

Description

The DNS is a Smart pressure transmitter which employs the latest micro processor technology to provide ease of use and improved performance in an economically priced transmitter. A two-wire loop powered type with 4-20mA output is available together with Three wire types which can offer both Voltage and Current output options. 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 transmitter electrical connection is by a DIN 43650 electrical connector which can be installed to IP65 or IP54 requirements.

The following transmitter types are available:

Type 1:

Gauge pressure with 1/4" BSP female process connection. Adaptors are available to provide alternative process connections if required. This transmitter type is suitable for use on gasses and low viscosity liquids.

Type 3:

Gauge pressure with 1" BSP male process connection and flush measurement diaphragm. This transmitter type is suitable for use on gasses, low or high viscosity liquids, liquids with solids in suspension, slurries and product that is liable to crystallise.

Factory Enabled Options

All transmitter types may be configured to provide a linearised signal output, These functions can be Square root, 3/2, 5/2 or any customer specified function such as the volume of liquid in a conical tank computed from the level signal.

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.

All factory enabled options can be enabled retrospectively by a return to our works or an authorised agent.

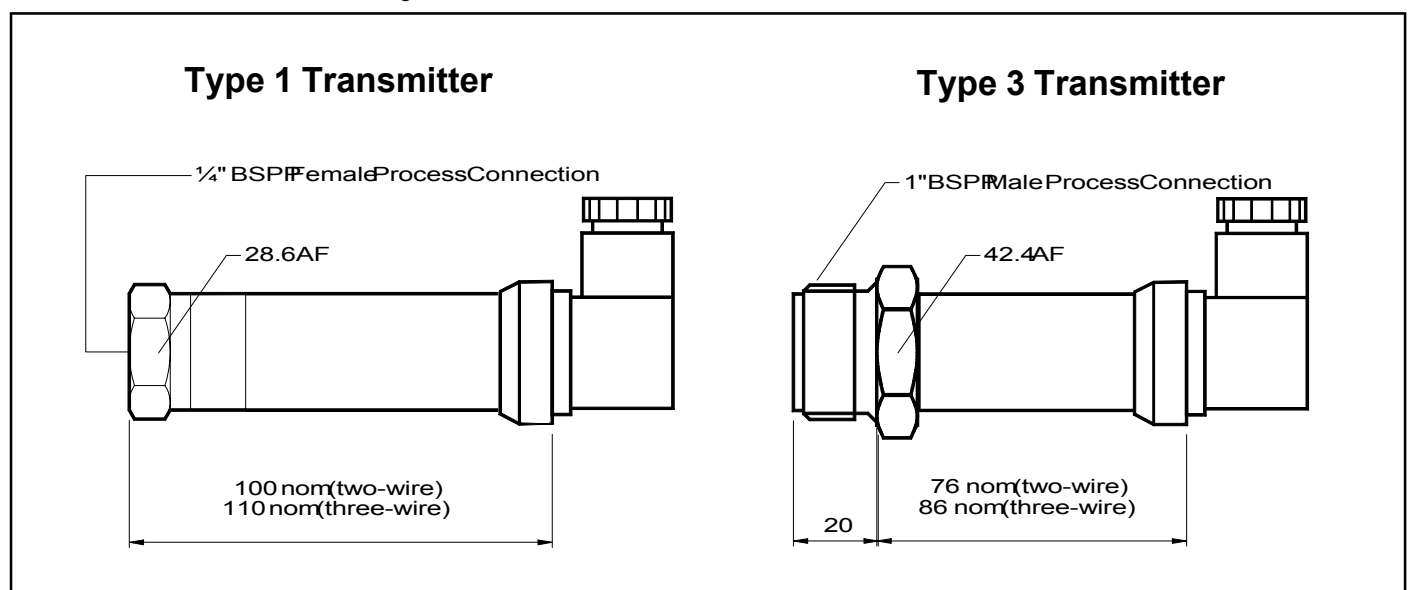


Features

- Digital signal processing
- Sensor over-range protection
- All welded Stainless Steel wetted parts

Applications

- Hydraulic and pneumatic systems
- Level measurement
- Steam pressure measurement



Outline drawings and dimensions. All dimensions in mm unless otherwise noted.

