

## APPROVALS



Directive 2014/34/UE (ATEX)

## FEATURES

- Single side static sustainable
- Static pressure 400 bar max.
- External Zero adjustment
- CE marked, ATEX approved contacts
- Dry / liquid filled
- ATEX certified
- Diaphragm seals application

## APPLICATION

- Liquid & gaseous media
- Corrosive environments
- Oil & Gas applications
- Chemical & Petrochemical
- Level measurement in closed tank
- Filter monitoring

**Double Diaphragm  
DN100 & DN160  
(Previous code : DP800 & DP800-CE)**



**EN 837-3**

### STANDARD PARAMETERS

Accuracy	: CL 1.6 [AISI 316L SS / Hastelloy C276]
	: CL 2.5 [Monel 400]
Ambient temperature	: -40...+60 °C (on request)
	: -20...+60 °C
Service temperature	: 100°C max.
Static pressure limits [on either side]	: 40 bar / 100 bar / 250 bar / 400 bar
Zero shift	: Max. ± 2% at 20°C and max. static

1) Only selectable in combination with silicone oil case filling

### MATERIAL OF CONSTRUCTION

Sensing element	: Double diaphragm, Internal stop without o-ring
	: ≤ 16 bar - AISI 316L SS, > 16 bar Inconel 718
Case & Ring material	: AISI 316 SS [Bayonet type]
Diaphragm	: AISI 316L SS [wetted]
Measuring flanges / process connection	: AISI 316L SS [wetted]
Measuring flange bolts & nuts	: AISI 304 SS up to PN 100 [in contact with environment]
	: Alloy steel zinc flake coated, RoHS compliant
	: PN 250 and 400 bar [in contact with environment]
Measuring cell	: Stainless Steel [in contact with environment]
Movement mechanism	: Stainless Steel with ball bearing
Transmission chamber dampening liquid	: Silicon oil
Chamber sealing gaskets	: Viton
Dial	: Aluminum, black graduation on white background
Pointer	: Aluminium, micro-zero adjustable
Gaskets & filling plug	: NBR
Window	: Shatterproof Safety Glass, 4mm thickness
Purging plugs	: 2 x 1/4" NPT (M), AISI 316L SS

### STANDARD SPECIFICATIONS

Dial size	: DN100 / DN160
Range	: 0...60 mbar [gauge body ∅140]
	: 0...100 to 0... 250 mbar [gauge body ∅100]
	: 0...0.4 to 0...40 bar [gauge body ∅88]
Mounting pattern	: Direct, Bottom connection
Process connection	: 1/4" NPT (F) x 2 Nos.
Ingress protection	: IP 65 - EN 60529 / IEC 529
Execution	: Dry/ Dry but fillable

Filled and Electric contact version on next page.

### TEMPERATURE EFFECT

The variation of indication caused by effects of temperature is to be calculated as per the below formula; which is to be added in the specified accuracy while measurement :-

$$\text{Formula: } \pm 0.04 \times (t_2 - t_1) \% \text{ of Full Scale Value}$$

Where  $t_1$  = reference temperature (+20°C) &  $t_2$  = ambient temperature in °C.

### STANDARD SPECIFICATIONS : FILLED VERSION

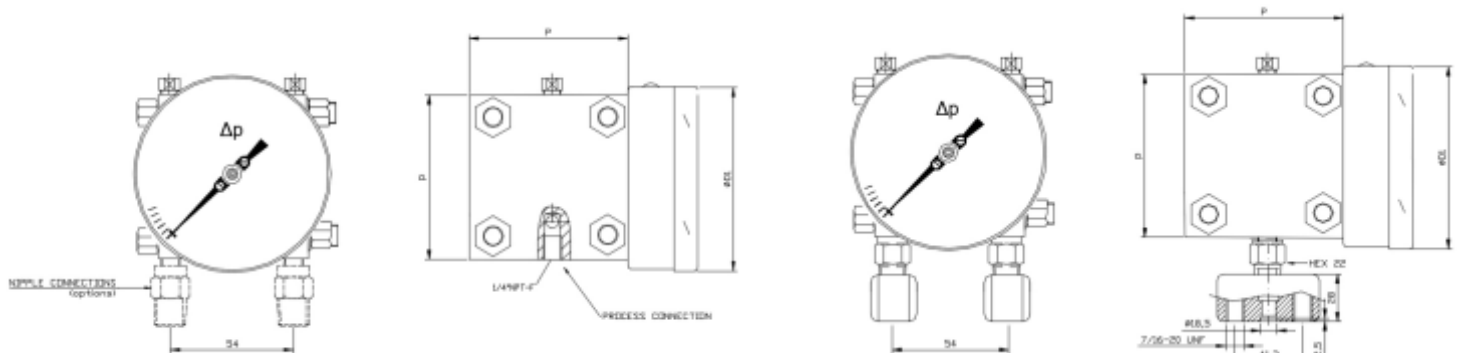
Accuracy	: CL 2.5
Window	: Safety glass
Dampening liquid	: Glycerin 99.7% / Silicon oil 47V50

