

C48L

Intelligent dual display meter

User manual

Please read this manual thoroughly for the instruction of correct usage before using this product and keep this manual as a reference.

▶ CAUTION WHEN OPERATING ◀

- Before cleaning the controller, please ensure that the power is switch off.
- Please remove stains on the display panel by using a soft cloth only.
- No scrubbing or touching the display panel with any hard object, the display panel can be easily scratched.
- Do not press any button on the display panel using pointy objects such as ballpoint pen or screw driver, it can easily scratch the panel or damage buttons on the panel.

1. Introduction

The instrument contains 32 functions, such as single delay, double delay, tired time, frequency, speed, four-digit count, eight-digit count, etc., with various working modes of relays, which fully meet the needs of the control field.

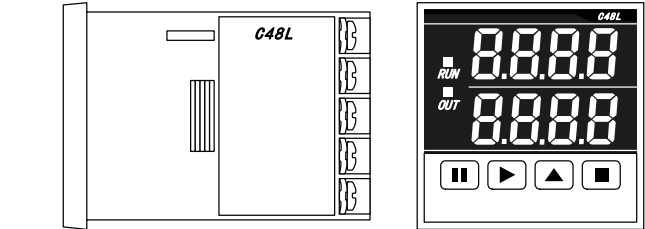
It can be connected to photoelectric pair tube, proximity switch, switch contact, encoder, etc.

The operation value, multiplier A and multiplier B of the relay can be set. The set value, the constant time value and the calculated value will not be lost when the power is lost.

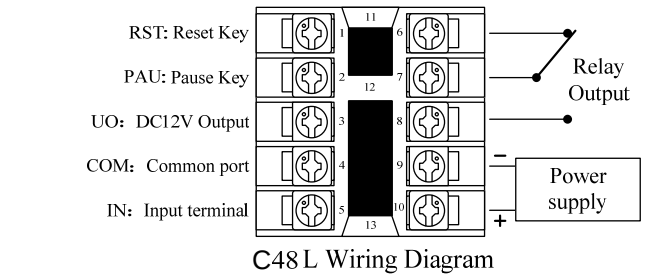
2. Technical parameters

Power supply	100~240VAC
Output	DC12V
Number of relays	One relay, normally open, normally closed output
Contact capacity	3A/250VAC
Impulse level	Low level: High level:
Trigger mode	Low level effective (NPN effective)
Operating temperature	0~+40℃
Measuring Frequency	2~10KHz
Dimensions	48*48*64mm
Hole Size	48*48mm

3. Outline drawing



4. Wiring diagram



★ The above wiring diagram is for parameters only. The actual wiring diagram attached to the instrument shall prevail

★ The meter in the use of DC power supply to pay attention to the positive and negative, otherwise the meter can not start

▲ Quick Debugging Guidelines

The C48L even-number display meter is a multifunctional instrument that must be configured in the following two steps:

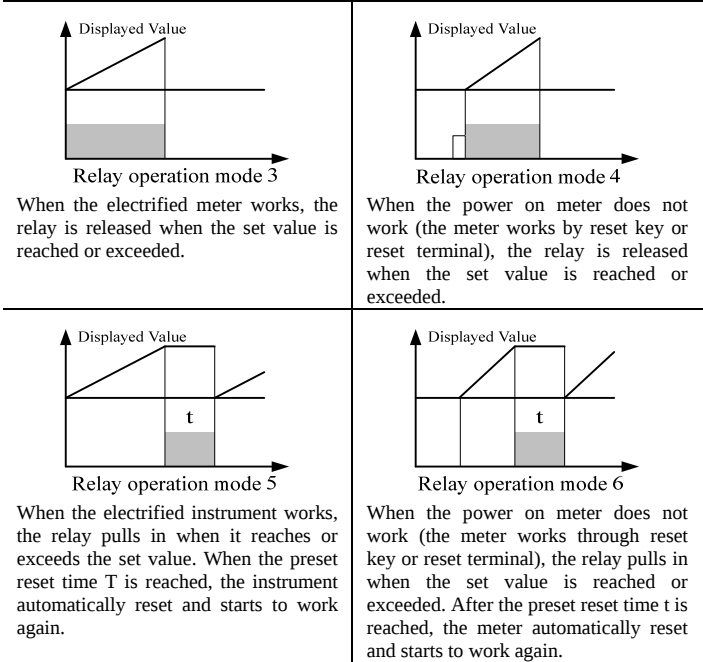
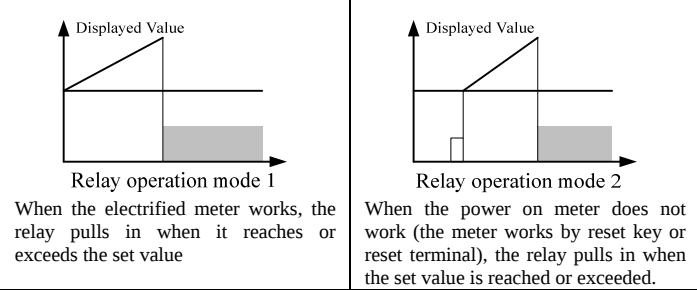
1. Refer to function number table and relay working mode table to select specific functions and relay working mode meeting requirements.
2. Refer to the specific function introduction section and set working parameters.

