

Relay Catalog



Solving Your Relay Requirements Since 1922

Amperite Co. History/Milestones

- 1922 – Business Incorporated in New York City, NY by Samuel Ruttenberg - produced cartridge-type Automatic Adjusting Resistors (Ballast current-regulators) for tube-operated AC/DC radio sets
- 1930 – Began making hermetically-sealed ballast regulators in vacuum tube form with helium and hydrogen gas
- 1940(circa) – Manufactured hermetically sealed time delay relays in a vacuum tube form with different gases and also developed several series of microphones
- 1964(circa) – Moved operations to Union City, NJ in a newly acquired building
- 1980 – Amperite ownership transferred to Harold Rosenberg
- 1982 – Product manual AM82 for glass relays and regulators introduced
- 1984 – Introduction of the B, BR, BF Series Thermal Time Delay Relays & Flashers
- 1990 – C, CR, D TDR's and Flasher Series introduced
- 1991 – DF Flasher, C10 and CR10 analog TDR's introduced
- 1993 – CI, CIR, DC10 TDR's and DF10 Flasher were introduced
- 1994 – DFV and DFA Variable Recycle timers were introduced
- 1995 – DCR10 Digital Triggered Delay was introduced
- 1996 – Web-Site and with Full Product Application went live
- 1998 – DFS Solid State Flasher was introduced
- 2000 – ST1, ST1A, ST2 and STB TDR's were introduced
- 2002 – Amperite was Purchased by Olympic Controls Corp
- 2003 – Company relocated to West New York, NJ and introduced 20 new series of Relays, Auto, PCB, General Purpose, Power and Signal Relays to complete the line
- 2005 – Introduced SWRDC, TSW 2 & 3, ST1D and Head Alert 2



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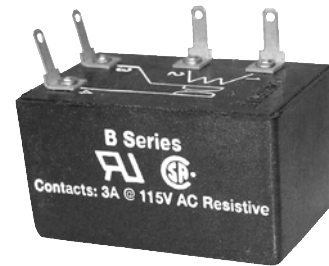
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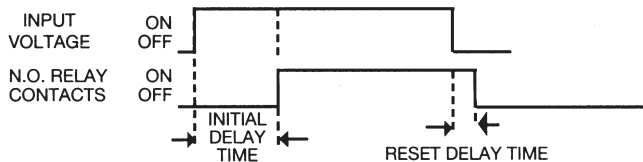
B Series TDR

- Delay on Make or Delay on Break timing modes
- Thermal device
- 3 AMP rating
- Low cost
- 1 - 115V input voltage range - works on AC or DC
- Isolated output contacts
- Fixed delay times only
- Initial and reset (release) delay device
- Long life
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Timing cycle begins upon application of power to the heater terminals. At the end of the initial delay time the relay contacts transfer and remain in a transferred state until input power is removed. When the heater input power is removed, the contacts transfer back to their original state at the end of a reset (release) delay period.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form A (SPST - Normally open) - Delay on Make
 1 form B (SPST - Normally closed) - Delay on Break
 Contact Material: Silver - Cadmium Oxide
 Rating (Resistive): 3A @ 115V AC
 Expected Life @ 25°C :
 500,000 operations minimum at rated loads

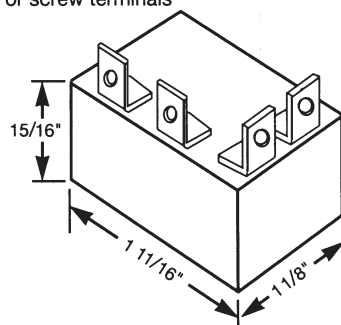
ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -34°C to +77°C,
 (-30°F to +171°F)

MECHANICAL INFORMATION:

Termination: .110 inch, .250 inch or screw terminals
 Enclosure: Black plastic case
 Mounting: Single screw or optional 2-screw panel mount
 Weight: 0.8 oz (23g) approx

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 2 through 300 secs.
 Timing Tolerance: ± 20% - **Tighter tolerances are available.**
 Repeatability: ± 5%
 Release Time - Fixed: Varies with initial delay - contact factory
 Timing Cycle Interrupt Transfer: none

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 500V RMS
 Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC or DC - 6V, 12V, 26V, 50V and 115V
(Other voltages are available)

Power Requirement: 2.3 Watts

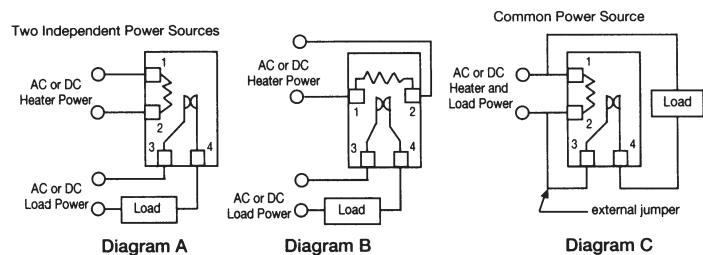
Transient Protection: impervious to transients

Polarity Protection: None required

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC/DC	4V	8V
12V AC/DC	10V	14V
26V AC/DC	22V	30V
50V AC/DC	42V	58V
115V AC/DC	90V	130V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite
 B Series Time Delay Relay.
 Example:

115 NO 60 X B
 ↑ ↑ ↑ ↑ ↑
 A B C D E

- A: Denotes nominal input voltage. Voltages Available: 6, 12, 26, 50 & 115V AC/DC.
Custom Voltages are available.
- B: Denotes contact form: NO = normally open (Delay on Make) - 1 form A - SPST
 C = normally closed (Delay on Break) - 1 form B - SPST
- C: Denotes timing value. Factory preset time delays from 2 - 300 secs. are available.
 Note: Contact factory for release (reset) time.
- D: Denotes form of termination: Blank = .110 male electro-plate solder terminals
 X = .250 male quick connect terminals
 S = screw terminals.
- E: Denotes use of thermal technology of B Series.



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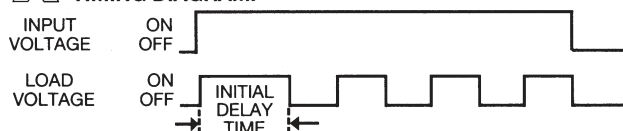
BF Series Flasher

- Thermal flasher circuitry
- Long life
- 2A load rating @ 115V AC
- Low cost
- Small size
- All units work on AC and DC input voltage
- 3 terminal configuration
- 6V to 115V input voltages available
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Load is energized upon application of power.
After initial delay time, flashing cycle begins.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form B (SPST - Normally closed) - Delay on Break
Contact Material: Silver - Cadmium Oxide
Rating (Resistive): 2A @ 115V AC, 60ma. minimum load required
Expected Life @ 25°C :
500,000 operations minimum at rated loads

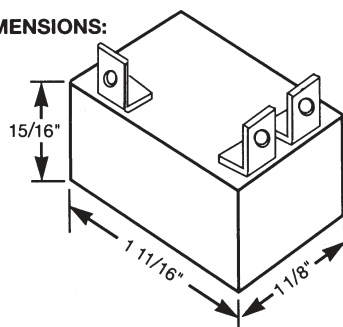
ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -34°C to +77°C
(-30°F to +171°F)

MECHANICAL INFORMATION:

Termination: .110 inch, .250 inch or screw terminals
Enclosure: Black plastic case
Mounting: Single screw or optional 2-screw panel mount
Weight: 0.8 oz (23g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard; from 10 - 60 FPM on 6 - 26V models and from 10 - 45 FPM on 50 - 115V models.
Custom rates are also available.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 500V RMS
Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC or DC - 6V, 12V, 26V, 50V and 115V
(Other voltages are available)

Power Requirement: 2.3 Watts

Transient Protection: impervious to transients

Polarity Protection: None required

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC/DC	4V	8V
12V AC/DC	10V	14V
26V AC/DC	22V	30V
50V AC/DC	42V	58V
115V AC/DC	90V	130V

WIRING DIAGRAM:

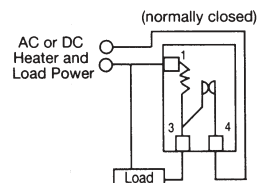


Diagram A

Ordering Information:

Definition of a part number for the Amperite BF Series Flasher.

Example:

115 F 30 X B
↑ ↑ ↑ ↑ ↑
A B C D E

A: Denotes nominal input voltage. Voltages Available: 6, 12, 26, 50 & 115V AC/DC.
Custom Voltages are available.

B: Denotes flasher configuration.

C: Denotes flash rate. Standard rates from 10 - 60 FPM on 6 - 26V models and from 10 - 45 FPM on 50 - 115V models.
Custom Rates are available.

D: Denotes form of termination: Blank = .110 male electro-plate solder terminals, X = .250 male quick connect terminals, S = screw terminals.

E: Denotes use of thermal technology of BF Series.



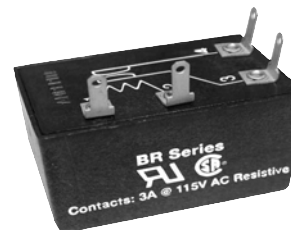
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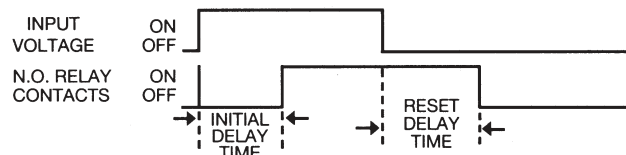
BR Series TDR

- Delay on Release timing mode
- Thermal device
- 3 AMP rating
- Low cost
- 1 - 115V input voltage range - works on AC or DC
- Isolated output contacts
- Fixed delay times only
- Normally open or normally closed contacts available
- Long life
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Power to the device must be applied prior to the delay cycle to initialize the heater. At the end of this initial delay time the relay contacts transfer and remain in a transferred state until input power is removed. When the heater input power is removed, the contacts transfer back to their original state at the end of a reset (release) delay period.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form A (SPST - Normally open) - Delay on Make
1 form B (SPST - Normally closed) - Delay on Break
Contact Material: Silver - Cadmium Oxide
Rating (Resistive): 3A @ 115V AC
Expected Life @ 25°C :
500,000 operations minimum at rated loads

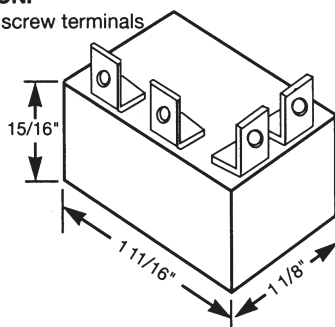
ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -34°C to +77°C,
(-30°F to +171°F)

MECHANICAL INFORMATION:

Termination: .110 inch, .250 inch or screw terminals
Enclosure: Black plastic case.
Mounting: Single screw or optional 2-screw panel mount
Weight: 0.8 oz (23g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Reset (Release) Timing - Fixed: 10 through 600 secs.
Initializing Timing - Fixed: Varies with release time - contact factory.
Timing Tolerance: $\pm 20\%$ - **Tighter tolerances are available.**
Repeatability: $\pm 5\%$

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 500V RMS
Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC or DC - 6V, 12V, 26V, 50V and 115V
(Other voltages are available)

Power Requirement: 2.3 Watts

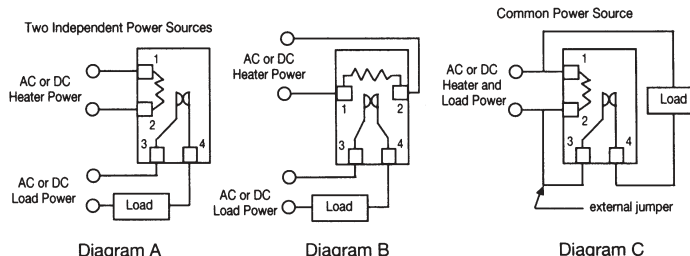
Transient Protection: impervious to transients

Polarity Protection: None required

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC/DC	4V	8V
12V AC/DC	10V	14V
26V AC/DC	22V	30V
50V AC/DC	42V	58V
115V AC/DC	90V	130V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite
BR Series Time Delay Relay.
Example:

115 NO 12 R 8 X B
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 6, 12, 26, 50 & 115V AC/DC

Custom Voltages are available.

B: Denotes contact form: NO = normally open (Delay on Make) - 1 form A - SPST
C = normally closed (Delay on Break) - 1 form B - SPST

C: Denotes initialization period timing value. This value varies with release time. Contact factory.

D: Denotes reset (release) function of BR Series

E: Denotes reset (release) timing value. Factory preset time delays from 10 - 600 secs. are available.

F: Denotes form of termination: Blank = .110 male electro-plate solder terminals,
X = .250 male quick connect terminals, S = screw terminals.

G: Denotes use of thermal technology of BR Series.



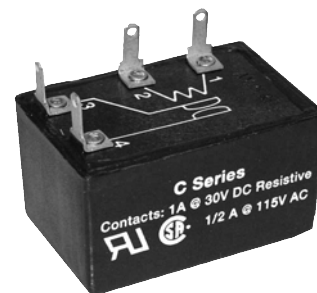
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C Series TDR

- Solid state analog circuitry
- Delay on operate timing mode
- Compact size
- Relay output with SPST or SPDT contacts
- Timing selection: Fixed or knob adjustable
- Numerous models timing from 0.1 secs. to 300 secs.
- UL File #E96739 (M)
- CSA File # LR62586



TIMING MODE: Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form A (SPST Normally open) - Diagram A
1 form B (SPST Normally closed) - Diagram A
1 form C (SPDT) - Diagram B

Contact Rating (Resistive)	Max. switching power	30W, 50VA
	Max. switching voltage	60V DC, 125V AC
	Max. switching current	1A DC, AC
	Max. carrying current	0.5A AC, 1A 30V DC
UL/CSA rating	0.5A AC, 1A 30V DC	

Expected Life @ 25°C :

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Operating and storage: -25°C to +60°C,
(-13°F to +140°F)

MECHANICAL INFORMATION:

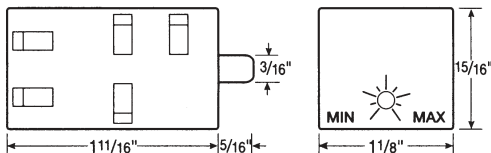
Termination: .110 inch, .250 inch or screw terminals

Enclosure: Black plastic case

Mounting: Single screw or
optional 2-screw panel mount

Weight: 0.8 oz (23g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: .1 through 300 secs.

Timing Ranges: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300 secs.

Custom timing is available.

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: ± 5%

Adjustable Units: -0 to +25% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: ± 5%

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 500V RMS, Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 115V

DC units- 12V, 24V, 48V and 110V } **Other volt. are available**

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
115V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:

Single Pole - Single Throw
Normally Open or Normally Closed

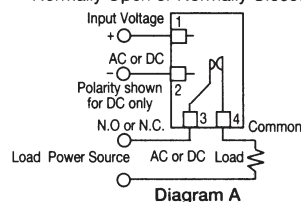


Diagram A

Single Pole - Double Throw

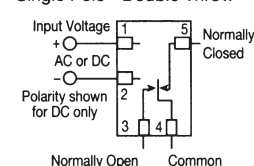
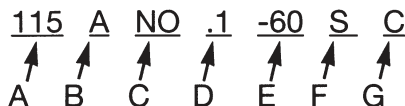


Diagram B

Ordering Information:

Definition of a part number for the Amperite
C Series Time Delay Relay.

Example:



- A: Denotes nominal input voltage. Voltages Available: 12, 24 & 115V AC, 12, 24, 48 & 110V DC. **Custom Voltages are available.**
- B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current
- C: Denotes contact form: NO = Normally Open - 1 form A, C = Normally Closed - 1 form B, SPDT = Single Pole, Double Throw - 1 form C.
- D & E: Denotes range of knob adjustability for timing (in seconds) where:
D = Minimum time delay. E = Maximum time delay for adjustable TDR'S.
- Note: 1.) Ranges available: .1 - 60, 60 - 120, 120 - 180, 180 - 240 & 240 - 300 secs.
Custom timing is available.
- 2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds from .1 through 300 secs.
- F: Denotes form of termination - blank = .110 male electro-plate solder terminals, X = .250 male quick connect terminals, S = screw terminals.
- G: Denotes use of solid state analog circuitry of C Series.



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C10 Series TDR

- Solid state analog circuitry
- Delay on operate timing mode
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 secs. to 480 secs.
- UL File #E96739 (M)
- CSA File #LR62586-3



TIMING MODE: Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11-Pin Spade Terminals (Dia. C & D)

Enclosure: White plastic case. Knob adjustable models have a dial scale for reference only. "LC" version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:

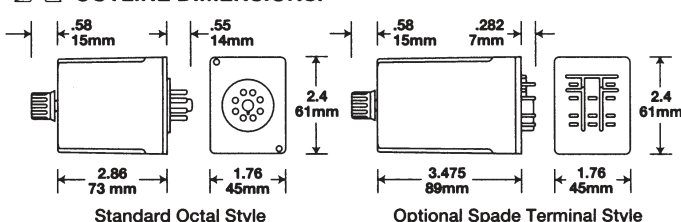


Diagram A

Diagram B

TIMING SPECIFICATIONS:

Timing - Fixed: .1 through 480 secs.

Timing Ranges: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300, 300 - 480 secs. **Custom timing is available.**

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: ± 5%

Adjustable Units: -0 to +25% of maximum specified delay time. Minimum specified value or less at low end.

Repeatability: ± 5%

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V

Other voltages are available

• Power Requirement: AC units: 3 VA or less
units: 3 Watts or less

DC

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:

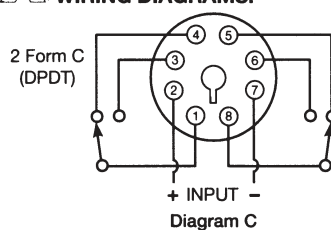


Diagram C

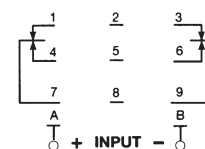


Diagram D

Ordering Information:

Definition of a part number for the Amperite C10 Series Time Delay Relay.

Example:

120 A P .1 -60 L C
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current

C: Denotes contact form: P= DPDT - 2 form C.

D & E: Denotes range of knob adjustability for timing (in seconds) where:

D= Minimum time delay.

E= Maximum time delay for adjustable TDR'S.

Note: 1.) Ranges available: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300, & 300 - 480 secs.

Custom timing is available.

2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds from .1 through 480 secs.

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes use of solid state analog circuitry of C10 Series.



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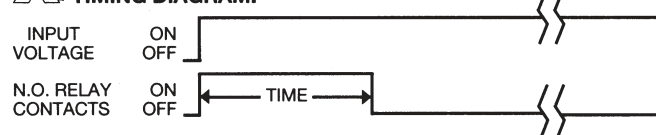


CI Series TDR

- Solid state analog circuitry
- One-shot timing mode (interval on)
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 secs. to 480 secs.
- UL File #E96739 (M)
- CSA File #LR62586-3

TIMING MODE: Relay contacts transfer, and timing cycle begins, upon application of power. At the end of the timing cycle, the relay contacts return to the de-energized position. Reset occurs upon removal of the input power.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

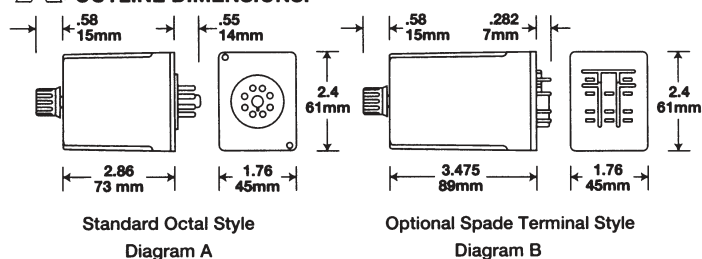
MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11-Pin Spade Terminal (Dia. C & D)

Enclosure: White plastic case. Knob adjustable models have a dial scale for reference only. "LCI" version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: .1 through 480 secs.

Timing Ranges: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300, 300 - 480 secs. **Custom timing is available.**

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: $\pm 5\%$

Adjustable Units: -0 to +25% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: $\pm 5\%$

Release Time: 60 ms typical, 100 ms maximum

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS,

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V } **Other volt. are available**

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:

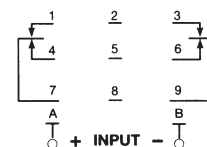
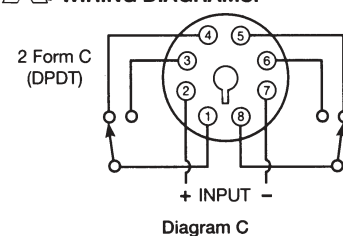


Diagram D

Ordering Information:

Definition of a part number for the Amperite CI Series Time Delay Relay.

Example:

120 A P .1 -60 L CI
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current

C: Denotes contact form: P= DPDT - 2 form C.

D & E: Denotes range of knob adjustability for timing (in seconds) where:

D= Minimum time delay.

E= Maximum time delay for adjustable TDR'S.

Note: 1.) Ranges available: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300 & 300 - 480 secs.

Custom Timing is available.

2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds from .1 through 480 secs.

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes use of solid state analog circuitry of CI Series.



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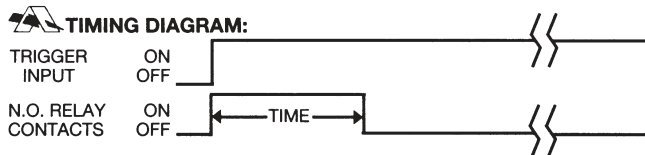
CIR Series TDR

- Solid state analog circuitry
- Triggered one-shot timing mode (triggered interval on)
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 to 480 secs.
- UL File #E96739 (M)
- CSA File #LR62586-3



TIMING MODE: Input voltage must be applied continuously to operate the internal relay. The relay energizes and timing begins when the external switch is closed. At the end of the time delay period the relay will de-energize. Reset is accomplished by opening and reclosing the control switch.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

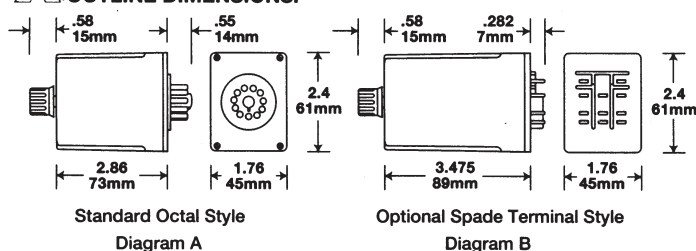
MECHANICAL INFORMATION:

Termination: 11 pin Octal Style Plug or 11-pin spade terminals (Dia. C & D)

Enclosure: Black plastic case. Knob adjustable models have a dial scale for reference only

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: .1 through 480 secs.

Timing Ranges: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300, 300 - 480 secs. **Custom timing is available.**

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: ± 5%

Adjustable Units: -0 to +25% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: ± 5%

Release Time: 60 ms typical, 100 ms maximum

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS,

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V } **Other voltages are available**

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

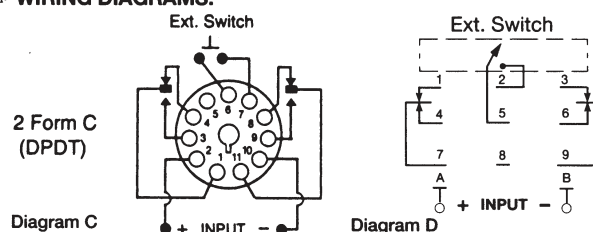
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite CIR Series Time Delay Relay.

Example:

120 A P .1 -60 L CIR
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current

C: Denotes contact form: P= DPDT - 2 form C.

D & E: Denotes range of knob adjustability for timing (in seconds) where:

D= Minimum time delay. E= Maximum time delay for adjustable TDR's.

Note: 1.) Ranges available: .1 - 60, 60 - 120, 120 - 180, 180 - 240, 240 - 300 & 300 - 480 secs.

Custom Timing is available.

2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds from .1 through 480 secs.

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes use of solid state analog circuitry of CIR Series.



