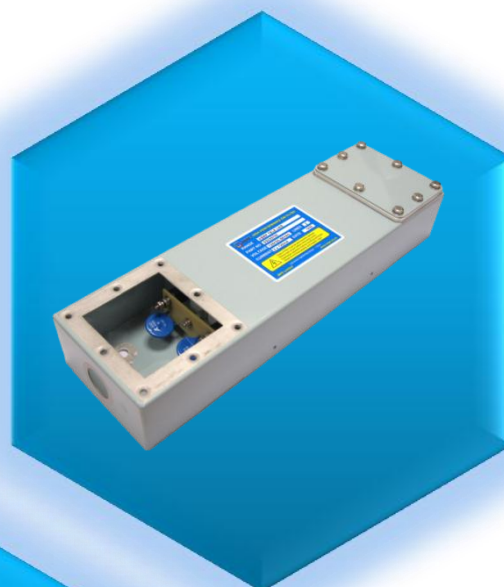
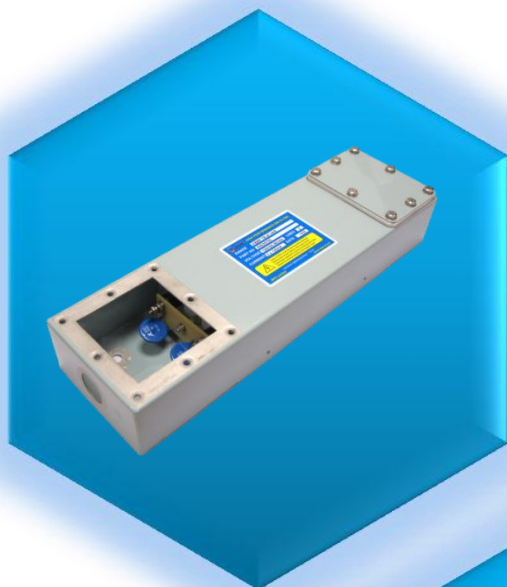




MPE
Quality. Reliability. Performance

HEMP TELEPHONE LINE FILTERS

HEMP & IEMI PROTECTION FILTERS FOR TELEPHONE LINES



Mil-Std-188-125
Mil-F-15733
Mil-Std-220C
CISPR17:2011/BS EN 55017:2011
UL1283
EN60950/IEC60950/UL60950

All MPE HEMP filters are tested using the test methods defined within the above standards and meet or exceed the relevant performance and/or safety criteria defined within these standards

COMPLIANT WITH MIL-STD-188-125-1 & -2 PCI REQUIREMENTS FOR SHORT (E1) PULSE ONLY OR E1 + E2 PULSES

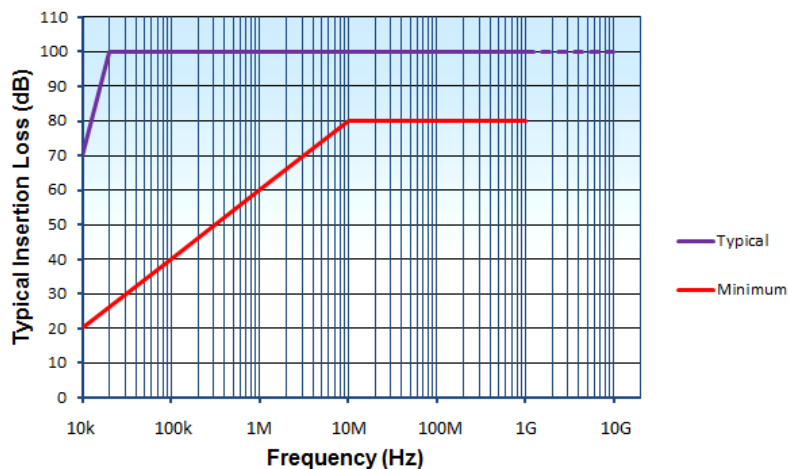


FM00699

MPE Limited
Hammond Road
Knowsley Industrial Park
Liverpool L33 7UL
UK



HEMP Protection Filters For Telephone Lines



Asymmetric Performance in 50Ω System With or Without Load



Description

A range of HEMP protection filters for telephone lines for use on HEMP protected installations meeting E1 (short pulse) or E1 +E2 (short plus intermediate) pci requirements of MIL-STD -188-125-1 & -2. All lines are individually filtered and feature inductive input to offer both good continuous wave EMC performance and superior transient handling performance. All lines feature high-energy varistor transient suppressors at the input end.

