



AUTROL®

Smart Pressure Transmitter with Diaphragm Seal



MODEL APT3200L

DUON System Co., Ltd.

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AUTROL®, AUTROL™ are trade mark of smart transmitter brand series to measure Pressure, Temperature and Level, which is manufactured & owned by DUON System Co., Ltd(hereafter DUON) since 1989. AUTROL®, AUTROL™ series also provide services of electric appliance installation, repair of electric, magnetic measuring instruments, electric appliance repair, repair of instruments and appliances for measuring and testing, repair of computer hardware, repair of electronic application machines and apparatus, repair of instruments and appliances for rotating, repair of electric power distribution machines and apparatus, repair of control machines and apparatus, computer hardware maintenance and administration, computer hardware installation. APT3500-Differential and high accuracy pressure Transmitter APT3100-Differential pressure Transmitter, APT3200-Gauge & Absolute pressure Transmitter, APT2100-Temperature Transmitter, AI100-Field Indicator.

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Smart Pressure Transmitter with Diaphragm Seal

APT3200L

Description of Product

The APT3200L 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. All Data of Sensor (Tag No., type, range etc.) is to be input, modified and stored in EEPROM.

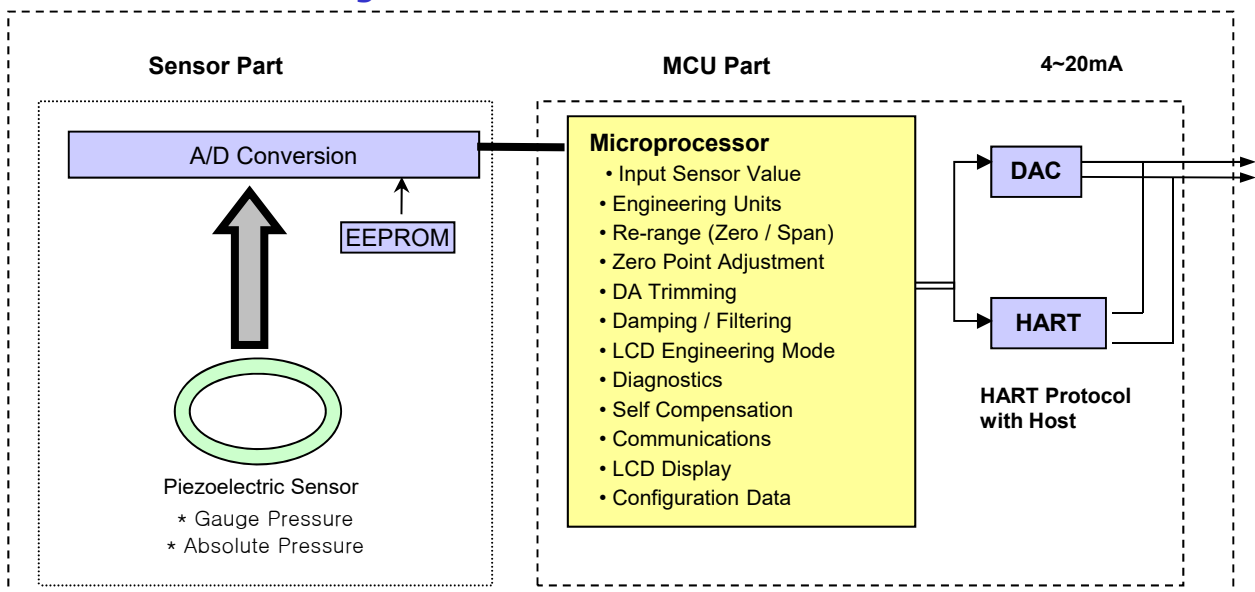
Function

- Flexible Sensor Input : GP, AP, Vacuum
- 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 & Intrinsic Safety Approval : KCs, FM & FMc, ATEX

Features

- Superior Performance
 - High Accuracy : $\pm 0.075\%$ of Calibrated Span (without seal)
 - Long-Term Stability
- Flexibility
 - Data Configuration with HART configurator
- Reliability
 - Continuous Self-Diagnostic Function
 - Automatic Ambient Temperature Compensation
 - Fail-mode Process Function
 - EEPROM Write Protection
 - CE EMC Conformity Standards (2004/108/EC: EN 61326-1:2006, EN 61326-2-3:2006)

