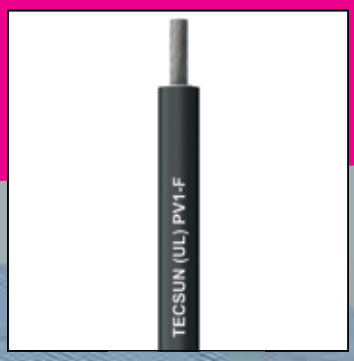
PRYSMIAN

TECSUN (UL) PV1-F

Halogen - free TÜV + UL dual rated PV-Wire



A brand of the
Prysmian Group

Linking the future

As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as primary driver in the development of communities.

With this in mind, we provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology.
Throught two renowned commercial brands - Prysmian and Draka - based in almost 100 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, profitable growth.

In our energy business, we design, produce, distribute and install cables and systems for the transmission and distribution of power at low, medium, high and extra-high voltage.

In telecoms, the Group is a leading manufacturer of all types of copper and fibre cables, system and accessories - covering voice, video and transmission.

Drawing on over 130 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to everythings we do, meeting and exceeding the precise needs of our customers across all continents, at the same shaping the evolution of our industry.

What links sustainable ideas to real-world results?

Cable solutions to enable the production and supply of renewable energy

To meet an ever-growing need for power, the world is increasingly turning to renewable and sustainably sourced wind and solar energy. In response to this demand, Prysmian cables are helping businesses in the renewable industry around the globe convert these new opportunities into reality.

Our technologies - which cover cables used in wind turbine and tower operations, submarine inter-array, platform connection and export cables to link the various turbines and underground power transmission and distribution cable system for wind power applications - are at work across the renewables sector, supporting the operations of turbine manufacturers, contractors and developers, grid operators, system integrators and panel makers.

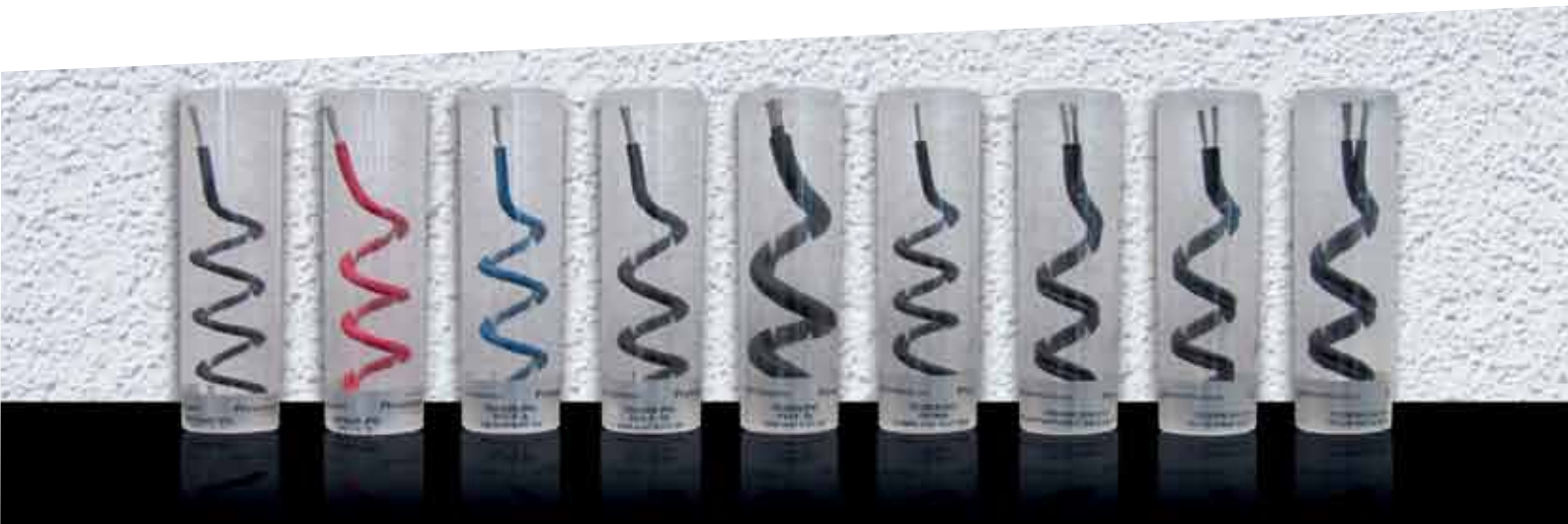
Always aware of our responsibility to the planet, we're constantly driving innovation in our industry, aiming to help renewable industry partners deliver projects with benefits for the future of both our world and their businesses.

