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
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 into 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
Product Specification

Technical Data:

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 IIC T140/T110/T110°C Db
Ta: -60 °C ≤ Ta ≤ 105 °C / 80 °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 / 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

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Material/Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>SY</td>
<td>Copper free aluminum enclosure</td>
<td>Aluminium</td>
</tr>
<tr>
<td>SW</td>
<td>Stainless steel 316 enclosure</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>

### Switches

<table>
<thead>
<tr>
<th>Code</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>SPDT elec.mech. switch silver plated contacts</td>
</tr>
<tr>
<td>1F</td>
<td>DPDT elec.mech. switch silver plated contacts</td>
</tr>
<tr>
<td>C4</td>
<td>SPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC</td>
</tr>
<tr>
<td>C8</td>
<td>DPDT magnetic hermetically sealed reed switch, rating max. 0,1A @ 120 VAC, 1A @ 24 VDC</td>
</tr>
<tr>
<td>N1</td>
<td>SPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC</td>
</tr>
<tr>
<td>N4</td>
<td>DPDT magnetic hermetically sealed silver plated snap acting contacts, max 5A @ 28 VDC, 250 VAC</td>
</tr>
<tr>
<td>32</td>
<td>Inductive proximity sensor model NBN4-12GM40-20-2 wire, 5-60 VDC 2-100 mA</td>
</tr>
<tr>
<td>73</td>
<td>Inductive proximity sensor model NBB2-V3-E2, 3 wire PNP NO, 10-30 VDC, 0-100 mA</td>
</tr>
<tr>
<td>T0</td>
<td>4-20mA position transmitter, 12-30 VDC</td>
</tr>
<tr>
<td>H0</td>
<td>4-20 mA HART position transmitter Atex Ex ia IIC T6 / T4 certified 8-30 VDC</td>
</tr>
<tr>
<td>P0</td>
<td>Partial Stroke Test device with either remote or local magnetic key activation</td>
</tr>
</tbody>
</table>

### Switch Quantity

- 2 N2 switches
- 4 N4 switches
- 6 N6 switches

### Terminals

<table>
<thead>
<tr>
<th>Code</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Standard pcb board with 3 extra terminal poles</td>
</tr>
<tr>
<td>D</td>
<td>Stainless steel board with cage clamp terminals</td>
</tr>
<tr>
<td>A</td>
<td>Stainless steel plate with screw type terminals</td>
</tr>
</tbody>
</table>

### Coating

- 0 Black powder coating (SY Series) Aluminium
- E Electro polish finishing (SW Series) Stainless Steel

### Cable Entries

- 1 N2 cable entries 1/2" NPT
- 2 N2 cable entries M20 x 1,5
- T N4 cable entries 1/2" NPT
- U N4 cable entries M20 x 1,5

### Visual Position Indicator

- 0 3D plastic visual position indicator red and green
- T 3D stainless steel position indicator

### Approval

- X ATEX and IECEx certified box
- D ATEX and IECEx certified box with SIL2 approval
- E ATEX and IECEx certified box with SIL3 approval
- G EAC certification for Russian market
- I INMETRO certification for Brazilian market
- J CCOE certification for Indian market
- U UL certified box
- W Weather proof

* SIL2 / SIL3 options available on request

### Marking

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

### Temperature

- 3 Weather proof IP66 / IP68
- 7 Nema 4 and 4X

| 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 codes: C4, C8) |

### Material

- 4 Copper free aluminum heavy duty body and cover (SY series)
- 6 316 stainless steel heavy duty enclosure (SW series)
As part of a process of on-going product development, Soldo reserves the right to amend and change specifications without prior notice. Published data may be subject to change. For the very latest version release, visit our website at www.soldo.net

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Published and produced in the UK by Soldo. 5K0M11T14

Dimensional Data

Cable entry dimensions

<table>
<thead>
<tr>
<th>Code</th>
<th>Entry A</th>
<th>Entry B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1½&quot; NPT</td>
<td>1½&quot; NPT</td>
</tr>
<tr>
<td>2</td>
<td>M20 x 1.5</td>
<td>M20 x 1.5</td>
</tr>
<tr>
<td>7</td>
<td>½&quot; NPT</td>
<td>½&quot; NPT</td>
</tr>
<tr>
<td>8</td>
<td>M25 x 1.5</td>
<td>M25 x 1.5</td>
</tr>
</tbody>
</table>

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