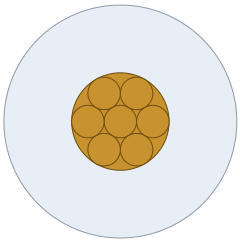
UL 4703 Photovoltaic Wire 600 V, 1000 V and 2000 V

SORIVO Product Series: **Sunlight-resistant XLPE photovoltaic wire** | Rated Voltage 600 / 1000 / 2000 V | Standard UL 4703 · NEC 690 | Sizes 14 AWG–4/0



XLPE insulation — 1.90 mm (75 mil), sunlight resistant

7-strand copper, ASTM B3 — 10 AWG shown

APPLICATION

Single-conductor photovoltaic wire for the interconnection wiring of grounded and ungrounded PV power systems, as described in NEC Article 690, Part IV. Sunlight resistance is not an option on this product — it is part of the listing, which is why the wire can be run exposed on a racking system without conduit, where an H1Z2Z2-K or PV1-F cable is not accepted by the inspector.

CONSTRUCTION

Conductor
Bare annealed copper, 7 strands to 2 AWG, 18 strands on 1/0–4/0, ASTM B3

Insulation
XLPE, single wall, 1.90 mm (75 mil) on 14–12 AWG, 2.15 mm (85 mil) on 8–2 AWG, 2.66 mm (105 mil) on 1/0–4/0

MODEL DESIGNATION

PV Photovoltaic wire to UL 4703 · **RHW-2** and **USE-2** are separate listings on the same construction, not automatic rights — confirm the printed legend

KEY FEATURES

- Sunlight resistant per UL 4703 — exposed routing without conduit
- 90 °C wet and dry, -40 °C cold bend
- Available as a triple-rated PV / RHW-2 / USE-2 construction — one wire, three code answers
- 600 V and 1000 / 2000 V grades, each with its own insulation wall

STANDARDS

- UL 4703 — Photovoltaic Wire, Ed. 2
- UL 44 — RHW-2, on a dual-rated construction
- UL 854 — USE-2, on a triple-rated construction
- NEC Article 690, Part IV — PV wiring methods
- NEC Table 310.16 — ampacity, 90 °C column

TECHNICAL PARAMETERS

Rated Voltage
600 V · 1000 V · 2000 V

Temperature Rating
Conductor +90 °C dry and +90 °C wet · cold bend -40 °C

Insulation Wall
1 kV / 2 kV grade: 1.90 – 2.66 mm
600 V grade: 1.52 mm (60 mil) on 14–12 AWG

Sunlight Resistance
Part of the UL 4703 listing — 720 h

Sizes
14 AWG to 4/0; larger sizes to the same construction

Direct Burial
Only through USE-2. UL 4703 by itself does not include direct burial

COLOUR IDENTIFICATION

Black as standard; red and blue for polarity marking available. The printed legend carries the size, PV WIRE, the voltage, SUN RES and the temperature rating.

UL 4703	+90 °C	SUN RES
600 / 1000 / 2000 V	wet and dry	in the listing

DIMENSIONS AND ELECTRICAL DATA

Table 1 — 1000 / 2000 V grade, single conductor, XLPE, bare copper

SIZE AWG	STRANDS count	CONDUCTOR dia. mm	XLPE INSUL. mm (mil)	OVERALL DIA. mm	WEIGHT kg/km	R @20 °C Ω/km max.	AMPACITY 90 °C, A
14	7	1.83	1.90 (75)	5.6	53	8.61	25
12	7	2.16	1.90 (75)	6.0	66	5.43	30
10	7	2.72	1.90 (75)	6.5	88	3.41	40
8	7	3.40	2.15 (85)	7.7	130	2.14	55
6	7	4.29	2.15 (85)	8.6	183	1.35	75
4	7	5.41	2.15 (85)	9.7	265	0.848	95
2	7	6.81	2.15 (85)	11.1	391	0.534	130
1/0	18	8.53	2.66 (105)	13.9	617	0.335	170
2/0	18	9.55	2.66 (105)	14.9	754	0.266	195
3/0	18	10.74	2.66 (105)	16.1	927	0.211	225
4/0	18	12.07	2.66 (105)	17.4	1140	0.167	260