5. Product function and relay operation mode selection

- 1、Product function selection: Select one of the 32 functions of the instrument that meets the user's requirements. Please check the function number table and determine the function number that meets the requirements

No.	Function description	Working range	Relay Action method
01	Single delay (positive)	0.01S~99.99S	1~6
02	Single delay (inverted)	0.01S~99.99S	1~6
03	Single delay (positive)	1M~9999M	1~6
04	Single delay (inverted)	1M~9999M	1~6
05	Single delay (positive)	1S~9999S	1~6
06	Single delay (inverted)	1S~9999S	1~6
07	Single delay (positive)	1S~99M59S	1~6
08	Single delay (inverted)	1S~99M59S	1~6
09	Single delay (positive)	1M~99H59M	1~6
10	Single delay (inverted)	1M~99H59M	1~6
11	Double delay (positive)	1M~99H59M	1、2
12	Double delay (inverted)	1M~99H59M	1、2
13	Double delay (positive)	1S~99M59S	1、2
14	Double delay (inverted)	1S~99M59S	1、2
15	Double delay (positive)	1S~9999S	1、2
16	Double delay (inverted)	1S~9999S	1、2
17	Double delay (positive)	1M~9999M	1、2
18	Double delay (inverted)	1M~9999M	1、2
19	Cumulative time (Reset Immediate)	0~99H59M59.99S	1~6
20	Cumulative time (8 seconds reset)	0~99H59M59.99S	1~6
21	Cumulative time (Reset Immediate)	0~9999H59M59S	1~6
22	Cumulative time (8 seconds reset)	0~9999H59M59S	1~6
23	Cumulative time (Reset Immediate)	0~9999D23H59M	1~6
24	Cumulative time (8 seconds reset)	0~9999D23H59M	1~6
25	Frequency	2~9999Hz	1、3
26	Frequency	2.0~999.9Hz	1、3
27	Rotational speed	60~9999rpm	1、3
28	Band frequency	0~9999(Rate a、b)	1、3
29	Four count	0~9999	1、3、5
30	Four digit number	0~9999(Rate a)	1、3、5
31	Eight count	0~99999999	1、3、5
32	Octave multiplier count	0~999999999(Rate a)	1、3、5

- 2、Operation mode selection of relay
The relay of the instrument has 6 working modes, see relay working mode table for details:



Note: Please refer to [Functional Parameter Table] for the working mode of relay for each function of the instrument. There may not be six working modes of relay for each function

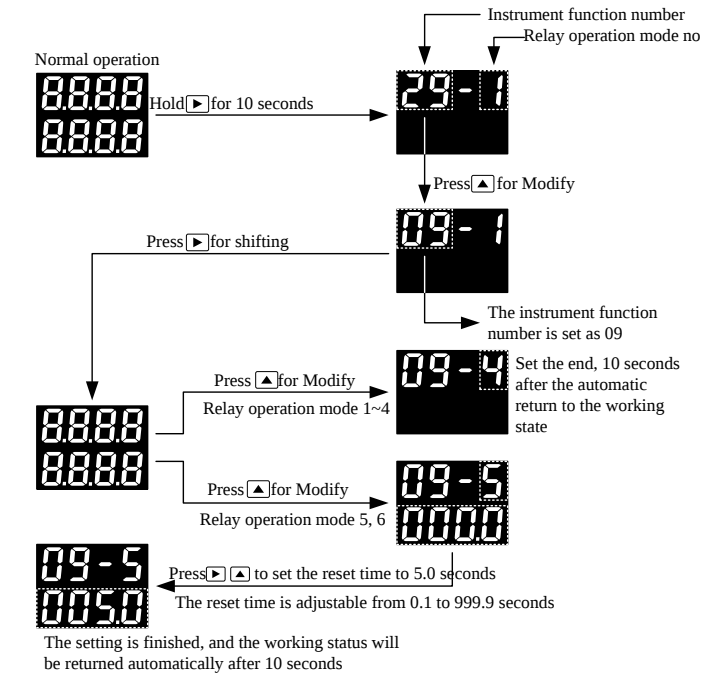
6. Product function and relay working mode setting

