

## EMP FILTERS WITH MONITORED SURGE PROTECTION

- Protection of Critical equipment
- Local and remote monitoring
- Self disconnecting varistors
- Simplified maintenance
- Ease of replacement



Failed Varistor

### Background

Metal Oxide Varistors (MOVs) are an excellent surge protection device and millions have been deployed in thousands of applications. However, their service life is heavily dependent on service conditions and the MOV life can vary from days to weeks to many years.

Engineers designing protection systems have to consider failure modes and consequential damage effects. Although risk of failure of the protection system may be small the consequences of failure could be catastrophic.

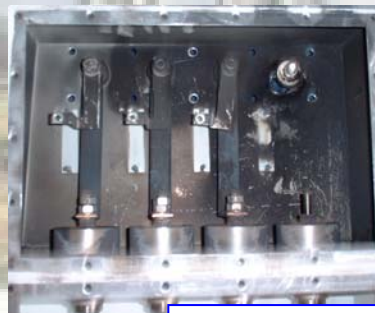
Varistor failure often causes collateral damage which may include immediate disruption of the power supply

### Varistor service life

In common with all types of surge arrester, varistors will degrade with time if subjected to high energy pulses beyond their design rating.. Exceptional transients can degrade the varistor in a cumulative manner causing premature failure.

Degradation consists of a reduction in clamping voltage which can lead to overloading and failure.

Varistor failure will leave the circuit un-protected and further transients can damage equipment.



Damage to Filter Case

### Surge Protection Monitoring

Users often have only a limited view of in service transient activity so it is important to know that varistors are functioning correctly through monitoring.

Typically varistors will be routinely removed for inspection but this requires taking equipment off line.

MPE can now offer monitoring while keeping equipment on line. This is particularly useful when the filters are mounted in locations that are not readily accessible for routine maintenance checks

MPE is also working on an advanced system that would measure degradation as it occurs and predict when the varistor needs to be changed, allowing planned maintenance of critical installations

## Monitored varistor

MPE can now offer filters incorporating varistors featuring both a self disconnect feature and a monitor point. This means the varistor will disconnect itself in the event of being overloaded before failure occurs. A monitor point on the varistor indicates that disconnection has occurred. Monitored varistors up to 32mm diameter are currently available offering surge protection to 25kA



## Mounting and replacement

MPE designs its filters to permit easy replacement of varistors should this be required. Care is taken to locate the varistors either in their own compartment or away from other components, thus preventing any possible damage to adjacent circuits in event of varistor failure.



## Applications

### Shelters

Access to filter mounting positions may not be easy and is often restricted making normal maintenance difficult. MPE can provide a custom remote monitoring indication so that varistor function can be viewed from accessible display panels.



### Generators

Maintenance on generator EMP filters using monitored varistors can be done by visual indication or continuity test by digital multi meter. This means that wherever the generator is based in the field maintenance is easily performed.



### Equipment

Surge protection filters are normally mounted inside the equipments outer case. This means that for a varistor check to be carried out dismantling is usually necessary. Varistor integrity can be monitored quickly and replacement carried out only when a varistor has failed.



To benefit from this new innovation call MPE now to discuss your requirements