TEMPEST PLUGGABLE FILTERS EU / RoK INSTALLATION AND MAINTENANCE GUIDE

SAFETY WARNING

There are no serviceable parts within the filters; any filter that is damaged should be replaced or MPE contacted for further advice.

The filter contains capacitors subject to mains supply voltages capable of creating a serious electric shock - under no circumstances should the filter be opened.

Installation

The TEMPEST Pluggable Filter range was specifically developed to provide TEMPEST filter performance to NATO SDIP-27 B/C without being permanently mounted to a TEMPEST shield. In reality the TEMPEST Pluggable Filters do not require a permanent mounting of any form provided that the earth pin of the input plug is provided with a TEMPEST earth connection. The filter is bi-directional allowing red/black separation from either input to output or from output to input. It does not provide separation between output sockets on multiple output socket filters.

Although the design of the filter and screened input lead is adequate to maintain the required performance level, it should be recognised that the CEE 7/7 connection system and any flexible screened cable is not a perfect shield and as such some bypass coupling will be possible at high frequencies; to alleviate this certain cable routing practices should still be encouraged to maintain red/black separation. Similarly the earth of the filter derives from its input plug which is subject to the limitations of the input cable length, earthing the case of the filter via its mounting holes will provide greater performance than the input cable alone. To obtain optimum and enhanced performance:

- Earth the filter case where practical;
- Route all output cables away from the filter input plug and any unshielded fixed conduit or trunking;
- Avoid coiling up or doubling back the filter input cables (and any output cables fitted) upon themselves especially input of one filter over the output of another;
- Avoid routing the cables from individual filters in a way that crosses over those of other filters especially input of one over the output of another.
- Avoid routing the cable over sharp edges or tight bends that could cause damage to the protective screen.

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Maintenance

The filters are maintenance free; there are no user serviceable parts within. There is no safety fuse or protection against over current, short circuit or earth fault within the filter; all circuit protection should be ensured by the building circuit installation socket outlet with protection matched to that of the filter rating.

Should the wiring within the plug or the shield of the cable appear damaged you should contact MPE for advice on how to proceed, the device should not be powered until resolved; To do so would create a potential fire risk due to overheating in the event of a fault developing within the wiring, the filter or the equipment being powered by it.

Note that 32A filters employ an IEC60309 plug and as such do not have a fuse fitted within them. They should be fused as per any other devices on industrial sockets, e.g. individual appropriately rated RCDs, as according to the latest edition of BS7671 or where not applicable to other local wiring standards and best practices.

Portable Appliance Testing (PAT)

MPE filters may be subjected to PAT testing however due to the nature of EMI filter elements some tests will report a false fail and cannot be used as a valid assessment of the product's functionality or safety. This filter range is classified under IEC 61140 as Class I having a protective earthed metal case. Below are the tests that will give a valid result in a functional unit:

- Earth Resistance Test – less than 0.2Ω.
- Earth Loop Test – 100mA (screen test), 10A (routine test) or 25A (bond test).
- Earth Leakage – 5mA limit as per Class I. Insulation resistance will produce a false fail due to the discharge resistors within the filter.
- Extension Lead Polarity Check – polarity should be maintained to all outputs from the input plug.

EMI / TEMPEST Performance

The filter range is designed so that there will be no degradation of the EMI performance of the filters over their lifetime. Should a maintenance check be desired, a failure of the above PAT regime will correspond to a potential failure of the EMI performance and can be used as an indication of the health of the filter element.

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