



POLISH PRODUCT

USER MANUAL

TEMPERATURE CONTROLLER

PRT1 / PRT1+



PAMEL Product Center
Scan the QR code or visit
<https://serwer.pamel.pl/>
pamel@pamel.pl



Manual version: 23.08.2026

IMPORTANT SAFETY RULES

PRT1 is powered from the 230 V mains. Use it only for its intended purpose and never open the enclosure.

1	DANGER - use only indoors in a dry location. IP20 does not protect against water or moisture.
2	WARNING - fully unwind power and sensor cables. Do not use damaged cables and never pull the sensor by its cable.
3	WARNING - do not exceed the load: PRT1 up to 3.5 kW, PRT1+ up to 5.5 kW. The controller is not intended for large inductive loads.
4	NOTICE - after moving the controller from a cold place, allow it to warm up and dry completely. Condensation can damage electronics.
5	NOTICE - do not expose the sensor to conditions for which it was not designed. Keep the enclosure, connectors and cable end dry.
6	If you notice a burning smell, damaged enclosure/cable or abnormal operation, disconnect the mains and contact service.

CONTENTS

OPERATING PRINCIPLE	4
PURPOSE AND VERSIONS	5
TECHNICAL DATA AND CONNECTION	6
FIRST START	7
NORMAL OPERATION	8
ADVANCED SETTINGS	9
HYSTERESIS	10
CALIBRATION A	11
CALIBRATION B	12
MODE 0 / MODE 1	13
DISPLAYS AND MESSAGES	14
SENSOR, INSTALLATION AND OPERATING CONDITIONS	15
BEFORE YOU CALL SERVICE	16
MAINTENANCE, SERVICE AND DISPOSAL	17
PAMEL PRODUCT CENTER	18

The controller is ready to use after connection. Advanced settings are not required for normal operation. Change them only when you understand the required effect.

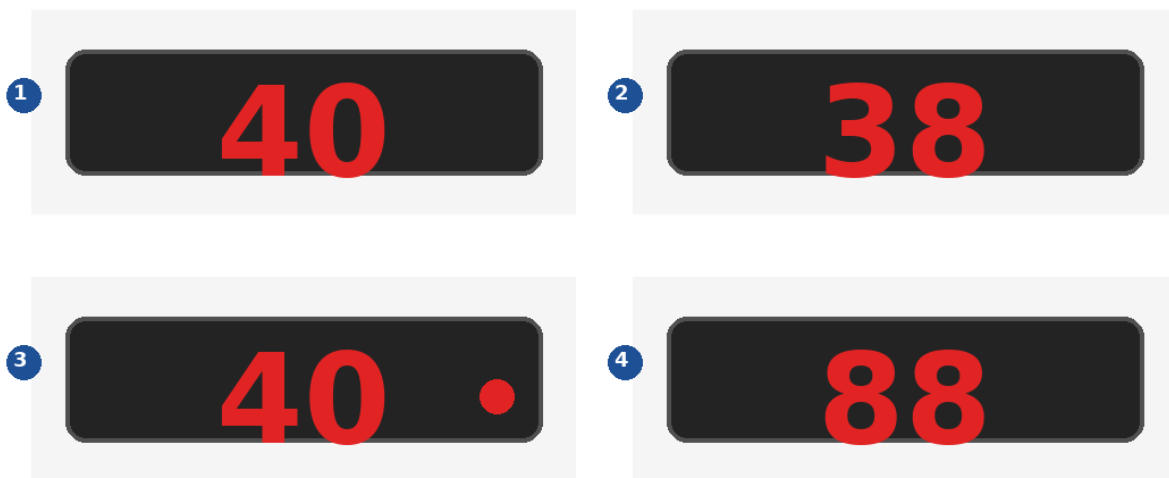
OPERATING PRINCIPLE

PRT1 controls temperature by switching the output socket on and off. Set the required temperature with the “+” and “-” buttons; the controller compares it with the temperature measured by the sensor.

