



FEATURES

- Input voltage range: 22 - 60VDC
- Operating ambient temperature range: -40°C to +80°C
- High efficiency up to 97%
- 1500VAC insulation voltage
- Two input status indicators, relay contact signal output
- DC OK function
- Operating altitude up to 5000m
- Supporting for N+1 parallel redundancy
- EN62368 safety approved, safety according to IEC/UL62368, EN61558, EN60335

LIR-20 is one of Mornsun Din-rail parallel redundancy module. It features wide input voltage range, wide operating temperature, cost-effective, high efficiency and high reliability. It offers excellent EMC performance and meet IEC/EN61000-4, CISPR32/EN55032, IEC/EN/UL62368, EN61558, EN60335 standards and it is widely used in areas of industrial, electricity, security, telecommunications etc.

Selection Guide

Certification	Part No.	Voltage Drop Vin-Vo (V/Typ.)	Nominal Output Current (A)	Efficiency (24/48VDC, %/Typ.)
CE	LIR-20	0.65	20	97

Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Input Voltage Range	DC input	22	24/48	60	VDC
Input Current Range	The sum of the two input currents is not more than 20A, input current rating of 10A per channel.	--	--	20	A
Input Under-voltage Alarm*	One input 24V, test another input voltage when triggers the under-voltage alarm (one LED turns off, the relay changes from on to off)	--	18	--	VDC
	One input 48V, test another input voltage when triggers the under-voltage alarm (one LED turns off, the relay changes from on to off)	--	36	--	
Input Over-voltage Alarm*	One input 24V, test another input voltage when triggers the over-voltage alarm (one LED turns off, the relay changes from on to off)	--	32	--	
	One input 48V, test another input voltage when triggers the over-voltage alarm (one LED turns off, the relay changes from on to off)	--	64	--	
Hot Plug		Unavailable			

Note: *LED state: Vin1 triggers the under-voltage alarm, Vin1 LED turns off, Vin2 LED turns on; Vin1 triggers the over-voltage alarm, Vin1 LED turns on, Vin2 LED turns off.

Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	--	200	--	mV
DC OK Function	When the two input voltages are normal and the voltage difference does not exceed the over-voltage or under-voltage alarm, the DC OK function is normal (the relay on), the two input LED indicators light on	--	--	--	--
Output Power	24V/20A	--	480	--	W
	48V/20A	--	960	--	

Note: *The "Tip and barrel method" is used for ripple and noise test, output parallel 47uF electrolytic capacitor and 0.1uF ceramic capacitor, please refer to AC-DC Converter Application Notes for specific information.

General Specifications

Item	Operating Conditions		Min.	Typ.	Max.	Unit
Isolation Test	Input output - \perp	Electric strength test for 1min., leakage current < 2mA	1500	--	--	VAC
Insulation Resistance	Input output - \perp	At 500VDC	50	--	--	MΩ
Operating Temperature			-40	--	+80	°C
Storage Temperature			-40	--	+85	
Storage Humidity	Non-condensing		--	--	95	%RH
Power Derating	Operating temperature derating	+60°C to +80°C	2.25	--	--	%/°C
Safety Standard			Meet IEC/EN/UL62368/EN61558/EN60335			
Safety Certification			EN62368			
Safety Class			CLASS I			
MTBF	MIL-HDBK-217F@25°C		> 1000,000 h			

Mechanical Specifications

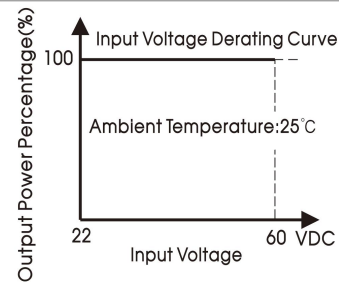
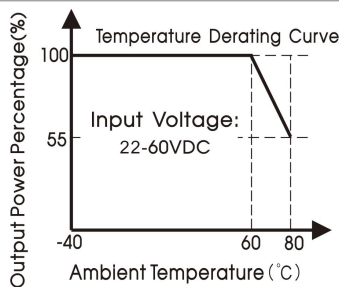
Case Material	Metal (AL1100, SGCC)
Dimensions	35.00 x 125.00 x 112.70 mm
Weight	365g (Typ.)
Cooling Method	Natural air cooling

