



## FEATURES

- Input voltage range: 23 - 30VDC
- Operating ambient temperature range: -40°C to +85°C
- 22Vdc fixed mode or Vin-1 dynamic mode
- 400ms (typ) High buffer time at 22V/20A
- 2000VDC High insulation voltage
- Double side conformal coating
- Operating altitude up to 5000m
- Input anti-reverse connection ,Output over-voltage, over-load, short circuit protection
- OV3 (According to EN62477, 2000m)
- Supported parallel operation to extend buffer time
- Comply with IEC/EN/UL62368, UL61010, GB4943 certification standards

LIB20-24 is a regulated DC 24V power supply supplement, which can be used with 24V guide power supply in the power supply environment. This buffer module utilizes maintenance-free electrolytic capacitors to store energy, requiring no regular replacement as compared to batteries with shorter and more expensive life spans. The buffer module has comprehensive protection functions such as over-voltage, over-current, short circuit protection, etc. It can also increase the output current carrying capacity or holding time by parallel operation. Used with our guide rail series 240/480 and other series, the module has the advantages of wide input voltage range, wide operating temperature range, high cost performance, high efficiency and high reliability. Products are safe and reliable, EMC performance is good, EMC and safety specifications meet UL61010, IEC/EN/UL62368, GB4943 standards. Widely used in industrial control, power, security, communication and other fields.

## Selection Guide

Certification	Part No.	Output Voltage(V)	Output Current(A) Max.	Output Power(W)
--	LIB20-24	24	20	480

## Input Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Charging Voltage Range	DC input	23	24	30	VDC
Charging Current		--	--	900	mA
Standby consumption current		--	--	100	mA
Charging time			15	25	S

## Output Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit
Operating voltage mode	Select by mode switch	--	22/Vin-1	--	V
Operating voltage range		22	--	30	V
Output current		--	20	--	A
Ripple noise	20MHz bandwidth, peak-to-peak	--	--	150	mV
Buffer time	Output 22V/20A	250	400	--	mS
	Output 22V/10A	500	800	--	
	Output 22V/0.1A	30	50	--	S
Over-voltage protection		31-37.5V, Locked			Vdc
Over-load protection		≥120%Io, Locked ,Power off and restart			

Short-circuit protection		Lock protection, Power off and restart
Input reverse protection		No damage, self-healing
Switch selection	Fix 22Vdc	When the terminal voltage is lower than 22Vdc, start buffering
	Vin-1	When the terminal voltage drops by more than 1V, start buffering
Controls	Inhibit (I)	+Vs-V (I) <6V, buffer module on, +Vs-V (I) >10V, buffer module off (35Vdc /4mA Max)
Signal	Ready (R)	Fully charged: V (R) >Vs-2VDC, Not full: V (R) <1VDC (35Vdc /4mA Max)
	Buffering (B)	Buffering mode: V(B)>+Vs - 2Vdc; Other mode: V(B)<1Vdc (35Vdc /4mA Max)
	+VS supply	10~35VDC/10mA (Connect to +V or external voltage source)
LED	Fully charged	Remain lighting
	Discharged/protected	Light off
	Charging	1Hz flicker
	Buffering	10Hz flicker
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 Enclosed Switching Power Supply Application Notes for specific information.		

## General Specifications

Item	Operating Conditions	Min.	Typ.	Max.	Unit	
Isolation Test*	Input&Output - ⊕ Electric strength test for 1min., leakage current <5mA	2000	--	--	VDC	
Insulation Resistance	Input&Output - ⊕ Test voltage: 500VDC	50	--	--	MΩ	
Operating Temperature		-40	--	+85	°C	
Storage Temperature		-40	--	+85		
Storage Humidity	Non-condensing	--	--	90	%RH	
Power Derating	Operating temperature derating	-40°C to -25°C	2.67	--	--	% / °C
		+75°C to +85°C	2	--	--	
Safety Standard		Design refer to IEC/EN/UL62368-1, UL61010-1, GB4943.1				
Safety Class		CLASS I				
MTBF	MIL-HDBK-217F@25°C	> 1000,000 h				

