

GP-3100

14/13/12th Gen Intel® Core™ Modular GPU Computer, Supports Dual Full-length GPU Expansion Up to 500W



THE INDUSTRIAL GPU COMPUTER WITH ADVANCED PCIe EXPANDABILITY

GP-3100 supports dual full-length GPUs in a scalable design

Overview

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The GP-3100 is a high-performance GPU computer for industrial AI and machine vision applications. It supports an Intel® Core™ processor, up to two 250W full-length GPU cards, high-capacity storage, and high-speed I/O. Three patented features, designed for specific customer needs, improve expansion, heat dissipation, and overall stability, making the GP-3100 an ideal choice for complex Edge AI applications.

Key Features

- 14/13/12th Gen. Core™ i9/i7/i5/i3 Processors (max 65 W TDP)
- 2 x DDR5 SO-DIMM Sockets, Supports ECC/non ECC type Memory, Up to 4800MHZ, 64GB
- 4x 2.5GbE LAN and optional 2x 10GbE LAN
- 1x M.2 Key E Type 2230 Socket for Wireless/Intel CNVi Module Expansion
- 1 x M.2 Key B Type 3052/3042 Socket for 5G/Storage/Add-on Card Expansion
- 1 x M.2 Key B Type 2280 Socket for Add-on Card Expansion
- 4 x 2.5" Hot Swappable SATA III HDD/SSD Bays (Max Height 15 mm) , 1x M.2 key M for NVMe SSD
- Optional CMI & CFM Modules for I/O Expansion & Power Ignition Sensing Function
- Versatile Mounting Methods (Tower Stand / Desktop / 19"Rack / Flat / Wall Mount)
- Wide Operating Temperature -40°C to 70°C

Certifications



MIL-STD-810H



EN 50121-3-2

Ultimate CPU + GPU performance

Equipped with a 14th generation Intel® Core™ (Raptor Lake-S Refresh) processor, the GP-3100 is capable of three times the computing performance of its predecessor. The GP-3100 supports up to two 250W high-end GPU cards and 5600MHz DDR5 memory with ECC for a complete AI computing solution.

14th Intel® Raptor Lake-S Refresh



Scalable and upgradeable GPU expansion box

The dual-patented GPU expansion box (GEB) supports up to two 328mm high-end full-length GPU cards and includes multiple built-in PCIe slots for flexible use with high-speed I/O or frame grabber cards. The patented adjustable 3D GPU Card Mounting Bracket is designed for high-vibration environments and can firmly lock all GPU cards. For flexible future upgrades, the GEB can be replaced to add a higher-end GPU card or an expansion card.

Patent No.: I779496, I763318

Comprehensive cooling design

To solve the power consumption and thermal challenges, the GP-3100's mechanical structure and isolated external smart fan kits on both sides of the chassis effectively dissipate heat under full workloads in extreme conditions.

Patent No.: I778522





Rich modular design and expandability

AI applications need high-speed transmission and high-capacity storage, so the GP-3100 has 4x 2.5GbE LAN, 6x USB 3.2, 4x front-accessible 2.5" HDD/SSD, and NVMe SSD. Rich scalability capabilities include exclusive modular technology (CMI and CFM) and an M.2 slot that supports CAN bus and other modules to meet various application needs.

International standards and certifications

Rugged design passes or complies with multiple industrial standards and certifications, including MIL-STD-810H US military shock resistance, E-mark, and EN 50155 (EN 50121-3-2 only), to ensure high reliability in various application environments.