Functional Block Diagram



Smart Transmitter with Diaphragm seal

General Specifications

1. Diaphragm Sealed Sensor Range (Rangeability : 20 : 1)

Range	code	kPa
Low	4	-100 ~ 1,500
Medium	5	0 ~ 5,000
High	6	0 ~ 25,000

2. Electrical Specifications

Power Supply	12 ~ 45 V dc	Output Signal	4 ~ 20 mA dc /HART
HART loop resistance	250 ~ 550 ohm	Isolation	500 Vrms (707V DC)

3. Performance Specifications (without seal)

Reference Accuracy	$\pm 0.075\%$ of Span ($0.2URL \leq \text{Span} \leq URL$) $\pm [0.05 + 0.005 \times (URL/\text{Span})]\%$ of Span ($0.05URL \leq \text{Span} < 0.2URL$)	Operating Temp.	-40 ~ +85 °C
		LCD Meter Operating Temp.	-30 ~ +80 °C
		Humidity Limits	5% ~ 98% RH
Ambient Temp. Effect	$\pm [0.025\%URL + 0.125\% \text{ Span}] / 28\text{ }^{\circ}\text{C}$	Process Temp. Limit	-40 ~ +120 °C
Stability	$\pm 0.1\%$ URL for 12 Months	Power Supply Effects	$\pm 0.005\%$ of Span per Volt
Static Pressure Effects	$\pm 0.1\%$ of URL per 7MPa (Zero Error) $\pm 0.2\%$ of Reading per 7MPa (Span Error)	Mounting Position Effects	·Zero Shift up to 350Pa ·No Span Effect

4. Physical Specifications

Isolating Diaphragm	316L SST	Process Connection Size	1/2" - 14 NPT
Electronic Housing	Aluminum	Diaphragm Seal(Flush/Extended)	2" or 3" / 3" or 4"
Weight (only Transmitter)	1.4 Kg	Electrical Connections	1/2" - 14 NPT
		2" Pipe Stanchion Type bracket	Angle or Flat type

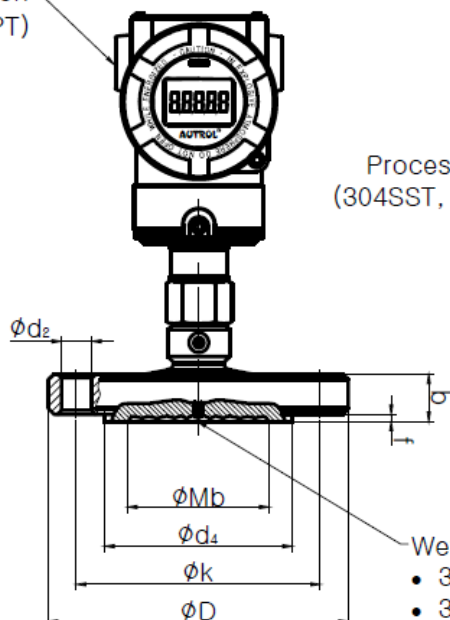
5. Hazardous Location Certifications - Option

Korea Standards Approval	Overseas Standards Approval
KC Flameproof Approval KC Intrinsic Safety Approval (*)	FM & FMc Explosion proof / Intrinsic Safety Approval (*) ATEX Flame proof / Intrinsic Safety Approval

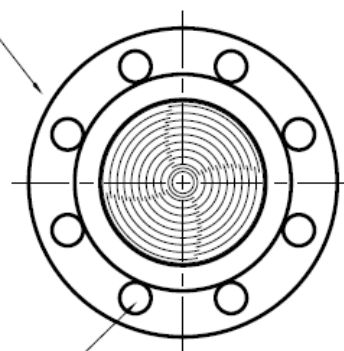
Dimensional Drawing (mm)

For Flush Diaphragm Seal and Direct Mount Type Transmitter

Electrical Connection
(1/2-14NPT)



Process Flange
(304SST, 316SST)



