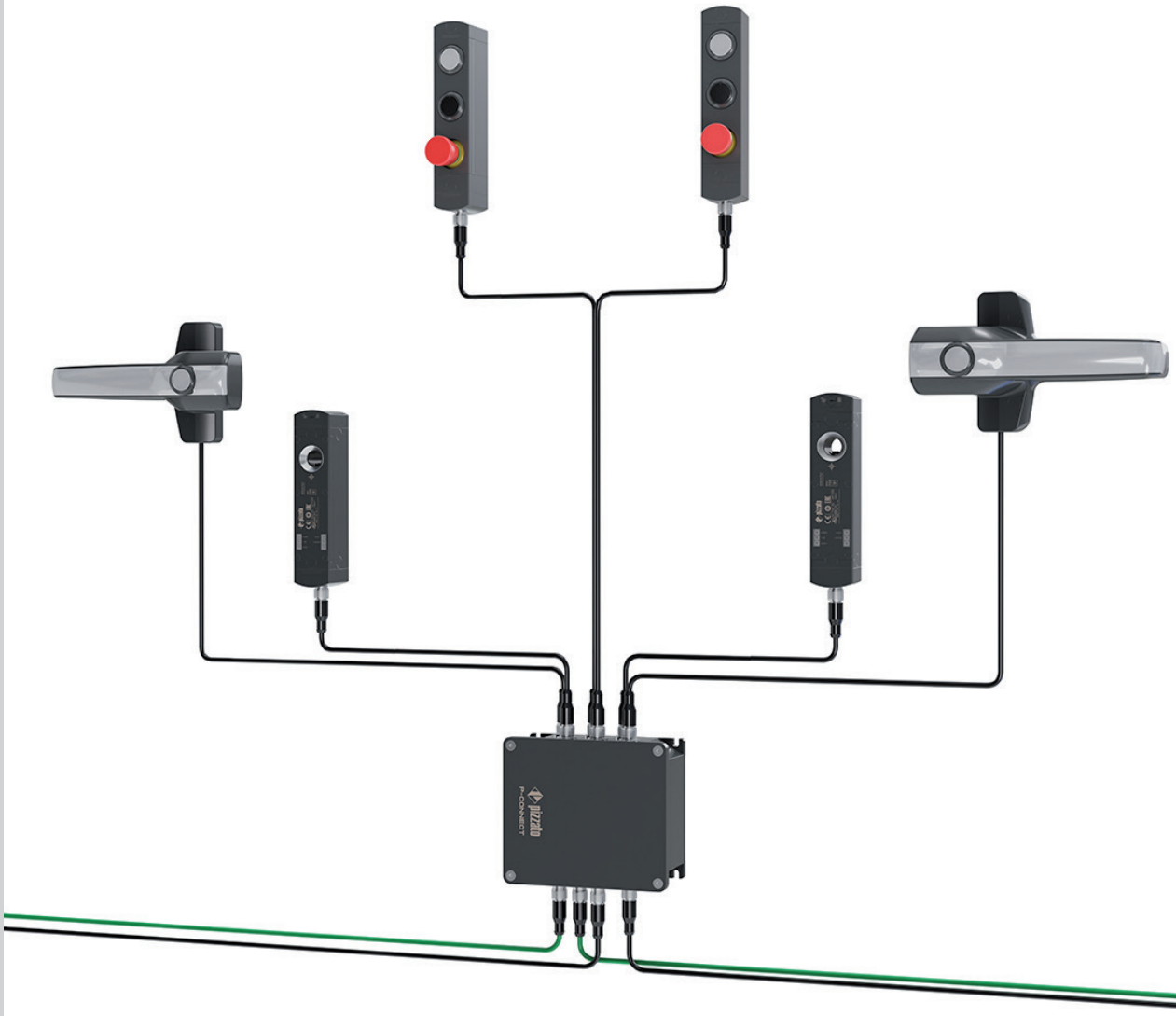
P-Connect connection gateway for safety devices

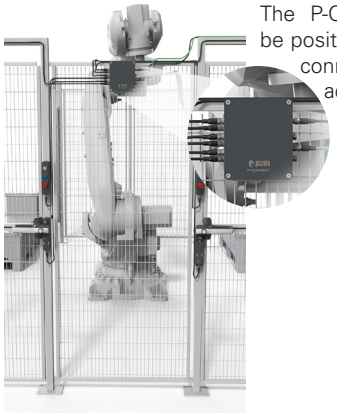


P-Connect connection gateway for safety devices

Description

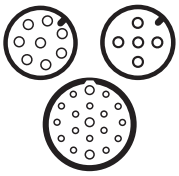
The P-Connect connection gateway is a system that allows up to six (6) devices to be connected to a data network. Safety information is exchanged via PROFIsafe or CIP Safety™ extensions. Depending on its configurations, the gateway can transmit signals from two NG or NS series RFID safety switches with lock. The connection is performed safely using PROFIsafe or CIP Safety™ standards. Furthermore, the P-Connect gateway can be connected to a number of devices available in the Pizzato Elettrica catalogue. These include the BN series modular control device units, and AN series handles with integrated signalling LED.

Positioning in safe areas



The P-Connect connection gateway can be positioned in safe areas, away from the connected devices, to limit the risk of accidental damage or tampering.

Various configurations available

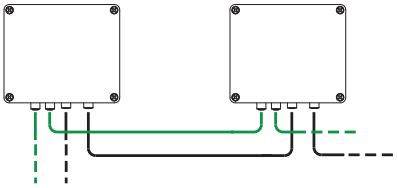


The P-Connect connection gateway is available in various configurations for every kind of application. Depending on the configuration in fact it comes with various types of connectors to connect the devices to be monitored.

Connection to PROFINET/PROFIsafe and EtherNet/IP™/CIP Safety™ networks

The gateway is capable of connecting multiple Pizzato safety devices to a single PROFINET - PROFIsafe, EtherNet/IP™ - CIP Safety™ networks. This ensures easy installation, even on very large machinery, and minimises wiring. Additionally, PROFIsafe / CIP Safety™ functionality enables the gateway to be used to transmit signals to the PLC regarding safety functions for applications up to SIL3/PLe/Cat. 4.

Series connection



P-Connect connection gateways have two connectors. One supplies electrical power to the device and the other is used for the connection to the fieldbus network. This means several P-Connect gateways can be connected in series by simply connecting together the input and output connectors. This notably reduces the time required for installing, uninstalling and replacing components during maintenance.

