REED

Model R5800

Voltage/Current Simulator

Instruction Manual

www.reedinstruments.com

REED Instruments
1-877-849-2127 | info@reedinstruments.com | www.reedinstruments.com

Table of Contents

Safety 3

Features 4

Specifications 4-5

Instrument Description 6-7

Operating Instructions 8-11

Power ON/OFF 8

Automatic Power-Off 8

Output Function 8

Output Operation Procedure 9

DC Voltage Output 9

DC Current Output 9-10

25% Step Current Output 10

Current Output Set for Zero Point & Full Scale 10-11

Simulating Transmitter Output (XMT) 11

Calibration 11

Battery Replacement 12

For service (repairs or calibration) on this or any other REED product or information on other REED products, contact REED Instruments at info@reedinstruments.com.

Safety

To prevent the user and the instrument from electric shock and other hazards, it is necessary to follow the following regulations:

Warning

- Do not operate the instrument in the presence of flammable or explosive gas or vapor. This is extremely dangerous.
- Never apply more than 30V between any two terminals, or between terminal and ground.

Caution

- The split case (top and bottom) is not to be removed, unless by qualified technicians.
- To clean the instrument, periodically wipe the case with a damp cloth and mild detergent, do not use any corrosive solvents.

Note

- For optimal accuracy, allow the instrument to warm up for 5 minutes before operating.

Features

- Sources voltage and current
- Large 5-digit LCD display
- Automatic calibration
- Low battery indicator and auto shut off
- Protective boot for added durability and kickstand

Specifications

Output Functions

Applicable range from 18 to 28°C, within one year of calibration.

Output	Range	Output Range	Resolution	Accuracy	Note
DCV	10V	0.000 to 11.000V	1mV	0.05% of set value ±2mV	Max output current: 2 mA
DCA	20mA	0.000 to 22.000mA	0.001mA	0.05% of set value ±4µA	Max load: 1kΩ at 20mA note 1
Analog transmitter	-20mA	0.000 to -22.000mA	0.001mA	0.05% of set value ±4µA	Max load: 1kΩ at 20mA
Loop power	24V	-	-	±10%	Max output current up to 25mA

Note 1: When the battery voltage exceeds 6.8V, the max. load is 1KΩ at 20mA. When its voltage lies between 5.8V and 6.8V, the max load is 700Ω at 20mA.

Note 2: Temperature coefficient: ±0.005% of the range per °C for the temperature ranges 5°C to 18°C and 28°C to 40°C.

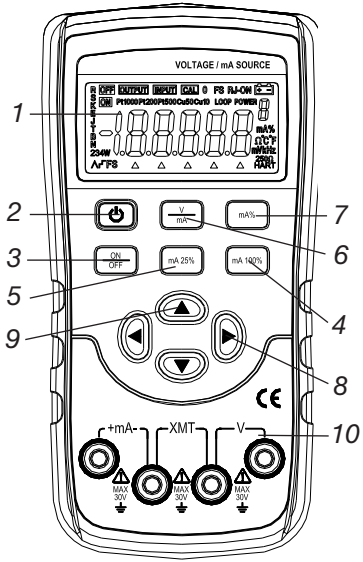
continued ...

General Specifications

Auto Shut-off:	Yes (after 15mins/off)
Power Supply:	2 AA batteries
Battery Life:	Approx. 12 hours
Max permitted voltage:	30V (between any two terminals or between any terminal and earth ground)
Operating temperature:	0 to 122°F (0 to 50°C)
Operating relative humidity:	≤80%RH
Operating humidity range:	10-85%
Storage temperature:	14 to 140°F (-10 to 60°C)
Storage humidity:	≤90%RH
Safety:	Certified as compliant to IEC1010 provisions & CE
Dimensions:	7.09 x 3.54 x 1.85in (180 x 90 x 47 mm)
Weight:	18.2oz (515g)
Includes:	Test leads, alligator clips, protective holster, soft carrying case, and batteries
Optional Accessories:	CA-05A Soft Carrying Case TL-88-1 Test Leads FC-A15 Safety Alligator Clips

