

New range of surge protection devices G-LINE

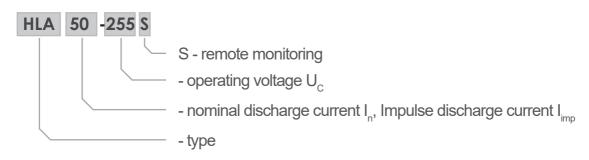
overview catalogue



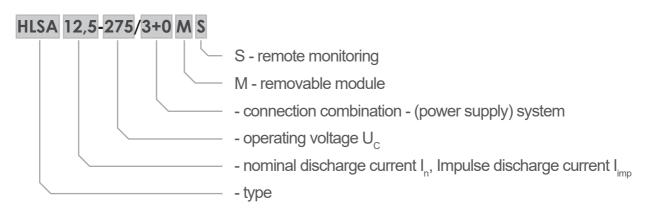


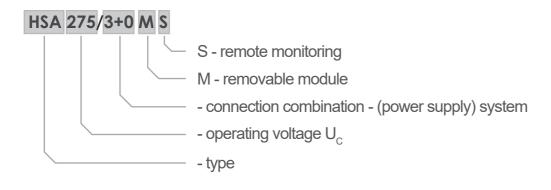
New range of surge protection devices description





$$\mathbf{H}_{\mathsf{AKEL}}$$
 $\mathbf{L}_{\mathsf{IGHTNING}}$ $\mathbf{S}_{\mathsf{URGE}}$ $\mathbf{A}_{\mathsf{RRESTER}}$

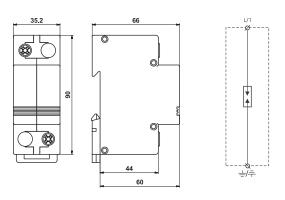






TYPE 1 / CLASS I / (6





HLA50-255 HLA50-440

HLA* (Hakel Ligtning 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.

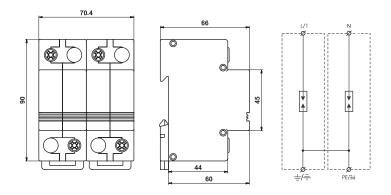
Туре		HLA50-255	HLA50-440		
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1,	CLASS I		
Max. continuous operating voltage	U_C	255 V AC	440 V AC		
Impulse discharge current for class I test (10/350)	I _{imp}	50	kA		
Charge	Q	25	As		
Specific energy for class I test	W/R	625	kJ/Ω		
Nominal discharge current for class II test (8/20)	l _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	< 10	0 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 k	A _{rms}		
LPZ		0-	-1		
Housing material		Polyamid PA	46, UL94 V-0		
Degree of protection of enclosure		IP2	20		
Operating temperature range	ϑ	-40°C	.+70 °C		
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid) - 16 mm² (wire)			
The mounting method / operating position		DIN rail 35 mm / any			
Lifetime		min.100 000 h			
Weight	m	235	5 g		
Article number		10 970	10 950		





TYPE 1 / CLASS I / TN-S / (€





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

HLA* (Hakel Lighning 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.

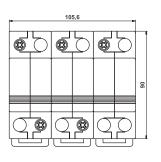
Туре		HLA50-255/2+0	HLA50-440/2+0		
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)	TYPE 1, CLASS I				
System		TN-	-\$		
Max. continuous operating voltage	U_C	255 V AC	440 V AC		
Impulse discharge current for class I test (10/350)	I _{imp}	50 k	kA		
Charge	Q	25 /	As		
Specific energy for class I test	W/R	625 k	Ω\L		
Total discharge current (10/350) L+N->PE	I _{TOTAL}	100	kA		
Nominal discharge current for class II test (8/20)	l _n	50 k	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	† _A	< 100 ns			
Follow current interrupt rating	I _{fi}	$25 \text{ kA}_{\text{rms}}$ 3 kA_{rm}			
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		IP2	20		
Operating temperature range	ϑ	-40 °C +70 °C			
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid) - 16 mm² (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		

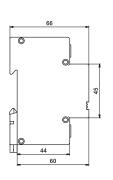


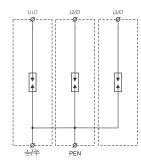


TYPE 1 / CLASS I / TN-C / (€









HLA50-255/3+0 HLA50-440/3+0

HLA* (Hakel Ligtning 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.

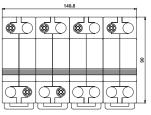
Туре		HLA50-255/3+0	HLA50-440/3+0		
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		TYPE 1, CLASS I			
System		TN-0	C		
Max. continuous operating voltage	U_C	255 V AC	440 V AC		
Impulse discharge current for class I test (10/350)	I _{imp}	50 k	A		
Charge	Q	25 A	∖ s		
Specific energy for class I test	W/R	625 k.	J/Ω		
Total discharge current (10/350) L1+L2+L3->PEN	I _{TOTAL}	150 k	ΚA		
Nominal discharge current for class II test (8/20)	I _n	50 k	A		
Voltage protection level at I _{imp}	U_p	< 2 kV	< 2,5 kV		
Temporary overvoltage (TOV)	U_{\scriptscriptstyleT}	337 V/5 s	581 V/5 s		
Response time	t _A	< 100 ns			
Follow current interrupt rating	I _{fi}	25 kA _{ms}	3 kA _{ms}		
Max. back-up fuse		500 A gL/gG			
Short-circuit current rating at 500 A gL/gG	I _{SCCR}	25 kA _{ms}			
LPZ		0-1			
Housing material		Polyamid PA	6, UL94 V-0		
Degree of protection of enclosure		IP20	0		
Operating temperature range	ϑ	-40 °C	+70 °C		
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid) -	16 mm² (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		

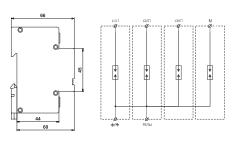




TYPE 1 / CLASS I / TN-S / (€







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

HLA* (Hakel Ligtning 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.

Туре		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	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)	l _n	50	kA		
Voltage protection level at I _{imp}	Up	< 2 kV	< 2,5 kV		
Temporary overvoltage (TOV)	U _T	337 V/5 s	581 V/5 s		
Response time	† _A	< 100 ns			
Follow current interrupt rating	l _{fi}	25 kA _{ms}	3 kA _{rms}		
Max. back-up fuse		500 A	gL/gG		
Short-circuit current rating at 500 A gL/gG	I _{SCCR}	25 kA _{ms}			
LPZ		0-	-1		
Housing material		Polyamid P	46, UL94 V-0		
Degree of protection of enclosure		IP.	20		
Operating temperature range	ϑ	-40 °C	. +70 °C		
Cross-section of the connected conductors (at tightening moment of clamps 4 Nm)		25 mm² (solid) - 16 mm² (wire)			
The mounting method / operating position		DIN rail 35	mm / any		
Lifetime		min.10	0 000 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	1/N 1/DEN 1/DE
HLA50-440	10 950	1xHLA50-440	2	235 / 239	1	1+0	50 / -	440	L/N, L/PEN, L/PE

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
HLA50-255/3+0	10 972	3xHLA50-255	6	675 / 687	3	3+0	50 / 150	hlavní rozvaděč

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
HLA50-255/4+0	10 974	4xHLA50-255	8	900 / 916	4	4+0	50 / 200	hlavní rozvaděč

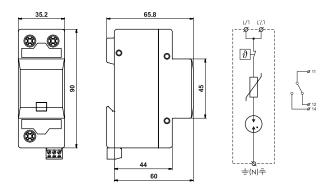
TE - modulární jednotka (17,5 mm)





TYPE 1+2 / CLASS I+II / (€





HLSA25G-255 HLSA25G-255 S

HLSA25G* (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring.

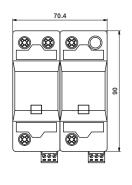
Туре		HL\$A25G-255, HL\$A25G-255 \$
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	$U_{\rm c}$	255 V AC
Impulse discharge current for class I test (10/350)	I	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Nominal discharge current for class II test (8/20)	I _n	25 kA
Maximum discharge current (8/20)	I _{max}	50 kA
Voltage protection level	Up	< 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	l _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 mm² (solid) - 25 mm² (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 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Lifetime		min. 100 000 h
Weight	m	250 g
Article number		
HL\$A25G-255		10 462
HLSA25G-255 S		10 466

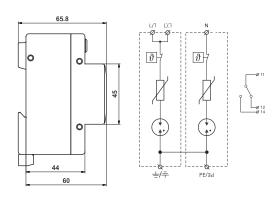




TYPE 1+2 / CLASS I+II / TN-S / TT / (€







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

HLSA25G* (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring.

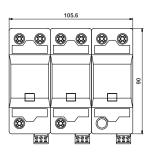
уре		HLSA25G-255/2+0, HLSA25G-255/2+0 S
est class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
ystem		TN-S, TT
Max. continuous operating voltage	U_C	255 V AC
mpulse discharge current for class I test (10/350)	Imp	25 kA
Charge	Q	12,5 As
pecific energy for class I test	W/R	156 kJ/Ω
otal 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)	l _{max}	50 kA
otal discharge current (8/20) L1+N->PE	I _{TOTAL}	100 kA
oltage protection level	U_{p}	< 1,2 kV
emporary overvoltage (TOV)	U _T	337 V/5 s
Response time	† _A	< 25 ns
Max. back-up fuse		250 A gL/gG
Max. back-up fuse ("V" connection)		125 A gL/gG
hort-circuit withstand capability 160 A gL/gG	l _p	25 kA _{ms}
PZ		0-1
lousing 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 mm² (solid) - 25 mm² (wire)
he mounting method / operating position		DIN rail 35 mm / any
ailure 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 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
ifetime		min. 100 000 h
Veight	m	500 g
Article number		•
HLSA25G-255/2+0		10 463

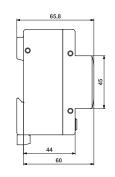


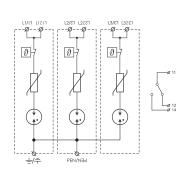


TYPE 1+2 / CLASS I+II / TN-C / (€









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

HLSA25G* (Hakel Ligtning 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 PEN terminals, which can not be used as a PEN bridge. **\$\mathbf{S}** indication specifies a version with remote monitoring.

