

X10842

Power Line Filter – EMI Filter

EN 2090 Series

Dual-Stage High Performance EMI Filters



CONTACT US:

☎ 0044 (0) 1704-516 501

✉ enquiries@united-automation.com

🌐 www.united-automation.com

KEY FEATURES:

- ✓ Dual-stage EMI filter design for superior noise suppression
- ✓ Exceptional differential and common-mode attenuation
- ✓ Rated for up to 30A at 250VAC / 50–60Hz
- ✓ Medical (B type) and safety (A type) versions available
- ✓ Overvoltage protection optional (Z type)
- ✓ Thermally stable chokes for long-term performance
- ✓ UL 1283 and EN60939 compliant for AC/DC use
- ✓ Flexible connection options for fast installation

APPLICATIONS:

- EV applications and automation systems
- Motor drives and variable frequency drives (VFDs)
- Electronic data processing and office equipment
- Consumer electronics and medical devices
- High-noise environments requiring premium filter performance

EN 2090 – Dual-Stage High Performance EMI Filters

The **EN 2090 series** offers superior **dual-stage EMI filters** designed for demanding AC and DC applications. Engineered with **high-permeability core chokes** and excellent thermal stability, these filters deliver **exceptional differential and common-mode attenuation**. Ideal for use in environments with high electrical noise, they are certified to international standards and offer a wide range of **rated currents from 1A to 30A**.

The EN 2090 range includes:

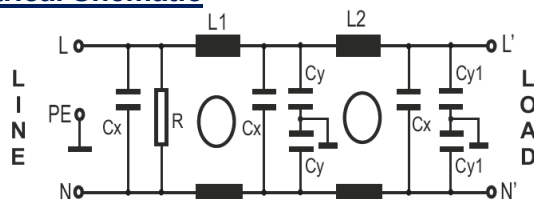
- **Type A** (low leakage for safety-critical environments)
- **Type B** (Y-capacitor-free for medical applications)
- **Type Z** (optional overvoltage protection)

Built for **easy chassis mounting** and available with various terminal configurations, EN 2090 filters are also offered in single-stage variants (EN 2030 series) for lighter-duty installations.

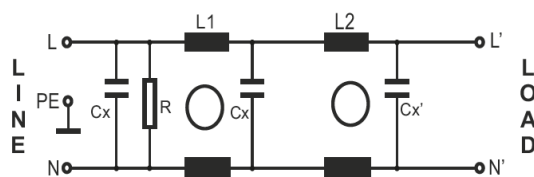
TECHNICAL SPECIFICATIONS

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	

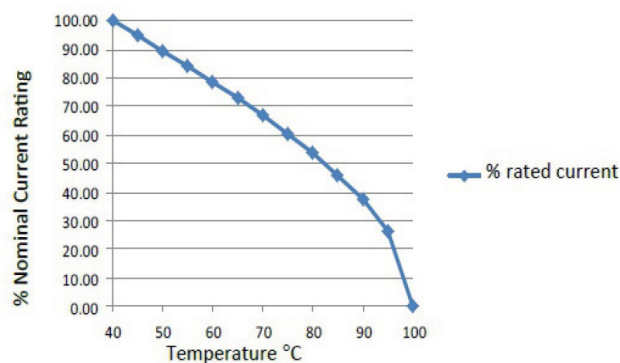
Electrical Schematic



Type B (Medical Version)



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






YOU MUST READ THIS BEFORE INSTALLATION

ELECTRICAL SAFETY	INSTALLATION REQUIREMENTS	USER RESTRICTIONS	USAGE ENVIRONMENT	HOT SURFACE WARNING
WARNING: RISK OF ELECTRIC SHOCK Always consult the Installation & Maintenance Instructions before connecting this product to the power supply. WARNING: Disconnect Power Before Servicing Ensure the electrical supply is safely disconnected before connecting to any supply, load, or control terminals.	WARNING: Installation by Qualified Personnel Only This product must only be installed or fitted by a competent, qualified installer familiar with the relevant electrical standards and installation practices.	WARNING: Not for Use by Vulnerable Individuals This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or instructed by a person responsible for their safety.	WARNING: Industrial Use Only This is an industrial-grade product and is not intended for household use.	WARNING: Hot Surfaces On certain models, surfaces marked with this symbol become hot during use. Avoid direct contact and follow all thermal safety precautions.