Wetted Parts Material

- 316L SST
- 316L SST+PTFE
- HAST-C276
- TANTALUM



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								

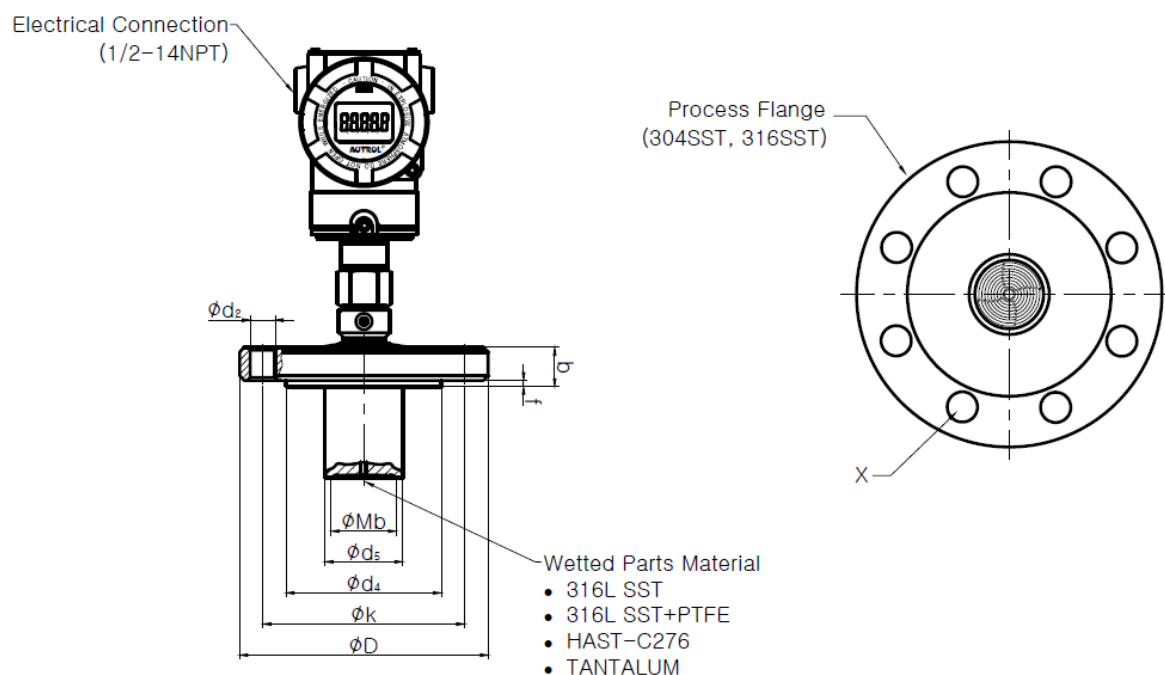
Ordering Information

MODEL NO.	Code	Description					
APT3200	LFD	Flush Diaphragm Seal and Direct Mount Type Transmitter					
Ranges	4	-100 to 1500 kPa					
	5	0 to 5000 kPa					
	6	0 to 25000 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	SS	FLANGE			OTHERS		
		316 SST			316 SST		
Electrical Connection	1	1/2"-14NPT F					
	2	G1/2					
	X	Special					
Hazardous Locations Certifications	K0	Maker Standard (Waterproof : IP67)					
	K1	KCs Flameproof			*K2	KCs Intrinsic Safety	
	E1	ATEX Flameproof			E2	ATEX Intrinsic Safety	
	F1	FM & FM Canada Explosion proof			*F2	FM & FM Canada Intrinsic Safety	
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.

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				
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									

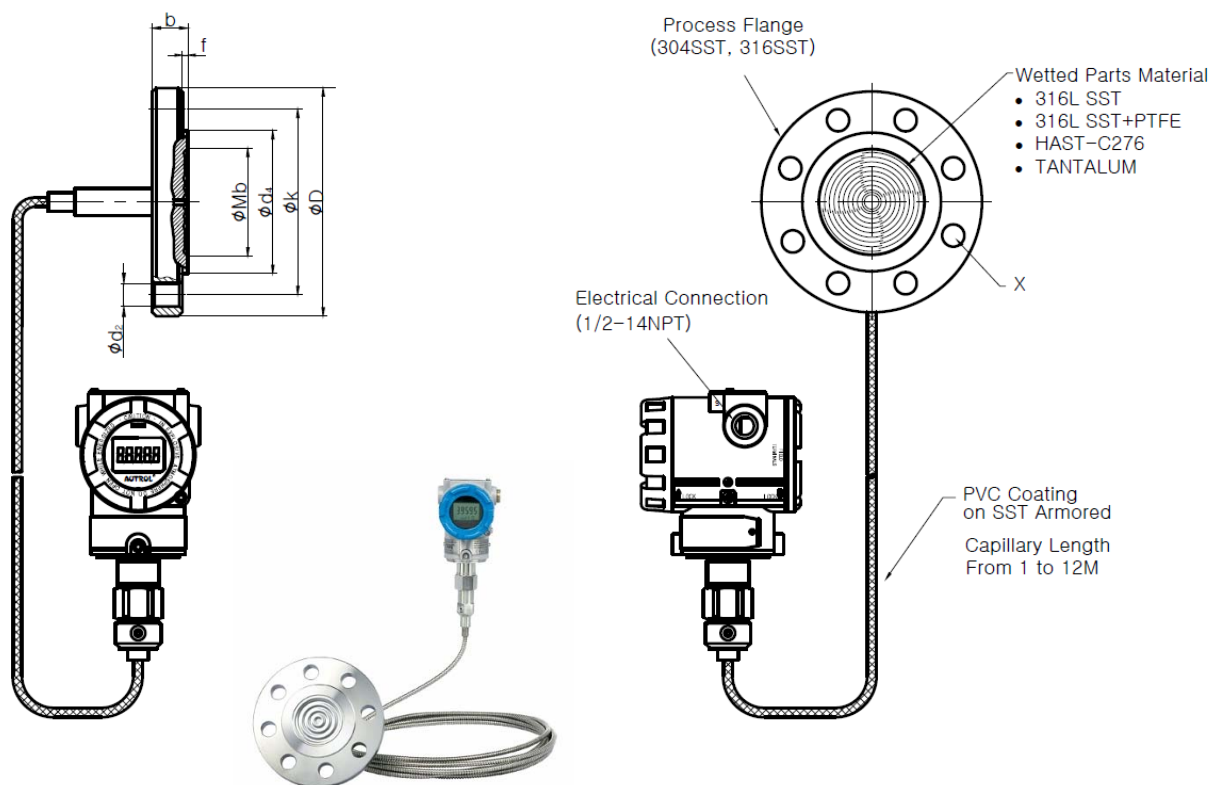
Ordering Information

MODEL NO.	Code	Description					
APT3200	LED	Extended Diaphragm Seal and Direct Mount Type Transmitter					
Ranges	4	-100 to 1500 kPa					
	5	0 to 5000 kPa					
	6	0 to 25000 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	□□	□□ 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	SS	FLANGE			OTHERS		
		316 SST			316 SST		
Electrical Connection	1	1/2"-14NPT F					
	2	G1/2					
	X	Special					
Hazardous Locations Certifications	K0	Maker Standard (Waterproof : IP67)					
	K1	KCs Flameproof			*K2	KCs Intrinsic Safety	
	E1	ATEX Flameproof			E2	ATEX Intrinsic Safety	
	F1	FM & FM Canada Explosion proof			*F2	FM & FM Canada Intrinsic Safety	
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.

