

OPERATING MANUAL

TERM08G PRO

Multi-channel temperature monitor and logger

KEY BENEFITS

**PRECISION**Accurate process
and measurement control**SAFETY**Protection at the
highest level**RELIABILITY**Stable and dependable
operation**UPDATES**Continuous improvement
and new features

IN THIS MANUAL

- Device and safety information
- Installation and connection
- Configuration and operation
- Functions and settings
- Troubleshooting
- Updates and service

DOCUMENTATION AND SUPPORT

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CONTENTS AND SCOPE OF THE MANUAL

TERMO8G PRO / FIRMWARE 1.1.0

BASE VERSION

This manual describes TERMO8G PRO WiFi with firmware 1.1.0, build PROD-FULL, project status as of 09.09.2026. The visualizations show the screen and web interface layout of this version. Later updates may extend features or change minor interface elements.

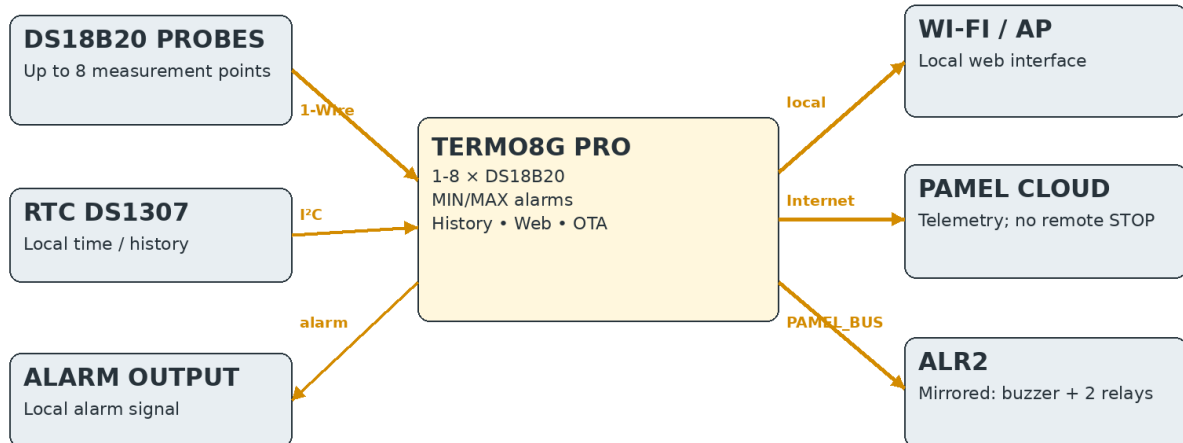
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Check the supply parameters, output load ratings and connector design on the markings of the specific unit. The software manual does not replace the rating plate.

1. PRINCIPLE OF OPERATION

MOST IMPORTANT INFORMATION BEFORE USE

TERMO8G PRO is a multi-channel thermometer and temperature logger. It simultaneously supports from 1 to 8 digital DS18B20 probes. Each installed probe has its own name, calibration and independent minimum and maximum temperature alarm.



TERMO8G PRO monitors temperature. It is not a power regulator or heater controller.

Information flow in TERMO8G PRO 1.1.0.

- Measurements are shown on the touch screen and on the local web page.
- For each probe you can set the MIN threshold, MAX threshold, hysteresis, delay, multiplier and offset.
- An active alarm can switch the local alarm output and - when ALR2 is available - its buzzer and two relays.
- The device stores temperature history, an event log and operating counters.
- Wi-Fi is used for the local web interface, updates, time synchronization, downloading contact data and PAMEL CLOUD telemetry.

IMPORTANT

TERMO8G PRO does not control a heater or process power. Firmware 1.1.0 has no temperature controller, heater START/STOP or remote cloud STOP. It is a measurement and alarm device.

2. APPLICATIONS

HOW TO USE EIGHT INDEPENDENT MEASUREMENT POINTS

The main advantage of TERMO8G PRO is the ability to observe one process at several points at the same time. Probe names let you describe them according to the actual installation.

Smokehouse

CHAMBER, MEAT 1, MEAT 2, SMOKE, INLET, OUTLET, HEATER/GUARD, AMBIENT. A MAX alarm can warn about excessive product or chamber temperature.

Distillation

BOILER, HEAD, COLUMN, RETURN, COOLER INLET/OUTLET and additional points. Here TERMO8G PRO is used to observe the temperature profile - it does not control valves or power.

Heating system

SUPPLY, RETURN, BUFFER TOP/MIDDLE/BOTTOM, DHW, FLOOR LOOP, BOILER ROOM. Temperature differences between points are easy to see.

Cold room / storage

Several chamber zones, product and return air. MIN and MAX alarms make it easier to detect temperatures outside the required range.

Brewery / processing

Vat, fermenter, cooling, product and ambient. The event log helps correlate threshold violations with time.

Greenhouse / laboratory

Comparison of several zones, medium, surface and ambient temperature. Individual probe calibration lets you correct differences within the measurement set.

SAFETY LIMITATION

Do not use TERMO8G PRO as the sole safeguard for a process where a failure could cause fire, equipment damage, product loss or danger to people. Such installations require independent hardware safeguards.

3. SAFETY

RULES FOR INSTALLATION AND OPERATION

- Switch off TERMO8G PRO before connecting or disconnecting probes. The probe installation wizard explicitly requires power to be off when connections are changed.
- Do not connect 230 V mains voltage directly to the electronics pins, probe bus, RTC or GP6 signal. The alarm output implementation depends on the hardware version.
- Do not exceed the rated supply and connector parameters stated on the enclosure or device rating plate.
- Route measurement cables away from high-power cables and strong interference sources. Do not damage probe or cable insulation.
- Do not immerse any part of a probe that is not designed for immersion. Select the probe version for the temperature, humidity, product and environment.
- Do not leave the open AP access point active in a public location. The AP in version 1.1.0 is intentionally open and the local web page does not require an additional configuration PIN.
- Ensure a stable power supply before an OTA update. Do not switch the device off during writing and restart.
- After calibrating a probe, verify the result at a known reference temperature. An incorrect multiplier or offset can shift readings and alarm thresholds.
- A missing probe reading (`---`) means there is no valid measurement. Do not assume this state will be treated as a MIN/MAX alarm.

OPERATION AND CLEANING

Clean the device with power disconnected using a soft, slightly damp cloth. Do not use aggressive solvents or a water jet. Do not press the resistive screen with sharp tools.

VERSION-DEPENDENT FUNCTIONS

PAMEL CLOUD, ALR2, RTC and update behavior depend on equipment, firmware version and network infrastructure. Local measurement functions do not require Internet access.

4. TECHNICAL DATA AND LIMITATIONS

CONFIRMED FOR FIRMWARE 1.1.0

PARAMETER	VALUE / RULE
Platform	Raspberry Pi Pico 2 W / 2 WH, MicroPython
Display	Waveshare Pico-ResTouch-LCD-2.8, ST7789, 320 x 240
Touch	XPT2046, resistive; 5-point calibration
Probes	1-8 x DS18B20; identification by unique ROM address
Temperature display	0.1 °C on screen/web
MIN/MAX alarm	separate for each probe; setting range -55...125 °C
Hysteresis	0.1...20.0 °C
Alarm delay	0...3600 s
Calibration	multiplier 0.5000...1.5000; offset -30.00...+30.00 °C
Probe names	up to 16 characters
Wi-Fi	up to 5 saved networks; AP starts after unsuccessful connection attempts
Fallback AP	PAMEL-TERMO8G-PRO; open; typical address 192.168.4.1
Local web	phone/PC on the same network or directly connected to the AP
RTC	DS1307; NTP synchronization is possible when Internet access is available
Event log	last 100 events in the current implementation
History	circular buffer; oldest data are replaced by newer data
PAMEL_BUS	only the ALR2 module is supported in version 1.1.0
microSD	not supported in firmware 1.1.0; pins are reserved only
Heater control	none
Languages	PL, CZ, SK, EN, DE, UA

ELECTRICAL PARAMETERS

Check supply voltage, connector type, load rating and alarm signal output implementation on the markings of the specific hardware version. These are not defined by firmware and must not be guessed from this manual.

5. CONNECTION AND INSTALLATION

FOR THE USER AND INSTALLER

Firmware 1.1.0 confirms the internal signal assignment shown below. This does not mean that all pins are accessible outside the enclosure. Always follow the connector markings of the specific unit.

