YEAR 2000 COMPLIANT

c ℰ US   C E   MADE IN USA

User's Guide

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O2
P2

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4   3   2   1
E   P
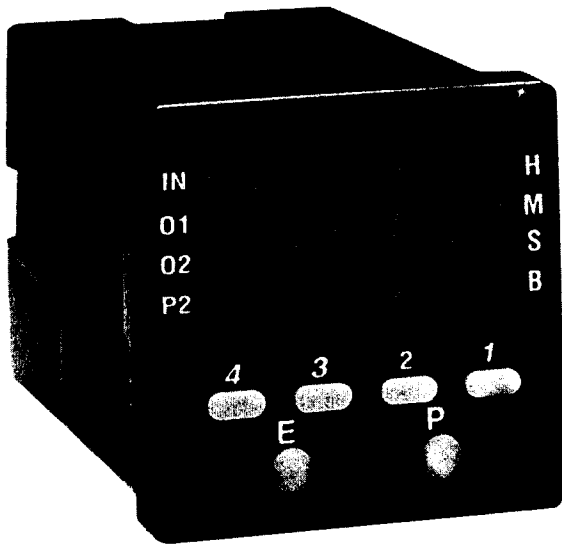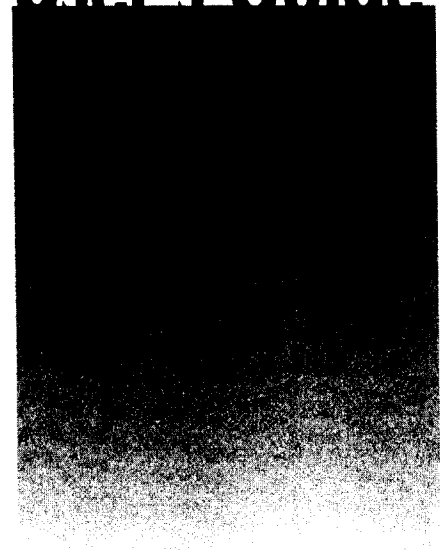
PTC-22 SERIES
1/16 DIN Multi-Programmable
Dual Display Timers

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INSTALLATION

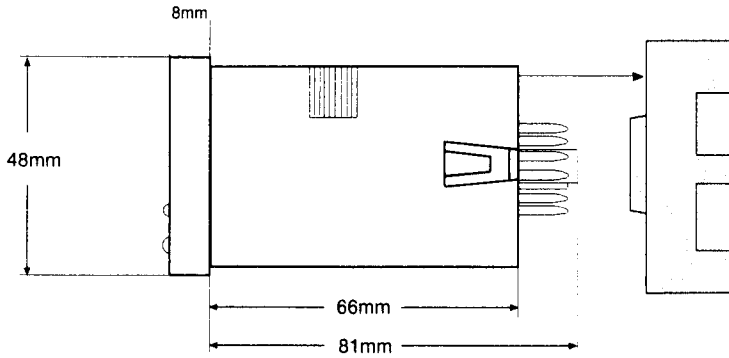
To wire the unit, an 11 pin socket is required. The unit can either be DIN rail mounted or panel mounted using the supplied mounting bracket. For panel mounting, place the unit in the cutout, then slide the bracket forward over the rear of the unit so that the tabs catch in the grooves on the housing 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.

