Wireless Pneumatic Thermostat (WPT)

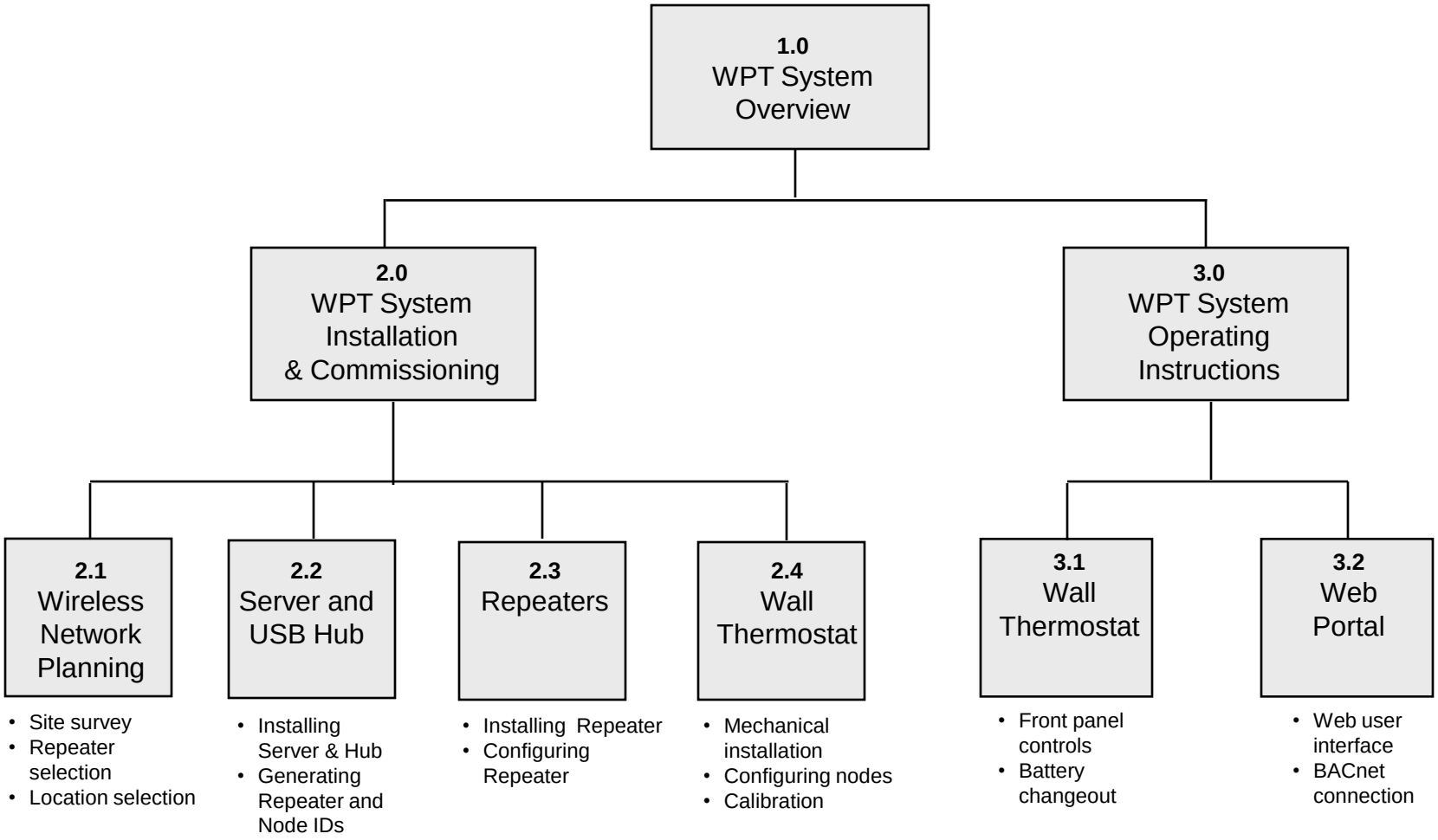
Training Program

www.CypressEnvirosystems.com

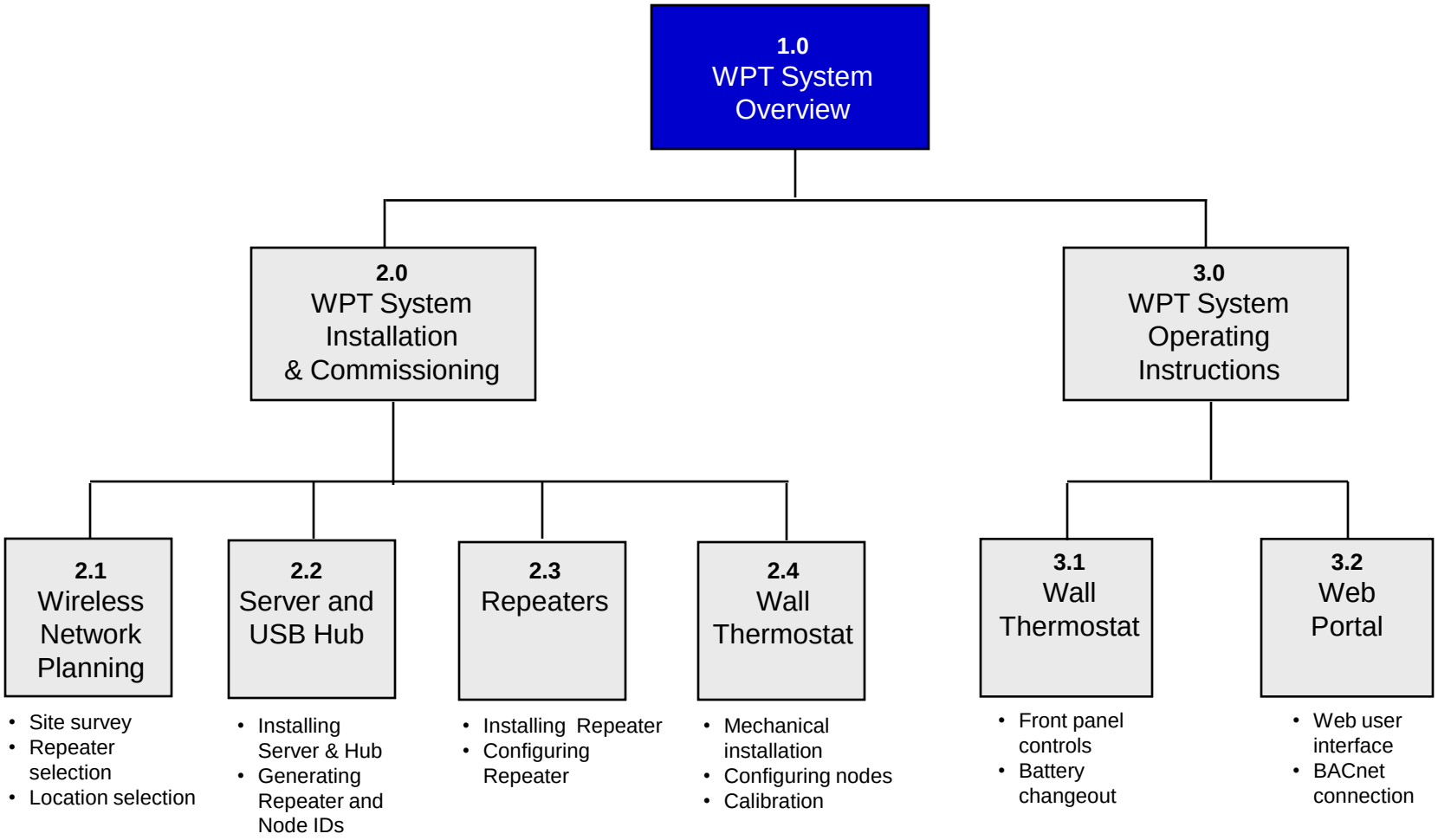
CYPRESS
ENVIROSYSTEMS

V2.3 030209

WPT Training Modules

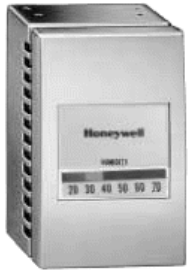


WPT Training Modules



WPT Features and Benefits

EXISTING LEGACY STAT



DDC in 20 Minutes!

CYPRESS ENVIROSYSTEMS
WIRELESS PNEUMATIC THERMOSTAT

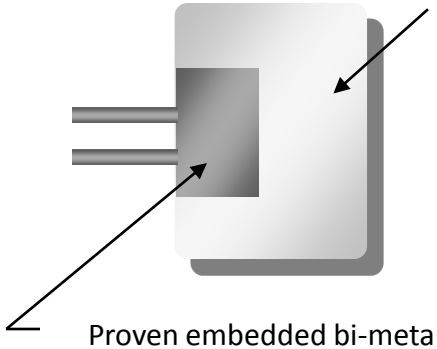
- Manual Setpoint Control
- No Remote Readings
- No Diagnostics
- Manual Calibration Required

- Remote Wireless Setpoint Control
- Remote Monitoring of Temperature & Pressure
- Pager/Cell Notification of Excursions
- Automatic Self-calibration
- Programmable Zone/Night Setback Control
- Occupancy Override
- Enables Demand Response strategies
- BACnet Interface to BMS
- Compatible With Existing Johnson, Honeywell, Siemens, Robertshaw
- More than 2yr battery life

Get the benefits of Direct Digital Control (DDC) in less than 20 minutes

Proven Wireless + Pneumatic Technology

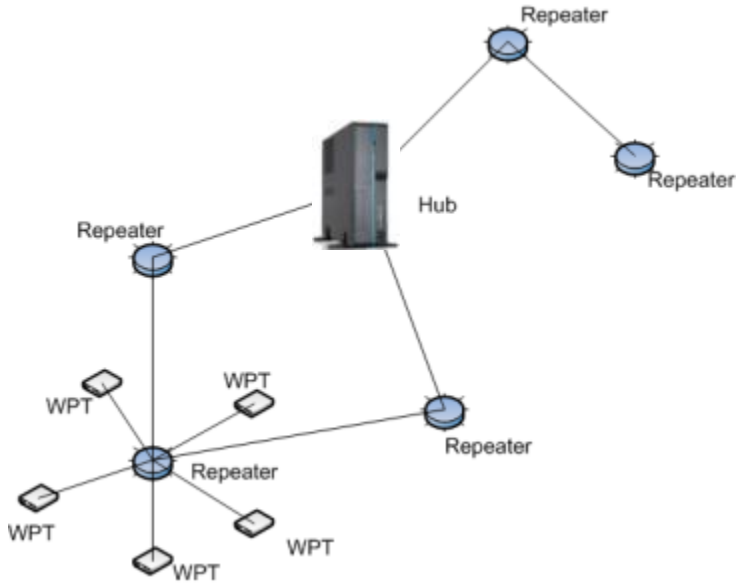
- Uses proven pneumatic bi-metallic strip technology for room temperature control
- We added advanced electronics to remotely control setpoint, and monitor temperature, branch pressure, and battery status.
- If battery fails and electronics stop working, unit will function just like a traditional pneumatic stat



WPT = Conventional Pneumatic Thermostat + Virtual Thumb

Cypress Wireless Communications

- Uses Cypress Semiconductor wireless technology – first deployed over six years ago, with over 25 million nodes in use today
- Hybrid mesh wireless architecture provides coverage for most buildings and industrial sites – already in use by many Fortune 500 customers
- Up to 240 WPT's and/or Repeaters supported per Hub
- Note: Do not use where cell phones or WiFi are prohibited (i.e. hospital operating rooms), or in en-vironments requiring temperature validation



2.4 GHz DSSS radios, +20dBm (100mW) peak output power

Proven wireless technology applied for legacy retrofit application

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Selected Customer Sites Using Cypress Wireless

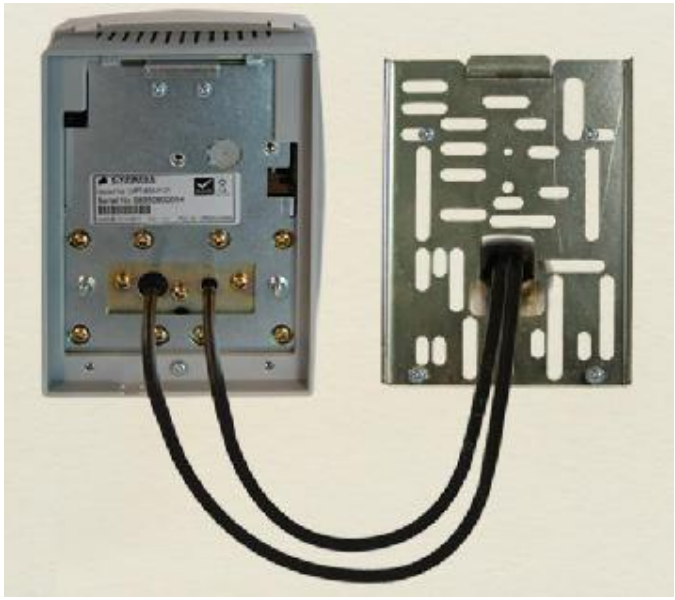
Stanford, Novellus, Micrel sites available for site visits upon request

Cypress Envirosystems Wireless Products Installed in Industrial Environment

Directly Replaces Existing Thermostats

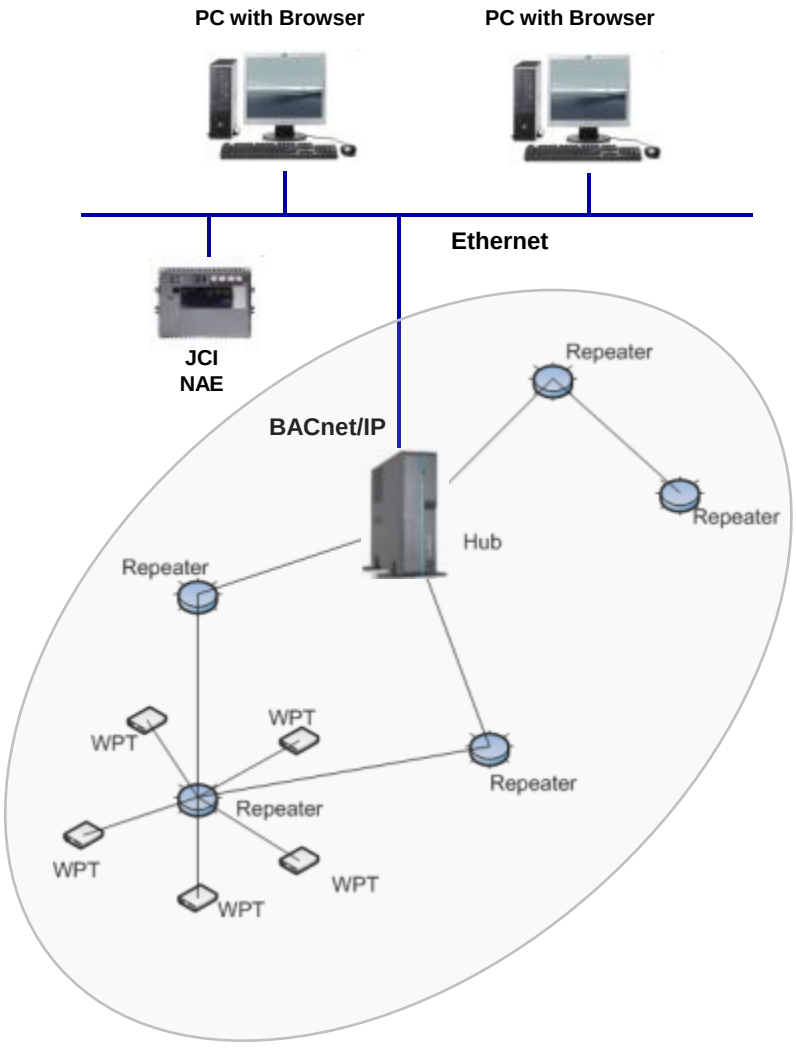
- Directly replaces most existing pneumatic thermostats from Honeywell, Johnson Controls, Siemens, Robertshaw etc.

- Comes with a universal wall mounting bracket, and connects to existing main and branch pipes in minutes.



User Interface and Connectivity via BACnet

- The WPT Hub has a built-in web based user interface for configuration and basic operations
- The WPT Hub may also be connected to existing automation systems via BACnet/IP using a simple CAT 5 Ethernet cable
- BACnet compatible controllers (e.g. JCI Network Integration Engine) can gather data points and control setpoints, and provide a user interfcae
- Users do not need a separate operator station or learn a new interface.



