

# HB48/72 Series Intelligent Four Single-delay Time Relay

- Button settings to show the scope of arbitrary time delay, when the arrival time delay set time, set the instrument to implement the relay action
- Input signal: switch/pulse  
(Low level: -30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches, etc. to provide 9V/12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrue value, including power-down does not lose value.



## 一. Specifications

Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85; HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp

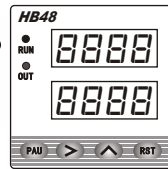
OUT: Relay output indication lamp

PAU: pause key

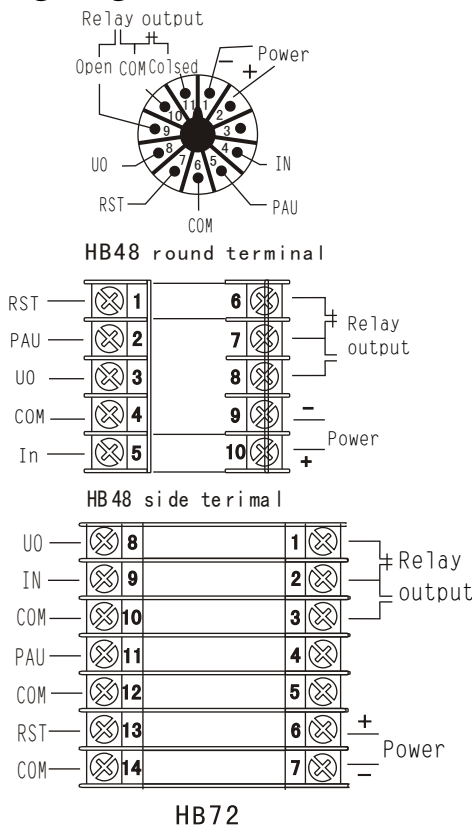
> : shift key

^ : up key

RST: reset key



## 三. Wiring diagram



★Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★The instrument in the use of DC power supply to the attention of being negative, or instrument could not be activated

## 四. instrument work function and relay settings

### 1. Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2. Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.



# HB48/72 Intelligent Four Dual-delay Time Relay

- Double delay time required to set up relay relay relay pull-in time and release time, instrument of the relay pull-in time and release time work according to set movements and alternating back and forth cycle
- Input signal: switch/pulse  
(Low level: -30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches, etc. to provide 9V/12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.



## 一. Specifications

Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85; HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp

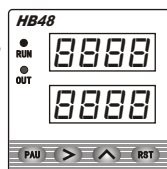
OUT: Relay output indication lamp

PAU: pause key

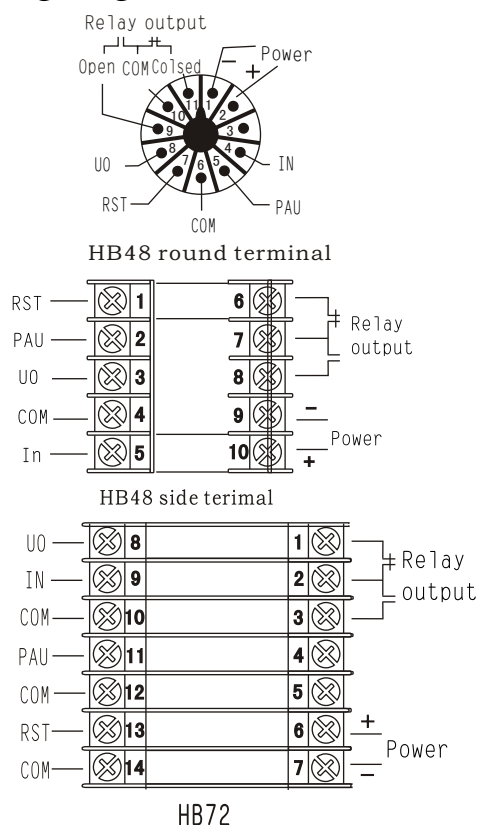
> : shift key

Λ : up key

RST: reset key



## 三. Wiring diagram



★Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★The instrument in the use of DC power supply to the attention of being negative, or instrument could not be activated

## 四. instrument work function and relay settings

### 1. Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2. Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.

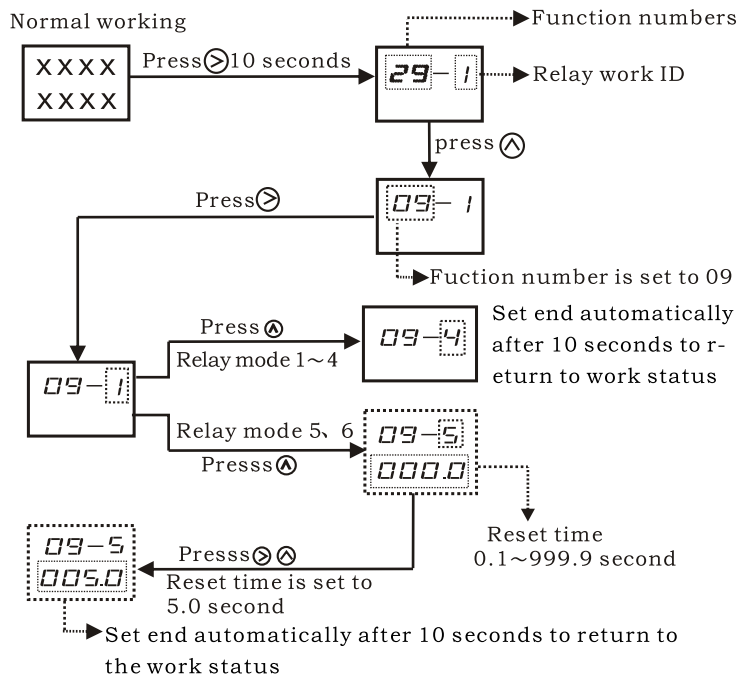


Figure 1

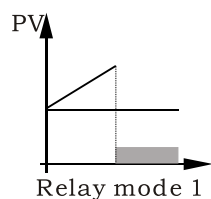
## 五.Features

### 1、Product Feature Number Table

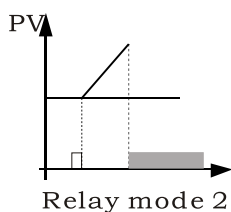
Number	Dual delay	Range	Mode
11	forward	1M---99H59M	1、2
12	backward	1M---99H59M	1、2
13	forward	1S---99M59S	1、2
14	backward	1S---99M59S	1、2
15	forward	1S---9999S	1、2
16	backward	1S---9999S	1、2
17	forward	1M---9999M	1、2
18	backward	1M---9999M	1、2

### 2、Dual-delay time relay settings

See Manual Part IV, in accordance with methods set Fig instrument features a number (11~18), relay work number(1、2) as follows.



