

20A DRR Module / 40A DRR Module



Features:

- Full corrosion resistance aluminium chassis even with deep scratches caused by rugged handling
- Wide Input & Output Range 22-60Vdc.
- Built-in 2 Channel DC OK signal
- Relay alarm indication
- RoHS compliant.

DRR-20A / 40A

Summary

The new Redundancy Module DRR-20A/40A is the latest offering from one of the world's largest power supply manufacturers - Delta.

The product offers a variable input & output voltage from 22-60V, a wide operating temperature range from -40°C to +80°C.

The state-of-the-art design is made to withstand harsh industrial environments. The rugged, ultra-compact metal case is shock and vibration resistant according to IEC60068-2.

Due to the wide range input & output voltage range from 22Vdc to 60Vdc, the Delta's Redundancy module is able to support power supply in parallel operation.

The DRR module has an alarm relay contact as an indicator.

Technical Data

Redundancy Module	DRR- 20A	DRR- 40A
INPUT DATA		
Nominal input voltage	24-48VDC	
Voltage range	22-60VDC	
Nominal current	20A max	40A max
Input voltage alarm / relay contacts	24V system: both Vin1 & Vin2 >18V +/- 5% or <30V max. relay contacts	48V system: both Vin1 & Vin2 >36V +/- 5% or <60V max. relay contacts
OUTPUT DATA		
Nominal output voltage U _N / tolerance	Vin-0.65V (Typ)	
Nominal current	20A max / 40A max	
Derating above +50 °C	> 50°C (2.5% / K.)	
Short circuit / Over Load Limit	(<25A for DRR- 20A)	(<50A for DRR- 40A)
Efficiency	> 97% typical.	
CERTIFICATION / STANDARDS		
Electrical equipment of machines	IEC60204-1 (over voltage category III)	
Electrical safety (information technology equipment)	UR/cUR recognized to UL60950-1 and CSA C22.2 No.60950-1,SIQ BG to EN60950-1, CB test certificate and report to IEC60950-1, and CE.	
Industrial Control Equipment	UL/cUL recognize to UL508 and CSA C22.2 No. 107.1-01	
Electronic equipment for use in electrical power installations	EN50178 / IEC62103	
Safety entry low voltage	PELV (EN60204), SELV (EN60950)	
Protection against electric shock	DIN 57100-410	
GENERAL DATA		
Isolation voltage: Input / PE type test/routine test output / PE type test/routine test	1.5 KVAC / 1.5 KVAC 1.5 KVAC / 1.5 KVAC	
Degree of protection	IP20	
Class of protection	Class III with PE connection	
MTBF	> 800,000hrs. as per BELL CORE STD or IEC61709	
Type of housing	Aluminium (AL1100F)	
Dimensions (W / H / D) + mounting rail	121 mm X 50 mm X 122.1 mm (L X W X H)	
Weight	0.375Kg	0.515Kg
LED (DC INPUT OK)	Vin1 OK and Vin2 OK (GREEN LED)	
CLIMATIC DATA		
Ambient temperature (Operating)	- 40°C to 80°C (> 50°C derating)	
Ambient temperature (Storage)	- 40°C to 85°C	
Humidity at+25 °C, no condensation	< 95% RH	
Vibration (Operating)	10Hz to 500Hz @ 30 m/S2 (3G peak); displacement of 0.35mm; 60min per axis for all X, Y, Z direction. Refer to IEC 60068-2-6. Note: all figures quoted are amplitudes (peak values)	
Shock (in all directions)	IEC60068-2-27, 30G (300m/s2) for duration 18ms 1 Shock in 2 Directions tested with Fixture with EUT mounted on DINRAIL in Vertical and Horizontal position.	
Pollution degree	2 according to EN50178	
Climatic class	3K3 according to EN 60721	
<div>CE</div> <div>In conformance with EMC guideline 89/336/EEC and low voltage directive 73/23/EEC</div> <div>EMC (electromagnetic compatibility)</div>	DRR-20A (EOE21010284)	DRR-40A(EOE21010285)
Immunity to interference according to EN 61000-6-2		
<div>• EN 61000-4-2 ¹⁾ Housing</div> <div>Discharge of static electricity (ESD) Contact discharge: Air Discharge:</div>	LEVEL 4 8 KV 15 KV	
<div>• EN 61000-4-3 ¹⁾ Housing</div> <div>Radiate Field Immunity</div> <div>Frequency/Field intensity:</div>	LEVEL 3 80MHz - 1GHz / 10V/M with 1kHz tone / 80% modulation	
<div>• EN 61000-4-8 ²⁾ Input :</div> <div>• Power frequency magnetic fields Current</div>	Level 3 10A/meter	
EN55011 corresponds to CISPR11 / EN55022 corresponds to CISPR22 / EM 61000 corresponds to IEC 1000		
1) Criterion A: Normal operating behavior within the defined limits.		
2) Criterion B: Temporary impairment to operational behavior that is corrected by the device itself.		
3) Symmetrical: Conductor to conductor.		
4) Asymmetrical: Conductor to ground.		
5) Class B: Area of application industry and residential.		

