Application Note

1606-XLRED20-30

- World-wide approvals (CE, UL, C-tick) for industry
- Connects two supplies redundantly
- Decoupling diodes
- Ready relay contacts
- Allows easy set-up of N+1 redundancy also on the DIN Rail

Concept

By means of the redundancy module you can interconnect several identical power supply units in a redundant way (N+1 redundancy); for two power supply units you require one redundancy module. The modules decouple the power supply outputs from each other so that in case of failure one power supply unit cannot overload the other power supply units. Moreover, the modules incorporate one ready relay contact per input which serves to signal the respective module’s input voltage condition (= power supply output).

The 1606-XLRED20-30, designed for load currents up to 30 A, is intended above all for application with the 1606-XL480... or 1606-XL720. For smaller power values please refer to the power supply units with an integrated redundancy module 1606-XL60DR, 1606-XL120DR and 1606-XL240DR. The 1606-XLRED40 is suitable for application with the 1606-XL960....

Decoupling part

Voltage
- nominal value 24V DC
- max. rated 35V, short-term 45V

Voltage drop \( V_{\text{in}} - V_{\text{out}} \) typ. 0.5V

Current per in-and output
- nominal value 20...30 A
- max. rated 35 A

Parallel operation for increasing the power is only permissible if the total output current cannot exceed the maximum rated value (danger of overloading).

Inverse battery protection yes

Connection via stable screw terminals

Note: GND is not looped over the module. The GND connector on the module exclusively serves as intrinsic power supply

Construction / Mechanics

Housing dimensions and Weight
- W x H x D 48 mm x 124 mm x 102 mm (+ DIN Rail)
- Free space above/below 10 mm recommended for ventilation left/right 10 mm recommended
- Weight 625 g

Relay contacts

<table>
<thead>
<tr>
<th>Relay type</th>
<th>Changeover contact, picked-up during normal operation</th>
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<tbody>
<tr>
<td>Changeover contact, picked-up during normal operation</td>
<td></td>
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<tr>
<td>relay picks up (&quot;ok&quot;) when ( V_{\text{in}} ) between ( V_{\text{low}} ) and ( V_{\text{high}} )</td>
<td></td>
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<tr>
<td>relay drops out when ( V_{\text{in}} &lt; V_{\text{low}} ) or ( V_{\text{in}} &gt; V_{\text{high}} )</td>
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Upper limit \( V_{\text{high}} \)
- hysterisis 30V ± 5% fix appr. 0.7V

Lower limit \( V_{\text{low}} \)
- guaranteed range 16...27V
- preset 22V ± 1%
- hysterisis appr. 0.7V

Contact load 28V DC / 1 A or 120V AC / 0.5 A

Connection via stable screw terminals

LEDs on the front panel
- for inputs green LED, when \( V_{\text{in}} \) between \( V_{\text{low}} \) and \( V_{\text{high}} \)
- for output green LED, when \( V_{\text{out}} > \) appr. 2.5...3.5V

Note:
- All relay contacts are potential-free.
- The 1606-XLRED20-30 includes two of these relay contacts, each per input.

Further information

Test voltage
- relay cont., \( V_{\text{in}} \), \( V_{\text{out}} \) 500V AC
- \( V_{\text{in}}, V_{\text{out}} / \text{housing} \) 500V AC

Ambient temperature range
- Operation: -10°C...+70°C
- Storage: -25°C...+85°C

Efficiency > 97%
Power wiring XLRED20-30

1606-XL480... or 1606-XL720

Front view

Bottom view

Side view

This technical information is valid for 230V AC, +25°C ambient temperature and 5 min. run-in time, unless otherwise stated. It is subject to change without prior notice.