KTF !)) $!A :

Operating Manual

Revision 1.3

KOREA FLOWMETER IND.CO.,LTD.

Index

1. Introduction

1.1 Feature

KTŒ Series Flow Transmitter receives signals from the flow sensor and measures on going flow rate and displays flow rate, the total and accumulated total.

It is connected either to frequency output-type flow sensor. This flow transmitter use two relays(Option) to function flow alarm, and can add 4-20mA analog output as option.

It changes the signals of flow sensor to the scale pulse before outputting so that other devices can be connected outside to count and display the necessary information in distance.

The LCD display on the front is very convenient to use with a variety of parameters and instructions available to see easily on it. The keys in the front are also easy for you to select and read necessary information, and anyone can program their own values easily on the spot.

The user-set data and the accumulated totals are stored in the EEPROM and are safe for ten years regardless of power-off.

2. Specification

General
Display	12*2 characters LCD with LED back light
Display Update Rate	0.25 seconds
Transducer Supply	12VDC 50mA, 22VDC 50mA
Operating Temperature	0 to 50℃
Storage Temperature	−20 to 70℃

Frequency Input
Frequency Range	0Hz to 5KHz
Signal Type	Sine wave, open collector, reed switch, proximity switch, Voltage or current pulse
K-factor Range	0.0100 to 999,999(the pulse per units)

Relay Output
Max. Switching Power	60W DC / 100VA AC
Max. Switching Voltage	220V DC / 250V AC
Max. Switching Current	2A DC / AC

4-20mA Output
|	
Resolution	12-bit
Accuracy	0.05% of Range
Maximum Load	500 ohms internally powered. 950 ohms from DC24V
Isolation	Isolated

Pulse Output Signal
Function	The Pulse output is scaled and outputs one pulse each time the total increments.
Output	An open collector transistor will sink 50mA max.
Duty Cycle	49 Pulse/sec. Max.
Pulse Width	10ms(negative going)

3

3. Connection

3.1 DC Power Connections

DC power can be connected regardless of polar + or −.


AC/DC Line

AC/DC Line

1	2
P1	P2
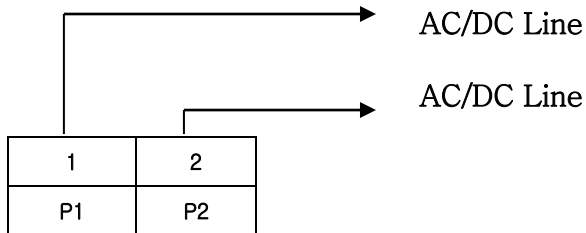
3.2 Input Connection

Input signals are determined to the type of flow meter. So the dual in-line package switches should be set accordingly. Open collector type is the default signal when shipping the order.

When the flow sensor needs power, it can be connected to terminal #1 which releases DC voltage.

| Input Signal Type	INTERNAL Terminal			Switch Setting							
	V out	+	−	1	2	3	4	5	6	7	8
1.Open Collector	1	2	3	off	off	off	off	on	off	off	on
2.TTL Logic Pulse	1	2	3	off	off	off	off	off	off	off	on
3.Reed Switch	1	2	3	off	off	off	on	on	off	off	on
4.Coil(20mVp-p min)	1	2	3	off	off	off	off	off	on	off	off
5.Coil(low impedance)	1	2	3	off	on	off	off	off	on	off	off
6.Current Pulse	1	2	3	on	off	off	off	off	off	off	on
7.Namur Proximity	1	1	3	off	off	on	off	off	off	on	on
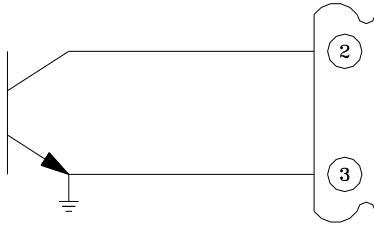
1. Open Collector   **2. Square Wave, CMOS or Logic Pulse**
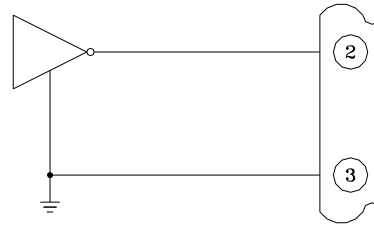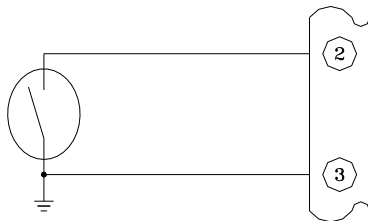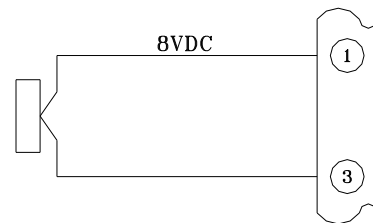
3. Reed Switch   **4. Coils**
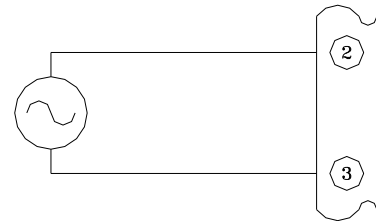
5. Current Pulse   **6. Namur Proximity**