Field diagnostics

This new version of the P-Connect gateway has integrated signalling LEDs providing the user with a quick on-site diagnostic overview:

- System status LED: multicolour signalling LED, which by lighting, flashing and using different colours, indicates the various device operating states, as well as any warnings or system errors;
- Network status LED: state monitoring of the connected Ethernet network;
- Module status LED: signalling of diagnostic events regarding communication protocols;
- L/A LEDs: Two Link/Activity LEDs, corresponding to the two Ethernet ports on the device, signalling the status and connection speed.

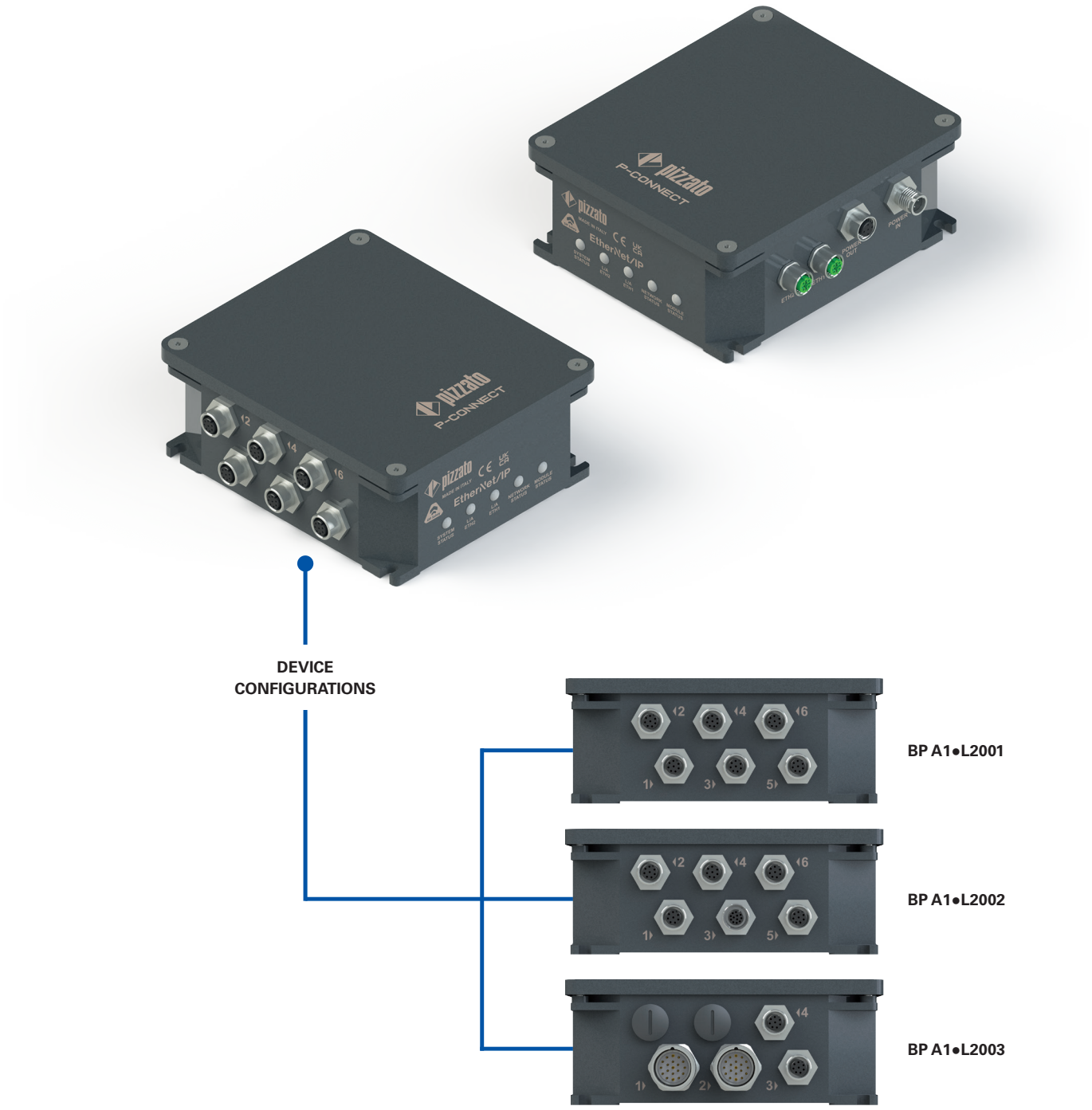
Diagnostic data

The P-Connect connection gateway allows quick access to diagnostic data such as internal temperature, gateway supply voltage, or current consumption of the connected devices. This makes it easy to monitor the gateway and the connected devices, quickly detecting any malfunctions.

Plug&Play device

With connectors on both the power side and the device side, the P-Connect connection gateway is a Plug&Play solution that saves installation time compared to traditional solutions that must be wired into a cabinet. What's more, it can quickly be replaced if there's a malfunction or if it gets damaged.

Selection diagram



Code structure

BP A1PL2001

Communication protocol	
P	PROFINET / PROFIsafe
C	EtherNet/IP™ / CIP Safety™

Power supply connector	
2	1 x M12 5-pole male connector + 1 x M12 5-pole female connector

Input configuration	
001	Configuration 001
002	Configuration 002
003	Configuration 003
...	Other configurations on request

Main features

- Aluminium housing
- Protection degree IP65
- Operating temperature -15 °C … +50 °C
- 5 LEDs integrated in the device for status indication
- Devices can be connected in series

Quality marks:

EC-type examination certificate: M6A 075157 0034
TÜV SÜD approval: Z10 075157 0033
UL approval: E530502
PROFINET approval: Z13641
PROFIsafe approval: Z20348

Features approved by TÜV SÜD

Operating voltage:	24 Vdc ± 15%
Working temperature:	-15°C … +50°C
Pollution degree:	2
Overvoltage category	III

In compliance with standards: IEC 61508-1:2010 (SIL 3), IEC 61508-2:2010 (SIL 3), IEC 61508-3:2010 (SIL 3), EN ISO 13489-1:2015 (PL e, Cat 4), EN IEC 62061:2021 (Maximum SIL 3), EN 61326-3-1:2017.

Please contact our technical department for the list of approved products.

Technical data

Aluminium housing, baked powder coating.

