



## Passive distribution box BC series



# BC series passive distribution box

## Description

The new **BC series passive distribution box** from Pizzato can be used to connect safety devices with 8-pole M12 male connector in series. This makes it possible to group various input/output signals in one single 19-pole or 12-pole connection or with an M23 connector, which is then connected to the control device. Grouping the connections in a single box makes wiring faster and tidier, thereby avoiding the need to lay multiple lines. In addition, it's easier to replace devices if needed. This solution improves power distribution compared to the typical series connection, so more NG/NS series devices can be connected. The BC series distribution box is provided with a strong, compact, sealed housing. It's waterproof and withstands vibrations or shock, and has a diagnostics' LED that shows the state of the connected device.

## Main features



### Status LED:

Display of the diagnostics output

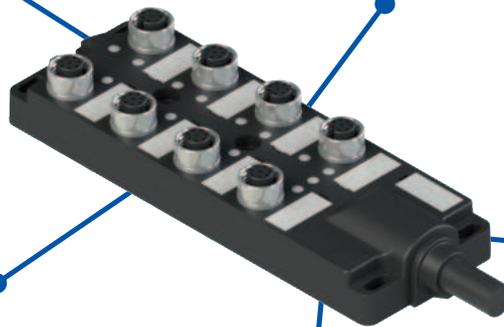


### Available variants:

- Version with 8 connectors (8 x M12 – 8-pole)
- Version with 4 connectors (4 x M12 – 8-pole)

### Protection degree IP67:

Developed for indoor and outdoor industrial applications



### Various variants for I/O:

- M23 connector
- 19-pole cable (2 x 0.75 mm<sup>2</sup> + 17 x 0.34 mm<sup>2</sup>)
- 12-pole cable (12 x 0.5 mm<sup>2</sup>)

### Power and signals:

- Improves the power distribution on connected devices without voltage drops
- Signal for door open and lock/unlock for each connected device



## Code structure

# BC 1Z4A1A1FSK

### Design and material of the housing

|          |                                   |
|----------|-----------------------------------|
| <b>1</b> | Technopolymer housing 54 x 115 mm |
| <b>2</b> | Technopolymer housing 54 x 152 mm |

### Type and number of inputs

|           |  |
|-----------|--|
| <b>4A</b> | 4 inputs, M12 female connector, 8-pole |
| <b>8A</b> | 8 inputs, M12 female connector, 8-pole |

### Type of distribution of the input signals on the devices

|          |  |
|----------|--|
| <b>1</b> | One common input I3/IE1 for all devices (for versions with 4 or 8 device connections)  |
| <b>2</b> | Independently connected inputs I3/IE1 (only for version with 4 device connections)   |
| <b>3</b> | Independently connected inputs I3/IE1 for 6 devices and one common input for two additional devices (only for version with 8 device connections) |

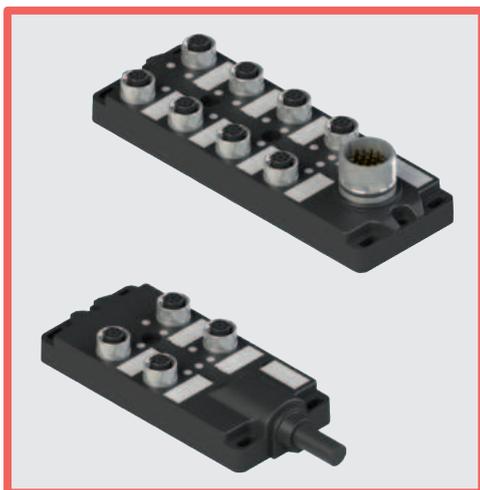
### Connection type

|           |                       |
|-----------|-----------------------|
| <b>K</b>  | Integrated connectors |
| <b>2</b>  | Cable length: 2 m     |
| <b>5</b>  | Cable length: 5 m     |
| <b>10</b> | Cable length: 10 m    |

### Direction of the output connection and cable or connector type

|           |   |
|-----------|---|
| <b>FS</b> | Front output, M23 connector, 12-pole (BC ●●4A●●●●●● versions only)  |
| <b>FT</b> | Front output, M23 connector, 19-pole (BC ●●8A●●●●●● versions only)  |
| <b>AF</b> | Axial output, PVC cable 12 x 0.5 mm <sup>2</sup> (BC ●●4A●●●●●● versions only)                              |
| <b>AL</b> | Axial output, PVC cable, 2 x 0.75 mm <sup>2</sup> + 17 x 0.34 mm <sup>2</sup> (BC ●●8A●●●●●● versions only) |

