EMC filters

3-line filters
for converters and power electronics
Rated current 8 to 220 A

Series/Type: **B84143G*R110**
Date: January 2006

Power line filters for 3-phase systems
Rated voltage 520/300 V AC, 50/60 Hz
Rated current 8 to 220 A

Alternative version

- Series B84143A*R105
  offers a low-cost solution.

Construction

- 3-line filter
- Metal case
- Book size

Features

- High insertion loss
- Optimized leakage current
- Space saving by optimized footprint
- Litz wires on the load side reduce mounting time
- Low weight
- Degree of protection: IP 20[1)]
- Optimized for long motor cables and operation under full load
- Design complies with EN 133200, UL 1283, CSA C22.2 No.8
- UL approval

Applications

- Frequency converters for motor drives, e.g. elevators, pumps, traction systems, conveyor systems, HVAC systems (heating, ventilation and air conditioning)
- Wind farms
- Power supplies

Terminals

- Line side: Finger-safe terminal blocks
- Load side: Litz wires

Marking

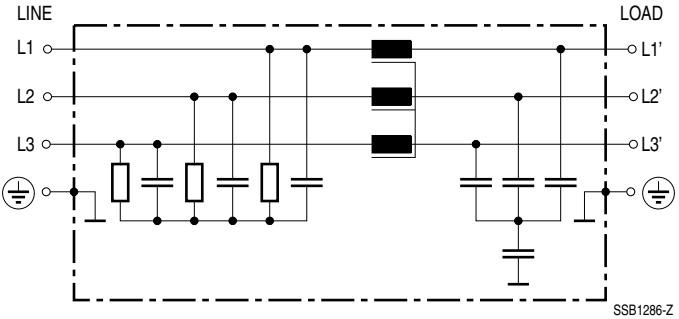
Marking on component:
Manufacturer's logo, ordering code,
rated voltage, rated current, rated temperature,
climatic category, date code

Minimum marking on packaging:
Manufacturer's logo, ordering code

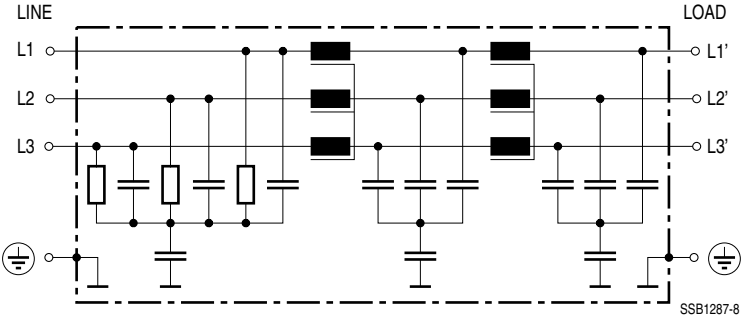
1) To IEC 60529

Typical circuit diagrams

Filters for 8 … 25 A



Filters for 36 … 220 A



Technical data and measuring conditions

Rated voltage V_R	520/300 V AC, 50/60 Hz
Rated current I_R	Referred to 40 °C ambient temperature
Test voltage V_{test}	1770 V DC, 2 s (line/line) 2700 V DC, 2 s (lines/case)
Overload capability (thermal)	1.5 · I_R for 3 min per hour or 2.5 · I_R for 30 s per hour
Leakage current I_{leak}	At 480 V AC, 50 Hz
Climatic category (IEC 60068-1)	25/100/21 (–25 °C/+100 °C/21 days damp heat test)
Approvals	UL 1283 for 480 V AC. For 520 V AC pending.

