



RST INSTRUMENTS LTD.

IR5000 Voltage
Transducer
Readout
Instruction Manual

RST Instruments Ltd.
11545 Kingston St
Maple Ridge, BC Canada V2X 0Z5
Tel: (604) 540-1100
Fax: (604) 540-1005
e-mail: info@rstinstruments.com

IR5000 Voltage Transducer Readout

Although all efforts have been made to ensure the accuracy and completeness of the information contained in this document, RST Instruments reserves the right to change the information at any time and assumes no liability for its accuracy.

Product: IR5000 Voltage Transducer Readout

Document number: ELM0090A IR5000 Voltage Transducer Readout Instruction Manual

Revision: A

Date: August 2, 2018

Table of Contents

1	OVERVIEW.....	1
1.1	Connections of Voltage Transducers.....	2
2	QUICK START INSTRUCTIONS.....	2
3	POWERING ON/OFF.....	3
4	IR5000 FRONT PANEL CONTROLS.....	4
4.1	Startup.....	4
4.2	Setting the Date & Time	5
5	MONITOR SETTINGS	5
6	MANUAL READINGS.....	6
7	STORING READINGS IN MEMORY.....	7
7.1	Creating Memory Locations in the Field	7
7.2	Zero Readout	8
7.3	Store Readings.....	9
8	REVIEWING DATA.....	10
9	DATA LOGGING.....	11
10	DELETING	11
11	IR5000 INTERNAL BATTERY	12
12	SOFTWARE & FIRMWARE UPDATES	13
13	WARRANTY	13
14	CONTACT US.....	13
15	APPENDIX A – IR5000 MENU FLOW CHART.....	14

Table of Figures

Figure 1 – IR5000 Readout.....	1
Figure 2 – Wiring Connections.....	2
Figure 4 – Manual Power Off	3
Figure 5 – Auto Off Screen	3
Figure 6 – Auto Power Off Time.....	3
Figure 7 – Auto Backlight Off	4
Figure 8 – IR5000 Readout Details	4
Figure 9 – Readings Screen	4
Figure 10 – Set Time	5
Figure 11 – Date/Time Set.....	5
Figure 12 – Monitor Settings	6
Figure 13 – Monitor Settings Options.....	6
Figure 14 – Monitor Settings Options.....	6
Figure 15 – Memory Screen.....	7
Figure 16 – Create Location.....	8
Figure 17 – New Location	8
Figure 18 – Zero Readout.....	9
Figure 19 – Zero Readout – Select Location.....	9
Figure 20 – Zero Readout – accept reading.....	9
Figure 21 – Select Location	10
Figure 22 – Storing a Reading	10
Figure 23 – Select a Location	11
Figure 24 – Reviewing Data	11
Figure 25 – Delete	12
Figure 26 – Delete Options	12
Figure 27 – Battery Door.....	12
Figure 28 – Battery Voltage	13
Figure 29 – IR5000 Menu Flow-Chart	14

1 OVERVIEW

The IR5000 Voltage Transducer Readout reads, displays, and logs DC voltage transducers. Unprecedented accuracy, flexible memory options, and ease of use make the IR5000 Voltage Transducer Readout invaluable for projects requiring monitoring of DC voltage transducers. Maximum download time is only 15 seconds. Complementing its high level of accuracy, the IR5000 is also designed for maximum efficiency with the user in mind.

The IR5000 is lightweight, yet the extremely rugged design is perfectly suited for harsh environmental conditions often encountered in the field. Furthermore, the IR5000 is extremely easy to use with a USB interface for downloading data. In addition to the simple power requirements of only 3 “AA” batteries, the IR5000 comes well-equipped with standard features such as a large graphics display with backlight. Standard AA alkaline batteries are field replaceable, negating the need to return the readout to the factory for battery replacement. The use of standard AA batteries eliminates the need for a charger.

The IR5000 is a precision instrument and should be treated as such. It should be protected against shock and heavy vibration. Its case is water resistant. However, care should be taken to avoid getting the open unit wet, as damage to internal components could occur.

For any repair, the unit should be returned to the manufacturer as there are no user serviceable parts. In the event that the unit is disassembled by the user, the warranty will be void.



