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Golden Rules Co.,Ltd

High Performance Smart
Smart Pressure Trnasmmitter

KC-8000 Series Pressure Transmitter



The nation's development item, 100% domestic goods, Patent **NO.** 10-1660226

1. SMART PRESSURE TRANSMITTER

8-1. Pressure Transmitter KC-8000 Series



General type KC-8000 Series
Ex-proof type KC-8000-DCP400

Features

- High Reference Accuracy : $\pm 0.075\%$ of Calibrated Span
 $\pm 0.2\%$ of F.S
- Long-Term Stability : $\pm 0.2\%$ URL per 24 months
- Repeatability : $\pm 0.1\%$ span
- High Rangeability (100 : 1)
- Display : LCD
- Measuring : Gauge/Absolute Pressure, Diff. Pressure, Level
- Communication : HART, Field Bus
- Certification : Ex d IIC T6 pending, IP67
- Power Supply : (12 ~ 30) V DC
- Output Signal : (4 ~ 20) mA, 2-wire
- Response time : 0.1 Second
- Material :
 - Housing – Aluminium, ALDV 12.1
 - Process Wetted – AISI 316L
- Nominal Range (kPa) :
1, 6, 40, 250, 1000, 3000, 10000
- Filling Fluid : Silicon Oil
- Size / Weight :
W84 x H196 x D132 / 약 2.5 kg
PCB consumption current: less than 3 mA
- Pressure Port : NPT 1/4", Bleed Valve includ
- Measuring Cell Position : Horizontally $\pm 1^\circ$
- One Side Overload : 16 ~ 40 Mpa
- Operating Temperature Range
 - Ambient Temperature : $-40 \sim 85^\circ\text{C}$
 - LCD Meter Ambient Temperature : $-30 \sim 80^\circ\text{C}$
 - Process Temperature Limit : $-40 \sim 120^\circ\text{C}$
 - Humidity Limit : 5~100% RH
- Sensor type :
Single Crystal Silicon Sensor, Metal Sensor, Piezo-Resistive
- **Kopec No : 9-183-J230C, Q-class**

Advantage

Conventionally, in the case where the pressure transmitter should be vertically installed irrespective of the orientation of the fluid inflow lines, modified flanges are required in addition to the basic flanges. As a result, the modified flanges must be additionally provided. Multi-planar pressure transmitter has been made in an effort to solve the problems occurring in the related art, and an object of this multi planar is to provide a pressure transmitter, capable of being vertically installed without separate adaptor or various types of brackets regardless of the position of each fluid inflow line.

