

Overview & Identification

The Water Leak Detector is designed to sense the presence of water and alert a central monitoring system of the potentially destructive situation. Upon water detection, an alarm relay changes state, and a local red LED illuminates. The transmitter can be set for latching alarm or non-latching alarm with normally energized or de-energized operation. An optional remote water sensor is available for small inaccessible locations such as AHU pans or under floor water detection.

Fig. 1:
Water Leak
Detector
with Internal
Sensor Probe

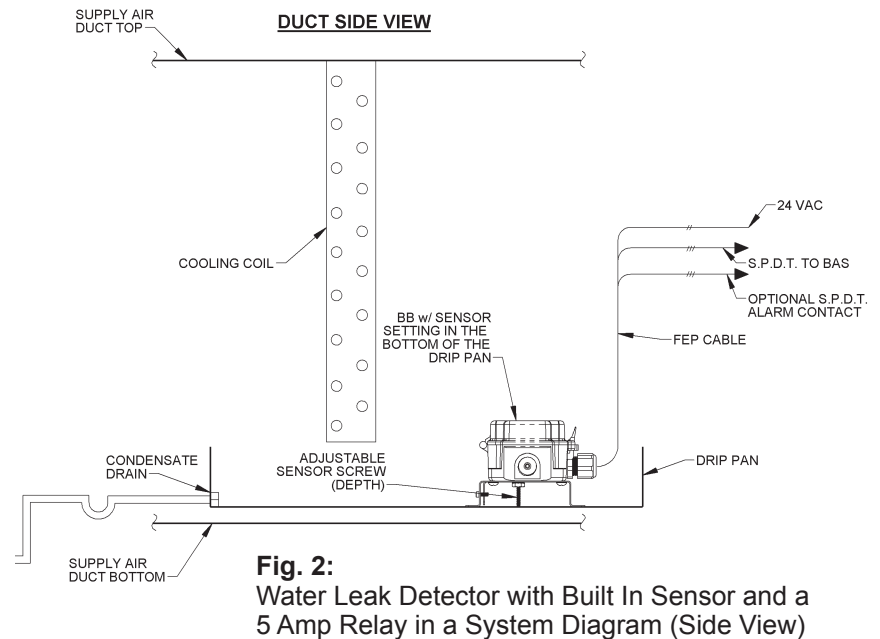
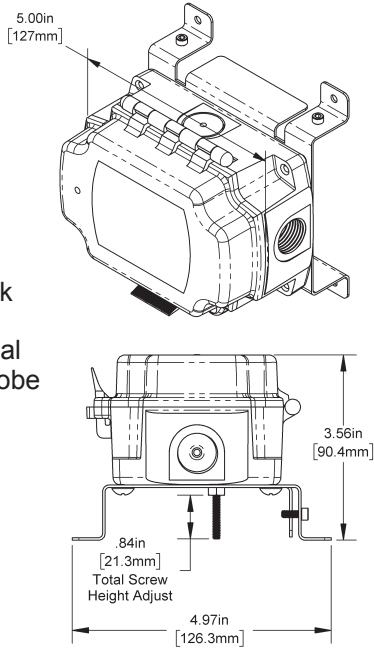


Fig. 2:
Water Leak Detector with Built In Sensor and a
5 Amp Relay in a System Diagram (Side View)

Fig. 3:
Water Leak Detector
with Remote Spot
Sensor (right) and Water
Rope Sensor (below)

