

Operating Manual

Power Supply e@syDrive® 4428, 4429

EN



INDUSTRIAL DRIVES



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1 User Information

1.1 Symbols Used

Operating manual / unit

 DANGER	Indicates a hazardous situation that can directly cause death or serious injury.
 WARNING	Indicates a hazardous situation that can cause damage to property or moderate to serious injuries.
 ATTENTION	Indicates a hazardous situation that can cause damage to property or mild to moderate injuries.
	General hazardous situation
	Risk of injury due to electric shock
	Important information for operator and engineer
	Information on protection category
	Information on disposal
	CSA/UL test mark
	GS test mark
	CE mark (Communauté Européenne)

Packaging

	Fragile
	Keep dry
	Transport upright with the arrows pointing upwards.
	Stacking restrictions
	Temperature range
	Air pressure
	Humidity
	Quantity

1.2 Important Definition

Qualified Staff	For the purposes of these instructions for use, these are persons who are familiar with and have been properly trained in the installation, assembly, commissioning and operation of the product and the possible hazards and risks associated with the electrical current.
Ready for operation	If a permissible voltage is present at the input of the power supply module, the LED lights up. This machine state is referred to as ready for operation.

1.3 Abbreviations

A	Ampere
AC	Alternating current
AWG	American Wire Gauge
°C	Degrees Celsius
Ca.	Circa
CDM	Complete Drive Module
CE	Communauté Européenne
CSA	Canadian Standards Association
DC	Direct current
DIN	German Industrial Standards
EG	European Community
EMC	Electromagnetic compatibility
EN	English
EN	Europäische Normen
EU	European Union
GS	Seal of approval
HF	High frequency
hPa	Hectopascal
Hz	Hertz
IP	Protection category
kg	Kilogram
L	Outer conductor
LED	Light-emitting diode
max.	Maximal
mm	Millimeter
mm ²	Square millimeters
N	Neutral conductor
Nm	Newtonmeter
Nr.	Number
PCB	Printed Circuit Board
PDS	Power Drive System
PE	Protective earth conductor
REF	Reference / material number
SN	Serial number
UL	Underwriters Laboratories (Organisation that tests and certifies products for their safety)
V	Volt
VA	Voltampere
WEEE	Waste from Electric and Electronical Equipment (European Directive on the disposal of electrical and electronic waste)

2 Scope of Delivery

Power Supply e@syDrive® 4428

Material no. 1.001.2770

Power Supply e@syDrive® 4429

Material no. 1.002.2515

EMC-Filter

Operating manual

Material no. 1.003.1905



Check to make sure delivery is complete

3 Safety Instructions and Warnings

These safety instruction ant warnings contain important information for your safety.



Before installation and commissioning of this device, these safety instructions and warnings must be read carefully and all of the warning signs on the device must be payed attention to.

Target group: This document is intended for machine manufacturers and persons responsible for putting into service and operating the power supply.

	ATTENTION
	<p><i>Incorrect operation and other damage</i></p> <p><i>Incorrect operation and other damage may result in damage of material and / or injury of persons.</i></p> <p><i>The operating manual must be read by the user before starting up the unit for the first time in order to avoid incorrect operation and other damage. Duplication and distribution of the operating manual require SycoTec's prior consent.</i></p>

Safe operation and protection of the device can only be ensured if the device is used as intended, in accordance with the operating manual, and using only approved tools. The following must also be observed:

- the occupational safety regulations,
- the accident prevention regulations.

Also note the following directives:

- *Low-Voltage Directive 2014/35/EU*
- *EMC Directive 2014/30/EU*
- *RoHS Directive 2011/65/EG*

All specifications, information and properties of the product described in the operating manual correspond to the status on going to press.

Modifications and improvements to the product as a result of new technical developments are possible.

This does not imply any right to retrofitting of existing units.

SycoTec assumes no responsibility for damage arising through:

- external influences (poor quality of the media or faulty installation, natural phenomena, etc.)
- use of incorrect information
- improper use
- improperly performed repairs.

