

1) Reference edge



### Basic features

Approval/Conformity	CE UKCA 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 galvanically isolated One NO and one NC 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

# BALLUFF

## Mechanical data

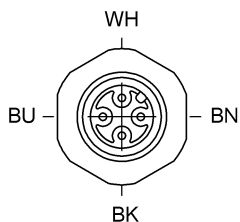
Approach direction	longitudinal, parallel to attachment surface
Approach speed	1-6. Switch position: 40 m/min
Distance cam - reference edge	1-6. Switch position: 4.50...5.00 mm
Flange, feed-through	None
Installation	Vertical
Life expectancy mechanical	1-6. Switch position: 30 mil. switching operations

Number of switching positions	6x Chisel Mechanical
Plunger style	1-6th switch position: Chisel 1-6th switch position: Chisel
Switch actuation force	1-6. Switch position: 20 N
Switching element	1-6. Switch position: BSE 30.0

## Range/Distance

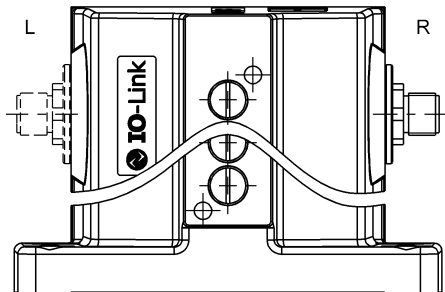
Reproducibility	1-6. Switch position: $\pm 0.002$ mm
-----------------	--------------------------------------

## 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

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**