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Thermal Mass Flowmeter Bio Gas Insertion Type



Thermal Mass Flow Meter(KC-2600 Series)



**General insertion type
KC-2610BI
(IP67)**



**Ex-proof insertion
type
KC-2620Ex
(IP66)**

Features

- Rate & total, volume, mass flow indication
- Input Power DC 24 V or 100-240VAC
- Output accuracy $\pm 0.1\%$, $\pm 2.5\ \mu\text{A}$ (4~20 mA)
- Field validation of flowmeter calibration settings
- Smart program interface (RS-485 standard)
- Direct mass flow monitoring eliminates need for Temperature and pressure compensation
- Simple signal Processing & calibration
- Excellent reproducibility
- Excellent long-term stability
- Best price-performance ratio
- Easy adaptable for different application or into housings
- No mechanical moved components
- Greatly reduces upstream piping requirements (7-5D)
- Outstanding range ability (Turn down ratio 1000:1)
- 0.1-second response to changes in flow rate
- Ex(IP66), KC

	Ex-proof	General
Weight	5.56kg	3.5kg

Product Introduction

Golden Rules' KC-2600 Series Smart inline mass flowmeter accommodates the change measurement requirements and instrument-validation demands of fluid flow monitoring installations. The versatile microprocessor-based transmitter integrates the function of flow measurement, flow-range adjustment, meter validation and diagnostics, in either a probe-mounted or remote housing. Mass flow rate and totalized flow, as well as other configuration variables are displayed on the meter's optional 2X16 LCD panel. The programmable transmitter is easily configured via an RS-485 communication port and Golden Rules Smart interface software, or via the display and magnetic switches in the instrument panel.

The Golden Rules KC-2600BI Series allows you to configure or change the following parameters: flow range, totalize, time response, low flow cutoff and a calibration correction factor that compensates for flow profile flow variations. Golden Rules's Smart interface software guides you through a procedure to fully validate instrument performance. The meter is available with variety of input signal, mounting and packaging option.

Thermal Mass Flow Meter(KC-2600 Series)

Product performance

- ◆ Accuracy of Point Velocity
±0.5% of F.S
- ◆ Repeatability
±0.2 % of Full Scale
- ◆ Temperature Coefficient
±0.03 % Reading / ±(10 ~ 38) °C
±0.06 % Reading / ±(25 ~ 50) °C
- ◆ Pressure Drop
It can be ignored within ± 50 psig (3.4 barg)
- ◆ Response Time
1 second 63% of final velocity value
- ◆ Measuring Range
0.01 ~ 66.2 m/sec
- ◆ Function
Rate & Total

Flow Ranges(질량유량 범위)							
Pipe Size (배관경)		Air & N2 (Nm3/h)		O2 (Nm3/h)		NG (Nm3/h)	
A	B	min	max	min	max	min	max
65A	2 1/2-inch	1.2	1200	1	600	1	185
80A	3-inch	1.5	1800	1.5	900	1.5	280
100A	4-inch	2.8	2800	3	1420	3	470
125A	5-inch	4	4400	4	2210	4	700
150A	6-inch	6	6300	6	3200	6	940
200A	8-inch	12	11500	12	5650	12	1880
250A	10-inch	18	17500	18	8830	18	2820
300A	12-inch	25	25000	25	12720	25	4060
350A	14-inch	35	34500	35	17000	35	5600
400A	16-inch	45	45000	45	22600	45	7200
450A	18-inch	60	57000	60	29000	60	9200
500A	20-inch	70	70000	70	35300	70	16300
600A	24-inch	100	101000	100	50600	100	22100
700A	28-inch	140	138000	140	6900	140	29000
800A	30-inch	180	180000	180	90000	180	36500
900A	36-inch	230	230000	230	115000	230	45500
1000A	40-inch	290	280000	290	140000	290	

Notes:
(1) Air and nitrogen flow rates are standard at 21°C (70°F) and 21°C (70°F). scfm is 0°C, Nm³/h at 1 atm. For other gases, contact the factory.
(2) Maximum operating pressure: 65A to 1000A (16 Bar)
(3) Maximum flow rates are limited to hazardous area and high-temperature versions. Contact the factory.

