CN Series Multi-function Counter User's Manual

Features:

- ⊙ Meter and yard switch display function.
- ⊙ Max counting speed can reach 10KCPS
- ⊙ Coefficient be settable among 0.00001～999999
- ⊙ Universal input."NPN"or "PNP"is selected by software
- ⊙ Maximum three preset counting quantity/length alarm output.
- ⊙ With RS485 communication function ,standard Modbus RTU protocol
- ⊙ Can be applied to the counting/controlling in the field of light industry, machinery, packaging, food industry ,etc.

1.Code Illustration

CN□□-R C□□□ —

- M：Meter/Yard convert function
- Communication function：0：without communication 8：RS485 communication
- Display digit：6：6 digits
- Alarm output：B：one C：two D: three
- Control output：R:Relay output S：Solid state relay output
- Power supply：Blank：100-240VAC/DC F：24VDC power supply
- Dimension(mm)：4：48H×48W×101L 7：72H×72W×100L 8：48H×96W×100L 80：80H×160W×102L
- CN Series multi-function counter

*24V power supply could be ordered

2.Ordering Code

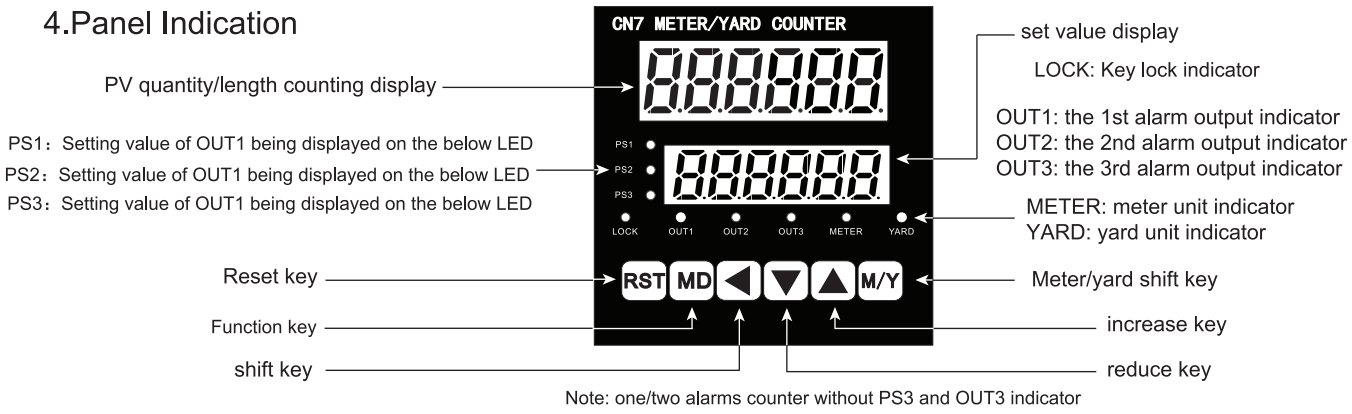
No.	Code	Panel size(mm)	Display digit	Alarm output	Communication
1	CN4-RB60M	48H×48W	6	1	NO
2	CN4-RC60M	48H×48W	6	2	NO
3	CN7-RC60M	72H×72W	6	2	NO
4	CN7-RD60M	72H×72W	6	3	NO
5	CN8-RC60M	48H×96W	6	2	NO
6	CN8-RD60M	48H×96W	6	3	NO
7	CN80-RC60M	80H×160W	6	2	NO
8	CN80-RD60M	80H×160W	6	3	NO

3.Technical Parameter

Series		CN
Display		Dual rows with 6-digit LED
Power supply		100-240V AC/DC or 24V AC/DC
Allowable voltage floating range		90-110% of the rated voltage (AC)
Input frequency of INA,INB		1Hz,30Hz,1KHz,5KHz,10KHz can be selectable
Input pulse width		INA,INHIBIT,RESET,BATCH RESET,1ms or 20ms can be selected
Input		Voltage input:Input impedance is 5.4KΩ,"H": 5-30VDC "L": 0-2VDC Non-voltage input：Max short-circuit impedance : 1KΩ, Residual voltage：Max 2V DC Open-circuit impedance：Max 100KΩ
One-shot output		10/50/100/200/500/1000/2000/5000ms
Control output	Contacts capacity	NO:250VAC 3A impedance NC：250VAC 2A impdance
	SSR capacity	Max 30V DC， Max 100mA
Memory time		10 years
External sensor power		12VDC±10% below 100mA
Working temperature		-10℃～50℃ （Non-freezing）

