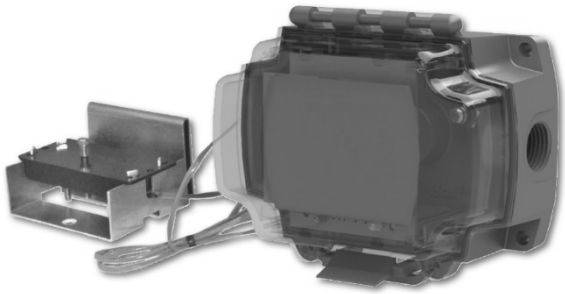
Identification and Overview

The Water Leak Detector is designed to sense the presence of water and alert a central monitoring system of the potentially destructive situation. The unit is available with the Attached Sensor or Remote Sensor.

Part #: N1-LDT4-RS5-BB-A



Specifications

Power:

24VAC ±10% (If VDC power is required, call your rep.), 5 Amp Relays: 4 Watt / 4 VA max

Rectification:

Half Wave

Wiring:

Screw Terminals: 2 to 4 pair of 12 to 22AWG (recommended 16 to 22AWG).

Water Detection Sensor: 2 wires (provided), optional Flex Connector or Liquid Tight Fitting for strain relief

Sensor:

Attached Sensor:.. Sensor w/ adjustable depth screw from 0.063 to 0.84" (1.60 to 21.34mm)

Remote Sensor: ... Sensor w/ adjustable depth screw from 0.062 to 0.5" (1.57 to 12.70mm)

(Attached and Remote Sensors are designed to be mounted to flat surfaces or on the rims of drip pans.)

Latching and Supervised Relay Options:

Latching ..... Relay stays in alarm until manually reset or power is cycled

Non-Latching .....Relay automatically resets after water is removed (default)

Unsupervised..... Relay energizes on water detection

Supervised.....Relay de-energizes on water detection (default) Note: Relay de-energizes on loss of power

Reset Action:

If latching, local pushbutton or power interrupt

Local Indication:

One green power LED, one red alarm LED

Alarm Relay Contacts:

LDT4: Two SPDT, 5 Amp relay outputs

Operating Environment

Remote Sensor: ..... -20 to 185ºF (-20 to 70ºC), 0 to 100%RH, condensing

Detector BBox: ..... -4 to 158ºF (-20 to 70ºC), 0 to 95%RH, non-condensing

Enclosure Material and Ratings:

NEMA 4 (IP66), UV-resistant polycarbonate, UL94 V-0

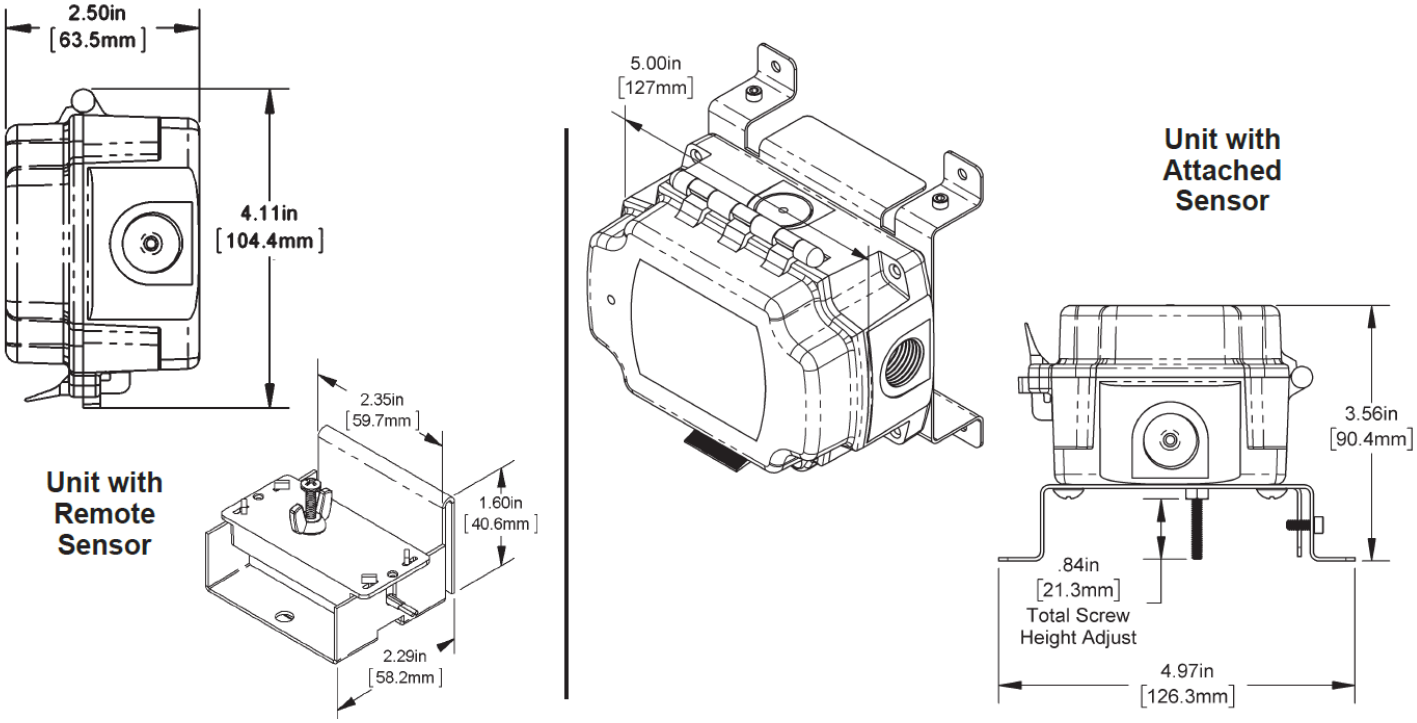
Agency:

RoHS, UL

Warranty:

5 years

Dimensional Drawing



Mounting

ATTACHED SENSOR

1. Set the sensor in a location where a water leak is likelyto occur.
2. Use the 4 screw holes on the feet of the bracket to secure the sensor. We recommend stainless steel screws (not included).
3. Adjust the depth screw with the wing nut to set thealarm depth for detecting leaks as shown in Fig. 1.
4. Terminate the unit as described in the Termination section.

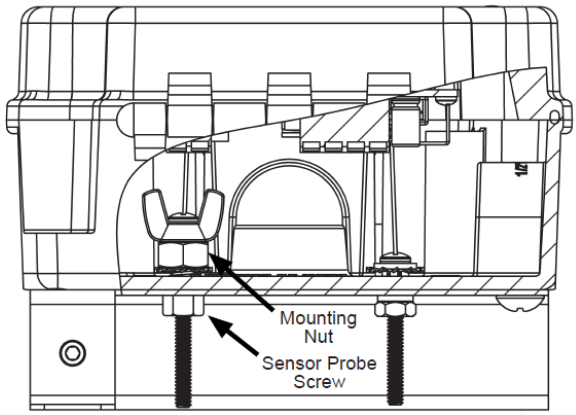


Figure 1: Leak Detector with Attached Sensor

(Attached sensor can also be mounted to a drip pan rim using the provided 7/64” hex set screws as shown above.)

REMOTE SPOT SENSOR

1. The sensor can be secured to a flat surface using the adhesive mounting strips (Fig. 3) or a screw (Fig. 4). It can also be mounted to a drip pan rim using the provided 7/64” hex set screws as shown in Fig. 2. If using the adhesive mounting strip, clean the surface before adhering.
2. Adjust the depth screw with the wing nut to set thealarm depth for detecting leaks as shown in Fig. 5.
3. Mount the Box with the transmitter in a visible location within cable length of the Remote Spot Sensor.
4. Terminate the unit as described in the Termination section.

