

Your B90D timer is a unique device which combines the slim design and easy behind the panel mounting of DIN rail style timers, with digital setting accuracy and flexibility associated with panel mount units.

This manual provides information on how to install and operate the timer, and takes you step by step through the programming mode where the time range and mode of operation is selected. Also included are key product specifications, warranty procedures and ordering information should you require additional units. If additional assistance with the installation or operation of this product is required, please call our technical office on 01794 514445.



### Features

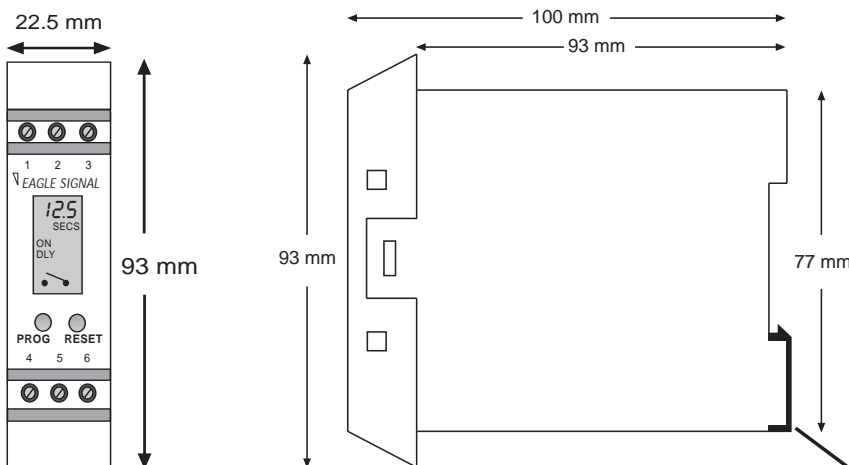
- 22.5 mm wide DIN rail mount design
- 8 Field Selectable Timing Modes
- Multiple time ranges from 0.2 secs. to 999 hrs
- Digital Setting Accuracy of  $\pm 0.5\%$
- 3 digit LCD display with status indicators
- Lithium battery powered - 10 year life
- 8 amp SPDT contacts
- 12V to 260V AC or DC input
- UL recognized, CE compliant

