

ATIRO

(AUTOMATION & DRIVE)



TTN ELECTRIC CO

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INVERTER & BATTERY
ENERGY STORAGE SYSTEM



TTN ELECTRIC CO

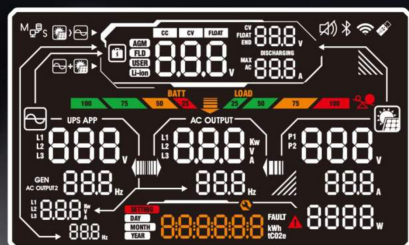
Since 1994
精誠信譽 始於1994



TTN
TTN ELECTRIC



TIMER FUNCTION



STORE ENERGY DURING LOW DEMAND PERIODS
USE IT DURING HIGH DEMAND PERIODS



ATIRO

(AUTOMATION & DRIVE)

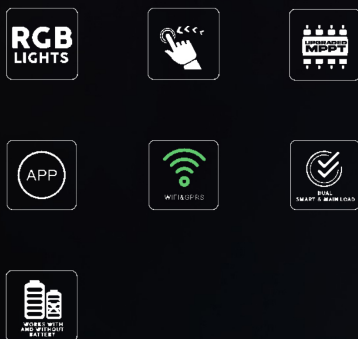
HYBRID SOLAR INVERTER



Since 1994
格奥电气始于1994



1.2K-12 HYBRID SOLAR INVERTER



TTN has dozens of invention patents and practical patents. Our products have earned many national, state, municipal, and regional scientific and technology progress awards.

In order to meet the different scenarios of inverter use, TTN engineers have updated and redesigned this product, successfully developing a new generation of solar hybrid inverters that integrate state electric solar priority, solar-state electric complementary, solar- batteries priority, state electric charging, lithium battery compatibility, WIFI visual monitoring, while continuously reducing product manufacturing costs, greatly improving product competitiveness

These cutting edge technology advances provide a solid base for our business and enterprise transformation, ensure us are the pioneer in the power electronics industry and help our products gain popularity in both domestic and overseas markets. These products have been widely accepted by many customers in more than 60 countries.



Single Phase Off-grid Inverter



PLUS PV800-12 S1.2



Built-in 50A
Solar Charger



PV Input Voltage
Range 17-115V



Pure Sine Wave

LCD

LCD Display

BMS

Support Lithium/
Lead-acid Battery



Lithium Battery
Activation

PF

Power Factor 1.0



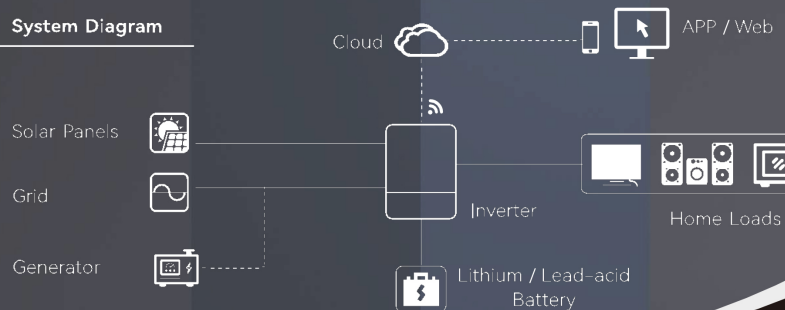
Detachable
Dust Cover



WiFi
Monitoring(optional)



System Diagram



Specifications

Model	PLUS PV800-12 S1.2
AC input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	1.2
浪涌功率 Surge Power (kVA)	2.4
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10 (APP/UPS/GEN mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	60s@102%-120% oad; 10s@120%-200% oad;
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	90%@12VDC
并联数量 Parallel Quantity	NA
输出 (数量) Output (number)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	18A / 800W
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	17~115
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	115
最大光伏充电电流 Max PV Charge Current (A)	50
最大AC充电电流 Max AC Charge Current (A)	50
最大充电电流 Max. Charge Current (PV + AC) (A)	100
电池 Battery	
标称电压 Normal Voltage (VDC)	12
浮充电压 Floating Charge Voltage (VDC)	13.8
过充保护 Overcharge Protection (VDC)	15
电池类型 Battery Type	Lead-acid / Lithium
接口 interface	
人机界面 HMI	LCD
接口 Interface	RS232 / RS485 (optional) / CAN (optional)
监控 Monitoring	Wifi(optional)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C- 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C- 60 °C
净重 Net Weight (kg)	3.6
毛重 Gross weight (kg)	4.2
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	301*217*102
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	379*264*169
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