Technical Data - TECSUN (UL) PV1-F

	Trademark	TECSUN (UL) PV1-F PV-Wire
	Type designation	PV1-F Photovoltaic Wire UL Category: ZKLA
	Approvals	UL 4703 (PV-Wire), NEC NFPA 70 690.31A UL Certificate No. 011011-E312049 Meets TÜV 2 PfG 1169/08.2007 requirements for PV-Wire Certificate No. R 60039360
	Application	PRYSMIAN TECSUN (UL) PV1-F PV-Wire is intended for use in Photovoltaic Power Supply Systems: Indoor and/or outdoor, in industrial and agriculture fields. They are suitable for applications in/at equipment with protective insulation (Protecting Class II), in explosion hazard areas (PRYSMIAN Internal Testing) and may be installed as well as fixed or freely suspended or free movable. Installation in cable trays, conduits, on and in walls is available.
	Ratings	TECSUN (UL) PV1-F PV-Wire is permitted for direct burial (UL 4703-4). Meets or exceeds the requirements of UL 4703 as well as TÜV 2PfG 1169/08.2007. Meets TÜV 2PfG 1169/08.2007: Rating from -40° C up to +90° C Max. Conductor Temperature +120° C Meets UL 4703: Rating 90° C Wet or Dry Operation Rating 105° C Dry Operation
Electrical Parameters	Rated Voltage	(Uo/U) 600/1000 V AC per TÜV 2PfG 1169/08.2007 rating (U) 600 V AC per UL 4703 rating
	Maximum permissible operating voltage in AC systems	700/1200 V
	Maximum Permissible operating voltage in DC systems	900/1800 V
	Test voltage	6500 V AC / 15000 V DC / 5 min.
	Ampacity	Meets requirements for PV-Wire per TÜV 2 PfG 1169/08.2007
	Tests •TÜV 2PfG 1169/08.2007 •PRYSMIAN Internal Testing	 Meets HD 22.2 Conductor Resistance, Test Voltages AC and DC, Electric Strength, Surface Resistance, Spark Test on Insulation, EN 50305 Part 6 DC stability (10 days, 85° C, salt water, 900 V DC), Insulation Resistance at 20° C and 90° C in Water. Insulation Resistance at 120° C in Air.
	Relative Permittivity and Stability Factor	Meets UL 2556 Section 6.5: $\varepsilon_r \leq 6$ Meets UL 2556 Section 6.6: After 14 days < 1, Difference day 1 and day 14 < 0.5;
	Long Term Insulation Resistance	In Water: 90° C 600 V (AC) per UL 2556 Section 6.4.4.2.1 ≥3GΩ after 12 weeks In Air: 113° C 600 V (AC) per UL 2556 Section 6.4.4.2.2 ≥3GΩ after 12 weeks
	Dielectric Withstand	Per UL 2556 Section 6.2 Method 1 and UL 44 Table 42 and 43: 1.5 - 6 mm² 3.0 kV, 10 - 35 mm² 3.5 kV, 50 - 95 mm² 4.0 kV
Thermal Parameters	Ambient Temperature	From -40° C up to +90° C (-40° F up to +194° F) for fixed and flexible installation
	Maximum permissible conductor operating temperature •UL 4703 rating •TÜV 2 PfG 1169/08.2007	 +105° C (+221° F) Dry Operation +120° C (+248° F) per IEC 60216 permanent temperature for 20.000 h (= 2.3 years) at max. 90° C permanent temperature (= 30 years)
	Short-Circuit Temperature •TÜV 2 PfG 1169/08.2007 •PRYSMIAN Internal Testing	 +200° C (+392° F) for 5s +250° C (+482° F) for 5s
	Resistance to Cold •UL 4703 •TÜV 2 PfG 1169/08.2007	 Cold Bend Test at -40° C temperature (per UL 2556 Section 7.5) Flexibility at -40° C temperature per UL 1581 Section 583 Cold Bend Test at -40° C temperature per DIN EN 60811-1-4 Impact Test at -40° C temperature similar to DIN EN 50305
	Damp-Heat Test	Meets TÜV 2 PfG 1169/08.2007 1000 h at 90° C and 85% humidity per EN 60068-2-78

