SIEMENS

Operating instructions

SINAMICS

G130

dv/dt filter compact plus Voltage Peak Limiter

Edition 11/2017

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SINAMICS G130
dV/dt filter compact plus Voltage Peak Limiter

Operating Instructions

Firmware version V5.1

11/2017

A5E02590131A

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.

⚠DANGER
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
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 Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, 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 Siemens products

Note the following:

⚠WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. 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 complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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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Table of contents

Safety information

1

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 serious injury.

- Only work on electrical equipment if you are appropriately qualified.
- Always observe the country-specific safety rules for all work.

Generally, the following 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.
3. Wait until the discharge time specified on the warning labels has elapsed.
4. Check that there is no voltage between any of the power connections, and between any of the power connections and the protective conductor connection.
5. Check that every auxiliary circuit is de-energized.
6. Ensure that the motors cannot move.
7. Identify all other dangerous energy sources, e.g. compressed air, hydraulic systems or water. Switch the energy sources to a safe state.
8. Check that the correct drive system is completely locked.

After you have completed the work, restore the operational readiness by following the above steps in the reverse order.

⚠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.

- Connect cable shields and unused conductors of power cables (e.g. brake conductors) at least on one side to 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 in 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

Failure of pacemakers or implant malfunctions due to electromagnetic fields

Electromagnetic fields (EMF) are generated by the operation of electrical power equipment, such as transformers, converters, or motors. People with pacemakers or implants in the immediate vicinity of this equipment are at particular risk.

- If you have a heart pacemaker or implant, maintain a minimum distance of 2 m from electrical power equipment.

⚠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 radio devices or mobile phones.
- Use the "SIEMENS Industry Online Support App" only on equipment that has already been switched off.

⚠WARNING

Motor fire in the event of insulation overload

There is a greater load on the motor insulation as result of a ground fault in an IT system. If the insulation fails, it is possible that death or severe injury can occur as a result of smoke and fire.

- Use a monitoring device that signals an insulation fault.
- Correct the fault as quickly as possible so the motor insulation is not overloaded.

⚠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.

⚠WARNING

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 national 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 as all converters and motors have been subject to a high-voltage test by the manufacturer, and 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 plant into live operation once you have absolutely guaranteed that the functions relevant to safety are operating correctly.

Note

Important safety instructions for Safety Integrated functions

If you want to use Safety Integrated functions, you must observe the safety instructions in the Safety Integrated manuals.

1.2 Handling electrostatic sensitive devices (ESD)

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

NOTICE

Damage through 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 strap
  - 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

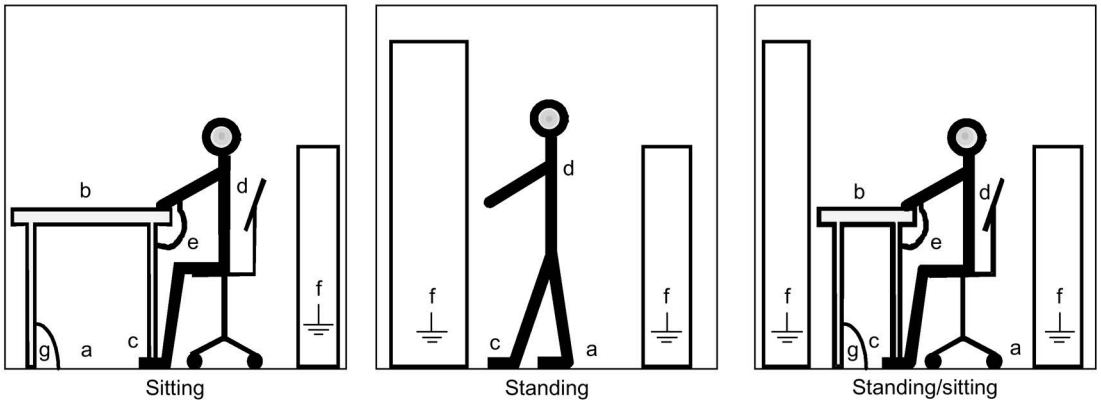

Figure 1-1 ESD protective measures

General

2

Description

The dv/dt filter compact 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.

dv/dt filters compact plus Voltage Peak Limiters limit the voltage rate of rise dv/dt to values < 1600 V/µs - and the typical voltage peaks to the following values according to limit value curve A acc. to IEC 60034-25:2007:

- < 1150 V at U_{line} < 575 V
- < 1400 V at 660 V < U_{line} < 690 V.

⚠WARNING

Non-observance of the fundamental safety instructions and residual risks

The non-observance of the fundamental safety instructions and residual risks stated in Chapter 1 can result in accidents with severe injuries or death.

- Adhere to the fundamental safety instructions.
- When assessing the risk, take into account residual risks.

⚠WARNING

Fire through overheating due to insufficient ventilation clearances

Inadequate ventilation clearances can cause overheating with a risk for personnel through smoke development and fire. Furthermore, an increased number of failures and shorter service life of the components can occur.

- Ensure 100 mm ventilation clearances above and below the component.
- Always mount the dv/dt filters compact plus Voltage Peak Limiter in a vertical, upright position to enable cooling air to flow through the heat sink on the Voltage Peak Limiter from the bottom to the top.

⚠CAUTION

Burns due to high surface temperature of the dv/dt filter compact

The surface temperature of the dv/dt filters compact may exceed 80 °C. You can get seriously burnt when touching the surface.

- Mount the dv/dt filters compact so that they cannot be touched. If this is not possible, attach a clearly visible and understandable warning notice at hazardous positions.

NOTICE

Damage to the Voltage Peak Limiter due to interchanged connections

The Voltage Peak Limiter will be damaged if the input and output connections are interchanged on devices with the article numbers 6SL3000-2DE41-4EA0 and 6SL3000-2DG38-1EA0.

- Connect the incoming cable from the DC link of the Power Module to DCPS, DCNS.
- Connect the outgoing cable for the dv/dt reactor to 1U2, 1V2, 1W2.

NOTICE

Damage to the dv/dt filter compact by using components that have not been released

When using components that have not been released, damage or malfunctions can occur at the devices or the system itself.

- Only use a dv/dt filter compact that SIEMENS has released for operation with SINAMICS.

NOTICE

Damage to the dv/dt filter compact by exceeding the maximum output frequency

The maximum permissible output frequency when using a dv/dt filter compact is 150 Hz. The dv/dt filter compact can be damaged if the output frequency is exceeded.

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

NOTICE

Damage to the dv/dt filter compact during continuous operation with low output frequencies

Uninterrupted duty at an output frequency less than 10 Hz can result in thermal overload and destroy the dv/dt filter.

- When using a dv/dt filter compact plus voltage peak limiter do not operate the drive continuously with an output frequency less than 10 Hz.
- You may operate the drive for a maximum load duration of five minutes at an output frequency less than 10 Hz, provided that you then select an operation with an output frequency higher than 10 Hz for a period of five minutes.

NOTICE

Damage to the dv/dt filter compact by exceeding the maximum pulse frequency

The maximum permissible pulse frequency when using a dv/dt filter compact is 2.5 kHz or 4 kHz. The dv/dt filter compact can be damaged if the pulse frequency is exceeded.

- When using the dv/dt filter compact, operate the Power Module with a maximum pulse frequency of 2.5 kHz or 4 kHz.

NOTICE

Damage to the dv/dt filter compact if it is not activated during commissioning

The dv/dt filter compact may be damaged if it is not activated during commissioning.

- Activate the dv/dt filter compact during commissioning via parameter p0230 = 2.

