TECHNICAL GUIDANCE

Flow rate indication・Totalizing count・Alarm
AC, DC power supply
Analog signal input type　　RoHS compliant

IR4700

UNIVERSAL TOTALIZER

OUTLINE

IR4700 is an indicator and a totalizer for flowmeters. Connected to an analog output type (4 to 20mA DC, 1 to 5V DC, 0 to 5V DC) flowmeter, it provides switching indication between instantaneous and totalizing flowrate, 4 to 20mA DC output, alarm output, and totalizing synchronous pulse output. Setting information such as scaling and preset values can be changed as desired by key operation on the panel. The 24V power supply for the sensor is built in, allowing combination with a 4 to 20mA DC 2-wire transmission transmitter or a 3-wire analog output sensor. The compact DIN 48 x 96 housing makes installation and wiring extremely easy.

STANDARD SPECIFICATION

● INPUT

◇ Analog input (model code selection)

- 4 to 20mA DC　(Input resistance: Approx.250Ω)
- 1 to 5V DC　(Input resistance: Approx.220kΩ)
- 0 to 5V DC　(Input resistance: Approx.220kΩ)

Low cut-off　1 to 29% (setting) (for analog input full scale)
0%F.S. setting (No functioning)

◇ Reset input and external input

- NPN Open collector or non-voltage contact
  Voltage at open terminal : 24V,
  Current at short circuit : 10mA,
  Residual voltage 1.5V or less
- Reset input：Totalizing counter and alarm reset by ON input.
- External input：Indication switching (instantaneous flow rate ⇔ totalizer), totalizer inhibit or indication hold, by ON input. (setting)

● INDICATION (Instantaneous flow rate, totalizing flow or sensor input percent is selected by key operation)

◇ Display
(model code selection) Red or Green, 7 segment LED with decimal points, 6 digits, Letter height 21 mm
(Zero blanking method)

◇ Flow rate indication

Display digits	Max.4 digits LED (Excluding over display digit)
Indication range	0.001 to 9999 (0 to 3 under decimal point)
Indication Accuracy	±0.2%F.S.±1digit (※1)

Sampling time (display update cycle)
Averaging from 0.1 to 10 seconds (default 0.5 sec) (setting)

Inst. flow rate display at input error (high cut-off)
The inst. flow rate display is saturated when the input is 110% or more of the analog input F.S. The inst. flow rate display is restored when the input is less than 110%.

◇ Totalizing count indication

Totalizing display	Max.6 digits LED
Indication range	0 to 999999 (0 to 4 under decimal point)
Indication Accuracy	±0.2%F.S.±1digit (※1)
Count rate	1 to 180000 count/h (The range depends on the related settings)
Totalizing count reset	by key operation or reset input
Over display	If exceeding 6 digits, counter starts from 0 automatically with lighted OV ramp.(endless method), with over count (upper 3 digits) indication.
Totalizer offset	000000 to 999999 (setting) (Decimal point position is linked to totalizer display)

◇ LED ramp (Total 4 orange and 4 white LED ramps are on the front panel)

- 1 (orange), 2 (orange), 3 (orange), 4 (orange) : Lights up in sync with OUT1 to OUT4 outputs, lights up during preset setting
- D1 (white) : Lights up during inst. flow rate display
- D2 (white) : Lights up during totalization display and totalization offset setting
- HD (white) : Lights up during display hold operation by external input
- OV (white) : Lights up when inst. flow rate and totalizer display is out of range, blinks at high cut-off

● ALARM OUTPUT

Output unit	3 units, 4 units (When OUT1 is set to alarm)
Output signal	
OUT1, OUT2:	NPN Open collector output 2 units Rating 30V DC, 50mA, Residual voltage 1.5V or less
OUT3, OUT4:	Relay output 2 units, Normal open Rating 250V AC, 0.15A (resistive load) / 30V DC, 1A (resistive load)
Output selection	Inst. flow rate / Totalizing flow rate (setting)
Operation mode	Upper Limit / Lower Limit (setting)
Output mode	Comparison / Hold / 1 shot output (setting)
Alarm reset	By keys on front panel or reset input
Output indicate	1, 2, 3, 4 orange LED lamp lighting
Hysteresis	000 to 999 (setting) Common setting for OUT1 to OUT4 Operation disabled by setting 000 (Only for output selection : inst. flow rate and output mode : Comparison)
Preset value	000000 to 999999 (setting)

● OUTPUT FUNCTION

◇ Pulse output (Totalizing sync pulse)

Synchronized with the totalizing counter (output judgment every 20ms)

1 pulse output each time the sync output digit of the display counts up

Output unit	1 unit (OUT1: When set to totalizing sync pulse)
Output signal	Refer to the alarm output OUT1
Pulse width	0.01 to 2.00s (default 50ms)
Sync output digit	1 to 4 digits (setting)

◇ Analog output

4 to 20mA DC, Load resistance 500Ω or less

Inst. display rescaled to current output.

