

## HSAF16/12VDC 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 DC power supply systems.
- Contain an improved thermal fuse, which ensures timely disconnection of HSAF\*VDC S from the power grid during the MOV's overheating and thus prevents damage to the HSAF\*VDC 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\*VDC S must be installed a lightning current and surge arrester T1 and T2 from HAKEL company.
- **S** indication specifies a version with remote monitoring.

| Туре   |                    | HSAF16/12VDC S          |
|--|--------------------|-------------------------|
| Test class according to EN 61643-11:2012 (IEC 61643-11:2011)         |                    | Т3                      |
| System   |                    | DC                      |
| Rated operating DC voltage   | $U_N$              | 12 V                    |
| Maximum continuous operating voltage DC                              | U <sub>c</sub>     | 14.4 V                  |
| Rated load current   | ار                 | 16 A                    |
| Open circuit voltage of the combination wave generator (+/-, ±/PE)   | U <sub>oc</sub>    | 4 kV                    |
| Voltage protection level at U <sub>OC</sub> (+/-)                    | $U_p$              | < 0.35 kV               |
| Voltage protection level at U <sub>oc</sub> (±/PE)                   | $U_p$              | < 0.3 kV                |
| Nominal discharge current for class II test (8/20) +/-, ±/PE         | I <sub>n</sub>     | 2 kA                    |
| Total discharge current (8/20) ±->PE                                 | I <sub>Total</sub> | 4 kA                    |
| Asymmetrical attenuation of filter at f = 4 MHz                      |                    | > 80 dB                 |
| Asymmetrical attenuation of filter at $f = 0.15 \div 30 \text{ MHz}$ |                    | > 35 dB                 |
| Response time (+/-)  | t <sub>A</sub>     | < 25 ns                 |
| Response time (±/PE)   | t <sub>A</sub>     | < 100 ns                |
| Power dissipation  | Pz                 | < 3.5 W                 |
| Maximal back-up fuse   |                    | 16 A gL/gG              |
| Residual current   | I <sub>PE</sub>    | ≤ 1 800 μA              |
| Short-circuit current rating at maximum back-up fuse                 | I <sub>SCCR</sub>  | 6 kA <sub>rms</sub>     |
| Lightning protection zone  |                    | LPZ 2-3                 |
| Housing material   |                    | Polyamid PA6, UL94 V-0  |
| Degree of protection   |                    | IP20                    |
| Operating temperature  | θ                  | -40 ÷ 55 °C             |
| Humidity range   | RH                 | 5 ÷ 95 %                |
| Recommended cross-section of connected conductors                    | S                  | 2.5 mm <sup>2</sup>     |
| Clamp fastening range (solid conductor)                              |                    | 0.2 ÷ 6 mm <sup>2</sup> |
| Clamp fastening range (stranded conductor)                           |                    | 0.2 ÷ 4 mm <sup>2</sup> |
| Tightening moment  |                    | 1,2 Nm                  |
| Installation   |                    | On DIN rail 35 mm       |
|  |                    |                         |

## Surge arresters T3 with EMI/RFI filter for DC systems



| Туре  |   | HSAF16/12VDC S                             |
|---|---|--|
| Modular width   |   | 4 TE                                       |
| Operating position  |   | Any  |
| Product placement environment   |   | Internal                                   |
| Signalling at the device  |   | Optic                                      |
| Importance of local signaling   |   | OK – red light off<br>FAULT – red light on |
| Remote signalling   |   | Yes  |
| Potential free signal contact (S) (recommended cross-section of remote monitoring max. 1 mm²) |   | AC: 250 V / 1.5 A, DC: 250 V / 0.1 A       |
| Includes EMI / EMC filter   |   | Yes  |
| Modular design  |   | No   |
| Lifetime  |   | > 100 000 h                                |
| Designed according to standards   |   |  |
| Requirements and test methods for SPDs connected to low-voltage power systems                 |   | IEC 61643-11:2011                          |
| Methods of measurement of the suppression characteristics of passive EMC filtering devices    |   | EN 55017:2011 / CISPR 17:2011              |
| Safety of Flammability of Plastic Materials   |   | UL 94                                      |
| Application standards   |   |  |
| Protection against lightning  |   | IEC 62305:2010                             |
| Selection and erection of electrical equipment – Switchgear and controlgear                   |   | HD 60364-5-53:2022                         |
| Selection and application principles for SPDs connected to low-voltage power systems          |   | CLC/TS 61643-12:2009                       |
| Ordering, packaging and additional data   |   |  |
| Mass  | m | 180 g                                      |
| Mass (including the packaging)  | m | 204 g                                      |
| Packaging dimensions (H x W x D)  |   | 60 x 113 x 73 mm                           |
| Packaging value   | V | 0.5 dm <sup>3</sup>                        |
| ETIM group  |   | EG000021                                   |
| ETIM class  |   | EC000942                                   |
| Customs tariff no.  |   | 85363010                                   |
| EAN code  |   | 8590681161531                              |
| Art. number   |   | 30 261                                     |

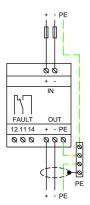


**The link in the QR code** leads to the online presentation of the **HSAF16/12VDC S**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit **www.hakel.com** 





## Application wiring diagram (installation)



## Internal diagram

