REED
INSTRUMENTS

Voltage/Current Simulator

WARRANTY
1 YEAR
WARRANTY

Instruction Manual

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continued…

Introduction

Thank you for purchasing your REED R5805 Voltage/Current Simulator. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured to meet the stated product specifications. If a certificate of calibration is required please contact the nearest authorized REED distributor or authorized Service Center. Please note an additional fee for this service will apply.

Safety

Never attempt to repair or modify your instrument. Dismantling your product, other than to replace batteries, may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center. To avoid injury to the user or damage to the instrument, please read the safety information below before initial use:

• Do not operate the instrument around flammable or explosive gas, vapor or dust.

• Never apply more than 30V between any two terminals, or between any terminal and ground terminal.

Note: For optimal accuracy, allow the instrument to warm up 5 minutes before operating.

Features

• Sources voltage and current
• Easy to read 6-digit LCD display
• Built-in LED flashlight
• Automatic calibration
• Low battery indicator and auto shut off

Included

- Voltage/Current Simulator
- Test Leads
- Alligator Clips
- Batteries

Specifications

DC Voltage

Range:	10V
Output Range:	-1.000 to 11.000V
Resolution:	0.001V
Accuracy:	±0.05% rdg. +2mV

DC Current

Range:	30mA
Output Range:	0.000 to 30.000mA
Resolution:	0.001mA
Accuracy:	±0.05% rdg. +4µA

General Specifications

Display:	6-Digit LCD
Backlit Display:	Yes
Kick Stand:	Yes
Magnetic Hanger Compatible:	Yes (R5900 sold separately)
Built-In Flashlight:	Yes
Zero Adjustment Button:	Yes
Power Supply:	3 AA Batteries
Battery Life:	Approx. 20 hours
Cold Junction Compensation:	Yes
Auto shut off:	Yes (up to 60 minutes/off)

Low Battery Indicator:	Yes
Replaceable Test Leads:	Yes
Product Certifications:	CE
Operating Temperature:	32 to 122°F (0 to 50°C)
Operating Humidity Range:	0 to 85%
Storage Temperature:	14 to 122°F (-10 to 50°C)
Dimensions:	7.5 x 3.5 x 2.1" (191 x 90 x 53mm)
Weight:	17.6oz (500g)

Instrument Description
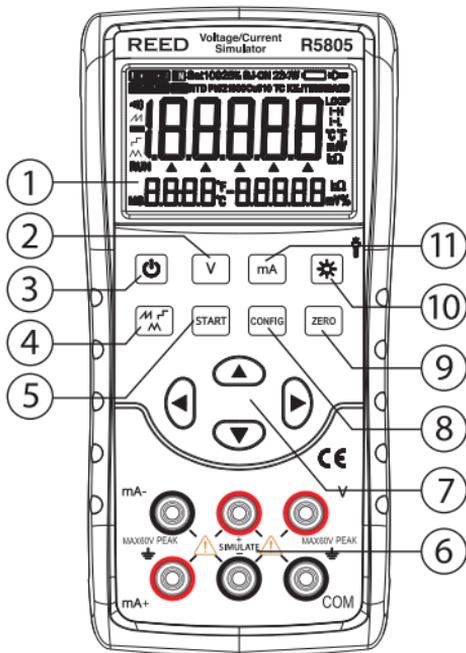
1. LCD Display
2. Voltage Output Button
3. Power Button
4. Output Waveform Switch Button
5. Output Start Button
6. Input/Output Terminals
7. Output Selection/Setting Buttons
8. CONFIG Button
9. ZERO Button
10. Backlight/Flashlight Button
11. mA Button

Input and Output Terminals
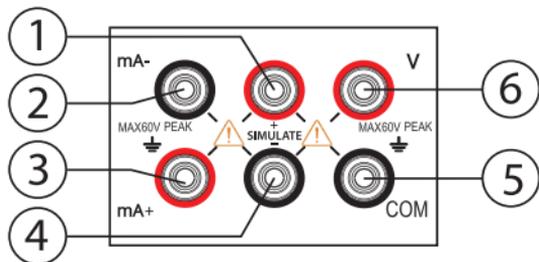
Terminal	Function Description
1	SIMULATE output (+) terminal
2	mA-: DCI output (-) terminal
3	mA+: DCI output (+) terminal
4	SIMULATE output (-) terminal
5	COM: DCV output (-) terminal
6	V: DCV output (+) terminal

