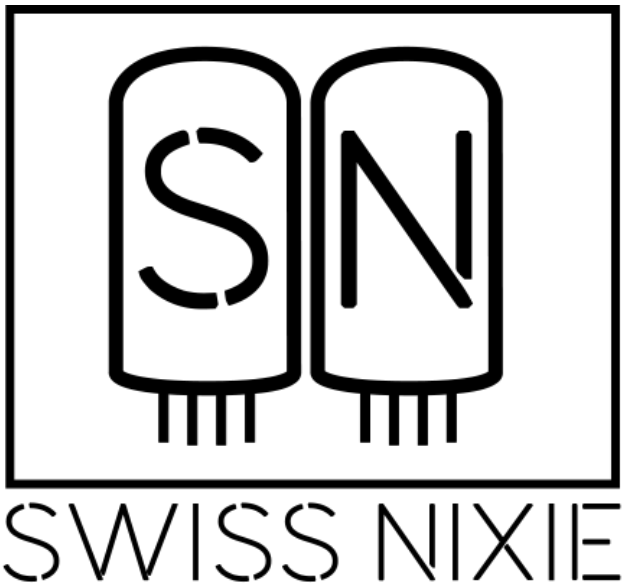

SWISSNIXIE - SUNIX

Parameter Settings Manual

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Parameter Menu:

How to use:

1. After pressing and holding the rotary encoder for 2 seconds, a short beep will occur, the nixie tubes will display:

00.- - . - -

The parameter menu will have a time-out of 5seconds

2. By turning the encoder clock or counterclockwise the parameters can be selected. The number displayed is corresponding to the parameters declared in parameter overview

e.g: **02.--.--** corresponds to the LED Backlight Color

3. By double-pressing the rotary encoder the selected parameter can be edited, this is confirmed by a short beep. After entering the editing mode, the nixie tubes display the current parameter.

e.g 02.--.15

4. By turning the encoder clock or counterclockwise, the parameter value can be adjusted. In some cases, the change will visible immediately (LED).

5. By double-pressing the rotary encoder, the selected parameter will be saved. This is confirmed by a short beep. The parameter menu will disappear and the normal operation will be continued

6. If no action happens after entering the parameter menu or changing a value, the parameter menu will be disabled automatically after 5 seconds and changes will be inverted

Parameter Overview:

Menu	Function	Values	Default
0	Reserved		
1	Reserved		
2	LED-Backlight Color	1 to 16	2
3	LED-Backlight Brightness	1 to 99	99
4	ACP-Routine Trigger	1 to 3	1
5	ACP-Routine Mode	1 to 5	1
6	Leading Zero Display	1 or 2	1
7	Neon Bulb Mode	1 to 5	2
8	DST Enable	1 to 12	1
9	AM-PM Mode	1 or 2	1
10	External Enable	1 or 2	1
11	External Enable Time	1 to 99	1
12	External Enable Polarity	1 or 2	1
13	Time Sync Baudrate	1 to 6	1
14	Enable External Time Sync	1 or 2	1
15	Timezone	1 to 39	1

Parameter Explanation:

Led Backlight

The LED Backlight can be configured with the Parameters [2] and [3].
Parameter [2] sets the color of the backlight according to the following table:

Value:	Color	RGB-Code
1	OFF	0,0,0
2	Green (Full)	0,255,0
3	Blue (Full)	0,0,255
4	Red (Full)	255,0,0
5	Yellow	255,255,0
6	White	255,255,255
7	Turquoise	0,255,255
8	Dark Blue	51,0,255

Value:	Color	RGB-Code
9	Dark Red	204,0,102
10	Dark Green	102,204,0
11	Purple	153,0,255
12	Neon-Green	0,255,153
13	Orange	255,102,0
14	Orange II	255,153,0
15	Neon-Blue	51,255,255
16	Red II	255,0,255

Parameter [3] sets the brightness of the illumination from 1 to 99% of the initial brightness.
Brightness has no effect if Backlight 1 (OFF) selected.

ACP Routine

The “AntiCathodePoisioning” Routine prevents the less used digits of nixie tubes from destruction or darkening by periodically cycling all the digits. The desired trigger time and cycle mode can be selected with the Parameters [4] and [5].

Parameter [4] sets the trigger time of the routine as followed:

Value:	Trigger:
1	Ten Minutes
2	One Minute
3	One Hour

Parameter [5] sets the cycle mode as followed:

Value:	Mode:	Description
1	Standard	All digits of all tubes will be cycled 3 times
2	Flic-Flac	Same as Value 1, but with a small “OFF” gap between numbers
3	Shifting	All digits will be cycled 2 times by flowing from left to right
4	Extra Hours!	Less used digits (hours) get more cycles than seconds
5	Random*	Each tube displays 50 random numbers

*Due the nature of random numbers, there can’t be a guarantee that every digit of every tube was lighted up.

Leading Zero

The Leading Zero Parameter enables or disables a leading zero at hours less than 10.
e.g. 09:45:15 becomes 9:45:15

Parameter [6] sets the trigger time of the routine as followed:

Value:	Option:
1	OFF
2	ON

Bulb Mode

The neon bulbs that are used for colon separators can operate in different modes.