FUNCTION	PROJECT SIGNAL
DS18B20 DATA	GP4; 1-Wire bus; the design includes a 4.7 kΩ pull-up to 3.3 V
RTC DS1307	SDA GP2, SCL GP3
Alarm signal	GP6, active high in the 1.1.0 configuration
LCD / touch	internal GP8-GP17 pins according to the Waveshare panel design
GP18-GP22	reserved for future microSD; no SD driver in version 1.1.0

Basic installation sequence

1. Switch off the device power supply.
2. Connect the DS18B20 probes to the designated sockets/cables according to the device markings.
3. If you use an RTC or external alarm, connect it only according to the schematic for the specific hardware version.
4. Switch on the power. Wait until the RTC, MEMORY, TOUCH, WI-FI, PROBES, WEB and INTERFACE startup stages have completed.
5. If the probes have not been installed before, follow the procedure in section 7.
6. After installation, check every temperature and test the alarm using safe settings.

DO NOT CONNECT 230 V TO GP6

GP6 is a logic signal defined by the software. If the device provides a ready-made power output, its voltage and load rating are determined by the hardware, not by the GPIO number.

6. FIRST STARTUP

STARTUP SCREEN AND TEST SEQUENCE



Startup screen - visualization of firmware 1.1.0 stages.

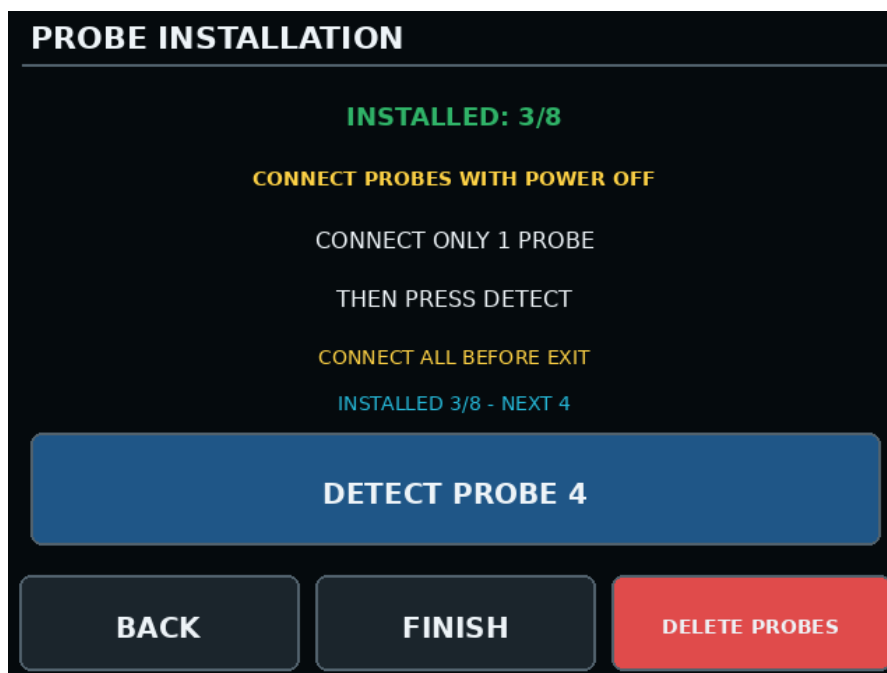
1. RTC DS1307 - the program checks the clock. The absence of an RTC does not stop basic temperature measurement.
2. MEMORY - settings, history, events, counters and device identification are loaded.
3. TOUCH - the saved calibration is used. If no calibration file exists, the 5-point procedure starts.
4. WI-FI - the controller tries the saved networks for a total of up to about 20 s. If it cannot connect, it starts an open AP.
5. PROBES - the physical DS18B20 devices are scanned. Previously installed positions remain in memory even when a probe does not respond.
6. WEB - the local web server starts.
7. INTERFACE - the home screen appears.

WHAT TO DO IF STARTUP STOPS

Write down the name of the last stage visible on screen and the error text. When contacting service, also provide the firmware version and a photo of the screen.

7. PROBE INSTALLATION

PERMANENT ASSIGNMENT OF DS18B20 ADDRESSES



MENU > PROBE INSTALLATION

TERMO8G PRO recognizes a probe by its unique ROM address. The installation is stored in memory and creates a fixed order from 1 to 8. Therefore, a disconnected or damaged probe does not shift the numbers of the remaining channels.

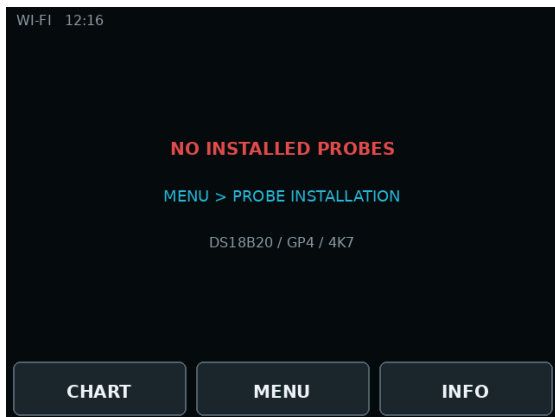
1. Switch off the power and leave only the probe that you want to install now connected.
2. Switch on TERMO8G PRO and open: MENU > PROBE INSTALLATION.
3. Press DETECT PROBE. The program requires exactly one physically detected probe.
4. When INSTALLED appears, remember the channel number. Switch off the power, connect the next probe and repeat.
5. Before pressing FINISH, connect all intended probes with the power off, then start the device and finish the installation.
6. DELETE PROBES removes all assignments. On the TFT, a second confirmation is required within about 5 s.

TYPICAL MESSAGES

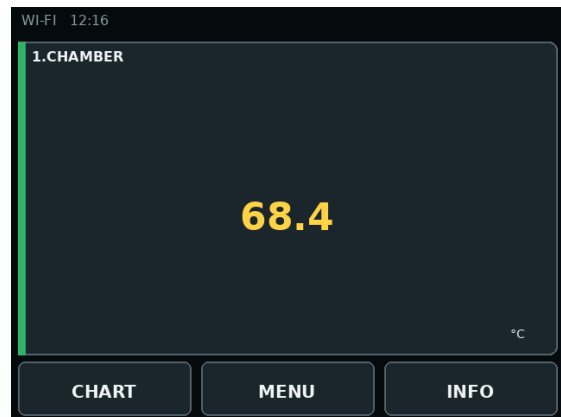
NO PROBE DETECTED - no response. CONNECT ONLY ONE PROBE - more than one was detected during installation. PROBE ALREADY INSTALLED - the ROM address is already assigned. MAX. 8 PROBES - no free channel.

