Cronos 2013 Wall Clock

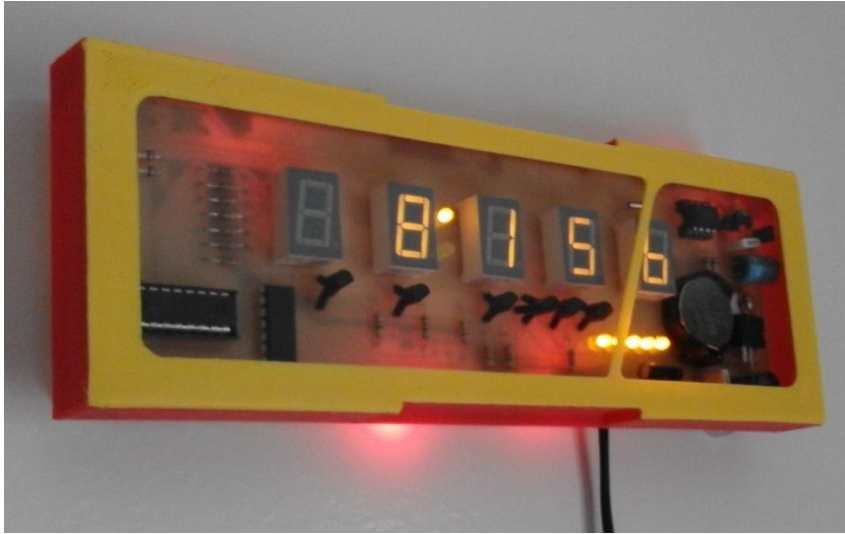## User manual and specs

Created and manufactured by Marius Taciuc in Ukarumpa, Papua New Guinean Highlands
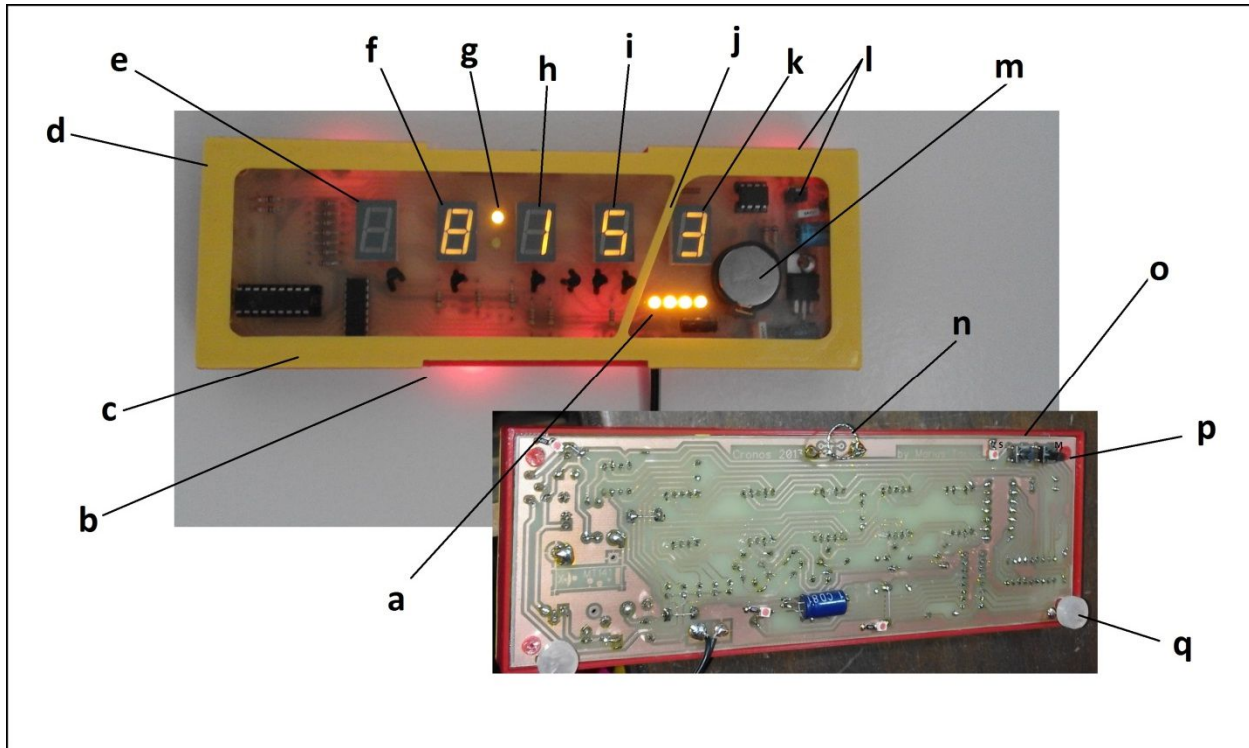
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Introduction:

Cronos 2013 Wall Clock is a very precise clock, designed to provide comfort, accuracy, and flexibility in different working conditions and environments. Cronos 2013 Wall Clock was designed with the primary purpose of serving Christ by focusing attention to his person displaying logos and Christian messages. This clock can also be used as a good opportunity to spread the Gospel and to initiate a conversation with someone who is not a believer.

Features:

- Easy to set-up, program and operate - It was specially designed to be intuitive
- LED 7 segment display
- Comfortable light level that doesn't disturb you during the night and good contrast during the daytime
- Possibility to adjust the brightness level
- Backlight
- Provides 24h format with hh : mm /ss
- Doesn't display "0" (the zero character) in front of a number
- Flickers the ":" dots in a random manner
- Displays the tenths of a second in a bar graph LED display
- Provides data retention for up to ten years in case of power loss or transportation
- Displays logos at special times or at user request
- Modern look that fits almost every home environment
- Non-glossy 3mm glass case that doesn't reflect the environment light in a blinding spot
- Robust design and anti-break shock absorbing glass gasket
- Environment friendly and non-toxic PLA plastic used for the case

Clock physical description:

Quick parts description list	
a	LED bar graph for showing the tenths of the seconds – it increments from right to left
b	Backlight illumination
c	Plastic case
d	Sensitive touch corner of the front panel of the case
e	Dimmed digit that is not showing the "0" (zero character) in front of another number
f	Hours units digit
g	":" dots having a random flickering function implemented
h	Minute tenths digit. This digit can also be dimmed for minute count that is less than 10
i	Minute units digit
j	Separation line that splits the seconds area from the rest of the clock. The seconds are shown in the right side of this line
k	Second units digit.
l	Trimmer and case hole for manually adjusting the display brightness
m	Data retention battery
n	Wall hanger
o	Set button – labeled with "S"
p	Mode button – labeled with "M"
q	Wall foot rest

Logos and messages:

Cronos 2013 is designed to display the following scrolling logo messages at the following events and times:
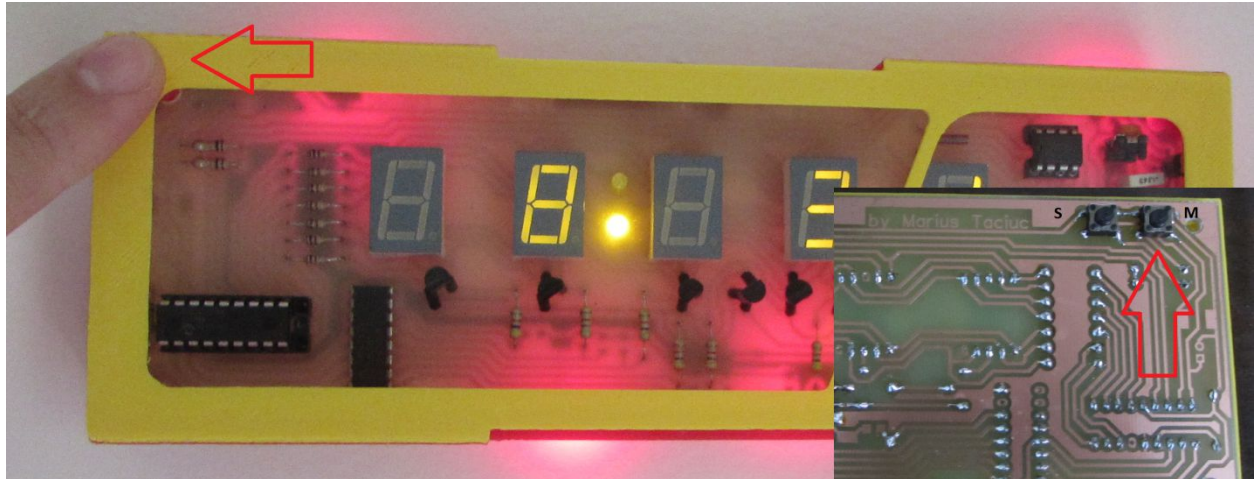

