



【Operation Manual】

Digital speed meter

MODEL : SP-556 Series

Series name	Output				Input			Sensor Power	Power	Color	Cover	Type	Function
SP-556													Preset output : NPN open collector(X2) Display : 7 segment red LED Input signal : NPN open collector Sensor power : DC12V 100mA Power source : AC100-240V Color : Gray Terminal block cover not attached
	GL												Display : 7 segment green LED
		P2											Preset output : PhotoMOS relay output(X2)
			A1										Analog output : DC 4-20mA
				AV3									Analog output : DC 1-5V
				AV4									Analog output : DC 0-5V
				AV5									Analog output : DC 0-10V
					B*1								BCD output : NPN open collector All digits parallel
						BI*1							BCD input : NPN open collector All digits parallel
							F						Input : Voltage pulse input
							F2						Input : Current modulation pulse input(A)
							F2W						Input : Current modulation pulse input(AB)
							V3						Input : Tacho-generator signal input AC 0.8V-80V _{p-p}
							N						Current modulation pulse input (A-input)
							L1						Input : Line receiver 1ch input (A · \bar{A})
								HI					Input : High-speed input Response frequency : 0.01Hz-120kHz
									S24				Sensor power : DC24V 60mA
										DC*2			Power source : DC12-24V
											K		Color : Black
												C	Terminal block cover attached
												DM*3 Stationary type	
												DM-CB*3 Stationary type (AC100V three-core cable)	

*1 “B” option and “BI” option cannot be selected together.

*2 Optional “DC” is outside CE marking

*3 The meter is on subject of CE marking. But “DM” option is off the subject of CE marking.

【 The 13th edition 25 March, 2024 】

@SP-556CE(13)-E

Precautions

Please read this operation manual including the following precautions carefully to ensure safe use of your meter.

⚠ Warning • • • The following cases that may cause death or serious injury.

1. Do not wire while power is supplied. There is a risk of electric shock and fire.
2. Do not touch the terminals while power is supplied. There is a risk of electric shock.
3. Do not disassemble or touch the inside of the product.
There is a risk of electric shock and fire.
4. Do not use the product in places with flammable gas or ignitable substances.
5. Prepare the emergency stop or build a fail-safe system, etc. for when a product is break down or abnormality operating.

⚠ Caution • • • That may cause Minor injury or Property damage.

1. Use the product at the rated range power supply voltage and load.
2. Do not use the product at the following environment.
 - Where there is exposed to metal powder, dust, water, chemicals, oil, etc.
 - Where there is corrosive gas.
 - Outdoors or in direct sunshine.
 - Where condensation occurs.
 - Temperature and humidity outside the rated range.
 - Where there is vibration or impact.
3. Do not let metal powder, dust, water, chemicals or oil into the product.
There is a risk of break down or fire.
4. Check periodically for defects and abnormalities.
5. If the product is break down, firing, emitting smoke, overheating, abnormal noise, etc. turn off the power immediately and stop using it.
6. Install a switch or circuit breaker where it can be operated immediately in an emergency, Then indicate that is a shutoff device.
7. Do not place the product and wiring near noise sources.
8. If there is a possibility of invasion the lightning surges, install countermeasure parts such as a lightning arrestor in outside.
9. It can be used almost at the same time as the power is turned on, but requires 30 minutes of power to meet all performance requirements.
10. When cleaning, wipe with a dry cloth. Do not use organic solvents such as benzine, thinner and alcohol.
11. If the waterproof packing is used in a deteriorated state, the waterproof and dustproof function will be impaired. Inspect and trade it periodically.
12. Use devices connected to each terminal of the terminal block, that is properly isolated from dangerous live parts.
13. Since this machine has no power-on switch, it will be in an operating state immediately after power supply impression.
On the side of your equipment that you equip the machine with, please be prepared to supply the switch and circuit breaker which adapted to IEC/EN60947-2 or IEC/EN60947-3 standard in the position that you can operate immediately in emergency. Moreover, please specify that they are interrupting devices.
14. This machine is designed to be used with the panel mounted.
Otherwise, the protection provided by the device may be impaired.
15. Use power code with the temperature rating 70 °C or more.

Product Description

This product is a panel mount meter that can measure Speed/Rotation/Flow rate/Ratio /Shot speed/Street time/Cycle timer/Stopwatch.

The preset output function of two points has been equipped normally. The preset output two points and the analogue signal and the BCD signal outputs can be added in the option. The option to which the preset setting value can be input from the outside by the BCD signal is prepared.

With the panel mounted, the front has been protected by grade IP66, dust and water resistant products.

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1. About confirmation of an attachment and a guaranteed period

About confirmation of an attachment.

When you received as a product, please confirm whether it includes the following.

- (1) SP-556 (The chosen specification) 1
- (2) SP-556 Operation manual (Digest version) 1
- (3) Unit label (Attachment) 1

If there are the mistaking parts and the missing parts, please inform a dealer or us.
(There is a case that you don't attach by convenience.)

About a guaranteed period and a guaranteed area.

1. Guaranteed period

The period a product guarantees is 4 years from a delivered day.

2. Guaranteed area

If we trouble by responsibility in whole guaranteed period, it's repaired without charge at our factory. But if a product conflicted in the following matter, it isn't a guarantee target. Please understand.

- ① Case of outside of the product specifications.
- ② Case of User-conducted alterations and modifications of the unit.
- ③ Case of besides our responsibility.
- ④ Case of safekeeping and transportation beyond the product specification condition.
- ⑤ Case due to natural disaster and accident.

2. Specifications

(1) Standard specifications

Item		Specifications
Measurement	Measuring types	Ratemeter (speed, rotation, flow rate), differential rate, ratio, shot speed, passing time, cycletimer, stop watch
	Measuring system	Periodic sampling operation
Rate Meter	Display	7segment red LED, 5digits, character height : 14mm
	Measurement accuracy	< speed, rotation, flow rate, differential rate, ratio, passing time > ±0.05% rdg. ± 1 digit (at Sampling time for 0.5 second or more , per one input)
		< shot speed > ±0.1% rdg. ± 1 digit (in one measurement less than 100Hz)
		< cycletimer, stop watch > ±0.05% rdg. ± 2ms ± 1 digit (in one measurement)
	Scaling	1 × 10 ⁻⁹ - 9999
	Indication area	-9999 - 99999
	Overflow indication	"99999" flashing or "-9999" flashing
	Time unit	Per hour , per minute , per second
	Decimal point	10 ⁻¹ , 10 ⁻² , 10 ⁻³ , nothing
	Sampling time	Rate reading averaged by 0.1 sec - 99.9 sec
	Display blank	Blank the measured value
	Moving average	Averaged by 1 - 19 input pulses. (Response frequency : 20Hz or less)
	Auto zero time	After the input is stopped, 0.5 - 120 seconds have passed and then "0" is displayed.
	Least significant digit	Real/Fixed at "0"/Fixed at "0" or "5"
	Reset	Reset the measurement with the front part reset key and RST input on the terminal block.
Sensor Input	Input signal	NPN open collector or non-voltage contact *Sensor conditions: • Residual voltage 2V or less when ON, leakage current 1.5mA or less when OFF • Ability to open and close a load current of 10 mA
	Response frequency	LOW : 0.01Hz~50Hz MID : 0.01Hz~1kHz HI : 0.01Hz~10kHz (duty50%)
	Sensor power supply	DC+12V(±10%) 100mA
Reset input	Input method	NPN open collector or non-voltage contact *ON for 50 ms or more
EXT Input	Input method	NPN open collector or non-voltage contact *ON for 50 ms or more
	Operation selection	Hold, peak hold, bottom hold, reverse rotation input

Preset output	Output method	NPN open collector (×2)
	Maximum rating	DC30V 50mA
	Comparison method	Compare the displayed value with the preset value Upper limit, lower limit (immediate), lower limit (delay)
	Output mode	Compare, hold, 1 shot
	Judgment prohibition time	Stops preset output for 0 to 99 seconds after power is turned ON or after reset
Others	Data backup	Save each setting value in FRAM Write less than 100,000 times, keep about 10 years
	Mode protect	Prohibit changing mode settings
	Rated power supply voltage	AC100-240V (-15% / +10%) 120mA max 50/60Hz (Allowable range : AC85-264V)
	Power consumption	20 VA or less
	Ambient temperature and humidity	0-50°C 30-80% RH (no condensation)
	External dimensions and weight	W96 × H48 × D130mm Approx 400g
	Color	Gray
	Case material	ABS resin (Terminal block : PBT black)
	Protection class	IP66 (Front only)
	Usage environment	Indoor use, Maximum altitude 2,000 m, Overvoltage category II, Pollution degree 2
	Low Voltage Directive	EN 61010-1
	EMC	EN61326-1 EN55011 (Group1 ClassA), EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11

(2) GL option

Display	Display	7segment green LED, 5digits, character height : 14mm
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(3) P2 option

Preset output	Output method	PhotoMOS relay a contact (×2)
	Maximum rating	AC140V 0.12A (resistive load) DC30V 0.12A (resistive load)

(4) AI, AV3, AV4, AV5 options

Analog output	Output signal	[A I] DC4-20mA Load resistance: 500Ω or less
		[AV3] DC1-5V Load resistance: 2kΩ or more
		[AV4] DC0-5V Load resistance: 2kΩ or more
		[AV5] DC0-10V Load resistance: 2kΩ or more
	Accuracy	±0.3% of the displayed value F. S. (23°C)
	Temperature characteristic	±100ppm/°C
	Response time	Approximately 50 ms (output change 0 → 90% arrival time)
Maximum resolution	4000	

(5) B option

BCD output	Output format	All digits parallel
	Output method	NPN open collector
	Output timing	TI signal (every display update)
	Maximum rating	DC30V 10mA
	TI signal (take-up inhibition)	Outputs with a width of about 25 ms when updating data

(6) BI option

BCD input	Input format	All digits parallel
	Input method	NPN open collector
	Input timing	Every calculation cycle
	Maximum rating	Load current about 3mA
	Latch signal	Prohibition of data import

(7) F, F2(W), V3, N, L1 options

Sensor input	Input signal	[F] Voltage pulse input LOW : 2V or less HI : 3.8-30V
		[F2(W)] Current modulation pulse input LOW : 8 mA or less HI : 15-20 mA
		[V3] Tacho-generator signal input AC 0.8-80Vp-p 3kHz or less
		[N] Sine wave input AC50mV-20Vp-p 3kHz or less
		[L1] Line receiver 1-phase (A/ \bar{A}) input

(8) HI option

Sensor input	Input signal	[HI] High-speed pulse input (NPN open collector pulse/voltage pulse/line receiver input) Response frequency : 0.01 Hz - 120 kHz (duty 50%)
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(9) S24 option

Sensor power supply	Sensor power supply	[S24] DC24V ($\pm 10\%$) 60mA
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(10) DC, K, C, DM, DM-CB options

Others	Rated power supply voltage	[DC] DC12-24V (allowable range $\pm 10\%$)
	Color	[K] Black
	Terminal block cover	[C] Terminal block cover attached
	Stationary type	[DM] Stationary case attached [DM-CB] Includes stationary case and 3-core cable for stationary case (for AC100V)

3. Mounting meter

How to mount meter

1.

Cut the panel to insert the meter from the front.

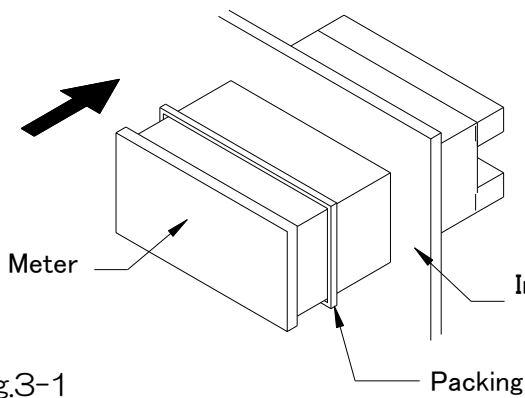
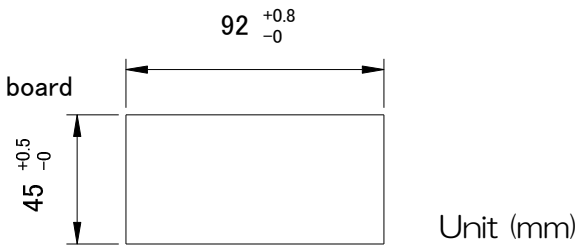


Fig.3-1

Panel cutout dimensions



2.

Please push the Fitting for fixing the body into a right and left both sides of the meter.

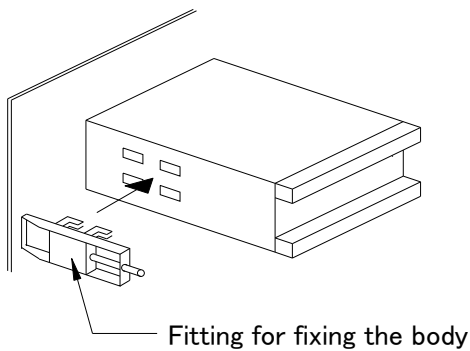


Fig.3-2

Slide in the rear side (terminal stand side) as for the fitting for fixing the body. It turns a screw by the driver. The meter is fixed (right and left both sides)

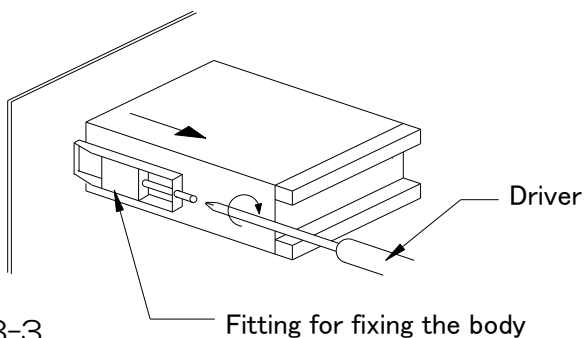


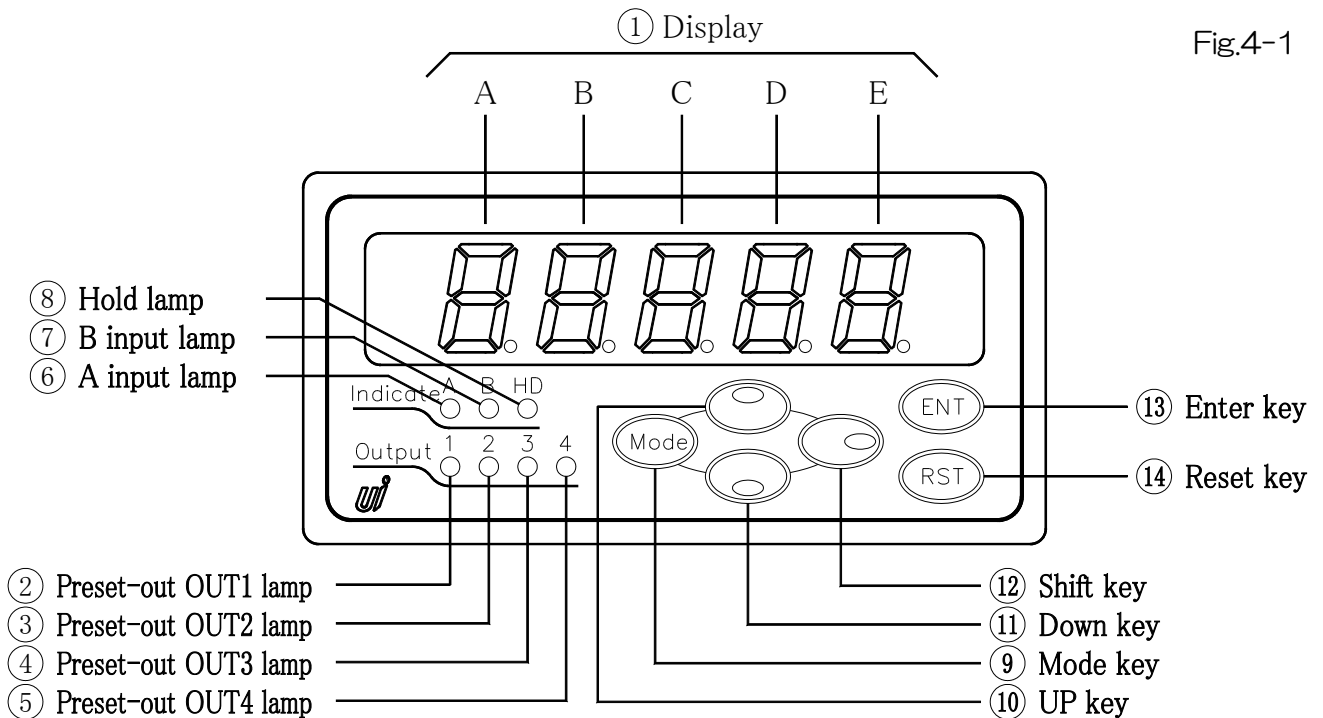
Fig.3-3

! <Caution>

1. Please install it horizontally.
2. Fit the body on to a panel 1.0-4.0 mm in thickness.
3. Please do not tighten the screw of the mounting bracket too much.
(The case might be damaged when tightening too much.)
4. When you mount the machine, please provide a space of at least 20mm from the wall in the direction of up and down, right and left and rear (terminal stand side).

