



## **User Manual – Trident™ Wireless Leak Detection System**

The Detection Group system has been protecting Class A commercial and multi-family buildings for over 10 years and is installed in hundreds of properties. The system wirelessly monitors leak-prone areas 24x7 and immediately notifies you by phone, text or email of the precise location of a leak.

Patent-pending Trident is the newest sensor system from The Detection Group. Trident detects and reports water leaks and can shut water off when required. With an extended communications range based on an RF frequency, Trident can protect virtually any type or size of building. As a fully wireless system, it can be deployed anywhere inside a building and is easily installed in existing buildings and in new construction.

The Trident system is comprised of sensors, hubs and a Smart Base Station (SBS). A sensor is the end-device that detects water. Sensors communicate information to hubs, and those in turn communicate with the Smart Base Station. The Smart Base Station connects to the cloud over a dedicated ISP Ethernet line, and uses an analog voice line or cell modem for redundant back-up communications.

### **Hub(s)**

Hubs are installed strategically to connect a group of sensors to other Hubs and the Smart Base Station. This must be installed before the sensors.

#### **Device States:**

| <u>Status</u>     | <u>Lights</u>       | <u>Sound</u> |
|-------------------|---------------------|--------------|
| Boot              | Blue Yellow Red     | 1 beep       |
| Connecting        | 1x Yellow every 3s  | None         |
| Good Setup        | 3x Blue             | 1 beep       |
| Failed Setup      | 3x Red              | 3 beeps      |
| Active            | 1x Blue every 15s   | None         |
| External DC Alarm | 1x Yellow every 15s | None         |
| Battery Alarm     | 1x Red every 15s    | None         |
| Not Communicating | 1x Red every 15s    | None         |

#### **Device Operation:**



- Installation:
  - Determine the location where the Hub will be placed to serve the desired group of sensors
  - Register the Hub to the Smart Base Station
    - Hold S2 for 10 seconds.
    - The Hub will blink yellow every 3 seconds while connecting
      - Three blue blinks and one beep confirms that setup was successful
      - Three red blinks and three beeps indicates a network issue.
    - The device is now ready for sensors to be registered
- Reboot Device:
  - Press S1 on bottom of device. All lights will flash (Blue, Yellow, Red) and buzzer will beep one time.
- Test Mode:
  - Hold S2 on bottom of device for 20 seconds
    - The Hub will blink yellow every 15 seconds for 120 seconds
    - Any messages sent during this time will be recorded as “Test” messages
- Troubleshooting
  - Failed Setup
    - Reboot Hub
    - Check that nearby Hubs and Smart Base Station are properly configured
    - Adjust the location of the Hub
  - External DC Alarm
    - Check power connections at the device and at the wall
    - Check the wall outlet to ensure it is active
  - Battery Alarm
    - Check power connections at the device and at the wall
    - Check the wall outlet to ensure it is active
    - Check the User Interface online to ensure device battery level is increasing
    - Open device to ensure battery is connected
  - Not Communicating
    - Reboot Hub
    - Check that nearby Hubs and Smart Base Station are properly configured
    - Adjust the location of the Hub

## Sensor(s)

Sensors are installed strategically near points where monitoring is necessary from the connected sensing device(s).

## Device States:

| <u>Status</u> | <u>Lights</u>       | <u>Sound</u>      |
|---------------|---------------------|-------------------|
| Connecting    | 1x Yellow every 3s  |                   |
| Good Setup    | 3x Blue             | 1 beep            |
| Failed Setup  | 3x Red              | 3 beeps           |
| Active        | 1x Blue every 15s   |                   |
| Alarm         | 1x Red every 3s     | 1x short every 3s |
| Silence       | 1x Yellow every 15s |                   |
| Reset         | 3x Blue             | 1 beep            |



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|                   |                     |        |
|-------------------|---------------------|--------|
| Battery Warning   | 1x Yellow every 15s |        |
| Battery Alarm     | 1x Red every 15s    |        |
| Not Communicating | 1x Red every 15s    |        |
| Test Mode         | 1x Yellow every 15s | 1 beep |