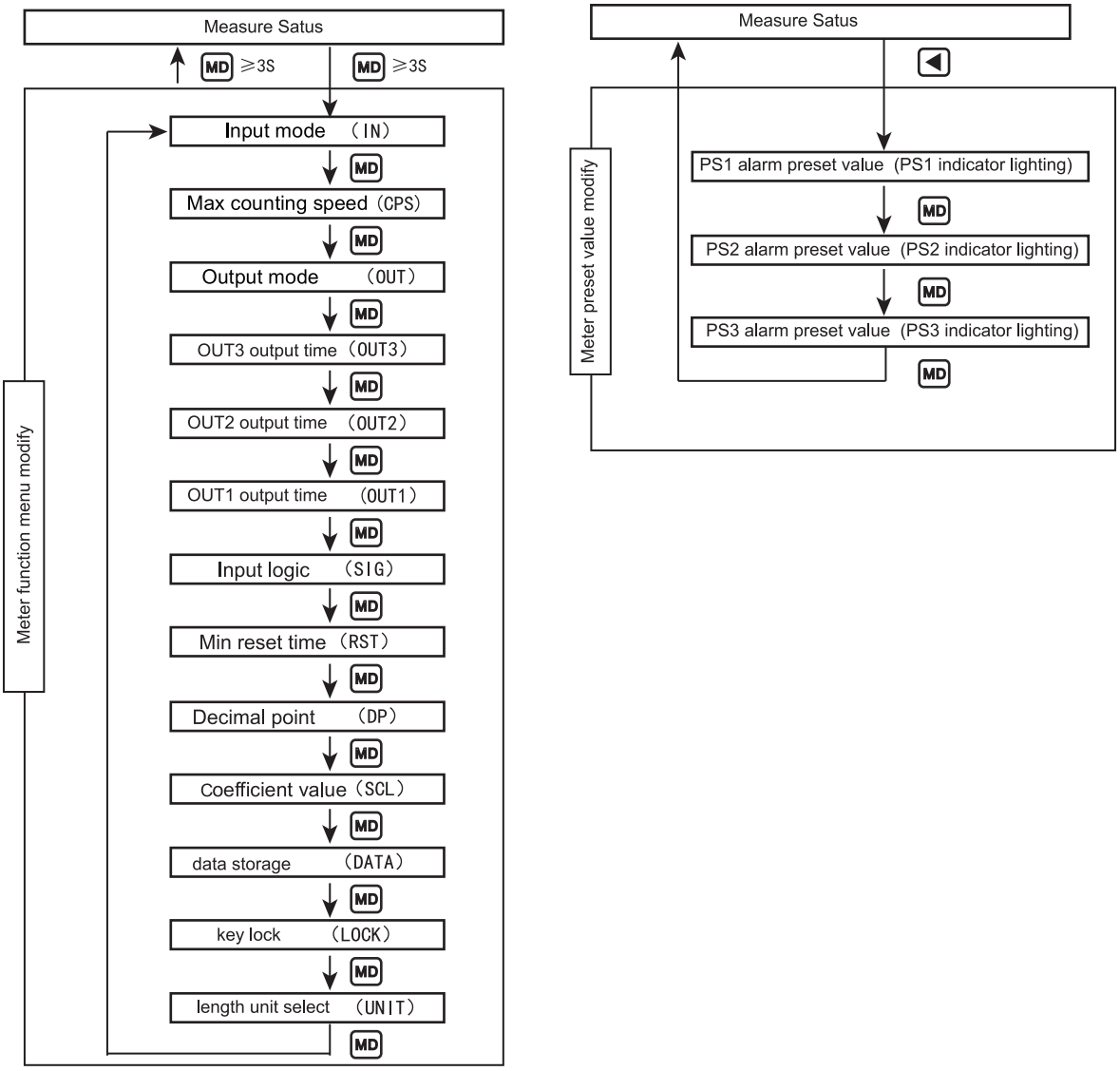
Store temperature		-25℃～65℃ （Non-freezing）
Ambient Humidity		35-85%RH
Insulation resistance		Min 100MΩ (at 500VDC)
Dielectric strength		2000V AC 50/60Hz 1 minute
Interference(AC Power)		±2kV interferenced by square wave generator (Pulse wideth:1us)
Vibration	Mechanical	Amplitude: 0.75mm Frequency : 10 to 55Hz each direction of X, Y, Z for 1 hour
	Malfunction	Amplitude: 0.5mm Frequency : 10 to 55Hz each direction of X, Y, Z for 10 min
Shock	Mechanical	300/S (About: 30G) each direction of X,Y,Z for 3 times
	Malfunction	100/S (About: 10G) each direction of X,Y,Z for 3 times
Life Span	Mechanical	Above 10,000,000 times
	Electric	Above100,000 times (NO:250VAC 3A load NC:250VAC 2A load)