12VDC   8VDC
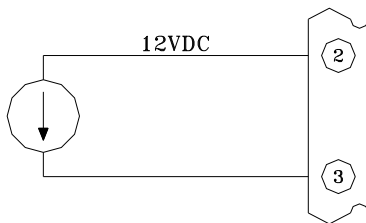
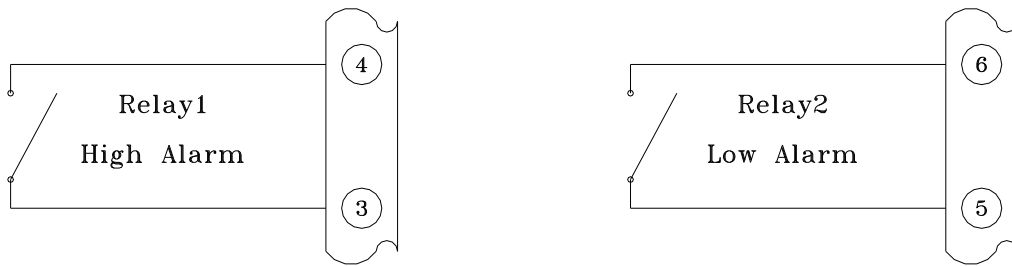## 3.3 Relay Output

Two relays are provided to control the external devices. The maximum switching capacity under control is 250VAC@5A or 30VDC@5A. However, it is recommended that you use a separate outside relay even though it is usable within that capacity. It is normally set in open contact by default and the connection is as shown below.

3.4 Pulse Output

It's internal circuit is the open collector-type which is why caution should be taken when connecting, as it won't function with wrong polar connections. The width of output pulse is selectable among 10ms, 50ms and 100ms. 10ms is as shown below, in which case the maximum pulse output is 49pulses per second. It is 50mA@30VDC current sink type output so it needs to outsource the power and also needs the current limit impedance.
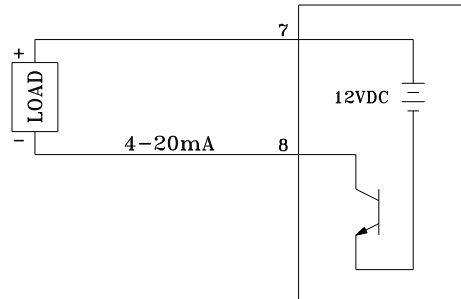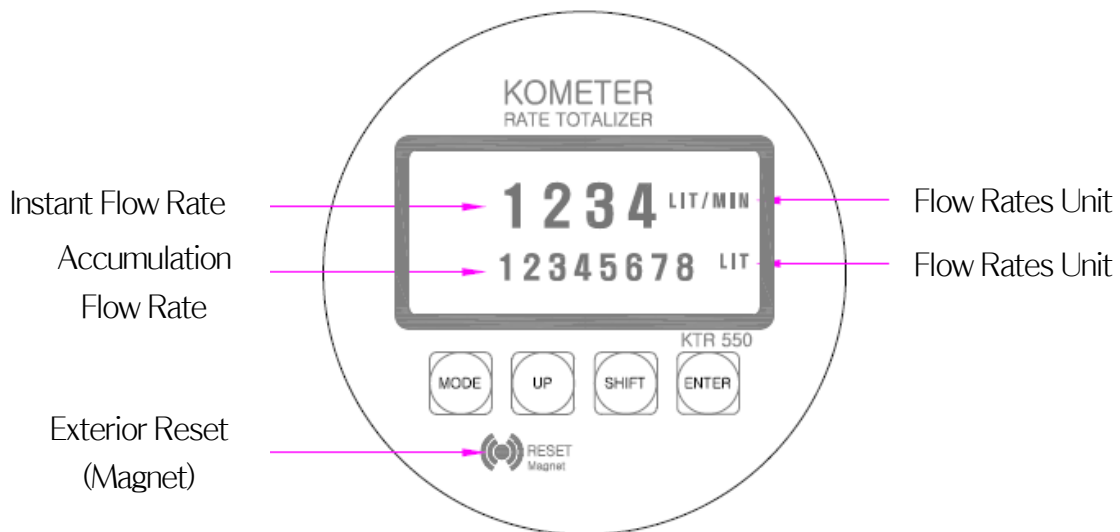

