

HSA-850/2+1 IT

- Surge arresters type T2 ensure the equipotential bonding and reduce switching, induced and residual overvoltage in single-phase and three-phase IT power supply systems.
- The products consist of varistors with big discharge ability with gas discharge tube, which ensures zero leakage current in the PE conductor.
- Installed at the boundaries of zones LPZ 1 LPZ 2 into subsiduary switchboards and control panels.
- **S** indication specifies a version with remote monitoring.

IT	Туре		HSA-850/2+1 IT
Jumber of poles Jaminar Inine voltage Jumber of poles Jaminar Inine voltage Jumber of poles Jaminar Continuous operating voltage AC Juc Jaximum continuous operating voltage AC Juc Jaximum discharge current (8/20) L/CP Jumber of Uc Jumber of Inine Mark Jumber of Level at Inine Jumber of Level Jumber of Jumber of	Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T2
Maximum continuous operating voltage AC U_C 850 V Alaximum continuous operating voltage AC U_C 850 V Alaximum continuous operating voltage AC U_C 850 V Alaximum discharge current (8/20) L/CP I_{max} 40 kA A Actioninal discharge current for class II test (8/20) L/CP I_{max} 40 kA A Actioninal discharge current for class II test (8/20) L/CP I_{max} 40 kA A Actioninal discharge current for class II test (8/20) L/CP I_{max} 50 kA A Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 50 kA A Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 50 kA A Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 50 kA A Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 50 kA Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 60 kA Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 60 kA Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 60 kA Actioninal discharge current (8/20) II Actioninal discharge current (8/20) L1+L2+CP->PE I_{max} 60 kA Actioninal discharge current (8/20) II Actioni	System		IT
Maximum continuous operating voltage AC U_C 850 V Maximum discharge current (8/20) L/CP I_{max} 40 kA Mominal discharge current for class II test (8/20) L/CP I_{n} 15 kA Open circuit voltage of the combination wave generator I_{n} 50 kA Voltage protection level at I_{n} (L/CP) I_{n} 50 kA Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.5 kV Voltage protection level at I_{n} (L/CP) I_{n} 2.7 kg Voltage lest (TOV) for I_{n} 3.7 kg Voltage lest (TOV) for I_{n} 3.8 kg Voltage lest (TOV) for I_{n} 3.7 kg Voltage lest (TOV) for I_{n} 3.8 kg Voltage lest (TOV) for I_{n} 3.8 kg Voltage lest (TOV) for I_{n} 3.8 kg Voltage lest (TOV) for I_{n} 3.7 kg Voltage lest (TOV) for I_{n} 3.8 kg Voltage lest (TOV) for I_{n} 4.7 kg V	Number of poles		3
Aaximum discharge current (8/20) L/CP I_{max} 40 kA dominal discharge current for class II test (8/20) L/CP I_{n} 15 kA dominal discharge current for class II test (8/20) L/CP I_{n} 15 kA dominal discharge current for class II test (8/20) L/CP I_{n} 15 kA dominal discharge current (8/20) L/L2+CP->PE I_{total} 50 kA doltacharge current (8/20) L/L2+CP->PE I_{total} 50 kA doltacharge protection level at I_{n} (CP/PE) I_{total} 50 kA doltacharge protection level at I_{n} (L/CP) I_{total} 50 kA doltacharge protection level at I_{n} (L/CP) I_{total} 60 kB days doltacharge protection level at I_{total} 10 kg days doltacharge protection I_{total} 10 kg days days doltacharge protection I_{total} 10 kg days days doltacharge protection I_{total} 10 kg days days days days days days days days	Nominal line voltage	U_N	720 V
