



## SY - SW limit switch box series

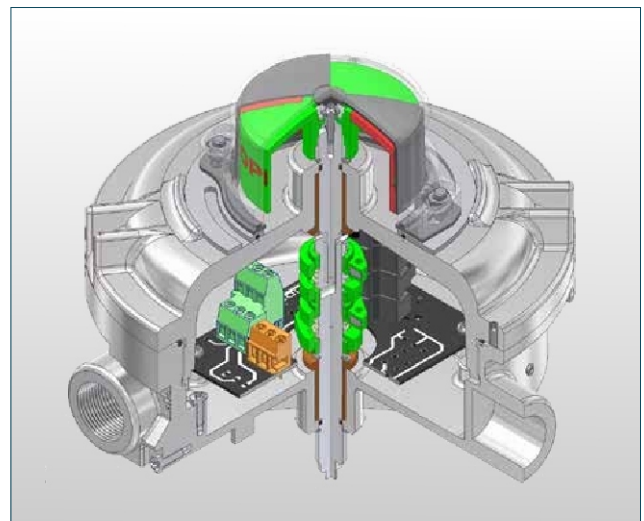
Heavy-duty limit switch boxes, designed for hazardous areas, provide a visual and electrical remote position feedback on automated valves.

Available in either copper free aluminum or 316 stainless steel, the explosionproof enclosure matches Exd IIC T6 standards. The SY - SW limit switch box series, thanks to its large inner volume, is able to host up to 6 switches and spare pass through terminals. The availability of four cable entries, either metric or imperial, provide a highly customizable solution meeting a wide range of applications. These include, but are not limited to, oil and gas (both on-shore and off-shore) and 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 arctic application, down to -60 °C
- Enhanced flexibility of electrical feedback options
- Up to four cable entries available in different sizes
- Enhanced corrosion resistance thanks to copper free aluminum body and cover with polyester powder coating
- 316 stainless steel housing for extremely 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
- Single tool opening design, allowing the operator to unscrew the lid by hand after removing the lock
- Partial stroke test device option



*Linking the Process  
with the Control Room*

# Product Specification

## Technical Date:

### Materials

- Copper free aluminum body and cover with polyester powder coating
- AISI 316 Stainless steel body and cover with electro-polished finishing
- Stainless steel fasteners and shafts

### Approvals

ATEX, IECEx, EAC, CCOE, INMETRO, NEPSI

Ex II 2GD Ex d IIC T4/T5/T6 Gb

Ex tb IIIc T140/T110/T110°C Db

Ta: -60 °C ≤ Ta ≤ 105°C / 80°C / 60°C

UL:

Class Division 1 Groups B,C,D Division 2 Groups A, B, C, D

Class II Division 1 Groups E,F,G Division 2 Groups F, G

SIL certificate: Up to SIL 3 certified by TÜV

Protection rating: IP 66 / 68 up to 10 meters for 48 hours

### Cable entries options:

Up to four cable entries for metric and imperial sizes

### Temperature:

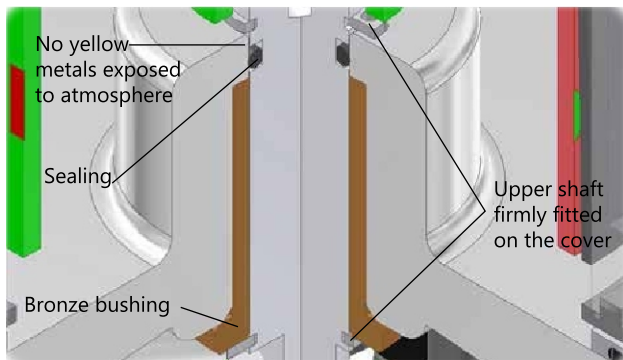
-20 °C +80 °C as standard temperature range

(depending on switch selection)

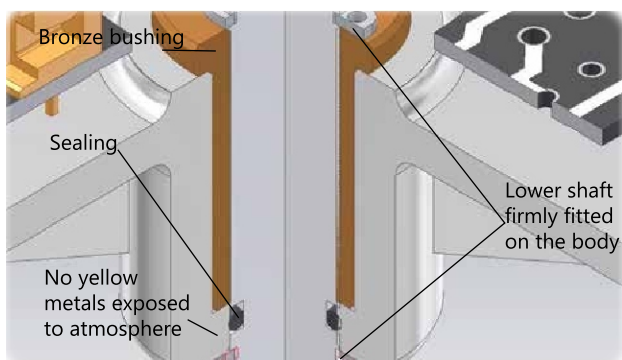
-60 °C +105 °C available on request

## Twin shaft design features

- The shaft is split into 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
- The interior electrical components are completely protected against atmosphere environments