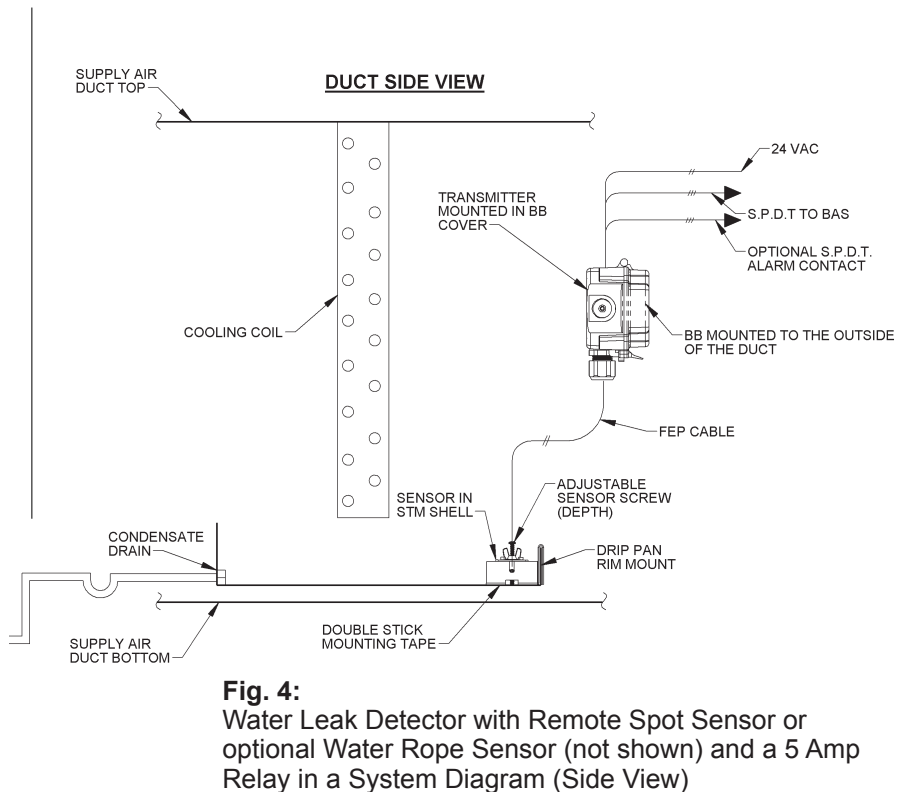
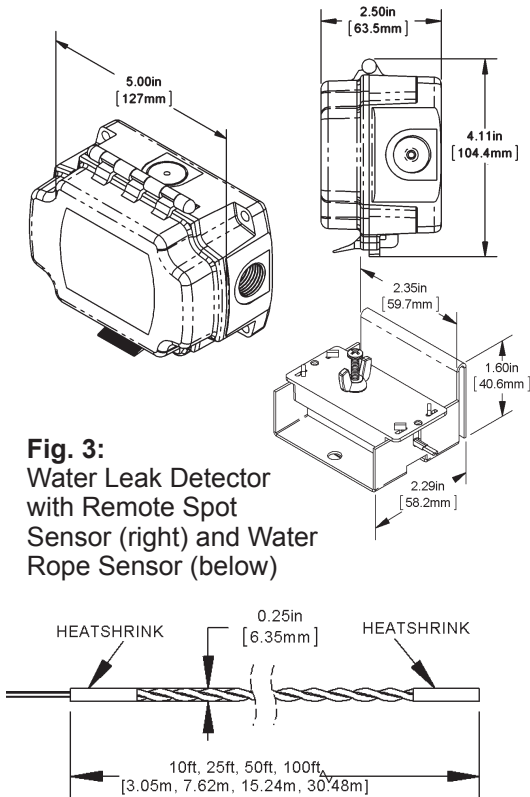


Fig. 4:
Water Leak Detector with Remote Spot Sensor or
optional Water Rope Sensor (not shown) and a 5 Amp
Relay in a System Diagram (Side View)

Specifications subject to change without notice.

Mounting

Place the transmitter in a location where a water leak is likely to cause damage such as a cooling coil pan, a hot water tank pan, under a sink, under an elevated floor, or in a drop ceiling under pipes. The transmitter can be independently mounted in a visible location by using a remote water sensor and waterproof cable as shown in Fig. 4. Terminate the transmitter as shown in the termination section.

- Set the transmitter where water is most likely to be a problem or in the collection pan under the water coil or heater (Fig. 5).
 - Alternatively a water sensor or remote water sensor can be attached to the pan edge with two set screws (Fig. 6). Do not over tighten or puncture the pan.
 - Alternatively a remote water sensor can be attached to the pan or floor with mounting tape (Fig. 7). Clean surface thoroughly before setting the sensor in place and push sensor down firmly. Mount the detector enclosure in a visible location within cable length of the remote water sensor.
 - Alternatively a remote water sensor can be attached to the floor with screws (Fig. 8). Mount the detector enclosure in a more visible location within cable length of the remote water sensor.
 - Alternatively the rope water sensor can be laid on the floor or under pipes as shown in Figs. 10, 11, 12 & 13. Cable clamps can be used to secure the sensor to the floor.
- Adjust the depth screw on the sensor probe in the middle of the open enclosure to the alarm depth (Fig. 5). If using a remote water sensor, adjust the depth screw as shown in Fig. 9. The rope sensor detects water 1/8" off the floor and has no adjustment.
- Run the cable to the transmitter location leaving enough slack to terminate and allow for some repositioning as needed. Use a strain relief on the entering cable so the wires do not tug on the terminals directly.
- Terminate and configure in accordance with the termination section.

