

2240W 双向 AC/DC 电源模块

产品特点

- ◆ 全数字控制电源
- ◆ 整流-并网逆变能量双向流动
- ◆ 模块化设计，支持并联扩容
- ◆ 双方向高效率
- ◆ 双方向高功率因数，低谐波电流
- ◆ 正反向自主判断
- ◆ 正反向快速切换
- ◆ 数字通信接口，完善的远程控制和信号上报功能
- ◆ 6kV 浪涌保护能力
- ◆ 10kA 防雷能力
- ◆ 良好的电磁兼容性，满足 EN55022 等国际标准
- ◆ 5000 米海拔高度设计
- ◆ 高温高湿环境设计
- ◆ 支持 BootLoader，维护方便
- ◆ 完善的故障保护功能
- ◆ 已通过 CE 认证，可通过 UL、TUV、CCC 认证



主要市场和应用：分容/储能等领域



气性能指标（AC/DC 正向工作）

类别	指标名称	参数
输入特性	输入电压范围	176-264 Vac
	输入电压频率	50/60 ± 3Hz
	启动冲击电流	<11A
	输入电流	<11A @230Vac
	功率因数	>0.99 @230Vac, 满载
	电流谐波	<3% @230Vac, 满载
输出特性	输出电压	14Vdc
	输出电流	160A MAX
	最大输出功率	2240W
	整流效率	89%Max
	稳压精度（含初始精度、源调整率、负载调整率）	±0.5%
	温度系数	±0.02% / °C
	工频纹波	<100mV

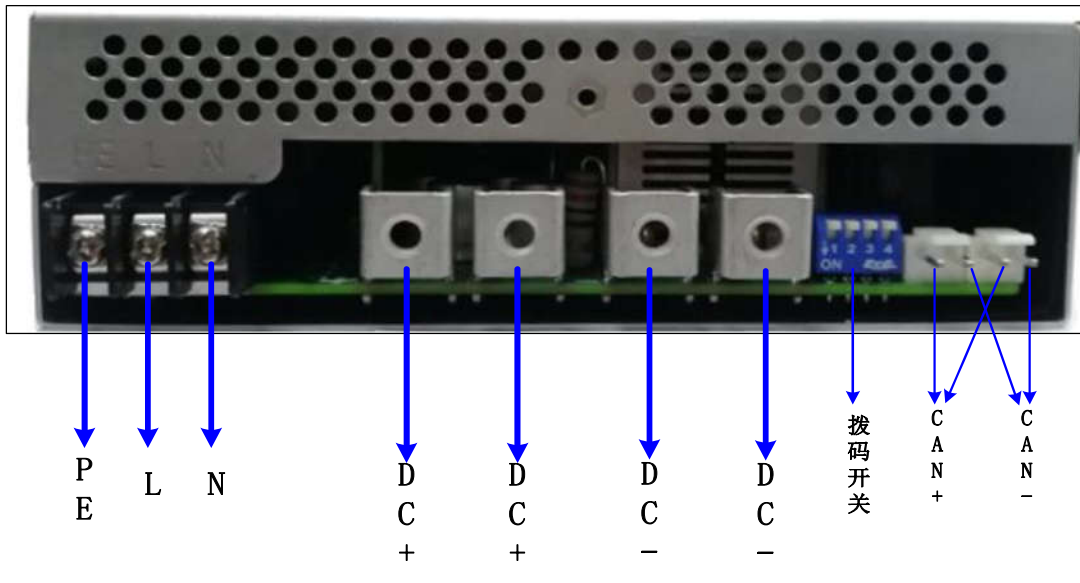
电气性能指标 (DC/AC 反向工作)		
类别	指标名称	参数
输入特性	输入电压稳压点	15Vdc
	输入电流	110A MAX
	最大输入功率	1650W
输出特性	并网电压范围	176-264 Vac
	并网电压频率	50/60 ± 3Hz
	并网电流	<8A @230Vac
	并网功率因数	>0.99 @230Vac, 满载
	并网电流谐波	<3% @230VAC, 满载
	效率	89%Max

