

Multi-Functional Counter/Timer

SenSource, Inc., 3890 Oakwood Ave., Youngstown, OH 44515 PH: 800.239.1226 Email: Info@SenSource.biz

DIN size W72 × H36mm, W48 × H48mm, W72 × H72mm Counter/Timer

■ Features

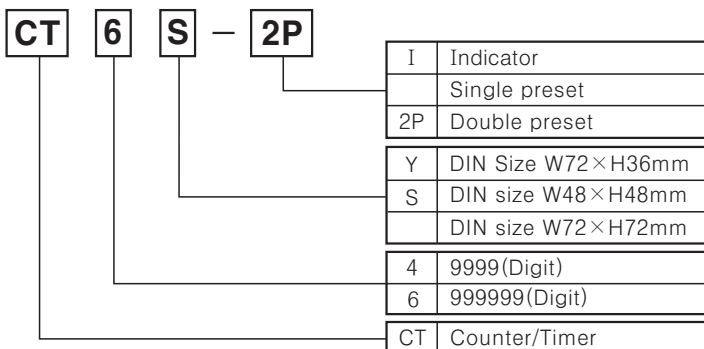
- Selectable Counter or Timer function
- The most various function
- Prescale function
- Programmable count speed to 10kcps
- Batch counter function for CT6, CT6-2P only
- Selectable Voltage input (PNP) or No voltage input (NPN)
- Ability to set ON/OFF time individually in Flicker (FLK) mode
- Key Lock function



⚠ Please read "Caution for your safety" in operation manual before using.



■ Ordering information



※When using double preset type as timer mode, setting time is limited in one preset time.

■ Specifications

Model	Single preset	CT6Y	CT4S	CT6S	CT6	
	Double preset	CT6Y-2P	CT4S-2P	CT6S-2P	CT6-2P	
	Indicator	CT6Y-I	—	CT6S-I	CT6-I	
Digit		6	4	6	6	
Digit size		Counting part:W4.5×H10mm Setting part:W3.5×H7mm	Counting part:W7×H11mm Setting part:W5×H8mm	Counting part:W4.5×H10mm Setting part:W3.5×H7mm	Counting part:W7×H13mm Setting part:W5×H9mm	
Power supply	AC power	100-240VAC 50/60Hz				
	DC power	24-60VDC				
Allowable voltage range		90 ~ 110% of rated voltage (AC power)				
Power consumption	AC power	Indicator : Approx. 9VA, Single & Double preset : Approx. 10VA				
	DC power	Indicator & Single preset : Approx. 5W, Double preset : Approx. 6W				
Count speed of INA, INB		Selectable 1 / 30 / 1k / 5k / 10kcps				
Prescale range		0.001 ~ 99.999 (6digits), 0.01 ~ 9.99 (4digits)				
Min. input signal width	Counter	Reset input : Selectable 1ms or 2ms				
	Timer	INA, INHIBIT, RESET : Selectable 1ms or 20ms			INA, RESET, INHIBIT, BATCH RESET (except CT6-I) : Selectable 1ms or 20ms	
Input		Selectable voltage input or No-voltage input [Voltage input] Input impedance : 5.4kΩ, "H" level : 5-30VDC, "L" level : 0-2VDC [No-voltage input] Short-circuit impedance : Max. 1kΩ, Residual voltage : Max. 2VDC, Open-circuit impedance : Min. 100kΩ				
One-shot output		10 / 50 / 100 / 200 / 500 / 1000 / 2000 / 5000ms				
Control output	Con-tact	Type	Single preset type : SPDT (1c) Double preset type : SPST (1a) for first output SPDT (1c) for second output	Single preset type : SPDT (1c), Double preset type : SPST (1a) for first/second output		
		Capacity	NO : 250VAC 3A at resistive load, NC : 250VAC 2A at resistive load			
	Solid-state	Type	Single preset type : 1 NPN open collector Double preset type : 1 NPN open collector		Single preset type : 2 NPN open collectors Double preset type : 3 NPN open collectors	
		Capacity	Max. 30VDC, Max. 100mA			
Memory retention		10 years (When using non-volatile semiconductor memory)				
External sensor power		12VDC ±10%, Max. 100mA				

