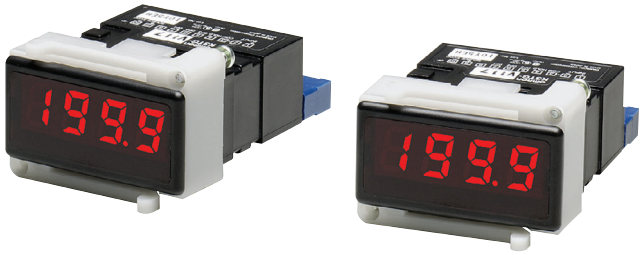
Digital Panel Meter
K3TG

CSM_K3TG_DS_E_2_1

Subminiature Digital Panel Meter that Accepts DC Input

- Ultra-compact DIN-size (48 x 24 (W x H)) body.
- Mounting thickness of only 2 mm required.
- Highly visible display with 10.2-mm-high LEDs.
- 5-VDC power supply for control.
- IP51 waterproofing with accessory attached.

⚠ Refer to *Safety Precautions for All Digital Panel Meters.*



Model Number Structure

■ Model Number Legend

K3TG - □ □ □ □
1 2 3 4

1, 2. Input Code
V1: ±199.9 mV
V2: ±1.999 V
V3: ±19.99 V
V4: ±199.9 V

3. Series No.
1: Current series

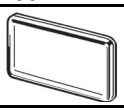
4. Supply Voltage
7: 5 VDC (not internally insulated)

Ordering Information

■ List of Models

Range	Measuring ranges	Supply voltage
		5 VDC (not internally insulated)
DC voltage	±199.9 mV	K3TG-V117
	±1.999 V	K3TG-V217
	±19.99 V	K3TG-V317
	±199.9 V	K3TG-V417

■ Accessories (Order Separately)

Name	Appearance	Model
Water-resistive Soft Front Cover		K32-L24SC

Specifications

■ Ratings

Supply voltage	5 VDC (not internally insulated)
Operating voltage range	–5% to +5% of supply voltage
Power consumption	0.3 W (at max. DC load)
Insulation resistance	10 MΩ min. (at 500 VDC) between external terminal and case
Dielectric strength	2,000 VAC min. for 1 min between external terminal and case
Noise immunity	±200 V on power supply terminals in normal mode ±500 V on power supply terminals in common mode
Vibration resistance	Malfunction: 10 to 55 Hz, 0.5-mm single amplitude for 10 min each in X, Y, and Z directions Destruction: 10 to 55 Hz, 0.75-mm single amplitude for 2 hrs each in X, Y, and Z directions
Shock resistance	Malfunction: 98 m/s^2 for 3 times each in 6 directions Destruction: 294 m/s^2 for 3 times each in 6 directions
Ambient temperature	Operating: –10° to 55°C (with no icing) Storage: –20° to 65°C (with no icing)
Ambient humidity	Operating: 35% to 85% (with no condensation)
Ambient operating atmosphere	No corrosive gas
EMC	(EMI) EN61326+A1 Industry Emission Enclosure: CISPR 11 Group 1 class A: CISRP16-1/-2 Emission AC Mains: CISPR 11 Group 1 class A: CISRP16-1/-2 (EMS) EN61326+A1 Industry Immunity ESD: EN61000-4-2: 4 kV contact discharge (level 2), 8 kV air discharge (level 3) Immunity RF-interference: EN61000-4-3: 10 V/m (amplitude-modulated, 80 MHz to 1 GHz) (level 3) Immunity Fast Transient Noise: EN61000-4-4: 2 kV (power line) (level 3) Immunity Burst Noise: 1 kV line to line (I/O signal line) Immunity Surge: EN61000-4-5: 1 kV line to line, 2 kV line to ground (power line) Immunity Conducted Disturbance EN61000-4-6: 3 V (0.15 to 80 MHz) (level 2) Immunity Voltage Dip/Interrupting EN61000-4-11: 0.5 cycles, 0, 180°, 100% (rated voltage)

■ Characteristics

Input signal	DC voltage
A/D conversion method	Double integral method
Sampling period	2.5 times/s
Display refresh period	2.5 times/s
Max. displayed digits	3 1/2 digits (+1999)
Display	7-segment red LED
Decimal point display position	By short-circuiting terminals
Sign display	"–" is displayed automatically with a negative input signal.
Overflow/underflow display	Overflow: 1□□□ Underflow: – 1□□□
Zero suppression	Not supported.
External control	Process value hold (terminals on rear panel short-circuited)
Degree of protection	Front panel: IEC IP51 (see note) Case: IEC IP20 Terminals: IEC IP00

Note: IP51 is maintained when the water-resistive soft cover and bracket are used. IP50 will be, however, maintained without these water-resistive accessories.

■ Measuring Ranges

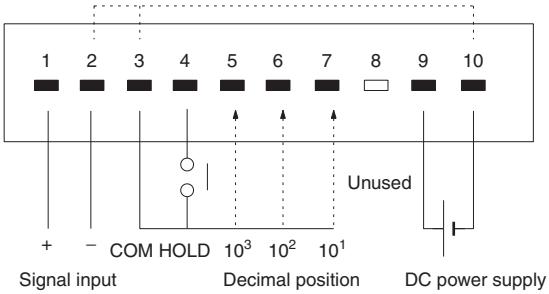
Input range	Measuring range	Max. resolution	Input impedance	Accuracy	Max. permissible load
DC voltage	±199.9 mV	100 μV	100 MΩ	±0.1%rdg ±1 digit	±250 V
	±1.999 V	1 mV	100 MΩ	±0.1%rdg ±1 digit	±250 V
	±19.99 V	10 mV	10 MΩ	±0.1%rdg ±1 digit	±250 V
	±199.9 V	100 mV	10 MΩ	±0.1%rdg ±1 digit	±350 V

Note: The above accuracy is at an ambient temperature of 23±5°C.