## Environmental Characteristics

Item	Operating Conditions	Standard
High and Low Temperature Working	+85°C, -40°C	GB2423.1、IEC60068-2-1
Sinusoidal Vibration	10 - 500Hz, 2g, three directions of X, Y, Z axis	GB2423.10、IEC60068-2-6
Alternating Hot and Humid	+25°C, 95%RH - +60°C, 95%RH	GB2423.4、IEC60068-2-30
Low Temperature Storage	-40°C	GB2423.1、IEC60068-2-1
High Temperature Storage	+85°C	GB2423.2、IEC60068-2-2
High Temperature Aging	+60°C	GB2423.2、IEC60068-2-2
Normal Temperature Aging	+25°C	GB2423.1、IEC60068-2-1
Temperature Shock	-40°C to +85°C	GB2423.22、IEC60068-2-14
Temperature Cycle	-25°C to +60°C	GB2423.22、IEC60068-2-14
Hot and Humid	+85°C, 85%RH	GB2423.50、IEC60068-2-67
High Temperature Elevation	+60°C, 54KPa	GB2423.26、IEC60068-2-41
Low Temperature Elevation	-25°C, 54KPa	GB2423.25、IEC60068-2-40

Constant Humid and Hot	+40°C, 95%RH	GB2423.3、IEC60068-2-78
Random Vibration	5 - 10Hz, ASD 0.3 - 10g <sup>2</sup> /Hz, three directions of X, Y, Z axis	GB/T 4798.2-2008、IEC60721-3-2
Sinusoidal Vibration Response	10 - 150Hz, 2g, three directions of X, Y, Z axis	GB/T 11287-2000、IEC60255-21-1
Sinusoidal Vibration Endurance Test		
Sinusoidal Impulse Response	15g, pulse duration 11ms, three times in each direction of X, Y, Z axis	GB/T 114537-1993、IEC60255-21-2
Sinusoidal Impact Endurance Test		
Packaging Drop	1m, one corner, three edges and six sides	GB2423.8、IEC68-2-32

### Mechanical Specifications

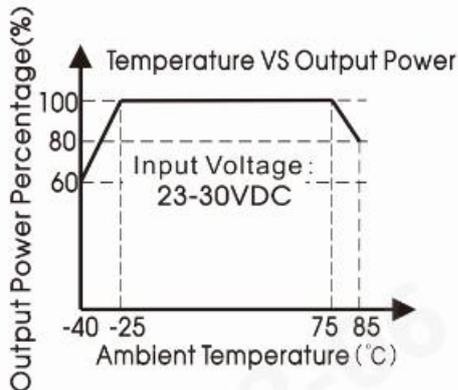
Case Material	Metal(AL5052, SGCC)
Dimensions	114.30mm x 63.00mm x 125.00mm
Weight	910g (Typ.)
Cooling Method	Air cooling

### Electromagnetic Compatibility (EMC)

Emissions	CE (Test Conditions 24V/20A)	CISPR32/EN55032	CLASS B	
	RE (Test Conditions 24V/20A)	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

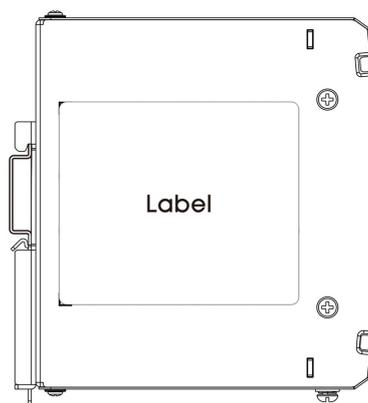
NOTE: ELECTROMAGNETIC INTERFERENCE (EMC) AND ELECTROMAGNETIC SENSITIVITY (EMS) TEST: THE FRONT STAGE PLUS AC-DC MODULE (RECOMMENDED TO USE WITH OUR LI, LIF, LIMF, LIH480 SERIES PRODUCTS).

### Product Characteristic Curve



Note: This product is suitable for use in natural air cooling environment, if used in a closed environment, please consult our FAE.

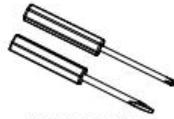
### Installation Diagram



Bill Of Material	
1	Product
2	Phillips screwdriver Slotted screwdriver
3	TS35/7.5 or TS35/15
4	24-10AWG wires
All above is only for reference ,the actual wiring diameter and locking torque refer to the appearance size diagram	



