Multi-Range Repeat Cycle Timer

A repeat cycle timer with two separately adjustable MOS digital timing circuits, the 342B is prewired to provide Flip-Flop operation of a DPDT load relay. The 342B also features cycle progress annunciation and multiple range adjustability for each circuit.

LOWER INSTALLATION COSTS: For repeat cycle applications, a single 342B timer does the job of two ordinary timers. Installation cost is cut by more than half; a single panel cutout is required and wiring is simplified since the 342B is prewired to perform flip-flop repeat cycle timing control.

MULTIPLE RANGES REDUCE INVENTORY REQUIREMENTS: The 342B incorporates six switch-selected ranges for each of its two timing circuits. A single 342B thus provides any dial-adjustable timing period between 50 mSEC and 10 hours for each cycle of the flip-flop operation. Thus you need stock only one timer—and only one model of that timer—to satisfy all your needs.

PROGRAMMABLE RELAY OPERATION: The 342B's DPDT relay can be energized either during the first timing cycle (T1) or during the second (T2) simply by moving a push-on connector from one programming pin to another on the circuit board. Thus you can change load operation from one set of contacts to the other (N O to N C) without changing the wiring.

CYCLE PROGRESS INDICATION: The 342B's two pilot lights provide a unique and effective method of cycle progress indication in the minutes and hours timing ranges ... blinking at an ever-increasing rate as the cycle progresses. In the 1 and 10-second ranges, the pilot light is off before timing cycles and steady on during timing.

DESIGNED FOR INDUSTRIAL SERVICE: A number of features and characteristics have been incorporated to ensure a long trouble-free life expectancy, even in difficult industrial environments: transformer-isolation for high noise immunity; reliable relay rated for 100,000,000 mechanical operations; oscillator-based timing circuit for *high accuracy* even with changes in temperature and voltage; and a versatile mounting capability in a compact housing that is dust and impact-resistant.

MODEL NUMBER >>>>>>	342B				P	
Range						
Multi-Range 1 SEC, 10 SEC, 1 MIN, 10 MIN, 1 HR., 10 HRS	200					
Special, (use K in features)	000					
Voltage & Frequency						
24 to 240 VAC and 24 VDC		F				
Special, (use K in features)		K				
Arrangements						
Reset on power failure			10			
Special, (use K in features)			00			
Features						
Basic plug-in timer					P	
Standard Timer						X
Special						K

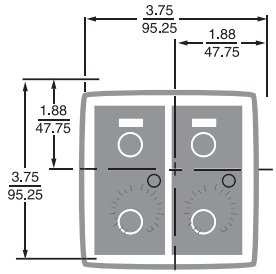
OPERATIONS

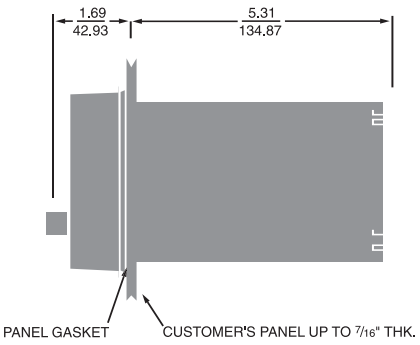
The 342B is a repeat-cycle timer that operates continuously through its two timing ranges (T1 and T2), one after the other, transferring the relay contacts as it times out of each range. There is no start circuit and the timer resets on power interruption. The first timing range (T1) begins and the relay is energized when line voltage is applied to the Run terminals of the 342B. The relay is de-energized when T1 times out and it remains de-energized until T2 times out ... at which time the relay is energized and the flip-flop cycle is repeated. The pattern of relay operation can be reversed — de-energized during T1 and energized during T2 — by changing a push-on connector from one pin to another on the circuit board; no wiring change is required.