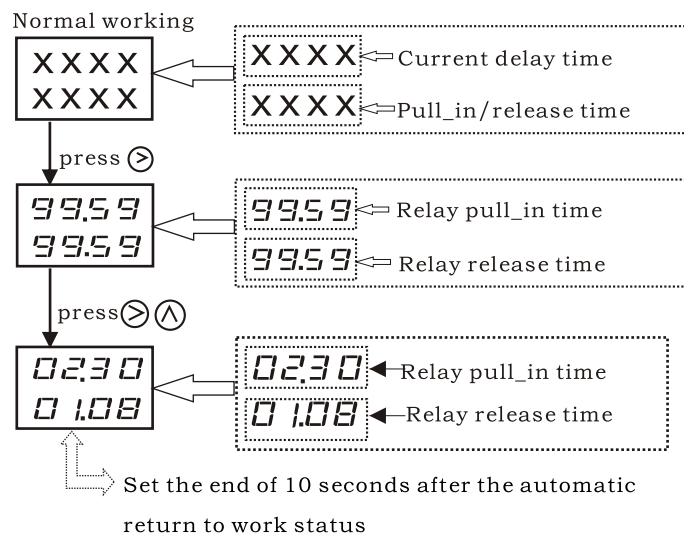
Electricity meter work, meet or exceed the set value the relay pull-in



Electricity meter does not work (through reset button or reset terminal to make the work instruments), reached or exceeded the set value the relay pull-in

### 3、Dual-delay time settings

To set the relay release time 2 minutes 30 seconds, pull-in time 1 minute 08 seconds as an example, see the figure below.



### 4、buttons and terminal description

PAU:press, delay suspended; lifted, delay continues.

RST:press, delay the resumption of the initial state of device; lifted, delay the start time delay device.

PAU:access delay with the COM client to stop; disconnect delay to continue.

RST:with COM client devices connected to restore the initial state of delay, delay to start off.

IN: invalid



# HB48/72 Intelligent Eight Tired Smart Timer

- Set a time when tired, when the time arrived when tired of the tired set value meter, the meter set relays the implementation of action
- Input signal: switch/pulse  
(Low level: -30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches, etc. to provide 9V/12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.



## 一. Specifications

Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85; HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp

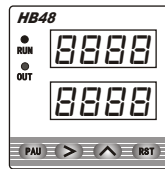
OUT: Relay output indication lamp

PAU: pause key

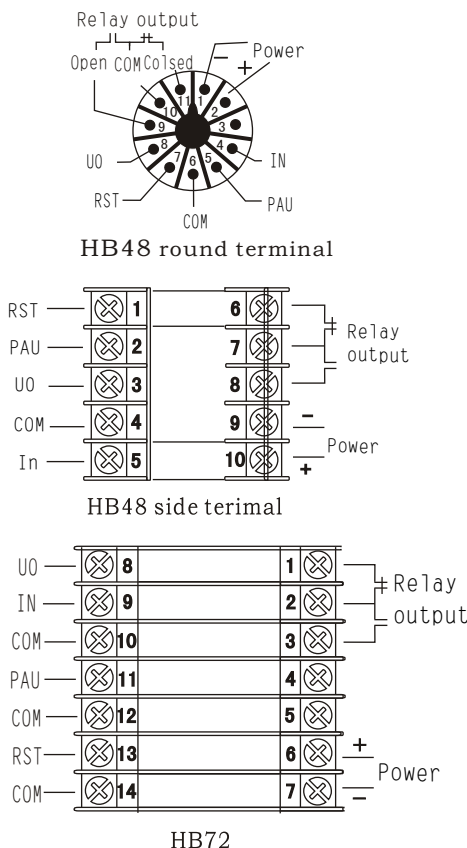
> : shift key

Λ : up key

RST: reset key



## 三. Wiring diagram



★Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★The instrument in the use of DC power supply to the attention of being negative, or instrument could not be activated

