

Conext™ Gateway

Modbus Interface Specification (503)

Conext™ XW Inverter/Chargers

990-6268B

Jun 4, 2020



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Contact Information

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Revision History

| Rev | Date | Description of Change |
|------------|--------------|------------------------------|
| A | Feb 13, 2020 | v1.06 Firmware Release |
| B | Jun 4, 2020 | v1.07 Firmware Release |

Document Applicability

This Modbus map applies to the following products:

| Product ID | Product Description |
|-------------------|----------------------------|
| 865-1000 | XW6048-120/240-60 |
| 865-1000-01 | XW6048-120/240-60 |
| 865-1000-1 | XW6048-120 |
| 865-1005 | XW4548-120/240-60 |
| 865-1005-1 | XW4548-120-60 |
| 865-1010 | XW4024-120/240-60 |
| 865-1010-1 | XW4024-120-60 |
| 865-1035 | XW6048-230-50 |
| 865-1035-61 | XW6048-230-50 |
| 865-1040 | XW4548-230-50 |
| 865-1040-61 | XW4548-230-50 |
| 865-1045 | XW4024-230-50 |
| 865-1045-61 | XW4024-230-50 |
| 865-4524-01 | XW4524-120/240-60 |
| 865-4524-2 | XW4524-120 |
| 865-5324-61 | XW5324-230-50 |
| 865-5524-01 | XW5524-120-60 |
| 865-5524-2 | XW5524-120-60 |
| 865-5524-61 | XW5524-230-50 |
| 865-5548-01 | XW5548-120/240-60 |
| 865-5548-2 | XW5548-120 |
| 865-5548-21 | XWPRO5548-120/240-60 |
| 865-5548-22 | XWPRO5548-120 |
| 865-5548-61 | XWPRO5548-230-50 |
| 865-6848-01 | XW6048-120/240-60 |
| 865-6848-2 | XW6848-120 |
| 865-6848-21 | XWPRO6848-120/240 |
| 865-6848-22 | XWPRO6848-120 |
| 865-7048-01 | XW7048-120/240-60 |
| 865-7048-2 | XW7048-120-60 |
| 865-7048-55 | XWPRO7048-230-50 |
| 865-7048-61 | XW7048-230-50 |
| 865-8548-01 | XW8548-120/240-60 |
| 865-8548-2 | XW8548-120-60 |
| 865-8548-55 | XWPRO8548-230-50 |
| 865-8548-61 | XW8548-230-50 |

⚠ WARNING**UNINTENDED OPERATION**

The use of this product with Modbus communications requires expertise in the design, operation, and programming of the device. Only qualified personnel should program, install, alter, and commission this product. Unless specified, information on safety, specifications, installation and operation is as shown in the primary documentation received with the product. Qualified personnel must be familiar with that information before proceeding. When writing values to the device, you must ensure other persons are not working with the device.

Failure to follow these instructions can result in death or serious injury, and/or equipment damage.

⚠ WARNING**LOSS OF CONTROL**

Do not assign the same address to two Modbus devices. The entire serial bus may behave unexpectedly if the master device cannot communicate with all the slave devices on the bus.

Failure to follow these instructions can result in death or serious injury, and/or equipment damage.

Overview

This document describes the structure of the Modbus register address map, which is used to configure, control, and monitor the device. Use this document in conjunction with the device Owner's Guide. The information in this document is intended for use only by qualified personnel who have a detailed technical understanding of the Modbus protocol. The Modbus map is divided into rows of Modbus registers. Each row indicates the Modbus register address, its name, data type, access type, units, scale, offset, and applicable notes as required. External Modbus master devices, such as the Schneider Electric M340 PLC, can read and write the Modbus registers to configure, control, or monitor the device remotely.

Writing Modbus Registers

Modbus does not provide an error response when data written to a Modbus register is out of range or invalid. To confirm that a Modbus register is correctly written, you should read it back and compare it with the expected value. For descriptions of settings and their valid values, refer to the product's Owner's Guide.

Supported Modbus Data Types

| Data Type | Description |
|-----------|--|
| uint16 | unsigned 16-bit integer [0,65535] |
| sint16 | signed 16-bit integer [-32768,32767] |
| uint32 | unsigned 32-bit integer [0,4294967295] |
| sint32 | signed 32-bit integer [-2147483648,2147483647] |
| str<nn> | packed 8-bit character string, where <nn> is the length of characters in the string. Two characters are packed into each Modbus register. Example: str20 = 20-character string (packed into 10 Modbus registers) str16 = 16-character string (packed into 8 Modbus registers) |

Modbus Device Addressing

The Modbus slave address registers are automatically assigned on a first come, first served basis. The first detected device is assigned to the start of the address range. Subsequently added devices are assigned the next available address in the range.

Once assigned, the modbus slave address is associated to the serial number of the device, ensuring the consistency of the modbus address for the lifetime of the installation.

If Modbus slave addresses need to be changed, the Conext Gateway can be reset to its factory defaults and devices added one by one to establish the desired modbus address mapping.

| | |
|----------------------------|--------------|
| ModbusTCP port | 503 |
| Modbus Slave Address Range | [10 .. 29] |

Modbus Register Addressing

The Register Number is the 1-based register identifier. Some 3rd party Modbus tools require 1-based register addressing.

The Register Address is the zero-based register address representing the register address as it is transmitted on-the-wire inside the Modbus data frame.

Modbus Error Response

The Modbus Server will respond with a 02 ILLEGAL DATA ADDRESS error if an attempt is made to read/write registers which don't exist or if a request is made to read only part of a 32-bit register. This error will also be thrown if a read/write address range contains a data point which does not exist, or if the read/write address range starts or ends halfway through a 32-bit word.

A blank row in the Modbus Register map indicates a boundary between sets of contiguous registers. Multi-register reads/writes across these boundaries will result in a 02 ILLEGAL DATA ADDRESS error

Modbus Cybersecurity Considerations

WARNING

CYBERSECURITY RISK: POTENTIAL COMPROMISE OF SYSTEM AVAILABILITY, INTEGRITY, AND CONFIDENTIALITY

Always secure the Local Area Network on which the Conext Gateway is connected. Modbus TCP must NEVER be routed over a public network. Use cybersecurity best practices to help prevent unauthorized access.

Failure to follow these instructions can result in unintended access to sensitive or secure customer data, permanent loss of data, and equipment damage.

