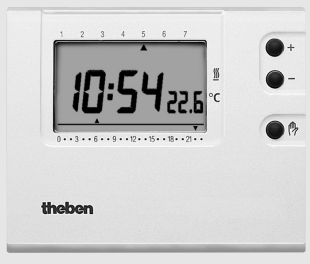
theben

310 597 08

# RAMSES 797 B

Ref. Nr. 797 9 130
Ref. Nr. 797 9 165

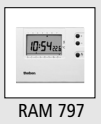


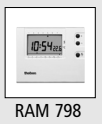




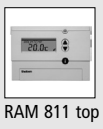
RAM 701


RAM 741


RAM 797


RAM 798


RAM 722


RAM 811 top

## 1.0 Introduction

GB

Dear customer,

congratulations on a well made choice. With the microprocessorcontrolled time thermostat **RAM 797 B** you have chosen a high-quality device which conveniently provides optimal control of the room temperature.

**Overview:**

– 2 point pulse duration controller
– battery operated
– low battery-power warning
– can be programmed before mounting
– room temperature display
– choice of 16 different temperature settings with optional combination of days
– choice of automatic summer/winter changeover (s/w)
– connection for remote control telephone switch
– basic program setting after RESET
– constant temperature standard
– summer program
– freezing protection
– party mode
– change-over contact
– 99 holidays, programmable 99 days in advance
– choice of pump protection mode
– wall alignment to adjust to the surrounding area

## 1.1 Description

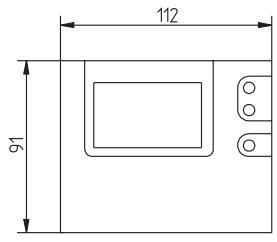
| | |
|---|---|
| 1 | battery case |
| 2 | temperature profile display |
| 3 | current hour display |
| 4 | telephone contact closed display |
| 5 | weekday display (1 = Monday, 2 = Tuesday, ...) |
| 6 | minutes display |
| 7 | holiday program display |
| 8 | change battery display |
| 9 | manual change display |
| 9 + 10 | summer program display |
| 10 | freezing protection display |
| 11 | switching mode display |
| 12 | set time |
| 13 | save button / inquiry |
| 14 | set the control tolerance frame |
| 15 | change button +/– |
| 16 | delete all (RESET) |
| 17 | manual mode |
| 18 | setting the control period |
| 19 | wall alignment |
| 20 | display temperature |
| 21 | insulating tape |
| 22 | brief operating instructions |

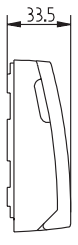
## 1.2 Technical data RAM 797 B

| | |
|---|---|
| Type of controller: | RS type 2 B according to EN 60730-1:1991 |
| Operating voltage: | battery operated 2 x alkal. cells type LR 6(AA) |
| Battery life: | approx. 1 year depending on switching cycles |
| Time needed to change battery: | max. 10 min. |
| Contact load: | max. 6 (1) A 250 V~ min. 1 mA 5 V ⎓ |
| Contact: | change-over contact, floating |
| Contact-voltage proof: | 8 mm |
| Contact material: | $AgSnO_2$ gilded |
| Accuracy: | ± 1 sec./day at 20° C |
| Time base: | quartz |
| Control accuracy: | ± 0.2 K |
| Temperature display: | 0.1° C |
| Temperature range: | 0° C... + 50° C |
| Range of temperature setting: | + 5° C bis + 30° C in 0.2 degree intervals |
| Control cycle: | 5 ... 30 min. |
| Control toler. frame: | ± 0.2 K .. ± 5 K |
| Memory capacity: | 16 optional combinations of weekdays an temperatures |
| Protection class: | II as per EN 60335-1 |
| Type of enclosure: | IP 20 as per EN 60529-1 |

Subject to technical changes.

## 1.3 Measurements




## 2.0 Mounting

**RAM 797 B** should only be installed in dry rooms!

We recommend mounting the device in the living-room on an interior wall where the air can circulate.

Mounting should be made approx. 1.5 m from the floor.

