



# Application Note

## 1606-XLPRED

### Redundant/Decoupling Module

- World-wide approvals (  $\text{CE}$   $\text{UL}$   $\text{UL}$  )
- Decoupling Diode to produce redundant applications or to decouple power sources from each other, as well as from the load
- DC 10...60V, 0...10 A

#### Concept

The decoupling module is a dual input diode with 2 inputs and one output in a compact housing, suitable for various applications such as

- to produce redundant applications
- to decouple power sources from each other as well as from the loads e.g. separation of sensitive loads from the power bus, design buffered branches, block reverse power etc.

#### Decoupling part

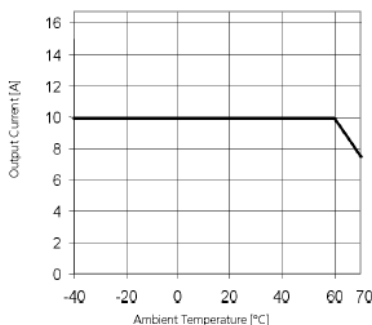
Input #1	DC 10...60V, 0...10 A
Input #2	DC 10...60V, 0...10 A
Output	$V_{in} - 0.9V$ (typ.), 0...10 A Ensure, that the max. output current does not exceed 16 A. Check short circuit current of power sources.
Peak current	125 A for max. 10 ms
Reverse current	<0.6 mA per diode

When both inputs are used (Dual Input Mode, Fig. 1) the output current results as the sum of the two inputs. If used with only one input (Single Input Mode, Fig. 2), both positive input terminals can be linked. Negative poles do not have to be used.

Connection	by Spring Clamp terminals; uniformly firm hold, vibration-resistant and maintenance-free: 2 terminals per output
Connector size range	0.3...2.5 mm <sup>2</sup> (28...12 AWG)
• flexible cable	
• solid cable	0.3...4 mm <sup>2</sup> (28...12 AWG) Ferrules admissible
• Wire strip length	6 mm (0.24 in.) recommended

#### Derating diagram

Derating characteristic  $V_{out}/T_{amb}$



- Mounted and connected in record time, no tools required
- Usable everywhere
- Tiny: W x H x D = 45 x 75 x 91 mm

#### Construction/ Mechanics

Robust plastic housing (US Patent No. D442, 923S), fine ventilation grid on three housing sides to keep out small parts (e.g. screws), IP20

##### Dimensions and weight

- W x H x D 45 mm x 75 mm x 91 mm (+ DIN rail)  
Depth incl. terminals: 98 mm (+ DIN rail)
- Weight 136 g

##### Mounting orientation



##### Ventilation/Cooling

- Normal convection, no fan required
- Free space f. cooling recommended: 25 mm above and beyond

##### Design details – for your advantage:

- All terminals are easy to reach as mounted on the front panel.
- Input and output are strictly apart from each other (input below, output above) and so cannot be mixed up.
- **Mounting and connection do not require any screwdriver**  
→ Easy, quick, durable and reliable installation.

#### Environmental Data, Safety

Ambient temperature range (measured 25 mm below unit)

- storage/transport -40°C ... +85°C
- operation -40°C ... +60°C (70°C, for derating see diagram)

Humidity max. 95% (without condensation)

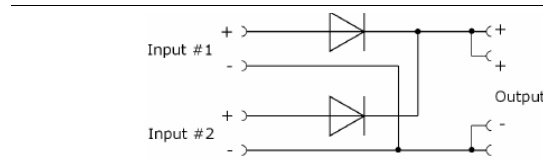
Protection class IP20 (EN 60529)

Fusing If sources with higher current capability are used, protect the inputs with a fuse or circuit breaker.