MIL-STD-810H



EN 50121-3-2



-40 – 70°C
-40 – 158°F



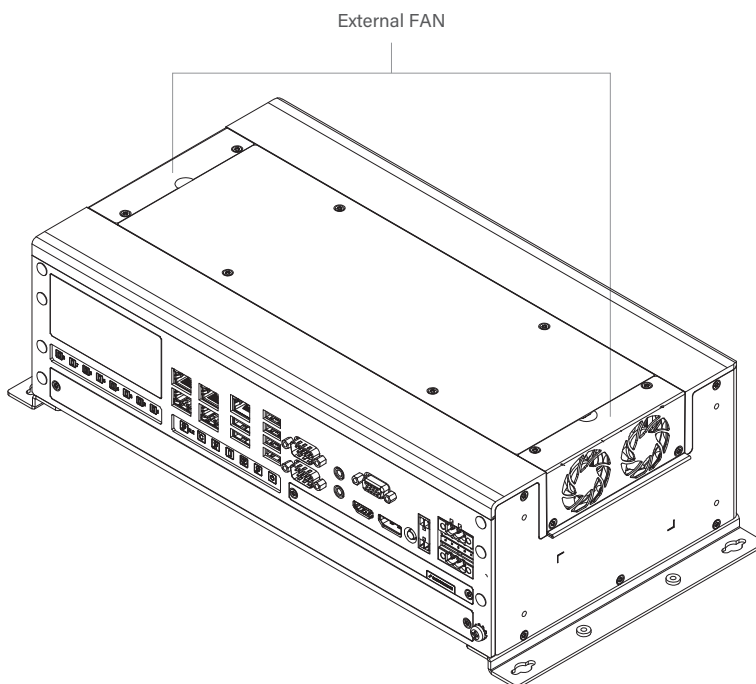
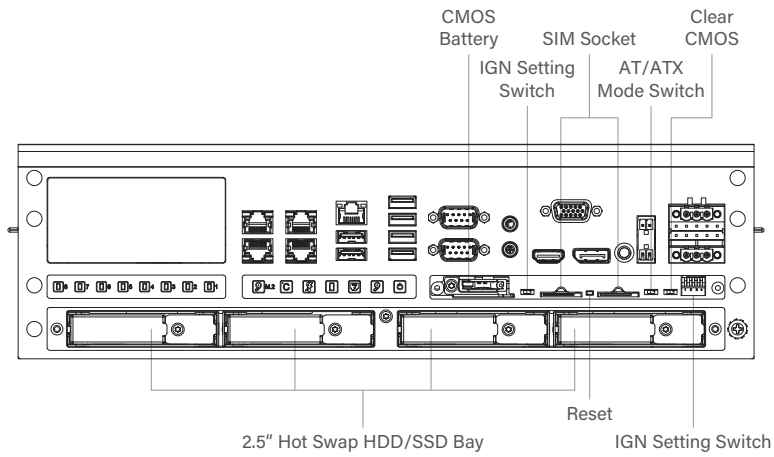
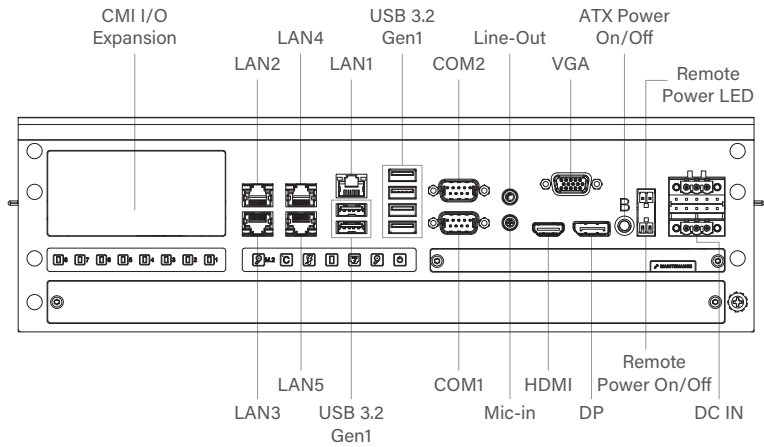
Specifications

