



E-Star Power Development Co., Ltd. (E-STAR)

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## 20A Din Rail power supply < DRDN20



### ■ Features

- Support 1+1 and N+1 redundancy system
- 2 channels input and 1 output
- Suitable for redundancy operation of 12V/24V/48V system
- Output current up to 20A
- Cooling by free air convection
- -40~+80°C ultra-wide operating temperature (>+60°C derating)
- 32mm slim width
- Built-in 2 channels DC OK signal and alarm relay contact
- Installed on DIN Rail TS35/7.5 or 15
- 3 years warranty

### ■ Applications

- Industrial control system
- Semiconductor fabrication equipment
- Factory automation
- Electro-mechanical apparatus

### ■ Description

The DRDN20 series is a 20A redundancy module that can be used with a power supply to improve overall system operation reliability. Product key features include: 12V/24V/48V input voltage for selection, support N+1 and 1+1 redundancy systems, built-in two rails DC input contacts and single output. The MOSFET technology implemented can reduce heat loss and reduce the voltage difference between the input and output voltages, built-in 2 channels DC OK relay contacts for monitoring output status, ultra-wide operating temperature of -40 to +80°C and narrow width (32mm).

### ■ Model Encoding

DRDN20 - 24





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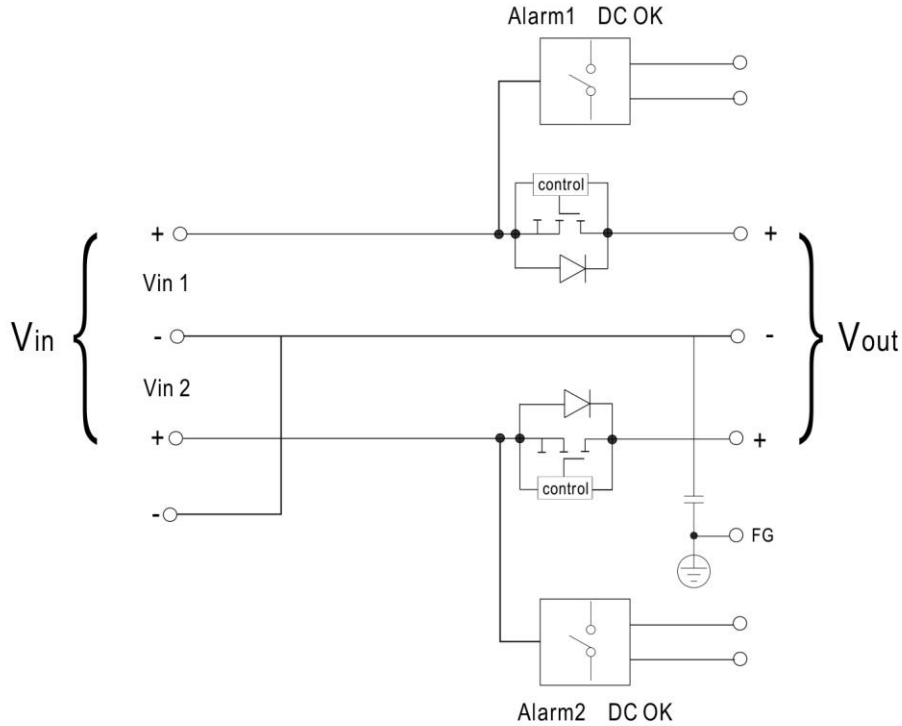
**SPECIFICATION**

