

## COM Extension module M-Bus

POL937.10/STN, POL937.00/STN



### **COM extension module for Climatix programmable controllers:**

- Hardware is dedicated to integrating M-Bus devices such as for example energy meters
- Power supply for module: 24V AC/DC
- M-Bus interface for maximum 5 M-Bus meter
- DIP switches for module addressing and termination
- LEDs for module status indication
- Peripheral bus interface for communication with controller and 24V AC/DC power supply from controller or external power supply source
- Terminals on board for wide range of Phoenix or alternative Dinkle connectors
- Housing variant for DIN rail or screw mounting
- PCB variant for screw mounting



## Use case

Climatix extension modules are designed for residential, commercial, and industrial use in HVAC applications.

The POL937. x0/STN communication extension module M-Bus with an M-Bus client\* interface comes with housing (.00) for DIN rail or screw mounting or as PCB variant (.10) for screw mounting.

A typical use case is to integrate M-Bus server\*\* devices in heating/cooling applications. For example, electrical or energy meters communicating M-Bus.

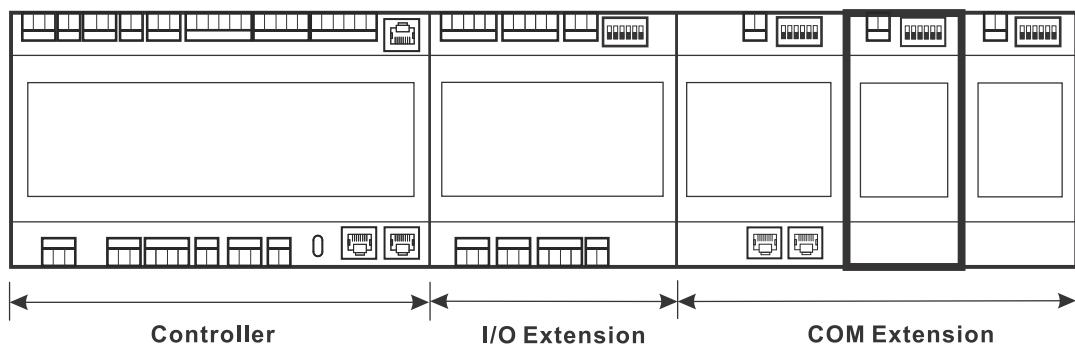
Climatix extension modules come with the Climatix peripheral bus interface for communication to Climatix controller and for 24VAC/DC power supply from the controller or from external power supply.

\*Client/Manager = Master (term which should no longer be used to avoid discrimination)

\*\*Server = Slave (term which should no longer be used to avoid discrimination)

## Climatix product range

### Installation concept



## Product documentation

Document ID	Title
A6V13507493	S400 Basic documentation
A5W02631071A	EU conformity (CE)
A5W02631077A	RCM conformity (EMC)
A5W00709166A	Product environmental compatibility
A5W02631076A	UKCA declaration

Data sheets and Readme OSS can be downloaded from: <https://sid.siemens.com/home>

Request other documents or files from your regional country sales manager from STEP.

Refer to S400 Basic documentation (A6V13507493) for installation, wiring, grounding and bus communication with controller.

## Order data

Type number (ASN)	Stock number (SSN)	Description	MOQ
POL937.10/STN	S55663-J371-A120	COM Extension module M-Bus PCB	80
POL937.00/STN	S55663-J370-A120	COM Extension module M-Bus PCB HSG	40

