

1) Reference edge



### Basic features

<b>Approval/Conformity</b>	CE UKCA WEEE
<b>Basic standard</b>	IEC 60947-5-1
<b>Operating principle</b>	1-4. Switch position: Mechanical
<b>Version</b>	Snap contact

### Display/Operation

<b>Function indicator</b>	1-4. Switch position: None
---------------------------	----------------------------

### Electrical connection

<b>Connection</b>	M12x1-Flange male, 4-pin, A-coded
<b>Connection type</b>	1. Switch position: Connector

### Electrical data

<b>Rated operating voltage Ue DC</b>	24 V
<b>Switching function mechanical</b>	Double-interrupting galvanically isolated One NO and one NC Dual changeover
<b>Switching rate</b>	1-4. Switch position: 300/min

### Environmental conditions

<b>Ambient temperature</b>	-5...85 °C
<b>IP rating</b>	IP67

### Functional safety

<b>B10d (EN ISO 13849-1)</b>	BSE 30.0: 30 mil. switching cycles
------------------------------	------------------------------------

### Interface

<b>Cycle time min.</b>	3 ms
<b>Frame type</b>	2.1
<b>Interface</b>	IO-Link 1.1
<b>Process data cycle min.</b>	3 ms

### Material

<b>Housing material</b>	Aluminium, Anodized
<b>Housing material, surface protection</b>	Anodized
<b>Material contacts</b>	1-4. Switch position: Silver, gold plated
<b>Plunger material</b>	1-4. Switch position: 1.4034 stainless steel

Mechanical Cam Switches  
BNS 819-B04-R12-61-12-10-S4R-I  
Order Code: BNS040E

**BALLUFF**

**Mechanical data**

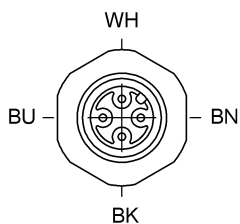
<b>Approach direction</b>	longitudinal, parallel to attachment surface
<b>Approach speed</b>	1-4. Switch position: 60 m/min
<b>Dimension</b>	79 x 60 x 63 mm
<b>Distance cam - reference edge</b>	1-4. Switch position: 4.50...5.00 mm
<b>Flange, feed-through</b>	None
<b>Installation</b>	Vertical
<b>Life expectancy mechanical</b>	1-4. Switch position: 30 mil. switching operations

<b>Number of switching positions</b>	4x Roller Mechanical
<b>Plunger spacing 1st switch position</b>	12 mm
<b>Plunger style</b>	1-4th switch position: Roller 1-4th switch position: Roller
<b>Switch actuation force</b>	1-4. Switch position: 20 N
<b>Switching element</b>	1-4. Switch position: BSE 30.0

**Range/Distance**

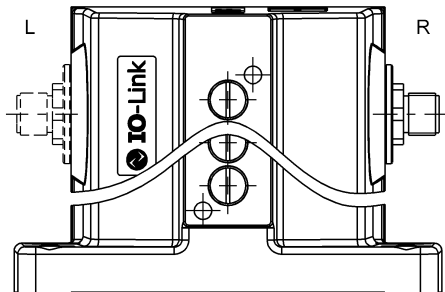
<b>Reproducibility</b>	1-4. Switch position: $\pm 0.01$ mm
<b>Switch position spacing</b>	12 mm

**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

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

**On-request data:**

	DPP		SPDU		Object name	Length	Range	Default value
	Index	Index	Index	Sub-Index				
Identification Data	0x07				Vendor ID	2 Byte	read only	0x0378
	0x08				Decice ID	3 Byte		0x01010X X = No. of positions
	0x09							
	0x0A							BALLUFF
	0x0B							www.balluff.com
		0x10	0		Vendor name	7 Byte		BNS 819-xxx-xxx-xx-S4x-I
		0x11	0		Vendor text	15 Byte		BNSxxxx
		0x12	0		Product name	31 Byte		BNS xx-fach
		0x13	0		Product ID	7 Byte		
		0x14	0		Product text	10 / 11 Byte		
Programmable Data			0x40	0	NO / NC	≤ 8 positions = 1 Byte	0x00 - (2^positions)-1 (1 Bit = 1 position)	"0"
						> 8 positions = 2 Byte		
			1 - 16			1 Byte		

**Errors:**

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

**Input data: No input data available**