3

Golden Rules Co.,Ltd

High Performance type IP65

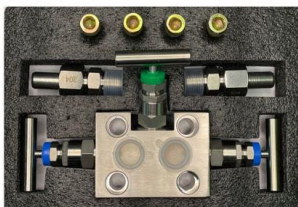### KC-8000P Series
Smart Pressure Transmitter

The nation's development item, 100% domestic goods,Patent **NO.** 10-1606497

13. SMART PRESSURE TRANSMITTER

13-2. Pressure Transmitter KC-8000P Series

General type_KC-8000P Series

3-Way Manifold Valve

Feature

- High reference accuracy: ±0.075% of calibrated span ±0.2% of F.S
- Long-term stability: ± 0.2% URL per 24 months
- Repeatability: ± 0.1% span high scalability (100 : 1)
- Display: LCD
- Measurement: gage/absolute pressure
- Communication: HART, RS-485
- Certification: IP65
- Power: (16 ~ 26)V DC, 30mA, 0.8W
- Output signal: 4 ~ 20 mA, 2-wire, 1-5V, 0-5V, 0-10V (3-Wire)
  Material: Housing - Aluminum, ALDV 12.1
- Wet Process – AISI 316L
- Pressure range: -100kpa... ~ 0 ~0.6kpa... 7Mpa
- Gauge Filling Fluid: Silicone Oil
- Size/Weight: W100 x H190 x D111 / Approx. 2.5kg
- PCB current consumption: less than 3mA
- Cell position measurement: ±1º one side horizontally
- Overload: 16~40 Mpa
- operating temperature range
- Ambient temperature: -40 ~ 85℃
- LCD Meter Ambient Temperature : -40 ~ 80℃
- Operating temperature range: -10 ~ 80℃
  - Thermal effect on zero: ±0.05%FS/℃
  - Thermal effect on span : ±0.05%FS/℃
  - Compensation temperature range: -10~70℃
- Humidity limit: 5-100% RH

Description

KC-8000P Seires pressure transmitter is designed and manufactured to measure hydraulic pressure, pneumatic pressure, gas, water, oil, etc. Robust silicon sensor design and stable Zero & Span signal can be applied to various industrial facilities.

Excellent corrosion resistance and friction resistance Shock and vibration protection High accuracy and temperature drift compensation
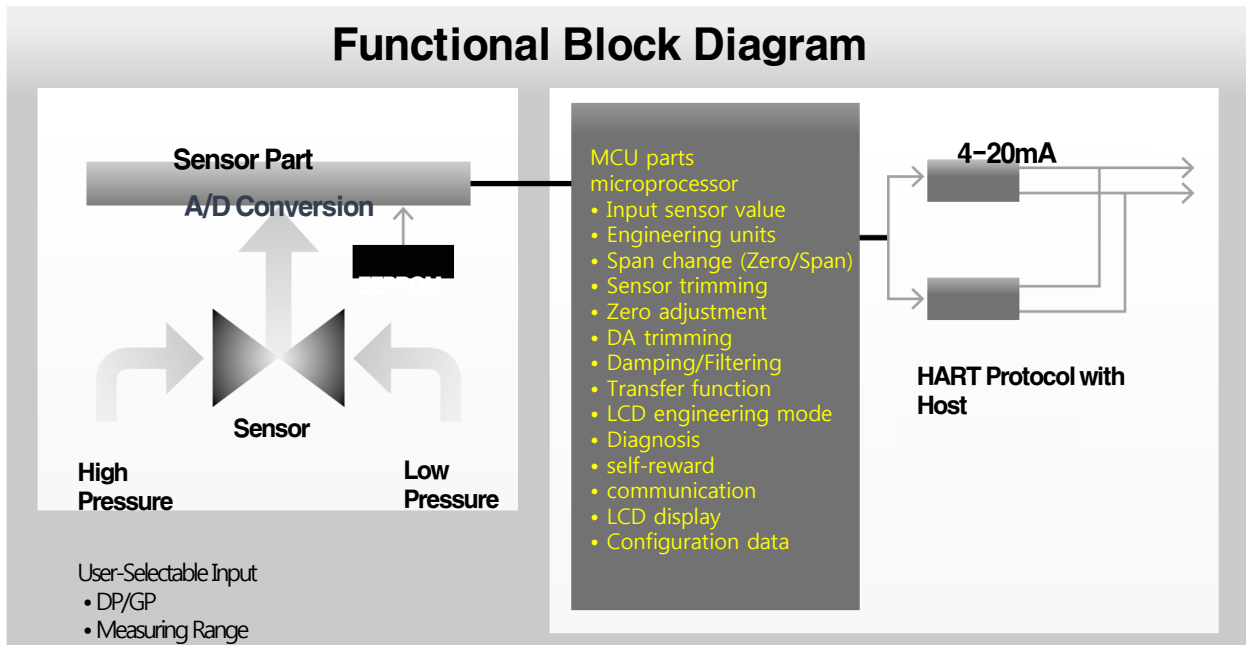
Products Description