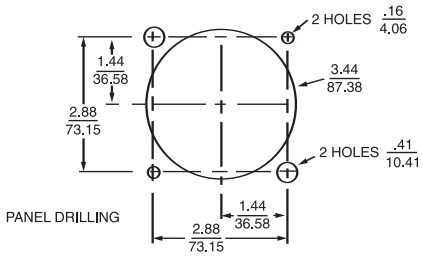
SPECIFICATIONS

TIMING MODE	Repeat cycle: resets on power interruption. DPDT relay can be energized either during the first timing cycle (T1) or during the second (T2) simply by moving the PCB jumper.	
RANGE	Six independent continuously adjustable switch-selected ranges for each timer:	
	1 SEC	10 MIN
	10 SEC	1 HR
	1 MIN	10 HR
CONTACT RATING	Load Relay Type: DPDT Rated 10 Amps resistive at 30 VDC or 250 VAC (or less); 1/8 HP @ 120 VAC; 1/4 HP @ 240 VAC; 240 VA @ 240 VAC	
	Life	10 million operations with no load 100,000 operations with: 10 Amps at 30 VDC (or less) or 10 Amps at 250 VAC (or less)
	Contact Material	Silver Cadmium Oxide
TEMPERATURE RATING	0° to 140°F (-18°C to 60°C)	
NOISE IMMUNITY	Showering arc per NEMA ICS 2-230, in addition the 342B will withstand a voltage surge of 4500 volts for 50 µSEC without damage.	
MOUNTING STANDARD	Hardware is provided to mount timer from front panel through cutout. Optional: Bracket and hardware for surface mounting. NEMA 12 molded case; DIN size (96mm x 96mm)	
HOUSING	Plug-in design; dust, moisture and impact resistant molded plastic case; DIN size (96mm x 96mm)	
POWER REQUIREMENT	Universal power supply-DC polarity insensitive. Unit will accept power from: 24 to 240 VAC,50 or 60 Hz, (+10%, -20%) 24 VDC, (+20%, -20%)	
	AC	Inrush - 1.5 Amps Power required: 2 Watts
	DC	Peak Inrush current-1.5 Amps @ 24 VDC Maximum ripple @ 100 Hz - 5% Current required - 50 mA Power required - 1.2 Watts
REPEAT ACCURACY	Any voltage (constant temperature); ±1%* Any voltage (32°F to 140°F); ±3%* Any voltage (0° to 140°F); ±4% *Variation from average actual time.	
MINIMUM SETTING	2% of range, with the exception of 50 mSEC on the 1 second range	
SETTING ACCURACY	± 10% of range	
RESET	a	0 to 20 mSEC power interruption; guaranteed no reset
	b	20 to 65 mSEC; it may reset (40 mSEC typical reset)
	c	Over 65 mSEC guaranteed to reset.
	The TDR will reset properly and not start timing when subjected to an open power switch leakage of 1.5 mA or less. (Prox. switch and Triac drive Applications).	
PILOT LIGHTS	LED cycle progress annunciator for each timer	
WEIGHT	1 lb. (454g)	

DIMENSIONS (INCHES/MILLIMETERS)

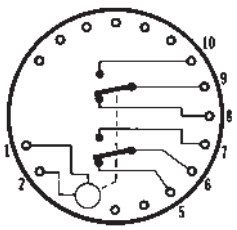




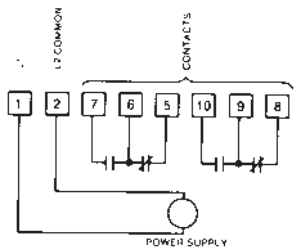


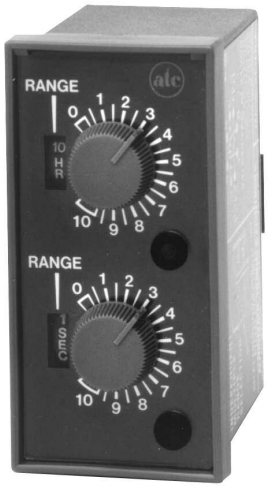
WIRING

TERMINAL WIRING



WIRING





Multi-Range Repeat Cycle Timer

The **422A FLIP-FLOP** is available with *Repeat Cycle* operation. During Repeat Cycle operation the 422A cycles ON and OFF repeatedly, allowing periodic cycling of a load. Two knobs are available to individually adjust the ON-time and the OFF-time. The 422A can be ordered with either the relay being energized during the first timing period or de-energized during the first timing period.

The 422A FLIP-FLOP is also available with *Single Cycle* operation. With Single Cycle operation, the 422A will cycle ON and OFF one time. This is commonly referred to as "one-shot" operation. The 422A can be ordered with the relay being energized during the first timing period or de-energized during the first timing period.

There are six selectable timing ranges available for the ON-time period and 6 selectable ranges for the OFF-time period. These ranges can be ordered as either 1 and 10 SEC/MIN/HRS or 5 and 50 SEC/MIN/HRS. Having these ranges individually selectable for ON-time and OFF-time allows for a load to be energized for a brief time over a cycle that can last up to 50 hours. This is ideal for lubrication or other maintenance functions that must occur each shift or day during a plant operation.