Instrument Description

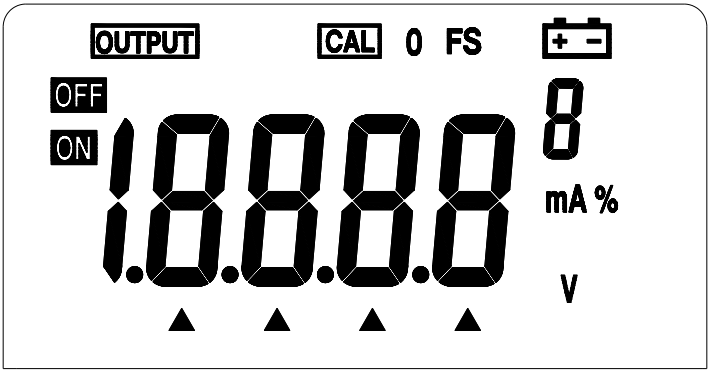
1. LCD screen
2. Power button
3. ON/OFF
4. Zero/FS points select button
5. 25% single step setting/auto ramp button
6. Unit VmA / % select button
7. Unit mA / % select button
8. ◀ ▶ output digit selection button
9. ▲ ▼ output value setting button
10. Output terminals



continued ...

Display Description

OUTPUT	Indicates that the instrument is in an output state
CAL	Indicates that the instrument is in a calibration state
0 FS	Indicates that the instrument is in a calibration state, denoting that the zero point or the full scale point is now in calibration
	Indicates that the battery power is low and needs to be replaced
▲	Indicates that the output digits need to be set
V. mA. %	Indicates the current output value (unit of measure)
ON OFF	Indicates that the output signal is on or off



Operating Instructions

Power ON/OFF

Press the Power button to turn the instrument on. Press this button again, holding for one second to turn the instrument off. When the instrument is on, it will begin an internal self-diagnosis at which time the full screen will be displayed. Once complete, the instrument is ready to be used.

Automatic Power-Off

As a default the instrument will be set to automatically turn itself off after 15 minutes without any action. Follow the steps below to turn the Auto-Power Off function off.

1. Be sure the meter is powered off.
2. Press both the POWER and mA%/V buttons simultaneously. The display will indicate the symbol 'AP-XX'.
3. Press the ▼ button to activate or deactivate the Auto-Power Off function. 'AP-OF' indicates that there is no automatic power-off function set, and 'AP-ON' indicates the automatic power-off function is activated.
4. Turn the meter off to save the setting.

Output Function

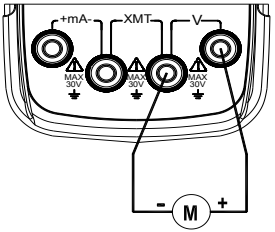
The output terminal of the instrument can produce DC voltages set by the user or simulating resistance.

Do not apply any voltage to the output terminal during the operation. If any improper voltage is applied to the output terminal, it will cause damage to the internal circuits.

Output Operation Procedure

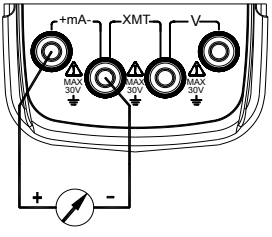
Function Operation	Range Operation	Display	Set Range
DCA 10mA	20mA%	0.000V	0.000 to 11.000V -00.000 to 22.000mA

DC Voltage Output



1. Insert one end of the test leads into the V output jack and connect the other end to the input of the meter, as shown in the diagram.
2. The **OUTPUT** symbol will appear on the display indicating that the calibrator is in an output state.
3. Press the V/mA button to select the V function and display the V unit.
4. Press the ◀ ▶ buttons to select the output digits.
5. Press the ▲ ▼ button to change the numerical value of the set digits. Hold the button and the value will keep varying.
6. Press the ON/OFF button turn the on and off the output followed by displaying the ON or OFF symbol.

