WidelOT

Product Specifications



WEC205

Industrial Edge Computer

High-performance computing | Extensive hardware interfaces | Multiple network connection methods | Open API

Product Overview



The WEC205 series of industrial edge computers is a range of industrial-grade, high-performance computers launched by WideIOT for industrial digitalisation applications. Featuring an open-source Debian Linux system and a variety of industrial communication interfaces, they facilitate the development and deployment of applications to create smart application terminals. With a quad-core 2.0 GHz processor and 1 TOPS of computing power, they are capable of handling most complex edge computing scenarios, whilst support for the latest Debian 12 system and open APIs simplifies the deployment of algorithms and applications.

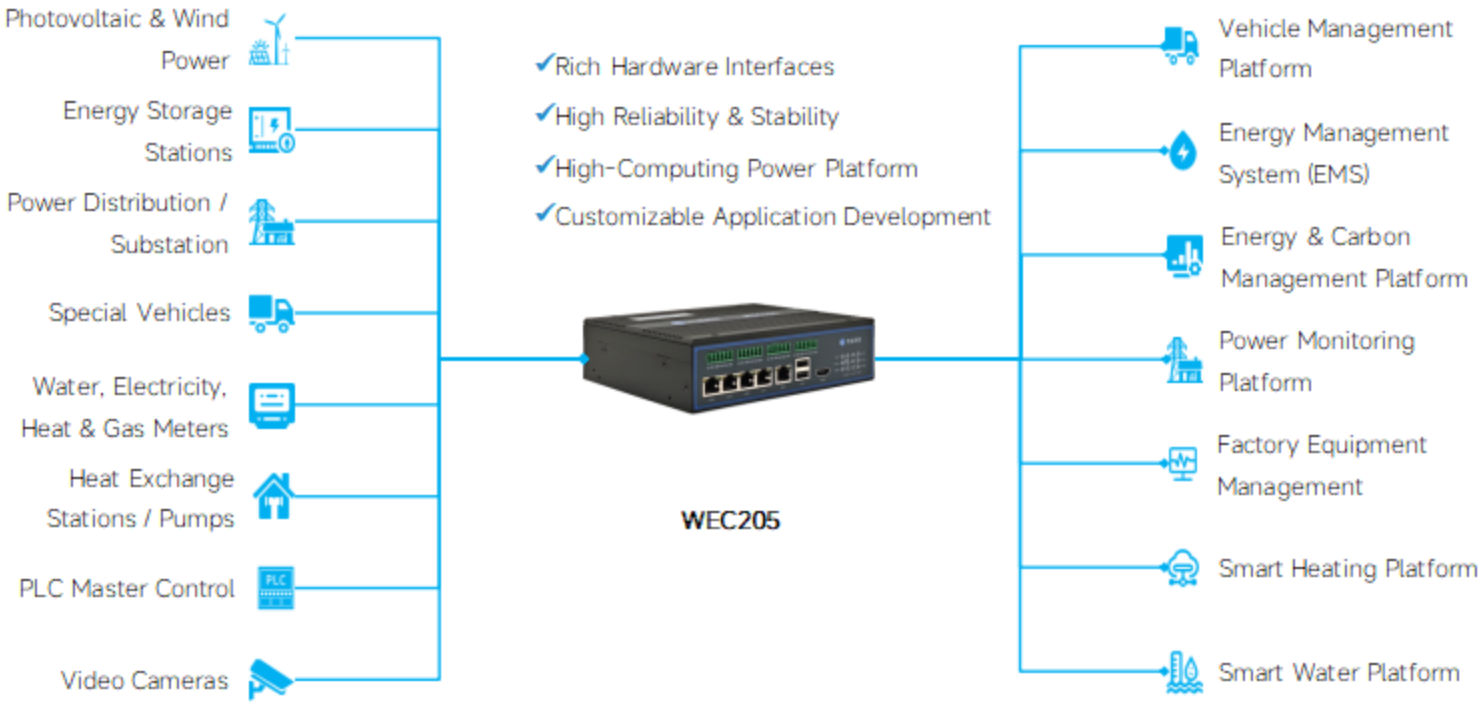
The WEC205 features 5 Gigabit Ethernet ports, 2 isolated RS485 serial ports (with optional RS232), 2 CAN bus channels and multiple I/O channels. It supports various network access methods including 5G, 4G and Wi-Fi, and is capable of collecting data from a wide range of energy and power equipment, energy storage devices, special-purpose vehicles, various PLC controllers, meters (electricity, water, heat and gas meters, etc.) and sensors. It is widely used in numerous industries, including substations/distribution rooms, solar/wind farms, energy management, energy storage stations, smart factories, vehicle management and smart cities.

