

Advantage
Controls

Manual

**MegaTron
Controller
Supplemental**

**Modbus H12 / H16
Communications
Manual**

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I. Modbus Introduction

The Advantage Controls MegaTron is capable of supporting TCP/IP communications via Ethernet and Data Modem. This allows for connections to our custom embedded web server via local networks and our browser based WebAdvantage service. Advantage Controls has now implemented Modbus/TCP support which allows interfacing with more customizable PC applications using HMI/SCADA and stand-alone HMI systems.

The MegaTron controller is capable of connecting to the WebAdvantage Server and most Building Management Systems. The WebAdvantage service requires a gateway to the internet with firewall and security rules in place. The Building Management System needs to be on the same subnet to properly receive traffic from the MegaTron. This may require some advanced routing of network traffic within the network wiring or programming of advanced switching equipment. The data traffic for both is provided via the same Ethernet cable coming from the MegaTron.

II. Modbus Overview

Modbus is a messaging protocol developed by Modicon in 1979. It's used to establish a client-server communication between Modbus intelligent enabled devices. Modbus is a de facto standard open and widely used network protocol within industrial manufacturing environments. The protocol is used to transfer analog I/O and register data between Modbus enabled systems.

The Advantage Controls MegaTron utilizes Modbus/TCP protocol via an Ethernet handoff. Modbus is an application layer messaging protocol, located at level 7 of the OSI model providing client-server communications between devices positioned different types of buses or networks.

Addresses use one based numbering. For systems that use zero based numbering remove 1 (3001 becomes 3000 2002:12 becomes 2001:11) All address are read-only holding registers. Data is sent in little-endian byte order. If data does not appear correct in your system you can try byte swapping or word swapping. Communication card can talk to WebAdvantage and BMS/EMS systems at the same time. For registers size 2 values you must look at both values to get correct reading.

Note: To write to the Registers use Function Code 16.

* For more information about Modbus please visit www.modbus.org.

Connecting to MODBUS enabled MegaTron

This guide is designed to help with connecting a MODBUS enabled MegaTron to a local BMS.

Note: Screens may vary slightly between models.

MODBUS Setup

Step 1:

Press **Setup/Run**, **CONFIGURE**, **NETWORK**, **SETTINGS**.
 (See figures 1, 2, 3 and 4. H15 dual cards add figure 3B. H15 only available for MegaTron MT.)

Step 2:

Press **DHCP**.
 (See figure 5.) Note: If these options are not visible, the dual network card needs to be enabled. See enabling dual network card to continue setup.

Step 3:

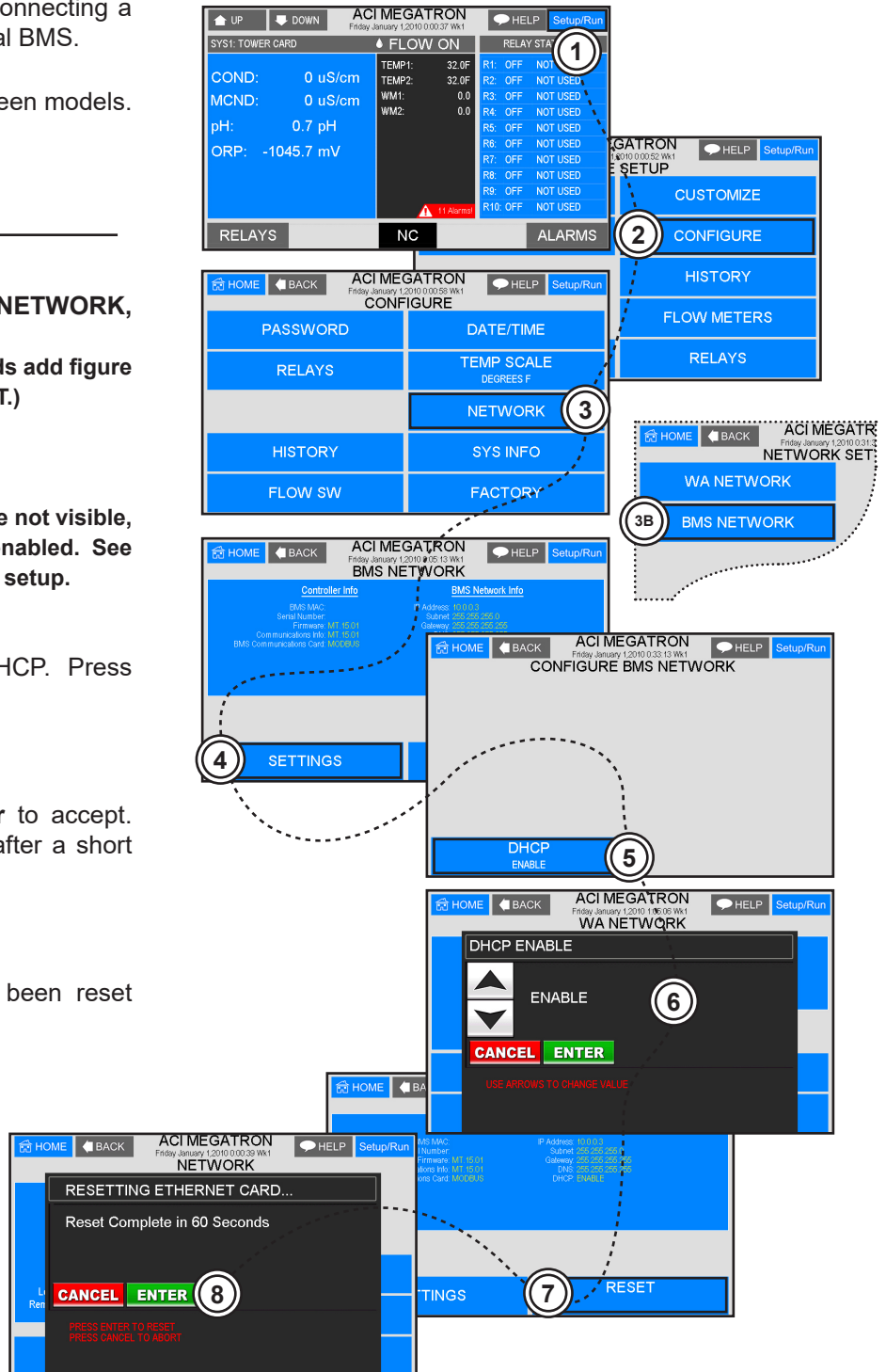
Use the up/down arrows to enable DHCP. Press **Enter** to accept.
 (See figure 6.)

Step 4:

Press **RESET** and then press **Enter** to accept. The communications card will reset after a short countdown.
 (See figures 7 and 8.)

Step 5:

After the communications card has been reset cycle power to the controller.



III. Modbus/TCP Data Dictionary - Rev. JA. 12.1

Data Types

Controller Data

Data Types	Controller Data	Addr.	Reg. Qty.	Size	Type	Writeable
Bit - 1-Bit (16 Bits per Register)	Name	0001	16	32	String	No
Float - 32-Bit Floating Point	Serial Number	0017	16	32	String	No
Long - 32-Bit Integer	Firmware Version	0033	16	32	String	No
Short - 16-Bit Integer	Date	0049	4	8	String	No
String - 8-Bits (2 per Register)	Time	0053	4	8	String	No
	Day of Week	0057	1	1	Short	No
	Read-Only Mode	0058	1	1	Short	No

