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## FEATURES

- Microcontroller Circuitry
- Switch Selectable Delays to 170.5 Hours In Five Ranges
- 1% Setting Accuracy
- 0.1% Repeat Accuracy
- Eight Modes of Operation
- No First Cycle Effect
- Wide Voltage Selection: 24-230 VAC, 12-110 VDC
- LED Timing Indication
- 8 Pin, 11 Pin, Stab/Square Base Plug-In Termination
- Rocker Type Time Delay Adjustment Switches for Positive Switch Settings
- UL/cUL Recognized, CE Mark

## SPECIFICATIONS

### 1. Time Delay

- 1.1 Type: Microcontroller Circuitry
- 1.2 Range: Five Ranges Available. Setting of the delay is accomplished via a 10 position dip switch located on the control's top surface. The required delay is selected by the addition of individual switch delays set in the on position. (See delay settings)
- 1.3 Repeat Accuracy:  $\pm 0.1\%$  Under Fixed Conditions
- 1.4 Setting Accuracy:  $\pm 1\%$
- 1.5 Reset Time: 200 Milliseconds Maximum
- 1.6 Recycle Time: 100 Milliseconds During Timing  
200 Milliseconds After Timing
- 1.7 Initiate Time: 25 Milliseconds Maximum  
(Customizable Per Customer Request)
- 1.8 Time Delay vs. Voltage and Temperature:  $\pm 2\%$

### 2. Input

- 2.1 Operating Voltage: 24, 120, & 230 VAC  
12, 24/28, & 110 VDC
- 2.2 Tolerance:  $\pm 20\%$  of Nominal
- 2.3 Frequency: 50 - 60 Hertz

### 3. Output

- 3.1 Type: Electromechanical Relay
- 3.2 Form: DPDT or SPDT (See Base Style Connection)
- 3.3 Rating: 10 Amperes Resistive @ 30 VDC, 120/240 VAC
- 3.4 Life: Electrical - Full Load - 100,000 Operations  
Mechanical - 10,000,000 Operations

### 4. Protection

- 4.1 Electrical Fast Transient Immunity: IEC 61000-4-4
- 4.2 Surge Immunity: IEC 61000-4-5
- 4.3 Dips, Shorts, and Interruptions Immunity: IEC 61000-4-11
- 4.4 Polarity: D.C. Units Are Reverse Polarity Protected
- 4.5 Dielectric Breakdown: 1500 Volts RMS Minimum

### 5. Mechanical

- 5.1 Mounting: Plug-in
- 5.2 Termination: Octal (8 Pin), Magnal (11 Pin), or 11 Pin Stab/Square Base Plug-in

### 6. Environmental

- 6.1 Operating Temperature:  $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$
- 6.2 Storage Temperature:  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- 6.3 Humidity: 95% Relative, Non-Condensing

## B SERIES BINARY DIGITAL PLUG-IN TIME DELAY RELAY



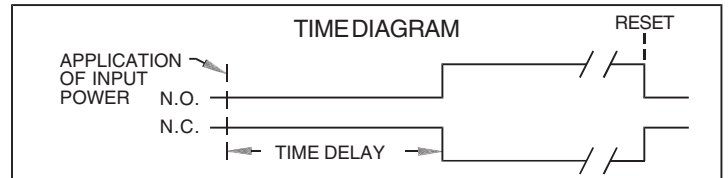
**UL**  
UL/cUL Recognized

File E80165  
UL Guide NKCR2  
cUL Guide NKCR8

## MODE OF OPERATION DELAY ON MAKE

## SERIES BMR

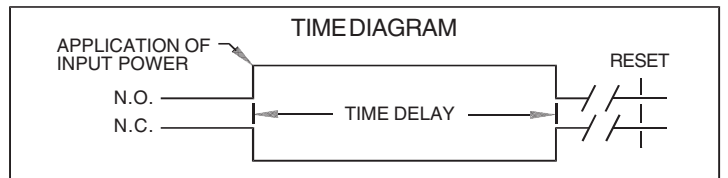
Upon application of power to the input terminals, the time delay begins. At the completion of the pre-selected time delay, the output contacts transfer. Reset is accomplished by removal of input power. There is no false output when reset during timing.



