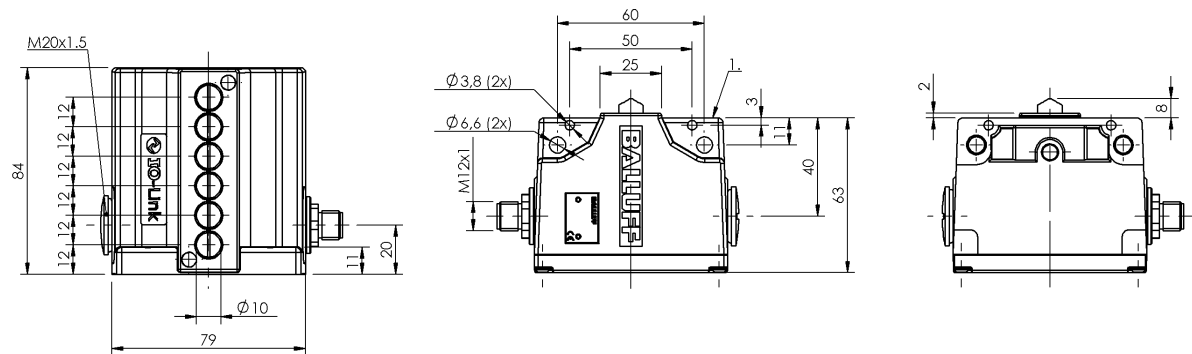




1) Reference edge



Basic features

|                     |                                  |
|---------------------|----------------------------------|
| Approval/Conformity | CE<br>UKCA<br>WEEE               |
| Basic standard      | IEC 60947-5-1                    |
| Operating principle | 1-6. Switch position: Mechanical |
| Version             | Snap contact                     |

Display/Operation

|                    |                            |
|--------------------|----------------------------|
| Function indicator | 1-6. Switch position: None |
|--------------------|----------------------------|

Electrical connection

|                 |                                   |
|-----------------|-----------------------------------|
| Connection      | M12x1-Flange male, 4-pin, A-coded |
| Connection type | 1. Switch position: Connector     |

Electrical data

|                               |                                                                                      |
|-------------------------------|--------------------------------------------------------------------------------------|
| Rated operating voltage Ue DC | 24 V                                                                                 |
| Switching function mechanical | Double-interrupting<br>galvanically isolated<br>One NO and one NC<br>Dual changeover |
| Switching rate                | 1-6. Switch position: 300/min                                                        |

Environmental conditions

|                     |            |
|---------------------|------------|
| Ambient temperature | -5...85 °C |
| IP rating           | IP67       |

Functional safety

|                       |                                    |
|-----------------------|------------------------------------|
| B10d (EN ISO 13849-1) | BSE 30.0: 30 mil. switching cycles |
|-----------------------|------------------------------------|

Interface

|                         |             |
|-------------------------|-------------|
| Cycle time min.         | 3 ms        |
| Frame type              | 2.1         |
| Interface               | IO-Link 1.1 |
| Process data cycle min. | 3 ms        |

Material

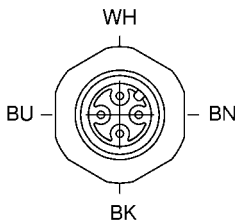
|                                      |                                              |
|--------------------------------------|----------------------------------------------|
| Housing material                     | Aluminium, Anodized                          |
| Housing material, surface protection | Anodized                                     |
| Material contacts                    | 1-6. Switch position: Silver, gold plated    |
| Plunger material                     | 1-6. Switch position: 1.4034 stainless steel |

Mechanical Cam Switches  
BNS 819-B06-D12-61-12-10-S4R-I  
Order Code: BNS0523



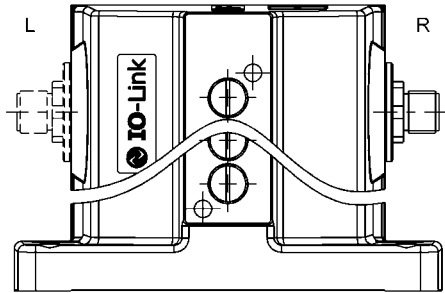
| Mechanical data               |                                                    | Number of switching positions |                                 |
|-------------------------------|----------------------------------------------------|-------------------------------|---------------------------------|
| Approach direction            | longitudinal, parallel to attachment surface       | Plunger style                 | 6x Chisel Mechanical            |
| Approach speed                | 1-6. Switch position: 40 m/min                     | Switch actuation force        | 1-6th switch position: Chisel   |
| Distance cam - reference edge | 1-6. Switch position: 4.50...5.00 mm               | Switching element             | 1-6th switch position: Chisel   |
| Flange, feed-through          | None                                               |                               | 1-6. Switch position: 20 N      |
| Installation                  | Vertical                                           |                               | 1-6. Switch position: BSE 30.0  |
| Life expectancy mechanical    | 1-6. Switch position: 30 mil. switching operations |                               |                                 |
| Range/Distance                |                                                    | Reproducibility               | 1-6. Switch position: ±0.002 mm |

