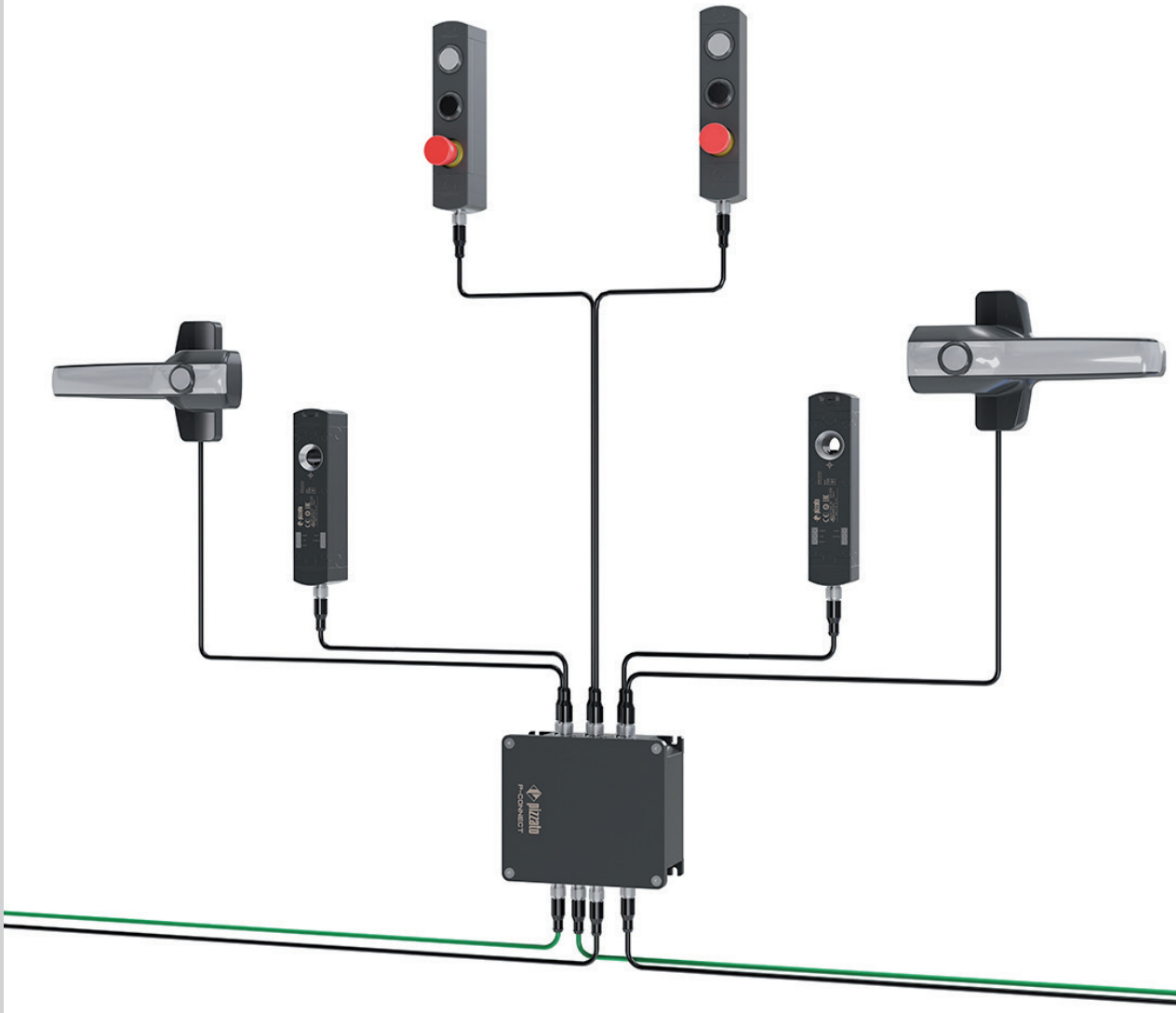
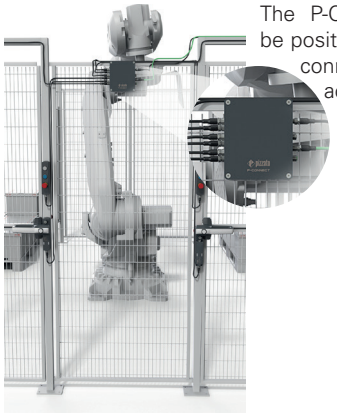
# P-Connect connection gateway for safety devices



## Description

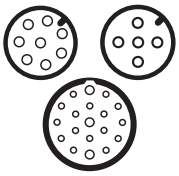
The P-Connect connection gateway is a system that allows up to six (6) devices to be connected to a data network. Safety information is exchanged via PROFIsafe, CIP Safety™ or Safety over EtherCAT® extensions. Depending on its configurations, the gateway can transmit signals from two NG or NS series RFID safety switches with lock. The connection is performed safely using PROFIsafe, CIP Safety™ or Safety over EtherCAT® 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



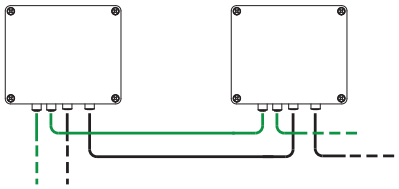
The P-Connect connection gateway can be positioned in safe areas, away from the connected devices, to limit the risk of accidental damage or tampering.

## 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.

## 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.

## Connection to PROFINET/PROFIsafe, EtherNet/IP™/CIP Safety™ and EtherCAT®/Safety over EtherCAT® networks

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

## Field diagnostics



BP A1PL●●●●



BP A1CL●●●●



BP A1EL●●●●

The P-Connect connection gateway has integrated signalling LEDs to give the user a quick field diagnostic overview.

BP A1PLxxxx, BP A1CLxxxx:

- 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.

