

SIEMENS

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SINAMICS G130

dv/dt filter compact plus Voltage Peak Limiter

Operating Instructions

Edition

07/2016

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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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Safety information

1.1 General safety instructions



 DANGER
<p>Danger to life due to live parts and other energy sources</p> <p>Death or serious injury can result when live parts are touched.</p> <ul style="list-style-type: none"> • Only work on electrical equipment if you are appropriately qualified. • Always observe the country-specific safety rules for all work. <p>Generally, six steps apply when establishing safety:</p> <ol style="list-style-type: none"> 1. Prepare for shutdown and notify all those who will be affected by the procedure. 2. Disconnect the machine from the supply. <ul style="list-style-type: none"> – Switch off the machine. – Wait until the discharge time specified on the warning labels has elapsed. – Check that it really is in a zero-voltage state, from phase conductor to phase conductor and phase conductor to protective conductor. – Check that every auxiliary circuit is 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 hazardous energy sources by closing switches, grounding or short-circuiting or closing valves, for example. 5. Take measures to prevent reconnection of the energy sources. 6. Ensure that the correct machine is completely interlocked. <p>After you have completed the work, restore the operational readiness by following the above steps in the reverse order.</p>



 WARNING
<p>Danger to life through a hazardous voltage when connecting an unsuitable power supply</p> <p>Death or serious injury can result when live parts are touched in the event of a fault.</p> <ul style="list-style-type: none"> • 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
Danger to life when live parts are touched on damaged devices
Improper handling of devices can cause damage.
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.
<ul style="list-style-type: none">• Ensure compliance with the limit values specified in the technical data during transport, storage and operation.• Do not use any damaged devices.



 WARNING
Danger to life through electric shock due to unconnected cable shields
Hazardous touch voltages can occur through capacitive cross-coupling due to unconnected cable shields.
<ul style="list-style-type: none">• Connect cable shields and unused conductors of power cables (e.g. brake conductors) at least on one side to the grounded housing potential.



 WARNING
Danger to life due to electric shock when not grounded
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.
<ul style="list-style-type: none">• Ground the device in compliance with the applicable regulations.



 WARNING
Danger to life due to electric shock when opening plug connections in operation
When opening plug connections in operation, arcs can result in severe injury or death.
<ul style="list-style-type: none">• 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
Material damage due to loose power connections
Insufficient tightening torques or vibrations can result in loose electrical connections. This can result in damage due to fire, device defects or malfunctions.
<ul style="list-style-type: none">• Tighten all power connections with the specified tightening torques, e.g. line supply connection, motor connection, DC link connections.• Check all power connections at regular intervals. This applies in particular after transport.

 **WARNING****Danger to life due to fire spreading if the housing is inadequate**

Fire and smoke can cause severe injury or material damage.

- Install devices without a protective housing in a metal control cabinet (or protect the device by another equivalent measure) in such a way that contact with fire is prevented.
- Ensure that smoke can only escape via controlled and monitored paths.

 **WARNING****Danger to life through unexpected movement of machines when using mobile wireless devices or mobile phones**

Using mobile radios or mobile phones with a transmit power > 1 W closer than approx. 2 m to the components may cause the devices to malfunction, influence the functional safety of machines therefore putting people at risk or cause material damage.

- When close to components, switch off all wireless devices and mobile phones.

 **WARNING****Danger to life due to the motor catching 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****Danger to life due to fire if overheating occurs because of insufficient 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 clearances as ventilation clearance for the respective component.

 WARNING
Danger of an accident occurring due to missing or illegible warning labels Missing or illegible warning labels can result in accidents involving death or serious injury. <ul style="list-style-type: none">• Check that the warning labels are complete based on the documentation.• Attach any missing warning labels to the components, in the national language if necessary.• Replace illegible warning labels.

NOTICE
Device damage caused by incorrect voltage/insulation tests Incorrect voltage/insulation tests can damage the device. <ul style="list-style-type: none">• 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
Danger to life due to inactive safety functions Inactive or non-adapted safety functions can trigger machine malfunctions that can cause serious injury or death. <ul style="list-style-type: none">• 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

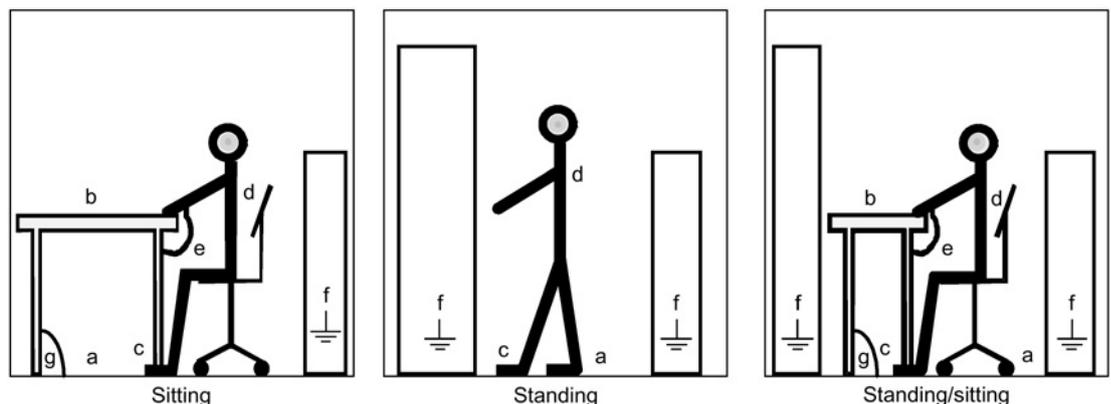


Figure 1-1 ESD protective measures

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/ μ s - 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

Danger to life if the fundamental safety instructions and remaining risks are not carefully observed

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 hazard due to overheating because of inadequate 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**