4. Names and functions of components on front

Fig.4-1



① Display unit (A to E)

Measurement state : Measurements are displayed.

Setting state : When the mode is set, it displays it as follows.

A Mode No. is displayed.

B - E Mode items such as the converted value, etc are displayed.

: When the preset output is set, the value input now is displayed.

: When the teaching function is set, the value set now is displayed.

②—⑤Preset output lamp

Measurement state : When the preset output is output, it lights.

Setting state : When the preset output is set, OUT1-4 that is setting it now is displayed.

⑥, ⑦Each input display lamp

Measurement state : When Mode No.0 BC is "02"-"07"(ratio measurement), the measurement display switch of Ratio measurement (A and B input lamp is turned off)/
A input measurement (A input lamp light.)/
B input measurement (B input lamp light.) can be done.

Setting state : The set A input measurement or B input measurement lamp lights when the teaching function is set.

⑧Hold display lamp

Hold input function is set in Mode No.7 B. (Refer to P.27)

When the hold input of the terminal stand is turned on, and the holding operation is done, it lights.

⑨ **Mode key** 

Measurement state : It enters the mode setting state if Mode key + Shift key are pushed for 2 sec. or more.

: It enters the preset output setting state if only Mode key is pushed for 2 sec. or more.

Setting state : When the mode is set, the mode number is raised.

When the preset output is set, OUT 1-4 is changed.

⑩ **Up key** 

Setting state : When each setting it, the numerical value of a set digit is raised.

⑪ **Down key** 

Measurement state : When this key is pushed for 2 sec. or more, the state of the mode protecting is displayed. (Refer to P.34 Mode protect function)

Setting state : When each setting it, the numerical value of a set digit is lowered.

⑫ **Shift key** 

Measurement state : When Mode No.0 BC is "00" (A input measurement) or "01" (B input measurement), The teaching function works. (Refer to P.35 Teaching function)

Setting state : When each setting it, a set digit is shifted to a right digit.

⑬ **Enter key** 

Measurement state : When Mode No.0 BC is "02"-"07" (ratio measurement), the measurement display switch of Ratio measurement / A input measurement / B input measurement can be done.

Setting state : When the mode is set, and the preset output is set, a set value is registered, and it returns it to Measurement state.

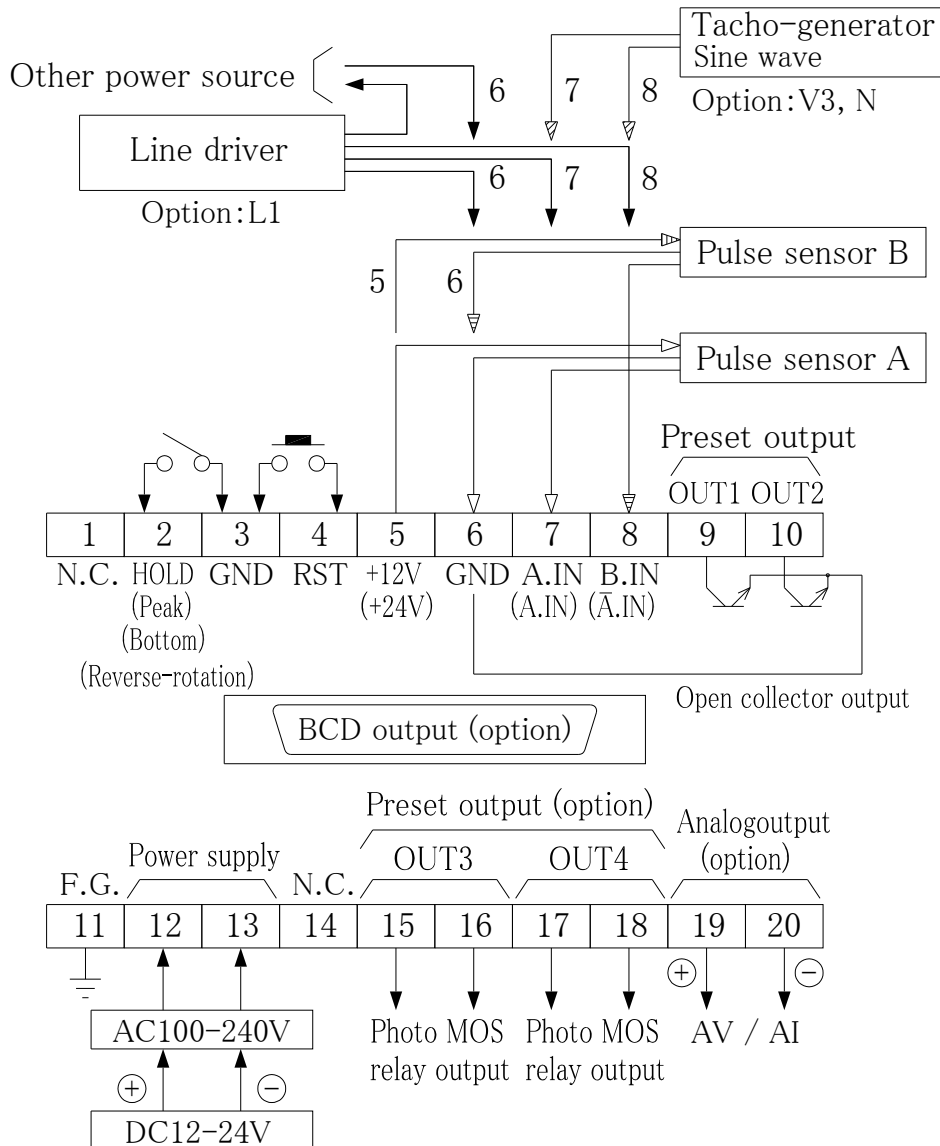
⑭ **Reset key** 

Measurement state : When this key is pushed for 2 seconds or more, the output of measurement reset (Indicated value 0) and preset output OFF.

Setting state : When the mode is set, and the preset output is set, a set value is not registered, and it returns it to Measurement state.

5. Connecting terminal boards

Fig.5-1

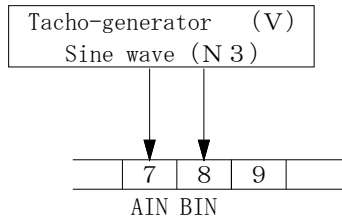


! <Caution>

- 1) For safety, wiring should be performed by a person who has specialized technology such as electrical work and electrical wiring.
Also, be sure to turn off the power before wiring the electric wires.
Please shut off the power when electrical wiring.
- 2) Power supply confirmation
 - Confirm the specification of the AC power supply type and the DC power supply type well.
 - DC power supply type notes the polarity.
- 3) Wire correctly after often confirming the terminal stand label.
- 4) The wiring technique is different depending on the kind of the sensor.
Wire correctly referring to the connection diagram (P.9) and the manual of the sensor.
The sensor and the meter might break down when connecting it by mistake.
- 5) Do not use the sensor power supply for the usages other than the sensor.
- 6) Tighten the screw of the terminal stand surely.
- 7) Do not touch the terminals while power is being supplied. There is a risk of electrical shock.

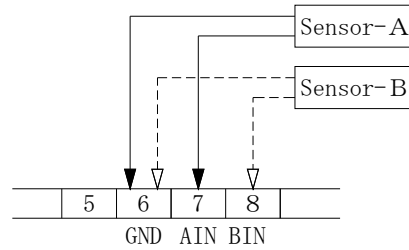
A. Tacho-generator / Sine wave

Fig.5-2



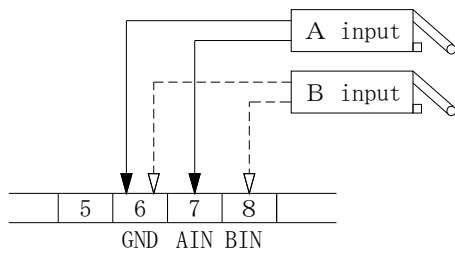
B. Pulse output 2-wire type sensor

Fig.5-3



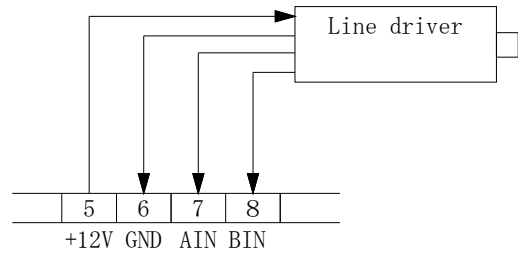
C. Ground contact output sensor

Fig.5-4



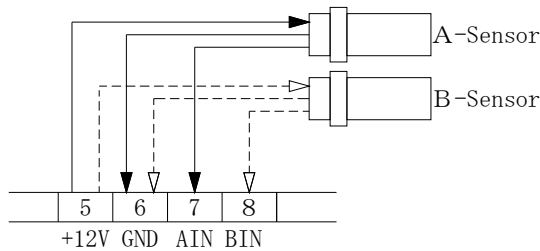
D. Line driver encoder

Fig.5-5



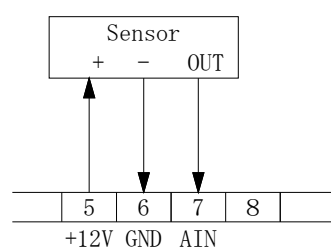
E. Pulse output 3-wire type sensor

Fig.5-6



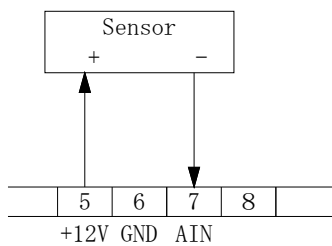
F. Current pulse input (3-wire pulse sensor)

Fig.5-7



G. Current pulse input (2-wire pulse sensor)

Fig.5-8



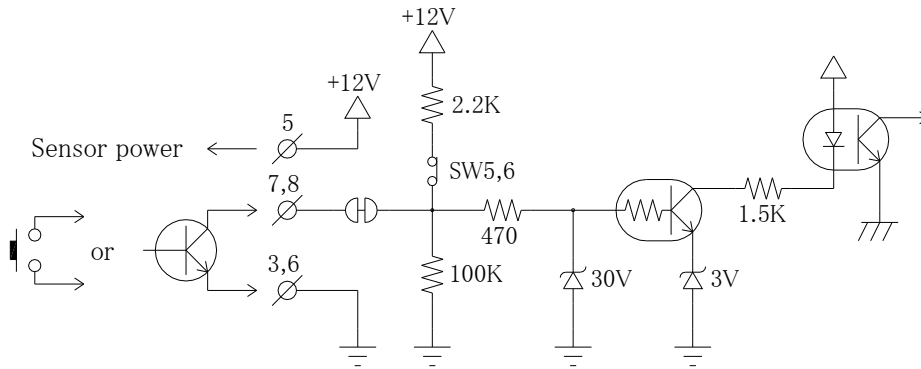
NOTE

- When mis-counting by the chattering of the having point of contact input, (Relay etc.) Connect the electrolytic capacitor with terminal stand 6-7 (A input) and 6-8 (B input) according to the frequency.
- When mis-counting because of the noise etc, Connect the film capacitor with the same terminal according to the width of the input frequency and the noise.

6. Construction of input circuit

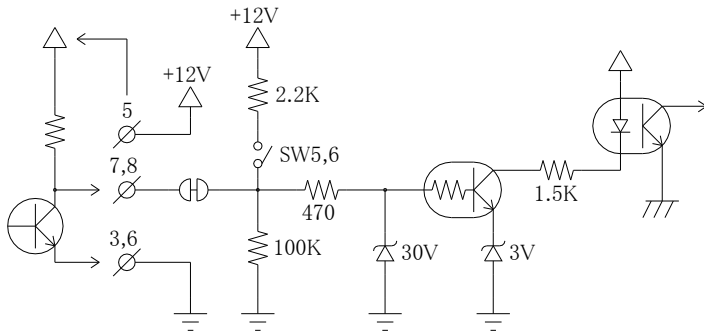
① NPN open collector pulse input

Fig.6-1



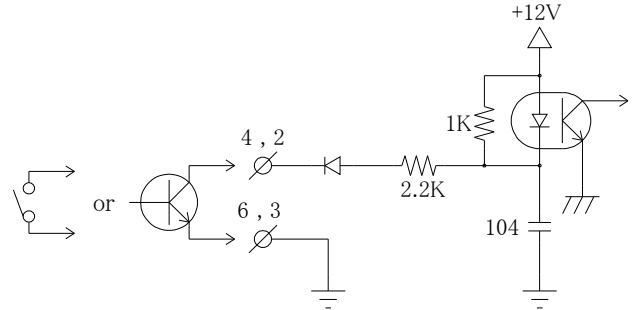
② Voltage pulse input

Fig.6-2



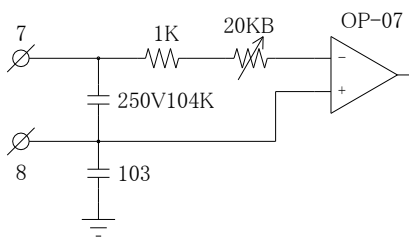
③ Reset • Hold input

Fig.6-3



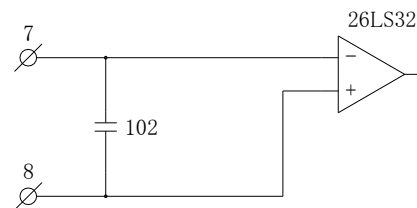
④ Tacho-generator signal input/Sine wave signal input

Fig.6-4



⑤ Line driver input

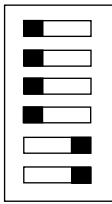
Fig.6-5



7. Dip switch

Sensor input, and relationship of the sensor input response is shown in Table7-1.

