



technical datasheet

## ZoneDefender<sup>2</sup> Series

80kA power surge protection for small distribution panels, tower lights, equipment cabinets and confined spaces

- AC or DC application
- Straightforward and simple installation — wall or flush mounting
- LED status indication via solid state diagnostics plus remote indication contacts
- Thermal and short circuit fusing
- UL 1449 Listed
- 10 year product warranty



The ZoneDefender<sup>2</sup> Series of power surge protection devices has been specifically designed for small distribution panels. These compact and durable devices offer cost effective, high capacity protection along with application versatility, features which make the Series the ultimate surge protection solution.

ZoneDefender<sup>2</sup> units, with a 80kA surge handling capability per phase, provide protection between Line to Neutral, Line to Ground/Earth, Line to Line and Neutral to Ground/Earth. Utilizing Metal Oxide Varistor (MOV) technology, the ZoneDefender's protection circuits are highly reliable, dual-redundant varistor networks ensuring your site is never unprotected. Fully automatic in operation, ZoneDefender<sup>2</sup> reacts immediately, clamping voltage surges without causing undue leakage losses under normal operation. No operator intervention is required, ZoneDefender<sup>2</sup> resets automatically and is maintenance free.

Suitable for AC or DC applications, ZoneDefender<sup>2</sup> devices provide protection for AC or DC power supplies with no restriction to the amount of load current. ZoneDefender<sup>2</sup> DC versions are available utilizing SAD (Silicon Avalanche Diode) technology in addition to the standard MOVs. DC versions are also available with EMI filtering, should this be required.

Thermal fusing is incorporated into each ZoneDefender<sup>2</sup> as an additional safety feature. Short circuit protection is also supplied, as standard, for added peace of mind.

ZoneDefender<sup>2</sup> offers an LED Status indication facility allowing each varistor network to be continually monitored and indicated by LEDs on the front panel of the device. In addition, remote monitoring is enabled by the units' remote indication contacts.

Installation is simple — the enclosure of

ZoneDefender<sup>2</sup> devices can be easily 'wall mounted'.

The ZoneDefender<sup>2</sup> Series is UL 1449 Listed and boasts an unrivalled 10 year 'no questions asked' manufacturers product warranty. ZoneDefender<sup>2</sup> devices also exceed the requirements of ANSI/IEEE C62.45 and ANSI/IEEE C62.41.

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## SPECIFICATION

All figures typical at 77°F (25°C) unless otherwise stated

### Maximum surge current

80kA (8/20μs)\*

\*except ZoneDefender<sup>2</sup> DC versions.

See specifications table for details.

### Lines protected AC

L-N, L-G/E, L-L, N-G/E

### Lines protected DC

V+, V-

### Duty cycle performance (8/20μs)

80,000A

1 impulse

10,000A

>4,000 impulses

100A

infinite

### Long duration current pulse 10/1,000μs capability

3,600A (tested)

### Response time

<5ns

### Ambient temperature limits

-40°F to +185°F

(-40°C to +85°C) — working

### Humidity

95% RH (non-condensing)

### Enclosure

NEMA 1, 2, 3, 3R, 4, 4X, 12 and 13 (IP66)

### Terminals

12 AWG (3mm<sup>2</sup>)

### Mounting

Surface mount by four 0.17" (4mm)

diameter holes

Optional flush mount (add suffix "F" to Model number)

### Remote contacts

C, NO, NC rated 60W DC or 120VA AC, 3A max.

### Indication

Green LED on Protection present  
Green LED off Internal failure or no power

Red LED on Internal failure

### Weight

2.1 lbs (0.94Kg)

### Dimensions

4.0" x 4.0" x 2.4"

(102mm x 102mm x 61mm)

### AIC Rating

Suitable for use on a circuit capable of delivering not more than 100,000 rms symmetrical Amperes, 240V maximum