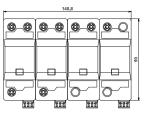
TN-C	Туре		HLSA25G-255/3+0, HLSA25G-255/3+0 S
Max. continuous operating voltage U _c 255 V AC Impulse discharge current for class I test (10/350) I _{mp} 25 kA Charge Q 12.5 As Specific energy for class I test W/R 156 kJ/Q Total discharge current (10/350) L1+L2+L3->PEN I _{total} 75 kA Nominal discharge 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	Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Impulse discharge current for class I test (10/350) Impulse discharge 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 _{IOTAL} 75 kA Nominal discharge current for class II test (8/20) I _{IOTAL} 50 kA Maximum discharge current (8/20) I _{Impulse} 50 kA Total discharge current (8/20) L1+L2+L3->PEN I _{IOTAL} 150 kA Voltage protection level at I _I U _I 337 V/5 s Temporary overvaltage (TOV) U _I 337 V/5 s Response time t _A < 25 ns	System		TN-C
Charge Q 12.5 As Specific energy for class I test W/R 156 kJ/\(\Omega\$) Specific energy for class I test W/R 156 kJ/\(\Omega\$) 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) I1+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 I _n < 25 ns Max. back-up fuse (I _n V" connection) 125 A gL/gG Max. back-up fuse (I _n V" connection) 125 A gL/gG Short-circuit withstand capability 160 A gL/gG I _p 25 kA _{ms} LPZ O-1 Housing material Polyamid PA6, UL94 V-0 Degree of protection of enclosure Polyamid PA6, UL94 V-0 Operating temperature range I Polyamid PA6, UL94 V-0 Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) 35 mm² (solid) - 25 mm² (wire) The mounting method / operating position DIN rail 35 mm / any 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 mm²) Lifetime min. 100 000 h Weight m 750 g Article number HLSA25G-255/3+0	Max. continuous operating voltage	U_{c}	255 V AC
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 _{IOTAL} 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	Impulse discharge current for class I test (10/350)	I	25 kA
Total discharge current (10/350) L1+L2+L3->PEN	Charge	Q	12,5 As
Nominal discharge current for class II test (8/20) Nominal discharge current (8/20) Imax So kA Maximum discharge current (8/20) Ithin Total discharge current (8/20) Ithin Total So kA Voltage protection level at In Up Ithin Response time Ithin Max. back-up fuse Max. back-up fuse Max. back-up fuse Max. back-up fuse ("V" connection) Short-circuit withstand capability 160 A gL/gG Ithousing material Degree of protection of enclosure Operating temperature range Operating temperature range Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Ithe time Weight Maximum discharge current (8/20) Inmax So kA 150 kA 15	Specific energy for class I test	W/R	156 kJ/Ω
Maximum discharge current (8/20) Imax 50 kA Total discharge current (8/20) L1+L2+L3->PEN Imax 150 kA Voltage protection level at I Up < 1,2 kV Temporary overvoltage (TOV) Up 337 V/5 s Response time the connection of the connection of the connection of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Li	Total discharge current (10/350) L1+L2+L3->PEN	I _{TOTAL}	75 kA
Total discharge current (8/20) L1+L2+L3->PEN Voltage protection level at I, Voltage protection level at I, Vigoral State of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Voltage protection level at I, Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (recommended cross-section of remote monitoring max. 1 mm²) Vigoral State of the connected (S) (remote of the connected (S) (remote of the connected (S) (remote o	Nominal discharge current for class II test (8/20)		25 kA
Total discharge current (8/20) L1+L2+L3->PEN Voltage protection level at I _n Voltage protection level at I _n Response time Max. back-up fuse Max. back-up fuse Max. back-up fuse ("V" connection) Short-circuit withstand capability 160 A gL/gG LPZ Housing material Degree of protection of enclosure Operating temperature range Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Foltential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Max. back-up fuse ("V" connection) Lifetime Total Inotal Ino	Maximum discharge current (8/20)	l _{max}	50 kA
Voltage protection level at I N	Total discharge current (8/20) L1+L2+L3->PEN	1	150 kA
Temporary overvoltage (TOV) Response time Max. back-up fuse Max. back-up fuse ("V" connection) Max. back-up fuse ("V" connection) Short-circuit withstand capability 160 A gL/gG LPZ Housing material Degree of protection of enclosure Operating temperature range Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight Max. back-up fuse 125 A gL/gG 125 kA _{mss} 0-1 Polyamid PA6, UL94 V-0 Polyamid PA6, UL94 V-0 1P20 Polyamid PA6, UL94 V-0 1P20 35 mm² (solid) - 25 mm² (wire) DIN rail 35 mm / any optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h Weight m 750 g Article number HLSA25G-255/3+0	Voltage protection level at In		< 1,2 kV
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 Ip 25 kA _{ms} LPT 0-1 Housing material Polyamid PA6, UL94 V-0 Degree of protection of enclosure IP20 Operating temperature range & 3 -40°C +70 °C Cross-section of the connected conductors (at tightening moment of clamps 3 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 mm²) Lifetime Meight m 750 g Article number HLSA25G-255/3+0	Temporary overvoltage (TOV)	U _T	337 V/5 s
Max. back-up fuse ("V" connection) 125 A gL/gG Max. back-up fuse ("V" connection) 125 A gL/gG Short-circuit withstand capability 160 A gL/gG Ip 25 kA _{rms} LPZ 0-1 Housing material Polyamid PA6, UL94 V-0 Degree of protection of enclosure IP20 Operating temperature range ∂ 40 -40°C +70 °C Cross-section of the connected conductors (at tightening moment of clamps 3 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 mm²) Lifetime Meight m 750 g Article number HLSA25G-255/3+0 HLSA25G-255/3+0 10 464	Response time	t _A	< 25 ns
Short-circuit withstand capability 160 A gL/gG LPZ Housing material Degree of protection of enclosure Operating temperature range Occupating temperature range Occupation temperatur	Max. back-up fuse		250 A gL/gG
LPZ 0-1 Housing material Polyamid PA6, UL94 V-0 Degree of protection of enclosure IP20 Operating temperature range \$\frac{1}{2}\$\$ -40°C +70 °C Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (\$) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h Weight HLSA25G-255/3+0 10 464	Max. back-up fuse ("V" connection)		125 A gL/gG
Housing material Degree of protection of enclosure Operating temperature range Operating temperature range Ocross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Min. 100 000 h Weight Article number HLSA25G-255/3+0 Polyamid PA6, UL94 V-0 IP20 Alley V-0 IP20 35 mm² (solid) - 25 mm² (wire) 35 mm² (solid) - 25 mm² (wire) Application target clear – ok optical function signalization target clear – ok optical function signalization target red – fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h Togal	Short-circuit withstand capability 160 A gL/gG	l _p	25 kA _{rms}
Degree of protection of enclosure Operating temperature range Operating	LPZ		0-1
Operating temperature range Operating temperature (wire) Operating	Housing material		Polyamid PA6, UL94 V-0
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight Article number HLSA25G-255/3+0 BIN rail 35 mm / any optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h 750 g	Degree of protection of enclosure		IP20
(at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight Article number HLSA25G-255/3+0 DIN rail 35 mm / any optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h 750 g	Operating temperature range	ϑ	-40°C +70 °C
Failure signalisation optical function signalization target clear – ok optical function signalization target red - fault Potential free signal contact (\$) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime min. 100 000 h Weight m 750 g Article number HLSA25G-255/3+0 10 464	Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		35 mm² (solid) - 25 mm² (wire)
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight Article number HLSA25G-255/3+0 Optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h m 750 g	The mounting method / operating position		DIN rail 35 mm / any
(recommended cross-section of remote monitoring max. 1 mm²) AC: 250 V 7 0,5 A, DC: 250 V 7 0,1 A Lifetime min. 100 000 h Weight m 750 g Article number 10 464	Failure signalisation		
Weight m 750 g Article number 10 464	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
Article number HLSA25G-255/3+0 10 464	Lifetime		min. 100 000 h
HLSA25G-255/3+0 10 464	Weight	m	750 g
	Article number		
HLSA25G-255/3+0 S 10 468	HLSA25G-255/3+0		10 464
	HLSA25G-255/3+0 S		10 468

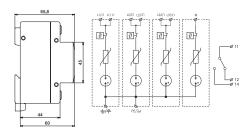




TYPE 1+2 / CLASS I+II / TN-S / TT / (€







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

HLSA25G* (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring.

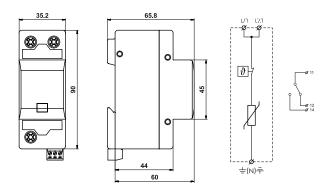
ype		HL\$A25G-255/4+0, HL\$A25G-255/4+0 \$
est class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
system		TN-S, TT
Max. continuous operating voltage	U_{c}	255 V AC
mpulse discharge current for class I test (10/350)	I	25 kA
Charge	Q	12,5 As
pecific energy for class I test	W/R	156 kJ/Ω
otal 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)	l _{max}	50 kA
otal discharge current (8/20) L1+L2+L3+N->PE	I	200 kA
/oltage protection level at I _n	Up	< 1,2 kV
emporary 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
hort-circuit withstand capability 160 A gL/gG	l _p	25 kA _{rms}
PZ		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 mm² (solid) - 25 mm² (wire)
he mounting method / operating position		DIN rail 35 mm / any
ailure 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 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
ifetime		min. 100 000 h
Veight	m	1000 g
Article number		
HLSA25G-255/4+0		10 465
1237 (200 200) 4.0		





TYPE 1+2 / CLASS I+II / (€





HLSA25-275 HLSA25-275 S

HLSA* (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring.

