

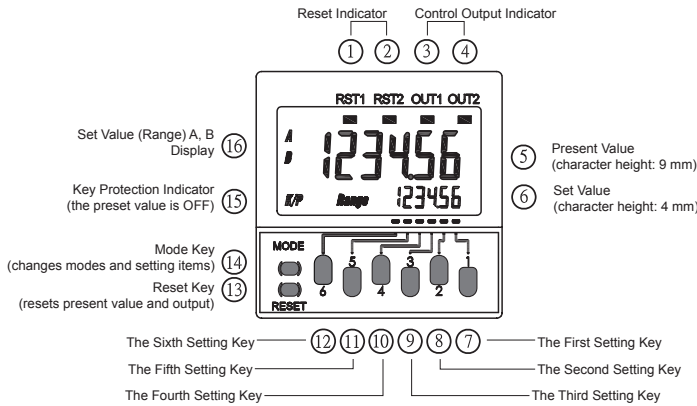
TC-Pro481

Counter/Tachometer operation manual

1、Safety Precautions

- Do not use the product where corrosive or volatile gases are present, there may occasionally be a risk of explosion.
- Usable life of output relay is determined by switch condition. According the actual usage, use product within its rated load and electrical life expectancy. If using product beyond its life expectancy, its contacts may become fused or there may be a risk of fire.
- This may occasionally cause electric shock, fire or malfunction. Never disassemble, repair or modify the product.
- This may occasionally cause electric shock, fire or malfunction. Do not allow metal fragments or lead wire scraps to fall inside this product.
- Make sure that the supply voltage and signal connection is correct before power is supplied, otherwise the product may be damaged.
- Do not touch the input terminals or repair the product while power is supplied.This may cause electric shock.

2、Nomenclature



☆ Reset Operation by Reset Key

Configuration	Reset operation
1-stage/2-stage counter	Resets the present value and outputs
Total counter	Resets the present value and outputs When the total count value is displayed, resets the present value, the total count value, and outputs.
Batch counter	Resets the present value and OUT1 When the batch count value is displayed, resets the present value, the batch count value, and outputs.
Dual counter	Resets the CP1 present value, CP2 present value, dual counter and outputs
Tachometer	Maintains the measured value and outputs

3、Model Number Legend

TC-Pro481 □□□-D
1 2 3 4

- | | | |
|--------------------------------|-----------------------|------------------------|
| 1. Communication | 2. Output type | 3. Power source |
| S: Standard (no communication) | R: Contact | A : 100V~240VAC |
| C: Communication | T: Transistor | D : 24V DC, 24VAC |

