PZP400 Metal Capacitive Pressure/Differential Pressure Transmitters

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Introduction

The PZP400 series pressure transmitters made of metal capacitive pressure sensors. The PZP400 series intelligent pressure transmitters are suitable for the measurement of flow, level and pressure (differential pressure, gauge pressure and absolute pressure), this product has strong adaptability and high reliability, and also has good anti-interference ability and zero stability. Its accuracy reaches 0.1%FS. These pressure transmitters are often used to measure the differential pressures in mbar scale with rather high accuracy, for differential pressure, gauge pressure and absolute pressure applications, the transmitter can measure them in a very wide ranges. PZP400 can be made with HART Protocol communication, can be communicated with many hand-held communicator like HK-375 & Rosemount 275 etc.

PZP400 intelligent pressure transmitter is composed of pressure sensor and PCB. The pressure sensor includes sensing element, EEPROM and other parts; PCB includes micro processor, digital/analogue converter, digital communication and memory EEPROM etc, to complete the conversion from pressure signal to 4~20mA DC signal.

Features

- Wider pressure range
- Pressure types: differential pressure, gauge pressure and absolute pressure
- Accuracy up to 0.1%fs, rangeability 100:1
- Output signal: 4~20 mA, with HART protocol
- Have strong self-diagnostic capability
- Zero and span adjustment without mutual influence
- Have prefect remote setting, local setting as well as adjustment function
- Use digital compensation technology to compensate for temperature and system pressure error
- Good stability, high accuracy, adjustable damping, strong unidirectional overload capacity
- No mechanical transmission parts, strong vibration resistance
- All general parts, convenient maintenance
- Super performance and reliability

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Specifications

Parameter	Units	Data			Notes
Differential pressure (D) ranges	bar,D	0~0.075; ~0.374; ~1.868; ~6.9; ~20.7; ~68.9			
Static pressure	bar	138(310 bar for HDP :0~0.374; ~1.868; ~6.9 ~20.7 bar)			[1]
Differential overload pressure	bar	138(310 bar for HDP :0~0.374; ~1.868; ~6.9 ~20.7 bar)			
Gauge pressure (G) ranges	bar,G	0~0.075; ~0.374; ~1.9; ~6.9; ~20.7; ~68.9	0~207	0~410	
Absolute pressure (A) ranges	bar,A	0~0.374; ~1.9; ~6.9; ~20.7; ~68.9			
Overload pressure for G & A pressures	bar	138	310	0~510	
Operating temperature range	°C	-40 ~ +85, -20~ +65(for indicator)			
Medium temperature range	°C	-40 ~ +105			
Operating humidity range	%RH	0 ~ 100			
Temperature coefficient of zero	%fso/10°C	≤ ±0.03			
Temperature coefficient of span	%fso/10°C	≤ ±0.03			
Accuracy	%fs	0.1, 0.2, 0.5			[2]
Line pressure effect	/	±0.25 %fs/100bar			
Output signal	mA	4~20 mA with HART protocol, analogue 4~20 mA			
Power supply (U)	Vdc	12 < U < 45			
Load resistance for current loop	Ω	≤ (U - 12V) / 0.02A; for HART: 250Ω≤ load resistance ≤1100Ω			
Insulation resistance	MΩ	500 @100Vdc			
Field display	/	5 digits LCD display, or no display			
Environment protection	/	IP65			
Electrical connection	/	M20x1.5 female (standard), 1/2NPT female			
Pressure connection	/	1/4NPT female (standard), 1/2NPT female			
Explosion-proof	/	no explosion proof (standard). option: Exia II CT6, Exd II CT6.			
Vibration resistance	/	0.05 %fs/g/100Hz			
O ring materials	/	nitrile rubber, fluorine rubber, Teflon, metal sealing ring			
Pressure diaphragm	/	316L SS			
Wetted parts material(flange,Vent/drain value)	/	304 SS			
Electronics housing material	/	aluminam metal alloy			
Filling oil	/	silicone oil			
Net weight	gram	~3500			

Notes: [1].HDP = differential pressure transmitter for high static and overolad pressure applicatiions

