

HSA-600/3+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-600/3+1 M S
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T2, T3
System		TN-S, TT
Number of poles		4
Rated operating AC voltage	U_N	500 V
Maximum continuous operating voltage AC	U_{C}	600 V
Maximum discharge current (8/20)	I _{max}	40 kA
Nominal discharge current for class II test (8/20)	l _n	15 kA
Open circuit voltage of the combination wave generator	U _{oc}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I _{Total}	50 kA
Voltage protection level at I _n (L/N)	U_p	< 2.2 kV
Voltage protection level at I _n (N/PE)	U_p	< 1.3 kV
Voltage protection level at U _{OC} (L/N)	U_p	< 1.7 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	726 V
Temporary overvoltage test (TOV) for $t_T = 120 \text{ min (L/N)}$	U_{T}	953 V
Temporary overvoltage test (TOV) for $t_T = 0.2 \text{ s (N/PE)}$	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}	≤ 5 µA
Short-circuit current rating at maximum back-up fuse	I_{SCCR}	60 kA _{rms}
Follow current interrupt rating (N/PE)	I _{fi}	0.1 kA _{rms}
Lightning protection zone		LPZ 1-2, LPZ 2-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection		IP20
Operating temperature	Э	-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 mm² (L, N) 6 mm² (PE, PEN)



