PAFD3051S Monocrystalline Silicon Pressure Transmitter

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PAFD3051S Monocrystalline Silicon Pressure Transmitter

◆ Product Selection Guide

PAFD3051S **TG/TA**–Gauge/Absolute Pressure Transmitter

PAFD3051S TG/TA Gauge/ Absolute Pressure Transmitter

Product Introduction

PAFD3051S TG/TA pressure transmitter is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure. **PAFD3051S** outputs a 4~20mADC signal corresponding to the measured pressure. The key features include quick response,remote set–up using communications,self–diagnostics and optional status output for pressure high/low alarm.

Standard Specification

Adjust the range based on the standard zero point,316L stainless steel diaphragm,the filling solution is silicone oil.

Technical Parameters

PAFD3051S TG Gauge Pressure

Code	Span	Range
B/R	0.6kPa~6kPa	–6kPa~6kPa
C/S	2kPa~40kPa	–40kPa~40kPa
D	2.5kPa~250kPa	–100kPa~250kPa
F	30kPa~3MPa	–100kPa~3MPa
G	0.1MPa~10MPa	–100kPa~10MPa
H	0.21MPa~21MPa	–100kPa~21MPa
I	0.4MPa~40MPa	–100kPa~40MPa

PAFD3051S TA Absolute Pressure

L/T	2kPa~40kPa	0~40kPa
M	2.5kPa~250kPa	0~250kPa
O	30kPa~3MPa	0~3MPa

Reference Accuracy of Calibrated Span

(includes terminal–based linearity, hysteresis, and repeatability)

PAFD3051S TG/TA–B	±0.075%
PAFD3051S TG/TA–C	±0.1%

If TD>10(TD=TD=URL/SPAN)It is：

PAFD3051S TG/TA–B	±(0.0075×TD)%
PAFD3051S TG/TA–C	±(0.01×TD)%

Square root output accuracy is 1.5 times the above linear reference accuracy

Ambient Temperature Effects

–25℃~65℃ Total Effects

±(0.15×TD+0.05)%×Span

Every 10℃之间 ±0.08%×Span(TD=1 时)

–40℃~–25℃和 65℃~85℃ Total Effects

±(0.20×TD+0.05)%×Span

Over Range Effects

±0.075%×Span

Technical Parameters

Long–Term Stability

±0.1%×Span/3 Years

Power Supply Effects

±0.001% /10V (12~36V DC)

Zero Adjustment Limits

Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.

External Zero Adjustment

External zero is continuously adjustable with 0.01% incremental resolution of span.

Re–range can be done locally using the range setting switch.

Mounting Position Effects

Rotation in diaphragm plane has no effect.

Tilting up to 90° will cause zero shift up to 0.25kPa which

Output

Two wire 4~20 mADC output with digital communications, linear or square root programmable.HART FSK protocol are superimposed on the 4~20 mADC signal.

Output range:Imin=3.9mA，Imax=20.5mA

Failure Alarm (the mode can be selected)

Low Mode (min)：3.6mA

High Mode (max)：21 mA

No Mode (hold): Keep the effective value before the fault.

Note: The standard setting of failure alarm is High Mode.

Response Time

The amplifier damping constant is 0.1 sec; The sensor damping constant is 0.1~1.6 sec, it depends on the range and range compression ratio. Amplifier damping time constant is adjustable from 0.1 to 60 sec by software and added to response time.

UpTime

< 15s

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Technical Parameter

Ambient Temperature Limits

–40℃~85℃

–20℃~65℃ (with LCD display or fluorine rubber sealing)

–40℃~70℃ (OLED display)

Storage and Transportation Temperature Limits

–50℃~85℃

–25℃~85℃ (with LCD display)

Working Pressure Limits

From vacuum to upper range limits

Overload Pressure Limits

Code	Span	Overload limit
B	6kPa	0.2MPa
R	6kPa	7MPa
C/L	40kPa	1MPa
S/T	40kPa	7MPa
D/M	250kPa	4MPa
F/O	3MPa	15MPa
G	10MPa	20MPa
H	21MPa	50MPa
I	40MPa	50MPa