Features

- Use on 300Ω/600Ω analogue telephone circuits
- RoHS compliant
- E1 or E1 + E2 compliance
- Circuits supplied as high symmetry matched pairs

Ratings and Characteristics

Rated Voltage	95Vac / 125Vdc
Test Voltage	1250Vdc each line to case (Prior to fitting transient suppressors)
Rated Current	125mA (300mA with slight performance derating)
Insulation Resistance	>100MΩ (Prior to fitting transient suppressors)
DC Resistance	9Ω
Impedance line-earth	300Ω
Impedance line-line	600Ω
Full Load Operating Temperature Range	-40°C to +50°C
Peak Surge Current	6.5kA (8/20μs) (E1 only versions) 40kA (8/20μs) (E1 + E2 versions)
Insertion Loss in 50Ω system	See graph
Pass Band (300Ω)	0 – 4kHz

Transient Suppression Performance

MIL STD 188-125-1 acceptance test, E1 short pulse current injection, wave shape 20/500ns					
Input pulse amplitude	250A	500A	1000A	1800A	2500A
MIL-STD-188-125 residual requirement	<0.1A	<0.1A	<0.1A	<0.1A	<0.1A
Typical filter residual let-through (measured)	<0.06A	<0.06A	<0.06A	<0.06A	<0.06A

NB Peak applied current for N lines wire to ground is $5000/\sqrt{N}$ or 500A whichever is greater

Additional E2 requirement for E1 & E2 versions

MIL STD 188-125-1 acceptance test, E2 intermediate pulse current injection, wave shape 1.5/3000μs	
Input pulse amplitude	250A
MIL-STD-188-125 requirement	No filter damage or performance degradation



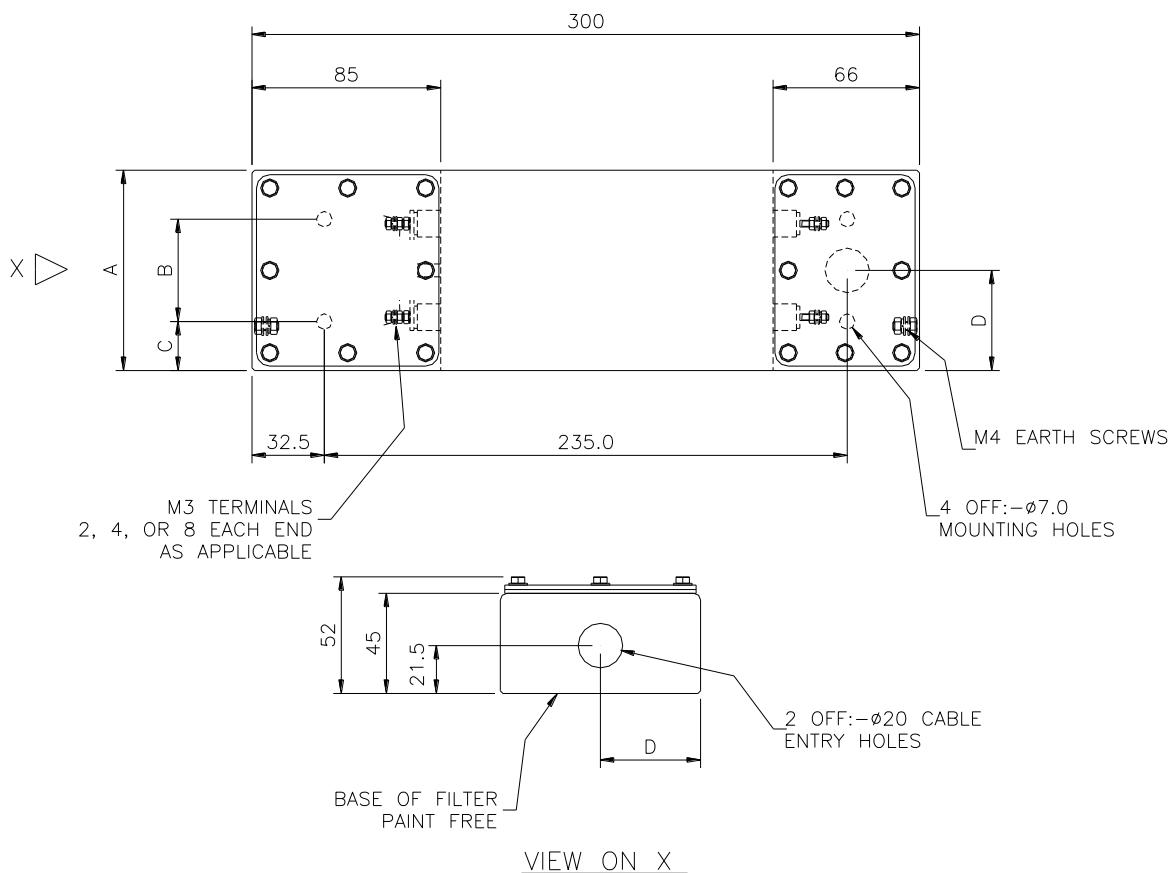
Product Range (E1 Only)