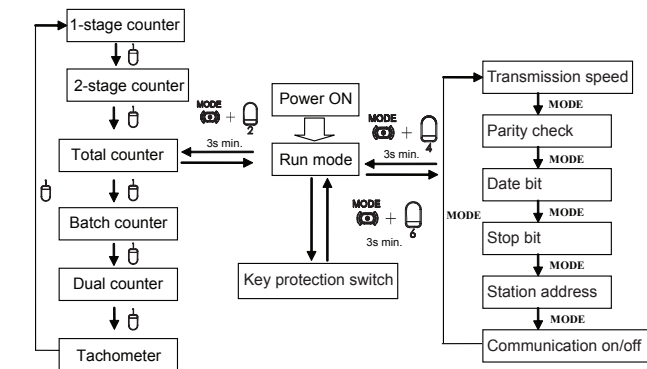
4. Installs the pattern

D: Track Mounting
None: Inserting Mounting

4、Electric Specifications

Rated supply voltage	100~240VAC(50/60HZ), 24VAC(50/60HZ), 24VDC(permissible ripple: 20%(p-p)max.)
Operating voltage range	85% to 110% rated supply voltage(24VDC; 90% to 110%)
Power consumption	Approx. 6.2VA at 264VAC, Approx. 5.1VA at 26.4VAC, Approx. 2.4W at 24VDC
Input signals	CP1, CP2, Reset 1, Reset 2
Input method	※ No-voltage input/voltage input (switchable) ◆ No-voltage input: ON impedance: 1kΩ max.(leakage current: 5~20 mA when 0Ω) ON residual voltage: 3V max. OFF impedance: 100kΩ min. ◆ Voltage Input High(logic) level: 4.5 to 30 VDC Low(logic) level: 0 to 2 VDC (Input resistance: approx. 4.7 kΩ)
Reset input	Minimum input signal width: 1/20 ms(selectable, same for all input)
Sensor waiting time	250 ms max.(control output is turned OFF and no input is accepted during sensor waiting time)
Output method	Relay/transistor output
Control output	SPDT contact output: 5A at 250 VAC, resistive load(cosΦ=1) Minimum applied load: 10mA at 5VDC(failure level: P, reference value) Transistor output: NPN open collector, max.100mA at 30 VDC Residual voltage: 1.5 VDC max.(approx. 1V) Output category according to EN60947-5-1 for timers with Contact outputs (AC-15; 250V 3A / AC-13; 250V 5A / DC-13; 30V 0.5A) Output category according to EN60947-5-2 for timers with Transistor outputs (DC-13; 30V 100 mA) NEMA B300 Pilot Duty, 1/4 HP 5-A resistive load at 120 VAC, 1/3 HP 5-A resistive load at 240 VAC
External power supply	12VDC(15%), 80mA
Memory backup	EEPROM(overwrites: 100,000 times min.)that can store data for 10 years min.
Ambient temperature	Operating: -10 to 55°C(with no icing or condensation) Storage: -25 to 65°C(with no icing or condensation)
Ambient humidity	25% to 85%RH

5、Function parameter setting



☆ 1-stage/2-stage /Total /Batch /Dual counter /Tachometer Selection Mode

Parameter name	Parameter	Setting range	Default value
1-stage/ 2-stage / Total /Batch / Dual counter / Tachometer Selection Mode	Function	1cnt/2cnt/3cnt/4cnt/5cnt/6cnt/7cnt/8cnt	1cnt

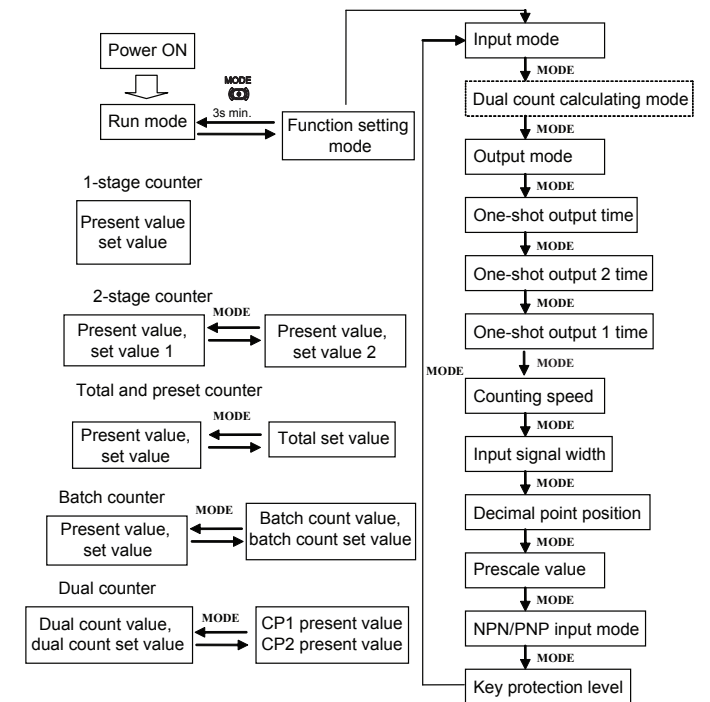
☆ Communication Format Function Selection Mode

Parameter name	Parameter	Setting range (use key to select)	Default value
Transmission speed	baud	1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600bps	9600
Parity check	Parity	NONE/ODD/EVEN	none
Date bit	data bit	8-bit/7-bit	8-bit
Stop bit	stop bit	1-bit/2-bit	1-bit
Station address	Address	01~FF(HEX)	01
Communication on/off	Comm on/off	ON/OFF	on

☆ Key Protection Setting Mode

Parameter name	Parameter	Setting range (use key to select)	Default value
Key protection switch	Key Protection	off/on	off

