Honeywell

INNCOM e7w Thermostat

USER GUIDE

June 2020

31-00302–01

Disclaimer

Important Safety Information and Installation Precautions

Read all instructions

Failure to follow all instructions may result in equipment damage or a hazardous condition. Read all instructions carefully before installing equipment.

Local codes and practices

Always install equipment in accordance with the National Electric Code and in a manner acceptable to the local authority having jurisdiction.

Electrostatic sensitivity

This product and its components may be susceptible to electrostatic discharge (ESD). Use appropriate ESD grounding techniques while handling the product. When possible, always handle the product by its non-electrical components.

High voltage safety test

Experienced electricians, at first contact, always assume that hazardous voltages may exist in any wiring system. A safety check using a known, reliable voltage measurement or detection device should be made immediately before starting work and when work resumes.

Lightning and high-voltage danger

Most electrical injuries involving low-voltage wiring result from sudden, unexpected high voltages on normally low voltage wiring. Low-voltage wiring can carry hazardous high voltages under unsafe conditions. Never install or connect wiring or equipment during electrical storms. Improperly protected wiring can carry a fatal lightning surge for many miles. All outdoor wiring must be equipped with properly grounded and listed signal circuit protectors, which must be installed in compliance with local, applicable codes. Never install wiring or equipment while standing in water.

Wiring and equipment separations

All wiring and controllers must be installed to minimize the possibility of accidental contact with other potentially hazardous and disruptive power and lighting wiring. Never place 24VAC or communications wiring near other bare power wires, lightning rods, antennas, transformers, or steam or hot water pipes. Never place wire in any conduit, box, channel, duct or other enclosure containing power or lighting circuits of any type. Always provide adequate separation of communications wiring and other electrical wiring according to code. Keep wiring and controllers at least six feet from large inductive loads (power distribution panels, lighting ballasts, motors, etc.). Failure to follow these guidelines can introduce electrical interference and cause the system to operate erratically.

Warning

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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TABLE OF CONTENT

About this guide

This document is a part of the INNCOM e7w thermostat technical documentation library.

Objective

This document addresses two audiences

- Hotel Administrator or Commissioning Engineer to install and use the INNCOM e7w thermostat end-to-end.
- INNCOM engineering personnel tasked to prepare the e7w for service.

Related technical literature

Literature Number	Literature Name
31-00308	INNCOM e7w Thermostat Installation Instructions

Abbreviation and Nomenclature

Abbreviation	Definition
IRAS 2.0	Integrated Room Automation System (next generation)
DMN	Deep Mesh Network
FCU	Fan Coil Unit
VAC	Volts AC (Alternating Current)
VDC/ DC	Volts DC (Direct Current)
OTW	Over-The-Wire
BS	British Standard – reference to a 70 x 70mm back box
ETA	Serial Communication protocol
EMS	Energy Management System
PMS	Property Management System
BMS	Building Management System
LEM	Limited Energy Management
e7w	e7 Wireless

Overview

The battery-powered e7w thermostat is the latest E-Series thermostat, deliver superior convenience, comfort and energy management for both guests and hoteliers. When coupled with a required PC502.4G and X47, the thermostat can integrate with an extensive range of INNCOM and third-party technologies, such as door locks, lighting, tablets to server-to-server integrations, and more. When used in a Networked EMS, the e7w with PC502.4G as a room gateway provides real-time data to INNCOM INNcontrol software that helps to track —

- room status
- energy use
- equipment alarm reporting
- integration to PMS, BMS and other systems

It will help user to proactively deliver a rewarding guest experience. The e7w Thermostat comes with inbuilt temperature and humidity sensor to measure room temperature and humidity. The thermostat sends the collected report to the HVAC controller partner, that is physically connected to the room HVAC unit. The e7w Thermostat has no onboard relays or HVAC control logic to control the room HVAC unit.

The e7w does not support IR eye or S5-Bus, the mode of communication with other devices is via RF only. The HVAC partner in the room must be equipped with a Deep Mesh Layer-X radio, or S5 Bus connected to a radio equipped device such as a PC502.4G.

Features and Benefits

- Battery operated wireless communication integrated with on-board motion, temperature, and humidity sensors.
- Provides standalone or networked energy management.
- Compatible with most HVAC systems found in hotel guestrooms, assisted living facilities, student housing, and more.
- Provides real-time data to INNcontrol 5/ INNcontrol 3 for reporting, monitoring, central energy control, and diagnostics.
- A user-friendly interactive design with easy to read keypad.
- Supports standard mounting junction boxes (US single-gang, US double-gang and UK standard gang).

Applications (requires PC502.4G and X47)

- Basic Thermostat. Traditional HVAC control.
- Basic EMS: Optimizes in-room energy based on occupancy detection via a built-in (and/or remote) motion sensor.
- Advanced EMS: Optimizes in-room energy based on occupancy detection via a motion sensor and a door sensor or a lock integration.
- Networked EMS: Optimizes in-room energy by occupancy and room status via centrally-monitored and optimized INNcontrol 5 and INNcontrol 3 software.
- e7w thermostat can be used as commissioning tool.

Get In Touch

For 24 x7x 365 Technical Support:

Contact Toll free number 1.800.543.1999, (US only)

Visit us at inncom.com

Technical support e-mail at support@INNCOM.com

Parts Orders available Monday to Friday from 8:00 AM to 5:00 PM, Eastern Time

Tel: +1.800.543.1999

Specifications

Mounting	Standard US — Double Gang: Without Spacer Ring Standard US — Single Gang: Without Spacer Ring Standard UK — Single Gang: Without Spacer Ring
Dimension	L 120 mm x W 120 mm x H 23 mm (without spacer ring) {L 4.7 inch x W 4.7 inch x H 0.90 inch (without spacer ring)}
Ambient Operating	41 to 149 ° F (5 to 40 ° C), 0-95% RH non-condensing
Ambient Storage	33 to 149 ° F (1 to 65 ° C), 0-95% RH non-condensing
In room Temperature	60 to 85° F (± 1° F) / 15 to 30° C (± 0.5° C)
Power	Input: 6VDC (Four AA Batteries of 1.5VDC each) Output: N/A
Color Variants	Ice White and Black Onyx
Display resolution	High Twisted Nematic (HTN) LCD, 0.5 °C (0.1 °F in test mode).
Standard dead band	2 ° F (1° C) between heating and cooling.
Thermostat Measurement range	33 to 99 ° F (1 to 37 ° C) +/- 1.8 ° F.
Outdoor air temperature display	0 to 99 °F (-18 to 37 °C) as reported from web service
Motion sensor	120° View Angle, 10meter line of sight
Light Sensor	Gamma Value 0.7, Spectral response 550 – 650 nm.
Humidistat	3 % RH., in range from 30-95 % RH., +/- 5% RH. outside this range.
Frequency range	2405MHz to 2480MHz
Maximum power	7dBm
Hardware version	A

Wireless Communication

Parameter	Description
RF Data Rate	250 kbps
Antenna Type	SMT
Range	70ft
Transmit Power	+5 dBm
Receive Sensitivity	-95 dBm
Frequency Band	2.4 Ghz
Encryption	AES - 128
Protocol	802.15.4
Frequency Channels	11-26
Note: Required Deep Mesh Network 2.4 GHz	

Standards and Approvals

EN

- Product Standard – EN 60730-1:2011 and EN 60730-2-9:2010 (covers EMC and LVD Safety requirements).
- EMC Standard – ETSI 301489-1 V2.2.1, ETSI 301 489-17 V 3.2.0.
- EMC Standard EN 55032 – Radiated RF Emissions.

UL (IEC)

- UL 60730-1, 5th edition and UL 60730-2-9, 4th edition.
- IEC and EN EMC standards:
  - EU RoHs: EN 50581:2012 per EU RoHS Directive 2011/65/EU,
  - EN 50581:2012 per EU RoHS Directive 2011/65/EU.
  - IEC60417, No.5957. For indoor use only.
  - 

Class III equipment per IEC 61140.
- Radio – FCC Part 15 Subpart C (15.249), Industry Canada RSS-210 Issue 9:2016 and RSS-GEN Issue 4:2014.
- IPx1 protection.
- Pollution Degree 2.
- Type 1 action, operating control.

CSA

- **CSA (IEC Based)**,

  Note 1: on standards,

  Note 2:on aspects impacted by transition
- **CAN/CSA E60730-1, 5th edition**
- **CAN/CSA E60730-2-9, 4th edition**

NOTE

We have a choice of the IEC based path or the updated version of Spec. 24. Considerations:

- CSA C22.2 No. 24-93 has been in place but will not be allowed from Jan. 1, 2017. It is being replaced with CSA C22.2 No. 24-2015 as of that date (Environmental Requirements).
- CSA C22.2 No. 24-2015 references CSA C22.2 No. 0.8 for electronic controls with safety functions, functional safety and EMC instead of 60730-1 Annex H.
- According to CSA, the deviations for Canada added to CAN/CSA 60730-1 and 60730-2-9 make this choice equivalent to use of CSA C22.2 No. 24-2015.

Regulatory Compliance

UL Listing

This device meets UL 60730-2-9, CAN/CSA-E60730-2-9 Standard for Automatic Electrical Controls - Part 2-9: Requirements for Temperature Sensing Control

Federal Communications Commission (FCC)

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

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

This device complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and operated with minimum distance of 20cm between the radiator and your body. This device must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Industry Canada (IC)

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

WEEE Directive 2012/19/EC Waste

Electrical and Electronic Equipment Directive

The correct disposal of end-of-life equipment will help prevent potential negative consequences for the environment and human health. Dispose of the packaging and this product in an authorized collection or recycling center. Do not dispose of the unit with domestic refuse. Do not incinerate.

System Block Diagram

The INNCOM Room Automation System (IRAS) displays guest services requests such as privacy, makeup room, butler, and room service requests. When the e7w Thermostat is connected to the INNcontrol 3 or INNcontrol 5 software on a central server with the Deep Mesh Network (DMN), the e7w Thermostat supports automated Customer Relationship Manager (CRM) updating the staff reporting functions.

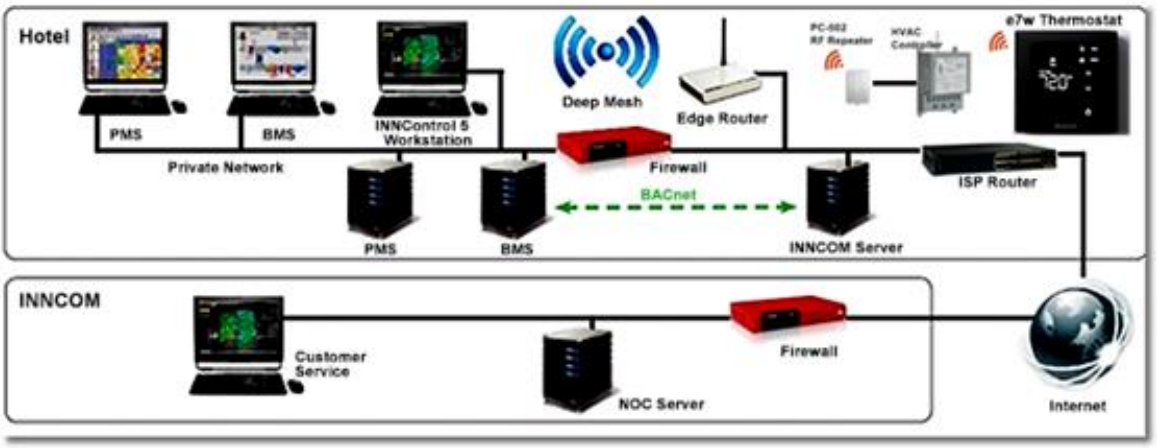


Figure 1: System Block Diagram

e7w Thermostat Application

Distributed Load Application

The e7w thermostat is designed to support intelligent distributed load control and actuation. This is the primary architecture found in the domestic retrofit and new construction markets. In the diagram below, the e7w thermostat communicates with the PC502.4G room gateway and other in-room devices (like MODEVA switch) via. RF. The PC502.4G room gateway further communicates with the Central Electronic Locking System (CELS) to send all the in-room data to the INNControl3/ INNControl 5 server via. B574/B578 edge router.

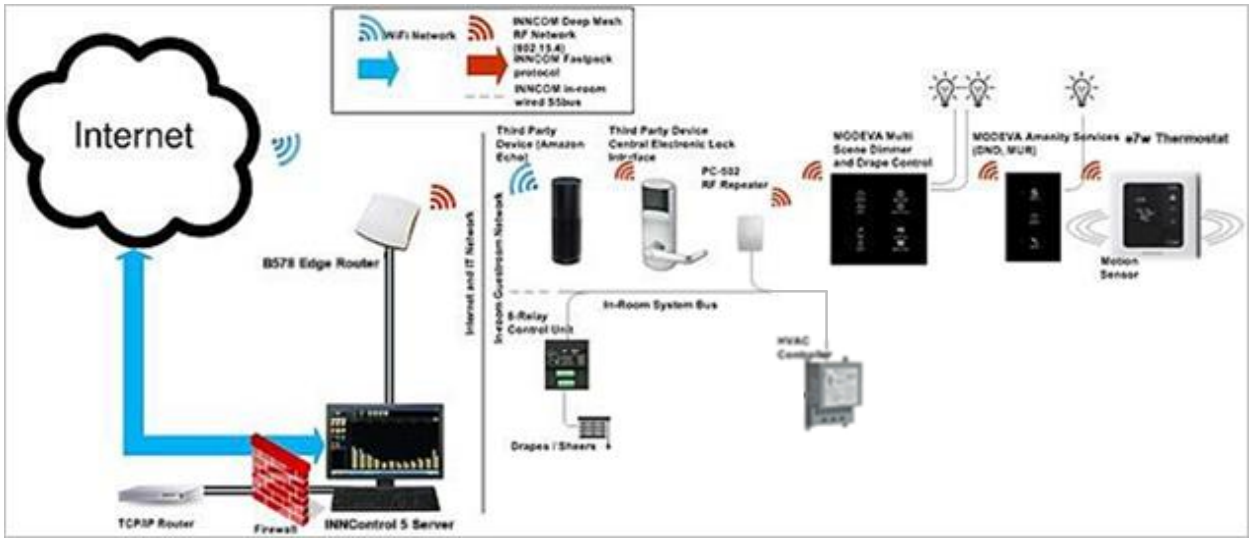


Figure 2: Distributed Load Application

Load Center Application

A load center application (also commonly referred to as the room controller unit or “RCU”) is designed to locate all of the devices capable of providing DC power, relay outputs, TRIAC dimmer output, 0-10V dimming, and dry contact inputs for HVAC, lighting, drape control, into a load panel that is located near the breaker box where the mains voltage is fed into the guestroom. In the below Load Center architecture diagram, the e7w Thermostat provides the user interface to the guestroom controls but does not directly control the HVAC unit.

The e7w communicates via RF with PC502.4G room gateway which further communicates with other in-room devices. The in-room devices like (MODEVA switch, X47 or X47 L.P, HVAC controller etc.) communicates via S5 system bus with the PC502.4G.

For example, when a temperature UP button is pressed on the e7w thermostat, the thermostat sends command via RF to PC502.4G. The PC502.4G further sends command to the HVAC controller over S5 system bus, which actuates the FCU (Fan Coil Unit).

