

Description

The DHS Series of Smart pressure and level transmitters employ the latest micro processor electronics technology together with our proven inductive pressure sensing technique to provide a rugged transmitter for hygienic applications.

All DHS transmitter types can have an optional linearised output function which for example can be used to compute the true volume for an odd shaped tank from the level signal. 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.

All transducer types have a flush measurement diaphragm and are suitable for cleaning in place (CIP) using either chemical or steam cleaning techniques. Additionally as no fluid fill is used, the DHS range is compatible with almost any process.

CG Transducer Type:

Gauge pressure with the sensing element welded into an industry standard 1.5" (40mm) nominal bore Tri-clamp hygienic fitting. An Absolute pressure type (designated CA type) is also available to special order.

Factory Enabled Options

Customer specified or standard output stage linearisation functions can be programmed into the transmitter during manufacture.

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 configured options can be enabled or changed retrospectively by returning the transmitter to our works or an authorised agent.



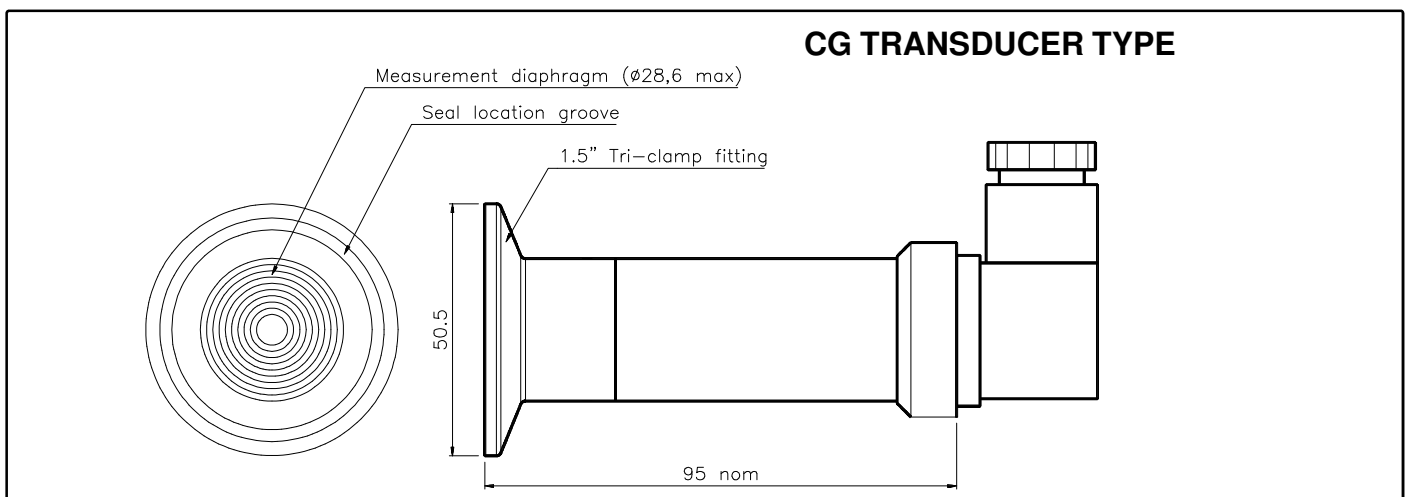
DHS with Tri-clamp CG Transducer type shown

Features

- Digital signal processing
- Over-range protected
- Wide process compatibility – no fluid fill
- Simple calibration & configuration

Applications

- Dairy and food products
- Brewing and fermentation processes
- Pharmaceutical manufacture
- Level and Pressure measurement



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

DHS CG Type

Voltage and Current Output Smart Hygienic 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, the typical zero shift following an over-pressure condition is less than $\pm 5\%$ of transducer FSD range.

NOTE: All transmitters are despatched from the works having been over-pressured. To recover from an accidental over pressure in suction (vacuum), apply an over-pressure to the high transducer.

The following limits apply:

Over-pressure: Up to 2.4bar FSD range, 10x FSD
6bar FSD range and above, 4x FSD
Suction: Up to 1bar FSD range, 50% FSD
All other ranges, full vacuum

Operating Temperature Limits

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

Process Temperature Limits: -40°C to $+95^{\circ}\text{C}$ continuous ($+120^{\circ}\text{C}$ intermittent for approximately 10mins per day)

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: $\pm 0.25\%$ of max span.

Repeatability: $\pm 0.1\%$ of max span.

Zero Stability: $\pm 0.25\%$ 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 $+60^{\circ}\text{C}$

Zero: $\pm 0.02\%$ of max span/ $^{\circ}\text{C}$ typical.

Span: $\pm 0.02\%$ of max span/ $^{\circ}\text{C}$ 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: -100% FSD suppression to $+100\%$ FSD elevation.

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 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 |
| DHS | Smart Hygienic 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) |
| | Transducer Type |
| CG | 1.5" Hygienic Tri-clamp , gauge pressure |
| CA | 1.5" Hygienic Tri-clamp , absolute pressure |
| | FSD Range |
| 840 | 40mbar [Gauge only] |
| 851 | 160mbar [All Types] |
| 860 | 400mbar [All Types] |
| 870 | 1000mbar [All Types] |
| 872 | 2.4bar [All Types] |
| 881 | 6.0bar [All Types] |
| 891 | 16bar [All Types] |
| 900 | 40bar [All Types] |
| | Transducer Body Material |
| B | 316 Stainless steel, |
| | Sensing Diaphragm Material |
| E | Heat treated stainless steel (standard) |
| B | 316L stainless steel (option *) |
| H | Hastelloy C276 (option *) |
| | Transducer Pressure seals |
| X | All welded pressure seals |
| | Factory Configuration Options |
| /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

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