

TF48 Multifunction Digital Timer User Manual





Please read this document carefully before using this product. The product guarantee will become invalidated by any damage to the timer caused by not following the instructions in the user manual. Tempatron do not accept any liability for personal injury, material damage or capital losses which may arise by not following the instructions in the user manual.

- 48 x 48mm size
- Two line 4 digit display
- 9 selectable time ranges from 0-99.99sec to 0-9999 hours
- Selectable PNP or NPN sensor type
- Selectable up or down counting direction
- Adjustable input signal pulse and void duration
- Selectable memory option
- 13 different timing modes
- Two relay outputs (1 changeover output and 1 normally open output)
- Two NPN 100mA SSR outputs with current limiting
- Adjustable display brightness
- Security for adjustment of parameters
- Easy installation with plug-in terminal connections



CE **RoHS**
Compliant

TECHNICAL SPECIFICATION

ENVIRONMENTAL CONDITIONS

Operating/Storage Temperature:	0°C to +50°C / -25°C to +70°C
Relative Humidity:	Maximum humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C
Protection Class:	According to EN60529, front: IP65, rear: IP20
Installation Height:	Maximum 2000m

⚠ Do not use this timer in locations where corrosive or flammable gases could be present.

ELECTRICAL

Power Supply Voltage:	TF48ML 9-30Vdc/7-24Vac (±10%) TF48MH 90-250Vac 50/60Hz (±10%)
Power Consumption (Burden):	<5VA
Wiring:	2.5mm ² screw type terminals for power supply connection 1.5mm ² plug-in terminals for signal connection
Data Retention:	EEPROM (minimum 10 years)
EMC:	EN 61326-1:2013 (performance criterion B is satisfied for EN 61000-4-3)
Safety Requirements:	EN61010-1:2010 (pollution degree 2, overvoltage category II)

INPUTS

Start, Gate, Reset Inputs:	Input types can be set to PNP or NPN in programming mode Minimum pulse and void duration times can be set between 5ms and 100ms For PNP input the activation level is a 5 to 30V pulse For NPN input the activation level is a 0 to 2V pulse
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OUTPUTS

Control Outputs (OUT1 & OUT2):	OUT1: Single pole changeover contact 10A rated at 250Vac (resistive load) OUT2: Single pole N/O contact 5A rated at 250Vac (resistive load)
SSR1 & SSR2 Outputs:	Open collector output, maximum 30Vdc, 100mA
Auxiliary Power Supply:	12Vdc, maximum 50mA (un-regulated)
Relay Contact Life:	Mechanical 5,000,000 operations Electrical 200,000 operations
Accuracy:	±0.01% ±1ms

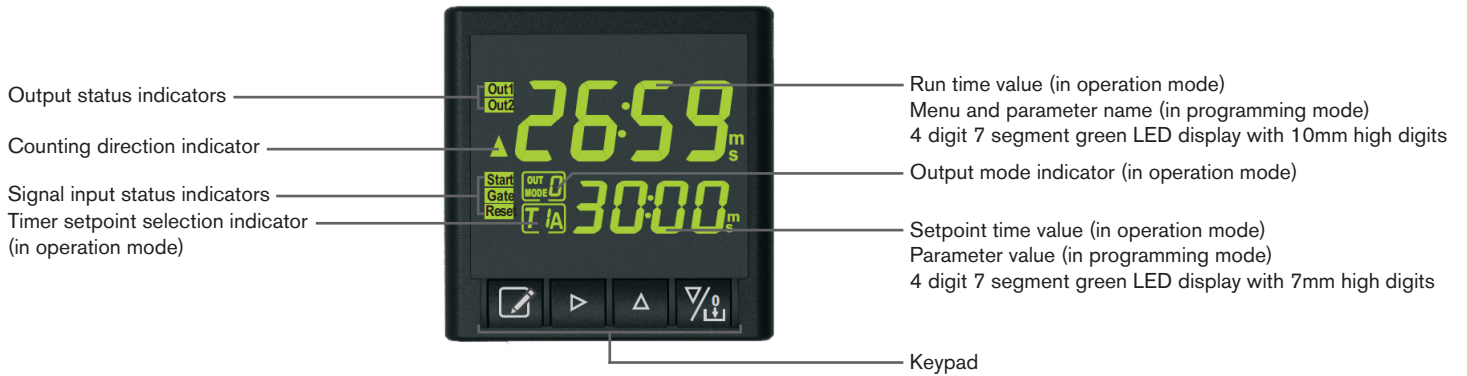
Note: Relay and SSR outputs are synchronised so if OUT1 is on then SSR1 output is on and if OUT2 is on then SSR2 output is on.

