

Modbus for Grundfos pumps

The system diagrams provide an overview of the different technologies and how to connect the module or unit to the Grundfos E pump that you connect to a Modbus network.

With Modbus cards, the pumps can be controlled from the monitoring system (or from PLC), and all technical parameters are available from the units.



CIU solution

The Communication Interface Unit (CIU) is a box with a power supply module and a CIM Modbus module. You can mount either on a DIN rail or on a wall.

You use it in conjunction with Grundfos E-pumps that do not support an internal, add-on communication module, CIM.

CIM solution

The Communication Interface Module (CIM) is an add-on communication module you install internally in a Grundfos E-pump using a 10-pin connection. In this setup, the E-pump will supply power to CIM 200.

For mounting of the CIM add-on module, see the installation and operating instructions for the E-pump in question.

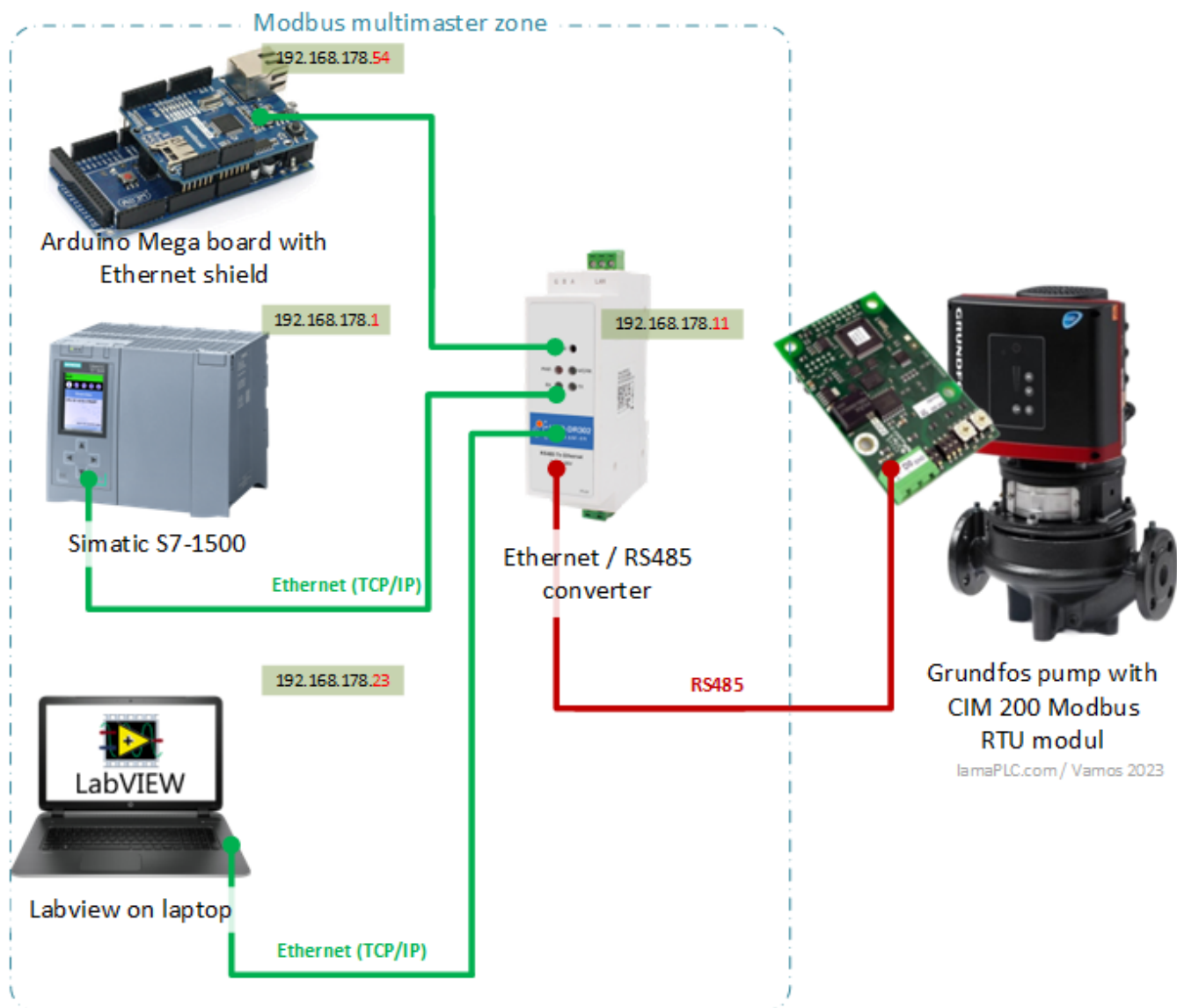


CIM 200 Modbus RTU

Modbus RTU specifications	Description	Comments
Modbus connector	Screw-type terminal	3 pins
Modbus connection type	RS-485, 2-wire + common	Conductors: D0, D1 and Common
Maximum cable length	1200 m	Equals 4000 ft
Slave address	1-247	Set via rotary switches SW6 and SW7
Line termination	On or Off	Set via DIP switches SW1 and SW2
Recommended cable cross-section	0.20 - 0.25 mm ²	AWG24 or AWG23
Supported transmission speeds	1200 1), 2400 1), 4800 1), 9600, 19200, 38400 bit/s	Set via DIP switches SW4 and SW5