PTC-22/PTC-22-LV
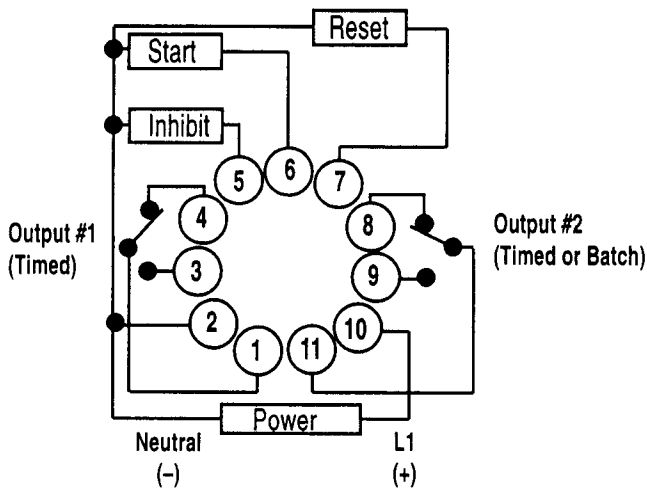
PTC-22-OC/PTC-22-LV-OC
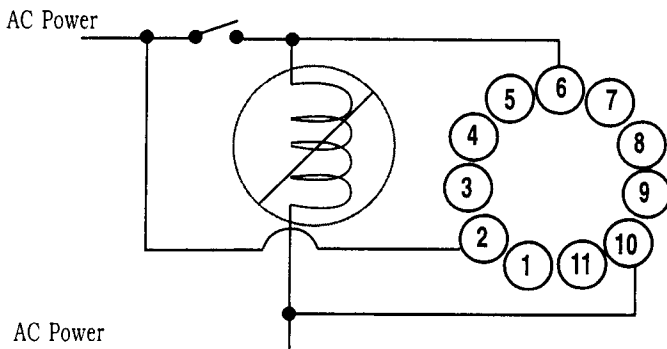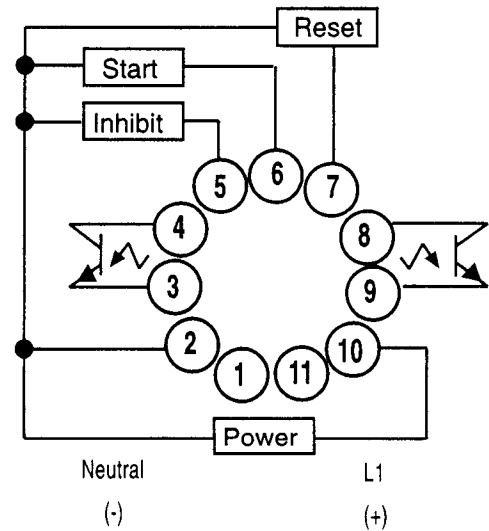
Warning: Do Not connect a coil in parallel with the start signal, as pictured at left. Such a connection will cause the start signal to be continuously active. This situation also applies to the Reset and Inhibit inputs.

1

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.

Preset 2 Indicator

Illuminates to indicate that the Preset 2 is being shown on the lower display.

Numeric Keys

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

Primary Display

In Control Mode: Displays the current time value associated with the displayed preset or the batch value (if configured).

In Program Mode: Displays the Parameter Description.

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. During timing operation the illuminated LED will flash.
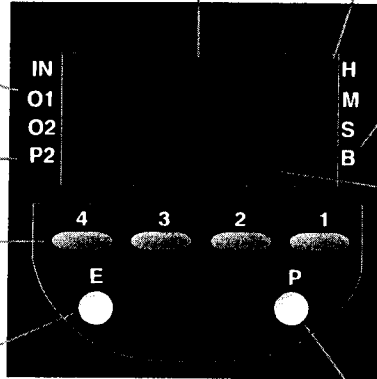
Batch Indicator

Illuminates to indicate that the Batch Count Value and Batch Preset are being displayed.

Set Value

In Control Mode: Displays the settable value used to trigger the timed output(s) and the batch count (if configured).

In Program Mode: Displays the current selection for the chosen parameter.

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.

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 back to Control Mode.

Preset 1 Display
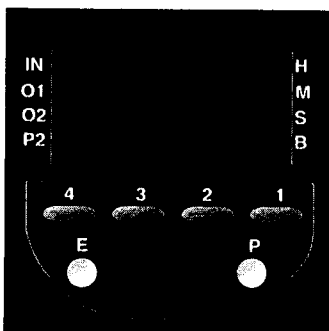
The lower display will indicate the value for Preset 1 in one of two manners:

In Standard Mode: Will display the time interval for the 1st operation of the cycle.

In Percentage Mode: Will display the % of the total time base (P2) applied to the 1st operation of the cycle.

Preset 2 Display
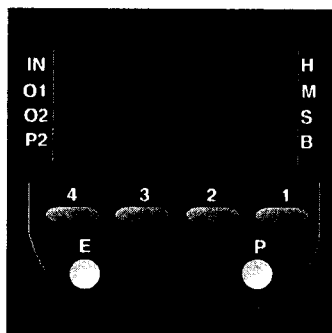
The lower display will indicate the value for Preset 2 in one of two manners:

In Standard Mode: Will display the time interval for the 2nd operation of the cycle.

In Percentage Mode: Will display the total time base for the cycle.