BACnet Compatibility Testing

VENDOR	BAS	TEST PARTNER	LOCATION
ALERTON	BACtalk	Syserco	Fremont, CA
AUTOMATEDLOGIC CORPORATION	ALC	ACCO Engineered Systems	San Leandro, CA
Honeywell	Excel, Tridium	Pending	
Johnson Controls	Metasys	RSD-Total Control JCI Sensor Products	San Jose, CA Milwaukee, WI
SIEMENS	Apogee	Siemens Building Technologies	Hayward, CA
t.a.c by Schneider Electric	Andover Continuum	EMCOR Integrated Solutions	Pleasanton, CA

Key Components of WPT System

Server
(WPT-800-SWEB / WPT-800-SBAC)

Contains Configuration tools, remote monitoring & control application, BACnet interface, DR Interface, and Web services

USB Hub
(WPT-800-HUSB)

Attaches the WPT Wireless network to the server

Wall powered repeater
(WPT-800-RWAL)

Extends the WPT wireless range

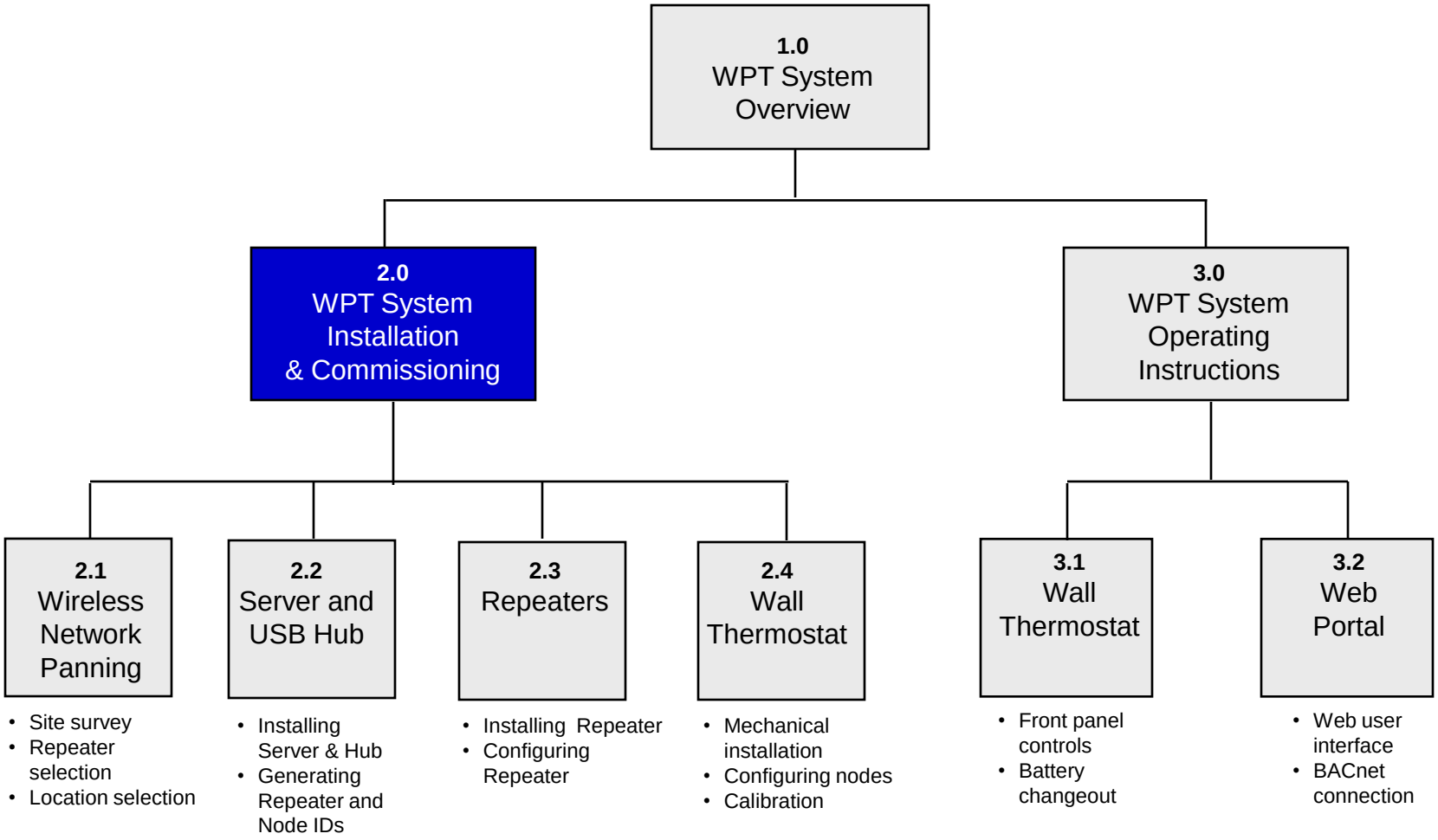
Battery powered repeater
(WPT-800-RBAT)

To be used in places where there is no power socket available

WPT Node
(WPT-800-TXXX)

Replaces the existing pneumatic stat. Available in single/dual pipe with direct/reverse action

WPT Training Modules



Recommended Installation Workflow

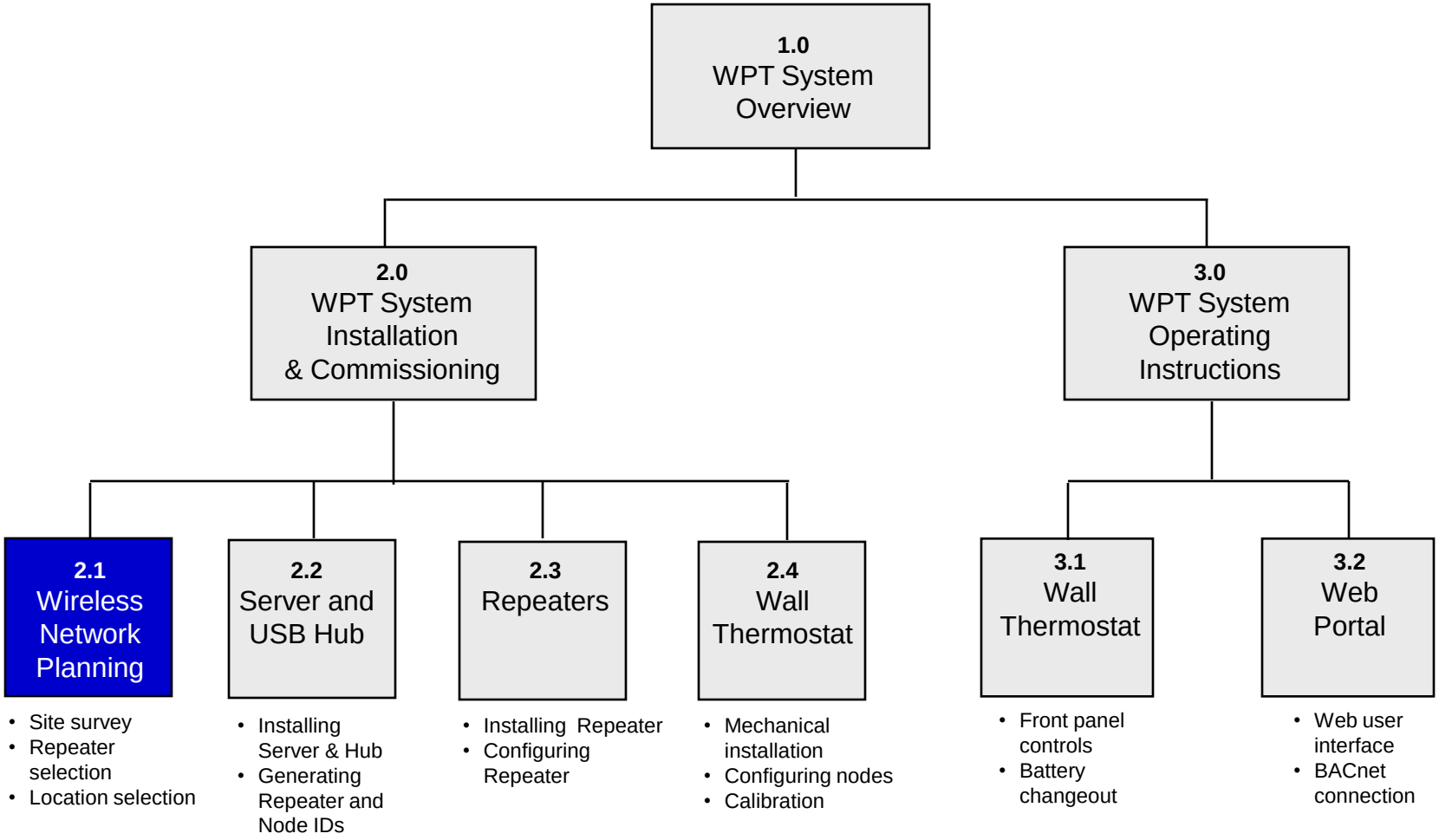
1) Start with WPT Wireless Network Planning
   - Note the types of stats to be retrofitted
   - Perform site survey to determine where to place repeaters, hub and server
   - Select the type of repeaters to use
   - Determine the number of repeaters required

2) Install and configure Server and Hub
   - The Hub and Server should be setup first as the core of the network
   - Configuration tool will generate unique ID's to assign to each WPT and repeater

3) Install and configure Repeaters
   - Install the repeaters
   - Configure repeaters to setup WPT wireless network

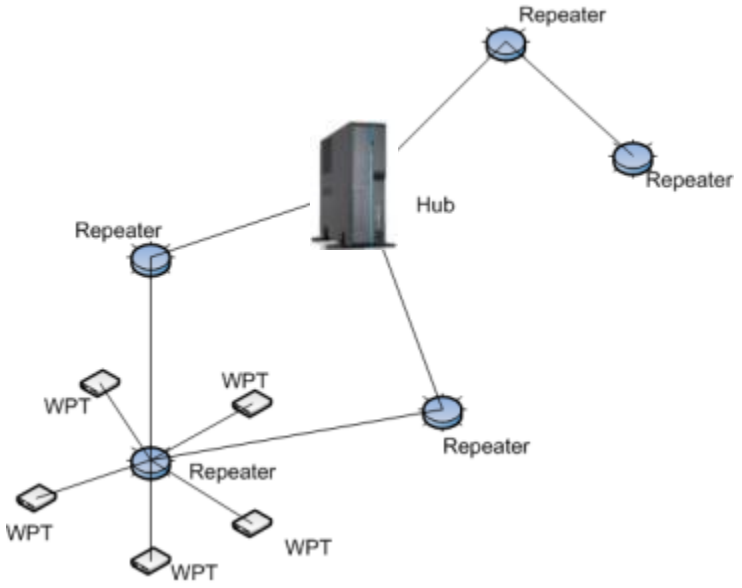
4) Install WPT's
   - Physically remove old thermostats and connect and mount WPT's in their place
   - Configure WPT's to communicate with the wireless network

WPT Training Modules



WPT Wireless Network Planning Overview

- Wireless network planning involves selecting right location for repeaters and hub
- Depending on the building, the wireless range and the number of repeaters required may differ
- More than one hub may be used for larger sites. Each hub and its associated repeaters are considered a separate network.
- This training module addresses:
  - How to maximize wireless range
  - How to select the type of repeater
  - How to estimate number of repeaters required
  - How to use the wireless survey tool



Guidelines for Maximizing Wireless Range

Wireless Performance in Buildings

- Cypress wireless has been installed in many different types of sites from low-rise office buildings to high rise commercial buildings to industrial plants.
- Typical wireless ranges for a single “hop” are:

Line of Sight	300 ft open halls 150 ft in open office floor 100 ft in corridors
Sheet Rock / Dry wood	100 ft, through five walls
Brick Walls	60 ft, through three walls
Ceilings	25 ft , through single ceiling

- Repeaters allow for multiple “hops” which extend the communications range of the system.

Factors Reducing Wireless Range

- Wireless range is particularly affected when metal obstacles are in the line of transmission.
- A solid sheet of metal presents the greatest obstacle, while rebar reinforced concrete is less.
- Try to note the following objects and avoid in the line of transmission:
  - Hollow lightweight walls filled with insulating metal foil
  - Office equipment and furniture such as book shelves, file cabinets, metal partitions, computer racks
  - Metal reinforced concrete walls, pillars and columns
  - Glass walls with metal coating
  - Plumbing and electrical risers
  - Elevator shafts and stairwells
  - Mechanical and electrical equipment rooms

Bigger the metal obstacles in the transmission path shorter the wireless coverage

Where to place Repeaters and Hub

DO'S

- Place the hub in a central location on the site with power and preferably nearby LAN drop
- Place repeaters in a central location in a room
- Mount repeaters and hubs at eye-level or higher to avoid furniture obstructions
- Place the wall powered repeaters directly above each other when transmitting to adjacent floors
- Place wall powered repeaters every 50 ft to improve wireless path redundancy

DON'Ts

- Avoid solid metal obstacles in the line of transmission
- Don't install repeaters along the same side of the wall as that of the WPT (wireless coverage is better in front vs. side of WPT)
- Don't mount hubs or repeaters within 3 ft of computers or A/V equipment (which may produce interfering radio waves)

Selecting the Proper Type of Repeater

Two Types of Repeaters Available

Battery Powered Repeater

Wall Powered Repeater

Selecting the Right Repeater

- Battery Powered repeaters are convenient, but come with limitations. As a general rule, use Wall Powered repeaters where possible.
- The following table compares the features of the two types of repeaters.

	Wall Powered Repeater (RWAL)	Battery Powered Repeater (RBAT)	Comments
Power Source	110VAC wall outlet	4 x CR123 Lithium Batteries	RWAL plugs into the wall socket via power cord. RBAT uses replaceable battery cells.
Battery Changeout	No change out needed	2 yrs (typical)	WPTs connected to a RBAT consume slightly more power than those connected to a RWAL.
Maximum number allowed in a network	16	2	RBAT's in close proximity may degrade the reliability of wireless communication.
WPTs supported per repeater	15	8	
Repeater-to-Repeater connectivity	Can connect with WPT and other RWAL's or RBAT's	Can connect with WPT and RWAL's, but not other RBAT's	RBAT can be used only at the periphery of a WPT wireless network, not in the middle of a chain of repeaters.
Floor-to-Floor connectivity	Yes	No	RBAT cannot be used to extend wireless communications from one floor to another.

RWAL is the primary choice of repeater; use RBAT only as a last option

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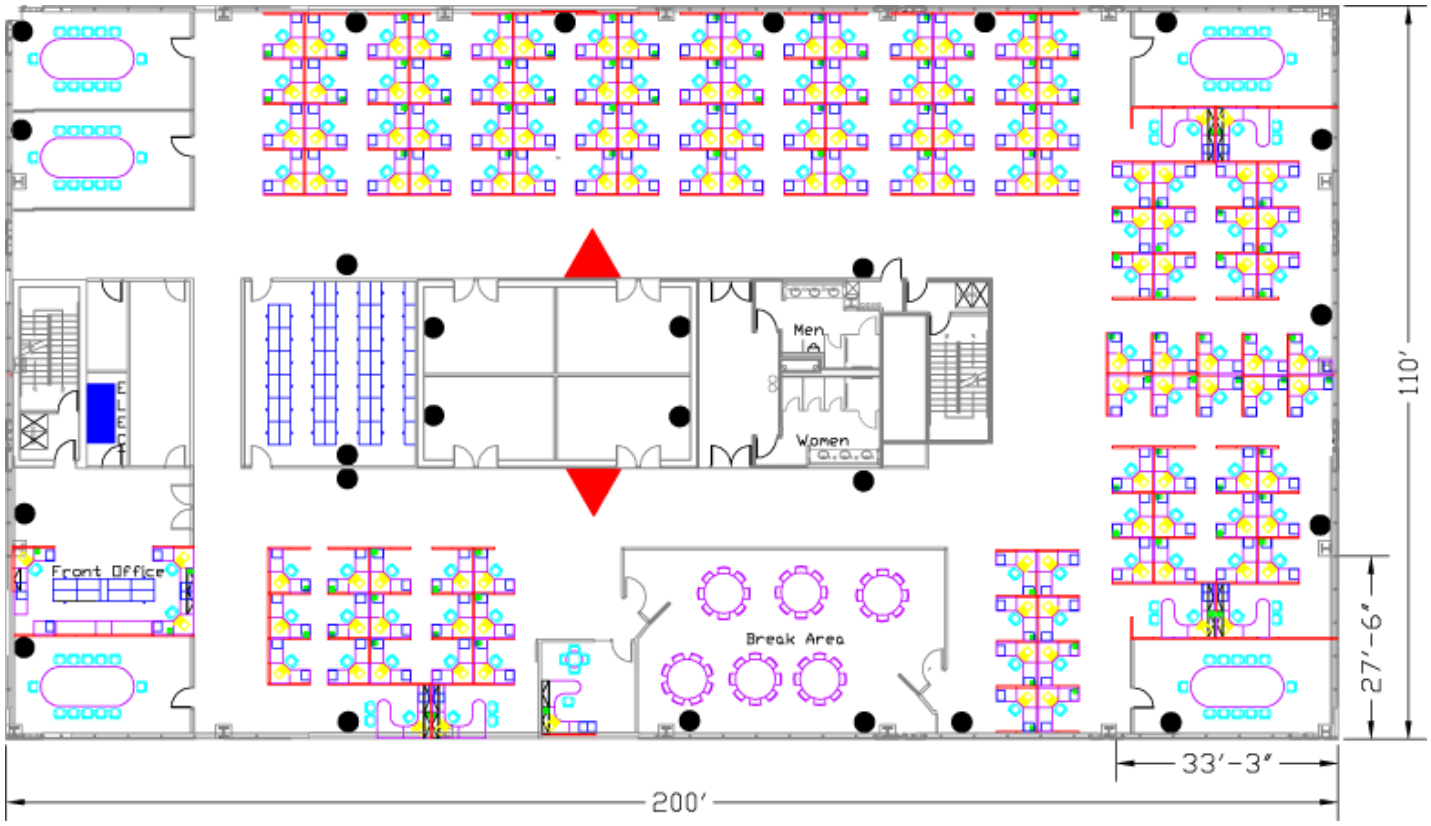
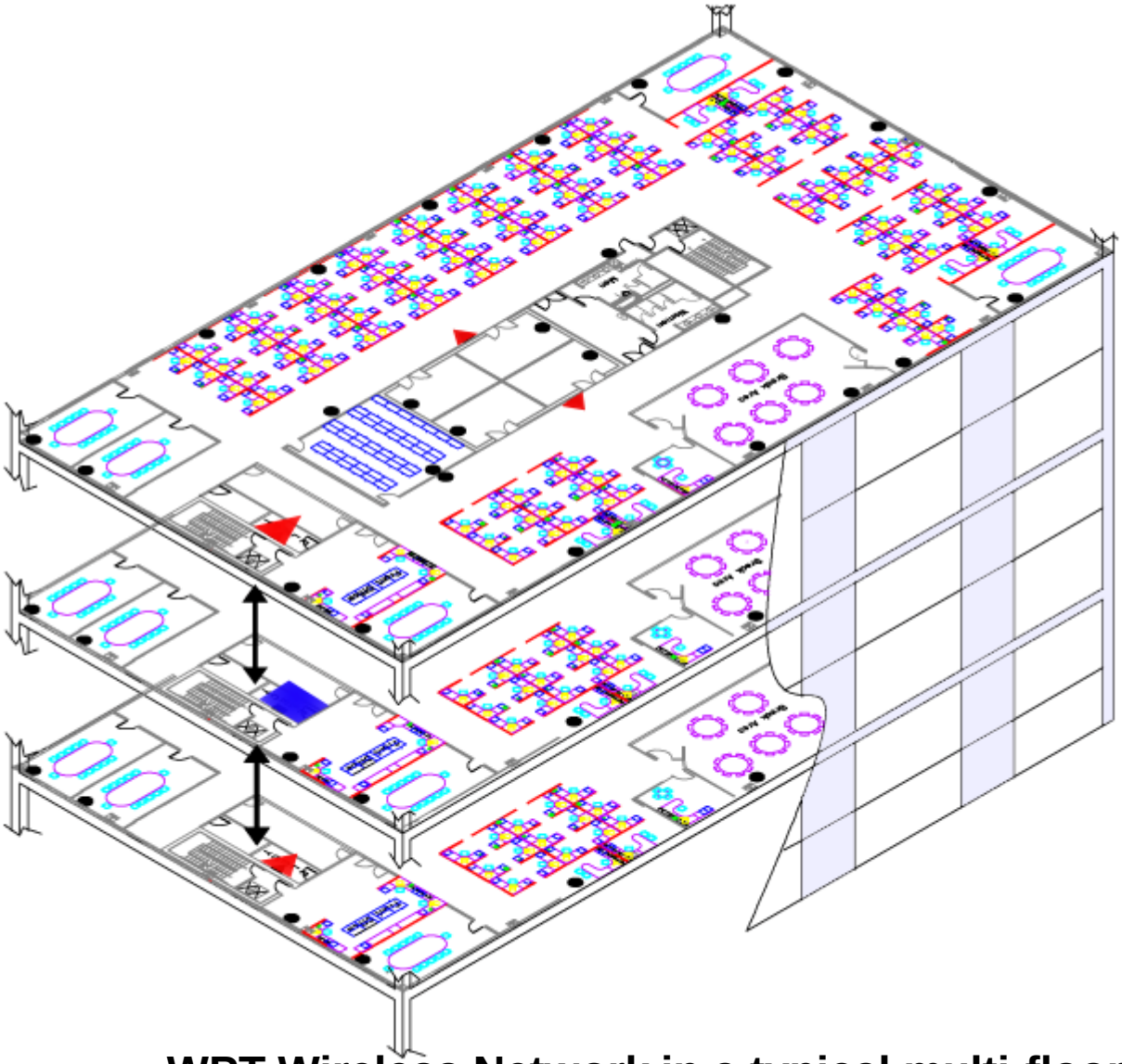
Typical Layout of WPT Network in a Building



