

# GEIST™ LEAK DETECTION KIT



## Quick Installation Guide

### Part Number:

WSCK

### Description

Water-sensing cable kits feature detection cables that recognize the presence of water along the entire cable length.

### Kit includes:

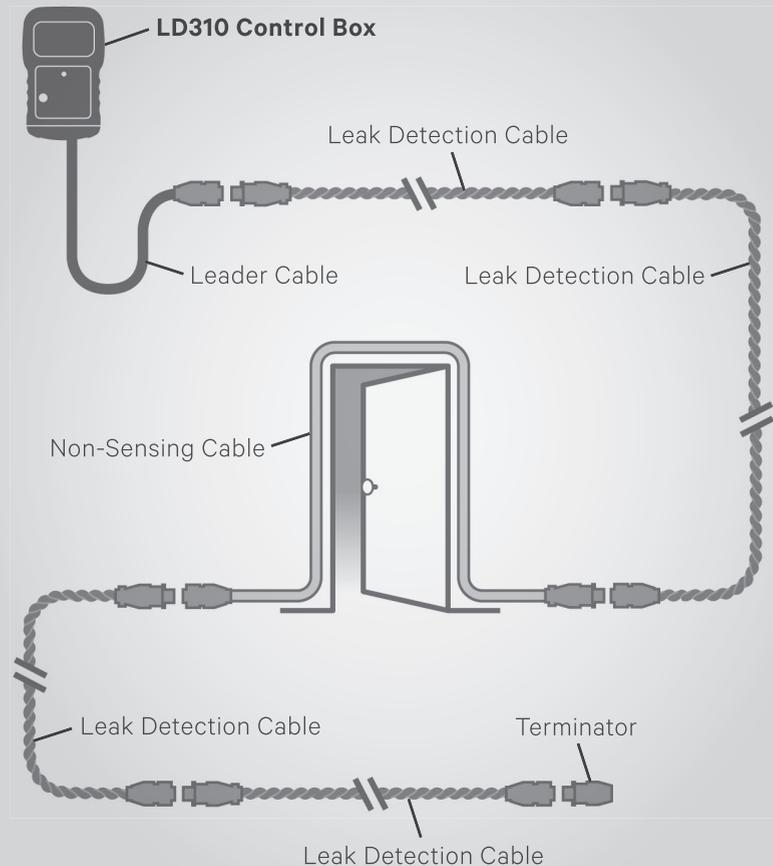
- LD310 control box
- +5 V power supply
- 15 ft (3 m) leader cable
- 50 ft (16.7 m) 4-conductor alarm wire
- Orange Leak Detection Cable(s)
- Accessory hardware - Hex key, wall mounting hardware and self-adhesive J-clips
- Terminator plug  
(**NOTE:** Some kits contain a permanently terminated, orange Leak Detection Cable and do not require a separate terminator plug)

### Mounting the LD310 Control Box

Determine the location where the control box is to be mounted. Take into consideration power accessibility and the wire route to your environmental monitoring unit. With the provided hex key, loosen the two set screws on the bottom end of the control box and remove the cover. Then locate the two mounting screw holes on the base. Hold the bottom of the control box in place and mark the holes. After drilling the mounting holes, fasten the control box in place with the appropriate hardware.

Before replacing the cover, attach the Leader Cable, 4-conductor alarm wires and 5 V power supply into the terminal block near the bottom of the control box circuit board. You may also want to

Geist™ LD310 Cable Configuration



activate the audible alarm before replacing the LD310's cover. When you are ready to replace the cover, assemble it to the base and use the hex key to tighten the screws to secure it.

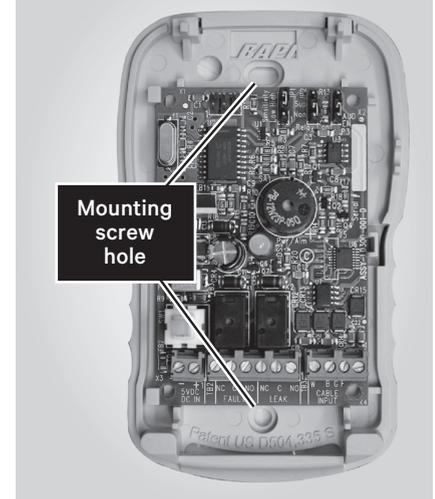
See the Geist LD310 Control Box Wiring Diagram on the following page for details.