### Device Operation:

- Installation:
  - Determine the location where the Sensor will be placed to serve the desired purpose
  - Register the Sensor to the Hub and Smart Base Station
    - Hold S1 for 10 seconds.
    - The Sensor will blink yellow every 3 seconds while connecting
      - Three blue blinks and one beep confirms that setup was successful
      - Three red blinks and three beeps indicates a network issue.
    - The device is now registered
- Boot/Reboot Device/Register:
  - Depress Center Button for 10 seconds. All lights will flash (Blue, Yellow, Red) and buzzer will beep one time.
  - Cycle the power by removing and reinserting the batteries
- Active Mode:
  - Device checks for water every 15 seconds at the same time as the LED blink
- Alarm Mode:
  - Device blinks red and beeps once every 3 seconds
    - Cycle will continue until S1 is pressed
  - Details of the alarm are displayed, emailed, texted and phone calls are placed to appropriate personnel.
- Silence:
  - Press S1 to silence the alarm
  - Details of the silence are displayed, emailed, and texted to appropriate personnel.
- Reset:
  - For the lockout time that is designated in the User Interface, the sensor will be in a reset mode where it will not detect water.
  - Press and hold S1 for 10 seconds to exit reset mode, or wait for the lockout time to expire
- Test Mode:
  - Press and Hold Center button for 20 seconds
  - All messages during this time will be recorded as “Test” messages
  - Test mode will automatically end after 120 seconds
- Troubleshooting
  - Failed Setup
    - Retry registration
    - Check that nearby Hubs and Smart Base Station are properly configured
    - Adjust the location of the Sensor
  - Battery Warning/Alarm
    - Replace the batteries in the Sensor
  - Not Communicating
    - Retry registration
    - Check that nearby Hubs and Smart Base Station are properly configured



- Adjust the location of the Sensor

## Valve Controller(s)

Valve Controllers are installed strategically near points where valves need to be controlled and/or monitoring is necessary from the connected sensing device(s).

### Device States:

| <u>Status</u>     | <u>Lights</u>       | <u>Sound</u>      |
|-------------------|---------------------|-------------------|
| Boot              | Blue Yellow Red     | 1 beep            |
| Connecting        | 1x Yellow every 15s |                   |
| Good Setup        | 3x Blue             | 1 beep            |
| Failed Setup      | 3x Red              | 3 beeps           |
| Active            | 1x Blue every 15s   |                   |
| Alarm             | 1x Red every 3s     | 1x short every 3s |
| Not Communicating | 1x Red every 15s    |                   |
| Silence           | 1x Yellow every 15s |                   |
| Reset             | 3x Blue             | 1 beep            |
| Test              | 1x Yellow every 15s | 1 beep            |
| Battery Warning   | 1x Yellow every 15s |                   |
| Battery Alarm     | 1x Red every 15s    |                   |
| External DC Alarm | 1x Red every 15s    |                   |
| Valve(s) Failed   | Rapid Red           |                   |
| Valve 1 Closed    | 2nd LED Red         |                   |
| Valve 2 Closed    | 3rd LED Red         |                   |
| Valve 1 open      | 2nd LED Blue        |                   |
| Valve 2 Open      | 3rd LED Blue        |                   |

### Device Operation:

- Installation:
  - Determine the location where the Valve Controller will be placed to serve the desired purpose
  - Register the Valve Controller to the Hub and Smart Base Station
    - Hold S1 for 10 seconds.
    - The Valve Controller will blink yellow every 3 seconds while connecting
      - Three blue blinks and one beep confirms that setup was successful
      - Three red blinks and three beeps indicates and network issue.
    - Connect the desired valve(s) to the Valve Controller
    - The device is now registered
    - Configure the valves via the User Interface
- Boot/Reboot Device/Register:
  - Depress Center Button for 10 seconds. All lights will flash (Blue, Yellow, Red) and buzzer will beep one time.



