EMC Filters

4-line active filter LeaXield for leakage current compensation

Series/Type:	**B84234A1500R000**
Date:	March 2026
Version:	02

Rated voltage V_R: 305/530 V AC
Rated current I_R: 50 A
Peak load side leakage current $I_{LK\text{-}LOAD}$: 1 A

U.S. Patent No. 10,069,480

Construction

- 4-line filters
- Metal case
- Book size

Features

- High leakage current compensation
- Optimization of the RCD compatibility [1)]
- Easy to install
- No external power supply for LeaXield needed
- Degree of protection: IP 20

Typical applications

- Drives
- Machine tools
- Pumps
- Compressors
- Transport systems
- Pluggable machines

Terminals

- Finger-safe terminals

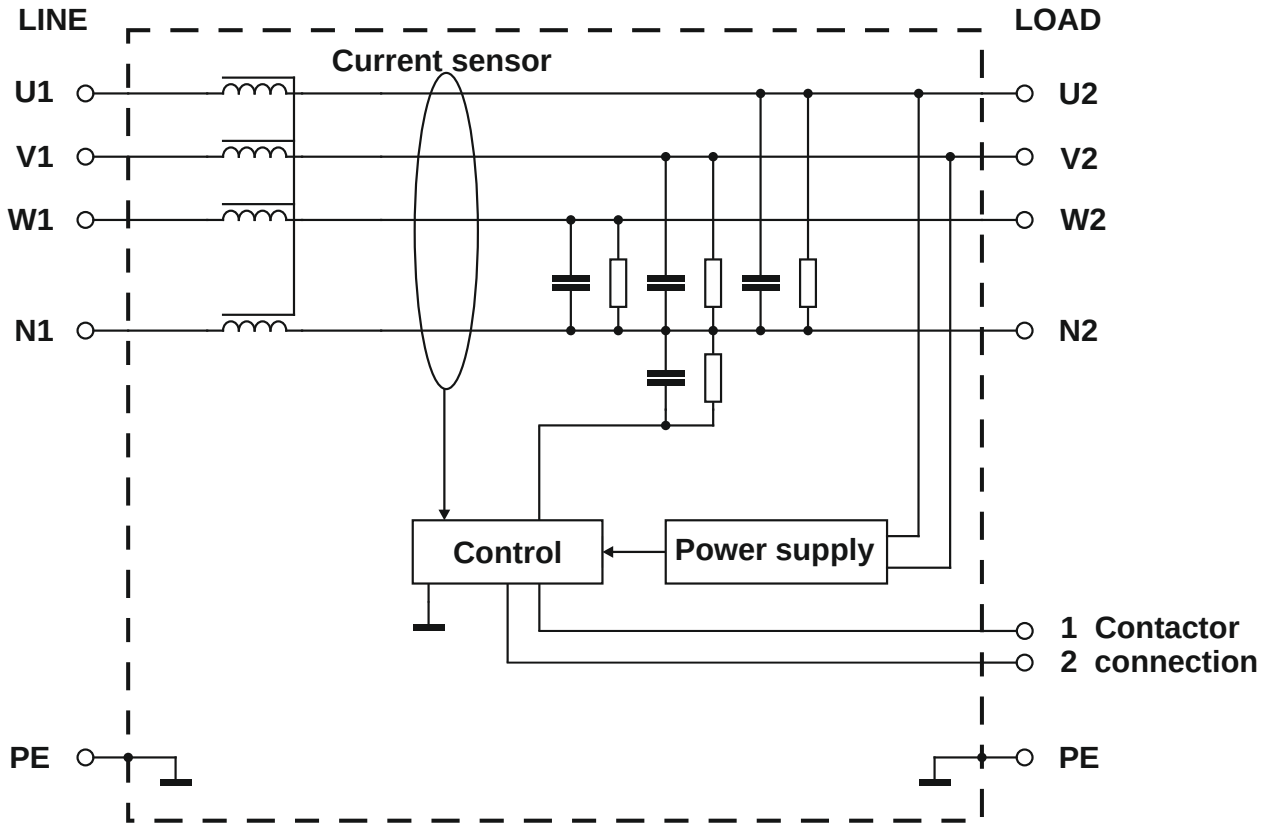
Marking

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

Minimum data on packaging:
Manufacturer’s logo, ordering code, quantity, date code

1) RCD = Residual Current protective Device, see technical data

Typical circuit diagram



Technical data and measuring conditions

Rated voltage	V_R [L–PE / L–L]	305/530 V AC (50 Hz)
Minimum operating voltage	V_{min} [L–PE / L–L]	208/360 V AC (50 Hz)
Rated current	I_R	50 A (Referred to 50 °C rated temperature)
Rated temperature	T_R	50 °C
Test voltage: - line to line for 2 s - line to case for 2 s	 V_{test} [L-L] V_{test} [L-Case]	 1770 V DC 1500 V DC
Overload capability (thermal)		1.5 x I_R for 3 min per hour or 2.5 x I_R for 30 s per hour
Peak load side leakage current Load side leakage current frequency range	$I_{LK-LOAD}$ $f_{LK-LOAD}$	up to 1 A 150 Hz … 30 kHz
Contactor connection: - Maximum voltage - Maximum current	 V_{max} I_{max}	 24 V DC / 250 V AC 2 A
Climatic category (IEC 60068-1: 2013)		25/100/21
Degree of protection (IEC 60529: 2015)		IP 20

