

TEMPATRON

TF48
Multifunction Digital Timer
User Manual



Tempatron: Eltime House, Hall Road, Maldon, Essex, CM9 4NF UK.

Telephone: +44(0)1621 859500 Email: sales@tempatron.co.uk Web: www.tempatron.co.uk



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



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 ($\pm 10\%$) TF48MH 90-250Vac 50/60Hz ($\pm 10\%$)
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:	EN 61010-1:2010 (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: $\pm 0.01\% \pm 1\text{ms}$

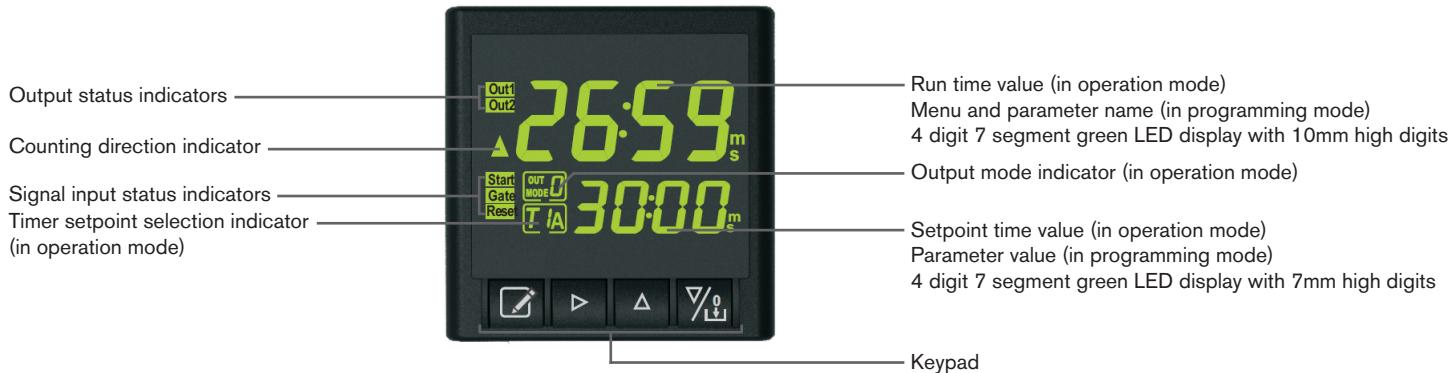
Note: Relay and SSR outputs are synchronised so if OUT1 is on then SSR1 output is on and if OUT2 is on then SSR2 output is on.