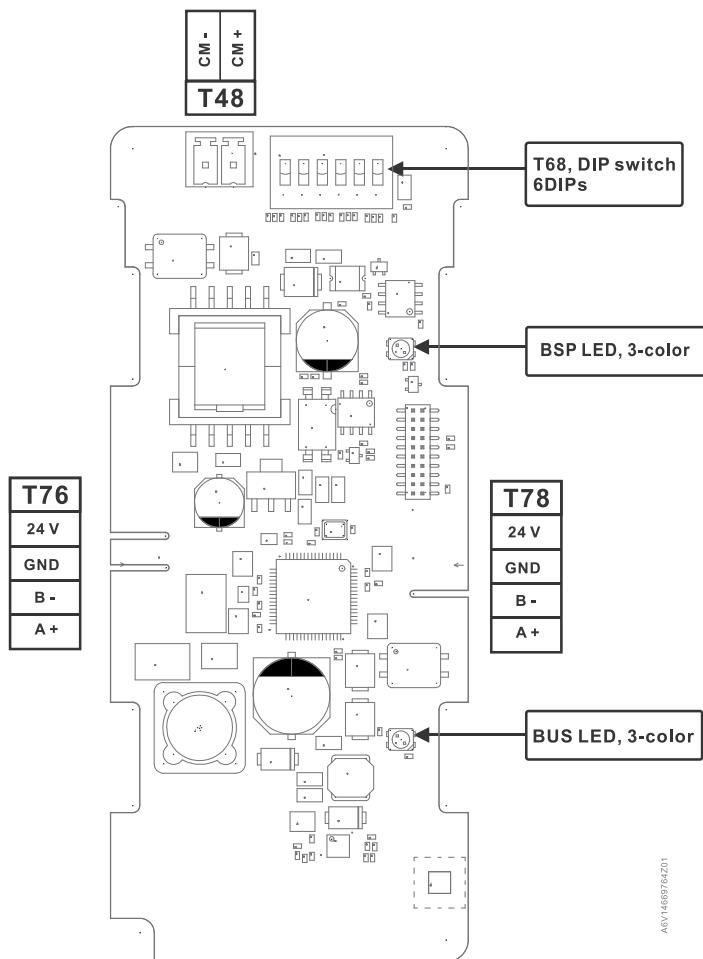
### Note:

- DCN = Siemens logistic center Nürnberg
- MOQ= Minimum order quantity. The MOQ gives here the number of devices in one box.
- When ordering, give type number (ASN), stock number (SSN) and quantity (pcs).

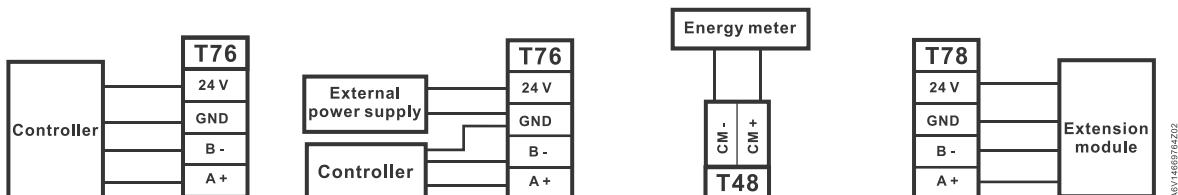
## Siemens accessories

### Terminals and connectors for POL937.10/STN

Terminal Nr.	PIN Nr.	Terminal manufacturer	Terminal reference	Connector manufacturer	Connector reference	Connector order number (SSN/ASN)	Color type	Direction (°)	MOQ
<b>POL937.10/STN terminals and connectors</b>									
T48	2P	Dinkle	ECH381V-B1415502LG	Phoenix	1827127 MCVR 1,5/ 2-ST-3,81	S55843-Z142-F100 POL004.25/STD	Green Screw	90	100
<b>Board-to-wire connector for Climatix extension modules</b>									
				Phoenix	1751710 ZEC1,0/4-sT-3,5 GY35AUC1R14	S55843-Z124-D100 POL002.43/STD	Gray Spring	-	100
<b>Board-to-board connector for Climatix extension modules</b>									
				Phoenix	1751697 ZEC1,0/4-LPV-3,5 GY35 AUC2C1	S55843-Z114-F100 POL001.45/STD	Gray Plug	-	100