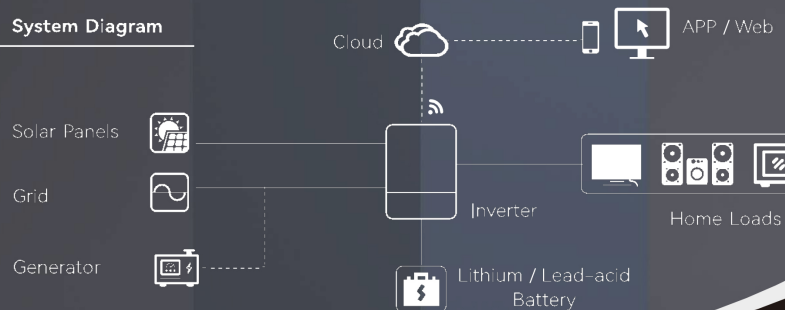
Single Phase Off-grid Inverter



PLUS PV3000-12 S2.5



System Diagram



Specifications

Model	PLUS PV3000-12 S2.5
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280 (APP/GEN mode); 170~264 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC Output	
额定容量 Rated Capacity (kW)	2.5
浪涌功率 Surge Power (kVA)	5
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50 / 60
转换时间 Switch Time (ms)	10 (APP/UPS mode) / 20 (GEN mode)
波形 Wave Form	Pure Sine Wave
过载容量 (光伏+电池模式/电池模式) Overload Capacity(PV+Battery mode/PV mode)	long term@102%-125% load; 10s@125%-250% load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	91%@12VDC
并联数量 Parallel Quantity	NA
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	18 / 3000
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	30 - 400
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	450
最大光伏充电电流 Max PV Charge Current (A)	100
最大AC充电电流 Max AC Charge Current (A)	100
最大充电电流 Max. Charge Current (PV + AC) (A)	100
电池 Battery	
标称电压 Normal Voltage (VDC)	12
最大充电电流 Max. Charging Current (A)	100
最大放电电流 Max. Discharging Current (A)	150
电池类型 Battery Type	Lithium / Lead-acid
接口 Interface	
人机界面 HMI	LCD
接口 Interface	RS485 / CAN / RS232 / CT(optional) / Meter (optional)
监控 Monitoring	WiFi (optional/built-in/external)
通用数据 General Data	
防护等级 Ingress Protection	P21
工作温度 Operating Temperature	-10 °C - 60 °C
相对湿度 Relative Humidity	5% ~ 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C - 60 °C
净重 Net Weight (kg)	4.5
毛重 Gross weight (kg)	5.5
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	331*270*105
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	408*322*176
最高工作海拔 Max. Operating Altitude	4000 (Derating above 2000)

Single Phase Off-grid Inverter



PLUS PV5000-24 S3.6D



Built-in 100A
Solar Charger



Wide PV Input Voltage
Range 40-500V



Feed-in
to Grid

BMS

Support Lithium/
Lead-acid Battery



Lithium Battery
Activation



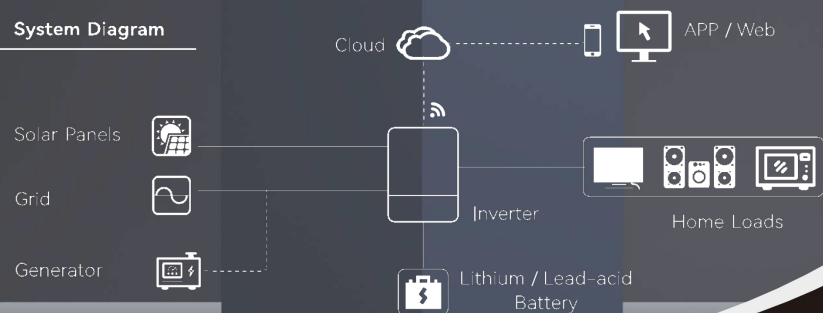
Detachable
Dust Cover



WiFi
Monitoring(built-in)



