

W406

**RISC-based wireless embedded computer with GSM/GPRS/EDGE,
4 DIs, 4 DOs, 2 serial ports, Ethernet, SD**



- > Cirrus Logic EP9302 32-bit ARM9 processor
- > On-board 32 MB RAM (maximum 64 MB)
- > Built-in 16 MB Flash (maximum 32 MB)
- > Built-in GSM/GPRS/EDGE cellular communication
- > GSM 850/900/1800/1900 MHz supported
- > GPRS/EDGE Class 12 supported
- > SMS tunnel mode provided
- > 4 DIs, 4 DOs
- > Two software selectable RS-232/422/485 serial ports
- > 50 bps to 921.6 Kbps, non-standard baudrates supported
- > 10/100M Ethernet for network redundancy
- > SD socket for storage expansion
- > WinCE 6.0 or Linux 2.6 platform
- > Din-Rail and Wall mount installation
- > Robust, fanless design
- > Wide temperature models available by request



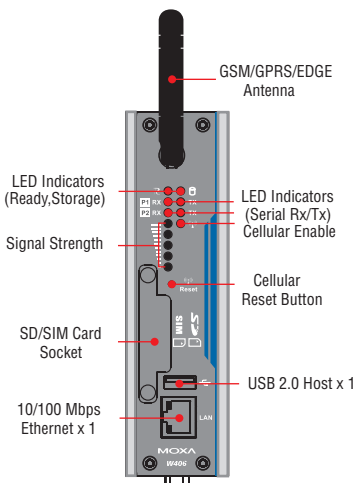
Overview

The W406 is an embedded Linux or WinCE computer that features 2 software selectable RS-232/422/485 ports, 1 Ethernet port, and quad-band GSM/GPRS/EDGE 900/1800/850/1900 MHz for cellular communication. It also comes with an SD socket, USB host, and 4 digital input and 4 digital output channels, making it the ideal computer for a variety of industrial applications such as data acquisition, data

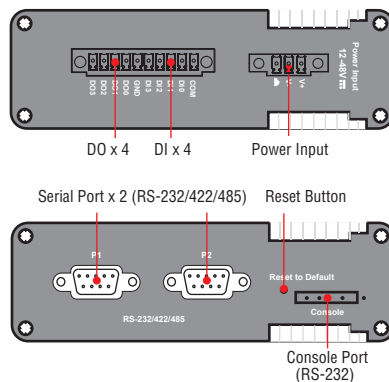
processing, protocol conversion, and remote device control and monitoring via wireless communication. The W406 comes pre-installed with either Linux or WinCE 6.0, and offers a reliable and powerful computing platform for industrial environments. Programmers will find that the W406 provides a convenient programming environment for producing bug-free industrial applications at a lower cost.

Appearance

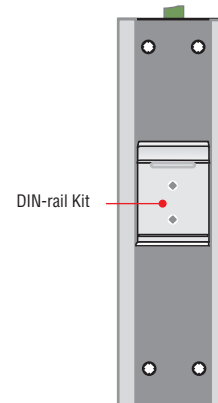
W406 Front View



W406 Top/Bottom View



W406 Rear View



Hardware Specifications

Computer

CPU: Cirrus Logic EP9302 ARM9 32-bit RISC CPU, 200 MHz

OS (pre-installed): WinCE 6.0/Embedded Linux with MMU support

DRAM: 32 MB (64 MB max.)

Flash: 16 MB (16 MB max.)

USB: USB 2.0 compliant hosts x 1, type A connector

Storage

Storage Expansion: SD slot

Ethernet Interface

LAN: 1 auto-sensing 10/100 Mbps port (RJ45)

Magnetic Isolation Protection: 1.5 KV built-in

Cellular Interface

Cellular Modes: GSM, GPRS, EDGE

Radio Frequency Bands: 850/900/1800/1900 MHz

GPRS Class: 12

EDGE Class: 12

Coding Schemes: CS1 to CS4

Serial Interface

Serial Standards: 2 RS-232/422/485 ports, software-selectable (DB9 male)

ESD Protection: 15 KV ESD protection for all signals

Console Port: RS-232 interface (TxD, RxD, GND), with 4-pin pin header output

Serial Communication Parameters

Data Bits: 5, 6, 7, 8

Stop Bits: 1, 1.5, 2

Parity: None, Even, Odd, Space, Mark

Flow Control: RTS/CTS, XON/XOFF, ADDC™ (automatic data direction control) for RS-485

Baudrate: 50 bps to 921.6 Kbps (non-standard baudrates supported; see user's manual for details)

