



Climatix™

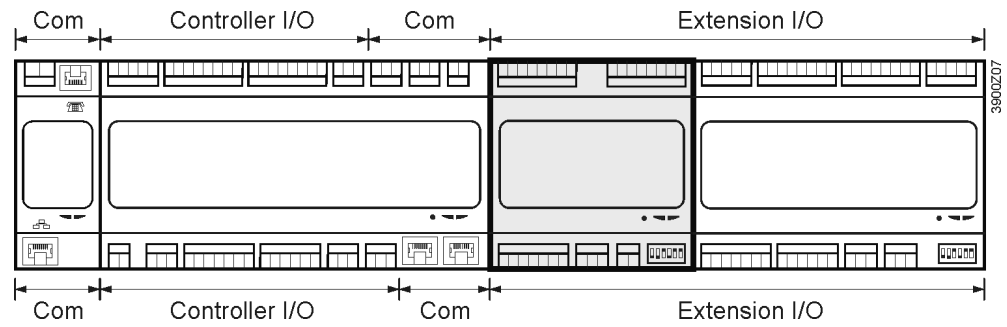
Climatix extension module 15 I/Os

POL965.00/XXX

The POL965.00/XXX extension module extends the I/O numbers of Climatix 600 controllers. It is part of the Climatix product range (refer to Data Sheet 3900 and Mounting Instructions M3910).

The extension module offers the following features:

- Power supply AC 24 V or DC 24 V
- 8 universal I/Os
- AC 24 V and DC 5 V onboard power supply for active sensors
- 4 relay outputs
- 2 triac outputs (AC 24...230 V)
- 1 digital input galvanically isolated for AC 115/230 V
- Peripheral bus interface for local/remote extension I/Os



Disposal



The devices are considered electronics devices for disposal in term of European Directive 2012/19/EU and may not be disposed of as domestic waste.

- Dispose of the device via the channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

Technical data

Power supply

Operating voltage	AC 24 V ± 20%; DC 24 V ± 10%
Frequency	45...65 Hz
Max. AC-Current consumption	750 mA
Max. DC-Current consumption	420 mA
Connection	Peripheral bus

Power distribution

Max. pass through current	3.25 A at AC 24 V 3.58 A at DC 24 V
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Universal I/Os

X1...X8 (T1, T2)

Configurable	By software
Reference potential	Terminals ⊥
Contact voltage	Max. DC 24 V (SELV)
Overvoltage protection	Up to 40 V

Analog inputs (X1-X8)

Ni1000

Sensor current	Max. 1.4 mA
Resolution	0.1 K
Accuracy in the range -50...150 °C	0.5 K

Pt1000

Sensor current	Max. 1.8 mA
Resolution	0.1 K
Accuracy in the range -40...120 °C	0.5 K

NTC 10k (**B_{25/85} = 3977 K**)

Sensor current	Max. 140 µA	
Temperature range	Accuracy	Resolution
-50...-26 °C	1 K	0.2 K
-25...74 °C	0.5 K	0.1 K
75...99 °C	1 K	0.3 K
100...124 °C	3 K	1 K
125...150 °C	6 K	2.5 K

NTC 100k ($B_{25/85} = 3977 \text{ K}$)

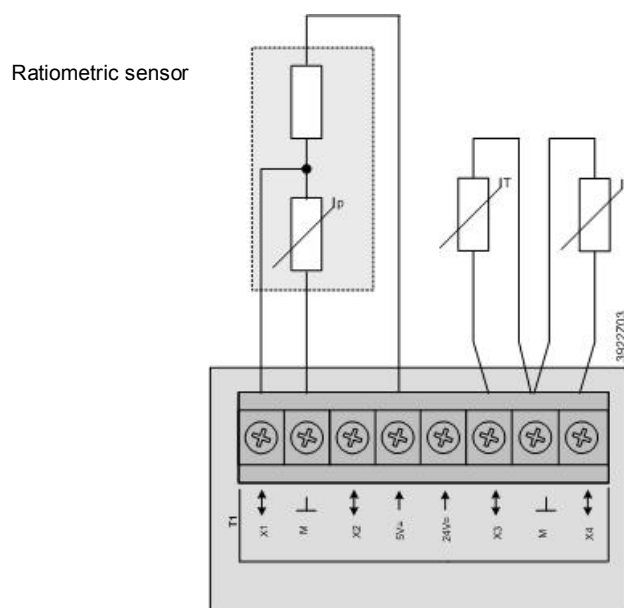
Sensor current	Max. 140 μA	
Temperature range	Accuracy	Resolution
-25...-11 $^{\circ}\text{C}$	3 K	0.2 K
-10...9 $^{\circ}\text{C}$	1 K	0.1 K
10...99 $^{\circ}\text{C}$	0.5 K	0.1 K
100...150 $^{\circ}\text{C}$	1 K	0.2 K