Upper shaft



Lower shaft

## 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

- Proximity hermetically sealed snap acting SPDT switch
- High power loop: rating up to 1A @ 250 VAC - 1A @ 30 VDC
- 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

- Proximity hermetically sealed reed SPDT switch
- Inert gas contact chamber
- Rating up to 1A @ 24 VDC
- Temperature range -60 °C , +100 °C



### REED C8

- Proximity hermetically sealed reed DPDT switch
- Inert gas contact chamber
- Rating up to 1A @ 24 VDC
- Temperature range -60 °C , +100 °C



More options available on request.

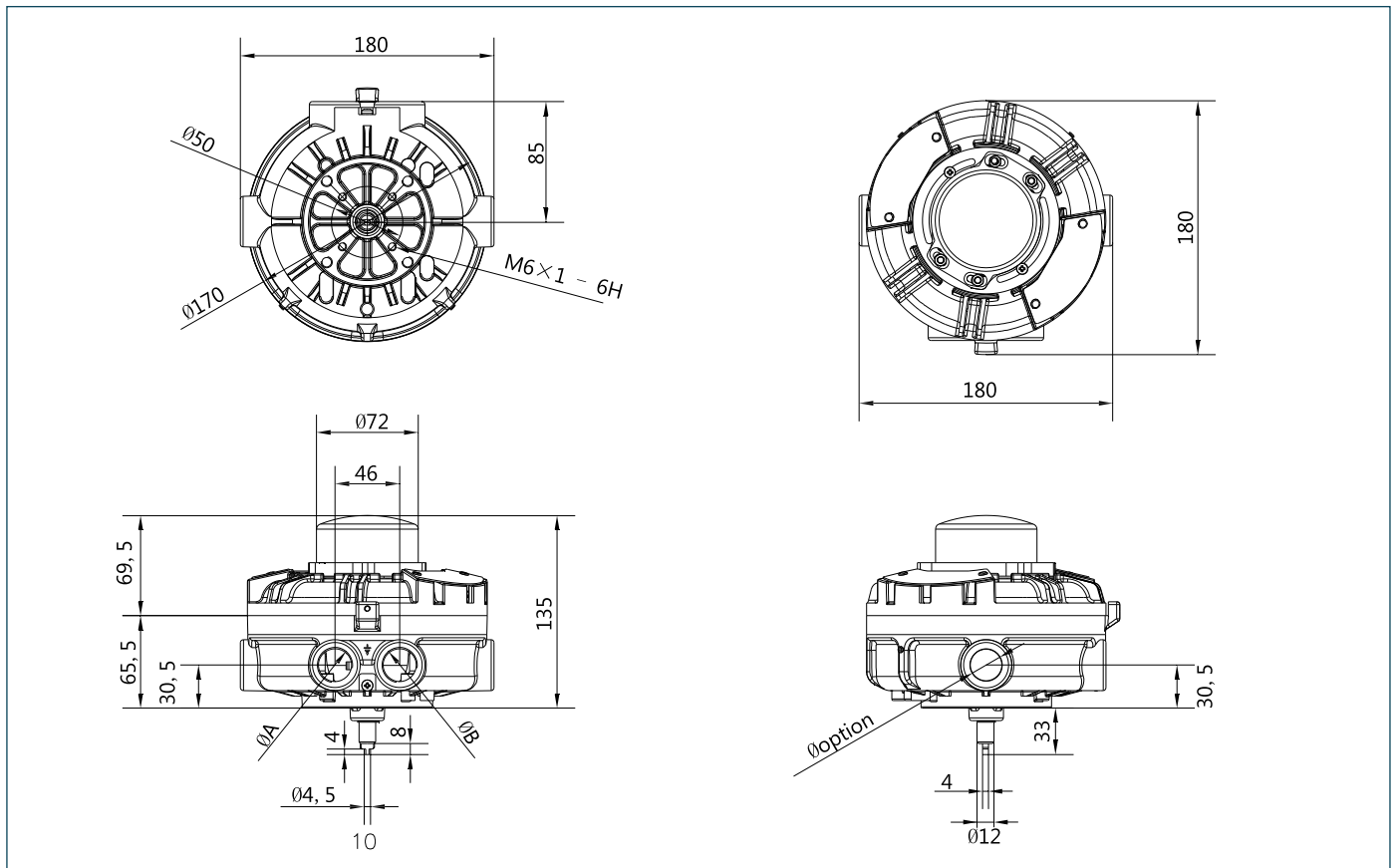
# Product Ordering Matrix

## Nomenclature

SY N1 2 0 0 - 1 0 X 2 3 A 4

<p><b>SY</b> Copper free aluminum enclosure      Aluminium</p> <p><b>SW</b> Stainless steel 316 enclosure      Stainless Steel</p>	Box	
<p><b>01</b> SPDT elec.mech. switch silver plated contacts</p> <p><b>1F</b> DPDT elec.mech. switch silver plated contacts</p> <p><b>C4</b> SPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC</p> <p><b>C8</b> DPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC</p> <p><b>N1</b> SPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC</p> <p><b>N4</b> DPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC</p> <p><b>32</b> inductive proximity sensor model NBN4-12GM40-Z0 2 wire, 5-60 VDC 2-100 mA</p> <p><b>73</b> inductive proximity sensor model NBB2-V3-E2, 3 wire PNP NO, 10-30 VDC, 0-100 mA</p> <p><b>T0</b> 4-20 mA position transmitter, 12-30 VDC</p> <p><b>0H</b> 4-20 mA HART position transmitter Atex EEx ia IIC T6 / T4 certified 8-30 VDC</p> <p><b>P0</b> Partial Stroke Test device with either remote or local magnetic key activation</p>	Switch	
<p><b>2</b> N°2 switches</p> <p><b>4</b> N°4 switches</p> <p><b>6</b> N°6 switches</p>	Switch Quantity	
<p><b>0</b> Standard pcb board with 3 extra terminal poles</p> <p><b>D</b> Stainless steel board with cage clamp terminals</p> <p><b>A</b> Stainless steel plate with screw type terminals</p>	Terminals	
