

## HSA-440/1+1 M S

- Surge arresters type T2+T3 ensure the equipotential bonding and reduce switching, induced and residual overvoltage in LV power supply systems.
- The products consist of varistors with big discharge ability.
- Configurations 1+1 and 3+1 are additionally combined with a gas discharge tube which ensures zero leakage current through the PE conductor.
- Installed at the boundaries of LPZ 1 – LPZ 3 into subsidiary switchboards and control panels.
- If the product contains two PE (or PEN) terminals, it must not be used as a PE (PEN) bridge.
- **M** indication specifies a type of construction with removable module.
- **S** indication specifies a version with remote monitoring.

Type		HSA-440/1+1 M S
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T2, T3
System		TN-S, TT
Number of poles		2
Rated operating AC voltage	$U_N$	400 V
Maximum continuous operating voltage AC	$U_C$	440 V
Maximum discharge current (8/20)	$I_{max}$	40 kA
Nominal discharge current for class II test (8/20)	$I_n$	15 kA
Open circuit voltage of the combination wave generator	$U_{OC}$	6 kV
Total discharge current (8/20) L+N->PE	$I_{Total}$	50 kA
Voltage protection level at $I_n$ (L/N)	$U_p$	< 1.8 kV
Voltage protection level at $I_n$ (N/PE)	$U_p$	< 1.4 kV
Voltage protection level at $U_{OC}$ (L/N)	$U_p$	< 1.4 kV
Impulse discharge current for class I test (10/350) N/PE	$I_{imp}$	20 kA
Temporary overvoltage test (TOV) for $t_T = 5$ s (L/N)	$U_T$	580 V
Temporary overvoltage test (TOV) for $t_T = 120$ min (L/N)	$U_T$	762 V
Temporary overvoltage test (TOV) for $t_T = 0.2$ s (N/PE)	$U_T$	1 200 V
Response time (L/N)	$t_A$	< 25 ns
Response time (N/PE)	$t_A$	< 100 ns
Maximal back-up fuse		160 A gL/gG
Residual current	$I_{PE}$	$\leq 5 \mu A$
Short-circuit current rating at maximum back-up fuse	$I_{SCCR}$	60 kA <sub>rms</sub>
Follow current interrupt rating (N/PE)	$I_{fi}$	0.1 kA <sub>rms</sub>
Lightning protection zone		LPZ 1-2, LPZ 2-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection		IP20
Operating temperature	$\vartheta$	-40 ÷ 70 °C
Humidity range	RH	5 ÷ 95 %
Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 (doesn't apply to „V“ connection) for T2	S	2.5 mm <sup>2</sup> (L, N) 6 mm <sup>2</sup> (PE, PEN)

Type		HSA-440/1+1 M S
Clamp fastening range (solid conductor)		1.5 ÷ 25 mm <sup>2</sup>
Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
Tightening moment		3 Nm
Installation		On DIN rail 35 mm
Modular width		2 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		Yes
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm <sup>2</sup> )		AC: 250 V / 1.5 A, DC: 250 V / 0.1 A
Pluggable version		Yes
Article number of spare module		27 194
Lifetime		> 100 000 h
<b>Designed according to standards</b>		
Requirements and test methods for SPDs connected to low-voltage power systems		IEC 61643-11:2011
Safety of Flammability of Plastic Materials		UL 94
<b>Application standards</b>		
Protection against lightning		IEC 62305:2010
Selection and erection of electrical equipment – Switchgear and controlgear		HD 60364-5-53:2022
Selection and application principles for SPDs connected to low-voltage power systems		CLC/TS 61643-12:2009
<b>Ordering, packaging and additional data</b>		
Mass	m	230 g
Mass (including the packaging)	m	244 g
Packaging dimensions (H x W x D)		45 x 102 x 74 mm
Packaging value	V	0.34 dm <sup>3</sup>
ETIM group		EG000021
ETIM class		EC000941
Customs tariff no.		85363010
EAN code		8590681116708
<b>Art. number</b>		<b>27 545</b>

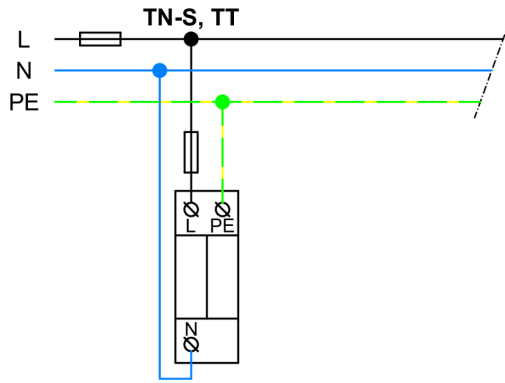


The link in the QR code leads to the online presentation of the **HSA-440/1+1 M S**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit [www.hakel.com](http://www.hakel.com)



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Application wiring diagram (installation)



Internal diagram

