Timers
Delay on Release
Type SB 135

- **Time ranges: 0.15 s to 180 h**
- **Automatic start after drop-out of power supply**
- **Knob-adjustable time within range**
- **Oscillator-controlled time circuit**
- **Repeatability deviation: ≤ 1%**
- **Output: 8 A SPDT relay**
- **Plug-in type module**
- **S-housing**
- **LED-indication for power supply on**
- **AC or DC power supply**

Product Description

Mono-function, plug-in delay on release time relays up to 180 h covering 10 individual time ranges. Often used for monitoring an external power supply and signalling drop-out of power supply after a preset period of time.

Ordering Key

SB 135 024 3S

- **Housing**
- **Function**
- **Output**
- **Type**
- **Power supply**
- **Time range**

Type Selection

Plug	Output	Time ranges	Supply: 24 VAC	Supply: 115 VAC	Supply: 230 VAC	Supply: 24 VDC
Circular	SPDT	3 m - 60 m	**SB 135 024 60M**	**SB 135 115 60M**	**SB 135 230 60M**	**SB 135 724 60M**
		8 m - 180 m	**SB 135 024 180M**	**SB 135 115 180M**	**SB 135 230 180M**	**SB 135 724 180M**
		0.5 h - 10 h	**SB 135 024 10H**	**SB 135 115 10H**	**SB 135 230 10H**	**SB 135 724 10H**
		3 h - 60 h	**SB 135 024 60H**	**SB 135 115 60H**	**SB 135 230 60H**	**SB 135 724 60H**
		8 h - 180 h	**SB 135 024 180H**	**SB 135 115 180H**	**SB 135 230 180H**	**SB 135 724 180H**

Time Specifications

Time ranges	3 m - 60 m 8 m - 180 m 0.5 h - 10 h 3 h - 60 h 8 h - 180 h
Time range accuracy	0 to +10% on max. min. actual time ≤ min. set time
Repeatability deviation	≤ 1%
Time variation	
Within rated power supply	≤ 0.05%/V
and ambient temperature	≤ 0.2%/°C

Output Specifications

Output		SPDT relay
Basic electrical insulation		250 VAC (rms) (contact/electronics)
Contact ratings (AgCdO)		µ (micro gap)
Resistive loads	AC 1	8 A/250 VAC (2000 VA)
	DC 1	0.4 A/250 VDC (100 W)
	or	4 A/25 VDC (100 W)
Small inductive loads	AC 15	2.5 A/230 VAC
	DC 13	5 A/24 VDC
Mechanical life		≥ 30 x 10^6 operations
Electrical life	AC 1	≥ 2.5 x 10^5 operations (at max. load)
Operating frequency		≤ 7200 operations/h
Insulation voltages		
Rated insulation voltage		≥ 2.0 kVAC (rms) (cont./elec.)
Rated transient protection volt.		4 kV (1.2/50 µs) (cont./elec.) (IEC 664)

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Supply Specifications

Power supply AC types		Installation cat. III (IEC 664)
Rated operational voltage through pins 2 & 10	230	230 VAC ± 15%, 45 to 65 Hz
	115	115 VAC ± 15%, 45 to 65 Hz
	024	24 VAC ± 15%, 45 to 65 Hz
Drop-out tolerance		≥ 40 ms
Rated insulation voltage		≥ 2.0 kVAC (rms) (supply/elec.)
Rated transient protection volt.		4 kV (1.2/50 µs) (line/neutral)
Power supply DC type		Installation cat. III (IEC 664)
Rated operational voltage	724	24 VDC ± 15% (pin 2 pos.)
Rated insulation voltage		None
Rated transient protection volt.		800 V (1.2/50 µs)
Consumption	AC supply	2.5 VA
	DC supply	1.5 W
Built-in battery for time function		
Nominal voltage		5 V
Capacity		40 mAh
Charging current		360 µA
Discharging current		120 µA

General Specifications

PowerON delay		≤ 200 ms
Indication for		
Power supply ON		LED, red
Environment		
Degree of protection		IP 20 B
Pollution degree		2 (IEC 664)
Operating		-20° to +50°C (-4° to +122°F)
Storage		-50° to +85°C (-58° to +185°F)
Weight	AC types	200 g
	DC types	125 g
Approvals		UL, CSA
CE Marking		Yes

Time Setting

Time setting
Knob-adjustable on scale in seconds, minutes or hours.

Mode of Operation

The relay operates immediately after power supply is applied.

When power supply is interrupted, the time period starts and at expiration of the set time period, the relay releases.

If power supply is reapplied before the relay is released, the time is reset and the relay remains on.

The built-in battery is recharged when power supply is applied and is discharged during the time periods.

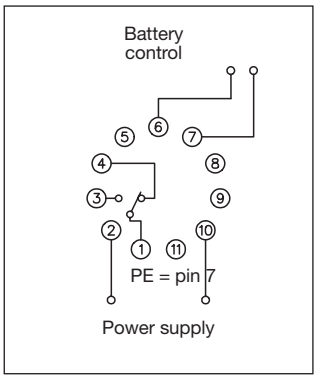
To maintain sufficient energy in the battery, the relay must be recharged for at least one third of the total discharging periods as the recharge/discharge current ratio is 3:1.

The capacity of the built-in battery is sufficient for more than 300 h of continuous time measuring without recharging it.

Please note
The SB 135 should not be operated by short pulses. For this purpose the relay DMB01, operated by means of an external contact function, should be used.

NB! It is recommended to connect the SB 135 to the power supply for 48 hrs before it is put into regular service in order to compensate for energy losses due to e.g. a long storage period.

Wiring Diagram



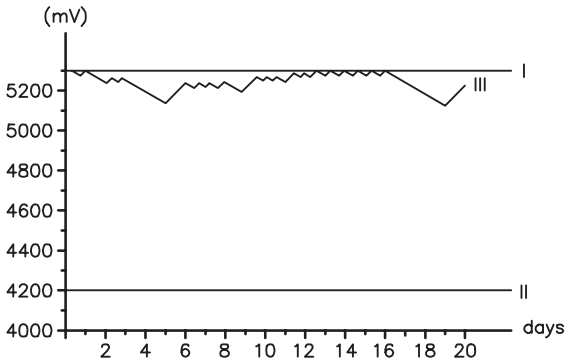
Battery Control

Between pins 6 and 7. Pin 6 positive.
R_i = 1 kΩ.

Curve I
Ideal battery voltage at uninterrupted power supply.

Curve II
Min. battery voltage. Battery should be recharged before voltage drops to min. level.

Curve III
Course of battery voltage.
The recharging periods must always equal at least one third of the total discharging periods.



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Operation Diagram