

# Programmable Digital Counters / Timers

## CT Series INSTRUCTION MANUAL

TCD220014AA



Thank you for choosing our Autonics product.

**Read and understand the instruction manual and manual thoroughly before using the product.**

**For your safety, read and follow the below safety considerations before using.**

**For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.**

Keep this instruction manual in a place where you can find easily.

The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

Follow Autonics website for the latest information.

### Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

**Warning** Failure to follow instructions may result in serious injury or death.

**01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)**

**02. Do not use the unit in the place where flammable / explosive / corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**

Failure to follow this instruction may result in explosion or fire.

**03. Install on a device panel to use.**

Failure to follow this instruction may result in fire or electric shock.

**04. Do not connect, repair, or inspect the unit while connected to a power source.**

Failure to follow this instruction may result in fire or electric shock.

**05. Check 'Connections' before wiring.**

Failure to follow this instruction may result in fire.

**06. Do not disassemble or modify the unit.**

Failure to follow this instruction may result in fire or electric shock.

**Caution** Failure to follow instructions may result in injury or product damage.

**01. When connecting the power / sensor input, relay output and communication, use AWG 20 (0.50 mm<sup>2</sup>) cable or over, and tighten the terminal screw with a tightening torque of 0.74 to 0.90 N·m.**

Failure to follow this instruction may result in fire or malfunction due to contact failure.

**02. Use the unit within the rated specifications.**

Failure to follow this instruction may result in fire or product damage.

**03. Use a dry cloth to clean the unit, and do not use water or organic solvent.**

Failure to follow this instruction may result in fire or electric shock.

**04. Keep the product away from metal chip, dust, and wire residue which flow into the unit.**

Failure to follow this instruction may result in fire or product damage.

### Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- Use the product, 0.1 sec after supplying power.
- When supplying or turning off the power, use a switch or etc. to avoid chattering.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- When the counter is operating, in case of contact input, set count speed to low speed mode (1 cps or 30 cps) to operate. If set to high speed mode (1 k, 5 k, 10 kcps), counting error occurs due to chattering.
- Use twisted pair wire for communication line.
- Keep away from high voltage lines or power lines to prevent inductive noise. In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line.
- Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

### Ordering Information

This is only for reference, the actual product does not support all combinations. For selecting the specified model, follow the Autonics website.

CT ① ② - ③ ④ ⑤

#### ① Display digits

4: 4-digit

6: 6-digit

#### ② Size

S: DIN W 48 × H 48 mm

Y: DIN W 72 × H 36 mm

M: DIN W 72 × H 72 mm

#### ③ Output

1P: 1-stage preset

2P: 2-stage preset

I: indicator

#### ④ Power supply

2: 24 VAC ~ ± 10% 50 / 60 Hz,

24 - 48 VDC = ± 10%

4: 100 - 240 VAC ~ ± 10% 50 / 60 Hz

#### ⑤ Communication

No mark: none

T: RS485 communication output

### Manual

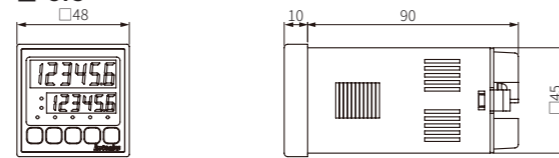
For proper use of the product, refer to the manuals and be sure to follow the safety considerations in the manuals.

Download the manuals from the Autonics website.

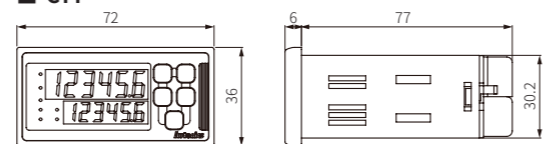
### Dimensions

Unit: mm, For the detailed drawings, follow the Autonics website.

