

PWT 100-800AC-FM - Lightning/surge arrester type 1/2



2800531

<https://www.phoenixcontact.com/gb/products/2800531>

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Lightning/surge arrester, according to type 1/2 / class I/II, for 3-phase power supply networks with combined PE and N installed in one conductor (L1, L2, L3, PEN).

Your advantages

- Use in harsh environments with robust design
- Universal solution for various network types
- Function monitoring using optical status indicator
- Multi-stage status monitoring via remote indication contact

Commercial data

| | |
|--------------------------------------|--------------------------------|
| Item number | 2800531 |
| Packing unit | 1 pc |
| Minimum order quantity | 1 pc |
| Note | Made to order (non-returnable) |
| Sales key | CL1141 |
| Product key | CL1141 |
| GTIN | 4046356570688 |
| Weight per piece (including packing) | 11,160 g |
| Weight per piece (excluding packing) | 10,845 g |
| Customs tariff number | 85363010 |
| Country of origin | TR |

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Technical data

Notes

General

| | |
|------|--|
| Note | Assembling: Two 8 mm screws with 8 Nm on an isolated or grounded surface |
| | Long-wave surge current 2 ms in accordance with IEC 60099-4: 250 x 1.0 kA; 500 x 0.5 kA. |

Product properties

| | |
|--------------------------------|-----------------------------------|
| Product type | Arrester combination |
| Product family | POWERTRAB |
| IEC test classification | I / II |
| | T1 / T2 |
| EN type | T1 / T2 |
| IEC power supply system | TN-C |
| | IT |
| Type | Installation module |
| Number of positions | 3 |
| Surge protection fault message | Optical, remote indicator contact |
| Number of ports | One |

Insulation characteristics

| | |
|----------------------|--------------------------------|
| Overvoltage category | 8 kV: IV (600 V), III (1000 V) |
| Pollution degree | 3 |

Electrical properties

| | |
|-------------------------|---------------|
| Nominal frequency f_N | 50 Hz (60 Hz) |
| Nominal voltage U_N | 690 V AC |

Indicator/remote signaling

| | |
|--------------------|--------------------------------|
| Connection name | Remote fault indicator contact |
| Switching function | 2x N/C contacts, 1-pos. |
| Operating voltage | 30 V AC |
| | 30 V DC |
| Operating current | 1.5 A AC |
| | 1.5 A DC |

Supply: Status indicator/remote signaling

| | |
|--|-------------------------------|
| Operating voltage | 19.2 V AC/DC ... 30 V AC/DC |
| Operating current | 7 mA AC/DC ... 13 mA AC/DC |
| Rated current | 10 mA AC/DC |
| Max. required back-up fuse | 1 A (e.g. T to IEC 127-2/III) |
| Immunity to interference according to IEC 61000-4-5 (line-line) | 1 kV |
| Immunity to interference according to IEC 61000-4-5 (line-earth) | 6 kV |

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Connection data

Double terminal point

| | |
|----------------------------------|---|
| Connection method | Screw connection |
| Screw thread | M6 |
| Tightening torque | 8.5 Nm |
| Stripping length | 24 mm |
| Conductor cross-section flexible | 16 mm ² ... 50 mm ² |
| Conductor cross-section rigid | 16 mm ² ... 50 mm ² |
| Conductor cross-section AWG | 6 ... 1/0 |

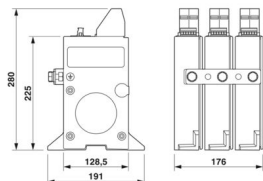
PE conductor connection

| | |
|----------------------------------|---|
| Connection method | Ring cable lug |
| Tightening torque | 20 Nm |
| Conductor cross-section flexible | 16 mm ² ... 95 mm ² |
| Conductor cross-section rigid | 16 mm ² ... 95 mm ² |
| Conductor cross-section AWG | 6 ... 3/0 |

