
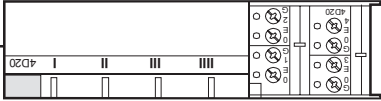

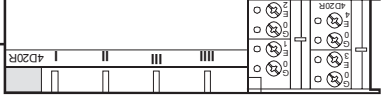






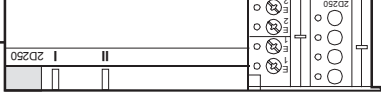






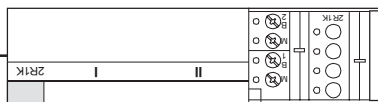

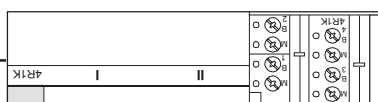

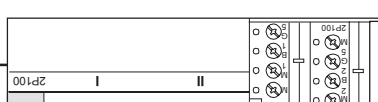

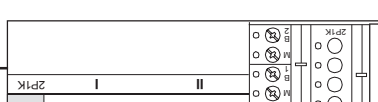
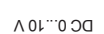

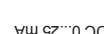
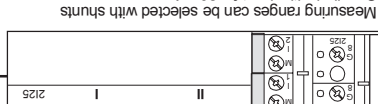
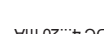




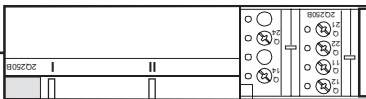
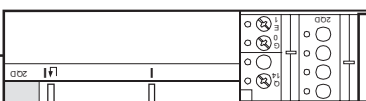


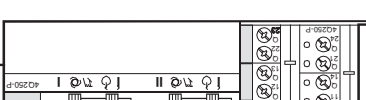
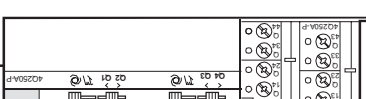

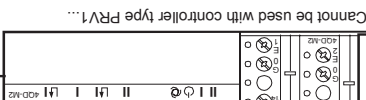
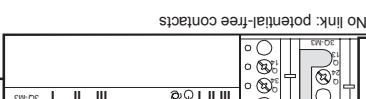

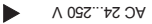










I/O Module range

PTE...

The diagram illustrates the connection of an automation station to a PLC system. At the top left is the **Automation station**, which is connected via a **P-bus** to a rack of **I/O modules**. This rack is connected to another rack of **I/O modules** via a second **P-bus**. The bottom rack of I/O modules is connected to a PLC rack (labeled 8100201en) which contains various modules including a power supply, a CPU, and several I/O modules. The PLC rack is connected to a terminal block and a set of relays, which are in turn connected to a set of actuators (motors and solenoids).

Basic function	SIGNALLING									
Signal source	status contact (open/closed)									
Status signal	voltage (yes/no)					potential-free				
	low voltage		maintained			impulse		maintained		
Type of signal	mains voltage		maintained			impulse		maintained		
Status indication	voltage present		voltage present			open (E12, E22) closed (E14, E24)		voltage present		
Number of inputs	2		4			8		2		
Module type PTM1. ...	2D20		4D20			8D20E		2D250		
Data sheet	8111		8112			8113		8117		
										
										
										
										
		AC 0V/24 V max.						AC 0V/250 V max.		8100Z02E

Basic function	MEASURING										Basic function	COUNTING
Measuring signal	passive					active					Signal source	potential-free contact
Measuring variable	temperature		temperature and resistance			voltage	current			Counting frequency	25 Hz max.	
Measuring detectors and measuring ranges	LG-Ni 1000 -50...+150°C		Pt100 (up to 400 °C) Ni100 (up to 150 °C) or 0...250Ω			DC 0...10 V	DC 0...25 mA	DC 4...20 mA		Number of inputs	2	
Number of inputs	2		2		2	2	2	2		Module type PTM1. ...	2C	
Module type PTM1. ...	2R1K		4R1K		2P100	2P1K	2U10	2I25	2I420	Data sheet	8136	
Data sheet	8121		8121		8123	8123	8127	8129	8129	8136		
<div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div><div>8100204E</div><div>8100203E</div><div>Supplied with shunt for 20 mA Measuring ranges can be selected with shunts</div></div>												

SWITCHING												
Basic function												
Manual operation	without											
Type of load	independent load stages											
Steps per output	1	coupled load stages										
Checkback signal	without	with										
Switching command	without	with	without	with	without	with	without	with	without	with	without	impulse
Type of relay	monostable	bistable	monostable	monostable	monostable	monostable	monostable	monostable	monostable	monostable	monostable	monostable
Potential-free	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	optional	yes
Number of outputs	2	2	1/1	2/2	2	2	2	4	1/1	1/1	1	1
Module type PTM1. ...	2Q250	2Q250B	2QD	4QD	2Q250-M	4Q250-P	4Q250A-P	2QD-M	4QD-M2	3Q-M3	4Q250-P3	
Data sheet	8141	8159	8143	8143	8141	8155	8156	8146	8146	8149	8157	
          												
          												
AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V AC 24...250 V												
No link: potential-free contacts Cannot be used with controller type PRV1...												

