

MFC&MFM(Air&Gas)

KC-2700 Series



MFC&MFM(KC-2700 Series)

Description

The Model KC-2700 Series is a digital mass flow meter. It is based on a digital device in which analog sensor signals are sent directly to the microprocessor. It not only delivers the highest quality signal safely and accurately, but it also directly controls proportionall control valves and other indications, so it is more accurate than convetional analog-based flow meters, and it can be used in various fields and across a wide range of applications.

The components consist of a sensor, base, reducer, control board, and proportional control valve. the sensor, which is a key component, is specialty manufactured to accurately transmit the mass of gas. It is not overtly sensitive and has excellent, reproducibility.

As for the control method, PID and Adaptive are the two methods provided. In particular, the PID control method. which is programmed based on a mathematical, algorithm, finds the optimal condition within any given environment. Aaptive control methods are added to make the response of the entire flow band efficient and fast. The product has an FND indicator and buttons for single reading and operation. So even if it is not used for a long time or the pressure and the external environment are changed rapidary, the user can quickly and effortlessly adjust the conditions and can easily check the gas status in the product, along with other functions such as forced opening of the valve and error displays.

Feature

- High performance that can be adjusted on-site in the event of an abnormality in the flowmeter Interface (RS-485 Modbus / RTU, Standard)
- Direct mass flow measurement eliminates the need for separate temperature and pressure compensation
- Simple signal processing and calibration in the field
- No moving part
- Excellent reproducibility / excellent long-term stability
- Best price/performance ratio
- Easy to adapt to different applications
- The response speed (1 sec) according to the flow rate change is fast.
- Kolas sword, correction function (optional can be added)



**MFC & MFM
Integral KC-2700**

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Performance Specification

제품성능

◆ Accuracy

$\pm 1\%$ of F.S, F.S의 $\pm 0.25\%$ 이내 (option : 25~100% of Full Scale)

◆ Repeatability

$\pm 0.3\%$ of Full Scale

◆ Linearity

$\pm 0.3\%$ of Full Scale

◆ Control Range

2 ~ 100% of Full Scale

◆ Control Valve Type

Nomally Closed Proportional Valve

◆ Response Time

1 Sec

◆ Prssure Resistance

980 Kpa

◆ Flow Range

10 SCCM ~ 1,000 SLM (N2 Equivalent)

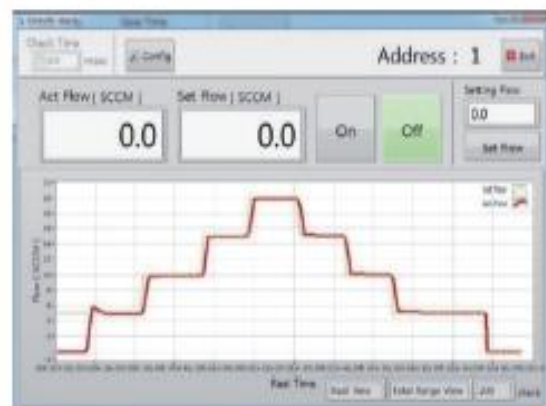
2,0000 & 3,000 SLM (Opton)

◆ Function

Flow rate & Integration

PC Program Data

- Instantaneous flow rate display (4-digit display)
- Totalizer display and alarm input (up to 8 digits)
- Valve purge (1~10min_selection)
- Input (used to remove moisture and foreign matler inside the MFC)
- Accuracy $\pm 1.0\%$, of Reading Scale
- Flow rate error display input
- PID value can be input
- Slope function (0~1000) input (initial reaction speed can be adjusted)
- Auto Zero function input
- Adaptive function input
- MGMR (Multi Gas Multi Range) function (optional can be added)



RS - 485 PC Program

MFC&MFM(KC-2700 Series)

Operating Specification

◆ **Fluid**

Air & All Gas

◆ **Gas Accumulation Range**

Up to 1×10^{-8}

◆ **Gas & Ambient Temp.**

Within $5 \sim 50^{\circ}\text{C}$

(Accuracy Warranty : $15 \sim 35^{\circ}\text{C}$)

◆ **Input Power (Select)**

+15VDC 또는 +24 VDC / 최대 500mA

◆ **Output Signal (Option)**

0 ~ 5VDC, 0 ~ 10VDC, 0 ~ 20mA, 4 ~ 20mA

◆ **Display & Key**

4 Digit – 7 Segment, Adjustable 4 Teck S / W, with Display

8 Digit – 7 Segment, 적산 기능(option)

◆ **Digital Interface (Std.)**

RS-485S (Modbus / RTU, Std.)