# BC series passive distribution box



## Main features

- Technopolymer housing
- Protection degree up to IP67
- Various models available for I/O: M23 connector, 19-pole cable, 12-pole cable
- Versions with 4 or 8 M12 connectors available
- Integrated signalling LEDs

## Quality marks:



## Technical data

### Housing

Housing made of glass fibre reinforced technopolymer, self-extinguishing and shock-proof  
 Protection degree: IP65 acc. to EN 60529  
 IP67 acc. to EN 60529

### General data

Ambient temperature: -20°C ... +50°C  
 Storage temperature: -40°C ... +75°C  
 Tightening torque, body: 2 ... 3Nm  
 Tightening torque, M12 connectors: 0.6 ... 0.8 Nm  
 Tightening torque, M23 connectors: 1 ... 1.5 Nm

### General electrical data

Rated operating voltage  $U_e$ : 24 Vdc  
 Rated insulation voltage  $U_i$ : 30 Vac / 36 Vdc  
 External protection fuse: 8 A type gG for connection A1  
 Maximum operating current M12 connector, 8-pole: 2 A

### Electrical data of distribution box with 4 M12 connectors

Maximum operating current with 12-pole cable: 5 A x 0.5 mm<sup>2</sup> (20 AWG), the currents are per conductor

Maximum operating current M23 connector, 12-pole: 8 A pin 6 and pin 19, 4 A all other pins, currents apply per pin

### Electrical data of distribution box with 8 M12 connectors

Maximum operating current with 19-pole cable: 8 A x 0.75 mm<sup>2</sup> (19 AWG) pink cable, white-pink cable  
 4 A x 0.34 mm<sup>2</sup> (22 AWG) all other cables

Maximum operating current M23 connector, 19-pole: 8 A pin 6 and pin 19, 4 A for all other pins

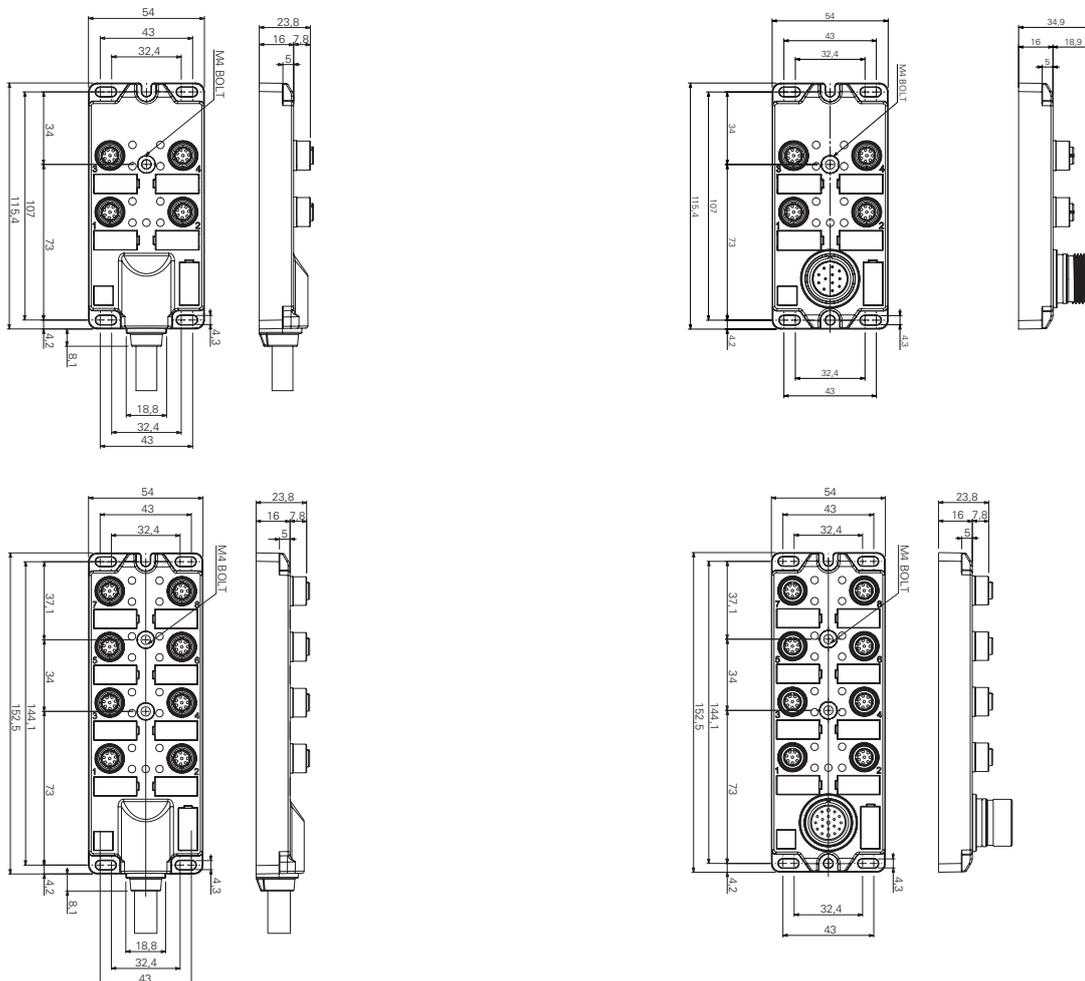
### In compliance with standards:

EN 60947-1, EN 60529, EN 61000-6-2, EN 61000-6-3, EN IEC 63000.

### Compliance with the requirements of:

RoHS Directive 2011/65/EU.

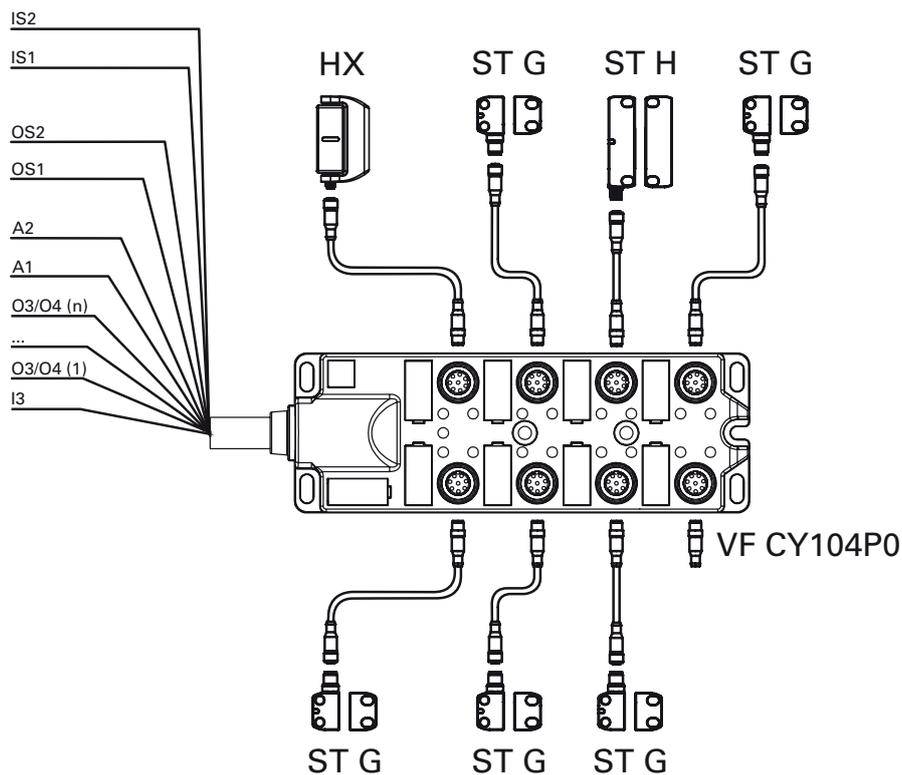
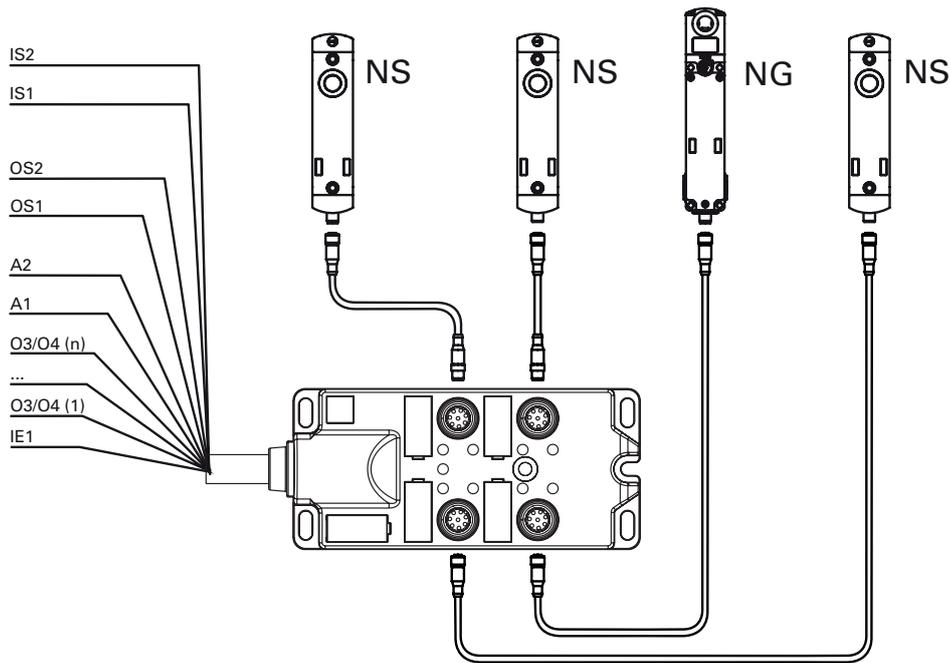
## Dimensional drawings