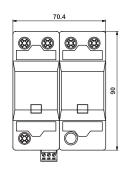
Туре		HLSA25-275, HLSA25-275 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	l _{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
Nominal discharge current for class II test (8/20)	l _n	25 kA
Maximum discharge current (8/20)	l _{max}	50 kA
Voltage protection level	Up	< 1,2 kV
Temporary overvoltage (TOV)	U _T	337 V/5 s
Response time	† _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	l _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 mm² (solid) - 25 mm² (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 mm²)		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

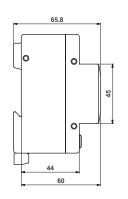


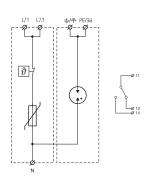


TYPE 1+2 / CLASS I+II / TN-S / TT / (€









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

HLSA* (Hakel Ligtning 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. **\$\mathbf{S}** indication specifies a version with remote monitoring.

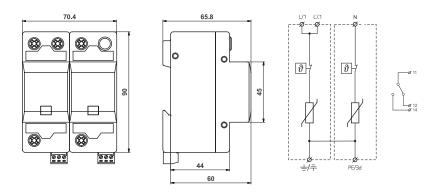
Гуре		HL\$A25-275/1+1, HL\$A25-275/1+1 \$
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
mpulse discharge current for class I test (10/350) L/N	I _{imp}	25 kA
Charge L/N	Q	12,5 As
Specific energy for class I test L/N	W/R	156 kJ/Ω - 625 kJ/Ω
mpulse discharge current for class I test (10/350) N/PE	l _{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	Up	< 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 _D	80 kA _{rms}
_PZ	P	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 mm² (solid) - 25 mm² (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 mm²)	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





TYPE 1+2 / CLASS I+II / TN-S / (€





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

HLSA* (Hakel Lighning 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.

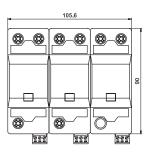
Туре		HLSA25-275/2+0, HLSA25-275/2+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Impulse discharge current for class I test (10/350)	I _{imp}	25 kA
Charge	Q	12,5 As
Specific energy for class 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	100 kA
Voltage protection level	Up	< 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	l _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 mm² (solid) - 25 mm² (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

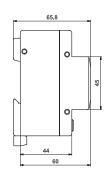


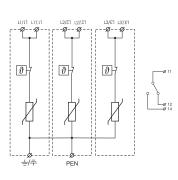


TYPE 1+2 / CLASS I+II / TN-C / (€









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

HLSA* (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring.

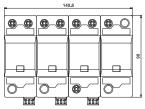
ype		HL\$A25-275/3+0, HL\$A25-275/3+0 \$
est class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	$U_{\scriptscriptstyle{C}}$	275 V AC / 350 V DC
mpulse discharge current for class I test (10/350)	I	25 kA
Charge	Q	12,5 As
Specific energy for class I test	W/R	156 kJ/Ω
otal discharge current (10/350) L1+L2+L3->PEN	I _{TOTAL}	75 kA
Nominal discharge current for class II test (8/20)	In	25 kA
Maximum discharge current (8/20)	I _{max}	50 kA
otal discharge current (8/20) L1+L2+L3->PEN	I _{TOTAL}	150 kA
/oltage protection level	Up	< 1,2 kV
emporary 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	l _p	80 kA _{ms}
PZ		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 mm² (solid) - 25 mm² (wire)
he mounting method / operating position		DIN rail 35 mm / any
ailure signalisation		optical function signalization target clear – ok optical function signalization target red - fault
Potential free signal contact (\$) recommended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
ifetime		min. 100 000 h
Veight	m	900 g
Article number		
HLSA25-275/3+0		10 453
HLSA25-275/3+0 S		10 459

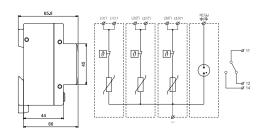




TYPE 1+2 / CLASS I+II / TN-S / TT / (€







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

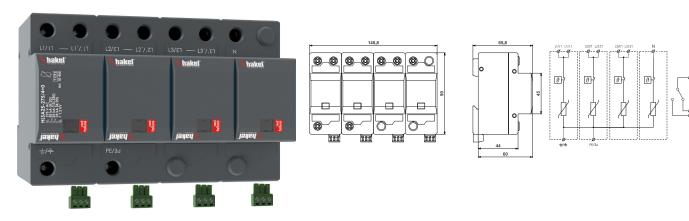
HLSA* (Hakel Ligtning Surge Arrester) of the "G-Line" range is a lightning and surge arrester combined with gas discharge tube according to EN 61643-11 ed.2 (IEC 61643-11:2011). It consists of high energy double varistors for better discharge ability and gas discharge tube that ensures zero leakage current 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. **\$\mathbf{S}** indication specifies a version with remote monitoring.

Туре		HL\$A25-275/3+1, HL\$A25-275/3+1 \$
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	l _{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	50 kA
Total discharge current (8/20) L1+L2+L3+N->PE	I _{TOTAL}	150 kA
Voltage protection level	Up	< 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 mm² (solid) - 25 mm² (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 mm²)		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





TYPE 1+2 / CLASS I+II / TN-S / (€



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

HLSA* (Hakel Lighning 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.

Туре		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	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	ITOTAL	100 kA
Total discharge current (8/20) L1+L2+L3+N->PE	ITOTAL	200 kA
Nominal discharge current for class II test (8/20)	I _n	25 kA
Maximum discharge current (8/20)	l _{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	l _p	80 kA _{ms}
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 mm² (solid) - 25 mm² (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 mm²)		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



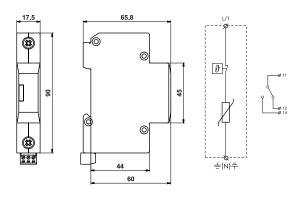






TYPE 1+2 / CLASS I+II / (€





HLSA12,5-275 HLSA12,5-275 S

HLSA* (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring.

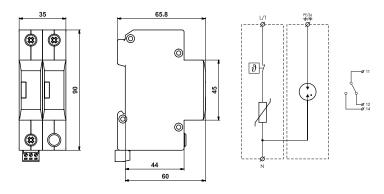
Туре		HLSA12,5-275 S, HLSA12,5-275 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	l _{max}	50 kA
Impulse discharge current for class I test (10/350)	I	12,5 kA
Charge	Q	6,25 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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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





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





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

HLSA* (Hakel Ligtning 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. \$\mathbf{S}\$ indication specifies a version with remote monitoring.

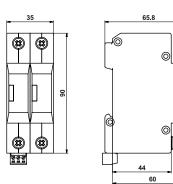
Туре		HLSA12,5-275/1+1, HLSA12,5-275/1+1 \$
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U_C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I _{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	$I_{\rm imp}$	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	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	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	Up	< 1,2 kV
Temporary overvoltage (TOV) L/N	U _T	337 V/5 s
Temporary overvoltage (TOV) N/PE	$U_{\scriptscriptstyle T}$	1200 V/0,2 s
Response time L/N	t _A	< 25 ns
Response time N/PE	† _A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	l _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 mm² (solid) - 16 mm² (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

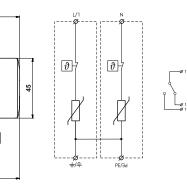




TYPE 1+2 / CLASS I+II / TN-S / (€







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

HLSA* (Hakel Lighning 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.

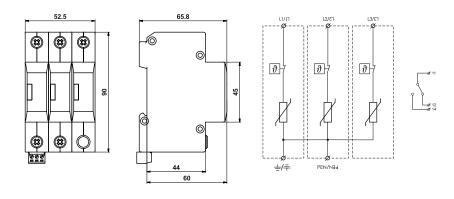
Гуре		HLSA12,5-275/2+0, HLSA12,5-275/2+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
mpulse discharge current for class I test (10/350) L/N	l _{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	25 kA
Total discharge current (8/20) L1+N->PE	I _{TOTAL}	100 kA
Nominal discharge current for class II test (8/20)	In	25 kA
Voltage protection level	Up	< 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 _{ms}
LPZ	, i	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 mm² (solid) - 16 mm² (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 mm²)	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





TYPE 1+2 / CLASS I+II / TN-C / (€





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

HLSA* (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring.

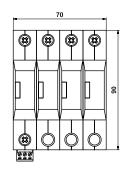
Туре		HLSA12,5-275/3+0, HLSA12,5-275/3+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
Impulse discharge current for class I test (10/350)	I	12,5 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	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	20 kA
Voltage protection level	U _D	< 1,2 kV
Temporary overvoltage (TOV)	U _T	337 V/5 s
Response time	† _A	< 25 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	l _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 mm² (solid) - 16 mm² (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

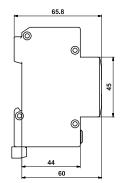


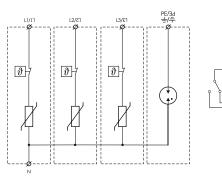


TYPE 1+2 / CLASS I+II / TN-S / TT / (€









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

HLSA* (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring.

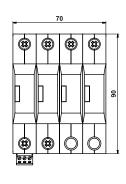
Туре		HLSA12,5-275/3+1, HLSA12,5-275/3+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	l _{max}	50 kA
Impulse discharge current for class I test (10/350) L/N	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	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)	In	25 kA
Nominal discharge current for class II test (8/20) N/PE	l _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	$U_{\scriptscriptstyle T}$	1200 V/0,2 s
Response time L/N	† _A	< 25 ns
Response time N/PE	† _A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	l _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 mm² (solid) - 16 mm² (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		, and the second se
HLSA12,5-275/3+1		10 063
HLSA12,5-275/3+1 S		10 039

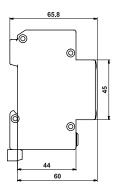


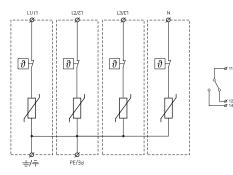


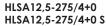
TYPE 1+2 / CLASS I+II / TN-S / (€











HLSA* (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring.

Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011) TYPE 1+2, CLASS I+II System TN-5 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 _{max} 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 _h 25 kA Voltage protection level U _p 337 V/5 s Response time t _h <25 ns Max. back-up fuse Ibo A gL/gG I _h Mox. back-up fuse Ibo A gL/gG I _h Mortification of incredition of enclosure Ipo A (A) C +70 °C	Type		HLSA12,5-275/4+0, HLSA12,5-275/4+0 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 _{mp} 12.5 kA Charge Q 6,25 As Specific energy for class I test W/R 39 kJ/Q Total discharge current (10/350) L1+L2+L3+N>PE I _{TOTAL} 200 kA Nominal 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	Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Maximum discharge current (8/20) Imax 50 kA Impulse discharge current for class I test (10/350) 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 Implication 50 kA Total discharge current (8/20) L1+L2+L3+N->PE Implication 200 kA Nominal discharge current for class II test (8/20) Implication 25 kA Voltage protection level Up < 1,2 kV	System		TN-S
Impulse discharge current for class I test (10/350) Impulse discharge 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 Impount (10/350) L1+L2+L3+N->PE 1 total discharge current for class II test (8/20) 1 total discharge current for class II test (8/20) 1 total discharge current for class II test (8/20) 200 kA Nominal discharge current for class II test (8/20) 1 total discharge current for class II test (8/20) 25 kA Voltage protection level Up < 1.2 kV	Max. continuous operating voltage	U_c	275 V AC / 350 V DC
Charge Q 6,25 As Specific energy for class I test W/R 39 kJ/Ω Total discharge current (1(10/350) L1+L2+L3+N->PE I _{TOTAL} 50 kA Total discharge current for class II test (8/20) 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	Maximum discharge current (8/20)	I _{max}	50 kA
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	Impulse discharge current for class I test (10/350)	Imp	12,5 kA
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	Charge	Q	6,25 As
Total discharge current (8/20) L1+L2+L3+N->PE Nominal discharge current for class II test (8/20) In Section I evel Voltage protection level Up Temporary overvoltage (TOV) Temporary overvoltage (TOV) Up Temporary overvoltage (TOV) Up Temporary overvoltage (TOV) Up Temporary overvoltage (TOV) Up Temporary overvoltage (TOV) Temporary overvoltage (T	Specific energy for class I test	W/R	39 kJ/Ω
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	Total discharge current (10/350) L1+L2+L3+N->PE	L	50 kA
Voltage protection level Voltage protection of level and level protection of level pr	Total discharge current (8/20) L1+L2+L3+N->PE	1	200 kA
Temporary overvoltage (TOV) Response time that capability 160 A gL/gG Short-circuit withstand capability 160 A gL/gG Ip 60 kA _{mms} Polyamid PA6, UL 94 V-0 Degree of protection of enclosure IP20 Operating temperature range 7 cross-section of the connected conductors (at fightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation DIN rail 35 mm / any 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 mm²) Lifetime Mac: 250 V / 0,5 A, DC: 250 V / 0,1 A Weight m 560 g Article number HLSA12,5-275/4+0	Nominal discharge current for class II test (8/20)	I _n	25 kA
Response time t	Voltage protection level	U_p	< 1,2 kV
Max. back-up fuse Short-circuit withstand capability 160 A gL/gG IP Housing material Degree of protection of enclosure Operating temperature range Operating temperature range Operating method / operating position The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Max. back-up fuse 160 A gL/gG 80 kA _{mms} 160 k A _{mms} 170 Polyamid PA6, UL 94 V-0 180 Polyamid PA6, UL 94 V-0 191 Polyamid PA6, UL 94 V-0 192 Polyamid PA6, UL 94 V-0 194 Polyamid PA6, UL 94 V-0 194 Polyamid PA6, UL 94 V-0 195 Polyamid PA6, UL 94 V-0 196 Polyamid PA6, UL 94 V-0 196 Polyamid PA6, UL 94 V-0 197 Polyamid PA6, UL 94 V-0 197 Polyamid PA6, UL 94 V-0 198 Polyamid	Temporary overvoltage (TOV)	U _T	337 V/5 s
Short-circuit withstand capability 160 A gL/gG p 60 kA _{ms} LPZ 0-1 Housing material Polyamid PA6, UL 94 V-0 Degree of protection of enclosure IP20 Operating temperature range v -40°C +70 °C Cross-section of the connected conductors (at tightening moment of clamps 3 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 mm²) AC: 250 V / 0,5 A, DC: 250 V / 0,1 A Weight m 560 g Article number HLSA12,5-275/4+0	Response time	t _A	< 25 ns
LPZ Housing material Polyamid PA6, UL 94 V-0 Degree of protection of enclosure Operating temperature range Operating the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position 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 mm²) Lifetime Optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h Weight Optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A The min. 100 000 h Main S60 g Article number HLSA12,5-275/4+0	Max. back-up fuse		160 A gL/gG
Housing material Polyamid PA6, UL 94 V-0 Degree of protection of enclosure Operating temperature range Operating temperature ran	Short-circuit withstand capability 160 A gL/gG	l _p	60 kA _{ms}
Degree of protection of enclosure Operating temperature range Operating	LPZ		0-1
Operating temperature range Operating temperature (wire) Operating temper	Housing material		Polyamid PA6, UL 94 V-0
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Meight Ac: 250 V / 0,5 A, DC: 250 V / 0,1 A Weight Article number HLSA12,5-275/4+0 DIN rail 35 mm / any optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A m 560 g	Degree of protection of enclosure		IP20
(at tightening moment of clamps 3 Nm) The mounting method / operating position Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Meight Ac: 250 V / 0,5 A, DC: 250 V / 0,1 A Weight Meight	Operating temperature range	ϑ	-40°C +70 °C
Failure signalisation optical function signalization target clear – ok optical function signalization target red - fault Potential free signal contact (\$) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime min. 100 000 h Weight m 560 g Article number HLSA12,5-275/4+0 10 065			25 mm² (solid) - 16 mm² (wire)
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight AC: 250 V / 0,5 A, DC: 250 V / 0,1 A m 560 g Article number HLSA12,5-275/4+0	The mounting method / operating position		DIN rail 35 mm / any
(recommended cross-section of remote monitoring max. 1 mm²) Lifetime min. 100 000 h Weight m 560 g Article number HLSA12,5-275/4+0 10 065	Failure signalisation		
Weight m 560 g Article number 10 065			AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Article number HLSA12,5-275/4+0 10 065	Lifetime		min. 100 000 h
Article number HLSA12,5-275/4+0 10 065	Weight	m	560 g
	Article number		
HLSA12,5-275/4+0 S 10 051	HLSA12,5-275/4+0		10 065
	HLSA12,5-275/4+0 S		10 051





Application table

Туре	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
HLSA12,5-275/3+0 / HLSA12,5-275/3+0 S	10 062 / 10 038	3	420	3	3+0	37,5	of people and internal equipment
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
HLSA12,5-275/4+0 / HLSA12,5-275/4+0 S	10 065 / 10 051	4	560	4	4+0	50	of people and internal equipment
Recommended sets for TN-S and Π 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
HLSA12,5-275/3+1 / HLSA12,5-275/3+1 S	10 063 / 10 039	4	536	4	3+1	50	equipment, industrial structures free of people and internal equipment

TE - diving unit (17,5 mm)



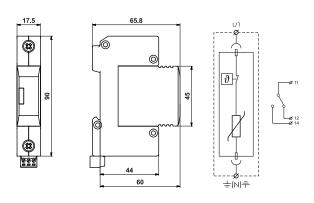






TYPE 1+2 / CLASS I+II / (€





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

HLSA*M (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

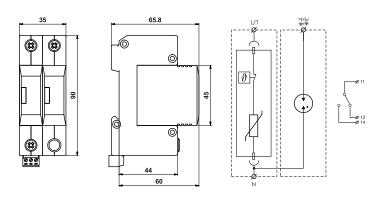
Type		HLSA12,5-275 M, HLSA12,5-275 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
mpulse discharge current for class I test (10/350)	I	12,5 kA
Charge	Q	6,25 As
Specific energy for class I test	W/R	39 kJ/Ω
Nominal discharge current for class II test (8/20)	l _n	25 kA
Voltage protection level	Up	< 1,3 kV
Temporary overvoltage (TOV)	Ú _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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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 mm²)		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





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





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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

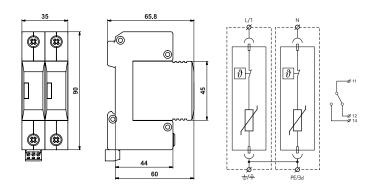
Туре		HLSA12,5-275/1+1 M, HLSA12,5-275/1+1 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Maximum discharge current (8/20) L/N	I _{max}	50 kA
Impulse discharge current for class I test (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	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	50 kA
Nominal discharge current for class II test (8/20) L/N	In	25 kA
Nominal discharge current for class II test (8/20) N/PE	I _n	30 kA
Voltage protection level	Up	< 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	† _A	< 25 ns
Response time N/PE	† _A	< 100 ns
Max. back-up fuse		160 A gL/gG
Short-circuit withstand capability 160 A gL/gG	l _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 mm² (solid) - 16 mm² (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 mm²)	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





TYPE 1+2 / CLASS I+II / TN-S / (€





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

HLSA*M (Hakel Lighning 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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

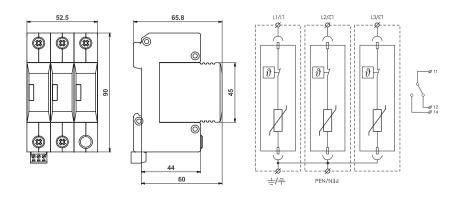
Гуре		HLSA12,5-275/2+0 M, HLSA12,5-275/2+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
mpulse discharge current for class I test (10/350)	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	L	25 kA
Total discharge current (8/20) L1+N->PE	ITOTAL	100 kA
Nominal discharge current for class II test (8/20)	l _n	25 kA
Voltage protection level	Up	< 1,3 kV
「emporary 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}
_PZ		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 mm² (solid) - 16 mm² (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 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
ifetime		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





TYPE 1+2 / CLASS I+II / TN-C / (€





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

HLSA*M (Hakel Ligtning 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.