System Diagram



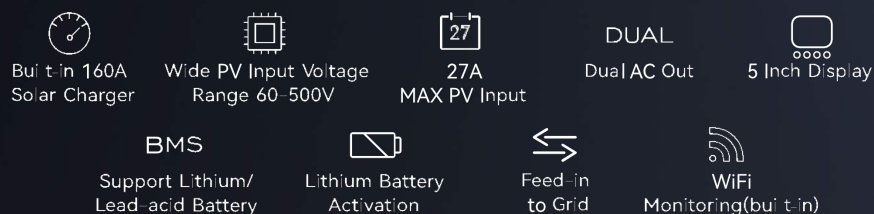
Specifications

Model	PLUS PV5000-24 S3.6D
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	3.6
浪涌功率 Surge Power (kVA)	5.7
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10 (APP/UPS mode) / 20 (GEN mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	60s@102%-110% oad; 10s@110%-130% oad; 3s@130%-150% oad; 0.2s@>150% oad
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	92.7%@24VDC
并联数量 Parallel Quantity	NA
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	18A / 5000W
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	40-450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	100
最大AC充电电流 Max AC Charge Current (A)	100
最大充电电流 Max. Charge Current (PV + AC) (A)	100
电池 Battery	
标称电压 Normal Voltage (VDC)	24
浮充电压 Floating Charge Voltage (VDC)	27
过充保护 Overcharge Protection (VDC)	30.5
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	LCD
接口 Interface	RS485 / CAN / RS232
监控 Monitoring	WiFi (built-in)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C- 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C- 60 °C
净重 Net Weight (kg)	8.3
毛重 Gross weight (kg)	9.3
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	410*336*115
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	490*394*176
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

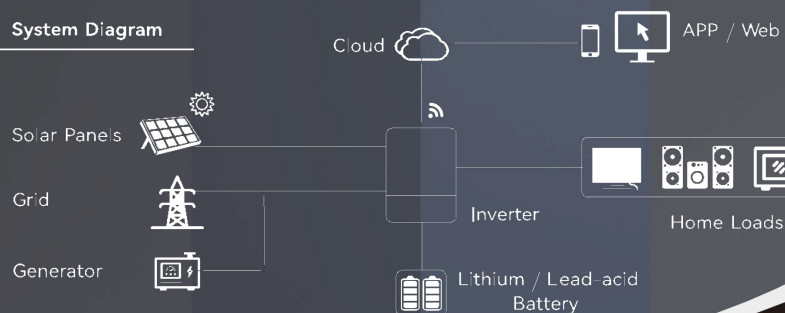
Single Phase Off-grid Inverter



PLUS PV9000-24 S5.0



System Diagram



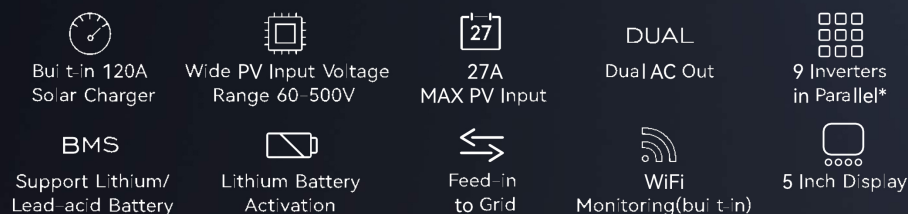
Specifications

Model	PLUS PV9000-24 S5.0
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	5
浪涌功率 Surge Power (kVA)	10
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10 (normal mode) / 10 (UPS mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	1min@102%-120%load, 10s>120% load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	93.5%@24VDC
并联数量 Parallel Quantity	NA
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	27A / 9000W
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	60~450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	160
最大AC充电电流 Max AC Charge Current (A)	160
最大充电电流 Max. Charge Current (PV + AC) (A)	160
电池 Battery	
标称电压 Normal Voltage (VDC)	24
浮充电压 Floating Charge Voltage (VDC)	27
过充保护 Overcharge Protection (VDC)	30.5
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	LCD
接口 Interface	RS485 / CAN / RS232
监控 Monitoring	WiFi (optional/built-in/external)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C - 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C - 60 °C
净重 Net Weight (kg)	8.3
毛重 Gross weight (kg)	9.3
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	410*336*115
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	490*394*176
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