Protection degree:	IP65 acc. to EN 60529 with connectors of equal or higher protection degree

General data

Safety parameters	"Maximum SIL" up to	Performance Level (PL) up to	Cat. up to
Safety input monitoring function	3	e	4
Safety output activation function	3	e	4

Operating temperature:	-15°C … +50°C
Storage temperature:	-30°C … +70°C
Pollution degree:	2
Overvoltage category:	III

Power supply electrical data

Rated voltage (U_e):	24 Vdc SELV/PELV
Supply voltage tolerance:	±15%
Operating current at U_e voltage	
- no devices connected:	0.1 A
- maximum supported current:	3.1 A
Insulation voltage U_i:	32 V
Shock and vibration resistance:	acc. to EN 60947-1
EMC protection:	acc. to EN 61000-4 and EN 61326-3-1
External protection fuse:	4 A type gG for a single BP gateway; for series connection the total load must be calculated.

Input and output circuits

Number of safety inputs:	3 dual-channel
Number of safety outputs:	1 dual channel (or 2 single channel)
Number of non-safety inputs:	14
Number of non-safety outputs:	24
Number of test outputs:	2
Maximum voltage at non-safety inputs:	24 Vdc
Voltage at non-safety outputs:	24 Vdc
Maximum control current at non-safety outputs:	50 mA
Maximum current at test outputs:	100 mA
Maximum current at safe outputs:	250 mA

In compliance with standards:

EN 60947-1, EN 61326-1, EN 61326-3-1, UL 508, CSA C22.2 No. 14, EN IEC 63000, EN 60529, IEC 61784-3-3, EN 61508, EN IEC 62061, EN ISO 13849-1, EN 61131-2.

Compliance with the requirements of:

Machinery Directive 2006/42/EC, EMC Directive 2014/30/EU, RoHS Directive 2011/65/EU.

→ The 2D and 3D files are available at **www.pizzato.com**

Setting/changing IP addresses

PROFINET/PROFIsafe networks

The PROFIsafe F - Address identifies the device on the PROFIsafe network with an unique ID, protecting standard address mechanisms such as IP addresses. The safety address (F - Address) must be set using the 8 DIP switches located under the cover of the P-Connect gateway, labelled "ADDRESS". This value can be set from 1 to 255 and must be unique for every device connected to the network. Restart the device after setting the F - Address. Switches SW1 and SW2 are not used in this application.

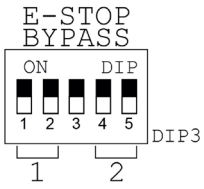
EtherNet/IP™/CIP Safety™ networks

The housing contains 8 "ADDRESS" DIP switches that can be modified by the user and enable selection of one of the following modes:

- IP can be freely modified using Logix Designer (if all DIP switches are set to ON);
- IP fixed and set via hardware.

These 8 DIP switches represent the binary equivalent of the last octet of the IP address. The remainder (the first 3 groups of eight) is fixed to 192.168.1.xxx. You can therefore set a value between 1 and 254 (255 activates the change via software) taking care that the address is not already in use by other devices on the network. Restart the device after setting the F - Address. Switches SW1 and SW2 are not used in this application.

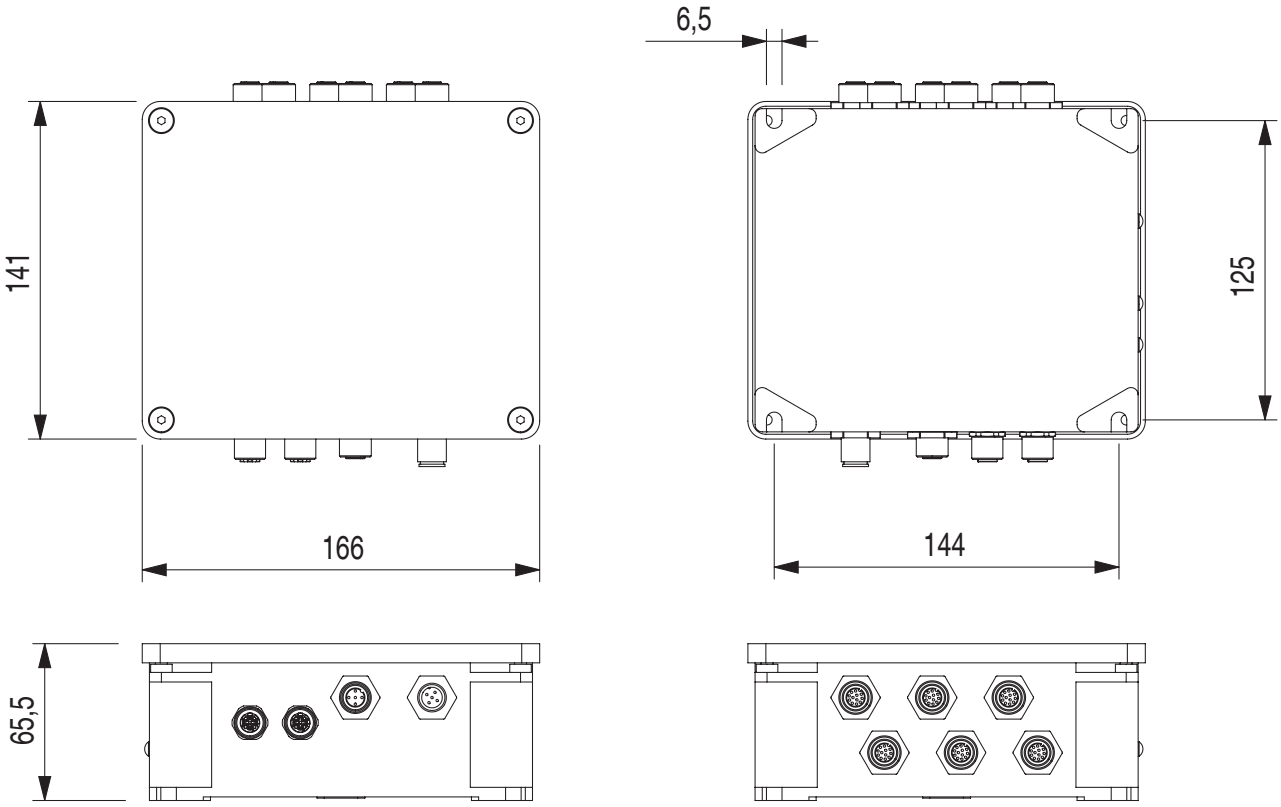
Emergency stop buttons



Some of the P-Connect gateway configurations can be used to manage up to two emergency stop buttons connected internally in series to the gateway. If you are not going to use both emergency stop buttons, bypass one of them using the "DIP3" switch (called "E-STOP BYPASS") located under the cover of the P-Connect gateway.