Parameter [7] sets the operation as followed:

Value:	Option:
1	Bulbs OFF (cont.)
2	Bulbs ON (cont.)
3	Blinking (seconds’ change)
4	Alternating ON/OFF

AM-PM Operation

In AM-PM Operation, the clock will display time in the 12-Hr format instead of 24-Hr mode.

Parameter [9] sets the AM-PM Mode as followed:

Value:	Option:
1	OFF
2	ON

DST (Daylight Saving Time)

Daylight Saving Time will add or subtract time between a given date that differs from country to country. The Parameter [8] allows disabling, enabling, and automatic DST settings. When selecting a location-option, the clock will handle the DST according to DST laws for the selected location. Read more about DST-Rules: WIKIPEDIA Daylight saving by country

Parameter [8] controls the DST:

Value:	Option:	DST Time Frame	Location example
1	OFF	No DST Handling	
2	MANUAL	Manual DST (adds 1hr)	Anywhere
3	EUR	Last Sunday March - Last Sunday of October	Europe
4	USA	Second Sunday March - First Sunday November	U.S.A, Canada, Cuba, Haiti
5	AUS	First Sunday October- First Sunday April	Australia and Islands
6	NZL	Last Sunday September- First Sunday April	New Zealand, Samoa
7	BRA	Third Sunday October- Third Sunday February	Brazil
8	CHL	Second Sunday August- Second Sunday May	Chile
9	MEX	First Sunday April- Last Sunday October	Parts of Mexico
10	FDJ	First Sunday November- Third Sunday January	Fiji, Tonga, Oceania
11	PAR	First Sunday October- Fourth Sunday March	Paraguay
23	JOR	Last Friday March- Last Friday October	Jordan, Syria

External Time Synchronization

By connecting a GPS Mouse (NMEA Protocol), a GPS Receiver or a “nwts” Device (GPS emulation over wifi) the internal Time of the clock can be synchronized. If a receiver is connected, valid and the sync is enabled, the time will be set every minute-change

Parameter [14] controls the sync as following:

Value:	Option:
1	OFF
2	ON

Parameter [13] selects the baud-rate for the device:

Value:	Option:
1	9600 Baud
2	4800 Baud
3	19200 Baud
4	38400 Baud
5	57600 Baud
6	115200 Baud

Time-Zone

All times and dates are saved in UTC in the RTC. Time-Sync devices also send UTC time. To adjust the time zone Parameter [15] can be adjusted to the desired time zone where the clock is located

Parameter [15] sets the time zone as following:

Value	Option
1	UTC
2	UTC+1
3	UTC+2
4	UTC+3
5	UTC+3:30
6	UTC+4
7	UTC+4:30
8	UTC+5
9	UTC+5:30
10	UTC+5:45
11	UTC+6
12	UTC+6:30
13	UTC+7

Value	Option
14	UTC+8
15	UTC+8:30
16	UTC+8:45
17	UTC+9
18	UTC+9:30
19	UTC+10
20	UTC+10:30
21	UTC+11
22	UTC+12
23	UTC+12:45
24	UTC+13
25	UTC+14
26	UTC-1

Value	Option
27	UTC-2
28	UTC-3
29	UTC-3:30
30	UTC-4
31	UTC-5
32	UTC-6
33	UTC-7
34	UTC-8
35	UTC-9
36	UTC-9:30
37	UTC-10
38	UTC-11
39	UTC-12

External Activation

To save power and tube life, the clock can be activated by a external input (motion detector, PIR, Timer, etc.). The Parameters [10] [11] [12] control the behavior of the external input. If the external input is triggered, the nixie tubes turn on, stay on for the selected time and then will turn of unless a new input is given.

Parameter [10] enables or disables the external activation:

Value:	Option:
1	OFF
2	ON

Parameter [11] is used to set a “on-time” from 1 to 99 minutes.
e.g. Value 10 = 10 Minutes = Tubes are on for 10 Minutes after input trigger.

Parameter [12] defines if the input is either active-high or active-low. Different PIR Sensors have different output pins

Value:	Option:
1	Active LOW
2	Active HIGH

Manual Time Setting

If the Clock is not used with a GPS receiver the time can be set by hand. This Mode only supports the setting of time, not of date – so you must use the manual DST option!

If you want to set the clock to your local time, be sure to check your time zone settings Parameter and set it to UTC, since your manual setting will be “UTC” for the code. Of course, you can use a time zone and set your clock to the real UTC time by calculating it. After a restart, the time will be adjusted with the selected time zone

How to use:

1. Press and hold down the button (not the button of the encoder)
2. While holding the button down, press and hold the encoder-button for 2 seconds
3. The Clock will enter setting mode, the LED’s will turn red and only the hours are visible.
4. You now can release all buttons and set the correct hour’s value by the encoder.
5. By a single press of the encoder-button the setting will jump to minutes setting
6. Another push will jump to seconds setting
7. To save the selected time, you must double press the encoder-button