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Proximity sensor

(J) Photo electric sensor


(K) Pressure sensor

(L) Rotary encoder

(M) 5-Phase stepping motor & Driver & Controller

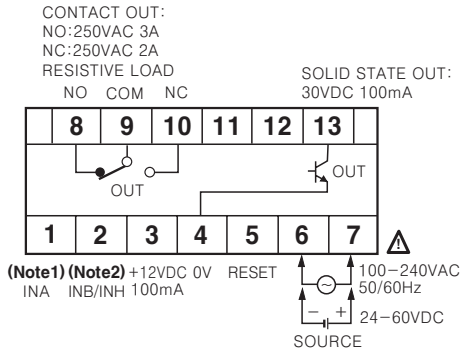
CTY/CTS/CT Series

Specifications

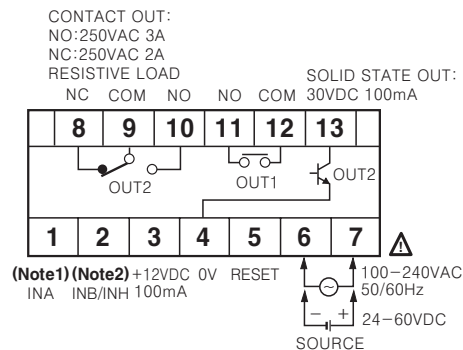
Time accuracy	Repeat error	Power ON start : Max. $\pm 0.01\% \pm 0.05\text{sec}$ Signal start : Max. $\pm 0.01\% \pm 0.03\text{sec}$			
	Set error				
	Voltage error				
	Temperature error				
Insulation resistance		Min. 100M Ω (at 500VDC)			
Dielectric strength		2000VAC 50/60Hz for 1 minute			
Noise strength		$\pm 2\text{kV}$ the square wave noise (pulse width:1 μs) by the noise simulator			
Vibration	Mechanical	0.75mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 1 hour			
	Malfunction	0.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 10 minutes			
Shock	Mechanical	300m/s ² (Approx. 30G) in X,Y,Z directions for 3 times			
	Malfunction	100m/s ² (Approx. 10G) in X,Y,Z directions for 3 times			
Relay life cycle	Mechanical	Min. 10,000,000 times			
	Electrical	Min. 100,000 times (NO : 250VAC 3A at resistive load, NC : 250VAC 2A at resistive load)			
Protection		IP65 (Front panel only)			
Ambient temperature		-10 ~ +55 $^{\circ}\text{C}$ (at non-freezing status)			
Storage temperature		-25 ~ +65 $^{\circ}\text{C}$ (at non-freezing status) <input type="checkbox"/>			
Ambient humidity		35 ~ 85%RH			
Weight	AC power	CT6Y:Approx. 160g CT6Y-2P:Approx. 163g CT6Y-I:Approx. 127g	CT4S:Approx. 155g, CT4S-2P:Approx. 162g	CT6S:Approx. 155g CT6S-2P:Approx. 162g CT6S-I:Approx. 136g	CT6:Approx. 264g CT6-2P:Approx. 271g CT6-I:Approx. 244g
	DC power	CT6Y:Approx. 164g CT6Y-2P:Approx. 167g CT6Y-I:Approx. 130g	CT4S:Approx. 152g CT4S-2P:Approx. 159g	CT6S:Approx. 152g CT6S-2P:Approx. 159g CT6S-I:Approx. 133g	CT6:Approx. 263g CT6-2P:Approx. 270g CT6-I:Approx. 243g
Approval					

Connections

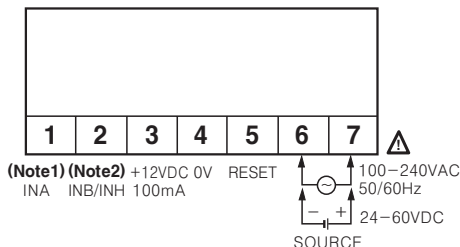
CT6Y



CT6Y-2P



CT6Y-I



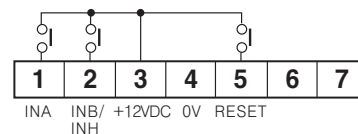
※ (Note1) INA terminal

- Operation of Counter : Operating as INA signal or INH signal
- Operation of Timer : Operating as "START"