If switches "1" and "2" are switched "ON" this bypasses the first emergency stop button connected. Switches "4" and "5" bypass the second emergency stop button connected. The switches must only be switched when the P-Connect gateway is OFF, to prevent incoherent input test signal readings.

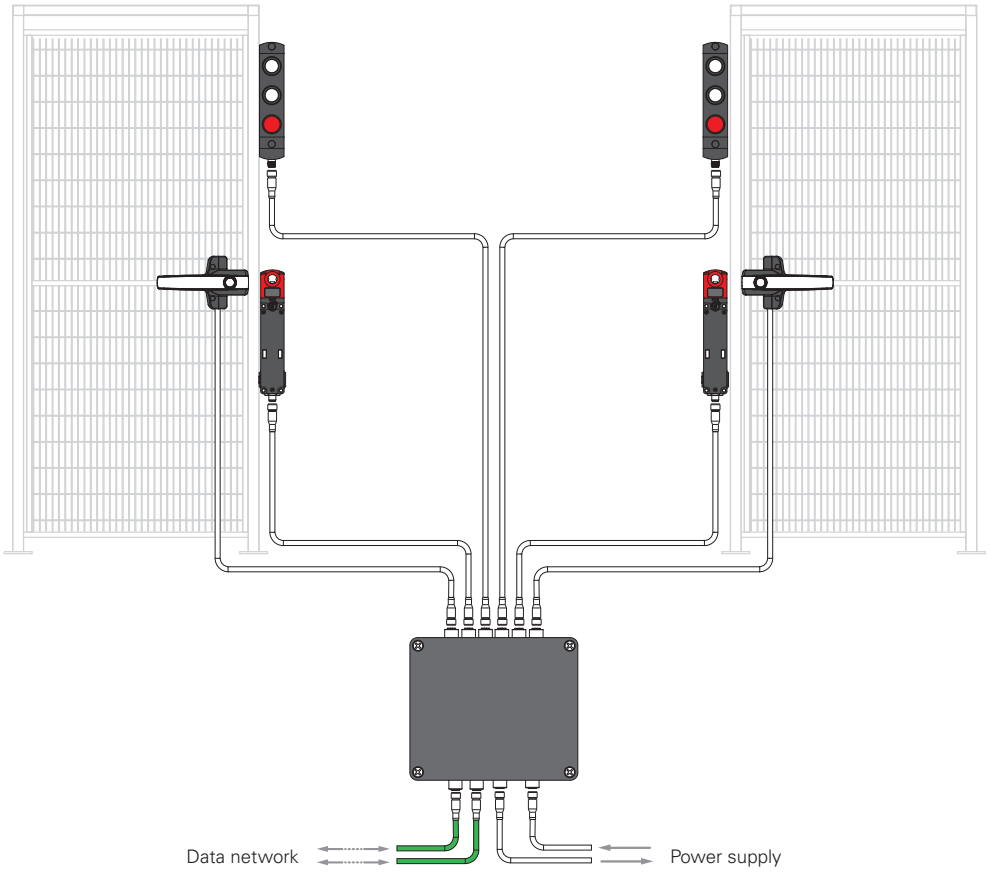
Dimensional drawings



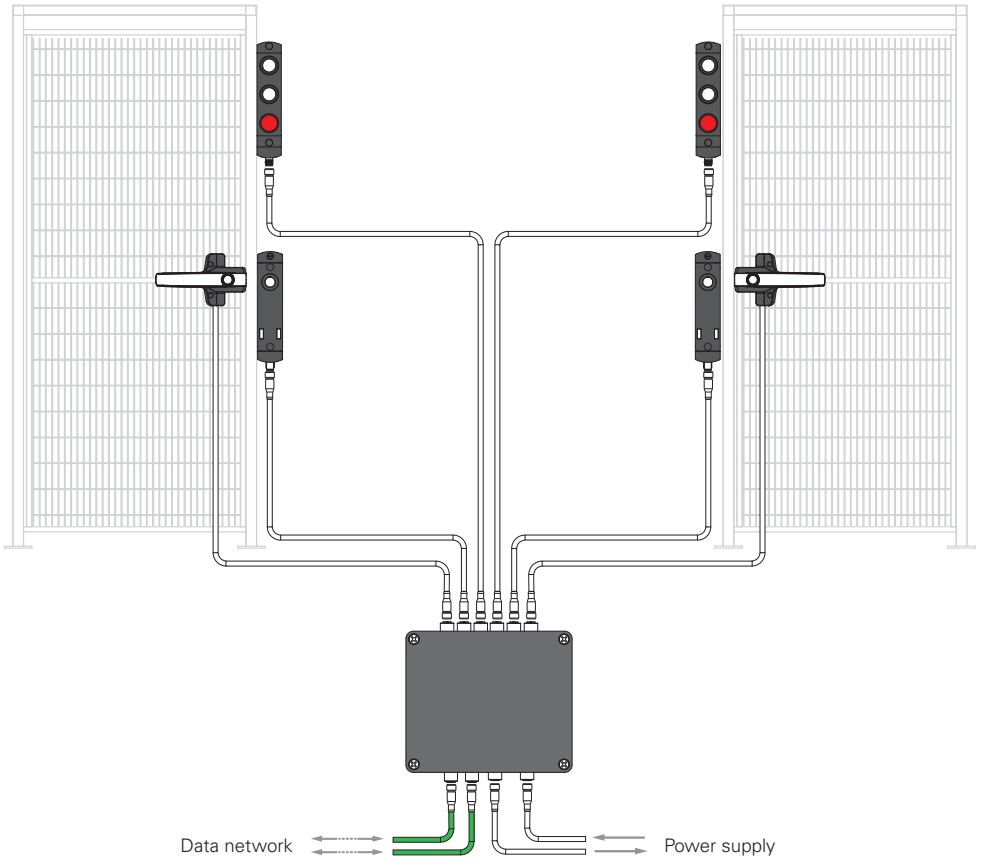
All values in the drawings are in mm

BP A1●L2001

Solution with NG series switches, P-KUBE Krome safety handle and BN series control device units

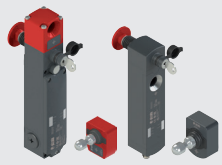
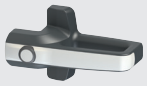


Solution with NS series switches, P-KUBE Krome safety handle and BN series control device units



Note: the position of the connectors in the diagram is for illustrative purposes only.

