

1. Summarization

CH series of Counter/Timer can be used as both counter and timer, setting by software. The instrument displays by LED, relay out put and two alarms. In case use the instrument as a counter, it has two loops input, two kinds of input modes (up, down) and four kinds of input(A, B, C, D). Eight kinds of output modes (F, N, R, C, K, P, Q, A), with reset function, power fail memory function.

In case use the instrument as a timer, it can free set hour, minute and second. Be with pause function, power fail memory function. The instrument can be widely applied to chemical industrial, light industrial, machine, metallurgy and textile. Can measure and control the parameter of counter, length, flow, displacement, weight and time. The instrument also has RS485 interface. Can be connected with the computer to be a DCS control system.

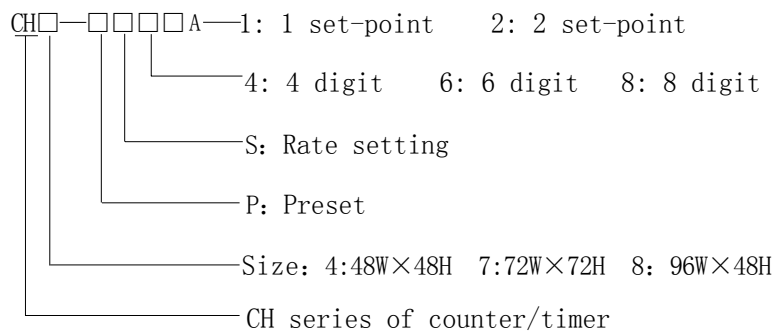
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2. Features

- ◎4, 6, 8 digit LED display.
- ◎Two input channel: CP1, CP2
- ◎Two kinds of counter/timer mode: Up, Down
- ◎Four kinds of input mode: A, B, C, D. (Mode D can be used with encoders.)
- ◎Eight kinds of output mode: F, N, R, C, K, P, Q, A
- ◎Displaying 1-4 digit of decimal point setting for option
- ◎Two set-point (SV1, SV2) and two loops of output (AL1, AL2)
- ◎Power fail memory function
- ◎Key protect function
- ◎Counter pause function
- ◎Hour, minute, second free set function
- ◎Two output channel, transistor and relay output at the same time
- ◎High anti-interference

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3. Ordering code



Note: Please let us know your special demand in case the instrument still cannot meet your request. We will try our best to satisfy you.

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4. Parameters

Power supply	CH7、CH8: AC 220V±10% or AC 110V±10% CH4: AC 90~260V
Consumption	<6W
Output mode	Relay and transistor output are synchronous
Relay output capacity	AC 250V、3A or DC 30V、5A
Transistor output capacity	DC 12V 50mA(max)
Insulation resistance	≥100MΩ
Insulation strength	AC 1.5KV 1MIN
Outer power	CH7、CH8: DC 12V±10% 100mA(max) CH4: DC 12V±10% 50mA(max)
Temperature	0℃~50℃
Humidity	35-85%RH
Parameter reserve time	10 Years

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4.1 Parameters

Input signa	square wave, sine wave: $5V \leq H \leq 25V$ $0 \leq L \leq 2V$
Spring edge	up
Consumption	<6W
Input impedance	≥10KΩ
Counter speed	30CPS/1000CPS/2000CPS/5000CPS
Counter range	-1999~9999 (4 digit display) (reserve 3 digit decimal) -199999~999999 (6digit display) (reserve 4digit decimal) -19999999~99999999 (8digit display) (reserve 4digit decimal)
Output delay	0.1~99999.9S(6digit display); 0.1~999.9S(4, 8digit display)
Modulus setting range	0.001~9.999 (4 digit display) 0.0001~99.9999 (6 digit display) 0.000001~99.999999 (8 digit display)

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Timer parameters

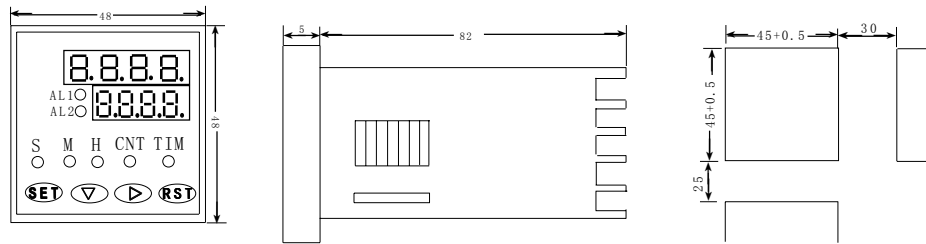
Accuracy	±0.2%FS
Reset time	<0.1S
Timer range	0.01S~999.9H (4 digit display) 0.01S~99999.9H (6 digit display) 0.01S~9999999.9H (8 digit display)
Delay range	0.1~99999.9S(6 digit display); 0.1~999.9S(4, 8digit display)

