# MGate™ 5118 Series

## *1-port CAN-J1939 to Modbus/PROFINET/EtherNet/IP gateways*

> Key-in-free J1939 command auto detection
> Built-in J1939 traffic monitoring/diagnostics/live-list tools
> Supports J1939 to Modbus RTU/ASCII/TCP, EtherNet/IP, PROFINET protocol conversion
> Ready for hazardous locations: C1D2, ATEX, IECEx
> MicroSD card for configuration backup/duplication, and event log
> 2 kV CANbus and Modbus serial port isolation
> -40 to 75°C wide operating temperature models available
> Security features based on IEC-62443

## ∷ Overview

The MGate 5118 series industrial protocol gateways support the SAE J1939 protocol, which is based on CANBus (Controller Area Network). SAE J1939 is used to implement communication and diagnostics among vehicle components, diesel engine generators, and compression engines, and is suitable for the heavy duty truck industry and backup power systems. It is now common to use an engine control unit (ECU) to control these kinds of devices, and more and more applications are using PLCs for process automation to monitor the status of J1939 devices connected behind the ECU.

The MGate 5118 series gateways support the Modbus RTU/ASCII/TCP, EtherNet/IP, and PROFINET protocols to support most PLC applications. Devices that support the J1939 protocol can be monitored and controlled by PLCs and SCADA systems that use the Modbus RTU/ASCII/TCP, EtherNet/IP, and PROFINET protocols. With the MGate 5118, you can use the same gateway in a variety of PLC environments.

## ∷ Key-in-Free J1939 Command

The J1939 protocol is designed to retrieve a wide range of data from CAN-J1939 devices. To eliminate the need to key in all J1939 commands into the gateway by hand, MGate 5118 gateways can auto detect the output commands used by the CAN device. With a single click in the web console, all of the output commands from your CAN device will be detected by the gateway automatically. The commands will be displayed in the web console's command list, and then can be further modified by the user if needed. The MGate 5118 series gateways make it much easier for users to connect PLCs with CAN devices.

## ∷ Variety of Maintenance Functions

The MGate 5118 series gateways support a web console for easy configuration and maintenance, and the built-in traffic monitor function monitors J1939 protocol traffic, allowing users to monitor the status of connected CAN devices, including error count, packet count, and bus-offline. The traffic monitor function can also be used to troubleshoot CAN devices. The diagnostics tool helps users to check CAN device settings and indicates CAN device availability by reading the J1939 network address. In addition, the MGate 5118 series gateways have a built-in Live List function for when two or more J1939 devices are connected to the same CAN bus. This function shows the PGN and

address of packets transmitted from each device, giving users the ability to gage the loading of the CAN bus.

To detect loose cables, the MGate 5118 series gateways support status monitoring and fault protection functions. The status monitoring function notifies a PLC when the cable between the gateway and CAN device is loose. In addition, the fault protection function executes actions pre-defined by the user when the cable between the gateway and PLC is loose.

## : Specifications

### Industrial Protocols

**Protocols:** SAE J1939, Modbus RTU/ASCII/TCP, PROFINET, EtherNet/IP
**Protocol Conversion:**
• J1939 to Modbus RTU/ASCII (Master/Slave)
• J1939 to Modbus TCP (Client/Server)
• J1939 to EtherNet/IP (Scanner/Adapter)
• J1939 to PROFINET (I/O Device)

### Ethernet Interface

**Protocols:** Modbus TCP (Client/Server), PROFINET (I/O device), EtherNet/IP (Scanner/Adapter)
**Number of Ports:** 2 (1 IP address, supports Ethernet cascading)
**Speed:** 10/100 Mbps, Auto MDI/MDIX
**Connector:** 8-pin RJ45
**Magnetic Isolation Protection:** 1.5 kV (built-in)

### CAN-J1939 Serial Interface

**Protocols:** SAE J1939
**Number of Ports:** 1
**Connectors:** 6-pin terminal block
**Terminator:** 120 Ω
**Isolation:** 2 kv (built-in)
**Data Rate:** 250 kbps and 500 kbps

### Modbus Serial Interface

**Protocols:** Modbus RTU/ASCII (Master/Slave)
**Number of Ports:** 1
**Serial Standards:** RS-232/422/485, software selectable
**Connectors:** DB9 male
**Pull High/Low Resistor for RS-485:** 1 kΩ, 150 kΩ
**Terminator for RS-485:** 120 Ω
**Isolation:** 2 kV (built-in)

### Modbus Serial Communication Parameters

**Data Bits:** 8
**Stop Bits:** 1, 2
**Parity:** None, Even, Odd, Space, Mark
**Flow Control:** RTS/CTS, RTS Toggle
**Baudrate:** 50 bps to 921.6 kbps

### Modbus Serial Signals

**RS-232:** TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
**RS-422:** Tx+, Tx-, Rx+, Rx-, GND
**RS-485-4w:** Tx+, Tx-, Rx+, Rx-, GND
**RS-485-2w:** Data+, Data-, GND

### Software

**Configuration Options:** Web console
**Utility:** Device Search Utility (DSU) for Windows 95, 98, ME, NT, 2000, Windows XP, Server 2003, Vista, Server 2008 (x86/x64), Windows Server 2008 R2, Windows 7/8/8.1/10 (x86/x64), Windows Server 2012 (x64), Windows 2012 R2
**Network Protocols:** TCP/IP, UDP, HTTP, SMTP, NTP, DNS, DHCP Client, SNMP (v1, v2, v3), MIB-II, ARP, Telnet
**Support:** MXview, MXconfig, IEC 62443-4-2