Selection table for BP A1•L2001 devices

	Description	Quantity	Article number	
	RFID safety switch with lock, with separate actuator, NG/NS series	2	NG ••••311A-F3•K958 (1) NG ••••321A-F3•K958 (1) NG ••••411A-F3•K958 (1) NG ••••421A-F3•K958 (1) NS •3••••P•-F4• (1)	NG ••••311B-F3•K958 (1) NG ••••321B-F3•K958 (1) NG ••••411B-F3•K958 (1) NG ••••421B-F3•K958 (1) NS •4••••P•-F4• (1)
	P-Connect connection box	1	BP A1•L2001	BP A1•L2001
	P-KUBE Krome safety handle with illuminated white grip with control device	2	AN G1B00••-PM• (1) (2)	AN S1B00••-PM• (1) (2)
	Signalling device chosen by installer, to be used as an alternative to the P-KUBE Krome safety handle (for example: indicator light tower)	1	Check that the electrical connections of the chosen device are compatible with the diagrams shown in the paragraph "Pin assignments of usable devices"	
	BN series control device unit with 3 control devices	2	BN AC3Z••• (1) (3)	BN AC3Z••• (1) (3)

Notes:
(1) For the configurations, refer to pages 169 and 229 of the General Catalogue Safety 2023-2024, or contact technical assistance.
(2) Only configurations with M12 8-pole connector.
(3) Only configurations with two non-illuminated devices with 1NO or 1NC, an emergency stop button 2NC, with M12 8-pole connector.

⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly configure the internal electronics of the connection system.

Compatible connectors with cable

Article	Description
VF CA5•••M	M12 female connector with cable, 5-pole
VF CA5•••M-MD	M12 extension cable, 5-pole
VF CA8•••M-MD	M12 extension cable, 8-pole

Note: For the article codes of available connectors with cable refer to the chapter "Accessories".

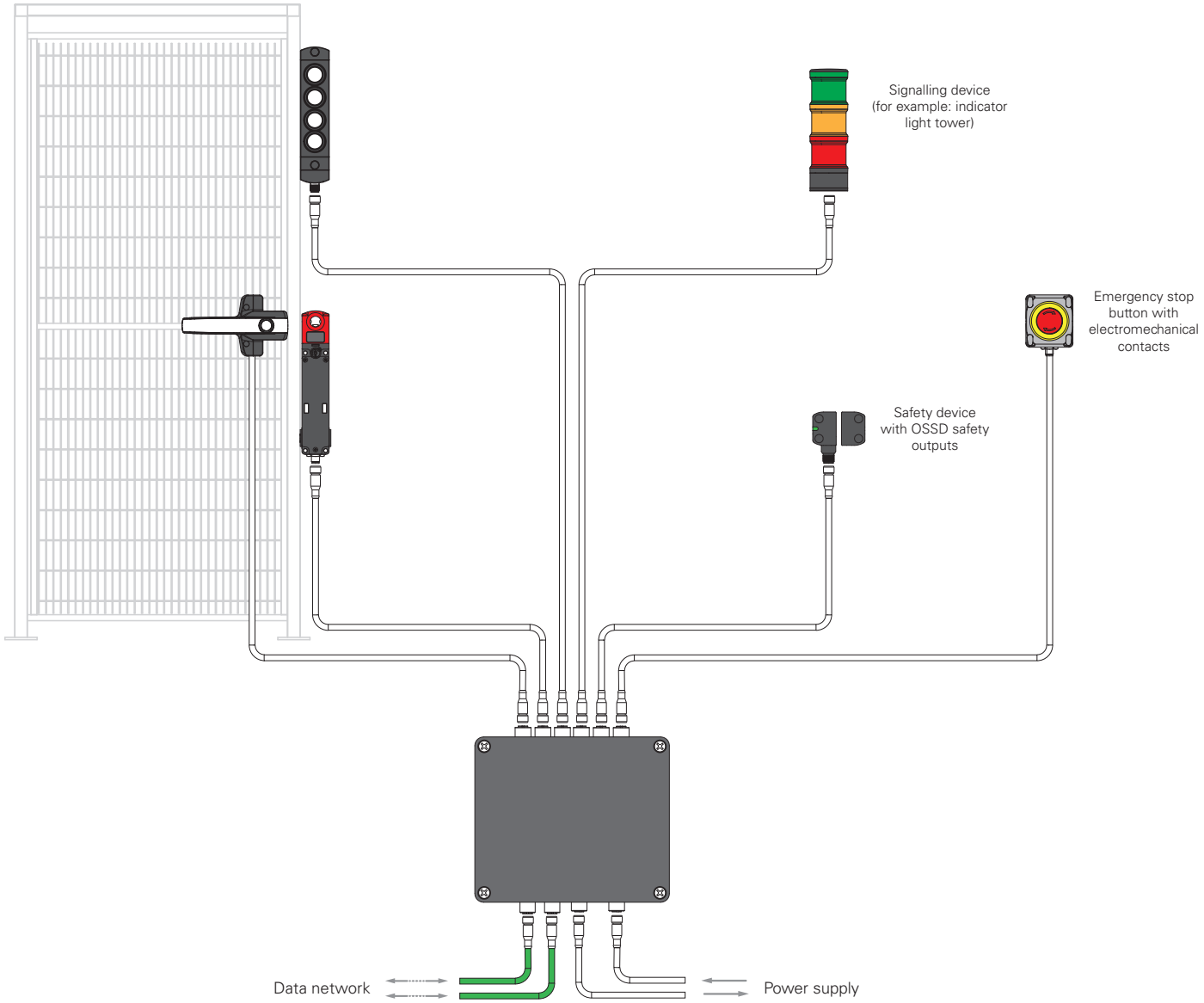
Connections

Article	Power supply ports	Network ports	Device inputs					
			1	2	3	4	5	6
BP A1•L2001	 1 x M12, 5-pole, male 1 x M12, 5-pole, female	 2 x M12, 4-pole, female, D-coded	 M12, 8-pole, female	 M12, 8-pole, female	 M12, 8-pole, female	 M12, 8-pole, female	 M12, 8-pole, female	 M12, 8-pole, female

Note: For the internal connections of usable devices, refer to pages 11-13.