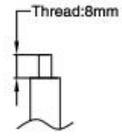
Product



Phillips screwdriver  
Slotted screwdriver  
Diameter of the cutting tools: M3



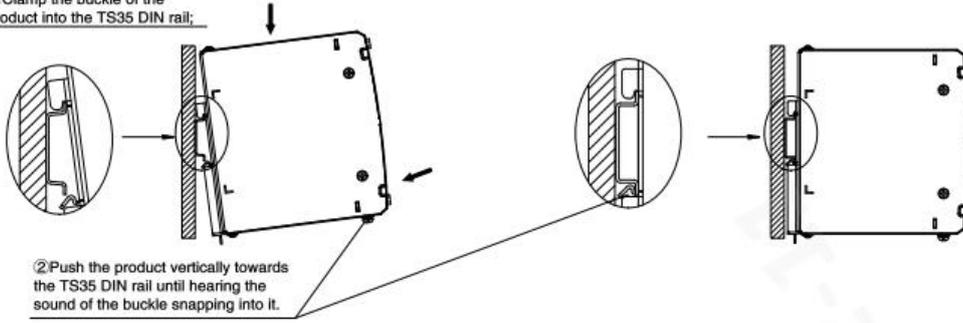
TS35/7.5 or TS35/15



24-10AWG wires

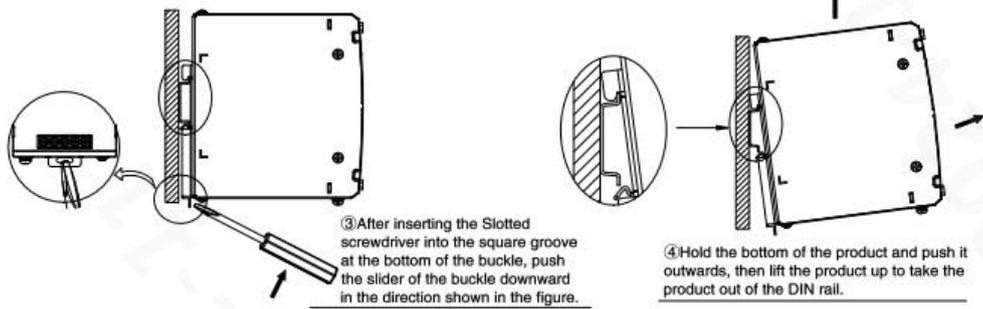
Installation procedure ①-②

① Clamp the buckle of the product into the TS35 DIN rail;



② Push the product vertically towards the TS35 DIN rail until hearing the sound of the buckle snapping into it.

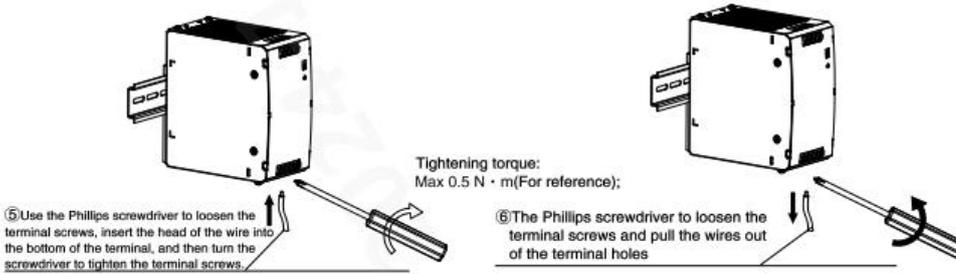
Remove the step ③-④



③ After inserting the Slotted screwdriver into the square groove at the bottom of the buckle, push the slider of the buckle downward in the direction shown in the figure.

④ Hold the bottom of the product and push it outwards, then lift the product up to take the product out of the DIN rail.

Procedure for connect/remove steps ⑤-⑥



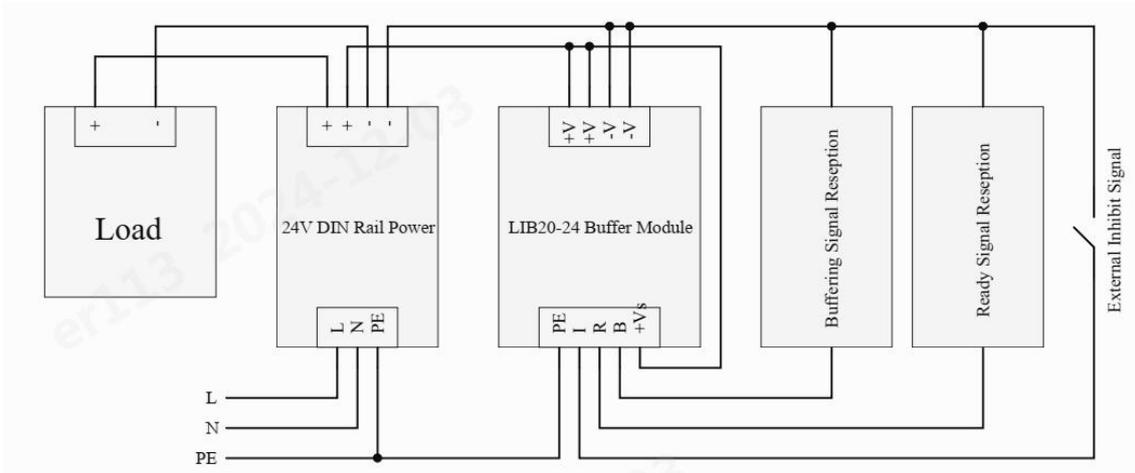
Tightening torque:  
Max 0.5 N · m(For reference);

⑤ Use the Phillips screwdriver to loosen the terminal screws, insert the head of the wire into the bottom of the terminal, and then turn the screwdriver to tighten the terminal screws.

