

## Dual-stage EMI Filter with Excellent Attenuation Performance

### Feature and Benefits

- EN 2090 two-stage filters are designed for easy and fast chassis mounting.
- EN 2090 filters are also available as B versions with no Y-capacitors for medical applications as well as A versions with low capacitance for safety critical applications with a requirement for low leakage currents.
- All filters provide an exceptional conducted attenuation performance, based on chokes with high permeable core material and excellent thermal behavior.
- EN 2090 filters are also available as Single stage filters (EN 2030)
- EN 2090 filters offers an optimized filter range for enhanced performance AC and DC applications
- Various terminal options allow you to select the desired connection style
- Rated currents from 1 to 30A Approvals
- Two-stage filter
- Very high differential and common-mode attenuation
- Optional medical versions (B type)
- Optional safety versions (A type)
- Optional overvoltage protection (Z type)

### Technical specifications

Maximum continuous operating voltage	250VAC, 50/60Hz
Operating Frequency	DC to 400Hz
Rated Currents	1 to 30A @40°C
High Potential Test voltage	L-GND 2550 VDC for 2 sec L-GND 3500 VDC for 2 sec (B types) L - N 1100 VDC for 2 sec
Temperature range (operation and storage)	-25°C to +100°C (25/100/21)
Certified to	UL 1283, EC/EN60939 (Applies to AC and DC Applications)
Flammability Corresponding to	UL 94V-2 better

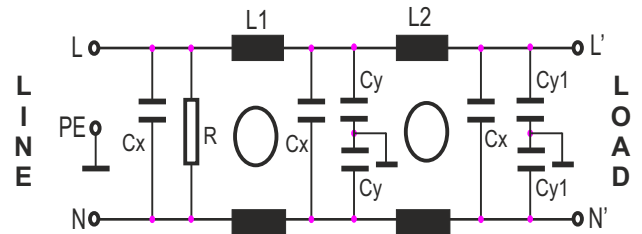
\* maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

### Typical Application

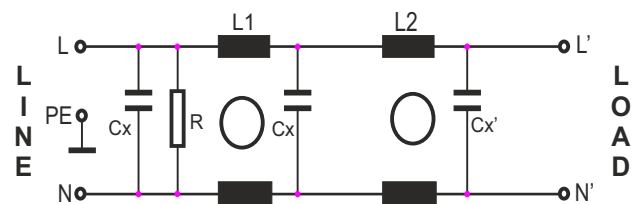
- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Medical equipment
- Electronic data processing equipment
- Office automation and datacenter equipment
- EV application
- Various noisy applications requiring high filter performance



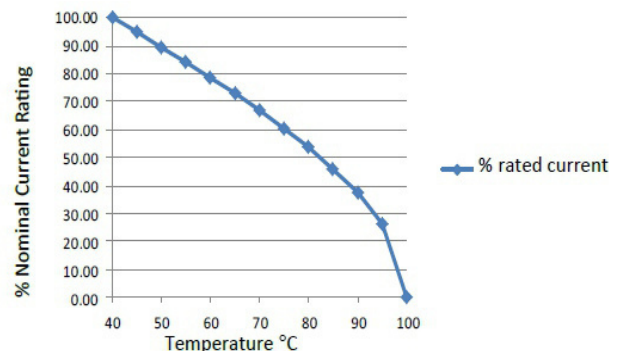
### ELECTRICAL SCHEMATIC






#### Type B (Medical Version)



Temperature Derating Curve for EMC Filters Rated at 40°C Ambient and 100°C Maximum



## FILTER SELECTION TABLE

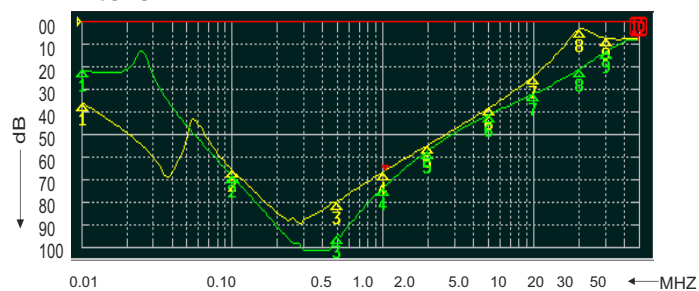
Filters**	Rated current @40°C A	Leakage current @250V/50Hz mA	Inductance (L-L) ΣL mH	Capacitance (L-N) ΣCx μF	Capacitance (L-G) ΣCy nF	Resistance (L-N) ΣR KΩ	Connetion type			Weight gram (g)
										
