

## HSA-275/1+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.

Туре		HSA-275/1+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	$U_N$	230 V
Maximum continuous operating voltage AC	$U_{C}$	275 V
Maximum discharge current (8/20)	I <sub>max</sub>	50 kA
Nominal discharge current for class II test (8/20)	I <sub>n</sub>	20 kA
Open circuit voltage of the combination wave generator	U <sub>oc</sub>	6 kV
Total discharge current (8/20) L+N->PE	I <sub>Total</sub>	50 kA
Voltage protection level at I <sub>n</sub> (L/N)	$U_{p}$	< 1.25 kV
Voltage protection level at I <sub>n</sub> (L/PE)	$U_p$	< 1.5 kV
Voltage protection level at I <sub>n</sub> (N/PE)	$U_p$	< 1.4 kV
Voltage protection level at U <sub>OC</sub> (L/N)	$U_p$	< 0.85 kV
Impulse discharge current for class I test (10/350) N/PE	I <sub>imp</sub>	20 kA
Temporary overvoltage test (TOV) for $t_T = 5 \text{ s (L/N)}$	U <sub>T</sub>	337 V
Temporary overvoltage test (TOV) for $t_T = 120 \text{ min (L/N)}$	$U_T$	440 V
Temporary overvoltage test (TOV) for $t_T = 0.2 \text{ s (N/PE)}$	U <sub>T</sub>	1 200 V
Response time (L/N)	t <sub>A</sub>	< 25 ns
Response time (N/PE)	t <sub>A</sub>	< 100 ns
Maximal back-up fuse		160 A gL/gG
Residual current	I <sub>PE</sub>	≤ 5 µA
Short-circuit current rating at maximum back-up fuse	I <sub>SCCR</sub>	60 kA <sub>rms</sub>
Follow current interrupt rating (N/PE)	I <sub>fi</sub>	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	9	-40 ÷ 70 °C
Humidity range	RH	5 ÷ 95 %



Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53.2022         \$ 8.25 mm² (L, N) (doesn't apply to , V² connection) for T2           Clamp fastering range (solid conductor)         1.5 ± 25 mm²           Clamp fastering range (solid conductor)         1.5 ± 25 mm²           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           Femote signalling         Yes           Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)         AC: 250 V / 1.5 A, DC: 250 V / 0.1 A           Max. 1 mm²)         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards           Fortection against lightning         IEC 61643-11:2011           Selection and arection of electrical equipment – Switchgear and controlgear <th>Туре</th> <th></th> <th>HSA-275/1+1 M S</th>	Туре		HSA-275/1+1 M S
Clamp fastening range (stranded conductor)         1.5 ÷ 16 mm²           Tightening moment         3 Nm           Installation         On DIN rall 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           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 V / 0.1 A           Modular design         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards         IEC 62305:2010           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      <		S	
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         K - clear target           FAULT - red target         FAULT - red target           Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)         AC: 250 V / 1.5 A, DC: 250 V / 0.1 A           Modular design         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards         IEC 6205:2010           Protection against lightning         IEC 62305:2010           Selection and erection of electrical equipment - Switchgear and controlgear         PLO 63644-5-53:2022           Selection and application principles for SPDs connected to low-voltage power systems         CLC/TS 61643-12:2009           Ordering, packaging and additional data         M	Clamp fastening range (solid conductor)		$1.5 \div 25 \text{ mm}^2$
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           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 V / 0.1 A           Modular design         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards         IEC 6305:2010           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           Ordering, packaging and additional data         M         218 g           Mass (including the packaging)         m         232 g           Packaging dimensions (H x W x D)	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
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 mm²)         AC: 250 V / 1.5 A, DC: 250 V / 0.1 A           Modular design         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards         IEC 62305:2010           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           Ordering, packaging and additional data         m         218 g           Mass (including the packaging)         m         218 g           Packagi	Tightening moment		3 Nm
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Product placement environment Signalling at the device Optic Importance of local signalling CK - clear target FAULT - red targe	Modular width		2 TE
Signalling at the device         Optic           Importance of local signaling         OK - clear target FAULT - red	Operating position		Any
Importance of local signaling  Remote signalling  Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)  Modular design  Ac: 250 V / 1.5 A, Dc: 250 V / 0.1 A max. 1 mm²)  Modular design  Acticle number of spare module  Lifetime  Possigned according to standards  Requirements and test methods for SPDs connected to low-voltage power systems  Safety of Flammability of Plastic Materials  UL 94  Application standards  Protection against lightning  Selection and erection of electrical equipment - Switchgear and controlgear  Selection and application principles for SPDs connected to low-voltage power systems  CLC/TS 61643-12:2009  Ordering, packaging and additional data  Mass  m 218 g  Mass (including the packaging)  m 232 g  Packaging dimensions (H x W x D)  45 x 102 x 74 mm  Packaging value  V 0.34 dm³  ETIM group  ETIM group  EG000021  ETIM class  EC000941  Customs tariff no.  85363010  EAN code	Product placement environment		Internal
Remote signalling Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)  Modular design Article number of spare module Lifetime Pesigned according to standards Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Replication standards Protection against lightning Relection and erection of electrical equipment – Switchgear and controlgear Relection and application principles for SPDs connected to low-voltage power systems Resignated and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Relection and application principles for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Rectified and test methods for SPDs connected to low-voltage power systems Rectified and test methods for SPDs connected to low-voltage power systems Rectified and test methods for SPDs connected to low-voltage power systems Rectified and test	Signalling at the device		Optic
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max. 1 mm²)         Yes           Article number of spare module         27 086           Lifetime         > 100 000 h           Designed according to standards           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plastic Materials         UL 94           Application standards           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           Ordering, packaging and additional data         m         218 g           Mass (including the packaging)         m         232 g           Packaging dimensions (H x W x D)         45 x 102 x 74 mm           Packaging value         V         0.34 dm³           ETIM class         EG000021           ETIM class         EC000941           Customs tariff no.         859681116043	Remote signalling		Yes
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Selection and erection of electrical equipment – Switchgear and controlgear  Selection and application principles for SPDs connected to low-voltage power systems  CLC/TS 61643-12:2009  Ordering, packaging and additional data  Mass  m 218 g  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V 0.34 dm³  ETIM group  ETIM class  EC000941  Customs tariff no.  EAN code  B590681116043	Application standards		
Selection and application principles for SPDs connected to low-voltage power systems  Ordering, packaging and additional data  Mass  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  0.34 dm³  ETIM group  ETIM class  CLC/TS 61643-12:2009  M  218 g  M  232 g  Packaging dimensions (H x W x D)  V  0.34 dm³  EC000021  ETIM class  EC000941  Customs tariff no.  85363010  8590681116043	Protection against lightning		IEC 62305:2010
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ETIM class         EC000941           Customs tariff no.         85363010           EAN code         8590681116043	Packaging value	V	0.34 dm <sup>3</sup>
Customs tariff no.       85363010         EAN code       8590681116043	ETIM group		EG000021
EAN code 8590681116043	ETIM class		EC000941
	Customs tariff no.		85363010
Art. number 27 091	EAN code		8590681116043
	Art. number		27 091

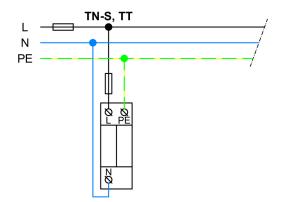


**The link in the QR code** leads to the online presentation of the **HSA-275/1+1 M S**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

