

## HSA-150/3+1

- 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-150/3+1
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 <sub>N</sub>	120 V
Maximum continuous operating voltage AC	$U_{c}$	150 V
Maximum discharge current (8/20)	I <sub>max</sub>	40 kA
Nominal discharge current for class II test (8/20)	In	15 kA
Open circuit voltage of the combination wave generator	U <sub>oc</sub>	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I <sub>Total</sub>	50 kA
Voltage protection level at I <sub>n</sub> (L/N)	$U_p$	< 0.65 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)	$U_p$	< 0.5 kV
Impulse discharge current for class I test (10/350) N/PE	l <sub>imp</sub>	20 kA
Temporary overvoltage test (TOV) for $t_T = 5 \text{ s (L/N)}$	U <sub>T</sub>	182 V
Temporary overvoltage test (TOV) for $t_T = 120 \text{ min (L/N)}$	$U_T$	230 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	θ	-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         \$ 2.5 mm² (L, N) (closen't apply to .V" connection) for T2           Clamp fastening range (solid conductor)         1.5 ÷ 25 mm²           Clamp fastening range (solid conductor)         3 Nm           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 FAULT - red target           Remote signalling         No           Modular design         No           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           Salety 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 p	Туре		HSA-150/3+1
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         No           Remote signalling         No           Modular design         No           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         m         328 g           Mass (including the packaging)         m         356 g <t< td=""><td></td><td>S</td><td></td></t<>		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         OK - clear target FAULT - red	Clamp fastening range (solid conductor)		1.5 ÷ 25 mm <sup>2</sup>
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         No           Modular design         No           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           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         328 g           Mass (including the packaging)         m         356 g           Packaging dimensions (H x W x D)         74 x 112 x 73 mm         Packaging value         V         0.61 dm³           ETIM group         EG0000021         ETIM group         EG0000021         ETIM group         <	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
Modular width         4 TE           Operating position         Any           Product placement environment         Internal           Signalling at the device         Optic           Importance of local signalling         OK - clear target           FAULT - red target         FAULT - red target           FAULT - red target         FAULT - red target           Remote signalling         No           Modular design         No           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           Frotection 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         328 g           Mass (including the packaging)         m         366 g           Packaging value         V         0.61 dm³           E	Tightening moment		3 Nm
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 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       328 g         Mass (including the packaging)       m       356 g         Packaging dimensions (H x W x D)       74 x 112 x 73 mm         Packaging value       V       0.61 dm³         ETIM group       EG0000021         ETIM group       EG0000021         ETIM group       EG0000021         ETIM	Installation		On DIN rail 35 mm
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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 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         328 g           Mass (including the packaging)         m         328 g           Mass (including the packaging)         m         356 g           Packaging value         V         0.61 dm³           ETIM group         EG000021           ETIM class         EC000941           Customs tariff no.         859681115169	Operating position		Any
Importance of local signaling  OK - clear target FAULT - red target Remote signalling  No  Modular design  No  Modular design  No  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  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  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  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  REC 61643-11:2011  REC 62305:2010  REC 62305:2010  REC 62305:2010  REC 62305:2010  REC 6243:11:2011  REC 61643-11:2011  REC 6243:11:2011  REC 6243:11:2011  REC 6243:11:2011  REC 6243:11:2011  REC 6243:11:2011  REC 6243:11:2011  Requirements and test methods for set for set for set for set for set for s	Product placement environment		Internal
Remote signalling         No           Modular design         No           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         328 g           Mass (including the packaging)         m         356 g           Packaging dimensions (H x W x D)         74 x 112 x 73 mm         74 x 112 x 73 mm           Packaging value         V         0.61 dm³           ETIM group         EG000021         ETIM class           Customs tariff no.         85363010           EAN code         8590681115169	Signalling at the device		Optic
Modular design	Importance of local signaling		G G
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 328 g  Mass (including the packaging) m 356 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 8590881115169	Remote signalling		No
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       328 g         Mass (including the packaging)       m       356 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       8590681115169	Modular design		No
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  328 g  Mass (including the packaging)  m  356 g  Packaging dimensions (H x W x D)  Packaging value  V  0.61 dm³  ETIM group  EG000021  ETIM class  EC000941  Customs tariff no.  8590681115169	Lifetime		> 100 000 h
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EAN code 8590681115169	ETIM class		EC000941
	Customs tariff no.		85363010
Art. number 24 537	EAN code		8590681115169
	Art. number		24 537

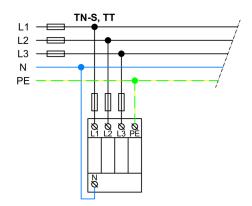


**The link in the QR code** leads to the online presentation of the **HSA-150/3+1**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