其他电气指标		
类别	指标名称	参数
正反向切换	直流侧切换点	14.6V
	切换速度	50us
对外通信	通信接口	CAN 总线
	上报信号	正反向信息
		各种保护信息
		电压电流信息
接收信号	开关机信号	

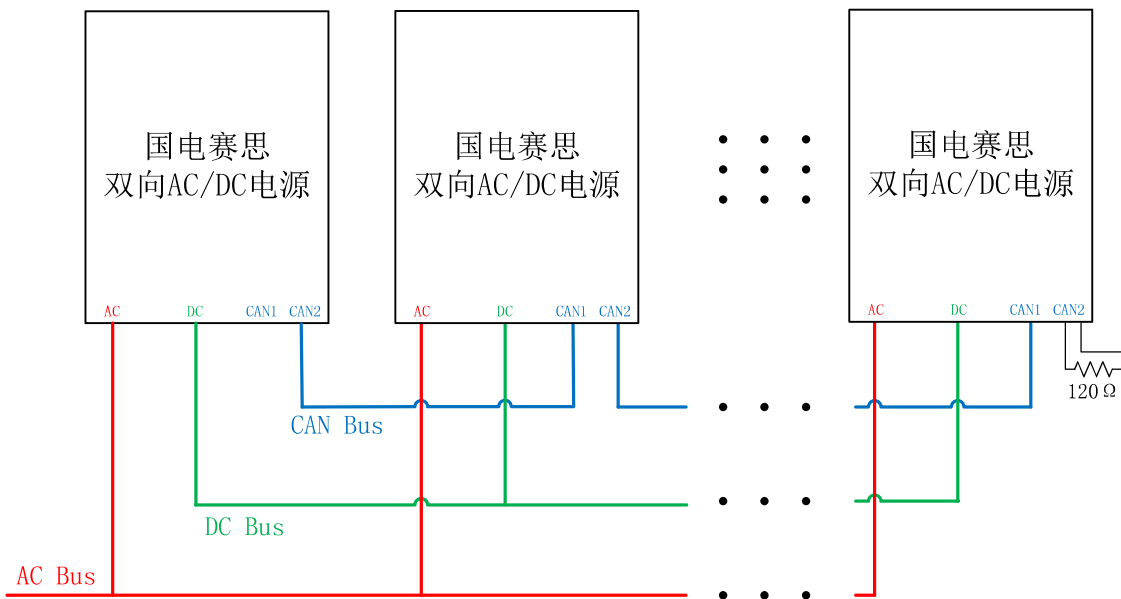
其他相关指标		
类别	指标名称	参数
工作环境	工作温度	-10℃ ~ 45℃
	储存温度	-40℃ ~ 70℃
	相对湿度	5% ~ 95%
	海拔高度	5000 米
	MTBF 预计	>250k 小时, 35℃, 满载
	引用标准	Telcordia SR_332
保护功能	孤岛保护	有
	交流侧欠压保护	<170Vac; 保护模式: 可恢复
	交流侧过压保护	>270Vac; 保护模式: : 可恢复

	直流侧限流	正向限流点：161A；保护模式：恒流 反向限流点：111A；保护模式：恒流
	直流侧短路保护	保护模式：可恢复
	风扇故障保护	保护模式：可恢复（关机前 3 秒可查询保护状态）
	过温保护	保护模式：可恢复（关机前 3 秒可查询保护状态）
其它功能	风扇调速	有
	并联功能	有（需通过四位拨码设置地址）
	并联后直流侧不均流度	<5%
	指示灯状态	故障：红色 AC/DC 正向工作：蓝色 DC/AC 反向工作：绿色
电磁兼容性	传导干扰	EN55022 Class A
	辐射干扰	EN55022 Class A
	电流谐波	EN61000-3-2, A 类设备
	电压波动及闪烁	EN61000-3-2, A 类设备
	浪涌	共模：6kV；差模：6kV
	电快速瞬变脉冲群	YD/T1082, 2kV
	雷击	共模：10KA；差模：10KA
	输入电压暂降、中断与缓变	EN61000-4-11, ETSI EN 301 489
	静电放电抗干扰性	EN61000-4-2, 空气放电 8kV, 接触放电 6kV
	传导抗扰性	EN61000-4-6, EN 55024, ETSI EN 300 386, 3V
	辐射抗扰性	EN61000-4-3, ETSI EN 300 386, 80M~800MHz 3V/m, 800M~960MHz 10V/m, 960M~1GHz 3V/m, 1.4G~2GHz 10V/m, 2G~2.7GHz 3V/m, 80% AM
外形尺寸		333×141.4×45mm
端子螺钉最大扭矩(lbf.in)		交流端子（M3）：7 直流端子（M5）：13

