BT-TH02 RF

USER GUIDE **GB**
RF Digital programmable Thermostatic Head 2-9

ANNEXES ***51-52***

IMPORTANT!

- This product should be installed preferably by a qualified professional. Subject to observation of the above terms, the manufacturer shall assume the liability for the equipment as provided by legal stipulations.
- All instructions in this Installation & Operation manual should be observed when working with the controller. Failures due to improper installation, improper use or poor maintenance are voiding manufacturer liability.
- Any attempt to repair voids the responsibility and the obligation to guarantee and replacement from the manufacturer.

APPLICATION

- The thermostatic heads BT-TH02 RF are developed to control and manage many types of Hydraulic Heaters: M30 x 1.5, M28 x 1.5, Watts TRV

- The controllers have been designed for use in residential rooms, office spaces and industrial facilities. Verify that the installation complies with existing regulations before operation to ensure proper use of the installation.

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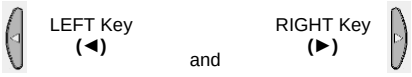
1 Presentation

Electronic programmable thermostatic head with LCD display, specially designed to control different types of hydraulic heaters.
It will be your best partner to optimize your energy consumption and increase your comfort.

- Modern design.
- Stand alone or Wireless Bidirectional communication 868.3 MHz with Central Unit BT-CT02 RF compatibility.
- “Easy program creation” function.
- Weekly programmable by step of 30min.
- Temporary override function.
- Anti-freeze function.
- Adaptive PID regulation for better comfort and energy saving
- EEPROM non volatile memory.
- 2 AA batteries (LR6)
- 2 parameter menus (User and Installer)
- 2 types of adapters to be mounted on hydraulic heaters:
  - M30 x 1.5
  - M28 x 1.5
  - Watts TRV valve

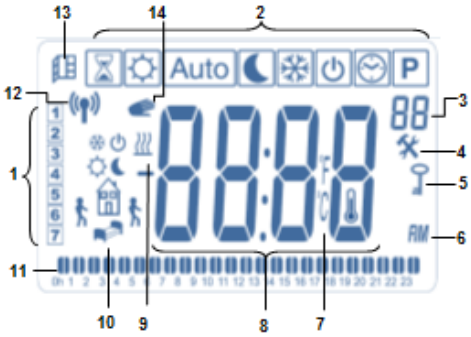
1.1 Keyboard

Navigations keys :



Setting keys :

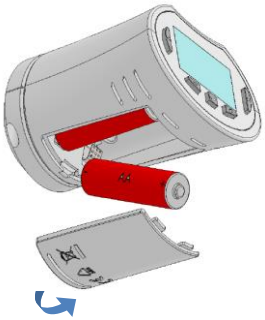
1.2 Display



1: Current day of the week.
2: Operating mode menus (active mode is framed).
3: Program number or parameter number if " 🛠" is displayed.
4: Installation Parameter menu.
5: Key lock indicator.
6: *AM* or *PM* for 12h clock hour display.
7: °*C* or °*F* unit indicator.
8: Setting temperature or Clock value.
9: Heating demand indication.
10: Pictograms for program creation, program state in normal operating mode.
11: Program of the current day. (current time bar blinks)
12: RF transmission logo.
13: Open window detection logo.
14: Temporary override function activated (Timer/booster mode)

2 First Installation

2.1 Batteries installation



- Open the battery cover and insert the 2 AA Alkaline supplied batteries (or remove the small protection sticker if the batteries are already installed in the compartment).

- Close the battery cover.

2.2 Time and Date adjustment

Each time a value blinks, you can adjust it with the **(-)** and **(+)** keys, once the value is chosen, validate it with the **(✓)** key. The thermostatic head will jump automatically to the next value.

Note: You can go back to the previous value by pressing **(◄)**
You can go to the next value by pressing **(►)**

List order of the time and date adjustments (Time & day):
Time 1. Adjustment of the hours
2. Adjustment of the minutes
Date 3. Adjustment of the year
4. Adjustment of the month number (01 to 12)
5. Adjustment of the day number (01 to 31)

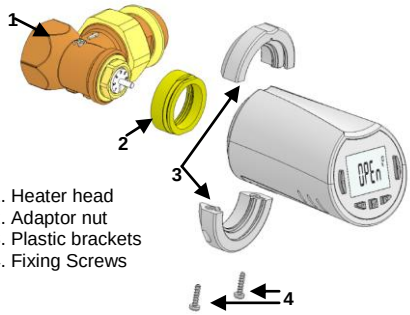
Then the blinking message **Save** appears, press **(✓)** to validate the adjusted time and date.
You can always reach the time and date adjustments by the clock update mode.