- 1、Select instrument function and relay operation mode:

If the user wants to use C48L/72L meter for time control, select single delay (positive) 1M~99H59M function by checking the meter function number table; The selected function number is 09;Check the working mode table of the relay and select the second mode.

- 2、The setting process is divided into two steps:

- 1) After the meter is powered on, hold [▶] for 10 seconds to display and switch to the set state of the function of the meter and the working mode of the relay. Input the number of the function of the meter and the working mode of the relay determined previously, as shown in Figure 1.
- 2) When the relay action mode is 5 and 6, a four-digit display value will appear in the instrument's lower digital tube, which is used to set the relay reset time and the setting range is 0.1~999.9s.When it is set to other action modes, the lower digital tube will not be displayed. The specific process is shown in the figure below.



7. Specific function introduction

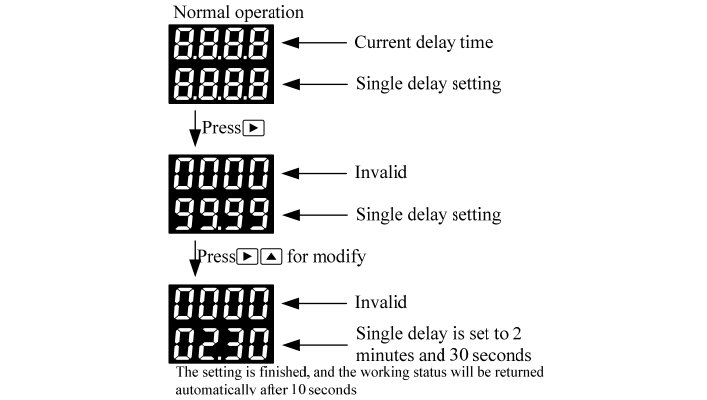
1. Single delay 4-bit time relay (Function No. 01~10)

- 1) Functions:
Button Setting. Set the delay time arbitrarily within the display range. When the timer reaches the set time, the meter will execute the set relay action.
- 2) Setting of single delay time relay

Refer to the sixth part of the specification, set the function number of the instrument (01~10) and the working mode number of the relay (1~6) according to the method in Figure 1.

- 3) The setting of single delay time

Take setting the delay time of 2 minutes and 30 seconds as an example, see the following figure:



4) Key and terminal instructions

- 1) Pause key (PAU): Press to pause the delay; Lift, delay continue.
- 2) Reset key (RST): Press down to restore the initial state of the delay device; Lift, the delayer starts to delay. Okay.
- 3) Pause terminal (PAU): stop the delay after connecting with COM terminal; Disconnection delay continues.
- 4) Reset end (RST): connect the delay device with COM end to restore the initial state, disconnect the delay and start again.
- 5) Input (IN) : Invalid.

2. Double delay four-digit time relay (Function No. 11~18)

- 1) Function:

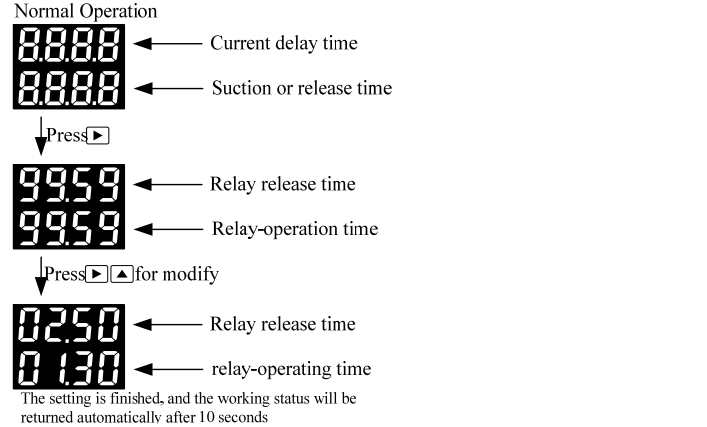
The double delay time relay shall set the absorption time and release time of the relay. The relay of the instrument shall operate alternately and reciprocate according to the set working mode within the absorption time and release time.