Figure 1 – IR5000 Readout

- | | |
|--------------------------------|--|
| 1. USB Connector | 5. Scroll Up |
| 2. Large Character LCD display | 6. Scroll Down |
| 3. Backlight | 7. Enter |
| 4. ESC (navigates back a menu) | 8. Terminal Posts
(for sensor connection) |

1.1 Connections of Voltage Transducers

All connections are made by simply connecting all wires to the matching color binding post. The readout automatically detects the instrument and wiring and displays according to the instrument.

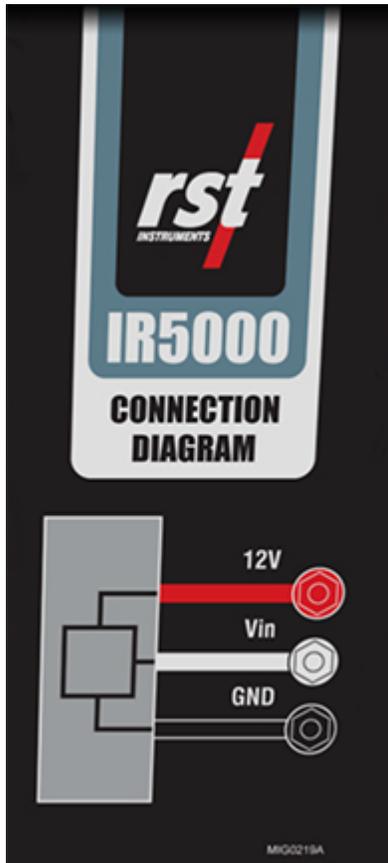


Figure 2 – Wiring Connections

2 QUICK START INSTRUCTIONS

The instructions for performing a manual reading on a voltage transducer (i.e. not storing to memory) are simple and straightforward:

1. Connect the DC voltage transducer to the terminal block (See Figure 1)
2. Turn the display on by pressing any key
3. Wait a few moments for the unit to start up
4. Record the displayed reading

Note

Step 4 (above) is assuming the Monitor Settings are set to *default*. The IR5000 has the ability to custom configure the readout settings so that engineering units can be displayed. Please refer to the Multireadout Host Software Instruction Manual for more information.

3 POWERING ON/OFF

The IR5000 readout can be powered on by pressing any key. The unit can be powered off manually or automatically. To power off the unit manually, use the up/down arrows to scroll to the following screen:



Figure 3 – Manual Power Off

- Press *Enter* and the unit will turn off.

To adjust the automatic power off settings, navigate to the *Auto Off* screen as shown below:



Figure 4 – Auto Off Screen

- Press *Enter* and the following screen will appear:

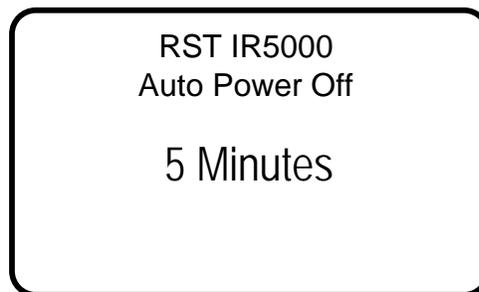


Figure 5 – Auto Power Off Time

Use the arrow keys to scroll to the desired auto power off time. Press *Enter* to select the desired auto power off time.

Note that the auto power off feature is always active and cannot be disabled to conserve battery life. The default auto power off time is 5 minutes.

The following screen prompts the user to set the Auto Backlight Off time.



Figure 6 – Auto Backlight Off

Use the arrow keys to scroll to the desired auto backlight off time. Press *Enter* to select the desired auto backlight off time.

4 IR5000 FRONT PANEL CONTROLS

4.1 Startup

Upon powering on the unit, an opening screen will appear showing the RST Instruments logo. If the user wishes to view the details of the readout, *press any key* immediately and the following screen will appear:

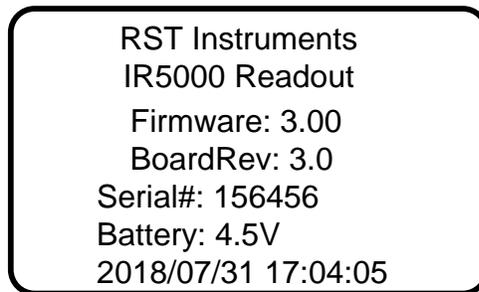


Figure 7 – IR5000 Readout Details

The model, version number, serial number and the current date/time settings will be displayed. Ensure that the date and time are correct, as incorrect information may affect any readings being stored in memory on the unit. Refer to section 4.2 for setting the date and time.