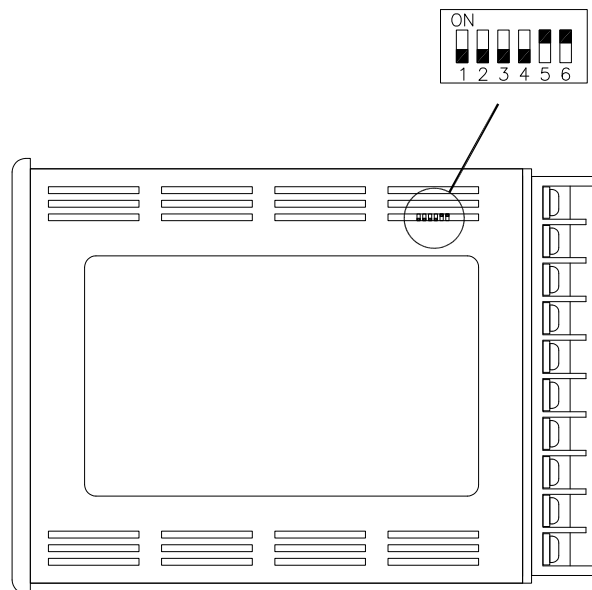
Table.7-1

	B.IN		A.IN		B.IN	A.IN	OFF⇄ON 
	1	2	3	4	5	6	
Input frequency 0.01Hz - 50Hz LOW	ON	OFF	OFF	ON			
Input frequency 0.01Hz - 1kHz MID	OFF	ON	ON	OFF			
Input frequency 0.01Hz - 10kHz HI	OFF	OFF	OFF	OFF			
Input frequency 0.01Hz - 120kHz ※	OFF	OFF	OFF	OFF			
NPN open collector input					ON	ON	
Voltage pulse input					OFF	OFF	

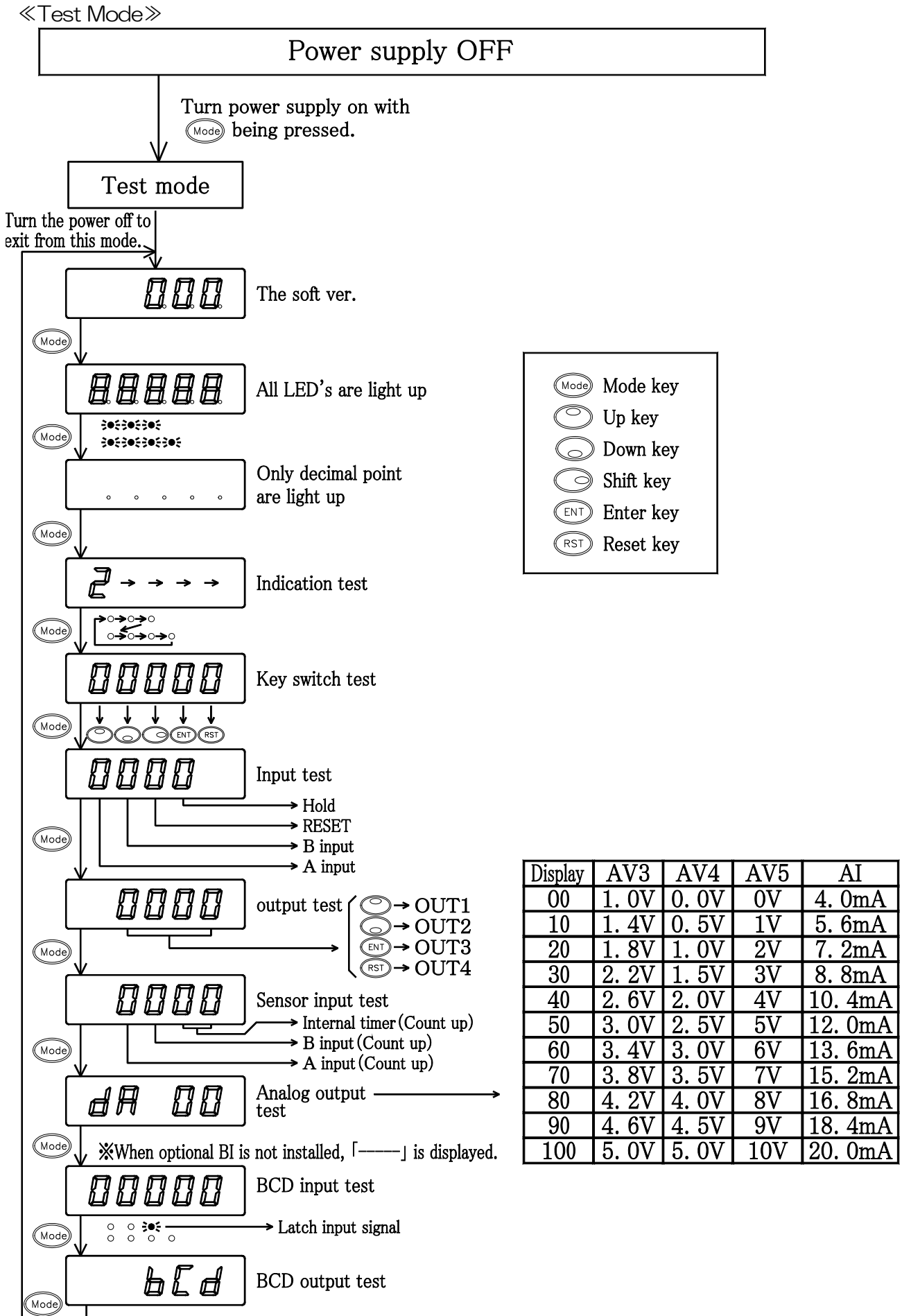
※ Option(H I) type

When a sensor optional input is not specified, sensor input is “NPN open collector”, and Sensor input response is “H I”.

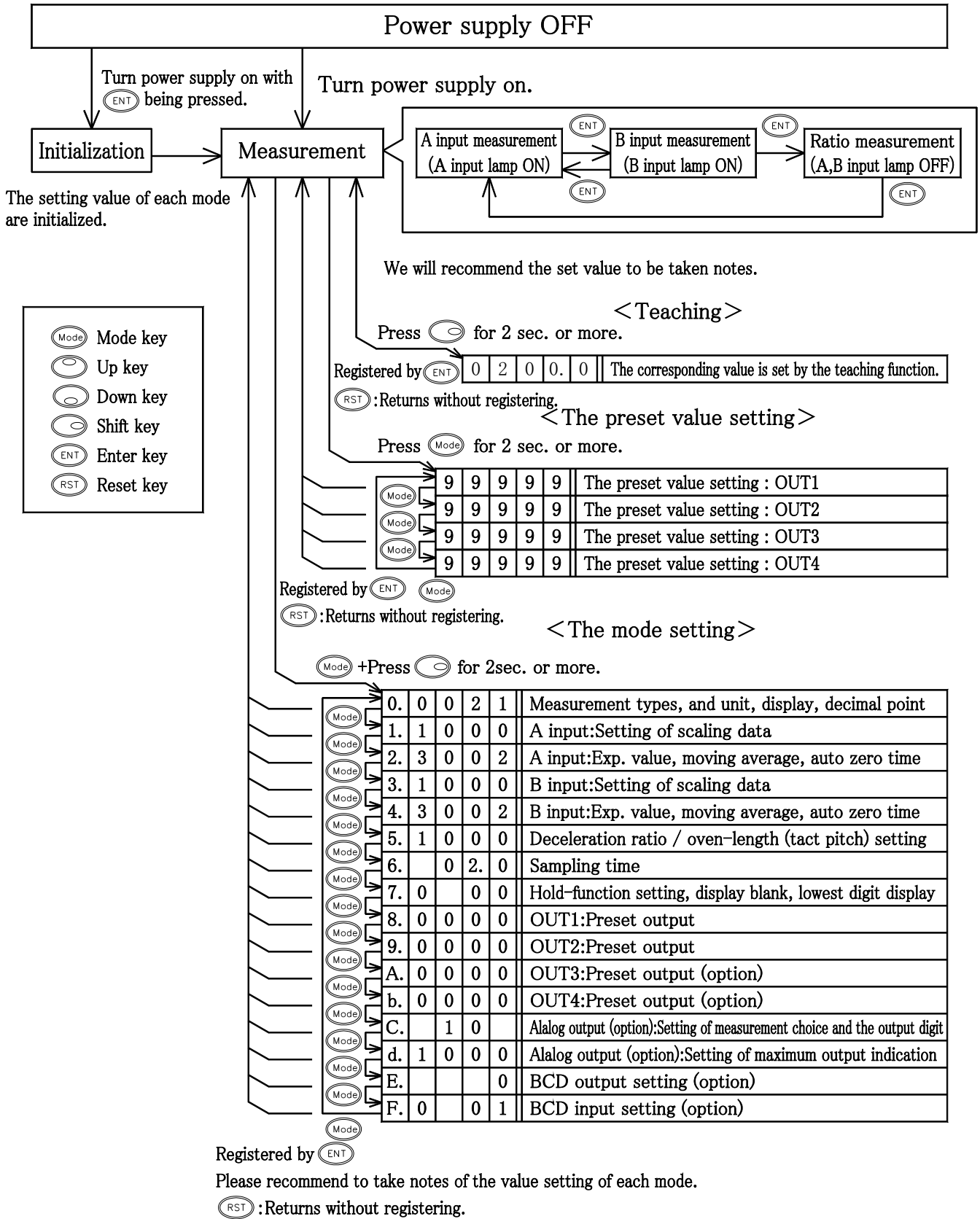
Fig.7-1



8. The setting menu



«Setting menu»



9. Initial setting values and initialization

If the specifications desired by the user are requested prior to shipment, the meter will be set these settings. Other wise, the regular factory settings are shown below.

Value setting of each mode

Table.9-1

Mode No.	Initial setting				Notes			
	B	C	D	E	B	C	D	E
0.	0	0	2	1				
1.	1	0	0	0				
2.	3	0	0	2				
3.	1	0	0	0				
4.	3	0	0	2				
5.	1	0	0	0				
6.	—	0	2.	0	—			
7.	0	—	0	0		—		
8.	0	0	0	0				
9.	0	0	0	0				
A.	0	0	0	0				
b.	0	0	0	0				
C.	—	1	0	—	—			—
d.	1	0	0	0				
E. (B)	—	—	—	0	—	—	—	
F. (B I)	0	—	0	1		—		

Presetting output set value

Table.9-2

OUTPUT No.	A	B	C	D	E	A	B	C	D	E
OUT 1	9	9	9	9	9					
OUT 2	9	9	9	9	9					
OUT 3	9	9	9	9	9					
OUT 4	9	9	9	9	9					

<Initialization>

Throw power supply in with  pressed to initialize the settings.

After the initialization, the set values will be as shown in Table 9-1, Table 9-2. Mode protect function are also cleared.

<Caution>

※Since an initialization changes all existing setting values to the initial setting values, be sure to record all the setting values before an initialization.









※In case the computer froze when unusual functioning occurred with the normal operation, initialize according to the above procedure and set the desired value again.

1 0. Content and setting the each mode

《1. Operating method (the mode setting)》

When doing mode setting, please operate as follows.

Table.10-1

Operating key	Indication	Procedure
 +  Mode key Shift key	A B C D E 0. 0 0 2 1 ↓ ↓ Mode No. Data value	While pushing down Mode key and Shift key for 2 sec or more. “0” appears in displays A ,the value setting for Mode No.0 is shown.
 Up key	A B C D E 0. 0 0 2 1 ↑ 0-9	Up key changes the flash figure. Each time the key is pressed, a flash figure is rising up. (0→1→...→9→0→1...) ※In Situation, doesn't indicate by a setting figure, up to nine.
 Down key	A B C D E 0. 9 0 2 1 ↑ 9-0	Down key changes the flash figure. Each time the key is pressed, a flash figure is down. (9→8→...→1→0→9...)
 Shift key	A B C D E 0. 9 0 2 1 ↑ → → →	A figure of flash indication is shifted. Each time the key is pressed, a flash figure is shifted, to the right.
 Mode key	A B C D E 1. 1 0 0 0 ↑ 0-9, A,b,C,d,E,F	The Mode No. is changed. Each time Mode key is pressed, the Mode No. is rising. [Rise] (0→1→...→F→0→1...) All modes are “0-F”. When the Mode No. reached “F”, return to “0”.
 Enter key		After adjusting the setting, use Enter key to register it. It returns to the measurement display after a set value is registered.
 Reset key		It returns to the measurement display without registering a set value.

⚠ <Caution>

※Please make the mode protect function “L-off” at the mode setting. If it's a condition of “L-on”, it can't be changed.

About the contents of the mode protect function, please refer to “11.Mode protect function”.

<<2. Content of the each mode and set value>>

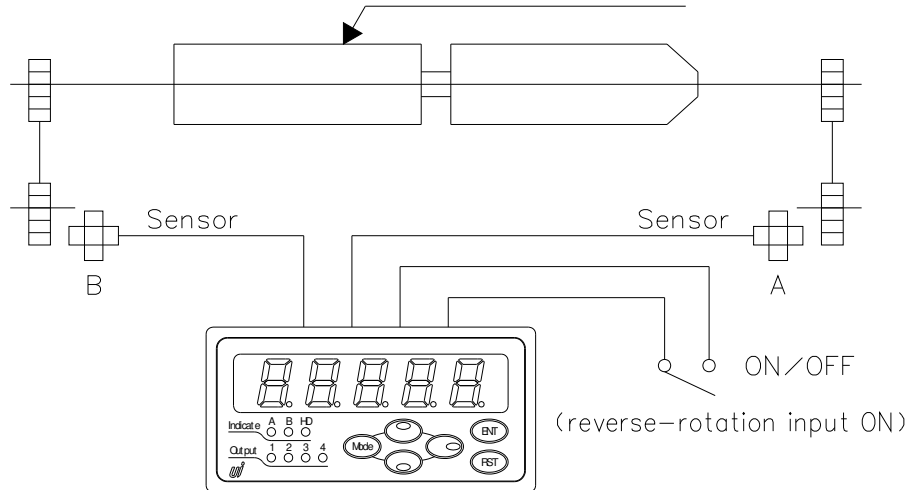
Mode No.	Measuring types, Measurement unit, Display decimal point										
0	<div style="display: flex; align-items: flex-start;"> <table border="1" style="margin-right: 20px;"> <tr> <td style="padding: 2px;">A</td> <td style="padding: 2px;">B</td> <td style="padding: 2px;">C</td> <td style="padding: 2px;">D</td> <td style="padding: 2px;">E</td> </tr> <tr> <td style="padding: 2px;">0.</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">0</td> <td style="padding: 2px;">2</td> <td style="padding: 2px;">1</td> </tr> </table> <div style="margin-left: 20px;"> <p>→ Display decimal point setting 0 : 0 2 : 0.00 1 : 0.0 3 : 0.000</p> <p>→ Measuring unit 0 : hour 1 : minute 2 : second 3 : hour-minute 4 : minute-second</p> <p>→ Measuring types 00 : A-input : speed, rotation, flow rate measurement 01 : B-input : speed, rotation, flow rate measurement 02 : Ratio measurement (absolute ratio measurement) $B/A \times 100$ 03 : Ratio measurement (error ratio measurement) $(B-A)/A \times 100$ 04 : Ratio measurement (difference measurement) $A-B$ 05 : Ratio measurement (density) $B/(A+B) \times 100$ 06 : Ratio measurement (sum measurement) $A+B$ 07 : Ratio measurement (differential rate measurement) $(A+B)/R$ or $(A-B)/R$ 08 : Passing time measurement 09 : Shot speed UA (2 sensor one direction speed) 10 : Shot speed UB1 (1 sensor one direction speed) 11 : Shot speed UB2 (1 sensor reciprocal speed) 12 : Shot speed UC (2 sensor reciprocal speed) 13 : Cycle-timer measurement 14 : Stop watch A 15 : Stop watch B NOTE : Upon setting 16 - 19, same operation as with 00 is mode.</p> </div> </div> <p style="margin-top: 20px;">Option : AI /AV3-5 In analog output, The real-time output functions only when I set Mode No.0 "00"(A input) or "01"(B input) or "08"(Passing time measurement). Otherwise, set it in 1 (Synchronizes for the display).</p> <p style="margin-top: 20px;">When use analog output, the measurement unit choose 0(hour) or 1 (minute) or 2(second).</p>	A	B	C	D	E	0.	0	0	2	1
A	B	C	D	E							
0.	0	0	2	1							
(00) (01)	<p>[Ratometer] When I use it in Ratometer (speed, rotation,flow rate), choose this mode. Choose "00"(A input) or "01"(B input).</p>										

- (02) absolute ratio measurement • • $B/A \times 100$
 (03) error ratio measurement • • • • $(B-A) / A \times 100$
 (04) difference measurement • • • • $A-B$
 (05) density • • • • • • • • • • • • $B / (A+B) \times 100$
 (06) sum measurement • • • • • • $A+B$

[differential rate measurement]

There is a signal of two kinds of number of revolutions of A and B,
 The 2 signals are input, and the following calculation is considered to be it.
 Furthermore, analog output and the preset output are possible for indication
 value data.