产品外观及接口图



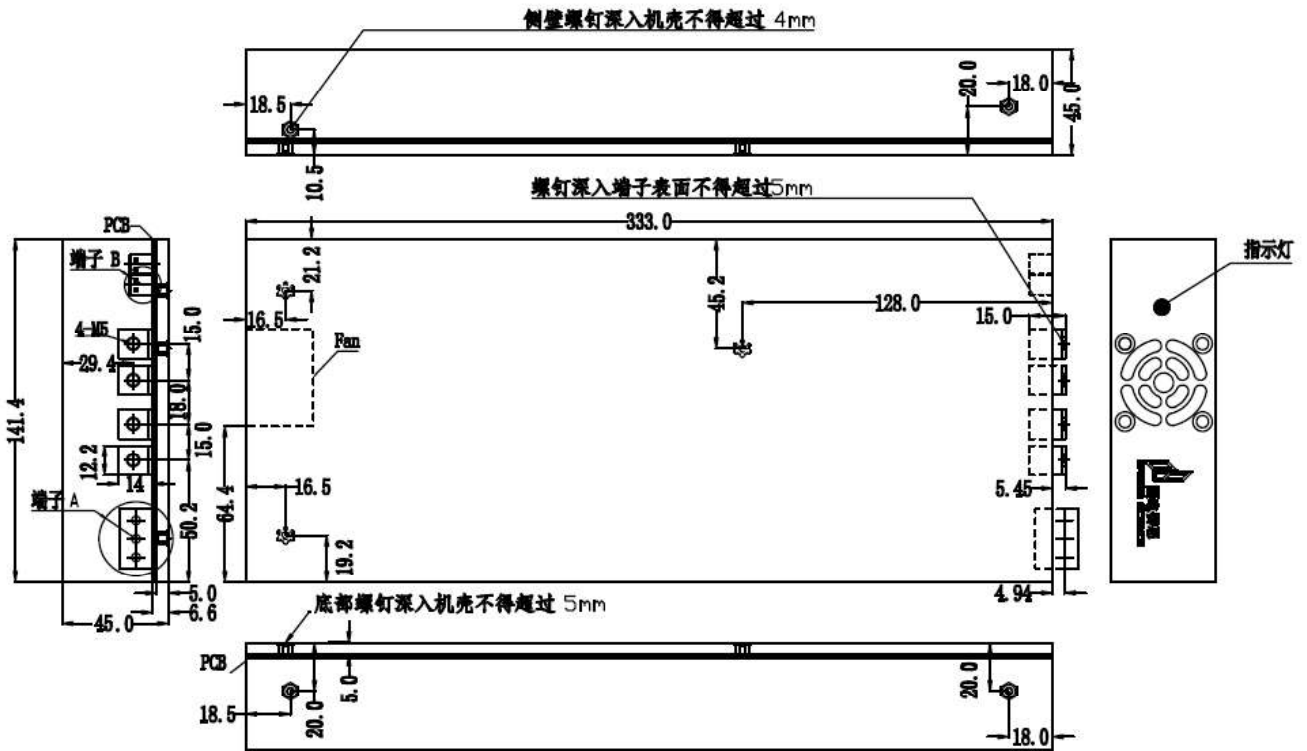
产品并联使用接线及说明



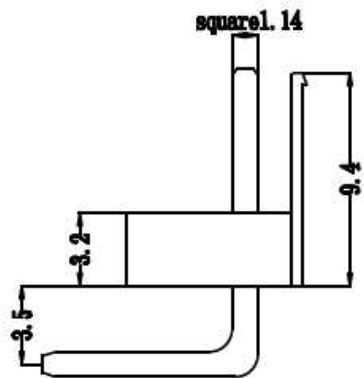
端口	连接方式	说明
AC 侧	市电交流 AC 侧进行并联，接入电网	L: 火线; N: 零线; PE: 地线
DC 侧	直流 DC 侧并联，构成直流母线	DC+: 直流电压正极; DC-: 直流电压负极
CAN 通信	CAN 通讯之间进行级联，同时在任意一组 CAN+ 与 CAN- 间接入 120Ω 电阻	CAN+: CAN 通讯高电平; CAN-: CAN 通讯低电平
拨码开关	并联使用时，每台电源的拨码开关地址设置需不同	拨码开关由 4 位组成，采用 BCD 码定义模式，可形成 0~15 共 16 种地址。

产品使用注意事项		
	应用环境问题	建议
维护注意事项	灰尘积累阻挡风道/风扇	增加系统防尘网并定期清理
	酸性/硫化/潮湿环境腐蚀线路	设备尽可能远离恶劣环境，尤其是含有酸性气体、硫化气体等空间场所。
	系统散热设计不良/热风回流	进行系统热仿真，选择合适的系统散热风扇，合理设计风道，避免热风回流。
DC/DC 过压保护点设置	客户系统 DC/DC 端需设置合理的反向工作动态过压保护点，过压保护点设定值应小于 18Vdc	

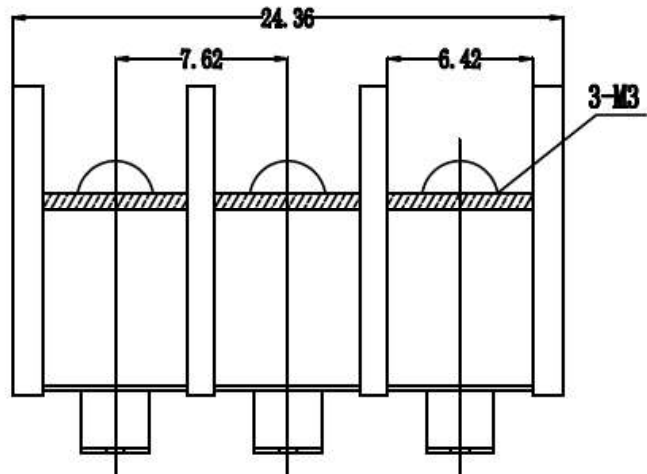
产品外形及装配尺寸图:



端子 B:P101-02R
脚间距 3.96mm



端子 A:



2240W Bidirectional AC/DC Converter

Main features

- ◆ Digital control
- ◆ Rectifier and grid connected inverter
- ◆ Operate in parallel is available
- ◆ High efficiency
- ◆ High power factor, and low harmonic current
- ◆ Automatic switch the energy direction
- ◆ Fast switch the energy direction
- ◆ Digital communication, perfect remote control and signal report
- ◆ 6kV surge protective capability
- ◆ 10kA lightning protective capability
