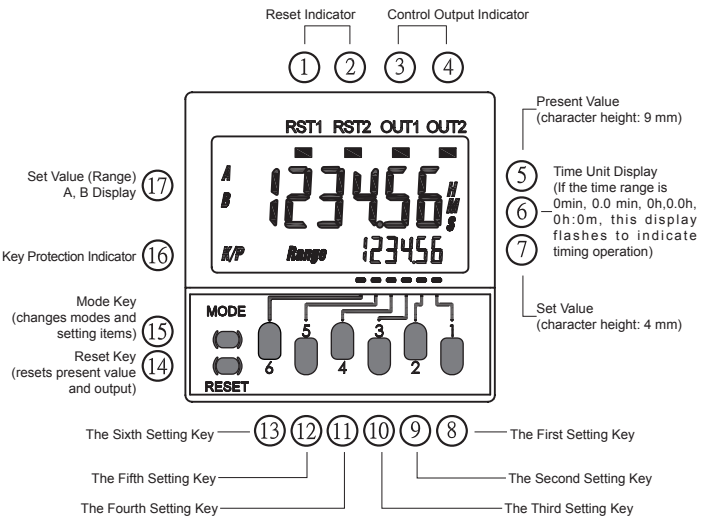


TC-Pro480 Timer Operation Manual

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



3、Model Number Legend

TC-Pro480 1 2 3 - D

1. Communication
S: Standard (no communication)
C: Communication

2. Output
R: Contact
T: Transistor

3. Power source
A: 100V~240V AC
D: 24V DC, 24VAC

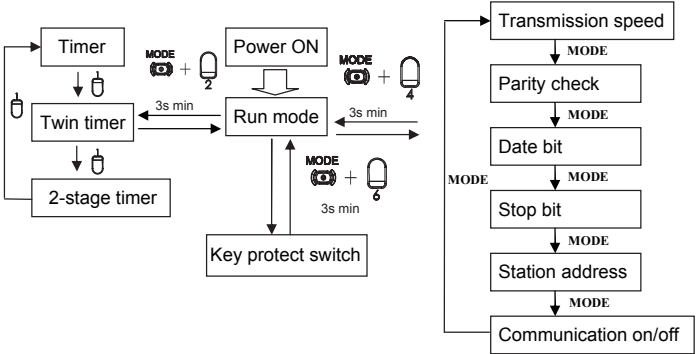
4. Installs the pattern
D: Track Mounting
None: Inserting Mounting

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	Signal, reset, gate
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)
Signal, Reset, Gate	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: 10 mA at 5 VDC(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℃ (with no icing or condensation) Storage: -25 to 65℃ (with no icing or condensation)
Ambient humidity	25% to 85%

5、Function parameter setting



☆Timer / Twin Timer / 2-stage Timer Selection Mode

Parameter name	Parameter	Setting range	Default value
Timer/Twin Timer/ 2-Stage Timer Selection	Func	tim / twi / pst	tim

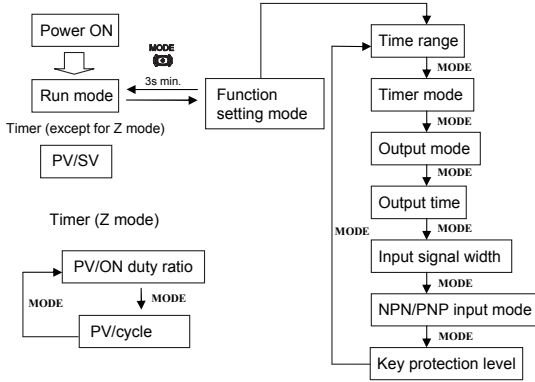
☆Communication Format Function Selection Mode

Parameter name	Parameter	Setting range (use $\bar{\square}$ key to select)	Default value
Transmission speed	bAud	1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600bps	9600
Parity check	PAR	NONE/ODD/EVEN	none
Date bit	DATE	8-bit/7-bit	8-bit
Stop bit	STOP	1-bit/2-bit	1-bit
Station address	Addr	01~FF(HEX)	01
Communication on/off	COFH	ON/OFF	on

