



## FEATURE HIGHLIGHTS

- 4G Cellular Protocol Gateway with extensive LTE Band support:
  - EU: 2100/1800/850/2600/900/800 MHz (B1/B3/B5/B7/B8/B20)
  - US: 1900/1700/850/700/600 MHz (B2/B4/B5/B12/B13/B14/B66/B71)
- Industrial-grade hardware for operating in harsh environments
- Wide temperature range for operations at extreme temperatures
- VPN over IPsec, OpenVPN or PPTP with throughput up to 37.9Mbps\*
- 1 x 10/100/1000Mbps Ethernet port, 1 x RS-232/485 port, up to 921.6 Kbps
- Modbus TCP to RTU/ASCII conversion
- Management via Web Browser, SMS, SNMP v1/v2c/v3
- 2 Digital Inputs; 2 Digital outputs / Additional RS-232 in I/O version
- Additional embedded power-bank for fault-relay capability (-B- version)

## PRODUCT DESCRIPTION

### A compact and rugged 4G Modbus Gateway

Based on ATOP's Industrial-grade hardware, the MB5901B Series is a cost-effective Modbus Gateway for seamless conversion between Ethernet-based Modbus TCP and serial-based Modbus RTU/ASCII for demanding applications such as Industry 4.0 and Smart Grids. Its rugged, reliable hardware features high EMC protection, wide temperature operation, and programming and installation flexibility in one device, while its advanced performance protects your data over the Internet with secure IPsec VPN or OpenVPN tunnels, with its powerful CPU providing up to 37.9Mbps\* software-assisted AES encryption.

### Flexibility

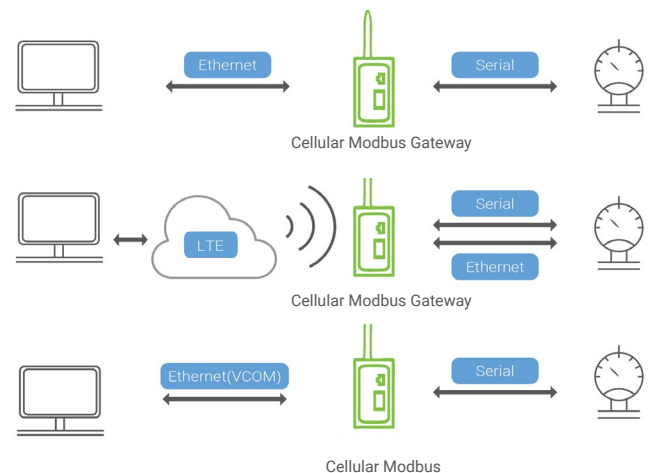
In addition to offering installation flexibility, the MB5901B series' configuration options enable it to be set up over Ethernet via Telnet, Web Browser, Serial Console, or our Windows Utility.

### Maintenance 4.0

ATOP Virtual COM software provides a virtual environment for applications when accessing MB5901B through TCP. Special management via SMS can be performed, such as polling data, issuing commands and system reboots.

### Added value

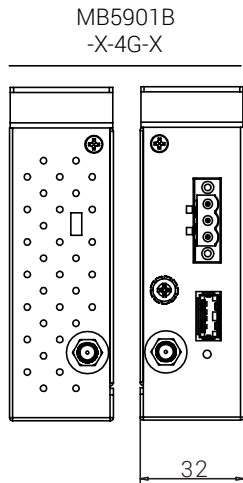
A dedicated I/O version provides 2 x digital inputs and outputs each. These are also accessible via dedicated Modbus Registers. The -B- version model also provides 15 seconds of back-up power in the event of a power failure, allowing the device to relay the failure to the host.



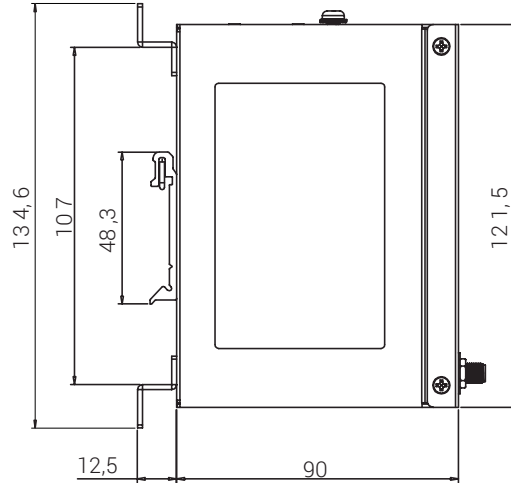
\*Coming soon: test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network.