Characteristics and ordering codes

I_R	Terminal cross section		R_{typ}	Approx. weight	Ordering code	Approvals [2]		
	Line/Load	Contactor connection						
A	mm^2	mm^2	mΩ	kg				
50	16	4	1.0	1.9	B84234A1500R000	-	-	-

2) **X** = approval granted **P** = pending **D** = designed with reference to **-** = none

Functional description

LeaXield was developed to significantly reduce the earth leakage currents that are produced in variable-speed drive systems. It enables the operation of systems with high earth leakage currents together with the use of residual current protective devices (RCDs). LeaXield thus plays a valuable role in industrial applications with variable-speed drives such as those in machine tools, pumps, compressors, conveyance systems, and other pluggable devices.

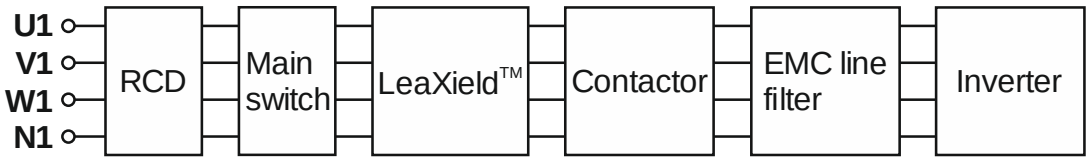
LeaXield is inserted in the power line and requires no additional power supply. In order for LeaXield to be ready for operation before leakage currents flow, there must be a contactor in the power line. The contactor must be on the load side of the LeaXield and have a minimum time delay of 2 s. If this is not possible, the built-in contactor connection on the LeaXield can be used. This ensures that the contactor is switched with a delay when the mains is switched on. Refer to the diagram below for installation.

LeaXield is an active leakage current filter that does not need any additional power supply. Attenuation of more than 35 dB is possible within a frequency range of 150 Hz up to 30 kHz.

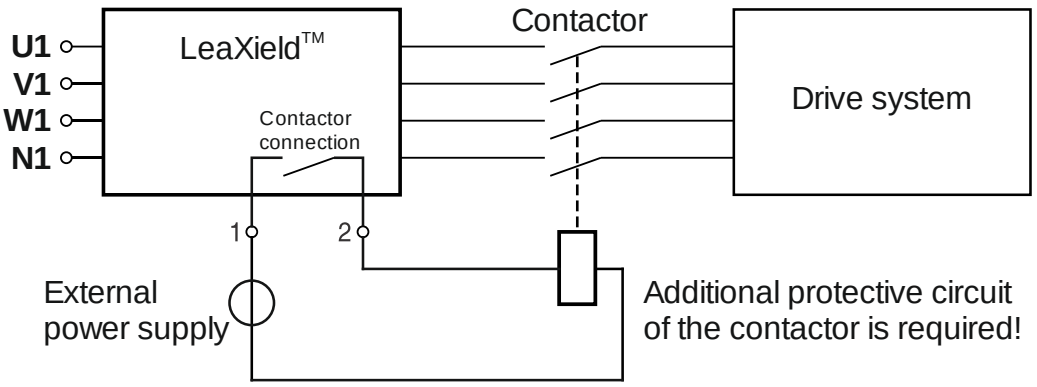
LeaXield can improve EMC performance of existing systems. For example, other EMC measures within the system can be reduced.

Note: According to EN 50178 / VDE 0160, only type B/B+ RCDs are allowed in variable-speed drive systems!