Single Phase Off-grid Inverter



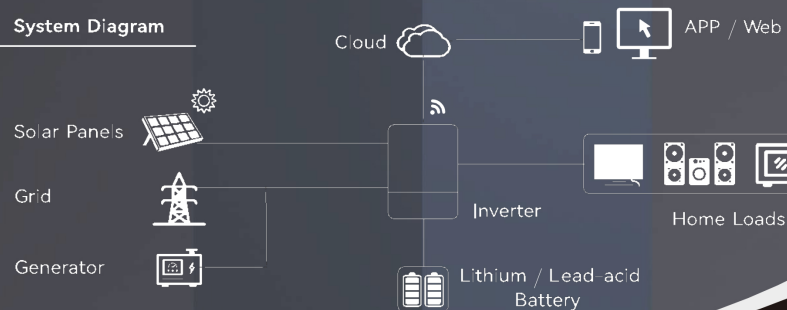
PLUS PV9000-48 S6.5



Note*: P6.5 is parallel model, S6.5 is single model.



System Diagram



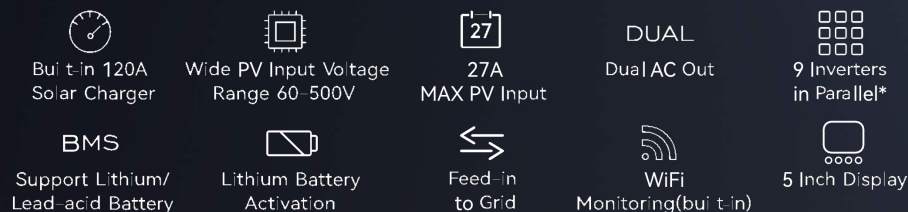
Specifications

Model	PLUS PV9000-48 S6.5
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	6.5
浪涌功率 Surge Power (kVA)	13
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10 (normal mode) / 10 (UPS mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	1min@102%~110% load; 10s@ > 110% load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	94%@48VDC
并联数量 Parallel Quantity	NA
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	27A / 9000W
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	60-450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	120
最大AC充电电流 Max AC Charge Current (A)	120
最大充电电流 Max. Charge Current (PV + AC) (A)	120
电池 Battery	
标称电压 Normal Voltage (VDC)	48
浮充电压 Floating Charge Voltage (VDC)	54
过充保护 Overcharge Protection (VDC)	61
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	5 inch LCD
接口 Interface	RS485 / CAN / RS232
监控 Monitoring	WiFi (optional/built-in/external)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C - 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C - 60 °C
净重 Net Weight (kg)	8.3
毛重 Gross weight (kg)	9.3
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	410*336*115
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	490*394*176
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

Single Phase Off-grid Inverter



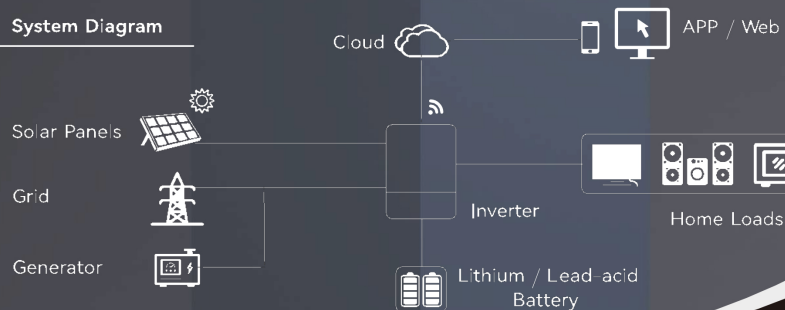
PLUS PV9000-48 P6.5



Note*: P6.5 is parallel model, S6.5 is single model.