Risk of 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		
6SL3310-1GE32-1AAx	110 kW	6SL3000-2DE32-6EA0
6SL3310-1GE32-6AAx	132 kW	6SL3000-2DE32-6EA0
6SL3310-1GE33-1AAx	160 kW	6SL3000-2DE35-0EA0
6SL3310-1GE33-8AAx	200 kW	6SL3000-2DE35-0EA0
6SL3310-1GE35-0AAx	250 kW	6SL3000-2DE35-0EA0
6SL3310-1GE36-1AAx	315 kW	6SL3000-2DE38-4EA0
6SL3310-1GE37-5AAx	400 kW	6SL3000-2DE38-4EA0
6SL3310-1GE38-4AAx	450 kW	6SL3000-2DE38-4EA0
6SL3310-1GE41-0AAx	560 kW	6SL3000-2DE41-4EA0
Line voltage 3 AC 500 ... 600 V		
6SL3310-1GF31-8AAx	110 kW	6SL3000-2DG32-2EA0
6SL3310-1GF32-2AAx	132 kW	6SL3000-2DG32-2EA0
6SL3310-1GF32-6AAx	160 kW	6SL3000-2DG33-3EA0
6SL3310-1GF33-3AAx	200 kW	6SL3000-2DG33-3EA0
6SL3310-1GF34-1AAx	250 kW	6SL3000-2DG34-1EA0
6SL3310-1GF34-7AAx	315 kW	6SL3000-2DG35-8EA0
6SL3310-1GF35-8AAx	400 kW	6SL3000-2DG35-8EA0
6SL3310-1GF37-4AAx	500 kW	6SL3000-2DG38-1EA0
6SL3310-1GF38-1AAx	560 kW	6SL3000-2DG38-1EA0
Line voltage 3 AC 660 ... 690 V		
6SL3310-1GH28-5AAx	75 kW	6SL3000-2DG31-0EA0
6SL3310-1GH31-0AAx	90 kW	6SL3000-2DG31-0EA0
6SL3310-1GH31-2AAx	110 kW	6SL3000-2DG31-5EA0
6SL3310-1GH31-5AAx	132 kW	6SL3000-2DG31-5EA0
6SL3310-1GH31-8AAx	160 kW	6SL3000-2DG32-2EA0
6SL3310-1GH32-2AAx	200 kW	6SL3000-2DG32-2EA0
6SL3310-1GH32-6AAx	250 kW	6SL3000-2DG33-3EA0
6SL3310-1GH33-3AAx	315 kW	6SL3000-2DG33-3EA0
6SL3310-1GH34-1AAx	400 kW	6SL3000-2DG34-1EA0
6SL3310-1GH34-7AAx	450 kW	6SL3000-2DG35-8EA0
6SL3310-1GH35-8AAx	560 kW	6SL3000-2DG35-8EA0
6SL3310-1GH37-4AAx	710 kW	6SL3000-2DG38-1EA0
6SL3310-1GH38-1AAx	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			
1GE32-1AAx	110	210	4 kHz
1GE32-6AAx	132	260	4 kHz
1GE33-1AAx	160	310	4 kHz
1GE33-8AAx	200	380	4 kHz
1GE35-0AAx	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			
1GE36-1AAx	315	605	2.5 kHz
1GE37-5AAx	400	745	2.5 kHz
1GE38-4AAx	450	840	2.5 kHz
1GE41-0AAx	560	985	2.5 kHz
Line voltage 3 AC 500 V ... 600 V			
1GF31-8AAx	110	175	2.5 kHz
1GF32-2AAx	132	215	2.5 kHz
1GF32-6AAx	160	260	2.5 kHz
1GF33-3AAx	200	330	2.5 kHz
1GF34-1AAx	250	410	2.5 kHz
1GF34-7AAx	315	465	2.5 kHz
1GF35-8AAx	400	575	2.5 kHz
1GF37-4AAx	450	735	2.5 kHz
1GF38-1AAx	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			
1GH28-5AAx	75	85	2.5 kHz
1GH31-0AAx	90	100	2.5 kHz
1GH31-2AAx	110	120	2.5 kHz
1GH31-5AAx	132	150	2.5 kHz
1GH31-8AAx	160	175	2.5 kHz
1GH32-2AAx	200	215	2.5 kHz
1GH32-6AAx	250	260	2.5 kHz
1GH33-3AAx	315	330	2.5 kHz
1GH34-1AAx	400	410	2.5 kHz
1GH34-7AAx	450	465	2.5 kHz
1GH35-8AAx	560	575	2.5 kHz
1GH37-4AAx	710	735	2.5 kHz
1GH38-1AAx	800	810	2.5 kHz