Part Number	Number of Lines *	Major Dimensions (mm)			Weight Approx (kg)
		Length	Width	Depth	
DS33570	2	300	90	45	2
DS33571	4	300	175	45	4
DS33572	8	300	340	45	8
DS33573	32	547	200	143	17
DS33575	100	730	600	250	60

* Note: Lines are supplied as matched pairs, hence 1 telephone circuit = 1 matched pair = 2 lines

Dimensions and Mechanical Details (E1 Only, 2 – 8 Line versions)

(varistors not shown)



No of Lines	Dimensions (mm)			
	A	B	C	D
2	90	46	22	45
4	175	100	37.5	87.5
8	340	250	45	170

Case material
Finish
Terminals
Cable entry options
Fixing kit

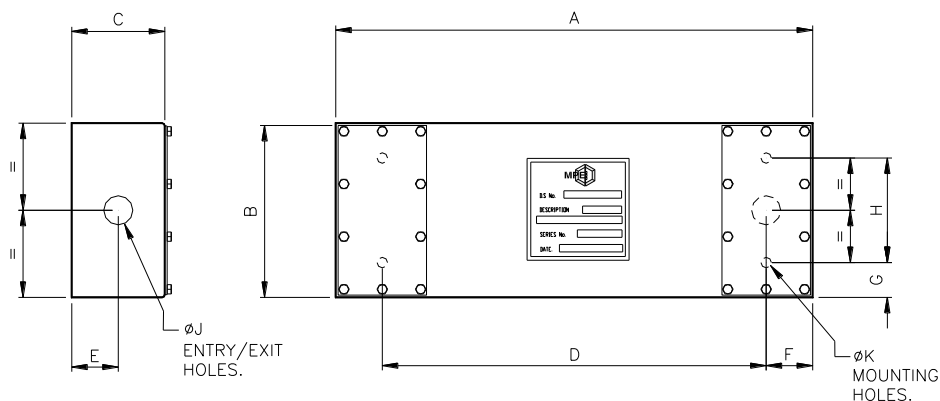
Electroplated steel
Paint (except base)
M3 screw terminals
See below
Penetration tube plus fixing screws - Optional extra – please ask



MPE

HEMP TELEPHONE LINE FILTERS

Dimensions and Mechanical Details (E1 Only, 32 line version)

