

TECSUN(PV) H1Z2Z2-K 1/1kV AC (1,5/1,5kV DC) CPR Eca PV cables, rubber insulated, TÜV and VDE certified as per EN 50618



Application

PRYSMIAN Solar cables TECSUN (PV) H1Z2Z2-K acc. to EN 50618, are intended for use in Photovoltaic Power Supply Systems at nominal voltage rate of 1,5/1,5kV DC.

They are suitable for applications indoor and/or outdoor, in industrial and agriculture areas, in/at equipment with protective insulation (Protecting Class II), in explosion hazard areas (PRYSMIAN Internal Testing). They may be installed fixed, freely suspended or free movable, in cable trays, conduits, on and in walls.

TECSUN(PV) H1Z2Z2-K cables are suitable for direct burial (PRYSMIAN Internal Testing), where the corresponding guidelines for direct burial shall be considered.

Global data

Brand	TECSUN(PV)
Type designation	H1Z2Z2-K
Standard	DIN EN 50618
Certifications / Approvals	VDE Approval Mark (<VDE>); TÜV-Certificate nr. 60103637
Construction product regulation (CPR)	CPR acc. to DIN EN 50575, Reaction to fire: Eca CPR Declaration of Performance www.prysmiangroup.com/cpr

Notes on installation

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Thanks to more than 15 years of positive experience with direct burial, not only according to the internal tests performed, but also to the successful installation in PV plants worldwide, the TECSUN(PV) cables are suitable for direct burial in ground (PRYSMIAN Internal Testing). The corresponding installation guidelines shall be taken in consideration.

Design features

Conductor	Electrolytic tinned copper, finely stranded class 5 in accordance with IEC 60228
Insulation	Cross-linked HEPR 120°C
Outer sheath	Cross-linked EVA rubber 120°C. Insulation and sheath are solidly bonded (Two-layer-insulation)
Outer sheath colour	Black, blue, red
Protective Braid Screen	TECSUN(PV) (C) with additional braid made of tinned copper wires (surface coverage > 80%), as a protective element against rodents or impact

Electrical parameters

Rated voltage	DC: 1,5/1,5 kV AC: 1,0/1,0 kV
Max. permissible operating voltage AC	1,2/1,2 kV
Max. permissible operating voltage DC	1,8/1,8 kV
Test voltage	AC: 6,5 kV / DC: 15 kV (5 Min.)
Current Carrying Capacity description	According to EN 50618, Table A-3
Electrical Tests	Acc. to EN 50618, Table 2: • Conductor Resistance; • Voltage Test on completed cable (AC and DC); • Spark Test on insulation; Insulation Resistance (at 20°C and 90°C in water); • Insulation Long-Term Resistance to DC (10 days, in 85°C water, 1,8 kV DC); • Surface Resistance of Sheath • AD8 (acc. to UL44 sec. 5.4 (>92 weeks)) PRYSMIAN internal test: • Dielectric Strength; • Insulation Resistance at 120°C in air.

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Chemical parameters

Performance against fire

Acc. to EN 50618, Table 2:

- Single Cable Flame Test per EN 60332-1-2;
- Low Smoke Emission per EN 61034-2 (Light Transmittance > 70%);
- Halogen-free per EN 50525-1, Annex B.

PRYSMIAN internal test:

- Multiple Cable Flame Test per EN 50305-9;
- Low Toxicity per EN 50305 (ITC < 3).

Resistance to oil

PRYSMIAN internal test, on sheath:

- 24h, 100°C (meets VDE 0473-811-404, EN 60811-404).

Weather resistance

Acc. to EN 50618, Annex E and Table 2:

- UV Resistance on sheath: tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights acc. to EN 50289-4-17, Method A;
- Ozone resistance: per Test Type B (DIN EN 50396)
- AD8 (acc. to DIN EN 50525-2-21 appendix E)

PRYSMIAN internal test:

- Water Absorption (Gravimetric) per DIN EN 60811-402.

Acid and alkaline resistance

Acc. to EN 50618, Annex B:

- 7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide) acc. to EN 60811-404.

Ammonia Resistance

PRYSMIAN Internal Testing:

- 30 days in Saturated Ammonia Atmosphere.

Environmentally Friendly

TECSUN(PV) cables comply with the RoHS directive 2011/65/EU of the European Union.

Thermal parameters

Max. operating temperature of the conductor

Max. 90°C at conductor (lifetime acc. to Arrhenius-Diagram TECSUN = 30 years).

20.000 hours of operation at conductor temperature of 120°C (and 90°C ambient temperature) are permitted.

Max. operating temperature of the conductor

90 °C

Max. short circuit temperature of the conductor

250 °C (5 s.)

Ambient temperature (for fixed and flexible installation)

Installation and handling: -25°C up to 60°C

In operation: -40°C up to +90°C

Resistance to cold

Acc. to EN 50618, Table 2:

- Cold Bending Test at -40°C acc. to DIN EN 60811-504;
- Cold Elongation Test at -40°C acc. to DIN EN 60811-505;
- Cold Impact Test at -40°C acc. to DIN EN 60811-506 and EN 50618 Annex C.