Operating Spec'

- ◆ Fluid
Bio Gas
- ◆ Pressure (limitation)
Compression Fittings : 508 psig (35 barg) option
150 lb Flange, JIS 10k RF PN16 (DN) : (-40 ~ 150) °F ((-40 ~ 65) °C)
: 230 psig (16 barg)
Low Pressure Retract Valve : 100 psig (7 barg)
High Pressure Retract Valve : 1000 psig (70 barg)
- ◆ Pressure Drop
It can be safely ignored for pipes over 3 inches.
- ◆ Fluid & Ambient temp'
Gases : (-40 ~ 302) °F ((-40 ~ 150) °C)
Ambient : (-4 ~ 185) °F ((-20 ~ 85) °C)
Gas accumulation range
Up to 5 X 10⁻⁴ with helium gas
- ◆ Input Power (selection)
DC24 V ±10 %, 200 mA
100 ~ 240 V AC ±10 %, 10 watts (Option)

Thermal Mass Flow Meter(KC-2600 Series)

◆ Output Signal (Standard)

Linear (4 ~ 20) mA & Pulse

◆ Display

Alphanumeric 2 X 16 backlight LCD

Adjustable variables via remote control switch or Smart interface software

Adjustable : Full scale : (0 ~100) %

Flow: m³/h(m³), L/h(L), mL/h(mL), kg/h(kg)

Time response 1 ~ 7 sec / Correction factor setting 0.5 ~ 5 /

Zero & Span

◆ Totalizer

Seven digits (9,999,999,999 Count) in engineering units Reset table by

Software or remote control switch

◆ Software

Smart interface Windows® -based Software 8MB RAM of RAM, preferred 16MB

of RS-485 communication

Additional features: Zero cut-off adjustment / Linearization adjustment / Save /

Load configuration / For meter validation

Physical Specification

◆ Wetted Materials

Sensor Probe – Ceramic + 303SS(Platinum) Option : 316SS, 316LSS

Protection Tube – 303SS (Option : 316SS, 316LSS)

◆ Enclosure

Hazardous-Area CASE (Ex d[ib] IIC T4 : IP66)

General-Area CASE (IP67)

◆ Electrical Connection

2 X ½"PF or Ex Cable Gland(SS) 22C

◆ Mounting (Selection)

¾" Compression Fitting & ¾" Male NPT (Standard)

ANSI 150lb Flange, JIS 10k RF Flange

¾" Compression Fitting & 1" Male NPT (Option)

Ball Valve System (Option)

◆ Certification

Ex (Ex d[ib] IIC T4)

CE (CASE)

KGS Certificate

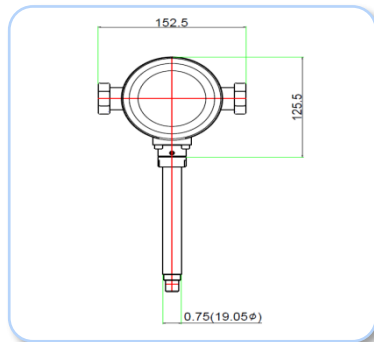
KC Certificate

Thermal Mass Flow Meter(KC-2600 Series)

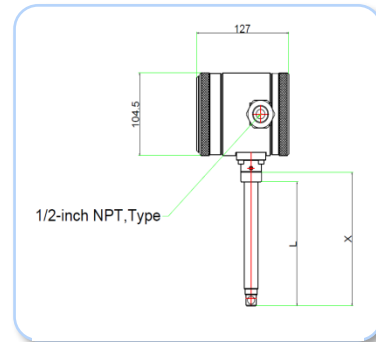
Dimensional Spec' & Chart I

♣ General type KC-2610BI (IP67)

