

AUTROL[®] **Smart Pressure Transmitter** **with Diaphragm Seal**



MODEL APT3700N-L

DUON System Co., Ltd.

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Smart Pressure Transmitter

APT3700N-L



Description of Product

The APT3700N-L Smart Pressure Transmitter is a micro processor-based high performance transmitter, which has flexible pressure calibration and output, automatic compensation of ambient temperature and process variable, configuration of various parameters, communication with HART protocol. The application is very various, as measuring pressure, flow and level by application method. All data of sensor is to be input, modified and stored in EEPROM.

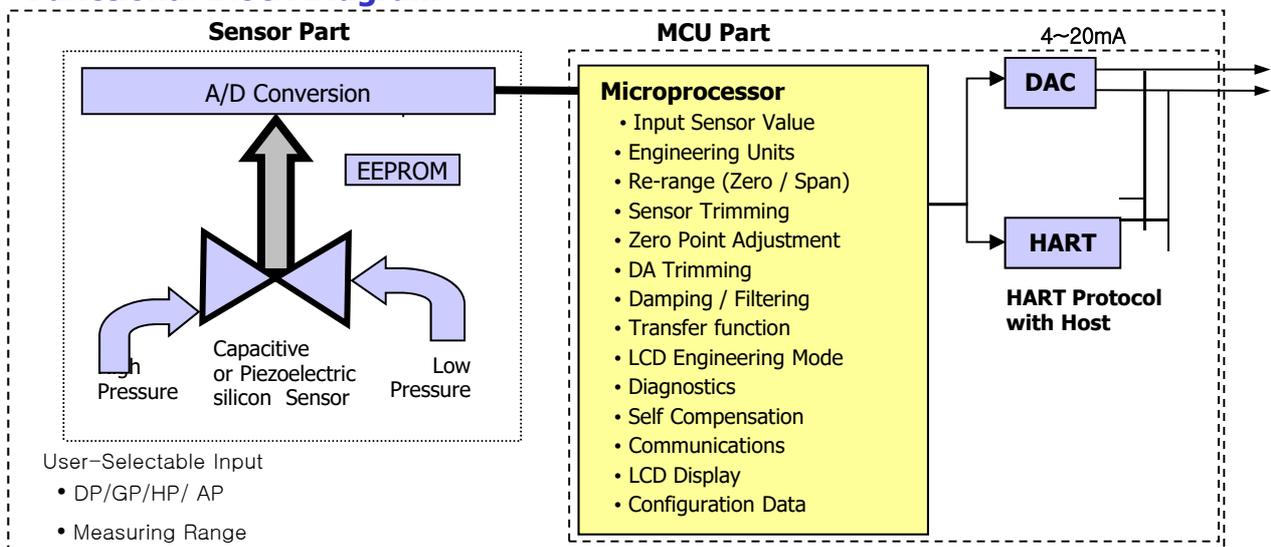
Features

- Superior Performance
 - High Reference Accuracy : $\pm 0.25\%$ of Calibrated Span
 - Long-Term Stability : $\pm 0.25\%$ URL per 24 months
 - High Rangeability (100 : 1)
- Flexibility
 - Data Configuration with HART Configurator
 - Zero Point Adjustment
- Reliability
 - Continuous Self-Diagnostic Function
 - Automatic Ambient Temperature Compensation
 - Fail-mode Process Function
 - EEPROM Write Protection
 - Equipment Qualifications
 - EMI / RFI Test

Function

- Various Output : 4 ~20mA , Digital Signals
- Setting Various Parameters : Zero/Span, Trim, Unit, Fail-mode, etc.
- Self Diagnostic Function : Sensor, Memory A/D Converter, Power, etc
- Digital Communication with HART protocol
- Explosion-proof Approval KCs
- Qualified per IEEE Std 344-1987/2004 and IEEE Std 323-1983/2003, NRC Regulatory Guide 1.180 (Rev.1)

Functional Block Diagram



Transmitter Description

Electronics Module

The Electronics module consists of a circuit board sealed in an enclosure.

There are a MCU module, a power module, an analog module and a terminal module in a transmitter. The MCU module acquires the digital value from the analog module and apply correction coefficients selected from EEPROM.

The output section of the power module converts the digital signal to a 4~20 mA output.

The MCU module communicates with the HART-based Configurator or Maintenance System such as HTT 275 or 375 and AMS.

The Power module have a DC-to-DC Power conversion circuit and an Input/output isolation circuit.

An optional LCD module plugs into the MCU module and displays the digital output in user-configured unit.

Sensor Inputs

The model APT3700N-L is available in a differential pressure sensor of a capacitance type.

The capacitance pressure sensor measures differential and gauge pressure and is commonly used in flow and level applications. Both sides in the capacitance sensor transmit process pressure from the process isolators to the sensor.

The model APT3700N-L is available in a absolute pressure and high gage pressure sensor of a piezo-resistive type and measures absolute/high gage pressure.

The sensor module converts the capacitance or the resistance to the digital value.

The MCU module calculates the process pressure based on the digital value.

The sensor modules include the following features:

- The software of the transmitter compensates for the thermal effects, improving performance.
- Precise Input Compensation during operation is achieved with temperature and pressure correction coefficients that are characterized over the range the transmitter and stored in the sensor module EEPROM memory
- EEPROM stores sensor information and correction coefficients separately from MCU module, allowing for easy repair, reconfiguration and replacement

Basic Setup

ATP3700N-L Pressure transmitter can be easily configured from any host that support the HART protocol.

- Operational Parameters.
- 4~20mA Points (Zero/Span)
- Engineering Units
- Damping Time : 0.25 ~ 60 sec
- Tag : 8 alphanumeric characters
- Descriptor : 16 characters
- Message : 32 characters.
- Date : day/month/year

Calibration and Trimming

- Lower/Upper Range (zero/span)
- Sensor Zero Trimming
- Zero Point Adjustment
- DAC Output Trimming
- Transfer Function
- Self-Compensation

Self-Diagnosis and Others

- CPU & Analog Module Fault Detection
- Communication Error
- Fail-mode Handling
- LCD Indication
- Temperature Measurement of Sensor Module

Performance Specifications

Reference Accuracy of Calibrated Span

- for ranges 4 through 7
 $\pm 0.25\%$ of Span for $0.1URL \leq \text{Span} \leq URL$
 $\pm [0.25 + (0.005 \times (URL/\text{span}))]\%$ of Span
for $0.01URL \leq \text{Span} \leq 0.1URL$

Zero and Span Adjustment Limits

- Zero and span values can be set anywhere within the range limits stated in Table 1. Span must be greater than or equal to the minimum span stated in Table 1