Remote fault indicator contact

| | |
|----------------------------------|---|
| Screw thread | M3 |
| Tightening torque | 0.55 Nm |
| Stripping length | 7 mm |
| Conductor cross-section flexible | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section rigid | 0.2 mm ² ... 2.5 mm ² |
| Conductor cross-section AWG | 24 ... 12 |

Dimensions

| | |
|---------------------|--|
| Dimensional drawing |  |
| Width | 176 mm |
| Height | 191 mm |
| Depth | 280 mm |
| Horizontal pitch | 10 Div. |

Material specifications

| | |
|--|----------------|
| Color | silver-colored |
| Flammability rating according to UL 94 | V-2 |
| CTI value of material | 600 |
| | 250 |
| Insulating material | PA/PC |

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| | |
|--------------------------|---|
| Material group | I (PA 6.6/PC) |
| | IIIa (PA 4.6) |
| Housing material | Die-cast aluminum, salt water resistant |
| Housing surface material | die-cast aluminum |

Mechanical properties

Mechanical data

| | |
|-----------------|----|
| Open side panel | No |
|-----------------|----|

Protective circuit

| | |
|--|--|
| Mode of protection | L-PE |
| Direction of action | 3L-PEN |
| Nominal voltage U_N | 690 V AC |
| | 554/960 V AC (TN-C) |
| | 690 V AC (IT) |
| Nominal frequency f_N | 50 Hz (60 Hz) |
| Maximum continuous operating voltage U_C (L-PE) | 800 V AC |
| Rated load current I_L | 150 A (Serial through wiring with 50 mm ²) |
| Protective conductor current I_{PE} | ≤ 20 μA |
| Standby power consumption P_C | ≤ 48 mVA |
| Nominal discharge current I_n (8/20) μs (L-PE) | 35 kA |
| Maximum discharge current I_{max} (8/20) μs (L-PE) | 100 kA |
| Impulse discharge current (10/350) μs (L-PE), charge | 17.5 As |
| Impulse discharge current (10/350) μs (L-PE), specific energy | 305 kJ/Ω |
| Impulse discharge current (10/350) μs (L-PE), peak current value I_{imp} | 35 kA |
| Total discharge current I_{Total} (10/350) μs | 100 kA |
| Follow current interrupt rating I_{fi} (L-PE) | 50 kA |
| Short-circuit current rating I_{SCCR} | 50 kA |
| Voltage protection level U_p (L-PE) | ≤ 4.5 kV |
| Residual voltage U_{res} (L-PE) | ≤ 2.7 kV (at I_n) |
| | ≤ 2.5 kV (at 20 kA) |
| | ≤ 2.3 kV (at 10 kA) |
| | ≤ 2.2 kV (at 5 kA) |
| | ≤ 2.1 kV (at 3 kA) |
| TOV behavior at U_T (L-PE) | 1960 V AC (200 ms / withstand mode) |
| | 1500 V AC (5 s / withstand mode) |
| Response time t_A (L-PE) | ≤ 100 ns |
| Max. backup fuse with V-type through wiring | 125 A (gG at ≥35 mm ²) |
| Max. backup fuse with branch wiring | 400 A (gG at 2x 50 mm ²) |
| | 800 A (aR (only up to $I_{imp} = 25$ kA)) |

Environmental and real-life conditions

Ambient conditions

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| | |
|---|--|
| Degree of protection | IP20 (only when all terminal points are used) |
| Ambient temperature (operation) | -40 °C ... 80 °C |
| | -40 °C ... 55 °C (serial through wiring $\geq 35 \text{ mm}^2$) |
| Ambient temperature (storage/transport) | -40 °C ... 80 °C |
| Altitude | $\leq 4000 \text{ m}$ (amsl) |
| Permissible humidity (operation) | 5 % ... 95 % |
| Shock (operation) | 25g (Half-sine / 11 ms / $3x \pm X, \pm Y, \pm Z$) |
| Vibration (operation) | 5g (10 Hz ... 150 Hz / 2.5 h / X, Y, Z) |
| | 4g (5 ... 100 Hz / X, Y, Z - according to GL) |

