

**SIEMENS**

# SINAMICS

## SINAMICS G120P

Line reactors for PM330 Power Modules

Operating Instructions

Edition

11/2013

Answers for industry.



# SIEMENS

## SINAMICS

### SINAMICS G120P Line reactors

#### Operating Instructions

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Control version V4.6




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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.

 <b>DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
 <b>WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
 <b>CAUTION</b>
indicates that minor personal injury can result if proper precautions are not taken.
<b>NOTICE</b>
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:

 <b>WARNING</b>
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 Warnings

**⚠ WARNING****Dangerous electrical voltage**

Hazardous voltages are present when electrical equipment is in operation. Severe personal injury or substantial material damage may result if these warnings are not observed.

Only qualified personnel are permitted to work on or around the equipment.

These personnel must be thoroughly familiar with all the warnings and maintenance procedures described in these operating instructions.

The successful and safe operation of this device is dependent on correct transport, proper storage and installation, as well as careful operation and maintenance.

National safety guidelines must be observed.

**⚠ DANGER****Five safety rules**

When carrying out any kind of work on electrical devices, the "five safety rules" according to EN 50110 must always be observed:

1. Disconnect the system.
2. Protect against reconnection.
3. Make sure that the equipment is de-energized.
4. Ground and short-circuit.
5. Cover or enclose adjacent components that are still live.

**Note****Use of copper cables for a UL-approved system**

For a UL-approved system use 60/75°C copper conductors only.

## 1.2 Safety and application instructions



### DANGER

#### **Dangerous electrical voltage**

This equipment is used in industrial high-voltage installations. During operation, this equipment contains live, bare parts. For this reason, they could cause severe injury or significant material damage if the required covers are removed, if they are used or operated incorrectly, or have not been properly maintained.

When the machines are used in non-industrial areas, the installation location must be protected against unauthorized access (protective fencing, appropriate signs).

### Preconditions

The persons responsible for the safety of the plant or system must ensure that the following conditions are met:

- Basic planning work for the system and all work relating to transportation, assembly, installation, commissioning, maintenance and repairs is carried out by qualified personnel and checked by responsible, suitably skilled personnel.
- The Operating Instructions and machine documentation are always available.
- The technical specifications regarding the applicable installation, connection, environmental, and operating conditions are always observed.
- The plant-specific assembly and safety guidelines are observed and personal protection equipment is used.
- Unqualified personnel are forbidden from using these machines and working near them.

These Operating Instructions are intended for qualified personnel and only contain information and notes relating to the intended purpose of the machines.

The Operating Instructions and machine documentation are written in different languages as specified in the delivery contracts.

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#### **Note**

##### **Support by SIEMENS service centers**

We recommend engaging the support and services of your local Siemens service center for all planning, installation, commissioning and maintenance work.

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# General

# 2

## Description

Line reactors limit low-frequency line-side harmonics to permissible values.

### NOTICE

#### Maintain ventilation clearances

The 100 mm cooling clearances above and to the side of the components must be observed.

### Note

#### Cable lengths

The connecting cables to the Power Module must be kept as short as possible.

### NOTICE

#### Use only approved line reactors

When using line reactors that have not been approved by SIEMENS for SINAMICS, the following can occur:

- The Power Modules could be damaged/destroyed.
- Line harmonics may interfere with or damage other loads connected to the same line supply.



### CAUTION

#### Hot surfaces

The surface temperature of the line reactors may exceed 80 °C.

### NOTICE

#### Component cooling

Provisions for component cooling must be made at the installation site. Power loss data is given in the technical specifications.

### Assignment of line reactor and Power Module

Table 2- 1 Assignment of line reactor and Power Module

Power Module	Unit rating of the Power Module	Suitable line reactor
<b>Line voltage 380 – 480 V 3 AC</b>		
6SL3310-1PE33-0AA0	160 kW	<b>6SL3000-0CE33-3AA0</b>
6SL3310-1PE33-7AA0	200 kW	<b>6SL3000-0CE35-1AA0</b>

