## Fuse protection for 24 V DC circuits

<table>
<thead>
<tr>
<th>Fuse protection for 24 V DC circuits</th>
<th>Overview</th>
<th>C.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>WAVEGUARD</td>
<td></td>
<td>C.4</td>
</tr>
</tbody>
</table>
Fuse protection

A 24 V DC control voltage has become the standard in the automation industry. Selective fuse protection is often used when the power is being supplied by PLC-guided controllers. It divides the total load into separate, logically connected safety circuits. For example, the CPU, actuators and sensors can be separated in the load circuits. This selective load protection helps to decrease facility downtime and also to simplify troubleshooting. When a disruption (short circuit) occurs on a standard protective system, the entire power supply is interrupted. In a system using selective fuse protection, only the fuse in the one disrupted load circuit is triggered. If the fuse is triggered quick enough so that other loads (and particularly the CPU) can continue functioning properly, then various control algorithms can be used to deal with the disruption. It is then possible to shut down the facility in an orderly and controlled fashion.

A fundamental problem when using ordinary fuses is that they take a relatively long time to trigger. Usually, a switched-mode power supply is already well over the surge-current limit (typically 120 % of Inom) before its fuse triggers. Ordinary fuses are therefore not suitable for constructing a selective fuse protective system. Such systems present DC fuses with special challenges. They must be able to switch off quickly enough but they must also be able to tolerate the start-up surge currents from consumer loads. Weidmüller’s electronic fuses, from our established WAVEGUARD line, are the answer to both of these challenges: they are quick acting but can also tolerate start-up currents. You can easily implement selective load protection using our WAVEGUARD models.

In addition, Weidmüller’s electronic fuses feature a floating alarm contact and a reset input. This allows a PLC controller to query the status of the fuse or to perform an automated reset after troubleshooting. This provides you with a convenient method for remotely maintaining a complex facility. As a result, you save both time and money.
**Resetting**

The WAVEGUARD family can be reset manually or by using an external signal. They can be reset remotely by simply applying a 24 V signal pulse on the reset input. The reset occurs on the falling edge of the signal.

Note: A cyclical automatic reset is not permitted and can lead to a malfunction.

**Signalling**

A red LED displays when the electronic fuse has been triggered. An alert is also sent out over a floating alarm contact. A green LED signals that the unit is switched on. The alarm contact uses an NC contact.
## Technical data

### Input
- Rated control voltage
- Rated current
- Reset

### Output
- Status relay CO contact
- Signalling delay

### General data
- Ambient temperature (operational)
- Storage temperature
- Status indication
- Standards
- EMC standards
- Sliding switch
- Approvals

### Dimensions
- Clamping range (nominal / min. / max.) mm²
- Depth x width x height mm

### Ordering data
- Screw connection
- Tension-clamp connection

### Accessories
- Note

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**24 V DC 1.6 A**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated control voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Rated current</td>
<td>1.6 A</td>
</tr>
<tr>
<td>NC contact, max.</td>
<td>50 V / 0.05 A; for low voltage only!</td>
</tr>
<tr>
<td>Signalling delay</td>
<td>3.5 ms typ.</td>
</tr>
<tr>
<td>Ambient temperature (operational)</td>
<td>0 °C...+55 °C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20 °C...+85 °C</td>
</tr>
<tr>
<td>Status indication</td>
<td>LED green: OK, LED red: tripped</td>
</tr>
<tr>
<td>Standards</td>
<td>DIN EN 50178</td>
</tr>
<tr>
<td>EMC standards</td>
<td>EN 55011, EN 61000-6-1, 2, 4</td>
</tr>
<tr>
<td>Sliding switch</td>
<td>OFF - wait 10 s - ON / off</td>
</tr>
<tr>
<td>Approvals</td>
<td>tSiA; CE; tSiR; GOSTME25</td>
</tr>
</tbody>
</table>

