

# Timers Star Delta Types DAC01, PAC01

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DAC01



PAC01

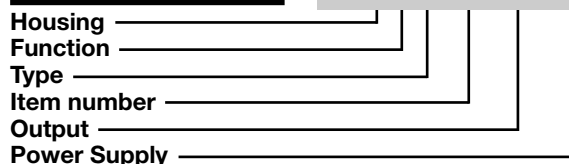
- Time range (Star): 0.1 to 600 s
- Time range (Star to Delta): 50 to 130 ms
- Knob selection of star time range
- Knob adjustable time setting
- Automatic start
- Repeatability:  $\leq 0.2\%$
- Output: 8 A SPDT relay with neutral centre position
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 22.5 mm Euronorm housing or 36 mm Plug-in module housing
- LED indication for relay status and power supply ON

## Product Description

Star-delta control relay with two adjustable time ranges: Star function (0.1 to 600 s) and star to delta function (50 to 130 ms). For mounting on DIN-rail (DAC 01) on Plug-in (PAC01).

## Ordering key

**DAC 01 C M24**



## Type Selection

| Mounting                | Output   | Housing                    | Supply: 24 to 240 VAC/DC                   | Supply: 380 to 415 VAC                     |
|-------------------------|----------|----------------------------|--|--|
| For DIN-rail<br>Plug-in | 1 x SPDT | D - 22.5 mm<br>P - Housing | <b>DAC 01 C M24</b><br><b>PAC 01 C M24</b> | <b>DAC 01 C M40</b><br><b>PAC 01 C M40</b> |

## Time Specifications

|  |  |
|--|--|
| <b>Time ranges (star)</b><br>Knob selectable                                     | 0.1 to 1 s<br>1 to 10 s<br>6 to 60 s<br>60 to 600s |
| <b>Star to delta delay</b><br>Neutral centre position                            | 50 to 130 ms<br>between star and delta<br>position |
| <b>Setting accuracy</b>  | $\leq 5\%$   |
| <b>Repeatability</b>   | $\leq 0.2\%$                                       |
| <b>Time variation</b><br>Within rated power supply<br>Within ambient temperature | $\leq 0.05\%$<br>$\leq 0.2\%$                      |
| <b>Reset</b><br>Time and relay   | Power supply interruption<br>$\geq 200$ ms         |

## Output Specifications

|  |  |
|--|--|
| <b>Output</b>                              | SPDT relay with neutral<br>centre position                     |
| <b>Rated insulation voltage</b>            | 250 VAC (RMS)  |
| <b>Contact Ratings (AgSnO<sub>2</sub>)</b> | $\mu$  |
| Resistive loads                            | AC 1<br>DC 12  |
| Small inductive loads                      | AC 15<br>DC 13   |
| <b>Mechanical life</b>                     | $\geq 30 \times 10^6$ operations                               |
| <b>Electrical life</b>                     | $\geq 10^5$ operations<br>(at 8 A, 250 V, $\cos \varphi = 1$ ) |
| <b>Operating frequency</b>                 | < 7200 operations/h  |
| <b>Dielectric strength</b>                 |  |
| Dielectric voltage                         | 2 kVAC (RMS)   |
| Rated impulse withstand<br>voltage         | 4 kV (1.2/50 $\mu$ s)  |



## Supply Specifications

|   |  |
|---|--|
| Power supply  | Overvoltage cat. III<br>(IEC 60664, IEC 60038) |
| Rated operational voltage through terminals:<br>A1 and A2 (DAC01)<br>2, 10 (PAC01)<br>M24 | 24 to 240 VAC/DC<br>+10% -15%, 45 to 65 Hz     |
| M40:  | 380 to 415 VAC<br>+10% -15%, 45 to 65 Hz       |
| <b>Voltage interruption</b>   | ≤ 10 ms  |
| <b>Rated operational power</b>  |  |
| M24 AC Supply:  | 4 VA   |
| DC Supply:  | 1.5 W  |
| M40 AC Supply:  | 13 VA @ 400 VAC, 50 Hz                         |

