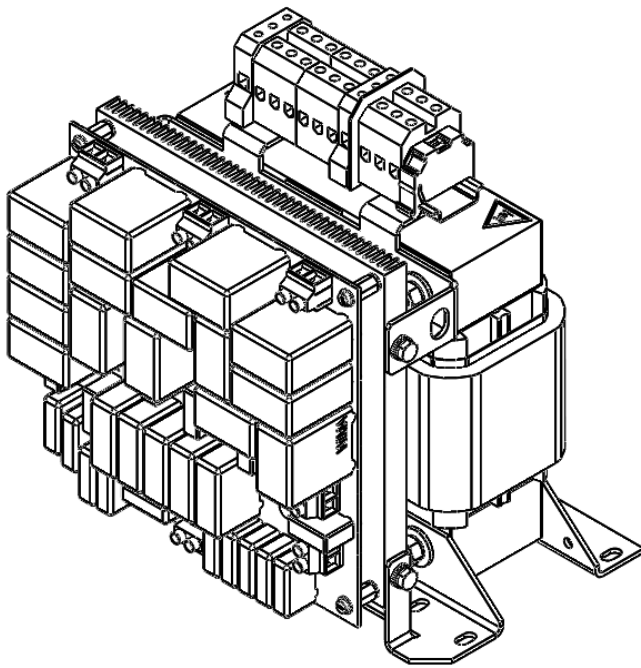


# dv/dt filter plus Voltage Peak Limiter

## Instruction manual



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<u>General</u>	<b>2</b>
<u>Mechanical installation</u>	<b>3</b>
<u>Electrical installation</u>	<b>4</b>
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<u>Technical specifications</u>	<b>6</b>

## Legal information

### Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 <b>DANGER</b>
---

Indicates that death or severe personal injury will result if proper precautions are not taken
--

 <b>WARNING</b>
--

Indicates that death or severe personal injury may result if proper precautions are not taken.
--

 <b>CAUTION</b>
--

With a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
--

<b>CAUTION</b>
----------------

Without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
---

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

### Qualified Personal

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation for the specific task, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

### Proper use of mdexx products

Note the following:

 <b>WARNING</b>
--

Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be adhered to. The information in the relevant documentation must be observed.
--

### Disclaimer of liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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# 1 Safety information

## 1.1 General safety instructions



**! WARNING**

**Electric shock and danger to life due to other energy sources**

Touching live components can result in death or severe injury.

- Only work on electrical devices when you are qualified for this job.
- Always observe the country-specific safety rules.

Generally, the following six steps apply when establishing safety:

1. Prepare for disconnection. Notify all those who will be affected by the procedure.
2. Isolate the drive system from the power supply and take measures to prevent it being switched back on again.
  - Wait until the discharge time specified on the warning labels has elapsed.
  - Check that there is no voltage between any of the power connections, and between any of the power connections and the protective conductor connection.
  - Check whether the existing auxiliary supply circuits are de-energized.
  - Ensure that the motors cannot move.
3. Identify all other dangerous energy sources, e.g. compressed air, hydraulic systems, or water.
4. Isolate or neutralize all dangerous energy sources, e.g. by closing of switches,
5. Switch the energy sources to a safe state.
6. Check that the correct drive system is completely locked.

After you have completed the work, restore the operational readiness in the inverse sequence.



**! WARNING**

**Electric shock due to connection to an unsuitable power supply**

When equipment is connected to an unsuitable power supply, exposed components may carry a hazardous voltage that might result in serious injury or death.

- Only use power supplies that provide SELV (Safety Extra Low Voltage) or PELV- (Protective Extra Low Voltage) output voltages for all connections and terminals of the electronics Modules.



**! WARNING**

**Electric shock due to equipment damage**

Improper handling may cause damage to equipment. For damaged devices, hazardous voltages can be present at the enclosure or at exposed components; if touched, this can result in death or severe injury.

- Ensure compliance with the limit values specified in the technical data during transport, storage and operation.
- Do not use any damaged devices.



**! WARNING**

**Electric shock due to unconnected cable shield**

Hazardous touch voltages can occur through capacitive cross-coupling due to unconnected cable shields.

- As a minimum, connect cable shields and the conductors of power cables that are not used (e.g. brake cores) at one end at the grounded housing potential.



**! WARNING**

**Electric shock if there is no ground connection**

For missing or incorrectly implemented protective conductor connection for devices with protection class I, high voltages can be present at open, exposed parts, which when touched, can result in death or severe injury.

- Ground the device in compliance with the applicable regulations.



**! WARNING**

**Arcing when a plug connection is opened during operation**

Opening a plug connection when a system is operation can result in arcing that may cause serious injury or death.

- Only open plug connections when the equipment is in a voltage-free state, unless it has been explicitly stated that they can be opened in operation.

**NOTICE**

**Property damage due to loose power connections**

Insufficient tightening torques or vibration can result in loose power connections. This can result in damage due to fire, device defects or malfunctions.

- Tighten all power connections to the prescribed torque.
- Check all power connections at regular intervals, particularly after equipment has been transported.

**! WARNING**

**Spread of fire from built-in devices**

In the event of fire outbreak, the enclosures of built-in devices cannot prevent the escape of fire and smoke. This can result in serious personal injury or property damage.

- Install built-in units in a suitable metal cabinet in such a way that Personnel are protected against fire and smoke, or take other appropriate measures to protect Personnel.
- Ensure that smoke can only escape via controlled and monitored paths.

 **WARNING**

**Unexpected movement of machines caused by radio devices or mobile phones**

When radio devices or mobile phones with a transmission power  $> 1$  W are used in the immediate vicinity of components, they may cause the equipment to malfunction. Malfunctions may impair the functional safety of machines and can therefore put people in danger or lead to property damage.

- If you come closer than around 2 m to such components, switch off any radios or mobile phones.

 **WARNUNG**

**Damage to motor insulation due to excessive voltages**

When operated on systems with grounded line conductor or in the event of a ground fault in a IT system, the motor insulation can be damaged by the higher voltage to ground. If the motor insulation is not designed for operation with grounded line conductors, you have to perform the following measures:

- IT system: Use a ground fault monitor and eliminate the fault as quickly as possible.
- TN or TT systems with grounded line conductor: Use an isolating transformer on the line side.

 **WARNING**

**Fire due to inadequate ventilation clearances**

Inadequate ventilation clearances can cause overheating of components with subsequent fire and smoke. This can cause severe injury or even death. This can also result in increased downtime and reduced service lives for devices/systems.

- Ensure compliance with the specified minimum clearance as ventilation clearance for the respective component.

 **WARNUNG**

**Unrecognized dangers due to missing or illegible warning labels**

Dangers might not be recognized if warning labels are missing or illegible. Unrecognized dangers may cause accidents resulting in serious injury or death.

- Check that the warning labels are complete based on the documentation.
- Attach any missing warning labels to the components, where necessary in the relevant language.
- Replace illegible warning labels.

**NOTICE**

**Device damage caused by incorrect voltage/insulation tests**

Incorrect voltage/insulation tests can damage the device.

- Before carrying out a voltage/insulation check of the system/machine, disconnect the devices, since converters and motors have been subject to a high voltage test by the manufacturer. Therefore it is not necessary to perform an additional test within the system/machine.

 **WARNING**

**Unexpected movement of machines caused by inactive safety functions**

Inactive or non-adapted safety functions can trigger unexpected machine movements that may result in serious injury or death.

- Observe the information in the appropriate product documentation before commissioning.
- Carry out a safety inspection for functions relevant to safety on the entire system, including all safety-related components.
- Ensure that the safety functions used in your drives and automation tasks are adjusted and activated through appropriate parameterizing.
- Perform a function test.
- Only put your system into live operation once you have guaranteed that the functions relevant to safety are running correctly.

## 1.2 Equipment damage due to electric fields or electrostatic discharge

Electrostatic sensitive devices are individual components, integrated circuits, modules or devices that may be damaged by either electric fields or electrostatic discharge (ESD)



### NOTICE

#### Equipment damage due to electric fields or electrostatic discharge

Electric fields or electrostatic discharge can cause malfunctions through damaged individual components, integrated circuits, modules or devices.

- Only pack, store, transport and send electronic components, modules or devices in their original packaging or in other suitable materials, e. g. conductive foam rubber or aluminum foil.
- Only touch components, modules and devices when you are grounded by one of the following methods:
  - Wearing an ESD wrist band
  - Wearing ESD shoes or ESD grounding straps in ESD areas with conductive flooring
- Only place electronic components, modules or devices on conductive surfaces (table with ESD surface, conductive ESD foam, ESD packaging, ESD transport container).