2.3 Thermostatic head installation

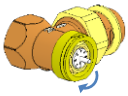
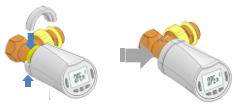
Motor Move Menu 10 🛠

Open completely the thermostatic head for an easy installation
-Go in the Parameters Menu number **10** by pressing and maintain the **(✓)** key for more than 5 seconds, and we will see the following screen :

-Press the **(✓)** key to validate. You will see **Open**. Wait the backlight extinction, the motor will perform the completely open move (during the move **Open** blinks). When the thermostatic head is in the completely open state, **Open** stops blinking and backlight shines again. You are ready to install the thermostatic head on your heater.



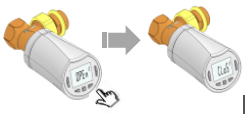
1. Heater head
2. Adaptor nut
3. Plastic brackets
4. Fixing Screws

STEP 1	***STEP 2***
	
Screw the Adaptor nut on the heater	Fix the brackets on the Adaptor nut and the thermostatic head

STEP 3

Fix the 2 screws on the brackets

STEP 4



Push the (✓) key to finish (**Clos**)

3 Stand-alone version

3.1 Starting

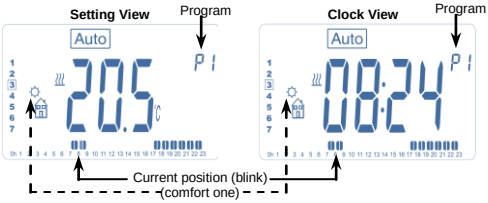
The thermostatic head is now ready to work.

The default working mode will be automatic Auto with a standard built-in program "**P1**".

Monday to Friday (week)

Saturday & Sunday (week end)

Note:
You can customise your program as you want, See the next part "**Working mode definition**" chapter "**Program**" for more explanations.



At any time, when the backlight is off, press any key to light-up the backlight, and then press another time the **(OK)** key to switch the view between the setting temperature and the time values.

3.2 Working modes definition

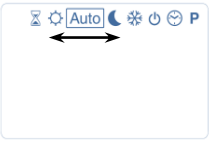
Following your installation (Unit installed) your thermostatic head will offer different possibilities.

Your thermostatic head has several working modes to allow you to adjust your unit according to your life habits.

How to change the working mode?

-Press any keys to switch on the backlight.

-You can now press **LEFT (◄)** or **RIGHT (►)** key to display the working mode choice menu.
Move the frame cursor on the desired working mode and press **(✓)** key to enter in the operating mode you have chosen.



3.2.1 Manual mode Comfort

Manual working mode, the comfort setting temperature will be followed all the time.
By pressing **LESS (-)** or **MORE (+)** keys, the comfort setting temperature starts to blink and can be adjusted.

3.2.2 Manual mode, Reduced

Manual working mode, the reduced setting temperature will be followed all the time.
By pressing **LESS (-)** or **MORE (+)** keys, the reduced setting temperature starts to blink and can be adjusted.

3.2.3 Manual mode, Anti-Freeze

Pressing **LESS (-)** or **MORE (+)** keys, the anti-freeze setting temperature starts to blink and can be adjusted.

3.2.4 OFF mode

⚠ **Be Careful:** In this mode your installation can freeze.

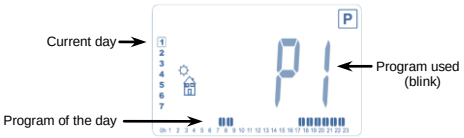
Use this mode if you need to switch off your installation.
Only the Time is viewed during this mode.

To restart your installation, use the navigation keys **LEFT (◄)** or **RIGHT (►)**.

3.2.5 Automatic mode

In this mode the thermostatic head will follow the chosen program (Built-in **P** or customized **U**) according to the actual time and the Comfort and Reduced setting temperatures.

