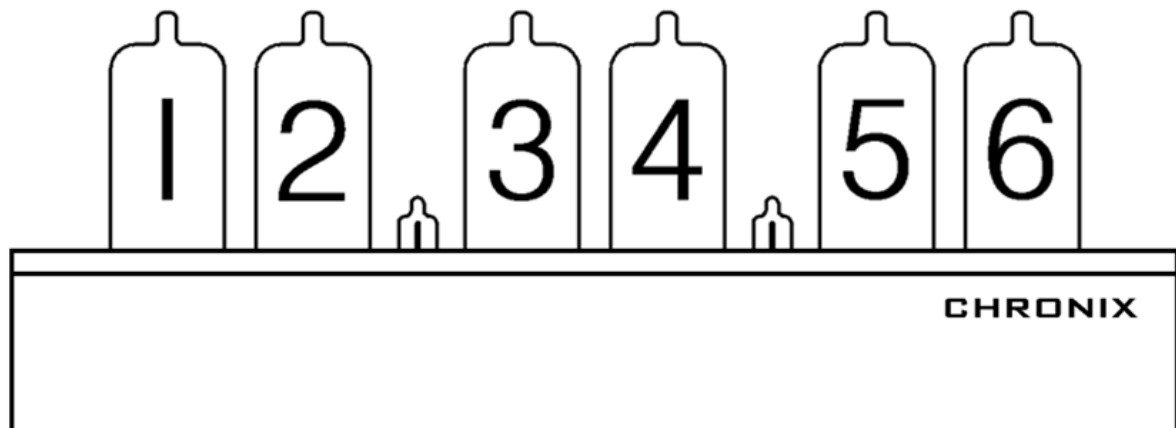# 6xZ566M Nixie Clock user manual

Clock settings

There are three buttons to operate the clock:

YELLOW button (SET):

➢ Short press – while setting time, alarm, date or menu increases selected value by one or switches selected option on/off. During normal clock operation changes brightness of tubes and backlight.

➢ Long press – while setting time, alarm, date or menu automatically increases selected value. During normal clock operation switches backlight on/off;

GREEN button (TIME):

➢ Short press – enters time setting mode and changes between setting hours, minutes and seconds. Blinking tubes indicate selected value. When 12H time format is set, glowing neon colons indicate PM time;

➢ Long press – enters date setting mode. To change between setting year, month and day press GREEN button shortly. Date is displayed in YY.MM.DD format;

BLUE button (ALARM):

➢ Short press – enters alarm setting mode and changes between setting alarm hours and minutes. Tubes 5&6 indicate alarm on/off ("01" - alarm is on, "00" - alarm is off). When 12H time format is set, glowing neon colons indicate PM time. Alarm status is indicated by red LED near switches;

➢ Long press – enters or leaves menu mode. While setting the menu short press of BLUE key changes between selected options.

Entering configuration menu mode:

To enter menu mode press BLUE button for 1s. Selected option is displayed on tubes 1&2 and tubes 5&6 indicate option parameter. To change between options press BLUE button shortly. To adjust option parameter press YELLOW button. To leave menu mode and save settings once again press BLUE button for 1s.

Configuration menu structure

Parameter	Description	Values
1	12 / 24 Hr mode	0 – 24 Hr (default) 1 – 12 Hr
2	Colon neons mode	0 – off (default) 1 – flashing at 1Hz 2 – on 3 – AM = off, PM = on 4 – AM = on, PM = off 5 – AM = off, PM = flashing 6 – AM = flashing, PM = off 7 – AM = on, PM = flashing 8 – AM = flashing, PM = on
3	Leading zero blanking eg. 01:54:32	0 – leading zero displayed (default) 1 – leading zero blanked
4	Display mode	0 – standard change of digits 1 – Cross-fading digits
5	Auto date display each minute	0 – Off (default) 1 – On
6	Date format	0 – MM.DD.YY (default) 1 – DD.MM.YY
7	Tubes cycling frequency	0 – cycling off (default) 1 – cycling every minute 2 – cycling every hour 3 – cycling at midnight
8	Tubes cycling routines	1 – scroll (default) 2 – scroll & shift 3 – slotmachine
9	Timed brightness mode	0 – Off (default) 1 – On
10	Timed brightness level	0 – tubes and backlight off 1 - 4 – timed brightness levels
11	Timed brightness start hour	0 - 23
12	Timed brightness end hour	0 - 23
13	Time calibration polarity	0 – make clock slower (use when clock gains time) 1 – make clock faster (use when clock loses time)
14	Time calibration value	0 - 99 with 0.1s resolution (i.e. 55 = 5.5s/day)

