



KIT220-D : Differential Pressure Transmitter

The differential pressure transmitter KIT220-D is suitable to measure liquid, gas, or steam flow as well as liquid level, density and pressure. KIT220-D: B/C outputs a 4 to 20 mA DC HART signal corresponding to the measured differential pressure. Other key features include quick response, remote set-up using communications, self-diagnostics and optional status output for pressure high/low alarm.



STANDARD SPECIFICATIONS

1 PERFORMANCE SPECIFICATIONS

Reference Accuracy of Calibrated Span (includes terminal-based linearity, hysteresis, and repeatability) ± 0.075%

If TD>10 (TD=URL/SPAN): ±(0.0075×TD)%

The square root accuracy is 1.5 times of reference accuracy of calibrated span.

Ambient Temperature Effects

| | |
|-----------|--|
| Span Code | -20°C~65°C Every 10°C is ±0.08% x Span (TD=1) |
| A | ±(0.25×TD+0.15)%×Span |
| B | ±(0.20×TD+0.10)%×Span |
| C/D/E | ±(0.15×TD+0.05)%×Span |
| Span Code | -40°C~-20°C & 65°C~85°C |
| A | ±(0.50×TD+0.30)%×Span |
| B | ±(0.40×TD+0.20)%×Span |
| C/D/E | ±(0.30×TD+0.10)%×Span |

Static Pressure Effects

| | |
|-----------|------------------------------|
| Span Code | Static Pressure Effects |
| A | ±(0.15%URL+0.10%Span)/4MPa |
| B | ±(0.10%URL+0.075%Span)/16MPa |
| C/D/E | ±(0.05%URL+0.05%Span)/16MPa |

Overpressure Effects

| | |
|-----------|----------------------|
| Span Code | Overpressure Effects |
| A | ±0.2%×Span / 4MPa |
| B | ±0.2%×Span / 16MPa |
| C/D/E | ±0.1%×Span / 16MPa |

Stability

| | |
|-----------|---------------------|
| Span Code | Stability |
| A | ±0.25%×Span / 2year |
| B | ±0.20%×Span / 2year |
| C/D/E | ±0.15%×Span / 2year |

Power Supply Effects

±0.001% /10V (12~42V DC)

2 FUNCTIONAL SPECIFICATIONS

Span and Range Limits

| Span/ Range Limits | | kPa | mbar |
|-----------------------|--------------|-----------|------------|
| A | Span | 0.1~1 | 1~10 |
| | Range Limits | -1~1 | -10~10 |
| B | Span | 0.2~6 | 2~60 |
| | Range Limits | -6~6 | -60~60 |
| C | Span | 0.4~40 | 4~400 |
| | Range Limits | -40~40 | -400~400 |
| D | Span | 2.5~250 | 25~2500 |
| | Range Limits | -250~250 | -2500~2500 |
| E | Span | 20~2000 | 0.2~20 bar |
| | Range Limits | -500~2000 | -5~20bar |

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 degree will cause zero shift up to 0.4 kPa which can be corrected by the zero adjustment.

Output

Two wire 4 to 20 mA DC output with digital communications, linear or square root programmable. HART FSK protocol is option superimposed on the 4 to 20 mA signal. Output range: 3.9 mA to 20.5 mA.

Failure Alarm (the mode can be selected)

Low Mode (min): 3.7 mA

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 to 60 sec by software and added to response time.

Up Time < 15s**Ambient Temperature Limits**

-40 to 85°C

-20 to 65°C with LCD display or fluorine rubber sealing

Storage and Transportation Temperature Limits

-50 to 85°C; -40 to 85°C with LCD display

Working Pressure Limits (Silicone oil)

Maximum working pressure: 16MPa,25MPa,40MPa

Static Pressure Limits

3.5kPa abs. to maximum working pressure.

One-way Overload Pressure Limit

The maximum one-way overload pressure is maximum working pressure.

EMC (EMI, EMS) Conformity Standards

EN 61326-1:2013, EN 61326-2-3:2013

KN 61000-6-1, KN 61000-6-3

3 INSTALL**Supply & Load Requirements**

24 V DC supply, $R \leq (U_s - 12V) / I_{max}$ kΩ, $I_{max} = 23$ mA. Maximum voltage limited: 42VDC, Minimum voltage limited: 12VDC, 15VDC (with LCD display) 230Ω to 600Ω for digital communication

Electrical Connection

The electrical connection is made via cable entry 1/2-14NPT. The screw terminals are suitable for wire cross-sections up to 2.5mm².

