

# TC-48 Series



**FEATURES:**

- Highly visible backlit LCD display
- Visual alerts when output status changes
- 2 output relays
- PNP/NPN selectable DC-voltage inputs
- Up/down, add/subtract and quadrature inputs
- 12VDC supply for powering sensor and encoders
- Keypad lock out functions
- Communications for connecting to PC/HMI
- Free Software to connect to a PC
- Low cost

**DESCRIPTION:**

This series is a 6-digit multifunction programmable preset Timer/Counter/Tachometer with a communication interface. This series can be connected to a PC for programming and logging of data. It has RS-232, RS-485, RS-422 Serial Communications and supports Modbus protocol.

The Timer has 10 output modes and 10 timing ranges in 3 configurations.

The Counter has 12 output and 5 input modes in 6 configurations and scaling for displaying of specific units or lengths.

The Tachometer displays rate per second (Hz) in 4 output modes.

**SPECIFICATIONS:**

General Specifications		
Model	TC-Pro482CRA or TC-Pro482CRA-D (din rail mount)	TC-Pro482CRD or TC-Pro482CRD-D (din rail mount)
Function	Digital timer/counter/tachometer	
Supply voltage	100-240VAC (50/60Hz) ±10%,	24VDC ±10% (permissible ripple:20% (p-p) max.)
Power consumption	Approx. 6.2VA at 264VAC, Approx. 5.1VA at 26.4VAC, Approx. 2.4W at 24VDC	
Mounting method	Panel mounting (45 x 45mm cutout) / "D" din rail or surface mount	
External connections	Screw terminals, tightening torque 0.5 N•m Max.	
Display	6 Digit 7-segment, LCD display, Present value: 9-mm-high characters, white, Set value: 4-mm-high characters, white	
Input method	NPN No-voltage (contact closure) input ON impedance: 1kΩ max. (leakage current: 5-20 mA at 0Ω) ON residual voltage: 3V max. OFF impedance: 100kΩ min. PNP Voltage Input High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (Input resistance: approx. 4.7 kΩ)	
Output method	Relay, (optional transistor output)	
Output	2 SPST NO (SPDT DIN rail mount version) contact output: 5A at 250 VAC, resistive load (cosΦ=1). Minimum applied load: 10 mA at 5 VDC (failure level: P, reference value). Optional transistor output: NPN open collector, max. 100mA at 30 VDC Residual voltage: 1.5 VDC max. (approx. 1V)	
Output time	0000.01-9999.99s	
Output supply	12VDC (+15%), 80mA	
Keypad lockout	Yes, 5 key protection modes	
Sensor waiting time	250 ms max. (control output is turned OFF and no input is accepted during sensor waiting time)	
Memory backup	EEPROM (overwrites: 100,000 times min.) that can store data for 10 years min.	
Ambient temperature	Operating: -10 to 55°C, Storage: -25 to 65°C, (with no icing or condensation), 25% to 85% humidity	
Case	Black plastic	
Attachments	Waterproof gasket, flush mounting adapter ( panel mount version only)	
Life expectancy	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min. (5 A at 250 VAC, resistance load)	
Weight Approx.	168g	

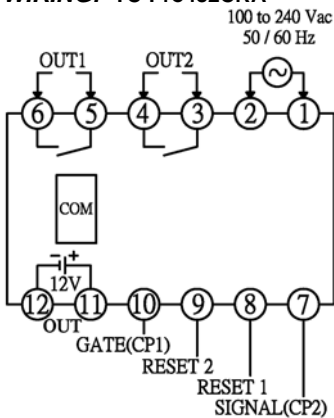
Timer Specifications	
Functions	Timer, Twin Timer or 2-Stage Timer
Time range	99.999s (0.001-s unit), 9999.99s (0.01-s unit), 99999.9s (0.1-s unit)999999s (1-s unit), 9999min59s (1-s unit), 99999.9min (0.1-min unit),999999min (1-min unit), 9999h59min (1-min unit), 99999.9h (0.1-h unit), 999999h (1-h unit)
Timer mode	Elapsed time (UP), Remaining time (down) (selectable)
Input signals	Signal, reset, gate
Signal, Reset, Gate	Minimum input signal width: 1 or 20 ms (selectable, same setting for all inputs)
Power reset	Minimum power-opening time: 0.5 s (exceptA-3, b-1 and F mode)
Reset system	Power reset (exceptA-3, b-1and F mode), external and manual reset
Output modes	A, A-1, A-2, A-3, b, b-1, d, E, F, Z, ton or toff

