# Modbus Power Control blue’Log XC

Item no. 557.008

## Modbus interface for real-time process data exchange with the grid operator.

### Description

The Modbus Power Control interface is an open Modbus TCP interface. It facilitates the real-time process data exchange with the grid operator. If telecontrol protocols (IEC 60870-5-101/-104, IEC 61850 or DNP3) are used, the interface is the ideal connection between a protocol converter (for example programmable logic controller - PLC) and the telecontrol system of the grid operator.

### Features

- Modbus TCP interface
- Setpoint commands given by the grid operator (active power curtailment, power factor (cos ϕ) control, reactive power control)
- Interface for protocol converter of telecontrol protocols (IEC 60870-5-101 /-104, IEC 61850 or DNP3)
- Switching between different methods for active / reactive power management
- Setting of reference voltage for parallel shift of the characteristic curve Q (V)
- Feedback (acknowledgement) of setpoint commands for signal monitoring
- Feedback of electrical parameters measured at grid connection point (for example P, Q, cos φ, f, V, I)

### Requirements

- blue’Log XC with firmware ≥ 10.0.8
- 557.008 **Modbus Power Control blue’Log XC license**. The license is issued for a specific blue’Log XM/XC. When ordering, provide the 14-digit hardware serial number of your data logger.

### Modbus specification

#### Communication parameters

- Slave ID (Client ID): 1
- Port: 502
- Delay: 1,000 ms

### General register definition

- If a device does not deliver a measured value, a missing value will be sent instead. See table “Data types” below.
  - Missing values int: 0x80000000 | float: 0x7FC00000
- Read values: Function code 03 - Read holding registers
- Write values: Function code 16 - Preset multiple registers
- Register and byte order:
  - The word order is LOW register before HIGH register (Little Endian)
  - The byte order is HIGH byte before LOW byte (Big Endian) → 0xCCDDAABB

**Example**

Write command of 10% setpoint for active power.
Built with the open source tool modpoll:

```
modpoll -m tcp -t4:float -r 5000 -a 1 -0 -1 192.168.30.162 10
```

- `10` — Write value (10% setpoint)
- `192.168.30.162` — IP address of blue'Log
- `-1` — One-time request from modpoll, no loop
- `-0` — 0-base address
- `-a 1` — Slave ID (Client ID)
- `-r 5000` — Start register
- `-t4:float` — Holding register, data type 32-bit float
- `-m tcp` — Modbus TCP

### Data types

| Abbreviation | Description | Missing values |
|---|---|---|
| U16 | 16-bit unsigned integer | 0xFFFF |
| U32 | 32-bit unsigned integer | 0xFFFFFFFF |
| I16 | 16-bit signed integer | 0x8000 |
| I32 | 32-bit signed integer | 0x80000000 |
| F32 | 32-bit float | 0x7FC00000 |
| String | • String, ASCII encoding.<br>• If the whole length of the field is used, then the end of the string will be filled with 0x00.<br>• If a value (for example model name) does not fit in the register, then it will be cut off. | 0x00 |

## Interface registers

You can find the list of Modbus Power Control registers in the mc Help Center (available in English only).

**Note**

The register list contains two separate sections:

- Registers for the blue'Log XC without the Hybrid EMS licence.
- Registers for the blue'Log XC with the Hybrid EMS licence.