

# WaterSnake Cable Water Sensor

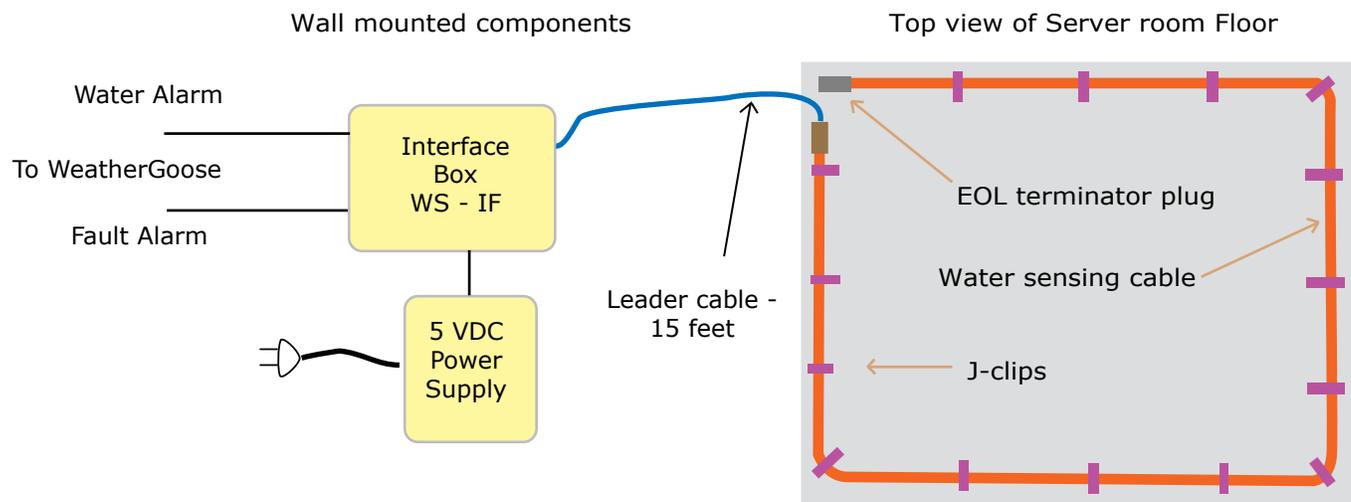
*Water lurks in walls, ceilings floors, and air conditioning evaporator trays - it can kill your gear fast. Protect a room or a data cabinet with this water-sensitive cable*

## Detect Moisture Over a Wide Area

This cable detects water presence (or any conducting fluid) over its entire length. Typically used to protect computer server rooms from water damage, the WaterSnake attaches to a WeatherGoose or a SuperGoose Climate monitor using only four wires. When water is detected, the climate monitors will send e-mails or page personnel.



*This cable length water sensor can surround the periphery of a room or encircle rows of data cabinet. If the cable becomes wet, an alarm is sent via the WeatherGoose or Supergoose Climate Monitors.*



*The WaterSnake's four components: the sensing cable, a leader cable, the interface box and a small power supply. The interface box and power supply are usually wall mounted. The sensing cable secures to the floor with plastic J-clips.*

## Durable Water Sensing Cable

The thermally-bonded, polymer-coated carrier increases strength and durability and virtually eliminates false alarms which are common with other cables of this type.

The construction yields a strong, durable and abrasion resistant cable with easy installation and expansion with factory-attached mating end connectors.

The cable is highly flexible and lies flat after installation. It resists bends and kinks which makes installation quick and easy. The cable is plenum rated and UL listed.

## Separate Alarms: Water and Fault Detect

The interface box constantly monitors the sensing cable's status for water presence and cable faults. If the cable becomes cut or disconnected, an alarm condition is sent to the WeatherGoose on a pair of wires (see wiring diagram).

If a wet condition is detected, a separate signal is sent to the WeatherGoose. Each signal is alarmed separately.

The cable can be used with a WeatherGoose, SuperGoose or a MiniGoose. The MiniGoose requires two CCAT interface modules. The other Gooses do not require any special interface.

The Weather and SuperGoose have three general purpose I/O inputs which are used for a variety of sensors, such as door position magnetic switches, which are referred to as "C123C" ports. The WaterSnake uses two of the three ports: one for water alarm and the other for fault alarm. The remaining port can be used for other sensing tasks.

## Simple Installation

The sensing cable (orange wire) attaches to the floor using small nylon J-clips. The sensing cable is then attached to a cigarette-pack size wall mounted interface box which

converts the cables's signal into voltage levels suitable for the WeatherGoose' I/O inputs. A small wall transformer supplies power.

### Variety of Sensing Cable Lengths

The water-sensing cable can be ordered in a variety of lengths. Note that the sensing cable must have the EOL (End of Line) cable terminator at the end of the run. The intermediate cables do not require the EOL connector. Up to 100 feet of sensing cable can be used.