Mechanical installation

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

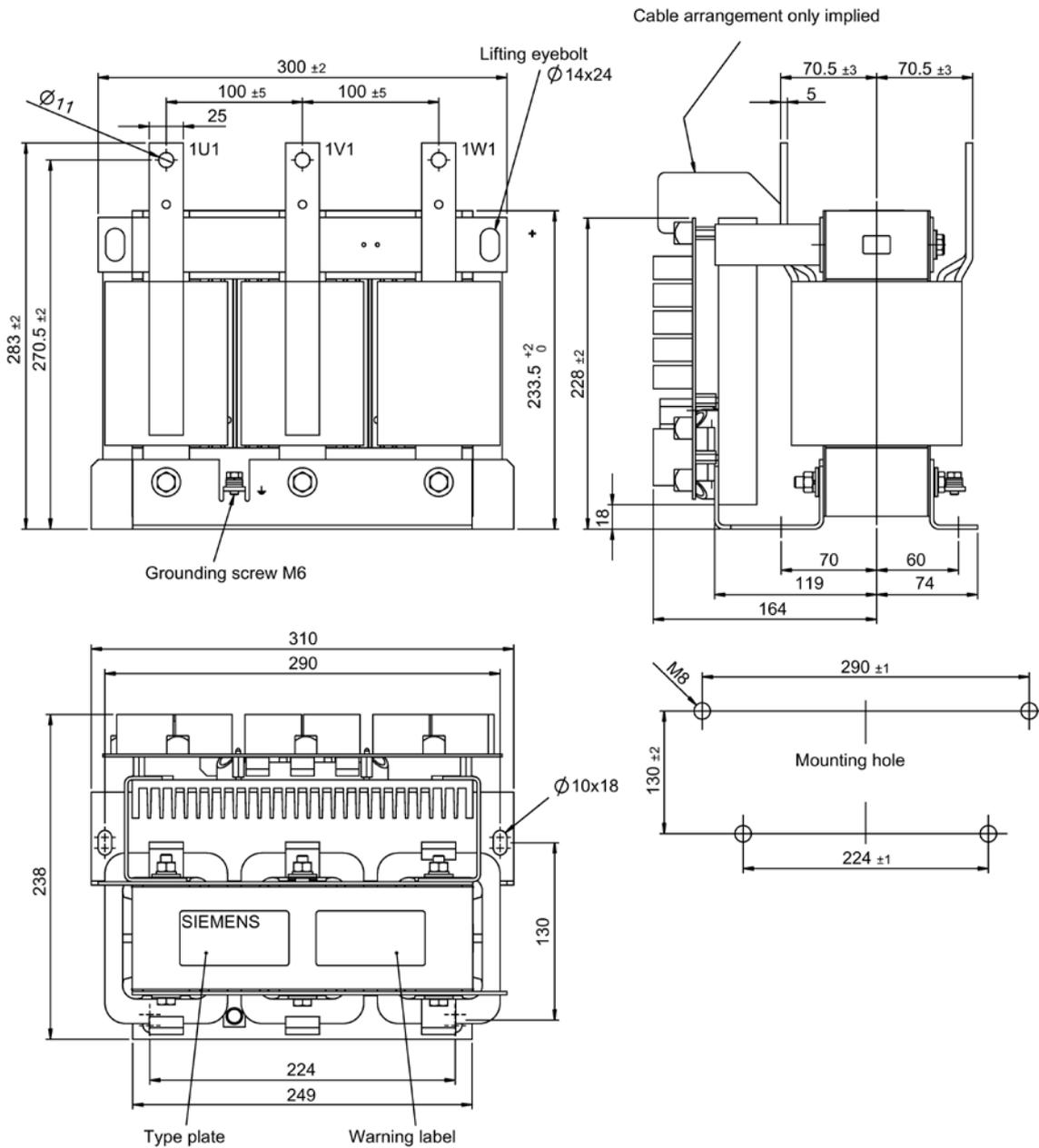


Figure 3-1 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 1

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

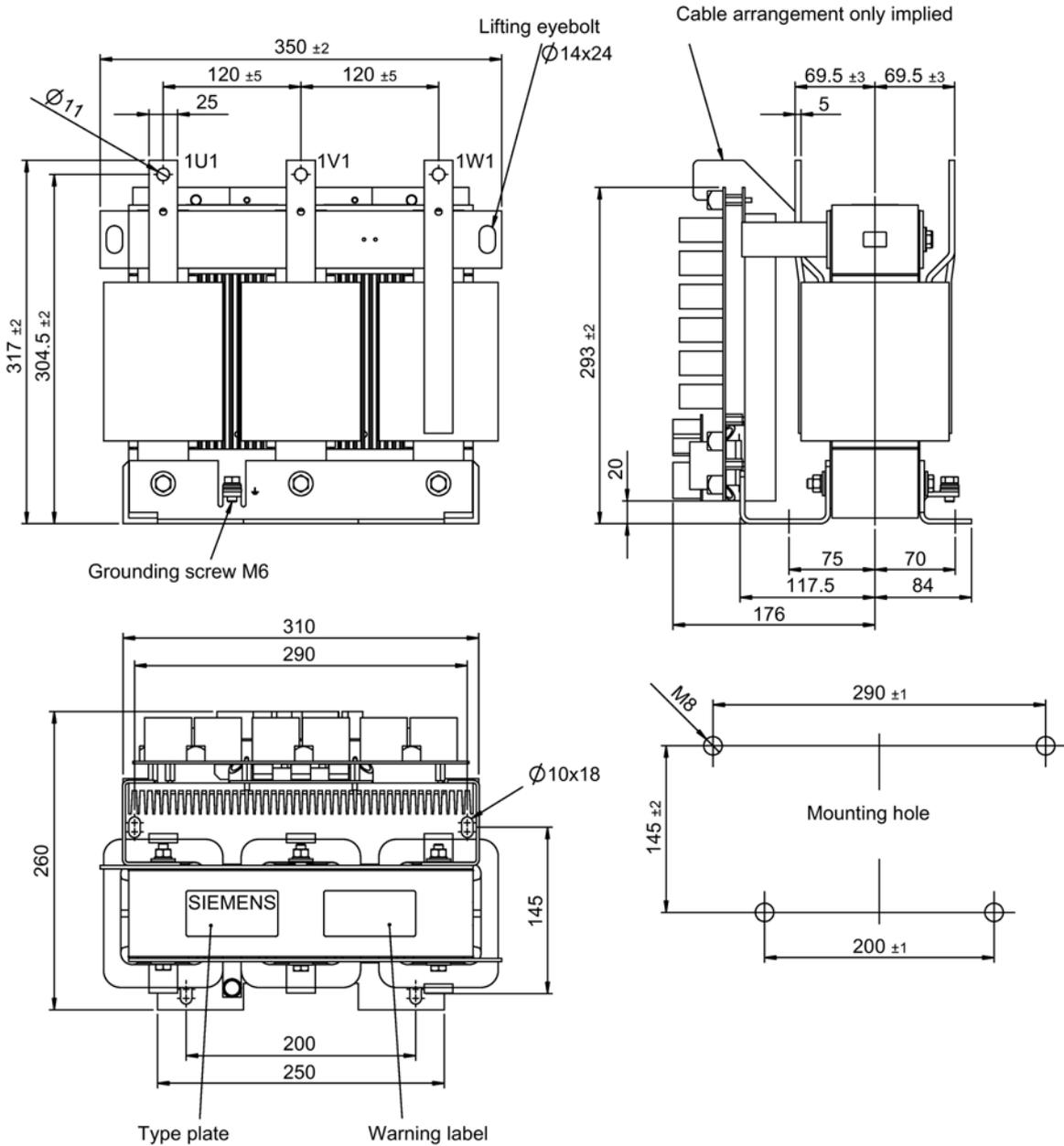


Figure 3-2 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 2