Logo message	Event / time of display
"JESUS is Lord"	- Every time it displays 14 minutes and 6 seconds reminding of the John 14:6 Bible verse - At user request by pressing the top-left corner of the screen - At user request by pressing the "M" button on the top-right side of the back panel - At user request by un-powering and reconnecting the device to the power point - At power up
"John 3:16"	- Every time it displays 3 minutes and 16 seconds - At user request by pressing the top-left corner of the screen - At user request by pressing the "M" button on the top-right side of the back panel - Every time it begins to display 16 minutes of the respective hour, for instance: 13:16 (only for the V.03 software version)

Every time the proper logo is displayed, the time is still running in background and this will not affect, delay or deprogram the clock. Before the messages are starting to be displayed, the entire clock display fades out and dims the light. When the respective message or logo finishes, the clock display fades back in. Meanwhile, the clock is running in the internal RAM memory of the clock chip.

When you power the clock back after it was off for a few minutes, it displays the "JESUS is Lord" logo and then it switches automatically on displaying the current time.

To make the clock display the logo messages at user request, just press the top left corner of the clock front panel for one second or press the "M" button for one second. At the first push, one of the logos will be displayed and at the second push, the other logo will be displayed.

Setting the clock:

Initially, out of the box, the clock is inactive and it displays nothing, even when powered. To activate the clock, you must set it. This inactive state prevents battery discharging during transportation and warehouse waiting times.

To set the clock, press the "S" (set) button for at least one second. The clock will display and highlight only the minutes section. In this state, press the "M" (mode) button to increment the value of the minutes. When you finish setting the minute section, move on to the hour section by shortly pressing the "S" button again. This will highlight and display only the hour section. You can increment the hour value by pressing the "M" button. The "M" button can be pressed continuously for automatic fast increment, or step by step for slow increment. When you finished setting the hour section, you must press the "S" button again to return to the main screen and displaying the clock. This will also reset the seconds area and the seconds value to zero.

Warnings and precautions!

- Do not expose the clock to fire or direct liquid contact!
  The internal battery might explode if exposed to fire. In case of water contact (or other liquids), the clock conductive materials might corrode and damage the entire device. Risk of electric shock if the power adapter is exposed to direct water splash or other liquids contact
- Store in a dry place!
  The device is covered with a layer of coating that prevents the metal oxide to be formed. Still, the recommendation is to keep it in an environment that usually has less than 85% humidity at all times.
- Do not open or break apart the case of the power adapter while still connected to the power point! Risk of electric hazard.
- Not suitable for children!
  Choke hazard, in case of raping the power cord around the neck! If the device comes apart, it contains small parts that can detach from the motherboard in some cases. Small parts can lead to severe injuries or choking if swallowed.
- In case of glass shattering, do not touch the glass pieces! This might lead to severe injuries or cuts.
- At the end of the lifetime, do not throw the battery cell away! Dispose it in the special collecting places designated for Li-ion or Li-Fe-pol batteries.
- The manufacturer does NOT assume any responsibility for any injury or inconvenience that might result out of improper use or disposal of this particular device and its accessories.

Typical conditions and ranges:

Typical conditions for storage and operation – ranges chart				
	min	typ	max	unit
Storing temperature[1]	-30	25	90	^{o}C
Operating temperature[2]	-20	25	85	^{o}C
Storing humidity	5	55	65	%RH
Operating humidity	-	-	85	%RH
Input voltage[3]	200	-	240	V~
Power consumption[4]		5		W
Main resonator frequency		32.768		KHz
Maximum time error[2]			35	Seconds/month

1) Do not expose to direct sunlight while storing this product in warehouses. Not suitable for storing inside of vehicles exposed to direct sunlight during summertime for more than a few days in a row.
2) The precision of the clock is maintained around 25°C. Every degree of temperature variation causes a timed second to vary with up to 0.035 seconds every 1 000 000 seconds. This can mean almost ±110s every year at a temperature difference of ±10°C above or below 25°C. At this temperature related frequency drift, a normal resonator tolerance of up to ±20 ppm usually adds. These calculations assume component behaviour according to the manufacturer specifications and datasheet.
3) Some clocks come with universal power adapters that are able to function between 100V and 240V~. Check the label of the adapter.
4) Depends on the brightness settings