**Preset Timer/Counter/Tachometer**

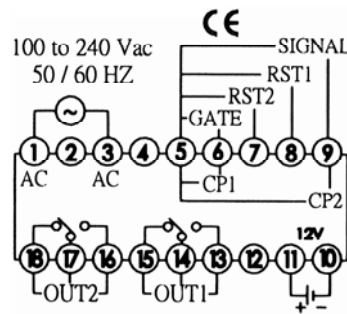
Counter Specifications	
Function	1-stage counter, 2-stage counter, total counter, batch counter, dual counter, and tachometer (selectable)
Digits	6 digits, PV/SV (-99,999~999,999)
Input signal	CP1, CP2, reset1, and reset 2
Max. counting speed	30 Hz or 5kHz (selectable, ON/OFF ratio 1:1), common setting for CP1 and CP2
Input mode	Increment, decrement, command, individual, and quadrature
Reset input	Minimum input signal width: 1/20 ms (selectable, same setting for all inputs)
Reset system	External, manual, and automatic reset (internal according to C,R,P and Q mode operation)
Output modes	N,F,C,R,K-1,P,Q,A,K-2,D,L,H
Prescaling function	Yes (000.001~999.999) multiplier
Decimal point	Yes (rightmost 3 digits)

Tachometer Specifications	
Function	Tachometer (Hz)
Digits	6 digits
Input signal	CP1, reset1, and reset 2
Max. counting speed	30 Hz or 5kHz (selectable, ON/OFF ratio 1:1), common setting for CP1 and CP2
Reset input	Minimum input signal width: 1/20 ms (selectable, same setting for all inputs)
Reset system	External, manual (Holds the displayed value and outputs)
Output modes	High-Low, Area, High-high, Low-Low
Average processing	none, average of 2,4 or 8 measurements
Auto zero	Programmable 00.01 - 99.99s
Startup time	Programmable 00.00 - 99.99s
Decimal point	Yes (rightmost 3 digits)

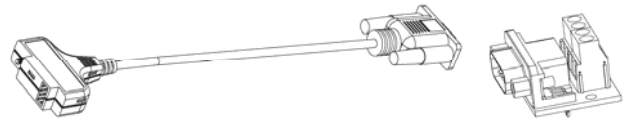
**WIRING: TC-Pro482CRA**



**TC-Pro482CRA-D (DIN Rail)**



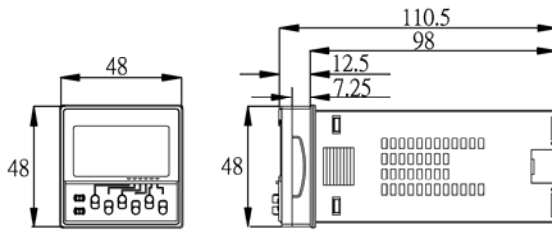
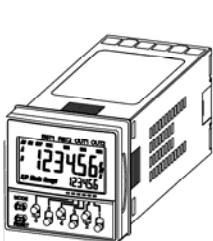
**ACCESSORIES:**



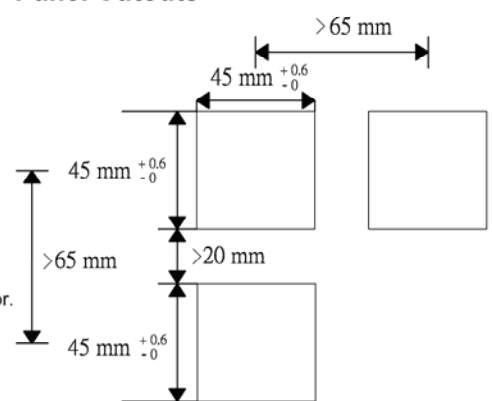
Model	Description
Panel Mount Version Cables 1.5m	
<b>CAB-090A232</b>	9-pin Female D-sub cable for RS-232
<b>CAB-090A485</b>	9-pin Female D-sub cable for RS-485
<b>CAB-090A422</b>	9-pin Female D-sub cable for RS-422
<b>ADP-090401</b>	9-pin male D-sub adapter for CAB-...
Din Rail Mount Version Cables 1.5m	
<b>CAB-090B232</b>	9-pin Female D-sub cable for RS-232
<b>CAB-090B485</b>	9-pin Female D-sub cable for RS-485
<b>CAB-090B422</b>	9-pin Female D-sub cable for RS-422

**DIMENSIONS: mm**

**Dimensions**



**Panel Cutouts**



Note:

1. The mounting panel thickness should be 1.5 mm.
2. It is recommended that the gap between units is at least 20mm to allow for the mounting adaptor.
3. M3 terminal screw (effective length: 8mm)

