

# Instruction Manual

## Digital Panel Meter Model 3126

I-01861

### 1. Preface

- Thank you for purchasing our digital panel meter 3126 series.  
Before use, read this manual carefully and thoroughly, and keep this manual available for routine reference.
- Please check contents of the package you received as outlined below.
  - (1) Digital panel meter itself and it's connector
  - (2) This manual
- Then, check for damage during transportation, and for model number and specifications. If you have noticed any damage or wrong products, contact us or our distributor.

**⚠ CAUTION**

- There is no power on-off switch on the model 3126. It immediately starts to operate after turning the power. The rated data is, however, defines with more than 15 minutes warming-up times.
- When the product is installed in the cabinet, perform the appropriate heat radiation to keep less than 50°C in it.
- Do not install the product in the following conditions.
  - Where it is exposed to direct sunlight, dust, corrosive gages, rain, etc.
  - Where ambient temperature or humidity is high.
  - Where it is exposed to excessive noise or static electricity.
  - Where there is constant vibration or shock.

### 2. Standard Specifications

#### ■ Model Numbering

3126 - □ - □ - □  
          1   2   3

#### 【1】Input signal

##### [ Thermocouple ]

Code	Type of T/C	Measuring Range	Display Range	Accuracy ※
3126-01	R	100 ~ 1700 °C	-50 ~ 1750 °C	±(0.5% of rdg + 1 °C)
3126-02	K	0 ~ 1300 °C	-100 ~ 1350 °C	±(0.5% of rdg + 1 °C)
3126-04	J	0 ~ 1200 °C	-50 ~ 1250 °C	±(0.5% of rdg + 1 °C)
3126-05	T	-100 ~ 400 °C	-150 ~ 420 °C	±(0.5% of rdg + 1 °C)

※ Accuracy: Defined at 23 °C ± 5 °C, 45 to 75%RH.

Temperature coefficient: ±300ppm/ °C within the 0 to 50 °C temperature range.

Calibrated by standard thermal power mV input in compliance with JIS C 1602-1995.

Standard contact compensation: Defined at ±2 °C within the 0 to 50 °C temperature range

##### [ Resistance thermometer ]

Code	Type of sensor	Measuring Range	Display Range	Accuracy ※
3126-11	Pt100Ω	-199 ~ 600 °C	-199 ~ 650 °C	±(0.4% of rdg + 1 °C)
3126-12	Pt100Ω	-199.9 ~ 199.9 °C	-199.9 ~ 199.9 °C	±(0.2% of rdg + 0.3 °C)

※ Accuracy: Defined at 23 °C ± 5 °C, 45 to 75%RH.

Temperature coefficient: ±200ppm/ °C within the 0 to 50 °C temperature range.

Calibrated by resistance of standard resistive elements in compliance with JIS C 1604-1997.