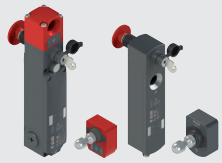
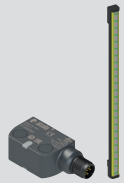
BP A1•L2002

Solutions with NG/NS series switch, P-KUBE Krome safety handle, BN series control device unit, signalling device, safety device with OSSD safety outputs and control device unit including emergency stop



Note: the position of the connectors in the diagram is for illustrative purposes only.

Selection table for BP A1•L2002 devices

	Description	Quantity	Article number	
	RFID safety switch with lock, with separate actuator, NG/NS series	1	NG ••••311A-F3•K958 (1) NG ••••321A-F3•K958 (1) NG ••••411A-F3•K958 (1) NG ••••421A-F3•K958 (1) NS •3••••P•-F4• (1)	NG ••••311B-F3•K958 (1) NG ••••321B-F3•K958 (1) NG ••••411B-F3•K958 (1) NG ••••421B-F3•K958 (1) NS •4••••P•-F4• (1)
	Safety device with OSSD safety outputs, at the user's discretion	1	Check that the electrical connections of the chosen device are compatible with the diagrams shown in the paragraph "Pin assignments of usable devices"	
	P-Connect connection box	1	BP A1•L2002	
	BN series control device unit with 4 control devices	1	BN AC4Z••• (1) (2)	
	Signalling device chosen by the user (for example: indicator light tower)	1	Check that the electrical connections of the chosen device are compatible with the diagrams shown in the paragraph "Pin assignments of usable devices"	
	P-KUBE Krome safety handle with illuminated white grip with control device	1	AN G1B00••-PM• (1) (3) AN S1B00••-PM• (1) (3)	
	Control device unit including emergency stop and luminous disc for signalling	1	ES AC31••• (1) (3) ES AC31687 (Mushroom with rotary release and 2NC) ES AC31688 (Mushroom with push-pull release and 2NC) ES AC31689 (Mushroom with rotary release, 1NC self-monitored and 1NC standard) ES AC31690 (Mushroom with push-pull release, 1NC self-monitored and 1NC standard) BN AC1ZA06 (Mushroom with rotary release and 2NC)	

Notes:
(1) For the configurations, refer to pages 229 and 275 of the General Catalogue Safety 2023-2024, or contact technical assistance.
(2) Only configurations with four buttons 1NO + LED, M12 12-pole connector.
(3) Only configurations with M12 8-pole connector.
For further configurations, please contact technical assistance.

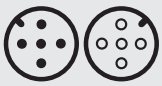
⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly configure the internal electronics of the connection system.

Compatible connectors with cable

Article	Description
VF CF••••M	M12 male connector with cable, 5-pole
VF CA5•••M	M12 female connector with cable, 5-pole
VF CA5•••M-MD	M12 extension cable, 5-pole
VF CA8•••M-MD	M12 extension cable, 8-pole
VF CA12•••M-MD	M12 extension cable, 12-pole

Note: For the article codes of available connectors with cable refer to the chapter "Accessories".

