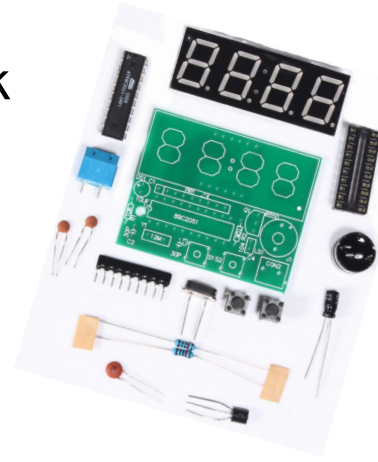


YSZ-4 Four Digit Electronic Clock Instruction Manual “C51 4 bit Clock Kit”



YSZ-4 four electronic clock, it uses an AT89C2051 as its core, a total of 16 electronic components to create a clock with hours/minutes or minutes/seconds, two independent alarms, (8:00 -20:00) hourly chime, accurate adjustment, and other functions.

1> Rationale

The whole system by MCU minimum system, key input circuit, display circuit, buzzer circuit and power supply parts.

1. MCU minimum system includes the U1 (AT89C2051), C1, R1 for power on reset circuit .Clock circuit is composed of C2, C3 and Y1.
2. The pressed key input circuit is composed of S1, S2, short press the button once a loud buzzer rang, long press the button once two loud buzzer rang.
3. The display circuit: 4 bits common cathode and one PR1 resistors pack.
4. Buzzer circuit is composed of Q1, R2 and LS1, short press the button once a loud buzzer rang, long press the button once two loud buzzer rang.
5. J1 is 5v power supply input terminal, C4 filtering.

2>Operation instructions

It will display 12:59 when Power-on, while is normal interface ("hours:minutes"). The both channels of the alarm clock are opened. At the same time, the first alarm clock has been set at 13:01.the second alarm clock has been set at 13:02.

After power on, short press S2.The display of digital tube will switch between "hours:minutes" and "minutes:seconds".

Long press S1 to enter the system Settings menu. There are R, B, C, D, E, F, G, H, I submenus.

Short press S1 to cycle through the submenus, and finally back to the normal display.

A Sub menu: Correction for hours

A

Display data will add 1 with each press of S2. When done adjusting the A Submenu, short press S1 to save the setting, quit the A submenu, and enter the B submenu.

B Sub menu: Correction for minutes

B

Display data will add 1 with each press of S2. When done adjusting the B Submenu, short press S1 to save the setting, quit the B submenu, and enter the C submenu.

C Sub menu: on time alarm switch

C

The default state is ON (on-time-alarm is open from 8:00 to 20:00)
It will switch between ON and OFF (hourly alarm is disabled) with each press of S2. Short press S1 to save the setting, quit the C submenu, and enter the D submenu.

D Submenu: The first alarm-clock switch

D

The default state is ON (the first alarm-clock is opened)
It will switch between ON and OFF (first-alarm-clock is closed) when press S2.
If set to ON, short press S1 to save and quit, then enter E submenu;
If set to OFF, short press S1 to save and quit, then enter G submenu;

E Sub menu: The first alarm clock set for hours

E

Display data will add 1 with each press of S2. When done adjusting the E submenu, a short press of S1 will save the setting, quit the E submenu, and enter the F submenu.

F Sub menu: The first alarm clock set for minutes

F

Display data will add 1 with each press of S2. When done adjusting the F Submenu, a short press of S1 will save the setting, quit the F submenu, and enter the G submenu.

G Submenu: The Second alarm-clock switch

G

The default state is ON (the second alarm-clock is enabled)
It will switch between ON and OFF (second-alarm-clock is closed) when S2 is pressed.
If set to ON, short press S1 to save/quit, and enter H submenu;
If set to OFF, short press S1 to save/quit, and enter normal interface;

H Sub menu: The second alarm clock set for hours

H

Display data will add 1 after each press of S2. When done setting the F Submenu, a short press of S1 will save the setting, quit the H submenu, and enter the I submenu.

