FRENGER®
systems

Touchscreen Thermostat T60-EH

User Guide

UK CA   C E   ErP✓

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LCD Main Display

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05 — Away

06 — OPT Optimum

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Wednesday / 16:40

23.5 °C
Room temperature
22.5 °C

17
16
15
14

08 09 10 11 12 13

4

Overview

01 Wi-Fi indicator - Displayed when connected to a Wi-Fi network (T60-EW only).

02 Hold: Temperature Hold / Timer Function.

03 Adjusting the optional settings.

04 Day Indicator and Clock.

05 Away: Allows a preset set-back temperature while away from the premises.

06 OPT (Optimum): Displayed ON/OFF of the "Adaptive/Optimum Start".

07 Air Humidity:
- If humidity value less than 30%, the pointer will be in the Red area
- If humidity value is between 30% and 60%, the pointer will be in the Green area
- If humidity value is more than 60%, the pointer will be in the Grey area

08 Power - ON/OFF.

09 Holiday: Displayed when thermostat is in holiday mode.

10 Schedule: Programmable operation.

11 Menu button / Feature settings.

12 Decrease the Setting Temperature / Previous Page in Feature Settings.

13 Increase the Setting Temperature / Next Page in Feature Settings.

14 Setting temperature display.

15 Room temperature display.

16 °C or °F display.

17 Displayed "Heating" flame.

Mode Selection

The T60 can either be used as a Thermostat or a Time-clock.

Thermostat Mode – Allows time and temperature settings to be made. The thermostat can be fully programmed to a specific temperature during a specific time.

The T60 provides three programming options:
• Weekday/Weekend (5 + 2) programming. Allows you to edit the 4 time periods for the weekdays and 4 time periods for Saturday and Sunday.
• 7 day programming mode can be programmed each day with 4 time periods.
• 24 hour mode. Every day can be edited with 4 time periods.

Time-Clock Mode – Allows only the time-clock setting to switch ON or OFF. This mode ignores any temperature.

To change between the two modes, follow these steps:

01 Press the icon ⚙ and enter Feature Settings.

02 Use the icons ◁ ▷ to go to section 5/5. Find 'Work Mode Selection', press it and enter selection interface.

03 When selecting 'Heating Mode' or 'Timer Mode' the thermostat will re-set and enter the desired mode.

MODE 1 - THERMOSTAT MODE / Operation of Main Display

Away Mode

01 The Away Mode is a shortcut button to easily change to a preset temperature when leaving the premises. The range is 7-35°C, default is 7°C.

02 In Away Mode, the T60 will only turn the heating ON if/when the room temperature drop below the set Away Temperature, this is configured in ⚙ Feature Settings. If the heating is turned on in Away Mode, the flame symbol will be displayed.

Optimum Start / Adaptive Start

The thermostat features an optimum/adaptive function that automatically changes heating start times, to ensure that the required set point temperature has been reached during a programmed period.

The thermostat collects data and calculates how much earlier the heating system must be turned on/off, to achieve the required set point temperature. The fixed rate of change is 15 minutes, the number of minutes for 1°C temperature rise.

01 Select/tap "ON" ⊘ in the OPT Optimum box, if you want the heating to run with optimum/adaptive function.

02 Select/tap "OFF" ⊗ in the OPT Optimum box, if you simply want the heating to start at the beginning of a set point.

Air Humidity

ⓘ Shows the indoor air humidity. When tapping on the icon, the display will simultaneously show the temperature and humidity. The rate can be calibrated in Feature Settings, section Humidity Sensor.

Hold Mode (Timer Function)

The Temperature Hold function allows you to manually override the current operating program and set a different temperature for a desired period.

01 Press the "Hold" and entry in setting interface.

02 Press the Second/Third columns of Hour/Minute, use the icons ◁ ▷ to set the desired "Hold Time".

03 Press the first column of "Hold Temp", use the icons ◁ ▷ to set the desired Hold Temperature, the temperature range is 5°C - 45°C.

04 Press the icon ↤ to save and return to main display, or press the "Cancel "to delete the setting.

You will see the "Hold **°C, Left **:**" indication displayed on top of the screen. The time will count down the duration and then revert to the normal program.

✈ Holiday Mode

The T60 will maintain this temperature for the duration of the holiday and will then automatically return to the program mode on your return.

01 Press the "Holiday" and enter setting interface.

02 For Holiday Start, press the column of Year / Month / Day. Use the icons ◁ ▷ to set the Year / Month / Day values under Holiday Start.

03 For Holiday End, press the column of Year / Month / Day. Use the icons ◁ ▷ to set the Year / Month / Day values under Holiday End.

04 Press the icon ↤ to save and return to main display.
Displayed "Holiday until **/** **:**" or press the "Cancel" to delete the setting.