Electromagnetic Compatibility (EMC)

See EMC Performance Table

Explosion Protected Type

NEPSI：Ex dIICT6

Technical Parameter

NEPSI：Ex iaIICT4

Amb. Temp.: –40℃ ~65℃；–40℃ –65℃

Supply & Load Requirements

24VDC supply，load 520Ω，as follow

R ≤ (Us–12V)/Imax kΩ， Imax=23mA

Power supply 15~36V DC

Load Working：0~1040Ω

Digital communication： 230~600Ω

Material

Diaphragm	316L stainless steel/Hastelloy C
Process Connector	316 stainless steel
Fill fluid	Silicone oil/Fluorinated oil
Housing	Aluminum with epoxy resin coat
Housing Gasket	Perbunan (NBR)
Name plate and tag	304 stainless steel

Electrical Connection

The electrical connection is made via cable entry M20x1.5.The screw terminals are suitable for wire cross–sections up to 0.5~2.5mm^2

Process Connection

Pressure Connection：1/2–NPT female thread，it can be changed to other thread.

Weight

About 1.6kg

Degrees of Protection

IP67

EMC Performance Table

Items	Test Project	Basic standards	Test conditions	Performance Level
1	Radiated interference (Housing)	GB/T 9254–2008 Table 5	30MHz ~ 1000MHz	OK
2	Conducted interference (DC power port)	GB/T 9254–2008 Table 1	0.15MHz ~ 30MHz	OK
3	Electrostatic Discharge (ESD) Immunity	GB/T 17626.2–2006	4kV(Line) 8kV(Air)	B
4	RF electromagnetic field immunity	GB/T 17626.3–2006	10V/m (80MHz ~ 1GHz)	A
5	Frequency magnetic field immunity	GB/T 17626.8–2006	30A/m	A
6	Electrical Fast Transient Burst Immunity	GB/T 17626.4–2008	2kV(5/50ns,5kHz)	B
7	Surge Immunity	GB/T 17626.5–2008	1kV (line to line) 2kV (line to ground) (1.2us/50us)	B
8	Conducted interference immunity induced by RF field	GB/T 17626.6–2008	3V (150KHz ~ 80MHz)	A

Note：(1) Performance level A description: The technical specifications within the limits of normal performance.
(2) Performance level B description: Temporary reduction or loss of functionality or performance, it can restore itself. The actual operating conditions,storage, and data will not be changed.