4.Panel Indication



Note: one/two alarms counter without PS3 and OUT3 indicator

5.Operation Sequecy



6. Function menus modification

Setting mode	selection （▼、▲）
Input mode (In)	U→d→Ud-A→Ud-b→Ud-C If the output mode is S T D ,input mode can only select Ud-A B C
Max counting speed (CPS)	1→30→1K→5K→10K Counting speed means the max input frequency of INA and INB, suppose it to 5K , if the input frequency beyond 5K , then measuring will be not accuracy .
Output mode (oUt)	※ Up or Down input mode F→n→C→r→H→P→9→A ※Up/Down - A、B、C input mode F→n→C→r→H→P→9→A→S→L→d
OUT3 output time (oUt3)	10→50→100→200→500→1000→2000→5000→HoLd unit:ms（note:one or two alarm relay output without this menu）
OUT2 output time (oUt2)	10→50→100→200→500→1000→2000→5000→HoLd unit:ms
OUT1 output time (oUt1)	10→50→100→200→500→1000→2000→5000 unit:ms
Input logic (SIG)	Select with ▲ ,▼ ： PnP or nPn input mode
Min reset time (rSt)	1⇄20 Min width of RESET signal (Unit:ms）
Decimal point (dP)	- - - - - - → - - - - - - →- - - - - - → - - - - - - * * *
Coefficient value (SCL)	◀key : Move the flick digit RST key:Modify the decimal point of coefficient value ▼、▲key：Modify the coefficient value Coefficient value range : 0.00001 -9999.99
Counting value storage (dAtA)	CLrE ⇄ rEC CLrE: Power off The counting value reset rEC: Power off The counting value be saved
Lock key (LoCK)	L.oFF→LoC.1→LoC.2→LoC.3 L.oFF : no lock function LoC.1 : lock RST key LoC.2 : lock ◀ ▲ ▼ LoC.3 :lock RST and ◀ ▲ ▼
count lenght unit setting (Unit)	MEtEr ⇄ YArd MEtEr : meter YArd : yard

※ If select mode F or mode N ,when counting value reaches the preset value，the output will maintain，so there is no “output time of OUT2” menu in function setting mode

※ If output mode set to S、T、D ， input mode can only select Ud-A、B、C .If want to select Up/Down input mode，then output mode can just select the mode except for the mode S、T、D .

※ If select mode D as output mode,when counting frequency beyond 1Kcps, relay responding time may cause abnormal output action, SSR output is better .

※ When Max counting speed is 5kcps or 10kcps，if change the mode to mode“D”，counting speed will select 1KCPS automatically .