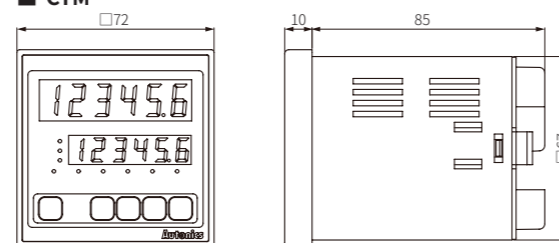
#### ■ CTS



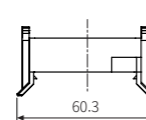
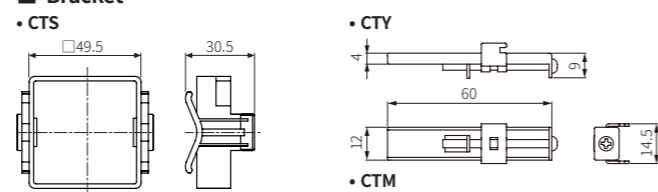
#### ■ CTY



#### ■ CTM



#### ■ Bracket

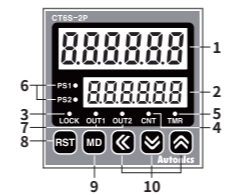


#### ■ Panel cut-out

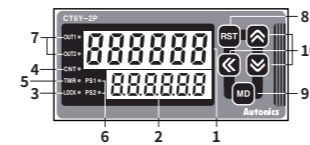
	A	B	C	D
CTS	≥ 65	≥ 65	45 <sup>±0.5</sup>	45 <sup>±0.5</sup>
CTY	≥ 91	≥ 40	68 <sup>±0.7</sup>	31.5 <sup>±0.5</sup>
CTM	≥ 91	≥ 91	68 <sup>±0.7</sup>	68 <sup>±0.7</sup>

### Unit Descriptions

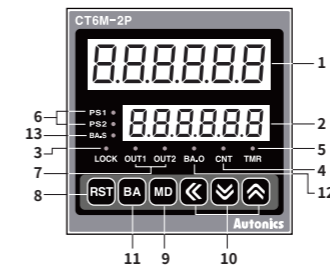
#### • CTS



#### • CTY



#### • CTM



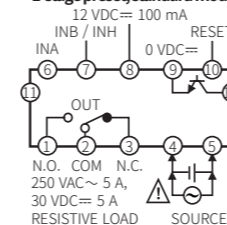
No.	Part name	Name plate	Function
1	Counting value display part (red)	-	RUN mode: Displays counting value, time progress value Parameter 1, 2 group: Displays setting item
2	Setting value display part (green)	-	RUN mode: Displays setting value Parameter 1, 2 group: Displays setting content
3	Key LOCK indicator	LOCK	Turns ON for key LOCK setting
4	Counter indicator	CNT	Turns ON for counter operation
5	Timer indicator	TMR	In timer operation - Flashes: time progress / turns ON: stopping time
6	Preset value checking, changing indicator	PS1, PS2	Turns ON when checking and changing preset value
7	Output indicator	OUT1, OUT2	Turns ON for the dedicated control output ON
8	RESET key	[RST]	Counting value RESET, BATCH counting value RESET
9	MODE key	[MD]	RUN mode ↔ Parameter 1, 2 group Move to the next when the parameter setting
10	Setting key	[◀], [▶], [▲], [▼]	Enter preset value change mode and move digits Preset value of preset value change mode and setting content of parameter 1, 2 group Enter function setting check mod and move check items
11	BATCH key	[BA]	Enter BATCH counter indication mode
12	BATCH output indicator (red)	BA.O	Turns ON when BATCH output ON
13	BATCH setting value checking, changing indicator (green)	BAS	Turns ON when checking and changing BATCH setting value

### Connections

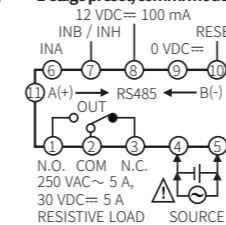
- Counter operation: If INHIBIT signal is applied, count input will be prohibited.
- Timer operation: If INHIBIT signal is applied, time progressing will stop. (HOLD)
- SOURCE: 100 - 240 VAC ~ 50 / 60 Hz 12 VA  
24 VAC ~ 50 / 60 Hz 10 VA, 24 - 48 VDC = 8 W