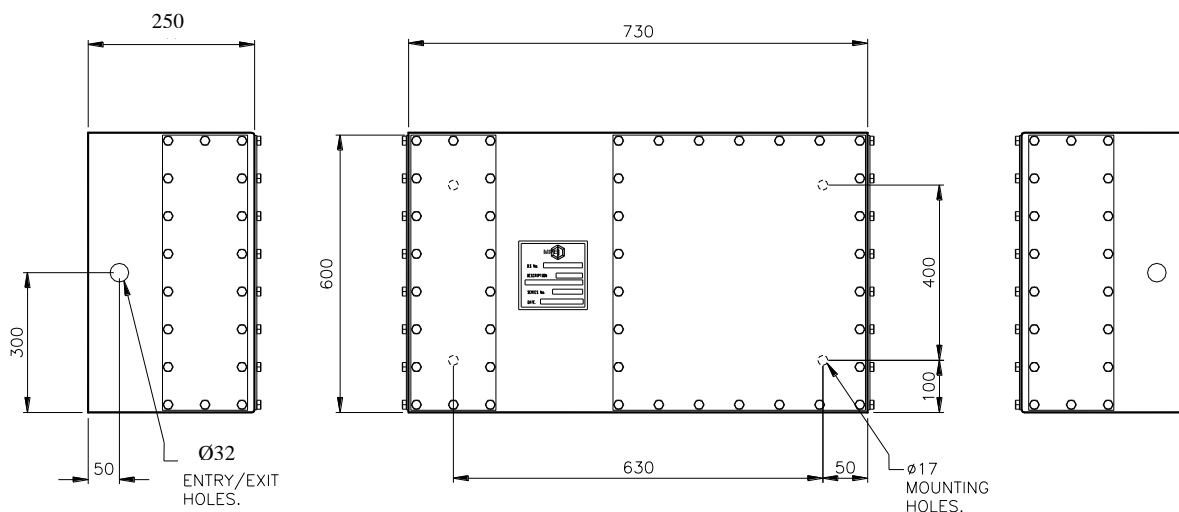


Dimensions (mm)									
A	B	C	D	E	F	G	H	J	K
547	200	143	460	30	40	40	120	25.4	7

Case material
Finish
Terminals
Cable entry options
Fixing kit

Electroplated steel
Paint (except base)
M3 screw terminals
See below
Penetration tube plus fixing screws - Optional extra – please ask

Dimensions and Mechanical Details (E1 Only, 100 line version)



Case material
Finish
Terminals
Cable entry options
Fixing kit

Electroplated steel
Paint (except base)
M3 screw terminals
See below
Penetration tube plus fixing screws - Optional extra – please ask

