Getting Started

Version: 1.0.1

1. Introduction

Modbus on the CM1 can be implemented over Modbus RTU or Modbus TCP. The main motor remains the same over both variants but require different interface modules. Modbus is not available on motors with firmware RT3.12 but requires versions RT3.13 or higher.

1.1. Modbus TCP

Modbus TCP requires the Modbus Ethernet module and has the following part numbers for the 4 motor options.

Part Number	Description
CM1-C-17S30-MBT	NEMA 17 single stack CM1 Cool Muscle motor with Modbus TCP
CM1-C-17L30-MBT	NEMA 17 double stack CM1 Cool Muscle motor with Modbus TCP*
CM1-C-23S30-MBT	NEMA 23 single stack CM1 Cool Muscle motor with Modbus TCP*
CM1-C-23L20-MBT	NEMA 23 double stack CM1 Cool Muscle motor with Modbus TCP*

*For torque and speed characteristics please see the CM1 data sheet.

1.2. Modbus RTU

Modbus RTU is available on the standard motor as it uses serial as its communication protocol. The standard motor can then be coupled with different interface modules (-SRLM, -SRLS, -EIO) to allow for a wider range of connectivity to a PLC, HMI, PC or embedded controller. It can be ordered with standard motor part numbers but should include the firmware version to ensure the correct version is ordered.

Part Number	Description
CM1-C-11S30-RT3.13	NEMA 11 single stack CM1 Cool Muscle motor**
CM1-C-11L30-RT3.13	NEMA 11 double stack CM1 Cool Muscle motor**
CM1-C-17S30-RT3.13	NEMA 17 single stack CM1 Cool Muscle motor with Modbus RTU*
CM1-C-17L30-RT3.13	NEMA 17 double stack CM1 Cool Muscle motor with Modbus RTU*
CM1-C-23S30-RT3.13	NEMA 23 single stack CM1 Cool Muscle motor with Modbus RTU*
CM1-C-23L30-RT3.13	NEMA 23 double stack CM1 Cool Muscle motor with Modbus RTU*

*For torque and speed characteristics please see the CM1 data sheet.

**The 11L and 11S motors have a different packaging and additional interface modules cannot be mounted and integrated directly onto the motor.

2. Modbus Registers and Usage

All motor parameters are available in read/write access through Modbus holding registers. All registers are 32bit little endian registers. CML code is required in the motor to execute a move. All Modbus TCP motors have a generic point-to-point program written in the motor and this can be modfied to suit the application. As Modbus RTU is a user select-able option it does not come preloaded, however, the program is shown and described further in this documentation and can easily be loaded onto the motor.

The supplied program contains 5 main write variables.

1. Position (P0 register)
2. Speed (S0 register)

3. Acceleration (A0 register)
4. Torque (M0 Register)
5. Control Word (R0 register)

The control word allows the user to start, stop, home, enable and disable the motor. Starting the motor will run the motor to the defined position, speed and acceleration. Position feedback, speed and motor status are available for read through the relevant registers. Please see the supplied code example for a complete description.