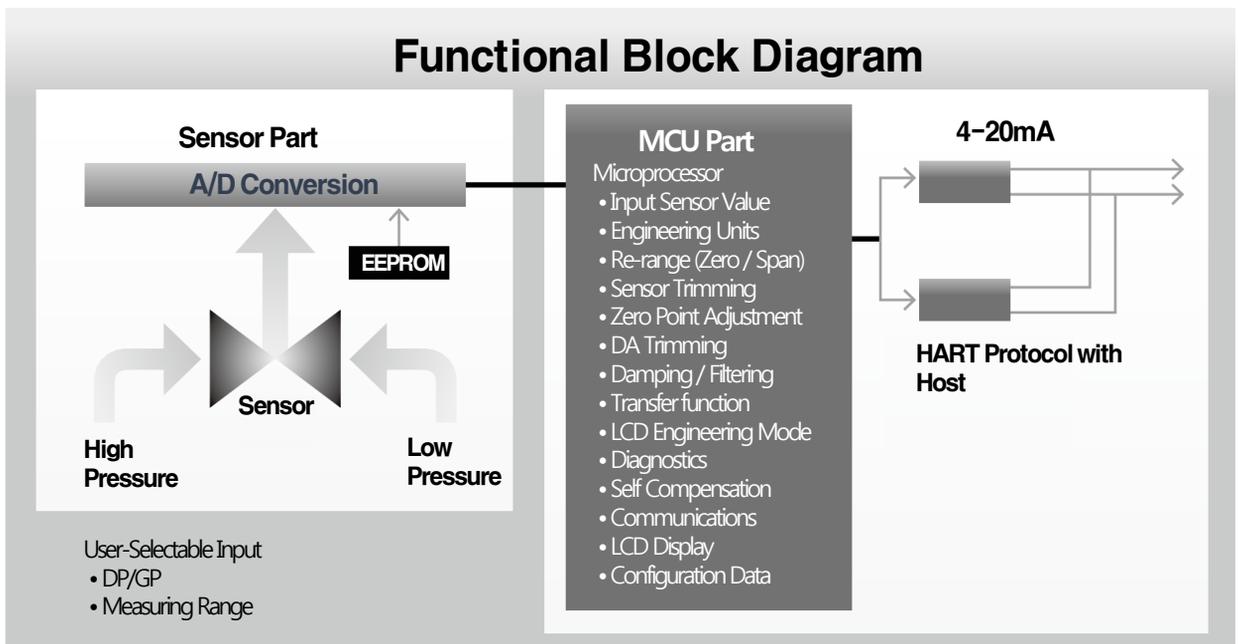
Description of Product

The KC-8000 Smart Pressure Transmitter is a micro processor- based high performance transmitter, which has flexible pressure calibration and output, automatic compensation of ambient temperature and process variable, configuration of various parameters, communication with HART protocol. The application is very various, as measuring liquid, gas or steam flow as well as pressure and liquid level by application method. All data of sensor is to be input, modified and stored in EEPROM.

Function

- » Flexible Sensor Input : DP, HS, GP, AP
- » Various Output : 4 ~20mA , Digital Signals
- » Setting Various Parameters : Zero/Span, Trim, Unit, Fail-mode, etc.
- » Self Diagnostic Function : Sensor, Memory A/D Converter, Power, etc
- » Digital Communication with HART protocol
- » Explosion-proof Approval & Intrinsic Safety Approval : ATEX, KGS
- » Marine Certificate: ABS, LR, BR, DNV

Functional Block Diagram



Δ Subject to change without notice

Transmitter Description

KC-8000 Pressure transmitter can be easily configured From any host that support the HART protocol.

» Basic Setup

- Operational Parameters.
- 4~20mA Points (Zero/Span)
- Engineering Units
- Damping Time : 0.25 ~ 60 sec
- Tag : 8 alphanumeric characters
- Descriptor : 16 characters
- Message : 32 characters.
- Date : day/month/year

» Calibration and Trimming

- Lower/Upper Range (zero/span)
- Sensor Zero Trimming
- Zero Point Adjustment
- DAC Output Trimming
- Transfer Function
- Self-Compensation

» Self-Diagnosis and Others

- CPU & Analog Module Fault Detection
- Communication Error
- Fail-mode Handling
- LCD Indication
- Temperature Measurement of Sensor Module

The information contained herein is subject to change without notice.

Function

» **Range and Sensor Limits**

- Refer to Table 1.

» **Zero and Span Adjustment Limits**

- Zero and span values can be set anywhere within the range limits stated in Table 1.
Span must be greater than or equal to the minimum span stated in Table 1.

» **Output (Analog Current and Digital Data)**

- LCD Display & ENG Mode
- Two wire 4~20mA, digital signals user-configurable for linear or square root output, digital process value superimposed on 4~20mA signal, available to any host that conforms to the HART protocol

» **Power Supply & Load Requirement**

- External power supply required.
- * 250 ohm load-- 17.5 Vdc
- * up to a 550 ohm load -- 24 Vdc
Max. Loop Resistance = $(E - 12) / 0.022$
(E = Power Supply Voltage)
- Voltage Range : 12 to 45 Vdc
- Voltage Rating : 24 Vdc ±30%
- Loop Load
0 ~ 1500 ohm -- Operation
250 ~ 550 ohm -- HART Communications

» **Storage Temperature**

- -40°C to 85°C (without condensing)

» **Process Temperature Limits**

- (Range codes and approval codes may effect limits)
- -40°C to 120°C (-104 to 248°F)

» **Flexible Sensor Input**

- DP, GP, AP, Vacuum

» **Setting Various Parameters**

- Zero/Span, Trim, Unit, Fail-mode, etc.