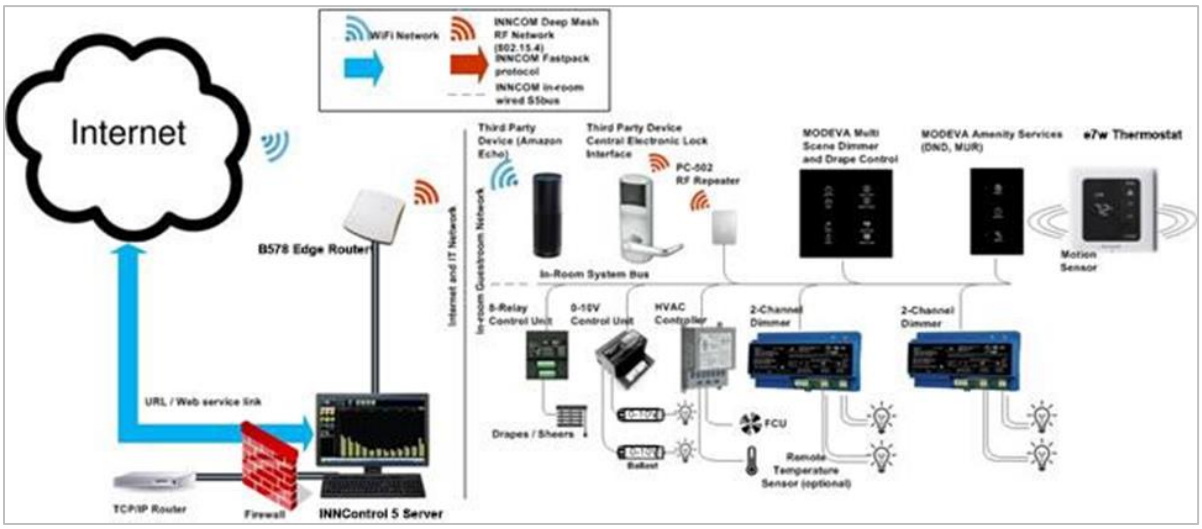
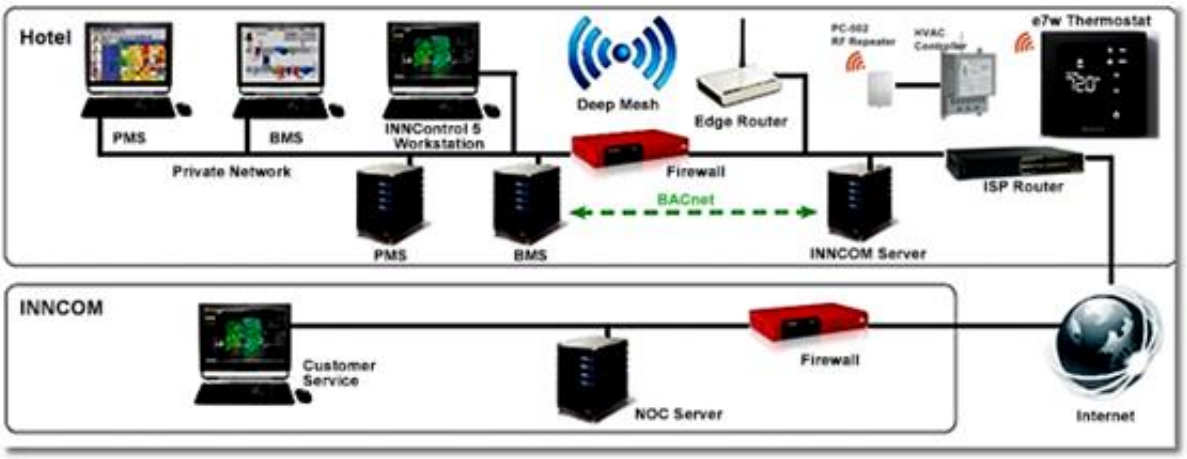


Figure 3: Load Center Application

Security Requirements

System Environmental Considerations

A firewall is required to isolate the IRAS (INNCOM Room Automation System) for the hotel private network with the Internet. Unprotected Internet connections can expose and damage the IRAS system and facility components to cyber-attacks from third parties. This may cause the IRAS system to malfunction and can also be misused for illegal purposes for which the operator may then be held liable.



Deployments and Maintenance Considerations

1. Always keep server up to date on the latest security patches via regular system update. This applies not only to workstations or servers running on Windows, Linux, Mac or any devices that runs as part of information infrastructure or operations workstation.
2. Always keep the INNCOM-e7w firmware with the latest released firmware to have maximum protection by built-in security features.
3. Do not use default passwords for any devices (if exists). This includes, but not limited, to all server workstations, storage servers, firewall devices, routers, and mobile devices.
4. Do not use weak passwords for server administrators or operators. Different user role (for example administrator, user, guest, etc.) shall have different password, and user should not share common passwords.
5. It is recommended to change password in every 3 months.
6. Keep the EngINN or INNcontrol log for at least 3 months for tracking records.
7. Document all the security settings in a package after commissioning, include the following:
    - Passwords
    - Edge router settings, including network parameters.
    - Network settings, especially network configurations that provide isolation between the IRAS/BAS (Building Automation System) network and other networks.
    - Firewall settings, such as ports that are allowed through, especially ones that are essential to maintain the designed security protections.
    - Physical security controls, such as a locked cabinet or an equipment room that restricts physical access to the IRAS system, INNCOM and e7w products or Hotel daily operation system.

8. In case of wireless communication, malicious wireless devices can easily scan the wireless channel and inject malicious packets or mass data flow to perform Deny-of-Service attacks. Honeywell has taken steps to prevent e7w PC50X device from being injected, but the mass data flow will result in loss of wireless communication bandwidth within the whole system. Regular check of the communication failure rate or response rate of IRAS devices is helpful to discover and isolate devices being attacked and stop the physical attacks in daily operation.

Network Communication Notice

1. To keep maximum integration compatibility with third — party devices, CELS and Fast-pack communications are un-encrypted as open protocol. Improper security protection may lead to data leakage, spoofing and/or tampered by malicious devices and denial-of-service attacks. It is the CELS and Fast-pack devices vendor's responsibility to keep application layer data secured by industry standard cryptographic methods
2. To keep maximum integration compatibility with legacy devices, in-room wired devices are less secure from data confidentiality and authentication thus not-recommended for new design. It is always highly recommended to use deep mesh wireless network communication to gain maximum protection and latest updates.
3. In case of Deny-of-Service attacks, all communication channels will inevitably have loss of bandwidth due to malicious data flow.
4. The RS 485, S5 bus, and e7w bus may contain legacy technology, which is less secure under modern cyber-security attacks. Honeywell strongly recommends to use a secured deep mesh wireless network communication. In case of legacy technology, user needs to be aware of the risk of being tampered or attacked. To reduce the attack surface, user is advised to physically secure the wired communication signals or provide necessary shield on wires, or place necessary access control on accessing such communication wires.

e7w Thermostat Wiring

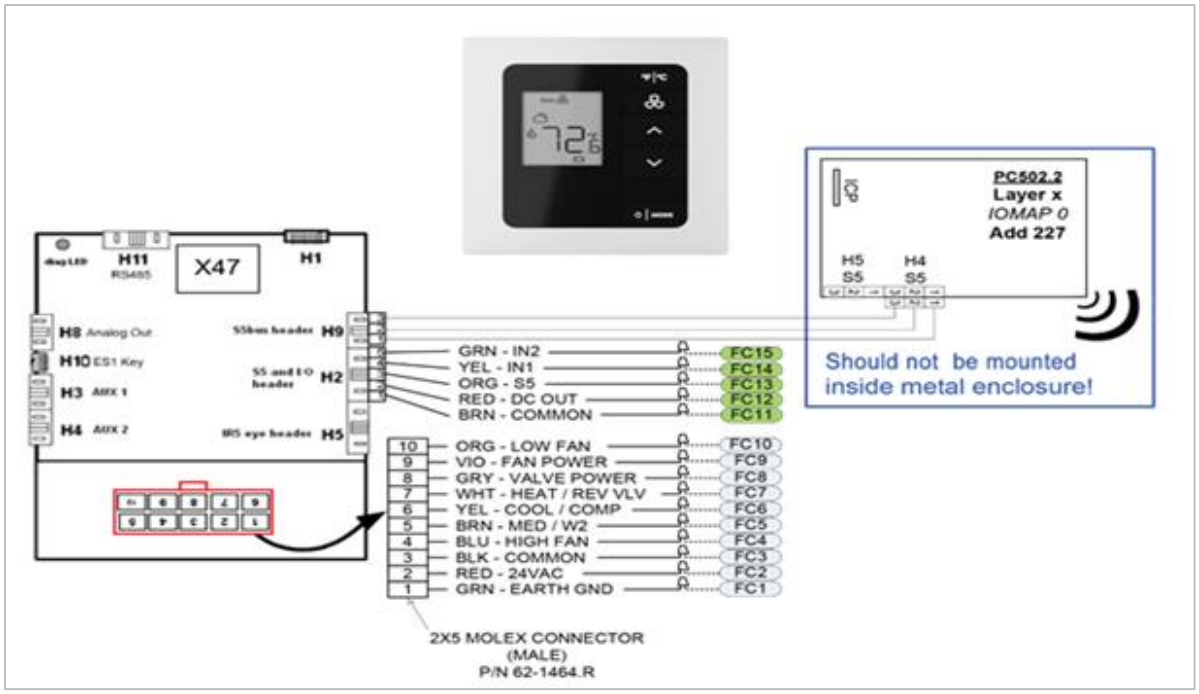
The battery powered wireless e7w functions as a programmable DDC thermostat, automatically adjusting FAN speeds and valves to achieve set temperature.

Note: Guests can manually select heat or cool by pressing the OFF/AUTO button and cycling through OFF, AUTO, HEAT and COOL).

The e7w thermostat works in conjunction with an HVAC controller partner such as an INNCOM X47.L.P/ X47H.P to send room temperature updates, temperature change request, humidity levels and motion detection.

Wiring X47.L.P (24VAC) with e7w Thermostat

In the below diagram, the e7w Thermostat communicates with the PC502.4G room gateway and other in-room devices (like X47.L.P 24VAC HVAC controller) via RF.

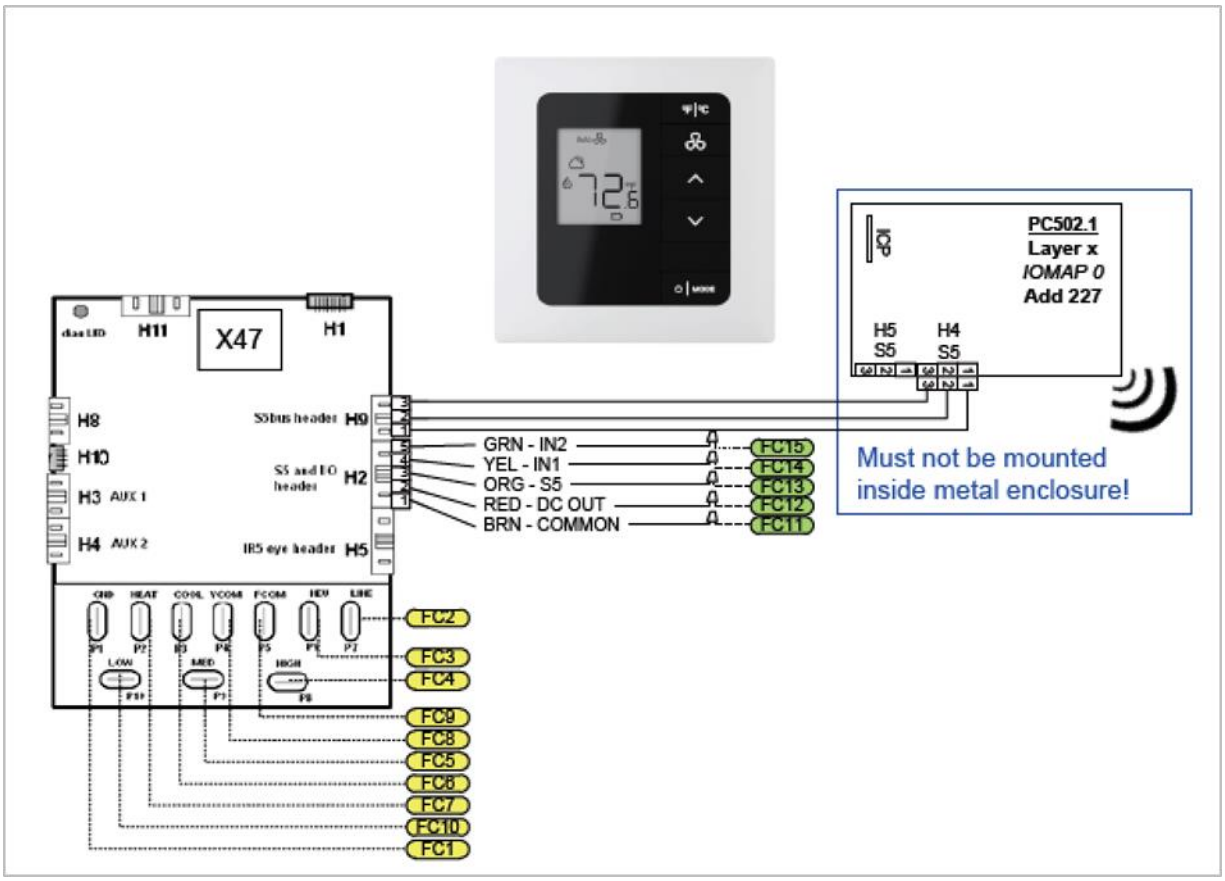


Thermostat Wire Connections

HVAC INTERFACE			LOW VOLTAGE INTERFACE		
Connection	Color	Function	Connection	Color	Function
FC1	Green	EARTH GROUND	FC11	Brown	DC GROUND
FC2	Red	24 VAC POWER	FC12	Red	DC OUT
FC3	Black	24 VAC COMMON	FC13	Orange	S5 BUS
FC4	Blue	HIGH FAN RELAY	FC14	Yellow	INPUT 1
FC5	Brown	MED FAN RELAY/ HEAT RELAY(STAGE 2)	FC15	Green	INPUT 2
FC6	Yellow	COMPRESSOR CONTACTOR			
FC7	White	HEAT RELAY(STAGE 1)/ REVERSING VALVE			
FC8	Grey	24 VAC VALVE POWER			
FC9	Violet	24 VAC FAN POWER			
FC10	Orange	LOW FAN RELAY			

Wiring X47.**H.P** (120VAC) with e7w Thermostat

Below figure shows e7w Thermostat communication with PC502.4G room gateway and other devices (like X 47H P, 120 VAC HVAC controller) via RF Channel.