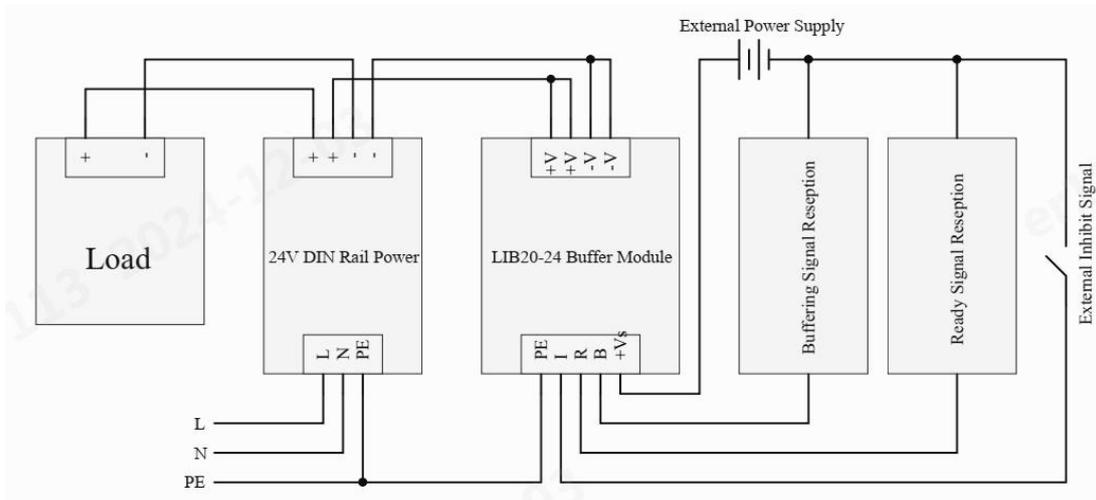
⑥ The Phillips screwdriver to loosen the terminal screws and pull the wires out of the terminal holes