Display Description
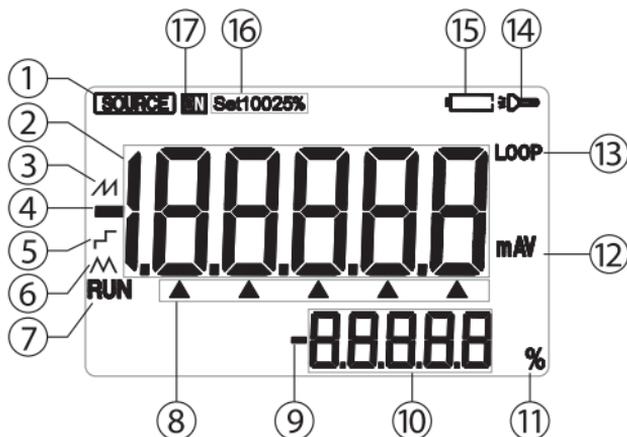
1. Output Status Indicator
2. Input/Output Value
3. Auto Sawtooth Wave Mode (Output Current) Indicator
4. Output Polarity Indicator
5. Auto-Stepping Mode (Output Current) Indicator
6. Auto Triangular Wave Mode (Output Current) Indicator
7. Auto Waveform Operation Indicator (Output Current)
8. Selected Digit Indicator
9. Output Current Percentage Polarity Indicator
10. Output Current Percentage Data Display
11. Unit of Output Current Percentage Data
12. Output Function and Unit Indicator
13. 24V Internal Power on Indicator
14. Flashlight ON Indicator
15. Low Battery Indicator
16. Output Current Span Indicator
17. Output ON Indicator

Operating Instructions

Power ON/OFF

Press the Power button to turn the instrument on. To turn the instrument off, press and hold the Power button.

Auto Power-Off

As a default, the instrument will automatically turn off after 5 minutes of inactivity. To turn off this feature, refer to the "Enabling/Disabling Auto Power OFF" section of this manual for additional details.

Backlight

Press the Backlight button to turn the LCD Backlight on or off.

Note: The backlight automatically turns off after approximately 60 seconds by default. To turn it back on, press the Backlight button. The backlight illumination duration can be adjusted in the factory settings. For more information, refer to the "Setting Backlight Time" section of this manual for additional details.
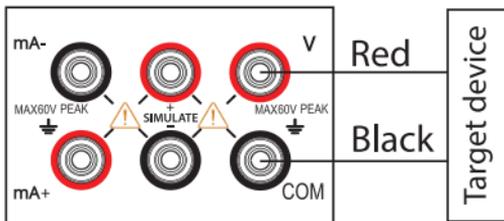
Output Function

The calibrator is designed for outputting a DC signal.

To avoid electric shock, ensure that the voltage applied between the calibrator terminals or between any terminal and ground does not exceed the rated voltage specified for the calibrator. Do not use the calibrator in situations where the terminal-to-ground voltage exceeds 30V peak.

Output Operation Procedure

DC Voltage Output

1. Connect the black lead to the **COM** terminal
2. Connect the red lead to the **V** terminal.
3. Attach the other ends of the leads to the signal terminals of the controlled device, ensuring correct polarity.

4. Press the **V** button to switch to the voltage output function. The "V" symbol will appear on the display screen, indicating that the DC voltage output function is active.
5. Step 2: Use the output setting buttons to adjust the output value:
6. Change the output value using the ▲▼ buttons.
7. Change the output digit using the ◄► buttons.
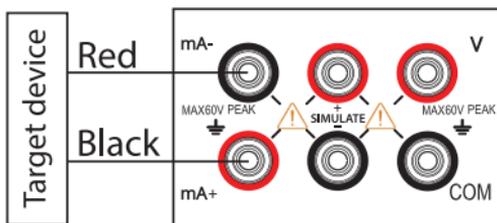
DC Current Output

1. Connect the black lead to the **mA-** terminal.
2. Connect the red lead to the **mA+** terminal.
3. Attach the other ends of the leads to the signal terminals of the controlled device, ensuring correct polarity.

