

SUBMERSIBLE TRANSMITTER

with ceramic
capacitive sensor

TNS-300/400

Desin
Instruments

DESCRIPTION

TNS-300

- PRESSURE RANGES BETWEEN 0 ... 0,6 mWC AND 0 ... 100 mWC
- CUSTOMER-DESIGNED PRESSURE RANGES E.G. 0 ... 55 mWC
- ACCURACY ACC. TO IEC 60770: 0,35% FSO (BFSL: 0,175% FSO)
OPTIONAL: 0,25% FSO (BFSL: 0,125% FSO)
- OUTPUT SIGNALS 4 ... 20 mA / 2W AND 0 ... 10 V / 3W
- TRANSMITTER AND CABLE ASSEMBLY PLUGGED
- CABLE PROTECTION WITH RIGID PVC PIPE OPTIONAL
- SUITABLE FOR WATER AND ALL FLUIDS WHICH ARE COMPATIBLE WITH PVC AND CERAMICS Al_2O_3
- FLUSH DIAPHRAGM
- HIGH RESISTANCE AGAINST ELECTRICAL FAULTS CAUSED BY INCORRECT WIRING, SHORT-CIRCUIT AND OVERVOLTAGE
- RUGGED AND RELIABLE UNDER MOST CONDITIONS
- LONG OPERATING LIFE
- SMALL THERMAL EFFECT
- EXCELLENT LONG TERM STABILITY
- CUSTOMER-DESIGNED APPLICATIONS

TNS-300



TNS-400

- ACCURACY ACC. TO IEC 60770 0,25% / 0,35% FSO / 0,1% FSO (OPTION HART®) (BFSL: 0,125 % / 0,175 % FSO / 0,05% FSO)
- INGRESS PROTECTION IP 68
- LEVEL PROBE MADE OF STAINLESS STEEL 1.4571 OR COPPER-NICKEL-ALLOY (CuNiFe)
- EXCELLENT RESISTANCE AGAINST SEAWATER (MATERIAL: CUNIFE)
- MOUNTING IN TANKS AS PROBE
 - WITH CABLE
 - WITH STAINLESS STEEL PIPE
 - WITH MOUNTING BRACKET
- MOUNTING OUTSIDE THE TANK WITH FLANGE DN 25, DN 50 OR DN 80
- ELECTRICAL CONNECTION VIA FIXED CABLE WITH AIR TUBE OR PROBE – CABLE SEPARABLE (ONLY STAINLESS STEEL VERSION)
- DUE TO FLUSH DIAPHRAGM USAGE IN VISCOUS MEDIA POSSIBLE

TNS-400



CE

FEATURES

EXCELLENT LONG TERM STABILITY

The level transmitter TNS 300 has been developed for applications where high accuracy is required. It is possible by using a pressure sensor made of ceramics as basic element and by use of plastics highly resistant against chemicals.

Usage in more viscous media as for example sludge is possible because of the flush diaphragm.

For sealing and cable different materials are available. A cable protection, available in two versions, is essential for application of the TNS 300 in aggressive media.

In order to reduce stockpiling and maintenance, transmitter and cable assembly are plugged together with a connector. The transmitter can be easily exchanged.

The cable assembly is available in different versions:

- cable only
- cable with rigid PVC pipe

TNS-400

The hydrostatic level-probe TNS 400 was designed for navigations- or offshore-applications where rough conditions occur day by day.

The probes are suitable for level measurement of fluids or paste-like media in open tanks, containers or reservoirs. Based on a rugged and reliable capacitive ceramic sensor the TNS 400 is qualified for measuring small filling heights with high accuracy.

Due to the different materials such as stainless steel 1.4571 or the special copper-nickel-alloy in combination with several mounting types, the TNS 400 covers all applications in navigations- and offshore business. Usage with nearly every occurring media and various applications appearing in this field is possible.

In order to meet the special requirements for navigations and offshore applications extensive tests had to be passed to get the Germanischer Lloyd (GL) approval.