### STANDARD SPECIFICATIONS : ELECTRIC CONTACT VERSION

Accuracy	: CL 2.5
Window	: Shatterproof Safety Glass, 4mm thickness
Electric contacts	: See ordering codes, page 6
Dampening liquid	: Dielectric oil (Optional)

### DIMENSIONAL DRAWING

#### Mounting type B0

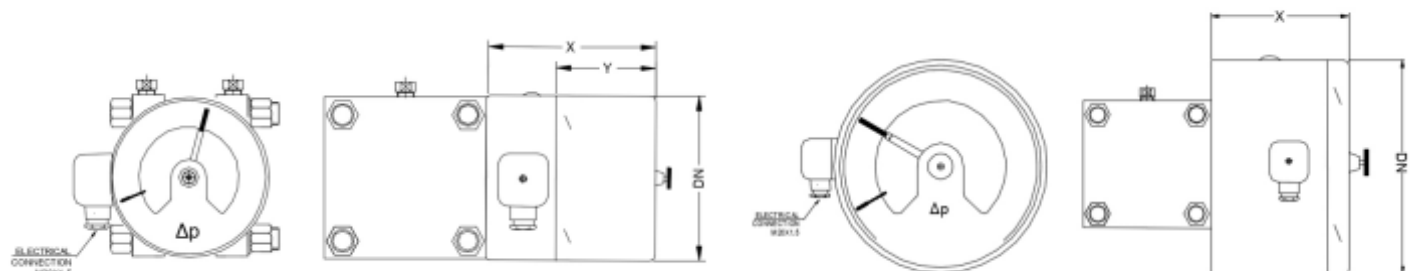


Threaded process connection

Oval flanges for direct manifold assembling

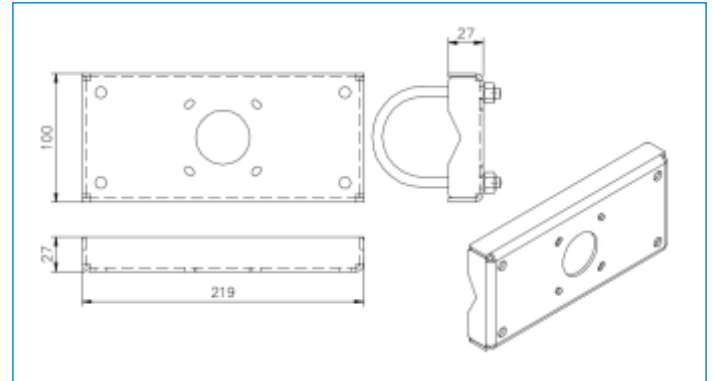
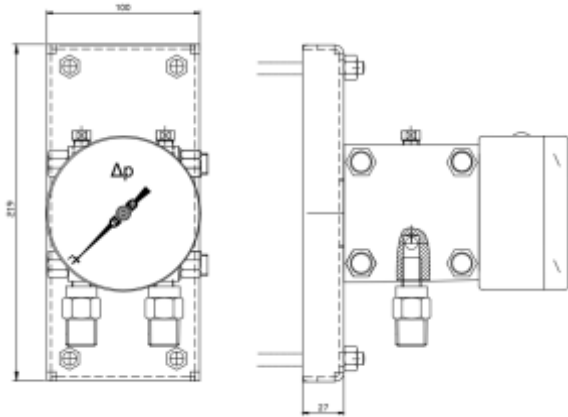
DN	Range	P (PN 40 to100)	P (PN 250)	P (PN 400)	D1
100	60 mbar	140			100
100	100 to 250 mbar	100	100		100
100	0,4 to 40 bar	88	88	100	100
160	60 mbar	140			160
160	100 to 250 mbar	100	100		160
160	0,4 to 40 bar	88	88	100	160