KC-8000P Smart Pressure Transmitter is a icroprocessor-based high-performance transmitter with flexible pressure calibration and output, automatic compensation of ambient temperature and process variables, various parameter configuration, and communication with HART protocol. Depending on the application method, the range of application is very wide, such as measuring the flow and pressure and level of liquids, gases or vapors. All data from the sensor is entered, modified and stored in EEPROM.

Products Function

» Flexible sensor inputs: DP, HS, GP, AP
» Various outputs: 4~20mA, digital signal
» Various parameter settings: zero/span, trim, unit, fail mode, etc.
» Self-diagnosis function: sensor, memory A/D converter, power supply, etc.
» Digital communication using HART protocol

Functional Block Diagram

Sensor Part

A/D Conversion

Sensor

High Pressure

Low Pressure

User-Selectable Input
• DP/GP
• Measuring Range

MCU parts microprocessor
• Input sensor value
• Engineering units
• Span change (Zero/Span)
• Sensor trimming
• Zero adjustment
• DA trimming
• Damping/Filtering
• Transfer function
• LCD engineering mode
• Diagnosis
• self-reward
• communication
• LCD display
• Configuration data

4~20mA

HART Protocol with Host

Δ Subject to change without notice

Transmitter Introduction

KC-8000P Pressure Transmitter
Easy to configure on any host that supports HART protocol. " Basic setting
• Operating parameters.
• 4~20mA point (Zero/Span)
• Engineering units
• Damping time: 0.25 to 60 seconds
• Tag: 8 alphanumeric characters
• Descriptor: 16 characters
• Message: 32 characters.
• Date: Day/Month/Year » Proofreading and Trimming
• Lower/Upper Range (Zero/Span)
• Sensor zero trim
• Zero adjustment
• DAC output trimming
• transfer function
• self-reward

» Self-diagnosis, etc.
• CPU and analog module error detection
• Communication error
• Handling failure mode
• LCD display
• Temperature measurement of sensor module

The information contained herein is subject to change without notice.

Table 1

DP Measuring Range(kPa)	System Pressure(bar)	Over Pressure(bar)	Filling	Note
1	160	160	Silicone oil	
6	160	160	Silicone oil	400 bar option
40	160	160	Silicone oil	400 bar option
250	160	160	Silicone oil	400 bar option
1000	160	160	Silicone oil	400 bar option
3000	160	160	Silicone oil	400 bar option
10000	160	160	Silicone oil	400 bar option

AP Measuring Range(bar)	System Pressure(bar)	Over Pressure(bar)	Filling
0~30	160	160	Silicone oil
0~100	200	200	Silicone oil
0~200	400	400	Silicone oil

Products Performance

» Range and sensor limits
• See Table 1.

» Zero and span adjustment limits
• The range limits for Zero and Span values are given in Table 1.
  The span must be greater than or equal to the minimum. Ranges specified in Table 1.