Configuration Data

Configuration Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Conductivity - Set Pt #1 [1-4]	1001	1	4	4	Short	Yes
Conductivity - Set Pt #2 [1-4]	1005	1	4	4	Short	Yes
Conductivity - High Alarm Set Pt [1-4]	1009	1	4	4	Short	Yes
Conductivity - Low Alarm Set Pt [1-4]	1013	1	4	4	Short	Yes
Makeup Cond. - Set Pt #1 [1-4]	1017	1	4	4	Short	Yes
Makeup Cond. - High Alarm Set Pt [1-4]	1021	1	4	4	Short	Yes
Makeup Cond. - Low Alarm Set Pt [1-4]	1025	1	4	4	Short	Yes
pH - Set Pt #1 [1-4]	1029	2	4	8	Float	Yes
pH - Set Pt #2 [1-4]	1037	2	4	8	Float	Yes
pH - High Alarm Set Pt [1-4]	1045	2	4	8	Float	Yes
pH - Low Alarm Set Pt [1-4]	1053	2	4	8	Float	Yes
ORP - Set Pt #1 [1-4]	1061	2	4	8	Float	Yes
ORP - Set Pt #2 [1-4]	1069	2	4	8	Float	Yes
ORP - High Alarm Set Pt [1-4]	1077	2	4	8	Float	Yes
ORP - Low Alarm Set Pt [1-4]	1085	2	4	8	Float	Yes
System Temp. - Set Pt #1 [1-4]	1093	2	4	8	Float	Yes
System Temp. - High Alarm Set Pt [1-4]	1101	2	4	8	Float	Yes
System Temp. - Low Alarm Set Pt [1-4]	1109	2	4	8	Float	Yes
Auxiliary Temp. - Set Pt #1 [1-4]	1117	2	4	8	Float	Yes
Auxiliary Temp. - High Alarm Set Pt [1-4]	1125	2	4	8	Float	Yes
Auxiliary Temp. - Low Alarm Set Pt [1-4]	1133	2	4	8	Float	Yes
Delta Temp. - Set Pt #1 [1-4]	1141	2	4	8	Float	Yes
Delta Temp. - High Alarm Set Pt [1-4]	1149	2	4	8	Float	Yes
Delta Temp. - Low Alarm Set Pt [1-4]	1157	2	4	8	Float	Yes
Flow Switch - Configuration [1-4]	1165	1	4	4	Short	Yes

Temperature Scale	1169	1	1	4	Short	No
System 1 - Timer - Limit Time [1-5]	1170	1	5	5	Short	Yes
System 2 - Timer - Limit Time [1-5]	1175	1	5	5	Short	Yes
System 3 - Timer - Limit Time [1-5]	1180	1	5	5	Short	Yes
System 4 - Timer - Limit Time [1-5]	1185	1	5	5	Short	Yes

Alarm Data

Alarm Data	Address	Bit(s)	Type	Writeable
SYS1 HI COND	2001:13	1	Bit	No
SYS1 LOW COND	2001:14	1	Bit	No
SYS1 COND LIMIT	2001:15	1	Bit	No
SYS1 HI pH	2001:16	1	Bit	No
SYS1 LOW pH	2002:1	1	Bit	No
SYS1 ph LIMIT	2002:2	1	Bit	No
SYS1 HI ORP	2002:3	1	Bit	No
SYS1 LOW ORP	2002:4	1	Bit	No
SYS1 ORP LIMIT	2002:5	1	Bit	No
SYS1 HI TEMP 1	2002:6	1	Bit	No
SYS1 LOW TEMP 1	2002:7	1	Bit	No
SYS1 HI TEMP 2	2002:8	1	Bit	No
SYS1 LOW TEMP 2	2002:9	1	Bit	No
SYS1 HI DELTA TEMP	2002:10	1	Bit	No
SYS1 LOW DELTA TEMP	2002:11	1	Bit	No
SYS1 NO FLOW	2002:12	1	Bit	No
SYS1 DIGITAL INPUT 1	2002:13	1	Bit	No
SYS1 DIGITAL INPUT 2	2002:14	1	Bit	No
SYS1 DIGITAL INPUT 3	2002:15	1	Bit	No
SYS1 DIGITAL INPUT 4	2002:16	1	Bit	No
SYS1 DIGITAL INPUT 5	2003:1	1	Bit	No
SYS1 HI MCND	2003:3	1	Bit	No
SYS1 LOW MCND	2003:4	1	Bit	No
SYS1 MCND LIMIT	2003:5	1	Bit	No
SYS1 NOTE 1 HI	2003:6	1	Bit	No
SYS1 NOTE 2 HI	2003:7	1	Bit	No
SYS1 NOTE 3 HI	2003:8	1	Bit	No
SYS1 NOTE 4 HI	2003:9	1	Bit	No
SYS1 NOTE 5 HI	2003:10	1	Bit	No
SYS1 NOTE 6 HI	2003:11	1	Bit	No
SYS1 NOTE 7 HI	2003:12	1	Bit	No
SYS1 NOTE 8 HI	2003:13	1	Bit	No

