

# SUBMERSIBLE TRANSMITTER WITH CERAMIC SENSOR

# TNS-227/237/240

**Desin**  
Instruments

## DESCRIPTION

### TNS-227/237

- PRESSURE RANGES BETWEEN 0 ... 2,5 mWC AND 0 ... 160 mWC
- ACCURACY ACC. TO IEC 60770: 0,5% FSO (BFSL: 0,25% FSO)
- CERAMIC SENSOR (WITHOUT OIL-FILLING) WITH HIGH RESISTANCE AGAINST AGGRESSIVE MEDIA , E.G. ACIDS AND LYE
- FLUSH DIAPHRAGM BY REMOVING PROTECTIVE CAP

### TNS-240

- PRESSURE RANGES BETWEEN 0 ... 0,6 mWC AND 0 ... 200 mWC
- ACCURACY ACC. TO IEC 60770: 0,35% / 0,25% FSO (BFSL: 0,175 % / 0,125 % FSO)
- FLUSH DIAPHRAGM
- OUTPUT SIGNALS (2-WIRE-SYSTEM) 4 ... 20 MA CABLE PROTECTION WITH STAINLESS STEEL PIPE AVAILABLE

### TNS-227/237/240

- CUSTOMER-DESIGNED PRESSURE RANGES E.G. 0 ... 55 mWC
- OUTPUT SIGNALS 4 ... 20 MA / 2W
- CABLE WITH INTEGRATED AIR TUBE FOR ATMOSPHERIC REFERENCE
- SMALL THERMAL EFFECT
- EXCELENTE ESTABILIDAD A LARGO PLAZO
- HIGH RESISTANCE AGAINST ELECTRICAL FAULTS CAUSED BY INCORRECT WIRING, SHORT-CIRCUIT AND OVERVOLTAGE
- RUGGED AND RELIABLE UNDER MOST CONDITIONS
- LONG OPERATING LIFE
- OPTIONAL EX: II 1 G EEX IA IIC T4 (TÜV 99 ATEX 1504 X)
- CUSTOMER-DESIGNED APPLICATIONS

TNS-227/237



TNS-240



## FEATURES

### TNS-227/237

The TNS 237/227 level transmitter is suited for continuous fluid level measurement. Due to the ceramic sensor the transmitter is extremely resistant against aggressive media.

### TNS-240

The submersible transmitter TNS-240 was designed for continuous level measurement.

Based on a mechanical and rugged ceramic sensor the TNS 240 is suitable for long term measurements of smallest filling heights.

Usage in high viscous media such as slurries is possible because of the flush diaphragm.

The cable assembly is available in different versions:

- Cable only
- Cable with stainless steel pipe

A variety of assembling possibilities allows the customer usage according to his demands.

As complement, we manufacture a wide range of measuring and control instruments to use with these 4-20 mA configurable transmitters.

- Controllers: **BS-1000, LS-3000 and HS-7000 Series**
- Indicators: **BS-1000, LS-3000 and HS-7000 Series**
- Loop-powered field Indicators **PM-3650, PM-6670 and PM-2659 Series**
- 24 Vdc 1 A or 2 A instruments power supply units **FAC-24/1000/S and FAC-24/1000/D Series**
- Data acquisition and control systems **DAS-8000 and HS-7000**



127.64

## SPECIFICATIONS

### TNS-227 /237

- Ranges:

Pressure (bar): 0,25<sup>1)</sup> 0,4<sup>1)</sup> 0,6 1,0 1,6 2,5 4,0 6,0 10 16

Level mCA: 2,5<sup>1)</sup> 4,0<sup>1)</sup> 6,0 10 16 25 40 60 100 160

Overpressure: 1,0 1,0 3,0 3,0 6,0 10 20 20 60 60

- Accuracy: .....  $\leq \pm 0,5\%$  FSO

- Output signal: ..... 4-20 mA 2 wires

- Electrical connection: ..... Cable PVC/PUR/FEP with integrated air tube

- Voltage: ..... between 12 and 36 Vcc

- Permissible Load: 2 wires ..... (  $U_b$  (V) -10 V ) / 0,02 A

- Operating Temperature range

Sensor: ..... -10 to +70 °C

Storage: ..... -25 to +70 °C

- Tiempo de respuesta: .....  $\leq 5$  ms

- Materials:

Housing ..... Stainless steel 1.4571

Diaphragm ..... Ceramic  $Al_2O_3$  96 %

Seals ..... FKM

Cable ..... PVC grey

<sup>1)</sup> Model TNS-237 (  $\varnothing$  37 )

### TNS-240

- Ranges:

Pressure (bar): 0,06 0,1 0,25 0,4 0,6 1 1,6 2,5 4 6 10 20

Level mCA: 0,6 1,0 2,5 4 6 10 16 20 40 60 100 200

Overpressure: 2 2 2 4 4 7 7 15 25 25 40 60

- Accuracy: .....  $\leq \pm 0,35\%$  FSO

- Output signal: ..... 4-20 mA 2 wires

- Electrical connection: ..... Cable PVC/PUR/FEP with integrated air tube

- Voltage: ..... between 12 and 36 Vcc

- Permissible Load: 2 wires ..... (  $U_b$  (V) -10 V ) / 0,02 A

- Operating Temperature range

Sensor: ..... -10 to +70 °C

Storage: ..... -25 to +70 °C

- Deriva térmica: .....  $\leq \pm 0,1\%$  FSO / año

- Materials:

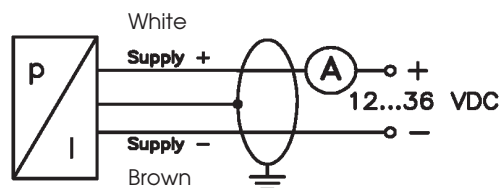
Housing ..... Stainless steel 1.4571

Diaphragm ..... Ceramic  $Al_2O_3$  96 %

Seals ..... FKM

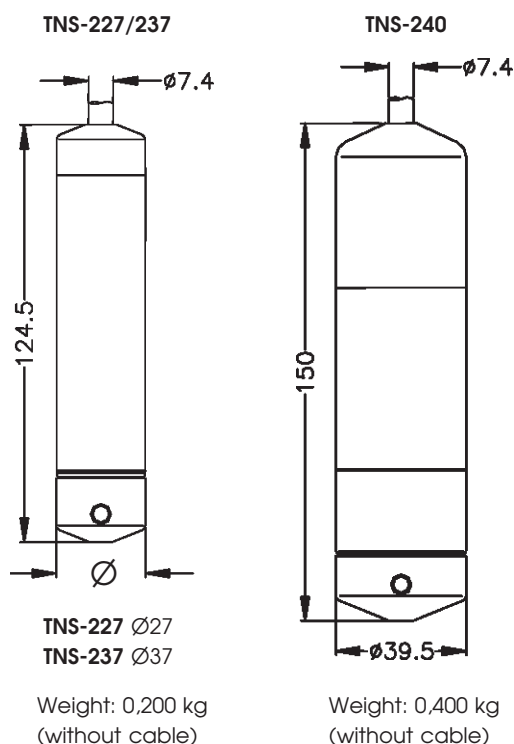
Cable ..... PVC grey

## WIRING DIAGRAM



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## DIMENSIONS



## APPLICATIONS

- Environmental technology: sewage treatment, water supply
- Depth or level measurement in wells and open waters
- Ground water level measurement
- Level monitoring in open tanks.

## HOW TO ORDER

**MODELS:**

**TNS-227** Ranges from 2,5 to 4 mH<sub>2</sub>O

**TNS-237** Ranges from 6 to 160 mH<sub>2</sub>O

**TNS-240** Ranges from 0,6 to 200 mH<sub>2</sub>O

**Options:**

- Special ranges
- PVC cable meter
- PUR cable meter
- FEP cable meter