

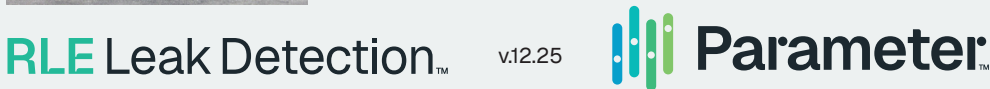
QUICK START GUIDE

LD1000



Thank you for purchasing an RLE Leak Detection LD1000 single-zone leak detection controller. This guide outlines device installation and operation. Before you install a LD1000 reference our website at www.rletech.com to ensure you are using the most recent version of our documentation.

If you need further assistance, contact Parameter at support@rletech.com.



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CONDITIONS OF ACCEPTABILITY

1. Suitability of the enclosure should be evaluated when installed in the end product.
2. Temperature Testing should be performed on this component when installed in the end product.
3. Mechanical Abuse testing was not conducted and should be considered in the end use.
4. Limited current power supply shall be used as the power source, 2 A at the electrical rating input voltage.
5. No production line testing was conducted and should be considered in the end use.

INSTALLATION SUPPLIES

Included with the LD1000

15 foot (4.57m) leader cable, end-of-line terminator (EOL), wall mounting hardware

Available from Parameter, sold separately

RLE Leak Detection sensing cable - up to 1,000 feet (305m), isolated Parameter power supply - DC (PSWA-DC-24) or AC (WA-AC-24)

MOUNT THE DEVICE

** As you wire and configure the LD1000, refer to Figure A on the back of this page for a detailed diagram of the device's internal circuit board and wiring connections. **

The LD1000 is a wall mounted device and mounting hardware is supplied with every unit.

Select a location for the LD1000 and place the two screw anchors in the wall 4.25 inches (107.9mm) apart.

Screw both screws into the wall anchors so that approximately 1/8 inch (3.18mm) of each screw is showing. It may be necessary to adjust the screws—in or out—so that the unit fits snugly to the wall.

Remove the front cover from the unit and hang the rear of the unit on the screws.

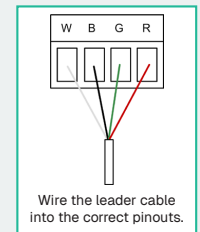
Pull the unit toward the ground so the screws nestle in the top of each keyhole, and securely fasten the unit to the wall.

CONNECT THE SENSING CABLE

Leader cable is used to connect sensing cable to the LD1000 since sensing cable cannot connect directly to the device.

1. Remove the appropriate circular knockout from the enclosure and thread the end of the leader cable through the knockout.
2. Insert the four stripped wires of the leader cable into the appropriate slots in the Cable Input terminal block at the bottom right corner of the LD1000:

White wire: insert into pinout labeled **W**
 Black wire: insert into pinout labeled **B**
 Green wire: insert into pinout labeled **G**
 Red wire: insert into pinout labeled **R**



3. Unscrew the EOL from the end of the leader cable.
4. Attach the lengths of sensing cable to the leader cable.
5. Route the sensing cable according to your cable layout diagram.
6. Secure the EOL to the unoccupied end of the sensing cable.

CONNECT THE RELAY OUTPUTS AND MODBUS COMMUNICATIONS

The LD1000 can be used as a stand-alone device but it also has two Form C relay outputs and a Modbus connection that allow it to communicate leak and fault status to another device or system. If you wish to use these communications, wire them at this time.

CONNECT THE POWER

The LD1000 requires an isolated power supply, sold separately and available from Parameter. There are separate terminal blocks for DC and AC power. To avoid product damage and personal injury carefully wire power to the correct terminal blocks. Establish all wiring connections including sensing cable, relay outputs, and power before you activate the board's power supply.

DIP SWITCH SETTINGS

The LD1000 has two sets of DIP switches. Adjust the switches to suit your application.

