



MULTIZONE SUPERVISION
MODEL CP-1111

WATER DETECTION SYSTEM

HYBRID

HARDWIRED - WIRELESS

MESH NETWORK

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HYBRID SYSTEM – MESH NETWORK

1. INTRODUCTION & DEFINITIONS

GIVE SYSTEMS Is proud to introduce the first Hybrid Water Detection system that offers the capability of installing both hardwired and/or wireless detection components for commercial and industrial applications and condominium-apartment buildings.

Since 1986, we have been designing and building our products to offer our customers reliable and durable equipment suited for monitoring buildings, apartments , appliances etc.

The new AQUA-STOP® CP-1111 is a complete monitoring system that notifies users of abnormal water events (leakages, wire-faults and link-faults) via email, text messages, or local alarm annunciator. Because it monitors all cables and detectors continuously, the integrity of an installation is always supervised. In addition, with its multiple control outputs, the CP1111 has the capability to trigger the closing of valves eliminating almost all possibilities of flood.

With the new model CP1111, installation companies or even direct clients will appreciate the flexibility and choice offered by the system that will provide them with a real sense of security. Designed on the idea of providing solutions for the difficult-to-wire areas, its HYBRID capability provides to customers the versatility of hard-wired or wireless detectors on the same control panel.

CP-1111



Figure 1

2. OVERVIEW:

The CP-1111 consists of:

- The control panel
- Hardwired components
- Wireless components
- Basic detectors

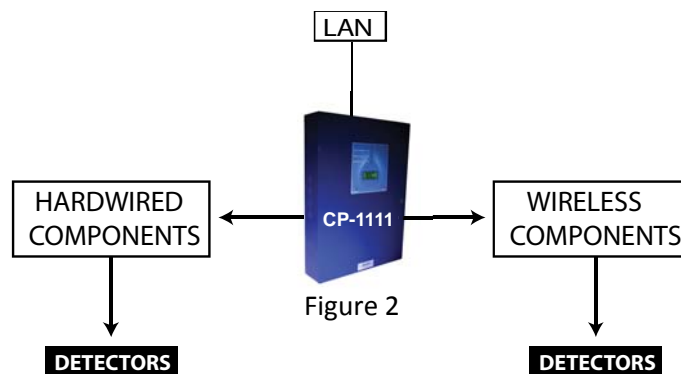


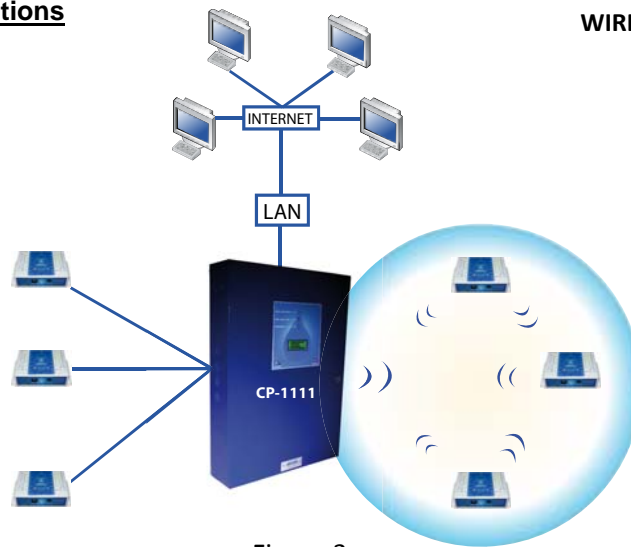
Figure 2

The MULTIZONE SUPERVISION CP-1111 offers many configuration possibilities in order to meet all kind of customer's requirements. Thus, some installations are the type "traditional" and gather the control panel with hardwired components only. Other, are a mix of both categories of components (hardwired + wireless components). Finally, some installations can be designed using wireless components only.

(See example of installations , section 20)

3. HYBRID SYSTEM - Applications

Industries,
Condo-buildings,
Hospitals,
Museums,
Historical sites etc...
Custom designs (upon request)



WIRELESS / HARDWIRED INSTALLATION

- Versatility
- Flexibility
- Cost savings

Figure 3

The CP-1111 can now give you the possibility to implement wireless components (Hubs, repeaters and detectors) that will affect considerably your cost savings when performing installation in your building. In fact, many factors may prevent a traditional hardwire installation or simply, make very difficult the installation of physical cables. Also, particular events may require a temporary protection for a short period of time (Museums, art gallery etc). For those circumstances, the combination of wireless and hardwired equipment represents without a doubt the ideal solution.

4. FEATURES:

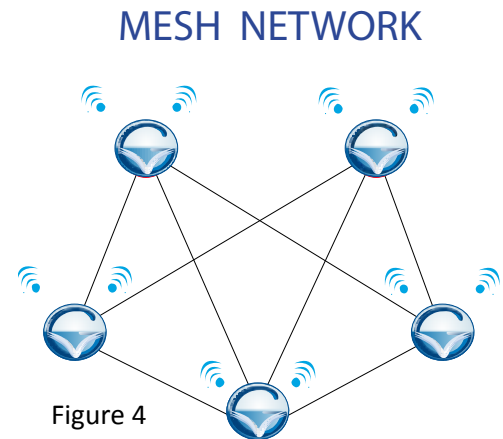
- Supporting multiple wire detection modules over a distance of 300 meters.
- Supporting multiple wireless detection modules combined to hardwired modules.
- Ensuring the perfect quality of wireless transmission signals.
- Using the new technology of mesh network transmission signals.
- Ensuring the perfect communication between detectors and the central unit.
- Status valve information (opened or closed).
- Supervised system (Continuous supervision of all hardwired and wireless modules)
- Validation of communication between the system and the internet/intranet network.
- Distribution of alert messages via internet.
- Consolidation of all alarm events on logs.
- Providing addresses for up to 1600 detection zones.
- Allowing a direct link to LAN (Local Access Network).
- Allowing the configuration of protected zones via the internet network.
- Allowing the configuration of control outputs (valves commands) via internet.
- Providing a local alarm with the internal Buzzer.
- Monitoring of batteries status on all wireless detectors installed.
- Providing the compatibility with BACNET / network.
- Monitoring multiple installations via the same Interface Supervisor Software.
- Configuration utility software access via RS232 /USB Ports.
- Supervisor software "Internet Monitoring Access" password protected. (User)
- Supervisor software "Parameters configuration" password protected. (Administrator)

5. ADDRESSABLE SYSTEM: (UP TO 1600 INDIVIDUAL ADDRESSES)

The CP-1111 is an addressable system that provides each of its initiating device (components) and to each of its channels, their own unique identification number or “address”. This allows each component’s individual status to be transmitted to the control panel. Upon alarm, the panel will designate the type of component in alarm, the channel having an alarm and its exact location (Example :Basement, water heater #3), with this same specific information forwarded to exterior via internet network.

6. WIRELESS COMPONENTS / MESH NETWORK = RELIABILITY

In a wireless installation plan, each component (RCN,WH8-2, WH4,WD) has the capability to connect directly to its neighbours for communicating data. The reliability of such installation is based on the redundancy: If one component can no longer operate or communicate, all others can still communicate with each other directly or through one or more intermediate components. Thus, when a detection occurs, the control panel acknowledges the identification of the component and its address. In addition, the valves control components provide information on their status: Opened /closed.



7. VARIETY OF COMPONENTS FOR A GREATER FLEXIBILITY

No matter the configuration or the arrangement of a building, the choice of components both hardwired and wireless, will satisfy all kind of requirements.

- HUB-8-2: Hardwired component offering 8 channels, 2 outputs and 2 inputs.
- WH8-2: Wireless component offering 8 channels, 2 outputs and 2 inputs.
- WH4: Wireless component offering 4 channels.
- WD: Wireless component having 1 sole channel.

8. EXPANDABLE INSTALLATION

A basic system starts with a minimum of 8 channels (or addresses) for hardwire-cable installation and/or with a minimum of 1 channel only for a wireless layout. Because its modular design, the CP-1111 allows existing installation to be expanded in the field by simply adding additional modules (wired or wireless).

If an installation requires the hardwired components only, the HUB-8-2 module will respond this need. Consequently, according the quantity of channels needed, the numbers of HUB-8-2 necessary will be calculated considering the nearest multiple of 8 equalizing or exceeding the summarized channels requested.

Example: *If the total quantity of areas to be protected in a building is 85 , the number to be considered will be 88, and the quantity of HUB-8-2 necessary will be 11.*

If wireless installation is requested, the variety of wireless components described above, will satisfy that requirement using the same method of calculation.

9. CONFIGURABLE OUTPUT-INPUT CONTROL (VALVE CONTROL)

As its predecessor, the MultiZone Supervision CP-224, the CP-1111 has the capability to control the closing of valves. Furthermore, many new additional options are provided for giving the system more flexibility:

- Choice of event allowing the activation of the output.
- Choice of "default State" for the item connected to the output.
- Output activated or not , conditionally to a feedback from the item connected.
- Choice of activation mode: Continuous or Impulses.
- Activation time variable in length and in sequence.

10. MONITORING SYSTEM SOFTWARE

The MultiZone Supervisor AQUA-STOP® allows the monitoring of an entire building via the intranet or internet network.

Furthermore, the Supervisor has the capability to monitor in "realtime" many additional installations with the same interface. Thus, the complete supervision of different buildings located anywhere in the world, is now possible.

The description of the alarm event is indicated on the software:

- Identification of the building,
- Description of the alarm,
- Time of the event,
- Identification of the point (address),
- Status of the valve (closed / opened)

11. GRAPHICAL ALARM INTERFACE

The "AQUA-STOP®" Graphical Alarm Interface enable detectors and components to be easily monitored and located from graphical maps or floor plans.

Maps show the current status of each device, including alarm conditions. Since it is easy to locate an alarm from a map, the appropriate personnel can be dispatched quickly, leading to improve site security and efficiency.

Also, the simplicity and intuitive interface enables personnel to obtain the benefits of using maps with minimal previous knowledge.

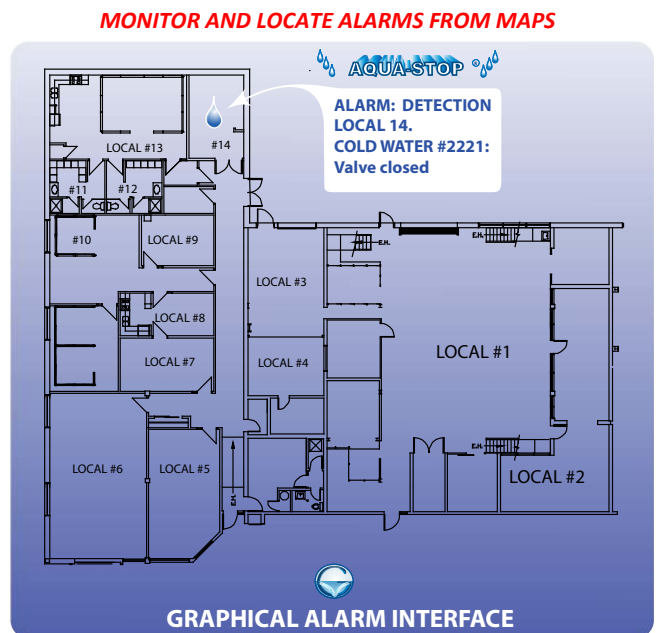


Figure 5

12. ALERT MESSAGE

The "Alert Message" function is one of the features offered by the SUPERVISOR which transmits a message through a popup window that shows up in the form of an alert box.

Thus, you are allowed to have an instant look on a current event and see in realtime the location of the alarm, its identification, and the time it happens.

ZONE #	Identification	BUS#	Component	Channel	Date
6	TOILET Second floor	3	HUB-8-2	8	Wednesday 2009-04-29 13:54

Figure 6

13. EMAIL ALARM NOTIFICATION

Email Alarm Notification reports alarm events to the email addresses of specified personnel and creates a supplemental record of alarm events in addition to the Supervisor.