Electromagnetic Compatibility (EMC)

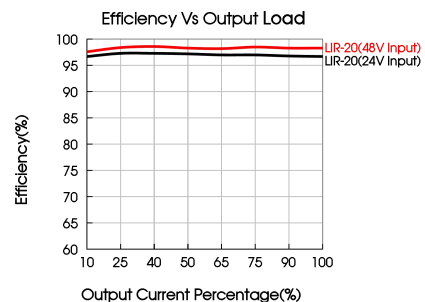
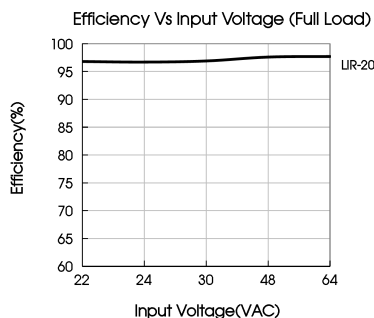
Emissions	CE	CISPR32/EN55032	CLASS B	
	RE	CISPR32/EN55032	CLASS B	
Immunity*	ESD	IEC/EN 61000-4-2	Contact ±8KV/Air ±15KV	Perf. Criteria A
	RS	IEC/EN 61000-4-3	10V/m	perf. Criteria A
	EFT	IEC/EN 61000-4-4	±2KV	perf. Criteria A
	Surge	IEC/EN 61000-4-5	line to line ±1KV/line to ground ±2KV	perf. Criteria A
	CS	IEC/EN61000-4-6	10 Vr.m.s	perf. Criteria A

Note: *For immunity test, please add AC-DC module at front of LIR-20 (Mornsun LI120/240/480 series products are recommended).

Product Characteristic Curve



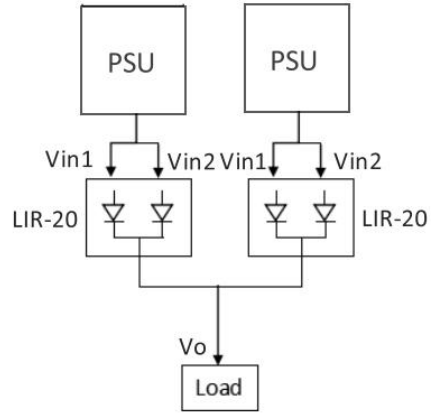
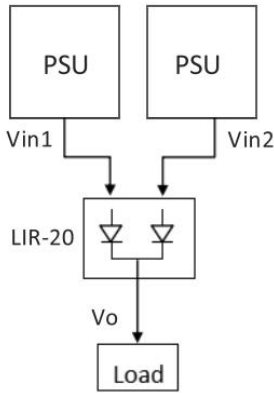
Note: This product is suitable for applications using natural air cooling, for applications in closed environment please consult Mornsun FAE.