Connections

■ External Connections

External Connection (Connector and connector screws are provided with the model.)



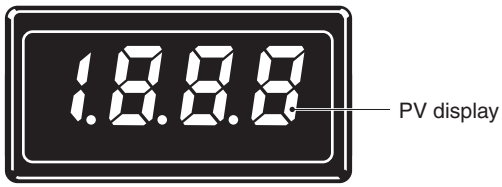
Conformance to EN/IEC Standards

To ensure conformance to EN/IEC standards in machinery that incorporates the K3TG, ensure that input signal lines are less than 30 m.

Note: 1. Terminals 2 and 3 and 10 are not internally insulated. Connect a relay with high contact reliability and insulation (with a minimum load current of 0.3 mA) or a photocoupler with high insulation (with a residual voltage of 1 V max. and a current leakage of 0.1 mA max.) to these terminals for external control. The use of an independent power supply is recommended for the Digital Panel Meter.

2. Terminal 8 is not used. Do not use this terminal for transmission of signals.

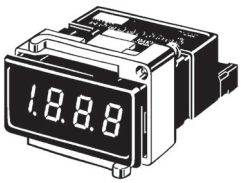
Nomenclature

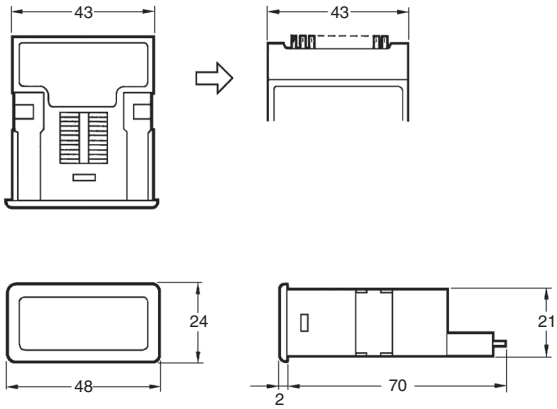


Select the decimal position with terminal 5, 6, or 7 on the rear panel.

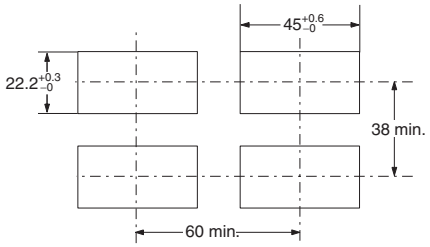
Dimensions

Note: All units are in millimeters unless otherwise indicated.

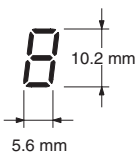




Panel Cutouts



LED Indicator Size

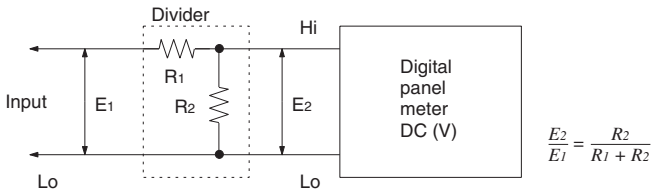


Note: The values above are recommended values. Do not group-mount the meters at intervals less than the recommended ones.

Application Examples

High DC Voltage Measurement

When voltage exceeding the maximum voltage in the standard range is measured (for example: more than 200 V), a divider is connected externally.



Safety Precautions

■ Precautions for Correct Use

Refer to *Safety Precautions for All Digital Panel Meters*.

Mounting

Recommended panel thickness is 1 to 3.2 mm.

Mount the Digital Panel Meter by attaching the mounting bracket supplied as an accessory from the rear of the Digital Panel Meter and hooking the mounting bracket to the Digital Panel Meter securely.

Tighten the mounting screws by turning them clockwise with a tightening torque of 4 kgf·cm (0.39 N·m).

To dismount the Digital Panel Meter, loosen the screws and widen the hooks.

Mount the Digital Panel Meter as horizontally as possible.

Calibration

Calibrate the Digital Panel Meter regularly so that the Digital Panel Meter can maintain processing accuracy.

Use a standard signal generator with an accuracy of 99.99% min. for calibration.

For the precise calibration methods, refer to the Instruction Sheet for the Digital Panel Meter.

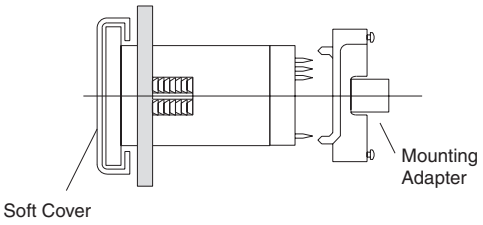
Control Power Supply

Use a control power supply with a ripple rate of 10% max.

Accessories (Order Separately)

Water-resistive Soft Front Cover

Before mounting the Digital Panel Meter to a panel, attach the water-resistive soft front cover and mounting bracket to the Digital Panel Meter properly so that the Digital Panel Meter will maintain IP51 water-resistive standards.



Note: Be sure to use the Water-resistive Soft Front Cover and mounting bracket together.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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