» **Self Diagnostic Function**

- Sensor, Memory A/D Converter, Power, etc

» **Reliability**

- Continuous Self-Diagnostic Function
- Automatic Ambient Temperature Compensation
- Fail-mode Process Function
- EEPROM Write Protection
- Equipment Qualifications
- Environmental Qualification
- Seismic Qualification and EMI / RFI Test

DP measuring range(kPa)	System pressure(bar)	Overload(bar)	Filling fluid	Remark
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)	Overload(bar)	Filling fluid
0~30	160	160	Silicone oil
0~100	200	200	Silicone oil
0~200	400	400	Silicone oil

The information contained herein is subject to change without notice.

Physical Specifications

» Wetted Materials

- Isolating Diaphragms 316L SST, Monel, Tantalum, HAST-C
- Drain/Vent Valves 316 SST, HAST-C
- Flanges and Adapters 316 SST(ASTMCF8M), HAST-C
- O-ring Viton, PTFE

» Non-wetted materials

- Fill Fluid Silicone oil or Inert fill
- Bolts 304 SST
- Electronics Housing Aluminum or 316L SST (Option) Flameproof and Waterproof (IP67)
- Cover O-ring Buna-N
- Paint Epoxy-Polyester or Polyuret
- Mounting Bracket 304SST with U-bolt (304SST) for 2-inch pipe
- Nameplate 304 SST

» Electrical connections

- ½ PF conduit with M4 Screw Terminals

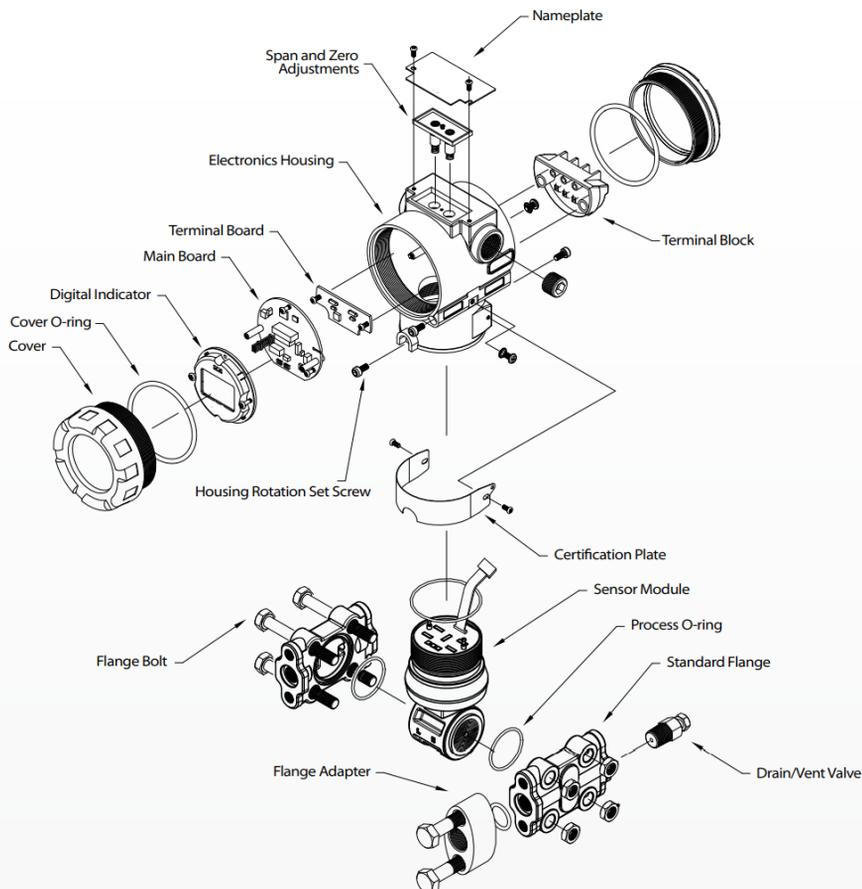
» Process Connections

- 1/4-18 NPT on 2.126 inch (54.0 mm) centers on flanges for Standard
- 1/2-14 NPT on Process Adapter (option)
- * Refer to drawing in the last page

» Weight

- 3.51 kg (Standard - excluding options)
- 5kg (SST Housing- excluding options)

Exploded Drawing of KC-8000



The information contained herein is subject to change without notice.

