MAXX TRONIC

DIGITAL UP/DOWN COUNTER 1 DIGIT CODE MX009

This circuit is a counter circuit. It can be count numeral from 0 to 9 and connect the same circuit for increase digit at you want.

Technical specifications:

- power supply : 5 to 12VDC./80mA. max. @ 12VDC.
- for use with external display able select display type common anode or common cathode. used for count unit.
- maximum input frequency (CI) : 15KHz
- start/preset point counter,up/down counter selection, a reset is available to reset the entire counter to zero, select the display of decimal point.
- PCB dimensions : 1.53 x 3.25 inches.(control board)
  1.53 x 1.29 inches.(display board)

How to works:

Q1 and Q2 are configured as a buffet circuit. When supply clock signal into "CI" point or push SW, this signal is fed to pin 15 of IC2 which IC2 is counter and decode signal to BCD signal. BCD signal from IC2 is fed to IC1 for decode BCD signal and drive to 7'segment.

PCB assembly:

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!

Testing:

Supply the power supply 12VDC to the circuit. In this time, 7'segment is showing the numeral. After that push SW, the numeral will increase one step. Supply clock signal into "CI" point, the numeral will increase follow clock signal.
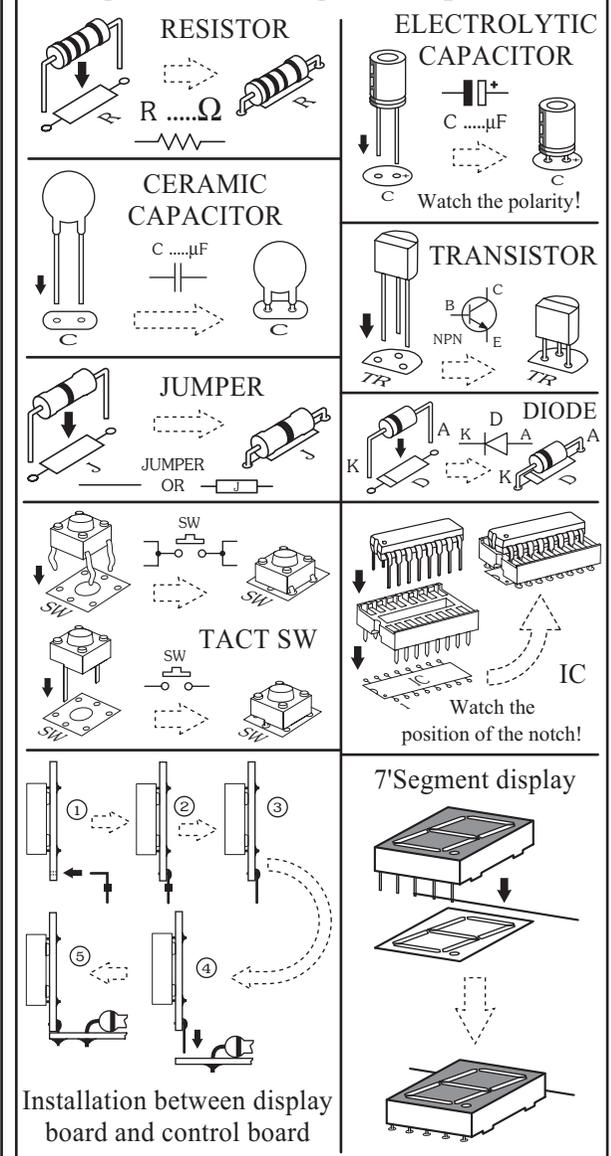
Using:

Push the preset switch, if you want to the display showing the preset value. Common A and common K jump point to select the common of display. PTA and PTK jump point to select the decimal point of display. UP and DOWN jump point to select the counter to count up or count down. PS jump point used for preset enable.