Modbus TCP is a legacy protocol in widespread use within the Solar industry. It is appreciated by system operators due to its simplicity and ease of use in control and monitoring applications. However, Modbus TCP is an insecure protocol which does not provide any data security, encryption, or authentication.

Anyone with access to the local area network on which the Conext Gateway is connected can monitor and control the power conversion devices attached to the Conext Gateway.

Modbus TCP should only be used on trusted, private, and highly secure local area networks for local control and monitoring applications only. Failure to properly secure the Local Area Network on which the Conext Gateway is connected can allow a remote attacker to compromise your power system installation.

1 Register Map for Conext™ XW Inverter/Chargers

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|---------------------------------|--------|-----|-------|-------|--------|--|
| 1 | 0x0000 | Device Name | str16 | rw | | | | |
| 9 | 0x0008 | reserved | uint16 | r | | | | |
| 10 | 0x0009 | reserved | uint16 | r | | | | |
| 11 | 0x000A | FGA Number | str20 | r | | | | |
| 21 | 0x0014 | Unique ID Number | uint32 | r | | | | |
| | | | | | | | | |
| 31 | 0x001E | Firmware Version | uint32 | r | | | | |
| | | | | | | | | |
| 41 | 0x0028 | Modbus Slave Address (Port 503) | uint16 | rw | | 1.0 | 0.0 | |
| 42 | 0x0029 | Device Number | uint16 | rw | | 1.0 | 0.0 | |
| 43 | 0x002A | System Instance | uint16 | rw | | 1.0 | 0.0 | |
| 44 | 0x002B | Hardware Serial Number | str32 | r | | | | |
| 60 | 0x003B | Configuration Status | uint16 | r | | 1.0 | 0.0 | 0=Refreshing 1=Done |
| 61 | 0x003C | Configuration Refresh Counter | uint32 | r | | 1.0 | 0.0 | |
| 63 | 0x003E | reserved | uint16 | r | | | | |
| 64 | 0x003F | reserved | uint16 | r | | | | |
| 65 | 0x0040 | Device State | uint16 | r | | 1.0 | 0.0 | See section 2.1 |
| 66 | 0x0041 | Device Present | uint16 | r | | 1.0 | 0.0 | 0=Inactive (data invalid) 1=Active (data valid) |
| 67 | 0x0042 | Fault Bitmap 0 | uint16 | r | | 1.0 | 0.0 | See section 2.2 |
| 68 | 0x0043 | Fault Bitmap 1 | uint16 | r | | 1.0 | 0.0 | See section 2.3 |
| 69 | 0x0044 | Fault Bitmap 2 | uint16 | r | | 1.0 | 0.0 | See section 2.4 |
| 70 | 0x0045 | Fault Bitmap 3 | uint16 | r | | 1.0 | 0.0 | See section 2.5 |
| 71 | 0x0046 | Warning Bitmap 0 | uint16 | r | | 1.0 | 0.0 | See section 2.6 |
| 72 | 0x0047 | Inverter Enabled Status | uint16 | r | | 1.0 | 0.0 | 0=Disabled 1=Enabled |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|----------------------------|--------|-----|-------|-------|--------|---|
| 73 | 0x0048 | Charger Enabled Status | uint16 | r | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 74 | 0x0049 | Sell Enabled Status | uint16 | r | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 75 | 0x004A | Forced Sell | uint16 | r | | 1.0 | 0.0 | 0=Disabled 1=Enabled 2=Unavailable |
| 76 | 0x004B | Active Faults | uint16 | r | | 1.0 | 0.0 | 0=No Faults 1=Active Faults |
| 77 | 0x004C | Active Warnings | uint16 | r | | 1.0 | 0.0 | 0=No Warnings 1=Active Warnings |
| 78 | 0x004D | Charge Mode Status | uint16 | r | | 1.0 | 0.0 | 0=Stand alone 1=Primary 2=Secondary |
| 79 | 0x004E | Configuration Errors | uint32 | r | | 1.0 | 0.0 | |
| 81 | 0x0050 | DC Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 83 | 0x0052 | DC Current | sint32 | r | A | 0.001 | 0.0 | |
| 85 | 0x0054 | DC Power | sint32 | r | W | 1.0 | 0.0 | |
| 87 | 0x0056 | Battery Temperature | uint16 | r | degC | 0.01 | -273.0 | |
| 88 | 0x0057 | reserved | uint16 | r | | | | |
| 89 | 0x0058 | Invert DC Current | uint32 | r | A | 0.001 | 0.0 | |
| 91 | 0x005A | Invert DC Power | uint32 | r | W | 1.0 | 0.0 | |
| 93 | 0x005C | Charge DC Current | uint32 | r | A | 0.001 | 0.0 | |
| 95 | 0x005E | Charge DC Power | uint32 | r | W | 1.0 | 0.0 | |
| 97 | 0x0060 | Charge DC Power Percentage | uint16 | r | % | 1.0 | 0.0 | |
| 98 | 0x0061 | AC1 Frequency | uint16 | r | Hz | 0.01 | 0.0 | |
| 99 | 0x0062 | AC1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 101 | 0x0064 | AC1 Current | sint32 | r | A | 0.001 | 0.0 | |
| 103 | 0x0066 | AC1 Power | sint32 | r | W | 1.0 | 0.0 | |
| 105 | 0x0068 | AC1 Input Power (VA) | uint32 | r | VA | 1.0 | 0.0 | |
| 107 | 0x006A | AC1 Input Current | uint32 | r | A | 0.001 | 0.0 | |
| 109 | 0x006C | AC1 Input Power (W) | uint32 | r | W | 1.0 | 0.0 | |
| 111 | 0x006E | AC1 L1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 113 | 0x0070 | AC1 L2 Current | sint32 | r | A | 0.001 | 0.0 | |
| 115 | 0x0072 | AC1 L2 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 117 | 0x0074 | AC1 L1 Current | sint32 | r | A | 0.001 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-------------------------|--------|-----|-------|-------|--------|------------------|
| 119 | 0x0076 | AC1 Voltage Qualified | uint16 | r | | 1.0 | 0.0 | See section 2.7 |
| 120 | 0x0077 | AC1 Frequency Qualified | uint16 | r | | 1.0 | 0.0 | See section 2.8 |
| 121 | 0x0078 | AC1 Qualified Duration | uint32 | r | s | 1.0 | 0.0 | |
| 123 | 0x007A | Inverter Status | uint16 | r | | 1.0 | 0.0 | See section 2.9 |
| 124 | 0x007B | Charger Status | uint16 | r | | 1.0 | 0.0 | See section 2.10 |
| 125 | 0x007C | reserved | uint16 | r | | | | |
| 126 | 0x007D | reserved | uint16 | r | | | | |
| 127 | 0x007E | AC1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 129 | 0x0080 | AC1 Current | uint32 | r | A | 0.001 | 0.0 | |
| 131 | 0x0082 | AC1 Frequency | uint16 | r | Hz | 0.01 | 0.0 | |
| 132 | 0x0083 | reserved | uint16 | r | | | | |
| 133 | 0x0084 | AC1 Output Power (W) | uint32 | r | W | 1.0 | 0.0 | |
| | | | | | | | | |
| 139 | 0x008A | AC1 Output Power (VA) | uint32 | r | VA | 1.0 | 0.0 | |
| 141 | 0x008C | AC Load Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 143 | 0x008E | AC Load L1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 145 | 0x0090 | AC Load L2 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 147 | 0x0092 | AC Load L1 Current | sint32 | r | A | 0.001 | 0.0 | |
| 149 | 0x0094 | AC Load L2 Current | sint32 | r | A | 0.001 | 0.0 | |
| 151 | 0x0096 | AC Load Current | sint32 | r | A | 0.001 | 0.0 | |
| 153 | 0x0098 | AC Load Frequency | uint16 | r | Hz | 0.01 | 0.0 | |