Hazardous Location Certifications(option)

» **KGS Approvals K1 Code :**

Flameproof for Class I, Zone 1 : Ex d IIC T6, IP67
 Operating Temperature : -30 to 85°C
 Max. Process Temperature : 120°C
 Power Supply : Max. 45 Vdc
 Output : 4 to 20 mA + HART, Max. 22 mA

» **ATEX Approvals E1 Code :**

CE 0344 II 2 G Ex d IIC T6, T5 or T4

Operating Temperature: -20°C ≤ Tamb ≤ +60°C
 T6 for process ≤ 85°C ; T5 for process ≤ 100°C
 T4 ≤ 130°C ATEX Certification is according to the below
standards : EN 60079-0 : 2012 EN 60079-1 : 2007

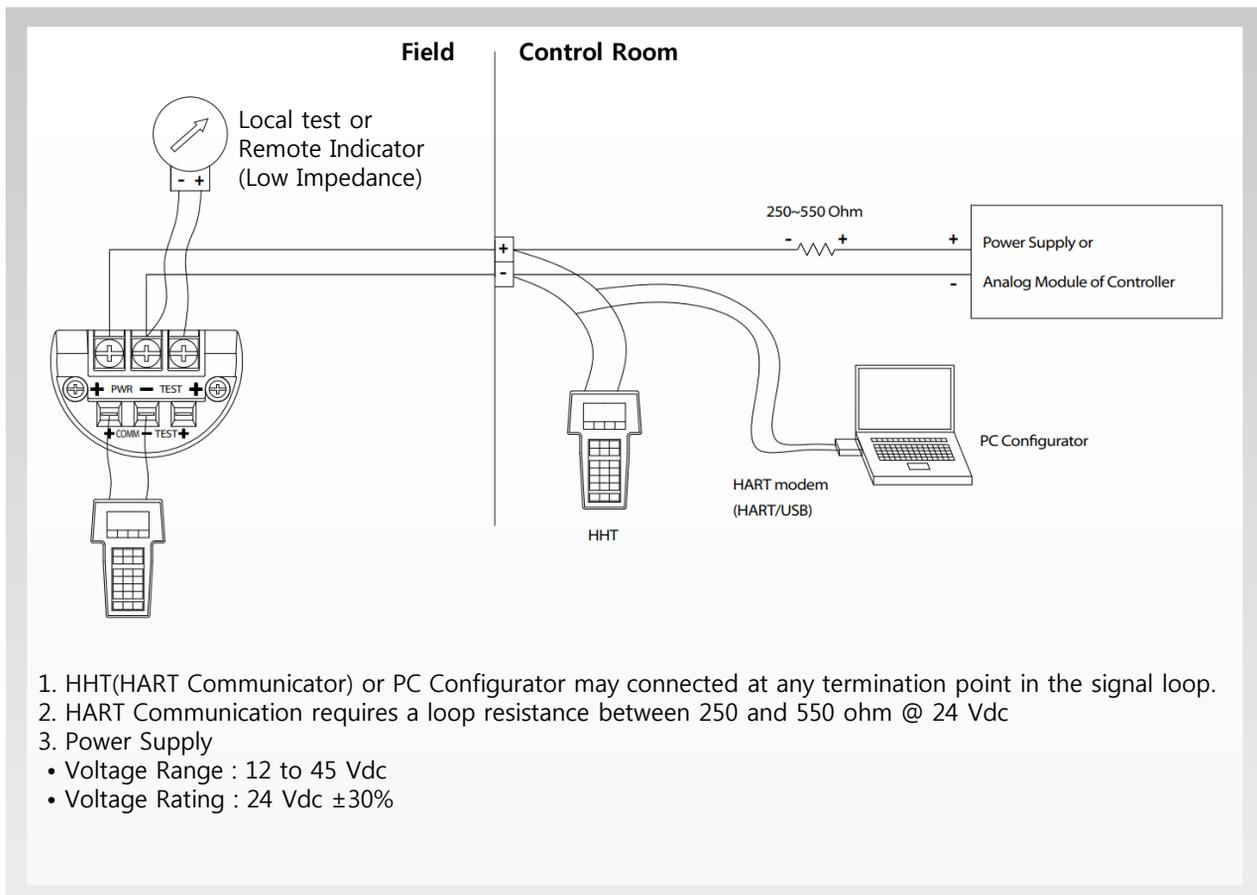
ATEX Certificate No.: KEMA 07ATEX 0103X

» **ATEX Certification E2 Code :**

* Intrinsic Safety: Ex ia IIC T5 or T4
 Operating Temperature : For T5: -30°C to +40°C
 For T4: -30°C to +80°C

Ui=30Vdc, Ii=200mA, Pi=0.9W, Ci=27nF, Li=104µH