### EMC compliance

BS EN 60950: 1992

BS EN 61000-6-2: 1999

## ORDERING INFORMATION

Model number as per specification table

| Model              | Working voltage (V) | UL 1449 Listing (V) | Limiting voltage |             | Max. continuous operation voltage (Vac) | Phase Types            |
|--------------------|---------------------|---------------------|------------------|-------------|---|------------------------|
|                    |                     |                     | @3kA†            | @10kA (In)† |   |                        |
| <b>AC versions</b> |                     |                     |                  |             |   |                        |
| ZD16800*           | 120                 | 400                 | 430              | 690         | 140                                     | Single phase 2-wire US |
| ZD16801*           | 120/240             | 400                 | 430              | 690         | 140                                     | Split phase 3-wire US  |
| ZD16809‡           | 240                 | 800                 | 925              | 1200        | 320                                     | Single phase 2-wire EU |
| ZD16820            | 120                 | 400/800             | 430/925          | 690/1200    | 140/320                                 | Single phase 2-wire TT |
| ZD16821            | 120/240             | 400/800             | 430/925          | 690/1200    | 140/320                                 | Single phase 3-wire TT |
| <b>DC versions</b> |                     |                     |                  |             |   |                        |
|                    |                     |                     |                  |             | <b>Max. surge current</b>               |                        |
| ZD14612            | 12V DC              | N/A                 | 120              | 292         | 15kA                                    | ————                   |
| ZD14624            | 24V DC              | N/A                 | 190              | 240         | 36kA                                    | ————                   |
| ZD14648            | 48V DC              | N/A                 | 280              | 504         | 53kA                                    | ————                   |
| ZD14712            | 12V DC              | N/A                 | 120              | 292         | 15kA                                    | EMI filter             |
| ZD14724            | 24V DC              | N/A                 | 140              | 340         | 36kA                                    | EMI filter             |
| ZD14748            | 48V DC              | N/A                 | 280              | 504         | 53kA                                    | EMI filter             |

For flush mount add suffix "F" to model number

\*Suitable for U.S. use only †8/20μs waveform — Tested as per ANSI/IEEE C 62.45 and ANSI/IEEE C62.41 ‡ Not UL Listed

NOTE: ZD14712, ZD14724 & ZD14748 have > -30dB attenuation @ 100kHz

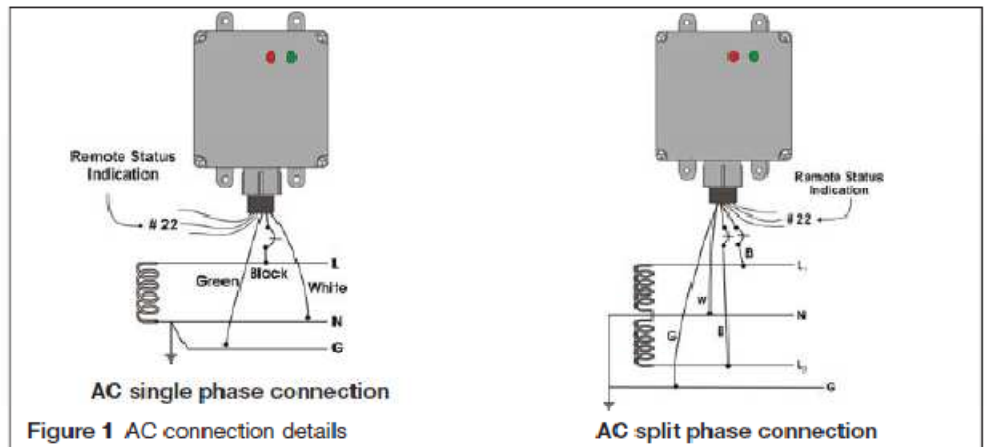


Figure 1 AC connection details

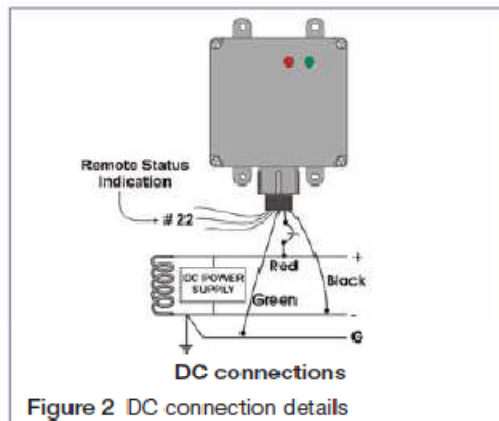


Figure 2 DC connection details

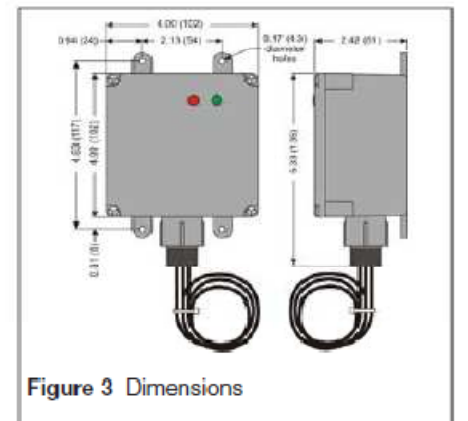


Figure 3 Dimensions

## Approvals

| Standard/Authority              | Approved for     | Product                            |
|---------------------------------|------------------|------------------------------------|
| UL 1449 Listed (C-UL US Listed) | AC power product | ZD16800, ZD16801, ZD16820, ZD16821 |

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.



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