

6 digits IN-18 BIG Nixie Clock . Newly designed!

Thanks for purchasing my 6 digits IN-18 Big Nixie Clock.

I have tried to create stylish, reliable, accurate and easy to use Clock and I hope you love it and this Clock is what you are really expected to see when you was looking for Nixie Clock.

Please read carefully the information below as it will help you to use your Clock efficiently and in proper way and hopefully will avoid any negative moments which could arise in case of incorrect or careless use.

Clock key features:

Six 40mm high digits (IN-18 Nixie Tubes)

Displays modes: Time , Date, 2 Alarm clock sets, Blank, 6 digits info via serial port.

Accurate time clock source from internal crystal (not 50/60Hz from main).

Integrated 2 Alarm Clocks

Easy control with only 2 buttons

Uses standard 12v wall plug Power Supply

Precision Seconds setup

Internal battery for data protection in case of main power failure

Will generate alarm buzz even main power is off !!!

Internal buzzer for Alarm1 and Alarm2

2 external outputs trigger on Alarm1 and Alarm2 events

Blank Mode – all digits switched off, but alarms set and clock running.

RS232 serial port connection to display 6 digits information from PC or other device.

The Clock functions in two main modes:

Display Mode and **Setup mode**

Display mode:

In the Display Mode Clock indicates the following information:

Time in format HH MM SS ,

where HH is Hours (00-12 or 00-23), MM is Minutes (0-59), SS is Seconds (00-59)

Alarm1 in format HH MM 1, where number 1 indicates Alarm1

Alarm2 in format HH MM 2, where 2 indicates Alarm2

Date in format : DD.MM.YY (IN-3 neon lamps act as dot separators),

where DD is day (1-31), MM is Month(1-12), YY is Year (00-70)

Time and Date in format HH MM SS and DD.MM.YY with 7 seconds interval

Blank/Serial Port Info, all digits are switched off or

Displays the information loaded via RS232 Serial Port

More detailed description of buttons use:

In the **Display mode** you can do:

Button1. Normal push shuts alarm buzzer off, if it was buzzing at this moment

Button1. Long push changes time **Display Mode** from 24h to 12 hours scale. Second long push will change it back from 12h to 24 hours scale.

Button2. Normal push changes information to display – Time , Alarm1, Alarm2, Date or Time/Date, Blank/RS232_Info and back to Time.

Button2. Long push leads to Setup Mode, where you can modify the appropriate values.

Button1 & Button2 together. Long push leads to Frequency Test Mode. Clock will display 200000, which means 200kHz frequency output has been activated.

Please note, that the only way to leave this mode and come back to the normal **Display mode** is to switch your Clock off and disconnect backup battery. All your current time, date, alarms sets or loaded Rs232 info will be lost, so you'll need to set it up again.

In **Setup Mode** you can do:

Button 1. Normal push increments the value of highlighted digit.

Button1. Long push switches off Active Alarm (works only in Alarm1 or Alarm2 Setup mode).

Button2. Normal push changes the position of highlighted digit

Button2. Long push goes back to Display Mode, where Clocks displays the current Time, Date, Alarm1 or Alarm2 sets.

How to setup Time, Date and Alarms

To set or adjust the **Current Time**, push Button1 until Clock starts to display time.

Now push and hold Button1 until Seconds Ones digit starts to flash.

Release Button1. You are in the Setup Mode now.

Seconds Ones digit is highlighted by flashing, so Seconds value can be reset by pushing Button2 now.

Push Button1 to highlight next digit. Push Button1 and it highlights Seconds Tens digit. You can push Button2 to reset seconds value.

Push Button1 to highlight next to the left digit. Now Minutes Ones are flashing.

Use Button2 to set correct value. Every Button1 push will increase value by one.

Push Button1 to choose next digit to set. Minutes Tens will be flashing.

Push Button1 again in case don't need to change Minutes tens value

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Ones digit should be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Tens should be flashing.

Use Button2 to set correct value.

Now you set the current Time.