The location (installation' name) of the building is indicated along with the date, the description of the event and the identification of the item, room or sector being protected or monitored by the installation. Email is also a great way to keep senior supervisors informed of alarm events.

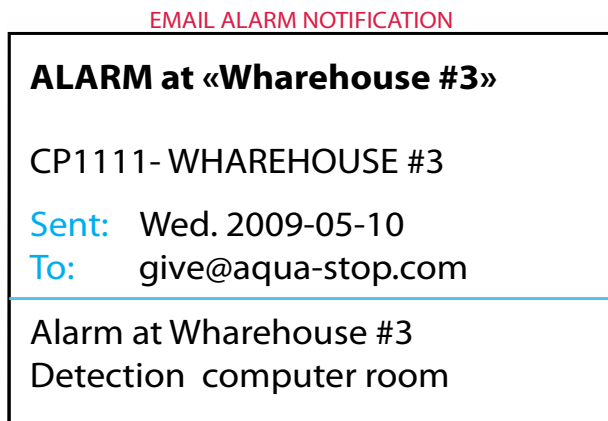


Figure 7

GENERAL SPECIFICATIONS

14. CP-1111 - FRONT PANEL INDICATORS

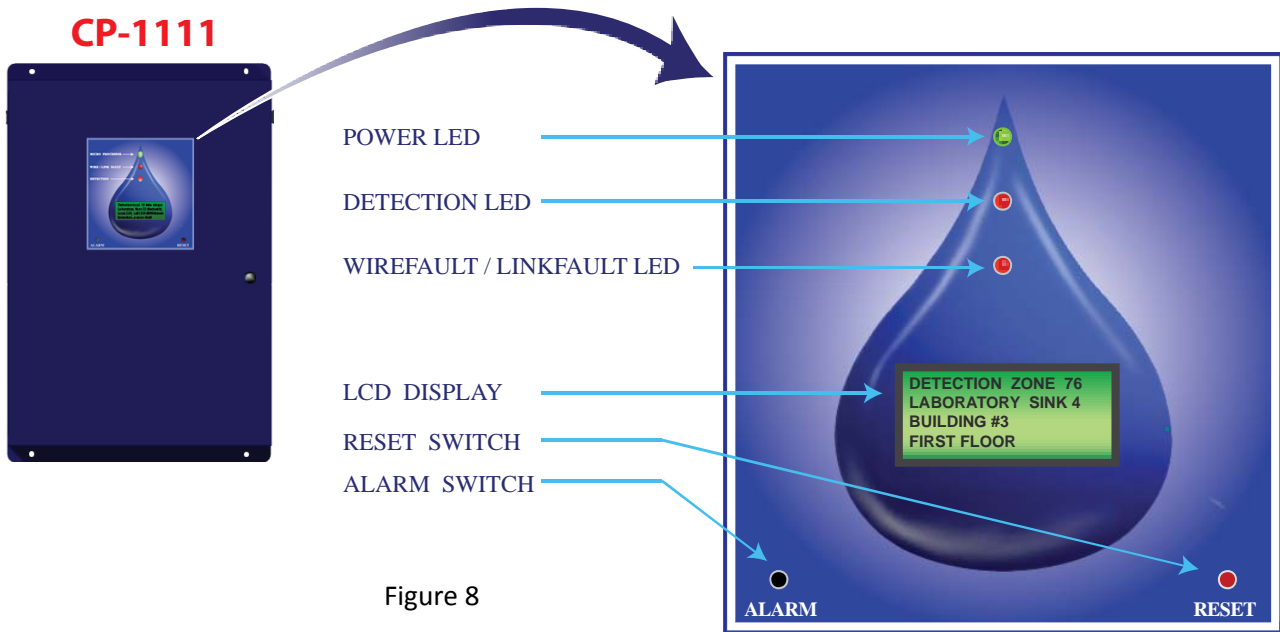


Figure 8

- | | |
|--------------------------|---|
| Power LED: | LED illuminates when power is applied to the system. |
| Detection LED: | LED blinks when detection occurs on any of the components installed. |
| Wirefault-Linkfault LED: | LED blinks for a broken wire /disconnected detector/ lost of signals. |
| LCD display: | Identification and localization of alarm events/ |
| Reset switch: | <hr style="border-top: 1px dashed black;"/> |
| Quiet switch: | To silence the internal buzzer. |

15. CP-1111 – COMMUNICATION BUS

A total of 10 communication BUS allow data transfer between the panel and the detection modules using the RS485 protocol. Standard Ethernet cables with RJ45 connectors ensure the perfect linking of cables with the BUS connectors.

See figure 9.....

- Two different modules can be connected on a bus: The HUB-8-2 and the REMOTE CONTROL PANEL (RCN).
- Each BUS can support up to 20 HUB-8-2 and a maximum of 5 RCN.
- A Combination of HUB-8-2 AND RCN can be installed on the same BUS.

Additional details are showed at the section 20: *Examples of installation*

MOTHERBOARD CP-1111

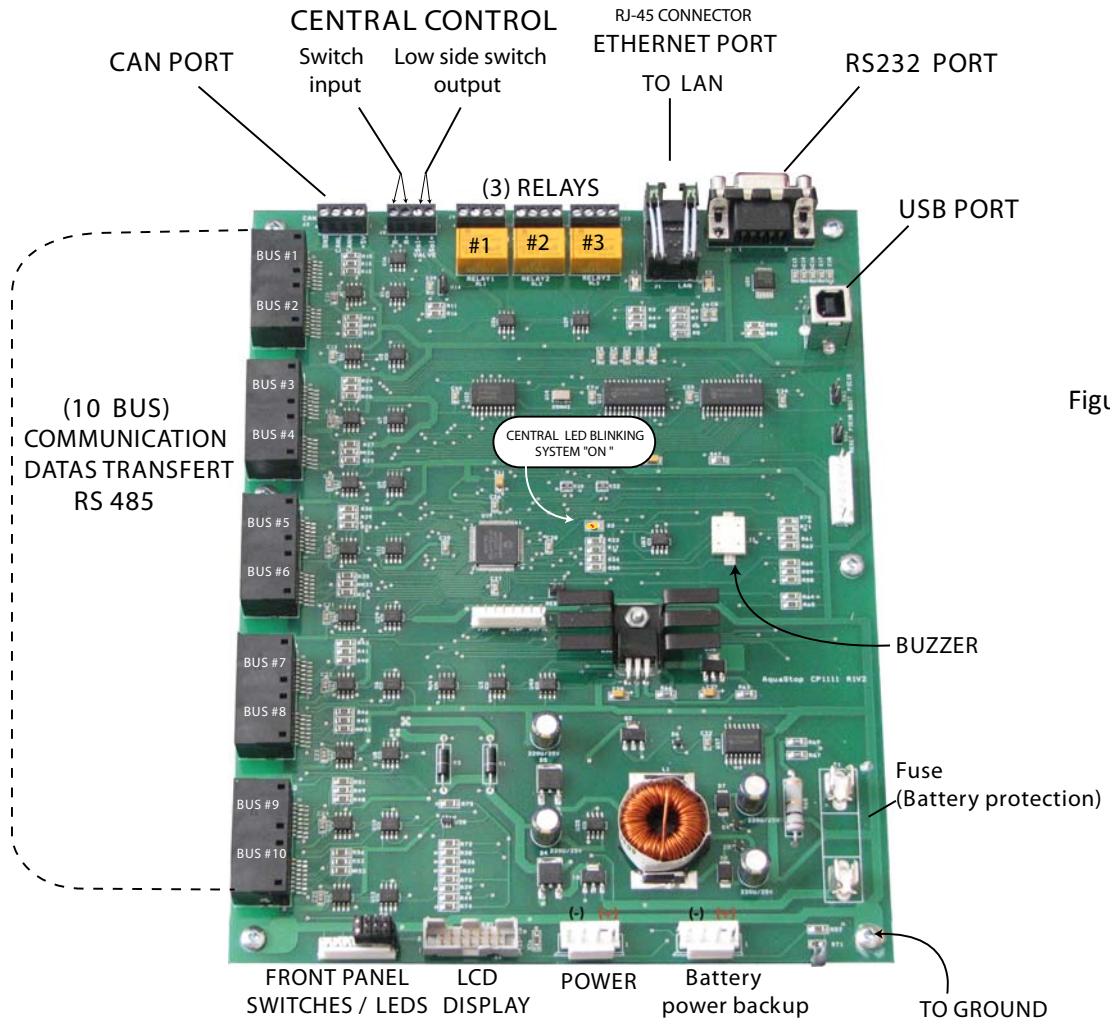


Figure 9

CENTRAL CONTROL TERMINAL	
Input switch:	To indicate the valve status (opened/closed).
Output switch:	To control valve or other relays.
Relays:	Power maximum 0.6A-125V AC / 2A 30V DC.
PORTS:	
Ethernet:	To connect on the Local Access Network (LAN).
RS232:	To connect on local computer. (Programming the internet parameters-Password-Email addresses-IP Address.
USB:	To connect on local computer. (Programming the internet parameters-Password-Email addresses-IP Address.
CAN (Control Area Network)	Network protocol for datas transfer to common interfaces.
BUS:	To link the detection modules to the panel.

17. CP-1111 TECHNICAL SPECIFICATIONS

Operating voltage: (standard) AC 230 Volts AC / 115 Volts AC / 50/60 Hz
Power consumption: 1.5 Amp

Datas Transfer:
10 BUS / Communication protocol: RS485 (for hardwired components)
Recommended cable: Ethernet cable (connectors RJ45)
Communication Channels: 10 BUS
Length of cable: Up to 300 meters (1000 ft)
Detection response time: 0.5 sec.

Detection modules categories:
Hardwired Detection Module: (HDM): HUB-8-2
Wireless Detection Module: (WDM): WH8-2, WH4,WRS,WD

BUS capacity: Wired components: 20 HUB-8-2 supported by BUS.

Wireless components: 5 RCN supported by BUS

RCN capacity: 32 Wireless Detection Modules supported by a RCN

Inputs :

Central Control Terminal Input: Valve status (closed/opened)

Outputs (PROGRAMMABLE):

(3) RELAYS: Power maximum 0.6A-125V AC / 2A 30V DC

Central Control Terminal Output: Valve control (Activation)

Detector's address: Unique Identification of detectors/channels

Alarm notification:

Internal buzzer: Piezoelectric buzzer
Emits an audible alarm in the events of detection, wirefault and linkfault.

Visual status: LCD display / 20 characters x 4 lines.

Led indicators: Power/Detection/Wirefault/Linkfault

Push buttons: Silencing the buzzer/Reset (multifunction)

Logging capabilities: Last 100 alarm events.

Logging- Supervision: Terminal access with Password security (multi-users)

Logging- Configuration: Terminal access with Password Administrator

Operating environment: Temperature: 40° F to 120° F (4° C to 48° C)

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

Mounting: Vertical mount

Dimensions: 24 x 16 x 4.5 (in) / 61 x 40.6 x 11.4 (cm)

Weight: 22 pds.

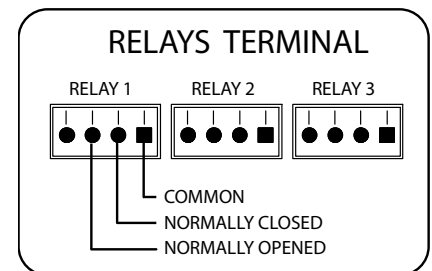


Figure 10

BASIC SYSTEM CONCEPT

18.1 CONCEPT COMPREHENSION:

The MULTIZONE SUPERVISION CP-1111 consists of a control panel that supervises detection modules designed for detecting the presence of water or other conductive liquids. There are two categories of detection modules: Hardwired and Wireless. Each detection module has channels or zones for allowing the connection of detectors with wires. Each of those channels has an exclusive address or identification.

