Hanwell Instruments Ltd

Instruction Manual

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Table of Contents

1.   Introduction

This document details how to configure the **RL5000 series** of Sensors from Hanwell Instruments for use. It also details the additional functions, such as calibration.

The **RL5000 Series** are transmitters with two data channels. The Sensors read their probes and transmit the data back to the Hanwell **Radiolog** system. The current values, predicted battery life and (optionally) the alarm status are also displayed on the Sensor's LCD screen.

1.1. Contact Hanwell Instruments

UK customers

Hanwell Instruments Ltd	t: 0870 443 1786
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For Technical Support email support@hanwell.com

EU & Overseas customers

Please contact your local Hanwell distributor.

A list of distributors is available at http://www.hanwell.com

1.2. Pre-requisites

You will need the following to talk to a **RL5000 series** sensor:

- ❑ Y055 USB lead

If you are working with a version of **Radiolog** which is earlier than 8.3, you will also need:

- ❑ The **USB Configuration Tool** software program.

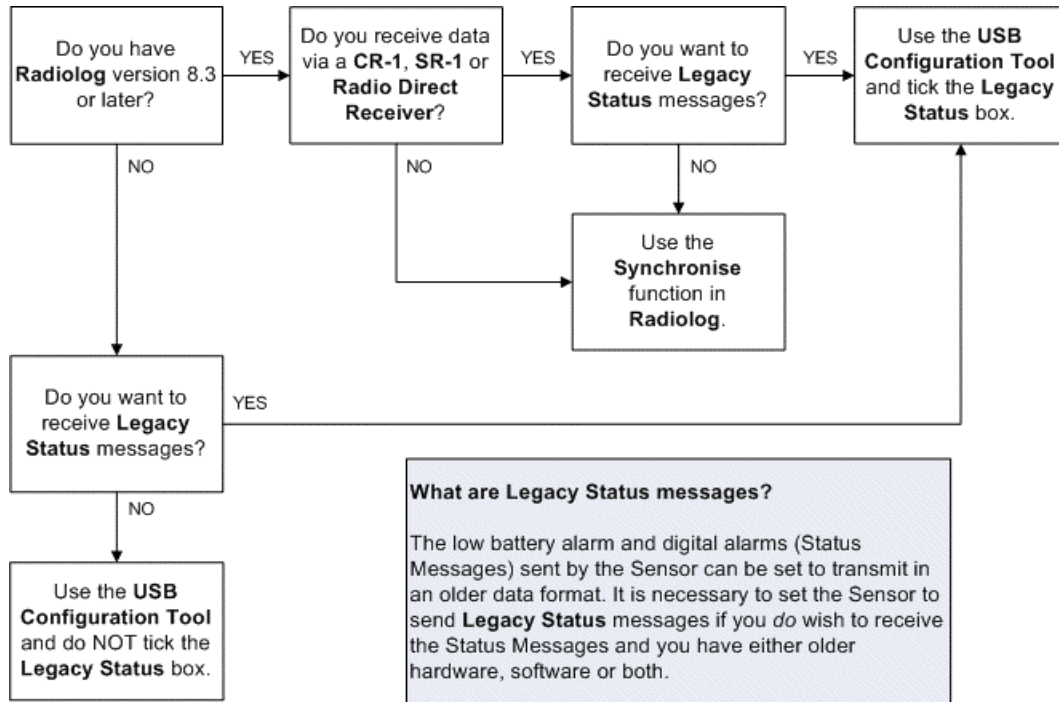 If you do not have this program, visit http://support.hanwell.com/radio/sensors to download it free of charge. Alternatively, contact Hanwell Instruments and ask for CD code **W250**.

2.   Standard Configuration

This section details how to simply set up a **RL5000 Series** Sensor for use with Radiolog. This duplicates – and slightly expands – the information in Hanwell document CC4178 which accompanies the sensors.

The method of adding a sensor varies, based on two variables. Follow the flowchart to see which method to use.

What are Legacy Status messages?

The low battery alarm and digital alarms (Status Messages) sent by the Sensor can be set to transmit in an older data format. It is necessary to set the Sensor to send **Legacy Status** messages if you *do* wish to receive the Status Messages and you have either older hardware, software or both.

