

Differential Pressure Transmitter

Overview

TMIINST an international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature.

ST3051 series of high-precision intelligent pressure/absolute pressure/differential pressure transmitters made of advanced MEMS technology, combined with exquisite production technology, to achieve high precision and ultra-high stability of the product. Embedded intelligent signal processing module, achieving a perfect combination of pressure and temperature compensation, providing reliable measurement accuracy and excellent long-term stability under a wide range of static pressure and temperature changes.



Applications

- Oil & Gas industry
- Chemical
- Power
- Steel
- Food processing
- Papermaking

Features

- High precision level: high-precision sensor chip, accuracy $\leq \pm 0.05\%$.
- Strong load resistance: double overload protection diaphragm design, single overvoltage up to 42MPa.
- Excellent environmental adaptability: intelligent static pressure compensation and temperature compensation, eliminating the impact of temperature, static pressure, and overload on the transmitter, minimizing on-site comprehensive testing errors .
- Excellent long-term stability: Stability can be maintained at 0.1FS%/3 years.
- Flexible remote assistance debugging function: remote and local parameter setting function achieved through Hart or RS485 communication and panel buttons.

Technical Data

Measuring principle	Monosilicon sensor/Thin film on steel sensor	Accuracy	$\pm 0.075\%$ (Option $\pm 0.05\%$ $\pm 0.1\%$)
Range	Differential Pressure: 1kPa~3MPa, Page 2 of 4	Long term stability	$\pm 0.1\%$ *Span/3 years
Media	Liquid, gas, or steam	EMC environment	GB/T 17626/IEC61000
Output signal	4~20mA+HART RS485	Operating temperature	-40~+85℃ -20~+65℃ (with LCD)
Process connection	M20*1.5(M) 1/4NPT(M) UNF7/16(F)	Medium temperature	-40~125℃
Connection material	Stainless steel 304 (316 option)	Storage temperature	-40~+85℃ -20~+65℃ (with LCD)
Electrical connection	M20*1.5 or NPT1/2 female, Standard M20 * 1.5 nylon cable sealing buckle, terminal suitable for 0.5-2.5mm ² wire	Diaphragm	316L, C-276, Tantalum, Gold plating
Housing	Aluminum, epoxy resin (SS optional)	Explosion proof	Non explosion-proof Ex ia II B T6 Ga Ex db II C T6 Gb
Liquid filled	Silicone, Edible, Fluorine oil	Mounting	Page 4 of 4

Rev.A

05/2023

Ordering information

Type code	Pressure transmitter type
ST3051-DR/P	Differential Pressure Transmitter

Accuracy class

C	0.1%
B	0.075%
A	0.05%

Range

0B	(0~0.6) KPa~6KPa
0C	(0~2) KPa~40KPa
0E	(0~2.5) KPa~250KPa
0F	(0~10) KPa~1MPa
0G	(0~30) KPa~3MPa

Operating pressure

P2	16MPa
P3	25MPa
P4	42MPa

Output signal

E	4~20mA/HART
R	RS485-Modbus

Wet parts material Diaphragm

S	316L
C	HC-276
T	Tantalum
L	Titanium
G	316L Gold plating

Sensor liquid filled

G	Silicone oil
F	Fluorine oil
S	Edible oil

Electrical connection

L1	Aluminium housing, M20*1.5
L2	Aluminium housing, NPT1/2
G1	Stainless steel 316L housing, M20*1.5
G2	Stainless steel 316L housing, NPT1/2

Process connection

T0	1/4"NPTfemale
T1	1/4"NPT-M20*1.5male-Φ14pressure pipe (1set)
T2	1/4"NPT-M20*1.5male T-joint-Φ14pressure pipe (1set)
T3	1/4"NPT-1/2"NPTfemale waist joint
T4	1/4"NPT- G1/2" female waist joint
T5	Equipped with an integrated three-valve passage

