Lightning and surge arresters T1+T2 for photovoltaic systems

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HLSA12,5 PV 1500

- Lightning impulse current and surge arresters type T1+T2 intended for photovoltaic systems (PV) at U or Y connection.
- The advantage of the Y connection versus the U connection is the resistance to the earth connection of the working conductors and zero residual (leakage) current through the PE conductor.
- Particular varistor sectors, connected between the terminals L+, L- and PE are equipped with internal disconnectors, which are activated when the varistors fail (overheat).
- These devices are necessary to be used with the back-up fuse with external disconnector, which is intended for PV applications.

- They are installed on the DC side in PV applications with external LPS, where a sufficient distance "s" is not observed.
- Suitable for level LPL I or II.
- Ensure the equipotential bonding of plus and minus busbars of PV systems and the elimination of transient overvoltage resulting from the atmospheric discharges (including direct lightning strike to the PV system) or switching processes.
- **S** indication specifies a version with remote monitoring.

Type		HLSA12,5 PV 1500
Test class according to EN 61643-11:2012 and EN 61643-31:2019		T1, T2
System		DC
PV system type		Ungrounded
SPD connection type		Y
Maximum continuous operating voltage (+/-)	U_{CPV}	1 500 V DC
Maximum continuous operating voltage (±/PE)	U_{CPV}	1 500 V DC
Max. voltage of PV generator $U_{OCSTC} \leq U_{CPV} / 1.2$	U_{OCSTC}	1 250 V
Short-circuit current rating	I_{SCPV}	10 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12.5 kA
Charge	Q	6.25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) ±->PE	I_{Total}	25 kA
Total discharge current (8/20) ±->PE	I_{Total}	40 kA
Maximum discharge current (8/20)	I_{max}	40 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Voltage protection level at I_n (+/-)	U_p	< 4.8 kV
Voltage protection level at I_n (±/PE)	U_p	< 2.6 kV
Response time (+/-)	t_A	< 25 ns
Response time (±/PE)	t_A	< 100 ns
Housing material		Polyamid PA6, UL94 V-0
Degree of protection		IP20
Operating temperature	ϑ	-40 ÷ 70 °C
Humidity range	RH	5 ÷ 95 %
Minimum cross-section of connected Cu conductors according to IEC 61643-32:2017 (doesn't apply to „V" connection) for T1	S	6 mm² (L+, L-) 16 mm² (PE)
Minimum cross-section of connected Cu conductors according to IEC 61643-32:2017 (doesn't apply to „V" connection) for T2	S	2.5 mm² (L+, L-) 6 mm² (PE)

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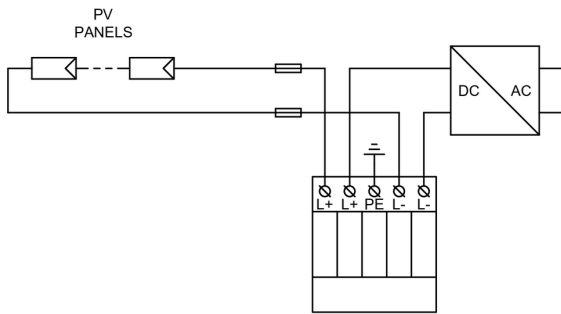| Type		HLSA12,5 PV 1500
Clamp fastening range (solid conductor)		1.5 ÷ 25 mm^2
Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm^2
Tightening moment		3 Nm
Installation		On DIN rail 35 mm
Modular width		5 TE
Operating position		Any
Product placement environment		Internal
Signalling at the device		Optic
Importance of local signaling		OK – clear target FAULT – red target
Remote signalling		No
Modular design		No
Lifetime		> 100 000 h
Designed according to standards		
Requirements and test methods for SPDs for photovoltaic installations		IEC 61643-31:2018
Safety of Flammability of Plastic Materials		UL 94
Application standards		
Protection against lightning		IEC 62305:2010
Selection and application principles for SPDs connected to photovoltaic installations		IEC 61643-32:2017
Selection and application principles for SPDs connected to photovoltaic installations		CLC/TS 51643-32:2020
Low-voltage electrical installations – Photovoltaic (PV) systems		HD 60364-7-712:2016
Ordering, packaging and additional data		
Mass	m	672 g
Mass (including the packaging)	m	716 g
Packaging dimensions (H x W x D)		71 x 177 x 106 mm
Packaging value	V	1.33 dm^3
ETIM group		EG000021
ETIM class		EC001457
Customs tariff no.		85363010
EAN code		8590681172353
Art. number		**10 477**

The link in the QR code leads to the online presentation of the **HLSA12,5 PV 1500**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com**

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Application wiring diagram (installation)

Internal diagram