## General Specifications

|  |   |
|--|---|
| <b>Power ON delay</b>  | ≤ 100 ms  |
| <b>Power OFF delay</b>   | ≤ 100 ms  |
| <b>Indication for</b><br>Power supply ON<br>Output relays ON   | LED, green<br>LED, yellow (flashing when timing)  |
| <b>Environment</b><br>Degree of protection<br>Pollution degree | (EN 60529)<br>IP 20<br>3 (DAC01), 2 (PAC01)<br>(IEC 60664)                              |
| Operating temperature<br>Storage temperature                   | -20 to 60 °C, R.H. < 95%<br>-30 to 80 °C, R.H. < 95%                                    |
| <b>Housing</b><br>Dimensions                                   | DAC01: 22.5 x 80 x 99.5 mm<br>PAC01: 36 x 80 x 94 mm                                    |
| <b>Weight</b>  | Approx 110 g  |
| <b>Screw terminals</b><br>Tightening torque                    | DAC01<br>Max 0.5 Nm according to IEC EN 60947   |
| <b>Approvals</b>   | UL, CSA   |
| <b>CE Marking</b>  | Yes   |
| <b>EMC</b><br>Immunity<br>Emission                             | Electromagnetic Compatibility<br>According to EN 61000-6-2<br>According to EN 61000-6-3 |
| <b>Timer Specifications</b>                                    | According to EN 61812-1   |

## Mode of Operation

The output relay is normally in the neutral centre position. When the power supply is applied, the relay switches to star position (pin 16 or 4) and the star period starts.

At the end of the set time period, the relay returns to the neutral centre position and the set delay between star and delta position starts. At the end of the star to delta delay (adjustable from

50 to 130 ms), the relay switches in delta position (pin 18 or 3) and does not release until the power supply is interrupted for at least 200 ms. If the power supply is inter-

rupted for more than 200 ms before the star time period has expired, the relay does not operate and the time circuit is set to zero. The relay is ready for a new time period.

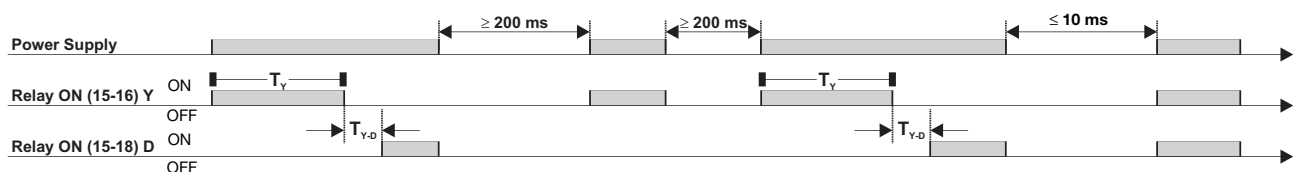
## Time Setting

**Upper knob:**  
Setting of star time range

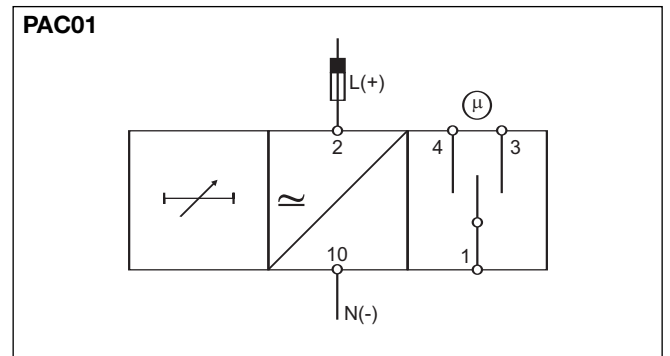
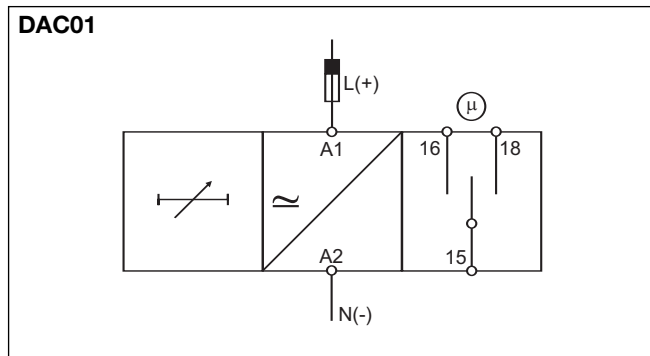
**Centre knob:**  
Star time setting on relative scale: 1 to 10 with respect to the chosen range.

**Lower knob:**  
Star to delta time setting (50 to 130 ms)

## Operation Diagram



## Wiring Diagrams



## Dimensions