*Technical Manual*  
*#702225-0001*

**KUHNKE**

*B90D*  
*Multifunction*  
*DIN Rail Timer*

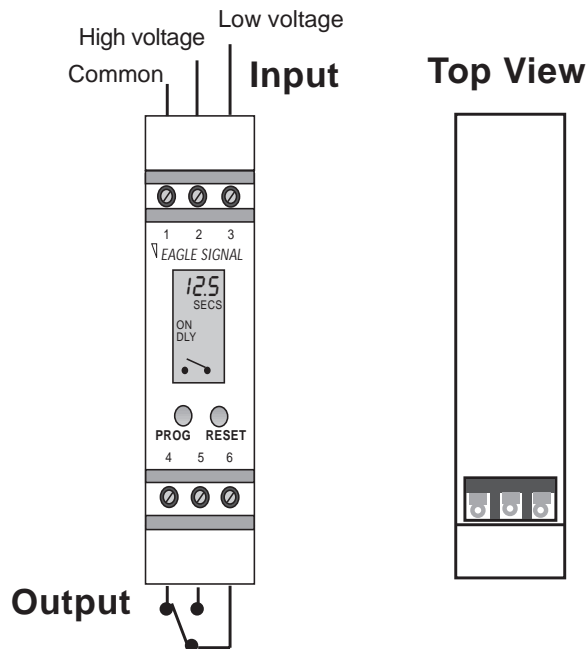
## INSTALLATION



The unit snaps on to a standard 35mm DIN rail using the spring loaded clip

Spring Loaded Clip

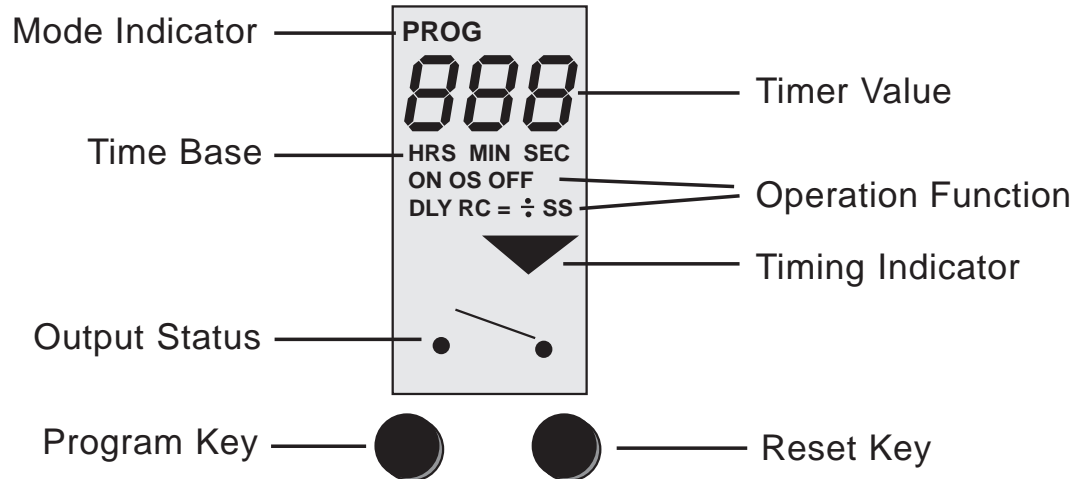
## WIRING



Insert wires into the terminal connections located directly behind the front bezel on the top and bottom of the unit. Insert a screw driver into the corresponding slot on the face of the unit to tighten the wire connection.

- #1 Input Common
- #2 High Voltage Input  
48 to 260 VAC/DC
- #3 Low Voltage Input  
5 to 48 VDC  
12 to 48 VAC
- #4 Normally Closed Contact
- #5 Normally Open Contact
- #6 Output Common

## OPERATION



Display	Function
Mode Indicator	Illuminates when the unit is in Program Mode
Timer Value	Displays the time remaining in the cycle, or in Program Mode displays the setvalue
Time Base	Indicates whether the unit is timing in hours, minutes or secs
Operating Function	Displays how the unit is operating in relation to the setvalue

Display/Key	Function
Timing Ind.	Flashes when a timing cycle is active
Output Status	Graphically displays whether the relay contact is open or closed
Program Key	Puts the timer in Program Mode when pressed for 3 seconds
Reset Key	Reset the relay and timing cycle In Off-Delay Mode press once for the relay, and again for timer

# PROGRAMMING

**To Enter the Program Mode**

Press for 3 seconds

The display will visibly count down the 3 seconds. At the end of this period the Program Indicator will illuminate and the currently selected Operating Function will appear

**PROG** Will scroll among the choices for that parameter or increment a numeric value

**RESET** Scrolls the display to the next parameter setting or for a numeric value moves the display to the next digit

## Operating Function

*Function:* Defines how the output will function in relation to the set value

*Adjustment Range:*

PROG ON DLY	PROG OFF DLY	PROG OS	PROG SS	PROG DLYRC	PROG RC	PROG DLYRC=	PROG RC=
<i>On Delay</i>	<i>Off Delay</i>	<i>Delay Int/ One shot</i>	<i>Interval/ Single shot</i>	<i>Delay Repeat Cycle</i>	<i>Repeat Cycle</i>	<i>Delay Repeat Cycle =</i>	<i>Repeat Cycle =</i>

## Time Range

*Function:* Sets the unit of measure/time base

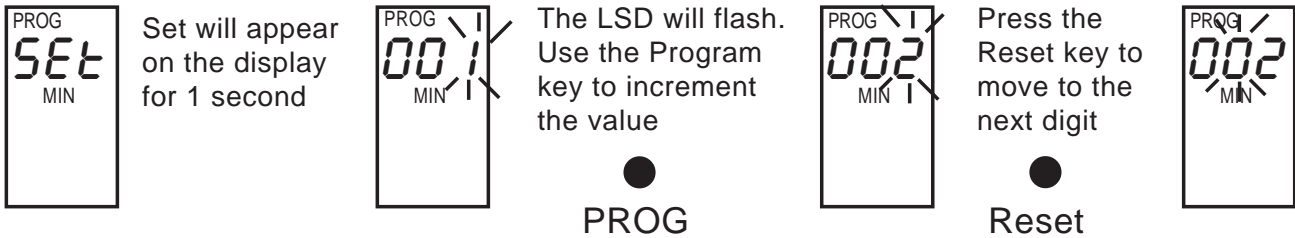
*Adjustment Range:*

PROG 9.99 HRS	PROG 9.9 HRS	PROG 9 HRS	PROG 9.99 MIN	PROG 9.9 MIN	PROG 9 MIN	PROG 9.9 SEC	PROG 9 SEC
<i>Hours - hundredths</i>	<i>Hours - tenths</i>	<i>Hours</i>	<i>Minutes - hundredths</i>	<i>Minutes - tenths</i>	<i>Minutes</i>	<i>Seconds - tenths</i>	<i>Seconds</i>

