Introduction

The precision of digital setting, versatile functionality and a straightforward button per digit interface with a high visibility LED can all be found in the Eagle Signal brand B506. Housed in a compact 1/16 DIN package, the B506 can be programmed to perform a variety of standard timing operations as well as a unique On/Delay Interval Mode which, in many cases, performs the functions of two separate timers. Five selectable time ranges and a programmable decimal point enable preset times ranging from .01 seconds 9999 hours.

Inside this manual you will find complete information on the basic operation of the timer, including inputting setpoints and viewing the process time and status annunciators. The Program Mode section contains instructions on how to set the basic configuration (i.e. mode of operation, time range) of the timer as well as other settable features which enhance the functionality and usability of the device.

Also found in this manual are detailed timing diagrams and descriptions of the available operating functions to aid you in determining how to properly configure the unit to solve your application. Additionally included are key product specifications, warranty procedures and ordering information should you need additional units or accessories.

If you require any additional assistance with the installation and operation of this product, please call our toll free application support line at 1-800-234-8731.

Features

- Field programmable for one of 5 operating modes

- 5 selectable time ranges with resolution down to 0.01 seconds

- High Visibility display indicates both process time and preset value

- Simple button per digit interface

- Programmable security levels prevent unauthorized setpoint or program changes

- Universal AC Power Supply (90 - 264 VAC) and low voltage (24 VAC/VDC) models available

- External Start and Reset Inputs

- IEC IP65 rated front panel

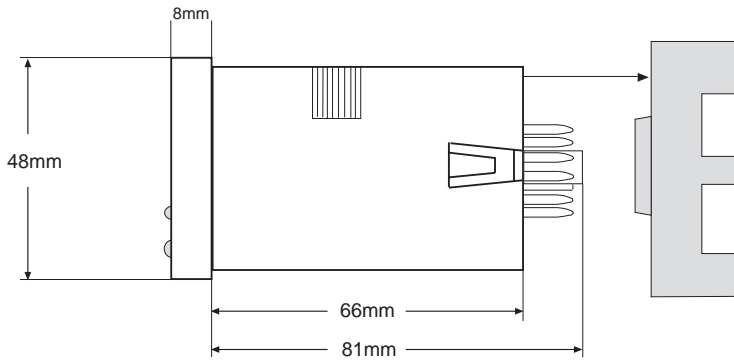- Industry standard 11 pin socket connection

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Technical Manual 702119-0001

Eagle Signal brand B506 Multifunction LED Timer

INSTALLATION & WIRING

8mm

48mm

66mm

81mm

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.

Reset

Start

5 6 7

4 8

3 9

2 10

1 11

Power
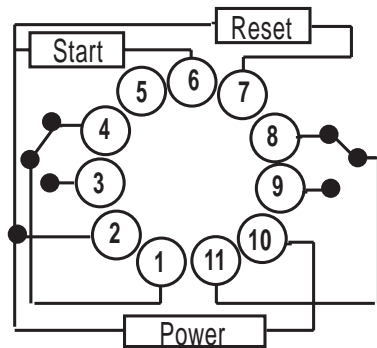
Warning: Do Not connect a coil in parallel with the start signal for the B506. Such a connection will cause the start signal to be continuously active. This situation also applies to the Reset input.

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.

PROGRAM 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

```
Func
  OndL
```

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

     • On-Delay (OndL)
     • Off Delay (OFdL)   See Page 6 for timing charts.
     • Interval (int)
     • Repeat Cycle (CYCL)
     • Delay/Interval (dint)

P ⃝

```
FrSt
   On
```

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.

```
 int
  1.0s
```

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 ⃝

```
trnG
```

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 ⃝

```
dEcP
```

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.

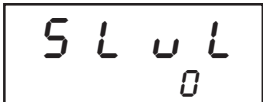# *P R O G R A M M I N G*

P
○

```
t d ı r
    u P
```

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).

P
○

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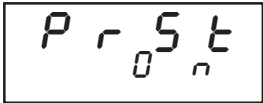
Power Reset Enable: After a loss of power the unit can be programmed to either reset upon reapplication of power (On) or continue from the point of power interruption (Off).