#### ■ CTS

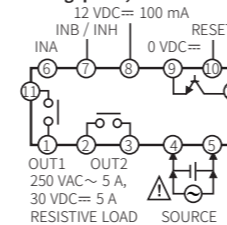
##### • 1-stage preset, standard model (CT□S-1P□)



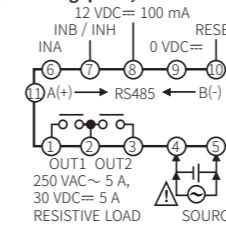
##### • 1-stage preset, comm. model (CT□S-1P□T)



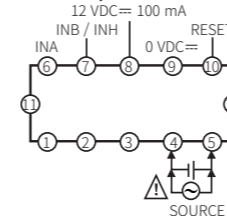
##### • 2-stage preset, standard model (CT□S-2P□)



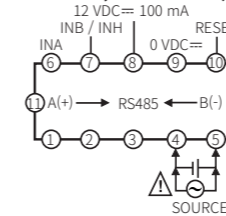
##### • 2-stage preset, comm. model (CT□S-2P□T)



##### • Indicator, standard model (CT6S-□)

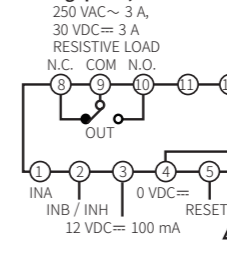


##### • Indicator, comm. model (CT6S-□T)

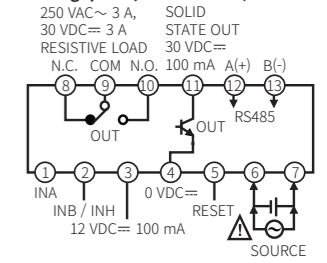


#### ■ CTY

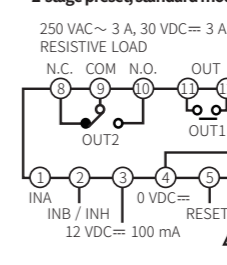
##### • 1-stage preset, standard model (CT6Y-1P□)



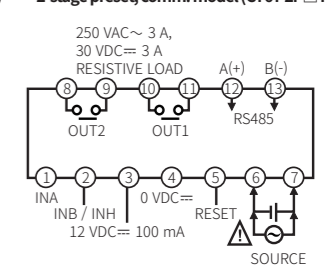
##### • 1-stage preset, comm. model (CT6Y-1P□T)



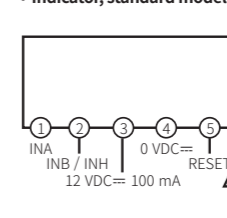
##### • 2-stage preset, standard model (CT6Y-2P□)



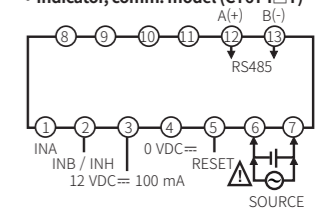
##### • 2-stage preset, comm. model (CT6Y-2P□T)



##### • Indicator, standard model (CT6Y-□)

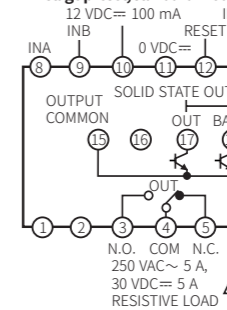


##### • Indicator, comm. model (CT6Y-□T)

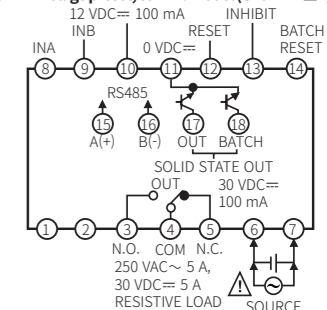


#### ■ CTM

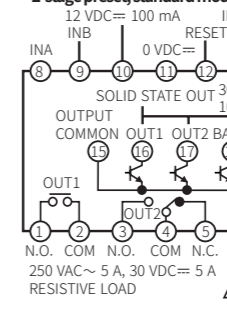
##### • 1-stage preset, standard model (CT6M-1P□)