NOTICE

Damage to the dv/dt filter compact if a motor is not connected

dv/dt filters compact which are operated without a motor being connected can be damaged or destroyed.

- Never operate a dv/dt filter compact connected to the Power Module without a connected motor.

Note

Cable lengths

Keep the connecting cables to the Power Module as short as possible (max. 5 m). Use an equivalent cable type when replacing the cables supplied.

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

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

Power Module	Unit rating of the Power Module	suitable dv/dt filter compact plus Voltage Peak Limiter
Line voltage 3 AC 380 ... 480 V		
6SL3310-1GE32-1AA3	110 kW	**6SL3000-2DE32-6EA0**
6SL3310-1GE32-6AA3	132 kW	**6SL3000-2DE32-6EA0**
6SL3310-1GE33-1AA3	160 kW	**6SL3000-2DE35-0EA0**
6SL3310-1GE33-8AA3	200 kW	**6SL3000-2DE35-0EA0**
6SL3310-1GE35-0AA3	250 kW	**6SL3000-2DE35-0EA0**
6SL3310-1GE36-1AA3	315 kW	**6SL3000-2DE38-4EA0**
6SL3310-1GE37-5AA3	400 kW	**6SL3000-2DE38-4EA0**
6SL3310-1GE38-4AA3	450 kW	**6SL3000-2DE38-4EA0**
6SL3310-1GE41-0AA3	560 kW	**6SL3000-2DE41-4EA0**
Line voltage 3 AC 500 ... 600 V		
6SL3310-1GF31-8AA3	110 kW	**6SL3000-2DG32-2EA0**
6SL3310-1GF32-2AA3	132 kW	**6SL3000-2DG32-2EA0**
6SL3310-1GF32-6AA3	160 kW	**6SL3000-2DG33-3EA0**
6SL3310-1GF33-3AA3	200 kW	**6SL3000-2DG33-3EA0**
6SL3310-1GF34-1AA3	250 kW	**6SL3000-2DG34-1EA0**
6SL3310-1GF34-7AA3	315 kW	**6SL3000-2DG35-8EA0**
6SL3310-1GF35-8AA3	400 kW	**6SL3000-2DG35-8EA0**
6SL3310-1GF37-4AA3	500 kW	**6SL3000-2DG38-1EA0**
6SL3310-1GF38-1AA3	560 kW	**6SL3000-2DG38-1EA0**
Line voltage 3 AC 660 ... 690 V		
6SL3310-1GH28-5AA3	75 kW	**6SL3000-2DG31-0EA0**
6SL3310-1GH31-0AA3	90 kW	**6SL3000-2DG31-0EA0**
6SL3310-1GH31-2AA3	110 kW	**6SL3000-2DG31-5EA0**
6SL3310-1GH31-5AA3	132 kW	**6SL3000-2DG31-5EA0**
6SL3310-1GH31-8AA3	160 kW	**6SL3000-2DG32-2EA0**
6SL3310-1GH32-2AA3	200 kW	**6SL3000-2DG32-2EA0**
6SL3310-1GH32-6AA3	250 kW	**6SL3000-2DG33-3EA0**
6SL3310-1GH33-3AA3	315 kW	**6SL3000-2DG33-3EA0**
6SL3310-1GH34-1AA3	400 kW	**6SL3000-2DG34-1EA0**
6SL3310-1GH34-7AA3	450 kW	**6SL3000-2DG35-8EA0**
6SL3310-1GH35-8AA3	560 kW	**6SL3000-2DG35-8EA0**
6SL3310-1GH37-4AA3	710 kW	**6SL3000-2DG38-1EA0**
6SL3310-1GH38-1AA3	800 kW	**6SL3000-2DG38-1EA0**

Table 2- 2 Max. pulse frequency when a dv/dt filter compact plus Voltage Peak Limiter is used in units with a rated pulse frequency of 2 kHz

Article no. of the Power Module 6SL3310-...	Unit rating [kW]	Output current for a pulse frequency of 2 kHz [A]	Max. pulse frequency when a dv/dt filter compact plus Voltage Peak Limiter is used
Line voltage 3 AC 380 V ... 480 V			
1GE32-1AA3	110	210	4 kHz
1GE32-6AA3	132	260	4 kHz
1GE33-1AA3	160	310	4 kHz
1GE33-8AA3	200	380	4 kHz
1GE35-0AA3	250	490	4 kHz

Table 2- 3 Max. pulse frequency when a dv/dt filter compact plus Voltage Peak Limiter is used in units with a rated pulse frequency of 1.25 kHz

Article no. of the Power Module 6SL3310-...	Unit rating [kW]	Output current for a pulse frequency of 1.25 kHz [A]	Max. pulse frequency when a dv/dt filter compact plus Voltage Peak Limiter is used
Line voltage 3 AC 380 V ... 480 V			
1GE36-1AA3	315	605	2.5 kHz
1GE37-5AA3	400	745	2.5 kHz
1GE38-4AA3	450	840	2.5 kHz
1GE41-0AA3	560	985	2.5 kHz
Line voltage 3 AC 500 V ... 600 V			
1GF31-8AA3	110	175	2.5 kHz
1GF32-2AA3	132	215	2.5 kHz
1GF32-6AA3	160	260	2.5 kHz
1GF33-3AA3	200	330	2.5 kHz
1GF34-1AA3	250	410	2.5 kHz
1GF34-7AA3	315	465	2.5 kHz
1GF35-8AA3	400	575	2.5 kHz
1GF37-4AA3	450	735	2.5 kHz
1GF38-1AA3	560	810	2.5 kHz

Article no. of the Power Module 6SL3310-...	Unit rating [kW]	Output current for a pulse frequency of 1.25 kHz [A]	Max. pulse frequency when a dv/dt filter compact plus Voltage Peak Limiter is used
Line voltage 3 AC 660 V ... 690 V			
1GH28-5AA3	75	85	2.5 kHz
1GH31-0AA3	90	100	2.5 kHz
1GH31-2AA3	110	120	2.5 kHz
1GH31-5AA3	132	150	2.5 kHz
1GH31-8AA3	160	175	2.5 kHz
1GH32-2AA3	200	215	2.5 kHz
1GH32-6AA3	250	260	2.5 kHz
1GH33-3AA3	315	330	2.5 kHz
1GH34-1AA3	400	410	2.5 kHz
1GH34-7AA3	450	465	2.5 kHz
1GH35-8AA3	560	575	2.5 kHz
1GH37-4AA3	710	735	2.5 kHz
1GH38-1AA3	800	810	2.5 kHz