Numbering for Redundancy Module

For example: **DRR-20A / 40A**

XX X XXX

XX.....Product Type

DR	DIN Rail
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XX **X** XXX

X.....Model

R	Redundancy Module
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XXX **XXX**

XX.....Ampere

20	20 Ampere
40	40 Ampere

XXX **XX**

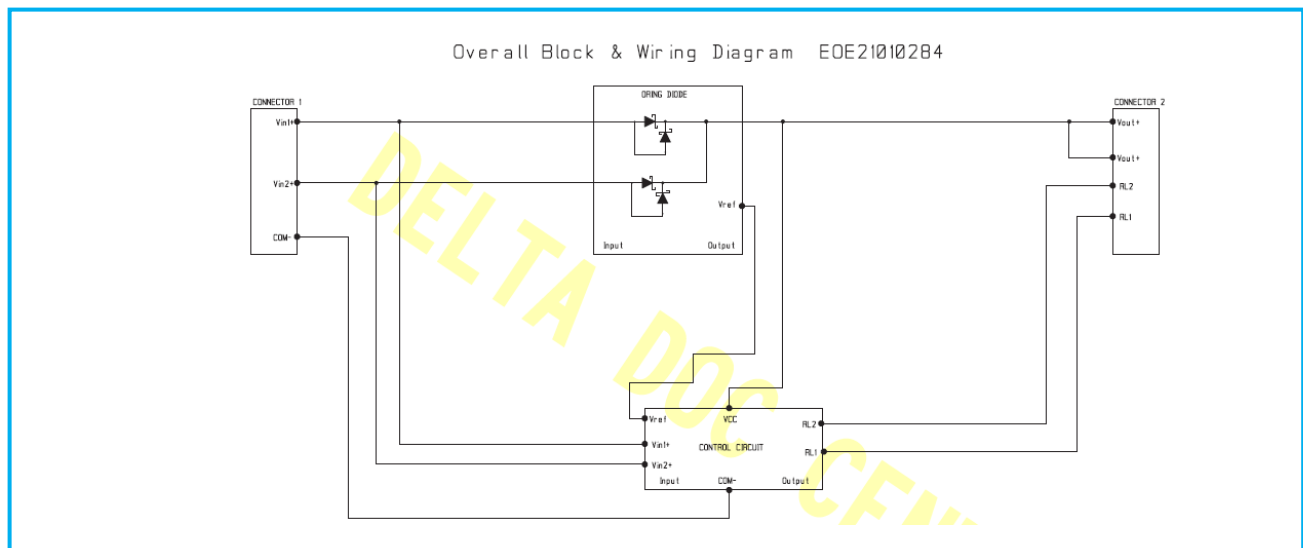
X..... Variation (E.g. Customer, material etc)