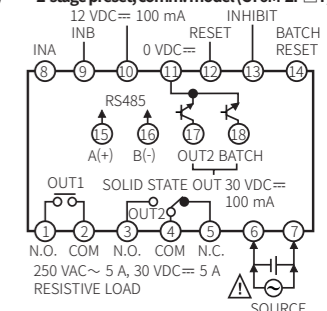
##### • 1-stage preset, comm. model (CT6M-1P□T)



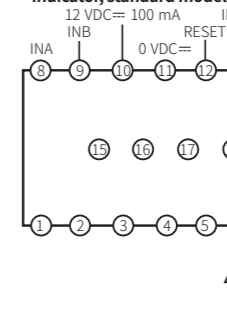
##### • 2-stage preset, standard model (CT6M-2P□)



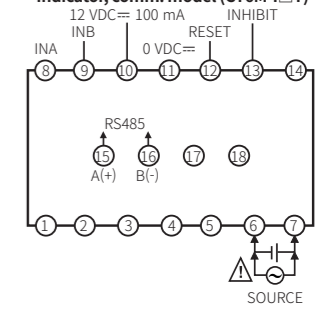
##### • 2-stage preset, comm. model (CT6M-2P□T)



##### • Indicator, standard model (CT6M-□)



##### • Indicator, comm. model (CT6M-□T)



Specifications				
Model	CTS □-□□□	CTY □-□□□	CTM □-□□□	
Display digits	4-digit	6-digit	6-digit	6-digit
Display method	7-segment (counting value: red, setting value: green) LED			
Character size	W × H (unit: mm)			
Counting value	6.5 × 10	4.5 × 10	4.2 × 9.5	6.6 × 13
Setting value	4.5 × 8	3.5 × 7	3.5 × 7	5 × 9
Counter	Count up, count down, count up / down			
Counting range <sup>01)</sup>	-999 to 9999	-99999 to 999999		
Timer	Count up, count down			
Error	Repeat / SET / voltage / Temp. - Power ON Start: ≤ ± 0.01 % ± 0.05 sec Signal ON Start: ≤ ± 0.01 % ± 0.03 sec			
Input logic	Voltage input (PNP) - Input impedance: 5.4 kΩ, [H]: 5 - 30 VDC≐, [L]: 0 - 2 VDC≐ No-voltage input (NPN) - short-circuit impedance: ≤ 1 kΩ, short-circuit residual voltage: ≤ 2 VDC≐			
One-shot output time	0.01 to 99.99 s			
Product components	Product, instruction manual			
Bracket	Mounted	× 2	× 2	
Unit weight (packaged)	≈ 159 g (≈ 212 g)	≈ 140 g (≈ 228 g)	≈ 252 g (≈ 322 g)	
Approval	CE, RoHS, ENEC			

01) It varies depending on the setting of decimal points.

Model	CTS □-□□□	CTY □-□□□	CTM □-□□□	
Contact control output	Relay			
Type (1-stage)	SPDT (1c) × 1	SPDT (1c) × 1	SPDT (1c) × 1	
Type (2-stage)	SPST (1a) × 2	Standard: SPST (1a) × 1, SPDT (1c) × 1 Communication: SPST (1a) × 2	SPST (1a) × 1, SPDT (1c) × 1	
Capacity	250 VAC~ 5 A, 30 VDC≐ 5 A resistive load	250 VAC~ 3 A, 30 VDC≐ 3 A resistive load	250 VAC~ 5 A, 30 VDC≐ 5 A resistive load	
Solid-state control output	NPN open collector			
Type (1-stage)	Standard: × 1, Communication: -	Standard: × 1, Communication: × 1	Standard: × 2, Communication: × 2	
Type (2-stage)	Standard: × 1, Communication: -	Standard: × 1, Communication: -	Standard: × 3, Communication: × 2	
Capacity	≤ 30 VDC≐, 100 mA			