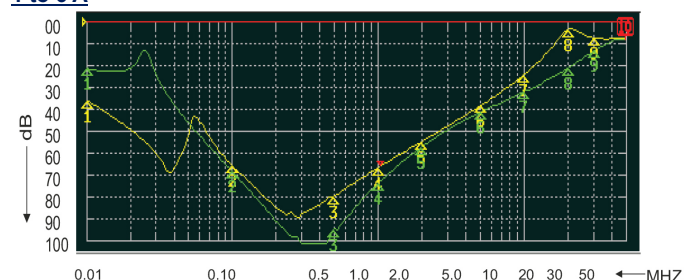
EN 2090 Series

Dual-Stage High Performance EMI Filters

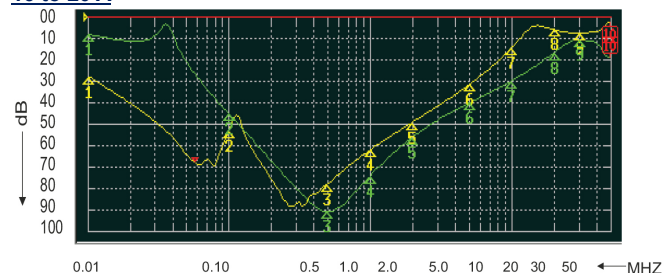
FILTER SELECTION TABLE

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 K Ω	Connection type			Weight gram (g)
										
EN2090-1-X	1(1.15)	0.5	28	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	22	220	F	W		390
EN2090-16-X	16(18.4)	1.02	8	3	22	220	F	W		440
EN2090-20-X	20(23.0)	1.02	5.4	3	22	220	F		S	530
EN2090-30-S	30(34.5)	1.02	3	3	22	220			S	550
Low Leakage Version										
EN2090A-1-X	1(1.15)	0.08	28	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	1.88	220	F	W		390
EN2090A-16-X	16(18.4)	0.08	8	3	1.88	220	F	W		440
EN2090A-20-X	20(23.0)	0.08	5.4	3	1.88	220	F		S	530
EN2090A-30-S	30(34.5)	0.08	3	3	1.88	220			S	550
Medical Version Without Y cap										
EN2090B-1-X	1(1.15)	0.002	28	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		220	F	W		390
EN2090B-16-X	16(18.4)	0.002	8	3		220	F	W		440
EN2090B-20-X	20(23.0)	0.002	5.4	3		220	F		S	530
EN2090B-30-S	30(34.5)	0.002	3	3		220			S	550