## Pin assignment

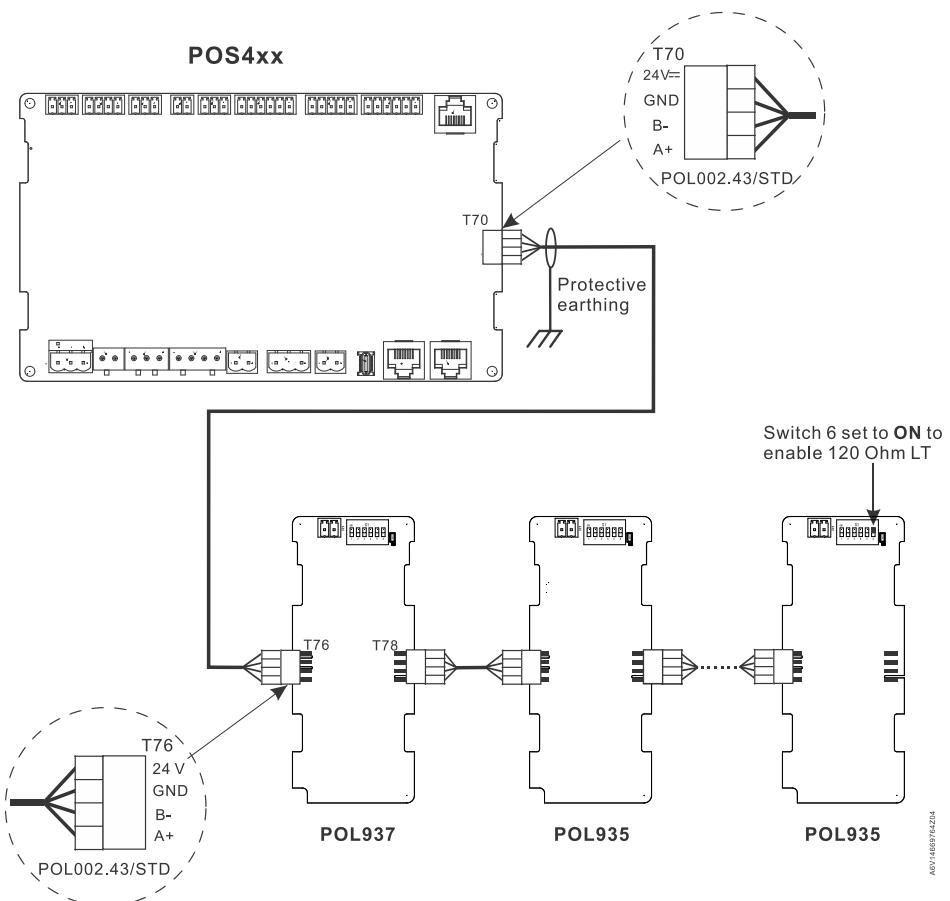


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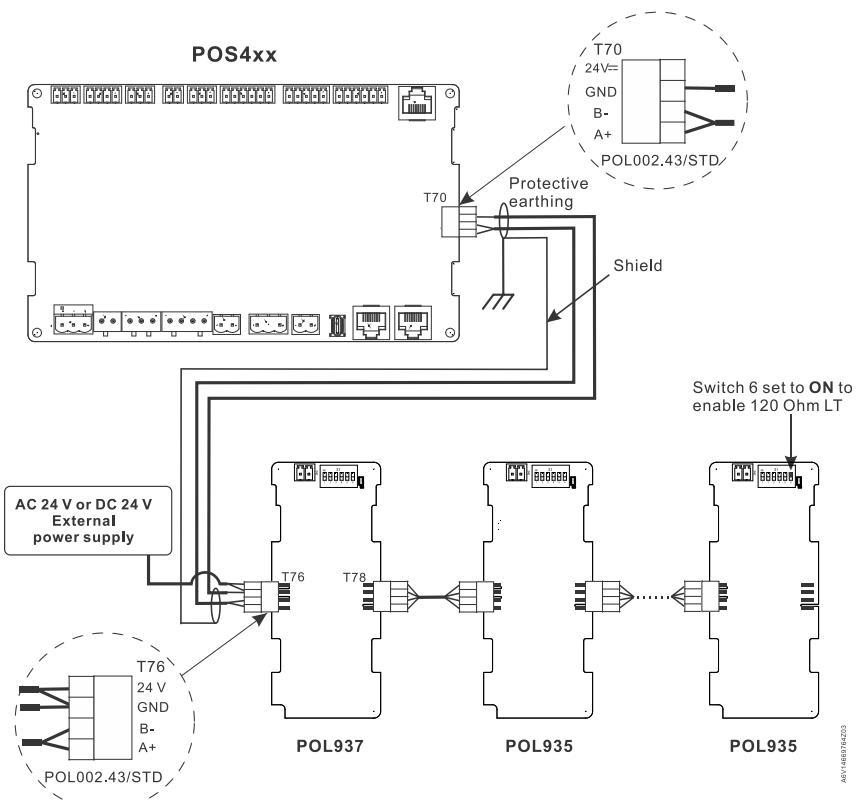
Terminal number	Pin name	Pin pitch (mm)	Description
T48	CM-	3.81	M-Bus communication interface
	CM+		
T76	24 V DC/AC input/throughput	3.5	24 V DC/AC supply input or throughput voltage
	GND		Reference ground
	B -		Climatix I/O extension module bus (Modbus)
	A +		
T78	24 V DC/AC throughput	3.5	24 V DC/AC supply throughput voltage
	GND		Reference ground
	B -		Climatix I/O extension module bus (Modbus)
	A +		