Deceleration ratio "R" R : 0.1 ~ 999.9



1) Calculation type

- ① A and B turn in the same direction : $(A-B) / R$
 [Terminal stand 2-3 is a state of OFF]
 ② A and B turn to the opposite direction : $(A+B) / R$
 [Terminal stand 2-3 is a state of ON]

2) Setting method

- ① Set scaling of A input and B input : (Mode No.1-4)
 ② Deceleration ratio (R) setting : (Mode No.5)
 ③ Sampling time : (Mode No.6)
 ④ Setting of the preset output (Std.) : (Mode No.8, 9)
 (Option) : (Mode No.A, b)
 ⑤ Setting of the analog output.
 (Option) : (Mode No.C, d)
 ⑥ Setting of the reverse-rotation input : (Mode No.7)

3) Operation explanation

- ① A input lamp lights up when I push **ENT** during a measurement,
 and number of revolutions of the A input is displayed.
 B input lamp lights it up when I push **ENT** once again and
 displays number of revolutions of the B input.
 A input lamp and B input lamp turn off the light when I push
ENT once again, and differential rate is displayed.

- ② Reverse-rotation input is shown terminal stand 2-3 when
 short-circuit.

When, in this state, I operate the above "①", Number of
 revolutions and differential rate of each input are displayed.

Perform the A input with open collector signal or no voltage point
 of contact signal

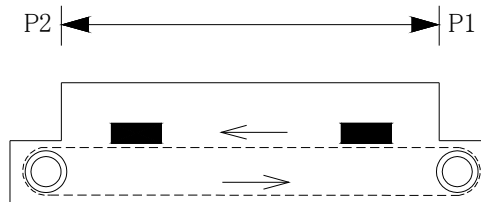
(08) [Passing time measurement]

When it is measured time via P2 by P1 (Distance, Oven-length, tact pitch), please choose this mode.

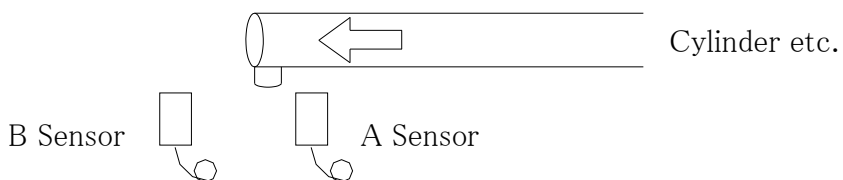
Set the unit of scaling in "mm".

(Refer to Mode No. 5 : Oven-length (tact pitch) setting)

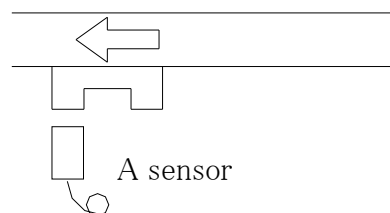
Oven-length (tact pitch) (Ex : 3. 00m)



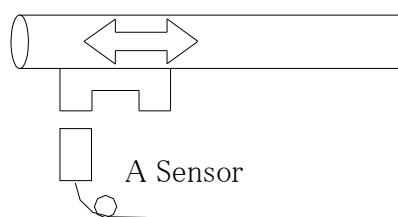
(09) [Shot speed]
UA type (2 sensor one direction speed)



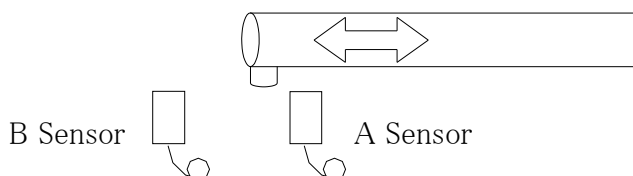
(10) UB1 type (1 sensor one direction speed)



(11) UB2 type (1 sensor reciprocal speed)



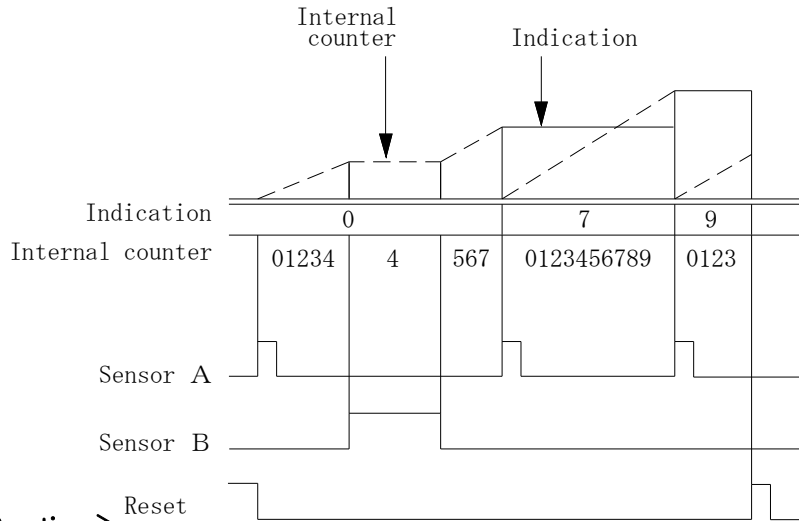
(12) UC type (2 sensor reciprocal speed)



(1 3)

[Cycle-timer measurement]

- 1) When sensor input A does ON, it is started time measurement.
- 2) It is displayed measurement time when sensor input did ON again, and time measurement is started again.
- 3) The time measurement is suspended between ON sensor input B.
- 4) When ON did reset input, indication is returned to 0, and the time measurement stops.



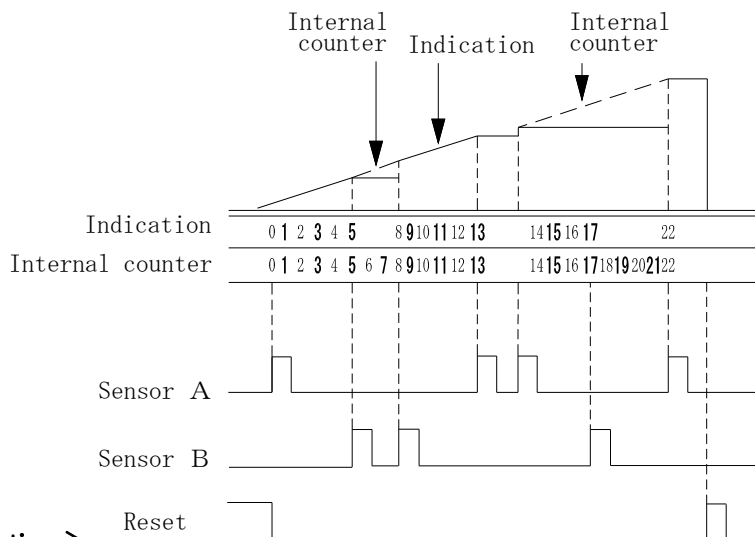
! <Caution>

When blackout and power supply OFF are considered to be it when they use this function, indication measuring returns to 0.

(1 4)

[Stop watch A]

- 1) When sensor input A does ON, a measurement is started and displays it at the same time. When sensor input A does ON once again, a measurement is stopped.
- 2) Sensor input B works as input in a lap time. When ON is considered to be it during time measurement, the indication is performed hold of, but can continue measuring the time. Then, When B sensor input does ON, it is gone back up for time measurement indication. The second input is not B sensor, and, in the case of A sensor, the time until the point in time is displayed, and time measurement is stopped.
- 3) When ON did reset input, indication is returned to 0, and the time measurement stops.



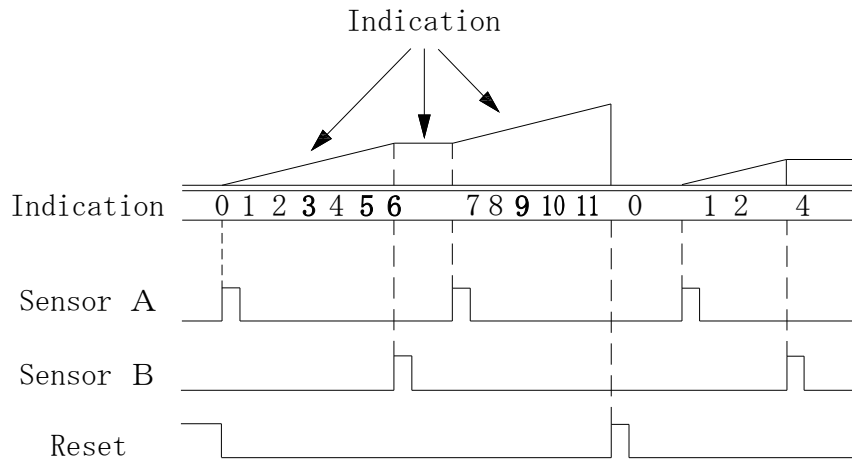
! <Caution>

When blackout and power supply OFF are considered to be it when they use this function, indication measuring returns to 0.

(15)

[Stop watch B]

- 1) When sensor input A does ON, a measurement is started and displays it at the same time.
- 2) When ON does B sensor next, a measurement stops.
- 3) When reset input is performed ON of, indication and the internal counter are corrected to 0 and are stopped time measurement



! <Caution>

When blackout and power supply OFF are considered to be it when they use this function, indication measuring returns to 0.

Measuring unit

- 1) Choose any Measuring unit. But, when I chose "00"(A input) or "01"(B input), "03-07"(Ratio measurement), "09-12"(Shot speed).
3 : hour-minute becomes 1 : minute.
4 : minute-second becomes 2 : second.
- 2) When it is chosen "08"(Passing time measurement), "13~15"
(Cycle-timer, Stop watch A and B) by a measuring types,
3 : hour-minute and 4 : minute-second are selectable.

When it is chosen Measuring unit above, please refer to P.36 (caution below) for preset output.

Display decimal point setting

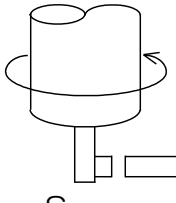
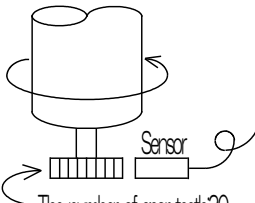
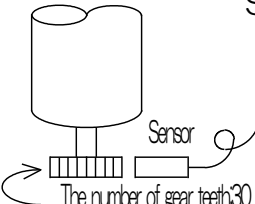
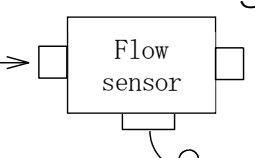
Please set a position displaying a decimal point.
But the decimal point is ignored when I set 3 : hour-minute or
4 : minute-second with Mode No.0 "D : Measuring unit".

NOTE

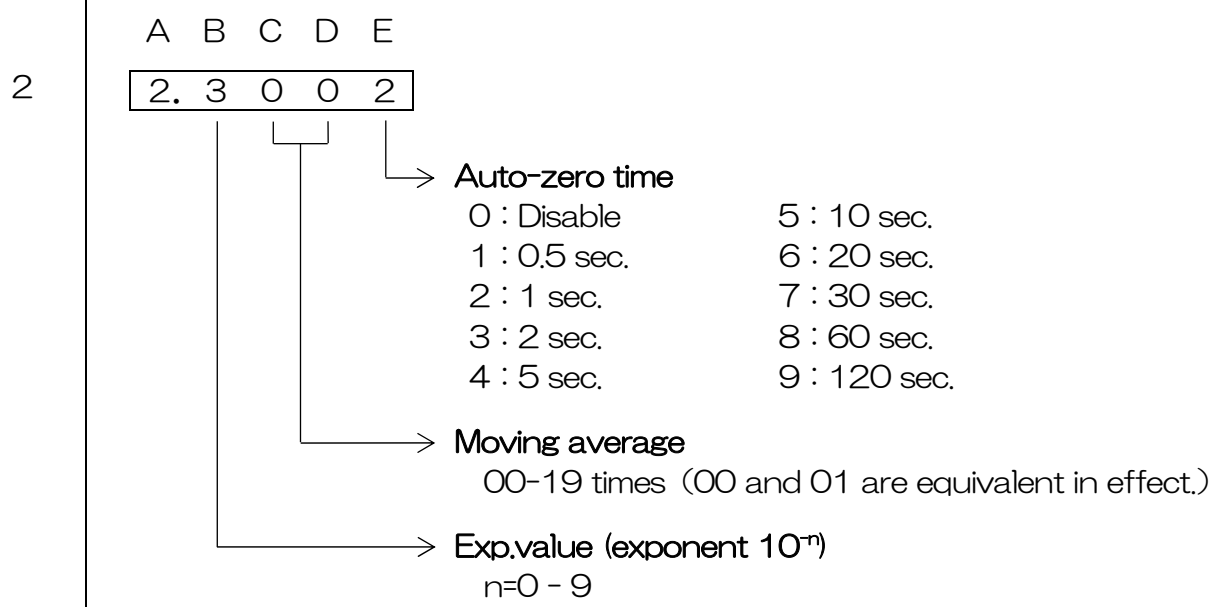
This decimal point setting links setting of the preset output.

Mode No.	A-input : Setting of scaling data																												
1	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr> <tr><td>1.</td><td>1</td><td>0</td><td>0</td><td>0</td></tr> </table> <p style="text-align: center;">Scaling data : 0001 – 9999 (Do not set 0000)</p> </div> <hr style="border-top: 1px dashed black;"/> <p>Please set the pulse rate (scaling data) of the sensor. 4 digit of numerical value to set with this mode, and please input Exp.value of Mode No. 2. Then “$1 \times 10^{-9} \sim 9999$” can set the magnification per 1 signal.</p> <p>Measuring types : 08(Passing time measurement), set it in unit “mm/p” Measuring types : 09~12(shot speed), set the distance between the sensor.</p>	A	B	C	D	E	1.	1	0	0	0																		
A	B	C	D	E																									
1.	1	0	0	0																									
	<p>[Ex.] Using a flow sensor which emits 1 pulse per 1.234mL, the cumulative total flow in liters can be expressed using the following conversion.</p> <div style="text-align: center; margin-top: 20px;"> $1.234\text{mL} \longrightarrow 0.001234\text{L} \xrightarrow{\text{Scaled to the desired unit (L)}} \frac{1234}{10^6} \times 10^{-6}$ </div> <div style="text-align: center; margin-top: 10px;"> <table style="margin: auto;"> <tr> <td></td> <td></td> <td style="text-align: center;">4 digits(Scaling data)</td> <td style="text-align: center;">Exp. Value(exponent)</td> </tr> <tr> <td></td> <td style="text-align: center;">A</td><td style="text-align: center;">B</td><td style="text-align: center;">C</td><td style="text-align: center;">D</td><td style="text-align: center;">E</td> </tr> <tr> <td>Mode No.1</td> <td style="border: 1px solid black; padding: 2px;">1.</td> <td style="border: 1px solid black; padding: 2px;">1</td> <td style="border: 1px solid black; padding: 2px;">2</td> <td style="border: 1px solid black; padding: 2px;">3</td> <td style="border: 1px solid black; padding: 2px;">4</td> </tr> </table> <table style="margin: auto;"> <tr> <td></td> <td style="text-align: center;">A</td><td style="text-align: center;">B</td><td style="text-align: center;">C</td><td style="text-align: center;">D</td><td style="text-align: center;">E</td> </tr> <tr> <td>Mode No.2</td> <td style="border: 1px solid black; padding: 2px;">2.</td> <td style="border: 1px solid black; padding: 2px;">6</td> <td style="border: 1px solid black; padding: 2px;">*</td> <td style="border: 1px solid black; padding: 2px;">*</td> <td style="border: 1px solid black; padding: 2px;">*</td> </tr> </table> </div> <hr style="border-top: 1px dashed black;"/> <p>The above is based on the example of flow rate measurement, while for examples of conversion value, refer to next page.</p> <p>For ratio-measurement, sensor is connected to A and B for each 1 piece, then, set Mode No.“3”and“4”.</p>			4 digits(Scaling data)	Exp. Value(exponent)		A	B	C	D	E	Mode No.1	1.	1	2	3	4		A	B	C	D	E	Mode No.2	2.	6	*	*	*
		4 digits(Scaling data)	Exp. Value(exponent)																										
	A	B	C	D	E																								
Mode No.1	1.	1	2	3	4																								
	A	B	C	D	E																								
Mode No.2	2.	6	*	*	*																								