Upon connecting of the voltage transducer, readings will display as shown in Figure 9.

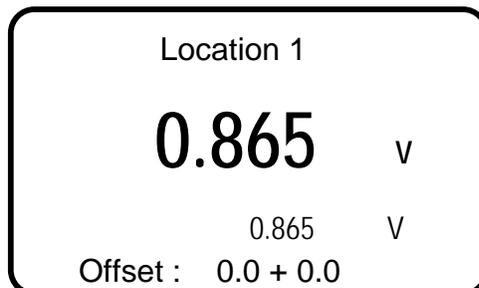


Figure 8 – Readings Screen

The readings screen displays the current strain reading and converted value (assuming an instrument is connected).

4.2 Setting the Date & Time

Keeping the date and time current ensures that you have accurate historical records of your data. Whenever a reading is taken and stored in the units' memory, an associated date/time stamp is always included.

- Turn on the readout by pressing any key.
- Using the arrow keys, scroll to the *Set Time* screen and press *Enter*:



Figure 9 – Set Time

- The current editable data field will be underlined. Use the arrow keys to modify the field. Press enter to confirm the current underlined field and cycle to the next editable field.

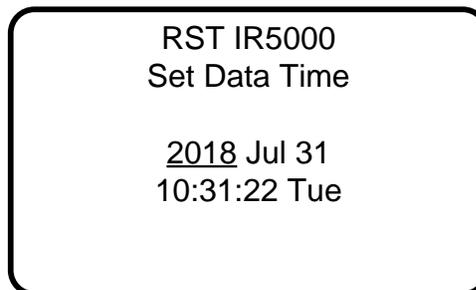


Figure 10 – Date/Time Set

- The program will exit to the main menu screen when all editable fields have been cycled through.

5 MONITOR SETTINGS

Various parameters of the IR5000 readout can be adjusted by selecting the *Monitor Settings* menu as shown in Figure 12.

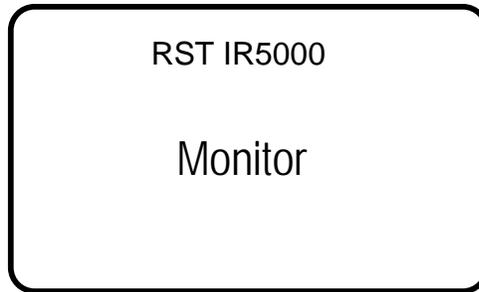


Figure 11 – Monitor Settings

Press *Enter* to choose whether a custom or predefined setting is required.

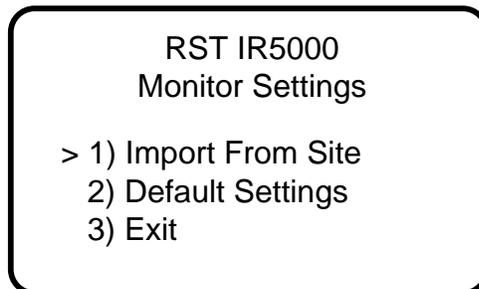


Figure 12 – Monitor Settings Options

- Select *Import From Site* to copy settings from an existing location.
- Select *Default Settings* to reset settings to default. Monitor readings will have no zero reading and V units.
- Select *Exit* to return to the previous menu.

A sample monitor screen is shown in Figure 14.

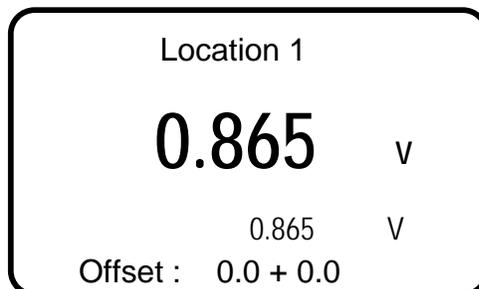


Figure 13 – Monitor Settings Options

6 MANUAL READINGS

The following instructions outline the basic steps needed to take a manual reading with the IR5000 readout:

- Connect the instrument leads to the quick-connect terminals. Match the wires color for color.
- Turn on the readout by pressing any key.