Model Name	GP-3100
System	
Processor	<ul style="list-style-type: none"> • 14th Generation Intel® Raptor Lake-S Refresh Series CPU (Coming Soon) • 13th Generation Intel® Raptor Lake-S Series CPU: <ul style="list-style-type: none"> - Intel® Core™ i9-13900E 24 Cores Up to 5.2 Ghz, TDP 65W - Intel® Core™ i7-13700E 16 Cores Up to 5.1 Ghz, TDP 65W - Intel® Core™ i5-13500E 14 Cores Up to 4.6 Ghz, TDP 65W - Intel® Core™ i5-13400E 10 Cores Up to 4.6 Ghz, TDP 65W - Intel® Core™ i3-13100E 4 Cores Up to 4.4 Ghz, TDP 65W - Intel® Core™ i9-13900TE 24 Cores Up to 5.0 Ghz, TDP 35W - Intel® Core™ i7-13700TE 16 Cores Up to 4.8 Ghz, TDP 35W - Intel® Core™ i5-13500TE 14 Cores Up to 4.5 Ghz, TDP 35W - Intel® Core™ i3-13100TE 4 Cores Up to 4.1 Ghz, TDP 35W • 12th Generation Intel® Alder Lake-S Series CPU: <ul style="list-style-type: none"> - Intel® Core™ i9-12900E 16 Cores Up to 5 GHz, TDP 65W - Intel® Core™ i7-12700E 12 Cores Up to 4.8 GHz, TDP 65W - Intel® Core™ i5-12500E 6 Cores Up to 4.5 GHz, TDP 65W - Intel® Core™ i3-12100E 4 Cores Up to 4.2 GHz, TDP 60W - Intel® Core™ i9-12900TE 16 Cores Up to 4.8 GHz, TDP 35W - Intel® Core™ i7-12700TE 12 Cores Up to 4.7 GHz, TDP 35W - Intel® Core™ i5-12500TE 6 Cores Up to 4.3 GHz, TDP 35W - Intel® Core™ i3-12100TE 4 Cores Up to 4.0 GHz, TDP 35W - Intel® Pentium® G7400E 2 Cores Up to 3.6 GHz, TDP 46W - Intel® Pentium® G7400TE 2 Cores Up to 3.0 GHz, TDP 35W - Intel® Celeron® G6900E 2 Cores Up to 3.0 GHz, TDP 46W - Intel® Celeron® G6900TE 2 Cores Up to 2.4 GHz, TDP 35W
Chipset	• Intel R680E Chipset
Memory	• 2x DDR5 4800 MHz SO-DIMM Socket, Supports Un-buffered and ECC Type, Up to 64 GB
BIOS	• AMI BIOS
Graphics	
Graphics Engine	<ul style="list-style-type: none"> • Integrated Intel® UHD Graphics 770: Core™ i9/i7/i5 • Integrated Intel® UHD Graphics 730: Core™ i3 • Integrated Intel® UHD Graphics 710: Pentium®/Celeron®
Maximum Display Output	• Supports Triple Independent Display
HDMI	<ul style="list-style-type: none"> • 1x HDMI Connector (3840 x 2160@30Hz) * Verified maximum resolution: 3840x2160@30Hz
DP	<ul style="list-style-type: none"> • 1x DisplayPort Connector (4096 x 2304@60Hz) * Verified maximum DP resolution: 3840x2160@60Hz
VGA	• 1x VGA Connector (1920 x 1200@60Hz)
Audio	
Audio Codec	• Realtek® ALC888, High Definition Audio
Line-out	• 1x Line-out, Phone Jack 3.5mm
Mic-in	• 1x Mic-in, Phone Jack 3.5mm
I/O	
LAN	<ul style="list-style-type: none"> • 4x 2.5GbE LAN, RJ45 (Intel I225) • 1x 1GbE LAN, RJ45 (Intel I219)
COM	• 4x RS-232/422/485 with Auto Flow Control (Supports 5V/12V), DB9
USB	• 6x USB 3.2 Gen1x1 (5Gbps), Type A
Storage	
SSD/HDD	• 4x 2.5" Front Accessible SATA HDD/SSD Drive Bay (SATA3.0) (up to 15mm in Height)

