Technical parameters

- RTC (real time clock) time accuracy @ -40 to +85°C: ±6 ppm
- Maximum voltage of the internal DC-DC converter for nixie anodes: 200 VDC
- Power consumption (max.): typ. 200 mA @ 12 VDC = 2,4 W
- Outer dimensions: 72 (height) x 62 (depth) x 234 (width)
- Weight: approx. 480 g

Functional features

- Automatic date showing (default enabled – shows every minute last 3 seconds).
- Programmable automatic display switch off. Up to 6 different intervals are available which can be assigned to individual days of week (default off)
- Digits over count animation (default on)
- 12h / 24h hours modes (default 24h)
- Lead zero blanking (default off)
- Broken nixie detection & immediate switch off of the internal DC-DC converter for nixie anodes

Clock operation & setting up

After turning the clock on, it will automatically check all tubes. If some tube is missing or broken it will be detected and the clock's internal DC-DC converter for nixie anodes will be turned off. That means no tube will light. If all tubes are OK the clock will enter into **Time Display Mode.**

If some parameter of the clock should be adjusted use a middle button on the rear side of the clock to enter the **Menu Mode**.

During the Time Display Mode, the nixie display shows date and

1. Buttons
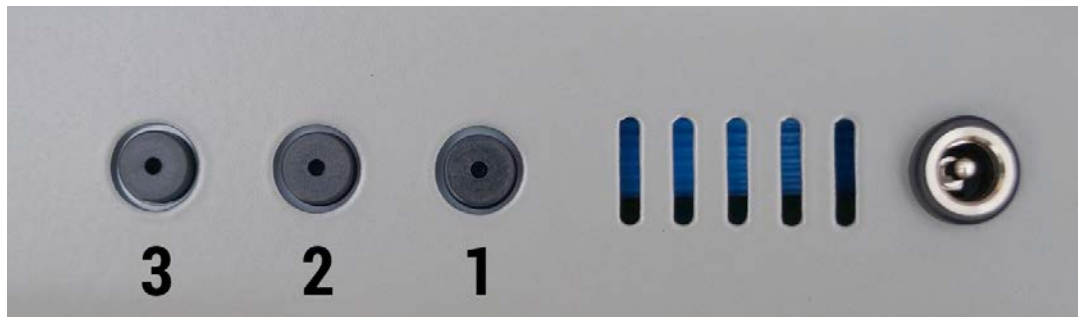
Time display mode – button functions

	Button 1	**Button 2**	**Button 3**
Short press	Show date (hold)	Blank display on/off	
Long press			Open menu

Menu Mode – button functions

	Button 1	**Button 2**	**Button 3**
Short press	Left	Ok	Right
Long press		Confirm / Save	Cancel / Back

Long press = 1.5s

2. Factory reset

Hold button 1 and button 3 for three seconds during the startup. This resets the clock to its initial state. The clock shuts automatically down after the factory reset. To start it again plug out and in the power cord.

3. Menu

The menu allows setting current time, date and also customizing of the other clock features. It is divided into a main menu and sub-menus. Each sub-menu is represented by a digit in the main menu and is explained in the chapters below. When entering the main menu, the display will blank for a short period. This indicates the entering into main menu.

[Left] [Right] – cycles between sub-menus

[Ok] – enters selected sub-menu

Common functionality for sub-menus (if not stated otherwise):

[Left] [Right] – decreases / increases displayed value

[Save] – saves current setting and returns back to main menu.

[Back] – returns back to main menu without saving.

3.1. Time setting – sub-menu "1"

In this sub-menu the current time is set. The display shows [hours / minutes / seconds].

Hours / minutes / seconds selection:

First pick the value to change it: hours / minutes / seconds. Currently selected value is flashing.

| Left | | Right | – switches between hours / minutes / seconds

| Ok | – enters the changing mode of currently selected value (see below)

Changing hours / minutes / seconds:

| Left | | Right | – increase / decrease value of hours / minutes / seconds

| Ok | – goes back to hours / minutes / seconds selection

Press | Save | to store changes and exit the Time setting sub-menu

3.2. Date setting – sub-menu "2"

In this sub-menu the current date and day of the week is set. The display shows [day / month / year].