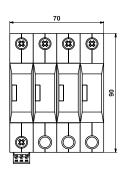
Туре		HLSA12,5-275/3+0 M, HLSA12,5-275/3+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-C
Max. continuous operating voltage	U_c	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
Impulse discharge current for class I test (10/350)	l _{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	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	Up	< 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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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 mm²)	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 M		16 083
HLSA12,5-275/3+0 M S		16 093

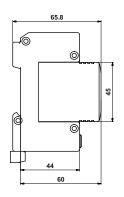


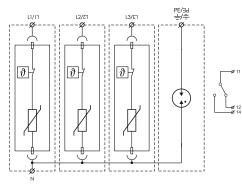


TYPE 1+2 / CLASS I+II / TN-S / TT / (€









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

HLSA*M (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

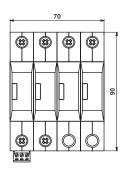
Туре		HLSA12,5-275/3+1 M, HLSA12,5-275/3+1 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 1+2, CLASS I+II
System		TN-S, TT
Max. continuous operating voltage	U _C	275 V AC / 350 V DC
Maximum discharge current (8/20)	l _{max}	50 kA
Impulse discharge current for class I test (10/350) 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	ITOTAL	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	In	25 kA
Nominal discharge current for class II test (8/20) N/PE	I _n	50 kA
Voltage protection level	Up	< 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	l _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 mm² (solid) - 16 mm² (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)		optical function signalization target clear – ok
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		optical function signalization target clear – ok optical function signalization target red - fault
Failure signalisation Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight	m	optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime		optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) Lifetime Weight		optical function signalization target clear – ok optical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h

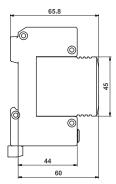


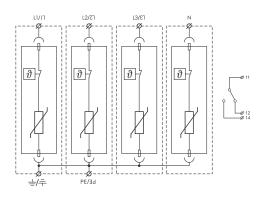


TYPE 1+2 / CLASS I+II / TN-S / (€









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

HLSA*M (Hakel Ligtning 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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

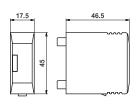
ontinuous operating voltage um discharge current (8/20) e discharge current for class I test (10/350) e energy for class I test scharge current (10/350) L1+L2+L3+N->PE	U_C	TYPE 1+2, CLASS I+II TN-S
om discharge current (8/20) st discharge current for class I test (10/350) st cenergy for class I test	1	TN-S
om discharge current (8/20) st discharge current for class I test (10/350) st cenergy for class I test	1	
e discharge current for class I test (10/350) e c energy for class I test	1	275 V AC / 350 V DC
e energy for class I test	max	50 kA
energy for class I test	l _{imp}	12,5 kA
0,	Q	6,25 As
scharae current (10/350) L1+L2+L3+N->PE	W/R	39 kJ/Ω
(,, , , , , , , , , , , , , , , , , ,	L	50 kA
scharge current (8/20) L1+L2+L3+N->PE	ITOTAL	200 kA
al discharge current for class II test (8/20)	I _n	25 kA
e protection level	Up	< 1,3 kV
ary overvoltage (TOV)	U _T	337 V/5 s
se time	t _A	< 25 ns
ack-up fuse		160 A gL/gG
rcuit withstand capability 160 A gL/gG	l _p	60 kA _{ms}
		0-1
g material		Polyamid PA6, UL 94 V-0
of protection of enclosure		IP20
ing temperature range	ϑ	-40°C +70 °C
ection of the connected conductors tening moment of clamps 3 Nm)		25 mm² (solid) - 16 mm² (wire)
unting method / operating position		DIN rail 35 mm / any
signalisation		optical function signalization target clear – ok optical function signalization target red - fault
al free signal contact (S) mended cross-section of remote monitoring max. 1 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
		min. 100 000 h
	m	560 g
number		
.5-275/4+0 M		16 085
.5-275/4+0 M S		16 095

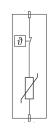




TYPE 1+2 / CLASS I+II / (€







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.

Тур		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)	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)	In	25 kA
Voltage protection level	Up	< 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

Туре	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
HLSA12,5-275/3+0 M / HLSA12,5-275/3+0 M S	16 083 / 16 093	3	420	3	3+0	37,5	free of people and internal equipment
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
HLSA12,5-275/4+0 M / HLSA12,5-275/4+0 M S	16 085 / 16 095	4	560	4	4+0	50	free of people and internal equipment
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
HLSA12,5-275/3+1 M / HLSA12,5-275/3+1 M S	16 084 / 16 094	4	536	4	3+1	50	free of people and internal equipment

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

TE - diving unit (17,5 mm)

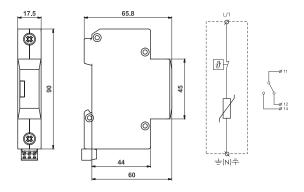




Surge arrester / varistor / TYPE 2+3

TYPE 2+3 / CLASS II+III / (€





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. **\$** indication specifies a version with remote monitoring.

Туре		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	20 kA
Open circuit voltage	U_{oc}	6 kV
Voltage protection level at I _n	Up	< 1,2 kV
Voltage protection level at U _{oc}	Up	< 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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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 mm²)		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

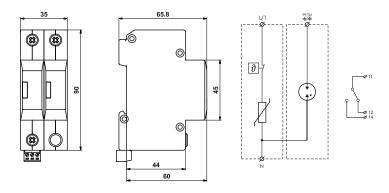




Surge arrester / varistor + gas discharge tube / TYPE 2+3

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





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. **\$** indication specifies a version with remote monitoring.

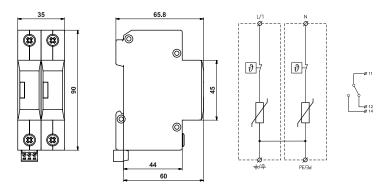
ITA CIANALICATION	TYPE 2+3, CLASS II+III TN-S, TT 275 V AC / 350 V DC 50 kA 20 kA 6 kV 50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s < 25 ns
. continuous operating voltage imum discharge current (8/20) Imax initial discharge current for class II test (8/20) In circuit voltage II discharge current (8/20) L1+N->PE II discharge current (8/20) L1+N->PE II discharge current (8/20) L1+N->PE II discharge current for class I test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge current for class II test (10/350) N/PE II discharge curre	275 V AC / 350 V DC 50 kA 20 kA 6 kV 50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
imum discharge current (8/20) In principal discharge current for class II test (8/20) In circuit voltage I discharge current (8/20) L1+N->PE Idischarge current (8/20) L1+N->PE Idischarge current (8/20) L1+N->PE Idischarge current (8/20) L1+N->PE Idischarge current for class I test (10/350) N/PE Idischar	50 kA 20 kA 6 kV 50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
In all discharge current for class II test (8/20) In circuit voltage II discharge current (8/20) L1+N->PE Indischarge c	20 kA 6 kV 50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
In circuit voltage I discharge current (8/20) L1+N->PE I discharge current (8/20) L1-N	6 kV 50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
I discharge current (8/20) L1+N->PE lage protection level at I, lage protection level at U, lage protection V, lage level lev	50 kA < 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
age protection level at I Up uge protection level at I Up uge protection level at Up Up ulse discharge current for class I test (10/350) N/PE I Imp uporary overvoltage (TOV) L/N Up uporary overvoltage (TOV) N/PE Up uponse time L/N Up uponse time L/N Up uponse time N/PE Up	< 1,2 kV < 800 V 20 kA 337 V/5 s 1200 V/0,2 s
age protection level at U _{oc} U _p Ulse discharge current for class I test (10/350) N/PE porary overvoltage (TOV) L/N porary overvoltage (TOV) N/PE U _T ponse time L/N ponse time N/PE bonse time N/PE bonse time N/PE characterial tree of protection of enclosure terating temperature range sessection of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position tere signalisation ulse U _p U _T I _{mp} U _T I _{mp} I _m	< 800 V 20 kA 337 V/5 s 1200 V/0,2 s
ulse discharge current for class I test (10/350) N/PE porary overvoltage (TOV) L/N porary overvoltage (TOV) N/PE porary overvo	20 kA 337 V/5 s 1200 V/0,2 s
porary overvoltage (TOV) L/N porary overvoltage (TOV) N/PE ponse time L/N ponse time N/PE bonse time L/N bonse time L/N bonse time L/N bonse time N/PE bonse time L/N	337 V/5 s 1200 V/0,2 s
porary overvoltage (TOV) N/PE ponse time L/N ponse time N/PE back-up fuse t-circuit withstand capability 160 A gL/gG sing material ree of protection of enclosure prating temperature range prating temperature range prating moment of clamps 3 Nm) mounting method / operating position presignalisation protection of table contact (S)	1200 V/0,2 s
ponse time L/N ponse time N/PE boonse time N/P	
sonse time N/PE back-up fuse t-circuit withstand capability 160 A gL/gG lp sing material ree of protection of enclosure trating temperature range ss-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	∠ OE no
back-up fuse t-circuit withstand capability 160 A gL/gG sing material ree of protection of enclosure trating temperature range s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	< 25 115
sing material ree of protection of enclosure rating temperature range s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	< 100 ns
sing material ree of protection of enclosure rating temperature range s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	160 A gL/gG
ree of protection of enclosure reating temperature range s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	60 kA _{rms}
ree of protection of enclosure reating temperature range s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position re signalisation ential free signal contact (S)	1-3
erating temperature range s-s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position ere signalisation ential free signal contact (S)	Polyamid PA6, UL94 V-0
s-section of the connected conductors ightening moment of clamps 3 Nm) mounting method / operating position are signalisation ential free signal contact (S)	IP20
ightening moment of clamps 3 Nm) mounting method / operating position ore signalisation ential free signal contact (S)	-40 °C +70 °C
re signalisation ential free signal contact (S)	25 mm² (solid) - 16 mm² (wire)
ential free signal contact (S)	DIN rail 35 mm / any
on mended cross-section of terriore mornioring max. I mini-j	ptical function signalization target clear – ok ptical function signalization target red - fault
ime	
ght m	ptical function signalization target red - fault
ele number	ptical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
275/1+1	ptical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h
275/1+1 \$	ptical function signalization target red - fault AC: 250 V / 0,5 A, DC: 250 V / 0,1 A min. 100 000 h





TYPE 2+3 / CLASS II+III / TN-S / (€





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. **\$** indication specifies a version with remote monitoring.

