

## How to operate the Olimex Binary-Watch

After a successful assembly insert the CR2032 battery. Upon inserting the battery on a brand new board you would need to first set the time and date. Refer to "i. Setting the time and date".

### i. Setting the time and date

1. In order to enter the mode for setting date and time press TIME and DATE buttons simultaneously. Doing so would light consequently each of the LEDs starting from bottom right to top left.

2. The way you set time and date is always in the same order – TIME: MINUTES -> TIME: HOURS -> DATE: MONTH -> DATE: DAY.

3. So would have to first enter the current time starting from the minutes and the lowest bit. How to do it?

There are only two states of each LED – 1 or 0 – LED lit or LED unlit. You can set the next state of the currently blinking LED by pressing down and holding the TIME button, the state of the LED seen while the button is pressed would remain after button is depressed (LED either lit or unlit). If you want the other state just release the TIME button and press it and hold it again – the two states change between presses. Once you have selected the state you want press DATE button to set it. Now you have to set the next bit and its LED would be now blinking by following the same procedure

There are 6 bits for minutes and day of month ( $2^5 = 32$ ,  $2^4 = 16$ ,  $2^3 = 8$ ,  $2^2 = 4$ ,  $2^1 = 2$ ,  $2^0 = 1$ ) and 5 bits for hours and month ( $2^4 = 16$ ,  $2^3 = 8$ ,  $2^2 = 4$ ,  $2^1 = 2$ ,  $2^0 = 1$ ).

For example: If you wish to set time 13 h and 55 minutes and date 2nd of February:

Start by setting the minutes to 55 as following:

1	2	4	8	16	32	
1	2	4	0	16	32	=55
1	1	1	0	1	1	

Set the hour as following:

1	2	4	8	16	
1	0	4	8	0	=13
1	0	1	1	0	

Now to the date, first set the month:

1	2	4	8	16	
0	2	0	0	0	=2
0	1	0	0	0	

Finally set the day of the month:

1	2	4	8	16	32	
0	2	0	0	0	0	=2
0	0	0	0	0	0	

Voila time and date are now set to 13h and 55 minutes of February the 2nd!

### ii. Checking the time and date (if previously set) - press either TIME or DATE button.

To check the current time, press and hold TIME button and calculate the time (sum all values at top row for hours; sum all values at bottom for minutes)

To check the month and the day of the month, press and hold DATE button and calculate the month and day of month (sum all values at top row for month; sum all values at bottom for day of month)

**IMPORTANT! Do not press TIME and DATE buttons at the same time, this would reset the set time and date and force re-setting the time and date.**