#### 【2】Display Color

Code	Description
Blank	Red LED
G	Green LED

#### 【3】Option

Code	Description
Blank	N/A
A01	Analog output

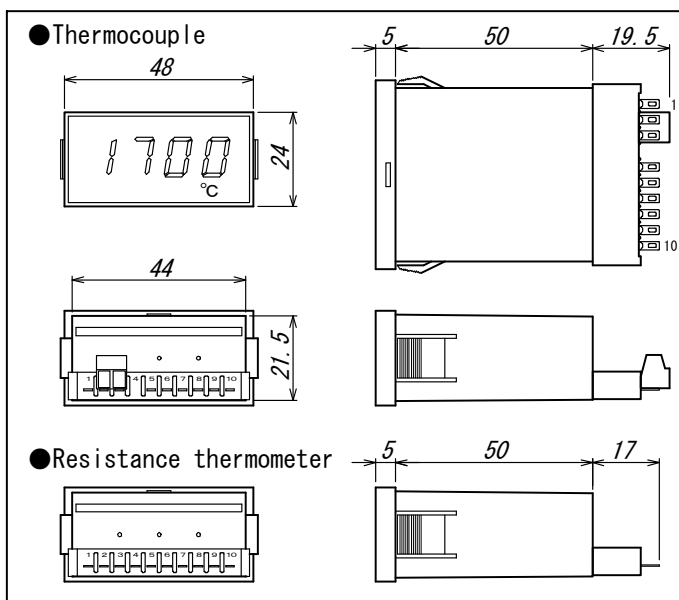
**■General Specifications**

- Display : Red or green LED (character height 10mm) with zero-suppress function.
- Over-range indication : When exceeding the display range, blinks with min. value or max. value.
- Open circuit of input : Thermocouple (blinking with min. value)  
Resistance thermometer (blinking with max. value)
- Resolution : 1 °C for thermocouple, 1 °C or 0.1 °C for resistance thermometer.
- External resistance : Max. 500Ω for thermocouple, Max. 5Ω /lead wire for resistance thermometer.
- Overload : DC±3.3V
- Sampling Rate : Approx. 2.5 times/sec.
- Input Type : Single ended, floating input.
- A/D Conversion : Δ-Σ conversion system.
- Noise Rejection : Normal mode (NMR) 50dB or more.
- Hold function : Measured data and analog output (option) are held.  
Not isolated from the input.
- Average calculation : 4 sampling display datum can average (fixed).
- Withstanding Voltage : Input terminals - Case : AC500V each for 1 min.  
Power supply terminals - Case : AC500V each for 1 min.  
Power supply terminals - Input terminals : AC500V each for 1min.
- Insulation Resistance : DC500V 100MΩ or more.
- Power supply : DC12~24V
- Power supply allowance : DC9~32V
- Power Consumption : Approx. 60mA at 12VDC. Approx. 40mA at 24VDC.
- Operating Temperature : 0~50 °C
- Storage Temperature : -20~70 °C
- Weight : Approx. 55g
- Mounting Method : Snap-in type from the panel front.

**■Optional function**

- Analog output : Not isolated with the input.  
Voltage: 10mV/°C (for 0.1 °C resolution)  
1mV/°C (for 1 °C resolution)
- Accuracy: 0.2%FS (for display)
- Load: 20kΩ or more. (resistive)
- Temperature coefficient: ±200ppm/°C (±400ppm/°C for J and T sensors)
- Response time: 1.2s or less.

**■Dimensions**



**■Mounting**

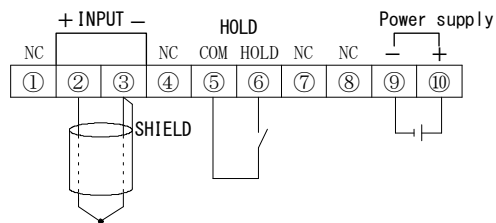
Remove the connector at the rear side of the case, then insert from the panel front.

Panel cut dimension is  $45^{+0.5}_0 \times 22.2^{+0.3}_0$  mm.

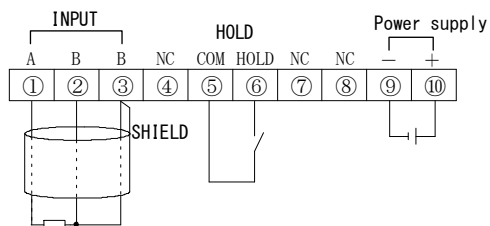
Panel thickness should be 1 to 5 mm.

**■Connector arrangement**

【 Thermocouple input 】



【 Resistance thermometer input 】



● **Input**

【 Thermocouple input 】

Tighten each thermocouple with correct polarity. Use a slotted driver with 2.5(w) × 0.5(t)mm.

【 Resistance thermometer input 】

Connect 3-wire Pt100Ω

**Note)** Input and power line shall lay separately. Otherwise, display may be unstable.

● **Hold (HOLD)**

Display and analog output can be held by connecting the HOLD terminal and the COM terminal.

Active “L”,  $I_{HL} \leq -1\text{mA}$ , “L”=0~0.8V, “H”=3.5~5V

● **Common (COM)**

For HOLD terminal.

