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 113
(ModGate 113)

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 113 connects one Modbus serial line to a network running TCP/IP.

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 port 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.

■ **Ethernet Interface**

Speed/Type	100Mbps/10Mbps Auto-detecting
Connector	RJ45 (8P8C) 8 pin
LEDs	Power, WLAN, Ready, Ethernet Link / Speed

■ Serial Interface

No. of Ports/Type	1 × RS232/422/485 selected by software
Connector	DB-9 male
Protection	16kV ESD surge protection
Operating Modes	• 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	• RS232: TxD,RxD, RTS,CTS, DTR,DSR, DCD, RI, 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

■ Software

Installation	DIP switches set the device to DHCP or a defined fixed IP Address to be contacted via WEB Browser

Operating mode	Promiscous Mode
	    Messages received from the network are sent to the serial port, messages from the serial port are sent to the connected network host. (Circuit Switching)
	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)

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

■ 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	• WEP • WPA • WPA2 • WPA2-Enterprise (IEEE 802.1X/RADIUS)
Antenna Connector	RP (Reverse-Polarity) SMA

■ Power Requirements

Input Voltage	9 - 54V DC
Power Consumption	0.25A @ 12V, 2.7W max
Connector	3-pin Terminal Block

■ Housing and Mounting

Case	0.8mm sheet metal
Weight	w/o box 0.25kg; w/h box 0.35kg
Dimensions	115×73×25 mm³ (W×L×H)
Packaged	150×107×48 mm³
Mounting	• DIN-Rail (optional) • Wall mount (optional)

■ Environmental Data

Operating Temp	−20°C - 65°C
Storage Temp	−20°C – 85°C
Ambient Humidity	5-95% non condensing

■ Standards

Declarations	CE, FCC
EMI	• 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)	• 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 • Serial Port • USB • Ethernet • DC Power connector

■ MTBF (Mean Time Between Failures)

MTBF	41.5 Years @ 25°C 13.5 Years @ 45°C
Standard	Telcordia (Bellcore) Standard; RelCalc. 5.0 BELL-7

■ Warranty

Warranty Period	2 years

■ Ordering Information

6710	ModGate Plus 113 (1x RS232/422/485)

■ Options

6031	Power supply adapter 12V DC, 1A
6034	Power adapter 110-230V AC to 12V @1A, DC, US plug
6689	WLAN Kit internal internal module 802.11b/g/n, pigtail and antenna Purchase time option, not for later retrofitting
6692	DK-NCP DIN-Rail mounting kit (clamp on rear side)
6693	WK-NCP Wallmount kit
6698	DSK-NCP DIN-Rail side mount kit (clamp on left side)
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

■ Packaging

Packing list	• ModGate Plus 113 • Terminal block for Power Supply

* Specifications are subject to change without notice.
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ModGate Plus 113

DIN-Rail Mount Kit DK-NCP

Wall Mount Kit

DK-NCP: ModGate Plus on DIN-Rail

DSK-NCP: Side-mount on DIN-Rail

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