

QS18-12 Nixie Tube Clock v2.1.0

Intructions

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Attention

- ◇ Attention: in order to prevent damages, do not place this clock on uneven place.
- ◇ Warning: the clock has an internal high voltage circuit, do not touch the components if the clock is working.
- ◇ Warning: Clock are not allowed to be taken out.
- ◇ Warning: Do not let children touch the clock.

Functional features

1. Six QS18-12 nixie tubes display (1976-1984 made in China).
2. Display hour, minute and second(12 or 24 hours format optional)
3. Display year, month and day and Chinese moondate (YY-MM-DD or MM-DD-YY format optional).
4. GPS adjust, automatic adjust every week or manually.(GPS is offered as an option).
5. GMT time zone functions, the clock will calculate the local time base on satellite.
6. Temperature display(°C or °F temperature unit optional. Temperature sensor is offered as an option).
7. Two alarm clock.
8. 10 colors background light effects, can open or close background lighting, brightness degrees is adjustable.
9. 7 colors stand for day of the week.
10. 4 digital switching effects.
11. IR remote controller operation.
12. High-accuracy, ±2min/per year.
13. Built-in backup lithium battery, maintain clock at more than 3 years.

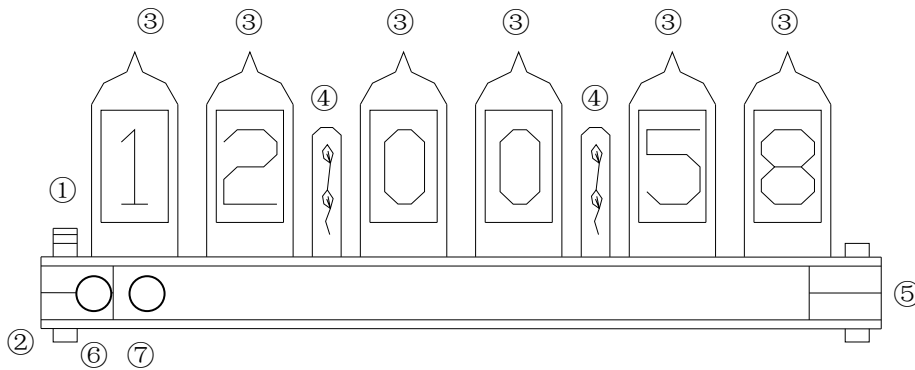
Technical specifications

Input voltate	DC12V
Working current	400mA(Max 600mA)
Tubes type	QS18-12(1976-1984 made in China)
Size	175mm x 50mm, tube diameter 18mm highly 50mm
Working temp.	0°C-60°C
Weight	150g
Shell material	Arcylic plate with laser cut.

Package content

Name	Quantity	Name	Quantity
nixie tube clock	1	Power adapter	1
IR remote controller	1	Colon glass tube	2
User manual	1		

Appearance layout



Num	Name	Num	Name
①	IR receiver	②	Stainless steel screw
③	Nixie tubes	④	Neon colons
⑤	Arcylic base	⑥	Temp. sensor port
⑦	GPS port		

IR remote control introduce



1.POWER	2.BACKLIGHT	3.SET
4.DATE	5.ALARM	6.TEMPERATURE
7.LEFT	8.RIGHT	9.FUNCTION
10.OK	11.CANCEL	12.NUM 0
13.NUM 1	14.NUM 2	15.NUM 3
16.NUM 4	17.NUM 5	18.NUM 6
19.NUM 7	20.NUM 8	21.NUM 9

Considered the battery are not allowed transport during air transportation, if there' re no battery in controller, please put two AG10 cell in it.

Beep tone introduce

Beep	Description	Mean
Be	a shot beep(low pitched)	Power on/In set mode
Be	a shot beep(high pitched)	Normal Operation
Be..bebe	a long beep and two shot	Power off
bebebebe	four shot beep	Set Error/Cancel/Alarm
Be...	a long beep	Confirm and saved

Display mode switch

1. Display time mode

After power on the clock, or press POWER button in shutdown state, it' s display time mode. Clock will display HOUR, MINUTE, SECOND on this mode.

2. Display calendar date mode

Press DATE button enter display calendar date mode. Clock will display YEAR, MONTH, DAY. Clock will return display time mode after three seconds.

3 . Display lunar date mode

Press DATE button twice enter display lunar calendar date mode. Clock will display YEAR, MONTH, DAY of lunar date. Clock will return display time mode after three seconds.

4. Display GMT time zone mode

Press DATE button three time enter display GMT time zone model. Clock will return display time mode after three second.

5. Display alarm mode

Press ALARM button, enter show alarm 1 mode. Press ALARM button again, it will show alarm 2. Clock will return display time mode after three seconds.

6 . Display temperature mode

Press TEMPERATURE button to enter show temperature mode. Clock will return display time mode after three seconds.

- **If the temperature sensor is not connect, clock can not display temperature.**

Digital effects switch

- **In the display time mode, press FUNC button can switch three kinds of digital effects repeatedly.**

1. Crossfade

Old digital would be concealing gradually and new digital gradually displayed at the moment.

2. Fade in & fade out

Old digital would be concealing gradually, after it' s fade out, new digital will display gradually.

3. Flip over

The switch on of the non glowing digits will be reached by a fast scrolling through the digits one after another (slot machine effect).

4. Standard

Standard mode, if digital change, new digital display immediately.

- **This option stored in the clock and can not lost when power off.**

Time format 12H/24H

In the display time mode, press **OK** button can switch time format repeatedly.

- **Time format only in display time mode, in setup time mode, please according to set time 24H format.**
- **This option stored in the clock and can not lost when power off.**

Date format YY-MM-DD/MM-DD-YY/DD-MM-YY

In the display date mode, press **FUNC** button can switch date format repeatedly.