## Set Value

*Function:* Defines the time value that will be utilized during operation

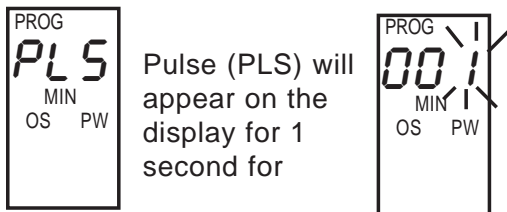
*Adjustment Range:* 001 to 999



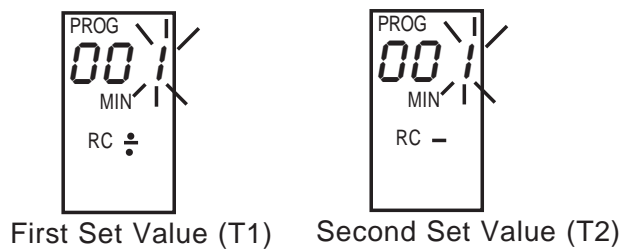
Pressing reset with the MSD flashing will move the display to the next parameter

If On-Delay Interval, Repeat Cycle, or Delayed Repeat Cycle are chosen as the Operating Function, two time values will need to be set

### On Delay Interval Mode



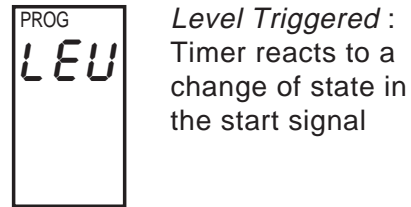
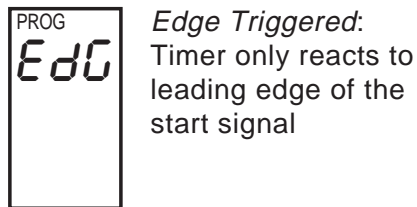
### Repeat Cycle/Delayed Repeat Cycle