Mechanical installation

3

dV/dt filter compact plus Voltage Peak Limiter, type 1

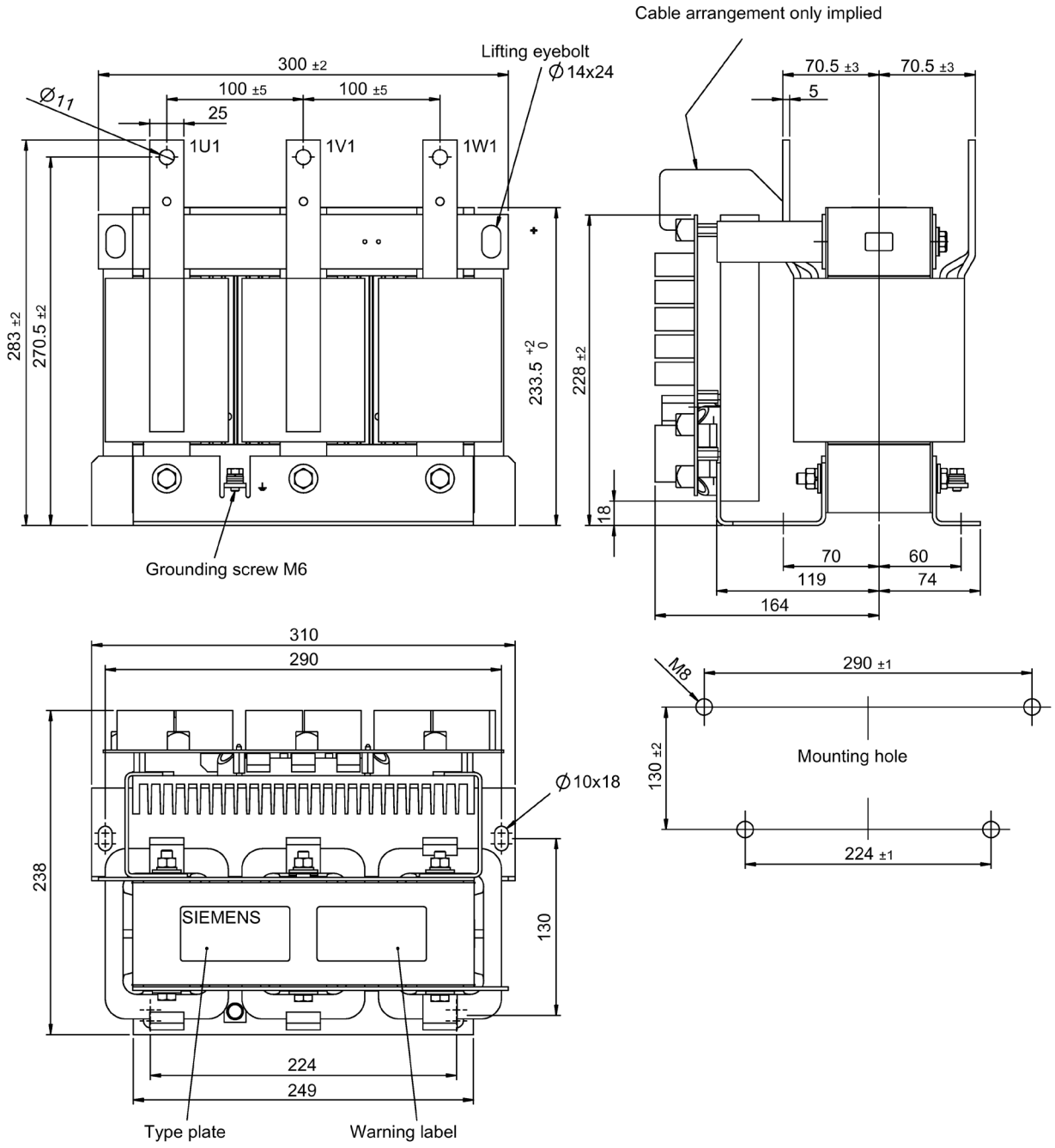

Figure 3-1 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 1

dV/dt filter compact plus Voltage Peak Limiter, type 2

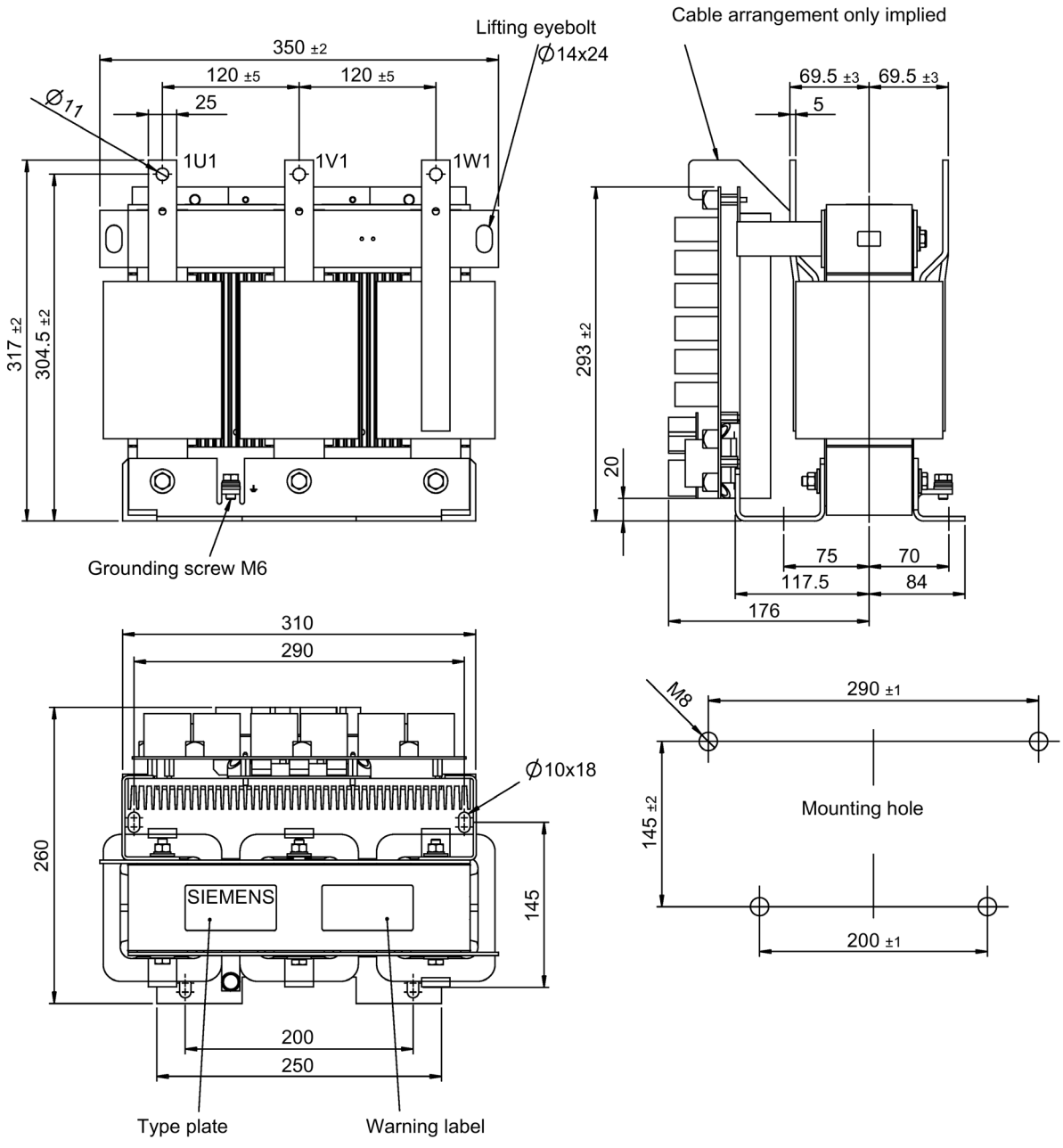

Figure 3-2 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 2

