

## HLSA7-720/1+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		HLSA7-720/1+1
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T1, T2
System		TN-S, TT
Number of poles		2
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>	25 kA
Charge (N/PE)	Q	12.5 As
Specific energy for class I test (N/PE)	W/R	156 kJ/Ω
Total discharge current (10/350) L+N->PE	I <sub>Total</sub>	14 kA
Total discharge current (8/20) L+N->PE	I <sub>Total</sub>	50 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>	30 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  ### Author	Туре		HLSA7-720/1+1
(doesn't apply to ,,\" connection) for T1         16 mm² (PE, PEN)           Minimum cross-section of connected Cu conductors accord, to HD 60364-5-53:2022         \$ 2.5 mm² (L, N)           (doesn't apply to ,,\" 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           Tightening moment         3 Nm           Installation         On DIN rail 35 mm           Modular width         4 TE           Operating position         Any           Signalling at the device         Optic           Importance of local 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 arection 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	Operating temperature	9	-40 ÷ 70 °C
(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           Tightening moment         3 Nm           Installation         On DIN rail 35 mm           Modular width         4 TE           Operating position         Any           Signalling at the device         Optic           Importance of local signaling         OK - clear target FAULT - red 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 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         414 g		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           Signalling at the device         Optic           Importance of local signaling         OK – clear target FAULT – red 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 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         414 g           Mass (including the packaging)         m         442 g           Packaging dimensions (H x W x D)         74 x 112 x 73 mm <t< td=""><td></td><td>S</td><td></td></t<>		S	
Tightening moment Installation On DIN rail 35 mm Modular width Operating position Modular width Operating position Any Signalling at the device Optic Importance of local signalling OK - clear target FAULT - red target FAULT - red target FAULT - red target FAULT - red target No Modular design No Lifetime No Modular design No Lifetime Seagned 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 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 414 g Mass (including the packaging) m 442 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³	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  Signalling at the device Optic  Importance of local signalling OK - clear target FAULT - red target  Remote signalling No  Modular design No  Lifetime 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 414 g  Mass (including the packaging) m 442 g  Packaging dimensions (H x W x D) 74 x 112 x 73 mm  Packaging value V 0.61 dm³	Clamp fastening range (stranded conductor)		1.5 ÷ 16 mm <sup>2</sup>
Modular width 4 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 No Lifetime > 1000 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 414 g Mass (including the packaging) m 442 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.81 dm³	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 No Lifetime 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 414 g Mass (including the packaging) m 442 g Packaging dimensions (H x W x D) 74 x 112 x 73 mm Packaging value V 0.61 dm³	Installation		On DIN rail 35 mm
Signalling at the device  Importance of local signaling  OK - clear target FAULT - red target Remote signalling  No  Modular design  No  Lifetime  No  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 61643-11:2011  Selection and application principles for SPDs connected to low-voltage power systems  CLC/TS 61643-12:2009  Ordering, packaging and additional data  Mass  m  414 g  Mass (including the packaging)  m  442 g  Packaging dimensions (H x W x D)  V  0.61 dm³	Modular width		4 TE
Importance of local signaling  OK - clear target FAULT - red target  Remote signalling  No  Modular design  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  Requirements and test methods for SPDs connected to low-voltage power systems  Requirements and test methods for SPDs connected to low-voltage power systems  LIEC 61643-11:2011  Safety of Flammability of Plastic Materials  UL 94  Application standards  Protection against lightning  LIEC 62305:2010  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 414 g  Mass (including the packaging)  m 442 g  Packaging dimensions (H x W x D)  74 x 112 x 73 mm  Packaging value  V 0.61 dm³	Operating position		Any
Remote signalling  No  Modular design 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 414 g  Mass (including the packaging)  m 442 g  Packaging dimensions (H x W x D)  Packaging value  V 0.61 dm³	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 414 g  Mass (including the packaging) m 442 g  Packaging dimensions (H x W x D) 74 x 112 x 73 mm  Packaging value V 0.61 dm³	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  414 g  Mass (including the packaging)  m  442 g  Packaging dimensions (H x W x D)  Packaging value  V  0.61 dm³	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  Mass  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  IEC 62305:2010  IEC 62305:2010  CLC/TS 61643-12:2009  CLC/TS 61643-12:2009  THE 62305:2010  THE 62305:2010	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  CLC/TS 61643-12:2009  Ordering, packaging and additional data  Mass  m  414 g  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  0.61 dm³	Designed according to standards		
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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  414 g  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  0.61 dm <sup>3</sup>	Application standards		
Selection and application principles for SPDs connected to low-voltage power systems  Ordering, packaging and additional data  Mass  m  414 g  Mass (including the packaging)  Packaging dimensions (H x W x D)  Packaging value  V  0.61 dm <sup>3</sup>	Protection against lightning		IEC 62305:2010
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Packaging value V 0.61 dm <sup>3</sup>	Mass (including the packaging)	m	442 g
3	Packaging dimensions (H x W x D)		74 x 112 x 73 mm
ETIM group EG000021	Packaging value	V	0.61 dm <sup>3</sup>
	ETIM group		EG000021
ETIM class EC001457	ETIM class		EC001457
Customs tariff no. 85363010	Customs tariff no.		85363010
EAN code 8590681169476	EAN code		8590681169476
Art. number 10 601	Art. number		10 601

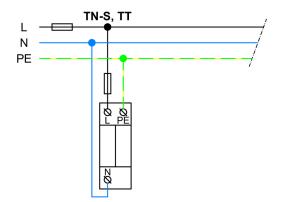


**The link in the QR code** leads to the online presentation of the **HLSA7-720/1+1**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