HOUSING

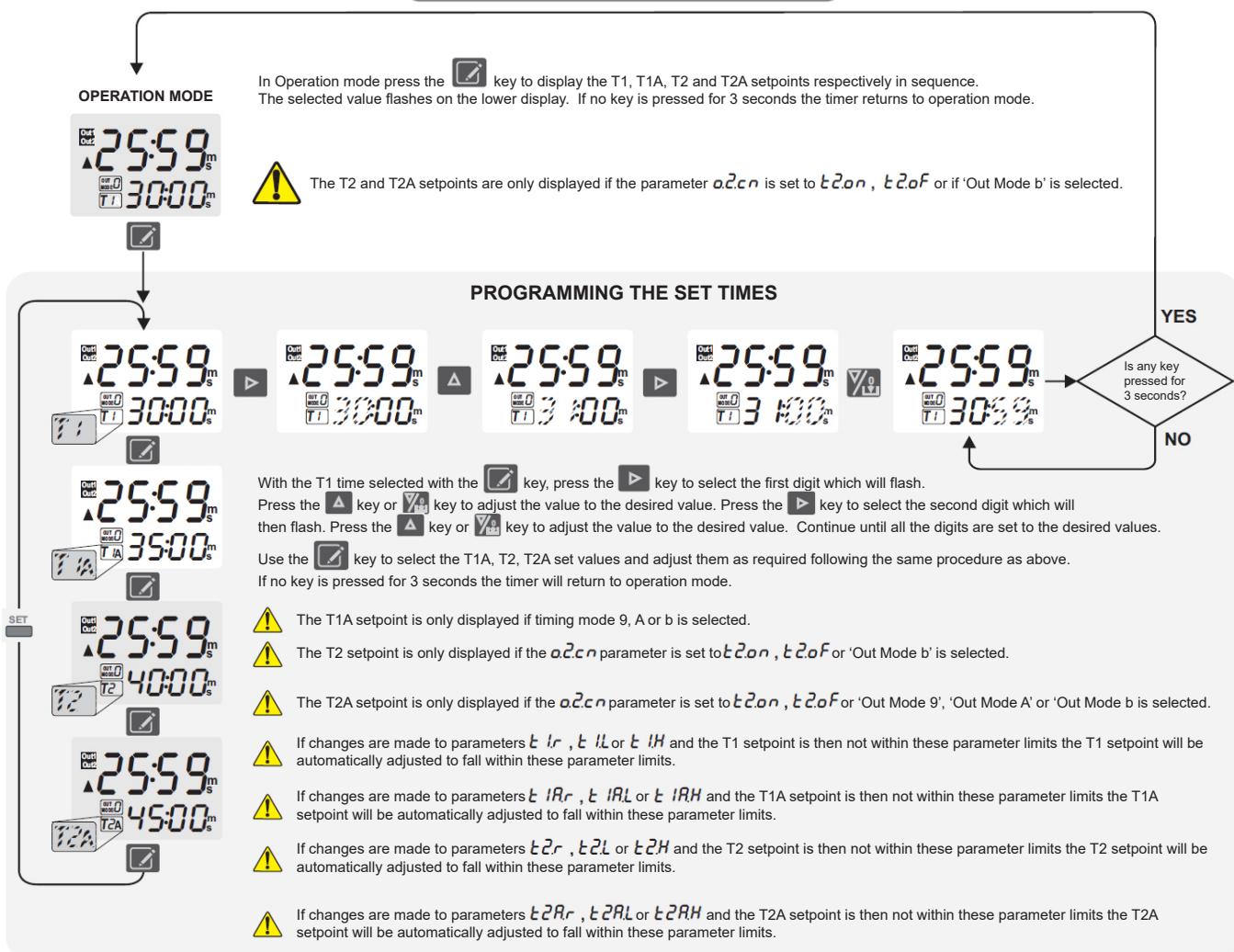
Housing Type:	Suitable for flush-panel mounting according to DIN 43700
Dimensions:	48mm wide x 48mm high x 87mm deep
Weight:	Approximately 230g (without packaging)
Enclosure Materials:	Self extinguishing plastics

