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Golden Rules Co.,Ltd

Air & Gas
Specialty Manufacture

MFC & MFM

KC-2700 Series
Mass Flow Controller & Meter



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

4. MASS FLOW CONTROLLER & METER (MFC & MFM)

4-1 MFC & MFM KC-2700 Series



**MFC & MFM
Integral type KC-2700**



**MFC & MFM
Remote type KC-2700**

Feature

- High performance that can be adjusted in the field when a flowmeter Malfunctions Interface (RS-485 Modbus / RTU, Standard)
- No direct temperature and pressure compensation due to direct mass flow measurement
- Simple signal processing and calibration in the field
- No drive
- Excellent reproducibility / Excellent long-term stability
- Best price/performance ratio
- Easy adaptability to other applications
- The response speed (1 sec) according to the flow rate change is fast.
- Calibration function (option can be added)

Description

Golden Rule's KC-2700 series is a digital mass flow meter. It is based on a digital device where analog sensor signals are sent directly to a microprocessor. It transmits the optimum signal safely and accurately, as well as directly controlling the proportional control valve and other indicators, so it has better precision than the existing analog-based flowmeter, and can be used in various fields and a wide range of applications. The parts consist of a sensor, a base, a reducer, a control board and a proportional control valve, and the core part, the sensor, is specially designed to accurately transfer the mass of the gas and is not sensitive and has excellent reproducibility.

PID and Adaptive are provided as the control method. In particular, PID control is programmed based on a mathematical algorithm to find the optimal conditions in a given environment and add adaptive control to efficiently and quickly respond to the entire flow band. It was made to be. The product has a FND indicator and a button for easy reading and operation, so that the user can quickly and simply meet the conditions even if the product is not used for a long time, or the pressure and external environment change rapidly, and the gas condition and the valve are forced to open in the product.

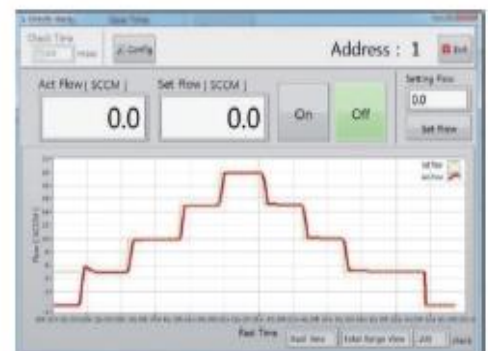
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Performance

- ◆ Accuracy
Within $\pm 1.0\%$ of F.S, F.S. within $\pm 0.5\%$ (25~100% of Full Scale)
- ◆ Reproducibility
 $\pm 0.3\%$ of Full Scale
- ◆ Linearity
 $\pm 0.3\%$ of Full Scale
- ◆ Control range
2 ~ 100% of Full Scale
- ◆ Control valve type
Normally closed proportional valve
- ◆ Response time
Within 1 second
- ◆ Internal pressure
980 Kpa
- ◆ Flow range
10 SCCM ~ 1,000 SLM (N2 Equivalent)
- ◆ function
Instantaneous & integrated

PC Program data

- Instantaneous flow rate display (4-digit display)Integrated
- value display and integrated alarm input (up to 8 digits)
- Valve purge (1~10min_optional)
- Input (used to remove internal moisture and foreign substances in MFC)
- Accuracy $\pm 1.0\%$, of Reading Scale
- PID value input function
- Slope function (0~1000) input (Initial reaction speed can be adjusted)
- Auto Zero function input
- Adaptive function input
- MGMR (Multi Gas Multi Range) function (option can be added)



RS - 485 PC Program

Operating Spec'

- ◆ Gas
All air and gas
- ◆ Leak range
Helium gas up to 1×10^{-8}
- ◆ Gas & environmental temperature
Ambient temperature: within $5 \sim 50 \text{ }^\circ\text{C}$
(Accuracy guaranteed: $15 \sim 35 \text{ }^\circ\text{C}$)
- ◆ Power supply (optional)
+15VDC or +24 VDC / 500mA max
- ◆ Output signal (optional)
 $0 \sim 5\text{VDC}$, $0 \sim 10\text{VDC}$, $0 \sim 20\text{mA}$, $4 \sim 20\text{mA}$
- ◆ Display & Key
4 Digit – 7 segments, adjustable 4 Teck S/W with display
- ◆ Digital interface (basic)
RS-485S (Modbus / RTU, basic)
- ◆ Certificate
CE

Physical Spec'

