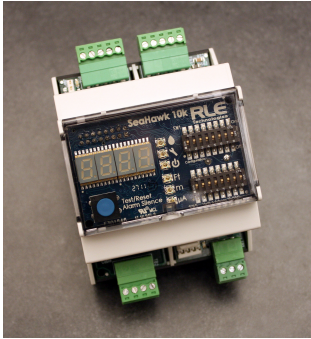


# SeaHawk 10K Quick Start Guide



Thank you for purchasing a SeaHawk 10K distance-read leak detection controller. This guide highlights basic device installation and configuration. More detailed information and troubleshooting guidelines can be found in the SeaHawk 10K User Guide.

If, after referencing the User Guide, you need further assistance, please contact RLE Technologies via our website - rletech.com (go to the Support link) or call us at 800.518.1519, Option 2.

## SeaHawk

v2.1  
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## RLE Technologies

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## Supplies for Installation

### Included with the SeaHawk 10K

15 foot (4.57m) leader cable  
End-of-line terminator (EOL)

### Available from RLE, sold separately

12-24 VAC/VDC, 50-60Hz isolated power supply  
SeaHawk sensing cable, up to 10,000 feet (3048m)

### Available from Other Vendors

Electrostatic discharge (ESD) protection

## Mount the Device

The SeaHawk 10K can be mounted inside a panel or on a DIN rail. The device has two adjustable orange clips on the bottom. Push the clips out to expose two screw holes that allow the device to be mounted in a panel; push the clips in to mount the device on a DIN rail.

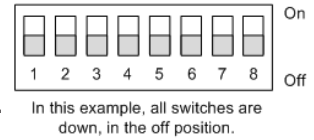
## Establish Physical Connections & Test the Device

The SeaHawk 10K's circuit boards are labeled. This helps you determine which wires feed into each terminal block. Before you apply power to the SeaHawk 10K, wire all necessary connections and set the DIP Switches.

1. Connect the power lead to TB3 or TB4.
2. Insert the four stripped wires of the leader cable into the appropriate slots in TB2 - from left to right: white, black, green, and red.
3. Connect sensing cable to the other end of the leader cable, and be sure an end-of-line terminator is connected to the end of the sensing cable.
4. Secure your connection for the relay output to TB1.
5. Adjust the DIP switches to the appropriate settings.
6. Apply power to the SeaHawk 10K.
7. Test the system - simulate leaks at the beginning, middle, and end of the sensing cable to ensure the SeaHawk 10K accurately calculates the distance to leaks.

## DIP Switches

The SeaHawk 10K has two sets of DIP switches. Push the numbered switch up to turn it on; push the switch down to turn it off. SW1 is used to configure a variety of settings on the SeaHawk 10K. SW2 is used to configure communications.



### DIP Switch 1, switches 1 through 8

Set the baud rate for the EIA-485 Port

|         |         |                   |
|---------|---------|-------------------|
| 1 = Off | 2 = Off | Modbus 9600 baud  |
| 1 = On  | 2 = Off | Modbus 1200 baud  |
| 1 = Off | 2 = On  | Modbus 38400 baud |
| 1 = On  | 2 = On  | N2 960 Baud       |

Designate EIA-485 Communications

|         |   |
|---------|---|
| 3 = Off | EIA-485 communications via Modbus       |
| 3 = On  | EIA-485 communications via BACnet MS/TP |

Set the Re-alarm Interval - After a leak or cable problem has been detected, the alarm will be re-sent at a designated interval until the alarm condition has been resolved.

|         |   |
|---------|---|
| 4 = Off | Re-alarm interval - disabled. No re-alarm will occur. |
| 4 = On  | Re-alarm interval - 4 hours                           |

Latching Alarm Status

|         |  |
|---------|--|
| 5 = Off | Unlatched alarms - alarm resets itself once a detected leak or cable problem has been resolved   |
| 5 = On  | Latched alarms - alarm must be reset by manually pushing the blue Test/Rest/Alarm Silence button, even if the leak or cable problem is no longer present |