## Mechanical installation

### Dimension drawing

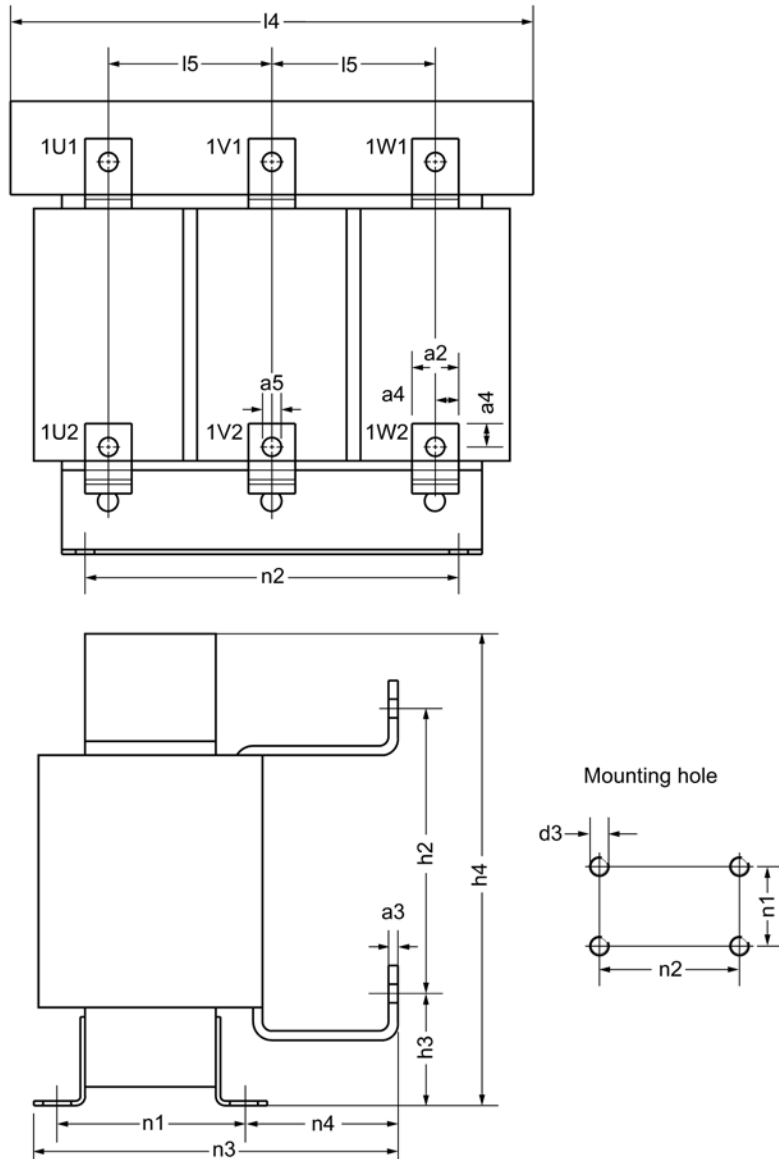



Figure 3-1 Dimension drawing of line reactor

Table 3- 1 Dimensions of line reactor, 380 V – 480 V 3 AC (all values in mm)

6SL3000-	0CE33-3AA0	0CE35-1AA0		
a2	25	30		
a3	5	6		
a4	12.5	15		
a5	11	14		
l4	270	300		
l5	88	100		
h1	-	-		
h2	150	180		
h3	60	60		
h4	248	269		
n1 <sup>1)</sup>	101	118		
n2 <sup>1)</sup>	200	224		
n3	200	212.5		
n4	84.5	81		
d3	M8	M8		
<sup>1)</sup> Lengths n1 and n2 correspond to the distance between holes				

## Important safety precautions



 <b>WARNING</b>
<p><b>Dangerous electrical voltage</b></p> <p>The devices are operated with high voltages. All connection work must be carried out in a no-voltage condition! All work on the device must be carried out by trained personnel only. Death, serious injury, or substantial material damage can result if these warning notices are not observed.</p> <p>Work on an open device must be carried out with extreme caution because external supply voltages may be present. The power and control terminals may be live even when the motor is not running. Dangerously high voltage levels are still present in the cabinet up to 5 minutes after it has been disconnected due to the DC link capacitors on the Power Module. For this reason, the unit should not be opened until a reasonable period of time has elapsed.</p> <p>The operator is responsible for ensuring that the line reactor and other components are installed and connected in accordance with the recognized technical rules in the country of installation and applicable regional guidelines. Special attention should be paid to cable dimensioning, fuses, grounding, shutdown, disconnection, and overcurrent protection.</p> <p>If a protective device trips in a branch circuit, a fault current may have been interrupted. To reduce the risk of fire or an electric shock, the current-conducting parts and other components in the cabinet unit should be inspected and damaged parts replaced. When a protective device trips, the cause of the trip must be identified and rectified.</p>

## Connection

When connecting the line filter and line reactor, you must take into account the following conditions to ensure that they function correctly:

- Control cables must be routed separately from power cables. Power cables are motor cables or connecting cables from the DC link of the Power Module (terminals DCP/DCN) to other components (e.g., Braking Module). 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.

### Connection overview

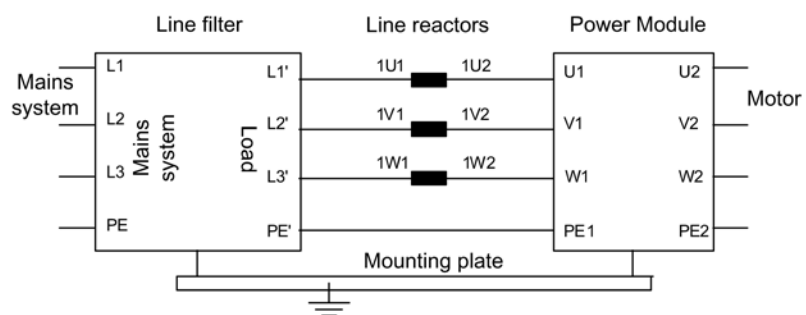


Figure 4-1 Connecting the line filter, line reactor, and Power Module

## Technical specifications

### General technical data

Table 5- 1 General technical data

Line frequency	47 ... 63 Hz
Product standard	EN 61800-5-1

### Specific technical data

Table 5- 2 Technical data of line reactors 380 V – 480 V 3 AC

Order number	6SL3000-	0CE33-3AA0	0CE35-1AA0		
Suitable for Power Module	6SL3310-	1PE33-0AA0	1PE33-7AA0		
Type rating of the Power Module	kW	160	200		
Rated voltage	V	380 V 3 AC –10% to 480 V 3 AC +10% (-15% < 1 min)			
I <sub>thmax</sub>	A	331	508		
Power loss	kW	0.267	0.365		
Line/load connection 1U1, 1V1, 1W1, 1U2, 1V2, 1W2		M10 connecting lugs	M12 connecting lugs		
Degree of protection		IP00	IP00		
Dimensions					
Width	mm	270	300		
Height	mm	248	269		
Depth	mm	200	212,5		
Weight	kg	27.8	38.0		







## Additional information

[www.siemens.com/sinamics-g120p](http://www.siemens.com/sinamics-g120p)

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