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User's Guide

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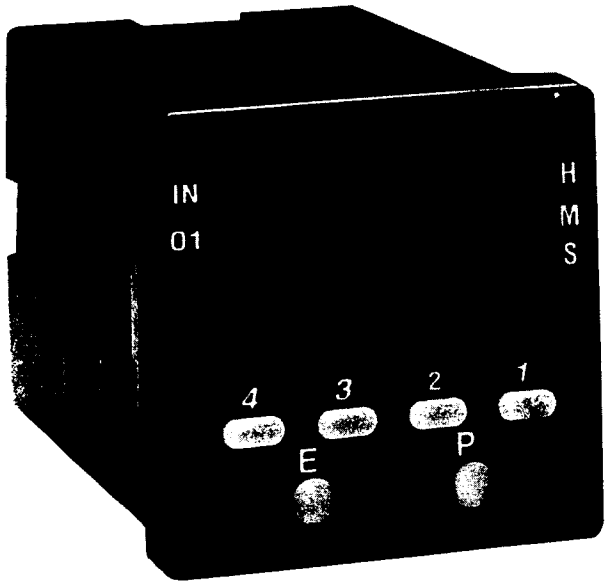

PTC-21 SERIES
1/16 DIN Multi-Programmable Dual Display Timers

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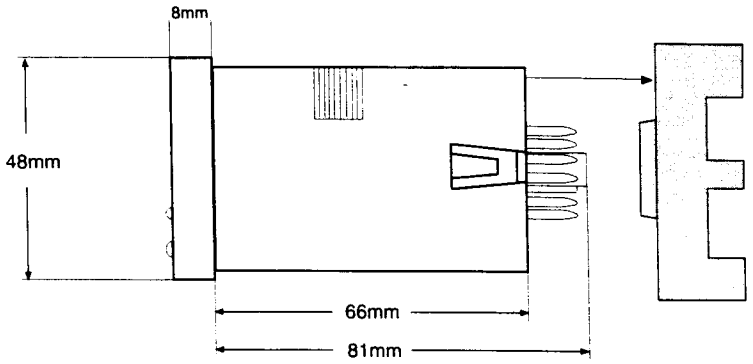
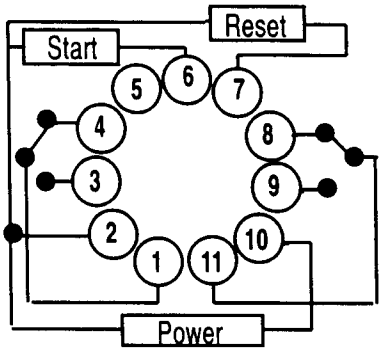
OVERVIEW

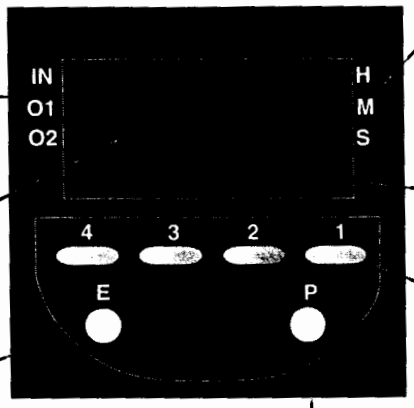


To wire the unit, an 11 pin socket is required. The unit can either be DIN rail mounted or panel mounted using the supplied mounting bracket. For panel mounting, place the unit in the cutout. then slide the bracket forward over the rear of the unit so that the tabs catch in the grooves on the housing and the bracket is as far forward as possible. Tighten the panel mount screws until there is a snug fit against the panel. Do not overtighten.



Warning: Do Not connect a coil in parallel with the start signal. Such a connection will cause the start signal to be continuously active. This situation also applies to the Reset input.

FRONT PANEL OPERATION



Time Range Indicator

Illuminates to show the time base: H for hours, M for minutes, S for seconds. Multiple indicators will be illuminated when the time base is Hours:Minutes or Minutes:Seconds.

I/O Status Indicators

Illuminates to display when an input or output is active: "IN" for the start input, "O1" and "O2" for the timed outputs.

Set Value

Settable value used to trigger the timed output.

Time Value

Indicates the elapsed/remaining time to preset.

Numeric Keys

Each of the number keys is used to increment the value of the corresponding digit of the preset or a parameter value

Edit Key

In Control Mode: With "P" key, resets the displayed value.

In Program Mode: Scrolls between the applicable choices for the currently displayed parameter.

Program Key

In Control Mode: Depressing the key will scroll the display among the preset and batch displays. Holding the key down for 3 seconds will shift the unit into Program Mode. With the "E" key, resets the displayed value

In Program Mode: Depressing the key will scroll the display from one parameter to the next. Holding the key down for 3 seconds will shift the unit to Control Mode.

