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## FEATURE HIGHLIGHTS

- GPRS/3G/4G Cellular Protocol Gateway with extensive LTE Band support:  
EU Model: 2100/1800/850/2600/900/800MHz (B1/B3/B5/B7/B8/B20)  
US Model: 1900/AWS/850/700/700/1900MHz (B2/B4/B5/B13/B17/B25)
- Industrial-grade hardware for operating in harsh environments
- Wide temperature range for operations at extreme temperatures
- VPN over IPsec or OpenVPN 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

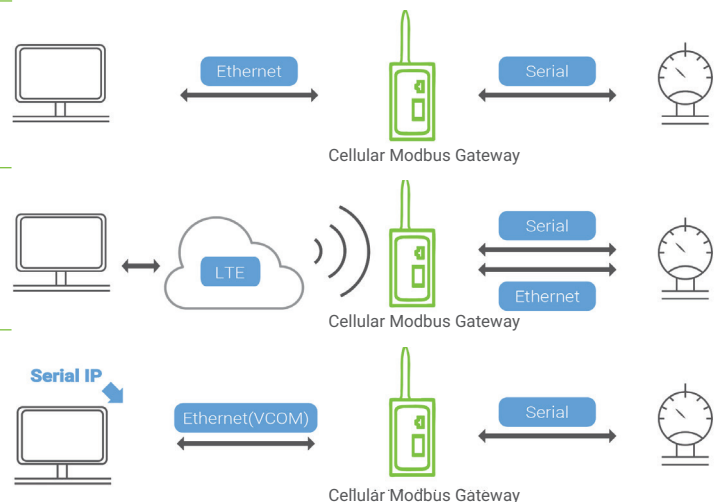
Based on ATOP's Industrial-grade hardware, the MB5901B Series is a cost-effective Modbus Gateway for seamless conversion between Ethernet-based Modbus TCP and serial-based Modbus RTU/ASCII for demanding applications such as Industry 4.0 and Smart Grids. Its rugged, reliable hardware features high EMC 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 with Advance Performance

In addition to offering installation flexibility, the MB5901B Series Flexible configuration options enable it to be setup over Ethernet via Telnet, Web Browser, Serial Console, or our Windows Utility.

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. This is Maintenance 4.0.

A dedicated I/O version provides 2 x Digital Inputs and 2 x Digital Outputs. 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.