Basic function	POSITIONING		
Form of energy	electrical		
Manual operation	without		
Positioning signal	modulating		
Position output	modulating		
Number of outputs	2		
Module type PTM1, ...	2Y10S		
Data sheet	8162		
Form of energy	electrical		
Manual operation	with		
Positioning signal	modulating		
Position output	three-position		
Number of outputs	2		
Module type PTM1, ...	2Y10S-M		
Data sheet	8162		
Form of energy	electrical		
Manual operation	with		
Positioning signal	modulating		
Position output	modulating		
Number of outputs	1		
Module type PTM1, ...	PTM6.1PSI20-M		
Data sheet	8167		
Form of energy	pneumatic		
Manual operation	without		
Positioning signal	modulating		
Position output	modulating		
Number of outputs	1		
Module type PTM1, ...	PTM6.1PSI20-M		
Data sheet	8167		

DC 0...10 V

DC 0...10 V

DC 4...20 mA

AC 24...250 V

DC 0...10 V

AC 24...250 V

0...138kPa (0...1.4bar)

2Y10S

4Y10S

2Y420

2Y250T

2Y10S-M

2Y250T-M

IPSI20-M

No link: potential-free contacts

No link: potential-free contacts

Can only be used with PRV... process units

8162

8162

8164

8171

8162

8171

8167

Additional information on the I/O modules and further units on the P-bus

Basic Function	Signal Variables and Range	Signal Types and Functions	LED Display	Manual Operation	I/O Points	Channels or Data Points	Load Units at 12.5 mA	VA, Op. Voltage AC 24 V	Type ASN No.	From DESIGO Version	From UNIGYR FB Version	From VISONIK Version ¹⁾	SIMATIC S7
Signalling	Potential-free maintained contact	Make contact	•		2	2	2		PTM1.2D20	2.x	3.3	2.x	X
		Make contact	•		4	4	1	3	PTM1.4D20	2.x	3.3	4.x	X
		Break contact	•		4	4	1	3	PTM1.4D20R	2.x	3.3	4.x	x
		Make contact			8	8	1	4	PTM1.8D20E	2.x	6	12.20	X
	Potential-free impulse contact	Make contact / break contact	•		2	2	2	2.5	PTM1.2D20S	2.x	3.3	2.x	---
	AC 24 V / DC 42 V	Extra-low voltage	•		2	2	2		PTM1.2D42	2.x	3.3	2.x	X
Measuring	AC 250 V / DC 100 V	Voltage	•		2	2	2		PTM1.2D250	2.x	3.3	2.x	X
	LG-Ni 1000	Temperature, passive			2	2	1		PTM1.2R1K	2.x	3.3	2.x	x
	LG-Ni 1000	Temperature, passive			4	4	1		PTM1.4R1K	2.x	5	12.20	x
	0 ... 250 Ohm / Pt100 / Ni100	Resistance, passive			2	2	2		PTM1.2P100	2.x	3.3	2.x	x
	0 ... 2500 Ohm / Pt1000 / Ni1000	Resistance, passive			2	2	2		PTM1.2P1K	2.x	3.3	2.x	x
	DC 0 ... 10 V	Voltage measurement			2	2	1	0.1	PTM1.2U10	2.x	3.3	2.x	x
	DC 0 ... max. 25 mA	Current measurement			2	2	1	0.5	PTM1.2I25/020	2.x	3.3	2.x	x
Counting	DC 4 ... 20 mA (fix)	Current measurement			2	2	1	0.5	PTM1.2I420	2.x	3.3	2.x	x
	Potential-free (max. 25 Hz)	Counting value impulse			2	2	2		PTM1.2C	2.x	3.3	2.x	---
Switching	Potential-free maintained contact	Single stage	•		2	2	2		PTM1.2Q250	2.x	3.3	2.x	x
		Single stage (bi-stable)	•		2	2	2	1.5	PTM1.2Q250B	2.x	3.3	2.x	---
		Single stage	•	•	2	2	2	2.0	PTM1.2Q250-M	2.x	3.3	2.x	x
	Non-floating maintained contact	Single stage with feedback	•		2	1	2		PTM1.2QD	2.x	3.3	2.x	x