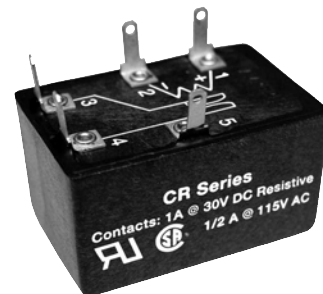
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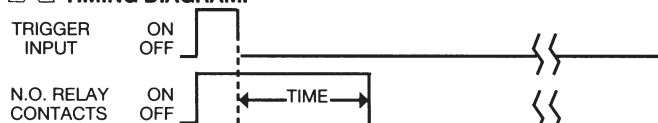
CR Series TDR

- Solid state analog circuitry
- Triggered delay on release timing mode
- Compact size
- Relay output with SPST or SPDT contacts
- Timing selection: Fixed or knob adjustable
- Numerous models timing from 1 sec. to 600 secs.
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Input voltage must be applied continuously to operate the internal relay. Relay contacts transfer when the trigger input terminal is activated. The timing cycle begins when the trigger input terminal is deactivated. When the timing cycle is completed the relay will de-energize. The timing cycle may be reset to zero during the timing cycle by reactivating the trigger input terminal.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form A (SPST Normally open) – Diagram A
1 form B (SPST Normally closed) – Diagram A
1 form C (SPDT) – Diagram B

Contact Rating (Resistive)	Max. switching power	30W, 50VA
	Max. switching voltage	60V DC, 125V AC
	Max. switching current	1A DC, AC
	Max. carrying current	0.5A AC, 1A 30V DC
UL/CSA rating		0.5A AC, 1A 30V DC

Expected Life @ 25°C :

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Operating and storage: -25°C to +60°C,
(-13°F to +140°F)

MECHANICAL INFORMATION:

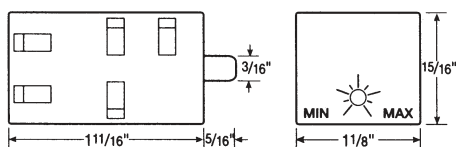
Termination: .110 inch, .250 inch or screw terminals

Enclosure: Black plastic case

Mounting: Single screw or optional 2-screw panel mount

Weight: 0.8 oz (23g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 1 through 600 secs.

Timing Ranges: 1 - 120, 120 - 240, 240 - 480, 480 - 600 secs.

Custom timing is available.

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: ± 5%

Adjustable Units: -0 to +25% of maximum specified delay time.
Minimum specified value or less at low end.

Repeatability: ± 5%

Release Time: 60 ms typical, 100 ms maximum

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 500V RMS, Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 115V

DC units- 12V, 24V, 48V and 110V } **Other volt. are available**

Power Requirement: AC units: 2 VA or less

DC units: 2 Watts or less

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
115V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:

Single Pole - Single Throw

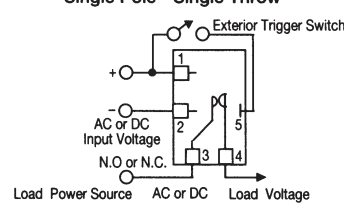


Diagram A

Single Pole - Double Throw

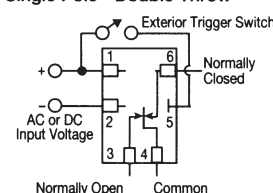


Diagram B

Ordering Information:

Definition of a part number for the Amperite

CR Series Time Delay Relay.

Example:

115 A NO R 1 -120 X C
↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G H

- A: Denotes nominal input voltage. Voltages Available: 12, 24 & 115V AC; 12, 24, 48 & 110V DC. **Custom Voltages are available.**
- B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current
- C: Denotes contact form: NO = Normally Open – 1 form A, C = Normally Closed – 1 form B, SPDT = Single Pole, Double Throw – 1 form C
- D: Denotes trigger reset function of CR Series TDR.
- E & F: Denotes range of knob adjustability for timing (in seconds) where:
E = Minimum time delay. F = Maximum time delay for adjustable TDR'S.
- Note: 1.) Ranges available: 1 - 120, 120 - 240, 240 - 480 & 480 - 600 secs.
Custom Timing is available.
- 2.) Both values (E & F) can be replaced by a single value for a factory preset time delay in seconds from 1 through 600 secs.
- G: Denotes form of termination - blank = .110 male electro-plate solder terminals, X = .250 male quick connect terminals, S = screw terminals.
- H: Denotes use of solid state analog circuitry of CR Series.



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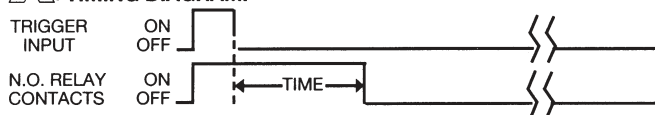
CR10 Series TDR

- Solid state analog circuitry
- Triggered delay on release timing mode
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 1 to 600 secs.
- UL File #E96739 (M)
- CSA File #LR62586-3



TIMING MODE: Input voltage must be applied continuously to operate the internal relay. Relay contacts transfer when the trigger input terminal is activated. The timing cycle begins when the trigger input terminal is deactivated. When the timing cycle is completed the relay will de-energize. The timing cycle may be reset to zero during the timing cycle by reactivating the trigger input terminal.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

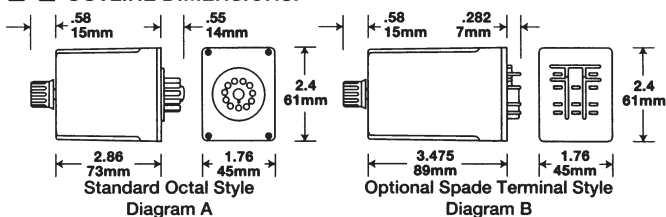
MECHANICAL INFORMATION:

Termination: 11 pin Octal Style Plug or 11-pin spade terminal (Dia. C & D)

Enclosure: Black plastic case. Knob adjustable models have a dial scale for reference only

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 1 through 600 secs.

Timing Ranges: 1 - 120, 120 - 240, 240 - 480, 480 - 600 secs.

Custom timing is available.

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: $\pm 5\%$

Adjustable Units: -0 to +25% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: $\pm 5\%$

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V } **Other voltages are available**

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

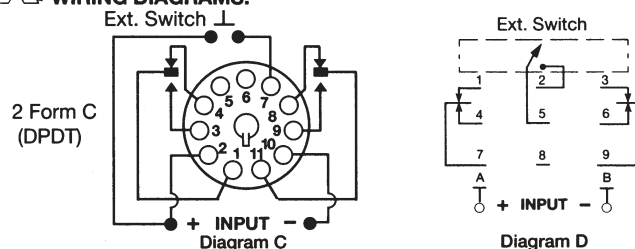
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite

CR10 Series Time Delay Relay.

Example:

120 A P R 1 -120 L C
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G H

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current

D = DC - Direct Current

C: Denotes contact form: P= DPDT - 2 form C.

D: Denotes trigger reset function of CR10 Series TDR.

E & F: Denotes range of knob adjustability for timing (in seconds) where:

E= Minimum time delay. F= Maximum time delay for adjustable TDR's.

Note: 1.) Ranges available: 1 - 120, 120 - 240, 240 - 480 & 480 - 600 secs.

Custom Timing is available.

2.) Both values (E & F) can be replaced by a single value for a factory preset time delay in seconds from 1 through 600 secs.

G: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

H: Denotes use of solid state analog circuitry of CR10 Series.



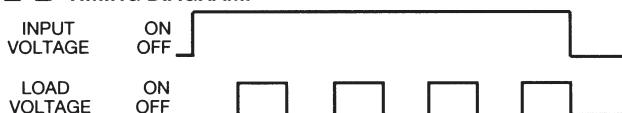
D Series Flasher

- Solid state analog flasher circuitry
- No moving parts to wear out
- 2A load rating
- Low cost
- Small size
- AC or DC units available
- 3 terminal configuration
- No current leakage to load
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: On/off recycling solid state flasher. The flash rates are fixed and are available from 2 to 1000 flashes per minute (FPM). Duty cycle is approximately 50% with custom duty cycles available.

TIMING DIAGRAM:



OUTPUT CIRCUIT:

AC units - triac; DC units - transistor

Rating (Resistive): 2A @ 110 - 120V AC or DC
 (Inrush): 10A maximum

Expected Life @ 25°C:
 Solid state circuitry - no moving parts to wear out.

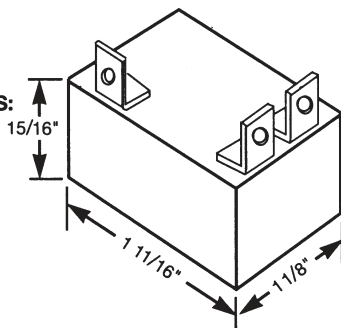
ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -23°C to +60°C,
 (-10°F to +140°F)

MECHANICAL INFORMATION:

Termination: .110 inch, .250 inch, screw terminals, or 18" wires.
 Enclosure: Black plastic case
 Mounting: Single screw or optional 2-screw panel mount
 Weight: 0.8 oz (23g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard - 30, 45, 60, 75, 90 & 120 FPM
Custom rates available from 2 to 1000 FPM.

Flash Rate Tolerance: $\pm 10\%$

INPUT INFORMATION:

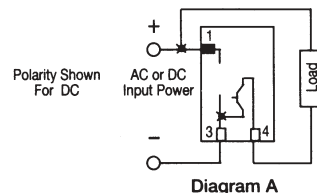
Voltage: AC units- 6V, 12V, 24V, 48V and 115V } **Other volt. are available**
 DC units- 6V, 12V, 24V, 48V and 110V }

Power Requirement: AC units: 3 VA or less
 DC units: 3 Watts or less

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC	5.4V	6.6V
12V AC	10V	14V
24V AC	20V	28V
48V AC	41V	55V
115V AC	105V	130V
6V DC	5.4V	6.6V
12V DC	11V	14V
24V DC	20V	28V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite D Series Flasher.

Example:

115 A F 60 H X D
 ↑ ↑ ↑ ↑ ↑ ↑
 A B C D E F G

- A: Denotes nominal input voltage. Voltages Available: 6, 12, 24, 48 & 115V AC
 6, 12, 24, 48 & 110V DC
Custom Voltages are available.
- B: Denotes type of input current required for operation: A = AC - Alternating Current
 D = DC - Direct Current
- C: Denotes flasher configuration.
- D: Denotes flash rate. Standard rates are 30, 45, 60, 75, 90 & 120 FPM.
Custom rates are available from 2 to 1000 FPM.
- E: Denotes current options - Blank = Standard, H = Higher Operating Current.
- F: Denotes form of termination - Blank = .110 male electro-plate solder terminals,
 X = .250 male quick connect terminals, S = screw terminals, W = 3 18" wires.
- G: Denotes use of solid state analog circuitry of D Series.



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DC10 Series TDR

- Solid state CMOS digital circuitry
- Delay on operate timing mode
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 secs. to 1000 hours
- UL File #E96739 (M)
- CSA File #LR62586-3



TIMING MODE: Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

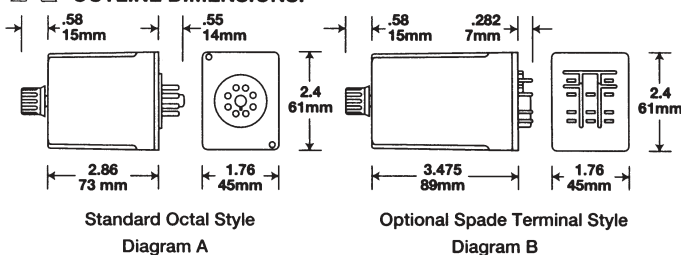
Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11-pin spade terminals (Dia. C & D)
Enclosure: White plastic case. Knob adjustable models have a dial scale for reference only. LDC version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 0.1 secs. through 1000 hours.

Timing Ranges: Standard timing ranges are as follows: .1 to 6 secs., .1 to 10 secs., 1 to 60 secs., 1.8 to 180 secs., 5 to 300 secs., 1 to 60 mins., 1 to 60 hours. **Custom timing is available.**

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: $\pm 5\%$; 1% units are available at extra cost.

Adjustable Units: -0 to +10% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: $\pm 1\%$

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

Reset: Upon interruption of power

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS, Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V

Other voltages are available

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

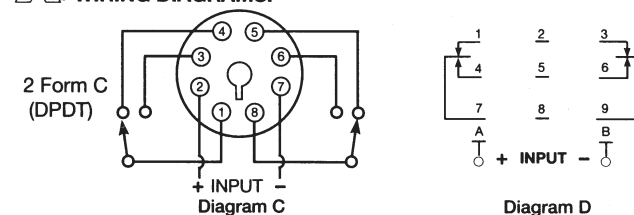
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite DC10 Series Time Delay Relay.

Example:

120 A P 1 -60 S L DC
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G H

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC.

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current, D = DC - Direct Current

C: Denotes contact form: P = DPDT - 2 form C.

D & E: Denotes range of knob adjustability for timing (in seconds, minutes or hours) where: D= Minimum time delay. E= Maximum time delay for adjustable TDR'S.

Note: 1.) Ranges available: See standard timing ranges above. **Custom Timing is available.**

2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds, minutes or hours from 0.1 secs. through 1000 hours.

F: Denotes use of seconds, minutes or hours in timing value(s),

S = seconds, M = minutes, H = hours.

G: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

H: Denotes use of solid state digital circuitry of DC10 Series.



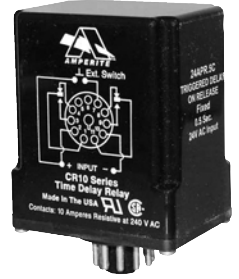
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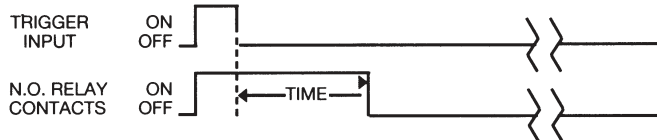
DCR10 Series TDR

- Solid state CMOS digital circuitry
- Triggered delay on release timing mode
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 secs. to 1000 hours
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Input voltage must be applied continuously to operate the internal relay. Relay contacts transfer when the trigger input terminal is activated. The timing cycle begins when the trigger input terminal is deactivated. When the timing cycle is completed the relay will de-energize. The timing cycle may be reset to zero during the timing cycle by reactivating the trigger input terminal.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D
Contact Material: Silver - Cadmium Oxide
Rating (Resistive): 10A @ 240V AC Resistive
15A @ 30V DC Resistive
15A @ 120V AC Resistive
1/3 HP @ 120V AC
1/2 HP @ 250V AC

Expected Life @ 25°C :
10 Million operations, Mechanical
100,000 operations minimum at rated loads

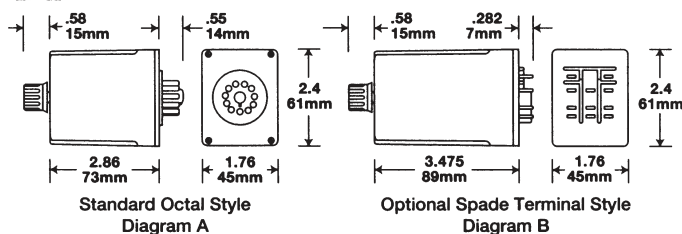
ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)
Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 11 pin Octal Style Plug or 11 pin spade terminals (Dia. C&D)
Enclosure: Black plastic case. Knob adjustable models have a dial scale for reference only.
Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 0.1 secs. through 1000 hours.
Timing Ranges: Standard timing ranges are as follows: .1 to 10 secs., .3 to 30 secs., .6 to 60 secs., 1.8 to 180 secs., 5 to 300 secs., 1 to 10 mins., 1 to 60 mins., 10 to 100 mins., 1 to 60 hours. **Custom timing is available.**
Timing Adjustment: Knob adjustable potentiometer.
Timing Tolerance: Fixed Units: $\pm 5\%$; 1% units are available at extra cost.
Adjustable Units: -0 to +10% of maximum specified delay time.
Minimum specified value or less at low end.

Repeatability: $\pm 1\%$
Release Time: 60 ms typical, 100 ms maximum
Timing Cycle Interrupt Transfer: none
Reset: Upon interruption of power

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS, Between contacts & coil: 1500V RMS

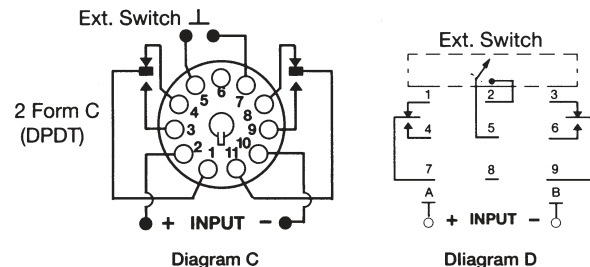
INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V
DC units- 12V, 24V, 48V and 110V } **Other volt. are available**
Power Requirement: AC units: 3 VA or less, DC units: 3 Watts or less
Transient Protection: 1 JOULE MOV
Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite DCR10 Series Time Delay Relay.
Example:

120 A P 1 -60 M L DCR10
A B C D E F G H

- A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC. **Custom Voltages are available.**
B: Denotes type of input current required for operation: A = AC - Alternating Current, D = DC - Direct Current
C: Denotes contact form: P= DPDT - 2 form C.
D & E: Denotes range of knob adjustability for timing (in seconds, minutes or hours) where: D= Minimum time delay. E= Maximum time delay for adjustable TDR'S.
Note: 1.) Ranges available: See standard timing ranges above. **Custom Timing is available.**
2.) Both values (D & E) can be replaced by a single value for a factory preset time delay in seconds, minutes or hours from 0.1 secs. through 1000 hours.
F: Denotes use of seconds, minutes or hours in timing value(s), S = seconds, M = minutes, H = hours.
G: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).
H: Denotes use of solid state digital circuitry of DCR10 Series.



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DF Series Flasher

- Solid state analog flasher circuitry
- No moving parts to wear out - totally encapsulated circuitry
- 2A load rating
- Low cost
- Small size
- Universal Input – 24V to 120V AC and DC operation in one device
- 2 terminal configuration - easy connection to load
- Factory fixed flash rates from 2 to 1000 FPM
- UL File #E96739 (M)
- CSA File #LR62586-3



TIMING MODE: On/off recycling solid state flasher. The flash rates are fixed and are available from 2 to 1000 flashes per minute (FPM). Duty cycle is approximately 50% with custom duty cycles available.

TIMING DIAGRAM:



OUTPUT CIRCUIT:

Totally solid state switching device.

Rating: (Resistive): 2A @ 120V AC or DC
10ma minimum load
(Inrush): 10A maximum

Higher loads and inrush capabilities are available.

Expected Life @ 25°C :

Solid state circuitry - no moving parts to wear out.

ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -23°C to +60°C,
(-10°F to +140°F)

MECHANICAL INFORMATION:

Termination: .250 inch quick connect terminals are standard,
.110 inch, screw terminals, or 18" wires are available.

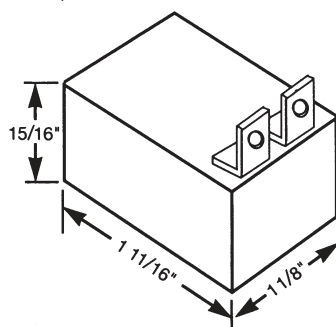
Enclosure: Black plastic case

Mounting: Single screw or

optional 2-screw panel mount

Weight: 2 oz (56g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard - 30, 45, 60, 75, 90 & 120 FPM

Custom rates available from 2 to 1000 FPM.

Flash Rate Tolerance: $\pm 10\%$

INPUT INFORMATION:

Voltage: Universal input type: 24 - 120V AC or DC

Custom voltages from 5 - 240V are available.

Power Requirement: 3 Watts or less

INPUT VOLTAGES & LIMITS:

<u>Nominal</u>	<u>Minimum</u>	<u>Maximum</u>
24 - 120V AC/DC	22V AC/DC	125V AC/DC

WIRING DIAGRAM:

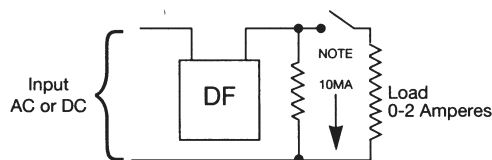


Diagram A

NOTE: Optional 10 MA load may be used to reduce initial delay time.

Ordering Information:

Definition of a part number for the Amperite DF Series Flasher.

Example:

24-120 A F 60 H Q DF
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

- A: Denotes input voltage: Universal input voltages from: 24 - 120V AC or DC
Can be replaced by a single value from 5 - 240 for custom voltages.
- B: For custom voltages – Denotes type of input current required for operation
A = AC – Alternate Current, D = DC – Direct Current
- C: Denotes flasher configuration.
- D: Denotes flash rate. Standard rates are 30, 45, 60, 75, 90 & 120 FPM.
Custom rates available from 2 to 1000 FPM.
- E: Denotes current options - Blank = Standard, H = Higher Operating Current.
- F: Denotes form of termination – Blank = .250 Male Quick Connect Terminals,
S = Screw Terminals, Q = .110 Male Solder Terminals, W = 2 18" wires.
- G: Denotes solid state 2-terminal DF flasher



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DF10 Series Flasher

- Solid state analog flasher circuitry
- DPDT (2 form C) isolated 10 ampere relay contacts
- Fixed flash rate: Available from 10 to 240 FPM
- 12V to 120V input voltage available - Both AC and DC models
- UL File #E96739 (M)
- CSA File #LR62586-3

TIMING MODE: On/off recycling flasher. The flash rates are fixed and are available from 10 to 240 flashes per minute (FPM). Duty cycle is approximately 50% with custom duty cycles available.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

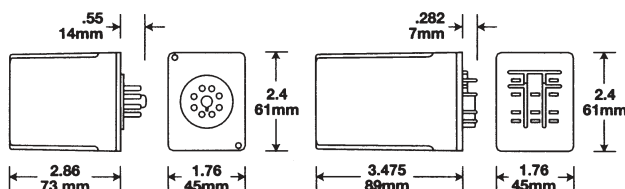
MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11 pin spade terminals (Dia. C & D)

Enclosure: White plastic case. LDF10 version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



Standard Octal Style
Diagram A

Optional Spade Terminal Style
Diagram B

TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard - 30, 45, 60, 75, 90 & 120 FPM

Custom rates available from 10 to 240 FPM.

Flash Rate Tolerance: $\pm 10\%$

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS

Between adjacent contacts: 1500V RMS

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V } **Other input voltages available**

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:

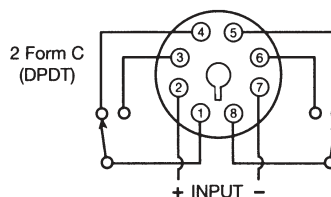


Diagram C

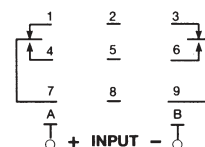


Diagram D

Ordering Information:

Definition of a part number for the Amperite DF10 Series Flasher.

Example:

120 A F 60 L DF10
↑ ↑ ↑ ↑ ↑
A B C D E F

- A: Denotes nominal input voltage. Voltages Available: 12, 24, & 120V AC
12, 24, 48 & 110V DC
Custom Voltages are available.
- B: Denotes type of input current required for operation: A = AC - Alternating Current
D = DC - Direct Current
- C: Denotes flasher configuration.
- D: Denotes flash rate. Standard rates are 30, 45, 60, 75, 90 & 120 FPM.
Custom rates are available from 10 to 240 FPM
- E: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).
- F: Denotes 10A DPDT (2 form C) flasher - DF10 Series.



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Amperite DFA Series Adjustable Recycling Timer

- Solid state CMOS digital recycle (flasher) timer circuitry
- DPDT (2 form C) isolated 10 ampere relay contacts
- Off and On time-user adjustable over a 100:1 span
- 12V to 120V input voltage available-both AC and DC models
- UL File #E96739 (M)
- CSA File #LR62586-5



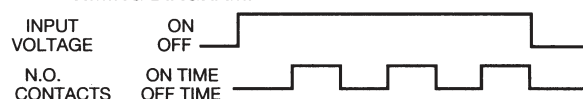
The Amperite DFA series adjustable recycling timers provide a continuously operating off/on cycle as long as power is applied to the input terminals. Two knob operated potentiometers provide user adjustment of both the flash rate and duty cycle. One knob sets the Off time; the other sets the On time. Standard models allow both the Off time and On time to be adjusted over a 100:1 range. Custom timing is available.

TIMING MODE: Off/On recycling (flasher) timer. The initial timing period, after application of power, is "off". An option allows the unit to cycle "on" upon application of power. Standard timing ranges (Off and On time) are as follows:

- | | |
|------------------------------|-----------------------------|
| A: .1 second to 10 seconds | G: 1 hour to 4 hours |
| B: .25 second to 25 seconds | H: 14.4 minutes to 24 hours |
| C: .6 second to 60 seconds | I: .6 minutes to 60 minutes |
| D: 1.2 second to 120 seconds | J: .1 minute to 10 minutes |
| E: 1.8 second to 180 seconds | K: 10 minutes to 24 hours |
| F: 1 minute to 100 minutes | M: 1 hour to 10 hours |

Custom Timing Is Available. Fixed Timing Is Available From 0.1 secs. thru 240 Hrs. If fixed timing is desired, please indicate S for secs., M for mins. & H for hours.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C: 10 Million operations, Mechanical
100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11-pin spade terminals (Dia. C & D)

Enclosure: White plastic case. Knob adjustable models have a dial scale for reference only. LDFA version has a black case.