3.2.6 Program mode



When you enter in the Program mode, the first operation is to choose the program number with **LESS (-)** or **MORE (+)** key.
You can choose between a built-in program **P1** to **P9** or a user program **U1** to **U4**.
If you choose a Built-in program **P1** to **P9**, you can only see and chose the program.

P1: Morning, Evening & Weekend
P2: Morning, Midday, Evening & Weekend
P3: Day & Weekend
P4: Evening & Weekend
P5: Morning, Evening (Bathroom)
P6: Morning, afternoon & Weekend
P7: 7H – 19H (Office)
P8: 8H – 19H & Saturday (Shop)
P9: Weekend (Secondary house)
(See the Annexe parts to view a complete description of the Built-in programs).

- Use the navigation keys **LEFT (◄)** or **RIGHT (►)** to change the program day displayed.

- Press the **(✓)** key to confirm your choice and come back to the main screen (in Auto mode).

If you chose a user program **U1** to **U4**, as above you can choose the program, see it, and you can also customise it.
Default setting:
U1, **U2**, **U3**, **U4** = comfort temperature all the week.

- Press **(OK)** key during 2 seconds to customise a user program.

Symbols and explanation for program creation:

First step of the day ☼(Comfort temp.)
The wakeup hour need to be adjusted.

Middle step of the day ☾(Reduced temp.)
The leaving hour need to be adjusted

Middle step of the day ☼(Comfort temp.)
The comeback hour will need to be adjusted

Last step of the day ☾(Reduced temp.)
The sleeping hour need to be adjusted

- The minimum program step is 30 minutes

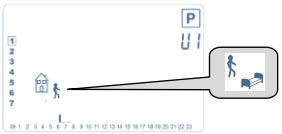
- Each time a value or icon blinks you are invited to make a choice with **LESS (-)** or **MORE (+)** keys.
Once the choice is made press the **(✓)** key to jump to the following step.

- The program creation will always start with the day value **1** (Monday).

Once you are in the program change mode (after pressing the **(OK)** key for more than 2 seconds), the following display will appear:

Now you are invited to adjust the hour of the first step of the program with **LESS (-)** or **MORE (+)** keys,

Press **(✓)** to validate and go to the following step.



Now you are invited to choose the type of the next step of the program (blinking icons), 2 choices will be possible (pressing **LESS (-)** or **MORE (+)** keys) :
- 1st choice is the leaving icon , to add one step.

- 2nd choice is the sleep icon. (End of the day).

When the choice is made, press **(✓) key** to validate.
Then you can adjust the step hour with **LESS (-)** or **MORE (+)** keys,

When step hour is set press **(✓)** to jump to the next step.

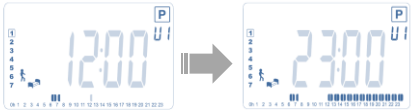
You will be directly invited to adjust with **LESS (-)** or **MORE (+)** keys the hour of the comeback step.

Press **(✓)** to validate and go to the following step.

You are again invited to choose the type of the next step of the program (blinking icons), with 2 choices:

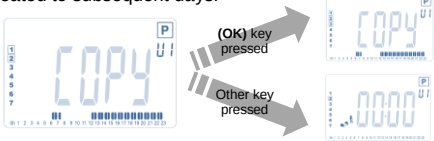
- 1st choice is the sleep icons . (End of the day)
- 2nd choice is the leaving icons, to add another step to the program during the day.

When the choice is made, press **(✓)** to validate and you can adjust the hour of this step with **LESS (-)** or **MORE (+)** key,



Press **(✓)** to validate and finish the edition of the first day.

Now you can choose to copy the program day just created to subsequent days.



Copy the current day to the following day by pressing the **(✓)** key. [on Tuesday on Wednesday... up to the last day of the week (7 Sunday)].

If you don't want to copy the current day press another key (**LESS (-)** or **MORE (+)** or **LEFT (◄)** or **RIGHT (►)** key)and you will be invited to create a program for Tuesday (repeat the previous method to build it.)

When you press **(✓)** key on the last day (7 Sunday) you will be invited to save your program.