#### Mounting type B0 with Electric Contact

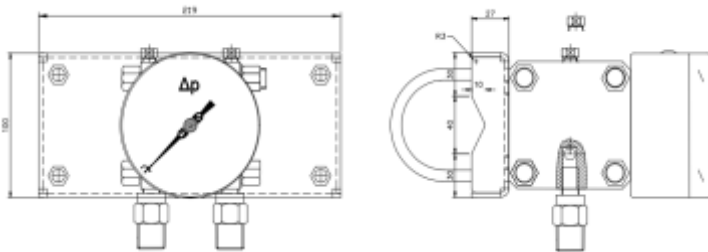


DN	Type of contact	X	Y
100	Single or Double contact / SPDT	100	60
160	DPDT	110	
160	Single or Double contact / SPDT	102	

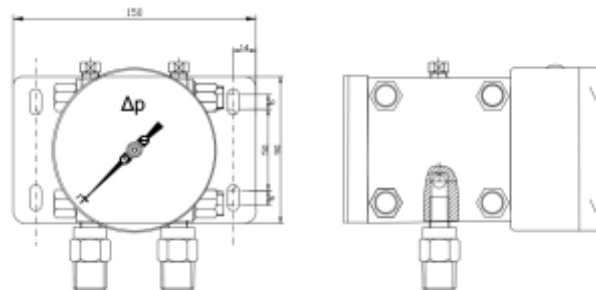
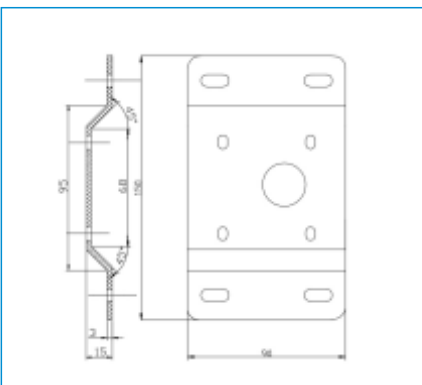
MOUNTING TYPE



Mounting type B2:  
2" Pipe bracket



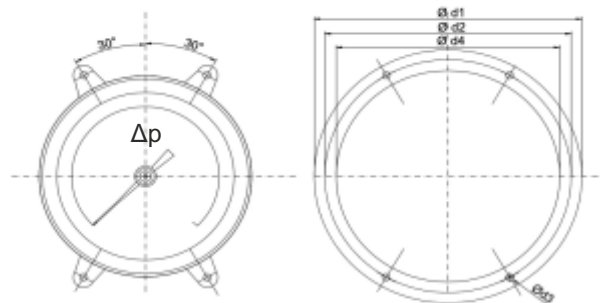
Mounting type B1:  
Surface bracket



Mounting type B3:  
Panel front flange

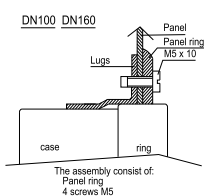
Mounting lugs at case of gauge

Outer panel ring cod. 100166-FF  
(Covering panel cut-out)

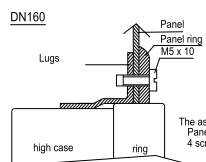
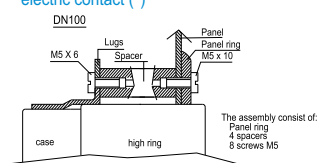


DN	Dimensions(mm)				
	d1	d2	d3	d4	Panel cut-out
100	132	116	5.8	101.5	105
160	196	178	5.8	161.5	165

Front flange panel mounting (\*)

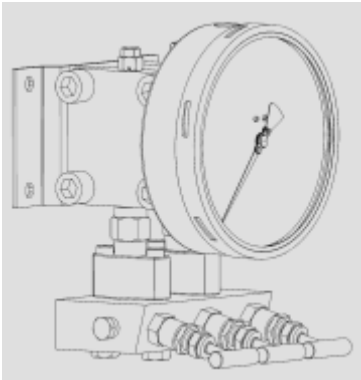


Front flange panel mounting with electric contact (\*)

