

User Guide



Connex Nixie 6 Table Clock

Version 1.0

Table of Contents

Introduction.....	3
Specifications.....	3
Safety.....	3
How to Use Your Nixie 6.....	4
Initial Setup.....	4
Advanced Setup.....	5
Setting the Coordinated Universal Time (UTC) Time Zone ¹	6
Setting Summer Time/Daylight Savings.....	7
Time Correction.....	8
Number Change Ghosting.....	9
Colon Blinkers.....	9
Backlight Color Change Program.....	9
Manual Color Settings.....	9
Additional Functions.....	IO
Warranty.....	II

¹ Applicable only to the Nixie 6 G and AG.

Introduction

The Connex Nixie 6 Table Clock (hereinafter “Nixie 6”) is designed to display the exact time and date through gas-discharge tubes. The backlighting of the tubes is carried out by RGB LEDs. The clock is equipped with a built-in battery that will continue counting time in case your Nixie 6 loses power.

Depending on the model² of your Nixie 6, your clock may have the following supplementary features:

- Remote control for menu setup and backlight programming.
- GPS module for setting the exact time and date.
- Temperature Sensor.

Specifications

1. Power Supply.....	12-18 V
2. Maximum current consumption.....	1 A
3. Average current consumption.....	0.35 A
4. Accuracy.....	98.5%*
5. Battery.....	CR1220

* Adjustable

WARNING

Please read the following to ensure safe and effective handling of your Nixie 6:

High Voltage: Do not power on the Nixie 6 while it is unassembled. Touching the circuit board while it’s plugged-in can cause serious bodily injury due to

² See Table 4 on page 10.

electrocution.

Sensitive Glass Tubes: The vacuum tubes on the Nixie 6 are new-old-stock IN-14's that were developed and used by the Soviet military. They are sensitive to strikes, falls and other impacts. If they break, the user will be exposed to sharp parts that can cause injuries. Please treat them with care!

Battery: The Nixie 6 contains a CR1220 battery that is designed to keep running the clock if your device loses power. Please note that if you lose power when the battery is missing or corrupted, your custom settings will reset to factory defaults.

How to Use Your Nixie 6

3-Button Control Panel – Operation Mode

Left button	Middle Button	Right Button
Enter Settings Menu.	Show Date.	Toggle backlight on/off. ³

Table 1

Initial Setup

1. Plug the provided power supply into the 12V jack at the back of your Nixie Clock. Plug the power supply's 2-prong connector into a wall outlet and wait until the time is shown. By default, the time is set to 00:00:00.
2. Press the Menu button. The backlight will turn crimson, and the backlight of the first pair of tubes (on the far left) will become brighter. This is the *hours* field. Use the Minus and Plus buttons to input the hour of the current time.
3. Press the Menu button again. The highlighted field will shift over to the pair of tubes in the middle. This is the *minutes* field. Use the Minus and Plus buttons to

³ If you've turned the backlight off in the settings, then you won't see any response to pressing this button. Please note that the backlight is always on in Setup Mode (this allows you to toggle through the Settings Menu).

input the minutes of the current time.

4. Press the Menu button again. The highlighted field will shift over to the pair of tubes on the far right. This is the *seconds* field. Use the Minus and Plus buttons to reset the seconds.

Advanced Setup:

3-Button Control Panel – Setup Mode

Left button	Middle Button	Right Button
Menu navigation: toggling through tubes and “pages.”	Minus (-): decreasing the value of the selected field.	Plus (+): Increasing the value of the selected field.

Table 2

After you’ve set the time, press the Menu button (the left button) again and you will enter the next “Page” of the Nixie 6’s settings.

The Nixie 6 Settings Menu has as many as six different Pages (depending on the model) that allow you to customize different functions to your liking. For a complete listing of options, refer to **Table 3**.

You can access the Settings Menu anytime by pressing the left button on the control panel (grid key [#] on the remote control⁴).

To exit the Settings Menu, press the Menu button repeatedly until you have toggled through all the Pages. OR, wait 30-45 seconds for your Nixie 6 to switch to standby mode.⁵

⁴ Applicable only to the Nixie 6 R.

⁵ This option may not be available in older software versions of the Nixie 6.

Settings Menu

Page	Color	Left Pair of Lamps		Middle Lamps		Right Pair of Lamps	
1	Crimson.	Set hours.		Set minutes.		Reset seconds.	
2	Green.	Set date.		Set month.		Set year.	
3	Blue.	Set time zone. ⁶		Time correction.		Toggle number change ghosting on/off.	Toggle colon blinker speed.
4	Yellow-Green.	Toggle GPS on/off. ⁷	Toggle backlight on/off.	Toggle 12 hr. clock on/off	Toggle Backlight Color Change Program.	Toggle Summer Time/Daylight Savings.	Toggle remote control on/off. ⁸
5	Varies with Backlight Color.	Manual Color Setting: Red.		Manual Color Setting: Green.		Manual Color Setting: Blue.	
6 ⁹	Orange.	Set alarm clock hours.		Set alarm clock minutes		Toggle alarm clock on/off.	

Table 3

Setting the Coordinated Universal Time (UTC) Time Zone (for Nixie 6 G and AG)

On Page 3 of the Settings Menu, you can set the time zone by toggling through 0-24. Numbers 0-12 indicate an increase in hours from UTC, while numbers 13-24 indicate a decrease in hours from UTC.