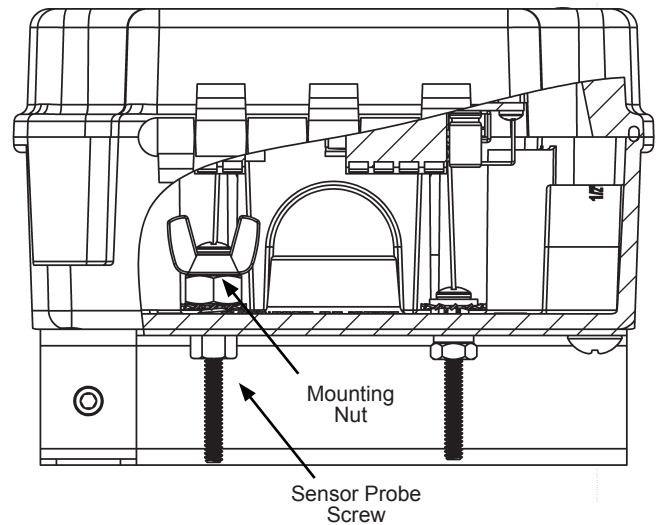


Fig. 5: Leak Detector with Sensor in a BAPI-Box

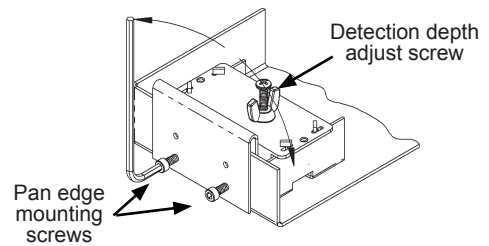


Fig. 6: Water Sensor Pan Rim Mounting

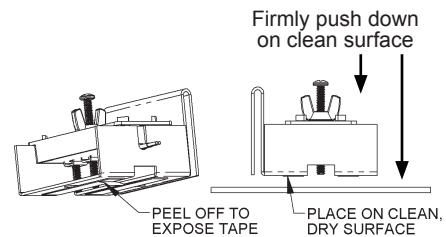


Fig. 7: Remote Water Sensor Tape Mount

Fig. 8: Remote Water Sensor Floor Mount

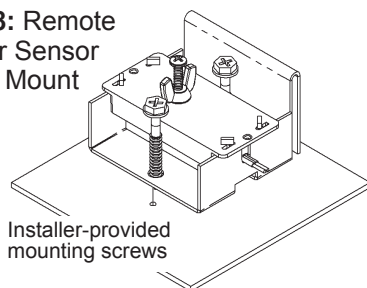
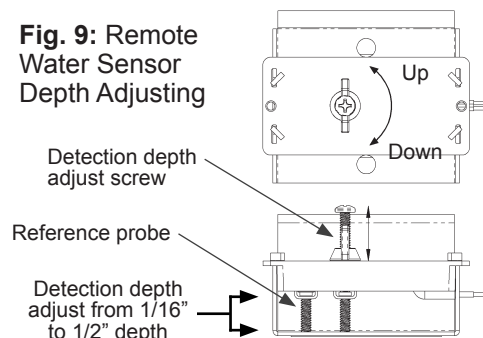


Fig. 9: Remote Water Sensor Depth Adjusting



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

Mounting continued...