<b>MODEL</b>		DRDN20-□			
		□ =12V, 24V, 48V			
<b>INPUT</b>	NUMBER OF INPUT	2 Channels			
	DC NORMAL VOLTAGE	12Vdc	24Vdc	48Vdc	
	DC VOLTAGE RANGE	9~14Vdc	19~29Vdc	36~60Vdc	
	RATED CURRENT	0~20A per input Continuous			
	VOLTAGE DROP (Vin-Vout) (max.)	0.25V			
	PEAK CURRENT	0~30A per input 5Sec.			
	EFFICIENCY (Typ.)	98%			
	INPUT REVERSE CURRENT (max.)	1mA			
<b>OUTPUT</b>	INPUT REVERSE VOLTAGE (max.)	40Vdc	40Vdc	65Vdc	
	RATED CURRENT	0~20A, Continuous			
	PEAK CURRENT (max.)	30A, 5Sec.			
	CAPACITANCE(Typ.)	320uF			
<b>PROTECTION</b>	STANDBY POWER LOSSES(Typ.)	1.5W			
	OVERLOAD	<30A,5Sec. No damage			
<b>FUNCTION</b>	SHORT CIRCUIT	<30A,5Sec. No damage			
	REDUNDANCY	For 1+1 redundancy ,and support N+1 redundancy			
	BOTH INPUTS VOLTAGE ALARM	<8.5V or >14.7V (±5%)	<18V or >31V (±5%)	<34.2V or >63V (±5%)	
	RELAY	30Vdc/1A resistive load			
<b>ENVIRONMENT</b>	LED STATUS DISPLAY	Green LED OK			
	COOLING	Free air convection			
	WORKING TEMP. <small>Note.2</small>	-40 ~ +80°C (Refer to "Derating Curve")			
	WORKING HUMIDITY	5 ~ 95% RH non-condensing			
	STORAGE TEMP.	-40 ~ +85°C			
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 60°C )			
<b>SAFETY &amp; EMC (Note.4)</b>	VIBRATION	Component:10 ~ 500Hz, 5G 10min./1cycle, 60min. each along X, Y, Z axes; Mounting: Compliance to IEC61373			
	OPERATING ALTITUDE <small>Note.3</small>	5000 meters/OVC II			
	SAFETY STANDARDS	IEC62368-1, UL62368-1, EAC TP TC 004 approved			
	WITHSTAND VOLTAGE	IP/OP - Chassis : 0.5KVac ; IP/OP- Relay : 0.5KVac ; Relay - Chassis : 0.5KVac			
	ISOLATION RESISTANCE	IP/OP - Chassis, IP/OP- Relay, Relay - Chassis:>100M Ohms / 500Vdc / 25°C / 70% RH			
	<b>EMC EMISSION</b>	<b>Parameter</b>			
		Conducted	Standard		Test Level / Note
		Radiated	EN55032(CISPR32)		Class B
		Voltage Flicker	-----		-----
		Harmonic Current	-----		-----
<b>EMC IMMUNITY</b>	EN55035, EN61000-6-2(EN50082-2), EN55024				
	<b>Parameter</b>				
	ESD	Standard		Test Level / Note	
	Radiated	EN61000-4-3		Level 3, 10V/m ; criteria A	
	EFT / Burst	EN61000-4-4		Level 3, 2KV ; criteria A	
	Surge	EN61000-4-5		Level 3, 1KV/Line-Line ;Level 3, 2KV/Line-Line-Chassis ;criteria A	
	Conducted	EN61000-4-6		Level 3, 10V ; criteria A	
	Magnetic Field	EN61000-4-8		Level 4, 30A/m ; criteria A	
<b>OTHERS</b>	MTBF	611.82K hrs min. Telcordia SR-332 (Bellcore) ; 353.67K hrs min. MIL-HDBK-217F (25°C)			
	DIMENSION	32*125.2*102mm (W*H*D)			
	PACKING	0.35Kg;28psc/10.8Kg/1.24CUFT			
<b>NOTE</b>	<p>1. All parameters NOT specially mentioned are measured at normal input (12V/24V/48V), rated load and 25°C of ambient temperature.</p> <p>2. Derating may be needed over high ambient temperature. Please check the derating curve for more details.</p> <p>3. The ambient temperature derating of 3.5°C/1000m with fanless models and of 5°C/1000m with fan models for operating altitude higher than 2000m(6500ft).</p> <p>4. The power supply is considered as an independent unit, but the final equipment still need to re-confirm that the whole system complies with the EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies."</p>				



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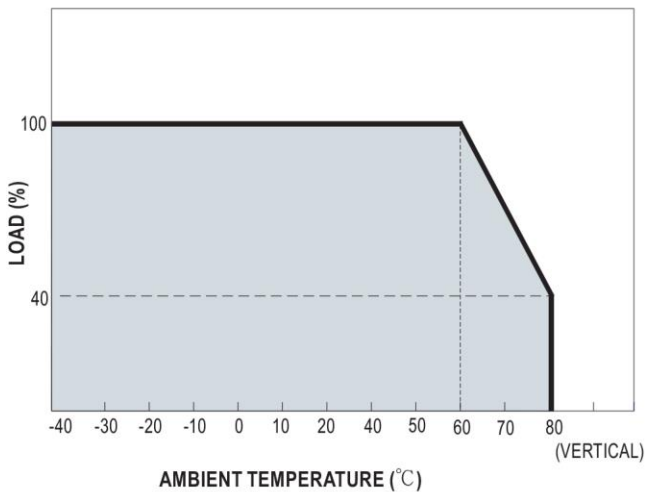
**Block Diagram**