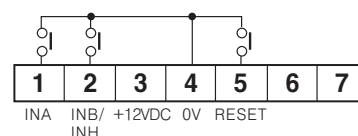
※ (Note2) INB/INH terminal

- Operation of Counter : Operating as INB signal
- Operation of Timer : Operating as INH signal
- If the INH signal applied when it is used as Timer, the processing time stops. (Hold)

※ Connection of relay contact input when voltage input (PNP) is selected

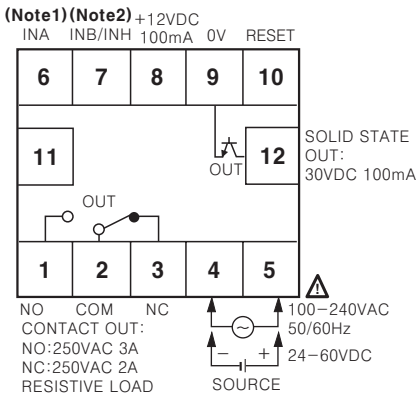


※ Connection of relay contact input when No-voltage input (NPN) is selected

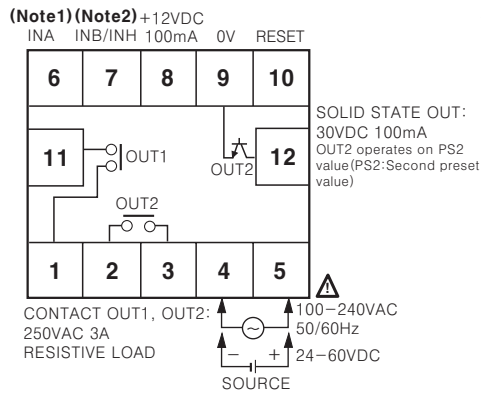


Multi-Functional Counter/Timer

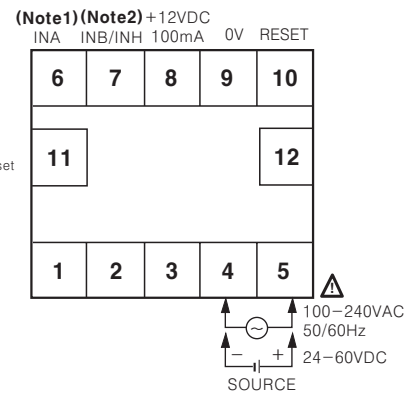
◎ CT4S, CT6S



◎ CT4S-2P, CT6S-2P



◎ CT6S-I



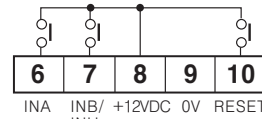
(Note1) INA terminal

- Counter : It will be as input terminal of counting input or counting no input signal.
- Timer : It will be input terminal of START signal.

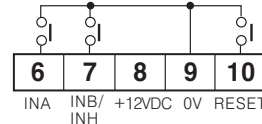
(Note2) INB/INH terminal

- Operation of Counter : Operating as INB signal
- Operation of Timer : Operating as INH signal
If the INH signal applied when it is used as Timer, the processing time stops.(Time Hold)

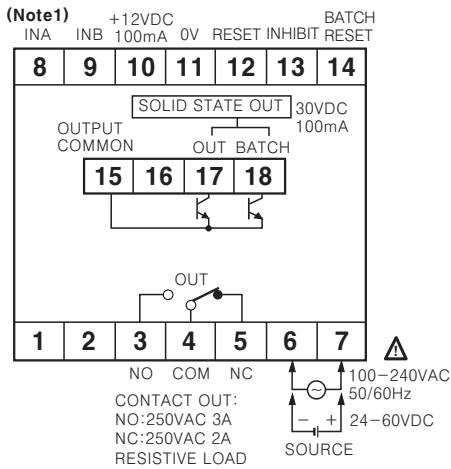
- Connection of relay contact input when voltage input(PNP) is selected