Voltage	AC voltage type	AC / DC voltage type
Power supply	100 - 240 VAC~ ± 10 % 50 / 60 Hz	24 VAC~ ± 10 % 50 / 60 Hz, 24 - 48 VDC≐ ± 10 %
Power consumption	≤ 12 VA	AC: ≤ 10 VA, DC: ≤ 8 W
External power supply	≤ 12 VDC≐ ± 10 % 100 mA	
Memory retention	≈ 10 years (non-volatile semiconductor memory type)	
Insulation resistance	≥ 100 MΩ (500 VDC≐ megger)	
Dielectric strength	2,000 VAC~ 50 / 60 Hz for 1 minute	
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator	± 500 V square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz (for 1 minute) in each X, Y, Z direction for 10 min	
Shock	300 m/s <sup>2</sup> (≈ 30 G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100 m/s <sup>2</sup> (≈ 10 G) in each X, Y, Z direction for 3 times	
Relay life cycle	Mechanical: ≥ 1,000,000 operations Electrical: ≥ 100,000 operations	
Ambient temperature	-10 to 55 °C, storage: -25 to 65 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	
Protection rating	IP65 (front part, IEC standard)	

## Communication Interface

### ■ RS485

Comm. protocol	Modbus RTU (16-bit CRC)
Application standard	Compliance with EIA RS485
Max. connection	31-unit (address: 1 to 127)
Comm. synchronous method	Asynchronous
Comm. method	2-wire half duplex
Comm. distance	≤ 800 m
Comm. speed	2,400 / 4,800 / 9,600 (default) / 19,200 / 38,400 bps
Comm. response time	5 to 99 ms (default: 20 ms)
Start bit	1-bit (fixed)
Data bit	8-bit (fixed)
Parity bit	None (default), Even, Odd
Stop bit	1-bit, 2-bit (default)
EEPROM life cycle	≈ 1,000,000 operations (Erase / Write)

## Software

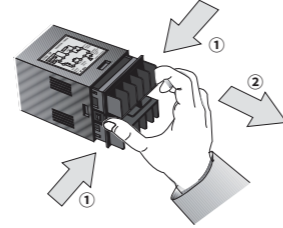
Download the installation file and the manuals from the Autonics website.

### ■ DAQMaster

It is the comprehensive device management program for Autonics' products, providing parameter setting, monitoring and data management.

## Detach the Case

### ■ CTS, CTY



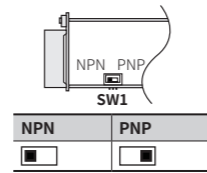
- Press to direction ① and pull toward direction ② for detaching the case and contents.

⚠ **Caution: Turn OFF the power before detaching the case.**

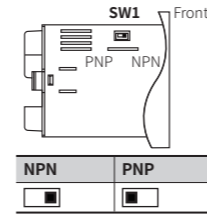
## Select Input Logic

- For CTS, CTY, detach the case and proceed the settings. See the 'Detach the Case'.
- The position of internal switch varies depending on the each model.
- How to change the settings:  
power OFF → change settings → power ON → press [RESET] key or input the RESET signal (≥ 20 ms) to the external terminal.

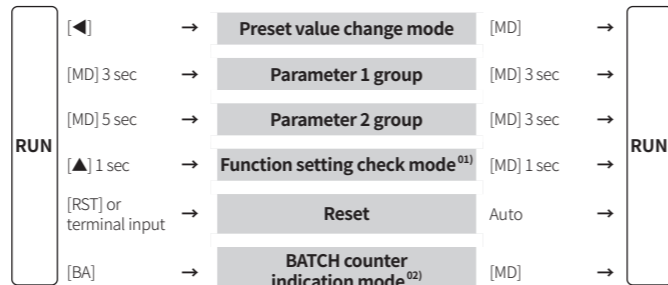
### ■ CTS, CTY



### ■ CTM



## Mode Setting



- 01) Use [▲], [▼] key to check the parameter setting.  
In 2-stage preset model, 1-stage preset value and 2-stage preset value are displayed each time when pressing [MD] key. In timer, it is available for the output operation mode: OND, OND.1, OND.2.
- 02) For CT6M-1P / 2P model only. Press [◀] key to set BATCH counter setting value.