- The readout will go through its startup procedure and automatically default to the reading screen.
- The V reading will appear along with the engineering units converted value.
- Record the reading and move onto the next instrument.

For memory functions, please refer to section 7.

7 STORING READINGS IN MEMORY

The IR5000 has 128k of internal memory, allowing it to store over 11 000 time-stamped readings. The current memory usage is displayed on the *Memory* screen, as shown in Figure 15. Data can be reviewed either on-board or downloaded to a host computer via the USB connector. Individual locations can be preconfigured in the office via the Multireadout Host Software or by creating locations on the unit itself (section 7.1).

7.1 Creating Memory Locations in the Field

The IR5000 Readout may be either pre-configured in the office (through Multireadout Host Software) or taken directly to the field. If taken directly to the field, each location will be assigned a generic name which is editable once back in the office and connected to a host computer. In most cases, it is recommended that the IR5000 be pre-configured in the office prior to taking readings in the field. This allows site location names to be set up ahead of time, allowing the field personnel to be able to arrive at instrument locations and store readings without needing to create a location in the units' memory.

If the IR5000 has not been pre-configured in the office, the following instructions explain how to create new locations. Please refer to Figure 29 (flow chart) for a graphical representation of the steps outlined below:

- Turn on the readout by pressing any key.
- Using the arrow keys, scroll to *Memory* and press *Enter*.

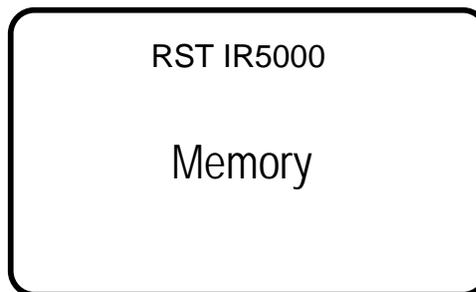


Figure 14 – Memory Screen

- Press *Enter* to advance to the next screen.
- Using the arrow keys, scroll to *Create Location* and press *Enter*.

Note

The maximum number of predefined locations is 253.



Figure 15 – Create Location

- The readout unit will automatically create a site called *Location X* where 'X' is the next storage location available in the units' memory. Note that when creating new sites in the field, you can only name them *Location X*. Make note of the real location name in your field notebook and its relation to the *Location* number. When connecting to the Host Software back in the office, a custom name can be entered at that time. This replaces the site name assigned by the readout.

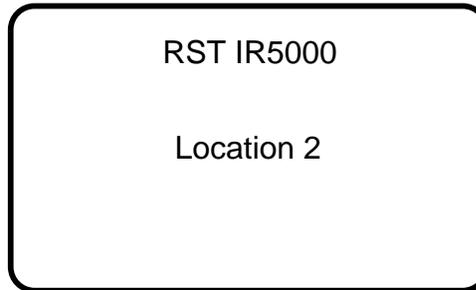


Figure 16 – New Location

- The IR5000 automatically increments the new location to the next number available.
- Press *Enter* and the unit will return to the previous menu.

Note

Engineering units calibration can only be set using the Multireadout Host Software, please refer to the Host Software manual for further information.

7.2 Zero Readout

For each created location, the zero reading will need to be recorded. Connect to appropriate sensor and use the arrow keys to scroll to *Zero Readout* and press *Enter*. The following screen will appear:

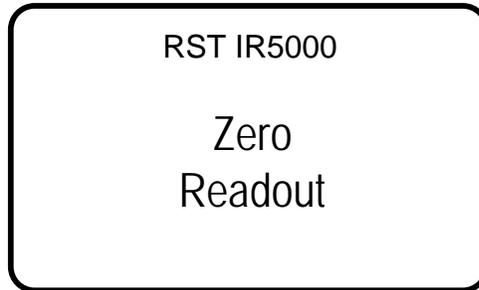


Figure 17 – Zero Readout

- Use the arrow keys to select the location and press *Enter* to select it. The following screen will appear:

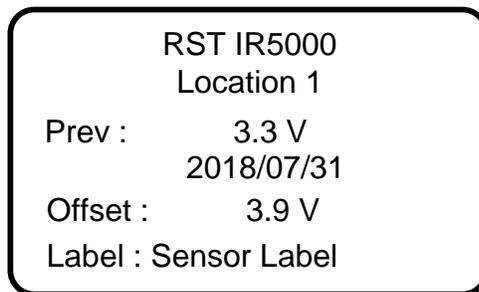


Figure 18 – Zero Readout – Select Location

- The IR5000 will prompt you with the question: *Accept?* Press *Enter* to store the reading.

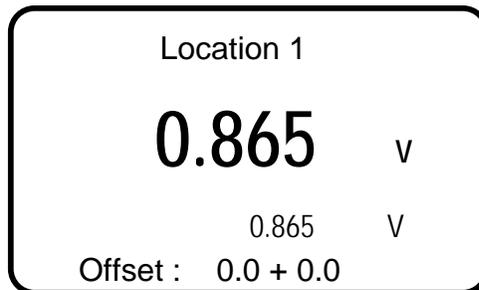


Figure 19 – Zero Readout – accept reading

- The IR5000 will return the user to the previous screen after storing the reading.

7.3 Store Readings

- Use the arrow keys to scroll to *Store Data* and press *Enter*. The following screen will appear:

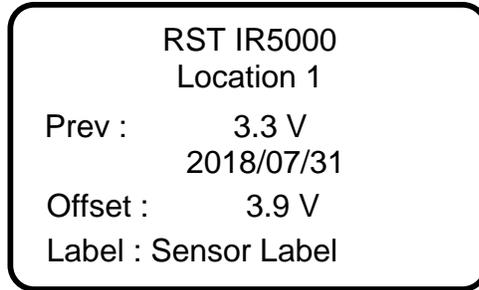


Figure 20 – Select Location

- Use the arrow keys to select the location and press *Enter* to select it. The following screen will appear:

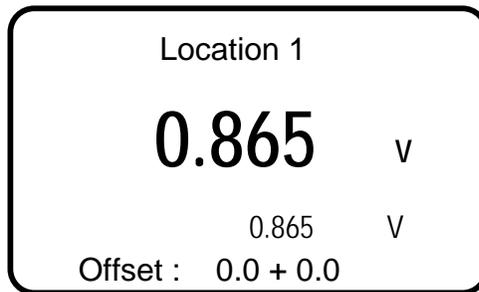


Figure 21 – Storing a Reading

- Reading time and zero value are displayed for a reference.
- The IR5000 will prompt you with the question: *Accept?* Press *Enter* to store the reading.
- After storing the reading, the IR5000 will return the user to the previous screen.

8 REVIEWING DATA

Follow these instructions to review any reading on the IR5000 unit itself:

- Power on the readout by pressing any key.
- Using the arrow keys, scroll down to *Memory* and press *Enter*.
- Scroll to *Review Data* and press *Enter*.
- Scroll to the desired location using the arrow keys. If the previous reading session was downloaded using Multireadout Host Software, the *Prev* value shows last reading in previous session. Refer to Multireadout Host Software manual for instructions. If present, zero reading for currently selected location is displayed along with recording date.
- Press *Enter* to display recorded data.

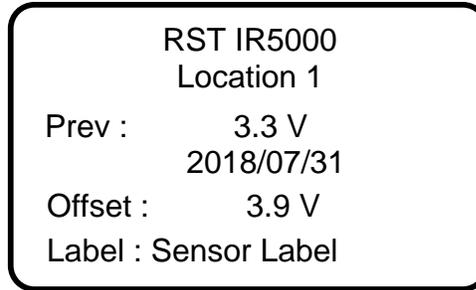


Figure 22 – Select a Location

- If the location contains more than one reading, these readings can be scrolled through using the arrow keys. The date and time of each reading will appear to differentiate each reading.