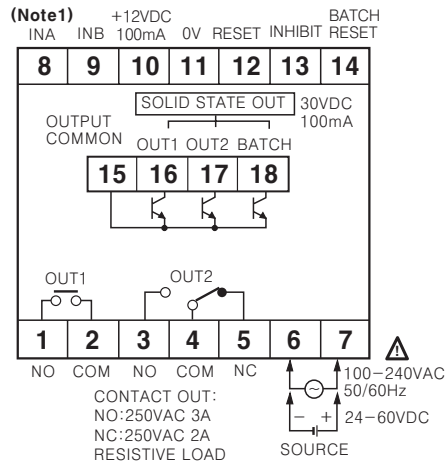
- Connection of relay contact input when No-voltage input(NPN) is selected



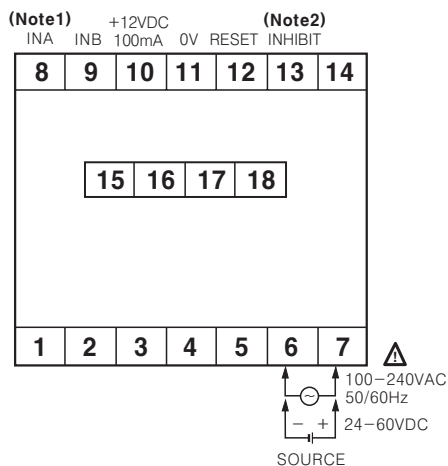
◎ CT6



◎ CT6-2P



◎ CT6-I



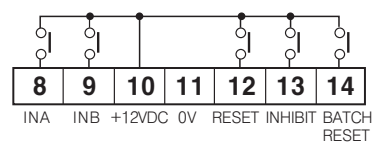
※ (Note1) INA terminal

- Counter : It will be as input terminal of counting input or counting no input signal.
- Timer : It will be input terminal of START signal.

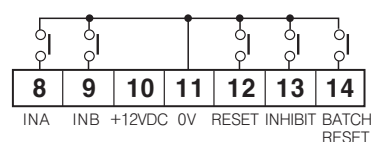
※ (Note2) INHIBIT signal

- When INHIBIT signal is applied at Timer operation: Processing time stops
- ※ Solid state output is insulated from inner circuit by photocoupler. (Time Hold) (Power supply : 5-30VDC Max.)

- Connection of contact input in state of selected voltage input(PNP)



- Connection of contact input in state of selected No-voltage input



(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/ Speed/ Pulse meter

(G) Display unit

(H) Sensor controller

(I) Proximity sensor

(J) Photo electric sensor

(K) Pressure sensor

(L) Rotary encoder

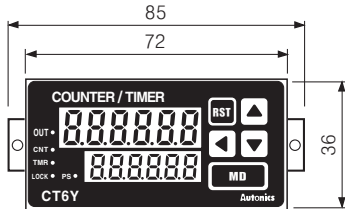
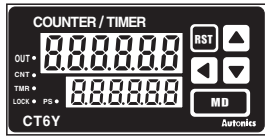
(M) 5-Phase stepping motor & Driver & Controller

CTY/CTS/CT Series

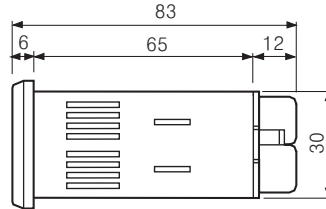
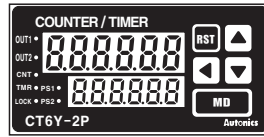
▣ Dimensions