18.2 BUS:

A BUS is a cable allowing data communication between the control panel and both categories of detection modules: hardwired and wireless. Hardwired Detection Modules (HDM) are directly connected to a BUS while Wireless Detection Modules (WDM) go through the BUS via a component called "REMOTE CONTROL PANEL" (RCN). A total of ten (10) BUS enable the MULTIZONE SUPERVISION CP-1111 to harmonize with any kind of building configurations by allowing a greater flexibility in the installation structure. Both HDM AND WDM are supported on the same BUS.

18.3 DETECTOR:

A detector is a device made of two probes which, in contact with water, allow the sending of a signal to the control panel. All detectors are wired connected on either hardwired or wireless detection modules.

18.4 HARDWIRED INSTALLATION:

For various reasons, the installation of a water detection system will require the use of hardwired components only. Furthermore, the control panel will be installed in a predetermined room, and all hardwired detection modules will be linked via a cable directly to the panel.

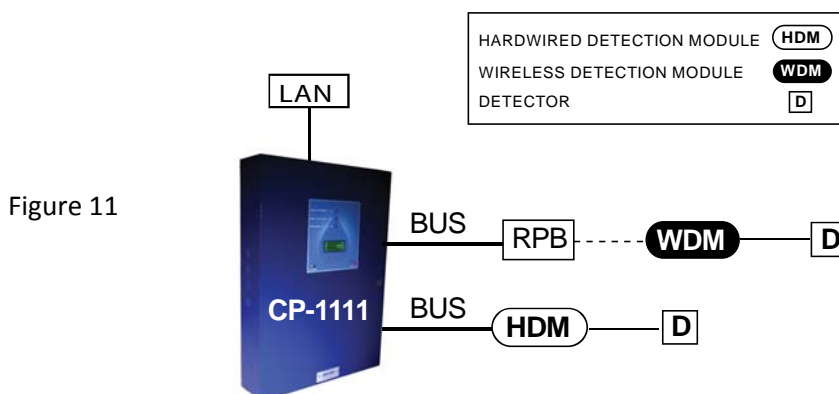
18.5 WIRELESS INSTALLATION:

Because its unique conception, the CP-1111 allows a wide variety of system's configuration. A special component called "REMOTE CONTROL PANEL" (RCN) allows the control panel to establish communication with wireless detection modules. The RCN is hardwired connected to the control panel via one of the 10 communication BUS. (See Figure 11.....)

18.6 HYBRID INSTALLATION:

With the development of the CP-1111, GIVE Systems goes beyond all the water detection products currently available on the market by offering a system having the capability to monitor both categories of detection devices : hardwired and wireless.

Thus , no matter the difficulties encountered when installing a system, no matter the existing structures that , very often can prevent the cable installation, the benefits and flexibility offered by the CP-1111 will surely satisfy customers'needs.



The schema of figure 11 shows the hierarchical disposition of components that will allow a signal from a detector to reach the control panel for processing.

DETECTION MODULES NOMENCLATURE

19.1 HARDWIRED DETECTION MODULE (HDM)

Hardwired Hub 8 channels (HUB-8-2)

The HUB-8-2 is hardwired connected to the control panel CP-1111 via a BUS (ethernet cable).

Eight (8) channels having each its own address are available for the connection of 8 detectors. Two (2) configurable outputs-inputs allow the control of valves, relays or other appliances.

See HUB-8-2 Specifications , section 21.....



Figure 12

19.2 WIRELESS DETECTION MODULES (WDM)

19.2.1 REMOTE CONTROL PANEL (RCN)

The REMOTE CONTROL PANEL (RCN) is the interface between the control panel and a wireless detection modules network. The RCN is wired connected to the panel and allows associated "WDM" only to communicate data to the panel. The association procedure creates a relation Parent-Child between the RCN and the "WDM".



Figure 13

19.2.2 Wireless Hub 8 channels (WH8-2)

The WH8-2 communicates by radio frequency with the panel directly via a RCN or via other wireless modules having the same association.

Eight (8) channels, having each its own address, are available for the connection of 8 detectors. Two (2) configurable outputs-inputs allow the control of valves, relays or other appliances.



Figure 14

19.2.3 Wireless Hub 4 channels (WH4)

The WH4 (Wireless Hub 4 channels) communicates by radio frequency with the panel directly via a RCN or via other wireless modules having the same association. Four (4) channels having each its own address, are available for the connection of 4 detectors.



Figure 15

19.2.4 Wireless Detector (WD)

The WD (Wireless Detector) communicates by radio frequency with the panel directly via a RCN or via other wireless modules having the same association. The WD has a single channel corresponding at its exclusive address and allowing the connection of one detector.

WD



Figure 16

19.2.5 Wireless Relay Station (WRS)

The Wireless Relay Station (WRS) is used between two (2) associated wireless modules detection or between a wireless module detection and its associated RCN to enable a weak transmission signal to initiate a stronger one and maintain the communication reliable and acceptable.

WRS



Figure 17

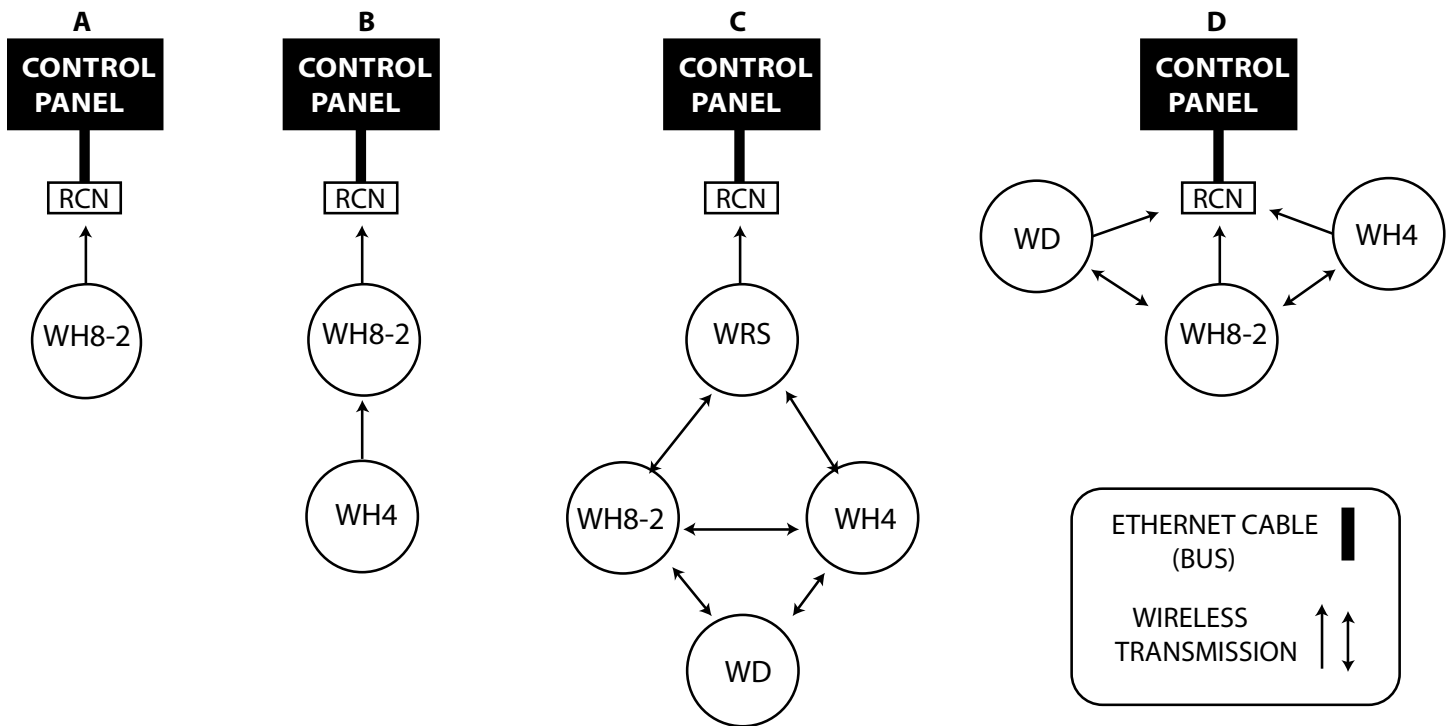
20. Wireless transmission – mesh network

In all situations, the force of signal transmissions of a wireless module will always vary according to the environment in which it is installed. Many factors such as a concrete wall, steel, furniture, windows, distance between components etc. will cause a diminution, even a loss of signal.

The mesh network brings the ideal solution to that problem by allowing each of its components to transmit and receive signals from any of its neighbours. Thus, a wireless module which is unable to communicate directly with the panel because the distance or obstacles will have the capability to transmit data to the other modules located nearby which will relay that information to its final destination.

The Figure 18..... shows examples of communication diagrams for the control panel and the wireless detection modules.

Figure 18



21. WIRELESS MODULES / DIAGRAMS OF COMMUNICATION

21.1 DIAGRAM "A"

The diagram "A" shows one (1) Wireless component (WH8-2) communicating directly with a RCN which is itself hardwired linked to the control panel:

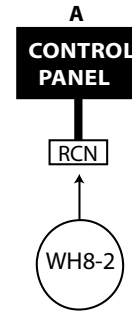


Figure 19

21.2 DIAGRAM "B"

The diagram "B" shows two (2) wireless components (WH8-2 and WH4). The signals transmission go the following order:

WH4,WH8-2,RCN and the control panel.

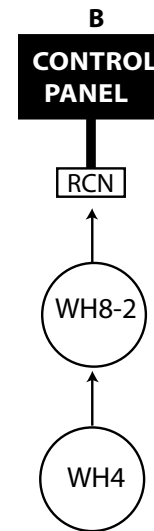


Figure 20

21.3 DIAGRAM "C"

The diagram "C" shows 4 wireless components (WD,WH8-2,WH4,and WRS). The signal transmission can go different orders:

- A) WD,WH4,WRS,RCN and the control panel
- or
- B) WD,WH8-2,WRS,RCN and control panel
- or
- C) WD,WH8-2,WH4,WRS,RCN and the control panel
- or
- D) WD,WH4, WH8-2,WRS,RCN and the control panel

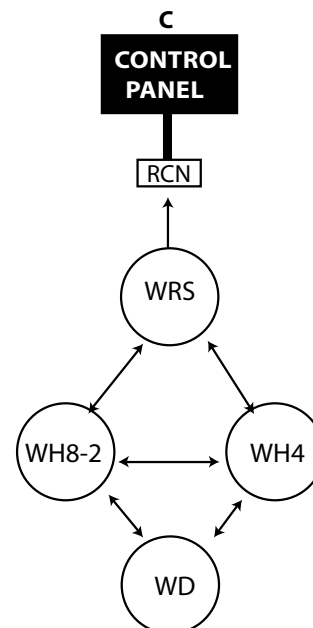


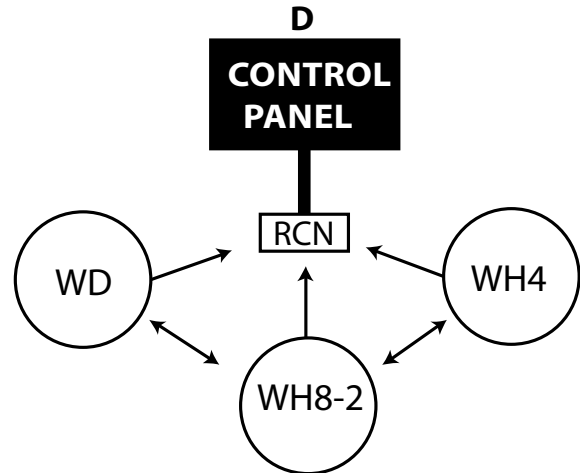
Figure 21

21.4 DIAGRAM "D"

The diagram "D" shows 3 wireless components (WD WH8-2 and WH4). The signal transmission can go different orders:

- A) WD,RCN and the control panel
- or
- B) WD,WH8-2,RCN and the control panel
- or
- C) WD,WH8-2,WH4,RCN and the control panel
- or
- D) WD,WH4, WH8-2,WRS,RCN and the control panel
- and
- E) WH8-2,RCN and the control panel.
- or
- F) WH8-2,WH4,RCN and the control panel.
- or
- G) WH8-2,WD,RCN and the control panel.
- and
- H) WH4,RCN and the control panel.
- or
- I) WH4, WH8-2,RCN and the control panel.
- or
- J) WH4,WH8-2,WD,RCN and the control panel.