0...2.5 k Ω

Sensor current	Max. 1.8 mA
Resolution	1 Ω
Accuracy	4 Ω

DC 0...5 V input for ratiometric sensors

Resolution	1 mV
Accuracy at 0 V	2 mV
Accuracy at 5 V	25 mV
Input resistance	100 k Ω

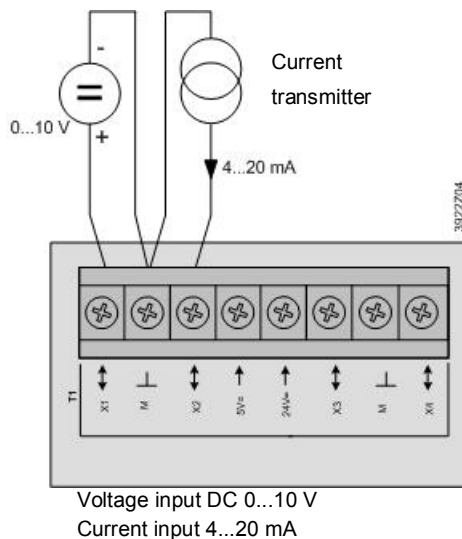


Analog inputs (X1...X8)**DC 0...10 V input**

Resolution	1 mV
Accuracy at 0 V	2 mV
Accuracy at 5 V	25 mV
Accuracy at 10 V	50 mV
Input resistance	100 k Ω

DC 0/4...20 mA input

Resolution	1 μA
Accuracy at 4 mA	25 μA
Accuracy at 12 mA	70 μA
Accuracy at 20 mA	120 μA
Impedance of DC 0/4...20 mA input	Typ. 450 Ω



Digital inputs (X1...X8)

0/1 digital signal (binary)

Sampling voltage/current

Contact resistance

Delay

Pulse frequency

For potential-free contacts

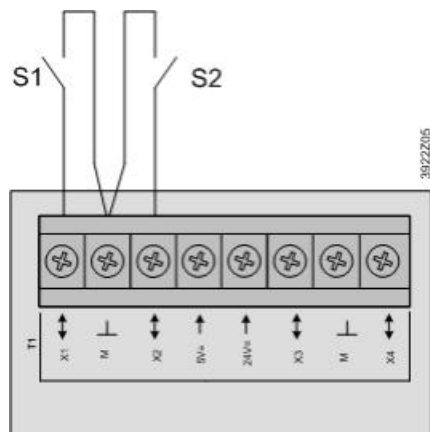
DC 24 V / 8 mA

Max. 200 Ω (closed)

Min. 50 k Ω (open)

10 ms

Max. 30 Hz



Connecting floating contacts to universal I/Os

Analog output (X1-X4)

DC 0...10 V output

Resolution

11 mV

Accuracy at 0 V

66 mV

Accuracy at 5 V

95 mV

Accuracy at 10 V

124 mV

Output current

1 mA (short-circuit-proof)

