

# Compact Current & Voltage Calibrator

With LCD Numeric Display



## DESCRIPTION

The CVC is a portable calibrator designed to meet the requirements of field calibration, testing and troubleshooting of panel meters, transducers, transmitters, actuators and other process and control devices.

The CVC features a large, 0.59" (15 mm), LCD numerical display with blue backlighting for use in dimly lit areas. Powered by a standard 9V battery, it also comes with a 120 VAC plug-in power supply for bench-top use.

## SPECIFICATIONS

### OUTPUTS

Ranges:	Current:	0.0 to 20.0 mA DC in 1.0 mA steps
	Voltage:	0.0 to 10.0 VDC in 1.0 V steps
Accuracy at 25°C:	Current:	± 0.05 mA DC
	Voltage:	± 0.05 VDC
Load Impedance:	Current:	300Ω maximum
	Voltage:	1000Ω minimum
External mA Transmitter Source:	Voltage:	12 V minimum to 30 V peak maximum

### RAMPING

Manual:	anywhere in range
Auto:	Values: user-adjustable min. & max. values anywhere within range
	Step Time: user-adjustable from 1 to 20 seconds, in 1 second increments

### DISPLAY

Numerical:	LCD, 00.0 to 99.9, 0.59" H (15 mm)
Annunciators:	"RAMP", "OVER LOAD", "mA", "V", "TIME", and symbol for low battery energized with momentary side switch
Blue Backlight:	

### ENVIRONMENTAL

Operating temperature:	32 to 122° F (0 to 50° C)
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### POWER

9V Battery:	NEDA1604, JIS006P, or IEC6F22 (Duracell MN1604 or equivalent); up to 30 hours continuous use indicator comes on below approximately 7 volts
Low Battery:	
120 V AC:	plug-in 9 VDC output supply for bench-top use
Auto Power Off:	user-adjustable delay time from 1 to 20 minutes after last key press can also be disabled

### PHYSICAL

Dimensions:	5.5" H x 2.5" W x 1.4" D (140 H x 63.5 W x 35.6 D mm)
Weight:	6 oz (170 g)

## FEATURES

- ▶ 0.0 to 20.0 mA DC output in 1.0 mA steps
- ▶ 0.0 to 10.0 VDC output in 1.0 V steps
- ▶ Three output modes automatically selected by plug location
- ▶ Milliamp loop calibration using external loop supply (30 V DC Maximum) or internal 9V battery
- ▶ Voltage output
- ▶ Auto-Ramping with user adjustable minimum and maximum output values
- ▶ User-adjustable ramp step time, 1 to 20 seconds, in 1 second increments
- ▶ User-adjustable auto-power-off time from 1 to 20 minutes in 1 minute increments
- ▶ 3-position bail for pocket, hanging, or bench-top use
- ▶ Complete with :

- 9V battery
- 120 VAC plug-in power supply
- Test leads with alligator clips
- Soft-sided carrying case

## ORDERING INFO

### PART NUMBER

CVC .....Calibrator



# Specifications Installation and Operating Instructions

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## OPERATING INSTRUCTIONS

### POWER ON/OFF

Make sure that the battery is installed or the AC adapter is plugged into the EXT POWER jack. The AC adapter disconnects the internal battery.

To turn the CVC on, press and hold the upper red ON/OFF button for at least 2 seconds. The LCD annunciators will cycle and then hold steady when the CVC is turned on. Release the ON/OFF button within 5 seconds after cycling stops or the unit will turn off.

To turn off, press and hold the ON/OFF button for at least 5 seconds. The LCD annunciators will start to cycle when the CVC is turned off. Release the ON/OFF button as soon as the display starts to cycle or the unit will turn on again.

### SELECTING OUTPUT MODE

Plug the test lead assembly into the appropriate output jack as shown below. If the test leads are plugged into the mA XMTR or mA OUTPUT jack, or no leads are plugged in, "mA" will turn on. If the load resistance is too high or the leads are left open, "OVERLOAD" will turn on. If the leads are plugged into the VOLTS OUTPUT jack, "V" will turn on. If the load resistance is too low or the leads are shorted, "mA" may stay on or turn off.

