

1. Preface

- Please take care that this instruction manual is certainly delivered to the person in charge of operating this instrument.
- Unpack the product and confirm that the following items are included.
 (1) 460D main unit (2) Stickers of units (3) Instruction manual
- Cautions for use
 For safety use, please observe the following cautions.

⚠ CAUTION

- No power on-off switch is provided on the model 460D so it immediately starts to work when connected to the power source. The rated data of this instrument is, however, defined with the pre-heating for 15 minutes or more.
- When the model 460D is mounted into a system cabinet, take care for ventilation so that the inside temperature will not exceed 50°C.
- Do not use the instrument in such places as follows as it may cause break-down or malfunction of the instrument.
 Places where:
 - exposed to rain, water drops or direct sunlight.
 - high temperature or humidity, much dust or corrosive gas.
 - affected by external noise, radio waves or static electricity.
 - where there is constant vibration or shock.

2. Standard Specifications

■ Model Designation

Model Name 460D - □ - □ - □
1 2 3

[1] Input Signal

Code	Specifications
1	ON-OFF pulse
2	Voltage pulse

[2] Power Supply

Code	Power Source Voltage
3	AC100/200V (50/60Hz)
5	AC200/240V (50/60Hz)

[3] Display Color

Code	Description
Blank	Red LED
G	Green LED

■ General Specifications

- Display : 0~99999999 red or green LED (character height 10mm) with zero-suppress function.
 Decimal Point can be arbitrarily set (front setting or remote control).
 Over-range indication by blinking of LED at upper left of the display section.
- Counter Input : ON-OFF pulse: No voltage contact or open collector (NPN). Counts with ON.
 Contact capacity DC12V 8mA “H”=9~12V, “L”=0~6V
 Voltage pulse: Counts at rising from “L” to “H”.
 “L”=0~2V, “H”=4.5~30V Input resistance approximately 5k Ω.
- Maximum counting speed : 10cps/5kcps (by selection of input terminal).
- Minimum pulse width : 50ms at 10cps
 0.1ms at 5kcps
- Memory retention : By non-volatile memory for approximately 10 years
- Totalizer initial value : 0~99999999, front switch setting.
- Withstanding Voltage : Input terminals - Case : AC1500V for 1 min.
 Power supply terminals - Case AC1500V for 1 min.
 Power supply terminals - Input terminals AC1500V for 1min.
- Insulation Resistance : Input terminals - Case DC500V100M Ω or more
 Power supply terminals - Case DC500V100M Ω or more
 Power supply terminals - Input terminals DC500V100M Ω or more
- Tolerance of Source Voltage: AC90~132V
 AC180~250V
- Power Consumption : Approximately 2.5VA at AC100V
 Approximately 2.5VA at AC200V
- Operating Temperature : 0~50°C
- Storage Temperature : -20~70°C
- Weight : Approximately 300g
- Mounting Method : Fastening from rear of the panel by metal brackets.

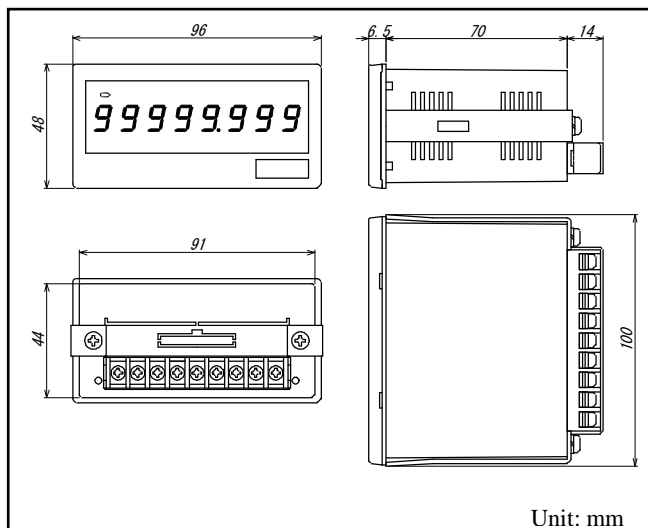
Unit Stickers (attached)

Labels of different units are attached to the instruments.
 Select and adhere the label of required unit:
 m³, Nm³, l, kl, Ml, Nkl, W, kW, W·s, W·h, kW·h, J, kJ,
 MJ, GJ, T, t, kg, g, m, km, A·h, kA·h, MW·h, W·min.