## 四. instrument work function and relay settings

### 1. Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2. Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.

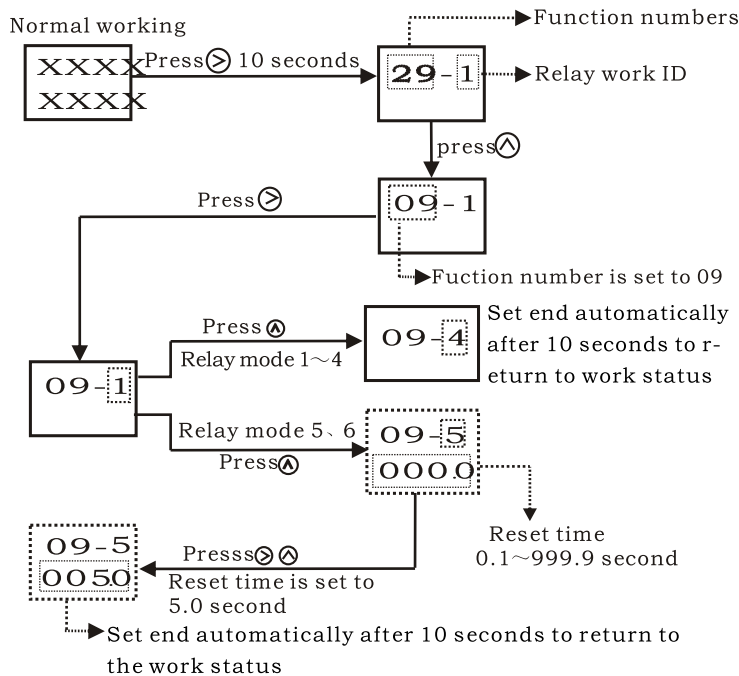


Figure 1

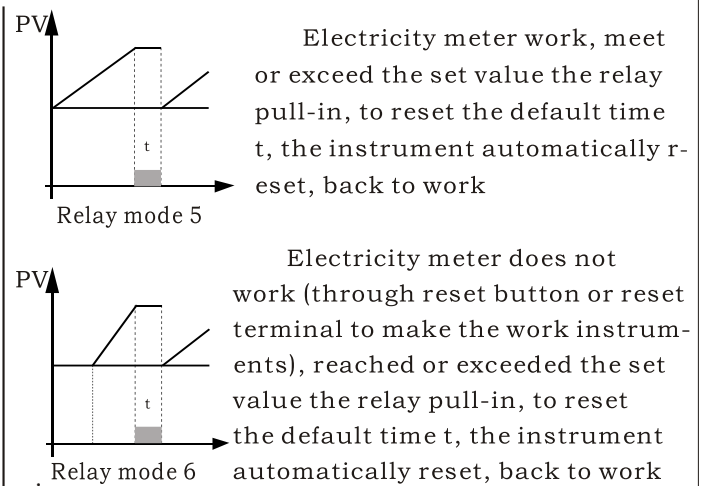
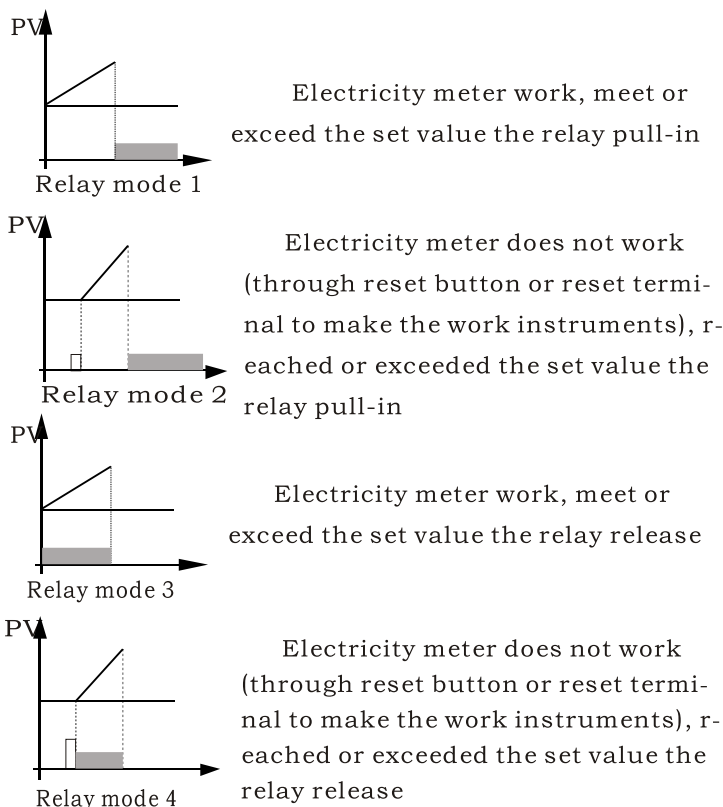
## 五. Features

### 1、Product Feature Number Table

number	Tired timer	Range	Mode
19	Immediately reset	0-99H59M59.99S	1~6
20	8 seconds on reset	0-99H59M59.99S	1~6
21	Immediately reset	0-9999H59M59S	1~6
22	8 seconds on reset	0-9999H59M59S	1~6
23	Immediately reset	0-9999D23M59M	1~6
24	8 seconds on reset	0-9999D23M59M	1~6

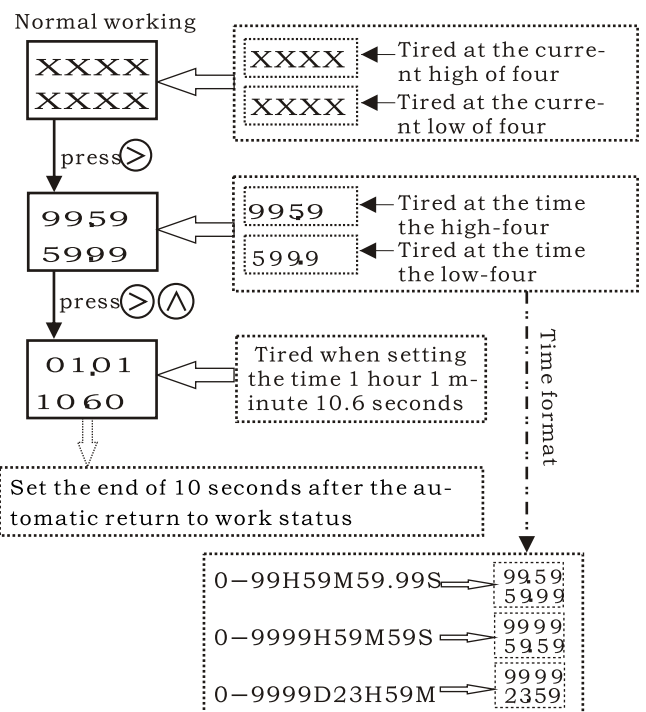
### 2、Eight settings when tired

See Manual Part IV, in accordance with methods set Fig instrument features a number (19~24), relay work number (1~6) as follows.



### 3、Tired at the time set

Tired to set the time 1 hour at 10.6 seconds as an example, see the figure below:



### 4、buttons and terminal description

PAU: press, tired stop; lifted, tired to continue.

RST: press, time reset; lifted started when tired.

PAU: PAU connected with COM, tired stops; PAU and COM disconnected, tired to continue.

RST: RST and COM access, time reset; RST and COM disconnected, start all over again.

IN: null and void.

