**MGate™ 5114 Series**

1-port Modbus RTU/ASCII/TCP/IEC 101-to-IEC 104 gateways

- Protocol conversion between Modbus RTU/ASCII/TCP, IEC 60870-5-101, IEC 60870-5-104
- Supports IEC 60870-5-101 master/slave (balanced/unbalanced mode)
- Supports IEC 60870-5-104 client/server
- Supports Modbus RTU/ASCII/TCP client (master)/server (slave)
- Effortless configuration via web-based wizard
- Complete diagnostic information for maintenance
- Embedded Modbus and IEC 101/104 traffic monitoring
- Redundant dual DC power inputs and one relay output
- microSD card for configuration backup and event logs
- -40 to 75°C wide operating temperature models available
- Serial port with 2 kV built-in isolation protection
- Built-in Ethernet cascading for easy wiring
- Security features based on IEC-62443

---

**Introduction**

The MGate 5114 is an industrial Ethernet gateway with 2 Ethernet ports and 1 RS-232/422/485 serial port for Modbus RTU/ASCII/TCP, IEC 60870-5-101, and IEC 60870-5-104 network communications. By integrating widely power common use protocols, MGate 5114 provides the flexibility to fulfill various conditions when facing the difference of protocols used between the field devices and the power SCADA. To integrate Modbus or IEC 60870-5-101 devices onto a IEC 60870-5-104 network, use the MGate 5114 as a Modbus master/client or IEC 60870-5-101 master to collect data and exchange data with IEC 60870-5-104 systems.

**Easy Configuration via Web Console**

The MGate 5114 Series comes with an illustrated Quick Setup guide designed to make configuration easy. With Quick Setup, you can easily access protocol conversion modes and finish the configuration in a few steps.

**Modbus RTU/ASCII/TCP Protocol Traffic Monitor**

MGate 5114 Series support Modbus RTU/ASCII/TCP, IEC 60870-5-101, and IEC 60870-5-104 Protocol Traffic Monitor for easy troubleshooting, especially during the installation stage. It is worth to mention that the traffic logs also can be shown in a popular troubleshooting tool, Wireshark. With that feature, you can easily analyze the traffic to find out the root cause quickly.

**Maintenance Functions**

MGate 5114 gateways support a system log function that records events in the MGate; users can easily review log data remotely through the web console. The gateways also support status monitoring and fault protection functions. The status monitoring function notifies a PSCADA when a device gets disconnected or does not respond, in which case the PSCADA gets the status of each end device and then issues alarms to notify operators.
## Specifications

### Ethernet Interface

**Protocols:** Modbus TCP client/server, IEC 60870-5-104 client/server  
**Number of Ports:** 2 (1 IP; used for Ethernet cascading)  
**Speed:** 10/100 Mbps, Auto MDI/MDIX  
**Connector:** 8-pin RJ45  
**IEC 60870-5-104:**  
- **Mode:** Client/Server  
- **Max. Number of Connections:**  
  - MGate as IEC 104 server: 32 client connections  
  - MGate as IEC 104 client: 32 server connections  
- **The maximum number of information objects:** 2000 points  
**Modbus TCP:**  
- **Mode:** Client/Server  
- **Functions Supported:** 1, 2, 3, 4, 5, 6, 15, 16, 23  
- **Max. Number of Commands:** 128  
- **Max. Number of Connections:**  
  - MGate as Modbus TCP Client: 32 server connections  
  - MGate as Modbus TCP Server: 32 client connections  

### Serial Interface

**Protocol:** Modbus RTU/ASCII master/slave, IEC60870-5-101 master/slave (Balanced/Unbalanced)  
**Number of Ports:** 1  
**Serial Standards:** RS-232/422/485, software selectable  
**Connectors:** DB9 male  
**RS-485 Data Direction Control:** ADDC® (automatic data direction control)  
**Pull High/Low Resistor for RS-485:** 1 kΩ, 150 kΩ  
**Terminator for RS-485:** 120 Ω  
**Isolation:** 2 kV (built-in)  
**Modbus RTU/ASCII:**  
- **Mode:** Master/Slave  
- **Functions Supported:** 1, 2, 3, 4, 5, 6, 15, 16, 23  
- **Max. Number of Commands:** 128  
**IEC 60870-5-101:**  
- **Mode:** Master/Slave(balanced/unbalanced)  
- **MGate as IEC 101 master:** 31 slave connections  
- **MGate as IEC 101 slave:** 1 master connection  
- **The maximum number of information objects:** 2000 points  

