MP15 Jockey Pump Controller

Modbus Setup Instructions

This manual provides general information, installation, and configuration information for Modbus communications for Metron MP15 Jocky Pump Controllers.

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History of Changes

Rev. No.	Date	Description of Changes
A	November 2016	Initial Release
B	February 2017	Add System Uptime registers
C	September 2017	Updated Eledyne contact info

Introduction

Modbus is a simple and open serial communication protocol that enables communication between a master device and one or more slave devices all connected to the same network. The MP15 Jockey Pump Controller operates as a slave device.

For more information about Modbus, refer to www.modbus.org.

NOTICE Read these instructions thoroughly before installing and operating the controller. If there are still questions, contact your Metron factory representative for assistance.

Hardware Setup

Precautions

CAUTION

To avoid risk of **SERIOUS INJURY or DEATH,** and to avoid damage to the controller, READ THIS SECTION CAREFULLY. If questions or concerns still exist, contact the Metron factory for further clarification.

If work must be carried out on the motor or controller, ensure the controller is ISOLATED AND LOCKED OFF from the AC mains supply before work commences. Lockout/Tag out procedures should be followed in accordance with OSHA standard and any local standards that may apply.

During installation and maintenance, to prevent automatic starting of the motor ensure the controller HOA Switch is in the Off position.

To avoid risk of serious electric shock, never energize the controller with the access door open unless absolutely necessary.

If the access door to the interior of the panel has to be opened when the panel is energized, take caution that high voltage is present.

RS-485 Connections

The Modbus option uses a 2-wire (half-duplex) RS-485 port, which is located on the backside of the OID stackup. The OID has a panel covering the CPU board, but the RS-485 port is accessible. Figure 1 below shows the location of the port, which is labeled J9. The plug for the connector is provided and should be removed while connecting your wires.

Figure 2 below shows the wiring diagram for the RS-485 port.

Pin 1 is the A pin, also known as '+', 'D+', and 'TxD+/RxD+'
Pin 2 is the Ground pin
Pin 3 is the B pin, also known as '–', 'D-', and 'TxD-/RxD-'

The voltage tolerance for Pin1 and Pin 3 is –9V to +14V

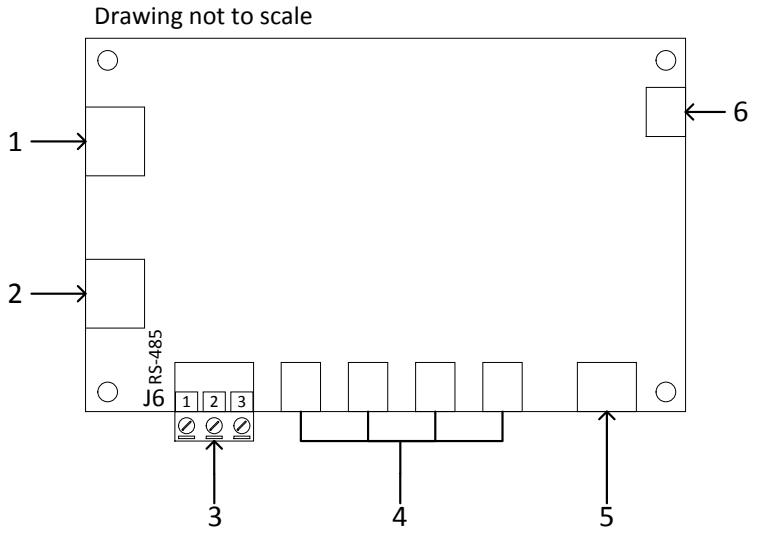

Figure 1: Back view of the OID (located on the cabinet door).