DC 4...20 mA output

Resolution

22 μ A

Accuracy at 4 mA

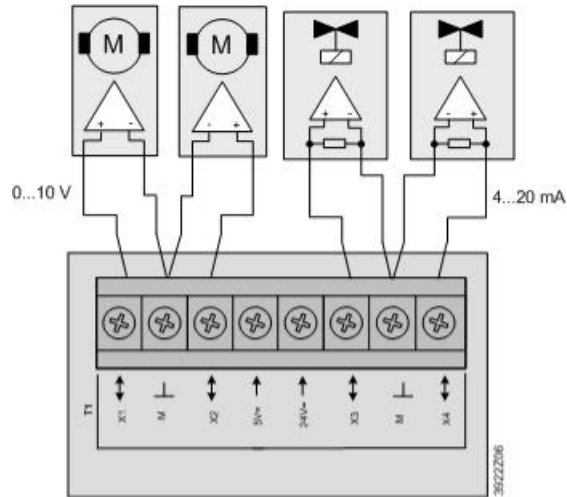
150 μ A

Accuracy at 12 mA

196 μ A

Accuracy at 20 mA

243 μ A



Connecting voltage output and current output to universal I/Os

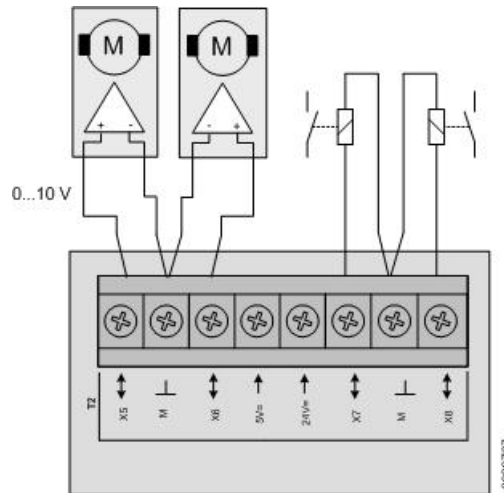
Analog/Digital outputs (X5-X8)

DC 0...10 V output

Resolution	11 mV
Accuracy at 0 V	66 mV
Accuracy at 5 V	95 mV
Accuracy at 10 V	124 mV
Output current	1 mA (short-circuit-proof)

DC output for off board loads

Switching voltage	DC 24 V
Switching capacity	Max. 25 mA

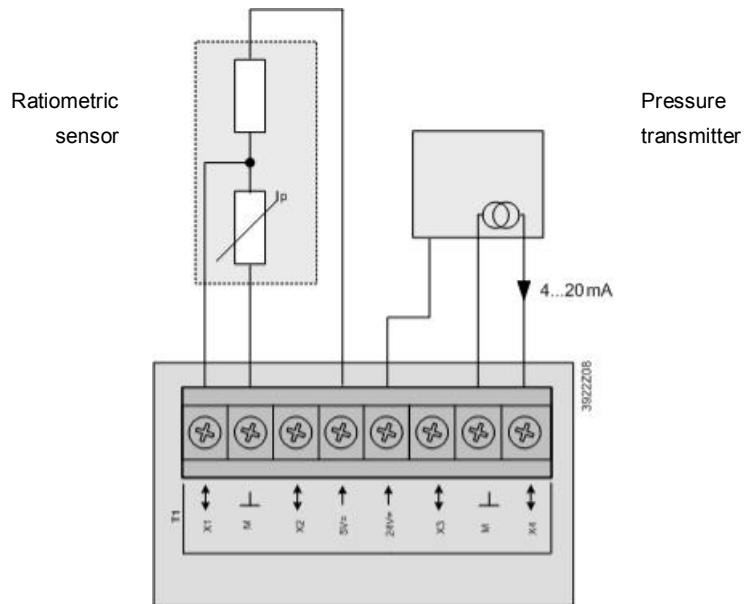


Connecting voltage output and offboard relays to universal I/Os

**Powering sensors
active / ratiometric
5 V, 24 V (T1, T2)**

2 x 2 outputs

Voltage / current	DC 5 V \pm 2.5% / 2 x 20 mA
Voltage / current	DC 24 V (-25%, +10%) / 2 x 40 mA
Reference potential	Terminals \perp
Connection	Short-circuit-proof



Connecting a ratiometric sensor
AC 24 V sensor supply voltage

Relay outputs

Q1...Q4 (T3)

Relay: type, contact

Monostable, NO contact

Contact rating

Switching voltage

AC 24...230 V

Nominal current (res. / ind.)

Max. AC 3 A / 2 A (cosφ 0.6)

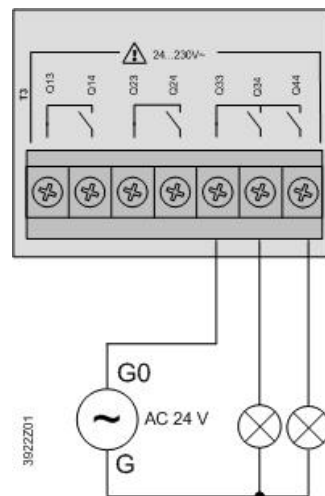
Switching current at AC 19 V

Min. AC 30 mA



Warning

Do not mix SELV/PELV and line voltage on the same terminal. Use external protection for inductive load.