Product features

- ✓ **Industrial-grade reliability:** wide temperature and voltage range, multiple layers of electromagnetic isolation, ensuring uninterrupted operation in harsh industrial environments;
- ✓ **High-performance computing platform:** Running the popular Debian 12 operating system, with a quad-core 2.0 GHz processor, 4 GB or 8 GB of DDR4 RAM, and a high-spec GPU capable of 1 TFLOPS; features an open SSH and SFTP maintenance interface, facilitating the deployment of various algorithms and applications;

- ✓ **Comprehensive API interfaces:** Provides APIs for accessing various low-level hardware resources, as well as control interfaces for various communication networks (cellular, Wi-Fi, Ethernet, GNSS), facilitating the development of industrial IoT edge computing systems.
- ✓ **Convenient operation and maintenance management:** Supports both local and remote configuration management, as well as automatic fault diagnosis and recovery, significantly reducing on-site operational costs.

Typical topologies



Application method

- ➢ As an industrial Linux PC (IPC), it is used to deploy various application software.
- ➢ Develop high-end IoT terminals using the various hardware API interfaces provided by WideIOT

Application scenarios



Energy



Solar and



Battery



Distribution



Smart



Vehicle



Smart Water



Smart City

Product specifications

Hardware Parameters	
Hardware platform	
CPU Core	Quad-core Cortex-A55@2.0 GHz
GPU	Mali-G52-2EE，Built-in 2D acceleration hardware
NPU	Features the high-performance AI accelerator RKNN NPU, supporting 1 TFLOPS of computing power
VPU	1080P@60fps H.265/H.264 Video hardware encoding、 4K@60fps H.265/H.264/VP9 Video hardware decoding
Runtime storage	4GB(8GB Optional)
Programme storage	16GB （32GB Optional）
Data storage	256GB|512GB|1TB SSD MiniPCIE（Optional）
Operating system	Debian12（Linux6）
Interface specifications	
Power socket	DC 9V-35V （terminal block）
Ignition signal	Isolated ignition signal input, with an isolation voltage of up to 3750 V (available as an in-vehicle option for low-power mode)
Ethernet port	5*10/100/1000Mbps high-speed Ethernet ports，1.5KV network isolation and transformer protection，4 LAN ports（Switch functions），1 WAN ports
Serial port	2 RS-232/485 interfaces（Expandable to 10 serial ports，optional），15 kV ESD protection In theory, each 485 interface can support up to 255 slave devices（The actual recommended range is 5 to 25）
IO port	2 isolated digital inputs and 2 isolated relay outputs
USB port	USB2.0,2x TypeA （Includes multiple internal USB expansion ports）
HDMI port	1xHDMI 2.0
CAN port	Isolated CAN transceiver, supporting CANFD, with isolation voltage up to 5000 VDC and 15 kV ESD protection, 5 Mbps data rate, and support for up to 110 nodes
5G network	5G or 5G Redcap（Optional）
4G network	LTE Cat4 or LTE Cat1 （Optional）
WIFI network	2.4G/5.8G Dual-band，802.11ac/a/b/g/n,433.3Mbps rate
Bluetooth network	BLE4.2（Optional）
GNSS Network	Supports BDS B1/GPS L1/GLONASS L1 positioning（Optional）

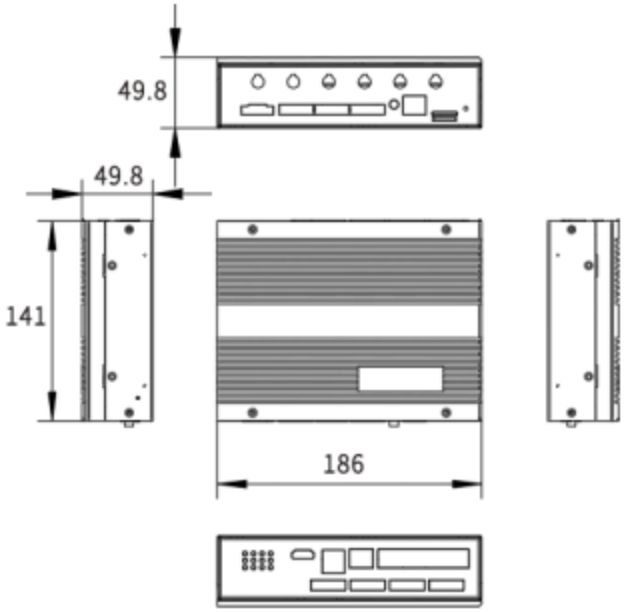
SIM card slot	Drawer-style booth * 1（Micro SIM Medium-duty lorry），eSIM Optional
TF Card	Micro TF Card（8GB/16GB/32GB）
Real-time clock	RTC Real-Time Clock (with built-in battery)
Reset button	Pinhole reset button
Reserved expansion port	MIPI+I2C（Extended touchscreen），USB ports（3，Expanded serial port），8 GPIO（Expand I/O）
Antenna connector	5G Network：SMA x 4、4G Network：SMA x 2、WLAN: RP-SMA x 1、GPS：RP-SMA x 1(Six in total)
Mechanical properties	
Dimensions	186 x 141 x 49.8 (mm)
Installation method	Wall-mounted	Desktop
Equipment housing	Metal casing (black)
Protection rating	IP30
Heat dissipation	Fanless heat dissipation
Weight	1132g(Weights vary depending on the configuration)
Equipment operating environment	
Ambient humidity	5% ~ 95% (Non-condensing))
Storage temperature	-40 °C~ 85°C
Operating temperature	-40°C ~ 85°C
Indicator light	
4*3 indicator light	PWR power indicator (red)、LIVE Status indicator (green)、WARN Warning indicator (yellow)、ERR Fault indicator (red) 3 mobile network signal strength indicators (green)、NET Network indicator (Green)、Wi-Fi indicator(blue)，Reserve 3 indicators(U1-U3; for cloud services and position indicators)
EMC Standards	
Electrostatic discharge immunity	GB/T17626.2-2018,level4
Electrical Fast Transient Pulse Immunity	GB/T17626.4-2018,level4
Oscillating magnetic field Immunity to interference	GB/T17626.18-2016,level4