dV/dt filter compact plus Voltage Peak Limiter, type 3

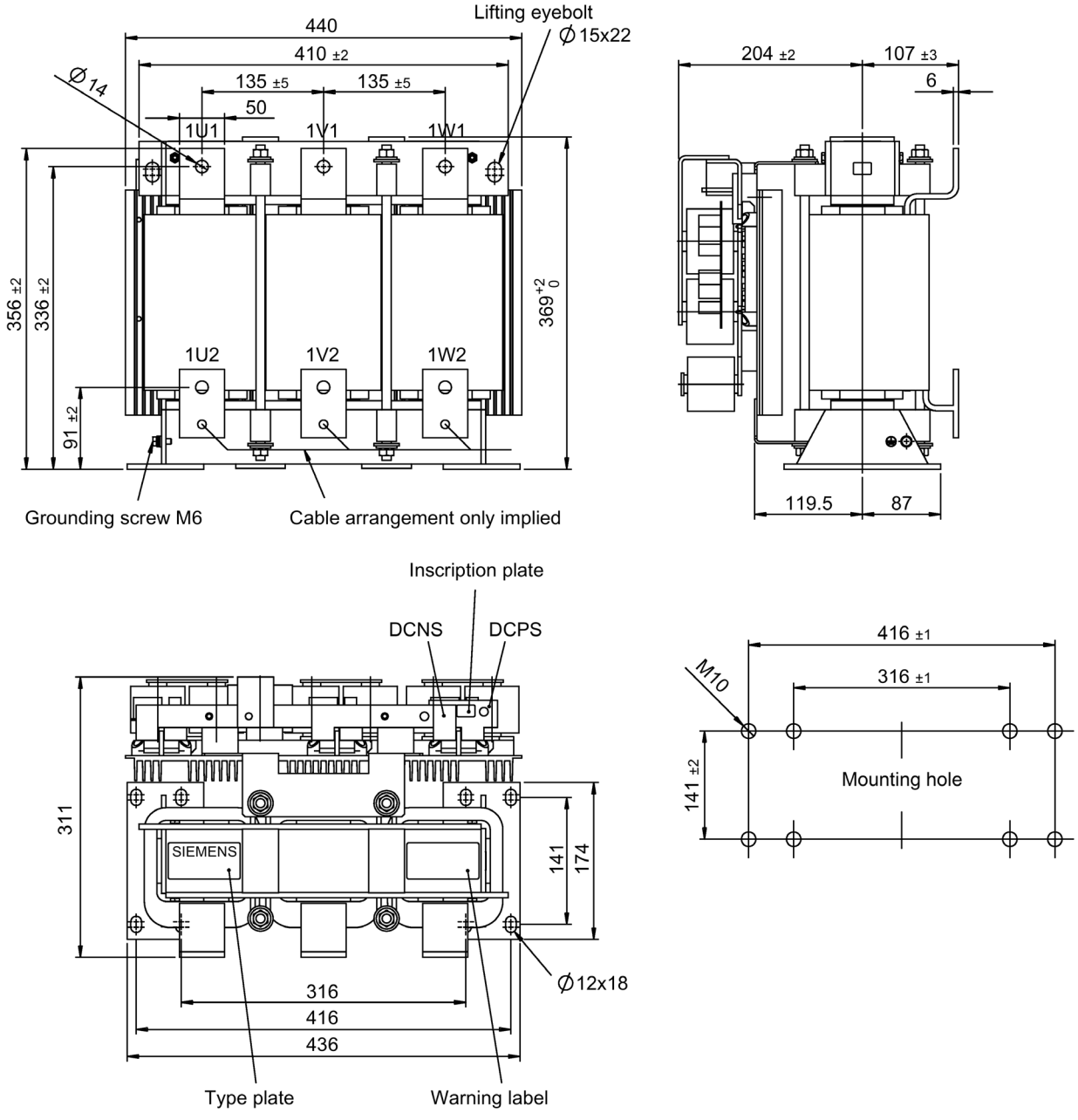

Figure 3-3 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 3

dV/dt filter compact plus Voltage Peak Limiter, type 4

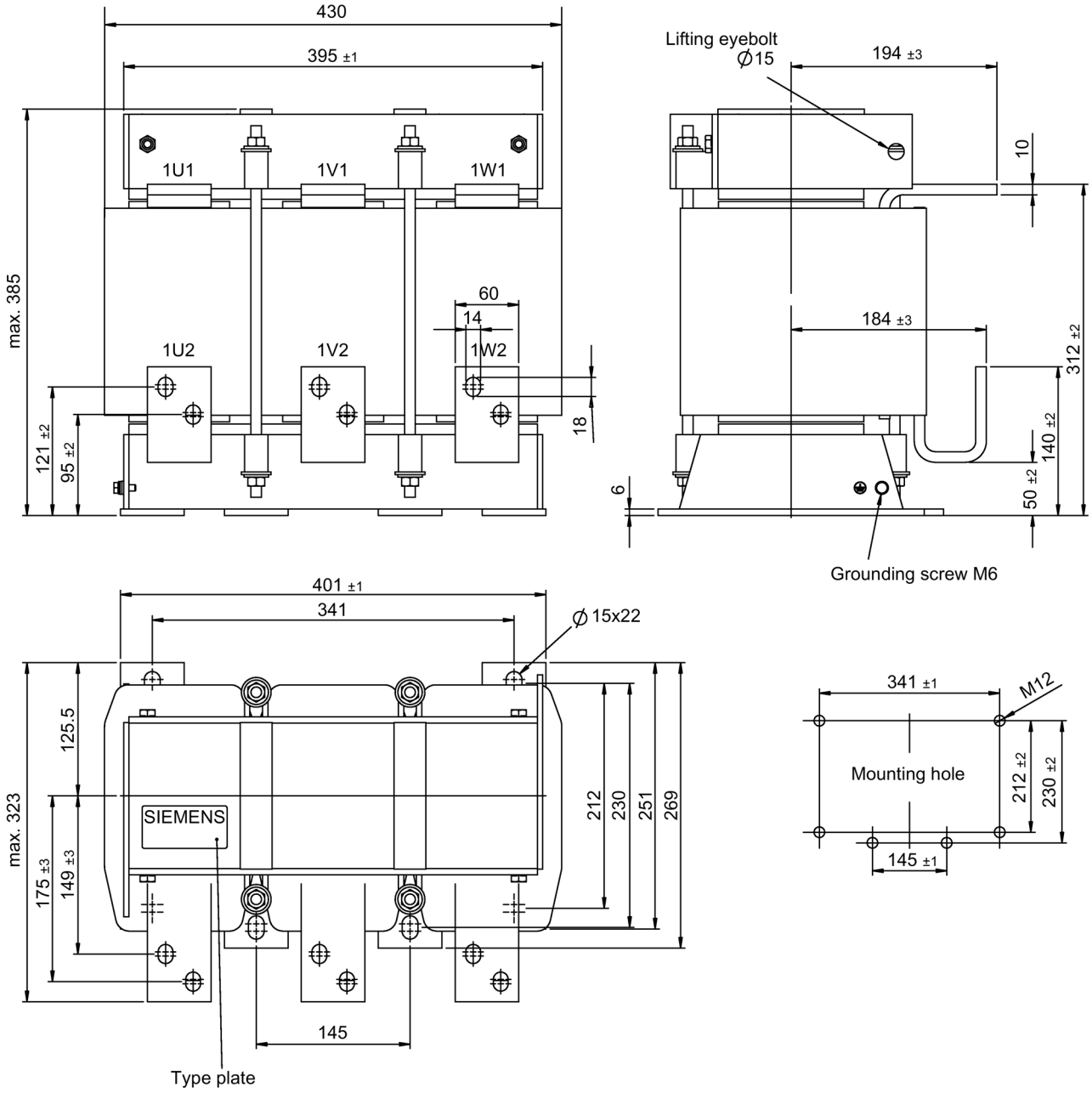

Figure 3-4 Dimension drawing for dV/dt filter compact plus Voltage Peak Limiter, Type 4: dV/dt reactor