Technical Data

Mechanical Parameters	Tensile Rating	15 N/mm² in operation, 50 N/mm² during installation per HD 516, DIN VDE 0298 Section 3 § 7.1 and Section 300 § 5.4.1
	Minimum bending Radius	min. 4 x D (D=Overall Cable Diameter)
	Abrasion (PRYSMIAN Internal Testing)	Meets DIN EN 53516: against abrasive paper, Sheath against sheath, Sheath against metal, Sheath against plastics
	Shrinkage Test	Meets TÜV 2 PfG 1169/08.2007 <2% per EN 60811-1-3
	Pressure Test at High Temperature	Meets TÜV 2 PfG 1169/08.2007 <50% per EN 60811-3-1
	Dynamic Penetration Test	Meets requirements for PV-Wire per TÜV 2 PfG 1169/08.2007
	Shore-Hardness A	85 per DIN 53505 (PRYSMIAN Internal Testing)
	Deformation	Pressure Head 9.5 mm Ø, 60 minutes, 131° C, 2000 g load per UL 2556 Section 7.7
	Insulation Fall-In	Meets UL 2556 Section 7.1
	Durability of Print	Test per UL 2556 Section 7.16 and UL 44 Section 5.2
	Gnawer resistance	Safety can be optimized by utilizing protective hoses and cables with spinning or braid metallic coatings
Chemical Parameters	Mineral Oil Resistance	Meets UL 1581 Section 400.1, Requirements per UL 44 Table 20
	Acid and Alkaline Resistance	Meets TÜV 2PfG 1169/08.2007 7 days, 23° C (N-Oxalic Acid, N-Sodium Hydroxide) per EN 60811-2-1
	Ammonia Resistance	30 days in Saturated Ammonia Atmosphere (PRYSMIAN Internal Testing)
	Weather resistance •UL 4703 •TÜV 2PfG 1169/08.2007 •PRYSMIAN Internal Testing	 Meets UL 2556 Section 4.2.8.5: 300 hours Meets UL 44 Section 5.15.2: 720 hours Ozone resistance per DIN EN 50396 Test Type B, HD 22.2 Test Type B UV-Resistance per UL 1581 (XenoTest), ISO 48922 (Method A) and HD 605/A12.4.20 Absorption of Water (Gravimetric) per DIN EN 60811-1-3
	Fire Behaviour •UL 4703 •TÜV 2PfG 1169/08.2007 •PRYSMIAN Internal Testing	 Vertical Flame Test per UL 2556 Section 9.5 Horizontal Flame Test per UL 2556 Section 9.1 VW-1 per UL 1581 1061 Single Cable Flame Test per IEC 60332-1-2, DIN EN 60332-1-2 Halogen-free per IEC 60754-1 No Corrosivity per IEC 60754-2 Multiple Cable Flame Test per DIN EN 50305-910 Low Smoke Emission per IEC 61034, EN 61034 (Light Transmittance > 70%) Low Toxicity per DIN EN 50305, ITC < 3
	Conductor Corrosion	7 days 121° C per UL 2556 Section 8.1
	Enviromentally Friendly	TECSUN (UL) PV-Wire complies with RoHS directives 2002/95/EG, 2005/69/EG and 2006/122/EG of the European Union
Direct Burial		Service Entrance Cable per UL 854: •Section 23 Impact Test •Section 24 Crushing Test Installation Conditions per VDE 0800 Section 174 § 5.4.2 and VDE 0891 Section 6 § 4.2 ratings.



