SOA Start Clocks – Menu

Instruction on how to use the Menu to change settings on the SOA Start Clock (7 segment Display)

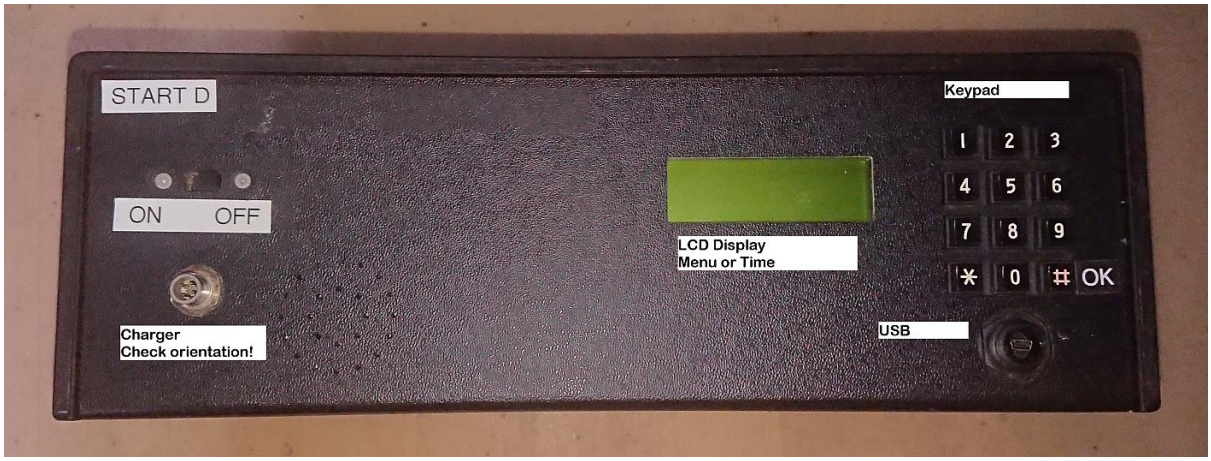
Introduction

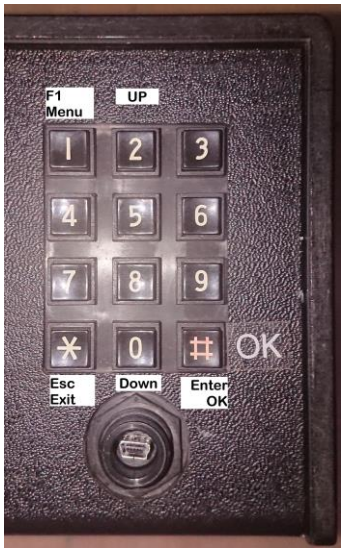
The SOA Orienteering clocks were first available in 2007 and developed with the assistance of a Sport Scotland grant. Over the years there have been small incremental changes. The 2021 upgrade consists of a new processor on a custom circuit board that also includes an accurate Real Time Clock, Keypad interface and Audio amplifier. The new (Cortex M0) processor is faster and has significantly more memory to support the additional features.

A major feature of the new design is the Keypad and on clock Menu which enables adjustments to be made directly on the clock. The menu system allows the following settings to be made:

- *Clock Type: i.e. Orienteering Start, Pre Start and Finish.*
- *Race Mode including a Countdown.*
- *Pre Start Offset range from 1 - 8 minutes.*
- *Three different Start Countdown Beep patterns (UK, Swedish and Swiss styles!),*
- *Time and Date,*
- *Volume: Off and 4 volume levels.*

Where fitted the LCD display also shows the menu. The Configuration software also permits adjusting all these settings as well as setting the time-zone for the clock. The software adjusts for Summer and Winter time based on the Date and Timezone setting.





Keys used for Menu navigation and selection.

Using the Menu

Enter the Menu by pressing **F1 / 1** then **Ent/ #**

Configuring the Clock using the Keypad and On Clock menu.