Thermostat Wire Connections

HVAC INTERFACE			LOW VOLTAGE INTERFACE		
Connection	Color	Function	Connection	Color	Function
FC1	Green	EARTH GROUND	FC11	Brown	DC GROUND
FC2	Black	LINE	FC12	Red	DC OUT
FC3	White	NEUTRAL	FC13	Orange	S5 BUS
FC4	Yellow	HIGH FAN RELAY	FC14	Yellow	INPUT 1
FC5	Orange	MED FAN RELAY/ HEAT RELAY(STAGE 2)	FC15	Green	INPUT 2
FC6	Red	COMPRESSOR CONTACTOR			
FC7	Brown	HEAT RELAY(STAGE 1)/ REVERSING VALVE			
FC8	Grey	VALVE POWER			
FC9	Violet	FAN POWER			
FC10	Blue	LOW FAN RELAY			

User Interaction

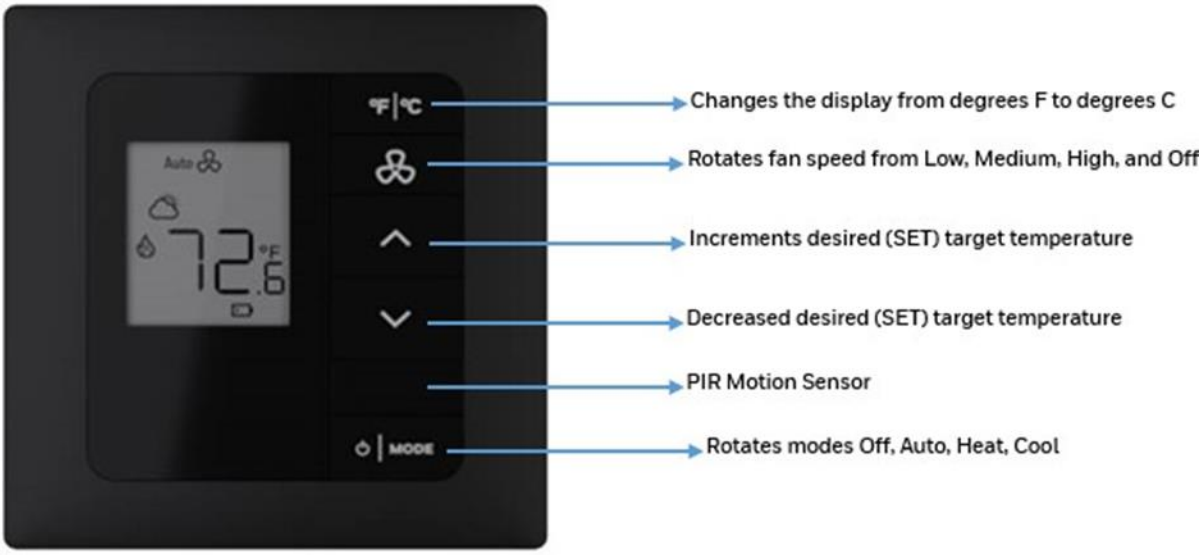
Dormant Mode

When the e7w thermostat is not in use by the guest for more than 5 seconds, the e7w thermostat turns off LCD display and keypad backlight.

User Interaction Mode

When a button is pressed by the user, the thermostat will then display the modes (heat and cool) and the measured temperature.

e7w Interface Navigation



Part Numbers

List No.	Long Description
201-528-6V-BK*	6V Wireless Thermostat, Black Onyx
201-528-6V-WH*	6V Wireless Thermostat, Ice White
201-528-24-BK*	24VAC Thermostat, Black Onyx
201-528-24-WH*	24VAC Thermostat, Ice White
201-528-100-BK*	100-277VAC Thermostat, Black Onyx
201-528-100-WH*	100-277VAC Thermostat, Ice White
PC502**	Protocol Converter
X47**	Universal Relay Pack

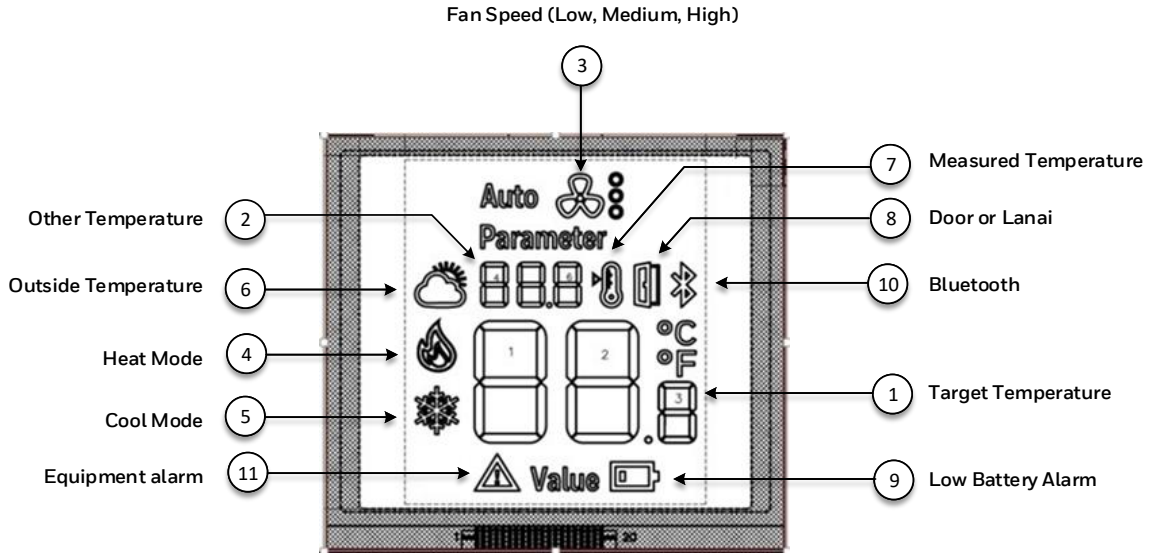
S541.RF	Wireless Door Switch / Transmitter
04-1096.FL	e7 Remote Thermistor
201-503	PC-503 Configuration Tool used with EngINN
203-250	RS485 DM485 Communication Module
32324212-001	Thermostat Screw Kit Assembly
62-1455	Thermostat 100-277VAC Harness

* Thermostat purchase includes Installation Kit, Screw Kit Assembly and Harness.

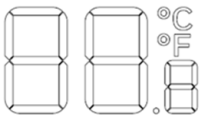
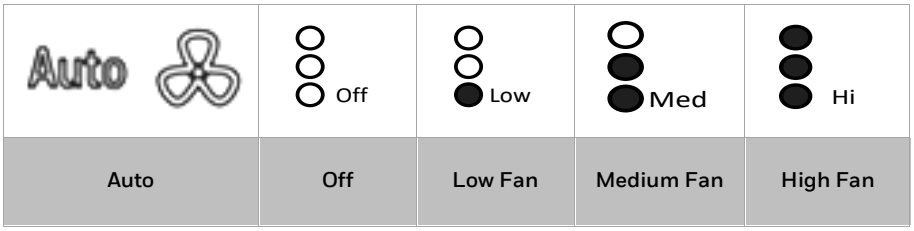
** PC502 and X47 are required for e7w to interface with HVAC system

Display Functions

Characters in the display are shown in the below figure for reference. The characters will be illuminated in certain combinations to support all the intended applications. Whenever the guest views any temperature in Fahrenheit, only whole numbers (no decimals) should be displayed.



1	Target temperature	7	Measured Temperature
2	Other Temperature	8	Door or Lanai
3	Fan Speed	9	Low Battery Alarm
4	Heat Mode	10	Bluetooth
5	Cool Mode	11	Equipment Alarm
6	Outside Temperature		

1		**Target Temperature** Displays the current value of the desired temperature (SET). Also used to display parameter in service mode.
2		**Other Temperature** Displays the measured value of inside temperature, and outside temperature when configured. Also, it displays the parameter value in service mode.
3		**Fan Speed** Displays the fan speed, there are five modes of fan speed.  **Auto** | **Off** | **Low Fan** | **Medium Fan** | **High Fan** **Auto Fan Speed –** Fan speed and heating or cooling are automatically selected to raise, or lower room temperature based on the difference between the desired (SET) temperature shown on the display and the measured room temperature. **Low/Medium/High Fan Speed –** Low, Medium, and High fan speeds are selected by pressing the fan button. The fan will run at the selected speed in heating or cooling, in order to maintain desired (SET) temperature.
4		**Heat Mode** Heat mode displayed, when the thermostat is configured only for heat mode.
5		**Cool Mode** Cool mode display, when the thermostat is configured only for cool mode.
6		**Outside Temperature** The outside temperature icon will be displayed next to the small seven segment characters displaying the temperature, when outside air temperature is enabled. Outside air temperature is displayed in dormant mode only. **Note:** This symbol also appears, when using the rEG CBL32 Registry Editor feature of the e7w to indicate a registry has been modified and needs to be stored.

7		**Measured Temperature** The measured temperature icon will be displayed next to the small seven segment characters displaying the temperature when measured temperature is configured, or when the guest has physically interacted with the thermostat.
8		**Door or Lanai** The door icon will be illuminated in addition to **"---"**on the large seven segment display when a door, balcony, or lanai is open.
9		**Low Battery Alarm** The low battery alarm will be displayed on the battery powered models when the batteries need to be replaced.
10		**Bluetooth** The Bluetooth icon is displayed in SERVICE MODE, when the Bluetooth transceiver is enabled.
11		**Equipment Alarm** The equipment alarm will be displayed in service mode. This can be programmed to display for various equipment malfunctioning conditions. **NOTE:** This icon shall never be displayed in any normal operating modes to avoid guest complaint. The **Equipment Alarm** icon indicates that e7w has lost communication with its HVAC partner.

Installation Requirements

Required Installation Hardware

- Four 6-32 x 1.5 Philips Pan head screws (provided with e7w package) if attaching to a 4x4 electrical junction box
- Four AA alkaline batteries (provided with e7w)
- e7w Smart Wall Mounting Plate (provided with e7w package)
- Three 4-24 $^{1/2}$ Phillips screws Phillips captive screws (provided with e7w package)
- Phillips Screwdriver
- Wire cutters/strippers
- USB cable or UART (required for firmware upgrade)

Required Commissioning Tools

This tool is used in conjunction with Honeywell's EngINN commissioning software, when advanced commissioning of the e7w is required by a trained and certified INNCOM technician. Contact Honeywell technical support for more information.

NOTE

One PC-503 USB Commissioning Tool* and USB cable* per property or project is shipped to the site.

DO NOT THROW AWAY OR LOSE THESE UNITS*.

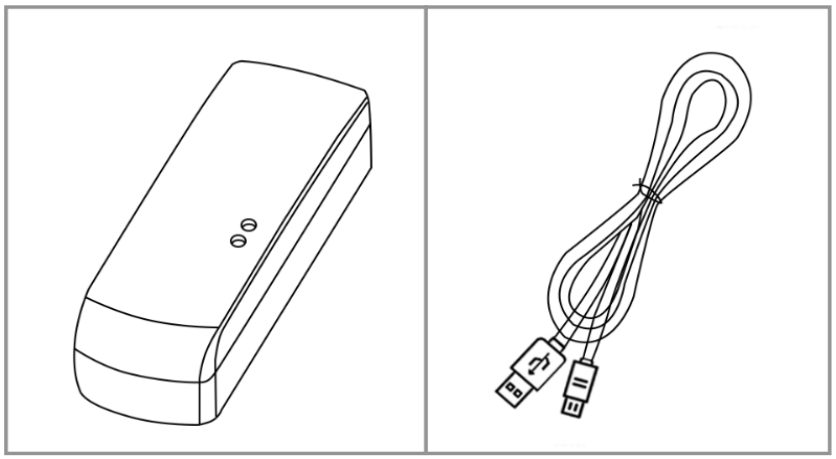


Figure 4: PC-503 USB commissioning tool and cable

CAUTION

- Read instructions carefully. Failure to follow them could damage the product or create a hazard.
- Check the ratings given in the instructions and on the product to ensure that the product is suitable for your application.
- Installer must be a trained, experienced service technician.

- After installation is complete, check product operation as indicated in instructions.
- For variations of these systems, refer to the installation instructions of the controlled equipment.

Location

Select a location about 1.5m (5ft.) above the floor with good air circulation at average temperature. Do not mount thermostat where it may be affected by:

- Drafts or dead spots behind doors or in corners.
- Hot or cold air from ducts.
- Radiant heat from sun or appliances.
- Concealed pipes or chimneys.
- Unheated (un-cooled) areas behind the thermostat.
- Near other RF sources/ transmitters to avoid interference.
- When the thermostat is equipped with PIR, consider view angle, range characteristics, and mounting position for proper coverage.

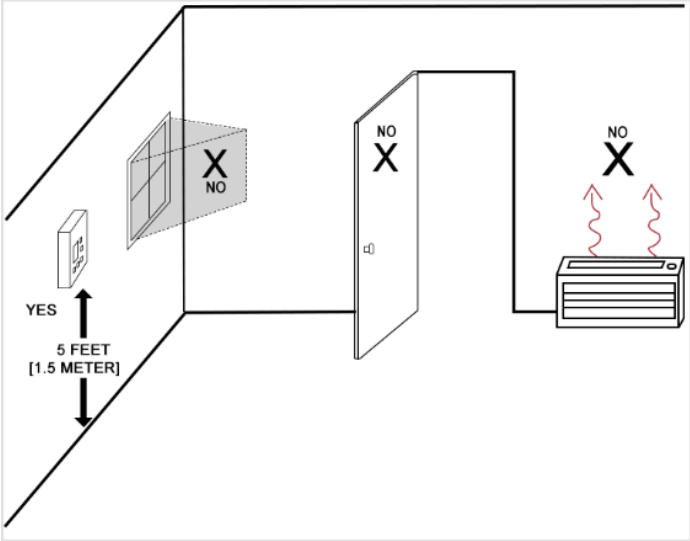


Figure 5. Recommended mounting location

Mounting

The e7w Wireless EMS thermostat supports mounting on the following standard mounting junction boxes; US single-gang, US double-gang and UK standard gang. The installation kit provides a Smart Wall Mounting Plate.

If mounted on a single-gang box, the right side (keypad side) of the e7w overlaps the wall area to the right.

To mount the e7w, follow the below steps:

1. Take the Smart Mounting Plate and orient it with the raised arrow embossed on mounting plate pointing UP.

2. Attach the plate to the junction box using the supplied screws as shown in Figure 5.
3. Insert the 4 AA alkaline batteries in e7w.

> **Note**
>
> - Use alkaline batteries only.
> - Refer the "Battery details" sections for more information.

4. After inserting AA batteries, all segments and characters of the LCD are illuminated for couple of seconds. Confirm all segments and characters on the e7w LCD are displayed correctly. Refer Display Functions section for more details.
5. If the LCD remains blank, run the following checks:
   a) Verify that the batteries are installed in correct terminal.
   b) Check the battery voltage.
6. Hook the tabs at the top rear of the e7w housing into the matching depressions at the top of the Smart Mounting Plate and rotate the bottom of the housing toward the wall until it snaps into place.
7. After startup, the e7w will cycle through RF Channels 26, 25, 24... all the way to 11 and send a 0x00061 Battery Powered thermostat exchange message on each RF Channel looking for a reply from an HVAC thermostat partner with the same Room ID currently stored in the e7w. Allow this process to continue until completion. Later the user needs to configure the actual Room ID and other required parameters into the e7w.
8. After user configured Room ID and other required parameters, restart the device, and wait for 5 seconds. LCD will display all configured values and various mods.