## Wiring, grounding and power supply examples

**Note:** T76 with 24 V DC power supply from controller.



**Note:** T76 input voltage comes either from controller or from external 24 V AC power supply.



## Technical data

### Conformity

Ambient conditions and protection classification	
Classification as per EN 60730	Type1
Operation of automatic controller	
Degree of pollution	2
Overvoltage category	I
Safety protection class	Class III
Degree of protection as per EN 60529	IP00 (POL937.10/STN) IP20 (POL937.00/STN)
Climatic ambient conditions	<ul style="list-style-type: none"><li>Temperature: -40...70 °C</li><li>Air humidity: &lt;95 % r.h. (non-condensing)</li></ul>
Storage as per IEC60721-3-1	<b>Note:</b> Maximum length of storage without power is 2 years. After this period power must be applied to the controller for minimum 4 hours.
Transportation as per IEC60721-3-2	<ul style="list-style-type: none"><li>Temperature: -40...70 °C</li><li>Air humidity: &lt;95 % r.h. (non-condensing)</li><li>Mechanical condition: IEC 60721-3-2 class 2M2</li><li>Min. 260 hPa, corresponds to max. 10,000 m above sea level</li></ul>
Atmospheric pressure	
Operation as per IEC60721-3-3	<ul style="list-style-type: none"><li>Temperature: -40...70 °C</li></ul> <b>NOTICE! Avoid exposure to maximum temperatures for prolonged periods.</b> <ul style="list-style-type: none"><li>Air humidity: &lt;95 % r.h. (non-condensing)</li><li>Mechanical condition: IEC 60721-3-3 class 3M2</li><li>Min. 700 hPa, corresponds to max. 3,000 m above sea level</li></ul>
Atmospheric pressure	

Reliability	
Mean time between failure (MTBF)	> 65 years at 20 °C environment

Standards, directives and approvals	
Product standard	EN 60730-1 Automatic electronic controls for household and similar use.
Electromagnetic compatibility (applications)	Suitable for residential and industrial EMC environment
EU conformity (CE)	A5W02631071A
RCM conformity	A5W02631077A
UKCA	A5W02631076A
Environmental compatibility	The product environmental declarations (A5W00709166A) contain data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal).

### General data

General	
Dimension	See Dimensions (in mm) [▶ 11]
Weight	POL937.10/STN COM Ext module M-Bus PCB: 40 g POL937.00/STN COM Ext module M-Bus HSG: 97 g

## Packaging information

### POL937.10/STN PCB variant

Type of packaging	Material	From recycling	%	Pcs/ pack	Dimension (mm)	Packaging net weight*
Carton box with product in anti-static bag	corrugated fiber board PAP 20	One way, recyclable	100	80	600x400x150	30.5 g
	Low density polyethylene – LDPE 4	One way, recyclable	100			

### POL937.00/STN Housing variant

Type of packaging	Material	From recycling	%	Pcs/ pack	Dimension (mm)	Packaging net weight*
Carton box	Corrugated fiber board PAP 20	One way, recyclable	100	40	600x400x150	45.4 g

\* Average net weight of packaging material per unit of product in package

## Power supply

Power supply (T76)	
Operating voltage	AC 24 V ±20 %; DC 24 V ±10 %
Frequency	50/60 Hz
Min. power consumption (extension module only)	1.2 W (25 °C)
Max. power consumption	AC 24 V: 300 mA; DC 24 V: 140 mA
Capacitive load	0.6 mF
AC Inrush current	Max. 40 A <2ms
Passthrough current	Max. 2.5 A at AC 24 V; Max. 2.5 A at DC 24 V
Connection	Peripheral bus or External 24V power supply