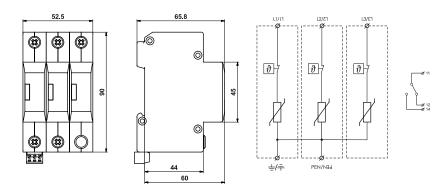
Туре		HSA-275/2+0, HSA-275/2+0 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_c	275 V AC / 350 V DC
Maximum discharge current (8/20)	l _{max}	50 kA
Total discharge current (8/20) L1+N->PE	I _{TOTAL}	100 kA
Nominal 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	Up	< 1,2 kV
Voltage protection level at U _{oc}	Up	< 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	l _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 mm² (solid) - 16 mm² (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 mm²)		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





TYPE 2+3 / CLASS II+III / TN-C / (€





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.

Туре		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)	In	20 kA
Open circuit voltage	U_{oc}	6 kV
Total discharge current (8/20) L1+L2+L3->PEN	ITOTAL	150 kA
Voltage protection level at I	Up	< 1,2 kV
Voltage protection level at U _{oc}	Up	< 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	Ip	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 mm² (solid) - 16 mm² (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 mm²)		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

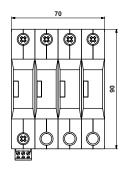


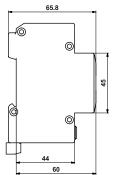


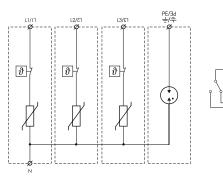
Surge arrester / varistor + gas discharge tube / TYPE 2+3

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









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. **\$** indication specifies a version with remote monitoring.

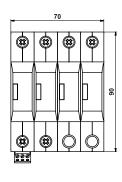
Туре		HSA-275/3+1, HSA-275/3+1 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	I _{max}	50 kA
Nominal discharge current for class II test (8/20)	In	20 kA
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	Up	< 1,2 kV
Voltage protection level at U _{oc}	Up	< 800 V
Impulse discharge current for class I test (10/350) N/PE	I	20 kA
Temporary overvoltage (TOV) L/N	U _T	337 V/5 s
Temporary overvoltage (TOV) N/PE	$U_{\scriptscriptstyle T}$	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 _D	60 kA _{ms}
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 mm² (solid) - 16 mm² (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 mm²)		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

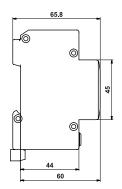


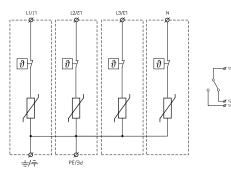


TYPE 2+3 / CLASS II+III / TN-S / (€









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. **\$** indication specifies a version with remote monitoring.

Туре		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)	l _{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 In	Up	< 1,2 kV
Voltage protection level at U _{oc}	Up	< 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	l _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 mm² (solid) - 16 mm² (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 mm²)		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



Surge arrester / TYPE 2+3

Application table

Туре	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)



the queen of power

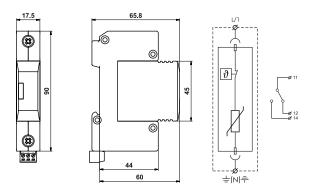






TYPE 2+3 / CLASS II+III / (€





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.

Туре		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)	In	20 kA
Open circuit voltage	U_{oc}	6 kV
Voltage protection level at I _n	Up	< 1,25 kV
Voltage protection level at U _{oc}	Up	< 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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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 mm²)		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

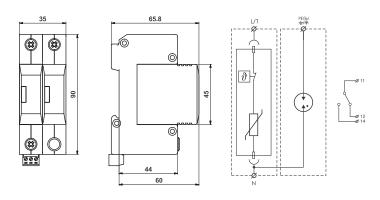




Surge arrester / varistor + gas discharge tube / TYPE 2+3

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





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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

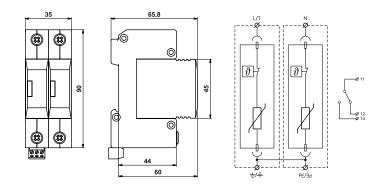
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011) System Max. continuous operating voltage Maximum discharge current (8/20) Nominal discharge current for class II test (8/20) Open circuit voltage Total discharge current (8/20) L1+N->PE Voltage protection level at In	U _C	TYPE 2+3, CLASS + TN-S, TT 275 V AC / 350 V DC
Max. continuous operating voltage Maximum discharge current (8/20) Nominal discharge current for class II test (8/20) Open circuit voltage Total discharge current (8/20) L1+N->PE Voltage protection level at I	I _{max}	275 V AC / 350 V DC
Maximum discharge current (8/20) Nominal discharge current for class II test (8/20) Open circuit voltage Total discharge current (8/20) L1+N->PE Voltage protection level at I	I _{max}	
Nominal discharge current for class II test (8/20) Open circuit voltage Total discharge current (8/20) L1+N->PE Voltage protection level at I,	I _n	
Open circuit voltage Total discharge current (8/20) L1+N->PE Voltage protection level at I _n		50 kA
Total discharge current (8/20) L1+N->PE Voltage protection level at I		20 kA
Voltage protection level at I	U_{oc}	6 kV
	I _{TOTAL}	50 kA
	Up	< 1,3 kV
Voltage protection level at U _{oc}	Up	< 850 V
Impulse discharge current for class I test (10/350) N/PE	Imp	20 kA
Temporary overvoltage (TOV) L/N	U _T	337 V/5 s
Temporary overvoltage (TOV) N/PE	$U_{_{\mathrm{T}}}$	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	l _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 mm² (solid) - 16 mm² (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





TYPE 2+3 / CLASS II+III / TN-S / (€





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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

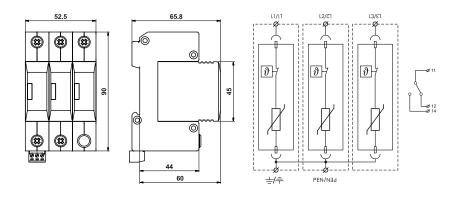
Туре		HSA-275/2+0 M, HSA-275/2+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	l _{max}	50 kA
Nominal discharge current for class II test (8/20)	I _n	20 kA
Open circuit voltage	U_{oc}	6 kV
Total discharge current (8/20) L1+N->PE	ITOTAL	100 kA
Voltage protection level at I	Up	< 1,3 kV
Voltage protection level at U _{oc}	Up	< 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	l _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 mm² (solid) - 16 mm² (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 mm²)		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





TYPE 2+3 / CLASS II+III / TN-C / (€





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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

Туре		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)	In	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	Up	< 1,3 kV
Voltage protection level at U _{OC}	Up	< 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	l _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 mm² (solid) - 16 mm² (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 mm²)		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

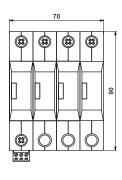


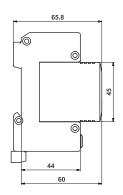


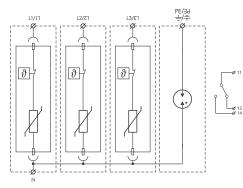
Surge arrester / varistor + gas discharge tube / TYPE 2+3

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









HSA-275/3+1 M HSA-275/3+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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

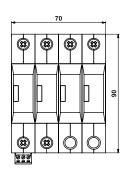
Гуре		HSA-275/3+1 M, HSA-275/3+1 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S, TT
Max. continuous operating voltage	U_{c}	275 V AC / 350 V DC
Maximum discharge current (8/20)	I	50 kA
Nominal discharge current for class II test (8/20)	In	20 kA
Open circuit voltage	U_{oc}	6 kV
Total discharge current (8/20) L1+L2+L3+N->PE	ITOTAL	50 kA
Voltage protection level at I _n	Up	< 1,3 kV
Voltage protection level at U _{oc}	Up	< 850 V
mpulse discharge current for class I test (10/350) N/PE	I _{imp}	20 kA
「emporary overvoltage (TOV) L/N	U _T	337 V/5 s
「emporary overvoltage (TOV) N/PE	$U_{\scriptscriptstyle T}$	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 _{ms}
.PZ		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 mm² (solid) - 16 mm² (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 mm²)		AC: 250 V / 0,5 A, DC: 250 V / 0,1 A
ifetime		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

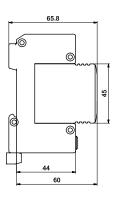


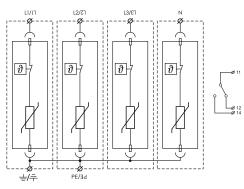


TYPE 2+3 / CLASS II+III / TN-S / (€









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. **\$** indication specifies a version with remote monitoring. **M** indication specifies a type of construction with removable module.