- ◆ Gas & environmental temperature
Ambient temperature: within $5 \sim 50 \text{ }^\circ\text{C}$
(Accuracy guaranteed: $15 \sim 35 \text{ }^\circ\text{C}$)
- ◆ Power supply (optional)
+15VDC or +24 VDC / 500mA max
- ◆ Output signal (optional)
 $0 \sim 5\text{VDC}$, $0 \sim 10\text{VDC}$, $0 \sim 20\text{mA}$, $4 \sim 20\text{mA}$
- ◆ Display & Key
4 Digit – 7 segments, adjustable 4 Teck S/W with display
- ◆ Digital interface (basic)
RS-485S (Modbus / RTU, basic)

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

Integral display part_1

(Top Display, Operation Keys, Lamp) & Power Adapter and PC

1. Type with integrated display and input mode on the top of the flowmeter (4Digit-7Segment, 4TectS/W and 3color 2Lamp)
2. Universal Power Adapter 15~24VDC (over 500mA) power available
3. Communication (RS-485) mode available.
4. Order Specification_Display : LT



Integral display part_1

(Top Display, Operation Keys, Lamp) & Power Adapter and PC

1. Type with integrated display and input mode on the top of the flowmeter
2. Universal (over 500mA) power supply available
3. Communication (RS-485) mode available
4. Order specification_LF



Separate display part_1

(KC-7000S) & POWER

1. Separate display type and input mode
2. Internal power supply type
3. No communication (RS-485) mode in the KRO-7000S body. Use of "RS-232C" PC communication (separate connection possible in the MFC body)
4. Order specification_RF



Separate display part_1

(KC-7000S) & POWER

1. There is a device that connects each MFC with a separate display unit_1 (RD-701) and bundles power and communication (RS-485) at the same time, so users can conveniently control multiple MFCs.
2. (4ch_60W, 8ch_120W) Power supply built-in type.
3. Communication (RS-485) mode available
4. Order specification_RT



External analog IN/OUT, POWER

1. With analog board, flow and set values are exchanged with analog signals.
2. Power supply (+15V~24VDC) built-in type can be selected
3. Communication (RS-485) mode available
4. Order specification_In/Out Signal: Select N,A,B,C,D



Order Code KC-2700 Series (MFC & MFM)

TYPE CONN' SEAL TYPE MAT'L POWR OUTPUT DISPLAY F-DIRECT CAL.1 CAL.2 PRESSURE OPTION
KC-27 - - - - P - V - - - - - - -
 1 2 3 4 5 6 7 8 9 10 11 12

TYPE	Code 1
MASS FLOW CONTROLLER	00C
MASS FLOW METER	00M

CONN' SPEC'	Code 2
SWL ¼" or 1/8"	1
VCR(옵션) ¼" 또는 1/8"	2
CUSTOMER APPROVED	W

SEAL TYPE	Code 3
H-NBR	N
FKM(Viton)	V
FFKM(Kalrez)	K
CUSTOMER APPROVED	W

BODY MAT'L	Code 4
Aluminum	1
316L SS	2

INPUT POWEER	Code 5
DC 24 V ±10 %, 500 mA	1
+15V DC	2

OUTPUT SIGNAL	Code 6
없음	N
0 – 5V DC	1
0 – 10V DC	2
4-20mA or 0-20mA	3
RS-485 COMMUNICATION	RS

DISPLAY	Code 7
NONE	NR
DISPLAY	DD
CUSTOMER APPROVED	W

FLOW DIRECT	Code 8
HORIZONTAL: LEFT-> RIGHT	1
HORIZONTAL: RIGHT -> LEFT	2
CUSTOMER APPROVED	W

CALIBRATION 1(기체)	Code 9
STANDARD CALIBRATION	A
AIR, ½"(15A) & BIG PIPE SIZE	
COMPRESSED AIR, ½"(15A) & BIG PIPE	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
CUSTOMER APPROVED	W

PRESSURE LIMIT	Code 11
LOW PRESSURE 2 barg	L
MEDIUM 3 barg	M
CUSTOMER APPROVED	W

OPTION	Code 12
Totalizer Monitor(WIZ-801)	T
CABINET DISPLAY	D
REMOTE TYPE CONTROLLER	C

Note

- Connections should be classified as ½", 3/8", ¼", 1/8", SWL or VCR.
- The flowmeter body requires IP56 for approval by the relevant agency.
- Wire resistance should be 8Ω or less.
- The turndown ratio is at least 100:1.
- Based on 14.7 psia (1.01 bara) 70°F (21.1°C).
- The customer's specifications should not exceed the temperature and pressure limits of Golden Rule's KC-2700 series products.



Golden Rules

• GOLDEN RULES

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GAS & LIQUID & STEAM

**Mass & Magnetic &
Total FlowMeter**

Specialty Manufacture

Distributor

Certified in accordance with

KC Q ISO 9001 : 2015

KC Q ISO 14001 : 2015

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