DNS & DNE

Smart pressure transmitter

Characteristics

Over-Pressure Limits

The over-pressure limit is defined as the maximum over-pressure or suction pressure that causes less than $\pm 5\%$ of transducer FSD range zero shift.

The following limits apply:

Over pressure: Up to 2.4bar FSD range, 10x FSD.
6bar and 0-16bar FSD ranges, 4x FSD.
40 and 100bar FSD ranges, 2x FSD.
400bar FSD range, 1.5x FSD.

Suction: Up to 0.4bar FSD range, 100% FSD.
All other ranges, full vacuum.

Operating Temperature Limits

Transmitter electronics: -10°C to $+70^{\circ}\text{C}$.

Process Temperature Limits: -40°C to $+85^{\circ}\text{C}$.

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	DNS	DNE
Non-Linearity including Hysteresis	± 0.25	± 0.60
Zero Stability over 6 months	± 0.20	± 0.50

Note: The figures quoted are typical values as %age of maximum span at a constant temperature (20°C nominal).

Thermal Performance	DNS	DNE
Zero:	± 0.03	± 0.05
Span:	± 0.03	± 0.05

Specified over the compensated temperature range of 0°C to $+50^{\circ}\text{C}$.
Typical figures as %age of maximum span per $^{\circ}\text{C}$.

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.

Power Supply

Two-wire Type: Min operating voltage: 8Vdc.
Max operating voltage: 30Vdc.

Three-wire Type: Min operating voltage: 15Vdc.
Max operating voltage: 30Vdc.

Zero and Span Adjustment

Zero: $\pm 100\%$ full scale range elevation or suppression.

Span: 10:1 max to min span range. The transmitter may be calibrated to give zero to full scale output for inputs to the transducer from -100% to $+100\%$ of full scale range (max) to any 20% segment of the full scale range (min).

Damping

Fixed 0.4 sec analogue RC time. 1 Second RC digitally set response time as standard with 10% Jump out, other RC and jump out settings to order.

Electrical Connection

DIN 43650 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:

Code	Description
Transmitter Type	
DNS	Smart Pressure Transmitter 0.25% FSD
DNE	Smart Pressure Transmitter 0.60% FSD
Electronics Type	
D	Two-wire (4-20mA output only)
T	Three-wire Voltage or Current Output
Signal Output	
0	4-20mA (Two-wire Electronics Only)
1	0-10mA (Three-wire Electronics Only)
2	0-20mA (Three-wire Electronics Only)
3	4-20mA (Three-wire Electronics Only)
4	0-5V (Three-wire Electronics Only)
5	0-10V (Three-wire Electronics Only)
6	1-5V (Three-wire Electronics Only)
Process Connection	
1	1/4" BSP female
3	1" BSP male flush diaphragm
Transducer Type	
G	Gauge Pressure
FSD Range	
840	40mbar [1G 3G]
851	160mbar [1G 3G]
860	400mbar [1G 3G]
870	1000mbar [1G 3G]
872	2.4bar [1G 3G]
881	6bar [1G 3G]
891	16bar [1G 3G]
900	40bar [1G 3G]
910	100bar [1G]
920	400bar [1G]
Process Adaptors [Type 1 only]	
/N2N	1/4" NPT male
/N4N	1/2" NPT male
/N2	1/4" BSP male taper
/N4	1/2" BSP male taper
/P2	1/4" BSP male parallel with 60° cone
/P4	1/2" BSP male parallel with 60° cone
Factory Configuration Options	
/NL4	Customer Specified Non-Linear output
/Rxx	xx Digital filter RC time in seconds
/Jnn	nn Filter jump out in % FSD



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