1 YEAR WARRANTY

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User's Guide

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PTC-14-A
Multifunction Digital Timer

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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. Omega 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.

- 4 digit red LED display panel mounting digital timer
- 5 programmable timing modes
- Time ranges from 0-99.99sec to 0-9999hrs
- 24Vac/dc or 100-240Vac powered
- 1 changeover and 1 N/O relay output
- Programmable reset function
- Easy to programme through front keys
- Status and timing indicators
- Selectable up/down timing
- EEPROM memory (minimum 10 years)
- Security passcode
- IP65 enclosure

CE RoHS Compliant

TECHNICAL SPECIFICATION

ENVIRONMENTAL CONDITIONS

Operating/Storage Temperature:	0°C to +50°C / -20°C to +60°C
Protection Class:	IP65
Maximum Installation Height:	2000m

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

ELECTRICAL

Power Supply Voltage:	24Vac/dc or 100-240Vac
Power Consumption (Burden):	<3VA
Frequency	50/60Hz
Wiring:	2mm² screw type terminals
Data Retention:	EEPROM (minimum 10 years)
CE Markings:	**Directive LV 2014/35/EU** (EN 60730-1, EN 60730-2-7, EN 61812-1, UL 508) **Directive EMC 2014/30/EU** (EN 55011: class B; EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6)

OUTPUTS

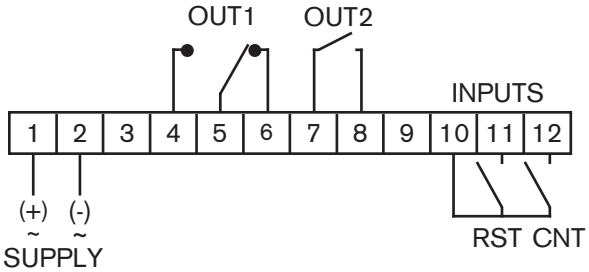
Relay Outputs (R1 & R2):	Out1: Single pole changeover contact 16A rated at 240Vac (resistive load) Out2: Single pole N/O contact 5A rated at 240Vac (resistive load)
Relay Contact Life:	Mechanical 1,000,000 operations Electrical 100,000 operations
Reset Time:	100ms approx.
Accuracy:	±3sec/24hours

HOUSING

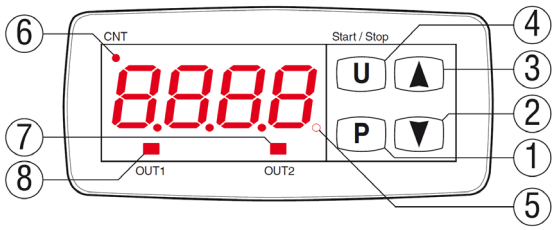
Housing Type:	Panel mounting
Display:	4 digit red LED display
Dimensions:	78mm wide x 35mm high x 64mm deep
Weight:	Approximately 130g (without packaging)
Enclosure Materials:	Self extinguishing plastics, UL 94 V0

