

WH1435+ Temperature Controller - Complete English Translation

Manufacturer: Shenzhen Willhi Electronics Co., Ltd. (深圳市威尔海电子有限公司). Original: WH1435-plus.pdf, five pages in Chinese. Telephone: +86 755 2953 9385. Fax: +86 755 2953 9395. Technical support: Engineer Tian.

Translated by: [NordicLab](#) · [Support NordicLab on Ko-fi](#).

This document translates all text in the manufacturer's manual. Display codes and terminal numbers remain as printed. The mounting cutout and wiring drawings are described below. Check the drawing on page 2 of the original before making electrical connections.

1. WH1435 Series

The WH1435 series temperature controllers provide high precision control. They contain an optimized PID algorithm. Adjustment is simple enough for ordinary users, and control is accurate. The output is contactless. A load of up to 1000 W can be connected directly to the controller.

Model	Range as printed by the manufacturer	Adjustment step as printed
WH1435A	-50 to +230 °C	1°
WH1435AF	-58 to +230 °F	1°
WH1435B	-9.9 to +99.9 °C	0.1°
WH1435C	-30 to +300 °C	1°
WH1435CF	-22 to +572 °F	1°
WH1435A+	-50 to +230 °C / -58 to +230 °F	1°
WH1435C+	-30 to +300 °C / -22 to +572 °F	1°

Translator's note. The table specifies a 1° step for the "+" models, while the advanced [ST](#) setting below offers 0.1° or 1° resolution. The WH1435A+ Fahrenheit range is reproduced exactly as printed; +230 °C and +230 °F are not equivalent upper limits. Verify the actual model and range on the device or with the manufacturer. Original, p. 2.

Mounting cutout

The drawing specifies a rectangular opening of 70.5 × 28.5 mm. The manual does not give enclosure dimensions or cutout tolerances. Original, p. 2.

Wiring

Terminals or control	Function
1 (+), 2 (-)	Drive for an external solid state relay (SSR): terminal 1 is positive and terminal 2 is negative.
3, 4	Load. A directly connected load must not exceed 1000 W.
5, 6	Controller power supply.
7, 8	Temperature sensor.
Lock switches	Moving switch 1 or 2 to ON locks the control parameters that have already been set.

When the load exceeds 1000 W, control it through an external SSR. The manual does not specify the rated supply voltage, sensor type, internal switching topology of terminals 3-4, or SSR input rating. Do not infer these from this translation. Original, p. 2.

Indicators and power control

- **WORK** is the operating indicator. It stays lit while the heating output is active.
- **SET** is the setting indicator. It stays lit in setting mode.
- The controller is on by default after power is applied.
- When the controller is off, press **RST** once to turn it on.
- When the controller is on, hold **RST** for more than three seconds to turn it off.

2. Set Temperature and Normal Menu

In standby mode, press **SET** once to edit the control temperature. Use **▲** or **▼** to adjust it. Holding either arrow key for three seconds starts rapid adjustment. Press **SET** again to return to standby.

To open the control parameter menu, hold **SET** for three seconds. Select a code with **▲/▼**, press **SET** to open its value, and change it with **▲/▼**. Press **RST** to exit, or wait for the automatic exit after five seconds. Original, p. 3.

Code	Function	Unit shown
D	Output control parameter	-
P	Output control parameter	-
DT	Output control parameter	-
LS	Lowest selectable control temperature	°C
HS	Highest selectable control temperature	°C
CA	Temperature correction	°C
AH	High temperature alarm	°C
AL	Low temperature alarm	°C

The text also describes the delay parameter **PT**, although it is absent from the printed code table. The manual does not specify the order in which menu codes appear on the device.

Output parameters D, P, and DT

These three parameters act together on the control output. According to the manual, reducing any of them reduces output power and slows heating; increasing them raises output power and speeds heating.

- **D** mainly determines how early the controller begins reducing output power during heating. A lower **D** makes that reduction begin earlier; a higher **D** makes it begin later.
- **P** mainly adjusts output power while maintaining a steady temperature. A lower value produces less power and a higher value produces more.
- **DT** adjusts the amplitude of dynamic output power correction. A lower value gives a smaller adjustment and a higher value gives a larger one.

The manufacturer's tuning sequence is: set **DT = 0**; once the temperature has stabilized, adjust **P**; then adjust **D**; finally increase **DT** moderately to make the system respond faster. The manual gives neither numeric ranges for these parameters nor an exact output formula. Original, p. 3.

Temperature correction CA

If the measured temperature differs from a reference temperature, use **CA** to correct the controller's reading:

Corrected reading = measured value + **CA**.