- 2) Setting of double delay time relay

Refer to the sixth part of the specification, set the function number of the instrument (11~18) and the working mode number of the relay (1, 2) according to the method in Figure 1.

- 3) The setting of double delay time

Take setting relay release time of 2 minutes and 50 seconds and absorption time of 1 minute and 30 seconds as an example, as shown in the figure below.



4) Key and terminal instructions

- 1) Pause key (PAU) : Press to pause the delay; Lift, delay continue.
- 2) Reset key (RST): Press down to reset the delay device; Lift, the delayer starts to delay. Okay
- 3) Pause terminal (PAU): PAU connects with COM, and the delay stops; PAU is disconnected from COM, and the delay continues.
- 4) Reset end (RST): RST is connected to COM, and the delay device is reset; When RST is disconnected from COM, the delay device starts anew.
- 5) Input (IN) : Invalid.

3. Eight-digit chronograph (Function No. 19~24)

- 1) Function:

Set a cumulative time. When the cumulative time reaches the cumulative time value set by the meter, the meter performs the set relay action.

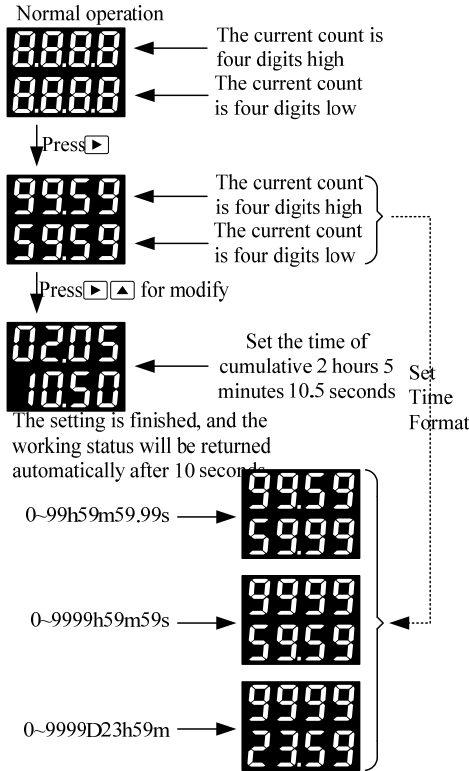
- 2) The setting of eight-digit chronograph

Refer to the sixth part of the manual, set the function number of the instrument (19~24)

and the working mode number of the relay (1~6) according to the method in Figure 1.

3) Setting the time when you are tired

Take 2 hours, 5 minutes and 10.5 seconds as an example, as shown in the figure below.



4) Key and terminal instructions

1) Pause key (PAU) : Press to stop when cumulative; Lift and continue when cumulative.

2) Reset key (RST) : Press down to reset the time; Lift up and start to get cumulative.

3) Pause terminal (PAU) : PAU is connected to COM and stops when cumulative; PAU is disconnected from COM and continues when cumulative.

4) Reset end (RST) : RST is connected to COM, time reset; RST disconnects from COM and starts again.

5) Input (IN) : Invalid.

(4) Frequency meter (Function No. 25-26)

1. Function description

Set any frequency control value within the display range. When the measured frequency exceeds the set frequency control value, the relay of the instrument will move and the frequency will continue to be measured. When the measured frequency is lower than the set frequency control value, the meter relay is reset and the measurement continues.

2. Setting of frequency meter

Refer to the sixth part of the specification, set the function number of the instrument (25~26) and the working number of the relay (1, 3) according to the method in Figure1.

3. Maximum measurement frequency

The user can estimate the actual measurement frequency and set it in the instrument.