System Diagram



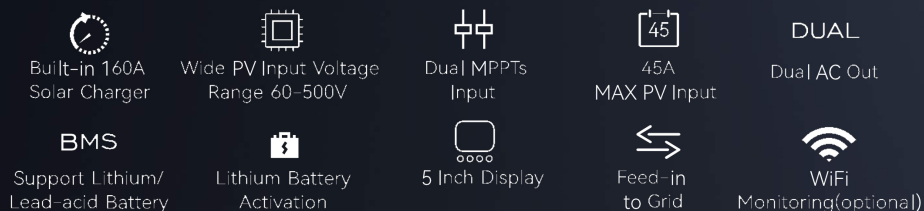
Specifications

Model	PLUS PV9000-48 P6.5
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	6.5
浪涌功率 Surge Power (kVA)	13
电压 Voltage (VAC)	208 / 220 / 230 / 240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10 (normal mode) / 10 (UPS mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	1min@102%~110% load; 10s@ > 110% load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	94%@48VDC
并联数量 Parallel Quantity	9
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	MPPT
最大PV输入电流/功率 Max PV input current / power	27A / 9000W
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	60-450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	120
最大AC充电电流 Max AC Charge Current (A)	120
最大充电电流 Max. Charge Current (PV + AC) (A)	120
电池 Battery	
标称电压 Normal Voltage (VDC)	48
浮充电压 Floating Charge Voltage (VDC)	54
过充保护 Overcharge Protection (VDC)	61
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	5 inch LCD
接口 Interface	RS232/RS485/CAN/Parallel Interface
监控 Monitoring	WiFi (optional/built-in/external)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C - 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C - 60 °C
净重 Net Weight (kg)	8.3
毛重 Gross weight (kg)	9.3
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	410*336*115
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	490*394*176
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

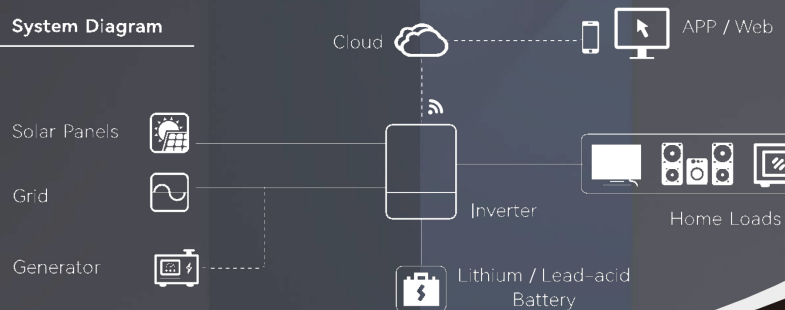
Single Phase Off-grid Inverter

ATIRO TTN
(AUTOMATION & DRIVE) TTN ELECTRIC

PLUS PV15000-48 S12.0



System Diagram



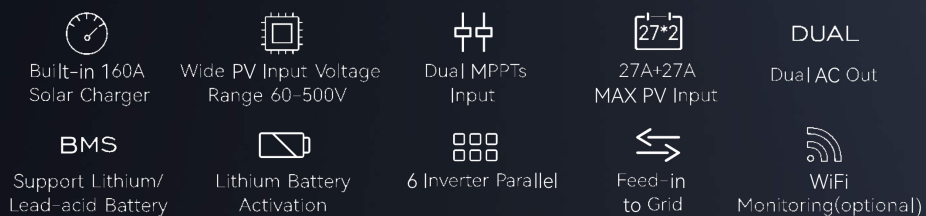
Specifications

Model	PLUS PV15000-48 S12.0
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280±3 (normal mode); 170~280±3 (UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	12
浪涌功率 Surge Power (kVA)	24
电压 Voltage (VAC)	220/230/240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60Hz±0.1%
转换时间 Switch Time (ms)	10(APP/UPS mode), 20(GEN mode)
波形 Wave Form	Pure Sine Wave
过载容量 (电池模式) Overload Capacity (Battery Mode)	1min@102%~125%Load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	10s@ >125%Load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	94%@48VDC
并联数量 Parallel Quantity	NA
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	Dual MPPTs
最大PV输入电流/功率 Max PV input current / power	Using One MPPT: 27A/9KW Using Two MPPTs: 22.5A/Per MPPT, 15kW/Total
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	60-450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	160
最大AC充电电流 Max AC Charge Current (A)	160
最大充电电流 Max. Charge Current (PV + AC) (A)	160
电池 Battery	
标称电压 Normal Voltage (VDC)	50
浮充电压 Floating Charge Voltage (VDC)	54
过充保护 Overcharge Protection (VDC)	61
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	LCD
接口 Interface	RS232 / RS485 / CAN
监控 Monitoring	WiFi (built-in)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C - 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C - 60 °C
净重 Net Weight (kg)	14.5
毛重 Gross weight (kg)	16.2
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	480*410*125
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	594*500*215
最高工作海拔 Max. Operating Altitude	4000m (Derating above 1000m)