EN2090-1-X	1(1.15)	0.5	40	0.66	6.2	680	F	W		70
EN2090-3-X	3(3.45)	0.5	28	0.99	6.2	470	F	W		155
EN2090-4-X	4(4.50)	0.5	28	0.99	6.2	470	F	W		155
EN2090-6-X	6(6.90)	0.67	16	1.41	8.6	330	F	W		190
EN2090-8-X	8(8.90)	0.67	16	1.41	8.6	330	F	W		320
EN2090-10-X	10(11.5)	0.67	16	1.41	8.6	330	F	W		350
EN2090-12-X	12(13.8)	1.02	8	3.00	22	220	F	W		390
EN2090-16-X	16(18.4)	1.02	8	3.00	22	220	F	W		440
EN2090-20-X	20(23.0)	1.02	5.4	3.00	22	220	F		S	530
EN2090-30-S	30(34.5)	1.02	3	3.00	22	220			S	550
<b>Low Leakage Version</b>										
EN2090A-1-X	1(1.15)	0.08	40	0.66	1.88	680	F	W		70
EN2090A-3-X	3(3.45)	0.08	28	0.99	1.88	470	F	W		155
EN2090A-4-X	4(4.50)	0.08	28	0.99	1.88	470	F	W		155
EN2090A-6-X	6(6.90)	0.08	16	1.41	1.88	330	F	W		190
EN2090A-8-X	8(8.90)	0.08	16	1.41	1.88	330	F	W		320
EN2090A-10-X	10(11.5)	0.08	16	1.41	1.88	330	F	W		350
EN2090A-12-X	12(13.8)	0.08	8	3.00	1.88	220	F	W		390
EN2090A-16-X	16(18.4)	0.08	8	3.00	1.88	220	F	W		440
EN2090A-20-X	20(23.0)	0.08	5.4	3.00	1.88	220	F		S	530
EN2090A-30-S	30(34.5)	0.08	3	3.00	1.88	220			S	550
<b>Medical Version Without Y cap</b>										
EN2090B-1-X	1(1.15)	0.002	40	0.66		680	F	W		70
EN2090B-3-X	3(3.45)	0.002	28	0.99		470	F	W		155
EN2090B-4-X	4(4.50)	0.002	28	0.99		470	F	W		155
EN2090B-6-X	6(6.90)	0.002	16	1.41		330	F	W		190
EN2090B-8-X	8(8.90)	0.002	16	1.41		330	F	W		320
EN2090B-10-X	10(11.5)	0.002	16	1.41		330	F	W		350
EN2090B-12-x	13(00.0)	0.002	8	3.00		220	F	W		390
EN2090B-16-X	16(18.4)	0.002	8	3.00		220	F	W		440
EN2090B-20-X	20(23.0)	0.002	5.4	3.00		220	F		S	530
EN2090B-30-S	30(34.5)	0.002	3	3.00		220			S	550

To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. EN 2090-30-S, EN 2090B-10-F). The different letters code the  
 \*\* Maximum leakage under usual AC operating conditions (acc. IEC 60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

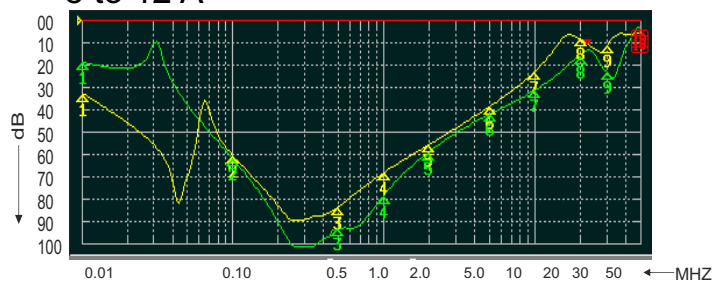
# TYPICAL INSERTION LOSS, dB (50/50 Ohm)