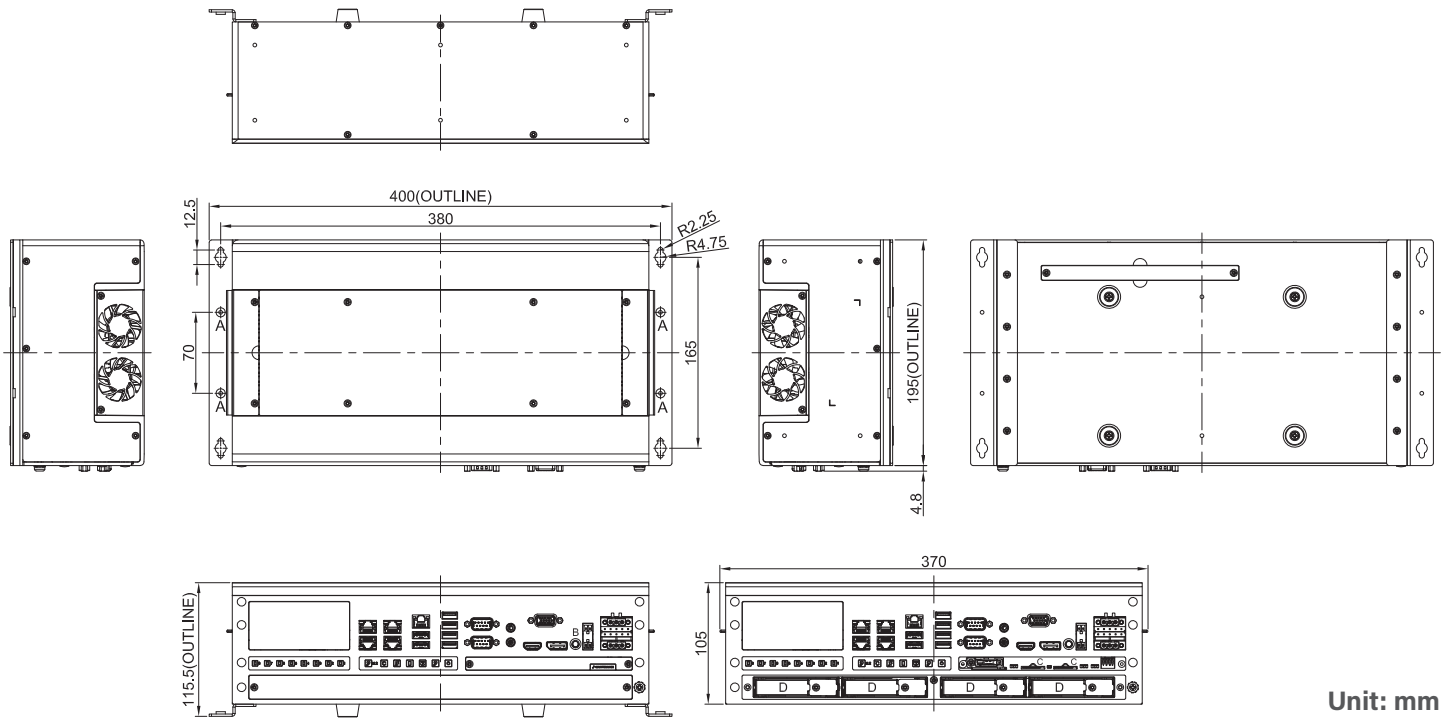
M.2 SSD	<ul style="list-style-type: none"> • 1x M.2 SSD Shared by M.2 Key M Type 2280 Socket, Support PCIe Gen 4x4 NVMe SSD or SATA 3.0 SSD • 1x M.2 SSD Shared by M.2 Key B Type 3042/3052 Socket, Support PCIe Gen 3x2 NVMe SSD or SATA 3.0 SSD
RAID	<ul style="list-style-type: none"> • Support RAID 0/1/5/10
Expansion	
PCIe	<ul style="list-style-type: none"> • Optional GPU Expansion Box - 1 x PCIe x4 + 1 x PCIe x16 - 2 x PCIe x16 (8Lanes) + 1 x PCIe x1 + 1 x PCIe x4
SIM Socket	<ul style="list-style-type: none"> • 2 x Front Accessible SIM Socket
M.2 E Key Socket	<ul style="list-style-type: none"> • 1x M.2 Key E Type 2230 Socket (PCIe Gen 3x2), Support Wireless/Intel CNVi Module Expansion
M.2 B Key Socket	<ul style="list-style-type: none"> • 1x M.2 Key B Type 3042/3052 Socket (PCIe Gen 3x2 / USB3.2 Gen1 / USB2.0 / SATA), Support 5G/Storage/Add-on Card Expansion • 1x M.2 Key B Type 2280 Socket (PCIe Gen 3x1), Support Add-on Card Expansion
CMI (Combined Multiple I/O) Interface	<ul style="list-style-type: none"> • 1 x High Speed CMI Interface for optional CMI Module Expansion • 1 x Low Speed CMI Interface for optional CMI Module Expansion
CFM (Control Function Module) Interface	<ul style="list-style-type: none"> • 1x CFM IGN Interface for optional CFM-IGN Module Expansion • 1x CFM PoE Interface for optional CFM-PoE Module Expansion
Other Function	
FAN	<ul style="list-style-type: none"> • 2x Fan Kits (Air-flow isolated from the electronics)
Power Ignition Sensing	<ul style="list-style-type: none"> • Support Power Ignition Sensing Function with Delay Time Management and Selectable 12V/24V (With Optional CFM Module)
Clear CMOS Switch	<ul style="list-style-type: none"> • 1x Clear CMOS Switch
Reset Button	<ul style="list-style-type: none"> • 1x Reset Button
Instant Reboot	<ul style="list-style-type: none"> • Support 0.2sec Instant Reboot Technology
Watchdog Timer	<ul style="list-style-type: none"> • Software Programmable Supports 256 Levels System Reset
Antenna Holes	<ul style="list-style-type: none"> • 7x Antenna Holes
Power	
Power Button	<ul style="list-style-type: none"> • 1x ATX Power On/Off Button
Power Input Voltage	<ul style="list-style-type: none"> • 9-48VDC, Single Power Input
Connector	<ul style="list-style-type: none"> • 2x 3-pin Terminal Block, Each Terminal Block Current Limitation is 15A - Dual power connect must be used at the same time due to 15A current limitation at each power connector.
Power Mode Switch	<ul style="list-style-type: none"> • 1x AT/ATX Mode Switch
Remote Power On/Off	<ul style="list-style-type: none"> • 1x Remote Power On/Off, 2-pin Terminal Block
Remote Power LED	<ul style="list-style-type: none"> • 1x Remote Power LED, 2-pin Terminal Block
Max. Power Consumption	<ul style="list-style-type: none"> • 35W CPU: 201.05W • 65W CPU: 306.48W - Test conducted with CPU, 1x RAM, and 1x storage - 100% load during burn-in testing.
Inrush Current (Peak)	<ul style="list-style-type: none"> • 35W CPU: 9.221 A@24V • 65W CPU: 8.976 A@24V
Physical	
Dimension (W x D x H)	<ul style="list-style-type: none"> • 105 x 195 x 370 mm
Weight Information	<ul style="list-style-type: none"> • 7.7 kg
Mechanical Construction	<ul style="list-style-type: none"> • Extruded Aluminum with Heavy Duty Metal
Mounting	<ul style="list-style-type: none"> • Versatile Mounting Methods (Tower Stand / Desktop / 19"Rack / Flat / Wall Mount)
Physical Design	<ul style="list-style-type: none"> • Jumper-less Design • Unibody Design

