Alternate Pace v2.2

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1   Overview

Professionals intent on meeting opportunities will find the Alternate Pace clock an asset to their busy schedules. It has two operating modes: a normal mode for day to day usage, and a value-add mode, for hourly billing calculations. The latter mode also helps you ship deliverables on time, productivize meetings, make going-forward your core competency, right-size your minutes, and allow midnight to achieve synergy with lunch. Through day-to-day usage you will quickly notice a paradigm shift in the way you perceive time.

1.1   Specifications

- Dimensions: 11.250" x 2.725" x 0.75"

- Accuracy: ± 2 minutes/year

- User interface: Seven segment LED display and push-buttons

- Power source: 12VDC 1A wall adapter

- Blackout endurance: minimum 24 hours

- Internally tracked metrics: Hours meter and stakeholder interactions

- Specifications met: NASA-STD-0005, NASA-STD-8739.2, NASA-STD-8739.3, NASA-STD-8739.8, ISO 10553:2003, ANSI INCITS 310-1998 (R2003), NSS-1740.12
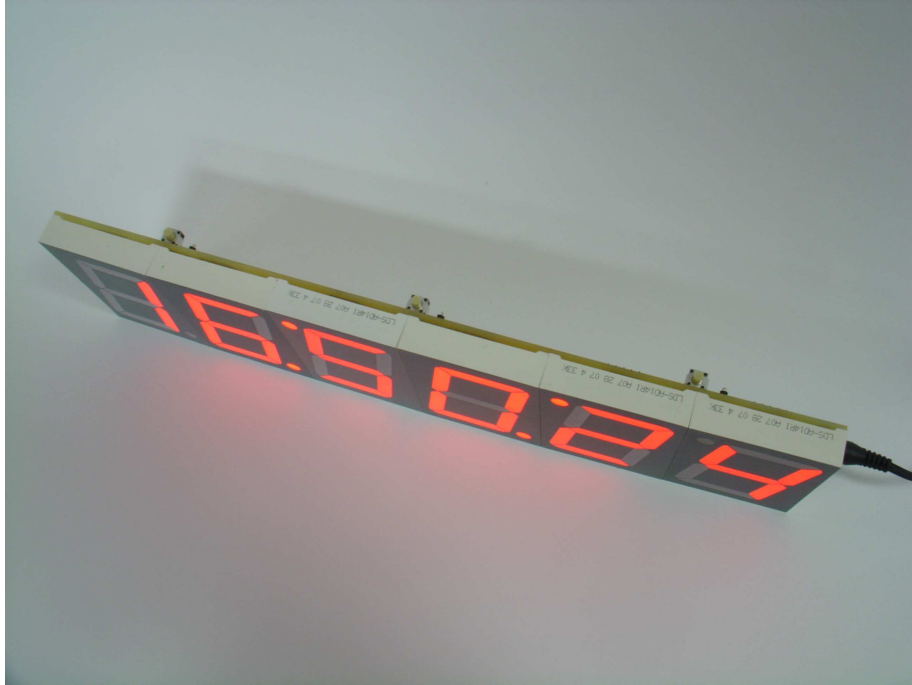
Figure 1: Top buttons, hour, minute and second

2 Mounting

Two slots on the back are provided for hanging. They accept any screw or nail that fits securely. The distance between the two slots is 9.450" Two power jacks are also provided; use which ever one best fits the installation.

3 Setting the time

As shown in Figure 1 there are three buttons used for setting the time, each positioned above the digits that it changes, hours, minute or seconds. The hours and minutes buttons both increment the associated digits. Seconds however resets the the seconds to zero upon being held down for two seconds. This is provided to allow you to accurately synchronize the seconds with a master clock by setting the minutes to be a minute ahead, and then resetting the seconds at the turn of the minute.

4 Mode switching

To switch between the timescale of your competitors, and your organization, simple push the button above the seconds digits briefly. Going forward the

Figure 2: 12 hours mode, showing 4am

clock will maintain a beyond competitive pace until the seconds button is pushed again, at which point the timescale is re-synergized for a strategic fit with your competitors scheduled deliverables.

5   12 and 24 hour modes

To switch between the 12 and 24 hour modes press and hold the hours button. Note that hours will increment at first, but upon switching modes this increment will be undone leaving the correct time. In 12 hours mode the bottom left dot will turn off in the first half of the day to distinguish AM and PM, as shown in Figure 2 The current mode is saved in non-volatile memory and will be remembered if the power is disconnected.

6   Brightness Control

The brightness of the display can be adjusted via the rotary control labeled "Bright" located on the back of the Alternate Pace on the right-hand side.

7   Maintenance

The Alternate Pace requires no maintenance. If cleaning is required water will not harm the electronics so long as the device is off and allowed to dry throughly before applying power again. It's best to simply use a damp cloth; free water may become trapped between the led digits and the circuit board and may take a long time to dry.

Figure 3: Metrics display

8 Internal metrics

The internal metrics permanently record a number of measurements such as the total time the Alternate Pace has been powered on and how often the buttons have been pressed. Think of it like the odometer in your car, except, the Alternate Pace has no need for oil changes.

To access the internal metrics follow the same procedure to switch between fast and slow modes, except hold down the minutes button on power up. Upon power up the clock face will display a special mode, shown in Figure 3 In this mode the left most digits, what would normally be hours, display the address while the right-most digits, normally seconds, display the data at that address. You can scroll through the addresses with the hours and seconds buttons. Both address and data digits are in hexadecimal. The table of addresses and their meanings is as follows:

0x00 - 0x03	Total running time	In seconds
0x04 - 0x07	Hours switch	# of button presses
0x08 - 0x0B	Minutes switch	# of button presses
0x0C - 0x0F	Seconds switch	# of button presses
0x10 - 0x13	Max temperature	# Raw value from DS3231
0x14 - 0x17	Min temperature	# Raw value from DS3231
0x18 - 0x1B	Metrics mode usage	# of times activated
0x1C - 0x1F	Unassigned	May be any value
0x20 - 0x23	12/24hr	12 or 24 hour mode

Each data value is a 4-byte unsigned integer stored in little-endian format. To convert this into a human readable decimal integer you'll need a calculator capable of converting from hexadecimal, or base-16, to base-10. Little-endian means that the least significant digit is stored in memory first. For instance the number, 1234 is stored in little endian format as 4321. As an example if the value in the total running time metric, starting from address zero, was 7b, c2, 08, 00 you would enter that into your calculator as hexadecimal 0008c27b, which converted to base-10 is 574075 seconds. Dividing that number by 86400 seconds/day gives you 6.64 days of total running time.