Setting the Time:
Press GREEN button to enter time setting mode. When 12H time format is set glowing neon colons indicate PM time. Tubes 1&2 will start blinking. To set the hours press YELLOW button. To automatically advance adjusted value press YELLOW button for 1s. Press GREEN button again to skip to minutes and seconds tubes. While setting seconds pressing YELLOW button will clear the adjusted value. Pressing GREEN button again will revert the clock back to time displaying mode.

Setting the Date:
Press GREEN button for 1s to enter date setting mode. While being set date is displayed in YY.MM.DD format. Tubes 1&2 will start blinking. To set the year press YELLOW button. To advance adjusted value automatically press YELLOW button for 1s. Press GREEN button again to skip to month and day. Pressing GREEN button again will revert the clock back to time displaying mode.

Setting the Alarm:
Press BLUE button to enter alarm setting mode. When 12H time format is set glowing neon colons indicate PM time. Tubes 1&2 will start blinking. To set the alarm hour press YELLOW button. To advance adjusted value automatically press YELLOW button for 1s. Press BLUE button again to skip to minutes and seconds tubes. Tubes 5&6 indicate alarm ('00' - off, '01' - on). Pressing BLUE button again will revert the clock back to time displaying mode. Red LED also indicates the alarm is on.

Automatic Date Display:
Setting parameter 5 to '01' will enable auto display of date between 30 and 35 seconds past each minute.

Timed display brightness:
To enable timed tubes and backlight brightness feature set option 9 parameter to '01' and set timed brightness value in option 10 (0-display is blanked, 1-4 timed brightness level). To set timed brightness start hour adjust option 11 parameter. To set timed brightness end hour adjust option 12 parameter. When timed brightness is active, manually setting the brightness is disabled. When the display is blanked, pressing any key will turn it on for 15s with minimal brightness level.

Setting The Alarm:
Press BLUE button. Tubes 1&2 show alarm hour, tubes 3&4 show alarm minutes and tubes 5&6 show alarm status (00 - alarm off, 01 - alarm on). Set alarm hours and minutes and alarm status by using BLUE and YELLOW buttons. When alarm is set, the red LED indicator will glow.

Cancelling Alarm:
Press any key to manually cancel the alarm. Alarm will also cancel automatically after 1min.

Cancelling clock time measuring error
Clock measures time by counting quartz oscillation pulses. Due to oscillator's nominal frequency tolerance (usually +/-20ppm, which equals a deviation of +/-0.00002% or +/-2s a day), aging and temperature drift, clock can lose or gain time. To cancel this error use time calibration option. To estimate time measuring error, synchronize the clock with another clock displaying accurate time. Internet site presenting atomic time or radio synchronized clock can be used. Measure how many seconds the clock gains or loses during 24hours (or longer for higher precision). Enter this value to option 14 parameter. Calibration value is displayed with 0.1s steps, which means that if the error is 2.7s a day, to compensate it, enter value 27. If the clock gains time, set option 13 parameter to '00' to make it slower. If the clock loses time set option 13 parameter to '01' to make it faster.

Clock maintenance
To avoid scratches always use delicate cloth or dust whisk when cleaning the clock. For wet cleaning use cloth slightly moist with water and some detergent. Do not use any solvent or alcohol for cleaning.

Power supply
12V DC power adapter with barrel plug connector (5,5mm/2,1mm) and minimum current output 500mA.

Power consumption
5W average