📅 Schedule

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Schedule" option, Press it and enter setting interface.
There are four options: **Weekday/Weekend, 7 Days, 24 Hours or None.**

03 For example, setting the Program Mode to 7 Days.

04 Press the icon ◯ in the front of 7 Days, and it will turn to ◉ .

05 Press the icon ⬅ to save and return to main display.

06 Press the "Schedule" on the main display, and enter "Edit" interface.

07 On the edit page, from Monday to Sunday, can be selected to edit.

08 Press "Monday" and enter Monday's setting interface, Four Time Periods, can be selected.

09 The selectable periods are: Morning / Day / Evening / Night

(Each time period has 🔘 ⚪ options)

In the program of Monday:

Morning 🔘
01 Press the first column of 'Time', use the icons ◁ ▷ to set desired "Hour".
Press the second column of 'Time', use the icons ◁ ▷ to set desired "Minute".

For Example: The setting time is 04 (Hour): 00 (Minute)
Press the third column of 'Temperature', use the icons ◁ ▷ to set desired temperature.
For Example: The setting temperature is 27°C

Day 🔘
02 The same as Program Morning procedures.
For Example: The setting time is 10 (Hour): 40 (Minute)
For Example: The setting temperature is 24°C

Evening 🔘
03 The same as Program Morning procedures.
For Example: The setting time is 20 (Hour): 30 (Minute)
For Example: The setting temperature is 26°C

Night 🔘
04 The same as Program Morning procedures.
For Example: The setting time is 24 (Hour): 00 (Minute)
For Example: The setting temperature is 28°C

Four Time Periods
04:00-10:40: During this time period the temperature will remain at 27°C
10:40-20:30: During this time period the temperature will remain at 24°C
20:30-24:00: During this time period the temperature will remain at 26°C
24:00-04:00: During this time period the temperature will remain at 28°C

Feature Settings ⚙️

🌐 Language

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Language" option, press it and enter setting interface.

03 Select your desired language.

04 Press the icon ↩ twice to save and return to main display.

🌐 Time Zone Selection

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Time Zone Selection" option, press it and enter setting interface.

03 Select the time zone your desired.

04 Press the icon ↩ twice to save and return to main display.

🕐 Clock Setting

To set the clock, follow these steps:

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Clock Setting" option, press it and enter setting interface.

03 Press the column of Year / Month / Day, use the icons ◁ ▷ to set the values.

04 Press the column of "Time", use the icons ◁ ▷ to set Hours / Minute.

05 Press the icon ↩ twice to save and return to main display.

☀ Backlight Setting

Ambient Light Dimming: When this function is enabled, the light sensor will detect when to dim the back-light if the ambient light levels drop. If you turn the room lights off, the back-light will dim so the T60 does not light up the room.

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Backlight" option, press it and enter setting interface.

03 Ambient Light Dimming is in ⬤◯ Mode:
Automatic adjustment of the backlight brightness.

04 Ambient Light Dimming is in ◯◯ Mode:
Manual adjustment of the backlight brightness.

05 Use the icons ◁ ▷ to adjust to the desired brightness.

06 Press the icon ↩ twice to save and return to main display.

🖥 Standby Screen

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Standby Screen" option, press it and enter setting interface.

03 There are four selections, **3 Min / 10 Min / Just Night / Never**, to control the stand-by screen time.

04 For example, setting the standby time is for 10 minutes: press the icon ◯ in the front of "10 Min" and it will turn to ⊙ .

05 Press the icon ↩ twice to save and return to main display.

🔒 Screen Lock

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Screen Lock" option, press it and enter setting interface.

Lock Pin ⬤◯ ◯⬤ **Options**

03 For example, set your personal pin code to **5209**

Press the First Column use the icons ◁ ▷ to set to **5**
Press the Second Column use the icons ◁ ▷ to set to **2**
Press the Third Column use the icons ◁ ▷ to set to **0**
Press the Fourth Column use the icons ◁ ▷ to set to **9**

04 Press the icon ↩ twice to save and return to main display.

The setting will be effective after the thermostat has been in stand-by mode.

Note: To unlock the T60. Enter your four digit pin code. If you forget your pin code...

Master Key
8657

🛜 **Network Setting** ⓘ Applies only for T60-EW

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Network Setting" option, press it and enter setting interface.

03 Find your network and mark it.

04 Press the icon ↩ twice to save and return to main display.

📱 **Pairing to App (Smart Config)** ⓘ Applies only for T60-EW

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Pairing to App" option, press it and an automatic scanning will start.

03 Find your network and mark it.

04 Press the icon ↩ twice to save and return to main display.

🌡️ Temperature Format

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Temp Format" option, press it and enter setting interface.