Inputs or output 10 A slow blowing circuit breaker, Char. B recommended

Approvals UL 60950 recognized and UL 508 Listed

#### Block diagram



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## Wiring Diagrams

Fig. 1: Dual Input Mode

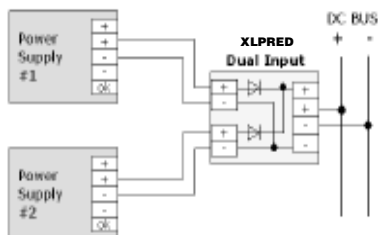


Fig. 2: Single Input Mode

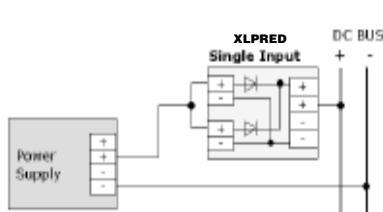


Fig. 3: 1+1 Redundant System

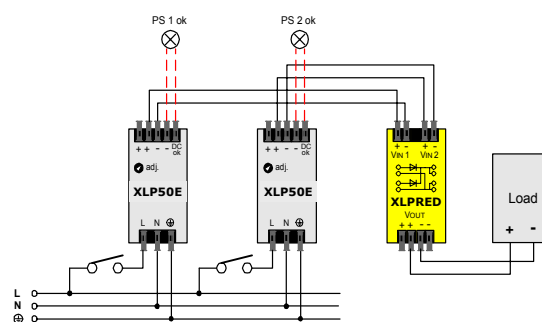


Fig. 4: N+1 Redundant System

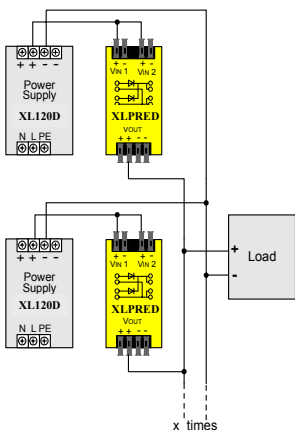


Fig. 5: Redundant System other voltages than 24V

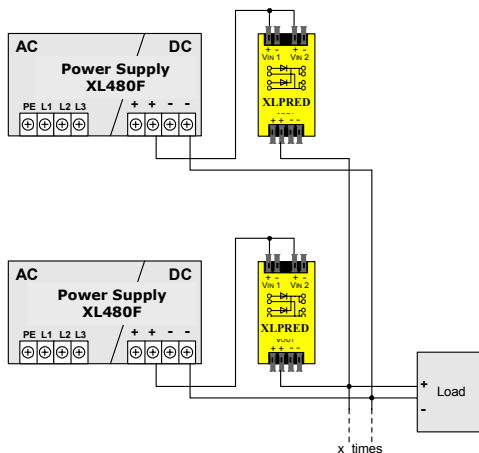


Fig. 6: Redundant System with external DC-ok relay

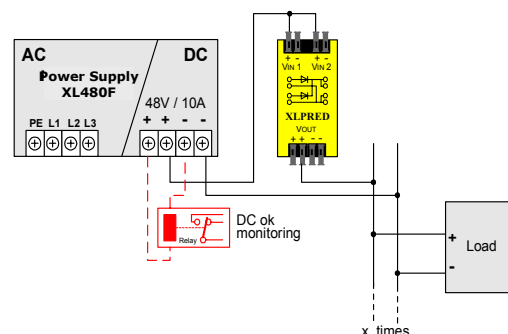


Fig. 7: Blocking of energy which is fed backwards from a decelerating motor

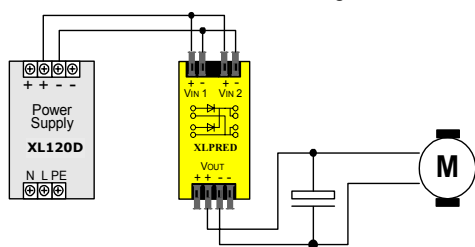


Fig. 8: Protection during battery charging

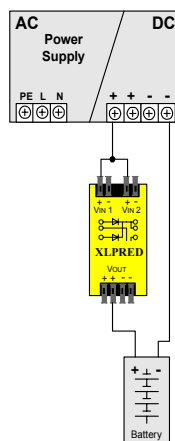
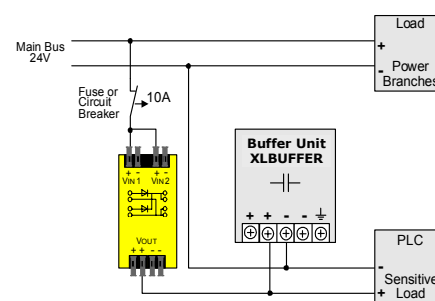


Fig. 9: Saving energy in buffered branches



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.

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