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

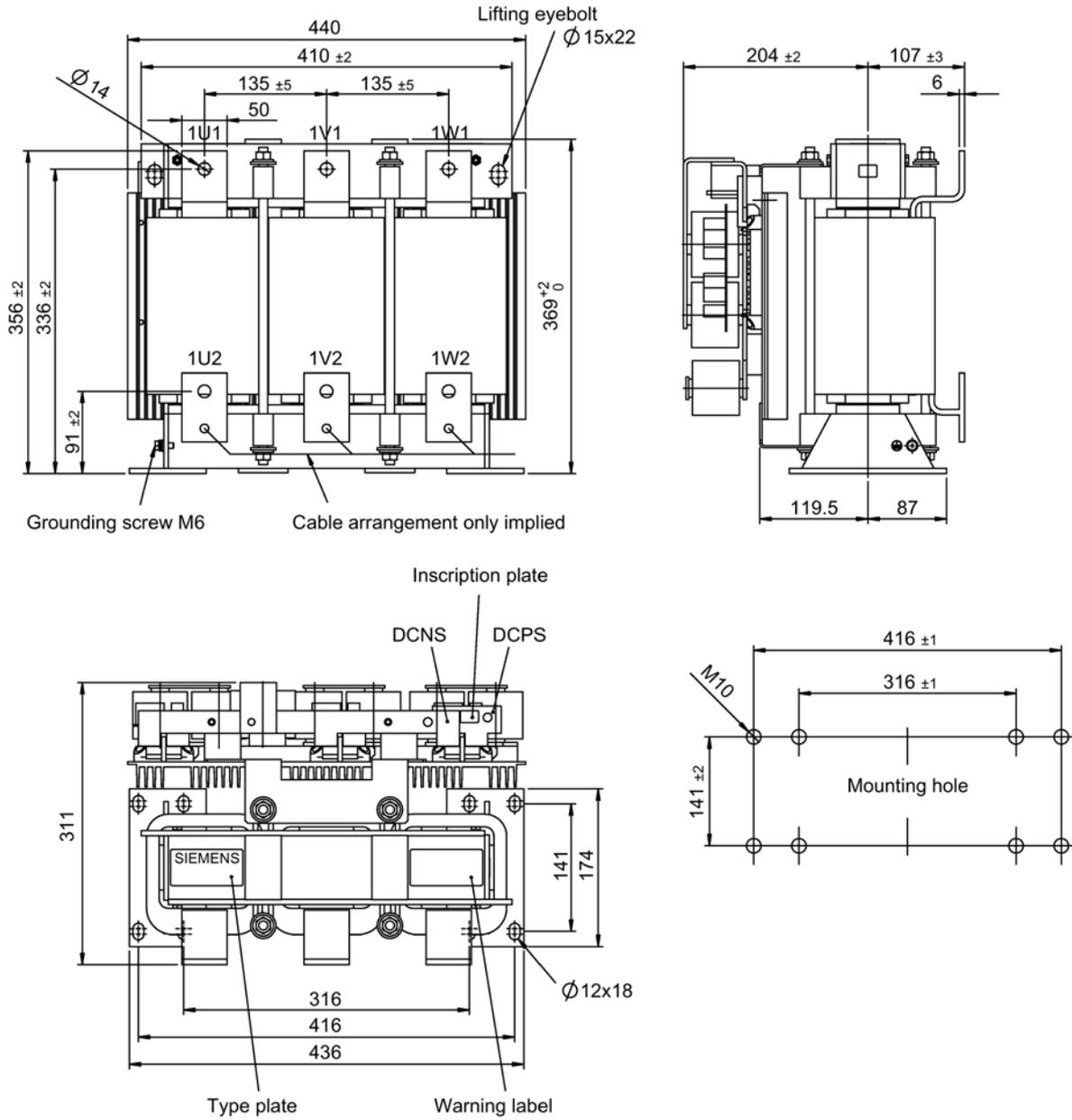


Figure 3-3 Dimension drawing of dV/dt filter compact plus Voltage Peak Limiter, type 3

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

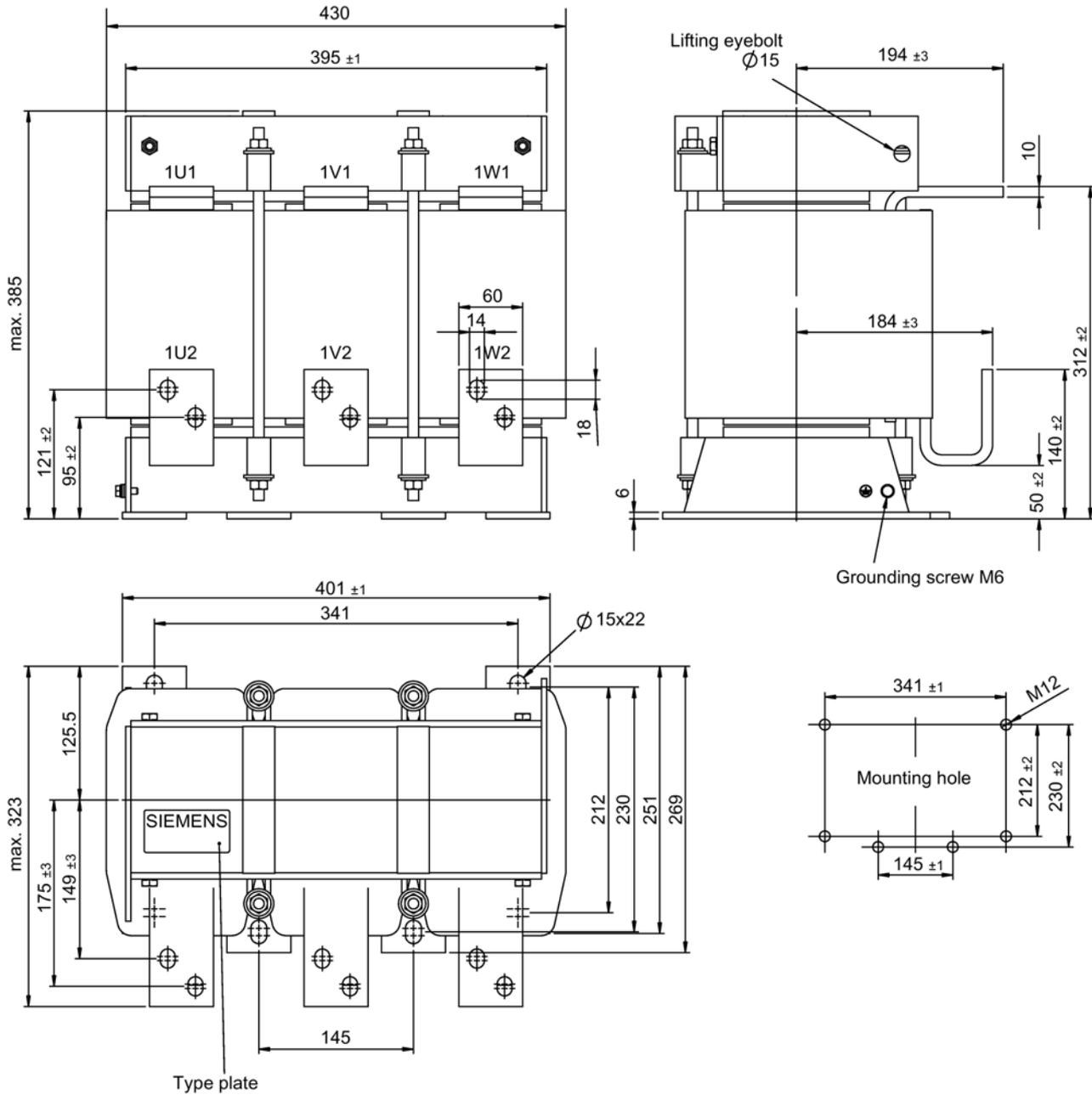


Figure 3-4 Dimension drawing for dV/dt filter compact plus Voltage Peak Limiter, Type 4: dV/dt reactor