» Output (analog current and digital data)
• LCD display and ENG mode
• 2-wire 4-20 mA, for digital signal linear or square root output User configurable for 4-20 mA signal superimposed digital Process value, any host conforming to HART protocol available in

» Power supply and load requirements
• Requires external power supply. * 250 Ohm load – 17.5Vdc 550 ohm load max - 24Vdc max loop resistance = (E - 12) / 0.022 (E = power supply voltage)
• Voltage range: 12 to 45 Vdc
• Rated voltage: 24 Vdc ±30%
• Loop Load 0 to 1500 ohms -- Operating 250 to 550 ohms -- HART Communications

The information contained herein is subject to change without notice.

Products Performance

» **Storage temperature**
• -40°C to 85°C (non-condensing)

» **Process temperature limits (range codes and approval codes may affect limits)**
• -40°C ~ 120°C (-104 ~ 248°F)

» **Flexible sensor input**
• DP, GP, AP, vacuum

» **Various parameter settings**
• Zero/Span, Trim, Unit, Fail-mode, etc.

» **Self-diagnosis function**
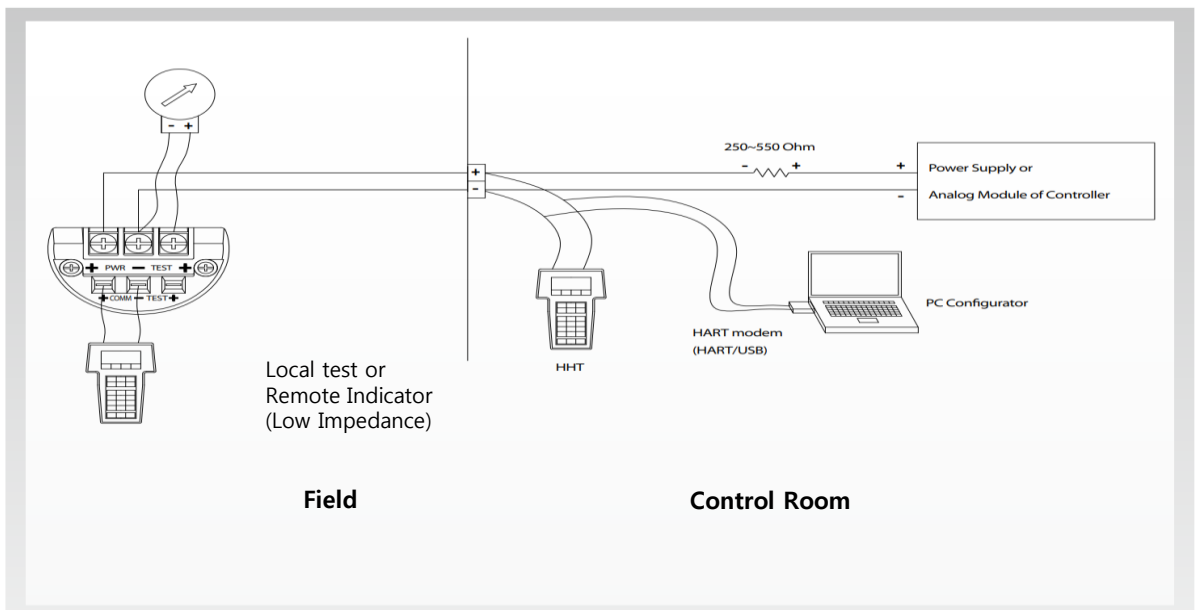• Sensor, memory A/D converter, power supply, etc.

» **Reliability**
• Continuous self-diagnosis function
• Automatic ambient temperature compensation
• Fail-mode process function
• EEPROM write protection
• Equipment qualification
• Environmental qualifications
• Seismic verification and EMI/RFI testing

» **Electrical Connections**
• ½ PF conduit with M4 screw terminals » Process connection

• 1/4-18 NPT in 2.126 in. (54.0 mm) center standard flange

• 1/2-14 NPT on process adapter (optional) See last page drawing

• weight 3.51 kg
(Standard - excluding options)
5 kg (SST housing - without option)

Signal, power, HHT connection diagram for transmitter Ⅰ

250~550 Ohm

Power Supply or
Analog Module of Controller

PC Configurator

HART modem
(HART/USB)

HHT

Local test or
Remote Indicator
(Low Impedance)

