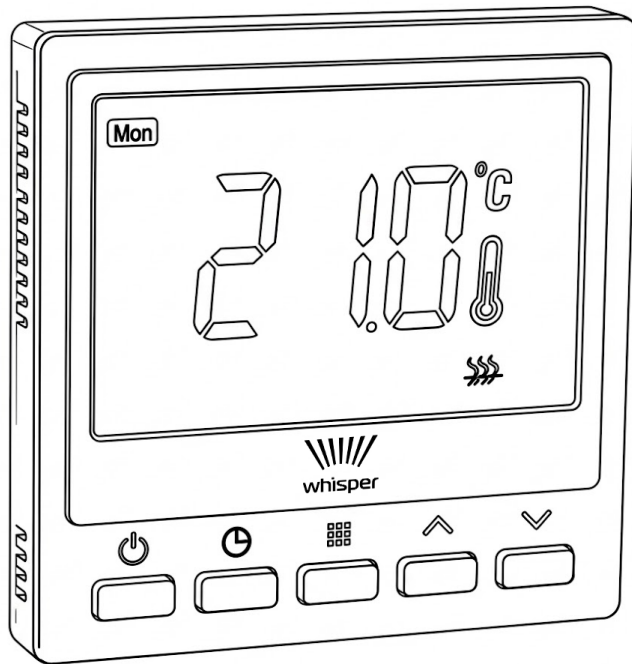


Installation Guide

WR-304 Essence Wireless RF Wi-Fi Programmable Haptic Thermostat



WR-304 Essence Wireless RF Wi-Fi Programmable Haptic Thermostat



Product Overview



The WR-304 Programmable Smart Thermostat provides energy-efficient underfloor heating controls. This key component allows precise management of underfloor heating systems or zonal heating systems through robust wireless communication with the KF-304 underfloor heating wiring centre (central control) and an optional WR-300 gateway for access via the Smart Life app.

Technical Specification

Item	WR-304
Product Code	WRLZ-0304
Application	Wet Underfloor Heating, Zonal Heating
Dimensions	86mm x 86mm x 25mm
Mounting Type	EU/GB standard back box / Direct on wall (Consider sensor)
Weight	180g (Including Batteries)
Colour	White
Power Source	2 x AA LR6 1.5v Alkaline Batteries
Power Consumption	330-350uA
Radio Frequency	868 MHZ (Frequency Shift Keying)
Protection Rating	IP21
Probe Sensor	10K Ω NTC (TP-200 / BP-260)
Working Temperature	0°C - 50°C
Accuracy	0.1°C (High precision underfloor heating control)
Housing Material	Polycarbonate
Programming Ability	5+2,6+1,7, Manual
Compliance	CE, RoHS, RED, PTSI
Compatibility	Google, Alexa, SmartLife App

Features

- The screen simultaneously displays the **set temperature**, the **room temperature**, and the current time, facilitating informed **smart heating** management.
- Energy-efficient programming:** Features flexible 7-day, 5+2 day, and 5+1+1 day options, supporting **zoned control** as required by modern building standards.
- Wireless Reliability:** Operates within a **100 metre** open range, providing flexibility for installers and property owners.
- Optimum Start Functionality:** Includes an intelligent function option (ES) that allows the thermostat to learn the required heating time, ensuring the target temperature is reached exactly at the programmed time, rather than starting late.
- Power Source:** Powered by 2x AA LR6 1.5v alkaline batteries.
- Anti-freezing protection** is included to safeguard the system during low-temperature periods.

⚠ Installation and Regulatory Compliance ⚠

The WR-304 smart heating control is designed for installation by a qualified electrician, ensuring adherence to UK wiring regulations. The system facilitates the zoned control necessary for compliance with Building Regulations Approved Document L (Conservation of Fuel and Power).