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

WIRING CONNECTIONS



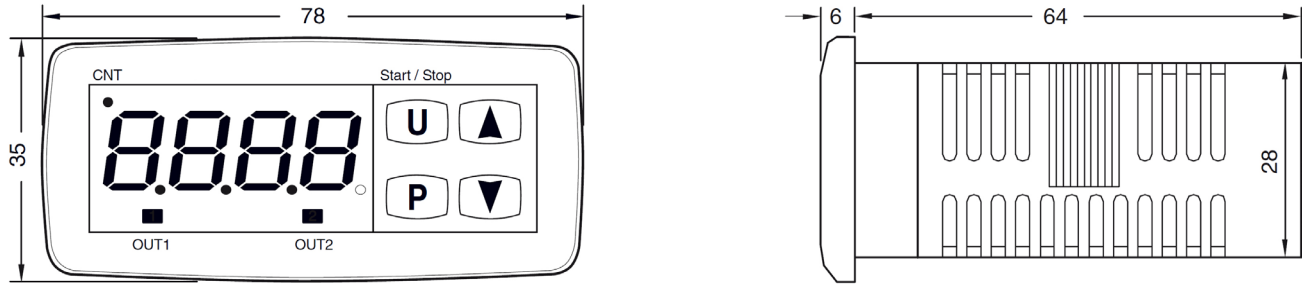
FRONT PANEL DISPLAY FUNCTIONS



KEYS & DISPLAY SYMBOLS

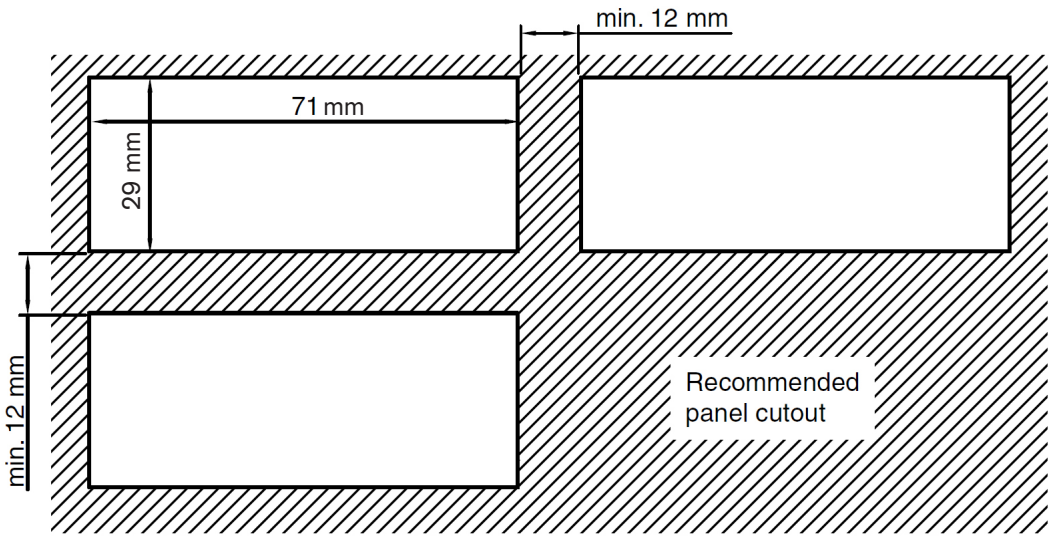
1. [P]: Press and release to set the time delays (if programmed with the t.Edt parameter). Press for 5 seconds to enter the programming mode. Press again to access the parameter edit mode and confirm the values. In programming mode press together with the [▲] key to change the programming level of the parameters. When the keys are locked press the [P] and [▲] keys together for 5 seconds to unlock the keys.
2. [▼]: When in programming mode, press to decrease the setting value and to select parameters.
3. [▲]: When in programming mode, press to increase the setting value and to select parameters. In programming mode press together with the [P] key to change the programming level of the parameters. Press together with the [P] key to unlock the keys.
4. [U] **Start/Stop:** Press for Start/Stop/Reset functions as programmed using the t.UF parameter.
5. **SET LED:** In normal operating mode this indicates the time delays are being set. In programming mode this indicates the parameter programming level.
6. **CNT LED:** Indicates count in progress (flashes every 1 second), count interrrupted (steadily on) or the reset status (off).
7. **OUT2 LED:** Indicates the status of output relay 2 (illuminated for ON and not illuminated for OFF).
8. **OUT1 LED:** Indicates the status of output relay 1 (illuminated for ON and not illuminated for OFF).

DIMENSIONS



All dimensions in mm

PANEL CUTOUT



SET TIME PROGRAMMING (FAST MODE)

1. To set the delay times (set times) press the [P] key, the **SET** LED will illuminate and the display will show SE 1 (parameter acronym) and its programmed value. To change the value press the [▲] key to increase the value shown or the [▼] key to decrease it. Note: Press the [▲]/[▼] keys for longer than 1 second to increase/decrease the numerical value more quickly.

