

New range of surge protection devices G-LINE

overview catalogue



Surge
Protection
Device

New range of surge protection devices description

H_{AKEL} **L**_{IHTNING} **A**_{RRESTER}

HLA 50 -255 S

- type
- nominal discharge current I_n , Impulse discharge current I_{imp}
- operating voltage U_C
- S - remote monitoring

H_{AKEL} **L**_{IHTNING} **S**_{URGE} **A**_{RRESTER}

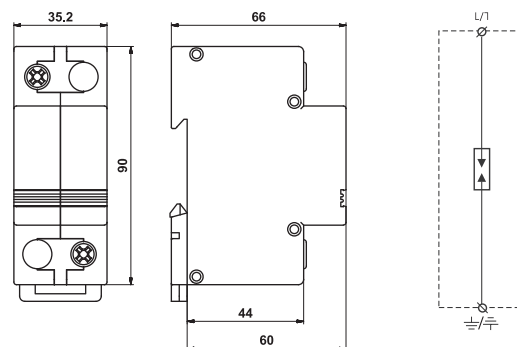
HLSA 12,5-275/3+0 M S

- type
- nominal discharge current I_n , Impulse discharge current I_{imp}
- operating voltage U_C
- connection combination - (power supply) system
- M - removable module
- S - remote monitoring

H_{AKEL} **S**_{URGE} **A**_{RRESTER}

HSA 275/3+0 M S

- type
- operating voltage U_C
- connection combination - (power supply) system
- M - removable module
- S - remote monitoring



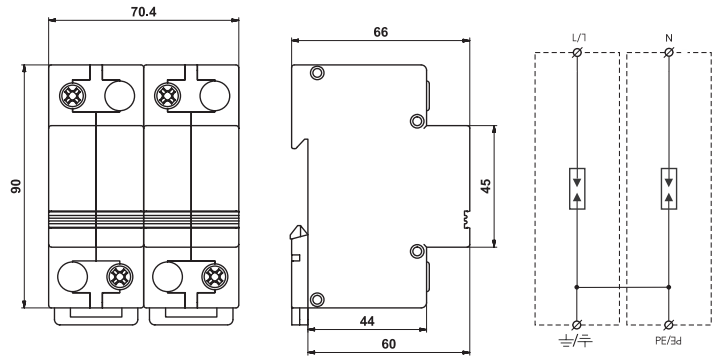
HLA50-255 HLA50-440

HLA* (Hakel Lightning Arrester) of the „G-Line“ range is a lightning arrester according to standard EN 61643-11:2012 (IEC 61643-11:2011) consisting of multiple non-exhausting spark gaps. Its parameters enable usage in buildings with a considerable level of protection LPL I, such as big industrial complexes and properties of particular importance – hospitals, banks, power plants. The device is to be installed on the interface of LPZ 0 – LPZ 1 zones according to standard EN 62305:2011 (IEC 62305:2010), closest to where the overhead line enters the building i.e. the electric power substation, electrometer or the main distribution boards.

Type		HLA50-255	HLA50-440
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1, CLASS I	
Max. continuous operating voltage	U_C	255 V AC	440 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	50 kA	
Charge	Q	25 As	
Specific energy for class I test	W/R	625 kJ/ Ω	
Nominal discharge current for class II test (8/20)	I_n	50 kA	
Voltage protection level at I_{imp}	U_p	< 2 kV	< 2,5 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s	581 V/5 s
Response time	t_A	< 100 ns	
Follow current interrupt rating	I_{fi}	25 kA _{rms}	3 kA _{rms}
Max. back-up fuse		500 A gL/gG	
Short-circuit current rating at 500 A gL/gG	I_{SCCR}	25 kA _{rms}	
LPZ		0-1	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40°C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position		DIN rail 35 mm / any	
Lifetime		min.100 000 h	
Weight	m	235 g	
Article number		10 970	10 950

Lightning arrester / spark gap / TYPE 1

TYPE 1 / CLASS I / TN-S / CE



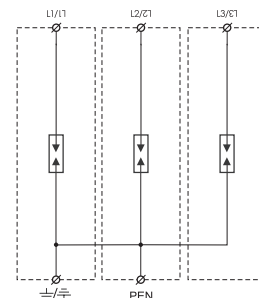
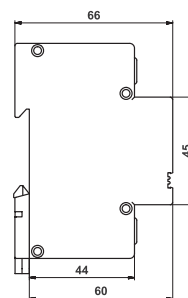
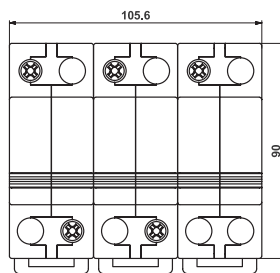
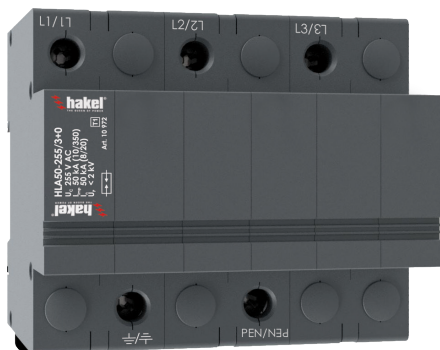
HLA50-255/2+0 HLA50-440/2+0

HLA* (Hakel Lightning Arrester) of the „G-Line“ range is a lightning arrester according to standard EN 61643-11:2012 (IEC 61643-11:2011) consisting of multiple non-exhausting spark gaps. Its parameters enable usage in buildings with a considerable level of protection LPL I, such as big industrial complexes and properties of particular importance – hospitals, banks, power plants. The device is to be installed on the interface of LPZ 0 – LPZ 1 zones according to standard EN 62305:2011 (IEC 62305:2010), closest to where the overhead line enters the building i.e. the electric power substation, electrometer or the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge.

Type		HLA50-255/2+0	HLA50-440/2+0
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1, CLASS I	
System		TN-S	
Max. continuous operating voltage	U_C	255 V AC	440 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	50 kA	
Charge	Q	25 As	
Specific energy for class I test	W/R	625 kJ/ Ω	
Total discharge current (10/350) L+N->PE	I_{TOTAL}	100 kA	
Nominal discharge current for class II test (8/20)	I_n	50 kA	
Voltage protection level at I_{imp}	U_p	< 2 kV	< 2,5 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s	581 V/5 s
Response time	t_A	< 100 ns	
Follow current interrupt rating	I_{fi}	25 kA _{rms}	3 kA _{rms}
Max. back-up fuse		500 A gL/gG	
Short-circuit current rating at 500 A gL/gG	I_{SCCR}	25 kA _{rms}	
LPZ		0-1	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position		DIN rail 35 mm / any	
Lifetime		min.100 000 h	
Weight	m	470 g	
Article number		10 971	10 952

Lightning arrester / spark gap / TYPE 1

TYPE 1 / CLASS I / TN-C / CE



HLA50-255/3+0

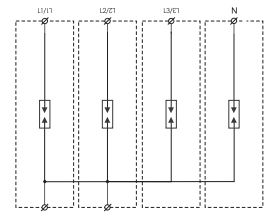
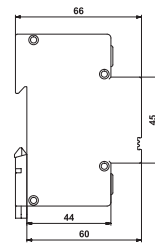
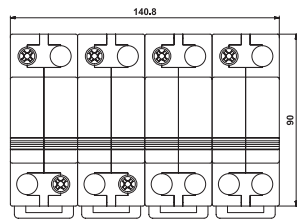
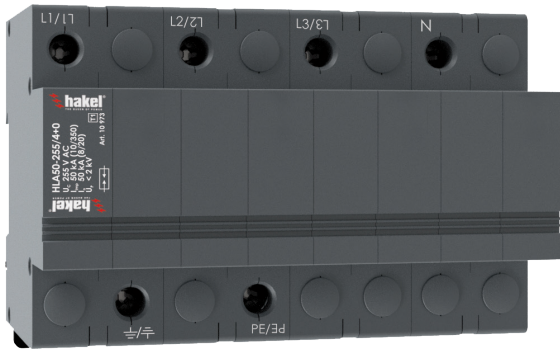
HLA50-440/3+0

HLA* (Hakel Lightning Arrester) of the „G-Line“ range is a lightning arrester according to standard EN 61643-11:2012 (IEC 61643-11:2011) consisting of multiple non-exhausting spark gaps. Its parameters enable usage in buildings with a considerable level of protection LPL I, such as big industrial complexes and properties of particular importance – hospitals, banks, power plants. The device is to be installed on the interface of LPZ 0 – LPZ 1 zones according to standard EN 62305:2011 (IEC 62305:2010), closest to where the overhead line enters the building i.e. the electric power substation, electrometer or the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge.

Type		HLA50-255/3+0	HLA50-440/3+0
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1, CLASS I	
System		TN-C	
Max. continuous operating voltage	U_C	255 V AC	440 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	50 kA	
Charge	Q	25 As	
Specific energy for class I test	W/R	625 kJ/Ω	
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	150 kA	
Nominal discharge current for class II test (8/20)	I_n	50 kA	
Voltage protection level at I_{imp}	U_D	< 2 kV	< 2,5 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s	581 V/5 s
Response time	t_A	< 100 ns	
Follow current interrupt rating	I_{fi}	25 kA _{rms}	3 kA _{rms}
Max. back-up fuse		500 A gL/gG	
Short-circuit current rating at 500 A gL/gG	I_{SCCR}	25 kA _{rms}	
LPZ		0-1	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position		DIN rail 35 mm / any	
Lifetime		min. 100 000 h	
Weight	m	705 g	
Article number		10 972	10 953

Lightning arrester / spark gap / TYPE 1

TYPE 1 / CLASS I / TN-S / CE



HLA50-255/4+0 HLA50-440/4+0

HLA* (Hakel Lightning Arrester) of the „G-Line“ range is a lightning arrester according to standard EN 61643-11:2012 (IEC 61643-11:2011) consisting of multiple non-exhausting spark gaps. Its parameters enable usage in buildings with a considerable level of protection LPL I, such as big industrial complexes and properties of particular importance – hospitals, banks, power plants. The device is to be installed on the interface of LPZ 0 – LPZ 1 zones according to standard EN 62305:2011 (IEC 62305:2010), closest to where the overhead line enters the building i.e. the electric power substation, electrometer or the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge.

Type		HLA50-255/4+0	HLA50-440/4+0
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1, CLASS I	
System		TN-S	
Max. continuous operating voltage	U_C	255 V AC	440 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	50 kA	
Charge	Q	25 As	
Specific energy for class I test	W/R	625 kJ/Ω	
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	200 kA	
Nominal discharge current for class II test (8/20)	I_n	50 kA	
Voltage protection level at I_{imp}	U_p	< 2 kV	< 2,5 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s	581 V/5 s
Response time	t_A	< 100 ns	
Follow current interrupt rating	I_{fi}	25 kA _{rms}	3 kA _{rms}
Max. back-up fuse		500 A gL/gG	
Short-circuit current rating at 500 A gL/gG	I_{SCCR}	25 kA _{rms}	
LPZ		0-1	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position		DIN rail 35 mm / any	
Lifetime		min.100 000 h	
Weight	m	940 g	
Article number		10 973	10 955

Tabulka aplikace

Označení	Kat. číslo	Obsahuje	TE	Hmotnost (g)	Póly	Zapojení	I_{imp}/I_{total} (kA)	U_c (V)	Módy ochrany
HLA50-255	10 970	1xHLA50-255	2	235 / 239	1	1+0	50 / -	255	L/N, L/PEN, L/PE
HLA50-440	10 950	1xHLA50-440	2	235 / 239	1	1+0	50 / -	440	

Doporučené sestavy pro síť TN-C

Sestava	Kat. číslo	Obsahuje	TE	Hmotnost (g)	Póly	Zapojení	I_{imp}/I_{total} (kA)	Instalace
HLA50-255	10 970	1xHLA50-255	2	235 / 239	1	1+0	50 / -	Před elektroměr, trafostanice a hlavní rozvaděč
HLA50-255/3+0	10 972	3xHLA50-255	6	675 / 687	3	3+0	50 / 150	

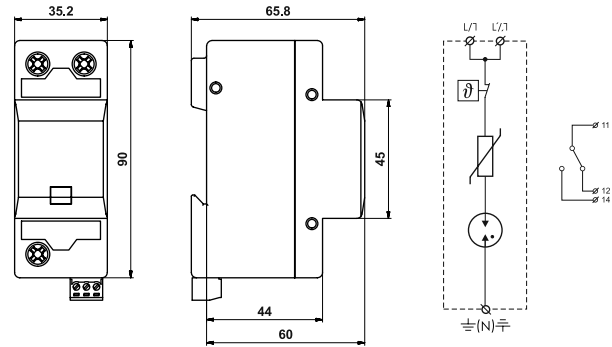
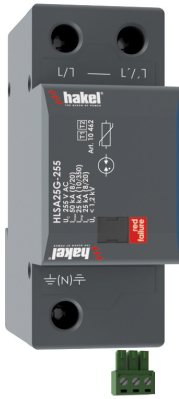
Doporučené sestavy pro síť TN-S