● **NC**

NC is not connected.

Do not use for junction purpose.

● **Power supply (+,-)**

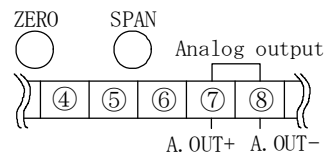
Use within the range from DC 9 to 32V.

<b>⚠ CAUTION</b>
<ul style="list-style-type: none"> <li>● <b>Hold and com terminal is not isolated to the input. Use a photo-coupler or switch to insulate. It is essential when using the input floating. When using plural numbers of the product, the hold terminal should be insulated at each instrument.</b></li> </ul>

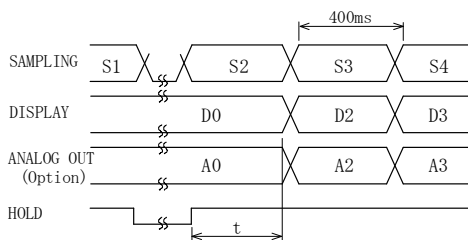
<b>⚠ CAUTION</b>
<ul style="list-style-type: none"> <li>● <b>Do not apply over voltage nor AC power to avoid damage.</b></li> </ul>

● **Analog output**

- Analog output is terminal 7 and 8.
- Outputs in proportional to the input signal to A. OUT+ and A OUT-.
- With the adjustment volume.
- Not isolated with the measuring input, HOLD nor COM.
- Connect with the correct polarity.
- Not available moving average.
- Use a small phillips head driver for adjustment.



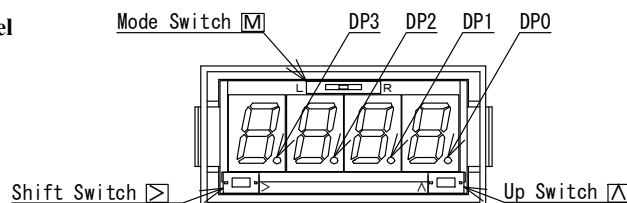
■ **Timing Chart**



t: Approx. 400ms when using thermocouple.  
Approx. 600ms when using resistance thermometer.

■ **Parameter Setting**

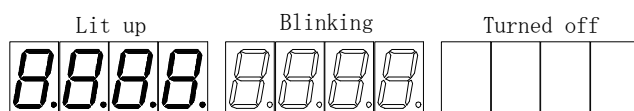
● **Internal layout from the front panel**



● **Function of each switch**

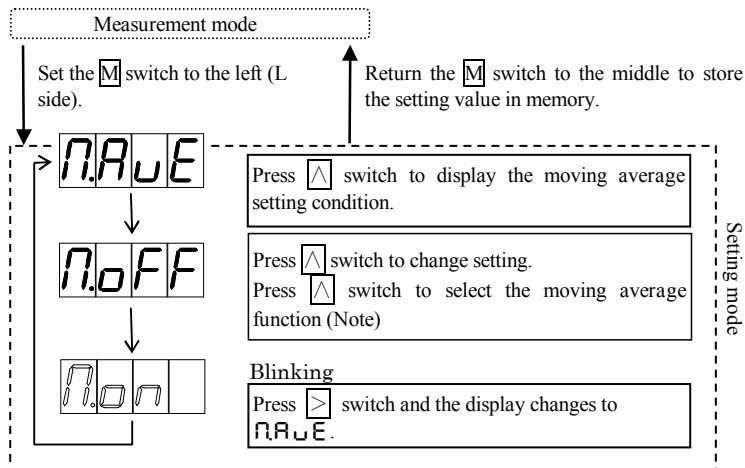
- Mode Switch **M** : Switches to setting mode from the measuring mode and memories.
- Shift Switch **>** : Shifts setting value during the parameter setting.
- Up Switch **Λ** : Changes setting value and items.

● **Indications**



**- Average calculation**

Disable or enable the average calculation.