| 154 | 0x0099 | reserved | uint16 | r | | | | |
| 155 | 0x009A | AC Load Power | sint32 | r | W | 1.0 | 0.0 | |
| | | | | | | | | |
| 161 | 0x00A0 | AC Load Power (VA) | sint32 | r | VA | 1.0 | 0.0 | |
| 163 | 0x00A2 | AC2 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 165 | 0x00A4 | AC2 Current | uint32 | r | A | 0.001 | 0.0 | |
| 167 | 0x00A6 | AC2 Frequency | uint16 | r | Hz | 0.01 | 0.0 | |
| 168 | 0x00A7 | AC2 Voltage Qualified | uint16 | r | | 1.0 | 0.0 | See section 2.11 |
| 169 | 0x00A8 | AC2 Frequency Qualified | uint16 | r | | 1.0 | 0.0 | See section 2.12 |
| 170 | 0x00A9 | reserved | uint16 | r | | | | |
| 171 | 0x00AA | AC2 Qualified Duration | uint32 | r | s | 1.0 | 0.0 | |
| 173 | 0x00AC | AC2 Power | uint32 | r | W | 1.0 | 0.0 | |
| | | | | | | | | |
| 179 | 0x00B2 | AC2 L1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 181 | 0x00B4 | AC2 L1 Current | sint32 | r | A | 0.001 | 0.0 | |
| 183 | 0x00B6 | AC2 L2 Voltage | uint32 | r | V | 0.001 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-------------------------------------|--------|-----|-------|-------|--------|--|
| 185 | 0x00B8 | AC2 L2 Current | sint32 | r | A | 0.001 | 0.0 | |
| 187 | 0x00BA | AC2 Power - Apparent | uint32 | r | VA | 1.0 | 0.0 | |
| 189 | 0x00BC | Auxiliary Output Status | uint16 | r | | 1.0 | 0.0 | See section 2.13 |
| 190 | 0x00BD | Auxiliary Output On Reason | uint16 | r | | 1.0 | 0.0 | See section 2.14 |
| 191 | 0x00BE | Auxiliary Output Off Reason | uint16 | r | | 1.0 | 0.0 | See section 2.15 |
| 192 | 0x00BF | Grid Tie Sell Level | uint16 | w | | 1.0 | 0.0 | |
| 193 | 0x00C0 | Switch Operating State | uint16 | r | | 1.0 | 0.0 | 800=Inactive 801=Input1 Active 802=Input2 Active 803=Input1 Delay 804=Input2 Delay |
| 194 | 0x00C1 | Switch Mode | uint16 | r | | 1.0 | 0.0 | 0=unknown 1=Grid Priority 2=Generator Priority |
| 195 | 0x00C2 | Warning Bitmap 1 | uint16 | r | | 1.0 | 0.0 | See section 2.16 |
| 209 | 0x00D0 | Energy From Battery This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 211 | 0x00D2 | Battery Discharge Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 213 | 0x00D4 | Energy From Battery Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 215 | 0x00D6 | Battery Discharge Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 217 | 0x00D8 | Energy From Battery This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 219 | 0x00DA | Battery Discharge Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 221 | 0x00DC | Energy From Battery This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 223 | 0x00DE | Battery Discharge Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 225 | 0x00E0 | Energy From Battery This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 227 | 0x00E2 | Battery Discharge Active This Year | uint32 | r | s | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-----------------------------------|--------|-----|-------|-------|--------|-------|
| 229 | 0x00E4 | Energy From Battery Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 231 | 0x00E6 | Battery Discharge Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 233 | 0x00E8 | Energy To Battery This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 235 | 0x00EA | Battery Charge Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 237 | 0x00EC | Energy To Battery Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 239 | 0x00EE | Battery Charge Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 241 | 0x00F0 | Energy To Battery This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 243 | 0x00F2 | Battery Charge Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 245 | 0x00F4 | Energy To Battery This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 247 | 0x00F6 | Battery Charge Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 249 | 0x00F8 | Energy To Battery This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 251 | 0x00FA | Battery Charge Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 253 | 0x00FC | Energy To Battery Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 255 | 0x00FE | Battery Charge Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 257 | 0x0100 | Grid Input Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 259 | 0x0102 | Grid Input Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 261 | 0x0104 | Grid Input Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 263 | 0x0106 | Grid Input Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 265 | 0x0108 | Grid Input Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 267 | 0x010A | Grid Input Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 269 | 0x010C | Grid Input Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-------------------------------|--------|-----|-------|-------|--------|-------|
| 271 | 0x010E | Grid Input Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 273 | 0x0110 | Grid Input Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 275 | 0x0112 | Grid Input Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 277 | 0x0114 | Grid Input Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 279 | 0x0116 | Grid Input Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 281 | 0x0118 | Grid Output Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 283 | 0x011A | Grid Output Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 285 | 0x011C | Grid Output Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 287 | 0x011E | Grid Output Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 289 | 0x0120 | Grid Output Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 291 | 0x0122 | Grid Output Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 293 | 0x0124 | Grid Output Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 295 | 0x0126 | Grid Output Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 297 | 0x0128 | Grid Output Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 299 | 0x012A | Grid Output Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 301 | 0x012C | Grid Output Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 303 | 0x012E | Grid Output Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 305 | 0x0130 | Load Output Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 307 | 0x0132 | Load Output Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 309 | 0x0134 | Load Output Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 311 | 0x0136 | Load Output Active Today | uint32 | r | s | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-----------------------------------|--------|-----|-------|-------|--------|-------|
