

**NEW**

# Handy Calibrators

**CA11E / CA12E**

**CA11E** Voltage/Current Calibrator

**CA12E** Temperature Calibrator

Both signal source and measurement functions

Simple operation, easy to use

Lightweight, compact body

- NEW** Display resolution for current 0.001mA (**CA11E**)
- NEW** Addition of loop check function (**CA11E**)
- NEW** Source/measurement of 10 kinds of thermocouples (**CA12E**)
- NEW** Addition of rubber boot as accessory



# Compact, Low Cost, Versatile



## Features

### Source and Measuring of Voltage and Current

Generates and measures voltages up to 30 V DC and currents up to 24 mA DC.

### Improved display resolution for current

NEW

The generation/measurement resolution has improved to 0.001 mA.

### 24 V (20 mA)/Loop check function\*

Enables measurement of generated current signals while supplying loop power to two-wire transmitter.

NEW

\* Load current: Max. DC22 mA

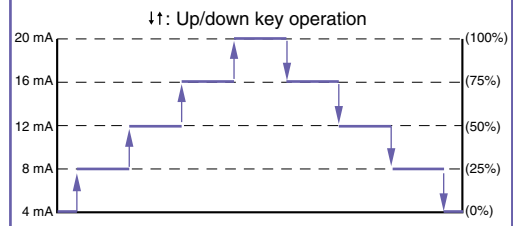
### 20 mA SINK Function

Absorbs the voltage supplied from an external power supply to its H terminal and simulates a two-wire transmitter making it ideal for loop checks.

### 4-20 mA and 1-5 V DC Step-up/down Function

The output level can be changed between 4↔8↔12↔16↔20 mA signals by one touch for the 4-20 mA DC output, and between 1↔2↔3↔4↔5V signals for the 1-5 V DC output, for efficient calibration work.

#### 4-20 mA Step-up/down Output



### Sweep Function

Increases and decreases the output level to the preset level at a constant rate for the selected sweep time (16 or 32 seconds). The sweep function and sweep time are set by the internal dip switches.

## Panel Design Common to All Models

### Power Switch

### Up/Down Keys

Used to set the output signal level. A pair of up/down keys is conveniently located immediately below each digit in the LCD panel.

### Output On/Off Switch

(Output signal can set ON/OFF)

### Range Selection Rotary Switch

The rotary switch simplifies range selection: just leave the switch set to the most frequently used range.

### Source/Measure Selection Switch

Temperature Calibrator  
**CA12E**



■ Features

■ **Simulator of Common Thermocouples and RTD Sensors**  
Outputs a signal equivalent to signals of ten types of thermocouple K, E, J, T, N, S, B, L, M and R as well as Pt100 resistance temperature detector. Suitable for a broad range of applications such as maintenance of industrial process instruments and various thermometers.

■ **Multi-range Thermometer**

Can be used as a multi-range thermometer. Three-wire RTD connection for an RTD is possible.

■ **Built-in Sensor for Reference Junction Compensation**

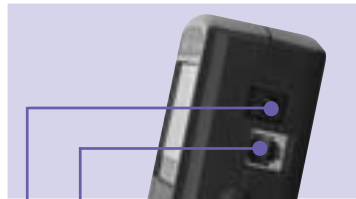
Reference junction compensation when generating a thermocouple signal can be performed by the built-in temperature sensor. For more precise compensation, use the external RJC sensor (model B9108WA, sold separately).

■ **Shift Key**

Selects "temperature" or "RTD" unit.

■ **Terminal Adapter**

Provides screw terminals for connecting a temperature sensor such as a thermocouple and RTD when measuring temperature. When generating an RTD signal, a three-wire RTD signal can be output using the lead cables that come with the CA12E by short-circuiting the Lo-Lo terminals using the short-circuit bar that also comes with the CA12E.



■ **Plug for External RJC Sensor**

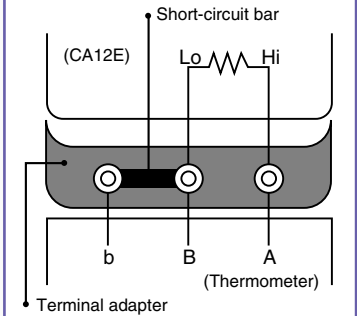
The RJC sensor is sold separately.