Approvals

UL specifications

| | |
|---|----------|
| Maximum continuous operating voltage MCOV (L-L) | 800 V AC |
| Maximum continuous operating voltage MCOV (L-G) | 800 V AC |
| Nominal discharge current I_n (L-L) | 20 kA |
| Nominal discharge current I_n (L-G) | 20 kA |
| Mode of protection | L-L |
| | L-G |
| Nominal voltage | 690 V AC |
| | 400 V AC |
| Power distribution system | Wye |
| | Delta |
| Nominal frequency | 60 Hz |
| Measured limiting voltage MLV (L-L) | 8750 V |
| Measured limiting voltage MLV (L-G) | 4370 V |
| SPD Type | 4CA |

UL indicator/remote signaling

| | |
|----------------------|----------|
| Operating voltage | 30 V AC |
| DC operating voltage | 30 V DC |
| AC operating current | 1.5 A AC |
| DC operating current | 1.5 A DC |

UL connection data Double terminal point

| | |
|-----------------------------|-------------------------|
| Tightening torque | 75 lb _F -in. |
| Conductor cross-section AWG | 1/0 ... 6 |

UL connection data PE conductor connection

| | |
|-----------------------------|--------------------------|
| Tightening torque | 175 lb _F -in. |
| Conductor cross-section AWG | 3/0 |

Standards and regulations

Air clearances and creepage distances

| | |
|-----------------------|------------------------------|
| Standards/regulations | DIN EN 60664-1 / EN 61643-11 |
|-----------------------|------------------------------|

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| | |
|--------------------------|--------------|
| Standards/specifications | IEC 61643-11 |
| Note | 2011 |
| Standards/specifications | EN 61643-11 |
| Note | 2012 |

Mounting

| | |
|---------------|----------------|
| Mounting type | Screw mounting |
|---------------|----------------|

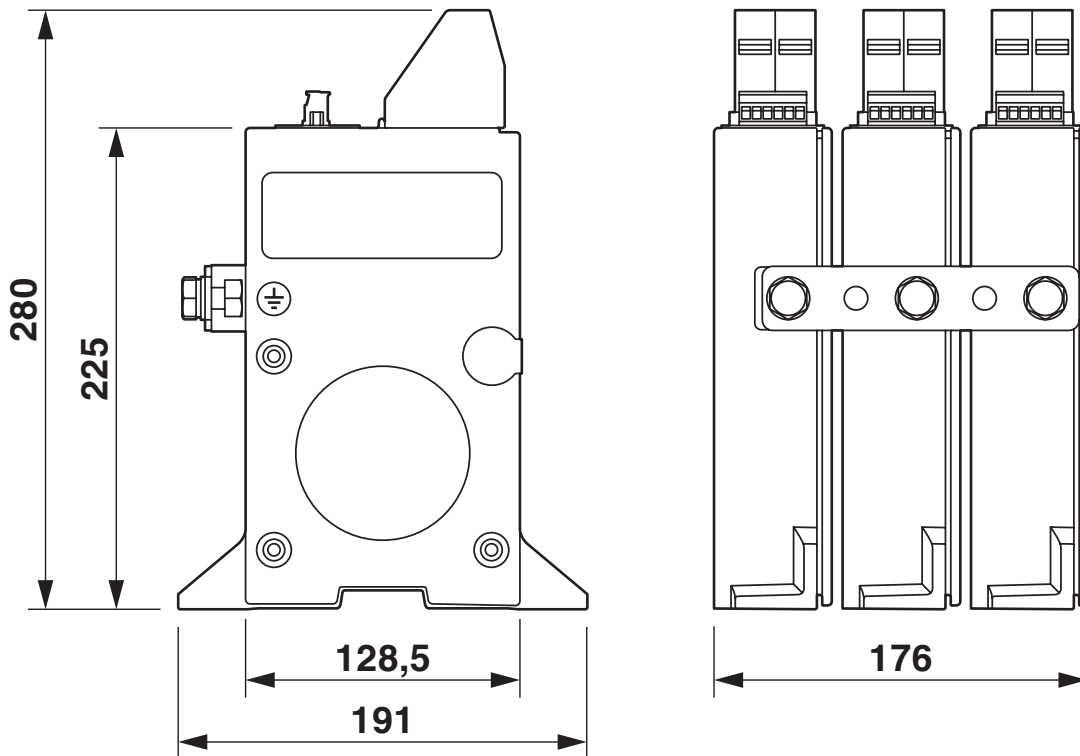
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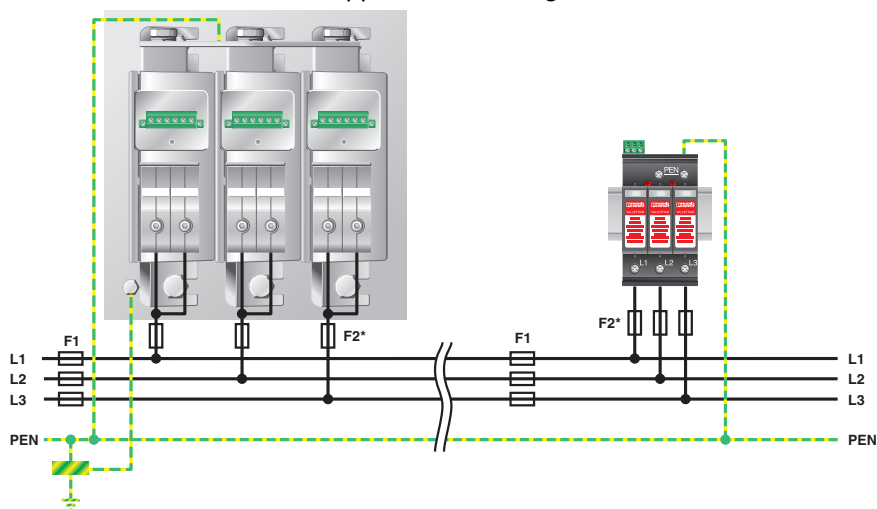
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Drawings