# HB48/72 Intelligent Frequency Meter

- Show the scope of the frequency control value arbitrarily set to the measured frequency exceeds a set value of frequency control, instrumentation relay action, the frequency of continued measurement; When measured frequency is lower than set value of frequency control, instrument reset relay measurement continued.



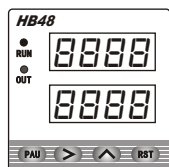
- Input signal: switch/pulse  
(Low level: -30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches, etc. to provide 9V/12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.

## 一. Specifications

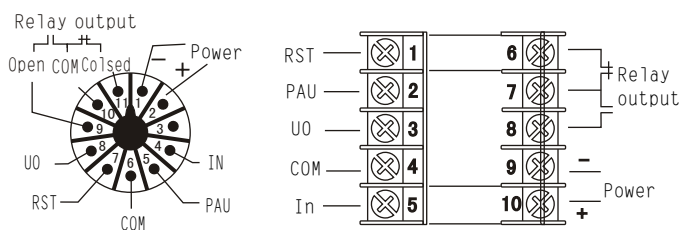
Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85; HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp  
OUT: Relay output indication lamp  
PAU: pause key  
> : shift key  
^ : up key  
RST: reset key

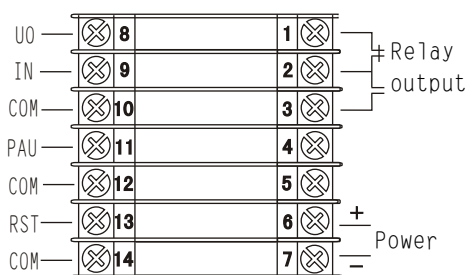


## 三. Wiring diagram



HB48 round terminal

HB48 side terminal



HB72

★ Wiring diagram above are for reference only, the actual wiring diagram attached to instr-

Uments shall prevail

★ The instrument in the use of DC power supply to the attention of being negative, or instrument could not work

## 四. instrument work function and relay settings

### 1. Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2. Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.



- (1) PAUSE (PAU): invalid
- (2) reset button (RST): invalid
- (3) suspend the client (PAU): invalid
- (4) end reset (RST): invalid
- (5) input (IN): and COM client input frequency components

# HB48/72 Intelligent Tachometer

- Instrument can be set a speed control value, when the rotational speed setting instrument to reach the speed value, the instrument to implement the relay settings.
- Scope of work:60~9999rpm
- Input signal:switch/pulse  
(Low level:-30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches,etc. to provide 9V/ 12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.



## 一. Specifications

Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85;HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp

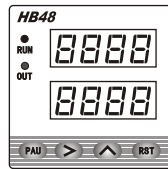
OUT: Relay output indication lamp

PAU: pause key

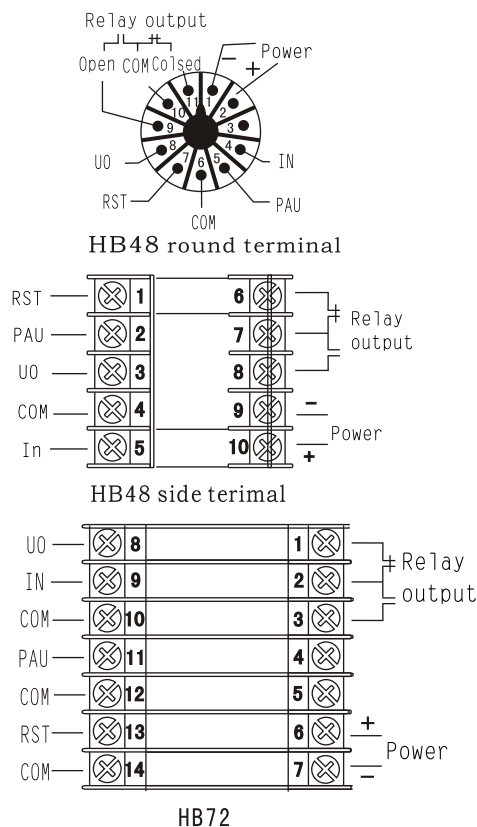
> : shift key

^ : up key

RST: reset key



## 三. Wiring diagram



★Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★The instrument in the use of DC power supply to the attention of being negative, or instrument could not be activated

## 四、instrument work function and relay settings

### 1、Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2、Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.



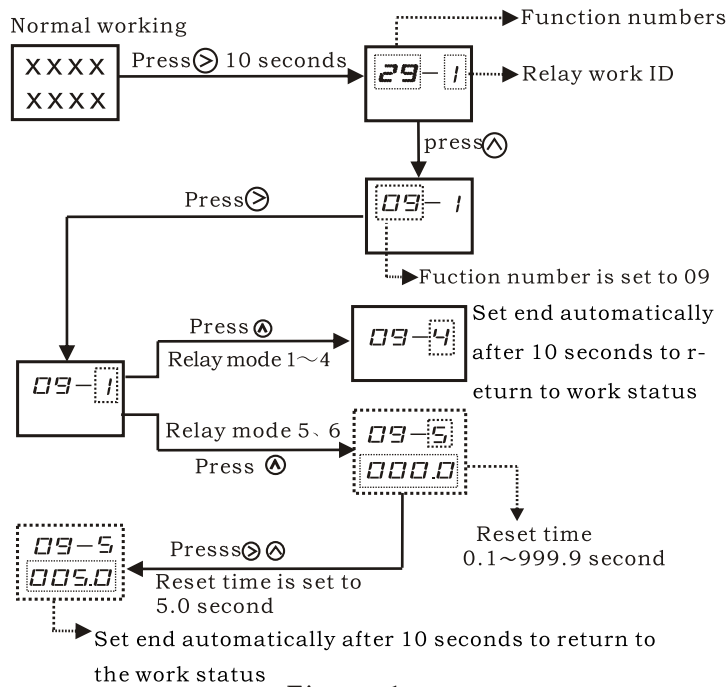
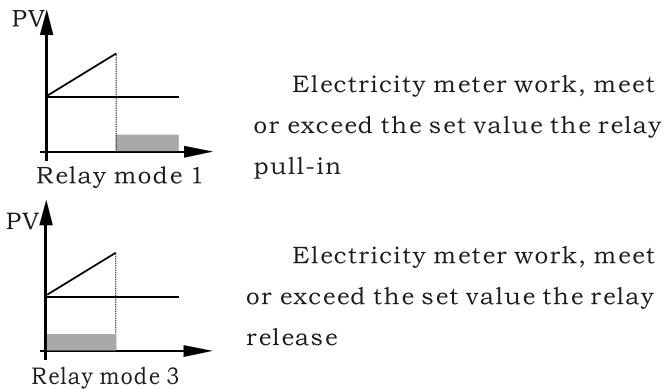


