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TANYA

(Assembly instructions and latest firmware you can find on my website)

Assembled my own hands 😊

Thanks for purchase!!!

Features:

- * 6x **IV-6** Russian VFD tubes (made in 1990-93)
- * 2 IV-1 VFD separators (show am/pm and on/off of alarm)
 - * **32bit** STM32F100C8 processor
 - * 15 parameters
 - * 20 years lifetime of tubes
 - * 12/24 hours mode
 - * 1 Alarm
- * 7 bulbs for day of week or effects (optional)
- * Control up to 7 external devices (in your own firmware)
 - * Fade at night (increase lifetime of tubes in twice!)
 - * Turn off leading zero
 - * 2 fonts for “6”, “7” and “9” digits
 - * Smooth PCB routing
- * Countdown timer 99days:23hour:59mins:59sec
 - * Full remote control
- * USB connection to PC (for update firmware)
- * Double **Multicolour** led glow (independent random color leds and **RGB** leds under each tube)
 - * Adjustable brightness of **RGB** and AUTO leds
- * **RGB** led (6 colors of backlight or autochange color mode)
 - * 10 modes of switch digits
 - * 2 modes of separator tubes

* **IV-6** tubes works in static mode

* **Thermometer**

* Correction of temperature

* C or F temperature format

* Accurate to +/- 1 minute/year

* Setup of clock accuracy

* Date in format **DD.MM.YY** or **MM.DD.YY** or **YY.MM.DD**

* **Backup battery**. Data is not lost when power off

* Power source - DC **5V** barrel plug 5.5mm/2.1mm ("+" inside, "-" outside)

* Consuming current - no more 500mA

* Height of pcb with elements only 13 mm

* Noiseless work

Dimensions of the clock - 135mm x 61mm x 60mm.

Dimensions of the clock case - 165mm x 91mm x 67mm.

No	Settings	Value
1	12/24 time format	0 - 12h time format 1 - 24h time format
2	Hi.Hour tube fading	0 - disable fading 1 - enable
3	Show time mode	0 - hard mode 1 - constructor 2 - soft mode №2 3 - random mode №1 4 - random mode №2 5 - wave 6 - shift 7 - fading 8 - run 9 - all effects one by one
4	Backlight mode	0 - all leds off 1..5 - brightness 6 - AUTO brightness 7 - AUTO brightness + turn off leds in the dark
5	Show current temperature	0 - disable 1 - every 2 minutes 2 - every 5 minutes

6	Work of separators	0 - disable 1 - work together 2 - work alternately																				
7	Show current date	0 - off 1 - every 2 minutes 2 - every 5 minutes																				
8	Correction of temperature coefficient	0 .. 9 Current temp. - temp.coeff. = real temperature <table border="1" data-bbox="743 568 1497 1061"> <thead> <tr> <th>Temp.coeff</th> <th>Current temp.</th> </tr> </thead> <tbody> <tr><td>0</td><td>0</td></tr> <tr><td>1</td><td>-1</td></tr> <tr><td>.</td><td>.</td></tr> <tr><td>.</td><td>..</td></tr> <tr><td>10</td><td>-10</td></tr> <tr><td>11</td><td>+1</td></tr> <tr><td>.</td><td>.</td></tr> <tr><td>.</td><td>.</td></tr> <tr><td>19</td><td>+10</td></tr> </tbody> </table>	Temp.coeff	Current temp.	0	0	1	-1	10	-10	11	+1	19	+10
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.	.																					
.	.																					
19	+10																					
9	Clock accuracy correction	0 .. 9 Bigger value - slowly clock																				
10	Date format	0 - DD.MM.YY 1 - MM.DD.YY 2 - YY.MM.DD																				
11	Temperature format	0 - Celsius 1 - Fahrenheit																				
12	Brightness of BOTTOM backlight	0 .. 6																				
13	Brightness of tubes	0 .. 3 4 - automatic brightness																				
14	Font type for "6", "7" and "9" digits	0 - type 0 1 - type 1																				
15	Turn off at night	0 - Off 1 - On																				

How to use remote control?

Button	Action
OK	Enter/exit in parameters mode
◀ ▶	Next effect of switch digits / next value
▲ ▼	Change value / tube brightness
1	Time setup
2	Alarm setup
3	Date setup
4	Show temperature
5	Show date
6	On/off alarm
7	Countdown timer setup
8	Turn off LEDs and tubes
9	Change brightness of bottom LEDs
*	Change brightness of top LEDs
#	Change color of top LEDs
▲	Change brightness of tubes

- Use ◀ ▶ for change position in setup modes
- For change value you can use ▲ ▼ or use any number buttons

How to set time or alarm?

1) Press 1 key on remote for enter in time setup and 1 key for enter in alarm setup.

* Note: in time setup current time shows in 24h format only

2) Set hours

3) Press ▶ key for go to minutes setting

4) Press ▶ key again for set seconds

6) Seconds will reset to "00" if you will press ▲ key

7) Press ▶ key for exit from setting time mode



How to change settings?

- 1) Press **OK** for enter into menu
- 2) You will see number of parameter (1) and value of parameter (0):
1_ : _ _ : _ 0
- 3) Press ▲ ▼ for changing value
- 4) Press ◀ ▶ for switch parameter
- 5) Press **OK** for exit.

How to set current date?

- 1) Press **3** key
- 2) You will see date in DD.MM.YY format
- 3) Use ▲ ▼ for changing value or use any number buttons
- 4) Press ◀ ▶ for switch position

How to change color of LEDs and brightness?