Output (Analog Current and Digital Data)

- Two wire 4~20mA
user-configurable for linear or square root output, digital process value superimposed on 4~20mA signal, available to any host that conforms to the HART protocol

APT3700N-L

Smart Pressure Transmitter

Power Supply & Load Requirement

- **External power supply required.**
Transmitters operate on 12.5 to 45 V dc.
* 250 ohm load-- 17.5 Vdc
* up to a 550 ohm load -- 24 Vdc
Max. Loop Resistance = (E - 11.9) / 0.022
(E = Power Supply Voltage)

- **Supply Voltage**
12.5 ~ 45 Vdc -- operation
17.5 ~ 45 Vdc -- HART Communications
* 0.9W @ 45Vdc

- **Loop Load**
0 ~ 1500 ohm -- Operation
250 ~ 550 ohm -- HART Communications

EMC Conformity Standards

- RG 1.180,
IEC61000-4-2(EMC, ESD, EFT/Burst, Surge)

Update Time and Turn-On Time

- Update Time : 0.2 seconds
- Turn-On Time : 3 seconds

Failure Mode

- Fail High : Current ≥ 21.1 mA
- Fail Low : Current ≤ 3.78 mA

Operating Temperature

- -40°C to 85°C (without condensing)

Process Temperature Limits

- Refer to Ordering information

Isolation

- Input/output isolated to 500Vrms (707 Vdc)

Working Pressure Limits (silicone oil)

- 2000 psi (13.79 Mpa)

Hydrostatic Test Pressure

- 3000 psi (20.7 MPa)

Burst Pressure

- 10000 psi (68.9MPa)

Physical Specifications

Range and Sensor Limits

- Refer to "Ordering Information".

Wetted Materials

- Isolating Diaphragms ---- 316L SST, Monel,
Tantalum, HAST-C
- Drain/Vent Valves ----- 316 SST
- Flanges and Adapters ---- 316 SST
- O-ring ----- Viton, PTFE

Non-wetted materials

- Fill Fluid ----- Silicone oil or Inert fill
- Bolts ----- Stainless Steel
- Electronics Housing -- Aluminum, 316SST, Flameproof
and Waterproof (IP67)
- Cover O-ring ----- Buna-N
- Paint ----- Polyester
- Mounting Bracket ---- 2-inch Pipe, 304 SST, Painted
Carbon Steel with 304 SST U-bolt
- Nameplate ----- 304 SST

Electrical connections

- 1/2-14 NPT conduit with M4 Screw Terminals

QAP

Quality Assurance Program

In accordance with KEPIC-QAP & KEPIC-EN

Hazardous Location Certifications (default)

KCs Approvals (KCs: Korea Occupational Safety & Health Agency)

Flameproof for Class I, Zone 1 : Ex d IIC T6, IP67
Ambient Temperature : -20 to 60 °C
Max. Process Temperature : 80 °C
Power Supply : Max. 45 Vdc
Output : 4 to 20 mA + HART, Max. 22 mA

KTL TEST REPORT (No. 14-023955-04)

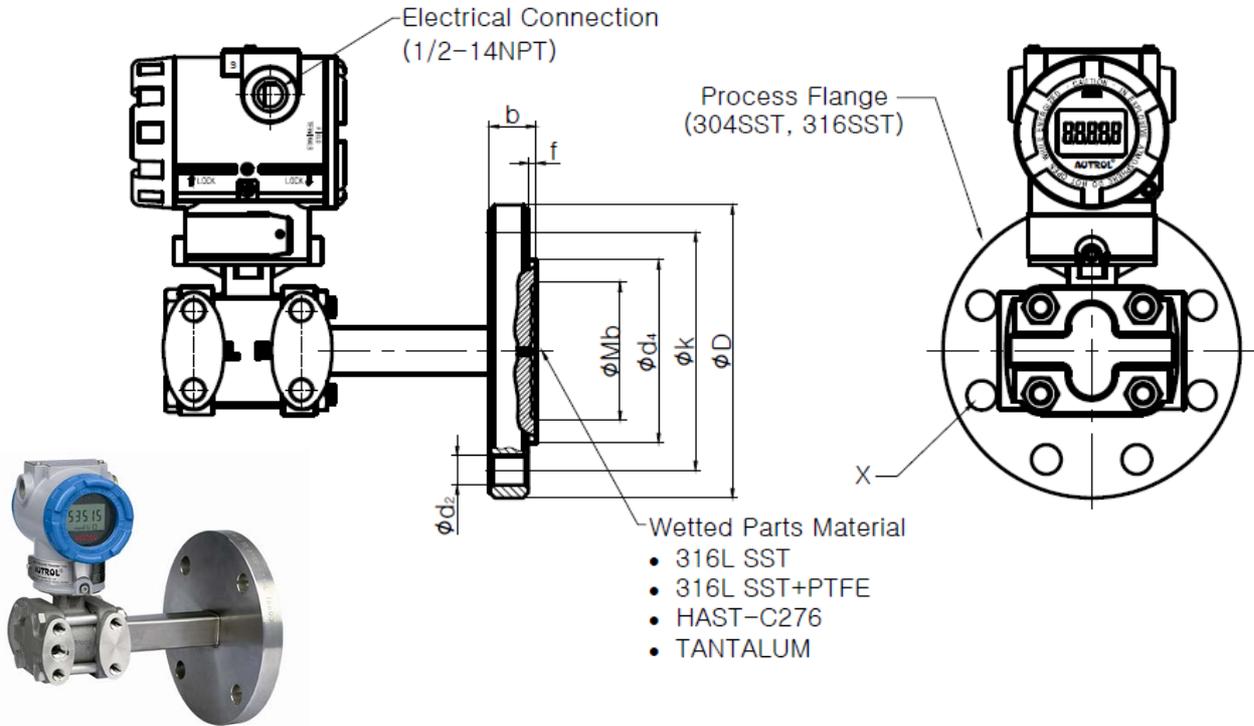
Test for degree of protection provided by enclosures
(IP Code) : IP66 (NEMA 4X)

Pressure Limits & Hydrostatic Test Conditions

| Model | Range Code | Static Pressure (Overpressure Limits) | Hydrostatic Test Pressure |
|------------|------------|--|------------------------------|
| APT3700N-L | Range 4-7 | 13.79 MPa (2,000 psig) | 23.7 MPa (3,000 psi) |

Dimensional Drawing (mm)

For Flush Diaphragm Seal and Direct Mount Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-----|-----|-----|---|
| ANSI Class 150 | 89 | 229 | 24 | 19 | 190 | 1.5 | 157 | 8 |
| ANSI Class 300 | | 254 | 32 | 22 | 200 | | | |
| JIS 10K | 89 | 210 | 18 | 19 | 175 | 2 | 157 | 8 |
| JIS 20K | | 225 | 24 | 23 | 185 | | | |
| DIN PN 10/16 | 89 | 220 | 20 | 18 | 180 | 3 | 157 | 8 |
| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 89 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | 8 |
| JIS 10K | 89 | 185 | 18 | 19 | 150 | 2 | 127 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | |
| DIN PN 10/16 | 89 | 200 | 20 | 18 | 160 | 3 | 138 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 61 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | 8 |
| JIS 10K | 61 | 155 | 16 | 19 | 120 | 2 | 96 | 4 |
| JIS 20K | | | 18 | | | | | 8 |
| DIN PN 10/16 | 61 | 165 | 20 | 18 | 125 | 3 | 102 | 4 |
| DIN PN 25/40 | | | | | | | | |

Ordering Information

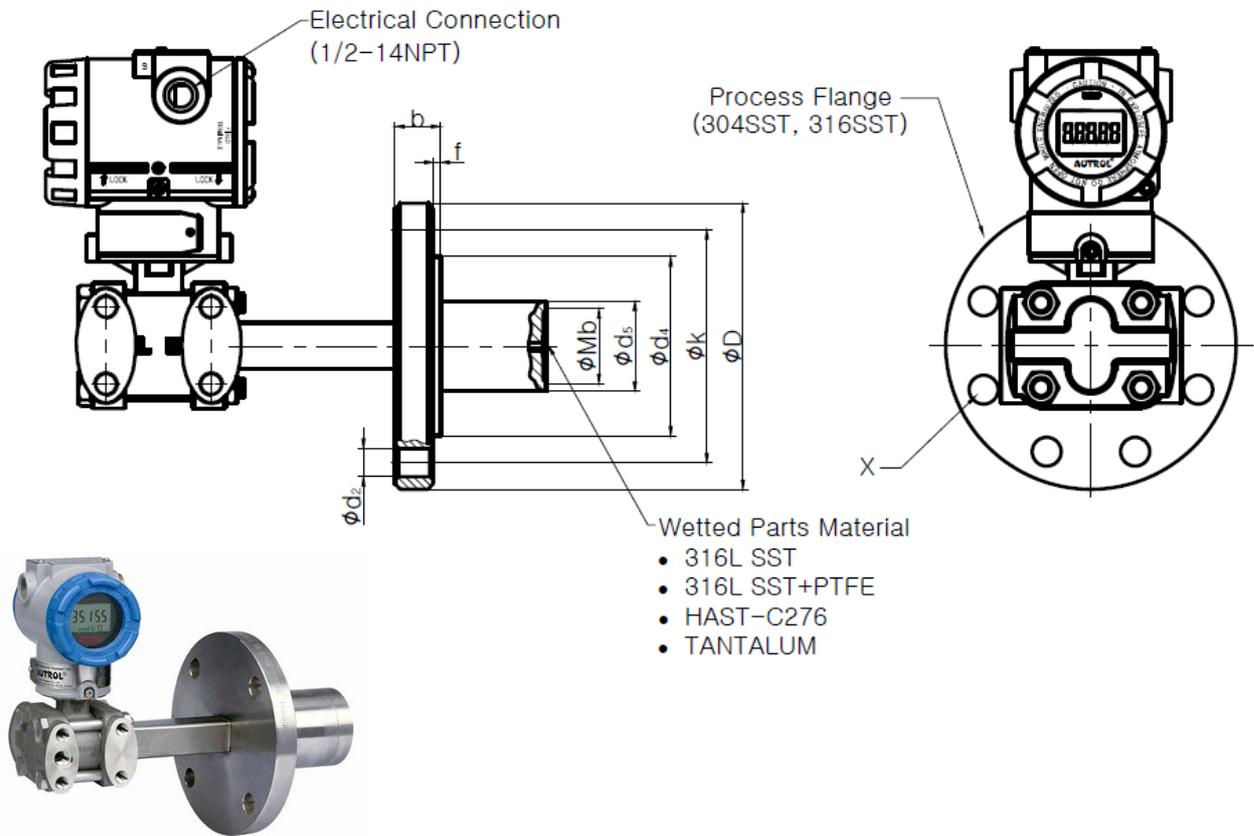
| MODEL NO. | Code | Description | | | | | |
|--|------|--|------------------|---------------|-------------------------------|-------------------------------|---------|
| APT3700N | LFD | Flush Diaphragm Seal and Direct Mount Type Transmitter | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | | ANSI | | DIN | | JIS | |
| | S2 | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | S3 | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | S4 | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | SX | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | | ANSI | | DIN | | JIS | |
| | A1 | Class 150 | | D1 | PN 10/16 | J1 | 10 K |
| | A2 | Class 300 | | D2 | PN 25/40 | J2 | 20 K |
| | AX | Special | | DX | Special | JX | Special |
| Wetted Parts Material Diaphragm / Others | | DIAPHRAGM | | | OTHERS | | |
| | S | 316L SST | | | 316L SST | | |
| | P | 316L SST + Teflon | | | 316L SST | | |
| | H | Hastelloy C-276 | | | 316L SST | | |
| | T | Tantalum | | | 316L SST | | |
| | X | Special | | | Special | | |
| Fill Fluid | | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | 2 | D.C Silicone 200 | | | -45 to 205 °C (-49 to 400 °F) | | |
| | 7 | D.C Silicone 704 | | | 0 to 315 °C (32 to 600 °F) | | |
| | X | Special | | | Special | | |
| Materials of Construction | | FLANGE | | | VENT / DRAIN VALVE | | |
| | SS | 316 SST | | | 316 SST | | |
| Low Side | W | Without Process Adapter | | | | | |
| | N | With 1/2"-14 NPT F Process Adapter (316 SST) | | | | | |
| | C | Closed | | | | | |
| | X | Special | | | | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | | Safety Class | Seismic Category | Quality Class | Environmental Zone | Electric Class | |
| | | N (None-Safety) | 2*, 3 | A (T, R) S | O or O1 | NE (Non-1E) | |
| Option | M1 | LCD Indicator (5-Digit) | | | LPI | Lighting Protector (Internal) | |
| | K | Oil Free Finish | | | ST | Stainless Steel Housing | |
| | A | Vaccum Service | | | X | Special Order | |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "***" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Dimensional Drawing (mm)

For Extended Diaphragm Seal and Direct Mount Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-----|-----|-----|----|---|
| ANSI Class 150 | 89 | 229 | 24 | 19 | 190 | 1.5 | 157 | 89 | 8 |
| ANSI Class 300 | | 254 | 32 | 22 | 200 | | | | |
| JIS 10K | 89 | 210 | 18 | 19 | 175 | 2 | 157 | 89 | 8 |
| JIS 20K | | 225 | 24 | 23 | 185 | | | | |
| DIN PN 10/16 | 89 | 220 | 20 | 18 | 180 | 3 | 157 | 89 | 8 |
| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 76 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 76 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | | 8 |
| JIS 10K | 76 | 185 | 18 | 19 | 150 | 2 | 127 | 76 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | | 8 |
| DIN PN 10/16 | 76 | 200 | 20 | 18 | 160 | 3 | 138 | 76 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 48 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 48 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | | 8 |
| JIS 10K | 48 | 155 | 16 | 19 | 120 | 2 | 96 | 48 | 4 |
| JIS 20K | | | 18 | | | | | | 8 |
| DIN PN 10/16 | 48 | 165 | 20 | 18 | 125 | 3 | 102 | 48 | 4 |
| DIN PN 25/40 | | | | | | | | | |

Ordering Information

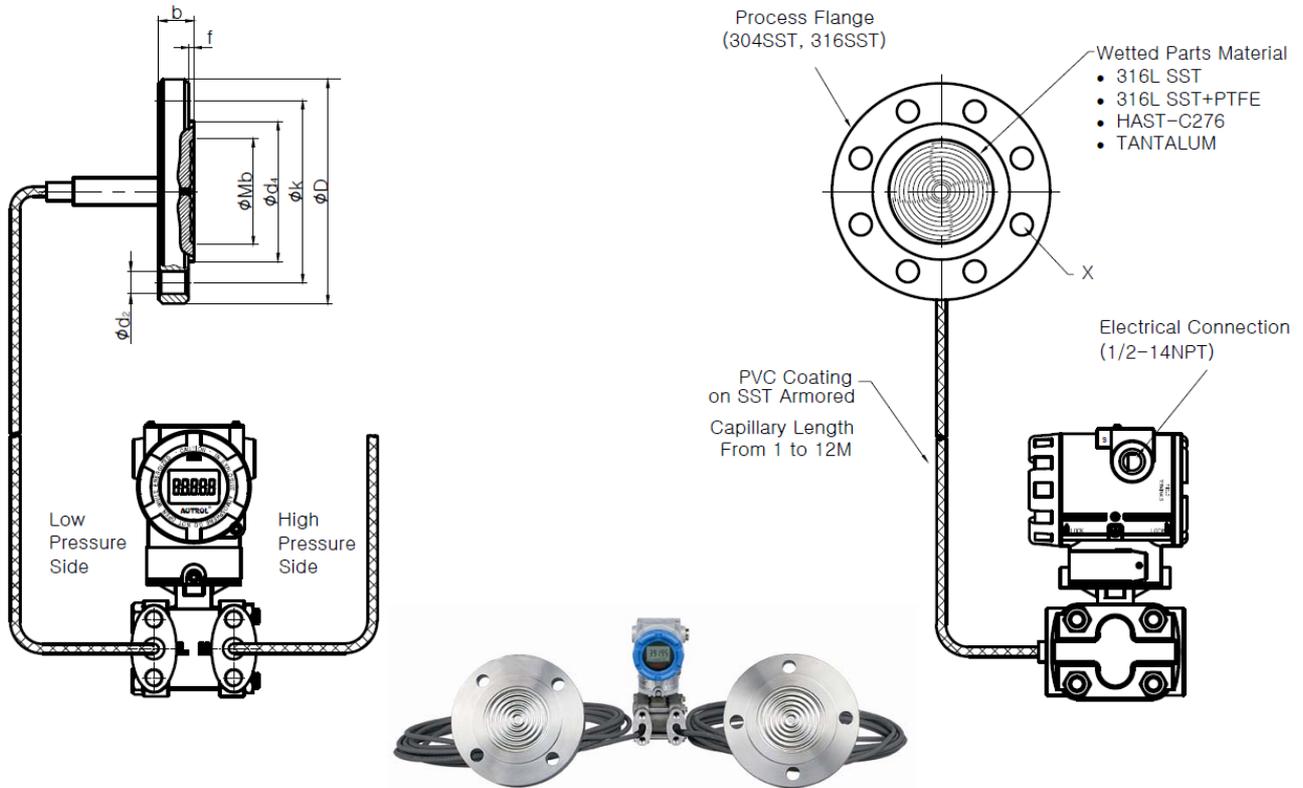
| MODEL NO. | Code | Description | | | | | |
|--|--------------------------|--|------------------|---------------|-------------------------------|-------------------------------|---------|
| APT3700N | LED | Extended Diaphragm Seal and Direct Mount Type Transmitter | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | | ANSI | | DIN | | JIS | |
| | S2 | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | S3 | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | S4 | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | SX | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | | ANSI | | DIN | | JIS | |
| | A1 | Class 150 | | D1 | PN 10/16 | J1 | 10 K |
| | A2 | Class 300 | | D2 | PN 25/40 | J2 | 20 K |
| | AX | Special | | DX | Special | JX | Special |
| Extension Length | <input type="checkbox"/> | <input type="checkbox"/> x 10 mm Exp: 15 --> 150mm, 12--> 120mm | | | | | |
| Wetted Parts Material Diaphragm / Others | | DIAPHRAGM | | | OTHERS | | |
| | S | 316L SST | | | 316L SST | | |
| | P | 316L SST + Teflon | | | 316L SST | | |
| | H | Hastelloy C-276 | | | 316L SST | | |
| | T | Tantalum | | | 316L SST | | |
| X | Special | | | Special | | | |
| Fill Fluid | | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | 2 | D.C Silicone 200 | | | -45 to 205 °C (-49 to 400 °F) | | |
| | 7 | D.C Silicone 704 | | | 0 to 315 °C (32 to 600 °F) | | |
| X | Special | | | Special | | | |
| Materials of Construction | | FLANGE | | | VENT / DRAIN VALVE | | |
| | SS | 316 SST | | | 316 SST | | |
| Low Side | W | Without Process Adapter | | | | | |
| | N | With 1/2"-14 NPT F Process Adapter (316 SST) | | | | | |
| | C | Closed | | | | | |
| | X | Special | | | | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | | Safety Class | Seismic Category | Quality Class | Environmental Zone | Electric Class | |
| | | N (None-Safety) | 2*, 3 | A (T, R) S | O or O1 | NE (Non-1E) | |
| Option | M1 | LCD Indicator (5-Digit) | | | LPI | Lighting Protector (Internal) | |
| | K | Oil Free Finish | | | ST | Stainless Steel Housing | |
| | A | Vaccum Service | | | X | Special Order | |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "*" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Dimensional Drawing (mm)

For Flush Diaphragm Seal and Capillary Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-----|-----|-----|---|
| ANSI Class 150 | 89 | 229 | 24 | 19 | 190 | 1.5 | 157 | 8 |
| ANSI Class 300 | | 254 | 32 | 22 | 200 | | | |
| JIS 10K | 89 | 210 | 18 | 19 | 175 | 2 | 157 | 8 |
| JIS 20K | | 225 | 24 | 23 | 185 | | | |
| DIN PN 10/16 | 89 | 220 | 20 | 18 | 180 | 3 | 157 | 8 |
| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 89 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | 8 |
| JIS 10K | 89 | 185 | 18 | 19 | 150 | 2 | 127 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | |
| DIN PN 10/16 | 89 | 200 | 20 | 18 | 160 | 3 | 138 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 61 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | 8 |
| JIS 10K | 61 | 155 | 16 | 19 | 120 | 2 | 96 | 4 |
| JIS 20K | | | 18 | | | | | 8 |
| DIN PN 10/16 | 61 | 165 | 20 | 18 | 125 | 3 | 102 | 4 |
| DIN PN 25/40 | | | | | | | | |

Ordering Information

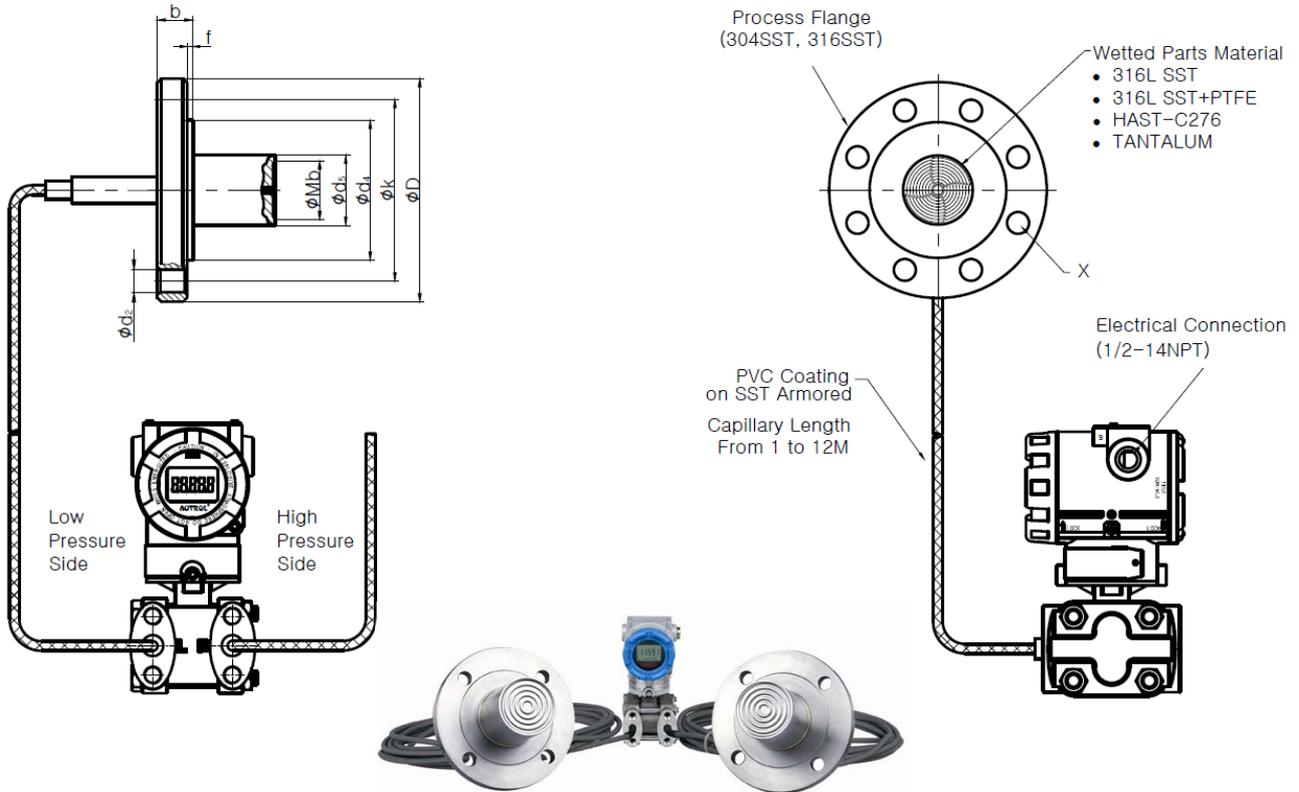
| MODEL NO. | Code | Description | | | | | |
|--|--------------------------|---|------------------|----------|-------------------------------|--------------------|-------------------------------|
| APT3700N | LFC | Flush Diaphragm Seal and Capillary Type Transmitter (Two Remote Seal) | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | S2 | ANSI | | DIN | | JIS | |
| | | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | A1 | ANSI | | DIN | | JIS | |
| | | Class 150 | D1 | PN 10/16 | J1 | 10 K | |
| | | Class 300 | D2 | PN 25/40 | J2 | 20 K | |
| | | Special | DX | Special | JX | Special | |
| Wetted Parts Material Diaphragm / Others | S | DIAPHRAGM | | | OTHERS | | |
| | | 316L SST | | | 316L SST | | |
| | | 316L SST + Teflon | | | 316L SST | | |
| | | Hastelloy C-276 | | | 316L SST | | |
| | | Tantalum | | | 316L SST | | |
| | | Special | | | Special | | |
| Fill Fluid | 2 | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | | D.C Silicone 200 | | | -45 to 205 °C (-49 to 400 °F) | | |
| | | D.C Silicone 704 | | | 0 to 315°C (32 to 600 °F) | | |
| | | Special | | | Special | | |
| Capillary Length | <input type="checkbox"/> | Capillary Length from 1 to 12m Exp: 01 --> 1m, 10-->10m | | | | | |
| Materials of Construction | SS | FLANGE | | | VENT / DRAIN VALVE | | |
| | | 316 SST | | | 316 SST | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | Safety Class | | Seismic Category | | Quality Class | Environmental Zone | Electric Class |
| | N (None-Safety) | | 2*, 3 | | A (T, R) S | O or O1 | NE (Non-1E) |
| Option | M1 | LCD Indicator (5-Digit) | | | | LP I | Lighting Protector (Internal) |
| | BA | SST Bracket (Angle Type) with Bolts & Nuts | | | | K | Oil Free Finish |
| | BF | SST Bracket (Flat Type) with Bolts & Nuts | | | | ST | Stainless Steel Housing |
| | A | Vaccum Service | | | | X | Special Order |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "*" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Dimensional Drawing (mm)

For Extended Diaphragm Seal and Capillary Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
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| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 76 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 76 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | | 8 |
| JIS 10K | 76 | 185 | 18 | 19 | 150 | 2 | 127 | 76 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | | |
| DIN PN 10/16 | 76 | 200 | 20 | 18 | 160 | 3 | 138 | 76 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 48 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 48 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | | 8 |
| JIS 10K | 48 | 155 | 16 | 19 | 120 | 2 | 96 | 48 | 4 |
| JIS 20K | | | 18 | | | | | | 8 |
| DIN PN 10/16 | 48 | 165 | 20 | 18 | 125 | 3 | 102 | 48 | 4 |
| DIN PN 25/40 | | | | | | | | | |

Ordering Information

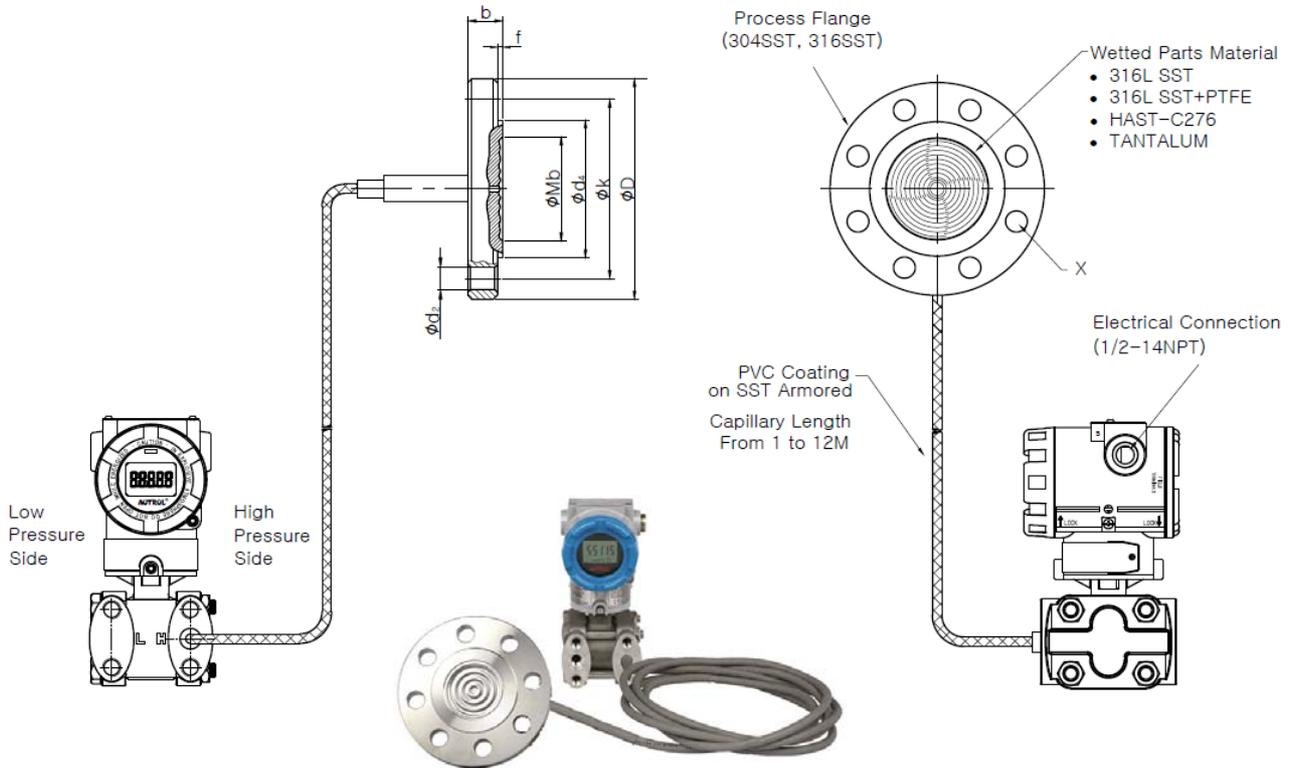
| MODEL NO. | Code | Description | | | | | |
|--|--------------------------|--|-----|---------------|-------------------------------|-------------------------------|---------|
| APT3700N | LEC | Extended Diaphragm Seal and Capillary Type Transmitter (Two Remote Seal) | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | | ANSI | | DIN | | JIS | |
| | S2 | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | S3 | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | S4 | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | SX | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | | ANSI | | DIN | | JIS | |
| | A1 | Class 150 | | D1 | PN 10/16 | J1 | 10 K |
| | A2 | Class 300 | | D2 | PN 25/40 | J2 | 20 K |
| | AX | Special | | DX | Special | JX | Special |
| Extension Length | <input type="checkbox"/> | <input type="checkbox"/> x 10 mm | | | | | |
| | <input type="checkbox"/> | Exp: 15 --> 150mm, 12--> 120mm | | | | | |
| Wetted Parts Material Diaphragm / Others | | DIAPHRAGM | | | OTHERS | | |
| | S | 316L SST | | | 316L SST | | |
| | P | 316L SST + Teflon | | | 316L SST | | |
| | H | Hastelloy C-276 | | | 316L SST | | |
| | X | Special | | | Special | | |
| Fill Fluid | | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | 2 | D.C Silicone 200 | | | -45 to 205 °C (-49 to 400 °F) | | |
| | 7 | D.C Silicone 704 | | | 0 to 315 °C (32 to 600 °F) | | |
| | X | Special | | | Special | | |
| Capillary Length | <input type="checkbox"/> | Capillary Length from 1 to 12m | | | | | |
| | <input type="checkbox"/> | Exp: 01 --> 1m, 10-->10m | | | | | |
| Materials of Construction | SS | FLANGE | | | VENT / DRAIN VALVE | | |
| | | 316 SST | | | 316 SST | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | Safety Class | Seismic Category | | Quality Class | Environmental Zone | Electric Class | |
| | N (None-Safety) | 2*, 3 | | A (T, R) S | O or O1 | NE (Non-1E) | |
| Option | M1 | LCD Indicator (5-Digit) | | | LP I | Lighting Protector (Internal) | |
| | BA | SST Bracket (Angle Type) with Bolts & Nuts | | | K | Oil Free Finish | |
| | BF | SST Bracket (Flat Type) with Bolts & Nuts | | | ST | Stainless Steel Housing | |
| | A | Vaccum Service | | | X | Special Order | |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "*" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Dimensional Drawing (mm)

For Flush Diaphragm Seal and Capillary Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-----|-----|-----|---|
| ANSI Class 150 | 89 | 229 | 24 | 19 | 190 | 1.5 | 157 | 8 |
| ANSI Class 300 | | 254 | 32 | 22 | 200 | | | |
| JIS 10K | 89 | 210 | 18 | 19 | 175 | 2 | 157 | 8 |
| JIS 20K | | 225 | 24 | 23 | 185 | | | |
| DIN PN 10/16 | 89 | 220 | 20 | 18 | 180 | 3 | 157 | 8 |
| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 89 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | 8 |
| JIS 10K | 89 | 185 | 18 | 19 | 150 | 2 | 127 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | |
| DIN PN 10/16 | 89 | 200 | 20 | 18 | 160 | 3 | 138 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | X |
|----------------|----|-----|----|----|-------|-----|-----|---|
| ANSI Class 150 | 61 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | 8 |
| JIS 10K | 61 | 155 | 16 | 19 | 120 | 2 | 96 | 4 |
| JIS 20K | | | 18 | | | | | 8 |
| DIN PN 10/16 | 61 | 165 | 20 | 18 | 125 | 3 | 102 | 4 |
| DIN PN 25/40 | | | | | | | | |

Ordering Information

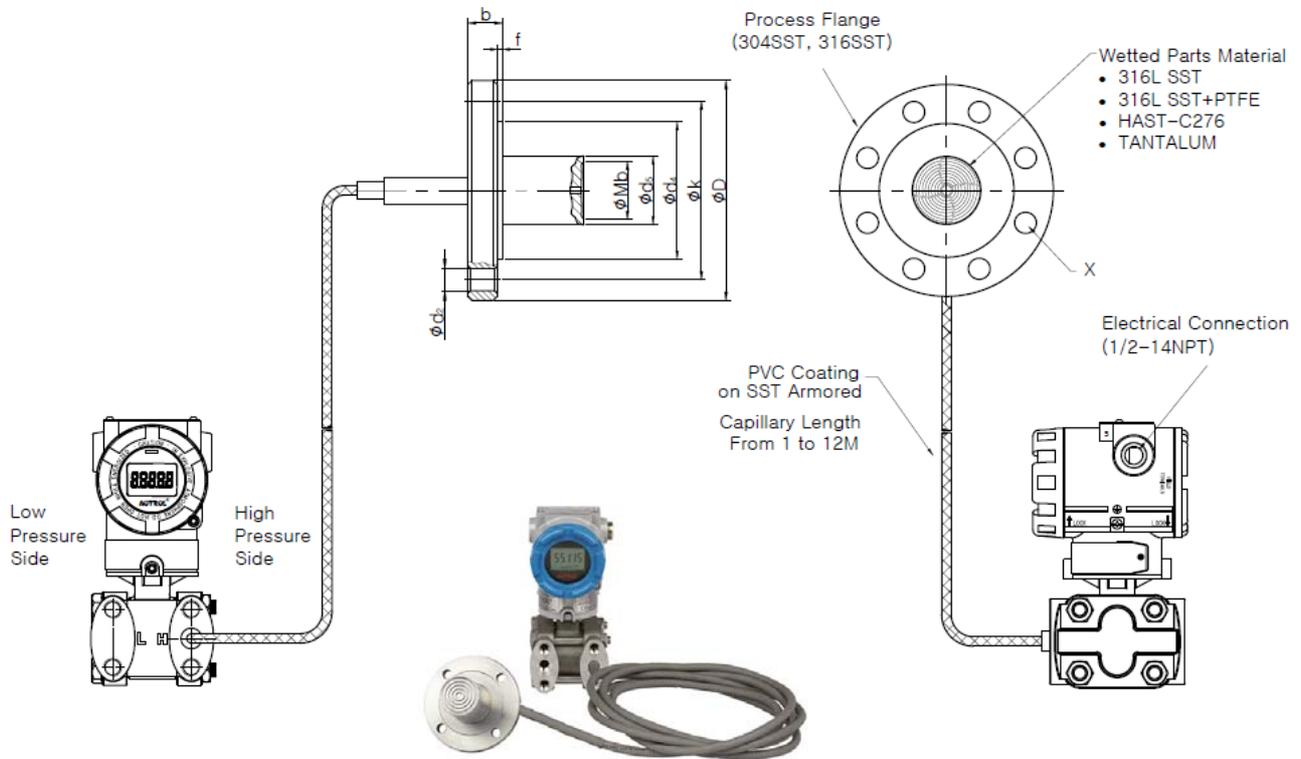
| MODEL NO. | Code | Description | | | | | |
|--|-----------------|---|-------------------------------|--------------------|--------------------|-------------------------------|-----|
| APT3700N | LFS | Flush Diaphragm Seal and Capillary Type Transmitter (One Remote Seal) | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | S2 | ANSI | | DIN | | JIS | |
| | | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | A1 | ANSI | | DIN | | JIS | |
| | | Class 150 | D1 | PN 10/16 | J1 | 10 K | |
| | | Class 300 | D2 | PN 25/40 | J2 | 20 K | |
| | | Special | DX | Special | JX | Special | |
| Wetted Parts Material Diaphragm / Others | S | DIAPHRAGM | | | OTHERS | | |
| | | 316L SST | 316L SST | | | | |
| | | 316L SST + Teflon | 316L SST | | | | |
| | | Hastelloy C-276 | 316L SST | | | | |
| | | Tantalum | 316L SST | | | | |
| X | Special | | | Special | | | |
| Fill Fluid | 2 | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | | D.C Silicone 200 | -45 to 205 °C (-49 to 400 °F) | | | | |
| | | D.C Silicone 704 | 0 to 315 °C (32 to 600 °F) | | | | |
| | | Special | Special | | | | |
| Capillary Length | □□ | Capillary Length from 1 to 12m | | | | | |
| | | Exp: 01 --> 1m, 10-->10m | | | | | |
| Materials of Construction | SS | FLANGE | | | VENT / DRAIN VALVE | | |
| | | 316 SST | | | 316 SST | | |
| Low Side | W | Without Process Adapter | | | | | |
| | N | With 1/2"-14 NPT F Process Adapter (316 SST) | | | | | |
| | C | Closed | | | | | |
| | X | Special | | | | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | Safety Class | Seismic Category | Quality Class | Environmental Zone | Electric Class | | |
| | N (None-Safety) | 2*, 3 | A (T, R) S | O or O1 | NE (Non-1E) | | |
| Option | M1 | LCD Indicator (5-Digit) | | | LP I | Lighting Protector (Internal) | |
| | BA | SST Bracket (Angle Type) with Bolts & Nuts | | | K | Oil Free Finish | |
| | BF | SST Bracket (Flat Type) with Bolts & Nuts | | | ST | Stainless Steel Housing | |
| | A | Vaccum Service | | | X | Special Order | |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "*" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Dimensional Drawing (mm)

For Extended Diaphragm Seal and Capillary Type Transmitter



Flange Size: 100mm (4 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-----|-----|-----|----|---|
| ANSI Class 150 | 89 | 229 | 24 | 19 | 190 | 1.5 | 157 | 89 | 8 |
| ANSI Class 300 | | 254 | 32 | 22 | 200 | | | | |
| JIS 10K | 89 | 210 | 18 | 19 | 175 | 2 | 157 | 89 | 8 |
| JIS 20K | | 225 | 24 | 23 | 185 | | | | |
| DIN PN 10/16 | 89 | 220 | 20 | 18 | 180 | 3 | 157 | 89 | 8 |
| DIN PN 25/40 | | 235 | 24 | 22 | 190 | | | | |

Flange Size: 80mm (3 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 76 | 190 | 24 | 19 | 152.5 | 1.5 | 127 | 76 | 4 |
| ANSI Class 300 | | 210 | 29 | 22 | 168.5 | | | | 8 |
| JIS 10K | 76 | 185 | 18 | 19 | 150 | 2 | 127 | 76 | 8 |
| JIS 20K | | 200 | 22 | 23 | 160 | | | | |
| DIN PN 10/16 | 76 | 200 | 20 | 18 | 160 | 3 | 138 | 76 | 8 |
| DIN PN 25/40 | | | 24 | 22 | | | | | |

Flange Size: 50mm (2 inch)

Unit : mm

| Flange Rating | Mb | D | b | d2 | k | f | d4 | d5 | X |
|----------------|----|-----|----|----|-------|-----|-----|----|---|
| ANSI Class 150 | 48 | 152 | 19 | 19 | 120.5 | 1.5 | 92 | 48 | 4 |
| ANSI Class 300 | | 165 | 22 | | 127 | | | | 8 |
| JIS 10K | 48 | 155 | 16 | 19 | 120 | 2 | 96 | 48 | 4 |
| JIS 20K | | | 18 | | | | | | 8 |
| DIN PN 10/16 | 48 | 165 | 20 | 18 | 125 | 3 | 102 | 48 | 4 |
| DIN PN 25/40 | | | | | | | | | |

Ordering Information

| MODEL NO. | Code | Description | | | | | |
|--|--------------------------|--|------------------|---------------|-------------------------------|-------------------------------|---------|
| APT3700N | LES | Extended Diaphragm Seal and Capillary Type Transmitter (One Remote Seal) | | | | | |
| Ranges | 4 | 0-194 to 0-3800mmH2O (0-1.9 to 0-37.3 KPa) | | | | | |
| | 5 | 0-960 to 0-19000mmH2O (0-9.4 to 0-186.5 KPa) | | | | | |
| | 6 | 0-3518 to 0-70000mmH2O (0-34.5 to 0-690 KPa) | | | | | |
| | 7 | 0-21000 to 0-210000mmH2O (0-103.4 to 0-2068 KPa) | | | | | |
| | X | Special | | | | | |
| Mounting Flange Size / Material | | ANSI | | DIN | | JIS | |
| | S2 | 2-inch | SST | DN 50 | SST | 50 A | SST |
| | S3 | 3-inch | SST | DN 80 | SST | 80 A | SST |
| | S4 | 4-inch | SST | DN 100 | SST | 100 A | SST |
| | SX | Special | SST | Special | SST | Special | SST |
| Mounting Flange Rating | | ANSI | | DIN | | JIS | |
| | A1 | Class 150 | | D1 | PN 10/16 | J1 | 10 K |
| | A2 | Class 300 | | D2 | PN 25/40 | J2 | 20 K |
| | AX | Special | | DX | Special | JX | Special |
| Extension Length | <input type="checkbox"/> | <input type="checkbox"/> x 10 mm | | | | | |
| | <input type="checkbox"/> | Exp: 15 --> 150mm, 12--> 120mm | | | | | |
| Wetted Parts Material Diaphragm / Others | | DIAPHRAGM | | | OTHERS | | |
| | S | 316L SST | | | 316L SST | | |
| | P | 316L SST + Teflon | | | 316L SST | | |
| | H | Hastelloy C-276 | | | 316L SST | | |
| | T | Tantalum | | | 316L SST | | |
| X | Special | | | Special | | | |
| Fill Fluid | | FILL FLUID | | | TEMPERATURE LIMITS | | |
| | 2 | D.C Silicone 200 | | | -45 to 205 °C (-49 to 400 °F) | | |
| | 7 | D.C Silicone 704 | | | 0 to 315 °C (32 to 600 °F) | | |
| | X | Special | | | Special | | |
| Capillary Length | <input type="checkbox"/> | Capillary Length from 1 to 12m | | | | | |
| | <input type="checkbox"/> | Exp: 01 --> 1m, 10-->10m | | | | | |
| Materials of Construction | | FLANGE | | | VENT / DRAIN VALVE | | |
| | SS | 316 SST | | | 316 SST | | |
| Low Side | W | Without Process Adapter | | | | | |
| | N | With 1/2"-14 NPT F Process Adapter (316 SST) | | | | | |
| | C | Closed | | | | | |
| | X | Special | | | | | |
| Electrical Connection | 1 | 1/2"-14NPT F | | | | | |
| | 2 | G1/2 | | | | | |
| | X | Special | | | | | |
| Nuclear Data | | Safety Class | Seismic Category | Quality Class | Environmental Zone | Electric Class | |
| | | N (None-Safety) | 2*, 3 | A (T, R) S | O or O1 | NE (Non-1E) | |
| Option | M1 | LCD Indicator (5-Digit) | | | LP I | Lighting Protector (Internal) | |
| | BA | SST Bracket (Angle Type) with Bolts & Nuts | | | K | Oil Free Finish | |
| | BF | SST Bracket (Flat Type) with Bolts & Nuts | | | ST | Stainless Steel Housing | |
| | A | Vaccum Service | | | X | Special Order | |

Note : Request to manufacturer for Draft Range, Absolute (Small Pressure and Vaccum) and items marked "*" before order.

Note : *Seismic category 2 depends on the Flange size & rating so please request to manufacturer.

Direct Mount Type

APT3700N-LFD



APT3700N-LED

**Two Remote Capillary Type**

APT3700N-LFC



APT3700N-LEC

**One Remote Capillary Type**

APT3700N-LFS



APT3700N-LES

