

Cathode Corner

SCTV Scope Clock

User Guide

Introduction

Thank you for purchasing the Cathode Corner SCTV Scope Clock. You are now the owner of one of the most unique timekeeping machines in existence today.

The SCTV scope clock displays the time on a small oscilloscope tube using beautifully drawn numbers. While most digital clocks use a seven-segment display optimized for low cost and ease of manufacture, the SCTV is optimized for aesthetic appeal. The clock is housed in a laser-cut Plexiglas cabinet.

Clock Features

The SCTV Scope Clock is designed to resemble a tiny TV set from days of yore. The front panel has four small knobs and one big knob to control the display position, brightness, focus and the clock mode. Three screwdriver slots allow adjustment of display size and astigmatism. The rear panel has a micro-USB programming jack, a 12V DC power jack, and a USB-A jack for connection of a GPS receiver or other accessory.

The display can show the time in four different digital formats with or without the seconds and date. An analog clock face provides old-fashioned hands.

There is a haiku mode that shows random poems.

The games of Tetris and Pong are provided. Pong is a two-player game controlled by the position knobs, whereas Tetris is a single-player game controlled by the position knobs. Pong features English on the ball. Tetris is challenging, intended for Tetris fans rather than noobs.

The clock itself uses a real-time clock chip with a CR2032 battery backup, so that the clock will remember the time setting through power loss. The battery is expected to last at least five years.

Using your clock

Plugging it in

The Scope Clock runs on 12V DC. It is supplied with an appropriate AC wall adapter for your locale. Since it uses a vacuum tube for the display, allow about 20 seconds after plugging it in for the display to warm up.

The clock time has been set at the factory. You should not need to set the time, but you may need to set the time zone, mains frequency and daylight savings time mode (DST).

Adjusting the display

The Scope Clock has five knobs on the front panel. Each knob causes a visible change on the screen. The top left knob is Brightness. It should be adjusted so that the green display is visible but not overly bright. The top right knob is Focus. It should be adjusted for sharp lines.

The lower left knob is Horizontal Position. It will center the display to the left or right. It also serves as the left player paddle for Pong, and the block position control for Tetris. It must be recentered after playing a game and switching back to clock mode.

The lower right knob is Vertical Position. It moves the display up and down on the screen. As with the Horizontal Position control, it serves double duty for Pong and Tetris. It is the right player paddle for Pong and the block rotation for Tetris.

The large knob at the bottom center is the Mode knob. It is used to select different clock or game displays, and to adjust the time or locale settings.

The clock time has been set at the factory. You should not need to set the time, but you may need to set the time zone, mains frequency and daylight savings time mode (DST).

Setting the locale

To set the clock's locale, push the large mode knob once. The knob requires some force to press, so you may need to hold the clock while pressing the knob. You will see a menu with three lines, the top line highlighted. Rotate the big knob to highlight Set Locale, then press the knob again. You will see several options to set.

Pressing the knob when a setting is highlighted will cause the knob to change the value of that setting. Pressing the knob again will cause the knob to move to the next setting. Pressing the knob when the Exit Menu is highlighted will return to the previous menu page.

Zone sets the time zone used for GPS time. It has no effect unless the optional GPS receiver is used.

24 hour mode selects whether the hours are displayed as 0..23 or 1..12.

DST on/off selects whether the GPS time is adjusted ahead by an hour. This is not automatic, since the code required to handle all cases is beyond the abilities of the creator of the clock. Feel free to write your own code.

Mains tells whether the AC power in your location has a frequency of 50 or 60 Hz. This is used to synchronize the display to any magnetic fields that may be present. Having it set to the wrong value will cause the display to shimmy if the clock is near an AC-powered motor, transformer or electromagnet.

Screwdriver adjustments

The Scope Clock has a few screwdriver adjustments that may need to be set for best display quality. They are set at the factory, but will need to be changed if the CRT is replaced. These controls may be turned with a 1/8" flat screwdriver inserted through the holes in the front of the clock cabinet.

Width and Height control the display dimensions. They can be adjusted if you are unhappy with the display proportions or size.

Astigmatism controls the beam defocus balance between horizontal and vertical axes. This adjustment is needed to obtain the best-focused image, and is dependent upon intensity. First, adjust FOCUS till the lines of the display are about 1/16" wide. Next, adjust ASTIG so that width of the lines in the horizontal

and vertical directions is the same. This is most easily judged by viewing the colon. Finally, readjust FOCUS until the lines are as narrow as possible.

Optional GPS receiver

The optional GPS input is a USB connector mounted on the rear panel of the clock. It has been tested with a GlobalSat BU-353S4 GPS puck receiver.

The clock will set itself to GPS time when the GPS receiver is plugged in. This may take up to a minute. The locale setting becomes important at this point. The time zone and DST need to be set correctly for the GPS time to be correct.

The clock will stay set to the GPS time when the GPS receiver is unplugged. It may lose a second, since that's how often the GPS time messages are sent.

Care of the Cabinet

The cabinet is made of acrylic plastic. This plastic can be scratched by abrasive pads, so clean the cabinet only with a soft cloth. Novus plastic polish may be used to keep the plastic shiny.

Warranty

Cathode Corner warrants the SCTV Scope Clock to be free of manufacturing defects for a period of one year. If your clock fails to give satisfaction in that time period, contact Cathode Corner for shipping authorization and instructions.

The CRT is guaranteed for a period of one year by the manufacturer.

Replacing the CRT

The CRT is expected to last at least ten years before needing replacement. If you are handy with tools, you may replace it yourself, or you may send the clock to Cathode Corner to have the CRT replaced.

If you elect to replace the CRT yourself, you will obtain a complete set of instructions with the replacement CRT that you order from Cathode Corner. If you decide to use a CRT purchased elsewhere, please contact Cathode Corner for the CRT replacement instructions. They will be furnished free of charge.

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