TYPICAL INSERTION LOSS, dB (50/50 Ohm) 1 to 6 A

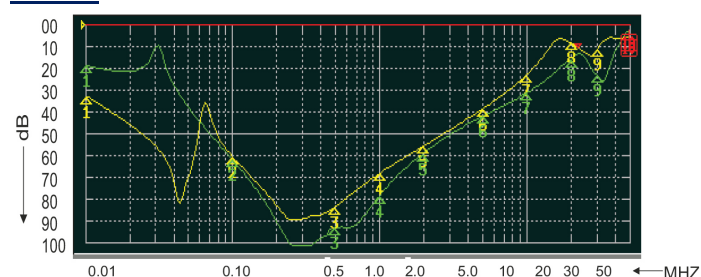


16 to 20 A

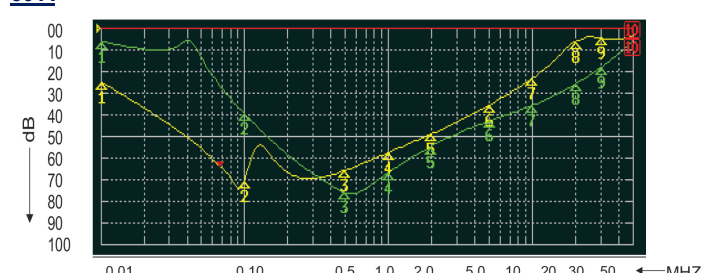


Insertion Loss: Common mode - —
Differential mode - —

8 to 12 A



30 A



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

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🌐 www.united-automation.com



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23 July 2025 | Issue: 4

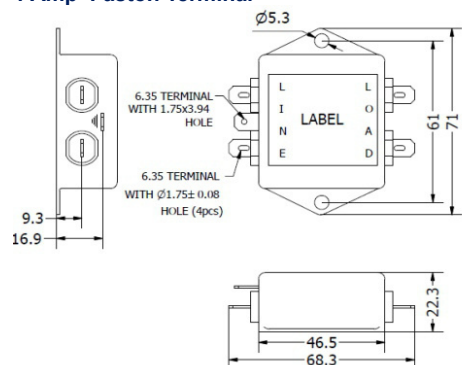
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EN 2090 Series

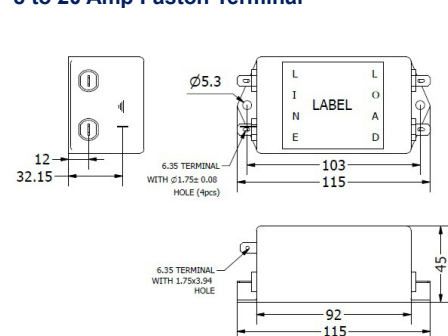
Dual-Stage High Performance EMI Filters

Mechanical Details

1 Amp Faston Terminal

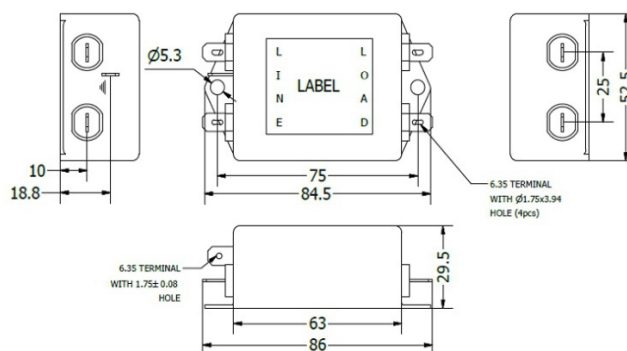


8 to 20 Amp Faston Terminal

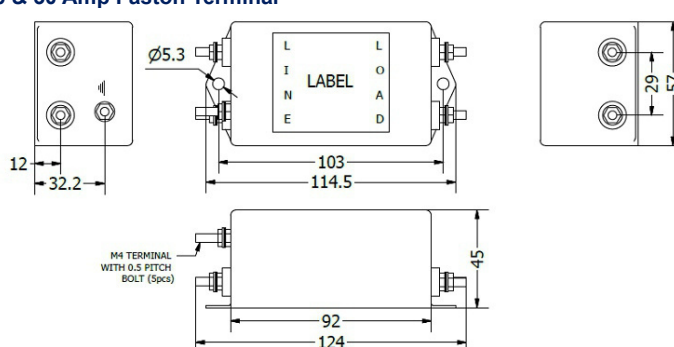


****All Dimension are in mm**

3 to 6 Amp Faston Terminal



20 & 30 Amp Faston Terminal



RECOMMENDATIONS

FUSING

It is recommended to use semiconductor (fast acting) type fuses or circuit breakers (Semiconductor - MCB) for unit protection. On initial switch on some loads may need an increased Factor of Safety (F of S) for unit and/or device protection. See SRA datasheet for information.

DOCUMENTS

Other documents available on request, which may be appropriate for your application:

Code	Identity	Description
X10229	RFI	Filter recommendations: Addressing the EMC Directive
X10213	ITA	Interaction: Uses for phase angle and for burst fire control
X10255	SRA	Safety Requirements: Addressing the Low Voltage Directive (LVD) including, Thermal Data/Cooling, Live Parts Warning, Earthing Requirements and Fusing Recommendations

It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.T. regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding the safety of electrical equipment. For International standards refer STANDARDS on D of C.

[illegible]

Product Code	Product Description
A-EN2090-3-F	Single phase Chassis Mount EMI/RFI filter 90 series, 3A, Fast On
A-EN2090-6-F	Single phase Chassis Mount EMI/RFI filter 90 series, 6A, Fast On

FILTERS RECOMMENDATIONS



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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