The necessary ESD protective measures are clearly illustrated in the following diagram:

- a = conductive floor surface
- b = ESD table
- c = ESD shoes
- d = ESD overall
- e = ESD wristband
- f = cabinet ground connection
- g = contact with conductive flooring

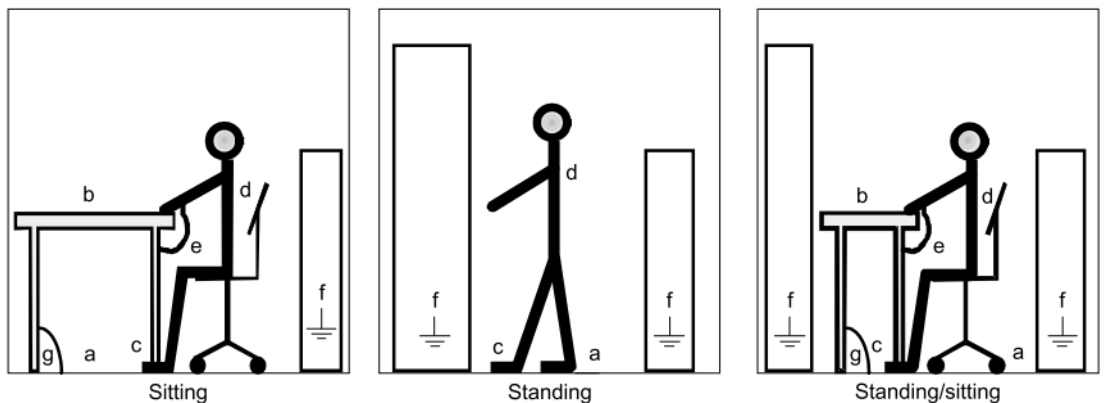


Figure 1-1 ESD protective measures



## 2 General

### 2.1 Description

The dv/dt filter plus Voltage Peak Limiter comprises two components: the dv/dt reactor and the voltage-limiting network (Voltage Peak Limiter), which cuts off the voltage peaks and feeds back the energy into the DC link. The dv/dt filter compact plus Voltage Peak Limiter is designed for use with motors for which the voltage strength of the insulation system is unknown or insufficient.

The dv/dt filter plus Voltage Peak Limiter limits the voltage rise dv/dt to  $< 500\text{V}/\mu\text{s}$  and the voltage peak on the motor cables to values in accordance with the limit value curve A in compliance with IEC/TS 60034-17.

- $< 1350\text{ V}$  by  $660\text{ V} < U_{\text{Line}} < 690\text{ V}$

#### WARNING

##### **Danger to life due to non-compliance with the basic safety instructions and residual risks**

Failure to observe the Basic Safety Instructions and Residual Risks in Chapter 1 may result in death or serious injury.

- Follow the basic safety instructions.
- Consider the residual risks in the risk assessment

#### WARNING

##### **Risk of fire due to overheating in the case of insufficient ventilation clearances**

Insufficient ventilation clearances can lead to overheating with personal injury due to smoke and fire. Furthermore, increased downtime and shortened component life can occur.

- Keep the ventilation clearances of 100 mm above and below the component.
- Mount the dv/dt filters only in a vertical position so that the heat sinks flow through the heat sinks from bottom to top.

#### NOTICE

##### **Risk of burns due to high surface temperature of the du / dt filter**

The dv/dt filters may exceed a surface temperature of over  $80\text{ }^{\circ}\text{C}$ . Touching the surface can cause severe burns.

- Mount the dv/dt filters so that touching is impossible. Where this is not possible, affix a warning in clearly visible and understandable places at places at risk

#### NOTICE

##### **Damage due to exchanged connections**

Interchanging the connections of input (1U1, 1V1, 1W1) and output (1U2, 1V2, 1W2) or DCNS / DCPS will damage the inverter and the voltage peak limiter (VPL).

**NOTICE**

**Damage to the dv/dt filter due to using not released components**

Using non-approved components may result in damage or malfunction of equipment or the system

- Use only dv/dt filter which correspond to the electrical data of the frequency inverter.

**NOTICE**

**Damage to the dv/dt filter due to exceeding the maximum output frequency**

The maximum allowable output frequency during the operation is 150Hz. Exceeding the maximum output frequency may damage the dv/dt filter.

- Operate the dv/dt filter with a maximum output frequency of 150Hz.

**NOTICE**

**Damage to the dv/dt filter due to exceeding the maximum pulse frequency**

The maximum allowable pulse frequency during the operation is 4kHz. Exceeding the pulse frequency may damage the dv/dt filter.

- When using a dv/dt filter, pulse frequency of the Power Module should be not higher than 4kHz

**NOTICE**

**Damage to the dv/dt filter due to missing activation durring the initial setup**

A missing activation during the initial setup may cause a damage to the dv/dt filter

- Activate the dv/dt filter during the initial setup via the parameter specified by the inverter manufacturer.

**NOTIVE**

**Damage to the dv/dt filter due to non-connected machine**

dv/dt filter that are operates without connect machine can be damaged or destroyed.

- Never operate the dv/dt filter with a Power Module without connected motor

**Note cable lengths:**

Keep the cable length to the Power Module as short as possible (max. 5m).

---

## 2.2 Assignment of dv/dt filter plus Voltage Peak Limiter and Power Module

Table 2- 1 Assignment of dv/dt filter plus Voltage Peak Limiter and Power Module

Order N. dv/dt-Filter	TEF1203-0GB	TEF1203-0HB	TEF1203-0JB
<b>Electrical data frequency inverter</b>			
Rated power	18.5 kW	37 kW	55 kW
Rated voltage (phase to phase)	690 V (+10%)	690 V (+10%)	690 V (+10%)
Rated output current (rms)	24 A	44 A	64 A
Maximum output current (rms)	38 A	70 A	104 A
Inductance (Tolerance $\pm$ 5%)	1,5 mH	1,2 mH	0,9 mH
Winding resistance (Tolerance $\pm$ 5%)	3x 20,9 m $\Omega$	3x 14,6 m $\Omega$	3x 10,24 m $\Omega$
Nominal switching frequency	2 kHz	2 kHz	2 kHz
Maximum switching frequency	4 kHz	4 kHz	4 kHz
Output current maximum switching frequency	14.4 A	26.4 A	38.4 A
Maximum inverter frequency	150 Hz	150 Hz	150 Hz
Voltage drop	17,15 V	17,13 V	17,97 V
Rated DC link voltage	935 V	935 V	935 V
Maximum voltage rise at motor terminals 1)	< 500 V/ $\mu$ s	< 500 V/ $\mu$ s	< 500 V/ $\mu$ s
Maximum peak voltage at motor terminals (phase to phase) 2)	1350 V	1350 V	1350 V
Maximum peak voltage at motor terminals (phase to earth) 2)	1100 V	1100 V	1100 V
Maximum cable length filter – motor (screened / unscreened)	350 m / 525 m	350 m / 525 m	350 m / 525 m
Terminal type	Screw terminals	Screw terminals	Screw terminals
Rated terminal cross section (load circuit)	16 mm <sup>2</sup>	35 mm <sup>2</sup>	50 mm <sup>2</sup>
Rated terminal cross section (DC link feedback) 3)	16 mm <sup>2</sup>	16mm <sup>2</sup>	16 mm <sup>2</sup>
Degree of protection 4)	IP00	IP00	IP00
Ambient temperature 5)	-20°C to 40°C	-20°C to 40°C	-20°C to 40°C

1) Voltage rise according IEC/TS 60034-17

2) Under nominal DC link voltage

3) Short-circuit-proof wiring is required

4) Installing the filter in an enclosure is required

5) Higher ambient temperatures up to 60°C allowed with current derating at 40°C, in the range 40...50°C with 1,5% per 1K and in the range 50...60°C with 1,9% per 1K

Table 2- 2 Assignment of dv/dt filter plus Voltage Peak Limiter and Power Module

Order N. dv/dt-Filter	TEF1203-0KB	TEF1203-0LB	TEF1203-0MB
<b>Electrical data frequency inverter</b>			
Rated power	90 kW	132 kW	250 kW
Rated voltage (phase to phase)	690 V (+10%)	690 V (+10%)	690 V (+10%)
Rated output current (rms)	103 A	146 A	260 A
Maximum output current (rms)	160 A	230 A	416 A
Inductance (Tolerance $\pm 5\%$ )	0,53 mH	0,37 mH	0,22 mH
Winding resistance (Tolerance $\pm 5\%$ )	3x 4,9 m $\Omega$	3x 3,25 m $\Omega$	3x 1,4 m $\Omega$
Nominal switching frequency	2 kHz	2 kHz	2 kHz
Maximum switching frequency	4 kHz	4 kHz	4 kHz
Output current maximum switching frequency	61.8 A	87.6 A	156 A
Maximum inverter frequency	150 Hz	150 Hz	150 Hz
Voltage drop	17,2 V	17,1 V	18,0 V
Rated DC link voltage	935 V	935 V	935 V
Maximum voltage rise at motor terminals <b>1)</b>	< 500 V/ $\mu$ s	< 500 V/ $\mu$ s	< 500 V/ $\mu$ s
Maximum peak voltage at motor terminals (phase to phase) <b>2) 6)</b>	1350 V ... 1500 V	1350 V ... 1500 V	1350 V ... 1500 V
Maximum peak voltage at motor terminals (phase to earth) <b>2)</b>	1100V	1100V	1100V
Maximum cable length filter – motor (screened / unscreened) <b>6)</b>	450 m / 650 m 525 m / 800 m	450 m / 650 m 525 m / 800 m	450 m / 650 m 525 m / 800 m
Terminal type	Bus bar M8	Bus bar M10	Bus bar M10
Rated terminal cross section (load circuit)	95 mm <sup>2</sup>	120 mm <sup>2</sup>	2x120 mm <sup>2</sup> 1x185 mm <sup>2</sup>
Rated terminal cross section (DC link feedback) <b>3)</b>	25 mm <sup>2</sup>	25 mm <sup>2</sup>	50 mm <sup>2</sup>
Degree of protection <b>4)</b>	IP00	IP00	IP00
Ambient temperature <b>5)</b>	-20°C to 40°C	-20°C to 40°C	-20°C to 40°C