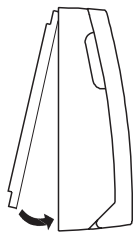


Fig. 2

Press in pins on the lower side of the device (fig. 2). Remove the base of the control device.
Fix the base carefully to the wall (fig. 3).
Make sure that the contact surface of the base and the battery case do not get clogged!

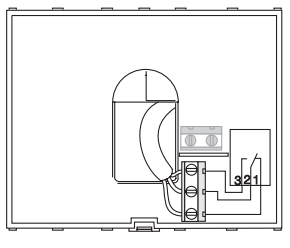
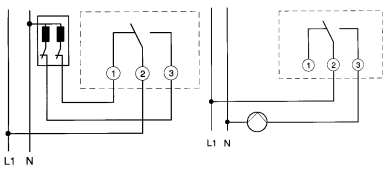



Fig. 3

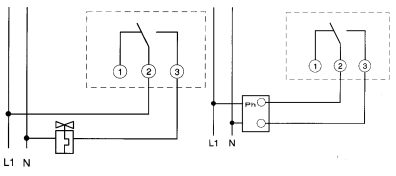
## 2.1 Electrical connection

Installation and mounting of electrical devices should only be carried out by a professional electrician. National regulations must be adhered to!




Control of a motor mixing valve

Control per circulation pump or storage/hot-air heating




Control per thermal oil firing relay

Control per gas or mixing valve

## 2.2 Inserting/changing the battery

To ensure longevity and proper functioning of the device, only **new alkaline cells of the same type, namely LR 6 (AA)** should be used. Depending on control and switching frequency, operating time of time controlled thermostat **RAM 797 B** with new batteries amounts to approx. 12 months. When changing batteries all data will remain in the memory for approx. 10 min.

**Initial installation:**
Remove insulating tape from the battery case (fig. 1/no. 21). Press button Res. for approx 1 sec.

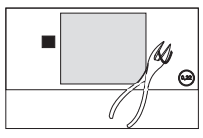
**Changing batteries:**
**1.** Open the front lid of the device
**2.** Observe polarity; insert batteries into the battery case
**3.** Close front lid
Device is now functional

**Automatic battery control:**
**1.** – If the display shows a blinking symbol, the alkaline cells need to be changed within the next 3 – 4 weeks.
**2.** – If the whole display is blinking, then the time controlled thermostat switches ON constantly.
**Heating is no longer controlled by the time controlled thermostat!**

**Turning the blinking display off:**
**1.** Press any button
**2.** After new batteries are inserted the blinking stops automatically with the next switching or on the following day.

## 2.3 Pump protection

Due to non-use in the summer months, circulation pumps may become stuck. An included pump protection program activates the circulation pump daily at 12.00 for the duration of 1 minute. The pump protection program is activated by interrupting the blue wire connection within the device. Changing the pump protection program is not possible.



## 2.4 Delete all (RESET)

If no settings are made, the device will regulate a constant temperature of 21° C.
The basic program and the basic regulation settings will not be deleted from the memory.

**Warning:**
All data stored will be deleted after RESET!

## 2.5 Automatic return-to-reference

If the device is in the inquiry or programming mode and no button is pressed, the display will automatically return to the automatic mode and adjust to the correct switching mode after approx. 40 sec.

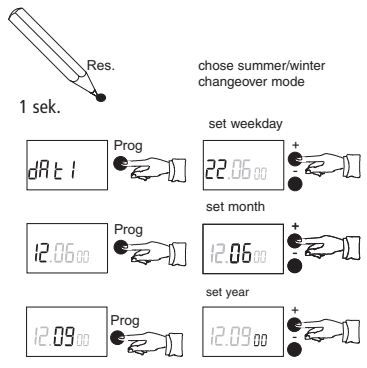
## 3.0 Initial service

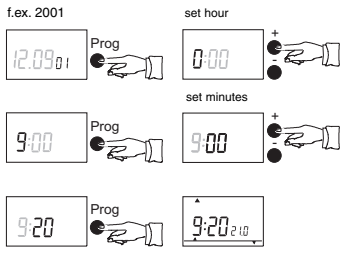
Summer/winter changeover is already programmed until the year 2039. Choice of 3 different switching groups (see table below) when restarting (RESET) or during automatic mode.

| S / W | | Beginning | End | Durat. |
|---|---|---|---|---|
| **no** | no automatic | – | – | – |
| **dat1** | switching group as of 96 | end fo March | end of Oct. | 7 months |
| **dat2** | switching group for GB | end of March | 4th Sun in Oct. | 7 months |

## 3.1 Using the automatic summer/winter changeover

For setting purposes, open the cover lied of the device.