Weight: 4 oz (114g) approx.

TIMING SPECIFICATIONS:

Timing - Fixed: 0.1 secs thru 240 Hrs.

Timing Adjustment: Two (2) knob adjustable potentiometers.

Timing Ranges: See Above

Timing Tolerance:

Fixed Units: $\pm 5\%$; 1% units are available at extra cost.

Adjustable Units: -0 to +10% of maximum specified delay time.

Minimum specified value or less at low end.

Repeatability: $\pm 1\%$

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

Reset: Upon interruption of power

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS

Between adjacent contacts: 1500V RMS

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units - 12V, 24V and 120V

DC units - 12V, 24V, 48V and 110V

Custom volt. are available

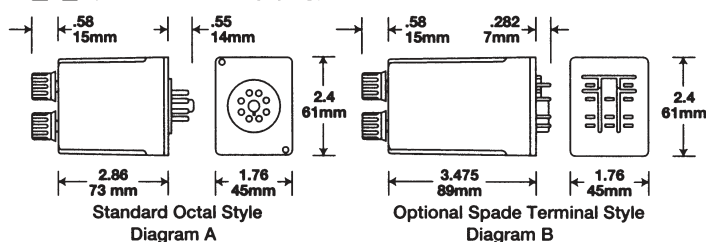
Power Requirement: AC units: 3 VA or less • DC units: 3 Watts or less

Transient Protection: 1 JOULE MOV • Polarity Protection: On DC units - Yes

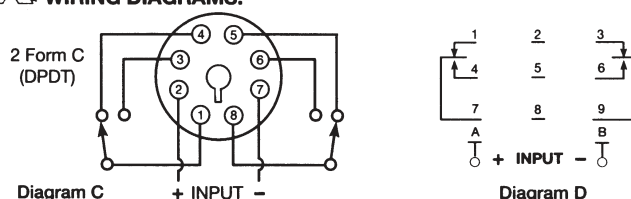
INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum	Nominal	Minimum	Maximum
12V AC	10V	14V	12V DC	11V	14V
24V AC	20V	28V	24V DC	20V	32V
120V AC	105V	130V	48V DC	41V	55V
			110V DC	95V	125V

OUTLINE DIMENSIONS:



WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite DFA Series recycling Flasher.

Example:

120 A A / A R L DFA
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24, & 120V AC; 12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current

D = DC - Direct Current

C: Denotes first timing period. See timing mode chart above for proper code letter.

For standard units this is an "OFF" time delay. Fixed timing available.

If fixed timing is desired, please indicate S for secs., M for mins. or H for hours.

D: Denotes second timing period. For standard units this is an "ON" timing period. Fixed timing available.

E: Add "R" only if the "ON" time delay period is to occur first. When using "R" option, enter timing range for ON-Time in "C" & OFF-Time in "D".

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes 10 ampere 2 form C adjustable recycle flasher - DFA Series.



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DFS Series Solid State AC and DC Flashers

- 100% solid state circuitry – no moving parts
- Zero AC voltage switching – no RFI
- 3 ampere and 12 ampere models available
- Suitable for incandescent and inductive loads
- Fixed flash rate from 1 to 1000 FPM
- Duty cycle 50%
- UL File #E96739 (M)
- CSA File pending



TIMING MODE:

On/off recycling solid state flasher. Flash rates are fixed and are available from 1 to 1000 flashes per minute (FPM). Duty cycle is 50%; other duty cycles available.

TIMING DIAGRAM:



OUTPUT CIRCUIT:

Solid state switching device. Current rating 3 amperes and 12 amperes (see chart). Inrush current rating 10 times steady state value. Expected Life @ 25°C: indefinite, no moving parts to wear out.

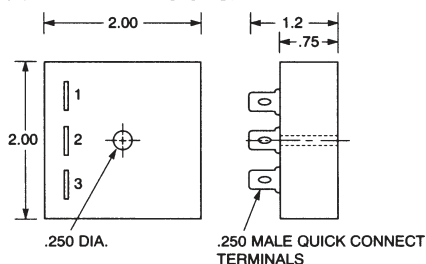
ENVIRONMENTAL INFORMATION:

Operating & storage temperature range: -23°C to +60°C, (-10°F to +140°F).

MECHANICAL INFORMATION:

Termination: 0.250 quick connect male terminals.
Enclosure: 2 x 2 x 3/4 inch black plastic case, epoxy sealed.
Center hole mounting. 12 ampere units must be mounted to a suitable heat sink for proper heat dissipation.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

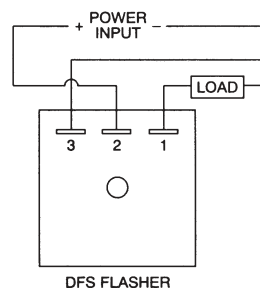
Standard flash rates: 30, 45, 60, 75, 90 and 120 FPM.
Custom rates are available.

INPUT VOLTAGES:

12, 24, 48, 120, and 240 volts 60 Hz AC; 12, 24, 36, 48, and 110 volts DC. See chart. **Custom voltages are available.**

INPUT VOLTAGE LIMITS: +/- 10% of nominal.

WIRING DIAGRAM:



Ordering Information:

Refer to model chart below. Select appropriate model number in accordance with the power input and load current required, and specify desired flash rate in flashes per minute (FPM). **Note: Custom voltages and flash rates are available; consult factory.**

MODEL	VOLTAGE	CURRENT
DFS123	12V AC	3 AMPERES
DFS124	12V AC	12 AMPERES
DFS143	24V AC	3 AMPERES
DFS144	24V AC	12 AMPERES
DFS152	120V AC	3 AMPERES
DFS154	120V AC	12 AMPERES
DFS162	230V AC	3 AMPERES
DFS163	230V AC	12 AMPERES
DFS164	110-230V AC	3 AMPERES
DFS166	110-230V AC	12 AMPERES

MODEL	VOLTAGE	CURRENT
DFS219	12V DC	3 AMPERES
DFS220	12V DC	12 AMPERES
DFS224	24V DC	3 AMPERES
DFS225	24V DC	12 AMPERES
DFS236	36V DC	3 AMPERES
DFS237	36V DC	12 AMPERES
DFS248	48V DC	3 AMPERES
DFS249	48V DC	12 AMPERES
DFS290	110V DC	0.5 AMPERES
DFS291	110V DC	2 AMPERES

EXAMPLE: DFS152 - 60 denotes 120 volt AC power, 3 ampere load rating, 60 FPM.
MODEL -FPM



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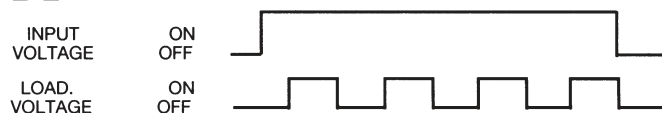
DFV Series Flasher

- Solid state analog flasher circuitry
- DPDT (2 form C) isolated 10 ampere relay contacts
- Variable flash rate: standard flash rate range 10-120 F.P.M.
- Single knob adjustment on top of unit
- 12V to 120V input voltage available - both AC & DC models
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: On/off adjustable recycling flasher. The flash rate is adjustable from 10 to 120 flashes per minute (FPM). Custom rates are available within ranges between minimum of 1 FPM & maximum of 240 FPM. Duty cycle is 50%. Flash rate is adjustable by means of a knob potentiometer on top of the unit.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagram C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

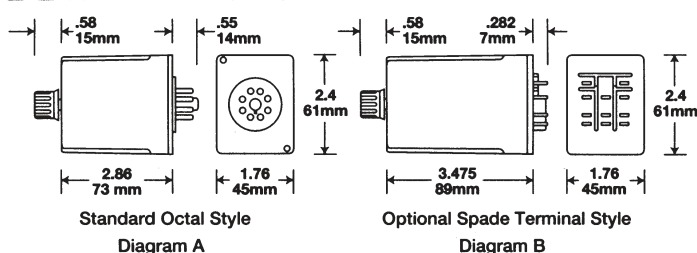
MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11 pin spade terminals (Dia. C & D)

Enclosure: White plastic case with a dial scale for knob adjustment, reference only. LDFV version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Flash Rate - Adjustable: Standard - 10 to 120 flashes per minute (FPM)

Custom rates are available within ranges between minimum of 1 FPM and a maximum of 240 FPM.

Timing Adjustment: Knob adjustable potentiometer.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS,

Between adjacent contacts: 1500V RMS,

Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, and 120V

DC units- 12V, 24V, 48V and 110V } Other volt. are available

Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

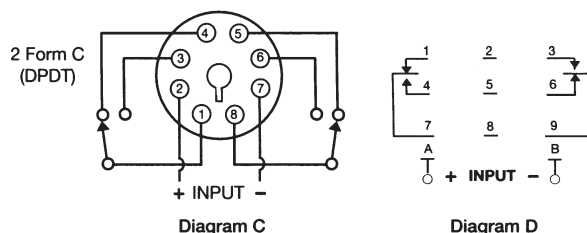
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite DFV Series Adjustable Flasher.

Example:

120 A F 10 -120 L DFV
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC;

12, 24, 48 & 110V DC

Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current, D = DC - Direct Current

C: Denotes flasher configuration.

D & E: Denotes range of knob adjustability for flash rate where:

D= Minimum number of flashes per minute (FPM).

E= Maximum number of flashes per minute (FPM).

Note: Standard rate is from 10 to 120 FPM. Custom rates are available within ranges between minimum of 1 FPM and a maximum of 240 FPM .

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes 10A DPDT (2 form C) adjustable flasher - DFV Series.



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DFW Series Wig-Wag Flasher

- Ideal for emergency vehicular use
- Solid state analog circuitry with alternating SPST relay contacts
- 15 AMP Relay contacts
- Small, compact, reliable and easy to install: only one wire runs to vehicle interior
- 12V DC input
- 5 terminal or 5 wire lead configuration



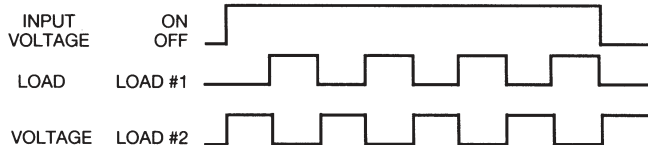
The Amperite Model DFW wig-wag flasher is a combination solid state/electromechanical device that is designed to alternately flash a pair of lamps on police, ambulance, school buses, EMS, and other emergency vehicles. Its flash rate of approximately 110 times per minute provides maximum warning effectiveness to both traffic and pedestrians.

The DFW flasher unit employs a pair of heavy duty automotive relays, each of which are driven by a silicon transistor connected in a switching configuration. The oscillator circuit provides proven solid state reliability while the relays allow control of heavy load currents without the need for a heat sink.

The units are small and compact, allowing easy installation in the engine compartment of any vehicle. It is epoxy encapsulated to provide maximum protection against vehicle and engine vibration. Two versions are available for installation, using quick-connect terminals or hard wiring to the vehicle harness.

TIMING MODE: On/off recycling flasher with alternating outputs. Flash rate is fixed at 110 FPM with a 50% duty cycle. Custom flash rates and duty cycles are available.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 SPST contacts - Normally open (2 form A)
Rating: (Resistive): 15A for each output contact
(Incandescent): 200 watts maximum lamp load (each side)

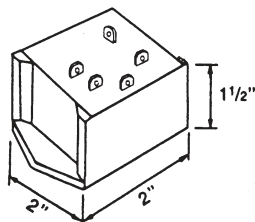
ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -40°C to +155°C (-40°F to +311°F)
Operating: -40°C to +125°C (-40°F to +257°F)

MECHANICAL INFORMATION:

Load and Input Termination: quick connects or #14 gauge wire harness.
Enclosure: Black plastic case
Mounting: Two screw mounting wings.
Weight: 4 oz (112g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard - 110 FPM

Custom rates are available from 10 - 120 FPM.

Flash Rate Tolerance: $\pm 10\%$

INITIAL DIELECTRIC STRENGTH: Between contacts & coil: 500V RMS

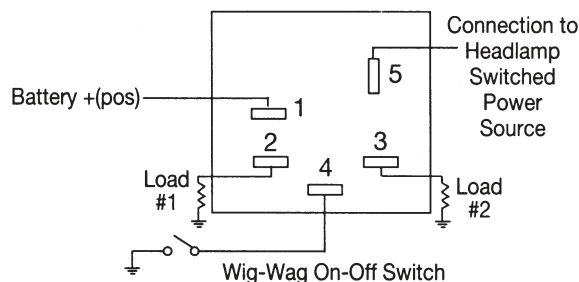
INPUT INFORMATION: Voltage: 10.5 to 16V DC

Power Requirement: 2 Watts or less

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V DC	10.5V DC	16V DC

WIRING DIAGRAM:



WIRING OPTIONS:

- 1 (Red) Connect directly to battery +(pos) terminal
- 2 & 3 (Blue) Headlamps or other load (2 output wires)
- 4 (Black) Connect to terminal of Wig-Wag off-on switch. Connect normally open terminal of switch to chassis ground.
- Note: This is the only wire that needs to be run to the interior of the vehicle.*
- 5 (Orange) To existing headlamp power switch

NOTE: Generally, the Wig-Wag Flasher is connected to alternate the high beams of the vehicle independently of the low beams. Connected properly, the Wig-Wag will not interfere with the high beams. If the high beam switch is turned on while the Wig-Wag is in use, the lights will stop alternating and will remain on until the high beam switch is turned off.

Option L: Flasher unit with quick connect terminals.

Option H: Flasher unit with #14 gauge flexible wire terminations, approximately 18" (300 centimeters) long.

Option H color code:

+12 volts input.....Red	Load (2 output wires).....Blue
Ground (vehicle chassis).....Black	Headlamp switch.....Orange

Ordering Information:

Definition of a part number for the Amperite DFW Series Flasher.

Example:

12 F 110 H DFW
↑ ↑ ↑ ↑ ↑
A B C D E

A: Denotes nominal input voltage: Voltage Available: 12V DC

B: Denotes flasher configuration.

C: Denotes flash rate. Standard rate is 110 FPM.
Custom rates are also available from 10 to 120 FPM.

D: Denotes form of termination - H = #14 gauge flexible wire
L = quick connect input and load terminals.

E: Denotes DFW Series alternating flasher.



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DFWS Series Solid State AC and DC Flashers

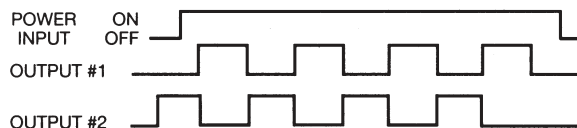
- 100% solid state circuitry – no moving parts
- Alternating output - drives two independent loads
- Zero AC voltage switching – no RFI
- 10 ampere current rating
- Suitable for incandescent and inductive loads
- Fixed flash rates from 1 to 1000 FPM
- Duty cycle 50%



TIMING MODE:

On/off alternating solid state flasher with two independent output circuits. Flash rates are fixed and are available from 1 to 1000 flashes per minute (FPM). Duty cycle is 50%; other duty cycles available

TIMING DIAGRAM:



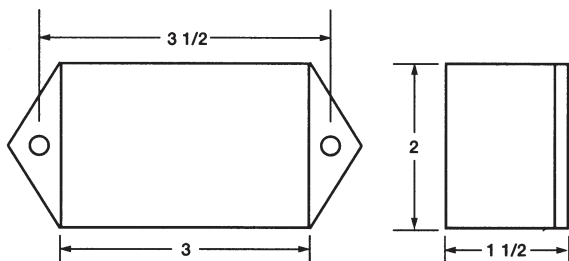
OUTPUT CIRCUIT:

Solid state switching device. Current rating 10 amperes RMS. Inrush current rating 10 times steady state value. Expected Life @ 25°C: indefinite, no moving parts to wear out.

ENVIRONMENTAL INFORMATION:

Operating & storage temperature range:
-23°C to +60°C, (-10°F to +140°F).

OUTLINE DIMENSIONS:



MECHANICAL INFORMATION:

Termination: .250 quick connect male terminals.
Enclosure: 2 x 3 x 1-1/2 inch black plastic case, epoxy sealed.
Two hole mounting. For full load operation the unit must be mounted to a suitable heat sink for proper heat dissipation.

TIMING SPECIFICATIONS:

Standard flash rates: 30, 45, 60, 75, 90 and 120 FPM.
Custom rates are available.

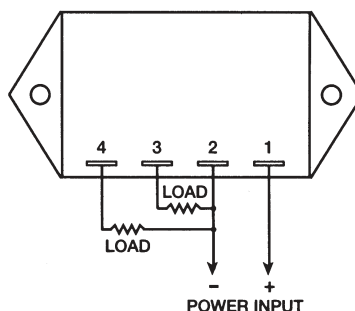
INPUT VOLTAGES:

12, 24, 48, 120, and 240 volts AC;
12, 24, 36, 48, and 110 volts DC.
Custom voltages are available.

INPUT VOLTAGE LIMITS:

+/- 10% of nominal.

WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite DFWS Series Alternating Flasher:

Example:

120 A F 60 DFWS
↑ ↑ ↑ ↑ ↑
A B C D E

- A: Denotes nominal input voltage. Voltages available: 12, 24, 48, 120, and 240 volts AC; 12, 24, 36, 48, and 110 volts DC. For other voltages consult factory.
- B: Denotes type of input power required for operation.
A = AC - Alternating Current; D = DC - Direct Current
- C: Insert F for flasher.
- D: Denotes number of flashes per minute (FPM).
Standard rates are 30, 45, 60, 75, 90, and 120 FPM.
Custom rates are available from 1 to 1000 FPM.
- E: Denotes Amperite DFWS Series solid state alternating flasher.



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DOD Series TDR

- Solid state analog circuitry
- True delay on dropout: Timing cycle after power removal
- DPDT (2 form C) isolated 4 ampere relay contacts
- Timing selection: Knob adjustable or Fixed
- Numerous models timing from 0.1 secs. to 300 secs
- UL File #E96739 (M)
- CSA File #LR62586

TIMING MODE: Upon the application of input voltage the relay immediately energizes. The timing cycle begins when input voltage is removed. When the timing cycle is complete, the relay will de-energize. The relay contacts will reset when input voltage is reapplied.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D
Contact Material: Gold Clad Silver Alloy
Rating Maximum Switching Power - 1000 VA, 90W
(Resistive): Maximum Switching Voltage - 250V AC, 48V DC
Maximum Switching Current - 4 Amperes
Nominal Switching Capacity - 4A 250V AC, 3A 30V DC,
UL/CSA Ratings - 4A 1/20 HP 125, 250V AC, 3A 30V DC.

Expected Life @ 25°C :

100 Million operations, Mechanical
Electrical: 100,000 operations at 4A 250V AC
200,000 operations at 3A 30V DC

ENVIRONMENTAL INFORMATION:

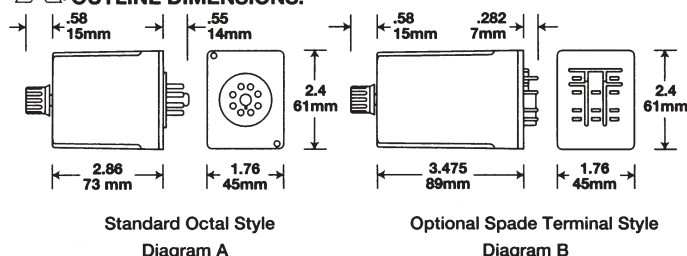
Temperature Range: Ambient: -40°C to +65°C (-40°F to +149°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11 pin spade terminals (Dia. C & D)
Enclosure: Black plastic case. Knob adjustable models have a dial scale for reference only.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing - Fixed: 0.1 secs. through 300 secs.

Timing Ranges: Standard timing ranges are as follows: .1 to 10 secs., .6 to 60 secs., 1.2 to 120 secs., 3 to 300 secs. **Custom timing is available.**

Timing Adjustment: Knob adjustable potentiometer.

Timing Tolerance:

Fixed Units: $\pm 5\%$.

Adjustable Units: -0 to +25% of maximum specified delay time.
Minimum specified value or less at low end.

Repeatability: $\pm 5\%$

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 750V RMS,
Between adjacent contacts: 1000V RMS,
Between contacts & coil: 1500V RMS

INPUT INFORMATION:

Voltage: AC units - 12V, 24V, and 120V

DC units - 12V, 24V, 48V and 110V } **Other volt. are available**

Power Requirement: AC units: 2 VA or less, DC units: 2 Watts or less

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum	Nominal	Minimum	Maximum
12V AC	10V	14V	12V DC	11V	14V
24V AC	20V	28V	24V DC	20V	32V
120V AC	105V	130V	48V DC	41V	55V
			110V DC	95V	125V

WIRING DIAGRAMS:

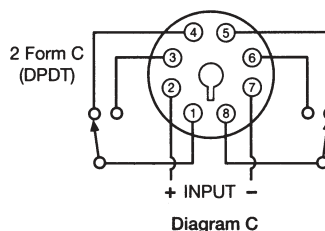


Diagram C

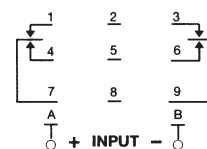


Diagram D

Ordering Information:

Definition of a part number for the Amperite
DOD Series Time Delay Relay.

Example:

120 A .6 -60 S L DOD
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G

A: Denotes nominal input voltage. Voltages Available: 12, 24 & 120V AC; 12, 24, 48 & 110V DC
Custom Voltages are available.

B: Denotes type of input current required for operation: A = AC - Alternating Current,
D = DC - Direct Current

C & D: Denotes range of knob adjustability for timing (in seconds or minutes) where:
C= Minimum time delay. D= Maximum time delay for adjustable TDR'S.

Note: 1.) Ranges available: See standard timing ranges above. **Custom Timing is available.**

2.) Both values (C & D) can be replaced by a single value for a factory
preset time delay in seconds or minutes from 0.1 secs. through 300 secs.

E: Denotes use of seconds or minutes in timing value(s),
S = seconds, M = minutes.

F: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

G: Denotes DPDT (2 form C) 4 amp delay on dropout DOD Series Time Delay Relay.



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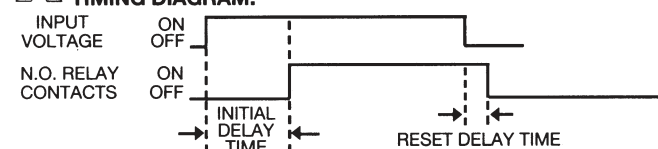
G Series TDR

- Hermetically sealed
- Delay on Make or Delay on Break timing modes
- Thermal device
- 3 AMP rating
- 1 - 115V input voltage range - works on AC or DC
- Isolated output contacts
- Fixed delay times only
- Initial and reset (release) delay device
- Long life
- UL File #E96739 (M)



TIMING MODE: Timing cycle begins upon application of power to the heater terminals. At the end of the initial delay time the relay contacts transfer and remain in a transferred state until input power is removed. When the heater input power is removed, the contacts transfer back to their original state at the end of a reset (release) delay period.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form A (SPST - Normally open) - Delay on Make
1 form B (SPST - Normally closed) - Delay on Break
Contact Material: Silver - Cadmium Oxide
Rating (Resistive): 3A @ 115V AC
Expected Life @ 25°C :
500,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Operating & storage: -55°C to +80°C, (-67°F to +176°F)

MECHANICAL INFORMATION:

Termination & Enclosure: Octal style, or 9-pin miniature style glass envelope. See Diagrams A & B.

Weight: 1 oz (28g)

OUTLINE DIMENSIONS:

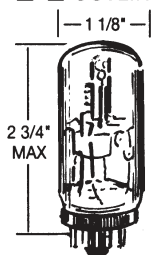


Diagram A

Standard Octal Base

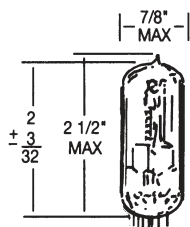


Diagram B

9-Pin Miniature Base

TIMING SPECIFICATIONS:

Timing - Fixed: 1 through 300 secs - (octal style) or
1 - 120 secs. (9-pin miniature style)
Timing Tolerance: $\pm 20\%$ - **Tighter tolerances are available.**
Repeatability: $\pm 5\%$
Release Time: Contact factory
Timing Cycle Interrupt Transfer: none

INITIAL DIELECTRIC STRENGTH:

1 - 10 Second Type: 15 - 300 Second Type:
Between open contacts: 250V RMS Between open contacts: 800V RMS
Between contacts & coil: 500V RMS Between contacts & coil: 500V RMS

INPUT INFORMATION:

Voltage: AC or DC - 6V, 12V, 26V, 50V and 115V
(Other voltages are available)
Power Requirement: 2.0 Watts approx.