1) Voltage rise according IEC/TS 60034-17

2) Under nominal DC link voltage

3) Short-circuit-proof wiring is required

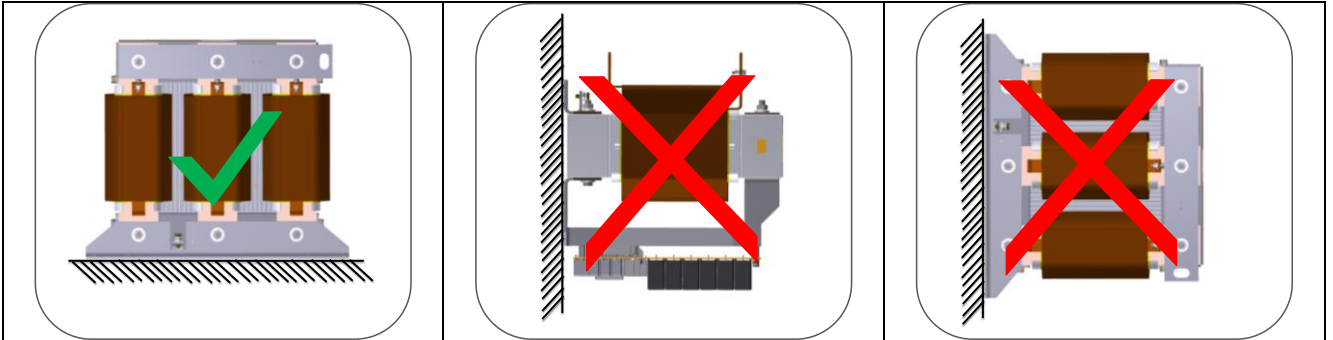
4) Installing the filter in an enclosure is required

5) Higher ambient temperatures up to 60°C allowed with current derating at 40°C, in the range 40...50°C with 1,5% per 1K and in the range 50...60°C with 1,9% per 1K

6) Maximum peak voltage at motor terminals < 1350V at cable length up to 450m screened or 650m unscreened  
Maximum peak voltage at motor terminals < 1500V at cable length up to 525m screened or 800m unscreened

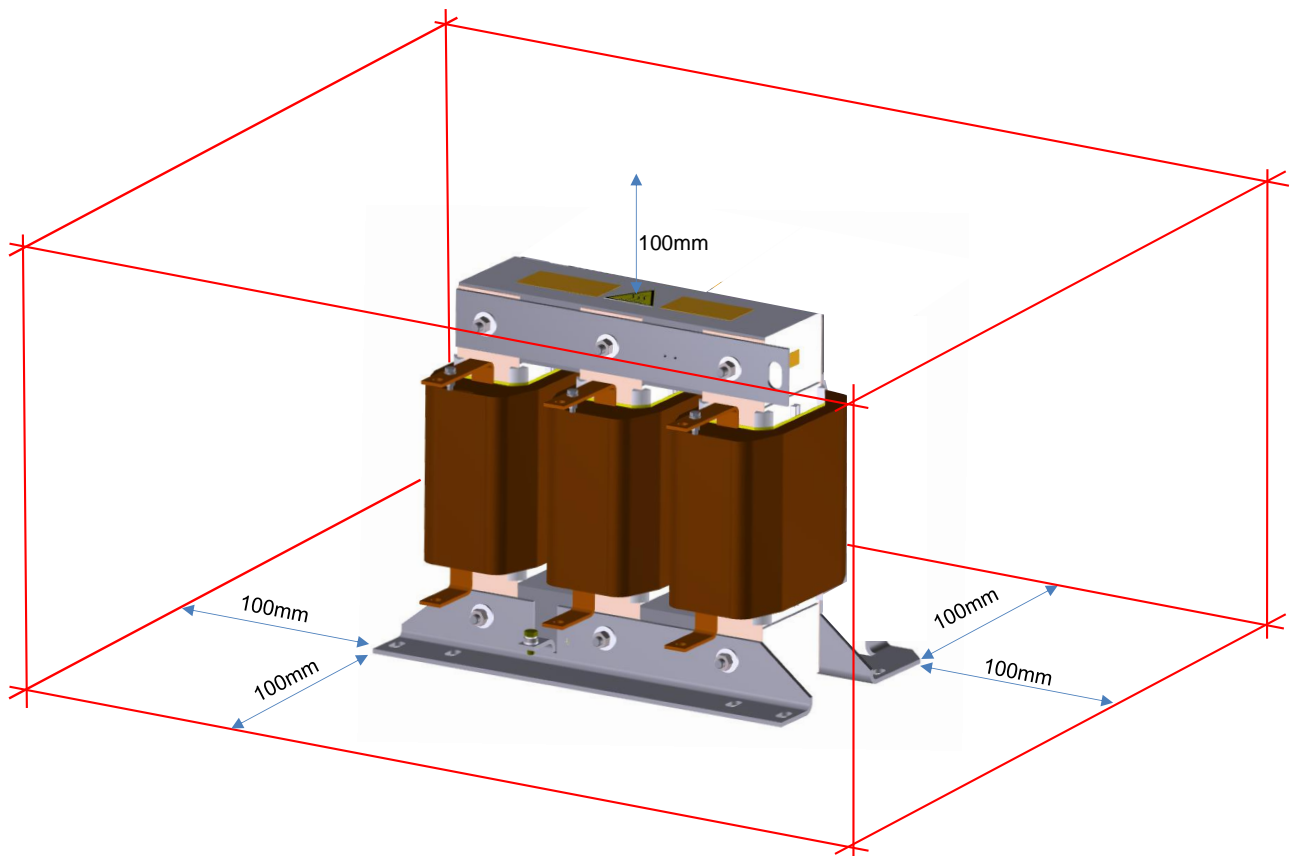
### 3 Mechanical installation

#### 3.1 Mounting position in the enclosure



Picture 3-1 Mounting position in the enclosure

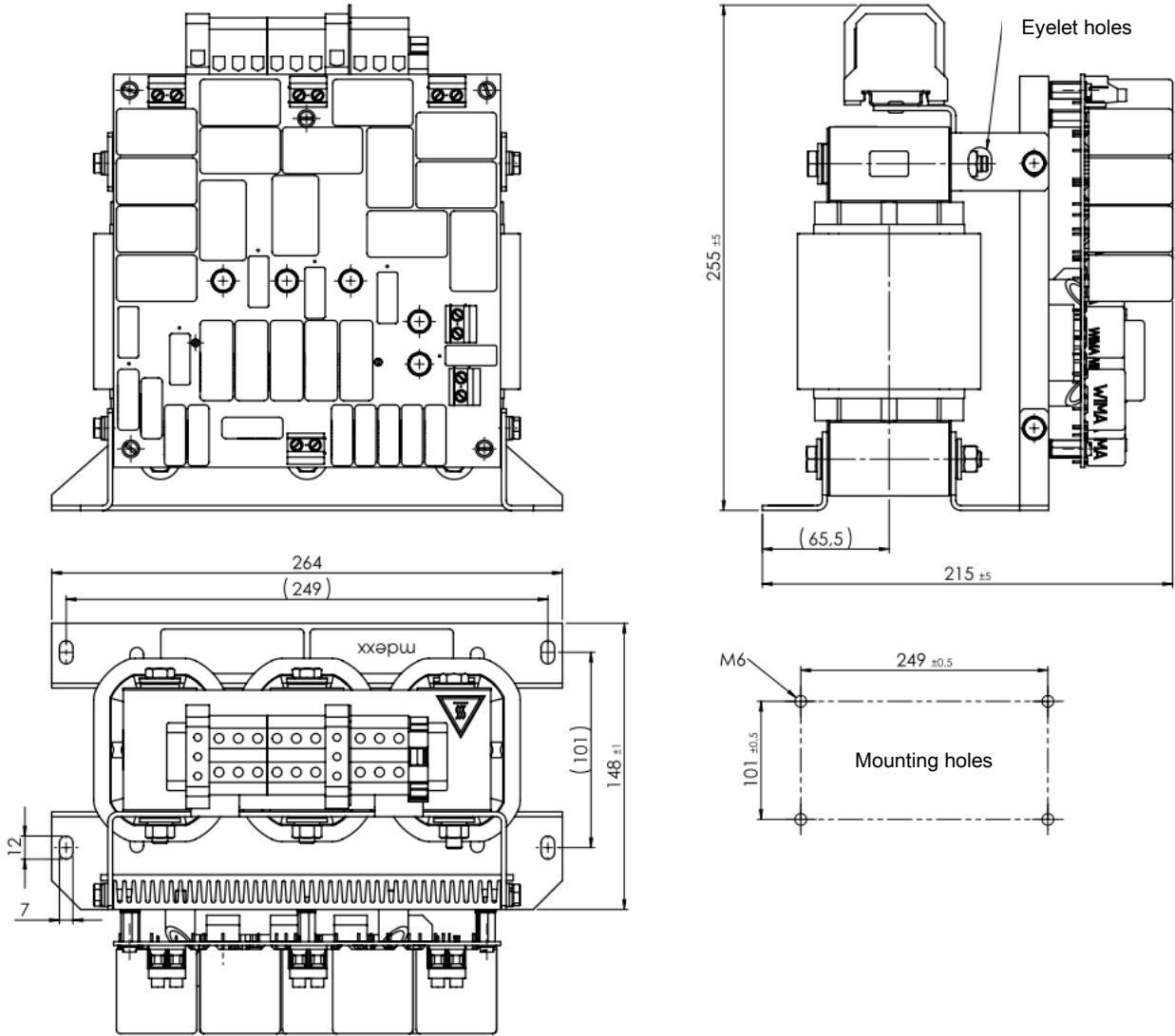
#### 3.2 Distances to neighboring devices