WPT Wireless Network in a Typical Office Building

Typical layout of WPT Network in a building



Thermostats

Hub

Repeaters

WPT Wireless Network in a typical multi-floor office building

Guidelines for Estimating the Number of Repeaters Needed

Estimating Number of Repeaters Needed

GUIDELINES/RULES OF THUMB:

- Allocate one RWAL for every 15 WPTs on a floor depending on the wireless range
- Use RWAL's (not RBAT's) for extending the WPT wireless network across different floors
- Use RBAT's only at the periphery of the WPT network. Do not use them in the middle of the repeater chain
- Ensure that every RBAT has a RWAL or Hub within its coverage area

Using the Wireless Survey Tool

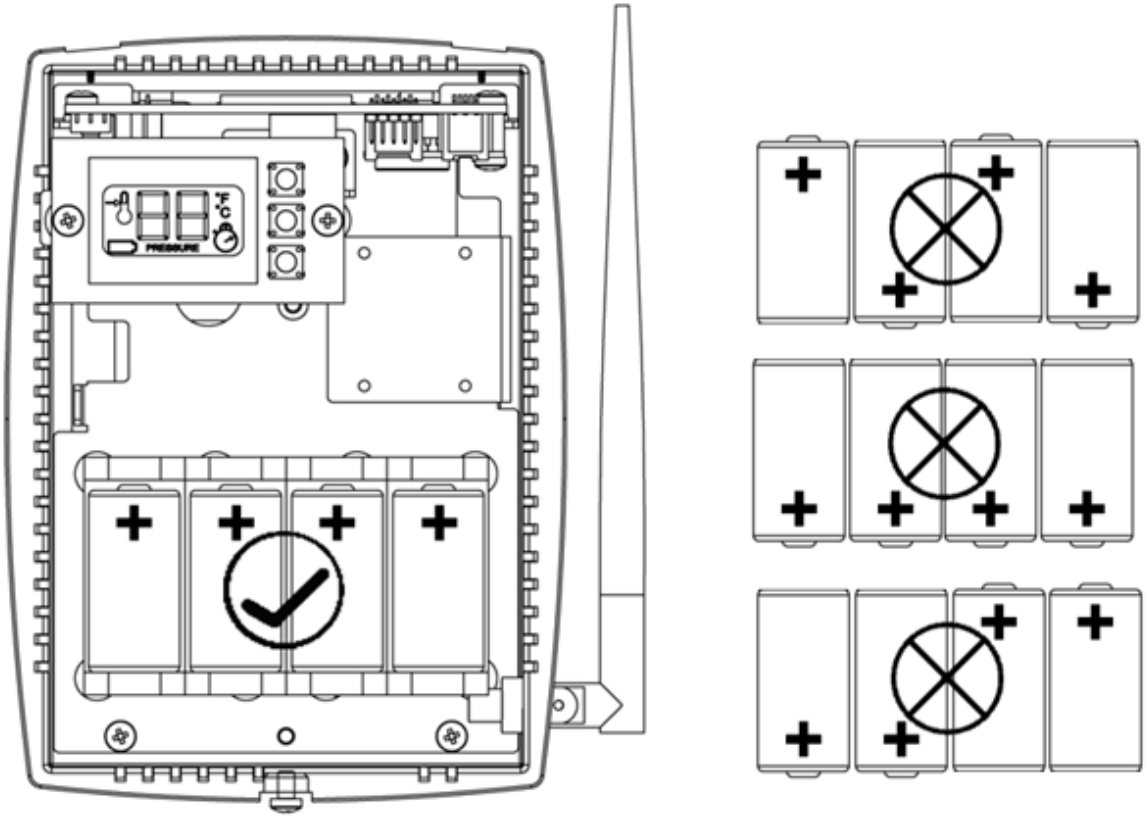
Wireless Range Tester

- The wireless range tester is used to determine the repeater locations
- The wireless range tester consists of a battery powered *Transponder* and T*ester*
- The *Transponder* and *Tester* can be turned ON by simply inserting the batteries and pressing any key
- The wireless range tester does a wireless discovery process (handshake) as per the WPT Wireless protocol to determine the wireless coverage reliably
- The *Tester* can be also used to check for the multiple RF paths in an installed network

Transponder

Tester

Installing the Batteries

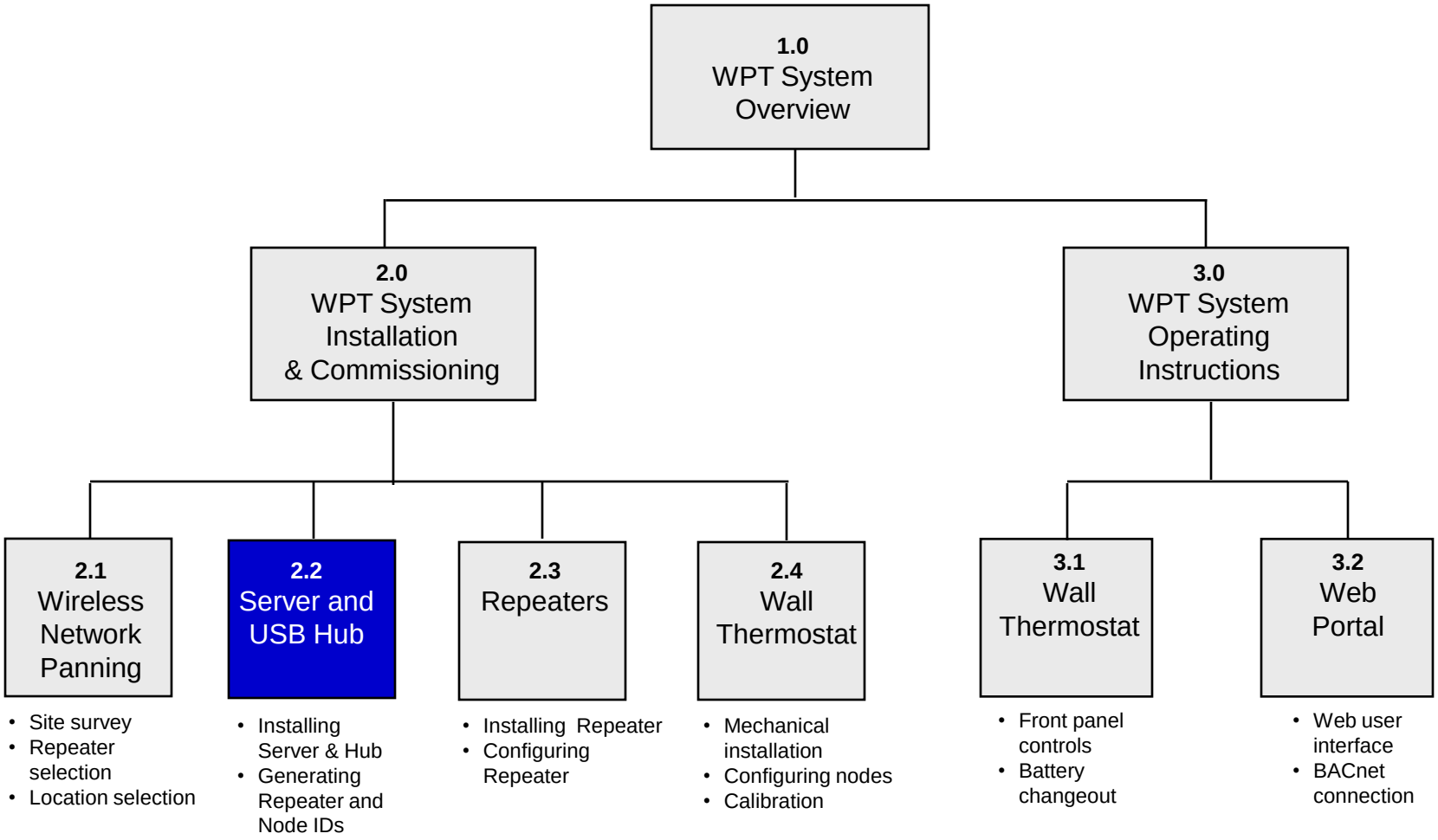


Using the Wireless Range Tester

- Identify potential location for the Repeaters and Hub as per the location selection guide and the floor plan
- Keep the *Transponder* at the target location of the Repeater / Hub
- Check the signal strength at each of the thermostat locations by pressing the ▲ key on the T*ester*
  - The *Tester* displays the signal strength on a scale of 0 – 100
  - Above **75** indicates excellent coverage
  - Above **60** indicates good coverage
  - Below **50** indicates limited coverage; consider additional repeaters or changing the location of the repeaters
  - If the wireless coverage is bad, the discovery process will fail; LCD displays **dF**
  - To ensure consistent wireless coverage, check for signal strength multiple times

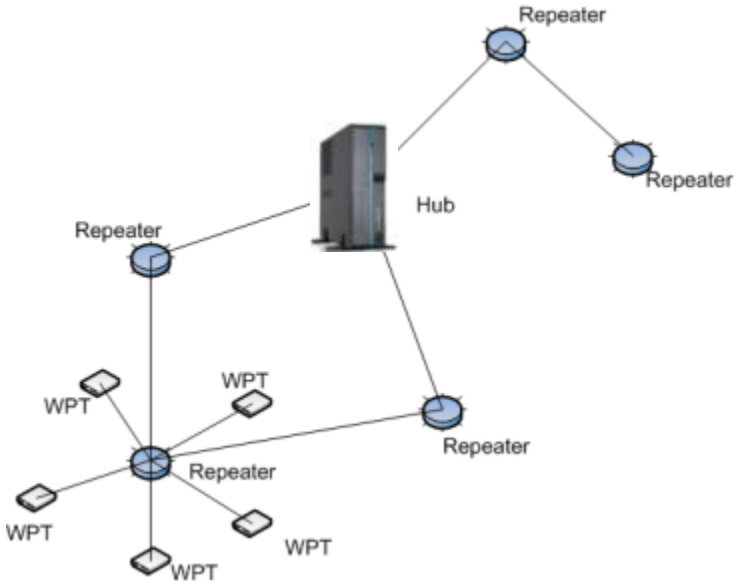
- In an installed network, availability of multiple RF paths can be verified by pressing the ▼ key on the *Tester*
  - The *Tester* displays the ID of the repeater primary repeater it is talking to
  - Press ▼ key again to see the ID of the secondary repeater available
- Press **OVR** key on the *Tester* to exit the wireless path display

WPT Training Modules



WPT Hub and Server Setup Overview

- One USB-Hub and Server is required per WPT Wireless Network
- The Hub is the receiver/transmitter for the WPT wireless signals. The Server provides data storage and the User Interface
- There may be more than one USB-Hub & WPT-Server per site (if necessary due to size of site)
- Each Hub may support up to 240 WPT's and/or repeaters
- The Server uses industry standard Windows XP/Pro operating system and includes optional BACnet/IP interface
- This training module addresses:
  - How to install and configure WPT Server
  - How to install and configure a Hub
  - How to verify a Hub is working correctly



WPT Server Setup

WPT Server
(Front view)

Connect the USB Hub

Connect a network cable

Connect the power cable

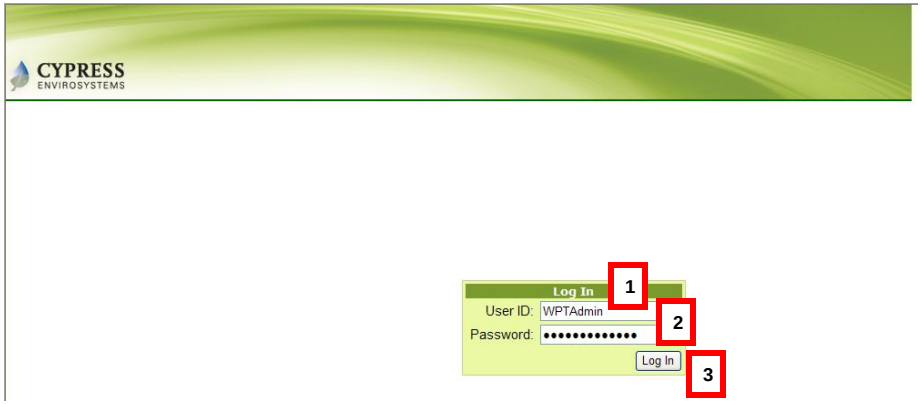
WPT Server
(Back view)

Accessing WPT Server

- The WPT Server is configured with a default IP: 10.1.10.8
- WPT Server IP Address can be changed by connecting from any machine in the network using Microsoft Remote Desktop connection (Start -> All Programs -> Accessories -> Remote Desktop Connection)
  - The default IP address : 10.1.10.8
  - Default username: (please see training coordinator)
  - Default password: (please see training coordinator)
- If the WPT server is not connected to the LAN, use a network cable to directly connect from a laptop
  - Make sure that the laptop is configured with a static IP : 10.1.10.x
- The WPT server can also be directly accessed by connecting a monitor, keyboard and mouse
- WPT Web Portal has the setup tool for generating the IDs required for configuring the Hub, Repeaters and WPTs
- The WPT Web Portal can be accessed using *Microsoft Internet Explorer* from PC connected to the WPT Server

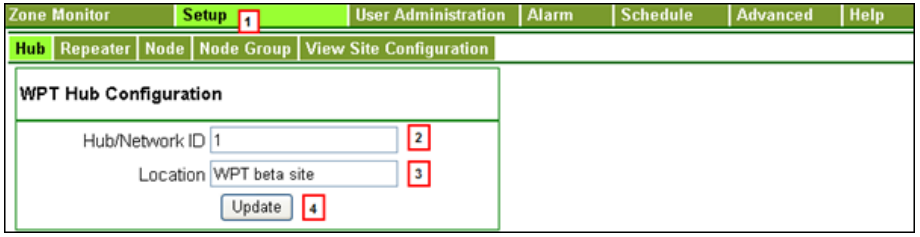
Accessing the WPT Web Portal

- Access the WPT Web Portal using the URL: http://10.1.10.8/WPtWebApp

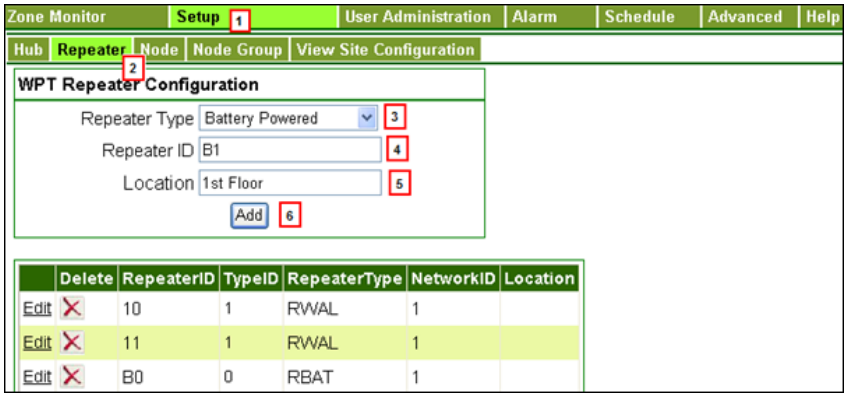


- Enter the default username : (please see training coordinator)
- Enter the default admin password : (please see training coordinator)
- Click Log in