	 DANGER
	<p>Risk of serious damage to property and personal injury due to moving machine parts</p> <p>The power supplies e@syDrive® 4428 and 4429 supplies the SycoTec HF inverters. These are controlling dangerously rotating mechanical parts. Failure to follow the instructions provided in this operating manual could result in serious damage to property, personal injuries or even death.</p> <p>Hazard-free operation of this device is dependent on the proper installation, handling and operation of the device.</p> <p>During operation doors must be kept closed and covers must not be removed.</p>
	 DANGER
	<p>Risk of serious damage to property and personal injury</p> <p>Any works on the device carried out not by qualified staff may result in damage of material and / or serious injury of persons.</p> <p>Only appropriately qualified personnel must commission, service and work on this device. Only qualified staff is permitted to connect up and commission the device and to rectify faults.</p>
	 DANGER
	<p>Danger due to electric shock</p> <p>The device has no mains switch. There is no protection against electric shock..</p> <p>When working on the open device, it must be completely disconnected from the mains beforehand.</p>
	 DANGER
	<p>Risk of serious damage to property and personal injury</p> <p>Improper use or usage not in accordance with intended purpose, unauthorized alterations and the use of auxiliary equipment that is not recommended by the manufacturer could cause fires, electrical shocks and injuries.</p> <p>The device must only be used for the purpose intended by the manufacturer.</p>
	 DANGER
	<p>Risk of serious damage to property and personal injury</p> <p>After power-off the power supply goes into operations automatically.</p> <p>Measures must be taken to prevent the machine from restarting unexpectedly.</p>

3.1 Appropriate Use and Potential Applications

The power supply e@syDrive® 4428 is designed for connection to the HF inverter e@syDrive® 4310, e@syDrive® 4320 and e@syDrive® 4624 only.

The power supply e@syDrive® 4429 is designed for connection to the HF inverters e@syDrive® 4625 and e@syDrive® 4626.

3.2 Installation, Commissioning and Operation

The installation must only be carried out by qualified staff with electrotechnical training.

The commissioning must only be carried out by qualified staff with sufficient knowledge in the fields of electrical engineering and drive technology.

The power supply and accessories must be checked for damage before commissioning.

The following requirements must be considered for the installation and operation of the devices:

- Pollution: Pollution degree P2
- Max. operating altitude: 2.000 m
- Ambient temperature: +5 to +50 °C
- Relative humidity: max. 80 % (no condensation)

The power supply must be mounted in the control cabinet.

To ensure effective cooling sufficient spaces for the suction and discharge of cooling air must be provided.

	 DANGER
	<p>Risk of serious damage to property and personal injury</p> <p><i>Incorrect installation may result in damage of material and / or serious injury of persons.</i></p> <p><i>The corresponding notes and information in the operating manual must be observed.</i></p>

The applicable accident prevention regulations must be followed to avoid serious injuries when working on energized devices.

The system must be properly grounded in order to prevent serious injuries due to high currents.

The electrical installation must be carried out in accordance with the relevant electrical codes (appropriate wire gauges, connections of ground conductors, routing of cables, etc.).

Ensure that the supply voltage must be equipped with an overcurrent protection device.

The device does not have a power switch. The device must be completely disconnected from the mains before work is carried out on the opened device. The power supply may only be available after the work on the device has been completed.

Hazards from energy supply disruptions or other failures must be ruled out by appropriate machine control protective measures.

	 DANGER
	<p>Risk of serious damage to property and personal injury</p> <p><i>During the operation of the product, there is a risk of serious injury to persons and property caused by unauthorized use.</i></p> <p><i>The corresponding notes and information in the operating manual must be observed.</i></p>

It must be ensured that all the mounting screws have been adequately fastened.

It must be ensured that all accesses to the voltage carrying parts of the system are kept closed during operation.

It must be ensured that the products are used as intended.

It must be ensured that the applicable safety regulations of the respective system are complied with.

 **Check electrical safety before operation!**

The relevant instructions in the operating manual must be followed.

3.3 Transport, Storage, Maintenance and Disposal

The power supply must not be subjected to an unacceptable load. The following factors must be considered:

- Protection against mechanical damage during transportation, handling, etc. must be ensured!
- Protection against contamination and moisture must be ensured!

