W315/325/345

RISC-based embedded computers with GSM/GPRS, LAN, and 1, 2, or 4 serial ports

- MOXA ART ARM9 32-bit 192 MHz processor
- 32 or 64 MB RAM, and 16 MB flash disk onboard
- Built-in quad band GSM/GPRS 850/900/1800/1900 MHz
- GPRS Class 10, coding scheme from CS1 to CS4 supported
- 1, 2, or 4 software-selectable RS-232/422/485 serial ports
- 10/100 Mbps Ethernet for network redundancy
- Designed to withstand 5 g’s of continuous vibration and 50-g shocks
- Relay Output for external alarm connection (W345 only)
- SD slot for storage expansion
- Ready-to-run Linux Kernel 2.6 platform
- DIN-rail or wall-mount installation
- Robust, fanless design

The W315/325/345 are embedded Linux computers that feature 1, 2, or 4 software selectable RS-232/422/485 ports, 1 Ethernet port, and quad-band GSM/GPRS 850/900/1800/1900 MHz for cellular communication. In addition, the W345 has 2 USB 2.0 hosts and 1 relay output, and the W325 and W345 come with an SD socket for external storage expansion. The W315/325/345 computers’ Linux OS runs on the MOXA ART 32-bit ARM9 processor, which provides a powerful and reliable platform for harsh, industrial environments. You will find these computers ideal for a variety of machine-to-machine applications, including data acquisition, protocol conversion, and remote device control and monitoring. 

W315
- Wireless GSM/GPRS Antenna
- Ethernet (10/100BaseTx) 12 to 48 VDC
- Serial Port 1 (RS-232/422/485)
- 1. Internal SD Slot for Storage Expansion
- 2. Internal SIM Card Slot (remove cover to access)

W325
- Wireless GSM/GPRS Antenna
- Ethernet (10/100BaseTx) 12 to 48 VDC
- Serial Port 1 (RS-232/422/485)
- 1. Internal SD Slot for Storage Expansion
- 2. Internal SIM Card Slot (remove cover to access)

W345
- USB 2.0 Host x 2
- Wireless GSM/GPRS antenna
- Ethernet (10/100BaseTx) Relay Output 12 to 48 VDC
- Serial Port 1 to 4 (RS-232/422/485)
- 1. Internal SD Slot for Storage Expansion
- 2. Internal SIM Card Slot (remove cover to access)
Hardware Specifications

Computer
CPU: MOXA ART ARM9 32-bit RISC CPU, 192 MHz
OS (pre-installed): Embedded Linux with MMU support
DRAM:
W315/325: 32 MB
W345: 64 MB
Flash: 16 MB
USB: (W345 only) USB 2.0 compliant hosts x 2, type A connector
Relay Output: (W345 only)
  • Form C, SPDT x 1
  • Normal Switching Capacity: 2A @30 VDC
  • Switching Power: 60 W max.
  • Switching Voltage: 220 VDC max.
  • Switching Current: 2 A max.
  • Operating Time: 4 ms @ 20°C
  • Initial Contact Resistance: 100 milli-ohm max.

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
Radio Frequency Bands: 850/900/1800/1900 MHz
GPRS Class: 10
Coding Schemes: CS1 to CS4

Serial Interface
Serial Standards: 1, 2, or 4 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

LEDs
System:
W315: Ready, SD
W325: Ready, SD
W345: Ready, SD
LAN: 10M/Link, 100M/Link (on connector)
Cellular: GPRS Enabled, GSM Signal Strength
Serial: TxD, RxD

Switches and Buttons
Reset Button: Supports “Reset to Factory Default”

Physical Characteristics
Housing: Aluminum (1 mm)
Weight:
W315/325: 195 g
W345: 400 g
Dimensions: (without ears or antenna)
W315: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
W325: 77 x 111 x 26 mm (3.03 x 4.37 x 1.02 in)
W345: 150 x 100 x 38 mm (5.91 x 3.94 x 1.50 in)
Mounting: DIN-rail (requires optional DK-35A DIN-rail kit), wall
Antenna Length: 110 mm

Environmental Limits
Operating Temperature: -10 to 60°C (14 to 140°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -20 to 80°C (-4 to 176°F)
Anti-vibration: 5 g @ IEC-68-2-6, sine wave, 5-500 Hz, 1 Oct/min, 1 hr/axis
Anti-shock: 50 g @ IEC-68-2-6, half-sine wave, 30 ms

Power Requirements
Input Voltage: 12 to 48 VDC
Power Consumption:
W315/325: 4.8 W
• 200 mA @ 24 VDC
• 400 mA @ 12 VDC
W345:
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 A, EN61000-3-2, EN61000-3-3, EN55024), FCC (Part 15 Subpart B, CISPR 22 Class A, ANSI C63.4)
Safety: UL/cUL (UL60950-1), LVD (EN 60950-1)
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, CrRoHS, 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
Software Specifications

Linux

- Kernel Version: 2.6.9
- 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
telnetd: Telnet Server daemon
ftp: 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 Environment:
- MOXA Linux API Library
- Linux Tool Chain: GCC, GLIBC, GDB
- BIN Encryptor: Encryption tool for binary files, based on “Moxa Intellectual Protection Technology” (Patented)

Device Drivers:
- W315/325: UART, RTC, Buzzer, SD Card
- W345: UART, RTC, Buzzer, SD Card, USB (supports USB flash disk), DO

Software Encryption Lock:
- BIN Encryptor: Encryption tool for binary files (based on patented Moxa technology)

<table>
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<th>Model Name</th>
<th>Serial Ports</th>
<th>LAN Port</th>
<th>WLAN</th>
<th>Cellular</th>
<th>Relay Output</th>
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<td>Linux</td>
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<td>W345</td>
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<td>–</td>
<td>–</td>
<td>1</td>
<td>2</td>
<td>Linux</td>
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Dimensions (unit = mm)

W315

W325

Wireless Embedded Computers
**Package Checklist**

- W315 or W325 or W345 computer
- Wall mounting kit
- 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
- Universal power adaptor (including terminal block to power jack converter)
- GSM/GPRS Antenna
- Document and Software CD
- Quick Installation Guide (printed)
- Warranty Card

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**Available Models**

**W315-LX:** RISC-based wireless embedded computer with GSM/GPRS, 1 serial port, LAN, and SD

**W325-LX:** RISC-based wireless embedded computer with GSM/GPRS, 2 serial ports, LAN, and SD

**W345-LX:** RISC-based wireless embedded computer with GSM/GPRS, 4 serial ports, LAN, SD, USB, and relay output

**Optional Accessories** (can be purchased separately)

**DK-35A:** Mounting kit for 35-mm DIN-Rail