

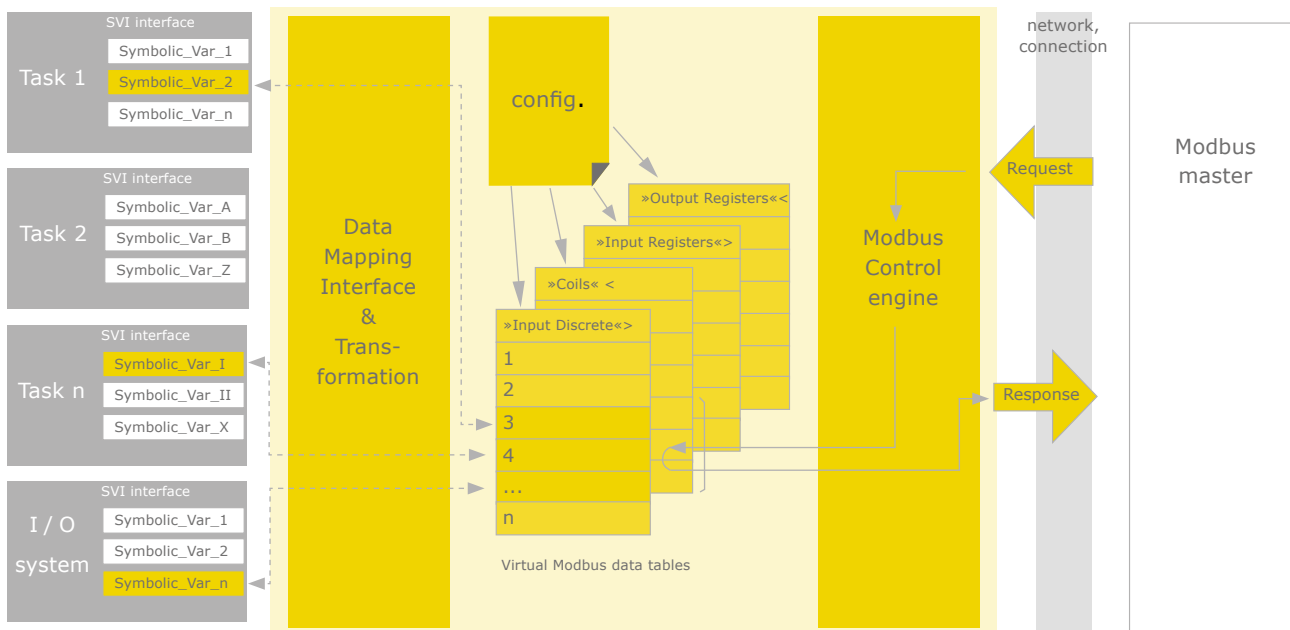


Modbus Slave

The Modbus slave can be installed as a software module on every controller CPU. Controlled through a mapping table, it reads variables of the system and makes them available on Modbus registers, where they can be read by every standard-conformant Modbus master. Write accesses of the master are appropriately forwarded by the Modbus slave to the mapped variables. In this manner process variables of the user software, direct I/O signals, as well as system variables, such as time of the controller, can be transparently presented for the external Modbus master.

All Ethernet ports for Modbus TCP and UDP, as well as all serial interfaces for Modbus ASCII and RTU, are available. These can also be distributed spatially to substations of the control system.

- Supported protocols:
 - Modbus TCP
 - Modbus UDP
 - Modbus ASCII
 - Modbus RTU
- Use of the onboard interfaces of the CPUs
- Possibility of spatial distribution of the interfaces via FASTBUS substations and EM213 or RS204 module
- Mapping of any SVI variables in the Modbus Primary Tables
- Mapping of any I/O channels in the Modbus Primary Tables



Modbus Slave	
Protocols	Modbus TCP, Modbus UDP, Modbus RTU and Modbus ASCII
Protocol version	Modbus Application Protocol Specification V1.1b
Data direction	Bidirectional
Supported function codes	1, 2, 3, 4, 5, 6, 15, 16
Interfaces	
Physical layer – Modbus RTU, ASCII	RS232, RS422, RS485
Interfaces – Modbus RTU, ASCII	Serial interfaces to M1-CPU's
Nominal transfer rates serial (RTU)	38400, 19200, 9600, 4800 bits/s (gross)
Distributability – Modbus RTU, ASCII	Yes (FASTBUS or BEM / BES substation with RS204 module)
Physical layer – Modbus TCP, UDP	Ethernet 10 / 100 MBit in accordance with IEEE 802.3
Interfaces – Modbus TCP, UDP	Ethernet ports of the CPU or of EM213 module
Distributability – Modbus TCP	Yes (FASTBUS or BEM / BES substation with EM213 module)
TCP / IP Port	Adjustable, preset: 502
Performance data	
Multiple slave instances simultaneously	Yes, up to 8 instances per controller for concurrent operation different Modbus protocols or for the creation of different data models for different masters
Multiple master connections simultaneously	Yes, for Modbus TCP configurable, number of simultaneous master connections (default 10). For UDP no limitation. With RTU, ASCII, the operating principle only 1 master in the network.
Parallel traffic to Modbus TCP, UDP	Yes (normal IP traffic via the same interface)
Diagnostics and safety	
Log book support	Yes (with adjustable debug level)
Online diagnostics	Yes
Online connection statistics	Yes
Access limitation	Configurable list of permissible IP addresses, integration in the M1 rights management and access logging
Implementation	
Form of delivery	Modbus.m software module as part of the M-Base installation
Connection to process data	SVI variables, flags and I/O signals
Configuration data format	mconfig.ini (ASCII)
System prerequisites	
Supported devices	All controller CPU's