

Ultra-Fast Surge Arrester 10 kV Rating UFSA10E1-x**Product Description**

Advanced Fusion System's (AFS) Ultra-Fast Surge Arrester (UFSA) EMProve[®] - E1 is a grid protection device designed to shunt the induced current resulting from an E1 HEMP or IEMI event away from medium voltage equipment to ground.

During testing at a Nationally Recognized Test Lab (NRTL), the EMProve[®] - E1 shunted more than 97 % of the induced current surge to ground when tested under MIL-STD188-125 Appx B. (Fig. 1)

Electrical connections are made to the UFSA by two sets of two NEMA compliant threaded holes.

Specifications

- Med Voltage Intermediate class device
- Voltage class: 10 kV
- MCOV: 8.4 kV
- Energy class: H
- Standby current: <16 μ A (60 Hz)
- Bypass current rating: 2.5 kA amps
- Housing BIL: 110 kV (IEEE C37.06 chopped wave)
- Reaction delay time: <6 nS
- Temperature range (storage/operating): -40 °F (-40 °C) to 150 °F (65 °C)
- Humidity: 5 % to 95 % (noncondensing)
- Length: 9 US inches (228.9 mm)
- Diameter: 5.76 US inches (146.3 mm) Outdoor
- Weight: 6.9 US pounds (3.13 kg) - Outdoor

Setup and Installation

The outdoor EMProve[®] - E1 (model UFSA06E1-B, see Fig. 2) is suitable for all installation locations exposed to the elements where pollution degree medium to heavy.

The EMProve[®] - E1 must not be used as a structural member for any other device or equipment.

The EMProve[®] - E1 device is intended to be mounted on all phase conductors and neutral within 3.28 feet (1 m) of the protected equipment.

Electrical connections are made to the EMProve[®] - E1 by two NEMA compliant threaded holes on each connection flange. Various standard adapters are available at additional cost to facilitate electrical connections. Custom adapters can be designed and fabricated.

It is suggested that the bottom conductor of the EMProve[®] - E1 (ground connection) be made with a rigid connection to support the device from below. However, if impractical, a flexible wire or copper strap of suitable ampacity rating no longer than necessary may be used to make this connection.

The top conductor of the EMProve[®] - E1 (phase or neutral) may be made with either a low inductance flexible wire (or strap) of suitable ampacity rating no longer than necessary.

According to the NEMA Surge Protection Institute it is advised to make all connections to the surge arresters as short as practical.

As the residual voltage is highly dependent on the di/dt current surge and the impedance to the local ground plane, therefore, every effort must be made to minimize the impedance of the connections from the phase (or neutral) to the

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EMProve[®] - E1 and from the EMProve[®] - E1 to ground.

The EMProve[®] - E1 is not designed to be a lightning protection device but operates in coordination with similar rated lightning arresters.

Maintenance

The EMProve[®] - E1 devices are maintenance free. However, it is recommended that the units be Partial Discharge tested every 48 months to ensure proper operation.

The EMProve[®] - E1 device will adequately handle hundreds of E1 current surges without degradation.

Product Family

Please contact Advanced Fusion Systems or one of its representatives for other voltage or installation class devices.

Orderable Part Numbers

8110.00002 for UFSA10E1-B Medium Voltage Intermediate class 10 kV outdoor device (Fig. 2) for Pollution Degree from Medium to Heavy

Warranty

AFS warrants the UFSA device against defects in materials and workmanship for 10 years prorated from the date of purchase.

AFS warrants to the Buyer that the UFSA device will perform to the specifications and is free from workmanship defects.

For complete warranty details, see the terms and conditions in the purchase agreement.

Dual Use Technology

The technology employed in the EMProve[®] - E1 devices are designated as dual use technology, indicating their utility for both civilian and military use. Products containing dual use technology may not be transferred without permission and the intellectual capital cannot be disclosed to non-US citizens. Advanced Fusion Systems (AFS) must permanently mark each unit with a serial number and reserve the right to inspection of the devices. In order to meet the requirements of United States government and international treaties, laws, rules, and regulations and to protect AFS intellectual property, these products may not be x-rayed, opened, penetrated, or transferred to others without permission of AFS.