Sestava	Kat. číslo	Obsahuje	TE	Hmotnost (g)	Póly	Zapojení	I_{imp}/I_{total} (kA)	Instalace
HLA50-255/2+0	10 971	2xHLA50-255	4	470 / 478	2	2+0	50 / 100	Před elektroměr, trafostanice a hlavní rozvaděč
HLA50-255/4+0	10 974	4xHLA50-255	8	900 / 916	4	4+0	50 / 200	

TE - modulární jednotka (17,5 mm)

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / CE



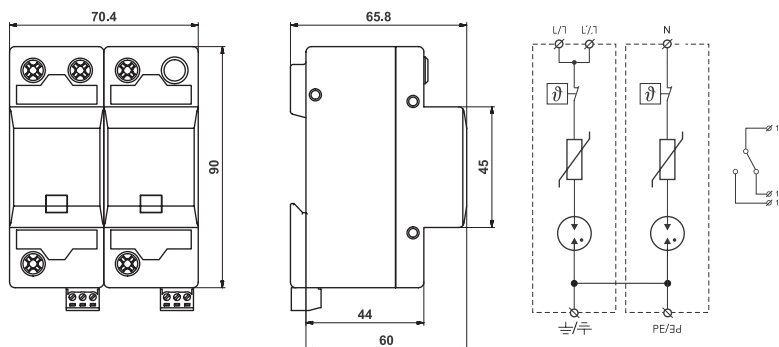
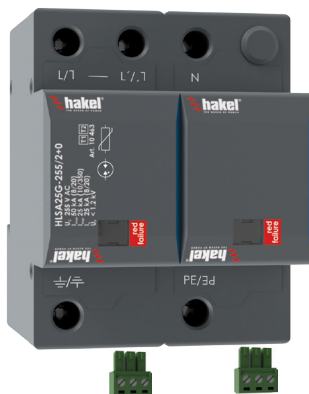
HLSA25G-255 HLSA25G-255 S

HLSA25G* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

Type	HLSA25G-255, HLSA25G-255 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/ Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	250 g
Article number		
HLSA25G-255		10 462
HLSA25G-255 S		10 466

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



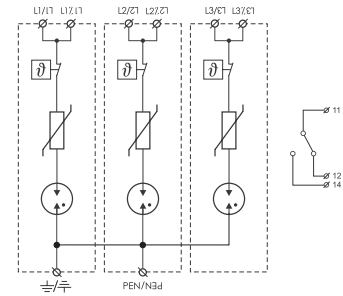
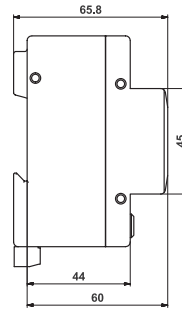
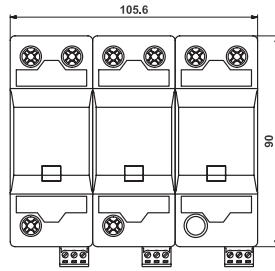
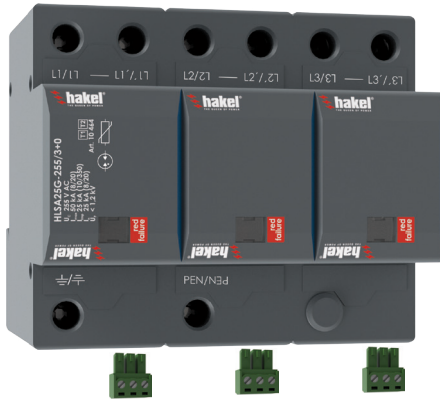
HLSA25G-255/2+0 HLSA25G-255/2+0 S

HLSA25G* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type		HLSA25G-255/2+0, HLSA25G-255/2+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	500 g
Article number		
HLSA25G-255/2+0		10 463
HLSA25G-255/2+0 S		10 467

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-C / CE



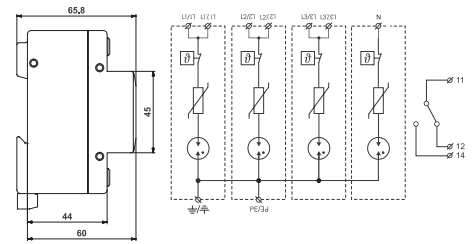
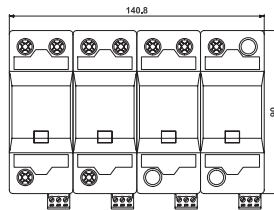
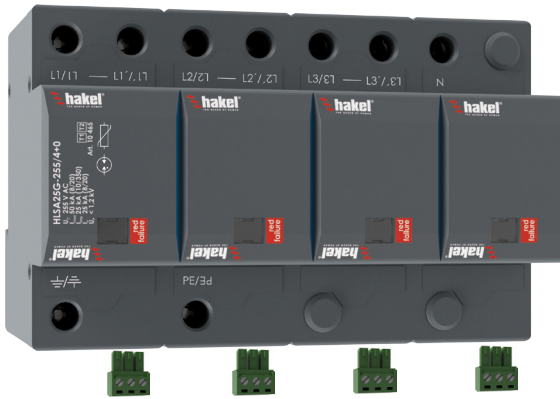
HLSA25G-255/3+0 HLSA25G-255/3+0 S

HLSA25G* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305:2010, closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA25G-255/3+0, HLSA25G-255/3+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-C	
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	75 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	750 g
Article number		
HLSA25G-255/3+0		10 464
HLSA25G-255/3+0 S		10 468

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



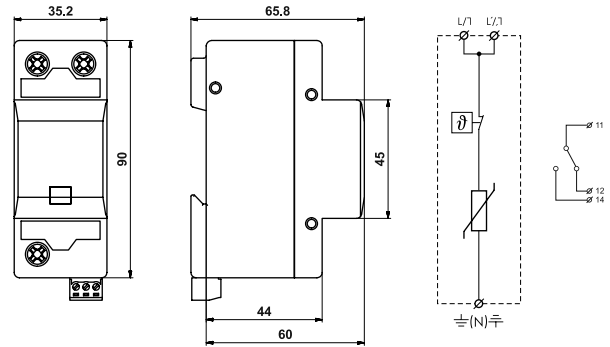
HLSA25G-255/4+0 HLSA25G-255/4+0 S

HLSA25G* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and a gas discharge tube connected in series, which ensures zero leakage current through the conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA25G-255/4+0, HLSA25G-255/4+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-S, TT	
Max. continuous operating voltage	U_C	255 V AC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	25 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	1000 g
Article number		
HLSA25G-255/4+0		10 465
HLSA25G-255/4+0 S		10 469

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / CE



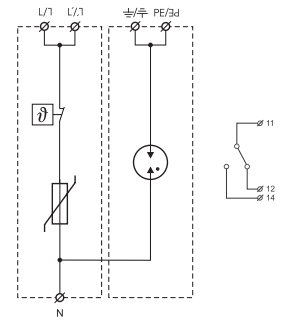
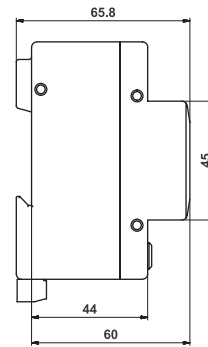
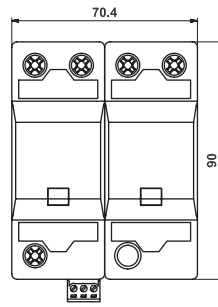
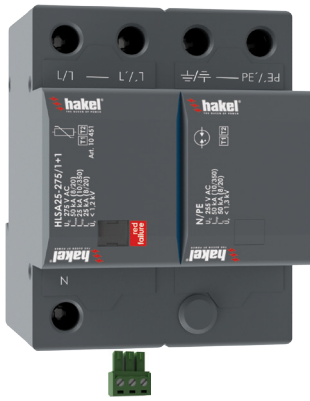
HLSA25-275 HLSA25-275 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

Type		HLSA25-275, HLSA25-275 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 AgL/gG
Max. back-up fuse („V“ connection)		125 AgL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	300 g
Article number		
HLSA25-275		10 450
HLSA25-275 S		10 456

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



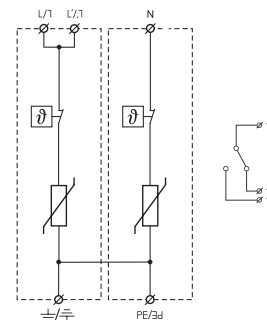
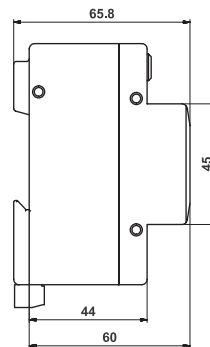
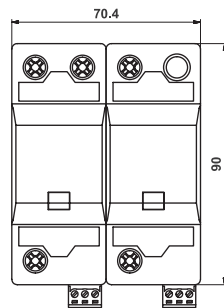
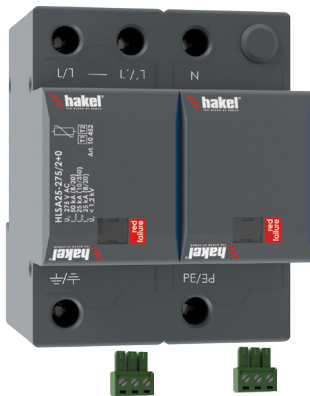
HLSA25-275/1+1 HLSA25-275/1+1 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester combined with gas discharge tube according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and gas discharge tube that ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type		HLSA25-275/1+1, HLSA25-275/1+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350) L/N	I_{imp}	25 kA
Charge L/N	Q	12,5 As
Specific energy for class I test L/N	W/R	156 kJ/Ω - 625 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	50 kA
Charge N/PE	Q	25 kA
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	460 g
Article number		
HLSA25-275/1+1		10 451
HLSA25-275/1+1 S		10 457

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / CE



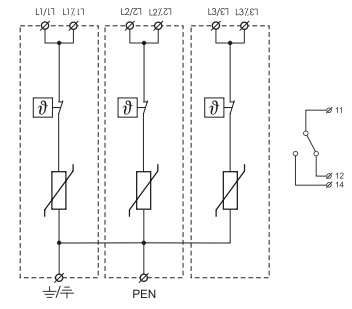
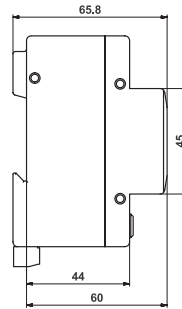
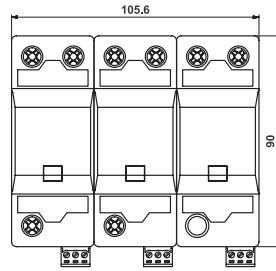
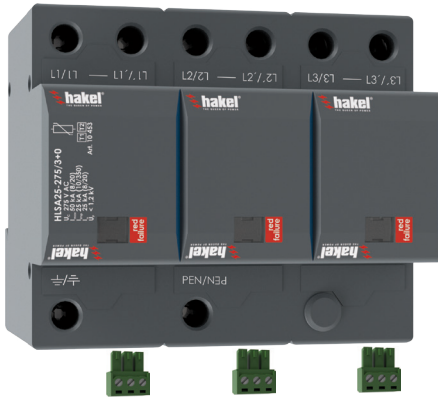
HLSA25-275/2+0 HLSA25-275/2+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA25-275/2+0, HLSA25-275/2+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse	250 A gL/gG	
Max. back-up fuse („V“ connection)	125 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ	0-1	
Housing material	Polyamid PA6, UL94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	35 mm ² (solid) - 25 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	600 g
Article number		
HLSA25-275/2+0	10 452	
HLSA25-275/2+0 S	10 458	

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-C / CE



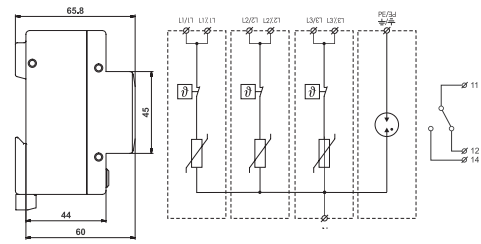
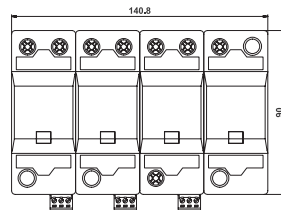
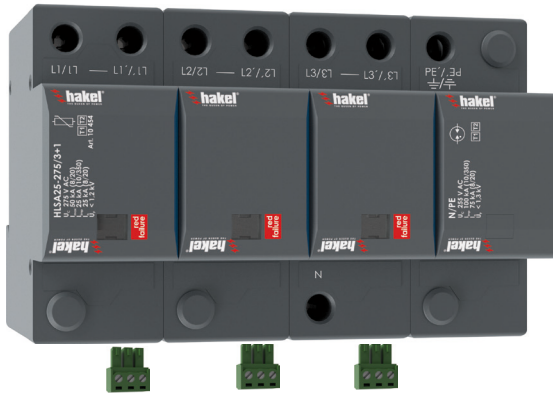
HLSA25-275/3+0 HLSA25-275/3+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA25-275/3+0, HLSA25-275/3+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-C	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	75 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	900 g
Article number		
HLSA25-275/3+0		10 453
HLSA25-275/3+0 S		10 459

