
**User's
Manual**

**Model SICD
COUNTER**

YEW SERIES 80

IM 1B4E8-01E

Model SICD COUNTER

1. INTRODUCTION.

1-1. Inspection.

This instrument was thoroughly tested at the factory before shipment. However, when you receive this instrument:

- 1) Inspect for visible damage.
- 2) Confirm that the model and suffix codes shown on the shipping documents, and also on the name-plate are the same as your order sheet.
- 3) Confirm that all accessories (see section 2-4) are present. If you have any questions about this instrument, please contact either your nearest Yokogawa Sales/Service Office or Yokogawa Electric, Tokyo, Japan.

| | | | | | | |
|-----------------|-----------------|----------------------|----------------------|------------------|------------------|----------------------|
| ml | ml | ml/min | ml/min | x10 | x10 | ml/min |
| l | l | l/min | l/min | x100 | x100 | ml/min |
| kl | kl | kl/min | kl/min | x1000 | x1000 | kl/min |
| cm ³ | cm ³ | l/h | l/h | x10 ² | x10 ² | kl/min |
| m ³ | m ³ | kl/h | kl/h | x10 ³ | x10 ³ | cm ³ /min |
| Nm ³ | Nm ³ | cm ³ /min | cm ³ /min | x10 ⁴ | x10 ⁴ | cm ³ /min |
| g | g | m ³ /min | m ³ /min | x0.1 | x0.1 | m ³ /min |
| kg | kg | Nm ³ /min | Nm ³ /min | x0.01 | x0.01 | m ³ /min |
| t | t | m ³ /h | m ³ /h | x0.001 | x0.001 | Nm ³ /min |
| kt | kt | Nm ³ /h | Nm ³ /h | x10 | x10 | Nm ³ /min |
| gal | gal | g/min | g/min | x100 | x100 | kg/min |
| bbl | bbl | kg/min | kg/min | x1000 | x1000 | kg/min |
| scf | scf | kg/h | kg/h | x10 ² | x10 ² | |
| | | t/h | t/h | x10 ³ | x10 ³ | |
| | | kt/h | kt/h | x10 ⁴ | x10 ⁴ | |
| | | gpm | gpm | x0.1 | x0.1 | |
| | | bpd | bpd | x0.01 | x0.01 | |
| % | % | scfm | scfm | x0.001 | x0.001 | |

Figure 1-1. Coefficient and Engineering Unit Labels.

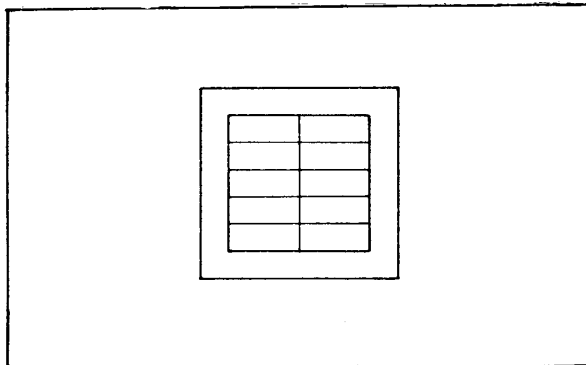


Figure 1-2. Blank Label.

2. GENERAL

This electromagnetic counter receives pulse signals from SIND (intergrator) and counts and displays the totalized value on a 6-digit counter.

If an external power supply is provided, this counter can receive and totalize pulse signals from an SLPC (programmable indicating controller) and an SPLR (programmable computing unit). (Refer to Section 3-4.)

2-1. Standard Specifications.

Input Signal: Voltage pulse

Pulse Voltage: 24V DC \pm 10%

Minimum ON-OFF Time: Both ON and OFF ...
Minimum of 25 milliseconds

Maximum Counting Rate: 10 pps

Display: 6 digits

Reset: Manually operated from panel pushbutton
(A front cover and A reset lock is provided to prevent erroneous)

Installation: Mounts in an indoor panel

External Connections: Terminals with M3 screws

Insulation Resistance: Between input terminal and case ... 100 M Ω /500 V DC

Dielectric Strength: Between input terminal and case ... 1000V AC for one minute

Ambient Temperature: 0 to

Ambient Humidity: 5 to 90% RH (non-condensing)

| suffix code | Style | Description |
|-------------|-------|-------------|
| SICD-000 | ... | Counter |
| Style code | *A | Style A |

2-3. Instrument Configuration and Components.