## LED states

BSP LED states:

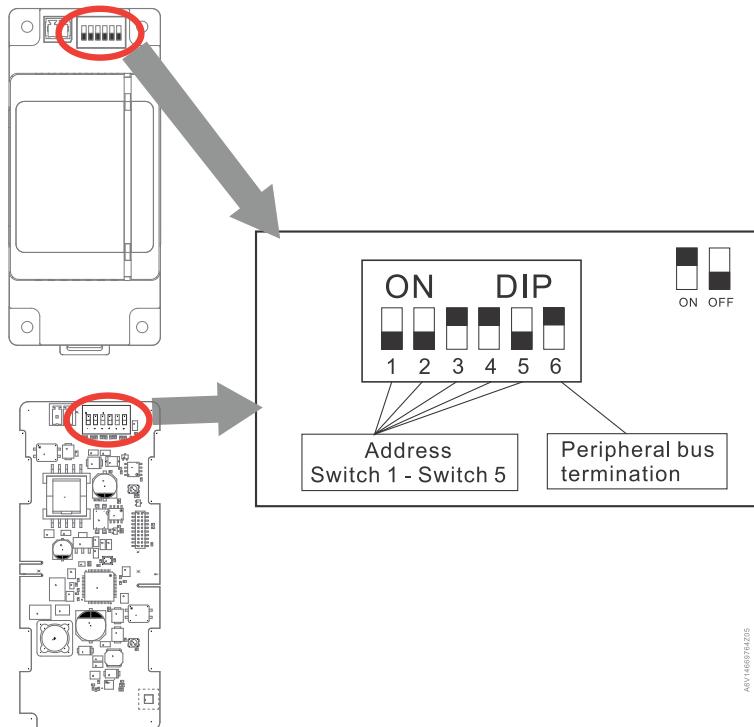
State	Meaning
Green ON	BSP running
Red flashing at 2 Hz	BSP error (software error)
Flashing between red and green, per second	BSP upgrade mode
Red ON	Hardware error

BUS LED indicates the controller's communications state. BUS LED states:

State	Meaning
Green ON	Communication running, I/O working
Orange ON	Communications active, but parameter not configured successfully
Red ON	Communication error

## DIP switch

The extension module is equipped with a DIP switch to communicate with the controller. Switches 1, 2, 3, 4, and 5 can be configured for extension module addresses, while switch 6 serves as peripheral bus termination. If the extension module is the network termination, switch 6 must be set to ON.



Bit order is 5 to 1. The lowest bit is 5, the highest is 1. Max. 31 ext. addresses can be configured:

DIP switch configuration of extension module							
No.	Diagram	No.	Diagram	No.	Diagram	No.	Diagram
1		9		17		25	
2		10		18		26	
3		11		19		27	
4		12		20		28	
5		13		21		29	
6		14		22		30	
7		15		23		31	
8		16		24			

### NOTICE



The extension module address must be the same in the controller's application program. 0 cannot be set as extension module address.

## Communication

The below table describes the controller communication interfaces and exemplary use-cases.

- **System limits:** This table gives max. number of devices by firmware allowed to connect to extension module.
- **Cables:** Max. cable length and type is described in chapter cable length and type.

Interfaces	Descriptions	Exemplary use case
Peripheral extension bus (T7x)	<p>Communication: ModbusRTU client  Isolation: Galvanically non-isolated  Addresses 1...31, 0 not used  Baudrate: 38400, e, 1  Bus termination: 120 Ω +1 nF  Plug: PCB direct connectors for communication and power supply</p> <ul style="list-style-type: none"> <li>• Use "Board-to-Board connector" POL001.45/STD to connect extension modules to controller and to each other.</li> <li>• Use "Board-to-Connector" POL002.43/STD to mount extension modules with distance to controller and/or to power supply extension modules externally in case there is not enough power supply available from controller.</li> </ul>	<p>Extension bus to connect to Climatix controller and to Climatix I/O extension modules e.g. POL966, POL95E, ...  or  Climatix COM extension modules e.g. POL935, POL937, POL999, ...</p>
M-Bus (T48)	<p>M-Bus interface (see detailed description in next chapter)  <b>System limits: max. 5 M-Bus server per POL937 CON ext module</b></p>	Energy meter, Electrical meter