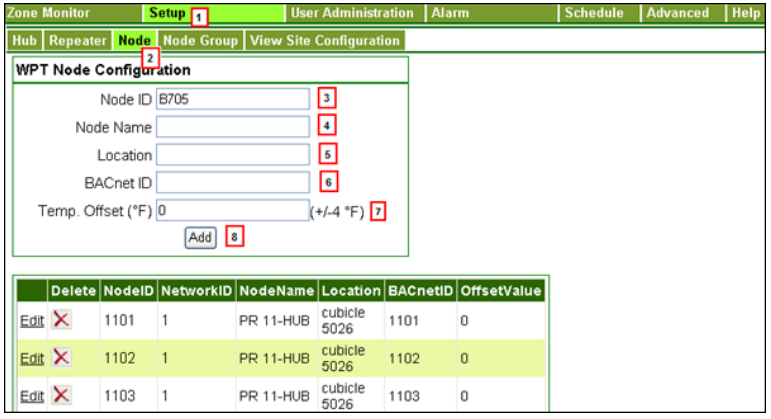
Creating Network, Repeater and Node IDs



Create Network ID



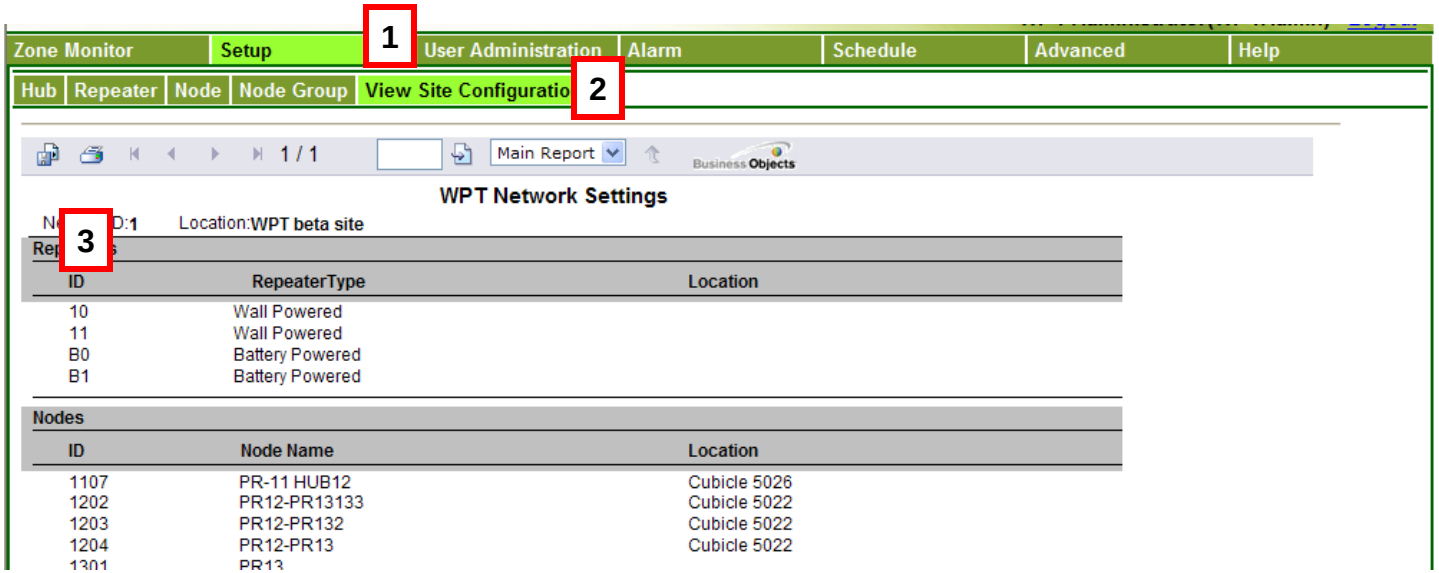
Create Repeater ID



Create Node ID

WPT Wireless Network Settings Report

- WPT Wireless Network configurations summary can be viewed and printed from the WPT Web portal

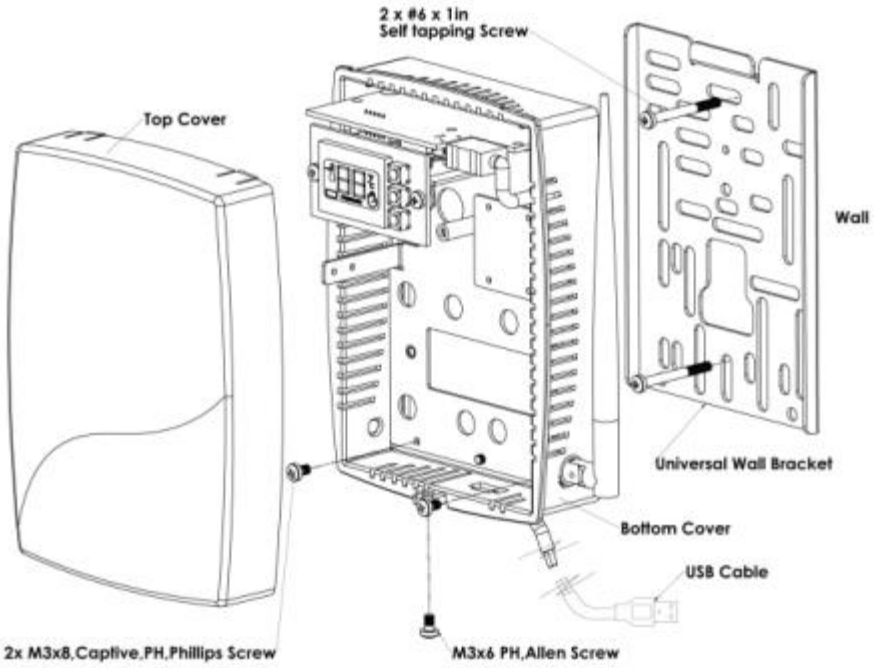


- Use this report for configuring the Hub, Repeaters and Nodes

Installing USB Hub

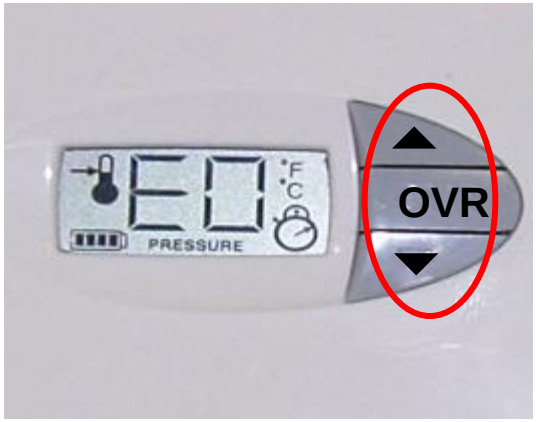
USB Hub (HUSB) Installation

1. Mount the Hub on to a wall at eye level



2. Turn ON the server and connect the Hub to the server's USB port

Programming Hub Network ID



Press all three keys starting from top-middle-bottom and hold them for 1 second to enter programming mode

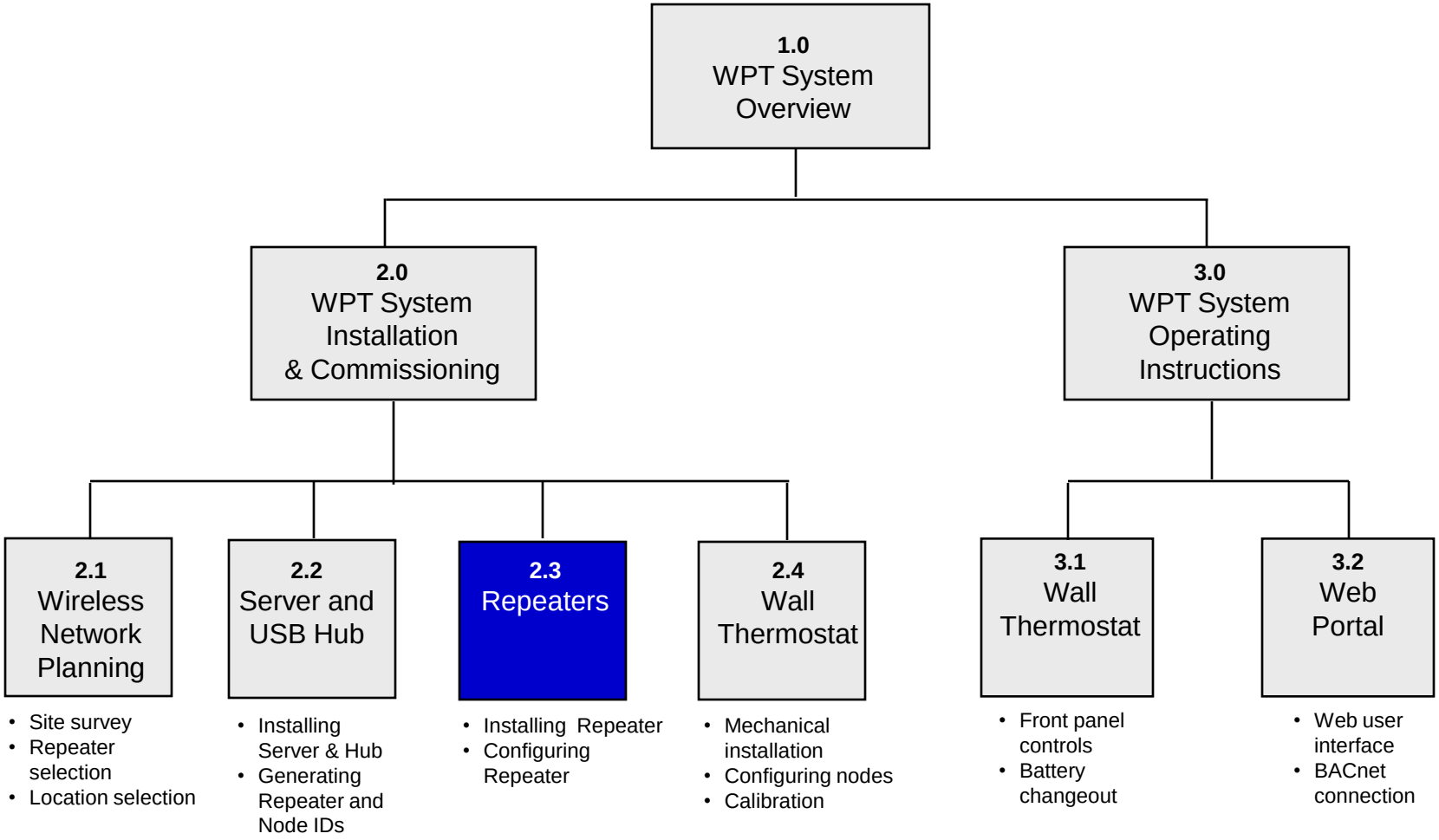
Network ID Programming Mode

- Network ID is a single digit hexadecimal number (1,2…9,A,B,C,D,E,F) generated using the WPT Web Portal, as discussed in module 2.2
- °F is ON
- Use ▲ ▼ key to enter the Network ID
- Press **OVR** key to confirm and exit the programming mode
- Note 1: The Hub is factory configured with Network ID 1. You don't need to program the Hub, if your Network ID is 1
- Note 2: The Hub will exit the programming mode automatically if there is no action for 1 minute

Troubleshooting the Hub

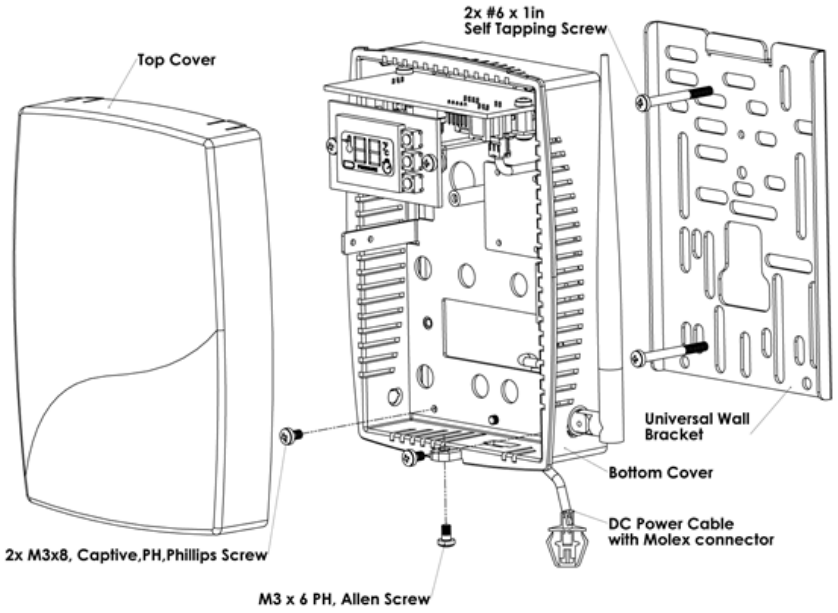
Error Code	Possible Cause	Solution
E2	Radio Error – Not able to send/receive data	Restart the unit with removing and inserting the USB Cable to the WPT Server If the error continues the device requires replacement
E3	Ping Error – Due to a new RF interference source in the area	Track down and eliminate the new source of RF interference or change the location of the Hub
E4	Connect Error – Not able to connect to the nearest Repeater	If this error occurs after successful installation, the HUSB will auto recover after couple of refresh cycles If the error persists for more than few hours, add a repeater in the zone
E5	USB Error – Not able to communicate with the WPT Server	Check USB cable Change to a different USB port If problem persists, replace the HUSB

WPT Training Modules

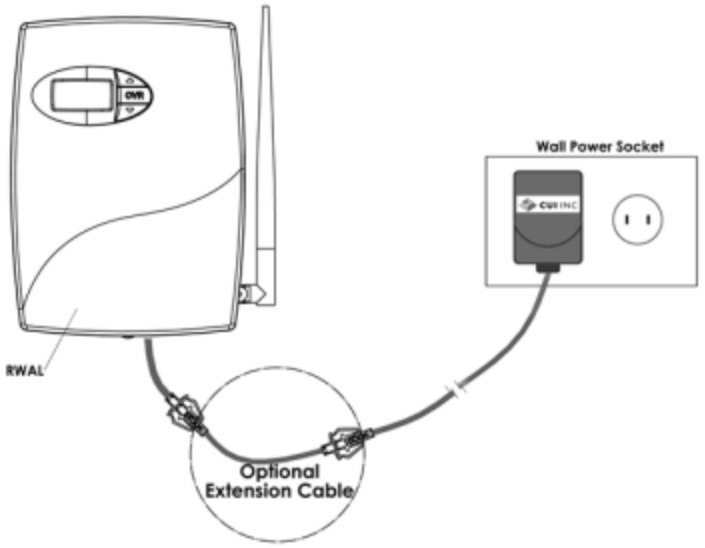


Installing Repeaters

Wall Powered Repeater (RWAL)