Nominal discharge current for class II test (8/20) L/CP In 15 kA Depen circuit voltage of the combination wave generator U_{OC} 6 kV Total discharge current (8/20) L1+L2+CP->PE I_{Total} 50 kA Voltage protection level at I_{I_1} (LCP) U_{I_2} < 1.5 kV Voltage protection level at I_{I_2} (LCP) U_{I_2} < 3.3 kV Voltage protection level at I_{I_3} (LCP) U_{I_2} < 2.5 kV Voltage protection level at U_{I_2} (LCP) U_{I_2} < 2.5 kV Voltage protection level at U_{I_3} (LCP) U_{I_4} < 2.5 kV Voltage protection level at U_{I_4} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.5 kV Voltage protection level at U_{I_5} (LCP) U_{I_5} < 2.000 V V V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V Company overvoltage test (TOV) for U_{I_5} < 2.000 V V Company	Maximum continuous operating voltage AC	U _c	850 V
$ \begin{array}{c} \text{Open circuit voltage of the combination wave generator} & U_{\text{oc}} & 6 \text{kV} \\ \text{fotal discharge current (8/20) L1+L2+CP->PE} & I_{\text{Total}} & 50 \text{kA} \\ \text{foltage protection level at I}_n (CP/PE) & U_p & < 1.5 \text{kV} \\ \text{foltage protection level at I}_n (L/CP) & U_p & < 3.3 \text{kV} \\ \text{foltage protection level at U}_{\text{oc}} (L/CP) & U_p & < 2.5 \text{kV} \\ \text{femporary overvoltage test (TOV) for t}_{\text{T}} = 5 \text{s (L/CP)} & U_{\text{T}} & 1 045 \text{V} \\ \text{femporary overvoltage test (TOV) for t}_{\text{T}} = 0.2 \text{s (L/PE)} & U_{\text{T}} & 2 000 \text{V} \\ \text{Response time (L/CP)} & t_A & < 25 \text{ns} \\ \text{Response time (CP/PE)} & t_A & < 100 \text{ns} \\ \text{Asximal back-up fuse} & 160 \text{A gL/gG} \\ \text{Short-circuit current rating at maximum back-up fuse} & I_{\text{SCCR}} & 60 \text{kA}_{\text{rms}} \\ \text{dousing material} & Polyamid PA6, UL94 \text{V-O} \\ \text{Degree of protection zone} & LPZ 1-2, LPZ 2-3 \\ \text{Polyamid PA6, UL94 V-O} \\ \text{Degree of protection} & 9 & -40 \div 70 ^{\circ} \text{C} \\ \text{Olinimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022} & S & 2.5 \text{mm}^2 (\text{L, N}) \\ \text{clamp fastening range (solid conductor)} & 1.5 \div 25 \text{mm}^2 \text{Clamp fastening range (stranded conductor)} & 1.5 \div 16 \text{mm}^2 \text{Clamp fastening range (stranded conductor)} & 3 \text{Nm} \\ \text{notalitation} & \text{On DIN rail 35 mm} \\ \text{Modular width} & 3 \text{TE} \\ \end{array}$	Maximum discharge current (8/20) L/CP	I _{max}	40 kA
For lad discharge current (8/20) L1+L2+CP->PE	Nominal discharge current for class II test (8/20) L/CP	I _n	15 kA
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Open circuit voltage of the combination wave generator	U _{oc}	6 kV
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Total discharge current (8/20) L1+L2+CP->PE	I _{Total}	50 kA
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Voltage protection level at I _n (CP/PE)	U_p	< 1.5 kV
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Voltage protection level at I _n (L/CP)	Up	< 3.3 kV
The emporary overvoltage test (TOV) for $t_T = 0.2 \text{ s}$ (L/PE) Response time (L/CP) Response time (CP/PE) t_A t	Voltage protection level at U _{OC} (L/CP)		< 2.5 kV
Response time (L/CP) Response time (CP/PE) LA 400 ns 460 A gL/gG 460 kA_{rms} <li< td=""><td>Temporary overvoltage test (TOV) for $t_T = 5 \text{ s} (L/CP)$</td><td>U_T</td><td>1 045 V</td></li<>	Temporary overvoltage test (TOV) for $t_T = 5 \text{ s} (L/CP)$	U _T	1 045 V