The menu is opened and closed by using the F1 key on the keypad.
The arrow keys are used to move through the menu.
The Ent key is used to select a menu option.
The Up and Down arrows are used to adjust settings.
The Esc key is used to Escape from a menu option.
All changes are automatically saved.

Menu Structure

Menu Press F1 to turn the menu On or Off.

Press Ent to access the Menu else Esc to Exit back to the clock display.

SET CLOCK TYPE Press Ent to set the Clock Type

CLOCK_TYPE: Orienteering, Clock or Race. Use Up/Down arrows to adjust

*** Only display this if Clock Type is Orienteering ***

OCLOCK_MODE: Start Finish or PreStart . Use Up/Down arrows to adjust

SET BUZZ: Press Ent to set the Buzz Interval

SUB_BUZZ: Use Up/Down arrows to adjust the Buzz Interval.
Values are 1,2,3,4 or 5 minutes, 30 secs. and 90 secs.

SET PRE_START: Press Ent to set the pre start offset

SUB_PRE_START: Use Up/Down arrows to adjust the offset 1m-8m.

*** End of Orienteering settings ***

*** Only display this if Clock Type is Race ***

SET CountDown: Press Ent to Set Countdown

SET Minutes: Use Up/Down arrows to adjust Minutes.

SET Seconds: Use Up/Down arrows to adjust Seconds.

*** End of Race settings ***

SET CLOCK: Press Ent to set the time.

SET Hours: Use Up/Down to adjust Hours.

SET Minutes: Use Up/Down to adjust Minutes.

SET Seconds: Use Up/Down to adjust Seconds. ‘0’ to Zero seconds.

Use Left/Right to move between settings. Press Esc when done.

SET Date: Press Ent to set the time.

SET Day: Use Up/Down to adjust Hours.

SET Month: Use Up/Down to adjust Minutes.

SET Year: Use Up/Down to adjust Seconds.

Use Ent to move between settings. Press Esc when done.

SET Buzzer Volume: Press Ent to set the Buzzer Volume.

SET VOLUME: Use Up/Down to adjust the Volume level for the Start beeps.
Volume 0 is OFF.
Press Esc when done. (N.B. The Keypad Beep does not change.)

Delaying the Start

To delay the start the clock time can be decreased.
e.g. First Start ids due off at 11:00 , it is now 10:50 and the start needs to be delayed by 15 minutes. The Start clock needs to show 10:35 and the Pre Start Clock 10:31. The same process can be followed on each clock.

Pres F1(1) on the keypad then Enter(#). Press Down(0) until Time shows. Press Enter(#).

The Hours will flash. In this example hours don't need to change. Press Enter(#) to move to Minutes. Minutes flash. Press the Down(0) key 15 times. Press Escape(*) to Exit and F1(1) to return to the time display.

Repeat the process on the other clock.

The new times are stored so in due course the correct time will need to be restored either using the keypad or ideally using the configuration software which will ensure both clocks become synchronised again.

Configuration Software

All clock settings can be made using the Configuration Software:
http://kitst.co.uk/uploads/clocks/KitStConfigV2.zip

The software will work on Windows 7 – 10 (there is also an XP version). Older (Windows 7) systems may need to add a USB driver.

https://github.com/adafruit/Adafruit_Windows_Drivers/tree/2.5.0.0/Assets.

Time Synchronisation

The clock time can be set from the PC. The clock time will be synchronised with the PC clock. Before synchronising the clock it is best practise to also synchronise the PC with Internet Time.

(In Windows 10. Right Click on Time at bottom right. Select Adjust Time/data. Select Sync Now.)

The timing chips in the SOA clocks is considered to be 'highly accurate' and should remain +- 1 second within 1 week. So clock synchronisation may be done a day or two before an event – perhaps at the same time any control timing units are set up.

The Clock time can also be adjusted 'in the field' which can be useful fi for example a start has to be delayed. Any time adjustment made will be remembered so will need undoing after the delayed race has concluded.