Picture 3-2 Distances to neighboring devices and components

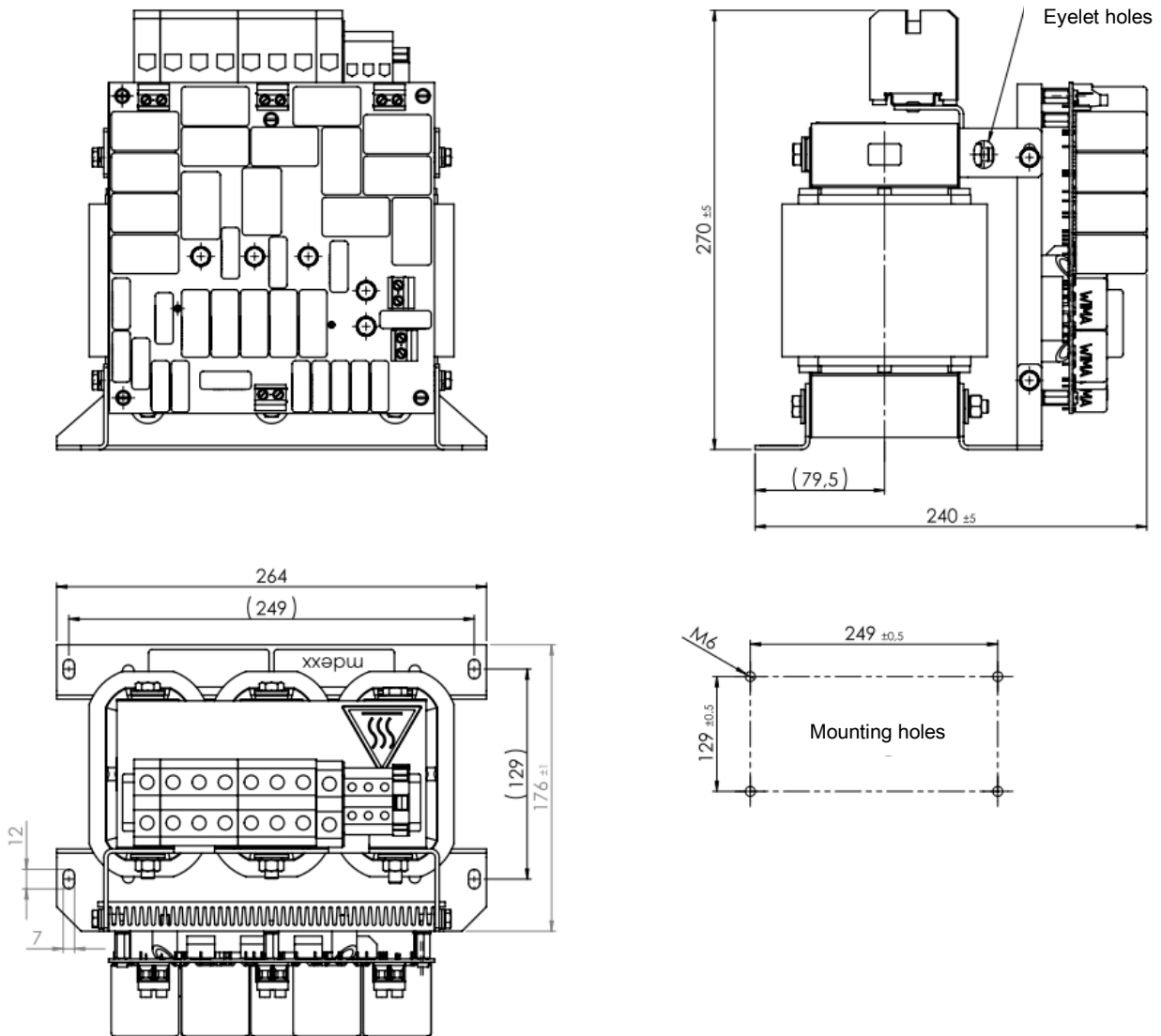
### 3.3 Dimensions sheets

dv/dt filter TEF1203-0GB



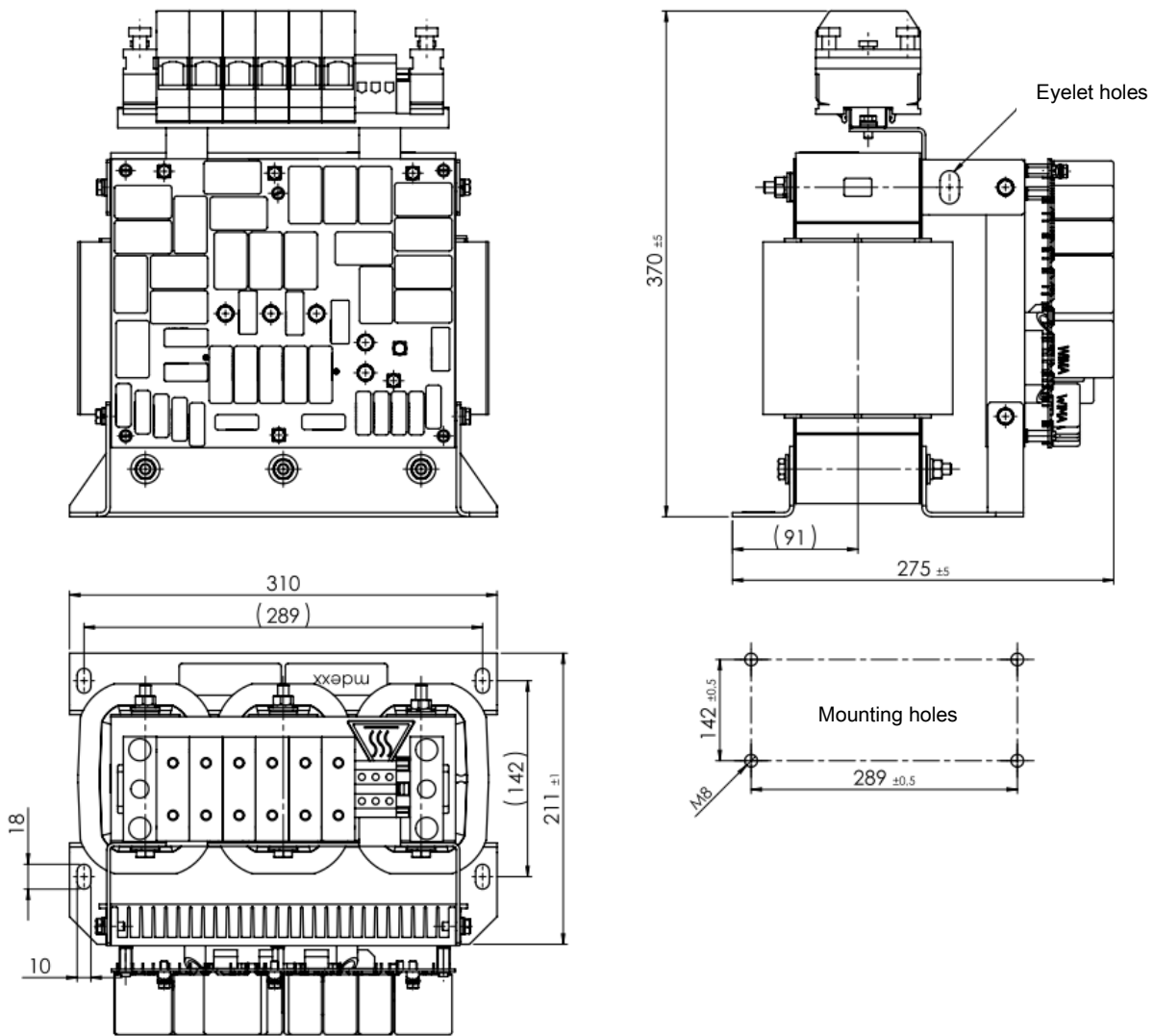
Picture 3-1 Technical drawing dv/dt filter MTZEF051-21