Figure 1

## 5. Features

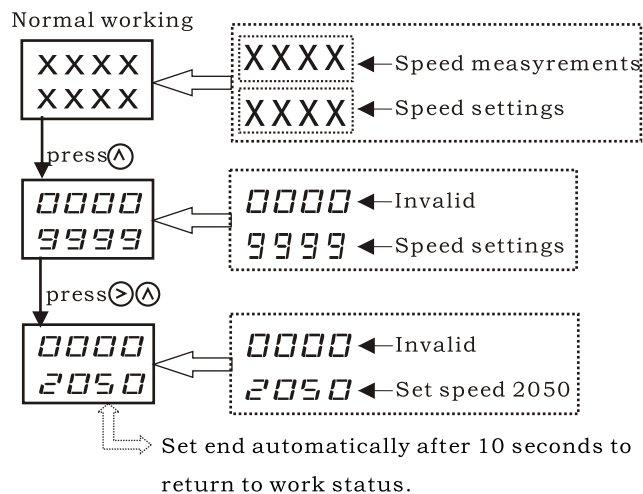
### 1. Tachometer settings

See Manual Part IV, in accordance with methods set Fig instrument features the number 27, relay work number (1、3) as follows.



### 2. Value of speed control settings

Speed control value is set to 2050, sub-as an example, see figure



### 3. buttons and terminal description

- (1) PAUSE (PAU): invalid
- (2) reset button (RST): invalid

- (3) suspend the client (PAU): invalid
- (4) end reset (RST): invalid
- (5) input (IN): and COM client input frequency components

# Intelligent HB48/72 Cymometer with magnification

- The instrument is a frequency counter with magnification which have two relays work(1、3),fully meet the needs of control at the scene.
- Scope of work:0~9999(ratio a,ratio b)
- Input signal:switch/pulse  
(Low level:-30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches,etc. to provide 9V/ 12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.



## 一.Specifications

Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85;HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二.Panel description

RUN: Indication Lamp

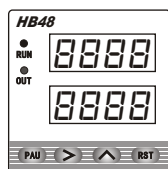
OUT: Relay output indication lamp

PAU: pause key

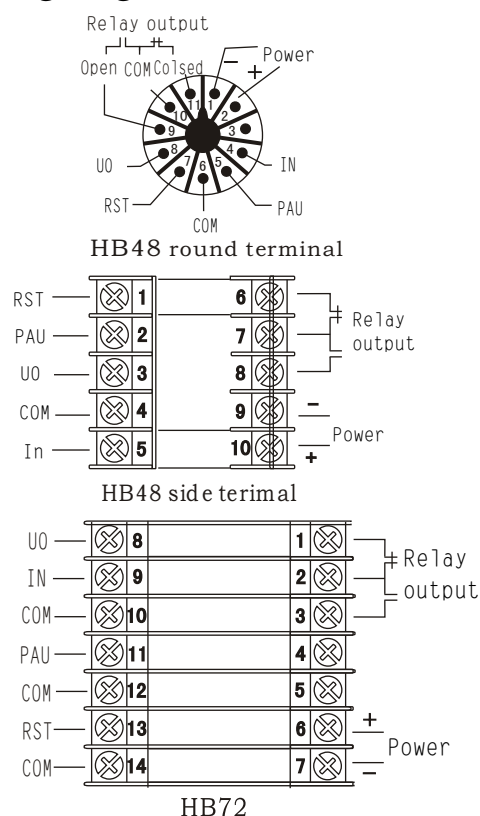
> : shift key

Λ : up key

RST: reset key



## 三.Wiring diagram



★Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★The instrument in the use of DC power supply to the attention of being negative, or instrument could not be activated