Calculation example of scaling data (setting example)

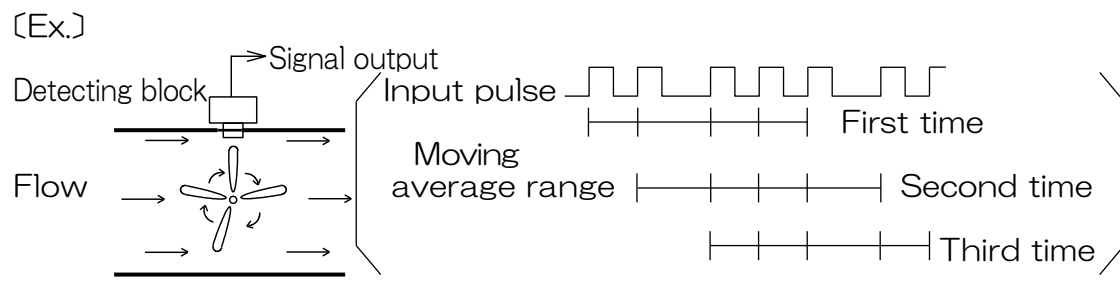
Example	Arithmetic expression
Arithmetic expression	In case of " Revolution " Scaling data=1 revolution/pulse In case of " Speed " Scaling data=Amount of transfer/pulse In case of " Flow " Scaling data=Flow rate value/pulse
〔Ex.1〕 Revolution	Factor → 1 revolution/1 pulse =1  $\underbrace{0001 \times 10^{-0}}_{\text{"Mode No.1"}} \quad \text{Exp. value "Mode No.2"} \quad \text{or} \quad \underbrace{1000 \times 10^{-3}}$ ※ Please register scaling data of "the left side or "the right side". The right side can be adjusted slightly.
〔Ex.2〕 Revolution	Factor → 1 revolution/30 pulse=1/30=0.033333  $\underbrace{3333 \times 10^{-5}}_{\text{"Mode No.1"}} \quad \text{Exp. value "Mode No.2"}$ ※ Please register scaling data of "Mode No.1" and "Mode No.2". The number of gear teeth 30
〔Ex.3〕 Speed	Factor → The speed of " Drive roller ; 100 φ " is indicated. Scaling data=Amount of transfer/pulse Scaling data=100×π/30≐10.47197mm  $\begin{aligned} \text{In case of " mm/min " } & 1047 \times 10^{-2} \\ \text{In case of " cm/min " } & 1047 \times 10^{-3} \\ \text{In case of " m/min " } & \underbrace{1047 \times 10^{-5}}_{\text{"Mode No.1"}} \quad \text{Exp. value} \end{aligned}$
〔Ex.4〕 Flow	Factor → 7.692mL/pulse Scaling data=Flow rate value/pulse In case of " mL/min " 7692×10 ⁻³ In case of " L /min " 7692×10 ⁻⁶  $\underbrace{7692 \times 10^{-6}}_{\text{"Mode No.1"}} \quad \text{Exp. value}$

Mode No. A-input : Exp.value, moving average, auto-zero time



[Exp. Value]
 The magnification per 1 pulse is decided at registered property of "Mode No.1" and "Exp. value".

[Moving average range]
 Set the number of pulses to be averaged. For example, when 04 is set, four pulse intervals are read, averaged, and indicated. When the latest one pulse is taken in, the preceding pulse interval is remove, and repeat moving-averages measurement for new four pulse intervals.
 This function is effective in the case that the flow rate value per pulse is not exact.
 ※This function should be applied only at 20 Hz or less.



For example, if fitting angles four blades of the impeller are uneven, the indication is unstable even if the flow rate is constant, but setting 4 for moving average offers averaged values that took the latest pulse intervals in. And as seen in the above figure, the averaging is made every time when a pulse comes in, but the indicated time becomes that set according to "the setting of the sampling time" of "Mode No.6".

《Relationship between the moving average range and sampling time》
 The newest data, obtained from the moving average performed at the preset sampling interval, is indicated in the reading if sampling is specified.

[Auto-zero time]
 If no input signal comes in within the set time, this function returns the reading indication value to "0".

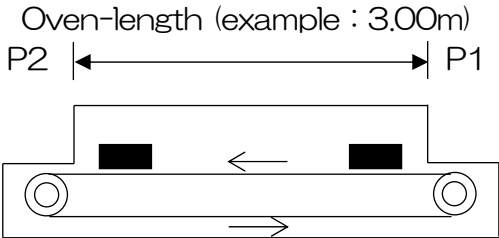
2	(Ex.) The magnification per 1 signal assumes it 0.1234, and the moving average zeroes indication by invalidity five seconds after the last input signal.					
	A	B	C	D	E	Mode No.1
	1.	1	2	3	4	B~E : (1 2 3 4 × 10 ⁻⁴ = 0. 1 2 3 4)
	A	B	C	D	E	Mode No.2
	2.	4	0	0	4	B : 4 (Exp value input mentioned above) CD : 00 (Moving average invalidity) E : 4 (It is indication "0" 5 sec. after the last input signal)

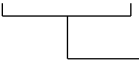
Mode No.	B-input : Setting of scaling data					
3	A	B	C	D	E	
	3.	1	0	0	0	
						Scaling data : 0001 – 9999 (Do not set 0000)
	Setting method same as Mode No.1 (A-input : Setting of scaling data)					

Mode No.	B-input : Exp.value, moving average, auto-zero time					
4	A	B	C	D	E	
	4.	3	0	0	2	
						Auto-zero time
						0 : Disable 5 : 10 sec.
						1 : 0.5 sec. 6 : 20 sec.
						2 : 1 sec. 7 : 30 sec.
						3 : 2 sec. 8 : 60 sec.
						4 : 5 sec. 9 : 120 sec.
						Moving average
						00-19 times
						Exp.value (exponent 10 ⁻ⁿ)
						n=0 - 9
	Setting method same as Mode No.3 (A-input : Exp.value, moving average, auto-zero time)					

Mode No.	Deceleration ratio/Oven-length (tact pitch) setting										
5	<p>[Deceleration ratio setting] ※This mode is effective in Mode No.0 Measuring types 「07 : differential rate measurement」 setting</p> <table border="1" data-bbox="308 309 596 398"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>5.</td> <td>1</td> <td>0</td> <td>0.</td> <td>0</td> </tr> </table> <p style="text-align: center;">└──────────┘ └──────────┘ → Deceleration ratio R : 000.1 - 999.9 (Do not set 000.0)</p>	A	B	C	D	E	5.	1	0	0.	0
A	B	C	D	E							
5.	1	0	0.	0							

	<p>[Oven-length (tact pitch) setting] ※This mode is effective in Mode No.0 Measuring types 「08 : Passing time measurement」 setting</p> <table border="1" data-bbox="308 763 596 853"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>5.</td> <td>1</td> <td>0.</td> <td>0</td> <td>0</td> </tr> </table> <p style="text-align: center;">└──────────┘ └──────────┘ → Oven-length(tact pitch) : 00.01 - 99.99 m [unit : m] (Do not set 00.00) (Decimal point-position is fixed)</p>	A	B	C	D	E	5.	1	0.	0	0
A	B	C	D	E							
5.	1	0.	0	0							

	<p>Oven-length (tact pitch) setting</p> <p>For this mode, setting is necessary only at time selecting the 「passing time measurement」. For instance, upon setting the distance (over length) from P1 to P2 of oven, the passing time of the distance is displayed.</p> <div style="text-align: center;">  </div> <p>In the case of the example mentioned above, Oven length is 3m, it becomes the following setting</p> <table border="1" data-bbox="604 1771 893 1861"> <tr> <td>A</td> <td>B</td> <td>C</td> <td>D</td> <td>E</td> </tr> <tr> <td>5.</td> <td>0</td> <td>3.</td> <td>0</td> <td>0</td> </tr> </table>	A	B	C	D	E	5.	0	3.	0	0
A	B	C	D	E							
5.	0	3.	0	0							

Mode No.	Sampling time										
6	<div style="text-align: center; margin-bottom: 10px;"> <table style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 0 10px;">A</td> <td style="padding: 0 10px;">B</td> <td style="padding: 0 10px;">C</td> <td style="padding: 0 10px;">D</td> <td style="padding: 0 10px;">E</td> </tr> <tr> <td style="padding: 0 10px;">6.</td> <td style="padding: 0 10px;">0</td> <td style="padding: 0 10px;">2.</td> <td style="padding: 0 10px;">0</td> <td></td> </tr> </table> </div> <div style="text-align: center; margin-bottom: 10px;">  </div> <p style="text-align: center;">→ Sampling time : 00.0 - 99.9 seconds (00.0 shall be the real-time display.)</p> <hr style="border-top: 1px dashed black;"/> <p>For sampling time, input signal is measured with its set time, and its mean value is calculated and displayed, then, use it for preventing the flashing or for stabilizing the display. Accordingly, renewal shall be made by averaging the display for each set time.</p> <p>With the setting of 00.0, display is made for each pulse. It is effective with about 1 pulse / seconds , whereas, pay attention to the fact that the faster pulse induces more flicker.</p> <hr style="border-top: 1px dashed black;"/> <p>When change sampling time, and after former sampling time was over, it becomes effective</p>	A	B	C	D	E	6.	0	2.	0	
A	B	C	D	E							
6.	0	2.	0								

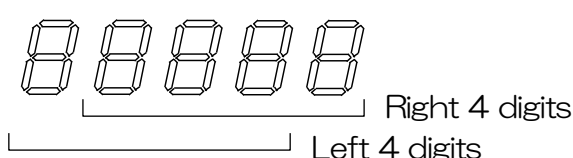
Mode No.	Hold input function setting, display blank, lowest digit display										
7	<div style="text-align: center; margin-bottom: 10px;"> <table border="1" style="border-collapse: collapse; width: 100px; margin: auto;"> <tr> <td style="padding: 2px 5px;">A</td> <td style="padding: 2px 5px;">B</td> <td style="padding: 2px 5px;">C</td> <td style="padding: 2px 5px;">D</td> <td style="padding: 2px 5px;">E</td> </tr> <tr> <td style="padding: 2px 5px;">7.</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;"> </td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> </tr> </table> </div> <div style="margin-left: 100px;"> <p>→ Lowest digit display 0 : Real 1 : Fixed at 0 2 : 0 or 5</p> <p>→ Display blank 0 : Normal display 1 : Blank display</p> <p>→ Hold input function setting 0 : No use 1 : Peak hold 2 : Bottom hold 3 : Hold 4 : Reverse-rotation input (differential rate measurement)</p> </div> <hr style="border-top: 1px dashed black; margin: 10px 0;"/> <p>[Hold input function setting] Set a function when ON(short) did terminal stand 2 – 3</p> <p>0 : No use Hold input is invalid.</p> <p>1 : Peak hold Between ON, it updates a highest value indication level while blinking.</p> <p>2 : Bottom hold Between ON, it updates a smallest value indication level while blinking.</p> <p>3 : Hold Between ON, It displays a current value while blinking.</p> <p>4 : Reverse-rotation input (differential rate measurement) It functions as Reverse-rotation input. (This function becomes invalid other than differential rate measurement)</p> <hr style="border-top: 1px dashed black; margin: 10px 0;"/> <p>[Display blank] When I set it to 1, A measured value(7segment LED) and each lamp display it and do not turn on. (But preset put lamp OUT1-4 is excluded)</p> <hr style="border-top: 1px dashed black; margin: 10px 0;"/> <p>[Lowest digit display] The form of indication for the least significant digit (digit on the right end) is selected.</p> <p>0 : Real Synchronized at the sampling time. 1 : Fixed at 0 Always, "0". 2 : 0 or 5 0-4 are expressed as 0, and 5-9 as 5.</p>	A	B	C	D	E	7.	0		0	0
A	B	C	D	E							
7.	0		0	0							

Mode No.	OUT1 : Preset output (open collector output)										
8	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">A B C D E</div> <div style="border: 1px solid black; padding: 2px 5px;">8. 0 0 0 0</div> </div> <div style="margin-left: 100px;"> <p>→ Output mode</p> <table style="border: none;"> <tr> <td>0 : Comparison</td> <td>5 : 100 ms (1 shot)</td> </tr> <tr> <td>1 : Hold</td> <td>6 : 250 ms (1 shot)</td> </tr> <tr> <td>2 : 10 ms (1 shot)</td> <td>7 : 500 ms (1 shot)</td> </tr> <tr> <td>3 : 20 ms (1 shot)</td> <td>8 : 1 sec (1 shot)</td> </tr> <tr> <td>4 : 50 ms (1 shot)</td> <td>9 : 2 sec (1 shot)</td> </tr> </table> <p>→ Upper or lower limit selection</p> <ul style="list-style-type: none"> 0 : Upper limit 1 : Lower limit (Immediate) 2 : Lower limit (Delay) <p>→ Judgement output prohibition time : 00 - 99 sec</p> </div>	0 : Comparison	5 : 100 ms (1 shot)	1 : Hold	6 : 250 ms (1 shot)	2 : 10 ms (1 shot)	7 : 500 ms (1 shot)	3 : 20 ms (1 shot)	8 : 1 sec (1 shot)	4 : 50 ms (1 shot)	9 : 2 sec (1 shot)
0 : Comparison	5 : 100 ms (1 shot)										
1 : Hold	6 : 250 ms (1 shot)										
2 : 10 ms (1 shot)	7 : 500 ms (1 shot)										
3 : 20 ms (1 shot)	8 : 1 sec (1 shot)										
4 : 50 ms (1 shot)	9 : 2 sec (1 shot)										
<p>[Output mode]</p> <p>0 : Comparison This is output when the indication value exceeds the upper/lower limit setting value (preset value) . When the indication value returns to within the set range, the output is turned off.</p> <p>1 : Hold This is output when the indication value exceeds the upper/lower limit setting value (preset value) . The presetting output,once activated, is sustained until reset.</p> <p>2~9 : One shot output A pulse of pre-specified width is output once when the indication value exceeds the upper/lower limit setting value (preset value) .</p>											
<p>[Upper and lower limits selection]</p> <p>0 : Upper limit : It outputs, 「Indication value \geq Preset value」</p> <p>1 : Lower limit (Immediate) : It outputs, 「Indication value \leq Preset value」</p> <p>2 : Lower limit (Delay) : It outputs, 「Indication value $>$ Preset value \rightarrow Indication value \leq Preset value」</p>											
<p>[Judgement output prohibition time]</p> <p>The time in seconds following power startup or reset at which the presetting output function is activated is specified.</p>											
<p>[Ex.] Preset output OUT1 works 5 sec. later after ON did a power supply. It is set by the upper limit output and output maintenance hold.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 10px;">A B C D E</div> <div style="border: 1px solid black; padding: 2px 5px;">8. 0 5 0 1</div> </div>											