<p><b>0</b> Black powder coating (SY Series)      Aluminium</p> <p><b>E</b> Electro polish finishing (SW Series)      Stainless Steel</p>	Coating	
<p><b>1</b> N°2 cable entries 1/2" NPT</p> <p><b>2</b> N°2 cable entries M20x1,5</p> <p><b>T</b> N°4 cable entries 1/2" NPT</p> <p><b>U</b> N°4 cable entries M20 x 1,5</p>	Cable Entries	
<p><b>0</b> 3D plastic visual position indicator red and green</p> <p><b>T</b> 3D stainless steel position indicator</p>	Visual Position Indicator	
<p><b>X</b> ATEX and IECEx certified box</p> <p><b>D</b> ATEX and IECEx certified box with SIL2 approval</p> <p><b>E</b> ATEX and IECEx certified box with SIL3 approval</p> <p><b>G</b> EAC certification for Russian market</p> <p><b>I</b> INMETRO certification for Brazilian market</p> <p><b>N</b> NEPSI certification for Chinese market</p> <p><b>J</b> CCOE certification for Indian market</p> <p><b>U</b> UL certified box</p> <p><b>W</b> Weather proof</p> <p>* SIL2 / SIL3 options available on request</p>	Approval	
<p><b>0</b> Ordinary location</p> <p><b>2</b> Certification marking: Ex II 2GD Exd IIC</p> <p><b>7</b> cULus Class1/2 Div1</p> <p><b>8</b> cULus Class1/2 Div2 (with switches code: C4, C8, N1, N3)</p>	Marking	
<p><b>3</b> Weather proof IP66 / IP68</p> <p><b>7</b> Nema 4 and 4X</p>	IP Protection rating	
<p><b>A</b> Ambient temperature range: -20 °C + 80 °C</p> <p><b>L</b> Ambient temperature range: -40 °C + 80 °C</p> <p><b>P</b> Ambient temperature range: -60 °C + 80 °C (Switch codes: C4, C8)</p>	Temperature	
<p><b>4</b> Copper free aluminum heavy duty body and cover (SY series)</p> <p><b>6</b> 316 stainless steel heavy duty enclosure (SW series)</p>	Material	

## Dimensional Data



### Cable entry dimensions

Code	Entry A	Entry B
1	n.2 1/2" NPT	
2	n.2 M20 x 1,5	
7	3/4" NPT	3/4" NPT
8	M25 x 1,5	M25 x 1,5



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 Published and produced in the UK by Soldo. POWSH1114