Note: n.on Enable  
n.off Disable

[Up] Up switch : Enable → Disable → Enable (in order)

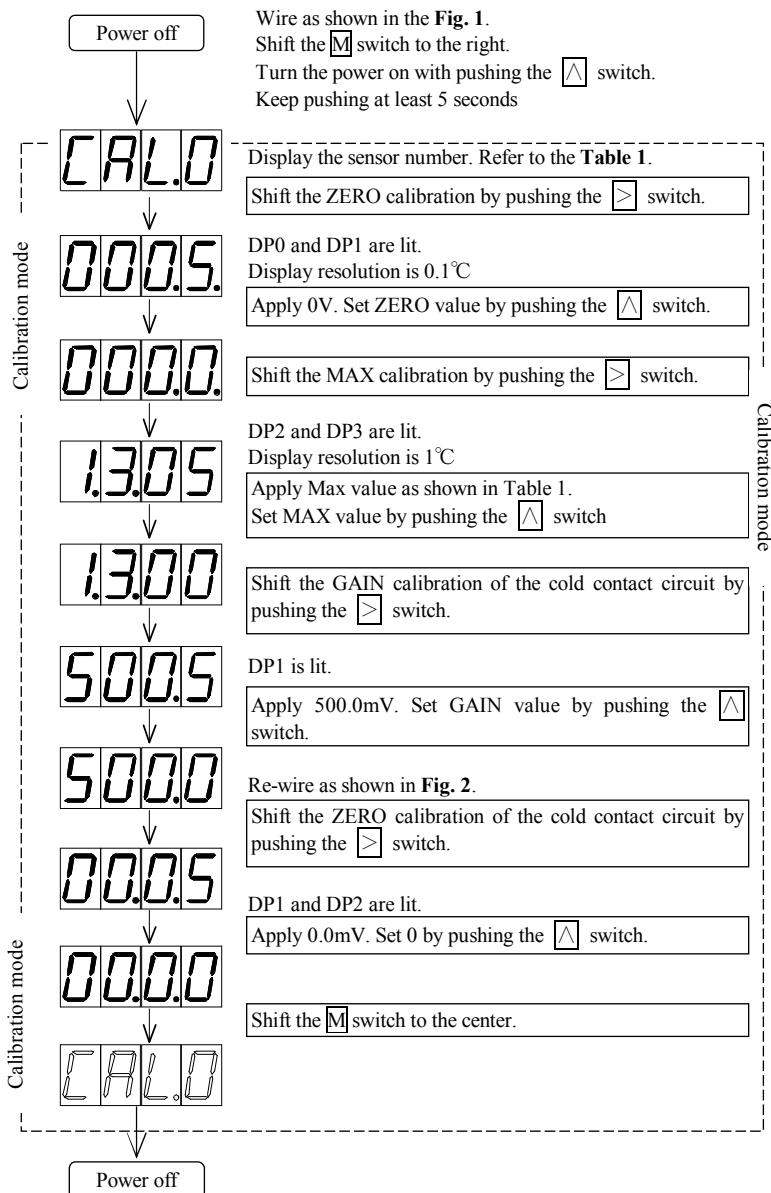
**■Calibration**

In order to maintain long term accuracy, periodical calibration at an interval of about one year is recommended. Make a calibration in the ambient condition of 23°C±5°C, 75%RH or less.

**【 Thermocouple 】**

Prepare a voltage regulator, cold contact circuit (thermos bottle with ice water), and standard thermocouple.

Shift the M switch to the right. Keep pushing the [Up] switch, and turn the power on. Calibration mode starts.



- End calibration by turning the power off.
- New calibration is effective after restarting.
- Do not turn off the power during calibration to memorize new valve.
- During calibration, it operates with a moving average.
- When calibrating at excessive range, back to the input value display after blinking the Error message (□Err).
- Calibrate within the range.