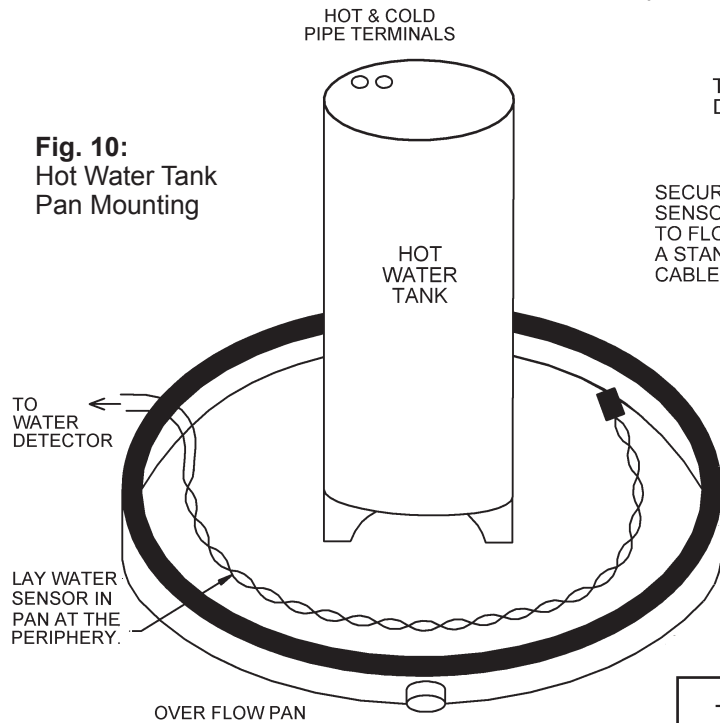


Fig. 10:
Hot Water Tank
Pan Mounting

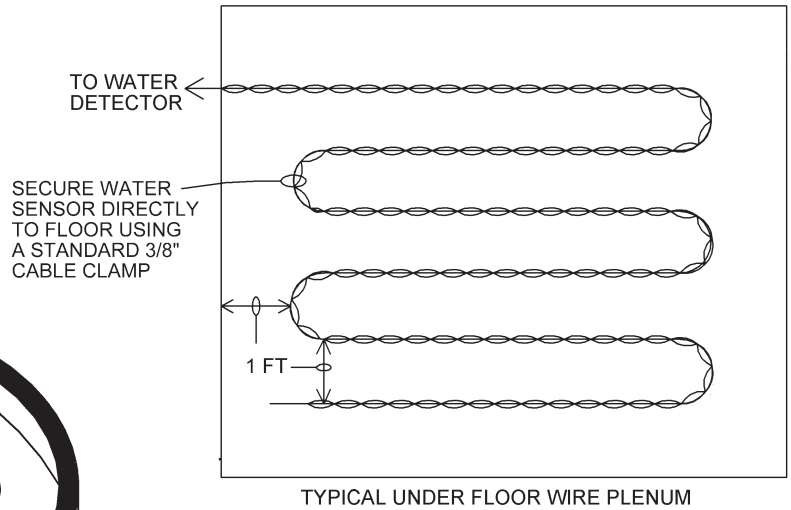


Fig. 11: Sub-Floor Sensor Mounting

The following combinations of sensors can be used:

1. Two rope sensors with a combined length of no more than 100'.
2. Two spot sensors with a combined length of no more than 75'.
3. One spot sensor with a maximum length of 25' and one rope sensor of no more than 50'.

Note: *Shielded or twisted pair wire cannot be used to extend the sensor wires. This applies to both the remote spot sensor as well as the rope sensor.*