TUV
PRODUCT SERVICE
EMPERIA
CERTIFIED
COMPANY
ISO 9001

127.65

SPECIFICATIONS

TNS-300

- Ranges:

Pressure (bar):	0,06	0,1	0,25	0,4	0,6	1,0	1,6	2,5	4,0	6,0	10
Level mCA:	0,6	1,0	2,5	4	6	10	16	20	40	60	100
Overpressure:	2	2	2	4	4	7	7	15	15	25	40

- Accuracy: $\leq \pm 0,35$ % FSO
- Output signal: .. 4-20 mA 2 wires (0-10 V 3 wires option)
- Electrical connection: Cable PVC/PUR with integrated air tube
- Voltage: between 12 and 36 Vcc
- Permissible Load: 2 wires (U_b (V) -12 V) / 0,02 A
- Operating Temperature range
 - Sensor: 0 to +50 °C
 - Storage: -10 to +50 °C
- Materials:
 - Housing PVC gris
 - Diaphragm Ceramic Al_2O_3 96 %
 - Seals FKM
 - Cable PVC grey

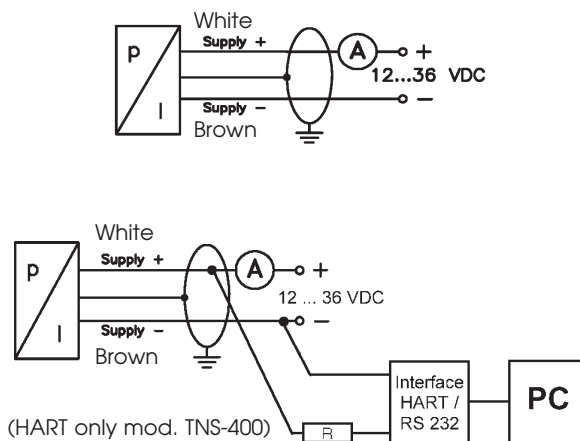
TNS-400

- Ranges:

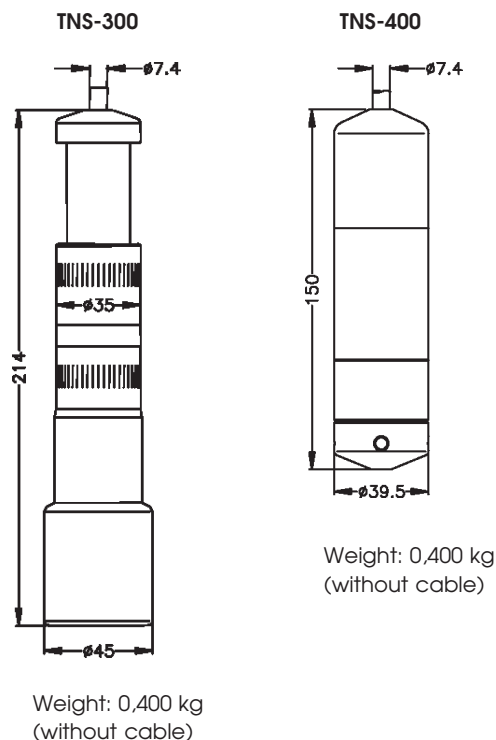
Pressure (bar):	0,06	0,1	0,25	0,4	0,6	1,0	1,6	2,5	4,0	6,0	10	20
Level mCA:	0,6	1,0	2,5	4	6	10	16	20	40	60	100	200
Overpressure:	2	2	2	4	4	7	7	15	25	25	40	60

- Accuracy: $\leq \pm 0,35$ % FSO
- Output signal: 4-20 mA 2 wires (Interface HART® option)
- Electrical connection: Cable PUR with integrated air tube
- Voltage: between 12 and 36 Vcc
- Permissible Load: 2 wires (U_b (V) -12 V) / 0,02 A
- Operating Temperature range
 - Sensor: -25 to +85 °C
 - Storage: -40 to +125 °C
- Materials:
 - Housing Stainless steel 1.4571
 - Diaphragm Ceramic Al_2O_3 96 %
 - Seals FKM
 - Cable PUR black

WIRING DIAGRAM



DIMENSIONS



APPLICATIONS

TNS-300

- Environmental technology: sewage treatment, water supply
- Level measurement in open tanks with aggressive liquids as acids and lye
- Chemical and pharmaceutical industries
- Galvanic coating.

TNS-400

- Ballast container
- Fuel and oil tanks
- Service and waste water

HOW TO ORDER

MODELS:

- TNS-300** Ranges from 0,6 to 100 mCA
- TNS-400** Ranges from 0.6 to 200 mCA

Options:

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