Note: To restart the e7w device, press the power button on the e7w display twice ⏻.

9. Secure the housing to the Smart Mounting Plate with the two small captive screws atthe bottom of the housing.

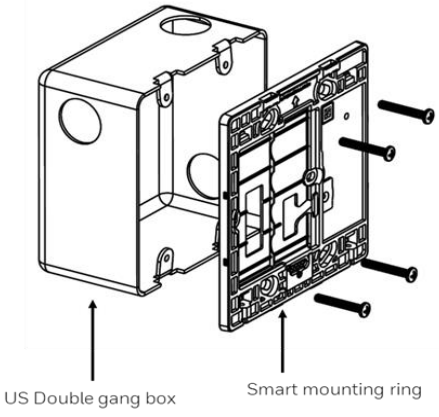


Figure 6. e7w exploded assembly reference

Battery Details

Figure 7. e7w Battery polarity reference

1. Battery Compartment: Holds 4 AA Alkaline Batteries.
2. Insert the 4 AA alkaline batteries, matching the “+” terminals on the batteries to the “+” symbols in the battery compartment, as shown in Fig. 4.

CAUTION

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose the used batteries as per instructions under WEEE Directive 2012/19/EC.

e7w Setup

The INNCOM e7w battery operated thermostat can be mounted on the following standard Junction Box

- US single gang
- US double gang
- UK standard gang

Note: If mounted on a single-gang box, the right side (keypad side) of the e7w overlaps the wall area to the right

The installation kit is provided with a Smart Wall Mounting Plate.

Initial Setup

Before going through the initial setup sequences, ensure that thermostat is mounted and connected to the smart wall plate.

When you run the newly programmed e7w, it will proceed into **Initialization Mode** In the **Initialization Mode** you need to configure Room ID, PAN ID and RF Channel in the e7w.

Note:

- When properly connected, the thermostat will proceed into **Initialization Mode** and display **rId**.
- When not properly connected to the smart wall plate, an alert message will be displayed until the smart wall plate is properly connected.

If you see **SWp** on the display, most likely the unit is not connected or fitted on the smart wall plate. Unscrew the captive screws and re-fit the thermostat. Once properly connected, the display will start up as **rId.** Avoid over-tightening of screws and irregularity on the wall surface that may lead to an insecure connection between the smart wall plate and thermostat.

Setup Room ID

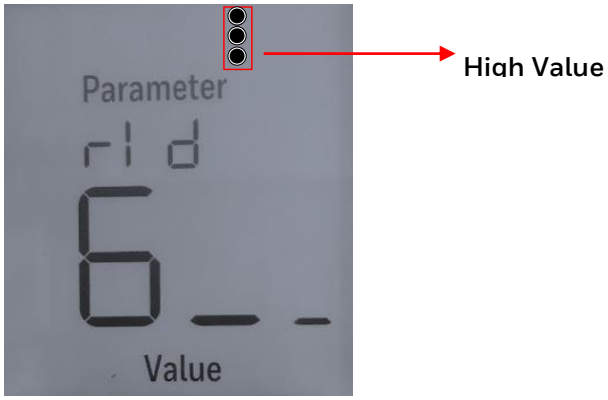
Figure 8: Setup Room ID

1. Once **rId** and **"—"**is displayed, press the **MODE** button. The default 65535 Room ID will scroll across the screen — one numerical setting at a time, from highest to lowest (extreme left to

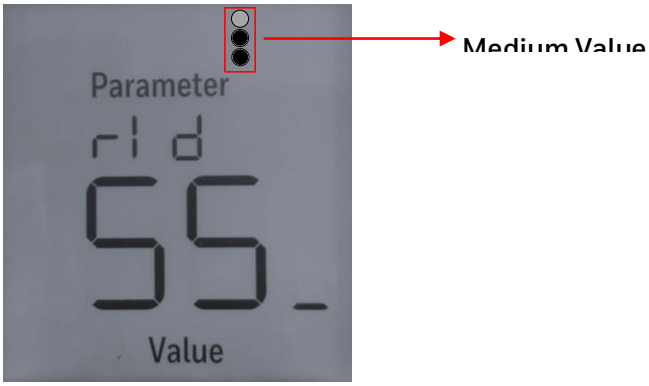
right value). After the current value finishes scrolling, the 3 vertical Fan speed dots displays indicating the high digit is displayed.

Note: The five-digit number is comprised of three fields — high value (HI), medium value (MED), low value (LO) (**HI | MED | LO**)

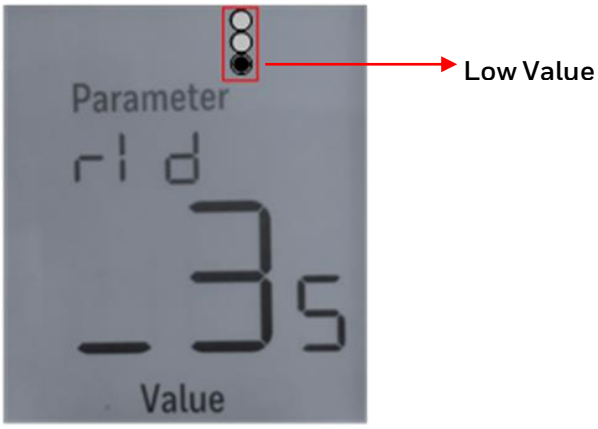
2. Set the High value (HI) — Three fan dots indicate high value displayed with 06 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-6) and press **FAN** to continue.



3. Set the Medium value (MED) — Two fan dots indicate medium value displayed with 55 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-99) and press **FAN** to continue.



4. Set the Low value (LO) — Single fan dots indicate low value displayed with 35 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-99)



5. Press **MODE** button to store the new Room ID number scrolling across the display. The unit beeps to confirm the value is stored in memory. Once the scrolling is completed, the screen displays **rld.**

   Or

   Press **FAN** button to toggle between three modes to verify the Room ID.

6. Press **UP** arrow button to display **PAn** mode or press **°F | °C** to return the **Initialization Mode.**

Setup PAn ID

Figure 9: Setup PAn ID

1. After **PAn** is displayed, press **MODE** (0 default **PAn** value displayed).
2. Use **UP/DOWN** arrow to change the value (ranging from 0 to 255).
3. Press **FAN**, the unit beeps to confirm the value stored in the memory, and the displays back to **PAn**.
4. Press **MODE** to check the **PAn** value.
7. Press UP arrow button to display rF mode or press °F | °C to return to the **Initialization Mode.**

Setup RF Channel

Figure 10: Setup RF Channel

1. After **rF** is displayed, press **MODE** (26 default **rF** value displayed)
2. Use **UP/DOWN** arrows to change value (ranging from 11 to 26).
3. Press **FAN**, the unit beeps to confirm the value stored in the memory and display back to **rF.**
4. Press **MODE** to check the **rF** value.
5. Press **°F | °C** to return to the **Initialization Mode.**

After returning **Initialization Mode**, e7w displays a Target Temperature value on the display screen. Then e7w begins to communicate with the default address of its HVAC Partner using the defined Room ID, RF Channel and PAN ID. Default INNCOM HVAC partner address is **14**.

NOTE

Then e7w will start searching for other HVAC partner by displaying RF channel 26, 25, 24 down to 11 if:

- The HVAC partner (example X47) has different address other than 14
- The RF gateway device (example PC502.4G) which will communicate between e7w and its HVAC partner is not configured or installed to the same Room ID, RF Channel, and PAN ID as e7w

If no HVAC partners are found, a triangle symbol with exclamation mark inside displays on bottom of the screen.

Refer to applicable commissioning documents to confirm the correct HVAC partner Address or proceed to the next section to configure the RF Gateway device which will communicate between the e7w and its HVAC partner.

Service Mode

To enter Service Mode, follow the below steps:

1. Press and hold **°F|°C** key (for 5 sec)
2. Press and release **MODE** button.
3. Press and release **FAN** button.
4. Release °**F|°C** key.

This action displays **Parameter** and **rld** value on the screen.

Verifying HVAC Partner Address (PA)

The default e7w partner address is 13, and the default HVAC partner address (X47 or similar) is 14. It attempts to communicate with its HVAC partner assuming this address. Depending on the requirement, the HVAC partner could use a different address, such as **224,** to change HVAC partner address, refer Installation/ Commissioning document.

To change the HVAC Partner address, follow the steps below:

1. Enter **Service Mode** on the e7w.
2. Press **Down** arrow button until **PA** (Partner Address) is displayed.
3. Press **MODE** button to view the value. Value 14 will be displayed (14 is the default partner address).
4. Press **UP/DOWN** arrow button to change the desired partner address.
5. Press **FAN** button, to store the address value. The unit beep, confirming that the address value is successful stored in memory.

NOTE: For more details**,** refer applicable commissioning document.

Activating LEM mode in the e7w HVAC partner using the e7w

Inncom e7w thermostat/HVAC partner supports LEM (Limited Energy Management) mode, where the thermostat turns off most of the energy savings algorithms and expands the guest selectable upper and lower target temperature range. This feature can be enabled in a room that has a demanding guest that requires more flexible room temperature control than what is normally allowed for a room.

LEM mode in the e7w HVAC partner can be enabled or disabled from the e7w using a 3 button sequence.

Enabling LEM Mode

Follow the below steps, to enable LEM mode in the HVAC partner from the e7w:

1. Press and Hold the **Mode** button
2. Press and Release the **Fan** button
3. Press and Release the **Up** Arrow button
4. Release the **Mode** button
5. (**- - -**) followed by **LE.n** (LEM) will appear on the e7w display, indicating the command to enable LEM mode for 72 hours was sent to the e7w HVAC partner.

NOTE

LEM mode in the HVAC partner will automatically turn OFF after 72 hours. In thermostats/HVAC controllers that have been shipped recently (contact Inncom for details), LEM mode will automatically clear when the room is Checked-Out from the front desk (if the hotel is networked with a PMS system installed).

Manual Disabling LEM Mode

Follow the below steps, to manually disable LEM mode in the HVAC partner from the e7w:

1. Press and Hold the **Mode** button
2. Press and Release the **Fan** button
3. Press and Release the **Down** Arrow button
4. Release the **Mode** button
5. **(- - -)** followed by **nO.r** (normal mode) will appear on the e7w display, indicating the command to disable LEM mode was sent to the e7w HVAC partner.

Binding Auxiliary Devices

Once the e7w is installed and configured with its HVAC Partner Address, the next step is to use either the e7w or the EngINN software (with the PC503 USB commissioning tool) to commission the other devices in the room.

NOTE: The e7w can be used as commissioning tool, refer applicable commissioning document for exact steps.

Binding the RF to S5 Gateway Used by the e7w

In order for the e7w to communicate with any in-room S5 Bus devices, the e7w must be bound to an RF device in the room that is connected to the S5 Bus. This RF device will typically be a PC502.4G.

Follow the steps below to bind the PC502.4G using the e7w.

1. Enter **SERVICE MODE** on the e7w.
2. Press **UP/DOWN** arrow button to select **Io.**
3. Press **MODE** button. This action displays **Io** value.
4. Press **UP/DOWN** arrow button to change **Io** value range from 0 to 255, set **Io** value to the required **I/O** map number, typically an I/O map 0 is used.
5. Press **FAN** button. This action display "**bnd**" to initiate a Reverse Binding.
6. Press **Reset/Bind** switch on the PC502.4G (for pressing Rest/Bind switch use a small point like the end of a straightened paper clip).

   After completing of binding, PC502.4G LED flashes and sends a message to make e7w beep, confirming that binding of e7w with PC502.4G is successful.
7. Press **°F|°C** button twice to exit **SERVICE MODE**.

NOTE: For more details**,** refer applicable commissioning document.

Binding S541.RF Door, Window or Balcony Switches

To communicate with any in-room RF devices like an S541.RF Door, Window or Balcony switches.

Follow the steps below to binding the S541.RF Door Switch reporting device using the e7w.

1. Enter **SERVICE MODE** on the e7w.
2. Press **UP/DOWN** arrow button to select **Io.**
3. Press **MODE** button. This action displays **Io** value.

   Following are the Default I/O values:

   i) 0 – Default I/O map value for Entry Door.

   i i) 2 – Default I/O map value for Window or Balcony Door.
4. Press **UP/DOWN** arrow button to change **Io** value range from 0 to 255, set Io value to the required **I/O** map number.

5. Press **FAN** button. This action displays "**bnd**" to initiate a Reverse Binding.
6. Press **S1** switch on the S541.RF to start binding process.

   On completing of binding, device LED flashes light and send a message to make e7w beep, confirming that binding of e7w with S541.RF is successful.
7. Press **°F|°C** button twice to exit **SERVICE MODE**.

NOTE: If an RF Lock (Saflok, Timelox, Salto) is installed in each room, the lock reports door position. The e7w can be used to bind and test the RF Lock. Refer Binding and Testing RF Locks Using e7w

Verifying In-Room Installed Devices

User can verify the communication of all the non-battery powered devices installed in the room by pinging the device from the e7w.

Follow the steps below to verify:

1. Enter **SERVICE MODE** on the e7w.
2. Press **UP/DOWN** arrow button to select **PnG.**
3. Press **MODE** button. This action displays **PnG** value.
4. Press **UP/DOWN** arrow button to select target device address (select the correct target that need be pinged by e7w).

   NOTE: Refer applicable document, to check the list of supported devices and their address.
5. Press **FAN** to start pinging the target device.

   The e7w will continuously send four read commands to read the below values from the target device until the **°F|°C** button is pressed. A successful ping will show the following four parameter values in sequence:

   1. Device Type Code
   2. Major SW Version
   3. Minor SW Version
   4. AGC Level of Pinged Device
6. Press the **°F|°C** button to stop pinging.
7. Press **°F|°C** button twice to exit **SERVICE MODE**.

Verifying Entry Door Reporting

1. Enter **SERVICE MODE** on the e7w.
2. Press **UP/DOWN** arrow buttons to select **dor.**
3. Press **MODE** button. This action displays **dor** value (0 is the default **dor** value displayed)

   Perform the below steps:

   a) Open the entry door.

b) The device in the room that is monitoring and reporting entry door position sends a **0x000281 Door Open** message to the e7w.

c) The device in the room that is the Door Server sends a **0x0002981 Door Server Reports Door Open** message to the e7w.

4. After receiving **0x0002981 Door Server Reports Door Open** message, the e7w plays a buzzer sound and increment the displayed door open count.
5. The e7w stops the buzzer sound when the opened door is close.
6. Press **°F|°C** button twice to exit **SERVICE MODE**.

Verifying Guest Occupancy Reporting

1. Enter **SERVICE MODE** on the e7w.
2. Press **UP/DOWN** arrow buttons to select **Plr.**
3. Press **MODE** button. This action displays **Plr** value (000 is the default **Plr** value displayed)

   Walk sideways in the front of the thermostat, so that PIR motion sensor can detect the variation in movement.
4. PIR (Passive Infrared) Motion sensor detects guest movement in the room, and e7w plays beep sound and increment the detected motion count displayed.
5. The **Plr** motion test remains active for one minute, then automatically times out.