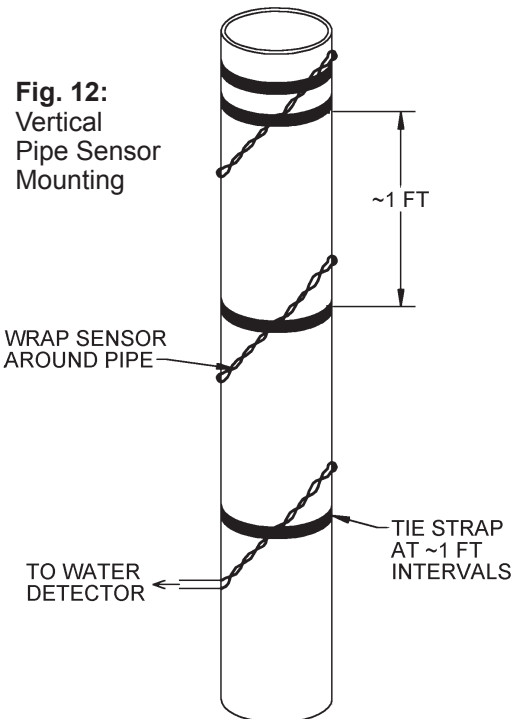


Fig. 12:
Vertical
Pipe Sensor
Mounting

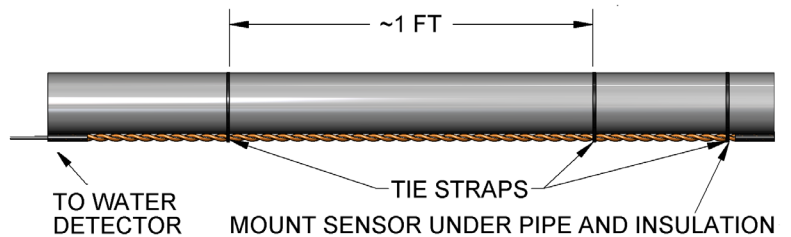


Fig. 13: Horizontal Pipe Sensor Mounting

MOUNT AROUND PIPE UNDER INSULATION

Wiring and Termination

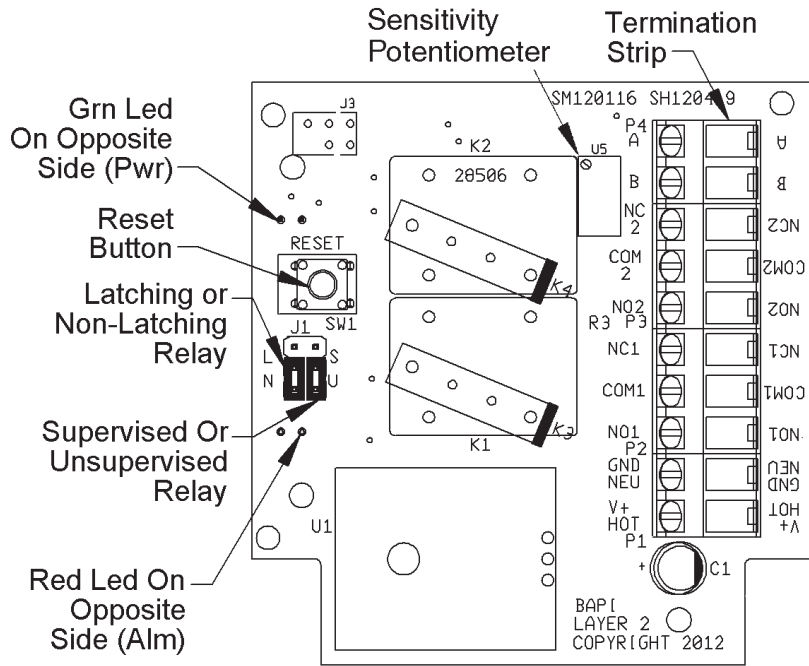


Fig. 14: Leak Detector Circuit Board

Terminal Description

- AWater Sensor (No polarity to water sensor cable)
- BWater Sensor (No polarity to water sensor cable)
- NC2*Alarm Contact 2, Normally Closed to C2 when De-energized
- C2Alarm Contact 2, Common
- NO2Alarm Contact 2, Normally Open to C2 when De-energized
- NC1*Alarm Contact 1, Normally Closed to C1 when De-energized
- C1Alarm Contact 1, Common
- NO1Alarm Contact 1, Normally Open to C1 when De-energized
- GND/NEU Power supply ground/neutral
- V+/HOT ...Power supply input 24VAC +/- 10%

*Not used for low current relay version, SPST, Form A

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.

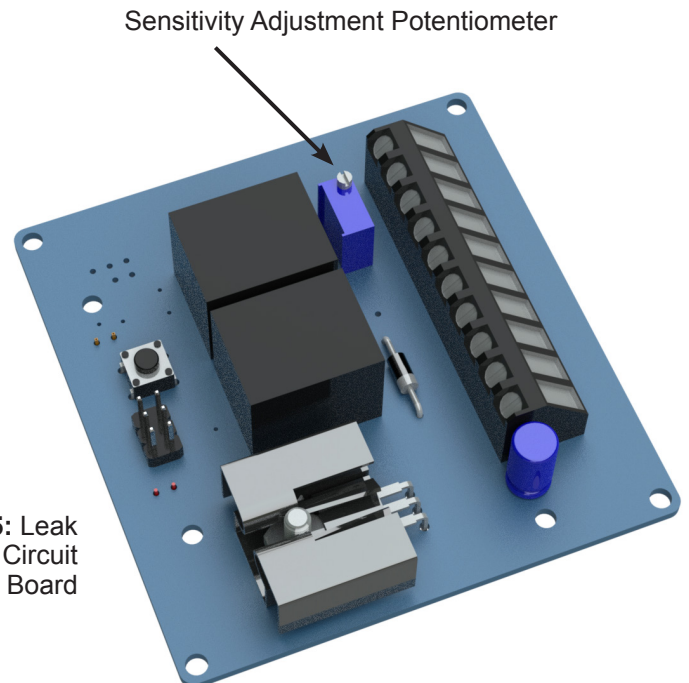


Fig. 15: Leak Detector Circuit Board



Set Up and Commissioning

Indication/Controls **Description**

- Red LEDLED illuminates when water is detected
- Green LEDLED illuminates when normal power is applied
- Reset ButtonResets latching alarm contact (only if water is no longer present)
- Latching Relay.....Left side of J1 set to top two pins listed as “L”
- Non-Latching Relay.....Left side of J1 set to bottom two pins listed as “N” (Default)
- Supervised Relay***Right side of J1 set to top two pins listed as “S” (Default)
- Unsupervised RelayRight side of J1 set to bottom two pins listed as “U”