dv/dt filter TEF1203-0HB



Picture 3-2 Technical drawing dv/dt filter MTZEF051-22

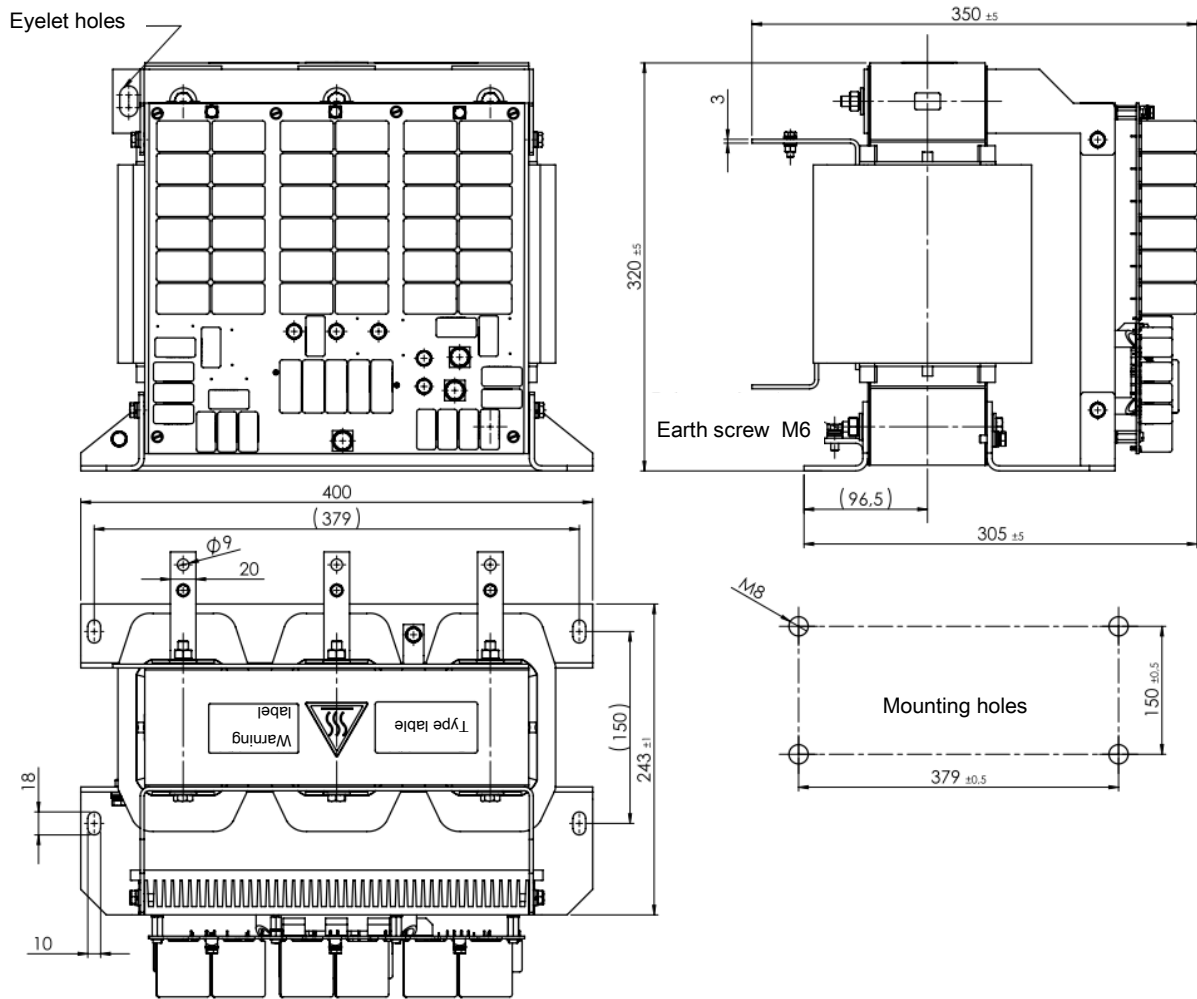
dv/dt filter TEF1203-0JB



Picture 3-3 Technical drawing dv/dt filter MTZEF051-23

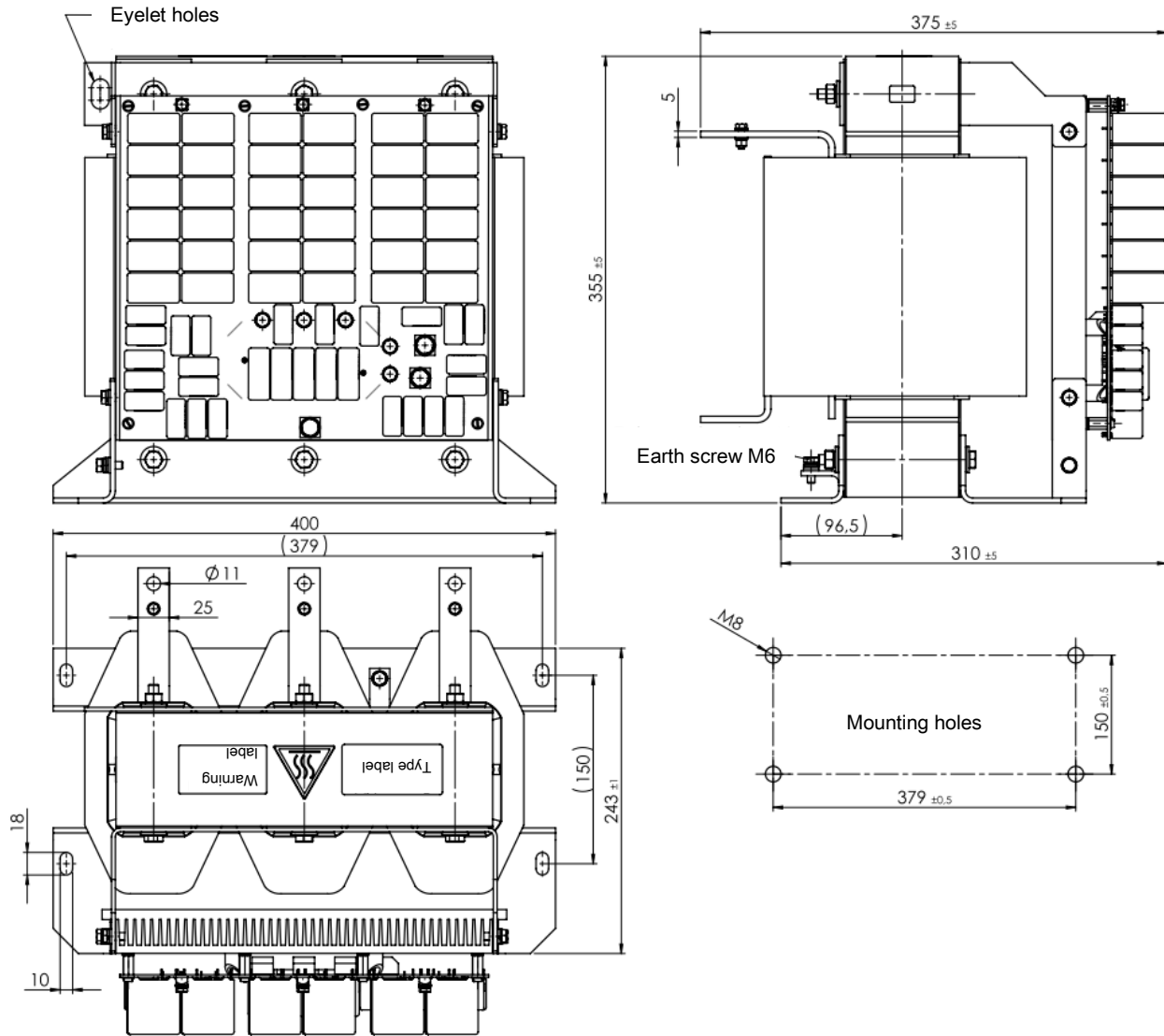


dv/dt filter TEF1203-0KB



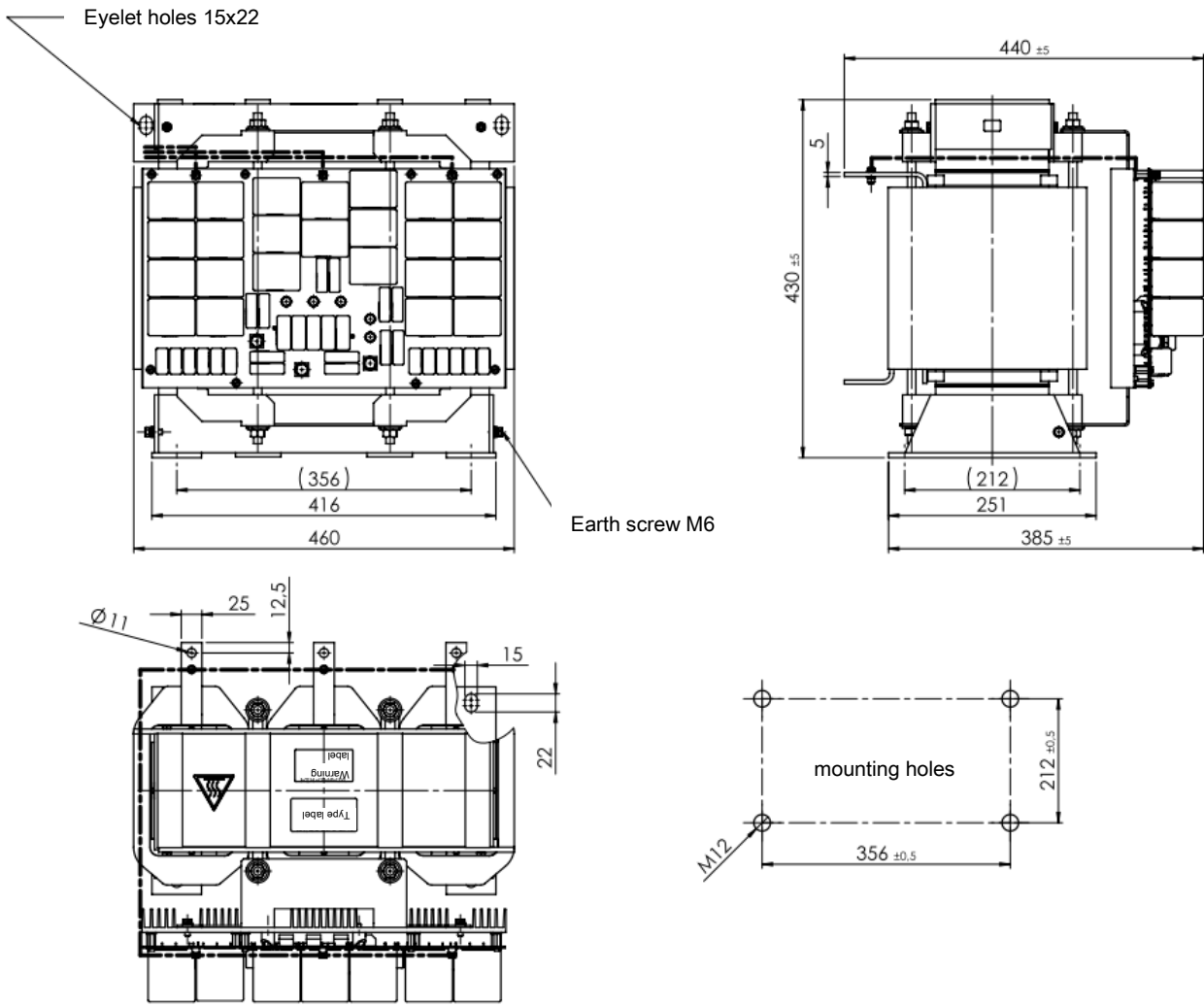
Picture 3-4 Technical drawing dv/dt filter MTZEF051-24