Recommended system configuration

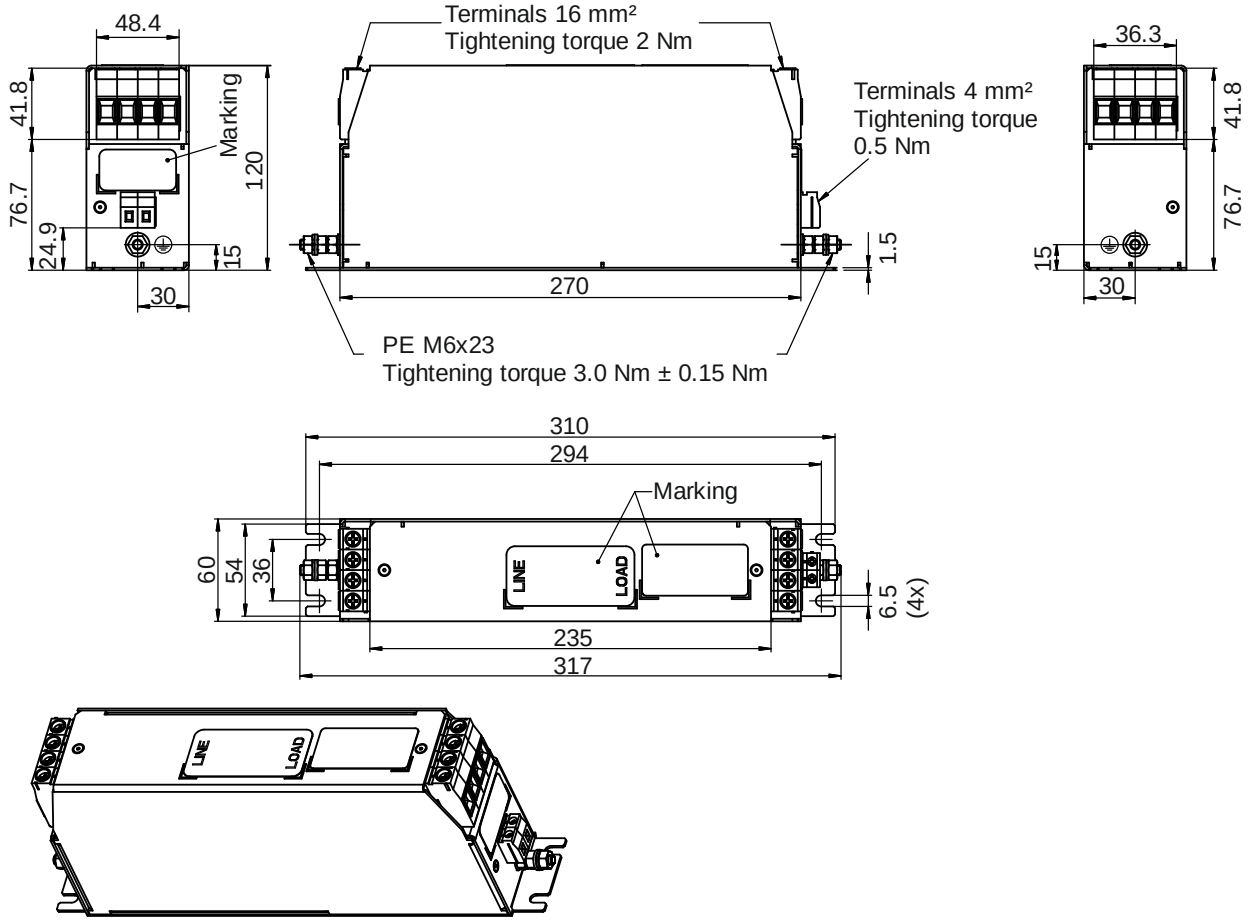


Wiring of contactor connection



Dimensional drawing

B84234A1500R000 (50 A)



General tolerances
according to ISO 2768−cL
Dimensions in mm

Cautions and warnings

- Please note further advice in our website www.tdk-electronics.tdk.com/**pemc_filters_gti**
- 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: The products contain components that store an electric charge. Dangerous voltages can continue to exist at the product 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 product is installed and secured against loosening by defined tightening torque. Remove them at last, when uninstalling. Depending on the magnitude of the leakage currents, the particular specifications for making the protective−earth connection must be observed.
- Impermissible overloading of the product, such as with circuits able to cause resonances, impermissible voltages at higher frequencies etc. can lead to bodily injury and death as well as cause substantial material damages (e.g. destruction of the product housing).
- The Products must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective devices.
- For leakage currents >10 mA, a fixed connection of the protective earth conductor to the public power grid is required. This means that connection via plug connectors is not permitted. The protective conductor must have a minimum cross-section of 10 mm^2 Cu or 16 mm^2 Al over its entire length. Alternatively, two separate protective conductors with the minimum cross-section specified in each case can also be connected.
- For leakage currents 3.5 mA < I_{LK} [a] ≤ 10 mA, the following solutions are possible:
  - Stationary device with fixed connection
  - Stationary device with type B plug-in connection (industrial plug-in connection according to IEC 60309) and cross-section ≥ 2.5 mm^2
  - Stationary device with type A plug-in connection (non-industrial plug-in device) and additional second protective earth connection
  - Movable equipment with type A plug-in connection and additional second protective earth connection in premises with restricted access
- The products must be protected in the application against impermissible exceeding of the specification parameter.
- The converter output frequency must be within the specified range to avoid resonances and uncontrolled warming of the output chokes and output filters.
- The components can become very hot during operation, there is the risk of burns if touched. The product can remain hot for some time after the power is switched off!
- The products are only to be attached to the fixings or mounting holes provided for this purpose in accordance with the data sheet. It is not permitted for the product specified in the data sheet to assume a mechanical function in the final application, in particular any type of tension or pressure on the product must be prevented.

[a] I_{LK} = Leakage current

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8. The trade names EPCOS, CarXield, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, FilterCap, FormFit, InsuGate, LeaXield, MediPlas, MiniBlue, MiniCell, MKD, MKK, ModCap, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PiezoBrush, PlasmaBrush, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SurfIND, ThermoFuse, WindCap, XieldCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at www.tdk-electronics.tdk.com/trademarks.

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