- Safety Note:** This product is battery powered. However, all connections to the heating system's control unit (KF-304) must be installed by a qualified professional.
- Before working on the wiring centre, the electricity supply must be disconnected and you must follow the installation guide for the KF-304

Battery Safety and Care

The WR-304 Thermostat requires 2 x AA LR6 1.5v batteries for operation. Please observe the following guidelines for safe and reliable use.

General Safety

- Keep Batteries Out of Reach of Children:** Batteries, especially small ones, are a health hazard if swallowed. Seek immediate medical attention if a battery is ingested.
- Do Not Recharge or Incinerate:** Do not attempt to recharge non-rechargeable batteries, short-circuit them, or dispose of them in a fire. This can cause leakage, fire, or explosion.
- Dispose of Properly:** Never dispose of used batteries in household waste. They must be recycled in accordance with local regulations.

Installation and Replacement

- Use Recommended Type:** For optimal performance and long life, always use new, high-quality, non-rechargeable Alkaline batteries.
- Observe Polarity:** Ensure batteries are inserted correctly, observing the positive + and negative - polarity markings inside the battery compartment. Incorrect insertion can damage the device.
- Replace All Together:** When replacing batteries, replace all batteries simultaneously with a new set of the same type and brand. Do not mix new and old batteries, or different types of batteries.
- Remove If Not Used:** If the thermostat is to be left unused for an extended period, or if the low battery icon appears, remove the batteries to prevent leakage and potential damage to the unit.

Disposal



Do not dispose of this product or its batteries in household waste; please use local WEEE and battery recycling schemes.

Installation Steps (WR-304 Thermostat)

The WR-304 is compatible with a UK pattress box 86x86mm and is surface mounted.

- Mounting Backplane:** Mount the backplate to the wall or junction box.
- External Sensor (Optional):** Connect the external sensor, often used for floor temperature limitation in compliance with BS EN 1264 installation standards
- Mounting Screw:** Use the mounting screw to secure the backplane firmly.
- Install Batteries:** Install 2 AA LR6 1.5v batteries into the thermostat unit.
- Connect Unit:** Slide the main WR-304 fascia unit onto the backplate using the guide arms.

For optimal performance, position your thermostat approximately 1.5 meters from the floor, ensuring it's away from direct sunlight, heat sources like radiators or cookers, and drafts; maintain clear airflow around the unit by avoiding obstructions, and when disabled access is a requirement, the installation height must be reduced to below 1.2 meters to comply with accessibility standards Part M (Access to and use of buildings)

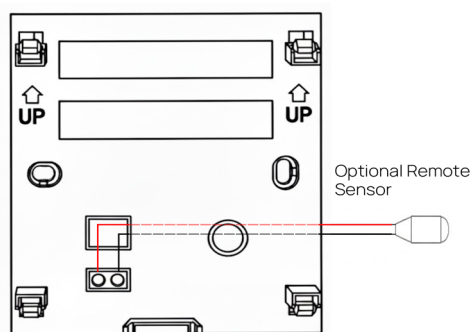
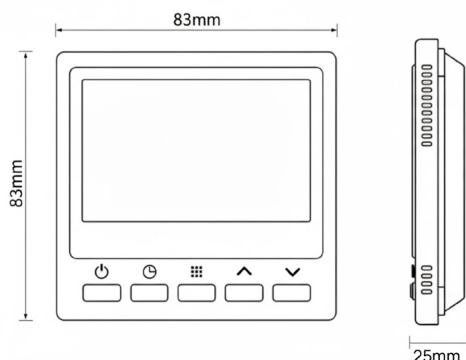


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Dimensions and Wiring



Wireless Connection Guide: WR-304 System

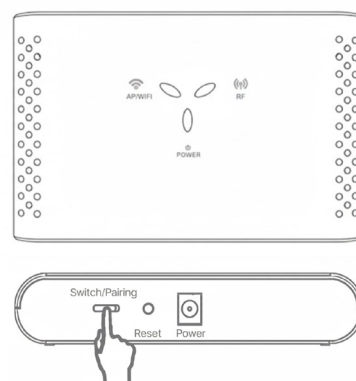
This guide covers the two necessary pairing sequences: matching the Thermostats to the Gateway using RF2 (for app control) and matching the Thermostats to the Wiring Centre / Control Box using RF1 (for zonal heating operation).