No.	Name	Max. value	
CAL0	K sensor	1300 °C	52.410mV
CAL1	J sensor	1200 °C	69.553mV
CAL2	R sensor	1700 °C	20.222mV
CAL4	T sensor	400 °C	20.872mV

Table 1

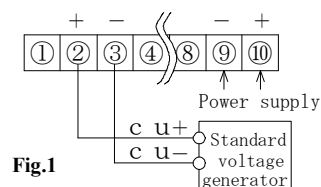


Fig.1

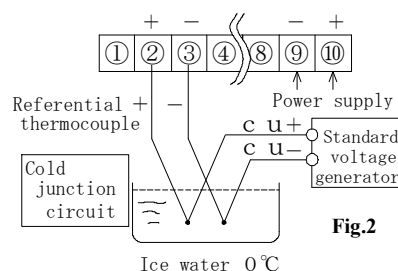
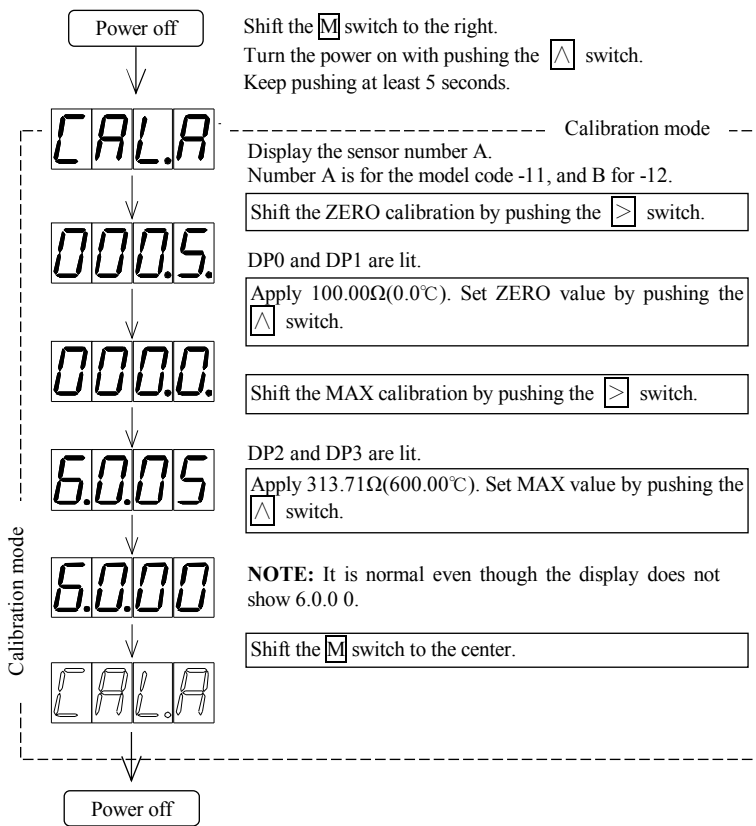


Fig.2

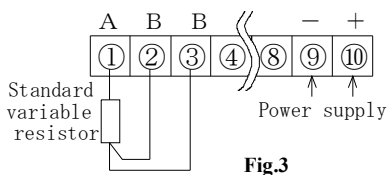
**【 Resistance thermometer 】**

Connect the variable resistor as shown in **Fig 3**.

Calibrate at 0.0°C and 600.0°C for both model code-11 and -12.  
 Shift the **M** switch to the right. Turn the power on with pushing the **△** switch.  
 Calibration mode starts.



- End calibration by turning the power off.
- New calibration is effective after restarting.
- Do not turn off the power during calibration to memorize new value.
- During calibration, it operates with a moving average.
- When calibrating at excessive range, back to the input value display after blinking the Error message (□Err).
- Calibrate within the range.



**■ Maintenance**

Store the instrument within the rated storage temperature (-20~70 °C).  
 When the front panel or the case is cleaned, use soft cloth dipped with cleaner liquid.  
 Do not use organic solvent like benzene or paint thinner as they may deform or discolor the case.

<b>Contact Information</b>	
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