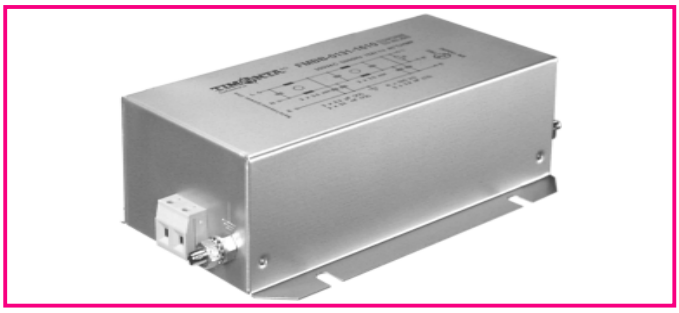
High Current Line Filters for 1-phase systems

FMBB Series, 2-stage all-purpose filters to Protection Class I, with high symmetrical and asymmetrical insertion loss and low leakage current, conform to EN 133200, UL 1283 and IEC 60950

Nominal current:	**8 - 25 A @ ϑa 40°C**
Rated voltage U_R (U_{max}):	**250 VAC 50/60 Hz**
Attenuation:	**Excellent**
Leakage current:	**for Standard and Industrial appl.**
Test voltages:	**L/N → E 2.7 kVDC, 2 sec** **L → N 1.7 kVDC, 2 sec ***
Climatic category:	**25/100/21 acc. to IEC 60068-1**
50% saturation typ.:	**2 to 3 x I_N @ 20°C**
Inrush current:	**1.5 x I_N 1 min. per hour**
MTBF @ 40°C / U_R (U_{max}):	**> 200'000 h acc. to MIL-HB-217 F**

*without resistor



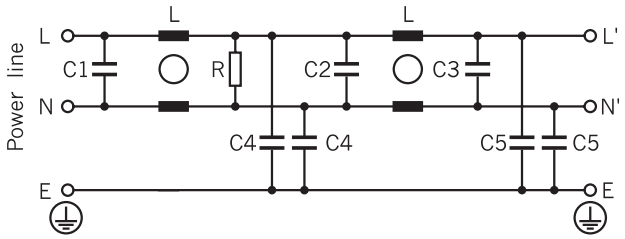
Conception conforms to UL 1283 and CSA 22.2 Nr. 8 1986

Approval: SEV CCA-NTR EN 133200

The TIMONTA high current filter family FMBB was specially developed for the following industrial applications:

- **Frequency Converters**
- **Stepper Motor Drives**
- **UPS-Systems**
- **Inverters**

Circuit diagram



Technical Data

Type	I_N (1) @ ϑa 40°C [A]	U_R (U_{max}) [V]	L_N (2) ·30% / +50% [mH]	Resistance L-L' ± 15% [mΩ]	Power dissipation total ± 15% [W]	Leakage current (3) @ 250 V/50 Hz [mA]	C1 (X2) ± 20% [µF]	C2 (X2) ± 20% [µF]	C3 (X2) ± 20% [µF]	C4 (Y2) ± 20% [nF]	C5 (Y2) ± 20% [nF]	R1 [MΩ]	Case	Terminal blocks [mm²]
FMBB·0116·0810	8		2 x 7	25	3.25	< 0.25	0.1	0.15	0.47	2.2	—	1.0	16·2	4
FMBB·0124·1210	12	250 V	2 x 5	13.4	3.86	< 3.5	2.2	2.2	2.2	33	2.2	0.5	24·2	4
FMBB·0131·1610	16	50/60Hz	2 x 3.5	10.4	5.32	< 3.5	2.2	2.2	2.2	33	2.2	0.5	31·2	4
FMBB·0131·2510	25		2 x 3.5	7.4	9.25	< 3.5	2.2	2.2	2.2	33	2.2	0.5	31·6	6

(1) Current derating over 40°C : $I = I_N \times \sqrt{(100 \cdot \vartheta a)/60}$

(2) Nominal inductance measured according to EN 138100, see introduction of this catalog, paragraph 3.4

(3) Measured according to IEC 60950 5.2.3 Annex D, see introduction of this catalog, paragraph 3.5

International approvals centers (i.e. UL) today demand high filter performance with regard to attenuation and loading characteristics. During the design, special considerations were made for applications that require high attenuation at the specified maximum load or where asymmetrical loading of the filter occur independently from line impedance at the installation site. The implemented filter range wholly conforms to the requirements of the international standards EN 133200, UL 1283, IEC 60950 and VDE 0565.
They are ideally suited for applications with EN 55011, EN 55014 and EN 55022 requirements.

Cases design see preceding page.

- Standard version include insulated safety screw terminals.
- Optionally, wire lead connections instead of the screw terminals are available (m.o.q. 50 pcs).
- Key features of the high current filter range include:
  – easy, space saving installation
  – high symmetrical and aymmetrical mode attenuation (from 10 kHz to 300 MHz)
- To maximize the filter performance in the application, the following EMC-rules should be considered:
  – physical separation of filter input and output lines
  – physical separation of the interference source itself
  – dedicated earth connection for the filter

Insertion loss