

## HSAF3/160 S

- Two-port surge arresters type T3 with high-frequency filters for serial connection.
- Intended for protection of electronic appliances against the effects of switching, induced and residual overvoltage in LV power supply systems.
- Contains an improved thermal fuse, which ensures timely disconnection of HSAF\* S and HSAF3\*S from the power grid during the MOV's overheating and thus prevents damage to the HSAF\* S and HSAF3\*S.
- Installed at the boundaries of LPZ 2 – LPZ 3, as close to the device to be protected as possible (no further than 5 m).
- In front of HSAF\* S and HSAF3\*S must be installed a lightning current and surge arrester T1 and T2 from HAKEL company.
- Mounted on the main board of a switchboard using four screws.
- **S** indication specifies a version with remote monitoring.

Type		HSAF3/160 S
Test class according to EN 61643-11:2012 (IEC 61643-11:2011)		T3
System		TN-C-S, TN-S
Number of poles		4
Rated operating AC voltage	$U_N$	230 V
Maximum continuous operating voltage AC	$U_C$	275 V
Rated load current	$I_L$	160 A
Open circuit voltage of the combination wave generator (L/N, L/PE)	$U_{OC}$	6 kV
Open circuit voltage of the combination wave generator (N/PE)	$U_{OC}$	10 kV
Voltage protection level at $U_{OC}$ (L/N)	$U_p$	< 0.85 kV
Voltage protection level at $U_{OC}$ (L/PE)	$U_p$	< 1.5 kV
Voltage protection level at $U_{OC}$ (N/PE)	$U_p$	< 1.2 kV
Nominal discharge current for class II test (8/20) L/N, L/PE	$I_n$	3 kA
Nominal discharge current for class II test (8/20) N/PE	$I_n$	5 kA
Total discharge current (8/20) L1+L2+L3+N->PE	$I_{Total}$	12 kA
Asymmetrical attenuation of filter at $f = 4$ MHz		> 80 dB
Asymmetrical attenuation of filter at $f = 0.15 \div 30$ MHz		> 35 dB
Temporary overvoltage test (TOV) for $t_T = 5$ s (L/N)	$U_T$	337 V
Temporary overvoltage test (TOV) for $t_T = 120$ min (L/N)	$U_T$	440 V
Temporary overvoltage test (TOV) for $t_T = 0.2$ s (N/PE)	$U_T$	1 200 V
Response time (L/N)	$t_A$	< 25 ns
Response time (L/PE, N/PE)	$t_A$	< 100 ns
Power dissipation	$P_Z$	< 25 W
Maximal back-up fuse		160 A gL/gG
Residual current	$I_{PE}$	$\leq 5 \mu A$
Lightning protection zone		LPZ 2-3
Housing material		Steel plate 1 mm
Degree of protection		IP20
Operating temperature	$\theta$	$-40 \div 55$ °C

Type		HSAF3/160 S
Humidity range	RH	5 ÷ 95 %
Recommended cross-section of connected conductors	S	50 mm <sup>2</sup>
Clamp fastening range (solid conductor)		1.5 ÷ 50 mm <sup>2</sup>
Clamp fastening range (stranded conductor)		1.5 ÷ 35 mm <sup>2</sup>
Tightening moment		10 Nm
Installation		Using the M4 screws on the chassis
Operating position		Any
Product placement environment		Internal
Signalling at the device		Optic
Importance of local signaling		OK – red light off FAULT – red light on
Remote signalling		Yes
Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm <sup>2</sup> )		AC: 250 V / 1.5 A, DC: 250 V / 0.1 A
Includes EMI / EMC filter		Yes
Pluggable version		No
Lifetime		> 100 000 h
<b>Designed according to standards</b>		
Requirements and test methods for SPDs connected to low-voltage power systems		IEC 61643-11:2011
Methods of measurement of the suppression characteristics of passive EMC filtering devices		EN 55017:2011 / CISPR 17:2011
<b>Application standards</b>		
Protection against lightning		IEC 62305:2010
Selection and erection of electrical equipment – Switchgear and controlgear		HD 60364-5-53:2022
Selection and application principles for SPDs connected to low-voltage power systems		CLC/TS 61643-12:2009
<b>Ordering, packaging and additional data</b>		
Mass	m	2.82 kg
Mass (including the packaging)	m	2.957 kg
Packaging dimensions (H x W x D)		110 x 330 x 220 mm
Packaging value	V	7.99 dm <sup>3</sup>
ETIM group		EG000021
ETIM class		EC000942
Customs tariff no.		85363090
EAN code		8590681117026
Art. number		30 195



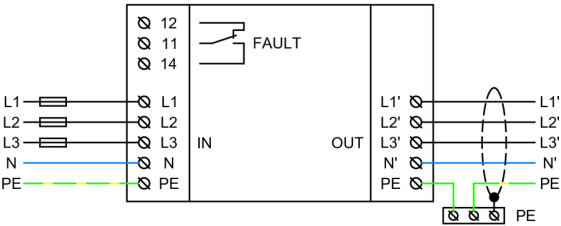
The link in the QR code leads to the online presentation of the HSAF3/160 S.

There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit [www.hakil.com](http://www.hakil.com)



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Application wiring diagram (installation)



Internal diagram