STEP 1 - Match Thermostat (WR-304) and Gateway (WR-300)

This connection uses the RF2 signal and enables control via the Smart Life app.

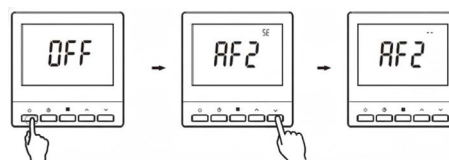
A. Prepare the Gateway (WR-300)

1. Reset Gateway Network (If needed): Hold the reset button (usually located on the side/rear) for at least 5 seconds until the green light flashes quickly.
2. Enter Match Code Mode: Hold the switch button for at least 5 seconds until the yellow RF light flashes quickly. The Gateway is now ready to receive the pairing signal.



B. Pair the Thermostat (WR-304)

1. Enter Code Match Status: With the WR-304 thermostat powered OFF, hold the power button for at least 3 seconds.
2. Select RF2 Mode: The display will show RF codes. Use the up or down button to select the RF2 mode.
3. Confirm Pairing: Tap the power button again to confirm and send the matching code.
4. Confirm Success: The screen will briefly return to OFF, and a small number (e.g., '02') should appear in the upper-right corner of the display, confirming successful matching to the Gateway.
5. Repeat this process for any additional WR-304 thermostats you need to connect to the Gateway.



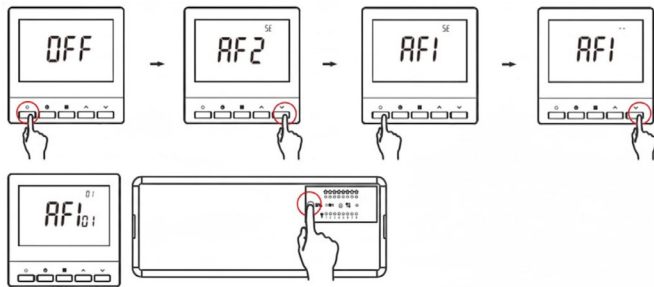
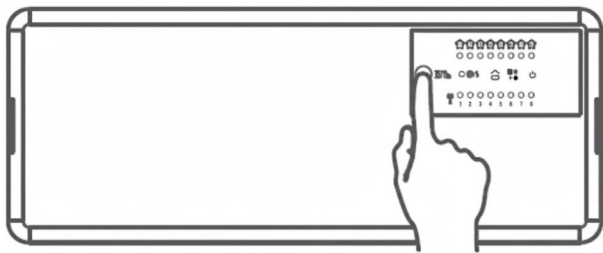
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STEP 2 - Pair Thermostat (WR-304) and Wiring Centre (KF-304)

This connection uses the RF1 signal and links the thermostat to the KF-304 Wiring Centre to manage the heating zones.

A. Prepare the Control Box (KF-304)

1. Enter Pairing Mode: Hold the Wiring Centre pairing button for at least 5 seconds.
2. Verify Status: The relevant indicator light on the control box for the first zone (Zone 1) will begin flashing. The Control Box is now ready to receive the pairing signal for that zone.



B. Pair the Thermostat (WR-304)

1. Enter Code Match Status: With the WR-304 thermostat powered OFF, hold the power button for at least 3 seconds.
2. Select RF1 Mode: Use the up or down button to select the RF1 mode (This is the signal for the Control Box/Wiring Centre).
3. Confirm Pairing: Tap the power button again to confirm and send the matching code.
4. Confirm Success: Upon successful matching, the control box will automatically jump to the next number (Zone 2), and the indicator light for the new zone will flash, indicating it is ready for the next thermostat.
5. Repeat this entire process for the next thermostat, which will pair with Zone 2, and so on.