Service Mode Functions

Menu Item	Description	Value
rId	Use to configure the Room ID.	0 to 65535
PAn	Use to configure the ZigBee pan used in radio communications.	0 to 255
rF	Use to configure the channel used for IRAS communications.	11 to 26
Adr	Use to “Teach” IRAS device the unique identification information, that binds to room or network.	0 to 255
Io	Use to configure I/O Map on a remote device.	0 to 255
rEG	Use to view or edit the CBL32 Registry values of the CBL32 HVAC thermostat or controller partner to the e7w such as a CBL32 X47.	1 to 255
PnG	Use to signal to connected devices and registers response. The timeout duration of the ping is 1 minute.	0 to 255
rH	Use to verify humidity	0 to 99
rSt	Use to reset the thermostat- VAL 0 or remote device with specified address or VAL	0 to 255
WAn	Use to verify WAN communication. Sends an event to the server. The server in turn will reply with a command that lets the room ID scroll over the display of the thermostat.	0
dor	Use to verify Door sensor. The buzzer will sound as long as the door is open, and the LCD counts the number of times the door has gone from closed to open.	0
Plr	Use to verify PIR sensor. When Passive Infrared Motion (PIR) sensor detects the guest motion, it plays buzzer sound and the LCD counts the number of times the application has increased the motion counter. The timeout duration is one minute.	0
Win	Use to verify the monitored window/balcony/ position in the guestroom. The buzzer will sound as long as the window/balcony is open, and the LCD counts the number of times the window/balcony changed from closed to open.	0

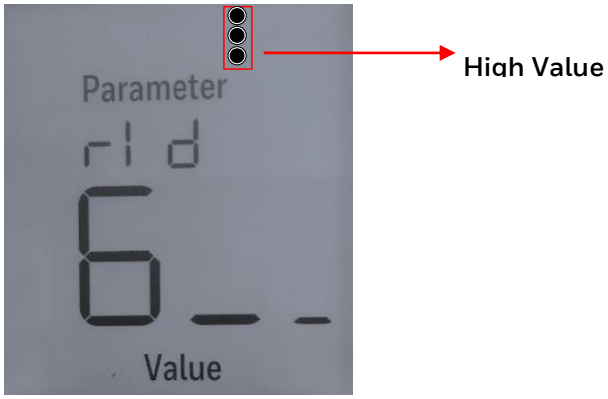
Menu Item	Description	Value
bnd	Use to configure Forward and Reverse binding. e7w supports binding and configuration for both RF devices (S541.RF Door, Window or Balcony switches) and Non-RF S5 bus connected devices (PC502.4G).	0 to 255
vEr	Use to display the version of 16 firmware banks, such as main firmware version, bootloader version, IRAS, CBL, APP Map, etc. Displays the major and minor versions of each bank and the application personality. Contact an INNCOM Applications Engineer for a detailed understanding of this parameter.	0
Prr	Use to verify the connectivity between remote PIR Motion sensor and an INNCOM room devices	0
bAu	Use to display battery level range from 0-255 (255=full, 6.2V 4 AA batteries) for 1 minute	0 to 255
SEr	Use to run menu parameters of the CBL32 partner device (e.g. X47).	0 to 255
P5C	Use to view or set the P5 Channel of e7w (default channel is 1)	0 to 7
PA	Set P5 partner address. This address considers as default address of the HVAC controller partner, which is configured with e7w. This partner address receives any message sent by e7w.	1 to 255
Pi5	Use to read and Process Image (PI) offset from the HVAC partner device. Process Image viewer is an advanced feature intended to be used by an INNCOM technician for advanced troubleshooting.	0 to 31
E7W	Use to change the e7w local address. 13 is the default for E7W	1to 255
oAt	Use to displays outside air temperature	0
PFt	Use to adjust the sensitivity of the e7w built in PIR motion sensor.	1to 4
Ctr	Contractor mode allows conditioning a space during the construction phase to a defined set temperature and locking out the key pad to prevent tampering.	0

RID – Setting e7w Room ID (*rld)*

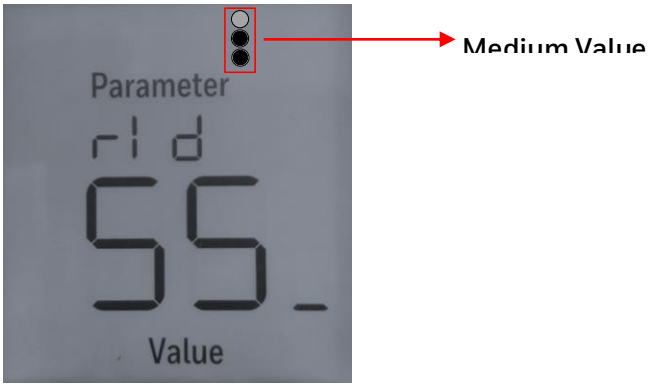
1. Enter **SERVICE MODE**
2. Once **rld** and **"—"**is displayed, press the **MODE** button. The default 65535 Room ID will scroll across the screen — one numerical setting at a time, from highest to lowest (extreme left to right value). After the current value finishes scrolling, the 3 vertical Fan speed dots displays indicating the high digit is displayed.

   Note: The five-digit number is comprised of three fields — high value (HI), medium value (MED), low value (LO) (**HI | MED | LO**)

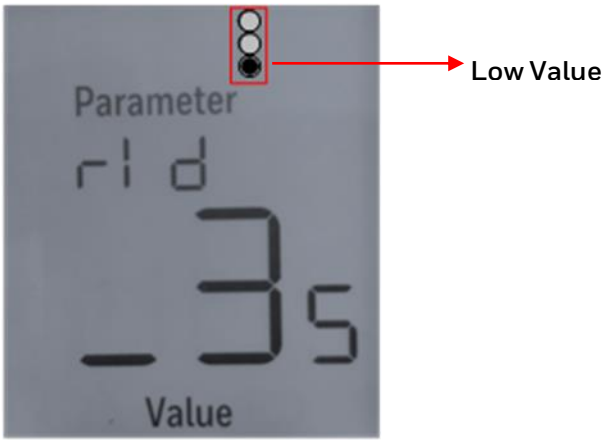
3. Set the High value (HI) — Three fan dots indicate high value displayed with 06 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-6) and press **FAN** to continue.



4. Set the Medium value (MED) — Two fan dots indicate medium value displayed with 55 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-99) and press **FAN** to continue.



5. Set the Low value (LO) — Single fan dots indicate low value displayed with 35 as a default value. Use **UP/DOWN** arrow button to change the value (range is 0-99)



6. Press **MODE** button to store the new Room ID number scrolling across the display. The unit beeps to confirm the value is stored in memory. Once the scrolling is completed, the screen displays **rld.**

   Or

   Press **FAN** button to toggle between three modes to verify the Room ID.

7. Press the **°F | °C** button to return to **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

PAN – Setting e7w PAn ID (*PAn*)

1. Enter **SERVICE MODE,**
2. Use the **UP/DOWN** arrow buttons to select **PAn** and then press **MODE.**
3. The current **PAn** value will be displayed on the screen.
4. Use the **UP/DOWN** arrows to set the desired value ranging from 0 to 255.
5. Press **FAN**, the unit beeps to confirm the value stored in the memory, display will be back to **PAn**.
6. Press the **°F | °C** button to return to **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

RF – Setting e7w RF Channel (*rF*)

1. Enter **SERVICE MODE**,
2. Use the **UP/DOWN** arrow buttons to select **rF** and then press **MODE.**
3. The current **rF** channel value is displayed on the screen.
4. Use the **UP/DOWN** arrows to set the desired value between 11 to 26.
5. Press **FAN,** the unit beeps to confirm the value stored in the memory and display will be back showing **rF.**

6. Press the **°F | °C** button to return to **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

ADR – Teaching A Device Address (*Adr)*

Adr parameter is used to bind the target device to the Room ID, PAN ID, and RF channel configured in the e7w, while at the same time setting the target device address to the displayed **Adr** value.

Follow the steps below to configure **Adr** parameter:

NOTE: Before user start configuring ADR mode, user need configure Room ID, PAN ID and RF Channel in the e7w, if not already done.

1. Enter **SERVICE MODE**
2. Use the **UP/DOWN** arrow buttons to select **Adr**.

3. Press **MODE** button. This action displays preconfigured **Adr** address

4. Use the **UP/DOWN** arrow buttons to change Adr value to the desired address.
5. Press **FAN** to initiate a reverse bind

   or

   Press **MODE** to initiate a forward bind

Reverse Binding

Reverse binding is supported by device such as PC502.4G, S541.RF, K594/K595.RF.

To configure reverse binding, follow the steps below.

a) After pressing **FAN** button, **"bnd"** will appear on the e7w display.

b) Press **Bind** button on target device, to make the target device send a Reverse Bind Request to e7w.

c) Upon receiving the Reverse Bind Request, the e7w send a Bind offer to the target device.

d) After the target device receives and accept the new address, the target device **Reset** and send message to e7w.

e) After receiving the message e7w beep three times to confirm the binding.

NOTE: For more details**,** refer applicable commissioning document.

Forward Binding

Forward binding is supported by devices such as an L208.RF, Evora, Modeva etc.

To configure using forward binding, follow the below steps.

a) Place the target device into a **Bind Ready** mode. This can be done by pressing any button on the target device two times quickly, then press and hold the button for 5-7 seconds.

b) Press **MODE** button on e7w. The e7w send a Forward Bind Request.

c) After receiving the Forward Bind Request, the target device flashes LED confirming that it receives the Forward Bind Request.

- *For binding RF devices, press bind button on the target device two times quickly, then press and hold bind button for 5-7 seconds to accept the bind request.*
- *For binding Non-RF devices, press bind button once on the target device to accept the bind request.*

d) After accepting the new address, the target device will **Reset** and send a “sound buzzer” message to e7w.

e) After receiving the message, e7w beep three times as an audible indication that the bind was successful.

6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

Or

Press the **°F | °C** button twice to exit **SERVICE MODE**

NOTE: For more details**,** refer applicable commissioning document.

IO – Teaching A Device I/O Map (*Io*)

The **Io** parameter is used to bind the target device to the Room ID, PAN ID, and RF channel configured in the e7w, while at the same time activating an I/O Map in the target device.

Follow the steps below to configure **Io** parameter:

NOTE: Before user start configuring IO mode, you need configure Room ID, PAN ID and RF Channel in the e7w.

1. Enter **SERVICE MODE**
2. To prevent setting an unknown address into the target device, set **Adr** value to 0.
    a. Use the **UP/DOWN** arrow buttons to select **Adr**.
    b. Press **MODE** button to view the value, if the displayed value is non-zero, change the value to zero.
    c. Use the **UP/DOWN** arrow buttons to change **Adr** value to 0 and press **FAN** button.
    d. Press **°F | °C** button to return to **Adr** parameter.
3. Press **UP** arrow button to display next mode (i.e. **Io** mode).

4. Press **MODE** button. This action displays current I/O Map value.

5. Use the **UP/DOWN** arrow buttons to change Io value to the desired I/O Map.

6. Press **FAN** to initiate a reverse bind,

   Or

   Press **MODE** to initiate a forward bind

Reverse Binding

Reverse binding is supported by device such as PC502.4G, S541.RF, K594/K595.RF. To configure reverse binding, follow the steps below.

a) After pressing **FAN** button, **"bnd"** will appear on the e7w display.

b) Press **Bind** button on the target device to make the target send a Reverse Bind Request to the e7w.

c) Upon receiving the Reverse Bind Request, the e7w send a Bind offer to the target device.

d) After the target device receives and accepts the bind offer containing the new I/O Map, the target device will RESET and send a “sound buzzer” message to e7w.

e) After receiving the message the e7w beep three times to confirm the binding.

NOTE: For more details**,** refer applicable commissioning document.

Forward Binding

Forward binding is supported by devices such as an L208.RF, Evora, Modeva etc.

To configure using forward binding, follow the below steps.

a) Place the target device into a **Bind Ready** mode. This can be done by pressing **Bind** button on the target device two times quickly, then press and hold **Bind** button for 5-7 seconds

b) Press **MODE** button on e7w, the e7w send a Forward Bind Request.

c) After receiving the Forward Bind Request, the target device flashes LED confirming that it receives the Forward Bind Request.

- *For binding RF devices, press bind button on the target device two times quickly, then press and hold bind button for 5-7 seconds to accept the bind request.*
- *For binding Non-RF devices, press bind button once on the target device to accept the bind request.*

d) After accepting the new I/O Map, the target device RESET and send message to e7w to make it sounds its audible buzzer.

e) After receiving the message, e7w beep three times to confirm the binding.

7. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

NOTE: For more details**,** refer applicable commissioning document.

REG – CBL32 Registry Edit (*rEG*)

Use the **rEG** mode to view or edit CBL32 Registry Group 9 Thermo/HVAC and Registry Group 7:X:Y Input/output in the HVAC Partner device (i.e. X47) to the e7w.

1. Enter **SERVICE MODE**
2. Use the **UP/DOWN** arrow buttons to select **rEG**

3. Press **MODE.** This action displays **Gr** value.
4. Use the **UP/DOWN** arrow buttons to change the **Gr** value to the required CBL32 Group.

   For example, Group 9 for Thermostat 9: X registries, or Group 7 for 7: X Input/Output registry's

5. Press the **MODE** button to continue. This action displays the **KEY** value (This is the Registry Key value).
6. Use the **UP/DOWN** arrow buttons to change the **KEY** value to the required CBL32 Key.

   For example, 9:1 - Group 9: Key 1 Occupancy or 7:3 - Group 7: Key 3 Light Output

7. Press the **MODE** button to continue.

If Group 9 Thermo/HVAC selected as the Gr. (Group) in step 4:

Group 9 has no Index values, so the e7w will immediately send a 00018C09YY0000 Read Registry 09: YY Offset 0 command (YY = the Key value defined in step 6) to the address of the HVAC partner to verify the selected Registry 09: YY exists.

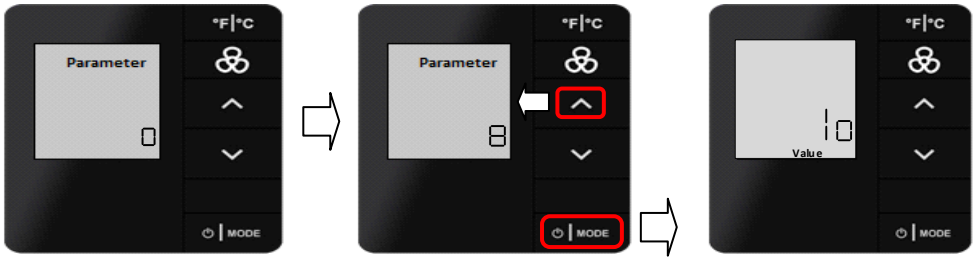
- If the selected Registry 09: YY exists in the HVAC partner, the e7w will beep and "Parameter" and 0 will be displayed.

  a) Use the **UP/DOWN** arrow buttons to select the desired 09: YY parameter offset.

  b) Press the **MODE** button to read and display the value if the selected offset.

  The e7w will send a 00018C09YY0000 Read Registry 09: YY Offset value to the HVAC partner. If a reply is received, the display will show "Value" and the value of the selected offset in decimal, and the e7w will beep.

