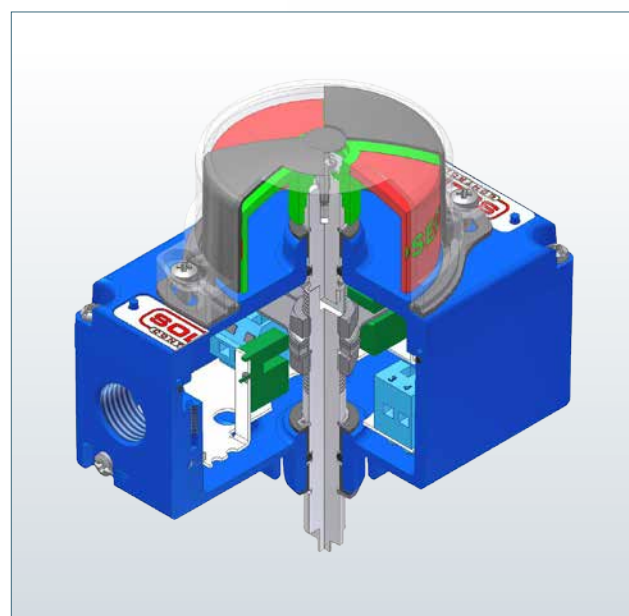# SF - SS - SB limit switch box series

Limit switch box designed for safe and hazardous areas, provides a visual and electrical remote position feedback on automated valves.

Available in either die cast aluminum or 316 stainless steel, with different lid choices, from the same enclosure material, for a complete metallic device, to the transparent polycarbonate cover or to a flat lid without visual indication. Designed for weather proof applications, it can also matches the Ex ia IIC T6 standards with the integral intrinsically safe certification, covering both enclosure and electrical components inside.

The Soldo multi-application limit switch box solution, covering from industrial automation to food and beverage, from chemical to maritime, from oil and gas, both on-shore and off-shore, to petrochemical industries.

Features

- Twin shaft design, ensuring a complete sealed device. The shaft is split in two parts, each fitted and sealed into the body and cover for the best weather insulation even during opening operation

- Suitable for artic application, down to -60 °C

- Two cable entries, either metric or imperial

- Enhanced corrosion resistance thanks to the thick polyester powder coating on aluminum housings

- 316 stainless steel housing for maximum protection in hostile and corrosive environments

- Easy wiring through the terminal PCB board

- NOVA V3™ switch option ensures extreme durability and high power switching capabilities

- 4-20 mA position transmitter options

- ASI communication protocol board

- Captive bolts on the screwed lid

Product Specification

Technical Data:

Materials

- Die-cast aluminum body and cover with polyester powder coating (SF series)
- AISI 316 Stainless steel body and cover with electro-polished finishing (SS series)
- Die-cast aluminum body with polyester powder coating, transparent polycarbonate cover (SB series)
- Stainless steel fasteners and shafts
- AISI 316 L available on request
- Copper free aluminum available on request

Approvals

ATEX, IECEx, EAC, CCOE

Ex II 2GD Ex ia IIC T4/T5/T6
Ex ia IIIC T44°C…….T108°C Db IP6* (SF,SS series)
Ex ia IIIB T44°C…….T108°C Db IP6* (SB series)
Ta: -60 °C ≤ Ta ≤ 100 °C

UL:	Class I Division 2 Groups A, B, C, D
	Class II Division 2 Groups F, G

SIL certificate: Up to SIL 3 certified by TÜV

Protection rating: IP 66 / 67

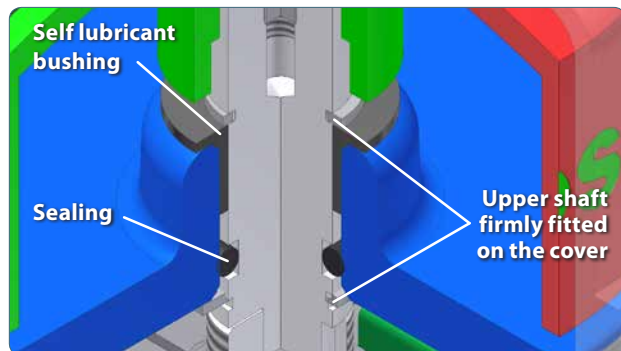**Cable entries options:**

Two cable entry M20 or $^1/_2$" NPT

Temperature:

-20 °C +80 °C as standard temperature range (depending on switch selection)

-60 °C +105 °C available on request

Twin shaft design features

- The shaft is split in two parts; both parts fitted and sealed respectively on body and cover
- During opening and closing the grease remains in place ensuring a safe and smooth operation
- Self lubricant bushing on both sides aligning shafts and hedging in o-rings
- The indicator is hardly connected to the upper shaft, avoiding any matching and aligning issue