Damp-Heat Test

Acc. to EN 50618, Table 2:

- 1.000h at 90°C and 85% humidity (test acc. to EN 60068-2-78).

Mechanical parameters

Max. tensile load

15 N/mm² in operation, 50 N/mm² during installation

Bending radii min.

Acc. to EN 50565-1

Abrasion resistance

PRYSMIAN Internal Testing:

- Acc. to DIN ISO 4649 against abrasive paper;
- Sheath against sheath;
- Sheath against metal;
- Sheath against plastics.

Shrinkage Test

Acc. to EN 50618, Table 2:

- Maximum Shrinkage <2% (test acc. to EN 60811-503).

Pressure Test at High Temperature

PRYSMIAN Internal Testing:

- <50% acc. to EN 60811-508.

Dynamic Penetration Test

Acc. to EN 50618, Annex D:

- Meets requirements of EN 50618.

Shore-Hardness

PRYSMIAN Internal Testing:

- Type A: 85 acc. to DIN EN ISO 868

Durability of Print

Acc. to EN 50618:

- Test acc. to EN 50396.

Rodent resistance

Safety can be optimized by utilizing protective hoses, or protective element, such as a metallic screen braid.

Number of cores x cross section	Colour	Part number	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter max. mm	Bending radius fixed min. mm	Weight (approx.) kg/km	Permissible tensile force max. N	Conductor resistance at 20°C max. Ω/km	Current carrying capacity for single cable free in air (60°C ambient temp.) A	Short Circuit Current (1s. from 90°C to 250°C) kA	Current carrying capacity for single cable on a surface (60°C ambient temp.) A	CPR fire class	CPR DoP-Code
1x1,5	black	20154830	1.6	4.4	5	15	35	23	13.7	30	0.21	29	Eca	1007351
1x2,5	black	20154650	1.9	4.8	5.4	17	46	38	8.21	41	0.36	39	Eca	1007351
1x2,5	red	20167176	1.9	4.8	5.4	17	46	38	8.21	41	0.36	39	Eca	1007351
1x2,5	blue	20167177	1.9	4.8	5.4	17	46	38	8.21	41	0.36	39	Eca	1007351
1x4	black	20149014	2.4	5.3	5.9	18	61	60	5.09	55	0.57	52	Eca	1007351
1x4	red	20165491	2.4	5.3	5.9	18	61	60	5.09	55	0.57	52	Eca	1007351
1x4	blue	20165492	2.4	5.3	5.9	18	61	60	5.09	55	0.57	52	Eca	1007351
1x6	black	20149015	2.9	5.9	6.5	20	80	90	3.39	70	0.86	67	Eca	1007351
1x6	red	20165493	2.9	5.9	6.5	20	80	90	3.39	70	0.86	67	Eca	1007351
1x6	blue	20165494	2.9	5.9	6.5	20	80	90	3.39	70	0.86	67	Eca	1007351
1x10	black	20149016	4	7	7.6	23	122	150	1.95	98	1.43	93	Eca	1007351
1x10	red	20165495	4	7	7.6	23	122	150	1.95	98	1.43	93	Eca	1007351
1x10	blue	20165496	4	7	7.6	23	122	150	1.95	98	1.43	93	Eca	1007351
1x16	black	20154857	5.6	9	9.8	30	200	240	1.24	132	2.29	125	Eca	1007351
1x16	red	20167178	5.6	9	9.8	30	200	240	1.24	132	2.29	125	Eca	1007351
1x16	blue	20167179	5.6	9	9.8	30	200	240	1.24	132	2.29	125	Eca	1007351
1x25	black	20154858	6.4	10.3	11.2	34	290	375	0.795	176	3.58	167	Eca	1007351
1x35	black	20154859	7.5	11.7	12.5	50	400	525	0.565	218	5.01	207	Eca	1007351
1x50	black	20154860	9	13.5	14.5	58	560	750	0.393	276	7.15	262	Eca	1007351
1x70	black	20156711	10.8	15.5	16.5	66	750	1050	0.277	347	10.01	330	Eca	1007351
1x95	black	20156712	12.6	17.7	18.7	75	970	1425	0.21	416	13.59	395	Eca	1007351
1x120	black	20156713	14.2	19.2	20.4	82	1220	1800	0.164	488	17.16	464	Eca	1007351
1x150	black	20156714	15.8	21.4	22.6	91	1500	2250	0.132	566	21.45	538	Eca	1007351
1x185	black	20153870	17.4	23.7	25.1	101	1840	2775	0.108	644	26.46	612	Eca	1007351
1x240	black	20157001	20.4	27.1	28.5	114	2400	3600	0.082	775	34.32	736	Eca	1007351
1x300	black	20267011	22.9	30	33	132	3000	4500	0.0654	898	42.93	855	Eca	1007351
TECSUN(PV) (C) H1Z2Z2-K														
1x4 (C)	black		2.4	6	6.6	26.4	90	60	5.09	55	0.57	52	Eca	1007351
1x6 (C)	black	20198657	2.9	6.5	7.1	28.4	110	90	3.39	70	0.86	67	Eca	1007351

Standard delivery lenght is 500mt. Other lenghts are available on request.
All cross sections are also available in red and blue colors.