Most of the time the display shows the set temperature. Every several seconds, the current temperature is shown for about 2 seconds and then the display returns to the setpoint.

A dot on the display means the output is ON and mains voltage is present at the load socket. The last setpoint remains stored after a power failure.

Mode 0 is for heating and mode 1 is for cooling. Hysteresis prevents excessively frequent switching.



PURPOSE AND VERSIONS

The controller is intended for simple heating or cooling systems where the load should operate according to temperature. It may control a heater, fan or cooling device provided its electrical ratings are within the permitted load.

- PRT1 - maximum load 3.5 kW.
- PRT1+ - maximum load 5.5 kW; operation is the same.
- External-sensor version - cable about 1.8 m for measurement at a selected point.
- Internal-sensor version - measures ambient temperature near the controller.
- Do not use with large inductive loads or in wet environments.

PRT1 / PRT1+ • 230 V • IP20



TECHNICAL DATA AND CONNECTION

Supply	230 V -20%/+10%, 50 Hz
Setpoint range	-9...+99°C
Hysteresis / step	0.0...9.5°C / 0.5°C
Max. load	PRT1 3.5 kW / PRT1+ 5.5 kW
Power consumption	0.2 W max.
Protection	IP20
Dimensions	80 × 60 × 60 mm
External sensor	~1.8 m external sensor

PRT1 has no user-accessible wiring terminals. Plug the load into the controller socket, then plug the controller into a 230 V mains outlet. Verify the load does not exceed the rated power.

FIRST START

1. Check the enclosure and cables. Do not use a damaged controller.
2. If it was stored in a cold place, leave it disconnected until it reaches room temperature and is dry.
3. Place the sensor at the point whose temperature is to be controlled. With an internal sensor, allow free air circulation.
4. Connect the load to the PRT1 socket.
5. Plug PRT1 into a 230 V outlet.
6. Use “+” and “-” to set the required temperature.
7. Check that the display dot matches the expected output state.

The controller is ready to use after connection. Advanced settings are not required for normal operation. Change them only when you understand the required effect.

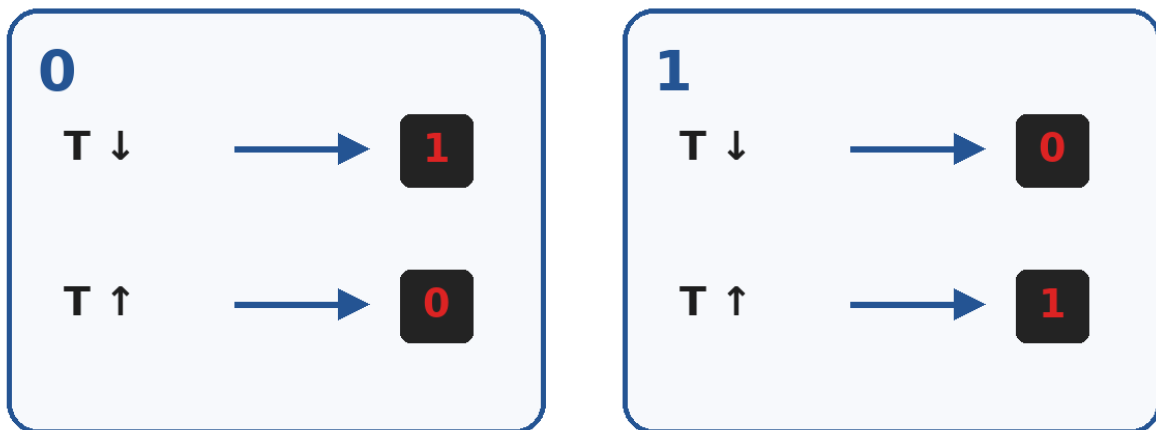
NORMAL OPERATION

For daily use, only change the set temperature with “+” and “-”. After a button press, the new value becomes the working setpoint.

Heating example: setpoint 40°C, measured 38°C - in mode 0 the output may be ON, shown by the dot. The controller switches off after reaching the range defined by hysteresis.