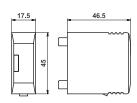
Туре		HSA-275/4+0 M, HSA-275/4+0 M S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 2+3, CLASS II+III
System		TN-S
Max. continuous operating voltage	U_c	275 V AC / 350 V DC
Maximum discharge current (8/20)	l _{max}	50 kA
Nominal discharge current for class II test (8/20)	I _n	20 kA
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	Up	< 1,3 kV
Voltage protection level at U _{oc}	Up	< 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	l _p	60 kA _{ms}
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 mm² (solid) - 16 mm² (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

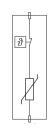




TYPE 2+3 / CLASS II+III / (€







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.

Туре		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	20 kA
Open circuit voltage	U_{oc}	6 kV
Voltage protection level at I _n	Up	< 1,25 kV
Voltage protection level at U _{oc}	Up	< 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



Surge arrester / TYPE 2+3

Application table

Туре	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

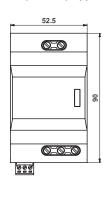
Spare module	Art. No.
HSA-75 Module	27 190
HSA-150 Module	27 191
HSA-275 Module	27 086
HSA-320 Module	27 192
HSA-385 Module	27 193
HSA-440 Module	27 194

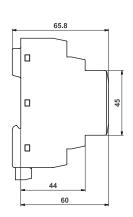
TE - diving unit (17,5 mm)

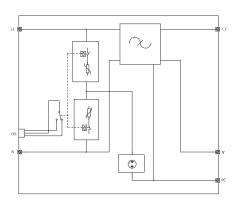


TYPE 3 / CLASS III / TN-C-S / TN-S / (€









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 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.

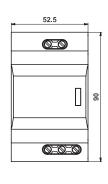
Manufacturer's recommendation: Install the HSAF* as close to the device to be protected as possible (no further than 5 m). A Hakel T1 and T2 lightning and surge arrester must be installed before the HSAF*.

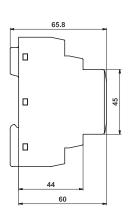
Туре			HSAF10, HSAF10 S	HSAF16, HSAF16 S					
Test class according to EN 61643-	-11 ed.2 (IEC 61643-11:2011)		TYPE 3, 0	CLASS III					
System			TN-C-S, TN-S						
Max. continuous operating volta	ge	U_C	275 V	/ AC					
Rated load current		IL	10 A	16 A					
Combined impulse		U_{oc}	6 kV (L/ì 10 kV (,					
Voltage protection level at U _{oc}		Up	< 750 V (L/N) < 1 kV (L/PE) < 1,5 kV (N/PE)						
Nominal discharge current I _n (8/2	0)	I_n	3 kA (L/1 5 kA (1	•					
Temporary overvoltage (TOV)		U _T	337 V/5 1200 V/0,2	2 s (N/PE)					
Response time		$<$ 25 ns (L/N) $^{\dagger}_{A}$ $<$ 100 ns (L/PE, N/PE)							
Asymmetrical attenuation of filte (band-stop filter)	r			min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)					
Power loss at winding temp. 20 °C	C		< 2,2 W	< 3,5 W					
Back-up fuse			10 A	16 A					
LPZ			2-	3					
Housing material			Polyamid PA	46, UL94 V-0					
Degree of protection of enclosur	e		IP20						
Operating temperature range		ϑ	-40 °C +55 °C						
Cross-section of the connected of	conductors		2,5 - 4	mm²					
Tightening moment of clamps			0,51	Nm					
The mounting method / operatin	g 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	e monitoring max. 1 mm²)		AC: 250 V / 1,5 A,	DC: 250 V / 0,1 A					
Lifetime			min. 100 000 h						
Weight		m	180) g					
Article number	SAF*		30 160	30 161					
Article number	SAF* S		30 170	30 171					

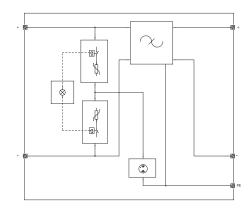


TYPE 3 / CLASS III / DC / (€









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 Hakel's lightning and surge arrester T1 and T2 installed before the HSAF10/*VDC.

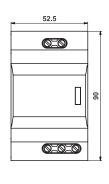
Туре		HSAF 10/6VDC	HSAF 10/12VDC	HSAF 10/24VDC	HSAF 10/48VDC	HSAF 10/60VDC	HSAF 10/120VDC	HSAF 10/220VDC
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)					TYPE 3, CLAS	SS III		
System					DC			
Nominal voltage	U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating voltage	$U_{\rm C}$	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		< 31	00 V		< 400 V	< 600 V	< 800 V
					< 25 ns (+/	′-)		
Response time	t _A				< 100 ns (+-/	PE)		
Asymmetrical attenuation of filter				m	in. 80 dB at 4	4 MHz		
(band-stop filter)				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				Poly	amid PA6, U	L 94 V-0		
Degree of protection of enclosure				•	IP20			
Operating temperature range	ϑ				-40 °C +55	5 °C		
Cross-section of the connected conductors					1,5 - 4 mm ²	Cu		
The mounting method, operating position					DIN rail 35 m any	nm,		
Failure signalisation					n signalizatio n signalizatio			
Lifetime					min. 100 00	0 h		
Weight	m				165 g			
Article number HSAF10/*		30 149	30 150	30 157	30 158	30 159	30 162	30 163

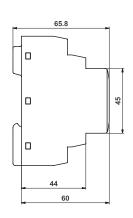


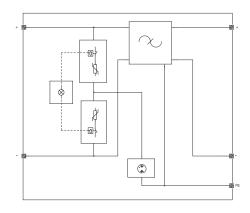


TYPE 3 / CLASS III / DC / (€









HSAF16/*VDC

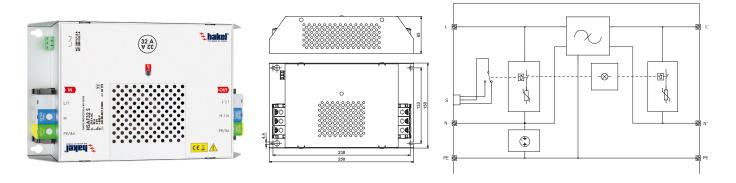
HSAF16/*VDC is a surge arrester with integrated high-frequency filter designed for DC power supply systems. HSAF16/*VDC contains an improved thermal fuse which ensures timely disconnection of the device from the power grid during overheating and thus prevents damage to the HSAF16/*VDC. Activation of 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 Hakel's lightning and surge arrester T1 and T2 installed before the HSAF16/*VDC.

Туре			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 (IEC 61643-11:2011)	61643-11 ed.2					TYPE 3, CLAS	SS III		
System						DC			
Nominal voltage		U_N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operating	g voltage	$U_{\rm C}$	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge curren	t I _n (8/20)	I _n			2 kA			3	κA
Rated load current		I _L				16 A			
Combined impulse		U_{oc}			4 kV			6	<v< td=""></v<>
Voltage protection level of		U _P	< 350 V	< 350 V	< 400 V	< 500 V	< 550 V	< 900 V	< 1300 V
Voltage protection level of	at U _{oc} (+-/PE)	U_{P}		< 30	00 V		< 400 V	< 600 V	< 800 V
Response time		t _A				< 25 ns (+/	,		
						< 100 ns (+-/	,		
Asymmetrical attenuation (band-stop filter)	of filter		min. 80 dB at 4 MHz min. 40 dB (0,15 ÷ 30 MHz)						
Power loss at winding tem	p. 20 °C					< 3,5 W	,		
Back-up fuse						16 A			
LPZ						2-3			
Housing material					Poly	amid PA6, U	L 94 V-0		
Degree of protection of e	nclosure					IP20			
Operating temperature ro	inge	ϑ				-40 °C +55	5 ℃		
Cross-section of the connection	ected					2,5 - 4 mm ²	Cu		
The mounting method, operating position						DIN rail 35 m any	nm,		
Failure signalisation						n signalizatio n signalizatio	0		
Lifetime						min. 100 000	0 h		
Weight		m				180 g			
Article number	HSAF16/*		30 142	30 143	30 144	30 145	30 146	30 147	30 148



TYPE 3 / CLASS III / TN-C-S / TN-S / (€



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.

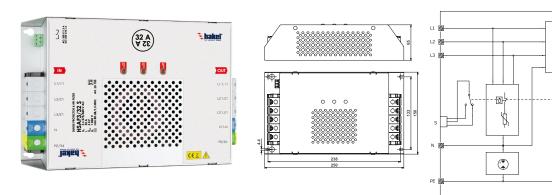
Manufacturer's recommendation: HSAF* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF*S

Туре		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	U_C			275	V AC		
Rated load current	IL	32 A	50 A	63 A	80 A	125 A	160 A
Combined impulse	U _{oc}			10 kV	N, L/PE) (N/PE)		
Voltage protection level at $\rm U_{\rm oc}$	U_p				V (L/N) V (L/PE) V (N/PE)		
Nominal discharge current I _n (8/20)	I _n			3 kA (L/ 5 kA (N, L/PE) N/PE)		
Temporary overvoltage (TOV)	U _T			-	5 s (L/N) 2 s (N/PE)		
Response time	t _A			< 25 n < 100 ns (L	s (L/N) _/PE, N/PE)		
Asymmetrical attenuation of filter (band-stop filter)			m	min. 80 dl in. 40 dB (0	3 at 4 MHz ,15 ÷ 30 MF	-Iz)	
Power loss at winding temp. 20 °C		< 4 W	< 7 W	< 9 W	< 12 W	< 2	0 W
Back-up fuse		32 A	50 A	63 A	80 A	125 A	160 A
LPZ				2	-3		
Housing material				Metal pla	ate 1 mm		
Degree of protection of enclosure				IP	20		
Operating temperature range	ϑ			-40 °C	+55 °C		
Cross-section of the connected conductors		10 r	mm²	16 mm²	25 mm ²	35 mm ²	50 mm ²
Tightening moment of clamps			3 Nm			10 Nm	
The mounting method / operating position			By s	crews M4 c	on chassis /	any	
Failure signalisation			ligh	nt off - ok /	light on - fo	ault	
Potential free signal contact (\$) (recommended cross-section of remote monitoring max. 1 mm²)			AC: 25	0 V / 1,5 A,	DC: 250 V	/ 0,1 A	
Lifetime				min. 10	0000 h		
Weight Article number	m	720 g 30 172	1450 g 30 173	1450 g 30 174	1520 g 30 175	1780 g 30 176	1830 g 30 177





TYP 3 / CLASS III / TN-C-S / TN-S / (€



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.