SW1-1 through SW1-7 - Configure the Modbus Address	
If communicating via Modbus, use these switches to set the address of the Modbus device. Adjust the switches until their sum equals the Modbus address. Switch values are as follows:	
SW1-8 - Configure the Modbus Baud Rate	
Off (default)	9600 Baud
On	19200 Baud
SW2-1 - Configure the Relay Outputs as Supervised or Non-supervised	
Off (default)	Relays are non-supervised - the relays remains OFF until an alarm is detected - at which time the relays turns ON.
On	Relays are supervised - the relays remains ON until either power is disabled or an alarm is detected - at which time the relays turn OFF.
SW2-2 - Configure the Relay Outputs as Latching or Non-latching	
Off (default)	Relays are non-latching - when an alarm is detected the relays will remain in alarm state until the Quiet/Test/Reset button is pushed, or until the condition that caused the alarm returns to a normal state.
On	Relays are latching - when an alarm is detected the relays will remain in alarm state until the Quiet/Test/Reset button is pressed.
SW2-3 - Configure Relay Outputs as Two Summary Alarms or as Separate Leak and Fault Alarms	
Off (default)	Relay one is a leak alarm; relay two is a fault alarm.
On	Both relay one and relay two activate when a leak or fault alarm is detected.

SW 2-4 - Alarm Delay Setting - The time between when an alarm is detected and when the LD1000 reports the alarm. The alarm must be present during the entire delay in order for the alarm to sound.	
OFF (default)	10 second alarm delay
On	Two minute alarm delay

LEAK SENSITIVITY

Leak sensitivity indicates how much water must be present for the controller to signal an alarm condition. The lower the sensitivity setting, the more water must be present to trigger an alarm. Use the pot at R25 to set the sensitivity.

R25 - Set the Leak Sensitivity	
High	Gently turn the dial clockwise as far as it will go.
Medium (default)	Gently adjust the dial so it is in between the high and low settings.
Low	Gently turn the dial counter clockwise as far as it will go.

AUDIBLE ALARMS AND STATUS LEDs; QUIET/RESET/TEST BUTTON

JMP2 - Control the audible alarm	
Enabled (default)	Place the jumper over the two prongs on JMP2.
Disabled	Remove the jumper from JMP2.

Status LEDs		
Condition	Color	Status Description
Power	Green	The light glows solid green when power is applied to the unit.
Alarm Detected	Yellow - Cable Break	<ul style="list-style-type: none"> The appropriate LED - yellow for a cable fault or red for a leak - glows solidly when the alarm condition is detected and remains that way until the condition is resolved. Push the Quiet/Reset button to silence the alarm.
	Red - Leak Detected	<ul style="list-style-type: none"> If the system is in latching mode (SW2-2 set ON), the LED will blink once the alarm condition is resolved. To clear the latched alarm reset the system - push and hold the Quiet/Reset button for 2 seconds. Release the button and the system will return to normal operation. If there is still an alarm condition present, the system will immediately alarm again.

Quiet/Test/Reset Button	
Quiet	When a cable fault or leak is detected the alarm sounds. Push the button once to silence it.
Reset	Press the button for two seconds to reset the system. The unit will immediately check for an alarm or fault condition.
Test	<p>When the unit powers on it runs a self test that includes lighting the LEDs, sounding the audible alarm once, and checking the cable for a leak or fault. It then enters its normal operation mode. You can initiate this test again at any time by resetting the unit - push and hold the button for two seconds and the unit will reset and self-test.</p> <p>To test the two relays continue to hold the button throughout the self test. After one second both relays will activate.</p>

TEST THE LEAK DETECTION SYSTEM

Once the unit is set up, test the system. If the LD1000 is connected to a BMS or NMS, notify monitoring personnel before you test.

To verify the LD1000's functionality, test three points within the length of sensing cable - one at the beginning, one in the middle of the length, and another near the end of the length of cable.

There are a variety of ways to simulate a leak.

- Pour a small puddle of water on the cable while it rests on the floor.
- Dunk the cable in a cup of water.
- Wet a paper towel or rag and wrap it loosely around the cable. This is popular if the cable is used in pipe applications. Be careful to wrap the wet cloth loosely around the cable. Do not put pressure on the cable.

Remove simulated leak sources. Return the system to its normal operating state.

To test the cable fault alarm, remove the end-of-line terminator (EOL) from the end of the sensing cable. This will cause a cable break, which should be reported appropriately by the LD1000. Once the cable break alarm is verified, reapply the EOL and ensure the system returns to its normal operating state.

FIGURE A

