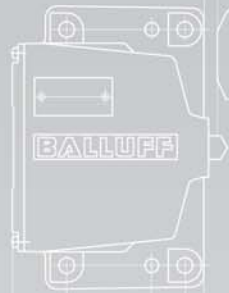


more added value

- Long service life
- Rugged housing for extreme applications



Mechanical multiple position switches

30	Series 100 per DIN 43697
32	Series 62
34	Series 61
36	Series 72
38	Series 46
40	Series 40

Mechanical single position switches

42	Series F 60 per DIN 43693
44	Series 99 and Series 100

1.1

Multiple position switches series

- 100
- 62
- 61
- 72
- 46
- 40

Single Position Switches Series

- F 60
- 99
- 100

5.1

5.2

5.3



Multiple position switches per DIN 43697 for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M25×1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

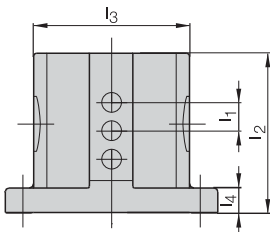
Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes

Number of plungers		2	3	4	5	6	8	10	12
Dimension l ₂ when	Dimension l ₁ = 12 mm	70	80	90	105	120	140	170	200
	Dimension l ₃	88	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	14	20	20	20
	Dimension l ₁ = 16 mm	70	90	105	120	140	170	200	240
Dimension l ₃		88	88	88	88	80	80	80	80
	Dimension l ₄	14	14	14	14	20	20	20	20
Number of connectors	S80 without FD/FE	1	1	2	2	2			
	S80 with FD/FE	1	2	2	3	3			
	S90 without FD/FE	1	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	1	2	2
	S4 without FD (IO-Link)	1	1	1	1	1	1	1	1
S4 with FD (IO-Link)	1	1	1	1	1	1	1	1	

Dimensions in mm



Ordering example:

BNS 819-D02-D16-100-10-FE-S80R

BNS 819-D - - -100-10- - - -

No. of plungers

02 2×
03 3×
04 4×
...

Plunger type

D Chisel
K Ball
R Roller
L Roller bearing
E Chisel with wiper plate

Plunger spacing

12 12 mm
16 16 mm

optional Function indication

FD 6...60 V AC/DC
FE 90...250 V AC/DC

optional Connector

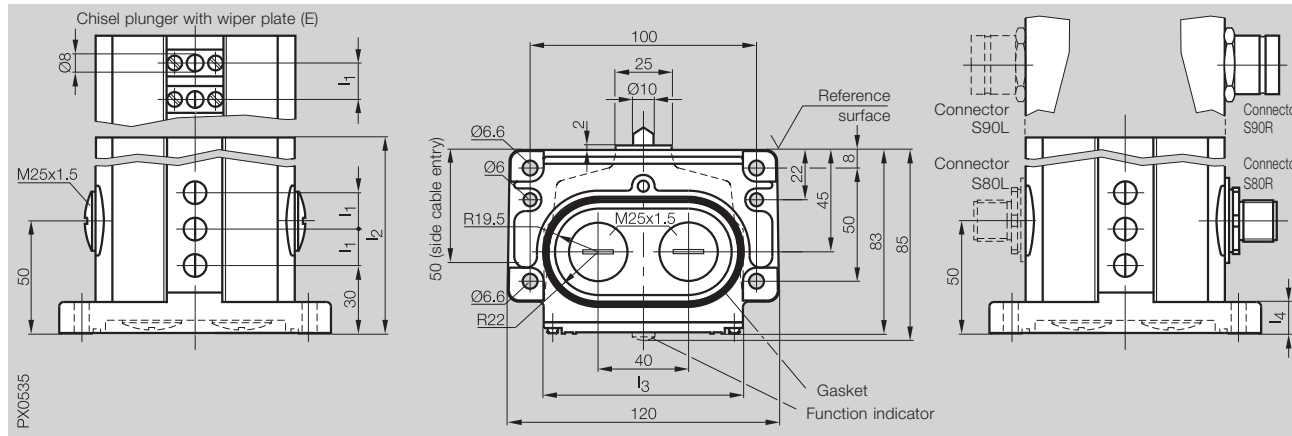
S80R 5-pin, right
S80L 5-pin, left
S80S 5-pin, right and left
S90R 12-pin, right
S90L 12-pin, left
S90S 12-pin, right and left
S4R-I 4-pin, right only for IO-Link
S4L-I 4-pin, left only for IO-Link



Mechanical Multiple Position Switches

Series 100
per DIN 43697

Type	Multiple position switch
Plunger spacing	12 mm or 16 mm
Mounting and function dimensions	per DIN 43697



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)



IO-Link

For additional information
see IO-Link brochure!

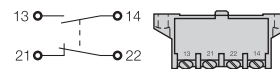
With switch element

Ordering code

BSE 30.0

BNS 819-D - -100-10- -

Wiring diagram, style



Switch element

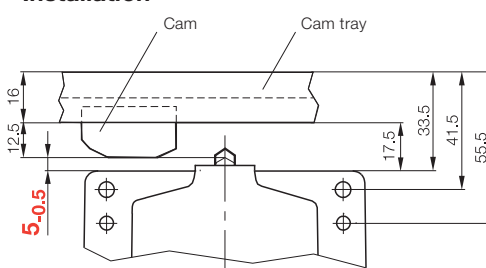
Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm
Switchpoint to reference surface	6 mm
Maximum plunger travel D, K, R, L	5.5 mm
Maximum plunger travel E	4 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D 40 m/min
	Plunger E 30 m/min
	Plunger K 10 m/min
	Plunger R 60 m/min
	Plunger L 120 m/min
Repeatability	Plunger D, E, K ± 0.002 mm
	Plunger R, L ± 0.01 mm



Installation



Note!
To ensure switching function, the dimension 5.0.5 is especially critical.

1.1

Multiple position switches series

100

62

61

72

46

40

Single Position Switches Series

F 60

99

100

5.1

5.2

5.3



Multiple position switches for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

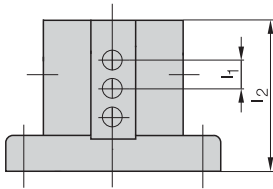
Connection options

- Thread for cable gland M20×1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes



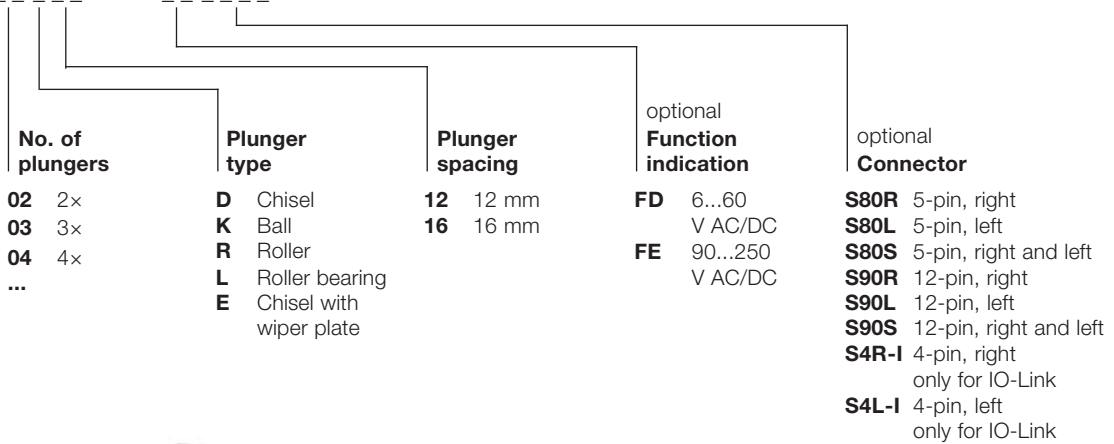
Number of plungers		2	3	4	5	6	8	10
Dimension $l_1 = 12$ mm		64	72	84	96	112	130	160
l_2 when $l_1 = 16$ mm		64	84	96	112	130	160	192
Number of connectors	S80 without FD/FE	1	1	2	2	2		
	S80 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1	1	2
	S4 without FD (IO-Link)	1	1	1	1	1	1	1
	S4 with FD (IO-Link)	1	1	1	1	1	1	1

Dimensions in mm

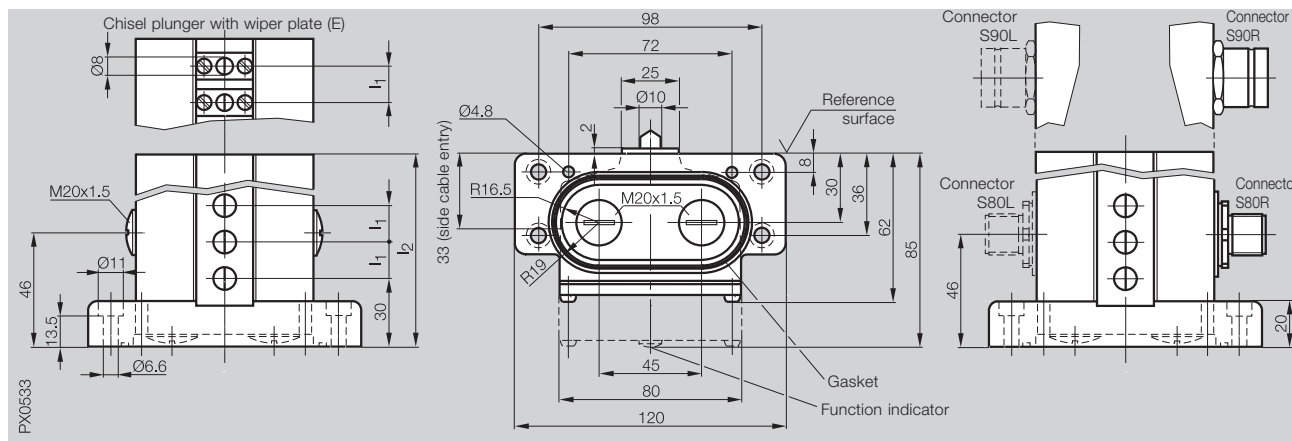
Ordering example:

BNS 819-D04-D12-62-10-FD-S80R

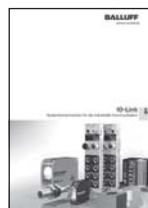
BNS 819-D - - -62-10-



Type	Multiple position switch
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)



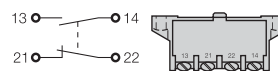
IO-Link

For additional information see IO-Link brochure!

With switch element
Ordering code
Wiring diagram, style

BSE 30.0

BNS 819-D - -62-10- -



Switch element

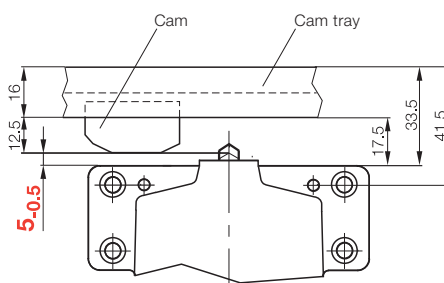
Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm
Switchpoint to reference surface	6 mm
Maximum plunger travel D, K, R, L	5.5 mm
Maximum plunger travel E	4 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D 40 m/min Plunger E 30 m/min Plunger K 10 m/min Plunger R 60 m/min Plunger L 120 m/min
Repeatability	Plunger D, E, K ± 0.002 mm Plunger R, L ± 0.01 mm



Installation



Note!
To ensure switching function, the dimension 5-0.5 is especially critical.

1.1

Multiple position switches series

- 100
- 62
- 61
- 72
- 46
- 40
- Single Position Switches Series
- F 60
- 99
- 100

5.1

5.2

5.3



Multiple position switches for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M20x1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

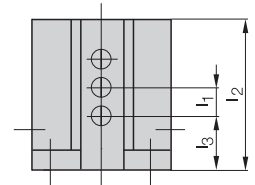
Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes

No. of plungers	Plunger spacing		Housing B Standard		Housing B		Housing C		Number of connectors S80 without FD/FE	Number of connectors S80 with FD/FE	Number of connectors S90 without FD/FE	Number of connectors S90 with FD/FE	Number of connectors S4 without FD (IO-Link)	Number of connectors S4 with FD (IO-Link)
	Dimension l ₁	Dimension l ₂	Dimension l ₃	Dimension l ₂	Dimension l ₃	Dimension l ₂	Dimension l ₃							
2	12	36	12	60	30	48	24	60	30	1	1	1	1	1
3	12	48	12	60	24	60	24	60	24	1	2	1	1	1
4	12	60	12							2	2	1	1	1
5	12	72	12							2	3	1	1	1
6	12	84	12							2	3	1	1	1
2	16	48	16	60	30	60	30	60	30	1	1	1	1	1
3	16	72	16							1	2	1	1	1
4	16	84	16							2	2	1	1	1

Dimensions in mm



Ordering example:

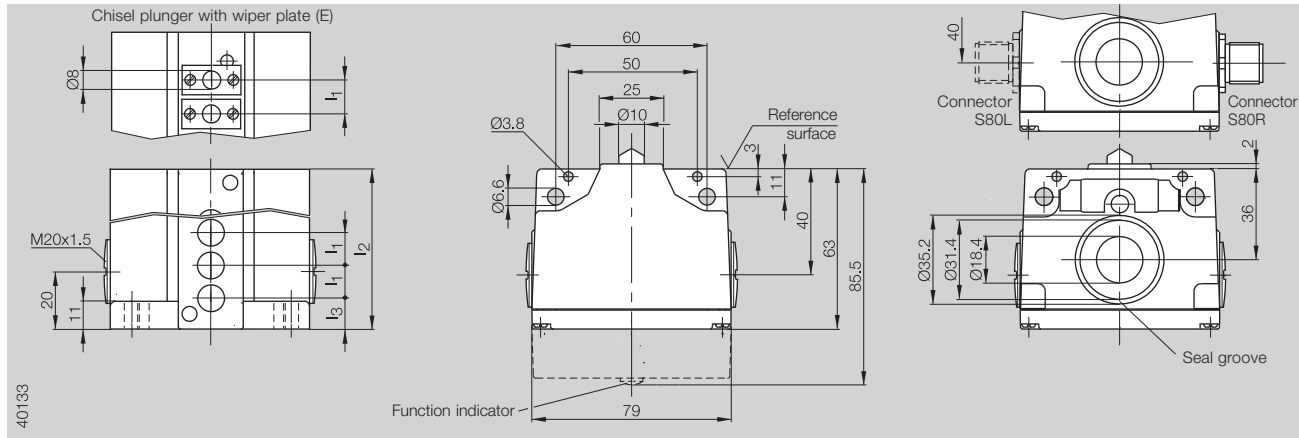
BNS 819-B04-D12-61-12-10-FD-S80R

BNS 819- - -61- -10- -

Housing style	No. of plungers	Plunger type	Plunger spacing	Distance l ₃	optional Function indication	optional Connector
B Standard	02 2x	D Chisel	12 12 mm	12 12 mm	FD 6...60	
2x M20x1.5 on side	03 3x	K Ball	16 16 mm	16 16 mm	V AC/DC	
B 3x M20x1.5 on side and in flange	04 4x	R Roller		24 24 mm	FE 90...250	
...	...	L Roller bearing		30 30 mm	V AC/DC	
C 2x M20x1.5 on side and cable entry in flange		E Chisel with wiper plate				



Type	Multiple position switch
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)



IO-Link

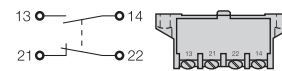
For additional information see IO-Link brochure!