# DIMENSIONS & LAYOUT

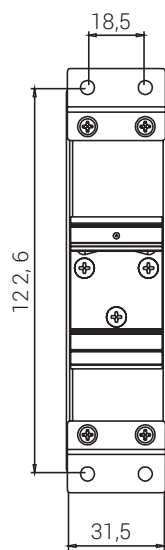
Front View



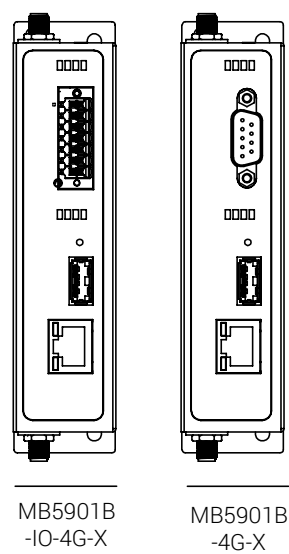
Side View



Top View



Back View



## SPECIFICATIONS

Wireless Interface				
Standard	WCDMA/ DC-HSPA+/ LTE			
Antennas/ SIM card	(4G) - Internal SIM card slot (x1)			
Band Options	Version	Band	Bands	
	EU	FDD LTE	2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)	
		TDD LTE WCDMA	2600/2300/2500MHz (B38/B40/B41) 2100/850/900MHz (B1/B5/B8)	
	US	FDD LTE	1900/1700/850/700/600bMHz (B2/B4/B5/B12/B13/B14/B66/B71)	
WCDMA		1900/1700/850MHz (B2/B4/B5)		
Data Rate	Version	Band	Downlink Speed	Uplink Speed
	EU	LTE-FDD	150 Mbps	50 Mbps
		LTE-TDD	130 Mbps	30 Mbps
		DC-HSPA+	42 Mbps	5.76 Mbps
WCDMA		384 Kbps	384 Kbps	
US	LTE-FDD	150 Mbps	50 Mbps	
	DC-HSPA+	42 Mbps	5.76 Mbps	
	WCDMA	384 Kbps	384 Kbps	
Network Interface				
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X)			
Ethernet Ports	1x 10/100/1000BASE-TX RJ-45			
Serial Interface				
Connector	D-Sub9 RS-232/485 software selectable (DB model) 14-Pin 5.08mm Terminal Block (integrated with DI/DOs)			
Ports	1 port RS-232/485 (2-wire) software selectable 1 port RS-232 (IO model only)			
Configuration	Baud Rate	1,200 to 921,600bps software selectable		
	Data Bits	7, 8 software selectable		
	Stop Bits	1, 2 software selectable		
	Flow Control	None, Xon/Xoff, RTS/CTS (RS-232 only)		
Universal Serial Bus				
USB ports	2 x USB A Type (USB 2.0) : 1 port High-Speed OTG + 1 port power only			
Digital Inputs/Outputs (IO Models)				
Digital Inputs (DIs) Digital Outputs (DOs)	2 channels photo coupler isolated digital input 2 channels digital output. N.O.(2A@24VDC)			

GNSS (GPS Models)	
Supported GNSS	GPS, Glonass, Beidou
Connector	1x SMA
Software	
Security	IPsec or OpenVPN VPN tunneling. Max VPN throughput 37.9Mbps*; PPTP; SMTP/TLS
Network	ARP, IPv4, DHCP Client, NTP Client, ICMP, TCP, UDP, HTTP, RFC2217, TELNET, NAT
Management	Web, ATOP Device Management Utility, SNMPv1/v2c/v3, SMS
Configuration	Embedded Web-Server (Web UI), TELNET, Atop Device Management Utility
Modbus Features	
Protocol	Bi-directional Modbus TCP/RTU/ASCII, Virtual ID mapping
Supported Modes	Ethernet: Modbus TCP Server/Client(or VCOM); Serial: Modbus RTU/ASCII (master/slave)
Maximum number of clients/slaves	Modbus TCP: Maximum 16 clients Maximum 32 slave connections
Power	
Input Voltage	9-48 VDC
Connector	3-Pin 5.08mm Lockable Terminal Block
Power Consumption	0.65A@12VDC (Approx. 7.8W)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes
Environmental limits	
Operating Temperature	-40°C to +70°C (-40°F to +158°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Ambient Relative Humidity	5% to 95% (Non-condensing)
Mechanicals	
Housing	IP30 protection, SPCC metal housing
Dimensions(W x H x D)	32mm x 122mm x 92mm
Installation	DIN-Rail or Wall-Mount (optional kit)
Weight	400 g
Reset Button	Yes