		Single stage with feedback	•		4	2	4		PTM1.4QD	2.x	3.3	2.x	x
		Single stage with feedback	•	•	2	1	2	1.0	PTM1.2QD-M	2.x	3.3	2.x	x
		Two-stage with feedback	•	•	4	1	2	1.0	PTM1.4QD-M2	2.x	3.3	12.x	x
		Three-stage	•	•	3	1	2	2.0	PTM1.3Q-M3	2.x	3.3	2.x	x
	Potential-free impulse contact	Single stage	•		4	2	2	2.0	PTM1.4Q250-P	2.x	3.3	2.x	---
		Single stage	•		4	2	2	2.0	PTM1.4Q250A-P	2.x	7	14.12	---
		Three-stage	•		4	1	1	1.0	PTM1.4Q250-P3	2.x	3.3	2.x	---
Positioning	DC 0 ... 10 V (modulating)	Positioning signal	•		2	2	1	3.0	PTM1.2Y10S	2.x	3.3	2.x	x
		Positioning signal	•		4	4	1	3.0	PTM1.4Y10S	2.x	4.5	12.x	x
		Positioning signal	•	•	2	2	1	3.0	PTM1.2Y10S-M	2.x	3.3	2.x	x
	DC 4 ... 20 mA (modulating)	Positioning signal	•		2	2	1	3.0	PTM1.2Y420	2.x	3.3	2.x	x
	AC 24 ... 250 V (three-position)	Positioning signal	•		2	1	2		PTM1.2Y250T	2.x	3.3	4.x	x
		Positioning signal	•	•	2	1	2	1.0	PTM1.2Y250T-M	2.x	3.3	4.x	x
	Pneumatic (0 ... 138 kPa)	Positioning signal	•	•	1	1	2	3.0	PTM6.1PSI20-M	2.x	none	6.x	---
Compact units	12 ML / 4 MW (LG-Ni 1000) /	I/O compact	• ²⁾		30	6	13	12	PTK1.30V01	2.x	4.5	none	---
	8 MW (LG-Ni 1000) /	I/O compact	• ²⁾		23	7	17	0.1	PTK1.23V02	2.x	4.5	none	---
Interface modules	GRUNDFOS 2 pumps	2 x 2Y10 / 6 x 2R1K ³⁾	•		16	8 x 2	8	3,0	PTM52.16V01	---	5	6.x	x
	GRUNDFOS 4 pumps	2 x 4DOS / 2 x 4DIS 4 x 4AIS ³⁾	•		32	8 x 4	8	3,0	PTM52.32V01	2.x	5	none	---
	WILO 2 single / 1 twin pump	2 x 2Y10 / 6 x 2R1K ³⁾	•		16	8 x 2	8	3,0	PTM50.16V01	---	5	6.x	x
	WILO 4 single / 2 twin pumps	2 x 4DOS / 2 x 4DIS 4 x 4AIS ³⁾	•		32	8 x 4	8	3,0	PTM50.32V01	2.x	5	none	---
	M-bus 6 M-bus meters	2 x 4AOS / 6 x 4DIS 6 x 4AIS ³⁾	•		56	14 x 4	4	3,0	PTE-MBUS.60	2.x	7	none	---
	ALBATROS, SIGMAGYR 1 heating controller	8 x 2Y10 / 8 x 2R1K ³⁾	•		32	16 x 2	15	3,0	PTM59.20V01	---	6	14.12	---
	MICRO- und MIDIMASTER 2 VSD frequency converters	2 x 2Y10 / 7 x 2R1K 2 x 2Q250 ³⁾	•		22	11 x 2	13	3,0	PTE-ASED.20	---	7	14.12	---
	SED2 4 VSD frequency converters	2 x 4DOS / 2 x 4AOS 5 x 4DIS / 5 x 4AIS ³⁾	•		56	14 x 4	4	3,0	PTE-SED2	2.x	7	none	---
Integration	Hardware for custom-made integration solutions	Applications with up to 60 data points can be programmed	•		60			3,0	PTM1.RS232	2.x	5	6.x	---
	Hardware for custom-made integration solutions	Applications with up to 60 data points can be programmed	•		60			3,0	PTM1.RS485	2.x	5	6.x	---
Signalling /	Remote signalling and operation	24 msgs / 12 op.points	•	•	36	12	4		PHM1.36TL	---	5	none	---

¹⁾ V 2.x/V 4.x/V 6.x = PRV1 versions; V 12 and V 14 = BPS versions

²⁾ only switching and positioning outputs

³⁾ Represented in the system by

Principally, the I/O-modules can be connected to all automation stations with P-bus, provided they support the associated I/O-functions in terms of software. More information on this issue is available in the function description and in the system tools of the building automation and control system.