The following transport and storage conditions must be met, if necessary by appropriate measures:

- Pollution: Pollution degree P2
- Ambient temperature: -30 to +70 °C
- Relative humidity: 5 to 95 % (no condensation)
- Air pressure: 700 to 1.060 hPa

Depending on the ambient conditions, the power supply must be inspected for cleanliness and function at regular intervals.

Before starting cleaning and maintenance work, the power supply must be shut down, disconnect from the mains power supply and secured against restarting.

Repair and maintenance work, apart from the activities described in this operating manual, must be performed only by qualified staff.

	 ATTENTION
	<p>Risk due to illegal modifications</p> <p><i>Changes to the device can lead to damage to property or personal injury.</i></p> <ul style="list-style-type: none"> • <i>In the event of modifications by third parties, the licences become null and void.</i> • <i>Use only SycoTec original parts and spare parts.</i>



Disposal of equipment and accessories after use

Based on EU directive (WEEE 2012/19/EU) on waste electrical and electronic equipment, we hereby inform you that this product is not subject to the aforementioned directive but may be disposed of through special channels within Europe.

3.4 EMC

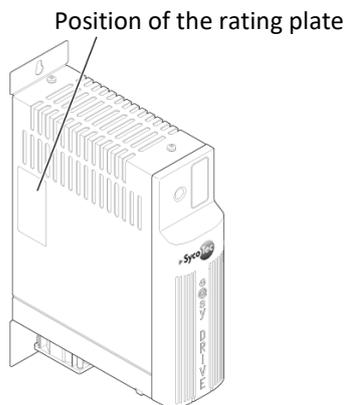
Compliance with the limits required for the EMC is the responsibility of the system or machine manufacturer. In an EMC-compliant equipment configuration, operation is possible in an industrial environment.

The EU directives for electromagnetic compatibility must be considered for commissioning the products. Particular attention must be paid to the appropriate grounding, wiring and shielding of the products.

	 ATTENTION
	<p>High Frequency Interference</p> <p><i>When used in a public low-voltage network that feeds residential areas, high-frequency interference may occur.</i></p> <p><i>The power supply module is not intended for use in a public low-voltage network that supplies residential areas.</i></p>

4 Technical Data

4.1 Type Plates



Type of power supply	—		—	Serial number
Material number	—		—	Symbols (see chapter 1.1)
Input power	—		—	Serial number
Output power	—		—	Symbols (see chapter 1.1)

4.2 Performance Data

4.2.1 Power supply e@syDrive® 4428 (material no. 1.001.2770)

Dimensions	width: 75 mm, height: 337.5 mm, depth: 215 mm for installation in cabinet
Weight	approx. 2.5 kg
Standards	tested according to DIN EN 62368-1 and DIN EN 61800-5-1 CSA tested acc. UL 508C EMC according to EN 61800-3
Protection category	enclosure type IP 20 according to DIN EN 60529
Electrical supply	100-240 V~, 50/60 Hz
Output power max.	max. 350 VA (continuous operation)
Output voltage	70 V DC (safe disconnection from electrical current in accordance with EN 50178 and EN 60950)
Output current	max. 5 A DC (continuous operation)

