







HSA-275/3+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.

System	Туре		HSA-275/3+1 IT
Number of poles $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T2
Nominal line voltage $Older \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	System		IT
Maximum continuous operating voltage AC U_C 275 V Maximum discharge current (8/20) L/CP I_{max} 50 kA Nominal discharge current for class II test (8/20) L/CP I_n 20 kA Open circuit voltage of the combination wave generator I_{total} 50 kA Voltage protection level at I_n (CP/PE) I_{total} 50 kA Voltage protection level at I_n (L/CP) I_{total} 50 kA Voltage protection level at I_n (L/CP) I_{total} 40 constitution level at I_n (L/CP) I_{total} 40 constitution level at I_n (L/CP) I_{total} 40 constitution level at I_{total} 40 consti	Number of poles		4
Maximum discharge current (8/20) L/CP I _{max} 50 kA Nominal discharge current for class II test (8/20) L/CP I _n 20 kA Open circuit voltage of the combination wave generator U _{OC} 6 kV Fotal discharge current (8/20) L1+L2+L3+CP->PE I _{Total} 50 kA Voltage protection level at I _n (CP/PE) U _P < 1.5 kV	Nominal line voltage	U_N	230 V
Nominal discharge current for class II test (8/20) L/CP In 20 kA Depen circuit voltage of the combination wave generator $I_{Total} = 10 \text{ J}_{Total} = 10 \text{ J}_{T$	Maximum continuous operating voltage AC	U _c	275 V
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Maximum discharge current (8/20) L/CP	I _{max}	50 kA
Fotal discharge current (8/20) L1+L2+L3+CP->PE I_{Total} 50 kA Voltage protection level at I_n (CP/PE) U_p < 1.5 kV Voltage protection level at I_n (L/CP) U_p < 1.2 kV Voltage protection level at I_n (L/CP) U_p < 0.8 kV Temporary overvoltage test (TOV) for $t_T = 5$ s (L/CP) U_T 337 V Temporary overvoltage test (TOV) for $t_T = 0.2$ s (L/PE) U_T 1 455 V Response time (L/CP) t_A < 25 ns Response time (L/CP) t_A < 100 ns Maximal back-up fuse t_A < 100 ns Maximal back-up fuse t_A < 160 kA _{rms} Lightning protection zone t_A 60 kA _{rms} Housing material t_A Polyamid PA6, UL94 V-0 Degree of protection t_A S Degree of protection t_A S Williamum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 S	Nominal discharge current for class II test (8/20) L/CP	I _n	20 kA
Voltage protection level at I_n (CP/PE)	Open circuit voltage of the combination wave generator	U _{oc}	6 kV
Voltage protection level at I_n (L/CP) U_p < 1.2 kV voltage protection level at U_{OC} (L/CP) U_p < 0.8 kV Femporary overvoltage test (TOV) for $t_T = 5$ s (L/CP) U_T 337 V Femporary overvoltage test (TOV) for $t_T = 0.2$ s (L/PE) U_T 1 455 V Femporary overvoltage test (TOV) for $t_T = 0.2$ s (L/PE) U_T 1 455 V Fesponse time (L/CP) t_A < 25 ns Fesponse time (L/CP) t_A < 100 ns Fesponse time (CP/PE) t_A < 100 ns Fesponse time (CP/P	Total discharge current (8/20) L1+L2+L3+CP->PE	I _{Total}	50 kA
Voltage protection level at U_{OC} (L/CP) U_{D} < 0.8 kV Femporary overvoltage test (TOV) for $t_T = 5$ s (L/CP) U_T 337 V Femporary overvoltage test (TOV) for $t_T = 0.2$ s (L/PE) U_T 1 455 V Response time (L/CP) t_A < 25 ns Response time (CP/PE) t_A < 100 ns Maximal back-up fuse t_A 160 A gL/gG Short-circuit current rating at maximum back-up fuse t_A 160 kA _{rms} Lightning protection zone t_A 160 kA _{rms} Housing material t_A Polyamid PA6, UL94 V-0 Degree of protection t_A 170 °C Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 t_A 6 mm² (PE, PEN) Clamp fastening range (solid conductor) t_A 3 Nm Installation t_A 0 no DIN rail 35 mm Modular width	Voltage protection level at I _n (CP/PE)	U_p	< 1.5 kV
Temporary overvoltage test (TOV) for $t_T = 5$ s (L/CP) Temporary overvoltage test (TOV) for $t_T = 0.2$ s (L/PE) Temporary overvoltage test (TOV) for t_T	Voltage protection level at I _n (L/CP)	U_p	< 1.2 kV
Femporary overvoltage test (TOV) for $t_T = 0.2 \text{ s}$ (L/PE) Response time (L/CP) Response time (CP/PE) t_A	Voltage protection level at U _{oc} (L/CP)	U_p	< 0.8 kV