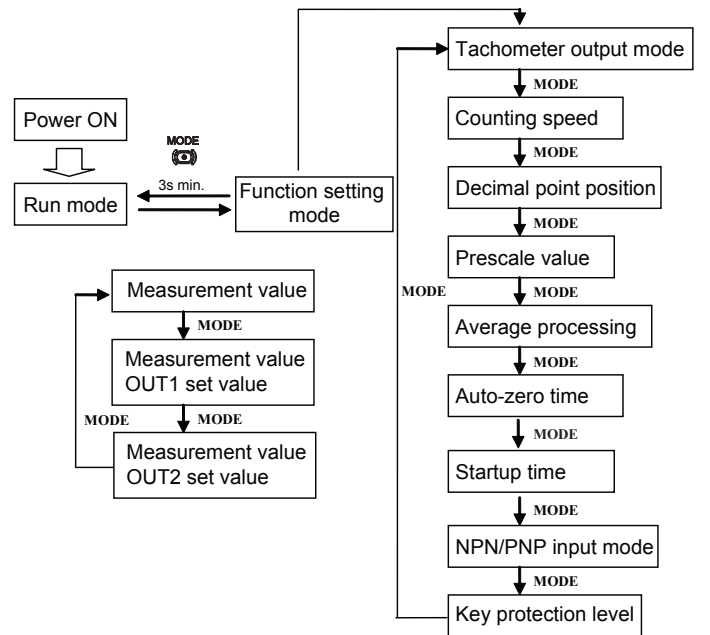
Counter parameter setting




Parameter name	Parameter	Setting range (use key to select)	Default value
Input mode	Input mode	up/down/ud-a/ud-b/ud-c (See note 1.)	up
Dual count calculating mode	Dual count calculating mode	add/sub (See note 1.)	add
Output mode	Output mode	n/f/c/r/k-1/p/q/a/k-2/d/l/h (See note 2.)	n
One-shot output time	One-shot output time	000.001~999.999	000.500
One-shot output 2 time	One-shot output 2 time	000.001~999.999	000.500
One-shot output 1 time	One-shot output 1 time	hold/000.001~999.99 (See note 3.)	hold
Counting speed	Counting speed	30Hz/5KHz	30hz
Input signal width	Input signal width	20ms/1ms	20ms
Decimal point position	Decimal point position	---/---.-/--.-/-.-	----
Prescale value	Prescale value	000.001~999.999	001.000
NPN/PNP Input mode	Input mode	NPN/PNP	NPN
Key protection level	Key protection level	kp-1/kp-2/kp-3/kp-4/kp-5	kp-1

Note: 1.The setting range varies with the output mode.
2.The setting range varies with the model and the input mode.
3.HOLD can not be set when the output mode is K-2.

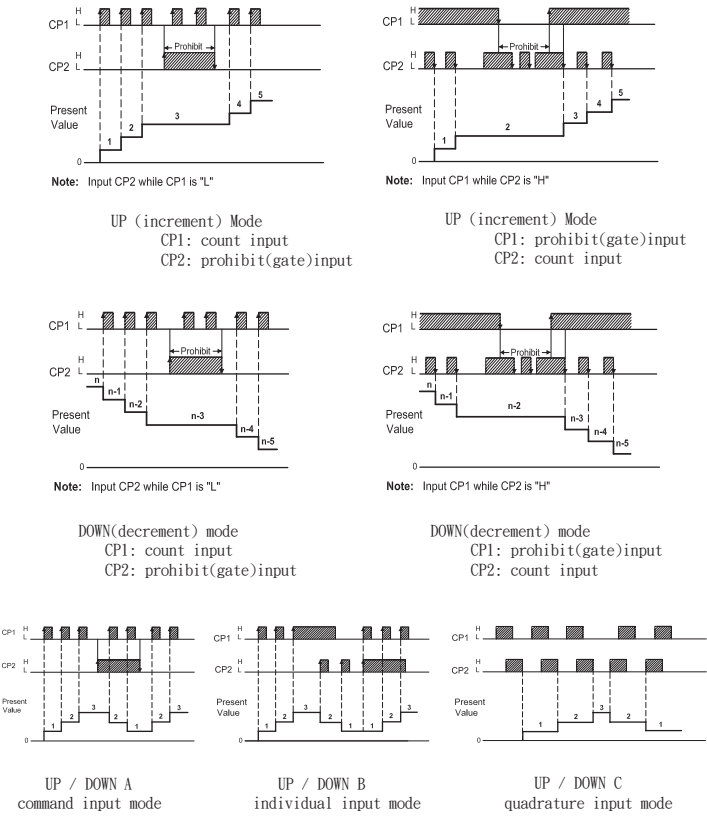
Tachometer parameter setting



Parameter name	Parameter	Setting range (use  key to select)	Default value
Tachometer output mode	hilo	hilo/area/hihi/lolo	hilo
Counting speed	30k5	30Hz/10KHz	30Hz
Decimal point position	dP	---/-/--/-/-/---	---
Prescale value	PSEL	000.001-999.999	001.000
Average processing	AUG	off/2/4/8	off
Auto-zero time	AUTZ	00.01-99.99	99.99
Startup time	SETR	00.01-99.99	00.00
NPN/PNP Input time	LNOD	NPN/PNP	NPN
Key protect level	PPPL	kp-1/kp-2/kp-3/kp-4/kp-5	kp-1