Mode No.	OUT2 : Preset output (open collector output)																														
9	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr> <tr><td>9.</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table> <div style="margin-left: 10px;"> <p>→ Output mode</p> <table style="font-size: small;"> <tr><td>0 : Comparison</td><td>5 : 100 ms (1 shot)</td></tr> <tr><td>1 : Hold</td><td>6 : 250 ms (1 shot)</td></tr> <tr><td>2 : 10 ms (1 shot)</td><td>7 : 500 ms (1 shot)</td></tr> <tr><td>3 : 20 ms (1 shot)</td><td>8 : 1 sec (1 shot)</td></tr> <tr><td>4 : 50 ms (1 shot)</td><td>9 : 2 sec (1 shot)</td></tr> </table> </div> </div> <div style="margin-bottom: 10px;"> <p>→ Up limit / down limit selection</p> <p>0 : Up limit 1 : Down limit 2 : Down limit (delay)</p> </div> <div> <p>→ Judgement output prohibition time : 00 - 99 sec</p> </div> <hr style="border-top: 1px dashed black;"/> <p>The setting method same as Mode No."8" OUT1</p> <p>[Ex.] With the judging output inhibition time 30 seconds, down limit is selected, and output-mode 50 ms (1 shot) is selected, then, setting is made as follows.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr> <tr><td>9.</td><td>3</td><td>0</td><td>1</td><td>4</td></tr> </table> </div>	A	B	C	D	E	9.	0	0	0	0	0 : Comparison	5 : 100 ms (1 shot)	1 : Hold	6 : 250 ms (1 shot)	2 : 10 ms (1 shot)	7 : 500 ms (1 shot)	3 : 20 ms (1 shot)	8 : 1 sec (1 shot)	4 : 50 ms (1 shot)	9 : 2 sec (1 shot)	A	B	C	D	E	9.	3	0	1	4
A	B	C	D	E																											
9.	0	0	0	0																											
0 : Comparison	5 : 100 ms (1 shot)																														
1 : Hold	6 : 250 ms (1 shot)																														
2 : 10 ms (1 shot)	7 : 500 ms (1 shot)																														
3 : 20 ms (1 shot)	8 : 1 sec (1 shot)																														
4 : 50 ms (1 shot)	9 : 2 sec (1 shot)																														
A	B	C	D	E																											
9.	3	0	1	4																											

Mode No.	OUT3 : Preset output (photo MOS relay output)	(Option P2)																				
A	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td></tr> <tr><td>A.</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table> <div style="margin-left: 10px;"> <p>→ Output mode</p> <table style="font-size: small;"> <tr><td>0 : Comparison</td><td>5 : 100 ms (1 shot)</td></tr> <tr><td>1 : Hold</td><td>6 : 250 ms (1 shot)</td></tr> <tr><td>2 : 10 ms (1 shot)</td><td>7 : 500 ms (1 shot)</td></tr> <tr><td>3 : 20 ms (1 shot)</td><td>8 : 1 sec (1 shot)</td></tr> <tr><td>4 : 50 ms (1 shot)</td><td>9 : 2 sec (1 shot)</td></tr> </table> </div> </div> <div style="margin-bottom: 10px;"> <p>→ Up limit / down limit selection</p> <p>0 : Up limit 1 : Down limit 2 : Down limit (delay)</p> </div> <div> <p>→ Judgement output prohibition time : 00 - 99 sec</p> </div> <hr style="border-top: 1px dashed black;"/> <p>The setting method same as Mode No."8" OUT1</p>	A	B	C	D	E	A.	0	0	0	0	0 : Comparison	5 : 100 ms (1 shot)	1 : Hold	6 : 250 ms (1 shot)	2 : 10 ms (1 shot)	7 : 500 ms (1 shot)	3 : 20 ms (1 shot)	8 : 1 sec (1 shot)	4 : 50 ms (1 shot)	9 : 2 sec (1 shot)	
A	B	C	D	E																		
A.	0	0	0	0																		
0 : Comparison	5 : 100 ms (1 shot)																					
1 : Hold	6 : 250 ms (1 shot)																					
2 : 10 ms (1 shot)	7 : 500 ms (1 shot)																					
3 : 20 ms (1 shot)	8 : 1 sec (1 shot)																					
4 : 50 ms (1 shot)	9 : 2 sec (1 shot)																					

Mode No.	OUT4 : Preset output (photo MOS relay output)	(Option P2)										
b	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">A B C D E</div> <div style="border: 1px solid black; padding: 2px 5px;">b. 0 0 0 0</div> </div> <div style="margin-left: 100px;"> <p>→ Output mode</p> <table style="border: none;"> <tr> <td>0 : Comparison</td> <td>5 : 100 ms (1 shot)</td> </tr> <tr> <td>1 : Hold</td> <td>6 : 250 ms (1 shot)</td> </tr> <tr> <td>2 : 10 ms (1 shot)</td> <td>7 : 500 ms (1 shot)</td> </tr> <tr> <td>3 : 20 ms (1 shot)</td> <td>8 : 1 sec (1 shot)</td> </tr> <tr> <td>4 : 50 ms (1 shot)</td> <td>9 : 2 sec (1 shot)</td> </tr> </table> <p>→ Up limit / down limit selection</p> <ul style="list-style-type: none"> 0 : Up limit 1 : Down limit 2 : Down limit (delay) <p>→ Judgement output prohibition time : 00 - 99 sec</p> </div>	0 : Comparison	5 : 100 ms (1 shot)	1 : Hold	6 : 250 ms (1 shot)	2 : 10 ms (1 shot)	7 : 500 ms (1 shot)	3 : 20 ms (1 shot)	8 : 1 sec (1 shot)	4 : 50 ms (1 shot)	9 : 2 sec (1 shot)	
0 : Comparison	5 : 100 ms (1 shot)											
1 : Hold	6 : 250 ms (1 shot)											
2 : 10 ms (1 shot)	7 : 500 ms (1 shot)											
3 : 20 ms (1 shot)	8 : 1 sec (1 shot)											
4 : 50 ms (1 shot)	9 : 2 sec (1 shot)											
The setting method same as Mode No."8" OUT1												

Mode No.	Analog output : Setting of measurement choice and the output digit	(Option AI/ AV3-5)										
C	<div style="text-align: center; margin-bottom: 10px;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px 10px;">A</td> <td style="padding: 2px 10px;">B</td> <td style="padding: 2px 10px;">C</td> <td style="padding: 2px 10px;">D</td> <td style="padding: 2px 10px;">E</td> </tr> <tr> <td style="padding: 2px 10px;">C.</td> <td style="padding: 2px 10px;"></td> <td style="padding: 2px 10px;">1</td> <td style="padding: 2px 10px;">0</td> <td style="padding: 2px 10px;"></td> </tr> </table> </div> <div style="margin-left: 100px;"> <p>→ Digit selection 0 : Right 4digits : comparison 1 : Left 4digits : comparison</p> <p>→ Analog output method 0 : Real time output 1 : Synchronizes for display 2 : Synchronizes for measurement (calculation value)</p> </div> <hr style="border-top: 1px dashed black; margin: 20px 0;"/> <p>[Digit selection] The four digits for comparison output are selected.</p> <div style="text-align: center; margin: 10px 0;">  </div> <hr style="border-top: 1px dashed black; margin: 20px 0;"/> <p>[Analog output method]</p> <p>0 : Real time output The real time is analog output in sync with inside calculation. The real-time output functions only when I set Mode No.0 “00”(A input) or “01”(B input) or “08”(Passing time measurement). Otherwise, set it in 1 (Synchronizes for the display).</p> <p>1 : Synchronizes for the display The analog output is output for an indication value. When hold input functions, the analog output is output for a displayed value now. (It synchronizes at indication sampling time) For example when a peak hold is functioning, analog output by the present shown value (Peak hold value).</p> <p>2 : Synchronizes for the measurement (calculation value) The analog output is output for a calculated value. (It synchronizes at indication sampling time) The difference with 1 (Synchronizes for the display), When it is input hold, not an indication value, it is made analog output for a calculated value.</p>	A	B	C	D	E	C.		1	0		
A	B	C	D	E								
C.		1	0									

Mode No.	Analog output : Setting of maximum output indication (Option A1/ AV3-5)
d	<p>A B C D E</p> <p>d. 1 0 0 0</p> <p>→ Indication value : 0001 - 9999. (Do not set 0000)</p> <hr/> <p>Set an indication value of the time when the analog output is maximum. Set a value in four digits, neglecting the decimal point. For example, both 500.0 and 50.00 are all right. (It sets as "5000" in this case.)</p> <p>[Ex.] Setting to output it to the maximum voltage current when it in real time outputs, and the display value becomes 5000 is the following.</p> <p>A B C D E Mode No."C"</p> <p>C. 0 0 C : 0 (Real time output) D : 0 (Right 4digits : comparison)</p> <p>A B C D E Mode No."d"</p> <p>d. 5 0 0 0 B - E (Setting of maximum output ndication:5000)</p> <p>NOTE : he analog output outputs it at absolute value for an indication level. (There are no relations in a plus and the minus of the indication level) In the case of the example mentioned above, it is output as follows. (option : AV4)</p> <p>※ For an analog output MAX level, it is output linearly to 102.3%. ※ When setting Mode No. d as (0000), an analog output is always 102.3%.</p>

Mode No.	BCD output setting (Option B)																																						
E	<p>A B C D E</p> <p>E. 0</p> <p>→ BCD output (logic selection)</p> <p>0 : Data (positive) • TI (positive) 1 : Data (negative) • TI (positive) 2 : Data (positive) • TI (negative) 3 : Data (negative) • TI (negative)</p> <p>※In the case of "1", indication is output as follows.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">Indication</th> <th colspan="4">Bit data</th> <th colspan="4">Open collector output</th> </tr> <tr> <th>8</th> <th>4</th> <th>2</th> <th>1</th> <th>8</th> <th>4</th> <th>2</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>Positive</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>Negative</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>ON</td> <td>ON</td> <td>ON</td> <td>OFF</td> </tr> </tbody> </table>		Indication	Bit data				Open collector output				8	4	2	1	8	4	2	1	Positive	1	0	0	0	1	OFF	OFF	OFF	ON	Negative	1	0	0	0	1	ON	ON	ON	OFF
	Indication			Bit data				Open collector output																															
		8	4	2	1	8	4	2	1																														
Positive	1	0	0	0	1	OFF	OFF	OFF	ON																														
Negative	1	0	0	0	1	ON	ON	ON	OFF																														



Mode No.	BCD input setting	(Option BI)
F	<div style="display: flex; align-items: center; margin-bottom: 10px;"> <div style="margin-right: 10px;">A B C D E</div> <div style="border: 1px solid black; padding: 2px 5px;">F. 0 0 1</div> </div> <div style="margin-left: 150px;"> <p>→ BCD input (logic selection) 0 : High active (Each pin and GND is open) 1 : Low active (Each pin and GND is Short)</p> <p>→ Latch input (logic selection) 0 : "Short" Latch (Uptake is possible in open) 1 : "Open" Latch (Uptake is possible in short)</p> <p>→ Selection of BCD input 0 : Function-stop 1 : Preset value OUT1 2 : Preset value OUT2 3 : Preset value OUT3 4 : Preset value OUT4</p> </div> <p>NOTE : Please use this setting without fail (0: function stop) when using it excluding with the BI type.</p>	

<p>Selection of BCD input : Using BCD input, I select which Preset output I operate.</p> <p>! <Caution> When it is with an "P2" option, OUT3 and OUT4 works. When there is not BI option, please "0" (Function-stop) this setting.</p>		

<p>Latch input (logic selection) :</p> <p>0 ("Short" Latch) : When Latch pin and "GND" are in a short state, I prohibit the uptake of data.</p> <p>1 ("Open" Latch) : When Latch pin and "GND" are in a open state, I prohibit the uptake of data.</p>		

<p>BCD input (logic selection) :</p> <p>Logic choice of BCD data</p> <p>0 (High active) : Each pin of input data is in condition to open with GND.</p> <p>1 (Low active) : Each pin of input data is in condition to short with GND.</p>		

1 1. Mode protect function






When the mode protect function is made effective,  and  operation is invalid by mode setting. Therefore the set value can't be changed.

In an early stage, the mode protect function is invalid .

When doing the mode protect function setting, please operate as follows.

«Operation of the mode protect»

Table.11-1

Operation key	Indication	Procedure
 Down key	A B C D E L - o F F ↑ (The mode protect : present)	Press the key for 2 sec. or more. The present mode protect state is displayed . [The regular factory setting is "L-off" .]
 Down key	A B C D E L - o n ↑ (The mode protect : change)	Keep pressing  for 8 sec as it's continuously, the state of mode protect is changed. ※" OFF → ON" or "ON → OFF"
 Down key		It usually returns when  is stopped being pressed.

<Caution>

※The preset value setting and the offset value setting always can be changed.

※The mode protection function becomes "OFF" , when it's initialized.










1 2. Teaching function

What is the teaching function?

Change the current indication level to any value. (setting automatic as for the scaling data.)
 [Ex.] when input frequency 100Hz is displayed as 200.0rpm, for changing the display value from 200.0 to 180.0, converted value may be changed, whereas, upon setting " 180.0" by the teaching function, 180.0 is automatically displayed. At this time, converted value is automatically re-written by reverse calculation from the set value as 180.0



Table.12-1

Operating key	Indication	Procedure																				
 Shift key	<table style="border-collapse: collapse; margin: auto;"> <tr><td style="padding: 0 10px;">A</td><td style="padding: 0 10px;">B</td><td style="padding: 0 10px;">C</td><td style="padding: 0 10px;">D</td><td style="padding: 0 10px;">E</td></tr> <tr><td style="text-align: center;">●</td><td style="text-align: center;">2</td><td style="text-align: center;">0</td><td style="text-align: center;">0.</td><td style="text-align: center;">0</td></tr> </table>	A	B	C	D	E	●	2	0	0.	0	Push  for 2 sec.. or more. In the case of A input measurement, A input lamp blinks. In the case of B input measurement, B input lamp blinks.										
A	B	C	D	E																		
●	2	0	0.	0																		
 Shift key	<table style="border-collapse: collapse; margin: auto;"> <tr><td style="padding: 0 10px;">A</td><td style="padding: 0 10px;">B</td><td style="padding: 0 10px;">C</td><td style="padding: 0 10px;">D</td><td style="padding: 0 10px;">E</td></tr> <tr><td style="text-align: center;">0</td><td style="text-align: center;">→2</td><td style="text-align: center;">→0</td><td style="text-align: center;">→0</td><td style="text-align: center;">→0</td></tr> <tr><td style="text-align: center;">↑</td><td colspan="4"></td></tr> </table>	A	B	C	D	E	0	→2	→0	→0	→0	↑					A figure of flash indication is shifted. Each time the key is pressed, a flash figure is shifted, to the right.					
A	B	C	D	E																		
0	→2	→0	→0	→0																		
↑																						
 Up key  Down key	<table style="border-collapse: collapse; margin: auto;"> <tr><td style="padding: 0 10px;">A</td><td style="padding: 0 10px;">B</td><td style="padding: 0 10px;">C</td><td style="padding: 0 10px;">D</td><td style="padding: 0 10px;">E</td></tr> <tr><td style="text-align: center;">0</td><td style="text-align: center;">1</td><td style="text-align: center;">8</td><td style="text-align: center;">0.</td><td style="text-align: center;">0</td></tr> <tr><td></td><td style="text-align: center;">↑</td><td colspan="3"></td></tr> <tr><td></td><td style="text-align: center;">0 - 9</td><td colspan="3"></td></tr> </table>	A	B	C	D	E	0	1	8	0.	0		↑					0 - 9				Push this key for changing the value flashing. One figure moves up and down every time it pushes once.
A	B	C	D	E																		
0	1	8	0.	0																		
	↑																					
	0 - 9																					
 Enter key		After input of the desired value from the data value 200.0, push  . Upon pushing this  key, the measuring mode returns, and the converted Scaling data and EXP value can be re-written.																				
 Reset key		It returns to the measurement display without registering a set value.																				