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- Cycle the power by simultaneously holding the open and close buttons for 10 seconds.
- Active Mode:
  - Device checks for water every 15 seconds at the same time as the LED blink
  - Any connected valves will blink their status every 15 seconds
- Alarm Mode:
  - Device blinks red and beeps once every 3 seconds
    - Cycle will continue until S1 is pressed
  - Details of the alarm are displayed, emailed, texted and phone calls are placed to appropriate personnel.
- Silence:
  - Press S1 to silence the alarm
  - Details of the silence are displayed, emailed, and texted to appropriate personnel.
- Reset:
  - For the lockout time that is designated in the User Interface, the sensor will be in a reset mode where it will not detect water.
  - Press and hold S1 for 10 seconds to exit reset mode, or wait for the lockout time to expire
- Test Mode:
  - Press and Hold Center button for 20 seconds
  - All messages during this time will be recorded as “Test” messages
  - Test mode will automatically end after 120 seconds
- Controlling Valves
  - Open All Connected Valves: Press Left Button
    - In Process: LED Solid Yellow
    - On Success: LED Blue
    - Failure: Rapid RED LED
  - Close All Connected Valves: Press Right Button
    - In Process: LED Solid Yellow
    - On Success: LED Blue
    - Failure: Rapid RED LED
  - Control via the User Interface
- Troubleshooting
  - Failed Setup
    - Retry registration
    - Check that nearby Hubs and Smart Base Station are properly configured
    - Adjust the location of the Sensor
  - Battery Warning/Alarm
    - Replace the batteries in the Sensor
  - External DC Alarm
    - Check power connections at the device and at the wall
    - Check the wall outlet to ensure it is active
  - Not Communicating
    - Retry registration
    - Check that nearby Hubs and Smart Base Station are properly configured
    - Adjust the location of the Sensor
  - Valve(s) Failed
    - Check all the wired connections
    - Reboot the device by simultaneously holding the open and close buttons



## Smart Base Station

The Smart Base Station connects to the internet and receives all messages from Sensors, Valve Controllers and Hubs and translates that information into a user interface.

### Device States:

| <u>Status</u>              | <u>Lights</u>       | <u>Beeper</u> |
|----------------------------|---------------------|---------------|
| Boot                       | Blue Yellow Red     | 1 beep        |
| Active                     | 1x Blue every 15s   |               |
| External DC Alarm          | 1x Yellow every 15s |               |
| Battery Alarm/Disconnected | 1x Red every 15s    |               |
| Not Communicating          | 1x Red every 15s    |               |
| On Communication Failover  | 1x Yellow every 15s |               |
| Failed Message             | 1x Red Blink        |               |

### Device Operation:

- Installation:
  - Connect power and Ethernet to the Smart Base Station
  - Refer to login information to access the user interface to complete configuration
- Boot:
  - Connect external power, press s1 or hold s3 for 5 seconds
- Active Mode:
  - Led blink to show status
- Troubleshooting:
  - External DC Alarm:
    - Check power connections at the device and at the wall
    - Check the wall outlet to ensure it is active
  - Battery Alarm/Disconnected
    - Check that S4 is activated
    - Check power connections at the device and at the wall
    - Check the wall outlet to ensure it is active
  - Not Communicating/Communication Failover
    - Check physical connections
    - Refer to user interface for further instruction
  - Failed Message
    - Okay if sporadic
    - Check nearby Hubs if problem persists



## FCC COMPLIANCE

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be co-located or operating in conjunction with any other antenna or transmitter.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## ISED RSS COMPLIANCE

This device complies with Industry Canada license-exempt RSS standard(s) Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference;
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Cet appareil est conforme à Industrie Canada une licence standard RSS exonérés (s). Son fonctionnement est soumis aux deux conditions suivantes:

1. Cet appareil ne doit pas provoquer d'interférence
2. Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.

**Radiation Exposure Statement:** This equipment complies with the IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

**Énoncé d'exposition aux rayonnements:** Cet équipement est conforme aux limites d'exposition aux rayonnements ioniques RSS-102 Pour un environnement incontrôlé. Cet équipement doit être installé et utilisé avec un Distance minimale de 20 cm entre le radiateur et votre corps.



The information in this guide may change without notice. The manufacturer assumes no responsibility for any errors that may appear in this guide.

The FCC requires the user to be notified that any changes or modifications made to this device that are not expressly approved by *The Detection Group* may void the user's authority to operate the equipment.