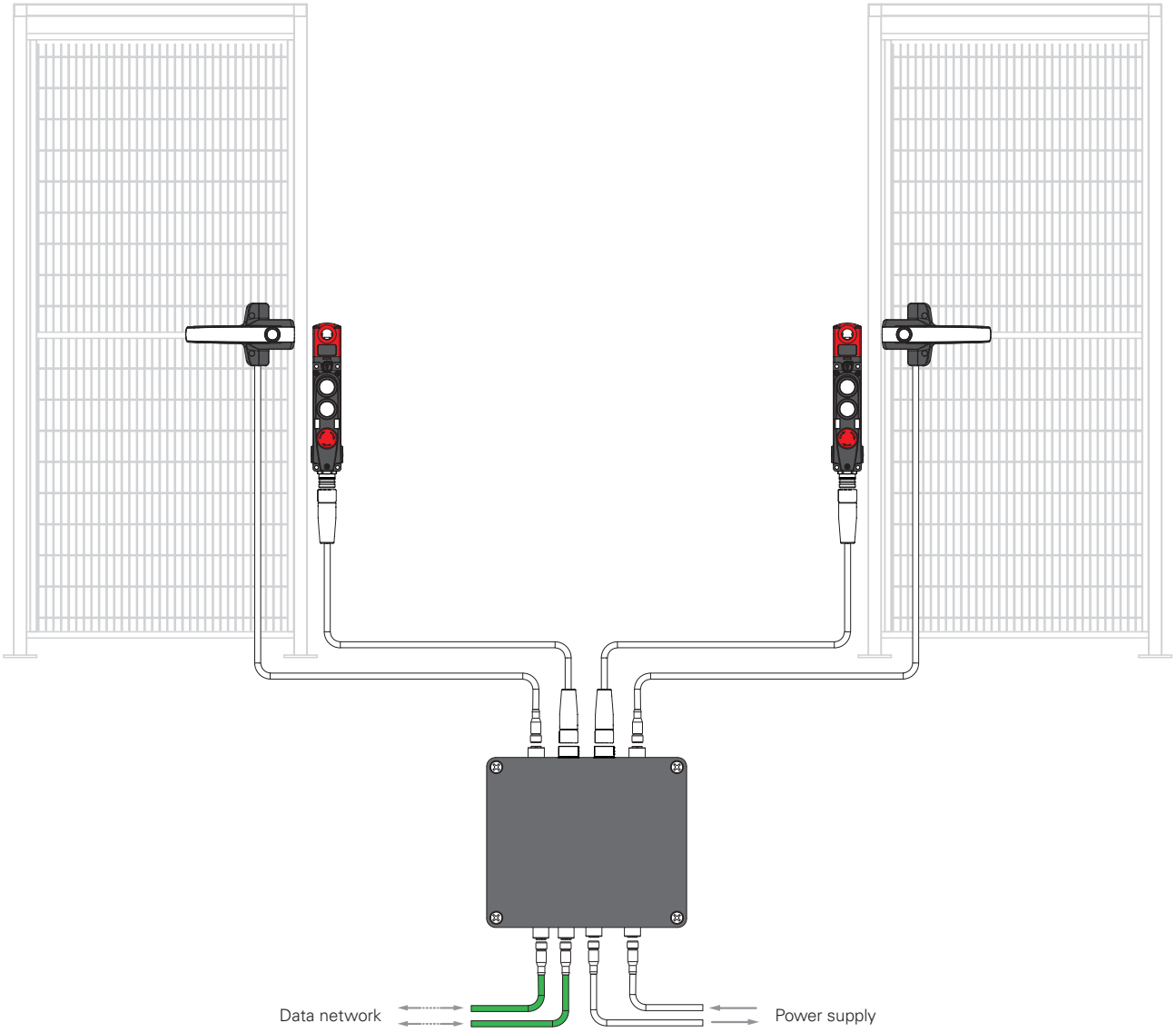
Connections

Article	Power supply ports	Network ports	Device inputs					
			1	2	3	4	5	6
BP A1•L2002	 1 x M12, 5-pole, male 1 x M12, 5-pole, female	 2 x M12, 4-pole, female, D-coded	 M12, 8-pole, female	 M12, 5-pole, female	 M12, 12-pole, female	 M12, 8-pole, female	 M12, 8-pole, female	 M12, 8-pole, female

Note: For the internal connections of usable devices, refer to pages 11-13.

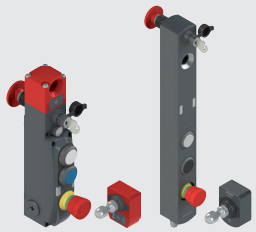
BP A1•L2003

Solution with NG/NS series switches and P-KUBE Krome safety handles



Note: the position of the connectors in the diagram is for illustrative purposes only.

Selection table for BP A1•L2003 devices

	Description	Quantity	Article number	
	RFID safety switch with lock, with integrated control devices, with separate actuator, NG/NS series	2	NG ••••311C-F3•K60• (1) NG ••••321C-F3•K60• (1) NG ••••411C-F3•K60• (1) NG ••••421C-F3•K60• (1) NG ••••311D-F3•K60• (1) NG ••••321D-F3•K60• (1) NG ••••411D-F3•K60• (1) NG ••••421D-F3•K60• (1) NS •3•••STK-F4•N••• (1)	NG ••••312V-F3•K60• (1) NG ••••322V-F3•K60• (1) NG ••••412V-F3•K60• (1) NG ••••422V-F3•K60• (1) NG ••••315R-F3•K60• (1) NG ••••325R-F3•K60• (1) NG ••••415R-F3•K60• (1) NG ••••425R-F3•K60• (1) NS •4•••STK-F4•N••• (1)
	P-Connect connection box	1	BP A1•L2003	
	P-KUBE Krome safety handle with illuminated white grip with control device	2	AN G1B00••-PM• (1) (2) AN S1B00••-PM• (1) (2)	

Notes:

(1) only codes with with 19-pole M23 connector. For the configurations, refer to pages 169 and 229 of the General Catalogue Safety 2023-2024, or contact technical assistance.

(2) Only configurations with M12 8-pole connector.

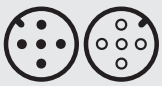
⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly configure the internal electronics of the connection system.

Compatible connectors with cable

Article	Description
VF CA5•••M	M12 female connector with cable, 5-pole
VF CA5•••M-MD	M12 extension cable, 5-pole
VF CA8•••M-MD	M12 extension cable, 8-pole
VF CA19•••S-SD	M23 extension cable, 19-pole

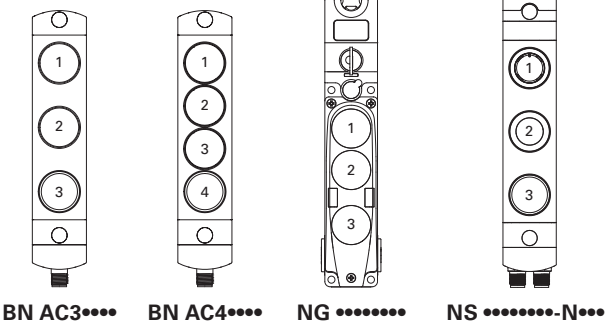
Note: For the article codes of available connectors with cable refer to the chapter "Accessories".

Connections

Article	Power supply ports	Network ports	Device inputs			
			1	2	3	4
BP A1•L2003	 1 x M12, 5-pole, male 1 x M12, 5-pole, female	 2 x M12, 4-pole, female, D-coded	 M23, 19-pole, female	 M23, 19-pole, female	 M12, 8-pole, female	 M12, 8-pole, female

Note: For the internal connections of usable devices, refer to pages 11-13.

Numbering of control devices



BN AC3•••• BN AC4•••• NG •••••••• NS ••••••••-N•••

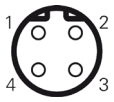
Legend:
A1 = Supply input +24 Vdc
A2 = Supply input 0 V
IE1, IE2 = Solenoid activation inputs
O3 = Signalling output, actuator inserted
O4 = Signalling output, actuator inserted and locked
ISx = Safety inputs
OSx = Safety outputs
I3 = Actuator programming input/reset
I5 = EDM input (cannot be used on BP series)

I = Device input
O = Device output

Pin assignments of usable devices

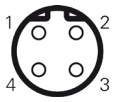
DATA connectors

ETH 1
M12, 4-pole, female, D-coded



Pin	Function
1	TX +
2	RX +
3	TX -
4	RX -

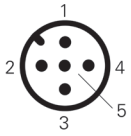
ETH 2
M12, 4-pole, female, D-coded



Pin	Function
1	TX +
2	RX +
3	TX -
4	RX -

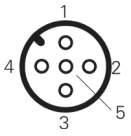
POWER SUPPLY connectors

POWER IN
M12, 5-pole, male, A-coded



Pin	Function
1	+24 Vdc
2	0 Vdc
3	0 Vdc
4	+24 Vdc
5	GND

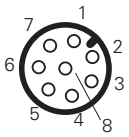
POWER OUT
M12, 5-pole, female, A-coded



Pin	Function
1	+24 Vdc
2	0 Vdc
3	0 Vdc
4	+24 Vdc
5	GND

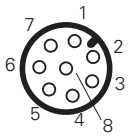
BP A1•L2001

Connectors no. 1 & 2: NG - NS series safety switches



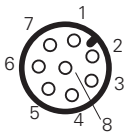
Pin	Type	P-Connect side	NG - NS side
1	O	+24 Vdc power supply	A1
2	I	Actuator enabled signal input	O3
3	O	0 Vdc power supply	A2
4	I	Safety input IS1/IS3	OS1
5	O	Solenoid activation command OS1	IE2
6	O	Actuator programming / reset	I3
7	I	Safety input IS2/IS4	OS2
8	O	Solenoid activation command OS2	IE1