Once all thermostat have been paired, check the system operates as expected by briefly turning the thermostats up to create a heat demand, check the correct zone light is illuminated, and check that the correct actuators open. Finally check that the pump and heat source are enabled. Once complete, set the thermostats to the correct desired room temperature.

STEP 3 – Connect your Whisper Controls devices to the Smart Life App



Important Tip: Ensure your phone is connected to a 2.4GHz Wi-Fi network. The app will not connect properly on 5GHz. Where routers are set to dual band broadcasting the controls will automatically select the 2.4Ghz channel, if you experience connection issues you may have to split the bands in your router. For this you will need to follow the routers manufacturers instructions.

Download the Smart Life app from your app store, then create an account and ensure you are logged in.

If this is the first time that you are using the app, allow all privileges such as Bluetooth and location, devices may not show if these aren't set to allow on your device. Once set up, you can amend the privileges in the app settings

Part 1: Connect the Gateway (WR-300)

1. The Gateway must be connected to the SmartLife app first, as the thermostats (sub-devices) connect to the Gateway, not directly to your Wi-Fi.
2. Power On: Connect the DC 5-12V 1A power source to the Gateway.
3. Enter Pairing Mode (Gateway): Press the Gateway's 'Reset' button for 4 seconds until the green light (LED1: WIFI indicator) flashes quickly.
4. Open App: Enter the "HOME" interface of the app. Click the '+' symbol in the upper right corner.
5. Add Device: Click the device (04-gateway).
6. Enter Wi-Fi Details: Enter your Wi-Fi name and password, then click Next.
7. Complete Connection: Wait a few moments. Once the device is added successfully, click 'Done'. The blue light (LED1) will remain solid, indicating WIFI status.

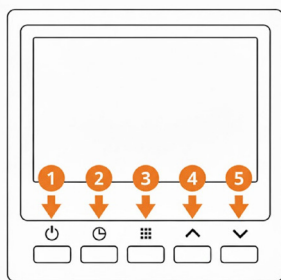
Part 2: Connect the Thermostat (WR-304)

The thermostat connects to the Gateway as a sub-device. You do not need to add the thermostat again if it has already been paired with the Gateway.

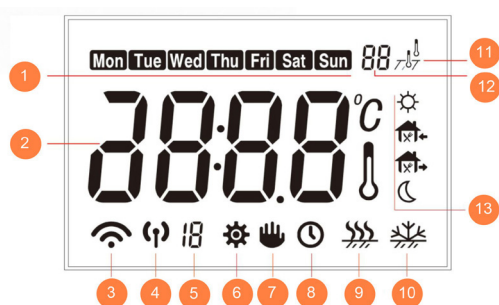
1. Start Adding Subdevice: In the SmartLife app, find the Gateway device you just added and click '+ Add subdevice'.
2. Enter Pairing Mode (Thermostat), only if you have not already done this:
 - Ensure the Thermostat is in the Power OFF status.
 - Long press the Power button for 3 seconds.
 - Press the Menu button to select 'RF2'. (RF2 is the signal for APP connection).
 - Short press the Power button to enter the code match status (display shows 'RF2' followed by a flashing SE indicator at the top right of the display).
3. Search in App: Click 'LED already blink' on the app to search for the device.
4. Complete Connection: Device added successfully. Click 'DONE'. The thermostat will be added to your home screen in the Smart Life App

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Operation and Display Instructions



Button Number	Name	Function (Power ON status)	Function (Power OFF status)
1 Power	Power/ Save	Power on/off. Press briefly to save and exit when changing settings.	Press for 3 seconds to enter the code match status (for linking to a receiver/hub).
2 Clock	Time	Long press (3 seconds): Enter the day setting. Used for fine-tuning programmable schedules.	N/A
3 Menu	Menu	Long press: Enter programming setting. While in a setting, long press to reset programme parameters to their default.	Long press to enter the configuration settings
4 Up	Add	Adjust data up (e.g., increase time or temperature).	Adjust data up.
5 Down	Shorten	Adjust data down (e.g., decrease time or temperature).	Adjust data down.