## 3.2 Setting the summer/winter changeover during automatic mode

If you did not chose the summer/winter changeover during initial setup, you can add this at a later date.

**Setting:**

Pres buttons ◷ and + simultaneously. With button + chose the desired summer/winter changeover switching group (see 3.0). Save by pressing button Prog .

Confirm the displayed date with button Prog . If needed, change date with buttons + or − .

Save with button Prog .

## 3.3 Setting without automatic summer / winter changeover

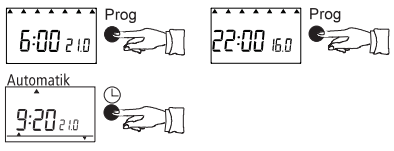
After RESET with button − choose no changing mode (display „no"), then save with button Prog . To set the time see instructions above under programming point* 3.1.

# 4.0 Programming

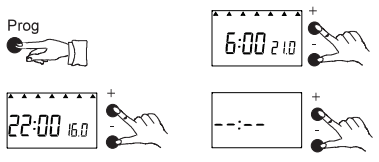
## 4.1 Basic program

Time controlled thermostat **RAM 797 B** features a basic program that permanently remains in the memory. This basic program heats the living room as of 6.00 o'clock to 21° C and as of 22.00 the night program lowers the temperature to 16° C.

## 4.2 Display Basic programm




## 4.3 Deleting the basic program




After the basic program is deleted and no new program is entered, the temperature will be **constantly** regulated at + 6° C.

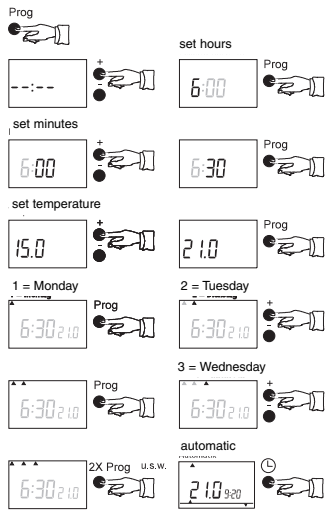
The display shows the symbol .

## 4.4 Setting the device

The time controlled thermostat allows 16 different temperatures with optional combination of days for the individual creation of your heating program.

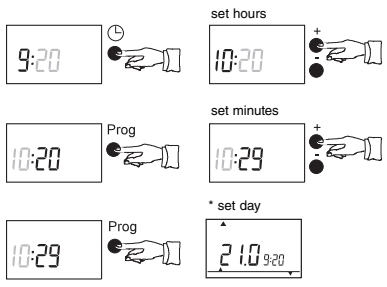
**Example:** desired temperature 21° C on Tue and Wed beginning at 6.30

Numbers 1, 2, ... 7 on top of the display correspond to the weekdays. 1 stands for Monday, 2 for Tuesday, etc.

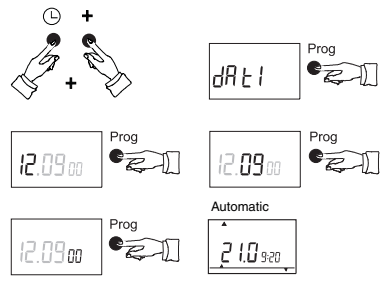



Other settings can be made accordingly.

