Fine Controls have been supplying process controls & instrumentation equipment since 1994, & now serves an ever expanding customer base, both in the UK & globally.

We offer a full range of valve & instrumentation products & services, with our product range representing leading technologies & brands:

**Flow:** Flow Meters & Transmitters, Flow Switches, Flow Control Valves & Batch Control Systems

**Temperature:** Temperature Probes & Thermowells, Temperature Transmitters, Temperature Regulators & Temperature Displays

**Level:** Level Transmitters & Switches

**Pressure:** Pressure Gauges & Transmitters, Precision & High Pressure Regulators & I-P Converters, Volume Boosters.

**Precision Pneumatics:** Pressure Regulators, I-P Converters, Volume Boosters, Vacuum Regulators

**Valves:** Solenoid & Pneumatic Valves, Control Valves & Positioners, Actuated Ball, Globe or Diaphragm Valves & Isolation Valves

**Services:** Repair, Calibration, Panel Build, System Design & Commissioning
SX - SH limit switch box series

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

The SX matches the Exd IIB T6 standards. The SH is our solution reaching Exd IIB + H2 T6 requirements. SX and SH, thanks to spare pass through terminals, the three cable entries either metric or imperial and different visual position indications, 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
• Enhanced flexibility of electrical feedbacks options
• Up to three cable entries available in different sizes
• 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
• Captive bolts on the screwed lid
Technical Data:

Materials
- Die-cast aluminum body and cover with polyester powder coating
- Stainless steel fasteners and shafts

Approvals:
ATEX, IECEx, EAC, CCOE, INMETRO
Ex II 2GD Ex d IIB T4/T5/T6 Gb (SX series)
Ex II 2GD Ex d IIB + H2 T4/T5/T6 Gb (SH series)
Ex tb IIIC T135/T100/T85°C Db
Ta: -20 °C ≤ Ta ≤ 105 °C / 75 °C / 60 °C

UL:
Class I 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 / 67

Cable entries options:
Up to three cable entries for metric and imperial sizes

Temperature:
-20 °C +80 °C as standard temperature range
(depending on switch selection)
-40 °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

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

| SX | Exd IIB applications |
| SXH | Exd IIB + H2 applications |

### Switch Quantity

- SX: N°2 switches
- N1: N°4 switches (on Exd IIB certification)

### Standard PCB Board

- Standard PCB board with 3 extra terminal poles
- Stainless steel board with cage clamp terminals
- Stainless steel plate with screw type terminals

### Coating

- Black powder coating: Aluminium

### Cable Entries

- N°2 cable entries \( \frac{1}{2} \)” NPT
- N°2 cable entries M20x1.5
- N°3 cable entries \( \frac{1}{2} \)” NPT
- N°3 cable entries M20x1.5

### Visual Position Indicator

- 3D plastic visual position indicator red and green
- 3D stainless steel position indicator

### Approval

- ATEX and IECEx certified box
- ATEX and IECEx certified box with SIL2 approval
- ATEX and IECEx certified box with SIL3 approval
- EAC certification for Russian market
- INMETRO certification for Brazilian market
- NEPSI certification for Chinese market
- CCOE certification for Indian market
- UL certified box
- Weather proof

- *SIL2 / SIL3 options available on request

### Marking

- Ordinary location
- Certification marking: Ex II 2GD Exd IIB
- Certification marking: Ex II 2GD Exd IIB + H2
- cULus Class1/2 Div1
- cULus Class1/2 Div2 (with switches code: C4, C8, N1, N3)

### IP Protection Rating

- Weather proof IP67
- Weather proof Nema 4 and 4X

### Temperature

- Ambient temperature range: -20 °C + 80 °C
- Ambient temperature range: -40 °C + 80 °C

### Material

- Die cromated aluminum heavy duty body and cover

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### Linking the Process with the Control Room
Dimensional Data

Cable entry dimensions

<table>
<thead>
<tr>
<th>Code</th>
<th>Entry A+A</th>
<th>Entry B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>n.2 1/2” NPT</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>n.2 M20 x 1.5</td>
<td>-</td>
</tr>
<tr>
<td>X</td>
<td>n.2 1/4” NPT</td>
<td>n.1 1/2” NPT</td>
</tr>
<tr>
<td>L</td>
<td>n.2 M20 x 1.5</td>
<td>n.1 M20 x 1.5</td>
</tr>
</tbody>
</table>

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