P
○

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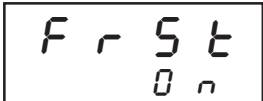
Front Panel Reset Enable: When active (On), the timing operation can be reset in Control Mode by simultaneously pressing the "E" and "P" keys. If inactive (Off), the timing operation can only be reset through the remote input.
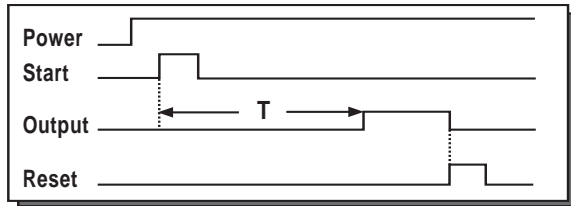
P
○

```
S 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
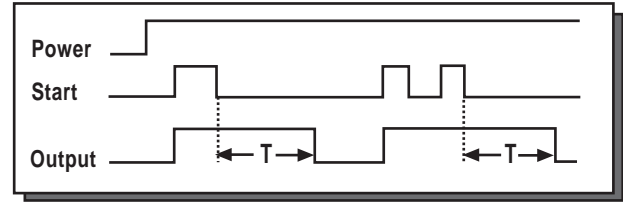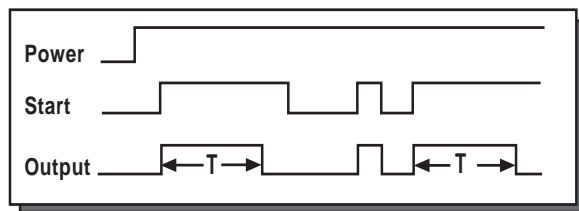
TIMING DIAGRAMS

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.
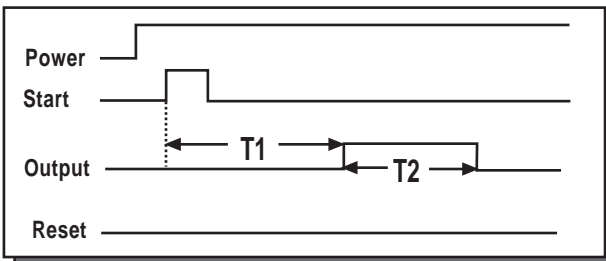
Interval

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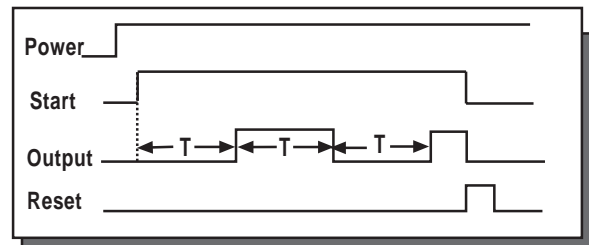
Timing begins on the leading edge of the start signal. A cycle is initiated where the output will be OFF for the preset time (T), then ON for the preset time. This cycle will continue until the start signal is removed, a reset signal is applied or power is interrupted*. The unit can also be programmed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

G E N E R A L

SPECIFICATIONS

Inputs
Start:	NPN or Dry Contact
Reset:	NPN or Dry Contact
Activation Time:	4 ms (B506-5XX2), 21 ms (B506-5XX1)
Impedance:	10 KΩ

Outputs
Timed:	DPDT (5 amp)

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

Operation
Supply Voltage:	90 - 240 VAC 50/60Hz, or 24 VAC/VDC
Power Consumption:	< 10 VA
Time Ranges:	Hours, Minutes, Seconds, Hours:Minutes, Minutes:Seconds
Resolution:	Settable for XXXX 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 #	Description	Model #
Multi-function Timer, 90- 240 VAC	B506-5001	11 Pin Socket	60SR3P06
Multi-function Timer, 24 VAC/VDC	B506-5002	11 Pin Socket - Outward facing terminals	PBT-03172

G E N E R A L

Standard B506 products manufactured by the Company are warranted to be free from defects in workmanship and material for a period of two 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.