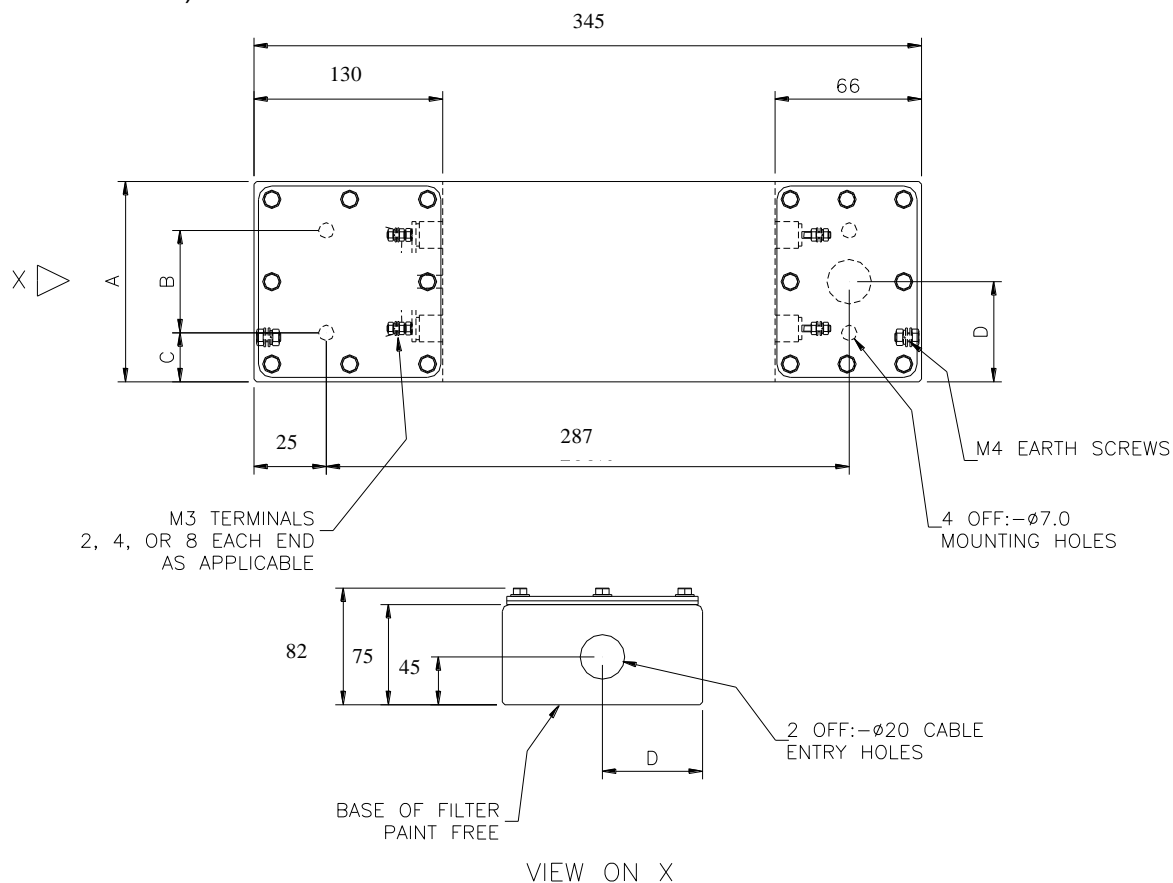


Product Range (E1 & E2)

Part Number	Number of Lines *	Major Dimensions (mm)			Weight Approx (kg)
		Length	Width	Depth	
DS33890	2	345	100	75	3.5
DS33891	4	345	185	75	6
DS33892	8	345	350	75	12
DS33582	16	420	340	75	17
DS33893	40	730	620	250	40
DS33894	60	730	620	250	58
DS33895	100	730	1000	250	90

* Note: Lines are supplied as matched pairs, hence 1 telephone circuit = 1 matched pair = 2 lines

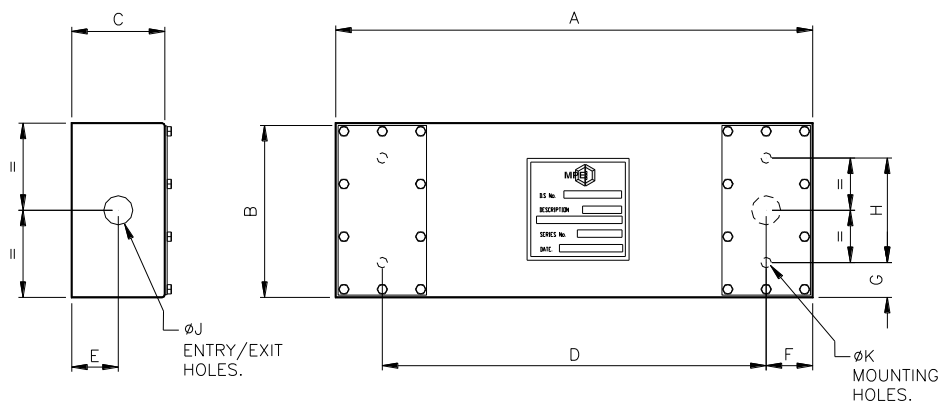
Dimensions and Mechanical Details (E1 + E2, 2 – 8 Line versions) (varistors not shown)



No of Lines	Dimensions (mm)			
	A	B	C	D
2	100	50	25	50
4	185	135	25	92.5
8	350	250	50	175

Case material
Finish
Terminals
Cable entry options
Fixing kit

Electroplated steel
Paint (except base)
M3 screw terminals
See below
Penetration tube plus fixing screws - Optional extra – please ask