Reliability & Protection	
Reverse Power Input Protection	<ul style="list-style-type: none"> • Yes
Over Voltage Protection	<ul style="list-style-type: none"> • Protection Range: 51~58V • Protection Type: shut down operating voltage, re-power on at the preset level to recover
Over Current Protection	<ul style="list-style-type: none"> • 30A
CMOS Battery Backup	<ul style="list-style-type: none"> • SuperCap Integrated for CMOS Battery Maintenance-free Operation
MTBF	<ul style="list-style-type: none"> • 432,065 Hours - Database: Telcordia SR-332 Issue3, Method 1, Case 3
Operating System	
Windows	<ul style="list-style-type: none"> • Windows®11, Windows®10
Linux	<ul style="list-style-type: none"> • Ubuntu Desktop 22.04 LTS
Environment	
Operating Temperature	<ul style="list-style-type: none"> • 35W TDP Processor: -40°C to 70°C • 65W TDP Processor with external FAN: -40°C to 60°C * PassMark BurnInTest: 100% CPU, 2D/3D Graphics (without thermal throttling) * With extended temperature peripherals; Ambient with air flow * According to IEC60068-2-1, IEC60068-2-2, IEC60068-2-14
Storage Temperature	<ul style="list-style-type: none"> • -40°C to 70°C
Relative Humidity	<ul style="list-style-type: none"> • 95%RH @ 70°C (non-Condensing)
Shock	<ul style="list-style-type: none"> • MIL-STD-810H
Vibration	<ul style="list-style-type: none"> • MIL-STD-810H
EMC	<ul style="list-style-type: none"> • CE, UKCA, FCC, ICES-003 Class A • EN 50155 (EN 50121-3-2 Only) • E-mark (Pending)
EMI	<ul style="list-style-type: none"> • CISPR 32 Conducted & Radiated: Class A • EN/BS EN 50121-3-2 Conducted & Radiated: Class A • EN/BS EN IEC 61000-3-2 Harmonic current emissions: Class A • EN/BS EN 61000-3-3 Voltage fluctuations & flicker • FCC 47 CFR Part 15B, ICES-003 Conducted & Radiated: Class A
EMS	<ul style="list-style-type: none"> • EN/IEC 61000-4-2 ESD: Contact: 6 kV; Air: 8 kV • EN/IEC 61000-4-3 RS: 80 MHz to 1000 MHz: 20 V/m • EN/IEC 61000-4-4 EFT: AC Power: 2 kV; Signal: 2 kV • EN/IEC 61000-4-5 Surges: AC Power: 2 kV • EN/IEC 61000-4-6 CS: 10V • EN/IEC 61000-4-8 PFMF: 50 Hz, 1A/m • EN/IEC 61000-4-11 Voltage Dips & Voltage Interruptions: 0.5 cycles at 50 Hz
Fire Protection	<ul style="list-style-type: none"> • EN 45545-2