Using the external point:

P point connect to the preset switch. When the P point is active "HIGH" at the display to load number from the PS jumper to show. R point connect to the reset switch. When the R point is active "HIGH" at the display to "0". CI point connect to the input signal approximate 3 to 12VDC. + point and - point connect to the power supply 5 to 12VDC. CO point connect to the CI point of the other digit.

Figure 1. Installing the componants

RESISTOR

R ......Ω

ELECTROLYTIC CAPACITOR

C .....μF

Watch the polarity!

CERAMIC CAPACITOR

C .....μF

TRANSISTOR

JUMPER

JUMPER OR   J

DIODE

SW

TACT SW

IC

Watch the position of the notch!

7'Segment display

Installation between display board and control board

Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.
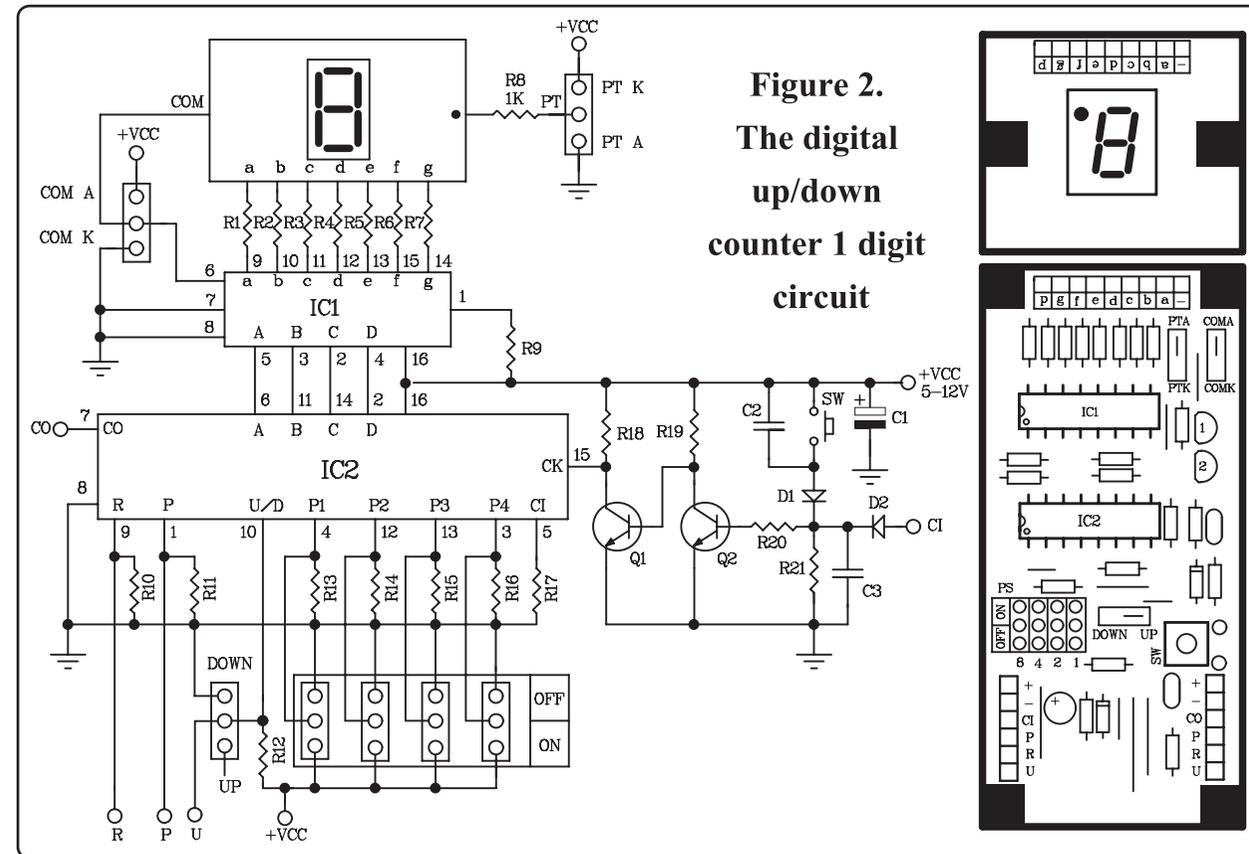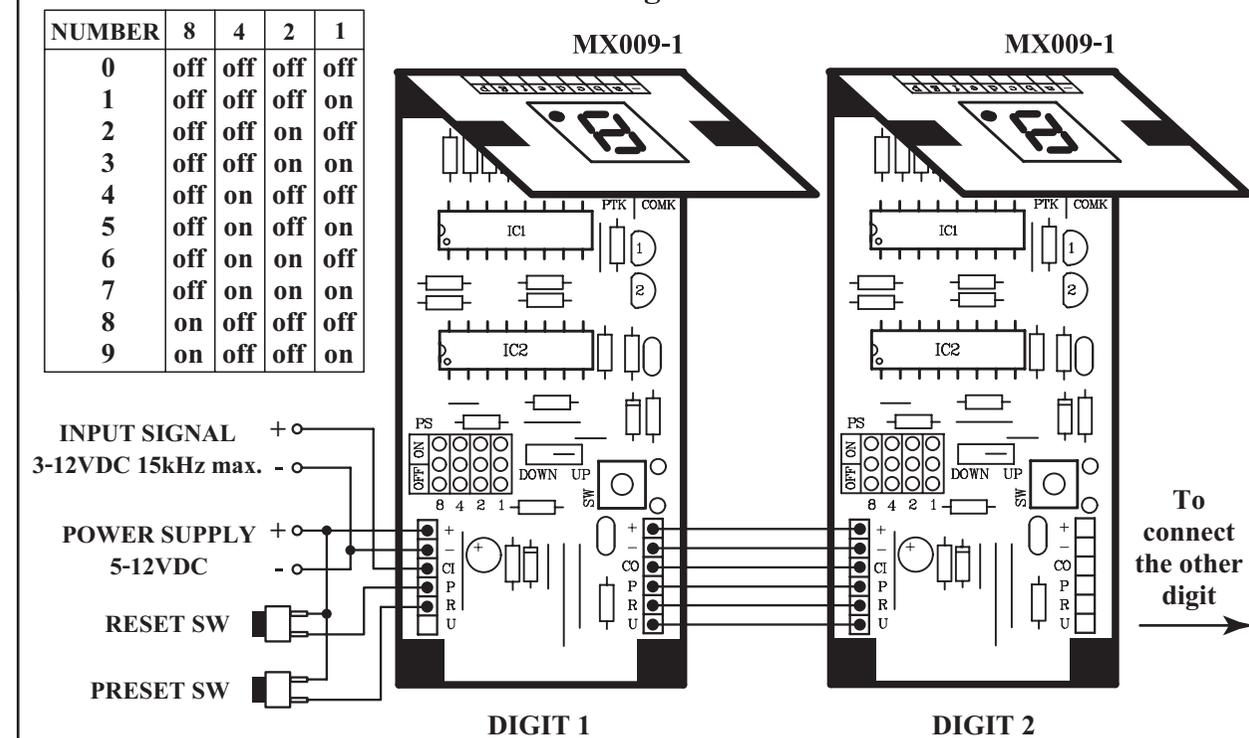
Figure 2. The digital up/down counter 1 digit circuit

Figure 3. Connections

PS jumper setting table:

NUMBER	8	4	2	1
0	off	off	off	off
1	off	off	off	on
2	off	off	on	off
3	off	off	on	on
4	off	on	off	off
5	off	on	off	on
6	off	on	on	off
7	off	on	on	on
8	on	off	off	off
9	on	off	off	on

MX009-1   MX009-1

INPUT SIGNAL 3-12VDC 15kHz max.

POWER SUPPLY 5-12VDC

RESET SW

PRESET SW

DIGIT 1   DIGIT 2

To connect the other digit