Timers
Asymmetrical Recycler Types DCBO 1, PCBO1


- Time range 0.1 s to 100 h
- 4 knob selectable functions

Aa - Asymmetrical recycler ON first
Ab - Asymmetrical recycler OFF first
Sh - One shot time function
Dt - Two state delay on operate (2 relays versions only)

- Selection of time range by DIP switches
- Knob adjustable time setting Automatic start
- Output: 1 or 2 x SPDT relay
- For mounting on DIN rail in accordance with DIN/EN 50022 or Plug-in
- 22.5 mm Euronorm or 36 mm plug-in module housing
- Combined AC and DC power supply voltage
- LED indication for relay status and power supply ON


## Product Description

Combined function timer with asymmetrical recycler, one shot time and two state delay on operate functions. Individual selection of the time ranges from 0.1 s to 100 h .

Ordering key
Housing Function
Type
tem number
Output
Power Supply

## Type Selection

| Mounting | Output | Housing | Supply: 24 VDC and 24 to 240 VAC | Supply: $\mathbf{2 4}$ to $\mathbf{2 4 0}$ VAC/DC |
| :---: | :---: | :---: | :---: | :---: |
| For DIN-rail | $1 \times$ SPDT | D-Housing | DCB 01 C M24 | DCB 01 D M24 |
|  | $2 \times$ SPDT |  |  |  |
| Plug-in | $1 \times$ SPDT | P-Housing | PCB 01 C M24 |  |
|  | $2 \times$ SPDT |  |  | PCB 01 D M24 |

## Time Specifications

| Time ranges |  |
| :--- | :--- |
| Selectable by DIP switches | 0.1 to 1 s |
|  | 1 to 10 s |
|  | 6 to 60 s |
|  | 60 to 600 s |
|  | 0.1 to 1 h |
|  | 1 to 10 h |
| 10 to 100 h |  |
| Setting accuracy | $\leq 5 \%$ |
| Repeatability | $\leq 0.2 \%$ |
| Time variation | (with respect to full scale |
| value) |  |
| Within rated power supply | $\leq 0.2 \%-$ whole range |
| Within ambient temperature | $\leq 500 \mathrm{ppm} /{ }^{\circ} \mathrm{C}$ |
| Reset |  |
| Power supply interruption | $\geq 200 \mathrm{~ms}$ |
|  |  |
|  |  |
|  |  |

## Output Specifications

| Output | 1 or $2 \times$ SPDT relay |
| :---: | :---: |
| Rated insulation voltage | 250 VAC (RMS) |
| Contact Ratings ( $\mathrm{AgSnO}_{2}$ ) | $\mu$ |
| Resistive Loads AC 1 | 8 A @ 250 VAC |
| DC 12 | 5 A @ 24 VDC |
| Small inductive loads AC 15 | 2.5 A @ 250 VAC |
| DC 13 | 2.5 A @ 24 VDC |
| Mechanical life | $\geq 30 \times 10^{6}$ operations |
| Electrical life | $\begin{aligned} & \geq 10^{5} \text { operations } \\ & \text { (at } 8 \mathrm{~A}, 250 \mathrm{~V}, \cos \varphi=1 \text { ) } \end{aligned}$ |
| Operating frequency | < 7200 operations/h |
| Dielectric strength Dielectric voltage Rated impulse withstand voltage | 2 kVAC (RMS) <br> 4 kV (1.2/50 $\mu \mathrm{s}$ ) |

## CARLO GAVAZZI

## Supply Specifications



## General Specifications

| Power ON delay | $\leq 100 \mathrm{~ms}$ |
| :--- | :--- |
| Power OFF delay | $\leq 200 \mathrm{~ms}$ |
| Indication for <br> Power supply ON <br> Output relays ON | LED, green <br> LED, yellow (flashing when <br> timing) |

General Specifications (cont.)

| Environment | (EN 60529) |
| :--- | :--- |
| Degree of protection | IP 20 |
| Pollution degree | 3 (DCB01), 2 (PCB01) |
|  | $($ IEC 60664) |
| Operating temperature | -20 to $+60{ }^{\circ} \mathrm{C}, \mathrm{R}: \mathrm{H}:<95 \%$ |
| Storage temperature | -30 to $+80^{\circ} \mathrm{C}, \mathrm{R}: \mathrm{H}:<95 \%$ |
| Housing dimensions |  |
| DIN-rail version | $22.5 \times 80 \times 99.5 \mathrm{~mm}$ |
| Plug-in version | $36 \times 80 \times 94 \mathrm{~mm}$ |
| Weight | Approx 100 g g |
| Screw terminals | (DCB01) |
| Tightening torque | Max. 0.5 Nm according to |
|  | IEC EN 60947 |
| EMC | Electromagnectic Compatibility |
| Immunity | According to EN 61000-6-2 |
| Emission | According to EN 61000-6-3 |
| Timer Specifications | According to EN 61812-1 |
| Approval | UL, CSA |
| CE Marking | Yes |
|  |  |

## Mode of Operation

Function Aa - Asymmetrical Recycler ON-time period first
The relay operates and the ON-time period (T1) begins as soon as the power supply is connected. After the ONtime period the relay releases for the OFF-time period (T2). This sequence continues until the power supply is interrupted for at least 200 ms.

Function Ab - Asymmetrical Recycler OFF-time period first
The OFF-time period (T1) begins as soon as the power supply is connected. After the OFF-time period the relay operates for the ON time period (T2). This sequence continues until the power supply is interrupted for at least 200 ms .

Function Sh - One shot time function
The OFF-time period (T1) begins as soon as the power supply is connected. After the OFF-time period the relay operates for the ONtime period (T2). After the ON-time period the relay releases and does not operate until the power supply is interrupted for at least 200 ms and connected again.

Function Dt - Two state delay on operate (2 x SPDT versions)
The first time period (T1) begins as soon as the power supply is connected. At the end of the first time period the first relay operates and the second time period (T2) begins. At the end of the second time period the second relay operates. Both relays release when the power supply is disconnected.

## Function/Range/Time Setting

## Upper knob:

Setting of function:
Aa - asymmetrical recycler (ON first)
Ab-asymmetrical recycler (OFF first)
Sh - One shot time function
Dt - Two-state delay on operate (2 x SPDT versions)

## Centre knob:

Time T1 setting on relative scale: 1 to 10 with respect to the chosen range.

## Lower knob:

Time T2 setting on relative scale: 1 to 10 with respect to the chosen range.

Selection of time ranges Adjust the T1 time range setting the DIP-switches 1 to 3 and the T2 time range setting the DIP-switches 4 to 6 as shown on the left.
To access the DIP-switches open the plastic cover using a screwdriver as shown below.



## Wiring Diagrams



PCB01


## Operation Diagrams



Function Ab - Asymmetrical Recycler - OFF first


## Dimensions



