

## MODEL 680

# Voltage/Current Simulator

- 4 Output Signal Ranges:  
4-20mA, 0-20mA, 0-10V, or 0-5V
- Compact, Hand-Held Design
- LCD Display with Backlight



### DESCRIPTION

The **Model 680** is a user selectable voltage or current simulator. It is useful for the setup and testing of process controllers and indicators with either a current loop or control voltage input, such as liquid level controllers and other devices.

The mode of operation is displayed on the top line of the LCD. Either 4-20mA, 0-20mA, 0-10V, or 0-5V. The Model 680 can be set to any one of these four modes of operation by holding down the rotary push-button until the desired mode is displayed. The mode is saved in nonvolatile memory so that the device will power up in the mode last selected.

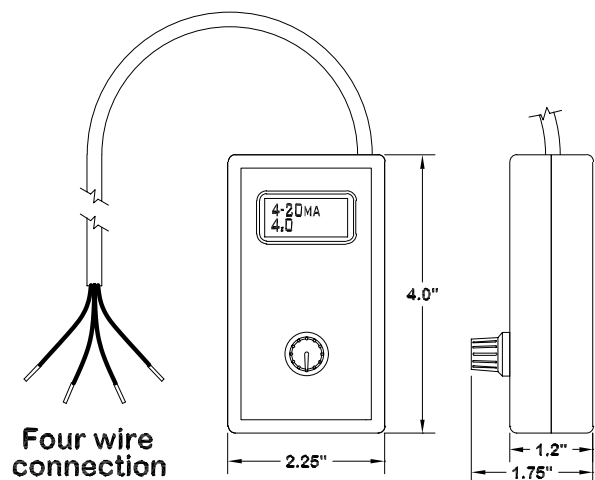
The output signal level is displayed on the bottom line of the LCD. On power up or on changing the mode of operation, the output goes to the range minimum, i.e. 4mA, 0mA, or 0V. The Model 680 offers short circuit protection by actively sensing for any overload condition and limiting output current to 20mA. Overload at the output is indicated by "OL" on the top line of the LCD and occurs when the output current is 21mA or greater.

Signal level is adjustable with the rotary dial in increments of 0.1mA or 0.1V, or you can depress the dial to quickly jump between the minimum and maximum values of the range.

### SPECIFICATIONS

Model	680
Operating Voltage	24VDC $\pm$ 5%
Supply Current	55 mA max.
Output Signal	4-20 mA, 0-20mA 0-5V, 0-10V
Output Load	500 $\Omega$ Max in Current Simulation Mode 500 $\Omega$ Min in Voltage Simulation Mode
Display	2-Line LCD
Resolution	0.1 mA or 0.1V
Operating Temperature	-4° to +122° F
Humidity Tolerance	0-97% w/o condensation
Enclosure Material	ABS plastic
Weight	5 oz.
Cable	Specs 20 AWG, 4 cond. Length 36 inches Termination Tinned Leads

### DIMENSIONS



Telephone: Main - (918) 438-1220  
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# MODEL 680 Voltage/Current Simulator

READ ALL INSTRUCTIONS BEFORE INSTALLING, OPERATING OR SERVICING THIS DEVICE. KEEP THIS DATA SHEET FOR FUTURE REFERENCE.

## GENERAL SAFETY

THE MODEL 680 SIMULATOR IS NOT TO BE USED WITH INPUT VOLTAGES OTHER THAN 24VDC. ALL ELECTRICAL POWER SHOULD BE REMOVED WHEN CONNECTING OR DISCONNECTING WIRING. THIS DEVICE AND WIRING SHOULD BE INSTALLED AND SERVICED BY QUALIFIED PERSONNEL.

## Installation Instructions

### INSTALLATION

The Model 680 comes from the factory set to the 4-20mA simulation mode.

To change the mode: Connect the Model 680 to a 24VDC power supply, red lead to (+) and black lead to (-) and apply power. Next push and hold the rotary push-button until the desired mode of operation is displayed on the top line. The Model 680 will retain the selected mode in non-volatile memory.

To test or calibrate a device with an instrumentation/control current loop input:

When the Model 680 is set to either the 4-20mA or 0-20mA modes, connect the power leads to a 24VDC power source and the output leads to the loop input. The power leads are red (+) and black (-), and the output leads are white (+) and green (-). See typical application diagram on this page.

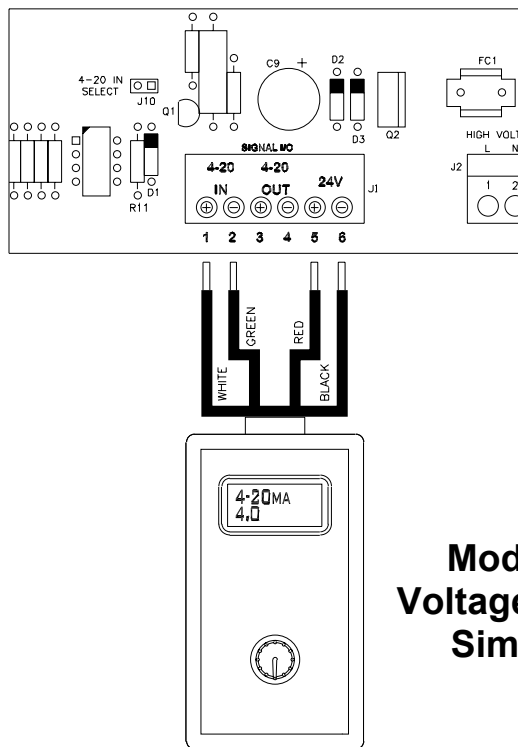
To test or calibrate a device with an instrumentation/control voltage input:

When the Model 680 is set to either the 0-10V or 0-5V modes, connect the power leads to a 24VDC power source and the output leads to the control input. The power leads are red (+) and black (-), and the output leads are white (+) and green (-).

### TROUBLESHOOTING

Should this device fail to operate, check all wiring connections. Verify that the proper input source voltage is present and check all fuses. Also, verify that the Model 680 is set to the proper mode of operation as described above. Should problems persist, contact the factory at (800) 862-2875 for assistance.

### TYPICAL APPLICATION



**Model 680  
Voltage/Current  
Simulator**

### WARRANTY

This product is warranted to be free from defects in materials and workmanship for one year. Should this device fail to operate, we will repair it for one year from the date of manufacture. For complete warranty details, see the *Terms and Conditions of Sales* page in the front section of the Time Mark catalog or contact Time Mark at 1-800-862-2875.

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