SYS1 NOTE 9 HI	2003:14	1	Bit	No
SYS1 NOTE 10 HI	2003:15	1	Bit	No
SYS1 NOTE 1 LOW	2003:16	1	Bit	No
SYS1 NOTE 2 LOW	2004:1	1	Bit	No
SYS1 NOTE 3 LOW	2004:2	1	Bit	No
SYS1 NOTE 4 LOW	2004:3	1	Bit	No
SYS1 NOTE 5 LOW	2004:4	1	Bit	No
SYS1 NOTE 6 LOW	2004:5	1	Bit	No
SYS1 NOTE 7 LOW	2004:6	1	Bit	No
SYS1 NOTE 8 LOW	2004:7	1	Bit	No
SYS1 NOTE 9 LOW	2004:8	1	Bit	No
SYS1 NOTE 10 LOW	2004:9	1	Bit	No
SYS1 NOTE 1 TIME	2004:10	1	Bit	No
SYS1 NOTE 2 TIME	2004:11	1	Bit	No
SYS1 NOTE 3 TIME	2004:12	1	Bit	No
SYS1 NOTE 4 TIME	2004:13	1	Bit	No
SYS1 NOTE 5 TIME	2004:14	1	Bit	No
SYS1 NOTE 6 TIME	2004:15	1	Bit	No
SYS1 NOTE 7 TIME	2004:16	1	Bit	No
SYS1 NOTE 8 TIME	2005:1	1	Bit	No
SYS1 NOTE 9 TIME	2005:2	1	Bit	No
SYS1 NOTE 10 TIME	2005:3	1	Bit	No
SYS2 HI COND	2008:13	1	Bit	No
SYS2 LOW COND	2008:14	1	Bit	No
SYS2 COND LIMIT	2008:15	1	Bit	No
SYS2 HI ph	2008:16	1	Bit	No
SYS2 LOW ph	2009:1	1	Bit	No
SYS2 ph LIMIT	2009:2	1	Bit	No
SYS2 HI ORP	2009:3	1	Bit	No
SYS2 LOW ORP	2009:4	1	Bit	No
SYS2 ORP LIMIT	2009:5	1	Bit	No
SYS2 HI TEMP 1	2009:6	1	Bit	No
SYS2 LOW TEMP 1	2009:7	1	Bit	No
SYS2 HI TEMP 2	2009:8	1	Bit	No
SYS2 LOW TEMP 2	2009:9	1	Bit	No
SYS2 HI DELTA TEMP	2009:10	1	Bit	No
SYS2 LOW DELTA TEMP	2009:11	1	Bit	No
SYS2 NO FLOW	2009:12	1	Bit	No
SYS2 DIGITAL INPUT 1	2009:13	1	Bit	No
SYS2 DIGITAL INPUT 2	2009:14	1	Bit	No
SYS2 DIGITAL INPUT 3	2009:15	1	Bit	No