## INTERVAL

## BIR

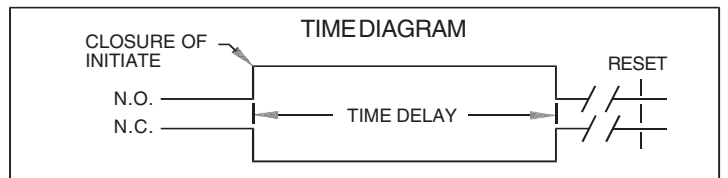
Upon application of power to the input terminals, the output contacts immediately transfer and the time delay begins. At the completion of the pre-selected time delay, the output contacts revert to their original position. Reset is accomplished by removal of input power.



## SINGLE SHOT

## BSR

Power must be applied to the input at all times prior to and during timing. Upon closure of the initiate switch (momentary or maintained) the output contacts transfer and the time delay begins. At the completion of the pre-selected delay period, the output contacts revert to their original position. Removal of input power will reset the control.



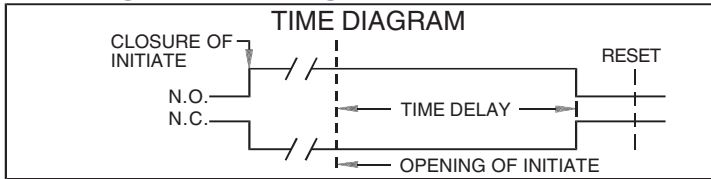
## DELAY ON BREAK

## BBR

Power must be applied to the input at all times prior to and during timing. Upon closure of the initiate switch the output contacts transfer and remain transferred if no further action is taken. When the initiate switch is opened, the time delay begins. At the end of the pre-selected delay period, the output contacts revert to their original position. Removal of input power will reset the control.

## DELAY ON BREAK CONT'D

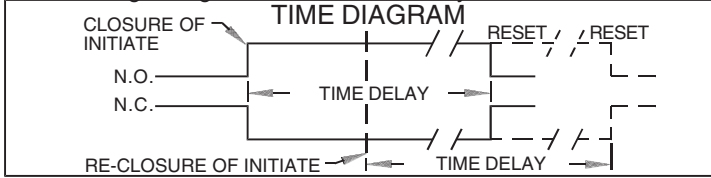
BBR



## RE-TRIGGERABLE ONE-SHOT

BOR

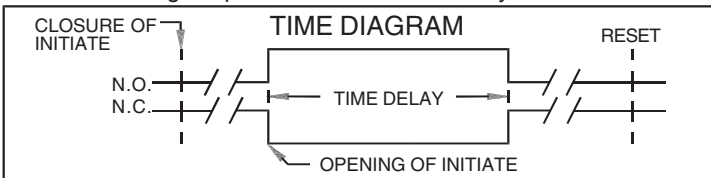
Power must be applied to the input at all times prior to and during timing. Upon closure of the initiate switch (momentary or maintained) the output contacts transfer and the time delay begins. At the completion of the pre-selected time delay the output contacts revert to their original position. **NOTE:** Momentary or maintained closure of initiate switch during timing will reset the time delay.



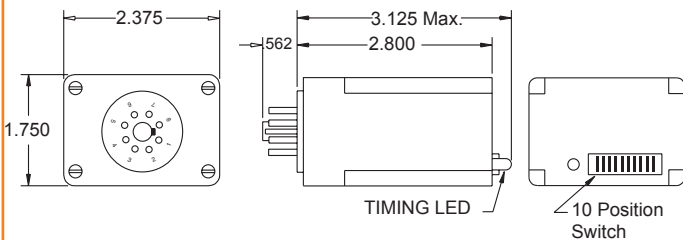
## TRAILING EDGE TRIGGERED

BTR

Power must be applied to the input at all times prior to and during timing. Upon closure of the initiate switch, nothing happens. When the initiate switch is opened, the time delay begins and the output contact transfers. At the completion of the pre-selected delay period the contact reverts to its original position. Removal of input power will reset the control. If the initiate switch is closed during timing, the output contact reverts to its original position and the time delay is reset.



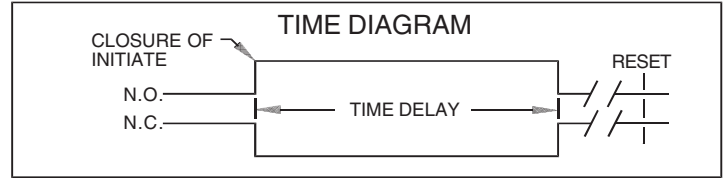
## DIMENSIONS



## TOGGLE/SINGLE-SHOT

BFR

Power must be applied to the input at all times prior to and during timing. Upon closure of the initiate switch (momentary or maintained) the output contacts transfer and the time delay begins. Upon reclosure of the initiate switch or at the completion of the pre-selected delay period, the output contacts revert to their original position. The unit is now reset, ready for a new cycle



