SVALBARD

VFD Table Clock CL11

This clock is made with VFD (<u>Vacuum Fluorescent Display</u>) display. Main difference between VFD and LCD is: each character can be to programmable as any word numbers flexible by software, plus the brightness is better than LED display.

Features:

o 24 hour format display mode only
o Scrolling numbers effect
o Selectable numbers font
o Selectable display brightness
o Time settings backup

Specifications:

o 8 segments (5 x 7 dots) VFD screen
o Indicated numbers height: 10mm
o Backup battery: **CR1220** (installed)
o DC: **5V/200mA** power supply via USB
o Materials: Aluminum case with acrylic plates
o Dimensions (L x W x H): 144 x 35 x 29 mm / 5,67 x 1,38 x 1,14 in
o Weight: 125 gr / 4,41 oz (without cable)

Packaging contents:

o CL11 VFD table clock
o USB cable (2 meters lenght)
o Cleaning cloth napkin

MANUAL INSTRUCTION

Remove protection paper film from the front glass. Do not use sharp tools! Use your (or wife/ girlfriend) nails. Remove fingerprints from glass only with soft cloth napkin (incl. to retail box).
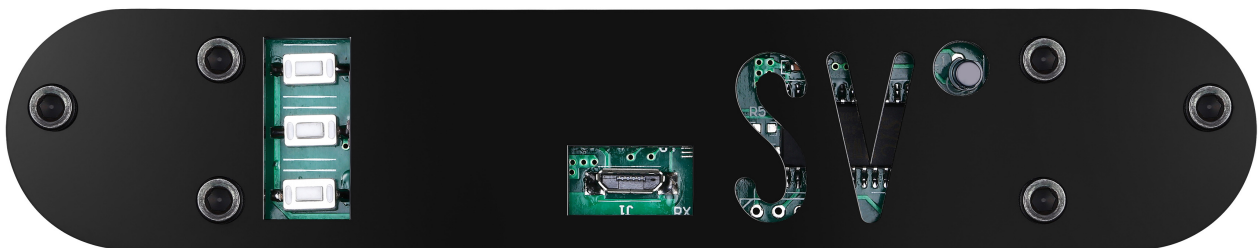
1) Press the "SET" button once, than press "UP" or "DOWN" button to set the hour.
2) Press the "SET" button again, than press "UP" or "DOWN" button to set the minutes.
3) Press the "SET" button again, than press "UP" or "DOWN" button to set the seconds.
4) Press the "SET" button again, than press "UP" or "DOWN" button to set the year.
5) Press the "SET" button again, than press "UP" or "DOWN" button to set the month.
6) Press the "SET" button again, than press "UP" or "DOWN" button to set the day.
7) Press the "SET" button again. "Manual ?" will be displayed. Press "UP" or "DOWN" button once. "Auto ?" will be displayed.

   – if you want to choose automatic brightness level, press "SET" button. "Auto !" will be displayed. Press "SET" button to move for next settings.

   – if you want to keep manual mode, press "UP" or "DOWN" button again. "Manual ?" will be displayed. Press "SET" button to move for next settings.

8) Press the "SET" button again, "Manual 5" will be displayed. Press "UP" or "DOWN" button to set brightness level (from 1 to 5). When level will be choosen, press "SET" button to move for next settings. Note! If you choose automatic brightness on previous step, this step will be NOT displayed to you.

9) After previous step "01234567" will be displayed. Press "UP" or "DOWN" button to choose slim or bold numbers font, then press "SET" button to move for next step.

10) After previous step "Dismode1" will be displayed. Press "UP" or "DOWN" button to choose display mode. If you choose mode 1, "SVALBARD" name will be dispayed in each round clock (11:00:00, 12:00:00, and etc.). If you choose mode 0, this function will be disabled. Press "SET" button to exit from settings mode.

Note. You can skip steps 4, 5 and 6, as the date will be NOT displayed in any mode.

VFD – TECHNIOLOGY DESCRIPTION
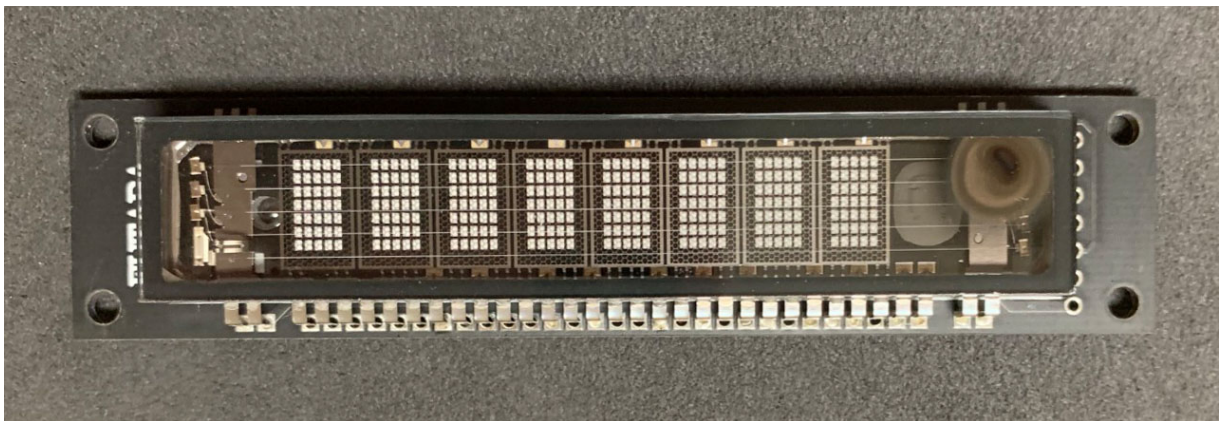
A vacuum fluorescent display (VFD) is a display device once commonly used on consumer electronics equipment such as video cassette recorders, car radios, and microwave ovens. LCDs, OLED displays and LED segment displays have now largely replaced VFDs.

A VFD operates on the principle of cathodoluminescence, roughly similar to a cathode ray tube, but operating at much lower voltages. Each tube in a VFD has a phosphor coated anode that is bombarded by electrons emitted from the cathode filament. In fact, each tube in a VFD is a triode vacuum tube because it also has a mesh control grid.

Unlike LCD (Liquid Crystal Displays), a VFD emits a very bright light with high contrast and can support display elements of various colors. Standard illumination figures for VFDs are around 640 cd/m2 with high-brightness VFDs operating at 4,000 cd/m2, and experimental units as high as 35,000 cd/m2 depending on the drive voltage and its timing. The choice of color (which determines the nature of the phosphor) and display brightness significantly affect the lifetime of the tubes, which can range from as low as 1,500 hours for a vivid red VFD to 30,000 hours for the more common green ones. Cadmium was commonly used in VFDs in the past, but the current RoHS-compliant VFDs have eliminated this metal from their construction.

VFDs can display seven-segment numerals, multi-segment alpha-numeric characters or can be made in a dot-matrix to display different alphanumeric characters and symbols. In practice, there is little limit to the shape of the image that can be displayed: it depends solely on the shape of phosphor on the anode(s).