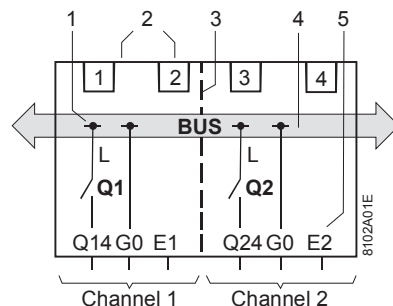
Diagrams

Remarks

To complement the summary of I/O modules, the following pages give an overview of the diagrams contained in the various data sheets. Please note:

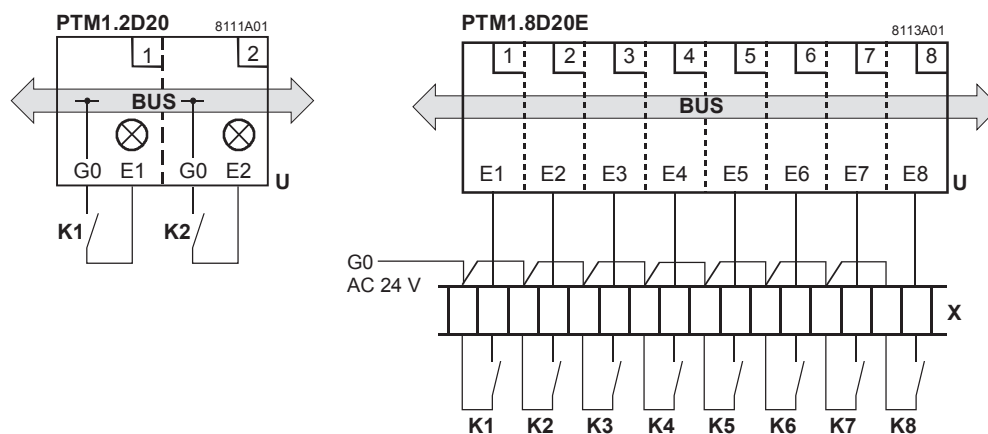
- The diagrams shown are combinations of internal diagrams and wiring diagrams:
 - The internal diagram inside the box contains the terminal markings and shows details that are important to understand the unit functions, e.g., operating elements and signal lamps, relay contacts, and voltages picked up from the I/O bar
 - The wiring diagram shows the respective unit with the devices that can be connected and the related wiring
- Legends relating to the various diagrams are given in the relevant data sheets.
- The circuitry of the I/O modules only shows the basic connection choices, but not plant- and application-specific actions and switching functions.
- Connection variants - if not shown here - are given in the respective data sheets.
- When doing planning work, make use of the data sheets on the I/O modules. These data sheets contain the requirements relevant to safety and the restrictions on use and wiring.
- For type code and terminal markings, refer to document Z8102, "I/O module system".
- Refer to the function description of the building automation and control system, for a detailed description of the relationship between I/O blocks, I/O modules, I/O channels, and I/O points.

Makeup of I/O module diagrams (e.g. PTM1.4QD switching module with checkback signal)

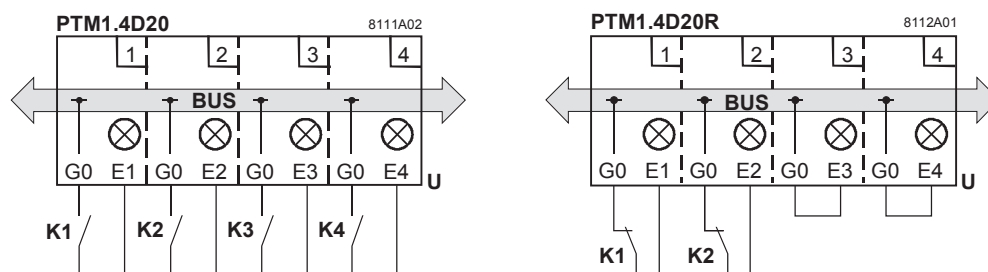


- 1 Contact on I/O bar for AC 24 V low voltage (G, G0) or mains voltage (L, N)
- 2 Consecutive numbering of the I/O points for a module.
An I/O point is a signal input or output for a certain function (for example, the Q14 switching command and the associated E1 checkback signal represent two I/O points)
- 3 In the case of multiple modules, broken lines separate equal module functions in the same casing. There are double, quadruple and octuple modules, i.e., 2-, 4-, and up to 8-channel modules. The I/O channel (subaddress) is the smallest addressable unit.
- 4 The plug-in I/O modules are electrically connected to the I/O bar.
- 5 Connecting terminals for I/O points; several terminals depending on the input or output (e.g. three-position output).