Figure 2-1 shows the construction of this instrument and individual components.

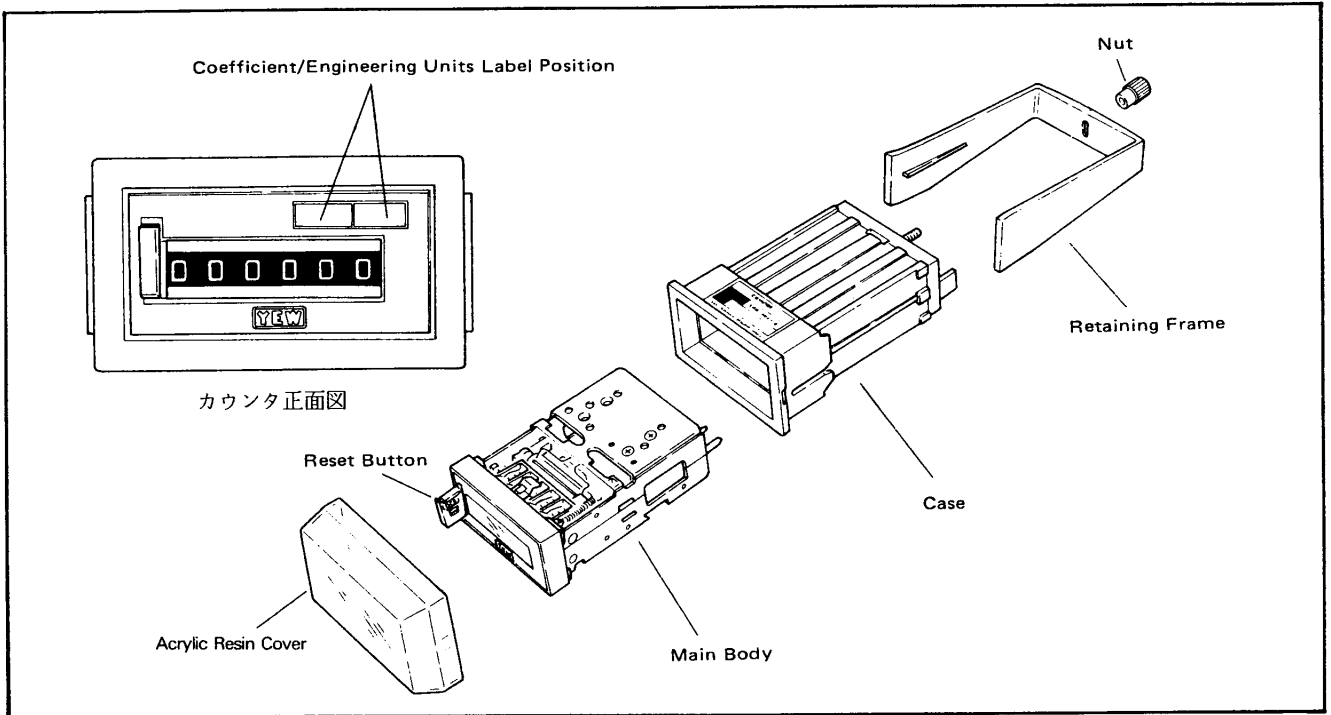


Figure 2-1. Instrument Configuration and Components.

3. INSTALLATION.

3-1. Installation Precautions.

It is recommended that this instrument be installed in

- (1) A location free from water, oil and dust.
- (2) A location where there are no corrosive gases or solvent fumes.

3-2. External Dimensions and Panel Cutout Dimensions.