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

FRONT PANEL DISPLAY FUNCTIONS



ADJUSTING THE SET TIMES



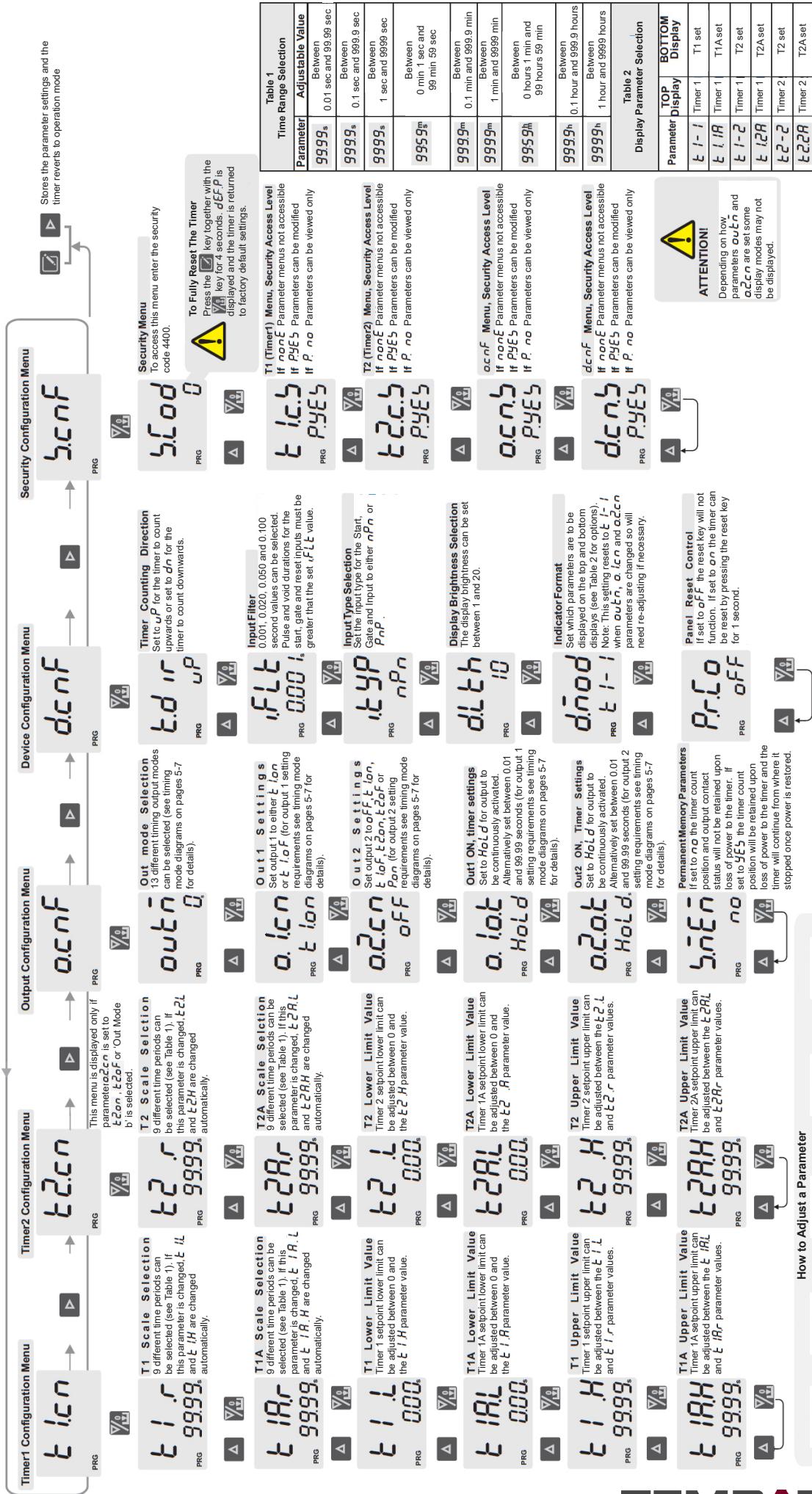
PROGRAMMING MODE

Press the key together with the key to enter the programming menu.

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.

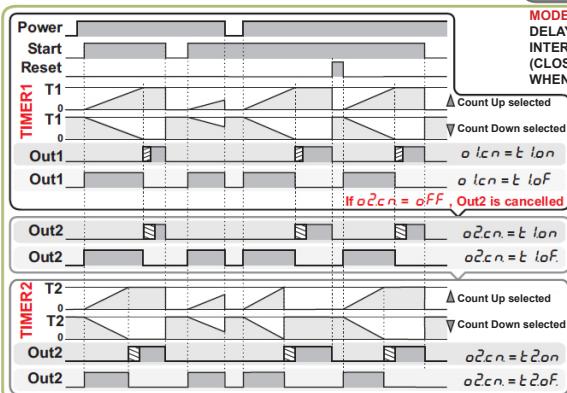


To set a parameter value hold down the key and the whole or part of the selected parameter will flash. Adjust the value using the or keys until the desired value is reached. Hold the key and then press the key and the next part of the selected parameter will now flash and can be adjusted in the same way. If the or key is held for more than 1 second the value of the selected digits changes more rapidly.

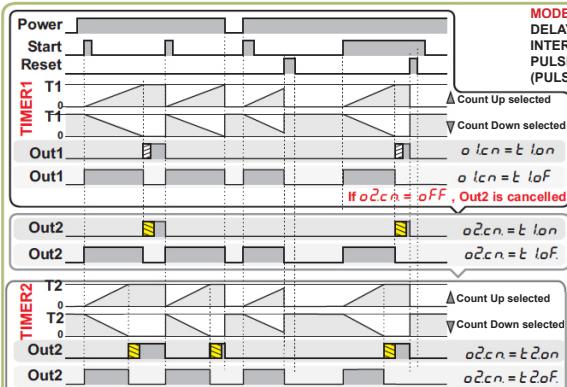
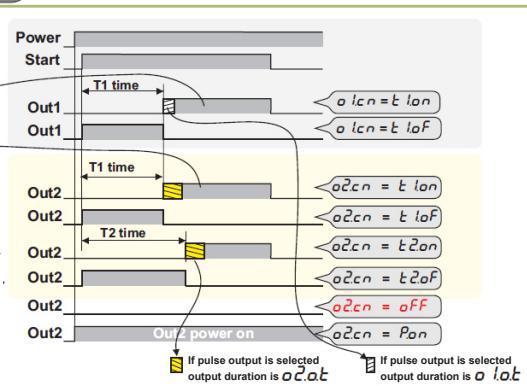
DETAILED EXPLANATION