Cooling example: in mode 1 the output is switched on when temperature rises above the setpoint. It switches off again after cooling according to hysteresis.

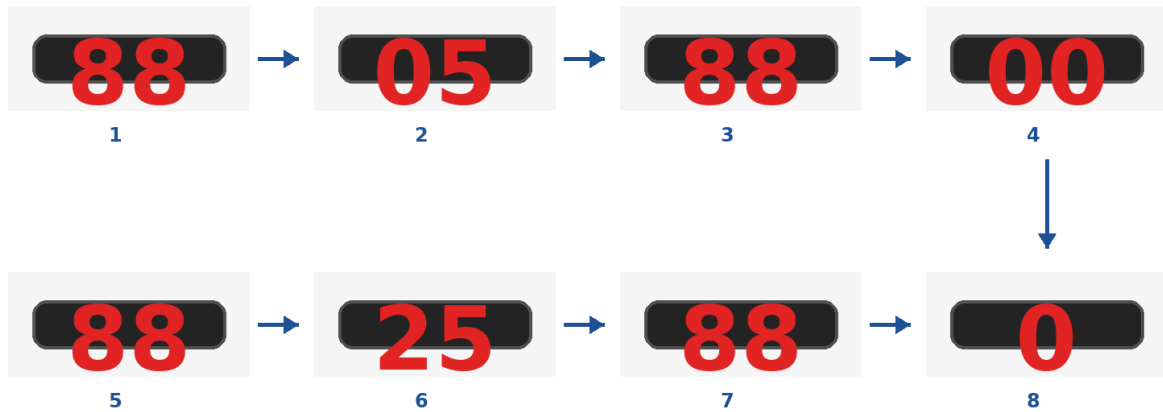
If the system works correctly, do not calibrate A/B. A difference from another thermometer often results from a different measurement location.



ADVANCED SETTINGS

Advanced settings include hysteresis, calibration corrections A and B, and heating/cooling mode. Enter them only from power-off and make each change deliberately.

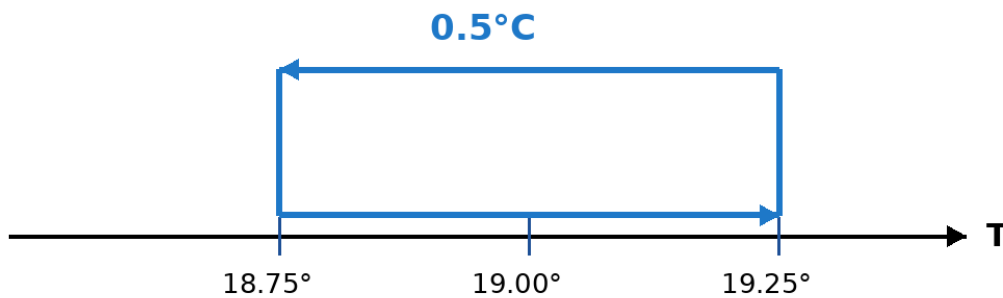
1. Hold both buttons before plugging the controller in.
2. Connect power - "88" appears.
3. Set hysteresis, e.g. "05" = 0.5°C.
4. Wait without pressing - the next "88" opens A.
5. Set A, normally "00".
6. After the next "88", set B, normally "25" = 1.25.
7. After the next "88", select mode 0 or 1.
8. When finished, wait for the normal display or unplug the controller. Settings are stored.



HYSTERESIS

Hysteresis is the temperature difference required before the output changes state. A larger value reduces frequent switching but increases temperature swing.