Then the message "**SAVE**" appears and blinks until validation:

Press **(✓)** key to save your program and return to **AUTO** operating mode following your user program.

3.2.7 Timer/Booster mode

The Timer/Booster mode allows you to adjust, the temperature and the duration for a special time.
This function can be used when you stay at home for several days, or if you want to override the program for some time (reception...).

- You can first adjust, the desired setting temperature with **LESS (-)** or **MORE (+)** key, press **(✓)** key to start the function. (Default value **24°C**).
- In a second time, you can adjust the duration in hours "**h**" if below 24h, then in day "**d**" with **LESS (-)** or **MORE (+),** press **(✓)** key to validate. (Adjustable 1 Hour to 44 days).

The Timer/Booster logo will blink and the number of hours /days left is displayed until the end of the period.

You can switch between Timer counter value and temperature Timer value by pressing **(✓)** key.

If you want to stop the Timer/Booster function before the end, set the duration period to "**no**" with **LESS (-)** key.

3.2.8 Clock update mode

By pressing **LESS (-)** or **MORE (+)** keys, your are allowed to update time values (Hour – Minutes – Year – Month – Day of the month) and validate it by pressing **(✓)** key.
See section 2.2 "Time and Date adjustment"

4 In combination with Central Unit

4.1 Installation

If your thermostatic head works in combination with a RF Central Unit, it will become a remote unit.

To configure your thermostatic head with the BT-CT02 RF (Central Unit):
- Press and maintain the **(✓)** key during 5s, then you are in the Parameters Menu number **10**. Press the **RIGHT** key **(►)** to be in the RF pairing mode (User Menu number **11**).

** To ease the installation, it will be better to have the Central Unite near to the thermostatic head during the configuration mode. (A minimal distance of > 1 meter must be respected)

- Now put your Central Unit in RF pairing mode too. (please refer to the Central Unit leaflet for this)
The Central Unit will now send the radio configuration signal to the thermostatic head.
- After few seconds, the Central Unit and the thermostatic head should exit by themselves the RF pairing mode, this is the normal procedure to confirm a correct pairing.
- Now, you can check the RF distance and if RF signal is strong enough, replace the Central Unit to its room. Return to your room where the thermostatic head is placed. Put your thermostatic head in Comfort mode (setting temperature position 30°C), wait the backlight extinction and 5 seconds more (RF antenna will blink during RF communication on the LCD).
- Now return to the Central Unit to see the setting passes through the RF and is also equal to 30°C in the Central Unit.

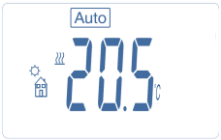
If the RF signals were received correctly, adjust your setting temperature as you like.
If the RF signals weren't received correctly, check the installation (Position, distance...) or restart the RF pairing rules to be sure. You may have to use a Watts RF repeater if you want to extend the RF range.
Please note that this is not possible to make a direct RF pairing between the BT-TH02 RF and a BT RF thermostat. If you want to use a BT RF thermostat in a room, you should pair the RF thermostat to the Central Unit BT-CT02 RF, then pair one or several BT-TH02 RF to the Central Unit.

4.2 Starting

The thermostatic head is now ready to work with the Central Unit. The default working mode will be the mode imposed by the Central Unit.

In case of Automatic mode Auto, no program can be changed from the thermostatic head, the program is directly set inside the Central Unit (see Central Unit leaflet). The following screens can be viewed:

Setting View



Clock View

Note: the time will be also sent by the Central Unit, then all your installation will be synchronized with the same time.

At any time, when the backlight is off, press any key to light-up the backlight, and then press another time the **(✓)** key to switch the view between the setting temperature and the time values. The days are not shown anymore as no programmation is available in the thermostatic head. Programmation is only possible inside the Central Unit.

4.3 Working modes

With the Central Unit, the Clock update and program modes are note available anymore as setting time values and program values are directly configured in the Central Unit.

The following modes are available; refer to stand-alone version chapters for more explanations

- Timer/Booster mode
- Manual mode, comfort
- Automatic mode

The thermostatic head will follow the program selected on the Central Unit.