- ◆ Good electromagnetic compatibility
- ◆ 5000 meter altitude applicability
- ◆ High temperature and high humidity applicability
- ◆ Perfect fault protective capability
- ◆ Satisfy the request of UL, TUV, CE, and CCC



Application

Energy bidirectional flow



Main electrical characteristic (AC to DC direction)

Type	Index	Rated
Input characteristic	Voltage Range	176-264 Vac
	Frequency Range	50/60 ± 3Hz
	Start-up Inrush Current	<11A @230Vac
	Input Current	<11A @230Vac
	Power Factor	>0.99 @230Vac, full load
	THDi	<3% @230Vac, full load
Output characteristic	Output Voltage	14V
	Output Current	160A MAX
	Maximum Output Power	2240W
	Efficiency	89% Max
	Precision of Voltage Regulation	±0.5%
	Temperature Coefficient	±0.02% / °C
	Power Frequency Ripple	<100mV

Main electrical characteristic (DC to AC direction)

Type	Index	Rated
Input characteristic	Input Voltage	15Vdc
	Input Current	110A MAX
	Maximum Input Power	1650W
Output characteristic	Voltage Range	176-264 Vac
	Frequency Range	50/60 ± 3Hz
	Output Current	<8A @230Vac
	Power Factor	>0.99 @230Vac, full load
	THDi	<3% @230Vac, full load
	Efficiency	89%Max