BP A1ELxxxx:

- "SYSTEM STATE": multicolour signal, which through sequences of lighting, flashing and colour changes, indicates the various operating states of the device to the user, as well as any warnings or errors concerning internal electronic components;
- "L/A EC IN/OUT": Two "Link/Activity" LEDs, corresponding to the two EtherCAT®ports on the device, signalling the status and connection speed;
- "RUN": indicates the status and operation of the EtherCAT® network;
- "ERROR": indicates EtherCAT® communication errors.

## 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




**DEVICE CONFIGURATIONS**



**BP A1•L2001**



**BP A1•L2002**



**BP A1•2003**



**BP A1•2004**

## Code structure

# BP A1PL2001

| Communication protocol | |
|---|---|
| **P** | PROFINET / PROFIsafe |
| **C** | EtherNet/IP™ / CIP Safety™ |
| **E** | EtherCAT®/Safety over EtherCAT® |

| Power supply connector | |
|---|---|
| **2** | 1 x M12 5-pole male connector +<br>1 x M12 5-pole female connector |

| Input configuration | |
|---|---|
| **001** | Configuration 001 |
| **002** | Configuration 002 |
| **003** | Configuration 003 |
| **004** | Configuration 004 |
| **...** | 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
EtherCAT approval: 0x50495A_001

**Features approved by TÜV SÜD**

Operating voltage: 24 Vdc ± 15%
Operating 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**

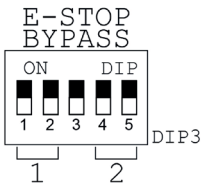
The housing contains 8 "ADDRESS" DIP switches that can be modified by the user and enable selection of one of the following modes:
- IP can be freely modified using Logix Designer (if all DIP switches are set to ON);
- IP fixed and set via hardware.

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.

**EtherCAT®/Safety over EtherCAT®** networks

The safe address (FSoE Address) provides a unique identification of the device on the EtherCAT® network. The safe FSoE Address in TwinCAT 3 is set in the Safety logic tab and it must correspond to the physical address set by means of two DIP switches within the BP housing. The FSoE Address can be set from 1 to 255 and must be unique for each network device (The factory default address is set to 1). After setting the safe address, the device must be restarted. Switches SW1 and SW2 are not used in this application.

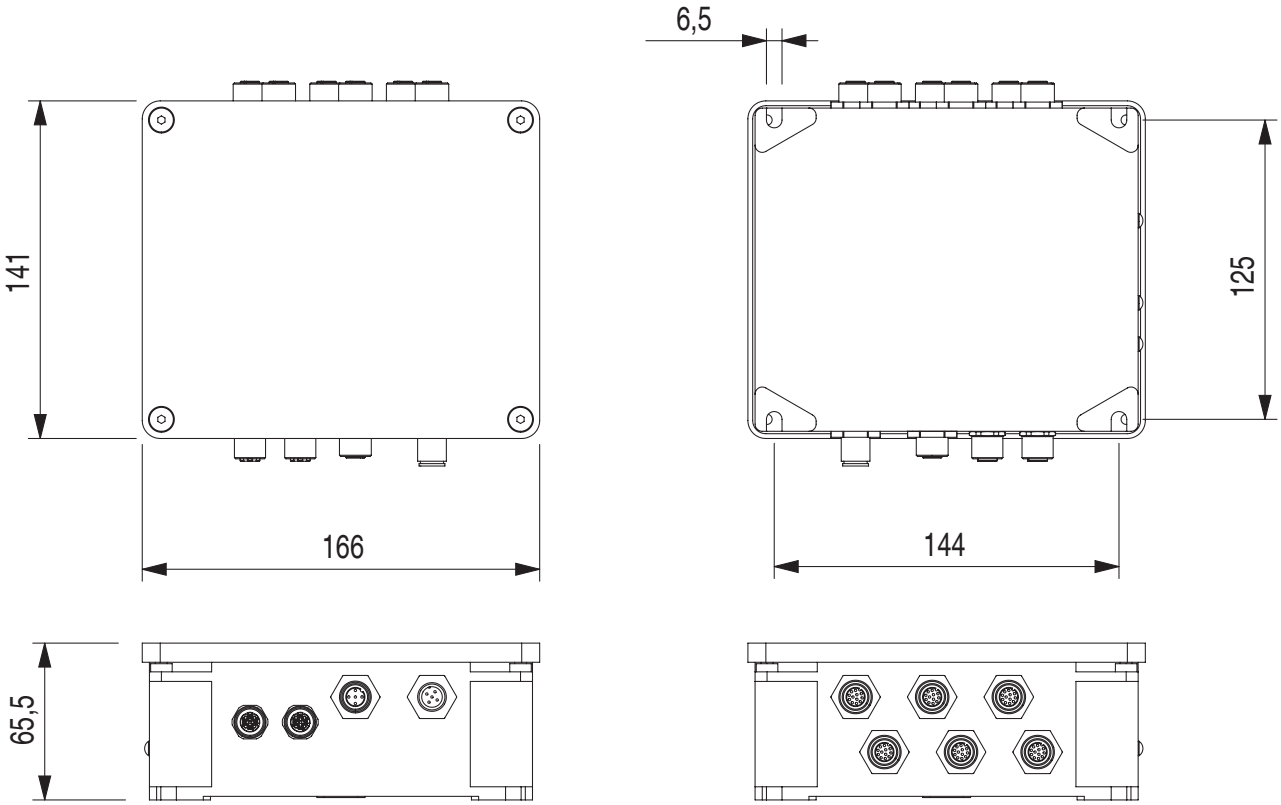
## Emergency stop buttons




Some of the P-Connect gateway configurations can be used to manage up to two series of emergency stop buttons connected internally in series to the gateway. If you are not going to use both series of 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 set to the "ON" position, the first series of connected emergency stop buttons is bypassed; while switches "4" and "5" activate the bypass for the second series of connected emergency stop buttons. The switches must only be switched when the P-Connect gateway is OFF, to prevent incoherent input test signal readings.