External Layout



Dimensions



Unit: mm

Ordering Information

Available Models

Model No.	Description
GP-3100-R10	14/13/12th Gen Intel® Core™ Modular GPU Computer, Supports Dual Full-length GPU Expansion Up to 500W

Optional GPU Expansion Box

Model No.	Description
GEB-3301-R10	GPU Expansion Box with 1x PCIe16 and 1x PCIe x4 Slots
GEB-3601-R10	GPU Expansion Box with 2x PCIe16 (PCIe8 Signal), 1x PCIe x4, and 1x PCIe x1 Slot

Package Checklist

• GP-3100 GPU Computer x1	• Wall Mount Bracket x1
• Desktop Mount Kit x1	• Rubber Foot Kit x1
• CPU Heatsink and Thermal Pad Kit x1	• Remote Terminal Block Connector x2
• Screw Pack x4	• Remote Function Terminal Block Connector x2
• M.2 Key B Type 3052 to 3042 Adapter Bracket x1	

Optional Modules and Accessories

Model No.	Description
CMI-LAN01-R12	CMI Module with 4x Intel® I210 GbE LAN, RJ45 Port
CMI-M12LAN01-R12	CMI Module with M12 A-Coded Connector, 4x Intel I210 GbE LAN Ports
CMI-XM12LAN01-R10	CMI Module with M12 X-Coded Connector, 4x Intel I210 GbE LAN Ports
CMI-10GLAN02-R10	CMI Module with 2x Intel® X550 10GbE LAN, RJ45 Port
CMI-DIO04-R11	CMI Module with 16DIO (8in 8out)
CMI-COM04-R10	CMI Module with 2x RS232/422/485 (Support 5V/12V)
CFM-PoE01	CFM Module with PoE Control Function, Individual Port 25.5W (Enable PoE function for onboard LAN 2 to LAN 5)
CFM-PoE07-R10	CFM Module with PoE Control Function, Individual Port 25.5W (For CMI LAN module)
CFM-IGN03-R11	CFM Module with Power Ignition Sensing Function, 12V/24V Selectable
UB1812-R10	Universal Bracket with 4x RJ45 Cutout
UB1828-R10	Universal Bracket with 2x RJ45 Cutout
UB1810-R10	Universal Bracket with 4x M12 Cutout
UB1830-R10	Universal Bracket with 4x M12 X-Coded Cutout
UB1818-R10	Universal Bracket with DIO Cutout
UB1803-R10	Universal Bracket with 2x DB9 Cutout

RM01-R10	19" Rack Mount Kit for GP-3000
RM02-R10	19" Rack Mount Kit for GP-3000/GEB-33 Series
RM03-R10	19" Rack Mount Kit for GP-3000/GEB-36 Series
GST220A24-CIN	Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, Level VI
GST360A24-CIN	Adapter AC/DC 24V 15A 360W with 3pin Terminal Block Plug 5.0mm Pitch, with TUBES, Level VI
RSD-200D-24	Railway Single Output DC-DC Converter 200W / DC 24V
SDR-480-24	DIN Rail Power Supply 480W 24V, SDR-480-24
HEP-1000-24	Power Supply 1000W 24V, HEP-1000-24
US Power Cord	1.8M US Power Cord, Stripped and Tinned End with Tube
EU Power Cord	1.8M EU Power Cord, Stripped and Tinned End with Tube
Power Cable	1M Power Cable with 3-Pin Terminal Block Plug, Stripped and Tinned End with Tube