○ CTY Series

● CT6Y



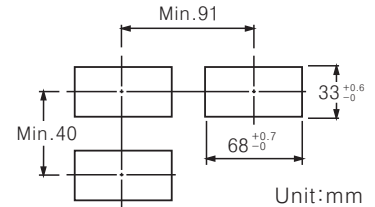
● CT6Y-2P



● CT6Y-I



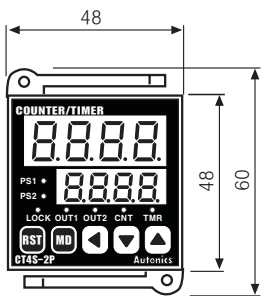
● Panel cut-out



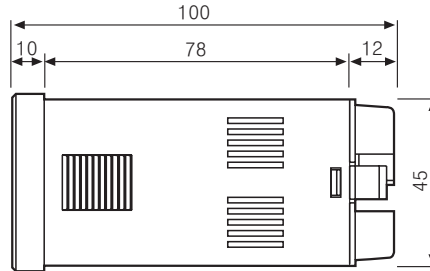
Unit:mm

○ CTS Series

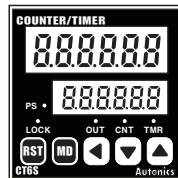
● CT4S



● CT4S-2P



● CT6S



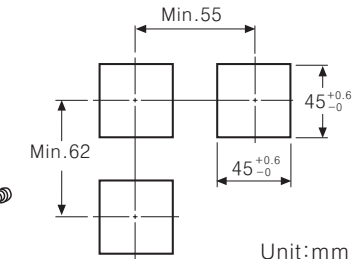
● CT6S-2P



● CT6S-I



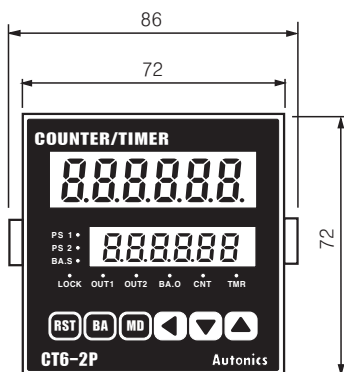
● Panel cut-out



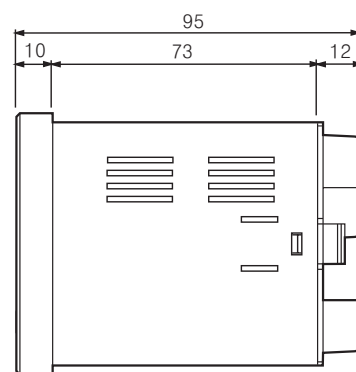
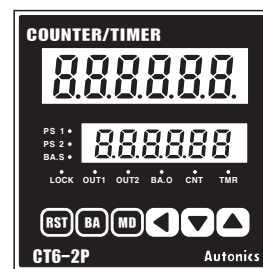
Unit:mm