Push Button1 and it will highlight Seconds Ones again. Push Button1 to reset seconds value when you need to synchronize the seconds.

Push and hold Button1 until Digit stops flashing. You have left Setup Mode.

To set the current date push Button1 until clock displays Date.

Use the same technique to set up Date.

Now push and hold Button1 until Years Ones start to flash.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Year Tens will be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Month Ones will be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Month Tens will be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Day Ones will be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Day Tens will be flashing.

Use Button2 to set correct value.

If some digits still don't have the correct value, push Button1 until this digit is highlighted again.
Use Button2 to correct the value.

To leave Setup mode push and hold Button1 until Digit stops flashing.

Use the same technique to **set Alarm1 or Alarm2.**

To go to the Alarm setup mode, just choose the Alarm Time to display then push and hold Button1 until first Alarm digit starts to flash. You are in the alarm setup mode now.
In this case only 4 digits can be set up and first digit is to be highlighted is Alarm Minutes Ones.

In the Alarm setup mode, when digit is flashing, as soon as you change Alarm digit Value by pressing Button2, left or right dot separator lamp starts blinking and this Alarm will be activated.

Left dot separator lamp blinks when Alarm1 is active.

Right dot separator lamp blinks when Alarm2 is active.

Please note, that dot separator lamp blinks only in Alarm1 or Alarm2 Display or Setup Modes.

To de-activate Alarm, go to the Alarm Setup mode, then push and hold Button1 until left or right dot separator lamp stops blinking, which means this alarm is no longer active. To leave Alarm setup mode, push and hold Button2 until digit stops to flash. You are now in the **Display Mode**.

How to change from 24 to 12 or from 12 to 24 Hours displaying

I recommend to do this procedure sometime after lunch, when PM time is started. It gives you clear sign that you have changed the time scale.

Please make sure you are in Display Mode with Current Time indication.

Push and hold Button1 until Clock changes time from 24h to 12 hours scale. If you do it after lunch, hours indication value will be changed from 13 to 01 for example.

Release Button1. Check that Clock is displaying time correctly.

Second long push will change it back from 12h to 24 hours scale.

Release Button1. Check that Clock is displaying time correctly.

Using Backup battery

Just put jumpers on the Backup battery connector to activate your current time and Alarm Sets power failure protection.

How to load and display data via RS232 serial port

Component layout diagram contains clocks RS232 pin out diagram. 3 wire serial port cable should be used for Clock – PC interconnection.

Please use the following parameters to configure PC serial port:

Bits per second: 9600

Data bits: 8

Parity: None

Stop bits: 1

Flow control: None

Clock will automatically switch into Blank/Rs232_Info mode and display data as soon it gets and recognises the first byte.

Information on the display can be updated as quick as above data bit rate allows.

Always send 6 bytes of data or one command byte.

Clock accepts standard ASCII symbols, which could be sent to clock by Terminal or any other program via serial Communication port.

To prevent incorrect digit indication and increase the reliability, limited set of ASCII symbols can be send to the clock. All symbols are out of the below table are non-valid and will be ignored by clock.

Use “t” ASCII symbol as command to switch into Time Display Mode

Use “d” ASCII symbol as command to switch into Date Display Mode

Use 0-9 ASCII symbols to display 6 digits information on the clock Nixie tubes.

Another way to understand Button1 and Button2 usage:

Button1 in **Display Mode**:

Normal push – switches between Display Modes

Long push - go to the Setup mode

Button1 in **Setup Mode**:

Normal push – choose parameter to configure

Long push - go back to the Display mode

Button2 in **Display Mode**:

Normal push – switch off alarm buzz

Long push – change time display mode 12 or 24 hours

Button2 in **Setup Mode**:

Normal push – change parameter value

Long push - switched off selected alarm

Button1 and Button2 together:

In **Display Mode**:

Normal push – not defined yet

Long push - go to Frequency test Mode

In **Setup Mode**:

Normal push – not defined yet

Long push - go to Frequency test Mode

How to change parameters in Config Mode:

Change display mode to Blank/RS232 mode. In **Display Mode** Using Button1 set your clock to indicate RS232 info or when digits are blank.

