

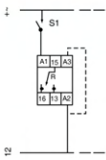
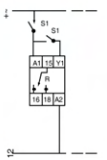
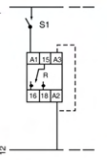



Electronic Timers and Counters

Bhartia Cutler Hammer presents widest range of Electronic Timers and Counters in technical collaboration with Crouzet of France. These devices are ideally suited for sequence control & other application.

Chronos Range Electronic Timers

Relay Outputs

- Multi-Function or mono-function
- Multi-range
- Multi-voltage
- Calibrated scale for easy time setting
- Compact dimension
- LED indication for power and relay status
- Rear terminal base
- Din rail mounting or base mounting
- Electronics compatibility
- Conforms to VDE 0435

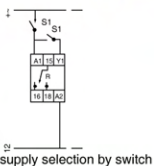
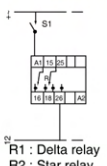

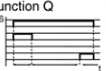
	BAR Delay on make/relay	BCR Delay on break/relay	BDR Recycling/relay
<p>Connections : By terminal block with cable guide and front access captive screws Terminal capacity : 2.5 mm² max.</p>	 <p>When using 24V AC/DC Supply Voltage, short circuit A2-A3</p>	 <p>Power supply selection by switch</p>	 <p>When using 24V AC/DC Supply Voltage, short circuit A2-A3</p>
<p>Function Diagram :</p>	<p>Function A</p> 	<p>Function C</p> 	<p>Function D Function DI</p> 
<p>Mode of Operation</p>	<p>Function A : Delay on make Delay on make timing commences with the supply on (S1). At the end of timing, the load R is energized. Reset during timing by supply off or after timing</p>	<p>Function C : Delay on break The timer is permanently supplied by S1. At the closure of the command contact S2, the load is energized until the set time has elapsed after the opening of S2. If S2 is reclosed during timing the output will remain energized. Command contact S2 should be isolated from any other Circuit. Power supply S1 has to be closed when operating S2.</p>	<p>Function D or DI : Recycling. When the supply (S1) is applied, The load is alternatively de-energized and energized repeatedly to the set times. Function D : The cycle begins with the output in rest position. Pause start. Function DI : The cycle begins with the output in the operating position. Pulse start.</p>
<p>Power Supply</p>	Dual Voltage : 220/240V AC and 24V AC/DC*	Dual Voltage : 220/240V AC and 24V AC/DC*	Dual Voltage : 220/240V AC and 24V AC/DC*
<p>Supply Tolerance</p>	0.85 to 1.15 Un. (1.10 Un 240V AC Version)	0.85 to 1.15 Un. (1.10 Un 240V AC Version)	0.85 to 1.15 Un. (1.10 Un 240V AC Version)
<p>Frequency</p>	50/60 Hz	50/60 Hz	50/60 Hz
<p>Timing Range</p>	0.1 sec. to 10 hours	0.1 sec. to 10 hours	0.1 sec. to 10 hours
<p>Repeat Accuracy</p>	±0.2% at constant ambient ±1.5% within temp. variation	±0.2% at constant ambient ±1.5% within temp. variation	±0.2% at constant ambient ±1.5% within temp. variation

	BAR Delay on make/relay	BCR Delay on break/relay	BDR Recycling/relay
Reset Time	50 ms after timing 100 ms during timing	Maximum 100 ms	50 ms after timing "ON" 100 ms during timing "OFF"
Minimum Impulse Time	----	20 ms	----
Output	SPDT 10A/250V resistive load Contact material : AgCdo	SPDT 10A/250V resistive load Contact material : AgCdo	SPDT 10A/250V resistive load Contact material : AgCdo
Life	Electrical 2×10^5 operations at 10A 220V AC resistive load Mechanical : 2×10^7 operations Operate rate : 600 operations per hour at maximum load	Electrical 2×10^5 operations at 10A 220V AC resistive load Mechanical : 2×10^7 operations Operate rate : 600 operations per hour at maximum load	Electrical 2×10^5 operations at 10A 220V AC resistive load Mechanical : 2×10^7 operations Operate rate : 600 operations per hour at maximum load
Max. Power Consumption	7VA at 220V AC	7VA at 220V AC	7VA at 220V AC
Operating Temp.	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C
Peak Current	15A < 0.01 sec	15A < 0.01 sec	15A < 0.01 sec
Max. Switch Volt.	250V AC/DC	250V AC/DC	250V AC/DC
Appx. Weight	80g	80g	80g
Options	*Other voltage available 110V AC/24V AC/DC and 12V DC	*Other voltage available 110V AC/24V AC/DC and 12V DC	*Other voltage available 110V AC/24V AC/DC and 12V DC

Chronos Range Electronic Timers

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- Multi-Function or none-function
- Multi-range
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	BLR Multifunction/relay	DQR Star Delta Relay
Connections :	 <p>Power supply selection by switch</p>	 <p>R1 : Delta relay R2 : Star relay</p>
Function Diagram :		
Mode of Operation	<p>Function A : See BAR</p> <p>Function B : Single shot. The timer is permanently supplied by S1. At the closure of the command contact S2 (either fleeting or maintained contact), the load R is energized. The load de-energizes at the end of timing.</p> <p>Function C : See BCR</p> <p>Function H : Interval timer. At the closure of S1 (supply on) the load is energized and timing starts. At the end of timing the load de-energizes.</p>	<p>Function Q : Star-delta The "star" relay energizes when supply is applied to the timer and the timing begins. After the timing, the "star" relay de-energizes. After a pause of about 100ms, the "delta" relay energizes and will be maintained until the removal of the supply.</p>