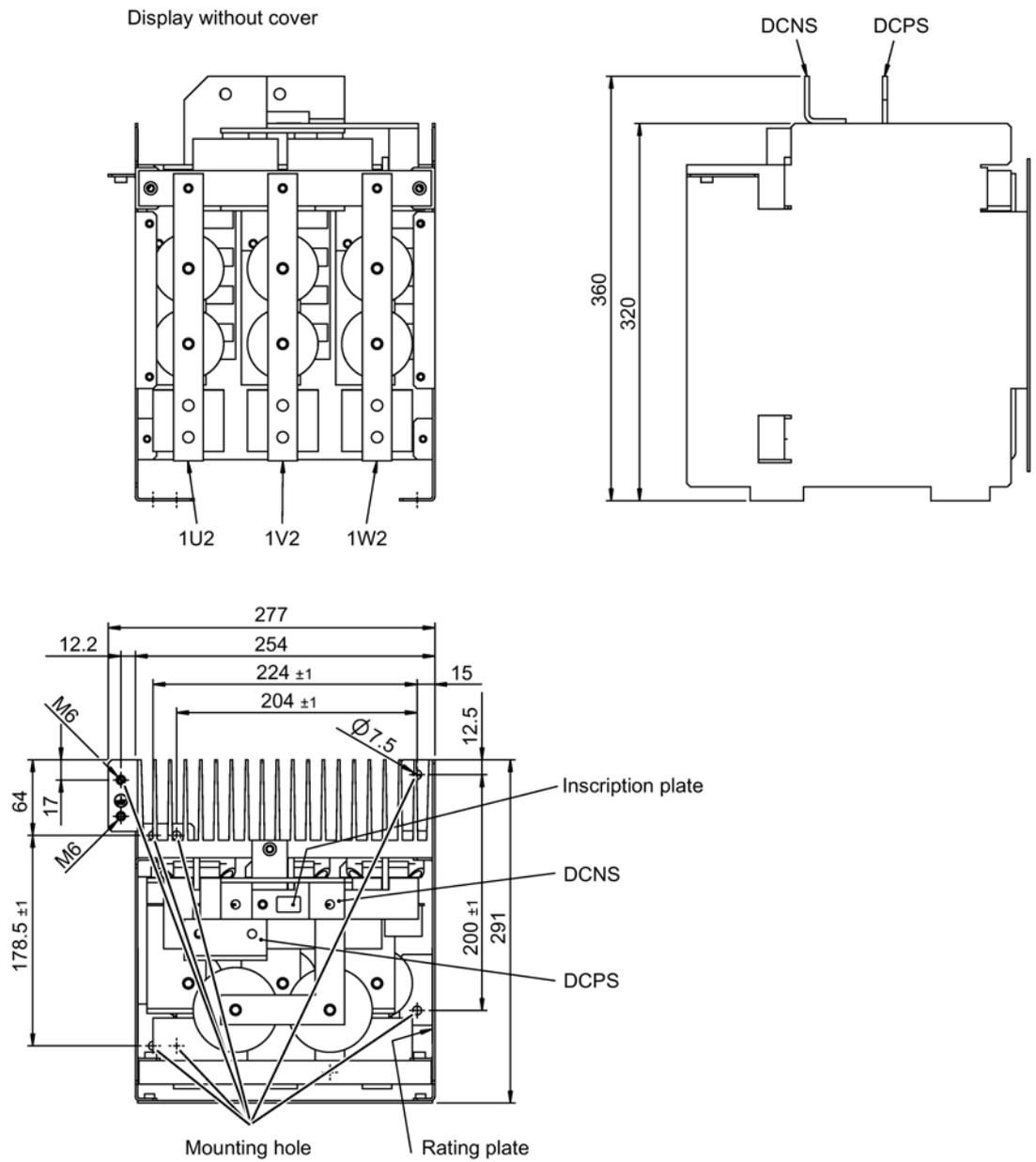


Figure 3-5 Dimension drawing for dV/dt filter compact plus Voltage Peak Limiter, Type 4: Voltage Peak Limiter