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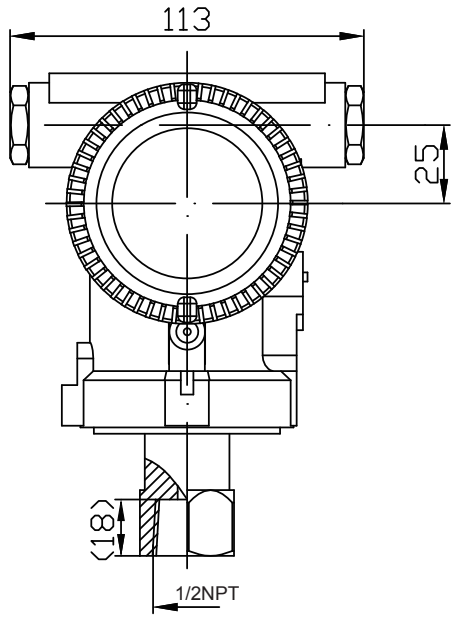
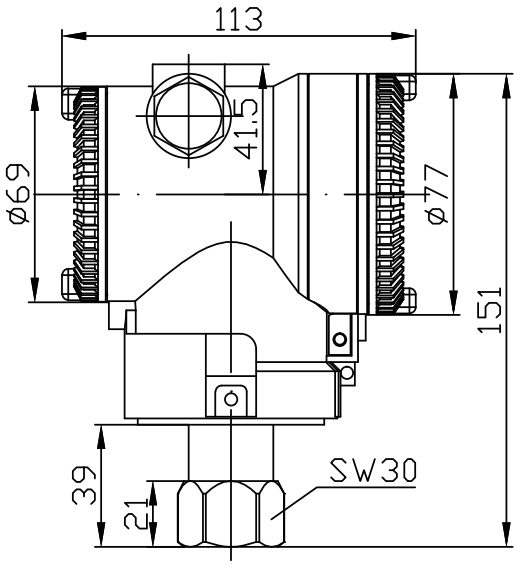
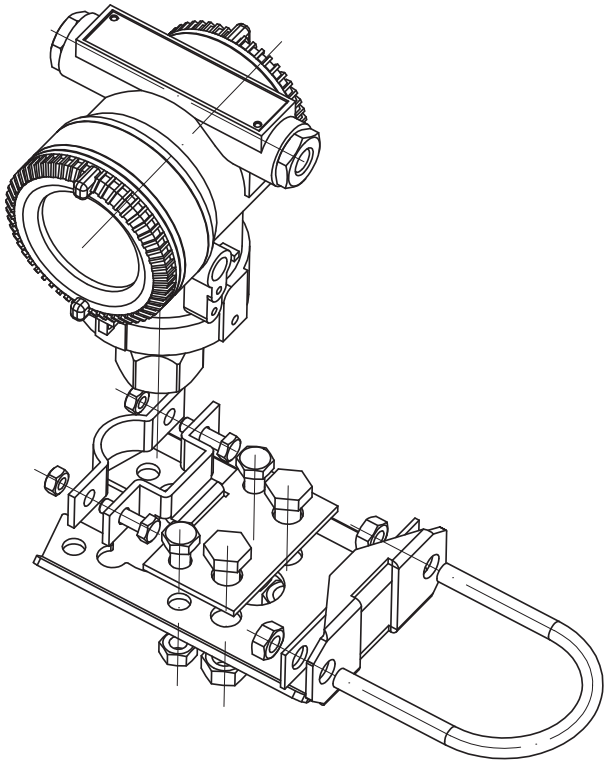
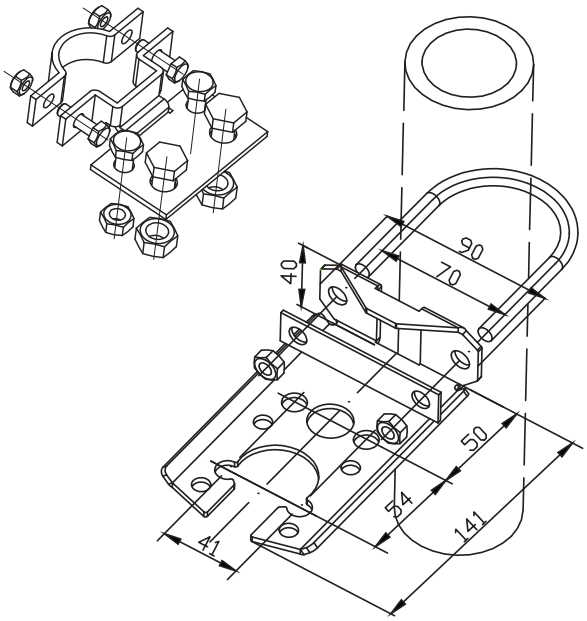
DIMENSIONS





Bracket Mounting





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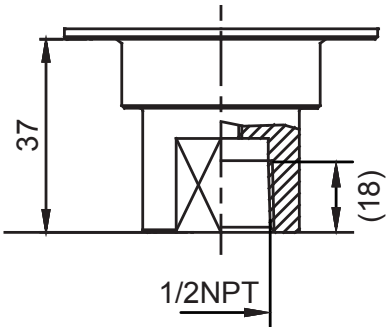
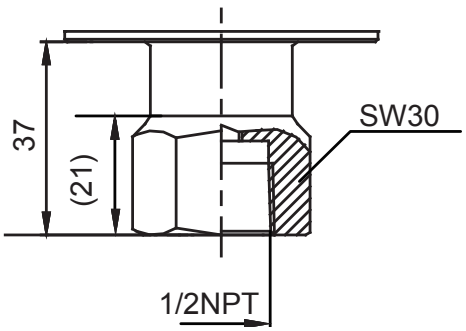
PAFD3051S TG/TA–Gauge/Absolute Pressure