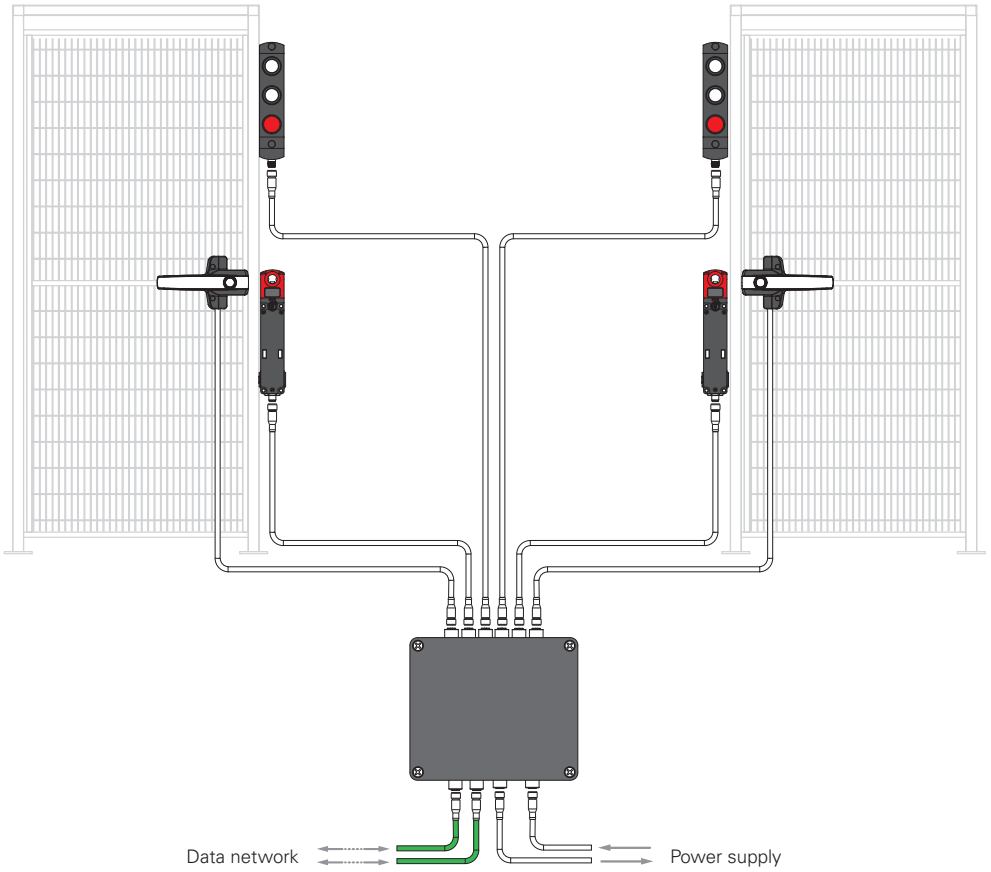
## Dimensional drawings



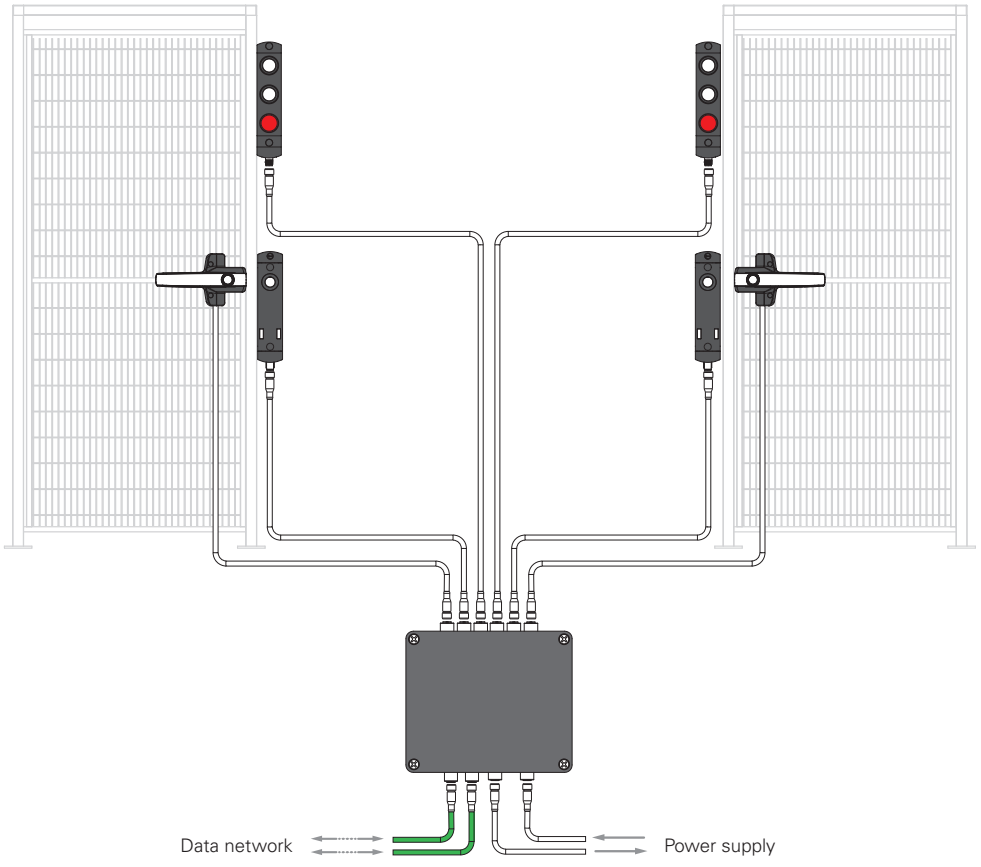

All values in the drawings are in mm

## BP A1•L2001

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

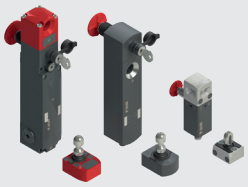
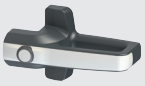