☆Key Protection Setting Mode

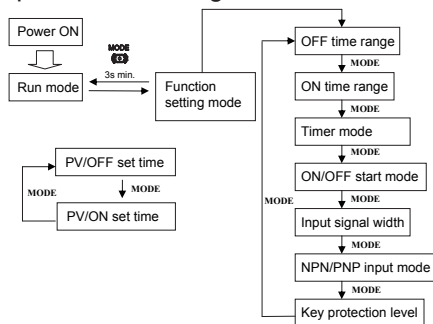
Parameter name	Parameter	Setting range (use $\bar{\square}$ key to select)	Default value
Key protection switch	PP	off/on	off


Timer parameter Setting



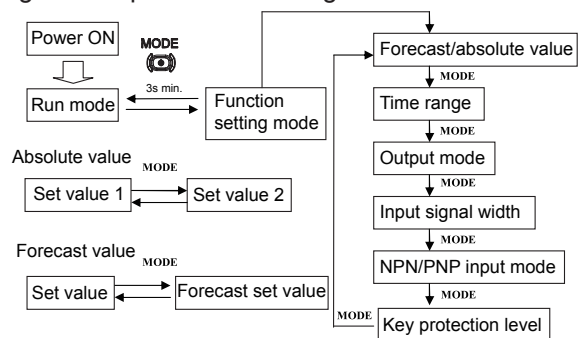
Parameter name	Parameter	Setting range (use $\bar{\square}$ key to select)	Default value
Time range	timr	--s/--s/--s/--s/--min:--s/--min/---min/--h:--min/---h/--h/--s	--s
Timer mode	timn	up/down	up
Output mode	outn	a/a-1/a-2/a-3/b/b-1/d/e/f/z	a
Output time	otim	hold/0000.01~9999.99	hold
Input signal width	iflt	20ms/1ms	20ms
Input signal width	inod	npn/pnp	npn
Key protection level	pprl	kp-1/kp-2/kp-3/kp-4/kp-5	kp-1


Twin Timer parameter setting



Parameter name	Parameter	Setting range (use  key to select)	Default value
OFF time range	oft _r	--s/--s/--s/--min:--s/--min/ ---min/--h:--min/--h---h/--s	--.s
ON time range	ont _r	--s/--s/--s/--min:--s/--min/ ---min/--h-min/--h---h/--s	--.s
Timer mode	t _l on	up/down	up
ON/OFF start mode	t _o t _o n	toff/ton	toff
Input signal width	f _l l _e	20ms/1ms	20ms
NPN/PNP input mode	i _n od	nnp/npn	nnp
Key protection level	p _y p _l	kp-1/kp-2/kp-3/kp-4/kp-5	kp-1

2-Stage Timer parameter setting



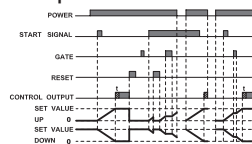
Parameter name	Parameter	Setting range (use  key to select)	Default value
Forecast / absolute value	set ₁	ofst/abs	ofst
Time range	t _l on	--s/--s/--s/--min-s/--min/ ---min/--h-min/--h---h/--s	--.s
Output mode	out _o n	a/f-1	a
Input signal width	f _l l _e	20ms/1ms	20ms
NPN/PNP input mode	i _n od	nnp/npn	nnp
Key protection level	p _y p _l	kp-1/kp-2/kp-3/kp-4/kp-5	kp-1