Figure 3-1 shows the external dimensions of this instrument as well as the required panel cutout dimensions. To mount this instrument, refer to Section 3-3. (Panel thickness: 1 to 4 mm)

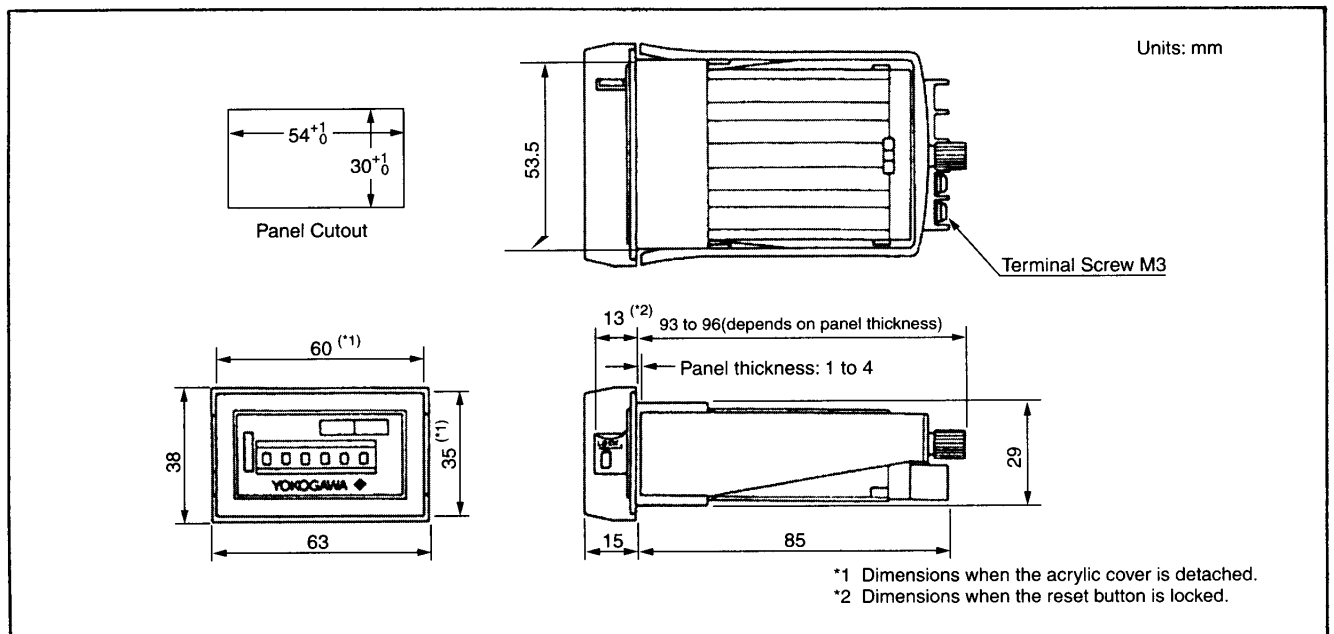


Figure 3-1. External Dimensions and Panel Cutout Dimensions.

3-3. Installation

- (1) Unscrew the nut and remove the retaining frame from the case.
- (2) Insert the instrument case from the front of the panel.
- (3) Attach the retaining frame from the rear of the panel, and secure it with the nut. (See Figure 3-2.)

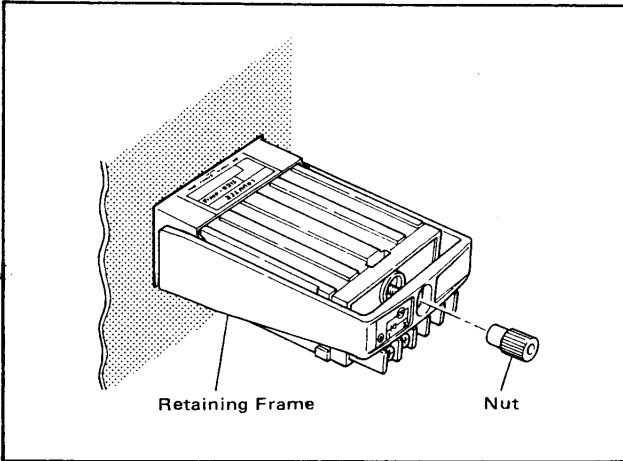


Figure 3-2. Installation.

3-4. Wiring

3-4-1. Wiring Precautions.

- (1) It is recommended that the following wire size be used. Nominal conductor cross-sectional area: 0.5 to 0.75 mm²

Note: If the distance between this instrument and transmitter is great, take the voltage drop in the conductor resistance into consideration when selecting the wire size.

- (2) Install solderless crimp-on lugs for M3 size screws on the end of each wire.

3-4-2. Wiring Connections.

Figure 3-3 shows the wiring for the integrated pulse input signal.

Figure 3-4 shows the wiring required to use this counter in combination with an SIND integrator.

