

Conext™ Gateway

Modbus Interface Specification (502)

Conext™ Gateway

990-91342B

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
865-0329	Conext Gateway
865-0330	Insight Home

⚠ 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	502
Modbus Slave Address Range	1

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™ Gateway

Start Marker

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40000	Start Marker	uint32	r		1	0	

Common Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40002	Common Model ID	uint16	r			0.0	
40003	Model Length	uint16	r			0.0	
40004	Manufacturer Well known value registered with SunSpec for compliance	str32	r			0.0	
40020	Model name, Manufacturer specific value (32 chars)	str32	r			0.0	
40036	Options, Manufacturer specific value (16 chars)	str16	r			0.0	
40044	Version, Manufacturer specific value (16 chars)	str16	r			0.0	
40052	Serial number, Manufacturer specific value (32 chars)	str32	r			0.0	
40068	Modbus device address	uint16	r			0.0	
40069	Force even alignment	uint16	r			0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
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Inverter Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40070	Inverter Model ID	uint16	r			0.0	
40071	Model Length	uint16	r			0.0	
40072	Inverter-charger power module total AC current	uint16	r	A	0.01	0.0	
40073	Inverter-charger power module AC current phase A	uint16	r	A	0.01	0.0	
40074	Inverter-charger power module AC current phase B	uint16	r	A	0.01	0.0	
40075	Inverter-charger power module AC current phase C	uint16	r	A	0.01	0.0	
40076	Inverter-charger power module AC current Scaling factor	sint16	r		1.0	0.0	
40077	Inverter-charger power module phase voltage	uint16	r	V	1.0	0.0	
40078	Inverter-charger power module phase voltage	uint16	r	V	1.0	0.0	
40079	Inverter-charger power module phase voltage	uint16	r	V	1.0	0.0	
40080	Inverter-charger power module phase voltage	uint16	r	V	0.01	0.0	
40081	Inverter-charger power module phase voltage	uint16	r	V	0.01	0.0	
40082	Inverter-charger power module phase voltage	uint16	r	V	0.01	0.0	
40083	Inverter-charger power module phase voltage scaling factor	sint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40084	Inverter-charger power module total AC power	sint16	r	W	1.0	0.0	
40085	Inverter-charger power module total AC power scaling factor	sint16	r		1.0	0.0	
40086	Inverter-charger power module frequency	uint16	r	Hz	0.01	0.0	
40087	Inverter-charger power module frequency scaling factor	sint16	r		1.0	0.0	
40088	Inverter-charger power module apparent power	sint16	r	VA	1.0	0.0	
40089	Inverter-charger power module apparent power scaling factor	sint16	r		1.0	0.0	
40090	Inverter-charger power module reactive power	sint16	r	var	1.0	0.0	
40091	Inverter-charger power module reactive power scaling factor	sint16	r		1.0	0.0	
40092	Inverter-charger power module power factor	sint16	r	Pct	1.0	0.0	
40093	Inverter-charger power module power factor scaling factor	sint16	r		1.0	0.0	
40094	Inverter charger Power module Output Energy Lifetime	uint32	r	kWh	0.001	0.0	
40096	Inverter-charger power module energy scaling factor	sint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40097	Inverter-charger power module DC current	uint16	r	A	1.0	0.0	
40098	Inverter-charger power module DC current scaling factor	sint16	r		1.0	0.0	
40099	Inverter-charger power module DC voltage	uint16	r	V	1.0	0.0	
40100	Inverter-charger power module DC voltage scaling factor	sint16	r		1.0	0.0	
40101	Inverter-charger power module DC power	sint16	r	W	1.0	0.0	
40102	Inverter-charger power module DC power scaling factor	sint16	r		1.0	0.0	
40103	Inverter-charger power module Cabinet Temperature	sint16	r	C	1.0	0.0	
40104	Inverter-charger power module Heat Sink Temperature	sint16	r	C	1.0	0.0	
40105	Inverter-charger power module Transformer Temperature	sint16	r	C	1.0	0.0	
40106	Inverter-charger power module Other Temperature	sint16	r	C	1.0	0.0	
40107	Inverter-charger power module Temperature scaling factor	sint16	r		1.0	0.0	
40108	Inverter-charger power module operating state	uint16	r		1.0	0.0	
40109	Inverter-charger power module vendor operating state	uint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40110	Inverter-charger power module Event 1	uint32	r		1.0	0.0	
40112	Inverter-charger power module Event bitfield 2	uint32	r		1.0	0.0	
40114	Inverter-charger power module Vendor Event Bitfield 1	uint32	r		1.0	0.0	
40116	Inverter-charger power module Vendor Event Bitfield 2	uint32	r		1.0	0.0	
40118	Inverter-charger power module Vendor Event Bitfield 3	uint32	r		1.0	0.0	
40120	Inverter-charger power module Vendor Event Bitfield 4	uint32	r		1.0	0.0	