| 313 | 0x0138 | Load Output Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 315 | 0x013A | Load Output Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 317 | 0x013C | Load Output Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 319 | 0x013E | Load Output Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 321 | 0x0140 | Load Output Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 323 | 0x0142 | Load Output Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 325 | 0x0144 | Load Output Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 327 | 0x0146 | Load Output Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 329 | 0x0148 | Generator Input Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 331 | 0x014A | Generator Input Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 333 | 0x014C | Generator Input Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 335 | 0x014E | Generator Input Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 337 | 0x0150 | Generator Input Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 339 | 0x0152 | Generator Input Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 341 | 0x0154 | Generator Input Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 343 | 0x0156 | Generator Input Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 345 | 0x0158 | Generator Input Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 347 | 0x015A | Generator Input Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 349 | 0x015C | Generator Input Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 351 | 0x015E | Generator Input Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|----------------------------------|--------|-----|-------|-------|--------|--|
| 353 | 0x0160 | Identify Enable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 354 | 0x0161 | Inverter Enable/Disable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 355 | 0x0162 | Grid Support Sell Enable/Disable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 356 | 0x0163 | Force Sell | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 357 | 0x0164 | Charger Enable/Disable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 358 | 0x0165 | Force Charger State | uint16 | rw | | 1.0 | 0.0 | 1=Bulk 2=Float 3=No Float |
| 359 | 0x0166 | Operating Mode | uint16 | rw | | 1.0 | 0.0 | 2=Standby 3=Operating |
| 360 | 0x0167 | Reset | uint16 | rw | | 1.0 | 0.0 | 0=Reboot 2=Reset to Factory |
| 361 | 0x0168 | Clear | uint16 | rw | | 1.0 | 0.0 | See section 2.17 |
| 362 | 0x0169 | Search Mode | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 363 | 0x016A | Inverter Mode | uint16 | rw | | 1.0 | 0.0 | See section 2.18 |
| 364 | 0x016B | Remote Power Off | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 365 | 0x016C | Power Save | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 366 | 0x016D | Sell Delay 40 Sec | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 367 | 0x016E | Charge Cycle | uint16 | rw | | 1.0 | 0.0 | 1=3 Stage 2=2 Stage 3=External BMS |
| 368 | 0x016F | Maximum Charge Rate | uint16 | rw | % | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|---------------------------------|--------|-----|---------|-------|--------|--|
| 369 | 0x0170 | Equalize Now | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 370 | 0x0171 | Default Battery Temperature | uint16 | rw | | 1.0 | 0.0 | 0=Cold 1=Warm 2=Hot |
| 371 | 0x0172 | GFS Enable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 372 | 0x0173 | Battery Type | uint16 | rw | | 1.0 | 0.0 | See section 2.19 |
| 373 | 0x0174 | Nominal Battery Voltage | uint32 | r | V | 0.001 | 0.0 | 24000=24V 48000=48V |
| 375 | 0x0176 | Battery Bank Capacity | uint16 | rw | Ah | 1.0 | 0.0 | |
| 376 | 0x0177 | Battery Temperature Coefficient | uint16 | rw | mV/degC | 1.0 | 0.0 | |
| 377 | 0x0178 | Grid Support Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 379 | 0x017A | Recharge Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 381 | 0x017C | Low Battery Cut Out | uint32 | rw | V | 0.001 | 0.0 | |
| 383 | 0x017E | Low Battery Cut Out Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 384 | 0x017F | reserved | uint16 | r | | | | |
| 385 | 0x0180 | Low Battery Trigger Set | uint32 | rw | V | 0.001 | 0.0 | |
| 387 | 0x0182 | Low Battery Trigger Set Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 388 | 0x0183 | reserved | uint16 | r | | | | |
| 389 | 0x0184 | Low Battery Trigger Clear | uint32 | rw | V | 0.001 | 0.0 | |
| 391 | 0x0186 | Low Battery Trigger Clear Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 392 | 0x0187 | AC Priority | uint16 | rw | | 1.0 | 0.0 | 0=Force AC Disqualify 1=Grid Priority (AC1) 2=Generator Priority (AC2) |
| 393 | 0x0188 | AC1 Breaker Size | uint16 | rw | A | 0.01 | 0.0 | |
| 394 | 0x0189 | AC2 Breaker Size | uint16 | rw | A | 0.01 | 0.0 | |
| 395 | 0x018A | High Battery Cut Out | uint32 | rw | V | 0.001 | 0.0 | |
| 397 | 0x018C | High Battery Trigger Set | uint32 | rw | V | 0.001 | 0.0 | |
| 399 | 0x018E | High Battery Trigger Set Delay | uint16 | rw | s | 0.01 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|----------------------------------|--------|-----|-------|-------|--------|---|
| 400 | 0x018F | reserved | uint16 | r | | | | |
| 401 | 0x0190 | High Battery Trigger Clear | uint32 | rw | V | 0.001 | 0.0 | |
| 403 | 0x0192 | High Battery Trigger Clear Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 404 | 0x0193 | Maximum Search Watts | uint16 | rw | W | 1.0 | 0.0 | |
| 405 | 0x0194 | Search Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 406 | 0x0195 | reserved | uint16 | r | | | | |
| 407 | 0x0196 | Equalize Voltage Set Point | uint32 | rw | V | 0.001 | 0.0 | |
| 409 | 0x0198 | Equalize Support | uint16 | rw | | 1.0 | 0.0 | 0=No Equalization 1=Equalization Allowed |
| 410 | 0x0199 | reserved | uint16 | r | | | | |
| 411 | 0x019A | Bulk/Boost Voltage Set Point | uint32 | rw | V | 0.001 | 0.0 | |
