

Introduction

An excellent value in its class, the B856 features a compact 1/16 DIN package, the precision of digital setting, versatile functionality, and a straightforward button-per-digit interface.

It can be easily programmed to perform any standard timing operation: On-Delay, Off-Delay, Interval 1, Interval 2, or Repeat Cycle. A unique On-Delay /Interval Mode can in many cases perform the function of two separate timers. Output is via DPDT relay contacts.

Five selectable time ranges and a programmable decimal point provide preset times ranging from .01 seconds to 9999 hours.

Simplicity of operation is maintained while still providing a high level of functionality. All programming is done through the front panel, with an intuitive button-per-digit keypad that makes entry of preset times quick and easy. A crisp dual line LCD display lets the operator readily view elapsed or remaining cycle time as well as the preset value.

Prominent annunciators indicate information such as the time range and the status of the input and outputs.

Reliability is a key feature of the B856. IEC Level 4 noise immunity ensures flawless operation in harsh electrical environments, while its IEC IP65 enclosure rating allows use in washdown conditions.

Wiring via an industry standard 8 pin socket and a power supply that can accept 24 - 240 VAC or 24 VDC vastly simplify setup.



**Technical Manual
702096-0001**

**Eagle Signal brand
Model B856-501
Multifunction
LCD Timer**

Features

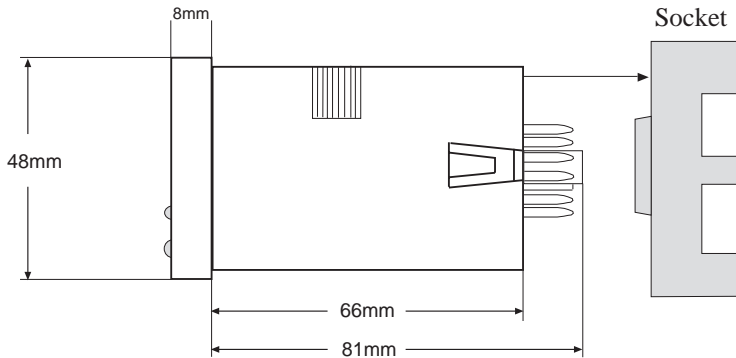
- Field programmable choice of 6 operating modes
- 5 selectable time ranges with resolution down to 0.01 seconds
- High Contrast LCD display indicates both process time and preset value
- Simple button per digit interface
- Programmable security levels prevent unauthorized setpoint or program changes
- Universal Power Supply (24 - 240 VAC, 24 VDC)
- External Start and Reset Inputs
- IEC IP65 rated front panel

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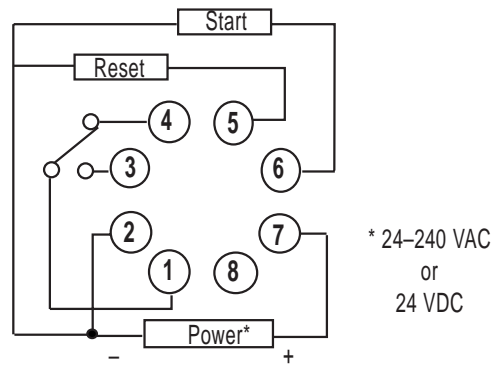
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OVERVIEW

INSTALLATION & WIRING



To wire the unit, an 8 pin socket is required. The unit can then 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.



FRONT PANEL OPERATION

I/O Status Indicators

Illuminates to display when an input or output is active: "IN" for the start input, "OUT" for the timed output, and "RST" for the external reset signal.

Time Indicators

The word "Timing" Flashes when a timing function is taking place. The applicable arrow also lights to indicate if the display is set to time up or time down.

Time Value

Indicates the elapsed/remaining time to preset.



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.

Set Value

Settable value used to trigger the timed output.

Numeric Keys

Each of the number keys is used to increment or decrement the value of the corresponding digit of the preset or a parameter value (increments if unit is set in time up mode and decrements if set in time down mode).

Edit Key

Many of the parameters in Program Mode require selection of a specific choice as opposed to a numeric value. The Edit key is used to scroll through the available choices. In Operation mode, the Edit key can be pressed simultaneously with the Program key to reset the timer.

Program Key

Pressing the key continuously for 3 seconds moves the unit in and out of Program mode. Once in Program mode, pressing and releasing the key will scroll the display from one parameter to the next.

PROGRAMMING

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 stop timing and the output will retain its last state. The new settings will only become effective after returning to Operation Mode by holding down the "P" key for 3 seconds

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)
- Interval 1 (int1)
- Interval 2 (int2)
- Delay/Interval (dint)
- Repeat Cycle (CYCL)

P
○

See Appendix A for timing charts

1st
On

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

Note: This parameter will only appear if Repeat Cycle is chosen as the Operating Function

P
○

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.

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

P
○

trng
s

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

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

P
○

decP
0s

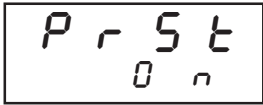
Decimal Position: Sets the decimal position for the time display. Choices are: no decimal point (0), 1/10ths position (0.0), or Hundredths position (0.00). The time range selected in the previous parameter will remain illuminated for reference.