Nameplate Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40122	Nameplate Model ID	uint16	r		1.0	0.0	
40123	Nameplate Model Length	uint16	r		1.0	0.0	
40124	Type of DER device. Default value is 4 to indicate PV device.	uint16	r		1.0	0.0	
40125	Continuous power output capability of the inverter.	uint16	r		1.0	0.0	
40126	Scale factor	sint16	r		1.0	0.0	
40127	Continuous Volt-Ampere capability of the inverter.	uint16	r		1.0	0.0	
40128	Scale factor	sint16	r		1.0	0.0	
40129	Continuous VAR capability of the inverter in quadrant 1.	sint16	r		1.0	0.0	
40130	Continuous VAR capability of the inverter in quadrant 2.	sint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40131	Continuous VAR capability of the inverter in quadrant 3.	sint16	r		1.0	0.0	
40132	Continuous VAR capability of the inverter in quadrant 4.	sint16	r		1.0	0.0	
40133	Scale factor	sint16	r		1.0	0.0	
40134	Maximum RMS AC current level capability of the inverter.	uint16	r		1.0	0.0	
40135	Scale factor	sint16	r		1.0	0.0	
40136	Minimum power factor capability of the inverter in quadrant 1.	sint16	r		1.0	0.0	
40137	Minimum power factor capability of the inverter in quadrant 2.	sint16	r		1.0	0.0	
40138	Minimum power factor capability of the inverter in quadrant 3.	sint16	r		1.0	0.0	
40139	Minimum power factor capability of the inverter in quadrant 4.	sint16	r		1.0	0.0	
40140	Scale factor	sint16	r		1.0	0.0	
40141	Nominal energy rating of storage device.	uint16	r		1.0	0.0	
40142	Scale factor	sint16	r		1.0	0.0	
40143	The useable capacity of the battery. Maximum charge minus minimum charge from a technology capability perspective (Amp-hour capacity rating).	uint16	r		1.0	0.0	
40144	Scale factor for amp-hour rating.	sint16	r		1.0	0.0	
40145	Maximum rate of energy transfer into the storage device.	uint16	r		1.0	0.0	
40146	Scale factor	sint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40147	Maximum rate of energy transfer out of the storage device.	uint16	r		1.0	0.0	
40148	Scale factor	sint16	r		1.0	0.0	
40149	Pad register.	uint16	r		1.0	0.0	

Basic Settings Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40150	Basic Settings Model ID	uint16	r		1.0	0.0	
40151	Basic settings Model Length	uint16	r		1.0	0.0	
40152	Setting for maximum power output. Default to WRtg.	uint16	rw	W	1.0	0.0	
40153	Voltage at the PCC.	uint16	rw	V	1.0	0.0	
40154	Offset from PCC to inverter.	sint16	rw		1.0	0.0	
40155	Setpoint for maximum voltage.	uint16	rw		1.0	0.0	
40156	Setpoint for minimum voltage.	uint16	rw		1.0	0.0	
40157	Setpoint for maximum apparent power. Default to VARtg.	uint16	rw		1.0	0.0	
40158	Setting for maximum reactive power in quadrant 1. Default to VArRtgQ1.	sint16	rw		1.0	0.0	
40159	Setting for maximum reactive power in quadrant 2. Default to VArRtgQ2.	sint16	rw		1.0	0.0	
40160	Setting for maximum reactive power in quadrant 3. Default to VArRtgQ3.	sint16	rw		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40161	Setting for maximum reactive power in quadrant 4. Default to VArRtgQ4.	sint16	rw		1.0	0.0	
40162	Default ramp rate of change of active power due to command or internal action.	uint16	rw		1.0	0.0	
40163	Setpoint for minimum power factor value in quadrant 1. Default to PFRtgQ1.	sint16	rw		1.0	0.0	
40164	Setpoint for minimum power factor value in quadrant 2. Default to PFRtgQ2.	sint16	rw		1.0	0.0	
40165	Setpoint for minimum power factor value in quadrant 3. Default to PFRtgQ3.	sint16	rw		1.0	0.0	
40166	Setpoint for minimum power factor value in quadrant 4. Default to PFRtgQ4.	sint16	rw		1.0	0.0	
40167	VAR action on change between charging and discharging: 1=switch 2=maintain VAR characterization.	uint16	rw		1.0	0.0	
40168	Calculation method for total apparent power. 1=vector 2=arithmetic.	uint16	rw		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40169	Setpoint for maximum ramp rate as percentage of nominal maximum ramp rate. This setting will limit the rate that watts delivery to the grid can increase or decrease in response to intermittent PV generation.	uint16	rw		1.0	0.0	
40170	Setpoint for nominal frequency at the ECP.	uint16	rw		1.0	0.0	
40171	Identity of connected phase for single phase inverters. A=1 B=2 C=3.	uint16	rw		1.0	0.0	
40172	Scale factor for real power.	sint16	r		1.0	0.0	
40173	Scale factor for voltage at the PCC.	sint16	r		1.0	0.0	
40174	Scale factor for offset voltage.	sint16	r		1.0	0.0	
40175	Scale factor for min/max voltages.	sint16	r		1.0	0.0	
40176	Scale factor for apparent power.	sint16	r		1.0	0.0	
40177	Scale factor for reactive power.	sint16	r		1.0	0.0	
40178	Scale factor for default ramp rate.	sint16	r		1.0	0.0	
40179	Scale factor for minimum power factor.	sint16	r		1.0	0.0	
40180	Scale factor for maximum ramp percentage.	sint16	r		1.0	0.0	
40181	Scale factor for nominal frequency.	sint16	r		1.0	0.0	