Transmitter

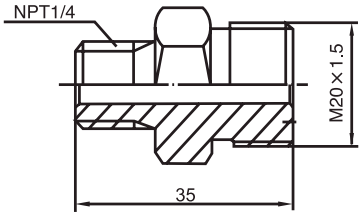
Process Connection



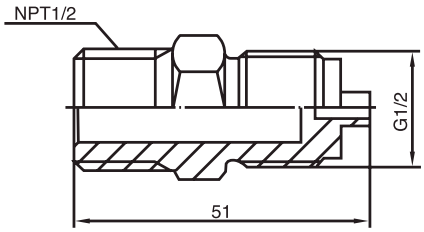
Standard Connector
1/2NPT (C/S/D/M range)



Standard Connector
1/2NPT (F/G/H/I/O
Range)

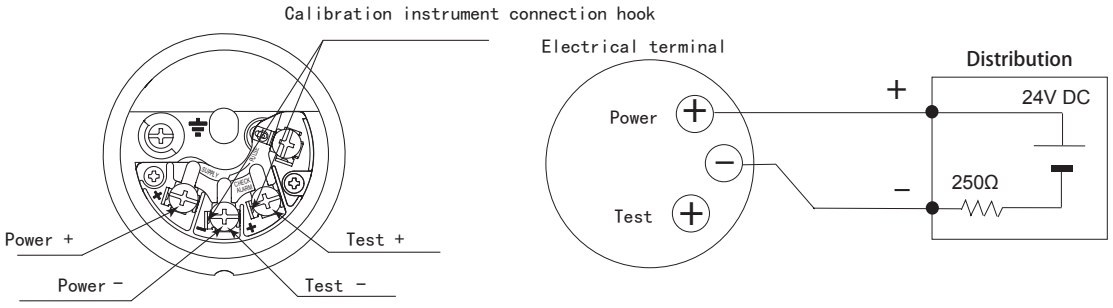


1/2NPT–M20 × 1.5 Connector



1/2NPT–G1/2 Connector

Electrical Connection



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Model and suffix codes

Type	Code	Instruction
PAFD3051S TG	·····	Gauge Pressure Transmitter
PAFD3051S TA	·····	Absolute Pressure Transmitter
Accuracy	B ·····	±0.075%
	C ·····	±0.1%
Pressure range	B ·····	0–0.6kPa ~ 6kPa TG
	C ·····	0–2kPa ~ 40kPa TG
	D ·····	0–2.5kPa ~ 250kPa TG
	F ·····	0–30kPa ~ 3MPa TG
	G ·····	0–0.1MPa ~ 10MPa TG
	H ·····	0–0.21MPa ~ 21MPa TG
	I ·····	0–0.4MPa ~ 40MPa
	R ·····	0–0.6kPa ~ 6kPa TG (Overload pressure to 7MPa)
	S ·····	0–2kPa ~ 40kPa TG (Overload pressure to 7MPa)
	L ·····	0–2kPa ~ 40kPa TA
	M ·····	0–2.5kPa ~ 250kPa TA
	O ·····	0–30kPa ~ 3MPa TA
	T ·····	0–2kPa ~ 40kPa TA(Overload pressure to 7MPa)
Diaphragm and fill fluid	A ·····	316L stainless steel Silicone oil
	B ·····	316L stainless steel Fluorinated oil
	C ·····	Hastelloy C Silicone oil
	D ·····	Hastelloy C Fluorinated oil
Process connection	1 ·····	1/2"NPT
	2 ·····	M20 × 1.5
	3 ·····	G 1/2"
Electrical connection	M	ISO M20 × 1.5
	A	ANSI NPT1/2(F)
Specific function	N ·····	None
	O ·····	Degrease cleansing treatment (Oxygen measurement must be with fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa ,<60℃)
	P ·····	Anti–lightning function
Mounting bracket	N ·····	None
	1 ·····	Stainless steel
	2 ·····	Carbon steel galvanized
Integral indicator	L	LCD display (–20℃)
	S	LCD display low temperature (–30℃)
	E	OLED (–40℃)
Explosion protected type	N	None
	i	Intrinsically safe NEPSI
	d	Flameproof Approval NEPSI

