DDS Series

Voltage and Current Output
Smart Differential Transmitters

Description

The DDS Series of Smart differential pressure transmitters use our proven process differential transducers in conjunction with our compact micro processor based signal conditioning electronics to provide an economically priced transmitter for high static pressure applications.

All DDS 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 transmitter electrical connection is by a DIN 43650 electrical connector which can be installed to IP65 or IP54 requirements.

The following transducer types are available:

HS Transducer Type:

Process differential pressure transducer with silicone oil fluid fill and ¼" BSP female process connections on industry standard 54mm connection centres.

HF Transducer Type:

Process differential pressure transducer with florolube oil fluid fill and ¼" BSP female process connections on industry standard 54mm connection centres. The transducer is suitable for oxygen service or for DP applications that need to withstand a short duration thermal shock that could crack the oil in a silicone oil filled transducer.

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.

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

DDS Transmitter, HS transducer type shown

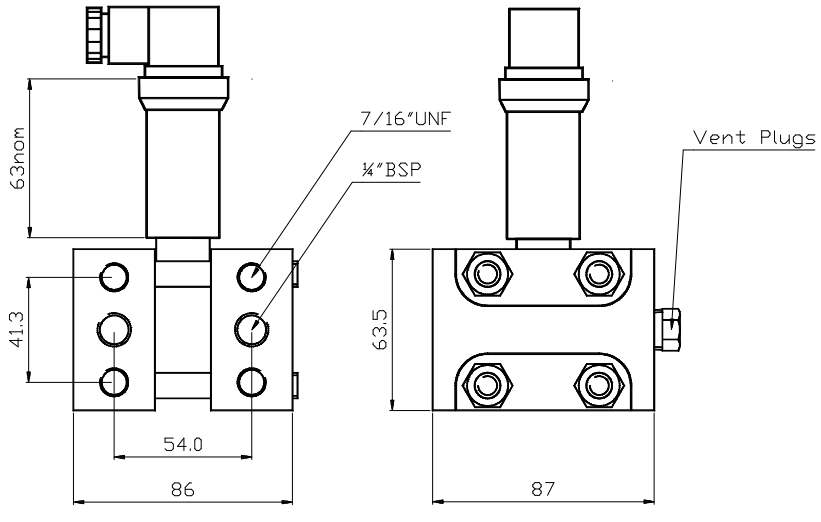
Features

- **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**
- **Level measurement**
- **Hydraulic systems**
- **Dirty or viscous liquids**

HS and HF Transducer Types



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

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Specifications

Over-Pressure Limits
The over-pressure limit is defined as the maximum over or suction pressure that will cause no permanent transducer damage, 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 .
All Types:
840 Range: 35 bar in either port
851 Range: 50 bar in either port
860 Ranges and above: 100 bar in either port
Maximum Safe Common Mode Pressure
All Types: 200bar
Operating Temperature Limits
Transmitter electronics: -10°C to +70°C.
Process Temperature Limits: -20°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).
Note: The figures quoted are typical values for a 160mbar FSD transmitter with our standard heat treated stainless steel sensing element, other ranges may vary, please refer to our sales office for a more detailed specification if required.
Thermal Performance (Temperature Coefficient)
Specified over the compensated temperature range of 0°C to +50°C
Zero: ±0.02% of max span/°C typical.
Span: ±0.02% of max span/°C typical.
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: -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 • 0.4 sec analogue RC time constant, and 1 Second digitally set RC response time set as standard with 10% Filter Jump out. Other digital filter time constants and jump out 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:

Code	Description
	Transmitter Type
DDS	Smart Differential Pressure Transmitter
	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)
	Differential Transducer Type
HS	Silicone oil filled transducer
	FSD Range
840	40mbar [All Types]
851	160mbar [All Types]
860	400mbar [All Types]
870	1000mbar [All Types]
872	2.4bar [All Types]
881	6bar [All Types]
	Transducer End Flanges
A	Stainless steel
B	316L Stainless steel
	Transducer Diaphragm material
E	Heat treated stainless steel (standard)
B	316L stainless steel (option *)
H	Hastelloy C276 (option *)
	Transducer Pressure Seals
N	Nitrile 'O'ring seals
V	Viton 'O'ring seals
P	PTFE 'O'ring seals
	Transducer Mounting Bracket
/WDP	Wall mounting bracket
/PDP	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 the sales office for availability, not all ranges are possible in the optional material types