A	Delta standard – metal case
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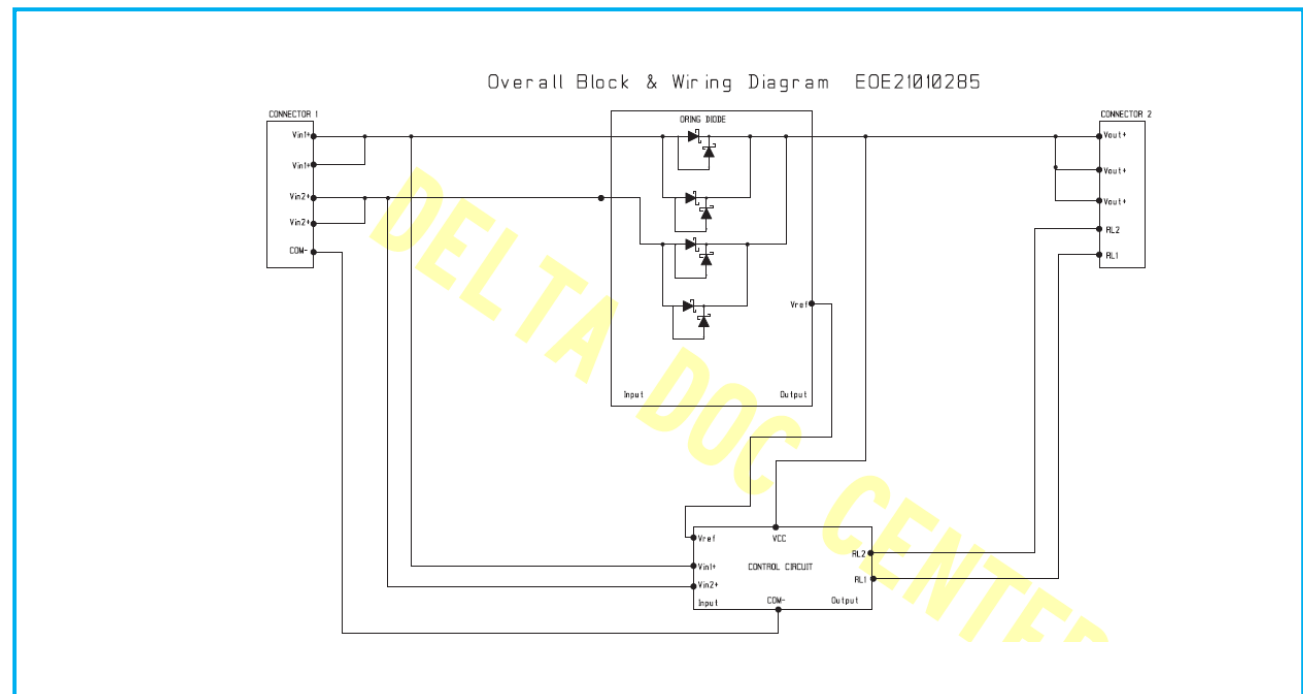
Block Diagrams/Connections:

Block Diagram of Redundancy Module,

- DRR-20A

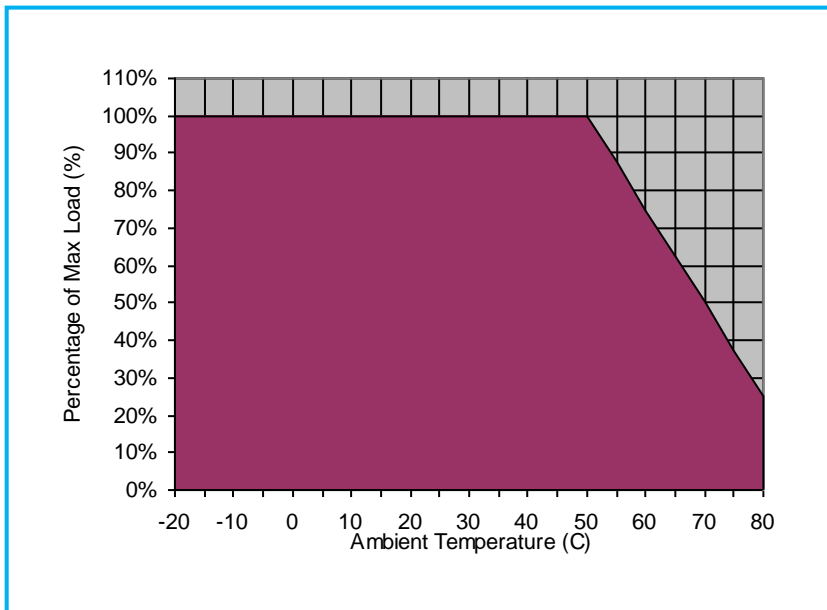


- DRR-40A



Engineering Data

- **Derating Curve**
 - **Model: DRR-20A, DRR-40A**

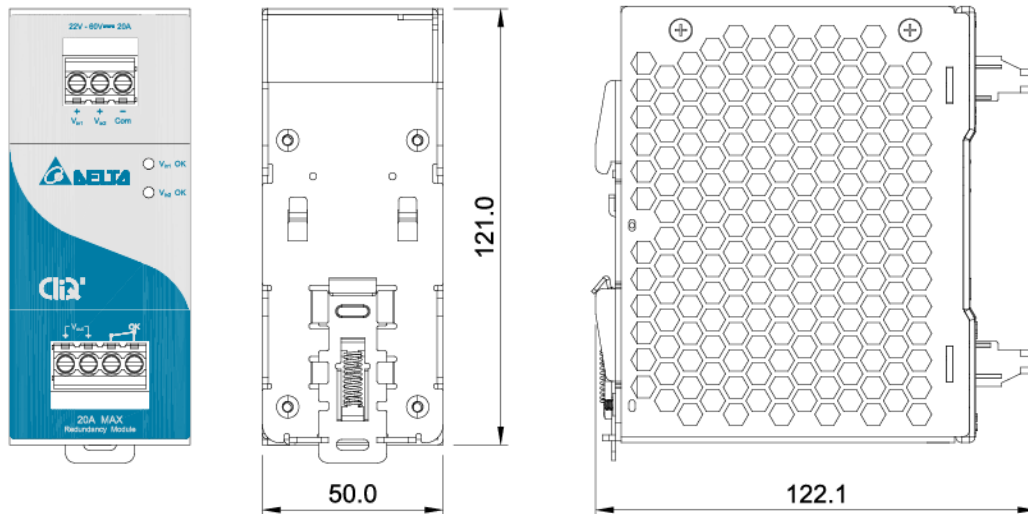


Note:

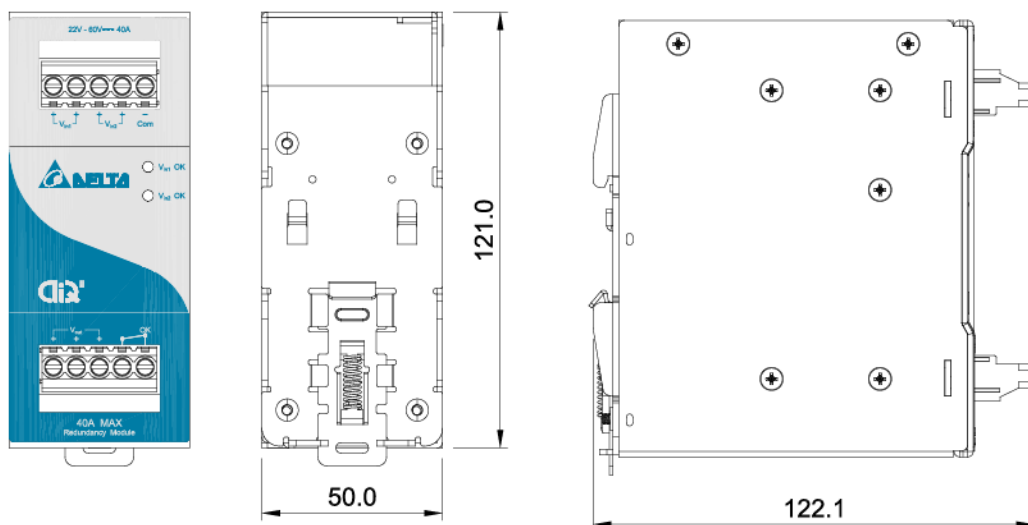
1. Do not use the Redundancy Module in areas outside the shaded portion as shown in the above graph, internal parts may occasionally deteriorate or be damaged.
2. For the power derating refer above graph ambient temperature $> 50^{\circ}\text{C}$, the output capacity has to be reduced by 2.5% per degree Celsius increase in temperature. If the output capacity is not reduced when $\text{Amb} > 50^{\circ}\text{C}$, some device will run into thermal stress problem, the ORing diodes will get too hot.
3. If the Redundancy Module has to be mounted in any other direction please contact your service provider.
4. In order for the device to function in the manner intended, it is also necessary to observe lateral spacing of 2 cm to other modules.
5. Depending on the ambient temperature and load of the device, the temperature of the housing can become very high!