Time parameter setting

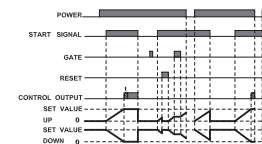
Setting range	Unit	Default value
0000.00~9999.99 (Time range: --s)	s	0000.00
00000.0 ~ 99999.9 (Time range: --s)	s	00000.0
000000 ~ 999999 (Time range: --s)	s	000000
0000:00 ~ 9999:59 (Time range: -min-s)	min:s	0000:00
00000.0 ~ 99999.9 (Time range: --min)	min	00000.0
000000 ~ 999999 (Time range: --min)	min	000000
0000:00 ~ 9999:59 (Time range: -h-min)	h:min	0000:00
00000.0 ~ 99999.9 (Time range: --h)	h	00000.0
000000 ~ 999999 (Time range: --h)	h	000000
000.000 ~ 999.999 (Time range: --s)	s	000.000

6、Sequence Charts

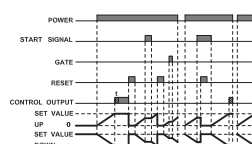
Timer Operation



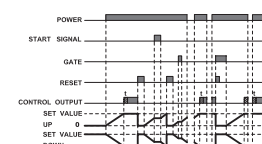
Output mode A: signal ON delay 1



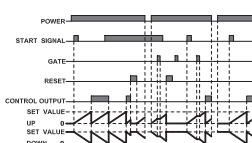
Output mode A-1: signal ON delay 2



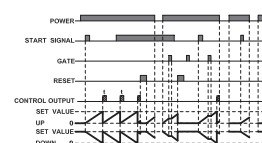
Output mode A-2: Power ON delay 1



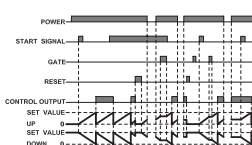
Output mode A-3: Power ON delay 2



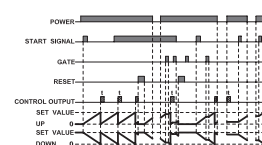
Output mode b: Repeat cycle 1



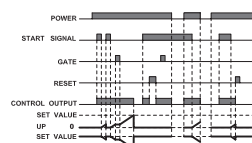
Output mode b-1: Repeat cycle 2



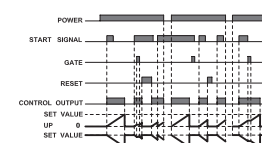
Output mode d: Signal OFF delay



Output mode E: Interval

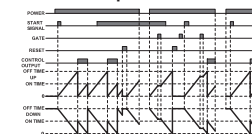


Output mode F: Cumulative

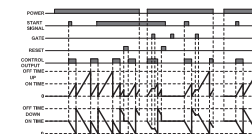


Z mode : ON/OFF -duty adjustable flicker

Twin Timer Operation

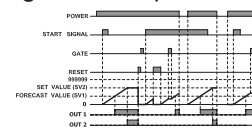


Output Mode toff: flicker OFF start

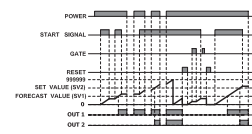


Output Mode ton: flicker ON start

2-Stage Timer Operation

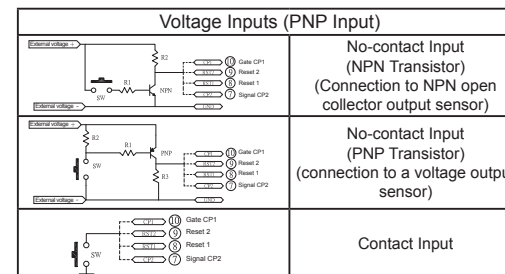
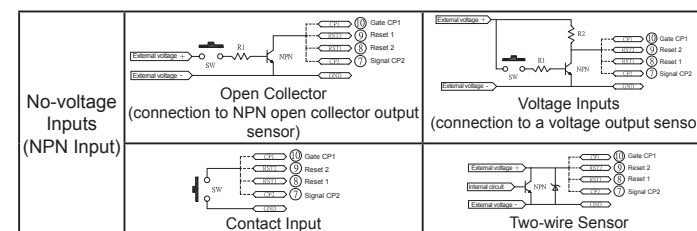


A Mode: Signal ON delay



F-1 Mode: Cumulative

7、Input Connections



8、Dimensions and Panel Cutouts