Insertion Loss: Common mode - —  
 Differential mode- —

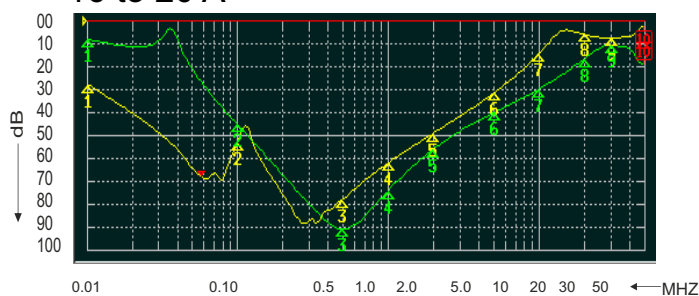
1 to 6 A



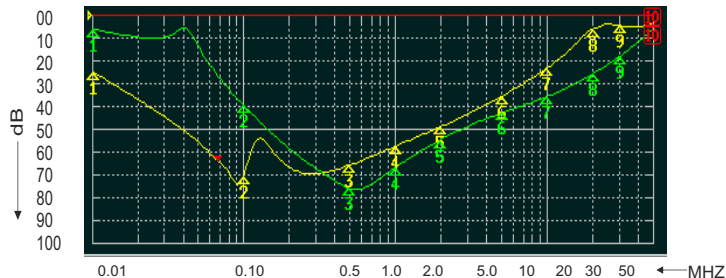
8 to 12 A



16 to 20 A

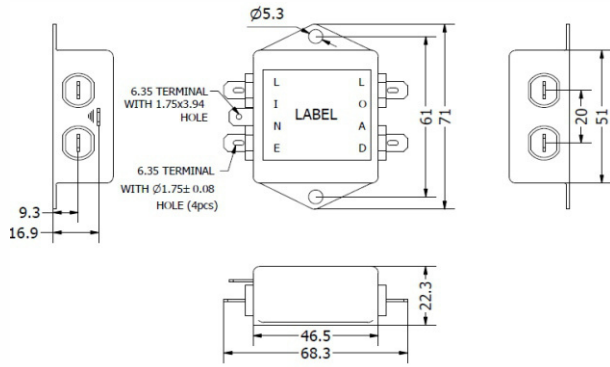


30 A

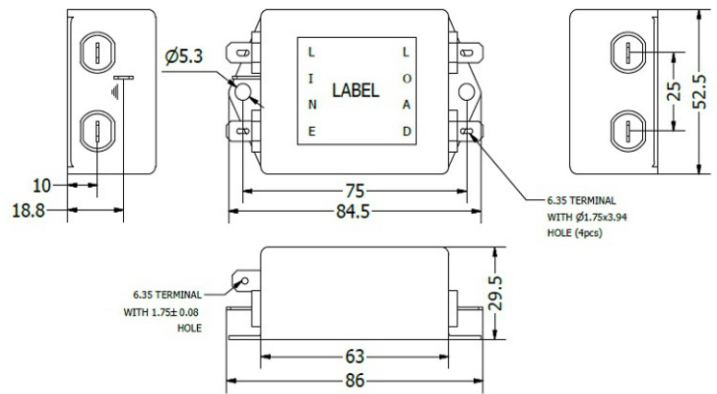


## MECHANICAL DETAILS

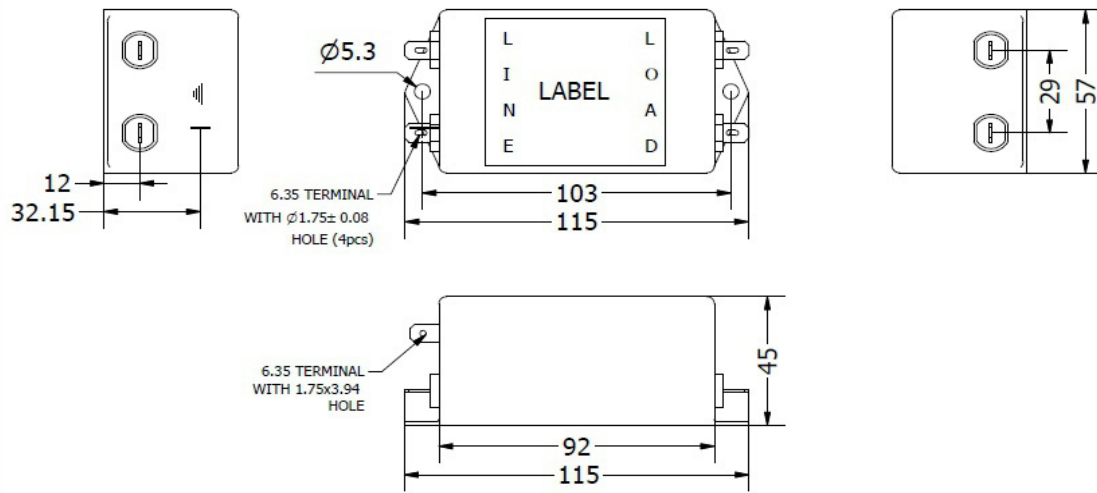
### 1 Amp Faston Terminal



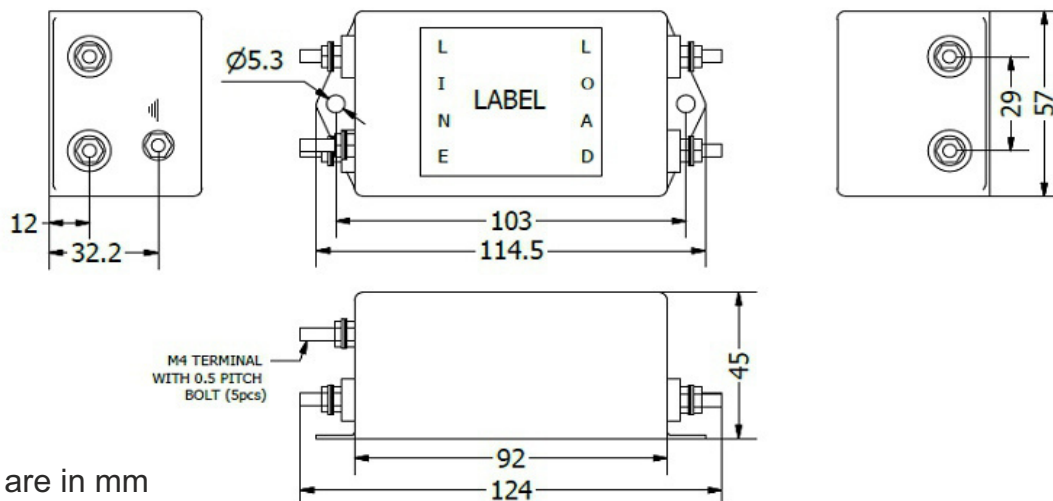
### 3 to 6 Amp Faston Terminal



### 8 to 20 Amp Faston Terminal



### 20 & 30 Amp Screw Terminal (M4)



\*\*All Dimension are in mm



# FILTERS RECOMMENDATIONS

Contact Us: 0044 (0) 1704-516 501 enquiries@united-automation.com www.united-automation.com



## APPLICATION AND BASIC DIFFERENCE OF ALL EN20XX SERIES

Sn	Series	Type	Rated Current (A)	Stage	Performance	Circuit details	Application	Medical Version	Low Leakage	Surge Protection
1	EN2010	Single Phase	1, 3, 6, 10, 12, 13, 16, 20, 30	Single	General Attenuation		General Purpose Application, Household equipment, medical equipment office automation & Electrical and Electronics equipment	Available	Available	
2	EN2020	Single Phase	1, 3, 6, 10, 12, 16, 20, 30	Single	High differential Mode Attenuation		General Purpose Application, Household equipment, medical Equipment office automation, datacom application & Electrical and Electronics equipment	Available	Available	
3	EN2030	Single Phase	1, 3, 4, 6, 8, 10, 12, 16, 20, 30	Single	High differential Mode Attenuation		General Purpose Applications, Household equipment, medical Equipment office automation & Electrical and Electronics equipment, high noise application	Available	Available	**Available, 2KV IEC 61000-4-5