<Output Circuit>
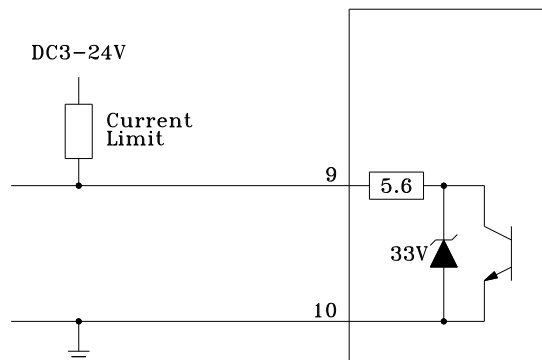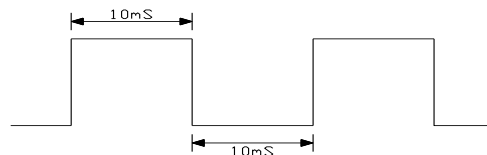
< Output Signal >

3.5 Analog Output

It is convert Flow Rate value to 4-20mA signal and output to external device. It is provide Internally powered by the controller type only.

4. Operation

4.1 Display Information

4.2 Key-operating method

1) MODE Key changes Acc Total to Instant flow rate or Accumulation flow rate and operates pausing for one second.
2) UP(SET) Key is used for changing number and toggling menu selecting part Also pausing for three seconds in NORMAL state can enter SETTING mode.
3) ENT Key is used for when processing program setting. Also pausing for three seconds in NORMAL state, Accumulation Flow Rate is cleared.

4.3 Explain Program menu

7

1) Accumulation Flow Rate Reset

```
1 2 3 4 LIT/MIN
1 2 3 4 5 6 7 8 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]
```

[ENTER] 3sec Set Accumulation Flow Rate "0"

```
1 2 3 4 LIT/MIN
0 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]
```

2) Check Total Accumulation Flow Rate / Reset

```
A C C
1 2 3 4 5 6 7 8 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]
```

[MODE] 3sec Check
Total Accumulation Flow Rate

```
A C C
0 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]
```

[ENTER] 3sec Set Accumulation Flow Rate "0"