Continuous Improvement

AFS reserves the right to change the design and specifications without notice.

Contact

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EMProve[®] - E1

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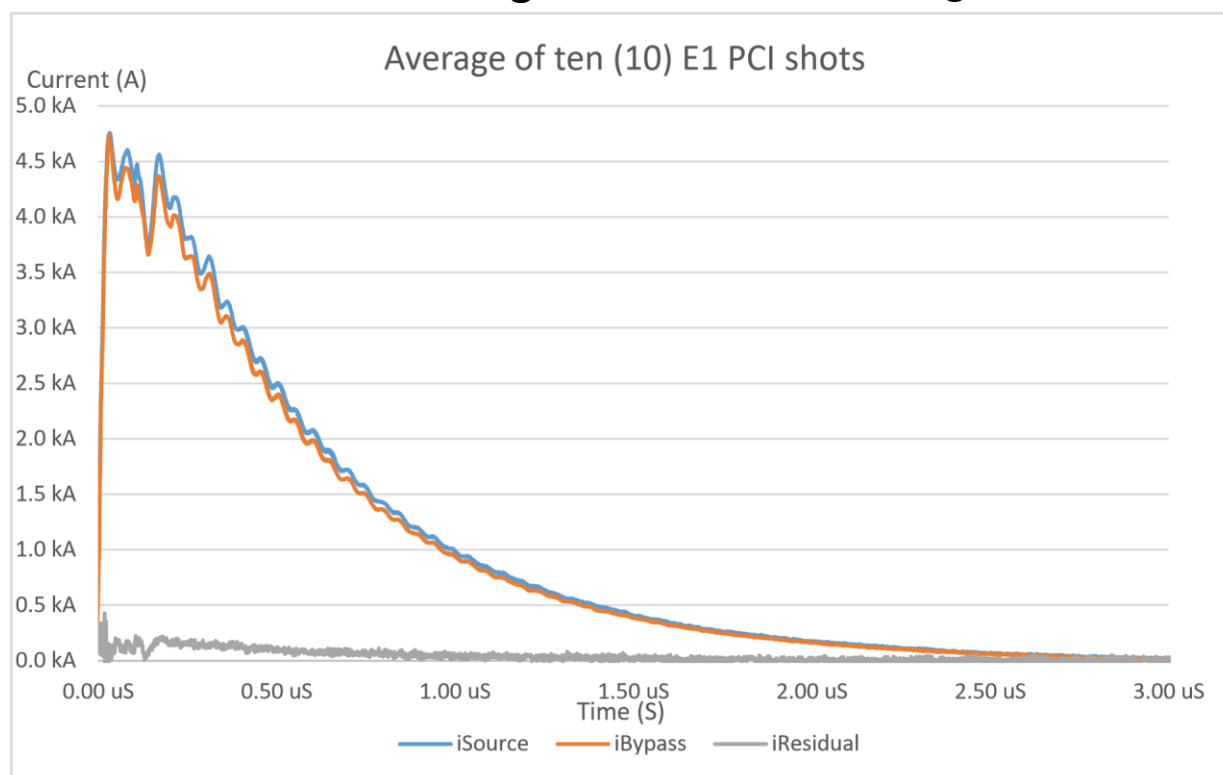


Figure 1: E1 PCI performance

EMProve[®] - E1

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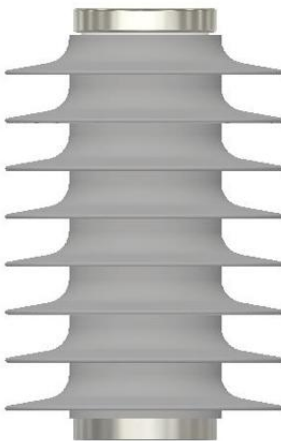


Figure 2: EMProve[®] - E1 Outdoor
Pollution degree medium to heavy