Display

M0	N/A
M1	Low power LCD display
M2	Low temperature resistant LCD display

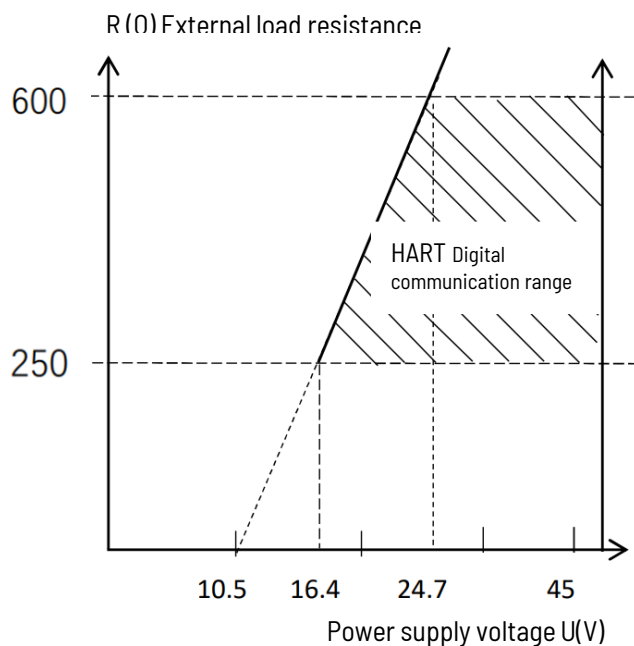
Mounting bracket

W	N/A
P	Plate mounting bracket
Z	90° angle mounting bracket

Explosion proof

E0	Non explosion-proof
E1	Ex ia II B T6 Ga
E2	Ex db II C T6 Gb

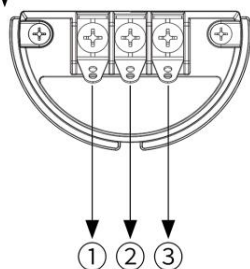
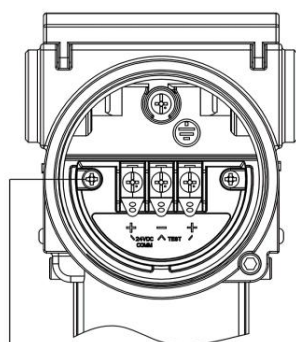
Mechanical structure



IP Rating
IP65、IP67(Explosion proof)

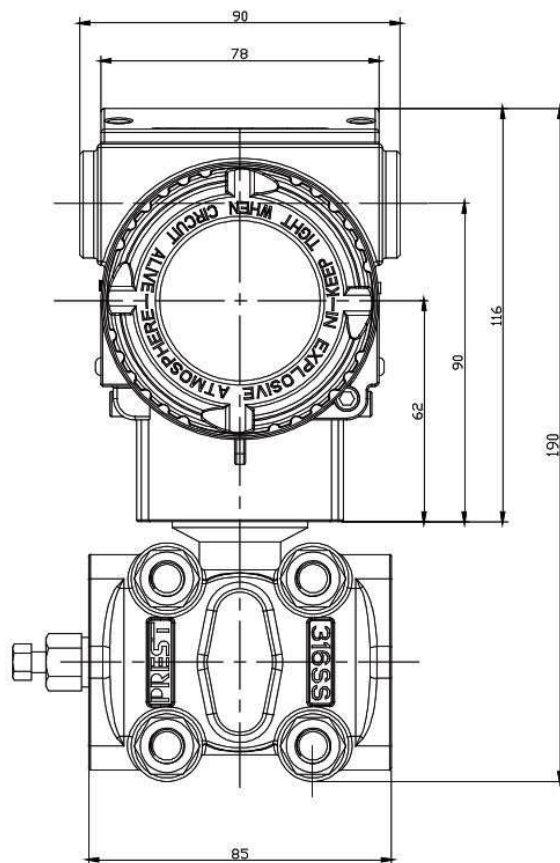
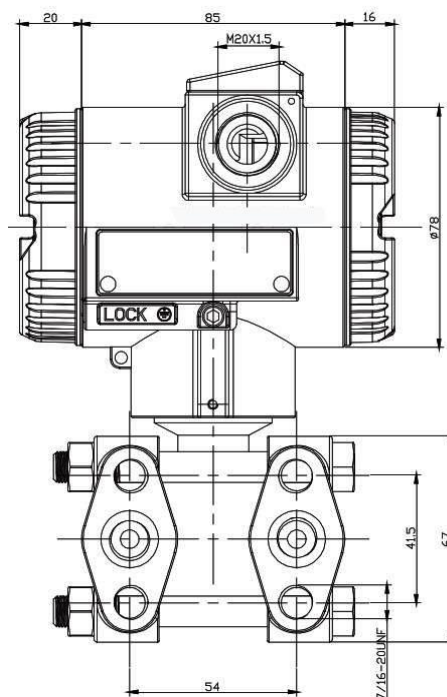
Weight
2.6Kg (without mounting bracket & accessory)