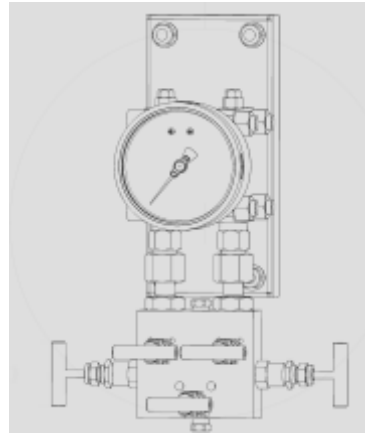


(\*) Panel cut-out : 105 mm for Dn100 & 165 mm for Dn160

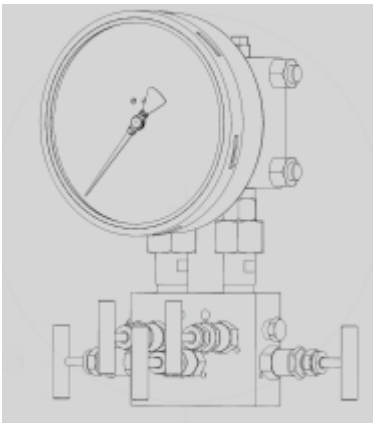
ACCESSORIES EXAMPLES



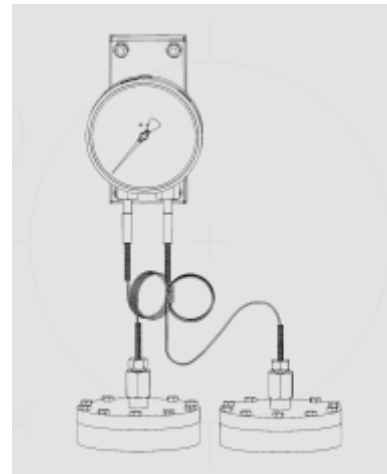
P301 with  
3 way valve manifold  
direct assembling  
Surface bracket



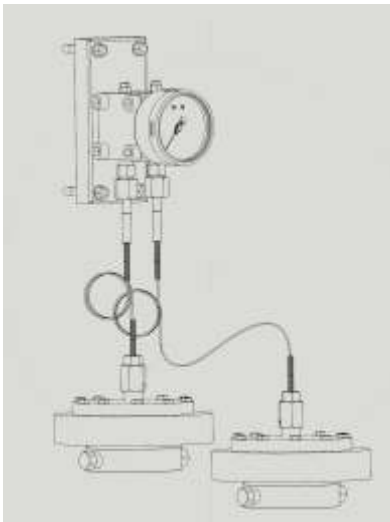
P301 with  
5 way valve manifold  
double ferrule compression  
fittings assembling  
2" pipe bracket



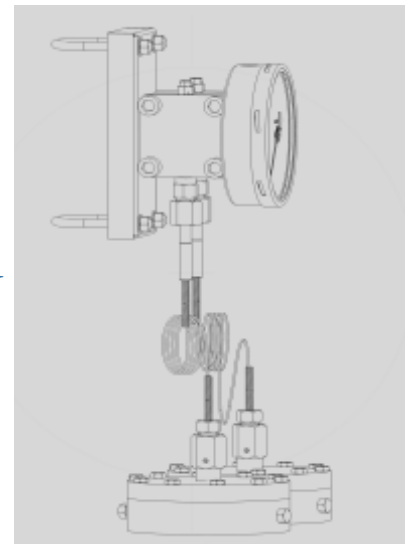
P301 with  
5 way valve manifold  
double ferrule compression  
fittings assembling  
without bracket mounting



P301 with  
capillary, large volume  
diaphragm seals



P301 with  
capillary, large volume  
diaphragm seals and  
flushing rings



P301 with  
capillary, large volume  
diaphragm seals and  
flushing parts built-in

## RANGE TABLE

**Approximate unit conversion;**

 1 bar = 1.019 kg/cm<sup>2</sup> = 14.503 psi = 100 kPa = 750.061 mmHg = 1000 mbar = 10197 mmWC

**UOM : SINGLE SCALE**

UOM	UOM
bar	mbar
psi	mmWC
kPa	Inch WC
kg/cm <sup>2</sup>	

**SPECIAL SCALE : FLOW / LEVEL  
CUSTOMISED DIAL**

Contact ITEC.