The correction can be positive, negative, or zero. To change it, hold **SET** for more than three seconds, select **CA** with **▲/▼**, press **SET**, and adjust the value. For a sensor reading of 25 °C, values of **CA** = 0, +1, and -1 give displayed readings of 25, 26, and 24 °C respectively. This is useful when the sensor cannot directly measure the target. The manual gives the example of measuring water temperature with a probe on the outside of a cup, where heat loss causes a difference.

Original, p. 3.

Protective delay PT

In cooling mode, after power is first applied, if the measured temperature is above the set temperature plus the hysteresis value, cooling does not start immediately. It starts after the configured delay. For later starts, the delay is measured from the moment cooling stopped: if the interval has already exceeded the delay, cooling starts immediately; otherwise, the controller waits for the remaining time. The manual states that the delay works the same way in heating mode.

This parameter is generally needed for compressor cooling. For other cooling methods, the manufacturer says **PT** may be set to zero. To change it, hold **SET** for more than three seconds, select **PT**, press **SET**, then adjust with **▲/▼**. The manual does not state the unit, range, or default value of **PT**. It also mentions hysteresis without identifying its menu code or value. Original, pp. 3-4.

Setpoint limits HS and LS

HS and **LS** limit the selectable set temperature, not the sensor's measurement range. For example, with **HS** = +15 and **LS** = -10, the user can select only from -10 to +15 °C. Pressing the down key at -10 or the up key at +15 leaves the displayed setpoint unchanged. Change **HS** or **LS** first if a setpoint outside that interval is needed.

To change either limit, hold **SET** for more than three seconds, select **HS** or **LS**, press **SET**, then adjust with **▲/▼**. **HS** is the upper limit and **LS** is the lower limit. Original, p. 4.

High and low temperature alarms

- High alarm (**AH**): When measured temperature is $\geq$ set temperature + **AH**, the controller sounds an alarm and alternates **H** with the current temperature on the display. Press any key to stop the sound. **AH** = 0 disables this alarm.
- Low alarm (**AL**): When measured temperature is $<$ set temperature - **AL**, the controller sounds an alarm and alternates **L** with the current temperature on the display. Press any key to stop the sound. **AL** = 0 disables this alarm.

To adjust an alarm threshold, hold **SET** for more than three seconds, select **AH** or **AL**, press **SET**, and adjust with **▲/▼**.

The manual does not explain exactly when the visual alarm clears after the temperature returns to normal. Original, p. 4.

3. Advanced Menu

Hold **SET** and **▲** together for more than three seconds to enter the advanced menu. Choose an item with **▲/▼**, press **SET** to open it, and adjust with **▲/▼**. Press **RST** to exit. The controller then restarts automatically. Original, p. 4.

Code	Function	Values printed in the manual
C/F	Celsius or Fahrenheit selection	C = Celsius; F = Fahrenheit.
ST	Control resolution setting	01 = 0.1°; 10 = 1°.

4. Fault Indications

Display code	Meaning
EEE	The sensor is disconnected.
LLL	The sensor detects a temperature below the lowest measurement limit.
HHH	The sensor detects a temperature above the highest measurement limit.

The manual does not describe the state of the control outputs during these faults. Original, p. 4.

5. Operating Precautions

1. Use the correct operating voltage. The controller can operate within $\pm 10\%$ of its rated input voltage; the nominal value is not stated in this manual.
2. Do not exceed the controller's maximum load power. Use an external SSR for a larger load.
3. Connect the supply, load, and sensor correctly. Applying power with incorrect wiring will damage the controller.
4. Do not route sensor wires in parallel with power wires. Noise on the power wires can reduce measurement accuracy.

Original, p. 5.

6. Functional Logic Diagram

The functional diagram is at the end of this PDF.

The diagram represents functions described in the manual, not the internal circuit or firmware. [LS/HS](#) constrain the setpoint, [D/P/DT](#) influence output power, [PT](#) can delay a start, and [AH/AL](#) trigger alarms. Dashed arrows show possible use of the [CA](#) corrected value by regulation and alarm comparisons: the manual does not say exactly where correction is applied. It also does not give the PID formula, exact heat/cool switching conditions, hysteresis setting, or output behavior on sensor faults. [PT](#) gates starts; the manual does not say it delays every change in output power. Original, pp. 2-4.

The wait branch returns to checking the remaining delay; it does not mean the output turns on immediately. Verify heat/cool direction, exact start thresholds, and the use of [CA](#) in the comparisons on the actual device before relying on them in a safety design.