Solution for Black-out

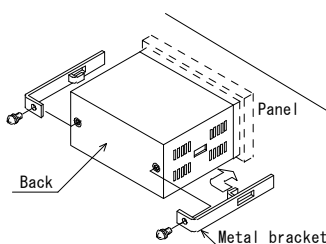
The memory of the count data is retained by non-volatile memory.
 During the black-out and power OFF, however, no count is made.
 Data retention is for approximately 10 years.

Dimensions



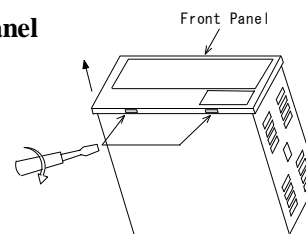
Installation

Remove the metal brackets at both sides, insert the instrument from the front and fix it by the brackets.



Removal of Front Panel

Insert (-) screwdriver into the dips at the low end of instrument and remove the front panel.



Panel cut-out dimension: 92^{+0.8/0} × 45^{+0.6/0} mm

Allowable panel thickness: 0.6~6mm

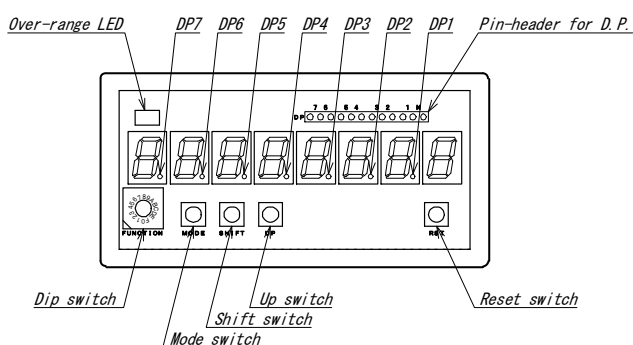
Note: Recommended thickness for the panel of aluminum is 1.5mm or more to avoid deformation of the panel.

Optimum torque of fixing screws: 0.25~0.39N·m

Wrench the panel open with (-) screwdriver.

3. Setting of Each Function

Internal Layout of Front Panel



Pulse Coefficient

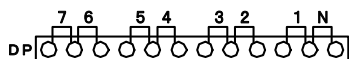
The numbers of count per 1 pulse is adjustable in the range 0.1~1000 counts by the dip switch inside the front mask.

No.	Pulse Coefficient	Numbers of Input Pulse	Numbers of count
0	0.5	2	1
1	1	1	1
2	2	1	2
3	3	1	3
4	4	1	4
5	5	1	5
6	6	1	6
7	7	1	7
8	8	1	8
9	9	1	9
A	10	1	10
B	50	1	50
C	100	1	100
D	500	1	500
E	1000	1	1000
F	0.1	10	1

Setting at delivery from factory: 1

●Setting of Decimal Point

A decimal point at 10¹ digits ~ 10⁷ digits can be lit up by changing the pin-header inside the front mask.



No.	Function
N	No decimal point
1	DP1 lit up
2	DP2 lit up
3	DP3 lit up
4	DP4 lit up
5	DP5 lit up
6	DP6 lit up
7	DP7 lit up

Setting at delivery from factory: N

●Over-range LED

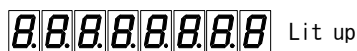
In case that the counter exceeds 99999999, the over-range LED at the display section is lit up. The count is however continued.

The over-range LED is turned off with a reset input.

●Reset Switch

A press of the reset switch inside the front mask resets the count to 0.