○ CT Series

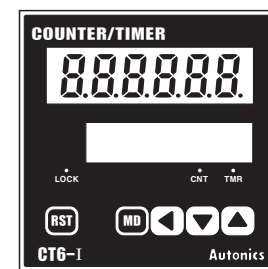
● CT6



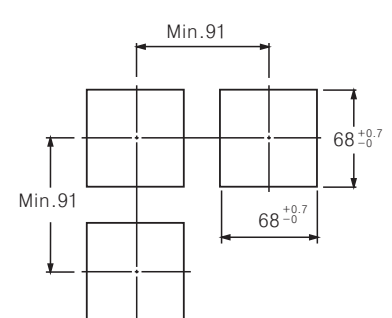
● CT6-2P



● CT6-I



● Panel cut-out

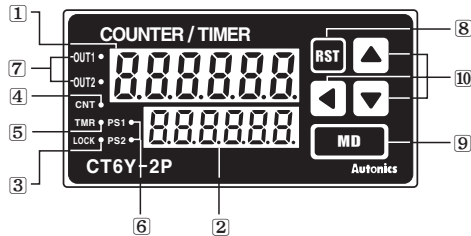


Unit:mm

Multi-Functional Counter/Timer

Front panel identification

◎ CTY series

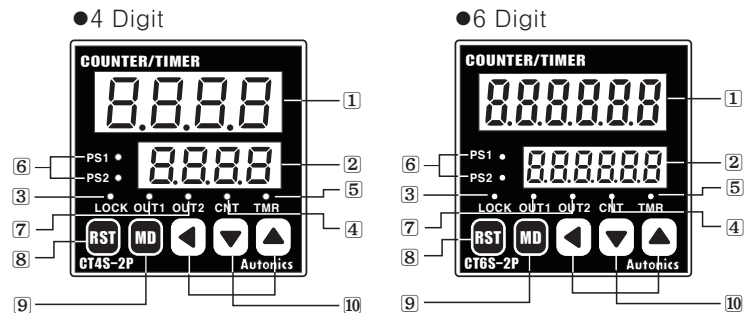


- 1 Display for processing value (Red LED)
Counting value (Counter) / Processing time (Timer) / Setting symbols
LED height : 11mm for 4digit, 10mm for 6digit
- 2 Preset value display (Yellow-Green LED)
Preset value (Counter) / Preset time (Timer) and setting symbols.
LED height : 8mm for 4digit, 7mm for 6digit
- 3 LOCK : Key Lock indication
LOCK OFF : Light OFF
LOCK ON : Light ON
- 4 CNT : Indicates operation as a counter

※ There is no 6, 7 LED in CT6Y-I, CT6S-I.

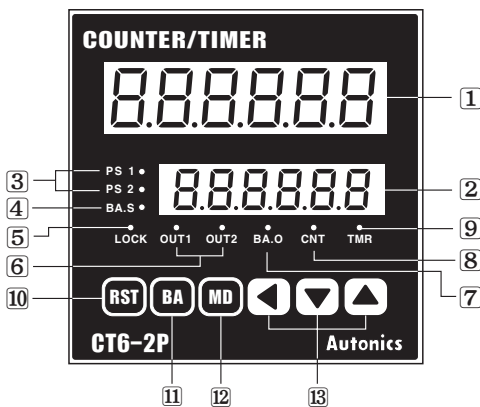
※ In CT4S, CT6S, CT6Y, PS2 will be changed to PS and OUT2 is OUT and there is no PS1, OUT1 LED.

◎ CTS series



- 5 TMR : Indicates operation as a timer
-LED flickers when the timer is processing
-LED turns on when the processing time stops
- 6 PS1, PS2 : Indicates that preset is being displayed or changed.
- 7 OUT1, OUT2 : Indicating the operation of output
- 8 RST : Reset key
- 9 MD : Mode key
- 10 ◀, ▼, ▲ : Set key

◎ CT Series



- 1 Display for processing value (Red LED)
Counting value (Counter) / Processing time (Timer) / Setting symbols
LED height : 13mm
- 2 Preset value display (Yellow-Green LED)
Preset value (Counter) / Preset time (Timer) and setting symbols
LED height : 9mm
- 3 PS1, PS2 : Indicates which preset is being displayed or changed
- 4 BA.S : Indicates a batch value has been preset
- 5 LOCK : Key lock display
- 6 OUT1, OUT2 : Preset the operation of output (Single & Double)
- 7 BA.O : Indication the operation of BATCH output
- 8 CNT : Indication the operation of counter
- 9 TMR : Indication the operation of timer
-LED flickers when the timer is operating
-LED turns off when the operating time stops
- 10 RST : Reset key
- 11 BA : Batch key
- 12 MD : Mode key
- 13 ◀, ▼, ▲ : Set key

※ In CT6, PS2 will be changed to PS and OUT2 to OUT, since there is no PS1, OUT1 LED.

※ There is no PS1, PS2, BA.S, OUT1, OUT2, BA.O LED in CT6-I.

※ There are no BA key in CT6-I.