Figure 3-5 shows the wiring required to receive an integrating pulse contact signal transmitted from the SLPC (programmable indicating controller) and SPLR (programmable computing unit). (This requires an external 24V DC ±10% power supply.)

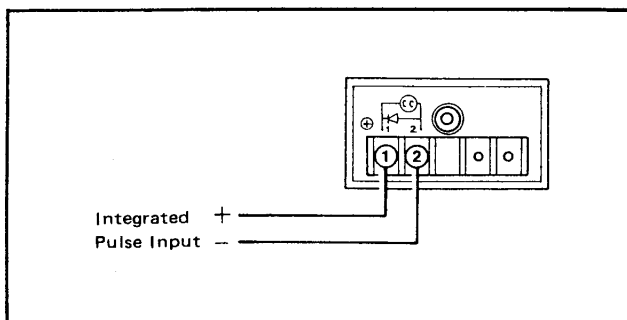


Figure 3-3. Integrator Pulse Input Signal Wiring.

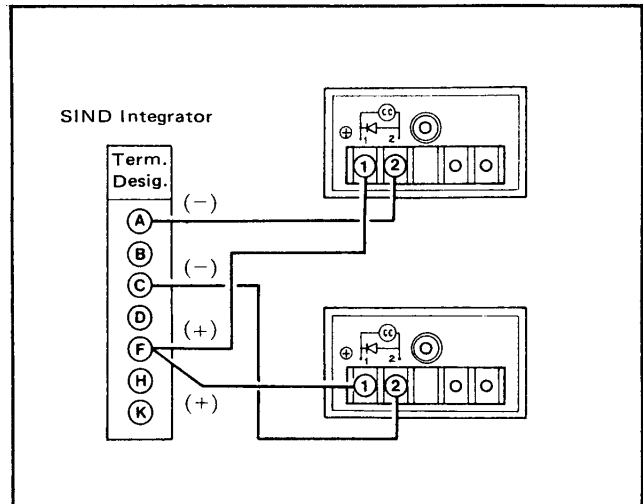


Figure 3-4. Wiring for SIND (when two counters are used)

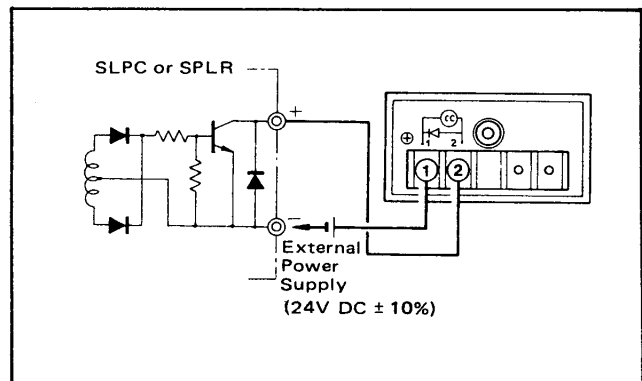


Figure 3-5. Wiring for SLPC or SPLR

4. PRINCIPLES OF OPERATION

Figure 4-1 shows the circuit diagram for this counter.

The 24V pulse signal sent from the SIND integrator or other unit is received at the counter coil where the resultant emf causes the gear to rotate and count the input pulse.

(Diode D is used to absorb surge voltages occurring across the counter coil.)

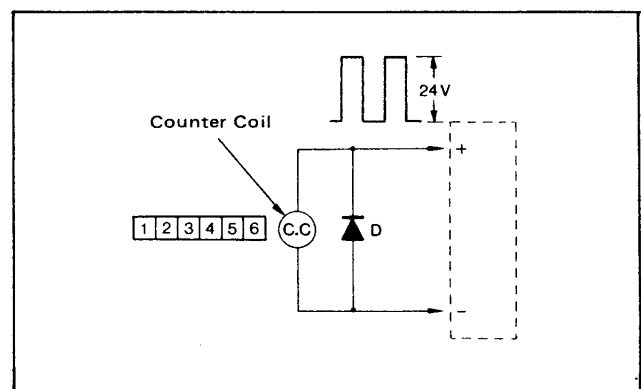


Figure 4-1. Circuit Diagram

5. OPERATION

5-1. Preparations For Operation (Attaching the Labels)

Attach the proper coefficient and engineering unit labels in the specified positions, after first detaching them from the accessory label sheet (Figure 1-1). (See Figure 5-1.)