- Enter the Program Mode by holding down the "P" key for 3 seconds
- Press the "P" key to move the top display from one parameter to the next
- Press the "E" key to scroll the bottom display through the available choices for that parameter
- While in Program Mode, the unit will reset; the new settings will only become effective after returning to Control Mode by holding down the "P" key for 3 seconds
- If there is no key activity for 60 seconds, the unit will automatically return to Control Mode and continue to run under the previous settings

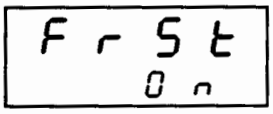
P
For 3 Seconds

Operating Function: Determines how outputs will operate in relation to the set value. Choices are:

- On-Delay (OndL)
- Off Delay (OFdL)
- Interval (int)
- Repeat Cycle (CYCL)
- Delay/Interval (dint)

See Page 5 for timing charts.

P

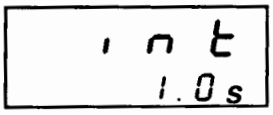


Note: The following parameter will only appear if Repeat Cycle is chosen as the Operating Function.

First Operation: Determines whether the Repeat Cycle will start with an On or an Off Operation.

P

Note: The following parameter will only appear if Delay/Interval is chosen as the Operating Function.



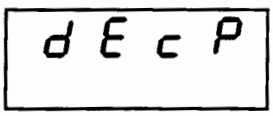
Interval Time: Sets the amount of time the output will be active after the On-Delay function has timed out. Use the 1 through 4 keys to set the value in a range from 0.1 to 999.9 seconds.

P

Time Range: Sets the unit of measure for the time values that will be shown on the display in Control Mode. Choices are:

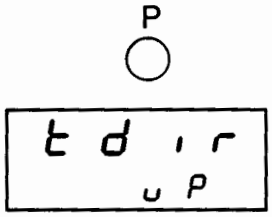
- Seconds
- Minutes
- Hours
- Minutes:Seconds
- Hours:Minutes

P

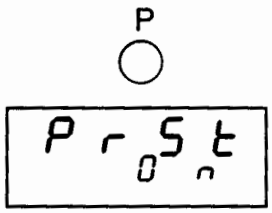


Note: The following parameter will not appear if Minutes:Seconds or Hours:Minutes is selected as the time range.

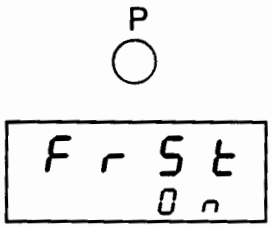
Decimal Position: Sets the decimal position for the time display. Choices are: no decimal point (0), 10ths position (0.0), or Hundreths position (0.00). The time range selected in the previous parameter will remain illuminated for reference.



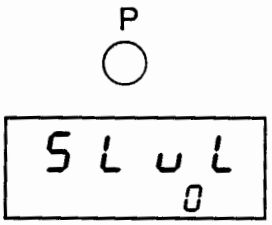
Timing Direction: Determines whether the time value will increment from zero and change the state of the output at the set value (uP) or decrement from the set value and change the state of the output at zero (dn).



Power Reset Enable: After a loss of power the unit can be programmed to either reset upon reapplication of power (On) or continue from the point of power interruption (Off).



Front Panel Reset Enable: When active (On), the timing operation can be reset in Control Mode by simultaneously pressing the "E" and "P" keys. If inactive (Off), the timing operation can only be reset through the remote input.



Security Level: 4 different levels of security are available:

0 = Full Access

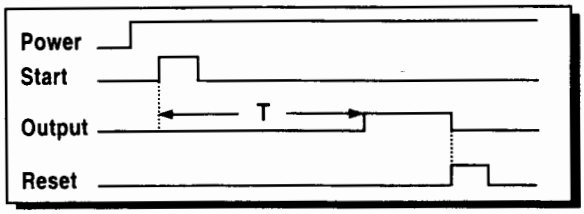
1 = SP Locked Out

2 = Access to Program Mode only by holding the "P" key for 10 seconds

3 = SP Locked Out and access to Program Mode only by holding the "P" key for 10 seconds

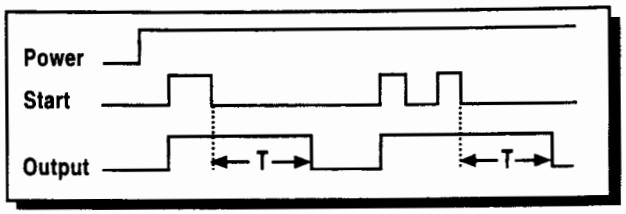
TIMING DIAGRAMS

On-Delay



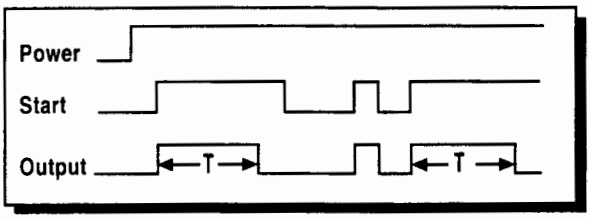
Timing begins on the leading edge of the start input. The output will activate at the completion of the preset time (T) and will remain active until the reset signal is applied or power is interrupted*.