I Sub menu: The second alarm clock set for hours

I

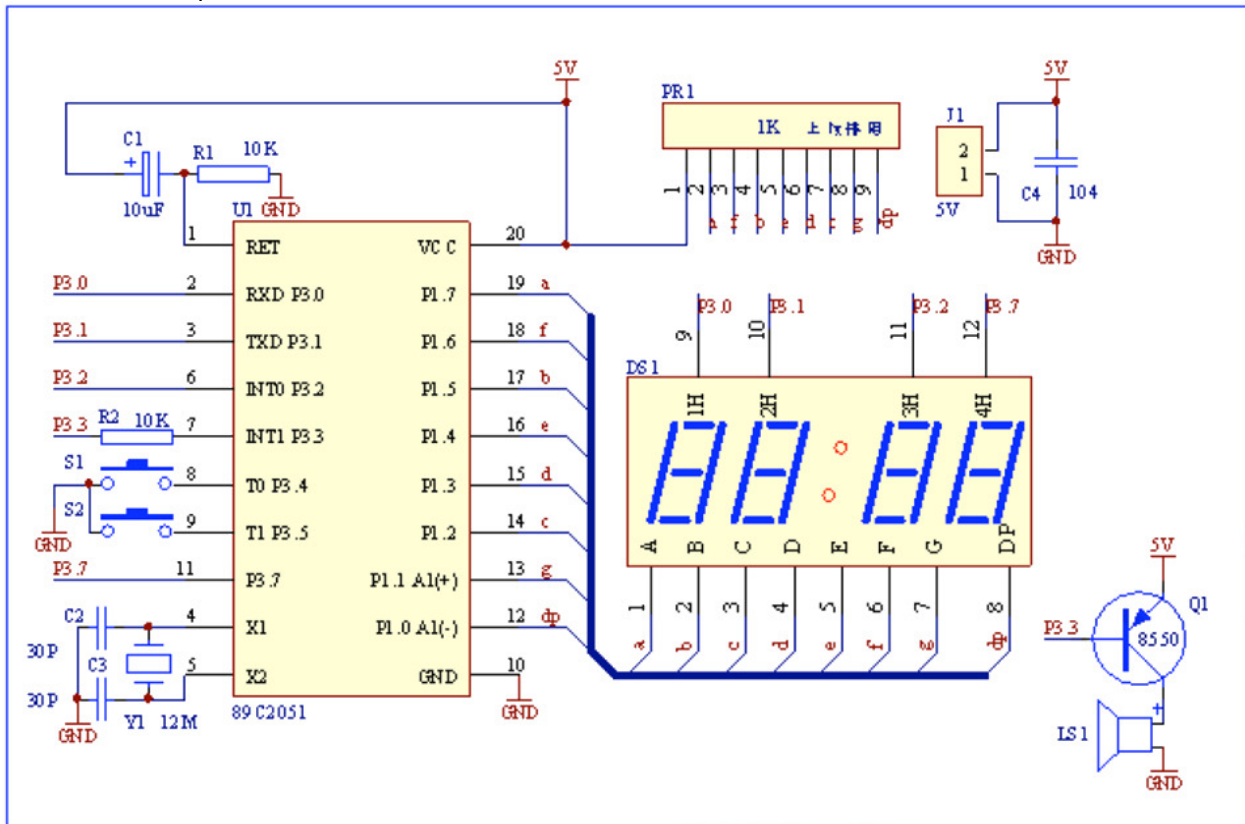
Display data will add 1 after each press of S2. When done setting the I Submenu, a short press of S1 will save the setting, quit the H submenu, and enter the normal interface.

Seconds correction:

Short press S2 in the normal interface, to enter "minutes:seconds" interface. Long press S2 will make the second zero and stop the clock. Then a short press of S2 twice will start the clock and enter the normal interface.

3>Schematic circuit diagram

Note: there is direction for PR1 Resistors Packs, there is one pad on the board that has a square drawn around it on the silkscreen which is pin 1. The resistor pack has a dot near one pin that indicates it is pin 1.



4>Component list

| | NEME | Type/Spec | Identifier | Specific orientation? |
|----|------------------|---------------------------------|------------|-----------------------|
| 01 | Resistor | 10K | R1 | No |
| 02 | Resistor | 10K | R2 | No |
| 03 | Ceramic Cap | 30pf | C2 | No |
| 04 | Ceramic Cap | 30pf | C3 | No |
| 05 | Ceramic Cap | 104pf | C4 | No |
| 06 | Electrolytic Cap | 10uF / 25v | C1 | YES |
| 07 | Resistor Pack | 1K | PR1 | YES |
| 08 | Crystal | 12MHz | Y1 | No |
| 09 | Transistor | 8550 | Q1 | YES |
| 10 | Tact Switch | 6*6*5 | S1 | YES |
| 11 | Tact Switch | 6*6*5 | S2 | YES |
| 12 | IC Socket | 20pin | U1 | YES |
| 13 | MCU | AT89C2051 | U1 | YES |
| 14 | Buzzer | 5v active | LSI | YES |
| 15 | Digital Display | 4 position 7-segement module | DS1 | YES |
| 16 | DC connector | 2 position 3.5mm terminal block | J1 | YES |
| 17 | PCB | 52*42mm | | |