Transient Protection: impervious to transients

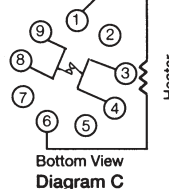
Polarity Protection: None required

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC/DC	4V	8V
12V AC/DC	10V	14V
26V AC/DC	22V	30V
50V AC/DC	42V	58V
115V AC/DC	90V	130V

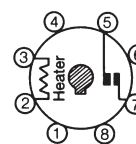
WIRING DIAGRAMS:

Base Wiring 9-Pin Miniature
Pins 1 & 6 - Heater
Pins 3 & 4 - First Contact
Pins 8 & 9 - Second Contact



Bottom View
Diagram C

Base Wiring Standard Octal
Pins 2 & 3 - Heater
Pin 5 - First Contact
Pin 7 - Second Contact



Bottom View
Diagram D

Ordering Information:

Definition of a part number for the Amperite
G Series Time Delay Relay.

Example:

115 NO 60 T
↑ ↑ ↑ ↑
A B C D

A: Denotes nominal input voltage. Voltages Available: 6, 12, 26, 50 & 115V AC/DC
Custom Voltages are available.

B: Denotes contact form: NO = normally open (Delay on Make) - 1 form A - SPST
C = normally closed (Delay on Break) - 1 form B - SPST

C: Denotes timing value: Factory preset time delays from 1 - 300 secs. are available (octal style)
and 1 - 120 secs. (9-pin miniature style).

D: Denotes type of glass envelope: Blank = octal style. T = 9-pin miniature style.



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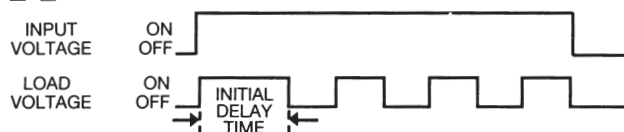
GF Series Flasher

- Hermetically sealed
- Thermal flasher circuitry
- Long life
- 0.5A load rating @ 115V AC
- All units work on AC and DC input voltage
- Octal & 9-pin glass tube configuration
- 6V to 115V input voltages available
- UL File #E96739 (M)



TIMING MODE: Load is energized upon application of power. After initial delay time, flashing cycle begins.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 1 form B (SPST - Normally closed) - Delay on Break
Contact Material: Silver - Cadmium Oxide
Rating (Resistive): 0.5A @ 115V AC, 1.5A intermittent, 60 ma. minimum load

Expected Life @ 25°C :

500,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

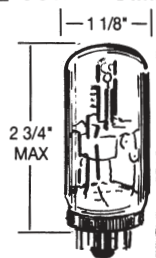
Temperature Range: Operating & storage: -55°C to +80°C
(-67°F to +176°F)

MECHANICAL INFORMATION:

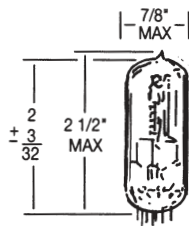
Termination & Enclosure: Octal style, or 9-pin miniature style glass envelope. See Diagrams A & B.

Weight: 1 oz (28g) approx.

OUTLINE DIMENSIONS:



Standard Octal Base
Diagram A



9-Pin Miniature Base
Diagram B

TIMING SPECIFICATIONS:

Flash Rate - Fixed: Standard flash rates from 10 - 90 FPM are available
Custom rates are also available.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 250V RMS

INPUT INFORMATION:

Voltage: AC or DC - 6V, 12V, 26V, 50V and 115V
(Other voltages are available)

Power Requirement: 1.0 Watt approximate

Transient Protection: impervious to transients

Polarity Protection: None required

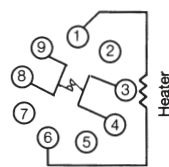
INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
6V AC/DC	4V	8V
12V AC/DC	10V	14V
26V AC/DC	22V	30V
50V AC/DC	42V	58V
115V AC/DC	90V	130V

WIRING DIAGRAMS:

Base Wiring 9-Pin Miniature

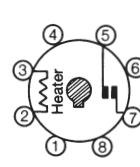
Pins 1 & 6 - Heater
Pins 3 & 4 - First Contact
Pins 8 & 9 - Second Contact



Bottom View
Diagram C

Base Wiring Standard Octal

Pins 2 & 3 - Heater
Pin 5 - First Contact
Pin 7 - Second Contact



Bottom View
Diagram D

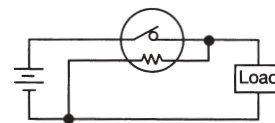


Diagram E

Ordering Information:

Definition of a part number for the Amperite GF Series Flasher.

Example:

115 F 45 T
↑ ↑ ↑ ↑
A B C D

- A: Denotes nominal input voltage. Voltages Available: 6, 12, 26, 50 & 115V AC/DC
Custom Voltages are available.
- B: Denotes flasher configuration.
- C: Denotes flash rate. Standard flash rates from 10 - 90 FPM are available.
Custom rates are also available.
- D: Denotes type of glass envelope. Blank = Octal style. T = 9-pin miniature style.



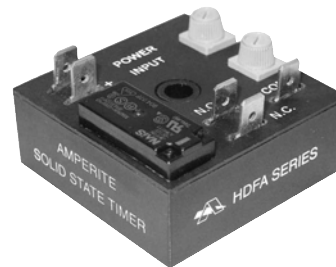
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HDFA Series Adjustable Recycling Time Delay Relays (Flashers)

- 10 Ampere SPDT (1 form C) Switching
- CMOS digital timing circuitry
- OFF and ON-Time user adjustable
- Timing from milliseconds to hours



DESCRIPTION: The Amperite HDFA Series low cost adjustable recycling timers may be used to alternately switch one or two load circuits with both OFF-Time and ON-Time adjustable by means of two built-in potentiometers. A SPDT 10 ampere contact set alternates continuously as long as power is applied to the relay. Typical applications include OFF/ON cycling for equipment burn-in test, lighting controls, and automatic cycling of electrically operated devices.

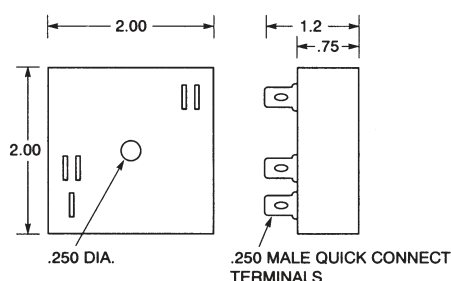
CONTACT INFORMATION: 1 form C (SPDT) contact set. 1/2 HP @ 240 VAC, 1/3 HP @ 125 VAC. 10 amperes maximum @ 30 VDC or 250 VAC. Minimum switching load current 10 ma @ 5 VDC.

TIMING MODE: OFF/ON recycling (flasher) timer. Standard timing ranges are shown below. Custom and fixed timing are available; consult factory. **Note: maximum time on high band to minimum time on low band must not exceed ration of 200:1**

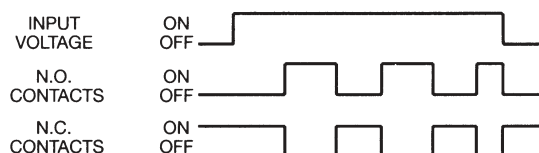
Timing ranges:

A: .25 to 10 secs. E: 1.8 to 180 secs. I: .6 to 60 min.
B: .25 to 25 secs. F: 1 to 100 min. J: .1 to 10 min.
C: .6 to 60 secs. G: 1 to 4 hrs. K: 10 min. to 24 hrs.
D: 1.2 to 120 secs. H: 14.4 min. to 24 hrs. M: 1 to 10 hrs.

OUTLINE DIMENSIONS:



TIMING DIAGRAM:



INPUT INFORMATION:

VOLTAGE: AC units- 12V, 24V and 120V AC.
DC units- 12V, 24V, 48V and 110V DC.

Custom voltages are available.

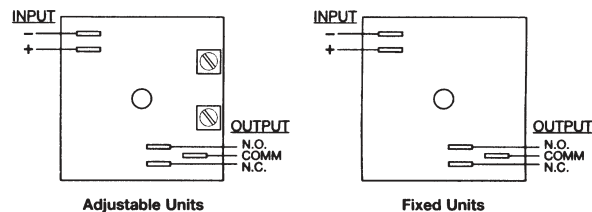
POWER REQUIREMENT: AC units: 3 VA or less;
DC units: 3 watts or less.

Polarity Protection on DC units – Yes.

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum	Nominal	Minimum	Maximum
12V AC	10V	14V	12V DC	11V	14V
24V AC	20V	28V	24V DC	20V	32V
120V AC	105V	130V	48V DC	41V	55V
			110V DC	95V	125V

WIRING DIAGRAMS:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed.
Center hole mounting. 1/4 inch quick connect male terminals.

Ordering Information:

Definition of a part number for the Amperite HDFA Series Recycling Relay:

Example:

120 A A / A R HDFA
↑ ↑ ↑ ↑ ↑
A B C D E F

A: Denotes nominal input voltage. Voltages available: 12V, 24V & 120V AC; 12V, 24V, 48V & 110V DC.

Custom voltages are available.

B: Denotes type of control input power required for operation:
A = AC - Alternating Current; D = DC - Direct Current.

C: Denotes first timing period which is an "OFF" time delay.
See chart above. If fixed time is required, specify time followed by S = seconds; M = minutes; or H = hours.

D: Denotes second timing period; see chart above. For fixed timing, specify time followed by S = seconds; M = minutes; or H = hours.

E: Add "R" only if the "ON" time delay period is to occur first. When using "R" option, enter timing range for ON-Time in "C" & OFF-Time in "D".

F: Denotes Amperite HDFA Series 10 ampere SPDT recycling timer.



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HDOD Series Delay-On-Dropout Time Delay Relay

- Solid state CMOS digital circuitry
- True delay on dropout: Timing cycle after power removal
- DPDT (2 form C) isolated 4 ampere relay contacts
- Built-in timing adjust potentiometer
- Numerous models from 0.1 seconds to hours



TIMING MODE:

Upon the application of input voltage the relay immediately energizes. The timing cycle begins when input voltage is removed. When the timing cycle is complete, the relay will de-energize.

TIMING DIAGRAM:



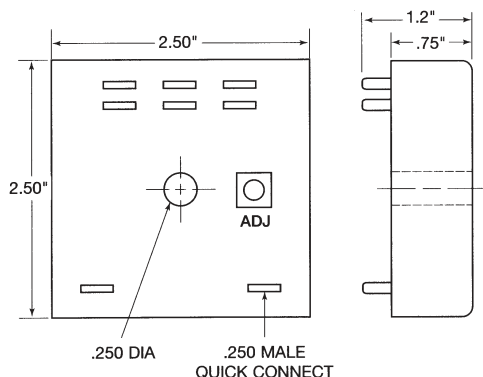
CONTACT INFORMATION:

Arrangement: 2 form C (DPDT)
Contact Material: Gold Clad Silver Alloy
Rating Maximum Switching Power – 1000 VA, 90W
(Resistive): Maximum Switching Voltage – 250V AC, 48 V DC
Maximum Switching Current – 4 Amperes
Nominal Switching Capacity – 4A 250V AC, 3A 30V DC
UL/CSA Ratings – 4 A 1/20 HP 125, 250V AC, 3A 30V DC
Expected Life: @ 25°C
Mechanical: 100 Million operations
Electrical: 100,000 operations at 4A 250V AC
200,000 operations at 3A 30V DC

ENVIRONMENTAL INFORMATION:

Temperature Range: Ambient: -40°C to 65°C (-40° to +149°F)

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Fixed timing: 0.1 seconds to hours, tolerance 5%; consult factory for availability.
Adjustable Timing Ranges: .1 to 1 sec; 1 to 10 sec; 10 to 100 sec; 1 to 10 min; 10 to 100 min.
Availability of long delay time depends upon voltage; consult factory for details.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 750V RMS,
Between adjacent contacts: 1000V RMS,
Between contacts & coils: 1500V RMS

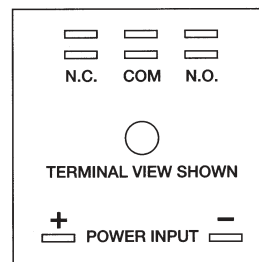
INPUT INFORMATION:

Voltage: 12, 24, 48, 110, 120 volts AC or DC
Custom voltages are available
Power requirements: 2 VA or Watts
Transient: protection: 1 Joule MOV
Polarity protection on DC units

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V	11V	15V
24V	20V	28V
48V	41V	55V
110V	95V	125V
120V	105V	130V

WIRING DIAGRAM:



MECHANICAL INFORMATION:

Termination: 1/4 inch quick-connect male terminals
Enclosure: 2 1/2 by 2 1/2 by 3/4 inch, epoxy sealed
Single 1/4 inch hole flat panel mounting.

Ordering Information:

Definition of a part number for the Amperite HDOD Series Time Delay Relay:

Example:

120 A 1 - 10 M HDOD
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F

- A: Denotes nominal input voltage. Voltages available: 12, 24, and 120V AC; 12, 24, 48, and 110V DC.
- B: Denotes type of input power: A = AC, D = DC .
- C & D: Denotes timing range of knob adjustability. **See standard ranges above.**
For fixed units specify a single number. **Custom timing available.**
- E: Denotes unit of time delay: S = seconds; M = minutes; H = hours
- F: Denotes Amperite HDOD Series DPDT 4 ampere delay-on-dropout TDR



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Amperite Head-Alert Vehicular Headlight Modulator

- Enhancement of motorcycle headlamp illumination
- 100% Solid State
- Quick and easy installation
- Incandescent lamp power rating 120 watts
- Epoxy sealed
- Low cost
- High reliability



The Amperite HEAD-ALERT modulator has been designed to enhance awareness of motorcycle headlamp illumination in accordance with Federal Standard 49, CFR Part 571.106. An external disable switch (not included) is used to disable the modulation function during nighttime driving.

The HEAD-ALERT is a two-terminal device that is connected in series with the power feed to the lamp (see the installation diagram at right). This safety device has been designed for motorcycle use, to provide additional awareness to other vehicles on the road during daylight hours.

The rate of modulation is 200 to 280 cycles per minute, with maximum power being applied to the headlamp for 50 to 70% of each cycle. During the low intensity portion of the cycle, power to the headlamp is held to not less than 17% of maximum intensity.

OUTPUT CIRCUIT:

Solid state switching transistor.

POWER RATING:

120 Watts incandescent.

INPUT VOLTAGES:

11 to 16 volts (standard automotive range).

ENVIRONMENTAL INFORMATION:

Operating temperature range -40°C to +60°C.
(-40°F to +140°F).

MECHANICAL:

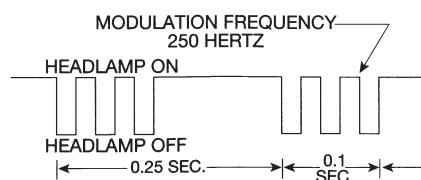
Glass reinforced black Lexan plastic, epoxy encapsulated for maximum protection against moisture and vibration.

Termination: Two 1/4 inch quick-connect male terminals.

Size: 13/4 x 7/8 x 11/8 inches (45 x 22 x 29 mm).

Single hole mounting, or two hole panel mount available at extra cost.

TIMING DIAGRAM:

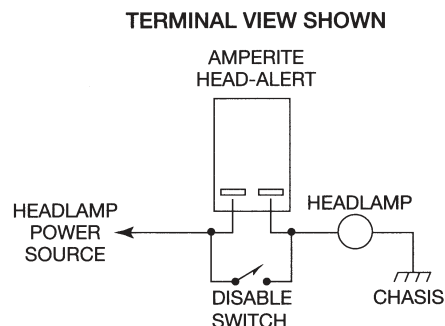


INSTALLATION INSTRUCTIONS:

The Amperite HEAD-ALERT headlamp modulator is a two-terminal device that is connected in series with the headlamp of a motorcycle or other vehicle. Use the following procedure for installation:

1. Locate the +12 volt wire that feeds the headlamp of the vehicle. This lead will have a +12 volt potential when the headlamp is switched on, and zero volts when the headlamp is switched off. Turn power off
2. Noting where the HEAD-ALERT module is to be mounted, cut the 12 volt feed wire at a location where it is in close proximity.
3. Strip both cut ends about 1/4 inch, being careful not to cut into the copper wires.
4. Crimp or solder a 1/4 inch quick-connect female terminal to each cut end.
5. Locate the cut wire that comes from the headlamp switch, and connect it to the positive terminal of the HEAD-ALERT module.
6. Locate the cut wire that feeds the headlamp and connect it to the negative side of the HEAD-ALERT module.
7. IMPORTANT: Reverse polarity connections will destroy the HEAD-ALERT module. Check the wiring carefully before applying power.

INSTALLATION DIAGRAM:





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NEW!

Amperite Head-Alert 2 Motorcycle Headlight Modulator

- Enhancement of motorcycle headlamp illumination
- Quick and easy installation
- Incandescent lamp power rating 120 watts
- Photo-electric sensor equipped
- Epoxy sealed
- High reliability



 The Amperite HEAD-ALERT 2 modulator has been designed to enhance awareness of motorcycle headlamp illumination in accordance with Federal Standard 49, CFR Part 571.106. Modulation of motorcycle headlamps has been shown to significantly reduce collisions between motorcycles and other vehicles.

The HEAD-ALERT 2 is a three wire device that is connected in series with either the high beam or low beam feed wire to the bulb. (See the installation diagram.) A photo-electric sensor is included in the unit to disable modulation at night-time as required by Federal law.

The rate of modulation is 200 to 280 cycles per minute, with maximum power being applied to the headlamp for 50 to 70% of each cycle. During the low intensity portion of the cycle, headlamp power is held to not less than 17% of maximum power.

OUTPUT CIRCUIT:

Solid state switching transistor.

POWER RATING:

120 Watts incandescent.

INPUT VOLTAGES:

11 to 16 volts (standard automotive range).

ENVIRONMENTAL INFORMATION:

Operating temperature range -40°C to $+60^{\circ}\text{C}$.
(-40°F to $+140^{\circ}\text{F}$).

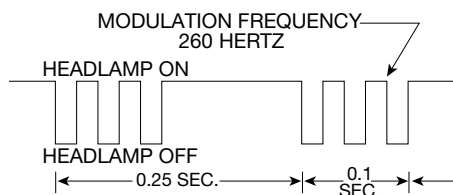
MECHANICAL:

Black plastic enclosure, epoxy sealed for protection against moisture and vibration. Size: $2\frac{1}{8} \times 1\frac{1}{2} \times \frac{3}{4}$ inches.

Three wire termination about 12 inches long.

Photocell assembly cable length 18 inches.

TIMING DIAGRAM:

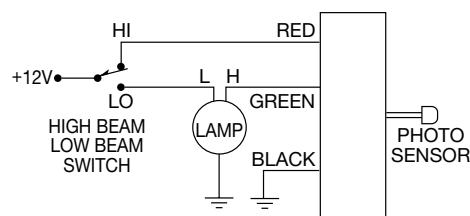


INSTALLATION INSTRUCTIONS:

The Amperite HEAD-ALERT 2 is a three wire device that is connected in series with either the high-beam or low-beam +12 volt wire to the headlamp bulb. Only negative-ground systems may be accommodated. Use the following installation procedure:

1. Locate the +12 volt wire that feeds the high-beam or low-beam of the headlamp bulb. This wire will have a +12 volt potential when the desired beam is energized, and zero volts when not. Turn power off
2. Select a location for the HEAD-ALERT 2 module.
3. Cut the +12 volt feed wire at a convenient location. Strip back both ends, being careful not to cut into the copper wires.
4. Connect the green lead of the HEAD-ALERT 2 module to the cut end that feeds the headlamp bulb. Use crimp terminals, wire nuts, or solder as desired.
5. Connect the other cut wire (+12 volt feed from the high-beam/low-beam switch) to the red wire of the HEAD-ALERT 2 module.
6. Connect the black lead of the HEAD-ALERT 2 module to chassis' ground.
7. If necessary, use insulation to cover any exposed wires.
8. IMPORTANT: Reverse polarity connections will destroy the HEAD-ALERT 2 module. Check wiring carefully before applying power.
9. Locate and secure a place on the motorcycle for the photo sensor. it should be placed pointing up to measure ambient light coming from the sky.

INSTALLATION DIAGRAM:



High Beam Installation Shown



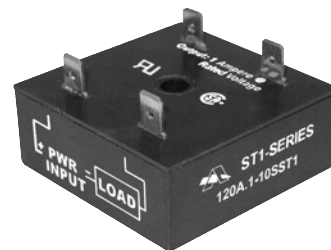
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ST1 Series Solid State Delay-On-Make Timers

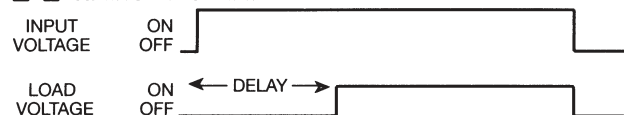
- 100% solid state circuitry – no moving parts
- Two terminal series connection to load
- Fixed or field adjustable delays from milliseconds to hours
- Up to 1 ampere continuous load current
- CMOS digital circuitry
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE:

Delay on operate begins upon application of input power. The load is energized at the end of the delay period and remains so until input power is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Solid state switching device 1 form A, normally open series connection. Continuous current rating 1 ampere. Maximum inrush 10 amperes. Minimum load current 5 milliamperes. Voltage drop typically 2.5 volts RMS @ 1 ampere.

TIMING SPECIFICATIONS:

Timing: Factory fixed, or 0.1 seconds to 100 hours in any one of the ranges below. **Timing is set by user supplied resistor or potentiometer. Custom timing available.**

Timing ranges:

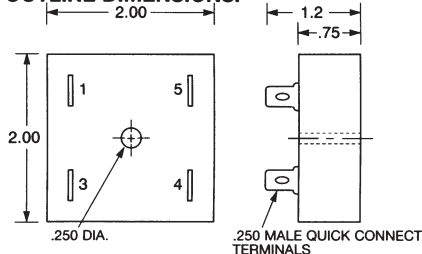
.1 to 10 seconds	1 to 100 minutes
.2 to 20 seconds	10 to 1000 minutes
1 to 100 seconds	.1 to 10 hours
10 to 1000 seconds	1 to 100 hours
.1 to 10 minutes	

Timing tolerance: fixed units = +/- 10%

Timing repeatability: +/- 2%

Timing cycle interrupt transfer: none

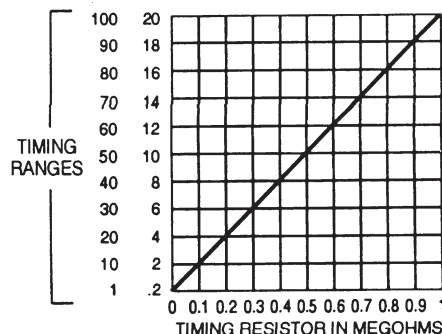
OUTLINE DIMENSIONS:



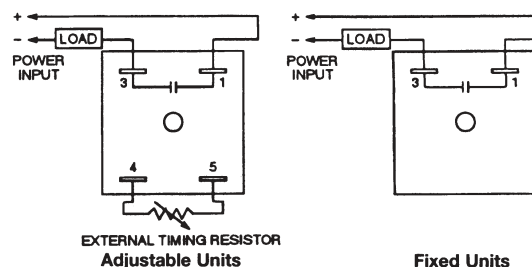
AC (60 Hz) and DC INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V	10V	14V
24V	20V	28V
36V	30V	42V
48V	41V	55V
110V	95V	125V
120V	105V	130V
230V	190V	255V

EXTERNAL RESISTOR SELECTION:



WIRING DIAGRAMS:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed. Center hole mounting. Two or four 1/4 inch quick connect male terminals.

Ordering Information:

Definition of a part number for the Amperite ST1 Series Time Delay Relay:

Example:

120 A 1 - 100 S ST1
↑ ↑ ↑ ↑ ↑
A B C D E F

- A: Denotes nominal input voltage. Voltages available 12, 24, 48, 120 and 230 volts AC, 12, 24, 36, 48 and 110 volts DC. For other voltages consult factory.
- B: Denotes type of input power required for operation.
A = AC - Alternating Current; D = DC - Direct Current
- C & D: Denotes range of adjustability using an external resistor or potentiometer, where C is the minimum timing and D is the maximum timing. Standard timing span is 100:1. For fixed timing units specify a single number.
- E: Denotes unit of time delay: S = seconds; M = minutes; H = hours.
- F: Denotes Amperite ST1 Series solid state, normally open time delay.