Through programming the t.Edt parameter it is possible to select which set times can be set in this fast mode. An option also exists which allows the setting of the SE 1 set time value only using the [▲]/[▼] keys without pressing the [P] key in advance (t.Edt = 8). The options for the t.Edt parameter are as follows:

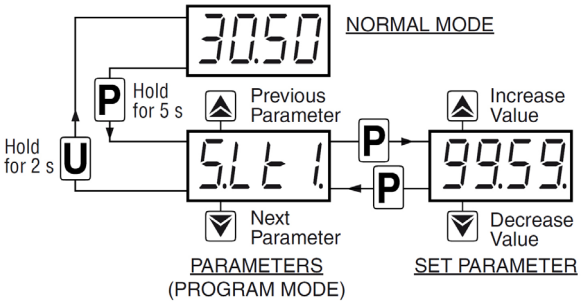
oF No set time can be set with the [P] short key (if pressed and released the [P] key has no effect).
1 Only SE 1 set time value can be set with this procedure.
2 Only SE2 set time value can be set with this procedure.
3 SE 1 and SE2 set time values can be set with this procedure.
4 Only SE3 set time value can be set with this procedure.
5 SE 1 and SE3 set time values can be set with this procedure.
6 SE2 and SE3 set time values can be set with this procedure.
7 SE 1 , SE2 and SE3 set time values can be set with this procedure.
8 SE 1 set time value can be set directly with the [▲]/[▼] keys.

For example, when the [P] parameter is set to **1** or **3**, the procedure is as follows:
- Press and release the [▲] key, the display shows SE 1 alternated with the SE 1 value.
- To change the set time, press the [▲] key to increase the value or the [▼] key to decrease the value.
- If t.Edt= **1**, once the desired value has been set, press the [P] key to exit the set time programming mode.
- If t.Edt= **3**, pressing and releasing the [P] key the display shows SE2 alternating with the value. To change the value use the [▲]/[▼] keys using the same method as for the SE 1 value.
- Once the set time(s) have been programmed, press the [P] key to exit the set time programming mode. If no key is pressed for over 10 seconds the display will automatically return to normal operation.

SE 1 and SE3 can be set within the limits established by parameters SLE 1 and SHE 1 and SE2 can be set within the limits estblished by SLE2 and SHE2 .

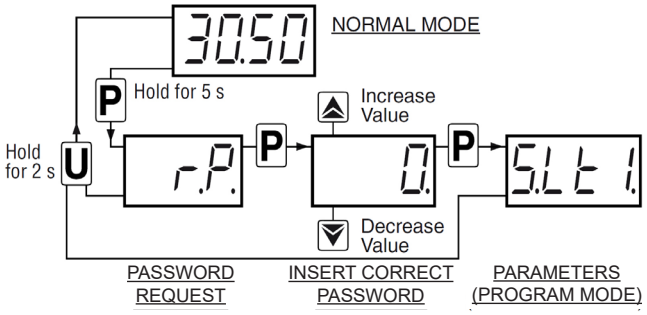
PARAMETER SETTING MODE

To access the timer function parameters when passcode protection is disabled, press the [P] key for 5 seconds, after which the display shows the code that identifies the first programmable parameter. Use the [▲]/[▼] keys to select the desired parameter then press the [P] key, the display will then show the parameter code, alternated with its value, that can then be changed with the [▲]/[▼] keys. Once the desired value has been reached, press the [P] key again to store the new value, the display will then return to show the parameter code. Press the [▲]/[▼] keys to select any other desired parameters and change them using the same method. To exit the programming mode, press no key for 30 seconds or keep the [U] key pressed for 2 seconds. The timer display will then return to showing the timing count value.



PARAMETER PROTECTION USING A PASSCODE

The timer has a parameter protection function using a passcode that can be personalised through the t.PP parameter. To protect the parameters, set the t.PP parameter to your desired passcode number.
When the passcode protection is active, press the [P] key for 5 seconds after which the display shows r.P. Press the [P] key and the display will show 0. Using the [▲]/[▼] keys, enter the programmed passcode number and press the [P] key again. If the passcode is correct the timer will display the code of the first programmable parameter and it is possible to program the timer as previously described.
The passcode protection can be disabled by setting t.PP= **oF**.