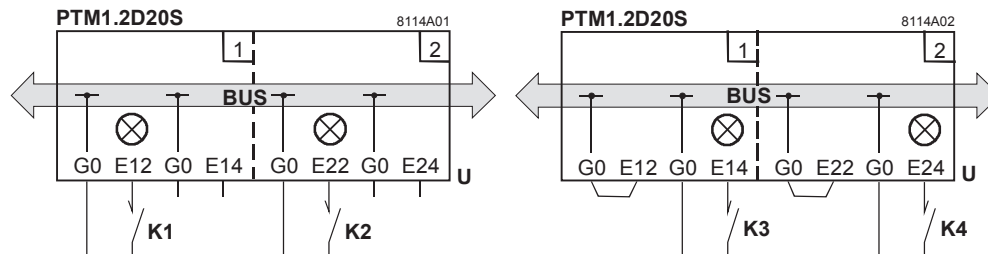
PTM1.2D20
PTM1.8D20E



PTM1.4D20
PTM1.4D20R



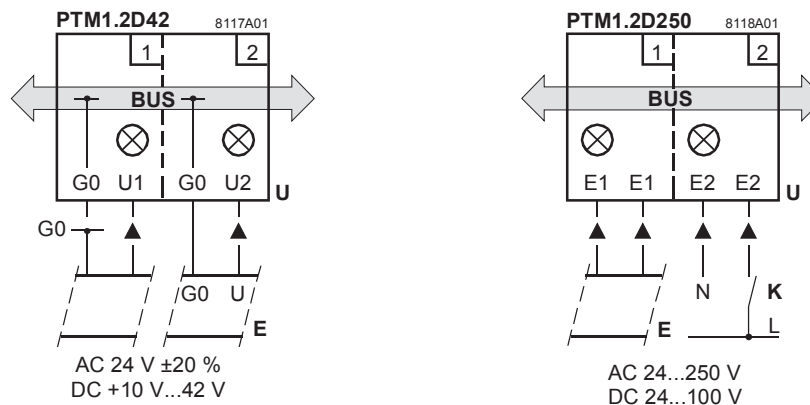
PTM1.2D20S

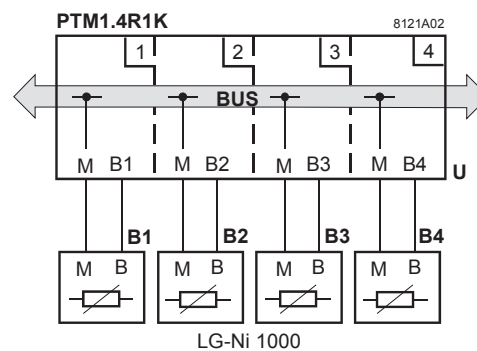
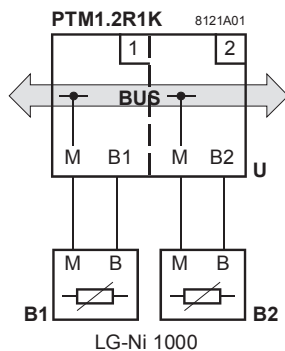


Connection of N.C. contacts

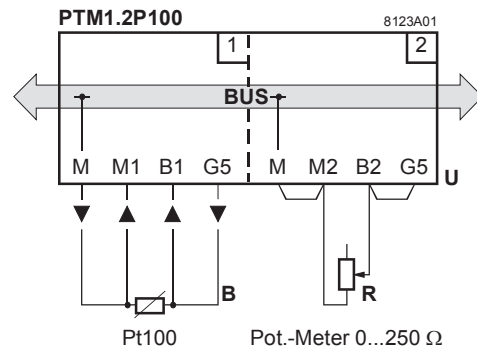
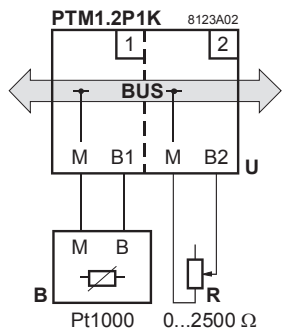
Connection of N.O. contacts

