

Technical Datasheet



Industrial Series

Diaphragm Operated Pressure Switch

Models: S21, S22 & S24

Key Features

- Weatherproof and Flameproof models ATEX and NEC 500.
- NACE MR-01-75 compatibility.
- Ranges available up to 700 bar (10,000 psi).
Maximum working pressure up to 1000 bar (15,000 psi).
- Field set point adjustment against a reference scale.
- Hermetically sealed microswitch options.
- Optional gold alloy contacts.
- Terminal block for easy field wiring.
- Safety vented design as standard.
- PED 2014/68/EU CAT IV option.

Series Overview

- The Industrial Series switches were developed in the mid-1990's to offer customers a robust range of switches suitable for applications where requirements were more standard than those for which the highly configurable Performance Series switches were designed.
- Using diaphragm based sensors and a more traditional in-line force balance mechanism to transfer movement from the sensor to the microswitch, these switches are suitable for a wide range of industrial applications. Various international approvals make the Industrial Series suitable for use in both safe and Hazardous Areas in Europe, North America and throughout the world.

Other products in the series include:

- Differential Pressure Switches: Model S30
- Temperature Switches: Model S70



Product applications

The S20 Industrial Series is suitable for a wide range of applications in:

- Oil & Gas
- Chemical
- Petrochemical
- Refining
- Power
- OEM

The choice of models available ensures that the S20 Industrial Series is suitable for use in:

- Corrosive atmospheres
- Resistant to chemical attack

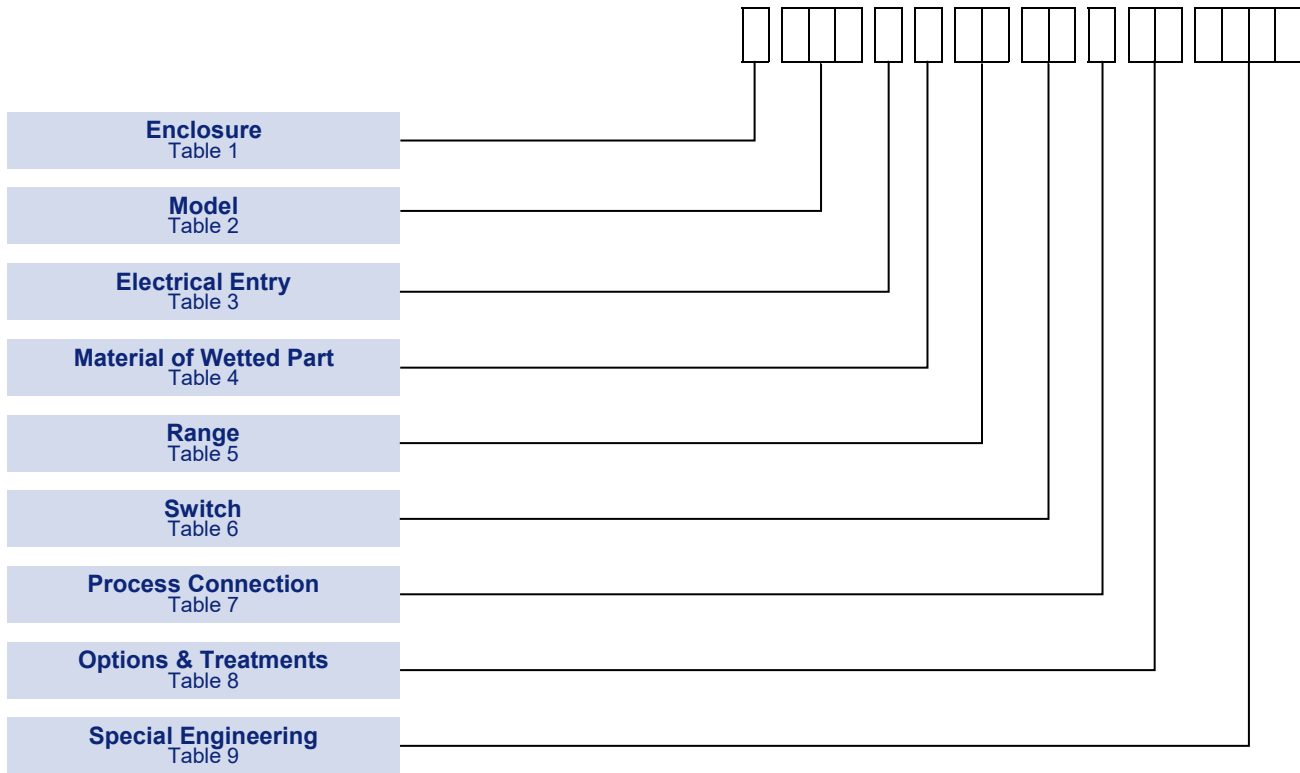
How can we help you?

Delta Mobrey offers fast, efficient and knowledgeable support when and where you need it. Please visit our website at www.delta-mobrey.com to find your local support centre or call us on:

+44 (0)1252 729140

How to order

Switches can be configured by selecting codes representing the desired features from the tables that follow. The chart below, describes how the model code is built up. For assistance in configuring a switch that best suits your needs, please contact your local sales office.



NOTE: Options shaded in the following tables are the most common options and are available on the quickest lead-times and at the lowest cost.

NOTE: Only the most common options are shown in this data sheet. Should you require a feature that is not shown, please contact your local sales office for further details.

Technical Specification

| | | |
|--|-------------------------------------|---|
| Industrial Series Models: S21, S22 & S24 | Accuracy: | Set point repeatability $\pm 1\%$ of span at 20°C / 68°F ambient. |
| | Storage Temperature: | -25 to +60°C / -13 to +140°F |
| | Ambient Temperature: | -25 to +60°C / -13 to +140°F For continuous use below -25°C (-13°F) we recommend using only enclosure H, R, T, U & A with special gaskets and limited switching. |
| | Maximum Process Temperature: | Subject to appropriate installation practice, the component parts withstand up to +60°C (+140°F). For process temperatures up to +120°C (+248°F), order WETTED PARTS Code A (Table 4). For higher temperatures, refer to SPECIAL ENGINEERING. |
| | Enclosure classification: | IP66 / NEMA 4X / Flameproof Ex d |
| | Switch output: | SPDT or DPDT snap action microswitch (standard) Hermetically sealed (optional) |
| | Electrical rating: | See Table 6 |
| | Process Connection: | Rc 1/4 (BSP), 1/4 NPT Internal, 1/2 NPT Internal, 1/2 NPT External |
| | Approximate Weight: | 2.7kg / 5.9lb to 6.6kg / 14.5lb depending on model |

Enclosure

| | |
|---------|--|
| TABLE 1 | |
|---------|--|

FINISH

All enclosures except Type R, A and U are finished in light grey epoxy resin paint.