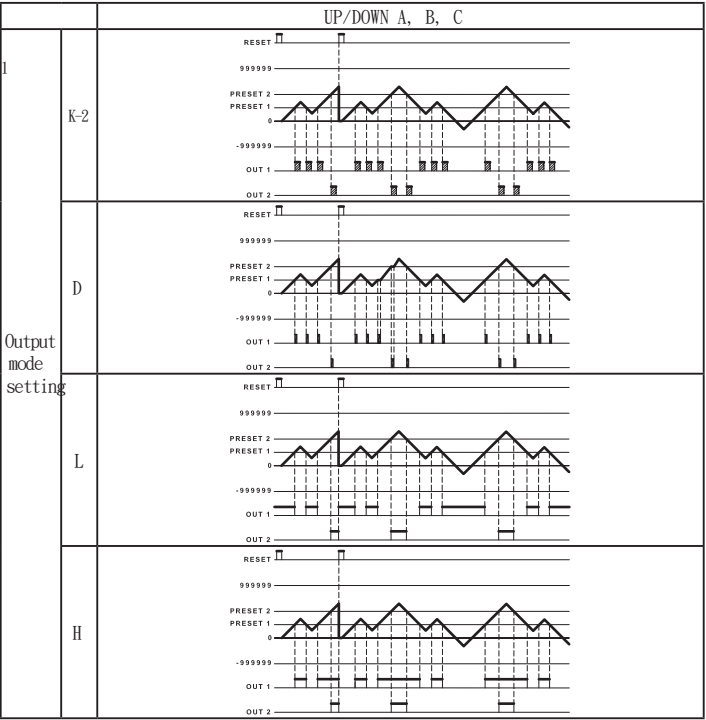
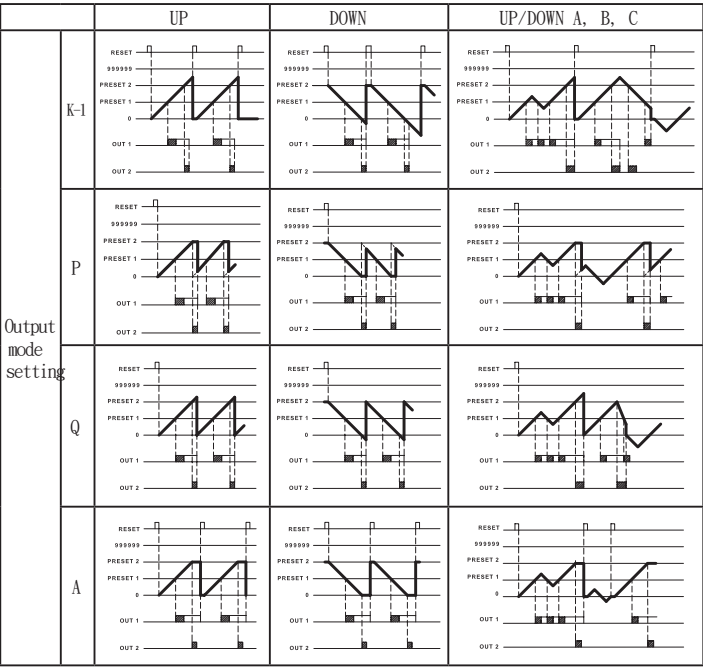
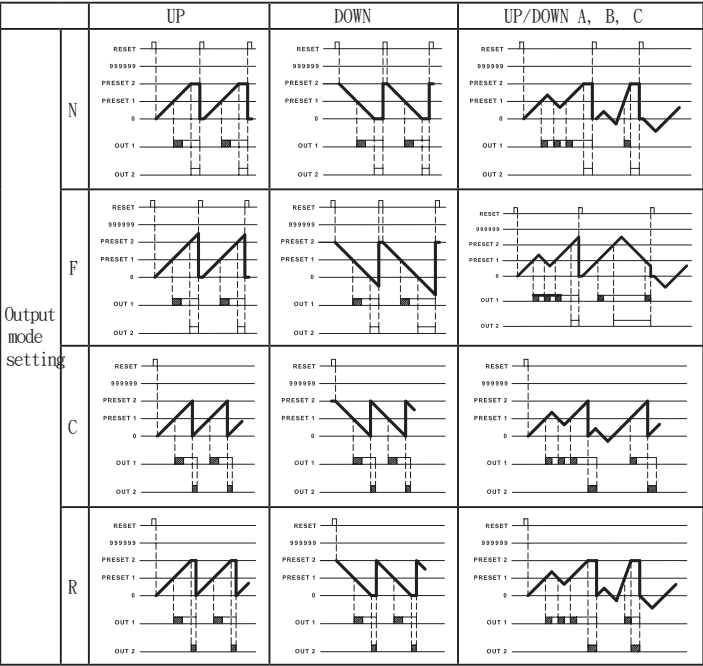
6、Sequence Charts