PTM1.2D42
PTM1.2D250

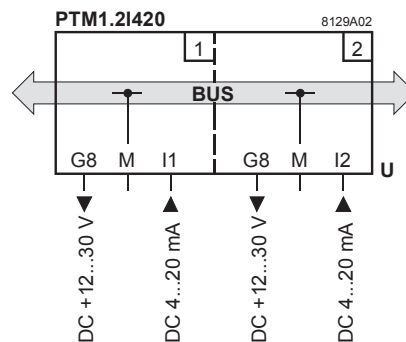
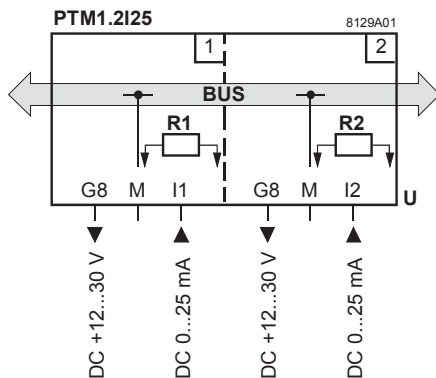




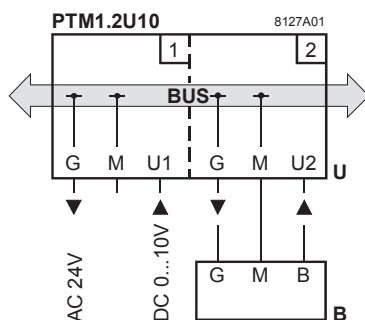
PTM1.2P1K
PTM1.2P100



PTM1.2I25
PTM1.2I420

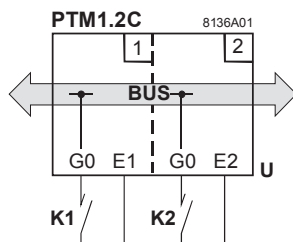


PTM1.2U10

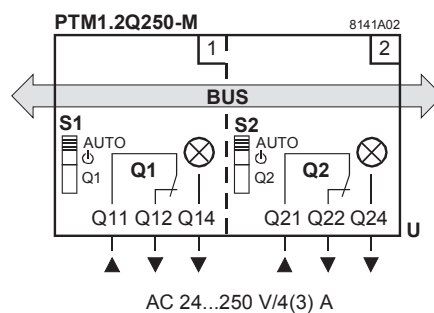
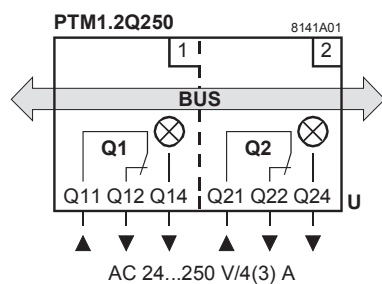


Counting modules

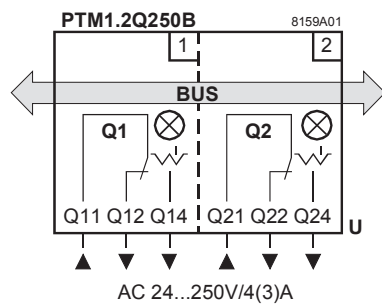
PTM1.2C



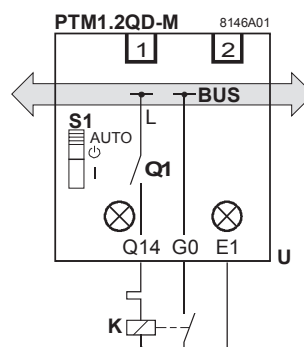
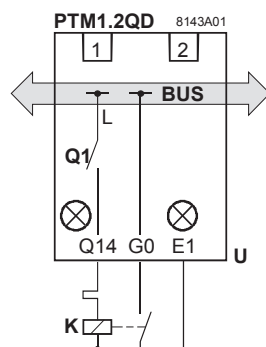
PTM1.2Q250
PTM1.2Q250-M



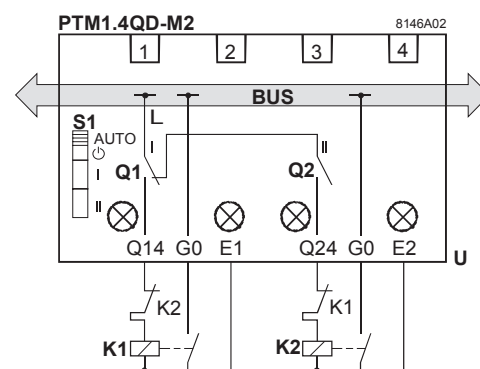
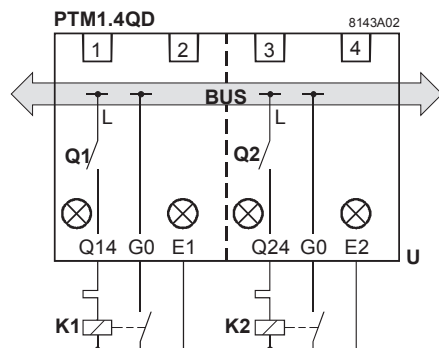
PTM1.2Q250B