### Serial Communication Parameters

- **Data Bits:** 7, 8  
- **Stop Bits:** 1, 2  
- **Parity:** None, Even, Odd, Space, Mark  
- **Flow Control:** RTS/CTS, RTS Toggle (RS-232 only)  
- **Baudrate:** 50 bps to 921.6 kbps  

### Physical Characteristics

**Housing:** Metal, IP30  
**Weight:** 507 g (1.12 lb)  
**Dimensions:** 36 x 105 x 140 mm (1.42 x 4.14 x 5.51 in)  
**Storage Card Slot:** 1 microSD (SDHC) card slot supports up to 32 GB  
**Relay Alarm Circuit:** 3-pin circuit with current carrying capacity of 2 A @ 30 VDC  

### Environmental Limits

- **Operating Temperature:**  
  - Standard Models: 0 to 60°C (32 to 140°F)  
  - Wide Temp. Models: -40 to 75°C (-40 to 167°F)  
- **Storage Temperature:** -40 to 85°C (-40 to 185°F)  
- **Ambient Relative Humidity:** 5 to 95% (non-condensing)  
- **Vibration:** IEC 60068-2-64  
- **Shock:** IEC 60068-2-27  
- **Drop:** IEC 60068-2-32  

### Power Requirements

- **Input Voltage:** 12 to 48 VDC  
- **Input Current:** 455 mA max.  
- **Power Connector:** Terminal block  

### Standards and Certifications

- **Safety:** UL 508, EN 60950-1  
- **Hazardous Location:** Class 1 Division 2, ATEX, IECEx*  
  *Certification is underway. Please contact a Moxa sales representative for details.  
- **EMC:** EN 55032/24  
- **EMI:** CISPR 32, FCC Part 15B Class B  
- **EMS:** IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV  
  IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m  
  IEC 61000-4-4 EFT: Power: 4 kV; Signal: 2 kV  
  IEC 61000-4-5 Surge: Power: 2 kV; Signal: 2 kV  
  IEC 61000-4-6 CS: 150 kHz to 80 MHz: 10 V/m  
  IEC 61000-4-8 PFMF  

**MTBF** (mean time between failures)  
**Time:** 1,140,815 hrs  

### Warranty

- **Warranty Period:** 5 years  
- **Details:** See www.moxa.com/warranty
**Ordering Information**

**Available Models**
- **MGate 5114**: 1-port Modbus/IEC101 to IEC104 gateway, 0 to 60°C operating temperature
- **MGate 5114-T**: 1-port Modbus/IEC101 to IEC104 gateway, -40 to 75°C operating temperature

**Optional Accessories** (can be purchased separately)
- **CBL-F9M9-150**: DB9 female to DB9 male serial cable, 150 cm
- **CBL-F9M9-20**: DB9 female to DB9 male serial cable, 20 cm
- **CBL-RJ45F9-150**: RJ45 to DB9 female serial cable, 150 cm
- **CBL-RJ45SF9-150**: RJ45 to DB9 female serial shielded cable, 150 cm
- **Mini DB9F-to-TB DB9**: Female to terminal block connector
- **DK-25-01**: 1 DIN-rail kit with 2 screws
- **WK-36-02**: DIN-rail/wall-mounting kit: 2 plates with 6 screws
- **CBL-PJTB-10**: Non-locking barrel plug to bare-wire cable

**Package Checklist**
- 1 MGate 5114 gateway
- 1 serial cable: DBL-RJ45F9-150
- Quick installation guide (printed)
- Warranty card

---

**Dimensions**

Unit: mm (inch)