With switch element

BSE 30.0

Ordering code BNS 819- - -61- -10- -

Wiring diagram, style



Switch element

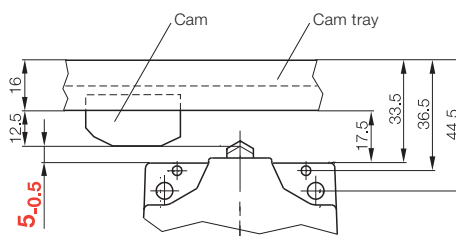
Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm
Switchpoint to reference surface	6 mm
Maximum plunger travel D, K, R, L	5.5 mm
Maximum plunger travel E	4 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D 40 m/min
	Plunger E 30 m/min
	Plunger K 10 m/min
	Plunger R 60 m/min
	Plunger L 120 m/min
Repeatability	Plunger D, E, K ± 0.002 mm
	Plunger R, L ± 0.01 mm



Installation



Note!
To ensure switching function, the dimension 5.0-5.5 is especially critical.

1.1

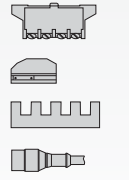
Multiple position switches series

- 100
- 62
- 61**
- 46
- 40
- Single Position Switches Series
- F 60
- 99
- 100

5.1

5.2

5.3



Multiple position switches for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

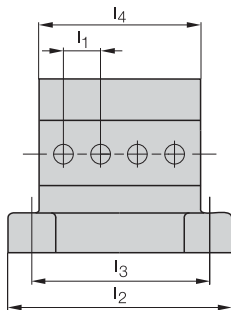
Connection options

- Thread for cable gland M25×1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes



Number of plungers		2	3	4	5	6	8	10
Dimension l_2 when $l_1 = 12$ mm		84	84	100	116	132	164	180
Dimension l_3 when $l_1 = 12$ mm		66	66	82	98	114	146	162
Dimension l_4 when $l_1 = 12$ mm		54	54	68	84	100	132	148
Dimension l_2 when $l_1 = 16$ mm		84	100	116	132	148	180	212
Dimension l_3 when $l_1 = 16$ mm		66	82	98	114	130	162	194
Dimension l_4 when $l_1 = 16$ mm		54	68	84	100	116	148	180
Number of connectors	S80 without FD/FE	1	1	2	2	2		
	S80 with FD/FE	1	2	2	3	3		
	S90 without FD/FE	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	2	2

Dimensions in mm

Ordering example:

BNS 819-B04-D12-72-10-FD-S80R

BNS 819-B - - -72-10- - -

No. of plungers

02 2×
03 3×
04 4×
...

Plunger style

D Chisel
K Ball
R Roller
L Roller bearing
E Chisel with wiper plate

Plunger spacing

12 12 mm
16 16 mm

optional
Function indication

FD 6...60
V AC/DC
FE 90...250
V AC/DC

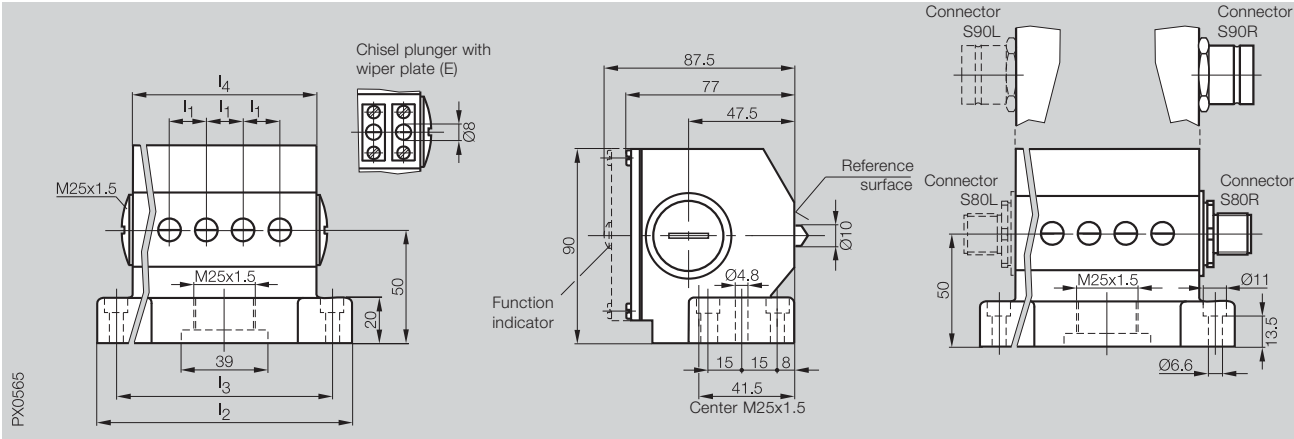
optional
Connector

S80R 5-pin, right
S80L 5-pin, left
S80S 5-pin, right and left
S90R 12-pin, right
S90L 12-pin, left
S90S 12-pin, right and left



**Not for new applications.
Still available for replacements.**

Type	Multiple position switch
Plunger spacing	12 mm or 16 mm



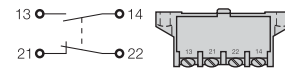
Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)

With switch element

BSE 30.0

Ordering code **BNS 819-B - -72-10- - - - -**

Wiring diagram, style



Switch element

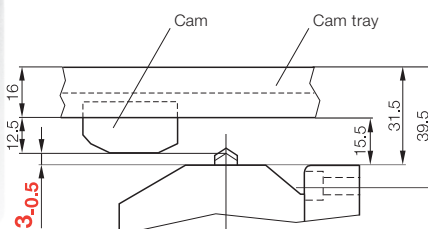
Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	6 mm
Switchpoint to reference surface	4 mm
Maximum plunger travel D, K, R, L	5.5 mm
Maximum plunger travel E	4 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D 40 m/min
	Plunger E 30 m/min
	Plunger K 10 m/min
	Plunger R 60 m/min
	Plunger L 120 m/min
Repeatability	Plunger D, E, K ± 0.002 mm
	Plunger R, L ± 0.01 mm



Installation



Note!
To ensure switching function, the dimension 3-0.5 is especially critical.

1.1

Multiple position switches series

100
62
61
72
46
40

Single Position Switches Series

F 60
99
100

5.1

5.2

5.3

Multiple position switches for standard applications

- Smallest plunger spacing for mechanical multiple position switches (8 mm or 10 mm)
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

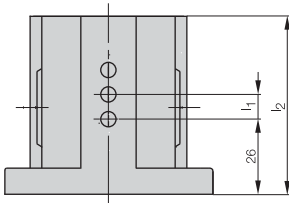
- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16×1.5 on side and in flange (Scope of delivery: Seals and cover screws)
- Connector (note permissible operating voltage for the connectors, see page 132).

Switching elements for low-current applications

Snap switch elements BSE 73.1 or BSE 74.1 have specially formed gold contacts making them suitable for low currents ≥ 10 mA.



Available sizes

Number of plungers	2	3	4	5	6	8	10
Dimension $l_1 = 8$ mm	49	59	64	72	80	96	112
Dimension l_2 when $l_1 = 10$ mm	49	59	72	80	89	112	129
Number of connectors							
S80 without FC	1	1	2	2	2		
S80 with FC	1	2	2	3	3		
S4 without FC (IO-Link)	1	1	1	1	1	1	1
S4 with FC (IO-Link)	1	1	1	1	1	1	1

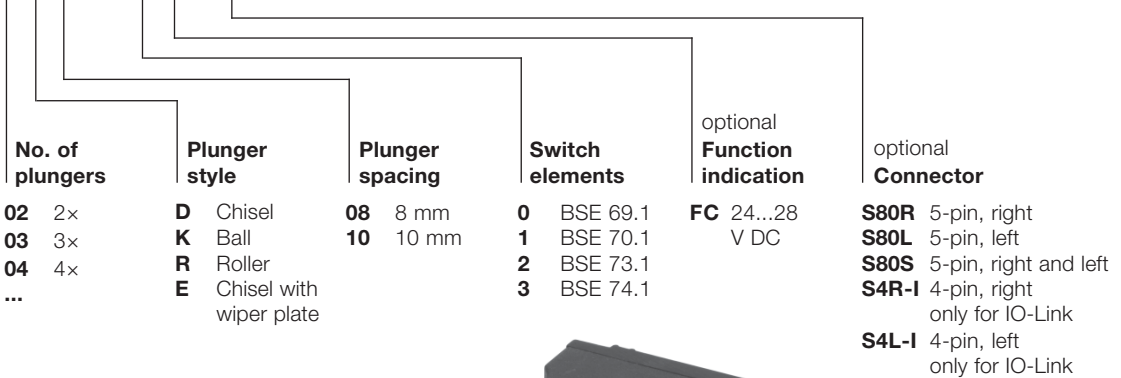
Dimensions in mm

Size 12× with 8 mm spacing on request.

Ordering example:

BNS 819-B04-D08-46-11-FC-S80R

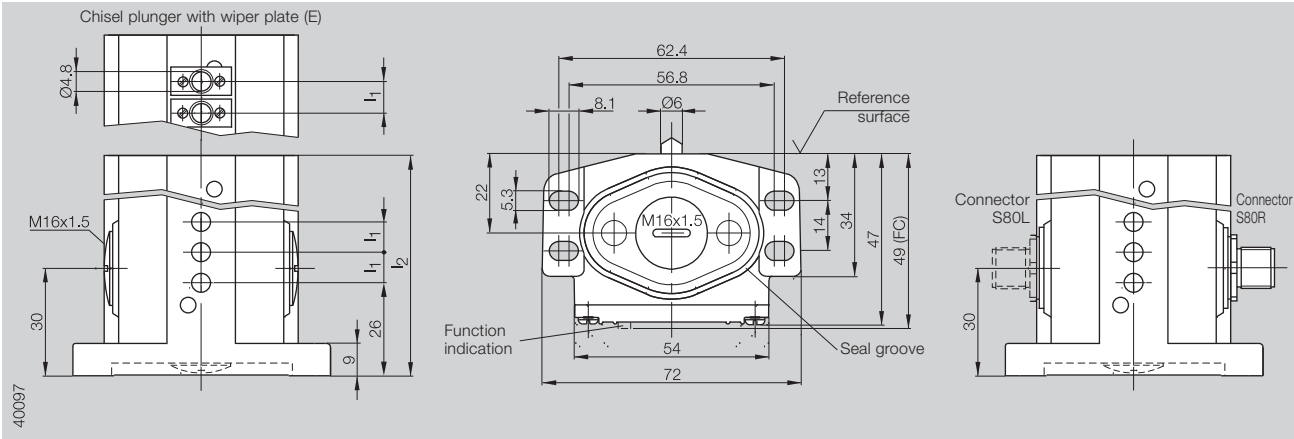
BNS 819-B - - -46-1 - - -



Only with BSE 69.1 or BSE 73.1.



Type	Multiple position switch
Plunger spacing	8 mm or 10 mm



1.1

Multiple position switches series

100
62
61
72
46
40

Single Position Switches Series

F 60
99
100

Plunger style	Chisel (D), Ball (K), Roller (R) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16x1.5 for cable gland or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element	BSE 69.1	BSE 73.1	BSE 70.1	BSE 74.1
Ordering code	BNS 819-...-46-10	BNS 819-...-46-12	BNS 819-...-46-11	BNS 819-...-46-13
Wiring diagram, style				

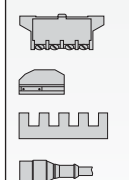
Switch element	Silver	Gold	Silver	Gold
Contact material	Silver	Gold	Silver	Gold
Switching principle	Snap switch		Snap switch	
Contact system	Single-pole changeover		Single-pole changeover	
Connection type	Solder connection		Screw terminal	
Electrical data	see page 117		see page 117	
Approval	UL, CSA, CCC		UL, CSA, CCC	

Mechanical data			
Plunger point to reference surface		4 mm	4 mm
Switchpoint to reference surface		3.5 mm	3.5 mm
Maximum plunger travel		3.5 mm	3.5 mm
Switching actuating force on plunger		min. 8 N	min. 8 N
Switching frequency		max. 200/min	max. 200/min
Approach speed	Plunger D	20 m/min	20 m/min
	Plunger E	10 m/min	10 m/min
	Plunger K	9 m/min	9 m/min
	Plunger R	60 m/min	60 m/min
Repeatability	Plunger D, E	± 0.02 mm	± 0.02 mm
	Plunger K	± 0.03 mm	± 0.03 mm
	Plunger R	± 0.05 mm	± 0.05 mm

5.1

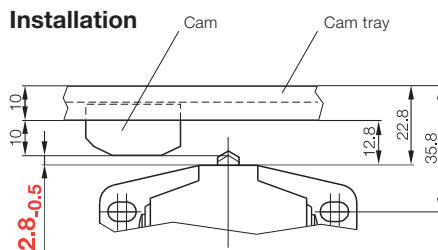
5.2

5.3



IO-Link

For additional information see IO-Link brochure!



Note!
To ensure switching function, the dimension 2.8_{-0.5} is especially critical.

Multiple position switches for standard applications

- Smallest plunger spacing for electromechanical multiple position switches (8 mm)
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with wiper plate

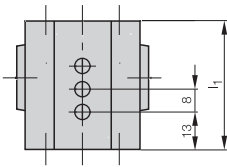
- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16×1.5 on side (Scope of delivery: Seals and cover screws)
- Connector (note permissible operating voltage for the connectors, see page 132).

Switching elements for low-current applications

Snap switch elements BSE 73.1 or BSE 74.1 have specially formed gold contacts making them suitable for low currents ≥ 10 mA.



Available sizes

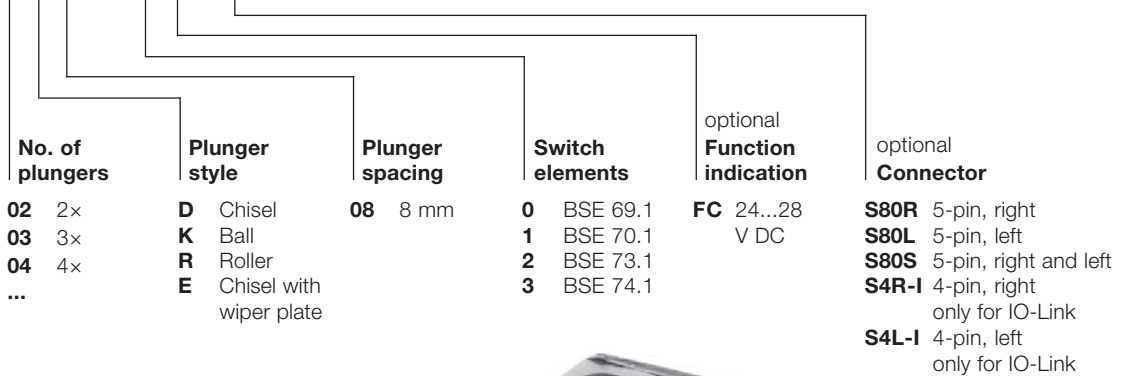
Number of plungers	2	3	4	5	6
Dimension I ₁	34	42	50	58	66
Number of S80 without FC connectors	1	1	2	2	2
S80 with FC	1	2	2		
S4 without FC (IO-Link)	1	1	1	1	1
S4 with FC (IO-Link)	1	1	1	1	1

Dimensions in mm

Ordering example:

BNS 819-B04-D08-40-10-FC-S80R

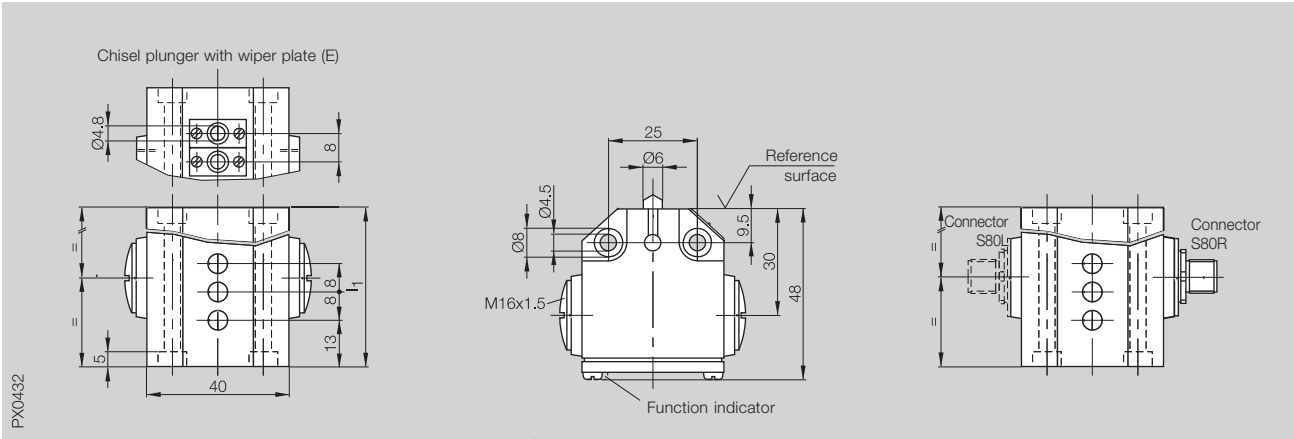
BNS 819-B - - -40-1 - - -



Only with BSE 69.1 or BSE 73.1.