TIMING MODES

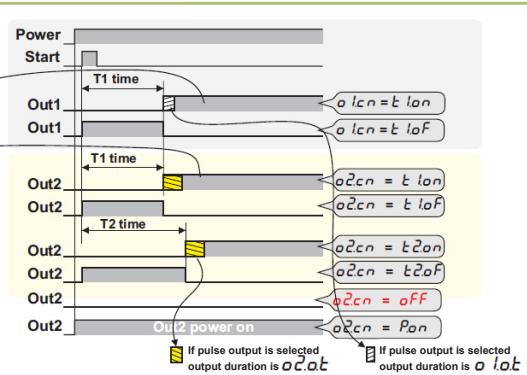
QUICK EXPLANATION



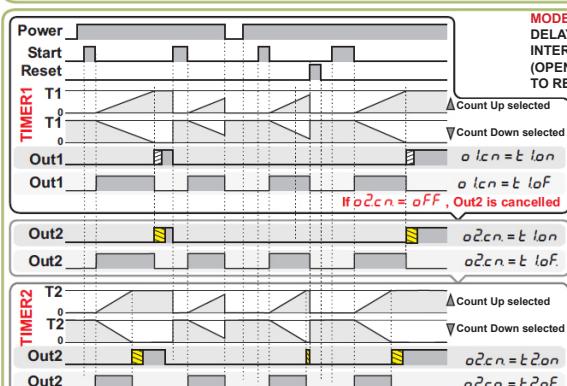
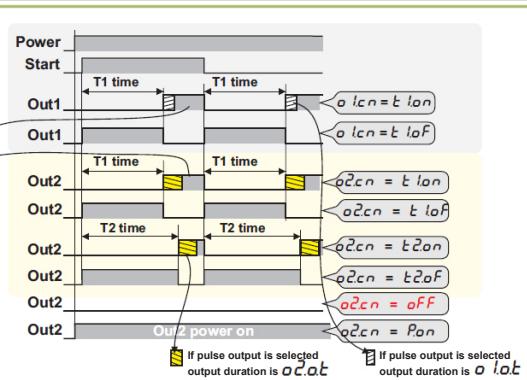
If $o1ot$ or $o2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the START input or RESET input is switched.



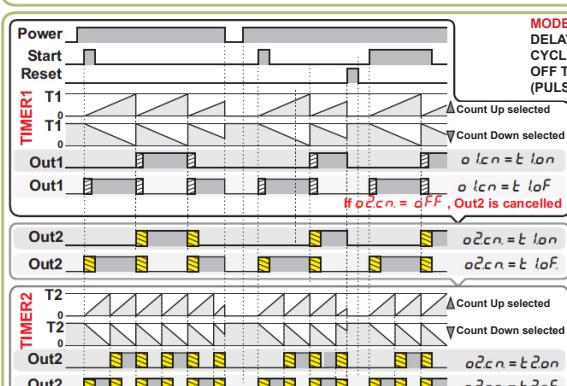
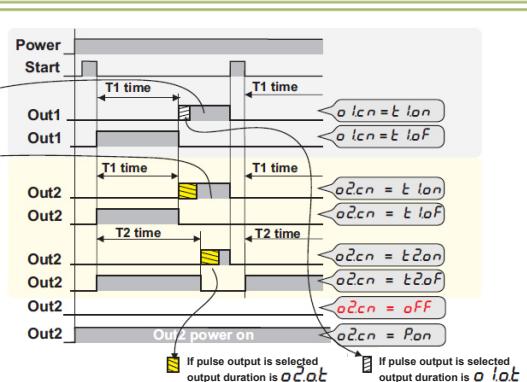
If $o1ot$ or $o2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the START input or RESET input is switched.



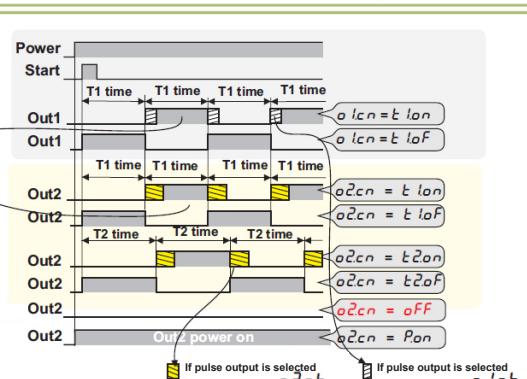
If $o1ot$ or $o2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the START input or RESET input is switched.



If $o1ot$ or $o2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the START input or RESET input is switched.



If $o1ot$ or $o2ot$ is set to HOLD, output 1 cycles off/on for T1 and output 2 cycles off/on for T2 until the power is removed from the timer or the START input or RESET input is switched.

