TP - Series "Smart" Pressure Transmitter

Introduction

The Anderson-Negele "TP" series pressure transmitter is a microprocessor-based sensor specifically designed for sanitary fluid process applications in the Life Sciences industry. This product provides an extremely high level of performance combined with the flexibility of digital communication via the "HART" protocol.

The "TP" series can be specified in several configurations including high temperature models that are available in direct or remote mount variations. The high temperature direct mount is also recommended for applications where a horizontal orientation is re-quired for display viewing, such as tank tops and overhead lines. All models comply with UL, "intrinsically safe" requirements for Class 1, Div. 1, Groups A-D. The units may be ordered with any of our wide variety of sanitary process fittings.

The "TP" series simultaneously outputs an analog 4-20 mA signal while communicating digitally with a hand-held communicator or other "HART" host device. This allows configuration of parameters such as range, engineering units, tagging info, and other device specific information, from any accessible point in the output loop. The analog output can even be "trimmed" or calibrated while online, if required. Also retained are internal, non-interactive zero and span analog adjustments. This provides the user with the immediate performance enhancements of this new product, with future compatibility with the "HART" protocol.

As with all Anderson-Negele sensors, the "TP" series is designed to be cleaned and steam sterilized in place. The optional LCD display can be factory scaled to linear process engineering units, mA output, or 0-100%.

Features

· New options and mounting configurations for high temperature applications, up to 204°C (400°F)

· Standard 4-20 mA Output with "HART" Protocol for Digital Communications

· Micro-based Design provides best performance of any sanitary transmitter

· Widest choice of sanitary clamp and flushmount "CPM" fittings

· Optional LCD Display now available for vertical or horizontal viewing

· 3-A compliant; Third party verified in accordance with standard 74-03

CSI
417.831.1411
csidesigns.com

Specifications

Ranges:	Defined by Upper Range Limit (URL)		Article 3.3 of the PED 97/23/EC
Rangeability			CSA B51-03
(Turn-down):	10:1 via Hand Held Terminal		CRN# CSA0F9754.5C
Over Pressure Limit:	2X URL	Process Temperature	
Over Pressure Output:	Sensor Style 1 & 2: Above 110% of calibrated range - 3.8 mA	Effect:	Less than 0.2% of full scale output/10°F change

Over Pressure Output: Sensor Style 1 & 2: Above 110% of calibrated range - 3.8 mA
Sensor Style 3 & 4: No specified over pressure output

MECHANICAL TRIM ADJUSTMENTS:
Internally adjustable
± 5% of span (zero); ± 20% of span (span)

Output: 4-20mA, Two-wire, Linear, Digital Process variable superimposed on 4-20mA signal, available to any "HART" protocol conforming host.

Power Supply: 13-40 volts, D.C.
18-45 volts D.C. with display

Indication: Optional, cap-mounted, LCD Indication accuracy ±1% F.S.

TEMPERATURE LIMITS (PROCESS):
Standard/Direct Mount: -18 to 135°C (0 to 275°F)
High Temp./Direct Mount: -18 to 177°C (0 to 350°F)**
High Temp./Remote Mount: -18 to 204°C (0 to 400°F)**
Temperature Limit (Ambient): -18 to 49°C (0 to 120°F)
Hazardous Locations Compliance: UL Compliance with Class 1, Div. 1, Groups A thru D for intrinsically safe apparatus, when connected with approved barrier system (See instruction manual). For sensor type 1 & 2 ONLY

Standards: Designed and manufactured to sound engineering practices in accordance with

Article 3.3 of the PED 97/23/EC
CSA B51-03
CRN# CSA0F9754.5C

Process Temperature
Effect: Less than 0.2% of full scale output/10°F change

PERFORMANCE SPECIFICATIONS:
Accuracy* (psig ranges): ±0.2% of URL
(psia, compound vacuum): ±0.2% URL (above atmospheric zero); ±1.0% URL (below atmospheric zero)
* Accuracy includes repeatability, hysteresis and linearity.
Repeatability: ± 0.06%
Hysteresis: ± 0.07%
Linearity (BFSL): ± 0.07%
(± 0.17% for psia, compund and vacuum ranges)
Stability: ± 0.3% OF URL/6 months

PHYSICAL SPECIFICATIONS:
Wetted Material Surface Finish:
Electropolished to Ramax = 8 microinches (.2 microns)
Wetted Material: 316 "L" Stainless Steel
Housing Material: 304 Stainless Steel
Actuating Fill: 100% mineral oil. Meets FDA requirements (21 CFR, 172.878 and 178.3620(a))
Housing Ratings: NEMA 4X, IP-66
Electrical Connections: 1/2-14NPT conduit with screw terminals and integral test loops for HART interface

** Process vacuum in excess of 24" Hg may require slight de-rating of maximum temperature (consult factory).

Order Information

T P P ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

KEY MODEL #

STYLE
0 Standard, Direct Mount Housing
1 Standard w/QDR
2 High Temp (direct mount)[4]
3 High Temp (remote mount)[1,4]
4 High Temp (direct mount) w/QDR* [4]
5 High Temp (remote mount) w/QDR* [4]

SENSOR TYPE
1 PSIG
2 PSIA
3 PSIG (overpress./shift high)
4 PSIA (overpress./shift high)

UPPER RANGE LIMIT (URL)
1 50 psig/psia
2 100 psig/psia
3 200 psig/psia
4 300 psig/psia
5 500 psig
6 1000 psig

PROCESS CONNECTION

002	3/4" Tri-Clamp[3]	016	1-1/2" CB "I" (male)
004	1-1/2" Tri-Clamp	017	2" CB "I" (male)
005	2" Tri-Clamp	027	1-1/2" G&H "H" Line (male)
010	1-1/2" APC "K"	028	2" G&H "H" Line (male)
011	2" APC "K"	123	1-1/2" CPM Flushmount

CUSTOM CONFIGURATION
000 Standard Configuration
XXX Custom Configuration

DISPLAY
0	No Display	B	BAR
G	PSIG[2]	R	mA
A	PSIA	Q	Percent (%)

MOUNTING
1 Direct mount (Style 0, 1, 2 or 4)

Options listed below apply to Style 3 & 5 ONLY:

A	5' Poly	L	5' SS
B	10' Poly	M	10'SS
C	15' Poly	N	15' SS
D	20' Poly	P	20' SS
E	25' Poly	Q	25' SS

DIAPHRAGM MATERIAL
1 316L Stainless Steel (Standard)
2 Hastelloy "C" (Not Available in Connection 002)

[1] Pipe/Wall mount bracket included with remote mount option (Style 3)
[2] Vacuum shown as (-) PSIG for compound ranges
[3] Not available with Style 2 or 3
[4] Not available with Process Connection 002
NOTE: Compound Range Ordering Examples:
For 30-0-50 psig, select 50 psig URL
For 30-0-60 psig, select 100 psig URL
* UL Certification for Intrinsic Safety Pending

CSI
417.831.1411
csidesigns.com