- Range: 0.0...9.5°C
- Step: 0.5°C
- Factory default: 0.5°C
- Display: no decimal point, e.g. 0.5°C = "05", 1.5°C = "15"



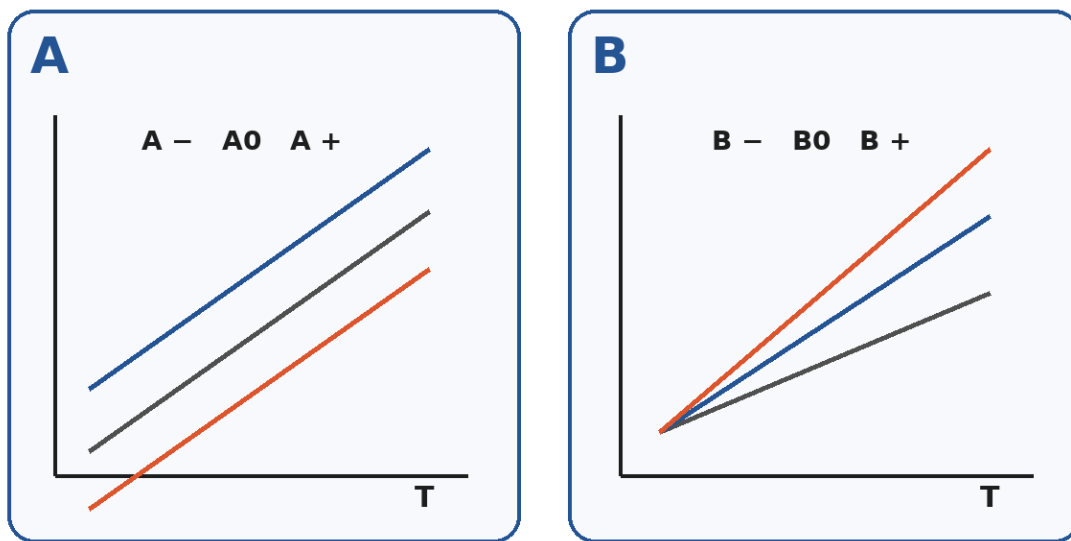
Start with 0.5°C. Increase hysteresis only if the load switches too frequently or the process requires a wider band.

CALIBRATION A

Correction A provides a fixed offset. The source manual describes A as a value subtracted from the measured temperature.

- Range: $-5...+5^{\circ}\text{C}$
- Step: 1°C
- Factory default: 0
- If the reading is 2°C too high - set $A = +2$.
- If the reading is 2°C too low - set $A = -2$.

The display may not show the “-” sign in this setting. After changing A, return to the normal screen and verify the result. Do not calibrate using thermometers placed in different locations.

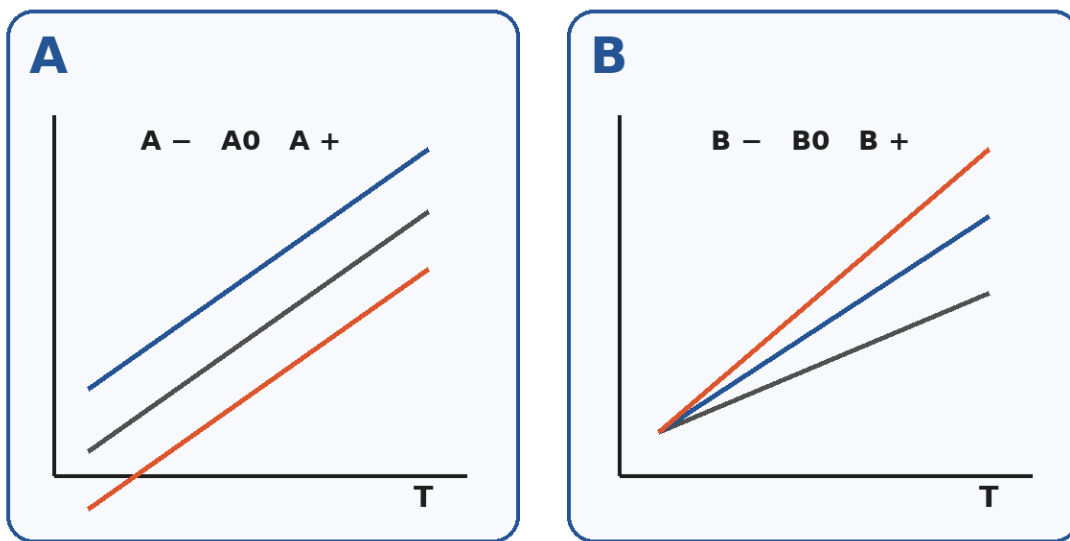


CALIBRATION B

Correction B changes the slope of the measurement characteristic, i.e. it scales the reading. Use it only when the error grows with temperature.

