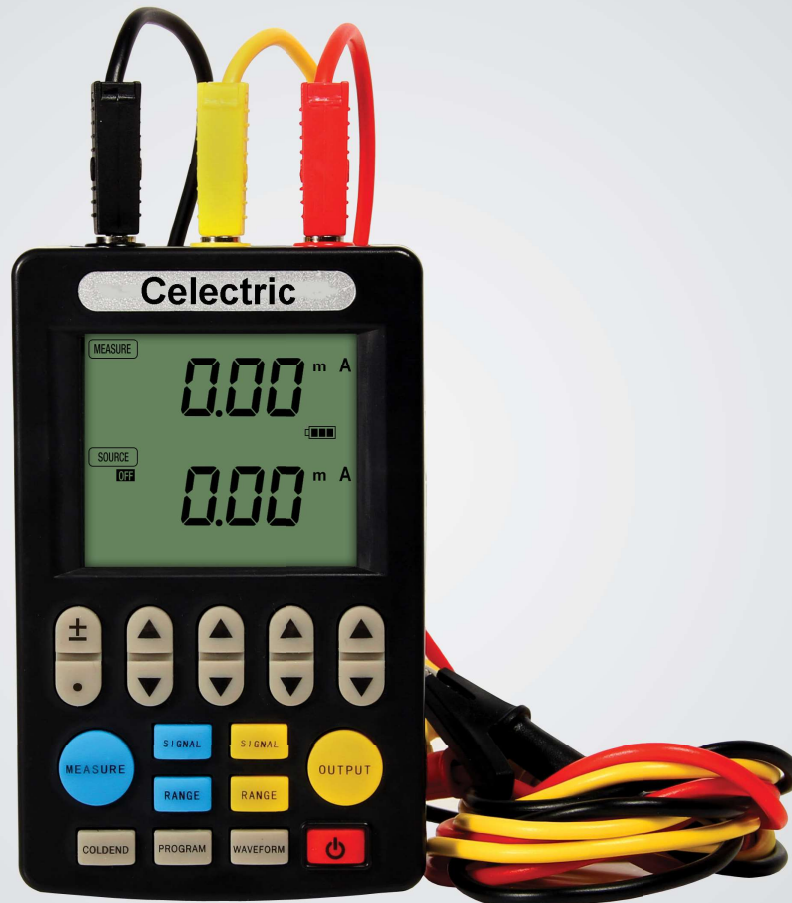


PC702

Process Calibrator



FEATURES

- Measure and Source T/Cs, RTDs, Ohms, Current, Voltage
- Compact & Lightweight
- Battery or USB Powered
- Source and Measure Simultaneously
- 24 V Power to Loop the Transmitter
- Auto Stepping & Ramping
- Selective Auto Off Mod
- LCD includes an LED backlight

Product Introduction

PC702 Multi-functional Hand-held Signal Calibrator has a multiple signal Output and measurement including voltage, current, thermocouple and RTD



SPECIFICATIONS

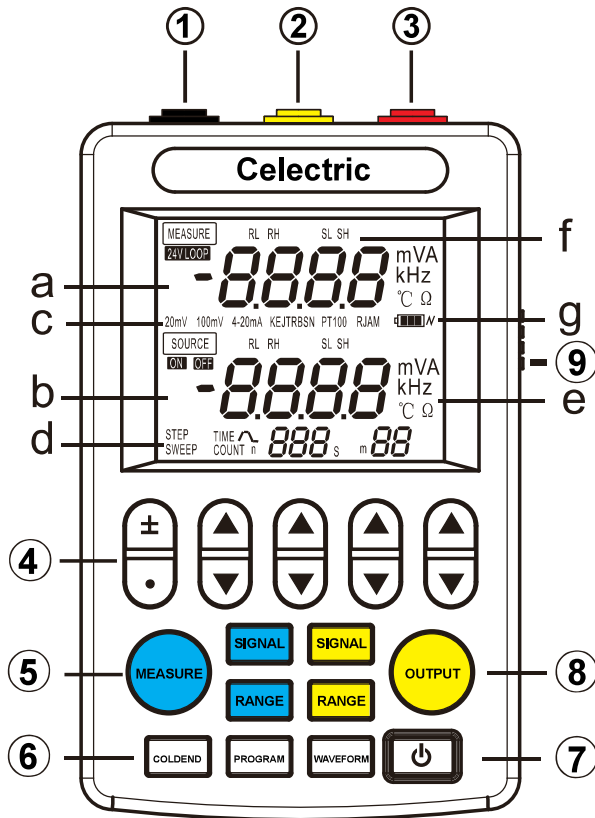
Model: PC702
Operating Temperature: -10 to 55°C
Storage Temperature: -20 to 70°C
Relative Humidity: 20 to 80%
External Dimensions: 115 mm x 70 mm x 26 mm
Weight: 300 g
Power: Internal rechargeable Lithium Ion battery (non-replaceable) or external USB power
Power Dissipation: 300 mA, 7-10 hours
Reverse Connection and Overcurrent Protection: 30V
Cable Supplied: Three signal cables, One USB Cable