Connectors no. 3 & 4: BN AC3•••• series control device units



Pin	Type	P-Connect side	BN side
1	O	+24 Vdc power supply	Power supply +24 V
2	I	Non-safety input for contact of button 1	Button 1 contact
3	-	Disconnected	Disconnected
4	I	Non-safety input for contact of button 2	Button 2 contact
5	O	Test output TO1	Emergency stop button test input
6	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact
7	O	Test output TO2	Emergency stop button test input
8	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact

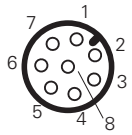
Connectors no. 5 & 6: AN series safety handles



Pin	Type	P-Connect side	AN side
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5	O	+24 V output for button contact	Button NO voltage-free contact input
6	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

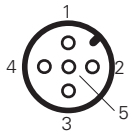
BP A1•L2002

Connector no. 1: NG - NS series safety switches



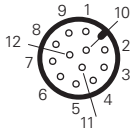
Pin	Type	P-Connect side	NG - NS side
1	O	+24 Vdc power supply	A1
2	I	Actuator enabled signal input	O3
3	O	0 Vdc power supply	A2
4	I	Safety input IS1	OS1
5	O	Solenoid activation command OS1	IE2
6	O	Actuator programming / reset	I3
7	I	Safety input IS2	OS2
8	O	Solenoid activation command OS2	IE1

Connector no. 2: ST series safety sensors



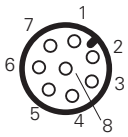
Pin	Type	P-Connect side	ST side
1	O	+24 Vdc power supply	A1
2	I	Safety input IS3	OS1
3	O	0 Vdc power supply	A2
4	I	Safety input IS4	OS2
5	I	Signalling input	O3

Connector no. 3: BN AC4•••• series control device units



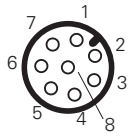
Pin	Type	P-Connect side	BN side
1	O	+24 Vdc power supply	+24 Vdc power supply
2	O	Position 1 LED control output	Position 1 LED control input
3	I	0 Vdc power supply	0 Vdc power supply
4	I	Input for button 1 contact	Button 1 contact
5	I	Input for button 2 contact	Button 2 contact
6	O	Position 2 LED control output	Position 2 LED control input
7	I	Input for button 3 contact	Button 3 contact
8	O	Position 3 LED control output	Position 3 LED control input
9	I	Input for button 4 contact	Button 4 contact
10	-	Disconnected	Disconnected
11	-	Disconnected	Disconnected
12	O	Position 4 LED control output	Position 4 LED control input

Connector no. 4: Control unit with emergency stop and luminous disc



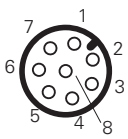
Pin	Type	P-Connect side	Control unit side
1	-	Disconnected	Disconnected
2	O	Control output luminous disc +24 Vdc	Control input luminous disc +24 V
3	O	Luminous disc power supply 0 Vdc	Power supply 0 V
4	-	Disconnected	Disconnected
5	O	Test output TO1	Emergency stop button test input
6	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact
7	O	Test output TO2	Emergency stop button test input
8	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact

Connector no. 5: AN series safety handles



Pin	Type	P-Connect side	AN side
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5	O	+24 V output for button contact	Button NO voltage-free contact input
6	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

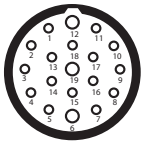
Connector no. 6: Indicator light tower (reference wiring diagram)



Pin	Type	P-Connect side	Indicator light tower side
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input LED 1
4	O	Control output LED 4	Control input LED 4
5	O	Buzzer control output	Buzzer control input
6	I	Signalling input	Signalling output
7	O	Control output LED 2	Control input LED 2
8	O	Control output LED 3	Control input LED 3

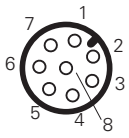
BP A1•L2003

Connectors no. 1 & 2: NG - NS series safety switches



Pin	Type	P-Connect side	NG - NS side
1	O	Single-channel solenoid activation output	I4
2	O	Short circuit +24 VDC	IS1
3	O	Short circuit +24 VDC	IS2
4	I	Safety input IS1/IS3	OS1
5	I	Safety input IS2/IS4	OS2
6	O	+24 Vdc power supply	A1
7	O	Actuator programming / reset	I3
8	I	Actuator enabled signal input	O3
9	I	Locked guard signal input	O4
10	O	Test output TO1	Emergency stop button test input
11	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact
12	-	Not connected	I5
13	O	Test output TO1	Emergency stop button test input
14	I	Safety input for emergency stop button NC contact	Emergency stop button NC safety contact
15	I	Input for position 2 contact	Position 2 contact
16	O	Position 2 LED control output	Position 2 LED control input
17	I	Input for position 1 contact	Position 1 contact
18	O	Position 1 LED control output	Position 1 LED control input
19	I	0 Vdc power supply	A2

Connectors no. 3 & 4: AN series safety handles

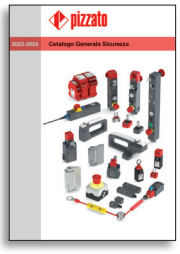


Pin	Type	P-Connect side	AN side
1	I	0 Vdc power supply	Power supply 0 V
2	O	+24 Vdc power supply	Power supply +24 V
3	O	Control output LED 1	Control input green LED (G)
4	O	Control output LED 4	Button LED control input
5	O	+24 V output for button contact	Button NO voltage-free contact input
6	I	Input for button contact	Button NO voltage-free contact output
7	O	Control output LED 2	Control input blue LED (B)
8	O	Control output LED 3	Control input red LED (R)

Notes

General Catalogue
Detection

General Catalogue
HMI



General Catalogue
Safety

General Catalogue
Lift

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PASSION FOR QUALITY

Pizzato Elettrica s.r.l. via Torino, 1 - 36063 Marostica (VI) Italy
Phone: +39 0424 470 930
E-mail: info@pizzato.com
Website: www.pizzato.com

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