- Manual mode, reduced
- Manual mode, Antifreeze

the anti-freeze temperature is set by the Central Unit (see the leaflet of the Central Unit to change the anti-freeze value of your installation)

- OFF mode

5 Special functions

5.1 Keyboard lock Function

Use this function to prevent all change of your settings (In a child room, public area…)

- To activate the Key lock function, press maintained the both **LESS (-)** and **MORE (+)** keys.
- The " " logo will be displayed on the screen.

- Repeat the same procedure to unlock the key board.

5.2 Open window function

Conditions of open window detection:
The thermostatic head detects an "Open window" if the room temperature decreases by 5°C or more during a 30 minutes period (or less).
In this case, the thermostatic head follows **7.0°C** setting.
The function remains active until the room temperature increases or until any key is pressed.
As an indicator of this function running, the logo will blink.

Return to normal mode:
-Room temperature increases again for more than 1°C.
-Press any key.

Then the blinking logo should disappear to indicate the end of the detection and return to previous setting temperature.

Special cases:
- This function doesn't work if Thermostatic head is in OFF / Antifreeze Mode

5.3 Valve exercise function

This function is performed if the thermostatic head doesn't move during 2 weeks.
This function doesn't work in OFF mode.

6 Parameters menu

Your thermostatic head has parameters menu, in order to enter in this menu, press and maintain the **(✓)** key during 5 seconds. Then parameters menu will appear and first parameter screen will be displayed:

Now you can select a parameter which must be adjusted with the navigation **LEFT (◄)** or **RIGHT (►)** keys, once the parameter chosen, toggle the value with the **(✓)** key, modify it with **LESS (-)** or **MORE (+)** and confirm your adjustment with **(✓)** Key.
To leave the parameter menu, choose the parameter « **End** » (menu number 21) and press **(✓)**.

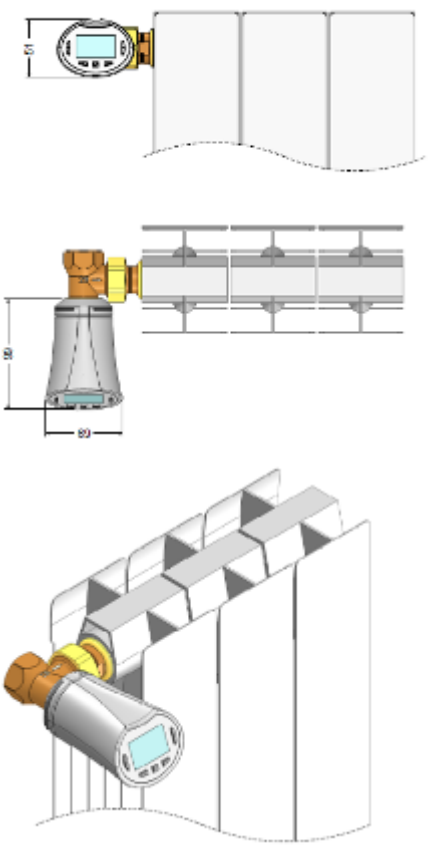
N°	Default value & other possibilities
10	**oooo** *Thermostatic head initialization* This menu is used for the first time you install the thermostatic head on the heater. It helps to completely open or close the thermostatic head and need to be done once.