All values in the drawings are in mm



## Connection example for the devices



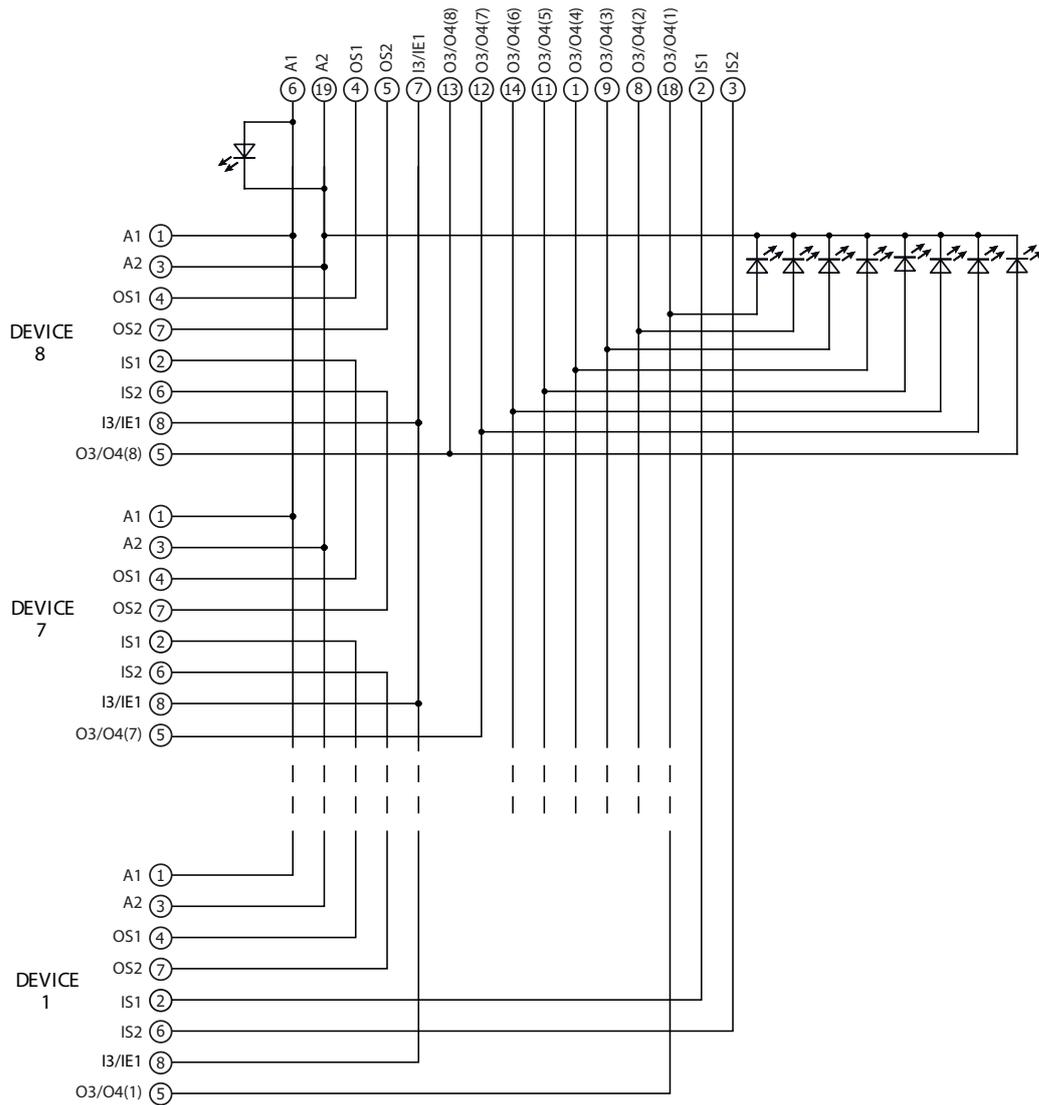
**Note:** Outputs O3/O4 indicate the "Guard closed" state (O3) for the devices of the ST and HX series, while they indicate the "Guard closed and locked" state (O4) for the devices of the NS and NG series.