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



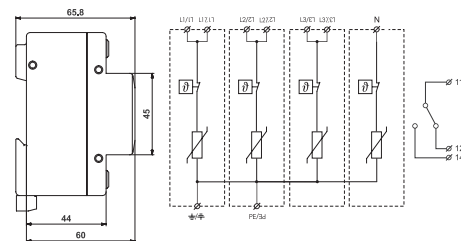
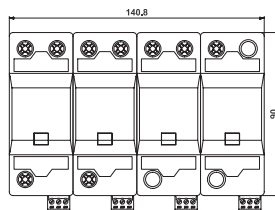
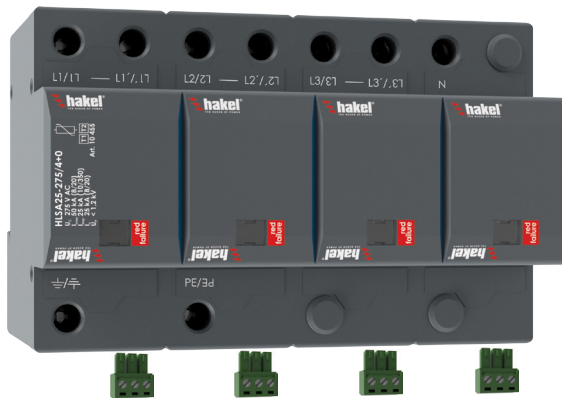
HLSA25-275/3+1 HLSA25-275/3+1 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester combined with gas discharge tube according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and gas discharge tube that ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA25-275/3+1, HLSA25-275/3+1 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-S, TT	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350) L/N	I_{imp}	25 kA
Charge L/N	Q	12,5 As
Specific energy for class I test L/N	W/R	156 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	100 kA
Charge N/PE	Q	50 As
Specific energy for class I test N/PE	W/R	2500 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	150 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	1125 g
Article number		
HLSA25-275/3+1		10 454
HLSA25-275/3+1 S		10 460

Lightning and surge arrester / varistor / TYPE 1+2

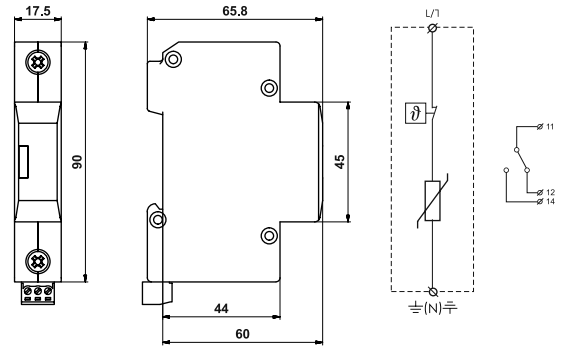
TYPE 1+2 / CLASS I+II / TN-S / CE



HLSA25-275/4+0 HLSA25-275/4+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy double varistors for a better discharge ability. Its parameters enable usage in buildings with considerable levels of protection LPL I and LPL II, such as hospitals, banks, industrial and administration complexes, schools, shopping and sports centres or supermarkets. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where the overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type		HLSA25-275/4+0, HLSA25-275/4+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I_{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Maximum discharge current (8/20)	I_{max}	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse („V“ connection)		125 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	80 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at fighting moment of clamps 3 Nm)		35 mm ² (solid) - 25 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	1200 g
Article number		
HLSA25-275/4+0		10 455
HLSA25-275/4+0 S		10 461



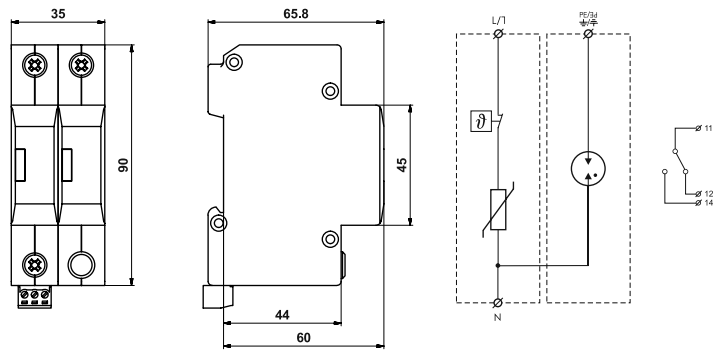
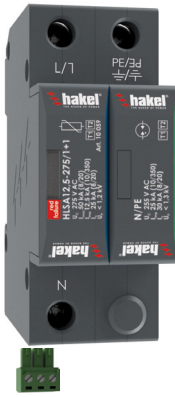
HLSA12,5-275 HLSA12,5-275 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

Type		HLSA12,5-275 S, HLSA12,5-275 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ...+70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	140 g
Article number		
HLSA12,5-275		10 058
HLSA12,5-275 S		10 007

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



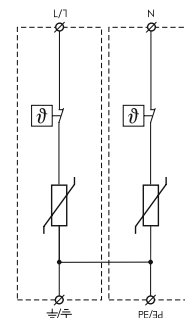
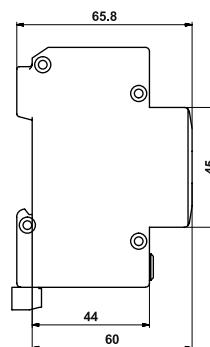
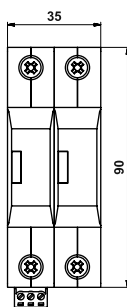
HLSA12,5-275/1+1 HLSA12,5-275/1+1 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

Type		HLSA12,5-275/1+1, HLSA12,5-275/1+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy for class I test L/N	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	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) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	30 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	212 g
Article number		
HLSA12,5-275/1+1		10 059
HLSA12,5-275/1+1 S		10 023

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / CE



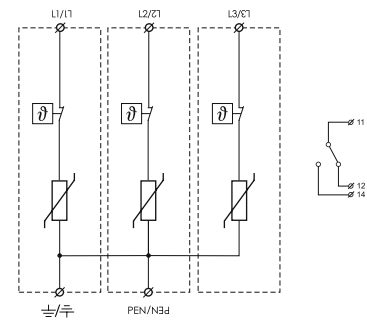
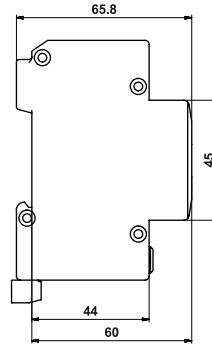
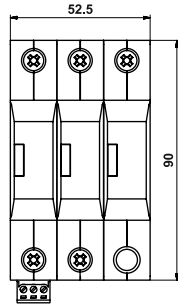
HLSA12,5-275/2+0
HLSA12,5-275/2+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type		HLSA12,5-275/2+0, HLSA12,5-275/2+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	280 g
Article number		
HLSA12,5-275/2+0		10 060
HLSA12,5-275/2+0 S		10 026

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-C / CE



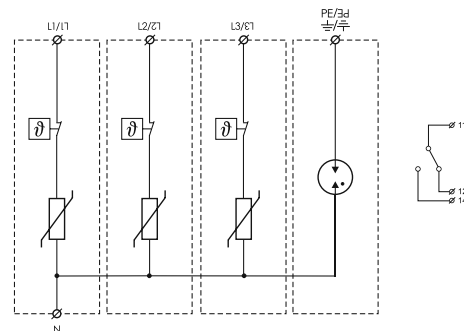
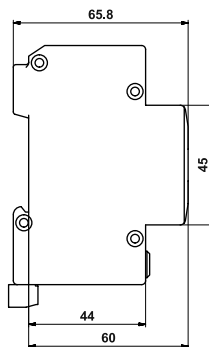
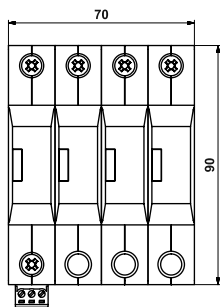
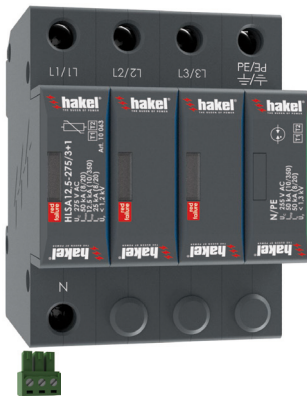
HLSA12,5-275/3+0 HLSA12,5-275/3+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

Type	HLSA12,5-275/3+0, HLSA12,5-275/3+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-C	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	37,5 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	420 g
Article number		
HLSA12,5-275/3+0		10 062
HLSA12,5-275/3+0 S		10 038

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



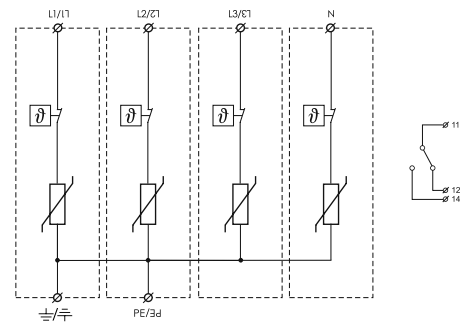
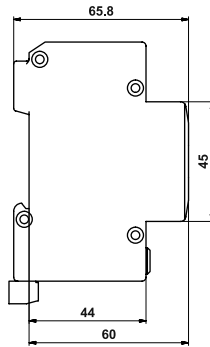
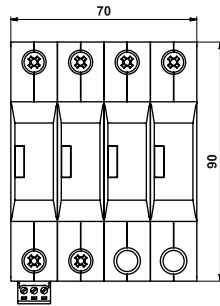
HLSA12,5-275/3+1 HLSA12,5-275/3+1 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring.

Type		HLSA12,5-275/3+1, HLSA12,5-275/3+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy for class I test L/N	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	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_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	50 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	536 g
Article number		
HLSA12,5-275/3+1		10 063
HLSA12,5-275/3+1 S		10 039

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / CE



HLSA12,5-275/4+0 HLSA12,5-275/4+0 S

HLSA* (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

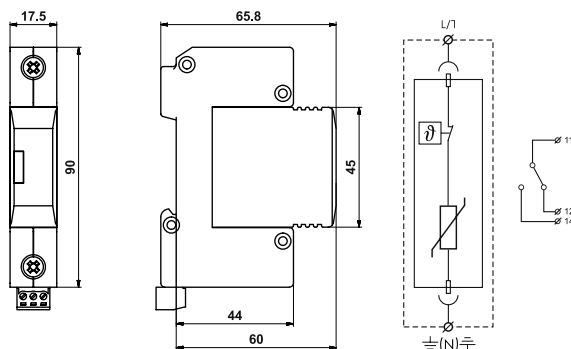
Type	HLSA12,5-275/4+0, HLSA12,5-275/4+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,2 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse	160 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ	0-1	
Housing material	Polyamid PA6, UL 94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	560 g
Article number		
HLSA12,5-275/4+0	10 065	
HLSA12,5-275/4+0 S	10 051	

Application table

Type	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{imp} (kA)	U _c (V) AC/DC	Mode of protection
HLSA12,5-75 / HLSA12,5-75 S	10 211 / 10 217	1	100	1	1+0	12,5	75 / 100	L/N, L/PEN, L/PE
HLSA12,5-150 / HLSA12,5-150 S	10 251 / 10 257	1	110	1	1+0	12,5	150 / 200	L/N, L/PEN, L/PE
HLSA12,5-275 / HLSA12,5-275 S	10 058 / 10 007	1	140	1	1+0	12,5	275 / 350	L/N, L/PEN, L/PE
HLSA12,5-320 / HLSA12,5-320 S	10 301 / 10 307	1	234	1	1+0	12,5	320 / 420	L/N, L/PEN, L/PE
HLSA12,5-385 / HLSA12,5-385 S	10 321 / 10 327	2	234	1	1+0	12,5	385 / 505	L/N, L/PEN, L/PE
HLSA12,5-440 / HLSA12,5-440 S	10 333 / 10 339	2	236	1	1+0	12,5	440 / 585	L/N, L/PEN, L/PE
HLSA12,5-600 / HLSA12,5-600 S	10 345 / 10 351	3	330	1	1+0	12,5	600 / 825	L/N, L/PEN, L/PE
HLSA12,5-850 / HLSA12,5-850 S	10 357 / 10 363	3	385	1	1+0	12,5	850 / 1170	L/N, L/PEN, L/PE
HGDT25	30 051	1	72	1	0+1	25	255	N/PE
HGDT50	30 052	1	116	1	0+1	50	255	N/PE
HGDT100	30 054	2	228	1	0+1	100	255	N/PE

Recommended sets for TN-C system	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{total} (kA) (10/350)	Application
HLSA12,5-275 / HLSA12,5-275 S	10 058 / 10 007	1	140	1	1+0	12,5	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/3+0 / HLSA12,5-275/3+0 S	10 062 / 10 038	3	420	3	3+0	37,5	
Recommended sets for TN-S system							
HLSA12,5-275/2+0 / HLSA12,5-275/2+0 S	10 060 / 10 026	2	280	2	2+0	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/4+0 / HLSA12,5-275/4+0 S	10 065 / 10 051	4	560	4	4+0	50	
Recommended sets for TN-S and TT systems							
HLSA12,5-275/1+1 / HLSA12,5-275/1+1 S	10 059 / 10 023	2	256	2	1+1	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/3+1 / HLSA12,5-275/3+1 S	10 063 / 10 039	4	536	4	3+1	50	