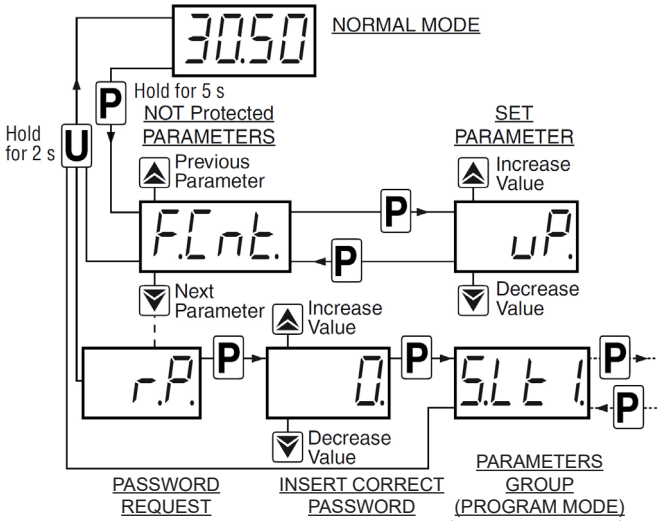


Notes:
1. All parameters are configured by default as protected so that by simply setting the t.PP parameter they are all protected by the passcode.
2. If the passcode is lost, switch the timer OFF then ON, pushing the [P] key during initial test and keeping it pressed for 5 seconds. All programmable parameters are then accessible and parameter t.PP can be set as required.

CUSTOMISED PARAMETER PASSCODE PROTECTION

All parameters are configured by default as protected. To make certain parameters programmable without protection whilst keeping the protection on other parameters, the procedure is as follows:
- Enter program mode using the t.PP passcode and with the ▲/▼ keys, select the parameter that must be accessible without passcode protection.
- Once the parameter is selected, if the **SET** LED **flashes** the parameter is programmable only after entering the passcode (protected).
  If the **SET** LED is steadily **ON** the parameter is programmable without entering the passcode (unprotected).
- To change the parameter protection, press the P key and keeping it pressed, also press the ▲ key.
- The **SET** LED changes its state indicating the new level of parameter protection (**ON** = unprotected, **Flashing** = passcode protected).

If some parameters are set as unprotected, when accessing the programming mode the display first shows the unprotected parameters then the parameter r.P through which it will then be possible to access the protected parameters.



RESET PARAMETERS TO DEFAULT VALUE

To reset all parameters to the factory default values enter -48 at the r.P passcode request. The passcode must first be enabled by setting parameter t.PP so that the r.P setting is requested. Enter the -48 value and press the P key to confirm. The display shows "- - -" for 2 seconds and then all parameters have been reset to the factory default values.

KEY LOCK FUNCTION

It is possible to completely lock the timer keys. This function is useful when the timer is being used in an accessible area and unauthorised changes must be avoided. To activate the key lock, program the parameter t.Lo to a value different from **oF**. The t.Lo value is the time in seconds of key inactivity after which the keys are automatically locked. When the keys are locked, if any of the keys are pressed the display shows L.n to indicate the key lock is active. To unlock the keys press the P key and ▲ key together for 5 seconds, LF will then appear on the display and all the key functions will be active again.

INTERNAL BUZZER OPERATION

The internal buzzer can be programmed using the F.buF parameter to operate as follows:

oF Internal buzzer disabled.

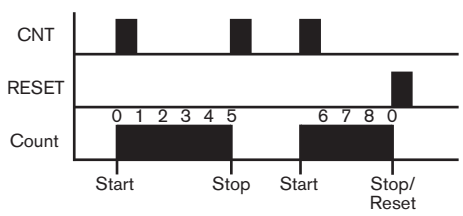
1 The internal buzzer operates at the end of St 1 for St.2 period. The buzzer also sounds when keys are pressed. If a **Reset** command is activated (by a key or digital input), the buzzer is silenced immediately. This buzzer mode is only active for timing operating modes that do not use the St.2 time.

2 The internal buzzer operates at the end of St 1 for St.2 period. The buzzer does not sound when keys are pressed.

3 The buzzer only sounds when keys are pressed.

4 Only the external buzzer output is activated at the end of St 1 for St.2 period (if **OUT2** configured with F.o2t **= 5**).

COUNTING OPERATION MODES

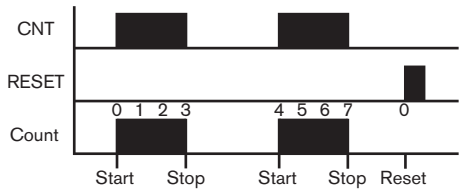


iFct = 1 Bistable Start/Stop

Activating the **CNT** input starts the timer counting and the **CNT** input can then be deactivated. Activating the **CNT** input again stops the counting on the value reached (without disabling the output if this was activated). The next **CNT** impulse resumes the count from the point it stopped, and so on, until the end of the count or the **Reset** signal. In this mode the U **Start/Stop** key (if t.UFt **= 2**) acts exactly the same way as the **CNT** input with the addition that, when pressed for 2 seconds during the counting, performs the **Reset** command. If the counting has finished, pressing the U key performs the **Reset-Start** command at the same time.