| 413 | 0x019C | Absorption Voltage Set Point | uint32 | rw | V | 0.001 | 0.0 | |
| 415 | 0x019E | Absorption Time | uint16 | rw | s | 1.0 | 0.0 | |
| 416 | 0x019F | reserved | uint16 | r | | | | |
| 417 | 0x01A0 | Float Voltage Set Point | uint32 | rw | V | 0.001 | 0.0 | |
| 419 | 0x01A2 | AC1 Low Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 421 | 0x01A4 | AC2 Low Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 423 | 0x01A6 | AC1 High Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 425 | 0x01A8 | AC2 High Voltage | uint32 | rw | V | 0.001 | 0.0 | |
| 427 | 0x01AA | Charge Block Start | uint16 | rw | min | 1.0 | 0.0 | |
| 428 | 0x01AB | Charge Block Stop | uint16 | rw | min | 1.0 | 0.0 | |
| 429 | 0x01AC | Load Shave Stop | uint16 | rw | min | 1.0 | 0.0 | |
| 430 | 0x01AD | Load Shave Start | uint16 | rw | min | 1.0 | 0.0 | |
| 431 | 0x01AE | AC1 Low Frequency | uint16 | rw | Hz | 0.01 | 0.0 | |
| 432 | 0x01AF | AC2 Low Frequency | uint16 | rw | Hz | 0.01 | 0.0 | |
| 433 | 0x01B0 | AC1 High Frequency | uint16 | rw | Hz | 0.01 | 0.0 | |
| 434 | 0x01B1 | AC2 High Frequency | uint16 | rw | Hz | 0.01 | 0.0 | |
| 435 | 0x01B2 | Load Shave | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 436 | 0x01B3 | Grid Support | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 437 | 0x01B4 | Maximum Sell Amps | uint32 | rw | A | 0.001 | 0.0 | |
| 439 | 0x01B6 | Load Shave Amps | uint32 | rw | A | 0.001 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|--------------------------------------|--------|-----|-------|-------|--------|--|
| 441 | 0x01B8 | Generator Support Enable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 442 | 0x01B9 | reserved | uint16 | r | | | | |
| 443 | 0x01BA | Generator Support Amps | uint32 | rw | A | 0.001 | 0.0 | |
| 445 | 0x01BC | Manual Aux | uint16 | rw | | 1.0 | 0.0 | 0=Manual Off 1=Manual On 2=Automatic |
| 446 | 0x01BD | reserved | uint16 | r | | | | |
| 447 | 0x01BE | Auxiliary Output Active Level | uint16 | rw | | 1.0 | 0.0 | 0=Active Low 1=Active High |
| 448 | 0x01BF | reserved | uint16 | r | | | | |
| 449 | 0x01C0 | Low Temperature Trigger Set | uint32 | rw | degC | 0.001 | -273.0 | |
| 451 | 0x01C2 | Low Temperature Trigger Set Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 452 | 0x01C3 | reserved | uint16 | r | | | | |
| 453 | 0x01C4 | Low Temperature Trigger Clear | uint32 | rw | degC | 0.001 | -273.0 | |
| 455 | 0x01C6 | Low Temperature Trigger Clear Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 456 | 0x01C7 | reserved | uint16 | r | | | | |
| 457 | 0x01C8 | High Temperature Trigger Set | uint32 | rw | degC | 0.001 | -273.0 | |
| 459 | 0x01CA | High Temperature Trigger Set Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 460 | 0x01CB | reserved | uint16 | r | | | | |
| 461 | 0x01CC | High Temperature Trigger Clear | uint32 | rw | degC | 0.001 | -273.0 | |
| 463 | 0x01CE | High Temperature Trigger Clear Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 464 | 0x01CF | Refresh Configuration Data | uint16 | rw | | 1.0 | 0.0 | 1=Refresh |
| 465 | 0x01D0 | AC Output Association (Loads) | uint16 | rw | | 1.0 | 0.0 | See section 2.20 |
| 466 | 0x01D1 | AC2 Association (Generator) | uint16 | rw | | 1.0 | 0.0 | See section 2.21 |
| 467 | 0x01D2 | AC1 Association (Grid) | uint16 | rw | | 1.0 | 0.0 | See section 2.22 |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|--|--------|-----|-------|-------|--------|-------------------------|
| 468 | 0x01D3 | Battery Association | uint16 | rw | | 1.0 | 0.0 | See section 2.23 |
| 469 | 0x01D4 | Maximum Discharge Current | uint16 | rw | A | 1.0 | 0.0 | |
| 470 | 0x01D5 | Maximum Discharge Time Interval | uint16 | rw | s | 0.01 | 0.0 | |
| 471 | 0x01D6 | GVS Enable/Disable | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 472 | 0x01D7 | Maximum Reactive Capacitive Power | uint16 | rw | % | 0.01 | 0.0 | |
| 473 | 0x01D8 | Maximum Reactive Inductive Power | uint16 | rw | % | 0.01 | 0.0 | |
| 474 | 0x01D9 | Maximum Reactive Power Grid Voltage | uint16 | rw | V | 0.01 | 0.0 | |
| 475 | 0x01DA | Minimum Reactive Power Grid Voltage | uint16 | rw | V | 0.01 | 0.0 | |
| 476 | 0x01DB | Inductive Voltage Set Point | uint16 | rw | V | 0.01 | 0.0 | |
| 477 | 0x01DC | Capacitive Voltage Set Point | uint16 | rw | V | 0.01 | 0.0 | |
| 478 | 0x01DD | Voltage Threshold to start/stop excitation | uint16 | rw | V | 0.01 | 0.0 | |
| 479 | 0x01DE | Excitation Control Delay Time | uint16 | rw | s | 0.01 | 0.0 | |
| 480 | 0x01DF | reserved | uint16 | r | | | | |
| 481 | 0x01E0 | API Frequency Start Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 482 | 0x01E1 | API Frequency Stop Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 483 | 0x01E2 | API Frequency Recover Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 484 | 0x01E3 | API Gradient with Time | uint16 | rw | % | 1.0 | 0.0 | |
| 485 | 0x01E4 | APR Frequency Start Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 486 | 0x01E5 | APR Frequency Stop Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 487 | 0x01E6 | APR Frequency Recover Level | uint16 | rw | Hz | 0.01 | 0.0 | |
| 488 | 0x01E7 | APR Gradient with Frequency | uint16 | rw | % | 1.0 | 0.0 | |
| 489 | 0x01E8 | APR Gradient with Time | uint16 | rw | % | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|--|--------|-----|-------|-------|--------|-------------------------|
| 490 | 0x01E9 | reserved | uint16 | r | | | | |
| 491 | 0x01EA | State of Charge Level to Stop | uint16 | rw | % | 1.0 | 0.0 | |
| 492 | 0x01EB | State of Charge Stop Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 493 | 0x01EC | State of Charge Level to Start | uint16 | rw | % | 1.0 | 0.0 | |
| 494 | 0x01ED | State of Charge Start Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 495 | 0x01EE | Generator Support Plus | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 496 | 0x01EF | AC Coupling | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 497 | 0x01F0 | Battery Energy Balance | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 498 | 0x01F1 | Peak Load Shaving Delay | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 499 | 0x01F2 | Low Battery Cut Out Hysteresis | uint32 | rw | V | 0.001 | 0.0 | |
| 501 | 0x01F4 | reserved | uint16 | r | | | | |