SYS2 DIGITAL INPUT 4	2009:16	1	Bit	No
SYS2 DIGITAL INPUT 5	2010:1	1	Bit	No
SYS2 HI MCND	2010:3	1	Bit	No
SYS2 LOW MCND	2010:4	1	Bit	No
SYS2 MCND LIMIT	2010:5	1	Bit	No
SYS2 NOTE 1 HI	2010:6	1	Bit	No
SYS2 NOTE 2 HI	2010:7	1	Bit	No
SYS2 NOTE 3 HI	2010:8	1	Bit	No
SYS2 NOTE 4 HI	2010:9	1	Bit	No
SYS2 NOTE 5 HI	2010:10	1	Bit	No
SYS2 NOTE 6 HI	2010:11	1	Bit	No
SYS2 NOTE 7 HI	2010:12	1	Bit	No
SYS2 NOTE 8 HI	2010:13	1	Bit	No
SYS2 NOTE 9 HI	2010:14	1	Bit	No
SYS2 NOTE 10 HI	2010:15	1	Bit	No
SYS2 NOTE 1 LOW	2010:16	1	Bit	No
SYS2 NOTE 2 LOW	2011:1	1	Bit	No
SYS2 NOTE 3 LOW	2011:2	1	Bit	No
SYS2 NOTE 4 LOW	2011:3	1	Bit	No
SYS2 NOTE 5 LOW	2011:4	1	Bit	No
SYS2 NOTE 6 LOW	2011:5	1	Bit	No
SYS2 NOTE 7 LOW	2011:6	1	Bit	No
SYS2 NOTE 8 LOW	2011:7	1	Bit	No
SYS2 NOTE 9 LOW	2011:8	1	Bit	No
SYS2 NOTE 10 LOW	2011:9	1	Bit	No
SYS2 NOTE 1 TIME	2011:10	1	Bit	No
SYS2 NOTE 2 TIME	2011:11	1	Bit	No
SYS2 NOTE 3 TIME	2011:12	1	Bit	No
SYS2 NOTE 4 TIME	2011:13	1	Bit	No
SYS2 NOTE 5 TIME	2011:14	1	Bit	No
SYS2 NOTE 6 TIME	2011:15	1	Bit	No
SYS2 NOTE 7 TIME	2011:16	1	Bit	No
SYS2 NOTE 8 TIME	2012:1	1	Bit	No
SYS2 NOTE 9 TIME	2012:2	1	Bit	No
SYS2 NOTE 10 TIME	2012:3	1	Bit	No
SYS3 HI COND	2015:13	1	Bit	No
SYS3 LOW COND	2015:14	1	Bit	No
SYS3 COND LIMIT	2015:15	1	Bit	No
SYS3 HI pH	2015:16	1	Bit	No
SYS3 LOW pH	2016:1	1	Bit	No
SYS3 pH LIMIT	2016:2	1	Bit	No

SYS3 HI ORP	2016:3	1	Bit	No
SYS3 LOW ORP	2016:4	1	Bit	No
SYS3 ORP LIMIT	2016:5	1	Bit	No
SYS3 HI TEMP 1	2016:6	1	Bit	No
SYS3 LOW TEMP 1	2016:7	1	Bit	No
SYS3 HI TEMP 2	2016:8	1	Bit	No
SYS3 LOW TEMP 2	2016:9	1	Bit	No
SYS3 HI DELTA TEMP	2016:10	1	Bit	No
SYS3 LOW DELTA TEMP	2016:11	1	Bit	No
SYS3 NO FLOW	2016:12	1	Bit	No
SYS3 DIGITAL INPUT 1	2016:13	1	Bit	No
SYS3 DIGITAL INPUT 2	2016:14	1	Bit	No
SYS3 DIGITAL INPUT 3	2016:15	1	Bit	No
SYS3 DIGITAL INPUT 4	2016:16	1	Bit	No
SYS3 DIGITAL INPUT 5	2017:1	1	Bit	No
SYS3 HI MCND	2017:3	1	Bit	No
SYS3 LOW MCND	2017:4	1	Bit	No
SYS3 MCND LIMIT	2017:5	1	Bit	No
SYS3 NOTE 1 HI	2017:6	1	Bit	No
SYS3 NOTE 2 HI	2017:7	1	Bit	No
SYS3 NOTE 3 HI	2017:8	1	Bit	No
SYS3 NOTE 4 HI	2017:9	1	Bit	No
SYS3 NOTE 5 HI	2017:10	1	Bit	No
SYS3 NOTE 6 HI	2017:11	1	Bit	No
SYS3 NOTE 7 HI	2017:12	1	Bit	No
SYS3 NOTE 8 HI	2017:13	1	Bit	No
SYS3 NOTE 9 HI	2017:14	1	Bit	No
SYS3 NOTE 10 HI	2017:15	1	Bit	No
SYS3 NOTE 1 LOW	2017:16	1	Bit	No
SYS3 NOTE 2 LOW	2018:1	1	Bit	No
SYS3 NOTE 3 LOW	2018:2	1	Bit	No
SYS3 NOTE 4 LOW	2018:3	1	Bit	No
SYS3 NOTE 5 LOW	2018:4	1	Bit	No
SYS3 NOTE 6 LOW	2018:5	1	Bit	No
SYS3 NOTE 7 LOW	2018:6	1	Bit	No
SYS3 NOTE 8 LOW	2018:7	1	Bit	No
SYS3 NOTE 9 LOW	2018:8	1	Bit	No
SYS3 NOTE 10 LOW	2018:9	1	Bit	No
SYS3 NOTE 1 TIME	2018:10	1	Bit	No
SYS3 NOTE 2 TIME	2018:11	1	Bit	No
SYS3 NOTE 3 TIME	2018:12	1	Bit	No