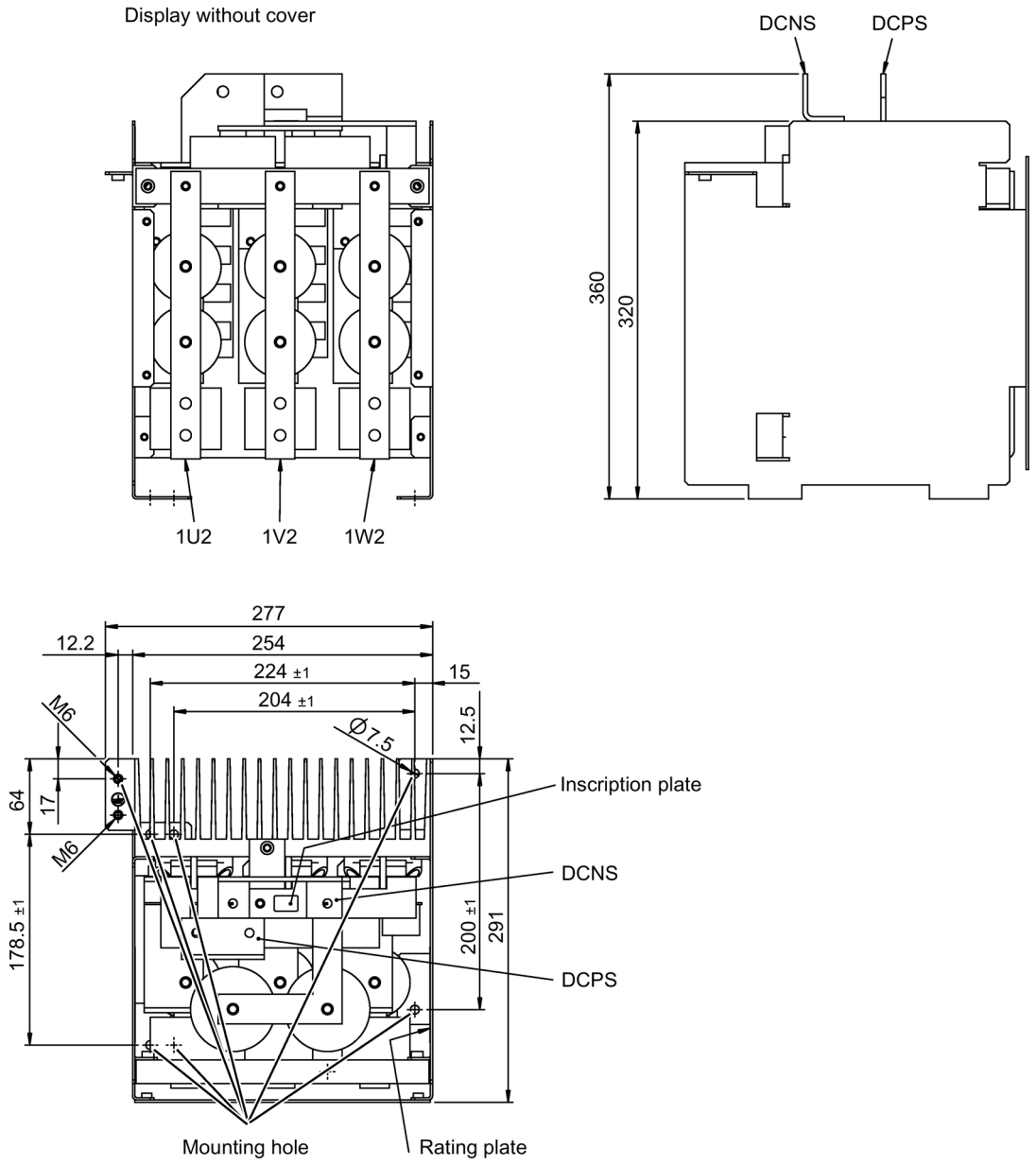

Figure 3-5 Dimension drawing for dV/dt filter compact plus Voltage Peak Limiter, Type 4: Voltage Peak Limiter

Table 3- 1 Assignment of the dV/dt filter compact plus Voltage Peak Limiter to the dimension drawings

dV/dt filter compact plus Voltage Peak Limiter	Dimension drawing type
Line voltage 380 V – 480 V 3 AC	
6SL3000-2DE32-6EA0	Type 1
6SL3000-2DE35-0EA0	Type 2
6SL3000-2DE38-4EA0	Type 3
6SL3000-2DE41-4EA0	Type 4
Line voltage 500 V – 690 V 3 AC	
6SL3000-2DG31-0EA0	Type 1
6SL3000-2DG31-5EA0	Type 1
6SL3000-2DG32-2EA0	Type 2
6SL3000-2DG33-3EA0	Type 2
6SL3000-2DG34-1EA0	Type 3
6SL3000-2DG35-8EA0	Type 3
6SL3000-2DG38-1EA0	Type 4