  In the below example, Parameter 8 of the selected 9: YY registry has a value of 10.



Use **UP** button to set parameter value to 8 , then press **MODE** button to view the value

- If the defined Registry 09: YY does NOT exist in the HVAC partner, **nUL** will be briefly displayed, then the e7w will return to displaying the selected **Key** value.

If Group 7 Input/Output selected as the Gr. (Group) in step 4:

Group 7 registry's have an Index value that must be defined before defining the desired Offset, so after pressing the **MODE** button, I dX (I dX or Index) and 0 will be displayed.

a) Use the **UP/ DOWN** Arrow buttons to define the desired Index#. "1" in this example.

b) Press the **MODE** button.

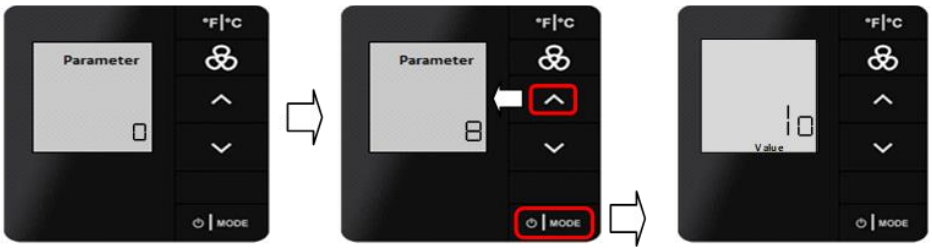
The e7w will send a 00018C07XXYY00 Read Registry 07: YY: XX Offset 0 (YY = the Key value defined in step 6, XX = Index value) command to the address of the HVAC partner to verify the selected Registry 07: YY: XX exists.

- If the selected Registry 07: YY: XX exists in the HVAC partner, the e7w will beep and "Parameter" and 0 will be displayed.

1. Use the **UP/DOWN** arrow buttons to select the desired 07: YY: XX parameter offset.
2. Press the **MODE** button.

The e7w will send a 00018C07YYXX00 Read Registry 07: YY: XX Offset value. If a reply is received, the display will change to show "Value" and the value of the selected offset in decimal, and the e7w will beep.

In the below example, Parameter 8 of the selected 7: YY: XX registry has a value of 10.



Use **UP** button to set parameter value to 8 , then press **MODE** button to view the value

- If the defined Registry 07: YY: XX Index does NOT exist in the HVAC partner, **nUL** will be briefly displayed, then the e7w will return to displaying the selected **Index** value.

8. With the value of the defined Registry Offset now displayed, use the Up/Down arrow buttons to change the value if desired. In order for any change to be permanent, you must press the FAN button to store the change.

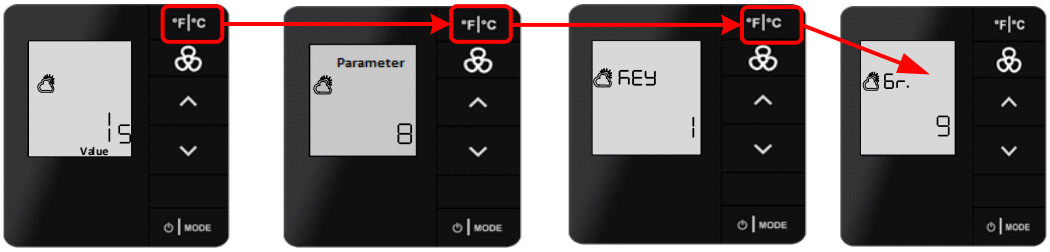
   Upon pressing the FAN button to store the change, a Cloud / Sun icon will begin to blink in the upper left of the display to indicate a change to the Registry of the HVAC partner device has been made.

Press FAN button to store the new value. Cloud/Sun symbol blinks to indicate the change in the registry value.

9. If you desire to make additional changes to the current selected Registry or other Registry

   a) Each press of the **°F|°C** button returns to the previous Group: Key or Group: Key: Index level. Press the **°F|°C** button as many times as required to back out to the desired Group: Key or Group: Key: Index.

   For example, if currently viewing Registry 9:1 (Group 9: Key 1) Parameter 8 value:



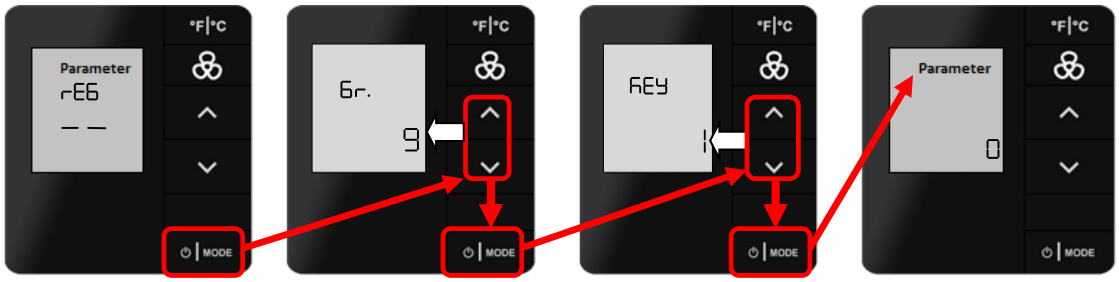
   b) When the desired level is reached, use the Up / Down arrow buttons to select the desired Group, Key, or Index value, then press the MODE button to view the value of the selected Group, Key, or Index value.

10. If no further changes are desired, press the **°F|°C** button as many times as required to back out through the Gr9 menus until **Str** (Store) is displayed. Pressing the FAN button again with **Str** displayed will Commit the registry and permanently store all changes.

    The e7w will RESET in order to store the changes and exit out of Parameter mode.

The following is a complete example of reading and changing a Group 9 Registry.

Read Registry 9:1 Occupancy, Offset 8 Min_GuestOccupancyTimeout of the HVAC partner to the e7w. Change from the current value of 10 minutes to 15 minutes.

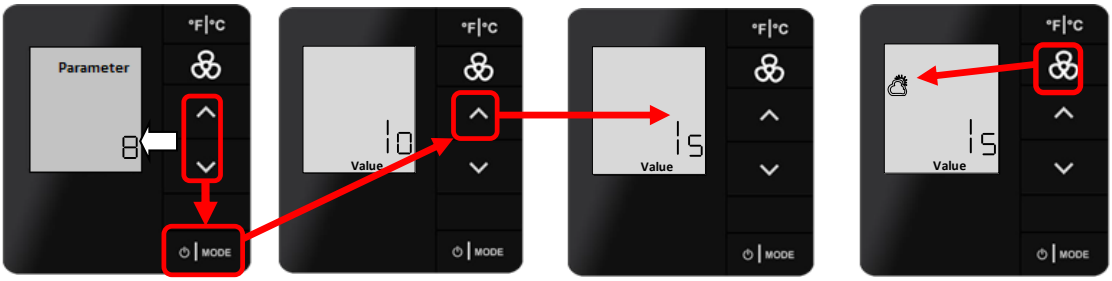


Press MODE

Use Up/Down button to select Gr value ,then press MODE

Use Up/Down button to select Key value ,then press MODE

Parameter and value 0 be displayed. This is Registry 9:1 Offset 0



Use Up/Down button to set value to 8 , then press MODE

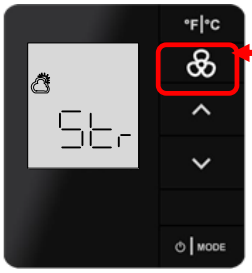
Current Value is 10.

Use Up arrow button to change value to 15

Value changed to 15

Press FAN button to store the new value. Cloud/Sun symbol blinks to indicate registry value has been changed

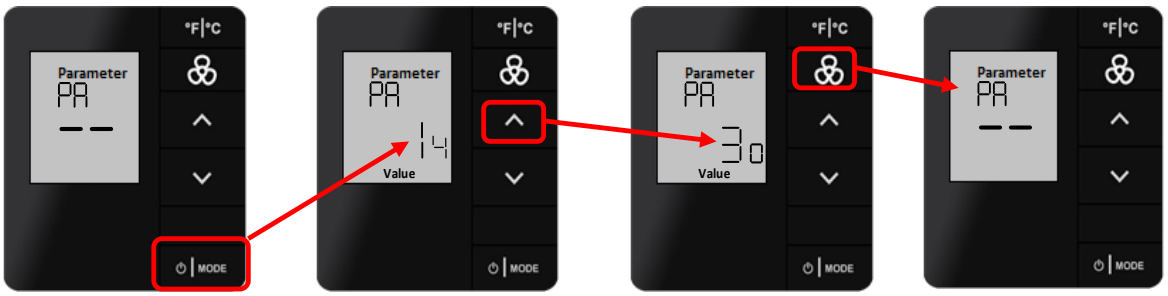
Press F/C Button 4 times to exit out of rEG menus until Str (Store) appears on display



Press FAN button to store the changes

The following is a complete example of reading and changing a Group 7 Registry.

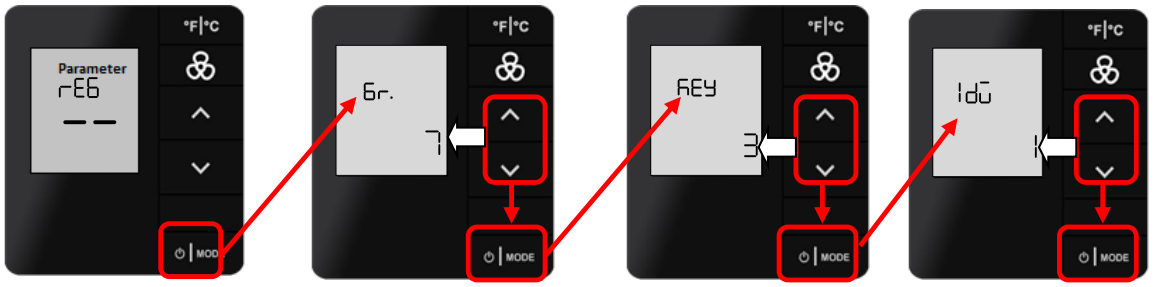
Read Registry 7:3:1 Light Output, Offset 20 Minlevel of an X45RA Address 30. Lower the current value of 40 to 20. In order to read the X45RA, which is not the HVAC partner to the e7w, you will need to change the current e7w Partner Address (PA) of 14 to 30, make the change to the X45RA, then change the e7w back to the original address of the e7w HVAC partner (14).



Enter Service Mode and select PA parameter.

Press MODE

Change value to 30 , press FAN to store change. e7w will beep and return to display PA

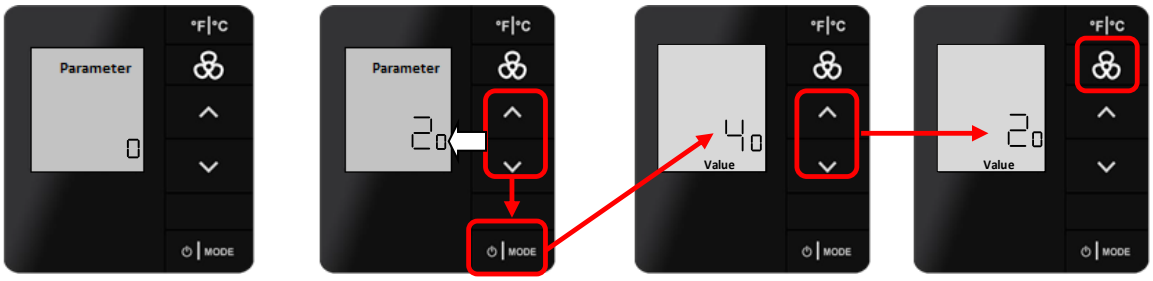


Select rE6 parameter and press MODE

Change Group value to 7 and press MODE

Change Key value to 3 and press MODE

Change Index value to 1 and press MODE



Parameter and 0 will appear

Change Parameter value to 20 and press MODE

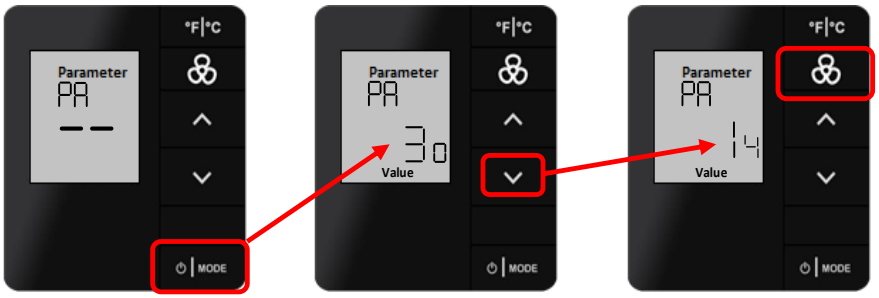
Current value of 40 is displayed.
Change value to 20 and press FAN to store

Cloud/Sun icon will blink indicating Registry value was changed.
Press F/C button return to displaying Parameter value

Press F/C button to exit back to Index (Idx) , Key and Group (Gr.) menus

Press F/C button to exit back to reG (rE6) and press F/C again to get Str (Store) on the display.

Press FAN button to store the change. The e7w will RESET and exit Service Parameter Mode



Enter Service Mode and select PA parameter.

Change value to 14 , press FAN to store change. e7w will beep and return to display PA

PNG – Verifying Device Communication (*PnG*)

Use the **PnG (Ping)** parameter to Ping a device with the defined address. This allows you to test, if the device is communicating directly with the e7w via RF, or if the device is communicating through S5 bus to an installed RF device. Ping all the installed devices from the e7w, while commissioning a room.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **PnG.**

3. Press **MODE** button. This action will display the **PnG** value and will be 000 by default.
4. Use the **UP/DOWN** arrow button to change the displayed value to the P5 address to be pinged.

   For example, refer below figure which shows address 227.

5. Press the **FAN** button to start the Ping.

   The e7w will constantly send 4 commands to read the below values from the target device until the **°F | °C key** is pressed. A successful ping will show the following four parameter values in sequence:

   1. **Device Type Code**
   2. **Major SW Version**
   3. **Minor SW Version**

4. **AGC Level of Pinged Device**

If no replies are received for the read commands, the display will continue to show the P5 address to be pinged and Value.

6. Press the **°F | °C** button to stop the Ping.
7. Press the **°F | °C** twice button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE.**

RH – Measuring Room Humidity (*rH*)

rH parameter is used to read and display measured room humidity via the e7w built-in humidity sensor.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **rH**.

3. Press **MODE** button. This action display **rH** value (Relative Humidity percentage).

   For example, 31% rH is displayed humidity percentage.

4. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

Press the **°F | °C** button twice to exit **SERVICE MODE**

RST – Resetting e7w (*rSt*)

rSt parameter is used to reset the e7w, reboot the e7w back to Factory default settings or Reset a remote device.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **rSt**.

3. Press **MODE** button. This action displays default value 0.
4. Press **UP/DOWN** button to the select the reset value.

   For reset value, refer below table:

0	Reset the e7w
255	Reboot the e7w back to factory default settings
1-240	Address of in-room device to Reset. The e7w will send a 420 reset command to this P5 address

5. Press the **FAN** button to execute the Reset.
6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE.**

WAN – Verifying Wide Area Network (*WAn*)

WAn mode is used to verify, if the Room Gateway device in the room is connected to the INNCOM Server via its associated B574/B578 Edge Router or B576 Floor Bridge.