## Start Signal

*Function:* Defines how the timing cycle is triggered

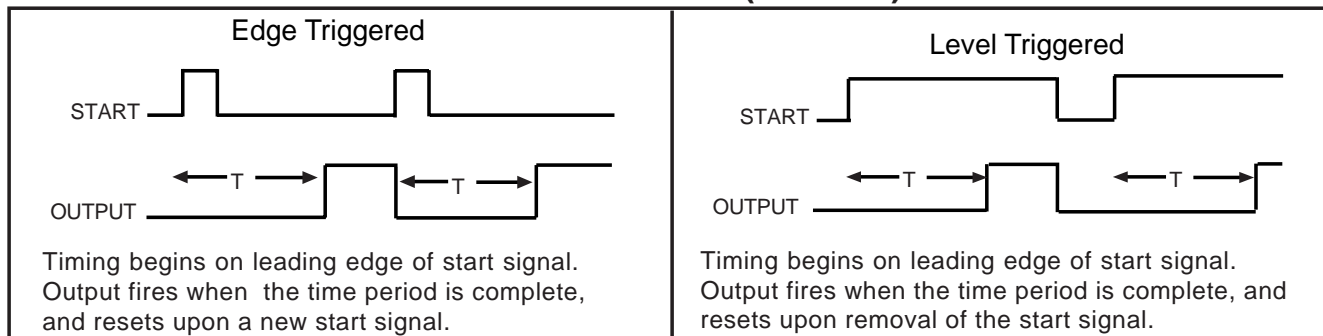
*Adjustment Range:*



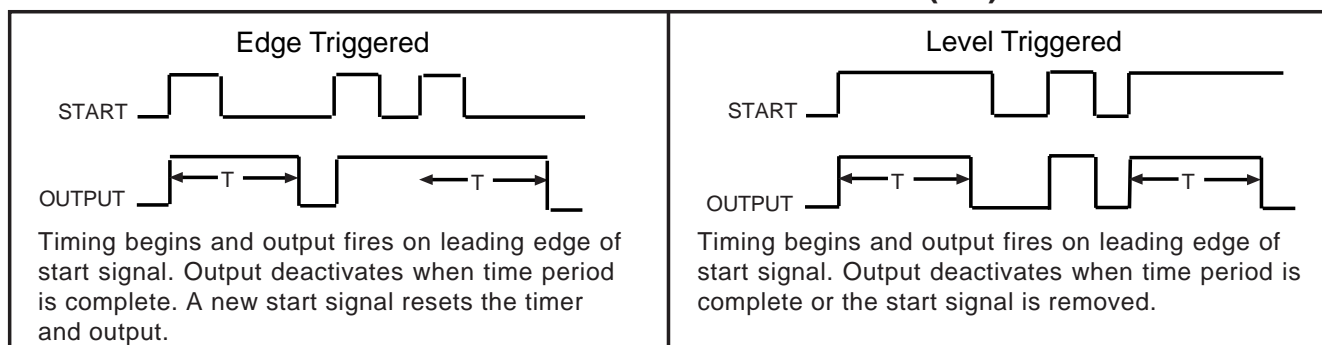
To Exit the Program Mode press and hold the Reset Key while the above parameter is displayed

## TIMING DIAGRAMS

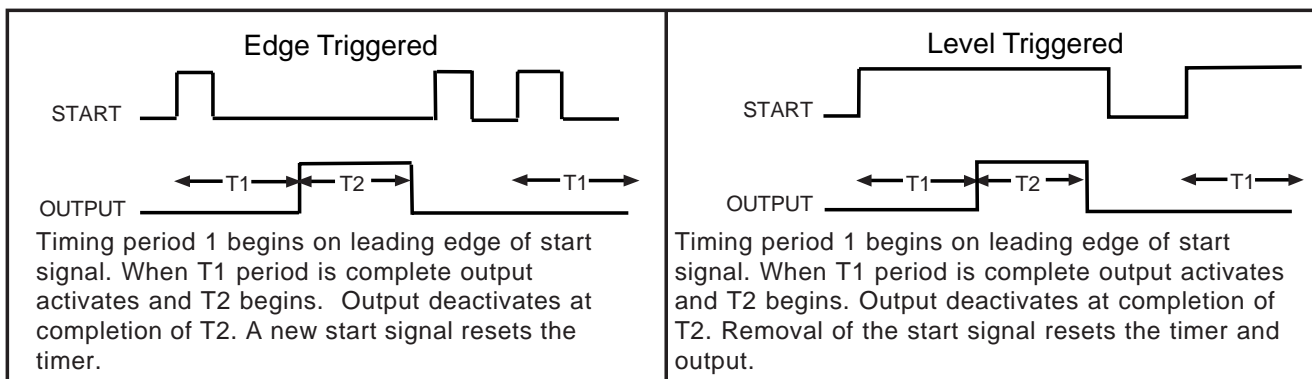
### ON-DELAY (ON DLY)



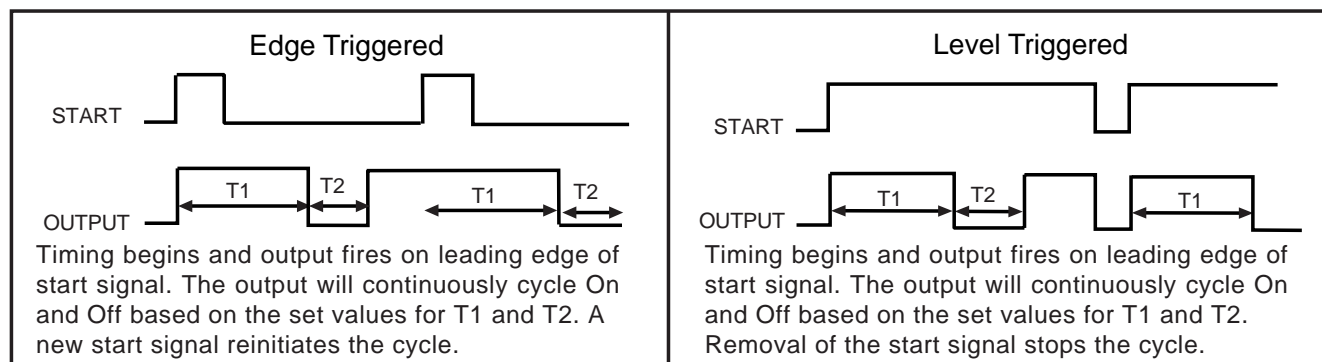
### INTERVAL/SINGLE SHOT (SS)