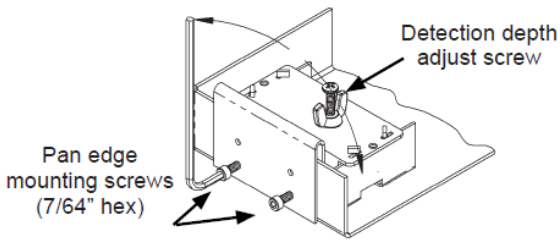


Figure 2: Remote Spot Sensor Pan Rim Mounting

ROPE SENSOR

1. The sensor can be laid on the floor or around pipes as shown in Figs. 6, 7, 8, and 9.
2. Secure the sensor by using cable clamps.
3. Mount the Box with the transmitter in a visible location within cable length of the Rope Sensor.
4. Terminate the unit as described in the Termination section.

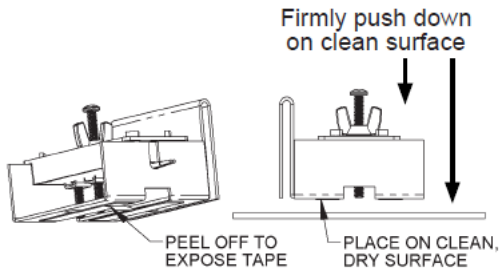


Figure 3: Remote Spot Sensor Tape Mount

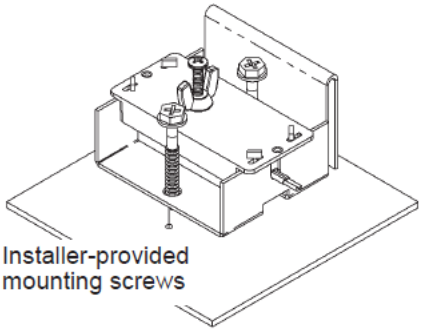


Figure 4: Remote Sensor Floor Mount

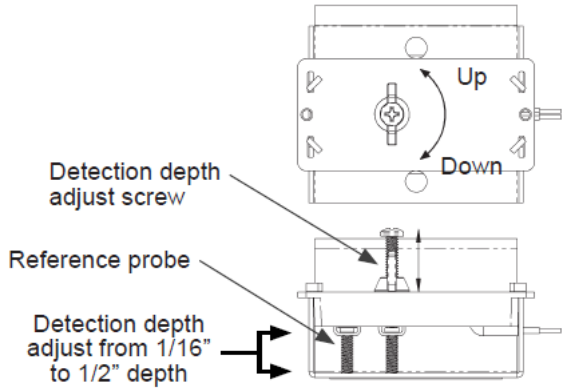


Figure 5: Remote Spot Sensor Depth Adjust

1. Loosen wing nut.
2. Set the required depth of the sensor probe screw using a #2 Phillips screwdriver.
3. Hold the sensor probe screw stationary with the screwdriver.
4. Turn the wing nut down the probe screw until it engages the plastic.
5. Tighten the wing nut 1/4 turn into the plastic.