If the cable needs to cross areas where water sensing is not needed, a non-sensing intermediary cable can be used. Both types of cables ship with pre-installed connectors.

Installation of the cable should be on non-conducting surfaces such as vinyl tile or concrete.

### Sensing Cable Technical Specifications

Plenum Rating: CL2P/CMP C(UL)

Shear Strength: >180 lbs. (>81.65kg)

Cut Through Resistance: >40 lbs. (>18.14kg) with .005" (0.127mm) blade

Abrasion Resistance: 60 cycles per UL 719

Connector: 4 pin, 0.96" (24.38mm) diameter

Operating Environment

Temperature: 32° to 167°F (0° to 75°C)

Humidity: 5% to 95% RH, non-condensing

Altitude: 10,000' (3,048m) max.

Storage: -22° to 185°F (-30° to 85°C)

### Dimensions

SC-10 10' (3.05m)

SC-25 25' (7.62m)

SC-50 50' (15.24m)

SC-100 100' (30.48m)

Diameter of cable: not more than 0.25" (6.35mm).

Custom lengths (available upon request)

Weight .02 lbs/ft (29.74g/m)

Certifications UL STD E162948

### Installation & Setup

No special tools are required. Only a screwdriver and wire cutter are required for installation.

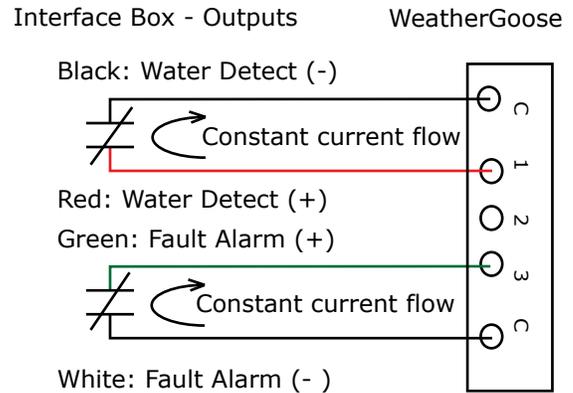
Controls inside Interface Box

1. High/Low Switch: (JP1)

To set the sensitivity, move the jumper to the desired sensitivity position. Low means that a leak will be reported when a large amount of water is present. High means that a leak will be reported when a small amount of water is present.

2. SUP/NON (Supervised or Non Supervised Relay Configuration) selector jumper (JP2)

### Failsafe Alarm Mode



*When the WaterSnake is configured in the Supervisory Mode, as shown above, the relays are in a constant closed state. If the power should fail or the cable become disconnected, an alarm will be sent.*

### Wall-Mounted Interface Box



*The cigarette pack size box mounts on the wall and connects to the sensing cable and the WeatherGoose. An "on" green light indicates no faults. If the light is flashing, either water or a cable fault has been detected. The wires are attached using screw terminals.*

This jumper configures the output relay(s) as supervised or non-supervised.

If the relays are supervised, the relays will remain "On (Closed)" until either power goes away or an alarm is detected (Relay will turn "Off").

If the relays are non-supervised (normal state is "Off (Open)"), then when an alarm is detected the relays will activate ("On Closed").

Indicator Light: steady green means normal operation, no faults detected. Flashing green means water detected or cable fault detected. No green light indicates no power to unit.

**Wiring Connection:**

1. Connect the Water Leak Detection Cable to control panel's leader cable.
2. Prior to J-clip attachment, prepare the floor surface - clean with denatured alcohol.
3. Unroll the wire; do not allow kinks to develop in the wire. Lay the cable per installation drawings. Mark the drawings with any variances.
4. Place J-clips every 3' to 4'(0.9m to 1.2m) plus one at each turn in the cable.
5. Avoid placing the cable directly under or in front of an air-conditioning unit. If you must place the cable in front of a down-flow air conditioner, the cable should be placed at least 6' away. Use one J-clip every 12" - 18" (0.3m -0.45m) to keep the cable firmly affixed to the floor.



The EOL connector must be connected at the end of the sensing cable.



J-clips secure the cable to the floor. Use denatured alcohol to remove any grease on the floor before applying the clips. Place J-clips every 3 or 4 feet, and on each corner.