## Preset Value Change Mode

- Even if the mode of preset value change, input operation and output control will continue. The preset value could be set to 0 and the output of 0 preset value occurs.
- The preset value could not be set to 0 depending on the output operation mode. (When setting to 0, the value of setting value display part flashes 3 times.)
  - If no key is touched for 60 sec, the product will return to RUN mode without being restored. E.g.: To set 1-stage preset value = 180, 2-stage preset value = 200
    - Press [◀] key to enter preset value change mode. PS1 indicator turns ON and 1 digit of preset value flashes.
    - Use [◀], [▲], [▼] key to set 1-stage preset value = 180.
    - Press [MD] key to enter 2-stage preset value change mode.
    - Use [◀], [▲], [▼] key to set 2-stage preset value = 200.
    - Press [MD] key to return RUN mode.

## Reset

In RUN mode, if pressing [RST] key or applying the signal to RESET terminal on the back side, present value will be reset. For RESET signal terminals based on the input method, refer to the 'Connections' and the following table. The output maintains OFF state.

Model	Input logic	
	No-voltage (NPN)	Voltage (PNP)
CTS	Short no. 9, 10 terminals	Short no. 8, 10 terminals
CTY	Short no. 4, 5 terminals	Short no. 3, 5 terminals
CTM	Short no. 11, 12 terminals	Short no. 10, 12 terminals

## Error Display and Output Operation

- When error occurs, the output turns OFF.
- When setting 1-stage preset value = 0, OUT1 output turns OFF. In case of 2-stage preset value < 1-stage preset value, OUT1 output is ignored and only OUT2 output operates.
- Indicator model does not have error display function.

Display	Description	Troubleshooting
Err r 0	Preset value = 0	Change the preset value anything but 0.

## Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- If changing the setting value of parameter 1 group via communication, reset display value, and output.
- [MD] key: Saves current setting value and moves to the next parameter.
- [◀] key: Checks fixed value / Changes setting digits.
- [▲], [▼] key: Changes setting values.

### ■ Parameter 1 group (counter)

Parameter	Mark	Defaults	Setting range	Display condition
C1-1 Counter / timer <sup>01)</sup>	℄ - ℄	℄ o U n	<b>COUN: counter</b> , TIME: timer	-
C1-2 Input operation mode <sup>01)</sup>	i n	U d - ℄	UD-C: phase different input, UP, UP-1, UP-2, DN, DN-1, DN-2, UD-A: command input, UD-B: individual input	-
C1-3 Output operation mode <sup>01)</sup>	o U ℄ . n̄	F	[Preset setting model] F, N, C, R, K, P, Q, A, S*, T*, D*	*C1-2 input operation mode: UD-A, UD-B, UD-C
C1-4 Indication mode <sup>01)</sup>	d 5 P . n̄	℄ o ℄ R ℄	[Indicator model] HOLD, TOTAL • HOLD : You can set the PRESET value.	C1-2 input operation mode: UP, UP-1, UP-2, DN, DN-1, DN-2
C1-5 Max. counting speed <sup>01)</sup>	℄ P 5	℄ 0	30, 1K, 5K, 10K, 1 cps • Max. counting speed is when duty ratio of INA or INB input signal is 1:1. It is applied for INA, or INB input as same.	C1-3 output operation mode <sup>02)</sup>
C1-6 OUT2 output time <sup>01)03)</sup>	o U ℄ 2	H o ℄ d	[2-stage preset setting model] 0.01 to 99.99 sec, Hold	C1-3 output operation mode: C, R, K, P, Q, A <sup>04)</sup>
C1-7 OUT1 output time <sup>01)03)</sup>	o U ℄ 1	0 0 . 1 0	[2-stage preset setting model] 0.01 to 99.99 sec, Hold • When 10 <sup>1</sup> digit is flashing, press [◀] key once and Hold appears.	C1-3 output operation mode: F, N, C, R, K, P, Q, A <sup>04)</sup>
C1-8 OUT output time <sup>01)03)</sup>	o U ℄ ℄	H o ℄ d	[1-stage preset setting model] 0.01 to 99.99 sec, Hold	C1-3 output operation mode: C, R, K, P, Q, A <sup>04)</sup>
C1-9 Counting value / preset value decimal point <sup>01)</sup>	d P	- - - - -	[6 digit model] -----, -----, -----, -----, -----, -----	-
C1-10 Min. RESET time	r 5 ℄	2 0	1, 20 ms	-
C1-11 Input logic	S i ℄	n P n	NPN, PNP • Set the same as settings of input logic selection switch.	-
C1-12 Prescale decimal point <sup>01)05)</sup>	S ℄ . d P	- . - - - - -	[6 digit model] -----, -----, -----, -----, -----, -----	-
C1-13 Prescale value <sup>01)</sup>	S ℄ ℄	1 0 0 0 0 0	[6 digit model] 0.00001 to 99999.9	-
C1-14 Start Point value <sup>01)06)</sup>	S ℄ r ℄	0 0 0 0 0 0	[6 digit model] 0.00000 to 999999	C1-2 input operation mode: UD-C, UP, UP-1, UP-2, UD-A, UD-B
C1-15 Memorize counting value	d R ℄ R	℄ ℄ r	CLR: Resets counting value when power is off. REC: Memorizes counting value at the moment of power off. (memory retention)	-
C1-16 Key lock	℄ o ℄ ℄	℄ o F F	L.OFF: Unlock key LOCK, key LOCK indicator OFF LOC.1: Locks [RST] key, key LOCK indicator ON LOC.2: Locks [◀], [▼], [▲] key, key LOCK indicator ON LOC.3: Locks [RST], [◀], [▼], [▲] key, key LOCK indicator ON	-