Distance Measurements

|         |                                  |
|---------|----------------------------------|
| 6 = Off | Cable length displayed in feet   |
| 6 = On  | Cable length displayed in meters |

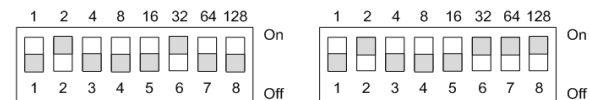
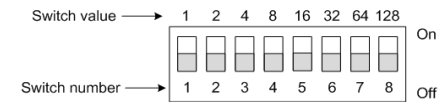
Sensing Cable Resistance - If you have questions regarding your cable's resistance, please reference the cable's data sheet.

|         |   |
|---------|---|
| 7 = Off | 2.8 Ohms per foot - Use with RLE's orange sensing cable |
| 7 = On  | 4.0 Ohms per foot - Use with most other sensing cables  |

Enable or Disable the Audible Alarm - The audible alarm is disabled by default.

|         |                   |
|---------|-------------------|
| 8 = Off | Audible alarm off |
| 8 = On  | Audible alarm on  |

DIP Switch 2 is used to set communications options. If you are communicating via Modbus, use SW2 to set the address of the Modbus device. This should be a number between 1 and 254. Adjust the individual switches until their sum equals the Modbus address. Switch values are as follows:

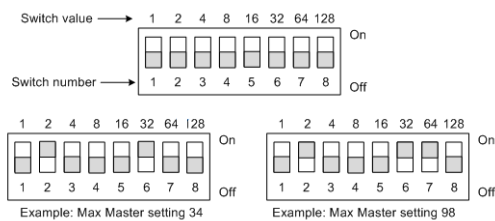


Example: Communications address 34

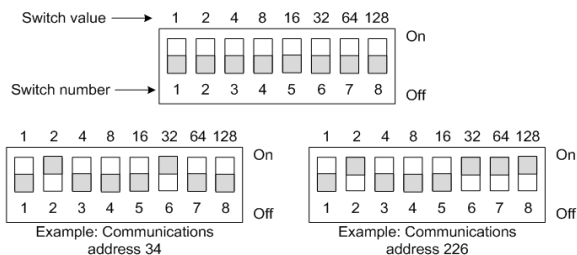
Example: Communications address 226

If you are communicating via BACnet MS/TP, use SW2 to set the BACnet MS/TP Max Master and address:

1. First, set SW2 for the unit's Max Master number. This will be a number between 1 and 127. Adjust the individual switches until their sum equals the Max Master setting.



2. Once the correct Max Master value is set, press and hold the blue push button on the front of the SeaHawk 10K for approximately 17 seconds. The Max Master value you set will flash on the LED three times. Once the value flashes on the LED, release the button. The Max Master has been set.
3. Now use SW2 to set the BACnet MS/TP device ID. This should be a number between 1 and 254. Adjust the individual switches until their sum equals the BACnet MS/TP device ID. The following illustration shows the values of the DIP switches on the SW2 block as well as two examples of how the DIP switches would be set for specific device IDs.






The SeaHawk 10K's default BACnet device ID is 70,000. When you set the device ID on SW2, you need to add that value to the 70,000 to obtain the specific device ID. For example, if you set SW2 to 34, the device ID for that unit is 70,034. The device ID for a SeaHawk 10K with a SW2 value of 98 would be 70,098.