Technical Specifications

Item	Signal	Range	Accuracy	Resolution	Remark
DC voltage	20mV	0.00-24.00mV	±0.2%	0.01mV	Output: max current 30mA measure: input Impedance 1.2MΩ
	100mV	0.0-100.0mV	±0.2%	0.1mV	
	V	Output 0.00-15.00V Measure 0.00-30.00V	±0.2%	0.01V	
DC current	mA	0.00-24.00mA	±0.2%	0.01V	Output: max load 750Ω
	4-20mA	4/8/12/16/20mA	±0.2%	0.01mA	Measure: input Impedance 100Ω
Passive current	mA	0.00-24.00mA	±0.2%	0.01mA	Output:External Power 16-30V
Power output	24V LOOP	24V/16V	10%	0.1V	Drive Current 24mA
Thermocouple	K	-270-1372°C	±1%	1°C	Output: start from 0°C
	E	-270-1000°C	±1%	1°C	
	J	-210-1200°C	±1%	1°C	
	T	-270-400°C	±1%	1°C	
	R	-50-1768°C	±1%	1°C	
	B	0-1820°C	±1%	1°C	
	S	-50-1768°C	±1%	1°C	
Resistance	Ω	15.0-400.0Ω	±0.2%	0.1Ω	
		0.0-400.0Ω	±0.2%	0.1Ω	
The thermal resistance	PT100	-199.9-650.0°C	±0.2%	0.1°C	

PC702 Process Calibrator

FUNCTIONS



Terminal Blocks

- ① Common (**Black**)
- ② Output Terminal (**Yellow**)
- ③ Measurement Terminals (**Red**)

Buttons

- ④ Numeric Modifier Keys
 - Increase or decrease values
 - Toggle numeric decimal points
 - Toggle value plus or minus
- ⑤ Measurement Function Keys (**Blue**)
 - [Signal]**: toggle signal type
 - [Range]**: toggle measurement range
 - [Measure]**: open/exit measurement function

- ⑥ Cold Junction and Programming Function Keys
 - [Cold End]**: display/modify cold end
 - [Program]**: turn on the programming function
 - [Waveform]**: change programmable output waveform
- ⑦ **[Power]**: turn power on/off
- ⑧ Output Function Keys (**Yellow**)
 - [Signal]**: toggle output signal type
 - [Range]**: toggle output range
 - [Output]**: open/turn off signal output
- ⑨ Dip Switch (Factory defaults to OFF-Down)
 1. **Auto Power Off** 10 minutes without key operation, automatic shutdown.
 2. **Manual Cold End**: Manually set the cold end value when measuring thermocouples.
 3. **Passive Output**: outputs a passive current signal for analog transmitters.
 4. **Low Load Mode**: When the passive current is input, calibrator supplies 16 V to the transmitter to reduce power consumption and prolong the use time.

LCD Display

- a: Measurement**: 4 digits with unit
- b: Output signal value**: 4 digits with unit
- c: Signal and cold end mode**: 20 mV/100 mV/ 4-20 mA/K/E/J/T/R/B/S/N
 - RJA: automatic cold junction compensation
 - M: manual set cold junction compensation
- d: Programming function**: n/m to split the output, Output value = (Main Set Value)*(n/m)
 - Sweep: Linear output, Linear output signal
 - Step: Stepping output
 - Time: Output time for each step, 0-999s can be set.
 - Count: Output cycles, 0-999 times can be set, 0 is infinite
- e: Unit**: mA/mV/°C
- f: Range and change function**:
 - RL: Show the lower range limit
 - RH: Show the high range limit
 - SL: Show the minimum signal
 - SH: Show the maximum signal
- g: Battery**: Icon flashes when charging. Icon will stop flashing when fully charged.

SIGNAL OUTPUT

The calibrator can output voltage, active current, passive current, thermocouple, and RTD signals.

