Triple+

Detect. Connect. Protect.

# NWL™ Water Product Installation Instructions

NWL-INST-001E

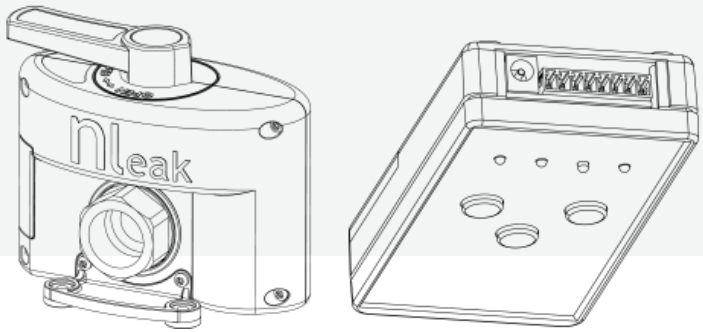
# Flooding Detection System

**Background**

The leakage prevention system shuts down the water supply by way of a wireless communication system.

The system's objective is to minimize potential flooding damages by shutting down the water supply when there is no activity and/or a flooding is indicated within the system.

Each system is comprised of a Shut-off unit (valve), installed on the main water supply pipe, a flood detector and a control unit for closing and opening the valve.
The system presents the user with a clear and simple indication of the valve's status (either open or closed(.  In addition, the Shut-off unit can be controlled and the valve can be opened or closed manually.

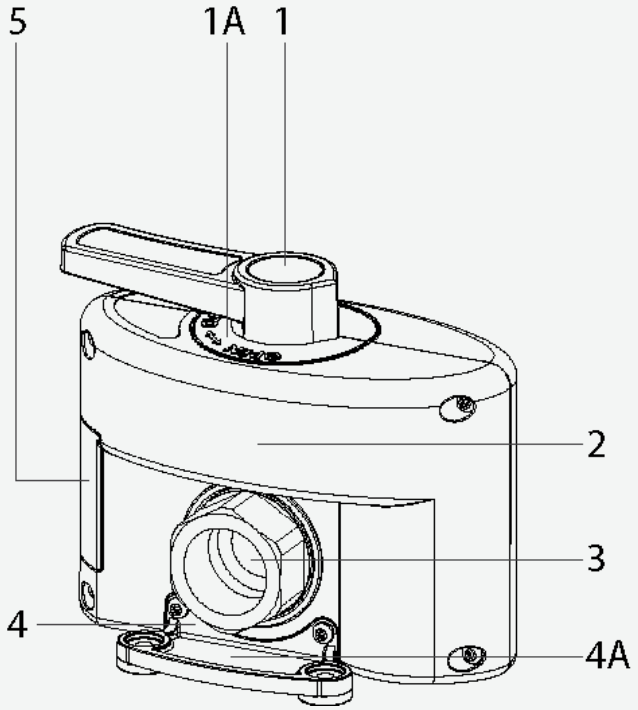



Triple+

# System specification

## Shut-off unit (valve(

A Shut-off unit  "3/4)Sagiv valve) is installed on the main water supply pipe with the intention of allowing or preventing water from passing through the pipes.




**1.** Opening/ closing handle.

**1A.** Open/ closed indication.

**2.** Shut-off unit body (valve(.

**3.** "3/4entry/exit adapter.

4. Base for a valve not wall mounted.

4A. Base for a wall mounted valve.