Connecting indicator lamps to relay outputs

Triac outputs

DO1, DO2 (T4)

Triac output values

Switching voltage

AC 24...230 V

Switching capacity

Max. 0.5 A

Min. current

10 mA

Max. external supply line fusing

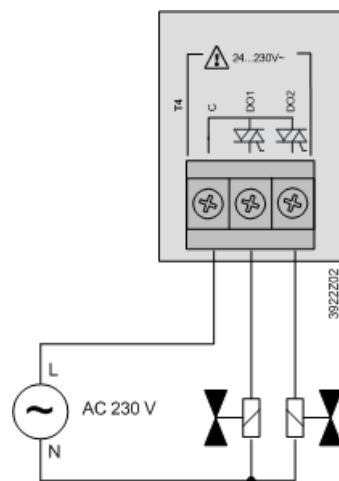
2.0 A slow wire fuse or circuit breaker



Warning

Do not mix SELV/PELV and line voltage on the same terminal.

Use external protection for inductive load.

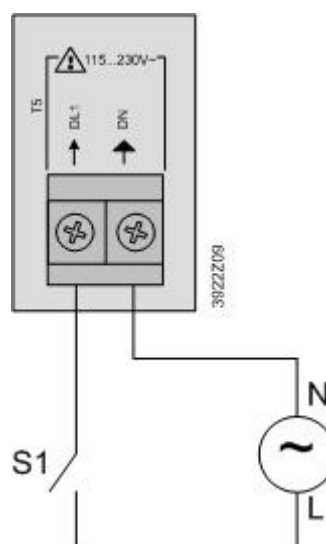


Connecting solenoid valves to triac output

Digital input DL1 (T5) AV 230 V

0/1 digital signal (binary)
Nominal voltage
Frequency range
Sample current
Delay
Pulse frequency

Galvanically isolated contact
AC 115...230 V
45...65 Hz
3 mA at AC 230 V
100 ms
Max. 5 Hz



Connecting a AC 230 V signal to a galvanically isolated digital input

Connection terminals	Optional plugs for I/O signals	Phoenix FKCVW 2,5 / x-ST Phoenix FKCT 2,5 / x-ST Phoenix MVSTBW 2,5 / x-ST
	Solid wire	0.5...2.5 mm ²
	Stranded wire (twisted and with ferrule)	0.5...1.5 mm ²
	Cable lengths	In compliance with load, local regulations and installation documents
Peripheral bus	Power supply	U _{eff} = AC 24 V ± 20%, f _{main} = 45...65 Hz or U = DC 24 V ± 10%, no internal fuse
	Bus termination selectable	(680 Ω / 120 Ω +1 nF / 680 Ω)
	Board-to-board (available on request)	ZEC 1,0 / 4-LPV-3,5 GY35AUC2C11
	Board-to-wire (available on request)	ZEC 1,0 / 4-ST-3,5 GY35AUC1R1,4
	Solid wire	0.2...1.0 mm ²
	Stranded wire (twisted and with ferrule)	0.2...1.0 mm ²
	Cable lengths	Max. 30 m
	Addressing	DIP switch 1...5
	Termination	DIP switch 6
Environmental conditions	Operation	IEC 60721-3-3 class 3K5
	Temperature	-40...70 °C
	Humidity	<90% r.h. (non-condensing)
	Atmospheric pressure	Min. 700 hPa, corresponding to Max. 3,000 m above sea level
	Transport	IEC 60721-3-2 class 2K3/2K4
	Temperature	-40...70 °C
Humidity	<95% r.h. (non-condensing)	
Atmospheric pressure	Min. 260 hPa, corresponding to Max. 10,000 m above sea level	
Protection	Degree of protection	IP20 (EN 60529)
	Safety class	Suitable for use in plants with safety class II
Standards	Product standard	EN 60730-1 Automatic electrical controls for household and similar use
	Electromagnetic compatibility (applications)	For use in residential, commerce, light-industrial and industrial environments.
	EU conformity (CE)	CB1T3920xx *)
	RCM conformity (EMC)	CB1T3909en_C1
	Listings	UL916, UL873 http://database.ul.com/ CSA Class 4812 http://www.csagroup.org
Environmental compatibility	The product environmental declaration CB1E3920en contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).	
	*) The document can be downloaded from http://siemens.com/bt/download .	
General data	Dimensions of controller	108 x 110 x 75 mm
	Weight excl. packaging	200 g
	Base	Plastic, pigeon-blue RAL 5014

Status of LEDs

The status of BSP LED is defined as follows:

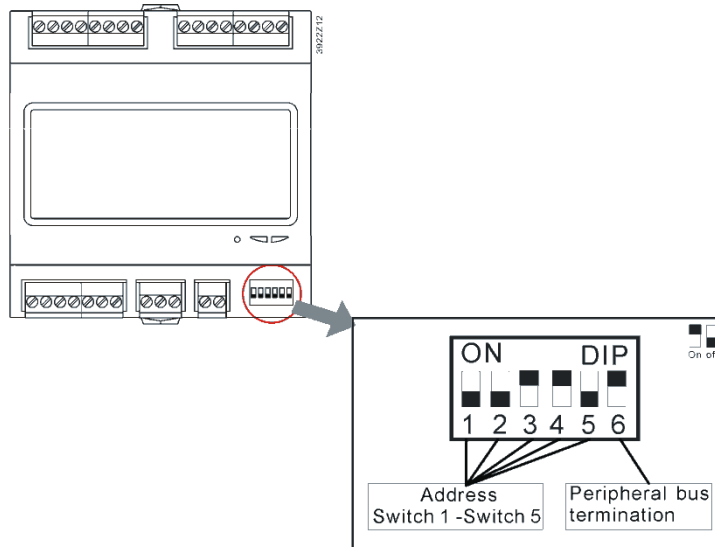
Status	Meaning
Red flashing at 2 Hz	BSP error or slave address error
Green on	BSP running

The status of BUS LED is defined as follows:

Status	Meaning
Red on	Communication error
Green on	Communication running
Green on and Red on (Yellow)	Communication running but parameter <u>not</u> successfully configured

DIP switch

The extension module is equipped with DIP switch to communicate with the controller. Switch 1, 2, 3, 4, and 5 are configurable to set the slave address, while switch 6 serves as peripheral bus termination. If the extension module works as the termination in the network, switch 6 must be set to ON.



The bit order of DIP switch is from 5 to 1. The lowest bit is 5 while the highest bit is 1. By combining switch 1, 2, 3, 4 or 5. Max. 31 slave addresses can be configured as follows:

DIP Switch configuration of Extension Module							
No.	Schematics	No.	Schematics	No.	Switch 5	No.	Schematics
1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	

DIP Switch configuration of Extension Module							
No.	Schematics	No.	Schematics	No.	Switch 5	No.	Schematics
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

Note



The same address of extension module must be set respectively in the application program of the controller. 0 cannot be set as the slave address.

Ordering data

Extension module 15 I/Os POL965.00/STD

Accessories

(available on request)

Connector set (spring cage, cable top entry) POL096.56/STD

- 1 x Phoenix FKCT 2,5/2-ST GY7035
- 1 x Phoenix FKCT 2,5/3-ST GY7035
- 1 x Phoenix FKCT 2,5/7-ST GY7035
- 2 x Phoenix FKCT 2,5/8-ST GY7035
- 1 x Phoenix ZEC 1,0 / 4-LPV-3,5 GY35AUC2CI1

Connector set (spring cage, cable side entry)

- 1 x Phoenix FKCVW 2,5/2-ST GY7035
- 1 x Phoenix FKCVW 2,5/3-ST GY7035
- 1 x Phoenix FKCVW 2,5/7-ST GY7035
- 2 x Phoenix FKCVW 2,5/8-ST GY7035
- 1 x Phoenix ZEC 1,0 / 4-LPV-3,5 GY35AUC2CI1

Connector set (screw, cable side entry) POL096.55/STD

- 1 x Phoenix MVSTBW 2,5/2-ST GY7035
- 1 x Phoenix MVSTBW 2,5/3-ST GY7035
- 1 x Phoenix MVSTBW 2,5/7-ST GY7035
- 2 x Phoenix MVSTBW 2,5/8-ST GY7035
- 1 x Phoenix ZEC 1,0 / 4-LPV-3,5 GY35AUC2CI1

Board-to-wire connector POL002.43/STD
2 x Phoenix ZEC 1,0 / 4-ST-3,5 GY35AUC1R1,4 50 pcs

