

User Manual

ENGLISH

Chronotronix

IN-18 NIXIE TUBE CLOCK



NIXIECLOCK.NET
by osmotec living concepts

Contents

1. Tubes 2

2. Battery 2

3. Safety Instructions..... 2

4. Unpacking the Clock 2

5. Positioning of the Clock..... 2

6. Operating Functions..... 2

7. Display Mode 2

8. Button Beep 2

9. Menu Navigation 3

 9.1 Submenus..... 3

 9.2 Menu Tree..... 3

10. Editing the Submenus 3

 10.1 Submenu 1.1: Setting Time 3

 10.2 Submenu 1.2: Setting Date..... 3

 10.3 Submenu 2.1: Setting Alarm..... 3

 10.4 Submenu 2.2: Setting Duration Time is Displayed 3

 10.5 Submenu 2.3: Setting Duration Date is Displayed 3

 10.6 Submenu 2.4: Setting Cross Fade..... 3

 10.7 Submenu 2.5: Setting Different Display Variants (time 12/24h and date DD.MM.YY / MM.DD.YY)..... 4

 10.8 Submenu 2.6: Setting Switch off Time for Night Power-Down Mode 4

 10.9 Submenu 2.7: Switch on Time of the Night Power-Down Mode 4

11. Setting Alarm Clock..... 4

12. Factory Presets 4

13. Memory 4

14. Life Expectancy of the Nixie Tubes..... 4

15. Replacing the Nixie Tubes 4

16. Life Expectancy of the Battery 4

17. Replacing the Internal Battery..... 4

18. Battery Disposal 5

19. Cleaning Clock and Tubes 5

20. Malfunction and Troubleshooting..... 5

21. Storage of Packing Material 5

22. Returns..... 5

23. Customer Support..... 5

1. Tubes

6 x IN-18 Nixie- Tube (selected)
2 x Colon Tube CT-IN-18

2. Battery

Lithium-button cell, Type CR2032.

Live expectancy of this battery is more than 10 years.

3. Safety Instructions

Read Instructions: All the safety and operating instructions should be read carefully and completely before the clock is operated. Heed

Warnings: All warnings on the appliance and in the operating instructions should be adhered to. Retain Instructions: The safety and operating instructions should be retained for future reference.

- The tubes operate with a 170V (DC). This electrical voltage is dangerous to come in contact with! This high voltage of 170VDC is generated **inside** the clock. There is a RISK OF ELECTRICAL SHOCK! Do **not** remove any parts of the housing or a tube while the clock is connected to the power supply.
- If one of the tubes is pulled off, the clock automatically switches off the internal power supply. The display turns off immediately and no voltage is supplied to the tubes.
- If one of the tubes is broken or damaged, the clock automatically switches off the internal power supply. The display turns off immediately and no voltage is supplied to the tubes.
- If one of the tubes is broken or damaged, immediately pull the power plug out of the clock and contact the customer support.
- The tubes are made of glass and are consequently very easy to break. Because of their fragility, it is important that you keep the clock in a safe place free from the possibility of being struck inadvertently.
- No part of the clock may be swallowed or inserted into body openings.
- The power supply may not be swallowed or inserted into body openings.
- No part of the clock or the power supply may be used for other purpose other than described in this user manual.
- Water and Moisture: The clock should be kept in a dry room free from humidity and dust. The clock should not be used near water – for example, near a bath tub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, in a sauna, etc. In addition the clock should be kept out of direct sunlight and high temperatures.
- Object and Liquid Entry: Care should be taken so that the clock does not fall into and liquids or have them spilled over the clock.
- Do not use this appliance for anything other than the intended use as described in the manual.
- Immediately pull the power plug out of the clock and contact the customer support if the appliance does not appear to operate normally or exhibits a marked change in performance. In this case do not run the clock again!
- This clock is not a toy! Keep this clock out of the reach of children.
- Pay attention that this clock shall only be touched by people who have completely read and understood the user manual.

4. Unpacking the Clock

You shall find a pair of cotton gloves inside the box. In order to avoid leaving fingerprints on the case and tubes please wear them whenever you touch the unit.

Carefully take the clock out of its packing. Check the clock and in particular the tubes for damage incurred during transport.

Check also, if all 6 Nixie tubes sit tight in their sockets. Press the tubes down carefully with little force (not more than 1lb (0.4kg)) and check the correct and straight mount of the tubes in their sockets.

Take the power supply out of its packing and check for any apparent physical damage. If you recognize any damage do not power the clock and contact the customer support.