### Physical Characteristics

**Housing:** Metal, IP30
**Weight:** 589 g (1.30 lb)
**Dimensions:** 45.8 x 105 x 134 mm (1.8 x 4.13 x 5.28 in)

### 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 60068-2-6, IEC 60068-2-64
**Shock:** IEC 60068-2-27
**Drop:** IEC 60068-2-32

### Power Requirements

**Input Voltage:** 12 to 48 VDC
**Input Current:**
• 416 mA @ 12 VDC
• 195 mA @ 24 VDC;
• 110 mA @ 48 VDC
**Power Connector:** Terminal block

### Standards and Certifications

**Safety:** EN 60950-1(LVD), UL 61010-2-201
**Hazardous Location:** Class I Division 2, ATEX, IECEx (Note: Certification is underway. Please contact a Moxa slaes representative for details.)
**EMC:** EN 61000-6-2/6-4
**EMI:** CISPR 22, FCC Part 15B Class B
**EMS:**
IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV
IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m
IEC 61000-4-4 EFT: Power: 2 kV; Signal: 1 kV
IEC 61000-4-5 Surge: Power 1 kV; Signal: 1 kV
IEC 61000-4-6 CS: 10 V
IEC 61000-4-8 PFMF: 10 A/m

### Reliability

**Alarm Functions:** Relay, email, SNMP trap
**Alert Tools:** Built-in buzzer
**Storage Card Slot:** 1 microSD (SDHC) card slot; supports up to 32 GB

### MTBF (mean time between failures)
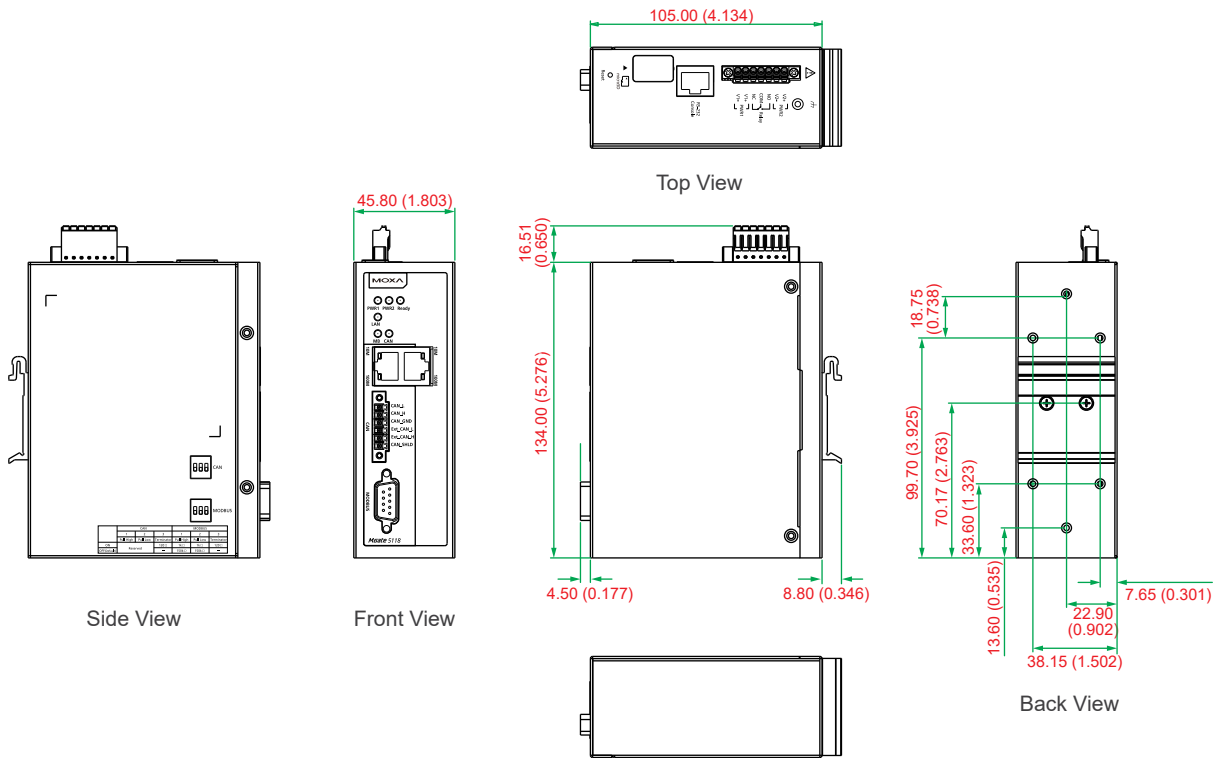
**Time:** 727,873 hrs
**Standard:** Telcordia SR332

### Warranty

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

**MOXA**®

## Dimensions

Unit: mm (inch)

105.00 (4.134)

Top View

45.80 (1.803)

Side View

Front View

16.51 (0.650)

134.00 (5.276)

4.50 (0.177)

8.80 (0.346)

18.75 (0.738)

99.70 (3.925)

70.17 (2.763)

33.60 (1.323)

13.60 (0.535)

22.90 (0.902)

7.65 (0.301)

38.15 (1.502)

Back View

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## ⁞ Ordering Information

### Available Models

**MGate 5118:** 1-port J1939 to Modbus/PROFINET/EtherNet/IP gateway, 0 to 60°C operating temperature
**MGate 5118-T:** 1-port J1939 to Modbus/PROFINET/EtherNet/IP gateway, -40 to 75°C operating temperature

### Optional Accessories (can be purchased separately)

**WK-51-01:** Wall-mounting kit, 2 plates with 6 screws
**Mini DB9F-to-TB:** DB9 female to terminal block connector

### Package Checklist

- 1 MGate 5118 gateway
- Documentation and software CD
- Quick installation guide (printed)
- Warranty card