8
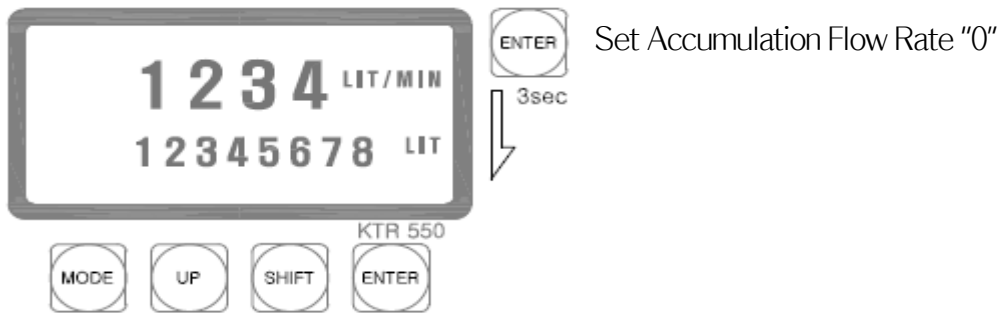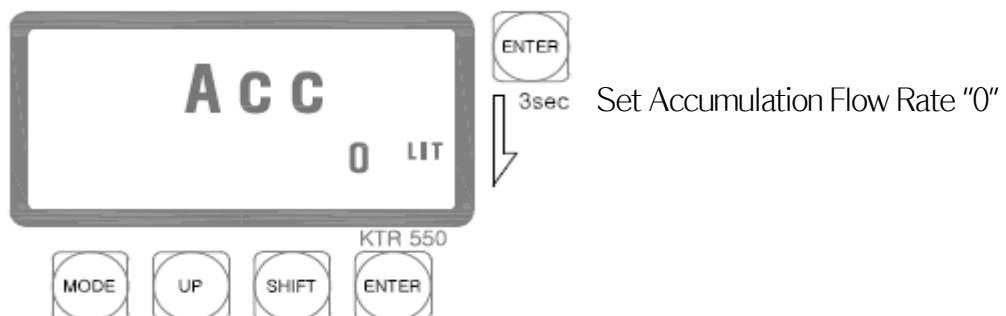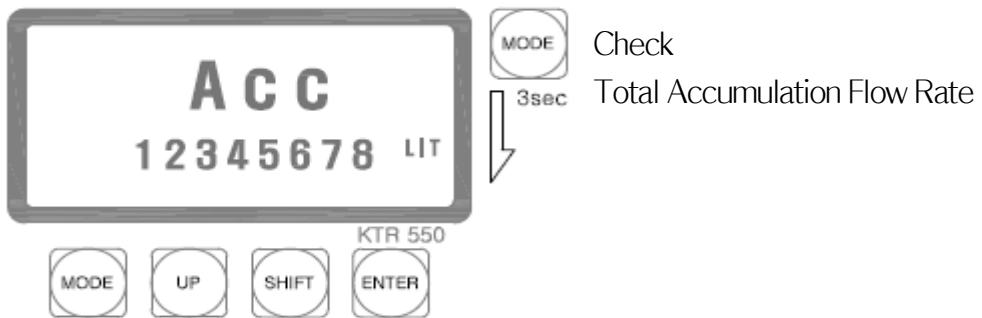
3) Checking / Changing Factor value