5. Positioning of the Clock

- The line voltage in your country has to be between 100 and 240 Volts AC. The line frequency has to be between 50 and 60 Hz. The power outlet must be grounded. Within these restrictions the clock can be used in every country of the world. If you have other line power data as specified, please contact the customer support.
- The clock should be kept in a dry room free from humidity and dust. The clock should not be used near water – for example, near a bath tub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, in a sauna, etc. In addition the clock should be kept out of direct sunlight and high temperatures.
- Keep the unit's operation area well-ventilated. The unit should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances that produce heat.
- Case and tubes shall become slightly warm while operation; this is not a malfunction.
- Never cover the clock with any kind of hoods, foils, boxes, paper, clothes or other items.
- Put the power plug of the power supply into the connector at the back of the clock.
- Connect the power supply over the line power cord with the power outlet. If the power plug doesn't fit to your power outlet use any 3 prong line power connection cord, which fits for your country. The power outlet and the 3 prong line power connection cord must be earthed.

6. Operating Functions

After powering the clock, the software gets time, date and all stored settings out of the memory cache. The internal power supply is automatically switched on. The clock switches to display mode. On the back of the clock you shall find 3 button switches. The left one (seen from front) is button 1, the one in the middle is button 2 and the right one is button 3.

7. Display Mode

In display mode, the display alternates between time and date.

If the time is displayed, both dots of the colon tubes are lit.

If the date is displayed, only the lower dots of the colon tubes are lit.

If button 3 is pressed, the date is displayed compulsorily for 3 seconds. This is useful e.g. if the clock is set up for "only time" display and the date shall be displayed for a short time.

If button 2 is pressed, the time is displayed compulsorily for 3 seconds. This is useful e.g. if the clock rests in power down (night) mode and the time shall be displayed for a short time.

8. Button Beep

If a button is pressed you shall hear a short beep.

9. Menu Navigation

There are 2 main menus.

If in display mode, button 1 is pressed long time (1 second), the main menu 1 shall be entered.

If in display mode, button 1 is pressed shortly the main menu 2 shall be entered.

- Main menu 1: Setting time and date
- Main menu 2: Setting operating functions

If a menu is entered the cross fade mode is not active.

9.1 Submenus

In the main menus the submenus can be switched through upward by pressing button 2.

In the main menus the submenus can be switched through downward by pressing button 3.

At the end of a menu-line it switches to the first (going backwards last) entry.

To enter and edit a submenu button 1 must be pressed.

If a submenu is entered, both dots of the colon tubes are flashing.

To leave a submenu, button 1 must be pressed long time (1 second) and you will return to the main menu.

To leave a main menu, button 1 must be pressed long (1 second) and the clock shall switch back to display mode.

9.2 Menu Tree

- Main menu 1
 - 1.1 Setting time
 - 1.2 Setting date
- Main menu 2
 - 2.1 Setting alarm time
 - 2.2 Setting duration time is displayed
 - 2.3 Setting duration date is displayed
 - 2.4 Cross fade setting
 - 2.5 Setting different display variants (time 12/24h and date DD.MM.YY / MM.DD.YY)
 - 2.6 Setting switch off time for night power-down mode
 - 2.7 Setting switch on time for night power-down mode

If a submenu is entered, the chosen value can be count up by pressing button 2

If a submenu is entered, the chosen value can be count down by pressing button 3

10. Editing the Submenus

10.1 Submenu 1.1: Setting Time

If this menu is entered, the display shows the preset time.

If the clock is set up to AM/PM mode, nevertheless the display shall show the time in 24-h mode.

With button 2 and 3 the chosen digit can be set. To switch to the next position button 1 must be pressed.

To confirm the shifting from digit to digit, the following digit flashes (the numbers scroll through). After the last digit, the first digit shall be enabled again.

The time of the day shall exactly be written into the memory, when the submenu 1.1 is left. Therefore the clock can be set exactly on the dot.

10.2 Submenu 1.2: Setting Date

This submenu is similar to submenu 1.1 with the exception that the current date shall be displayed and edited.

The date shall be displayed in the arrangement DD.MM.YY. Even if the clock is setup to display the date in MM.DD.YY arrangement.

The year can be set from 00 to 59.

If a corrupt date is set (e.g. 31.02.2004) the clock would accept that date. But at the next change of a day, the date shall be corrected to any correct one (e.g. 01.04.2004).

10.3 Submenu 2.1: Setting Alarm

In this submenu the alarm time can be set.

The display shows the current alarm time, to which the alarm starts to sound.

If the clock is set to AM/PM mode, nevertheless the display shows the time in 24h mode.

Using button 2 and 3 the chosen digit can be set. To switch to the next position, button 1 must be pressed.