4	EN2060	Single Phase	1, 3, 6, 10, 12, 16, 20, 30	Dual	High differential & Common Mode attenuation		Industrial Applications, Building Automation, Household equipment, medical equipment office automation, Electronics data processing equipment & Various Noisy applications, Motor drives and applications.	Available	Available	
5	EN2070	Single Phase	1, 3, 6, 10, 12, 16, 25, 36	Dual	High differential & Common Mode attenuation		Industrial Applications, Building Automation, Household equipment, Medical Equipment office automation, Electronics data processing equipment & Various Noisy applications, Motor drives and applications.	Available	Available	
6	EN2080	Single Phase	1, 3, 6, 10, 12, 16	Dual	High differential & Common Mode attenuation		Industrial Applications, Building Automation, Household equipment, medical equipment, office automation, Electronics data processing equipment & Various Noisy applications, Motor drives and applications.	Available	Available	
7	EN2090	Single Phase	1, 3, 4, 6, 8, 10, 12, 16, 20, 30	Dual	Very high differential & Common Mode attenuation		Industrial applications, Building Automation, Household equipment, Medical Equipment, office automation, Electronics data processing equipment & Various Noisy applications, Motor drives and applications.	Available	Available	**Available, 2KV IEC 61000-4-5

Note: \*\* Surge protection Filter is only CE and ROHS Approved



BMF House - Wight Moss Way,  
Southport Business Park  
Southport PR8 4HQ  
ENGLAND

unitedautomationltd UA\_Limited