## 四、instrument work function and relay settings

### 1、Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2、Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.

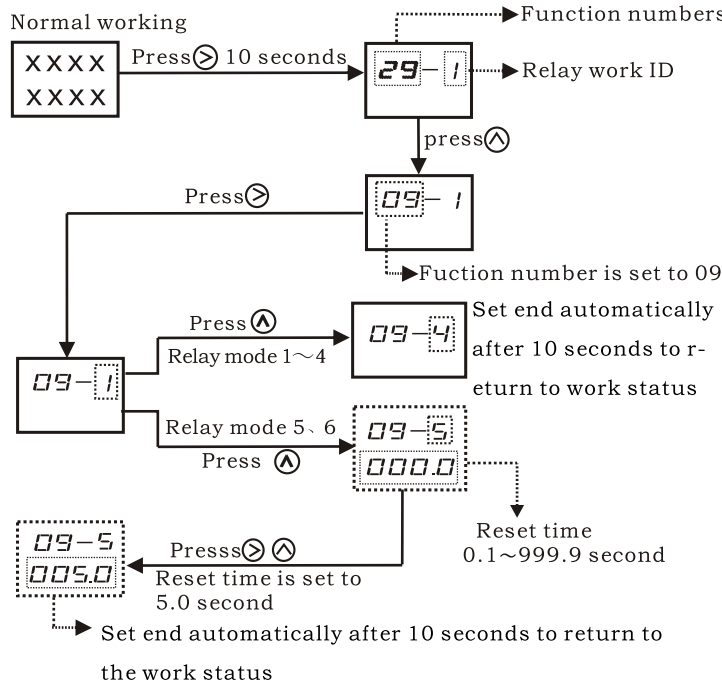


Figure 1

## 五. Features

### 1、function description

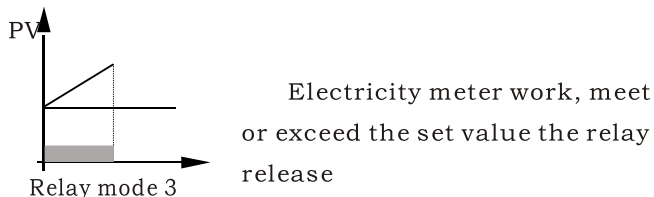
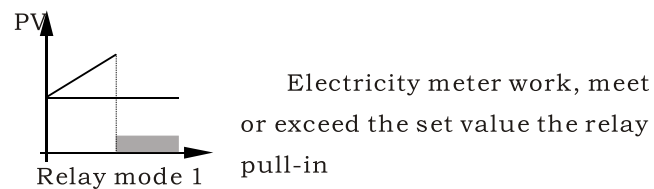
Set a frequency control value, when the measurement instrument to reach the frequency set by the frequency value, the instrument to implement the relay settings. Measurement frequency is less than the8 frequency setting value, the meter relay reset.

With the frequency ratio of two rate can be set, instrument displays and the actual value of the measured values have the following relations between:

With the frequency ratio of the displayed value = measured frequency×ratio a/ratio b

### 2、Frequency settings

See Manual Part IV, in accordance with methods set Fig instrument featur a number 28, relay work number (1、 3) as follows.

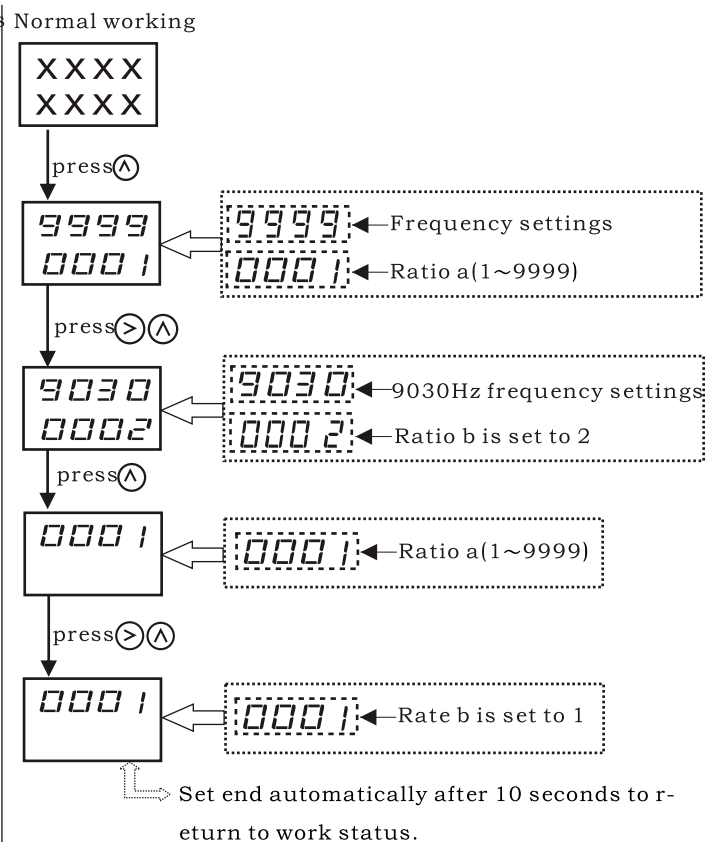


### 3、 the set value of frequency control

ratio a of range 1~9999

ratio b of range 1~9999

To set value of 9030Hz frequency control as an example, see page



# HB48/72 Series Intelligent Counter

- The scope of the count control value arbitrarily set the count, when the total value of the count set to reach the control value, the meter set relays the implementation of action
- Input signal: switch/pulse  
(Low level: -30V~+0.5V; High level: +4V~+30V)
- Of external sensors such as photoelectric control, proximity switches, contact switches, etc. to provide 9V/12V (30 mA) DC power supply.
- Relay action can set the value of ratio a, magnification b, set the value of accrued value, including power-down does not lose value.

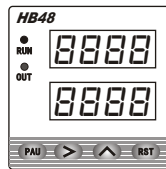


## 一. Specifications

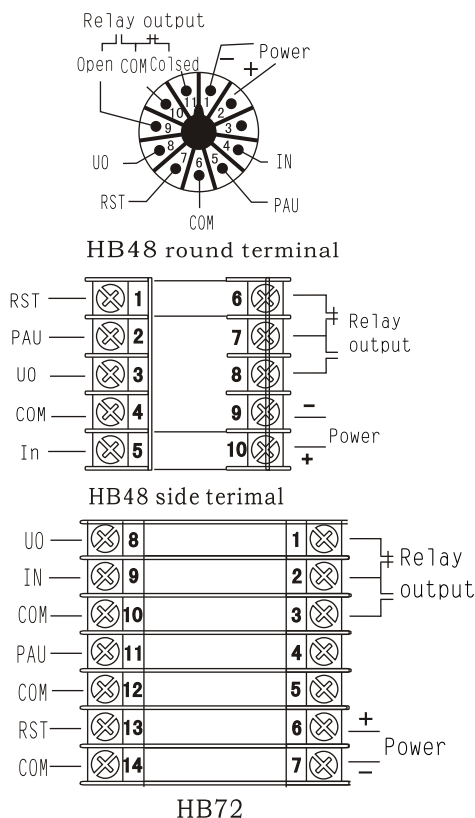
Power supply	AC85~260V(DC85~360V)/3W
Feed output	HB48:DC9V; HB72:DC12V
Relay number	one relay
Frequency	2~10KHz
contact capacity	AC220V/3A
life expectancy	10 <sup>5</sup>
Card into the way	Panel card
Use of environmental	0~+40℃
Overall dimensions	HB48:48×48×85; HB72:72×72×112
Panel cutout	HB48:44×44; HB72:67×67

## 二. Panel description

RUN: Indication Lamp  
 OUT: Relay output indication lamp  
 PAU: pause key  
 > : shift key  
 ^ : up key  
 RST: reset key



## 三. Wiring diagram



★ Wiring diagram above are for reference only, the actual wiring diagram attached to instruments shall prevail

★ The instrument in the use of DC power supply to the attention of being negative, or instrument could not work

## 四. instrument work function and relay settings

### 1. Choice of instrument functions and relays work

If users do spend time HB48/HB72 instrument control, instrument functions through the check number table to determine the choice of a single delay (is) 1M-99H59M function; selected feature numbered 09; check relay work table, the selected the first two kinds of ways.

