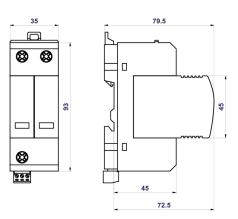




## HSA PV 400/2 M S

- Surge arresters type 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+, Land PE are equipped with internal disconnectors, which are activated when the varistors fail (overheat) and they are able to interrupt the DC current.
- Special construction of the internal disconnector allows installation without a back-up fuse.



- They are installed on the DC side in PV applications without an external LPS or with an external LPS, where the sufficient distance "s" is observed.
- Suitable for all LPL levels.
- Ensure the equipotential bonding of positive and negative busbars of PV systems and the elimination of transient overvoltage that originates during the atmospheric discharges or switching processes.
- **M** indication specifies a type of construction with removable module.
- S indication specifies a version with remote monitoring.

Туре		HSA PV 400/2 M S
Test class according to EN 61643-11:2012 and EN 61643-31:2019		T2
System		DC
PV system type		Ungrounded
SPD connection type		U
Maximum continuous operating voltage (+/-)	U <sub>CPV</sub>	400 V DC
Maximum continuous operating voltage (±/PE)	U <sub>CPV</sub>	200 V DC
Max. voltage of PV generator $U_{OCSTC} \le U_{CPV} / 1.2$	U <sub>OCSTC</sub>	330 V
Short-circuit current rating	I <sub>SCPV</sub>	10 kA
Total discharge current (8/20) ±->PE	$I_{\text{Total}}$	40 kA
Maximum discharge current (8/20)	I <sub>max</sub>	40 kA
Nominal discharge current for class II test (8/20)	I <sub>n</sub>	20 kA
Voltage protection level at In (+/-)	Up	< 1.6 kV
Voltage protection level at $I_n$ (±/PE)	Up	< 0.8 kV
Response time (+/-)	t <sub>A</sub>	< 25 ns
Response time (±/PE)	t <sub>A</sub>	< 25 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 T2 $$	S	2.5 mm² (L+, L-) 6 mm² (PE)
Clamp fastening range (solid conductor)		$2.5 \div 35 \text{ mm}^2$
Clamp fastening range (stranded conductor)		$2.5 \div 25 \text{ mm}^2$
Tightening moment		4 Nm
Installation		On DIN rail 35 mm
Modular width		2 TE



Operating position Internal   Product placement environment Internal   SPD failure mode OCFM   Signalling at the device Optic   Importance of local signaling OK - green target FAULT - red target   Remote signalling Yes   Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) AC: 250 V/ 1.5 A, DC: 250 max. 1 mm²)   Modular design Yes   Article number of the varistor spare module Yes   Lifetime Yes   Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Yes   Article number of the varistor spare module Yes   Lifetime Yes   Potential free signal according to standards IEC 61643-31:2016   Safety of Flammability of Plastic Materials UL 94   Application standards IEC 61643-32:2017   Selection and application principles for SPDs connected to photovoltaic installations IEC 61643-32:2017   Selection and application principles for SPDs connected to photovoltaic installations IEC 61643-32:2017   Selection and application principles for SPDs connected to photovoltaic installations IEC 61643-32:2017	6
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**The link in the QR code** leads to the online presentation of the **HSA PV 400/2 M S**. 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** 





## Application wiring diagram (installation)