DC Current Output



1. Insert one end of the test leads into the +mA output jack and connect the other end to the input of the meter, as shown in the diagram.
2. Press the V/mA button to select the mA function and display the mA unit.
3. Press the mA / % button to select the mA or % function and display the mA or % unit, in which 0% is 4mA and 100% is 20mA.
4. Press the ◀ ▶ buttons to select the output digits.

continued

5. Press the ▲ ▼ button to change the numerical value of the set digits. Hold the button and the value will keep varying.
6. Press the ON/OFF button turn the on and off the output followed by displaying the ON or OFF symbol.

25% Step Current Output

1. Connect the test leads to the meter as stated in the Current Output procedures.
2. Press the V/mA button to select the mA function and display the mA or mA% unit.
3. Press the maA 25% button and ↵ will appear on the LCD.
4. Press the mA/% button to select the set output to mA or % and display the mA or mA% unit.
5. Press the ▲ ▼ button to change the output in a value of 25%, in which 0% indicates 4mA and 100% indicates 20mA.
6. Press the ON/OFF button turn the on and off the output followed by displaying the ON or OFF symbol.

Current Output Set for Zero Point & Full Scale

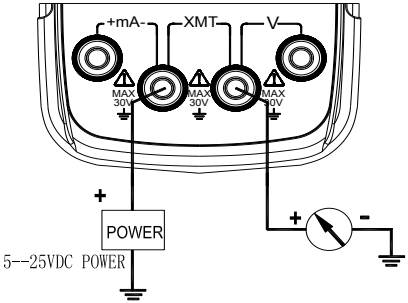
1. Connect the test leads to the meter as stated in the Current Output procedures.
2. Press the V/mA button to select the mA function and display the mA or mA% unit.
3. Press the maA 25% button and ↵ will appear on the LCD.
4. Press the mA/% button to select the set output to mA or % and display the mA or mA% unit.
5. Press the V/mA button to select the mA function and display the mA or mA% unit.
6. Press the mA 25% button and ↵ will appear on the LCD.
7. Press the ▲ ▼ button to change the output in a value of 100%, in which 0% indicates 4mA and 100% indicates 20mA. Press the mA 100% to exit the step current output.

continued ...

8. Press the ON/OFF button turn the on and off the output followed by displaying the ON or OFF symbol.

Simulating Transmitter Output (XMT)

1. Insert one end of the test lead to the 'XMT' output jack of the calibrator and connect the other end with the input terminal of the user's instrument as shown in the following diagram:



2. The button-operation is the same as that as indicated in the Current Output section.

Note:

- Power supply range: 5 to 25VDC.
- During an output operation, use a external 24V DC power supply in order to prolong battery life.

Calibration

It is recommended that you calibrate the unit once per year in order to keep correct accuracies. Contact REED Instruments for assistance regarding calibration, repairs, warranty, trouble-shooting, and more at service@reedinstruments.com.

Battery Replacement

When the appears on the LCD, the batteries need to be replaced. Follow the instructions below to properly replace the batteries.

1. Turn the power off the meter and remove any test leads that may be attached to the meter.
2. Remove the holster from the calibrator by releasing the lock in the indicated direction.
3. Replace the old battery with 2 new AA batteries. Be sure to check polarities. Do not mix old batteries with new batteries.
4. Put the battery cover back on and lock it in the indicated direction. Put the holster back on the calibrator.

Fuse Replacement

1. Remove the test leads from the meter and turn the meter OFF
2. Take off the protective boot, remove the four screws by using a standard-blade screwdriver, and then remove the cover
3. Replace the blown fuse(s)
4. Reinstall the cover
5. Reinstall the meter's protective boot

For service (repairs or calibration) on this or any other REED product or information on other REED products, contact REED Instruments at info@reedinstruments.com.