**Note:** A VF CY104P0 bridge connector must be connected on all M12 connectors that are not connected to a device.

# BC series passive distribution box

## Internal device connections

### BC 2Z8A1.....

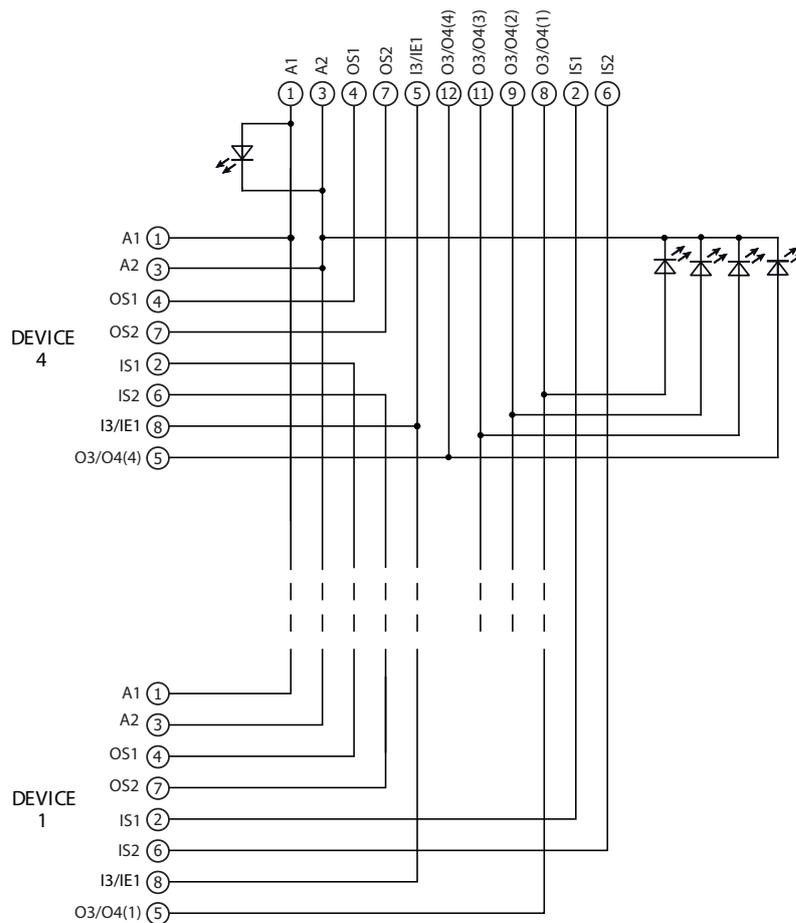


| Versions with connector | Versions with cable                                    | Connection |   |
|-------------------------|--|------------|---|
| BC 2Z8A.....FTK         | BC 2Z8A.....AL•  |            |   |
| M23 connector, 19-pole  | Cable 2x0.75 mm <sup>2</sup> + 17x0.34 mm <sup>2</sup> |            |   |
| 1                       | White  | O3/O4 (4)  | Signalling output device 4              |
| 2                       | Brown  | IS1        | Safety input                            |
| 3                       | Green  | IS2        | Safety input                            |
| 4                       | Yellow   | OS1        | Safety output                           |
| 5                       | Grey   | OS2        | Safety output                           |
| 6                       | Pink   | A1         | Supply input +24 Vdc                    |
| 7                       | Blue   | I3/IE1     | Solenoid activation / programming input |
| 8                       | Red  | O3/O4 (2)  | Signalling output device 2              |
| 9                       | Black  | O3/O4 (3)  | Signalling output device 3              |
| 10                      | Purple   | n.c.       |   |
| 11                      | Grey-Pink  | O3/O4 (5)  | Signalling output device 5              |
| 12                      | Red-Blue   | O3/O4 (7)  | Signalling output device 7              |
| 13                      | White-Green  | O3/O4 (8)  | Signalling output device 8              |
| 14                      | Brown-Green  | O3/O4 (6)  | Signalling output device 6              |
| 15                      | White-Yellow   | n.c.       |   |
| 16                      | Yellow-Brown   | n.c.       |   |
| 17                      | White-Grey   | n.c.       |   |
| 18                      | Grey-Brown   | O3/O4 (1)  | Signalling output device 1              |
| 19                      | White-Pink   | A2         | Supply input 0 V                        |