Process Connection

Flange with fixing thread 7/16-20 UNF and 1/4-18 NPT female thread on both sides.

4 PHYSICAL SPECIFICATIONS

Sensor Body: 316L stainless steel

Isolating Diaphragm: 316L stainless steel
Hastelloy C / Tantalum

Nuts and Bolts: 304 stainless steel

Process Connector: 316 stainless steel

Fill fluid: Silicone oil / Fluorinated oil

Process Connector Gasket: Teflon (PTFE)

Amplifier Housing: Aluminum with epoxy resin coat

Housing Gasket: Perbunan (NBR) / Silicone

Name plate and tag: 304 stainless steel

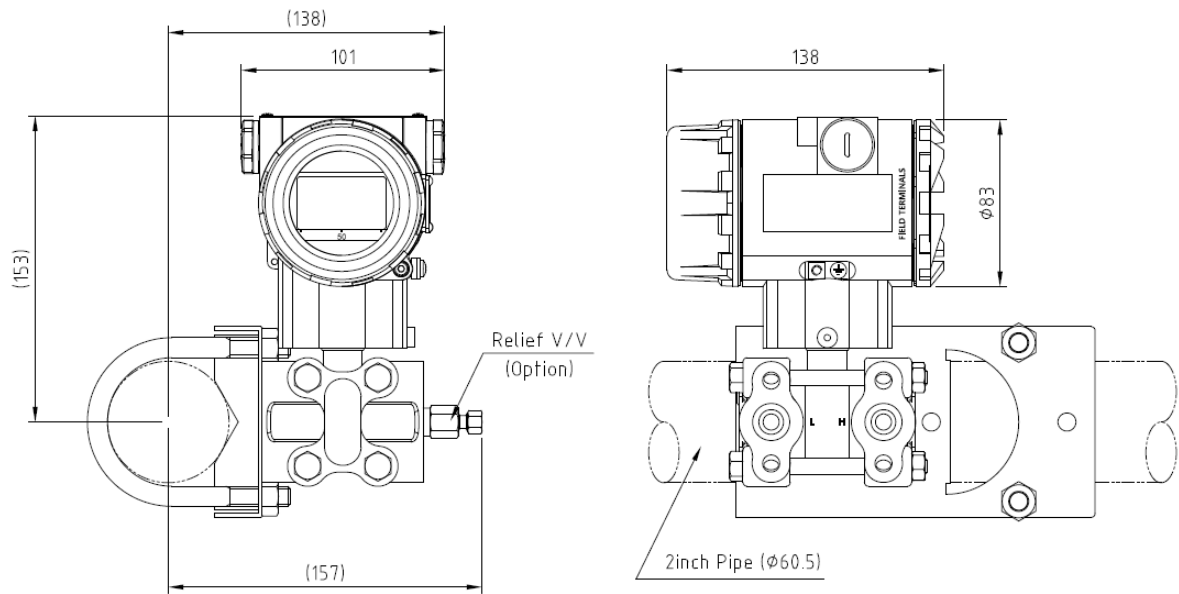
Weight: 3.3kg

Enclosure: Ex d IIC T6 / IP67

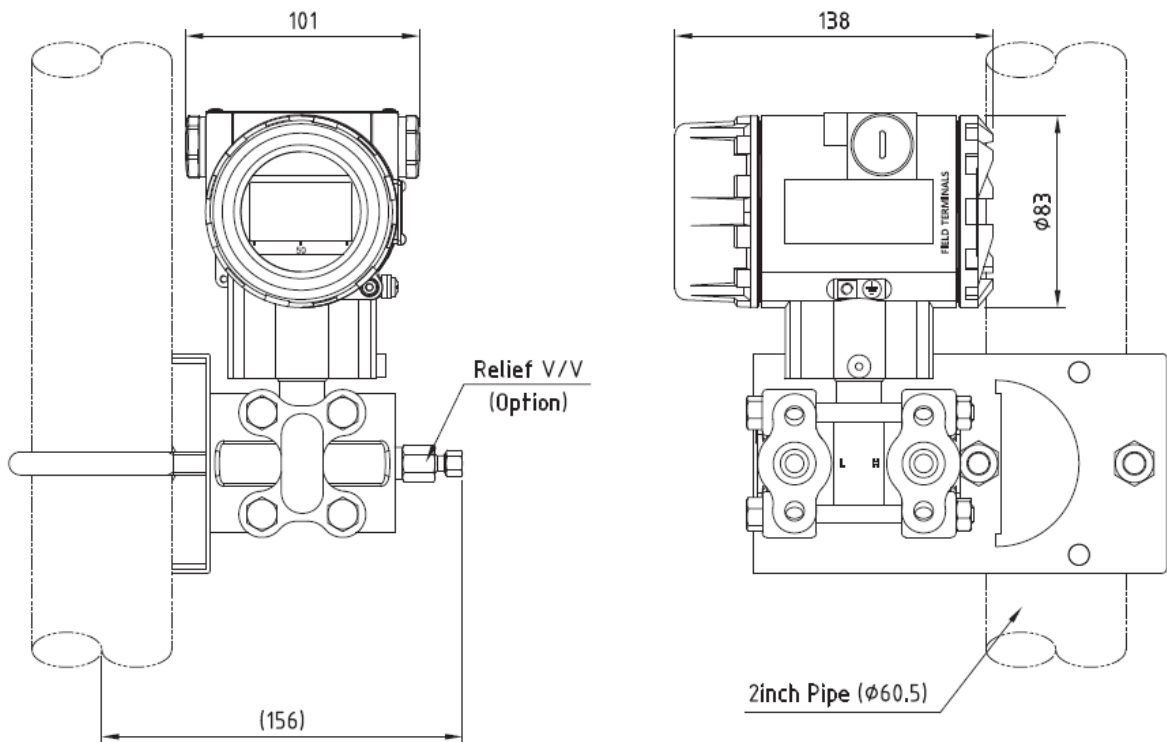
DIMENSIONS

Unit : mm

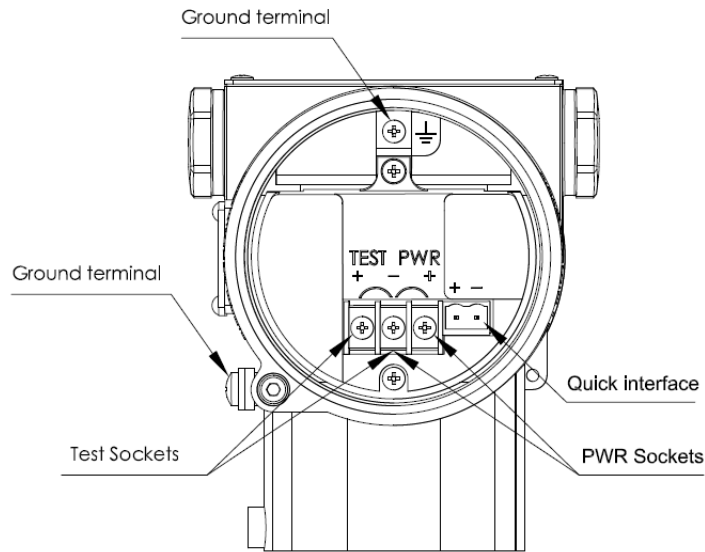
Horizontal Impulse Piping Type



Vertical Impulse Piping Type

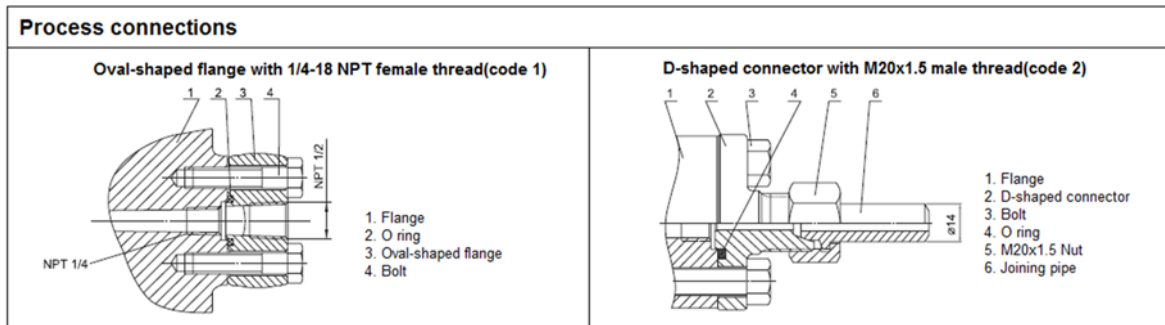


5 Terminal Configuration



Note: Quick interface functionally equivalent to the signal terminal

6 Process connections Description



7 Model and suffix codes

| Differential Pressure Transmitter KIT220-D | | | | | | | | | |
|--|-----------------------------|--|-----------------|--|--|--|--|--|--|
| 10 | Output | | | | | | | | |
| | H | 4-20mA with HART | | | | | | | |
| 20 | Span | | | | | | | | |
| | A | 0-100Pa~1kPa (0-10~100 mmH ₂ O) /(0-1~10mbar) | | | | | | | |
| | B | 0-200Pa~6kPa (0-20~600 mmH ₂ O) /(0-2~60mbar) | | | | | | | |
| | C | 0-400Pa~40kPa (0-40~4000 mmH ₂ O) /(0-4~400mbar) | | | | | | | |