- 01) When the setting value of the parameter is changed, all outputs are OFF and reset the current value when returning to the RUN mode.
- 02) C1-3 Output operation mode: in case of D, 1, 30, 1k cps selectable.  
C1-5 Max. counting speed: 5k, 10k cps & C1-3 Output operation mode: When D is set, the max. counting speed is automatically changed to 30 cps.
- 03) In case of 1-stage preset model, C1-7 OUT1 output time is not displayed, C1-6 OUT2 output time is displayed as OUTT.
- 04) For other output operation modes, Hold is fixed.
- 05) It can not be set smaller than the digits of C1-9 Counting value / preset value decimal point.
- 06) The setting range is connected to the C1-9 Counting value / preset value decimal point.

### ■ Parameter 1 group (timer)

Parameter	Mark	Defaults	Setting range	Display condition
T1-1 Counter / timer <sup>01)</sup>	℄ - ℄	℄ o U n	COUN: counter, <b>TIME: timer</b>	-
T1-2 Time range <sup>01)</sup>	S E ℄	-	Refer to the table below. <sup>02)</sup> UP: 0 → setting time DN: setting time → 0	-
T1-3 UP / DOWN mode <sup>01)</sup>	U - d	U P	-	-
T1-4 Indication mode <sup>01)</sup>	d 5 P . n̄	℄ o ℄ R ℄	[Indicator model] TOTAL, HOLD, ONT.D: On time display • HOLD, ONT.D : You can set the PRESET value.	-
T1-5 Memorize counting value	d R ℄ R	℄ ℄ r	[Indicator model] CLR: Resets counting value when power is off. REC: Memorizes counting value at the moment of power off. (memory retention)	-
T1-6 Output operation mode <sup>01)</sup>	o U ℄ . n̄	o n d	OND, OND.1, OND.2, FLK, FLK.1, FLK.2, INT, INT.1, INT.2 <sup>03)</sup> , OFD, NFD, NFD.1, INTG	-
T1-7 OUT2 output time <sup>01)</sup>	o U ℄ 2	H o ℄ d	[2-stage preset setting model] 0.01 to 99.99 sec, Hold • When 10 <sup>1</sup> digit is flashing, press [◀] key once and Hold appears.	T1-6 output operation mode <sup>04)</sup>
T1-8 OUT1 output time <sup>01)</sup>	o U ℄ 1	0 0 . 1 0	[2-stage preset setting model] 0.01 to 99.99 sec, Hold • When 10 <sup>1</sup> digit is flashing, press [◀] key once and Hold appears.	T1-6 output operation mode <sup>04)</sup>
T1-9 OUT output time <sup>01)</sup>	o U ℄ ℄	H o ℄ d	[1-stage preset setting model] 0.01 to 99.99 sec, Hold • When 10 <sup>1</sup> digit is flashing, press [◀] key once and Hold appears.	T1-6 output operation mode <sup>04)</sup>
T1-10 Input logic	S i ℄	n P n	NPN, PNP • Set the same as settings of input logic selection switch.	-