To check which version of **Radiolog** you have:
1.   Run **Radiolog**.
2.   Select **About** from the **Help** menu.
      The version and build number will be displayed.
3.   Click on **OK**.

See section 2.1 for how to use the **Synchronise** function in Radiolog version 8.3. or later.

See section 2.2 for how to use the **USB Configuration Tool**.

2.1. Synchronise function in Radiolog version 8.3 (or later)

This will automatically update the **Radiolog** layout with the serial number and calibration data contained in the Sensor, as well as setting the Sensor's ID number and transmit interval.

You can also place the Sensor in **Calibrate Mode** using this function. See section 3.1.

For additional information on using **Radiolog** see Hanwell document IM3499.

1. Run **Radiolog** and switch to **Edit Mode**
2. Add the Sensor: be sure to select the right **Sensor Type,** as specified on CC4178.
3. Connect the battery to the Sensor.
4. Connect the Sensor to the PC via the Y055 USB lead.
5. Right-click on the Sensor in the software and select **Synchronise**.

    If the Sensor type does not match (for example, the connected unit is a RH/Thermistor and the Sensor you've clicked on is a Dual Thermistor) then the Synchronise function will NOT be visible in the pop-up menu.
6. Set the **Transmit Interval**.

    This is how often a signal is sent from the sensor to the system. Faster Transmit Intervals may reduce battery life. A typical Transmit Interval is 150 seconds (2.5 minutes).
7. Click on the **Synchronise** button (green tick).
8. When synchronisation is complete, click on **OK**.
9. Disconnect the Sensor from the PC.
10. Repeat steps 2-9 for any additional sensors being added.
11. **Save** the layout and exit **Edit Mode**.

2.2. USB Configuration Tool

This procedure configures the **RL5000** Sensors using a separate program, the **USB Configuration Tool**. This will set the Sensor's ID number and transmit interval.

You can also place the Sensor in **Calibrate Mode** using this function. See section 3.1.

1. Run **Radiolog**.

2. Switch to **Edit Mode** and add the Sensor: be sure to select the right **Sensor Type**, as specified on CC4178.

   For more information on adding sensors to the system, see Hanwell document IM3499 (Radiolog 8.2 users) or IM1575 (Radiolog 7.5 users).

   If adding a Sensor with a Thermistor or PT100 input, select the appropriate **Load Resistor** option in the *Calibration* section. Unless otherwise specified, these are 30k9 for the Thermistor and 1k43 for the PT100. Then click on another field (Radiolog 8.2 users) or on the **Load Default Calibration** button (Radiolog 7.5. users) to load the default calibration for that Load Resistor setting.

   If customised calibration data has been supplied, enter it in the *Calibration* section of the *Sensor Properties* box.

3. **Save** the layout and exit **Edit Mode**.

4. Run the **USB Configuration Tool**.

   - If you do not have this program, visit http://support.hanwell.com/radio/sensors to download it free of charge.

     Alternatively, contact Hanwell Instruments and ask for CD code **W250**.

5. Connect the battery to the Sensor.

6. Connect the Sensor to the PC via the Y055 USB lead.

7. Select the Sensor from the list of connected devices and select **Configure the Device**.

8. Set the **ID Number** to match the Sensor's ID Number in **Radiolog**.

9. Set the **Transmission Speed** as required.

   This is how often a signal is sent from the sensor to the system. Faster Transmit Intervals may reduce battery life. A typical Transmit Interval is 150 seconds (2.5 minutes).

10. Sensor alarms cannot be set on the RL5000 so set the **Flash Rate** field as *None*.

11. Tick the **Legacy Status** option if necessary (see the flowchart at the start of this section).

12. Select the **Battery Change Date**. This is the date the battery was fitted to the sensor.

13. Click on **OK**.

14. When the Sensor has been configured, the *Sensor Successfully Reconfigured* message appears. Click on **OK** to close it.

15. Disconnect the Sensor from the PC.

3. Calibration

This section details how to calibrate a **RL5000** unit.

Calibration is undertaken by:

1. Switching the unit to **Calibration Mode**. See section 3.1.

   The method of doing this will depend on the software version you have.