Radio-frequency electromagnetic fields Radiated immunity	GB/T17626.3-2016,level4
Surge (transient) Immunity	GB/T17626.5-2019,level4
Power-frequency magnetic field Immunity	GB/T17626.8-2006,level4
Physical properties	
Vibration	GB/T2423.10-2008
Impact	GB/T2423.5-2019
Fall	GB/T2423.8-1995

Software specifications	
Network functions	
Network access	Supports 5G/5G-RedCap/4G-Cat4/4G-Cat1, Wi-Fi (AP|STA|Relay) and Ethernet access
Network certification	Supports CHAP/PAP authentication ， Supports APN and VPDN access
Cellular network	TDD-LTE/FDD-LTE/5G-RedCap/5G, etc. For further details, please refer to the 'List of Cellular Network Bands'
LAN protocol	Supports ARP and Ethernet
WAN protocol	Supports PPP, PPPoE, DHCP and static IP
IP Applications	Supports Ping、Trace、DHCP Server 、DHCP Relay、 DHCP Client、DNS relay
IP routing	Supports static routing
NAT	Source NAT, Destination NAT, DMZ
System resources	
Login tool	XSHELL、XFTP
Graphical interface	Log in to the Linux graphical interface via the HDMI port
Interface Management	Cellular network management, Wi-Fi network management, Ethernet network management, GNSS positioning management, I/O resource management, UART and CAN interface management, indicator light management, ignition signal management, audio signal management, TF card/SSD/eMMC storage resource management, etc.
Keyboard and mouse connection	Connect the mouse and keyboard via the USB port
Security	
Safety and Security	Built-in firewall functionality, providing comprehensive network isolation and protection: supports stateful packet inspection (SPI), protection against denial-of-service (DoS) attacks, ping probe packets, source port mapping, destination port mapping, DMZ, access control lists (ACLs) and IP-MAC binding
Data security	Supports L2TP VPN / PPTP VPN / Open VPN / IPSec VPN/ZeroTier VPN...
Security certification	TLS encryption, with access via username and password or certificate authentication
Reliability	
Link detection	Supports sending ping packets for network monitoring and automatically reconnects if the connection is lost
Multi-network redundancy	Supports automatic switching between multiple networks, including Ethernet, Wi-Fi, 4G and 5G
Watchdog protection	Software and hardware watchdogs support the device's self-test technology and enable self-repair in the event of operational faults

Application care	Monitor all application modules in real time, anticipate and handle potential errors, and perform self-healing
Management and maintenance	
Configuration Management	Supports configuration management via local web interfaces and APIs
Firmware update	Supports local and remote firmware updates
Logging function	Supports comprehensive and detailed logging functionality, facilitating rapid troubleshooting and diagnosis
Import and Export	Supports the import and export of engineering files, facilitating diagnostics and batch configuration
Diagnostic commands	Supports a comprehensive diagnostic command interface, enabling local self-diagnosis
Status Enquiry	System status, module status, network connection status, application status, etc.

Product dimensions



Order details

Hardware Selection	
Order	WEC205-<CELL>-<Module>
CELL	LL02: 4G Cat1; LL07: 4G Cat4; NF02: 5G Redcap NF38: 5G
Module	W: WIFI Network; (WIFI5 Default) D: Local storage via SSD/HDD (optional) G: GNSS Positioning;
Example	WEC205-LL07:Supports 4G CAT4 with full network compatibility WEC205-LL02-W: Supports 4G CAT1 and Wi-Fi WEC205-NF07-MQTT: Supports 5G mobile networks .....

* This table is for model selection reference only. The exact model is subject to engineering confirmation.

For further information, please visit the WidelOT website: https://www.wideiot.com.

Alternatively, please contact us via the following methods:

Email: info@wideiot.com

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About WidelOT

Founded in 2011 and headquartered in Xiamen, China, WidelOT is a specialist provider of industrial IoT products and digital solutions, focusing on sectors such as smart factories, smart equipment, energy management, hydrology and water resources, smart water management, and smart cities; The company offers a comprehensive range of products, including industrial wireless routers, industrial switches, industrial smart gateways, industrial data terminals, smart I/O modules, industrial converters, AI edge computers and IoT data cloud platforms. It is a high-tech enterprise integrating R&D, production, sales and service.



WidelOT Technology Co., Ltd.

Website: www.wideiot.com Email: info@wideiot.com Tel: +86-592-2031080

Address: Xiamen softpark III ,Fujian,China