

## HSA-440/3+1 M

- Surge arresters type T2+T3 ensure the equipotential bonding and reduce switching, induced and residual overvoltage in LV power supply systems.
- The products consist of varistors with big discharge ability.
- Configurations 1+1 and 3+1 are additionally combined with a gas discharge tube which ensures zero leakage current through the PE conductor.
- Installed at the boundaries of LPZ 1 – LPZ 3 into subsidiary switchboards and control panels.
- If the product contains two PE (or PEN) terminals, it must not be used as a PE (PEN) bridge.
- **M** indication specifies a type of construction with removable module.
- **S** indication specifies a version with remote monitoring.

| Type  |             | HSA-440/3+1 M   |
|---|-------------|---|
| Test class according to EN 61643-11:2012 (IEC 61643-11:2011)  |             | T2, T3  |
| System  |             | TN-S, TT  |
| Number of poles   |             | 4   |
| Rated operating AC voltage  | $U_N$       | 400 V   |
| Maximum continuous operating voltage AC   | $U_C$       | 440 V   |
| Maximum discharge current (8/20)  | $I_{max}$   | 40 kA   |
| Nominal discharge current for class II test (8/20)  | $I_n$       | 15 kA   |
| Open circuit voltage of the combination wave generator  | $U_{OC}$    | 6 kV  |
| Total discharge current (8/20) L1+L2+L3+N->PE   | $I_{Total}$ | 50 kA   |
| Voltage protection level at $I_n$ (L/N)   | $U_p$       | < 1.8 kV  |
| Voltage protection level at $I_n$ (N/PE)  | $U_p$       | < 1.4 kV  |
| Voltage protection level at $U_{OC}$ (L/N)  | $U_p$       | < 1.4 kV  |
| Impulse discharge current for class I test (10/350) N/PE  | $I_{imp}$   | 20 kA   |
| Temporary overvoltage test (TOV) for $t_T = 5$ s (L/N)  | $U_T$       | 580 V   |
| Temporary overvoltage test (TOV) for $t_T = 120$ min (L/N)  | $U_T$       | 762 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 (N/PE)  | $t_A$       | < 100 ns  |
| Maximal back-up fuse  |             | 160 A gL/gG   |
| Residual current  | $I_{PE}$    | $\leq 5 \mu A$  |
| Short-circuit current rating at maximum back-up fuse  | $I_{SCCR}$  | 60 kA <sub>rms</sub>                                      |
| Follow current interrupt rating (N/PE)  | $I_{fi}$    | 0.1 kA <sub>rms</sub>                                     |
| Lightning protection zone   |             | LPZ 1-2, LPZ 2-3  |
| Housing material  |             | Polyamid PA6, UL94 V-0                                    |
| Degree of protection  |             | IP20  |
| Operating temperature   | $\vartheta$ | -40 ÷ 70 °C   |
| Humidity range  | RH          | 5 ÷ 95 %  |
| Minimum cross-section of connected Cu conductors accord. to HD 60364-5-53:2022 (doesn't apply to „V“ connection) for T2 | S           | 2.5 mm <sup>2</sup> (L, N)<br>6 mm <sup>2</sup> (PE, PEN) |

| Type   |   | HSA-440/3+1 M                           |
|--|---|---|
| Clamp fastening range (solid conductor)  |   | 1.5 ÷ 25 mm <sup>2</sup>                |
| Clamp fastening range (stranded conductor)   |   | 1.5 ÷ 16 mm <sup>2</sup>                |
| Tightening moment  |   | 3 Nm                                    |
| Installation   |   | On DIN rail 35 mm                       |
| Modular width  |   | 4 TE                                    |
| Operating position   |   | Any                                     |
| Product placement environment  |   | Internal                                |
| Signalling at the device   |   | Optic                                   |
| Importance of local signaling  |   | OK – clear target<br>FAULT – red target |
| Remote signalling  |   | No                                      |
| Modular design   |   | Yes                                     |
| Article number of spare module   |   | 27 194                                  |
| 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                       |
| Safety of Flammability of Plastic Materials  |   | UL 94                                   |
| <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 | 444 g                                   |
| Mass (including the packaging)   | m | 472 g                                   |
| Packaging dimensions (H x W x D)   |   | 74 x 112 x 73 mm                        |
| Packaging value  | V | 0.61 dm <sup>3</sup>                    |
| ETIM group   |   | EG000021                                |
| ETIM class   |   | EC000941                                |
| Customs tariff no.   |   | 85363010                                |
| EAN code   |   | 8590681116685                           |
| <b>Art. number</b>   |   | <b>27 543</b>                           |

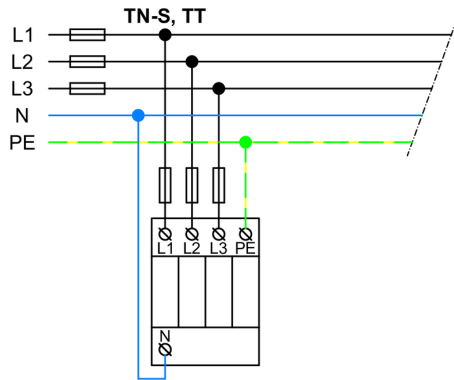


The link in the QR code leads to the online presentation of the **HSA-440/3+1 M**. There, in addition to the always up-to-date data sheet, you will also find all diagrams and drawings, declarations of conformity, or 2D or 3D models and other necessary materials. For more information, visit [www.hakil.com](http://www.hakil.com)



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**Application wiring diagram (installation)**



**Internal diagram**