Serial Signals

RS-232: TxD, RxD, DTR, DSR, RTS, CTS, DCD, GND

RS-422: TxD+, TxD-, RxD+, RxD-, GND

RS-485-4w: TxD+, TxD-, RxD+, RxD-, GND

RS-485-2w: Data+, Data-, GND

Digital Input

Input Channels: 4, source type

Input Voltage: 0 to 30 VDC at 5 KHz

Digital Input Levels for Dry Contacts:

- Logic level 0: Close to GND
- Logic level 1: Open

Digital Input Levels for Wet Contacts:

- Logic level 0: +3 V max.
- Logic level 1: +10 V to +30 V (COM to DI)

Connector Type: 6-pin screw terminal block (4 points, COM, GND)

Isolation: 3 KV optical isolation

Digital Output

Output Channels: 4, sink type

Output Current: Max. 200 mA per channel

On-state Voltage: 24 VDC nominal, open collector to 30 V

Connector Type: 5-pin screw terminal block (4 points, GND)

Isolation: 3 KV optical isolation

LEDs

System: Ready, Storage

LAN: 10M/Link, 100M/Link (on connector)

Cellular: Cellular Enable, Signal Strength (5 LEDs)

Serial: TxD, RxD

Switches and Buttons

Reset Button: Supports "Reset to Factory Default"

Cellular Reset Button: Supports cellular reset function

Physical Characteristics

Housing: Aluminum (1 mm)

Weight: 1 kg

Dimensions: (without ears or antenna)

144 x 119 x 40 mm (5.67 x 4.69 x 1.57 in)

Mounting: DIN-rail, wall (requires optional wall mount kit)

Antenna Length: 85 mm

Environmental Limits

Operating Temperature:

Standard Models: -10 to 60°C (14 to 140°F)

Wide Temp. Models: Available by request

Operating Humidity: 5 to 95% RH

Storage Temperature:

Standard Models: -20 to 80°C (-4 to 176°F)

Wide Temp. Models: -40 to 85°C (-40 to 185°F)

Anti-vibration: 2 g @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct./min, 1 hr/axis

Anti-shock:

• 6 g @ IEC-68-2-27, half sine wave, 11 ms (when attached to DIN-rail kit)

• 20 g @ IEC-68-2-27, half sine wave, 11 ms (when attached to optional wall mount kit)

Power Requirements

Input Voltage: 12 to 48 VDC

Power Consumption:

With no load on USB ports: 7.2 W

• 300 mA @ 24 VDC

• 600 mA @ 12 VDC

With full load on USB ports: 14.4 W

• 600 mA @ 24 VDC

• 1200 mA @ 12 VDC

Regulatory Approvals

EMC: CE (EN55022 Class B, EN61000-3-2 Class A, EN61000-3-3, EN55024), FCC (Part 15 Subpart B, CISPR 22 Class B, ANSI C63.4)

R&TTE: EN301 489-1, EN301 489-7, EN301 511

Safety: LVD: EN60950-1

UL/cUL: UL60950-1, CSA C22.2 No. 60950-1-03

Green Product: RoHS, CRoHS, WEEE

Reliability

Alert Tools: Built-in buzzer and RTC (real-time clock) with battery backup

Automatic Reboot Trigger: Built-in WDT (watchdog timer)

Warranty

Warranty Period: 5 years

Details: See www.moxa.com/warranty

Note: The Hardware Specifications apply to the embedded computer unit itself, but not to accessories. In particular, the wide temperature specification does not apply to accessories such as the power adaptor and cables.

Software Specifications

Linux

Kernel Version: 2.6.23

Boot Loader: Redboot

Protocol Stack: TCP, UDP, IPv4, SNMP V1, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSH 1.0/ 2.0, SSL, DHCP, NTP, NFS, SMTP, Telnet, FTP, PPP, PPPoE

File System: JFFS2 (on-board flash)

System Utilities: bash, busybox, tinylogin, telnet, ftp, scp, pppd, openvpn, iptables

telnetd: Telnet Server daemon

ftpd: FTP server daemon

sshd: Secure shell server

Apache: Web server daemon, supporting PHP and XML

openvpn: Virtual private network service manager

iptables: Firewall service manager

pppd: dial in/out over serial port daemon & PPPoE

snmpd: snmpd agent daemon

inetd: TCP server manager program

Application Development Software:

- MOXA Linux API Library
- Linux Tool Chain: Gcc, Glibc, GDB

Device Drivers:

UART, RTC, Buzzer, SD Card, USB (supports USB flash disk), DI/DO

Software Encryption Lock:

BINEncryptor: Encryption tool for binary files (based on patented Moxa technology)

Windows Embedded CE 6.0

Version: Windows Embedded CE 6.0 R2

System Utilities: Windows command shell, telnet, ftp, web-based administration manager

File System: FAT (on-board flash)

Protocol Stack: TCP, UDP, IPv4, SNMP, ICMP, IGMP, ARP, HTTP, CHAP, PAP, SSL, DHCP, SNTP, Telnet, FTP, PPP

Telnet Server: Allows remote administration through a standard telnet client.