**24 V DC 3.15 A**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated control voltage</td>
<td>24 V DC</td>
</tr>
<tr>
<td>Rated current</td>
<td>3.15 A</td>
</tr>
<tr>
<td>NC contact, max.</td>
<td>50 V / 0.05 A; for low voltage only!</td>
</tr>
<tr>
<td>Signalling delay</td>
<td>3.5 ms typ.</td>
</tr>
<tr>
<td>Ambient temperature (operational)</td>
<td>0 °C...+55 °C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-20 °C...+85 °C</td>
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<tr>
<td>Status indication</td>
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<td>Sliding switch</td>
<td>OFF - wait 10 s - ON / off</td>
</tr>
<tr>
<td>Approvals</td>
<td>tSiA; CE; tSiR; GOSTME25</td>
</tr>
</tbody>
</table>

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**Notes**

- Supply voltage +24 V and 0 V can be cross-connected with ZQV 2.5 N/2
# Technical data

## Input
- Rated control voltage: 24 V DC
- Rated current: 6.3 A
- Reset current: 6.3 A
- Time (ms) typ.: 3.5 ms
- Current (A): 6.3

## Output
- Status relay CO contact: NC contact, max. 50 V / 0.05 A; for low voltage only!
- Time (ms): 3.5 ms typ.
- Current (A): 6.3

## General data
- Ambient temperature (operational): 0 °C...+55 °C
- Storage temperature: -20 °C...+85 °C
- Status indication: LED green: OK, LED red: tripped
- Standards: DIN EN 50178, EN 55011, EN 61000-6-1, 2, 4
- Approvals: CE, cURus, GOSTME25

## Dimensions
- Clamping range (nominal / min. / max.): 2.5 / 0.5 / 2.5
- Depth x width x height (mm): 92.4 / 22.5 / 72
- Note: Periodic auto-reset not permitted; Tu=23 °C, single module

## Ordering data
- Screw connection
- Tension-clamp connection

## Accessories
- Supply voltage +24 V and 0 V can be cross-connected with ZQV 2.5 N/2

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# Technical data

## Input
- Rated control voltage: 24 V DC
- Rated current: 8 A
- Reset current: 8 A
- Time (ms) typ.: 3.5 ms
- Current (A): 8

## Output
- Status relay CO contact: NC contact, max. 50 V / 0.05 A; for low voltage only!
- Time (ms): 3.5 ms typ.
- Current (A): 8

## General data
- Ambient temperature (operational): 0 °C...+55 °C
- Storage temperature: -20 °C...+85 °C
- Status indication: LED green: OK, LED red: tripped
- Standards: DIN EN 50178, EN 55011, EN 61000-6-1, 2, 4
- Approvals: CE, cURus, GOSTME25

## Dimensions
- Clamping range (nominal / min. / max.): 2.5 / 0.5 / 2.5
- Depth x width x height (mm): 92.4 / 22.5 / 72
- Note: Periodic auto-reset not permitted; Tu=23 °C, single module

## Ordering data
- Screw connection
- Tension-clamp connection

## Accessories
- Supply voltage +24 V and 0 V can be cross-connected with ZQV 2.5 N/2

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# Fuse protection for 24 V DC circuits

**WAVEGUARD**

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**Ordering data**

**Type** | **Qty.** | **Order No.**
---|---|---
WGS 24Vdc 6,3A | 1 | 8618930000
WGZ 24VDC 6,3A | 1 | 8621020000

**Type** | **Qty.** | **Order No.**
---|---|---
WGS 24Vdc 8,0A | 1 | 8618940000
WGZ 24VDC 8,0A | 1 | 8621010000
### Technical data

**Input**
- Rated control voltage
- Rated current
- Reset

**Output**
- Status relay CO contact
- Signalling delay

**General data**
- Ambient temperature (operational)
- Storage temperature
- Status indication
- Standards
- EMC standards
- Sliding switch
- Approvals

**Dimensions**
- Clamping range (nominal / min. / max.): mm²
- Depth x width x height: mm

**Ordering data**
- Screw connection
- Tension-clamp connection

**Accessories**

**Derating curve**

**Static tripping characteristic**

**Tripping current: 0.5 A**

**Tripping current: 5.0 A**

**Note**

Supply voltage +24 V and 0 V can be cross-connected with ZQV 2.5 N/2