T1-11 Input signal time	i n ℄	2 0	1, 20 ms • CTS / CTY : min. signal width of INA, INH, RESET signal • CTM : min. signal width of INA, RESET, INHIBIT, BATCH RESET signal	-
T1-12 Key lock	℄ o ℄ ℄	℄ o F F	L.OFF: Unlock key LOCK, key LOCK indicator OFF LOC.1: Locks [RST] key, key LOCK indicator ON LOC.2: Locks [◀], [▼], [▲] key, key LOCK indicator ON LOC.3: Locks [RST], [◀], [▼], [▲] key, key LOCK indicator ON	-

01) When the setting value of the parameter is changed, all outputs are OFF and reset the current value when returning to the RUN mode

02) [6-digit model] setting range

Counting value display part	SEC (defaults)	SEC	SEC	SEC	M S	M S
Setting display part	999.999	9999.99	99999.9	999999	9959.99	99959.9
Range	0.001s to 999.999s	0.01s to 9999.99s	0.1s to 99999.9s	1s to 999999s	0.01s to 99m59.99s	0.1s to 999m59.9s

Counting value display part	M S	MIN	MIN	H M S	H M	HOURL
Setting display part	999959	99999.9	999999	995959	999959	99999.9
Range	1s to 9999m59s	0.1m to 99999.9m	1m to 999999m	1m to 99h59m59s	1m to 9999h59m	0.1h to 99999.9h

[4-digit model] setting range

Counting value display part	SEC (defaults)	SEC	SEC	SEC	M S	MIN	MIN	H M	HOURL
Setting display part	9.999	99.99	999.9	9999	9959	999.9	9999	9959	9999
Range	0.001s to 9.999s	0.01s to 99.99s	0.1s to 999.9s	1s to 9999s	1s to 99m59s	0.1m to 999.9m	1m to 9999m	1m to 99h59m	1h to 9999h

03) Appears for 2-stage preset model only

04) In case of T1-6 Output operation mode: FLK.1, FLK.2, INTG, or T1-6 Output operation mode of 1-stage preset model: OND, OND.1, OND.2, T1-8 OUT1 output time is not displayed, T1-7 OUT2 output time is displayed as OUTT.

### ■ Parameter 2 group (communication)

- Only for RS485 communication model.

Parameter	Mark	Defaults	Setting range	Display condition
2-1 Comm. address	R d d r	0 0 1	1 to 127 • Do not set the same address during multi-comm.	-
2-2 Comm. speed	b P 5	9 6	24, 2,400, 48, 4,800, 96, 9,600, 192, 19,200, 384, 38,400 bps	-
2-3 Parity bit	P r ℄ y	n o n E	NONE, EVEN, ODD	-
2-4 Stop bit	S ℄ P	2	1, 2 bit	-
2-5 Response waiting time	r 5 ℄ ℄	2 0	16 to 99 ms 8 to 99 ms 5 to 99 ms	2-2 Comm. speed: 24 2-2 Comm. speed: 48 2-2 Comm. speed: 96, 192, 384
2-6 Comm. write	℄ o n̄ y	E n R	ENA: enable, DISA: disable	-

## Output Operation Mode

For the detailed timing chart for operation output mode, refer to the manual.