TE - diving unit (17,5 mm)



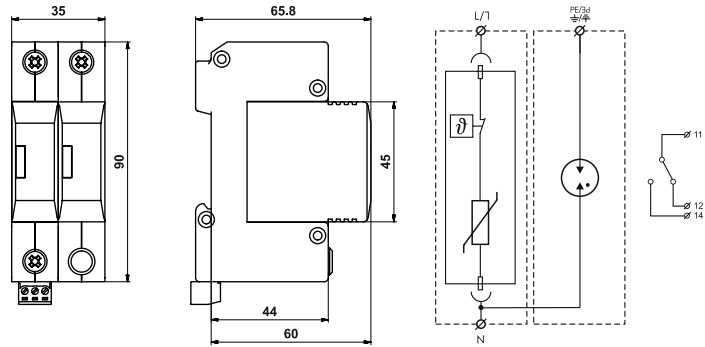
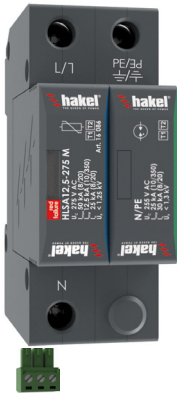
HLSA12,5-275 M
HLSA12,5-275 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HLSA12,5-275 M, HLSA12,5-275 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	140 g
Article number		
HLSA12,5-275 M		16 080
HLSA12,5-275 M S		16 090

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



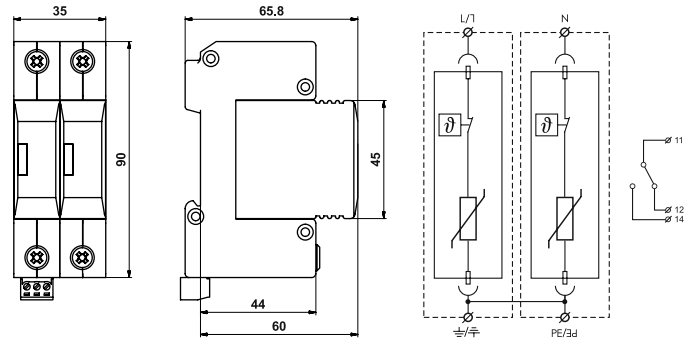
HLSA12,5-275/1+1 M HLSA12,5-275/1+1 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HLSA12,5-275/1+1 M, HLSA12,5-275/1+1 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy for class I test L/N	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	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) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	30 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	215 g
Article number		
HLSA12,5-275/1+1 M		16 081
HLSA12,5-275/1+1 M S		16 091

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / CE



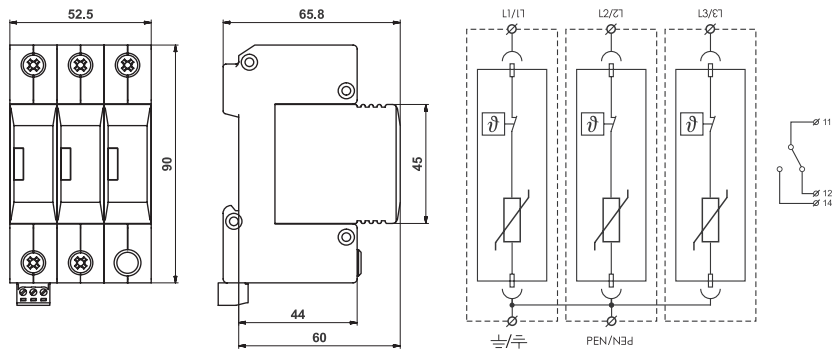
HLSA12,5-275/2+0 M HLSA12,5-275/2+0 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type	HLSA12,5-275/2+0 M, HLSA12,5-275/2+0 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 1+2, CLASS I+II	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+N->PE	I_{TOTAL}	25 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	280 g
Article number		
HLSA12,5-275/2+0 M		16 082
HLSA12,5-275/2+0 M S		16 092

Lightning and surge arrester / varistor / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-C / CE



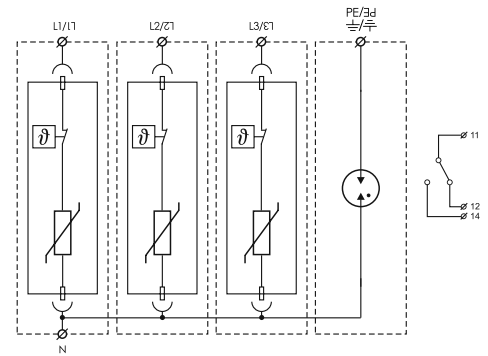
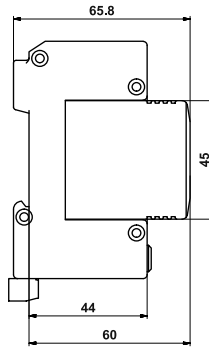
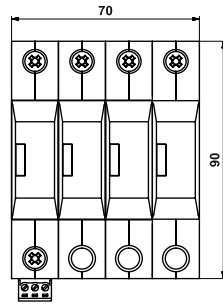
HLSA12,5-275/3+0 M HLSA12,5-275/3+0 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HLSA12,5-275/3+0 M, HLSA12,5-275/3+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3->PEN	I_{TOTAL}	37,5 kA
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C...+70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	420 g
Article number		
HLSA 12,5-275/3+0 M		16 083
HLSA 12,5-275/3+0 M S		16 093

Lightning and surge arrester / varistor + gas discharge tube / TYPE 1+2

TYPE 1+2 / CLASS I+II / TN-S / TT / CE



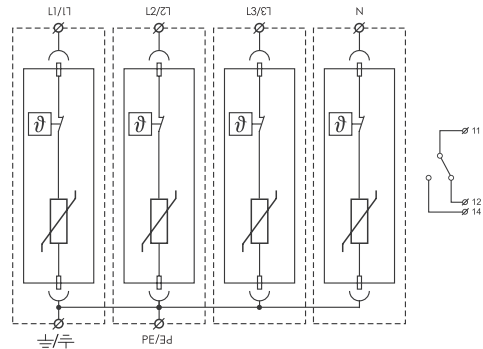
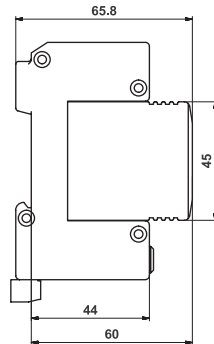
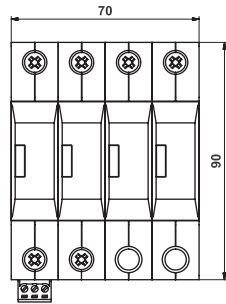
HLSA12,5-275/3+1 M HLSA12,5-275 S/3+1 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HLSA12,5-275/3+1 M, HLSA12,5-275/3+1 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	I_{imp}	12,5 kA
Charge L/N	Q	6,25 As
Specific energy for class I test L/N	W/R	39 kJ/Ω
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	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_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20) L/N	I_n	25 kA
Nominal discharge current for class II test (8/20) N/PE	I_n	50 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	536 g
Article number		
HLSA12,5-275/3+1 M		16 084
HLSA12,5-275/3+1 M S		16 094

Lightning and surge arrester / varistor / TYPE 1+2

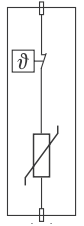
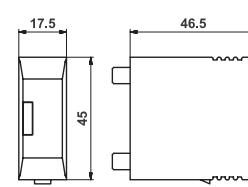
TYPE 1+2 / CLASS I+II / TN-S / CE



HLSA12,5-275/4+0 M HLSA12,5-275/4+0 M S

HLSA*M (Hakel Lightning Surge Arrester) of the „G-Line“ range is a lightning and surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable usage in buildings with considerable levels of protection LPL III and LPL IV, such as small administration complexes, residential buildings, family houses or properties and halls without the incidence of persons and indoor equipment. The device is to be installed on the interface of LPZ 0 – LPZ 1 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), closest to where overhead line enters the building i.e. in the main distribution boards. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HLSA12,5-275/4+0 M, HLSA12,5-275/4+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Total discharge current (10/350) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,3 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		0-1
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40°C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	560 g
Article number		
HLSA12,5-275/4+0 M		16 085
HLSA12,5-275/4+0 M S		16 095



HLSA12,5-275 Module

The HLSA*Module is a device designed to limit surge voltages and divert surge currents according to standard IEC 61643-11:2011. It consists of high-performance MOV-type varistors and its parameters allow it to be used in buildings with intended protection levels LPL III or LPL IV, such as small administrative buildings, residential buildings, houses, or buildings or halls without internal equipment and human presence. It is installed in the boundary between protection zones LPZ 0 - LPZ 1 or higher according to standard IEC 62305:2010 as close as possible to the entry of cable lines into the building - main switchboards.

Typ		HLSA12,5-275 Module
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Impulse discharge current for class I test (10/350)	I_{imp}	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	I_n	25 kA
Voltage protection level	U_p	< 1,25 kV
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Short-circuit withstand capability 160 A gL/gG	I_{SCCR}	60 kA _{rms}
LPZ		0-1 and higher
Housing material		Polyamid PA6, UL 94 V-0
Operating temperature range	ϑ	-40 °C ... +70 °C
The mounting method / operating position		into the HLSA base / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Lifetime		min. 100 000 h
Weight	m	80 g
Article number		16 086

Application table

Type	Art. No.	TE	Weight (g)	No. of poles	Connection	I_{imp} (kA)	U_c (V) AC/DC	Mode of protection
HLSA12,5-275 M / HLSA12,5-275 M S	16 080 / 16 090	1	140	1	1+0	12,5	275 / 350	L/N, L/PEN, L/PE
HGDT25	30 051	1	73	1	0+1	25	255	N/PE
HGDT50	30 052	1	116	1	0+1	50	255	N/PE

Recommended sets for TN-C system	Art. No.	TE	Weight (g)	No. of poles	Connection	I_{Total} (kA) (10/350)	Application
HLSA12,5-275 M / HLSA12,5-275 M S	16 080 / 16 090	1	140	1	1+0	12,5	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/3+0 M / HLSA12,5-275/3+0 M S	16 083 / 16 093	3	420	3	3+0	37,5	
Recommended sets for TN-S system							
HLSA12,5-275/2+0 M / HLSA12,5-275/2+0 M S	16 082 / 16 092	2	280	2	2+0	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/4+0 M / HLSA12,5-275/4+0 M S	16 085 / 16 095	4	560	4	4+0	50	
Recommended sets for TN-S and TT systems							
HLSA12,5-275/1+1 M / HLSA12,5-275/1+1 M S	16 081 / 16 091	2	256	2	1+1	25	Residential houses with standard equipment, industrial structures free of people and internal equipment
HLSA12,5-275/3+1 M / HLSA12,5-275/3+1 M S	16 084 / 16 094	4	536	4	3+1	50	

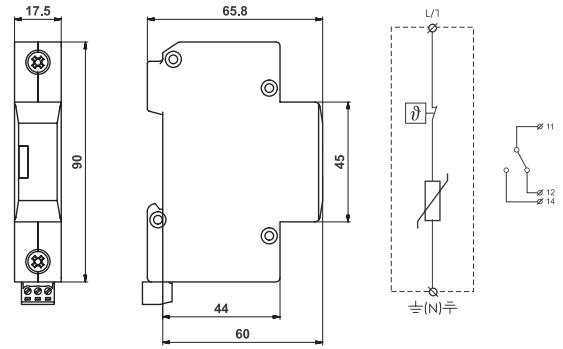
Spare module

Type	Art. No.	Weight (g)
HLSA12,5-275 Module	16 086	92

TE - diving unit (17,5 mm)

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / CE



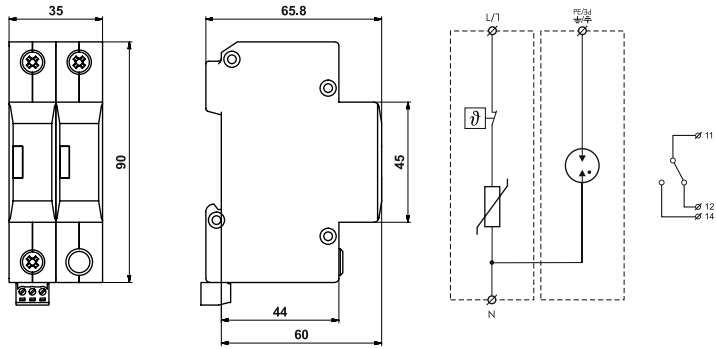
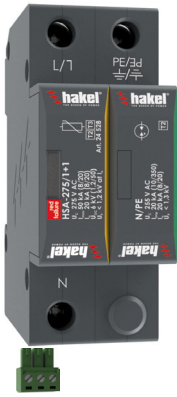
HSA-275 HSA-275 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

Type		HSA-275, HSA-275 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	96 g
Article number		
HSA-275		24 527
HSA-275 S		24 520

Surge arrester / varistor + gas discharge tube / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