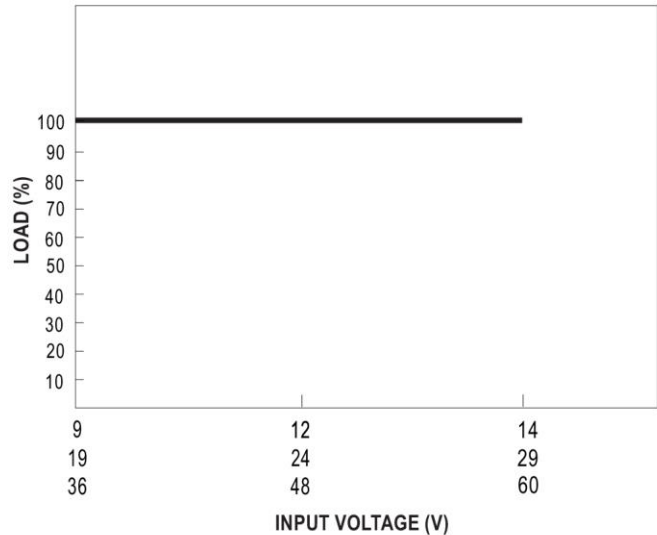
**DC OK Relay Contact**

Contact Ratings (max.)	30V/1A resistive load
Contact Close(DC OK)	PSU turns on
Contact Open(DC Fail)	PSU turns off / over or under input voltage

**Derating Curve**



**Output Derating VS Input Voltage**

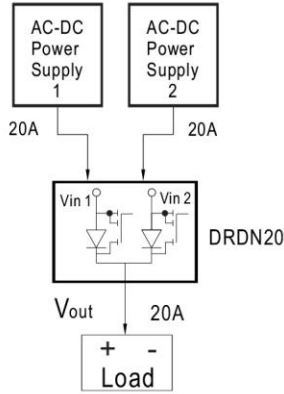


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**Typical Application Notes**

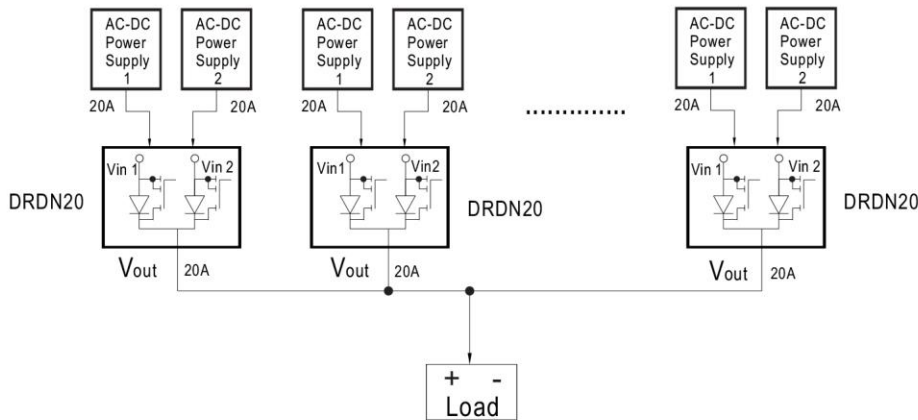
**1. 1+1 Redundancy:**

Using 1 more PSU as the redundant unit



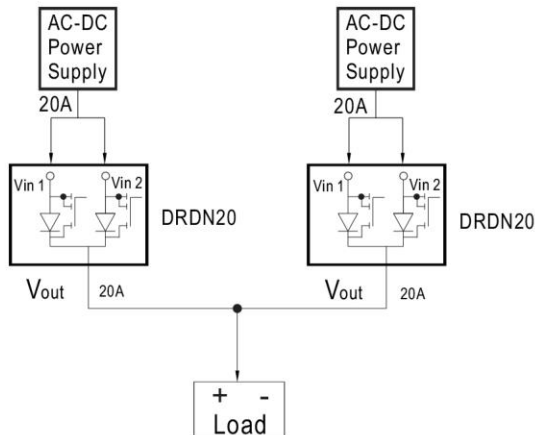
**2. 1+N Redundancy:**

Using more PSUs as the redundant units to increase the reliability



**3. Single Use:**

Connecting only one PSU to one DRDN20 to reduce the stress of the MOSFET and hence increase the reliability