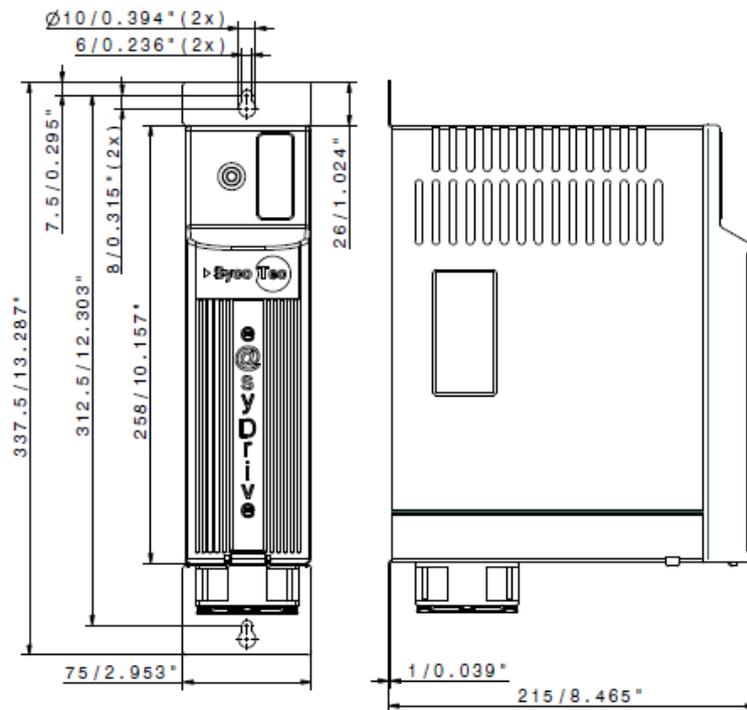
4.2.2 Power supply e@syDrive® 4429 (material no. 1.002.2515)

Dimensions	width: 75 mm, height: 337.5 mm, depth: 215 mm for installation in cabinet
Weight	approx. 2.6 kg
Standards	tested according to DIN EN 62368-1 and DIN EN 61800-5-1 CSA tested acc. UL 508C EMC according to EN 61800-3
Protection category	enclosure type IP 20 according to DIN EN 60529
Electrical supply	100-240 V~, 50/60 Hz
Output power max.	max. 1,000 VA (continuous operation)
Output voltage	70 V DC (safe disconnection from electrical current in accordance with EN 50178 and EN 60950)
Output current	max. 14 A DC (continuous operation)

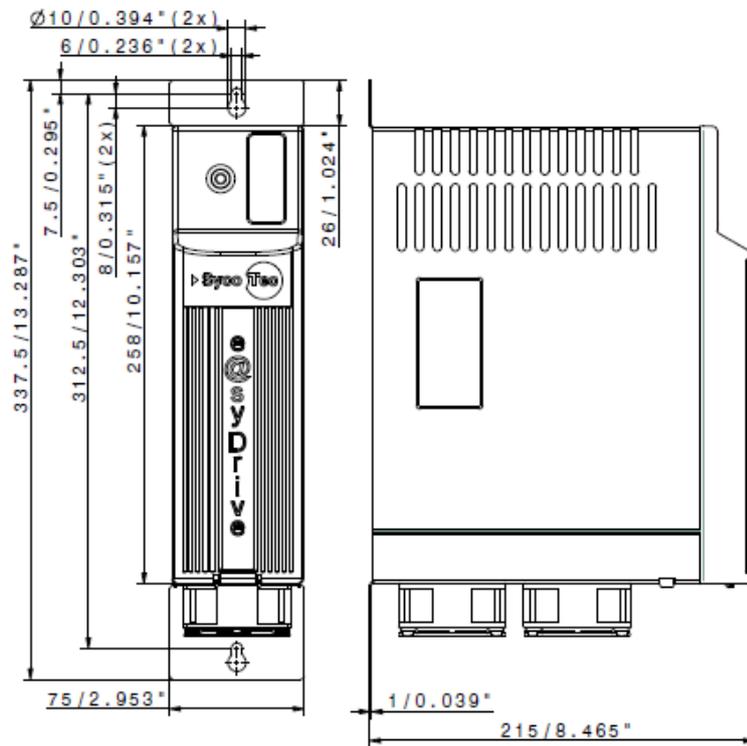
i For a CDM or PDS, further tests for compliance with the standard may be required.

4.3 Power Supply Dimensions

4.3.1 Power supply e@syDrive® 4428



4.3.2 Power supply e@syDrive® 4429



4.4 Ambient conditions

Permitted in interior rooms

Ambient operating temperature	5 - 50°C (41 - 122 °F)
Relative humidity	max. 80%
Max. altitude	2,000 m
Installation category (Overvoltage category)	Cat. II
Protection class	I (DIN EN 62368-1 and 61800-5-1)
Pollution degree	P2

4.5 Storage and Transport Conditions

Ambient operating temperature	-30 to 70°C (-22 to 158°F)
Relative air humidity	5 - 95%
Air pressure	700 - 1,060 hPa

	! ATTENTION
	<p><i>Risk of disregarding the storage and transport conditions</i></p> <p><i>Disregarding the storage and transport conditions can lead to damage to property or personal injury.</i></p> <p><i>Keep dry.</i></p>

We reserve the right to make technical modifications.