Type	Multiple position switch
Plunger spacing	8 mm



Plunger style	Chisel (D), Ball (K), Roller (R) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16x1.5 for cable gland or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element	BSE 69.1	BSE 73.1	BSE 70.1	BSE 74.1
Ordering code	BNS 819-...-40-10	BNS 819-...-40-12	BNS 819-...-40-11	BNS 819-...-40-13
Wiring diagram, style				

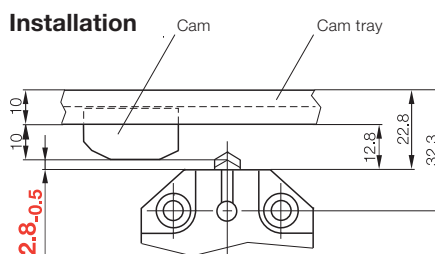
Switch element				
Contact material	Silver	Gold	Silver	Gold
Switching principle	Snap switch		Snap switch	
Contact system	Single-pole changeover		Single-pole changeover	
Connection type	Solder connection		Screw terminal	
Electrical data	see page 117		see page 117	
Approval	UL, CSA, CCC		UL, CSA, CCC	

Mechanical data				
Plunger point to reference surface	4 mm		4 mm	
Switchpoint to reference surface	3.5 mm		3.5 mm	
Maximum plunger travel	3.5 mm		3.5 mm	
Switching actuating force on plunger	min. 8 N		min. 8 N	
Switching frequency	max. 200/min		max. 200/min	
Approach speed	Plunger D	20 m/min	Plunger D	20 m/min
	Plunger E	10 m/min	Plunger E	10 m/min
	Plunger K	9 m/min	Plunger K	9 m/min
	Plunger R	60 m/min	Plunger R	60 m/min
Repeatability	Plunger D, E	± 0.02 mm	Plunger D, E	± 0.02 mm
	Plunger K	± 0.03 mm	Plunger K	± 0.03 mm
	Plunger R	± 0.05 mm	Plunger R	± 0.05 mm



IO-Link

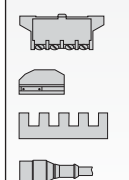
For additional information see IO-Link brochure!



Note!
To ensure switching function, the dimension 2.8-0.5 is especially critical.

1.1
Multiple position switches series
100
62
61
72
46
40
Single Position Switches Series
F 60
99
100

5.1
5.2
5.3



Single position switches per DIN 43693 for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing
- Plunger can be rotated in two approach directions

Single position switch with wiper plate

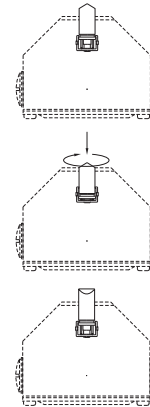
- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16×1.5 (Scope of delivery: Seals and cover screws)
- Connector (note permissible operating voltage for the connectors, see page 132).

Approach from two directions possible (parallel and diagonally)

Press plunger down and turn to desired direction; release plunger.



Single position switch with function indicator

- Function indication for dual voltage range option

Ordering example:

BNS 819-FD-60-101-FE-S80R

BNS 819-F -60-101- - - -

Plunger style

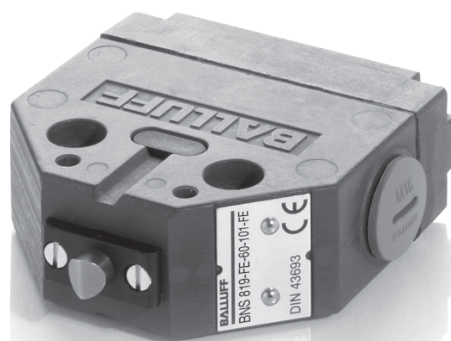
- D** Chisel
- K** Ball
- R** Roller
- L** Roller bearing
- E** Chisel with wiper plate

optional Function indication

- FD** 6...60
V AC/DC
- FE** 90...250
V AC/DC

optional Connector

- S80R** 5-pin, right
- S80L** 5-pin, left



Single position switches for standard applications

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing
- Plunger can be rotated in two approach directions

Single position switch with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Switching elements for low-current applications

Snap switch elements BSE 73.1 or BSE 74.1 have specially formed gold contacts making them suitable for low currents ≥ 10 mA.

Connection variants

- Thread for cable gland M12x1.5 for series 99, Thread for cable gland M16x1.5 for series 100
- Connector (note permissible operating voltage for the connectors, see page 132).

Approach from two directions possible (parallel and diagonally)

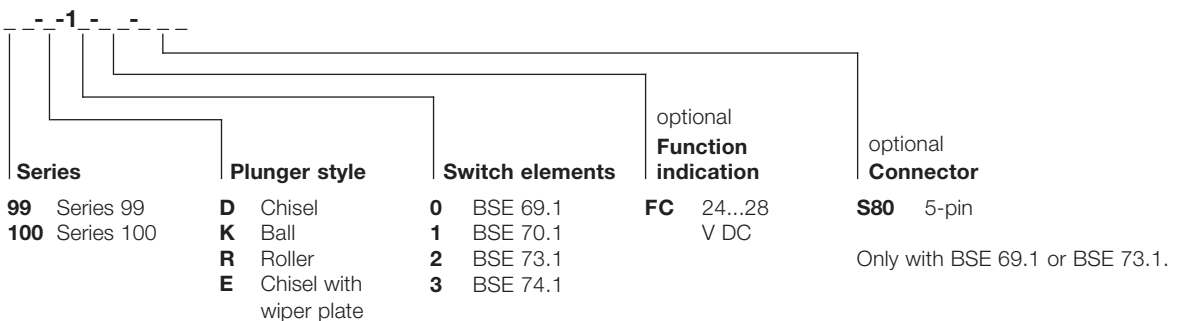
Press plunger down and turn to desired direction; release plunger.



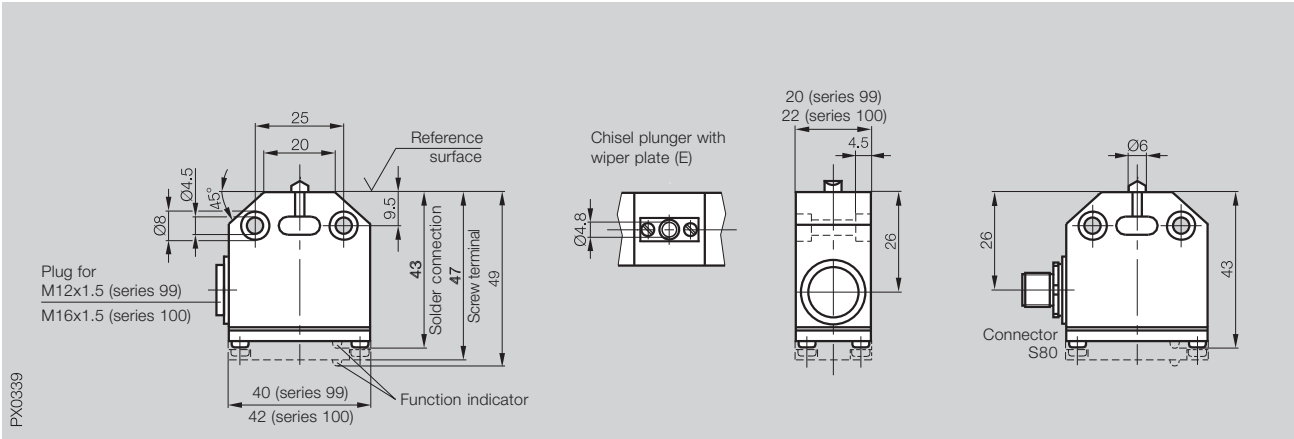
Ordering example:

BNS 819-100-E-12-FC-S80

BNS 819-



Type	Single position switch



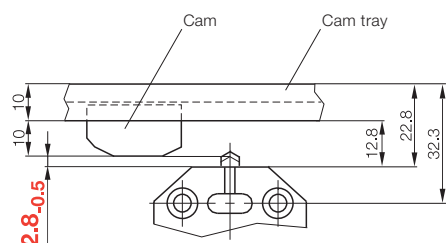
Plunger style	Chisel (D), Ball (K), Roller (R) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	Cable gland (M12x1.5 series 99, M16x1.5 series 100) or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element	BSE 69.1	BSE 73.1	BSE 70.1	BSE 74.1
Ordering code	BNS 819-99/100-_-10	BNS 819-99/100-_-12	BNS 819-99/100-_-11	BNS 819-99/100-_-13
Wiring diagram, style				

Switch element				
Contact material	Silver	Gold	Silver	Gold
Switching principle	Snap switch		Snap switch	
Contact system	Single-pole changeover		Single-pole changeover	
Connection type	Solder connection		Screw terminal	
Electrical data	see page 117		see page 117	
Approval	UL, CSA, CCC		UL, CSA, CCC	

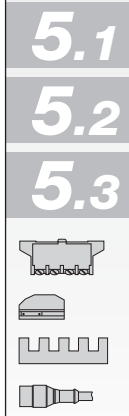
Mechanical data				
Plunger point to reference surface	4 mm		4 mm	
Switchpoint to reference surface	3.5 mm		3.5 mm	
Maximum plunger travel	3.5 mm		3.5 mm	
Switching actuating force on plunger	min. 8 N		min. 8 N	
Switching frequency	max. 200/min		max. 200/min	
Approach speed	Plunger D	20 m/min	Plunger D	20 m/min
	Plunger E	10 m/min	Plunger E	10 m/min
	Plunger K	9 m/min	Plunger K	9 m/min
	Plunger R	60 m/min	Plunger R	60 m/min
Repeatability	Plunger D, E	± 0.02 mm	Plunger D, E	± 0.02 mm
	Plunger K	± 0.03 mm	Plunger K	± 0.03 mm
	Plunger R	± 0.05 mm	Plunger R	± 0.05 mm

Installation



Note!
To ensure switching function, the dimension 2.8-0.5 is especially critical.

1.1
Multiple position switches series
100
62
61
72
46
40
Single position switches series
F 60
99
100

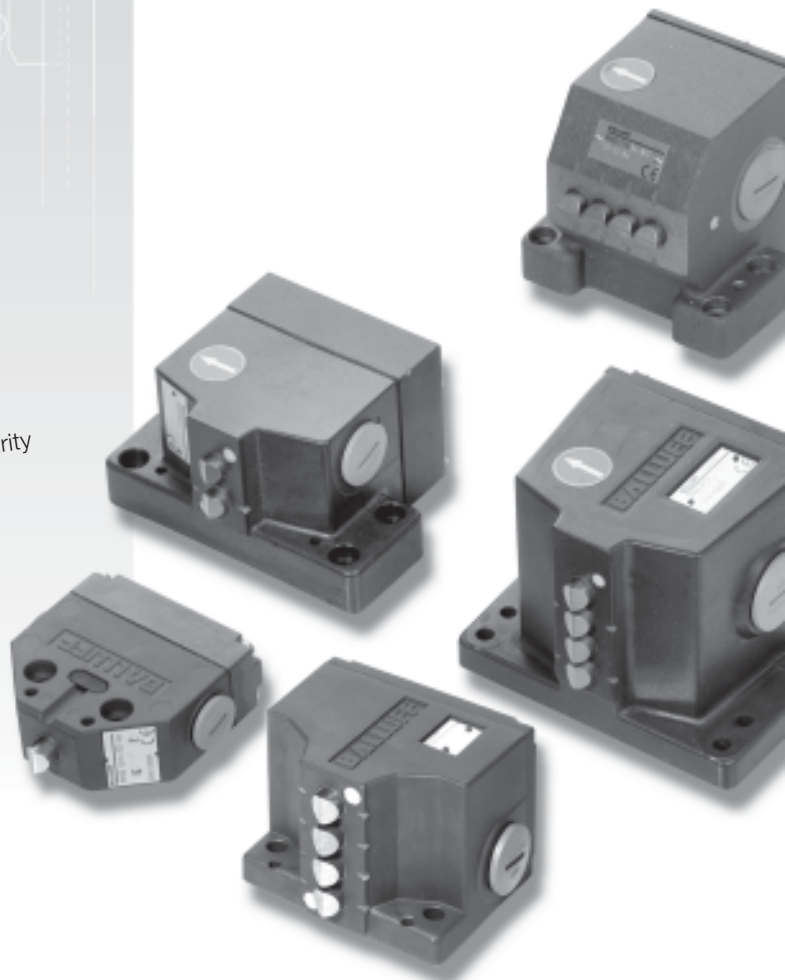


DIN EN 60204-1 VDE 0113



more added value

- Long service life
- Positive-opening contacts for increased security



Mechanical multiple position switches with safety switch positions

- 48 Series 100 per DIN 43697
- 50 Series 62
- 52 Series 61
- 54 Series 72

Mechanical single position switches with safety switch position

- 56 Series F 60 per DIN 43693

1.2

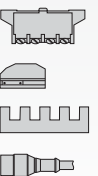
Multiple position switches series 100 62 61 72

Single position switches series F 60

5.1

5.2

5.3



Multiple position switches per DIN 43697 with safety switch positions per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with function indicator

- Function indication for selectable three voltage ranges

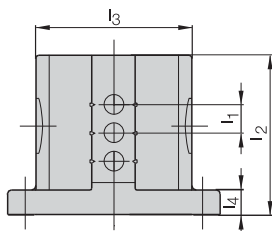
Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M25x1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Available sizes



Number of plungers		2	3	4	5	6	8	10	12
Dimension	Dimension l ₁ = 12 mm	70	80	90	105	120	140	170	200
l ₂ when	Dimension l ₃	88	88	88	88	88	80	80	80
	Dimension l ₄	14	14	14	14	14	20	20	20
Dimension l ₁ = 16 mm	Dimension l ₃	70	90	105	120	140	170	200	240
	Dimension l ₄	14	14	14	14	20	20	20	20
Number of connectors*	S80 without FD/FE	1	1	2	2	2			
	S80 with FD/FE	1	2	2	3	3			
	S90 without FD/FE	1	1	1	1	1	1	1	2
	S90 with FD/FE	1	1	1	1	1	1	2	2