Dimensional drawing



Application drawing

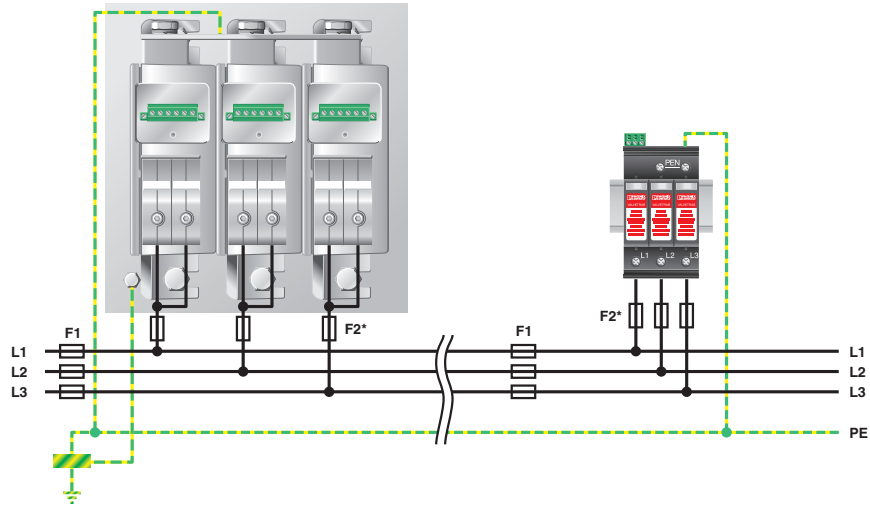


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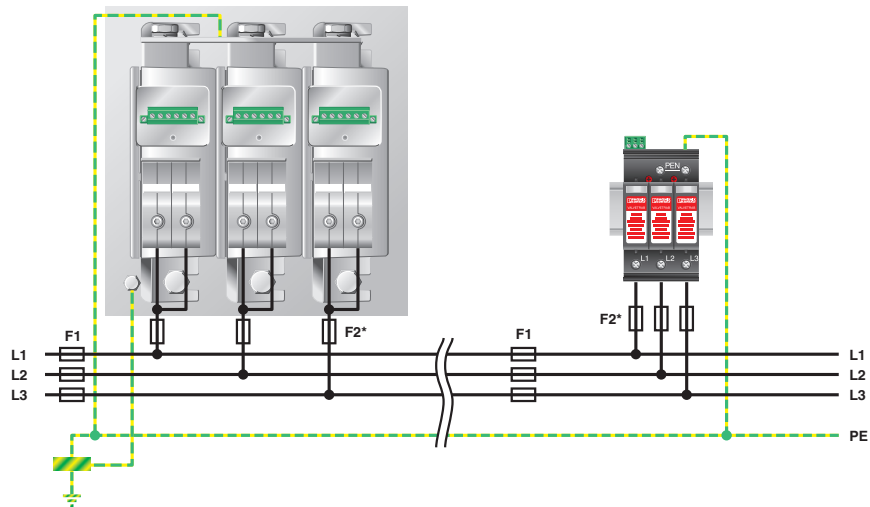
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Application drawing



Application drawing

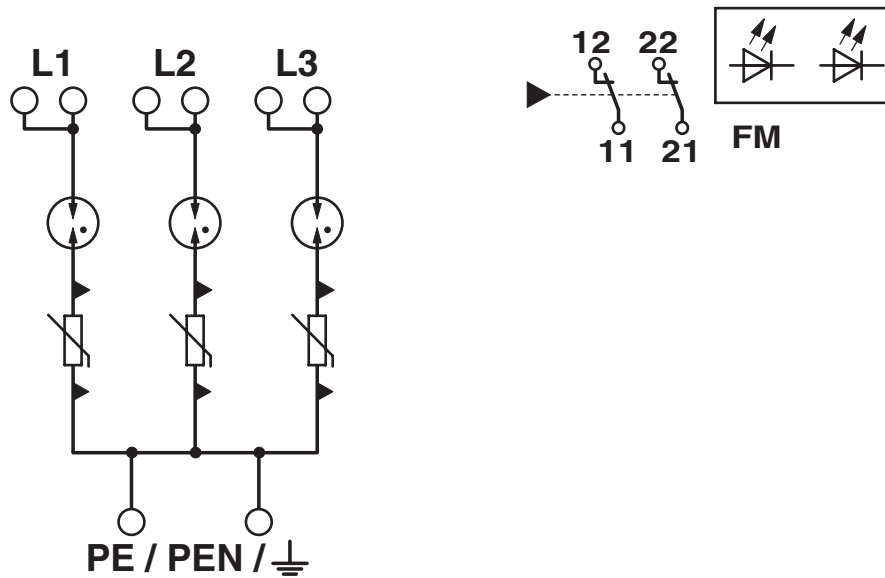


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Circuit diagram



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Approvals

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IECEE CB Scheme

Approval ID: AT 2648

CCA

Approval ID: NTR-AT 1910



KEMA-KEUR

Approval ID: 71-165053

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Classifications

ECLASS

| | |
|-------------|----------|
| ECLASS-13.0 | 27171201 |
| ECLASS-15.0 | 27171201 |

ETIM

| | |
|-----------|----------|
| ETIM 10.0 | EC000381 |
|-----------|----------|

UNSPSC

| | |
|-------------|----------|
| UNSPSC 21.0 | 39121600 |
|-------------|----------|

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Environmental product compliance

EU RoHS

| | |
|---|--------------|
| Fulfills EU RoHS substance requirements | Yes |
| Exemption | 7(a), 7(c)-I |

China RoHS

| | |
|--|---|
| Environment friendly use period (EFUP) | EFUP-50 |
| | An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required. |

EU REACH SVHC

| | |
|-------------------------------------|--------------------------------------|
| REACH candidate substance (CAS No.) | N,N-dimethylacetamide(CAS: 127-19-5) |
| | Lead(CAS: 7439-92-1) |
| SCIP | 1a3f3787-eaf4-478a-b3df-7a7d8a9aef75 |

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