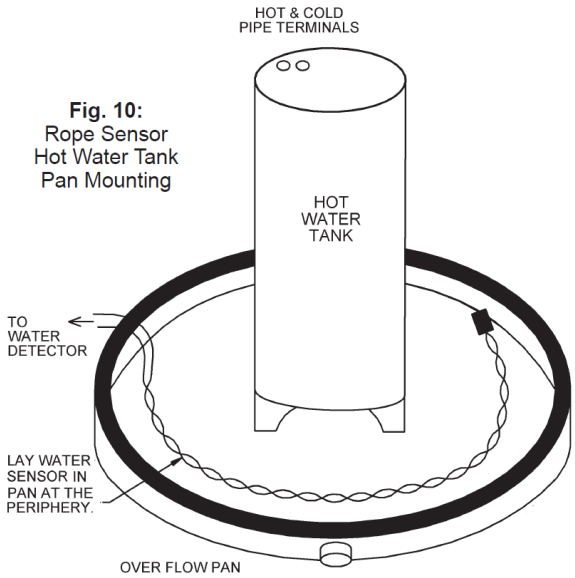


Fig. 10:
Rope Sensor
Hot Water Tank
Pan Mounting

Figure 6: Rope Sensor Hot Water Tank Pan Mounting

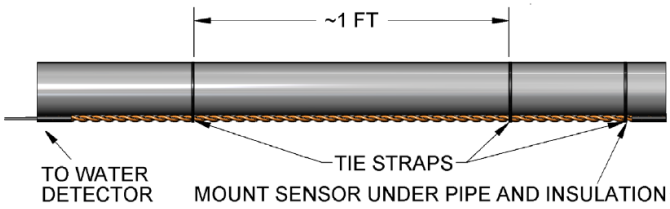


Figure 8: Horizontal Pipe Rope Sensor Mounting

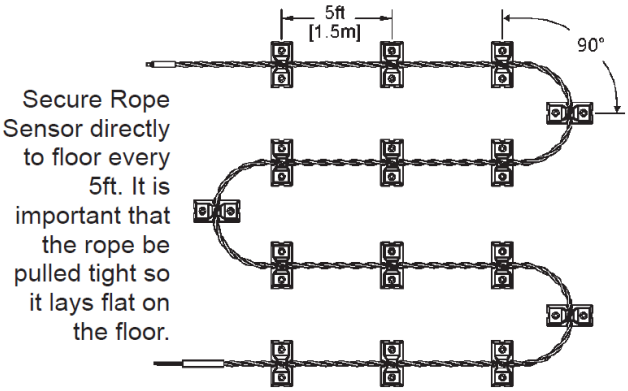


Figure 7: Sub-Floor Rope Sensor Mounting

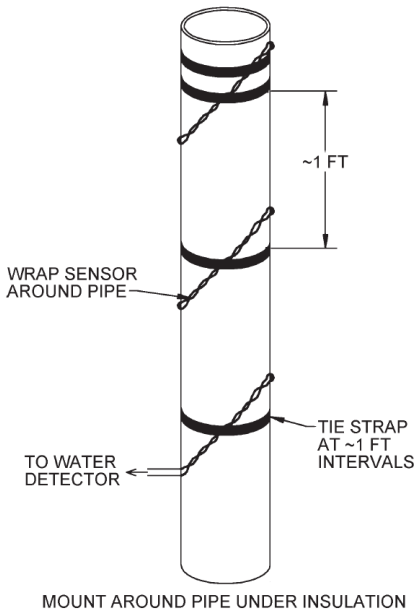


Figure 9: Vertical Pipe Rope Sensor Mounting

Combining Sensors

The following combinations of sensors can be used:

1. Two rope sensors with a combined length of no more than 100ft (30.m).
2. Two spot sensors with a combined length of no more than 75ft (22.8m).
3. One spot sensor with a maximum length of 25ft (7.6m) and one rope sensor of no more than 50ft (15.2m).

Wiring and Termination

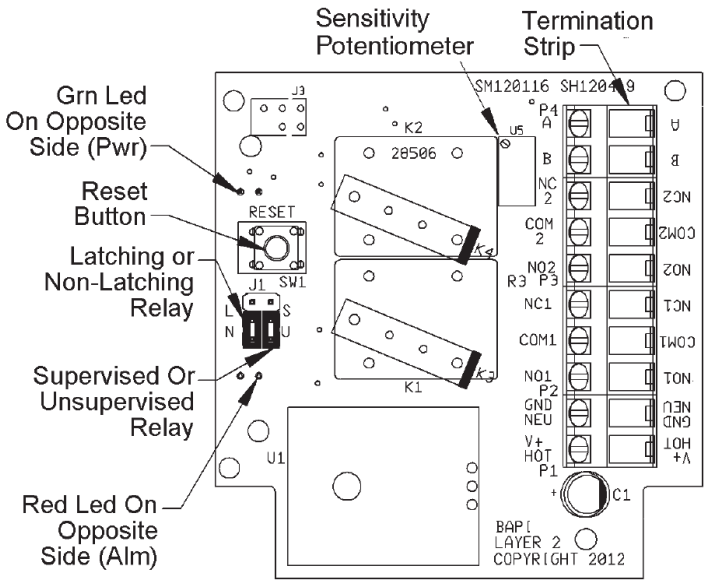


Figure 10: Leak Detector Circuit Board

Terminal **Description**

A..... Water Sensor (No polarity to water sensor cable)