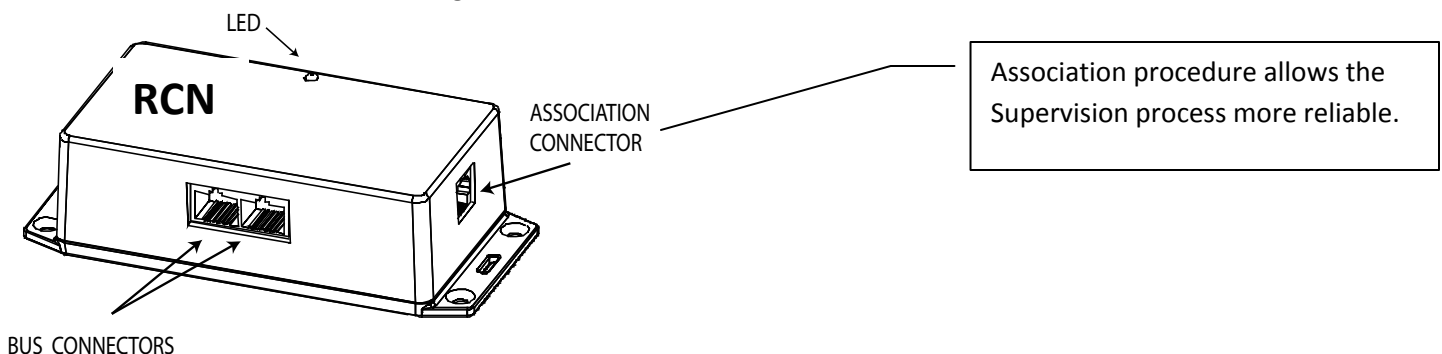
Figure 22



22. ASSOCIATION PROCEDURE : Wireless modules- Identification-integrity.

The CP-1111 has the capability to supervise up to 1600 addresses. To preserve the exclusivity of each and make the routine of supervision more efficient, the "ASSOCIATION PROCEDURE" allows wireless modules to be associated to a specific RCN which become the "parent" of one or a group of wireless detection modules. The design of all wireless modules includes an "Association" connector that allows this operation. Complete "Association Procedure" is described at section in the service manual.

Figure 23

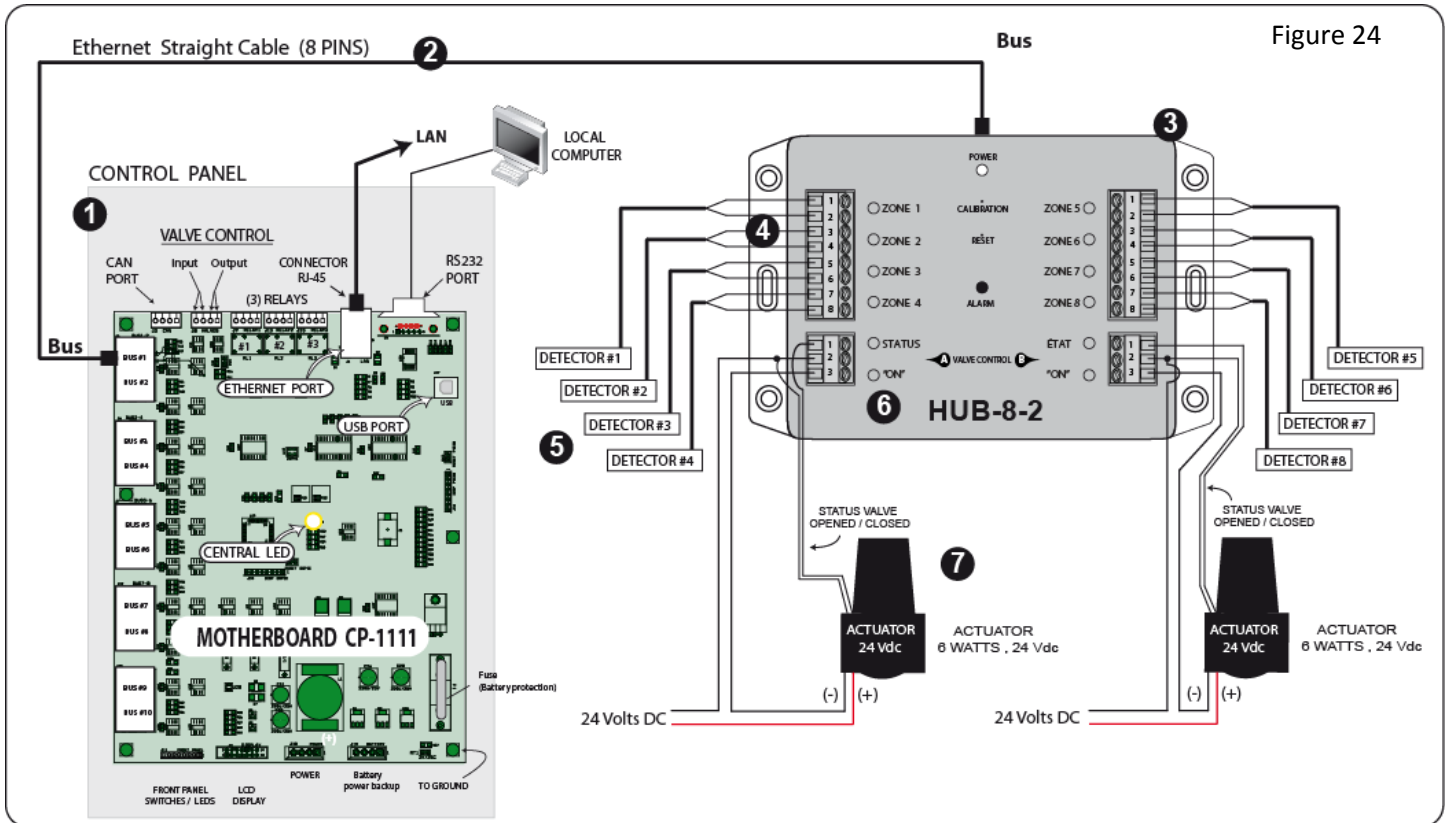


23. COMMON TYPES OF INSTALLATION (EXAMPLES)

The following illustrations depict basic principles of different common types of installations:

23.1 Example #1

- HARDWIRED INSTALLATION- 1 BUS / 1 HUB-8-2 (8 CHANNELS)**



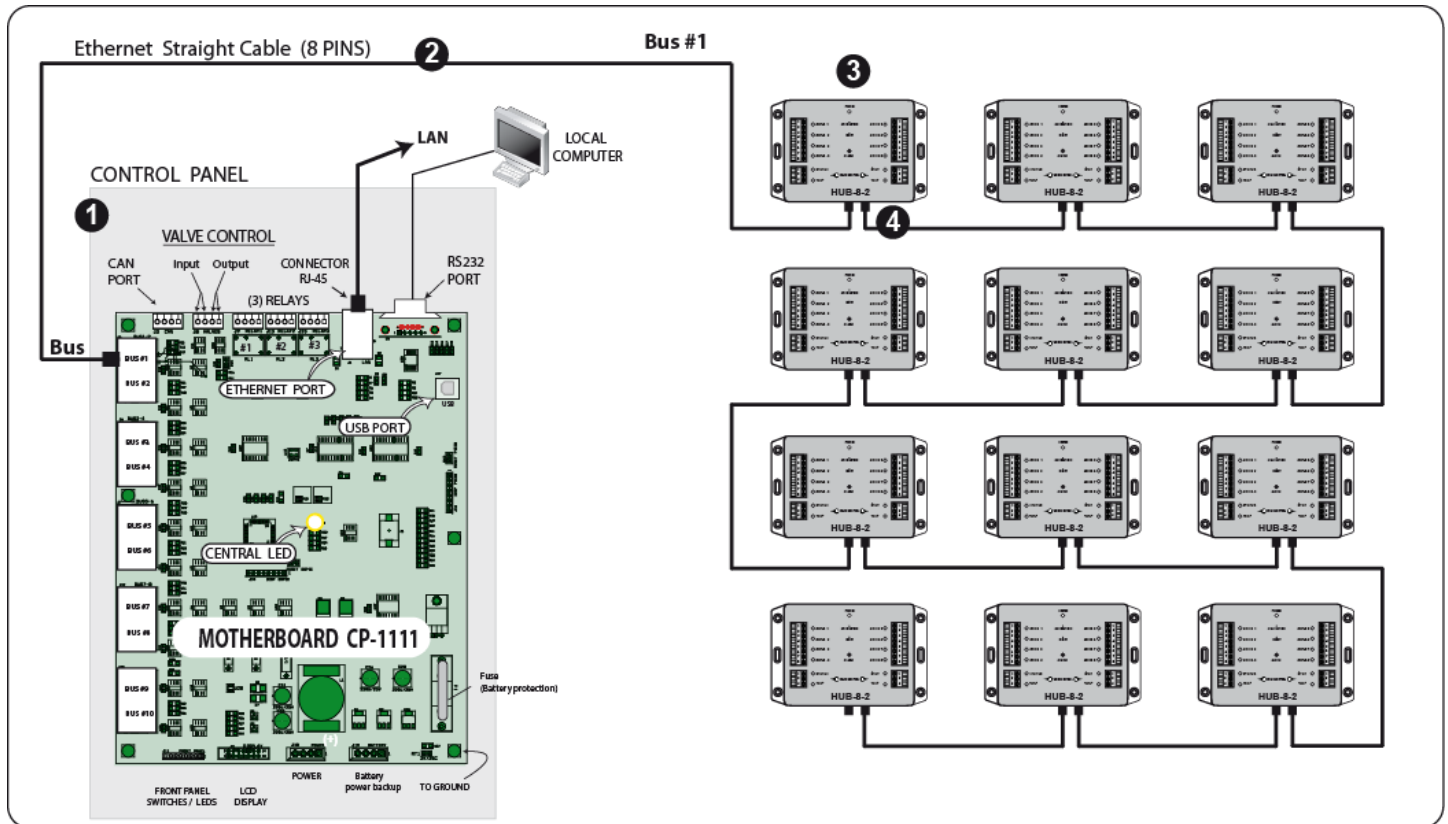
As showed in the Figure 24, the basic hardwired structure gathers the following items:

- 1- The control panel CP-1111
- 2- An Ethernet cable (BUS) for the datas transmission between the panel and the hardwired detection module.
- 3- The hardwired detection module: HUB-8-2
- 4- Eight (8) available channels, hardwired connected to the detectors.
- 5- The detectors (DF1- DS2)
- 6- Two (2) available outputs-inputs Control "Low Side Switch" (that can be used for controlling Valves)
- 7- Automatic valves, controlled by the HUB-8-2.