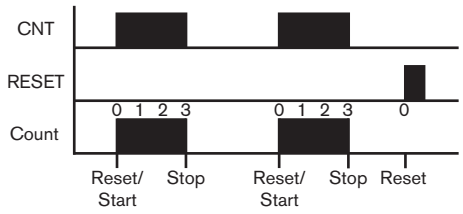
iFct = 2 Bistable Reset-Start/Stop

Activating the **CNT** input resets and starts the timer counting and the **CNT** input can then be deactivated. Activating the **CNT** input again, if done before the end of the count, stops the count (disabling the output if this was activated). The next **CNT** impulse starts a new count cycle or if the second **CNT** impulse arrives after the end of the count, a new count cycle is started. In this mode the U **Start/Stop** key (if t.UFt **= 2**) acts exactly the same way as the **CNT** input.



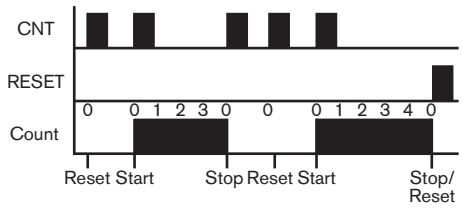
iFct = 3 Monostable Start/Stop

Activating the **CNT** input and keeping it active, starts the timer counting and the count then stops on the value reached when the **CNT** input is deactivated (without disabling the output if this was activated). The next **CNT** impulse resumes the count from the point it stopped, and so on, until the **Reset** signal. In this mode the U **Start/Stop** key (if tUFt is different to **oF**) only acts as a **Reset**.



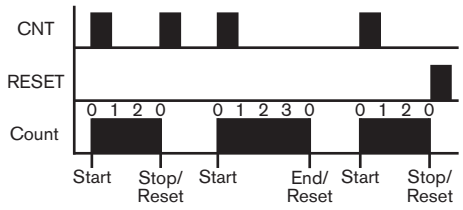
iFct = 4 Monostable Reset-Start/Stop

Activating the **CNT** input and keeping it active, resets and starts the timer counting and the count then stops on the value reached when the **CNT** input is deactivated (disabling the output if this was activated). This count operation mode is similar to a traditional timer in which the counting is enabled when the timer is powered and the **Reset** occurs when the power supply is removed. In this mode the U **Start/Stop** key (if tUFt is different to **oF**) only acts as a **Reset**.



iFct = 5 Bistable Reset-Start/Stop

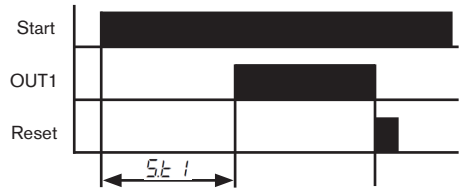
Activating the **CNT** input **Resets** the timer. Activating the **CNT** input again starts the timer counting and activating the **CNT** input for a third time stops the count on the value reached (disabling the output if this was activated). In this mode the U **Start/Stop** key (if tUFt = **2**) acts exactly the same way as the **CNT** input.



iFct = 6 Bistable Start/Stop-Reset

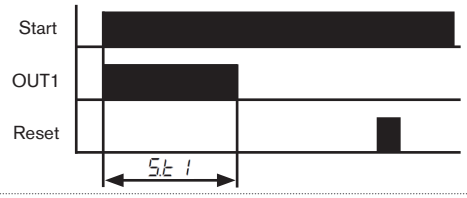
Activating the **CNT** input starts the timer counting and the **CNT** input can then be deactivated. Activating the **CNT** input again, if done before the end of the count, stops the count (disabling the output if this was activated) and **Resets** the count. If the second **CNT** impulse arrives after the end of the count, a new count cycle is started. In this mode the U **Start/Stop** key (if tUFt = **2**) at the end of St 1 time acts exactly the same way as the **CNT** input.