Immediate Controls Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40182	Immediate Controls Model ID	uint16	r		1.0	0.0	
40183	Immediate Controls Model Length	uint16	r		1.0	0.0	
40184	Time Window for connect/disconnect	uint16	r		1.0	0.0	
40185	Timeout period for connect/disconnect	uint16	r		1.0	0.0	
40186	Connection Control	uint16	rw		1.0	0.0	0=Disconnect 1=Connect
40187	Set power output to specified level	uint16	rw	%	0.01	0.0	
40188	Time window for power limit change	uint16	r		1.0	0.0	
40189	Timeout period for power limit	uint16	r		1.0	0.0	
40190	Ramp time for moving from current setpoint to new setpoint.	uint16	r		1.0	0.0	
40191	Throttle enable/disable control	uint16	rw		1.0	0.0	0=Disabled 1=Enabled
40192	Set power factor to specific value - cosine of angle	sint16	rw		1.0	0.0	
40193	Time window for power factor change	uint16	r		1.0	0.0	
40194	Timeout period for power factor	uint16	r		1.0	0.0	
40195	Ramp time for moving from current setpoint to new setpoint.	uint16	r		1.0	0.0	
40196	Fixed power factor enable/disable control	uint16	rw		1.0	0.0	0=Disabled 1=Enabled
40197	Reactive Power in percent of Wmax	sint16	r		1.0	0.0	
40198	Reactive Power in percent of VArMax	sint16	r	%	0.01	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40199	Reactive Power in percent of VArAval	sint16	r		1.0	0.0	
40200	Time window for VAR limit change	uint16	r		1.0	0.0	
40201	Timeout period for VAR limit	uint16	r		1.0	0.0	
40202	Ramp time for moving from current setpoint to new setpoint.	uint16	r		1.0	0.0	
40203	VAR percent limit mode	uint16	r		1.0	0.0	See section 2.1
40204	Percent limit Var enable/disable control	uint16	rw		1.0	0.0	0=Disabled 1=Enabled
40205	Scale factor for WMaxLimPct	sint16	r		1.0	0.0	
40206	Scale factor for OutPFSet	sint16	r		1.0	0.0	
40207	Scale factor for VArPct	sint16	r		1.0	0.0	