	BLR Multifunction/relay	DQR Star Delta Relay
Power Supply	Dual Voltage : 220/240V AC and 24V AC/DC*	415V AC/240C AC, 110V AC
Supply Tolerance	0.85 to 1.15 Un. (1.10 Un 240V AC Version)	0.85 to 1.15 Un. (1.10 Un 240V AC Version)
Frequency	50/60 Hz	50/60 Hz
Timing Range	0.1 sec. to 10 hours	0.2 sec. to 20 sec./1sec. to 100 sec.
Repeat Accuracy	± 0.2% at constant ambient ± 1.5% within temp. variation	± 0.5% at constant ambient ± 3% within temp. variation
Reset Time	100 ms	100 ms during and after timing
Minimum Impulse	20 ms	----
Time Output	SPDT 10A/250V resistive load Contact material : AgCdo	2 Change over relay 10A, 250V Contact material : AgCdo
Life	Electrical : 2x10 ⁵ operations at 10A 220V AC resistive load Mechanical : 2x10 ⁷ operations Operate rate : 600 operations per hour at maximum load	Electrical : 2x10 ⁵ operations at 10A 220V AC resistive load Mechanical : 2x10 ⁷ operations Operate rate : 600 operations per hour at maximum load
Max. Power Consumption	7VA at 220V AC	7VA at 220V AC
Operating Temp.	-20°C to +60°C	-20°C to +60°C
Peak Current	15A < 0.01 sec	10A < 0.01 sec
Max. Switch Volt.	250V AC/DC	250V AC/DC
Appx. Weight Options	80g	100g
	*Other voltage available 110V AC/24V AC/DC and 12V DC	

Electronic Encapsulated Timers

Solid state output

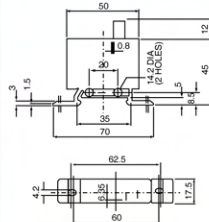
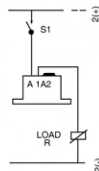
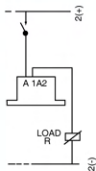
- Mono-function
- Mono range timing fixed or adjustable by external built-in potentiometer
- Compact dimension
- Fully sealed for protection by encapsulation in polyurethane resin
- Conforms to VDE 0435
- Mono-voltage
- Solid state output 0.7A at 20°C
- Din rail mounting or base mounting
- Electronics compatibility

SAS-P
Solid state timer
/Delay on make

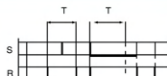
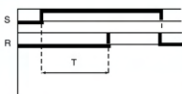
SAS-CB
Special timer for
compressor protection and
heat pumps

Dimensions In (mm)
Encapsulated times

Connections :
By 6.35 mm Faston
blade terminal



Function Diagram :

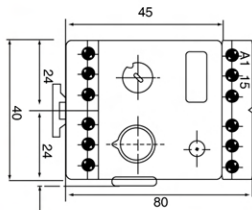
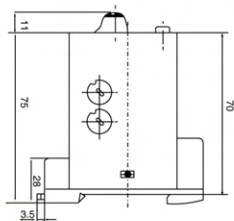


Electronic Encapsulated Timers

	SAS-P Solid state timer /Delayon make	SAS-CB Special timer for compressor protection and heat pumps	Dimensions in (mm) Encapsulated times
Mode of Operation	Function A : Delay on make Delay on make timing commences with the supply on (S1). At the end of timing, the load R is energized. Reset during timing by supply off or after timing	When a compressor is stopped by the Thermostat, it should not restart immediately on full load. A timer of 3 to 5 minutes is needed to equalise the Interior pressure in the system, or to avoid a sudden drop in the latter. In other words, the timer is needed to prevent reset of the thermostat and to ensure optimal operation of the equipment. For this application. Bhasrtia Cutler-Hammer has developed a special low-cost timer with only 2 terminals, the SAS-CB (load in series with timer) Note : At the first supply "ON" the compressor starts instantaneously without loss of time	
Power Supply	220/240V AC/DC *Other voltage available on request	220/240V AC/DC *Other voltage available on request	
Supply Tolerance	0.8 to 1.2 Un.	0.8 to 1.2 Un.	
Frequency	50/60 Hz	50/60 Hz	
Timing Range	0.1-10 secs., 1-100 secs. 3-300 secs. (*Other timing available on request)	Fixed on Demand 3 min. or 5 min.	
Repeat Accuracy	±0.5% at constant ambient ±5% within temp. specifications	±0.4% at constant ambient ±10% within temp. specifications	
Reset Time	25 ms after timing 150 ms during timing	25 ms after timing	
Output	I max. : 0.7A (20°C) I min. : 10mA	I max. : 0.7A (20°C) I min. : 10mA	
Derating	5mA/ ^o C	5mA/ ^o C	
Leakage current	5mA maximum	6mA maximum	
Max. Power Consumption	See leakage current	See leakage current	
Operating Temp.	-20°C to +60°C	-10°C to + 60°C	
Peak Current	20A < 10ms	20A < 10ms	
Max. Switch Volt.	250V AC/DC	250V AC/DC	
Voltage drop	3.5V AC/DC	3.5V AC/DC	
Appx. Weight	55g	50g	
Options	*Other voltage available 110V AC/DC 48V AC/DC and 24V AC/DC	*Other voltage available 110V AC/DC 48V AC/DC and 24V AC/DC	

Dimensions (mm)

DIN RAIL MOUNTING
Star Delta Timers DQR



DIN RAIL MOUNTING OR BASE-MOUNTING
Chronos Timers