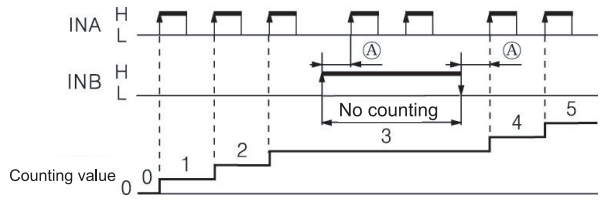
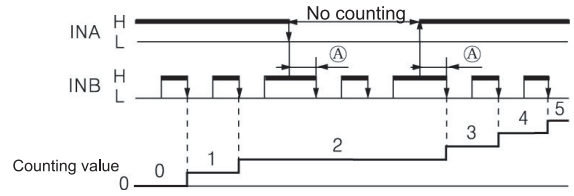
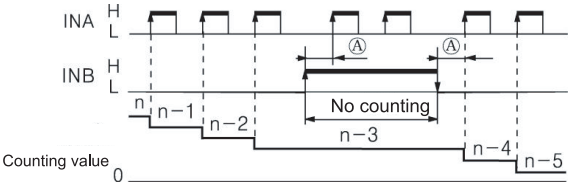
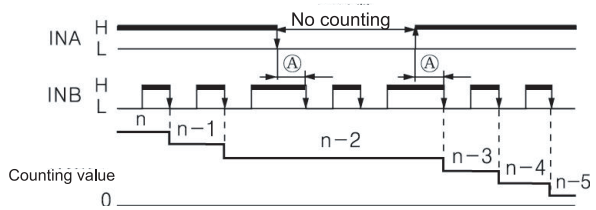
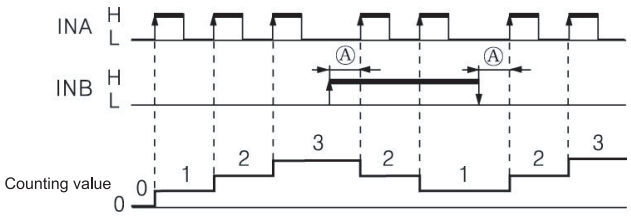
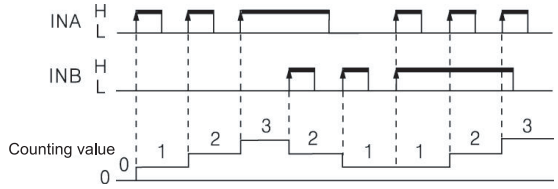
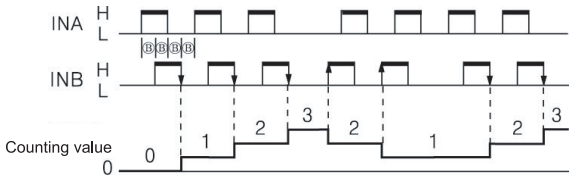
※ In function setting mode, external input signal can also be recognized . when exit the function setting mode, display value and output will reset automatically.

7. Preset value menus modification

setting mode	setting （▼ ▲）
PS1 alarm preset value (PS1 indicator lighting)	◀ : move the flicking digit position ▼、▲ : modify the preset value MD key: confirm modification and enter next menu PS1 preset value setting range: 0.001-999999
PS2 alarm preset value (PS2 indicator lighting)	◀ : move the flicking digit position ▼、▲ : modify the preset value MD key: confirm modification and enter next menu PS2 preset value setting range: 0.001-999999
PS3 alarm preset value (PS3 indicator lighting)	◀ : move the flicking digit position ▼、▲ : modify the preset value MD key: confirm modification and enter next menu PS3 preset value setting range: 0.001-999999 (note: 1 or 2 alarm output without this menu)

8. Input action mode of the counter

※ Ⓐ :Beyond the width of the min signal Ⓑ :Beyond the half of the min signal width