### 2. Two-step configuration process

(1) power meters long by 10 seconds, switch to the dashboard display function and status of the relay settings work, enter the front of the instrument to determine the functional code and relay number work, see Figure 1.

(2) The only options for action relay 5 and 6, the instrument under the row of four digital tube will display the value set for the four relay reset time, set the range of 0.1 ~ 999.9S. Set the way for other movements, the digital controls are not under the row shows that the specific process of Figure 1.

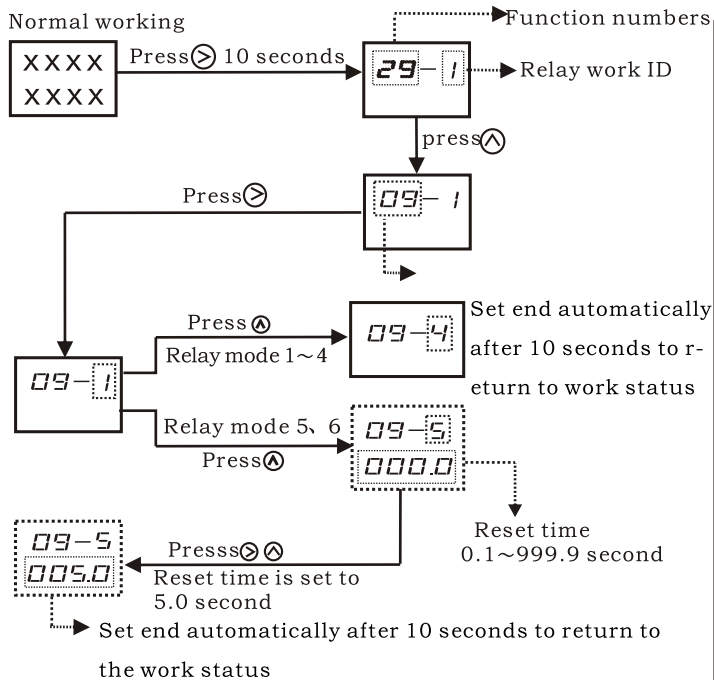


Figure 1

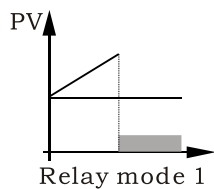
## 五. Features

### 1、Product Feature Number Table

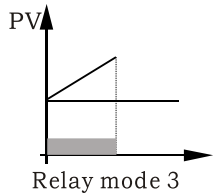
Number	Function description	Range	Relay mode
29	four counts	0-9999	1、3、5
30	Magnification 4 Count	0-9999(ratio a)	1、3、5
31	four counts	0-99999999	1、3、5
32	Magnification 4 Count	0-99999999 (ratio a)	1、3、5

### 2、counter set

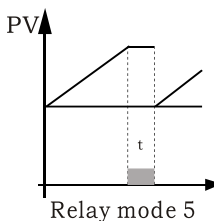
See Manual Part IV, in accordance with methods set Fig instrument featur a number (29~32), relay work number(1、3、5) as follows.



Electricity meter work, meet or exceed the set value the relay pull-in



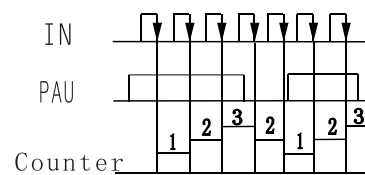
Electricity meter work, meet or exceed the set value the relay release



Electricity meter work, meet or exceed the set value the relay pull-in, to reset the default time t, the instrument automatically reset, back to work

### 3、Reversible counting

In Normal working status of counter, PAU and COM to connect to by count, count off to make additionss, diagrams are as follows:



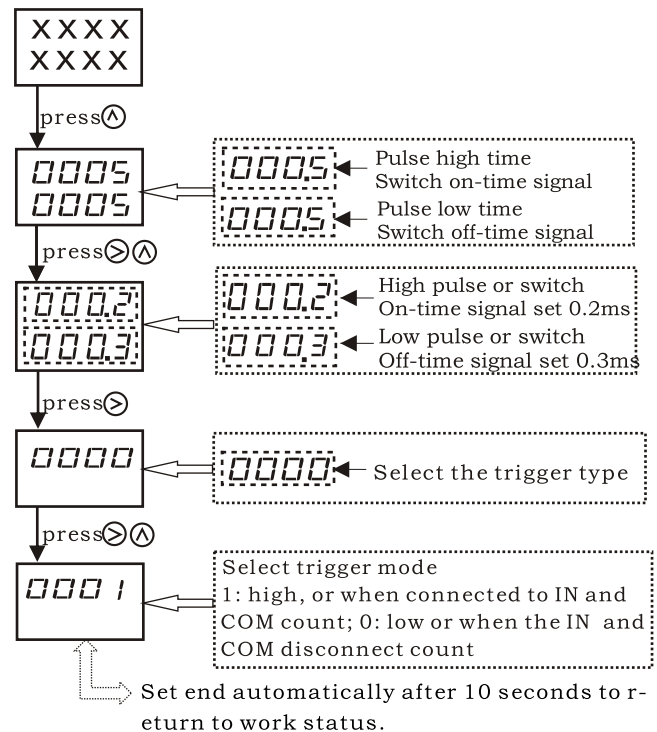
4.set the pulse width, the effective elimination of interference

The following circumstances, counters may be inaccurate count of the phenomenon:

- 1、 the input signal for the mechanical contact switch signal generated by
- 2、 input signals have a peak or edge jitter
- 3、 the scene, where a strong electromagnetic interference

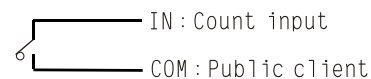
Of the above, HB48/HB72 counter can effectively eliminate the phenomenon of error count, for there is jitter peak or the edge of the signal, by limiting the high, low width and set the turn-signal switch and disconnect time, will not be set up set time frame to filter out the clutter signal to achieve an accurate count of the specific settings see the figure below:

Normal working

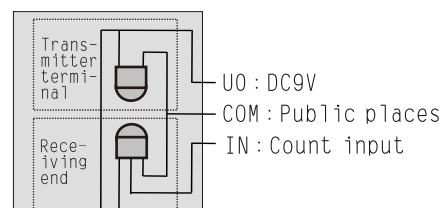


### 5、Counter with the sensor wiring diagram

#### 1) Mechanical contact

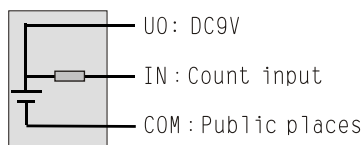


#### 2) Photoelectric tube

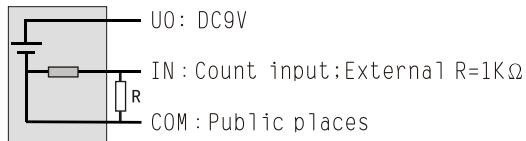




### 3 ) NPN Type Proximity Switches



### 4 ) PNP Type Proximity Switches



## 6、 buttons and terminal description

(1)PAU: Press/PAU connected with the COM, by count; lifted or PAU and COM disconnect, plus count;

(2)RST: press/RST and COM access, counters the restoration of the initial state; lifted or RST and COM disconnect, re-count counter;

(3)Input (IN): count input signals.

## 7、 counter set

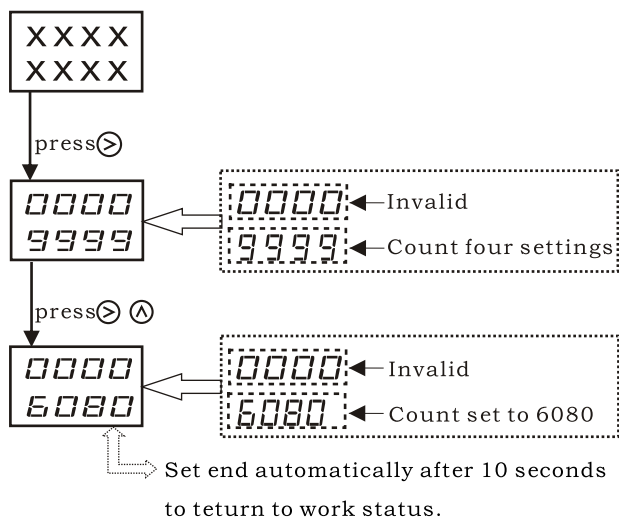
HB48/HB72 instrument has the following four kinds of different counters, select Settings.

- 1、 CNTR 4
- 2、 CNTR 4 with magnification
- 3、 CNTR 8
- 4、 CNTR 8 with magnification

### 【 CNTR 4 ( function number 29) 】

To set the total value of 6080 as an example, see figure

Normal working

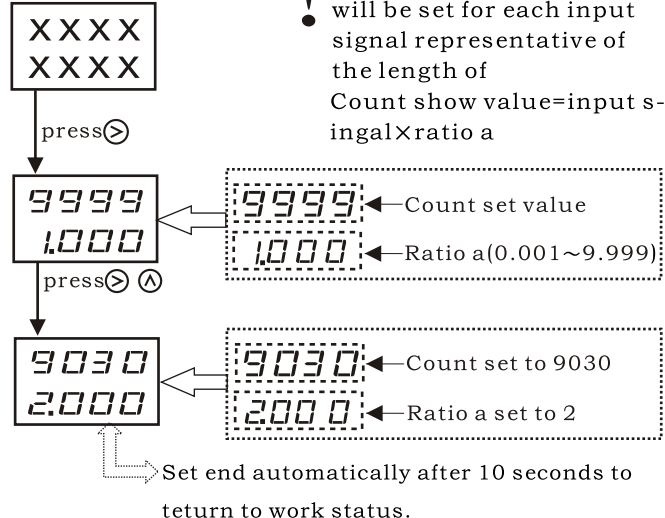


### 【 CNTR 4 with magnification ( function number 30) 】

Ratio a range 0.001~9.999

To set count 9030、 ratio a=2.000 as an example, see figure

Normal working

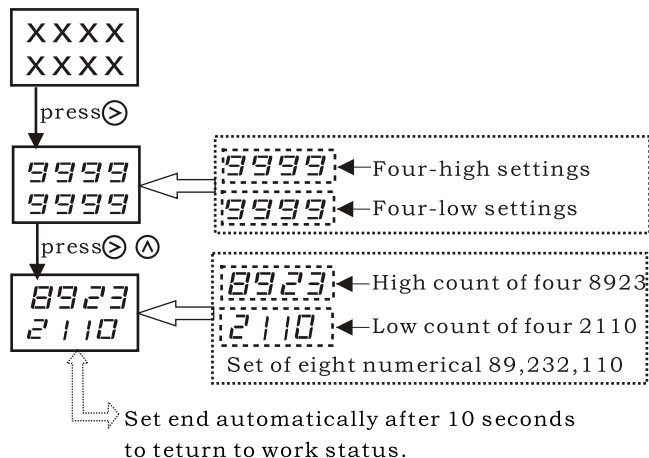


! If it is a ratio of length will be set for each input signal representative of the length of Count show value=input signal×ratio a

### 【 CNTR 8 ( function number 31) 】

Set of eight numerical example 89232110, see figure

Normal working



### 【CNTR 8 with magnification (function number 32) 】

Ratio a range of 0.001~9.999

To set count 89232220、 ratio a 1.000 as an example, see figure

Normal working