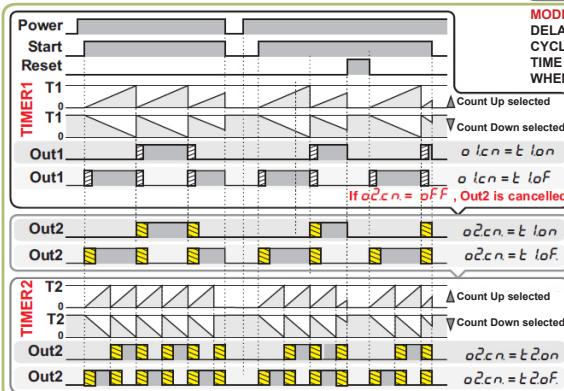


NOTE: If the Gate input is activated the timer enters standby mode with any timing mode selected.

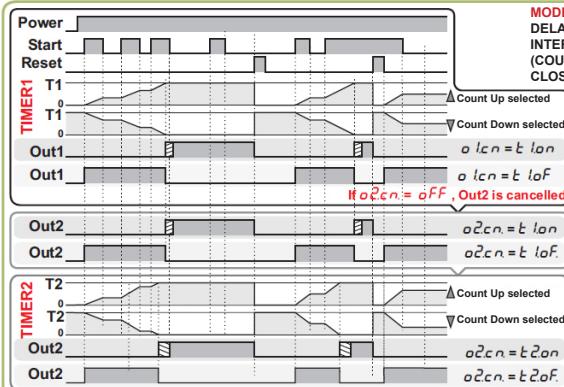
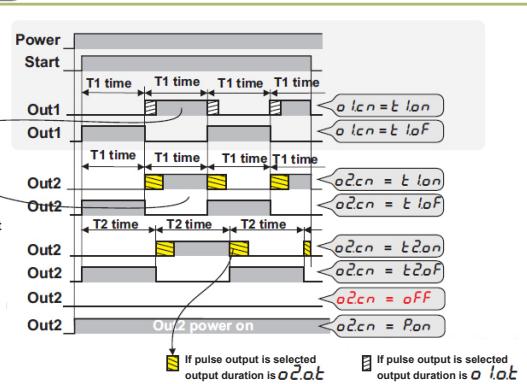
DETAILED EXPLANATION

TIMING MODES

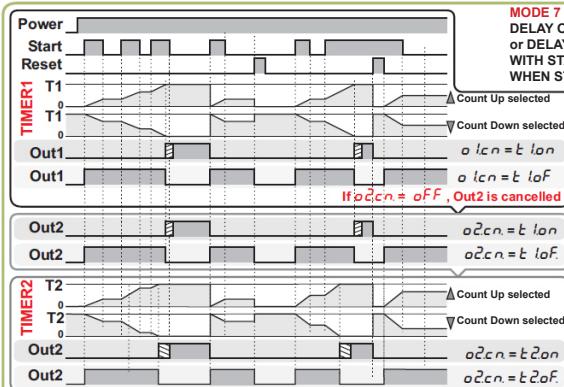
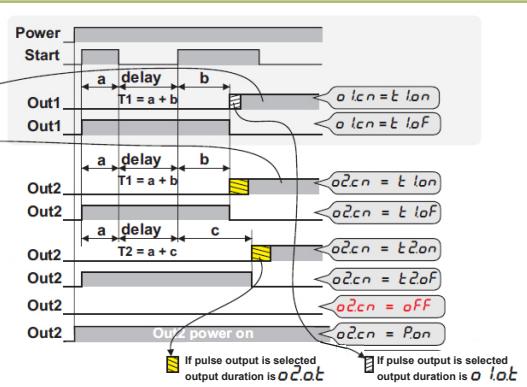
QUICK EXPLANATION



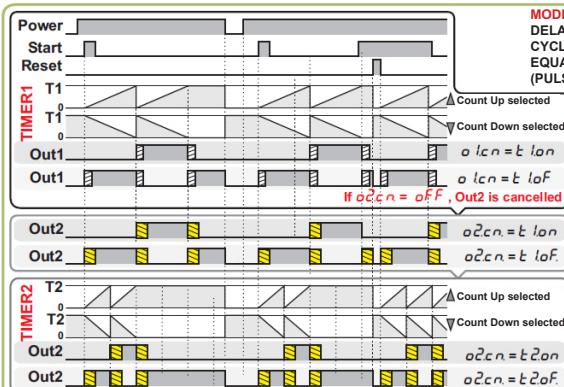
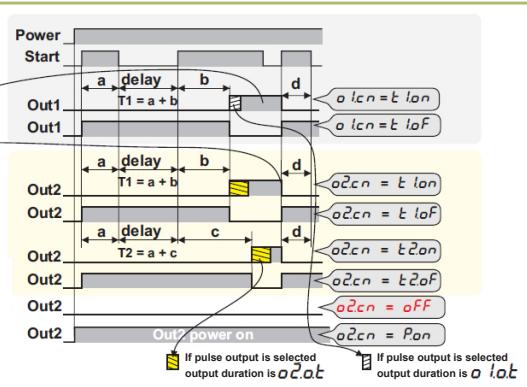
If $o\ lot$ or $o\ 2ot$ is set to HOLD, output 1 cycles off/on for T1 and output 2 cycles off/on for T2 while the START input is closed and until the power is removed from the timer.