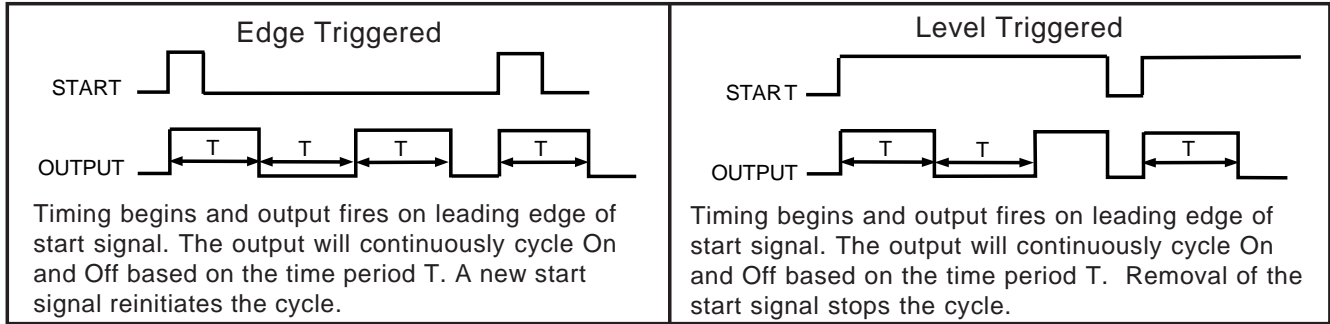
### DELAY - INTERVAL/ONESHOT (OS)



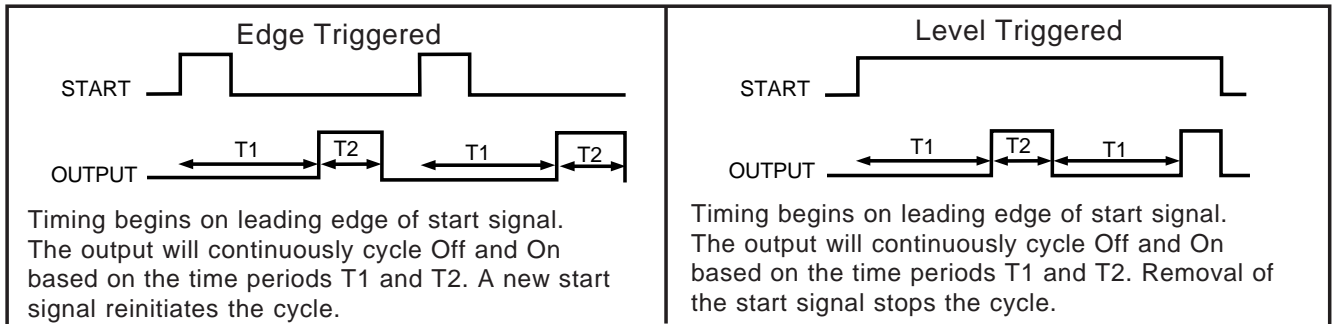
### REPEAT CYCLE - SEPARATE ON/OFF TIMES (RC)



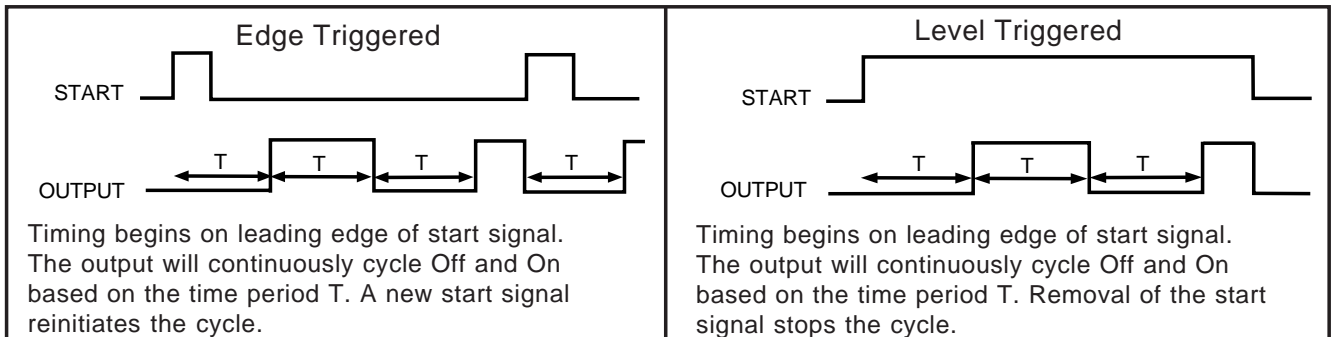
### REPEAT CYCLE - EQUAL ON/OFF TIMES (RC=)