**RANGES :  $\Delta P$  in bar or in ka/cm<sup>2</sup>**  
**RANGE**

0...0.6	0...6	N1...0,6
0...1	0...10	N1...1,5
0...1.6	0...16	N1...3
0...2	0...20	N1...5
0...2.5	0...25	
0...4	0...40	

**RANGES :  $\Delta P$  in mbar**  
**RANGE**

0...60	N100...150
0...100	N100...300
0...160	N100...500
0...200	N100...900
0...250	
0...400	
0...600	

**RANGES :  $\Delta P$  in InW**  
**RANGE**

0...24	N16...24
0...40	N24...40
0...65	N65...60
0...100	N60...100
0...160	
0...240	

**RANGES :  $\Delta P$  in psi**  
**RANGE**

0...1	0...100
0...3	0...250
0...5	0...300
0...10	0...400
0...15	0...600
0...30	
0...60	

Other scale ranges are available on request (contact ITEC)

## ORDERING CODES

### 1. DIAL SIZE

**04** 100 mm / 4"    **06** 160 mm / 6"

**04**

### 2. ΔP RANGE

**XXXX** Refer "Range Table"

**XXXX**

### 3. MOUNTING PATTERN

**B0** Direct, Bottom connection  
**B1** Wall/Surface/Projection mounting, Bottom connection  
**B2** 2" Pipe bracket, bottom connection  
**B3** Panel front flange, bottom connection

**B0**

### 4. PROCESS CONNECTION [2 ports: HIGH/LOW]

**12B** 1/4" BSP (M)    **12N** 1/4" NPT (M)  
**13B** 3/8" BSP (M)    **13N** 3/8" NPT (M)  
**14B** 1/2" BSP(M)    **14N** 1/2" NPT(M)  
**14M** M20 x1,5 (M)    **04B** G 1/2" F  
**02N** 1/4" NPT F  
**DM** Oval flanges  
 for use with direct mount manifold

### MAGNETIC CONTACTS [PRECISION] - RS RATING: 230VAC@1A / 48VDC@0.5A

**CD1** Break contact (1NC)  
**CD2** Make contact (1NO)  
**CD3** 2 x Break contact (2NC)  
**CD4** 2 x Make contact (2NO)  
**CD5** 1 Break + 1 Make (1NC+1NO)  
**CD6** 1 Make + 1 Break (1NO+1NC)  
**CD7** SPDT  
**CD8** DPDT

### INDUCTIVE CONTACTS [ATEX / CE Approved] - RT RATING: 8VDC@3mA

**CI1** Break contact (1NC)  
**CI2** Make contact (1NO)  
**CI3** 2 x Break contact (2NC)  
**CI4** 2 x Make contact (2NO)  
**CI5** 1 Break + 1 Make (1NC+1NO)  
**CI6** 1 Make + 1 Break (1NO+1NC)

### RELAY [FOR RATING UP TO 5A]

**CI9** Booster relay

Gauge accuracy shall be CL 1 & switching accuracy shall be CL 5

### 5. INGRESS PROTECTION

**ER** IP 65    **ET** IP 67

**ER**

### 6. EXECUTION

**EA** Dry  
**EB** Fillable  
**EG** Dampening liquid filled, glycerine  
**EH** Dampening liquid filled, silicon oil

**EA**

### 7. STATIC PRESSURE

**040** 40 bar    **100** 100 bar  
**250** 250 bar    **400** 400 bar

**040**

### 8. OPTION: ELECTRIC CONTACTS & RELAYS

#### MAGNETIC CONTACTS [STANDARD] - RR RATING: 230VAC@1A / 48VDC@0.5A

**CS1** Break contact (1NC)  
**CS2** Make contact (1NO)  
**CS3** 2 x Break contact (2NC)  
**Cs4** 2 x Make contact (2NO)  
**CS5** 1 Break + 1 Make (1NC+1NO)  
**CS6** 1 Make + 1 Break (1NO+1NC)

**XXX**

### 9. OTHER OPTIONS

**DM** Monel diaphragm  
**DO** Hastelloy C-276 diaphragm  
**GW** Maximum reading pointer  
**GZ** External zero adjustment  
 [Standard for filled versions]  
**NM** Monel chambers  
**NO** Hastelloy C-276 chambers  
**OF** Food grade oil filled chamber  
**TA** 5 - point calibration certificate  
**TC** Material test certificate 3.1  
**TM** Material test certificate 2.2  
**TN** Tested to NACE standards  
**TE** ATEX certificate  
**XF** SS tag plate  
**XR** Custom designed dial  
**XT** Dial Tag marking  
**TF** PMI test

**XX**

Ordering Example : P301-04-XXXX-B0-02N-ER-EA-040

## COMPATIBLE ACCESSORIES

CODE	DESCRIPTION
DXXX	Diaphragm seals
M103	Three valve manifolds

CODE	DESCRIPTION
M105	Five valve manifolds
A635	Capillary extension / Impulse tube