Electrical installation

4

Interface overview

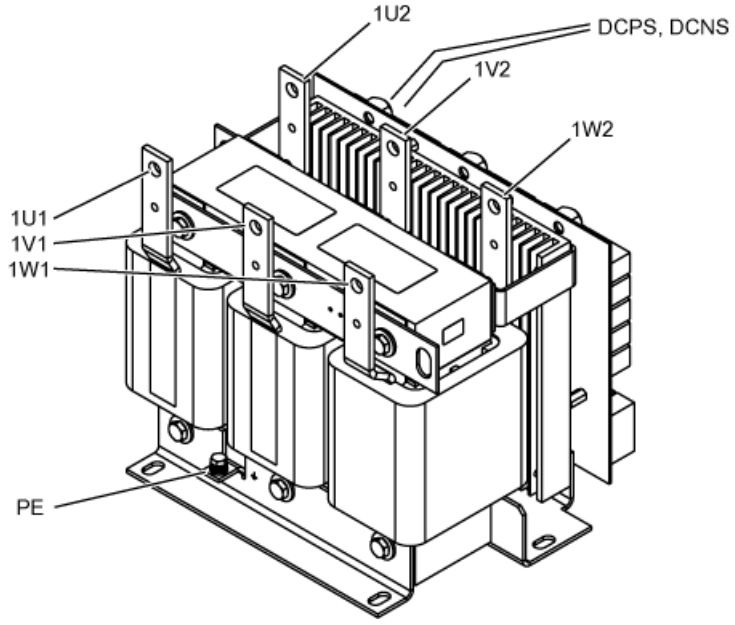

Figure 4-1 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 1

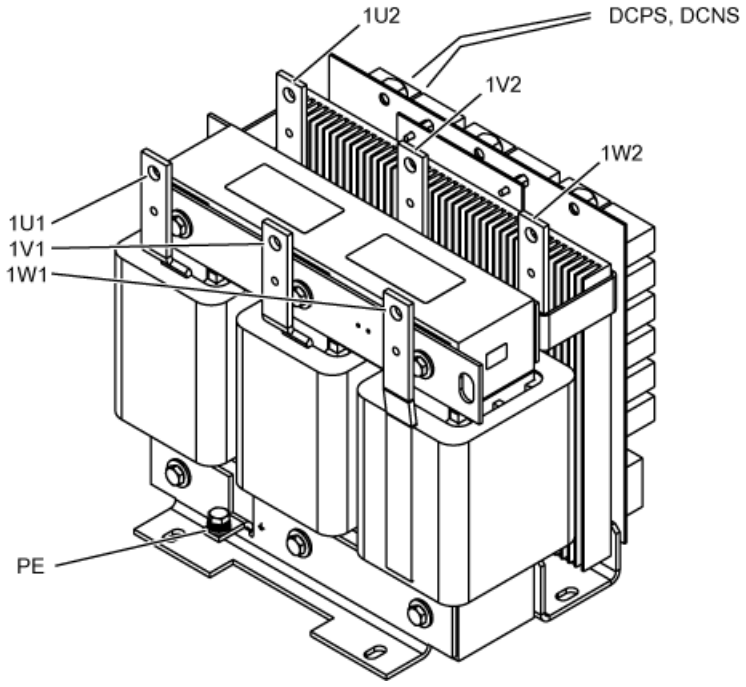

Figure 4-2 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 2

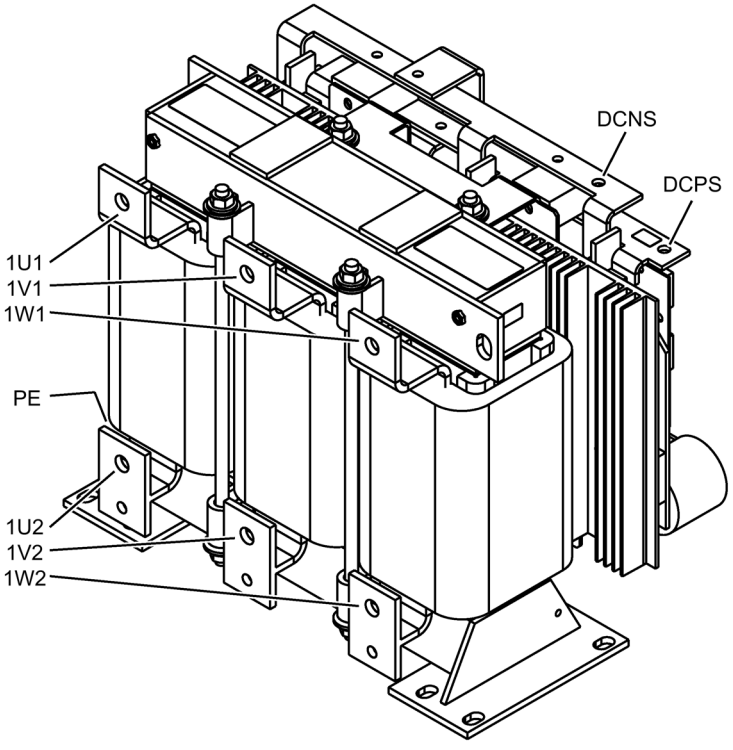

Figure 4-3 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 3

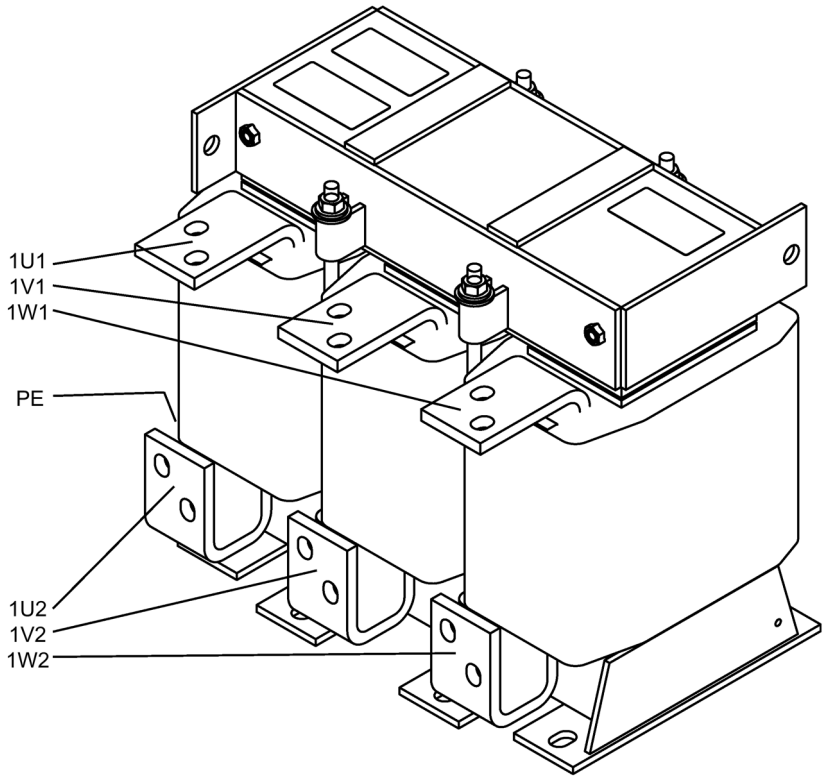

Figure 4-4 Interface overview dv/dt filter compact plus Voltage Peak Limiter - dv/dt reactor Type 4

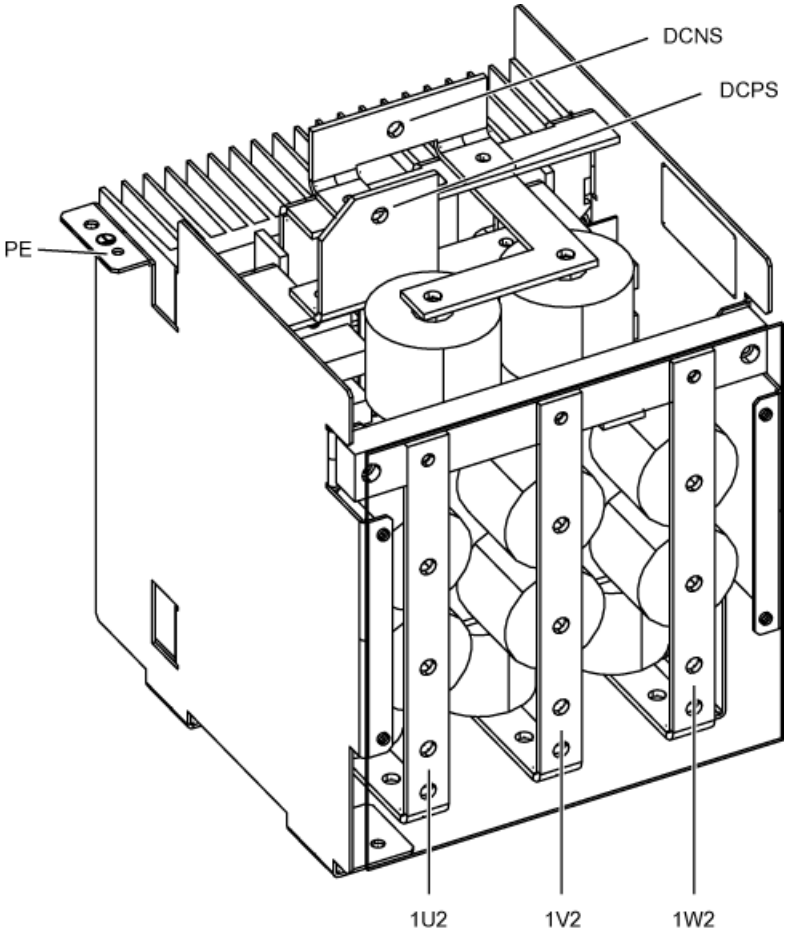

Figure 4-5 Interface overview dv/dt filter compact plus Voltage Peak Limiter - Voltage Peak Limiter, Type 4

Connection

When connecting the dv/dt filter compact plus Voltage Peak Limiter, you must take into account the following conditions to ensure that it functions correctly:

- Control cables must be routed separately from power cables. Power cables are the motor cable or the connecting cables from the DC link of the Power Module (terminals DCPS/DCNS) to the dv/dt filter compact plus Voltage Peak Limiter. In particular, you must ensure that control cables and power cables are not routed in parallel in a joint cable raceway, even if all the cables are shielded.
- You must use shielded motor cables. The shield for the motor cable must be attached to the shield plate and motor housing.
- The ground wire for the motor must be fed directly back to the Power Module.