The 422A's 1/8 DIN housing is compact, and designed for panel mounting. The timer is mounted in an 8-pin round (octal) socket. The front of the 422A features 2 knobs. One knob is used to set the On-time and the other knob is used to set the Off-time for the timer's cycle.

- Six Selectable Ranges:
  1 and 10 SEC/MIN/HRS
  5 and 50 SEC/MIN/HRS
- Individually adjustable ON-time and OFF-time
- Cycle can begin with relay energized or de-energized
- Both Repeat Cycle and Single Cycle operation available
- Cycle progress indication
- DPDT Relay Output
- Relay rated 10 A @ 30 VDC, 240 VAC
- Power: 24 VDC, 24 to 240 VAC
- Standard 1/8 DIN Housing
- Can be panel mounted

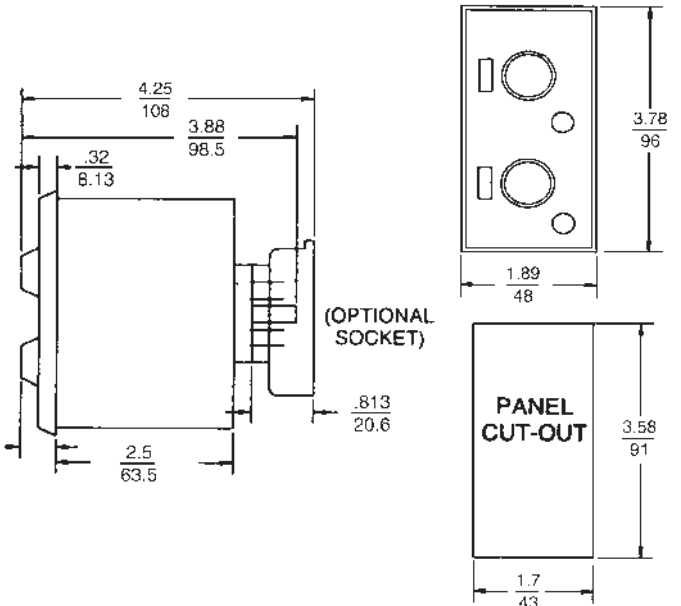
The timing range for the On-time and Off-time can be individually set. The range select switches are located on the side of the housing, so that when panel mounted, these switches are not accessible to the operator. This tamper proof feature prevents unauthorized or hazardous changes to the timing range from being made.

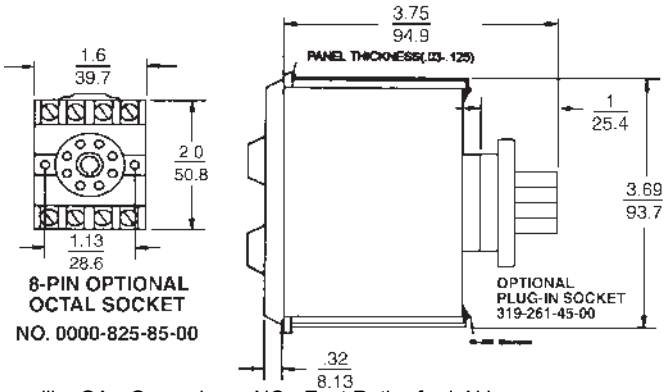
The output of the 422A is a DPDT mechanical relay which is rated for 10 Amps at 30 VDC and 240 VAC. The 422A can be ordered with this output being energized during the first timing period, or de-energized during the first timing period.

A single Flip-Flop Timer can be powered using 24-240 VAC or 24 VDC power, greatly simplifying ordering and inventory management of replacement units.

The 422A has individual LED indicators for ON-time and Off-time. These LED's provide a unique and effective method of cycle progress indication. Off before timing, the LED's blink at an ever increasing rate as the cycle progresses: once every 3 1/2 seconds during the first 10% of the cycle, twice during the second 10%, and so on until the timing cycle is complete. (In the 1, 5, 10 and 50 second ranges, the LED is Off before timing and steady On during the timing cycle).