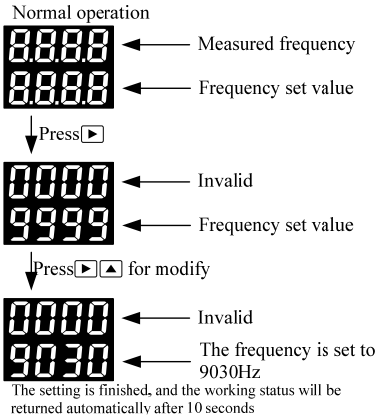
4, display back to zero time

When the input signal disappears, the meter displays the time when the value returns to zero

5. The trigger mode is the falling edge trigger

6. Setting of frequency control value

Take the set frequency control value as 9030Hz for example, as shown in the figure below



7、Key and terminal instructions

1) Pause key (PAU) : Invalid

2) Reset key (RST) : Invalid

3) Pause side (PAU) : Invalid

4) Reset end (RST) : Invalid

5) Input terminal (IN) : The frequency input terminal is composed of COM terminal

(5) Tachometer (Function No. 27)

1. Function description

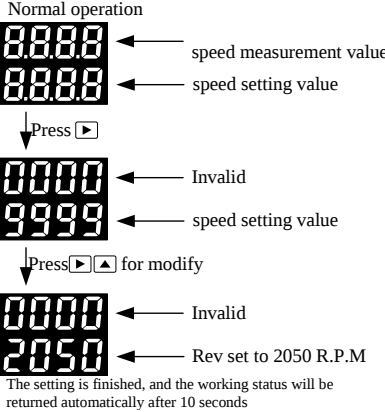
The meter can set a speed control value. When the speed reaches the speed value set by the meter, the meter performs the set relay action.

2. Setting of tachometer

Refer to the sixth part of the specification, set the function number of the instrument (27) and the working mode number of the relay (1, 3) according to the method in Figure 1.

3. Setting of speed control value

Take the set speed control value 2050 RPM as an example, see the figure below



4. Key and terminal instructions

1) Pause key (PAU) : Invalid

2) Reset key (RST) : Invalid

3) Pause terminal (PAU) : invalid

4) Reset end (RST) : invalid

5) Input terminal (IN) : Frequency input terminal is composed of COM terminal

(6) Frequency meter with multiplier (Function No. 28)

1. Function description

Set a frequency control value. When the measured frequency reaches the set frequency value of the instrument, the instrument performs the set relay action. When the measured frequency is less than the set frequency value, the relay of the instrument is reset.

The frequency meter with a multiplier has two multipliers that can be set. The display value of the meter has the following relationship with the actual measured value:

The display value of a frequency meter with a multiplier=The measured frequency * multiplying power a/ multiplying power b

2、Setting of frequency meter with multiplier

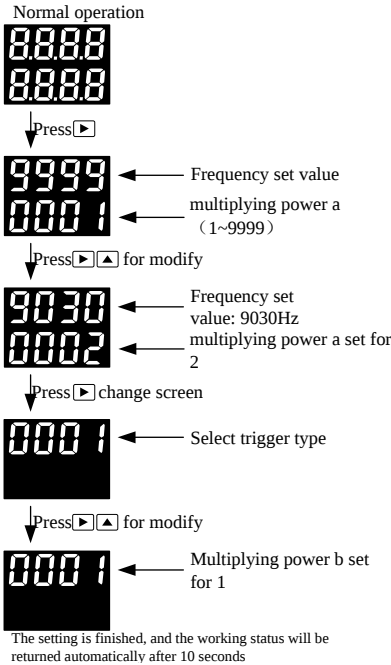
Refer to the sixth part of the specification, set the function number of the instrument (27) and the working mode number of the relay (1, 3) according to the method in Figure 1.

3. Setting of frequency control value

Multiplier A range: 1~9999

Multiplier B range: 1~9999

Take the set frequency control value 9030Hz as an example, see the figure on the next page



(7) Counter (Function No. 29-32)

1. Function description

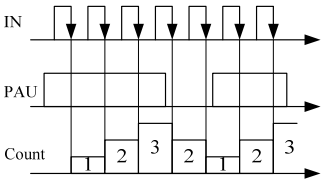
Set the counting control value arbitrarily within the counting range. When the counting value reaches the set counting value, the instrument performs the set relay action.

