WidelOT

Product Specifications

WEC265

Industrial Edge Computer

High computing power | Extensive library of protocols | Multiple network connection methods | Open API

Product Overview

The WEC265 series of industrial edge computer is a high-performance IoT edge node platform for industrial-grade data acquisition and edge computing, developed by WidelOT for industrial digitalisation applications. Designed specifically for data acquisition, protocol parsing, edge computing, cloud data transmission and remote maintenance of industrial equipment, its quad-core 1.8GHz processor and 1 TOPS computing power make it suitable for most complex edge computing scenarios. It supports the latest Debian 12 operating system and open APIs, facilitating the deployment of algorithms and applications.

The WEC265 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, It is widely used in numerous industries such as substations/distribution rooms, photovoltaic/wind farms, energy management, energy storage stations, smart factories, vehicle management and smart cities, serving as a vital edge node for building industrial IoT, vehicle management and energy management systems.

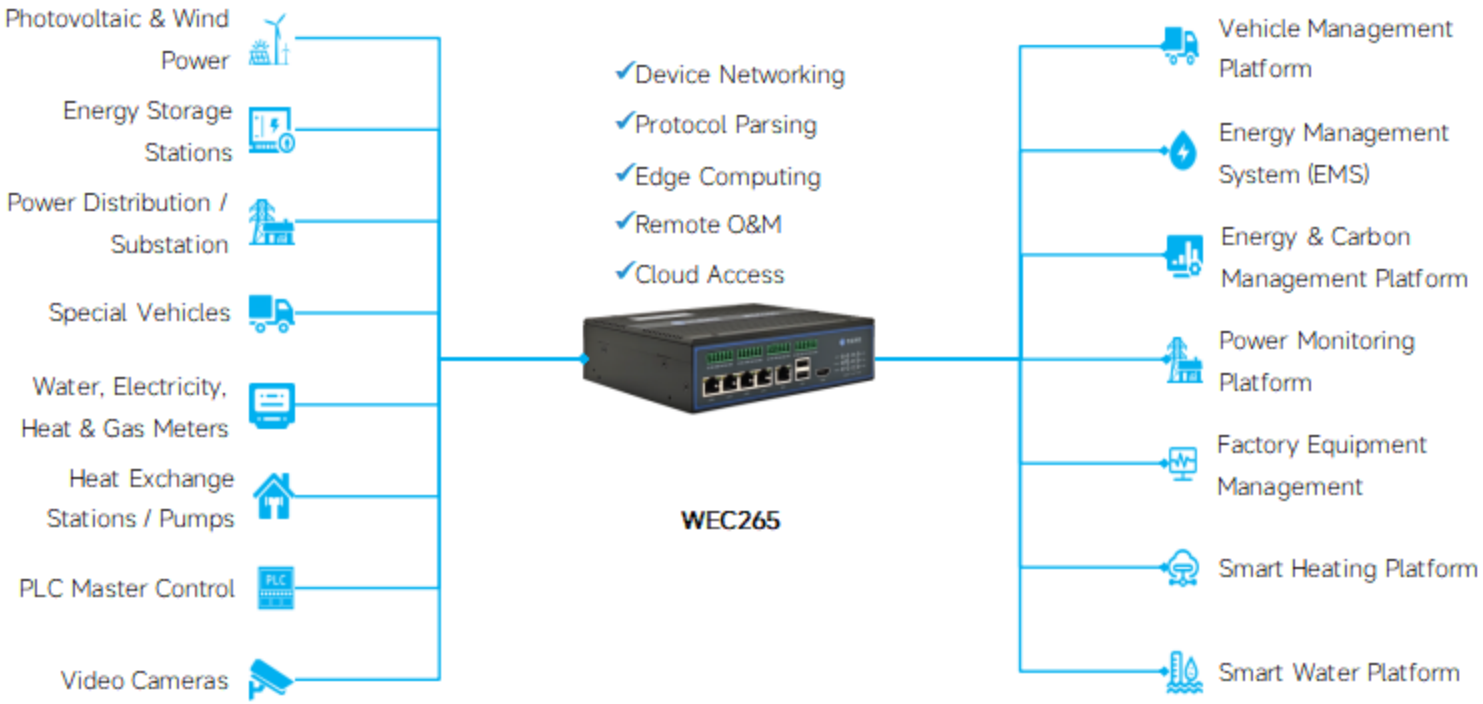
Product features

- ✓ **Industrial-grade reliability**: wide temperature and voltage range, multiple layers of electromagnetic isolation, ensuring uninterrupted operation in harsh industrial environments;
- ✓ **Comprehensive protocol compatibility**: Supports a wide range of industrial protocols, covering mainstream protocols and industry-specific standards across various sectors, enabling the collection of vast amounts of device data and its standardisation;
- ✓ **Powerful edge computing**: supports data pre-processing, data computation, data alerts

and local decision-making at the edge, significantly reducing the load on central nodes and increasing the number of concurrent device connections they can handle;

- ✓ **Cloud-based data security:** Supports integration with various IoT platforms and industry-specific applications, and features open APIs to facilitate the development of custom platforms; offers multi-layered data access controls and encryption capabilities, including VPN encryption, TLS data encryption, and a choice of software and hardware encryption options; supports automatic reconnection in the event of a network outage and resume-from-breakpoint functionality;
- ✓ **Convenient operation and maintenance management:** Supports local and remote configuration management, as well as automatic fault diagnosis and recovery. It also supports a dedicated remote maintenance line to facilitate remote operation and maintenance, thereby significantly reducing on-site operational costs.