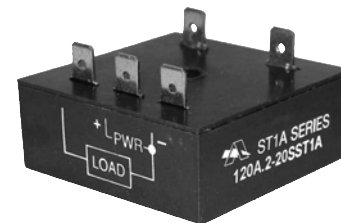
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ST1A Series Solid State Delay-On-Make Timers

- 100% solid state circuitry – no moving parts
- CMOS digital circuitry
- Fixed or field adjustable delays from milliseconds to hours
- 2 ampere continuous load current
(10 amperes available; consult factory)



TIMING MODE:

Delay on operate begins upon application of input power. The load is energized at the end of the delay period and remains so until input power is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Solid state switching device 1 form A; normally open series connection. Continuous current rating 2 amperes. Maximum inrush 20 amperes. Voltage drop 2.5 volts RMS or less @ 2 amperes.
(For 10 ampere load current rating consult factory).

NOTE: Maximum current rating for 110V DC is 2 amperes (heat sink required).

TIMING SPECIFICATIONS:

Timing : Factory fixed, or 0.1 seconds to 100 hours in any of the ranges below. Timing is set by user supplied resistor or potentiometer.

Custom timing available.

Timing ranges:

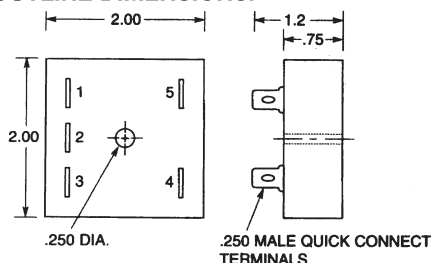
.1 to 10 seconds	1 to 100 minutes
.2 to 20 seconds	10 to 1000 minutes
1 to 100 seconds	.1 to 10 hours
10 to 1000 seconds	1 to 100 hours
.1 to 10 minutes	

Timing tolerance: fixed units = +/- 10%

Timing repeatability: 2%

Timing cycle interrupt transfer: none

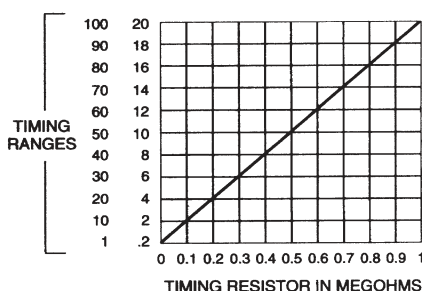
OUTLINE DIMENSIONS:



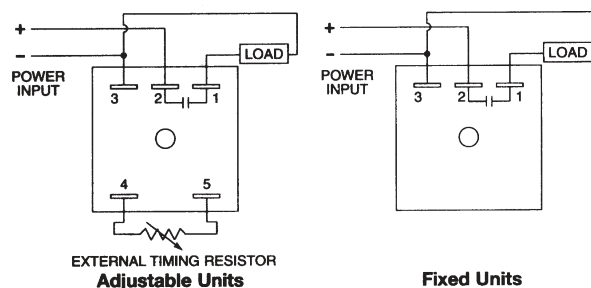
AC (60 Hz) and DC Input Voltages & Limits:

Nominal	Minimum	Maximum
12V	10V	14V
24V	20V	28V
48V	41V	55V
110V	95V	125V
120V	105V	130V
230V	190V	255V

EXTERNAL RESISTOR SELECTION:



WIRING DIAGRAMS:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed. Center hole mounting. Three or five 1/4 inch quick connect male terminals.

Ordering Information:

Definition of a part number for the Amperite ST1A Series Time Delay Relay:

Example:

120 A .1 - 10 S ST1A
↑ ↑ ↑ ↑ ↑
A B C D E F

A: Denotes nominal input voltage. Voltages available 12, 24, 120 and 230V AC, 12, 24, 48 and 110V DC. **Custom voltages are available, consult factory.**

B: Denotes type of input power required for operation.
A = AC - Alternating Current; D = DC - Direct Current

C & D: Denotes range of adjustability using an external resistor or potentiometer, where C is the minimum timing and D is the maximum timing. Standard timing span is 100:1. For fixed timing units specify a single number. **See standard ranges above.**

E: Denotes unit of time delay: S = seconds; M = minutes; H = hours.

F: Denotes Amperite ST1A Series solid state delay-on-make timer.



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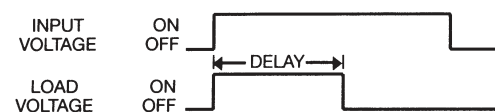
ST2 Series Solid State Interval (One-Shot) Timers

- 100% solid state circuitry - no moving parts
- CMOS digital timing circuitry
- Fixed or field adjustable delays from milliseconds to hours
- 2 amperes continuous load current
(10 amperes available; consult factory)



TIMING MODE: Upon application of power the load is energized and the time delay cycle is initiated. At the end of the delay time the load is deenergized. Reset is accomplished by removing input power.

TIMING DIAGRAM:



CONTACT INFORMATION: Solid state switching device 1 form A; normally open series connection. Continuous current rating 2 amperes. Maximum inrush 20 amperes. Voltage drop 2.5 volts RMS or less @ 2 amperes.

(For 10 ampere load current rating consult factory).

NOTE: Maximum current rating for 110V DC units is 2 amperes (heat sink required).

TIMING SPECIFICATIONS: Timing: Factory fixed, or .1 seconds to 100 hours in any of the ranges below.

Timing is set by user supplied resistor or potentiometer.

Custom timing available.

Timing ranges:

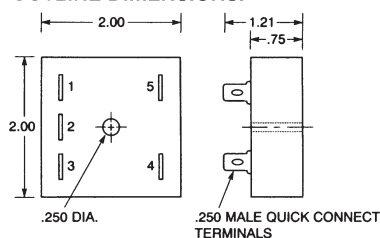
.1 to 10 seconds	10 to 1000 seconds	10 to 1000 minutes
.2 to 20 seconds	.1 to 10 minutes	.1 to 10 hours
1 to 100 seconds	1 to 100 minutes	1 to 100 hours

Timing tolerance: fixed units +/- 10%

Timing repeatability: 2%

Timing cycle interrupt transfer: none

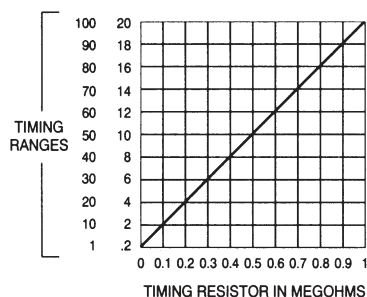
OUTLINE DIMENSIONS:



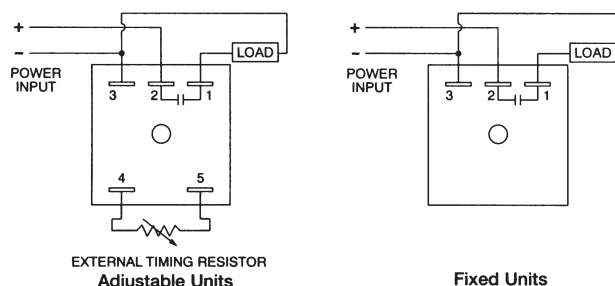
AC (60 Hz) and DC INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V	10V	14V
24V	20V	28V
48V	41V	55V
110V	95V	125V
120V	105V	130V
230V	190V	255V

EXTERNAL RESISTOR SELECTION:



WIRING DIAGRAMS:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed.

Center hole mounting. Three or five 1/4 inch quick connect male terminals.

Ordering Information:

Definition of a part number for the Amperite ST2 Series Time Delay Relay:

Example:

120 A .1 - 10 M ST2
 ↑ ↑ ↑ ↑ ↑
 A B C D E F

A: Denotes nominal input voltage. Voltages available: 12V, 24V, 120V & 230V AC; 12V, 24V, 48V & 110V DC.

Custom voltages are available.

B: Denotes type of input power required for operation:
 A = AC - Alternating Current; D = DC - Direct Current.

C & D: Denotes range of adjustability by using an external resistor or potentiometer, where C is the minimum timing and D is the maximum timing. Standard timing span is 100:1. For fixed timing units specify a single number.

E: Denotes unit of time delay: S=seconds; M=minutes; H=hours.

F: Denotes Amperite ST2 Series solid state, normally open time delay.



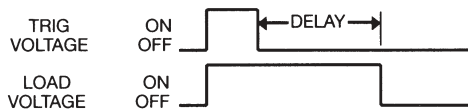
STB Series Solid State Triggered Delay-On-Release Timers

- 100% solid state circuitry - no moving parts
- CMOS digital timing circuitry
- Fixed or field adjustable delays from milliseconds to hours
- 2 amperes continuous load current
(10 amperes available; consult factory)



TIMING MODE: Power is applied to the relay prior to the timing cycle. Upon application of power to the trigger input terminal the load is energized. When power is removed from the trigger terminal the time delay cycle is initiated. At the end of the delay time the load is deenergized. Reset is accomplished by reapplying power to the trigger input terminal.

TIMING DIAGRAM:



CONTACT INFORMATION: Solid state switching device 1 form A; normally open series connection. Continuous current rating 2 amperes. Maximum inrush 20 amperes. Voltage drop 2.5 volts RMS or less @ 2 amperes.
(For 10 ampere load current rating consult factory).
NOTE: Maximum current rating for 110V DC is 2 amperes (heat sink required).

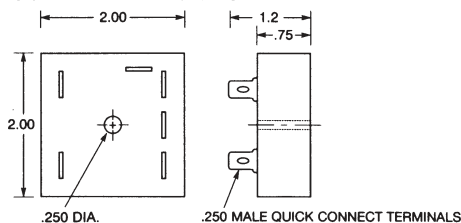
TIMING SPECIFICATIONS: Timing: Factory fixed, or .1 seconds to 100 hours in any one of the ranges below.

Timing is set by user supplied resistor or potentiometer.
Custom timing available.

Timing ranges:		
.1 to 10 seconds	10 to 1000 seconds	10 to 1000 minutes
.2 to 20 seconds	.1 to 10 minutes	.1 to 10 hours
1 to 100 seconds	1 to 100 minutes	1 to 100 hours

Timing tolerance: fixed units +/- 10%
Timing repeatability: 2%
Timing cycle interrupt transfer: none

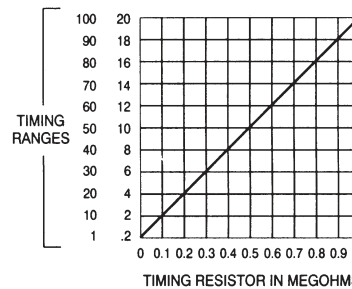
OUTLINE DIMENSIONS:



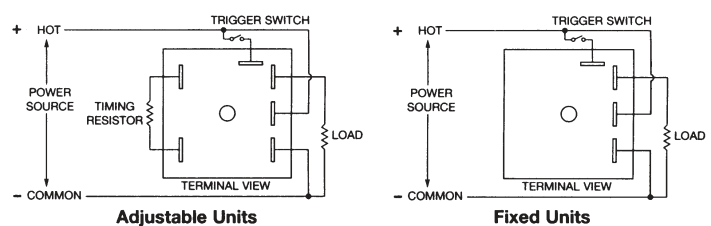
AC (60 Hz) and DC INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V	10V	14V
24V	20V	28V
48V	41V	55V
110V	95V	125V
120V	105V	130V
230V	190V	255V

EXTERNAL RESISTOR SELECTION:



WIRING DIAGRAMS:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed.
Center hole mounting. Four or six 1/4 inch quick connect male terminals.

Ordering Information:

Definition of a part number for the Amperite STB Series Time Delay Relay:
Example:

120 A .2 - 20 S STB
↑ ↑ ↑ ↑ ↑
A B C D E F

- A: Denotes nominal input voltage. Voltages available: 12V, 24V, 120V & 230V AC; 12V, 24V, 48V & 110V DC.
Custom voltages are available.
- B: Denotes type of input power required for operation:
A = AC - Alternating Current; D = DC - Direct Current.
- C & D: Denotes range of adjustability by using an external resistor or potentiometer, where C is the minimum timing and D is the maximum timing. Standard timing span is 100:1. For fixed timing units specify a single number.
- E: Denotes unit of time delay: S=seconds; M=minutes; H=hours.
- F: Denotes Amperite STB Series triggered delay-on-release relay.



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NEW!

ST1D Series Solid State Delay-On-Make Timer

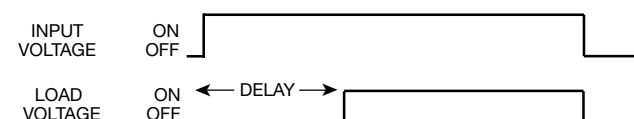
- 100% Solid State Circuitry – no moving parts
- CMOS digital circuitry
- Adjustable delay by means of a 10 position DIP switch
- 3 ampere continuous load current
(10 amperes available; consult factory)



TIMING MODE:

Delay on operate begins upon application of input power. The load is energized at the end of the delay period and remains so until input power is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Solid state switching device 1 form A; normally open series connection. Continuous current rating 3 amperes. Maximum inrush 20 amperes. Voltage drop 2.5 volts RMS or less @ 3 amperes. (For 10 ampere load current rating consult factory).

NOTE: Maximum current rating for 110V DC is 2 amperes (heat sink required).

TIMING SPECIFICATIONS:

Two timing ranges available:

.2 to 102.3 seconds in increments of 0.1 second and
1 to 1023 seconds in increments of 1 second.

Custom timing available.

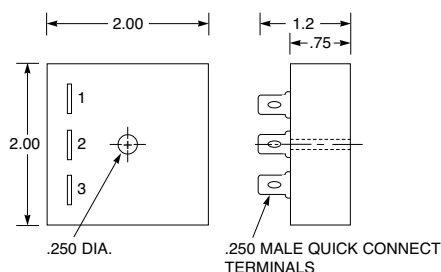
Timing adjustment by means of a 10 position DIP switch encoded in binary format (1, 2, 4, 8, etc.)

Timing accuracy: +/- 5% plus 1/2 increment

Timing repeatability: 2%

Timing cycle interrupt transfer: none

OUTLINE DIMENSIONS:



Ordering Information:

Definition of a part number for the Amperite ST1D Series Time Delay Relay:

Example:

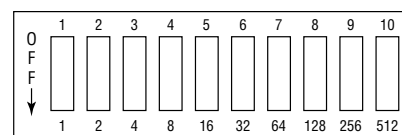
120 A 1-1023 S ST1D
 ↑ ↑ ↑ ↑ ↑
 A B C D E

- A: Denotes nominal input voltage. Voltages available 12, 24, 48, 110 and 120V AC or DC. **Custom voltages are available; consult factory.**
- B: Denotes input current:
A = AC - Alternating Current; D = DC - Direct Current
- C: Denotes range of timing adjustability using built-in DIP switch. Ranges available are listed above.
- D: Denotes unit of time delay: S = seconds.
- E: Denotes Amperite ST1D Series solid state delay-on-make timer.

AC (60 Hz) and DC INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V	10V	14V
24V	20V	28V
48V	41V	55V
110V	95V	125V
120V	105V	130V

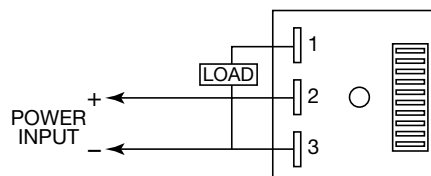
TIMING CONTROL SWITCH:



Timing Switch

DELAY = SUM OF SWITCH WEIGHTS
SET TO THE ON POSITION

WIRING DIAGRAM:



MECHANICAL INFORMATION:

Enclosure 2 x 2 x 3/4 inch black plastic, epoxy sealed. Center hole mounting. Three 1/4 inch quick connect male terminals.



AMPERITE CO.


(800) 752-2329


E-Mail: info@amperite.com • Website: www.amperite.com


Amperite STOP-ALERT™ Automotive Lamp Pulsator


- Enhancement of automotive lamp illumination
- Solid state circuitry - no moving parts
- Quick and simple 2 terminal installation
- For all 12 volt vehicular electrical systems
- Incandescent power rating 60 watts continuous;
120 watts intermittent
- Epoxy sealed
- Low Cost
- High reliability



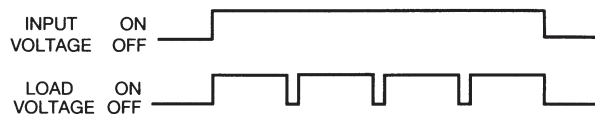
 The Amperite STOP-ALERT™ automotive lamp pulsator is a 100% solid state device that is connected in series with one or more automotive lamps. It controls current to the lamps to produce a moderate “pulsating” or “glimmering” effect of the lamp illumination for increased awareness and safety.

 The standard 300 pulse per minute, 85% duty cycle yields a substantial increase in visual effectiveness (when compared to constant illumination) without the distraction level generated by common flashers. The Amperite STOP-ALERT™ is ideal for many automotive uses such as certain headlight/taillight, stoplight, and back-up light applications. It can also be used to enhance lamp illumination on all emergency or police vehicles.

 The STOP-ALERT™ is exceptionally small and easy to install. The 2 terminal unit is connected in series with the power line that feeds one or more lamps. No additional wires or connections are necessary. One pulsator can conservatively drive two standard #1156 or #1157 automotive lamps, or one headlamp.

 **TIMING MODE:** On/off recycling automotive lamp pulsator. Standard pulse rate 300 pulses per minute (5 pulses per second) at a duty cycle of 85%. Custom pulse rates and duty cycles are available.

TIMING DIAGRAM:



OUTPUT CIRCUIT:

Totally solid state switching device.

POWER RATING:

Continuous 60 watts incandescent
Intermittent 120 watts incandescent
Maximum surge current 160 amperes

INPUT VOLTAGES & LIMITS:

Continuous rating 11 to 15 volts (standard automotive range)
Surge voltage 50 volts maximum.

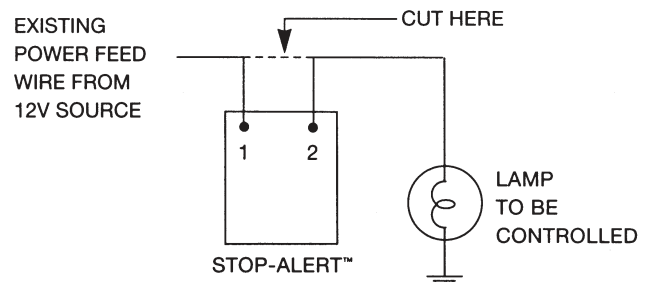
ENVIRONMENTAL INFORMATION:

Operating temperature range -40°C to +60°C,
(-40°F to +140°F)

MECHANICAL INFORMATION:

Enclosure: Glass reinforced black Lexan plastic;
epoxy encapsulated for maximum protection
against moisture and vibration.
Termination: 1/4 inch male quick connect terminals
Size: 13/4 x 7/8 x 11/8 inches.

INSTALLATION DIAGRAM:



STOP-ALERT™ INSTALLATION PROCEDURE:

- Locate existing 12V power wire feeding lamp.
- Cut and strip wire at convenient place.
- Crimp supplied terminals to exposed wires.
- Assemble power feed wire to terminal 1 of STOP-ALERT™.
- Assemble lamp wire to terminal 2 of STOP-ALERT™.



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Amperite Stop-Alert 2 & 2M Automotive Lamp Pulsators

- Enhancement of vehicle lamp illumination
- 100% Solid State
- Quick and easy installation
- For vehicular and motorcycle applications
- Incandescent lamp power rating 60 watts continuous, 120 watts intermittent
- Epoxy sealed
- Low cost
- High reliability

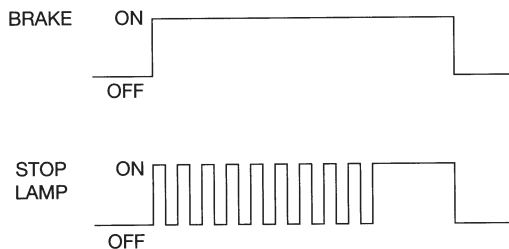


 The Amperite STOP-ALERT 2 and 2M lamp pulsators are 100% solid state devices that are connected in series with the third brake light of automobiles, and the stop lamp of motorcycles, to enhance awareness of stop-lamp illumination. Each time the brakes of a vehicle are applied, the stop lamp flashes rapidly for a period of 5 seconds. If the brakes continue to be applied, the stop lamp remains illuminated until the brakes are released.

TWO MODELS ARE AVAILABLE:

The STOP-ALERT 2 is designed for “third” brake light automotive applications where the lamp common wire may be isolated from vehicle chassis. For motorcycles and other applications where the stop-lamp is permanently connected to battery negative, the STOP-ALERT 2M is required.

TIMING DIAGRAM:



OUTPUT CIRCUIT:

Solid state switching.

POWER RATING:

60 Watts continuous, 120 intermittent.

INPUT VOLTAGES & LIMITS:

Continuous rating 11 to 16 volts (standard automotive range).
Surge voltage 50 volts maximum.

ENVIRONMENTAL INFORMATION:

Operating temperature range -40°C to +60°C.
(-40°F to +140°F).

MECHANICAL:

Glass reinforced black Lexan Plastic, epoxy encapsulated for protection against moisture and vibration.

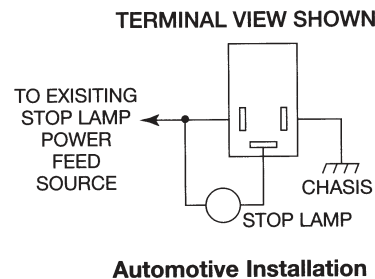
Termination: Three 1/4 inch quick-connect male terminals.

Size: 1 3/4 x 7/8 x 1 1/8 inches (45 x 22 x 29 mm).

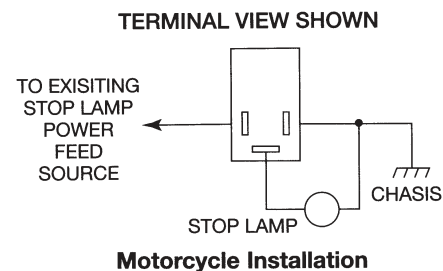
Single hole mounting, or two hole panel mount available at extra cost.

INSTALLATION DIAGRAMS:

STOP-ALERT 2



STOP-ALERT 2M





SWDC Series Delay-On-Make Timers

- CMOS Digital Circuitry
- Timing adjustment with 10 position Dip Switch, 1023:1 span
- Adjustment resolution 1 part in 1023
- DPDT 10 ampere relay contacts

TIMING MODE:

Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D
 Contact Material: Silver - Cadmium Oxide
 Rating (Resistive): 10A @ 240V AC Resistive
 15A @ 30V DC Resistive
 15A @ 120V AC Resistive
 1/3 HP @ 120V AC
 1/2 HP @ 250V AC

Expected Life @ 25°C:

10 Million operations, Mechanical
 100,000 operations minimum at rated loads

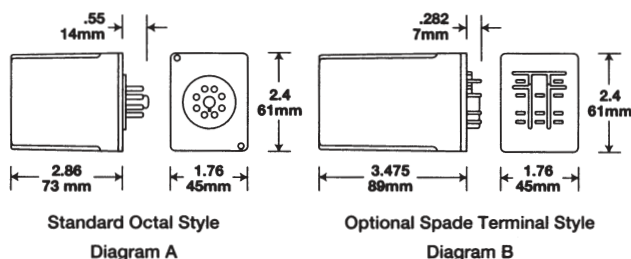
ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)
 Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or 11 pin spade terminals (Dia. C & D).
 Enclosure: White plastic case. "L" version has a black case.
 Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Timing : Three timing ranges, each covering a 1023:1 span, are standard. These are:

- A: .1 second to 102 seconds
- B: 1 second to 1023 seconds (17 minutes)
- C: 10 second to 10230 seconds (2.84 hours)

Custom timing ranges are available.

Timing Adjustment: User operated 10 position DIP switch encoded in binary format.

Adjustment Resolution: Equal to minimum time delay.

Timing tolerance: +/- 2%

Timing repeatability: +/- 1%

Timing cycle interrupt transfer: none

Reset: Upon interruption of input power

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS, Between contacts & coil: 1500V RMS.