## Internal device connections

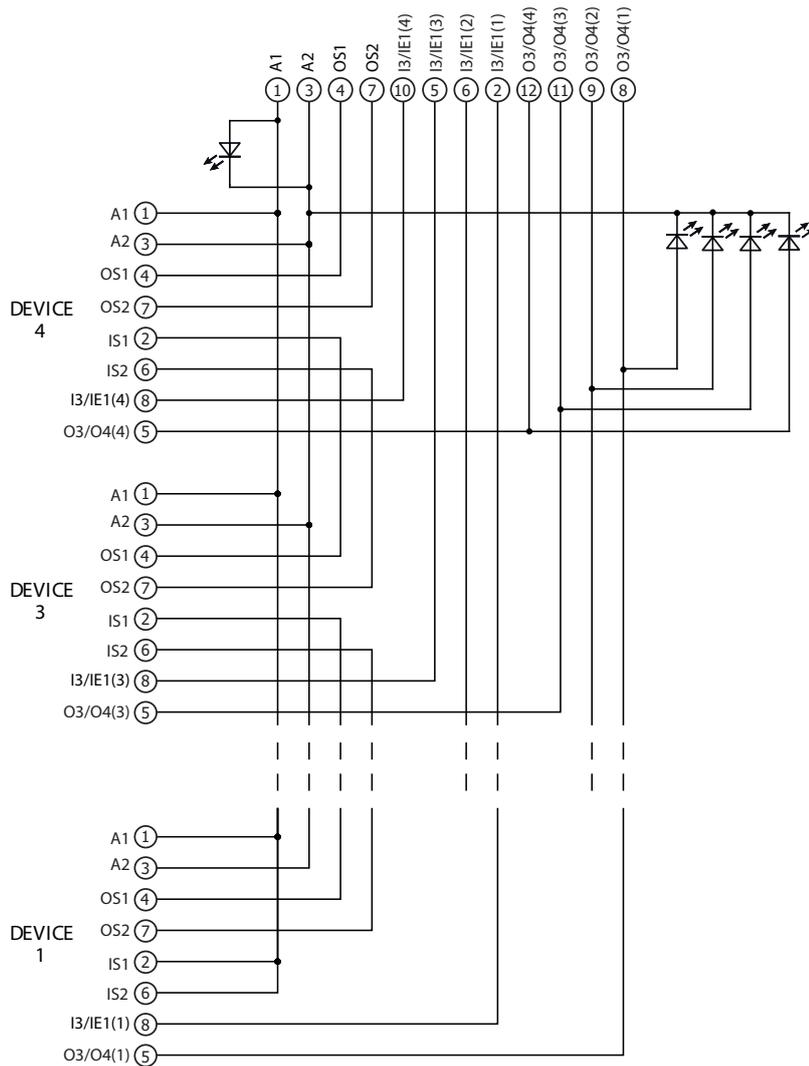
### BC 1Z4A1.....



| Versions with connector | Versions with cable          | Connection |   |
|-------------------------|------------------------------|------------|---|
| BC 1Z4A....FSK          | BC 1Z4A....AF•               |            |   |
| M23 connector, 12-pole  | Cable 12x0.5 mm <sup>2</sup> |            |   |
| 1                       | White                        | A1         | Supply input +24 Vdc                    |
| 2                       | Brown                        | IS1        | Safety input                            |
| 3                       | Green                        | A2         | Supply input 0 V                        |
| 4                       | Yellow                       | OS1        | Safety output                           |
| 5                       | Grey                         | I3/IE1     | Solenoid activation / programming input |
| 6                       | Pink                         | IS2        | Safety input                            |
| 7                       | Blue                         | OS2        | Safety output                           |
| 8                       | Red                          | O3/O4 (1)  | Signalling output device 1              |
| 9                       | Black                        | O3/O4 (2)  | Signalling output device 2              |
| 10                      | Purple                       | n.c.       |   |
| 11                      | Grey-Pink                    | O3/O4 (3)  | Signalling output device 3              |
| 12                      | Red-Blue                     | O3/O4 (4)  | Signalling output device 4              |