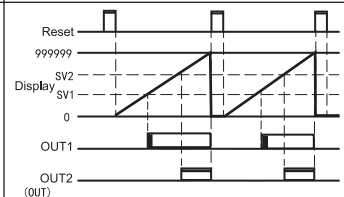
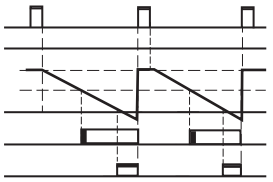
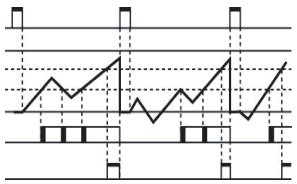
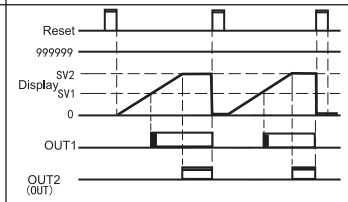
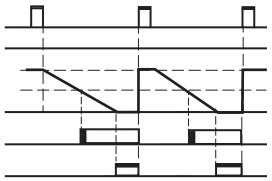
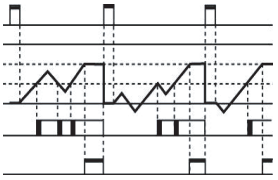
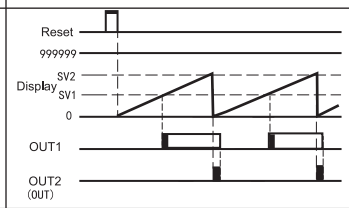
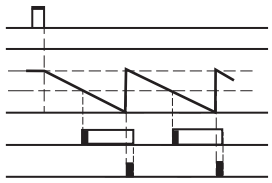
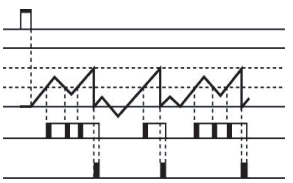
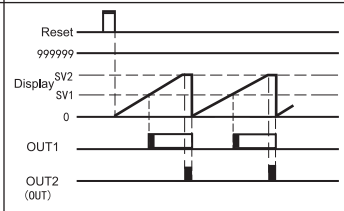
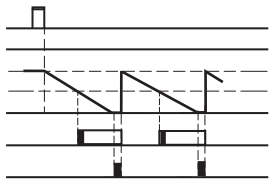
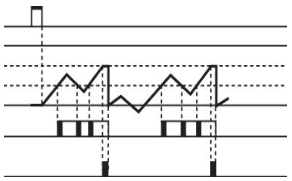
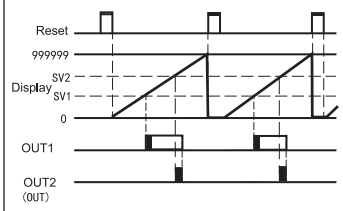
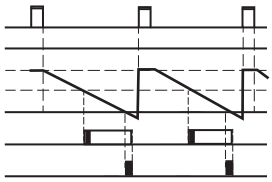
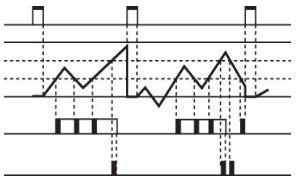
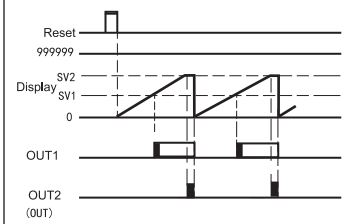
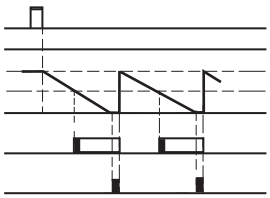
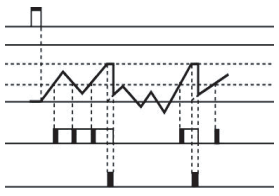
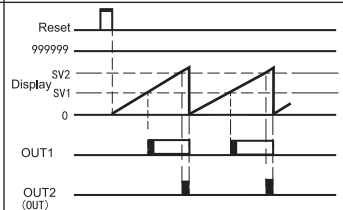
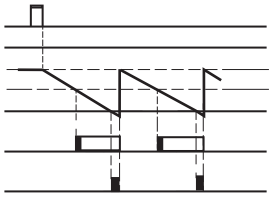
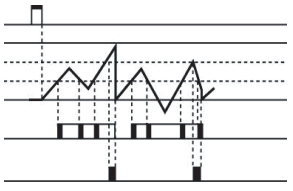
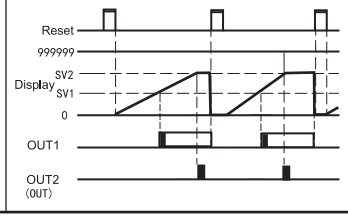
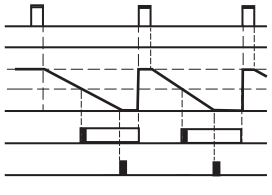
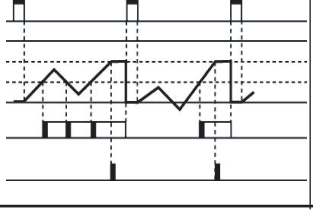
Input mode	Counting graph	Remark
U （Up）		INA：Be used as counting input INB：Be used as control input INB=L：Input pulse to INA,then counting up INB=H： Forbid INA to count
		INA：Be used as control input INB：Be used as counting input INA=H: Input pulse to INB,then counting up INA=L:Forbid INB to count
D （Down）		INA：Be used as counting input INB：Be used as control input INB=L：Input pulse to INA ,then counting down INB=H:Forbid INA to count
		INA：Be used as control input INB：Be used as counting input INA=H: Input pulse to INB,then counting down INA=L:Forbid INB to count
Ud-a （Up/Down-A） Order input		INA：Be used as counting input INB：Be used as control input INB=L：Input pulse to INA,then counting up INB=H：Input pulse to INA,then counting down
Ud-b （Up/Down-B） Single input		Input pulse to INA,then counting up Input pulse to INB,then counting down
Ud-c Phase difference input		INA lead ahead INB,then counting up INA lag behind INB,then counting down Phase difference input （be applied to rotary encoder）