4.6 Scope of Models

Type of power supply	e@syDrive® 4428	e@syDrive® 4429
Enclosed type (IP 20)	REF 1.001.2770	REF 1.002.2515
Power input	100-240 V, 50/60 Hz	100-240 V, 50/60 HZ
Power output	70 V DC, 5 A, 350 VA	70 V DC, 14 A, 1000 VA
Matching types of HF inverter	4310 IP 00 (REF 2.001.2287) 4320 IP 00 (REF 2.001.7554) 4624 IP 20 (REF 2.002.1053) 4624 IP 00 (REF 2.002.6308)	4625 IP 20 (REF 2.002.1054) 4626 IP 20 (REF 2.002.1055)

4.7 Display

The operating status of the power supply can be indicated with the help of a LED.

LED	Meaning
OFF	Power supply switched off
ON	Power supply ready for operation

5 Assembly and Installation

	 ATTENTION
	<p>Risk of damage to property and personal injury</p> <p><i>Disregarding the safety and warning instructions can lead to damage to property or personal injury.</i></p> <p><i>Before installing and commissioning this device, the safety instructions and warnings under chapter 3 must be read carefully.</i></p>

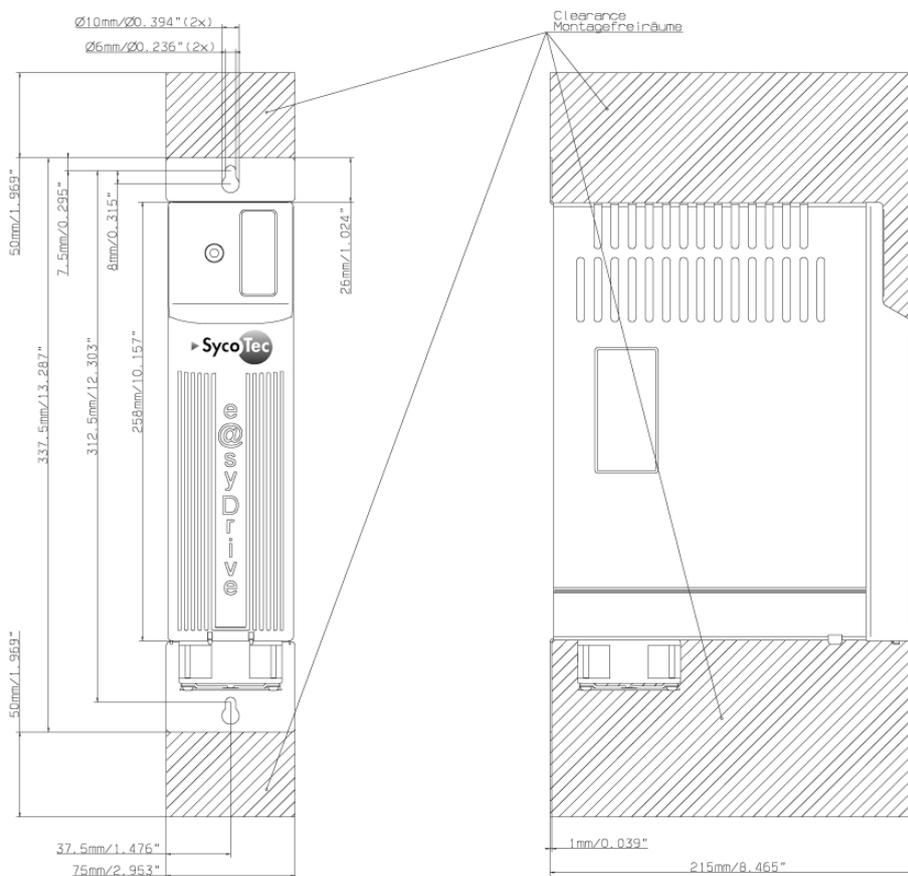
5.1 Assembly

The power supplies e@syDrive® 4428 and 4429 are designed for mounting in cabinet:
use 2 screws (5 mm) for mounting on switch board.

	 DANGER
	<p>Dangerous shock currents</p> <p><i>Incorrect earthing and shielding measures endanger the safety of devices and persons.</i></p> <p><i>Link the earthing connector of the mains input clamp with the switch box ground conductor. Here, the appropriate regulations must be observed!</i></p>

5.2 Information for Cooling

i To ensure sufficient cooling of the device keep below shown clearance when mounting!



5.3 Electrical Installation

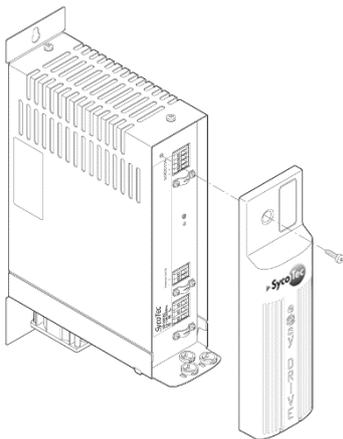
	 DANGER
	<p>Damage due to incorrect mains connection</p> <p><i>Incorrect mains connection can destroy the devices and cause serious damage to property and personal injury.</i></p> <ul style="list-style-type: none"> • <i>Installation of the power supply has to comply with valid safety regulations.</i> • <i>If no power lead with plug is used an electrical disconnecter must be installed between main supply and power supply.</i> • <i>A 16A circuit breaker with trip curve B is to be used.</i>

5.4 Wiring Guidelines to Comply with EMC Standards

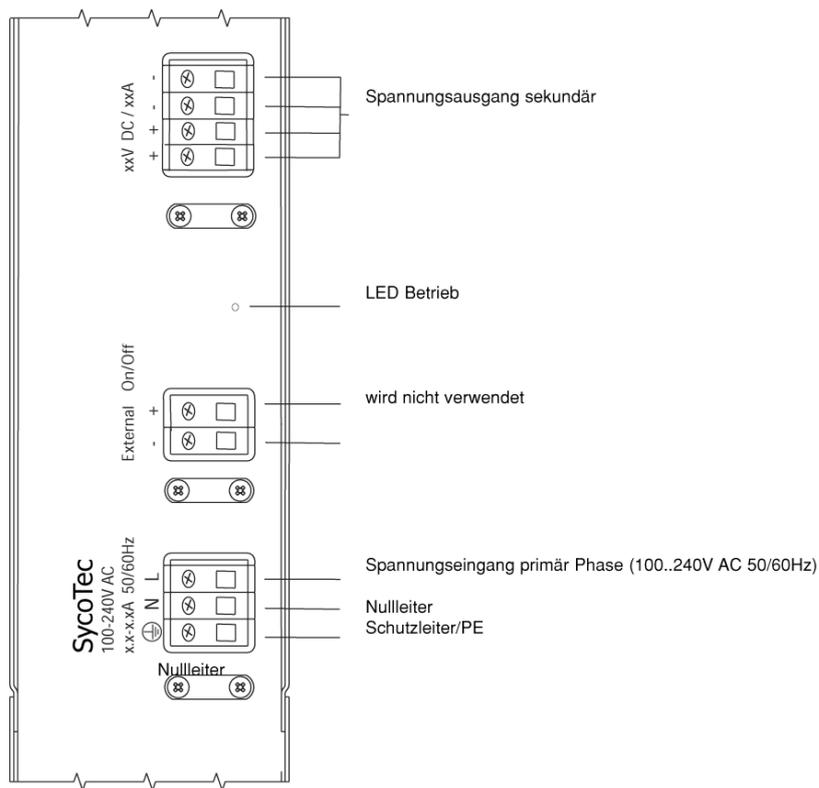
The power supplies have been tested according to EMC product standard EN 61800-3 (variable-speed drives).