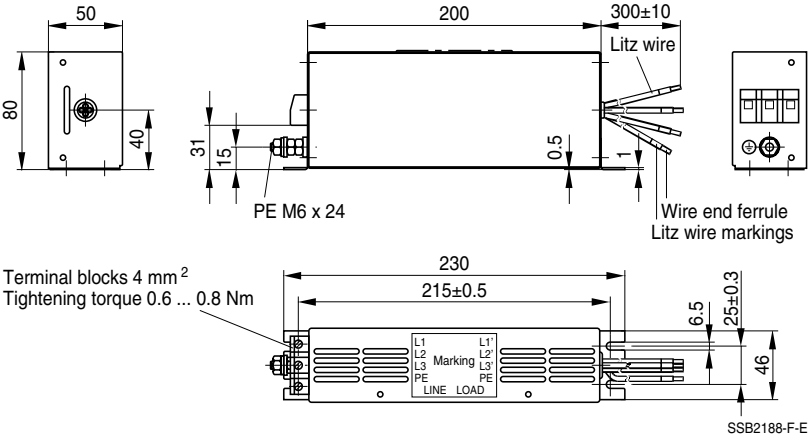
Characteristics and ordering codes

V_R AC	I_R	Terminal cross section		I_{leak}	R_{typ}	Approx. weight	Ordering code	Approvals (480 V)
		Line side: terminal blocks	Load side: litz wires					
V	A	mm²	mm²	mA	mΩ	kg		
520/300	8	4	1.5	< 6	40	1.3	B84143G0008R110	×
	20	4	2.5	< 6	10	1.3	B84143G0020R110	×
	25	4	2.5	< 6	10	1.3	B84143G0025R110	–
	36	6	6.0	< 16	5.2	2.8	B84143G0036R110	×
	50	16	10	< 16	2.4	3.3	B84143G0050R110	×
	66	25	16	< 16	1.8	4.4	B84143G0066R110	×
	90	25	25	< 16	1.2	4.9	B84143G0090R110	×
	120	50	35	< 16	1.0	7.5	B84143G0120R110	×
	150	50	35	< 16	0.7	8.0	B84143G0150R110	×
	220	95	70	< 16	0.4	11.5	B84143G0220R110	×

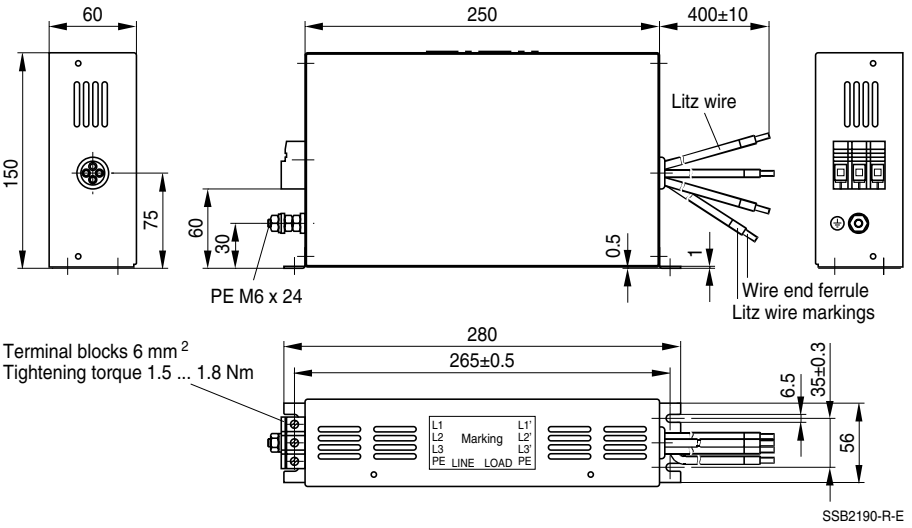
× = approval granted

Dimensional drawings

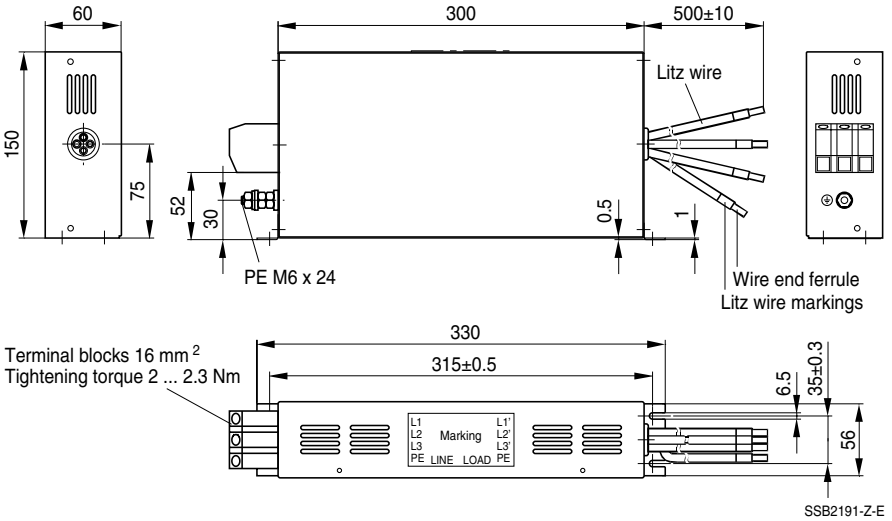
B84143G0008R110, B84143G0020R110, B84143G0025R110 (8 A to 25 A)