Clamp fastening range (solid conductor) 1.5 ÷ 25 mm² Clamp fastening range (stranded conductor) 1.5 ÷ 16 mm² Tightening moment 3 Nm Installation On DIN rail 35 mm Modular width 4 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 27 195 Lifetime 27 195 Designed according to standards U. 94 Requirements and test methods for SPDs connected to low-voltage power systems IEC 61643-11:2011 Safety of Flammability of Plastic Materials U. 94 Protection against lightning IEC 66643-11:2011 Selection and erection of electrical equipment – Switchgear and controlgear HD 60364-5-53:2022 Selection and erection of electrical equipment – Switchgear and controlgear CLC/TS 61643-1:2009	Туре		HSA-600/3+1 M S
Tightening moment 3 Nm Installation On DIN rail 35 mm Modular width 4 TE Operating position Any Product placement environment Internal Signalling at the device Optic Importance of local signaling CK - clear target FAULT - red target FAULT - red target RAULT - red target fAULT - red target red parts. I mm²) 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 27 195 Lifetime > 1000 000 h Designed according to standards IEC 61643-11:2011 Safety of Flammability of Plastic Materials U. 94 Application standards IEC 61643-11:2011 Safety of Flammability of Plastic Materials U. 94 Protection against lightning IEC 62305:2010 Selection and arection 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 524 g <t< td=""><td>Clamp fastening range (solid conductor)</td><td></td><td>$1.5 \div 25 \text{ mm}^2$</td></t<>	Clamp fastening range (solid conductor)		$1.5 \div 25 \text{ mm}^2$
Installation On DIN rail 35 mm Modular width 4 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 27 195 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 496 g Mass (including the packaging) m </td <td>Clamp fastening range (stranded conductor)</td> <td></td> <td>1.5 ÷ 16 mm²</td>	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm ²
Modular width 4 TE Operating position Any Product placement environment Internal Signalling at the device Optic Importance of local signaling OK - clear target FAULT - red target FAULT - red target Remote signal ling 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 27 195 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 UL 94 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 Mass (including the packaging) m 496 g Mass (including the	Tightening moment		3 Nm
Operating position Any Product placement environment Internal Signalling at the device Optic Importance of local signalling 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 27 195 Lifetime > 1000 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 Mass Mass m 496 g Mass (including the packaging) m 524 g Packaging valu	Installation		On DIN rail 35 mm
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 27 195 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 6205:2010 Selection and erection of electrical equipment – Switchgear and controlgear THD 60364-5-53:2022 Selection and application principles for SPDs connected to low-voltage power systems CLCTS 61643-12:2009 Ordering, packaging and additional data Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V	Modular width		4 TE
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 27 195 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 Mass m 496 g Mass (including the packaging) m 524 g Packaging value V 0.61 dm³ Packaging value V 0.61 dm³ ETIM group EC0000941	Operating position		Any
Importance of local signalling 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 27 195 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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm² ETIM class EG000021 ETIM class EC000941 Customs tariff no. 85363010	Product placement environment		Internal
Remote signalling 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 27 195 Lifetime > 100 000 h Designed according to standards Equirements 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 UL 94 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 496 g Mass (including the packaging) m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM class EC0000941 Customs tariff no. 8590681116852	Signalling at the device		Optic
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Modular design Article number of spare module Lifetime Possigned 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 Selection and erection of electrical equipment – Switchgear and controlgear Selection and application principles for SPDs connected to low-voltage power systems CLC/TS 61643-11:2011 BEC 62305:2010 BEC 62305:2010 Portection and application principles for SPDs connected to low-voltage power systems CLC/TS 61643-12:2009 Ordering, packaging and additional data Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code	Importance of local signaling		
max. 1 mm²) Yes Modular design Yes Article number of spare module 27 195 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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Remote signalling		Yes
Article number of spare module 27 195 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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852			AC: 250 V / 1.5 A, DC: 250 V / 0.1 A
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 Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Modular design		Yes
Designed 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 Requirements and test methods for SPDs connected to low-voltage power systems Requirements and test methods for SPDs connected to low-voltage power systems Protection against lightning Received and erection of electrical equipment – Switchgear and controlgear Relection and application principles for SPDs connected to low-voltage power systems CLC/TS 61643-12:2009 Ordering, packaging and additional data Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 8590681116852	Article number of spare module		27 195
Requirements and test methods for SPDs connected to low-voltage power systems Safety of Flammability of Plastic Materials 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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code	Lifetime		> 100 000 h
Safety of Flammability of Plastic Materials 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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) Packaging value V 0.61 dm³ ETIM group ETIM class EC000941 Customs tariff no. 85363010 EAN code	Designed according to standards		
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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group ETIM class Customs tariff no. 85363010 EAN code 8590681116852	Requirements and test methods for SPDs connected to low-voltage power systems		IEC 61643-11:2011
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 496 g Mass (including the packaging) Packaging dimensions (H x W x D) Packaging value V 0.61 dm³ ETIM group ETIM group ETIM class Customs tariff no. EAN code B590681116852	Safety of Flammability of Plastic Materials		UL 94
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 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	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 O.61 dm³ ETIM group ETIM class CLC/TS 61643-12:2009 M 496 g 74 x 112 x 73 mm 70 0.61 dm³ EC000021 EC000021 ETIM class EC000941 Customs tariff no. EAN code 8590681116852	Protection against lightning		IEC 62305:2010
Ordering, packaging and additional data Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Selection and erection of electrical equipment – Switchgear and controlgear		HD 60364-5-53:2022
Mass m 496 g Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Selection and application principles for SPDs connected to low-voltage power systems		CLC/TS 61643-12:2009
Mass (including the packaging) m 524 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Ordering, packaging and additional data		
Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Mass	m	496 g
Packaging value V 0.61 dm³ ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Mass (including the packaging)	m	524 g
ETIM group EG000021 ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Packaging dimensions (H x W x D)		74 x 112 x 73 mm
ETIM class EC000941 Customs tariff no. 85363010 EAN code 8590681116852	Packaging value	V	0.61 dm ³
Customs tariff no. 85363010 EAN code 8590681116852	ETIM group		EG000021
EAN code 8590681116852	ETIM class		EC000941
	Customs tariff no.		85363010
Art. number 27 560	EAN code		8590681116852
	Art. number		27 560

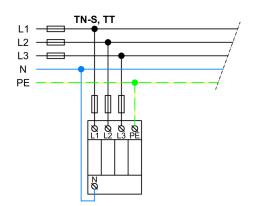


The link in the QR code leads to the online presentation of the **HSA-600/3+1 M S**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com**





Application wiring diagram (installation)



Internal diagram