5. 2XCR123 battery housing

Triple+

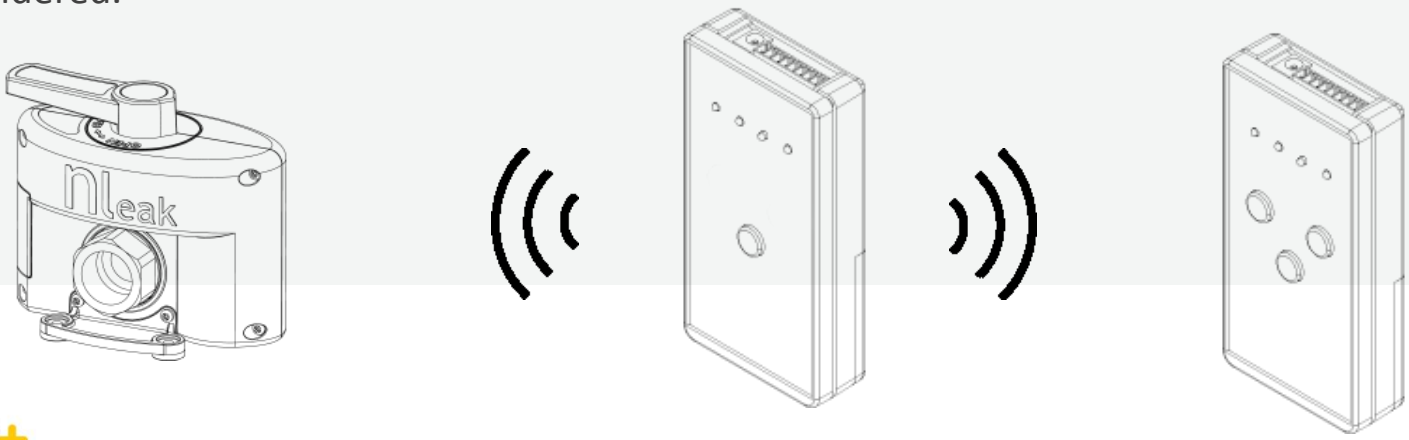
# Shut-off unit installation

The Shut-off unit should be located on the main water line leading into the structure.  The system should not disconnect a fire extinguishing line or a sprinkler line.

Ensure easy access to the battery housing.

The unit should be installed with the handle on top and horizontal

To ensure effective communication, ensure to have no more than 12 meters (if a wall is present within the structure) or 30 meters within an open space structure between the controller and the valve and that the units (controller and valve) are not positioned within metal cabinets.  Otherwise, setting up a relay should be considered.




Triple+

# Places where the detector should **NOT** be positioned

- Within a metal cabinet
- Where dirt or a foreign object may obstruct the valve's operation.
- Where the temperature exceeds the range between 0 and 55 degrees centigrade.
- Where there is an apprehension of being hit or damaged.
- In an external place where exposed to rain and/or direct sunlight, the unit should be installed in a water tight plastic casing.
- Where there is moisture.

Triple+

# Shut-off unit installation stages

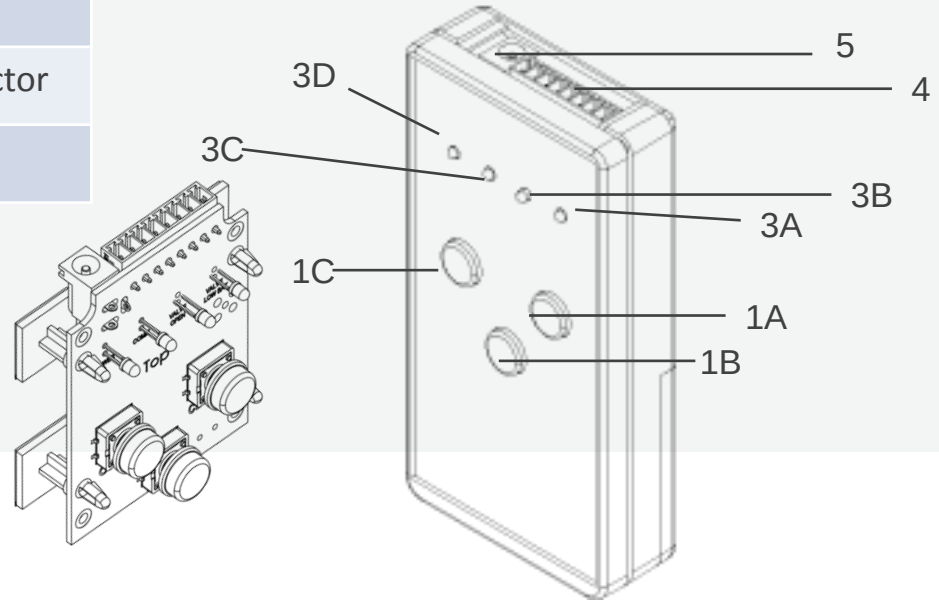
1. Locate the most suitable place for installation on the water line.
2. Shut down the water supply, using the main valve of the building or site.
3. Dismantle the water line connectors in a way that would leave a gap suitable for installing the valve.
4. Install the unit on the water line.
5. Should it would be required to have a flexible water pipe to mount the Shut-off unit on the wall, dismantle the base unit.
6. Make sure that the manual Shut-off unit can be opened and closed.
7. Enable passage of water in the main line and prevent leaks or drippings.
8. Ensure easy access to the battery housing.
9. If the unit may get wet, install an external protective casing.