Your Nixie 6 uses the following formula to set the time zone:

$$T = 12 - x$$

For example: if you live in King Edward Point, then your time zone is UTC-2.

⁶ Applicable only to the Nixie 6 G and AG.

⁷ Applicable only to the Nixie 6 G and AG.

⁸ Applicable only to the Nixie 6 R.

⁹ Applicable only to the Nixie 6 A and AG.

You can determine which value to input into the Nixie 6 by performing the following calculation:

$$T = 12 - (-2)$$

$$T = 14$$

This means that if you live in King Edward Point (UTC-2), you'd enter 14 as your time zone value.

OR

Suppose you live in Madagascar. Your time zone will be UTC+3. You can determine which value to input into the Nixie 6 by performing the following calculation:

$$T = 12 - (+3)$$

$$T = 9$$

This means that if you live in Madagascar (UTC+3), you'd enter 9 as your time zone value.

Setting Summer Time/Daylight Savings

UTC Time is constant – it does not change with Summer Time or Daylight Savings. To program the Nixie 6 with Summer Time/Daylight Savings, input the correct value in the Summer Time/Daylight Savings field (as listed in Page 4 of the Settings Menu).

Summer Time/Daylight Savings values can be programmed as follows:

- **0:** Disabled.
- **1:** European Summer Time (time change on last Saturday of September and March).
- **2:** American Daylight Savings (time change on the second Sunday of March and the first Sunday of November).

Please visit these pages for more information:

https://en.wikipedia.org/wiki/Daylight_saving_time

https://en.wikipedia.org/wiki/Daylight_saving_time_by_country

https://en.wikipedia.org/wiki/Summer_Time_in_Europe

https://en.wikipedia.org/wiki/Daylight_saving_time_in_the_Americas

https://en.wikipedia.org/wiki/Daylight_saving_time_in_Oceania

https://en.wikipedia.org/wiki/Daylight_saving_time_in_the_United_States

Time Correction

Your Nixie 6 can be programmed to compensate for timing inaccuracies. Time deviation calculations are carried out according to the following formula:

Correction (# of seconds/24 hours) = (50 - (fixed number)) x 5.2 sec

You can toggle the “fixed number” in the Time Correction field from anywhere between 01-99.

This means that you can set the time correction on your Nixie 6 to anywhere between +254.8 seconds/24 hours and -254.8 seconds/24 hours.

To Correct the Time:

First, make sure the Time Correction value on your Nixie 6 is set to 50.

Work your way back to Page 1 of the Settings Menu. Set the time on your Nixie 6 to a reliable source (such as www.time.gov).

Wait 24 hours and check the difference between your Nixie 6 and whichever reliable source you have chosen as your comparison time. Once you know how many seconds your Nixie 6 has deviated, use the time correction formula to determine which “fixed number” you should select.

Remember that all the fixed numbers below 50 will give you positive numbers (which you can use if your Nixie 6 is counting time too quickly).

And remember that all the fixed numbers above 50 will give you negative numbers (which you can use if your Nixie 6 is counting time too slowly).

Number Change Ghosting

Your Nixie 6 can be customized to provide smooth number transitions. Each new value will gradually cover the previous value, giving the user a “ghosting” effect.

0 = Number Change Ghosting Off

1 = Number Change Ghosting On

Colon Blinkers

The neon dividing lights on your Nixie 6 can be toggled to blink at two different speeds.

0 = Blink at 0.5 Hz (1 time every 2 seconds)

1 = Blink at 1 Hz (1 time every 1 second)

Backlight Color Change Program

Your Nixie 6 has nine different backlight color programs. If you wish to set the backlight colour manually, then enter “0” into the Backlight Color Change Program field.

Manual Color Settings (Settings Menu Page 5)

You can toggle the backlight color to your liking by manipulating the values in the red, green and blue field.

Each color can be set to a value between 0 and 40.

Note: If you wish to set the backlight color manually, make sure the Backlight Color Change Program field (on Page 4) is set to “0.”

Additional Functions

GPS Model (Nixie 6 G): The GPS function allows you to connect a special antenna to your Nixie 6, allowing it to receive highly accurate time information. You will need to place the Nixie 6 by a window for the GPS function to work properly.

In the event that the signal is lost, the Nixie 6 G will synchronize itself to an internal clock until the GPS signal is resumed.

Remote Control: Currently Under Development.

Temperature Sensor: Currently Under Development.

Alarm Clock: The Nixie 6 A and AG are programmed with an alarm clock (see Settings Menu Page 6). The alarm signal consists of a bright white glow, LED blinking and 1-3 kGts frequency sound. The alarm will sound for two minutes. It can be manually turned off by pressing one of the control panel buttons. The alarm signal will repeat itself every 24 hours (unless manually turned off in the menu).

Nixie 6 Models

Model #	Features
-	Standard features (clock with RGB backlight).
A	Standard features + alarm clock.
G	Standard features + GPS
R	Standard features + IR remote control support
T	Standard features + temperature sensor.
AG	Standard features + GPS + alarm clock.

Table 4

Warranty

The manufacturer (Milliclock) guarantees uninterrupted operation of the electronic part of the device within 1 year of the date of purchase. The average service time of the electronic part of the device is 5 years.

This warranty does not cover the IN-14 vacuum tubes or the CR1220 battery.