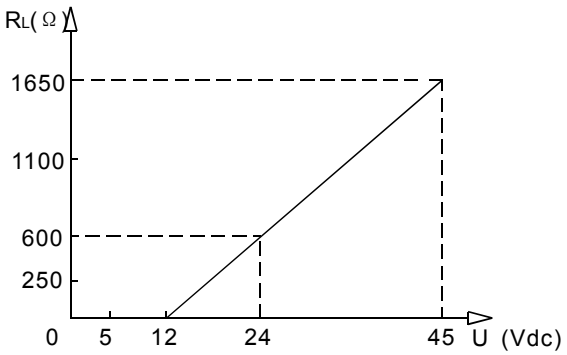
[2]. Accuracy = sqrt (non-linearity^2 + hysteresis^2 + repeatability^2)

Load Characteristic

load resistance for current loop:

$R_L \leq$ (U - 12V) / 0.02A (Ω)

for HART: 250Ω≤ R_L ≤1100Ω



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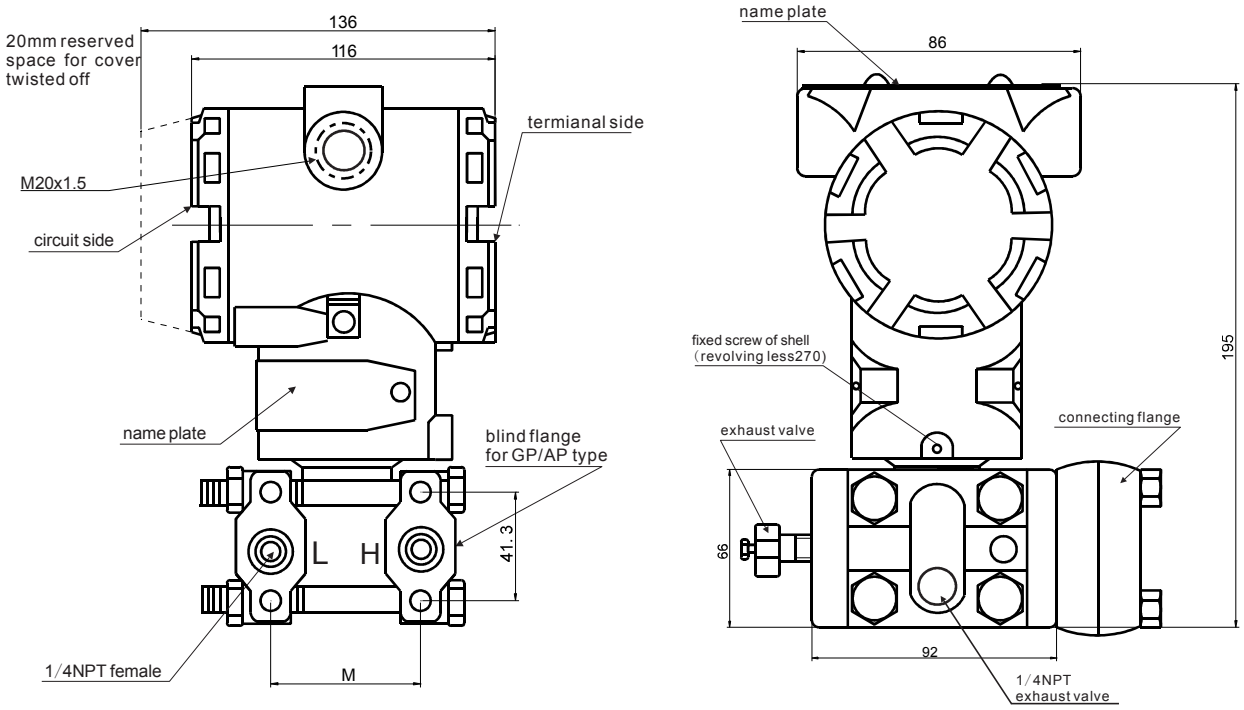
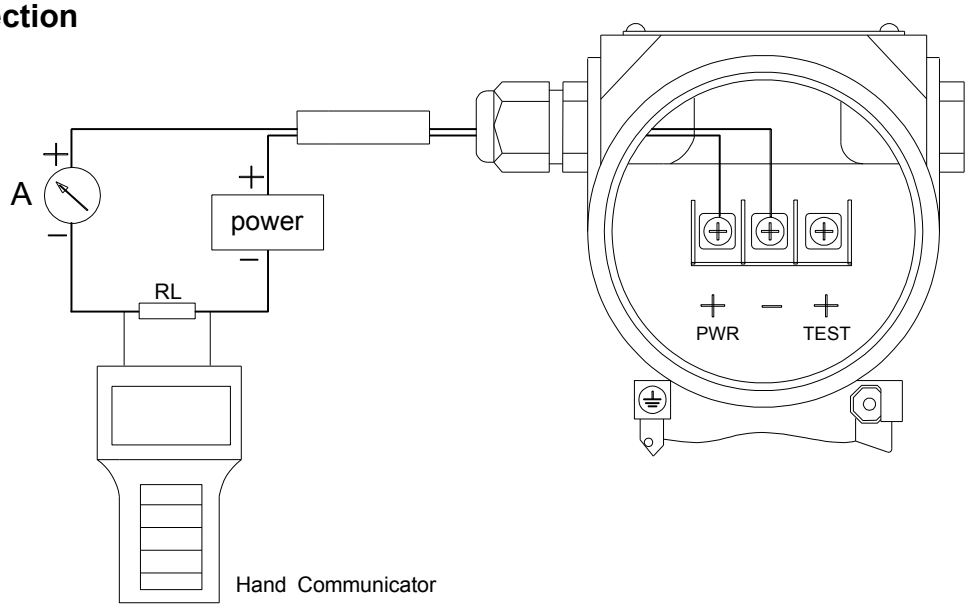
Dimensions