HOUSING

Housing Type:	Suitable for flush-panel mounting according to DIN 43700
Dimensions:	48mm wide x 48mm high x 87mm deep
Weight:	Approximately 230g (without packaging)
Enclosure Materials:	Self extinguishing plastics

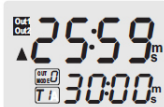
⚠ When cleaning the timer, solvents (thinners, gasoline, acid etc.) or corrosive materials must not be used.

FRONT PANEL DISPLAY FUNCTIONS



ADJUSTING THE SET TIMES

OPERATION MODE

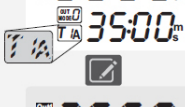
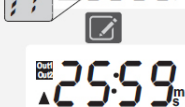


In Operation mode press the key to display the T1, T1A, T2 and T2A setpoints respectively in sequence. The selected value flashes on the lower display. If no key is pressed for 3 seconds the timer returns to operation mode.



The T2 and T2A setpoints are only displayed if the parameter *actcn* is set to *t2on*, *t2of* or if 'Out Mode b' is selected.

PROGRAMMING THE SET TIMES



With the T1 time selected with the key, press the key to select the first digit which will flash. Press the key or key to adjust the value to the desired value. Press the key to select the second digit which will then flash. Press the key or key to adjust the value to the desired value. Continue until all the digits are set to the desired values.

Use the key to select the T1A, T2, T2A set values and adjust them as required following the same procedure as above. If no key is pressed for 3 seconds the timer will return to operation mode.



The T1A setpoint is only displayed if timing mode 9, A or b is selected.



The T2 setpoint is only displayed if the *actcn* parameter is set to *t2on*, *t2of* or 'Out Mode b' is selected.



The T2A setpoint is only displayed if the *actcn* parameter is set to *t2on*, *t2of* or 'Out Mode 9', 'Out Mode A' or 'Out Mode b' is selected.



If changes are made to parameters *t1r*, *t1L* or *t1H* and the T1 setpoint is then not within these parameter limits the T1 setpoint will be automatically adjusted to fall within these parameter limits.



If changes are made to parameters *t1Ar*, *t1AL* or *t1AH* and the T1A setpoint is then not within these parameter limits the T1A setpoint will be automatically adjusted to fall within these parameter limits.



If changes are made to parameters *t2r*, *t2L* or *t2H* and the T2 setpoint is then not within these parameter limits the T2 setpoint will be automatically adjusted to fall within these parameter limits.



If changes are made to parameters *t2Ar*, *t2AL* or *t2AH* and the T2A setpoint is then not within these parameter limits the T2A setpoint will be automatically adjusted to fall within these parameter limits.

YES

Is any key pressed for 3 seconds?