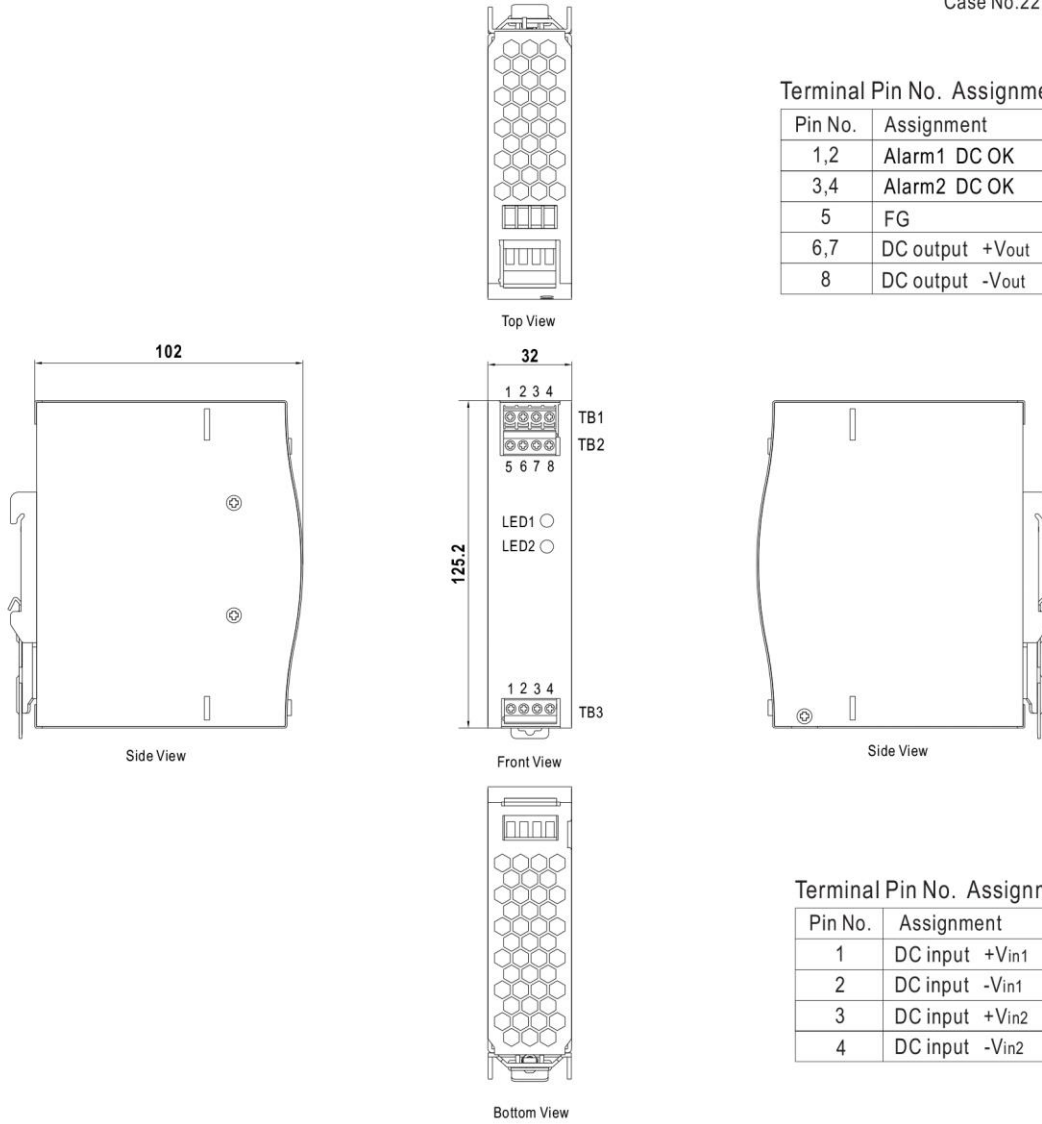
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**■ Mechanical Specification**

Case No.221D Unit:mm

Terminal Pin No. Assignment (TB1,TB2)

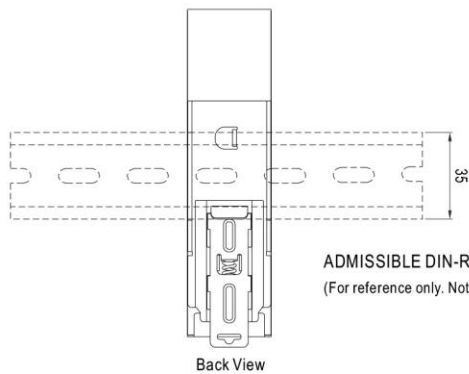
Pin No.	Assignment
1,2	Alarm1 DC OK
3,4	Alarm2 DC OK
5	FG
6,7	DC output +Vout
8	DC output -Vout



Terminal Pin No. Assignment (TB3)

Pin No.	Assignment
1	DC input +Vin1
2	DC input -Vin1
3	DC input +Vin2
4	DC input -Vin2

**■ Installation Instruction**



ADMISSIBLE DIN-RAIL: TS35/7.5 OR TS35/15  
 (For reference only. Not included with unit.)

This series fits DIN rail TS35/7.5 or TS35/15.  
 For installation details, please refer to the Instruction manual.