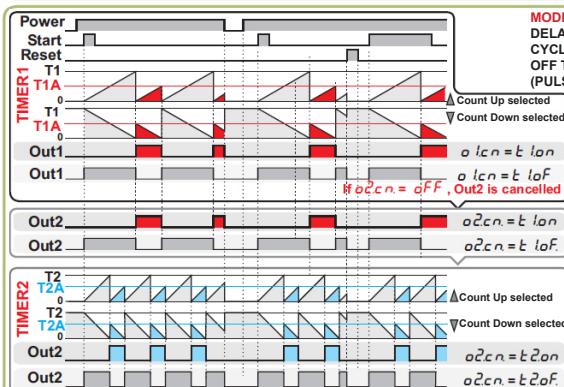
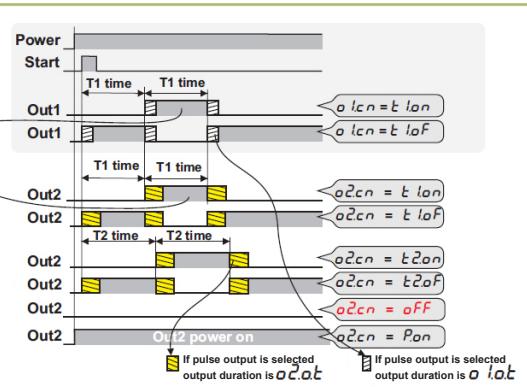
If $o\ lot$ or $o\ 2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the RESET input is switched.



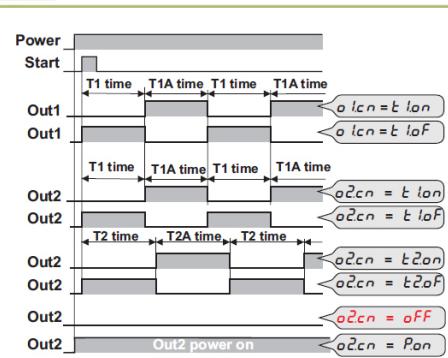
If $o\ lot$ or $o\ 2ot$ is set to HOLD, the output is continuous until the power is removed from the timer or the START input or RESET input is switched.



If $o\ lot$ or $o\ 2ot$ is set to HOLD, output 1 is off/on for T1 and output 2 is off/on for T2 until the power is removed from the timer or the START input is switched.



If $o\ lot$ or $o\ 2ot$ is set to HOLD, output 1 is off/on for T1A and output 2 is off/on for T2A until the power is removed from the timer or the START input is switched.

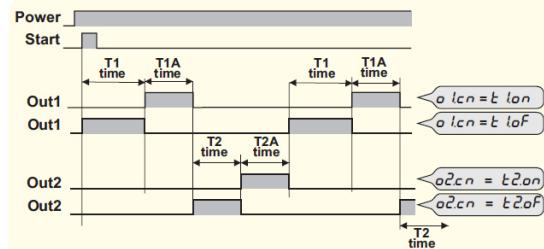
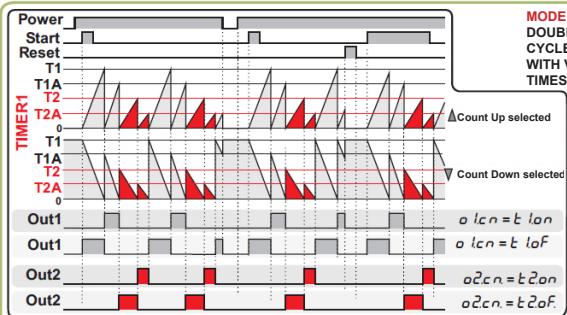
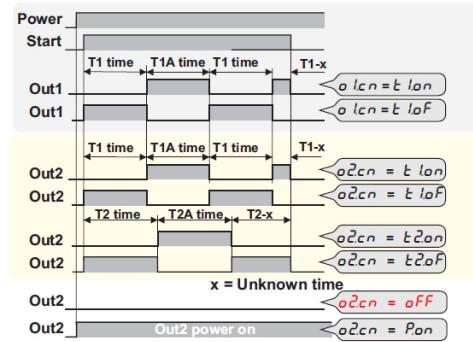
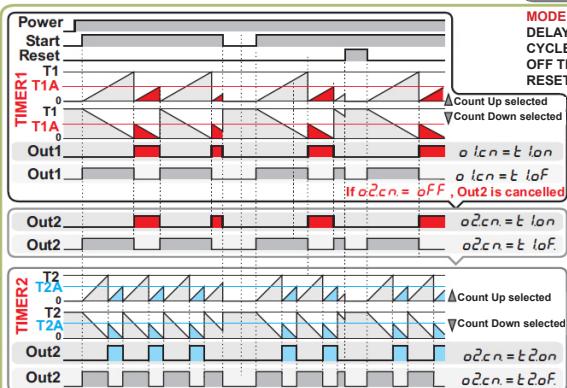