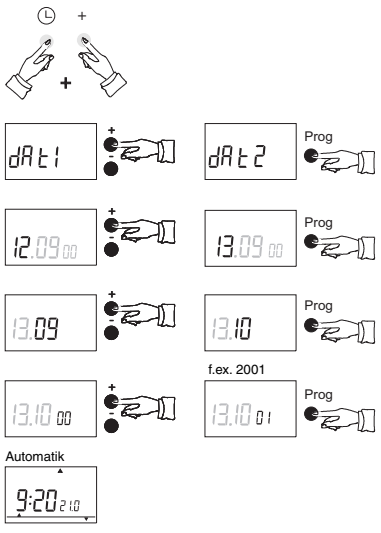
## 4.5 Changing the displayed time




## 4.6 Display current date



## 4.7 Changing the date




## 4.8 Party mode

**Operating Mode:**
A one-time certain temperature change can be set for an individually programmed duration between 10 min. and 23 hours 50 min. A program review occurs after completion of the party mode. Thereafter the device operates according to the programmed time and temperature standards.

**Setting:**
in automatic mode press the + and − buttons simulatneously. Set the desired duration of the party mode with + or −. Approx. 4 sec. after release of the + or − button the device automatically takes on the set time (display: symbol ☼ + ✋ ).
Set the desired temperature change with the + or − button. This entry will also be taken on after 4 sec. The party mode can be interrupted at any point in time by pressing the ✋ button.

## 4.9 Constant target temperature ✋ + 21° C

In the automatic mode you can set a certain constant temperature by pressing buttons ✋ and + simultaneously. If the basic setting is not changed, a **constant** 21° C will be regulated independently from the automatic mode.
A change in temperature between 16 and 30° C can be achieved using buttons + or − . After approx. 5 sec. the change is automatically saved in the program.
The constant target temperature is displayed with symbol ✋ . By pressing button ✋ you can cancel the constant temperature setting. (Symbol ✋ vanishes).

## 4.10 Summer program + 6° C

You can set a certain constant temperature in the automatic mode while pressing buttons and − simultaneously. If the basic setting is not changed, a **constant** 6° C will be regulated independently from the automatic mode. A change in temperature between 5 and 15° C can be achieved using buttons + or − .
After approx. 5 sec. the change is automatically saved in the program. The summer mode is indicated with the symbols + . The summer program is canceled with button .
(Symbols + vanish).

## 4.11 Holiday program + 16° C

Time controlled thermostat **RAM 797 B** is equipped with a holiday program. This mode can be set for the duration of max. 99 days and max. 99 days in advance. During this program the temperature is set at a constant 16° C. The display shows the following symbol .
**Example:**
Beginning in 2 days at midnight a holiday program for the duration of 10 days will start.




If the holiday program is to be cancelled, the display of the holiday program must be reset to 00 00 as described above.

## 5.0 Remote control by telephone + 21° C

**RAM 797 B** features a telephone contact. Terminals 11 + 12 in the base of the device can be connected to the floating relay contact of a remote control telephone switch. By signal transmission via telephone you can set the device directly to „comfort temperature" mode.
The display shows the symbol .
**A constant 21° C will be regulated.**
The signal can be cancelled with a new telephone impulse or manually, depending on the device, directly on the remote control telephone switch. Symbol vanishes.

**Warning:** The remote control telephone switch has priority, therefore, a defective remote control telephone switch can cause malfunctioning!
Reference list for remote control telephone switches will be provided upon request.

## 5.1 Connection of the remote control telephone switch


**Safety warning:** The connecting line to the remote control telephone switch should be made through the designated opening in the base of the device. Installation and mounting of electrical devices should only be carried out by a professional electrician. National regulations must be adhered to!

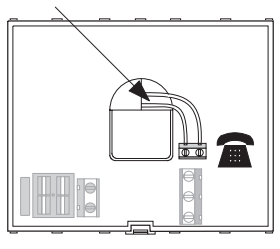


Fig. 5

## 6.0 Information for the expert

## 6.1 Setting the regulating period

The regulating period (see fig. 6) can be set between 5 and 30 min. Setting precision is 1 min.
**Setting:** Open the cover. With a pointed item shortly press button sec. .
The basic setting of 10 min. can be changed using buttons + or − . Press button Prog in order to save and return to the automatic mode.