M = 54 (for range: 0~75 mbar, ..., 1868 mbar)
M = 56 (for range: 0~20.7 bar)
M = 57 (for range: 0~6.9 bar)

Electrical Connection



smart 4~20mA output with HART protocol

Notes: - All dimensions are in mm.

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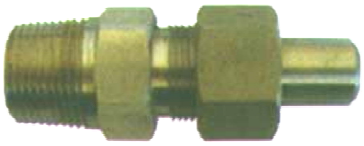
Pressure Connection Method

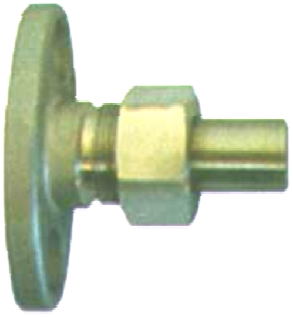
P0: 1/4NPT female (standard)

P1: 1/2NPT female connector

P2: 1/2NPT female connector with welded pressure pipe



P3: M20x1.5 "T " type connector



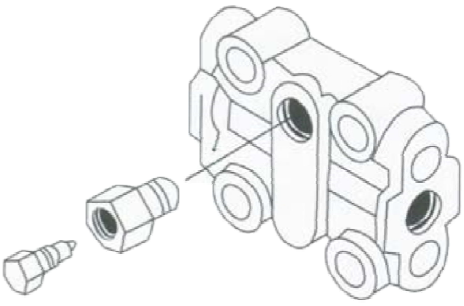
Note:

1. In pressure measurement, from pressure point to the leaded out pressure signal, the pressure pass through shut off valve and connector, then connect with the transmitter.
2. In low system pressure differential pressure measurement can be connected as pressure measurement method; in high system pressure measurement, differential pressure signal should go through balance valve (generally three valve manifold) firstly and then connect with transmitter.

