

Model Information



■ Main Features

- Converts between Modbus/RTU, Modbus/ASCII and Modbus/TCP over Ethernet, WLAN or Internet
- LAN 10/100 Fast Ethernet
- Configuration over Web interface
- Supports Modbus Master Multiplexing
- Supports TCP/IP, DHCP, ICMP, HTTP, DNS
- RS232/422/485 interface selected by Software
- Optional: Wireless network IEEE 802.11b/g/n

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ModGate Plus 413

(ModGate 413)

Quick Link: | [Main Features](#) | [More Pictures](#) | [Overview](#) | [Ethernet Interface](#) | [Serial Interface](#) | [Software](#) | [Wireless interface \(option\)](#) | [Power Requirements](#) | [Housing and Mounting](#) | [Environmental Data](#) | [Standards](#) | [MTBF \(Mean Time Between Failures\)](#) | [Warranty](#) | [Ordering Information](#) | [Options](#) | [Packaging](#) |

■ More Pictures



Click on the thumbnails for the large picture ...

[>Back to top](#)

■ Overview

The ModGate Plus is an easy to use Gateway between Modbus/TCP on Ethernet or WLAN, Modbus/RTU and Modbus/ASCII. ModGate Plus 413 connects four Modbus serial lines to a network running TCP/IP. It can also connect Modbus/RTU and Modbus/ASCII busses.

Hardware Characteristics

With its metal case, a wide temperature range and a flexible DC power supply, the ModGate Plus classifies as an industrial-strength device. The product line is based on a state-of-the-art RISC processor, providing a cost-effective design and low power consumption.

The serial ports can be configured to physically use RS232, RS422 or RS485, allowing the utilisation of multiple Modbus Slaves on a single serial line.

Operational Benefits

The ModGate Plus devices make Modbus operations independent of distance and OS platforms; they can be accessed and controlled via Internet and VPN connections.

The messages received on the network are sent to the destination serial line; replies from serial port are sent back across the network and vice versa. A ModGate Plus device functions automatically, whether a Modbus Master is on a serial port or on the TCP/IP network.

Modbus Master Multiplexing is implemented as an extension to the standard: Several Masters can connect to ModGate Plus using Modbus/TCP whilst slaves on serial lines may answer requests from multiple Masters.

The configuration of ModGate Plus is done via browser. The user interface is based on modern web technologies to allow for an easy navigation through the configuration options provided. Furthermore, UPnP provides a simple and standardized way to find the Gateway in the network.

ModGate Plus devices can be ordered with an embedded module for WLAN 802.11b/g/n. A ModGate Plus 413 may be ordered as POE device, with additional power supply via Power-over-Ethernet complying with 802.3af (Class 0).

■ Ethernet Interface	
Speed/Type	100Mbps/10Mbps Auto-detecting
Connector	RJ45 (8P8C) 8 pin
LEDs	Power, WLAN, Ready, Ethernet Link / Speed
>Back to top	
■ Serial Interface	
No. of Ports/Type	4 × RS232/422/485 selected by software
Connector	DB-9 male
Protection	16kV ESD surge protection
Operating Modes	<ul style="list-style-type: none"> • RS232 • RS422 full duplex (120Ω on/off) • RS485 4 wire, full duplex (120Ω on/off) • RS485 2 wire, half duplex (120Ω on/off)
Configuration	Software sets operating mode and RS422/485 termination No High/Low biasing resistors needed
Signals	<ul style="list-style-type: none"> • RS232: TxD,RxD, RTS,CTS, DTR,DSR, DCD, GND • RS422: Tx+/-, Rx+/-, GND • RS485 4 wire: Tx+/-, Rx+/-, GND • RS485 2 wire: Data+/-, GND
RS485 Data Direction control	ARTc (Automatic Receive Transmit control)
Data bits	7, 8
Stop bits	1, 2
Parity	None, Even, Odd
Baudrate	ModBus: up to 115.2 kbps RS232: 200 bps to 921.6/1000 kbps (physical) RS422/485: 200 bps to 3.7Mbps (physical)
LEDs	TxD/RxD for each port
>Back to top	
■ Software	
Installation	DIP switches set the device to DHCP or a defined fixed IP Address to be contacted via WEB Browser
Operating mode	<p>Promiscuous Mode Messages received from the network are sent to the defined serial port, messages from the serial port are sent to the connected network host. (Circuit Switching)</p> <p>Direct Mapping Mode Received messages are scanned for their target address. This address is found in the mapping table, the message is sent to the defined connection. (Packet Switching)</p>
Network Protocols	Modbus/TCP, TCP/IP, DHCP, ICMP, HTTP, DNS, UDP, UPnP/SSDP
Serial Protocols	Modbus/RTU and Modbus/ASCII
Modbus Master Multiplexing	An extension to the standard. Slaves on serial lines may answer requests from multiple masters. The masters connect to ModGate Plus by Modbus/TCP.
Configuration	Configuration over WEB Browser
Detection	Announces presence in the network via Universal Plug and Play (UPnP) protocol
DNS	Domain Name Server support
Firmware	Firmware update over WEB Browser

