

## HLSA7-720/3+1

- Lightning impulse current and surge arresters type T1+T2 ensure the equipotential bonding, eliminate the effects of lightning current and reduce switching, induced and residual overvoltage in single-phase and three-phase power supply systems.
- Suitable for objects and halls without the incidence of persons and indoor equipment.
- Installed at the boundaries of LPZ 0 LPZ 1 and higher zones, closest to where overhead line enters the building i.e. in the main distribution boards.
- 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.
- If the product contains two PE (or PEN) terminals, it must not be used as a PE (PEN) bridge.
- **S** indication specifies a version with remote monitoring.

Туре		HLSA7-720/3+1
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T1, T2
System		TN-S, TT
Number of poles		4
Rated operating AC voltage	$U_N$	600 V
Maximum continuous operating voltage AC	U <sub>c</sub>	720 V
Maximum discharge current (8/20)	I <sub>max</sub>	50 kA
Impulse discharge current for class I test (10/350) L/N	I <sub>imp</sub>	7 kA
Charge (L/N)	Q	3.5 As
Specific energy for class I test (L/N)	W/R	12.25 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I <sub>imp</sub>	50 kA
Charge (N/PE)	Q	25 As
Specific energy for class I test (N/PE)	W/R	625 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I <sub>Total</sub>	28 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I <sub>Total</sub>	100 kA
Nominal discharge current for class II test (8/20) L/N	I <sub>n</sub>	25 kA
Nominal discharge current for class II test (8/20) N/PE	I <sub>n</sub>	50 kA
Open circuit voltage of the combination wave generator	U <sub>oc</sub>	6 kV
Voltage protection level at I <sub>n</sub> (L/N)	$U_p$	< 2.6 kV
Voltage protection level at I <sub>n</sub> (N/PE)	$U_p$	< 1.3 kV
Temporary overvoltage test (TOV) for $t_T = 5 \text{ s} (L/N)$	U <sub>T</sub>	875 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
Short-circuit current rating at maximum back-up fuse	I <sub>sccr</sub>	60 kA <sub>rms</sub>
Lightning protection zone		LPZ 0-1, LPZ 1-2, LPZ 2-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection		IP20