B ..... Water Sensor (No polarity to water sensor cable)

NC2..... Alarm Contact 2, Normally Closed toC2 when De-energized

C2 ..... Alarm Contact 2, Common

NO2 ..... Alarm Contact 2, Normally Open to C2 when De-energized

NC1..... Alarm Contact 1, Normally Closed to C1 when De-energized

C1 ..... Alarm Contact 1, Common

NO1 ..... Alarm Contact 1, Normally Open to C1 when De-energized

GND/NEU Power supply ground/neutral

V+/HOT Power supply input 24VAC +/- 10%

Sensitivity Adjustment for 10’ and 100’ Remote Rope Sensors

The unit’s leak detection sensitivity is set at the factory. However, for the 10’ and 100’ remote rope sensors, the sensitivity may need to be adjusted in the field.

If you are using a 10’ remote rope and it won’t respond, rotate the sensitivity adjustment potentiometer 5 turns counterclockwise.

If you are using a 100’ remote rope and it is too sensitive, then rotate the sensitivity adjustment potentiometer 5 turns clockwise.

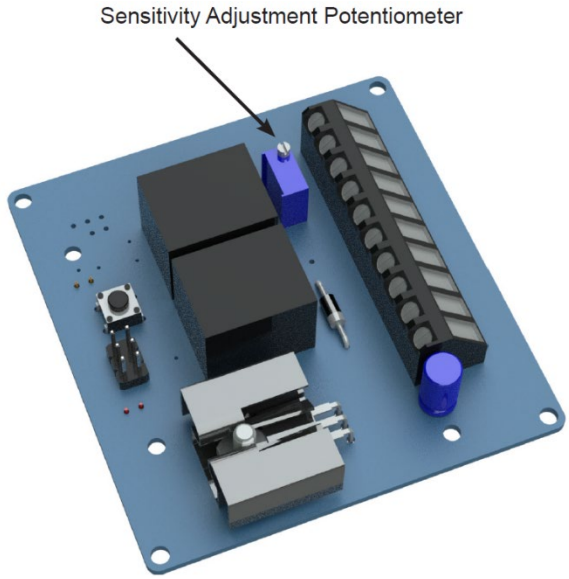


Figure 11: Leak Detector Circuit

Setup and Commissioning

INDICATION/CONTROLS	DESCRIPTION
Red LED	LED illuminates when water is detected
Green LED	LED illuminates when normal power is applied
Reset Button (SW1)	Resets manual alarm contact (only if water is no longer present)

Figure 12: Reset Button

FIELD CONFIGURABLE JUMPER (J1) SET UP

The jumpers on J1 are used to set whether the relays are “Latching” or “Non-Latching”, and whether they are “Supervised” or “Unsupervised”. These setting are described in the Operation Sequence section below.

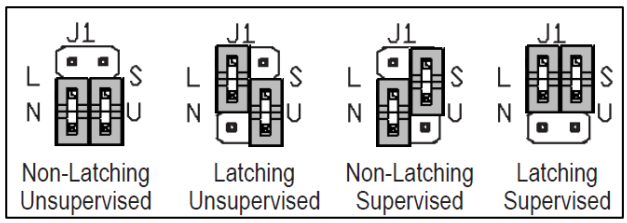


Figure 13: Jumper J1 Settings

OPERATION SEQUENCE

When power is applied, the green LED will illuminate and the unit will start to detect for water at the sensor probe. When there is no detection of water (normal condition), the relays are not in an alarm state and the red LED remains off. For units in the “Unsupervised” relay mode, the relays are de-energized. For units in the “Supervised” relay mode (default), the relays will be energized. (Note: When there is a loss of power, a supervised relay will drop out indicating a water detection alarm.)