1234 LIT/MIN
12345678 LIT

KTR 550

MODE   UP   SHIFT   ENTER

UP
3sec
Entering Program

t-120
FLou-Con

KTR 550

MODE   UP   SHIFT   ENTER

ENTER

F- dP
00000.000

KTR 550

MODE   UP   SHIFT   ENTER

UP   Set places of decimals

ENTER   Move to next set-up

FActo
01000.000

KTR 550

MODE   UP   SHIFT   ENTER

SHIFT   Shift decimals

UP   Changing number

ENTER   Move to next set-up
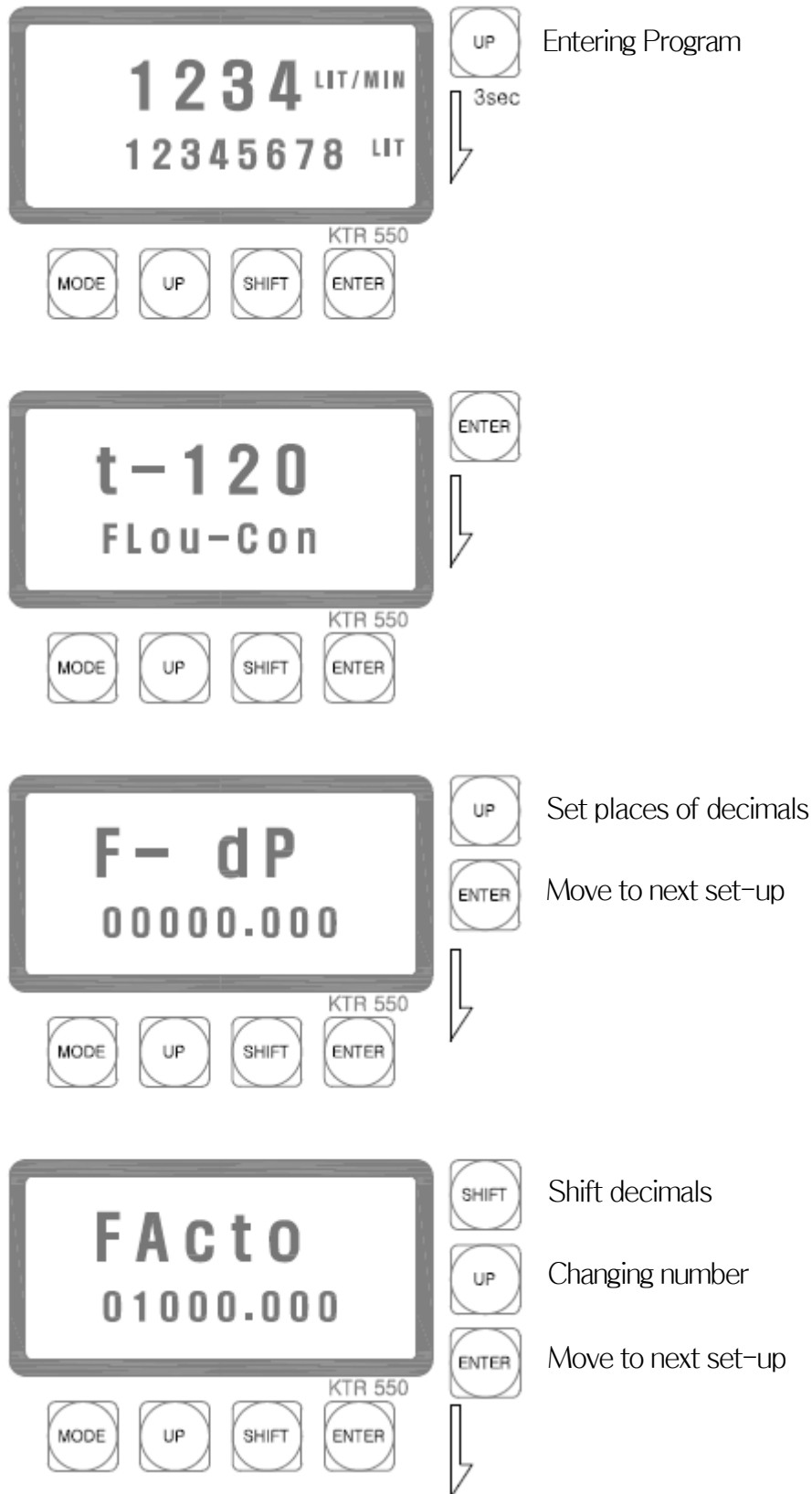
● Factor : When unit of Instant flow rate is m³, should set Pulse/ m³ and also unit of Instant flow rate is Liter, should set Pulse/Liter

9

4) Changing Unit / Decimal point

UnIt LIT/MIN **LItEr** LIT — KTR 550	[UP] Setting up Unit (m³, LIT, GAL) [ENTER] Move to next set-up

t- dP 00.000 — KTR 550	[UP] Sets Accumulation flow rate decimals [ENTER] Move to next set-up

r-dP 00.000 — KTR 550	[UP] Sets Instant flow rate decimals [ENTER] Move to next set-up

tImE mIn — KTR 550	[UP] Setting up Instant flow rate Unit (HR, MIN, SEC, DAY) [ENTER] Move to next set-up

10

5) Setting up PULSE / Damping
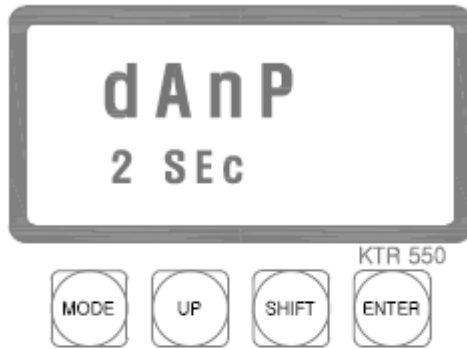
Setting up Damping
(no, 2, 4, 6, 8, 10 SEC)

Move to next set-up

Setting up Pulse period
(20, 50, 100, 200 ms)

Move to next set-up
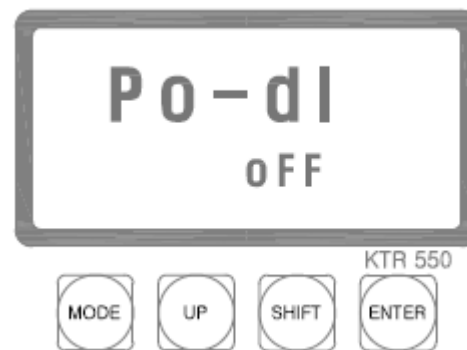
Setting-up Flow rate / Unit Pulse