Dimensions and masses are nominal and subject to manufacturing tolerance. Resistance is the maximum DC value at 20 °C. Ampacity is the 90 °C column of NEC Table 310.16 for not more than three current-carrying conductors in a raceway or cable at 30 °C ambient; under NEC 110.14(C) the usable ampacity may not exceed the temperature rating of the terminations, so the 90 °C column is applied through the correction factors rather than taken as a free upgrade. The 600 V grade uses a 1.52 mm (60 mil) wall on 14–12 AWG and measures about 0.6 mm smaller in overall diameter; it is a separate product line, not a derating of this one.

ONE WIRE OR THREE

Table 2 — why an EN 50618 datasheet does not pass a US plan review

	H1Z2Z2-K	PV1-F	UL 4703 PV WIRE
Market	Europe, Middle East, SEA	Europe, rooftop	US, Canada, Mexico
Rated voltage	1.5 kV DC	1.5 kV DC	600 / 1000 / 2000 V
Conductor expressed in	mm² (1.5–240)	mm²	AWG / kcmil
Temperature	-40 to +90 °C	-40 to +90 °C	+90 °C wet and dry
Accepted by	EN 50618	TÜV 2 PfG 1169	UL 4703 + NEC 690
Direct burial	On the marked version	Not claimed	Through USE-2 only

These are not grades of the same product. A H1Z2Z2-K datasheet will not pass a US plan review, and a UL 4703 datasheet will not satisfy a European specifier: the voltage is expressed differently, the conductor is sized in a different unit, and the approval basis is a different document.

TRIPLE RATING

Table 3 — the three printed designations a single construction can carry

PRINT LEGEND	STANDARD	WHAT THAT LISTING ADDS
PV WIRE	UL 4703	Exposed routing on the array, sunlight resistant, 90 °C wet
RHW-2	UL 44	Wet and dry locations, oil resistant, 90 °C
USE-2	UL 854	Underground service entrance — the only one of the three that permits direct burial

A triple-rated wire carries all three designations. It is not automatic: the RHW-2 and USE-2 listings have to be held for the size and the wall thickness being supplied, so the listing must cover the size and wall thickness being supplied.

INSPECTION AND TEST PROGRAMME

Table 4 — what is checked on every length, and what is proved once on the design

ROUTINE — EVERY LENGTH

CHECK	REFERENCE
Conductor resistance at 20 °C	ASTM B193
Spark test on the insulation	UL 4703
Insulation wall, overall dia.	UL 4703
Printed legend, incl. SUN RES	UL 4703

TYPE TEST — PROVED ONCE

CHECK	REFERENCE
Sunlight resistance, 720 h	UL 4703
Dielectric withstand, wet	UL 4703
Cold bend at -40 °C	UL 4703
Vertical flame	UL 1581

> **The mistake this datasheet is written to prevent.** A PV wire that is only PV-rated cannot be buried; one that is only USE-2 rated cannot run exposed on the rack. Projects fail inspection at the transition — where the wire leaves the array and enters the trench. Use the triple-rated construction where the route does both.

Disclaimer. The information in this datasheet is for guidance only and is subject to change without notice. Dimensions and masses are nominal and subject to manufacturing tolerance; confirm against the certificate of the delivered product. This document is uncontrolled once printed or forwarded — the current revision, issued under document number SORIVO-TM-PVWIRE-001, governs. © 2026 SORIVO. All rights reserved. Ampacity values assume 30 °C ambient and not more than three current-carrying conductors. The 90 °C rating applies to the conductor; the connectors, junction boxes and inverter terminals in the string set the usable limit under NEC 110.14(C). String design, overcurrent protection and routing rules are the responsibility of the system designer.