Response time (L/CP) Response time (CP/PE) t _A < 100 ns Maximal back-up fuse Short-circuit current rating at maximum back-up fuse Lightning protection zone Housing material Degree of protection Departing temperature Polyamid PA6, UL94 V-0 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connection for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Tightening moment Short-circuit current rating at maximum back-up fuse LPZ 1-2, LPZ 2-3 Polyamid PA6, UL94 V-0 IP20 2.5 mm² (L, N) 6 mm² (PE, PEN) 1.5 ÷ 25 mm² 1.5 ÷ 16 mm² Tightening moment Short-circuit current rating at maximum back-up fuse Tightening moment On DIN rail 35 mm Modular width	Temporary overvoltage test (TOV) for $t_T = 5 \text{ s} (L/CP)$	U _T	337 V
Response time (CP/PE) Maximal back-up fuse Short-circuit current rating at maximum back-up fuse Short-circuit current rating at maximum back-up fuse IscCR GO kA _{rms} LPZ 1-2, LPZ 2-3 Housing material Polyamid PA6, UL94 V-0 Degree of protection IP20 Operating temperature Pulyamid PA6, UL94 V-0 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Society apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Tightening moment Some On DIN rail 35 mm Modular width	Temporary overvoltage test (TOV) for t _T = 0.2 s (L/PE)	U_{T}	1 455 V
Maximal back-up fuse 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 IP20 Operating temperature Operating temperature Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 S 2.5 mm² (L, N) doesn't apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) Clamp fastening moment Installation Modular width 160 A gL/gG 60 kA _{rms} 60 kA _{rms} 61 kA _{rms} 62 kPZ 1-2, LPZ 2-3 69 Polyamid PA6, UL94 V-0 60 KPZ 1-2, LPZ 2-3 60 kA _{rms} 60 kA _r	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 IP20 Deparating temperature Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 Minimum cross	Response time (CP/PE)	t _A	< 100 ns
Lightning protection zone LPZ 1-2, LPZ 2-3 Housing material Polyamid PA6, UL94 V-0 Degree of protection IP20 Operating temperature 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	Maximal back-up fuse		160 A gL/gG
Housing material Polyamid PA6, UL94 V-0 Degree of protection Perating temperature Polyamid PA6, UL94 V-0 Perating temperature Polyamid Packet Polyamid Perating te	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) Clamp fastening moment 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	Lightning protection zone		LPZ 1-2, LPZ 2-3
Operating temperature ### Page 2.5 mm² (L, N) ### Clamp fastening range (solid conductor) ### Clamp fastening range (stranded conductor) ### Clamp fastening moment ### Installation ### Modular width ### Clamp fastening range (solid conductor) ### Installation ### Clamp fastening range (solid conductor) #### Installation #### Installation #### Installation #### Installation ###################################	Housing material		Polyamid PA6, UL94 V-0
Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 S 2.5 mm² (L, N) doesn't apply to "V" connection) for T2 Clamp fastening range (solid conductor) Clamp fastening range (stranded conductor) 1.5 ÷ 25 mm² 1.5 ÷ 16 mm² Tightening moment 3 Nm On DIN rail 35 mm Modular width	Degree of protection		IP20
doesn't apply to "V" connection) for T2 6 mm² (PE, PEN) Clamp fastening range (solid conductor) 1.5 ÷ 25 mm² Clamp fastening range (stranded conductor) 1.5 ÷ 16 mm² Fightening moment 3 Nm Installation On DIN rail 35 mm Modular width 4 TE	Operating temperature	9	-40 ÷ 70 °C
Clamp fastening range (stranded conductor) 1.5 ÷ 16 mm² 3 Nm Installation Modular width 1.5 ÷ 16 mm² 3 Nm On DIN rail 35 mm 4 TE	Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 (doesn't apply to "V" connection) for T2	S	
Fightening moment 3 Nm nstallation On DIN rail 35 mm Modular width 4 TE	Clamp fastening range (solid conductor)		1.5 ÷ 25 mm ²
nstallation On DIN rail 35 mm Modular width 4 TE	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm²
Modular width 4 TE	Tightening moment		3 Nm
	Installation		On DIN rail 35 mm
Operating position Any	Modular width		4 TE
	Operating position		Any

Surge arresters T2 for IT systems



Туре		HSA-275/3+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	380 g
Mass (including the packaging)	m	408 g
Packaging dimensions (H x W x D)		74 x 112 x 73 mm
Packaging value	V	0.61 dm ³
ETIM group		EG000021
ETIM class		EC000941
Customs tariff no.		85363010
EAN code		8590681169285
Art. number		27 604



The link in the QR code leads to the online presentation of the **HSA-275/3+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)