Voltage, Active Current Output

- ① Connect the black wire to the common terminal, connect the yellow wire to the output terminal
- ② Press **[Signal]** to toggle the signal type
- ③ Press **▲▼** to adjust the output value
- ④ Press **[Output]**, the “source” will change from OFF to ON and start the output function.

4-20 mA Output

- ① Choose 4-20 mA for signal type
- ② Press the opposite **[Signal]**. You can choose 4→8→12→16→20 or press **▲▼** to adjust
- ③ Press **[Output]** to open the output function

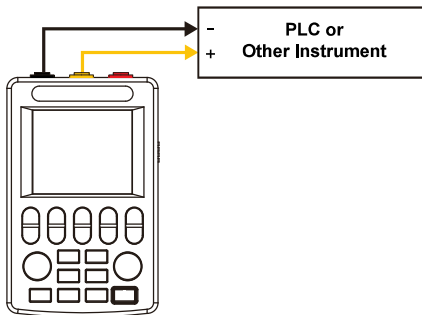


Figure 1: Output Active Current/Voltage to the meter or PLC

RTD and Thermocouple Output

Note: On thermocouple, the output temperature is minus the voltage value corresponding to the cold junction temperature.

- ① Press **[Signal]** to select signal type. Choose from K/E/J/T/R/B/S/N/RTD/Ω
- ② Press **▲▼** to set output value of temperature
- ③ Press **[Output]** to open the function

Passive Current Output

Active with DIP Switch setting

Passive current output can be used as a 2-wire transmitter simulator for loop testing.

- ① Choose 4-20 mA for signal type
- ② Press the opposite **[Signal]**. You can choose 4→8→12→16→20 or press the **▲▼** to adjust
- ③ Press **[Output]** to open the output function

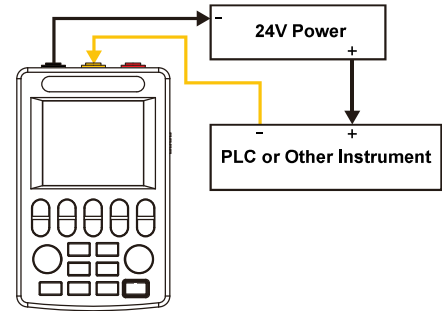


Figure 2: 2-wire Transmitter Simulator

Voltage, Current Signal Output or Measurement by Display Range (Eliminates range conversions)

- ① Signal type must be voltage or current
- ② Press **[Range]** to select display range limit: RL, RH, SL, SH
- ③ When “RL” is selected press **▲▼** to set value
- ④ Setup the RL, RH, SL, SH in turn

OUTPUT

- ⑤ Press **[Range]** to exit the range setup. Press **⏏** to toggle between signal output or range output (no units are displayed on output)
- ⑥ Press the **▲▼** to change the output value
- ⑦ Press **[Range]** to open the function

MEASURE

- ⑤ Press **[Range]** to exit the range setup. Press **⏏** to toggle between signal value or range output (no units are displayed on output)
- ⑥ It shows the measurement or conversion value according to range

SIGNAL MEASUREMENT

The calibrator can measure voltage, active current, passive current, thermocouple signal, and RTD.

When measure function is not in use press **[Measure]** to turn off the measure mode to conserve battery power.

Voltage, Active Current Measurement

- ① Connect the black wire to the common terminal, connect the red wire to the measure terminal
- ② Press **[Measure]** to open measure function
- ③ Press **[Signal]** to toggle signal type
- ④ Shows value in the LCD screen

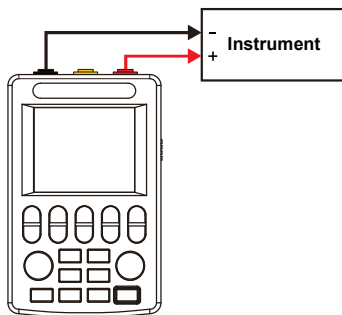


Figure 3: Measurement voltage, active current

Passive Current Measurement

- ① Wiring as the 2-wire or 3-wire system
- ② Press Blue **[Signal]** to set signal type to 24 V loop
- ③ Generator outputs 24 V (or 16 V when via DIP switch to low power mode)
- ④ Shows value in the LCD screen