## Application Diagram

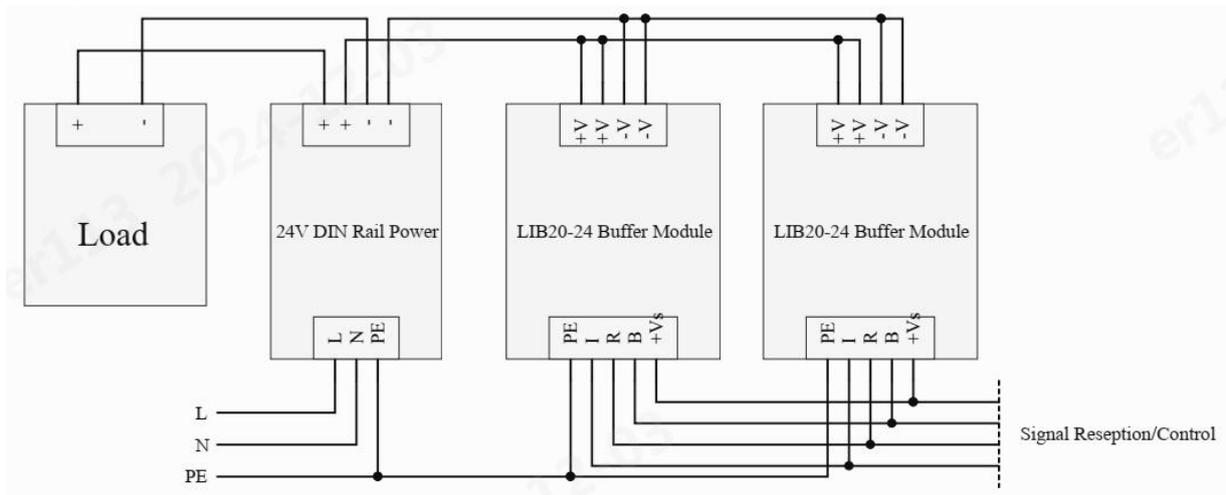
● General application



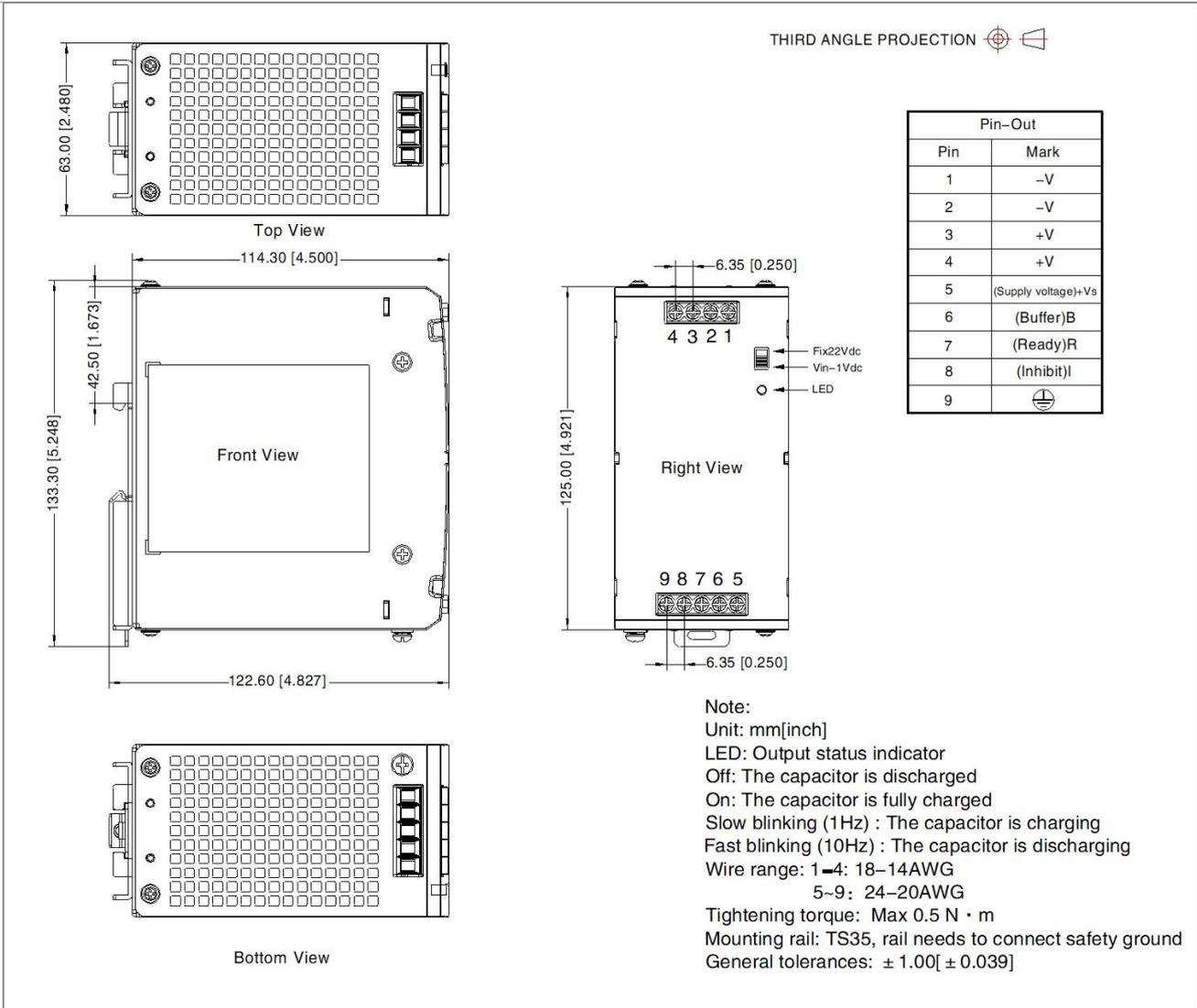
● Signal provided by an external power source



● Parallel operation



Dimensions and Recommended Layout



Note:

- For additional information on Product Packaging please refer to [www.mornsun-power.com](http://www.mornsun-power.com). Packaging bag number: 58220789;
- 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;
- The room temperature derating of 5°C/1000m is needed for operating altitude greater than 2000m;
- All index testing methods in this datasheet are based on our company corporate standards;
- 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;
- We can provide product customization service, please contact our technicians directly for specific information;
- Products are related to laws and regulations: see "Features" and "EMC";
- The out case needs to be connected to PE () of system when the terminal equipment in operating;
- Our products shall be classified according to ISO14001 and related environmental laws and regulations, and shall be handled by qualified units;
- The power supply is considered a component which will be installed into a terminal equipment. All EMC tests should be confirmed with the final equipment. Please consult our FAE for EMC test operation instructions.

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