OUT1 OPERATING MODES



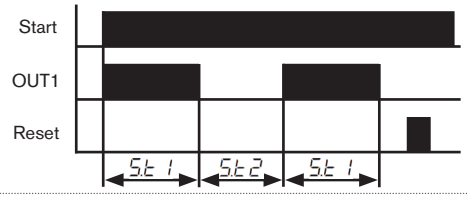
Fo 1t = 1 Delay on Energise (On Delay)

The timer starts counting when the **Start** signal is activated. At the end of the time period St 1, the output relay **OUT1** energises and remains energised until the **Reset** signal is activated.



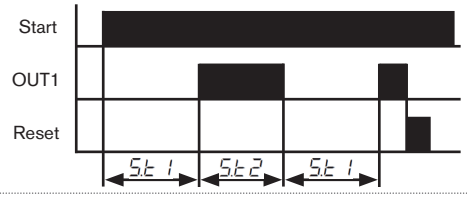
Fo 1t = 2 Interval

The timer starts counting and the output relay **OUT1** energises when the **Start** signal is activated. At the end of the time period St 1, the output relay **OUT1** de-energises. The output can only be reactivated after a **Reset** signal and a new **Start** signal.



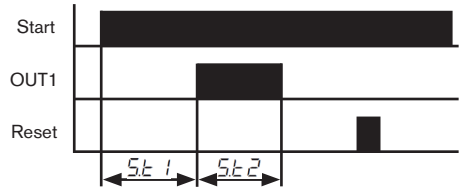
Fo 1t = 3 Immediate Cycle with Variable On and Off Times

The timer starts counting and the output relay **OUT1** energises when the **Start** signal is activated. At the end of the time period St 1, the output relay **OUT1** de-energises and then after time period St 2 **OUT1** energises again and this repeats indefinitely until the **Stop/Reset** signal is activated.



Fo 1t = 4 Delayed Cycle with Variable On and Off Times

The timer starts counting when the **Start** signal is activated. At the end of the time period St 1 the output relay **OUT1** energises and then after time period St 2 **OUT1** de-energises. After a further time period St 1 **OUT1** energises again and this repeats indefinitely until the **Stop/Reset** signal is activated.

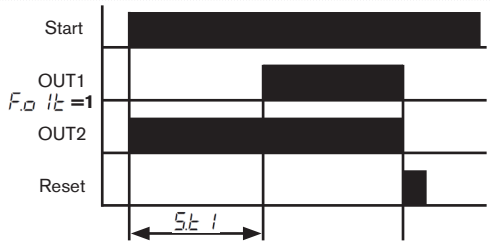


Fo 1t = 5 Single Delayed Cycle with Variable On and Off Times

The timer starts counting when the **Start** signal is activated. At the end of the time period St 1 the output relay **OUT1** energises and then after time period St 2 **OUT1** de-energises. The cycle can only be reactivated after a **Reset** signal and a new **Start** signal.

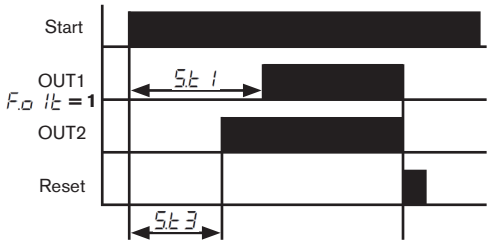
OUT2 OPERATING MODES

The second output (**OUT2**) can be programmed in one of 5 different operating modes with the Fo2t parameter.
Fo2t = **oF** **OUT2** disabled
Fo2t = **1** **OUT2** operates exactly the same as **OUT1** to give a double output contact



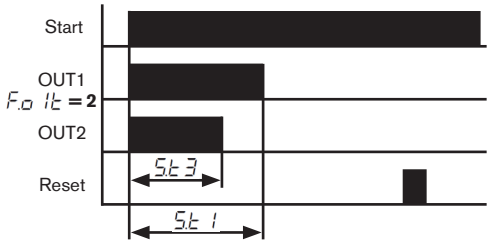
Fo2t = 2 Instantaneous Contact

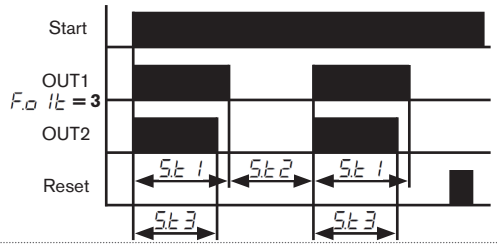
OUT2 is energised during the counting process and remains energised until the **Reset** signal is activated.