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

Interface overview

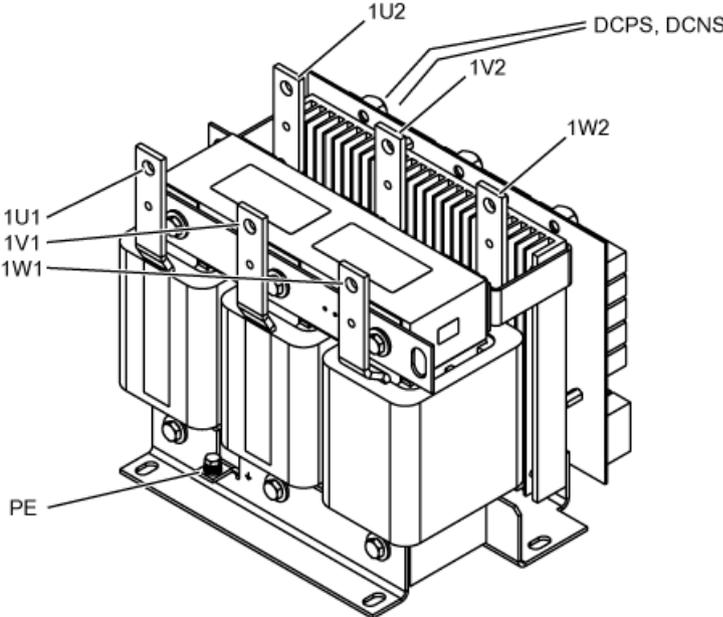


Figure 4-1 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 1

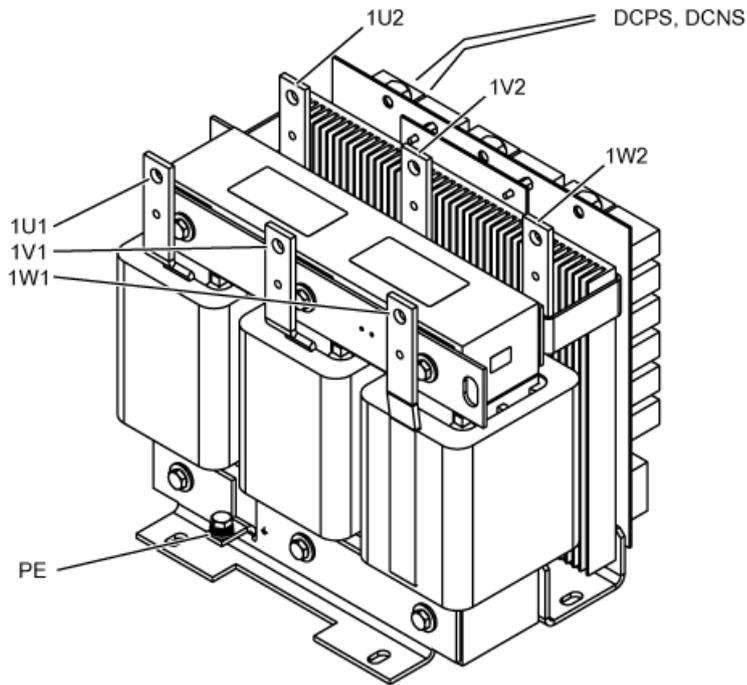


Figure 4-2 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 2

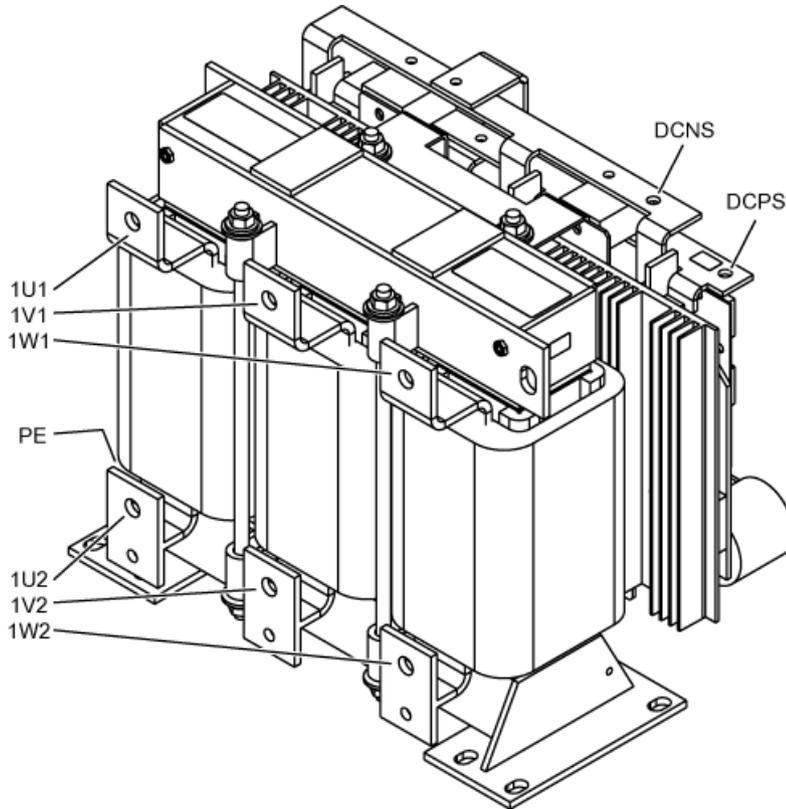


Figure 4-3 Interface overview dv/dt filter compact plus Voltage Peak Limiter, type 3

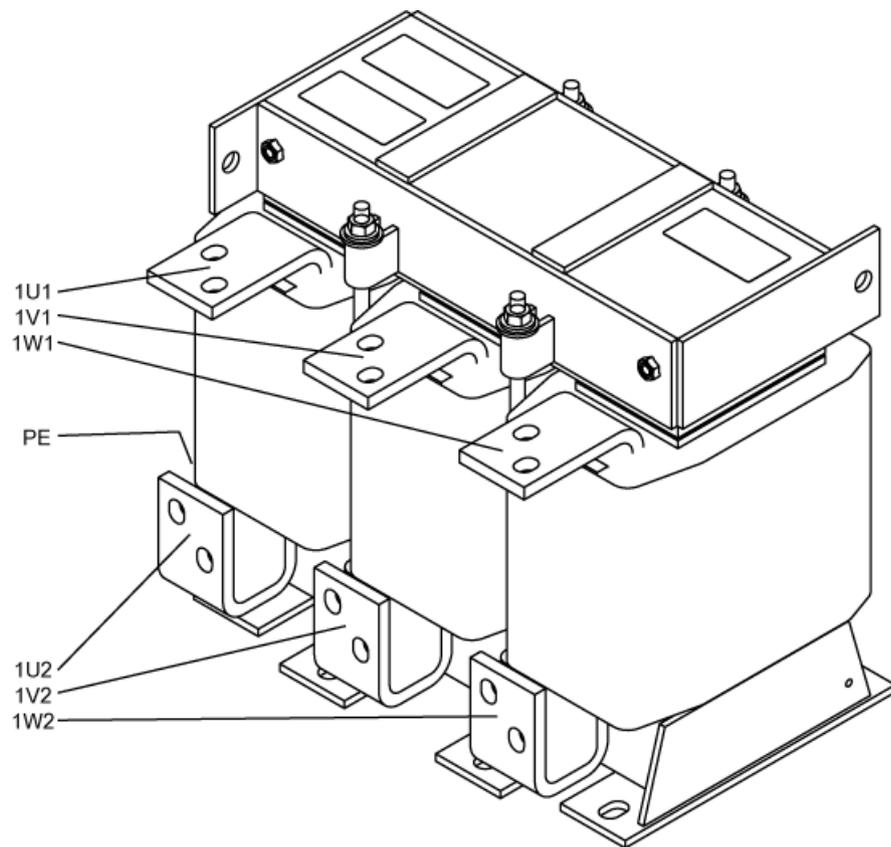


Figure 4-4 Interface overview dv/dt filter compact plus Voltage Peak Limiter - dv/dt reactor Type 4