**WaterSnake Components**

Item	Purpose	Part No.	Quan. Req.
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**Required Components:** everything needed *except* water detection cable and J-clips

1. Interface Box	Interfaces detection cable to Weather Goose	WS-IF	5" x 1" x 6"	One
2. Leader Cable	Connects sensing cable to Interface Box	WS-LC-15	15'	One
3. Power Supply	5VDC, included with WS-IF Unit	WA-DC-5	6' cord	One
4. Four pair cable	Connects WS-IF to WeatherGoose	NSC-B-50	50' cord	One

**Sensing Cable and J-Clips**

Leak Detection Cable (w/ EOL (End of Line) terminator installed) Note: one cable must have an EOL terminator		SC-10-EOL	10'	One of either type
		SC-14-EOL	40'	
Leak Detection Cable (extenders, with no EOL terminators) As required up to 110"		SC-10	10'	Optional
		SC-25	25'	"
		SC-50	50'	"
		SC-100	100'	"
Non-Sensing Cable	Extends sensing wire through non-monitored areas.	NSC-10	10'	Optional
		NSC-25	25'	"
		NSC-50	50'	"
		NSC-100	100'	"
J-Clips	One clip every 3 to 4 feet of sensing wire Plus one for each corner	JC-10	Quan. 10	One per foot
		JC-25	Quan. 20	"

6. When running cable over obstructing objects, affix one J-clip on either side of the object, as close as possible to the object.

### Setting the Sensitivity (JP1)

There are two jumpers inside the control box, both located towards the upper-right side of the circuit board, marked JP1 and JP2. These jumpers should be set as follows:

JP1 controls the sensitivity to water along the detection cable. A LOW reduces the unit's sensitivity, requiring a relatively larger amount of water to set off the alarm.

Conversely, the "HIGH" setting will increase the sensitivity and allow a relatively small amount of water to trip the alarm. For most indoor server-room applications, the "HIGH" setting is recommended, but you may wish to experiment with this setting to see which sensitivity level best suits your particular installation.

### Setting the Relay Alarm Mode Jumper (JP2) Non Supervised Mode

JP3 controls the action of the relays.

In "SUP"ervised mode, the relays will switch ON (i.e., the normally-open contact pair will be closed) when power is applied to the unit, and will switch OFF if an alarm condition occurs or if power is removed from the unit.

In the "NON"-supervised mode, the relays remain off until an alarm condition occurs. Either mode will work with the WxGoos, although the "SUP" mode does provide the additional advantage of allowing you to detect a power failure at the control box.

The Supervised Alarm Mode is recommended because the WeatherGoose will receive an alarm if the cable is broken or the WaterSnake power fails.

### Setting the Alarm Thresholds in Supervised Mode (Recommended)

Once you have connected the relay wires to the WxGoos I/O ports as shown in the diagram, setting up the alarms is straightforward:

If you have set JP3 to "SUP"ervised mode, then the reading at the water-detection and cable-fault inputs will both be at (or close to) 00 when conditions are normal (i.e. when both relays are ON), and will rise to 99 (or close to it) if an alarm condition occurs and causes its associated relay to turn OFF.

In this configuration, set the Low Trip of both I/O channels to -10 (disabling it, since the input reading cannot go below 00), and the High Trip to 60, insuring that the WxGoos alarm will trip when the relay opens.

### Setting the Alarm Thresholds in Non Supervised Mode

If you have set JP3 to "NON"-supervised mode, then the relay action will be exactly the opposite of that described above.

In this configuration, the Low Trip of both I/O channels should be set to 40 and the High Trip to 110; this will disable the High-Trip alarm (since the input reading can never go above 99) and insure that the Low-Trip alarm will go off when one of the relays closes.

As mentioned previously, "SUP"ervised mode also allows you to see if the Watersnake control unit has lost power. If this occurs, both relays will open, and both of their associated I/O channels on the WxGoos will rise to 99, causing

#### SUPERVISOR MODE (LOW TRIP = -10, HIGH TRIP = 60)

LEAK RELAY	FAULT RELAY	ALARM STATUS
OFF	OFF	POWER FAILURE
OFF	ON	WATER DETECTED
ON	OFF	CABLE FAULT
ON	ON	NORMAL OPERATION

#### NON-SUPERVISOR MODE (LOW TRIP = 40, HIGH TRIP = 110)

LEAK RELAY	FAULT RELAY	ALARM STATUS
OFF	OFF	NORMAL OPERATION
OFF	ON	CABLE FAULT
ON	OFF	WATER DETECTED
ON	ON	POWER FAILURE

both alarms to trip.

Since the "water detected" and "cable fault" alert conditions are normally mutually exclusive (i.e. the unit cannot have detected water along the cable if there's a cable fault, and vice-versa), receiving both alerts simultaneously can be taken as an indication that power to the Watersnake unit has failed.

### Testing the Sensors

Test the sensing cable immediately after installation and every three months by wetting the cable with a wet towel.

The alarm should respond in ten seconds, plus any Internet signal delays. Verify that the e-mail or page arrives at the proper address. When the sensing cable dries, the alarm state should clear.

WaterSnake Control Box Wiring (Supervisory Mode shown)

Alarm relays can be set in two modes, Supervisory or Non-Supervisory. See text for more information on these modes