Move to next set-up

누적량 소숫점	설정	1L/Pulse
0000	d1,d10,d100	d/1=1L/1P, d10=10L/1P, d100=100L/1P
000.0	d0,1,d1,d10	d/0.1=0.1L/1P, d1=1L/1P, d10=10L/1P
00.00	d0.01,d0.1,d1	d/0.01=0.01L/1P, d0.1=0.1L/1P, d1=1L/1P
0.000	d0.001,d0.01,d0.1	d/0.001=0.001L/1P, d0.01=0.01L/1P, d0.1=0.1L/1P

6) Setting up 4-20 mA

Ao-E
yES
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] key로 mA출력 유.무
YES선택후

[ENTER] key로 다음설정 이동

CAL-4
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] key로 4mA 조정
*반드시
오차 발생시 실시

[ENTER] key로 다음설정 이동

CAL-20
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] key로 20mA 조정
*반드시
오차 발생시 실시

[ENTER] key로 다음설정 이동

AnL 4
0000.0
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] 4mA일때 유량

[ENTER] key로 다음설정 이동

AnL20
1000.0
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] 20mA일때 유량

[ENTER] key로 다음설정 이동

End
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[ENTER] key 완료

1234 LIT/MIN
12345678 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

Ao-E
no
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[UP] NO선택후

[ENTER] key

End
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

[ENTER] key 완료

1234 LIT/MIN
12345678 LIT
KTR 550
[MODE] [UP] [SHIFT] [ENTER]

12

5. Dimensions (transmitter)

133

130

35

116

51
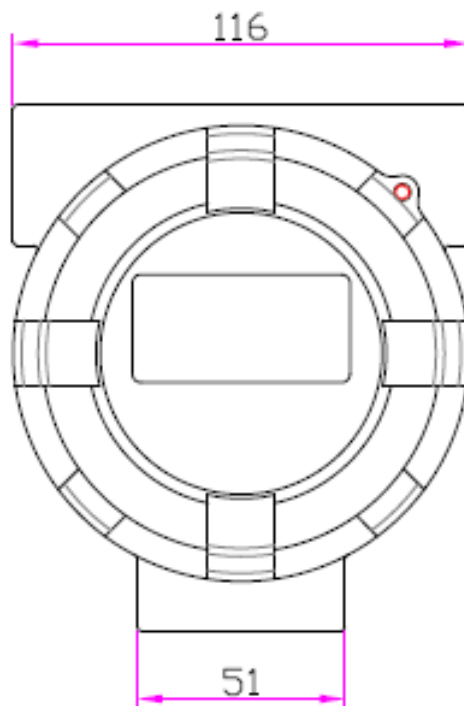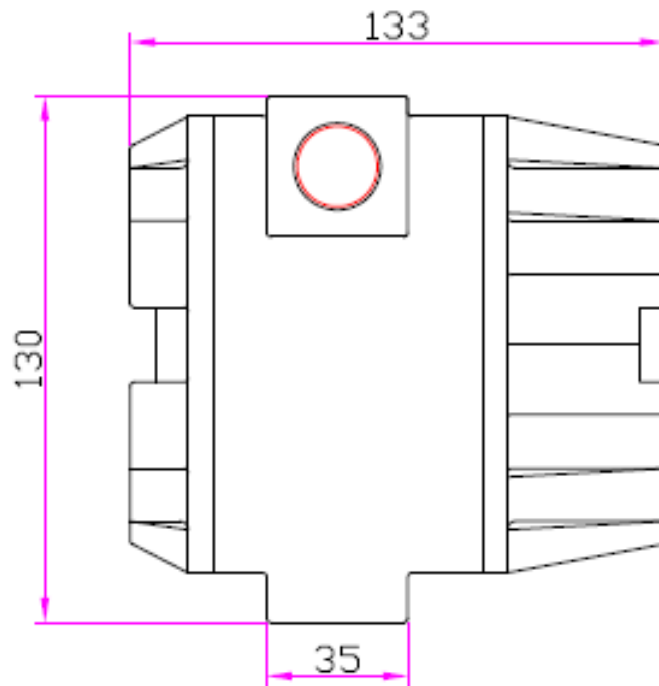
KOREA FLOWMETER IND.CO.,LTD

40, Wonchang-ro 64 beon-gil, Seo-gu, Incheon Metropolitan-city, South Korea

Tel + 82-32-584-5301   Fax + 82-32-584-5351

E-mail : info@kometer.co.kr

15