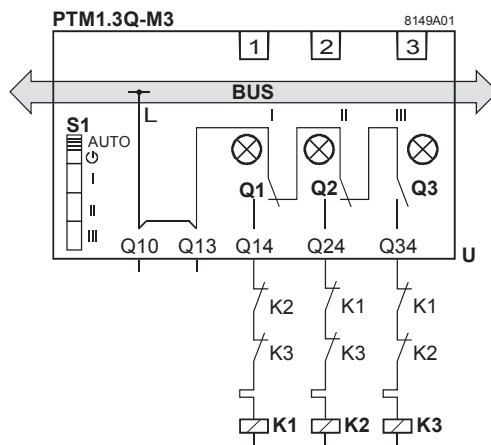
PTM1.2QD
PTM1.2QD-M



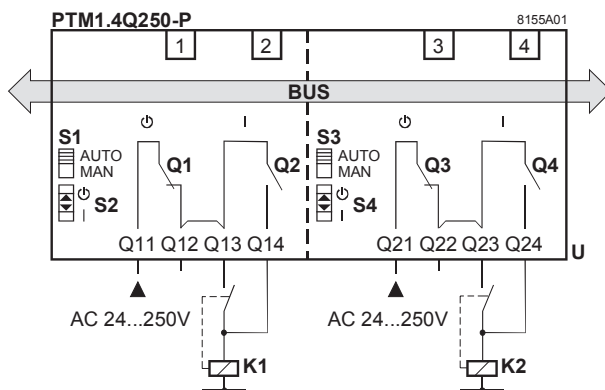
PTM1.4QD
PTM1.4Q-M2



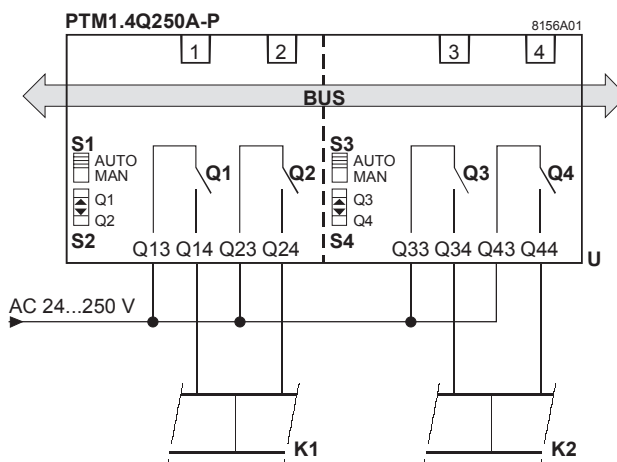
PTM1.3Q-M3



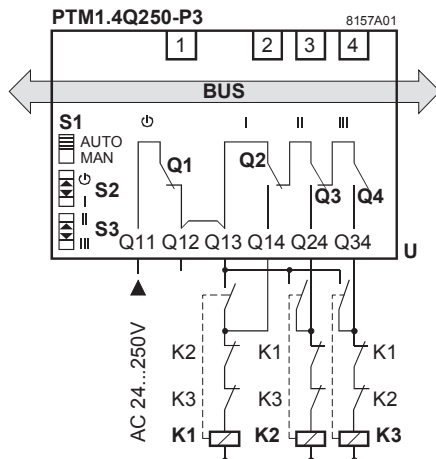
PTM1.4Q250-P

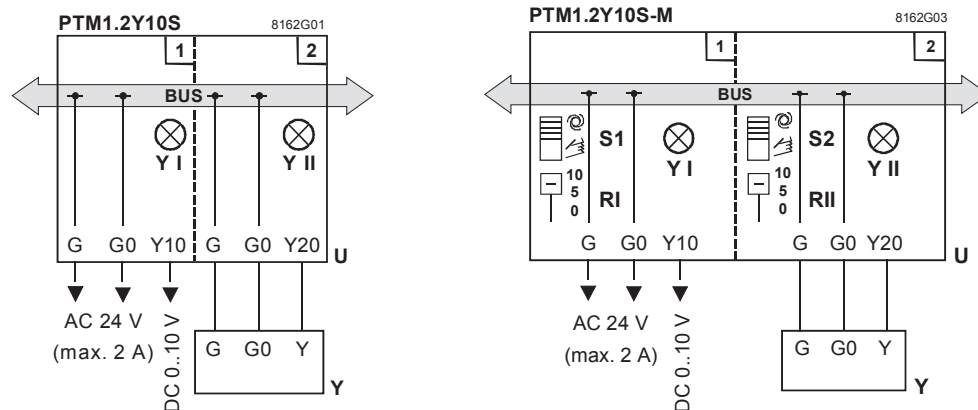
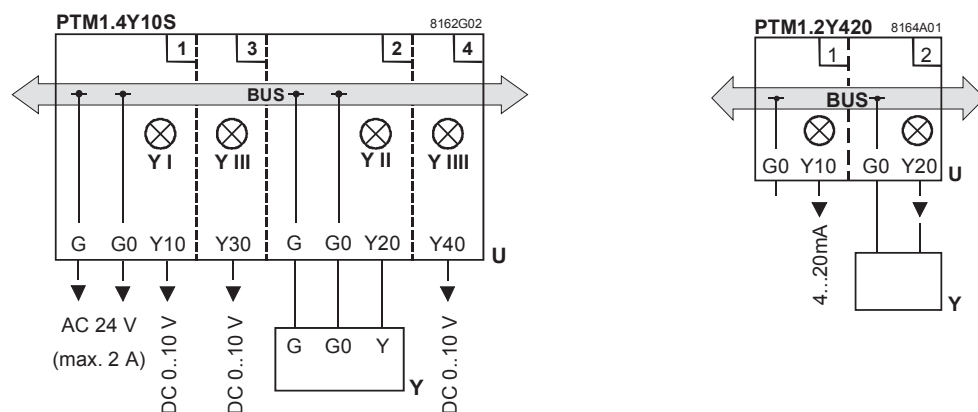


PTM1.4Q250A-P

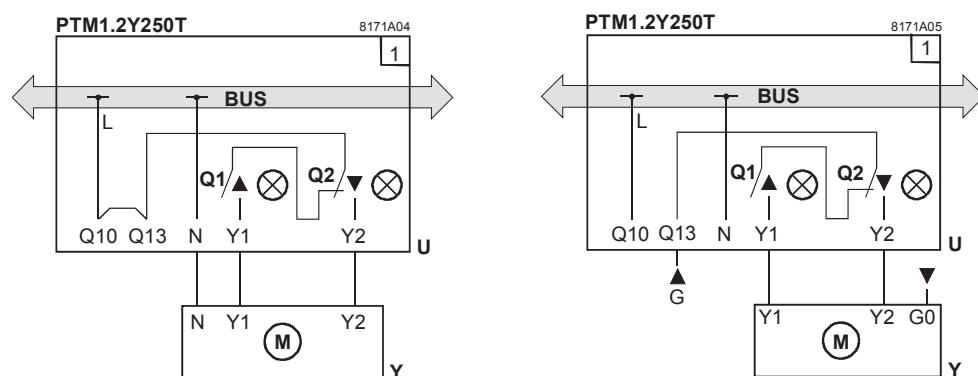