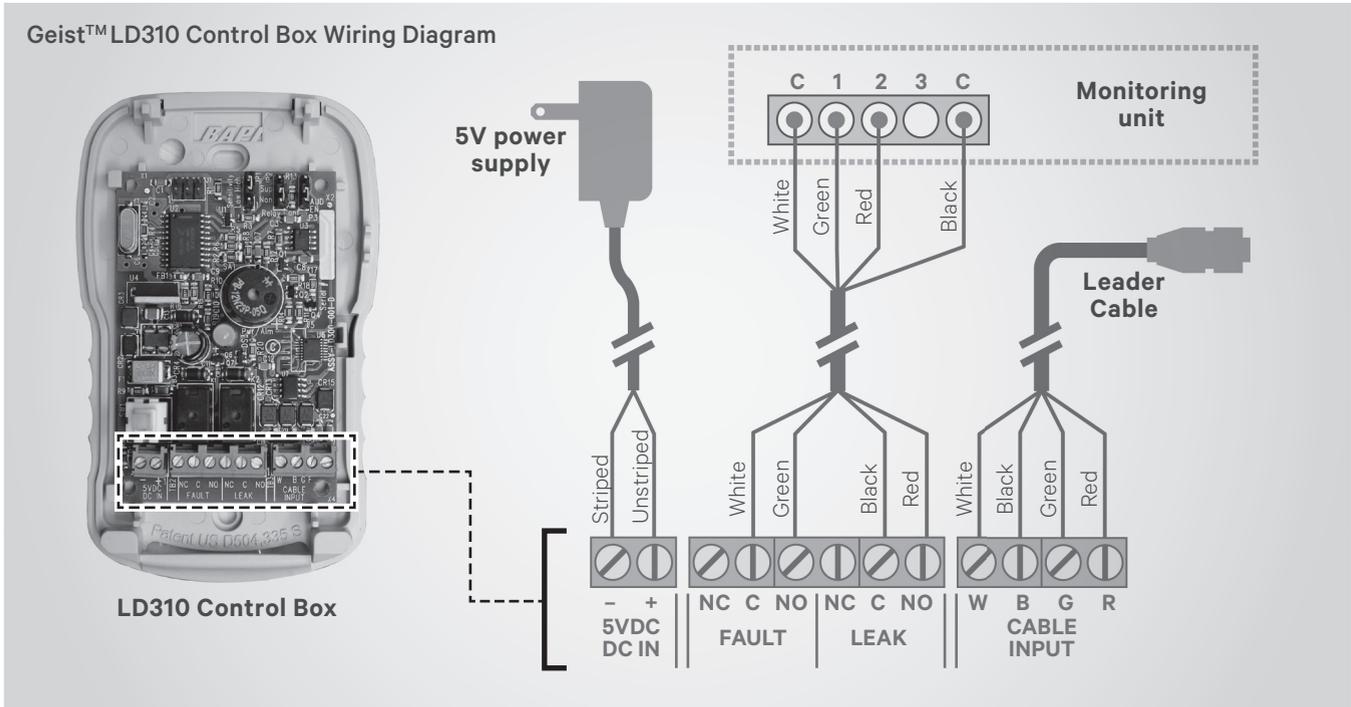
### Connecting the Leader Cable

The Leader Cable is a 15-ft (4.57 m) white cable with a twist-lock connector on one end and four bare, stripped and tinned wires on the other end.

To connect the Leader Cable, make sure the four colored wires

LD310 Mounting Hole Locations





are stripped so that approximately ¼ inch (7 mm) of bare wire is showing. Then insert the wires into the appropriate terminals of the CABLE INPUT terminal block and tighten the screws to lock the wires into place.

### Connecting the relays to a monitoring unit

Using the 4-conductor alarm wire supplied with the kit (or any suitable 4-conductor wire), with the relay mode jumper in “supervised” mode, connect the signals between the LD310 Control Box and the monitoring unit’s analog-input terminal block.

Note that the use of inputs #1 and #2 here is merely an example. Any of the numbered analog inputs can be used. That is, as long as the red and green wires are connected to different inputs, and those inputs don’t already have other sensors connected to them. You cannot, however, connect both the red and green wires to a single analog input. The “fault” and “leak” signals must be connected to separate inputs for the unit to work properly.