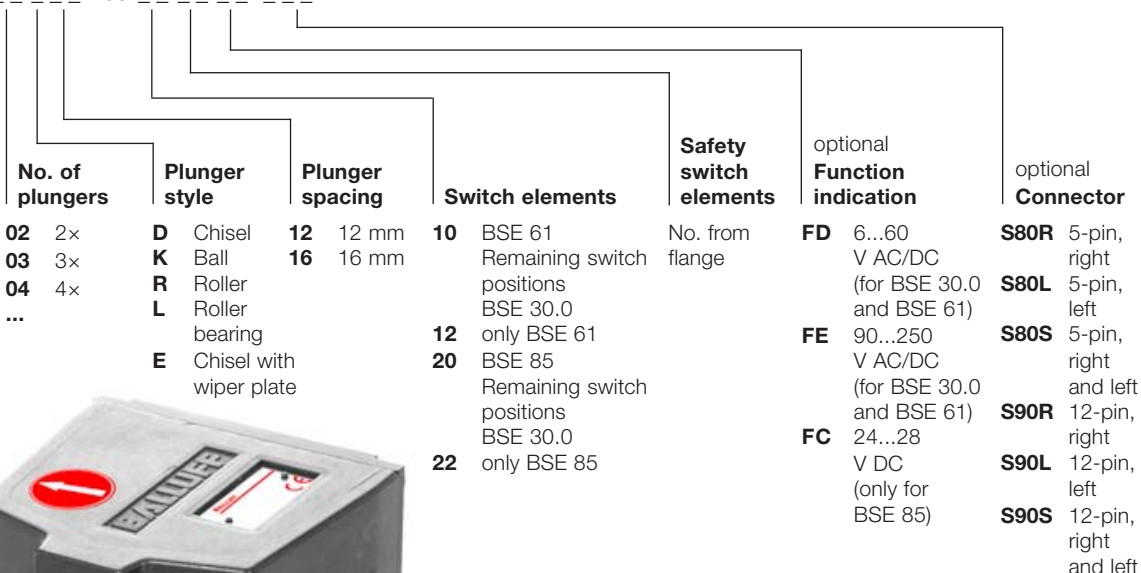
Dimensions in mm

*Number of connectors BSE 85 on request.

Ordering example:

BNS 813-D04-D12-100-20-03-FE-S80R

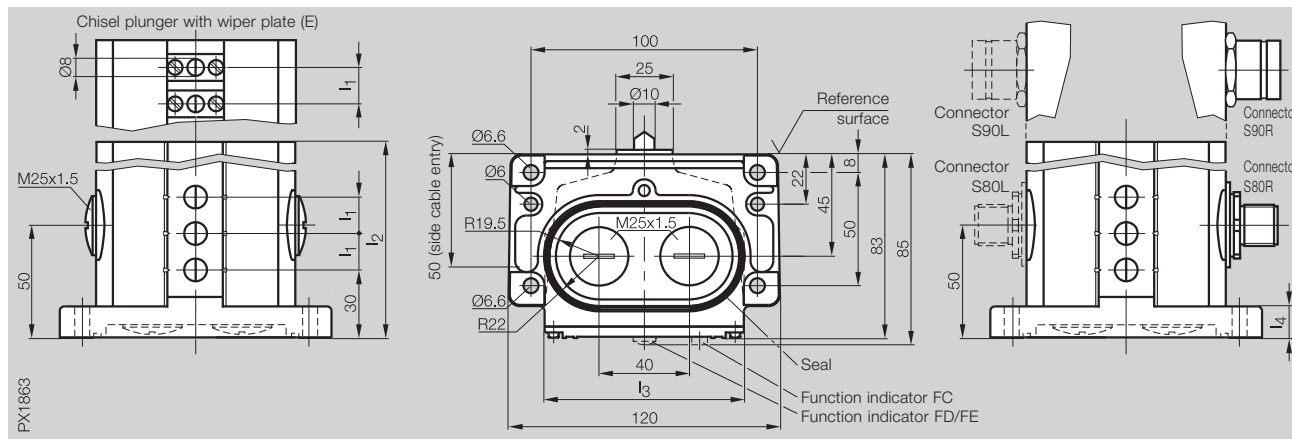
BNS 813-D - -100-



Mechanical Multiple Position Switches with Safety Switch Positions

Series 100
per DIN 43697

Type	Multiple position switch with positive-opening contacts
Plunger spacing	12 mm or 16 mm
Mounting and function dimensions	per DIN 43697



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD), 90...250 V AC/DC (FE) or 24...28 V DC (FC)

With switch element

	BSE 61 per DIN EN 60204-1/VDE 0113	BSE 85 per DIN EN 60204-1/VDE 0113	BSE 30.0
Ordering code	BNS 813-D - -100-1 - -	BNS 813-D - -100-2 - -	BNS 813-D - -100-0 - -
Wiring diagram, style			

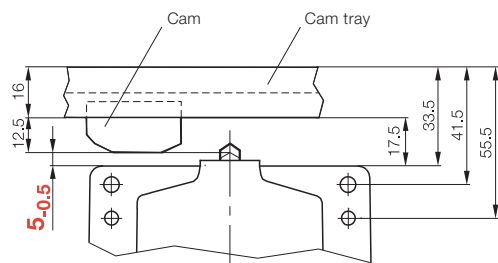
Switch element

Contact material	Silver	Silver	Silver, gold plated
Switching principle	Creep switch, Positive-opening	Snap switch, positive opening (normally-closed)	Snap switch
Contact system	Normally-closed, double interruption	Dual-changeover: 1. NO (snap function), 2. Positive-opening (double-interruption), all galvanically isolated	dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116	see page 116	see page 116
Approval	CSA, CCC	cULus, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm	8 mm	8 mm
Switchpoint to reference surface	7 mm	6.5 mm	6 mm
Maximum plunger travel	4 mm	4 mm	5.5 mm
Assured opening after plunger travel	2.5 mm	2.5 mm	
Switching actuating force on plunger	min. 15 N	min. 30 N	min. 20 N
Switching frequency	max. 300/min	max. 160/min	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 80 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min
Repeatability	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm	Plunger D, E, K: ± 0.02 mm Plunger R, L: ± 0.02 mm	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 5-0.5 is especially critical.

1.2

Multiple position switches series

100

62

61

72

Single position switches series

F 60

5.1

5.2

5.3



Multiple position switches with safety switch positions per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with function indicator

- Function indication for selectable three voltage ranges

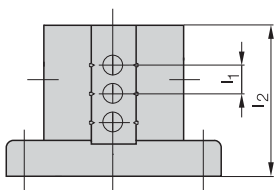
Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M20x1.5 on side and in flange (seals and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Available sizes



Number of plungers		2	3	4	5	6	8	10
Dimension $l_1 = 12$ mm		64	72	84	96	112	130	160
l_2 when $l_1 = 16$ mm		64	84	96	112	130	160	192
Number of S80 without FD/FE		1	1	2	2	2		
Connector* S80 with FD/FE		1	2	2	3	3		
S90 without FD/FE		1	1	1	1	1	1	2
S90 with FD/FE		1	1	1	1	1	2	2

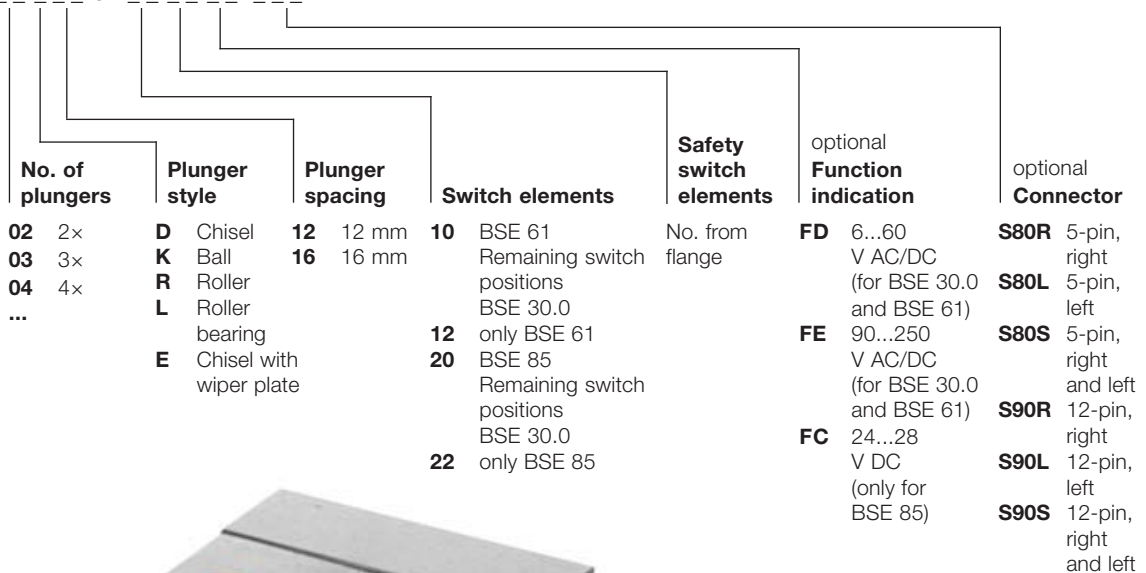
Dimensions in mm

*Number of connectors BSE 85 on request.

Ordering example:

BNS 813-D04-R12-62-10-02-FD-S80R

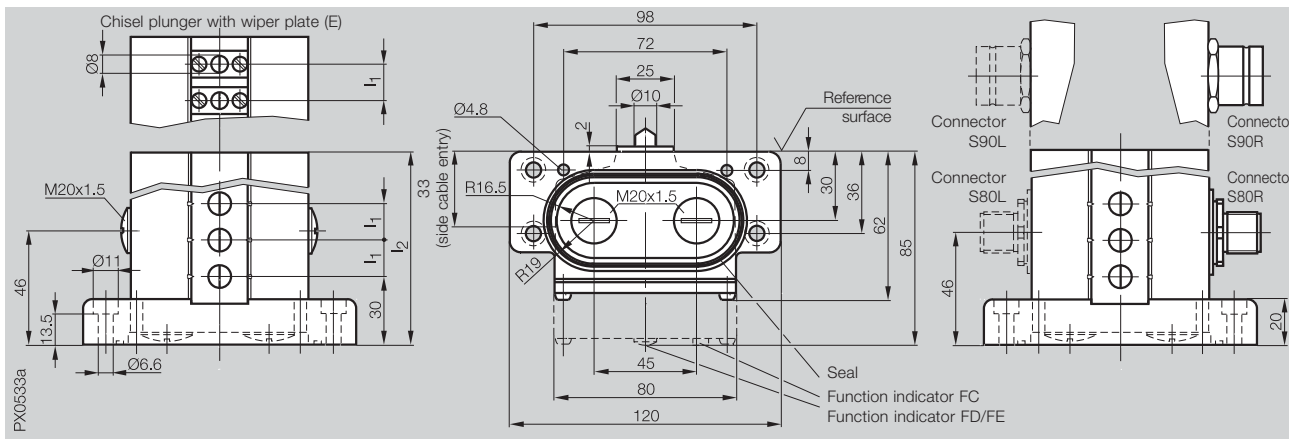
BNS 813-D - -62- - - -



Mechanical Multiple Position Switches with Safety Switch Positions

Series 62

Type	Multiple position switch with positive-opening contacts
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD), 90...250 V AC/DC (FE) or 24...28 V DC (FC)

With switch element

	BSE 61 per DIN EN 60204-1/VDE 0113	BSE 85 per DIN EN 60204-1/VDE 0113	BSE 30.0
Ordering code	BNS 813-D - -62-1 - -	BNS 813-D - -62-2 - -	BNS 813-D - -62-0 - -
Wiring diagram, style			

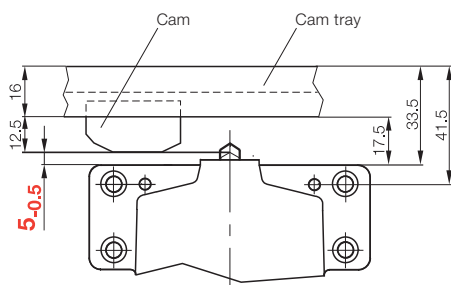
Switch element

Contact material	Silver	Silver	Silver, gold plated
Switching principle	Creep switch, positive-opening	Snap switch, positive opening (normally-closed)	Snap switch
Contact system	Normally-closed, double interruption	Dual-changeover: 1. NO (snap function), 2. Positive-opening (double-interruption), all galvanically isolated	dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116	see page 116	see page 116
Approval	CSA, CCC	cULus, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm	8 mm	8 mm
Switchpoint to reference surface	7 mm	6.5 mm	6 mm
Maximum plunger travel	4 mm	4 mm	5.5 mm
Assured opening after plunger travel	2.5 mm	2.5 mm	
Switching actuating force on plunger	min. 15 N	min. 30 N	min. 20 N
Switching frequency	max. 300/min	max. 160/min	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 80 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min
Repeatability	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm	Plunger D, E, K: ± 0.02 mm Plunger R, L: ± 0.02 mm	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 5.0.5 is especially critical.

1.2

Multiple position switches series
100
62
61
72
Single position switches series
F 60

5.1

5.2

5.3



Multiple position switches with safety switch positions per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with function indicator

- Function indication for selectable three voltage ranges

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

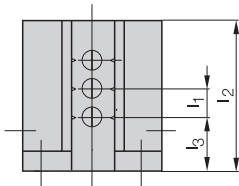
- Thread for cable gland M20x1.5 on side and in flange (seals and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Available sizes

No. of plungers	Plunger spacing Dimension	Housing B Standard Dimension		Housing B Dimension		Housing C Dimension		Number of connectors* S80 without FD/FE	Number of connectors* S80 with FD/FE	Number of connectors* S90 without FD/FE	Number of connectors* S90 with FD/FE
		l ₁	l ₂	b ₁	b ₂	l ₂	b ₂				
2	12	36	12	60	30	48	24	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1
4	12	60	12					2	2	1	1
5	12	72	12					2	3	1	1
6	12	84	12					2	3	1	1
2	16	48	16	60	30	60	30	1	1	1	1
3	16	72	16					1	2	1	1
4	16	84	16					2	2	1	1

Dimensions in mm

*Number of connectors BSE 85 on request.