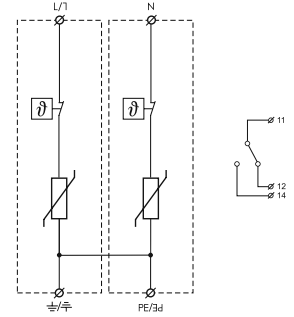
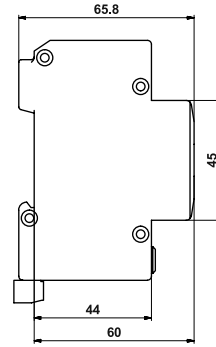
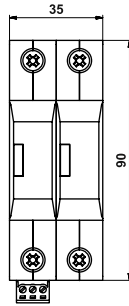
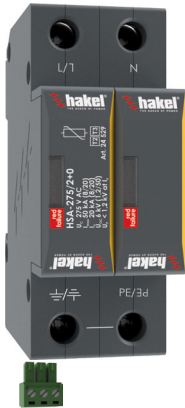
HSA-275/1+1 HSA-275/1+1 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

Type	HSA-275/1+1, HSA-275/1+1 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S, TT	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse	160 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ	1-3	
Housing material	Polyamid PA6, UL94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	174 g
Article number		
HSA-275/1+1	24 528	
HSA-275/1+1 S	24 521	

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / CE



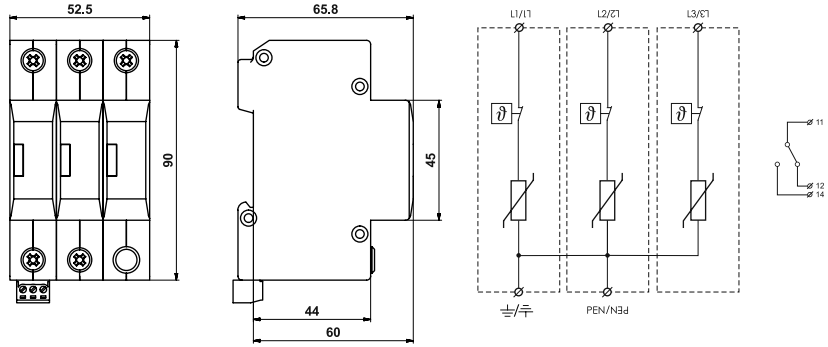
HSA-275/2+0 HSA-275/2+0 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type	HSA-275/2+0, HSA-275/2+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	192 g
Article number		
HSA-275/2+0		24 529
HSA-275/2+0 S		24 522

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-C / CE



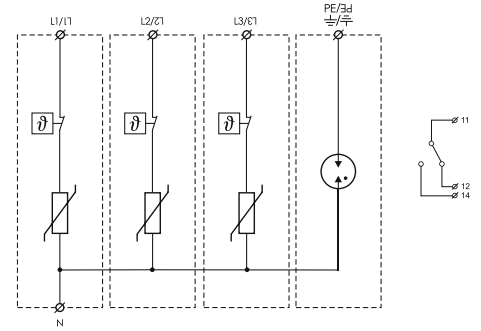
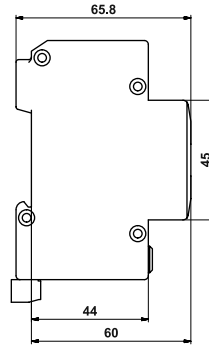
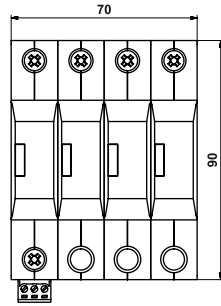
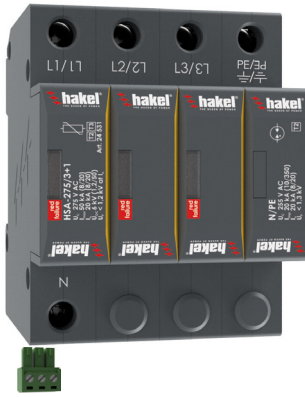
HSA-275/3+0 HSA-275/3+0 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring.

Type		HSA-275/3+0, HSA-275/3+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-C
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	288 g
Article number		
HSA-275/3+0		24 530
HSA-275/3+0 S		24 523

Surge arrester / varistor + gas discharge tube / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



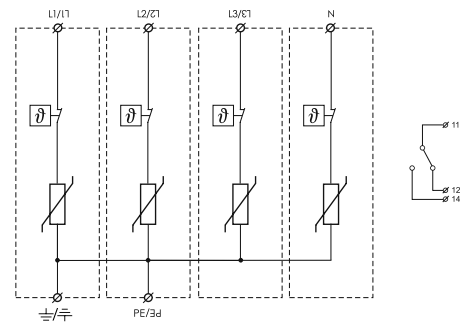
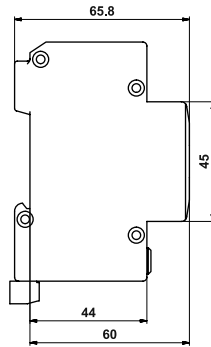
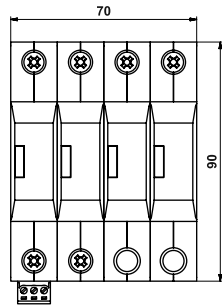
HSA-275/3+1 HSA-275/3+1 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring.

Type		HSA-275/3+1, HSA-275/3+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	366 g
Article number		
HSA-275/3+1		24 531
HSA-275/3+1 S		24 524

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / CE



HSA-275/4+0 HSA-275/4+0 S

HSA* (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring.

Type	HSA-275/4+0, HSA-275/4+0 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,2 kV
Voltage protection level at U_{OC}	U_p	< 800 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	384 g
Article number		
HSA-275/4+0		24 532
HSA-275/4+0 S		24 525

Application table

Type	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	U _c (V) AC/DC	Mode of protection
HSA-75 / HSA-75 S	24 501 / 24 507	1	80 / 86	1	1+0	40	75 / 100	L/N, L/PEN, L/PE
HSA-150 / HSA-150 S	24 533 / 24 539	1	84 / 92	1	1+0	40	150 / 200	L/N, L/PEN, L/PE
HSA-275 / HSA-275 S	24 527 / 24 520	1	93 / 96	1	1+0	50	275 / 350	L/N, L/PEN, L/PE
HSA-320 / HSA-320 S	24 545 / 24 551	1	98 / 100	1	1+0	50	320 / 420	L/N, L/PEN, L/PE
HSA-385 / HSA-385 S	24 557 / 24 563	1	95 / 102	1	1+0	40	385 / 505	L/N, L/PEN, L/PE
HSA-440 / HSA-440 S	24 569 / 24 575	1	103 / 110	1	1+0	40	440 / 585	L/N, L/PEN, L/PE
HSA-600 / HSA-600 S	24 581 / 24 587	1	109 / 110	1	1+0	40	600 / 825	L/N, L/PEN, L/PE
HSA-720 / HSA-720 S	24 601 / 24 607	1	116 / 118	1	1+0	40	720 / 1060	L/N, L/PEN, L/PE
HSA-850 / HSA-850 S	24 613 / 24 619	1	122 / 124	1	1+0	40	850 / 1170	L/N, L/PEN, L/PE
HGDT20	30 050	1	76	1	0+1	50	255	N/PE

Recommended sets for TN-C system

Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275 / HSA-275 S	24 527 / 24 520	1	93 / 96	1	1+0	50	Secondary switchboard, control box
HSA-275/3+0 / HSA-275/3+0 S	24 530 / 24 523	3	279 / 288	3	3+0	50	Secondary switchboard, control box

Recommended sets for TN-S system

Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275/2+0 / HSA-275/2+0 S	24 529 / 24 522	2	192 / 192	2	2+0	50	Secondary switchboard, control box
HSA-275/4+0 / HSA-275/4+0 S	24 532 / 24 525	4	384 / 385	4	4+0	50	Secondary switchboard, control box

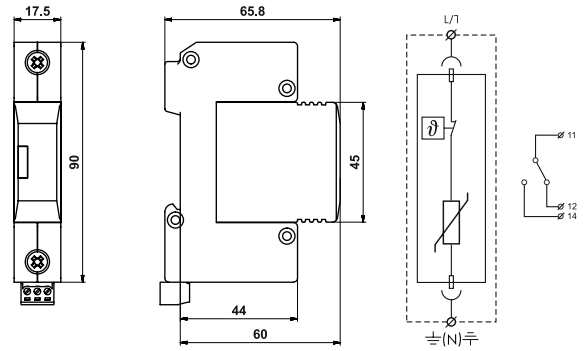
Recommended sets for TN-S and TT systems

Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275/1+1 / HSA-275/1+1 S	24 528 / 24 521	2	174 / 174	2	1+1	50	Secondary switchboard, control box
HSA-275/3+1 / HSA-275/3+1 S	24 531 / 24 524	4	366 / 367	4	3+1	50	Secondary switchboard, control box

TE - diving unit (17,5 mm)

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / CE



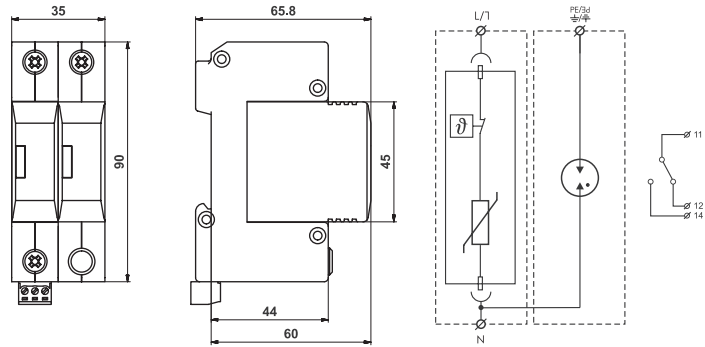
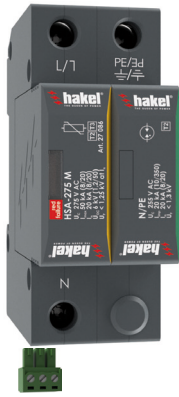
HSA-275 M HSA-275 M S

HSA*M (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type		HSA-275 M, HSA-275 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,25 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	90 g
Article number		
HSA-275 M		27 080
HSA-275 M S		27 090

Surge arrester / varistor + gas discharge tube / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



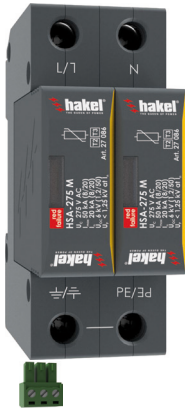
HSA-275/1+1 M HSA-275/1+1 M S

HSA*M (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

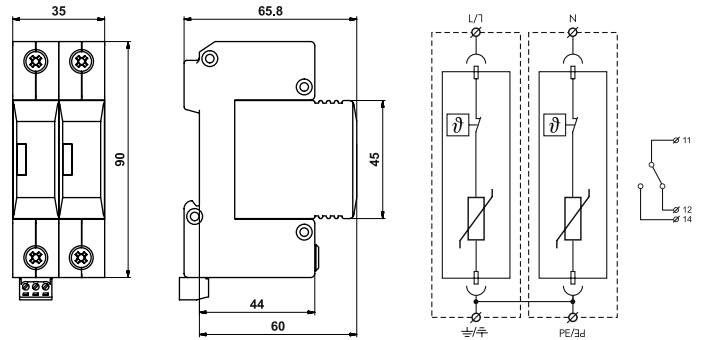
Type	HSA-275/1+1 M, HSA-275/1+1 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S, TT	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse	160 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ	1-3	
Housing material	Polyamid PA6, UL94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	166 g
Article number		
HSA-275/1+1 M	27 081	
HSA-275/1+1 M S	27 091	

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / CE



HSA-275/2+0 M
HSA-275/2+0 M S

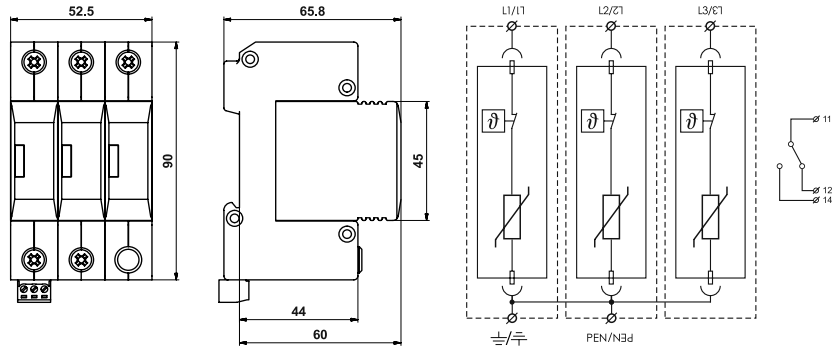


HSA*M (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type	HSA-275/2+0 M, HSA-275/2+0 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+N->PE	I_{TOTAL}	100 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	180 g
Article number		
HSA-275/2+0 M		27 082
HSA-275/2+0 M S		27 092