Icon Ref	Description
1	Week Days
2	Temperature, Time, Date, OFF
3	WiFi Icon (Stable=Paired to WR-300 Gateway, Flashing = Not Paired/ Wi-Fi Fail)
4	RF Icon (Stable=Paired to KF-304 Wiring Centre, Flashing = Not Paired/RF Fail)
5	View Reference (When changing settings)
6	Setting Mode (Advanced / Programming)
7	Manual / Non Programmable Mode
8	Programming Mode
9	Heat Enabled
10	Antifreeze / Frost Protection Mode
11	Sensor Selected: Room, Floor or Both
12	Pairing Parameter
13	Programming Mode Cycle

Programming Setting (Energy Efficiency)

The programming function allows end-users to set a highly **energy efficient underfloor heating flow temperature** schedule, supporting lower average running costs.

Period	Time	Temperature
Wake up	06:00	20°C
Outdoor	08:00	18°C
Back Home	11:00	20°C
Outdoor	14:00	18°C
Back Home	18:00	20°C
Sleep	22:00	17°C

How to Use Your WR-304 Thermostat

Manual / Non Programmable Mode

If you wish to manually operate your thermostat or set it to a constant temperature, press the Menu button (Button 3) until the hand icon is shown on the display (Icon 7). Your thermostat is now in Manual Mode. Use the Up and Down arrows (Buttons 4 & 5) to set the desired temperature.

Programming Mode

To run the thermostat in Programming Mode, press the Menu button (Button 3) until the clock icon (Icon 8) is displayed.

Then, press and hold the Menu button (Button 3) until the days of the week are flashing (Icon 1). Using the Up and Down arrows (Buttons 4 & 5), select the desired day or group of days to program.

Press the Menu button (Button 3) to confirm the day range. Next, select the start time of the initial heating period and adjust it to suit your needs. Press the Menu button (Button 3) and then set the desired temperature.

Repeat this process until the moon icon is displayed. This is the overnight temperature period. Set this start time and the desired temperature. This setting will run until the start of the programming schedule for the following day.

You **MUST** press the On/Off button (Button 1) to confirm and save your changes.

Temporary Override

If you wish to temporarily increase or decrease the set point (target temperature) of the thermostat while it is running in Programming Mode, simply adjust the temperature using the Up/Down buttons (Buttons 4 & 5).

This new set point will override the current program setting temperature. You will see both the programming icon (the hand, Icon 7) and the clock icon (Icon 8) displayed. Once the next time phase on the programming schedule arrives, the hand icon will no longer be visible, and the thermostat will return to the programmed temperature.

Lock Your Thermostat

To lock the thermostat, press and hold the Up/Down buttons (Buttons 4 & 5) for 5 seconds. 'Loc' will be displayed on the thermostat, and all buttons will be locked. To unlock, press and hold the Up/Down buttons (Buttons 4 & 5) for 5 seconds again, and the lock will be removed.

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Advanced Settings (Configuration Menu)

The configuration menu allows professional configuration of the underfloor heating controls. Access by switching the thermostat to OFF status, and holding the Menu button (button 3) for 3 seconds.