| | D | 0-2.5kPa~250kPa (0-0.25~25 mH ₂ O) /(0-25~2500mbar) | | | | | | | |
| | E | 0-20kPa~2MPa (0-2~200 mH ₂ O) /(0-0.2~20bar) | | | | | | | |
| 30 | Diaphragm fill fluid | | | | | | | | |
| | A | 316L stainless steel | Silicone oil | | | | | | |
| | B | 316L stainless steel | Fluorinated oil | | | | | | |
| | C | Hastelloy C | Silicone oil | | | | | | |
| | D | Hastelloy C | Fluorinated oil | | | | | | |
| | E | Tantalum | Silicone oil | | | | | | |
| | F | Tantalum | Fluorinated oil | | | | | | |
| 40 | Working pressure | | | | | | | | |
| | 1 | 16MPa | | | | | | | |
| | 2 | 25MPa | | | | | | | |
| | 3 | 40MPa | | | | | | | |
| 50 | Process connections | | | | | | | | |
| | N | 7/16-20 UNF and 1/4-18 NPT female thread, No relief valve | | | | | | | |
| | B | 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at end of flanges | | | | | | | |
| 60 | Process connector gasket | | | | | | | | |
| | P | Teflon (PTFE) | | | | | | | |
| 70 | Special function | | | | | | | | |
| | N | None (line to line : 500V / line to ground : 1kV) | | | | | | | |
| | P | Anti-lightning function (line to line : 1kV / line to ground : 2kV) | | | | | | | |
| | O | Degrease cleansing treatment (Oxygen measurement must be with fluorinated oil filled capsule, Viton (FKM) gasket, <6MPa ,<60℃) | | | | | | | |
| 80 | Mounting bracket | | | | | | | | |
| | N | None | | | | | | | |
