

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	TC-Pro482CRD
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)	
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 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	
External power 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 (with no icing or condensation) Storage: -25 to 65°C (with no icing or condensation)	
Ambient humidity	25% to 85%	
Case	Black plastic	
Attachments	Waterproof gasket, flush mounting adapter	
Life expectancy	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min. (5 A at 250 VAC, resistance load)	
Weight Approx.	168g	

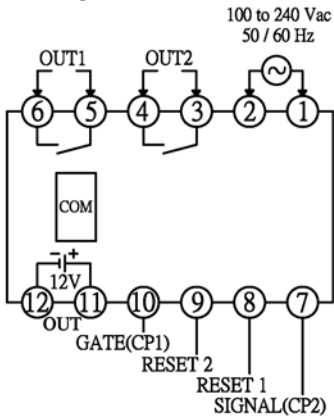
Timer Specifications	
Functions	Timer, Twin Timer or 2-Stage Timer
Time range	99.999s (0.001-s unit), 9999.99s (0.01-s unit), 99999.9s (0.1-s unit)99999s (1-s unit), 9999min59s (1-s unit), 99999.9min (0.1-min unit),999999min (1-min unit), 9999h59min (1-min unit), 99999.9h (0.1-h unit), 999999h (1-h unit)
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:



ACCESSORIES:



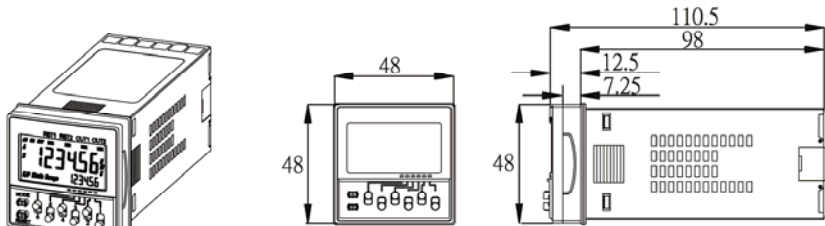
Model	Description
CAB-090A232	9-pin Female D-sub cable for RS-232 connector, 1.5m Cable
CAB-090A485	9-pin Female D-sub cable for RS-485 connector, 1.5m Cable
CAB-090A422	9-pin Female D-sub cable for RS-422 connector, 1.5m Cable



ADP-090401	9-pin male D-sub adapter for CAB-090A232/CAB-090A485/CAB-090A422
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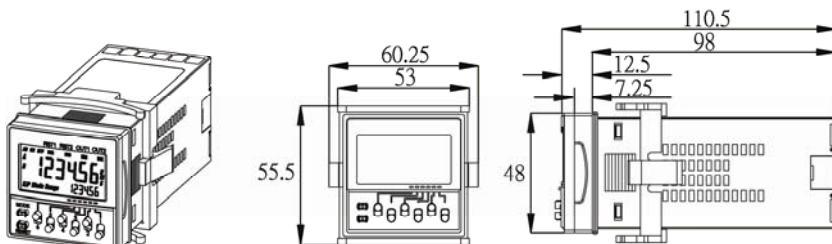
DIMENSIONS: inches (mm)

Dimensions without Flush Mounting Adapter

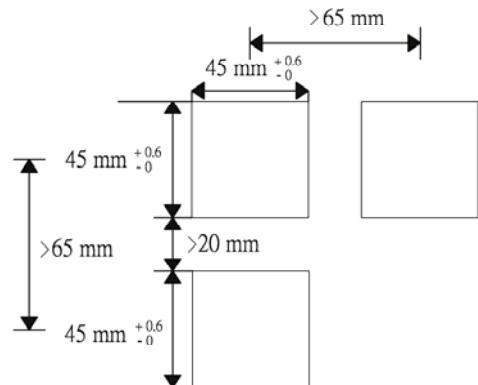


Note: M3 terminal screw (effective length: 8mm)

Dimensions with Flush Mounting Adapter



Panel Cutouts



Note:

- The mounting panel thickness should be 1.5 mm.
- It is recommended that the gap between units is at least 20mm to allow for the mounting adaptor.