STEP 1:

Day / month / year:

First pick the value to change it: day / month / year. Currently selected value is flashing.

| Left | | Right | – switches between day / month / year

| Ok | – enters the changing mode of currently selected value (see below)

Changing day / month / year:

| Left | | Right | – increase / decrease value of day / month / year

| Ok | – goes back to day / month / year selection

After you set the correct date, press | Confirm | to proceed to year selection. Even if the year is not displayed, it needs to be set for the calculation of a leap year.

STEP 2:

Day of the week setting:

| Left | | Right | – increase / decrease day of the week (1 = Monday, … , 7 = Sunday)

Press | Save | to save the date and exit the Date setting sub-menu

3.3. Display mode 12h / 24h setting – sub-menu "3"

Toggles between 12h / 24h display. If 12h mode is selected, PM hours are indicated with a dot.

24h mode – displays time from 00:00 to 23:59.

12h mode – displays time from 12:00 am to 11:59 pm. Between 12:00 pm and 11:59 pm a dot is shown at the first tube.

3.4. Lead zero blanking – sub-menu "4"

Activates / deactivates lead zero blanking in every nixie pair (= h h, min min, sec sec, month month, day day, year year)

3.5. Automatic date showing – sub-menu "5"

This sub-menu allows configuring of the automatic date showing.

STEP 1:

Automatic date showing ENABLE / DISABLE

In first step chose between automatic date showing enable / disable. Enabled is represented by 1 and disabled by 0.

Press ⸢ Ok ⸥ button when there is 1 on the display. The menu proceeds to configuration of the automatic date showing (see below STEP 2).

STEP 2:

Automatic date configuration:

The display shows [minute repeat interval / view duration [s] / starting second]. First select the desired value to modify. Buttons ⸢ Left ⸥ ⸢ Right ⸥ switch between values. Current value is flashing. Pressing ⸢ Ok ⸥ enters the configuring mode of the selected value. After pressing ⸢ Ok ⸥ again the clock returns back to value selection. Press ⸢ Save ⸥ to save and return to main menu.

3.6. Blank interval setting – sub-menu "6"

This sub-menu allows the individual blank intervals configuring which can be later assigned to individual days in **sub-menu 3.7**. Each blank interval has a *time from* and *time to*. The display blanking happens between these times.

Blank interval selection:

First select a blank interval number. They are labeled from 1 to 6. Press ⸢ Ok ⸥ to configure selected interval. If a blank interval is assigned for at least one day, there will be a dot at its index. See 3.7

Interval programming:

STEP 1:

Time «from» setting:

For setting of time from, follow the instructions as in 3.1. Press $\boxed{\text{Confirm}}$ to continue to time to setting.

STEP 2:

Time «to» setting (time «to» setting is indicated with lighting dots in every tube):

For setting of time to, follow the instructions as in 3.1. Press $\boxed{\text{Save}}$ to save the current interval and return to interval selection.

3.7. Blank interval – day assignment

This sub-menu allows the assigning of already defined blank intervals to individual days.

Day selection:

First select a day. They are labeled from 1 (representing 1st day of week) to 7 (representing last day of week). Press $\boxed{\text{Ok}}$ to configure selected day. If a day has at least one interval assigned, there will be a dot at its index.

Day interval assignment:

Assigns blank intervals to a currently selected day. Each tube represents a blank interval starting from left (blank interval 1) to the most right (blank interval 6). If the tube shows 0, the interval is not assigned. If it shows 1, the interval is assigned. Currently selected blank interval is flashing. Press $\boxed{\text{Save}}$ to save the current day – interval assignment and return to day selection.

If blank interval time from is after its time to, the time "transfers" to the next day. For example, if there is an interval 22:00 (time from) – 06:00 (time to) set to Wednesday, it will blank the display every Wednesday starting 22:00 till Thursday 06:00.

3.8. Nix animation

Activates / deactivates digits over count animation.

4. Service

4.1. Replacing broken nixie tubes

When a tube gets broken or is missing (= not mounted), the clock switches off the internal DC-DC converter for nixie anodes to prevent any injury. After restarting (plug in and out) the clock it shows the numbers of broken tubes periodically on the first working tube from left. The tubes are enumerated from left starting by 1. If it doesn't show anything, it means all tubes are broken.

After replacing of broken tubes restart the clock and perform a factory reset.