### Solution with NS series switches, P-KUBE Krome safety handle and BN series control device units




**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/NX series | 2 | NG ••••311A-F3•K958 (1)<br>NG ••••321A-F3•K958 (1)<br>NG ••••411A-F3•K958 (1)<br>NG ••••421A-F3•K958 (1)<br>NS •3••••P•-F4• (1)<br>NX •3•••1•P•-F6• (1) | NG ••••311B-F3•K958 (1)<br>NG ••••321B-F3•K958 (1)<br>NG ••••411B-F3•K958 (1)<br>NG ••••421B-F3•K958 (1)<br>NS •4••••P•-F4• (1)<br>NX •4•••1•P•-F6• (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, 187, 205, 251 and 305 of the General Catalogue Safety Devices 2025-2026, 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 CF5•••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 |

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

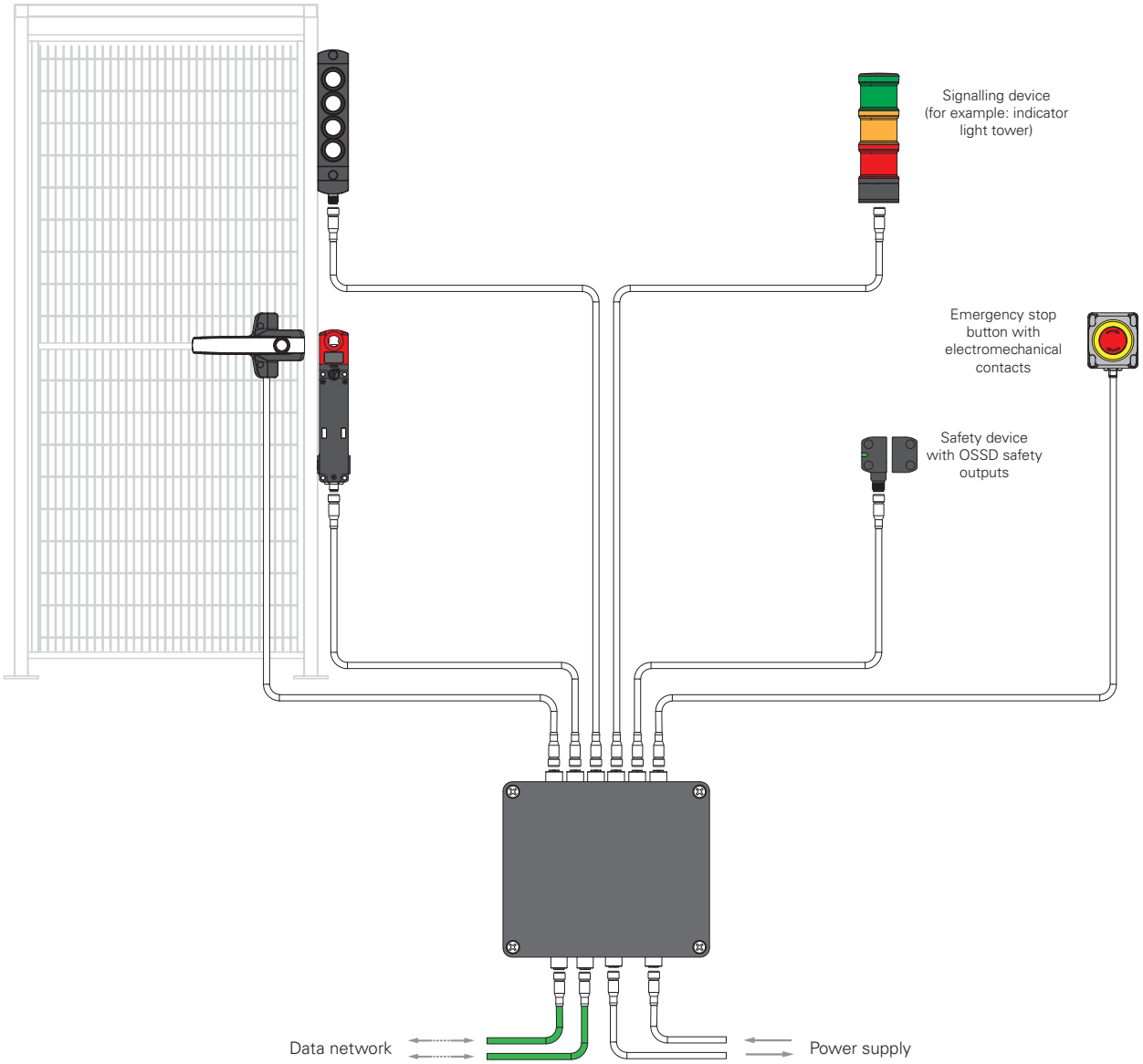
## Connections

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

**Note:** For the internal connections of usable devices, refer to pages 13-16.

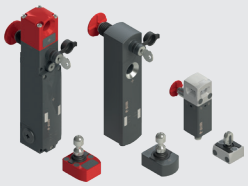
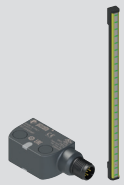
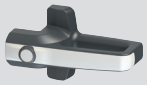
## BP A1•L2002

**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/NX series | 1 | NG ••••311A-F3•K958 (1)<br>NG ••••321A-F3•K958 (1)<br>NG ••••411A-F3•K958 (1)<br>NG ••••421A-F3•K958 (1)<br>NS •3••••P•-F4• (1)<br>NX •3•••1•P•-F6• (1) | NG ••••311B-F3•K958 (1)<br>NG ••••321B-F3•K958 (1)<br>NG ••••411B-F3•K958 (1)<br>NG ••••421B-F3•K958 (1)<br>NS •4••••P•-F4• (1)<br>NX •4•••1•P•-F6• (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)<br>AN S1B00••-PM• (1) (3) | |
|  | Control device unit including emergency stop and luminous disc for signalling | 1 | ES AC31••• (1) (3)<br>ES AC31687 (Mushroom with rotary release and 2NC)<br>ES AC31688 (Mushroom with push-pull release and 2NC)<br>ES AC31689 (Mushroom with rotary release, 1NC self-monitored and 1NC standard)<br>ES AC31690 (Mushroom with push-pull release, 1NC self-monitored and 1NC standard)<br>BN AC1ZA06 (Mushroom with rotary release and 2NC) | |

**Notes:**
(1) for the configurations, refer to pages 169, 187, 205, 251, 295 and 305 of the General Catalogue Safety Devices 2025-2026, 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.