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5. Configuration and connection

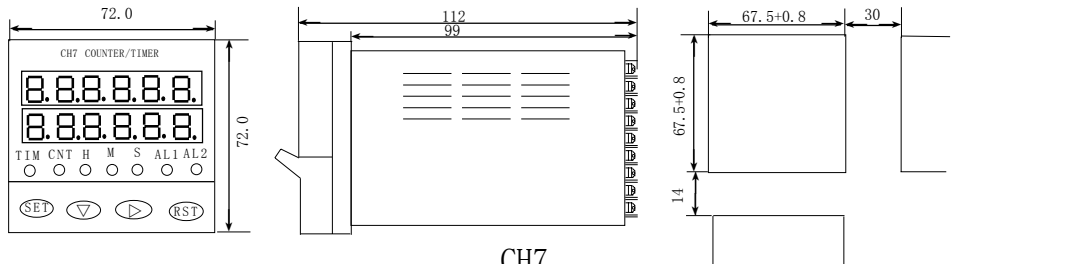
5.1 Install mode:

5.2 Dimension panel:

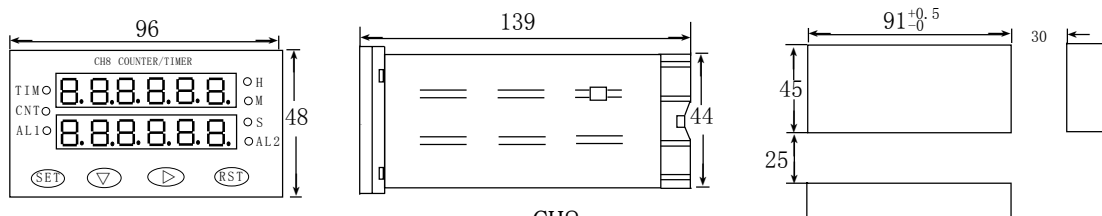


CH4

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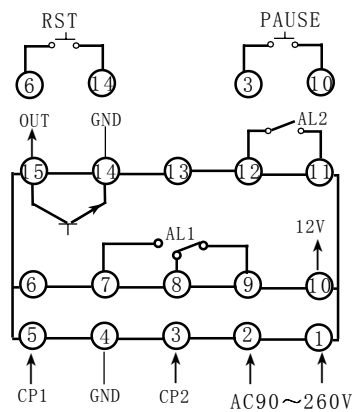
CH7



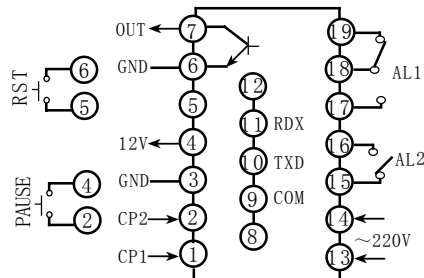
CH8

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5.3 Connection



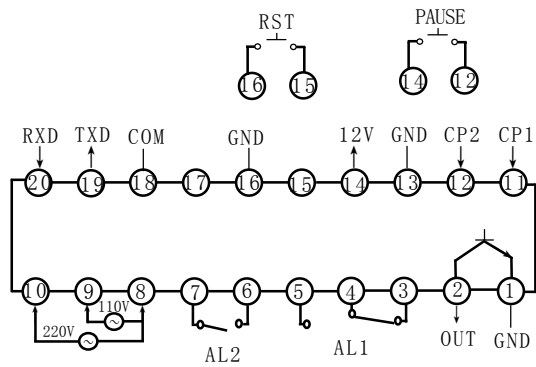
CH4



CH7

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CH8 Connection



CH8

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6. Use and Operation

6.1 The instrument should check if the connections are all correct before supply power.

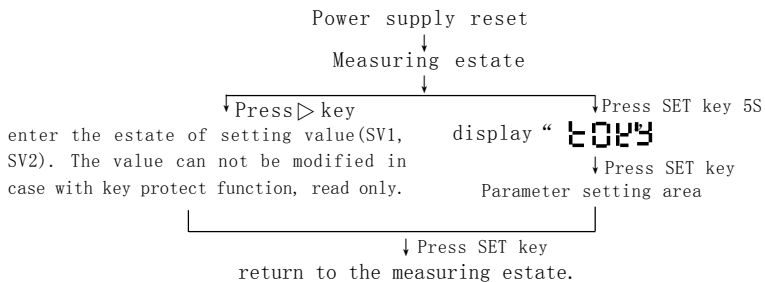
6.2 There are four keys on the panel of the instrument:

△: Press SET key to enter the estate of setting.