## M-Bus interface

M-Bus interface	
Terminal	1 interface on terminal T48
Bus connection	CM+ / CM-
Bus electronic	Galvanically isolated
Bus cable	2 wires, interchangeable
Number of M-Bus devices	Max. 5 M-Bus devices (5 standard loads of < 1.5 mA)
Number of data points (binding)	Max. 200 data points can be integrated over the M-Bus module to the controller
Tool for M-Bus mapping (more info: SCOPE tool online help)	SCOPE tool Configuration of the mapped M-Bus devices and their required data points (bindings)
Manufacturer specific data structures	Manufacturer specific data structures (VIF = 7Fh or FFh) can be mapped to the Climatix controller.
User definable VIF's in plain ASCII-String	User definable VIF's in plain ASCII-String (VIF = 7Ch or FCh) cannot be mapped to the Climatix controller.
Readout selection of all VIF's	Readout selections of all VIF's (VIF = 7Eh or FEh) cannot be mapped to the Climatix controller.
Extension indicator FBh or FDh	The extension indicators FBh and FDh are supported, therefore in electrical meters, additional values can be integrated as well as the total energy and power values.
Baud rate	300 / 600 / 1200 / <b>2400</b> / 4800 / 9600 baud; Default: 2400 baud
Type of addressing	Primary addressing using the addresses from 1 to 250 is supported and secondary addressing is fully supported.
Note:	POL937.xx has no option for automated meter search, as break signal is missing. Therefore, for commissioning it is required to know primary (PA) and secondary (SA) address of the meters, connected to the POL937.xx

## Cable lengths and type

Interfaces	Cable lengths and type specification
M-Bus (T48)	Max. 300 m; 2-wire, interchangeable
Peripheral extension bus 24VDC (T7x, 3.5 mm pitch)	Max. 30 m (@ $\geq 0.3$ mm <sup>2</sup> ); 4-wire (2 wires as twisted pair); shielded if cable length >3 m • Wire cross-section: 0.3-1.0 mm <sup>2</sup>
<b>Factors affecting maximum cable length:</b> Be aware that the cable resistance and the influence of EMC as well as the hum increases with the length of the cable and has an impact on the accuracy of the analogue value. If the maximum cable length can be reached in an application depends on factors like selection of cable type, dimension, shielding, wiring, distance to high power devices, the requirements regarding measurement and control accuracy etc. and is in the responsibility of equipment designer.	