- Step: 0.05
- Factory default: 1.25
- The display omits “1.” - e.g. 1.25 is shown as “25”, and 1.45 as “45”.
- If the controller reads proportionally too low - increase B by a small step.
- If it reads proportionally too high - decrease B by a small step.

The verified source materials do not specify the complete allowable range for B. Do not use extreme values; change B only in 0.05 steps and record the original value before calibration.

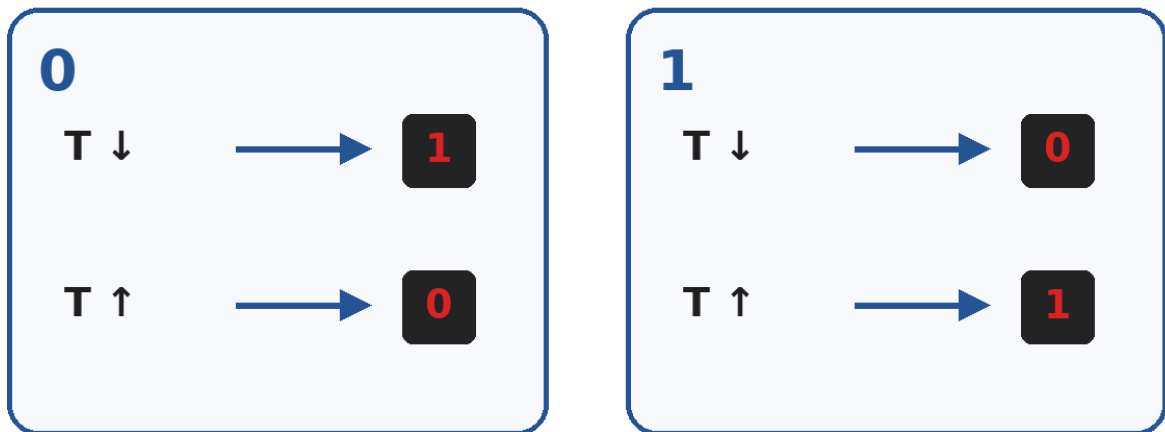


MODE 0 / MODE 1

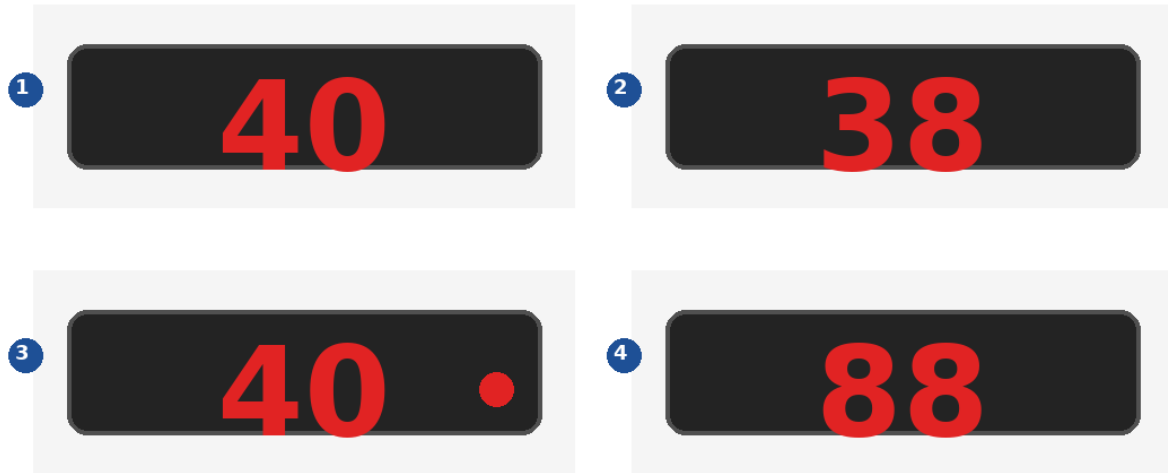
The final advanced setting selects the output direction. Mode 0 is the default for heating; mode 1 is for cooling.