Soldo switch and sensors options:

NOVA V3™ N1

- Proximity hermetically sealed snap acting SPDT switch
- High power loop: rating up to 5A @ 250 VAC - 5A @ 28 VDC
- Temperature range -50 °C , +95 °C

NOVA V3™ N3 (usable for Exia protection)

- Proximity hermetically sealed snap acting SPDT switch
- rating up to 1A @ 250VAC - 1A @ 30VDC (Exia rating max: 0,1A @ 30VDC)
- Temperature range -50 °C , +95 °C

NOVA V3™ N4

- Proximity hermetically sealed snap acting DPDT switch
- High power loop: rating up to 5A @ 250 VAC - 5A @ 28 VDC
- Temperature range -50 °C , +95 °C

REED C4 (usable for Exia protection)

- Proximity hermetically sealed reed SPDT switch
- Inert gas contact chamber
- Rating up to 1A @ 24 VDC (Exia rating max: 0,1A @ 30 VDC)
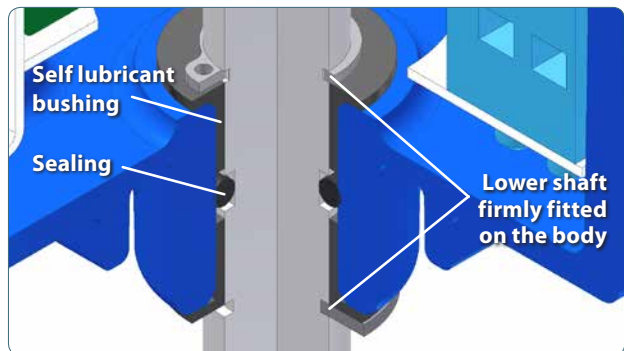- Temperature range -60 °C , +100 °C

REED C8 (usable for Exia protection)

- Proximity hermetically sealed reed DPDT switch
- Inert gas contact chamber
- Rating up to 1A @ 24 VDC (Exia rating max: 0,1A @ 30 VDC)
- Temperature range -60 °C , +100 °C

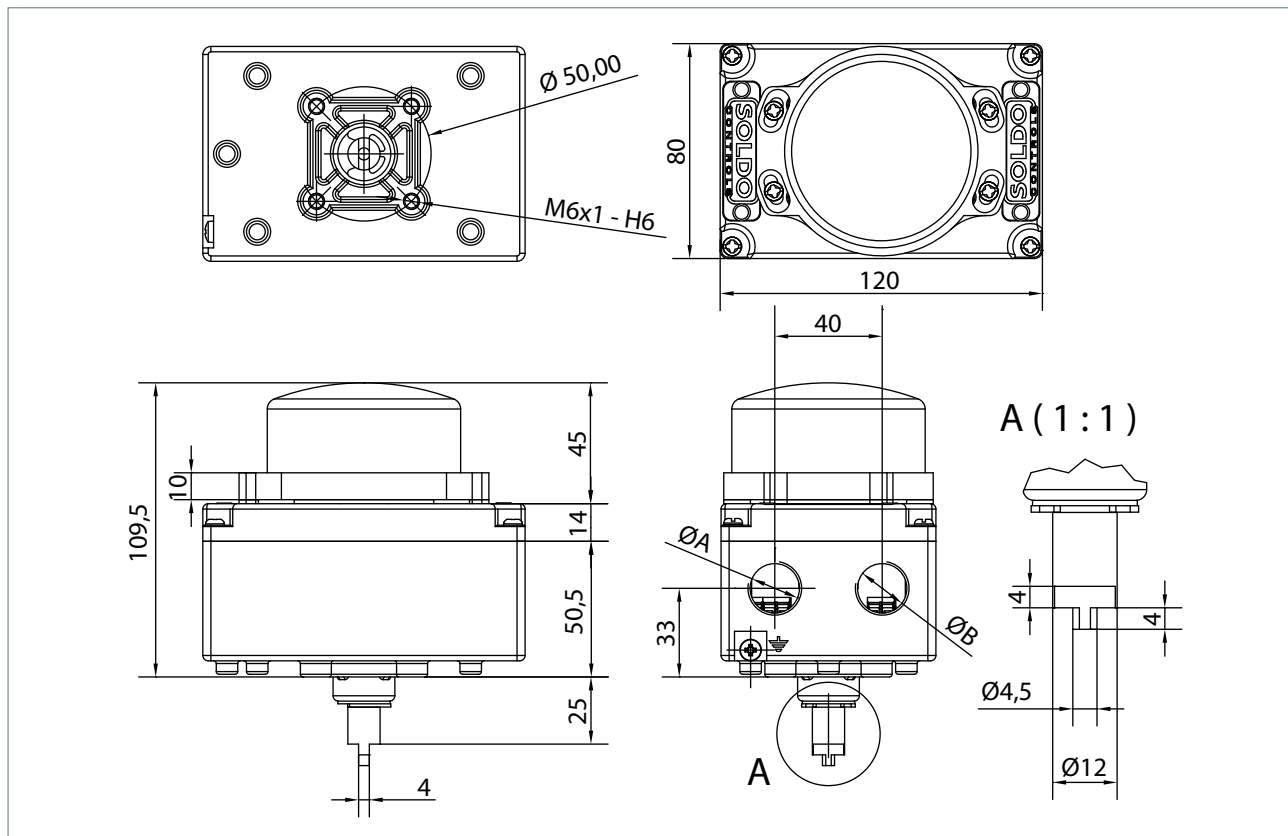More options available on request.