7. Menu Map

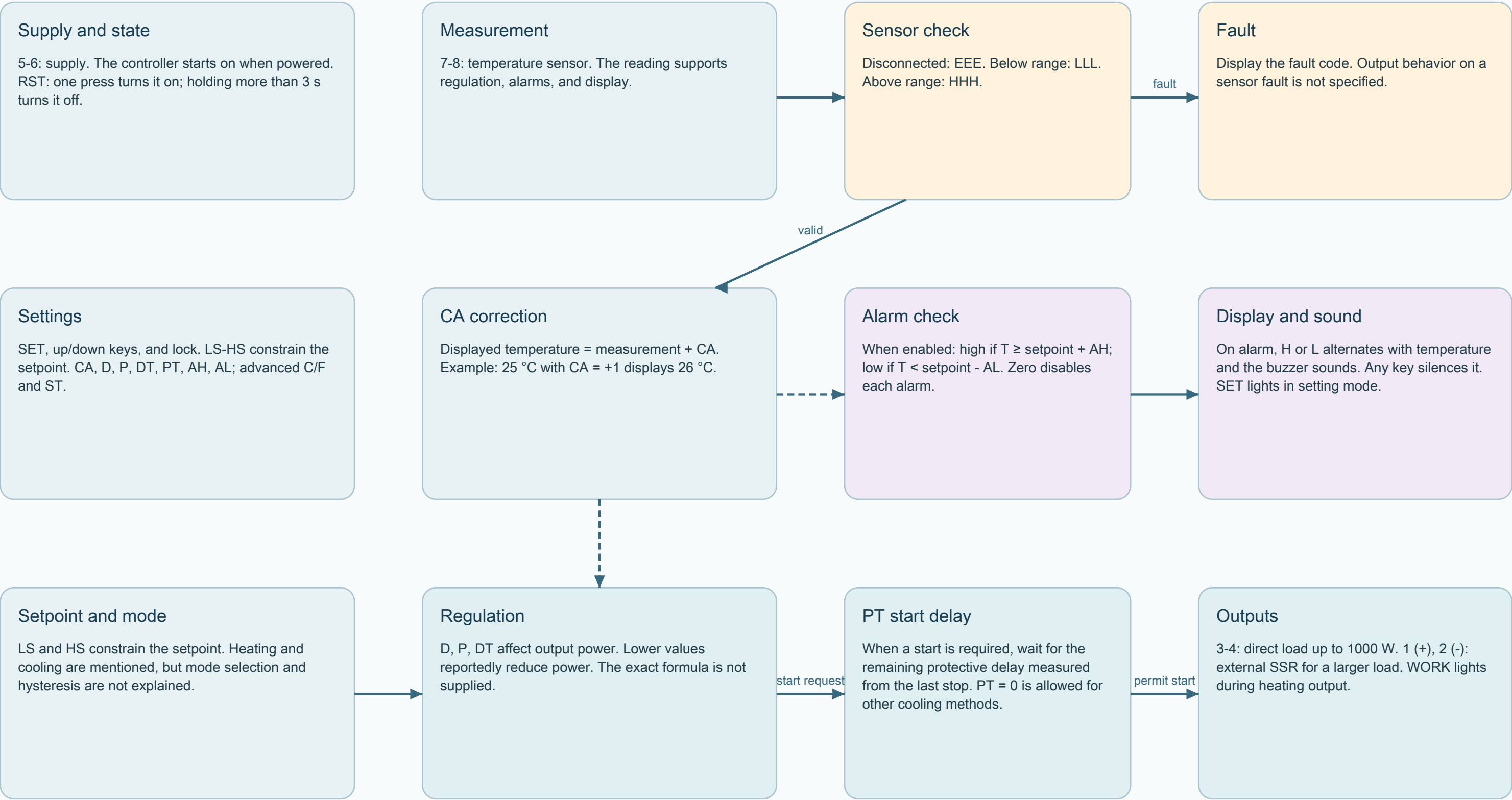
The menu map follows the functional diagram at the end of this PDF.

This map groups codes by entry path. It does not imply an on-screen order: the manual only says to browse with [▲/▼](#). [PT](#) is described in the instructions but missing from the printed normal-menu table. Exact code ranges, defaults, and save behavior are not stated. Original, pp. 3-4.

The lock switches can lock previously set control parameters; the manual does not define precisely which menu actions they prevent. In the normal menu, the source says [RST](#) exits or the controller exits after five seconds. In the advanced menu, it only specifies [RST](#) exit and automatic restart. Original, pp. 2-4.