NOTE: If the Gate input is activated the timer enters standby mode with any timing mode selected.

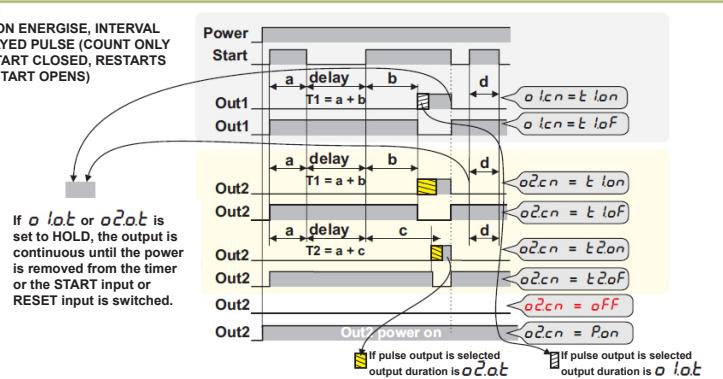
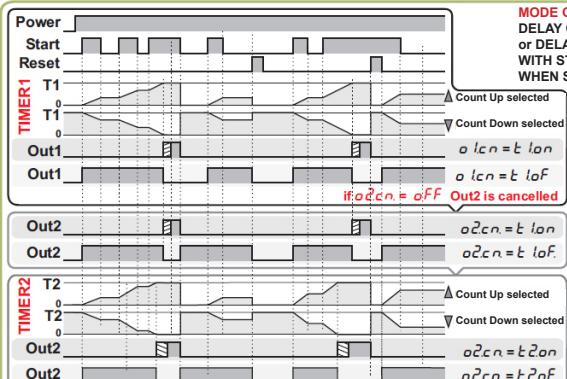
DETAILED EXPLANATION

TIMING MODES

QUICK EXPLANATION

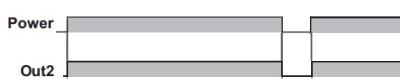


ATTENTION! In order to choose this mode, o2cn parameter must be set to t2on or t2of .



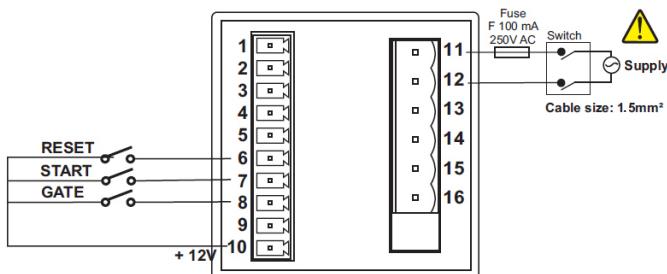
NOTE 1: If the Gate input is activated the timer enters standby mode with any timing mode selected.

NOTE 2: If the o2cn parameter is set to P_{on} then output Out2 is continuously activated whilst the timer is powered and only deactivates when power is removed from the timer. In this setup, output Out2 is used to confirm that the timer is powered and all other Out2 output functions cannot be used.