Ordering example:

BNS 813-B06-K12-61-A-12-02-FE-S80R

BNS 813- - - -61- - - -

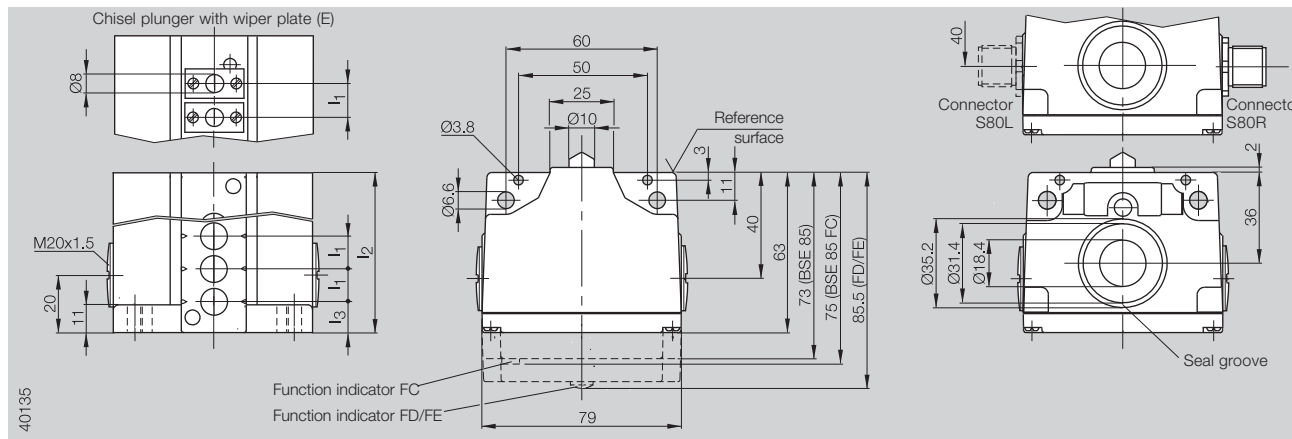
Housing style	No. of plungers	Plunger style	Plunger spacing	Distance l ₃	Switching elements	Safety switch elements	optional Function indication	optional Connector
B Standard 2x M20x1.5 on side	02 2x	D Chisel	12 12 mm	A 12 mm	10 BSE 61 Remaining switch positions	No. from flange	FD 6...60 V AC/DC (for BSE 30.0 and BSE 61)	S80R 5-pin, right
B 3x M20x1.5 on side and in flange	03 3x	K Ball	16 16 mm	B 16 mm	12 only BSE 61		FE 90...250 V AC/DC (for BSE 30.0 and BSE 61)	S80L 5-pin, link
B 3x M20x1.5 on side and in flange	04 4x	R Roller		C 24 mm	20 BSE 85			S80S 5-pin, right and left
C 2x M20x1.5 on side and cable entry in flange	...	L Roller bearing		D 30 mm	22 only BSE 85		FC 24...28 V DC (only for BSE 85)	S90R 12-pin, right
		E Chisel with wiper plate						S90L 12-pin, left
								S90S 12-pin, right and left



Mechanical Multiple Position Switches with Safety Switch Positions

Series 61

Type	Multiple position switch with positive-opening contacts
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD), 90...250 V AC/DC (FE) or 24...28 V DC (FC)

With switch element

	BSE 61 per DIN EN 60204-1/VDE 0113	BSE 85 per DIN EN 60204-1/VDE 0113	BSE 30.0
Ordering code	BNS 813- - -61-1 - -	BNS 813- - -61-2 - -	BNS 813- - -61-0 - -
Wiring diagram, style			

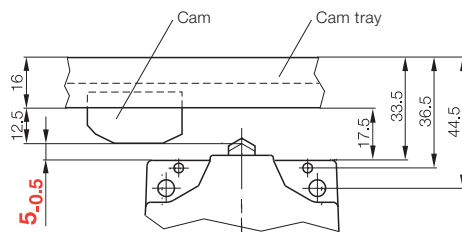
Switch element

Contact material	Silver	Silver	Silver, gold plated
Switching principle	Creep switch, positive-opening	snap switch, positive opening (normally-closed)	Snap switch
Contact system	Normally-closed, double interruption	Dual-changeover: 1. NO (snap function), 2. Positive-opening (double-interruption), all galvanically isolated	dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116	see page 116	see page 116
Approval	CSA, CCC	cULus, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm	8 mm	8 mm
Switchpoint to reference surface	7 mm	6.5 mm	6 mm
Maximum plunger travel	4 mm	4 mm	5.5 mm
Assured opening after plunger travel	2.5 mm	2.5 mm	
Switching actuating force on plunger	min. 15 N	min. 30 N	min. 20 N
Switching frequency	max. 300/min	max. 160/min	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 80 m/min	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min
Repeatability	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm	Plunger D, E, K: ± 0.02 mm Plunger R, L: ± 0.02 mm	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 5_{0.5} is especially critical.

1.2

Multiple position switches series

100
62
61
72

Single position switches series
F 60

5.1

5.2

5.3



Multiple position switches with safety switch positions per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

- Maintenance-free, self-lubricating plunger guide with slide bearing

Multiple position switches with function indicator

- Function indication for selectable three voltage ranges

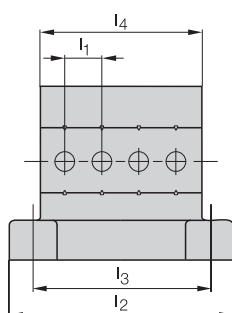
Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M25x1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Available sizes



Number of plungers	2	3	4	5	6	8	10
Dimension l ₂ when l ₁ = 12 mm	84	84	100	116	132	164	180
Dimension l ₃ when l ₁ = 12 mm	66	66	82	98	114	146	162
Dimension l ₄ when l ₁ = 12 mm	54	54	68	84	100	132	148
Dimension l ₂ when l ₁ = 16 mm	84	100	116	132	148	180	212
Dimension l ₃ when l ₁ = 16 mm	66	82	98	114	130	162	194
Dimension l ₄ when l ₁ = 16 mm	54	68	84	100	116	148	180
Number of Connector*	S80 without FD/FE	1	1	2	2	2	
	S80 with FD/FE	1	2	2	3	3	
	S90 without FD/FE	1	1	1	1	1	1
	S90 with FD/FE	1	1	1	1	1	2

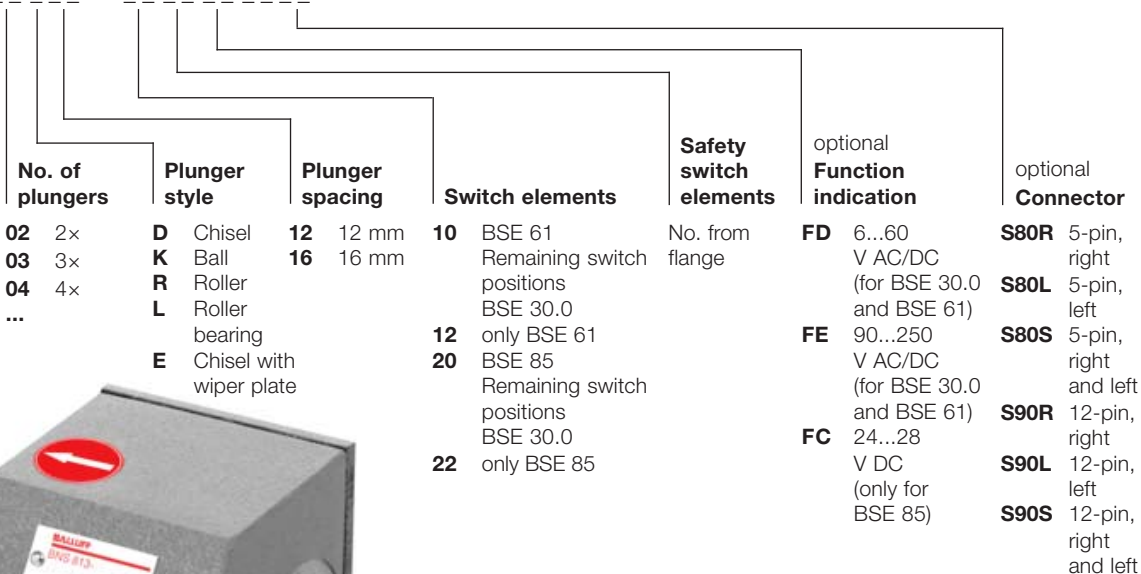
Dimensions in mm

*Number of connectors BSE 85 on request.

Ordering example:

BNS 813-B04-R12-72-10-01-FD-S80R

BNS 813-B - - -72- - - -

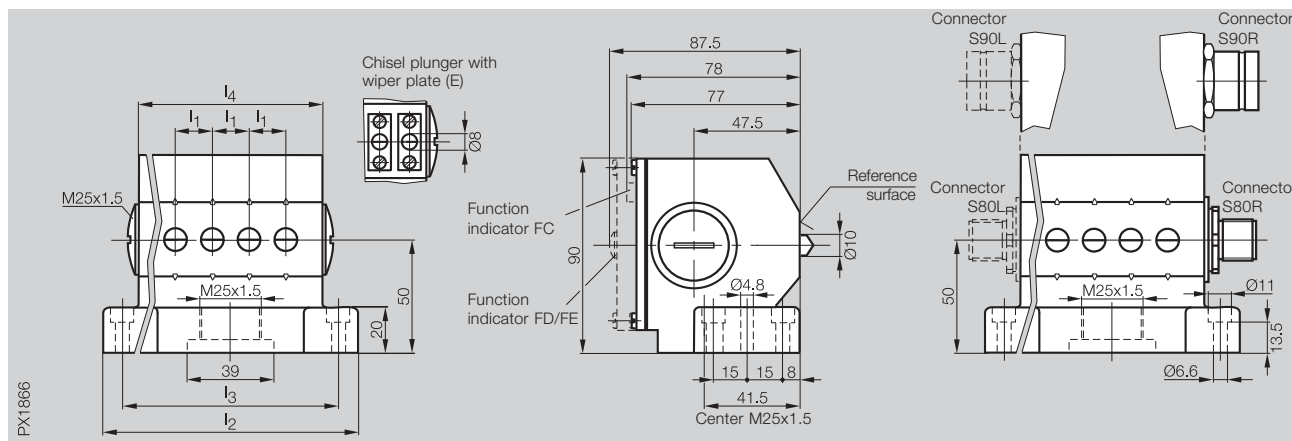


Not for new applications.
Still available for replacements.

Mechanical Multiple Position Switches with Safety Switch Positions

Series 72

Type	Multiple position switch with positive-opening contacts
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD), 90...250 V AC/DC (FE) or 24...28 V DC (FC)

With switch element

	BSE 61 per DIN EN 60204-1/VDE 0113	BSE 85 per DIN EN 60204-1/VDE 0113	BSE 30.0
Ordering code	BNS 813-B - -72-1 - -	BNS 813-B - -72-2 - -	BNS 813-B - -72-0 - -
Wiring diagram, style			

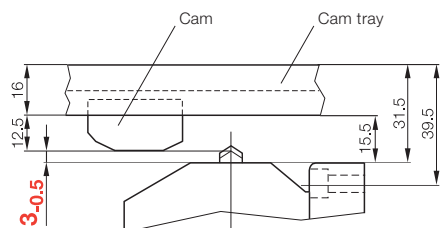
Switch element

Contact material	Silver	Silver	Silver, gold plated
Switching principle	Creep switch, positive-opening	snap switch, positive opening (normally-closed)	Snap switch
Contact system	Normally-closed, double interruption	Dual-changeover: 1. NO (snap function), 2. Positive-opening (double-interruption), all galvanically isolated	dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116	see page 116	see page 116
Approval	CSA, CCC	cULus, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	6 mm	6 mm	6 mm
Switchpoint to reference surface	5 mm	4.5 mm	4 mm
Maximum plunger travel	4 mm	4 mm	5.5 mm
Assured opening after plunger travel	2.5 mm	2.5 mm	
Switching actuating force on plunger	min. 15 N	min. 30 N	min. 20 N
Switching frequency	max. 300/min	max. 160/min	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger E: 30 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min	40 m/min 30 m/min 10 m/min 60 m/min 80 m/min	40 m/min 30 m/min 10 m/min 60 m/min 120 m/min
Repeatability	Plunger D, E, K: ± 0.002 mm Plunger R, L: ± 0.01 mm	± 0.02 mm ± 0.02 mm	± 0.002 mm ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 3.0.5 is especially critical.

1.2

Multiple position switches series

100
62
61
72

Single position switches series
F 60

5.1

5.2

5.3



Single position switches per DIN 43693 with safety switch positions per DIN EN 60204-1/VDE 0113

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

- Maintenance-free, self-lubricating plunger guide with slide bearing
- Plunger not rotatable, approach direction cannot be changed (see ordering code)

Single position switch with function indicator

- Function indication for selectable three voltage ranges

Single position switch with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16x1.5 (Scope of delivery: Seals and cover screws)
- Connector (note permissible operating voltage for the connectors, see page 132).

Ordering example:

BNS 813-FD-60-183-FD-S80R

BNS 813-F -60-18 - - -

Plunger style

- D** Chisel
- K** Ball
- R** Roller
- L** Roller bearing
- E** Chisel with wiper plate

Switch elements

- 3** BSE 61
Approach direction longitudinal, parallel to mounting surface
- 5** BSE 61
Approach direction lateral, 90° to mounting surface
- 6** BSE 85
Approach direction longitudinal, parallel to mounting surface
- 7** BSE 85
Approach direction lateral, 90° to mounting surface

optional
Function indication

- FD** 6...60
V AC/DC
(for BSE 61)
- FE** 90...250
V AC/DC
(for BSE 61)
- FC** 24...28
V DC
(for BSE 85)

optional
Connector

- S80R** 5-pin, right
- S80L** 5-pin, left





Mechanical single and multiple position switches with forced opening

60 Series 46
62 Series 40

Mechanical single position switches with forced opening

64 Series 99 and 100

1.3

Multiple position switches series

46
40

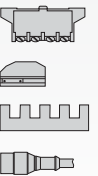
Single position switches series

99
100

5.1

5.2

5.3



more added value

- Long service life
- Compact form factor for ease of installation



Multiple position switches with forced opening

- Smallest plunger spacing for mechanical multiple position switches (8 mm)
- Switch element with forced opening
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

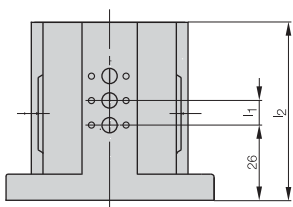
- Maintenance-free, self-lubricating plunger guide with slide bearing
- All switch positions with forced opening: Rigid plungers

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16x1.5 on side and in flange (seals and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).



Available sizes

Number of plungers		2	3	4	5	6	8	10
Dimension l ₂ when	l ₁ = 8 mm	49	59	64	72	80	96	112
	l ₁ = 10 mm	49	59	72	80	89	112	129
Number of connectors	S80 without FC	1	1	2	2	2	3	3
	S80 with FC	1	2	2	3	3		

Dimensions in mm

Size 12x with 8 mm spacing on request.