Option	Disp. Code	Option	Default	Adj.Range	Description
1	CL	Temp.Offset/Calibration	0°C	-4°C - +4°C	Adjusts the internal sensor reading. If you find the temperature shown on the thermostat is slightly different from a reliable thermometer in the same room, this setting allows you to adjust or 'calibrate' the reading to match. For example, setting it to -1°C makes the thermostat display 1°C lower than it actually is, and vice versa.
2	AH	Maximum User Setpoint Limit	35°C	20°C - 50°C	Sets the highest temperature you can manually select. This acts as a safety or energy-saving measure, preventing anyone from setting the thermostat above this maximum temperature.
3	AL	Minimum User Setpoint Limit	5°C	5°C - 20°C	Sets the lowest temperature you can manually select. This is often used to ensure the room never gets too cold, helping to protect pipes or structures from frost damage.
4	bL	Backlight Brightness Control	20	005 / 100	Controls the brightness of the screen display. A higher value makes the screen brighter, while a lower value will make it dimmer. You can adjust this for comfort, especially in bedrooms.
5	db	Temp. Hysteresis (Deadband)	0.5°C	0.5°C - 5°C	Determines the temperature difference before the heating turns ON or OFF. This controls how frequently your heating system cycles. If set to 0.5°C and you set the temperature to 20°C, the heating turns off at 20.5°C and turns back on at 19.5°C. A smaller value is more precise but cycles the system more often; a larger value saves energy by cycling less.

Option	Disp. Code	Option	Default	Adj.Range	Description
6	Pr	Scheduling Mode Enable/Disable	ON	ON / OFF	Switches between using a pre-set schedule or controlling the temperature manually. If set to ON (Program Mode), the thermostat follows your programmed daily schedule. If set to OFF (Manual Mode), the schedule is ignored, and the thermostat will simply maintain the last temperature you manually set.
7	SE	Daily Schedule Period Selection	6	4/6	Defines how many separate temperature settings you can program for each day. 4 periods allow you to set different temperatures for Morning, Day, Evening, and Night. 6 periods offer more customisation, allowing you to set an even more detailed heating schedule throughout the day.
8	ES	Optimum Start (Adaptive) Function	OFF	ON / OFF	Controls the thermostat's 'learning' ability to reach your target temperature on time. If set to ON , the thermostat learns how long your heating takes to warm the room and starts the heating early so the target temperature is reached exactly at your programmed time. If set to OFF , the heating only starts at the programmed time.
9	PP	Anti-Frost Protection Enable/Disable	OFF	ON / OFF	Activates a safety feature to protect your property from freezing. If set to ON , the heating will automatically turn on if the room temperature drops below a factory-set point (usually 5°C or 7°C), even if the thermostat is otherwise set to OFF or a very low temperature.
10	Sn	NTC External Sensor Resistance Value	10	100 / 10	Selects the resistance value (in kilo-Ohms) of the external temperature sensor. This must be matched to the sensor physically connected to the thermostat. 100 is for 100kOhm sensors, and 10 is for 10kOhm sensors. Installers must confirm the sensor type being used.

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Option	Disp. Code	Option	Default	Adj.Range	Description
11	Ct	NTC Sensor Mode Selection	S-r	S-r / r-F / S-F	Determines which sensor the thermostat uses to control the temperature. *S-r = (Internal Sensor): Uses the built-in room sensor only. *r-F = (Dual Sensor): Uses the internal sensor for room temperature, but also uses the external (floor) sensor as a maximum temperature limit to protect the floor. *S-F = (External/Floor Sensor Only): Uses only the external sensor to control the temperature.
12	Pt	Floor Temperature Maximum Limit	27°C	5°C - 70°C	Sets the absolute maximum temperature the external (floor) sensor is allowed to reach. This is a critical safety setting, typically used with underfloor heating, to prevent the floor surface from overheating, which could damage the floor finish (e.g., wood, laminate, or tiles).
PRESS THE POWER BUTTON TO CONFIRM AND EXIT THE SETTINGS					