Connection Diagram of Signal, Power, HHT for Transmitter



Order Code KC-8000 Series (Pressure Transmitter)

KC-8000 – – – – – – – – – –

Type Cable Entry Conn' Span Power Output Display Accessary Require Option
 1 2 3 4 5 6 7 8 9 10

Pressure Reference	Code 1
Absolute	A
Gauge	G
Diferential Pressure	D
Explosion Proof (Ex d IIC T6)	DCP400

Electrical Cable Entry	Code 2
G(PF)1/2" Female	G
Agency	W

Process Connection Option	Code 3
None	0
Compression Fitting (NPT 1/4")	R
Others (Adapter) 1/2"	O
Agency	W

Span Range	Code 4
1 kPa	1
6 kPa	2
40 kPa	3
250 kPa	4
1000 kPa	5
3000 kPa	6
10000 kPa	7
Agency	W

Input Power	Code 5
DC 24 V ±10 %, 100 mA	2

Output	Code 6
DC (4 ~ 20) mA, 2-wire	4

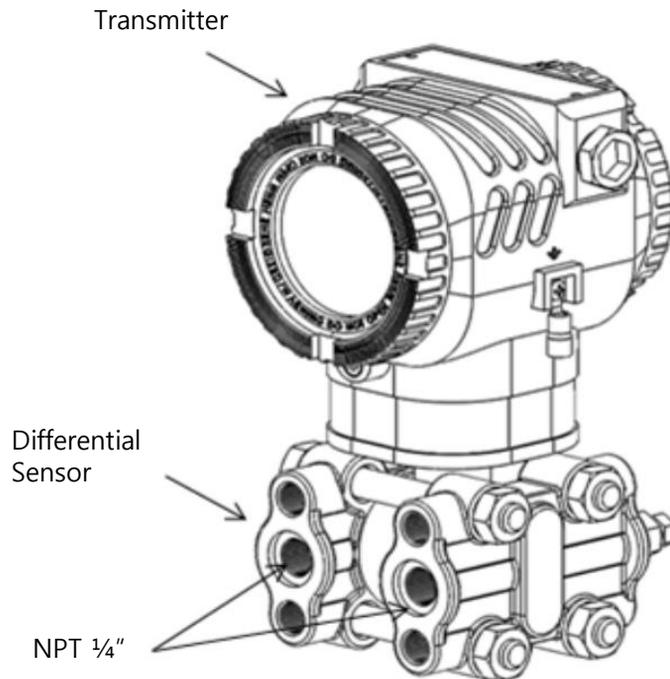
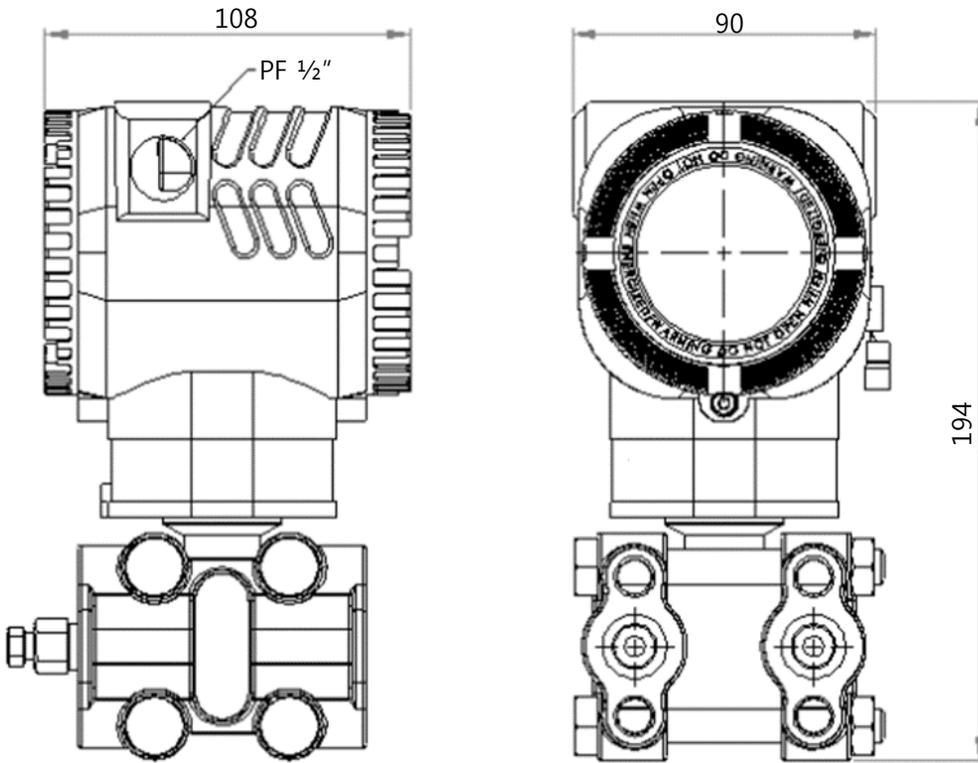
Display	Code 7
Digital Display (LCD)	DD