- **This option stored in the clock and can not lost when power off.**

Temperature unit°C/°F

In the display temperature mode, press **FUNC** button can switch temperature unit repeatedly.

- **This option stored in the clock and can not lost when power off.**

Back light mode switch

In the display time mode, press **LIGHT** button can turn on or turn off backlight or let them breath.

In display time mode, press **NUM0-NUM9** button can turn on the backlight directly, and set the color.

NUM0: back light will change the color according the day of the week.

Monday:red. Tuesday:yellow. Wednesday:green. Thursday:cyan. Friday:blue.

Saterday: purple. Sunday:white.

NUM1: red color breath. NUM2: yellow color breath. NUM3: green color breath.

NUM4: cyan color breath. NUM5: blue color breath. NUM6: purple color breath.

NUM7: white color breath.

NUM8: auto change color breath.

NUM9: auto change color with always lighting.

Adjust backlight brightness

In the display time mode, press **LEFT** button will reduce light brightness, press **RIGHT** increase light brightness.

- **There' re five degree of lighting.**

Set time

In display time mode, press **SET** button enter set time mode.

After enter set time mode, **SECOND** will blinking, means now is setting **SECOND**. Press **LEFT** or **RIGHT** button change setting position.

Press button **NUM0-NUM9** to change the number.

Press **OK** to save setting.

Press **CANCEL** abort setting and exit.

- **After setting success, clock will beep for a long time, and return display time mode.**
- **If setting is illogical, clock will beep four times with short time, and abort save setting then return display time mode.**
- **Please according to set time in 24H format.**

Set date

In display date mode, press **SET** button enter set date mode.

After enter set date mode, **DAY** will blinking, means now is setting **DAY**. Press **LEFT** or **RIGHT** button change setting position.

Press button **NUM0-NUM9** to change the number.

Press **OK** to save setting.

Press **CANCEL** abort setting and exit.

- **After setting success, clock will beep for a long time, and return display time mode.**
- **If setting is illogical, clock will beep four times with short time, and abort save setting then return display time mode.**
- **The moon date don't need set, clock will calculate automatic according Gregorian calendar.**
- **Two digit of YEAR means after 2000 year.**

Set GMT time zone

In display GMT mode, press **LEFT** or **RIGHT** button can change GMT time zone.

If the digital is display at the left means GMT-. At the right means GMT+.

For example: BEIJING lies in GMT8+, we should press **LEFT** or **RIGHT** button let digital display at the right two tubes and show 08.

Set alarm

In display alarm 1/2 mode, press **SET** button enter set alarm mode.

After enter set alarm mode, **HOUR** will blinking, means now is setting **HOUR** of alarm. Press **LEFT** or **RIGHT** button change setting position.

Left two tubes will display witch alarm is setting now, A1 means now is setting alarm 1, A2 means now is setting alarm2.

Press button **NUM0-NUM9** to change the number.

Press **OK** to save setting.

Press **CANCEL** abort setting and exit.

- **After setting success, clock will beep for a long time, and return display time mode.**
- **If setting is illogical, clock will beep four times with short time, and abort save setting then return display time mode.**
- **If want disable the alarm function, you should press FUNC button in alarm display mode, then clock display OFF, means this alarm was disabled.**
- **If now is alarming, press any button to stop alarm, or clock will stop alarm after 60sec.**

GPS adjust date&time

In setting date or setting time mode, press **FUNC** button, clock will enter GPS adjusting mode.

After enter GPS adjusting mode, the backlight will change color to red and flashing quickly, and now, GPS is connecting the satellite. After get the current time of satellite, clock will adjust itself and beep for a long time, then return time display mode.

- **Clock will enter GPS adjusting mode automatically at 8:00 of every MONDAY.**
- **In GPS adjusting mode, press CANCEL button can exit adjusting.**
- **After get the current time of satellite, clock will calculat local time by GMT setting.**
- **If GPS receiver is not connect, clock will return after 3 seconds.**
- **Clock will return after 15 minutes if GPS can not receive the single from satellite.**

Cathode poisoning prevention

Nixie tubes have an unwanted side effect called 'cathode poisoning' causing metal molecules of glowing cathodes (digits) to attach to non glowing cathodes. This finally causes death of the tube. To avoid this effect non/seldom glowing cathodes have to be switched on from time to time. Since the cathode poisoning varies between different types of tubes, so there is an adjustable cathode poisoning prevention.

Cathode poisoning prevention function default Settings for every 10 minutes run 5 seconds, The switch on of the non glowing digits will be reached by a fast scrolling through the digits one after another (slot machine effect). This feature can be set in duration and

frequency of scrolling in this setting.

In the display time mode, press **ALARM** three times, enter setup cathode poisoning prevention function, and now, the left tubes show '3' and middle two tubes show the time interval of CP function, the unit for minutes, right two display CP function running time, unit for seconds. At press set key, will begin to adjust the time interval of CP function, use **LEFT** or **RIGHT** button set interval (the longest 20 minutes, the shortest 1 minutes), then press **SET** button, will begin to set CP function running time, use **LEFT** or **RIGHT** button set running time (the longest 10 seconds, the shortest 1 second). Press **OK** button save setting and exit.

Note

1. These nixie tubes were produced in 1976-1984, maybe there' re some different between every tube, or imperfection on them, it' s normal, please don' t mind.
2. The clock will become warm or little hot because there' re two DC-DC converters in the clock, it' s normal, please don' t mind.
3. If some digital adhesion when display, may be due to long time not working or transportation cause digital adhesion, use your fingers click the tubes several times to spare cathode digit can solve this problem and will never happen again.
4. In order to prevent damages, do not place this clock on uneven place.

- **Any questions, please contact designer.**

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