Mounting the RWAL

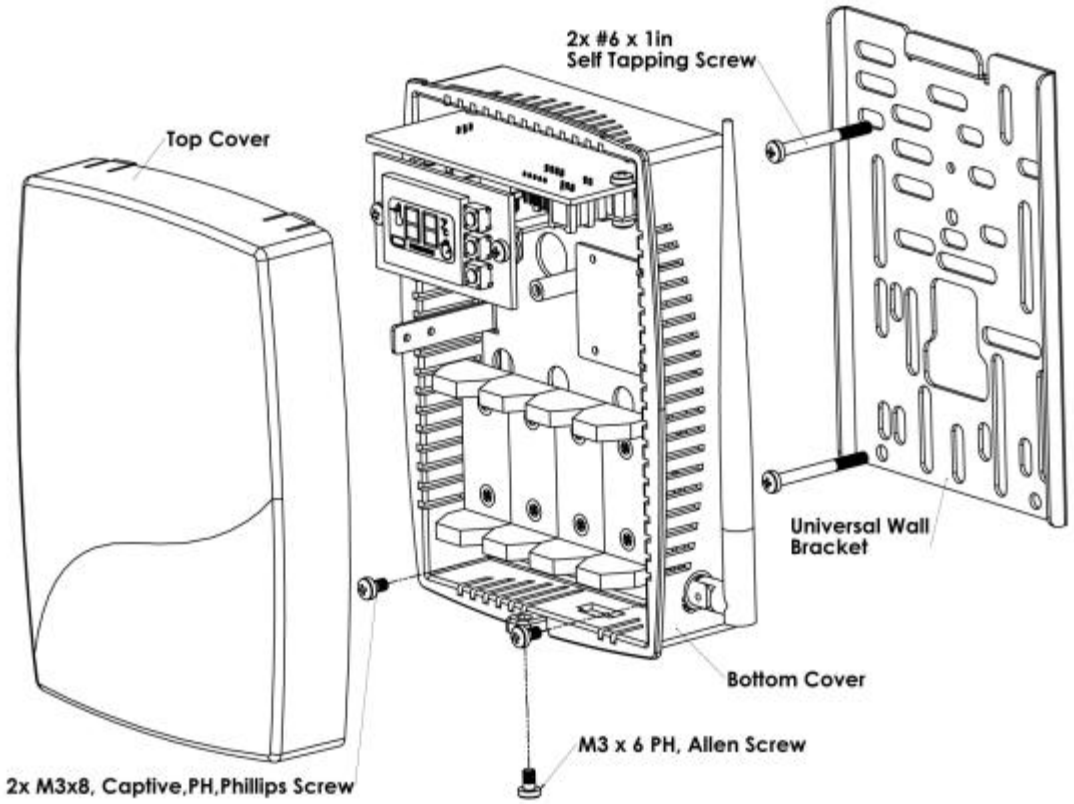


Connecting the RWAL to the power socket

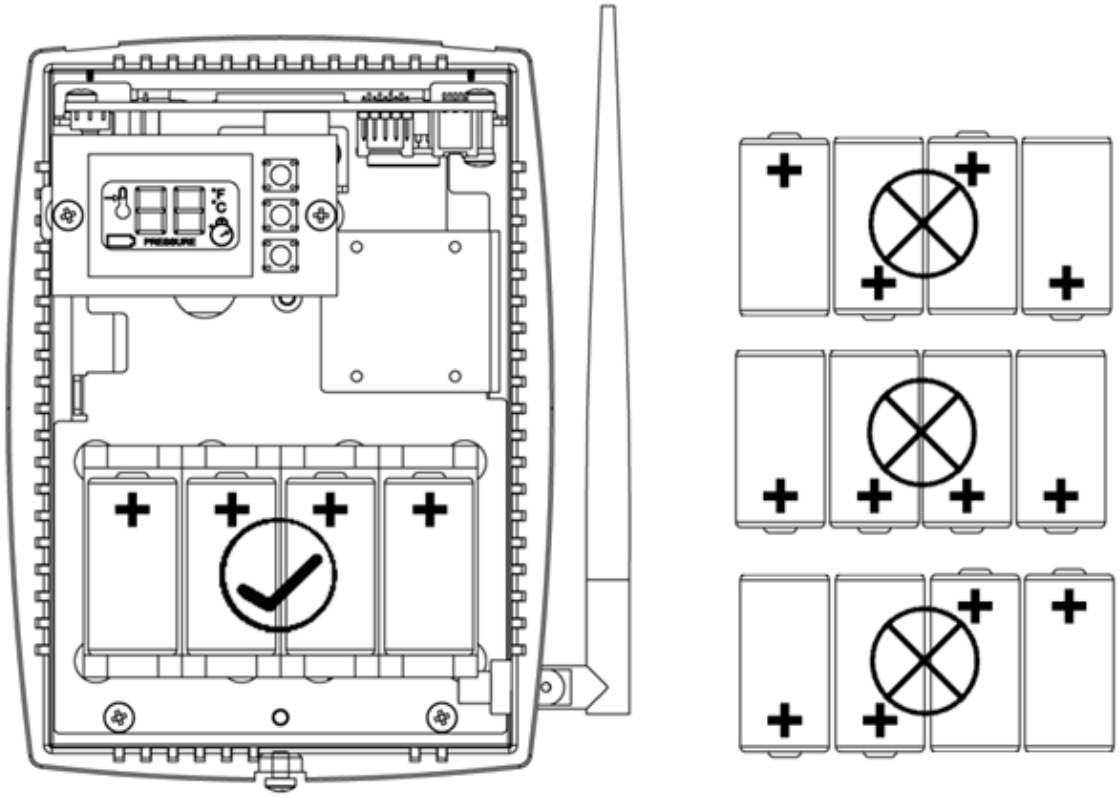
Note:

1. consider using a wire mold to conceal the power cable
2. Use an optional extension cable to reach out to a power socket located away from the RWAL

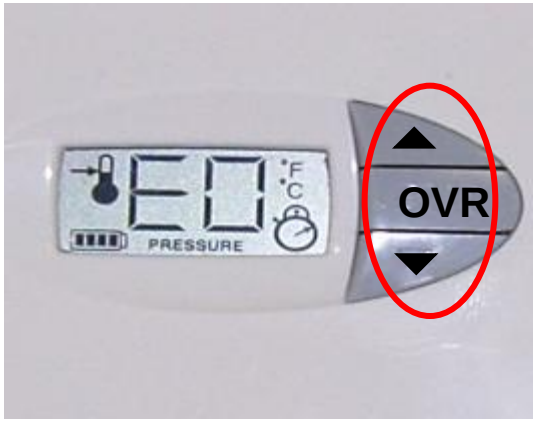
Battery Powered Repeater (RBAT)



Installing Batteries for the RBAT



Programming Repeater Network ID

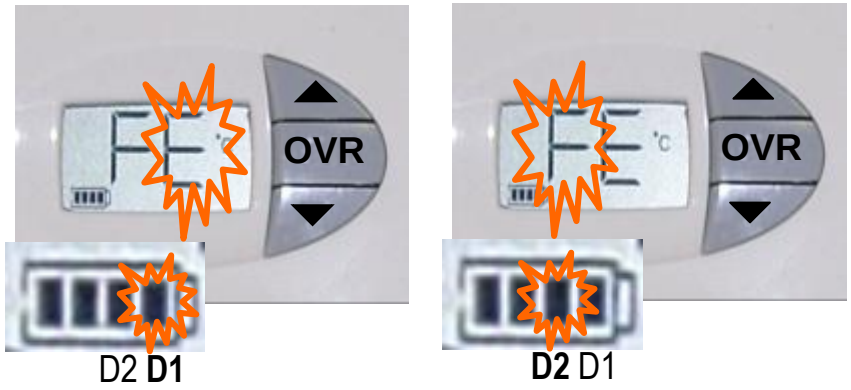


Press all three keys starting from top-middle-bottom and hold them for 1 second to enter programming mode

Network ID Programming Mode

- Network ID is a single digit hexadecimal number (1,2…9,A,B,C,D,E,F) generated using the WPT Web Portal, as discussed in module 2.2
- °F is ON and Network ID flashes
- Use ▲ ▼ key to enter the ID
- Press **OVR** key to confirm
- Note 1: The Repeater is factory configured with Network ID 1. You can skip the Network ID programming by pressing the **OVR** key
- Note 2: The Repeater will exit the programming mode automatically if there is no action for 1 minute

Programming Repeater ID



• Repeater ID is a two digit [D2 D1] hexadecimal number (0,1,2…9,A,B,C,D,E,F) generated using the WPT Web Portal, as discussed in module 2.2

•°C is ON and Corresponding bar of the battery indicator flashes

• Use ▲ ▼ key to enter the Repeater ID

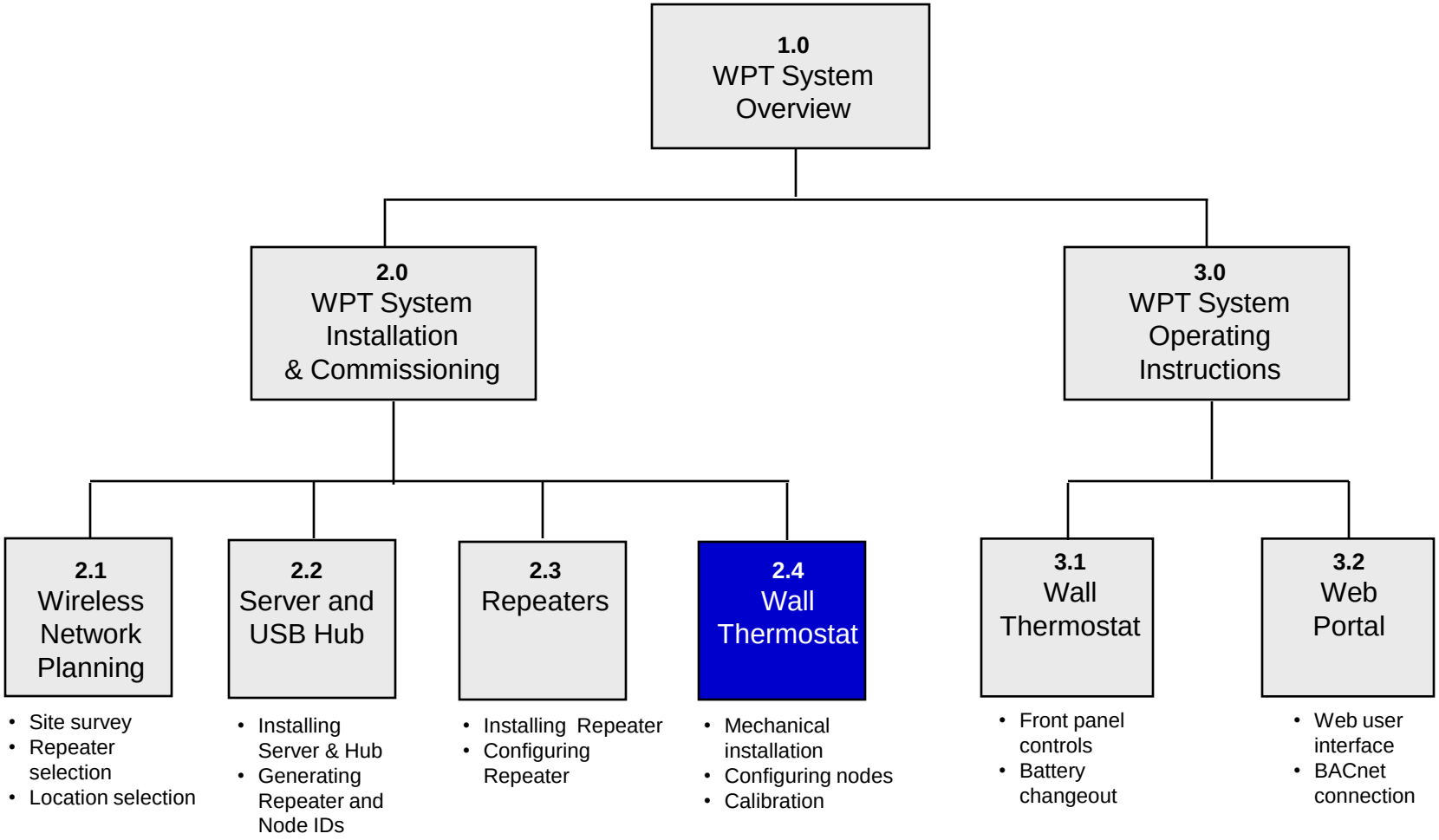
• Press OVR key to confirm

•Note: The Repeater will exit the programming mode automatically if there is no action for 1 minute

Troubleshooting the Repeaters

Error Code	Possible Cause	Solution
E0	Discovery Error – Not able to connect to nearest Repeater or Hub	Retry discovery by pressing any key Check if Repeater or Hub is working Try resetting the Repeater Try with a different position of the repeater/ Hub if feasible
E1	Time Synchronization Error – Not able to synchronize the RWAL time with the wireless network	If this error occurs after successful commissioning of the system, RWAL will recover from this error within coupe of refresh cycles
E2	Radio Error – Not able to send/receive data	Restart the unit with removing and inserting the battery or unplugging and plugging the A/C power adaptor If the error continues the device requires replacement
E3	Ping Error – Due to a new RF interference source in the area	Track down and eliminate the new source of RF interference or change the location of the Hub
E4	Connect Error – Not able to connect to the nearest Hub or Repeater	If this error occurs after successful installation, the Repeater will auto recover after couple of refresh cycles If the error persists for more than few hours, add a repeater in the zone

WPT Training Modules



WPT Wall Thermostat Installation Overview

- Installing a WPT and configuring it for wireless communication should take less than 15 minutes

- This training module addresses:
  - How to physically install the WPT
  - How to install the batteries
  - How to turn on and configure the WPT using the front panel
  - Calibrating the pneumatic stat

Mounting the WPT

Installing the WPT – Step 1

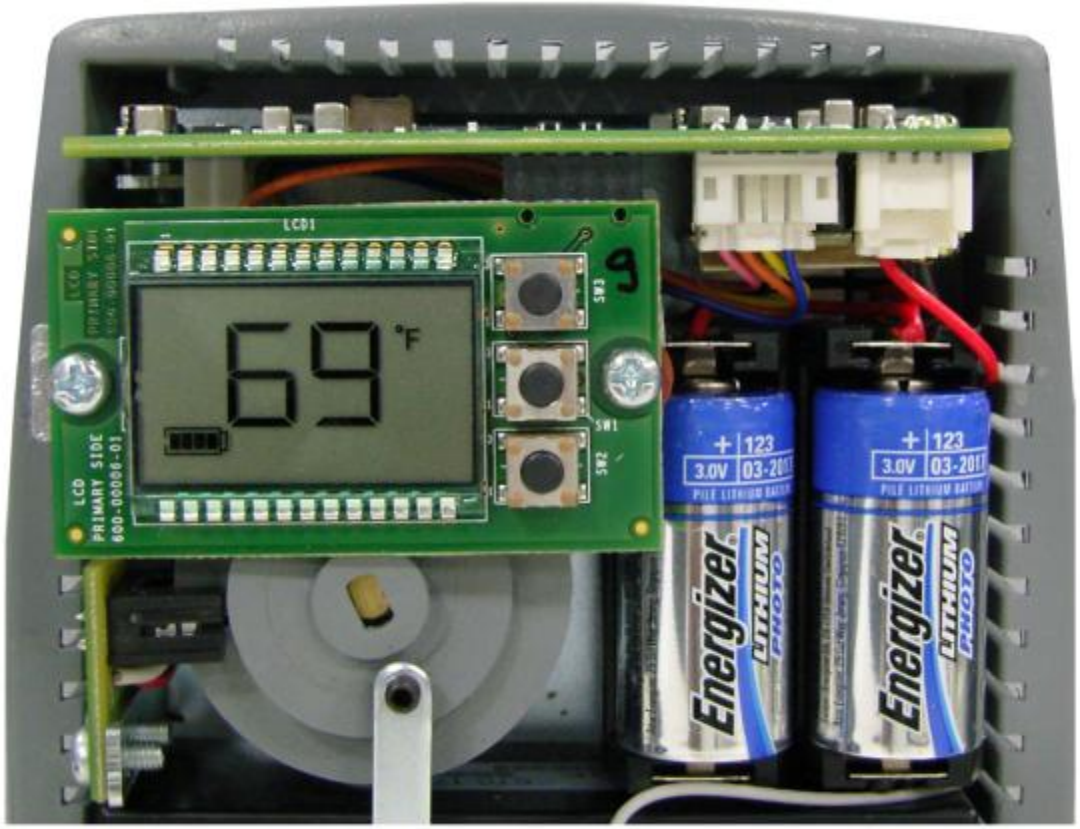
Remove the existing thermostat and wall plate

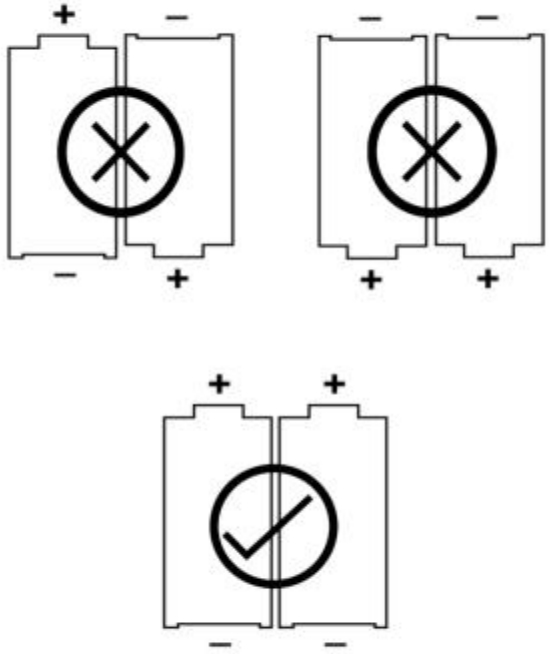
Installing the WPT – Step 2

Mount universal adapter plate, connect pipes to WPT and mount WPT to wall

Installing the Batteries

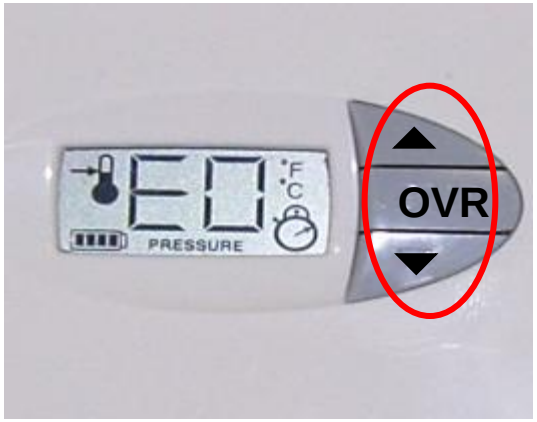
Installing the Batteries for WPT





Configuring the WPT for Wireless Communications

Programming WPT Network ID

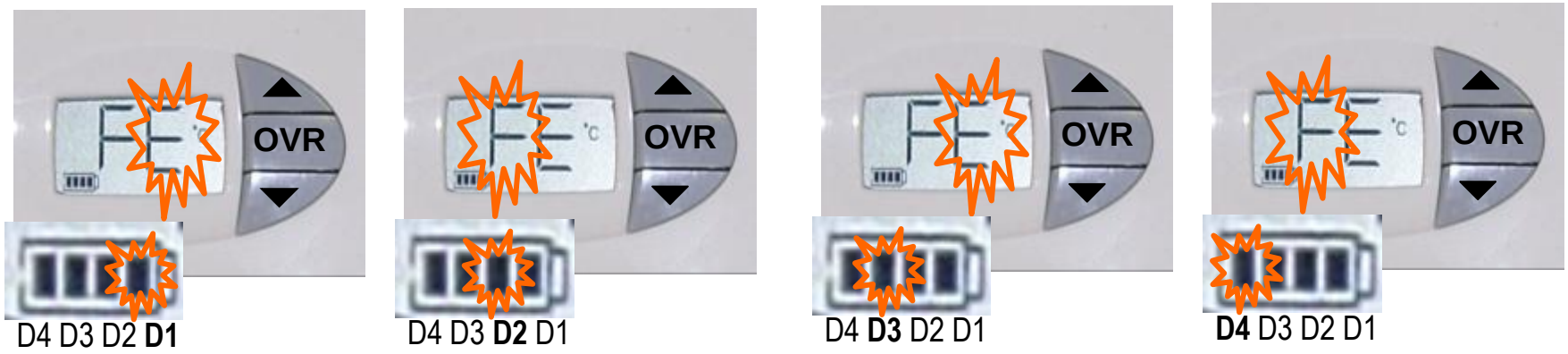


Press all three keys starting from top-middle-bottom and hold them for 1 second to enter programming mode