Application Accessary	Code 8
Not Apply	J0
Vent Plug	J1
Non-Indicating	J2
Diaphragm Seal	DS
Sanitary Seal	SS
2 x SPDT Relay Output	NS
Agency	W

Requirements	Code 9
Test Report (by Manufacturer)	T1
Calibration (by KOLAS)	T2
Material Certificate (Mill Sheet)	M1
HART Protocol	HP
Oxygen Cleaning (Oil Free)	OX
Agency	W

Option	Code 10
Agency approved, customer specified	W

Dimension KC-8000 Series



Application Data Sheet (Pressure)

Quotation

Purchase Order

For better support to the customer, please fill this form out when you request a quotation or place an order. It will help us to provide you the correct solution and minimize a risk which is our goal for the customer.

General Information

Client Name	_____	Date	_____
Name	_____	End-User	_____
Tel No.	_____	Project	_____
Fax No.	_____	Required delivery	_____
Model	_____		
Quantity	_____		

Performance Specifications

Pressure Range _____

Operating Range _____

Measuring Limit MPa bar kPa mmHg mmH₂O mbar

Pressure Reference kg/cm² Torr psi °C °F

Output Signal mA/V (4 ~ 20) mA (1 ~ 5) V (0 ~ 10) V

Power Supply 24 V DC 12 V DC

Physical Specifications

Process Connection PT 1/4" PT 3/8" PT 1/2" G 1/4" G 1/2"

PF 1/4" PF 3/8" PF 1/2" NPT 1/4" NPT 1/2"

Flush 1/2" Flush 3/4" Flush 1"

40A Flange 50A Flange 80A Flange 100A Flange

Sanitary Diaphragm _____ Other _____

Electrical Connection _____

Local Display Limit _____

Process Conditions

Process Media _____

Operating Temperature _____

Humidity _____

Vibration _____

Explosion Protection Required No required

Weather Protection Required No required



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**Mass Flowmeter
Flow Computer
Pressure Transmitter**

Specialized manufacturer

Distributor

Certified in accordance with

KC Q ISO 9001 : 2015

KC Q ISO 14001 : 2015

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