AP103 Pedal Clock Timer

Hardware Description & Operation

Description

Introduction

The Pedal Clock Timer provides a time display for a musician's pedalboard. With a 15mm 7 segment display it can be clearly seen while playing.

It can be used to time a set while rehearsing, or as a countdown timer to time a set giving a warning when the elapsed time is coming to an end.

It is easily configured just from the integral foot switch, with settings retained in non-volatile memory ready for setting up for a performance.

There is also an indicator LED to the right of the display used to indicate operation and other functions.

Operation

Power requirements

The unit operates from a standard 9V DC 2.1mm (+ve on outer) power supply, so can be daisy chained with existing pedals. Ensure that your power supply can supply enough current for all of your pedals if you daisy chain, or consider an individual power supply for this unit.

Power On (Operation Mode)

Apply power to the unit and the display will show:

for one second, then

for one second more (being the firmware version number) before initialising to the 'ready' state.

Ready State

If the unit is in Stopwatch mode (default), the display will show

00.00

If it is configured in Countdown mode the display will show the pre-configured countdown time. e.g.

40.00

Run Mode - Timer Operation

Simply press the foot switch to start and stop the timer. A long press will reset the timer, but only if the timer is stopped. When the timer is running, the indicator LED to the right of the display is on, and the decimal point in the display will flash once a second.

Button Operation Indicator

The decimal point at the first character position lights when the button is pressed. When the button is pressed for a long press (> one second) the light goes out as the long press is recognised.

Power Saving

If the unit has been idle for 30 minutes, the display is shut down to preserve power. The indicator LED will flash once every two seconds to show that it is standby. Press the foot switch to wake the unit up and return to the ready state. Bear in mind that if the unit was running in countdown mode, ran to zero, stopped and then went to standby that the unit will show zero and would need a long press reset to reset the countdown timer.

Power On (Configuration Mode)

By pressing the button at power on - either by holding it on or making sure it is pressed as the version number is displayed, the Configuration menu is accessed. All settings are configured with combinations of long or short presses on the button. Short presses change the values within each setting, and a long press moves to the next menu option. The menu is exited by either leaving the unit idle for sixty seconds, or selecting the 'exit' option in the menu itself.

When parameters are changed, they are retained in memory by leaving the unit idle for ten seconds in any of the menu screens. The indicator LED is lit when any settings that have been changed while in the menu are then written to memory - ensure that you wait for this to happen to ensure that your programming is set.

Menu Entry

When first entering the menu, the following display is seen, followed by the Mode selection menu.

MEnu

Mode Selection

This menu allows selection between Stopwatch (default) or Countdown modes. See the displays as below, toggle between them by making a short press on the button. A long press will step to the next menu.

F 5t   F cd

Run Time Selection

If the unit is in countdown mode, then the run time can be selected. Change the time from 5 minutes to 240 minutes in 5 minute steps by a short press. 40 minutes is the default value here.

A long press will step to the next menu.

d040

Warning Time Selection

If the unit is in countdown mode, the warning time can be selected. The display will flash when the countdown timer drops below this warning time. Select between 0 and 10 minutes by a short press. 0 disables the flash function. (default 2).

A long press will step to the next menu.

- 05

Under-run option

If the unit is in countdown mode, rather than stopping at 0:00 (default) the unit can show negative time indicated by a minus sign on the left and going down to a maximum of -9:59. This allows the user to see how much they have over-run their set by. A short press toggles between this mode being off or on.

A long press will step to the next menu. Default is off.

u oF   u on

Display Brightness

Select a value between 0 (minimum) and 7 (maximum) by a short press.

A long press will step to the next menu. Default is 4.

b 05

Calibration

The unit is calibrated for accuracy during manufacture and the value is set here. It is **NOT RECOMMENDED** to change this value as it will make your clock run fast or slow.

The calibrated value for your unit is recorded here _____.

Select a value between 0 and 63 by a short press.

A long press will step to the next menu.

If calibration is required (i.e. you have noticed that timekeeping is particularly out), then in this mode, the unit outputs a pulse on one of the pins of the engineering header J2 as shown here. This should be carried out by a competent engineer with a frequency counter. Measure 62.5Hz on the pin as shown, the calibration frequency is only output while in the calibration menu. Change the calibration value for the closest match to 62.5Hz. Even if this value is wrong, it's unlikely that the clock will be more than 1% out in terms of accuracy. From the factory, the clock should be within 0.1% accuracy.

Exit

A short press in this menu will exit the menu.

A long press will return to the first menu option.

Specifications

Dimensions	-	80mm x 40mm x 20mm (not including foot switch)
Weight	-	60 grams
Voltage	-	9V DC on 2.1mm connector, +ve on outer
Power	-	0.6W / ~60mA

All electronic & firmware design by Ambient Power in the UK.

Revisions:

V1.0	Original release
V1.2	Fixed bug where brightness was reset after power-down
V2.0	added under-run feature