Ordering example:

BNS 813-B02-D08-46-49-01-FC-S80R

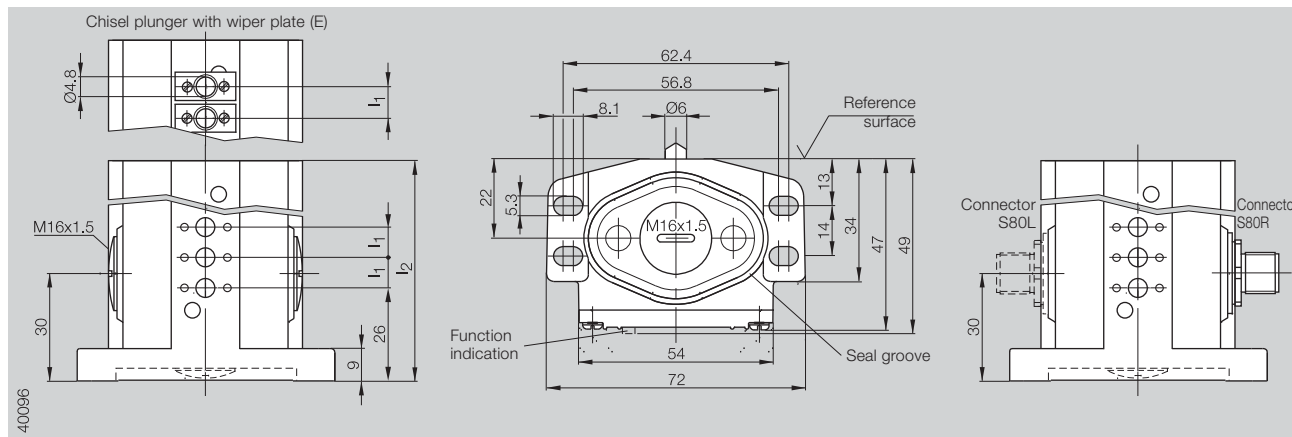
BNS 813-B - -46- - - - -

No. of plungers	Plunger style	Plunger spacing	Switch elements	Switch elements with forced opening	optional Function indication	optional Connector
02 2x	D Chisel	08 8 mm	30 BSE 63, remaining switch positions BSE 69.1	No. from flange	FC 24...28 V DC	S80R 5-pin, right
03 3x	K Ball	10 10 mm	32 BSE 63, remaining switch positions BSE 73.1			S80L 5-pin, left
04 4x	R Roller		39 all BSE 63			S80S 5-pin, right and left
...	E Chisel with wiper plate		41 BSE 64, remaining switch positions BSE 70.1			Only with BSE 69.1, BSE 73.1 or BSE 63.
			43 BSE 64, remaining switch positions BSE 74.1			
			49 all BSE 64			

Mechanical Multiple Position Switches with Forced Opening

Series 46

Type	Multiple position switch with forced opening contacts
Plunger spacing	8 mm or 10 mm



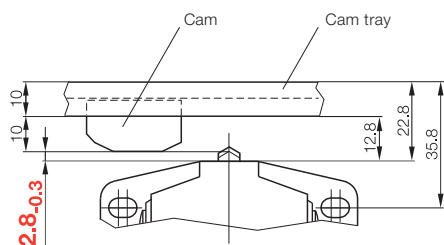
Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16x1.5 for cable gland or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element	BSE 63	BSE 64
Ordering code	BNS 813-...-46-3_	BNS 813-...-46-4_
Wiring diagram, style		

Switch element		
Contact material	Silver	Silver
Switching principle	Snap switch	Snap switch
Contact system	Single-pole change-over, NO with snap function, NC with forced opening	Single-pole change-over, NO with snap function, NC with forced opening
Connection type	Solder connection	Screw terminal
Electrical data	see page 117	see page 117
Approvals	UL, CSA, CCC	UL, CSA, CCC

Mechanical data		
Plunger point to reference surface	4 mm	4 mm
Switchpoint to reference surface	3.5 mm	3.5 mm
Maximum plunger travel	2.1 mm	2.1 mm
Assured separation after plunger travel	1 mm	1 mm
Switching actuating force on plunger	min. 8 N	min. 8 N
Switching frequency	max. 200/min	max. 200/min
Approach speed	Plunger D: 20 m/min Plunger E: 10 m/min Plunger K: 9 m/min Plunger R: 60 m/min	20 m/min 10 m/min 9 m/min 60 m/min
Repeatability	Plunger D, E: ±0.02 mm Plunger K: ±0.03 mm Plunger R: ±0.05 mm	±0.02 mm ±0.03 mm ±0.05 mm

Installation



Note!
To ensure switching function, the dimension 2.8_{-0.3} is especially critical.

1.3

Multiple position switches series

46

40

Single position switches series

99

100

5.1

5.2

5.3



Multiple position switches with forced opening

- Smallest plunger spacing for mechanical multiple position switches (8 mm)
- Switch element with forced opening
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber

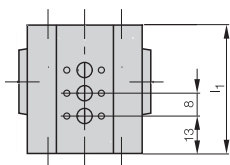
- Maintenance-free, self-lubricating plunger guide with slide bearing
- All switch positions with forced opening: Rigid plungers

Multiple position switches with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

Connection options

- Thread for cable gland M16x1.5 on side (Scope of delivery: Seals and cover screws)
- Connector (note permissible operating voltage for the connectors, see page 132).



Available sizes

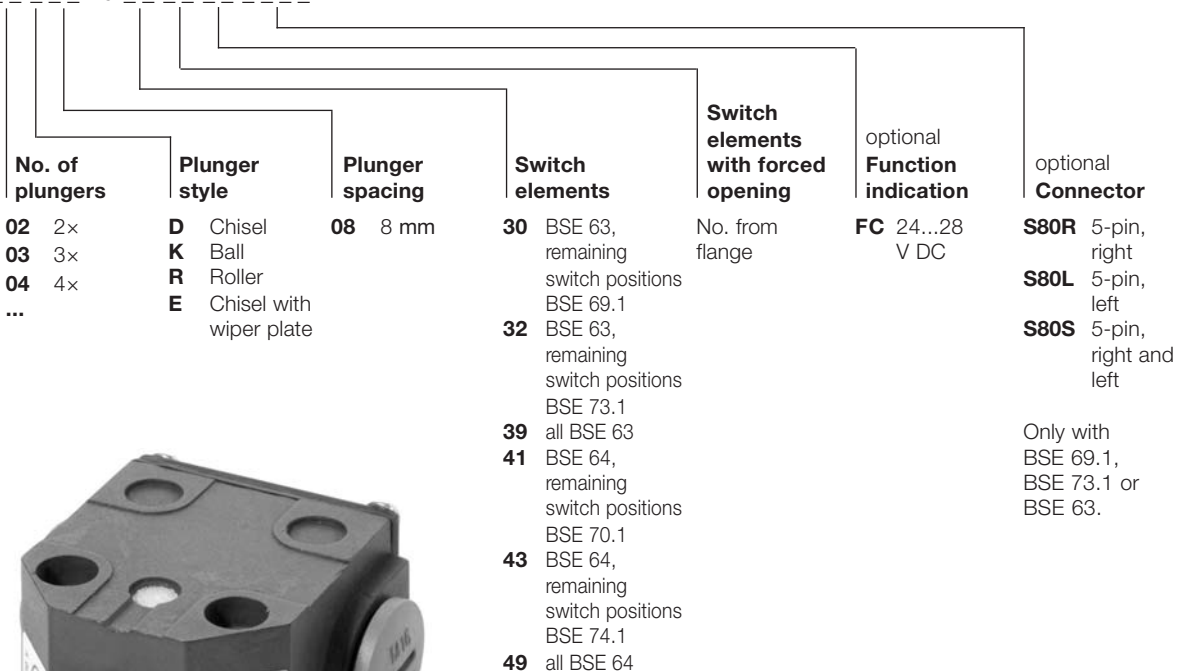
No. of plungers	2	3	4	5	6
Dimension I ₁	34	42	50	58	66
S80 without FC	1	1	2	2	2
S80 with FC	1	2	2		

Dimensions in mm

Ordering example:

BNS 813-B04-D08-40-49-01-FC-S80R

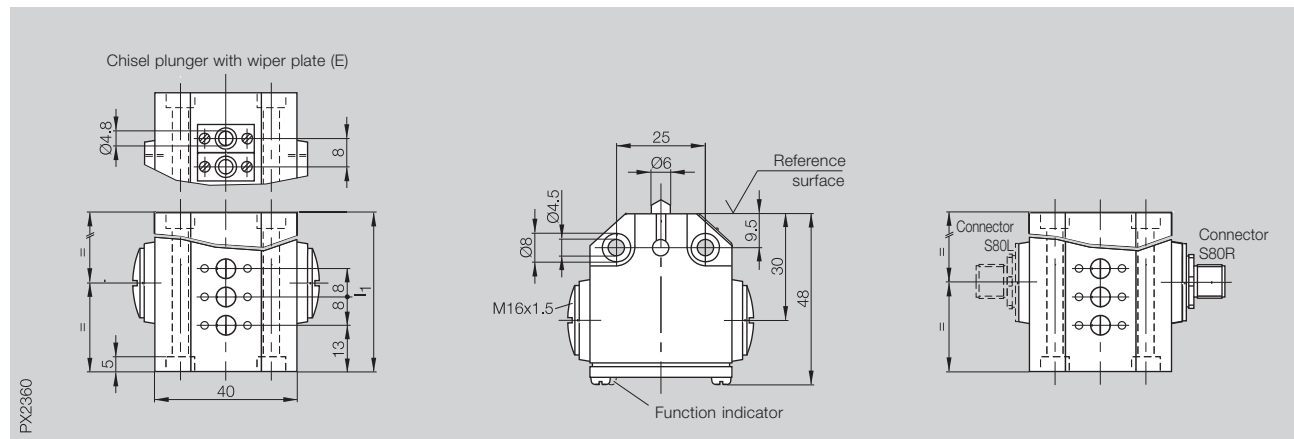
BNS 813-B - - -40- - - -



Mechanical Multiple Position Switches with Forced Opening

Series 40

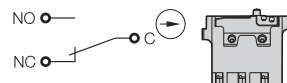
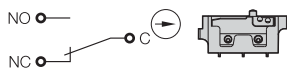
Type	Multiple position switch with forced opening contacts
Plunger spacing	8 mm



Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M16x1.5 for cable gland or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element
Ordering code
Wiring diagram, style

BSE 63	BSE 64
BNS 813-...-40-3_	BNS 813-...-40-4_



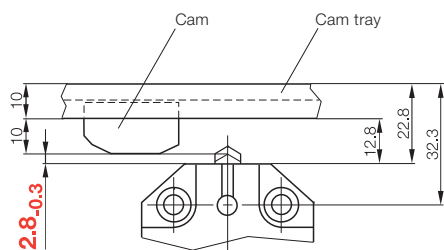
Switch element

Contact material	Silver	Silver
Switching principle	Snap switch	Snap switch
Contact system	Single-pole change-over, NO with snap function, NC with forced opening	Single-pole change-over, NO with snap function, NC with forced opening
Connection type	Solder connection	Screw terminal
Electrical data	see page 117	see page 117
Approval	UL, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	4 mm	4 mm	
Switchpoint to reference surface	3.5 mm	3.5 mm	
Maximum plunger travel	2.1 mm	2.1 mm	
Assured separation after plunger travel	1 mm	1 mm	
Switching actuating force on plunger	min. 8 N	min. 8 N	
Switching frequency	max. 200/min	max. 200/min	
Approach speed	Plunger D	20 m/min	20 m/min
	Plunger E	10 m/min	10 m/min
	Plunger K	9 m/min	9 m/min
	plunger R	60 m/min	60 m/min
Repeatability	Plunger D, E	± 0.02 mm	± 0.02 mm
	Plunger K	± 0.03 mm	± 0.03 mm
	Plunger R	± 0.05 mm	± 0.05 mm

Installation



Note!
To ensure switching function, the dimension 2.8_{-0.3} is especially critical.

1.3

Multiple position switches series

46
40

Single position switches series

99
100

5.1

5.2

5.3



Single position switches with forced opening

- Switch element with forced opening
- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing
- Switch position with forced opening: Rigid plunger
- Plunger not rotatable, approach direction cannot be changed (see ordering code)

Single position switch with wiper plate

- Increased function security under extreme conditions of use
- Wiper plate prevents plunger from sticking in the guide
- For use in wet areas with strongly adhering media

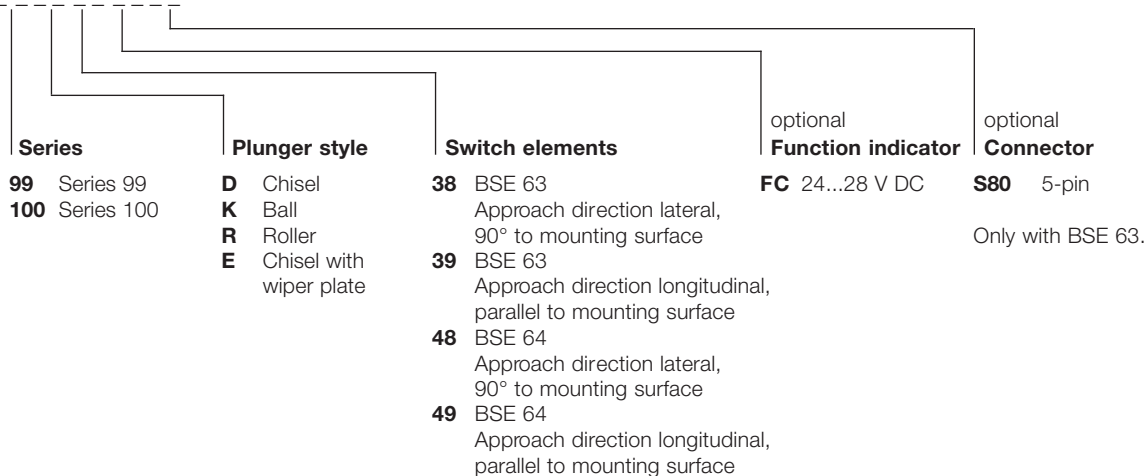
Connection options

- Thread for cable gland M12×1.5 for Series 99, Thread for cable gland M16×1.5 for Series 100
- Connector (note permissible operating voltage for the connectors, see page 132).

Ordering example:

BNS 813-100-E-49-FC-S80

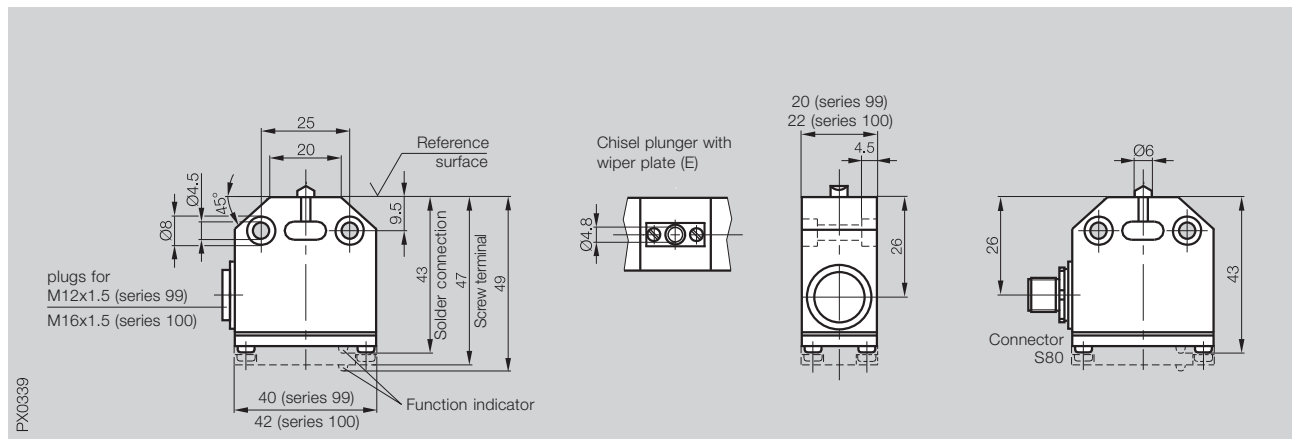
BNL 813



Mechanical Single Position Switches with Forced Opening

Series 99 and 100

Type	Single position switch with forced opening contacts



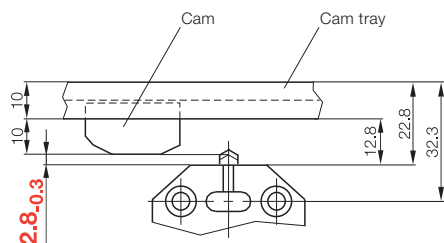
Plunger style	Chisel (D), Ball (K), Roller (R), Roller bearing (L) or Chisel with wiper plate (E)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	Cable gland (M12x1.5 series 99, M16x1.5 series 100) or connector
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 24...28 V DC (FC)

With switch element	BSE 63	BSE 64
Ordering code	BNS 813-99/100- -3 - - -	BNS 813-99/100- -4 - - -
Wiring diagram, style		

Switch element		
Contact material	Silver	Silver
Switching principle	Snap switch	Snap switch
Contact system	Single-pole change-over, NO with snap function, NC with forced opening	Single-pole change-over, NO with snap function, NC with forced opening
Connection type	Solder connection	Screw terminal
Electrical data	see page 117	see page 117
Approval	UL, CSA, CCC	UL, CSA, CCC

Mechanical data		
Plunger point to reference surface	4 mm	4 mm
Switchpoint to reference surface	3.5 mm	3.5 mm
Maximum plunger travel	2.1 mm	2.1 mm
Assured separation after plunger travel	1 mm	1 mm
Switching actuating force on plunger	min. 8 N	min. 8 N
Switching frequency	max. 200/min	max. 200/min
Approach speed	Plunger D: 20 m/min Plunger E: 10 m/min Plunger K: 9 m/min Plunger R: 60 m/min	20 m/min 10 m/min 9 m/min 60 m/min
Repeatability	Plunger D, E: ±0.02 mm Plunger K: ±0.03 mm Plunger R: ±0.05 mm	±0.02 mm ±0.03 mm ±0.05 mm

Installation



Note!
To ensure switching function, the dimension 2.8_{-0.3} is especially critical.