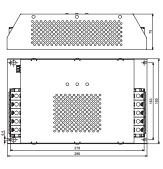
Manufacturer's recommendation: HSAF3* S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF3*S

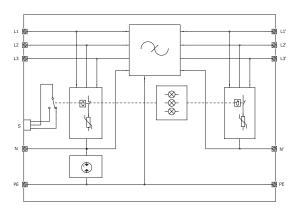
Туре		HSAF3/32 S	HSAF3/50 S	HSAF3/63 S
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)			TYPE 3, CLASS III	
System			TN-C-S, TN-S	
Max. continuous operating voltage	$U_{\rm c}$		3 x 275 / 480 V AC	
Rated load current	I _L	32 A	50 A	63 A
Combined impulse	U _{oc}		6 kV (L/N, L/PE) 10 kV (N/PE)	
Voltage protection level at U _{oc}	U_p		< 850 V (L/N) < 1,5 kV (L/PE) < 1,2 kV (N/PE)	
Nominal discharge current I _n (8/20)	In		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)		m	min. 80 dB at 4 MHz nin. 40 dB (0,15 ÷ 30 MH	łz)
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	mm²	16 mm²
Tightening moment of clamps			3 Nm	
The mounting method / operating position		•	screws M4 on chassis /	•
Failure signalisation		lig	ht off - ok / light on - fo	ıult
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²)		AC: 25	50 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



TYP 3 / CLASS III / TN-C-S / TN-S / (€







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.

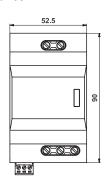
Manufacturer's recommendation: HSAF3*S is to be installed as close as possible to the protected device (max. 5 m). A T1 lightning arrester and T2 surge arrester from Hakel must be installed in front of HSAF3*S

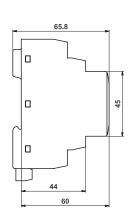
ype		HSAF3/80 S	HSAF3/125 S	HSAF3/160 S
est class according to EN 61643-11 ed.2 (IEC 61643-11:2011)			TYPE 3, CLASS III	
System			TN-C-S, TN-S	
Max. continuous operating voltage	$U_{\rm C}$		3 x 275 / 480 V AC	
Rated load current	I _L	80 A	125 A	160 A
Combined impulse	U_{OC}		6 kV (L/N, L/PE) 10 kV (N/PE)	
/oltage protection level at U _{oc}	Up		< 850 V (L/N) < 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)	
emporary 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)		n	min. 80 dB at 4 MHz nin. 40 dB (0,15 ÷ 30 MHz	z)
Power loss at winding temp. 20 °C		< 15 W	< 20 W	< 25 W
Back-up fuse		80 A	125 A	160 A
PZ			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 mm²	35 mm²	50 mm²
ightening moment of clamps			10 Nm	
he mounting method / operating position			screws M4 on chassis / c	
ailure signalisation		lig	ght off - ok / light on - fai	Ult
Potential free signal contact (S) recommended cross-section of remote monitoring max. 1 mm²)		AC: 2	50 V / 1,5 A, DC: 250 V /	0,1 A
ifetime			min. 100 000 h	
Veight	m	1950 g	2820 g	2820 g
		30 193	30 194	30 195

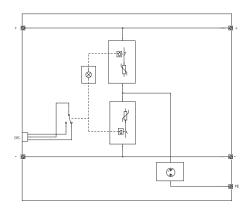


TYPE 3 / CLASS III / DC / (€









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.

Туре			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 (IEC 61643-11:2011)	N 61643-11 ed.2					TYPE 3, CLAS	SS III		
System						DC			
Nominal voltage		U _N	6 V =	12 V =	24 V =	48 V =	60 V =	120 V =	220 V =
Max. continuous operatin	ng voltage	U_{c}	7,2 V =	14,4 V =	28,8 V =	57,6 V =	72 V =	144 V =	264 V =
Nominal discharge currer	nt I _n (8/20)	In			2 kA			31	κA
Rated load current		I _L				16 A			
Combined impulse		U_{oc}			4 kV			61	<v< td=""></v<>
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		† _A				< 25 ns (+/	,		
Back-up fuse			16 A						
LPZ			2-3						
Housing material			Polyamid PA6, UL 94 V-0						
Degree of protection of e	enclosure					IP20			
Operating temperature re	ange	ϑ				-40 °C +55	5°C		
Cross-section of the conn conductors	ected					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 cor (recommended cross-section monitoring max.1 mm²)			AC: 250 V / 1,5 A, DC: 250 V / 0,1A						
Lifetime						min. 100 000	0 h		
Weight		m				95 g			
Article number	HSAD16/*					30 256			
	HSAD16/* S		30 283	30 284	30 285	30 286	30 287	30 288	30 289

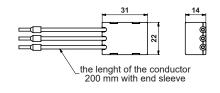


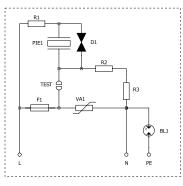


Surge arrester / varistor + gas discharge tube / TYPE 3

TYPE 3 / CLASS III / TN-S / (€







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.

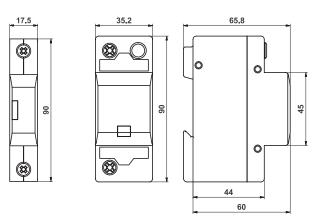
Туре		HSAA-1P
Test class according to EN 61643-11 ed.2 (IEC 61643-11:2011)		TYPE 3, CLASS III
Nominal voltage	U _N	230 V AC
Max. continuous operating voltage	U_C	275 V AC
Nominal discharge current I _n (8/20 µs)	I _n	3 kA (L/N), L(N)/PE)
Combined impulse	U_{oc}	6 kV (L/N,L(N)/PE)
Voltage protection level at II	- 11	< 1 kV (L/N)
Voltage protection level at U _{oc}	U _P	< 1,3 kV (L(N)/PE)
Description History	_	< 25 ns (L/N)
Response time	t _A	< 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

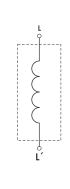




Decoupling inductors







HI16, HI16/15, HI32 HI32/15

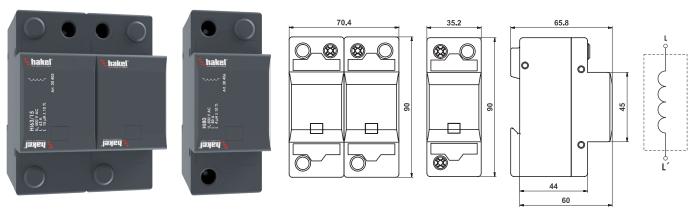
Decoupling inductors are intended for rated load currents within the range of 16 and 32A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC EN 62305 and IEC EN 61643-11, 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.

		1114.4	1112 4 /2 5	11100	11100 / 1 5
Туре		HI16	HI16/15	HI32	HI32/15
Nominal voltage	U_N		500 V	'AC	
Rated load current	I _L	16	5 A	32	2 A
Inductance	L	6 μH ± 10%	$15 \mu\text{H} \pm 10\%$	6 μH ± 10%	$15 \mu\text{H} \pm 10\%$
DC resistance			< 0,0	η Ω	
Housing material			Polyamid PA	.6, UL 94 V-0	
Protection type			IP2	20	
Operating temperature range	ϑ		-40 °C	+70 °C	
Cross-section of the connected conductors (at tightening moment of clamps 3 Nm)		6 m	nm²	10 r	mm²
Max. back-up fuse		16	5 A	32	2 A
Lifetime			min. 100	0 000 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

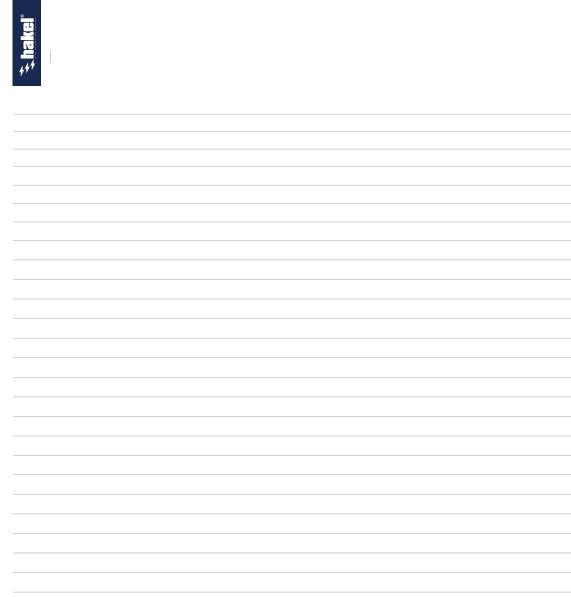
Decoupling inductors are intended for rated load currents within the range of 63 and 80A. These inductors, sometimes also called decoupling impedance, ensure the energy coordination between the arresters type 1 and type 2 or the arresters type 2 and type 3 according to IEC EN 62305 and IEC EN 61643-11, 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.

Туре		HI63	HI63/15	HI80
Nominal voltage	U_{N}		500 V AC	
Rated load current	I _L	63	3 A	80 A
Inductance	L	6 μH ± 10%	$15 \mu\text{H} \pm 10\%$	$4\mu\text{H}\pm10\%$
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)		16 r	mm²	25 mm²
Max. back-up fuse		63	3 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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