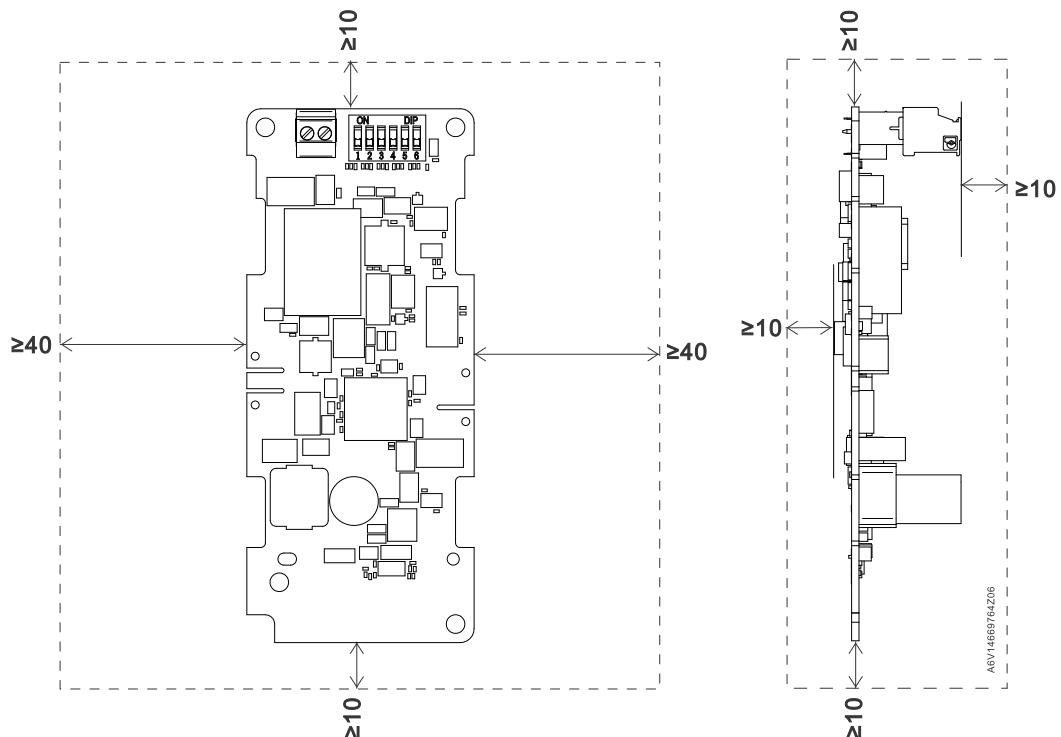
### NOTICE

!	Installation of connections as per: - Load - Local regulations
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## Notes

### Mounting and installation

#### Clearance requirement



Dimensions in mm

#### Mounting screws

Use metallic screws (M3.5) in mounting.

- Diameter of screw head and nut is no more than 8 mm.
- Screws are not included in the delivery package.

### Engineering

#### NOTICE



The software for POL937 is available as of VVS11.14.