FTP Server: Used for transferring files to and from remote computer systems over a network.

Web Server (httpd): Includes ASP, ISAPI Secure Socket Layer support, SSL 2, SSL 3, and Transport Layer Security (TLS/SSL 3.1) public key-based protocols, and Web Administration ISAPI Extensions.

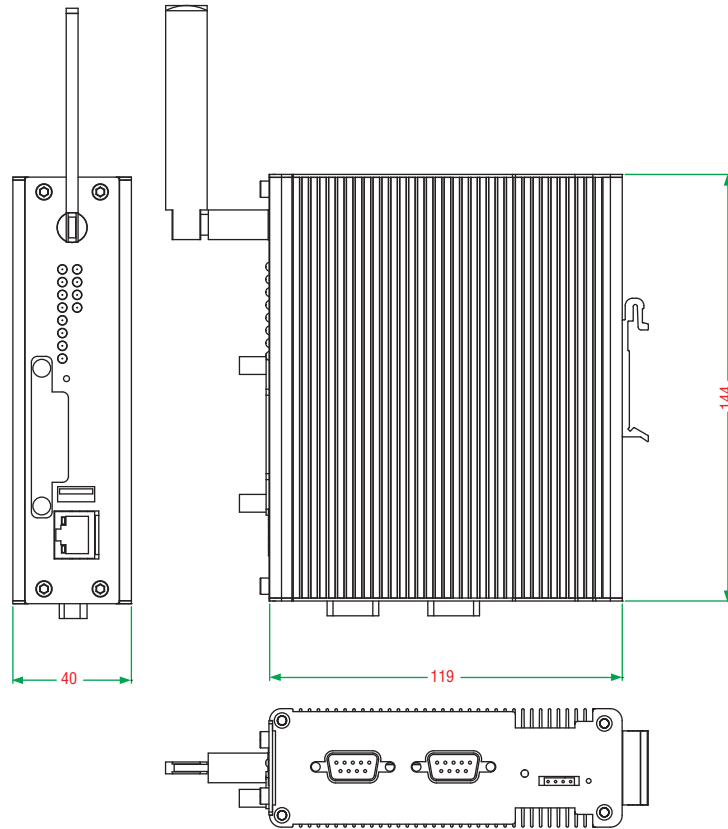
Dial-up Networking Service: RAS client API and PPP, supporting Extensible Authentication Protocol (EAP) and RAS scripting.

Watchdog Server: CPU hardware function for resetting the CPU in a user-specified time interval; activated by a Moxa library function

Application Development Software:

- Moxa WinCE 6.0 SDK
- C Libraries and Run-times
- Component Services (COM)
- Microsoft® .NET Compact Framework 2.0 with SP2
- XML, including XQL
- Winsock 2.2

Dimensions (unit = mm)



Ordering Information

Available Models

W406-LX: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, Linux 2.6 OS, -10 to 60°C operating temperature

W406-CE: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, WinCE 6.0 OS, -10 to 60°C operating temperature

W406-T-LX: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, Linux 2.6 OS (contact Moxa for details about this wide temp. computer)

W406-T-CE: RISC-based wireless embedded computer with GSM/GPRS/EDGE, 4 DIs, 4 DO, 2 serial ports, Ethernet, SD, WinCE 6.0 OS (contact Moxa for details about this wide temp. computer)

Optional Accessories (can be purchased separately)

PPWR-24250-DT-ST: Power adaptor

PWC-C7US-2B-183: Power cord with 2-pin connector, USA plug

PWC-C7EU-2B-183: Power cord with 2-pin connector, Euro plug

PWC-C7UK-2B-183: Power cord with 2-pin connector, British plug

PWC-C7AU-2B-183: Power cord with 2-pin connector, Australia plug

PWC-C7CN-2B-183: Power cord with 2-pin connector, China plug

Package Checklist

- W406 computer
- Wall mounting kit (optional)
- Ethernet cable: RJ45 to RJ45 cross-over cable, 100 cm
- CBL-4PINDB9F-100: 4-pin pin header to DB9 female console port cable, 100 cm
- GSM/GPRS/EDGE Antenna
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