Electrical connection



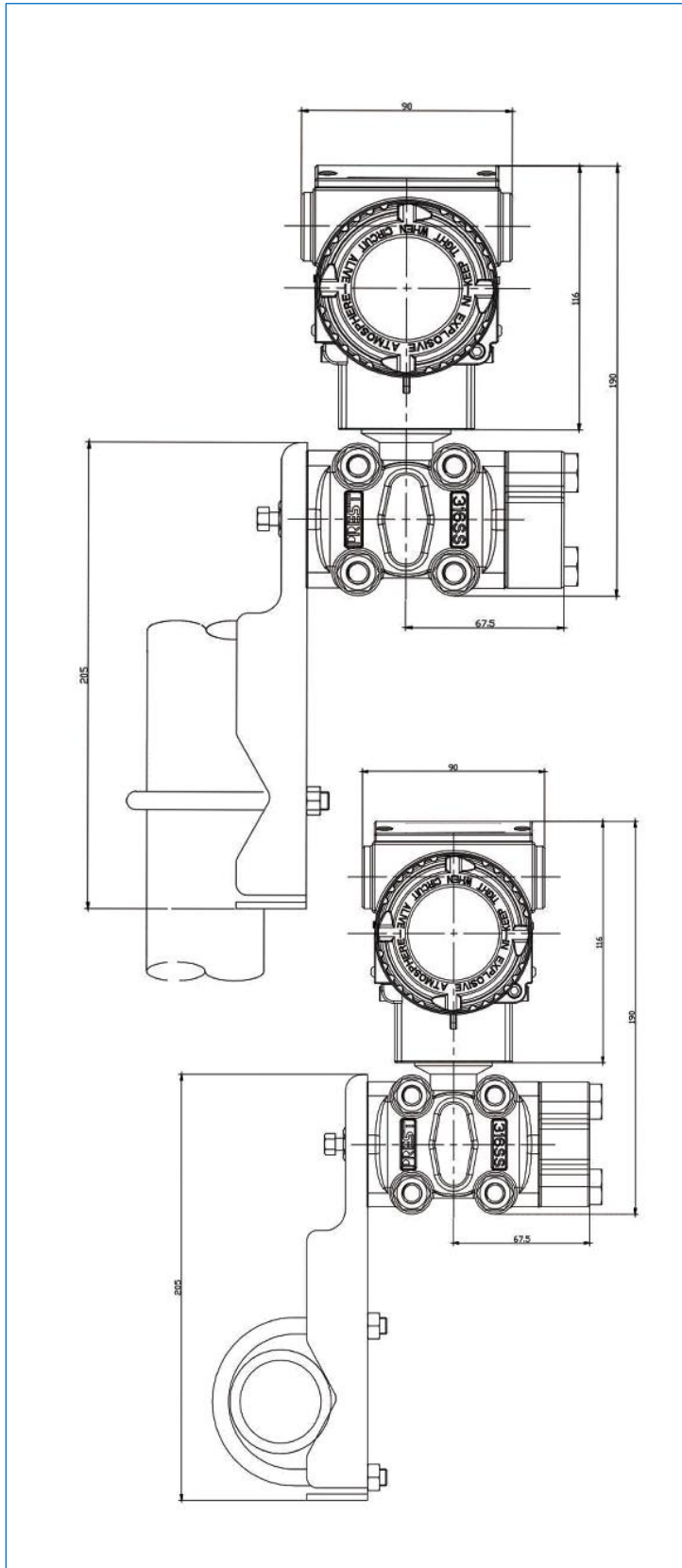
①	+	Power supply and HART digital communication output terminals
②	-	
③	+	External indication (Ammeter) terminal

Dimension



Mounting bracket installation

◆ vertical installation



◆ horizontal installation