## Front Panel Indicators

The front panel of the SeaHawk 10K contains a 4-character LED and series of colored LEDs that are used together to convey device status and information regarding detected leaks and cable faults. A blue button is used to cycle the 4-character LED, silence the audible alarm, and reset the alarm.

| Indicator       | Symbol               | Description   |
|-----------------|----------------------|---|
| 4-character LED | <b>SH10</b>          | System is running in its normal operating state.  |
|                 | <b>675</b><br>(e.g.) | A leak, fault, or contamination has been detected. A numerical distance displays on the LED. A green LED lights next to Ft or m, and either the LED next to the water drop glows red to indicate a leak, or the LED next to the wrench glows yellow to indicate cable contamination. If the distance is measured in meters, a tenths place decimal value will appear in measurements from 0.0 - 999.9. All meter values over 1000 will display as whole meter measurements. |
|                 | <b>cbr</b>           | Cable break/fault detected. Yellow LED flashes next to wrench symbol.   |

| Indicator                       | Symbol   | Description   |
|---------------------------------|--|---|
| LED                             | <br><br><br><b>Ft</b><br><b>m</b><br><b>μA</b> | Red LED - leak is detected - distance is displayed on 4-character LED<br>Yellow LED - Cable fault - 4-character LED displays <b>cbr</b><br>Yellow LED - Cable contamination - 4-character LED displays distance<br>Green LED - Power on<br>Green LED - Measurements are made in feet<br>Green LED - Measurements are made in meters<br>Green LED - Microamps of current on cable - amperage is displayed on 4-character LED   |
| Test/Reset/Alarm Silence Button | Blue Push Button   | In normal operating conditions, the button functions include: <ul style="list-style-type: none"> <li>• Press once: Displays cable current in ohms/foot and the green LED lights next to the microamp symbol</li> <li>• Press twice: Displays the length of installed cable components and the green LED lights next to the appropriate Ft or m symbol</li> <li>• Press three times: Return to the default display (SH10)</li> <li>• Press and hold: Self-test is initiated and the character display reads <b>ca1 8060</b>, which indicates the value of the test resistor.</li> </ul> If an alarm sounds, briefly press the button to turn off the audible alarm. The Status LED remains red, and the 4-character LED continues to show the alarm condition. In an alarm condition, whether the audible alarm is sounding or not, press and hold this button for 3 seconds to clear the alarm. |

## Modbus Registers

The SeaHawk 10K uses its EIA-485 port to communicate via Modbus. The SeaHawk 10K is configured to act as a slave device on a common network and is a slave only device – it will never initiate a communications sequence.

| 04 Input Registers (3x) | Description   |
|-------------------------|---|
| 30001                   | b0=Leak alarm, b1=cable break, b2=contamination, b3=summary |
| 30002                   | Leak distance   |
| 30003                   | 0=meters, 1=feet  |
| 30004                   | Leakage current on cable (μA)                               |
| 30005                   | Cable Length  |
| 30006                   | Cable resistance, leg 1                                     |
| 30007                   | Cable resistance, leg 2                                     |
| 30008                   | Resistance per foot   |
| 30009                   | Firmware version number                                     |
| 38001                   | Leak Distance - Meters Float                                |
| 38003                   | Cable Length - Meters Float                                 |

| 03 Holding Registers (4x) | Description   |
|---------------------------|---|
| 40001                     | Leakage threshold (μA) default 120 (writeable); range 25μA-175μA                      |
| 40002                     | Contamination threshold (μA) default 50 (writeable); range 25μA-175μA                 |
| 40003                     | Re-alarm time - 0 (disabled) or 4 hours (read only, set by DIP SW1)                   |
| 40004                     | Latching alarms - 1=enabled, 0=disabled (read only, set by DIP SW1)                   |
| 40005                     | Silence audible alarm (reads 0, may be set to 1)                                      |
| 40006                     | Reset alarm (reads 0, may be set to 1)  |
| 40007                     | Not used - reads 0  |
| 40008                     | Resistance per foot (2000-3500 or 3500-4240)  |
| 40009 - 40015             | Not used - reads 0  |
| 40016                     | Leak alarm delay 5-990 seconds, default (writeable); range: 5-999 seconds             |
| 40017                     | Contamination alarm delay 5-990 seconds, default 120 (writeable); range 5-999 seconds |