INPUT INFORMATION:

Voltage: AC units - 12V, 24V and 120V
 DC units - 12V, 24V, 48V and 110V } **Other volt. are available**

Power Requirement:

AC units: 3 VA or less

DC units: 3 Watts or less

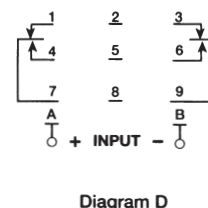
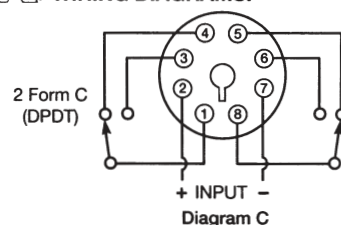
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



Ordering Information:

Definition of a part number for the Amperite SWDC Series Time Delay Relay.
 Example:

120 A 1-1023 S L SWDC
 ↑ ↑ ↑ ↑ ↑ ↑ ↑
 A B C D E F G

- A: Denotes nominal input voltage. Standard voltages are 12V, 24V and 120V AC; 12V, 24V, 48V and 110V DC. **Custom Voltages are available.**
- B: Denotes type of input current required for operation: A = AC - Alternating Current; D = DC - Direct Current.
- C & D: Denotes timing range of adjustability in seconds, minutes, or hours.
- E: Denotes unit of time delay: S = seconds; M = minutes; H = hours.
- F: Denotes form of termination: Leave blank for standard octal plug-in; Enter "L" if optional spade terminals are required (Diagrams B & D).
- G: Denotes use of solid state digital circuitry of SWDC Series.



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SWPDC Series TDR

- Solid state CMOS digital circuitry
- Delay on operate timing mode
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing Selection: 5 position binary coded Dip Switch plus vernier knob adjustment
- Twenty overlapping timing ranges covering .25 secs. to 160 hours.
- UL File #E96739 (M)
- CSA File #LR62586



TIMING MODE: Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.

TIMING DIAGRAM:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

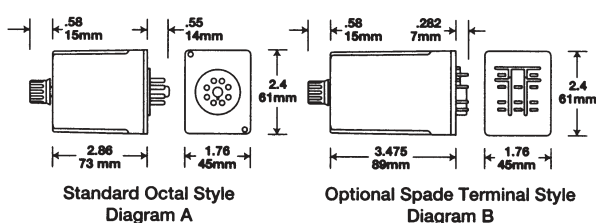
Termination: 8 pin Octal Style Plug or 11 pin spade terminals (Dia. C & D)

Enclosure: White plastic case with a dial scale for reference only.

LSWPDC version has a black case.

Weight: 4 oz (114g) approx.

OUTLINE DIMENSIONS:



TIMING SPECIFICATIONS:

Standard Timing: The SWPDC has 20 overlapping timing ranges covering 0.25 secs. to 160 hours. Timing is user selectable by means of a 5 position binary coded Dip Switch and a knob adjustable potentiometer allowing the time delay within the selected timing range to be set precisely.

Timing Adjustment: 5 position binary Dip Switch coded as follows:

Timing Range	Secs, Mins or Hours	Switch Setting 12345	Timing Range	Secs, Mins or Hours	Switch Setting 12345	Timing Range	Secs, Mins or Hours	Switch Setting 12345
.25 - 1.25	Sec.	00101	1 - 5	Min.	00111	1 - 5	Hrs.	01010
.5 - 2.5	Sec.	10101	2 - 10	Min.	10111	2 - 10	Hrs.	11010
1 - 5	Sec.	01101	4 - 20	Min.	01111	4 - 20	Hrs.	00110
2 - 10	Sec.	11101	9 - 42	Min.	11111	8 - 40	Hrs.	10110
4 - 20	Sec.	00011	17 - 85	Min.	00010	16 - 80	Hrs.	01110
8 - 40	Sec.	10011	34 - 170	Min.	10010	32 - 160	Hrs.	11110
16 - 80	Sec.	01011						
32 - 160	Sec.	11011						

Set Switched #1 thru #5 to desired positions where:
1 = ON
0 = OFF

Repeatability: $\pm 1\%$

Release Time: 60 ms typical, 100 ms maximum

Timing Cycle Interrupt Transfer: none

Reset: Upon interruption of power

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS,

Between contacts and coil: 1500V RMS

INPUT INFORMATION:

Voltage: 12V - AC or DC, 24V - AC or DC, 48V DC, 110 - 120V - AC or DC.

Other voltages are available.

Power Requirement: AC inputs: 3 VA or less, DC inputs: 3 Watts or less

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC inputs - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum	Nominal	Minimum	Maximum
12V AC	10V	14V	12V DC	11V	14V
24V AC	20V	28V	24V DC	20V	32V
120V AC	105V	130V	48V DC	41V	55V
			110V DC	95V	125V

WIRING DIAGRAMS:

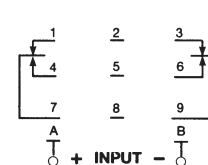
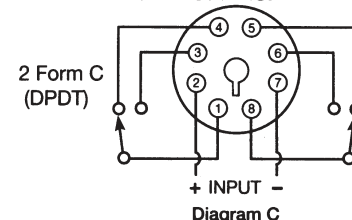


Diagram D

Ordering Information:

Definition of a part number for the Amperite

SWPDC Series Time Delay Relay

Example:

120 - L SWPDC
↑ ↑ ↑
A B C D

A: Denotes nominal input voltage. Voltages Available:

12V - AC or DC, 24V - AC or DC, 48V - AC or DC, 110-120V - AC or DC.

Custom Voltages are available.

B: For custom voltages - denotes type of input current required for operation.

A = AC - Alternating Current, D = DC - Direct Current.

C: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).

D: Denotes DPDT (2 form C) 10 amperes CMOS delay on operate SWPDC Series Time Delay Relay with binary code five position Dip Switch and built in potentiometer.



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SWRDC Series Time Delay Relay

- M36 DIN Rail Mounting 22.5 MM Wide or Octal Plug-in Style
- Solid State CMOS Digital Circuitry
- Delay on Operate Timing Mode
- DIN Style – SPDT, 8 Amps; Octal Style – 2 Form C, 10 Amps
- Rotary Switch Course Time Setting plus Fine Time Adjustment Potentiometer
- 16 Overlapping Timing Ranges from .1 Seconds to 120 Minutes
- 2 LED Indicators; Power On and Output Relay Energized



TIMING MODE:

Delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.



CONTACT INFORMATION:

Arrangement: DIN Style – 1 Form C (SPDT); Octal Style – 2 Form C
Contact Material: DIN Style – Gold Plated Silver Alloy

Octal Style – Silver Alloy

Rating (Resistive): DIN Style – 8A 250VAC, 8A 30VDC

Octal Style – 10A 220 VAC, 10A 28VDC

Max. Switching Power: 2000VA, 240 W, 0.5 HP 250VAC

Expected Life @ 25°C: 10 Million Mechanical Operations
100,000 Electrical

ENVIRONMENTAL INFORMATION:

Temperature Range: -40°C to +85°C (-40°F to 185°F)

MECHANICAL INFORMATION:

DIN Rail Type:

Termination: 8 Wire Receptacle Type Screw Terminals, 14-26 AWG

Enclosure Type: M36 DIN Rail 22.5 MM Wide Package

Enclosure Material: Grey Lexan (RAL 7035), UL94-V0

Weight: 2.5 oz (72g) approx.

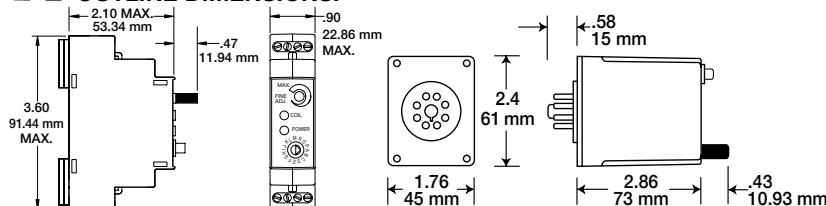
Octal Style:

Termination: 8 Pin Octal Plug-In

Enclosure Type: White Plastic Case with Rotary Time Selector
and Potentiometer Fine Adjustment

Weight: 4.0 oz (114g) approx.

OUTLINE DIMENSIONS:



DIN Rail Style – Diagram A

Standard Octal Style – Diagram B

TIMING SPECIFICATIONS:

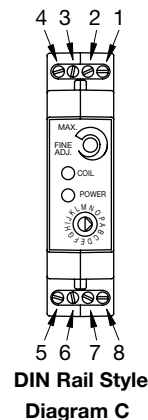
The SWRDC has 16 overlapping timing ranges covering 0.10 secs. to 120 minutes. Timing is user selectable by means of a 16 position rotary switch and potentiometer allowing the time delay within the range to be set precisely.

TIMING ADJUSTMENTS:

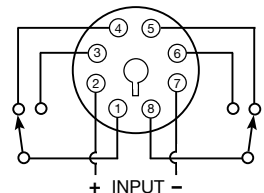
Timing Range	Switch Position	Timing Range	Switch Position
0.10 - 0.25 Secs.	A	15 - 60 Secs.	I
0.20 - 0.50 Secs.	B	30 - 120 Secs.	J
0.30 - 1.0 Secs.	C	1.0 - 4.0 Mins.	K
0.50 - 2.0 Secs.	D	2.0 - 8.0 Mins.	L
1.0 - 4.0 Secs.	E	4.0 - 15 Mins.	M
2.0 - 8.0 Secs.	F	8.0 - 30 Mins.	N
4.0 - 15 Secs.	G	15 - 60 Mins.	O
8.0 - 30 Secs.	H	30 - 120 Mins.	P

WIRING DIAGRAMS:

DIN CONNECTION CHART			
1	Positive DC Input	5	Open
2	Ground	6	Common
3	Open	7	Normally Closed
4	Open	8	Normally Open



DIN Rail Style
Diagram C



Standard Octal Style
Diagram D

Ordering Information:

Definition of a part number for the
Amperite SWRDC Series Time Delay Relay.
Example:

12 D SWRDC - DIN
A B C D

- A: Denotes nominal input voltage. Voltages available: 12V DC and 24V DC. **Custom voltages: Consult factory.**
- B: Denotes current type: D = DC, direct current.
- C: Denotes CMOS delay on operate SWRDC Series Time Delay with rotary range selector with built-in potentiometer.
- D: Leave blank for Octal Style; Add -DIN for DIN Rail M36 22.5 wide enclosure.



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SWUDC Series TDR

- Solid state CMOS digital circuitry
- Four timing modes: Delay on operate; delay on release; delay on operate & release; and interval or one-shot
- DPDT (2 form C) isolated 10 ampere relay contacts
- Timing Selection: Binary coded Dip Switch with knob adjustable potentiometer
- User selectable timing ranges covering 0.1 secs. to 77.5 hours.

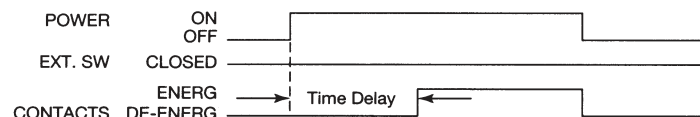


TIMING MODE: The SWUDC Series time delay relay operates in any one of four timing modes, user selected by means of 2 sections (S8, S9) of a 9 position Dip Switch (the other 7 sections control timing). These modes are as follows: Delay on operate; delay on release; delay on operate and release; interval or one-shot. An external switch may be used to provide trigger control of the time delay cycle.

TIMING DIAGRAMS & MODES:

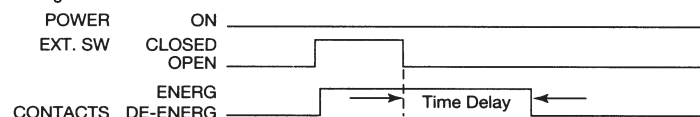
Delay On Operate: Two operation methods:

- 1) With external switch closed: delay on operate timing cycle begins upon application of input power. The relay contacts transfer at the end of the delay period and will remain transferred until input voltage is removed. Reset occurs when input voltage is removed.
- 2) With external switch open: delay on operate timing cycle begins after the application of input power and the closure of the external switch. Upon switch closure the relay contacts transfer at the end of the delay period and will remain transferred until the input voltage is removed. Reset occurs when input voltage is removed.

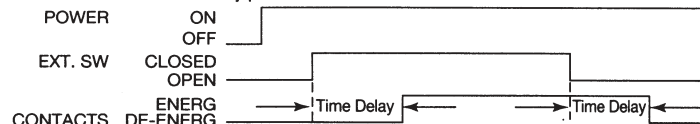


Delay On Release: Two operation methods:

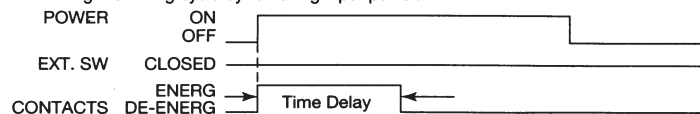
- 1) With external switch closed: Upon application of input voltage relay contacts transfer immediately. The timing cycle will begin when the external switch is opened. When the timing cycle is completed the relay contacts will release. The timing cycle may be reset to zero during the timing cycle by closing the external switch.
- 2) With the external switch open: Upon application of input voltage and the closure of the external switch the relay contacts transfer immediately. The timing cycle will begin when the external switch is opened. When the timing cycle is completed the relay contacts will release. The timing cycle may be reset to zero during the timing cycle by closing the external switch.



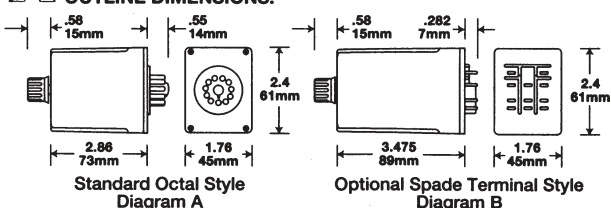
Delay On Operate and Release: With the external switch open input voltage is applied. With the closure of the external switch the delay on operate timing cycle begins and the relay contacts will transfer at the end of the delay period. With the re-opening of the external switch the relay on release timing cycle will begin and the relay contacts will transfer at the end of the delay period.



Interval or One-Shot: With the external switch closed input power is applied. The relay contacts transfer immediately and the interval or one-shot timing cycle begins. When the timing cycle is completed the relay contacts will release. The timing cycle may be reset to zero during the timing cycle by removing input power.



OUTLINE DIMENSIONS:



CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C:

10 Million operation, Mechanical

100,000 operation minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 11-pin Octal Style Plug or 11-pin spade terminals (Diagrams C & D).

Enclosure: White plastic case with a dial scale for knob adjustment, reference only. LSWUDC version has a black case.

Weight: 4 oz (114 g) approx.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS, Between adjacent contacts: 1500V RMS,

Between contacts and coil: 1500V RMS

INPUT INFORMATION:

Voltage: 12V - AC or DC, 24V - AC or DC, 48V DC

110-120V -AC or DC. **Other voltages available.**

Power Requirements:

AC inputs: 3 VA or less

DC inputs: 3 Watts or less

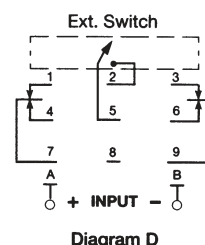
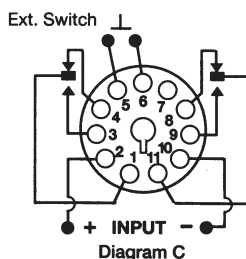
Transient Protection: 1 JOULE MOV

Polarity Protection: On DC inputs - Yes

INPUT VOLTAGES & LIMITS:

Nominal	Minimum	Maximum
12V AC	10V	14V
24V AC	20V	28V
120V AC	105V	130V
12V DC	11V	14V
24V DC	20V	32V
48V DC	41V	55V
110V DC	95V	125V

WIRING DIAGRAMS:



(Over)



AMPERITE CO.

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TIME DELAY SELECTION PROCEDURE: The SWUDC Series has four basic timing ranges selectable by means of two selections of a Dip Switch (S1 & S2). These ranges represent a starting point from which the user, utilizing Dip Switch positions S3 - S7, customizes a narrower timing range to suit his/her timing application. This custom timing range is knob adjustable with a 5:1 vernier control.

HOW TO SELECT A TIME DELAY:

- 1) **Determining The Appropriate Timing Range** – Set Dip Switch positions S1 & S2 as follows for the four basic timing ranges:

Time Delay Range	S1	S2
A: .1 sec. to 15.5 secs.	ON	ON
B: 10 secs. to 25 mins.	OFF	ON
C: 10 mins. to 25 hrs.	ON	OFF
D: 30 mins. to 77.5 hrs.	OFF	OFF

*Choose the range which most narrowly incorporates the time delay you desire.
e.g. for 180 secs. choose range B set S1 to OFF and S2 to ON

- 2) **Calculating The Multiplier For The Desired Time Delay** – Dip Switch positions S3 - S7 are used to set the multiplier which will customize your time delay range. The values are as follows:

Switch Position	Multiplier Value
S3	16
S4	8
S5	4
S6	2
S7	1
Total =	31

The Formula – Once you have chosen the appropriate basic timing range, perform the following calculations – (to clarify the steps use the desired time delay of 180 secs. as an example):

- A) For 180 seconds select range B (10 sec. to 25 mins.).
 B) Divide the desired time delay (180 secs.) by the minimum time of the selected range. (Minimum time in range B is 10 secs.) $180/10 = 18$. Always convert to the same time units (mins., sec., hrs.) when dividing.
 C) The multiplier is equal to 1/2 of this quotient – $180/10 = 18$. $18/2 = 9$
 Therefore the multiplier for 180 seconds is 9 and the user must set switches S3 - S7 as follows:

S3	16	OFF	$\left. \begin{array}{l} \text{S4} = 8 \\ \text{S7} = 1 \\ \hline 9 = \text{multiplier} \end{array} \right\}$ *Select the on positions which add up to the multiplier.
S4	8	ON	
S5	4	OFF	
S6	2	OFF	
S7	1	ON	

The multiplier is always the closest number equal to half the quotient. This formula will give you 5:1 vernier knob adjustable timing range with the user desired time delay as the middle timing range. The approximate maximum of any timing range the user selects is always 2x the desired timing e.g. $2 \times 180 = 360$ secs. The maximum of the selected range will be 360 secs. To determine the approximate minimum setting of the timing range simply divide the maximum setting by 5. e.g. $360/5 = 72$ secs. Therefore, as per our example, to get a time delay of 180 secs. the switch positions will be as follows:

S1	S2	S3	S4	S5	S6	S7
OFF	ON	OFF	ON	OFF	OFF	ON

User will have a time delay range of 72 secs - 360 secs.

SWUDC TIMING MODE OPERATING INSTRUCTIONS:

The Amperite SWUDC Time Delay Relay operates in any one of four modes. These are user selectable by means of setting S8 and S9 of the nine position Dip Switch. these modes and switch position are as follows:

Mode	S8	S9
Delay on operate	OFF	ON
Delay on release	ON	OFF
Delay on operate and release	OFF	OFF
Interval or One-shot	ON	ON

OPERATING PROCEDURE FOR EACH MODE:

The following is a thumbnail sketch of each mode and its operation.

DELAY ON OPERATE: Two methods

- 1) Closed External Switch. Apply power. Relay contacts transfer after time delay.
- 2) Open External Switch. Apply power. Close external switch. Delay time starts after switch is closed and relay contacts transfer at the end of the delay time.

DELAY ON RELEASE: Two methods

- 1) Closed External Switch. Apply power. Relay contacts transfer immediately. Open external switch. Time delay begins, and relay contacts release after delay is completed.
- 2) Open External Switch. Apply power. Close external switch. Relay contacts transfer. Open external switch to start delay. Relay contacts release after completion of time delay.

DELAY ON OPERATE AND RELEASE:

Open External Switch. Apply power. Close external switch. Delay on operate time delay starts and relay contacts transfer at the end of the delay time. Open external switch. Delay on release time delay starts and relay contacts release after completion of the delay time.

INTERVAL OR ONE-SHOT:

Close External Switch. Apply power. Relay contacts transfer immediately. At the end of the delay time the relay contacts release.

Ordering Information:

Definition of a part number for the Amperite SWUDC Series Time Delay Relay.
Example:

120 - L SWUDC
 ↑ ↑ ↑ ↑
 A B C D

- A: Denotes nominal input voltage. Voltages Available:
12V - AC or DC, 24V - AC or DC, 48V DC, 110-120V - AC or DC.
Custom Voltages are available.
- B: For custom voltages - denotes type of input current required for operation.
A = AC – Alternating Current, D = DC – Direct Current.
- C: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).
- D: Denotes DPDT (2 form C) 10 amperes CMOS delay on operate SWUDC Series Time Delay Relay with binary code nine position Dip Switch and built in potentiometer.



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TSW Series Thermal Switch

- Solid State Circuitry
- SPDT (1 Form C) Output Relay Contact
- Fixed Cut-Out Temperature From 0°C to 150°C
- Remote Sensing Capability



DESCRIPTION:

The Amperite TSW Series thermal cut-out switches provide a simple means to monitor temperature, using a solid state sensing device. When the temperature exceeds the customer specified value, the relay contacts transfer. Upon sensor cool-down the contacts return to the unenergized position.

INPUT VOLTAGE:

12V, 24V, 36V, 48V and 120V AC or DC.
Custom voltages are available.

CONTACT INFORMATION:

One form C (SPDT) isolated relay contact.

CONTACT RATING:

Max. Switching Power: 30W, 50 VA
Max. Switching Voltage: 60V DC, 125V AC
Max. Switching Current: 1A AC/DC
Max. Carrying Current: 1A @ 30V DC

THERMAL SPECIFICATIONS:

Fixed temperature cut-out, customer specified over a range of 0°C to 150°C. Accuracy +/- 5 degrees.
Differential 10 degrees C.
Custom differential is available.

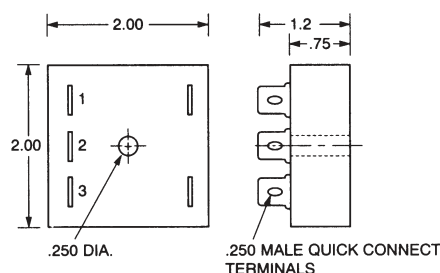
SENSING:

Thermal sensor built-in, or optional remote sensing for units up to 70°C. Above 70°C remote sensing cable is required.

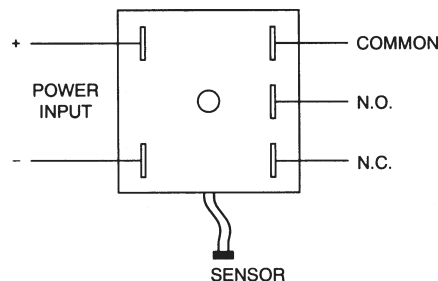
MECHANICAL:

Epoxy sealed enclosure. 2 x 2 x 3/4 inch hockey-puck with five 1/4 inch quick connect male terminals. Remote cable length (if so equipped) specified by user.

OUTLINE DIMENSIONS:



WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite TSW Series Thermal Switch.

Example:

120 A 100 C R-LENGTH TSW
↑ ↑ ↑ ↑ ↑
A B C D E F

A: Denotes nominal input voltage. Voltages available are 12V, 24V, 36V, 48V and 120V AC & DC.

For other input voltages consult factory.

B: Denotes input power required for operation:
A = AC - Alternating Current; D = DC - Direct Current.

C: Denotes trip temperature.

D: C = Celsius; F = Fahrenheit.

E: Leave blank for built-in sensing (70°C and below only). Add "R" for remote cable & specify cable length in inches. (Up-charge for extra cable, contact factory).

F: Denotes Amperite TSW Series solid state Thermal Cut-Out Switch.



TSW2 Series Thermal Switches

- 100% Solid State Circuitry
- 1 Form A or 1 form B Output Switching
- Fixed switching temperature from -40°C to +125°C
- 3 ampere load rating standard, 10 ampere optional



DESCRIPTION:

The Amperite TSW2 Series thermal switches provide a simple means to monitor temperature, using a solid state sensing device. When the temperature exceeds the customer specified value, the output terminal is energized. Upon cool-down the output terminal is de-energized. Reverse sensing is available.

INPUT VOLTAGE:

12V, 24V, 36V, 48V, and 120V AC or DC.
Custom voltages are available.

CONTACT INFORMATION:

One form A or 1 form B solid state switching device.

CONTACT RATING:

Max. Switching Current: 3 amperes
10 ampere rating available at extra cost.

THERMAL SPECIFICATIONS:

Fixed temperature cut-out, customer specified over a range of -40°C to +125°C. Accuracy + / - 3°C. Higher accuracy is available. Differential 2°C standard; 10°C available at no extra cost.

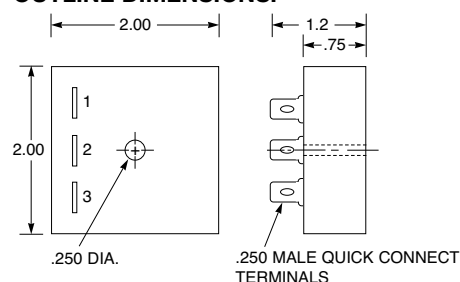
SENSING:

Solid state sensing device, located at the top surface (terminal side) of the enclosure.