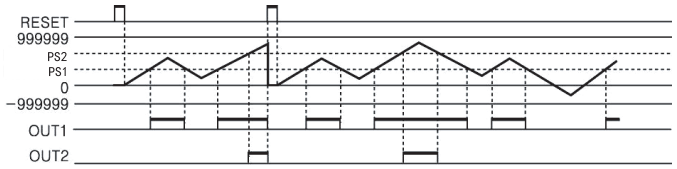
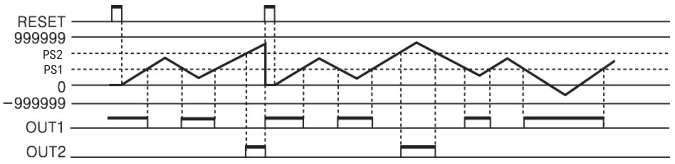
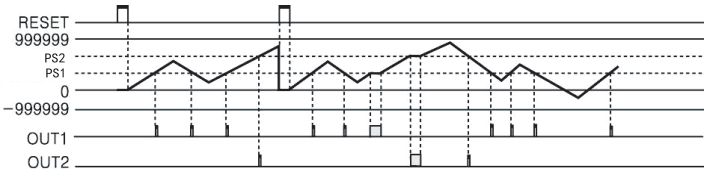
※ When use phase A and phase B of the rotary encoder , please take INA and INB as input ends,and select Ud-C input mode .

Sign \ Input type	Voltage input（PNP）	Contacts input（NPN）
H	5-30VDC	Short circuit
L	0-2VDC	Open circuit

9. Output Mode

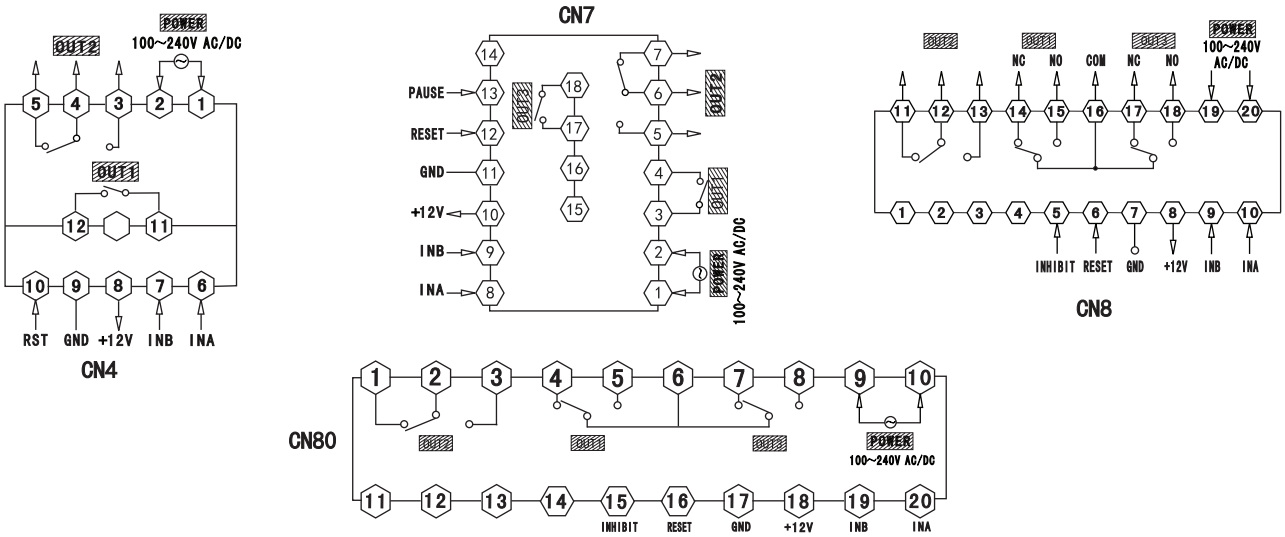
One-shot output（OUT1 output）
Hold output
One-shot output
（OUT2 output）
Hold output
Output at the same time