Mode 0 - HEATING: when temperature is too low, the controller turns the heater on; it turns it off after the required temperature range is reached.

Mode 1 - COOLING: when temperature is too high, the controller turns the cooling load on; it turns it off after temperature falls sufficiently.



DISPLAYS AND MESSAGES



- 1. Setpoint - normal screen, e.g. “40” means 40°C.
- 2. Current temperature - appears periodically for about 2 seconds, e.g. “38”.
- 3. Dot - output is ON and the load socket is powered.
- 4. “88” - marker for the next advanced-setting stage.
- The hysteresis screen has no decimal point; “05” means 0.5°C.
- If digits look strange when the controller is upside down, check its physical orientation. Rotating the display by 180° can make digits look different and is not an electronic fault.

SENSOR, INSTALLATION AND OPERATING CONDITIONS

- The controller is factory calibrated. A/B calibration is normally unnecessary.
- Compare thermometers in the same location and allow enough time for temperature to stabilize.
- Temperature near the floor, ceiling, window or heater may differ by several degrees.
- In the external-sensor version, the cable is about 1.8 m. Do not kink it sharply or pull on the cable.
- Do not place the sensor in liquid or steam unless that particular sensor version is intended for such conditions.
- After moving the device from a cold environment, do not connect mains power until condensation has completely evaporated.

The controller is ready to use after connection. Advanced settings are not required for normal operation. Change them only when you understand the required effect.

IP20 • 230 V

BEFORE YOU CALL SERVICE

SYMPTOM	POSSIBLE CAUSE	WHAT TO DO
No display	No mains power or damaged outlet/cable	Unplug PRT1 and test the outlet with another device. Do not open the enclosure.
Output does not follow temperature	Wrong mode 0/1, setpoint or hysteresis	Check mode, setpoint and whether the dot appears at the expected time.
Fixed temperature error	Different measurement location or A correction needed	First compare sensors side by side. Change A only after confirming a constant error.
Error increases with temperature	B correction may be needed	Record the original value and change B only by 0.05 while checking the result.
Very frequent switching	Hysteresis too small or unstable sensor location	Increase hysteresis by one step and stabilize the sensor position.
Strange digits / moisture after cold storage	Controller upside down or condensation	Check orientation. If moisture is present, disconnect power and allow the unit to dry completely.

MAINTENANCE, SERVICE AND DISPOSAL

- Unplug the controller before cleaning. Use a dry or slightly damp soft cloth; do not use solvents.
- There are no user-serviceable parts inside. Do not open the enclosure.
- Do not dispose of the product with household waste; take it to an appropriate electrical-equipment collection point.
- Before contacting service, note the setpoint, measured temperature, mode 0/1, hysteresis, A, B and the dot state. A photo of the display often speeds diagnosis.
- Service contact: pamel@pamel.pl. Current contact details and support materials are available in the Product Center.

Technical data: 230 V -20%/+10%, 50 Hz; setpoint -9...+99°C; hysteresis 0.0...9.5°C; PRT1 3.5 kW, PRT1+ 5.5 kW; max. consumption 0.2 W; IP20; self-extinguishing enclosure; dimensions 80×60×60 mm; external sensor approx. 1.8 m (if fitted).

CE • Pb-Free • WEEE

PAMEL PRODUCT CENTER

The main customer entry point is <https://serwer.pamel.pl/>. It provides the Product Center, current manuals, FAQ, PAMEL EDU materials, documents and support.

PRT1 has no network functions and does not use PAMEL Cloud. The website is provided for support, documentation and current user materials only.

<https://serwer.pamel.pl/>

pamel@pamel.pl



Change history: 23.08.2026 - rebuilt the manual according to current PAMEL rules, standardized display/parameter descriptions, added diagnostics and the main QR code to serwer.pamel.pl.

