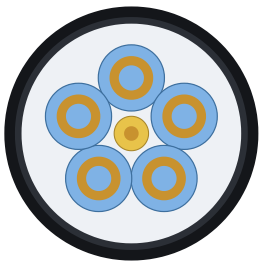
Type 2 EV AC Charging Cable

SORIVO Product Series: **EV charging cable** | IEC 62196-2 Type 2 | 16 A / 32 A · 11 kW / 22 kW | 5 × 6.0 + 1 × 0.5 | TPU



- TPU sheath — halogen-free, flame retardant, -35 °C flexible
- Power core insulation — L1, L2, L3, N, PE
- Class 5 flexible copper to IEC 60228
- Fillers and tape over the laid-up cores
- Signal core, 0.5 mm² — CP / PP control circuit

APPLICATION

Mode 3 AC charging cable for electric vehicles: 11 kW and 22 kW three-phase, plus single-phase 32 A. Supplied as a Type 2 to Type 2 lead, a Type 2 to GB/T lead, or a single-ended cable for a tethered charger. The seven-contact connector carries the control pilot and proximity circuits alongside the power cores, which is why the cable is never "just five cores".

CONSTRUCTION

Conductor
Class 5 flexible copper, IEC 60228

Power Cores
5 × 6.0 mm² (22 kW) or 5 × 2.5 mm² (11 kW) — L1, L2, L3, N, PE

Signal Core
1 × 0.5 mm² for CP / PP

Lay-up
Cores laid up with fillers, wrapped before sheathing

Sheath
TPU, halogen-free, flame retardant

THE CABLE IS NEVER FIVE CORES

A Type 2 assembly needs **five power cores plus at least one signal core**. CP and PP run from the plug back to the charger control circuit; a cable ordered as 5 × 6.0 with no signal core cannot be terminated to the connector.

STANDARDS AND STATUS

- IEC 62196-1:2014 — plugs, socket-outlets, vehicle connectors
- IEC 62196-2:2016 — Type 2 connector dimensions and interchangeability
- EN 50620 / IEC 62893-3 — EV charging cable, AC
- IEC 61851-1 — Mode 3 charging, Case B or Case C
- IEC 60228 — class 5 flexible conductors
- CE declaration of conformity for the assembly (LVD, RoHS)

TECHNICAL PARAMETERS

Connector
IEC 62196-2 Type 2 — 7 contacts: L1, L2, L3, N, PE, CP, PP

Rated Current
16 A / 32 A

Rated Voltage
480 V AC (IEC rating)
400 V 3-phase / 230 V 1-phase (European system)

Power
22 kW at 32 A 3-phase
11 kW at 16 A 3-phase
7.4 kW at 32 A single-phase

Cable Standard
EN 50620 / IEC 62893-3

Ambient Temperature
-30 °C to +50 °C

Sheath
TPU, halogen-free

7	22 kW	Mode 3
contacts	3-phase	IEC 61851-1

THE RANGE

Table 1 — four versions, one construction family

MODEL	CURRENT / POWER	CABLE	ENDS	PP RESISTOR
Type 2 — 32 A single-ended	32 A · 22 kW 3-ph	5 × 6.0 + 1 × 0.5	Type 2 plug / free end	220 Ω
Type 2 to Type 2 — 22 kW	32 A · 22 kW 3-ph	5 × 6.0 + 1 × 0.5	Type 2 / Type 2	220 Ω both ends
Type 2 — 16 A, 11 kW	16 A · 11 kW 3-ph	5 × 2.5 + 1 × 0.5	Type 2 plug / free end	680 Ω
Type 2 to GB/T — 32 A	32 A · 22 kW 3-ph	5 × 6.0 + 1 × 0.5	Type 2 / GB/T 20234.2	220 Ω + CC conversion

All four use five power cores, not three. A 22 kW three-phase link needs L1, L2, L3, N and PE. A cable quoted as 3 × 6 ± 2 × 2.5 cannot deliver 22 kW — it has no neutral and no third phase, so the vehicle charges single-phase.

