# Timers
# Star Delta Timer
# Type DAC51

- **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: ≤ 0.2%**
- **Output: 5 A SPDT relay with neutral centre position**
- **For mounting on DIN-rail in accordance with DIN/EN 50 022**
- **17.5 mm Din-rail housing (DIN 43880)**
- **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).

Housing 17.5 mm wide suitable for DIN-rail mounting. Fits in M36 cover.

## Ordering key

**DAC 51 C M24**

- **Housing**
- **Function**
- **Type**
- **Item number**
- **Output**
- **Power Supply**

## Type Selection

| Mounting | Output | Housing | Supply: 24 to 240 VAC/DC |
|---|---|---|---|
| For DIN-rail | SPDT relay with neutral centre position | Mini-D | **DAC 51 C M24** |

## Time Specifications

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

## Output Specifications

| | | |
|---|---|---|
| **Output** | | SPDT relay with neutral centre position |
| **Rated insulation voltage** | | 250 VAC (RMS) |
| **Contact Ratings** ($AgSnO_2$) | | µ |
| Resistive loads | AC 1 | 5 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** | | ≥ 30 x $10^6$ operations |
| **Electrical life** | | ≥ $10^5$ operations (at 5 A, 250 V, cos φ = 1) |
| **Operating frequency** | | < 7200 operations/h |
| **Dielectric strength** | | |
| Dielectric voltage | | 2 kVAC (RMS) |
| Rated impulse withstand voltage | | 4 kV (1.2/50µs) |

## Supply Specifications

| | |
|---|---|
| Power supply<br>Rated operational voltage through terminals A1 and A2<br>M24: | Overvoltage cat. III (IEC 60664, IEC 60038)<br><br>24 to 240 VAC/DC +10% -15%, 45 to 65 Hz |
| Voltage interruption | ≤ 10 ms |

| | |
|---|---|
| **Rated operational power** | |
| AC Supply | 5 VA |
| DC Supply | 1.5 W |

## General Specifications

| | |
|---|---|
| **Power ON delay** | ≤ 100 ms |
| **Power OFF delay** | ≤ 100 ms |
| **Indication for** | |
| Power supply ON | LED, green |
| Output relays ON | LED, yellow (flashing when timing) |
| **Environment** | (EN 60529) |
| Degree of protection | IP 20 |
| Pollution degree | 3 (IEC 60664) |
| Operating temperature | -20 to 60 °C, R.H. < 95% |
| Storage temperature | -30 to 80 °C, R.H. < 95% |
| **Housing dimensions** | 17.5 x 81 x 67.2 mm |
| **Weight** | 85 g |
| **Screw terminals** | |
| Tightening torque | Max 0.5 Nm according to IEC EN 60947 |
| **Approval** | UL, CSA |
| **CE Marking** | Yes |
| **EMC** | Electromagnetic Compatibility |
| Immunity | According to EN 61000-6-2 |
| Emission | According to EN 61000-6-3 |
| **Timer Specifications** | According to EN 61812-1 |

## 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)

## Mode of Operation

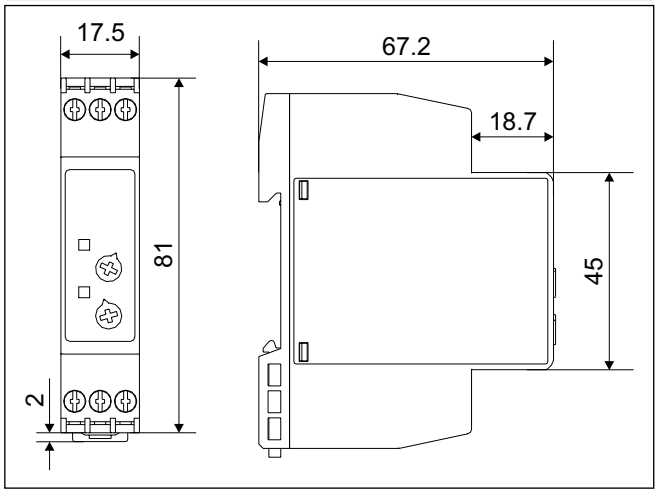
The output relay is normally in the neutral centre position. When the power supply is applied, the relay switches to star position (pin 16) and the star period starts.

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.

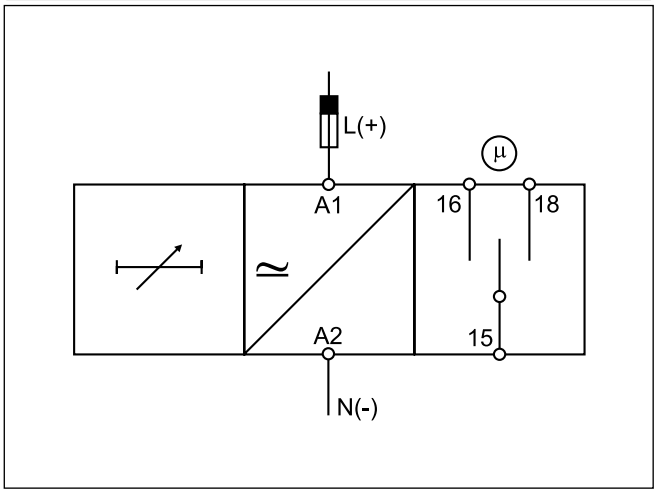
At the end of the star to delta delay (adjustable from 50 to 130 ms), the relay switches in delta position (pin 18) and does not release until the power supply is interrupted for at least 200 ms.

If the power supply is interrupted 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

## Dimensions




## Wiring Diagram




## Operation Diagram