To confirm the shifting from digit to digit, the following digit flashes (the numbers scroll through). After the last digit, the first digit shall be enabled again.

10.4 Submenu 2.2: Setting Duration Time is Displayed

If this submenu is entered, the display shows 02:00:xx whereas 'xx' indicates the duration the time is displayed. This value can be set form 00 to 59 seconds.

The value 00 means: The time shall not be displayed. Accordingly, only the date would appear in display mode. If you own two IN-18 Nixie

clocks you can use this function to set one clock to display 'date only' and the other one to display 'time only'.

Through button 2 and 3 the chosen digit can be set. To switch to the next position, button 1 must be pressed.

To confirm the shifting from digit to digit, the following digit flashes (the numbers scroll through). After the last digit, the first digit shall be enabled again.

10.5 Submenu 2.3: Setting Duration Date is Displayed

If this submenu is entered, the display shows 03:00:xx whereas 'xx' indicates the duration the date is displayed. This value can be set form 00 to 59 seconds.

The value 00 means: The date shall not be displayed. Accordingly, only the time would appear in display mode.

Through button 2 and 3 the chosen digit can be set. To switch to the next position, button 1 must be pressed.

To confirm the shifting from digit to digit, the following digit flashes (the numbers scroll through). After the last digit, the first digit shall be enabled again.

10.6 Submenu 2.4: Setting Cross Fade

If this submenu is entered, the display shows 04:xx:yy whereas 'xx' indicated the cross fade value.

At the digits 'yy' runs a counter which shows the seconds. These 2 digits will show demonstrate the current setting of the cross fading. You can watch the different settings and chose your preferred cross fading.

The cross fade settings at position 'xx' mean the following:

- 00: no crossfading, the digits jump from one to the next.
- 01: very fast crossfading from digit to digit
- 02: fast crossfading from digit to digit
- 03: middle fast crossfading from digit to digit (standard value)
- 04: slow crossfading from digit to digit
- 05: very slow crossfading from digit to digit

10.7 Submenu 2.5: Setting Different Display Variants (time 12/24h and date DD.MM.YY / MM.DD.YY)

If this submenu is entered, the display shows 05:00:xx whereas 'xx' indicates the following:

- 00: Display mode shows time in 24h mode and date in arrangement: DD.MM.YY
- 01: Display mode shows time in AM/PM (12h) mode and date in arrangement: DD.MM.YY
- 02: Display mode shows time in 24h mode and the date in arrangement: MM.DD.YY
- 03: Display mode shows time in AM/PM (12h) mode and date in arrangement: MM.DD.YY

10.8 Submenu 2.6: Setting Switch off Time for Night Power-Down Mode

The display (internal power supply) can be automatically switched off for a user defined time. The display shows the entered time the display switches off. If the clock is set up to AM/PM mode, nevertheless the display shall show the time in 24h mode.

With button 2 and 3 the chosen digit can be set. To switch to the next position, button 1 must be pressed.

To confirm the shifting from digit to digit, the following digit flashes (the numbers scroll through). After the last digit, the first digit shall be enabled again.

If the alarm was active, and the night power-down mode was compulsorily set inactive for 30 minutes. For this time period the night power-down mode is switched off. Just 30 minutes after the alarm, the clock would switch back to the night power-down mode (display off).

Use the night power-down mode in order to save energy, and increase the live expectancy of the tubes.

10.9 Submenu 2.7: Switch on Time of the Night Power-Down Mode

This submenu is similar to submenu 2.6 but it shows the time the display is switched on.

If you do not want to use the night power-down mode, set both times (submenu 2.6 and 2.7) equal. Accordingly, the display shall never switch off.

11. Setting Alarm Clock

The alarm function can be switched on and off in display mode.

If the alarm function is switched off and button 2 is pressed long time (1 second), the alarm function shall be switched on. In this case the display changes to the actual set alarm time (in 24h mode) and all 4 dots of the colon tubes are lit. After 1 second (button 2 is not pressed) the display switches back to display mode.

If the alarm function is switched on, and button 2 is pressed long (1 second), the alarm function shall be switched off. In this case the display changes to the actual set alarm time (in 24h mode) and all 4 dots of the colon tubes are switched off. After 1 second the display switches back to display mode.

If the alarm clock function is switched on and the alarm time is reached, the alarm tone shall beep.

In the event the alarm starts while the clock is in night power-down mode, it automatically switches to display mode. After 30 minutes the clock will switch back to night power-down mode (in case the switch on time of the night power-down mode is not already reached).

If button 3 is pressed while the alarm sounds, the alarm signal gets switched off.

If the alarm is not switched off by pressing button 3, it automatically switches off after 30 minutes.