	Input mode			Action for counting /timing when it reaches to the setted value
	Up	Down	Up/DownA, B, C	
F				Display keeps up or down , output maintain till reset signal input
N				Both display and output maintain till reset signal input .
C				Display vale return to the beginning status automatically ,output won't return to the beginning untill it reaches to the setted delay time . (Output action is repeated)
R				Both display value and output maintain till it reaches to the setted delay time then return to the beginning status . (Output action is repeated)
K				Display value keeps up or down till reset signal input ,output won't return to the beginning status until it reaches the setted delay time . (Output action is repeated)
P				Display value maintains till the delay time output , then display the value of next round.(Counting/Timing of next round starts from the beginning value during the delay time) (Output action is repeated)
Q				Display value keep up or down during the output delay time, when it comes to the setted delay time,both the display value and output will return to the beginning status. (Output action is repeated)
A				Display value and output of OUT1 maintain till reset signal input .OUT2 return to the beginning status when it reaches to the output delay time . (Output action is repeated)

	Up/DownA, B, C	Action
S		OUT1 and OUT2 meet the following requirements keep " ON " statu : Display value ≥Setting value1 Display value ≥Setting value2
T		When display value < Preset value1, OUT1 keep " ON " status When display value < Preset value 2 , OUT2 keep "oFF" status .
D		Only when display value =Setting value (preset value1 or 2),OUT1 and OUT2 keep "ON" status . When counting speed set to 1kcps , should use SSR output mode .

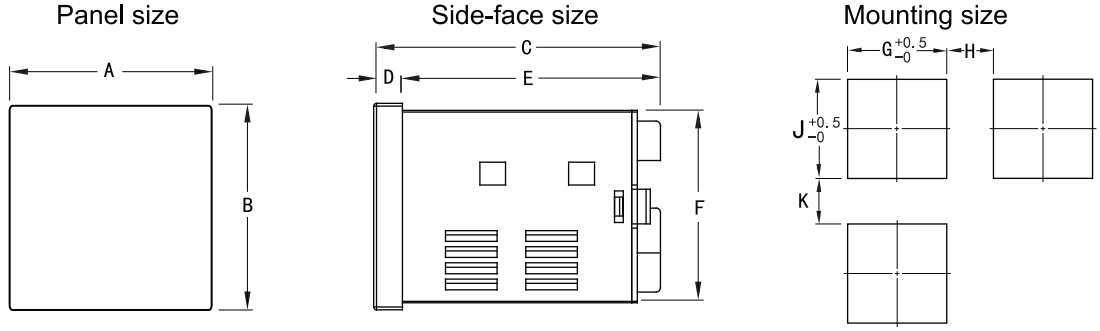
※ The output logic diagram takes the two alarms counter as an example. For three alarm counters , the output logic of OUT1 and OUT2 is the same as OUT1 in the figure, and the output logic of OUT3 is the same as OUT2 in the figure.

10.Connecting Drawing



Note:Please subject to the connecting drawing on the actual product if any changes

11. Dimension & Mounting Size



Code	A	B	C	D	E	F	G	H(Minimun)	J	K(Minimun)
CN4 : (48*48)	48	48	101	10	91	45	45.5	25	45.5	25
CN7 : (72*72)	72	72	100	10	90	67.5	68	25	68	25
CN8 : (48*96)	96	48	100	6	94	45	91.5	25	45.5	25
CN80: (160*80)	160	80	102	10	92	76	154	30	76.5	30
Remark	Unit: (mm) tolerance+0.5%(The particular indicated are not included)									