Upper shaft

Lower shaft

Product Ordering Matrix

Nomenclature

SB **N1** **2** **0** **0** **-** **1** **1** **X** **1** **1** **A** **4**

Box

SB	Aluminum body with polycarbonate cover
SF	Aluminum enclosure
SS	316 stainless steel enclosure

Switch

01	SPDT el.mech. switch silver plated contacts
03	SPDT el.mech. switch gold plated contacts (for Exia cert)
1F	DPDT el.mech. switch silver plated contacts
C4	SPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC (for Exia cert, low temp)
C8	DPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC (for Exia cert, low temp)
N1	SPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC
N3	SPDT magnetic hermetically sealed gold plated snap acting contacts, max 1A @ 30 VDC, 250 VAC (for Exia cert)
N4	DPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC
60	Inductive proximity NAMUR sensor SJ3,5-N 2 wire NC logic (for Exia cert)
62	Inductive proximity NAMUR sensor SJ3,5-SN 2 wire NC logic (for Exia cert, safety funct. low temp)
63	Inductive proximity NAMUR sensor SJ3,5-S1N 2 wire NO logic (for Exia cert, safety funct.)
70	Inductive proximity NAMUR sensor NJ2-V3-N 2 wire NC logic (for Exia cert)
73	Inductive proximity sensor model NBB2-V3-E2, 3 wire PNP NO, 10-30 VDC, 0-100 mA
86	Inductive proximity NAMUR sensor model NJ4-12GK-SN 2 wire NC logic (for Exia cert, safety function)
T0	4-20mA position transmitter, 12-30 VDC
H0	4-20mA HART position transmitter Atex Ex ia IIC T6 / T4 certified 8-30 VDC

Switch Quantity

2	N°2 switches
3	N°3 switches

Terminals

0	Screw terminal strip with extra poles for solenoid valve connection
2	Cage clamp terminal strip with extra poles for sov connection
8	Blue screw terminal strip with extra poles for sov connection (for Exia cert)

Coating

0	Black powder coating
1	Blue powder coating
E	Electro polished finishing (on SS series)

Cable Entries

1	N°2 cable entries 1/2" NPT
2	N°2 cable entries M20 x 1,5

Visual Position Indicator

0	3D plastic visual position indicator red and green
1	No visual position indicator
T	3D stainless steel position indicator

Approval

W	Weather proof
X	ATEX and IECEx certified box
A	ATEX certified box
B	ATEX certified box and SIL2 approval
C	ATEX certified box and SIL3 approval
G	EAC certification for russian market
J	CCOE certification for Indian market
U	UL certified box
* SIL2 / SIL3 options available on request

Marking

0	Ordinary location
1	Certification marking: Ex II 2GD Exia IIC
8	cULus Class 1/2 Div 2 (with switches code: C4, C8, N1, N3)

IP Protection rating

1	Weather proof IP66 / IP67
2	Weather proof IP67
7	Nema 4 and 4X

Temperature

A	Ambient temperature range: -20 °C + 80 °C
L	Ambient temperature range: -40 °C + 80 °C
P	Ambient temperature range: -60 °C + 80 °C (Switch code: C4)

Material

2	Die-cast aluminum heavy duty body and polycarbonate cover (on SB series)
3	Die-cast aluminum heavy duty body and cover (on SF series)
4	Copper free aluminum
6	316 stainless steel heavy duty enclosure (on SS series)
7	AISI 316L stainless steel

Dimensional Data

Cable entry dimensions

Code	Entry A	Entry B
1	$^1/_2$" NPT	$^1/_2$" NPT
2	M20 x 1,5	M20 x 1,5