Response time (CP/PE) Aximal back-up fuse Chort-circuit current rating at maximum back-up fuse Chort-circuit current rating at maximum back-up fuse Chort-circuit current rating at maximum back-up fuse Chousing material Chousing material Chousing material Chousing material Chousing material Chousing temperature Chousing temperature Chousing temperature Chousing temperature Chousing temperature Polyamid PA6, UL94 V-0 IP20 Solution for To Chouse the document of connected Cu conductors accord. to HD 60364-5-53:2022 Solution for To Chousing temperature Champ fastening range (solid conductor) Champ fastening range (solid conductor) Champ fastening range (stranded conductor) Champ fastening range (stranded conductor) To DIN rail 35 mm Andodular width Chousing temperature Accord For HP Conductor To DIN rail 35 mm Andodular width To DIN rail 35 mm Andodular width	Temporary overvoltage test (TOV) for $t_T = 0.2 \text{ s}$ (L/PE)	U_{T}	2 000 V
Maximal back-up fuse Short-circuit current rating at maximum back-up fuse Isccr Isc	Response time (L/CP)	t _A	< 25 ns
Short-circuit current rating at maximum back-up fuse Lightning protection zone LPZ 1-2, LPZ 2-3 Housing material Polyamid PA6, UL94 V-0 Degree of protection Stripped by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Alianimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection of connected Cu conductors accord. to HD 60364-5-53:2022 Sold by the protection	Response time (CP/PE)	t _A	< 100 ns
LPZ 1-2, LPZ 2-3 Housing material Polyamid PA6, UL94 V-0 Degree of protection Poperating temperature Poperating te	Maximal back-up fuse		160 A gL/gG
Housing material Polyamid PA6, UL94 V-0 Degree of protection Pegree of p	Short-circuit current rating at maximum back-up fuse	I _{SCCR}	60 kA _{rms}
Degree of protection Degrating temperature Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Moesn't apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Tightening moment IP20 2.5 mm² (L, N) 6 mm² (PE, PEN) 1.5 ÷ 25 mm² 1.5 ÷ 16 mm² 3 Nm On DIN rail 35 mm Modular width 3 TE	Lightning protection zone		LPZ 1-2, LPZ 2-3
Operating temperature ### Ad ÷ 70 °C ### Ad † 70 °C ### Ad	Housing material		Polyamid PA6, UL94 V-0
Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 doesn't apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Clamp fastening moment Tightening moment On DIN rail 35 mm Modular width	Degree of protection		IP20
doesn't apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Clamp fastening moment Tightening moment Installation Modular width 6 mm² (PE, PEN) 1.5 ÷ 25 mm² 1.5 ÷ 16 mm² 3 Nm On DIN rail 35 mm 3 TE	Operating temperature	Э	-40 ÷ 70 °C
Clamp fastening range (stranded conductor) Tightening moment Installation Modular width 1.5 ÷ 16 mm² 3 Nm On DIN rail 35 mm 3 TE	Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 (doesn't apply to "V" connection) for T2	S	
Tightening moment 3 Nm Installation On DIN rail 35 mm Modular width 3 TE	Clamp fastening range (solid conductor)		1.5 ÷ 25 mm ²
Tightening moment 3 Nm Installation On DIN rail 35 mm Modular width 3 TE	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm ²
Modular width 3 TE	Tightening moment		3 Nm
	Installation		On DIN rail 35 mm
Operating position Any	Modular width		3 TE
	Operating position		Any

Surge arresters T2 for IT systems



Туре		HSA-850/2+1 IT
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	339 g
Mass (including the packaging)	m	363 g
Packaging dimensions (H x W x D)		60 x 113 x 73 mm
Packaging value	V	0.5 dm ³
ETIM group		EG000021
ETIM class		EC000941
Customs tariff no.		85363010
EAN code		8590681170076
Art. number		27 582

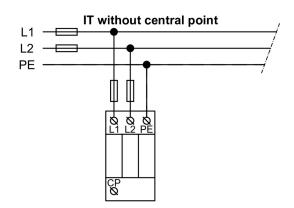


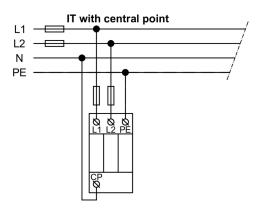
The link in the QR code leads to the online presentation of the **HSA-850/2+1 IT**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com**





Application wiring diagram (installation)





Internal diagram