Network ID Programming Mode

- Network ID is a single digit hexadecimal number (1,2…9,A, B,C,D,E,F) generated using the WPT Web Portal, as discussed in module 2.2
- °F is ON and Network ID flashes
- Use ▲ ▼ key to enter the ID
- Press **OVR** key to confirm
- Note 1: The WPT is factory configured with Network ID 1. You can skip the Network ID programming by pressing the **OVR** key
- Note 2: The WPT will exit the programming mode automatically if there is no action for 1 minute

Programming WPT Node ID



- Node ID is a four digit [D4 D3 D2 D1] hexadecimal number (0,1,2…9,A,B,C,D,E,F) generated using the WPT Web Portal, as discussed in module 2.2
- °C is ON and Corresponding bar of the battery indicator flashes
- Use ▲ ▼ key to enter the Node ID
- Press **OVR** key to confirm
- Note 2: The WPT will exit the programming mode automatically if there is no action for 1 minute

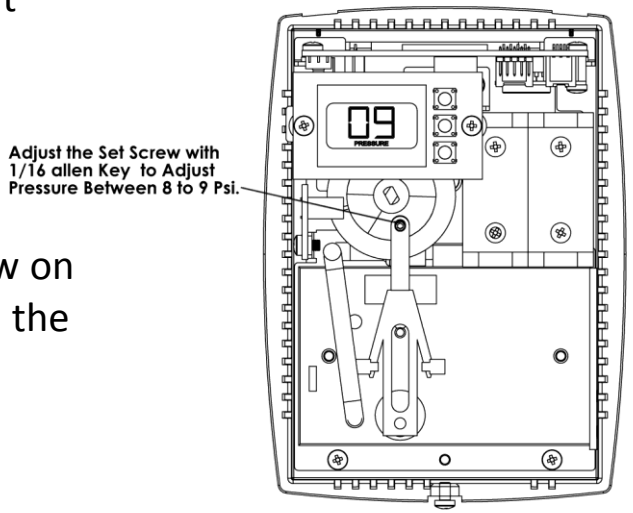
Troubleshooting the WPT

Error Code	Possible Cause	Solution
E0	Discovery Error – Not able to connect to nearest Repeater or Hub	Retry discovery by pressing any key Check if repeater or Hub is working Try resetting the repeater. Try with a different position of the Repeater/ Hub if feasible
E1	Time Synchronization Error – Not able to synchronize the WPT time with the wireless network	If this error occurs after successful commissioning of the system, WPT will recover from this error within coupe of refresh cycles
E2	Radio Error – Not able to send/receive data	Restart the unit with removing and inserting the battery If the error continues the device requires replacement
E4	Connect Error – Not able to connect to the nearest Hub or Repeater	If this error occurs after successful installation, the WPT will auto recover after couple of refresh cycles If the error persists for few hours add a repeater in the zone

Calibrating the WPT

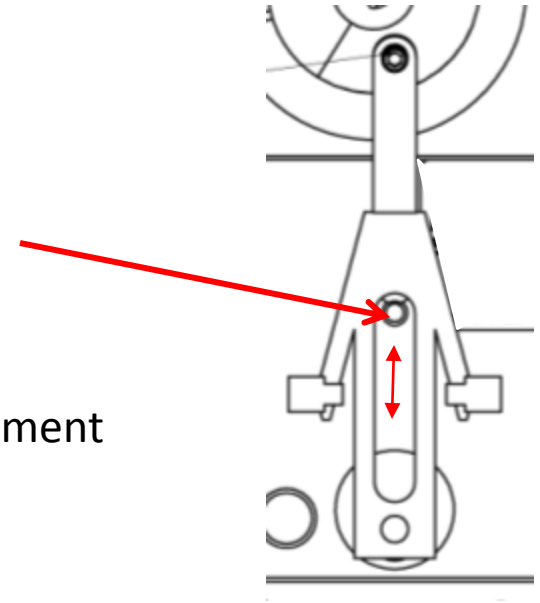
Calibrating the Pneumatic Stat

- Remove the front cover of WPT
- Note down the ambient temperature displayed on the LCD.
- Set the setpoint manually using the ▲ or ▼ key to the ambient temperature.
- Set the WPT to branch line pressure measurement mode as described in section 3.1.
- Use a 1/16” hex Allen wrench and turn the calibration set screw on the thermostat lever until the desired pressure is displayed on the LCD.
- Press **OVR** key to exit pressure measurement mode.
- Replace the WPT front cover.
- Set the setpoint to the desired value using the ▲ or ▼ key

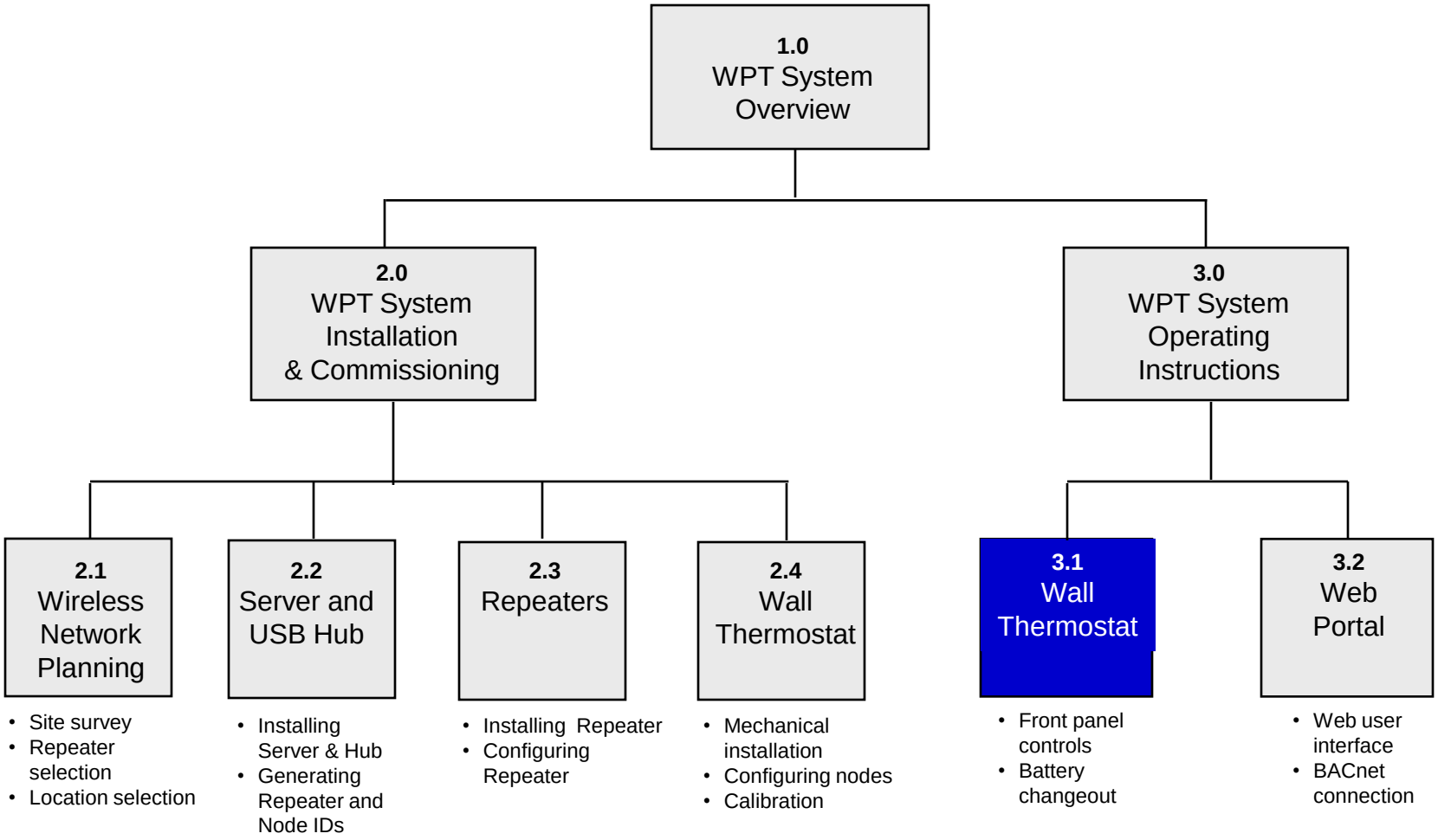


Adjusting the Throttling Range

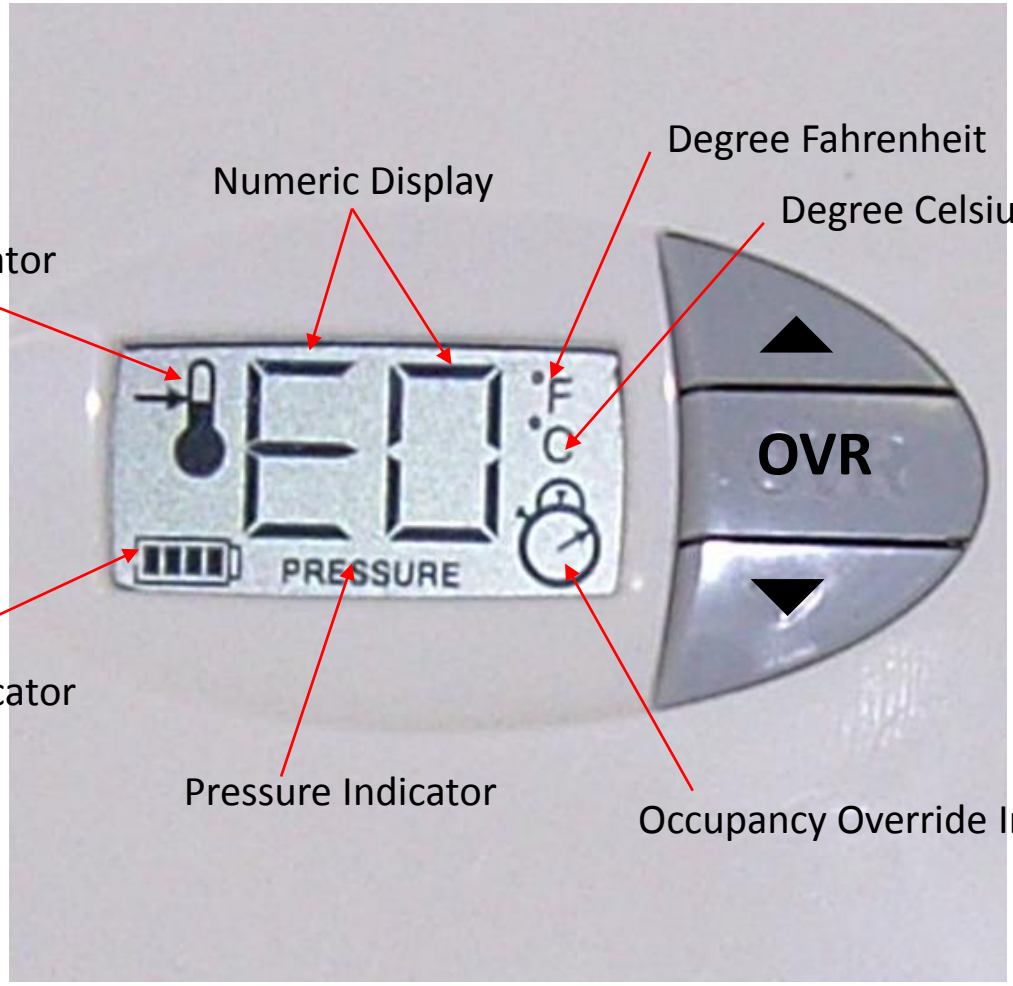
- WPT is factory calibrated for 3°F throttling range
- Remove the front cover of the WPT
- Gently slide the black throttling range adjuster to the appropriate location
- Verify the calibration after the throttling range adjustment
- Replace the front cover of the WPT



WPT Training Modules



WPT LCD Display



WPT LCD Display

WPT Operation

- Change Setpoint
  - Press the ▲ or ▼ key once to view the current set point along with the set point indicator
  - Press the ▲ or ▼ key to change the set point value
  - After the desired set point is set, the LCD displays reverts to show the current temperature

- Set / Reset Occupancy Override
  - Press the **OVR** key to activate the occupancy override
    The LCD display flashes the override duration in hours
  - Press the ▲ or ▼ key to change the override duration to desired value
  - LCD displays the Occupancy Override Indicator during the Override period
  - To cancel the Occupancy Override mode, press the **OVR** key and the Occupancy Override Indicator will disappear

Lock/Unlock WPT LCD Keys

- Locking the LCD keys prevents user from changing the setpoint and other configuration information of WPT
- Locking the LCD keys
  - Press the ▲ and ▼ keys simultaneously for 2 seconds
  - The key is locked and the LCD displays “LC” for 2 seconds
  - When the keys are locked user won’t be able to use the keys on the stat to change the setpoint or Occ Override
  - When the Keys are locked and if the user tries pressing any keys, “LC” appears to indicate that keys are locked

- Unlocking the LCD keys
  - Press the ▲ and ▼ keys simultaneously for 2 seconds
  - The key is locked and the LCD displays “UL” for 2 seconds

- Note: The LCD Keys can be locked/unlocked from the WPT Server as well.

Diagnostic Info

- To view diagnostic info press and hold ▼ key & **OVR** keys simultaneously for 2 seconds
- The LCD displays '**dt**' to indicate the diagnostic mode

- Press **OVR** once to view the firmware Version of the WPT

- Press **OVR** for the second time to view the current branch pressure in PSI

- Press **OVR** to exit the diagnostic page
- Note: The WPT will exit the diagnostic mode automatically if there is no action for 1 minute

Force Discovery

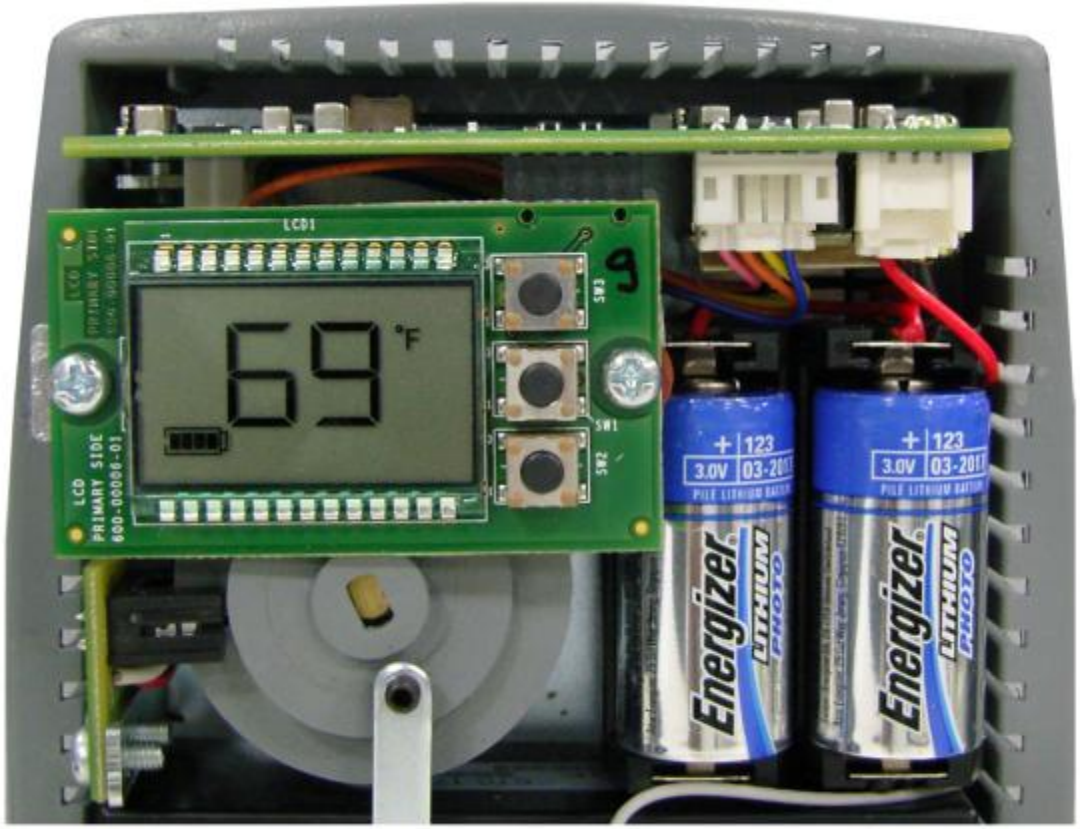
- Force discovery helps in establishing the Wireless connectivity during installation / troubleshooting
- To initiate Force Discovery, user must enter into the diagnostic mode by pressing and holding ▼ key & **OVR** keys simultaneously for 2 seconds
- The LCD displays '**dt**' to indicate the diagnostic mode

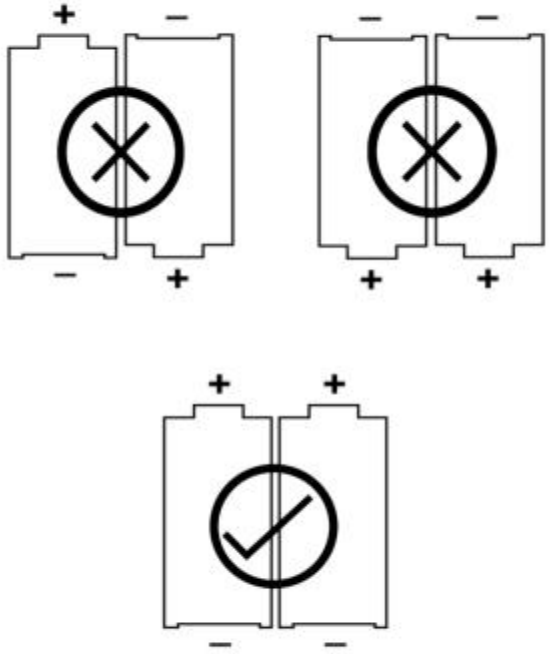
- Press ▲ once to enter the Force discovery mode; The LCD displays '**Fd**'