## 6.2 Setting the control tolerance frame

The setting range (see fig. 6) of the pulse duration controller is ± 0.2 ... ± 5 K in 0.1 K intervals.
**Setting:**
Open the cover. With a pointed item shortly press button °C . The basic setting of ± 1 K can be changed with buttons + or − .
Press button Prog in order to save and return to the automatic mode.

## 6.3 Wall alignment +/– 3° C

Due to the mounting location, e. g. on an outside wall, near a fireplace etc., the temperature of the time controlled thermostat may vary.
The difference of the temperature displayed and the room temperature can be adjusted in 0.2 degree intervals.

**Setting:**

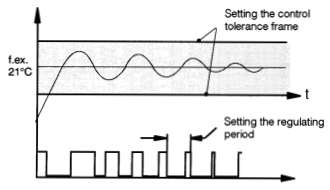
Open de cover. With a pointed item shortly press button offset . The basic setting of 0° C can be changed with buttons + or – . The device calculates the difference and considers it in control and display. Press button Prog in order to save and return to the automatic mode

## 6.4 Control precision

Control precision of the device is ± 0.2 K.

## 6.5 Control chart of a pulse duration controller

Fig. 6




## 6.6 Setting recommendation

Fig. 7

| | 1 | 2 |
|---|---|---|
| | 5 Min. | ± 3 K |
| | 10 Min. | ± 1 K |
| | 15 Min. | ± 1 K |
| | 15... 30 Min. | ± 0,5 K |

1 K (Kelvin) temperature difference corresponds to 1° C.

## 6.7 The basic regulation settings will not be deleted even after RESET

**a) Basic program:**
Mon – Sun regulating 21° C as of 6.00 h.
Mon – Sun regulating 16° C as of 22.00 h
**b) Basic governor settings:**
Regulating period 10 min. (chapter 6.1)
Control tolerance frame +/- 1 K (chapter 6.2)
Wall alignment 0.0° C (chapter 6.3)
Permanent temperature standard 21° C (chapter 4.9)
Summer program temperature 6° C (chapter 4.10)
**c) Permanent regulating data:**
Remote control telephone switch activation of governor 21° C (chapter 5.0)
Holiday program 16° C (chapter 4.11)
Freezing protection 6° C (chapter 4.3)

## 7.0 Troubleshooting

**1.0 Clock does not function, no change in display, setting impossible.**
Start newly with RESET (see 2.4)

**1.1 No function at all**
Insulating tape was not removed from the battery case Alkaline cells were not changed (see 2.2).

**1.2 Battery sign is blinking after only a few days of use**
Contact surface in battery case is clogged; usage of wrong or bad alkaline cells (see 2.2)

**1.3 Clock functions, device does not switch**
Permanent temperature, summer program, or holiday program activated (see 4.9 / 4.10 / 4.11)

**1.4 Clock functions, deviating temperature and control**
Wrong wall alignment (see 6.3)

**1.5 Wrong summer / winter changeover**
Check current date and choice of summer / winter changeover switching group (see 3.2 / 4.6)

**1.6 Clock functions, setting possible, constantly 21° C**
Cancel switch-on command at the remote control telephone switch (see 5.0)

**1.7 Clock functions, setting possible, constantly 6° C**
No heating mode programmed, summer program is active (see 4.4 / 4.10)

**1.8 Desired temperature is not reached**
Heating facility capability is too low; control tolerance frame too large (see 6.2)

**1.9 Variation of temperature**
Heating facility capability is too high; control tolerance frame too low (see 6.2).

**2.0 No regulation despite correct display of time and temperature**
- Contacts in the upper part of the device / base are dirty. Clean carefully with a cloth and alcohol.
- Wrong relay state. With button + set the temperature to 30° C and after that set with button + the temperature to 5° C. The relay switch must be audible. If necessary repeat.

**Theben AG**
Hohenbergstr. 32
72401 Haigerloch
Tel. +49 (0) 74 74/6 92-0
Fax +49 (0) 74 74/6 92-150

**Service**
Tel. +49 (0) 90 01 84 32 36
Fax +49 (0) 74 74/6 92-207
hotline@theben.de

**Adresses, telephone numbers etc. at www.theben.de**