NO

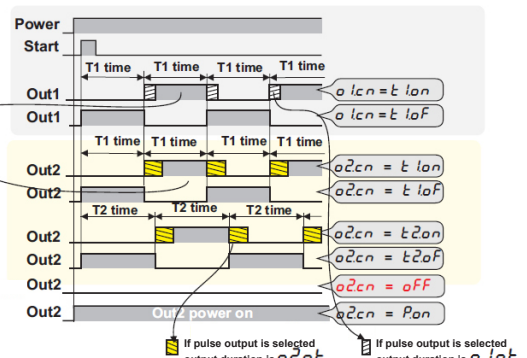
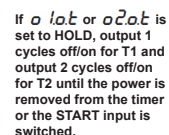
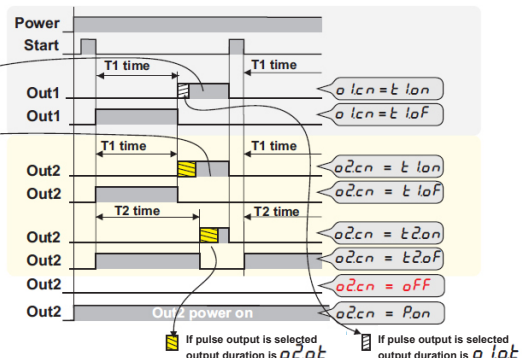
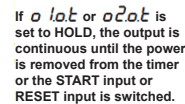
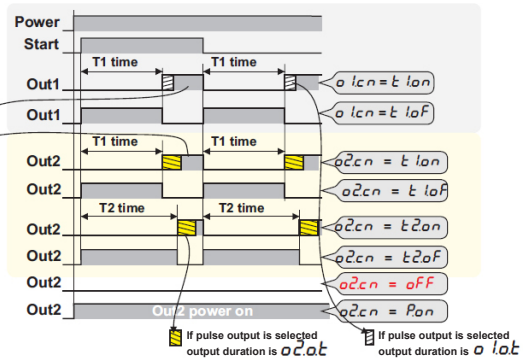
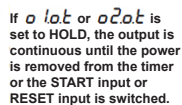
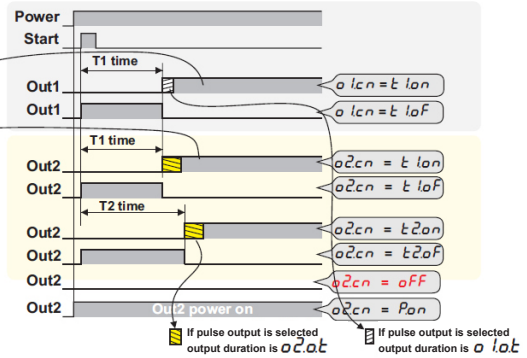
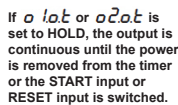
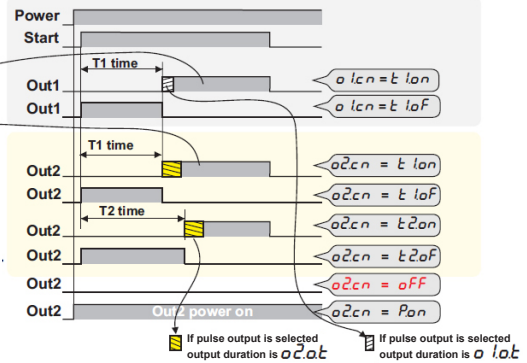
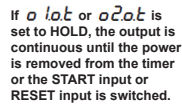
PROGRAMMING MODE

To Exit Programming Mode

When in programming mode if no key is pressed for 20 seconds, the parameter settings are stored and the timer reverts to operation mode. Alternatively to exit programming mode press the key and key together, the parameter settings are stored and the timer reverts to operation mode.

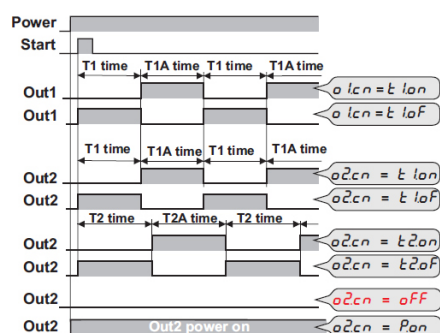
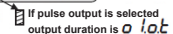
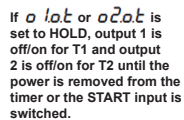
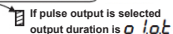
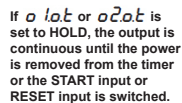
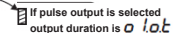
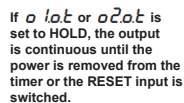
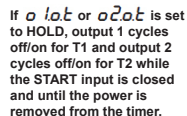
Timer1 Configuration Menu