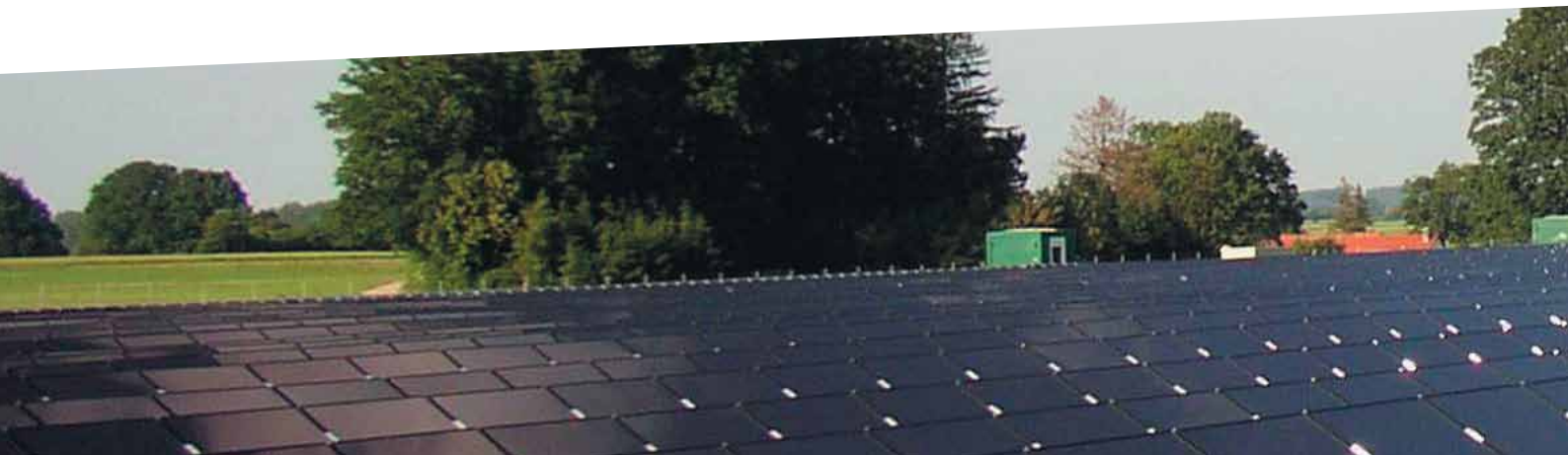
TECSUN (UL) PV1-F

• BAUART GEPRÜFT
• TYPE APPROVED

LISTED

Design features

Type designation	TECSUN (UL) PV1-F
Conductor	Electrolytic tinned copper, Class 5 in accordance with IEC 60228
Nominal Cross-Section	#16 AWG to 3/0 AWG (from 1.5 mm² to 95 mm²)
Insulation Core Identification	HEPR complying with UL 1581 Table 50.245, IEC 60502-1 •Natural Colour White
Jacket Jacket Colour Jacket Printing	Cross-linked EVA rubber complying with UL 1581 Table 50.245, DIN VDE 0282 part 1, HD 22.1 Insulation and Jacket are connected solidly (Two-Layer-Insulation) •Black •Typical: PRYSMIAN TECSUN (UL) PV1-F 4 mm² 0.6/1 kV TÜV-Zert. R60039360 E312049 (UL) PV-Wire 12AWG 600V 90C Wet or 105C Dry Sun Res -40C VW-1 Dir Bur [Meter Marking] [Batch Number] Jacket Printing Default: White Colour Red and Blue Printing optional





Selection and ordering data

Nominal cross-section	Order No. diameter	Conductor diameter cable Min.value	Overall diameter cable Max.value	Overall net weight radius load ambient temperature	Approx. bending tensile 60° C (free in air)	Minimum permissible capacity at (1s)	Maximum carrying current	Current short circuit	Permissible
	[mm]	[mm]	[mm]	[kg/km]	[mm]	[N]	[A]	[kA]	
1.5 mm²/16 AWG	20025133	1.6	5.3	5.7	43	21.2	23	30	0.19
2.5 mm²/14 AWG	20025135	1.9	5.6	6.0	54	22.4	38	41	0.32
4.0 mm²/12 AWG	20025134	2.4	6.1	6.5	71	24.4	60	55	0.50
6.0 mm²/10 AWG	20025136	2.9	6.6	7.0	91	29.6	90	70	0.76
10.0 mm²/8 AWG	20025137	4.0	8.3	9.0	150	33.6	150	98	1.26
16.0 mm²/6 AWG	20025458	5.5	10.0	10.7	223	39.6	240	132	2.01
25.0 mm²/4 AWG	20025459	6.4	11.3	12.0	315	44.8	375	176	3.15
35.0 mm²/2 AWG	20025460	7.5	12.3	13.0	413	48.4	525	218	4.41
50.0 mm²/1 AWG	20025461	9.0	14.8	15.5	593	59.2	750	276	6.30
70.0 mm²/2/0 AWG	20025462	10.8	16.6	17.3	794	66.4	1050	347	8.82
95.0 mm²/3/0 AWG	20025463	12.6	18.4	19.1	989	73.6	1425	416	12.0
1.5 mm²/16 AWG	20025133	1.6	5.3	5.7	43	21.2	23	30	0.19

Linking sustainable ideas to real world results

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