under fire conditions - Part 1: test on a single conductor or insulated cable in a vertical position.

COMMON INSTALLATION CABLE INSTALLATION GUIDE IN PHOTOVOLTAIC FARMS

INSTALLATION GUIDE PHOTOVOLTAIC FARMS



01 e 02

**SOLARMAX
120 °C**

Connection between photovoltaic modules. DC low voltage installation between modules and string box

03

**MAXLINK AL UV OR
SAFETYMAX AL UV**

Low DC voltage installation between string box and inverter

04

**MAXLINK AL UV OU
SAFETYMAX AL UV**

AC low voltage installation between inverter and transformer

05

MAXLINK MV

Installation of the medium voltage circuit

06

**BARE AC AND ACAA
ALUMINUM CABLE**

Installation on power transmission line

Our energy is the trust.

The Condumax Incesa Group began its activities in 1964 and is currently recognized as one of the most serious and respected business groups in the energy sector in Brazil.

The Group serves technically demanding markets, such as energy utilities, clean energy generation companies, the automotive industry, durable and consumer goods industries, agribusiness and large construction companies.



Condumax specializes in the manufacture of multiple concentric cables, with different types of shielding, photovoltaic cables, cables for the automotive industry and assembled cables. All cables are environmentally friendly, free of heavy metals and meet European RoHS directives.

Certifications



Visit our website and learn more about our history, company structure, quality policies, sustainability and corporate ethics.

www.condumax.com.br



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ELECTRICAL COMPONENTS

Desde
1964

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