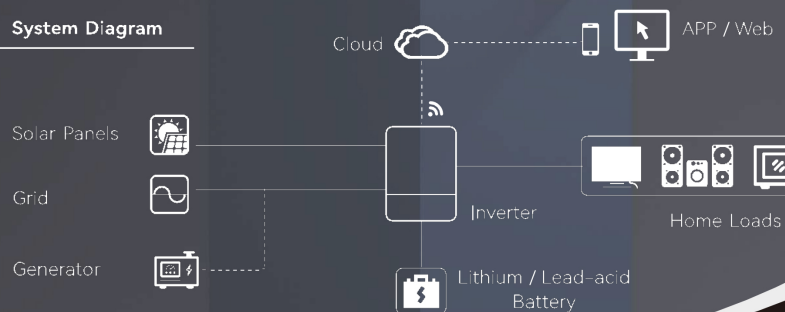
Single Phase Off-grid Inverter



PLUS PV15000-48 P12.0



System Diagram



Specifications

Model	PLUS PV15000-48 P12.0
AC Input	
额定输入电压 Rated Input Voltage (VAC)	208 / 220 / 230 / 240; L + N + PE
输入电压范围 Voltage Range (VAC)	90~280(APP/GEN mode);170~264(UPS mode)
频率 Frequency (HZ)	50 / 60 (Auto Adaptive)
AC 输出 AC Output	
额定容量 Rated Capacity (kW)	12
浪涌功率 Surge Power (kVA)	24
电压 Voltage (VAC)	220/230/240
功率因数(PF) Power Factor (PF)	1
频率 Frequency	50/60
转换时间 Switch Time (ms)	10(APP/UPS mode), 20(GEN mode)
波形 Wave Form	Pure Sine Wave
过载容量 (光伏+电池模式/电池模式) Overload Capacity(PV+Battery mode/PV mode)	1min@102%-125% Load, 10s@125%-200% Load
最大转换效率 (电池模式) Max. Efficiency (Battery Mode)	94%@48VDC
并联数量 Parallel Quantity	6
充电器 Charger (PV / AC)	
太阳能充电器类型 Solar Charger Type	Dual MPPTs
最大PV输入电流/功率 Max PV input current / power	Using One MPPT: 27A/9KW Using Two MPPTs: 22.5A/Per MPPT, 15kW/Total
MPPT工作电压范围 MPPT Range@Operating Voltage (VDC)	60-450
最大光伏开路电压 Max PV Open Circuit Voltage (VDC)	500
最大光伏充电电流 Max PV Charge Current (A)	160
最大AC充电电流 Max AC Charge Current (A)	160
最大充电电流 Max. Charge Current (PV + AC) (A)	160
电池 Battery	
标称电压 Normal Voltage (VDC)	48
最大充电电流 Max. Charging Current (A)	160
最大放电电流 Max. Discharging Current (A)	220
电池类型 Battery Type	Lithium and Lead-acid
接口 Interface	
人机界面 HMI	LCD
接口 Interface	RS232 / Rs485 / CAN / Parallel Ports
监控 Monitoring	WiFi (built-in)
通用数据 General Data	
防护等级 Ingress Protection	IP21
工作温度 Operating Temperature	-10 °C- 60 °C
相对湿度 Relative Humidity	5% - 95% (Non-condensing)
储存温度 Storage Temperature	-15 °C- 60 °C
净重 Net Weight (kg)	15.7
毛重 Gross weight (kg)	17.1
产品尺寸 (长*宽*高) mm Product dimension (H*W*D) mm	540*425*125
箱体尺寸 (长*宽*高) mm Package dimension (H*W*D) mm	654*515*215
最高工作海拔 Max. Operating Altitude	4000 (Derating above 2000)