SYS3 NOTE 4 TIME	2018:13	1	Bit	No
SYS3 NOTE 5 TIME	2018:14	1	Bit	No
SYS3 NOTE 6 TIME	2018:15	1	Bit	No
SYS3 NOTE 7 TIME	2018:16	1	Bit	No
SYS3 NOTE 8 TIME	2019:1	1	Bit	No
SYS3 NOTE 9 TIME	2019:2	1	Bit	No
SYS3 NOTE 10 TIME	2019:3	1	Bit	No
SYS4 HI COND	2022:13	1	Bit	No
SYS4 LOW COND	2022:14	1	Bit	No
SYS4 COND LIMIT	2022:15	1	Bit	No
SYS4 HI ph	2022:16	1	Bit	No
SYS4 LOW ph	2023:1	1	Bit	No
SYS4 ph LIMIT	2023:2	1	Bit	No
SYS4 HI ORP	2023:3	1	Bit	No
SYS4 LOW ORP	2023:4	1	Bit	No
SYS4 ORP LIMIT	2023:5	1	Bit	No
SYS4 HI TEMP 1	2023:6	1	Bit	No
SYS4 LOW TEMP 1	2023:7	1	Bit	No
SYS4 HI TEMP 2	2023:8	1	Bit	No
SYS4 LOW TEMP 2	2023:9	1	Bit	No
SYS4 HI DELTA TEMP	2023:10	1	Bit	No
SYS4 LOW DELTA TEMP	2023:11	1	Bit	No
SYS4 NO FLOW	2023:12	1	Bit	No
SYS4 DIGITAL INPUT 1	2023:13	1	Bit	No
SYS4 DIGITAL INPUT 2	2023:14	1	Bit	No
SYS4 DIGITAL INPUT 3	2023:15	1	Bit	No
SYS4 DIGITAL INPUT 4	2023:16	1	Bit	No
SYS4 DIGITAL INPUT 5	2024:1	1	Bit	No
SYS4 HI MCND	2024:3	1	Bit	No
SYS4 LOW MCND	2024:4	1	Bit	No
SYS4 MCND LIMIT	2024:5	1	Bit	No
SYS4 NOTE 1 HI	2024:6	1	Bit	No
SYS4 NOTE 2 HI	2024:7	1	Bit	No
SYS4 NOTE 3 HI	2024:8	1	Bit	No
SYS4 NOTE 4 HI	2024:9	1	Bit	No
SYS4 NOTE 5 HI	2024:10	1	Bit	No
SYS4 NOTE 6 HI	2024:11	1	Bit	No
SYS4 NOTE 7 HI	2024:12	1	Bit	No
SYS4 NOTE 8 HI	2024:13	1	Bit	No
SYS4 NOTE 9 HI	2024:14	1	Bit	No
SYS4 NOTE 10 HI	2024:15	1	Bit	No