Modbus RTU specifications	Description	Comments
Start bit	1	Fixed value
Data bits	8	Fixed value
Stop bits	1 or 2	Set via DIP switch SW3
Parity bit	Even parity, odd parity 1) or no parity	Set via DIP switch SW3
Modbus visual diagnostics	LED1	Off, flashing green, flashing red, permanently red
Maximum number of Modbus devices	32	Using repeaters, you can increase this number. Legal address range is 1-247
Maximum Modbus telegram size	256 bytes	Total length. Node address and CRC included

Application example



Through the CIM 200 module, the Grundfos pump can be controlled directly from the various controllers, and all its parameters can be read. These parameters can be displayed, for example, on HMI or SCADA. The Ethernet / RS485 converter converts TCP telegrams into RTU form and transmits

them as such. Thanks to this unit, the connection can serve several master units (multimaster). The video below shows (and hears) the operation of the first Labview test program. This is just a test program I wrote to test the connection, not a particularly spectacular application.

[First Labview testprogram for Grundfos CIM 200 modul](#)

Related links:

- [lamaPLC Communication: RS-485](#)
- [lamaPLC LabView](#)
- [Waveshare Ethernet / RS-485 converter](#)
- [lamaPLC Simatic](#)

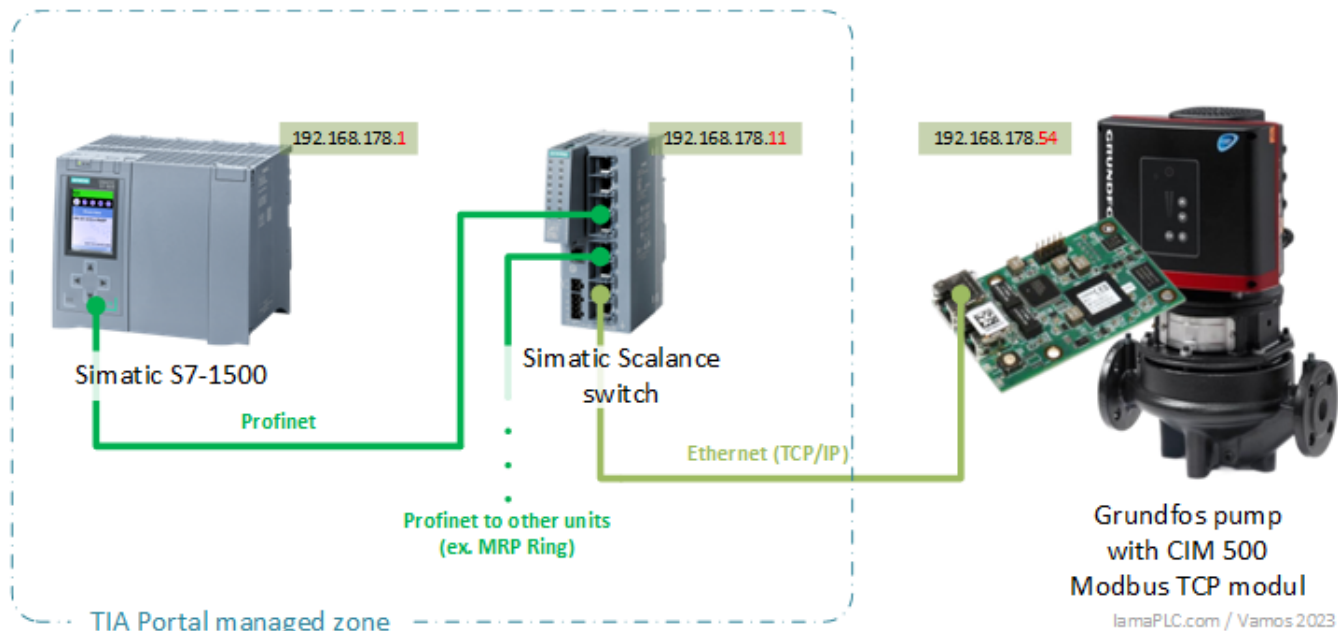
CIM 260 3G/4G cellular Modbus

Modbus cellular specifications	Description	Comments
Data protocol	Modbus TCP	Data connection uses Modbus TCP
Slave address	Factory 231 (0xE7)	You can change the address via Modbus register 00003, SoftwareDefinedModbusAddress
Cellular connection visual diagnostics	LED1	
Maximum Modbus telegram size	260 bytes	Total Modbus TCP/IP application data unit

CIM 500 Modbus TCP

Modbus TCP specifications	Description	Comments
Application layer	DHCP, HTTP, Ping, FTP, Modbus TCP	Rotary switch in position 1 to select Modbus TCP
Transport layer	TCP	
Internet layer	Internet protocol V4 (IPv4)	
Link layer	ARP, media access control (Ethernet)	
Ethernet cable	CAT5, CAT5e or CAT6	Supports auto cable-crossover detecting (Auto-MDIX)
Maximum cable length	100 metres	Corresponds to 328 feet
Transmission speed	10 Mbit/s, 100 Mbit/s	Auto-detected

Application example



Through the CIM 500 module, the Grundfos pump can be directly controlled from the S7-1500 PLC, and all its parameters can be read. These parameters can be displayed, for example, on HMI or SCADA.

Modbus structure (registers)

See it: [Grundfos](#)

[download Grundfos Modbus specification](#), 18 Mbyte
[modbus](#), [modbus tcp](#), [modbus rtu](#), [grundfos](#)

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