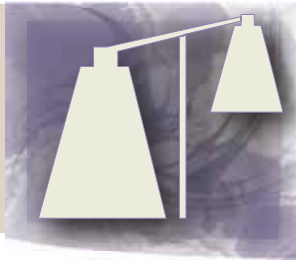


Mud Density Transmitter

Series 290



Features at a glance

2 wire 4 to 20 mA Denstar Differential Pressure transmitter for measuring drilling fluid density

The NASC Denstar 290 Series transmitter is specially developed to measure drilling fluid density as a function of differential pressure. The unit has two measuring elements, each of which are located at a known elevation and separation in the tank. Under normal operation both will be submerged, and since the distance between them is fixed, any variation in the pressure differential between them is a function of the fluid density.

Principle

The two diaphragms are hydraulically linked within the sensor's construction. The lower diaphragm is "rated" to give a known displacement in response to applied pressure, while the upper is compliant and simply transfers the pressure it measures via the internal hydraulic fill to the rear of the rated diaphragm. Actual displacement of the lower diaphragm is measured using an internally mounted Linear Variable Differential Transformer.

Compared to conventional D.P. transmitters fitted with two diaphragm seals, the use of a single measurement element with a low volume oil fill linking to the compensating diaphragm, improves resolution and reduces temperature sensitivity for enhanced performance.

The remote amplifier module receives the LVDT's output signal and conditions it to provide a 4 to 20 mA output over the required span. For convenience this amplifier may be sited up to 100 Metres away from the sensor. It also incorporates the zero and span adjustment facilities, greatly simplifying initial installation / commissioning and subsequent calibration checks

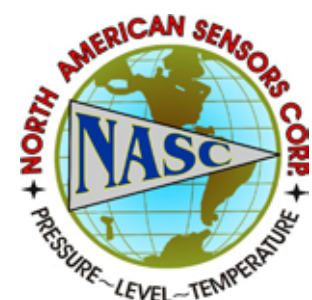
NASC's unrivalled experience in the design of pressure sensitive diaphragms and their application in the Marine / offshore sector, together with a versatile approach to unit construction, ensures optimum performance for all applications.

The unit is of a completely submersible construction suitable for pole suspension or clamping in place. Custom mechanical variations can be accommodated on request.

The design is ATEX approved for use in Hazardous Area's and employs the same construction techniques & principles as NASC's range of Marine duty Hydrostatic level transmitters which carry type approvals from all major Classification societies.



- ✦ Compact lightweight design for simple installation.
- ✦ Cost effective solution
- ✦ Standardised construction but readily adaptable to suit each application.
- ✦ Fully submersible Internally mounted via simple pole mount
- ✦ Stainless steel body and Hastelloy diaphragms for superior corrosion resistance
- ✦ Mechanical protection of diaphragms
- ✦ Horizontal diaphragms less likely to become contaminated
- ✦ 2 wire 4 to 20 mA output from remotely located amplifier module
- ✦ Intrinsically safe versions available
- ✦ Normal calibration 6.67 to 20 Pounds / US Gallon (0.8 to 2.4 SG). Alternative calibration as required.
- ✦ Additional temperature compensation available for applications where in service shift is significant
- ✦ ATEX approved for use in hazardous locations
- ✦ Static accuracy +/- 0.25%



Denstar Specifications

Mud Density Transmitter Series 290



Sensor

Construction: Body assembly 316L stainless Steel Diaphragms Hastelloy C276
Mounting: External flanged or threaded, or internal submersed
Standard Range: Density span 0.8 to 2.4 (others on request)
Fluid fill: Silicon fluid.
Operating temperature: -10 to +80° C
Temperature compensation: As required by application

Amplifier Module

Construction: Wall mount GRP enclosure
Enclosure rating: IP65 (IP67 option) / NEMA 4X
Power supply: 12 to 35 Vdc
Signal output: 4 to 20 mA dc, 2 wire.

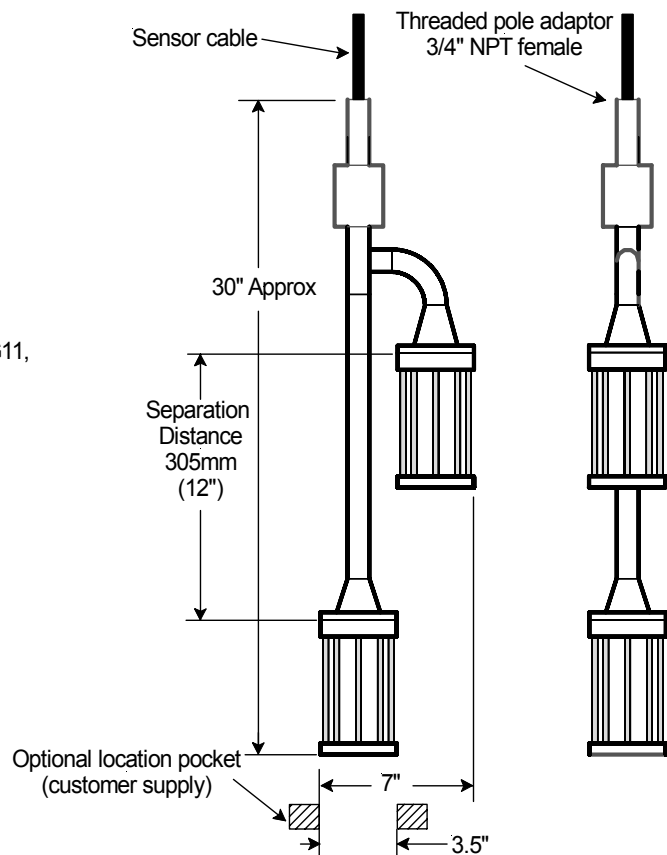
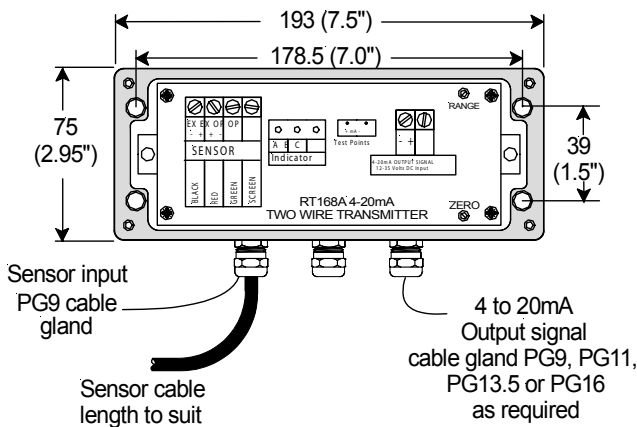
Performance

Accuracy: +/-0.25% of set span
Temperature coefficient: +/- 0.02% set span/°C range & zero (compensated unit)

Options

Intrinsically safe unit available

To EEx ia IIC T6



Typical submersible Construction

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