Fig 1. Voltage Output

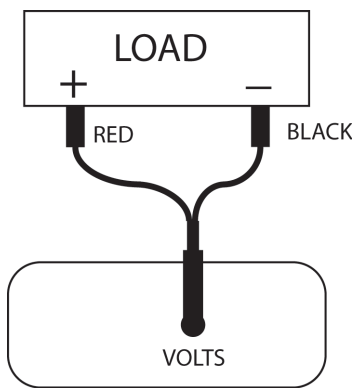


Fig. 2 mA Source Output

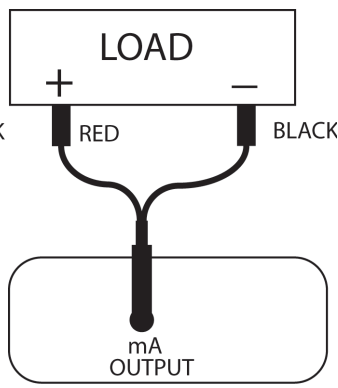
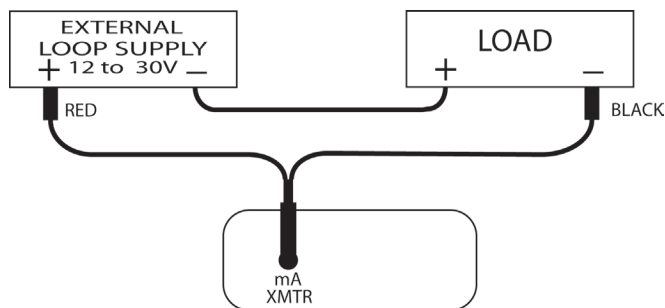


Fig 3. Simulate a 2-Wire mA Transmitter Loop With External 12 to 30V DC Supply.

A similar connection can be used to extend output range of CVC beyond 300 ohms. A 24V source will allow CVC to source into an impedance of >1000 ohms.



### MANUAL SELECTION OF OUTPUT LEVEL

To increase the output, press the  $\uparrow$  key. To reduce the output, press the  $\downarrow$  key. New output value will be displayed on the display.

### AUTO RAMPING

The output is preprogrammed to ramp between 4 to 20 mA (or 2 to 10 V) and back in 1.0 mA (or 1.0 V) steps, with 5 seconds between each step. See below to change the ramp end points and step time interval.

To start ramping the output, press the RAMP/TIME key for 2 seconds. "RAMP" will turn on and the output will start ramping within the minimum and maximum values programmed into the CVC. It will start at the output value manually set on the CVC before the key is pressed.

To stop the ramping and return to manual mode, press the RAMP/TIME key again.

### CHANGING THE AUTO RAMPING END POINTS AND STEP TIME

Press and hold the RAMP/TIME key, and immediately (within 2 seconds) press the  $\downarrow$  key without releasing the RAMP/TIME key until "RAMP" and "TIME" turn on. "mA" will turn off. Set the time duration for each step increment from 1.0 to 20.0 seconds, in 1.0 second increments by using the  $\uparrow$  and  $\downarrow$  keys.

To store the desired time interval, press the RAMP/TIME key again. "TIME" will turn off and the appropriate "mA" or "V" will flash. "RAMP" will remain on.

Set the first end point by using the  $\uparrow$  and  $\downarrow$  keys. To store the first end point, press the RAMP/TIME key again. The appropriate "mA" or "V" and "RAMP" will flash.

Set the second end point by using the  $\uparrow$  and  $\downarrow$  keys. To store the second end point and exit the programming mode, press the RAMP/TIME key again. The second value stored will be displayed along with the appropriate "mA" or "V".

### SETTING THE AUTO POWER OFF DELAY TIME

With the unit ON, press and hold the RAMP/TIME key, and immediately (within 2 seconds) press the  $\uparrow$  key without releasing the RAMP/TIME key until "TIME" turns on. All other annunciators are off. Set the time delay from the last key press until the unit automatically turns OFF by using the  $\uparrow$  and  $\downarrow$  keys. The time delay can be set from 1.0 to 20.0 minutes in 1.0 minute increments. If the delay time is set to 00.0 minutes, the Auto Power Off Delay function is disabled. This is useful when the unit is used on a bench with the AC adapter.

To store the desired time delay, press the RAMP/TIME key again. "TIME" will turn off and the appropriate "mA" or "V" will turn on.