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

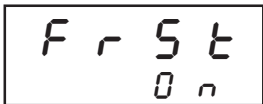
PROGRAMMING



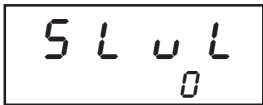
Timing Direction: Determines whether the time value will increment from zero and change the state of the output at the set value (uP) or decrement from the set value and change the state of the output at zero (dn).



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 Operation Mode by simultaneously pressing the "E" and "P" keys. If inactive (Off), the timing operation can only be reset through the remote input.



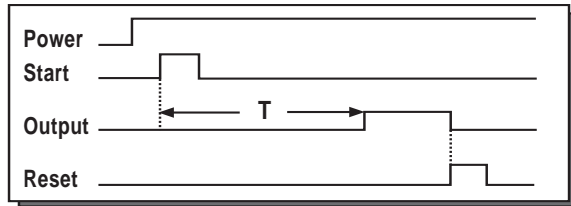
Security Level: 4 different levels of security are available:

- 0 = Full Access
- 1 = SP Locked Out
- 2 = Access to Program Mode only by holding the "P" key for 8 seconds
- 3 = SP Locked Out and access to Program Mode only by holding the "P" key for 8 seconds

OPERATING MODES

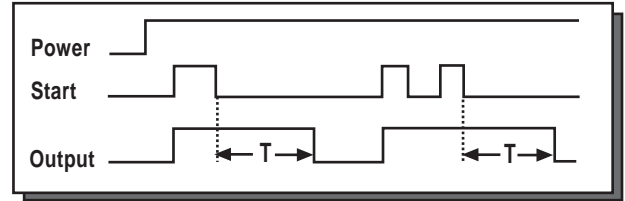
TIMING DIAGRAMS

On-Delay



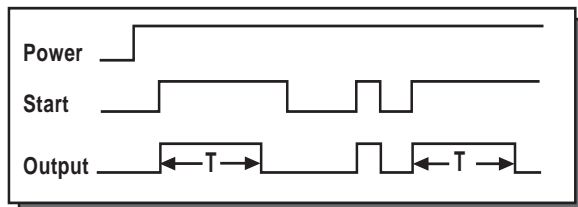
Timing begins on the leading edge of the start input. The output will activate at the completion of the preset time (T) and will remain active until the reset signal is applied or power is interrupted.*

Off-Delay



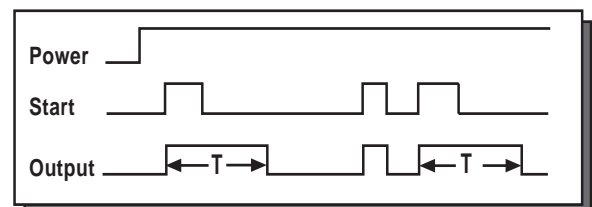
The output is activated at the leading edge of the start signal. Timing begins on the trailing edge. The output will remain active until the preset time (T) has elapsed or power is interrupted.* Reapplying the start signal before T has elapsed will reset the time value. The reset input is not used.

Interval 1



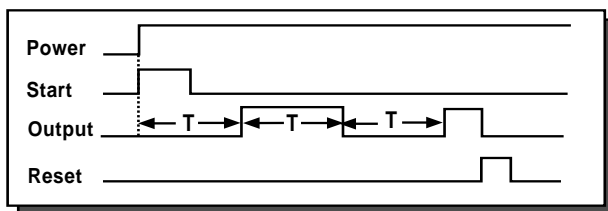
On the leading of the start input, the output is activated and timing begins. The output will remain active until the preset time (T) has elapsed or power is interrupted.* Removal of the start signal will also cause the output to be deactivated and the time value to be reset. The reset input is not used.

Interval 2



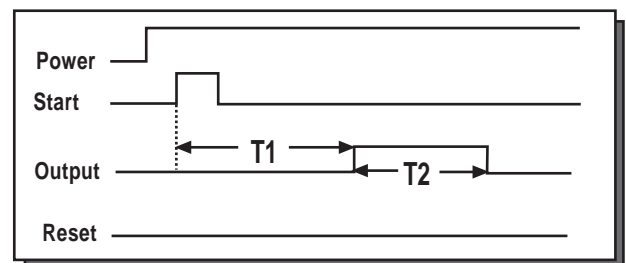
On the leading of the start input, the output is activated and timing begins. The output will remain active until the preset time (T) has elapsed or power is interrupted.* The reset input is not used.

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 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.

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 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 interruption of power.*

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

GENERAL

SPECIFICATIONS

Inputs

Start: NPN or Dry Contact
Reset: NPN or Dry Contact

Outputs

Timed: SPDT - 5 amp
Activation Time: 15 msec. max.

Physical

Dimensions: 48mm x 48mm, 81mm deep
Mounting: Panel Mounting 45 x 45 cutout or
DIN rail
Wiring Connection: Via 8 pin plug in socket

Operation

Supply Voltage: 24 - 240 VAC 50/60Hz, or 24 VDC
Power Consumption: 50 VA @ 240 VAC
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 1, Interval 2, Repeat, Delay/Interval
Repeat Accuracy: $\pm 0.03\%$
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; CE certified

ORDERING INFORMATION

Description

Multifunction Timer, 24 - 240 VAC, 24 VDC
8 Pin Socket

Model

B856-501
60SR2P06

WARRANTY

Standard B856 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.