12. Factory Presets

Main menu 2:

- 00:00:00 (Alarm time)
 - 02:00:05 (display mode of time: 5 seconds)
 - 03:00:02 (display mode of date: 2 seconds)
 - 04:00:03 (Cross fade setting: 3)
 - 05:00:00 (time display in 24h mode and date display in DD.MM.YY arrangement)
 - 00:00:00 (switch off time for night power-down mode)
 - 00:00:00 (switch on time for night power-down mode)
- Alarm clock function is switched off.

13. Memory

All settings (including time, date, aso.) are stored internally while no power line is available.

14. Life Expectancy of the Nixie Tubes

Unfortunately, there are no actual data sheets available for this nixie tube specifying the life expectancy for a use in clocks. This is due to the fact Nixie tubes were not originally manufactured to use them as clock displays. But we expect them to last longer than they did decades ago.

15. Replacing the Nixie Tubes

To observe all protection provisions, the tubes may only be changed by a qualified professional.

To replace a Nixie tube, carefully pull it out of its socket. Carefully put the new tube into the socket by pressing it down completely. Take care of the correct and straight mount of the tubes in their sockets and that all pins of the base slip into the correct receptacle. Take care of the nipple at the bottom of the tube. This nipple can be damaged very easily and the tube would be useless. Please be careful to not hit the nipple against anything.

We shall not be accepting any broken Nixie tubes that were damaged from improper replacements procedures.

16. Life Expectancy of the Battery

The life expectancy of the internal battery is more than 10 years.

17. Replacing the Internal Battery

If the clock does not store time while no power is available, the internal battery is probably weak. Replacement lithium button cells of the type CR2032 can be purchased at your local battery dealer. Observe the safety instructions of the battery manufacturer.

To replace the battery, pull the power plug out of the clock.

Put the clock on a soft surface to protect the tubes from damage. Put the clock on the front, in order to reach the screws on the bottom of the clock. Remove the 6 screws on the bottom of the clock. Remove the bottom plate.
 Remove the weak lithium- battery out of its holder and replace it with the new one. Note that the plus pole of the battery must point to the bottom of the clock.
 Make sure you do not forget any tools inside the clock.
 Mount the bottom plate with the 6 screws.
 Check all functions of the clock and then check if the clock stores the time by pulling the power plug out of the connector.
 If you have problems with this process, contact the customer support.

18. Battery Disposal

Do not dispose batteries to the household waste.
 Only dispose your old batteries to appropriate points of acceptance.
 Ask your battery dealer for a professional battery disposal.

19. Cleaning Clock and Tubes

For safety reasons, unplug the clock before cleaning.
 Clean the clock by gently wiping with a clean, dry cloth. Never use harsh or abrasive cleaners or organic solvents or any liquids on the clock or any of its parts.

20. Malfunction and Troubleshooting

Problem:

No display (all tubes off)

Reasons and Solution:

- a) No line power: Check the outlet for correct voltage. Check if the power cord is connected correctly to the power supply and if the power plug is connected to the clock.
- b) A tube is defective: If a tube is damaged or defective the clock immediately switches off the internal high voltage power supply. Contact the customer support.
- c) The clock is in night power-down mode. Read the corresponding submenu 2.6 and 2.7.

Problem: Nixie tubes sit slant in the sockets.

Solution: Press the tubes down carefully with little force (not more than 1lb (0.4kg)) and check the correct and straight mount of the tubes in their sockets.

Problem: Colon tubes sit slant in the clock.

Solution: Carefully bend the colon tubes straight. The colon tubes are mounted in a rubber base and shall not break as they are moved. However, do never pull a colon tube out of the clock.

Problem: The clock doesn't store time and date while no power line is available.

Reason and solution: Probably, the internal battery is weak. See topic 'Replacement the Internal Battery' on how to replace the internal battery.

Problem: The clock generates abnormal noise.

The following noises are absolutely normal:

- Quiet, high frequent buzzing of the clock
- Quiet crackling of the nixie tubes, while they heat or cool down.
- Alarm tone of the internal buzzer

If you experience any other noise, immediately disconnect the tube from the line, contact the customer support and do not try to power the clock again.

Problem: One dot of the colon tubes is not lit.

Reason and solution: Probably, one neon glow lamp inside the colon tube is burned out. The glow lamps can't be replaced by the customer. Please contact the customer support.

Other problems: Please contact the customer support.

21. Storage of Packing Material

Remember to save your original box and packing material in the event that you have to ship or transport the clock. The original packaging is absolutely required for transport.

22. Returns

We will not accept any returns in a packaging other than the original one.

23. Customer Support

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