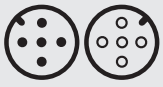
⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly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

## Compatible connectors with cable

| Article | Description |
|---|---|
| VF CF5•••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".

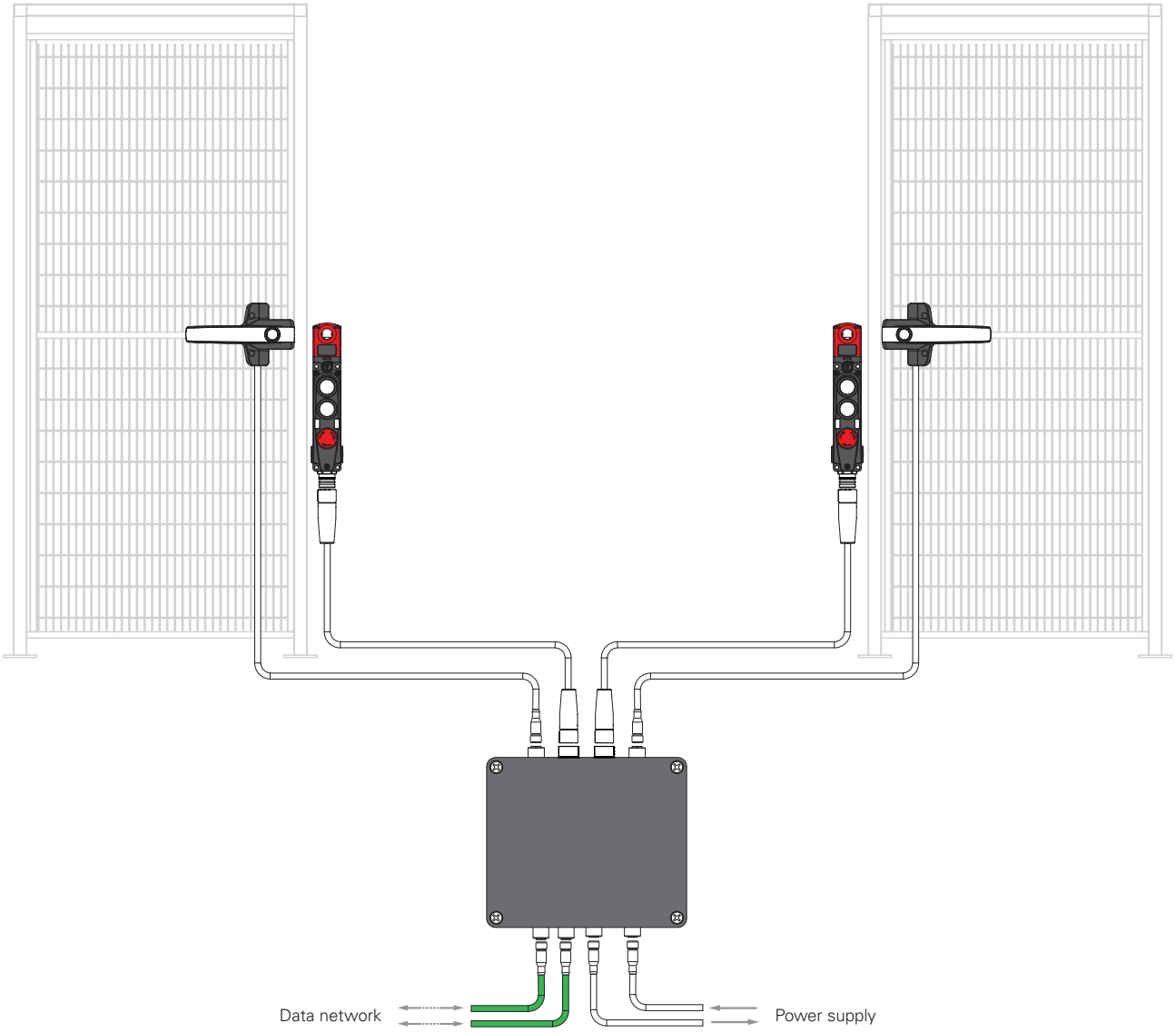
## Connections

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

**Note:** For the internal connections of usable devices, refer to pages 13-16.

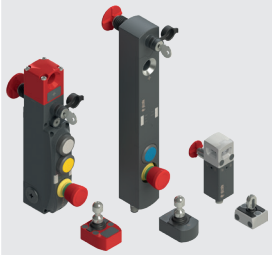
## BP A1•L2003

**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/NX series | 2 | NG ••••311C-F3•K60• (1)<br>NG ••••321C-F3•K60• (1)<br>NG ••••411C-F3•K60• (1)<br>NG ••••421C-F3•K60• (1)<br>NG ••••311D-F3•K60• (1)<br>NG ••••321D-F3•K60• (1)<br>NG ••••411D-F3•K60• (1)<br>NG ••••421D-F3•K60• (1)<br>NS •3•••STK-F4•N••• (1) | NG ••••312V-F3•K60• (1)<br>NG ••••322V-F3•K60• (1)<br>NG ••••412V-F3•K60• (1)<br>NG ••••422V-F3•K60• (1)<br>NG ••••315R-F3•K60• (1)<br>NG ••••325R-F3•K60• (1)<br>NG ••••415R-F3•K60• (1)<br>NG ••••425R-F3•K60• (1)<br>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)<br>AN S1B00••-PM• (1) (2) | |

**Notes:**
(1) only codes with with 19-pole M23 connector. For the configurations, refer to pages 169, 187, 205 and 251 of the General Catalogue Safety Devices 2025-2026, or contact technical assistance.
(2) Only configurations with M12 8-pole connector.