## **Lightning and surge arresters T1+T2**



Operating temperature         9         -40 + 70 ° C           Minimum cross-section of connected Cu conductors accord: to HD 60364-5-53:2022 (doesn't apply to "" connection") for T1         \$         6 mm² (PE, PEN)           Minimum cross-section of connected Cu conductors accord: to HD 60364-5-53:2022 (doesn't apply to "" connection") for T2         \$         2.5 mm² (L, N)           Clamp fastening range (solid conductor)         1.5 + 25 mm²         1.5 + 16 mm²           Clamp fastening range (solid conductor)         1.5 + 16 mm²         1.5 + 16 mm²           Tightening moment         On DIN rail 35 mm         10 TE           Installation         On DIN rail 35 mm         Modular width         10 TE           Operating position         Any         Signalling at the device         Optic           Importance of local signaling         No         No           Modular design         No         No           Lifetime         > 100 00 h         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         U. 94           Application standards           Protection against lightning         IEC 62305:2010           Selection and erection of electrical equipment –	Туре		HLSA7-720/3+1
doesnt apply to , , \(^v\) connection for T1   Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022   S	Operating temperature	9	-40 ÷ 70 °C
(dosen't apply to "" connection) for T2         6 mm² (PE, PEN)           Clamp fastening range (solid conductor)         1.5 ÷ 25 mm²           Clamp fastening range (stranded conductor)         3 Nm           Tightening moment         3 Nm           Installation         On DIN rail 35 mm           Modular width         10 TE           Operating position         Any           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         IEC 61643-11:2011           Requirements and test methods for SPDs connected to low-voltage power systems         IEC 61643-11:2011           Safety of Flammability of Plasts (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         1.082 kg           Mass (including the packaging)         m         1.131 kg		S	
Clamp fastening range (stranded conductor)         1.5 ± 16 mm²           Tightening moment         3 Nm           Installation         On DIN rail 35 mm           Modular width         10 TE           Operating position         Any           Signalling at the device         Optic           Importance of local signaling         OK - clear target FAULT - red		S	
Tightening moment         3 Nm           Installation         On DIN rail 35 mm           Modular width         10 TE           Operating position         Any           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         V           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         TM           Mass         m         1.082 kg           Mass (including the packaging)         m         1.131 kg           Packaging dimensions (H x W x D)         70 x 228 x 95 mm           Packaging value         V         1.52 dm³	Clamp fastening range (solid conductor)		1.5 ÷ 25 mm <sup>2</sup>
Installation         On DIN rail 35 mm           Modular width         10 TE           Operating position         Any           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         IEC 62305:2010           Selection 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         1.082 kg           Mass         m         1.082 kg           Mass (including the packaging)         m         1.131 kg           Packaging dimensions (H x W x D)         70 x 228 x 95 mm           Packaging value         V         1.52 dm³           ETIM group	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
Modular width     10 TE       Operating position     Any       Signalling at the device     Optic       Importance of local signalling     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     1.082 kg       Mass (including the packaging)     m     1.131 kg       Packaging dimensions (H x W x D)     70 x 228 x 95 mm       Packaging value     V     1.52 dm³       ETIM group     EG000021       ETIM class     EC001457       Customs tariff no.     85363010       EAN code     8590681169506	Tightening moment		3 Nm
Operating position         Any           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         Sequirements 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         1.082 kg           Mass (including the packaging)         m         1.131 kg           Packaging value         V         1.52 dm³           ETIM group         EG0000021           ETIM class         EC001457           Customs tariff no.         85363010           EAN code         8590681169506	Installation		On DIN rail 35 mm
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 1.082 kg Mass (including the packaging) m 1.131 kg Packaging dimensions (H x W x D) 70 x 228 x 95 mm Packaging value V 1.52 dm³  ETIM group EG000021 ETIM class EC001457 Customs tariff no. 85363010 EAN code 8590681169506	Modular width		10 TE
Importance of local signaling  Remote signalling  Modular design  No  Modular design  No  Lifetime  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  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  1.082 kg  Mass (including the packaging)  m  1.131 kg  Packaging dimensions (H x W x D)  Packaging value  V  1.52 dm³  ETIM group  EG000021  ETIM class  EC001457  Customs tariff no.  8590681169506	Operating position		Any
Remote signalling No Modular design No Modular design No Lifetime Solution No Lifetime Solution 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 Ordering, packaging and additional data  Mass m 1.082 kg Mass (including the packaging) m 1.131 kg Packaging dimensions (H x W x D) 70 x 228 x 95 mm Packaging value V 1.52 dm³  ETIM group EG000021 ETIM class EC001457 Customs tariff no. 85363010 EAN code 8590681169506	Signalling at the device		Optic
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 1.082 kg Mass (including the packaging) m 1.131 kg Packaging dimensions (H x W x D) 70 x 228 x 95 mm Packaging value V 1.52 dm³  ETIM group EG000021 ETIM class EC001457 Customs tariff no. 85363010  EAN code 8590681169506	Importance of local signaling		
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Designed according to standards 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 1.082 kg Mass (including the packaging) m 1.131 kg Packaging dimensions (H x W x D) 70 x 228 x 95 mm Packaging value V 1.52 dm³  ETIM group EG000021 ETIM class EC001457 Customs tariff no. 85363010 EAN code	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  Ordering, packaging and additional data  Mass  m  1.082 kg  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  1.52 dm³  ETIM group  ETIM group  ETIM class  EC001457  Customs tariff no.  8590681169506	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  Ordering, packaging and additional data  Mass  m  1.082 kg  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  ETIM group  ETIM group  ETIM class  CLC/TS 61643-12:2009  TO x 228 x 95 mm  1.131 kg  Packaging value  V  1.52 dm³  ETIM class  EC001457  Customs tariff no.  859681169506	Designed according to standards		
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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  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  1.52 dm³  ETIM group  ETIM group  ETIM class  Customs tariff no.  85363010  8590681169506	Safety of Flammability of Plastic Materials		UL 94
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ETIM group       EG000021         ETIM class       EC001457         Customs tariff no.       85363010         EAN code       8590681169506	Packaging dimensions (H x W x D)		70 x 228 x 95 mm
ETIM class         EC001457           Customs tariff no.         85363010           EAN code         8590681169506	Packaging value	٧	1.52 dm <sup>3</sup>
Customs tariff no.         85363010           EAN code         8590681169506	ETIM group		EG000021
EAN code 8590681169506	ETIM class		EC001457
	Customs tariff no.		85363010
Art. number 10 604	EAN code		8590681169506
	Art. number		10 604

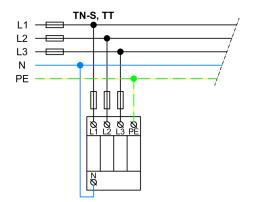


**The link in the QR code** leads to the online presentation of the **HLSA7-720/3+1**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