| 502 | 0x01F5 | AC1 Transfer Switch Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 503 | 0x01F6 | AC2 Transfer Switch Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 504 | 0x01F7 | Sell Block Start | uint16 | rw | min | 1.0 | 0.0 | |
| 505 | 0x01F8 | Sell Block End | uint16 | rw | min | 1.0 | 0.0 | |
| 506 | 0x01F9 | Auxiliary Output Trigger Block Start | uint16 | rw | min | 1.0 | 0.0 | |
| 507 | 0x01FA | Auxiliary Output Trigger Block End | uint16 | rw | min | 1.0 | 0.0 | |
| 508 | 0x01FB | reserved | uint16 | r | | | | |
| 509 | 0x01FC | Heat Sink High Temperature Trigger Set | uint32 | rw | degC | 0.001 | -273.0 | |
| 511 | 0x01FE | Heat Sink High Temperature Trigger Set Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 512 | 0x01FF | Maximum Sell Scale Percentage | uint16 | rw | % | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|--|--------|-----|-------|-------|--------|-------------------------|
| 513 | 0x0200 | Heat Sink High Temperature Trigger Clear | uint32 | rw | degC | 0.001 | -273.0 | |
| 515 | 0x0202 | Heat Sink High Temperature Trigger Clear Delay | uint16 | rw | s | 0.01 | 0.0 | |
| 516 | 0x0203 | reserved | uint16 | r | | | | |
| 517 | 0x0204 | Auxiliary Output Trigger Source | uint32 | rw | | 1.0 | 0.0 | See section 2.24 |
| 519 | 0x0206 | Remote Sell | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 520 | 0x0207 | External Transfer Contactor | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 521 | 0x0208 | AC Transient Over Voltage Disconnect | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 522 | 0x0209 | External Load Switch | uint16 | rw | | 1.0 | 0.0 | 0=Disabled 1=Enabled |
| 523 | 0x020A | Maximum Bulk Charge Current | uint32 | rw | A | 0.001 | 0.0 | |
| 525 | 0x020C | Maximum Absorption Charge Current | uint32 | rw | A | 0.001 | 0.0 | |
| 527 | 0x020E | Maximum Float Charge Current | uint32 | rw | A | 0.001 | 0.0 | |
| | | | | | | | | |
| 577 | 0x0240 | Generator (1) AC Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 579 | 0x0242 | Generator (1) AC Current | uint32 | r | A | 0.001 | 0.0 | |
| 581 | 0x0244 | Generator (1) AC Frequency | uint32 | r | Hz | 0.01 | 0.0 | |
| 583 | 0x0246 | Generator (1) AC Voltage Qualified | uint32 | r | | | 0.0 | See section 2.25 |
| 585 | 0x0248 | Generator (1) AC Frequency Qualified | uint32 | r | | | 0.0 | See section 2.26 |
| 587 | 0x024A | Generator (1) AC Qualified Duration | uint32 | r | | | 0.0 | |
| 589 | 0x024C | Generator (1) AC Power | uint32 | r | W | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|--------------------------------------|--------|-----|-------|-------|--------|----------------------------------|
| 591 | 0x024E | Generator (1) AC L1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 593 | 0x0250 | Generator (1) AC L1 Current | uint32 | r | A | 0.001 | 0.0 | |
| 595 | 0x0252 | Generator (1) AC L2 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 597 | 0x0254 | Generator (1) AC L2 Current | uint32 | r | A | 0.001 | 0.0 | |
| 599 | 0x0256 | Generator (1) AC Power - Apparent | uint32 | r | VA | | 0.0 | |
| 601 | 0x0258 | Generator (2) AC Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 603 | 0x025A | Generator (2) AC Current | uint32 | r | A | 0.001 | 0.0 | |
| 605 | 0x025C | Generator (2) AC Frequency | uint32 | r | Hz | 0.01 | 0.0 | |
| 607 | 0x025E | Generator (2) AC Voltage Qualified | uint32 | r | | | 0.0 | See section 2.27 |
| 609 | 0x0260 | Generator (2) AC Frequency Qualified | uint32 | r | | | 0.0 | See section 2.28 |
| 611 | 0x0262 | Generator (2) AC Qualified Duration | uint32 | r | | | 0.0 | |
| 613 | 0x0264 | Generator (2) AC Power | uint32 | r | W | 1.0 | 0.0 | |
| 615 | 0x0266 | Generator (2) AC L1 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 617 | 0x0268 | Generator (2) AC L1 Current | uint32 | r | A | 0.001 | 0.0 | |
| 619 | 0x026A | Generator (2) AC L2 Voltage | uint32 | r | V | 0.001 | 0.0 | |
| 621 | 0x026C | Generator (2) AC L2 Current | uint32 | r | A | 0.001 | 0.0 | |
| 623 | 0x026E | Generator (2) AC Power - Apparent | uint32 | r | VA | | 0.0 | |
| | | | | | | | | |
| 641 | 0x0280 | Generator (1) Input Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 643 | 0x0282 | Generator (1) Input Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 645 | 0x0284 | Generator (1) Input Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|---------------------------------------|--------|-----|-------|-------|--------|-------|
| 647 | 0x0286 | Generator (1) Input Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 649 | 0x0288 | Generator (1) Input Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 651 | 0x028A | Generator (1) Input Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 653 | 0x028C | Generator (1) Input Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 655 | 0x028E | Generator (1) Input Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 657 | 0x0290 | Generator (1) Input Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 659 | 0x0292 | Generator (1) Input Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 661 | 0x0294 | Generator (1) Input Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 663 | 0x0296 | Generator (1) Input Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |
| 665 | 0x0298 | Generator (2) Input Energy This Hour | uint32 | r | kWh | 0.001 | 0.0 | |
| 667 | 0x029A | Generator (2) Input Active This Hour | uint32 | r | s | 1.0 | 0.0 | |
| 669 | 0x029C | Generator (2) Input Energy Today | uint32 | r | kWh | 0.001 | 0.0 | |
| 671 | 0x029E | Generator (2) Input Active Today | uint32 | r | s | 1.0 | 0.0 | |
| 673 | 0x02A0 | Generator (2) Input Energy This Week | uint32 | r | kWh | 0.001 | 0.0 | |
| 675 | 0x02A2 | Generator (2) Input Active This Week | uint32 | r | s | 1.0 | 0.0 | |
| 677 | 0x02A4 | Generator (2) Input Energy This Month | uint32 | r | kWh | 0.001 | 0.0 | |
| 679 | 0x02A6 | Generator (2) Input Active This Month | uint32 | r | s | 1.0 | 0.0 | |
| 681 | 0x02A8 | Generator (2) Input Energy This Year | uint32 | r | kWh | 0.001 | 0.0 | |
| 683 | 0x02AA | Generator (2) Input Active This Year | uint32 | r | s | 1.0 | 0.0 | |
| 685 | 0x02AC | Generator (2) Input Energy Lifetime | uint32 | r | kWh | 0.001 | 0.0 | |
| 687 | 0x02AE | Generator (2) Input Active Lifetime | uint32 | r | s | 1.0 | 0.0 | |