2. Applying known values and noting the displayed 'raw' readings. The method of doing this will depend on the input types of the unit, and on what equipment is used to apply the known values.

3. Editing the *Calibration* section of the *Sensor Properties*. See Hanwell document IM3499 for more information on how to do this.

4. Sending the calibration data from the software to the unit. This is only possible if you are using **Radiolog 8.3** or later. See section 3.2.

5. Switching the unit back to Normal Mode. See section 3.1.3.

3.1. Switching to Calibration Mode

The method of doing this will depend on the software version you have.

There is also a difference depending on the probe types you are calibrating. If, after setting the unit in **Calibration Mode**, the LCD displays - - - - then the probe information is 14bit. If this is the case then you must change the Calibration Mode settings so that the sensor transmits the raw data to the software.

3.1.1. Radiolog version 8.3.

This sets the unit in Calibration Mode from within the software.

1. Run **Radiolog**.
2. Connect the Sensor to the PC via the Y055 USB lead.
3. Switch to **Edit Mode**.
4. Right-click on the Sensor in the list and select **Synchronise**.
5. Click in the **Calibrate Mode** box so that it is ticked. This tells the sensor to display the raw data on the LCD.

   If you want the sensor to also send a transmission of the raw data, click on the **TX in Cal Mode** box.
6. Click on the **Synchronise** button (green tick).
7. When synchronisation is complete, click on **OK**.
8. Switch out of **Edit Mode**.

   The unit is now ready to be calibrated.

3.1.2. Earlier versions of Radiolog

1. Run the **USB Configuration Tool** (see section 2.2).
2. Connect the Sensor to the PC via the Y055 USB lead.
3. Click on the device in the device list and select **Configure the Device**.
4. Click in the **Calibrate Mode** box so that it is ticked. This tells the sensor to display the raw data on the LCD.

   If you want the sensor to also send a transmission of the raw data, click on the **TX in Cal Mode** box.
5. Click on **OK**.
6. When the program is complete, disconnect the unit from the PC.

   The unit is now ready to be calibrated.

3.1.3. Switching back to Normal Mode

This returns the unit to its normal operation.

Follow the appropriate instructions for switching to Calibration mode, but *untick* the **Calibrate Mode** and **TX in Cal Mode** boxes.

3.2. Re-Calibrating RL5000 units

This function can only be accessed by **Radiolog version 8.3** users.

Re-Calibrating a Sensor sends the calibration data from the software to the unit. This ensures the readings displayed on the Sensor's LCD are based on the most recent calibration.

To re-calibrate a unit:

1. Run **Radiolog**.
2. Switch to **Edit Mode**.
3. Check that the *Calibration* information in the *Sensor Properties* is correct.
4. Connect the Sensor to the PC.
5. Right-click on the Sensor in the software.
6. Select **Re-Calibrate USB Sensor**.

    If you have connected a unit with a different ID, Serial number or Type to the sensor you've right-clicked then you will get an error message.

7. Click on **Yes** to confirm you want to recalibrate the Sensor.

    The software calibration settings will be written to the Sensor's memory.

8. Click on **OK** when re-calibration is complete.
9. Disconnect the Sensor.
10. Switch back out of **Edit Mode**.

4. Other Functions

These functions can only be accessed in **Radiolog version 8.3.**.

4.1. Checking a USB Sensor Battery Change Date

To check the current battery date:

1. Run **Radiolog**.
2. Connect the Sensor to the PC.
3. Click on the Sensor icon in the bottom status bar.
4. Scroll down to the 'BatteryChangeDate'.

4.2. Recommended Battery Changing method

To change a Sensor battery:

1. Run **Radiolog**.
2. Switch to **Edit Mode**.
3. Connect the Sensor to the PC.
4. Remove the old battery and fit the new one.
5. Right-click on the Sensor in the software.
6. Select **Set Battery Change Date** from the pop-up menu.
7. Select the day's date.
8. Click on **OK** to send the date to the unit's memory.
9. Exit **Edit Mode**.

If you are changing batteries in situ and without access to **Radiolog** then the BatteryChangeDate will not be modified.