- Press ▲ again to start the Force Discovery; After successful force discovery the WPT will return to normal operating mode
- If the WPT is not able to establish wireless connection with a Repeater/Hub, LCD will display '**Df**' to indicate discovery failure

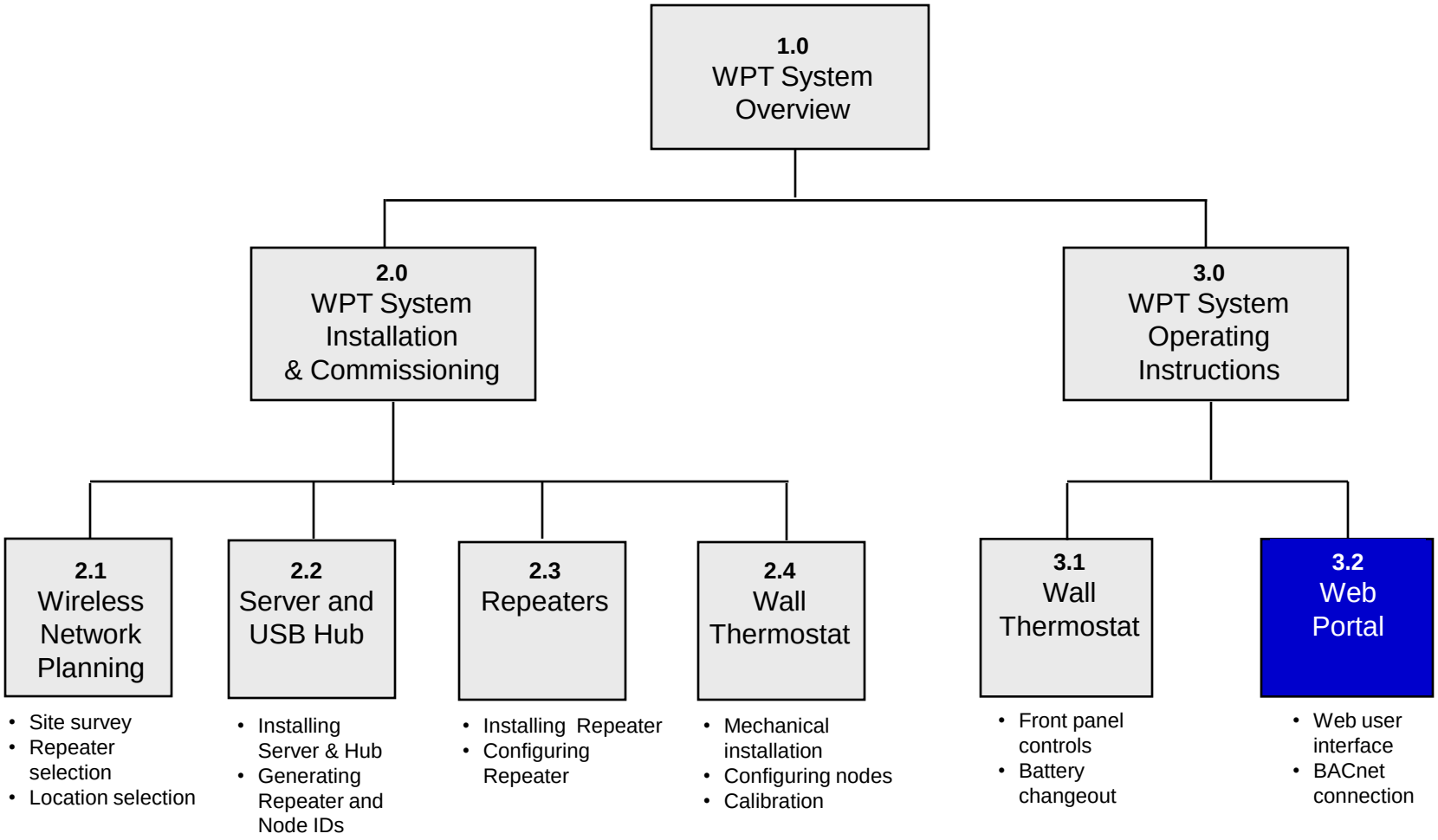
- When Force Discovery fails, use a WPT Wireless Range Tester to check the signal strength and install an additional Repeater, if required

Changing Batteries



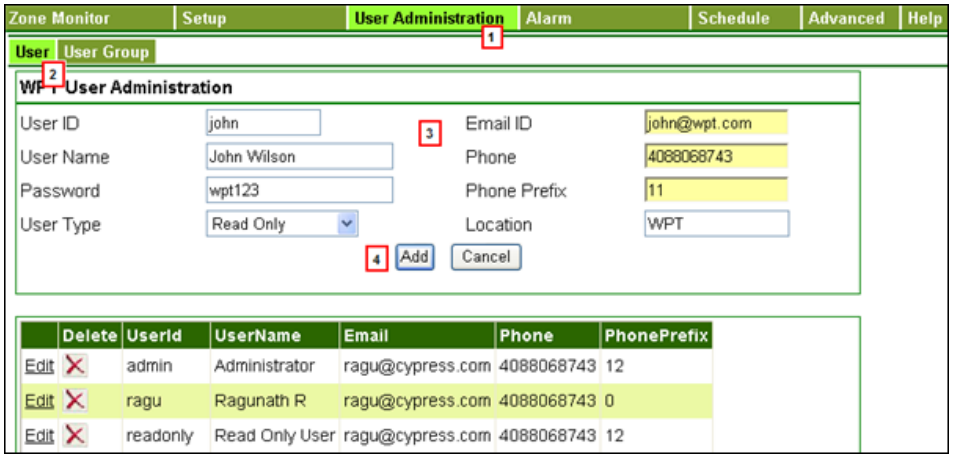


WPT Training Modules

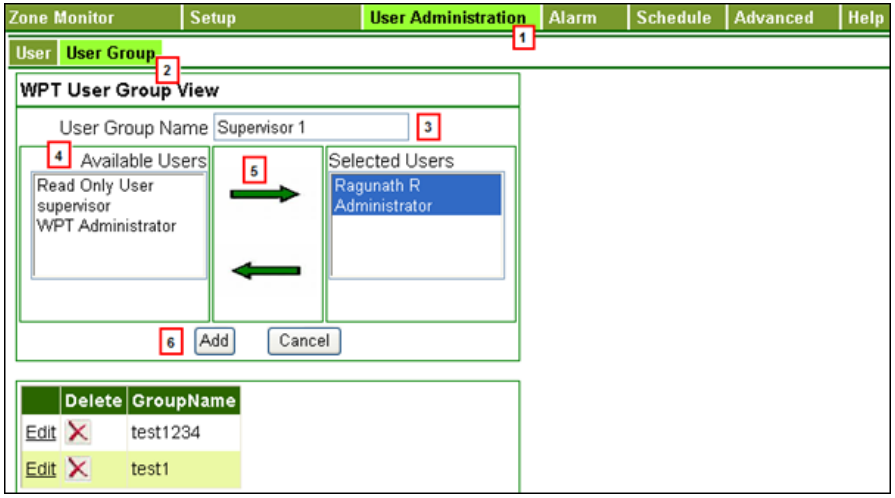


User Administration

- Adding user

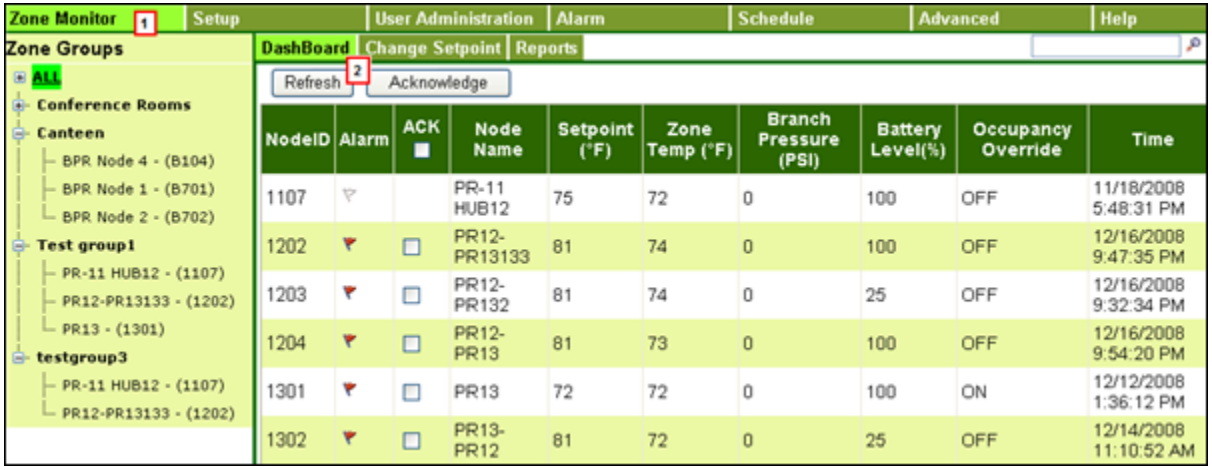


- Creating User group

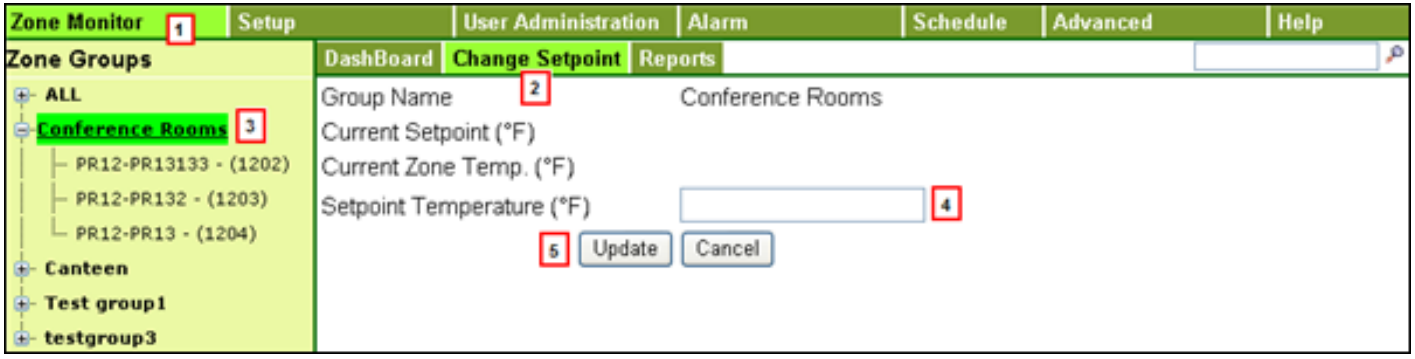


Zone Monitoring

- WPT Dashboard

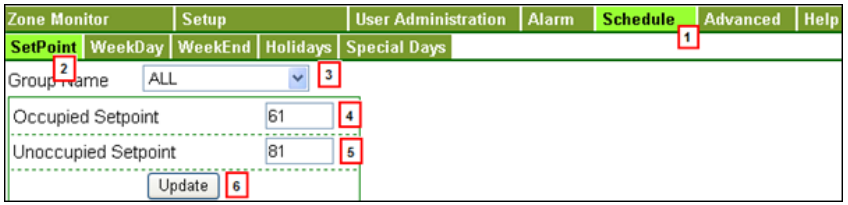


- Changing setpoint
  - Setpoint can be changed for selected zone or for all zones in a group