Field

Control Room

1. A HART Communicator (HHT) or PC Configurator can be connected to any endpoint of the signal loop.
2. HART communication requires a loop resistance between 250 and 550 ohms at 24 Vdc.
3. Power supply • Voltage range: 12 to 45 Vdc
    • Rated voltage: 24 Vdc ±30%
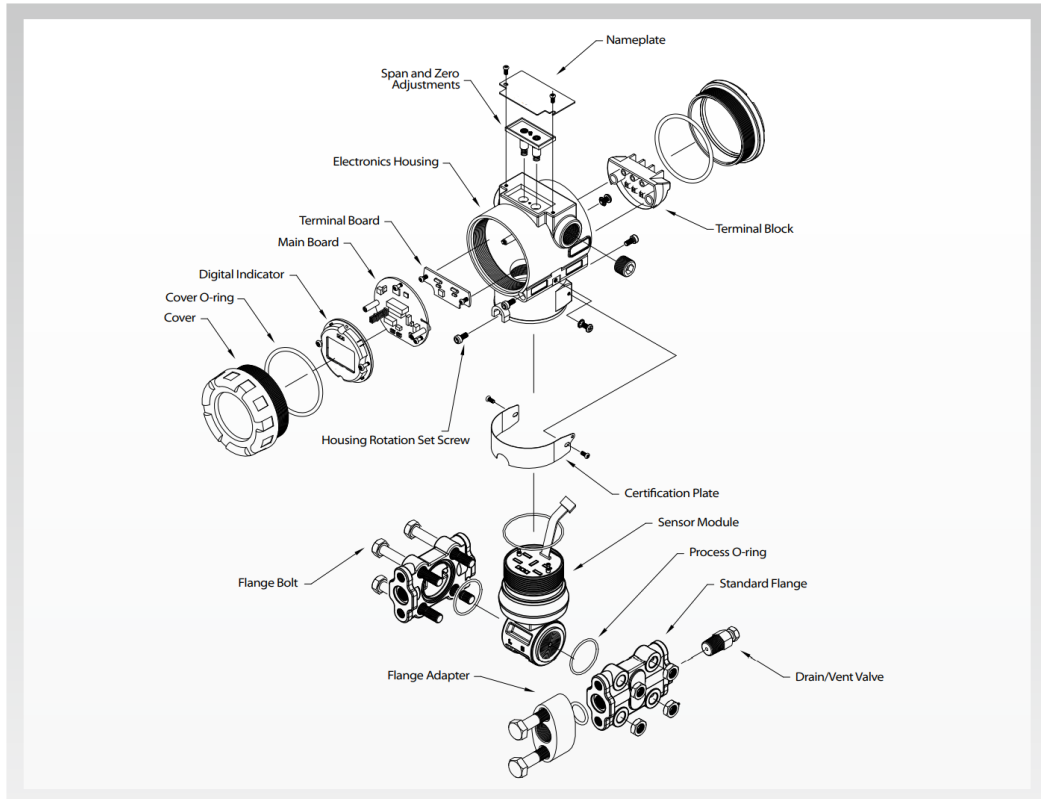
Physical Specifications Ⅰ