Connection overview

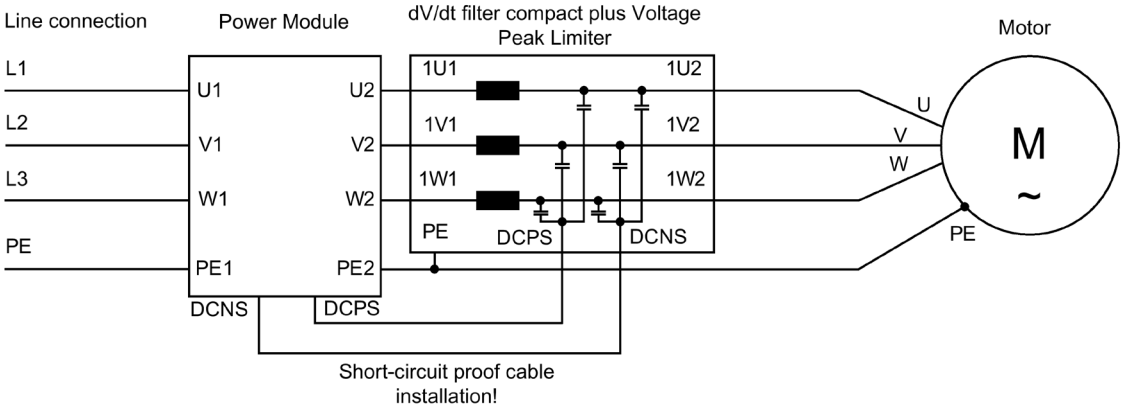

Figure 4-6 Connecting the dv/dt filter compact plus Voltage Peak Limiter - integrated unit

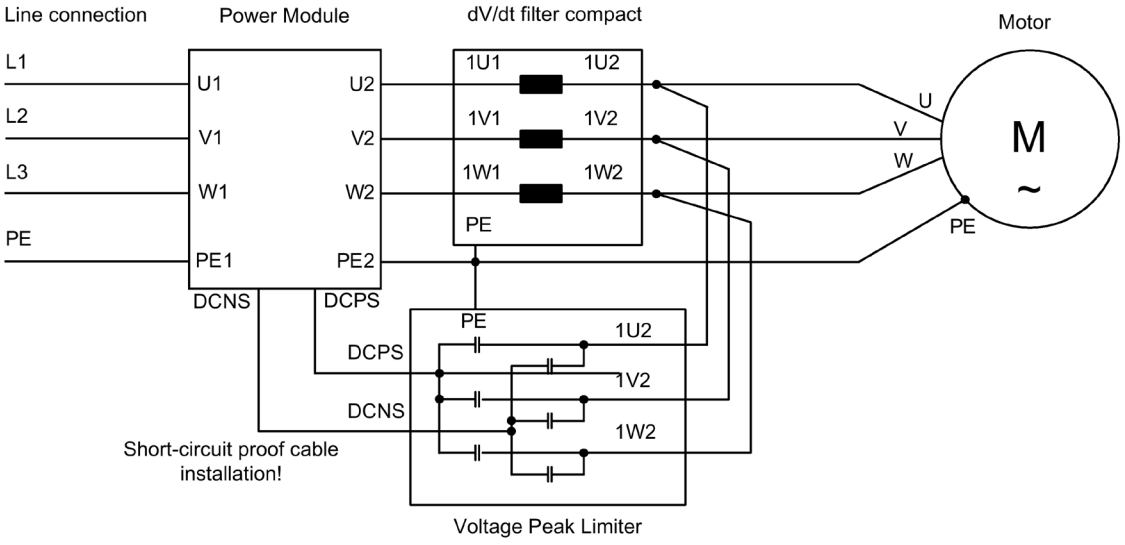

Figure 4-7 Connecting the dv/dt filter compact plus Voltage Peak Limiter - separate components

Cable cross-sections

In a dv/dt filter with separate Voltage Peak Limiter (Type 4), the connections between dv/dt reactor and Voltage Peak Limiter are already installed on the Voltage Peak Limiter.

Table 4- 1 Cable cross-sections for connections between a dv/dt filter and Power Module

dv/dt filter compact plus Voltage Peak Limiter	Cross-section [mm²]
Type 1	16
Type 2	25
Type 3	50
Type 4	95

Table 4- 2 Connection cable enclosed for connecting dv/dt reactor and Voltage Peak Limiter

Voltage Peak Limiter	Cross-section [mm²]	Lug for connecting 1U2 / 1V2 / 1W2 on the dv/dt reactor
Type 4	70	M12

Cable type: 600 V, UL style 3271, operating temperature 125° C

⚠WARNING

Fire and device damage as a result of ground fault/short-circuit

Inadequate installation of the cables to the Power Module DC link can result in a ground fault/short-circuit and place persons at risk as a result of the associated smoke and fire.

- Comply with local installation regulations that enable this fault to be ruled out.
- Protect the cables from mechanical damage.
- In addition, apply one of the following measures:
  - Use cables with double insulation.
  - Maintain adequate clearance, e.g. by using spacers.
  - Lay the cables in separate cable ducts or conduits.

NOTICE

Damage to the dv/dt filter compact due to mechanical load on connections

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

- Take measures on the installation to ensure that the connections cannot be deformed by the mechanical load exerted by the connected cables.

Note

Maximum cable lengths

The connections should be kept as short as possible.
The maximum cable length between the Power Module and the dv/dt filter compact (motor cables and cables to the DC link) is 5 m.

An equivalent cable type must be used when replacing enclosed cables.

Maintenance and servicing

5

Maintenance and servicing are not carried out for the compelte units (dV/dt filter compact plus Voltage Peak Limiter) and subcomponents (dV/dt reactor, Voltage Peak Limiter). In the case of an error, full replacement is necessary.

Technical specifications

6

General technical data

Table 6- 1 General technical data

Output frequency	0 ... 150 Hz		
Product standard	EN 61800-5-1		
Ambient conditions	Storage	Transport	Operation
Ambient temperature	-25 ... +70 °C	-25 ... +70 °C	0 ... +50 °C
Relative air humidity [1] (condensation not permissible) corresponds to class	5 ... *95%* 1K4 according to EN 60721-3-1	5 ... 95% at 40 °C 2K3 according to EN 60721-3-2	5 ... *95%* 3K3 according to EN 60721-3-3
Mechanical strength	Storage	Transport	Operation
Vibrational load [1] - Displacement - Acceleration corresponds to class	 1.5 mm at *5* ... 9 Hz 5 m/s² at > 9 ... 200 Hz 1M2 to EN 60721-3-1	 3.5 mm at *5* ... 9 Hz 10 m/s² at > 9 ... 200 Hz 2M2 to EN 60721-3-2	 0.075 mm at 10 ... 58 Hz 10 m/s² at >58 ... 200 Hz -
Shock load [1] - Acceleration corresponds to class	 40 m/s² at 22 ms 1M2 to EN 60721-3-1	 100 m/s² at 11 ms 2M2 to EN 60721-3-2	 100 m/s² at 11 ms 3M4 to EN 60721-3-3

Deviations from the specified classes are shown in *italics*.