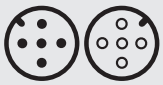
⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly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

## Compatible connectors with cable

| Article | Description |
|---|---|
| VF CF5•••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 CA19•••S-SD | M23 extension cable, 19-pole |

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

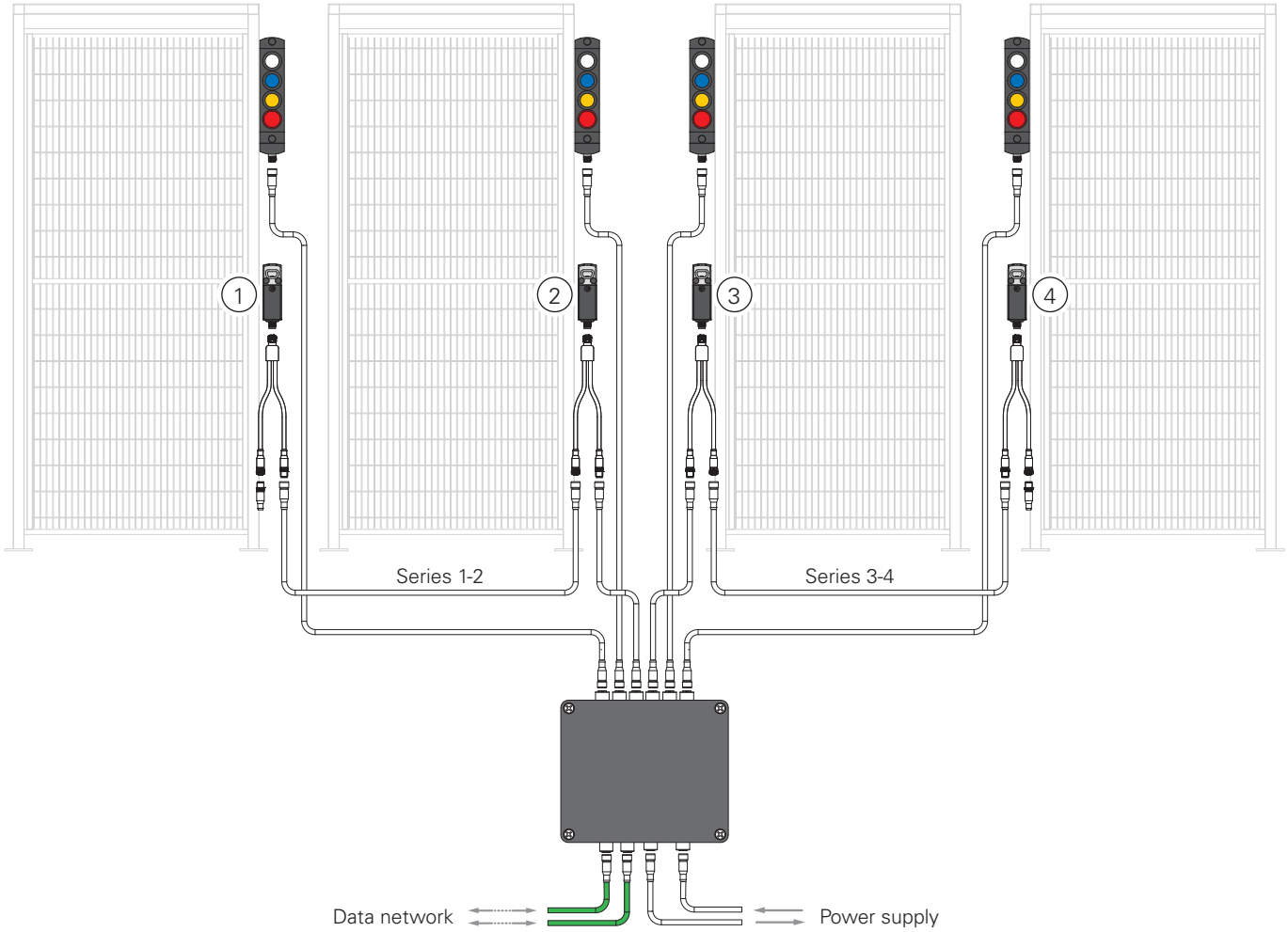
## Connections

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

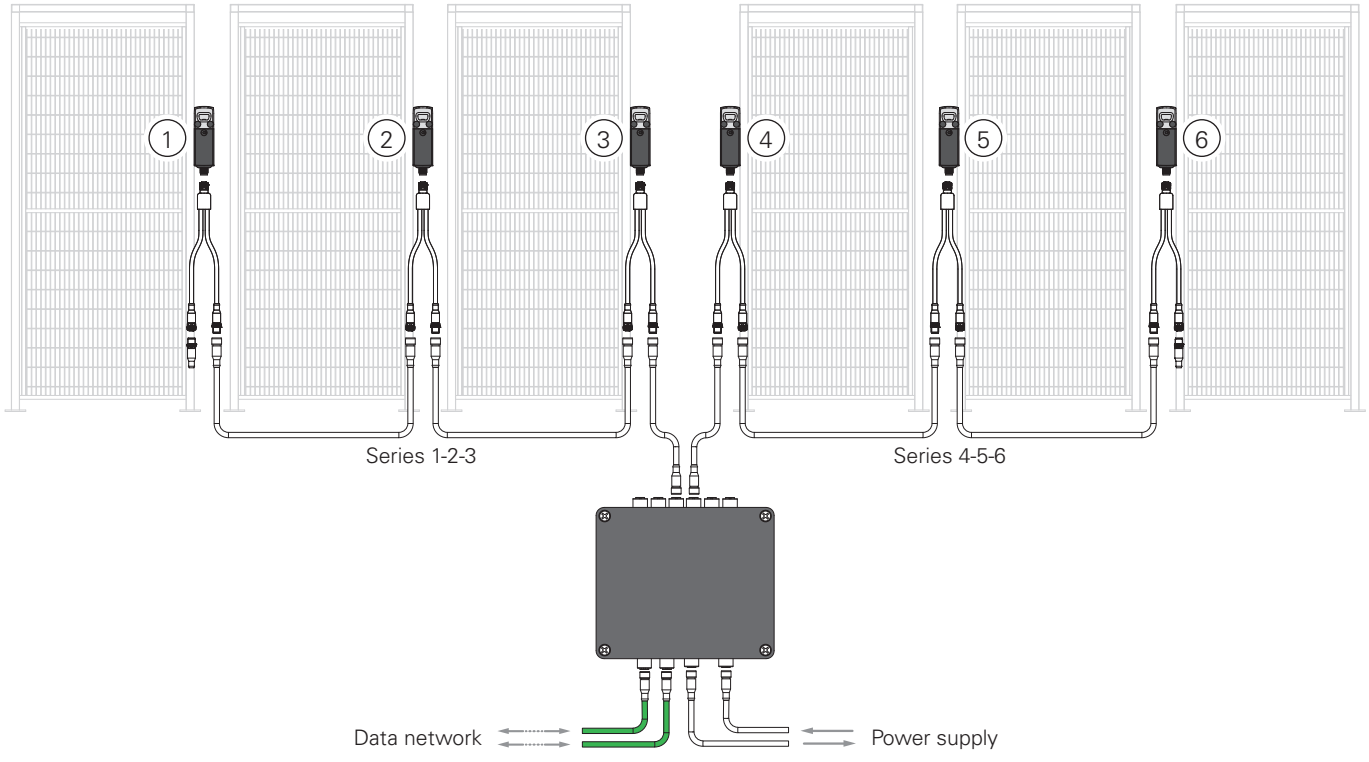
**Note:** For the internal connections of usable devices, refer to pages 13-16.