QUICK EXPLANATION



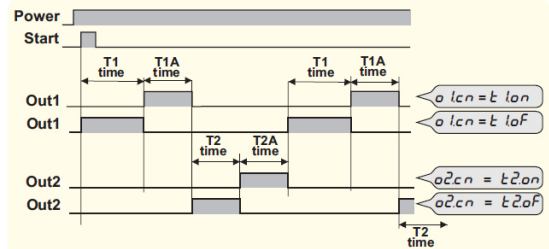
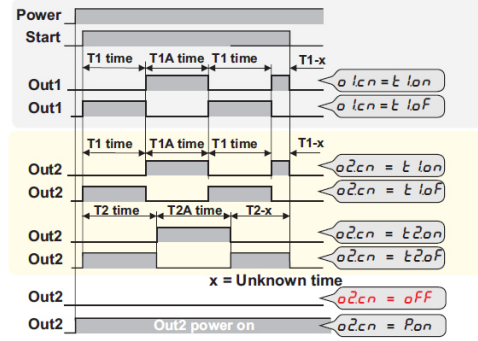
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QUICK EXPLANATION

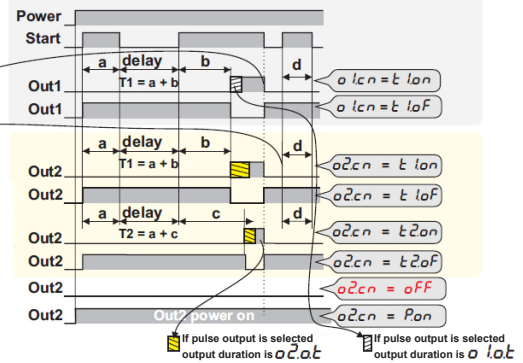


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QUICK EXPLANATION



ATTENTION! In order to choose this mode, *o2cn* parameter must be set to *t2on* or *t2of*.

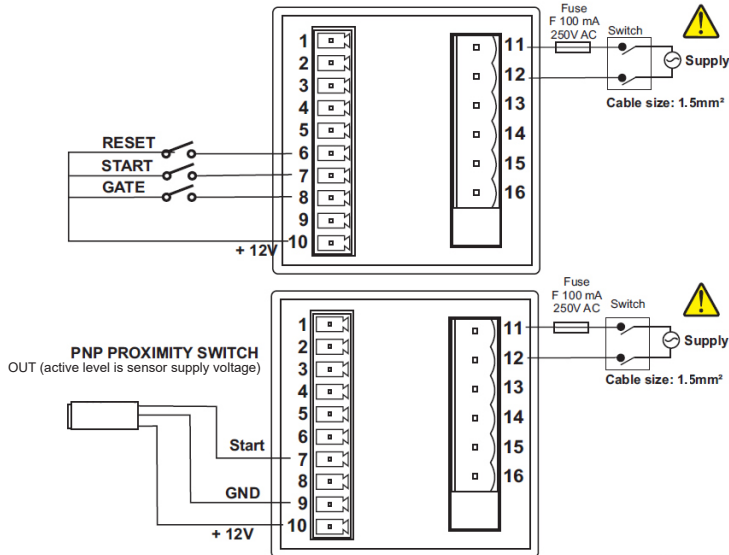


→ If pulse output is selected
output duration is 0.10s

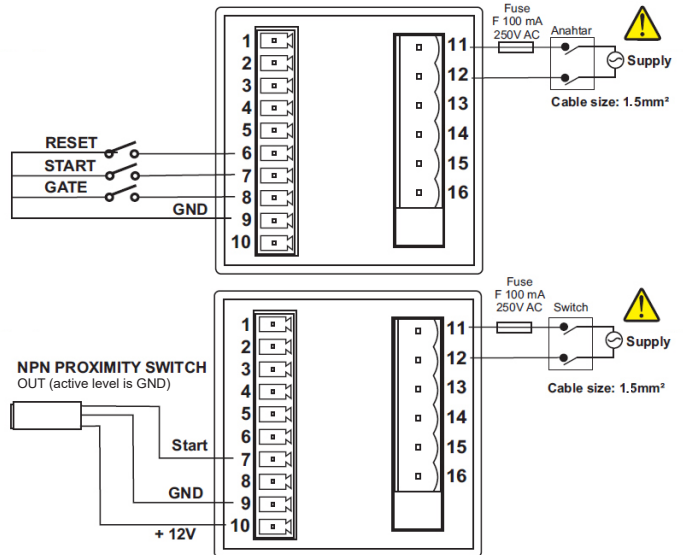
Timing diagram showing Power and Out2 signals. Power is high for the first two clock cycles and then drops to low. Out2 is high for the first two clock cycles and then drops to low.