Other electrical characteristic

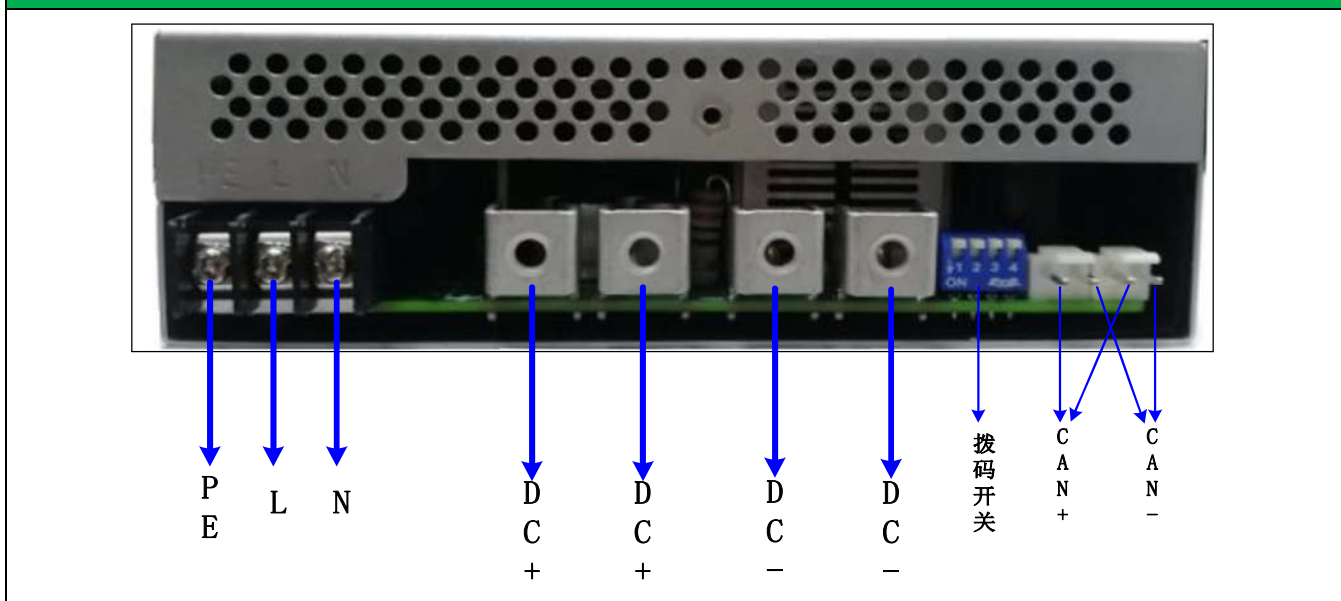
Type	Index	Rated
Direction Switch	Switch Point	14.6V
	Switch Speed	50us
Communication	Port	CAN
	Report Signal	Direction
		Alarm Signal
		Rotate speed of fan
Remote Control	Turn-on and turn-off	