03 There are two options **°C** / **°F**.

04 Press the icon ◯ in the front of **°C** or **°F** and it will turn to ⬤ .

05 Press the icon ↩️ twice to save and return to main display.

📊 Temperature Limit

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Temp Limit " option, press it and enter setting interface.

03 Press the first column, use the icons ◁ ▷ to adjust min. temp. between 5-44°C.

04 Press the second column, use the icons ◁ ▷ to adjust max. temp. between 6-45°C.

05 Press the icon ↩️ twice to save and return to main display.

📅 Schedule

01 Press the icon ⚙️ and enter Feature Settings.

02 Find the "Schedule" option, press it and enter setting interface.
There are four options: **Weekday/Weekend, 7 Days, 24 Hours or None.**

03 For example, setting the program mode to 7 Days.

04 Press the icon ◯ in the front of 7 Days, and it will turn to ⬤.

📶 Switch Diff

ⓘ This function allows you to increase the switching differential switching differential

of the thermostat. The system defaults to 0.5°C, meaning that when the temperature is set to 20°C, the thermostat will start heating at 19.5°C and stop at 20°C. If the default value is 1° degree, start heating at 19°C, stop at 20°C.

The switching differential is settable between 0.5°C - 3°C .

Output Delay

(i) To prevent rapid switching, an output delay can be entered. This can be set from 0-15 minutes. The default is 0, meaning no delay. This function helps to prevent system "Short-cycling".

Away

A preset temperature while away from the house. The range is 7-35°C, default is 7°C. To change/set the temperature, follow these steps:

01 Press the icon {⚙} and enter Feature Settings.

02 Find the "Away" option, press it and enter setting interface.

03 Use the icons ◁ ▷ to adjust the temperature.

04 Press the icon ↩ twice to save and return to main display.

Defrost

The thermostat automatically enter the Defrost Mode when the room temperature drops below the defrost temperature. The range is 7-17°C. The default is 7°C and is suitable for most applications.

01 Press the icon {⚙} and enter Feature Settings.

02 Find the "Defrost" option, press it and enter setting interface.

Temperature 🔘⚪ Options.

03 Use the icons ◁ ▷ to adjust the temperature.

04 Press the icon ↩ twice to save and return to main display.

NTC Sensor Selection and Calibration

Sensor Selection. You can select which sensor should be used, there are five options:

• Built in Sensor (default)
• Remote Air Sensor (external sensor)
• Floor Sensor Only (external sensor)
• Built in & Floor Sensor
• Remote Air & Floor Sensor

Note: When you enable "Remote Air & Floor Sensor", the floor sensor is used as a floor limiting sensor and is designed to prevent the floor from overheating.

Note: The Remote Air Sensor must not be used for controlling electric underfloor heating. Only floor sensors are available or both (Remote Air & Floor Sensor) should be used.

If the optional air- or floor sensor is not supplied by Frenger Systems, an 10 kΩ sensor must be used together with the thermostat.

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Sensor Selection" option, press it and entry in setting interface.

03 Press the icon ◯ of which sensor you required.

04 Press the icon ↩ twice to save and return to main display.

Temperature Calibration of the Sensors. You can calibrate the sensors with ± 5°C in steps of 0.5°C, in the following way:

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Sensor Selection" option, press it and entry in setting interface.

03 Press the icon ● of which sensor you want to calibrate.

04 Built in Sensor (Default):   Tap it to entry calibration screen
Remote Air Sensor: Tap it to entry calibration screen
Floor Sensor Only: Tap it to entry calibration screen

05 Select the chosen value, you must then offset the thermostat to reflect the temperature actually measured, air or floor.

06 Press the icon ↩ twice to save and return to main display.

⬤% Humidity Sensor - Calibration

This option allows you to calibrate the humidity sensor. You should only calibrate the sensor if the reading differs from the actual air humidity.

You can calibrate the sensor with ± 30% in steps of 1% in the following way:

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Humidity Selection" option, press it and entry in setting interface.

03 Press the icons ◁ ▷ to adjust and set the measured room humidity.

04 Press the icon ↩ twice to save and return to main display.

⊞ Open Window Function

Function description: The thermostat turns the heat off for 15 minutes, if it detects that the temperature drops by more than three degrees in less than one minute.

You can enable or disable the this function in the following way:

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Open Window Function" option, press it and entry in setting interface.

03 Press the icon ⬤ or ⬤ to enable or disable the function.

04 Press the icon ↩ twice to save and return to main display.

▣ Floor Temperature Limit

The function is available when the floor sensor is enabled. You can set a floor temperature limit between 20-45°C, the default is 28°C.

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Floor Temp Limit" option, press it and entry in setting interface.