■ **Plug for AC Adapter**

Common for all CA11E, CA12E

■ **Example of Use of Terminal Adapter**

(When outputting a three-wire RTD signal)



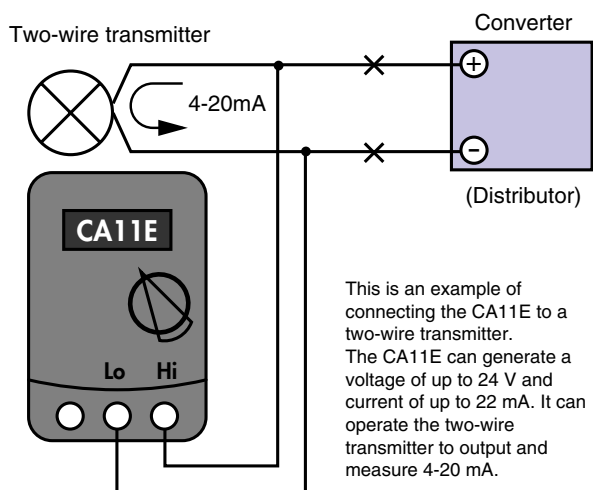
■ General/Common Specifications for CA11E/CA12E

<b>Power supply</b>	: Four 1.5-V alkaline batteries (ANSI AA-size) or dedicated AC adapter (sold separately)	<b>Measurement display</b>	: Approximately 1 update/sec.
<b>Life of Batteries</b>	: CA11E : Approximately 50 hours for 5 V DC output (with a load of 10kΩ or greater) Approximately 25 hours for 20 mA DC output (with a load of 5 V) CA12E : Approximately 55 hours * When generating a signal continuously on alkaline batteries	<b>update interval</b>	: Approximately 1 update/sec.
<b>Automatic Power-off</b>	: Approximately 10 minutes (Can be canceled by DIP switch setting)	<b>Display</b>	: 7 segments LCD
<b>Generation Signal Level Setting</b>	: By four-digit up/down keys	<b>Operating temperature/ humidity range</b>	: 0 to 50°C and 20 to 85%RH (no condensation)
<b>Response of generator</b>	: CA11E : Approximately 1 second (from when the output begins to change until when the output level falls within the specified accuracy) CA12E (400Ω and RTD range) : Approximately 20 milliseconds (from when the specified current is applied until when the output level falls within the specified accuracy)	<b>Storage temperature/ humidity range</b>	: -20 to 50°C and 90%RH or less (no condensation)
<b>Maximum Allowable Applied Voltage</b>	: CA11E: 30 VDC or less between each terminal and ground CA12E: 42 V peak or less between each terminal and ground	<b>Dimensions</b>	: Approximately 192 (W) × 92 (H) × 42 (D) mm (Excluding protrusions)
		<b>Weight</b>	: Approximately 440 g (including batteries)
		<b>Accessories</b>	: Lead cable (1 pair) Terminal adapter (for CA12E only) (1) Instruction manual (1) 1.5-V alkaline battery (ANSI AA-size)(4) • For suffix code -1 Carrying case (1) • For suffix code -2 Rubber boot (1) Strap (1) Accessory case (1)