SYS4 NOTE 1 LOW	2024:16	1	Bit	No
SYS4 NOTE 2 LOW	2025:1	1	Bit	No
SYS4 NOTE 3 LOW	2025:2	1	Bit	No
SYS4 NOTE 4 LOW	2025:3	1	Bit	No
SYS4 NOTE 5 LOW	2025:4	1	Bit	No
SYS4 NOTE 6 LOW	2025:5	1	Bit	No
SYS4 NOTE 7 LOW	2025:6	1	Bit	No
SYS4 NOTE 8 LOW	2025:7	1	Bit	No
SYS4 NOTE 9 LOW	2025:8	1	Bit	No
SYS4 NOTE 10 LOW	2025:9	1	Bit	No
SYS4 NOTE 1 TIME	2025:10	1	Bit	No
SYS4 NOTE 2 TIME	2025:11	1	Bit	No
SYS4 NOTE 3 TIME	2025:12	1	Bit	No
SYS4 NOTE 4 TIME	2025:13	1	Bit	No
SYS4 NOTE 5 TIME	2025:14	1	Bit	No
SYS4 NOTE 6 TIME	2025:15	1	Bit	No
SYS4 NOTE 7 TIME	2025:16	1	Bit	No
SYS4 NOTE 8 TIME	2026:1	1	Bit	No
SYS4 NOTE 9 TIME	2026:2	1	Bit	No
SYS4 NOTE 10 TIME	2026:3	1	Bit	No
MA IN1 HIGH	2029:2	1	Bit	No
MA IN1 LOW	2029:3	1	Bit	No
MA IN2 HIGH	2029:5	1	Bit	No
MA IN2 LOW	2029:6	1	Bit	No
MA IN3 HIGH	2029:8	1	Bit	No
MA IN3 LOW	2029:9	1	Bit	No
MA IN4 HIGH	2029:11	1	Bit	No
MA IN4 LOW	2029:12	1	Bit	No
MA IN5 HIGH	2029:14	1	Bit	No
MA IN5 LOW	2029:15	1	Bit	No
MA IN6 HIGH	2030:1	1	Bit	No
MA IN6 LOW	2030:2	1	Bit	No
MA IN7 HIGH	2030:4	1	Bit	No
MA IN7 LOW	2030:5	1	Bit	No
MA IN8 HIGH	2030:7	1	Bit	No
MA IN8 LOW	2030:8	1	Bit	No
FM1 FLOW	2030:11	1	Bit	No
FM1 FLOW VERIFY	2030:12	1	Bit	No
FM1 VOLUME	2030:13	1	Bit	No
FM2 FLOW	2030:14	1	Bit	No
FM2 FLOW VERIFY	2030:15	1	Bit	No

FM2 VOLUME	2030:16	1	Bit	No
FM3 FLOW	2031:1	1	Bit	No
FM3 FLOW VERIFY	2031:2	1	Bit	No
FM3 VOLUME	2031:3	1	Bit	No
FM4 FLOW	2031:4	1	Bit	No
FM4 FLOW VERIFY	2031:5	1	Bit	No
FM4 VOLUME	2031:6	1	Bit	No
FM5 FLOW	2031:7	1	Bit	No
FM5 FLOW VERIFY	2031:8	1	Bit	No
FM5 VOLUME	2031:9	1	Bit	No
FM6 FLOW	2031:10	1	Bit	No
FM6 FLOW VERIFY	2031:11	1	Bit	No
FM6 VOLUME	2031:12	1	Bit	No
FM7 FLOW	2031:13	1	Bit	No
FM7 FLOW VERIFY	2031:14	1	Bit	No
FM7 VOLUME	2031:15	1	Bit	No
FM8 FLOW	2031:16	1	Bit	No
FM8 FLOW VERIFY	2032:1	1	Bit	No
FM8 VOLUME	2032:2	1	Bit	No
FM9 FLOW	2032:3	1	Bit	No
FM9 FLOW VERIFY	2032:4	1	Bit	No
FM9 VOLUME	2032:5	1	Bit	No
FM10 FLOW	2032:6	1	Bit	No
FM10 FLOW VERIFY	2032:7	1	Bit	No
FM10 VOLUME	2032:8	1	Bit	No
R1 MAX HRS	2032:9	1	Bit	No
R2 MAX HRS	2032:10	1	Bit	No
R3 MAX HRS	2032:11	1	Bit	No
R4 MAX HRS	2032:12	1	Bit	No
R5 MAX HRS	2032:13	1	Bit	No
R6 MAX HRS	2032:14	1	Bit	No
R7 MAX HRS	2032:15	1	Bit	No
R8 MAX HRS	2032:16	1	Bit	No
R9 MAX HRS	2033:1	1	Bit	No
R10 MAX HRS	2033:2	1	Bit	No
R11 MAX HRS	2033:3	1	Bit	No
R12 MAX HRS	2033:4	1	Bit	No
R13 MAX HRS	2033:5	1	Bit	No
R14 MAX HRS	2033:6	1	Bit	No
R15 MAX HRS	2033:7	1	Bit	No
R16 MAX HRS	2033:8	1	Bit	No