## Internal device connections

### BC 1Z4A2.....

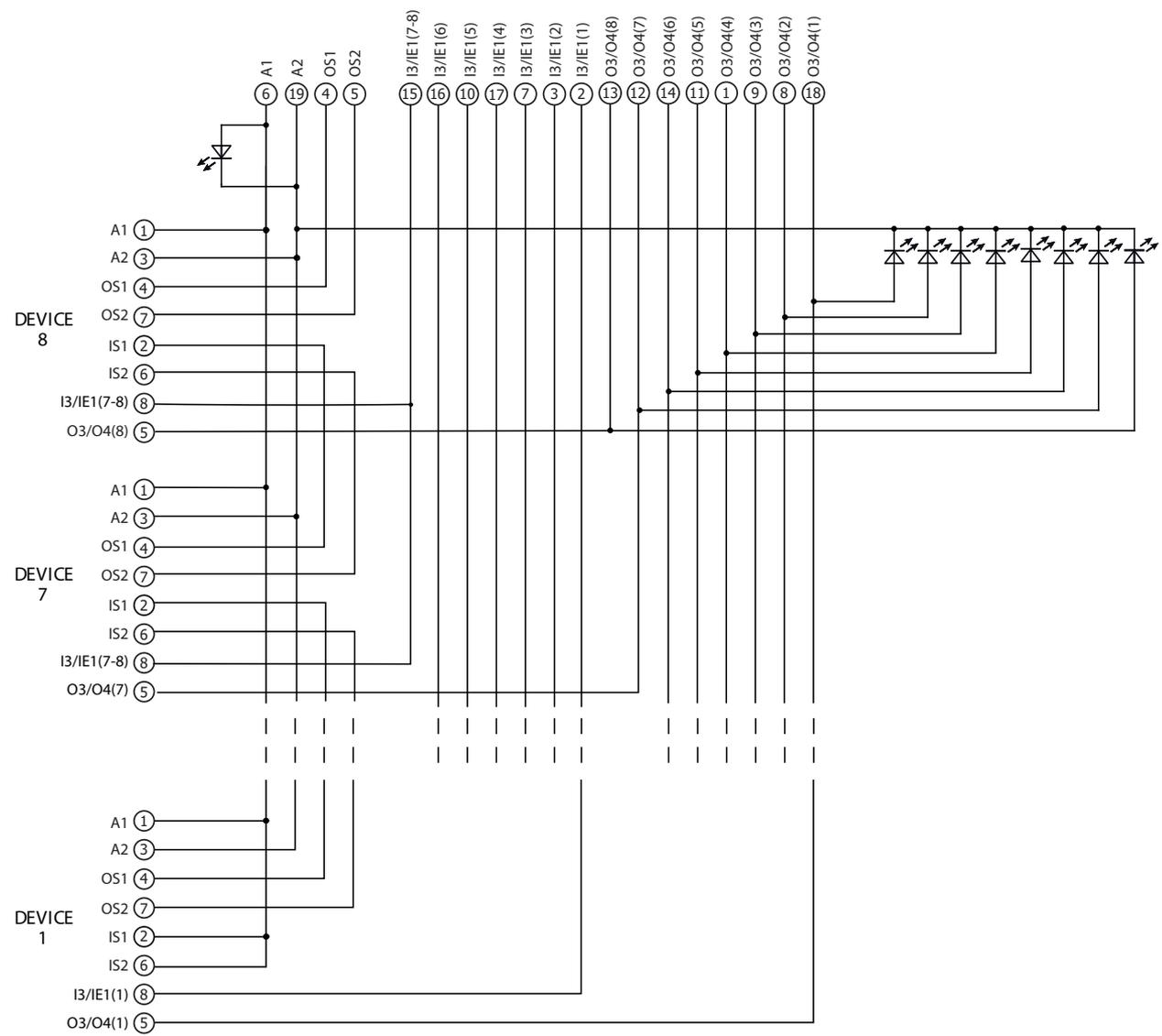


| Versions with connector | Versions with cable          | Connection |   |
|-------------------------|------------------------------|------------|---|
| BC 1Z4A...FSK           | BC 1Z4A...AF•                |            |   |
| M23 connector, 12-pole  | Cable 12x0.5 mm <sup>2</sup> |            |   |
| 1                       | White                        | A1         | Supply input +24 Vdc                        |
| 2                       | Brown                        | I3/IE1 (1) | Solenoid activation / programming input (1) |
| 3                       | Green                        | A2         | Supply input 0 V                            |
| 4                       | Yellow                       | OS1        | Safety output                               |
| 5                       | Grey                         | I3/IE1 (3) | Solenoid activation / programming input (3) |
| 6                       | Pink                         | I3/IE1 (2) | Solenoid activation / programming input (2) |
| 7                       | Blue                         | OS2        | Safety output                               |
| 8                       | Red                          | O3/O4 (1)  | Signalling output device 1                  |
| 9                       | Black                        | O3/O4 (2)  | Signalling output device 2                  |
| 10                      | Purple                       | I3/IE1 (4) | Solenoid activation / programming input (4) |
| 11                      | Grey-Pink                    | O3/O4 (3)  | Signalling output device 3                  |
| 12                      | Red-Blue                     | O3/O4 (4)  | Signalling output device 4                  |



# Internal device connections

## BC 2Z8A3....



| Versions with connector | Versions with cable                                    | Connection   |   |
|-------------------------|--|--------------|---|
| BC 2Z8A....FTK          | BC 2Z8A....AL•   |              |   |
| M23 connector, 19-pole  | Cable 2x0.75 mm <sup>2</sup> + 17x0.34 mm <sup>2</sup> |              |   |
| 1                       | White  | O3/O4 (4)    | Signalling output device 4                    |
| 2                       | Brown  | I3/IE1 (1)   | Solenoid activation / programming input (1)   |
| 3                       | Green  | I3/IE1 (2)   | Solenoid activation / programming input (2)   |
| 4                       | Yellow   | OS1          | Safety output                                 |
| 5                       | Grey   | OS2          | Safety output                                 |
| 6                       | Pink   | A1           | Supply input +24 Vdc                          |