23.2 Example #2

HARDWIRED INSTALLATION- 12 DEVICES - 1 BUS / 12 HUB-8-2 (96 CHANNELS)

Figure 25



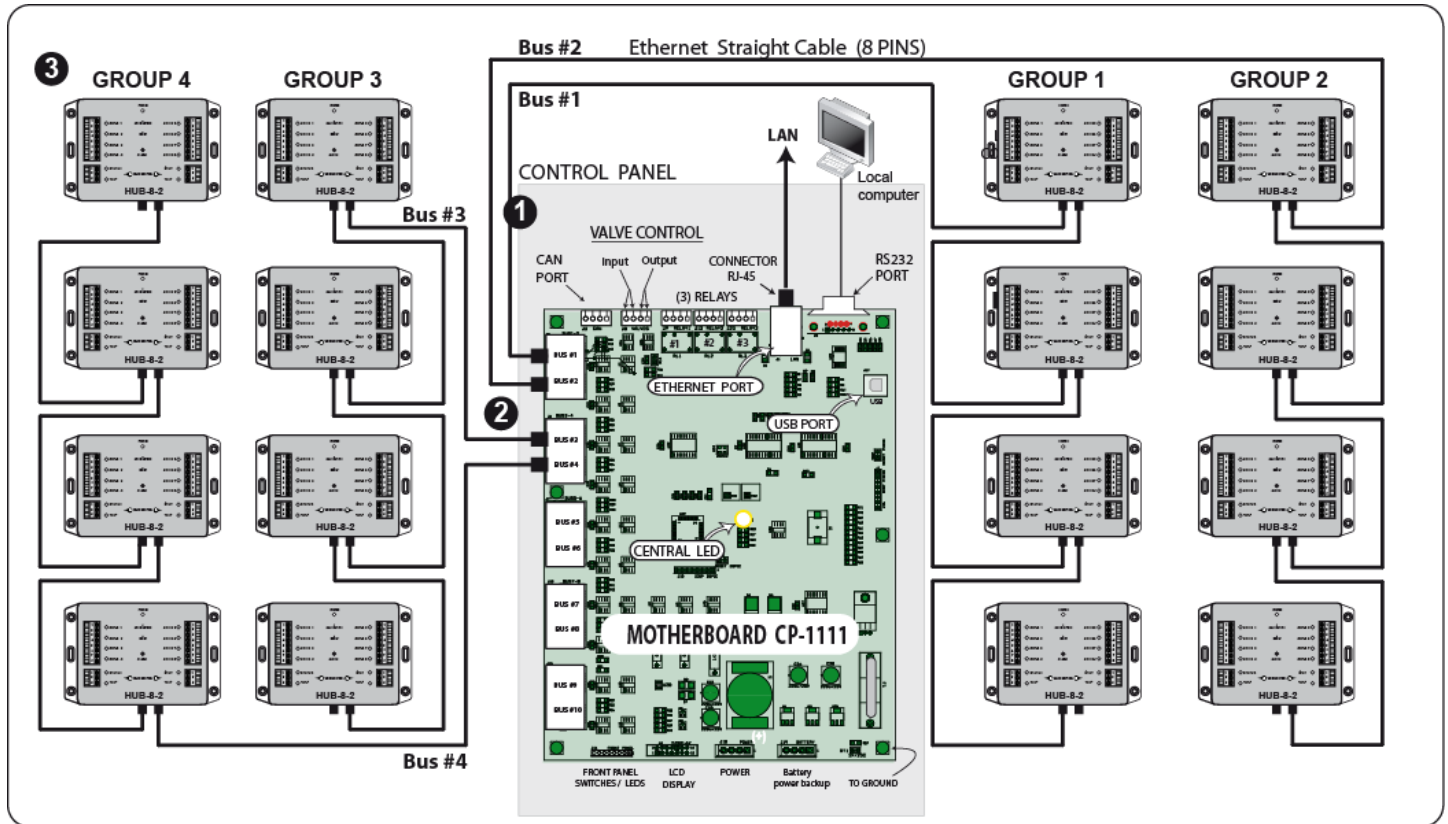
The Figure 25, shows the capability of the CP-1111 to monitor many hardwired detection modules (HUB-8-2) which are installed on the same BUS. Each HUB-8-2 has an Input-Output allowing the "Serial" connection of those items. A maximum of twenty (20) HUB-8-2 can be installed on the same BUS.

- 1- The control panel CP-1111
- 2- An Ethernet cable (BUS) for the data transmission between the panel and the twelve (12) HUB-8-2.
- 3- The first hardwired detection module: HUB-8-2
- 4- The "INPUT-OUTPUT" CONNECTOR.

23.3 Example #3

HARDWIRED INSTALLATION- 12 DEVICES - 4 BUS / 12 HUB-8-2 (96 CHANNELS)

Figure 26



The Figure26 , shows the capability of the CP-111 to monitor many hardwired detection modules (HUB-8-2) which are installed using 4 different BUS having each 4 HUB-8-2. Each HUB-8-2 has an Input-Output allowing the "Serial" connection of those items. A maximum of twenty (20) HUB-8-2 can be installed on the same BUS.

- 1- The control panel CP-1111
- 2- Four (4) different BUS are used for the datas transmission CP between the panel and the (12) HUB-8-2.
- 3- Each BUS, supports a group of 4 hardwired detection module.

23.4 Example #4

WIRELESS INSTALLATION- (1) BUS / 1 RCN / 1 WH8-2 (8 CHANNELS)

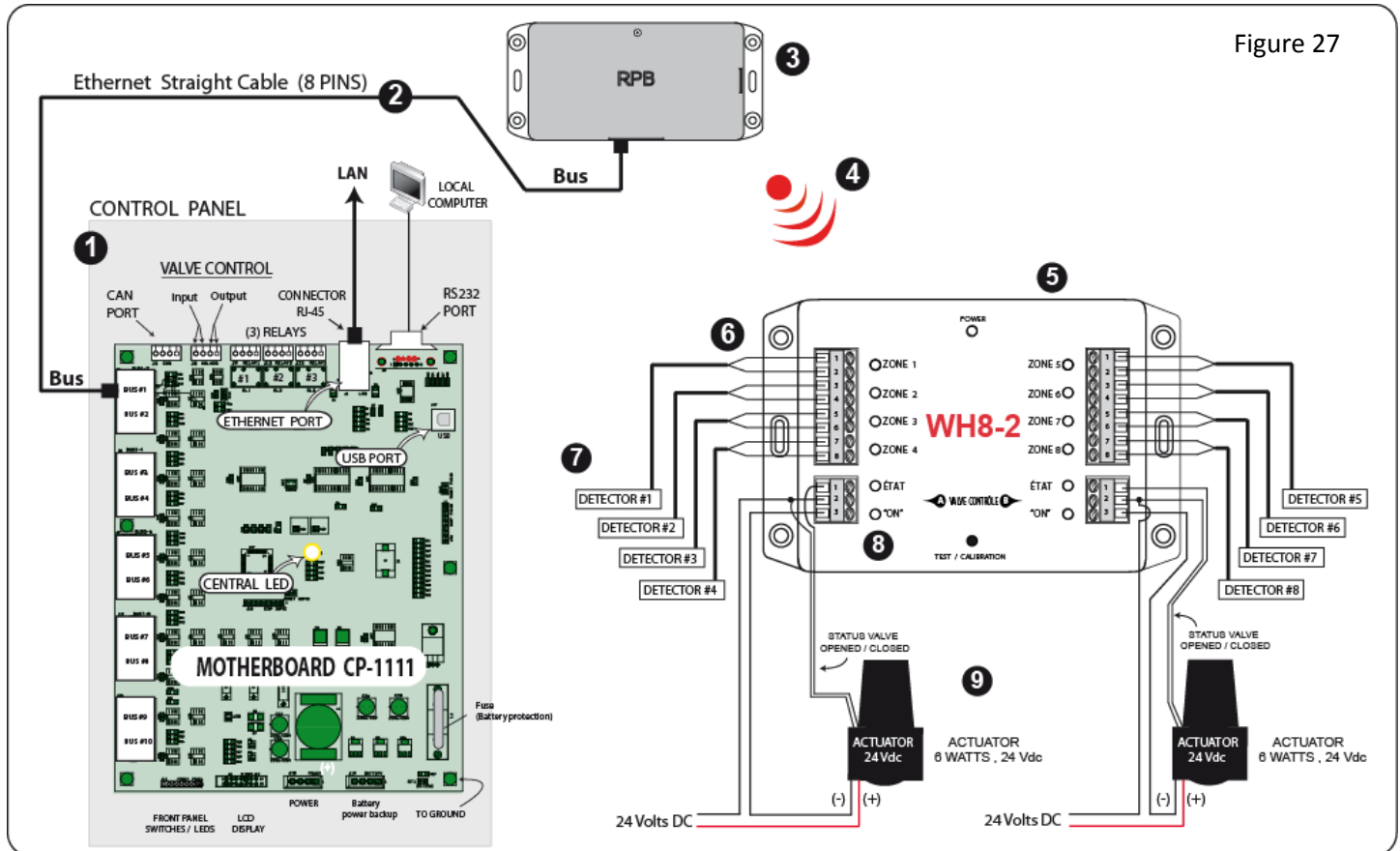


Figure 27

As showed in the Figure27, the basic wireless structure gathers the following items:

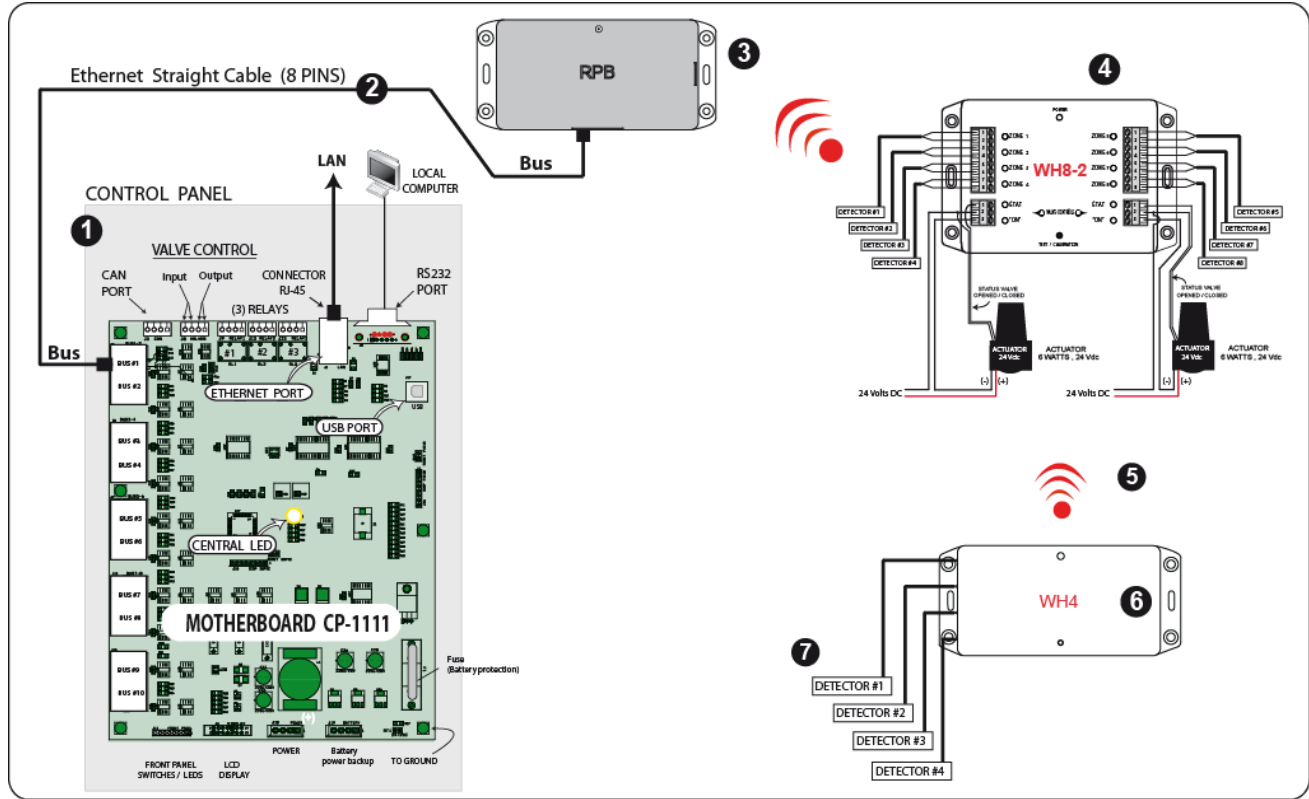
- 1- The control panel CP-1111
- 2- An Ethernet cable (BUS) for the datas transmission between the panel and the REMOTE CONTROL PANEL (RCN).
- 3- The REMOTE CONTROL PANEL (RCN) : This device ensures the link between the panel with the wireless detection module associated to it.
- 4-The RCN communicates with the associated Wireless Detection Module by radio frequency.
- 5- The wireless detection module WH8-2 having (8) available channels.
- 6- Each channel of the WH8-2 is hardwired connected to the detectors (DF1- DS2)
- 7- Detectors connected to the WH8-2.
- 8- Two (2) available outputs-inputs Control "Low Side Switch" (that can be used for controlling Valves)
- 9- Automatic valves , controlled by the WH8-2.