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-C / CE



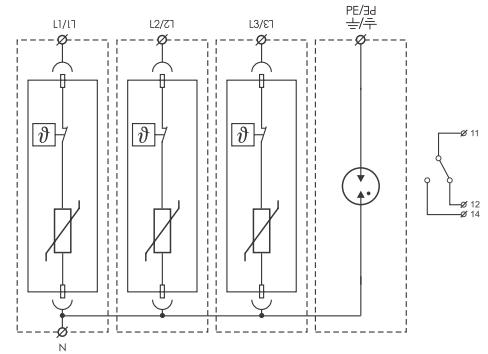
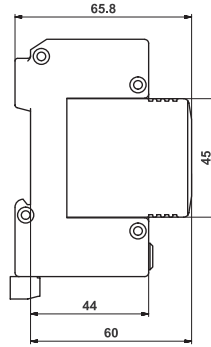
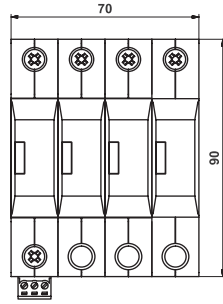
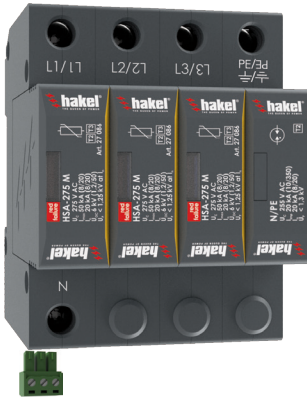
HSA-275/3+0 M
HSA-275/3+0 M S

HSA*M (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PEN terminals, which can not be used as a PEN bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type	HSA-275/3+0 M, HSA-275/3+0 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-C	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3->PEN	I_{TOTAL}	150 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse	160 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ	1-3	
Housing material	Polyamid PA6, UL94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	270 g
Article number		
HSA-275/3+0 M	27 083	
HSA-275/3+0 M S	27 093	

Surge arrester / varistor + gas discharge tube / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / TT / CE



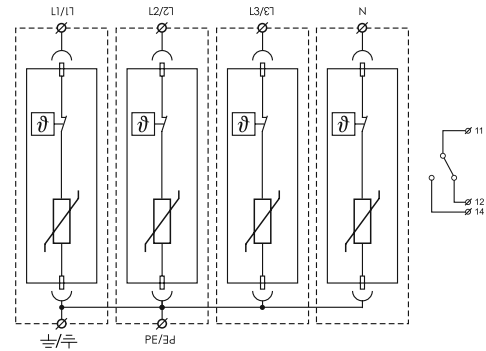
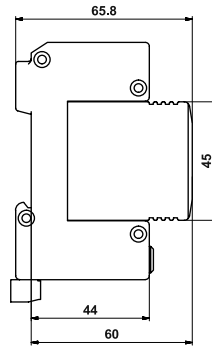
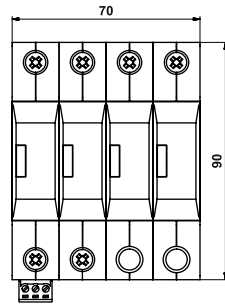
HSA-275/3+1 M HSA-275/3+1 M S

HSA*M (Haket Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors in combination with gas discharge tube, which ensures zero leakage current in the PE conductor. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type	HSA-275/3+1 M, HSA-275/3+1 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S, TT	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	50 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Impulse discharge current for class I test (10/350) N/PE	I_{imp}	20 kA
Temporary overvoltage (TOV) L/N	U_T	337 V/5 s
Temporary overvoltage (TOV) N/PE	U_T	1200 V/0,2 s
Response time L/N	t_A	< 25 ns
Response time N/PE	t_A	< 100 ns
Max. back-up fuse	160 A gL/gG	
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ	1-3	
Housing material	Polyamid PA6, UL94 V-0	
Degree of protection of enclosure	IP20	
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)	25 mm ² (solid) - 16 mm ² (wire)	
The mounting method / operating position	DIN rail 35 mm / any	
Failure signalisation	optical function signalization target clear – ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 0,5 A, DC: 250 V / 0,1 A	
Lifetime	min. 100 000 h	
Weight	m	346 g
Article number		
HSA-275/3+1 M	27 084	
HSA-275/3+1 M S	27 094	

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / TN-S / CE



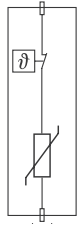
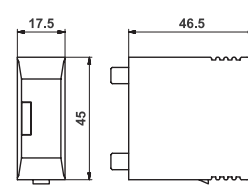
HSA-275/4+0 M HSA-275/4+0 M S

HSA*M (Hakel Surge Arrester) of the „G-Line“ range is a surge arrester according to EN 61643-11 ed.2 (IEC 61643-11:2011) consisting of high energy varistors. Its parameters enable its use in complex circumstances. The device is to be installed on the interface of LPZ 1 – LPZ 2 and higher zones according to standard EN 62305 ed.2 (IEC 62305:2010), i.e. into subsidiary switchboards and control boxes. The product has two PE terminals, which can not be used as a PE bridge. **S** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Type	HSA-275/4+0 M, HSA-275/4+0 M S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 2+3, CLASS II+III	
System	TN-S	
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	I_{TOTAL}	200 kA
Voltage protection level at I_n	U_p	< 1,3 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	I_p	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Degree of protection of enclosure		IP20
Operating temperature range	ϑ	-40 °C ... +70 °C
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		25 mm ² (solid) - 16 mm ² (wire)
The mounting method / operating position		DIN rail 35 mm / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	360 g
Article number		
HSA-275/4+0 M		27 085
HSA-275/4+0 M S		27 095

Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / CE



HSA-275 Module

The HSA*Module is a device designed to limit surge voltages according to standard IEC 61643-11:2011. It consists of high-performance MOV-type varistors and its parameters allow for complex use. It is installed in the boundary between protection zones LPZ 1 - LPZ 3 according to standard IEC 62305:2010 in sub-switchboards and control cabinets.

Type		HSA-275 Module
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I_{max}	50 kA
Nominal discharge current for class II test (8/20)	I_n	20 kA
Open circuit voltage	U_{OC}	6 kV
Voltage protection level at I_n	U_p	< 1,25 kV
Voltage protection level at U_{OC}	U_p	< 850 V
Temporary overvoltage (TOV)	U_T	337 V/5 s
Response time	t_A	< 25 ns
Short-circuit withstand capability 160 A gL/gG	I_{SCCR}	60 kA _{rms}
LPZ		1-3
Housing material		Polyamid PA6, UL94 V-0
Operating temperature range	ϑ	-40 °C ... +70 °C
The mounting method / operating position		into the HLSA base / any
Failure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Lifetime		min. 100 000 h
Weight	m	42 g
Article number		27 086

Application table

Type	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	U _c (V) AC/DC	Mode of protection
HSA-75 M / HSA-75 M S	27 180 / 27 181	1	78 / 82	1	1+0	40	75 / 100	L/N, L/PEN, L/PE
HSA-150 M / HSA-150 M S	27 182 / 27 183	1	82 / 85	1	1+0	40	150 / 200	L/N, L/PEN, L/PE
HSA-275 M / HSA-275 M S	27 080 / 27 090	1	85 / 89	1	1+0	50	275 / 350	L/N, L/PEN, L/PE
HSA-320 M / HSA-320 M S	27 184 / 27 185	1	80 / 90	1	1+0	50	320 / 420	L/N, L/PEN, L/PE
HSA-385 M / HSA-385 M S	27 186 / 27 187	1	92 / 100	1	1+0	40	385 / 505	L/N, L/PEN, L/PE
HSA-440 M / HSA-440 M S	27 188 / 27 189	1	98 / 106	1	1+0	40	440 / 585	L/N, L/PEN, L/PE
HGDT20	30 050	1	74	1	0+1	50	255	N/PE

Recommended sets for TN-C system

Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275 M / HSA-275 M S	27 080 / 27 090	1	85 / 89	1	1+0	50	Secondary switchboard, control box
HSA-275/3+0 M / HSA-275/3+0 M S	27 083 / 27 093	3	255 / 267	3	3+0	50	Secondary switchboard, control box

Recommended sets for TN-S system

Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275/2+0 M / HSA-275/2+0 M S	27 082 / 27 092	2	180 / 182	2	2+0	50	Secondary switchboard, control box
HSA-275/4+0 M / HSA-275/4+0 M S	27 085 / 27 095	4	360 / 360	4	4+0	50	Secondary switchboard, control box

Recommended sets for TN-S system

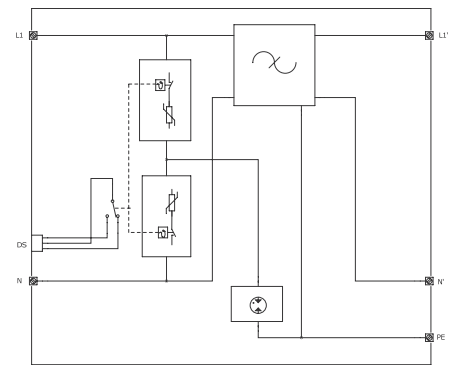
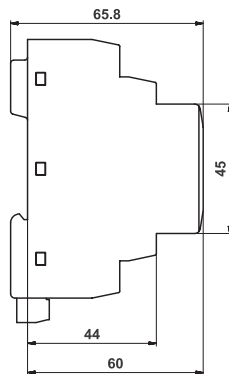
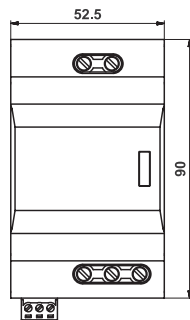
Set	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-275/1+1 M / HSA-275/1+1 M S	27 081 / 27 091	2	165 / 167	2	1+1	50	Secondary switchboard, control box
HSA-275/3+1 M / HSA-275/3+1 M S	27 084 / 27 094	4	330 / 347	4	3+1	50	Secondary switchboard, control box

Spare module	Art. No.	TE	Weight (g)	No. of poles	Connection	I _{max} (kA)	Application
HSA-75 Module	27 190						
HSA-150 Module	27 191						
HSA-275 Module	27 086						
HSA-320 Module	27 192						
HSA-385 Module	27 193						
HSA-440 Module	27 194						

TE - diving unit (17,5 mm)

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYPE 3 / CLASS III / TN-C-S / TN-S / CE



HSAF10, HSAF10 S HSAF16, HSAF16 S

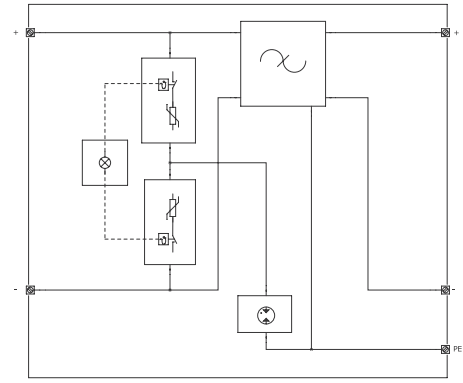
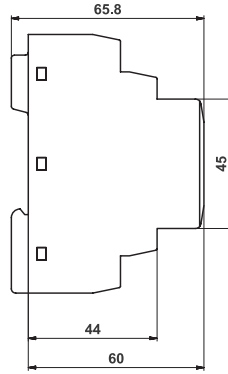
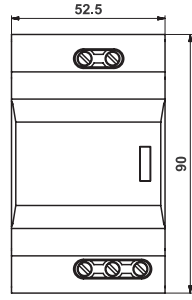
HSAF* (Hakel Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. HSAF* contains an improved thermal fuse which ensures timely disconnection of the HSAF* from the power grid during overheating and thus prevents damage to the HSAF*. Activation of the thermal fuse is signalled by an integral indicator light with the option to utilize its switching contact for remote fault signalling (S). Due to the new design of the thermal fuse, the protective voltage level is 100 V lower than in the previous series of filters. The HSAF* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAF* are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the HSAF* as close to the device to be protected as possible (no further than 5 m). A Hakel T1 and T2 lightning and surge arrester must be installed before the HSAF*.

Type		HSAF10, HSAF10 S	HSAF16, HSAF16 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III	
System		TN-C-S, TN-S	
Max. continuous operating voltage	U_C	275 V AC	
Rated load current	I_L	10 A	16 A
Combined impulse	U_{OC}	6 kV (L/N, L/PE) 10 kV (N/PE)	
Voltage protection level at U_{OC}	U_p	< 750 V (L/N) < 1 kV (L/PE) < 1,5 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n	3 kA (L/N, L/PE) 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T	337 V/5 s (L/N) 1200 V/0,2 s (N/PE)	
Response time	t_A	< 25 ns (L/N) < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 2,2 W	< 3,5 W
Back-up fuse		10 A	16 A
LPZ		2-3	
Housing material		Polyamid PA6, UL94 V-0	
Degree of protection of enclosure		IP20	
Operating temperature range	ϑ	-40 °C ... +55 °C	
Cross-section of the connected conductors		2,5 - 4 mm ²	
Tightening moment of clamps		0,5 Nm	
The mounting method / operating position		DIN rail 35 mm / any	
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime		min. 100 000 h	
Weight	m	180 g	
Article number	HSAF*	30 160	30 161
	HSAF* S	30 170	30 171

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYPE 3 / CLASS III / DC / CE



HSAF10/*VDC

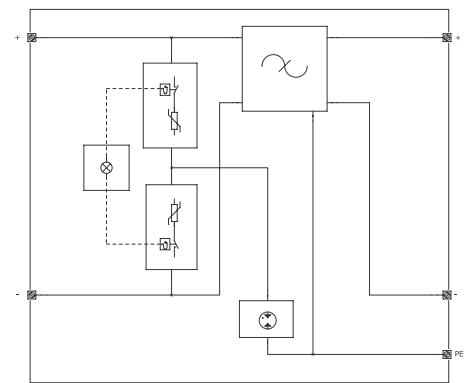
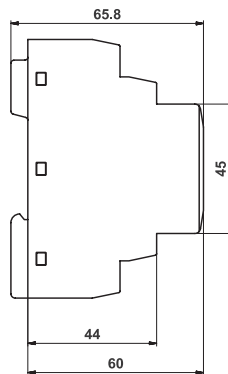
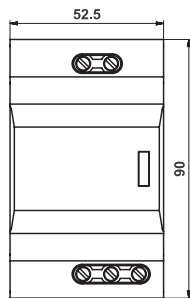
HSAF10/*VDC is a surge arrester with integrated high-frequency filter designed for DC power supply systems. HSAF10/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the HSAF10/*VDC. Activation of the thermal fuse is signalled by an integral indicator light. The HSAF10/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAF10/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the HSAF10/*VDC as close to the device to be protected as possible (no further than 5 m). There must be Hake! lightning and surge arrester T1 and T2 installed before the HSAF10/*VDC.