Typical topologies



Application method

- Edge computing collects data from on-site equipment and integrates it with various cloud platforms to enable data visualisation
- Edge computing and the device express line form a remote maintenance system, enabling engineers to carry out remote maintenance on on-site equipment
- Edge computers convert various protocols into OPC UA, Modbus, IEC 61850, BACnet, IEC 104 and other protocols
- High-performance chips support the deployment of various edge intelligence algorithms, enabling real-time control and policy calculations at the field level

Application scenarios


Energy consumption management


Solar and wind farms


Battery swapping station


Distribution substation


Smart factory


Vehicle Management


Smart Water Management


Smart City

Product specifications

Hardware Parameters	
Hardware platform	
CPU Core	Quad-core Cortex-A55@1.8GHz
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）

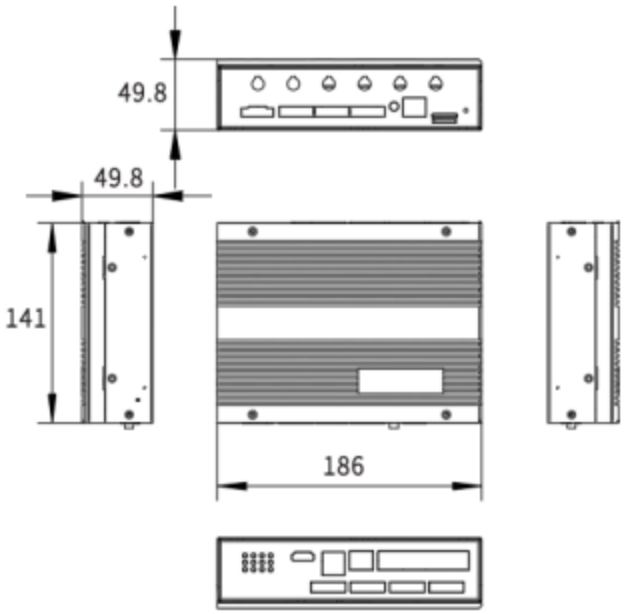
GNSS Network	Supports BDS B1/GPS L1/GLONASS L1 positioning（Optional）
SIM card slot	Drawer-style booth * 1（Micro SIM Medium-duty lorry），eSIM Optional
TF Card	Micro TF Card（8GB/16GB/32GB）
Real-time clock	RTC Real-Time Clock (with built-in battery)
Reset button	Pinhole reset button
Reserved expansion port	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)
Power consumption	
Power	5.5W
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
Data acquisition functions	
Smart data collection	Supports a single Edge Computer collecting data from multiple devices of different types, with the flexibility to define data acquisition projects
Protocol parsing	Supports a wide range of device protocols, including the mainstream Modbus, DTL645, CJ188, PLCs, instruments and sensors; **for further details, please refer to the 'Gateway Protocol Support List'**; supports data collection from various water meters, electricity meters, heat meters and steam meters; as well as various sensors, variable frequency drives, photovoltaic inverters, power distribution and substation equipment, etc.
Edge computing	It offers functions such as data filtering, grouped data collection, alarm calculation, formula calculation, local programming and data storage; it supports Python programming and the independent deployment of various applications.
Data standardisation	Supports merging multiple devices and splitting sub-devices ， Supports various standardisation processes, including data format conversion
Cloud access	Supports simultaneous integration with multiple data centres of different types or of the same type Supports integration with various cloud platforms and monitoring software, including the WidelOT Cloud, EMS energy management platforms, BMS building management systems, MES manufacturing execution systems, SCADA IoT monitoring platforms, water management platforms and power management platforms
Data forwarding	Conversion of southbound data from multiple protocols into a single northbound protocol, such as OPC UA, Modbus TCP, IEC 104, IEC 61850, BACnet, etc.
Remote maintenance	In conjunction with the WidelOT Equipment Management Platform and the Equipment Maintenance Express, this enables remote diagnostics, remote debugging and upgrades of on-site Edge Computers or equipment
Open API	Data interface supporting MQTT (JSON format)， easy integration with various platforms
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（SD-WAN optional）
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 Engineering	Supports both local and remote configuration of data acquisition projects
App update	Supports local and remote software updates, as well as rapid product feature releases and iterations
Remote maintenance	Supports remote O&M Edge Computers and devices connected to the Edge Computers (such as PLCs) via Device Express and WidelOT Cloud
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 number	WEC265-<CELL>-<Module>-<SoftWare>
CELL	LL02： 4G Cat1; LL07： 4G Cat4; NF02： 5G Redcap NF07： 5G
Module	W：WIFI Network； （WIFI5 Default） E：EMMC Storage； （8GB Default） G：GNSS Positioning；
SoftWare	MQTT（Universal version）， EMS（Energy version）,etc.
Example	WEC265-LL07-MQTT：Supports 4G CAT4 with full network compatibility，Universal Edge Computer (supports Modbus, CJ188, PLC and other protocols) WEC265-LL02-W-EMS：Supports 4G CAT1 and Wi-Fi，Energy Edge Computer (supporting IEC 104 and IEC 61850 protocols) WEC265-NF02-MQTT：Supports 5G RedCap，Universal Edge Computer

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

Alternatively, please contact us via the following methods:

Email: info@wideiot.com

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.

Xiamen WidelOT Technology Co., Ltd.

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

Address: Xiamen softpark III ,Fujian,China