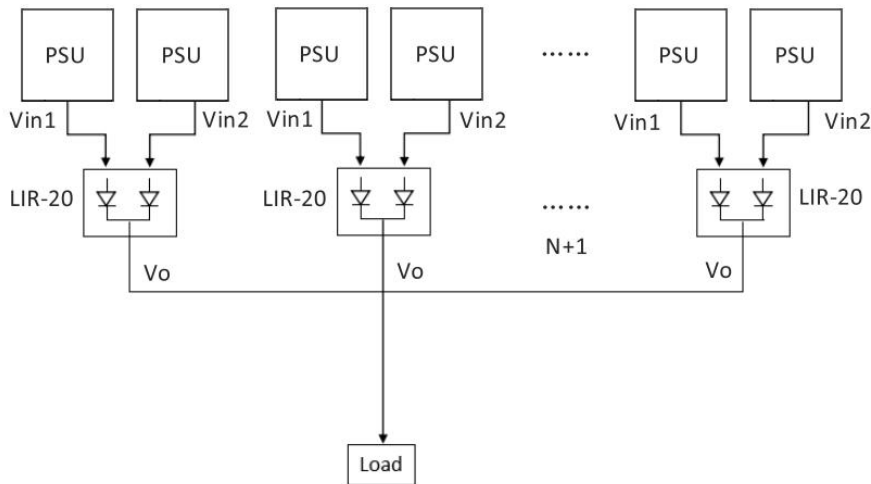
Typical Application

1. 1+1 Redundancy: Using 1 more PSU as the redundant unit.

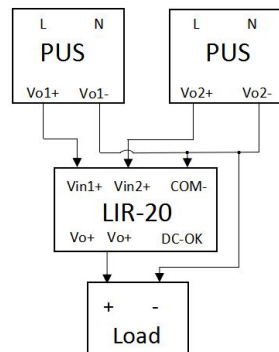
2. Single Use: Connecting only one PSU to one LIR-20 module to reduce the stress of the diodes and hence increase the reliability.



3. N+1 Redundancy: Using more PSUs as the redundant units to increase the reliability.



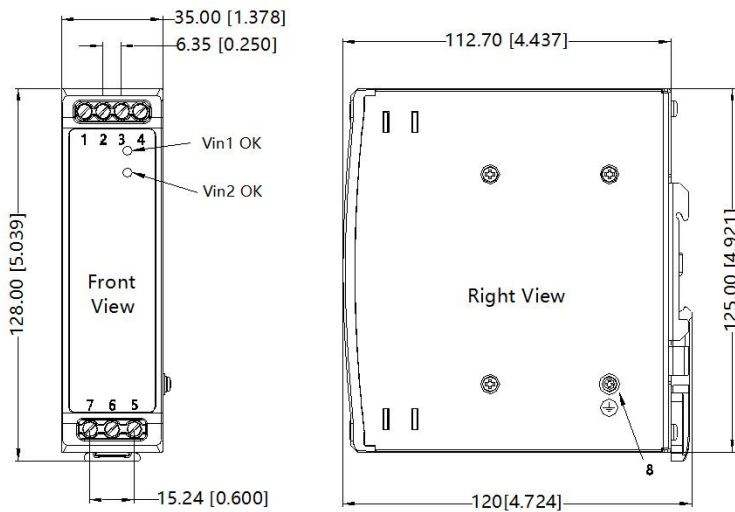
4. Refer to the wiring



- Note:
1. Please add AC-DC module at front of LIR-20 (Mornsun LI120/240/480 series products are recommended);
 2. When the output is short circuited, the pre-stage AC-DC module short circuit protection will be triggered;
 3. This product cannot be used in parallel to increase power.

Dimensions and Recommended Layout

THIRD ANGLE PROJECTION 



Pin-Out	
Pin	Function
1	DC_OK
2	DC_OK
3	+Vo
4	+Vo
5	Vin1
6	Vin2
7	COM
8	

Note:
 Unit: mm[inch]
 Wire range: 26-10 AWG
 Tightening torque: Max 0.4 N·m
 Mounting rail: TS35, rail needs to connect safety ground
 General tolerances: ±1.00[±0.039]

- Note:
1. For additional information on Product Packaging please refer to www.mornsun-power.com. Packaging bag number: 58220028;
 2. Unless otherwise specified, parameters in this datasheet were measured under the conditions of Ta=25°C, humidity<75% RH with nominal input voltage and rated output load;
 3. The ambient temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
 4. All index testing methods in this datasheet are based on our company corporate standards;
 5. In order to improve the efficiency at high input voltage, there will be audible noise generated, but it does not affect product performance and reliability;
 6. We can provide product customization service, please contact our technicians directly for specific information;
 7. Products are related to laws and regulations: see "Features" and "EMC";
 8. Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units.

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