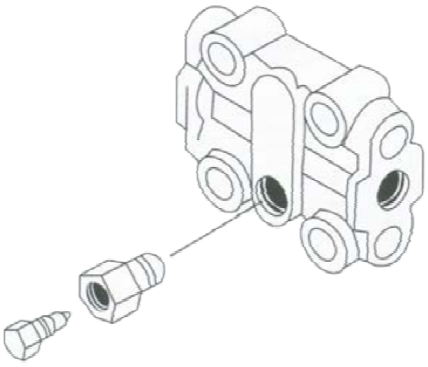
Exhaust Valve Position

D0: exhaust valve on back of flange

D1: exhaust valve on top of flange



D2: exhaust valve on bottom of flange



Ordering code D0: exhaust valve is located on back of flange.

Ordering code D1: exhaust valve is located on side top of flange. For liquid pressure measurement applications.If the transmitter is installed vertically, the top valve is used to exhaust the gas in the liquid.

Ordering code D2: exhaust valve is located on side bottom of flange. For gas pressure measurement applications.If the transmitter is installed vertically the top valve is used to exhaust the liquid in gas.

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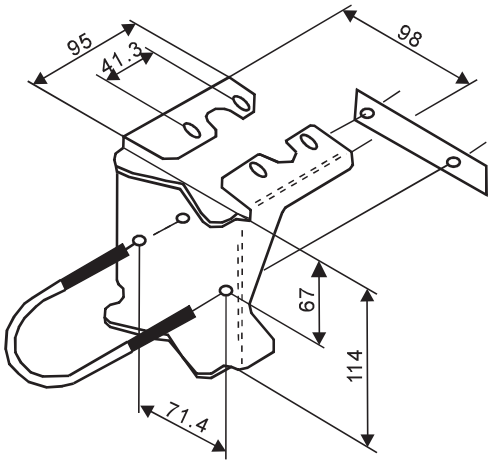
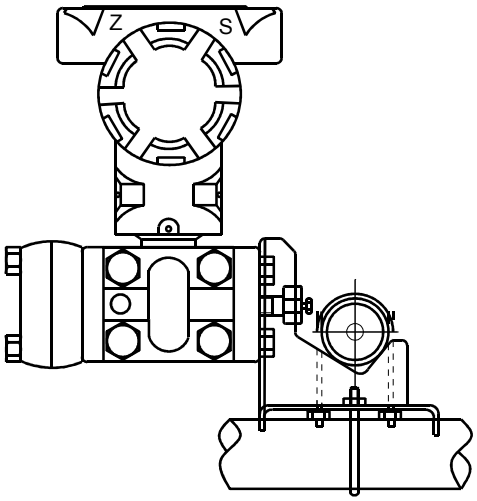
Mounting Means

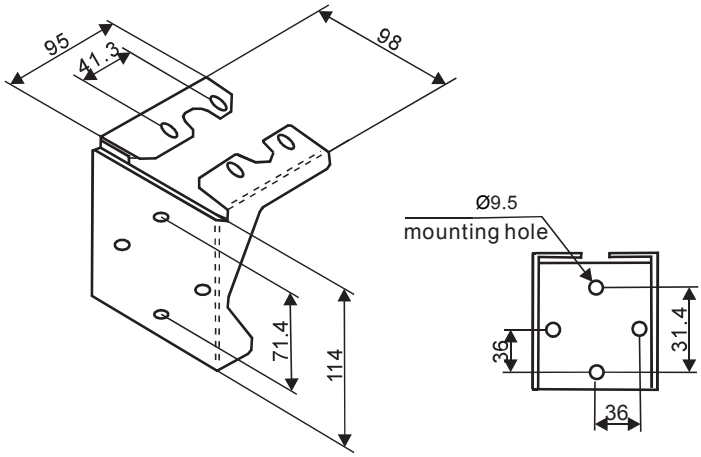
Mounting bracket dimensions and means:

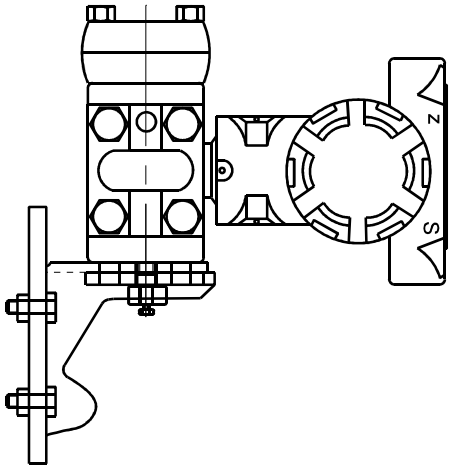
M1: 2” Pipe Mounting Kit



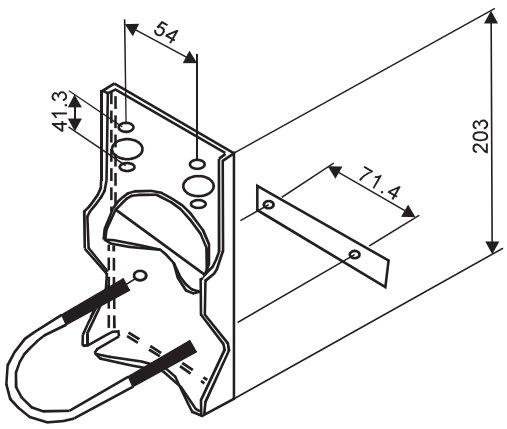


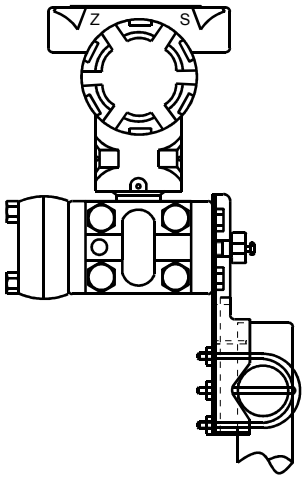
M2: Panel Mounting Kit





M3: 2” Pipe Flat Mounting Kit





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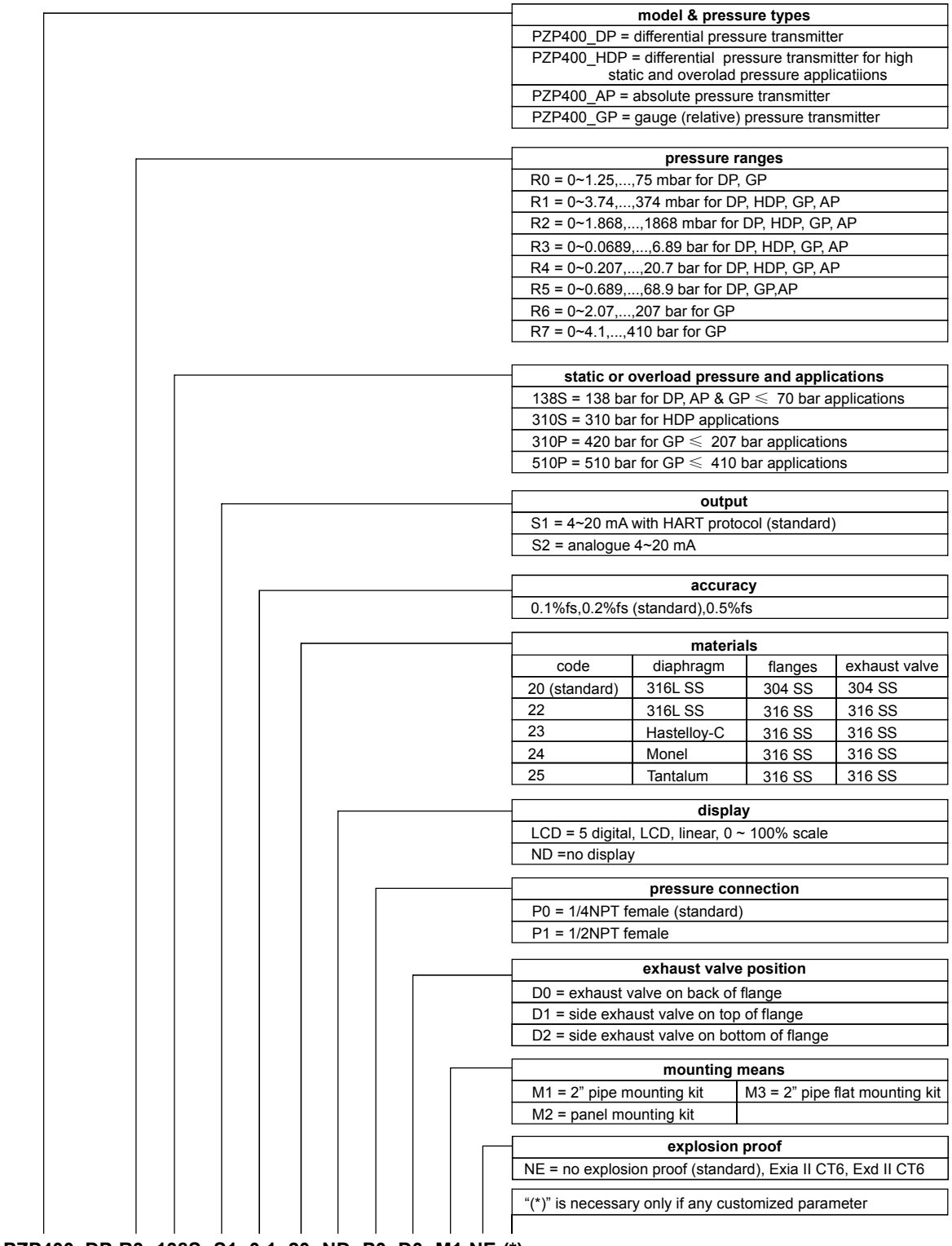
Ordering Guide