| 7                       | Blue   | I3/IE1 (3)   | Solenoid activation / programming input (3)   |
| 8                       | Red  | O3/O4 (2)    | Signalling output device 2                    |
| 9                       | Black  | O3/O4 (3)    | Signalling output device 3                    |
| 10                      | Purple   | I3/IE1 (5)   | Solenoid activation / programming input (5)   |
| 11                      | Grey-Pink  | O3/O4 (5)    | Signalling output device 5                    |
| 12                      | Red-Blue   | O3/O4 (7)    | Signalling output device 7                    |
| 13                      | White-Green  | O3/O4 (8)    | Signalling output device 8                    |
| 14                      | Brown-Green  | O3/O4 (6)    | Signalling output device 6                    |
| 15                      | White-Yellow   | I3/IE1 (7-8) | Solenoid activation / programming input (7-8) |
| 16                      | Yellow-Brown   | I3/IE1 (6)   | Solenoid activation / programming input (6)   |
| 17                      | White-Grey   | I3/IE1 (4)   | Solenoid activation / programming input (4)   |
| 18                      | Grey-Brown   | O3/O4 (1)    | Signalling output device 1                    |
| 19                      | White-Pink   | A2           | Supply input 0 V                              |

## Accessories

### Male bridge connector, M12

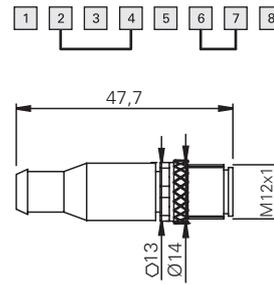


#### Features:

- M12 male connector without cable, with internal jumpers for plugging into the unused M12 sockets of the distribution box.
- Polyurethane connector body
- Gold-plated contacts
- Anti-vibration self-locking ring nut

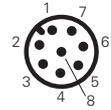
Max. operating voltage: 250 Vac / 300 Vdc  
 Max. operating current: 2 A  
 Protection degree: IP67 acc. to EN 60529  
 Tightening torque of the ring: 0.6 ... 0.8 Nm

#### Internal wiring diagram



#### Pin assignment

8-pole  
male

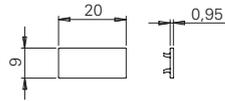


| Article    | Description   |
|------------|---|
| VF CY104P0 | M12 terminating plug for series connections, for 8-pole M12 female connector. |

**Note:** Unused pins may not be present.

**ATTENTION:** always disconnect the power supply before removing the connector.

### White label



| Article | Description   |
|---------|---|
| AC 6309 | White label made of polyamide PA66 (Packs of 200 pcs.). |
| AC 6310 | White label made of polyamide PA66 (Packs of 40 pcs.).  |

**Note:** Connection cables between distribution box and devices can be found in various lengths in the chapter Accessories in the General Catalogue Safety 2023-2024 on page 425.





General Catalogue  
Detection



General Catalogue  
HMI



General Catalogue  
Safety



General Catalogue  
Lift



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