2. Setting the counter

Refer to the fourth part of the instruction, set the function number of the instrument (29~32) and the working mode number of the relay (1, 3, 5) according to the method in Figure 1.

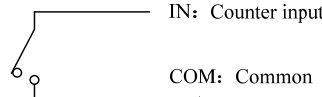
3. Reversible count

When the counter is working normally, the PAU and COM terminals are connected to subtract count and disconnect to add count. The diagram is as follows:

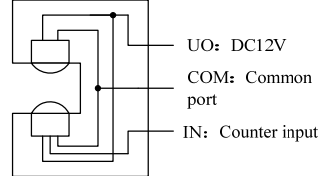


5、Wiring diagram of counter and sensor

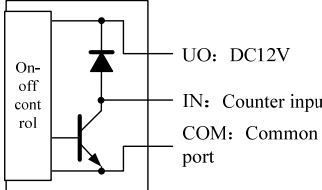
1) Mechanical contact



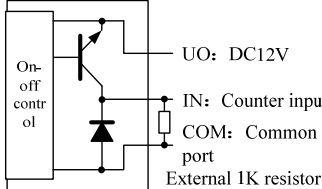
2) photomultiplier tube



3) NPN proximity switch



4) PNP proximity switch



6. Key and terminal description

1) Pause key (PAU) : Press and subtract; Lift up and count up.

2) Reset key (RST) : Press, the counter will restore the initial state; Lift the counter and recalculate it.

3) Pause terminal (PAU) : PAU connects with COM, and subtracting counts; PAU disconnected from COM, add count.

4) Reset end (RST) : RST is connected to COM, the counter resumes its initial state, RST is disconnected from COM, and the counter recalculates.

5) Input terminal (IN) : The input terminal of counting signal.

7. Setting the counter

The JC48/72L meter has the following 4 different counters, please select Settings.

1) Four-digit reversible counter

2) Four-digit reversible counter with multiplier

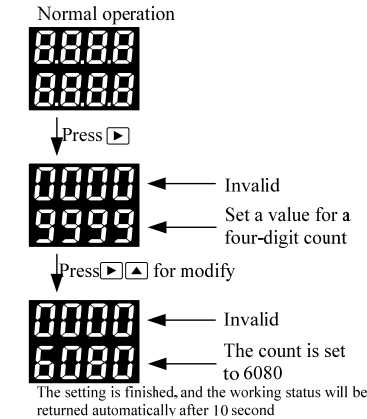
3) 8-bit reversible counter

4) Octet reversible counter with multiplier

Refer to the sixth part of the manual, set the function number of the instrument (29~32) and the working mode number of the relay (1, 3, 5) according to the method in Figure1.

【Four-digit reversible counter (Function No. 29)】

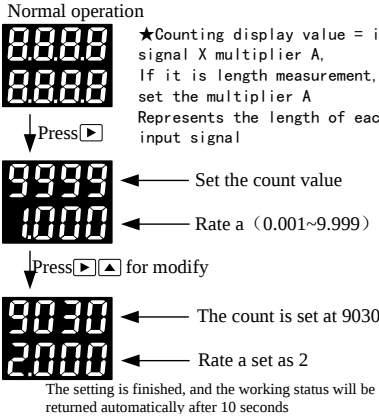
Take the setting value of 6080 as an example, see the figure below



【Four-digit reversible band multiplier Counter (Function No. 30)】

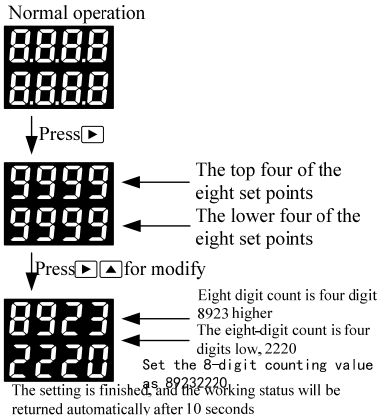
A range of multiplier: 0.001~9.999

Set the value of 9030 and the multiplier A =2.000 as examples, as shown in the figure below



【8-Digit reversible counter (Function No. 31)】

Set the value 89232220 as an example, see the figure below



【Eight-digit reversible band multiplier Counter (Function No. 32)】

A range of multiplier: 0.001~9.999

For example, set the numerical value 89232220 and the multiplier A =1.000, as shown in the figure below

