

## HSA-150/3+1 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-150/3+1 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	$U_N$	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	I <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)	$t_A$	< 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)	l <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         \$ 8.2.5 mm² (L, N) (closen¹ apply to .V² connection) for T2           Clamp fastening range (solid conductor)         1.5 ± 25 mm²           Clamp fastening range (solid 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 FAULT - rect target FAULT - r	Туре		HSA-150/3+1 S
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)         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           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         384 g		S	- ( ) /
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 FAULT - red target FAULT - re	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 signalling         OK - clear target           Remote signalliting         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         No           Lifetime         > 100 000 h           Designed according to standards         Eequirements 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 80364-5-53:2022           Selection and application principles for SPDs connected to low-voltage power systems         CLC/TS 61643-12:2009           Ordering, packaging and additional data         m         356 g           Mass         m         356 g         364 g           Mass (including the packaging)         m         384 g         <	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
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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       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       356 g         Mass (including the packaging)       m       384 g         Packaging dimensions (H x W x D)       74 x 112 x 73 mm         Packaging value       V       0.61 dm³         ETIM group       EG00000	Installation		On DIN rail 35 mm
Product placement environment  Signalling at the device Importance of local signalling CK - clear target FAULT - red target FAU	Modular width		4 TE
Signalling at the device Optic Importance of local signaling OK - clear target Remote signalling Remote signalling Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Modular design Lifetime No Lifetime No Lifetime Seagend 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 against lightning Received a standards Received a special systems Received a	Operating position		Any
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     No       Lifetime     > 100 000 h       Designed according to standards     US       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     356 g       Mass (including the packaging)     m     384 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     8590681115220	Product placement environment		Internal
Remote signalling Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Modular design No Lifetime Nobesigned 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 Requirements and test methods for SPDs connected to low-voltage power systems REc 61643-11:2011 Requirements and test methods for SPDs connected to low-voltage power systems REc 61643-11:2011 Requirements and test methods for SPDs connected to low-voltage power systems REc 61643-11:2011 Require	Signalling at the device		Optic
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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 356 g  Mass (including the packaging) m 384 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 8590681115220			AC: 250 V / 1.5 A, DC: 250 V / 0.1 A
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Customs tariff no.       85363010         EAN code       8590681115220	ETIM group		EG000021
EAN code 8590681115220	ETIM class		EC000941
	Customs tariff no.		85363010
Art. number 24 543	EAN code		8590681115220
	Art. number		24 543

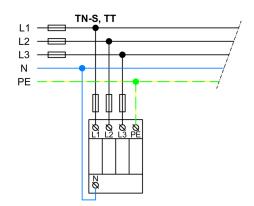


**The link in the QR code** leads to the online presentation of the **HSA-150/3+1 S**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