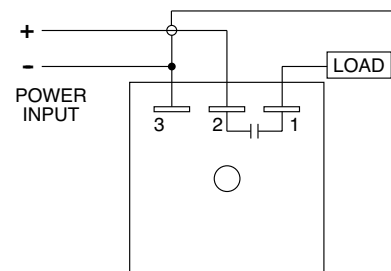
MECHANICAL:

Epoxy sealed enclosure. 2 x 2 x 3/4 inch hockey-puck with three 1/4 inch quick connect male terminals..

OUTLINE DIMENSIONS:



WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite TSW2 Series Thermal Switch.
Example:

120 A 100 C R TSW2
↑ ↑ ↑ ↑ ↑ ↑
A B C D E F

A: Denotes nominal input voltage. Voltages available 12V, 24V, 36V, 48V and 120V AC and DC.

For custom voltage please consult the factory.

B: Denotes input current: A = AC, alternating current;
D = DC, direct current

C & D: Denotes trip temperature, C = Celsius; F = Fahrenheit.

E: Leave blank for close on rise in temperature.
Insert "R" for open on rise in temperature.

F: Denotes Amperite TSW2 Series solid state Thermal Cut-Out Switch



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NEW!

TSW3 Series Thermal Switches

- 100% Solid State Circuitry
- Two fixed temperature switching points
- Customer specified acceptance window
- 1 Form A or B Output Switching
- 3 ampere load rating standard, 10 ampere optional
- Remote sensing available



DESCRIPTION:

The Amperite TSW3 Series thermal switch provides a means to monitor ambient temperature, and provides an output voltage when the temperature is within the customer specified window.

Temperature sensing range -40°C to +125°C

INPUT VOLTAGE:

12V, 24V, 36V, 48V, 110V and 120V AC or DC.
Custom voltages are available.

CONTACT INFORMATION:

SPST solid state switching, one form A or one form B.

CONTACT RATING:

Max. Switching Current: 3 amperes
10 ampere rating available at extra cost.

THERMAL SPECIFICATIONS:

Fixed dual temperature switching is accordance with user requirement. When the ambient temperature is within the specified window, the output terminal is energized. Reverse sensing is available.

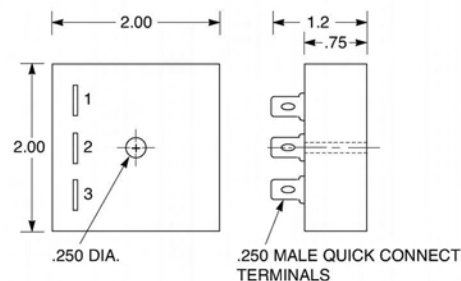
SENSING:

Two solid state sensors located at the top surface (terminal side) of the module. Remote sensing is available.

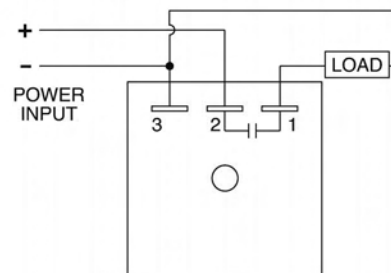
MECHANICAL:

Epoxy sealed enclosure. 2 x 2 x 3/4 inch hockey-puck with three 1/4 inch male quick connect terminals. Single hole mounting. Remote cable length (if so equipped) specified by user.

OUTLINE DIMENSIONS:



WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite TSW3 Series Thermal Switch.
Example:

120 A 85 - 115 F R TSW3 -
↑ ↑ ↑ ↑ ↑ ↑ ↑
A B C D E F G H

- A: Denotes nominal input voltage in accordance with the specification shown above. **Custom voltages: Consult factory.**
- B: Denotes input current: A = AC, alternating current; D = DC, direct current
- C & D: Denotes temperature acceptance window.
- E: C = Celsius; F = Fahrenheit.
- F: Leave blank for standard sensing (form A). Insert "R" for form B switching.
- G: Denotes Amperite TSW3 Series Thermal Switch.
- H: Leave blank when remote sensor not required. For remote sensing add the following suffix after the part number: REM - length in inches. Example: REM-12 (for 12 inch remote sensor).



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VPR Series Voltage Protection Relays

- Protects against low and high voltage
- DPDT 10 amperes isolated contacts
- Voltage accuracy 5%
- Customer specified voltage window



DESCRIPTION: The Amperite VPR Series voltage protection relays are designed to protect electrical equipment from low and/or high line voltages. When line voltage falls within the customer specified window the relay is energized. Should line voltage fall out of the specified range the relay is de-energized.

CONTACT INFORMATION:

Arrangement: 2 form C (DPDT) - Diagrams C & D.

Contact Material: Silver - Cadmium Oxide

Rating (Resistive): 10A @ 240V AC Resistive

15A @ 30V DC Resistive

15A @ 120V AC Resistive

1/3 HP @ 120V AC

1/2 HP @ 250V AC

Expected Life @ 25°C :

10 Million operations, Mechanical

100,000 operations minimum at rated loads

ENVIRONMENTAL INFORMATION:

Temperature Range: Storage: -60°C to +105°C (-76°F to +221°F)

Operating: -45°C to +70°C (-49°F to +158°F)

MECHANICAL INFORMATION:

Termination: 8 pin Octal Style Plug or optional 11-pin spade terminals (Diagrams C & D). Octal style case is white, 11-pin spade style case is black.

INITIAL DIELECTRIC STRENGTH:

Between open contacts: 1000V RMS.

Between adjacent contacts: 1500V RMS.

Between contacts & coil: 1500V RMS.

INPUT INFORMATION:

Voltage: AC units- 12V, 24V, 120V and 240V } **Other volt. are available**
DC units- 12V, 24V, 48V and 110V

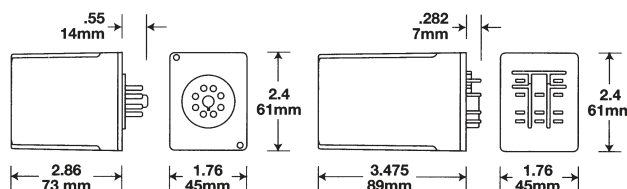
Power Requirement: AC units: 3 VA or less

DC units: 3 Watts or less

Transient Protection: 1 JOULE MOV

Polarity Protection: On DC units - Yes

OUTLINE DIMENSIONS:



Standard Octal Style

Diagram A

Optional Spade Terminal Style

Diagram B

WIRING DIAGRAMS:

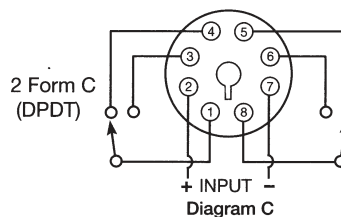


Diagram C

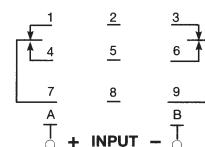


Diagram D

Ordering Information:

Definition of a part number for the Amperite VPR Series Voltage Protection Relay.

Example:

120 A 90 - 125 L VPR
↑ ↑ ↑ ↑ ↑
A B C D E F

- A: Denotes nominal input voltage. Voltages Available: 12, 24, 120 and 240 V AC; 12, 24, 48 & 110V DC. **Custom Voltages are available.**
- B: Denotes type of input power current required for operation:
A = AC - Alternating Current, D = DC - Direct Current.
- C & D: Denotes voltage acceptance window in which the relay will be energized.
- E: Enter "L" if optional 11-pin spade terminals are required (Diagrams B & D).
- F: Denotes Amperite VPR Series voltage protection relay.



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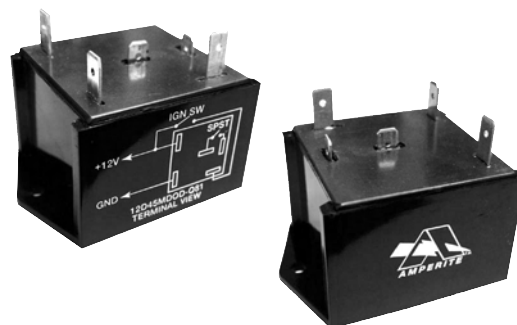
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ADOD Series

Automotive Delay-On-Dropout Timer

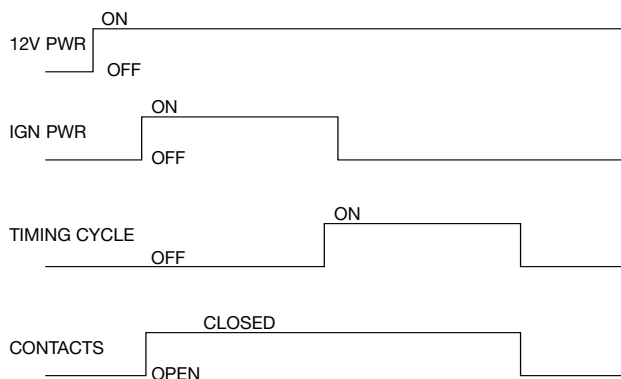
- Solid State Digital Circuitry
- Automotive Voltage Range
- Delay-On-Dropout Function
- 40 Ampere SPST Relay Contact (Form A)
- Compact Size



TIMING MODE:

12 volt power is applied to the relay at all times. When the ignition circuit of the vehicle is activated the relay contacts close. When the ignition circuit is turned off the timing cycle begins. At the end of the time delay the relay contacts open. Reset is accomplished by reactivating the ignition circuit of the vehicle.

TIMING DIAGRAM:



TIMING SPECIFICATIONS:

Fixed 45 minute timing cycle.
Other timing cycles are available.

INPUT VOLTAGE INFORMATION:

Vehicular voltage range: 11 to 16 volts DC.
Other voltages available.

CONTACT INFORMATION:

One SPST normally open relay contact set (Form A).

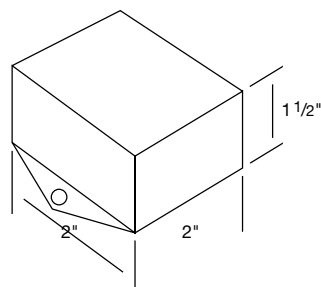
ENVIRONMENTAL INFORMATION:

Temperature range -40°C to +70°C (-40°F to +158°F).

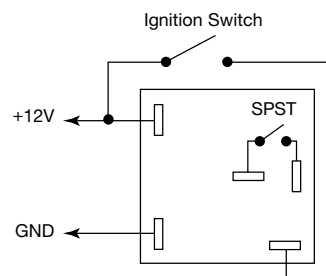
MECHANICAL INFORMATION:

Size 2 x 2 x 1 1/2 inch epoxy sealed plastic enclosure.
Two mounting tabs.

OUTLINE DIMENSIONS:



WIRING DIAGRAM:



Ordering Information:

Definition of a part number for the Amperite Automotive Delay-On-Dropout Timer.
Example:


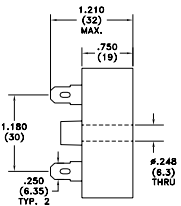
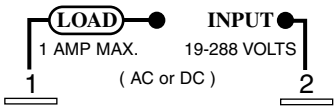
12 D 45 M ADOD
↑ ↑ ↑ ↑ ↑
A B C D E

- A: Denotes nominal input voltage: 12 volts DC.
Custom voltages available; consult factory.
- B: Denotes type of input current required for operation: D = DC, direct current.
- C: Denotes fixed time delay. Enter number for fixed delay time required.
- D: Denotes use of seconds, minutes or hours in timing value;
S = seconds, M = minutes, H = hours.
- E: Denotes Amperite ADOD Series Delay-On-Dropout automotive timer.



CLASSIFICATION

SOLID STATE TIME DELAY RELAY

TYPE	SST1	
SECURITY CERTIFICATES	UL File #E96739 (M)	
OUTLINE DIMENSIONS (L x W x H)	 50.5mm x 50.5mm x 32mm	
PART NO.	SST1-1A 288AD 01	
TIME DELAY	TYPE	Adjustable knob with dial
	RANGE	0.1 to 8 min (Reference Dial) (Fixed timing available by special order.)
	REPEAT ACCURACY	±2%
	RECYCLE TIME	100 Milliseconds Max.
INPUT	OPERATING VOLTAGE	19 to 288V AC or DC
	LINE FREQUENCY	50 / 60 Hz
	MINIMUM HOLDING CURRENT	40 Milliamperes
	VOLTAGE DROP	2.5V typical at 1 ampere
OUTPUT	TYPE	Solid State
	FORM	Normally Open
	MAX. LOAD CURRENT	1 Amp Steady State 10 Amp inrush @ 55°C
PROTECTION	DIELECTRIC BREAKDOWN	Greater than 1500V RMS
	INSULATION RESISTANCE	100 Megohms Min.
	TRANSIENT PROTECTED	—
MECHANICAL	MOUNTING	Surface mount with one #8 or #10 Screw
	PACKAGE	Molded Housing/ Encapsulated Circuitry
	TERMINATION	1/4" quick connect terminals
ENVIRO	OPERATING TEMPERATURE	-20°C to +70°C
	STORAGE TEMPERATURE	-30°C to +85°C
MOUNTING LAYOUT (mm) (bottom view)		
WIRING DIAGRAM (bottom view)		







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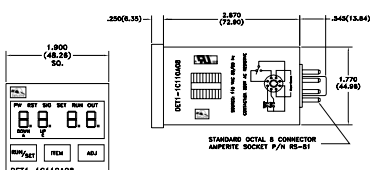
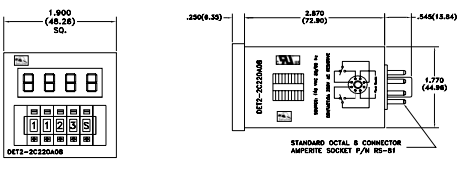
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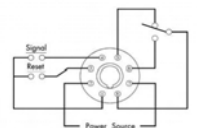
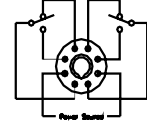
CLASSIFICATION

DIGITAL TIME DELAY RELAY

TYPE	DET1 - On-Delay / Int. w/ Signal, Reset	DET2 - On-Delay Digital
SECURITY CERTIFICATES		
OUTLINE DIMENSIONS (L x W x H)	 3.7mm x 1.9mm x 1.9mm	 3.7mm x 1.9mm x 1.9mm
PART NO.	DET1-1C110A08	DET2-2C220A08

CONTACT DATA	CONTACT ARRANGEMENT	1C (SPDT)	CONTACT DATA	CONTACT ARRANGEMENT	2C
	RESISTIVE LOAD COS. $\phi = 1$	5A@24 VDC 5A@220 VAC		CONTACT TYPE	2 SPDT
	MAX. SWITCHED CURRENT	5A		RESISTIVE LOAD COS. $\phi = 1$	5A@250 VAC
	TERMINATION	08=Octal Plug-in		TERMINATION	08=Octal Plug-in
SOURCE	NOMINAL VOLTAGE(VAC)	110 VAC	SOURCE	NOMINAL VOLTAGE(VAC)	220 VAC
	POWER CONSUMPTION	5 VA		POWER CONSUMPTION	5 VA
	TEMPERATURE RISE	25°C		TEMPERATURE RISE	25°C
CHARACTERISTICS	TIMING RANGE	0.02 - 9999 Sec., 0.02 - 9999 Min., 0.02 - 99 Hours 99 Min.	CHARACTERISTICS	TIMING RANGE	0.02 - 9999 Sec., 0.02 - 9999 Min., 0.02 - 99 Hours 99 Min.
	TIMING ERROR	0.05% = 50 Milliseconds		TIMING ERROR	0.05% = 50 Milliseconds
	RESET TIME	1 Second		UNIT WEIGHT	175 Grams
	MIN. SIGNAL INPUT TIME	20 Milliseconds			
	VIBRATION RESISTANCE	Functional: 10 to 55Hz Dbl Amp of 1.5 mm Destruction: 10 to 55 Hz Dbl Amp of 1.5 mm			
	SHOCK RESISTANCE	Functional: 20 G's Minimum Destruction: 100 G's Minimum			
	LIFE (Minimum Operations)	Mechanical: At 180 CPM 10,000,000 Electrical: At 20 CPM 100,000			
	AMBIENT TEMPERATURE	-40°C to +85°C			
	OPERATING HUMIDITY	98% RH @ -40°C			
	UNIT WEIGHT	193 Grams			

OUTLINE DIMENSIONS (mm)		
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WIRING DIAGRAM (bottom view)		
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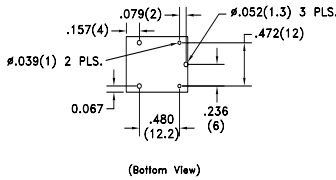
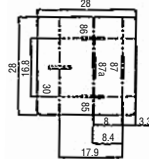
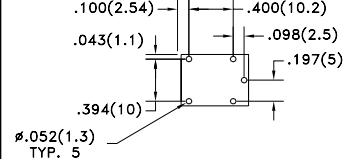
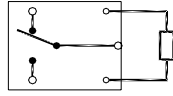
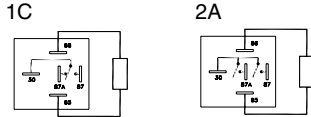
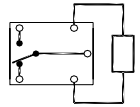
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CLASSIFICATION

AUTOMOTIVE RELAYS

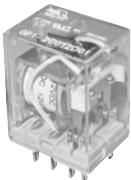


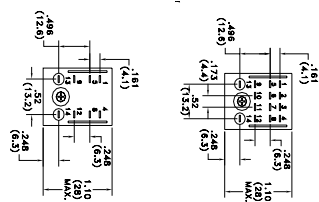
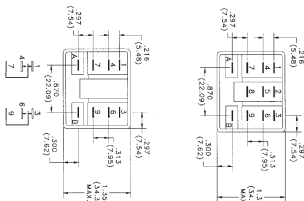
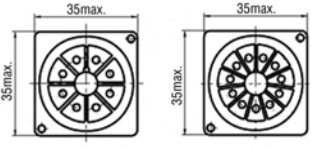
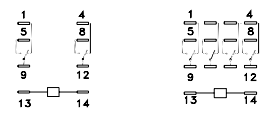

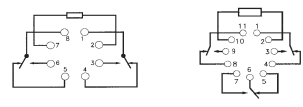
TYPE	AR1	AR2	AR3
SECURITY CERTIFICATES	C  US		
OUTLINE DIMENSIONS (L x W x H)	 15mm x 18.7mm x 15.4mm	 28mm x 31.2mm x 25mm	 12.2mm x 15.5mm x 13.8mm
PART NO.	AR1-1C012D02	AR2-1C012D01 AR2-2A012D01 AR2-2A024D01	AR31C012D02
CONTACT DATA	CONTACT MATERIAL	Silver Alloy	Silver Alloy
	CONTACT ARRANGEMENT	1C (SPDT)	1C (SPDT)
	CONTACT RESISTANCE	100 Milliohms Max.	100 Milliohms Max.
	RESISTIVE LOAD COS. $\phi = 1$	12A 250 VAC / 10A 28 VDC	5A 250 VAC / 10A 14 VDC
	COIL TO CONTACT	1500 VAC (50/60 Hz)	500 VAC (50/60 Hz)
	MAX. CONTACT VOLTAGE	125 VDC / 250 VAC	14 VDC @ 10A
	MAX. CONTACT CURRENT	12 A	10A
COIL DATA	NOMINAL VOLTAGE(VDC)	12	12
	PICK-UP VOLTAGE VDC(MAX.)	9	8.4
	DROP-OUT VOLTAGE VDC (MIN)	0.6	0.6
	COIL RESISTANCE OHMS +/- 10%	400	240
	POWER CONSUMPTION	.36	0.6
	MAX. VOLTAGE	130%	150%
CHARACTERISTICS	OPERATING TIME	8msec. Max.	10msec. Max.
	RELEASE TIME	5msec. Max.	5msec. Max.
	MECHANICAL LIFE	At 180 CPM 10,000,000	At 180 CPM 10,000,000
	ELECTRICAL LIFE	At 20 CPM 100,000	At 20 CPM 100,000
	AMBIENT TEMPERATURE	-40°C - +85°C	-40°C to +85°C
	UNIT WEIGHT	9 Grams	6 Grams
MOUNTING LAYOUT (mm) (bottom view)			
WIRING DIAGRAM (bottom view)			



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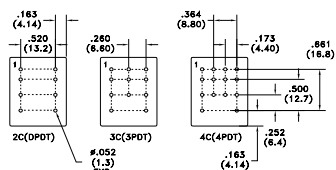
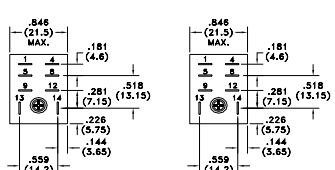
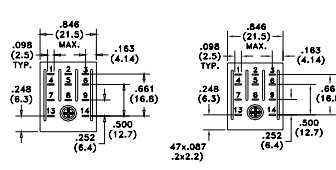

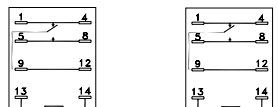
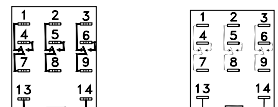
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CLASSIFICATION	GEN. PURPOSE LOW COST RELAY		POWER RELAY	MINIATURE GEN. PURPOSE RELAY		
TYPE	GP1		GP2	GP3		
SECURITY CERTIFICATES	cULUS		cULUS			
OUTLINE DIMENSIONS (L x W x H)	 28mm x 21.5mm x 36mm		 37mm x 34.3mm x 55mm	 35mm x 35mm x 55mm		
PART NO.	GP1-2C 012D 01 GP1-4C 012D 01 GP1-2C 110A 01 GP1-4C 110A 01 GP1-4C 220A 01		GP2-2C 012D 01 GP2-2C 024D 01 GP2-3C 012D 01 GP2-3C 240A 01	GP3-2C 012D 08 GP3-3C 012D 11 GP3-2C 024D 08 GP3-3C 024D 11 GP3-2C 120A 08 GP3-3C 012A 11 GP3-2C 240A 08		
CONTACT DATA	Silver Alloy		Silver Alloy	Silver Alloy		
	2C 4C		2C 3C	2C 3C		
	100 Milliohms Max.		50 Milliohms Max.	50 Milliohms Max.		
	5A: 28VDC 3A: 28VDC 5A: 250 VAC 3A: 350 VAC		12A 250 VAC	2C: 10A 250 VAC / 30VDC 3C: 5A 250 VAC / 30VDC		
	2A: 28VDC 1A: 28VDC 2A: 250 VAC 1A: 350 VAC		—	—		
	1500 VAC (50/60 Hz) for 1 Min.		1500 VAC (50/60 Hz) for 1 Min.	1500 VAC (50/60 Hz) for 1 Min.		
	110 VDC / 250 VAC		110 VDC / 250 VAC	120 VDC / 250VAC		
	5A 3A		12A	10A		
	150W / 600 VA 90W / 360 VA		336W 3000VA	—		
COIL DATA	12VDC 110VAC 220VAC		12VDC 24VDC 240VAC	12VDC 24VDC 120/240VAC		
	9.6 88 176		75% 75% 80%	9.6 VDC 19.2VDC 88/176VAC		
	1.2 33 66		10% 10% 39%	1.2VDC 1.2VDC 36/72VAC		
	160Ω 3400Ω 13600Ω		120Ω 472Ω 9110Ω	95Ω 430Ω 1600/6800Ω		
	0.9W 1.3VA 1.3VA		1.2W 1.2W 2W	1.5 1.4 9/8.5W		
	110% of Nominal Voltage		120% of Nominal Voltage	110% of Nominal Voltage		
CHARACTERISTICS	20msec. Max.		10msec. Max.	30msec. Max.		
	20msec. Max.		10msec. Max.	20msec. Max.		
	At 180 CPM 1,000,000		At 180 CPM 1,000,000	At 180 CPM 1,000,000		
	At 20 CPM 100,000		At 20 CPM 100,000	At 20 CPM 100,000		
	-25°C - +55°C		-40°C to +55°C	-40°C to +55°C		
	40 Grams		90 Grams	90 Grams		
MOUNTING LAYOUT (mm) (bottom view)						
WIRING DIAGRAM (bottom view)						