(The decimal point position links setting of Mode No.0 "E" Display decimal point setting)

! <Caution>

- This teaching function can set only ratemeter (speed, rotation, flow rate) of A-input and B-input. (Need to set in Mode No.0 'BC' 00 or 01)
 When it is other measurement types, teaching function becomes invalid.
- Do not make this operation at time of stop or low turning (Frequency).



























1.3. Calling up and modifying the preset value setting

Set the value to pre-set of the preset out by the following method.

The set range is “-9999” - “99999”

In addition, please refer to Mode No.8-b (P.28-30) for the setting of the preset output.

Table.13-1

Operating key	Indication	Procedure
 Mode key	A B C D E  2 0 0. 0 1 ● 20 30 40	Push  for 2 sec.. or more. “OUT1” lamp lights up, and a current preset value is displayed.
 Shift key	A B C D E 9 →  → 9 → 9 → 9 ↑ 1 ● 20 30 40	A figure of flash indication is shifted. Each time the key is pressed, a flash figure is shifted, to the right.
 Up key  Down key	A B C D E 9  9 9 9 ↑ 0 - 9 1 ● 20 30 40	Push this key for changing the value flashing. One figure moves up and down every time it pushes once.
   	A B C D E 9 9 9 9 9 10 2 ● 30 40	Push  key. The OUT1 lamp shifts to OUT2 lamp. OUT2 lamp lights up, and a current preset value is displayed and can set it.
   	A B C D E 9 9 9 9 9 10 20 3 ● 40	Push  key. The OUT2 lamp shifts to OUT3 lamp. OUT3 lamp lights up, and a current preset value is displayed and can set it.
   	A B C D E 9 9 9 9 9 10 20 30 4 ●	Push  key. The OUT3 lamp shifts to OUT4 lamp. OUT4 lamp lights up, and a current preset value is displayed and can set it.
 Enter key		After adjusting the setting, use  to register it. It returns to the measurement display after a set value is registered.
 Reset key		It returns to the measurement display without registering a set value.

(Decimal point of the display value is inter connected with Mode No.0 - E.)

<Caution>

- In case selecting the time-measuring time (Mode No.0 08, 13, 14, 15) and the measuring unit (hour-minute) (minute-second), be sure to set the value of display unit C to “0” .
- When P2 option is not equipped with, OUT3 and OUT4 are not output.(only a lamp turns on.)

! <Caution>

The analog output (AI/AV3-5) range is adjusted correctly at a factory. Please do not touch except necessity.

! <Caution>

When adjusting the analog output, the customer will not be able to return it to the original state without an accurate measuring instrument, so be careful when performing it.

«Adjustment method»

1. Power on the (Mode) being pressed to put the instrument into the test mode.
2. Press the (Mode) until the analog output test “Ad” appears.
3. Please coordinate the ZERO volume with the SPAN volume to become the following output voltage/current. (Please adjust it from the ZERO volume by all means.)

Voltage output (AI) type unit

Indication	Output current	
0	4mA	Turn the zero volume to adjust
100	20mA	Turn the span volume to adjust

(※ Repeat the procedure several times for fine adjustment.)

Voltage output (AV3) type unit

Indication	Output voltage	
0	1 V	Turn the zero volume to adjust
100	5 V	Turn the span volume to adjust

(※ Repeat the procedure several times for fine adjustment.)

Voltage output (AV4) type unit

Indication	Output voltage	
0	0 V	Turn the zero volume to adjust
100	5 V	Turn the span volume to adjust

(※ Repeat the procedure several times for fine adjustment.)

Current output (AV5) type unit

Indication	Output voltage	
0	0 V	Turn the zero volume to adjust
100	10 V	Turn the span volume to adjust

(※ Repeat the procedure several times for fine adjustment.)

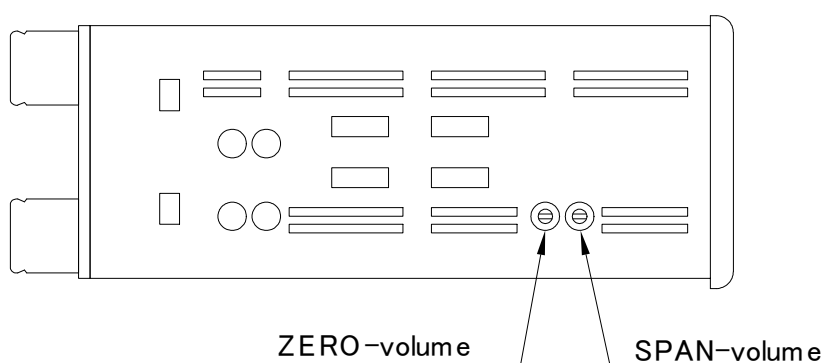


Fig.14-1

1 5. Adjusting the tacho-generator signal, sine wave signal input (Option:V3/N)

! <Caution>

The input (V3, N) range is adjusted correctly at the factory.
Please do not touch except necessity.

V3-type : Tacho-generator signal input AC 0.8 to 80V(P-P)

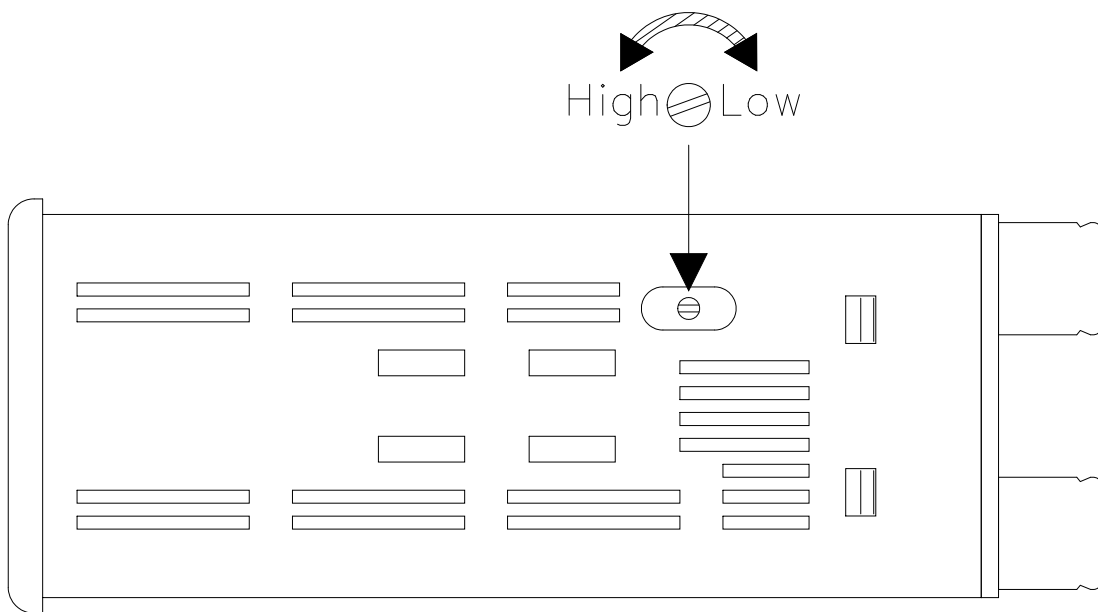
N-type : Sine wave signal input AC 0.05 to 20V(P-P)

<<Adjustment method>>

The sensitivity adjustment volume is seen from a round hole on meter left side.
Please adjust it while seeing the display.

Fig.15-1

Adjustment volume



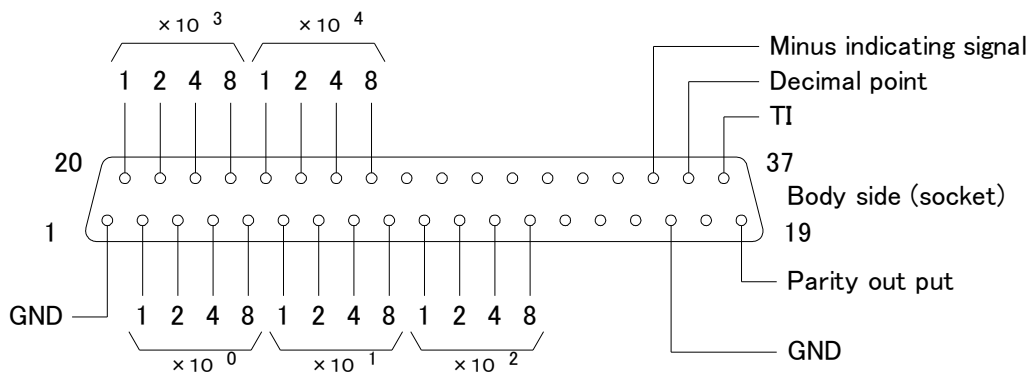
1 6. Connection diagram for BCD output

(Option:B)

1. The Binary Coded Decimal code is the NPN opening collector pulse output. In addition, it becomes all figure parallel output.
2. The output of data becomes the output for a measurement chosen by a measurement operation method. I output it in sync with a measurement. (It is not output by the indication of the hold state.)
3. The output logic of data is modifiable. (Please refer to P.32 Mode No. E)
 - Output logic (positive) : The state that an emitter does conduction with the collector of the output transistor when data output it
 - Output logic (negative) : The state that an emitter does not conduction with the collector of the output transistor when data output it
4. When I take in data because TI (take-up inhibition) signal is output at the time of data update, TI signal please go at the time of OFF. The logic of the TI signal is modifiable, too. (Please refer to P.32 Mode No. E)

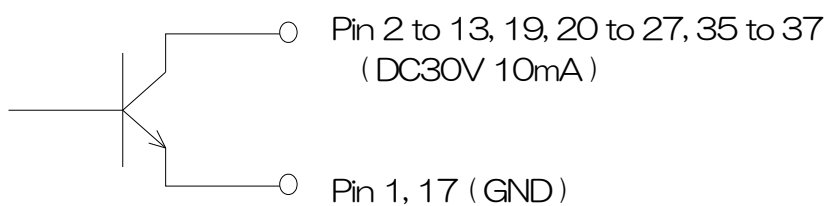
[Pin assignment of the BCD output (The meter side is D-sub 37pin female)]

Fig.16-1



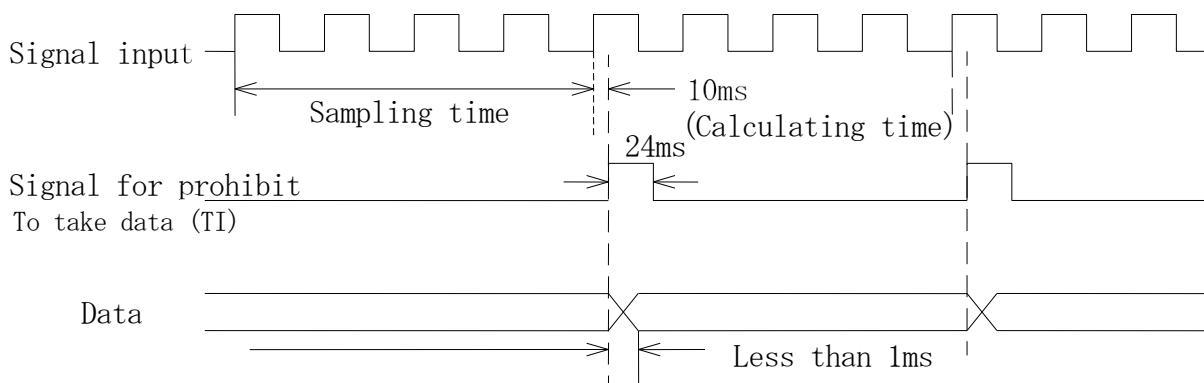
[Circuit diagram for BCD output]

Fig.16-2



[Timing chart of output]

Fig.16-3

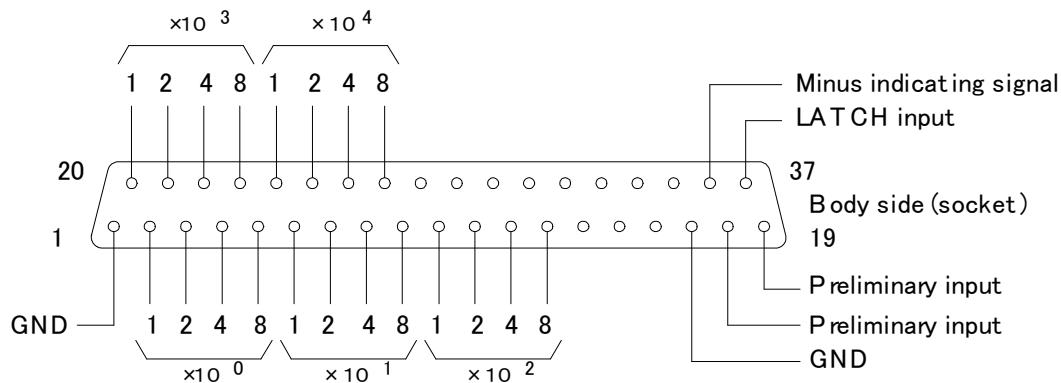


1. The Binary Coded Decimal code is the NPN opening collector pulse output. In addition, it becomes all figure parallel output.
2. The input logic of data is modifiable. (Please refer to P.33 Mode No. F)
 - Hi active : Each pin of input data is in condition to open with GND.
 - Negative sign only : Each pin of input data is in condition to short with GND.
 - Low active : Each pin of input data is in condition to short with GND.
 - Negative sign only : Each pin of input data is in condition to open with GND.
3. Latch input • • • I prohibit the uptake of data. Therefore, I hold data when I wore a latch even if the later input data change. When I want to update data, I turn off a latch (Uptake possibility) and take in data, and ON does a latch (Uptake prohibition) again.

Latch(Short) : When Latch(Pin 37) and “GND” are in a short state, I prohibit the uptake of data.
 Latch(Open) : When Latch(Pin 37) and “GND” are in a open state, I prohibit the uptake of data.