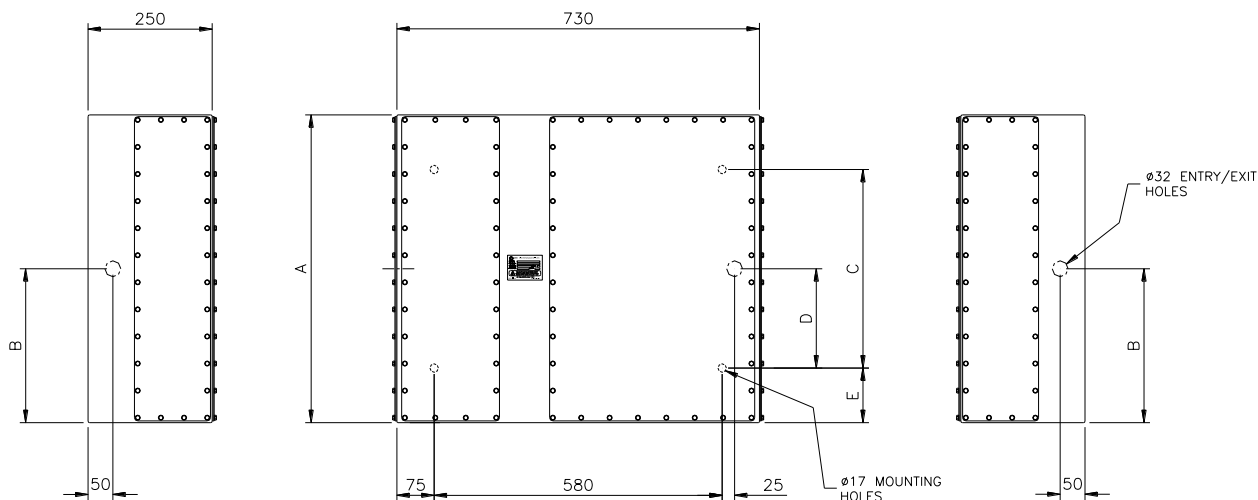
**MPE****HEMP TELEPHONE LINE FILTERS****Dimensions and Mechanical Details (E1 + E2, 16 line version)**

Dimensions (mm)									
A	B	C	D	E	F	G	H	J	K
420	340	75	355	37.5	32.5	45	250	21/27*	9

*21 at input end & 27 at output end

Case material
Finish
Terminals
Cable entry options
Fixing kit

Electroplated steel
Paint (except base)
Terminal blocks
See below
Penetration tube plus fixing screws - Optional extra – please ask

Dimensions and Mechanical Details (E1 + E2, 40 line, 60 line & 100 line versions)

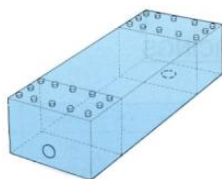
Dimensions (mm)						
Part No	No of lines	A	B	C	D	E
DS33893	40	620	310	400	200	110
DS33894	60	620	310	400	200	110
DS33895	100	1000	500	800	300	200

Case material
Finish
Terminals
Cable entry options
Fixing kit

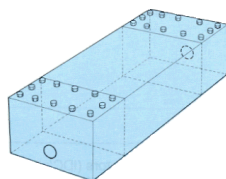
Electroplated steel
Paint (except base)
6.3mm push-on tags
See below
Penetration tube plus fixing screws - Optional extra – please ask



Cable Entry Options



Part No DS XXXXX / C
End entry base exit
(standard cable entry configuration)



Part No DS XXXXX / A
End entry end exit
(alternative cable entry)

Two different cable entry options are available as shown.

Standard configuration is suffix C for shielded room mounting, i.e. end entry, base exit.

For end entry and end exit, substitute suffix C with suffix A in the part number.

Installation Details



Typical Installation

The mounting surface should be clean and unpainted to ensure a low impedance earth bond and good RF seal.

Fixing screws and gland tubes can be supplied as an optional extra.

Recommended tightening torque figures:
M5 lid fixings: 1N-m

Safety

Relevant safety standards have been adhered to in the design and manufacture of these products. However, all capacitors will store charge after power has been removed and must be treated with respect as a shock can be lethal if the voltage and charge are high enough.

No discharge resistors are fitted to this range of filters, so terminals should always be shorted to earth prior to touching to ensure the capacitors are fully discharged.

The user should ensure he is familiar with restrictions on capacitance value, earth leakage current, test voltage, and safety labelling requirements, which may be applicable to his particular installation.

These filters must be solidly and permanently earthed, both for safe operation and to achieve optimum EMC and pulse performance.

Custom Designs

MPE offers a rapid design service for custom designs where special packaging, mounting, terminations, or multiple lines are required. Over 50% of the filters manufactured by MPE are custom designs and this can offer a very cost effective installation solution. Please ask to see examples of previously offered solutions.

Filter Selection Guide

Step 1 Choose if E1 only or E1 + E2 protection required

Step 2 Choose number of lines required

Step 3 Select part number and cable entry suffix