4. Press the **mA** button to switch to the current output function. The "LOOP" and "mA" symbols will appear on the screen, indicating that the DC current output function is active.
5. Press the **CONFIG** button to enter the DC current parameter setting interface. The character "MAP.ER" will be displayed in the lower-right corner of the screen, indicating the manual step span setting. The main display area shows the parameters to be set.
6. Set the required span using the ▲▼ buttons:
    - Parameter "0": Each press of the ▲▼ buttons increases/decreases the output by 1 unit.
    - Parameter "25": Each press of the ▲▼ buttons increases/decreases the output by 25% of the measuring range.
    - Parameter "100": Each press of the ▲▼ buttons increases/decreases the output by 100% of the measuring range.
7. Press the **ZERO** button to save the settings and automatically switch to the current output range setting interface. The character "SCALE" will appear in the lower-right corner of the screen.
8. Set the output range (0-20mA or 4-20mA) using the ▲▼ buttons.
9. Press the **ZERO** button to save the settings and return to span setting.
10. Press the **CONFIG** button to exit the setting interface.

Note: The current output range setting applies to all current output functions.

11. Adjust the output value using the ▲▼ buttons.
12. Change the set output digit using the ◀▶ buttons.

Adjust the value using the ▲▼ buttons.

Note: This step is only applies when the span is set to "0".

Automatic Stepping Output Mode for Output Current

1. In the current output function state, press the ⌈M☞⌋ button to switch to the stepping mode of DC current. The corresponding symbol will light up on the display screen.
2. Press the **CONFIG** button to enter the DC current step mode parameter setting interface. The character "STEP" will appear in the lower-right corner, indicating the step size setting.
3. Use the ▲▼ ◀▶ buttons to set the required step time (from 1 to 200 seconds).
4. Press the **ZERO** button to save the settings.
5. Press the **CONFIG** button to exit the settings interface.
6. Press the **START** button to initiate automatic stepping of the output current. The "RUN" symbol will light up on the display screen to indicate that the stepping process has begun.
7. To stop the automatic stepping of output current, press the **START** button again. The "RUN" symbol will go out, indicating the stepping process has ended.

Automatic Sawtooth Wave Output Mode for Output Current

1. In the current output function state, press the ⌈M☞⌋ button to switch to the automatic sawtooth wave mode of DC current. The corresponding symbol will light up on the display screen.
2. Press the **CONFIG** button to enter the parameter setting interface for the sawtooth wave mode.

3. The character "START" will appear in the lower-right corner, indicating the start-point current setting.
4. Use the ▲▼ ◀▶ buttons to set the required start-point current.
5. Press the **ZERO** button to save the settings and proceed to the next setting item.
6. The character "STOP" will now appear, indicating the endpoint current setting.
7. Use the ▲▼ ◀▶ buttons to set the required endpoint current.
8. Press the **ZERO** button to save the settings and proceed to the next setting item.
9. The character "CYC" will appear, indicating the period setting.
10. Use the ▲▼ ◀▶ buttons to set the period (5-200 seconds).
11. Press the **ZERO** button to save the settings.
12. Press the **START** button to initiate the automatic sawtooth wave output current. The "RUN" symbol will light up on the display screen.
13. To stop the automatic sawtooth wave output, press the **START** button again. The "RUN" symbol will go out, indicating the process has ended.

Automatic Triangular Wave Output Mode for Output Current

1. In the current output function state, press the ⌐M⌐ button to switch to the automatic triangular wave mode of DC current. The corresponding symbol will light up on the display screen.
2. Press the **CONFIG** button to enter the parameter setting interface for the triangular wave mode.
3. The character "START" will appear in the lower-right corner, indicating the start-point current setting.
4. Use the ▲▼ ◀▶ buttons to set the required start-point current.
5. Press the **ZERO** button to save the settings and proceed to the next setting item.
6. The character "STOP" will now appear, indicating the endpoint current setting.
7. Use the ▲▼ ◀▶ buttons to set the required endpoint current.