Off-Delay



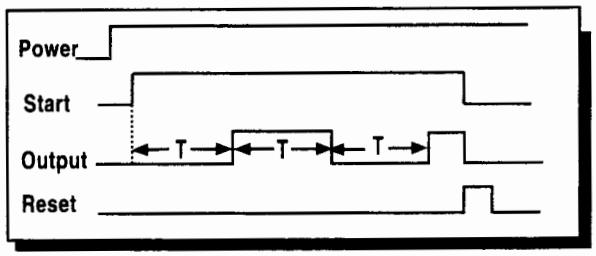
The output is activated at the leading edge of the start signal. Timing begins on the trailing edge. The output will remain active until the preset time (T) has elapsed or power is interrupted*. Reapplying the start signal before T has elapsed will reset the time value. The reset input is not used.

Interval



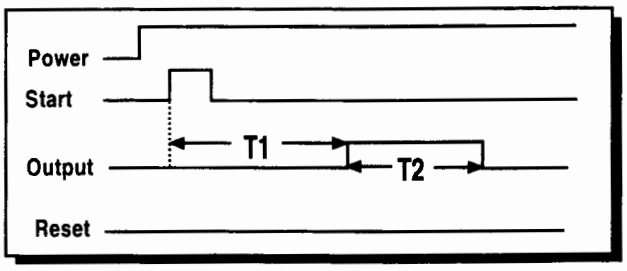
On the leading of the start input, the output is activated and timing begins. The output will remain active until the preset time (T) has elapsed, the reset signal is applied or power is interrupted*. Removal of the start signal will also cause the output to be deactivated and the time value reset.

Repeat Cycle



Timing begins on the leading edge of the start signal. A cycle is initiated where the output will be OFF for the preset time (T), then ON for the preset time. This cycle will continue until the start signal is removed, a reset signal is applied or power is interrupted*. The unit can also be programmed for the timing sequence to begin with an ON cycle.

ON Delay/Interval



The delay cycle begins upon application of the start signal. The output will activate at the completion of the preset time (T1). Upon activation of the output the Interval cycle will begin. The output will be deactivated at the and the end of the Interval time (T2). T1 is the primary preset value and is set in Operation Mode. T2 is set in Program Mode in a range from 0.1 to 999.9 seconds. The timing sequence and output can also be reset through the reset input or interuption of power*.

* The Power Reset parameter in Program Mode can be set so that a timing sequece will not be reset upon power interruption but instead continue on when power is restored.

SPECIFICATIONS

Inputs

Start:	NPN or Dry Contact
Reset:	NPN or Dry Contact
Activation Time:	21 ms (PTC-21)
Impedance:	10 KΩ

Outputs

Timed:	DPDT (5 amp)

Physical

Dimensions:	48mm x 48mm, 85mm deep Panel
Mounting:	Mounting 45mm x 45mm cutout, or DIN rail
Wiring Connection:	Via 11 pin plug in socket

Operation

Supply Voltage:	90 - 240 VAC 50/60Hz,
Power Consumption:	< l 0 V A
Time Ranges:	Hours, Minutes, Seconds, Hours:Minutes, Minutes:Seconds
Resolution:	Settable for XX.XX or XX.XX for Hours, Minutes and Seconds ranges
Operating Modes:	On Delay, Off Delay, Interval. Repeat. Delay /Interval
Repeat Accuracy:	± 0.01%
Electrical Service Life:	100,000 cycles at full load
Mechanical Service Life:	10 million cycles at min. load
Weight:	100 grams (3.5 ounces)

Environmental

Front Panel Rating:	IEC IP65
Operating Temperature:	0° to 55° C (32° to 131 ° F)
Storage Temperature:	-40° *to* 90° C (-40° to 194° F)
Humidity:	5% to 95% RH non-condensing
Approvals:	UL, CUL recognized - File #97337, CE certified

ORDERING INFORMATION

Description	Model#
Multi-function Timer. 90- 240 VAC	PTC-21

MADE IN USA

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 which wear are not warranted, including but not limited to contact points, fuses, and triacs.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use of its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESS OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential, incidental or special damages.

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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
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