Batch Display
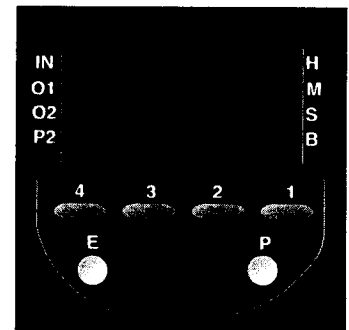
The upper display will indicate the current Batch Count Value, while the lower display will indicate the Batch Preset. A setting of "0" will disable output 2.

Note: The Batch Display will not appear if "Int" is chosen as the function for Output 2 in Program Mode.

CONFIGURATION

- 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 halt operation. Changes will only become effective after re turning to Control Mode by holding down the "P" key for 3 seconds

P
○ For 3 Seconds

```
┌─────────────┐
│  F U N C    │
│             │
│  P E r C    │
└─────────────┘
```

P
○

Operating Function: Determines how the time periods for the repeat cycle will be set. Choices are:

- Percentage (PErC): Preset one is input as a percentage of the total time base which is set in Preset 2.

- Standard (Std): Preset one represents the amount of time that output 1 will be "On" during the cycle. Output 2 represents the "Off" time in the cycle. The time range for each output is independently settable.

Note: The following parameter will not appear if "Standard" is chosen as the Operating Function. In that instance, Output 2 will default to "Batch Count".

```
┌─────────────┐
│  O U 7 2    │
│             │
│   I n t     │
└─────────────┘
```

P
○

Output 2 Operation: Determines the functionality of the 2nd output. Choices are:

- Interval (int): Output 2 parallels the operation of Output 1.

- Batch Count (bC): Output 2 will be activated after a preset amount of Cycles is completed. The preset value is input in the Batch Count screen in Control Mode.

Note: The following parameter will not appear if "Percentage" and "Interval" are chosen for the first two settings.

```
┌─────────────┐
│  B F N C    │
│             │
│   S t o P   │
└─────────────┘
```

P
○

Batch Function: Determines how the time cycle will be affected when the Batch Count Preset is reached. Choices are:

- Stop (StoP): The timing cycle will halt after the number of cycles set for the Batch Count is completed. To activate another cycle, it is necessary to reset the unit and provide a start signal.

- Continue (Cont): The timing cycle will continue until a reset signal is received.

Note: The following parameter will not appear if "Percentage" and "Interval" are chosen for the first two settings.

```
┌─────────────┐
│  B C 7      │
│             │
│  0 0 0 0    │
└─────────────┘
```

Batch Count Output: Sets the duration of Output 2, within a range from 1 second to 9999 seconds. A setting of 0000 will latch the output until a reset signal is received.

P

○

```
 i  5  7
    0  n
```

P

○

```
 7     n     i
```

P

○

1st Operation: Determines whether the time cycle will start with an "On" operation (Output 1 active) or an "Off" operation (Output 1 inactive). Please note that since preset 1 and preset 2 apply to Operation 1 and Operation 2 respectively, changing this parameter will also affect the function of each preset (ie: Preset 1 will change from the On time to the Off time, if "Off" is chosen for this parameter).

Time Range 1 : Sets the unit of measure for the time values that will be used for Preset 1. Choices are:

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

```
 0  E  C  i
```

P

○

Note: The following parameter will not appear if "Minutes:Seconds" or "Hours:Minutes" is chosen for Time Range 1.

Decimal Position for Time Range 1: Determines the resolution of the selected time range. Settable from 0000 to 0.000

```
 7     n     2
```

P

○

Note: The following parameter will not appear if "Percentage" is chosen as the Operating Function.

Time Range 2 : Sets the unit of measure for the time values that will be used for Preset 2. Choices are:

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

```
 0  E  C  2
       u  P
```

P

○

Note: The following parameter will not appear if "Minutes:Seconds" or "Hours:Minutes" is chosen for Time Range 2.

Decimal Position for Time Range 2: Determines the resolution of the selected time range. Settable from 0000 to 0.000
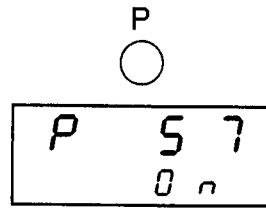
```
 7  0
       u  P
```

Timing Direction: Determines whether the time values for Preset 1 and 2 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).

P

◯

```
 P    5  7
         0  n
```

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*).

P

◯

```
 F    5  7
         0  n
```
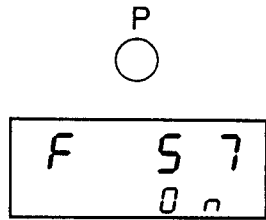
Front Panel Reset Enable: When active (*On*), the timing operation can be reset in Control Mode by simultaneously pressing the "E" and "P" keys. If inactive (*OFF*), the timing operation can only be reset through the remote input.