Output Accuracy	±0.2%F.S. (for display) (※1)
Update time	Synchronized with sampling time (display update cycle)
Response time	Approx. 10ms after display update (output change 0 → 90%
Output resolution	Up to 10000 in the range of 4 to 20mA (Approx.1.6uA)

● GENERAL SPECIFICATION

Power supply (model code selection)

- 100 to 240V AC (-15%, +10%)
- 12 to 24V DC (10.8V to 26.4V)

Power consumption	20VA or less (AC), 10W or less (DC)
Power supply for sensor	24V DC ±10%, Max.100mA (Stabilization)
OPERATING TEMP. AND HUMIDITY	-10℃ to 50℃, 25 to 85%RH (No freezing, no condensation)
HOUSING MATL. · COLOR	ABS resin · Black
Enclosure	body : IP20 eq. (indoor use) Front panel : IP66 eq. (dust and water proof)
Cable connection	By M3.5 screw terminals
Mass	body : Approx. 300g, mounting brackets×2 pcs : Approx. 20g

● OTHER SPECIFICATION

Data back-up	The setting values and totalized values are memorized in FRAM (less than 100000 times, about 10 years)

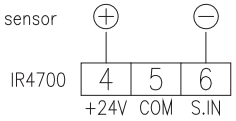
(※1) Reference temp. 23℃, Temp. drift 200ppm/℃ or less

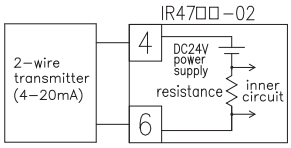
MODEL CODE

Model code				Description
IR	4	7		
Power supply	1			100 to 240V AC (-15%, +10%)
	2			12 to 24V DC (10.8V to 26.4V)
Display		1		Red 6 digits LED
		2		Green 6 digits LED
Input signal			-02	4 to 20mA DC input
			-13	1 to 5V DC input
			-24	0 to 5V DC input

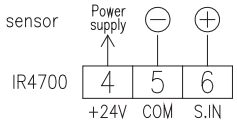
INPUT SIGNAL

● 2-wire transmitter (4-20mA)



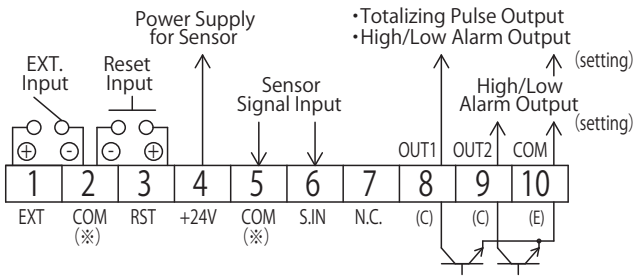


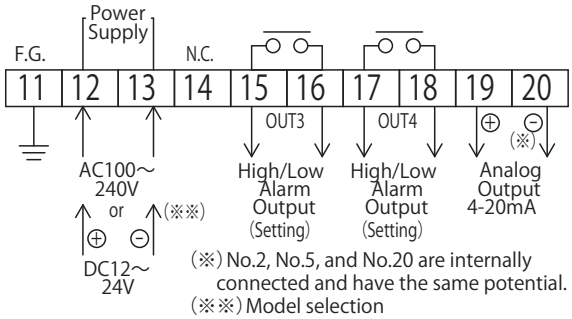
● 3-wire 4-20mA output, 1-5V, 0-5V output sensor



The power supply for the sensor at terminal 4 is 24VDC±10%, 100mA MAX.
Power supply up to 100mA can be supplied to the sensor.

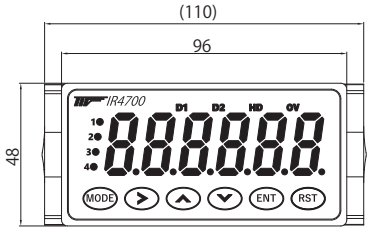
TERMINAL

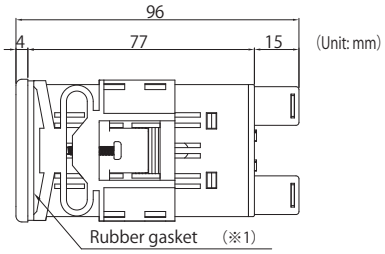


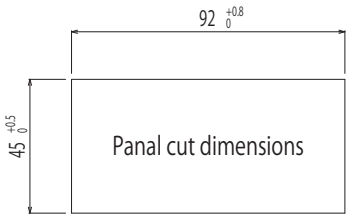


(※) No.2, No.5, and No.20 are internally connected and have the same potential.
(※※) Model selection

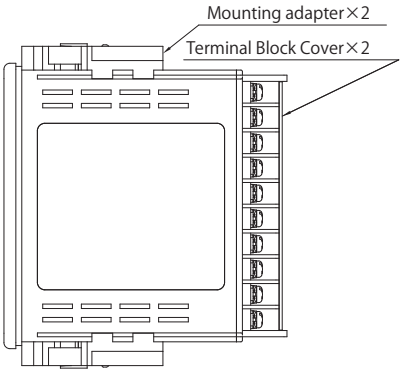
DIMENSIONS

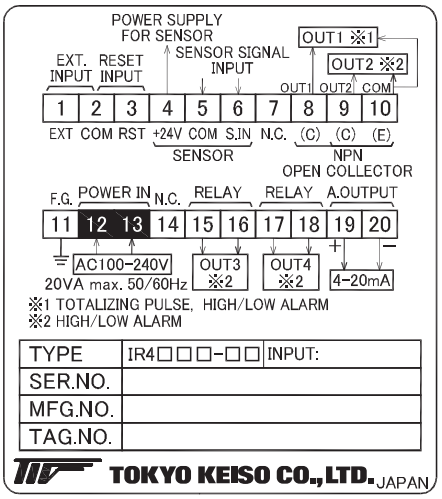


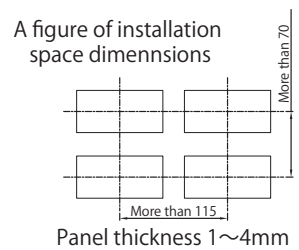




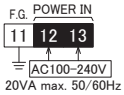
(※1) Insert the attached rubber gasket to protect water ingress if needed.



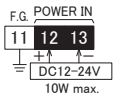




AC power supply Model



DC power supply Model



* Specification is subject to change without notice.

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