Triple+

# Controller

The button controller is installed so the user would be able to control the wireless opening and closing of the valve by pressing a button.
In addition, there is an option of a direct connection to an alarm system that would lead to closure of the valve when the alarm is set.

| | |
|---|---|
| 1A. Valve closing button. | 3B. Water valve indicator. |
| 1B. Technician button. | 3C. Communications light. |
| 1C. Valve opening button | 3D. Power indicator |
| 2. Control circuit body | 4. Alarm wiring connector |
| 3A. Water battery indicator | 5. 5VDC power input |




Triple+

# System synchronization – valve-controller synchronization table

| | OPERATION | Location | Control indication |
|---|---|---|---|
| 1 | I. Shift the valve handle to the open position.<br>II. Insert two CR123 batteries into the Shut-off unit (valve.) | A water valve that is installed on the main water line | I. A green indicator lights up within the battery housing.<br>II. The valve performs an opening action and then a closing one.<br>III. Wait for the conclusion of the engine's operation.<br>IV. Ensure that the valve can be manually opened and closed. |
| 2 | Hook the controller to the main supply with the transformer. | Position the controller where measurements indicate qualitative and continuous transmission. | I. The four indicators flash 3 times.<br>II. The voltage indicator flashes.<br>III. Wait for approximately two minutes by the controller to ensure that the communication indicator is lit continuously (in addition to the flashing voltage indicator.)<br>In case the communication indicator flashes or is turned off, a repeater should be installed within the system. |
| 3 | Press the technician button | Controller | After some thirty seconds, all four indicators will flash.<br>The voltage and communication indicators are continuously on.<br>After another thirty seconds, the open valve indicator indicates the valve's state (open or closed.) |
| 4 | Synchronization test: open and close the valve using the buttons | Controller | Check that the valve opens and closes accordingly.<br>Make sure that the open valve indicator indicates the valve's state (open or closed.) |

Triple+

# System synchronization – valve-repeater-controller synchronization table

| | OPERATION | Location | Control indication |
|---|---|---|---|
| 1 | I. Shift the valve handle to the open position.<br>II. Insert two CR123 batteries into the Shut-off unit (valve.) | A water valve that is installed on the main water line | I. A green indicator lights up within the battery housing.<br>II. The valve performs an opening action and then a closing one.<br>III. Wait for the conclusion of the engine's operation.<br>IV. Ensure that the valve can be manually opened and closed. |
| 2 | Hook the repeater to the main supply with the transformer. | Position the repeater where measurements indicate qualitative and continuous transmission. | The four indicators flash 3 times.<br>The voltage indicator flashes.<br>Wait for approximately two minutes by the repeater to ensure that the indicator of communication with the valve is lit continuously (in addition to the flashing voltage indicator.)<br>In case the communication indicator flashes or is turned off, the systems should be brought closer. |
| 3 | Hook the controller to the main supply with the transformer. | Position the controller where measurements indicate qualitative and continuous transmission from the valve and the controller. | The four indicators flash 3 times.<br>The voltage indicator flashes.<br>Wait for approximately two minutes by the controller to ensure that the communication indicator is lit continuously (in addition to the voltage indicator.) |
| 4 | Ensuring qualitative and continuous communication between the system's components. | Repeater | Make sure that the green indicator lights are continuously on (voltage will be flashing, valve and controller communications will be continuously on.) |

# System synchronization – valve-repeater-controller synchronization table

| | OPERATION | Location | Control indication |
|---|---|---|---|
| 5 | Press the technician button | Repeater | After some thirty seconds, all four indicators will flash.<br><br>Make sure that the green indicator lights are continuously on (voltage, valve communication and controller communication.) |
| 6 | Ensure valve indication transfer | CONTROL | After another thirty seconds, the open valve indicator indicates the valve's state (open or closed.) |
| 7 | Hook the controller to the main supply with the transformer. | CONTROL | Check that the valve opens and closes accordingly.<br><br>Make sure that the open valve indicator indicates the valve's state (open or closed.) |