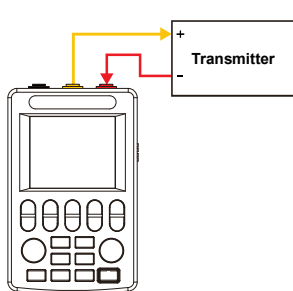


Figure 4: Measure 2-wire transmitter

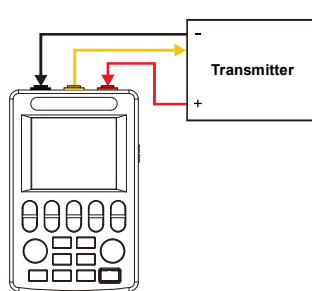


Figure 5: Measure 3-wire transmitter

RTD and Thermocouple Measurement

- ① Connect the black wire to the common terminal, connect the red wire to the measuring terminal
- ② Press blue **[Measure]** to set signal type to K/E/J/T/R/B/S/N/RTD/Ω
- ③ Value is displayed on the LCD screen

To view or adjust cold junction temperature for thermocouple:

- ① Press **[Cold End]** to display cold end temperature
- ② If the LCD displays “RJA” the cold end is collected by the internal sensor and cannot be modified.
- ③ Select the “M” on the LCD to manually set cold end value.

PROGRAMMABLE OUTPUT

Scaled Output Function (n/m)

The voltage, current, and thermoc scaled by

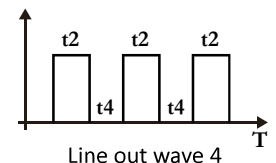
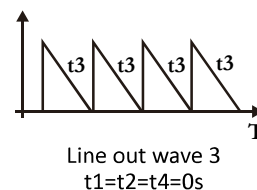
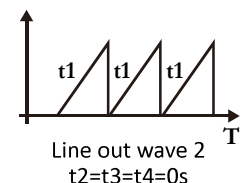
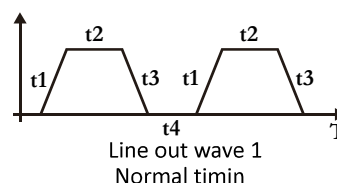
$$\text{Output value} = \text{value} \times (n/m)$$

- ① Press **[▲▼]** to change the main set
- ② Press **[Program]** to open split output mode to display n/
- ③ Set (m) from 1 to 20
- ④ Set (n) from 0 to 20
- ⑤ Press yellow **[Output]** to open/exit the output
- ⑥ Press **[Progr]** to exit the split output function

Linear Output Function

The signal value be output linearly according to the time set by the user.





- ① Press **[▲▼]** to set value for the main set
- ② Press **[Waveform]** to display “sweep”. This enables linear output fun
- ③ Press **[Program]** to set output time for rise time, hold time [top], fall t Press **[▲▼]** to set time between 0-
- ④ Press **[Program]** again to set number of linear outputs from 0-999.
- ⑤ Press yellow **[Output]** to open/exit th
- ⑥ Press **[Program]** to exit the linear output function

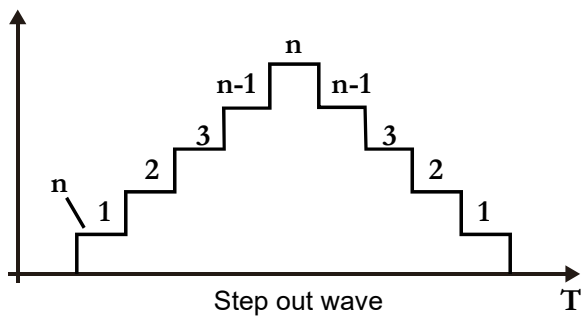


PC702 Process Calibrator

Automatic Step Output Function

The signal value can be stepped out according to user-defined value.

- ① Press   to set value for the main set
- ② Press **[Waveform]** to display "step". This enables step output function.
- ③ Press **[Program]** to set "time". Press   time between 0-999s.
- ④ Press **[Program]** again to set N/m for step output
- ⑤ Press yellow **[Output]** to open/exit the
- ⑥ Press **[Program]** to exit the step output function



SPECIFICATIONS

Operating Temperature: 15 to 130°F (-10 to 55°C)

Storage Temperature: 5 to 158°F (-20 to 70°C)

Relative Humidity: 20 to 80%

External Dimensions: 4.5" x 2.5" x 10.2"
(115 mm x 70 mm x 26 mm)

Weight: 10.6 oz (300 g)

Power: Internal rechargeable Lithium Ion battery
(non-replaceable) or external USB power

Power Dissipation: 300 mA, 7-10 hours

Reverse Connection and Overcurrent Protection: 30 V

Cables Provided: Three signal cables and one USB cable