dv/dt filter TEF1203-0LB



Picture 3-5 Technical drawing dv/dt filter MTZEF051-25

dv/dt filter TEF1203-0MB

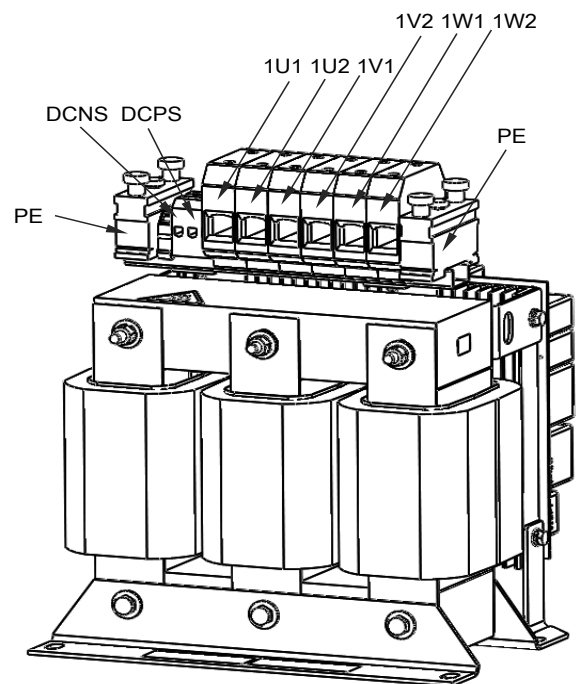
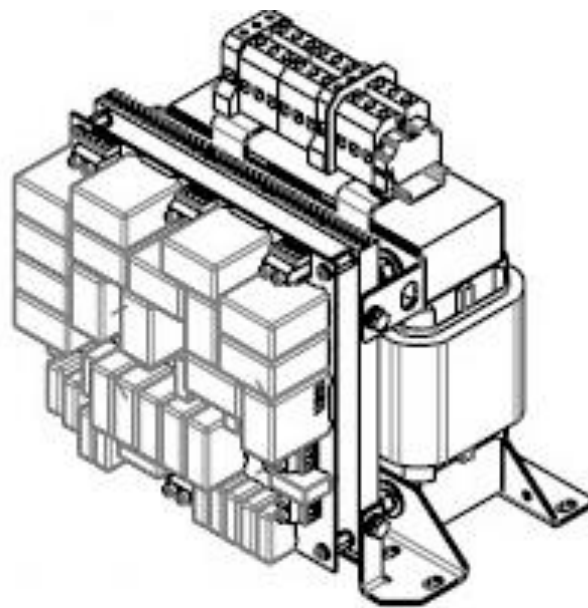


Picture 3-6 Technical drawing dv/dt filter MTZEF051-26

# 4 Electrical installation

## 4.1 Overview of electrical connections

dv/dt filter TEF1203-0GB



Overview electrical connections

exemplary for:

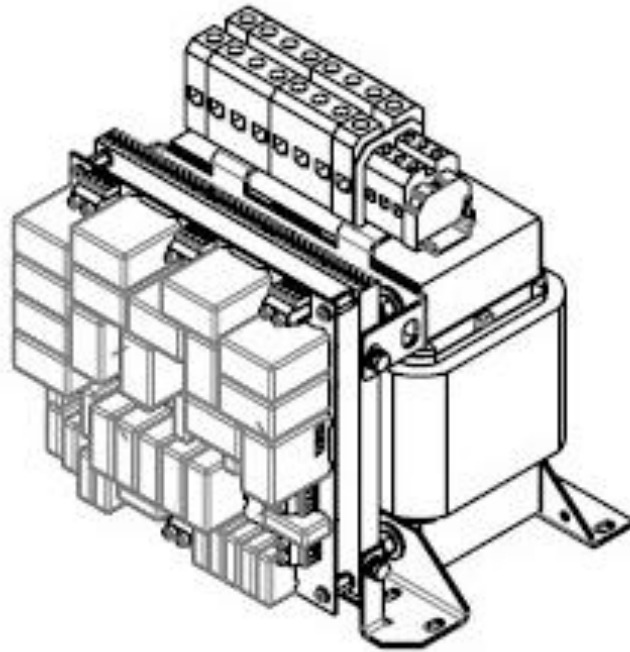
TEF1203-0GB

TEF1203-0HB

TEF1203-0JB

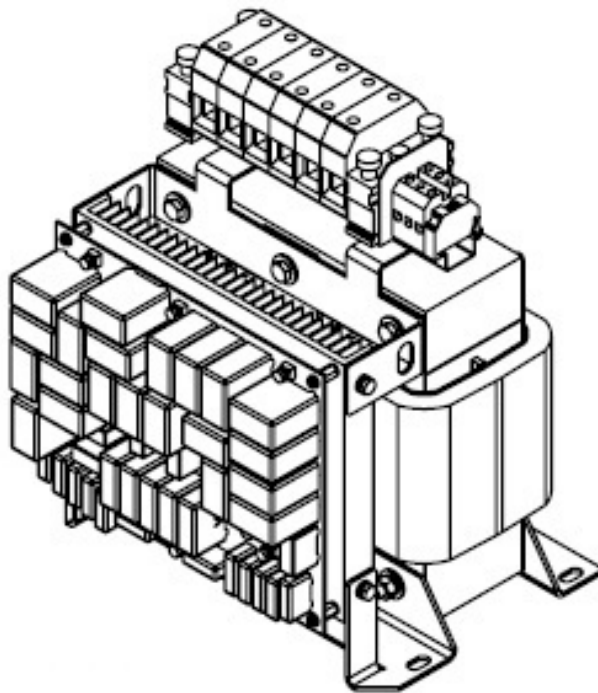
Picture 4-1 Electrical connections dv/dt filter TEF1203-0GB

**dv/dt filter TEF1203-0HB**



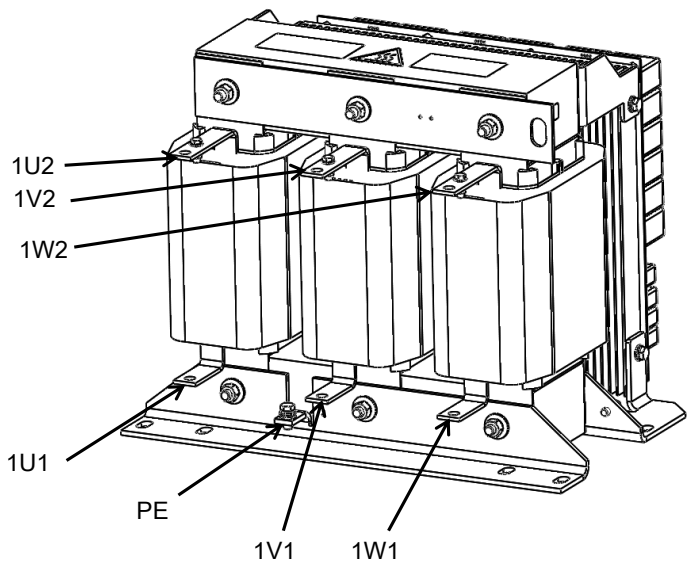
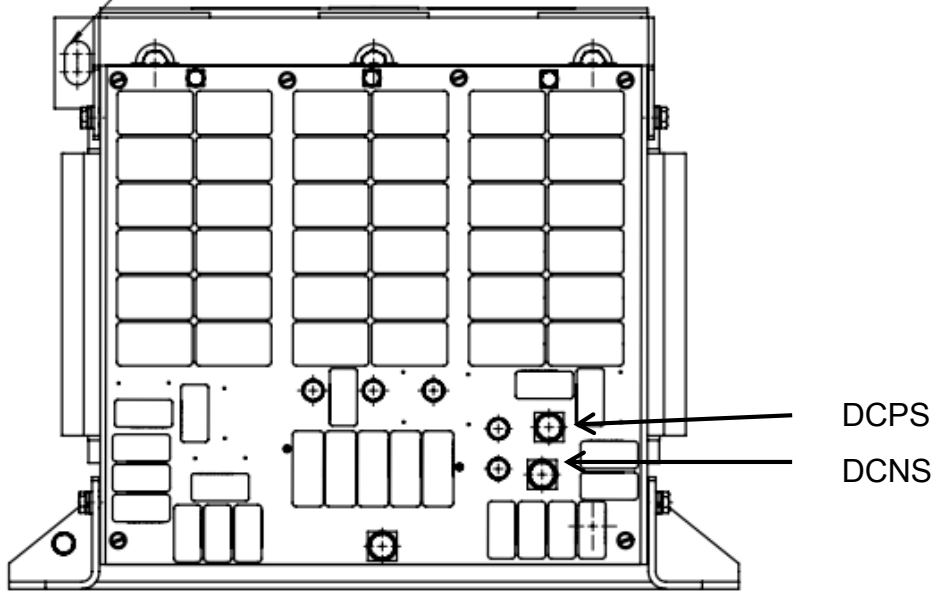
Picture 4-2 Electrical connections dv/dt filter TEF1203-0HB