Mechanical drawing

DRR-20A



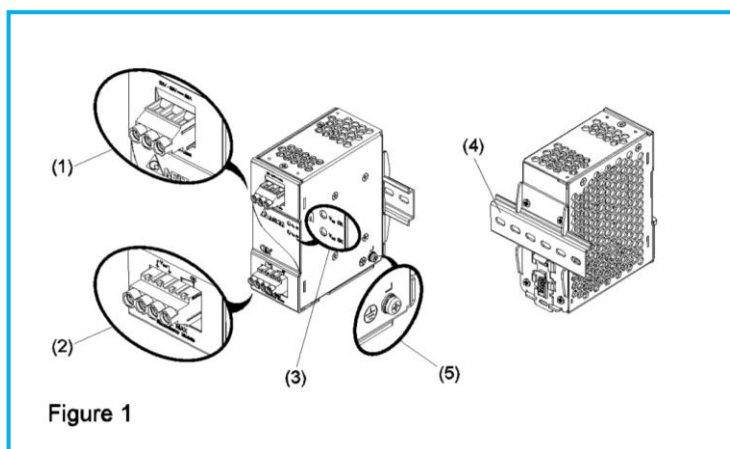
DRR-40A



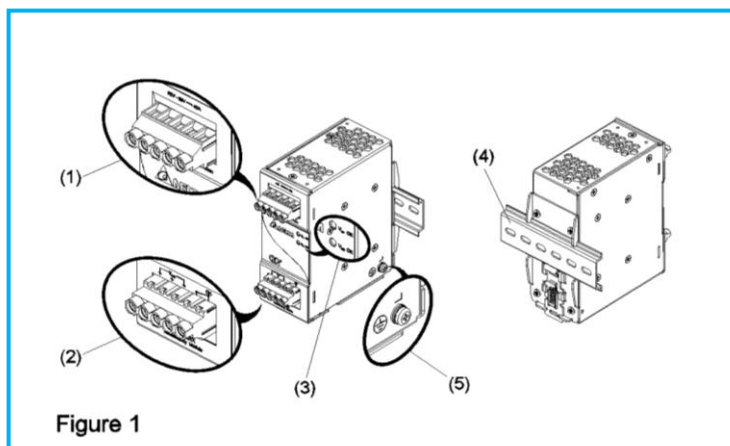
Device description DRR-20A, DRR-40A (Fig. 1)

- (1) Input terminal block connector
- (2) Output terminal block connector
- (3) LED indicator of V_{in1} & V_{in2}
- (4) Universal mounting rail system
- (5) Earth connection

DRR-20A



DRR-40A



• Overload / Short circuit Protection (No protection)

The Power Supply connected to the Redundancy Module should have an overload protection (OLP/OCP) function. The maximum limit is at 25A to protect the Redundancy Module from overheating.

• Input / Output Voltage Vs LED/Relay indicator

LED & Relay status

Input		LED		Relay
Vin1	Vin2	Vin1_OK	Vin2_OK	Contact
on	off	on	off	close
off	on	off	on	close
on	on	on	on	close
off	off	off	off	open