11	**rF** *Radio configuration* Sends the radio link signal in order to assign this RF Thermostatic head with a Central Unit. You also need to set simultaneously the Central Unit in radio configuration mode (see receiver Central Unit leaflet)
12	**dEG** *Unit of the temperatures displayed* **°C** Celsius **°F** Fahrenheit
13	**hour** *Selection of the Time clock display* **24H** (24:00) **12H** (12:00 AM /PM)
14	**dst:** Daylight Summer time change Summer<->Winter **YES** automatic change according to date. **no** no daylight summer time automatic change.
15	**AirC**: Calibration of the internal probe The calibration must be done after 1 day working with the same setting temperature in accordance with the following description: Put a thermometer in the room at 1.5M distance from the heater and check the real temperature in the room after 1 hour. When you enter on the calibration parameter "**no**" is displayed on the right to indicate no calibration has made. To enter the value shown on the thermometer, use the **LESS (-)** or **MORE (+)** keys to enter the real value. Then, press **(✓)** key to confirm. The value will be stored in the internal memory. If you need to erase a calibration press **LEFT (◄)** or **RIGHT (►)** keys during the change, the old value will be erased and the message "**no**" will be displayed.
16	**ITCS** Intelligent Temperature Control System **YES** **no** This function will activate your installation in advance (2 hours maximum) to assure the desired temperature at the hour programmed following your weekly program. This automatic control system works in the following way: When you start your thermostatic head for the first time, it will measure the time taken by your heater to reach the set temperature. The thermostatic head will re-measure this time at each program change to compensate external temperature change & influence. You can now program your thermostatic head without the need to adjust the temperature in advance because it does automatically this for you.
17	**Win** Open window **YES** **no** This function, if activated, will detect the room temperature decreasing for more than 5°C and will automatically put the setting to **7°C** to save energy. (see section 4.2 for more details)
18	**Batt** Battery level Indicates the battery voltage value.
19	**Soft** *Software version* Indicates the software version v X.X
20	**Clr**: *Reset to Factory setting* Press and maintain **(Ok)** key during 2 seconds to reset Set points temperatures and user parameters in this menu to factory default settings. User programs will also be resetted. **Pay attention:** Ensure that you have all necessary elements to re-setup your installation before using this function.
21	**End**: Exit the parameters menu Press **(OK)** key to exit installation parameters menu and return to normal operation.

7 Technical characteristics

Environmental: Operating temperature: Shipping and storage temperature:	 0°C - 40°C -10°C to +50°C
Electrical Protection Installation Category	IP20 Class I
Temperature precision	0.1°C
Setting temperature range Comfort, Reduced Antifreeze Timer/Booster	 5°C to 30°C by 0,5°C step 7.0°C (adjustable) 5°C to 30°C
Regulation characteristics	PID
Maximum stroke	3,5mm
Maximum strength	70N
Differential pressure	1.5Bar
Power Supply Operating life	2 AA 1.5V Alkaline > 1 year
Radio Frequency	868.3 MHz, <10mW.
Software version	Showed in parameter menu 19. **v X.X**
Compatible with	Central Unit BT-CT02 RF
Norms and homologation: Your thermostatic head has been designed in conformity with the following standards or other normative documents:	 R&TTE 1999/5/EC EMC 2004/108/CE RoHS 2011/65/EU

8 Dimensions

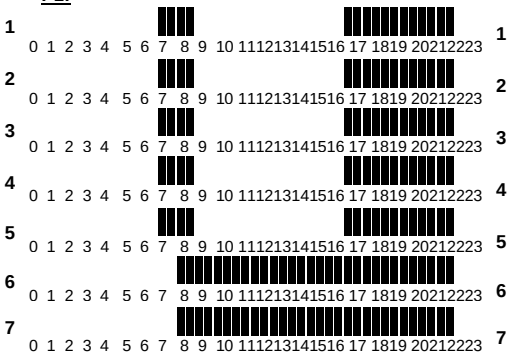


9 Troubleshooting & Solution

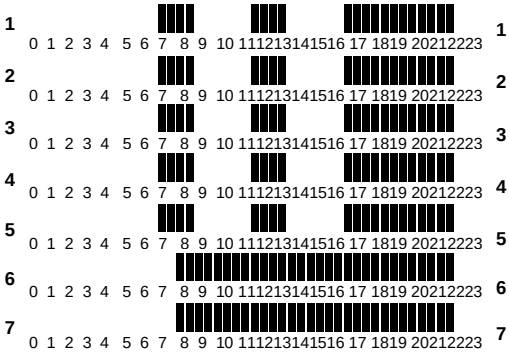
My **Thermostatic Head** doesn't start	
Batteries Problem	- Check if the protection sticker on the batteries is removed. - Check the batteries orientation. - Check the capacity of the batteries
Batteries level is too less	The word **Batt** and backlight blink - Replace the batteries.
My **Thermostatic Head** seems to work correctly but the RF communication doesn't work correctly	
Output	On the thermostatic head: - check the good reception of RF signal. - Check the batteries - Contact your installer.
My **Thermostatic Head** seems to work correctly but the temperature in the room was never in accordance with the program.	
Program	- Check the Clock. -The difference between Comfort & Reduced temperature is too high? - The step in the program is too short? - Contact your installer, to check & adjust the regulation parameters with your heating system.