NOTE: This test mode only applies to a network or online installation

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **WAn**.

3. Press **MODE** button to start the test.

   don (Done) will briefly display, then the e7w broadcasts a Commissioning Request into the room. The device in the room with its Room Gateway function enabled then forwards the request to INNCOM server.

4. If the INNCOM server received and validated the commission request, it sends a command back to the Room Gateway that contains the Room ID value. If the e7w receives this message that containing 5 digit Room ID value, it scrolls the value across its display to indicate the WAN test passed.

   If no Room ID or the incorrect Room ID value scrolls across the e7w display, the WAN test has failed. Refer to applicable troubleshooting documentation.

   Following are the possible reasons for a WAN test failure:

   - No device in the room is configured to be the Room Gwy or the Room Gateway device is not powered or configured correctly
   - The edge router or floor bridge the room communicates through which is not powered or is not configured correctly

5. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE.**

DOR – Verifying Door Position (*dor*)

The **dor** parameter is used to verify room entry door position is being reported into the room. With the Door test initiated, the e7w will sound its buzzer when the door is open, and the LCD shows the number of times the door has changed the door position from closed to open.

NOTE

There are two conditions to be satisfied for door test:

- There is device in the room that is monitoring and reporting door position via a 0x000281 Entry Door Open message such as an S541. RF.

- A device in the room that has its “P5 Door Server” enabled that reports a 0x0002981 “Door Server Reports Door is Open” when it sees the 0x000281 Entry Door Open message. This device will typically be the room HVAC controller (X47 or similar).

The e7w watches for the 0x0002981 “Door Server Reports Door is Open” message for its door test.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **dor.**

3. Press **MODE** button. This action displays **dor** value (O is the default **dor** value displayed)

Open the room entry door. The following sequence should happen

The device used for monitoring and reporting entry door position sends a 0x000281 Door open message to the e7w.

a) The device used for reporting entry door position sends a 0x000281 Door open message into the room

b) The door server in the room sends 0x0002981 Door Server Reports Door Open message into the room.

c) Upon seeing the 0x0002981 Door Server Reports Door Open, the e7w will sound its buzzer sound and increment the displayed door open count.

4. Close the door, the e7w buzzer stops.
5. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

PIR – Verifying Motion Sensor (*Plr*)

Use **Plr** motion sensor to ensure that e7w inbuilt motion sensor is functioning correctly and identifying good location of the e7w, for detecting guest movement in the room.

1. Enter **SERVICE MODE**.
2. Press **UP/DOWN** arrow buttons to select **Plr.**

3. Press **MODE** button. This action displays **Plr** value (000 is the default **Plr** value displayed)

   Walk sideways in the front of the thermostat, so that the PIR motion sensor can detect the occupancy.
4. When the PIR sensor detects guest movement in the room, the e7w plays a beep sound and increments the detected motion count displayed.

5. The **Plr** motion test is active for one minute, then automatically timeout.
6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

WIN – Verifying Window Position (*Win*)

Use **Win** to verify the monitored window position in the guestroom is reporting correctly.

NOTE

To perform window test, Following two conditions must be satisfied for window test:

- A device in the room that is monitoring and reporting window position via a 0x0002A1 Window Open message
- A device in the room that has its “P5 Window Server” enabled that reports a 0x0002B01 “Window Server Reports window is Open” for the e7w window test to work.

The e7w watches for the0x0002B01 “Window Server Reports Window is Open” message for its window test.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Win**

3. Press **MODE** button. This action display **Win** value (000 value displayed).
4. Open the monitored window. The following sequence should happen:
   a) The device used for monitoring and reporting window door position sends a 0x0002A1 Window Open message into the room.
   b) The device in the room with its Window Server enabled sends a 0x0002B01 Window Server Reports window is Open message into the room.
   c) Upon seeing the 0x0002B01 Window Server Reports Window Open, the e7w will sound its buzzer, display Win for 1 second, then increment and display the Window open count.

5. The e7w buzzer stops, when the window is closed. The window test automatically timeout after one minute.
6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode.

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

BND – Binding Auxiliary Devices (*bnd*)

Use the **bnd** parameter to open a two minute bind window in a remote device. The typical use of this feature is to use the e7w to open the Bind Window in a PC502.4G or Evora RF Lock proxy, when binding the PC502/Evora and RF Lock. The PC502/Evora does not have a user interface to open its Bind Window, to configure PC502/Evora use e7w.

NOTE: Before you start configuring bnd mode, you need configure Room ID, PAN ID and RF Channel in the e7w.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Adr.**
3. Press **MODE** button. This action displays **Adr** value.
4. Use the **UP/DOWN** arrow buttons to change the **Adr** value to target address. Set **Adr** value to desired address (65 (Timelox locks installed) or 69 (Salto locks installed).)

5. Press the **°F | °C** button to return to **Adr** and "- - "on the display.
6. Press **UP/DOWN** arrow buttons to select the **bnd** parameter

7. Press **MODE** button. This action displays **bnd** value.

8. Use the **UP / DOWN** arrow buttons to change the value to the Address of the PC502, Evora or device that is the RF lock proxy.

   The e7w will send the Open Bind Window command to this address in Step 9. Refer to the below example. A PC502.4G with address 227 is the lock proxy

9. Press **FAN** button to make the e7w send an Open Bind window command to the defined address from step 8.

   The command makes the target device to open a two minute bind window. You must complete the bind process within the 2 minutes.

10. Check the LED status on the PC502/Evora/RF Proxy device. It should start flashing twice times per second, indicating it has opened its 2 minute bind window.

    If binding a Timelox lock, place the “Discover” RFID card in front of the lock, or if Salto, connect the 3 pin PPD cable to the lock to Bind the lock.

11. After, the Lock and Proxy were bound and the lock transferred its MAC address to the PC502/Evora/RF Lock Proxy, the PC502/Evora/RF Lock Proxy will send 3 “sound buzzer” requests into the room, then and RESET.

    - **NOTE:** Any device capable of sounding, its buzzer should beep / buzz three times.

12. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

    Or

    Press the **°F | °C** button twice to exit **SERVICE MODE.**

NOTE: For more details**,** refer applicable commissioning document.

VER – Verifying e7W Version (*vEr)*

Use **Ver** mode to check the e7w firmware version.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Ver (uEr).**

3. Press **MODE** button.

   This action displays the four digits of the **e7w** Boot Loader version.

   bL will briefly be displayed, followed by the four digits of the Bootloader version.

4. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE.**

PRR – Remote Motion Sensor (*Prr*)

Use **Prr** mode to test the functionality of a PIR Motion sensor connected to an INNCOM room device, such as an X05B. For this test, the e7w looks for 0x000351 PIR Active and 0x000350 PIR In-Active messages being sent from the INNCOM in-room device with externally connected motion sensor.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Prr.**

3. Press **MODE** button. This action displays **Prr** value.

   Create the motion in view of the remote PIR device. The remote PIR device should send a 0x000351 when it senses motion and 0x000350, when the motion stops. When the e7w sense the 0x000351 followed by the 0x000350, it will increment the displayed count and a beep to indicate motion detection.

4. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

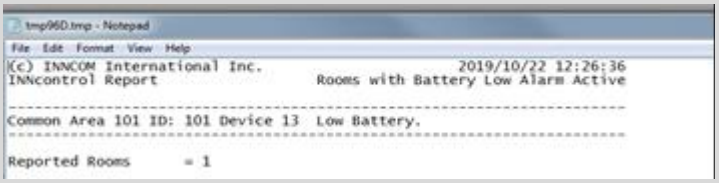
   Press the **°F | °C** button twice to exit **SERVICE MODE.**

BAU – e7w Battery Level (*bAu)*

Use **bAu** mode to view the battery level of the 4 AA batteries installed in the e7w. The value is reported as a 0-255 value, which is scaled to the 0-6.4 VDC of 4 batteries, each with 1.6-volt AA battery.

NOTE

A battery level of 4 volts or less will cause the e7w to display a low battery symbol on its display indicating that the 4 AA batteries need replacement. This condition will also result in a low battery alarm in the INNcontrol software. Refer below image



1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **bAu.**

3. Press **MODE** button. This action displays **bAu** value, ranging from 0-255.

bAu	Voltage (VDC)
255	6.4
239	6.0
199	5.0
159	4.0
119	3.0

Table 1: Voltage table

4. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

SER – Service Parameter (*Ser*)

Ser mode is used to execute “Run” menu parameters of the CBL32 partner device, such as a X47.

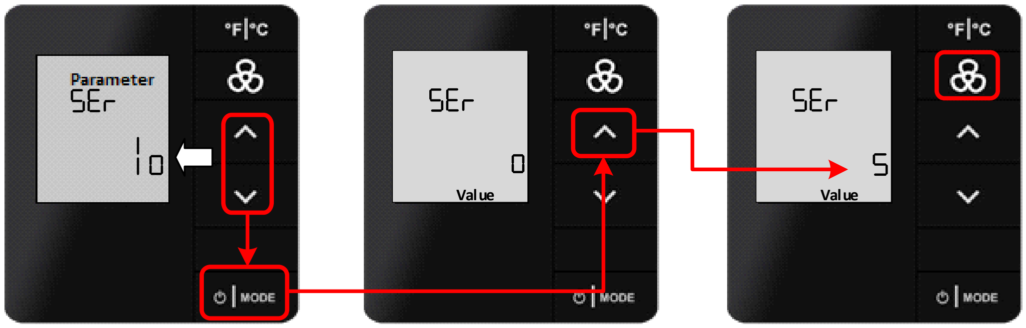
1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Ser.**

3. Press **MODE** button. SEr and 0 displayed on e7w.

4. Use the **UP/DOWN** arrow buttons to change the displayed value to the desired Run Parameter value listed in Parameter column in Table 1
5. Press the **MODE** button to view the value to use. Use the UP / DOWN arrow buttons to select the desired value.
6. Press the **FAN** button to execute. The e7w will send a 0019100XX00YY command to the address of its HVAC partner.

   XX = Run Parameter defined in Step 5 in Hex. YY = Value defined in step 5 that the selected Run parameter will execute in Hex

   For example, to make the HVAC partner execute Parameter 10 (ES-1 Key Function) with Value 5 (Copy Bootloader, IRA, and Appam banks to the connected ES-1 key):



Change the desired Run Parameter value to 10 using the Up/Down buttons. Press MODE

Change value to 5 using Up Arrow

Press FAN button to execute

Below is a trace capture of the e7w (13) sending the command to the HVAC Partner (14) to execute Run Menu 10 with value 5:

101	23:local	-54	1	1	13	14	00191000A0005	Execute CBL32 Run Menu Item: 10 with value: 5
101	23:local	-26	D	1	14	13		

7. Press the **°F|°C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F|°C** button twice to exit **SERVICE MODE**

Parameter	Value	Function
0	0	Reset
1	N/A	Boot I/O Map 1
2	N/A	Boot I/O Map 2
3	N/A	Boot I/O Map 3
4	0-255	Boot I/O Map defined by Value
5	0..999	Activate Incremental I/O Map defined by Value
10		ES1 Key Functions
	0	Format ES-1 Key
	1	Copy BootLoader Bank to ES1
	2	Copy IRAS Bank to ES1
	3	Copy APPMap Bank to ES1
	4	Copy CBL32 Bank to ES1
	5	Copy BootLoader,IRAS and AppMap Banks to ES1
	6	Copy AppMap and CBL32 Banks to ES1
	7	Copy BootLoader, IRAS, CBL32 and AppMap to ES2. Requires an ES2 key
	10	Access Key:Copy User Access Level

Table 2: Run Parameter Value

P5C – P5 Channel Parameter (*P5C*)

Use P5c mode to view or set the P5 Channel of e7w. It is by default set as 1. All INNCOM devices have a P5 Channel setting that can be set from 1 to 7. This setting can be used to segregate devices so that only certain devices can communicate with other certain devices. To communicate with each other, the devices must be set to the same P5 Channel.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **P5c.**

3. Press **MODE** button. This action displays **P5c** value, ranging from 1-7.

4. Use the **UP/DOWN** arrow buttons to change the **P5c** value.
5. Press the **FAN** button to store the value. The e7w play beep sound.
6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

PA – PA Partner Address Parameter (*PA)*

Use **PA** mode to set default address used by the HVAC partner of the e7w. Any messages sent by the e7w are sent to this Address. If the e7w HVAC partner is configured with a different address, you must change the PA value to match that address. For example, if X47 with address 224 is used as the HVAC partner of e7w, then PA value should be changed to 224.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **PA.**

3. Press **MODE** button. This action displays **PA** value (14 displayed as default PA value).

4. Use the **UP/DOWN** arrow buttons to change the **PA** value.
5. Press the **FAN** button to store the value. The e7w play beep sound.
6. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

PI5 – Process Image Viewer Parameter (*Pi5*)

Use **Pi5** mode to read any Process Image (PI) offset value 0-31 from the HVAC partner device. The **Pi5** Process Image viewer is an advanced feature intended to be used by an INNCOM technician for advanced troubleshooting.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Pi5.**

3. Press **MODE** button. This action displays **Pi5** value of 0.

4. Use the **UP/DOWN** arrow buttons to change the **Pi5** offset value over the range 0-31. If going up from 0, the displayed value will roll back to 0 after 31 is reached, if going down from 31, the displayed value will roll back to 31 after 0 is reached.
5. Press the **FAN** button to execute. The e7w sends a 0010000XX (XX=E0-FF) read Process image offset read command to its defined HVAC partner address.

   - If a reply value is received from the HVAC partner, the **Pi5** value is displayed in decimal format.

6. If no reply is received, the selected PI Offset value remains, and a warning triangle icon is displayed (⚠).

7. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE.**

E7W – e7w Address Parameter (E7W)

The local address of e7w is by default 13 If required to change the e7w local address, use **E7W** parameter. You would need to change the e7w local address if it was required to have more than one e7w installed in the same room. Each e7w must have a unique local address.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **E7W.**

3. Press **MODE** button. This action displays **E7W** value.

4. Use the **UP/DOWN** arrow buttons to change the **E7W** value.
7. Press the **FAN** button to store the value. The e7w play beep sound.
8. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

   Or

   Press the **°F | °C** button twice to exit **SERVICE MODE**

OAT – Outside Air Temperature Parameter (*oAt)*

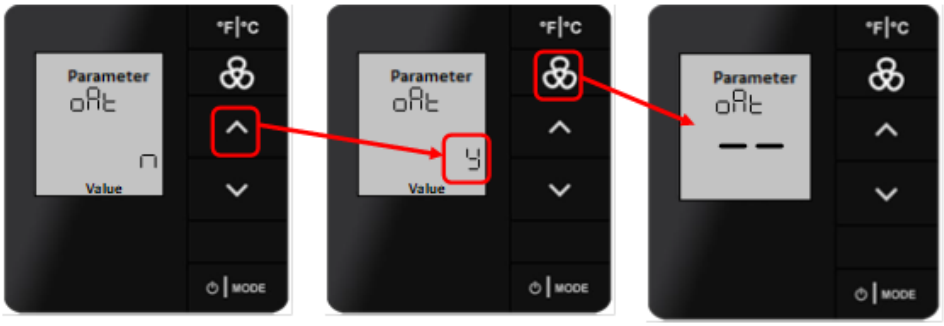
Use the **OAT** menu to Enable or Disable the ability of the e7w to display outside air temperature. When the e7w is configured to display outside air temperature, it will only be displayed when the e7w has entered “dormant” mode following 5 seconds of no user interaction with the e7w.