» Wetted materials
• Insulation Diaphragm 316L SST, Monel, Tantalum, HAST-C
• Drain/vent valve 316 SST, HAST-C
• Flanges and adapters 316 SST (ASTMCF8M), HAST-C
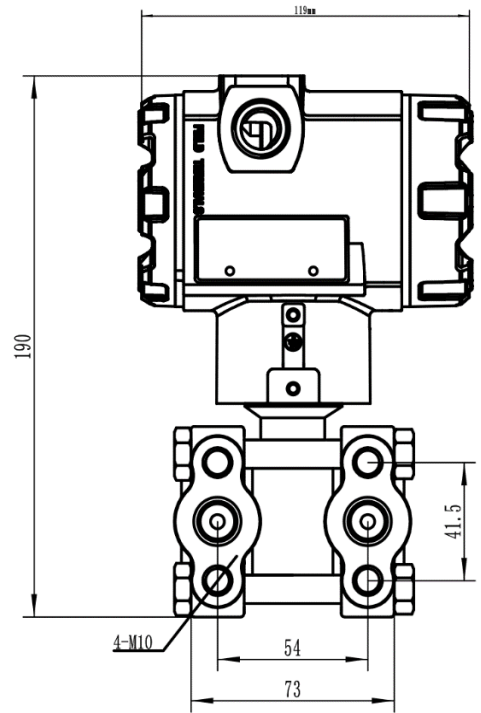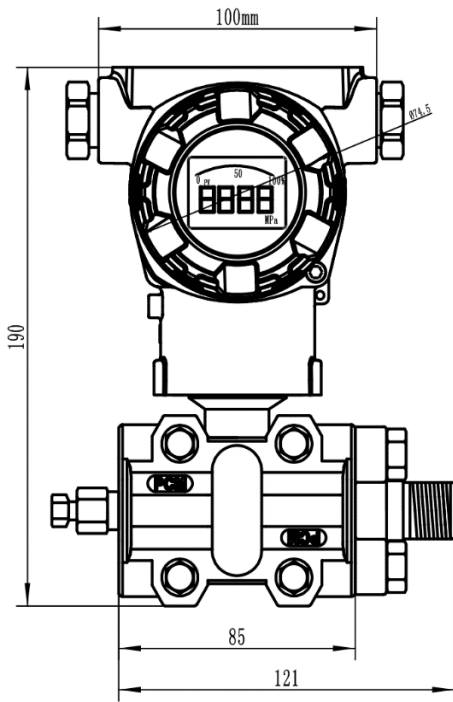• O-ring Viton, PTFE

» Non-contact materials
• Fill fluid silicone oil or inert fill
• Bolt 304 SST
• Electronic housing aluminum or 316L SST (optional) flame retardant and Waterproof(IP67)
• Cover O-ring Buna-N
• Epoxy-polyester or polyurethane paint
• Mounting bracket with U-bolts 304SST (304SST) 2 inches for pipe
• Nameplate 304 SST

Exploded View KC−8000P Series Ⅱ

The information contained herein is subject to change without notice.

Dimensional Drawing KC-8000P Series Ⅲ

The information contained herein is subject to change without notice.

GOLDEN RULES 06

Order Code   KC-8000P Series (Smart Pressure Transmitter)

KC-8000P–
Type	C-conn'	P-conn'	Span	Power	Output	Display	Accessory	Require	Option
☐	☐	☐	☐	P☐	☐☐	V☐	☐☐	☐	☐
1	2	3	4	5	6	7	8	9	10

Pressure type	Code 1
Absolute	A
Gauge	G
Diferential Pressure	D
Agency approved, customer spec'	W

Conduit conn'	Code 2
G(PF)1/2" Female	G
Agency approved, customer spec'	W

Process conn'	Code 3
None	0
Compression Fitting (NPT 1/4")	R
Others (Adapter) 1/2"	O
Agency approved, customer spec'	W

Span range	Code 4
-1 Bar ~ 1 Bar	1
5 Bar	2
10 Bar	3
20 Bar	4
30 Bar	5
50 Bar	6
70 Bar	7
Agency approved, customer spec'	W

Input power	Code 5
DC 24 V ±10 %, 30 mA	2
Agency approved, customer spec'	W

Output signal	Code 6
DC (4 ~ 20) mA, 2-wire	4
RS-485 Modbus	RS
Agency approved, customer spec'	W

Digital Display (LCD)	Code 7
Digital Display (LCD)	DD
Agency approved, customer spec'	W

Accessory	Code 8
Not Apply	J0
Vent Plug	J1
Non-Indicating	J2
Diaphragm Seal	DS
Sanitary Seal	SS
2 x SPDT Relay Output	NS
Agency approved, customer spec'	W

Requirements	Code 9
Test Report (by Manufacturer)	T1
Calibration (by KOLAS)	T2
Material Certificate (Mill Sheet)	M1
Vent Plue	VP
Oxygen Cleaning (Oil Free)	OX
Agency approved, customer spec'	W

Option	Code 10
Agency approved, customer spec'	W

Distributer

Certified in accordance with

KC Q ISO 9001 : 2015
KC Q ISO 14001 : 2015

(주)골든룰