SEVEN CONTACTS, THREE OF THEM SIGNAL

Table 2 — the IEC 62196-2 Type 2 interface

CONTACT	FUNCTION	RATING	NOTE
L1 / L2 / L3	Phase conductors	480 V / 32 A	Three-phase power
N	Neutral	480 V / 32 A	Single-phase return
PE	Protective earth	Fault current	Bonded through the plug body
CP	Control pilot	30 V / 2 A	PWM signal from the charger
PP	Proximity pilot	30 V / 2 A	Cable current coding via a resistor to PE

CP and PP are separate wires, and neither is optional. CP carries the control-pilot PWM that tells the vehicle how much current it may draw; PP tells the vehicle what the cable itself can carry. A lead with the power cores right and the signal cores missing will physically fit and will not start a charge.

CURRENT CODING ON THE PROXIMITY PIN

Table 3 — a resistor in each plug, not a label

PP–PE RESISTANCE	CABLE RATING IT DECLARES	TYPICAL USE
1 500 Ω	13 A	Single-phase 3.7 kW class
680 Ω	20 A	11 kW three-phase cable
220 Ω	32 A	22 kW three-phase cable
100 Ω	63 A	High-power AC, rarely seen on portable leads

The coding is 13 / 20 / 32 / 63 A — there is no 16 A rung. A 16 A product is a commercial rating on the conductor size; on the PP pin it must present the nearest code, which is 680 Ω for 20 A. Measuring PP to PE at the two ends of a lead reads twice the value, because each plug carries its own resistor — that is normal, not a fault.

22 kW is arithmetic, not a standard rating. Three-phase power is $3 \times U_{L-N} \times I$ — at 230 V line to neutral and 32 A that is 22.1 kW. On a 208 V supply the same cable delivers about 11.5 kW, so the vehicle sees a smaller charger than the label suggests. Ask for the supply voltage, not just the current.

Type 2 to GB/T is a signal translation, not an adapter. Type 2 uses PP for proximity; GB/T 20234.2 uses CC for connection confirmation. A working lead contains a resistor network that makes the two protocols agree — a passive pin-to-pin adapter will fit and will not charge.

CHARGING MODE AND CONNECTION CASE

Table 4 — IEC 61851-1 definitions

MODE / CASE	WHAT IT MEANS	APPLIES TO
Mode 3	AC charging from a dedicated charger with control pilot and protective-earth monitoring	All four versions
Case B	Cable is portable, pluggable at both ends	Type 2 to Type 2, Type 2 to GB/T
Case C	Cable is tethered to the charger	Single-ended Type 2

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ELECTRICAL AND MECHANICAL RATINGS

Table 5 — manufacturer-tested values, labelled as such

PARAMETER	VALUE	BASIS
Ambient temperature	-30 °C to +50 °C	IEC 62196-1 scope
Low-temperature flexibility	Stays flexible at -35 °C	Manufacturer test on the TPU compound
Insulation resistance	≥ 500 MΩ at 500 V DC	Manufacturer test
Dielectric withstand	2000 V AC, 1 minute	Manufacturer test
Temperature rise	≤ 50 K at rated current	Manufacturer test
Mating cycles	≥ 10 000	Manufacturer test — not an IEC limit
Ingress protection	IP54 mated, manufacturer-declared	Higher figures require a third-party report
Min. bending radius	5 × OD	Manufacturer value
Sheath	TPU, halogen-free, flame retardant	IEC 60754-1 for halogen content

There is no "IP65 certified" without a report. IP54 on the mated connector is what can be declared from in-house testing. If a project needs IP65 or IP67, ask for the third-party test report before it goes into the specification — promising it in a datasheet is how site disputes start.

COMPLIANCE WORDING

What this datasheet does and does not claim

- **Designed and constructed to** IEC 62196-2 (Type 2) — a dimensional and interchangeability standard, not a certification scheme.
- **Connector tested to** IEC 62196-1:2014 and IEC 62196-2:2016.
- **Cable manufactured to** EN 50620 / IEC 62893-3.
- **CE declaration of conformity** available for the complete assembly under LVD 2014/35/EU and RoHS — a declaration, not a certificate.
- **No TÜV or DEKRA mark is claimed** unless a certificate number is quoted with the order.

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