Triple+ NWL

System description

Triple+ NWL™ is the most effective system in addressing the root cause for flooding huge damages, that is, the length of time it takes to discover and stop the leak. With Triple+ NWL™ you can reduce the damage by over 90%.
Triple+ NWL™ is fitted in minutes with little to no infrastructure changes.
Installing the system requires no electrician

Control Unit

The controller communicates with the flooding sensors and the Shut off Unit

Water Shut off Unit

At the moment of occurrence, the system will automatically shut off.

Repeater Unit

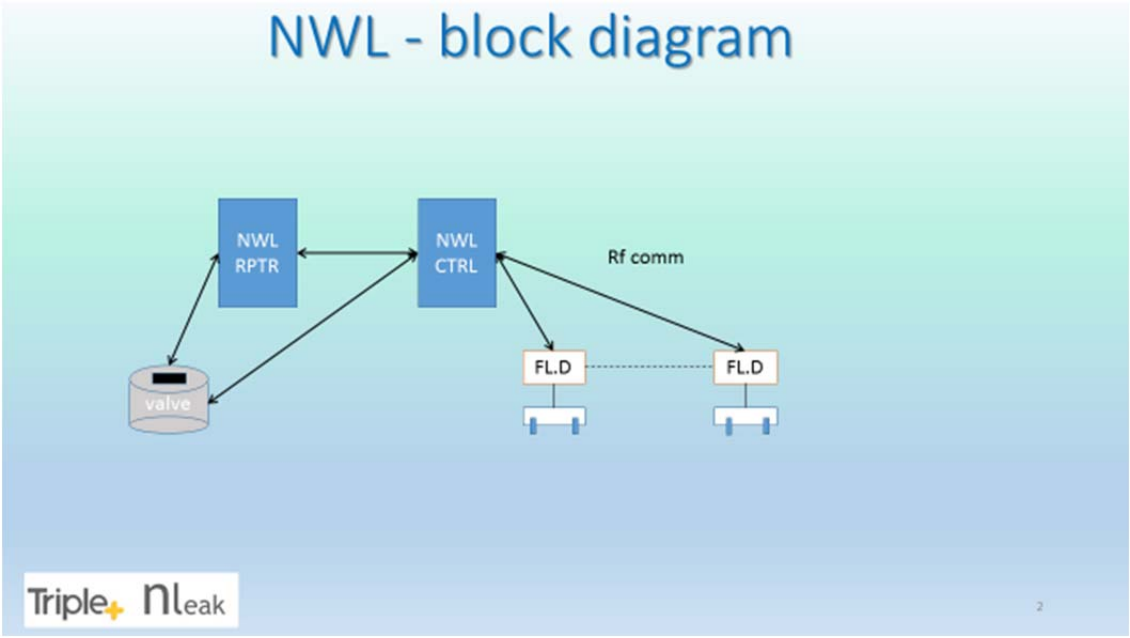
The wireless repeater can be used in order to extend the communication

Flood Sensor Unit

The wireless flood sensor is installed in places where high chance of water flooding may occur.

Repeater Function

The Repeater function is to transmit and receive information between the valve and the controller. Synchronized system supports only one controller and one valve. There is no option to have more then on Valve in a synchronized system.
The repeater is not communicating with flood detectors. The flood detectors communicates directly to the controller.
The system installation process includes RF synchronization among all system's elements, i.e. Valve, Controller, repeater and flood detector/s. Each element has unique ID, the controller manage the synchronization process.
After synchronization, the repeater replies only to the valve and controller, which are registered to the system.
Before starting the synchronization, the installer put all elements on one table, turn power on and let the elements to synchronize each other. After the controller identify all elements and the installer see green light in each device (RF is OK), he "locks" the synchronization. After locking the sync, all synchronized elements are connected to each other. Any other RF transmitter that is in the area will not join the synchronized network and the repeater will not support it.
The Repeater job is to get a message from the Valve or controller and transfer the same message to Controller or Valve.
The repeater has on transiver, meaning that after receiving a message he transmit it.
In this system the valve initiate communication every 15 seconds, normally the repeater is in listen mode once he receive a message he transmit it, meaning that the repeater follows the Valve's timing.
The repeater function is implemented in the device by receiving, demodulation, recognition and retransmission of the recognized messages only.



Specifications

RF Specifications (all units)	
Internal Clock	32 MHz
Operation Frequency	433.85 MHz
Bandwidth	100 KHz
Transmit duration	3 ms
Transmit interval	10 sec
Maximal Output Power	10 dBm (10mW)

Control/Repeater Unit specifications

Dimensions [mm]	26x 68×131
Weight	155gr
Power Operating	External Adaptor Input 110-240 V AC
Operating Voltage	5V
Battery lifetime	N/A
Primary Radio Frequency	433MHz
Operating temperature	0-50°c

Operational description

The system components communicate via RF.
NWL system have 2 battery powered devices (Valve and Flood-sensor) and 2 devices with external power supply (Controller and Repeater). Therefore, valve and flood-sensor spend most of the time at sleep mode, and wake up periodically for status update. Controller and Repeater are always in receive mode.
Controller can be driven by one of 3 triggers:

1. External signal from alarm system
2. User request through the box's keys
3. RF command from Flood-sensors (directly from sensor od through Repeater).

The Valve unit transmits packets periodically and the other components response on any request and informs if status has changed. The information of the motor packet includes the Unit state so it can be monitored easily. The valve sends its status in every message, the status includes the following fields (the Controller will update the LED display and the Alarm interface accordingly):

- The Motor switches state are monitored all the time.
- The Battery condition
- The Motor last activation status (if completed successfully or failed due to timeout or bad switch condition)

In case of marginal RF communication, Repeater unit can be installed between Controller and Valve. This device is part of the specific local system, and configured to reply selective massages of Controller/Valve.
The Flood-sensor transmits packets periodically (every 1 min) with its internal unique ID as address and the Flood-sensor index is added to the unit type. The controller monitors its Flood-sensors according to its internal address list (generated in the SYNC state) and responses.
If the Flood-sensor status has changed and flood is detected, it will send a burst message and the controller will send a CLOSE command in the nearest Valve's status request.
Up to 10 Flood-sensors can be connected to one CNTL.
The information of the Flood-sensor packet includes the Unit ID as given in sync state and the unit status (flood status, battery condition …) so it can be monitored easily.