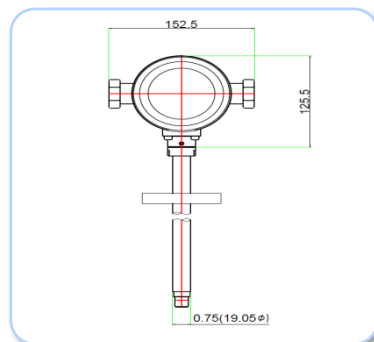
● Compression Fitting – Front View (EN2)



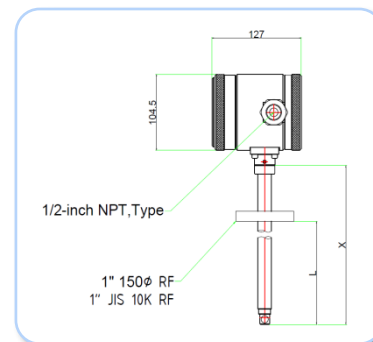
● Compression Fitting – Side View (EN2)



● Flange Mounting – Front View (EN2)

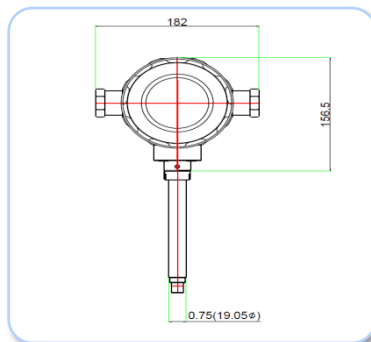


● Flange Mounting – Side View (EN2)

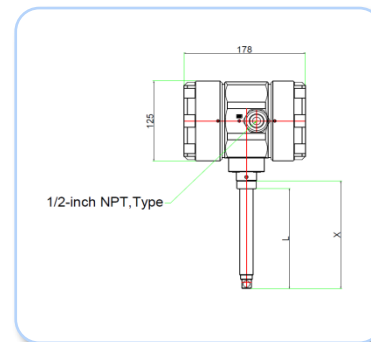


♣ Ex-proof type KC-2620Ex (IP66)

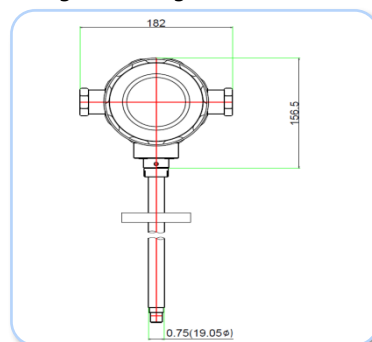
● Compression Fitting – Front View (E2)



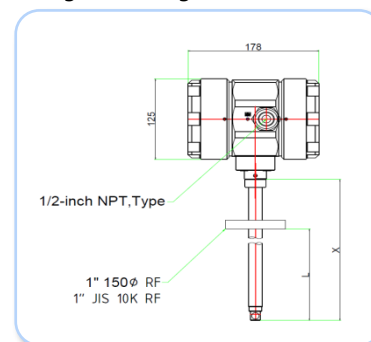
● Compression Fitting – Side View (E2)



● Flange Mounting – Front View (E2)



● Flange Mounting – Side View (E2)



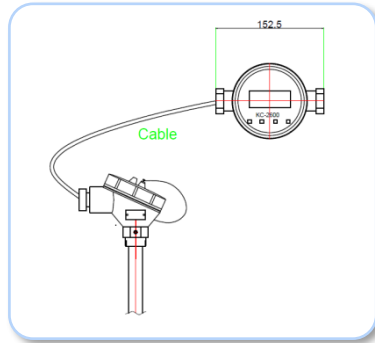
The shape of the sensor and Housing manufacturers are Subject to Change.