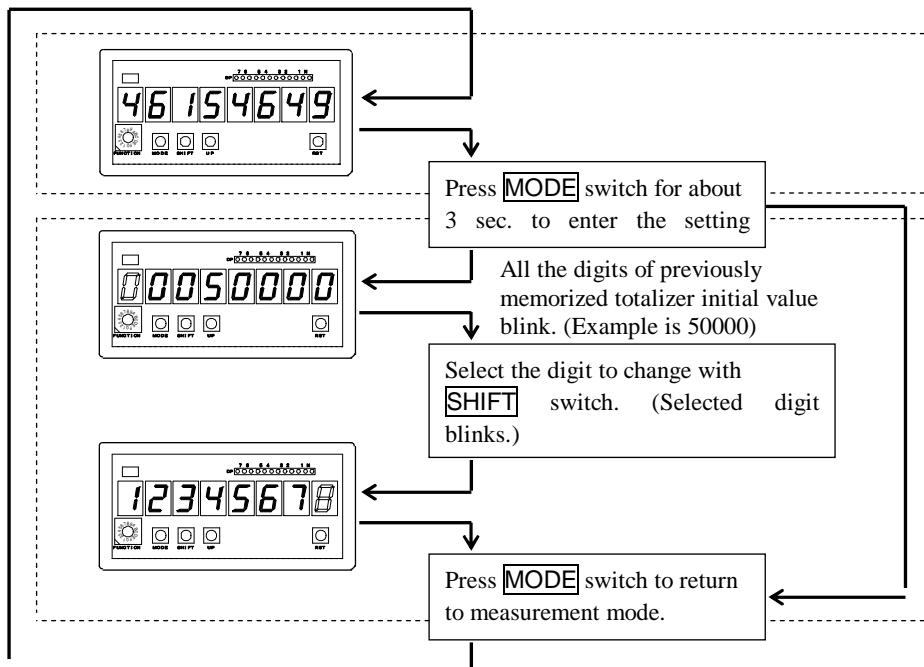
●Status of LED



●Setting of Totalizer Initial Value

Adjustable range: 0~99999999

Example: When setting the totalizer initial value to 12345678.



Note: When the setting is made while the over-range LED is lit up, the over-range LED is turned off.

The totalizer initial value at delivery from factory: 0

4. Terminal Arrangement

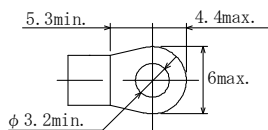
●Terminal Arrangement

Terminal Code	INPUT1	INPUT2	NC	COM	LATCH	RESET	NC	P2	P1
	10	11	12	13	14	15	16	17	18
Function	10cps Input	5kcps Input	—	Common	Latch	Reset	—	Power supply	

Terminal screws: M3

Fastening torque: 0.46~0.62N · m

Crimp terminal: As shown on the right.

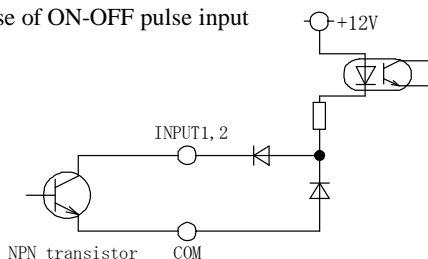


■Explanation of Terminals

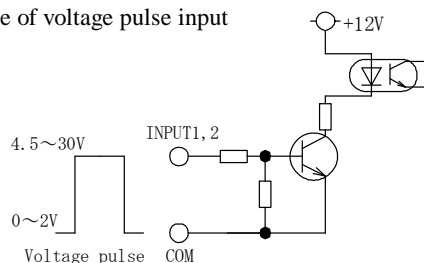
●Counter Input (INPUT1, INPUT2)

In case that the counter is used with low speed counting (10cps or less), use the INPUT1, and with high speed counting (5kcps) the INPUT2. When used with the contact, the counting should only be low speed, and when used with the high speed counting, use an open collector or else.

Case of ON-OFF pulse input



Case of voltage pulse input



●Latch Input (LATCH)

By short-circuiting the LATCH terminal to COM terminal, the display is held.

The counting is however continued. Cancellation of the latch input makes

Input signal : No-voltage contact or open collector (NPN). Latching by contact ON.
Contact capacity DC12V 8mA
“H”=9~12V, “L”=0~6V

Min. pulse width : 10ms or more

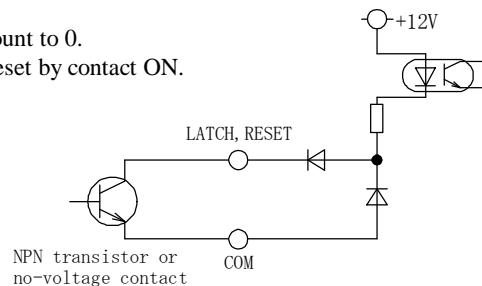
●Reset Input (RESET)

A short-circuit between RESET terminal and COM terminal resets the count to 0.

Input signal : No-voltage contact or open collector (NPN). Reset by contact ON.
Contact capacity DC12V 8mA
“H”=9~12V, “L”=0~6V

Min. pulse width : 10ms or more

Control input LATCH, RESET



●Common (COM)

Common of INPUT1, INPUT2, LATCH and RESET.

●Power supply (P1, P2)

Power supply voltage is specified on the terminal plate at the time of delivery from factory.

○AC100V Use with the range AC90~132V

○AC200V Use with the range AC180~250V

■Maintenance

Store the counter within the specified storage temperature (-20~70°C).

When cleaning the front panel or the case, use soft cloth dipped with alcohol or silicon.

Do not use organic solvent like benzene or paint thinner.

Contact Information

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