CLASSIFICATION

MINIATURE GENERAL PURPOSE RELAYS

TYPE	MP1	MP2	MP3
SECURITY CERTIFICATES			
OUTLINE DIMENSIONS (L x W x H)	 28mm x 21.5mm x 35mm	 28mm x 21.5mm x 35mm	 28mm x 31.5mm x 35mm
PART NO.	MP1-2C 012D 01/02 MP1-3C 024D 01/02 MP1-2C 120A 01/02 MP1-3C 120A 01/02 MP1-3C 012D 01/02 MP1-4C 012D 01/02 MP1-4C 120A 01/02	MP2-1C 110A 01 MP2-2C 120A 02 MP2-2C 012D 01 MP2-2C 220A 02 MP2-2C 024D 01 MP2-2C 240A 01	MP3-3C 012D 02 MP3-3C 110A 01
CONTACT DATA	Silver Alloy		
	2C 3C 4C		
	50 Milliohms Max.		
	2C/3C: 7A 250 VAC / 30 VDC 4C: 5A 250 VAC / 30 VDC		
	1500 VAC (50/60 Hz)		
	30 VDC / 250A		
	7A		
COIL DATA	12 VDC 24 VDC 120 / 240 VAC		
	9 19.2 VDC 96 / 176 VAC		
	9.6 VDC 2.40 VDC 36 / 66 VAC		
	160Ω 650Ω 4550/14400Ω		
	0.9W 0.9W 3.2/4.0VA		
	110%		
CHARACTERISTICS	25msec. Max.		
	25msec. Max.		
	At 180 CPM 1,000,000		
	At 20 CPM 100,000		
	-55°C - +70°C		
	37 Grams		
MOUNTING LAYOUT (mm) (bottom view)			
WIRING DIAGRAM (bottom view)			



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CLASSIFICATION

PCB RELAYS

TYPE	PC1	PC2	PC3
SECURITY CERTIFICATES			
OUTLINE DIMENSIONS (L x W x H)	 15.3mm x 20.5mm x 15.3mm	 20.2mm x 16.5mm x 20.2mm	 28.5mm x 10.1mm x 12.3mm
PART NO.	PC1-1A 005D 02 PC1-1A 009D 02 PC1-1A 012D 02 PC1-1A 024D 02	PC2-1C 006D 02 PC2-1C 009D 02 PC2-1C 012D 02	PC3-1C 006D 02 PC3-1C 012D 02 PC3-1C 024D 02
CONTACT DATA	CONTACT MATERIAL	Silver Alloy	Silver Alloy
	CONTACT ARRANGEMENT	1A	1C
	CONTACT RESISTANCE	100 Milliohms Max.	100 Milliohms Max.
	RESISTIVE LOAD COS. $\phi = 1$	5A 250 VAC / 28 VDC	10A 250 VAC / 24 VDC
	COIL TO CONTACT	1500 VAC (50/60 Hz)	1500 VAC (50/60 Hz)
	MAX. CONTACT VOLTAGE	30 VDC / 250 VAC	30 VDC / 250 VAC
	MAX. CONTACT CURRENT	5 A	10A
COIL DATA	NOMINAL VOLTAGE(VDC)	5 / 9 VDC 12 / 24 VDC	6 VDC 9 / 12 VDC
	PICK-UP VOLTAGE VDC(MAX.)	3.8 / 6.8 VDC 9 / 18 VDC	4.5 VDC 6.8 / 9 VDC
	DROP-OUT VOLTAGE VDC (MIN)	0.3 / 0.5 VDC 0.6 / 1.2 VDC	0.6 VDC 0.9 / 1.2 VDC
	COIL RESISTANCE OHMS +/- 10%	55 / 180 Ω 320 / 1280 Ω	100 Ω 225 / 4000 Ω
	POWER CONSUMPTION	0.45 / 0.45W	0.36W 0.36/ 0.36W
	MAX. VOLTAGE	130%	120%
CHARACTERISTICS	OPERATING TIME	8msec. Max.	10msec. Max.
	RELEASE TIME	5msec. Max.	5msec. Max.
	MECHANICAL LIFE	At 120 CPM 10,000,000	At 120 CPM 10,000,000
	ELECTRICAL LIFE	At 20 CPM 100,000	At 20 CPM 100,000
	AMBIENT TEMPERATURE	-40°C to +55°C	-40°C to +70°C
	UNIT WEIGHT	9.5 Grams	10 Grams
MOUNTING LAYOUT (mm) (bottom view)			
WIRING DIAGRAM (bottom view)			



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CLASSIFICATION

PCB RELAYS

TYPE	PC4	PC5	PC6
SECURITY CERTIFICATES			
OUTLINE DIMENSIONS (L x W x H)	 18.7mm x 15.4mm x 15mm	 29mm x 12.7mm x 15.7mm	 28.5mm x 10.1mm x 12.3mm
PART NO.	PC4-1C 006D 02 PC4-1C 012D 02 PC4-1C 024D 02	PC5-1C 005D 02 PC5-1C 012D 02 PC5-1C 024D 02	PC3-1C 006D 02 PC3-1C 012D 02 PC3-1C 024D 02

CONTACT DATA	CONTACT MATERIAL	Gold Plating / Silver Alloy	Silver Alloy	Silver Alloy
	CONTACT ARRANGEMENT	1C	1C	1A 1B
	CONTACT RESISTANCE	100 Milliohms Max.	50 Milliohms Max.	50 Milliohms Max.
	RESISTIVE LOAD COS. $\phi = 1$	8A 250 VAC / 30 VDC	16A 250 VAC / 30 VDC	16A 250 VAC / 30 VDC
	COIL TO CONTACT	1500 VAC (50/60 Hz)	5000 VAC (50/60 Hz)	2500 VAC (50/60 Hz)
	MAX. CONTACT VOLTAGE	30 VDC / 250 VAC	30 VDC / 250 VAC	28 VDC / 277 VAC
	MAX. CONTACT CURRENT	8 A	16A	30A 15A
COIL DATA	NOMINAL VOLTAGE(VDC)	6 VDC 12 / 24 VDC	5 VDC 12 / 24 VDC	18 VDC 120 / 220 VDC
	PICK-UP VOLTAGE VDC(MAX.)	4.5 VDC 9 / 18 VDC	3.5 VDC 8.4 / 16.8 VDC	13.5 VDC 96 / 192 VDC
	DROP-OUT VOLTAGE VDC (MIN)	0.6 VDC 1.2 / 24 VDC	0.5 VDC 1.2 / 2.4 VDC	1.8 VDC 24 / 48 VDC
	COIL RESISTANCE OHMS +/- 10%	164 Ω 620 / 2350 Ω	62 Ω 360 / 1400 Ω	380 Ω 2500 / 13490 Ω
	POWER CONSUMPTION	0.25W Max.	0.41 Max.	.85W Max.
	MAX. VOLTAGE	120%	120%	120%
CHARACTERISTICS	OPERATING TIME	7msec. Max.	7msec. Max.	15msec. Max.
	RELEASE TIME	3msec. Max.	3msec. Max.	10msec. Max.
	MECHANICAL LIFE	At 120 CPM 10,000,000	At 120 CPM 10,000,000	At 120 CPM 10,000,000
	ELECTRICAL LIFE	At 20 CPM 100,000	At 20 CPM 100,000	At 20 CPM 100,000
	AMBIENT TEMPERATURE	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
	UNIT WEIGHT	10 Grams	13.5 Grams	36 Grams

MOUNTING LAYOUT (mm) (bottom view)			
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WIRING DIAGRAM (bottom view)			
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CLASSIFICATION		PCB RELAYS	CLASSIFICATION	MINIATURE SOLID STATE RELAYS
TYPE		SR1	TYPE	MS1
SECURITY CERTIFICATES			SECURITY CERTIFICATES	
OUTLINE DIMENSIONS (L x W x H)		 15.5mm x 10.5mm x 11.5mm	OUTLINE DIMENSIONS (L x W x H)	 20mm x 24mm x 6.5mm
PART NO.		SR1-1C 005D 02 SR1-1C 009D 02 SR1-1C 012D 02 SR1-1C 024D 02	PART NO.	MS1-1A 005D 02 MS1-1A 012D 02 MS1-1A 012D 02
CONTACT DATA	CONTACT MATERIAL	Silver Alloy	INPUT DATA	5D:4 TO 6 VDC 12D:9.6 TO 14.4 VDC 24D: 19.2 TO 28.8 VDC
	CONTACT ARRANGEMENT	1C		MUST OPERATE VOLTAGE 05D: 4 VDC Max. 12D: 9.6 VDC Max. 24D: 19.2 VDC Max.
	CONTACT RESISTANCE	100 Milliohms Max.		MUST RELEASE VOLTAGE 1.0 VDC Min.
	RESISTIVE LOAD COS. $\phi = 1$	3A 120 VAC / 24 VDC		MAX. INPUT CURRENT 10mA
	COIL TO CONTACT	500 VAC (50/60 Hz)	OUTPUT DATA	LOAD VOLTAGE RANGE 75 to 264 VAC @47 to 63Hz
	MAX. CONTACT VOLTAGE	60 VDC / 12 VAC		LOAD CURRENT RANGE 0.1 to 2A
	MAX. CONTACT CURRENT	3 A		MAX. SURGE CURRENT (10MS) 25A _{pk}
COIL DATA	NOMINAL VOLTAGE(VDC)	5 / 9 VDC 12 / 24 VDC		MAX. LEAKAGE CURRENT 1.5mA
	PICK-UP VOLTAGE VDC(MAX.)	3.8 / 6.8 VDC 9 / 18 VDC		MAX. ON-STATE VOLTAGE DROP 1.5 VAC
	DROP-OUT VOLTAGE VDC (MIN)	0.3 / 0.5 VDC 0.6 / 1.2 VDC		MAX. TURN-ON TIME Zero cross turn on 10ms Random turn-on 1ms
	COIL RESISTANCE OHMS +/- 10%	125 / 405 Ω 720 / 2880 Ω		MAX. TURN-OFF TIME 10ms
	POWER CONSUMPTION	0.20 / 0.20W 0.20 / 0.20W		TRANSIENT OVER VOLTAGE 600V _{pk} max
	MAX. VOLTAGE	130%		MIN. OFF-STATE DV.DT 100V/us min.
CHARACTERISTICS	OPERATING TIME	10msec. Max.		ZERO-CROSSOVER VOLTAGE 15V Max.
	RELEASE TIME	4msec. Max.	CHARACTERISTICS	MIN. POWER FACTOR 0.5
	MECHANICAL LIFE	At 120 CPM 10,000,000		DIELECTRIC STRENGTH 2000 VAC min.50/60 Hz 1 min. (input to output)
	ELECTRICAL LIFE	At 20 CPM 100,000		INSULATION RESISTANCE 1000M Ω , min. (at 500 VDC)
	AMBIENT TEMPERATURE	-40°C to +70°C		MAX. CAPACITANCE 5pF
	UNIT WEIGHT	3.5 Grams		AMBIENT TEMPERATURE -30°C to +80°C
MOUNTING LAYOUT (mm) (bottom view)		 .300 (7.6) .056(1.42) .056(1.42) .100(2.54) .498 (10.1) .039 (1) TYP. 6	OUTLINE DIMENSIONS (mm)	 24 max. 6.5 max. 20 max. 0.7±0.15 7.62±0.6 10.16±0.6 (2.9) 3.9±0.5 2.54±0.3 0.4±0.15 1.7±0.3
WIRING DIAGRAM (bottom view)			WIRING DIAGRAM (bottom view)	 1 2 (+)3 4(-)






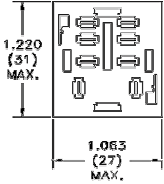
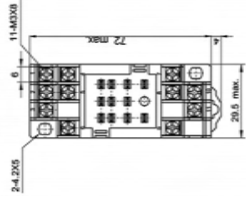
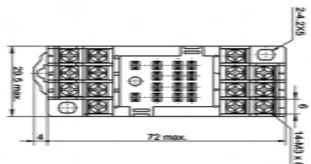
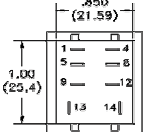
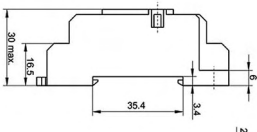
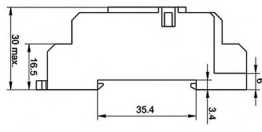
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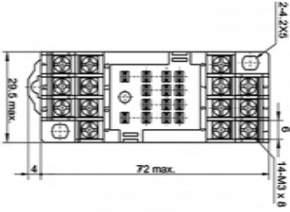
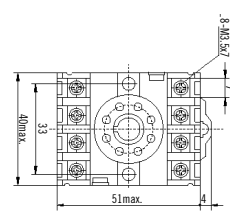
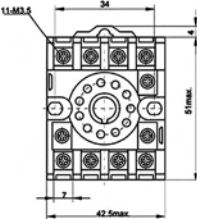
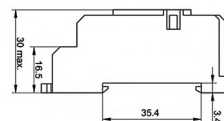
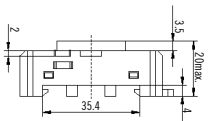
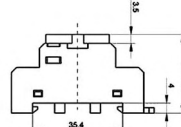
CLASSIFICATION

RELAY SOCKETS

TYPE	RS-21	RS-27	RS-28
OUTLINE DIMENSIONS (L x W x H)	 31mm x 25.5mm x 18.6mm	 72mm x 23mm x 30mm	 72mm x 29.5mm x 30mm
DESCRIPTION.	8-Pin Spade Terminal Snap-n Panel Mount	8-Pin Spade Terminal Din Rail Mounted	11-Pin Spade Terminal Din Rail Mounted or Surface Mount
APPLICATIONS	Relay Series MP2 (1C) - MP2 (2C)	Relay Series MP1 (2C)	Relay Series MP1 (3C0 - MP3 (3C)
MOUNTING LAYOUT (mm)			
WIRING DIAGRAM (bottom view)			

CLASSIFICATION

RELAY SOCKETS

TYPE	RS-29	RS-81	RS-110
OUTLINE DIMENSIONS (L x W x H)	 72mm x 29.5mm x 30mm	 51mm x 40mm x 20mm	 51mm x 42.5mm x 31mm
DESCRIPTION.	14-Pin Spade Terminal Din Rail Mounted or Surface Mount	8-Pin (Round) Octal Socket Din Rail Mounted or Surface Mount	11-Pin (Round) Octal Socket Din Rail Mounted or Surface Mount
APPLICATIONS	Relay Series GP1 (4C) - MP1 (4C)	Relay Series GP3 (2C) - DET1 - DET2	Relay Series GP3 (3C)
MOUNTING LAYOUT (mm) (bottom view)			
WIRING DIAGRAM (bottom view)			






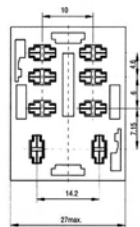
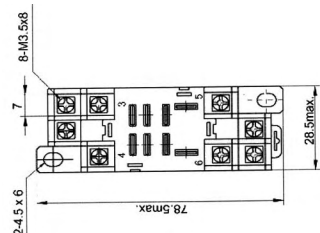
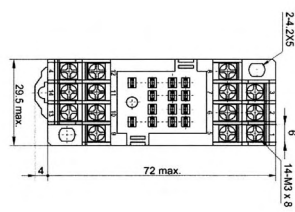
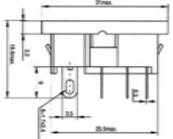
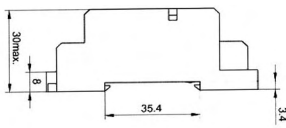
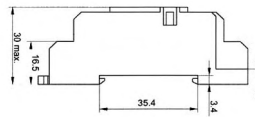
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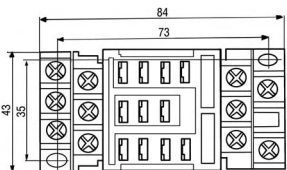
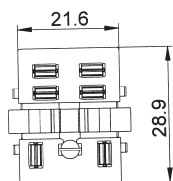
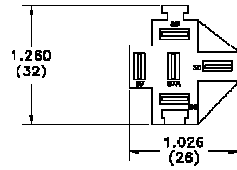
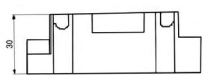
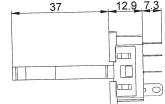
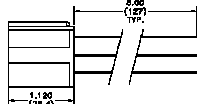
CLASSIFICATION

RELAY SOCKETS



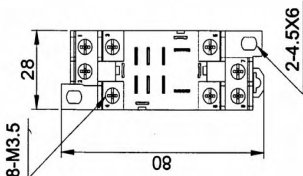
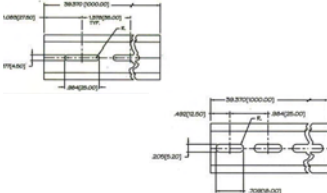
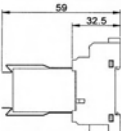
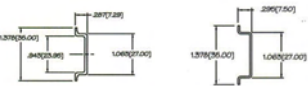
TYPE	RS-206	RS-207	RS-209
OUTLINE DIMENSIONS (L x W x H)	 25.5mm x 27mm x 18.6mm	 78.5mm x 28.5mm x 30mm	 72mm x 29.5mm x 30mm
DESCRIPTION.	8-Pin Spade Terminal Surface Mount	8-Pin Spade Terminal Surface Mount	14-Pin Spade Terminal Surface Mount
APPLICATIONS	Relay Series GP1 (2C0 - MP2 (2C)	Relay Series GP1 (2C) - MP2 (2C)	Relay Series MP2 (1C0 - MP2 (2C)
MOUNTING LAYOUT (mm) (bottom view)			
WIRING DIAGRAM (bottom view)			




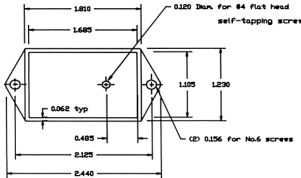

CLASSIFICATION

RELAY SOCKETS

TYPE	RS-210	RS-211	RS-308
OUTLINE DIMENSIONS (L x W x H)	 84mm x 43mm x 30mm	 28.9mm x 21.6mm x 47.2mm	 32mm x 26.5mm x 28.4mm
DESCRIPTION.	11-Pin Spade Terminal Surface Mount	6-Pin Spade Terminal Surface Mount	In-line Socket Has Five (5) Color Coded Leads Available unassembled RS-308-UN
APPLICATIONS	Relay Series (see dim. for specific applications)	Relay Series MP2	Relay Series AR2
MOUNTING LAYOUT (mm) (bottom view)			
DIAGRAM			



CLASSIFICATION	RELAY SOCKETS		DIN RAIL		
TYPE	RS-601		DR1		
OUTLINE DIMENSIONS (L x W x H)	 80mm x 28mm x 32.5mm		OUTLINE DIMENSIONS (L x W x H)	 39.37L x 1.063W x .287H 39.37L x 1.063W x .287H 78.74L x 1.063W x .287H	
DESCRIPTION	8-Pin Spade Terminal Din Rail Mount or Surface Mount		PART NO.	DR1-1M-AL DR1-1M-ST DR1-2M-ST	
APPLICATIONS	Relay Series MP2		MATERIAL	Aluminum	Steel Steel
MOUNTING LAYOUT (mm) (bottom view)			MOUNTING LAYOUT (mm)		
DIAGRAM			DIAGRAM		

CLASSIFICATION		BRACKETS	
TYPE	PANEL MOUNT	PMC BRACK	PMCR BRACK
OUTLINE DIMENSIONS (L x W x H)			
DESCRIPTION	Panel Mount Bracket (2 Screws)	Panel Mount Bracket (2 Screws)	Panel Mount Bracket (2 Screws)
APPLICATIONS	Non-Adjustable C, CR, B, BF, BR, D, DF	Adjustable C Series	Adjustable CR Series
LAYOUT (mm)			
DIAGRAM			

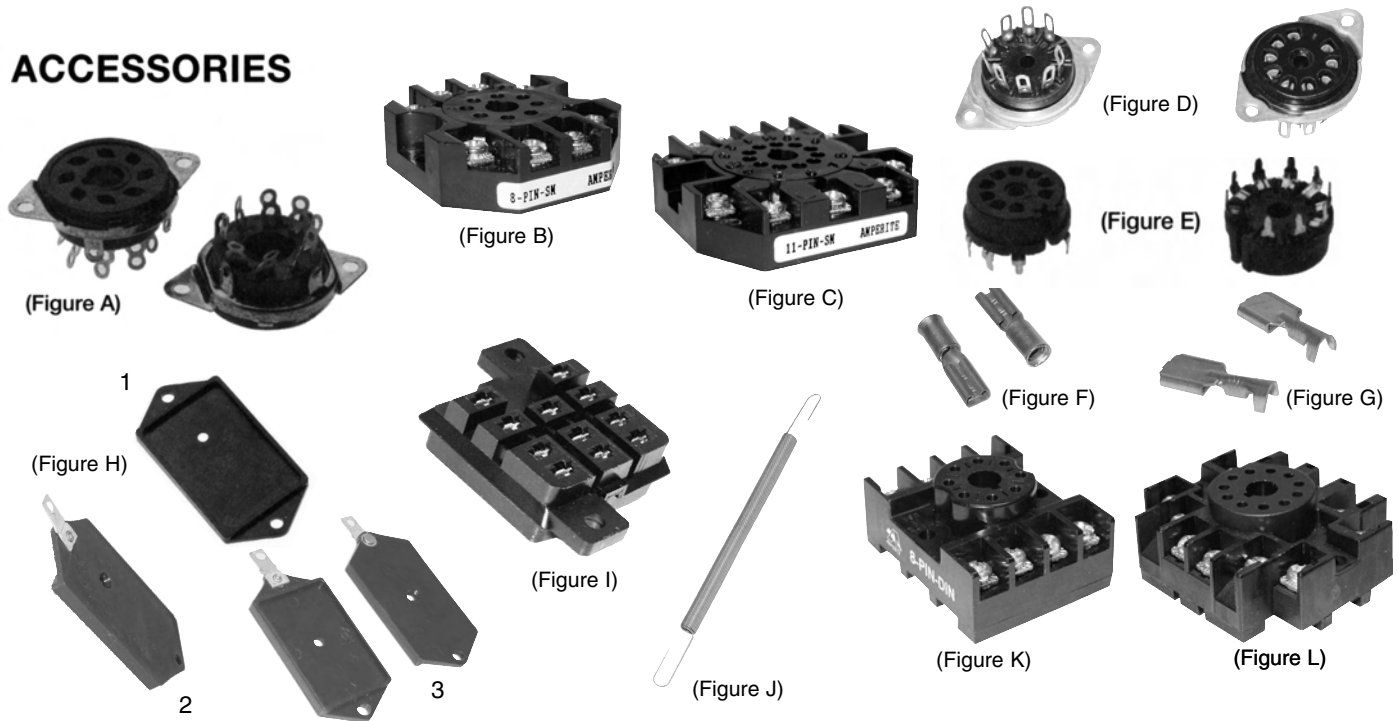


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ACCESSORIES



<u>TYPE</u>	<u>FIGURE</u>	<u>AMPERITE PART #</u>	<u>USED WITH THESE AMPERITE SERIES</u>
SOCKETS			
Chassis Mount Octal Socket	(Figure A)	OCTAL	C10, CI, DC10, DF10, DFA, DFV, DOD, SWDC, SWPDC, G, GF
Surface Mount Octal Socket	(Figure B)	8-PIN-SM	C10, CI, DC10, DF10, DFA, DFV, DOD, SWDC, SWPDC, G, GF
Surface Mount 11-Pin Octal Style Socket	(Figure C)	11-PIN-SM	CR10, CIR, DCR10, SWUDC
Chassis Mount 9-Pin Socket	(Figure D)	9-PIN-SM	9-Pin Miniature G, GF
P.C. Mount 9-Pin Socket	(Figure E)	9-PIN-PC	9-Pin Miniature G, GF
11-Pin Spade Terminal Socket	(Figure I)	11-LPIN-SM	"L" version of C10, CI, CIR, CR10, DC10, DCR10, DF10, DFA, DFV, DOD, SWDC, SWPDC, SWUDC
Octal DIN Rail Socket	(Figure K)	8-PIN-DIN	C10, CI, DC10, DF10, DFA, DFV, DOD, SWDC, SWPDC, G, GF
11-Pin Octal Style DIN Rail Socket	(Figure L)	11-PIN-DIN	CR10, CIR, DCR10, SWUDC
QUICK CONNECTS			
.110 Female Quick Connect Terminals	(Figure F)	110 FEMALE	B, BF, BR, C, CR, D, DF
.250 Female Quick Connect Terminals	(Figure G)	250 FEMALE	B, BF, BR, C, CR, D, DF, DFW HDFA, ST1, ST1A, ST2, STB, TSW
BRACKETS			
2-Screw Panel Mount Brackets	(Figure H)	1) PANEL MOUNT 2) PMC BRACK 3) PMCR BRACK	1) Non-Adjustable C, CR, B, BF, BR, D, DF 2) Adjustable C Series 3) Adjustable CR Series
MISCELLANEOUS			
Hold Down Spring	(Figure J)	10A-SPRING	C10, CI, CIR, CR10, DC10, DCR10, DF10, DFA, DFV, DOD, SWDC, SWPDC, SWUDC

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