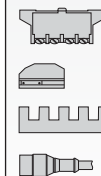
1.3

Multiple position switches series 46 40
Single position switches series 99 100

5.1

5.2

5.3



**Mechanical
multiple position
switches with
quick-change
plunger unit**

68	Series 100 per DIN 43697
70	Series 100 per DIN EN 60204-1/ VDE 0113
72	Series 61
74	Series 61 per DIN EN 60204-1/ VDE 0113
76	Quick-change block for series 100
77	Quick-change block for series 61

1.4

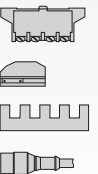
Multiple
position
switches
series
100
61

Quick-
change block
for series
100
61

5.1

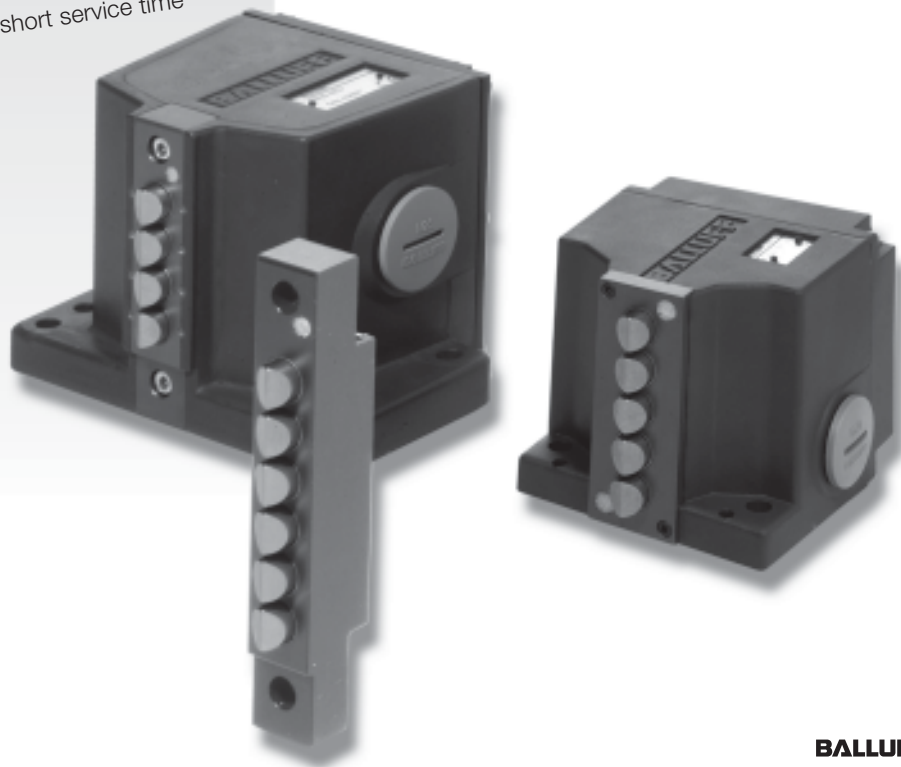
5.2

5.3



more added value

- For the most extreme applications
- Long service life
- Quick-change plunger unit for short service time



Multiple position switches per DIN 43697 for standard applications with quick-change plunger unit

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

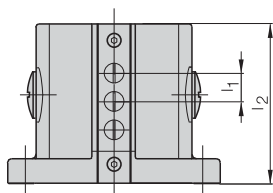
Connection options

- Thread for cable gland M25×1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes



No. of plungers	2	3	4	5	6
Dimension $l_1 = 12$ mm	70	80	90	105	120
l_2 when $l_1 = 16$ mm	70	90	105	120	
Number of S80 without FD/FE	1	1	2	2	2
Connector S80 with FD/FE	1	2	2	3	3
S90 without FD/FE	1	1	1	1	1
S90 with FD/FE	1	1	1	1	1
S4 without FD (IO-Link)	1	1	1	1	1
S4 with FD (IO-Link)	1	1	1	1	1

Dimensions in mm

Ordering example:

BNS 829-D02-D16-100-10-FE-S80R

BNS 829-D - -100-10-

No. of plungers

02 2×
...
06 6×

Plunger style

D Chisel
K Ball
R Roller
L Roller bearing

Plunger spacing

12 12 mm
16 16 mm

optional Function indicator

FD 6...60
V AC/DC
FE 90...250
V AC/DC

optional Connector

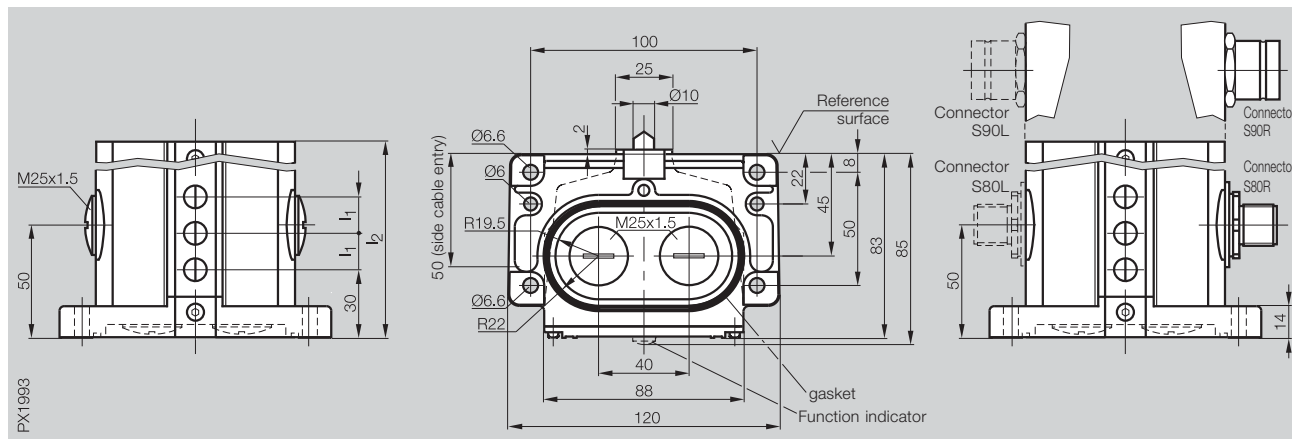
S80R 5-pin, right
S80L 5-pin, left
S80S 5-pin, right and left
S90R 12-pin, right
S90L 12-pin, left
S90S 12-pin, right and left
S4R-I 4-pin, right only for IO-Link
S4L-I 4-pin, left only for IO-Link



Mechanical Multiple Position Switches with Quick-Change Plunger Unit

Series 100
per DIN 43697

Type	Multiple position switch
Plunger spacing	12 mm or 16 mm
Mounting and function dimensions	per DIN 43697



Plunger style	Chisel (D), Ball (K), Roller (R) or Roller Bearing (L)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25×1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)



IO-Link

For additional information see IO-Link brochure!

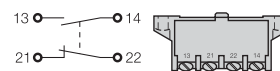
With switch element

Ordering code

Wiring diagram, style

BSE 30.0

BNS 829-D - -100-10- -



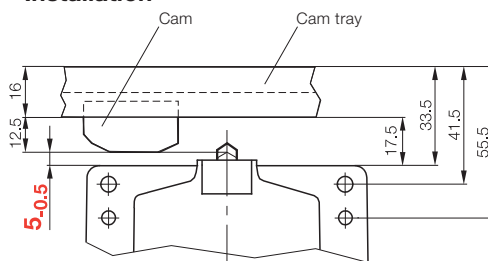
Switch element

Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm
Switchpoint to reference surface	6 mm
Maximum plunger travel	5.5 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min
Repeatability	Plunger D, K: ± 0.002 mm Plunger R, L: ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 5.0-0.5 is especially critical.

1.4

Multiple position switches series

100

61

Quick-change block for series

100

61

5.1

5.2

5.3



Multiple position switches per DIN 43697 with safety switch positions per DIN EN 60240-1/VDE 0113 and quick-change plunger unit

- Forced-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

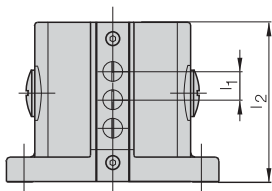
Connection options

- Thread for cable gland M25×1.5 on side and in flange (Gaskets and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Multiple position switches with function indication

- Function indication for selectable three voltage ranges

Available sizes



No. of plungers	2	3	4	5	6
Dimension $l_1 = 12$ mm	70	80	90	105	120
l_2 when $l_1 = 16$ mm	70	90	105	120	
Number of S80 without FD/FE	1	1	2	2	2
Connector* S80 with FD/FE	1	2	2	3	3
S90 without FD/FE	1	1	1	1	1
S90 with FD/FE	1	1	1	1	1

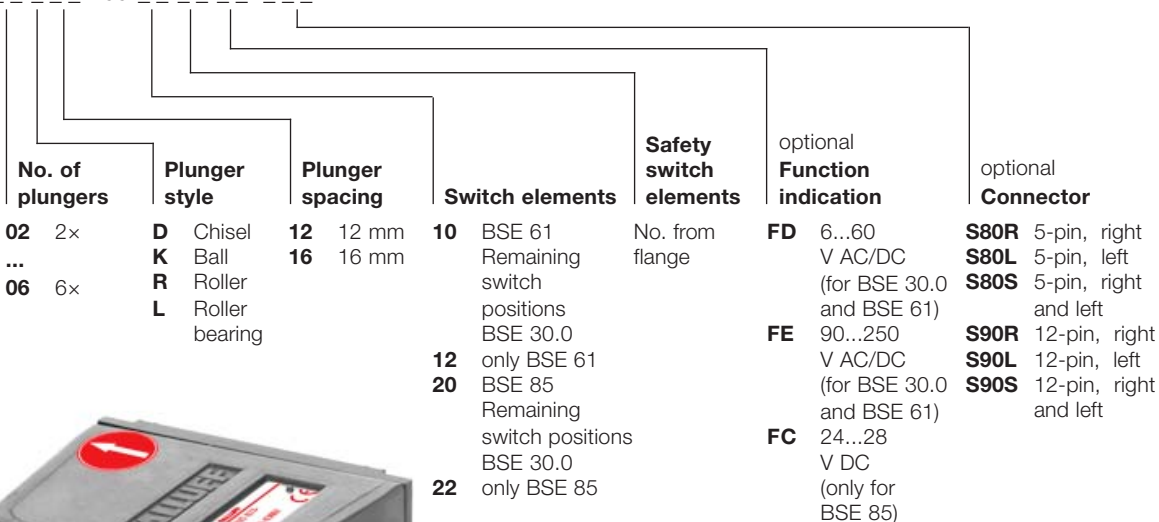
Dimensions in mm

*Number of connectors with BSE 85 on request.

Ordering example:

BNS 823-D02-D12-100-20-03-FE-S80R

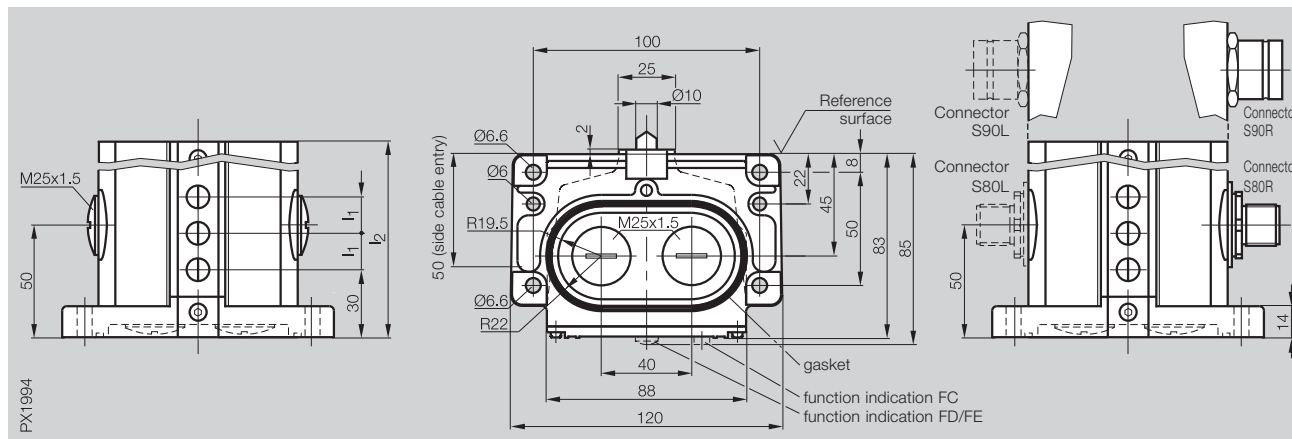
BNS 823-D - -100-



Mechanical Multiple Position Switches with Quick-Change Plunger Unit

Series 100
per DIN 43697

Type	Multiple position switch with forced-opening contacts
Plunger spacing	12 mm or 16 mm
Mounting and function dimensions	per DIN 43697



Plunger style	Chisel (D), Ball (K), Roller (R) or Roller Bearing (L)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M25x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD), 90...250 V AC/DC (FE) or 24...28 V DC (FC)

With switch element

	BSE 61 per DIN EN 60204-1/VDE 0113	BSE 85 per DIN EN 60204-1/VDE 0113	BSE 30.0
Ordering code	BNS 823-D - - -100-1 - - -	BNS 823-D - - -100-2 - - -	BNS 823-D - - -100-0 - - -
Wiring diagram, style			

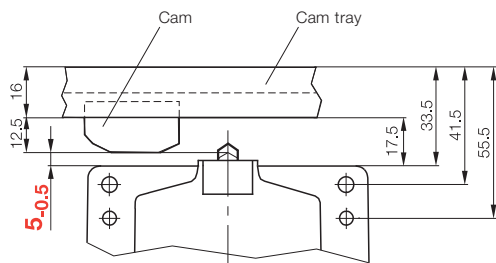
Switch element

Contact material	Silver	Silver	Silver, gold plated
Switching principle	creep switch, forced-opening	snap switch, forced-opening (normally-closed)	Snap switch
Contact system	Normally-closed, double interruption	Dual-changeover: 1. NO (snap function), 2. Positive-opening (double-interruption), all galvanically isolated	dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116	see page 116	see page 116
Approval	CSA, CCC	cULus, CSA, CCC	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm	8 mm	8 mm
Switchpoint to reference surface	7 mm	6.5 mm	6 mm
Maximum plunger travel	4 mm	4 mm	5.5 mm
Assured opening after plunger travel	2.5 mm	2.5 mm	
Switching actuating force on plunger	min. 15 N	min. 30 N	min. 20 N
Switching frequency	max. 300/min	max. 160/min	max. 300/min
Approach speed	Plunger D: 40 m/min Plunger K: 10 m/min Plunger R: 60 m/min Plunger L: 120 m/min	40 m/min 10 m/min 60 m/min 80 m/min	40 m/min 10 m/min 60 m/min 120 m/min
Repeatability	Plunger D, K: ± 0.002 mm Plunger R, L: ± 0.01 mm	± 0.02 mm ± 0.02 mm	± 0.002 mm ± 0.01 mm

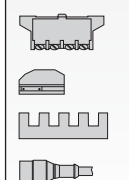
Installation



Note!
To ensure switching function, the dimension 5-0.5 is especially critical.