8. Press the **ZERO** button to save the settings and proceed to the next setting item.
9. The character "CYC" will appear, indicating the period setting.
10. Use the ▲▼ ◄► buttons to set the period (5-200 seconds).
11. Press the **ZERO** button to save the settings.
12. Press the **CONFIG** button to exit the settings interface.
13. Press the **START** button to initiate the automatic triangular wave output current. The "RUN" symbol will light up on the display screen.
14. To stop the automatic triangular wave output, press the **START** button again. The "RUN" symbol will go out, indicating the process has ended.

Output DC Current (Passive)

1. Connect the black lead to the **SIMULATE -** terminal.
2. Connect the red lead to the **SIMULATE +** terminal.
3. Attach the other ends of the leads to the input terminals of the controlled device, ensuring correct polarity.
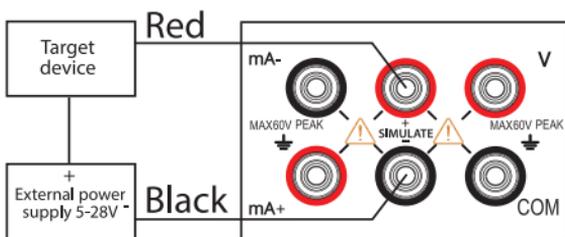
4. Press the **mA** button to switch to the current output function. The "mA" symbol will light up on the display screen, indicating that the passive DC current output function is now active.
5. Refer to the active DC current function instructions for further operations.

Note: The passive DC current mode requires an external 5-28V DC power supply to function.

Factory Settings Adjustment

Follow the steps below to access and change the default calibrator settings.

Accessing the Settings
1. Press and hold the Backlight button.
2. While holding the Backlight button, press the Power button to turn on the instrument.
3. Once the settings interface appears, release the Backlight button.

Enabling/Disabling Auto Power OFF
1. Upon entering the settings interface, "APOF" will appear on the display, indicating the automatic shutdown setting.
2. Use the ▲▼ ◄► buttons to adjust the automatic shutdown time between 0 and 60 minutes. A setting of 0 disables the automatic shutdown; other values represent the time in minutes after which the instrument will shut down.
3. Press the **ZERO** button to confirm selection. The display will show "SAVE," confirming that the new setting has been saved.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Setting Backlight Time
1. Press the **V** button until "BLOF" appears on the display, indicating the backlight time setting.
2. Use the ▲▼ ◄► buttons to adjust the backlight time setting between 0 and 3600 seconds. A setting of 0 disables the automatic backlight shutdown; other values represent the time in seconds after which the backlight will turn off.
3. Press the **ZERO** button to confirm selection. The display will show "SAVE," confirming that the new setting has been saved.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Setting Flashlight Time

1. Press the **V** button until "LTOF" appears on the display, indicating the flashlight time setting.
2. Use the ▲▼ ◄► buttons to set the desired flashlight time settings between 0-30 minutes. A setting of 0 disables the automatic flashlight shutdown; other values represent the time in minutes after which the flashlight will turn off.
3. Press the **ZERO** button to confirm selection. The display will show "SAVE," confirming that the new setting has been saved.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Enabling/Disabling the Beeper Sound

1. Press the **V** button until "BEEP" appears on the display, indicating the buzzer setting.
2. Use the ▲▼ ◄► buttons to toggle between ON (Enabled) or OFF (Disabled).
3. Press the **ZERO** button to confirm selection. The display will show "SAVE," confirming that the new setting has been saved.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Selecting the Temperature Unit of Measure

1. Press the **V** button until "TEPU" appears on the display, indicating the temperature unit setting.
2. Use the ▲▼ ◄► buttons to select between °C and °F.
3. Press the **ZERO** button to confirm selection. The display will show "SAVE," confirming that the new setting has been saved.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Factory Reset

1. Press the **V** button until the display shows "FACT" to enter the factory default settings.

    Factory Default Settings:

    APOF (Auto Power Off): 5 minutes

    BLOF (Backlight Off): 60 seconds

    LTOF (Light Timeout): 5 minutes

    BEEP: ON

    TEPU (Temperature Unit): °C

2. Use the ▲▼ buttons to select between YES and NO.

Note:
NO: The settings will remain as they are and will not be restored to factory defaults.