(A)
Counter

(B)
Timer

(C)
Temp. controller

(D)
Power controller

(E)
Panel meter

(F)
Tacho/
Speed/
Pulse meter

(G)
Display unit

(H)
Sensor controller

(I)
Proximity sensor

(J)
Photo electric sensor

(K)
Pressure sensor

(L)
Rotary encoder

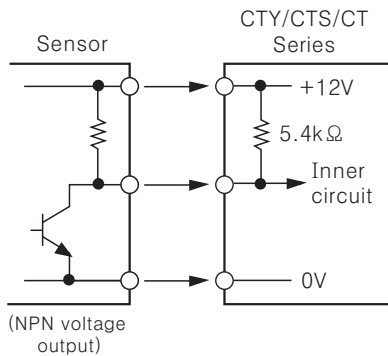
(M)
5-Phase stepping motor & Driver & Controller

CTY/CTS/CT Series

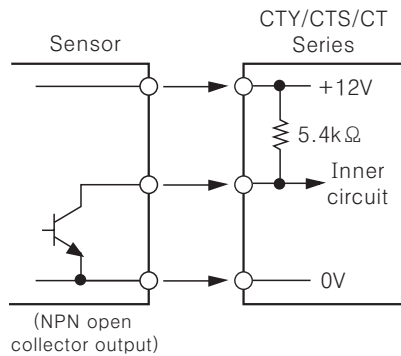
Input connections

Input logic : No-voltage input(NPN)

●Solid state input(Standard sensor : NPN output type sensor)



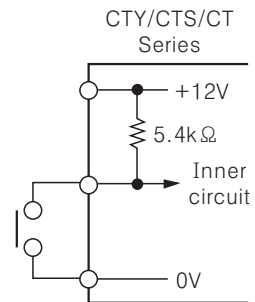
(NPN voltage output)



(NPN open collector output)

※INPUT circuit of INA, INB, INH(INHIBIT), BATCH RESET, RESET are the same.

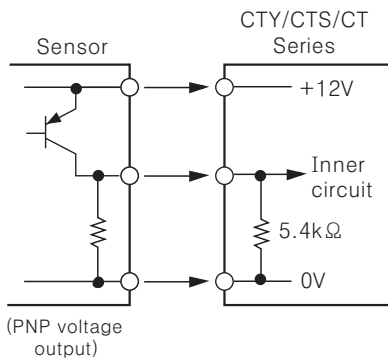
●Contact input



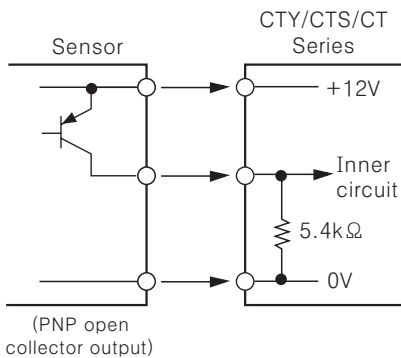
※Counting speed:
1 or 30cps setting
(Counter)

Input logic : Voltage input(PNP)

●Solid state input(Standard sensor : PNP output type sensor)



(PNP voltage output)

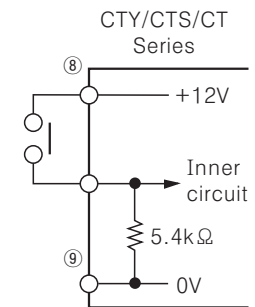


(PNP open collector output)

※INPUT circuit of INA, INB, INH(INHIBIT), BATCH RESET, RESET are the same.

※INA is input terminal when it is used for Counter and can be START signal input terminal when it used for Timer.

●Contact input

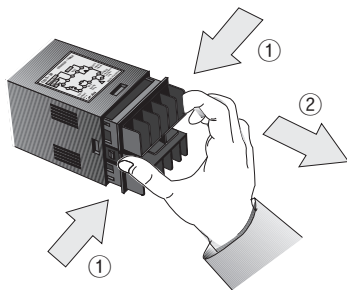


※Counting speed:
1 or 30cps setting
(Counter)

Input logic selection

CTY/CTS Series

1. The power must be cut off.
2. Detach the case from body.



*Case detachment

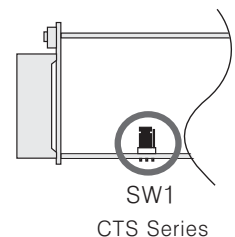
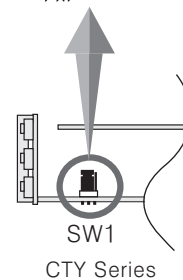
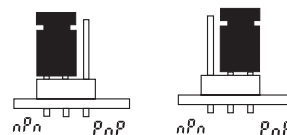
Squeeze toward ① and pull toward ② as shown in picture.