| Reg. No. | Reg. Addr. | Name | Type | R/W | Units | Scale | Offset | Notes |
|----------|------------|-----------------|--------|-----|-------|-------|--------|-------|
| 689 | 0x02B0 | XW Power Factor | sint16 | w | | 0.01 | 0.0 | |

2 Data Point Enumerations

2.1 Operating State

The following operating states are supported

0=Hibernate
 1=Power Save
 2=Safe Mode
 3=Operating
 4=Diagnostic Mode
 5=Remote Power Off
 255=Data Not Available

2.2 Fault Bitmap 0

One or more of the following fault bits may be set:

bit0=F1:AC Output Undervoltage Shutdown
 bit1=F2:AC Output Overvoltage Shutdown
 bit2=F17:AC BackFeed Fault (AC1 L1)
 bit3=F18:AC BackFeed Fault (AC1 L2)
 bit4=F19:AC BackFeed Fault (AC2 L1)
 bit5=F20:AC Backfeed Fault (AC2 L2)
 bit6=F21:AC Backfeed Fault (L1L2 Weld)
 bit7=F22:AC Backfeed Fault(Line 1 Weld)
 bit8=F23:Anti-Islanding Fault (Over Freq)
 bit9=F24:Anti-Islanding Fault (Under Freq)
 bit10=F25:Anti-Islanding (Over Freq)
 bit11=F26:Anti-Islanding (Under Freq)
 bit12=F27:Anti-Islanding (Over Voltage Line 1)
 bit13=F28:Anti-Islanding (Over Voltage Line 2)
 bit14=F29:Anti-Islanding (Over Voltage)
 bit15=F30:Anti-Islanding (Over voltage L1L2)

2.3 Fault Bitmap 1

One or more of the following fault bits may be set:

bit0=F31:Anti-Islanding (Over Voltage L1 Slow)
bit1=F32:Anti-Islanding (Over Voltage L2 Slow)
bit2=F33:Anti-Islanding (Over Voltage L1L2 Slow)
bit3=F34:Anti-Islanding (Under Voltage L1 Slow)
bit4=F35:Anti-Islanding (Under Voltage L2 Slow)
bit5=F36:Anti-Islanding (Under Voltage L1L2 Slow)
bit6=F37:Anti-Islanding (Under Voltage L1 Fast)
bit7=F38:Anti-Islanding (Under Voltage L2 Fast)
bit8=F39:Anti-Islanding (Under Voltage)
bit9=F40:Anti-Islanding (Under Voltage L1L2 Fast)
bit10=F41:APS Under Voltage
bit11=F42:APS Over Voltage
bit12=F44:Battery Over Temperature
bit13=F45:Capacitor Over Temperature
bit14=F46:Controller Error
bit15=F47:DC Under Voltage Immediate

2.4 Fault Bitmap 2

One or more of the following fault bits may be set:

bit0=F48:DC Under-Voltage Shutdown
bit1=F49:DC Over-Voltage Shutdown
bit2=F51:EEPROM Error
bit3=F52:EEPROM Error (Cal Fail)
bit4=F53:EEPROM Error (Config Fail)
bit5=F54:EEPROM Error (Default Fail)
bit6=F55:EEPROM Error (Log Fail)
bit7=F56:EEPROM Error (Strings Fail)
bit8=F57:FET1 Over-Temperature Shutdown
bit9=F58:FET2 Over-Temperature Shutdown
bit10=F59:Configuration Copy Error
bit11=F60:Invalid Fault
bit12=F61:Invalid Warning
bit13=F62:Invalid Interrupt
bit14=F63:AC Overload (Primary)
bit15=F64:AC Overload (Secondary 1s)

2.5 Fault Bitmap 3

One or more of the following fault bits may be set:

bit0=F65:AC Overload (2s)
bit1=F66:System Configuration Error
bit2=F67:Watchdog Reset
bit3=F68:Transformer Over-Temperature
bit4=F69:Synchronization Signal Fault
bit5=F70:Three Phase Configuration Fault
bit6=F90:External BMS Disconnected
bit7=F71:Battery Discharge Over Current
bit8=F72:External Contactor Malfunction
bit9=F73:Battery Charge Over Current
bit10=F74:Battery Under Voltage
bit11=F75:Battery Over Voltage
bit12=F91:SOC Level Lost
bit13=F92:Gateway Comms Lost
bit14=F93:SunSpec Controller Comms Lost