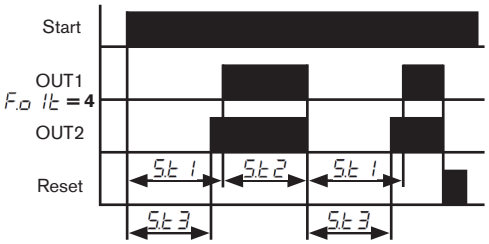


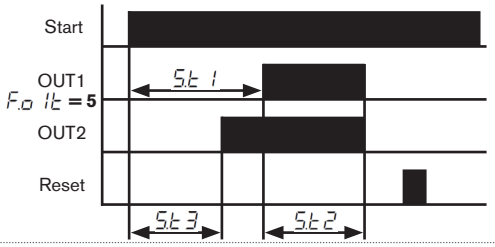
Fo2t = 3 OUT2 Operates the same function as OUT1 but with St 3 time

OUT2 operates exactly the same function as **OUT1** but whilst **OUT1** operates to time St 1, **OUT2** operates to time St 3. St 3 has the same time range as St 1 (9999h, 99h59m, 99m59s or 99.99s) and cannot be set to a value higher than St 1.
If Fo 1t = 1, 4 or 5, **OUT2** operates a delay on energise function.
If Fo 1t = 2 or 3, **OUT2** operates a feed through function with a St 3 set time.



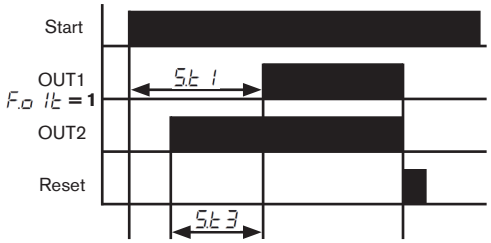


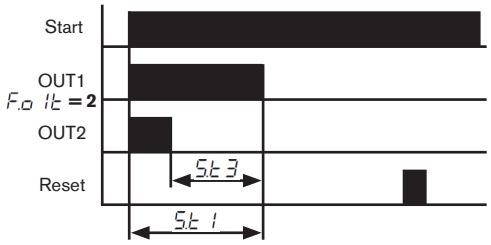


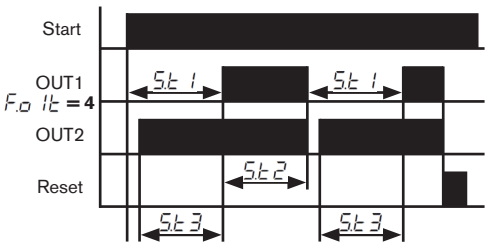


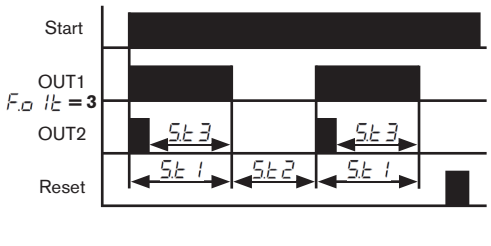
Fo2t = 4 OUT2 Operates the same function as OUT1 but in advance by St 3 time

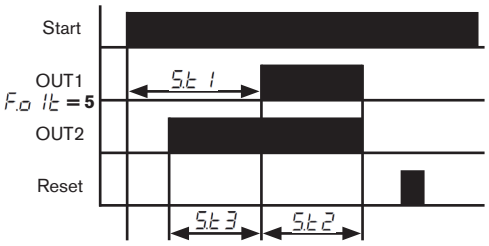
OUT2 operates exactly the same function as **OUT1** but **OUT2** operates St 3 in advance of **OUT1**. St 3 has the same time range as St 1 (9999h, 99h59m, 99m59s or 99.99s) and cannot be set to value higher than St 1.
If Fo 1t = 1, 4 or 5, **OUT2** operates a delay on energise function.
If Fo 1t = 2 or 3, **OUT2** operates a feed through function with a St 3 set time.