8. HOME SCREEN - 0/1/2/4 PROBE LAYOUT

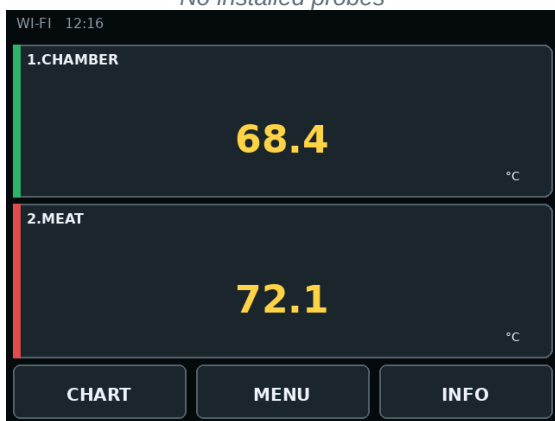
AUTOMATIC TILE SIZE ADJUSTMENT



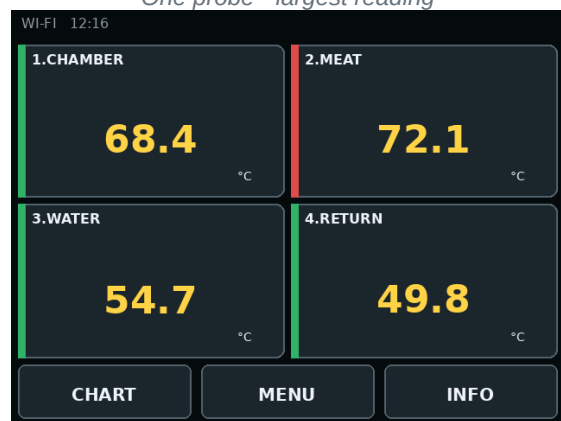
No installed probes



One probe - largest reading



Two probes - one below the other

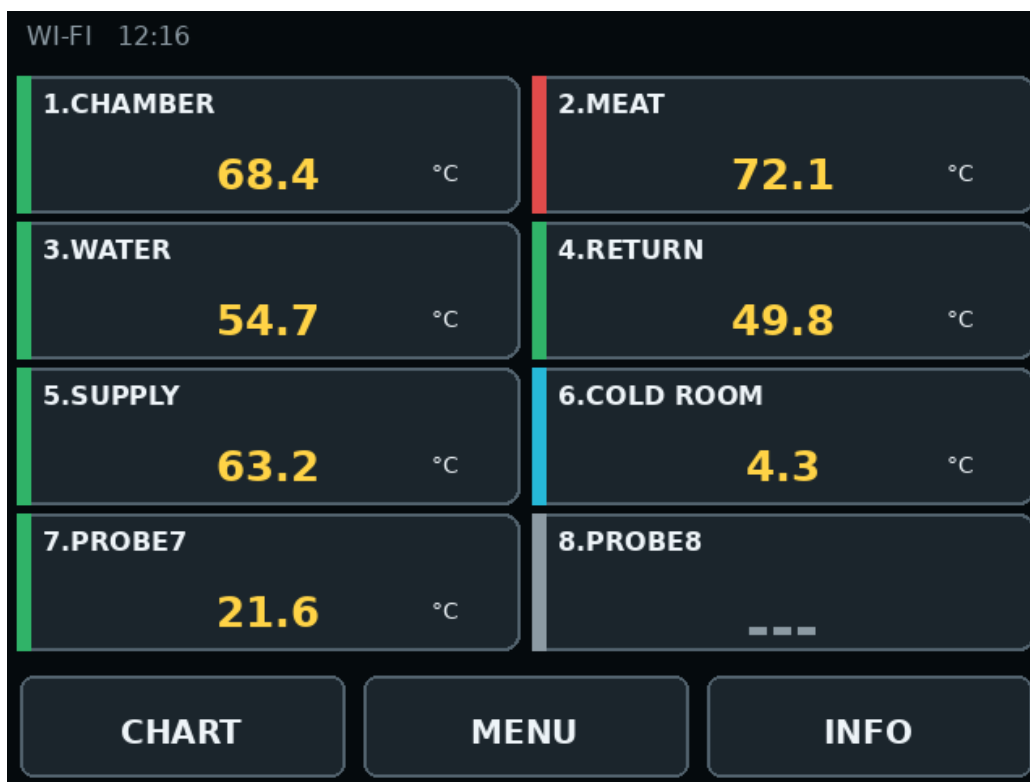


Three/four probes - 2 x 2 layout

- The top bar shows the network state (WI-FI or AP) and time.
- The number before the name is the permanent probe position in the installation order.
- The yellow value is the current temperature after the multiplier and offset have been applied.
- The bottom buttons open CHART, MENU and INFO/SYSTEM.
- With 5-8 probes, the screen changes to two columns and up to four rows.

8. HOME SCREEN - 5 TO 8 PROBES

STATUS OF EVERY TEMPERATURE ON ONE SCREEN



Example: eight installed channels, with a MAX alarm, a MIN alarm and one missing probe.

COLOR / MARK	STATE	MEANING
green bar	OK	measurement present and no active MIN/MAX alarm
red bar	TOO HIGH	active MAX alarm after the configured delay
light blue bar	TOO LOW	active MIN alarm after the configured delay
gray bar + ---	PROBE MISSING	installed channel does not provide a measurement

Touching a tile opens details for that probe. The value `---` is not 0 °C - it means there is no valid reading.

NORMAL OPERATION

After probes are installed, most daily operation is performed from this screen. The user can observe all points simultaneously and open only the channel that needs an alarm or calibration change.

9. CHART

TEMPERATURE CHANGE HISTORY

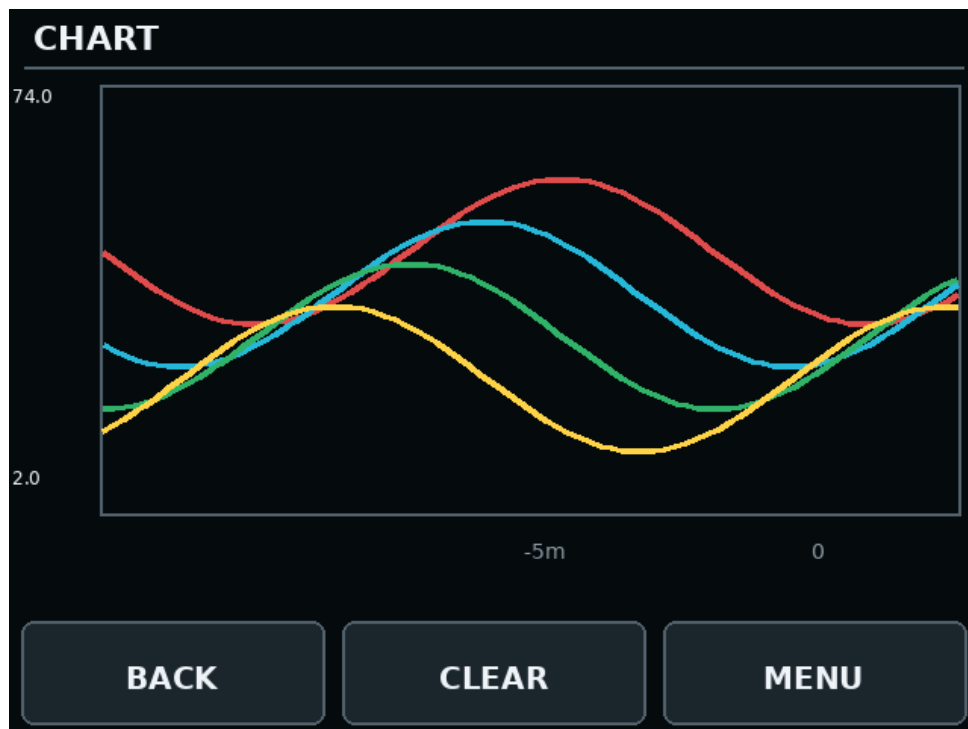


CHART - lines correspond to installed probes.

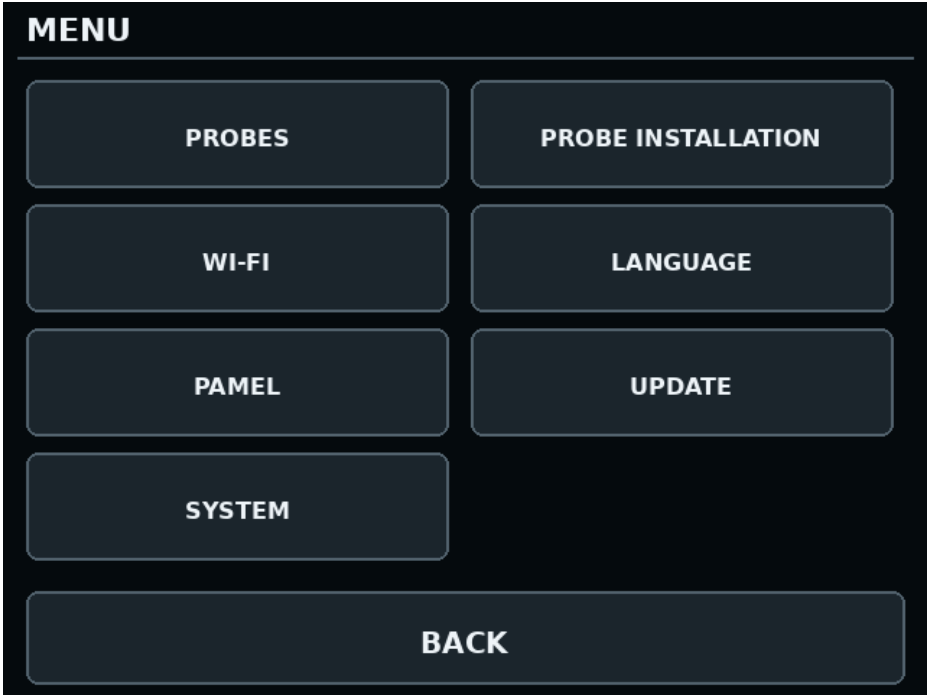
- The vertical axis adjusts to the current data range and adds a small margin above the minimum and maximum.
- The time axis shows the age of samples, for example minutes or hours ago; `0` means the present moment.
- CHART uses a circular history buffer. When it is full, the oldest points are replaced by newer ones.
- CLEAR removes temperature history from the current buffer and history file. It does not change probe configuration or counters.
- If there are no data, NO DATA is displayed.

HISTORY IS NOT A LEGAL ARCHIVE

Internal memory is limited and intended for diagnostics and process observation. If you need long-term or formal records, use an additional archiving system.

10. MAIN MENU

ALL LOCAL SCREEN FUNCTIONS



MENU - set of functions available on the touch screen.