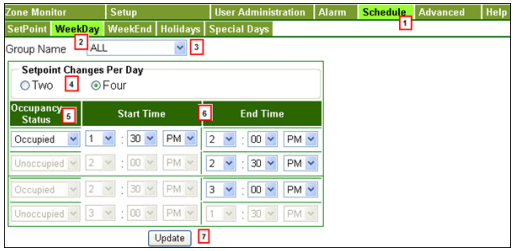


Configure schedule

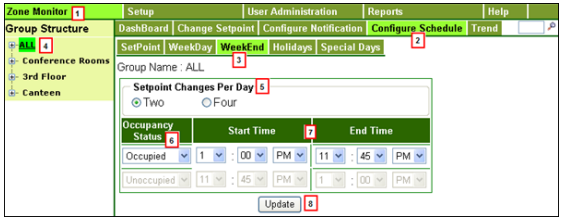
1. Configure Occ/unocc setpoints



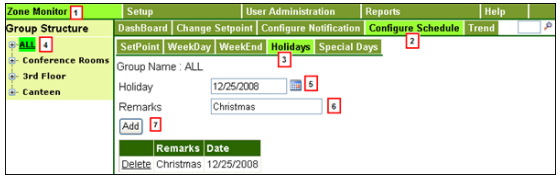
2. Configure weekday schedule



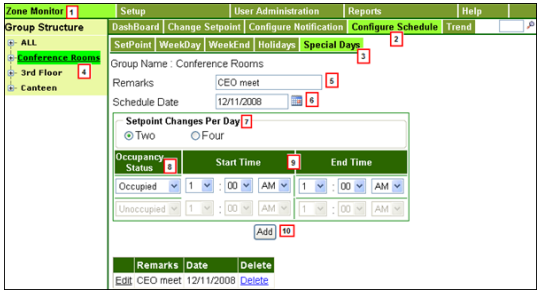
3. Configure weekend schedule



4. Configure holiday schedule

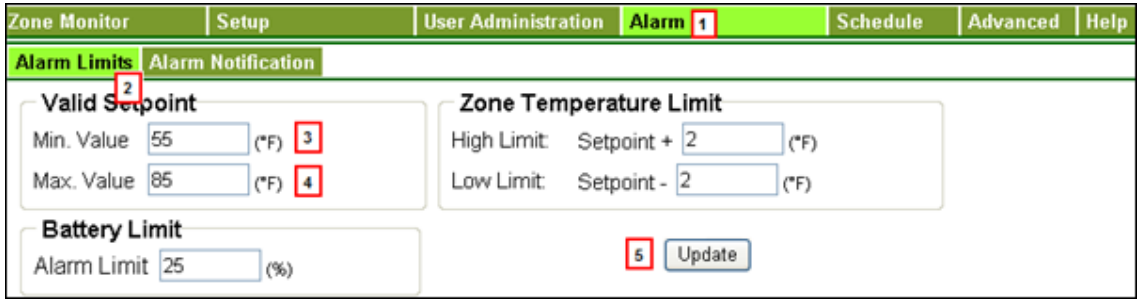


5. Configure special day schedule

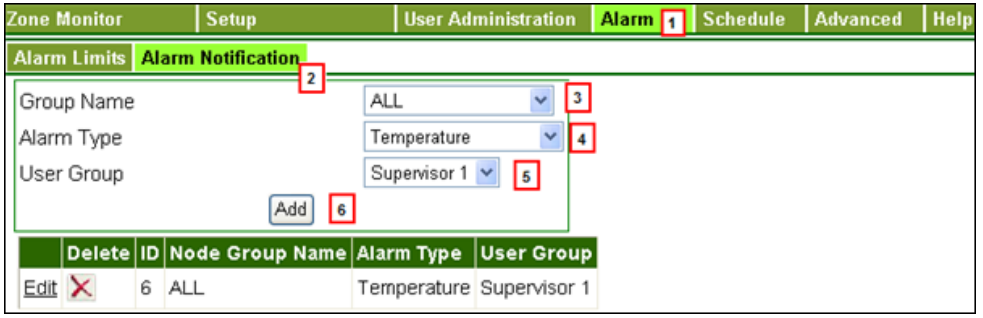


Configure Alarm

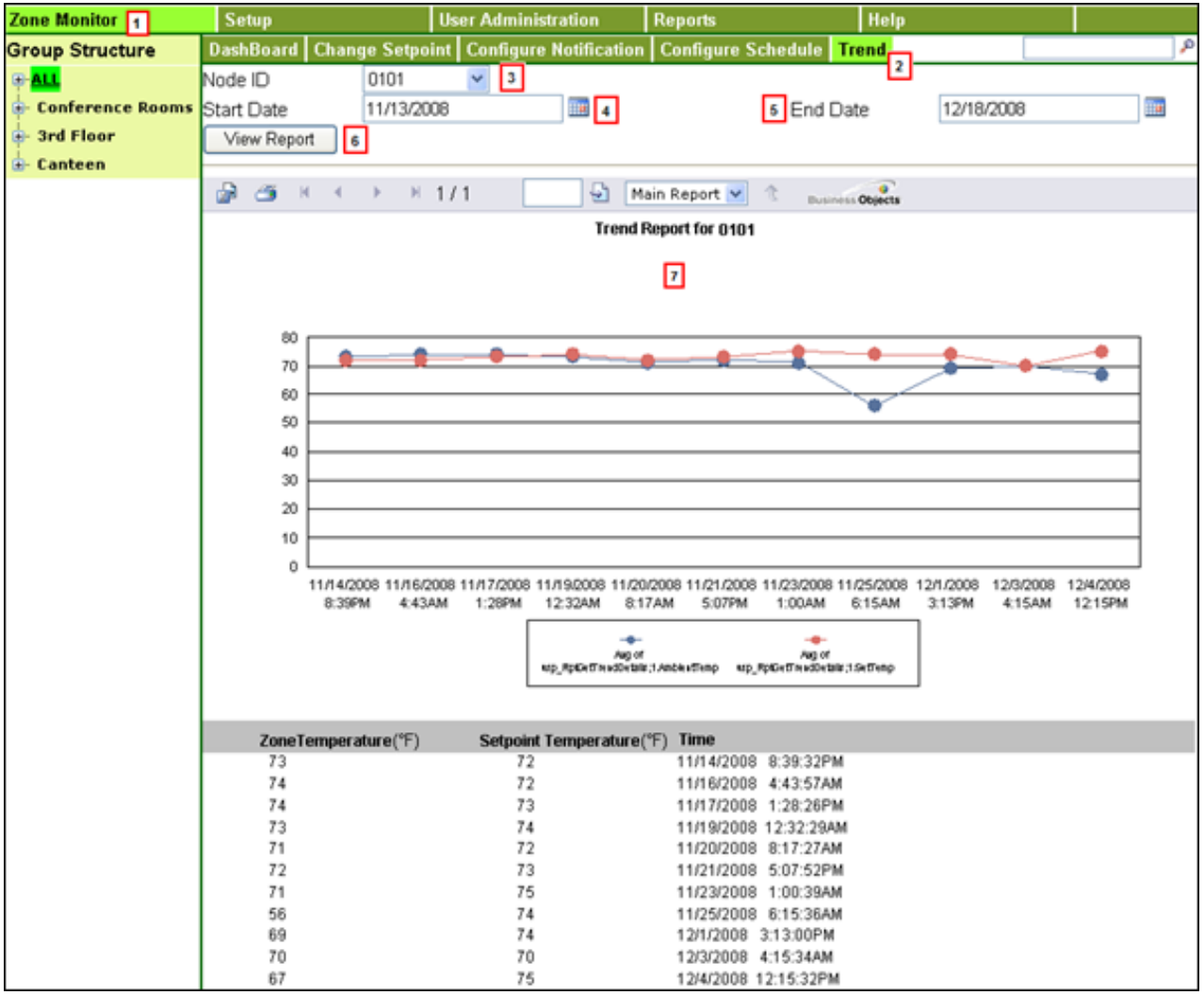
1. Configure Alarm limits



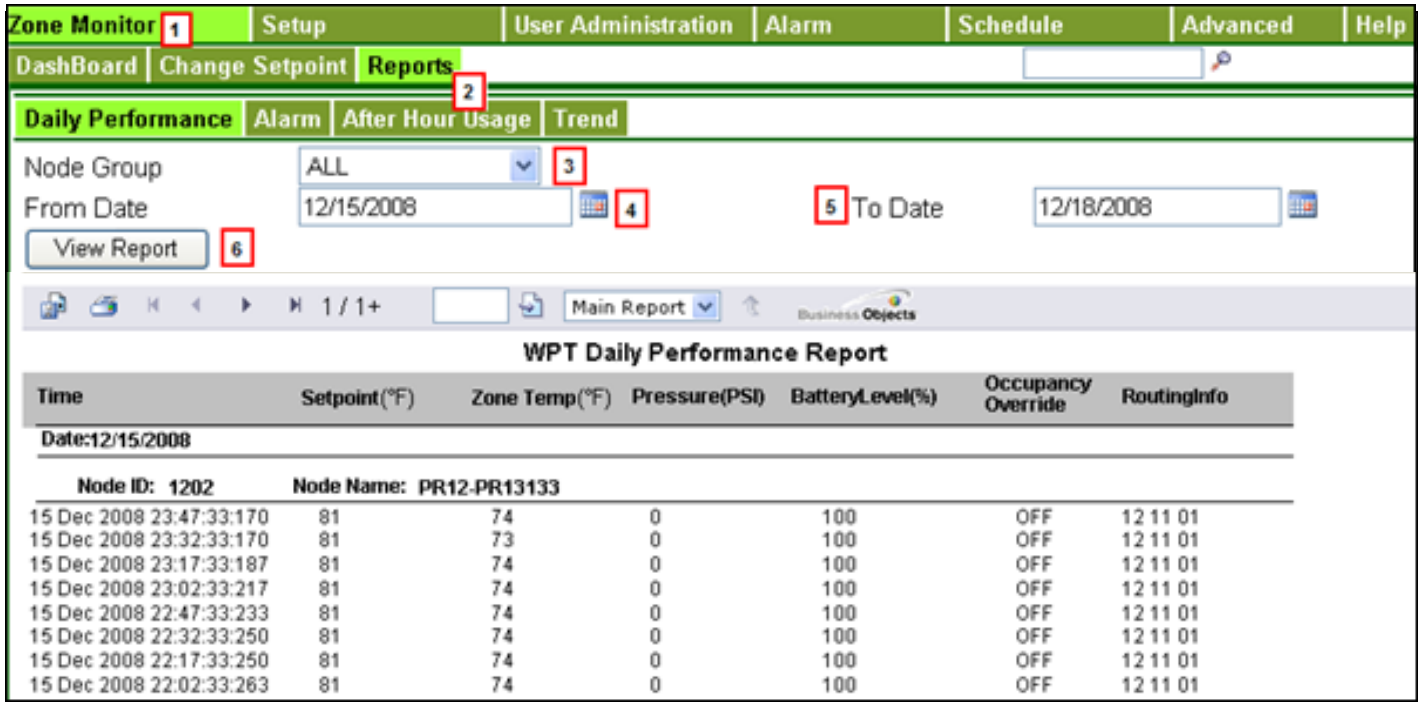
2. Configure Notification



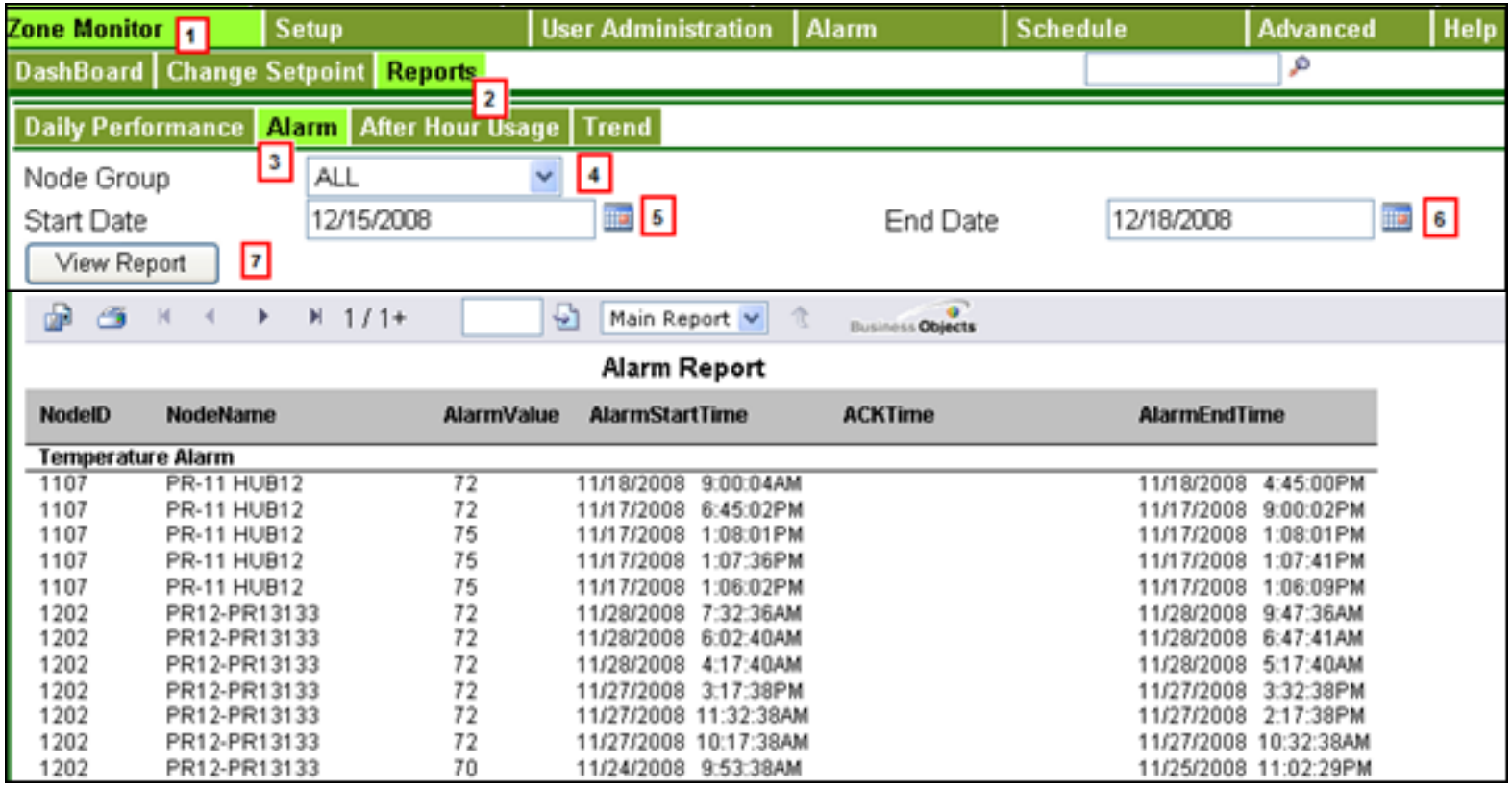
View Trend


Zone Monitor 1
Setup
User Administration
Reports
Help
Group Structure
DashBoard
Change Setpoint
Configure Notification
Configure Schedule
Trend 2
ALL
Conference Rooms
3rd Floor
Canteen
Node ID 0101 3
Start Date 11/13/2008 4
5 End Date 12/18/2008
View Report 6
1 / 1
Main Report
Trend Report for 0101
7
80
70
60
50
40
30
20
10
0
11/14/2008 8:39PM
11/16/2008 4:43AM
11/17/2008 1:28PM
11/19/2008 12:32AM
11/20/2008 8:17AM
11/21/2008 5:07PM
11/23/2008 1:00AM
11/25/2008 6:15AM
12/1/2008 3:13PM
12/3/2008 4:15AM
12/4/2008 12:15PM
ZoneTemperature(°F)
Setpoint Temperature(°F)
Time
73 72 11/14/2008 8:39:32PM
74 72 11/16/2008 4:43:57AM
74 73 11/17/2008 1:28:26PM
73 74 11/19/2008 12:32:29AM
71 72 11/20/2008 8:17:27AM
72 73 11/21/2008 5:07:52PM
71 75 11/23/2008 1:00:39AM
56 74 11/25/2008 6:15:36AM
69 74 12/1/2008 3:13:00PM
70 70 12/3/2008 4:15:34AM
67 75 12/4/2008 12:15:32PM

View Daily Performance Report



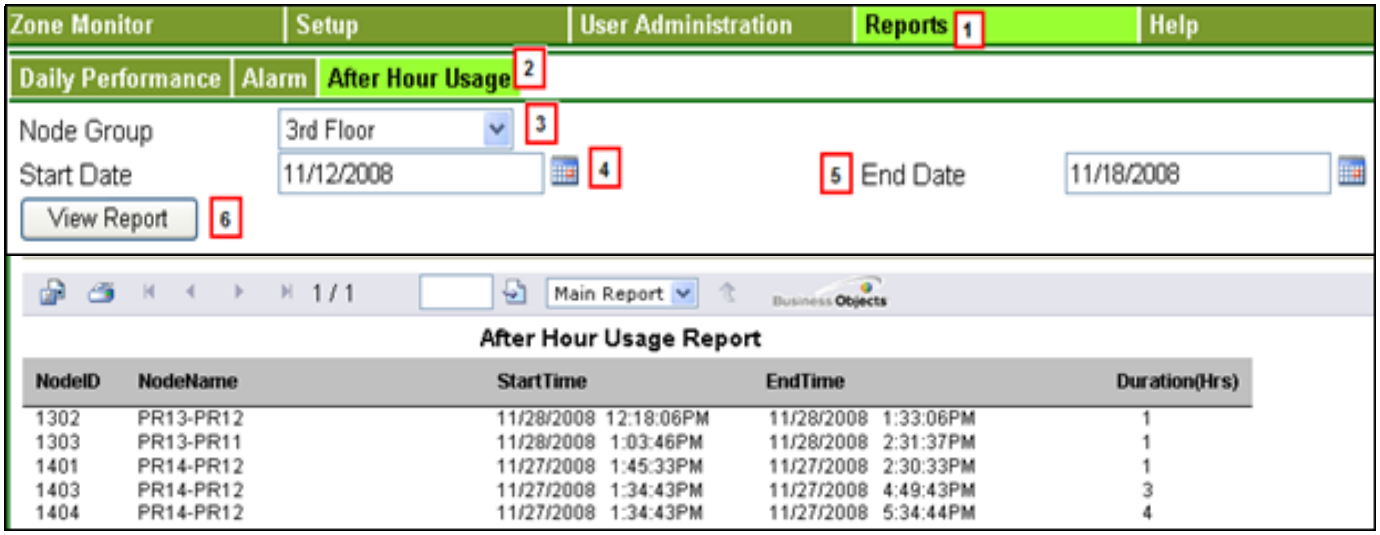
View Alarm Report



Alarm Report

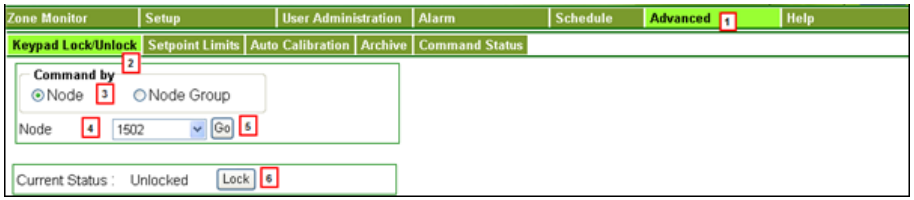
NodeID	NodeName	AlarmValue	AlarmStartTime	ACKTime	AlarmEndTime
Temperature Alarm					
1107	PR-11 HUB12	72	11/18/2008 9:00:04AM		11/18/2008 4:45:00PM
1107	PR-11 HUB12	72	11/17/2008 6:45:02PM		11/17/2008 9:00:02PM
1107	PR-11 HUB12	75	11/17/2008 1:08:01PM		11/17/2008 1:08:01PM
1107	PR-11 HUB12	75	11/17/2008 1:07:36PM		11/17/2008 1:07:41PM
1107	PR-11 HUB12	75	11/17/2008 1:06:02PM		11/17/2008 1:06:09PM
1202	PR12-PR13133	72	11/28/2008 7:32:36AM		11/28/2008 9:47:36AM
1202	PR12-PR13133	72	11/28/2008 6:02:40AM		11/28/2008 6:47:41AM
1202	PR12-PR13133	72	11/28/2008 4:17:40AM		11/28/2008 5:17:40AM
1202	PR12-PR13133	72	11/27/2008 3:17:38PM		11/27/2008 3:32:38PM
1202	PR12-PR13133	72	11/27/2008 11:32:38AM		11/27/2008 2:17:38PM
1202	PR12-PR13133	72	11/27/2008 10:17:38AM		11/27/2008 10:32:38AM
1202	PR12-PR13133	70	11/24/2008 9:53:38AM		11/25/2008 11:02:29PM

After Hour Usage Report

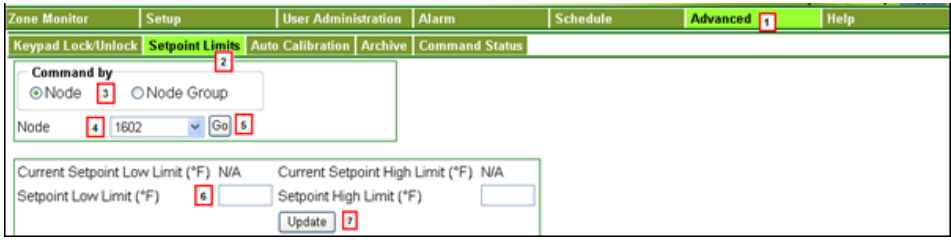


Advanced Features

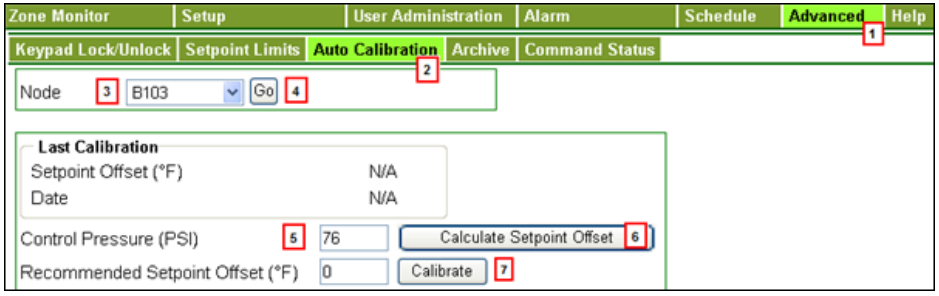
- WPT LCD Key Lock/Unlock



- Configure Setpoint Limits



- Auto Calibration



- History Data Archival

Accessing WPT using BACnet/IP

- Each WPT is represented as a BACnet Device Object

- The WPT device object has following I/O Objects
  - 3xAnalog Input Object (Ambient Temp, Branch Pressure and Battery Level)
  - 1xAnalog Output Object (setpoint)
  - 1xBinary Input Object (Occupancy Override)

- WPT BACnet Gateway is BBMD enabled

Reference Documents

Topics	Reference Document	Document Number
Features and benefits of WPT	Wireless Pneumatic Thermostat Product Brief	PBWPT080826
Installing and configuring Battery Powered Repeater	Battery Powered Repeater Installation Instruction	Doc No: 910-00001-01
Installing and configuring Wall Powered Repeater	Wall Powered Repeater Installation Instruction	Doc No: 910-00002-01
Installing and configuring USB Hub	USB Hub Installation Instruction	Doc No: 910-00003-01
Installing and configuring WPT	WPT installation Instruction	Doc No: 910-00005-01
Estimating the number of repeaters and selecting the optimum location for Repeaters and Hub.	WPT Wireless Network Planning Guide	Doc No: 910-00006-01
Installing and configuring WPT Web Server	WPT Web Server Installation Instruction	Doc No: 910-00007-01
BACnet Objects and Properties supported by WPT BACnet Server	WPT BACnet PICS	Doc No: 910-00008-01
Using the wireless range testers	WPT Wireless Range Tester User Manual	Doc No: 910-00009-01

Thank you

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