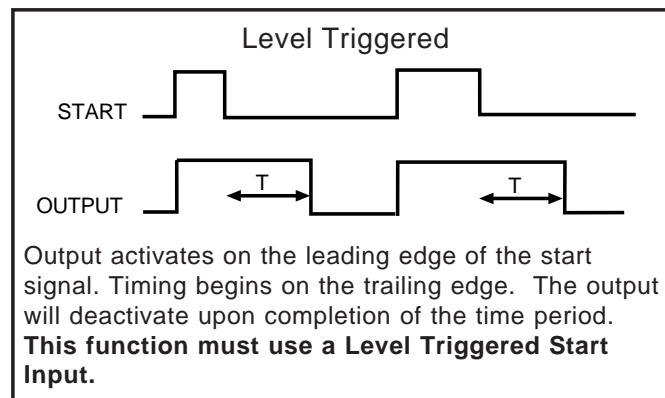
### DELAYED REPEAT CYCLE - SEPARATE ON/OFF TIMES (DLYRC)



### DELAYED REPEAT CYCLE - EQUAL ON/OFF TIMES (DLYRC=)



### OFF DELAY(OFFDLY)





**Inputs:**

**Type:** 5 to 260 DC, PNP; 12 to 260 VAC

**Input Impedance:** 10K $\Omega$  for 5 to 48 Volts, 180 K $\Omega$  for 48 to 260 Volts

**Min. Pulse:** 20 ms

**Triggering:** Edge or Level field programmable

**Outputs:**

**Type:** SPDT Relay

**Rating:** 8 amp @ 260 VAC, 5 amp @ 30 VDC

**Expected Life:** 100,000 operations @ 8 amp resistive load, 1,000,000 operations @ 2 amps resistive load

**Physical:**

**Dimensions:** 22.5 mm wide x 93mm high x 100 mm deep

**Mounting:** Spring clip connection to 35 mm DIN rail

**Wiring:** Front accessible screw terminals

**Display:** Silver on black LCD, 3 numeric digits, time base, operation mode and output status indicators

**Operation:**

**Power Source:** Two non-replaceable 3V lithium batteries, 10 years expected life

**Time Ranges:** 0.2 to 99.9, 1 to 999 secs.

0.01 to 9.99, 0.1 to 99.9, 1 to 999 min.

0.01 to 9.99, 0.1 to 99.9, 1 to 999 hrs.

**Operating Modes:** On-Delay, Off-Delay, Interval, Symmetrical Repeat Cycle (On or Off start), Asymmetrical Repeat Cycle (On or Off start), On-Delay Interval

**Setting Accuracy:**  $\pm$  0.5% of set time, or +50ms -20ms, whichever is greater

**Repeat Accuracy:**  $\pm$  0.3% of set time

**Environmental:**

**Operating Temperature:** -10°C to + 60° C

**Storage Temperature:** -20°C to +70° C

**Approvals:** UL, CUL recognized, CE compliant

## ***WARRANTY***

Standard products manufactured by the Company are warranted to be free from defects in workmanship and material for a period of three years from the date of shipment, and products which are defective in workmanship or material will be repaired or replaced, at the option of the Company, at no charge to the Buyer. Final determination as to whether a product is actually defective rests with the Company. The obligation of the Company hereunder shall be limited solely to repair and replacement of products that fall within the foregoing limitations, and shall be conditioned upon receipt by the Company of written notice of any alleged defects or deficiency promptly after discovery within the warranty period, and in the case of components or units purchased by the Company, the obligation of the Company shall not exceed the settlement that the Company is able to obtain from the supplier thereof. No products shall be returned to the Company

without its prior consent. Products which the Company consents to have returned shall be shipped F.O.B. the Company's factory. The Company cannot assume responsibility or accept invoices for unauthorized repairs to its components, even though defective. The life of the products of the Company depends, to a large extent, upon the type of usage thereof, and THE COMPANY MAKES NO WARRANTY AS TO FITNESS OF ITS PRODUCTS FOR SPECIFIC APPLICATIONS BY THE BUYER NOR AS TO PERIOD OF SERVICE UNLESS THE COMPANY SPECIFICALLY AGREES OTHERWISE IN WRITING AFTER THE PROPOSED USAGE HAS BEEN MADE KNOWN TO IT.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE.

## ***ORDERING INFORMATION***

**Multifunction DIN Rail Timer: B90D-500**