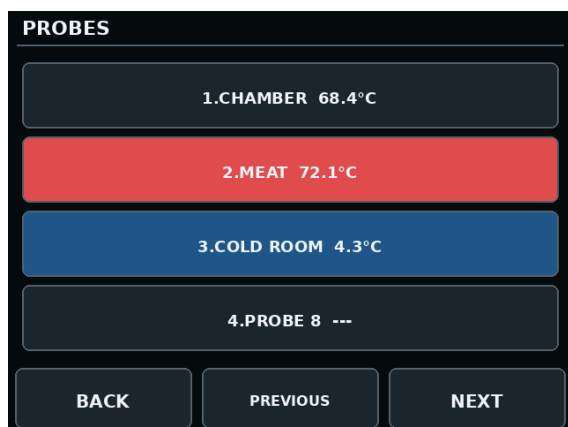
ITEM	OPENS
PROBES	list of installed channels and access to details
PROBE INSTALLATION	add DS18B20 probes one at a time, finish installation or delete assignments
WI-FI	connection state, SSID, IP and local web information
LANGUAGE	PL/CZ/SK/EN/DE/UA
PAMEL	current contact data from the server or cache
UPDATE	check and install OTA
SYSTEM	version, RTC, IP, ALR2, uptime, counters and touch

BACK

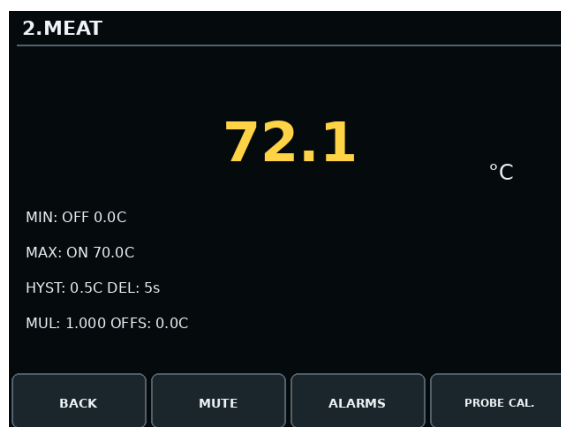
The BACK button at the bottom returns to the home screen. Alarm and calibration parameter changes are saved automatically after a short delay to avoid writing FLASH memory after every single touch.

11. PROBE LIST AND PROBE DETAILS

NAVIGATION THROUGH CHANNELS 1-8



PROBES list - 4 channels per page



Details of the selected channel

Probe list

- PREVIOUS/NEXT changes pages of four probes.
- A red background indicates a MAX alarm, a blue background a MIN alarm.
- Touching a row opens the page for the selected probe.

Probe details

- The large value shows the calibrated temperature; `---` means no measurement.
- MIN and MAX show ON/OFF state and the programmed thresholds.
- HIST is hysteresis, DEL is delay, MUL is multiplier and OFF is offset.
- MUTE on the TFT silences the signal from that probe for 15 minutes. The alarm state and screen indication remain visible.
- ALARMS opens the thresholds and PROBE CAL. opens multiplier and offset.

12. ALARMS SCREEN

MIN, MAX, HYSTERESIS AND DELAY

ALARMS

MIN ALARM
OFF
0.0°C

MAX ALARM
ON
70.0°C

HYSTERESIS
0.5°C

DELAY
5s

BACK

-

+

ON/OFF

ALARMS - touch a row, then use - / + or ON/OFF.

PARAMETER	FUNCTION	RANGE	DEFAULT	NOTE
MIN ALARM	lower threshold	-55...125 °C	0.0 °C	OFF
MAX ALARM	upper threshold	-55...125 °C	100.0 °C	OFF
HYSTERESIS	prevents rapid switching around the threshold	0.1...20.0 °C	0.5 °C	always active for an enabled alarm
DELAY	continuous threshold violation time before entering alarm	0...3600 s	5 s	applies when entering MIN/MAX

- On the TFT, MIN/MAX thresholds normally change by 0.5 °C, hysteresis by 0.1 °C and delay by 1 s.
- Holding - or + accelerates the change: the step first becomes larger and becomes still faster after a longer hold.
- ON/OFF affects only the currently selected MIN ALARM or MAX ALARM.

EXAMPLE

MAX = 70.0 °C, HIST = 0.5 °C, DELAY = 5 s. The alarm appears only when the temperature remains above 70.0 °C for the required time. After the alarm, MAX remains active until the temperature falls to about 69.5 °C or lower.

13. PROBE CALIBRATION

MULTIPLIER AND OFFSET

The screenshot shows a black screen with the title 'CALIBRATION' at the top. Below the title, there are two main sections: 'MULTIPLIER' and 'OFFSET'. The 'MULTIPLIER' section is a blue box with the text 'MULTIPLIER' on the left and '1.0000' on the right. The 'OFFSET' section is a dark grey box with the text 'OFFSET' on the left and '0.00 °C' on the right. At the bottom of the screen, there are three buttons: 'BACK', '-', and '+', each in a dark grey box.

CALIBRATION - select MULTIPLIER or OFFSET and use - / +.

The program calculates the displayed value according to:

FORMULA

displayed temperature = raw temperature × MULTIPLIER + OFFSET

PARAMETER	RANGE	TFT STEP	DEFAULT
MULTIPLIER	0.5000...1.5000	0.001; faster when held	1.0000
OFFSET	-30.00...+30.00 °C	0.1 °C; faster when held	0.00 °C

- Offset shifts the entire result by a constant value. Example: if the reading is 49.7 °C and the reference is 50.0 °C, set an offset of +0.3 °C.
- The multiplier changes the measurement scale and should only be adjusted when you have a reliable reference point or several reference points.
- Alarms operate on the temperature after calibration has been applied. After a larger calibration change, check the MIN/MAX thresholds again.

PRACTICAL ADVICE

For most new probes, leave MULTIPLIER = 1.0000 and make only a small offset correction after comparison with a reliable reference.

14. WI-FI ON THE TFT SCREEN

HOME NETWORK MODE AND FALLBACK AP



MENU > WI-FI - information screen.

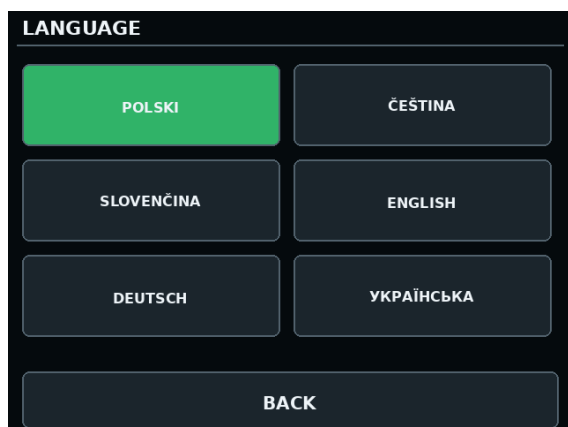
- TERMO8G PRO remembers up to 5 networks and tries them in the saved order at startup.
- The total connection attempt window is up to about 20 s. If connection fails, the device starts its own AP access point.
- AP name: PAMEL-TERMO8G-PRO. In firmware 1.1.0 the AP is open, with no Wi-Fi password.
- In AP mode the typical web address is <http://192.168.4.1/>.
- On home Wi-Fi, open the IP address shown on the screen, e.g. <http://192.168.1.84/>. The phone/PC must be on the same local network.
- Changing the network, scanning and deleting saved networks are done through the web page. After a new network is saved, the controller schedules a restart and tries it first.

OPEN AP

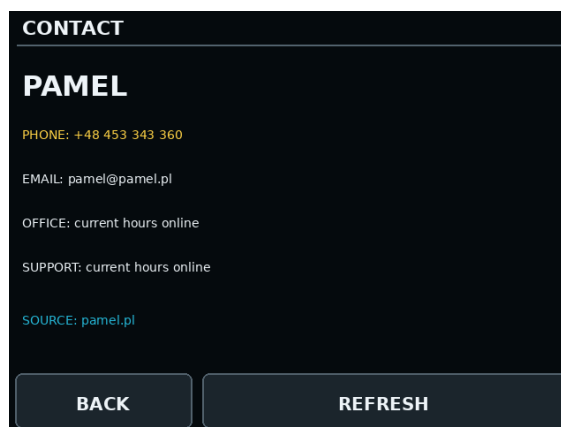
Anyone within range of the open AP can connect to the device's local web page. After configuring the intended Wi-Fi, do not leave the device unnecessarily in AP mode in a publicly accessible location.

15. LANGUAGE AND PAMEL CONTACT

SETTINGS SHARED BY TFT AND WEB



Language selection



PAMEL contact data

LANGUAGE

- Available: POLSKI, ČEŠTINA, SLOVENČINA, ENGLISH, DEUTSCH, УКРАЇНСЬКА.
- The selected language is highlighted in green and saved in the settings.
- The web page loads labels matching the device language.