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Model and suffix codes

Type	Code	Instruction
Mounting Accessories	N	None
	1	With M20X1.5 to ϕ 14 welded pipe joint, (option 3 with)
Tag name plate	N	None
	1	Position number marked on the nameplate
	2	Hanging stainless steel plate
Manual	C	Chinese
	E	English
Additional options (Apply only to the range R/S/T)	N	Perbunan (NBR)
	F	Viton (FKM)
	P	Teflon (PTFE)

Order Example：

For example：**PAFD3051S** TG–BCA1MPN1NNNCN

[**PAFD3051S** TG]：Gauge Pressure Transmitter
[B]：Accuracy ± 0.075%
[C]：Pressure range0–2kPa~40kPa
[A]：Diaphragm SS316L fill fluid Silicone oil
[1]：1/2"NPT Female thread process connection
[M]：Electrical connection M20*1.5 Cable
[P]：nti–lightning function
[N]：No Mounting bracket
[L]：LCD display
[N]：None Explosion protected type
[N]：No Mounting Accessories
[1]：Position number marked on the nameplate
[C]：Chinese Manual
[N]：Wetted sealing material is Perbunan (NBR)

Note 1：**PAFD3051S** TG corresponds to gauge pressure range code, **PAFD3051S** TA corresponds to absolute pressure range code；
Note 2：Additional options are only available for range R, range S, and range T.Seal material should be selected according to the measurement medium. The standard specification is NBR.
Note 3：If a code is a non–standard item with special requirements, the code can be represented by X or Y, and a corresponding description of X or Y is given.

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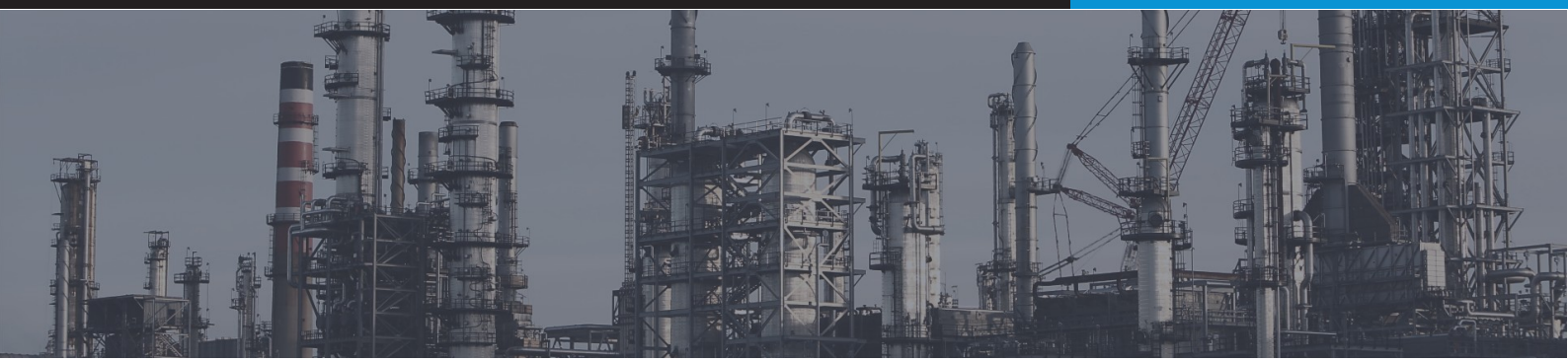

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