Special finishes to order.

INTRINSIC SAFETY

Because of the low voltages and current of I.S. circuits, we recommend using gold and/or sealed contacts.

NOTE: Codes H, 2 & T for 4X

Aluminium Enclosure protected by quality epoxy paint system.

Performance of enclosure requires careful installation and sealing of cable gland connection in site.

Assembly requires to be built for Marine use, See Table 8, Code 02.

NOTE: Codes 2 and 3

To be used on S24 only with S or T wetted parts.

NOTE: Codes 5 and 4

To be used only on switch codes 04/05, 0G/0H, H2/H3/H6 - See Table 6. PED Cat IV not available at present.

Temperatures in Table 1 refer to limitations for certified enclosures.

See **TECHNICAL DATA**.

| ENCLOSURE TYPES | Code |
|---|----------|
| FLAMEPROOF ENCLOSURES | |
| ATEX Ex d IIC T6 Gb (-60 to +65°C), T5 Gb (-60 to +80°C) II 2 GD (ZONE 1) Gravity die-cast enclosure in aluminium-silicon alloy, epoxy painted. Suitable for outdoor use, IP66 / NEMA 4X. II 2GD | H |
| ATEX Ex d IIC T6 Gb (-60 to +65°C), T5 Gb (-60 to +80°C) II 2 GD (ZONE 1) For Aggressive Atmospheres Investment cast enclosure in austenitic stainless steel. Suitable for outdoor use, IP66 / NEMA 4X. II 2GD | R |
| ATEX Ex d IIC T6 Ga/Gb (-60 to +65°C), T5 Ga/Gb (-60 to +80°C) (S24 only) IIC 1/2 GD (ZONE 0/1) For Aggressive Atmospheres Investment cast enclosure in austenitic stainless steel. Suitable for outdoor use, IP66 / NEMA 4X. II 1/2GD | 2 |
| ATEX Ex d IIC T6 Ga/Gb (-60 to +65°C), T5 Ga/Gb (-60 to +80°C) (S24 only) II 1/2 GD (ZONE 0/1) Gravity die-cast enclosure in aluminium LM25. Suitable for outdoor use, IP66 / NEMA 4X. II 1/2GD | 3 |
| NEC 500, NEMA 7, 9 Gravity die-cast enclosure in aluminium-silicon alloy, epoxy painted. Class 1, Groups C and D, Class II, Groups E, F and G. Suitable for outdoor use, IP66 / NEMA 4X. | T |
| NEC 500, NEMA 7, 9 For Aggressive Atmospheres Investment cast enclosure in austenitic stainless steel. Class 1, Groups C and D, Class II, Groups E, F and G. Suitable for outdoor use, IP66 / NEMA 4X. | U |
| WEATHERPROOF ENCLOSURES | |
| General purpose The basic enclosure is pressure die-cast in zinc alloy, epoxy painted, with weather protection not less than NEMA 4, IP66. | W |
| For Aggressive Atmospheres Investment cast enclosure in austenitic stainless steel with weather protection not less than NEMA 4X, IP66 | A |
| INTRINSICALLY SAFE ENCLOSURES (ZONE 0) | |
| ATEX Ex ia IIC T6 Ga (-25°C ≤ Ta ≤ +60°C) or T5 Ga (-60°C ≤ Ta ≤ +80°C) II 1G As code "W" but Ex ia. Weatherproof to IP66 / NEMA 4. II 1G | 5 |
| ATEX Ex ia IIC T6 Ga (-25°C ≤ Ta ≤ +60°C) or T5 Ga (-60°C ≤ Ta ≤ +80°C) II 1G As code "A" but Ex ia. Weatherproof to IP66 / NEMA 4X. II 1G | 4 |

Industrial Series
Models: S21, S22 & S24


Models

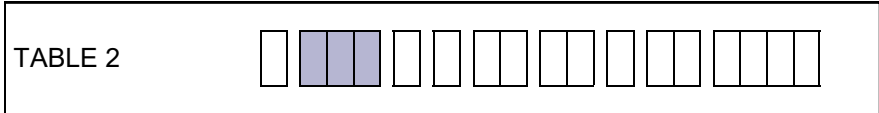
S21/2

For applications up to 100 bar (1500 psi). Maximum working pressure 155 bar (2250 psi).

S24

For applications up to 700 bar (10,000 psi). Maximum working pressure 1000 bar (15,000 psi)


 Applies only to models S21/ S24

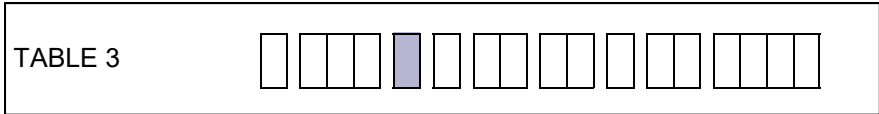


| | Code |
|--|------------|
| Fixed Switching Differential SPDT& DPDT options available. See Table 6. | S21 |
| Adjustable Switching Differential (Limited Span) Achieved by special microswitch with built in adjuster, SPDT only. See Table 6. | S22 |
| Fixed Switching Differential SPDT & DPDT options available. See Table 6. | S24 |

Electrical Entry

Adaptors are available for other popular thread sizes.