model & pressure types
PZP400_DP = differential pressure transmitter
PZP400_HDP = differential pressure transmitter for high static and overolad pressure applicatiions
PZP400_AP = absolute pressure transmitter
PZP400_GP = gauge (relative) pressure transmitter

pressure ranges
R0 = 0~1.25,...,75 mbar for DP, GP
R1 = 0~3.74,...,374 mbar for DP, HDP, GP, AP
R2 = 0~1.868,...,1868 mbar for DP, HDP, GP, AP
R3 = 0~0.0689,...,6.89 bar for DP, HDP, GP, AP
R4 = 0~0.207,...,20.7 bar for DP, HDP, GP, AP
R5 = 0~0.689,...,68.9 bar for DP, GP,AP
R6 = 0~2.07,...,207 bar for GP
R7 = 0~4.1,...,410 bar for GP

static or overload pressure and applications
138S = 138 bar for DP, AP & GP ≤ 70 bar applications
310S = 310 bar for HDP applications
310P = 420 bar for GP ≤ 207 bar applications
510P = 510 bar for GP ≤ 410 bar applications

output
S1 = 4~20 mA with HART protocol (standard)
S2 = analogue 4~20 mA

accuracy
0.1%fs,0.2%fs (standard),0.5%fs

materials			
code	diaphragm	flanges	exhaust valve
20 (standard)	316L SS	304 SS	304 SS
22	316L SS	316 SS	316 SS
23	Hastelloy-C	316 SS	316 SS
24	Monel	316 SS	316 SS
25	Tantalum	316 SS	316 SS

display
LCD = 5 digital, LCD, linear, 0 ~ 100% scale
ND =no display

pressure connection
P0 = 1/4NPT female (standard)
P1 = 1/2NPT female

exhaust valve position
D0 = exhaust valve on back of flange
D1 = side exhaust valve on top of flange
D2 = side exhaust valve on bottom of flange

mounting means	
M1 = 2” pipe mounting kit	M3 = 2” pipe flat mounting kit
M2 = panel mounting kit	

explosion proof
NE = no explosion proof (standard), Exia II CT6, Exd II CT6

“(*)” is necessary only if any customized parameter

PZP400_DP-R3 -138S -S1 -0.1 -20 -ND- P0- D0- M1-NE-(*)

Examples of Ordering Code

PZP400_DP-R3(-2~+2bar) -138S -S1 -0.1-20 -LCD-P0- D0- M1-NE-(*)

Note: Please indicate the calibration pressure range when ordering.
If not, the product will be set the max. range when leaving our factory.

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