Press ***** key to change brightness of top LEDs and **#** key to change color. 3 times flashing means that color will change slowly and automatically.

9 key will change brightness of bottom leds. You can't change their color.

How to set countdown timer?

Press **7** key to enter in timer setup. You will see latest value of timer in DD:HH:MM time format. To change time format press ▶ key. Right indicator (2) will ON when time format DD:HH:MM and OFF when HH:MM:SS.

Indicator (1) show activity of timer. Press **OK** key to activate timer, (1) indicator will ON.

88 : 88 : 88

(1) (2)

To set timer time, press **# key** and set DD, then HH, MM and SS. Use **▶ key** to go for next value.

When timer active you can press **7 key** to exit from timer setup. Timer will continue work.

Remote control in timer mode:

Button	Action
OK	On/off timer
▶	DD:HH:MM / HH:MM:SS
◀	Reset to previous timer value
#	Timer setup
7	Exit

How to make HARD RESET if something wrong?

When your clock starts, you will see firmware version. Something like: **11 04 19**

If you will press **OK key** in this moment, clock will reset all your setting. You will hear p-i-i-i-i-i-p p-i-p p-i-p. That's mean HARD RESET is done.

How to set night fading?

Set 15th parameter to 1 and press **# key**. You will enter into setup. You will hear b-i-i-i-p and will see:

00 : __ : __

Now, you need set time of START and STOP fading.

Example: you go to sleep at 11:10PM and get up 6:30AM. So, you need to set START time as 23:10 and STOP time as 6:30.

Power plug for 5V DC power adapter

High-precision time chip

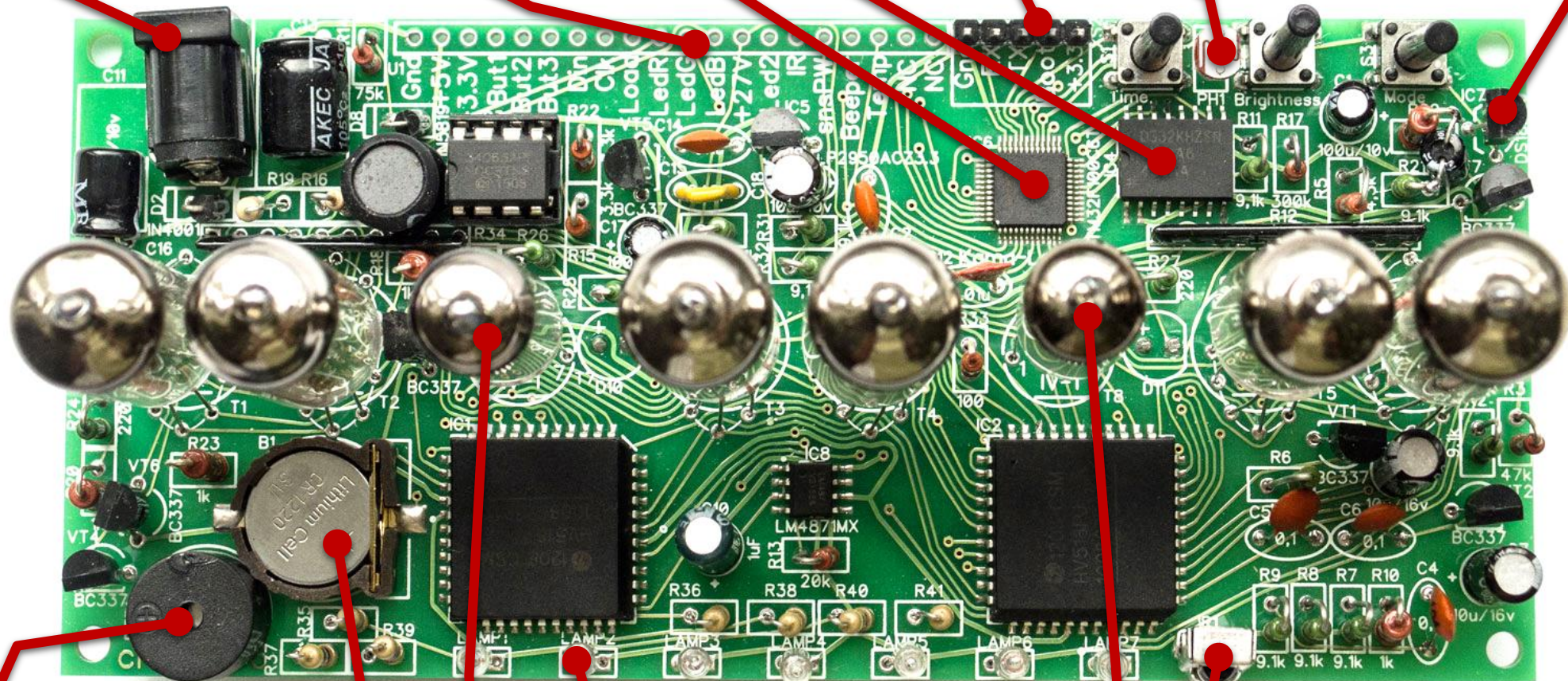
Diagnostic socket/ socket for USB-UART converter

Temperature sensor

Arduino connector (optional)

MCU

Light sensor



Buzzer

Battery holder

Am/Pm separator

7x bulbs or some external devices

Alarm separator

Infrared Receiver