Type		HSAF 10/6VDC	HSAF 10/12VDC	HSAF 10/24VDC	HSAF 10/48VDC	HSAF 10/60VDC	HSAF 10/120VDC	HSAF 10/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III						
System		DC						
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n	2 kA					3 kA	
Rated load current	I_L	10 A						
Combined impulse	U_{OC}	4 kV					6 kV	
Voltage protection level at U_{OC} (+/-)	U_P	< 350 V	< 350 V	< 400 V	< 500 V	< 550 V	< 900 V	< 1300 V
Voltage protection level at U_{OC} (+/-PE)	U_P	< 300 V				< 400 V	< 600 V	< 800 V
Response time	t_A	< 25 ns (+/-) < 100 ns (+/-PE)						
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding temp. 20 °C		< 2,2 W						
Back-up fuse		10 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL 94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		1,5 - 4 mm ² Cu						
The mounting method, operating position		DIN rail 35 mm, any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Lifetime		min. 100 000 h						
Weight	m	165 g						
Article number	HSAF10/*	30 149	30 150	30 157	30 158	30 159	30 162	30 163

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYPE 3 / CLASS III / DC / CE



HSAF16/*VDC

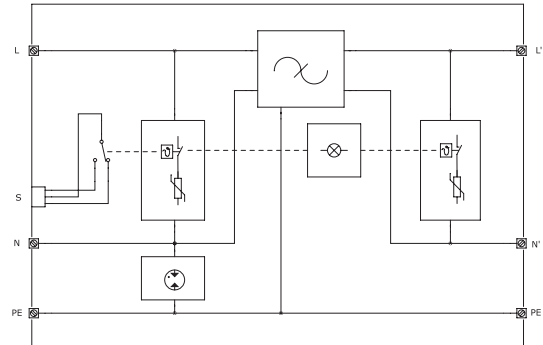
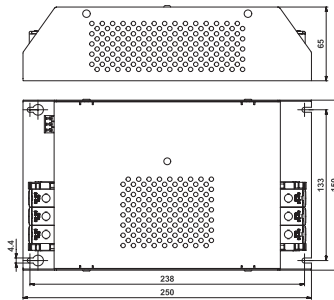
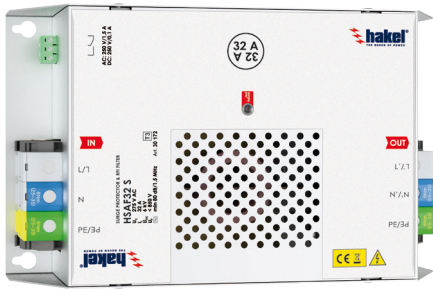
HSAF16/*VDC is a surge arrester with integrated high-frequency filter designed for DC power supply systems. HSAF16/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the HSAF16/*VDC. Activation of the thermal fuse is signalled by an integral indicator light. The HSAF16/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAF16/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the HSAF16/*VDC as close to the device to be protected as possible (no further than 5 m). There must be Hake!'s lightning and surge arrester T1 and T2 installed before the HSAF16/*VDC.

Type		HSAF 16/6VDC	HSAF 16/12VDC	HSAF 16/24VDC	HSAF 16/48VDC	HSAF 16/60VDC	HSAF 16/120VDC	HSAF 16/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III						
System		DC						
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n	2 kA					3 kA	
Rated load current	I_L	16 A						
Combined impulse	U_{oc}	4 kV					6 kV	
Voltage protection level at U_{oc} (+/-)	U_p	< 350 V	< 350 V	< 400 V	< 500 V	< 550 V	< 900 V	< 1300 V
Voltage protection level at U_{oc} (+/-PE)	U_p	< 300 V				< 400 V	< 600 V	< 800 V
Response time	t_A	< 25 ns (+/-) < 100 ns (+/-PE)						
Asymmetrical attenuation of filter (band-stop filter)		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding temp. 20 °C		< 3,5 W						
Back-up fuse		16 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL 94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		2,5 - 4 mm ² Cu						
The mounting method, operating position		DIN rail 35 mm, any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Lifetime		min. 100 000 h						
Weight	m	180 g						
Article number	HSAF16/*	30 142	30 143	30 144	30 145	30 146	30 147	30 148

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYPE 3 / CLASS III / TN-C-S / TN-S / CE



HSAF32 S, 50 S, 63 S, 80 S, 125 S, 160 S

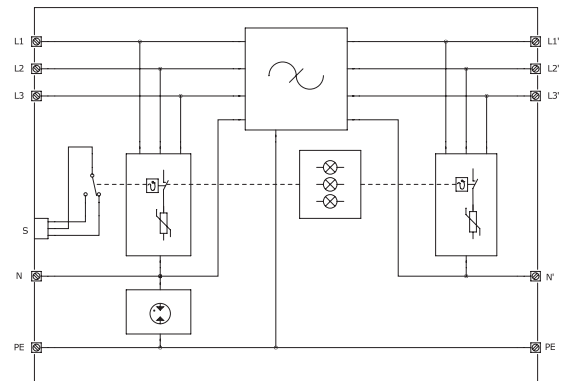
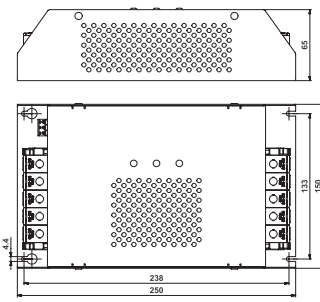
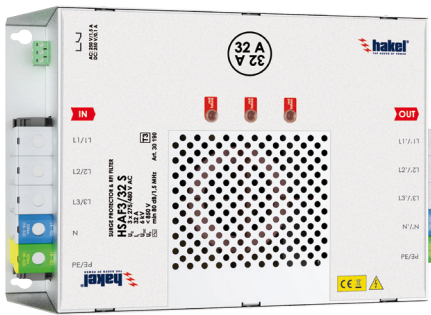
HSAF* S (Hakel Surge Arrester Filter) series "G-line" is a two-stage surge arrester. A high-frequency filter is integrated between these two stages. The HSAF* S series "G-line" includes an upgraded thermal fuse which ensures the timely disconnection of the HSAF* S from the mains supply when the varistor overheats and prevents the HSAF* S from any damage. The activation of the thermal fuse is signalled by an integrated light indication with the possibility of using the switch contact for remote monitoring (S) to signal the fault. HSAF* S is a two-port surge arrester type T3 tested according to the standard EN 61643-11 ed.2 (IEC 61643-11: 2011). According to EN 62305 ed.2 (IEC 62305: 2010) it is to be installed at the interface of LPZ 2 - LPZ 3 zones where it limits the induced overvoltage and residual overvoltage in power lines. HSAF* S is installed to the switchboard base by four screws.

Manufacturer's recommendation: HSAF* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF*S

Type	HSAF32 S	HSAF50 S	HSAF63 S	HSAF80 S	HSAF125 S	HSAF160 S	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 3, CLASS III						
System	TN-C-S, TN-S						
Max. continuous operating voltage	275 V AC						
Rated load current	32 A	50 A	63 A	80 A	125 A	160 A	
Combined impulse	6 kV (L/N, L/PE) 10 kV (N/PE) < 850 V (L/N)						
Voltage protection level at U_{oc}	< 1,5 kV (L/PE) < 1,2 kV (N/PE)						
Nominal discharge current I_n (8/20)	3 kA (L/N, L/PE) 5 kA (N/PE)						
Temporary overvoltage (TOV)	337 V/5 s (L/N) 1200 V/0,2 s (N/PE)						
Response time	< 25 ns (L/N) < 100 ns (L/PE, N/PE)						
Asymmetrical attenuation of filter (band-stop filter)	min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding temp. 20 °C	< 4 W	< 7 W	< 9 W	< 12 W	< 20 W		
Back-up fuse	32 A	50 A	63 A	80 A	125 A	160 A	
LPZ	2-3						
Housing material	Metal plate 1 mm						
Degree of protection of enclosure	IP20						
Operating temperature range	ϑ -40 °C ... +55 °C						
Cross-section of the connected conductors	10 mm ²		16 mm ²	25 mm ²	35 mm ²	50 mm ²	
Tightening moment of clamps	3 Nm			10 Nm			
The mounting method / operating position	By screws M4 on chassis / any						
Failure signalisation	light off - ok / light on - fault						
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)	AC: 250 V / 1,5 A, DC: 250 V / 0,1 A						
Lifetime	min. 100 000 h						
Weight	m	720 g	1450 g	1450 g	1520 g	1780 g	1830 g
Article number		30 172	30 173	30 174	30 175	30 176	30 177

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYP 3 / CLASS III / TN-C-S / TN-S / CE



HSAF3/32 S, /50 S, /63 S

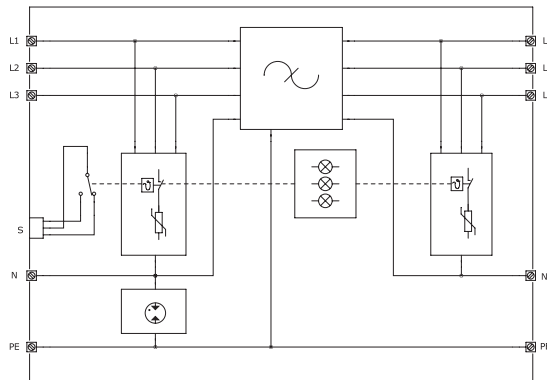
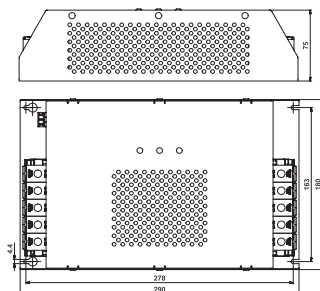
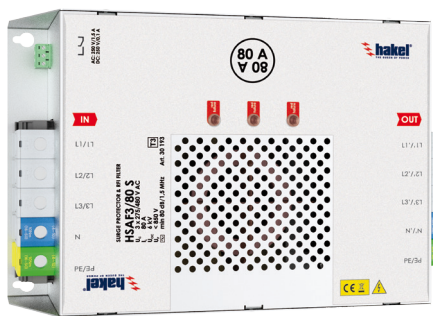
The "G-line" HSAF3* S (Hakel Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. The "G-line" HSAF3* S contains an improved thermal fuse, which ensures timely disconnection of the HSAF3* S from the power grid during overheating and thus prevents damage to the HSAF3* S. Activation of the thermal fuse is signalled by an integral indicator light (each phase is signalled separately) with the option to utilize its switching contact for remote fault signalling (S). The HSAF3* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAF* S is mounted on the main board of a switchboard using four bolts.