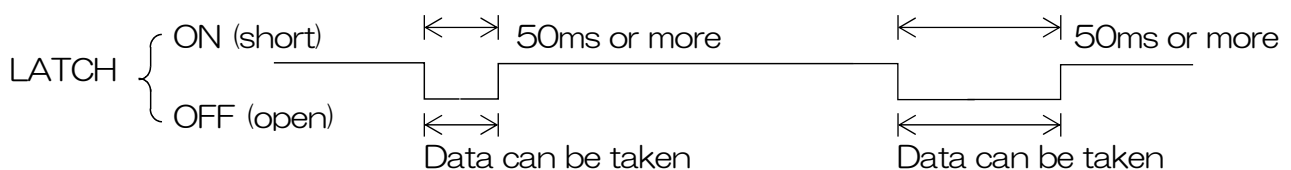
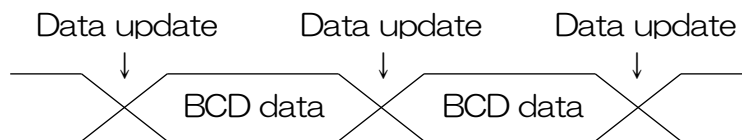
[Pin assignment of the BCD input (The meter side is D-sub 37pin female)]

Fig.17-1



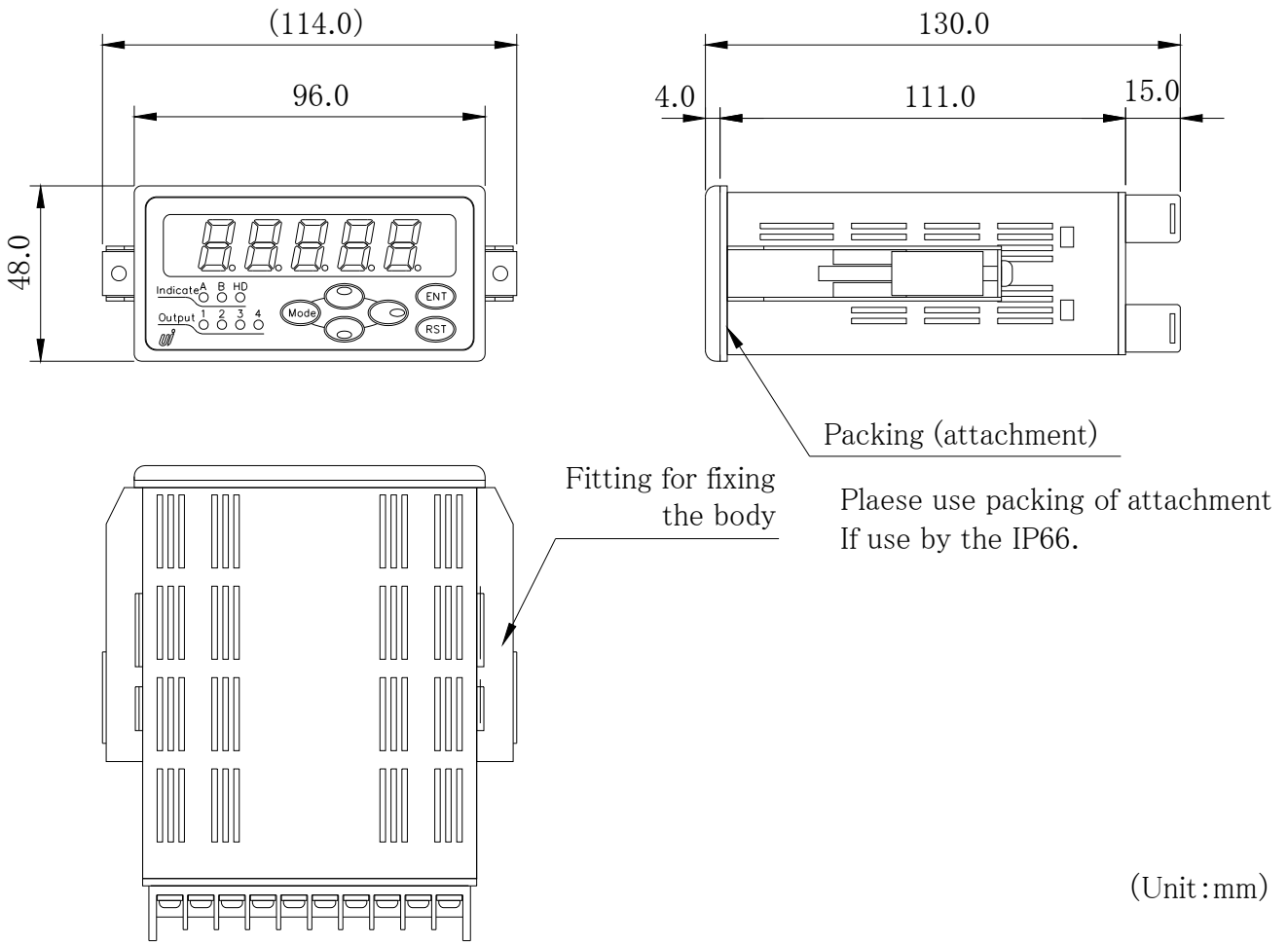
Taking of data (Input prohibition with “open”)

Fig.17-2



1 8. External dimensions

Fig.18-1

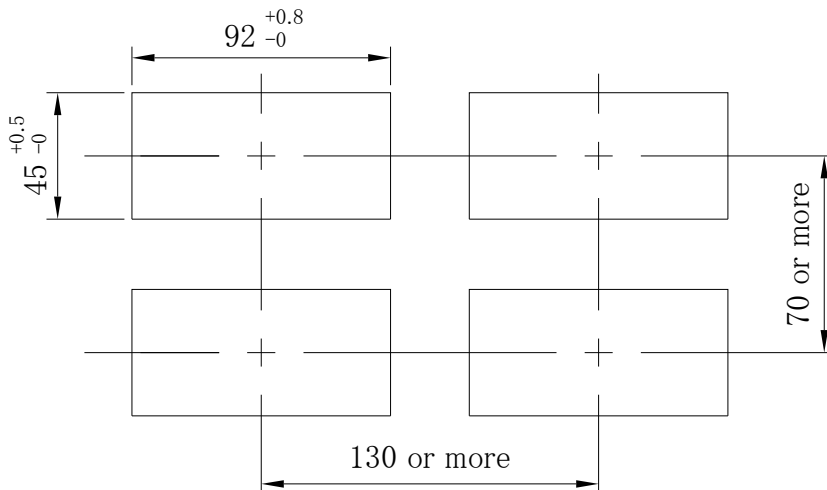


(Unit :mm)

Terminal screw: M3.5 Terminal width: 7mm

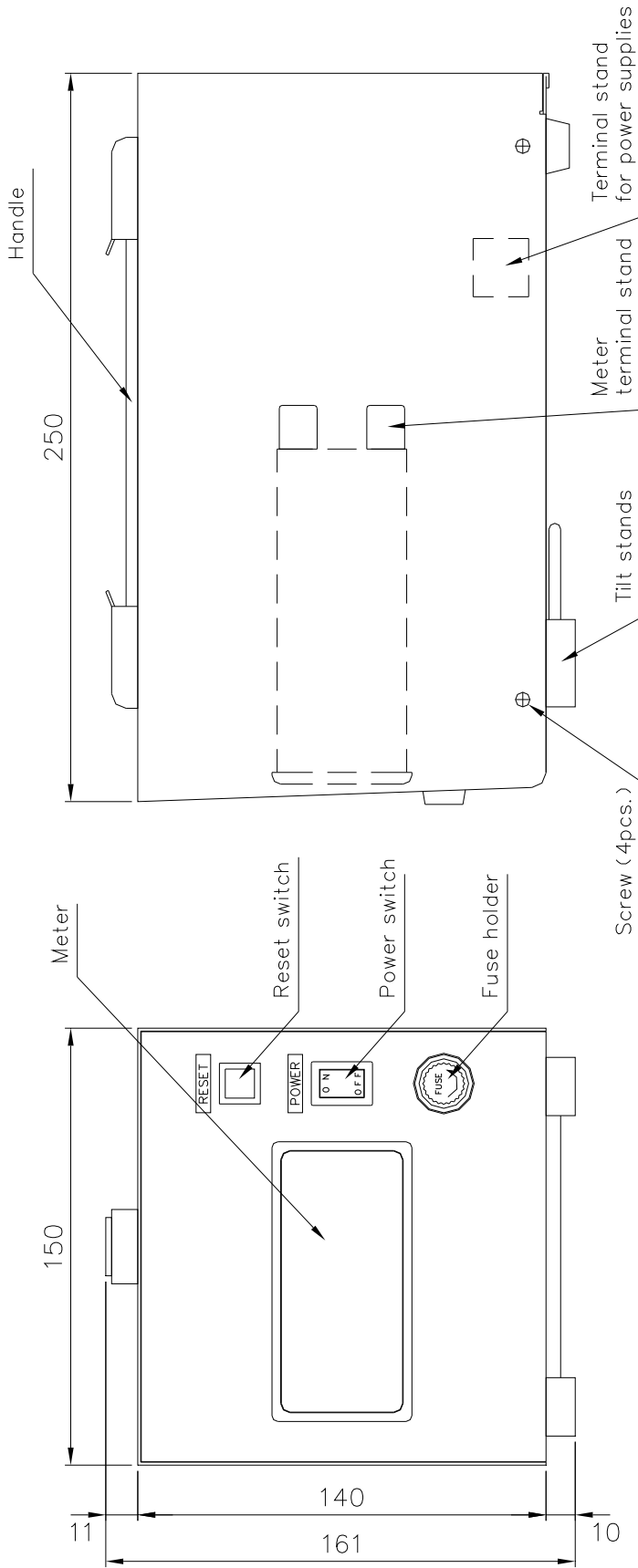
The terminal stand cover is "C" option

Fig.18-2



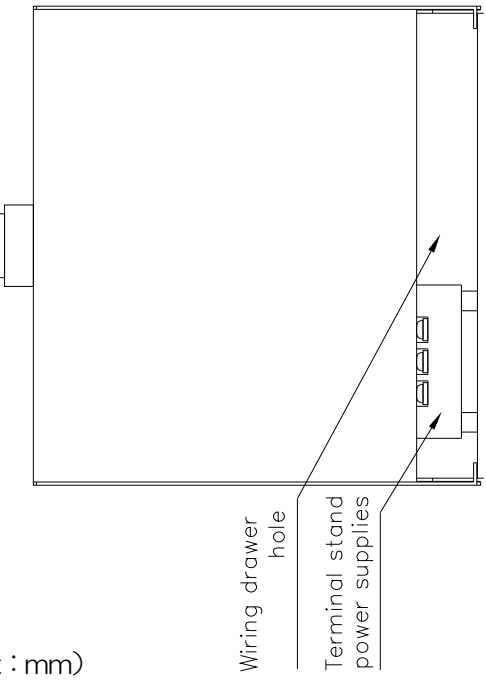
(Unit :mm)

Fig.19-1



<Rear view>

(Unit : mm)



<About a wiring method>
 The wiring to a meter takes off the screw of the case and performs it.
 To a terminal stand as for the power supply wire for power supplies
 The signal line connects it to a meter terminal stand.

<Terminal stand for power supplies>
 Terminal stand M3.5 screw
 8mm
 F.G. AC power supply or DC power supply

<CB option accessories>
 2P Conversion adapter
 3 core AC cord 2m

*Please use the attached AC cord in AC125V or less.

20. About a noise countermeasure

When influence of noise occurred, please be careful about the following.

When doing a blackout and a malfunction by influence of noise, please be initialized. (Refer to P.14)

Please take notes of the value setting of each modes.

If it becomes normal, please take the following measure.

And please setting it once again.

- (1) Do not share the power supply with a power line directly.
(When I share a power line, please use an isolation transformers)
- (2) Please use 3 cores of shielding wire for a sensor , separate as much as possible from a source of noise.
- (3) Please avoid a source of noise (power supply line and inverter), make it as short as possible. After that, please install a sensor code.
- (4) A great many noises may be included in F.G. Line of the device.
In this case you should not tie F.G. of the meter.
- (5) Please separate from a power supply line,
in a case affected by noise.
And please install a EMI filter.

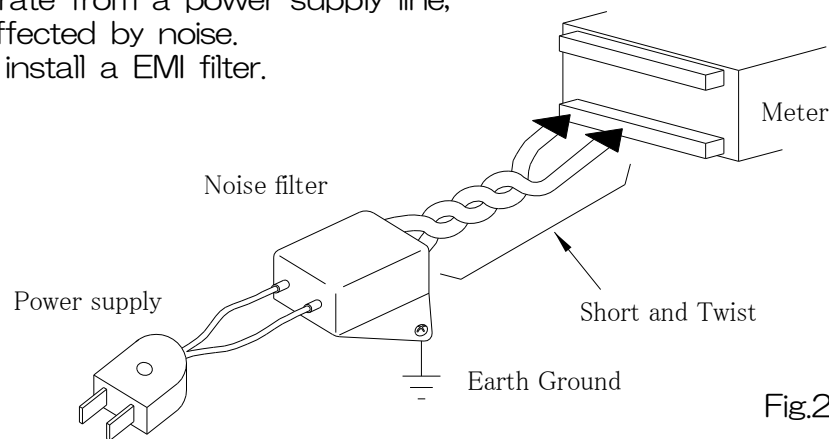


Fig.20-1

- (6) The manner of the sensor cord installation.
When there is a power supply line near the sensor cord, a surge and noise are influenced.
Therefore , install a sensor cord independently or for 50 cm or more.

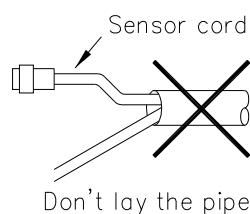


Fig.20-2

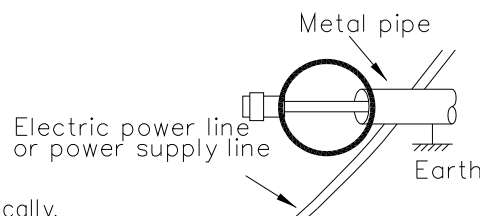


Fig.20-3

- (7) When being affected than other equipment, please use a spark killer like Fig.20-4 and take a measure.

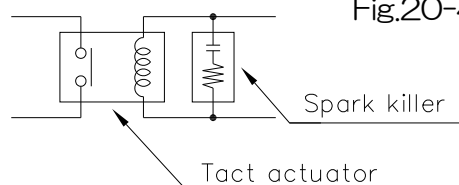


Fig.20-4

- (8) If there is an unclear point, please even consult with use about a dealer or us.

21. Troubleshooting

When abnormality occurred, please check it as follows.

No.	Problem	Checking point	Solution
1	Display does not appear at all.	<p>→Has it connected with the rear terminal correctly?</p> <p style="text-align: center;">↓</p> <p>→Does a sensor power supply short-circuit? (Or it is an overcurrent)</p>	<p>→Connect correctly according to "Connecting terminal boards (Refer to P.8)</p> <p>→Sensor specifications confirmation. Take off a sensor and check the operation.</p> <p>→Initialize (Refer to P.14)</p> <p>When display still does not appear, have it serviced.</p>
2	Unusual <ul style="list-style-type: none"> • LED lighting, key • switch operation, • preset output, • analog output 	<p>→Check with the test mode. (Refer to P.12)</p>	<p>→Initialize (Refer to P.14)</p> <p>When it still does not resume normal status, have it serviced.</p>
3	Remains at "0"	<p>→Is the setting for each mode correct?</p> <p style="text-align: center;">↓</p> <p>→Is the sensor input normal?</p> <p style="text-align: center;">↓</p> <p style="text-align: center;">↓</p> <p>→Is the distance of the sensor normal?</p> <p style="text-align: center;">↓</p> <p>→Is the input system of this meter suitable for the output signal of the sensor?</p>	<p>→Check the setting again. (Refer to P.16-P.33)</p> <p>→Check the connection of the sensor (Refer to P.9) . Check with the test mode (Refer to P.12) .</p> <p>→The sensor lamp flash is confirmed. A sensor is tested. "ON/OFF"</p> <p>When it still does not resume normal status, have it serviced.</p>
4	Indicator is flashing "99999" . (Error indication)	<p>→Check whether the scaling is not too large</p> <p>→Influence of noise.</p>	<p>→Change the scaling data. (Refer to P.17-19 for Mode No.1-4)</p> <p>→Noise countermeasure (Refer to P.43)</p>

No.	Problem	Checking point	Solution
5	Indication is not stable	<p>→It is sometimes displayed smaller than a real value. ↓</p> <p>→It is sometimes displayed more greatly than a real value. ↓ ↓ ↓ ↓ ↓</p> <p>→Because the movement of the measurement thing fluctuates, the signal of the sensor sways</p>	<p>→Detection error of the sensor. check the accuracy of the sensor when there is little quantity of detection</p> <p>→Noise countermeasure (Refer to P.43)</p> <p>→When it is caused by the chattering such as relays, Please attach a capacitor to the sensor input terminal.</p> <p>→Lengthen sampling time (Refer to P.26)</p> <p>When it still does not resume normal status, have it serviced.</p>
6	Indication goes out. An indication level becomes than double.	→Influence of the spark noise with a relay or the electromagnetic valve	→Noise countermeasure (Refer to P.43)
7	Other problems		→Have it serviced.

■EMC standard (EN61326-1:2021)

Emission

EN55011 Group 1 Class A

This product complies with EMC standards for industrial environments.

When used in a residential or light industrial environment, it may cause electromagnetic interference to other equipment.

Immunity

EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6,

EN61000-4-11

*Analog output is allowed up to ± 1 mA for 4-20mA during testing.

This product complies with EMC standards for industrial environments.

Users should pay particular attention to the electromagnetic immunity listed below.

- Power supply quality
- Electrostatic discharge
- Radiated noise
- Conducted noise
- Magnetic field noise
- Surge noise

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Scan the QR code to access the website.



Please note that the communication costs shall be borne by the customer.

※All specifications may be changed without notice.