Storage Settings Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40208	Storage Settings Model ID	uint16	r		1.0	0.0	
40209	Storage settings Model Length	uint16	r		1.0	0.0	
40210	Setpoint for maximum charge.	uint16	rw	W	1.0	0.0	
40211	Setpoint for maximum charging rate. Default is MaxChaRte.	uint16	rw		0.1	0.0	
40212	Setpoint for maximum discharge rate. Default is MaxDisChaRte.	uint16	rw	%	0.1	0.0	
40213	Activate hold/discharge/charge storage control mode. Bitfield value.	uint16	rw		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40214	Setpoint for maximum charging VA.	uint16	rw		1.0	0.0	
40215	Setpoint for minimum reserve for storage as a percentage of the nominal maximum storage.	uint16	rw		1.0	0.0	
40216	Currently available energy as a percent of the capacity rating.	uint16	r		1.0	0.0	
40217	State of charge (ChaState) minus storage reserve (MinRsvPct) times capacity rating (AhrRtg).	uint16	r		1.0	0.0	
40218	Internal battery voltage.	uint16	r		1.0	0.0	
40219	Charge status of storage device. Enumerated value.	uint16	r		1.0	0.0	
40220	Percent of max discharge rate.	sint16	rw	%	0.01	0.0	
40221	Percent of max charging rate.	sint16	rw	%	0.01	0.0	
40222	Time window for charge/discharge rate change.	uint16	rw		1.0	0.0	
40223	Timeout period for charge/discharge rate.	uint16	rw		1.0	0.0	
40224	Ramp time for moving from current setpoint to new setpoint.	uint16	rw		1.0	0.0	
40225	Storage Settings - ChaGriSet	uint16	rw		1.0	0.0	
40226	Scale factor for maximum charge.	sint16	r		1.0	0.0	
40227	Scale factor for maximum charge and discharge rate.	sint16	r		1.0	0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40228	Scale factor for maximum charging VA.	sint16	r		1.0	0.0	
40229	Scale factor for minimum reserve percentage.	sint16	r		0.01	0.0	
40230	Scale factor for available energy percent.	sint16	r		1.0	0.0	
40231	Scale factor for state of charge.	sint16	r		1.0	0.0	
40232	Scale factor for battery voltage.	sint16	r		1.0	0.0	
40233	Scale factor for percent charge/discharge rate.	sint16	r		1.0	0.0	

Extended Settings Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40234	Extended Settings Model ID	uint16	r				
40235	Extended Settings Model Length	uint16	r				
40236	Ramp Up Rate	uint16	r	%			
40237	Ramp Down Rate	uint16	r	%			
40238	Emergency Ramp Up Rate	uint16	r	%			
40239	Emergency Ramp Down Rate	uint16	r	%			
40240	Connect Ramp Up Rate	uint16	rw	%			
40241	Connect Ramp Down Rate	uint16	r	%			
40242	Default Ramp Rate	uint16	r	%			
40243	Ramp Rate Scale Factor	sint16	r				

Battery Base Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40244	Battery Base Model ID	uint16	r			0.0	
40245	Model Length	uint16	r			0.0	
40246	Nameplate charge capacity in amp-hours.	uint16	r	Ah		0.0	
40247	Nameplate energy capacity in DC watt-hours.	uint16	r	Wh		0.0	
40248	Maximum rate of energy transfer into the storage device in DC watts.	uint16	r	W		0.0	
40249	Maximum rate of energy transfer out of the storage device in DC watts.	uint16	r	W		0.0	
40250	Self discharge rate. Percentage of capacity (WHRtg) discharged per day.	uint16	r	%WHRtg		0.0	
40251	Manufacturer maximum state of charge, expressed as a percentage.	uint16	r	%WHRtg		0.0	
40252	Manufacturer minimum state of charge, expressed as a percentage.	uint16	r	%WHRtg		0.0	
40253	Setpoint for maximum reserve for storage as a percentage of the nominal maximum storage.	uint16	r	%WHRtg		0.0	
40254	Setpoint for maximum reserve for storage as a percentage of the nominal maximum storage.	uint16	r	%WHRtg		0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40255	State of charge, expressed as a percentage.	uint16	r	%WHRtg		0.0	
40256	Depth of discharge, expressed as a percentage.	uint16	r	%		0.0	
40257	Percentage of battery life remaining.	uint16	r	%		0.0	
40258	Number of cycles executed in the battery.	uint32	r			0.0	
40260	Charge status of storage device. Enumeration.	uint16	r			0.0	See section 2.2
40261	Battery control mode. Enumeration.	uint16	r			0.0	0=Remote Control 1=Local Control
40262	Value is incremented every second with periodic resets to zero.	uint16	r			0.0	
40263	Value is incremented every second with periodic resets to zero.	uint16	r			0.0	
40264	Used to reset any latched alarms. 1 = Reset.	uint16	r			0.0	
40265	Type of battery. Enumeration.	uint16	r			0.0	See section 2.3
40266	State of the battery bank. Enumeration.	uint16	r			0.0	
40267	Vendor specific battery bank state. Enumeration.	uint16	r			0.0	
40268	Date the device warranty expires.	uint32	r			0.0	
40270	Alarms and warnings. Bit flags.	uint32	r			0.0	
40272	Alarms and warnings. Bit flags.	uint32	r			0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40274	Vendor defined events.	uint32	r			0.0	
40276	Vendor defined events.	uint32	r			0.0	
40278	DC Bus Voltage.	uint16	r	V		0.0	
40279	Instantaneous maximum battery voltage.	uint16	r	V		0.0	
40280	Instantaneous minimum battery voltage.	uint16	r	V		0.0	
40281	Maximum voltage for all cells in the bank.	uint16	r	V		0.0	
40282	String containing the cell with maximum voltage.	uint16	r			0.0	
40283	Module containing the cell with maximum voltage.	uint16	r			0.0	
40284	Minimum voltage for all cells in the bank.	uint16	r	V		0.0	
40285	String containing the cell with minimum voltage.	uint16	r			0.0	
40286	Module containing the cell with minimum voltage.	uint16	r			0.0	
40287	Average cell voltage for all cells in the bank.	uint16	r	V		0.0	
40288	Total DC current flowing to/from the battery bank.	sint16	r	A		0.0	
40289	Instantaneous maximum DC charge current.	uint16	r	A		0.0	
40290	Instantaneous maximum DC discharge current.	uint16	r	A		0.0	
40291	Total power flowing to/from the battery bank.	sint16	r	W		0.0	