P

◯

```
 5  L  U  L
            0
```
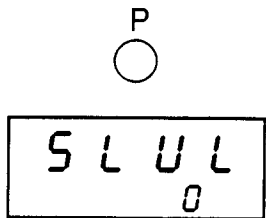
Security Level: 4 different levels of security are available:

    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

Program Mode Overview
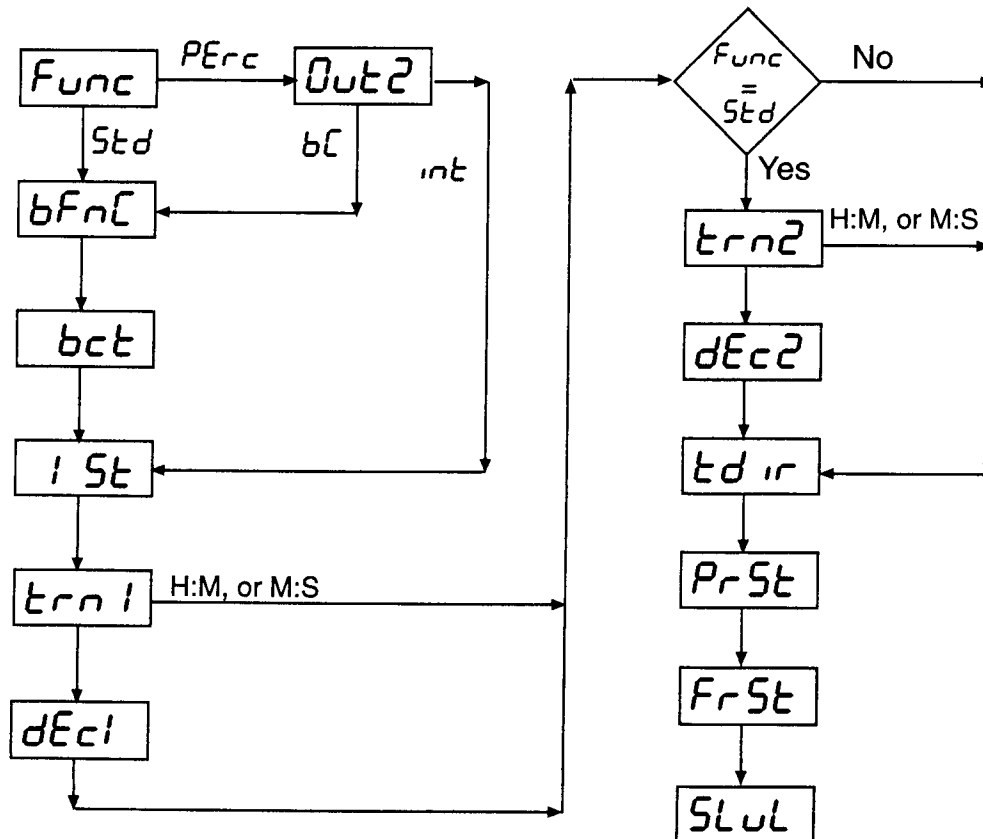
TIMING DIAGRAMS

Repeat Cycle - Batch/Continue

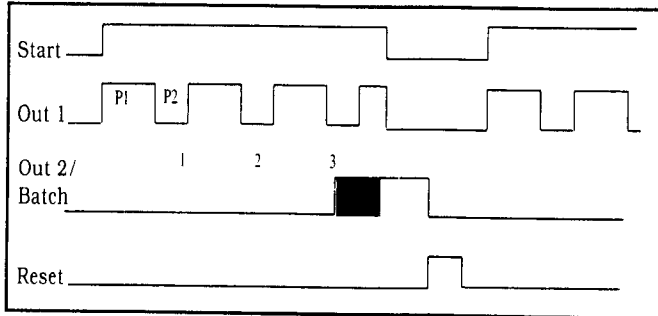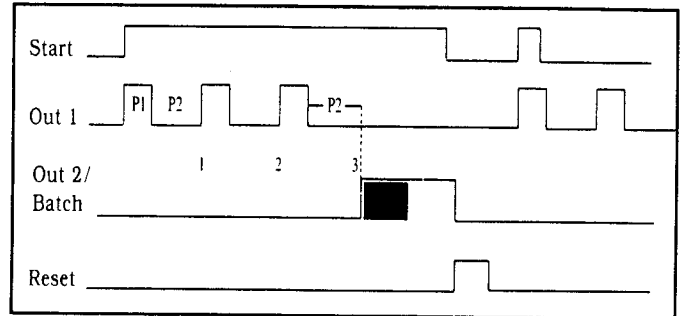|	Activates	Deactivates
Cycle Timing	On leading edge of start signal	On deassertion of the Start Signal or Reset
Batch Count	Accumulates after each complete cycle	On reaching the Batch Count Preset Value or Reset
Output 1	On leading edge of start signal or after completion of P1 - based on programming	On completion of P1 or Reset
Output 2	When the Batch Count Value equals the Batch Preset	On completion of the Batch Count Time or Reset