## BP A1•L2004

**Solution with NG/NS/NX/ST series switches (series connection with Y-shaped connectors) and BN series control device units**

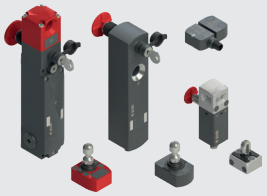
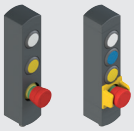



**Solution with up to 6 NG/NS/NX/ST series switches (series connection with Y-shaped connectors)**




**Note 1:** the position of the connectors in the diagram is for illustrative purposes only.
**Note 2:** the unlocking command can independently control the two series of interlocks, but not a single device.

## Selection table for BP A1●L2004 devices

| | Description | Quantity | Article number | |
|---|---|---|---|---|
|  | RFID safety switch with lock, with integrated control devices, with separate actuator, NG/NS/NX series.<br>ST series RFID safety sensors | Up to 6 | NG ••••311A-F3•K95• (1)<br>NG ••••321A-F3•K95• (1)<br>NG ••••411A-F3•K95• (1)<br>NG ••••421A-F3•K95• (1)<br>NG ••••311B-F3•K95• (1)<br>NG ••••321B-F3•K95• (1)<br>NG ••••411B-F3•K95• (1)<br>NG ••••421B-F3•K95• (1)<br>NS •3••••Q•-F4• (1)<br>NX •3•••1•Q•-F6• (1)<br>ST ••3••M• (1)<br>ST ••4••M• (1)<br>ST ••5••M• (1) | NG ••••311A-F3•K960 (1)<br>NG ••••321A-F3•K960 (1)<br>NG ••••411A-F3•K960 (1)<br>NG ••••421A-F3•K960 (1)<br>NG ••••311B-F3•K960 (1)<br>NG ••••321B-F3•K960 (1)<br>NG ••••411B-F3•K960 (1)<br>NG ••••421B-F3•K960 (1)<br>NS •4••••Q•-F4• (1)<br>NX •4•••1•Q•-F6• (1)<br>ST ••7••M• (1)<br>ST ••8••M• (1)<br>ST ••9••M• (1) |
|  | P-Connect connection box | 1 | BP A1•L2004 | |
|  | BN series control device unit with 3 or 4 control devices (2 or 3 illuminated buttons and one emergency stop button) | Up to 4 | BN AC3Z••• (1) (2)<br>BN AC4Z••• (1) (2) | |

**Notes:**

(1) For the configurations, refer to pages 51, 169, 187, 205 and 305 of the General Catalogue Safety 2025-2026, or contact technical assistance.

(2) Only configurations with M12 12-pole connector, 2 or 3 illuminated buttons and emergency stop button.

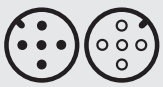
⚠ **Attention:** The articles listed above correspond to the maximum configuration that can be realised with the P-Connect connection gateway. Solutions with fewer devices can be implemented. If devices with emergency stop buttons are removed, the internal dip switches must be set accordingly to correctly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

## Compatible connectors with cable

| Article | Description |
|---|---|
| VF CF5•••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 CA12•••M-MD | M12 extension cable, 12-pole |
| VF CY201P0 | M12 connector, Y-shaped, for series connections |
| VF CY100P0 | M12 terminating plugs for series connections, 4-pole |

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

## Connections

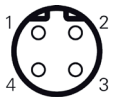
| Article | Power supply ports | Network ports | Device inputs | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 |
| BP A1•L2004 |  |  |  |  |  |  |  |  |
| | 1 x M12, 5-pole, male<br>1 x M12, 5-pole, female | 2 x M12, 4-pole, female, D-coded | M12, 5-pole, female | M12, 5-pole, female | M12, 12-pole, female | M12, 12-pole, female | M12, 12-pole, female | M12, 12-pole, female |

**Note:** For the internal connections of usable devices, refer to pages 13-16.

## Pin assignments of usable devices

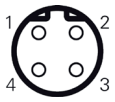
### DATA connectors

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




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

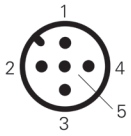
#### ETH 2
M12, 4-pole, female, D-coded




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

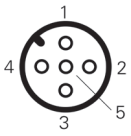
### POWER SUPPLY connectors

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




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

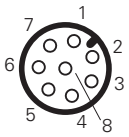
#### POWER OUT
M12, 5-pole, female, A-coded