CONTACT

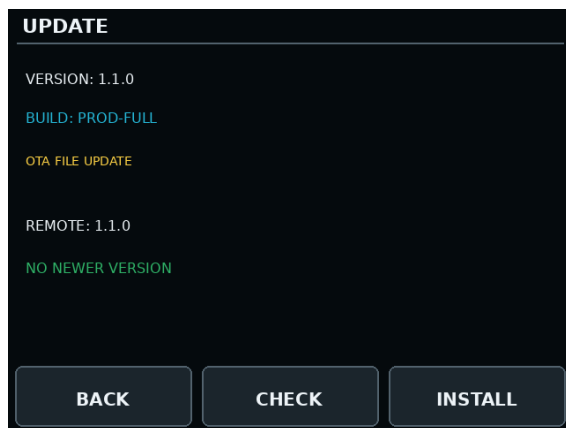
- The screen shows the company, phone, e-mail, office/support hours and data source.
- REFRESH attempts to download current data. Without Internet access, the last saved set is used; if there is no cache, fallback data from the program are used.
- Basic contact: PAMEL, Urodzajna 5E, 42-300 Myszków, pamel@pamel.pl, +48 453 343 360.

CURRENT DATA

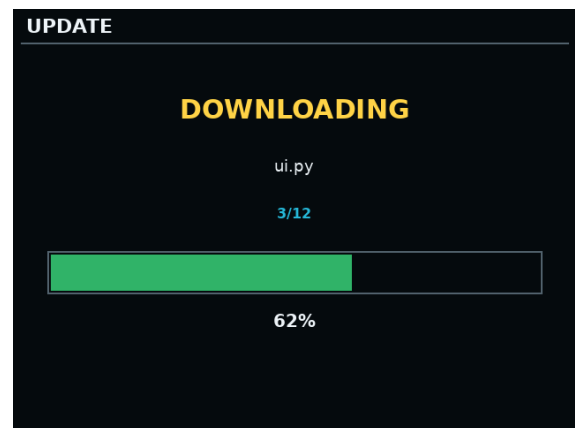
Office hours and contact details may change. Treat www.pamel.pl and serwer.pamel.pl as the current sources.

16. OTA UPDATE

VERSION CHECK AND INSTALLATION



Update screen



Download / verification progress

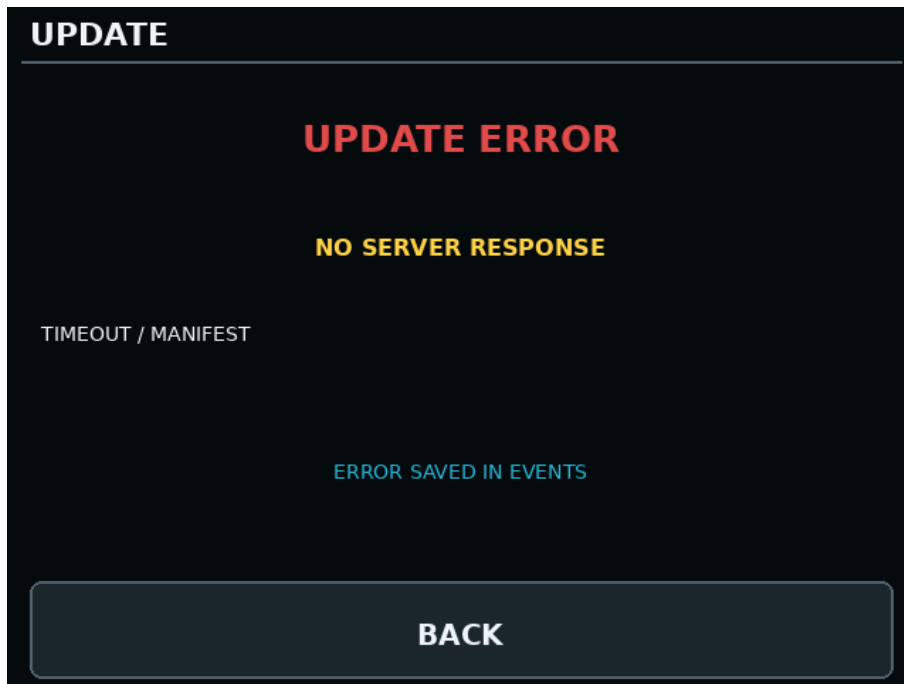
1. Open MENU > UPDATE and press CHECK. Internet access is required to check.
2. If the server reports a newer version, press INSTALL.
3. During the process, stages may appear such as: CHECKING, MANIFEST, DOWNLOADING, VERIFYING, WRITING, DONE.
4. Files are downloaded as temporary versions and their integrity is checked using SHA-256.
5. When the files are ready, the device restarts. boot.py applies the new version and keeps the copies needed to roll back changes.
6. After a successful startup, the new version is accepted.

DO NOT INTERRUPT POWER

In particular, do not switch off the power during WRITE and RESTART / INSTALLATION. The update changes program files.

16. OTA UPDATE - ERRORS AND ROLLBACK

WHAT THE DEVICE DOES IF THE UPDATE FAILS



An OTA error remains on screen until the user deliberately confirms BACK.

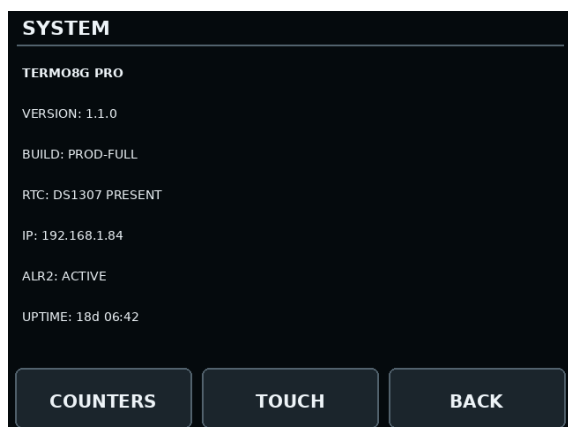
- Typical causes include: no Internet, no manifest, a manifest with no files, download error, verification error or write error.
- The screen shows a clear message and a short technical detail. The event is also stored in the log.
- The error message does not disappear automatically on subsequent screen refreshes. The user confirms it with BACK.
- If a new version was applied but does not reach the successful startup point, the OTA mechanism can restore files from .bak copies on the next boot.
- Touch calibration and the lock assigned to the specific device are persistent files and are not part of normal public OTA updates.

AFTER AN ERROR

Do not repeatedly install "blindly". First check the Internet connection and time. If the error repeats, copy the web report and event log and give service the version 1.1.0 / PROD-FULL.

17. SYSTEM AND COUNTERS

DEVICE DIAGNOSTICS



SYSTEM



COUNTERS

The SYSTEM screen shows:

- model, firmware version and build;
- presence of the DS1307 RTC;
- local IP address;
- ALR2 state;
- total operating time stored by the counter.

COUNTERS are persistent and include:

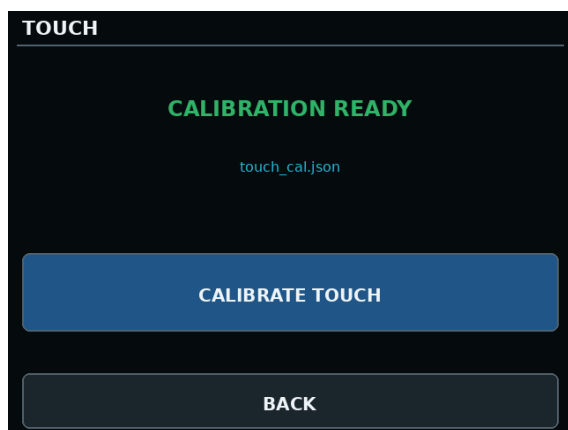
- BOOTS - number of program starts;
- UPTIME - total operating time of TERMO8G PRO;
- ALARMS - number of MIN/MAX alarm entries;
- SETTING CHANGES - number of configuration saves;
- AP - number of fallback access point starts;
- OTA - number of update installations.

FOR A SERVICE REQUEST

The most useful information is: version/build, IP, RTC state, ALR2 state, boot counter and web report text.

18. TOUCH AND SCREEN CALIBRATION

XPT2046 - FIVE POINTS



SYSTEM > TOUCH



Example point 1/5

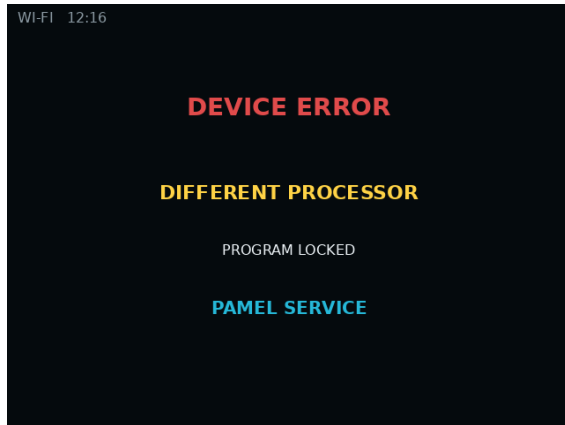
- Touch calibration is stored in the persistent touch_cal.json file.
- If a valid calibration is not available at first startup, the procedure starts automatically.
- To run it again: SYSTEM > TOUCH > CALIBRATE TOUCH.
- The program displays 5 points in sequence: top left, top right, bottom left, bottom right and center.
- Touch the cross accurately and hold until the sample is collected. Do not move your finger during the measurement.
- When finished, the calibration matrix is saved. Do not switch the device off during writing.