**** Please check if the power is cut off!! ****

3. Select input logic by using input logic S/W inside Counter/Timer.

●Select No-voltage input(NPN)

●Select voltage input(PNP)



4. Please assemble opposite way of the case detachment.
5. Then apply the power to Counter/Timer.

Multi-Functional Counter/Timer

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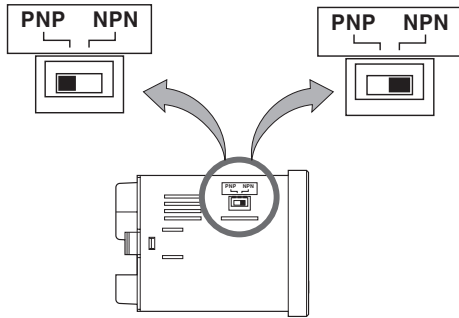
PH: 800.239.1226

Email: Info@SenSource.biz

○CT Series

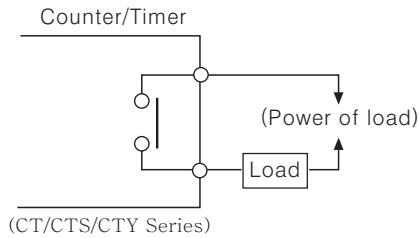
It is easy to change input logic by S/W for input logic conversion.

- Select PNP(Voltage input)
- Select NPN(No-Voltage input)



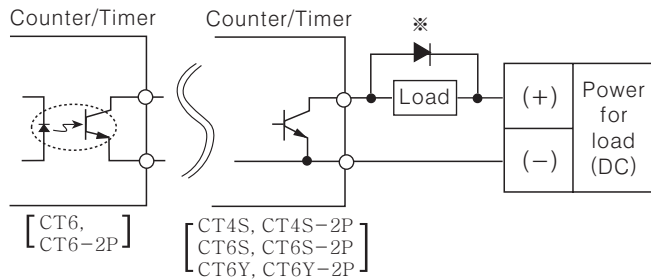
■ Output connections

○Contact output



- *Relay contact is 250VAC 3A Max.
- *Use proper load not to exceed relay contact.

○Solid state output



- *When using inductive load(Relay etc), surge absorber(Diode, Varistor etc.) must be connected across the load.
- *Use proper load and power for load not to exceed ON/OFF capacity(30VDC Max. 100mA max.) of solid state output.
- *Be sure not to apply reverse polarity of power.

■ Factory Default settings

Model		CT6-2P		CT6		CT6-I	
		CT6S-2P	CT4S-2P	CT6S	CT4S	CT6S-I	CT6S-I
Set item		CT6Y-2P	CT6Y	CT6Y-I	CT6Y-I		
COUNTER	Input mode	Up/Down-C(U/D-C)					
	Output mode	F					
	OUT1	100ms	—				
	OUT2(OUT)	Hold					
	CPS	30cps					
	Min. reset time	20ms					
	Decimal point	No decimal point					
	Prescale value	6digit : 1.000, 4digit : 1.00					
	Memory retention	CLER(Power reset)					
TIMER	Time range	6digit : 0.01s ~ 9999.99s 4digit : 0.01s ~ 99.99s					
	Up/Down mode	U(UP)					
	Output mode	OND(ON Delay)	—				
	Output time	Hold					
	Input signal mode	20ms					
Input logic	No-voltage input(NPN)						
Lock key	L.oFF(Lock OFF)						
Counter / Timer	Counter						

■ Error code display

Error display	Errors	Output status	How to return
Err 1	CPU error	OFF	rst key, RESET input

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Proximity sensor

(J) Photo electric sensor

(K) Pressure sensor

(L) Rotary encoder

(M) 5-Phase stepping motor & Driver & Controller