 * For codes 3 & 6 - see approvals and Table 1 Codes T & U.



| | Code |
|---|-----------|
| Enclosures W & 5: 22mm (0.86 ins) Dia clearance hole for 20mm / ¾ inch O/Dia Conduit. | 1 |
| Enclosures W & 5: M20 x 1.5 elbow adaptor to suit. | 0 |
| Enclosure W, A, 5 & 4: 3/4-NPT INT. elbow adaptor to suit. | 3 |
| Enclosures H, R, A & 4: M20 x 1.5 ISO thread. | 0 |
| Enclosures H & R: M20 x 1.5 ISO thread, dual entry. | 5 |
| Enclosures H & R: 1/2-NPT INT. (direct). | 2 |
| Enclosures H, R, T & U: 3/4-NPT INT. (direct). | 3* |
| Enclosures H, R, T & U: 3/4-NPT INT. dual entry. | 6* |
| Enclosures W & 5: 22mm (0.86 ins) Dia clearance hole for 20mm / ¾ inch O/Dia Conduit, dual entry. | 7 |
| Enclosures H & R: 1/2-NPT INT. dual entry. | 4 |

Material of Wetted Parts


Industrial Series

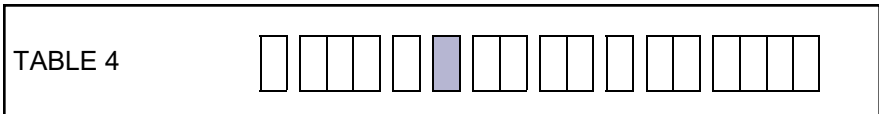
Models: S21, S22 & S24

WELDED CONSTRUCTION Codes S and T

For reduced risk against leakage under extreme or unusual conditions the diaphragm may be welded directly to the process connection, eliminating the O-ring.

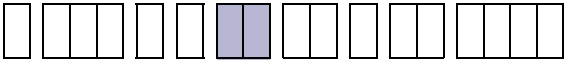
Welded construction not available on ranges CC to CE (CW to CK). (See table 5).

 Applies to all materials.




| | Code |
|--|----------|
| 316 SS diaphragm, process connection and Viton O-ring seal | A |
| 316 SS diaphragm, process connection and Nitrile (Buna-N) O-ring seal | G |
| Nickel alloy (Monel) diaphragm, 316 SS process connection and Viton O-ring seal for applications as laid down in NACE MR 01-75 | K |
| Nickel alloy (Monel) diaphragm, 316 SS process connection and Nitrile (Buna-N) O-ring seal | P |
| 316 SS diaphragm and process connection. All welded construction | S |
| Nickel alloy (Monel) diaphragm and process connection. All welded construction (suitable for NACE MR 01-75) | T |

Setting Ranges

TABLE 5 

P_{max} = maximum working pressure

When ordering, please state units required. Range and set point will be in units preference.

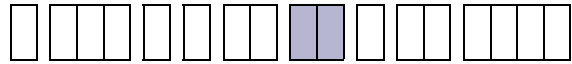
 Applies to all ranges


| P_{max} | | Model | Range | | | | | | Code |
|-----------|------|-------|-------------------------------------|---|----------------------------|--|----------|------------------------|----------------------------|
| bar | psi | | Bar | mbar | Code | psi | In.Hg | In.H ₂ O | |
| 15 | 217 | S21 | -1 to +1.5 | 12 to 250 -120 to +120 100 to 600 -1000 to 0 | CC CD CE A0 G3 | 1.5 to 8.5 -14.5 to 20 | -30 to 0 | 5 to 100 -50 to +50 | CW CH CK AB GK |
| 27 | 400 | S21/2 | 0.25 to 1.6 0.4 to 2.5 1 to 6 | | DB DC DE | 4 to 25 6 to 40 16 to 100 | | | DK DP DZ |
| 70 | 1000 | S21/2 | 1.6 to 10 2.5 to 16 | | EA EB | 25 to 160 40 to 250 | | | EH EM |
| 110 | 1600 | S21/2 | 4 to 25 10 to 40 15 to 75 | | EC ED EF | 60 to 400 160 to 600 250 to 1000 | | | ER EW EE |
| 155 | 2250 | S21/2 | 10 to 100 | | FA | 160 to 1500 | | | F6 |

| P_{max} | | Model | Range | | | Code |
|-----------|-------------|-------|--------------------------------------|----------------|---|----------------|
| bar | psi | | Bar | Code | psi | |
| -1 to 600 | -30 to 8700 | S24 | 0.4 to 2.5 1 to 6 | DC DE | 6 to 40 16 to 100 | DP DZ |
| | | | 1.6 to 10 2.5 to 16 | EA EB | 25 to 160 40 to 250 | EH EM |
| | | | 4 to 25 10 to 40 15 to 75 | EC ED EF | 60 to 400 160 to 600 250 to 1000 | ER EW EE |
| | | | 10 to 100 | FA | 160 to 1500 | F6 |
| 1000 | 15000 | | 7 to 160 | U7 | 100 to 2300 | UK |
| | | | 25 to 250 50 to 400 100 to 700 | V7 W7 Y4 | 350 to 3500 800 to 6000 1600 to 10000 | VC W9 YF |

Switch Options

TABLE 6



| Model S21/4 | | | | | | | | | | |
|--|--|---|-------|-----------|-----------|-----------|----------|----------------|------------------------------|--|
| CSA RATING (RESISTIVE) § See note | IEC947-5-1 / EN 60947-5-1 RATING | | | | | | | Contact | Code | |
| | Designation & Utilization Category | Rated operational current I_e (A) At rated operational voltage U_e | U_i | U_{imp} | VA Rating | | | | | |
| | | | | | AC | DC | DC | | | |
| 5 Amps @ 110/250V AC Light Duty for AC only | AC14 D300 DC13 R300 | 0.6/0.3A @ 120/240 V AC 0.22/0.1A @ 125/250V DC | 250V | 0.8kV | AC DC | 432 28 | 72 28 | SPDT DPDT | 00 01 | |
| 5 Amps @ 110/250V AC and 2 Amps @ 30V DC General purpose precision | AC14 D300 DC13 R300 | 0.6/0.3A @ 120/240 V AC 0.22/0.1A @ 125/250V DC | 250V | 0.8kV | AC DC | 432 28 | 72 28 | SPDT DPDT | 02 03 | |
| 1 Amp @ 125V AC and § 100mA @ 30V DC Gold Alloy contacts for low voltage switching | 1A @ 125 VAC RESISTIVE (IEC 1058-1/EN 61058-1) | | | | | | | SPDT DPDT | 04 05 | |
| § 5 Amps @ 110/250V AC & 5 Amps @ 30V DC Environmentally sealed | AC14 D300 DC13 R300 | 0.6/0.3A @ 120/240 V AC 0.22/0.1A @ 125/250V DC | 250V | 0.5kV | AC DC | 432 28 | 72 28 | SPDT* DPDT* | 08 09 | |
| 15 Amps @ 125/250/480V AC General purpose precision | AC14 D300 | 0.6/0.3A @ 120/240V AC | 250V | 0.8kV | AC | 432 | 72 | SPDT DPDT | 10 11 | |
| § 1 Amp @ 30V AC and 30V DC Environmentally sealed with gold contacts | AC14 E150 | 0.3A @ 120 V AC | 125V | 0.5kV | AC | 216 | 36 | SPDT* DPDT* | 0G 0H | |
| 5 Amps @ 250V AC & 2 Amps @ 30V DC Hermetically sealed. Gold plated silver contacts | AC14 D300 DC13 R300 | 0.6/0.3A @ 120/240 V AC 0.22/0.1A @ 125/250V DC | 250V | 0.5kV | AC DC | 432 28 | 72 28 | SPDT DPDT | H2 H3†, H6‡ | |
| † 2 Single pole, double throw, simultaneous falling under pressure ‡ 2 Single pole, double throw, simultaneous rising under pressure | | | | | | | | | | |
| Model S22 | | | | | | | | | | |
| 5 Amps @ 110/250V AC Adjustable for AC only | AC14 D300 | 0.6/0.3A @ 120/240 V AC | 250V | 0.8kV | AC | 432 | 72 | SPDT | 0C | |
| 5 Amps @ 110/250V AC & 2 Amps @ 30V DC Adjustable | AC14 D300 DC13 R300 | 0.6/0.3A @ 120/240 V AC 0.22/0.1A @ 125/250V DC | 250V | 0.8kV | AC DC | 432 28 | 72 28 | SPDT | 0D | |
| NOTE: Enclosure Codes T and U. Microswitch Codes 02 and 03. CSA rating as follows:- 110/250V AC 5A 250V/125V DC 0.25/0.5A | | | | | | | | | | |
| Enclosure Codes H and R. Microswitch Codes 02 and 03. CSA rating as follows:- 110/250V AC 5A 250V/125/30V DC 0.25/0.5/2A | | | | | | | | | | |
|  00, 01, 02, 03, 04, 05, H2, H3†, H6‡ microswitches CSA accepted component for use in hazardous areas Class 1, Div 2, Groups A, B, C and D. When used in enclosures T and U. | | | | | | | | | | |
| The electrical rating is dependent on the microswitch fitted to the instrument. The electrical ratings defined by each approval that the microswitch complies with and is shown on the product nameplate, ie CSA, or IEC. It should be noted that the instrument must be used within the electrical rating specified from the approval you require. This table lists the actual IEC ratings against the Designation & Utilization Category marked on the nameplates. In the absence of any verification by CSA the microswitch § manufacturer's rating is stated in italics and bold . If in doubt seek guidance from the factory. | | | | | | | | | | |
| NOTE: For low energy circuits e.g. 30V and up to 100mA, we recommend using gold alloy contact switches. U_i = rated insulation voltage U_{imp} = rated impulse to withstand voltage across contacts. | | | | | | | | | | |

Industrial Series
 Models: S21, S22 & S24

Process Connection


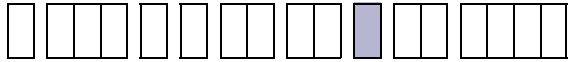
 Applies to all connections in this table.

TABLE 7 

| | Code |
|--------------------------------------|----------|
| Rc 1/4 (1/4 BSP tr INT) to (ISO 7/1) | A |
| 1/4—18 NPT INT | F |
| 1/2—14 NPT INT | H |
| 1/2—14 NPT EXT | J |

Options & Treatments

Combinations available, apply for details.


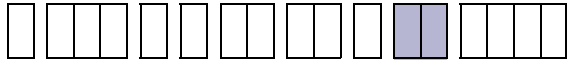
 Applies to all options and treatments in this table.

TABLE 8 

| | Code |
|---|--------------------------|
| Tropicalisation High humidity atmospheres | 01 |
| Marine and Offshore Saline atmosphere or salt spray | 02 |
| Ammonia Process (wetted) parts and construction suitable for atmospheric ammonia | 03 |
| Oxygen Service 2: Process (wetted) parts are cleaned for oxygen | 04 |
| Oxygen Service 3: Process and non-process parts are cleaned for use with oxygen | 05 |
| Stainless Steel Pipe Mounting Bracket Permits local 2" pipe work to be utilized for mounting the instrument | 10 |
| Category IV Safety Accessory as defined in the Pressure Equipment Directive 2014/68/EU | 60 |
| Tagging - Variety of tagging methods are available | APPLY FOR DETAILS |
| Applies when - no option is required and selection is made from special engineering | 00 |

Special Engineering

Last 4 digits of model code only used when special engineering is required.


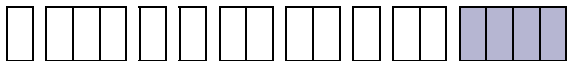
 Refer to engineering

TABLE 9 

| | Code |
|---|------------|
| Please consult Delta sales engineering for special requirements | TBA |

Performance Data

TABLE 10

**TABLES 10A, 10B
MODEL S21
FIXED SWITCHING DIFFERENTIAL**

Due to manufacturing tolerances the figures quoted in these tables are for guidance only.

Flameproof models maybe up to 2 times higher depending on the range.

Should the differential be critical for specific applications our engineers should be consulted prior to ordering.

MODEL S21

PSI UNITS

TABLE 10A

| Range | | P _{max} psi | SWITCHING OPTIONS SWITCHING DIFFERENTIAL IN H ₂ O / in Hg / psi | | | | | | | | | |
|-------|--------------------------------|-------------------------|---|------|------|------|------|------|-------|-------|------|-------|
| Code | H ₂ O / in Hg / psi | | 00 | 01 | 02 | 03 | 04 | 05 | 08/0G | 09/0H | H2 | H3/H6 |
| CW | 5 to 100 | 217 | 2.0 | 3.2 | 2.4 | 3.2 | 2.0 | 2.4 | 3.2 | 6.0 | 12.0 | 12.0 |
| CH | -50 to +50 | 217 | 3.2 | 5.6 | 3.2 | 9.2 | 3.2 | 3.2 | 5.6 | 7.2 | 8.0 | 8.0 |
| CK | 1.5 to 8.5 | 217 | 3.2 | 5.6 | 6.0 | 9.2 | 3.2 | 4.8 | 5.6 | 7.2 | 18.0 | 18.0 |
| AB | -30 to 0 | 217 | 0.6 | 0.8 | 1.3 | 1.7 | 0.5 | 0.5 | 0.8 | 1.0 | 3.0 | 3.0 |
| GK | 14.5 to +20 | 218 | 0.3 | 0.6 | 0.7 | 1.5 | 0.3 | 0.4 | 0.5 | 0.7 | 2.2 | 2.2 |
| DK | 4 to 25 | 400 | 0.4 | 0.7 | 1.0 | 1.5 | 1.0 | 1.5 | 2.6 | 3.5 | 1.2 | 2.3 |
| DP | 6 to 40 | 400 | 0.4 | 0.7 | 1.0 | 1.5 | 1.0 | 1.5 | 2.6 | 3.5 | 1.2 | 2.3 |
| DZ | 16 to 100 | 400 | 0.6 | 0.9 | 1.7 | 2.0 | 1.5 | 2.2 | 3.5 | 1.6 | 2.9 | 5.8 |
| EH | 25 to 160 | 1000 | 1.5 | 2.2 | 3.6 | 6.5 | 2.2 | 3.3 | 11.6 | 14.5 | 6.0 | 11.6 |
| EM | 40 to 250 | 1000 | 2.2 | 4.0 | 5.1 | 9.9 | 3.6 | 5.8 | 13.1 | 17.4 | 7.5 | 14.5 |
| ER | 60 to 400 | 1600 | 4.4 | 6.5 | 15.2 | 19.6 | 7.3 | 10.2 | 26.0 | 35.0 | 26.0 | 52.0 |
| EW | 160 to 600 | 1600 | 7.3 | 11.6 | 20.0 | 26.0 | 11.6 | 17.4 | 44.0 | 46.0 | 31.0 | 61.0 |
| EE | 250 to 1000 | 1600 | 9.4 | 14.5 | 25.0 | 33.0 | 14.5 | 22.0 | 44.0 | 58.0 | 51.0 | 102 |
| F6 | 160 to 1500 | 2250 | 14.5 | 22.0 | 51.0 | 65.0 | 29.0 | 44.0 | 87.0 | 116 | 73.0 | 145 |

MODEL S21

BAR UNITS

TABLE 10B

| Range | | P _{max} bar | SWITCHING OPTIONS SWITCHING DIFFERENTIAL IN mbar | | | | | | | | | |
|-------|--------------|-------------------------|---|------|------|------|------|------|-------|-------|------|-------|
| Code | mbar/bar | | 00 | 01 | 02 | 03 | 04 | 05 | 08/0G | 09/0H | H2 | H3/H6 |
| CC | 12 to 250 | 15 | 5 | 8 | 6 | 8 | 5 | 6 | 8 | 15 | 30 | 30 |
| CD | -120 to +120 | 15 | 8 | 14 | 8 | 23 | 8 | 8 | 14 | 18 | 20 | 20 |
| CE | 100 to 600 | 15 | 8 | 14 | 15 | 23 | 8 | 12 | 14 | 18 | 45 | 45 |
| A0 | -1000 to 0 | 15 | 21 | 27 | 45 | 60 | 18 | 18 | 30 | 36 | 105 | 105 |
| G3 | -1 to +1.5 | 15 | 21 | 40 | 48 | 100 | 24 | 30 | 36 | 45 | 150 | 150 |
| DB | 0.25 to 1.6 | 27 | 30 | 45 | 70 | 100 | 70 | 100 | 180 | 240 | 80 | 160 |
| DC | 0.4 to 2.5 | 27 | 30 | 45 | 70 | 100 | 70 | 100 | 180 | 240 | 80 | 160 |
| DE | 1 to 6 | 27 | 40 | 60 | 120 | 140 | 100 | 150 | 240 | 320 | 200 | 400 |
| EA | 1.6 to 10 | 70 | 100 | 150 | 250 | 450 | 150 | 230 | 800 | 1000 | 400 | 800 |
| EB | 2.5 to 16 | 70 | 150 | 275 | 350 | 680 | 250 | 400 | 900 | 1200 | 500 | 1000 |
| EC | 4 to 25 | 110 | 300 | 450 | 1050 | 1350 | 500 | 700 | 1800 | 2400 | 1800 | 3600 |
| ED | 10 to 40 | 110 | 500 | 800 | 1400 | 1800 | 800 | 1200 | 3000 | 3200 | 2100 | 4200 |
| EF | 15 to 75 | 110 | 650 | 1000 | 1750 | 2250 | 1000 | 1500 | 3000 | 4000 | 3500 | 7000 |
| FA | 10 to 100 | 155 | 1000 | 1500 | 3500 | 4500 | 2000 | 3000 | 6000 | 8000 | 5000 | 10000 |

Industrial Series
 Models: S21, S22 & S24

Performance Data

TABLE 10

**TABLES 10C, 10D
MODEL S24
FIXED SWITCHING DIFFERENTIAL**

Due to manufacturing tolerances the figures quoted in these tables are for guidance only.

Flameproof models maybe up to 2 times higher depending on the range.

Should the differential be critical for specific applications, our engineers should be consulted prior to ordering.

MODEL S24

PSI UNITS

TABLE 10C

| Range | | P _{max} psi | SWITCHING OPTIONS SWITCHING DIFFERENTIAL IN psi | | | | | | | | | |
|-------|---------------|-------------------------|--|------|------|------|------|------|-------|-------|------|-------|
| Code | psi | | 00 | 01 | 02 | 03 | 04 | 05 | 08/0G | 09/0H | H2 | H3/H6 |
| DP | 6 to 40 | 8700 | 3.2 | 4.8 | 5.8 | 5.8 | 4.4 | 4.4 | 6.5 | 7.4 | 6.0 | 11.6 |
| DZ | 16 to 100 | 8700 | 3.5 | 5.8 | 8.7 | 11.6 | 7.3 | 10.2 | 8.7 | 9.4 | 12.0 | 23.0 |
| EH | 25 to 160 | 8700 | 5.5 | 10.2 | 11.6 | 17.4 | 8.7 | 13.0 | 8.7 | 11.0 | 18.0 | 35.0 |
| EM | 40 to 250 | 8700 | 6.7 | 11.5 | 11.6 | 17.4 | 8.7 | 13.0 | 11.6 | 17.4 | 18.0 | 35.0 |
| ER | 60 to 400 | 8700 | 12.5 | 20.0 | 17.4 | 23.0 | 11.6 | 17.4 | 20.0 | 22.0 | 34.0 | 67.0 |
| EW | 160 to 600 | 8700 | 14.5 | 23.0 | 29.0 | 44.0 | 22.0 | 36.0 | 29.0 | 44.0 | 51.0 | 102 |
| EE | 250 to 1000 | 8700 | 22.0 | 28.0 | 36.0 | 73.0 | 22.0 | 58.0 | 44.0 | 58.0 | 58.0 | 116 |
| F6 | 160 to 1500 | 8700 | 29.0 | 36.0 | 65.0 | 87.0 | 51.0 | 73.0 | 58.0 | 73.0 | 73.0 | 145 |
| UK | 100 to 2300 | 15000 | 49.0 | 80.0 | 99.0 | 145 | 58.0 | 77.0 | 73.0 | 90.0 | 150 | 290 |
| VC | 350 to 3500 | 15000 | 81.0 | 162 | 145 | 244 | 122 | 203 | 725 | 870 | 370 | 725 |
| W9 | 800 to 6000 | 15000 | 128 | 255 | 255 | 574 | 192 | 319 | 1160 | 1160 | 600 | 1160 |
| YF | 1600 to 10000 | 15000 | 218 | 435 | 290 | 653 | 326 | 486 | 1450 | 1450 | 750 | 1450 |

MODEL S24

BAR UNITS

TABLE 10D

| Range | | P _{max} bar | SWITCHING OPTIONS SWITCHING DIFFERENTIAL IN mbar | | | | | | | | | |
|-------|------------|-------------------------|---|-------|-------|-------|-------|-------|--------|--------|-------|--------|
| Code | bar | | 00 | 01 | 02 | 03 | 04 | 05 | 08/0G | 09/0H | H2 | H3/H6 |
| DC | 0.4 to 2.5 | 600 | 220 | 330 | 400 | 400 | 300 | 300 | 450 | 510 | 400 | 800 |
| DE | 1 to 6 | 600 | 240 | 400 | 600 | 800 | 500 | 700 | 600 | 650 | 800 | 1600 |
| EA | 1.6 to 10 | 600 | 380 | 700 | 800 | 1200 | 600 | 900 | 600 | 750 | 1200 | 2400 |
| EB | 2.5 to 16 | 600 | 480 | 790 | 800 | 1200 | 600 | 900 | 800 | 1200 | 1200 | 2400 |
| EC | 4 to 25 | 600 | 860 | 1400 | 1200 | 1600 | 800 | 1200 | 1350 | 1500 | 2300 | 4600 |
| ED | 10 to 40 | 600 | 1000 | 1600 | 2000 | 3000 | 1500 | 2500 | 2000 | 3000 | 3500 | 7000 |
| EF | 15 to 75 | 600 | 1500 | 1900 | 2500 | 5000 | 1500 | 4000 | 3000 | 4000 | 4000 | 8000 |
| FA | 10 to 100 | 600 | 2000 | 2500 | 4500 | 6000 | 3500 | 5000 | 4000 | 5000 | 5000 | 10000 |
| U7 | 7 to 160 | 1000 | 3400 | 5500 | 6800 | 10000 | 4000 | 5300 | 5000 | 6200 | 10000 | 20000 |
| V7 | 25 to 250 | 1000 | 5600 | 11200 | 10000 | 16800 | 8400 | 14000 | 50000 | 60000 | 35000 | 50000 |
| W7 | 50 to 400 | 1000 | 8800 | 17600 | 17600 | 39600 | 13200 | 22000 | 80000 | 80000 | 40000 | 80000 |
| Y4 | 100 to 700 | 1000 | 15000 | 30000 | 20000 | 45000 | 22500 | 33500 | 100000 | 100000 | 50000 | 100000 |

Performance Data

**TABLES 10E, 10F
MODEL S22
ADJUSTABLE SWITCHING
DIFFERENTIAL**

Due to manufacturing tolerances the figures quoted in these tables are for guidance only.

Flameproof models maybe up to 2 times higher depending on the range.

Should the differential be critical for specific applications, our engineers should be consulted prior to ordering.

TABLE 10

| MODEL S22 | | PSI UNITS | | TABLE 10E | | | | |
|-----------|-------------|-------------------------|---|-----------|------|------|----|------|
| Range | | P _{max} psi | SWITCHING OPTIONS SWITCHING DIFFERENTIAL psi | | | | | |
| Code | psi | | MIN | OC | MAX | MIN | OD | MAX |
| DK | 4 to 25 | 400 | 0.2 | | 1.1 | 1.0 | | 2.9 |
| DP | 6 to 40 | 400 | 0.3 | | 1.2 | 1.3 | | 3.0 |
| DZ | 16 to 100 | 400 | 0.5 | | 2.8 | 2.5 | | 7.3 |
| EH | 25 to 160 | 1000 | 1.9 | | 6.2 | 6.4 | | 16.0 |
| EM | 40 to 250 | 1000 | 3.2 | | 9.1 | 9.6 | | 23.0 |
| ER | 60 to 400 | 1600 | 9.6 | | 35.0 | 41.0 | | 88.0 |
| EW | 160 to 600 | 1600 | 13.0 | | 61.0 | 57.0 | | 125 |
| EE | 250 to 1000 | 1600 | 16.0 | | 62.0 | 80.0 | | 160 |
| F6 | 160 to 1500 | 2250 | 25.0 | | 83.0 | 96.0 | | 212 |

| MODEL S22 | | BAR UNITS | | TABLE 10F | | | | |
|-----------|-------------|-------------------------|--|-----------|------|------|----|-------|
| Range | | P _{max} bar | SWITCHING OPTIONS SWITCHING DIFFERENTIAL mbar | | | | | |
| Code | bar | | MIN | OC | MAX | MIN | OD | MAX |
| DB | 0.25 to 1.6 | 27 | 11 | | 78 | 66 | | 200 |
| DC | 0.4 to 2.5 | 27 | 22 | | 82 | 88 | | 210 |
| DE | 1 to 6 | 27 | 33 | | 190 | 170 | | 500 |
| EA | 1.6 to 10 | 70 | 132 | | 430 | 440 | | 1100 |
| EB | 2.5 to 16 | 70 | 220 | | 630 | 660 | | 1600 |
| EC | 4 to 25 | 110 | 660 | | 2400 | 2800 | | 6100 |
| ED | 10 to 40 | 110 | 880 | | 3300 | 3900 | | 8600 |
| EF | 15 to 75 | 110 | 1100 | | 4300 | 5500 | | 11000 |
| FA | 10 to 100 | 155 | 1700 | | 5700 | 6600 | | 14600 |

Electrical Connections

| |
|--|
| <p>Terminal Block Cable entry is to a non-pinching terminal block made of a non-hygroscopic thermosetting plastic, suitable for cables up to 2.5mm²/14AWG.</p> |
| <p>Earthing/Grounding An earthing stud is provided inside all weatherproof enclosures, adjacent to the entry. External earthing is standard on flameproof versions. Safety note see Table 3.</p> |
| <p>Dielectric Strength The electrical assembly is capable of withstanding *2kV between live parts and earth/ground and 500V between open contacts. * 1.2kV for micro switch Codes H2, H3, and H6. Refer to Table 6.</p> |
| <p>Electrical Entry Standard options are listed in Table 3. Other threads can be accommodated by adaptors. Dual entry available, see Table 3.</p> |

Optional Extras

| |
|--|
| <p>Chemical Seals Chemical seals of our own or proprietary manufacture can be fitted when required.</p> |
| <p>Mounting Position/Location/Installation Vertical as shown, IN DIMENSIONS, taking care to avoid siting in locations that transmit excessive shock or vibration. For further advice contact our engineers.</p> |
| <p>Pollution degree (EN60947-5-1) All products are suitable for use in pollution degree 3. For extreme conditions where condensation may readily form, then sealed contacts should be used. See Table 6 Codes 08/09, 0G/0H, H2/H3/H6.</p> |
| <p>Electrical Isolation These products are not suitable for electrical isolation. Always isolate circuit separately to carry out any electrical work.</p> |

Approvals

EUROPEAN DIRECTIVES



Low voltage Directive (LVD) 2014/35/EU.

Compliant to LVD

Pressure Equipment Directive (PED) 2014/68/EU:

This product has a process connection size \leq DN25 and is therefore categorised as sound engineering practice under Cat 3.3

ATEX Directive 2014/34/EU



INTRINSIC SAFETY:

Certificate No. Baseefa05ATEX0111

EN 60079-0, EN 60079-11

For Zone 0 models (**Enclosure code 4/5, see table 1**)

Because of the low voltages and currents of intrinsically safe circuits, we recommend using gold contacts. Refer to Table 6.

II 1 G Ex ia IIC T6 Ga (Tamb -25°C to $+60^{\circ}\text{C}$) or T5 Ga (Tamb -60°C to $+80^{\circ}\text{C}$)

FLAMEPROOF:

Certificate No. BAS01ATEX2113X

EN 60079-0, EN 60079-1, EN 60079-31, EN 60079-26

For Zone 0/1 models (**Enclosure code 2/3, see table 1**)

Fluorosilicone O-ring

II 1/2 GD Ex d IIC T6 Ga/Gb (Tamb -60°C to $+65^{\circ}\text{C}$)
Ex ta/tb IIIC T85 $^{\circ}\text{C}$ Da/Db

II 1/2 GD Ex d IIC T5 Ga/Gb (Tamb -60°C to $+80^{\circ}\text{C}$)
Ex ta/tb IIIC T100 $^{\circ}\text{C}$ Da/Db

Nitrile O-ring

II 1/2 GD Ex d IIC T6 Ga/Gb (Tamb -30°C to $+65^{\circ}\text{C}$)
Ex ta/tb IIIC T85 $^{\circ}\text{C}$ Da/Db

II 1/2 GD Ex d IIC T5 Ga/Gb (Tamb -30°C to $+80^{\circ}\text{C}$)
Ex ta/tb IIIC T100 $^{\circ}\text{C}$ Da/Db

For Zone 1 models (**Enclosure code H/R, see table 1**)

Fluorosilicone O-ring

II 2 GD Ex d IIC T6 Gb (Tamb -60°C to $+65^{\circ}\text{C}$)
Ex tb IIIC T85 $^{\circ}\text{C}$ Db

II 2 GD Ex d IIC T5 Gb (Tamb -60°C to $+80^{\circ}\text{C}$)
Ex tb IIIC T100 $^{\circ}\text{C}$ Db

Nitrile O-ring

II 2 GD Ex d IIC T6 Gb (Tamb -30°C to $+65^{\circ}\text{C}$)
Ex tb IIIC T85 $^{\circ}\text{C}$ Db

II 2 GD Ex d IIC T5 Gb (Tamb -30°C to $+80^{\circ}\text{C}$)
Ex tb IIIC T100 $^{\circ}\text{C}$ Db

GLOBAL CERTIFICATION



CANADIAN STANDARDS ASSOCIATION

Switches - Automatic - Pressure Type - for hazardous locations

Enclosure codes T & U.

Class 1, Groups C & D Class II, Groups E, F, G.

LR94185-2

SAFETY INTEGRITY LEVEL (SIL)

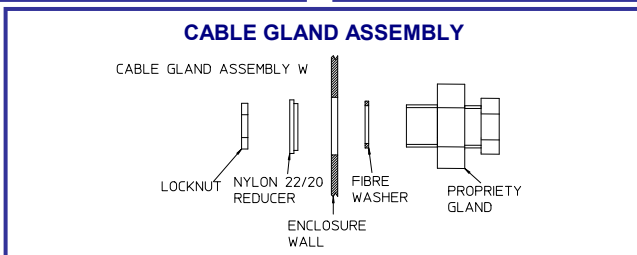
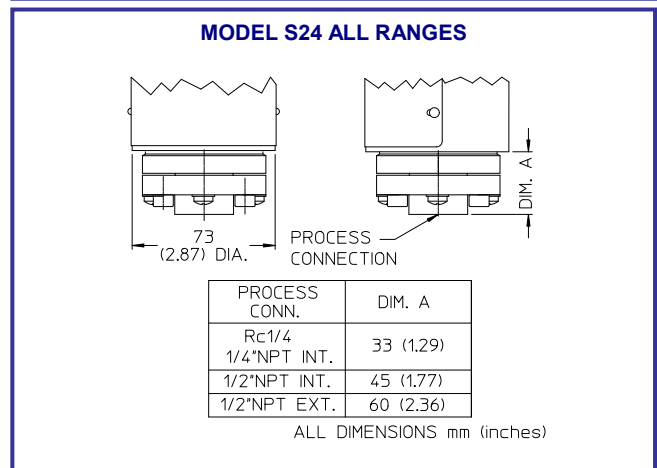
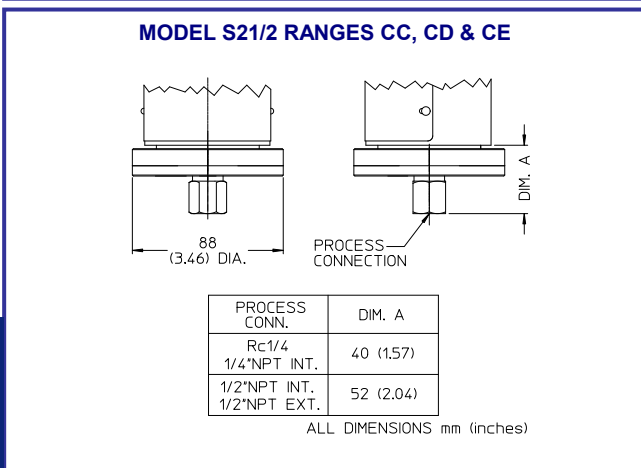
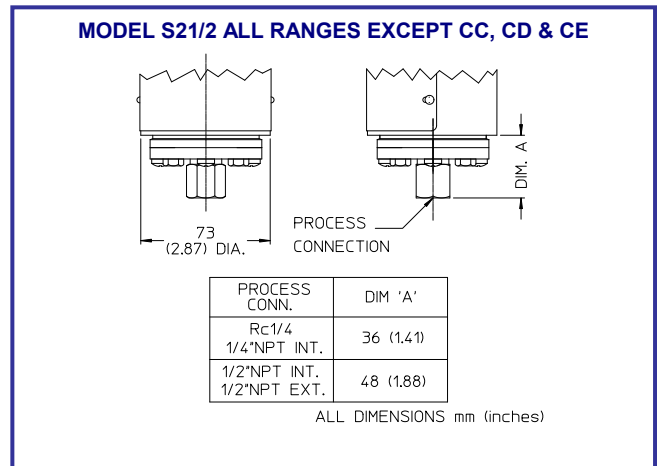
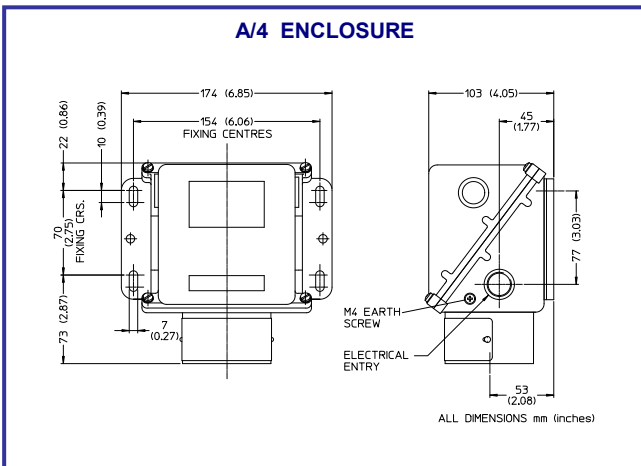
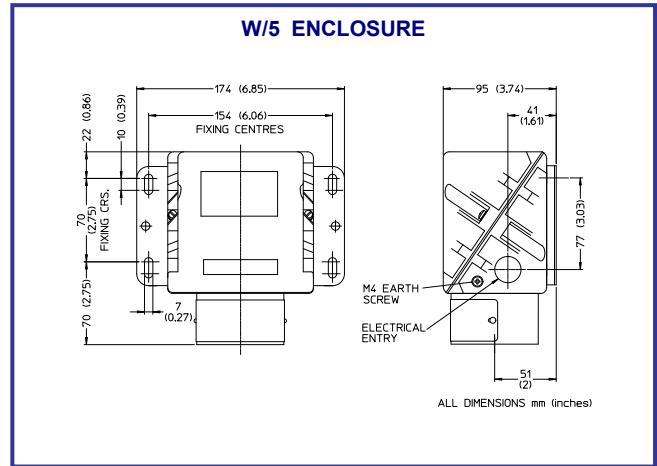
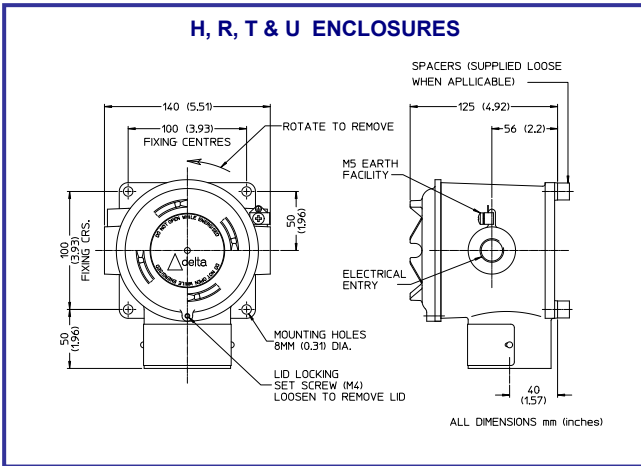
IEC 61508 Part 1 and 2

Systematic integrity and random integrity SIL2 Capable

Certificate number DC060816C001

Dimensions

All dimensions mm (inches)



Industrial Series
Models: S21, S22 & S24

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