WHEN TO CALIBRATE

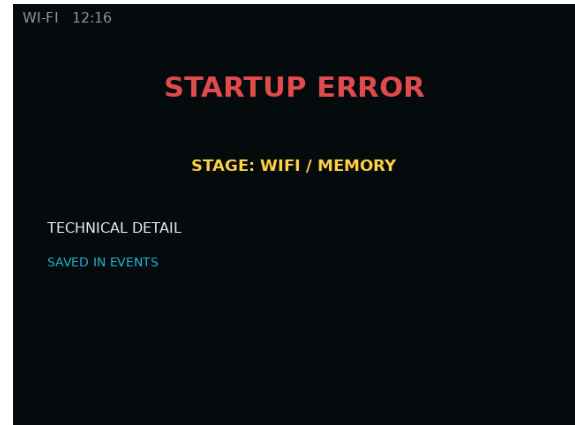
When the reaction point clearly does not match the place touched, after replacing the touch panel, or after servicing the touch layer. Calibration does not affect temperature measurements.

19. TECHNICAL AND EMERGENCY SCREENS

STARTUP ERRORS AND DEVICE LOCK



Device / lock mismatch



Startup error with stage name

DEVICE ERROR / DIFFERENT PROCESSOR

Firmware 1.1.0 uses device_lock.dat linked to the unique processor identifier. If program files are moved to another Pico without the correct lock, TERMO8G PRO will not enter normal operation. This is not Internet activation.

STARTUP ERROR

If a memory error or another exception occurs during startup, the program shows the last stage, e.g. WIFI / PROBES / WEB / INTERFACE. This helps identify which part of startup failed.

- Do not try to delete the lock file or load random files from another device.
- Take a photo of the error screen.
- If the local web page works, generate a report and copy the log.
- Contact PAMEL and provide the firmware version and the circumstances in which the error occurred.

20. LOCAL WEB PAGE - CONNECTION

PHONE, TABLET OR COMPUTER

The web page is part of TERMO8G PRO and works locally. No application needs to be installed. Internet access is not required for viewing or configuration itself.

A. Connection through the controller's own AP

1. If the device does not connect to a saved network, wait up to about 20 s for the AP to start.
2. On the phone/PC select the Wi-Fi network PAMEL-TERMO8G-PRO. In version 1.1.0 it has no password.
3. Open a browser and enter `http://192.168.4.1/`.

B. Connection through home Wi-Fi

1. On the TFT open MENU > WI-FI and read the device IP address.
2. Connect the phone/PC to the same local network.
3. In the browser enter the address shown on the screen, e.g. `http://192.168.1.84/`.

LOCAL ONLY

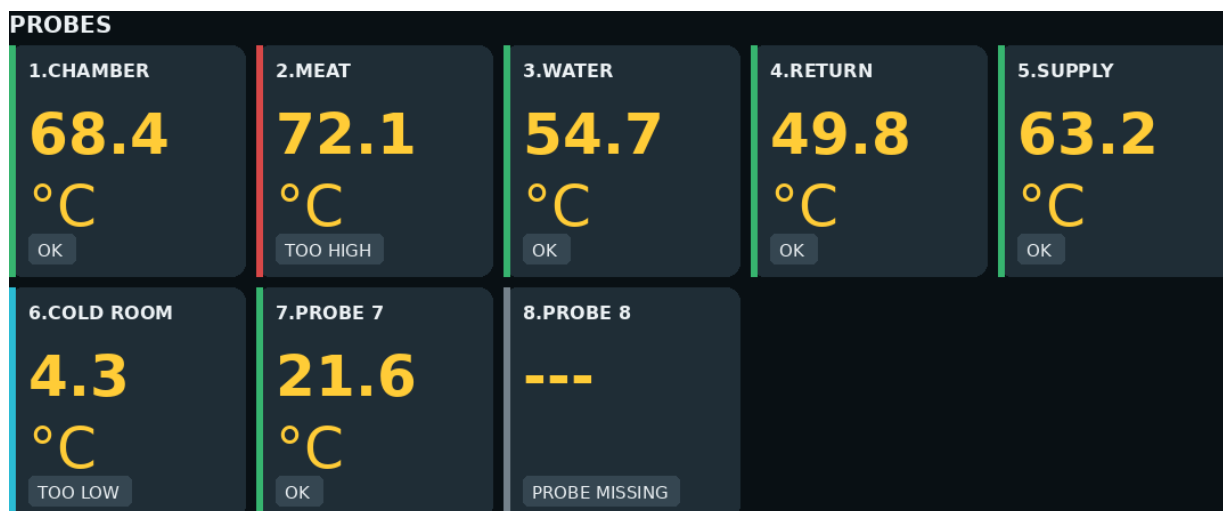
The page displays: WEB CONTROL WORKS ONLY ON THE LOCAL NETWORK - ON THE SAME WI-FI NETWORK OR THROUGH THE CONTROLLER AP. This is normal behavior. PAMEL CLOUD is a separate service and does not turn the local web page into a public Internet panel.

If the page does not open:

- check that the phone has not switched to mobile data or another Wi-Fi network;
- read the IP address from the TFT again;
- in AP mode enter exactly 192.168.4.1;
- disable the phone feature that automatically leaves a network "without Internet" if it prevents the connection.

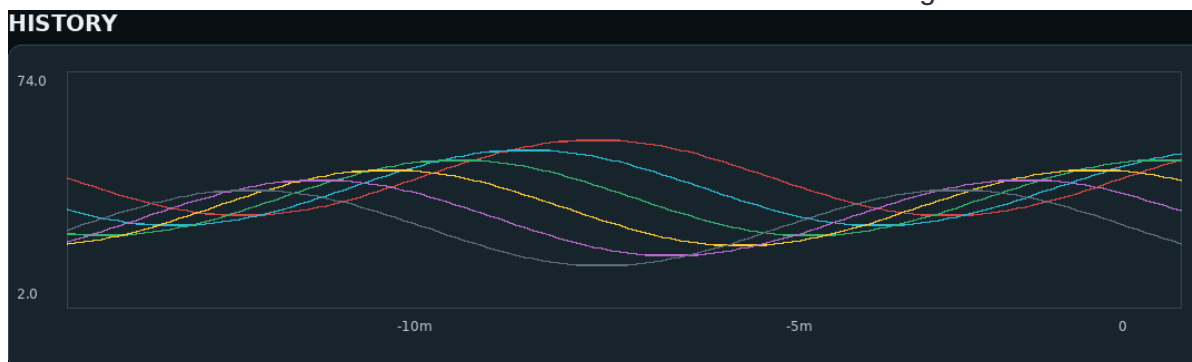
21. WEB - PROBES AND HISTORY

TOP PART OF THE PAGE



PROBES section - example with eight channels.

- Each card shows the number, name, temperature and text status.
- Green border = OK, red = MAX alarm, light blue = MIN alarm, gray = probe missing.
- WEB and TFT use the same calibrated values and the same alarm logic.



HISTORY section - chart of all available probes.

- The chart adjusts its scale to the data.
- X-axis markers show the age of samples relative to the present moment.
- While probe settings are being edited, refresh is temporarily limited so the form does not overwrite values being entered.

22. WEB - LANGUAGE, WI-FI AND PROBE INSTALLATION

SETTINGS SECTION - PART 1

SETTINGS

LANGUAGE

English SAVE

WI-FI

Configure connection to the home Wi-Fi network. The password is visible while typing.

Wi-Fi: PAMEL_WIFI / 192.168.1.84

PAMEL_WIFI my_password SAVE NETWORK

SCAN NETWORKS PAMEL_WIFI (-45 dBm) Workshop (-61 dBm)

SAVED NETWORKS

PAMEL_WIFI REMOVE

Workshop REMOVE

PROBE INSTALLATION

CONNECT/DISCONNECT PROBES ONLY WITH POWER OFF. AFTER STARTUP, ONLY THE PROBE BEING INSTALLED SHOULD BE CONNECTED.

INSTALLED: 8/8 | PHYSICALLY: 7 | ALR2: ONLINE

DETECT PROBE 8/8 FINISH DELETE PROBES

PROBE AND ALARM SETTINGS

Current layout of the LANGUAGE, WI-FI and PROBE INSTALLATION sections.