23.5 Example #5

WIRELESS INSTALLATION- 3 DEVICES - 1 BUS / VARIOUS MODULES (12 CHANNELS)

UNIQUE ORDER OF WIRELESS TRANSMISSION

Figure 28



As showed in the Figure28, the wireless structure designed with the using of one sole BUS, gathers the following items:

- 1- The control panel CP-1111
- 2- An Ethernet cable (BUS) for the datas transmission between the panel and the REMOTE CONTROL PANEL (RCN).
- 3- The REMOTE CONTROL PANEL (RCN) : This device ensures the link between the panel with the wireless detection modules associated to it.
- 4- The first wireless detection module WH8-2 having (8) available channels. Each channel of the WH8-2 is hardwired connected to the detectors (DF1- DS2)
- 5- The radio frequency link allowing both wireless detection modules to communicate with each other and with their associated RCN.
- 6- The second wireless detection module "WH4" with (4) available channels. Each channel of the WH4 is hardwired connected to the detectors (DF1- DS2)
- 7- Detectors connected to the WH4.

NOTE: The communication between the different devices is made according the following order:



23.6 Example #6

WIRELESS INSTALLATION- 5 DEVICES - 1 BUS / VARIOUS MODULES (13 CHANNELS)

VARIOUS ORDERS OF WIRELESS TRANSMISSION : MESH NETWORK

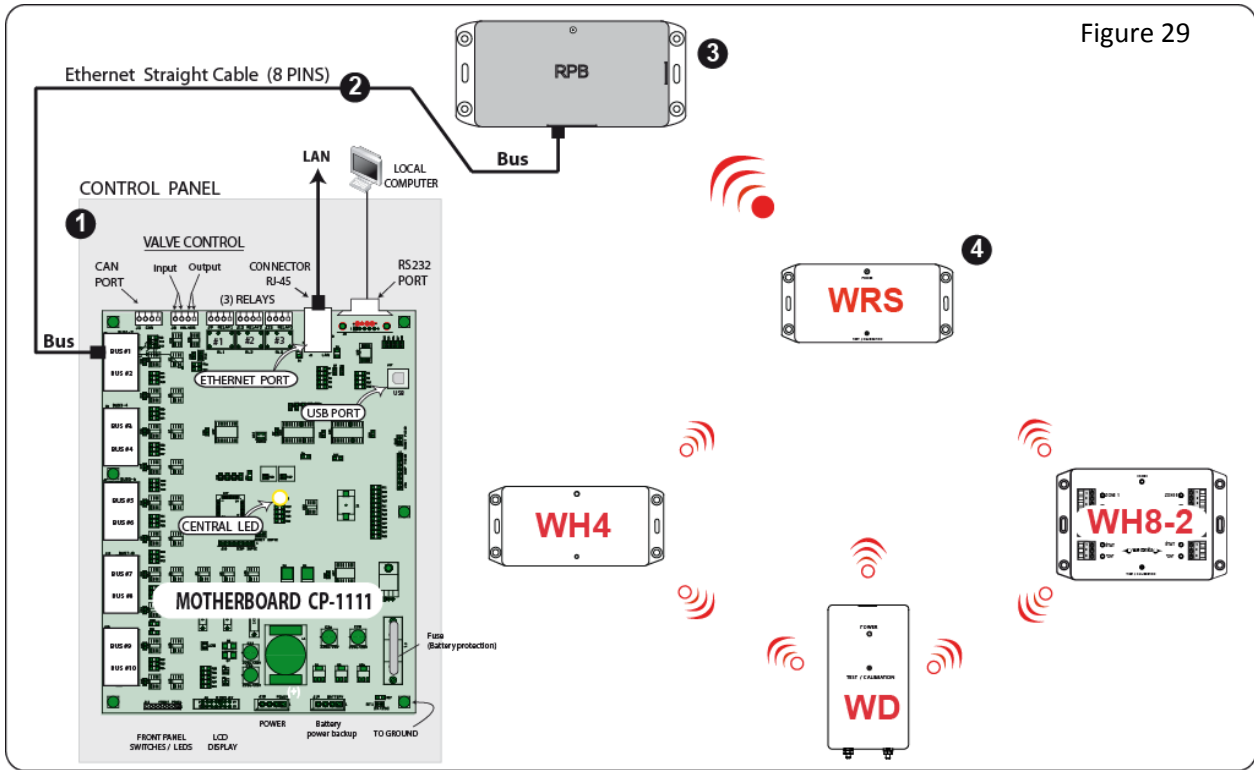
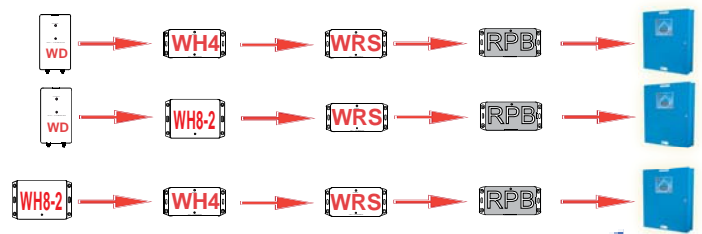


Figure 29

The Figure 29, shows a wireless structure designed with the using of one sole BUS, and gathering items that require the use of a Relay Station (WRS) because a power drop of the transmission signal.

- 1- The control panel CP-1111
- 2- An Ethernet cable (BUS) for the datas transmission between the panel and the REMOTE CONTROL PANEL (RCN).
- 3- The REMOTE CONTROL PANEL (RCN) : This device ensures the link between the panel with the wireless detection modules associated to it.
- 4- The Relay Station Module (WRS) for reinforcing the transmission signals from other wireless components. (WH4,WH8-2 and WD).

ORDER OF TRANSMISSION: MESH NETWORK
 A mesh network offers many ways for a detection module to communicate to its associated RCN.



23.7 Example #7

WIRELESS INSTALLATION- 6 DEVICES - 2 BUS / VARIOUS MODULES (24 CHANNELS)

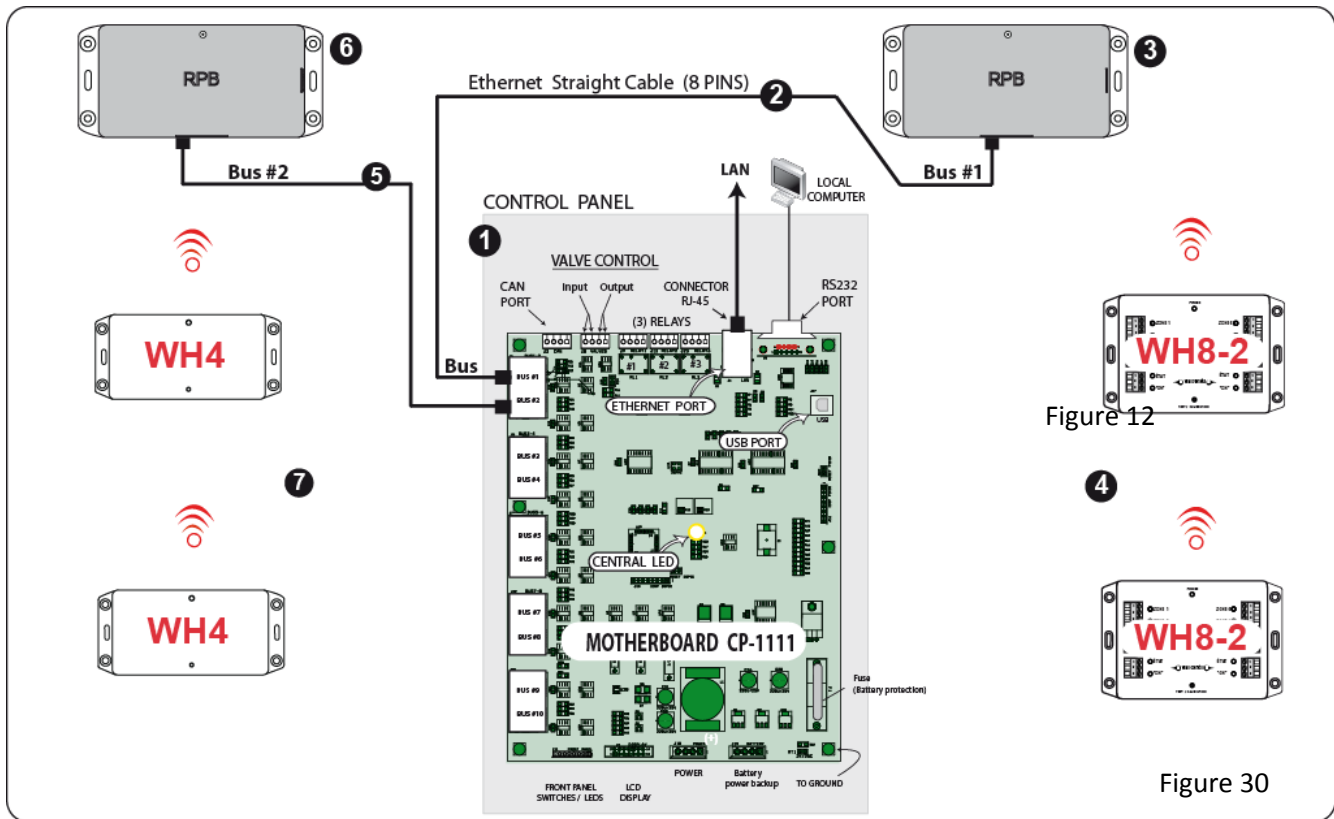


Figure 12

Figure 30

The Figure 30, shows a wireless structure using two (2) different BUS having each a wireless detectors network.

- 1- The control panel CP-1111
- 2- The BUS #1 for the data transmission between the panel and the RCN identified as "3".
- 3- The RCN, identified by "3" is associated with both "WH8-2" for data communication.
- 4- Two (2) WH8-2.
- 5- The BUS #2 for the data transmission between the panel and the RCN identified as "6".
- 6- The RCN, identified by "6" is associated with both "WH4" for data communication.
- 7- Two (2) WH4.