Physical Specification

◆ **Wetted Materials**

Flow Body – Display Aluminium

Flow Body 316LSS

Seal Type - H-NBR, FKM(Viton), FFKM(Kalrez)

◆ **Electrical Connection**

9-Pin Male SEMI Standard Reference pin arrangement

◆ **Process Connection**

1/4"SWL(기본), 1/4"VCR(옵션), 1/8"SWL(옵션), 3/8", 1/2" SWL(옵션)

◆ **Warm-up Time**

20 min (Accuracy Warranty : $30 \sim 40$ min)

◆ **Certificate**

CE

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MFC & MFM Series Application KC-2700C & 2700M Display

Integrated Display_1

(Top Display, Operation Keys, Lamp) & Power Adapter and PC
Type with an integrated display and input mode on the upper side of the flow meter (4 Digit-7 segment, 4 Tech S / W and 3 colors 2 Lamp)
Universal Power Adapter 15-24VDC (500mA or more) power can be used.
Communication (RS-485) mode available
Order specification _ Display: LT

Integrated Display_2

(Top Display, Operation Keys, Lamp) & Power Adapter and PC
Type with an integrated display and input mode on the front side of the flow meter (4 Digit-7 segment, 2Line 2Tech S/W, Encoder S/W and 2colors 2Lamp)
Universal Power Adapter 15-24VDC (500mA or more) power can be used.
Communication (RS-485) mode available
Order specification _ Display: LT

Detachable Display _1

(RD-701)_2~4 (1Set) -->Power(WIZ-PU4Ch,8Ch) & PC
This is a device (WIZ-PU) that connects the detachable display unit _1 (RD-701) to each MFC and binds both power and communication (RS-485) simultaneously, so the user can conveniently control several MFCs.
WIZ-PU (4Ch_60W, 8Ch_120W) power supply built-in type

Integrated Display_2

(KRO-7000S) & POWER
Type with separate detachable display units and input modes(4 Digit-7 segment, 2Line 2Tech S/W, Encoder S/W and 2colors 4Lamp)
In-house power supply built-in type
There is no communication (RS-485) mode in the KRO-7000S main body. "RS-232C" PC communication is available (can be connected separately in the MFC body).

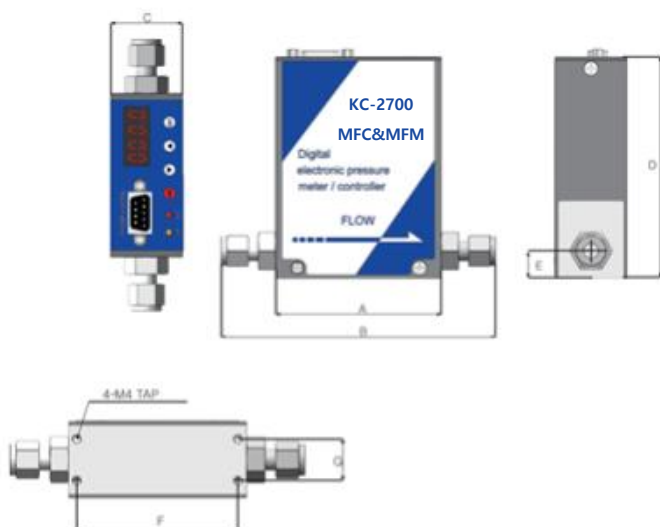
External Analog In/Out, Power

(Power Supply & Readout Unit) and PC
Sending and receiving flow values and setting values as analog signals by installing an analog board(0-5VDC, 4-20mA, 0-20mA, etc.; user can select as an option when ordering)
Selectable as a power supply (+ 15-24VDC) built-in type
Communication (RS-485) mode available
Order specification _ In / Out Signal: can be selected from

MFC&MFM(KC-2700 Series)

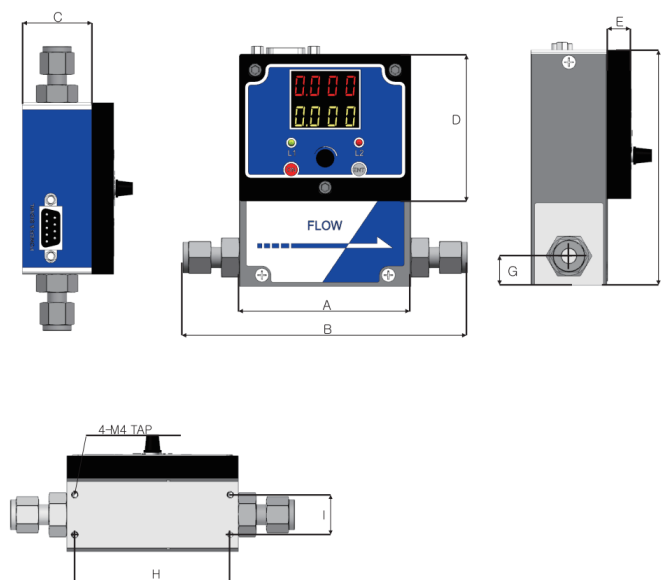
MFM & MFC _ Dimension

❖ Top type KC-2700-TD



SIZE for MFM & MFC	
Size	Top type
A	76
B	1/8" SWL : 122.8 1/4" SWL : 127.4 3/4" SWL : 123.8
C	33
D	102.8
E	12.8
F	69
G	18