1.4
Multiple position switches series 100
61
Quick-change block for series 100
61

5.1
5.2
5.3



Multiple position switches for standard applications with quick-change plunger block

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Connection options

- Thread for cable gland M20×1.5 on side and in flange (seals and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

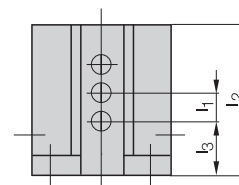
Multiple position switches with function indication

- Function indication for dual voltage range option

Available sizes

No. of plungers	Plunger spacing	Housing B Standard		Housing B		Housing C		Number of connectors S80 without FD/FE	Number of connectors S80 with FD/FE	Number of connectors S90 without FD/FE	Number of connectors S90 with FD/FE	Number of connectors S4 without FD (IO-Link)	Number of connectors S4 with FD (IO-Link)
		Dimension l ₁	Dimension l ₂	Dimension l ₃	Dimension l ₂	Dimension l ₃	Dimension l ₂						
2	12	36	12	60	30	48	24	1	1	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1	1	1
4	12	60	12					2	2	1	1	1	1
5	12	72	12					2	3	1	1	1	1
6	12	84	12					2	3	1	1	1	1
2	16	48	16	60	30	60	30	1	1	1	1	1	1
3	16	72	16					1	2	1	1	1	1
4	16	84	16					2	2	1	1	1	1

Dimensions in mm



Ordering example:

BNS 829-B02-D12-61-12-10-FD-S80R

BNS 829- - -61- -10- -

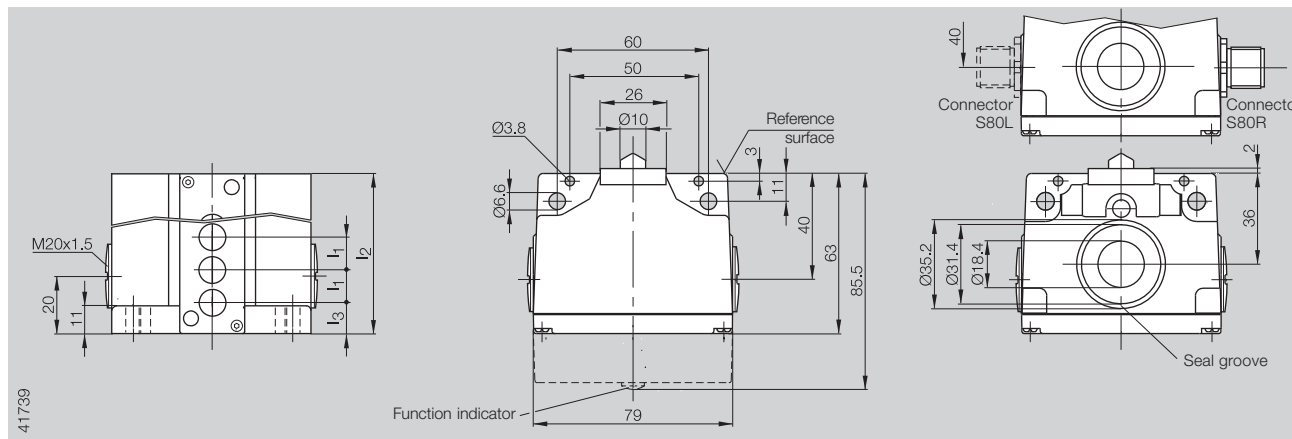
<p>Housing style</p> <p>B Standard 2× M20×1.5 on side</p> <p>B 3× M20×1.5 on side and in flange</p> <p>C 2× M20×1.5 on side and cable entry in flange</p>	<p>No. of plungers</p> <p>02 2× 03 3× 04 4× ...</p>	<p>Plunger style</p> <p>D Chisel K Ball R Roller L Roller bearing</p>	<p>Plunger spacing</p> <p>12 12 mm 16 16 mm 24 24 mm 30 30 mm</p>	<p>Distance l₃</p> <p>12 12 mm 16 16 mm 24 24 mm 30 30 mm</p>	<p>optional Function indicator</p> <p>FD 6...60 V AC/DC FE 90...250 V AC/DC</p>	<p>optional Connector</p> <p>S80R 5-pin, right S80L 5-pin, left S80S 5-pin, right and left S90R 12-pin, right S90L 12-pin, left S90S 12-pin, right and left S4R-I 4-pin, right only for IO-Link S4L-I 4-pin, left only for IO-Link</p>
---	---	--	--	---	--	---



Mechanical Multiple Position Switches with Quick-Change Plunger Unit

Series 61

Type	Multiple position switch
Plunger spacing	12 mm or 16 mm



Plunger style	Chisel (D), Ball (K), Roller (R) Roller Bearing (L)
Plunger material	Stainless steel, contact surfaces induction hardened
Housing material	Cast aluminum, corrosion-resistant, anodized finish
Connection type	M20x1.5 for connector or cable gland
Ambient temperature range	-5...+85 °C
Degree of protection per IEC 60529	IP 67
Function indicator	LED 6...60 V AC/DC (FD) or 90...250 V AC/DC (FE)



IO-Link

For additional information see IO-Link brochure!

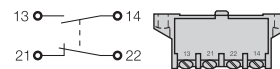
With switch element

Ordering code

Wiring diagram, style

BSE 30.0

BNS 829- - -61- -10- -



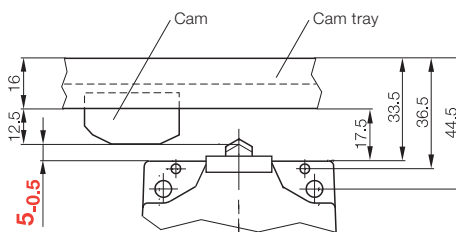
Switch element

Contact material	Silver, gold plated
Switching principle	Snap switch
Contact system	Dual changeover, one normally-open and one normally-closed, galvanically isolated
Electrical data	see page 116
Approval	UL, CSA, CCC

Mechanical data

Plunger point to reference surface	8 mm
Switchpoint to reference surface	6 mm
Maximum plunger travel	5.5 mm
Switching actuating force on plunger	min. 20 N
Switching frequency	max. 300/min
Approach speed	Plunger D 40 m/min Plunger K 10 m/min Plunger R 60 m/min Plunger L 120 m/min
Repeatability	Plunger D, K ± 0.002 mm Plunger R, L ± 0.01 mm

Installation



Note!
To ensure switching function, the dimension 5.0-0.5 is especially critical.

1.4

Multiple position switches series

100

61

Quick-change block for series

100

61

5.1

5.2

5.3



Multiple position switches with safety switch positions per DIN EN 60204-1/VDE 0113 and quick-change plunger unit

- Positive-opening contacts and rigid plungers for additional security per DIN EN 60204-1/VDE 0113

- Dual-chamber system with IP 67 protection: wear-free membrane with hermetic sealing from plunger mechanism and switch chamber
- Maintenance-free, self-lubricating plunger guide with slide bearing

Connection options

- Thread for cable gland M20x1.5 on side and in flange (seals and plugs included)
- Connector (note permissible operating voltage for the connectors, see page 132).

Multiple position switches with function indication

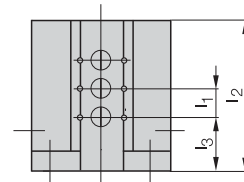
- Function indication for selectable three voltage ranges

Available sizes

No. of plungers	Plunger spacing dimension	Housing B standard dimension		Housing B dimension		Housing C dimension		Number of connectors* S80 without FD/FE	Number of connectors* S80 with FD/FE	Number of connectors* S90 without FD/FE	Number of connectors* S90 with FD/FE
		l ₂	l ₃	l ₂	l ₃	l ₂	l ₃				
2	12	36	12	60	30	48	24	1	1	1	1
3	12	48	12	60	24	60	24	1	2	1	1
4	12	60	12					2	2	1	1
5	12	72	12					2	3	1	1
6	12	84	12					2	3	1	1
2	16	48	16	60	30	60	30	1	1	1	1
3	16	72	16					1	2	1	1
4	16	84	16					2	2	1	1

Dimensions in mm

*Number of connectors with BSE 85 on request.



Ordering example:

BNS 823-B02-K12-61-A-12-02-FE-S80R

BNS 823- - - - -61- - - - -

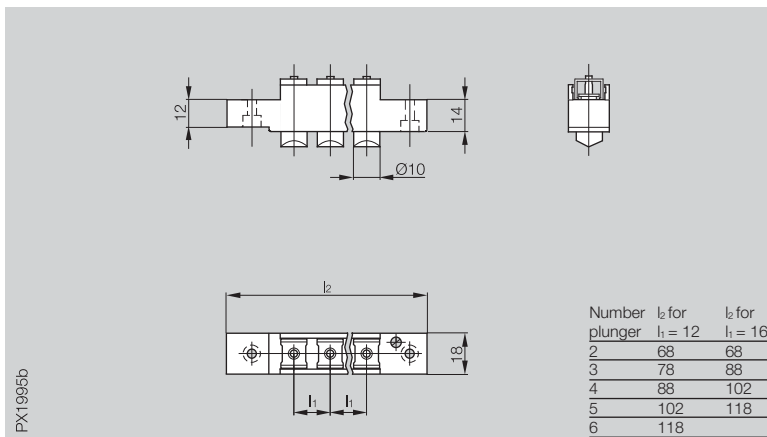
Housing style	No. of plungers	Plunger style	Plunger spacing	Distance l ₃	Switch elements	Safety switch elements	optional Function indication	optional Connector
B Standard 2x M20x1.5 on side	02 2x	D Chisel	12 12 mm	A 12 mm	10 BSE 61 Remaining switch positions	No. from flange	FD 6...60 V AC/DC (for BSE 30.0 and BSE 61)	S80R 5-pin, right
B 3x M20x1.5 on side and in flange	03 3x	K Ball	16 16 mm	B 16 mm	12 only BSE 61		FE 90...250 V AC/DC (for BSE 30.0 and BSE 61)	S80L 5-pin, left
B 3x M20x1.5 on side and in flange	04 4x	R Roller		C 24 mm	20 BSE 85 Remaining switch positions		FC 24...28 V DC (only for BSE 85)	S80S 5-pin, right and left
C 2x M20x1.5 on side and cable entry in flange	...	L Roller bearing		D 30 mm	22 only BSE 85			S90R 12-pin, right S90L 12-pin, left S90S 12-pin, right and left



Mechanical Multiple Position Switches with Quick-Change Plunger Unit

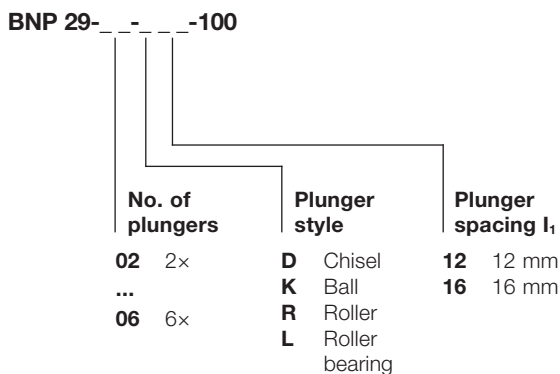
Quick-change block
for Series 100

Type	BNP quick-change block/Plunger
Plunger spacing	12 mm or 16 mm

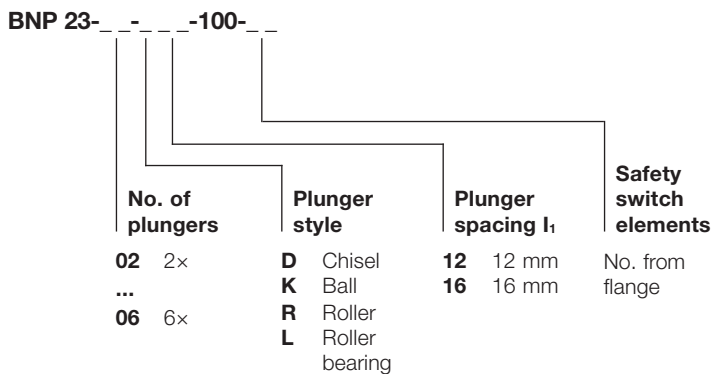


Ordering code	BNP 2 _ _ _ -100
Plunger style	Chisel (D), Ball (K), Roller (R) or Roller Bearing (L)
Plunger material	Stainless steel, contact surfaces induction hardened
Cam tray material	aluminum, barrel finished, blue anodized finish

Ordering example for standard application:
BNP 29-04-D12-100



Ordering example for safety application:
BNP 23-04-D12-100-01



Note!

Safety switch positions to DIN EN 60204-1/ VDE 0113 may only be operated with a rigid plunger.



Mechanical Multiple Position Switches with Quick-Change Plunger Unit

Quick-change block
for Series 61

Type	BNP quick-change block/Plunger
Plunger spacing	12 mm or 16 mm



Number of plungers	Plungers spacing		Housing B standard		Housing B see p. 74		Housing C	
	l ₁	l ₂	l ₃	l ₂	l ₃	l ₂	l ₃	
2	12	35	12	59	30	47	24	
3	12	47	12	59	24			
4	12	59	12					
5	12	71	12					
6	12	83	12					
2	16	47	16	59	30			
3	16	71	16					
4	16	83	16					

Ordering code	BNP 2 - - - -61 - -
Plunger style	Chisel (D), Ball (K), Roller (R) or Roller Bearing (L)
Plunger material	Stainless steel, contact surfaces induction hardened
Cam tray material	Aluminum, barrel finished, blue anodized finish

Ordering example for standard application:

BNP 29-04-D12-61-12

BNP 29- - -61-

No. of plungers	Plunger style	Plunger spacing l ₁	Distance l ₃
02 2x	D Chisel	12 12 mm	12 12 mm
...	K Ball	16 16 mm	16 16 mm
06 6x	R Roller	24 24 mm	24 24 mm
	L Roller bearing	30 30 mm	30 30 mm

Ordering example for safety application:

BNP 23-04-D12-61-A-01

BNP 23- - -61- -

No. of plungers	Plunger style	Plunger spacing l ₁	Distance l ₃	Safety switch elements
02 2x	D Chisel	12 12 mm	A 12 mm	No. from flange
...	K Ball	16 16 mm	B 16 mm	
06 6x	R Roller	24 24 mm	C 24 mm	
	L Roller bearing	30 30 mm	D 30 mm	

Note!

Safety switch positions to DIN EN 60204-1/ VDE 0113 may only be operated with a rigid plunger.

1.4
Multiple position switches series 100 61
Quick-change block for series 100 61

5.1
5.2
5.3