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								

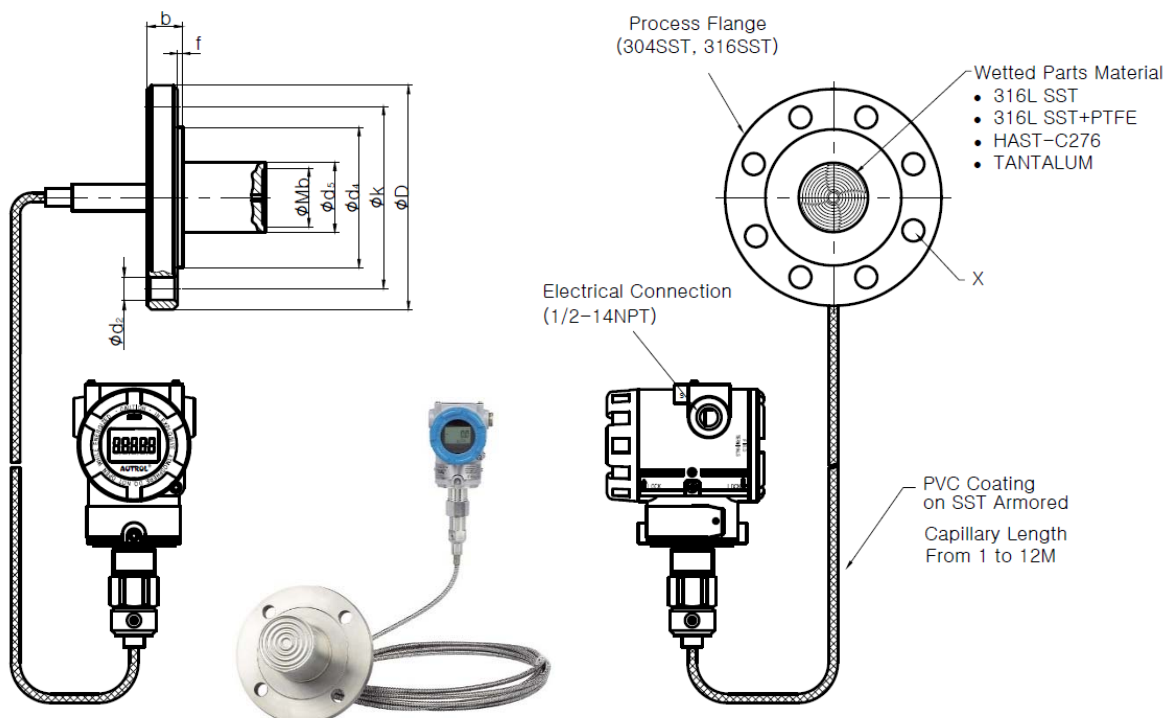
Ordering Information

MODEL NO.	Code	Description					
APT3200	LFS	Flush Diaphragm Seal and Capillary Type Transmitter (One Remote Seal)					
Ranges	4	-100 to 1500 kPa					
	5	0 to 5000 kPa					
	6	0 to 25000 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		
Capillary Length	□□	Capillary Length from 1 to 12m Exp: 01 --> 1m, 10-->10m					
Materials of Construction	SS	FLANGE			OTHERS		
		316 SST			316 SST		
Electrical Connection	1	1/2"-14NPT F					
	2	G1/2					
	X	Special					
Hazardous Locations Certifications	K0	Maker Standard (Waterproof : IP67)					
	K1	KCs Flameproof			*K2	KCs Intrinsic Safety	
	E1	ATEX Flameproof			E2	ATEX Intrinsic Safety	
	F1	FM & FM Canada Explosion proof			*F2	FM & FM Canada Intrinsic Safety	
Option	M1	LCD Indicator (5-Digit)			LPI	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 Vacuum) and items marked "*" before order.

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					
APT3200	LES	Extended Diaphragm Seal and Capillary Type Transmitter (One Remote Seal)					
Ranges	4	-100 to 1500 kPa					
	5	0 to 5000 kPa					
	6	0 to 25000 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	□□	□□ x 10 mm Exp: 15 --> 150mm, 12--> 120mm					
Wetted Parts Material Dia phragm / 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	□□	Capillary Length from 1 to 12m Exp: 01 --> 1m, 10-->10m					
Materials of Construction	SS	FLANGE			OTHERS		
		316 SST			316 SST		
Electrical Connection	1	1/2"-14NPT F					
	2	G1/2					
	X	Special					
Hazardous Locations Certi fications	K0	Maker Standard (Waterproof : IP67)					
	K1	KCs Flameproof			*K2	KCs Intrinsic Safety	
	E1	ATEX Flameproof			E2	ATEX Intrinsic Safety	
	F1	FM & FM Canada Explosion proof			*F2	FM & FM Canada Intrinsic Safety	
Option	M1	LCD Indicator (5-Digit)				LPI	Lightning 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 Vacuum) and items marked "*" before order.

Smart Transmitter with Diaphragm Seal**Direct Mount Type****APT3200LFD / LED****One Remote Type****APT3200LFS / LES****Special Performance Type**