DIMENSIONS (INCHES/MILLIMETERS)





SPECIFICATIONS

RANGE	422A100	1 or 10 SEC/MIN/HRS
	422A500	5 or 50 SEC/MIN/HRS
CONTACT RATING	Rated 10 AMPS resistive at 30 VDC or 250 VAC (or less)	
	1/8 HP @ 120 VAC	
	1/4 HP @ 240 VAC	
	240 VA @ 240 VAC	
LIFE	10 million operations with no load 100,000 operations with: 10 AMPS at 30 VDC (or less) or 10 AMPS at 250 VAC (or less)	
CONTACT MATERIAL	Silver Cadmium Oxide	
TEMPERATURE RATING	0° to 140°F (-18°C to 60°C)	
NOISE IMMUNITY	Showering ARC per NEMA ICS 2-230. In addition, the 422A will withstand a voltage surge of 4500 volts for 50 µsec. without damage.	
MOUNTING	Plug-in octal base	
	Options: Surface mounting socket DIN rail mounting socket Plug-in socket kit (8-pin) Panel mounting kit 8-pin panel socket w/rear facing terminals	
POWER REQUIRE-MENTS	Universal power supply. Unit will accept power from 24 to 240 VAC, 50 or 60 Hz, (+10%, -20%) 24 VDC (+20%, -20%)	
	AC	Inrush - 1.5 Amps Power required - 1.2 Watts
	DC	Maximum ripple at 60 Hz - 5% Current required - 50 mA Power required - 1.2 watts
MINIMUM SETTING	2% of range, with the exception of 50 mSEC on the seconds range.	
SETTING ACCURACY	+/-5% of range	
REPEAT ACCURACY	Varies as a function of temperature. Any voltage (constant temperature): ± 0.5%* Any voltage (32° F to 140° F): ± 1.5%* Any voltage (0° F to 140° F): ± 2.0%* *Variation from average actual time	
RESET	a	0 to 20 mSEC power interruption: guaranteed no reset
	b	20 to 65 mSEC; it may reset (40 mSEC typical reset)
	c	Over 65 mSEC guaranteed to reset
WEIGHT	7 ounces	

OPERATION

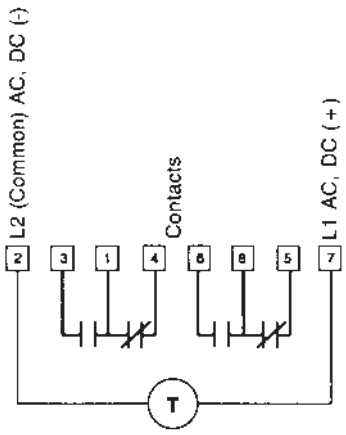
Repeat Cycle: Timing begins when power is applied to terminals 2 & 7. The timer operates continuously through its two timing ranges (T1 and T2), one after the other, transferring the relay contacts as it times out of each range. The relay will energize during either the T1 or T2 time depending on the particular model specified (see accompanying chart). There is no start circuit and the timer resets on power interruption.

Single Cycle: Timing begins when power is applied to terminals 2 & 7. The timer will operate for one cycle only, that is, the relay will energize during either the T1 or T2 time depending on the particular model specified (see accompanying chart). Power must be removed from terminal 2 or 7 to reset the timer. The timer will reset on power interruption.

MODEL NUMBER >>>>>>	422A				
Range					
Six dial-selected ranges (1 or 10 SEC/MIN/HRS)	100				
Six dial-selected ranges (5 or 50 SEC/MIN/HRS)	500				
Voltage & Frequency					
24 to 240 VAC (50/60 Hz) and 24 VDC		F			
12 VDC		E			
Sequence					
OFF/ON (Relay energized during T2)			1		
ON/OFF (Relay energized during T1)			3		
Cycle Type					
Repeat Cycle				0	
Single Cycle				5	
Features					
Standard Timer					X
Special					K

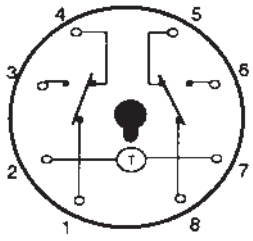
Accessories	
8-Pin surface/DIN rail socket	0000-825-85-00
Hold down for above socket	0422-025-02-00
Panel mounting kit consisting of gasket and 2 clamps	0328-260-02-00
Plug-in socket kit (8-pin)	0319-261-45-00
8-Pin panel socket w/rear facing terminals	600-3-0011

WIRING

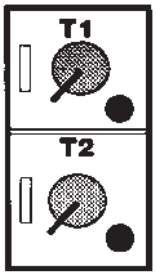


Power Supply

TERMINAL WIRING



Bottom view of Timer



Model	T1	T2
. . . F1 . . .	de-energized	energized
. . . F3 . . .	energized	de-energized