There must be an outside temperature sensor installed and the Inncom Server software configured to report the outside temperature to the guest rooms.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **OAT.**

3. Press **MODE** button. By default, the ability of the e7w to display outside air temperature is disabled and **“n”** (no) will displayed.

   To enable, press the **UP** arrow button to change the “n” to “y” and press the **FAN** button to store the change. The e7w will beep and return to the main OAT menu.



4. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode
5. With OAT enabled , anytime the e7w enters “dormant” mode, the measured outside temperature will be displayed above the target temperature.

6. To disable the displaying outside air temperature on the e7w, when in “dormant” mode, repeat above steps 1-4, but in step 3 change the displayed “y” value to “n” value and press the **Fan** button to store the change.

PFt – e7w PIR Motion Sensor Filter (*PFt)*

Use the **PFt parameter** to adjust the sensitivity of the e7w built in PIR motion sensor.

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **PFt**

3. Press MODE to view the value. The value can between 1 and 4.
    1. Disable PIR filter and apply no filtering to the signal from the PIR sensor.
    2. Report detected motion only after 2 PIR sensor detections occur.
    3. Report detected motion only after 3 PIR sensor detections occur.
    4. Report detected motion only after 5 PIR sensor detections occur.

    Use the **UP/DOWN** arrow buttons to select the desired value.
4. Press the **FAN** button to store the change. The e7w will beep
5. Press the **°F | °C** button to return **SERVICE MODE** or press **UP** arrow button to display next mode

    Or

    Press the **°F | °C** button twice to exit **SERVICE MODE**

CTR – Contractor Mode Parameter (*Ctr)*

Contractor mode allows conditioning a space during the construction phase to a defined set temperature and locking out the key-pad to prevent tampering.

Follow the below steps to enter and activate Contractor Mode:

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Ctr.**

3. Press **MODE** button. This action display "- ".

4. Use **UP/DOWN** arrow buttons to select the target temperature (range from Off, 65 to 80° F), that will be maintained by the e7w, while in contractor mode.

5. Press **FAN** to continue.

   The display scrolls the set temperature and the unit beeps to confirm the set value.

6. Press the **°F | °C** button twice to exit **SERVICE MODE**

   The unit displays the target, measured temperature, and an alert icon to indicate Contractor mode is active. After 5 seconds, just the locked target temperature and the alert icon will be displayed.

Press any key to change set temperature, fan speed or mode and you will see that the ability to change these values are locked out.

To exit **CONTRACTOR MODE**

1. Enter **SERVICE MODE**
2. Press **UP/DOWN** arrow buttons to select **Ctr** "- - "

3. Press **MODE** button. This action displays "- "and Value.

4. Press **FAN** button to turn off **CONTRACTOR MODE**. After turning off **CONTRACTOR MODE** e7w play beep sound.
5. Press the **°F | °C** button twice to exit **SERVICE MODE**

   The alert icon should clear

Binding and Testing RF Locks Using e7w

Saflok RF Locks

1. Verify the Inncom Room Gateway / Saflok Proxy device is configured to support Saflok. Either verify the software created for the Inncom Proxy has default support to be the Saflok RF Lock Proxy or activate the applicable I/O Map in the device to configure it to be the Saflok RF Lock proxy. If using a generic "Shelf" software in the Saflok Proxy, I/O Map 67 configures it to support Saflok.
2. First, Un-Bind the T596.RF module in the lock. The T596.RF module **MUST** be un-bound as the first step. Hold the **RF Disable** RFID key in front of the receiver window on the outside of the lock for 1-2 seconds. You should see the following LED pattern on the lock if it correctly un-binds:
   - Lock Green LED flashes 2 times
   - Lock Yellow LED Flashes 3 times
   - After 5 seconds the Lock Red LED flashes 6 times

   The lock NO LONGER SUPPORTS Inncom functionality and will no longer report Ingress or Egress messages when the door is opened or closed.
3. Enter service parameter mode on the e7w
4. Set the desired Room ID, RF Channel, and PAN ID into the e7w that the particular Inncom Proxy /Room Gateway (typically a PC502.4G) and lock should be using for the particular room.
5. On the e7w, go to the **Adr** (Address Teach) parameter and press **Mode** to view the value. Change the displayed value to **67**, then press the Fan button, **Bnd** will appear on the e7w display. Do nothing else on the e7w.
6. Hold the **RF Enable** RFID key card in front of the window on the outside of the lock for 1-2 seconds to start the binding process. The following sequence should occur:
   - The lock shows the following LED patterns if it processed the card:
     - Lock Green LED flashes 1 time
     - Lock Yellow LED flashes 3 times
   - The lock sends a Bind Request and a "sound buzzer" requests to make the e7w beep
   - The e7w upon seeing the Bind Request sends a Bind Offer toward the lock
   - If the lock received and processed the Bind Offer it:
     - Flashes the Green LED 6 times
     - Writes the RF parameters from the thermostat Bind Offer into the T596 radio
     - Resets
7. Perform a Door Test from the e7w (**dor** test as covered earlier in this document). Open and close the Door and verify the Lock is reporting door open / close.

Timelox RF Locks

1. Verify the Inncom Room Gateway / Timelox Proxy device is configured to support Timelox. Either verify the software created for the Inncom Proxy has default support to be the Timelox RF Lock Proxy or activate the applicable I/O Map in the device to configure it to be the Timelox RF Lock proxy.

   If using a generic “Shelf” software in the Timelox Proxy, I/O Map 65 configures it to support Timelox.

   It is assumed that a PC502.4G is being used as the Timelox RF Lock proxy device for this procedure.

2. Enter service parameter mode on the e7w
3. Set the desired Room ID, RF Channel, and PAN ID into the e7w that the particular Inncom Proxy /Room Gateway (typically a PC502.4G) and lock should be using for the particular room.
4. On the e7w, go to the **Adr** (Address Teach) parameter and press **Mode** to view the value. Change the displayed value to **65**, then press the **°F | °C** button to return back to **Adr** on the display.
5. Go to the e7w **bnd** menu option and press the Mode button.
6. Use the Up/Down arrow buttons to set the value to the address of the device being used as the Timelox RF Lock Proxy. This will typically be a PC502, address 227, if using an e7w. However, consult applicable documentation.
7. Press the Fan button on the e7w to make, it sends a 0x0011 3 Open Bind Window command to the address defined in step 6. The PC502 will open a 2 minute bind window, waiting to see a bind request from the lock.
8. Hold the Timelox "Discovery" RFID key card in front of the window on the outside of the lock for 1-2 seconds.
   - The lock should rapidly flash the Green LED 2 times.
   - The lock will broadcast a Bind request message that contains the MAC address of the lock.
   - If the PC502 saw the Bind request from the lock, it will respond to the lock with a Bind Offer telling the lock the RF parameters to adopt. It will also send a Sound Buzzer message making the e7w beep 3 times, create Registry 193:8:1 to store the lock’s MAC address and finally RESET. This indicates Binding is complete.
9. Perform a Door Test from the e7w (**dor** test as covered earlier in this document). Open and close the Door and verify the Lock is reporting door open / close.

You may need to wait 20-30 seconds to allow the PC502/Inncom proxy device to fully startup following the reset before performing the door test.

Salto RF Locks

1. Verify the Inncom Room Gateway / Timelox Proxy device is configured to support Salto. Either verify the software created for the Inncom Proxy has default support to be the Salto RF Lock Proxy or activate the applicable I/O Map in the device to configure it to be the Salto RF Lock proxy.

   If using a generic "Shelf" software in the Salto Proxy, I/O Map 69 configures it to support Salto.

   It is assumed that a PC502.4G is being used as the Salto RF Lock proxy device for this procedure.
2. Enter service parameter mode on the e7w
3. Set the desired Room ID, RF Channel, and PAN ID into the e7w that the particular Inncom Proxy /Room Gateway (typically a PC502.4G) and lock should be using for the particular room.
4. On the e7w, go to the **Adr** (Address Teach) parameter and press **Mode** to view the value. Change the displayed value to **69**, then press the F/C button to return back to **Adr** on the display.
5. Go to the e7w **bnd** menu option and press the Mode button.
6. Use the Up/Down arrow buttons to set the value to the address of the device being used as the Salto RF Lock Proxy. This will typically be a PC502, Address 227, if using an e7w. However, consult applicable documentation.
7. Press the Fan button on the e7w to make it send a 0x00113 Open Bind Window command to the address defined in step 6. The PC502 will open a 2 minute bind window, waiting to see a bind request from the lock.
8. On the Salto handheld PPD Tool, select "Update Locks" from the PPD menu and insert the 3 pin cable (with the arrow pointing up) into the 3 pin socket on the lock.
9. A Green light will appear on the lock face. Remove the 3 pin PPD cable from the lock.
   - The lock will beep and send a bind request message that contains the network MAC address of the lock
   - The lock should rapidly flash the Green LED 2 times.
   - If the PC502 saw the Bind request from the lock, it will respond to the lock with a Bind Offer telling the lock the RF parameters to adopt. It will also send a Sound Buzzer message making the e7w beep 3 times and create Registry 193:8:1 to store the lock's MAC address and finally RESET. This indicates Binding is complete.
10. Perform a Door Test from the e7w (**dor** test as covered earlier in this document). Open and close the Door and verify the Lock is reporting door open / close.

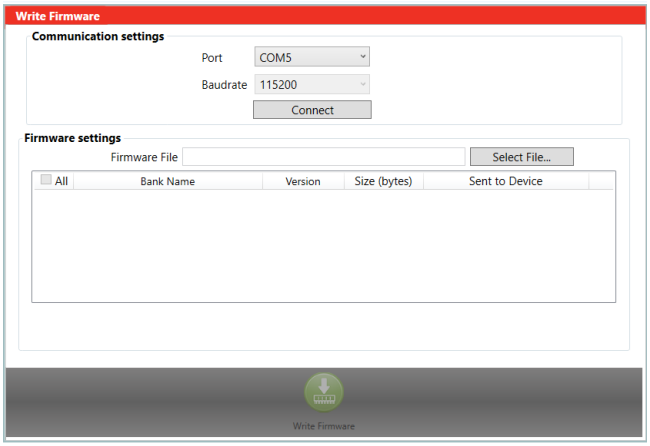
    You may need to wait 2-3 minutes to allow the PC502/Inncom proxy device to fully startup following the reset before performing the door test.

Firmware Upgrade

NOTE: While updating the firmware, make sure the device and the PC is connected with the USB or UART cable. Sometimes, the operator not able to decide, if the device is in firmware state or in the security bootloader state. Therefore, the device allowed to be in both state when updating the firmware.

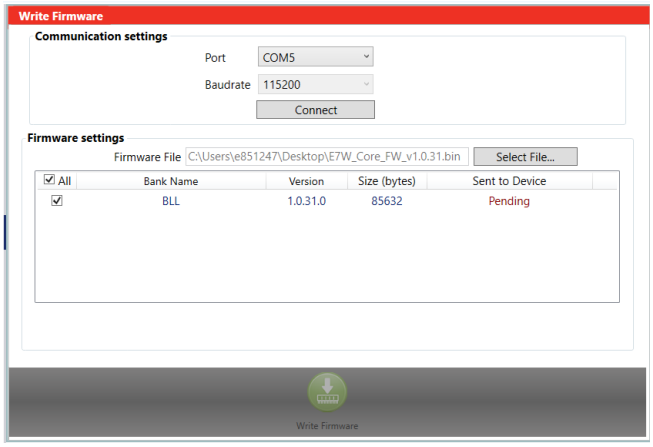
Follow the steps below to upgrade e7w firmware:

1. Open EngINN tool and click **Select File** to load the new firmware file.



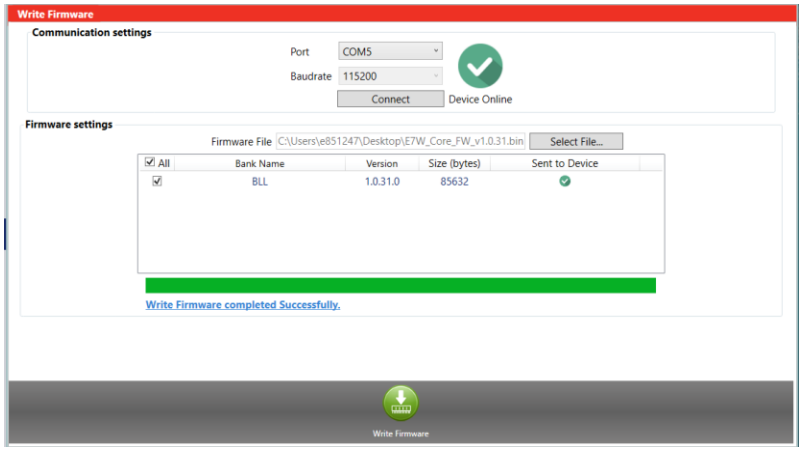
2. Click **Connect** button. EngINN tool opens the COM port with baud rate 115200.

   EngINN sends Start OTW command to the device and get ready for ECDH negotiation process.

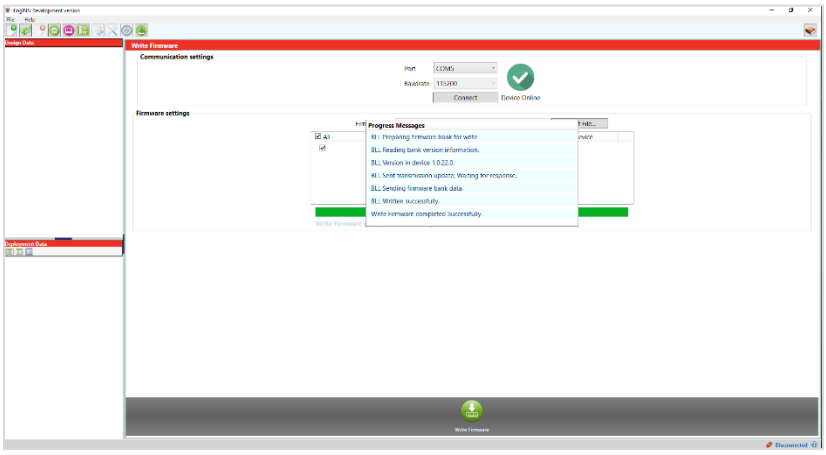


3. The device receives the Start OTW command and start the ECDH negotiation process.

   When the process finishes, EngINN shows the connection status. EngINN now has gotten the AES key and can decide if the device is in firmware state or security bootloader state.



4. Click **Write Firmware.** This action starts firmware upgrade.



This action completes upgrade.

After all of the selected firmware is updated. EngINN tool sends End OTW command to the e7w to indicate, that the OTW process is finished. After receiving the End OTW command, the e7w reply an acknowledgement to EngINN and restart. After the EngINN receives the acknowledgement, it displays firmware update success.