Security	Webinterface is password protected. The password can be changed in the Webinterface.
USB 2.0	for logging/debugging
>Back to top	
■ Wireless interface (option)	
Standards	2.4GHz Radio, supports IEEE Std. 802.11b/g/n
WLAN Modes	Access Point (AP) or Client (Station)
TX Power	802.11b: Typ. 15.5dBm ±1.5 dBm @ 1Mbps (DSSS) Typ. 15.5dBm ±1.5 dBm @ 11Mbps (OFDM) 802.11g: Typ. 15.6dBm ±1.5 dBm @ 6Mbps (CCK) Typ. 13.5dBm ±1.5 dBm @ 54Mbps (OFDM) 802.11n: Typ. 13.4dBm ±1.5 dBm @ 6.5Mbps (OFDM) Typ. 13.3dBm ±1.5 dBm @ 150 Mbps(OFDM)
RX Sensitivity	802.11b: -95.6dBm @ 1Mbps, -88dBm @ 11Mbps 802.11g: -91.3dBm @ 6Mbps, -74.2dBm @ 54 Mbps 802.11n: -88.8dBm @ 6.5Mbps (20 MHz), -72dBm @ 72.2Mbps (20 MHz)
Transmission Rate	802.11b: 11Mbps 802.11g: 6 to 54Mbps 802.11n: 6.5 to 150Mbps
Transmission Distance	Up to 100m in open areas
Wireless security	<ul style="list-style-type: none"> • WEP • WPA • WPA2 • WPA2-Enterprise (IEEE 802.1X/RADIUS)
Antenna Connector	RP (Reverse-Polarity) SMA
>Back to top	
■ Power Requirements	
Input Voltage	9 - 54V DC
Power Consumption	0.3A @ 12V, 4W max
Connector	3-pin Terminal Block
Power over Ethernet	PoE Class 0 Device, IEEE 802.3.af, 8W max. Automatic switch between PoE and local power for POE Version only
>Back to top	
■ Housing and Mounting	
Case	0.8mm sheet metal
Weight	w/o box 0.9kg; w/h box 1.35kg
Dimensions	196×147×44 mm ³ (W×L×H)
Packaged	310×192×60 mm ³
Mounting	<ul style="list-style-type: none"> • 19-inch Rack • Wall mount
>Back to top	
■ Environmental Data	
Operating Temp	-20°C - 65°C

Storage Temp	-20°C – 85°C
Ambient Humidity	5-95% non condensing
>Back to top	
■ Standards	
Declarations	CE, FCC
EMI	<ul style="list-style-type: none"> • EN 55022 Class B • EN 61000-3-2: Limits of harmonic current emissions • EN 61000-3-3: Limitation of voltage changes • 47 CFR FCC Part 15 Subpart B
EMS (EN 55024)	<ul style="list-style-type: none"> • EN 61000-4-3: Radiated RFI • EN 61000-4-4: Electrical Fast Transient • EN 61000-4-5: Surge • EN 61000-4-6: Induced RFI • EN 61000-4-8: Power Frequency Magnetic Field • EN 61000-4-11: Power supply dips
ESD	EN 61000-4-2 4kV contact 8kV air for <ul style="list-style-type: none"> • Serial Ports • USB • Ethernet • DC Power connector
>Back to top	
■ MTBF (Mean Time Between Failures)	
MTBF	24.8 Years @ 25°C 9.9 Years @ 45°C
Standard	Telcordia (Bellcore) Standard; RelCalc. 5.0 BELL-7
>Back to top	
■ Warranty	
Warranty Period	2 years
>Back to top	
■ Ordering Information	
6730	ModGate Plus 413 (4x RS232/422/485)
>Back to top	
■ Options	
6031	Power supply adapter 12V DC, 1A
6034	Power adapter 110-230V AC to 12V @1A, DC, US plug
on Request	Option POE, 802.3af (Class 0) Power-over-Ethernet alternative supply
6689	WLAN Kit internal internal module 802.11b/g/n, pigtail and antenna Purchase time option, not for later retrofitting
663	DB9F-to-TB/5Pins for free wiring option
6061	DB9F-to-RJ45 for changing from DB9 to CAT5 wiring (Optimised for RS422/485 operating modes)
6062	RJ45-to-DB9M for changing back from CAT5 to DB9 wiring (Required to match the DB9 pinout at USB-COM Plus Mini)
661	Serial Null-Modem adapter 9PF-9PF, change male to female
>Back to top	
■ Packaging	
Packing list	<ul style="list-style-type: none"> • ModGate Plus 413 • Mounting brackets for 19-inch rack • Wall mount plates • Terminal block for Power Supply
>Back to top	

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ModGate Plus 413

[>Back](#)



Model ModGate Plus 413 with WLAN

[>Back](#)



ModGate Plus back side

[>Back](#)



Rackmount Kit

[>Back](#)



Wall Mounting Kit

[>Back](#)



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