Connector Drawings



View of connector side

## Wiring Diagrams



PIN 1: +24V  
PIN 3: 0V  
PIN 4: IO-Link



## Help Views

### BNS with IO-Link from 1 up to 16 positions

Frame type: 2.1

Process data length: 1 Byte

#### Process data image:

| Process data: ≤ 8 positions |           |           |           |           |           |           |           |
|-----------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Byte 0                      |           |           |           |           |           |           |           |
| 7                           | 6         | 5         | 4         | 3         | 2         | 1         | 0         |
| NO / NC 8                   | NO / NC 7 | NO / NC 6 | NO / NC 5 | NO / NC 4 | NO / NC 3 | NO / NC 2 | NO / NC 1 |
| NO / NC 8                   | NO / NC 7 | NO / NC 6 | NO / NC 5 | NO / NC 4 | NO / NC 3 | NO / NC 2 | NO / NC 1 |

| Process data: > 8 positions |            |            |            |            |            |            |           |           |           |           |           |           |           |           |           |
|-----------------------------|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Byte 0                      |            |            |            |            |            |            |           | Byte 1    |           |           |           |           |           |           |           |
| 7                           | 6          | 5          | 4          | 3          | 2          | 1          | 0         | 7         | 6         | 5         | 4         | 3         | 2         | 1         | 0         |
| NO / NC 16                  | NO / NC 15 | NO / NC 14 | NO / NC 13 | NO / NC 12 | NO / NC 11 | NO / NC 10 | NO / NC 9 | NO / NC 8 | NO / NC 7 | NO / NC 6 | NO / NC 5 | NO / NC 4 | NO / NC 3 | NO / NC 2 | NO / NC 1 |
| NO / NC 16                  | NO / NC 15 | NO / NC 14 | NO / NC 13 | NO / NC 12 | NO / NC 11 | NO / NC 10 | NO / NC 9 | NO / NC 8 | NO / NC 7 | NO / NC 6 | NO / NC 5 | NO / NC 4 | NO / NC 3 | NO / NC 2 | NO / NC 1 |

#### On-request data:

|                     | DPP   | SPDU  |           | Object name       | Length                 | Range                                          | Default value |
|---------------------|-------|-------|-----------|-------------------|------------------------|------------------------------------------------|---------------|
|                     | Index | Index | Sub-Index |                   |                        |                                                |               |
| Identification Data | 0x07  |       |           | Vendor ID         | 2 Byte                 | read only                                      | 0x0378        |
|                     | 0x08  |       |           | Decice ID         | 3 Byte                 |                                                |               |
|                     | 0x09  |       |           |                   |                        |                                                |               |
|                     | 0x0A  |       |           |                   |                        |                                                |               |
|                     | 0x0B  |       |           |                   |                        |                                                |               |
|                     |       | 0x10  | 0         | Vendor name       | 7 Byte                 |                                                |               |
|                     |       | 0x11  | 0         | Vendor text       | 15 Byte                |                                                |               |
|                     |       | 0x12  | 0         | Product name      | 31 Byte                |                                                |               |
|                     |       | 0x13  | 0         | Product ID        | 7 Byte                 |                                                |               |
|                     |       | 0x14  | 0         | Product text      | 10 / 11 Byte           |                                                |               |
|                     |       | 0x16  | 0         | Hardware Revision | 2 Byte                 |                                                |               |
|                     |       | 0x17  | 0         | Firmware Revision | 2 Byte                 |                                                |               |
| Programmable Data   |       | 0x40  | 0         | NO / NC           | ≤ 8 positions = 1 Byte | 0x00 - (2^positions)-1<br>(1 Bit = 1 position) | "0"           |
|                     |       |       |           |                   | > 8 positions = 2 Byte |                                                |               |
|                     |       |       | 1 - 16    |                   | 1 Byte                 | "0" Not inverted<br>"1" inverted               |               |

#### Errors:

| Class       |       |          | Error Code               | Additional Code         |
|-------------|-------|----------|--------------------------|-------------------------|
| Mode        | Type  | Instance |                          |                         |
| single shot | Error | AL       | Device application error | Index not available     |
| 0x40        | 0x30  | 0x03     | 0x80                     | 0x11                    |
|             | 0x73  |          | 0x80                     | 0x11                    |
| single shot | Error | AL       | Device application error | Sub-Index not available |
| 0x40        | 0x30  | 0x03     | 0x80                     | 0x12                    |
|             | 0x73  |          | 0x80                     | 0x12                    |

#### Input data: No input data available