PTM1.4Q250-P3



PTM1.2Y10S
PTM1.2Y10S-MPTM1.4Y10S
PTM1.2Y420

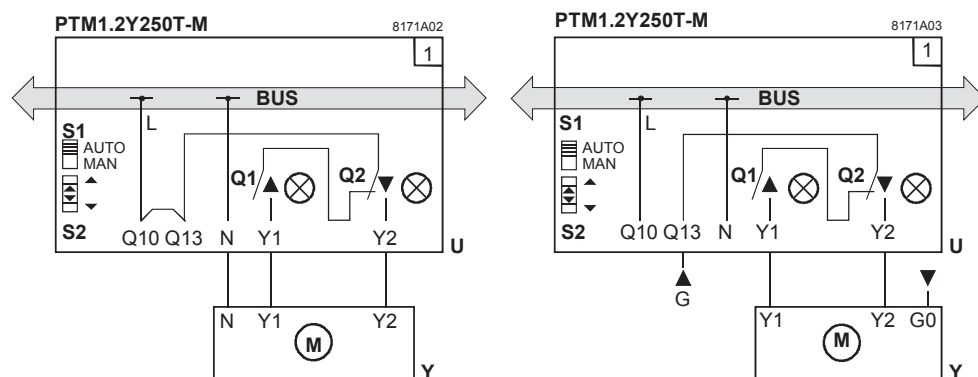
PTM1.2Y250T



With actuator for mains voltage

With actuator for external voltage (extra-low voltage), link Q10 – Q13 removed

PTM1.2Y250T-M



With actuator for mains voltage

With actuator for external voltage (extra-low voltage), link Q10 – Q13 removed

PTM6.1PSI20-M