## ON/OFF RECYCLE

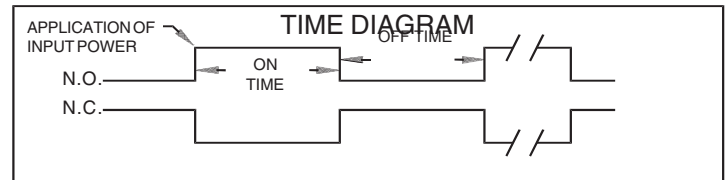
BRSR

Upon application of power to the input terminals, the ON delay begins and the output contacts transfer. Upon completion of the ON delay, the output contacts revert to their original position and the OFF delay begins. Upon completion of the OFF delay, the output contacts again transfer and the cycle repeats. Reset is accomplished by removal of input power.

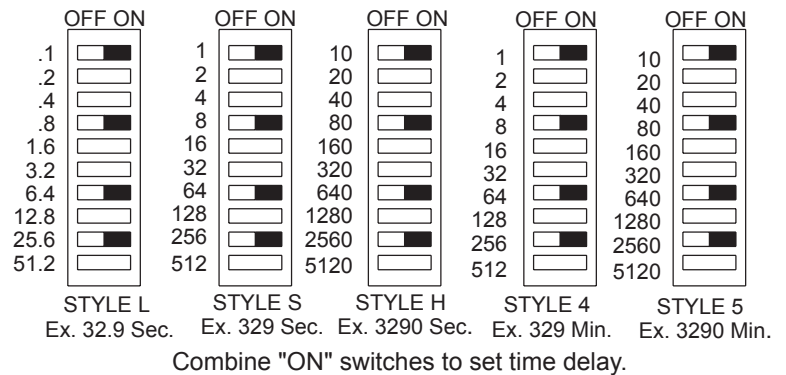
## OFF/ON RECYCLE

BRSR

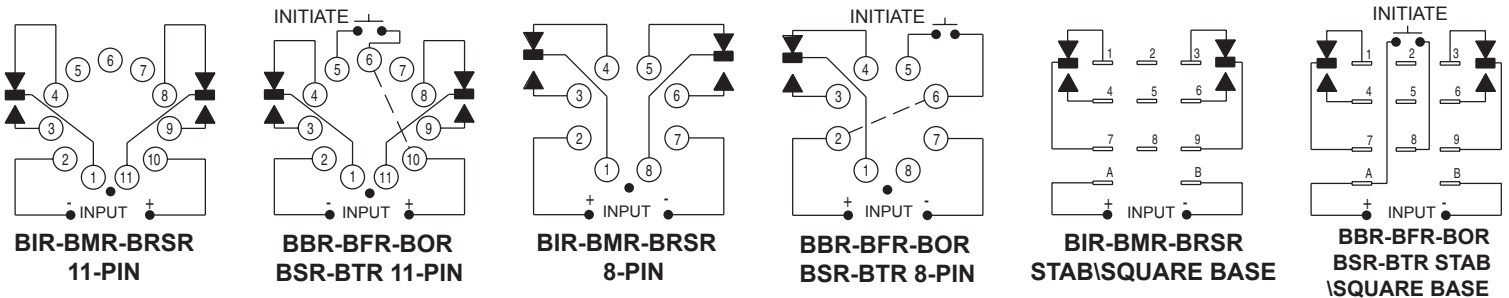
Operation is opposite of ON/OFF Recycle



## DELAY SETTINGS



## CONNECTION DIAGRAMS



## ORDERING INFORMATION

SERIES	BASE STYLE	INPUT VOLTAGE	CYCLE	TIME DELAY RANGE
BBR	1 - Octal Plug-in (8 Pin)	1 - 12 VDC	<b>BRSR SERIES ONLY</b>	L - Low Range, .1 - 102.3 SECONDS
BFR	2 - 11 Pin Plug-in	2 - 24/28 VDC		S - Standard Range, 1 - 1023 SECONDS
BIR	3 - 11 Pin Stab/ Square Base	3 - 110 VDC	1 - On Time First	H - High Range, 10 - 10,230 SECONDS
BMR		4 - 24 VAC	2 - Off Time First	4 - 1 - 1023 MINUTES
BOR		5 - 120 VAC		5 - 10 - 10,230 MINUTES
BRSR		6 - 230 VAC		
BSR				
BTR				