### Connecting the 5 V power supply

The LD310 Control Box is powered by a standard 5 VDC wall transformer-style power supply. Make sure both wires are stripped so that approximately ¼ inch (7 mm) of bare wire is showing and then insert the wires into the appropriate terminals of the 5 VDC DC IN terminal block and tighten the screws to lock the wires in place.

### Connecting the Leak-Detection Cable(s)

Your leak-detection kit includes one or more lengths of orange Leak-Detection Cable. The cables are designed to be daisy-chained together, so each cable has a 4-pin, male, twist-lock plug on one end, and a 4-pin, female, twist-lock socket on the other end.

The first length of Leak Detection Cable connects to the Leader Cable from the LD310 Control Box, and additional lengths (if any) are chained together as necessary.

Some kits are supplied with a cable that is permanently terminated on one end. If your kit is one of these,

the terminated cable must be the last cable in the chain.

If your kit does not include a pre-terminated cable, the Terminator Plug must be attached to the last cable in the chain.

### “Non-Sensing Cable” (optional)

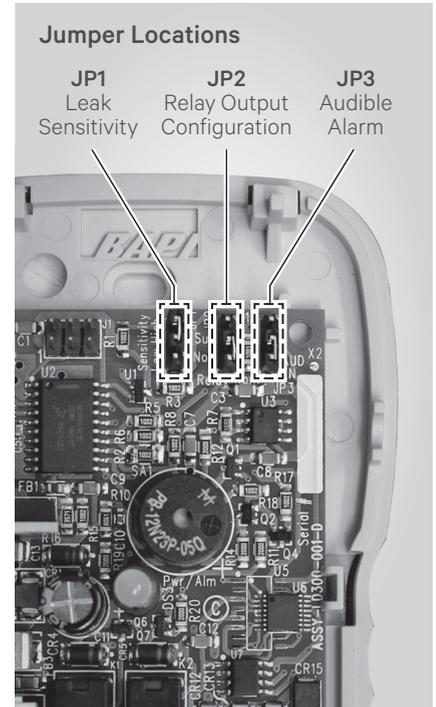
The Non-Sensing Cable, available as an optional accessory, is an economical way to route around or over non-monitored spaces, such as doorways. It also provides greater flexibility in where to mount the control box without wasting Leak Detection Cables across areas where there is no need to actually sense liquids.

**NOTE:** *The Non-Sensing Cable can be connected anywhere within the chain.*

### Program Jumpers

The LD310 has three sets of 3-pin jumpers. JP1 is used to configure the sensitivity of the leak setting. JP2 configures the relay outputs. JP3 configures the audible alarm. If you change the jumpers, you must cycle power to the LD310 in

JUMPER SETTINGS	
JP1 - SET THE LEAK SENSITIVITY	
Jumper spans top two pins	High sensitivity - most sensitive - system alarms with .5-inch (13 mm) wetted cable.
Jumper is not installed	Medium sensitivity - system alarms with 2-inch (51 mm) wetted cable.
Jumper spans bottom two pins	Low sensitivity - least sensitive - system alarms with 6-inch (152 mm) wetted cable.
JP2 - CONFIGURE THE RELAY OUTPUTS	
Jumper spans top two pins	Relays are supervised; relays remain ON until either power is disabled or an alarm is detected, at which time the relays turn OFF.
Jumper spans bottom two pins	Relays are non-supervised; relays remain OFF until an alarm is detected, at which time the relays turn ON.
JP3 - CONFIGURE THE AUDIBLE ALARM	
Jumper is not installed	Audible alarm is disabled. This is the LD310's default setting.
Jumper spans bottom two pins	Audible alarm is enabled.



order for it to recognize the change.

See the table above for jumper configuration settings.

### LED

The LD310 has one LED, which is used to report a variety of conditions.

- Power On / Normal - The LED is on and displays a solid green color during normal operation with no alarm present.
- Cable Break - The LED flashes orange while the audible alarm sounds. Once the alarm silence button is pushed, the LED will continue to flash orange slowly until the cable break is resolved.
- Leak - The LED flashes red while the audible alarm sounds. Once the alarm silence button is pushed, the LED will continue to display a solid red color until the leak is resolved and the cable is dry.