*** Supervised means the relay is energized when not in alarm and the relay de-energizes on a power failure or alarm.

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 supervised 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.

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 set up in the “unsupervised” relay mode, the relays are de-energized. For units set up 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 set up in the “unsupervised” relay mode, the relays are energized. For units set up 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.

Diagnostics

Possible Problem

Possible Solution

- | | |
|---|---|
| Green LED Not On | 1. Check for proper power to the unit (see power specs on back page). |
| Red LED Not Working
Or Relay Not Energizing. | 1. Check for proper power to the unit (see power specs on back page).
2. Check if water is touching the sensor probe and reference probe.
3. Adjust sensor probe depth.
4. For rope sensor units, check the sensitivity adjustment as described on page 4. |
| Unit Will Not Reset | 1. Check for the presence of water or debris touching the two sensor probes.
2. Be sure the sensor wires are not shorted.
3. If the L pins on J1 are shorted, push the reset button or cycle power.
4. For rope sensor units, check the sensitivity adjustment as described on page 4. |

Specifications subject to change without notice.



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.

Cautions/Warnings

This unit is not intended to be a safety device. In no event shall BAPI 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.

Specifications

Power: 24VAC +/- 10%
 5 Amp Relays: 4 Watt/ 4 VA max
 0.5 Amp Relays: 2 Watt/ 2 VA max
 (not intended to switch a load)

Wiring: Flex Connector or Liquid Tight Fitting
 Relays Up to 6 wires
 Transmitter 2 wires for Power

Mounting: Lays in the pan or attached with a pan edge hook with screws

Sensor:
 Standard Single SS probe from bottom of BB with adjustable depth screw from .063" to .84"
 Optional Remote water sensor with depth screw with adjustable depth from 1/16" to 1/2"
 Optional Remote long line water sensor (Rope) Detects water over the full length at depths >0.125". Note: 100 ft maximum including non-sensing extension cable.

Detector Transmitter:
 Alarm Contacts LDT1: One SPST, 0.5A relay output, 10W max
 LDT2: Two SPST, 0.5A relay outputs, 10W max
 LDT3: One SPDT, 5A relay output
 LDT4: Two SPDT, 5A relay outputs
 SPST or SPDT, 30 VAC/DC max
 Selectable as normally Energized or De-energized

Indication 1 Green Power LED, 1 Red Alarm LED
 Reset Action If latching, local push button or power interrupt
 Sensor Reaction Responds to presence of water within 5 seconds

Termination: Terminal strip, 4-10 terminals, 12-24AWG
Agency: RoHS, UL94V-0, UV-rated in Enclosure

Set Up:
 BB Sensor Adjustable depth from .063" to .84" (≈1/16th" default)
 Remote Sensor Adjustment depth from 1/16" to 1/2" (≈1/16th" default)
 Latching Jumper Latching Version - Stays energized after water has dried up
 Non-Latching Version (default) - Alarm follows wet or dry surface
 Supervision Jumper Supervised Version (default) - De-energized when in alarm.
Note: Relay will drop out on loss of power indicating a water detection alarm.
 Unsupervised Version - Energized when in alarm.

Enclosure Ratings:
 Remote Sensor Submersible, w/FEP plenum-rated, waterproof cable
 Rope Sensor Plenum rated
 Transmitter BAPI-Box, NEMA 4

Ambient:
 Remote Sensor -40 to 185°F (-40 to 85°C), 0 to 100%RH, Condensing
 Transmitter (BB) -40 to 185°F (-40 to 85°C), 0 to 95%RH, Non-condensing
 Rope Sensor 32 to 167°F (0 to 75°C), 0 to 95%RH, Non-condensing

Enclosure Materials:
 Remote Sensor Aluminum bracket w/ABS plastic shell
 Transmitter (BB) Polycarbonate

Note: This unit is not intended to be a safety device.