- **LANGUAGE:** select one of 6 languages and press SAVE. The page reloads the labels.
- **WI-FI:** enter SSID and password. In version 1.1.0 the password is visible while typing. SAVE NETWORK stores the new entry first and schedules a restart.
- **AVAILABLE NETWORKS** shows detected SSIDs and RSSI signal level in dBm. Touching a result fills the SSID field.
- **SAVED NETWORKS:** the device stores up to five; REMOVE deletes the selected entry.
- **PROBE INSTALLATION:** the web page shows the number of installed and physically visible probes and the ALR2 state. DETECT PROBE works in the same way as the TFT wizard.
- **DELETE PROBES** requires browser confirmation and removes all assignments.

PASSWORD SECURITY

Because the AP is open, do not configure the home Wi-Fi password while unauthorized persons can see it and do not leave the web page open on someone else's device.

23. WEB - PROBE AND ALARM SETTINGS

SETTINGS SECTION - PART 2

PROBE AND ALARM SETTINGS CURRENT DATA FROM PICO SAVE NOW

1. CHAMBER

NAME: CHAMBER 0 MAX ALARM: 100 HYSTERESIS: 0.5 DELAY [s]: 5

MULTIPLIER: 1.000 OFFSET: 0.0

MIN ALARM ON MAX ALARM ON

MUTE 5 MIN MUTE 15 MIN MUTE 30 MIN MUTE 60 MIN

2. MEAT

NAME: MEAT 0 MAX ALARM: 70 HYSTERESIS: 0.5 DELAY [s]: 5

MULTIPLIER: 1.000 OFFSET: 0.0

MIN ALARM ON MAX ALARM ON

MUTE 5 MIN MUTE 15 MIN MUTE 30 MIN MUTE 60 MIN

3. WATER

NAME: WATER 0 MAX ALARM: 100 HYSTERESIS: 0.5 DELAY [s]: 5

MULTIPLIER: 1.000 OFFSET: 0.0

MIN ALARM ON MAX ALARM ON

MUTE 5 MIN MUTE 15 MIN MUTE 30 MIN MUTE 60 MIN

CONTACT

Probe setting forms. The visualization shows several channels; the device supports up to eight.

- For each probe the following are available: NAME, MIN ALARM, MAX ALARM, HYSTERESIS, DELAY, MULTIPLIER and OFFSET.
- The MIN ALARM ON and MAX ALARM ON fields enable the corresponding threshold.
- MUTE 5 / 15 / 30 / 60 MIN silences the selected probe signal for the specified time.
- The name can contain up to 16 characters.
- After editing starts, the status changes to EDITING - SAVE IN ... s. After about 5 s without changes, the complete set of forms is saved in one memory write.
- SAVE NOW forces an immediate save. During saving, SAVING, SAVED and CURRENT DATA FROM PICO states are displayed.
- Values entered outside the permitted range are normalized by the device to the ranges given in the parameter table.

WHY SAVING IS DELAYED

This solution reduces the number of FLASH writes and prevents periodic web refreshes every few seconds from erasing text currently being entered by the user.

24. WEB - CONTACT, UPDATE, SYSTEM AND SERVICE

SETTINGS SECTION - PART 3

The screenshot displays the lower portion of the settings interface, organized into four distinct sections:

- CONTACT:** Features a 'REFRESH' button and contact details for PAMEL, including a telephone number (+48 453 343 360), email address (pamel@pamel.pl), and website URL (https://www.pamel.pl).
- UPDATE:** Shows the current version (1.1.0 / PROD-FULL) and includes 'CHECK' and 'INSTALL' buttons for software updates.
- SYSTEM:** Displays various system metrics such as RTC status (DS1307), uptime (18d 06:42), ALR2 status (ONLINE), boot count (37), alarm level (14), and cloud-related information (ID CLOUD: 4c78f7e9d6a1...a931, PAMEL CLOUD: OK).
- SERVICE:** Contains a 'SERVICE PASSWORD' input field and a 'FACTORY RESET' button.

Lower part of the SETTINGS section - example view.

CONTACT

The card shows phone, e-mail, web address, office/support hours and the date of the data. REFRESH forces an update attempt.

UPDATE

CHECK downloads version information. INSTALL starts OTA; progress is presented primarily on the TFT.

SYSTEM

Shows version/build, RTC, uptime, ALR2, selected counters, CLOUD ID and PAMEL CLOUD state.

SERVICE

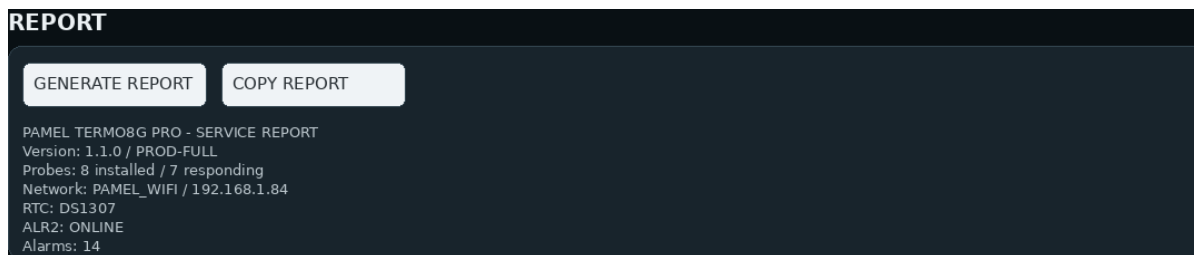
FACTORY RESET is a service function and requires a service password. The user manual intentionally does not publish this password. Reset restores user and network settings but keeps touch calibration and counters.

FACTORY RESET

Do not use reset to solve every problem. First generate a report and copy the log - reset can remove probe and network configuration needed for diagnostics.

25. WEB - REPORT AND EVENT LOG

DIAGNOSTIC MATERIAL



REPORT - GENERATE REPORT and COPY REPORT.

- The service report contains the most important version, probe, network, RTC, ALR2, state and counter information in one text block.
- COPY REPORT tries to copy the text to the browser clipboard. If the browser blocks clipboard access, select the text manually.
- Before contacting service, generate the report after the problem occurs, not only after resetting the device.



The EVENT LOG is located at the very end of the web page.

- The log stores the last 100 events in the current implementation.
- It may include, among other items, startup, Wi-Fi connections, probe installation, missing probe, MIN/MAX alarm, muting, setting changes, OTA and errors.
- The oldest entries are automatically removed when the limit is exceeded.

26. PAMEL CLOUD

OPTIONAL TELEMETRY - LOCAL OPERATION REMAINS INDEPENDENT

TERMO8G PRO 1.1.0 can send telemetry to PAMEL CLOUD via HTTPS. The technical model name is TERMO8GPRO and the customer-facing name is TERMO8G PRO WiFi.

ITEM	RULE
Sent data	up to 8 temperatures, statuses and alarms, uptime, local IP, alarm output state
Identification	CLOUD ID derived from the unique Pico UID; visible in the WEB SYSTEM section
Control direction	in version 1.1.0 there is no remote STOP, factory reset or heater control
No Internet	does not block measurements, alarms, local TFT or local web page
Frequency	cyclic telemetry; the current program configuration uses an interval of about 60 s
User access	depends on the features and plan available at serwer.pamel.pl

The PAMEL CLOUD interface may provide four levels:

- LOCAL - controller operation without cloud
- BASIC - free cloud
- PLUS - optional extensions
- PRO - full cloud feature package

MAIN PAMEL WEBSITE

For documentation, device history and services, use primarily <https://serwer.pamel.pl/>.

PAMEL CLOUD Terms: [PAMEL_CLOUD_REGULAMIN.pdf](#)

Privacy Policy: [PAMEL_CLOUD_POLITYKA_PRYWATNOSCI.pdf](#)

27. PAMEL_BUS AND ALR2 MODULE

REMOTE DUPLICATION OF THE ALARM SIGNAL

In TERMO8G PRO 1.1.0, ALR2 is the only supported PAMEL_BUS module. Other PAMEL_BUS modules are not used by this firmware.

SITUATION	FUNCTION
Detection	TERMO8G PRO searches for ALR2 on the local Wi-Fi network.
Claiming	the device attempts to claim a free ALR2 module; a module used by another master has the BUSY state.
Alarm active	ALR2 receives: buzzer = ON, relay1 = ON, relay2 = ON.
Alarm cleared or muted	buzzer = OFF, relay1 = OFF, relay2 = OFF.
Refresh	the state is sent on change and refreshed periodically.
No home Wi-Fi	ALR2 is not supported in this mode; the device's local alarm remains independent.

ALR2 states in SYSTEM/WEB

- NO_WIFI - TERMO8G PRO is not connected to the home network;
- SEARCHING - ALR2 has not yet been found;
- DETECTED - the module has been found and negotiation is in progress;
- ACTIVE - the module is assigned to this TERMO8G PRO;
- BUSY - the module is owned by another master.