▷: Up key: this key is for add 1 each press, or function convert.

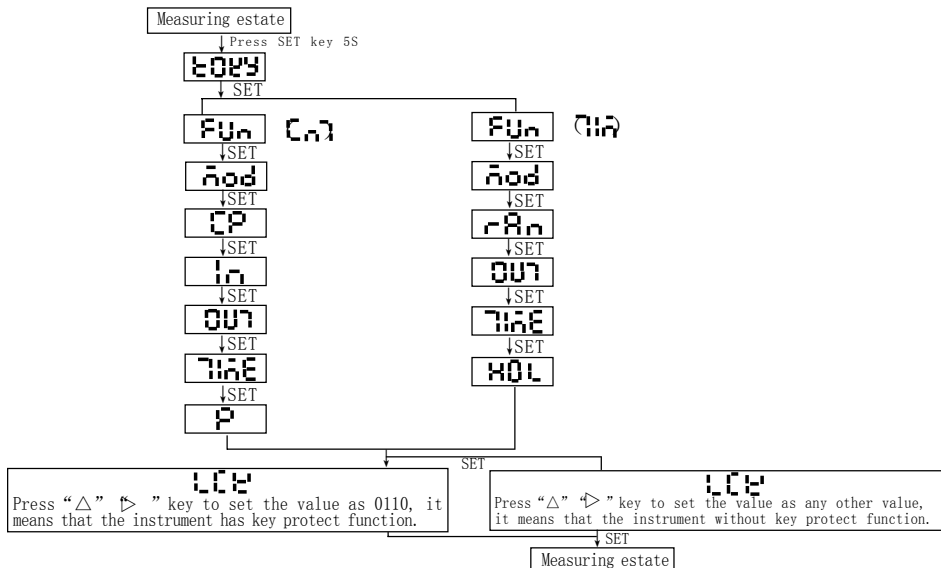
RST: Shift key: in the estate of measuring, press to amend setting value estate. In the estate of setting, press this key then the flesh figure moves right.

6.2.1 Operation convert illustration



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6.2.2 Parameter setting operation method



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Form 1: Parameter of counter setting

Number	Code	Meaning	Specifications	Range
1	FUn	Selecting function	Select the measuring function by “△” key Cnt: Counter, CNT lamp on Tim: Timer, TIM lamp on	CNT, TIME
2	Mod	Input mode	press “△” key to select U or d U: up D: down	U, d refer form A
3	CP	Counter speed	Select appropriate speed according to the frequency of the signal. For example, if you select the 30CPS, the input signal should not more than 30KZ. Select by△key.	30CPS, 1KCPS 2KCPS, 5KCPS
4	In	Input mode	select the input mode by “△” key	A, B, C, D refer form A
5	Out	Output mode	select the output mode by “△” key	F, N, R C, K, P, Q A refer form B
6	Time	Output delay	when this parameter is set as F, N, without output delay. Press ▷ key to shift and “△” key to modify the fresh value	0.1S-- 999999.9S

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Number	Code	Meaning	Specifications	Range
7	P	Modulus setting	counter rate. For example, set P=10, the instrument will display 10 when input one pulse. It will display 20 when input 2 pulses. Display value=pulse×P 0.0001-99.9999 0.001-9.999	0.000001- 99.999999
8	LCE	Key protect function	press “△” “▷” key can modify the under-line value LCK=0110, setting value(SV1, SV2) read only, can not be modified LCK=other value, setting value(SV1, SV2) can be modified	

Form 2: Parameter of timer setting

Number	Code	Meaning	Specifications	Range
1	FUn	Function selecting	Select the measuring function by “△” key Select Tim: timer, TIM lamp on	
2	Mod	Timer mode	Select by “△” key U: up d: down.	up down

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Number	Code	Meaning	Specifications	Range
3	rAn	Time range	select by “△” key. for example, there are 6 modes of range of 6 digit display as follows: 9999.99+ S lamp on, range: 0.01S-9999.99S 99999.9+ S lamp on, range: 0.1S-99999.9S 9999.99+ M lamp on, range: 0.01M-9999.99M 99999.9+ M lamp on, range: 0.1M-99999.9M 9999.99+ H lamp on, range: 0.01H-9999.99H 99999.9+ H lamp on, range: 0.1H-99999.9H	
4	Out	Output mode	Same as counter	
5	Time	Output delay time	Same as counter	
6	HOL	Power fail memory	Select by “△” key 1: with power fail memory 2: without power fail memory	
7	LCE	Key protect function	Sample as counter	