### Audible Alarm and Silence/ Test/Reset Button

By default, the audible alarm on the LD310 is disabled. To activate the

audible alarm, first loosen the screws on the bottom of the enclosure and remove the unit's cover. Remove the warning sticker from the top of the audible alarm, move the jumper on J3 to cover the bottom two pins and cycle power to the unit. Replace the LD310's cover and tighten the screws to secure it.

The LD310 has one push-button switch, which is used to silence the audible alarm and to test and reset the system.

The audible alarm sounds when a cable break or leak is detected. When the audible alarm is activated, push the button once to silence the alarm.

Test mode allows the LD310 to test its internal components. To initiate test mode, push and hold the button for approximately five seconds. When the LED flashes red and green, the audible alarm sounds and the relays activate (change state), the test is complete and you can release the button.

After the test cycle, the entire unit resets and the LED returns to

green. If there was a leak or cable break present before you ran the test and that leak or break is still present, the unit will alarm for this condition again after a few seconds.

### Test the System

Once the LD310 is set up, you should test the system. If the LD310 is connected to a BMS or NMS, notify monitoring personnel before you test.

To verify the LD310's functionality, test three points within the length of the 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 the simulated leak sources and 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 LD310. Once the cable break alarm is verified, reapply the EOL and ensure the system returns to its normal operating state.

## CONFIGURING THE SYSTEM'S SETTINGS

The first step is to re-name the analog inputs to something more descriptive, to help identify the “cable fault” and “leak” signals when looking at the unit’s logged data or e-mailed alert messages. These names can be changed from the Sensor tab of the monitoring unit’s application.

If you connected the signals according to the Control Box Wiring Diagram on page 2, Analog 1 will be the “Cable Fault” signal, and Analog 2 will be the “Leak Detection” signal.

## CLEANING THE LEAK DETECTION CABLES

If the orange Leak Detection Cables become contaminated by oils, solvents or conductive residues, it may continue to give a “wet” signal, even though the cable and surrounding area appears dry. If this happens, the cable can be cleaned as follows:

### Clean the cable with isopropyl alcohol

Cleaning the cable with alcohol allows you to clean the sensing cable without completely disconnecting and removing it from its installed location. Instead, you’ll remove each section of cable you wish to clean from its J-clips, wipe it down, and reinstall the cable.

This method will clean most contaminants from the cable, and is generally sufficient in most cases.

1. Obtain a dye-free heavy cloth rag and a bottle of isopropyl alcohol.
2. Remove the first section of cable to be cleaned from its J-clips.
3. Soak the rag with alcohol.
4. Wrap the rag around the cable and squeeze firmly while pulling the rag down the length of the cable.
5. Flip the rag over every several feet. Re-saturate the rag with alcohol as required.
6. Once you’ve reached the end of the first section of cable, place it back in the J-clips and proceed to the next section.
7. Replace the rag if it becomes too dirty.

### Clean the cable with warm, soapy water

If the cable still gives a false “wet” signal, even after you’ve cleaned it with isopropyl alcohol as above, or if the cable appears so dirty that it requires a more intense scrubbing, the cables may be cleaned with warm, soapy water instead. This process requires you to completely

remove the cable from its installed location, submerge it in a soap-and-water solution, scrub it with a brush, and hang it to dry for several hours, so it is highly recommended to try the alcohol-cleaning method first.

1. Remove the sensing cable from its installed location. Labeling the sections of cable to note their location for later re-installation is highly recommended.
2. Add dish soap (such as Dawn™) to a bucket of warm water, using about 1 cup (250 ml) of detergent per gallon (4 L) of water.
3. Submerge a section of the cable in the water and, using a scrub brush or rag, scrub along the surface of the cable with firm pressure. Be sure to scrub all sides of the cable.
4. Remove the section of the cable from the soapy solution and rinse it in a bucket of clean, fresh water.
5. Ensure there are no oily deposits along the length of the cable. If the cable does not appear clean, repeat steps 3 and 4.
6. Hang up the cable to dry. Try to point the connectors down, so water cannot pool inside the connectors. The drying process may take 6 - 48 hours, depending on the room conditions.
7. Once the cable is completely dry, reinstall it in its original location.

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