Thermal Mass Flow Meter(KC-2600 Series)

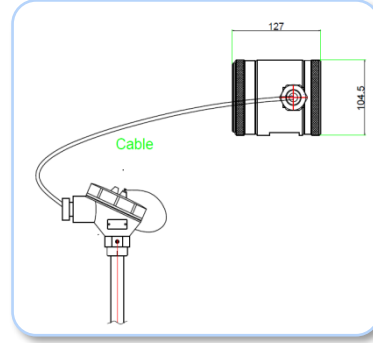
Dimensional Spec' & Chart II

♣ General type KC-2610BI-R

● Remote Mount Junction Box – Front View (EN4)

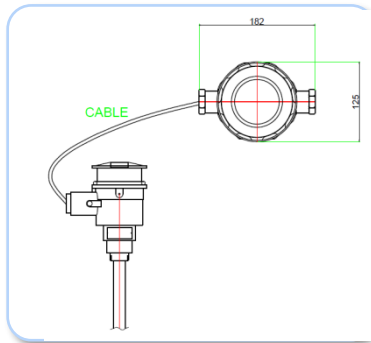


● Remote Mount Junction Box – Side View (EN4)

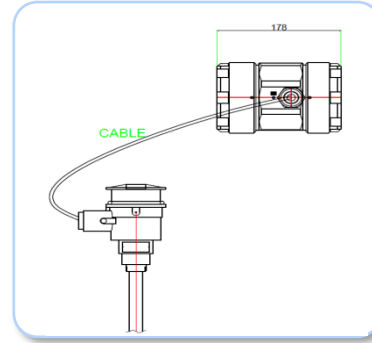


♣ Ex-proof type KC-2610Ex-R

● Remote Mount Junction Box – Front View (E4)



● Remote Mount Junction Box – Side View (E4)



Length Chart		
Code	L	X
L06	6.0 (152.4)	7.5 (190.5)
L09	9.0 (228.6)	10.5 (266.7)
L13	13.0 (330.2)	14.5 (368.3)
L18	18.0 (457.2)	19.5 (495.3)
L24	24.0 (609.6)	25.5 (647.7)
L36	36.0 (914.4)	37.5 (952.5)

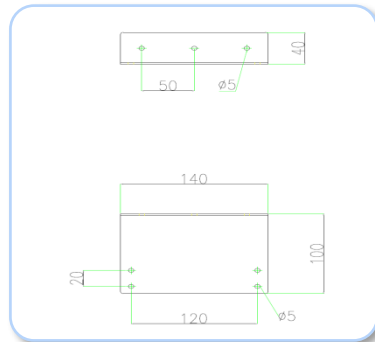
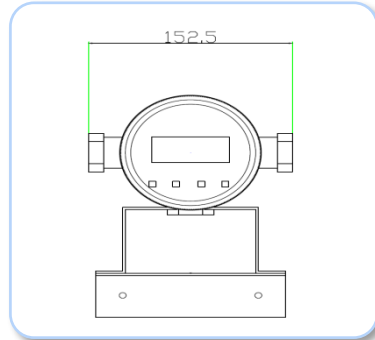
※ The shape of the sensor and Housing manufacturers are Subject to Change.

Thermal Mass Flow Meter(KC-2600 Series)

Dimensional Spec' & Chart III

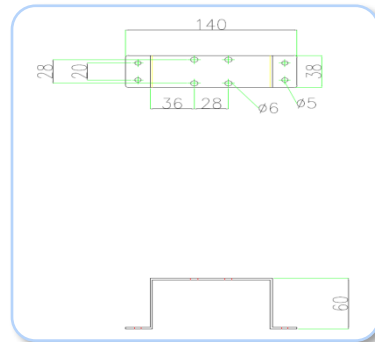
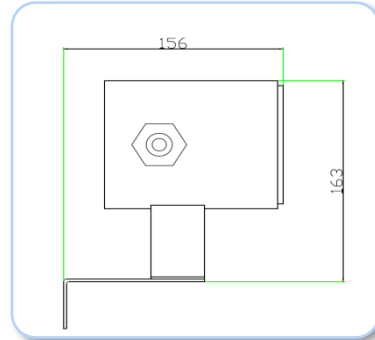
♣ General type KC-2610BI-R

● Remote Rear Bracket Electronics (EN4)