• Typical Application

Fig.1 1+1 Redundancy

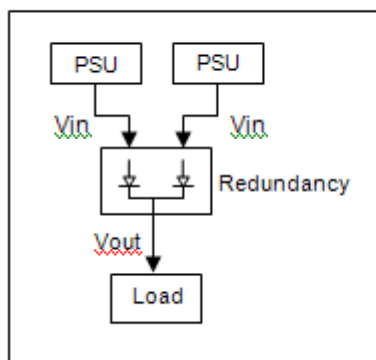


Fig.2 N+1 Redundancy

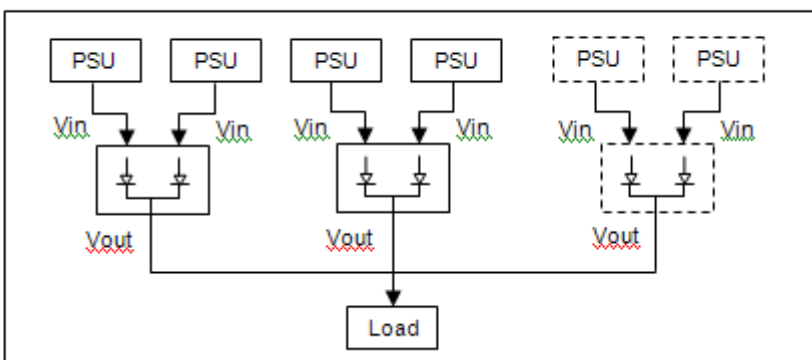
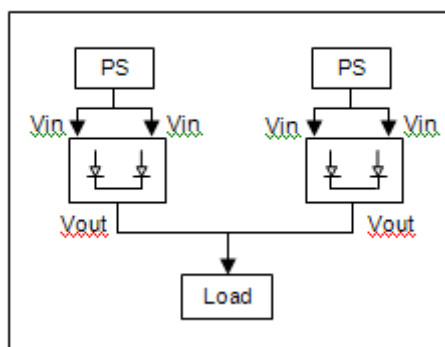
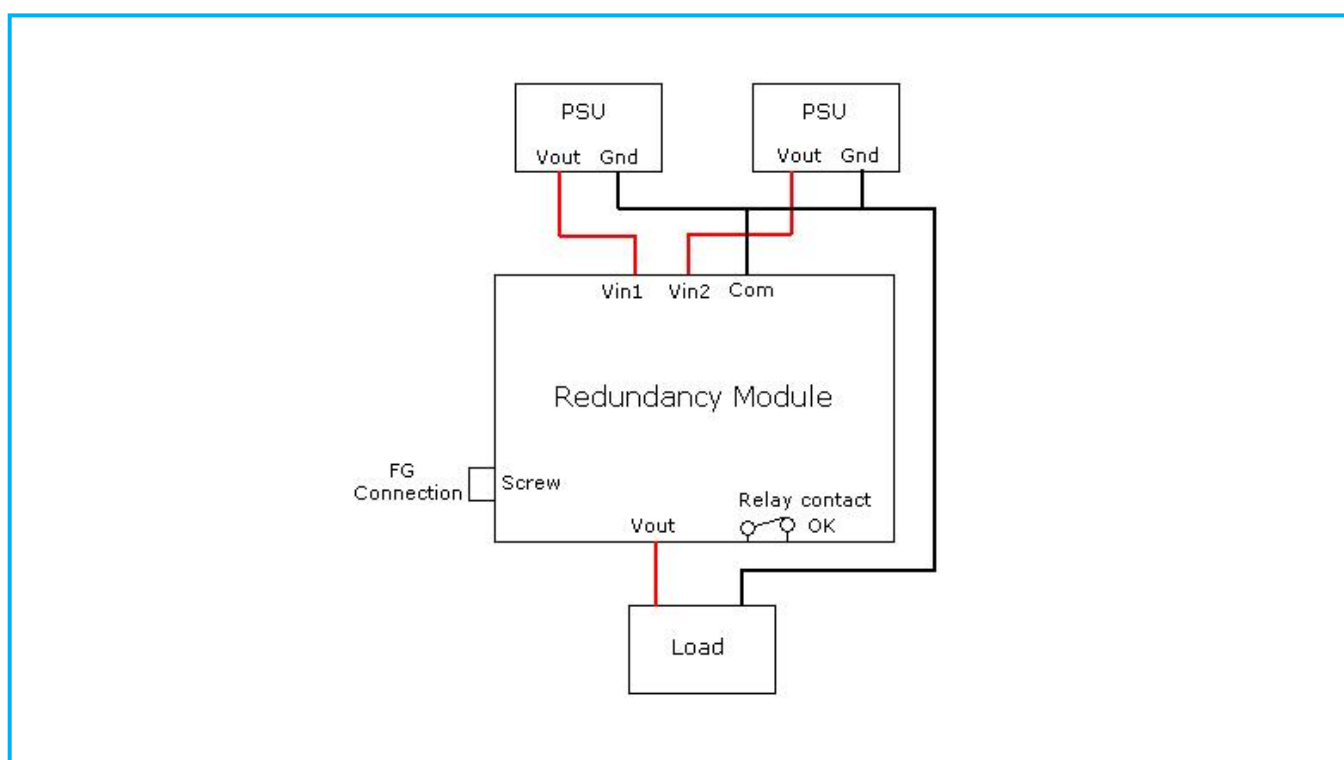


Fig.3 Single Use



Redundant Operation:

When 2 Power Supplies are connected in parallel, the Power Supply with the higher output voltage will take the maximum load while the other will operate in standby mode (at no load). In case the first Power Supply fails, the second will take over the load and supplies the required power to the end system.

Redundancy Module wiring diagram

Parallel Operation:

When 2 Power Supplies are connected in parallel, they can share the load if the following steps are taken.

Step 1:

Measure the output voltages at no load from A1 to Ground i.e. VA1 to Ground of PSU1 and VA2 to Ground of PSU2. If the voltages are not the same, follow Step 2. If they are the same, skip to Step 3.

Step 2:

Adjust the output voltages, with the help of VR on the Power Supply front panel marked as ADJUST, to the same level. For e.g. if PSU1 is measuring 24.15Vdc and PSU2 is measuring 24.25Vdc, adjust the output voltage of one to be the same as the other.

Step 3:

Connect the Power Supply to the end system load and measure the output voltages from A1 to Ground i.e. VA1 to Ground of PSU1 and VA2 to Ground of PSU2. Ensure that the output voltages are the same even after the 2 Power Supplies are connected to load. If not, adjust them with the VR available on the front panel. A tolerance of +/-25mV would be acceptable.

Note:

1. If the output voltage of any Power Supply is higher, it will take the initial load and share the maximum load.
2. If the output voltages are the same, then an equal load current sharing between the 2 Power Supplies can be achieved.