Manual version: 23.08.2026

Dear User,

First of all, we would like to 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 ensure trouble-free future use.

WARRANTY CONDITIONS.

1. PAMEL provides a warranty in the Republic of Poland for 60 months from the start of the warranty period, but no longer than 80 months from the production date shown on the Product for which the warranty card was issued, provided the equipment is used as intended and in accordance with the technical and operating conditions described in the Operating Manual.
2. The warranty does not cover movable product accessories intended for self-installation by the user, such as antennas, sensors, brackets, heaters, wires and batteries.
3. The Warrantor undertakes to remedy physical defects free of charge if such defects become apparent within the warranty period, or to supply an item free from defects if during the warranty period at least 4 repairs have been carried out and the item sold is still defective.
- In the event of replacement, the product will be replaced with a new one of the same model or a model with similar, no worse technical parameters. If such replacement is impossible, the Buyer will receive a refund.
3. The warranty period referred to in point 1 is extended by the duration of the repair.
4. The repair period is counted from the day the item is delivered to the service point until the day the item is handed over to the carrier for delivery to the Buyer.
- 5. If a defect occurs, the Buyer reports it to the Warrantor via e-mail (pamel@pamel.pl) or by telephone; the Warrantor will first attempt to resolve the problem remotely and indicate the further complaint procedure.**
6. At the Warrantor's request, the Buyer is obliged to accurately complete the Complaint Report provided by the Warrantor.
7. The Warrantor is liable only for defects arising from causes inherent in the item sold.
8. The warranty does not cover equipment damage resulting from improper or use inconsistent with installation and assembly requirements, in particular storage, maintenance, use contrary to the intended purpose, or use of unsuitable consumables, unauthorized repairs or improvements, mechanical damage, damage caused by the user, external causes such as contamination, flooding, water-vapor condensation, weather phenomena or random events. The warranty also does not cover damage to electronic components resulting from exceeding rated parameters.
9. The warranty does not cover claims concerning the technical parameters of the devices if they are consistent with those specified by the manufacturer.
10. A condition for the Buyer to retain warranty rights is delivery of **the device to the service point specified in point 5, complete and in packaging that reduces the risk of damage, with documentation, cables and all other items supplied under the sales contract, with seals or labels intact and with the warranty card.**
11. The warranty does not cover materials and activities forming part of normal operating service, such as equipment installation, programming, cleaning and maintenance, replacement of bulbs and fuses, or function checks. These services are chargeable.
12. In addition to the situations referred to in points 7-11, the service point may refuse to perform a warranty repair in the event of:
 - discrepancy between the data in the sales documentation and the device data
 - alterations to documents made by unauthorized persons
13. Physical defects of the device revealed during the warranty period will be remedied within 21 days, counted from the day following delivery of the device to the service point. If spare parts must be imported from abroad, the Warrantor reserves the right to extend the warranty period by the time necessary to carry out the repair; the Buyer will be informed each time by

e-mail.

14. The device must be installed in accordance with the required standards and the technical requirements specified in the manual. If the law requires installation by an authorized person, it must be performed by a person holding the appropriate qualifications.

15. The rights and obligations of the parties under the warranty are governed exclusively by the provisions of this document.

16. Equipment not collected from the service center within 3 months of completion of the repair becomes the property of the service center.

17. If a warranty repair requires replacement of a part, the replaced part remains the property of the Warrantor.

18. The Warrantor is not liable for damage resulting from the loss of user data stored in the device; the device will also be returned in its production state.

19. By signing, the Buyer declares that they have read and accept the warranty conditions.

A warranty card without the Buyer's signature will be considered invalid.

WARNING!

The number of repairs does not include, in particular: cleaning, maintenance, replacement of bulbs, heating filaments or fuses, or repairs resulting from wear due to operation, e.g. wear of potentiometers, etc.

WARRANTY START DATE	SELLER'S STAMP	CUSTOMER SIGNATURE