	 ATTENTION
	<p>Electromagnetic interference</p> <p><i>Electromagnetic interference may occur if the device is not designed in accordance with EMC requirements.</i></p> <ul style="list-style-type: none"> • <i>The above-mentioned EMC product standard can only be kept with use of shielded motor and control cables. It should be ensured that the cable shields rest over a large area of the HF inverter housing and are surrounded by the cable clips. A shielded mains cable is not required.</i> • <i>All devices in the mounting cabinet should be connected over a large area to a common earthing point via short earthing cables.</i> • <i>Under no circumstances valid safety regulations must be ignored when installing the power supply.</i>

5.5 Access to Electrical Terminals External On/Off



5.6 Electrical Connections

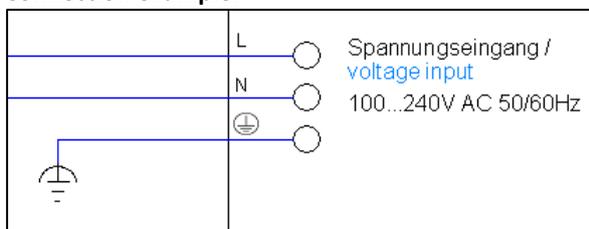
**Wiring Information:**

- **Screw type:** Flat
- **Wire size:** max. 2.5 mm² (13AWG)
- **Torque:** max. 0.4 Nm

5.6.1 Voltage input

3-pin PCB terminal block (2.5 mm² (13AWG))

Pin	I/O	Meaning
L	I	Main supply
N	I	Neutral conductor
		Protective conductor

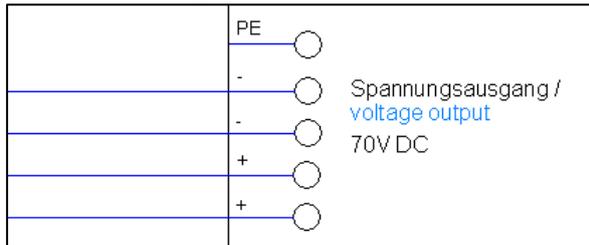
Connection example:

5.6.2 Voltage output

4-pin PCB terminal block (2.5 mm² (13AWG))

Pin	I/O	Meaning
PE terminal		Protective conductor
-	O	DC voltage output -
-	O	DC voltage output -
+	O	DC voltage output +
+	O	DC voltage output +

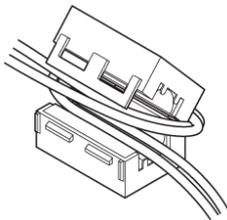
Connection example:



	WARNING
	<p><i>Disturbing ground loops</i></p> <p><i>Incorrect connection of protective earth connections may cause disturbing ground loops and malfunctions.</i></p> <p><i>It must be ensured that there is a good connection between the protective earth conductor and the PE terminal.</i></p>

5.7 Installation of an Electro Magnetic Compatibility Filter

i To comply with the EMC directives the installation of an EMC filter is necessary.



- Put both output cables (+/-) 2 turns through the EMC filter.

Warranty conditions

Under current SycoTec delivery and payment conditions, SycoTec undertakes warranty for satisfactory function and freedom from faults in material and manufacture for a period of 12 months from the date of sale certified by the vendor.

In the event of justifiable complaints, SycoTec shall supply spare parts or carry out repairs free of charge under warranty. SycoTec accepts no liability for defects and their consequences which have arisen or could have arisen as a result of natural wear and tear, improper handling, cleaning or maintenance, non-compliance with the maintenance, operating or connecting instructions, corrosion, impurities in the air supply or chemical or electrical influences which are unusual or not admissible in accordance with SycoTec's standards. The warranty claims shall become null and void if defects or their consequences can be attributed to interventions in or modifications to the product. Warranty claims can only be validated if they are notified immediately in writing to SycoTec.

A copy invoice or delivery note clearly showing the manufacture number shall be attached if products are returned.

CE Declaration of conformity

The CE Declaration of conformity may be requested or downloaded from www.sycotec.eu.

1.003.1905 / 2020-10 C

(DE = original)

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