❖ Front type KC-2700-FD



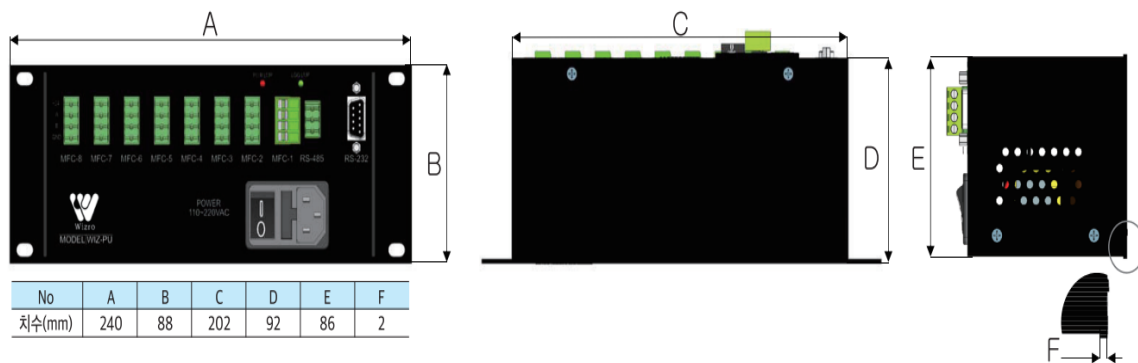
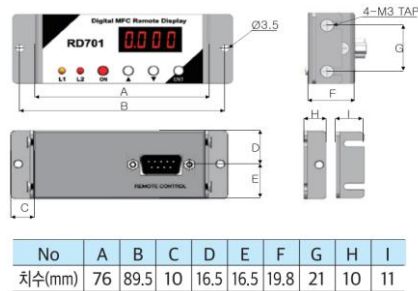
SIZE for MFM & MFC	
Size	Front type
A	76
B	1/8" SWL : 122.8 1/4" SWL : 127.4 3/4" SWL : 123.8
C	33
D	65
E	9
F	102.8
G	12.8
H	69
I	18

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

* All dimensions are inches. Millimeters are in parentheses

MFC&MFM(KC-2700 Series)

Remote display(KC-2700RD)&Power Supply(KC-PU) Dimension Ⅱ



* All dimensions are inches. Millimeters are in parentheses.

Readout Box(KRO-4000S:1~8Ch)

Readout Box_KRO-4000S(1~8Ch)



MFC&MFM(KC-2700 Series)

Order Code

KC-27 형식 접속구 실 타입 재질 전원 출력 표시창 유체방향 교정1 교정2 압력 선택

1 2 3 4 5 6 7 8 9 10 11 12

Type	Code 1
Mass flow controller	00C
Mass flow meter	00M
Remote	00R
Agency approved, enduser spec	W

Conn. specification	Code 2
SWL 1/4"(Std.), 3/8", 1/2", 1/8"	1
VCR(Optional) 1/4", 3/8", 1/2", 1/8"	2
Agency approved, enduser spec	W

Seal type	Code 3
H-NBR	N
FKM(Viton)	V
FFKM(Kalrez)	K
Agency approved, enduser spec	W

Material	Code 4
Aluminum : Display type	1
316L SS : Flow Body	2
Agency approved, enduser spec	W

Input power	Code 5
DC 24 V ±10 %, 500 mA	1
+15V DC	2
Agency approved, enduser spec	W

Output signal	Code 6
없음	N
0 – 5V DC	1
0 – 10V DC	2
4-20mA 또는 0-20mA	3
RS-485 Modbus	RS
Agency approved, enduser spec	W

Digital Display (LCD)	Code 7
None	NR
Intgral display (Top, Front,)	DD
Remote display (RD701 / KR07000S)	DD
Agency approved, enduser spec	W

Flow Dirict	Code 8
Horizontal: Left to Right / Vertical Up	1
Horizontal: Right to Left / Vertical Up	2
Agency approved, enduser spec	W

Calibration 1(Air / N2))	Code 9
Basic Calibration	A
Air, 1/2" and large tube sizes	
Comp.Air, 1/2" and large tube sizes	D
Customer Calibration	B
Enduser Calibration	

Calibration 2	Code 10
70 °F(21 °C) 14.7 psig (1.103 barg)	A
32 °F(0 °C) 14.7 psig (1.103 barg)	B
Agency approved, enduser spec	W

Pressure Limit	Code 11
Low Pressure 2 barg	L
Medium Pressure 3 barg	M
Agency approved, enduser spec	W

Option	Code 12
Totalizer	T
Cabinet type Display	D
Remote Controller	C
Agency approved, enduser spec	W

Note

- Connections shall be classified as 1/2", 3/8", 1/4", 1/8", SWL or VCR.
- For the flowmeter body, IP56 is required for approval by the relevant authorities.
- Wire resistance should be less than 8Ω.
- The turndown ratio is at least 100:1.
- Based on 14.7 psia (1.01 bara) 70°F (21.1°C).
- Customer's specifications should not exceed the temperature and pressure limits of KC-2700 series products of Golden Rule Co., Ltd

**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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