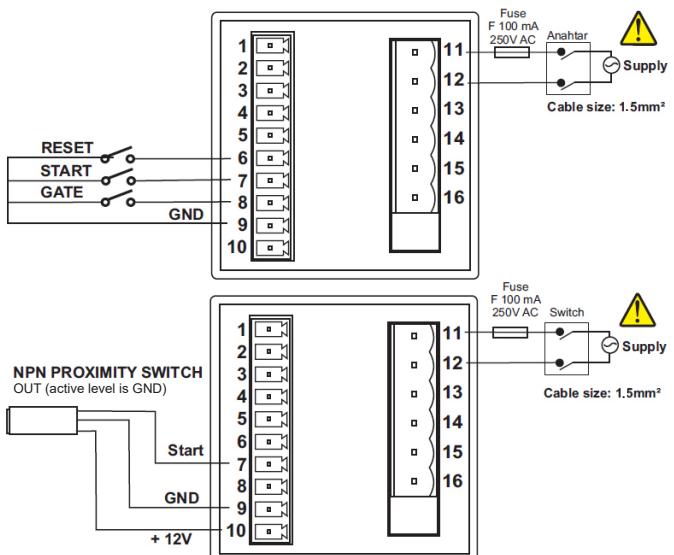


SENSOR CONNECTIONS

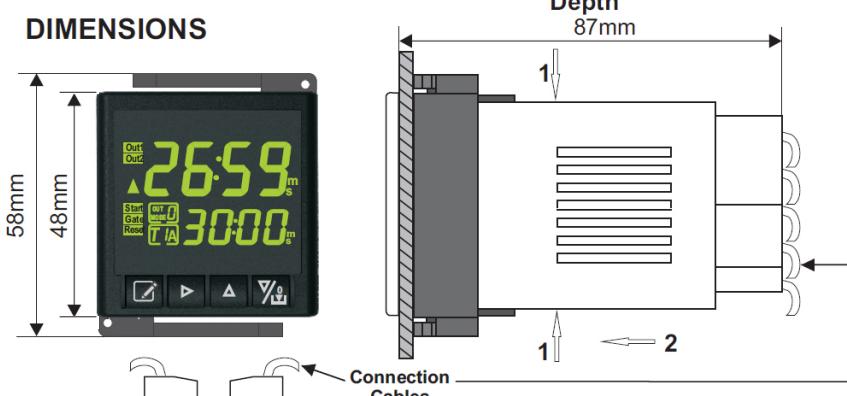
Typical connections for PNP sensor type



Typical connections for NPN sensor type



DIMENSIONS

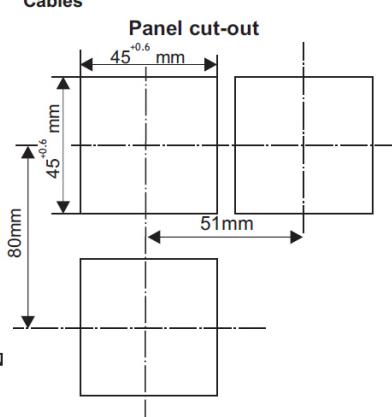
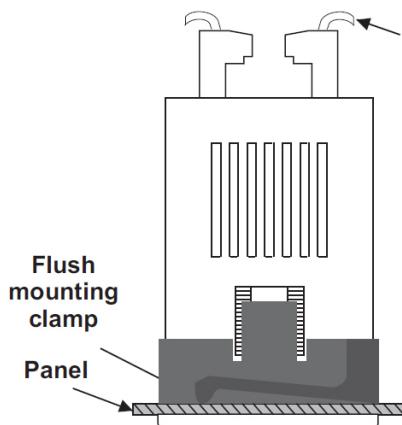


To Remove The Mounting Clamp

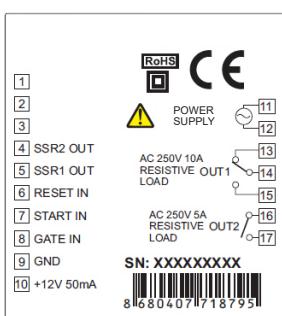
1. Squeeze the timer as shown by the arrows marked 1.
2. Then pull the timer in the direction as shown by arrow 2.

Notes

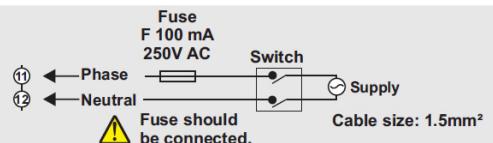
1. When panel mounting the timer sufficient additional space should be allowed for the connecting cables and to facilitate any possible removal of the timer from the panel.
2. The maximum panel thickness should be 9mm.



CONNECTION DIAGRAM



NOTE :



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Telephone: +44(0)1621 859500 Fax: +44(0)1621 855335 Email: sales@tempatron.co.uk Web: www.tempatron.co.uk

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