23.8 Example #8

MIXED INSTALLATION (HARDWIRED-WIRELESS)- 6 DEVICES- ONE SOLE BUS (40 CHANNELS)

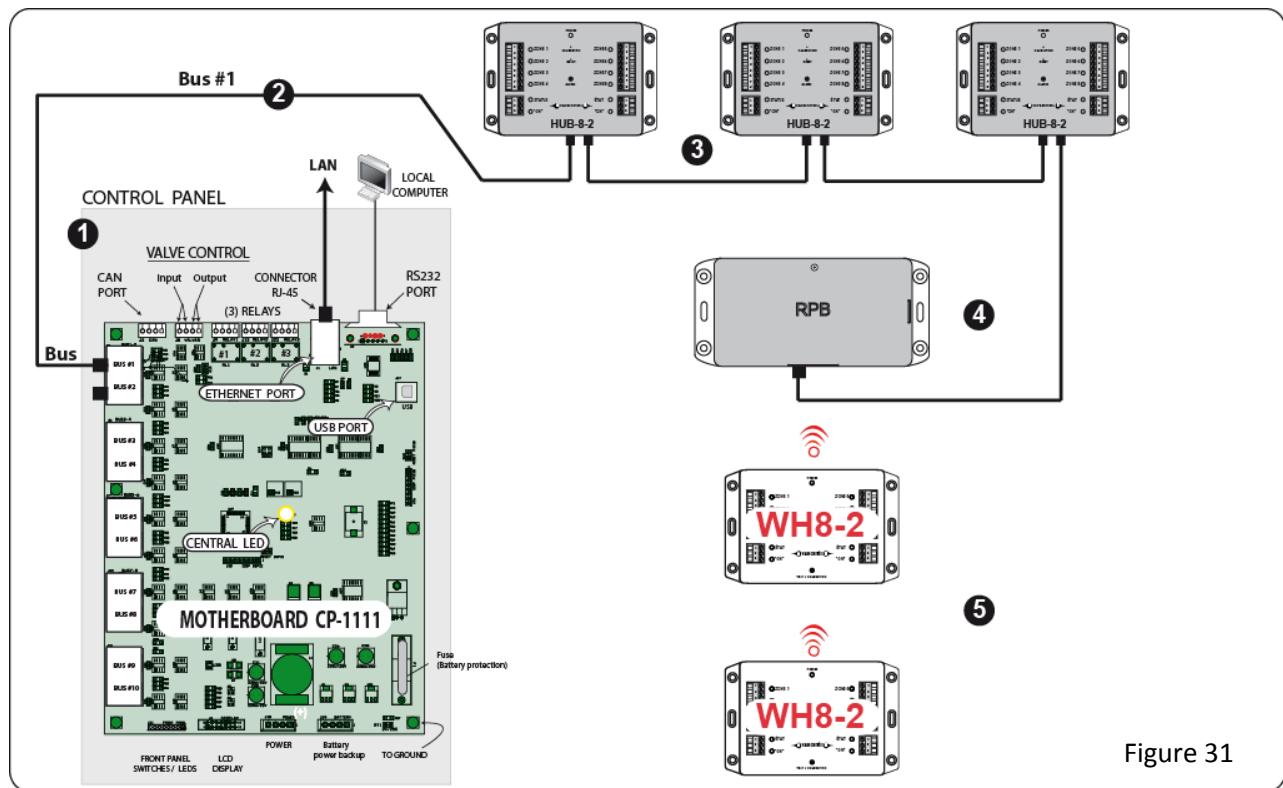


Figure 31

The Figure 31 , shows a combination of wireless and hardwired installation. On a single BUS we see a first group of hardwired detection modules, followed by a group of wireless detection components for a total of 40 channels. Each detection module , both the wireless and the hardwired have the capability to control automatic valves or other devices.

- 1- The control panel CP-1111
- 2- The BUS #1 for the data transmission between the panel and all the detection modules.
- 3- The first group of detection modules (hardwired group) gathering 3 HUB-8-2.
- 4- The second group of detection modules (wireless group) starting by the RCN associated with two (2) WH8-2.

23.9 Example #9

MIXED INSTALLATION (HARDWIRED-WIRELESS) – 16 DEVICES - 5 BUS (120 CHANNELS)

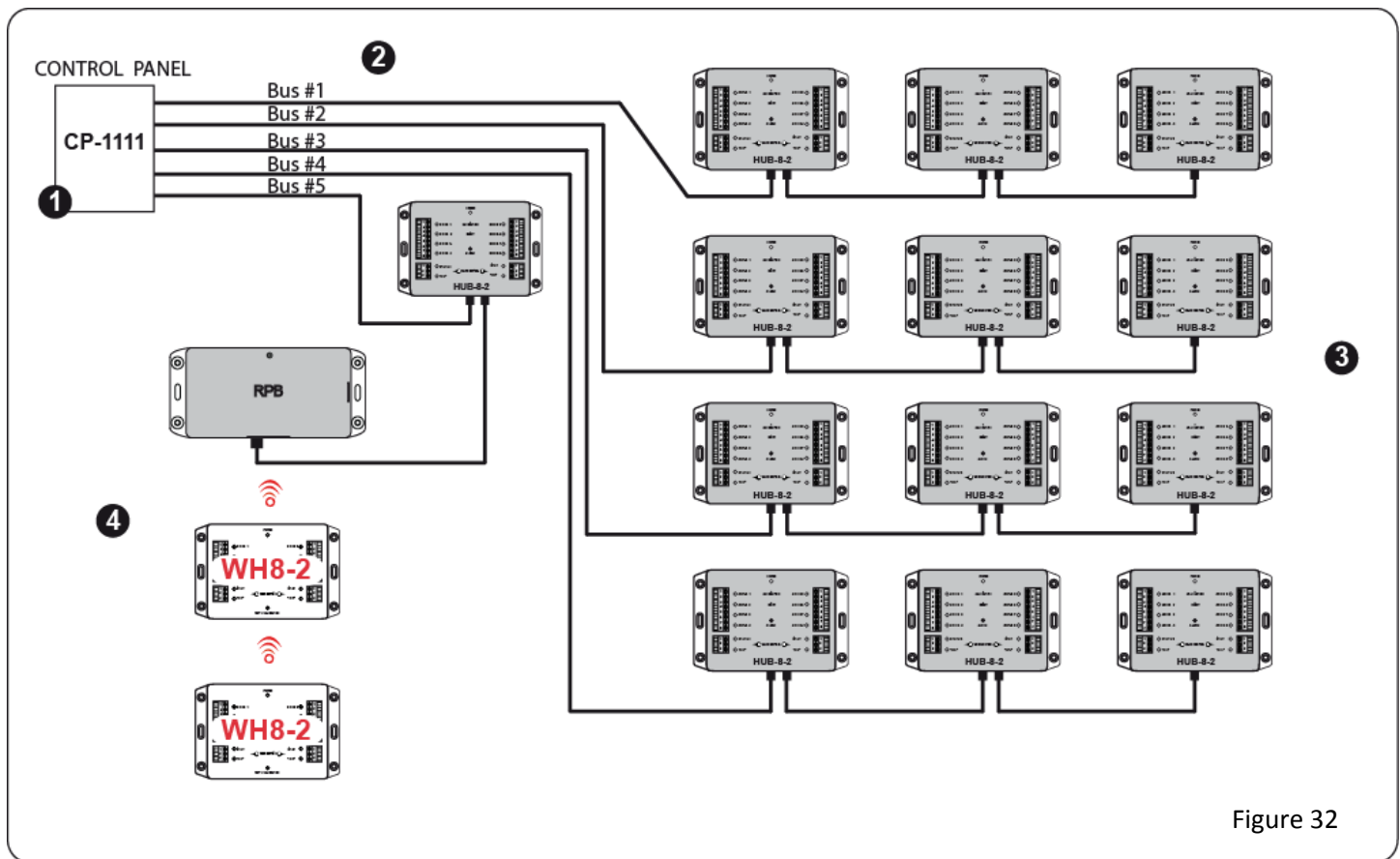


Figure 32

The Figure 32, shows a combination of wireless and hardwired detection modules installed on 5 different BUS. On the four (4) first BUS, we can see identical groups of 3 hardwired detection modules (HUB-8-2). The fifth BUS shows a combination of hardwired-wireless detection modules. Thus, a total of 120 channels are supervised by the control panel.

- 1- The control panel CP-1111
- 2- The five (5) BUS for the data transmission between the panel and all the group of detection modules.
- 3- The four (4) first groups of detection modules (hardwired groups) on the four (4) first BUS, which gather a total of 12 HUB-8-2.
- 4- The mixed group of detection modules (wireless group) on the BUS #5, starting by an hardwired detection module (HUB-8-2) and followed by the RPB associated with two (2) WH8-2.

24. DETECTION MODULES SPECIFICATIONS – HARDWIRED (HDM)

Figure 33

24.1 Hardwired Hub / 8 channels (HUB-8-2) SUPERVISED MODE

Powered: Via BUS , from the control panel.
 Voltage: 12 Volts DC
 Communication: RS485
 Power consumption:
 In operation (alarm): 50 mA
 In standby: 10 mA

Terminal Inputs:

Detection channels: 8
 Valve status (opened/closed): 2
 Bus Connection: 2 (connectors RJ45)

Terminal Outputs

(valve control): 2 (Programmable via Supervisor Software)

ALARM CATEGORIES:

Detection: Contact of water with detector
 Wirefault: Wire disconnected or broken between HUB & detector.
 Linkfault: Wire disconnected or broken between HUB & Panel.

Wiring distance:

Control Panel-HUB: 300 meters (1000 ft.)
 HUB-HUB: 300 meters (1000 ft.)
 HUB-channels: 300 meters (1000 ft.)

VISUAL INDICATOR (LED's):

Power: 1 LED (blinks each second)
 Channels identification: 8 LED's (one by channel)
 Alarm-detection: Light during the detection
 Alarm-Wirefault: Blinks each second.

Outputs activation: 2 LED's (one by output)
 Inputs signal: 2 LED's (one by input)

AUDIBLE ALARM: INTERNAL BUZZER

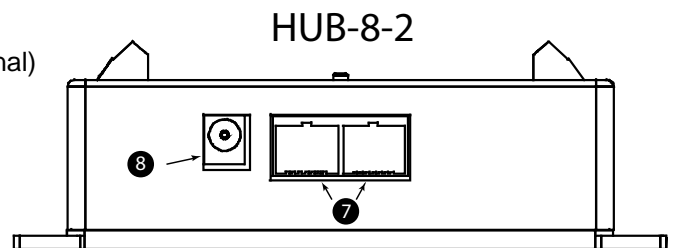
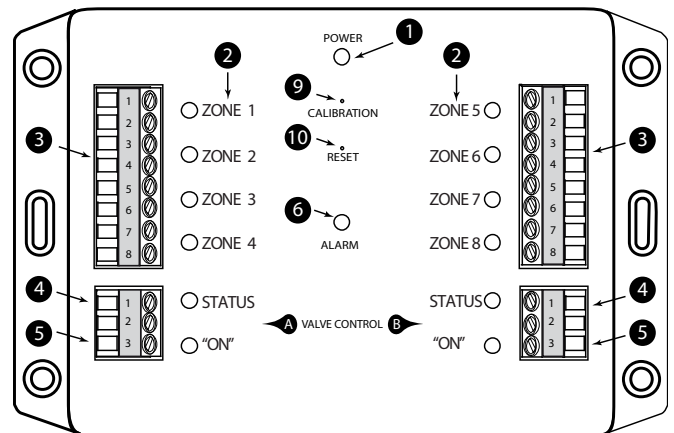
DETECTORS:

Flexible detector: Model DF1
 Solid detector: Model DS2
 Solid detector with resistance: Model DS2-R (used for wirefault signal)
 Impedance: 500 to 1600 k-ohms
 Connection on each channel: In parallel

Reset button: In mode autonomous only.
 Configuration button: In mode autonomous only.
 Adaptor connector: In mode autonomous only.



- 1- Led (power)
- 2- Leds channels indentif i ation
- 3- Terminal inputs (detectors)
- 4- Terminal inputs (valve status)
- 5- Terminal outputs (valve control)
- 6- Buzzer push button
- 7- Bus connectors
- 8- Adaptor connector
- 9- Calibration button
- 10- Reset button



Dimensions: L: 147 mm x W: 96 mm x D: 38 mm
 L: 5.8" x W: 3.8" x D: 1.5"

25. DETECTION MODULES SPECIFICATIONS – WIRELESS (WDM)

- REMOTE CONTROL PANEL (RCN)
- WIRELESS HUB – 8 CHANNELS – 2 CONTROLS (WH8-2)
- WIRELESS HUB – 4 CHANNELS (WH4)
- WIRELESS DETECTOR (WD)
- WIRELESS RELAY STATION (WRS)

25.1 REMOTE CONTROL NETWORK (RCN)

Figure 34

Powered: Via BUS , from the control panel.
Voltage: 12 Volts DC
Communication: RS485 via BUS to the control panel.
Radio frequency between WDM.