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40292	Request from battery to start or stop the inverter. Enumeration.	uint16	r			0.0	See section 2.4
40293	AC Power requested by battery.	sint16	r	W		0.0	
40294	Instruct the battery bank to perform an operation such as connecting. Enumeration.	uint16	r			0.0	1=connect 2=disconnect
40295	Set the current state of the inverter.	uint16	r			0.0	See section 2.5
40296	Scale factor for charge capacity.	sint16	r			0.0	
40297	Scale factor for energy capacity.	sint16	r			0.0	
40298	Scale factor for maximum charge and discharge rate.	sint16	r			0.0	
40299	Scale factor for self discharge rate.	sint16	r			0.0	
40300	Scale factor for state of charge values.	sint16	r			0.0	
40301	Scale factor for depth of discharge.	sint16	r			0.0	
40302	Scale factor for state of health.	sint16	r			0.0	
40303	Scale factor for DC bus voltage.	sint16	r			0.0	
40304	Scale factor for cell voltage.	sint16	r			0.0	
40305	Scale factor for DC current.	sint16	r			0.0	
40306	Scale factor for instantationous DC charge/discharge current.	sint16	r			0.0	
40307	Scale factor for AC power request.	sint16	r			0.0	

Custom Model

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40308	Custom Model ID	uint16	r				
40309	Custom model length	uint16	r				
40310	Inverter charger Power module Input Energy Lifetime	uint32	r	kWh	0.001	0.0	
40312	Heartbeat Timeout	uint16	rw		1.0	0.0	
40313	Heartbeat Counter	uint16	rw		1.0	0.0	
40314	Heartbeat mode for BMS	uint16	rw		1.0	0.0	
40315	Custom Settings Group Request	uint16	rw		1.0	0.0	0=None 1=Set 1
40316	Reboot Command	uint16	rw		1.0	0.0	0xABCD to reboot
40317	Fail-over action on loss of SunSpec Controller heartbeat	uint16	rw		1.0	0.0	0=Do nothing 1=Cease to energize 2=Autonomous operation 3=Zero export
40318	Clear all downstream xanbus devices faults	uint16	rw		1.0	0.0	1=Clear Faults
40319	External contactor enable/disable configuration	uint16	rw		1.0	0.0	0=Disabled 1=Enabled
40320	Custom Settings Group Status	uint16	r		1.0	0.0	0=Unknown 1=InProgress 2=Good 3=Failed 4=Mismatch 5=Pending
40321	Custom Settings Group Progress	uint16	r	%	1.0	0.0	

End Marker

Modbus Address	Name	Type	R/W	Units	Scale	Offset	Notes
40322	End Marker	uint16	r		1	0	
40323	End Marker 0	uint16	r		1	0	

2 Data Point Enumerations

2.1 VAR percent limit mode

0=None
1=Wmax
2=VArMax
3=VArAval

2.2 Charger Status

1=Off
2=Empty
3=Discharging
4=Charging
5=Full
6=Holding
7=Testing

2.3 Battery Type

0=Not Applicable or Unknown
1=Lead-Acid
2=Nickel-Metal Hydrate
3=Nickel-Cadmium
4=Lithium-Ion
5=Carbon-Zinc
6=Zinc Chloride
7=Alkaline
8=Rechargable Alkaline
9=Sodium-Sulfur
10=Flow
99=Other

2.4 Request Inverter State

0=No Request
1=Start Inverter
2=Stop Inverter

2.5 Set Inverter State

1=Inverter is stopped
2=Inverter is in Standby
3=Inverter is Started