\* Coming soon: test carried out with one VPN-IPsec Tunnel, Peer-to-Peer mode, Ethernet cable. Performance can change based on the Cellular Network.

## REGULATORY APPROVALS

Regulatory Approvals				
Safety	CB (IEC/EN62368-1 & IEC/EN60950-1)			
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H, FCC PART 27L, FCC Part 15B, EN301489-1, EN301489-7, EN301489-19, EN301489-24, EN301489-52, EN301511, EN301908-1, EN301908-2, EN303413, EN55032, EN55024, EN61000-6-2, EN61000-6-4			
Test	Item		Value	Level
IEC 61000-4-2	ESD	Contact Discharge	±6KV	3
		Air Discharge	±8KV	3
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz	3
IEC 61000-4-4	EFT	AC Power Port	±2.0KV	3
		DC Power Port	±2.0KV	3
		Signal Port	±1.0KV	3
IEC 61000-4-5	Surge	DC Power Port	Line-to-Line±1.0KV	3
		DC Power Port	Line-to-Earth±2.0KV	3
		Signal Port	Line-to-Earth±2.0KV	3
IEC 61000-4-6	CS	0.15-80MHz	10V rms	3
IEC 61000-4-8	PFMF	(Enclosure)	AC 50Hz 10A/m	3
IEC 61000-4-11	DIP	AC Power Port	>95%, Reduction, 0.5 period 30%, Reduction, 25 period >95%, Reduction, 250 period	-
Shock	MIL-STD-810G Method 516.7			
Drop	MIL-STD-810G Method 516.7			
Vibration	MIL-STD-810G Method 514.7			
RoHS	Yes			
MTBF	20.88 years according to MIL-HDBK-217F (Model average)			
Warranty	5 years			

## ORDERING INFORMATION

Ordering information				
Model name	Cellular	Serial Ports	I/O	Other
MB5901B-4G-US	4G (US)	1 (DB9)	-	-
MB5901B-IO-4G-US	4G (US)	1 (TB) +1 RS232	2/2	-
MB5901B-IO-4G-GPS-US	4G (US)	1 (TB) +1 RS232	2/2	GPS
MB5901B-4G-B-US	4G (US)	1 (DB9)	-	Battery
MB5901B-IO-4G-B-US	4G (US)	1 (TB) +1 RS232	2/2	Battery
MB5901B-IO-4G-GPS-B-US	4G (US)	1 (TB) +1 RS232	2/2	GPS, Battery
MB5901B-4G-EU	4G (EU)	1 (DB9)	-	-
MB5901B-IO-4G-EU	4G (EU)	1 (TB) +1 RS232	2/2	-
MB5901B-IO-4G-GPS-EU	4G (EU)	1 (TB) +1 RS232	2/2	GPS
MB5901B-4G-B-EU	4G (EU)	1 (DB9)	-	Battery
MB5901B-IO-4G-B-EU	4G (EU)	1 (TB) +1 RS232	2/2	Battery
MB5901B-IO-4G-GPS-B-EU	4G (EU)	1 (TB) +1 RS232	2/2	GPS, Battery

Optional Accessories		
Model name	Part Number	Description
UN315-1212(US-Y) LV6	50500151120003G	Y-Type (5.08 mm) adaptor, 100-240VAC input, 1.25A @ 12VDC output, US plug
UNE315-1212(EU-Y)LV6	50500151120013G	Y-Type (5.08 mm) adaptor, 100-240VAC input, 1.25A @ 12VDC output, EU plug
ADP-DB9(F)-TB5	59906231G	Female DB9 to Female 3.81mm TB5 Converter
WMK-315-Black	70100000000050G	Black Aluminum Wall Mount Kit