Manufacturer's recommendation: HSAF3* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF3* S

Type		HSAF3/32 S	HSAF3/50 S	HSAF3/63 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)			TYPE 3, CLASS III	
System			TN-C-S, TN-S	
Max. continuous operating voltage	U_C		3 x 275 / 480 V AC	
Rated load current	I_L	32 A	50 A	63 A
Combined impulse	U_{OC}		6 kV (L/N, L/PE) 10 kV (N/PE) < 850 V (L/N)	
Voltage protection level at U_{OC}	U_p		< 1,5 kV (L/PE) < 1,2 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n		3 kA (L/N, L/PE) 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T		337 V/5 s (L/N) 1200 V/0,2 s (N/PE)	
Response time	t_A		< 25 ns (L/N) < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)			min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 8 W	< 9 W	< 12 W
Back-up fuse		32 A	50 A	63 A
LPZ			2-3	
Housing material			Metal plate 1 mm	
Degree of protection of enclosure			IP20	
Operating temperature range	ϑ		-40 °C ... +55 °C	
Cross-section of the connected conductors			10 mm ²	16 mm ²
Tightening moment of clamps			3 Nm	
The mounting method / operating position			By screws M4 on chassis / any	
Failure signalisation			light off - ok / light on - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)			AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime			min. 100 000 h	
Weight	m	1700 g	1800 g	1800 g
Article number		30 190	30 191	30 192

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYP 3 / CLASS III / TN-C-S / TN-S / CE



HSAF3/80 S, /125 S, /160 S

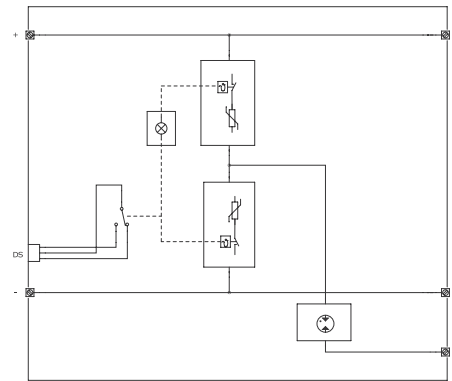
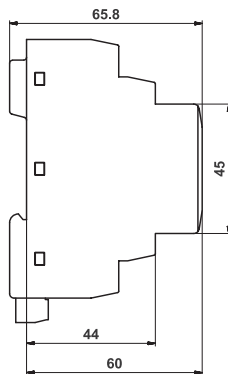
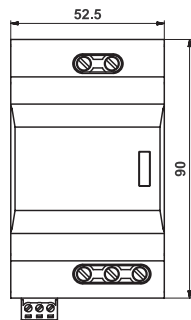
The "G-line" HSAF3* S (Hakel Surge Arrester Filter) is a two-stage surge arrester. It features a high-frequency filter integrated between the two stages. The "G-line" HSAF3* S contains an improved thermal fuse, which ensures timely disconnection of the HSAF3* S from the power grid during overheating and thus prevents damage to the HSAF3* S. Activation of the thermal fuse is signalled by an integral indicator light (each phase is signalled separately) with the option to utilize its switching contact for remote fault signalling (S). The HSAF3* S is a type T3 two-port surge arrester and has been tested according to standards IEC 61643-11:2011 and CISPR 17:2011. According to standard IEC 62305:2010, it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAF* S is mounted on the main board of a switchboard using four bolts.

Manufacturer's recommendation: HSAF3* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF3* S

Type		HSAF3/80 S	HSAF3/125 S	HSAF3/160 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)			TYPE 3, CLASS III	
System			TN-C-S, TN-S	
Max. continuous operating voltage	U_C		3 x 275 / 480 V AC	
Rated load current	I_L	80 A	125 A	160 A
Combined impulse	U_{OC}		6 kV (L/N, L/PE) 10 kV (N/PE) < 850 V (L/N)	
Voltage protection level at U_{OC}	U_p		< 1,5 kV (L/PE) < 1,2 kV (N/PE)	
Nominal discharge current I_n (8/20)	I_n		3 kA (L/N, L/PE) 5 kA (N/PE)	
Temporary overvoltage (TOV)	U_T		337 V/5 s (L/N) 1200 V/0,2 s (N/PE)	
Response time	t_A		< 25 ns (L/N) < 100 ns (L/PE, N/PE)	
Asymmetrical attenuation of filter (band-stop filter)			min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)	
Power loss at winding temp. 20 °C		< 15 W	< 20 W	< 25 W
Back-up fuse		80 A	125 A	160 A
LPZ			2-3	
Housing material			Metal plate 1 mm	
Degree of protection of enclosure			IP20	
Operating temperature range	ϑ		-40 °C ... +55 °C	
Cross-section of the connected conductors		25 mm ²	35 mm ²	50 mm ²
Tightening moment of clamps			10 Nm	
The mounting method / operating position			By screws M4 on chassis / any	
Failure signalisation			light off - ok / light on - fault	
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm ²)			AC: 250 V / 1,5 A, DC: 250 V / 0,1 A	
Lifetime			min. 100 000 h	
Weight	m	1950 g	2820 g	2820 g
Article number		30 193	30 194	30 195

Surge arrester / varistor & EMC / EMI filter / TYPE 3

TYPE 3 / CLASS III / DC / CE



HSAD16/*VDC HSAD16/*VDC S

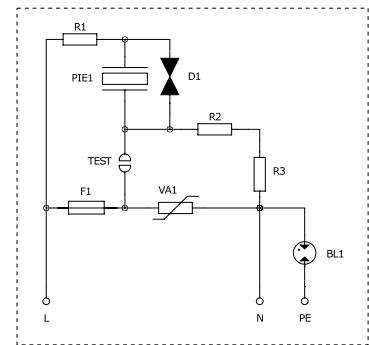
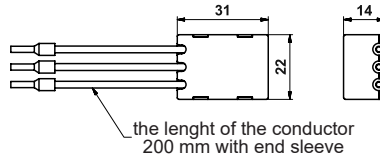
HSAD16/*VDC is a surge arrester designed for DC power supply systems. HSAD16/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the HSAD16/*VDC. Activation of the thermal fuse is signalled by an integral indicator light with the option to utilize its switching contact for remote fault signalling (S). The HSAD16/*VDC is a type T3 two-port surge arrester and has been tested according to standards EN 61643-11 (IEC 61643-11:2011). According to standard EN 62305 (IEC 62305:2010), it is installed in the boundary between zones LPZ 2 - LPZ 3, where it limits induced overvoltage and residual overvoltage in power lines. HSAD16/*VDC are designed to be mounted on a 35 mm DIN rail using a metal clip.

Manufacturer's recommendation: Install the HSAD16/*VDC as close to the device to be protected as possible (no further than 5 m). There must be HakeL's lightning and surge arrester T1 and T2 installed before the HSAD16/*VDC.

Type		HSAD 16/6VDC	HSAD 16/12VDC	HSAD 16/24VDC	HSAD 16/48VDC	HSAD 16/60VDC	HSAD 16/120VDC	HSAD 16/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III						
System		DC						
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	U_C	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge current I_n (8/20)	I_n	2 kA					3 kA	
Rated load current	I_L	16 A						
Combined impulse	U_{OC}	4 kV					6 kV	
Voltage protection level at U_{OC} (+/-)	U_P	< 200 V	< 200 V	< 250 V	< 300 V	< 350 V	< 500 V	< 800 V
Voltage protection level at U_{OC} (+-/PE)	U_P	< 600 V					< 800 V	< 1500 V
Response time	t_A	< 25 ns (+/-) < 100 ns (+-/PE)						
Back-up fuse		16 A						
LPZ		2-3						
Housing material		Polyamid PA6, UL 94 V-0						
Degree of protection of enclosure		IP20						
Operating temperature range	ϑ	-40 °C ... +55 °C						
Cross-section of the connected conductors		2,5 - 4 mm ² Cu						
The mounting method, operating position		DIN rail 35 mm / any						
Failure signalisation		optical function signalization target clear - ok optical function signalization target red - fault						
Potential free release contact (DS) (recommended cross-section of remote monitoring max.1 mm ²)		AC: 250 V / 1,5 A, DC: 250 V / 0,1A						
Lifetime		min. 100 000 h						
Weight	m	95 g						
Article number	HSAD16/*	30 250	30 251	30 252	30 253	30 254	30 255	30 256
	HSAD16/* S	30 283	30 284	30 285	30 286	30 287	30 288	30 289

Surge arrester / varistor + gas discharge tube / TYPE 3

TYPE 3 / CLASS III / TN-S / CE

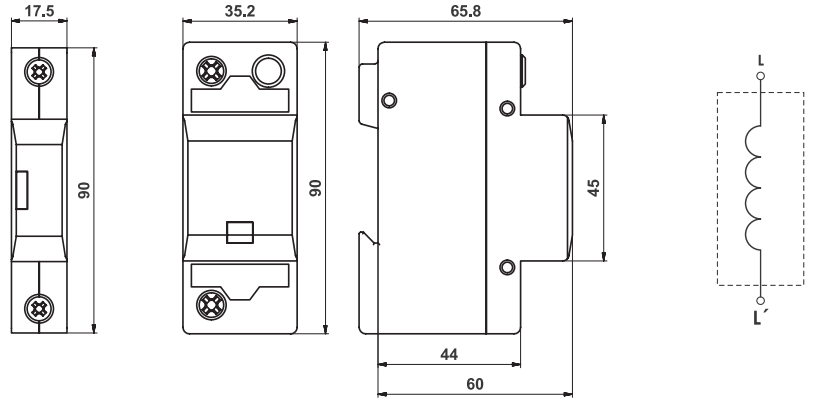


HSAA-1P

HSAA-1P - A Class III surge arrester according to IEC 61643-11, designed for use in conduit wiring and floor boxes for additional protection. It is a suitable addition to wiring that is already protected by surge protection with a filter (HSAF, HSAF3, PI-k, PI-3k). It can also be used to protect LED lights.

Type	HSAA-1P	
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)	TYPE 3, CLASS III	
Nominal voltage	U_N	230 V AC
Max. continuous operating voltage	U_C	275 V AC
Nominal discharge current $I_n(8/20 \mu s)$	I_n	3 kA (L/N), L(N)/PE
Combined impulse	U_{OC}	6 kV (L/N,L(N)/PE)
Voltage protection level at U_{OC}	U_P	< 1 kV (L/N)
		< 1,3 kV (L(N)/PE)
Response time	t_A	< 25 ns (L/N)
		< 100 ns (L/PE, N/PE)
Back-up fuse		16 A
Temporary overvoltage (TOV)	U_T	337 V / 5 s (L/N)
LPZ		2-3
Housing material		Polyamid PA6, UL 94 V-0
Degree of protection of enclosure		IP20
Operating position		any
Operating temperature range	ϑ	-40 °C ... +70 °C
Failure signalisation		inbuilt piezosiren
Lifetime		min. 100.000 h
Weight		15 g
Article number		32 007

Decoupling inductors

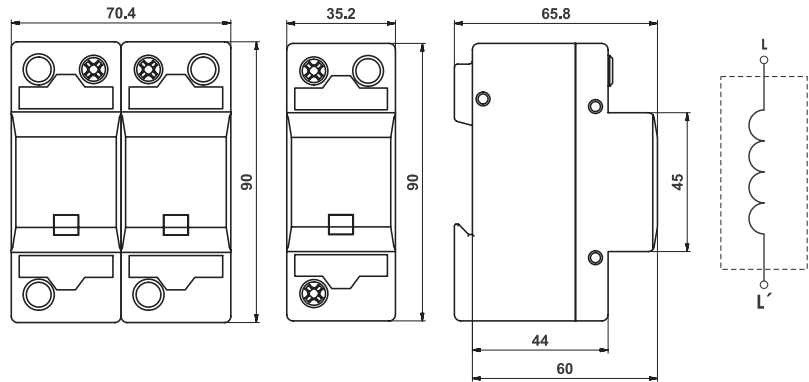


HI16, HI16/15, HI32 HI32/15

Decoupling inductors are intended for rated load currents within the range of 16 and 32A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC EN 62305 and IEC EN 61643-11, especially in the places where there is no adequate distance between the arresters (e.g. when there are two successive arrester types placed in one switchboard). If the energy coordination of surge protection is not achieved, the lightning current impulse can damage some arrester type of the protection cascade. If there is at least 5m distance between two successive arrester types (in case of two successive arrester types in two different switchboards), this section impedance can be considered as adequate.

Type		HI16	HI16/15	HI32	HI32/15
Nominal voltage	U_N	500 V AC			
Rated load current	I_L	16 A		32 A	
Inductance	L	6 μ H \pm 10%	15 μ H \pm 10%	6 μ H \pm 10%	15 μ H \pm 10%
DC resistance		< 0,01 Ω			
Housing material		Polyamid PA6, UL 94 V-0			
Protection type		IP20			
Operating temperature range	ϑ	-40 °C ... +70 °C			
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		6 mm ²		10 mm ²	
Max. back-up fuse		16 A		32 A	
Lifetime		min. 100 000 h			
Weight	m	141 g	157 g	157 g	330 g
Article number	HI*	30 400	30 401	30 402	30 403

Surge arrester / varistor + gas discharge tube / TYPE 3



HI63/15

HI63, HI80

Decoupling inductors are intended for rated load currents within the range of 63 and 80A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC EN 62305 and IEC EN 61643-11, especially in the places where there is no adequate distance between the arresters (e.g. when there are two successive arrester types placed in one switchboard). If the energy coordination of surge protection is not achieved, the lightning current impulse can damage some arrester type of the protection cascade. If there is at least 5m distance between two successive arrester types (in case of two successive arrester types in two different switchboards), this section impedance can be considered as adequate.

Type		HI63	HI63/15	HI80
Nominal voltage	U_N		500 V AC	
Rated load current	I_L		63 A	80 A
Inductance	L	$6 \mu\text{H} \pm 10\%$	$15 \mu\text{H} \pm 10\%$	$4 \mu\text{H} \pm 10\%$
DC resistance			$< 0,01 \Omega$	
Housing material			Polyamid PA6, UL 94 V-0	
Protection type			IP20	
Operating temperature range	ϑ		$-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$	
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)			16 mm^2	25 mm^2
Max. back-up fuse			63 A	80 A
Lifetime			min. 100 000 h	
Weight	m	360 g	630 g	360 g
Article number	HI*	30 404	30 405	30 406

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H-GLINE-26-04-2018-ENG-sales

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