**dv/dt filter TEF1203-0JB**



Picture 4-3 Electrical connections dv/dt filter TEF1203-0JB

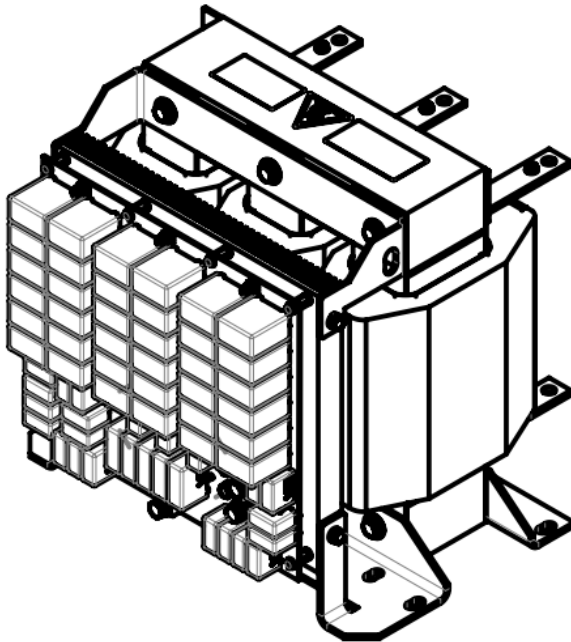
dv/dt filter TEF1203-0KB



Overview electrical connections  
exemplary for:  
TEF1203-0KB  
TEF1203-0LB  
TEF1203-0MB

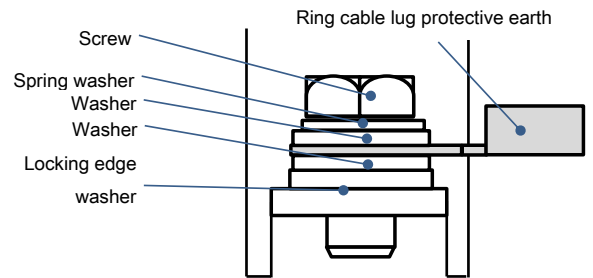
Picture 4-4 Electrical connections dv/dt filter TEF1203-0KB

dv/dt filter TEF1203-0LB

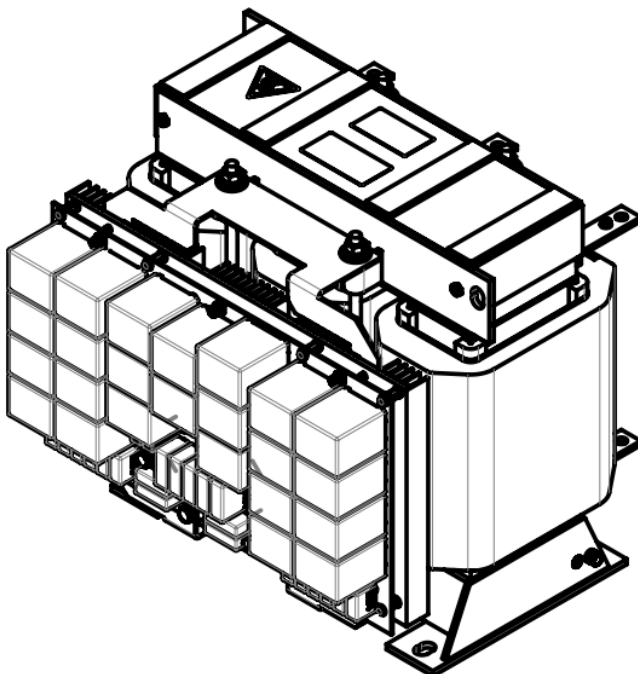


Picture 4-5 Electrical connections dv/dt filter TEF1203-0LB

Customer connection protective earth

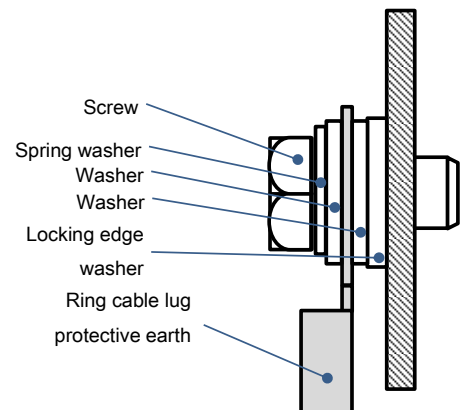


dv/dt filter TEF1203-0MB



Picture 4-6 Electrical connections dv/dt filter TEF1203-0MB

Customer connection protective earth

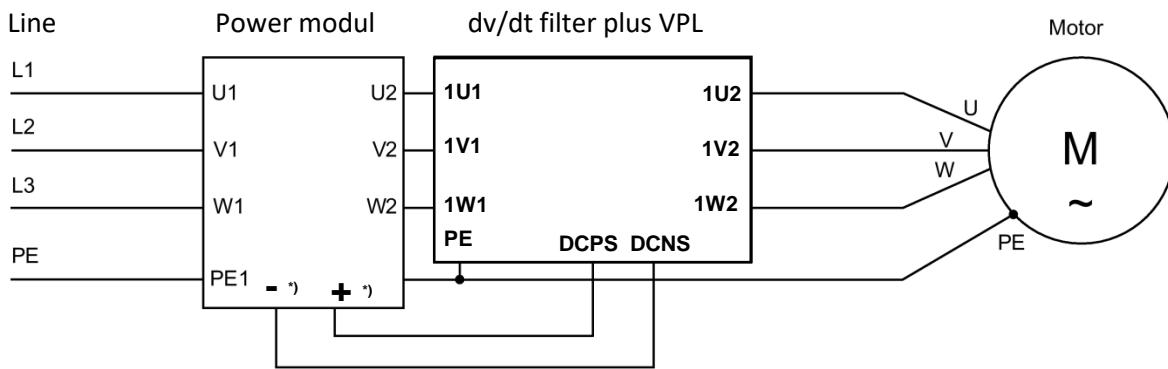


## 4.2 Connection

To ensure a correct function, the following conditions must be considered:

- Control cables must be routed separately from power cables. Power cables are motor cables or the connecting cables from the DC link of the Power Module (+ / - connection directly before the AC inverter) to the dv/dt filter. In particular, you must ensure that control cables and power cables are not routed in parallel in a joint cable raceway, even if all cables are shielded.
- The ground wire for the motor must fed directly back to the Power Module

## 4.3 Connection overview



\*) Connection to the DC link directly in front of the AC inverter as a short-circuit-proof wire design

Picture 4-7 Connection overview

### 4.3.1 Cable cross-sections

In a dv/dt filter with VPL, the connection between dv/dt reactor and Voltage Peak Limiter are already installed.

#### WARNING

##### Fire hazard due to short circuit / ground fault

Insufficient installation of cables to the DC link of the Power Module may cause a short circuit / ground fault with personal injury or fire and smoke

- Use local installation instructions for fault exclusion
- Protect the cables from mechanical damage
- Take one of the following activities:
  - Using cables with double insulation.
  - Maintaining adequate clearance, using spacers, for example.
  - Routing the cables in separate cable ducts or tubes.



 **WARNING**

**Damage to the dv/dt filter due to mechanical stress on the connections**

The connections on the dv/dt filter have not been designed for direct mechanical connection of the motor cables.

- You must take steps to ensure that the mechanical load exerted by the connected cables does not deform these connections.

**NOTICE**

**Damage due to exchanged connections**

Interchanging the connections of input (1U1, 1V1, 1W1) and output (1U2, 1V2, 1W2) or DCNS / DCPS will damage the inverter and the voltage peak limiter (VPL).

**Note**

The connections should be kept as short as possible.

The maximum cable length between the Power Module and the dv/dt filter (motor cable and cables to the DC link) is 5m.

