Interval ON star-delta relay

- Multi voltage for AC/DC 24 up to 240 V
- 1 function: star-delta switching, interval ON (EW)
- 3 time ranges available from 0.5 s to 100 s
- 2 normally open contacts
- 2 LEDs for function display

### Time ranges

Available time ranges:
- 0.5 ... 10 s
- 1.5 ... 30 s
- 5 ... 100 s

### Function

**Setting the time delay**
The desired delay time is set with a selecting wheel. It can be set using a screwdriver.

Method of operation: The NGD 31 has two sequentially switching delayed outputs for starting motors in star-delta mode. After expiration of the pre-selected acceleration time $t_h$ for the star mode and a fixed transit time $t_u$ the second contact switches into the operating position for the delta mode. When the energizing quantity switches off the contact switches into the OFF position.

The LEDs shows the switching position of the contacts. The countdown can be monitored on the LEDs.

### Notes

The device is designed for multi-voltage. Phase L1 or L+ must be connected to terminal A1; neutral conductor N or M must be connected to terminal A2.

You can change the delay time during operation. The change is effective immediately.
## Technical data

<table>
<thead>
<tr>
<th>NGD 31</th>
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<tbody>
<tr>
<td><strong>Product standard (timer relays)</strong></td>
<td>EN 61812-1:1999-08</td>
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<tr>
<td><strong>Function type of the relay according to IEC 60050</strong></td>
<td>445-01-10 + 445-01-08</td>
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<tr>
<td><strong>Function display</strong></td>
<td>2 LEDs green</td>
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<tr>
<td><strong>Function diagrams</strong></td>
<td>FD 250-44</td>
</tr>
</tbody>
</table>

### Input circuit

- **Rated voltage A1-A2**: AC/DC 24 – 240 V
- **Rated consumption AC**: 3.5 VA / 1.7 W
- **Rated consumption DC**: 1.6 W
- **Rated voltage limits**: 70 – 110 %
- **Rated frequency fn**: 50 – 60 Hz ± 5 %
- **Release value of the input voltage (power capacity approx. 150 pF/m)**: ≥ AC/DC 10 V; permissible line capacity 0.2 µF
- **Rated current on control connection (A1)**: 1 mA
- **Rated consumption on control connection (A1)**: < 0.25 W
- **Parallel loads permissible**: A1-A2 yes
- **Internal half-wave rectification**: A1-A2 no

### Time circuit

- **Time setting / number of time ranges**: analogous / 1
- **Setting ranges for time delay**: See table “Time ranges”
- **Constant fixed transition time**: 100 ms ± 2 %
- **Setting tolerance**: ≤ ± 5 %
- **Repeatability (to set value)**: ≤ ± 0.01 % ± 10 ms
- **Influence of temperature (within range)**: ≤ ± 0.002 %
- **Influence of voltage (within range)**: ≤ ± 0.002 %

### Output circuit

- **Contact assignment**: 2 normally open contacts
- **Contact material**: AgNi 90/10
- **Rated operating voltage**: AC/DC 24 – 240 V
- **Rated value for limiting continuous current Ith**: 5 A
- **Minimum contact load**: ≥ AC/DC 5 V / ≥ 10 mA
- **Application category according to IEC 60947-5-1**: AC-15 Ue AC 230 V, Ie 3 A, DC-13 Ue DC 24 V, Ie 2 A
- **Permissible switching frequency**: ≤ 3600 switching cycles/h
- **Mechanical life**: 30 x 10⁶ switching cycles
- **Electrical life 20/2 A, AC 250 V, cos φ = 0.3**: 0.12 x 10⁶ switching cycles AC-15
- **Response time / release time at excitation of A1-A2**: 40 ms

### Other data

- **Creepage distances and clearances**: according to IEC 60664-1
  - **Degree of pollution**: 3 outside, 2 inside
  - **Overvoltage category**: III
  - **Rated voltage**: AC/DC 275 V
  - **Degree of protection according to IEC 60529 housing/terminals**: IP 40 / IP 20
  - **Noise immunity according to IEC 61000-4**: Test severity 3
  - **Ambient temperature, operating range**: -25 – +60 °C
  - **Dimension diagram (housing)**: K 3-2
  - **Circuit diagram of the terminals**: KS 250-21
  - **Wire ranges**: stranded or solid stranded with ferrules
  - **1 x 0.2 – 6 or 2 x 0.2 to 2.5 mm²**
  - **1 x 0.4 – 4 or 2 x 0.2 to 1.5 mm²**
  - **Weight**: 0.11 kg
  - **Accessories**: –

### Overview of devices / Part numbers

<table>
<thead>
<tr>
<th>Type</th>
<th>Rated voltage</th>
<th>ON-delay time</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGD 31</td>
<td>AC/DC 24-240 V, 50-60 Hz</td>
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<tr>
<td></td>
<td></td>
<td>0.5</td>
<td>R2.062.0029.0</td>
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<tr>
<td></td>
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<td>1.5</td>
<td>R2.062.0049.0</td>
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<td></td>
<td></td>
<td>5</td>
<td>R2.062.0019.0</td>
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