| | 1 | 304 stainless steel | | | | | | | |
| 90 | Process connector accessory | | | | | | | | |
| | N | None | | | | | | | |
| | 1 | Stainless steel oval-shaped flange with 1/2 NPT female thread | | | | | | | |
| | 2 | Stainless steel D-shaped connector with M20x1.5 male thread | | | | | | | |
| 100 | Integral indicator | | | | | | | | |
| | N | None | | | | | | | |
| | 1 | LCD display | | | | | | | |
| | 2 | Backlight LCD display (Std.) | | | | | | | |

| | | | | | | | | | | | | | |
|-----|-------------------------------|--|--|--|--|--|--|--|--|--|--|---|----------------------|
| 110 | Electrical connection | | | | | | | | | | | | |
| | | | | | | | | | | | | 1 | 1/2-14NPT |
| | | | | | | | | | | | | 2 | Other (with adapter) |
| 120 | Hazardous area certifications | | | | | | | | | | | | |
| | | | | | | | | | | | | W | Weatherproof (IP67) |
| | | | | | | | | | | | | K | KOSHA Flameproof |

Order example:

For example: KIT220-DHCA1BPN1121W

[H]: 4-20mA with HART

[C]: Span:0-400Pa~40kPa (0-40~4000 mmH2O)

[A]: 316L stainless steel diaphragm, Silicone oil fill fluid

[1]: Working pressure:16MPa

[B]: 7/16-20 UNF and 1/4-18 NPT female thread, Relief valves at end of flanges

[P]: Teflon (PTFE) process connector gasket

[N]: None

[1]: With 304 stainless steel mounting bracket

[1]: With stainless steel oval-shaped flange with 1/2 NPT female thread

[2]: With Backlight LCD display

[1]: 1/2-14NPT

[W]: Weatherproof (IP67)