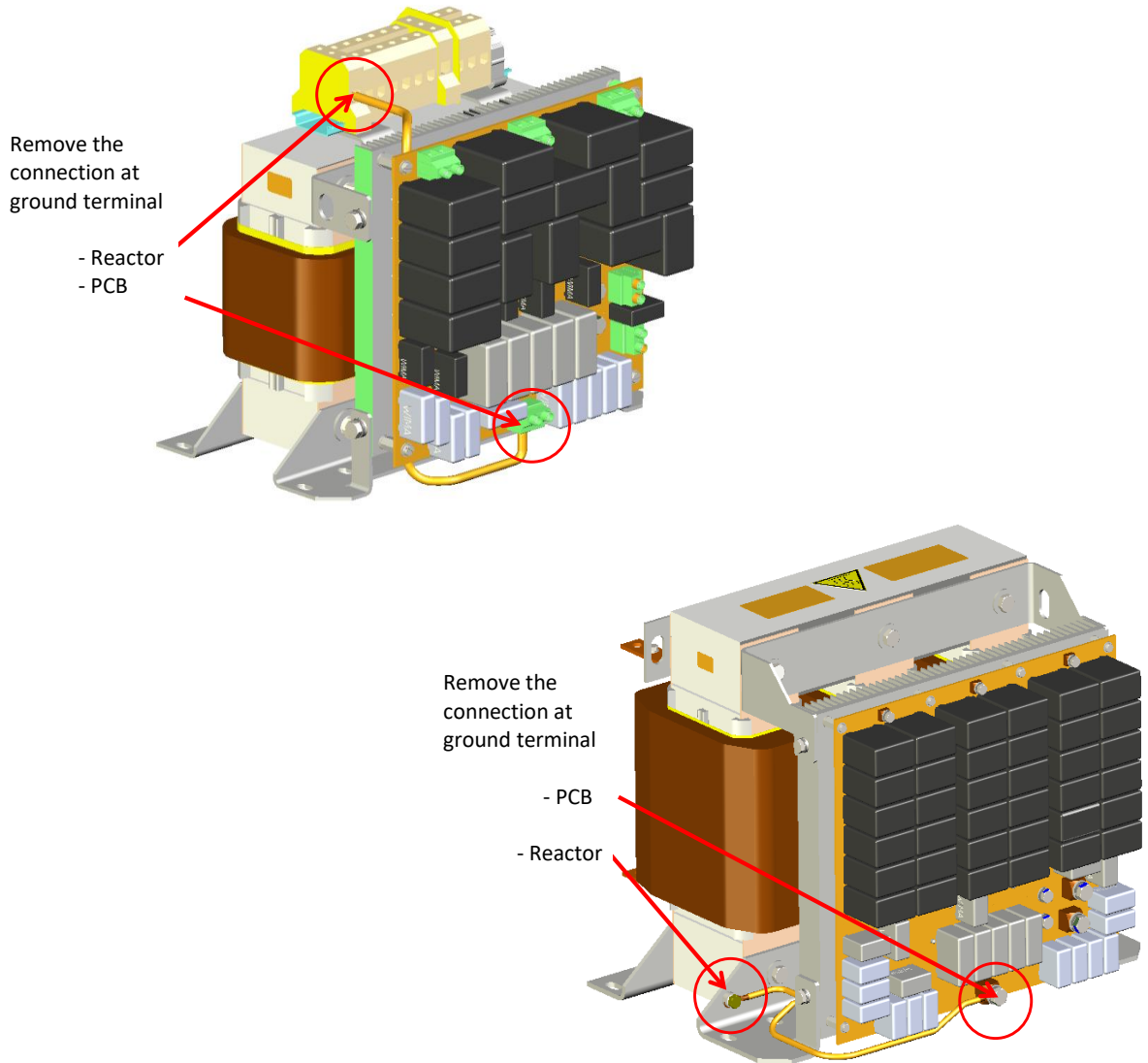
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### 4.3.2 Remove the connection to the capacitor of the common mode filter when operating at an isolated grid

If the dv/dt filter operates in an isolated grid, the connection of the capacitors of the common mode filter has to remove

**! WARNING**

If the connection to the capacitors of the common mode filter will not remove when operating in an isolated grid / IT grid, significant damage to the filter can be caused



Picture 4-8 Connection to the capacitors of the common mode filter

## 5 Maintenance and servicing

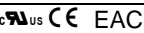
### 5.1 Maintenance and servicing not provided

Maintenance and servicing are not provided for the complete units (dv/dt filter plus VPL) and subcomponents (dv/dt reactor, VPL). In the case of error, full replacement is necessary.

## 6 Technical specifications

### 6.1 General technical specifications

Table 6- 1 General technical specifications

Output frequency	0 ... 150 Hz		
Product standard	EN 61558-2-20		
Rated voltage <sup>2)</sup>	690 V+10%		
Insulation class	H (180°C)		
Degree of protection	IP00		
Operating mode	S1		
Approvals			
Ambient conditions	Storage	Transport	Operation
Ambient temperature	-40 ... +70 °C	-40 ... +70 °C	-20 ... +40 °C
Relative humidity <sup>1)</sup> (non-condensing) corresponds to class:	10 ... 100 % 1K4 to EN 60721-3-1	95 % bei 40 °C 2K4 to EN 60721-3-2	5 ... 95 % 3K3 to EN 60721-3-3
Mechanical stability	Storage	Transport	Operation
Vibrational load <sup>1)</sup> - Displacement - Acceleration (x,y,z-axis)  according to class / standard	In transport packaging stored  EN 60721-3-1	1,5 mm at 5 ... 9 Hz 10 m/s <sup>2</sup> bei >10 ... 200 Hz 1 oct / min (10x sweep) EN 60721-3-2	0,075 mm at 10 ... 58 Hz 10 m/s <sup>2</sup> at >58 ... 200 Hz 1 oct / min (10x sweep) EN 60721-3-3 IEC 61800-4-2
Shock load <sup>1)</sup> - Acceleration (x,y,z-axis) according to class / standard	-	-	50 m/s <sup>2</sup> at 30 ms EN 60721-3-3

<sup>1)</sup> The listed EN standards are the European versions of the international IEC standards with the same designation

<sup>2)</sup> Maximum allowable line voltage according to UL: 600V

## 6.2 Detailed technical specifications

Tabelle 6- 2 detailed technical specification dv/dt filter plus Voltage Peak Limiter, Part 1

Order Number		TEF1203-0GB	TEF1203-0HB	TEF1203-0JB
Rated current	A	24	44	64
Max. rated current DCNS / DCPS	A	14	17	21
Total copper losses @150Hz; 690V	W	63	137	221
Total core losses @150Hz; 690V	W	62	166	183
Connection		Metrical (mm <sup>2</sup> / Nm) Imperial (AWG / lbf in)		
		Stripping length (mm)		
Line / motor cable		16 / 1,2 6 / 11,0  13	35 / 2,5 2 / 22  17	70 / 6,0 2/0 / 53  24
DC link		16 / 1,2 6 / 11,0  13	16 / 1,2 6 / 11  13	16 / 1,2 6 / 11  13
Ground		16 / 1,2 6 / 11,0  13	35 / 2,5 2 / 22  17	70 / 10,0 2/0 / 86  24

Maximum allowable cable length between dv/dt filter and motor	m	350 (screened) 525 (unscreened)
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Dimensions:				
Width	mm	264	264	310
Heigh	mm	255 ±5	270 ±5	370 ±5
Depth	mm	215 ±5	240 ±5	275 ±5
Weight, app.	kg	20	29	46

Tabelle 6- 3 detailed technical specification dv/dt filter plus Voltage Peak Limiter, Part 2

Order Number		TEF1203-0KB	TEF1203-0LB	TEF1203-0MB
Rated current	A	103	146	260
Max. rated current DCNS / DCPS	A	33	45	79
Total copper losses @150Hz; 690V	W	277	383	572
Total core losses @150Hz; 690V	W	138	137	285
Connection		Metrisch (mm <sup>2</sup> / Nm) <i>Imperial (AWG / lbf in)</i>		
Line / motor cable		95 / 13,0 <i>3/0 / 115</i>	120 / 13,0 <i>4/0 / 115</i>	2 x 120 / 13,0 <i>2 x 4/0 / 115</i> 185 / 13,0 <i>6/0 / 13,0</i>
DC link		25 / 9,0 <i>4 / 80</i>	25 / 9,0 <i>4 / 80</i>	50 / 9,0 <i>1 / 80</i>
Ground		50 / 6,0 <i>1 / 53</i>	70 / 6,0 <i>2/0 / 53</i>	95 / 6,0 <i>3/0 / 53</i>

Maximum allowable cable length between dv/dt filter and motor 1)	m	450 (screened) / 525 (screened) 650 (unscreened) / 800 (unscreened)
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Dimensions:				
Width	mm	400	400	460
Heigh	mm	320 ±5	355 ±5	430 ±5
Depth	mm	350 ±5	375 ±5	440 ±5
Weight, app.	kg	77	97	172

- 1) Maximum peak voltage at motor terminals < 1350V at cable length up to 450m screened or 650m unscreened  
Maximum peak voltage at motor terminals < 1500V at cable length up to 525m screened or 800m unscreened

Technical Assistance:	Telephone: +49 (0) 421 5125 0	Fax: +49 (0) 421 5125 333
Technical Support:	E-mail: <a href="mailto:Anfrage@mdexx.com">Anfrage@mdexx.com</a>	
	Internet: <a href="http://www.mdexx.com/support/">http://www.mdexx.com/support/</a>	

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