★ Counter Input Modes and Present Value

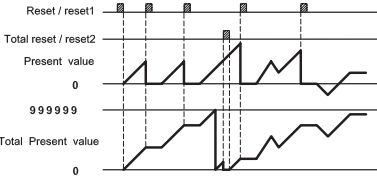


★ Counter Output Mode Setting

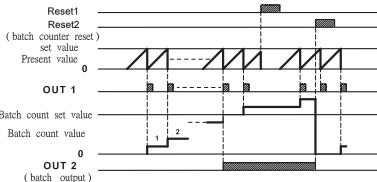
Operation for 1-stage models is the same as that for OUT2.
When using a 2-stage model as a 1-stage counter, or dual counter, total and preset counter, OUT1 and OUT2 turn ON and OFF



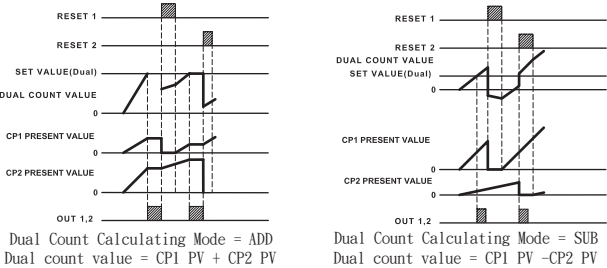
★ Total and Preset Counter Operation



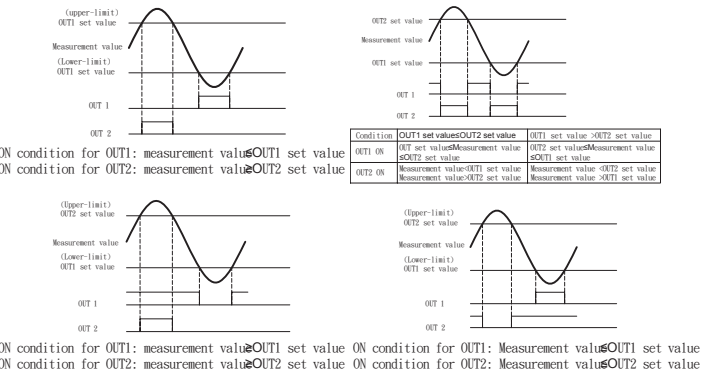
★ Batch Counter Operation



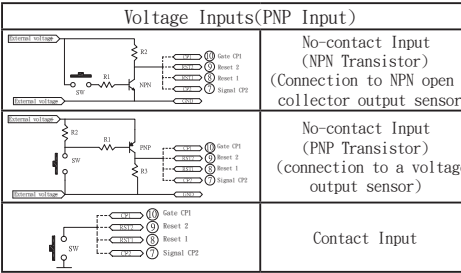
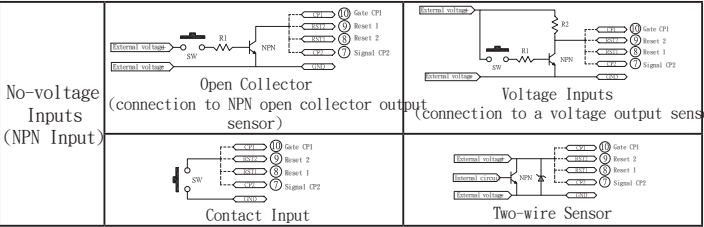
★ Dual Counter Operation



★ Tachometer Output Mode Settings



7、Input Connections



8、Dimensions and Panel Cutouts