Panel mounting bracket 1

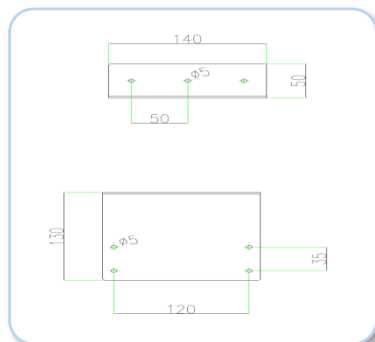
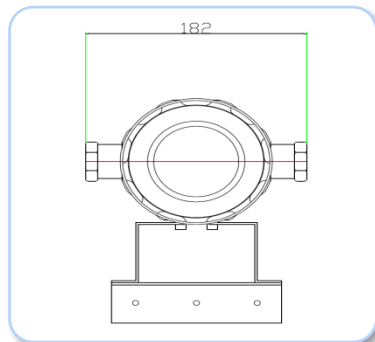
● Remote Side Bracket Mounted Electronics (EN4)



Panel mounting bracket 2

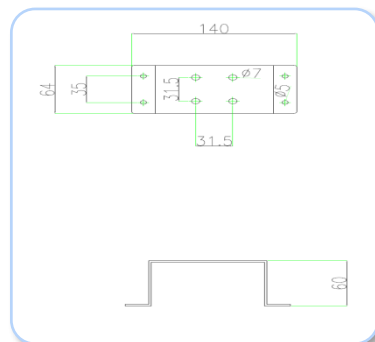
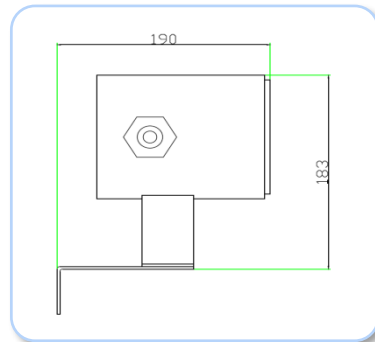
♣ Ex-proof type KC-2610Ex-R

● Remote Rear Bracket Electronics (E4)



Panel mounting bracket 1

● Remote Side Bracket Mounted Electronics (E4)

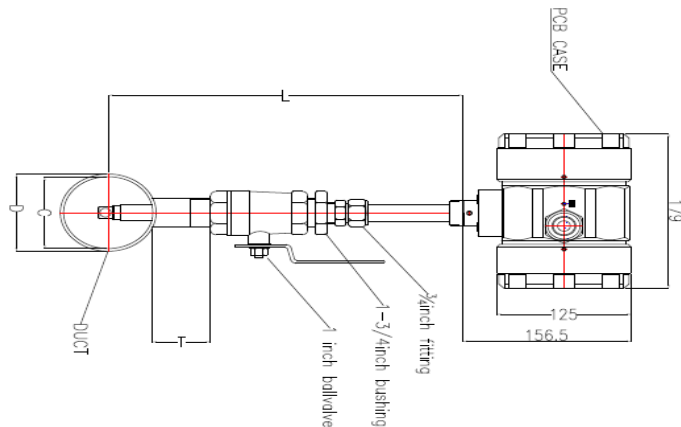


Panel mounting bracket 2

Thermal Mass Flow Meter(KC-2600 Series)

Low Pressure Ball Valve Dimension

●Side view



VARIABLE

L = Normal Probe Length

D = Duct O.D

C = Duct I.D

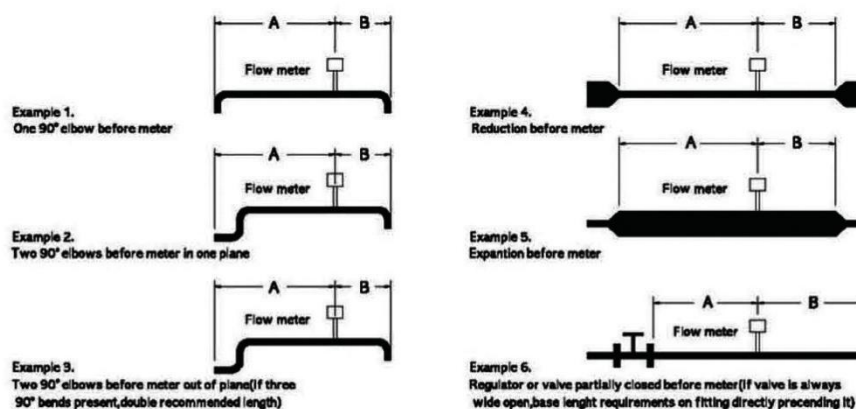
T = Height of "Threadolet" or
Customer provided weldolet

All dimensions are inches. Millimeters are in parentheses.