Troubleshooting

Error Code / Warning	Meaning	Description
Wi-Fi Icon Flashing (Icon 3)	Not connected to the Wi-Fi	The thermostat has not been paired, or the signal has been lost to the Gateway and/or router. Check the power to each unit, check the Wi-Fi network is operating, refer to the connection process.
RF Icon Flashing (Icon 4)	Not paired to the WR-304	The thermostat has not been paired, or the signal has been lost between the KF-304 wiring centre and the thermostat. Check the power to each unit, check the battery power, refer to the connection process.
ER1	Internal Sensor Short Circuit	The built-in room sensor (inside the thermostat casing) has a fault where the electrical connection has been bypassed or shorted. This usually means the sensor is defective or damaged, and the thermostat cannot read the room temperature correctly.
ER2	Internal Sensor Open Circuit	The built-in room sensor (inside the thermostat casing) has an open circuit. This means the electrical path has been broken, often due to a damaged wire or a disconnected component. The thermostat cannot read the room temperature.
ER3	External Sensor Short Circuit	The optional external (usually floor) sensor has a fault where the electrical connection has been shorted. This indicates a wiring fault or a damaged sensor, and the thermostat cannot read the floor or remote temperature.
ER4	External Sensor Open Circuit	The optional external (usually floor) sensor has an open circuit. This indicates the wire to the sensor is broken or disconnected, meaning the electrical path is open. The thermostat cannot read the floor or remote temperature.

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Installer Troubleshooting for Sensor Error Codes

When a sensor alarm code (ER1, ER2, ER3, or ER4) appears, it indicates a fault with a temperature sensor. Follow these steps to diagnose and resolve the issue:

Step 1: Check Sensor Type and Configuration (ER3 / ER4 - External Sensor)

Verify Sensor Selection (Sn): Check the implicit parameter setting for Sn (Sensor selection). This must be set to match the external NTC sensor installed (either 100 for NTC100K or 10 for NTC10K). An incorrect setting will cause an error.

Verify Function Selection (Ct): Check the implicit parameter setting for Ct (NTC function selection). Ensure the thermostat is configured to look for the external sensor if one is installed (i.e., set to r-F or S-F), or not if one is not expected (i.e., set to S-r).

Step 2: Physical Wiring Inspection (All Errors)

Check the Sensor Head (ER3 / ER4): Physically inspect the external sensor head for signs of damage or crushing (if possible).

Check Internal Connections (ER1 / ER2): For internal sensor errors, ensure the main thermostat unit is correctly buckled and connected to the backplate.

Step 3: Test Sensor Resistance (All Errors)

The most definitive test is measuring the sensor's resistance using a multimeter:

Test Internal Sensor (ER1 / ER2): The internal sensor is non-replaceable by the installer. If the connections are sound, an ER1 (short circuit) or ER2 (open circuit) likely means the thermostat unit itself is faulty and needs replacement.

Test External Sensor (ER3 / ER4):

- Disconnect the sensor wires from the receiver/control box.
- Measure the resistance across the two sensor wires.
- If the resistance is close to zero (short circuit), the sensor wire has been damaged or bridged (ER3).
- If the resistance is infinite/open loop (open circuit), the sensor wire is cut or disconnected (ER4).

Step 4: Final Steps

- If ER3/ER4 persists after a continuity test: Replace the external sensor with one that matches the programmed resistance (Sn).
- If ER1/ER2 persists: Replace the thermostat unit itself.

Product Support: 01993 640073

Download a digital version of this manual or to find out more about our range of controls: www.whispercontrols.com



Activate Your Warranty

To validate the 5-Year Warranty on your Whisper Controls product, you must register your installation within 7 days of fitting.

Key Conditions for a Valid Claim:

The warranty is offered subject to the following conditions:

Installation: Must be carried out by a UK qualified professional with relevant electrical competence and conform to BS 7671::2018+A2:2022 18th Edition IET Wiring Regulations.

Building Regulations: Installation must comply with Part P of the Building Regulations in England and Wales.

Indemnity: The warranty includes compensation for proven manufacturing defects up to a £5,000,000 limit of indemnity per incident.

To register your product and for full terms, conditions, please visit our website. www.whispercontrols.com/productregistration