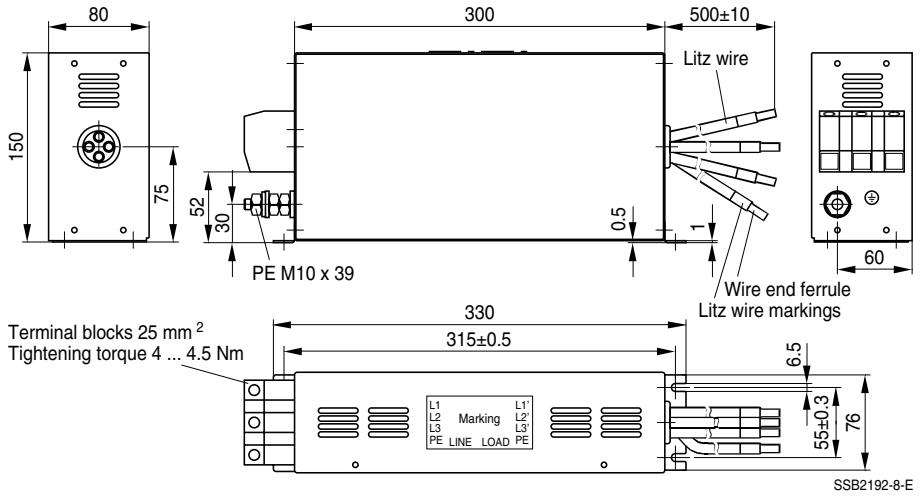
B84143G0036R110 (36 A)



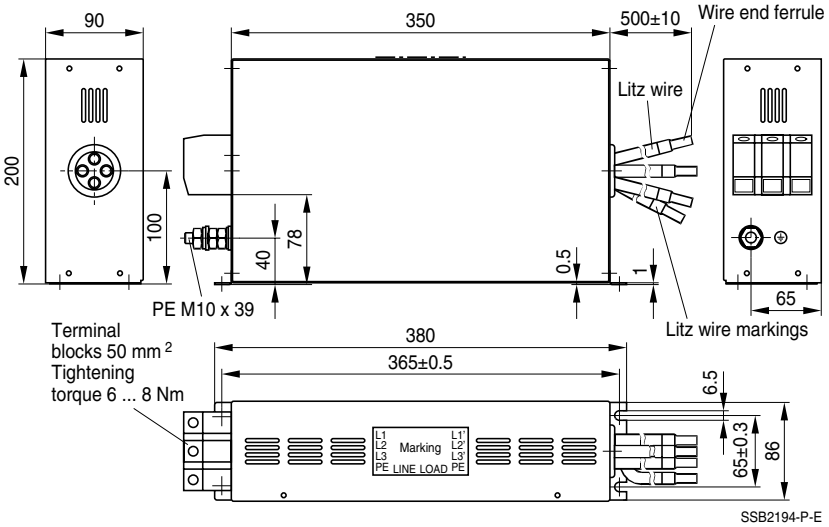
B84143G0050R110 (50 A)



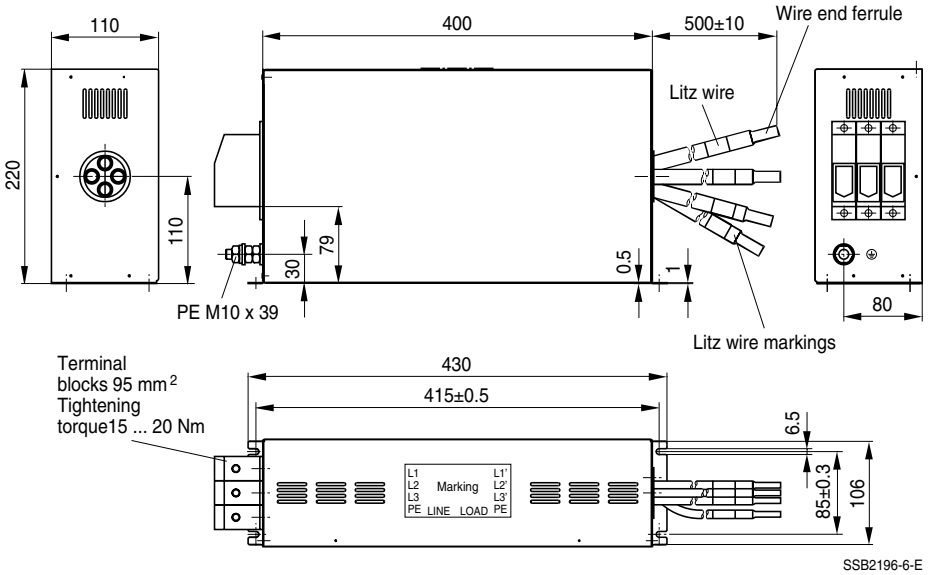
B84143G0066R110, B84143G0090R110 (66 A and 90 A)