Triple+

# System synchronization – flood detector - controller synchronization table

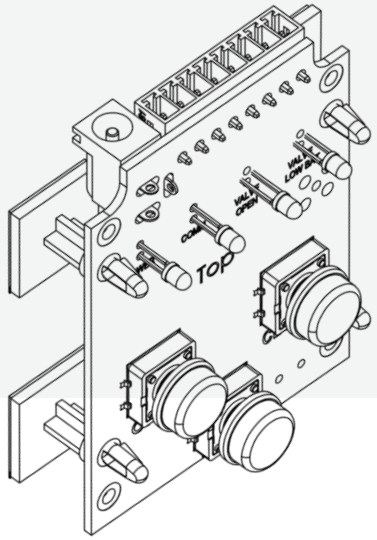
| | OPERATION | Location | Control indication |
|---|---|---|---|
| 1 | Press the valve "Open" and "Close" buttons simultaneously. | CONTROL | Red indicator - valve battery is continuously on.<br><br>Green indicator - voltage flashing. |
| 2 | Open the battery cover and insert two AA batteries into the flood detector. | Position the flood detector where measurements indicate qualitative and continuous transmission from the valve and the controller. | I. The green detector indicator will flash every 5 seconds.<br><br>II. Wait 60 seconds, while looking at the detector indication light. When the indicator light will light up for two consecutive seconds, the detector will synchronize itself with the controller.<br><br>III. The green detector indicator will flash every minute.<br><br>IV. Now you can continue with this procedure to up to 10 detectors per system. |
| 3 | Conclusion of the flood detector synchronization will be achieved by pressing the valve "Open" and "Close" buttons simultaneously. | Flood detector. | The controller will indicate voltage, communication and valve status (if synchronized with the system.) |
| 4 | Synchronization test: expose the detector to water (wetting the electrodes would suffice.) | Flood detector.<br><br>Controller. | I. Detect a double flashing indication in the flood detector light.<br><br>II. Detect a flashing indication in the red valve battery light in the controller.<br><br>III. Ensure that the valve was closed (if synchronized to the system.)<br><br>Pressing the "Open valve" button will return the system to routine state. |

**Note**: adding detectors to the systems does not require resynchronization.
Subtraction or replacement of a detector required resynchronization of all the detectors connected to the controller.

# Synchronization reset (Hard reset)

Pressing five consecutive times will lead to Shut-off between the system's components.

Reset of the valve is possible by pressing five consecutive times the technician button in the controller, while pressing the "Open" and "Close" buttons simultaneously and pressing five consecutive times the technician button in the controller.



# Additional clarifications regarding the installation of the flood detector

1. It is essential that a technician assess the nature of the communication, before installation, with a tester/installation instructions/ common sense.
2. The system controller will not work with batteries but by way of electricity transformer.
3. The controller should not be connected to an alarm system.
4. The positioning of the system's components (including of the water valve and controller) may be influenced by communication quality factors.
5. A repeater should not be installed between the controller and the flood detector.

Triple+

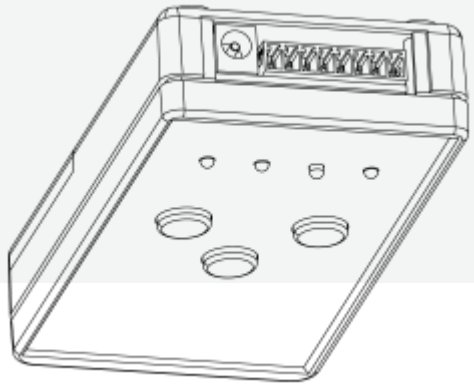
# Replacement of the Shut-off unit (valve)

1. Take the batteries out of the faulty unit that is being replaced.
2. Reset the controller (press HARD RESET five times.)
3. Dismantle the unit from the water line and perform all the stages specified in the Shut-off unit installation instruction.
4. Synchronize the controller - valve system. The detectors retain synchronization with the controller.


Triple+

# Controller replacement

1. Disconnect the transformer from the faulty control box to be replaced.
2. Pull the control box out of its place.
3. Perform all the control unit installation stages.
4. Perform a full synchronization process (including extraction, pause and replacement of the batteries in the valve) and full synchronization with all the flood detectors.



Triple+

# Replacement of a battery in the Shut-off unit (valve)

1. Take the two CR123 batteries out of the unit and replace with new ones.
2. Verify system synchronization by closing or opening with the controller buttons.


Triple+

# System failure indication table

| | OPERATION | Location | Control indication |
|---|---|---|---|
| 1 | No communication | Communications light flashing or off. | 1. Check the battery voltage in the flood detector.<br>2. Consider narrowing the transmission distance.<br>3. Considering adding a relay (repeater.) |
| 2 | Valve fault | All the indicator, apart for the voltage, flash twice or three times every 15 seconds | 1. Make sure there are no obstructions in the valve's opening and closing path.<br>2. Open and close the valve using the controller buttons<br>3. Extract and replace the batteries in the valve and check the fault status.<br>4. Replace the valve. |
| 3 | Low water battery | Valve battery indicator is continuously on. | Replace the valve battery |
| 4 | The circuit does not receive power | Voltage indicator is off. | 1. Check the power connection.<br>2. Replace the controller/ repeater<br>3. Synchronize the system. |
| 5 | Valve is in an intermediate position | Water valve indicator is flashing | 1. Close or open the valve if required.<br>2. Return to stage No. 2 |

Triple+