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Counter/Timer parameter setting

Number	Code	Meaning	Specifications	Range
1	SV1	Setting value 1	Up mode, when the measuring goes up to the setting value, AL1 output and AL1 lamp on, reset 0. Down mode, when the measuring goes down to the setting value, AL1 output and AL1 lamp on, reset SV1. “△” Key : modify the flesh value ▷ ” Key: shift SET key: confirm the modified value RST key: Decimal point shift key, press this key to select the decimal point location.	0-9999 0-999999 0-9999999
2	SV2	Setting value 1	Up mode, when the measuring goes up to the setting value, AL2 output and AL2 lamp on. Down mode, when the measuring goes down to the setting value, AL2 output and AL2 lamp on, RST key is invalid.	$SV1 \geq SV2 \geq P$

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7. Cautions

- 7.1 In the measuring estate, when short diagrams or press RST key the instrument will reset the setting value, counter value and output.
- 7.2 RST and Pause connection diagrams input is on/off signal, width of the signal require more than 100ms. Pause function will be available in counter only, not in timer.
- 7.3 The transistor output is synchronous with AL1 relay output. And it is open collector output.
- 7.4 The counter mode D can be used with encoders.
- 7.5 Please press RST key after changing the measuring mode so that the instrument can operate reliably.
- 7.6 If the instrument display Err0 please check the if $SV1 > SV2 > P$.
- 7.7 In the estate of measuring, press SET key and key for 5 seconds, the instrument will restore to the setting before sale.
- 7.8 The input wire should not be too long. Using the shield wire will be better.

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Form A

Mode	up	down	Specifications
A			CP2 low voltage allow CP1 counter CP2 high voltage not allow CP1 counter
B			Up: CP2 low voltage, CP1 increase counter CP2 high voltage, CP1 decrease counter Down: CP2 low voltage, CP1 decrease counter CP2 high voltage, CP1 increase counter

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Mode	up	down	Specifica-
C			Up: CP1 increase CP2 decrease Display value=CP1-CP2 Down: CP1 decrease CP2 increase Display value=CP2-CP1
D			Up: CP2 later than CP1 CP2 increase counter CP2 before CP1 CP2 decrease counter Down: CP2 later than CP1 CP2 decrease counter CP2 before CP1 CP2 increase counter

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Form B

		Input mode		The action when the value reach the presetting value
		Up timer	Down timer	
Output mode	F			The display value will continue decrease/increase till reset input
	N			

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		Input mode		The action when the value reach the presetting value
		Up timer	Down timer	
Output mode	C			The display value will turn back to the start estate, output will delay to the setting value and turn back to the start estate. (output action is a repeated and simple output.)
	R			

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		Input mode		The action when the value reach the presetting value
		Up timer	Down timer	
Output mode	K			The display value continues increase/decrease till reset input. Output delay to the setting value and turn back to the start estate. (output action is an simple output.)
	P			

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		Input mode		The action when the value reach the presetting value
		Up timer	Down timer	
Output mode	Q			The display value continues increase/decrease in the course of simple output. The display value cycle start till the simple output (delay). (output action is a repeated and simple output.)
	A			

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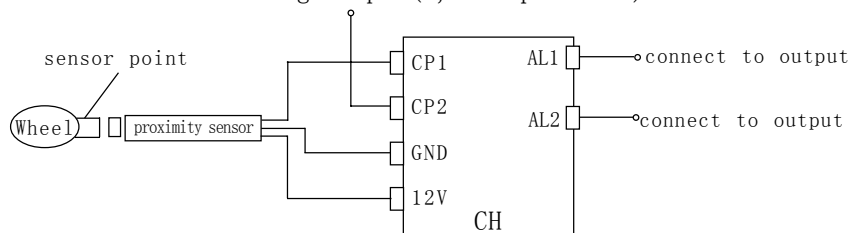
8、Examples of use

1. Meaning of P:

This parameter can translate the counter value into intuitionistic engineering value such as length, flow, weight and capacitance. For example, to measuring length, when the input pulse is N, setting a value for P according to the length, made $length = N \times P$.

2. How to connect a proximity sensor to the instrument

Control voltage input (A, B input mode)



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3. How to connect a encoder to the instrument:

(phase D input mode)