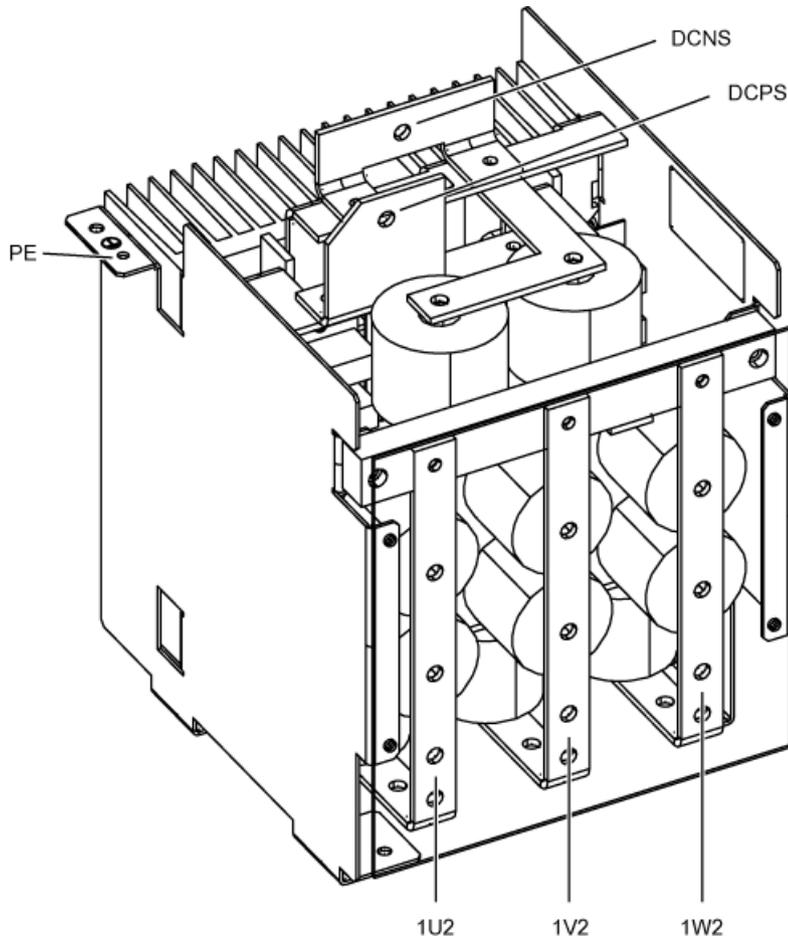


Figure 4-5 Interface overview dv/dt filter compact plus Voltage Peak Limiter - Voltage Peak Limiter, Type 4

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

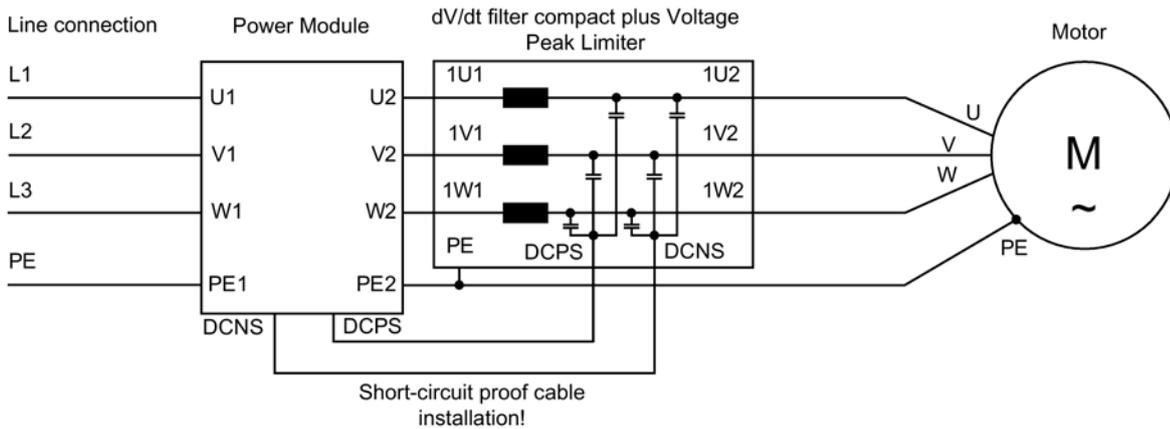


Figure 4-6 Connecting the dv/dt filter compact plus Voltage Peak Limiter - integrated unit

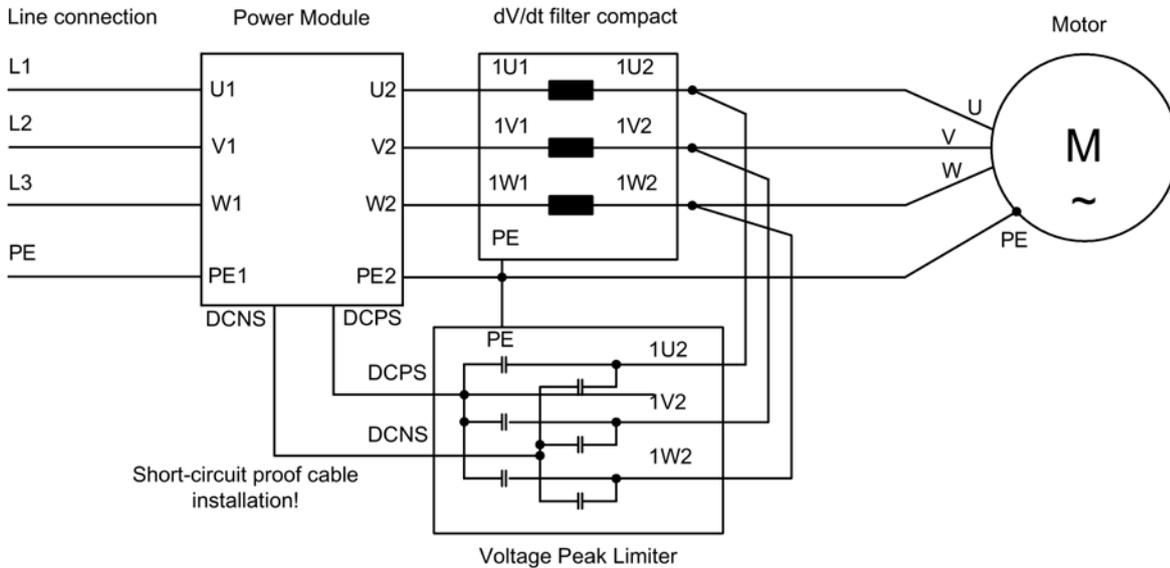


Figure 4-7 Connecting the dv/dt filter compact plus Voltage Peak Limiter - separate components

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 [mm ²]
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 [mm ²]	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
<p>Risk of fire due to ground fault/short-circuit</p> <p>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.</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> – Use cables with double insulation. – Maintain adequate clearance, e.g. by using spacers. – Lay the cables in separate cable ducts or conduits.