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

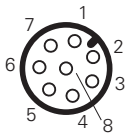
## BP A1•L2001

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



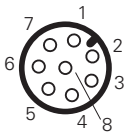

| Pin | Type | P-Connect side | NG - NS side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | A1 |
| 2 | I | Actuator enabled signal input | O3 |
| 3 | O | 0 Vdc power supply | A2 |
| 4 | I | Safety input IS1/IS3 | OS1 |
| 5 | O | Solenoid activation command OS1 | IE2 |
| 6 | O | Actuator programming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

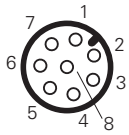
### Connectors no. 5 & 6:
AN series safety handles




| 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) |

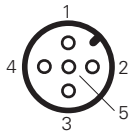
## BP A1•L2002

### Connector no. 1: NG - NS series safety switches



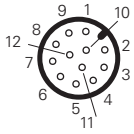

| Pin | Type | P-Connect side | NG - NS side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | A1 |
| 2 | I | Actuator enabled signal input | O3 |
| 3 | O | 0 Vdc power supply | A2 |
| 4 | I | Safety input IS1 | OS1 |
| 5 | O | Solenoid activation command OS1 | IE2 |
| 6 | O | Actuator programming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

### Connector no. 2: ST series safety sensors



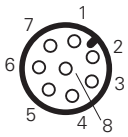

| Pin | Type | P-Connect side | ST side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | A1 |
| 2 | I | Safety input IS3 | OS1 |
| 3 | O | 0 Vdc power supply | A2 |
| 4 | I | Safety input IS4 | OS2 |
| 5 | I | Signalling input | O3 |

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



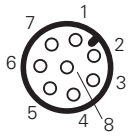

| Pin | Type | P-Connect side | BN side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | +24 Vdc power supply |
| 2 | O | Position 1 LED control output | Position 1 LED control input |
| 3 | I | 0 Vdc power supply | 0 Vdc power supply |
| 4 | I | Input for button 1 contact | Button 1 contact |
| 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



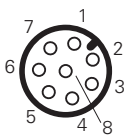

| Pin | Type | P-Connect side | Control unit side |
|---|---|---|---|
| 1 | - | Disconnected | Disconnected |
| 2 | O | Control output luminous disc +24 Vdc | Control input luminous disc +24 V |
| 3 | O | Luminous disc power supply 0 Vdc | Power supply 0 V |
| 4 | - | Disconnected | Disconnected |
| 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) |

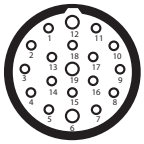
### Connector no. 6: Indicator light tower (reference wiring diagram)




| 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 |

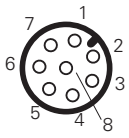
## BP A1●L2003

### 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 |

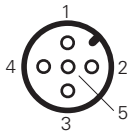
### Connectors no. 3 & 4: AN series safety handles




| 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) |

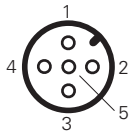
## BP A1•L2004

### Connector no. 1:
### Series NG/NS/NX/ST safety switches via VF CY



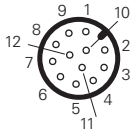

| Pin | Type | P-Connect side | Switch side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | A1 |
| 2 | I | Safety input IS1 | OS1 |
| 3 | O | 0 Vdc power supply | A2 |
| 4 | I | Safety input IS2 | OS2 |
| 5 | I | Safety output DO1 | I3/IE1 |

### Connector no. 2:
### Series NG/NS/NX/ST safety switches via VF CY



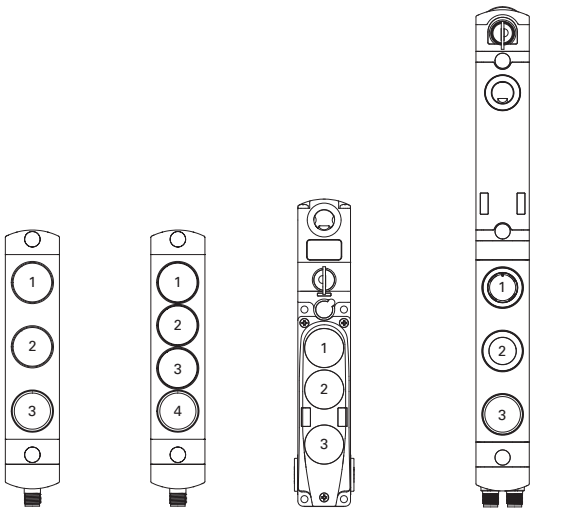

| Pin | Type | P-Connect side | Switch side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | A1 |
| 2 | I | Safety input IS3 | OS1 |
| 3 | O | 0 Vdc power supply | A2 |
| 4 | I | Safety input IS4 | OS2 |
| 5 | I | Safety output DO2 | I3/IE1 |

### Connectors no. 3, 4, 5 & 6
### BN AC3Z••• or BN AC4Z••• series control device units




| Pin | Type | P-Connect side | BN side |
|---|---|---|---|
| 1 | O | +24 Vdc power supply | Power supply +24 V |
| 2 | I | Position 1 LED control output | Position 1 LED control input |
| 3 | O | 0 Vdc power supply | Power supply 0 V |
| 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 | Test output TO1 (1) | Emergency stop button test input |
| 9 | I | Safety input IS5 for NC contact of emergency stop button | Emergency stop button NC safety contact |
| 10 | O | Test output TO2 (1) | Emergency stop button test input |
| 11 | I | Safety input IS6 for NC contact of emergency stop button | Emergency stop button NC safety contact |
| 12 | O | Position 3 LED control output | Position 3 LED control input |

## 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

# Notes

# Notes



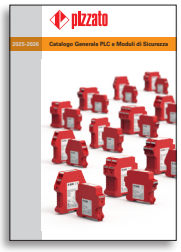
General Catalogue
Detection



General Catalogue
HMI



General Catalogue
Safety
Devices



General Catalogue
- PLCs & Safety
Modules



General Catalogue
Lift

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**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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