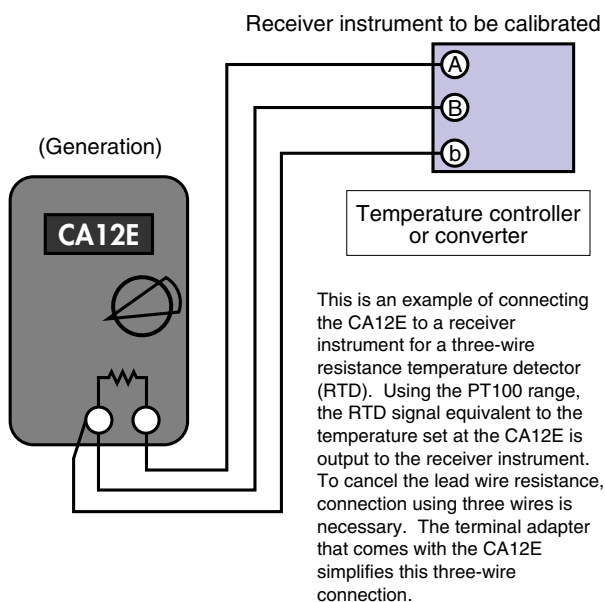
## Examples of Applications

### Application Example of CA11E (Transmitter Simulation 1)

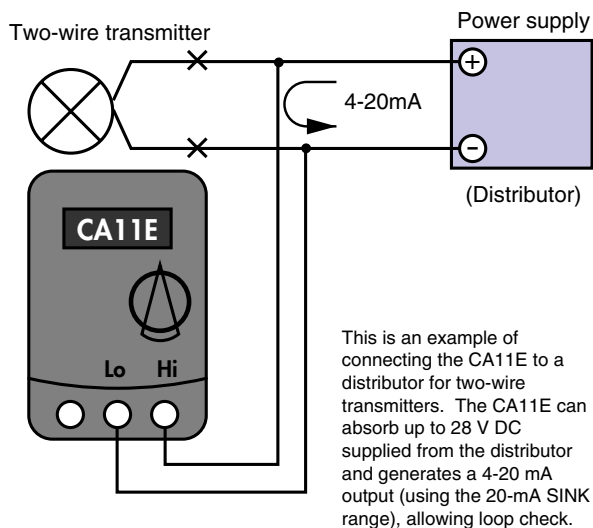
**New function**



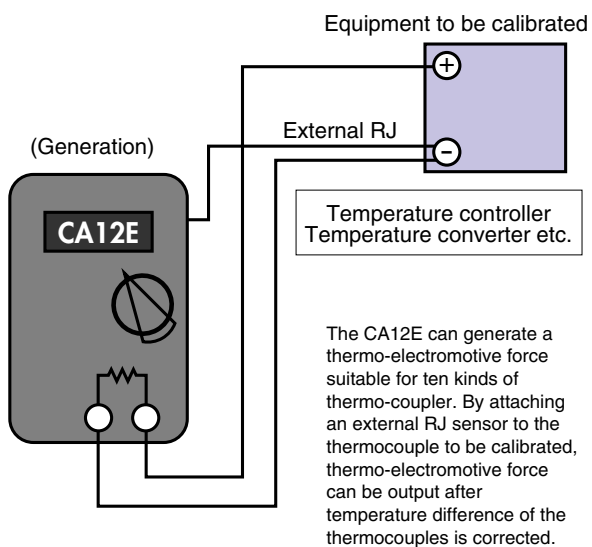
### An Application of CA12E (RTD Simulation)



### An Application of CA11E (Transmitter Simulation 2)



### Application Example of CA12E (Generation of thermo-electromotive force)



■ Additional Features

Choose either "rubber boot" or "carrying case"

Rubber boot, strap and accessory case can be chosen as standard accessories to improve impact resistance and make it easier to carry. (The calibrator cannot be stored in the carrying case when the rubber boot is attached.)

**NEW**

The roomy case easily holds the calibrator without having to disconnect the lead cables.

Rubber boot (93038)



Strap (97040)



Allows the calibrator to be hung on a wall.

Accessory case (B9108XA)



Used to store probes and accessories.

carrying case (B9108NK)



**Automatic Power-off**

Power is turned off automatically if the calibrator is not touched for 10 minutes, prolonging battery life.

**Simple and Easy Calibration**

For the CA11E and CA12E, There is performing calibrations during periodic maintenance as they can be simply calibrated by the up/down keys.

**Runs on 1.5 V AA-size Batteries or AC Adapter**

The handy calibrators can run on the built-in 1.5-V ANSI batteries or an AC power supply using the AC adapter (sold separately).

**Complete Protection (CA11E)**

The complete protector protects the circuit against short-circuiting of the voltage output terminals and application of a voltage (of up to 30 V) to the output terminals, etc. due to misconnection.

**Longer Lead Cables**

The slightly longer than usual lead cables of 1.7 m (approximately 0.1 Ω for both cables) allow easy cable connection even if the handy calibrator is put on the floor.

**Dip Switches (inside battery compartment)**

Switch Number	CA11E		CA12E	
	ON	OFF	ON	OFF
1	Sweep function	Sweep function -off	The built-in RJC is on.	External RJC is on.
2	32 s	16 s	'F	'C
3	24.00	24.000	PT100-IPTS68	PT100-ITS90
4	Automatic power-off is disabled.	Automatic power-off	Automatic power-off is disabled.	Automatic power-off

**Compact and Lightweight**

Almost the same size and weight as a hand-held digital multimeter, this calibrator is designed for use in the field.