WH1435+ - functional logic from the manual

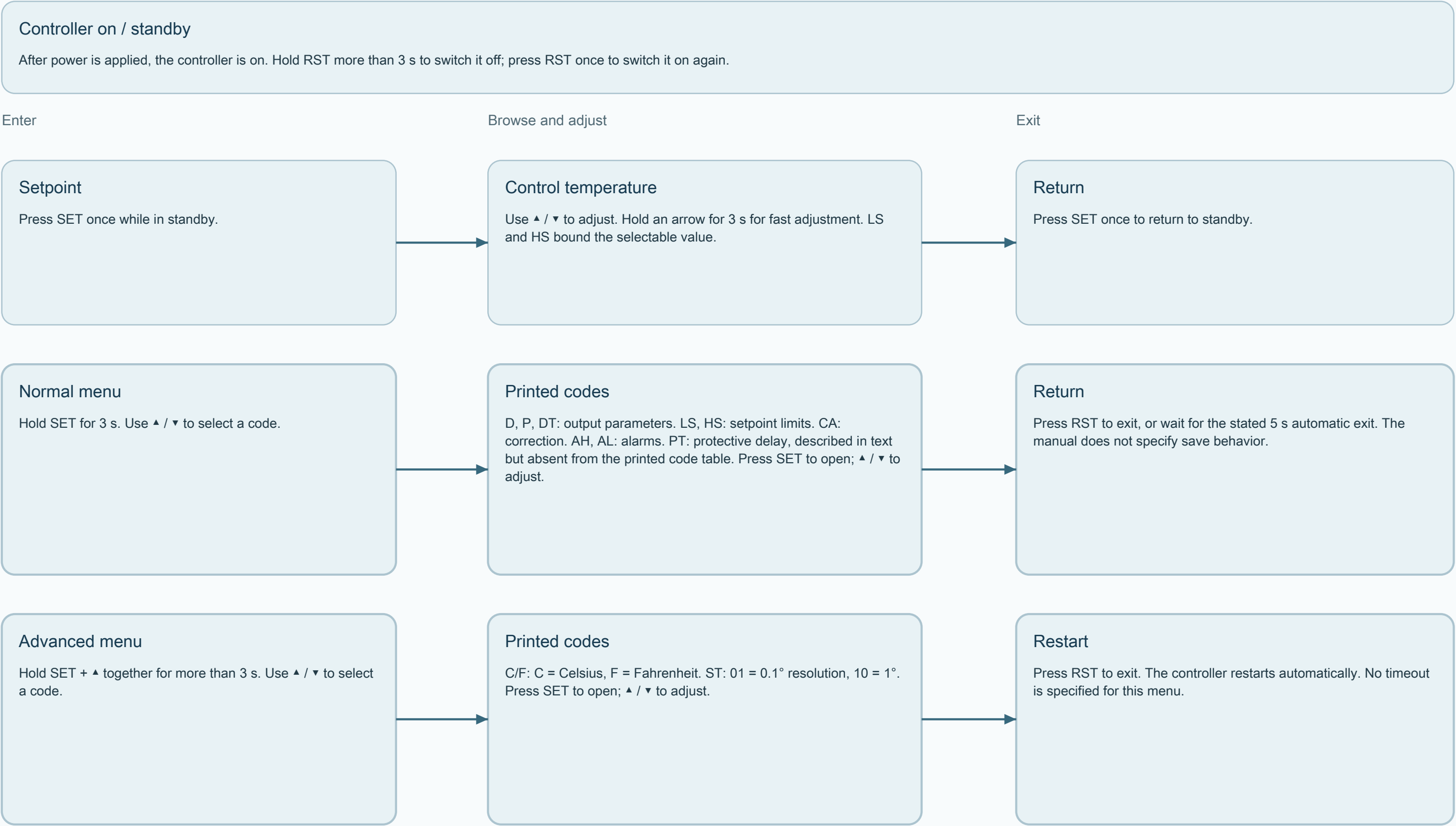
Arrows show data flow and conditions. This is not an electrical schematic or a firmware reconstruction.



Dashed arrows: the use of CA by alarms and regulation is unspecified. Also unspecified: nominal supply, sensor type, PID formula, switching thresholds, PT units, and output response to faults. Verify wiring against original page 2.

WH1435+ - menu map

Codes are grouped by entry path. The manual does not give their on-screen browsing order.



Lock switches: ON can lock set control parameters; the manual does not identify every blocked action.

Source: WH1435+ 产品说明书, pp. 2-4. Menu map: NordicLab | nordiclab.org | ko-fi.com/nordiclab