Item	Description
1	USB Port
2	I2C Bus Cable
3	**RS-485 Port and Connector**
4	Output Relays 1- 4
5	Pressure Transducer cable
6	Power cable

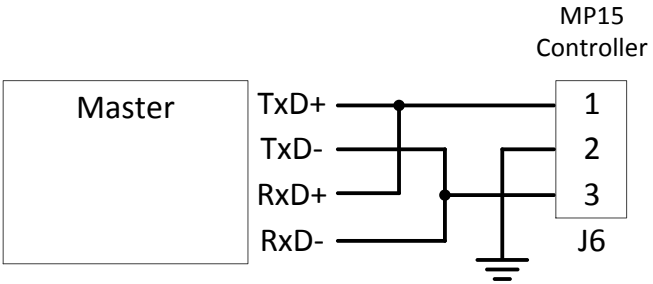

Figure 2: RS-485 Wiring Diagram

Set Point Configurations

To configure the Modbus set points: press the DOWN button until *Modbus* is displayed, and then press the ENTER button. The available set points are *Modbus Option*, *Address*, *Protocol*, *Baud Rate*, and *Parity*.

The Modbus option must be disabled in order the modify settings. Refer to Publication 245 (Setup and Operating Instructions for MP15 Jockey Pump Controllers) for general instructions on navigating the menu system and configuring set points.

The *Address* set point is used to set the Modbus address for the MP15 controller. All Modbus devices on a network must have a unique address.

The *Protocol*, *Baud Rate*, and *Parity* set points must be configured to match the settings of all other Modbus devices on the network.

Modbus Registers

All registers are 16-bit word. Maps of registers are summarized in Table 1 and Table 2.

Holding Registers (Function Code 3)

Register	Name	Value
0001	Pressure	0 – 999 PSI
0002	Start Pressure	The configured start pressure
0003	Stop Pressure	The configured stop pressure
0004	Status	Bit 0 Power Available Bit 1 Pump Running Bit 2 Low Pressure Bit 3 In Auto Mode Bit 4 In Hand Mode Bit 5 In Off Mode Bit 6 General Trouble Bit 7 Transducer Fault Bit 8 HOA Fault Bit 9 Short Cycle Bit 10 Has Add-on Board Installed Bit 11 Add-on Board Fault Bit 12 User Logged In
0005	Aux Program 1–16	Bit 0 Aux Program 1 running … Bit 15 Aux Program 16 running
0006	12-Channel I/O PCB Inputs	Bit 0 Input 1 Closed (40/41) … Bit 11 Input 12 Closed (62/63)
0007	12-Channel I/O PCB Outputs	Bit 0 Relay K1 Energized … Bit 11 Relay K12 Energized
0008	System Uptime (Seconds)	Upper 16-bits of the System Uptime
0009		Lower 16-bits of the System Uptime
0010 - 0032	RESERVED	0

Table 1: Input Registers

Read Device ID Register (Function Code 43)

The controller supports only Read Device ID code 4, individual access.

Objects 0x00–0x02 (basic identification) and 0x80–0x82 (extended identification) are supported.

Object ID	Object Name	Type	Value
0x00	Vendor Name	ASCII string	"Metron"
0x01	Product Code	ASCII string	"MP15"
0x02	MajorMinorRevision	ASCII string	Major.Minor i.e. "V1.00"
0x80	Memory Map Version	ASCII string	"01"
0x81	Firmware Version	ASCII string	Major.Minor Build# i.e. "1.8 b123"
0x82	Controller Serial Number	ASCII string	i.e. "12345678"

Table 2: Read Device ID Registers

Replacement Parts

For replacement parts, contact your local Metron sales office or the Metron factory at:

United States	Telephone: +1 (336) 434-2800 FAX: +1 (336) 434-2809 Email: salesmail@metroninc.com
Europe	Telephone: +44 (0) 7730 050 100 Email: jmcivor@metroninc.com

Technical Support

United States	**For 24-hour technical support:** Telephone: +1 (336) 434-2800 ext. 183 Email: fpctechsupport@metroninc.com
Europe	**Service & Commissioning** Telephone: +44 (0) 1283 493 215 Email: djones@gai-tronics.co.uk **Emergency Contact:** Telephone: +44 (0) 7730 050100

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