Engineering notes

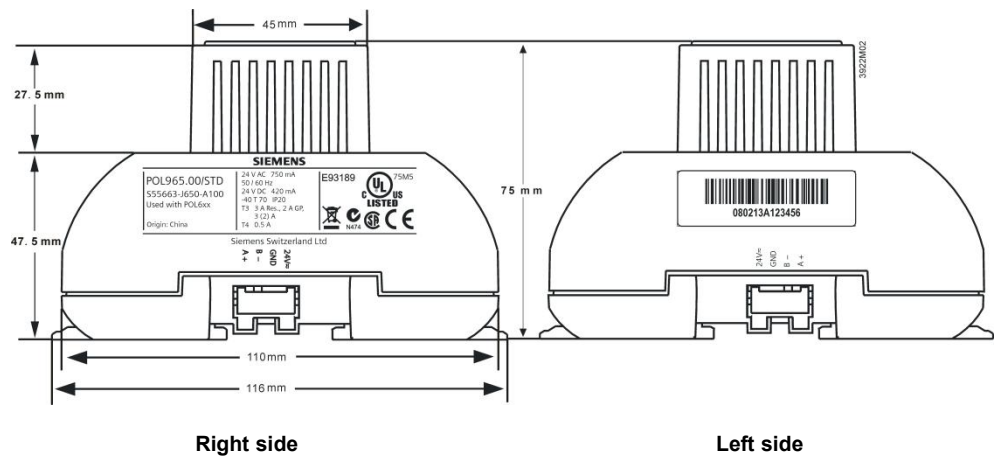
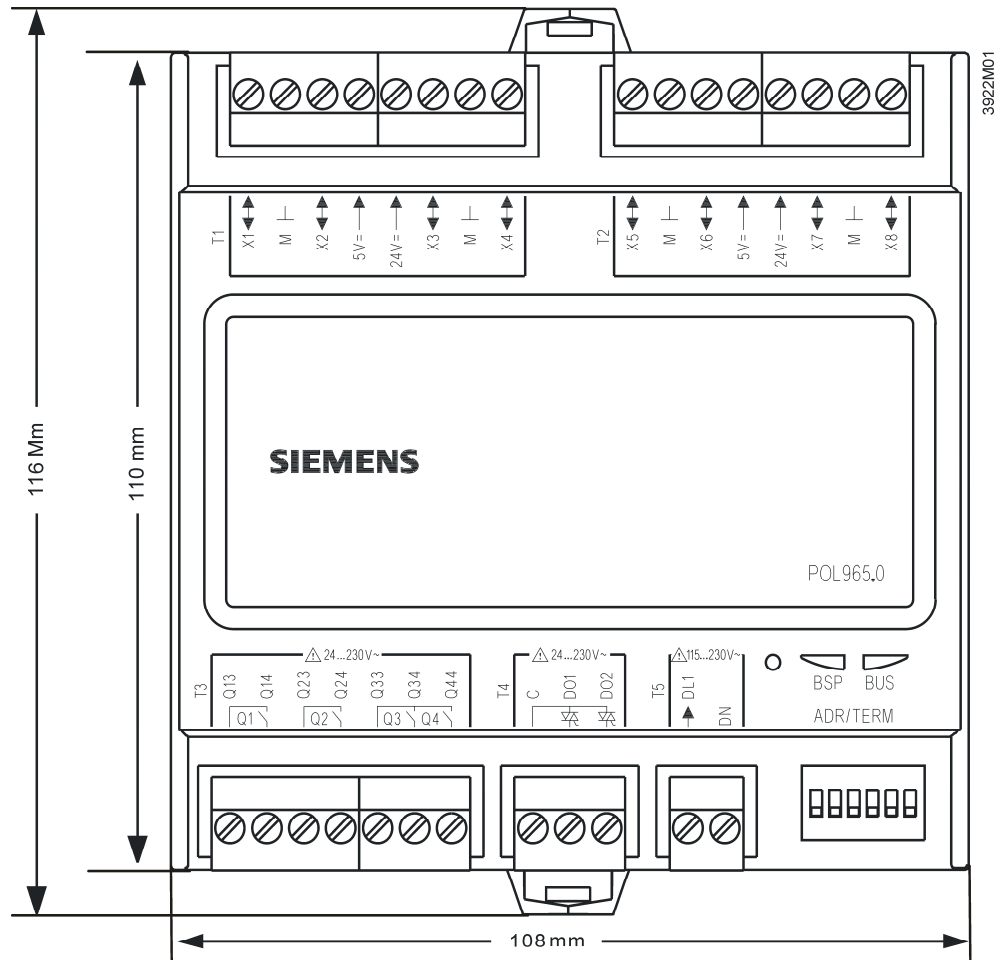


Warning

To ensure protection against accidental contact with relay connections carrying voltages above 42 V_{eff}, the extension module must be installed in an enclosure (preferably a control panel). It must be impossible to open the enclosure without the aid of a key or tool.

AC 230 V cables must be double-insulated against safety extra low-voltage (SELV) cables.

Dimensions



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