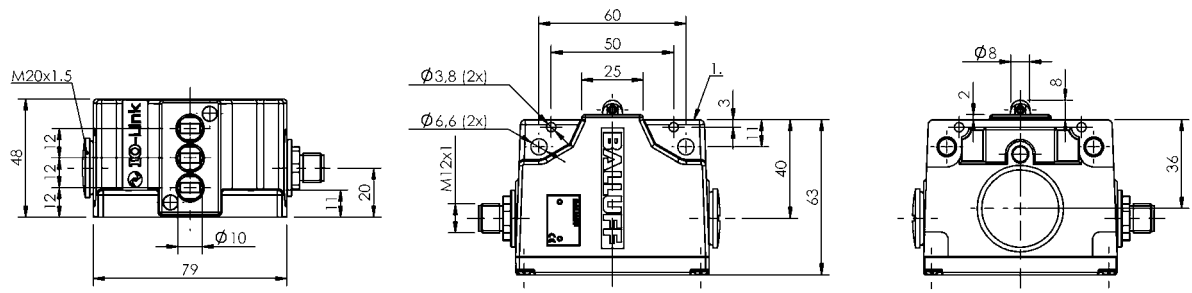


Mechanical Cam Switches
BNS 819-B03-R12-61-12-10-S4R-I
Order Code: BNS040P



1) Reference edge



Basic features

Approval/Conformity	CE UKCA WEEE
Basic standard	IEC 60947-5-1
Operating principle	1-3. Switch position: Mechanical
Version	Snap contact

Display/Operation

Function indicator	1-3. Switch position: None
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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	1-3. 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
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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	1-3. Switch position: Silver, gold plated
Plunger material	1-3. Switch position: 1.4034 stainless steel

Mechanical Cam Switches
BNS 819-B03-R12-61-12-10-S4R-I
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Mechanical data

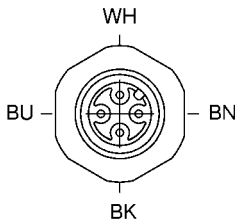
Approach direction	longitudinal, parallel to attachment surface
Approach speed	1-3. Switch position: 60 m/min
Dimension	79 x 48 x 63 mm
Distance cam - reference edge	1-3. Switch position: 4.50...5.00 mm
Flange, feed-through	None
Installation	Vertical
Life expectancy mechanical	1-3. Switch position: 30 mil. switching operations

Number of switching positions	3x Roller Mechanical
Plunger spacing 1st switch position	12 mm
Plunger style	1-3rd switch position: Roller 1-3rd switch position: Roller
Switch actuation force	1-3. Switch position: 20 N
Switching element	1-3. Switch position: BSE 30.0

Range/Distance

Reproducibility	1-3. Switch position: ± 0.01 mm
Switch position spacing	12 mm

Connector Drawings



View of connector side

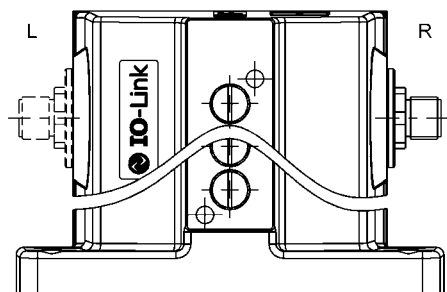
Mechanical Cam Switches

BNS 819-B03-R12-61-12-10-S4R-I

Order Code: BNS040P

BALLUFF

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		0x01010X X = No. of positions	
	0x09							
	0x0A			Vendor name	7 Byte		BALLUFF	
	0x0B						www.balluff.com	
		0x10	0				BNS 819-xxx-xxx-xx-S4x-I	
		0x11	0				BNSxxxx	
		0x12	0				BNS xx-fach	
		0x13	0					
		0x14	0					
		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 (1 Bit = 1 position)	"0"	
					> 8 positions = 2 Byte			
			1 - 16		1 Byte	"0" Not inverted "1" inverted		

Errors:

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

Input data: No input data available