Within 5 seconds of water detection, the relays go into an alarm state and the red LED illuminates. For units in the “Unsupervised” relay mode, the relays are energized. For units in the “Supervised” relay mode (default), the relays are de-energized.

If the unit is in “Non-latching” or auto-reset (default) operation, then the alarm state will automatically reset when the water has dried up. If the unit is in “Latching” or manual-reset operation, then the unit will stay in an alarm state until the reset button is pressed or power is cycled. If there is still water detected during a reset button push, the unit will not reset. If there is still water detected after a power interrupt, the unit will initiate another alarm within 5 seconds.

COMMISSIONING

1. After the unit is installed and wired, turn on the power. (24VAC +/- 10%)
2. Check that the green LED is “on”. If it is not “on”, check the power source.
3. Dampen a cloth or sponge and touch both the sensor probe tip and the sensor base. An alarm should occur within 5 seconds.
4. The red LED should illuminate and the relay(s) should de-energize, or energize if set up as unsupervised. (To check relay status, measure the resistance at the relay contacts or monitor the status from the BAS screen.)
5. Remove the dampened rag or sponge to clear the alarm. If the unit is set up for a non-latching relay (J1 jumper across the “N” pins), the red LED and relay(s) will energize, or de-energize if set up as a unsupervised relay. If the unit is set up for a latching relay (J1 jumper across the “L” pins), the operator must push the reset switch on the detector board or interrupt power to clear the alarm.
6. Check the depth screw (see Mounting Section) to be sure it’s at the appropriate water depth for alarm.

Detectable Liquids

The sensors are designed to detect the presence of water and other conductive fluids. Tests have been performed on multiple liquid types to see which are detectable and which are not. Before leaving the installation, always check the sensor with the liquid you are trying to detect as every environment and application may be different.

DETECTABLE: Water, De-ionized water, Distilled Water, Reverse Osmosis (RO) Water

NOT DETECTABLE: Oil, Diesel Fuel, Unleaded Fuel

Maintenance

Check the water sensor probe once a year to be sure there is no dirt or debris collected around the probes. Dirt or debris around the probes may cause nuisance alarms in moist situations. Change the service intervals depending on environmental conditions. In very clean conditions the probe may never need maintenance. Rope sensor may be wiped down with isopropyl alcohol, warm soapy water on a cotton cloth or placed in a dishwasher.

Diagnostics

Possible Problem	Possible Solution
Green LED Not On	Check for proper power to the unit (see power specs).
Red LED Not Working Or Alarm Contact Not Changing State	1. Check for proper power to the unit (see power specs). 2. Physically check for water to verify it's touching both screws on the Attached Sensor or Remote Spot, or touching the Rope Sensor. 3. Adjust sensor probe depth on the Attached Sensor or Remote Spot if necessary. 4. For Rope Sensor units, check the sensitivity adjustment.
Unit Will Not Reset	1. Check for the presence of water or debris on the sensor. 2. Be sure the sensor wires are not shorted. 3. Push the reset button and/or cycle power. 4. For rope sensor units, check the sensitivity adjustment.

Appendix – Symbols Key

Warning	Potential for death, serious injury, or permanent damage to a system.
Caution	Potential for injury, damage to a system, or system failure.
Tip	Useful information not related to injury or system damage.

Legal Statement

This unit is not intended to be a safety device. In no event shall Automated Logic® or its officers, directors, employees or agents be liable to any company or individual for any indirect, incidental, special, exemplary, punitive or consequential damages including, without limitation, economic or commercial losses, arising out of or resulting from the misuse of this water detector as a safety device.