If the required coefficient or engineering units label is not found in the label sheet, write the desired coefficient or engineering units onto a blank label (Figure 1-2), and attach it in the specified position.

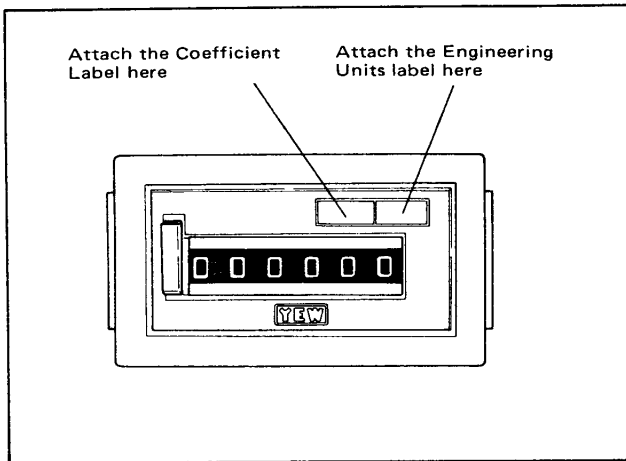


Figure 5-1. Coefficient and Engineering Unit Label Location

5-2.

5-2-1. Resetting the Totalized Value

To reset the totalized value, depress the reset button on the front panel as shown in Figure 5-2.

- Hold the reset button depressed until all digits on the counter reset to zero.
- When resetting the indicated value, the integrated pulse input must be disconnected.

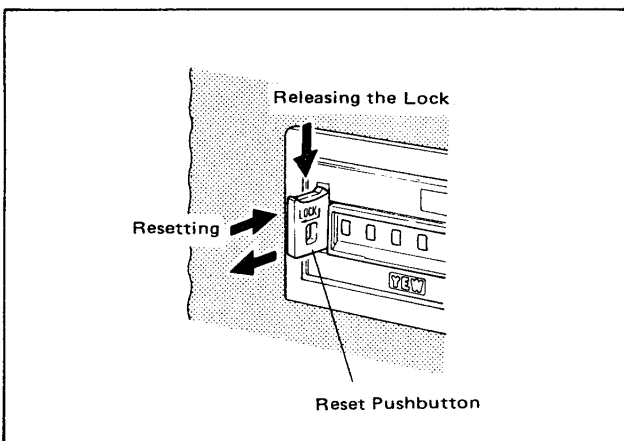


Figure 5-2. Reset Pushbutton Operation

5-2-2. Locking the Reset Pushbutton

Pull the reset button out to lock the reset pushbutton. (See Figure 5-2.)

5-2-3. Unlocking the Reset Pushbutton

To unlock the reset button, press down on the latch located above the reset pushbutton. (See Figure 5-2.)

6. MAINTENANCE

6-1. Test Equipment

- (1) 24V DC power supply unit 1
- (2) Switch 1

6-2. Inspection

Connect the counter to the test equipment as shown in Figure 6-1. Confirm that the counter count advances by one count each time the switch is operated (ON-OFF).

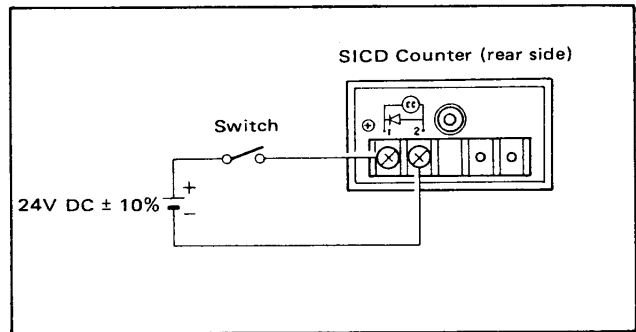


Figure 6-1. Wiring Diagram

6-3. Replacing the Counter Body

The counter body is electrically connected to the case by a connector. When drawing the body out of the case, pull the body with the reset button located on the front face.

Replace the counter body with a new one.

NOTE

1. Do not lubricate any moving portions of the counter.
2. If the counter characters are dirty, wipe them clean using a soft cloth moistened with a neutral detergent. (Do not use organic solvents or caustic soda for cleaning purposes.)

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