**YES:** All settings will be restored to factory default settings.

3. Press the **ZERO** button to confirm selection.

Note: You can turn the meter OFF and then back ON at any time to resume normal operation.

Battery Replacement

1. Turn off the calibrator and remove the test leads.
2. Use a flathead screwdriver to turn the battery door screws a quarter turn counterclockwise and remove the door.
3. Replace the 3 x AA batteries in the battery compartment.
4. Close the battery door and securely tighten the screws.
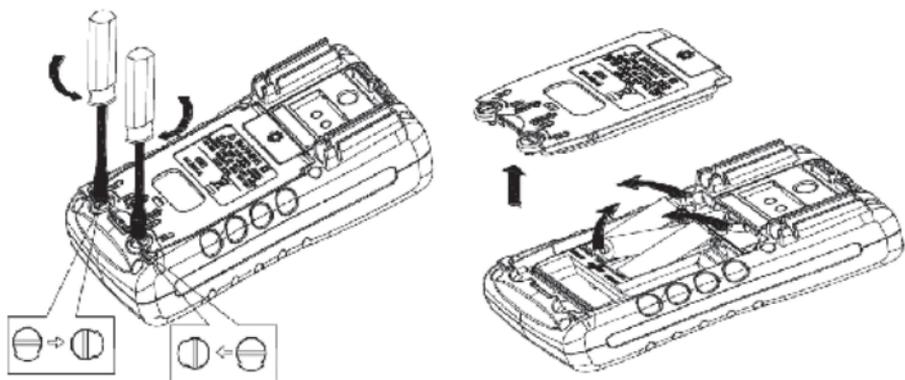
Applications

- Testing and calibrating meters, data loggers, and process controllers
- Simulating sensor outputs for troubleshooting and diagnostics
- Configuring and verifying industrial control systems
- Providing precise voltage/current signals for automation testing
- Validating performance of power supplies and electrical circuits
- Ensuring accuracy in instrumentation used in HVAC, energy, and utilities
- Conducting educational and training demonstrations in electronics and electrical engineering

Accessories and Replacement Parts

CA-05A Soft Carrying Case

R9940 Hard Shell Carrying Case

R1000 Safety Test Lead Set

R1020 Fused Test Lead Set

R5900 Magnetic Meter Strap

Don't see your part listed here? For a complete list of all accessories and replacement parts visit your product page on www.REEDInstruments.com.

Product Care

To keep your instrument in good working order we recommend the following:

- Store your product in a clean, dry place.
- Change the battery as needed.
- If your instrument isn't being used for a period of one month or longer please remove the battery.
- Clean your product and accessories with biodegradable cleaner. Do not spray the cleaner directly on the instrument. Use on external parts only.

Product Warranty

REED Instruments guarantees this instrument to be free of defects in material or workmanship for a period of one (1) year from date of shipment. During the warranty period, REED Instruments will repair or replace, at no charge, products or parts of a product that proves to be defective because of improper material or workmanship, under normal use and maintenance. REED Instruments total liability is limited to repair or replacement of the product. REED Instruments shall not be liable for damages to goods, property, or persons due to improper use or through attempts to utilize the instrument under conditions which exceed the designed capabilities. In order to begin the warranty service process, please contact us by phone at 1-877-849-2127 or by email at info@reedinstruments.com to discuss the claim and determine the appropriate steps to process the warranty.

Product Disposal and Recycling

Please follow local laws and regulations when disposing or recycling your instrument. Your product contains electronic components and must be disposed of separately from standard waste products.

Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@reedinstruments.com.

Please visit **www.REEDInstruments.com** for the most up-to-date manuals, datasheets, product guides and software.

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REED
INSTRUMENTS
TEST & MEASURE
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SOUND

MOISTURE

AIR VELOCITY

ELECTRICAL