Terminal Inputs:

Bus Connection: 2 (connectors RJ45)
Association Connector Connector RJ11

Wiring distance:

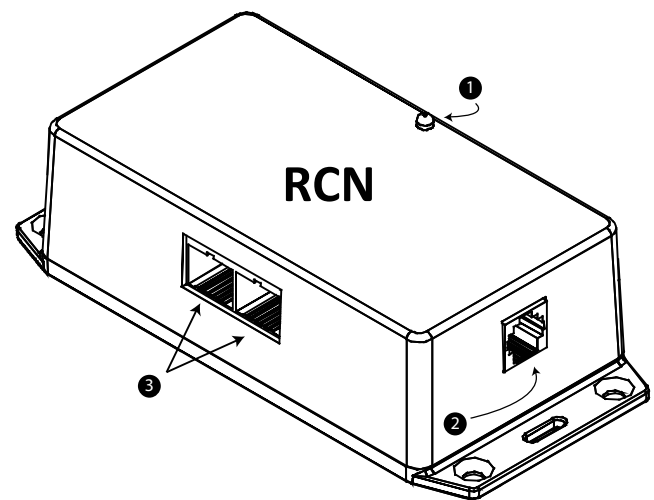
Control Panel-RCN: 300 meters (1000 pi)

Visual indicator (LED):

Power: 1 LED (blinks each 3 seconds)



- 1- Led (power)
- 2- Association Connector
- 3- BUS Connector



Dimensions: L: 145mm x W: 67mm x D: 40mm
L: 5.7" x W: 2.6" x D: 1.6"

Figure 36

25.2. WIRELESS HUB – 8 CHANNELS – 2 CONTROLS (WH8-2)

Powered: Adaptor 9-12 volts DC
 Voltage: 12 Volts DC
 Communication: Wireless
 Power consumption:
 In operation (alarm): 300 mA
 In standby: 10 mA

Terminal Inputs:

Detection channels: 8
 Valve status (opened/closed): 2

Terminal Outputs

(valve control): 2 (Programmable via Supervisor Software)

Alarm categories:

Detection: Contact of water with detector
 Wirefault: Wire disconnected or broken between WH8-2 & detector.
 Linkfault: Loss of signal between RCN and WH8-2

WirelessTransmission:

Technology: ZigBee
 Protocol: IEEE 802.15.4
 Frequency: 2.4 GHz
 Range: Regular:30 meters / Pro: 90 meters
 Detectors (distance wiring) 30 meters (detector ↔ WH8-2)

Visual Indicators (LED's):

Power: 1 LED (blinks each second)
 Channels identification: 8 LED's (one by channel)
 Alarm-detection: Light during the detection
 Alarm-Wirefault: Blinks each second.

Outputs activation: 2 LED's (one by output)
 Inputs signal: 2 LED's (one by input)

DETECTORS:

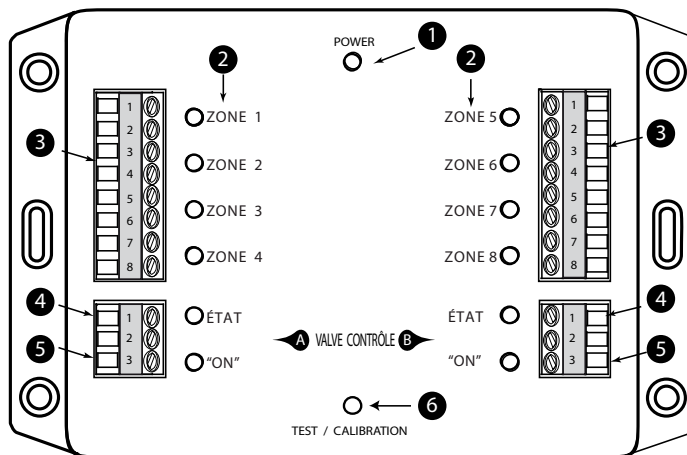
Flexible detector: Model DF1
 Solid detector: Model DS2
 Solid detector +resistance: Model DS2-R (used for wirefault signal)
 Impedance: 500 to 1600 k-ohms
 Connection method: In parallel

Calibration button: xxxxxxxx
 Test button: Measuring of signal strength

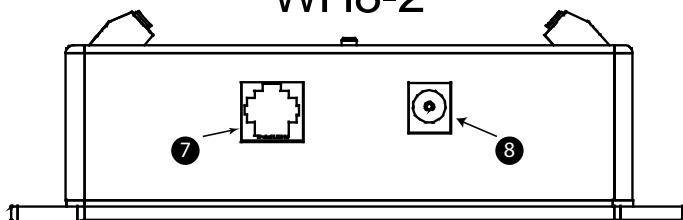
WH8-2



- 1- Led (power)
- 2- Leds channels indentif i ation
- 3- Terminal inputs (detectors)
- 4- Terminal inputs (valve status)
- 5- Terminal outputs (valve control)
- 6- Test Calibration button
- 7- Association connector
- 8- Power Adaptor connector



WH8-2



Dimensions: L: 147 mm x W: 96 mm x D: 38 mm
 L: 5.8" x W: 3.8" x D: 1.5"

25.3. WIRELESS HUB – 4 CHANNELS (WH4)

Powered:	Adaptor 9-12 volts DC
Voltage:	12 Volts DC
Communication:	Wireless
Power consumption:	
In operation (alarm):	300 mA
In standby:	50 mA

Terminal Inputs:

Detection channels: 4

Alarm categories:

Detection:	Contact of water with detector
Wirefault:	Wire disconnected or broken between WH8-2 & detector.
Linkfault:	Loss of signal between RCN and WH8-2

WirelessTransmission:

Technology:	ZigBee
Protocol:	IEEE 802.15.4
Frequency:	2.4 GHz
Range:	Regular:30 meters / Pro: 90 meters
Detectors	
(distance wiring)	30 meters (detector ↔ WH8-2)

Visual Indicators (LED's):

1 LED :	Power: The led blinks each second.
	Test: Indicates the strength of signal.

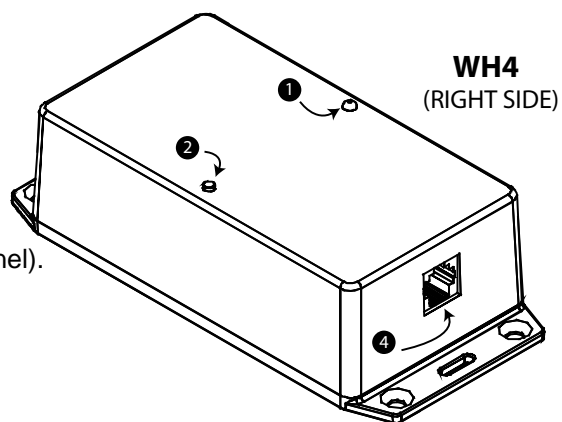
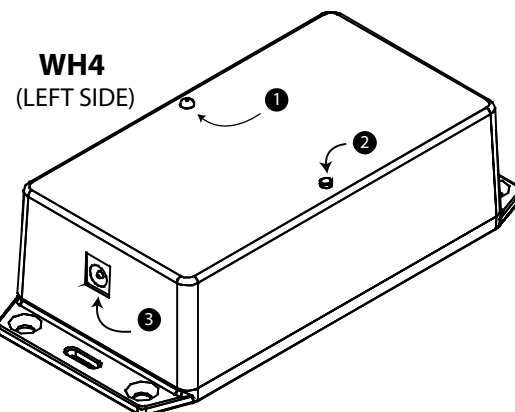
DETECTORS:

Flexible detector:	Model DF1
Solid detector:	Model DS2
Solid detector +resistance:	Model DS2-R (used for wirefault signal)
Impedance:	500 to 1600 k-ohms
Connection method:	In parallel (if more than one detector per channel).

Calibration button:	xxxxxxx
Test button:	Measuring of signal strength

WH4

- 1- Led (power)
- 2- Calibration -Test Button
- 3- Power Adaptor Connector
- 4- Association Connector



Dimensions: L: 145mm x W: 67mm x D: 40mm
L: 5.7" x W: 2.6" x D: 1.6"

25.4 WIRELESS DETECTOR (WD)

WD

Figure 38



Powered: 4 batteries "AA"
Voltage: 6 Volts DC
Communication: Wireless
Power consumption:
 In operation (alarm): -----
 In standby: -----

Inputs:
 Detection electrode: 1 address

Alarm categories:
 Detection: Contact of water with electrodes.
 Linkfault: Loss of signal between RCN and WD

WirelessTransmission:
 Technology: ZigBee
 Protocol: IEEE 802.15.4
 Frequency: 2.4 GHz
 Range: 30 meters

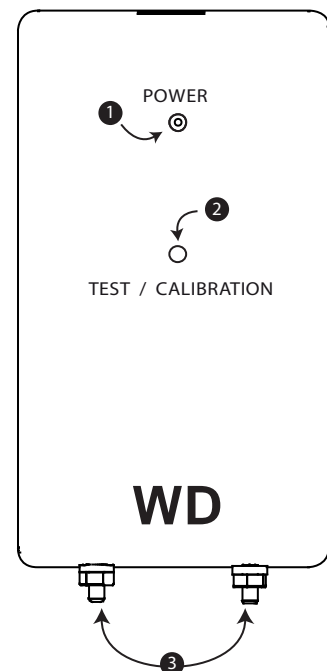
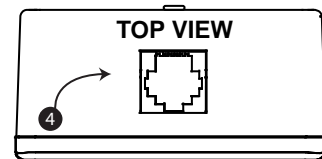
Visual Indicators (LED's):

1 LED : Power: The led blinks each second.
 Test: Indicates the strength of signal.

Impedance: 500 to 1600 k-ohms

Calibration button: xxxxxxxx
 Test button: Measuring of signal strength

- 1- Led (power)
- 2- Calibration - Test Button
- 3- Detection Electrode
- 4- Association Connector



Dimensions: L: 114 mm x W: 63 mm x D: 31 mm
 L: 4.5" x W: 2.5" x D: 1.2"

25.5 WIRELESS RELAY STATION (WRS)



Figure 39

Powered: Adaptor 9-12 volts DC
Voltage: 12 Volts DC
Communication: Wireless
Power consumption:
 In operation (alarm): -----
 In standby: -----

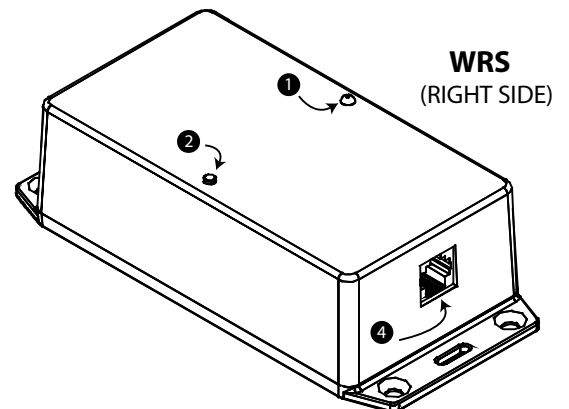
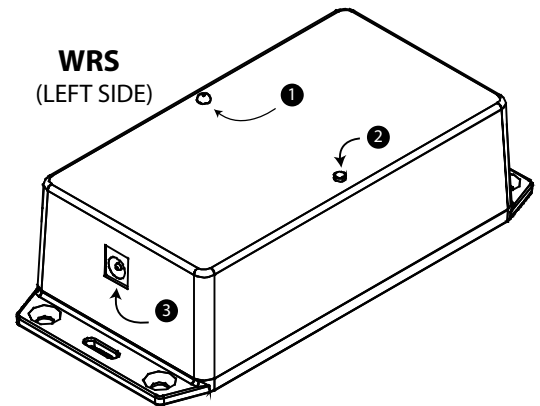
WirelessTransmission:
 Technology: ZigBee
 Protocol: IEEE 802.15.4
 Frequency: 2.4 GHz
 Range: Regular:30 meters / Pro: 90 meters

Visual Indicators (LED's):

1 LED : Power: The led blinks each second.
 Test: Indicates the strength of signal.

Calibration button: xxxxxxx
 Test button: Measuring of signal strength

- 1- Led (power)
 - 2- Calibration - Test Button
 - 3- Power Adaptor Connector
 - 4- Association Connector



Dimensions: L: 145mm x W: 67mm x D: 40mm
 L: 5.7" x W: 2.6" x D: 1.6"