High Current Line Filters for 3-phase systems

FMBC Series, Book style in steel case, 2-stage all-purpose filters to Protection Class I, with high insertion loss, conform to EN 133200, UL 1283 and IEC 60950

Nominal current:	**10 - 115 A @ ϑa 40°C**
Rated voltage U_R (U_{max}):	**480 VAC 50/60 Hz**
Attenuation:	**Excellent**
Leakage current:	**for Industrial applications**
Test voltages:	**L →E 3 kVDC, 2 sec ***
	L →L 2.25 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 resistors

Approvals obtained or pending: SEV CCA-NTR EN 133200 c UL us

The TIMONTA high-current filter family FMBC was developed for the following industrial applications:

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

Drive Rating Converter		Recommended Filter Type
Motor Rating [PS / HP]	[kW]	Converter Rating [kVA]	Recommended Filter I_N [A]
2	1.5	to 2.9	10
8	6	to 9.7	20
15	11	to 20	36
25	18.5	to 30	66
38	28	to 50	115

Specially developed for use in frequency converters and similar applications. Reduced case size encourages universal usage up to 480 VAC. The two stage configuration ensure that this line of filters meets the requirements of EN 55011 / 55014, UL 1283 and EN 133200. This new TIMONTA line offers end users a cost effective EMC solution for ensue compliance with the CE requirements.

- Special characteristics of this high-current filter series are:
  - slim case in book style
  - high symmetrical and asymmetrical mode attenuation (from 10 kHz to 300 MHz)
  - rated voltage 480 VAC for world wide acceptance

Technical data for the version with terminal blocks on both sides

Type	I_N (1) @ ϑa 40°C (50°C) [A]	U_R (U_{max}) [V]	L_N (2) -30% / +50% L1 [mH]	L_N (2) -30% / +50% L2 [mH]	Resistance L-L' ±15% [mΩ]	Power dissipation total ±15% [W]	Max. leakage current @ 440 V/50 Hz In 3-phase Systeme (3) [mA]	Max. leakage current @ 440 V/50 Hz Worst case (4) [mA]	C1 ±20% [µF]	C2 ±20% [µF]	C3 ±20% [µF]	C4 ±20% [nF]	C5 ±20% [µF]	R R1 [MΩ]	R R2 [MΩ]	Case	Terminal blocks S [mm²]
FMBC-0967-1010	3 x 10 (09)		3 x 3	3 x 1.5	31.5	9.45		108	1.5	1.0	1.5	–	1.5	–	1	67	4
FMBC-0958-2010	3 x 20 (18)	480 V	3 x 1.8	3 x 1.2	14.6	17.5		118	2.2	1.5	2.2	–	1.5	–	1	58	4
FMBC-0960-3610	3 x 36 (33)	50/60	3 x 1.5	3 x 0.5	6.6	25.7	≤ 5	140	2.2	2.2	2.2	–	2.2	–	1	60	10
FMBC-0962-6610	3 x 66 (60)	Hz	3 x 0.65	3 x 0.45	3.3	43.0		143	2.2	2.2	2.2	100	2.2	1	1	62	25
FMBC-0964-H110	3 x 115 (105)		3 x 0.7	3 x 0.2	1.33	48.0		143	2.2	2.2	2.2	100	2.2	1	1	64	50

Technical data for the version with terminal blocks on the power line side and wire leads on the load side

Type	I_N (1) @ ϑa 40°C (50°C) [A]	U_R (U_{max}) [V]	L_N (2) -30% / +50% L1 [mH]	L_N (2) -30% / +50% L2 [mH]	Resistance L-L' ±15% [mΩ]	Power dissipation total ±15% [W]	Max. leakage current @ 440 V/50 Hz In 3-phase Systeme (3) [mA]	Max. leakage current @ 440 V/50 Hz Worst case (4) [mA]	C1 ±20% [µF]	C2 ±20% [µF]	C3 ±20% [µF]	C4 ±20% [nF]	C5 ±20% [µF]	R R1 [MΩ]	R R2 [MΩ]	Case	Terminal blocks S [mm²]
FMBC-0967-1060	3 x 10 (09)		3 x 3	3 x 1.5	31.5	9.45		108	1.5	1.0	1.5	–	1.5	–	1	67C	4
FMBC-0958-2060	3 x 20 (18)	480 V	3 x 1.8	3 x 1.2	14.6	17.5		118	2.2	1.5	2.2	–	1.5	–	1	58C	4
FMBC-0960-3660	3 x 36 (33)	50/60	3 x 1.5	3 x 0.5	6.6	25.7	≤ 5	140	2.2	2.2	2.2	–	2.2	–	1	60C	10
FMBC-0962-6660	3 x 66 (60)	Hz	3 x 0.65	3 x 0.45	3.3	43.0		143	2.2	2.2	2.2	100	2.2	1	1	62C	25

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

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

(3) Measured according to IEC 60950 - 5.2.4 - 5.2.5, valid for TT and TN mains and with regular Sinus. See introduction of this catalog, paragraph 3.5

(4) Measured according to IEC 60950 - Annex G.4, valid for IT mains. See introduction of this catalog, paragraph 3.5

Circuit diagram