SENSOR CONNECTIONS

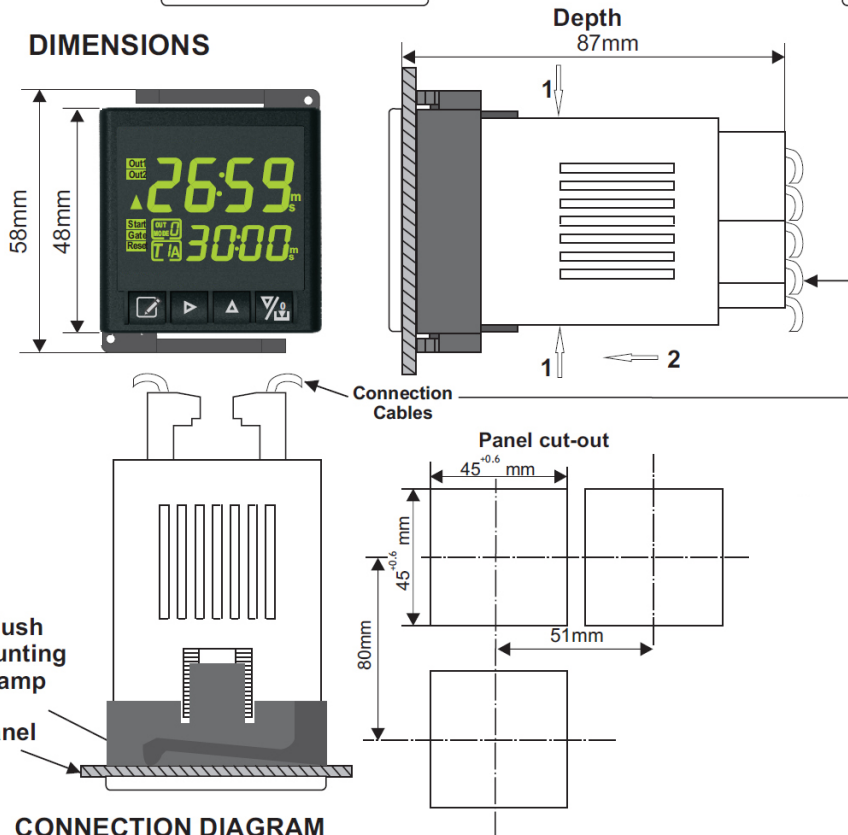
Typical connections for PNP sensor type



Typical connections for NPN sensor type



DIMENSIONS



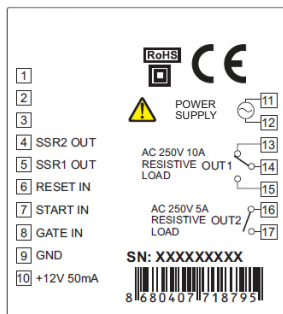
To Remove The Mounting Clamp

1. Squeeze the timer as shown by the arrows marked 1.
2. Then pull the timer in the direction as shown by arrow 2.

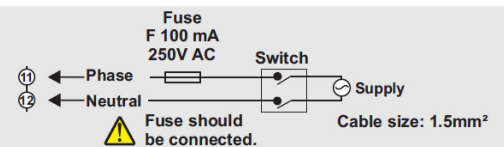
Notes

1. When panel mounting the timer sufficient additional space should be allowed for the connecting cables and to facilitate any possible removal of the timer from the panel.
2. The maximum panel thickness should be 9mm.

CONNECTION DIAGRAM



NOTE :



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