2.6 Warning Bitmap 0

One or more of the following warning bits may be set:

bit0=W44:Battery Over Temperature
bit1=W45:Capacitor Over Temperature
bit2=W48:DC Under Voltage
bit3=W49:DC Over Voltage
bit4=W57:FET1 Over Temperature
bit5=W58:FET2 Over Temperature
bit6=W63:AC Overload
bit7=W64:AC Overload
bit8=W68:Transformer Over Temperature
bit9=W70:Check Phase Configuration
bit10=W94:Remote Power Off
bit11=W95:Equalize Abort
bit12=W96:Cannot Equalize
bit13=W97:Battery Temperature Sensor Failure
bit14=W500:Lost Network Connection
bit15=W501:Non Volatile Memory Warning

2.7 AC1 Voltage Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.8 AC1 Frequency Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.9 Inverter Status

The Conext XW Inverter may operate in one of the following modes:

- 1024=Invert
- 1025=AC Pass Through
- 1026=APS Only
- 1027=Load Sense
- 1028=Inverter Disabled
- 1029=Load Sense Ready
- 1030=Engaging Inverter
- 1031=Invert Fault
- 1032=Inverter Standby
- 1033=Grid-Tied
- 1034=Grid Support
- 1035=Gen Support
- 1036=Sell-to-Grid
- 1037=Load Shaving
- 1038=Grid Frequency Stabilization

1039=AC Coupling
1040=Reverse lbatt

2.10 Charger Status

The Conext XW Charger may operate in one of the following modes:

768=Not Charging
769=Bulk
770=Absorption
771=Overcharge
772=Equalize
773=Float
774=No Float
775=Constant VI
776=Charger Disabled
777=Qualifying AC
778=Qualifying APS
779=Engaging Charger
780=Charge Fault
781=Charger Suspend
782=AC Good
783=APS Good
784=AC Fault
785=Charge
786=Absorption Exit Pending
787=Ground Fault
788=AC Good Pending

2.11 AC2 Voltage Qualification

The following AC qualification states may be reported:

0=Not Qualifying
1=Qualifying
2=Missing
3=Too Low
4=Too High
5=Qualification Good

2.12 AC2 Frequency Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.13 Auxiliary Output Trigger Mode

The XW Auxiliary Output may operate in one of the following modes:

- 1=AutoOn
- 2=Auto Off
- 3=Manual On
- 4=Manual Off

2.14 Auxiliary Output On Reason

This field reports the reason the Conext XW Auxiliary Output is active

- 0=Not on
- 1=Manual on
- 2=Battery Voltage Low
- 3=Battery Voltage High
- 4=Array Voltage High
- 5=Battery Temp Low
- 6=Battery Temp High
- 7=Heat Sink Temp High
- 8=Fault

2.15 Auxiliary Output Off Reason

This status indicates the reason the auxiliary output is deactivated or 0 if it is activated. The following values are supported:

0=Not off
1=Manual Off
2=No Active Trigger
3=Trigger Override
4=Fault
5=Bulk Exit
6=Absorption Exit

2.16 Warning Bitmap 1

One or more of the following warning bits may be set:

bit0=W91:SOC Level Lost
bit1=W92:Gateway Comms Lost
bit2=W93:SunSpec Controller Comms Lost

2.17 Clear Command

The Clear Command can be used to clear the fault; warning; event; and communication logs. The following values are supported:

1=Fault Log
2=Active Faults
4=Warning Log
8=Active Warnings
16=State Event Log
32=Communication Statistics
64=Statistics
128=User Statistics
255=All

2.18 Conext XW Inverter Configuration

The Conext XW may be configured as one of the following:

0=Invalid
1=Single Phase Stand Alone
11=Single Phase Master
12=Single Phase Slave
20=Split Phase Stand Alone

21=Split Phase Master
22=Split Phase Slave
23=Two Phase - Phase1-Master
24=Two Phase - Phase1-Slave
25=Two Phase - Phase2-Master
26=Two Phase - Phase2-Slave
30=Three Phase Stand Alone
31=Three Phase Master
32=Three Phase Slave
33=Three Phase - Phase1-Master
34=Three Phase - Phase1-Slave
35=Three Phase - Phase2-Master
36=Three Phase - Phase2-Slave
37=Three Phase - Phase3-Master
38=Three Phase - Phase3-Slave

2.19 Battery Type

The following battery types are supported:

0=Flooded
1=Gel
2=AGM
3=Custom
6=Li-Ion

2.20 AC Output Association

The following associations are supported:

51=AC Load 1
52=AC Load 2
53=AC Load 3
54=AC Load 4
55=AC Load 5
56=AC Load 6
57=AC Load 7
58=AC Load 8
59=AC Load 9
60=AC Load 10

2.21 AC Input Association

The following associations are supported:

1=None
19=Generator 1
20=Generator 2
21=Generator 3
22=Generator 4
23=Generator 5
24=Generator 6
25=Generator 7
26=Generator 8
27=Generator 9
28=Generator 10
67=Grid 1
68=Grid 2
69=Grid 3
70=Grid 4
71=Grid 5
72=Grid 6
73=Grid 7
74=Grid 8
75=Grid 9
76=Grid 10

2.22 AC Input/Output Association

The following associations are supported:

1=None
19=Generator 1
20=Generator 2
21=Generator 3
22=Generator 4
23=Generator 5
24=Generator 6
25=Generator 7
26=Generator 8
27=Generator 9
28=Generator 10
67=Grid 1

68=Grid 2
69=Grid 3
70=Grid 4
71=Grid 5
72=Grid 6
73=Grid 7
74=Grid 8
75=Grid 9
76=Grid 10

2.23 DC Input/Output Association

The following associations are supported:

3=House Battery Bank 1
4=House Battery Bank 2
5=House Battery Bank 3
6=House Battery Bank 4
7=House Battery Bank 5

2.24 Auxiliary Output Trigger Source

The Conext XW Auxiliary Output may be triggered from the following sources:

3=Low Battery Voltage
12=High Battery Voltage
48=Low Battery Temperature
192=High Battery Temperature
768=Fault
1024=Bulk Exit
2048=Absorption Exit
12288=Heat Sink Over Temperature
49152=Battery Low State of Charge
196608=Time of Day

2.25 Gen1 Voltage Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.26 Gen1 Frequency Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.27 Gen2 Voltage Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good

2.28 Gen2 Frequency Qualification

The following AC qualification states may be reported:

- 0=Not Qualifying
- 1=Qualifying
- 2=Missing
- 3=Too Low
- 4=Too High
- 5=Qualification Good