ALR2 DOES NOT ADD NEW LOGIC

ALR2 only mirrors the binary TERMO8G PRO alarm signal. It has no separate temperature thresholds.

28. ALARM LOGIC - IN DETAIL

WHAT HAPPENS ON THRESHOLD CROSSING, RETURN AND MISSING PROBE

EVENT	BEHAVIOR 1.1.0
MIN entry	when MIN is enabled and the temperature falls below the MIN threshold; the condition must persist for the configured DELAY
MIN exit	after a MIN alarm, the state remains active while the temperature is lower than MIN + HYSTERESIS
MAX entry	when MAX is enabled and the temperature rises above the MAX threshold; the condition must persist for the DELAY
MAX exit	after a MAX alarm, the state remains active while the temperature is higher than MAX - HYSTERESIS
Muting	does not clear the MIN/MAX state; it temporarily prevents that probe from contributing to the binary alarm signal
Several alarms	the alarm output remains active if at least one probe has an unmuted MIN or MAX state
Probe missing	BAD / --- is logged as PROBE_MISSING, but in version 1.1.0 a missing probe alone does not switch on the MIN/MAX alarm output
Probe returns	after a valid reading, PROBE_OK is logged; normal state then depends on the current thresholds

VERY IMPORTANT - MISSING PROBE

If measurement continuity is critical, do not rely solely on the TERMO8G PRO alarm output. Version 1.1.0 indicates a missing probe on the screen and in the event log, but does not treat it as an active MIN/MAX alarm controlling GP6/ALR2.

MAX hysteresis example: threshold 80.0 °C and hysteresis 1.0 °C. After entering a MAX alarm, the state returns to OK only when the temperature falls to about 79.0 °C or lower. This prevents the alarm from rapidly toggling around 79.9/80.1 °C.

29. USER PARAMETER TABLE

NAME, PURPOSE, RANGE, DEFAULT AND EXAMPLE

PARAMETER	PURPOSE	RANGE	DEFAULT	EXAMPLE / EFFECT
PROBE NAME	measurement point identification	1-16 characters	PROBE	CHAMBER / MEAT / RETURN
MIN ALARM ON	enables the lower threshold	ON/OFF	OFF	cold room: ON
MIN ALARM	lower limit	-55...125 °C	0.0 °C	5.0 °C
MAX ALARM ON	enables the upper threshold	ON/OFF	OFF	meat: ON
MAX ALARM	upper limit	-55...125 °C	100.0 °C	72.0 °C
HYSTERESIS	return margin after alarm	0.1...20.0 °C	0.5 °C	MAX 72 / hyst. 0.5 -> return at approx. 71.5
DELAY	short violation filter	0...3600 s	5 s	alarm only after 30 s
MULTIPLIER	measurement scaling	0.5000...1.5000	1.0000	normally leave 1.0000
OFFSET	constant shift	-30...+30 °C	0.00 °C	49.7 -> reference 50.0: +0.3
TFT MUTING	temporary signal suppression	15 min	-	alarm remains visible
WEB MUTING	temporary signal suppression	5/15/30/60 min	-	select to match process handling
LANGUAGE	TFT/WEB language	PL/CZ/SK/EN/DE/UA	PL	Deutsch
WI-FI	local network	up to 5 saved SSIDs	configuration-dependent	home / workshop / office

RULE FOR CHANGING PARAMETERS

When changing a threshold or calibration, observe the actual temperature and test the alarm response. After configuration, record your settings in the process documentation.

30. BEFORE YOU CALL SERVICE

DIAGNOSTICS, MAINTENANCE AND SUPPORT

SYMPTOM	POSSIBLE CAUSE	WHAT TO DO
Probe missing / ---	disconnected/damaged probe, cable or 1-Wire supply	switch off power; check cable/connector; restart; do not immediately delete the assignment
Web page does not open	phone on another network, wrong IP, AP inactive	read the IP from the TFT; in AP use 192.168.4.1; make sure the phone remains on this network
Device starts AP	it did not connect to saved Wi-Fi within the ~20 s window	check router/SSID/password; save the correct network through the web page
Alarm "does not clear"	hysteresis is active or another unmuted alarm is still active	check all probes and MIN/MAX/HIST values; remember the return threshold
No sound/ALR2	alarm muted, ALR2 inactive, no home Wi-Fi	check MUTE, SYSTEM > ALR2 and the local output state
OTA error	no Internet/manifest/download	do not reset settings; record the message; retry after Internet access is restored
Touch position shifted	calibration does not match the panel	SYSTEM > TOUCH > CALIBRATE TOUCH
Startup error	memory, file or peripheral problem	take a photo of the last stage; generate a report if the web page works; contact PAMEL

Before reporting a problem, prepare: TERMO8G PRO model, version/build, device number/ID, error text, current temperatures and thresholds, a photo of the screen, and REPORT + EVENT LOG.

DOCUMENTATION AND SUPPORT

[PAMEL / Product Center](#)

[Knowledge Base](#)

[YouTube PAMEL_STEROWNIKI](#)

[Facebook PAMEL](#)

pamel@pamel.pl • +48 453 343 360 • BDO
000073814



serwer.pamel.pl

Maintenance: periodically inspect probe cables and connectors, compare readings with a reliable reference point, and clean the screen with a soft cloth while power is off. Do not manually remove system files.

Manual version: TERMO8GPRO_MAN_EN • firmware 1.1.0 / PROD-FULL • 09.09.2026

WARRANTY TERMS - 1/2

Dear User,

First of all, thank you for choosing a PAMEL product. We are confident that you will be satisfied with your choice. We design our devices to meet your requirements and to provide trouble-free future use.

WARRANTY TERMS

PAMEL provides a warranty for the controller (excluding additional equipment) within the territory of the Republic of Poland for a maximum period of 60 months:

24 months of basic warranty,

6 months of extended manufacturer's warranty,

it is also possible to purchase an extension of the warranty up to 40 or 50 months.

The total warranty period may not exceed 80 months from the device production date.

Additional equipment (e.g. probes, heaters) is covered by the standard warranty arising from the Civil Code.

A purchased warranty extension is confirmed by a holographic sticker on the warranty card.

The warranty does not cover consumable parts and accessories intended for self-installation (e.g. antennas, sensors, brackets, heaters, cables, batteries).

During the warranty period, the manufacturer undertakes to remedy physical defects free of charge.

If at least four repairs have been carried out under the basic warranty and the device is still defective, the Buyer has the right to replacement with a new unit of equivalent parameters or a refund of the purchase price.

The warranty period is extended by the duration of the repair.

Complaints must be reported by e-mail (pamel@pamel.pl) or by telephone. The manufacturer will first attempt to resolve the problem remotely and will indicate the next complaint-handling steps.

At the manufacturer's request, the Buyer is required to complete a complaint report.

The warranty covers only defects caused by reasons inherent in the device.

The warranty does not cover damage resulting from:

improper installation, operation or maintenance,

storage under unsuitable conditions,

use of unsuitable consumables,

unauthorized repairs or modifications,

mechanical damage, flooding, water-vapor

condensation, contamination, weather phenomena or random events,

exceeding the rated parameters.

The warranty does not cover claims concerning the technical parameters of the device if they comply with the manufacturer's data.

WARRANTY TERMS - 2/2

To retain warranty rights, the device must be delivered: complete, in packaging protecting it from damage, with documentation, cables and additional components, with seals and stickers intact and not removed, with the original warranty card signed by both parties and the sticker showing the production date. The warranty does not cover services and materials related to normal operating service (e.g. installation, programming, cleaning, maintenance, replacement of fuses and bulbs). These services are chargeable. The service department may refuse warranty repair in the event of: discrepancies between the documentation and the actual condition of the device, unauthorized alterations to documents, removal of device identification markings (e.g. labels). Warranty repairs are carried out within 21 days from the date the device is delivered to the service department. If parts must be imported from abroad, this period may be extended - the Buyer will be informed by e-mail.

The device must be installed in accordance with standards and the operating manual. Where required by law, installation must be carried out by a person with the appropriate qualifications.

The scope of the parties' rights and obligations is governed solely by this document.

Equipment not collected from the service department within 3 months after completion of the repair becomes the property of the service department.

Parts replaced during repair remain the property of the manufacturer.

The manufacturer is not responsible for the loss of user data stored in the device. After repair, the device is returned with factory settings restored.

By signing the warranty card, the Buyer confirms that they have read and accept the warranty terms.

A card without a signature and without the original sticker showing the production date is invalid.

Note: maintenance, cleaning, replacement of bulbs, fuses, wear parts, or repairs resulting from normal wear (e.g. potentiometers) are not counted as repairs.

16.05.2026

WARRANTY PERIOD START DATE

SELLER'S STAMP

CUSTOMER SIGNATURE