Annexes (Built-in Program description)

P1:



P2:



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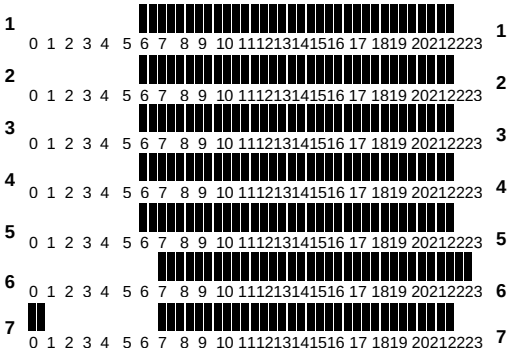

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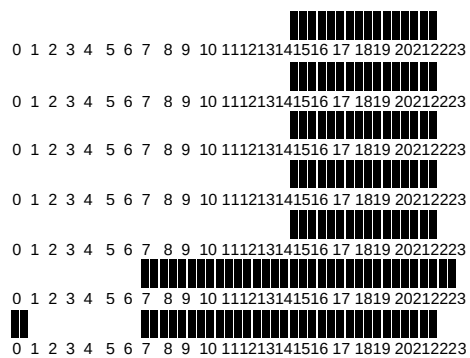

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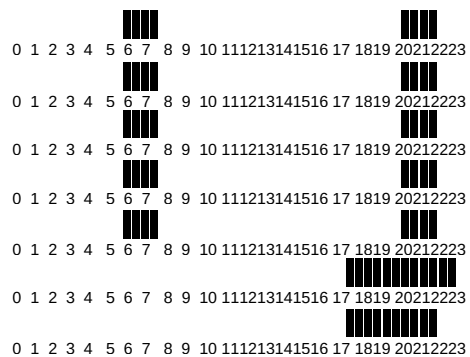

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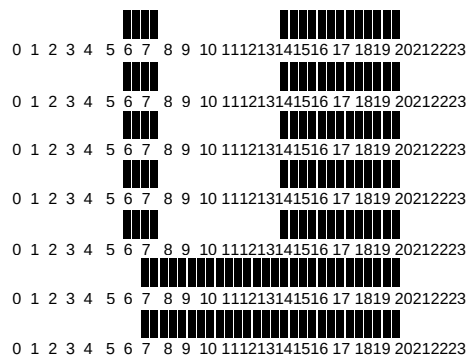

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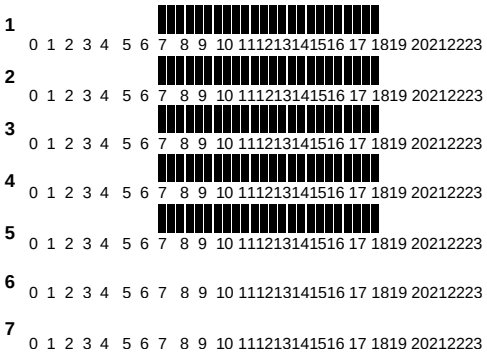
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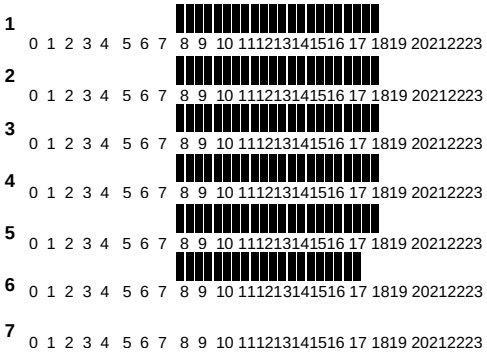
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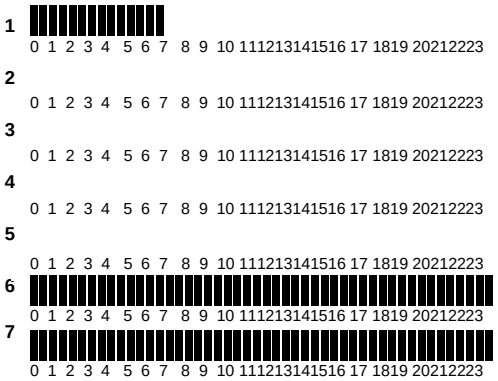
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