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

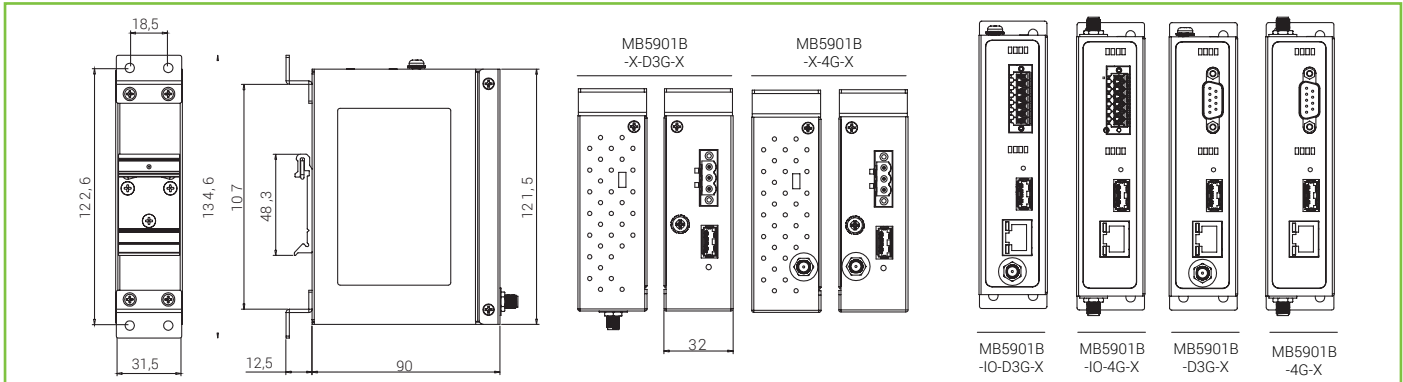
## SPECIFICATIONS

Wireless Interface				
Standard	GSM/ GPRS/ EDGE/ UMTS/ HSPA+/ SCDMA/ LTE			
Wireless Module	EU version: Quectel EC25-E US version: Quectel EC20-A			
Antennas/ SIM card	1 (3G) or 2 (4G) - Included. 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 GSM	2600/2300/2500MHz (B38/B40/B41) 2100/850/900MHz (B1/B5/B8) 900/1800	
US	FDD LTE	1900/1700/850/700/700bMHz (B2/B4/B5/B12/B17)		
	TDD LTE GSM	1900/1700/850MHz (B2/B4/B5) 850/1900MHz		
Data Rate	Version	Band	Downlink Speed	Uplink Speed
	EU	LTE-FDD	150 Mbps	50 Mbps
		LTE-TDD	130 Mbps	35 Mbps
DC-HSPA+		42 Mbps	5.76 Mbps	
UMTS		384 Kbps	384 Kbps	
TD-SCDMA		4.2 Mbps	2.2 Mbps	
EDGE GPRS		236.8 Kbps 85.6 Kbps	236.8 Kbps 85.6 Kbps	
US	LTE-FDD	100 Mbps	50 Mbps	
	LTE-TDD	61 Mbps	18 Mbps	
	DC-HSPA+	42 Mbps	5.76 Mbps	
	UMTS	384 Kbps	384 Kbps	
	TD-SCDMA	4.2 Mbps	2.2 Mbps	
	EDGE GPRS	236.8 Kbps 85.6 Kbps	236.8 Kbps 85.6 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			
Network 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 Data Bits Stop Bits Flow Control	1,200 ~ 921,600bps software selectable 7, 8 software selectable 1, 2 software selectable 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)
Software	
Security	IPsec or OpenVPN VPN tunneling. Max VPN throughput 37.9Mbps *
Network	IPv4, DHCP 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	0.6A @ 12VDC (7.2 W Max)
Power Redundancy	USB DC 5V Power Input
Reverse Polarity Protection	Yes
Environmental limits	
Operating Temperature	-40°C~70°C (-40°F~158°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~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

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

## DIMENSIONS & LAYOUT



## REGULATORY APPROVALS

### Regulatory Approvals

Safety	EN 60950-1:2006			
EMC/Radio	FCC 47 CFR PART 22H, FCC 47 CFR PART 24H, FCC PART 27L, FCC Part 15B, EN301511, EN301908-1, EN301908-2, EN301489-1, EN301489-7, EN301489-24, 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,0.5period 30%, Reduction,25 period >95%,Reduction,250 period	-
Shock	IEC 60068-2-27			
Drop	IEC 60068-2-32			
Vibration	IEC 60068-2-64			
RoHS	Yes			
MTBF	TBD			
Warranty	5 years			

## ORDERING INFORMATION

Ordering information					
Software Type	Model name	Cellular	Serial Ports	I/O	Other
Ethernet/ Cellular to Serial Device Server, VirtualCOM and IPsec VPN Security	MB5901B-D3G-US	3G (US)	1 (DB9)	-	-
	MB5901B-IO-D3G-US	3G (US)	1 (TB) +1 RS232	2/2	-
	MB5901B-IO-D3G-GPS-US	3G (US)	1 (TB) +1 RS232	2/2	GPS
	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)	-	-
	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-D3G-EU	3G (EU)	1 (DB9)	-	-
	MB5901B-IO-D3G-EU	3G (EU)	1 (TB) +1 RS232	2/2	-
	MB5901B-IO-D3G-GPS-EU	3G (EU)	1 (TB) +1 RS232	2/2	GPS
	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	-
	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
WL-7200-V1 WLAN Dongle	59908002G	802.11b/g/n 300M , USB Dongle