All drawings save a ± 0.25 inch(6.4 mm) tolerance. Certified and available be on request.

Upstream & Downstream dimension (KC-2600BI insertion)

Select an installation that minimize possible distortion in the flow profile, Valves, elbows, control valves and other piping components may cause flow disturbances. Check your specific piping condition against the examples shown below. In order to achieve accurateness and repeatable performance install the flow meter using the recommended number of straight run pipe diameters upstream and downstream of the sensor.



Example	A-Upstream(1)Requirements	B-Downstream(2)Requirements
1	10~7D	5~3D
2	15~10D	5~3D
3	20~15D	10~5D
4	10~7D	5~3D
5	20~15D	10~5D
6	20~15D	5~3D

(1)Number of diameter(D)of straight pipe required between upstream disturbance and the flow meter.
(2)Number of diameter(D)of straight pipe required downstream of the flow meter.

Thermal Mass Flow Meter(KC-2600 Series)

Order Code

형식1 형식2 삽입길이 설치 입력전원 표시창 방향 압력범위 옵션
KC-26 - - L - - P - - - -
1 2 3 4 5 6 7 8 9 10

Type1	Code 1
Gas	10GI
Bio Gas	10BI
Explode-Proof	20Ex

Type2	Code 2
General type	G
Remote type	R

Insert Length ⁴	Code 3, 4
6" (15 cm)	06
9" (23 cm)	09
12" (30 cm)	12
18" (46 cm)	18
24" (61 cm)	24
36" (92 cm)	36
Special Length	(in)

Install			Code 5
None			0
Compression Fitting	¾" Tube	¾" Male NPT	C11
		½" Male NPT	C12
	½" Tube	½" Male NPT	C13
		¾" Male NPT	C14
Ball Valve			BV
Flange	ANSI		FA
	DIN		FD
	JIS		FJ
	KS		FK
Agency approved, customer specified			W

Input Power	Code 6
DC 24 V	1
AC 100 ~ 240 V	2
Agency approved, customer specified	W

Display	Code 7
No Readout	NR
Digital Display	DD
Agency approved, customer specified	WW

Flow Direction	Code 8
Horizontal / Left -> Right	1
Horizontal / Right -> Left	2
Vertical / Lower -> Upper	3
Vertical / Upper -> Lower	4
Agency approved, customer specified	W

Pressure Range	Code 9
Low pressure Below 43 psig (3 barg)	L
Medium pressure Below 232 psig (16 barg)	M
High pressure Below 363 psig (25 barg)	H
Agency approved, customer specified	W

Option	Code 10
Agency approved, customer specified	W

Note

- 1.Flange is tapped and threaded on the compression fitting
- 2.The male connector is permanently tightened with ferrule of two combined materials
- 3.Flange must be ANSI or DIN specification
- 4.Maximum length is 60-inch(1524mm)
- 5.Enclosure required for agency approvals, T6 rate at 40°C
- 6.Wire resistance must be less than 8 ohms
- 7.Turndown ratio is 100:1 min. & 1000:1 max.
- 8.SFPS is the abbreviation for standard feet per second at 14.7psia(1.01 bar(a) & 70°F (21.1°C)
- 9.Customer specified calibration must not exceed temperature & pressure limitations of the 2610BI, 2620Ex Series products specifications

**Air & Gas & Steam & Liquid
Mass Flowmeter
Specialized Manufacturer**

Detailer

Certified in accordance with

KC Q ISO 9001 : 2015

KC Q ISO 14001 : 2015

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