B84143G0120R110, B84143G0150R110 (120 A and 150 A)



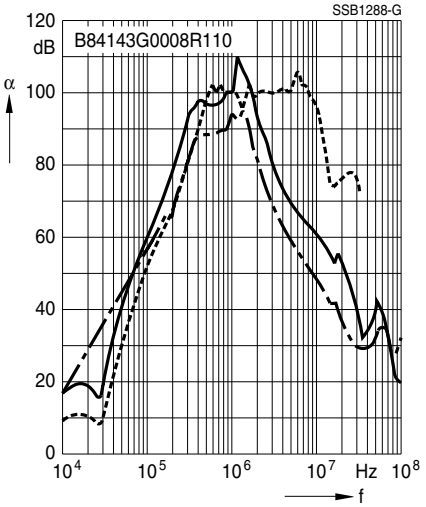
B84143G0220R110 (220 A)



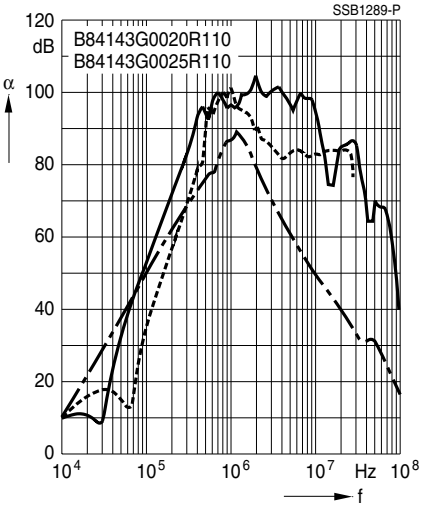
Insertion loss (typical values at Z = 50 Ω)

——————— unsymmetrical, adjacent branches terminated
—·—·—·—·— common mode, all branches in parallel (asymmetrical)
– – – – – – differential mode (symmetrical)

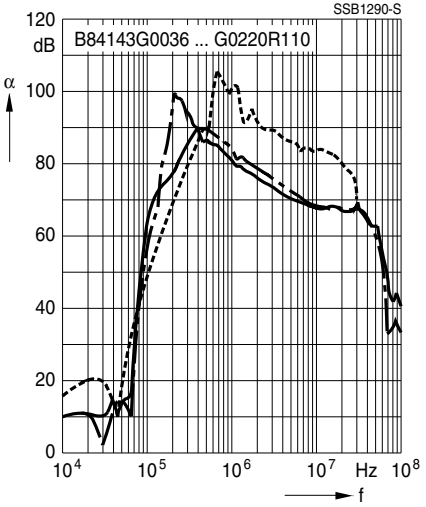
Filters for 8 A



Filters for 20 and 25 A



Filters for 36 … 220 A



Important information

Please read all safety and warning notes carefully before installing the EMC filter and putting it into operation (see ⚠). The same applies to the warning signs on the filter. Please ensure that the signs are not removed nor their legibility impaired by external influences.

Death, serious bodily injury and substantial material damage to equipment may occur if the appropriate safety measures are not carried out or the warnings in the text are not observed.

Using according to the terms

The EMC filters may be used only for their intended application within the specified values in low-voltage networks in compliance with the instructions given in the data sheets and the data book. The conditions at the place of application must comply with all specifications for the filter used.

⚠ Warnings

- It shall be ensured that only qualified persons (electricity specialists) are engaged on work such as planning, assembly, installation, operation, repair and maintenance. They must be provided with the corresponding documentation.
- Danger of electric shock. EMC filters contain components that store an electric charge. Dangerous voltages can continue to exist at the filter terminals for longer than five minutes even after the power has been switched off.
- The protective earth connections shall be the first to be made when the EMC filter is installed and the last to be disconnected. Depending on the magnitude of the leakage currents, the particular specifications for making the protective-earth connection must be observed.
- Impermissible overloading of the EMC filter, such as impermissible voltages at higher frequencies that may cause resonances etc. can lead to destruction of the filter housing.
- EMC filters must be protected in the application against impermissible exceeding of the rated currents by suitable overcurrent protective.

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