R17 MAX HRS	2033:9	1	Bit	No
R18 MAX HRS	2033:10	1	Bit	No
R19 MAX HRS	2033:11	1	Bit	No
R20 MAX HRS	2033:12	1	Bit	No
MA IN1 LIMIT	2033:13	1	Bit	No
MA IN2 LIMIT	2033:14	1	Bit	No
MA IN3 LIMIT	2033:15	1	Bit	No
MA IN4 LIMIT	2033:16	1	Bit	No
MA IN5 LIMIT	2034:1	1	Bit	No
MA IN6 LIMIT	2034:2	1	Bit	No
MA IN7 LIMIT	2034:3	1	Bit	No
MA IN8 LIMIT	2034:4	1	Bit	No
MA IN9 LIMIT	2034:5	1	Bit	No
MA IN10 LIMIT	2034:6	1	Bit	No
MA IN11 LIMIT	2034:7	1	Bit	No
MA IN12 LIMIT	2034:8	1	Bit	No
MA IN13 LIMIT	2034:9	1	Bit	No
MA IN14 LIMIT	2034:10	1	Bit	No
MA IN15 LIMIT	2034:11	1	Bit	No
MA IN16 LIMIT	2034:12	1	Bit	No
MA IN9 HIGH	2034:14	1	Bit	No
MA IN9 LOW	2034:15	1	Bit	No
MA IN10 HIGH	2035:1	1	Bit	No
MA IN10 LOW	2035:2	1	Bit	No
MA IN11HIGH	2035:4	1	Bit	No
MA IN11 LOW	2035:5	1	Bit	No
MA IN12 HIGH	2035:7	1	Bit	No
MA IN12 LOW	2035:8	1	Bit	No
MA IN13 HIGH	2035:10	1	Bit	No
MA IN13 LOW	2035:11	1	Bit	No
MA IN14 HIGH	2035:13	1	Bit	No
MA IN14 LOW	2035:14	1	Bit	No
MA IN15 HIGH	2035:16	1	Bit	No
MA IN15 LOW	2036:1	1	Bit	No
MA IN16 HIGH	2036:3	1	Bit	No
MA IN16 LOW	2036:4	1	Bit	No

Sensor Data

Sensor Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Conductivity [1-4]	3001	1	4	4	Short	No
Makeup Cond. [1-4]	3005	1	4	4	Short	No
pH [1-4]	3009	2	4	8	Float	No
ORP [1-4]	3017	2	4	8	Float	No
System Temp. [1-4]	3025	2	4	8	Float	No
Auxiliary Temp. [1-4]	3033	2	4	8	Float	No
Flow [1-4]	3041	1	4	4	Short	No
Water Meter #1 - Total Value [1-4]	3045	2	4	8	Long	No
Water Meter #2 - Total Value [1-4]	3053	2	4	8	Long	No
Makeup Cycles [1-4]	3061	2	4	8	Float	No

Relay Data

Relay Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Relay [1-20] (See Note #1)	4001	1	20	20	Short	Yes

Note #1 0=H-OFF 1=H-ON 2=OFF 3=ON

mA Output Data

mA Output Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Value [1-6]	4201	2	6	12	Float	No

4-20mA / 0-5V Input Data

4-20mA / 0-5V Input Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Value [1-16]	4251	2	16	32	Float	No

Flow Meter Data

Flow Meter Data	Addr.	Reg. Size	Qty.	Total	Type	Writeable
Total [1-10]	4301	2	10	20	Float	No
Flow Rate [1-10]	4321	2	10	20	Float	No

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