The inhibit input will halt the timing functions while asserted, but leave the outputs in their current state. Setting the Batch Count Preset to zero will disable output 2.

Repeat Cycle - Batch/Stop

	Activates	Deactivates
Cycle Timing	On leading edge of start signal	On completion of the Batch Count Value, deassertion of the Start Signal or Reset
Batch Count	Accumulates after each complete cycle	On reaching the Batch Count Preset Value or Reset
Output 1	On leading edge of start signal or after completion of P1 - based on programming	On completion of P1 or Reset
Output 2	When the Batch Count Value equals the Batch Preset	On completion of the Batch Count Time or Reset

The inhibit input will halt the timing functions while asserted, but leave the outputs in their current state. Setting the Batch Count Preset to zero will disable output 2.

Repeat Cycle - Interval
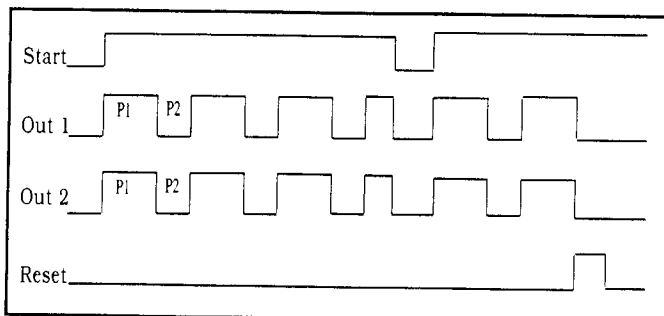
	Activates	Deactivates
Cycle Timing	On leading edge of start signal	On deassertion of the Start Signal or Reset
Output 1	On leading edge of start signal or after completion of P1 - based on programming	On completion of P1 or Reset
Output 2	Mirrors output 1	Mirrors output 1

The inhibit input will halt the timing functions while asserted, but leave the outputs in their current state.

G E N E R A L

Inputs
Start: NPN or Dry Contact
Reset: NPN or Dry Contact
Inhibit: NPN or Dry Contact
Activation Time: 4 ms (*), 21 ms (**)
Impedance: 10 KΩ

* PTC-22-LV & PTC-22-LV-OC
** PTC-22 & PTC-22-OC

Outputs
Relay: 2 SPDT (5 amp) - 15 ms latency
Transistor: NPN Open Collector - 30 VDC, 30 mA max

Physical
Dimensions: 48mm x 48mm, 85mm deep
Mounting: Panel Mounting 45mm x 45mm
                     cutout or DIN rail
Wiring Connection: Via 11 pin plug in socket
Weight: 100 grams (3.5 ounces)

Operation
Supply Voltage: 85 - 264 VAC 50/60Hz, or 24 VAC/VDC
Power Consumption: < 10 VA max @ 240 VAC, 200 mA @ 24 VDC
Time Ranges: Hours, Minutes, Seconds, Hours:Minutes, Minutes:Seconds
Resolution: Settable for XXXX or XX.XX for Hours, Minutes and Seconds ranges
Operating Modes: Repeat Cycle
Repeat Accuracy: ± 0.01%
Display: Dual line, 4 digit, 7 segment LED - 8mm high
Memory: EEPROM retains settings when power is disengaged
Electrical Service Life: 100,000 cycles at full load
Mechanical Service Life: 10 million cycles at min. load

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

Description	Model #
Repeat Cycle Timer, Relay Out, 90-240 VAC	PTC-22
Repeat Cycle Timer, Relay Out, 24 VDC	PTC-22-LV
Repeat Cycle Timer, NPN trans Out, 90-240 VAC	PTC-22-OC
Repeat Cycle Timer, NPN trans Out, 24 VAC/DC	PTC-22-LV-OC

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.

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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.

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