Push and hold B2 button until clock enters **Config Mode** and displays digit 1 to 8 in the far left position. You are now in **Config Mode**.

Use B1 button to choose config parameter 1 to 8. At the moment only 3 parameters are available to set there

Parameter 1 displays and available to set when far end left digit indicates 1

Parameter 2 displays and available to set when far end left digit indicates 2 and so on.

Parameter 1 defines format of Date to display. Far right digit can be set to 0 or 1.

When it set to 0, Date displays in **DD.MM.YY** format

When it set to 1, Date displays in **MM.DD.YY** format

While your Clock in **Config Mode** and Parameter 1 has been chosen, press and hold B1 button until parameter value digit starts blinking. You are now in **Config Setup Mode**. Use B2 button to set this parameter to 0 or 1.

Leave **Config Setup Mode** by pushing and holding B1 button until digit stops blinking. You now have left Config Setup Mode, but still in **Config Mode**.

Push B1 button to choose next parameter to set.

Parameter 2 defines Tube Slip Mode Off time. It's time when your tubes will be switched off, but clock continues to run.

Four digits value represents time in HHMM format, where HH – hours (00-23), MM is for Minutes (00-59)

While your Clock in **Config Mode** and Parameter 2 has been chosen, press and hold B1 button until Minutes Ones digit is highlighted by flashing. You are now in **Config Setup Mode**.

Use Button2 to set correct value. Every Button1 push will increase value by one.

Push Button1 to choose next digit to set. Minutes Tens will be flashing.

Push Button1 again in case don't need to change Minutes tens value

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Ones digit should be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Tens should be flashing.

Use Button2 to set correct value.

Now Tube Slip Mode Off time has been set.

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Leave Config Setup Mode by pushing and holding B1 button until digit stops blinking.
You now have left **Config Setup Mode**, but still in **Config Mode**

Push B1 button to choose next parameter to set.

Parameter 3 defines Tube Slip Mode On time. It's time when your tubes will be switched on coming back to normal Display Mode from Tube Slip Mode.

Four digits value represents time in HHMM format, where HH – hours (00-23), MM is for Minutes (00-59)

While your Clock in Config Mode and Parameter 3 has been chosen, press and hold B1 button until Minutes Ones digit is highlighted by flashing. You are now in **Config Setup Mode**.

Use Button2 to set correct value. Every Button1 push will increase value by one.

Push Button1 to choose next digit to set. Minutes Tens will be flashing.

Push Button1 again in case don't need to change Minutes tens value

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Ones digit should be flashing.

Use Button2 to set correct value.

Push Button1 to choose next digit to set. Hours Tens should be flashing.

Use Button2 to set correct value.

Now Tube Slip Mode On time has been set.

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Leave **Config Setup Mode** by pushing and holding B1 button until digit stops blinking.
You now have left **Config Setup Mode**, but still in **Config Mode**

Leave Config Mode by pushing and holding B1 button until you clock come back to Rs23/Blank Mode and all digits are off.

You now have left Config Mode. Check that you are back in Display Mode by pushing B1 button. Clock should be switching between Display Modes –Time, Alarm1, Alarm2, Date.. modes

Notice:

Please do not use this clock outside, it's not for use in bathroom, not for use in wet condition.

Use only good quality, certified Wall Plug Power Supply, which can provide regulated, not less than 300mA Direct Current at 12V.

Do not leave clock without main power for more than 24 hours, as It discharges your backup battery and you need to replace it.

Some internal components are under High Voltage, so before handling or do any maintenance work, be sure that power supply is switched off.

I do not accept any liability may cause during improper or care less use of this Clock.

Due to constant improvement, your clock design could be slightly different from the sale description, but technical parameters and functionality will be the same or better.

The latest User Manual and other related information can be found on my WEB page at <http://www.sparkletube.com/in18clock>