 WARNING
<p>Damage to the dv/dt filter compact due to mechanical load on connections</p> <p>The connections on the dv/dt filter compact have not been designed for the direct mechanical connection of the motor cables.</p> <ul style="list-style-type: none"> • Take line-side measures 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

Maintenance and servicing are not carried out for the complete 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

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 ... <i>95%</i> 1K4 according to EN 60721-3-1	5 ... 95% at 40 °C 2K3 according to EN 60721-3-2	5 ... <i>95%</i> 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/s ² at > 9 ... 200 Hz 1M2 to EN 60721-3-1	3.5 mm at 5 ... 9 Hz 10 m/s ² at > 9 ... 200 Hz 2M2 to EN 60721-3-2	0.075 mm at 10 ... 58 Hz 10 m/s ² at >58 ... 200 Hz -
Shock load ¹⁾ - Acceleration corresponds to class	40 m/s ² at 22 ms 1M2 to EN 60721-3-1	100 m/s ² at 11 ms 2M2 to EN 60721-3-2	100 m/s ² 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-	1GE32-1AAx 1GE32-6AAx	1GE33-1AAx 1GE33-8AAx 1GE35-0AAx	1GE36-1AAx 1GE37-5AAx 1GE38-4AAx
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	kW	0.210	0.290	0.518
- at 60 Hz	kW	0.215	0.296	0.529
- at 150 Hz	kW	0.255	0.344	0.609
Terminals				
- 1U1/1V1/1W1		for M10 bolt	for M10 bolt	for M12 bolt
- DCPS/DCNS		for M8 screw	for M8 screw	for M8 bolt
- 1U2/1V2/1W2		for M10 bolt	for M10 bolt	for M12 bolt
- PE		M6 screw	M6 screw	M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions				
Width	mm	310	350	440
Height	mm	283	317	369
Depth	mm	238	260	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-	1GE41-0AAx		
Unit rating of the Power Module	kW	560		
I_{thmax}	A	1405		
Degree of protection		IP00		
Power loss				
- at 50 Hz	kW	1.154		
- at 60 Hz	kW	1.197		
- at 150 Hz	kW	1.444		
Max. permissible cable length between du/dt filter and motor	m	100 (shielded) 150 (unshielded)		
du/dt reactor				
Terminals				
- 1U1/1V1/1W1		for 2 x M12 bolts		
- 1U2/1V2/1W2		for 2 x M12 bolts		
- PE		M6 screw		
Dimensions				
Width	mm	430		
Height	mm	385		
Depth	mm	323		
Weight, approx.	kg	168.8		
Voltage Peak Limiter				
Terminals				
- DCPS/DCNS		for M8 bolt		
- 1U2/1V2/1W2		for M8 bolt		
- PE		for M6 screw		
Dimensions				
Width	mm	277		
Height	mm	360		
Depth	mm	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-	1GF31-8AAx 1GF32-2AAx	1GF32-6AAx 1GF33-3AAx	1GF34-1AAx
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	kW	0.305	0.385	0.550
- at 60 Hz	kW	0.316	0.399	0.568
- at 150 Hz	kW	0.372	0.480	0.678
Terminals				
- 1U1/1V1/1W1		for M10 bolt	for M10 bolt	for M12 bolt
- DCPS/DCNS		for M8 screw	for M8 screw	for M8 bolt
- 1U2/1V2/1W2		for M10 bolt	for M10 bolt	for M12 bolt
- PE		M6 screw	M6 screw	M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions				
Width	mm	350	350	440
Height	mm	317	317	369
Depth	mm	260	260	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-	1GF34-7AAx 1GF35-8AAx		
Unit rating of the Power Module	kW	315 400		
I_{thmax}	A	575		
Degree of protection		IP00		
Power loss				
- at 50 Hz	kW	0.571		
- at 60 Hz	kW	0.586		
- at 150 Hz	kW	0.689		
Terminals				
- 1U1/1V1/1W1		for M12 bolt		
- DCPS/DCNS		for M8 bolt		
- 1U2/1V2/1W2		for M12 bolt		
- PE		M6 screw		
Max. permissible cable length between dV/dt filter and motor	m		100 (shielded) 150 (unshielded)	
Dimensions				
Width	mm	440		
Height	mm	369		
Depth	mm	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-	1GF37-4AAx 1GF38-1AAx		
Unit rating of the Power Module	kW	500 560		
I_{thmax}	A	810		
Degree of protection		IP00		
Power loss				
- at 50 Hz	kW	0.964		
- at 60 Hz	kW	0.998		
- at 150 Hz	kW	1.196		
Max. permissible cable length between du/dt filter and motor	m		100 (shielded) 150 (unshielded)	
du/dt reactor				
Terminals - 1U1/1V1/1W1 - 1U2/1V2/1W2 - PE		for 2 x M12 bolts for 2 x M12 bolts M6 screw		
Dimensions				
Width	mm	430		
Height	mm	385		
Depth	mm	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	mm	277		
Height	mm	360		
Depth	mm	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-	1GH28-5AAx 1GH31-0AAx	1GH31-2AAx 1GH31-5AAx	1GH31-8AAx 1GH32-2AAx
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	kW	0.227	0.270	0.305
- at 60 Hz	kW	0.236	0.279	0.316
- at 150 Hz	kW	0.287	0.335	0.372
Terminals				
- 1U1/1V1/1W1		for M10 bolt	for M10 bolt	for M10 bolt
- DCPS/DCNS		for M8 screw	for M8 screw	for M8 screw
- 1U2/1V2/1W2		for M10 bolt	for M10 bolt	for M10 bolt
- PE		M6 screw	M6 screw	M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions				
Width	mm	310	310	350
Height	mm	283	283	317
Depth	mm	238	238	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-	1GH32-6AAx 1GH33-3AAx	1GH34-1AAx	1GH34-7AAx 1GH35-8AAx
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	kW	0.385	0.550	0.571
- at 60 Hz	kW	0.399	0.568	0.586
- at 150 Hz	kW	0.480	0.678	0.689
Terminals				
- 1U1/1V1/1W1		for M10 bolt	for M12 bolt	for M12 bolt
- DCPS/DCNS		for M8 screw	for M8 bolt	for M8 bolt
- 1U2/1V2/1W2		for M10 bolt	for M12 bolt	for M12 bolt
- PE		M6 screw	M6 screw	M6 screw
Max. permissible cable length between dV/dt filter and motor	m	100 (shielded) 150 (unshielded)		
Dimensions				
Width	mm	350	440	440
Height	mm	317	369	369
Depth	mm	260	311	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-	1GH37-4AAx 1GH37-4AAx		
Unit rating of the Power Module	kW	710 800		
I_{thmax}	A	810		
Degree of protection		IP00		
Power loss				
- at 50 Hz	kW	0.964		
- at 60 Hz	kW	0.998		
- at 150 Hz	kW	1.196		
Max. permissible cable length between du/dt filter and motor	m		100 (shielded) 150 (unshielded)	
du/dt reactor				
Terminals - 1U1/1V1/1W1 - 1U2/1V2/1W2 - PE		for 2 x M12 bolts for 2 x M12 bolts M6 screw		
Dimensions				
Width	mm	430		
Height	mm	385		
Depth	mm	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	mm	277		
Height	mm	360		
Depth	mm	291		
Weight, approx.	kg	18.8		

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