Fo2t = **5** **OUT2** energises when the buzzer sounds (with Fbuf = **2**) to manage an external sound/light signalling device.

OPERATION WITH A POWER SUPPLY INTERRUPTION

When the power supply to the timer is restored after an interruption the timing count can be programmed using the F.but parameter to operate as follows:

1 The timing count resets.

2 The timing count stops at the value reached when the power supply ceased. The timing count continues once a new **Start** signal is activated.

3 The timing count stops at the value reached when the power supply ceased. When the power supply is restored the count restarts from that value if the conditions for restarting are present (e.g. the timer was counting within a bistable mode when the power supply ceased).

PROGRAMMABLE PARAMETERS

	Parameter	Description	Range	Default	Note
1	SLt 1	St 1 Minimum set time	0 to S.Ht1	0	
2	SHt 1	St 1 Maximum set time	S.Lt1 to 9999	99.59	
3	SLt2	St2 Minimum set time	0 to S.Ht2	0.00	
4	SHt2	St2 Maximum set time	S.Lt2 to 9999	99.59	
5	SSt 1	St 1 Time range	1 hours (9999h) 2 hours & minutes (99h 59min) 3 minutes & seconds (99min 59s) 4 seconds (99.99s)	3	
6	SSt2	St2 Time range	1 hours (9999h) 2 hours & minutes (99h59min) 3 minutes & seconds (99min59s) 4 seconds (99.99s)	3	
7	St 1	St 1 Set time	S.Lt1 to S.Ht1	1.00	
8	St2	St2 Set time	S.Lt2 to S.Ht2	0.00	
9	St3	St3 Set time	S.Lt1 to S.Ht1	0.00	
10	iFct	CNT input operating mode	1 Bistable START/STOP 2 Bistable RESET-START/STOP 3 Monostable START/STOP 4 Monostable RESET-START/STOP 5 Bistable RESET/START/STOP 6 Bistable START/STOP-RESET	2	
11	Fo 1t	OUT1 output operating mode	1 Delay on Energise (On Delay) 2 Interval 3 Immediate Cycle with Variable On and Off Times 4 Delayed Cycle with Variable On and Off Times 5 Single Delayed Cycle with Variable On and Off Times	1	
12	Fo2t	OUT2 output operating mode	oF OUT2 disabled 1 OUT2 operates exactly the same as OUT1 2 Instantaneous contact 3 OUT2 operates the same function as OUT1 but with St3 time 4 OUT2 operates the same function as OUT1 but in advance by St3 time 5 OUT2 energises when the buzzer sounds	oF	
13	FCnt	Count mode	uP Up dn Down	uP	
14	Fbuf	Buzzer operating mode	oF Disabled 1 The internal buzzer activates at the end of St 1 for St2 period and when keys are pressed 2 The internal buzzer activates at the end of St 1 for St2 period 3 The internal buzzer only activates when keys are pressed 4 Only the external buzzer activates only at the end of St 1 for St2 period (if OUT2 configured with Fo2t = 5).	**1**	
15	tUFt	U -START/STOP key operating mode	oF No function 1 RESET only 2 RESET-START/STOP if iFct = 1/2 or RESET/START/STOP if iFct = 5/6	**2**	
16	tEdt	Set times visible with fast set time procedure (P key)	oF No set time visibility 1 St 1 2 St2 3 St 1 and St2 4 St3 5 St 1 and St3 6 St2 and St3 7 St 1 , St2 and St3 8 St 1 only directly with the ▲/▼ keys with no P key pressed	**1**	
17	Fbut	Backup operation mode	1 The timing count resets 2 The timing count stops at the value reached when the power supply ceased 3 The timing count stops at the value reached when the power supply ceased and restarts from that value if the conditions for restarting are present	**1**	
18	EndC	Display to flash at count end	0 Display flashes at count end 1 Display steadily ON at count end	**0**	
19	rout	Output relay exchange	1-2 Operation Fo 1t on OUT1, Fo2t on OUT2 2-1 Operation Fo 1t on OUT2, Fo2t on OUT1	**1-2**	
20	tLo	Key lock	oF Key lock disabled 1 to 9999s (value in seconds of key inactivity after which the keys are locked)	**oF**	
21	tPP	Passcode for parameters protection	oF Passcode disabled 1 to 9999	**oF**	

WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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