Other characteristic

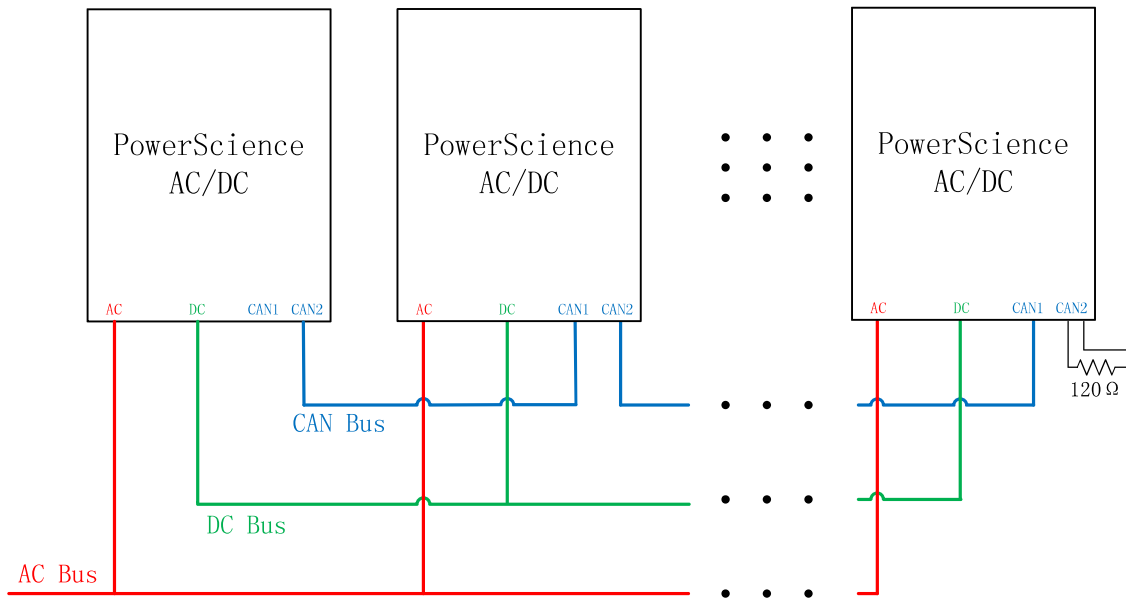
Type	Index	Rated
Environmental	Operation Temperature	-10°C ~ 45°C
	Storage Temperature	-40°C ~ 70°C
	Relative Humidity	5% ~ 95%
	Altitude	5000m
	MTBF	>250k hours, 35°C, full load
	Standard	Telcordia SR_332
Protection	Islanding Protection	Yes
	AC Under-voltage protection	<170Vac; Protect mode: Auto recovery
	AC Over-voltage protection	>270Vac; Protect mode: Auto recovery
	Over Current Protection	Protect Mode: Constant Current
	Fan Fault Protection	Protect mode: Auto recovery
	Over Temperature Protection	Protect mode: Auto recovery
Other Function	Speed Governing of Fan	Yes
	Run in parallel	Yes(Must distribute different address for every power module through the dial switch)
	Unbalance Rate of DC	<5%

	Current Sharing	
	Indicator lamp	Fault: Red AC to DC direction: Blue DC to AC direction: Green
EMC	Conducted Emission	EN55022 Class A
	Radiated Emission	EN55022 Class A
	Harmonic Current Emission	EN61000-3-2, A class equipment
	Voltage fluctuation and Flicker	EN61000-3-2, A class equipment
	Immunity to surges	L&N to PE: 6kV; L to N: 6kV
	Immunity to Electrical Fast Transient	YD/T1082, 2kV
	Immunity to lightning	L&N to PE: 10KA; L to N: 10KA
	Immunity to Voltage Dips and short interruptions	EN61000-4-11, ETSI EN 301 489
	Immunity to Electrostatic Discharge	EN61000-4-2, Air discharge 8kV, Contact discharge 6kV
	Immunity to Continuous Conducted Interference	EN61000-4-6, EN 55024, ETSI EN 300 386, 3V
	Immunity to Radiated Electric Fields	EN61000-4-3, ETSI EN 300 386, 80M~800MHz 3V/m, 800M~960MHz 10V/m, 960M~1GHz 3V/m, 1.4G~2GHz 10V/m, 2G~2.7GHz 3V/m, 80% AM
Sizes		333×141.4×45mm
Maximum Screw Torque (lbf.inch)		AC terminal (M3) : 7 DC terminal (M5) : 13

Interface Figure:



Parallel operation instructions



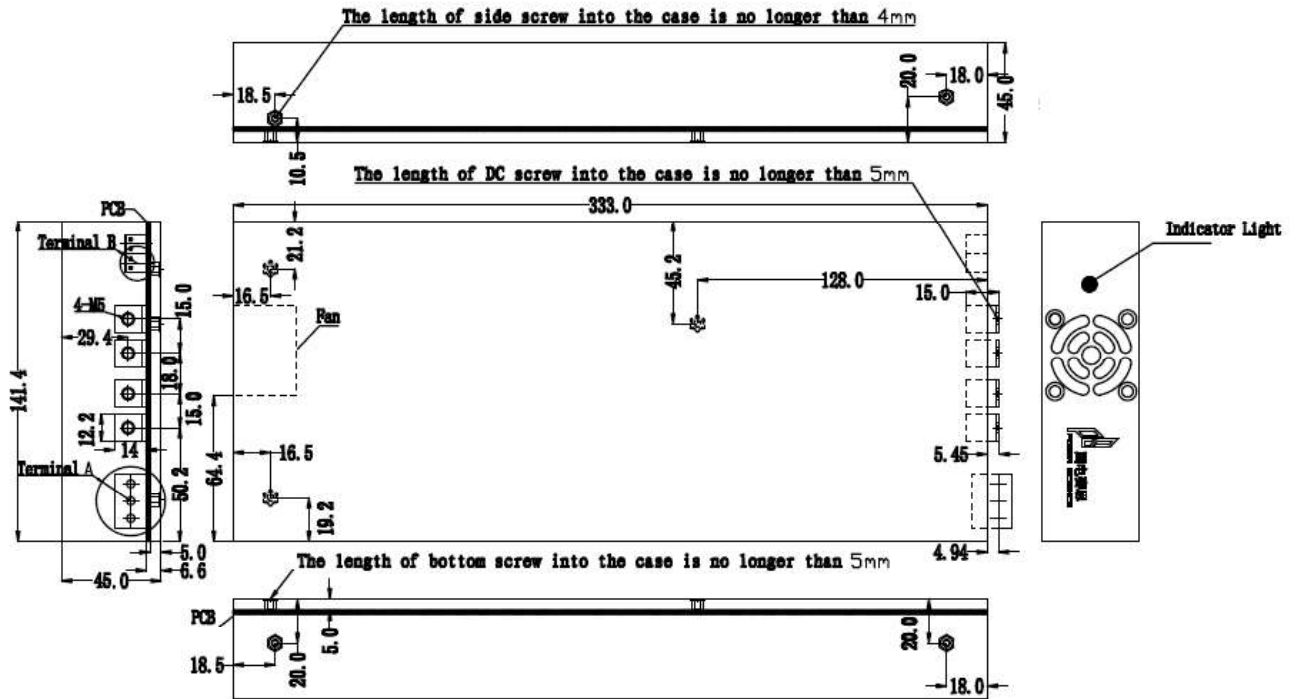
Port	Connection type	Instructions
AC terminal	The AC side is connected in parallel to the power grid.	L: Live wire; N: Neutral wire; PE: Protecting Earthing
DC terminal	DC side is parallel to form DC bus.	DC+:The positive pole of DC; DC-:The negative pole of DC
CAN communication	Connect the communication lines, and in any group CAN + and CAN indirectly into 120 Ω resistance	CAN+: High-level of CAN communication; CAN-: Low-level of CAN communication
Dial switch	In parallel, all dial switch addresses of power supply must be different.	The dial switch consists of four bits and can form a total of 16 addresses.

Precautions for use

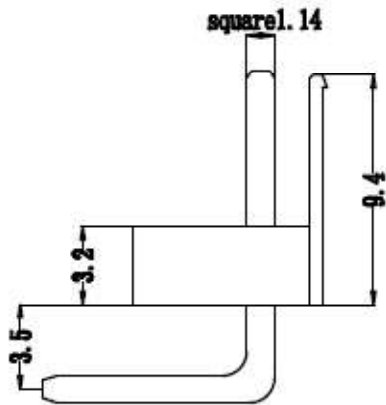
	Application problems	Advice
Maintenance precautions	The duct/fan is blocked by dust	Add system dust-proof net and clean regularly
	Line corroded by acidic/sulfuretted/moist environment	Keep the equipment as far away from the bad environment as possible, especially contains acid gas, sulfide gas and other space places.

	<p>The system has poor heat dissipation design/Hot air reflow</p>	<p>System thermal simulation.Choose the right system cooling fan.Design airway reasonably to avoid hot air reflow</p>
<p>DC/DC overvoltage protection point Settings</p>	<p>Set reasonable reverse working dynamic overpressure protection points.And the set value should be less than 18Vdc.</p>	

Dimension Figure



Terminal B: P101-02R
PIN to PIN 3.96mm



Terminal A:

