Description
The DRS Series of Smart differential pressure transmitters employ the latest micro processor technology together with our proven inductive pressure sensing technique to provide an economically priced transmitter which may be used in industrial, heating and ventilation, laboratory and process applications.
All DRS transmitter types have a selectable square root output function as standard. Optionally other functions such as, 3/2, 5/2 or any customer defined function for example the computation of true volume for an odd shaped tank may be programmed if required.
On site zero and span adjustment may be undertaken by means of the configuration terminal which also allows the optional non linear output function to be enabled.
The following transducer types are available:
XD Transducer Type:
Over pressure protected unfilled differential pressure sensor suitable for use with non condensing clean gases to measure differential pressures from 0.3mbar to 1bar. All XD transducer options are over pressure protected, for details refer to the specification section.
WS Transducer Type:
Fully protected silicone oil filled differential pressure sensor primarily intended for use with low viscosity liquids, but may also be used with condensing or dirty gases to measure differential pressures from 5mbar to 6bar. All WS transducer options are over pressure protected to 20 bar in either pressure port.
Factory Enabled Options
All transmitter types may have customer specified digitally set filter response times and filter jump out. The jump out feature disables the filter for step changes in the input pressure, this allows a faster response to large changes but provides a filtered response for variations smaller than the jump out value. Time constants from zero to 16 seconds and jump out values from 1% to 100% of FS may be specified. The factory configured optional response time settings can be enabled retrospectively by returning the transmitter to our works or an authorised agent.
Features
• Digital signal processing
• Over-range protected
• Simple calibration & configuration
• Built in square root extraction as standard
Applications
• Liquid and gas flow measurement
• Filter pressure drop
• Clean room control & monitoring
• Hydraulic systems
• Furnace and flue gas pressure

Note: All transducer types have 2x M5 on 44.5 centres fixing points at 90 deg to the process ports on the end face of the High port
DRS Series
Voltage and Current Output
Smart Differential Transmitters

Specifications

Over-Pressure Limits
The over-pressure limit is defined as the maximum over or suction pressure that will cause no permanent transducer damage. For the 840 range and above the typical zero shift is less than ±5% of transducer FSD range.

**Note:** All transmitters are despatched from the works having been over-pressured in the high port. To recover from an accidental over pressure in the low port, apply an over pressure into the high port.

XD Types:
- 811 Range: 1 bar in either port
- 820 Range: 3 bar in either port
- 830 Range: 5 bar in either port
- 840 Ranges and above: 10 bar in either port

WS Types: All ranges. 20bar in either port

**Maximum Safe Common Mode Pressure**
- **All Types:** 25bar

Operating Temperature Limits
Transmitter electronics: -10°C to +70°C.

Process Temperature Limits: -40°C to +95°C.

**Note:** If the process temperatures are outside the electronics operating range, the transmitter body (tube) must be adequately cooled or heated to ensure the electronics maximum and minimum operating temperatures are not exceeded.

Transmitter Performance
Non-Linearity and Hysteresis: ±0.25% of max span.

Repeatability: ±0.1% of max span.

Zero Stability: ±0.25% of max span per year at constant temperature (20°C nominal).

**Analogue Signal Output**
See Product Order Code, Output over-current limit set at a nominal 28mA.

Output compliance for Three-wire electronics types is supply voltage minus 5volt nominal.

**Electronics Type**
- Three-wire (4-20mA output only)*
- Two-wire (4-20mA output only)

**Zero and Span Adjustment**
- Zero: 50% FSD suppression to +100% FSD elevation.
- Span: 7.5:1 max to min span range. The transmitter may be calibrated to give zero to full scale output for inputs to the transducer from -50% to +100% of full scale range (max) to any 20% segment of the full scale range (min).

**Damping**
Fixed approx. 0.4 sec analogue RC time constant. 1 Second RC response time set as standard with 10% Filter Jump out. Other digital filter time constants and jump out settings to order.

**Electrical Connection**
DIN 43 650 male plug. Transmitters are supplied with a mating DIN socket which is fitted with terminal blocks for electrical connection.

**Connection details:**
- **Two-wire Type:**
  - Pin 1, Loop positive.
  - Pin 2, Loop negative.
  - Pin 3, Configuration Terminal.
  - Pin 4, Cable Screen

- **Three-wire Type:**
  - Pin 1, Positive supply.
  - Pin 2, Negative supply, Signal Output -ve.
  - Pin 3, Signal Output +ve.
  - Pin 4, Configuration Terminal.

**Ordering Information:**

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<td><strong>Transmitter Type</strong></td>
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<td>Two-wire (4-20mA output only)</td>
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**Differential Transducer Type**
- XD Over pressure protected for dry gasses
- WD No protection suitable for liquids or gasses
- WS Silicone oil filled over pressure protected type for liquids or gasses

**FSD Range**
- 811 1.6bar [XD only]
- 820 4.0bar [XD only]
- 830 10bar [XD only]
- 832 24bar [WS only]
- 840 40bar [All Types]
- 851 160bar [All Types]
- 860 400bar [All Types]
- 870 1000bar [All Types]
- 872 2.4bar [WD & WS only]
- 881 6bar [WD & WS only]

**Transducer Construction**
- AEX Stainless steel, all welded pressure seals

**Mounting Bracket**
- /SDW Fixing bracket for wall mounting
- /SDP Fixing bracket with 2“ pipe clamps

**Factory Configuration Options**
- /NL1 Square root output (closed pipe flow)
- /NL2 3/2 law output (open channel flow)
- /NL3 5/2 law output (open channel flow)
- /NL4 Customer Specified Non-Linear output
- /Rxx xx Filter response time in Secs
- /Jnn nn Filter Jump out in %FSD

* Consult sales for availability on these options
Website

www.SensorsONE.co.uk

Email

enquiries [at] SensorsONE.co.uk

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