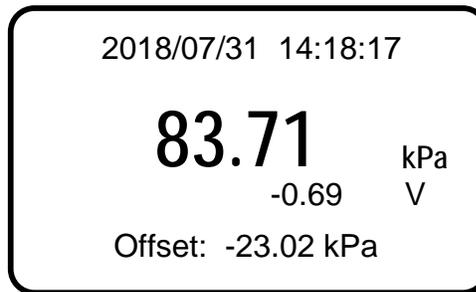


Figure 23 – Reviewing Data

9 DATA LOGGING

The IR5000 stores up to 253 instrument locations per route, each with a text label, calibration constants, previous data, and up to 11,400 time/date stamped data points.

Data may be transferred to a host computer via USB connection. Data will be presented in a compatible file format for Microsoft Excel and other spreadsheets.

10 DELETING

All location information can be deleted from the IR5000 readout or via the Multireadout Host Software. This is done by the following:

- Power on the display by pressing any key.
- Using the arrow keys, scroll down to *Memory* and press *Enter*.
- Using the arrow keys, scroll to *Delete* and press *Enter*.

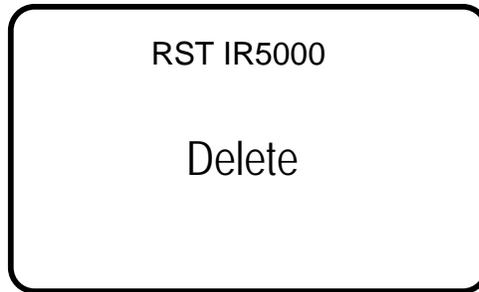


Figure 24 – Delete

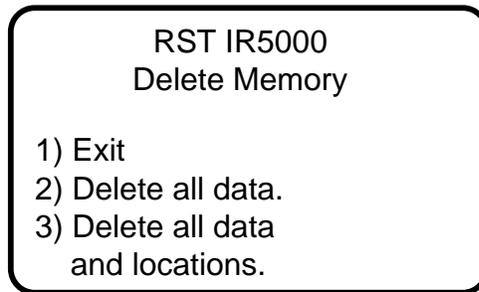


Figure 25 – Delete Options

- Using the *arrow keys*, scroll to the desired delete option and press the *Enter* key to select. Press *Enter* to confirm, press *ESC* to exit back to the main menu.

11 IR5000 INTERNAL BATTERY

The RST IR5000 operates on 3 alkaline AA batteries. Access to the batteries is done through a port on the side of the unit. Use a flathead screwdriver or a coin to access the batteries (see Figure 27). The unit ships standard with regular AA batteries. If the unit is being used consistently in cold environments, the user may replace the alkaline batteries with lithium batteries which are also readily available.



Figure 26 – Battery Door

The status of the battery can be checked by:

- Turning on the readout by pressing any key.
- Using the arrow keys, scroll to the battery voltage screen.
- The readout will display the *battery voltage* as shown below:

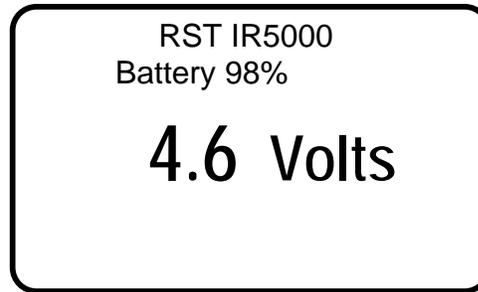


Figure 27 – Battery Voltage

Note

If the battery voltage drops below 3.5 volts a low battery warning will be displayed in the form of "BATT" in the upper right of each screen. Change the batteries at this time.

12 SOFTWARE & FIRMWARE UPDATES

The IR5000 readout is designed such that the unit's software and firmware can be easily updated by the customer through the USB port. Please regularly visit: <http://www.rstinstruments.com> for product updates.

13 WARRANTY

RST Instruments Ltd. reserves the right to change the price or modify the specifications of its equipment without notice.

14 CONTACT US

For sales information contact: sales@rstinstruments.com

For technical support contact: rst_support@rstinstruments.com

Head Office:

11545 Kingston St
Maple Ridge, BC
Canada V2X 0Z5

Our office hours are: 8:30am – 5:00pm PST
Monday – Friday (excluding holidays)

Telephone: 604-540-1100
Facsimile: 604-540-1005
Toll Free: 1-800-665-5599
Website: <https://www.rstinstruments.com>