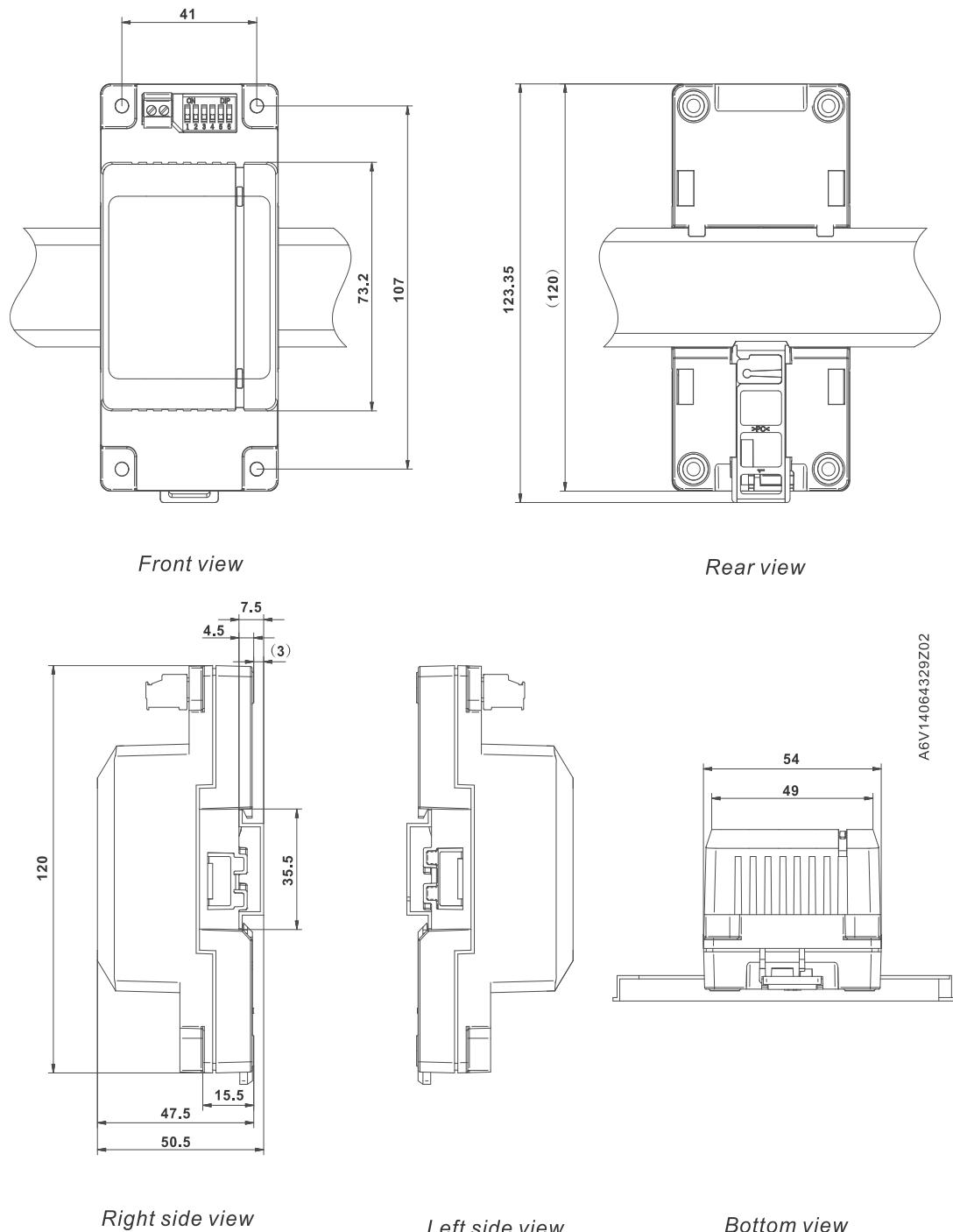
### Disposal



This symbol or any other national label indicate that the product, its packaging, and, where applicable, any batteries may not be disposed of as domestic waste. Delete all personal data and dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.

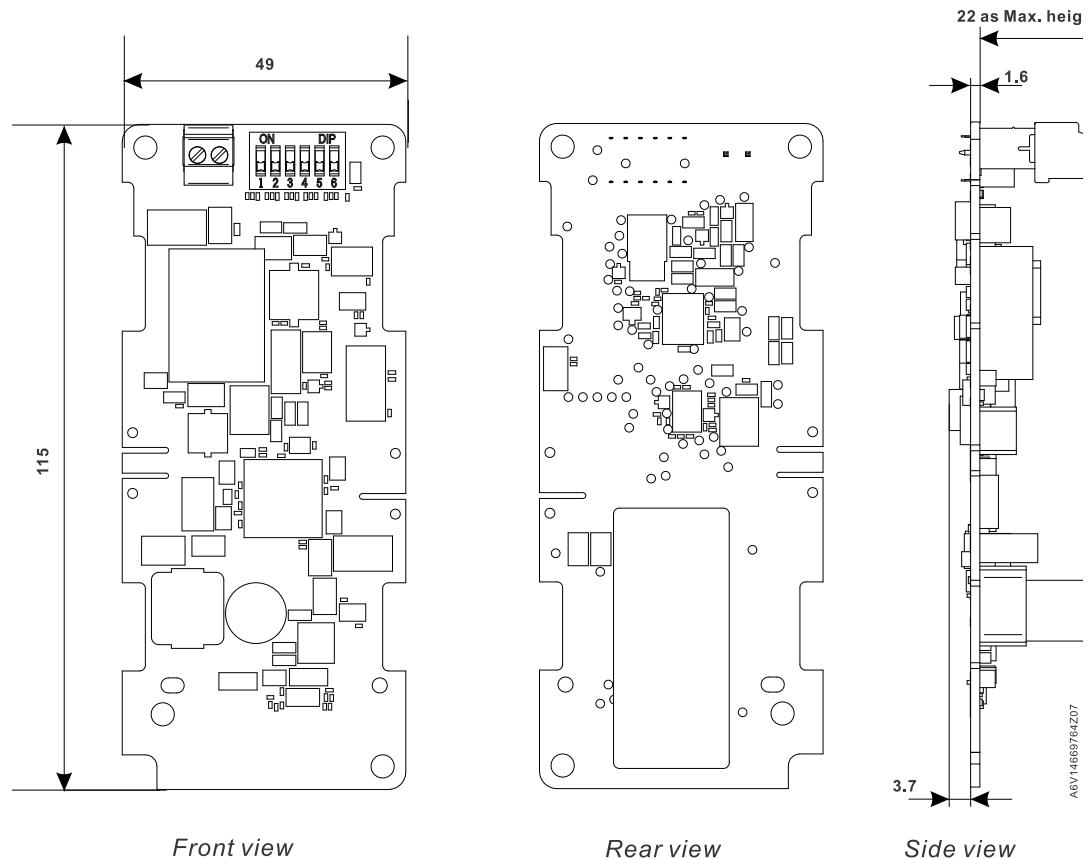
For additional details, refer to [Siemens information on disposal](#).

**POL937.00/STN COM Extension module M-Bus HSG**



A6V14064329Z02

## POL937.10/STN COM Extension module M-Bus PCB



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