03 Press the icons ◁ ▷ to set the temperature.

04 Press the icon ⬸ twice to save and return to main display.

⊙ OPT Optimum Start / Adaptive Start

(i) The function is selected in the main display.

▣ DST Daylight Saving Time (DST)

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "DST" option, press it and enter the setting interface.

Auto DST ⬤▭ ▭⬤ **Options**

03 There are three options: **European Union /US & Canada / Australia & New Zealand**

04 Press the icon ◯ in the front of your choice and it will turn to ⬤ .

05 Press the icon ⬸ twice to save and return to main display.

⬚ Work Mode Selection

(i) Select if you want the thermostats to work in **Heating Mode** or **Timer Mode**. The thermostat will restart and enter the desired mode.

⚠ Note! Be sure you know how the different modes work. Description of the **Timer Mode** (Mode 2 - Time Clock) on page 20 in the user guide.

(i) System Information

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "System Information" option, press it and enter the setting interface.

03 The version number and ID number could come in handy in case of a warranty.

04 Press the icon ⬸ to exit.

Reset To Factory Settings

01 Press the icon ⚙ and enter Feature Settings.

02 Find the "Reset To Factory Settings" option, press it and enter the setting interface.

03 Press 'Reset' for factory settings.

04 The thermostat will automatically restart.

⚠ **Warning!**
Reset will make you lose the current settings and return to the factory settings.

MODE 2 - TIME CLOCK

Setting the Time Clock

To program the time clock times, when in time clock only mode, follow these steps.

01 Press "Schedule" on the main display.

02 Press 'Weekday' or 'Weekend' and enter setting interface.

Four time periods, Morning / Day / Evening / Night, can be selected to program. (Each period has ON/OFF icon ⬤◯ ◯ options)

03 Press the 'Hour' frame of the ON time and use the icons ◁ ▷ to adjust to the desired hour.

04 Press the 'Minute' frame of the ON time and use the icons ◁ ▷ to adjust to the desired minutes.

05 Press the 'Hour' frame of the OFF time and use the icons ◁ ▷ to adjust to the desired hour.

06 Press the 'Minute' frame of the OFF time and use the icons ◁ ▷ to adjust to the desired minutes.

07 Repeat these steps to set all periods.

Boost Mode

The Boost function allows you to override the thermostat outside of the programmed times and manually turn on for your desired time period.

This function overrides the thermostat for a desired length of time. This can be to override on or override off. To activate the Boost, follow these steps.

01 Press "Boost" on the main display.

02 Select your desired 'Boost' mode ON or OFF.

03 Press the 'Hour' frame and use the icons ◁ ▷ to set the desired hours.

04 Press the 'Minute' frame and use the icons ◁ ▷ to set the desired minutes.

05 Press the icon ↰ to save and return to the main screen.

06 The remaining boost time, will be displayed at the top of the display.

07 To cancel 'Boost', press 'Boost' main icon and press cancel.

Notes

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Operating voltage / Power supply	85-230VAC, 50/60Hz
Standby power	< 1.0W
Rated Current / Relay	16A resistive load, 230V
Setting range, temperature	5-45°C
Floor limitation, temperature range	20-45°C
On/Off differential	±0.5°C
Humidity sensor, air	0-100%
Operating modes	**Three programming modes:** Weekday/Weekend (5 + 2) - edit/set 4 time periods per day Seven day programming (7) - edit/set 4 time periods per day 24 hours mode - edit/set 4 time periods **Hold/Timer mode:** - activate and adjust a boost period of up to 24h, by optional setting range temperature **Home/Away mode:** - the thermostat will turn on the heating, if the room temperature drops below the set value. **Holiday mode:** - calendar based and programmable in advance. **OFF mode:** - frost protection included, by adjustable temperature range
Battery backup	2 months
Wireless standard, for T60-EW	Wi-Fi 802.11 b/g/n (2.4G)
Appliance and protection class	Class II - IP20
Size, dimensions (H/W/D)	86/96/44 mm
Build-in depth	30 mm
Installation type	Flush, hole pitch 60 mm
Terminals	2.5 mm², screw cage clamp
Terminal wire size	max. 2.5 mm²
Display size	3.5" - Color capacitive touch
Display resolution	480x320 TFT
Optional external floor sensor	NTC (10 kΩ), Class II, 3 meter
Optional external room/air sensor	NTC (10 kΩ), Class II, 3 meter
Max. length sensor cable	50 m, 2 x 1.5 mm²
CE UKCA	- Low Voltage Directive 2014/35/EU - EMC Directive 2014/30/EU - RoHS Directive 2011/65/EU - Radio Equipment Directive 2014/53/EU - Electrical Equipment (Safety) Regulations 2016 - Electromagnetic Compatibility Regulations 2016

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