[1] The EN standards specified are the European editions of the international IEC standards with the same designations.

Detailed technical data

Table 6- 2 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 380 V ... 480 V, part 1

Article number	6SL3000-	2DE32-6EA0	2DE35-0EA0	2DE38-4EA0
Suitable for Power Module	6SL3310-	1GE32-1AA3 1GE32-6AA3	1GE33-1AA3 1GE33-8AA3 1GE35-0AA3	1GE36-1AA3 1GE37-5AA3 1GE38-4AA3
Unit rating of the Power Module	kW	110 132	160 200 250	315 400 450
I_{thmax}	A	260	490	840
Degree of protection		IP00	IP00	IP00
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.210 0.215 0.255	 0.290 0.296 0.344	 0.518 0.529 0.609
Terminals - 1U1/1V1/1W1 - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M12 bolt for M8 bolt for M12 bolt M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions Width Height Depth	 mm mm mm	 310 283 238	 350 317 260	 440 369 311
Weight, approx.	kg	41	61	103

Table 6- 3 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 380 V ... 480 V, part 2

Article number	**6SL3000-**	**2DE41-4EA0**		
Suitable for Power Module	6SL3310-	1GE41-0AA3		
Unit rating of the Power Module	kW	560		
I_{thmax}	A	1405		
Degree of protection		IP00		
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 1.154 1.197 1.444		
Max. permissible cable length between dv/dt filter and motor	m	100 (shielded) 150 (unshielded)		
dv/dt reactor				
Terminals - 1U1/1V1/1W1 - 1U2/1V2/1W2 - PE		 for 2 x M12 bolts for 2 x M12 bolts M6 screw		
Dimensions Width Height Depth	 mm mm mm	 430 385 323		
Weight, approx.	kg	168.8		
Voltage Peak Limiter				
Terminals - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M8 bolt for M8 bolt for M6 screw		
Dimensions Width Height Depth	 mm mm mm	 277 360 291		
Weight, approx.	kg	19.2		

Table 6- 4 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 500 V ... 600 V, part 1

Article number	6SL3000-	2DG32-2EA0	2DG33-3EA0	2DG34-1EA0
Suitable for Power Module	6SL3310-	1GF31-8AA3 1GF32-2AA3	1GF32-6AA3 1GF33-3AA3	1GF34-1AA3
Unit rating of the Power Module	kW	110 132	160 200	250
I_{thmax}	A	215	330	410
Degree of protection		IP00	IP00	IP00
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.305 0.316 0.372	 0.385 0.399 0.480	 0.550 0.568 0.678
Terminals - 1U1/1V1/1W1 - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M12 bolt for M8 bolt for M12 bolt M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions Width Height Depth	 mm mm mm	 350 317 260	 350 317 260	 440 369 311
Weight, approx.	kg	51	60	87

Table 6- 5 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 500 V ... 600 V, part 2

Article number	**6SL3000-**	**2DG35-8EA0**		
Suitable for Power Module	6SL3310-	1GF34-7AA3 1GF35-8AA3		
Unit rating of the Power Module	kW	315 400		
I_{thmax}	A	575		
Degree of protection		IP00		
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.571 0.586 0.689		
Terminals - 1U1/1V1/1W1 - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M12 bolt for M8 bolt for M12 bolt M6 screw		
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions Width Height Depth	 mm mm mm	 440 369 311		
Weight, approx.	kg	100		

Table 6- 6 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 500 V ... 600 V, part 3

Article number	**6SL3000-**	**2DG38-1EA0**		
Suitable for Power Module	6SL3310-	1GF37-4AA3 1GF38-1AA3		
Unit rating of the Power Module	kW	500 560		
I_{thmax}	A	810		
Degree of protection		IP00		
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.964 0.998 1.196		
Max. permissible cable length between dv/dt filter and motor	m	100 (shielded) 150 (unshielded)		
dv/dt reactor				
Terminals - 1U1/1V1/1W1 - 1U2/1V2/1W2 - PE		 for 2 x M12 bolts for 2 x M12 bolts M6 screw		
Dimensions Width Height Depth	 mm mm mm	 430 385 323		
Weight, approx.	kg	171.2		
Voltage Peak Limiter				
Terminals - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M8 bolt for M8 bolt for M6 screw		
Dimensions Width Height Depth	 mm mm mm	 277 360 291		
Weight, approx.	kg	18.8		

Table 6- 7 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 660 V ... 690 V, part 1

Article number	**6SL3000-**	**2DG31-0EA0**	**2DG31-5EA0**	**2DG32-2AA0**
Suitable for Power Module	6SL3310-	1GH28-5AA3 1GH31-0AA3	1GH31-2AA3 1GH31-5AA3	1GH31-8AA3 1GH32-2AA3
Unit rating of the Power Module	kW	75 90	110 132	160 200
I_{thmax}	A	100	150	215
Degree of protection		IP00	IP00	IP00
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.227 0.236 0.287	 0.270 0.279 0.335	 0.305 0.316 0.372
Terminals - 1U1/1V1/1W1 - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M10 bolt for M8 screw for M10 bolt M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions Width Height Depth	 mm mm mm	 310 283 238	 310 283 238	 350 317 260
Weight, approx.	kg	34	36	51

Table 6- 8 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 660 V ... 690 V, part 2

Article number	6SL3000-	2DG33-3AA0	2DG34-1EA0	2DG35-8EA0
Suitable for Power Module	6SL3310-	1GH32-6AA3 1GH33-3AA3	1GH34-1AA3	1GH34-7AA3 1GH35-8AA3
Unit rating of the Power Module	kW	250 315	400	450 560
I_{thmax}	A	330	410	575
Degree of protection		IP00	IP00	IP00
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.385 0.399 0.480	 0.550 0.568 0.678	 0.571 0.586 0.689
Terminals - 1U1/1V1/1W1 - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M10 bolt for M8 screw for M10 bolt M6 screw	 for M12 bolt for M8 bolt for M12 bolt M6 screw	 for M12 bolt for M8 bolt for M12 bolt M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions Width Height Depth	 mm mm mm	 350 317 260	 440 369 311	 440 369 311
Weight, approx.	kg	60	87	100

Table 6- 9 Technical data for the dv/dt filter compact plus Voltage Peak Limiter, 3 AC 660 V ... 690 V, part 3

Article number	**6SL3000-**	**2DG38-1EA0**		
Suitable for Power Module	6SL3310-	1GH37-4AA3 1GH37-4AA3		
Unit rating of the Power Module	kW	710 800		
I_{thmax}	A	810		
Degree of protection		IP00		
Power loss - at 50 Hz - at 60 Hz - at 150 Hz	 kW kW kW	 0.964 0.998 1.196		
Max. permissible cable length between dv/dt filter and motor	m	100 (shielded) 150 (unshielded)		
dv/dt reactor				
Terminals - 1U1/1V1/1W1 - 1U2/1V2/1W2 - PE		 for 2 x M12 bolts for 2 x M12 bolts M6 screw		
Dimensions Width Height Depth	 mm mm mm	 430 385 323		
Weight, approx.	kg	171.2		
Voltage Peak Limiter				
Terminals - DCPS/DCNS - 1U2/1V2/1W2 - PE		 for M8 bolt for M8 bolt for M6 screw		
Dimensions Width Height Depth	 mm mm mm	 277 360 291		
Weight, approx.	kg	18.8		

Additional information

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