CUBE3 / CUBE3+ UPS series MODBUS SPECIFICATIONS

V3.2

Overview

This document contains the Modbus Register Map for CUBE3 / CUBE3+ UPS series.

Document Management.

Document History.

Date	Ver.	Author	Description
12-Dec-2011	1.0	S – C	Created new. Based on MCU firmware version 3.2 J.
05-Jan-2012	1.2	S – C	Modification based on MCU 3.3 A.
28-Feb-2012	1.3	S – C	Modification based on MCU 3.3 C
13-Sep-2012	1.4	S – C	Modification based on MCU 5.0 A
28-Sep-2012	1.5	S – C	Based on MCU 5.0 A. Mistake in Modbus map address 5336 corrected.
06-Nov-2012	1.6	S – C	Mistake in address Modbus map address 4807 corrected. Mistake in address Modbus map address 4849 corrected. Modification based on MCU 5.0 B
05-Dec-2012	1.7	S – C	Modification based on MCU 5.0 D
14-Dec-2012	1.8	S – C	Modification based on MCU 5.0 E
19-Nov-2013	1.9	S – C	Modification based on MCU 5.0 I Relay setting Status Codes table updated. New document format.
20-Dec-2013	2.0	S – C	Modification based on MCU 5.0 K
18-Nov-2014	2.1	S – C	Flag name mistake in registers in Modbus Map addresses 4 and 28 fixed.
1-Mar-2016	2.2	S – C	Modification based on MCU 5.0 V
1-Dec-2017	2.3	S – C	Modification based on MCU 6.0 D
30-Jun-2018	2.4	S – C	Modification based on MCU 6.0 F
26-Jul-2018	2.5	S – C	Mistake in Modbus register name in addresses 8356 to 8358 fixed.
20-Feb-2019	2.6	S – C	Register address 4798 description changed to *Reserved*. Register address 8340 (Unit Id Code) added. Register address 8341 (Unit Nominal Power) added.
30-Jun-2019	2.7	S – C	New option ***F.C Inverter Ramp*** added to register address 4820 ("Bypass Type").
19-Feb-2021	2.8	R.P.	New option "***Fuse/Switch with auxiliar contact***" added to register address 4847 ("Battery Connection"). Min. "MCU 6.0 L" version.

Date	Ver.	Author	Description
30-Jul-2021	2.9	S – C	Modbus Registers added: - Battery Strings Number, at address 8338. - Single Battery Block Capacity, at address 8339. Min. "MCU 6.0 N" version.
22-Mar-2022	3.0	S – C	Error in register units corrected from 0.1 V to 0.01 V. - Address 5182 to 5184. - Address 5280 to 5282.
03-Mar-2023	3.1	R.P.	New option "*Regenerative*" added to register address 4867 ("One-way PFC rectifier?"). Min. "MCU 6.0 V" version. Register 4837 replaced with "**Bypass enabled with Peak Shaving function active**" (before "DC Bus Equalizer Max. Desaturation Number"). Register 4860 replaced with "**Peak Shaving Limit**" (before "Inverter DC current limit"). New option "*3=Peak Shaving*" added to register 4872 ("PFC Limit Mode"). Address 69, added "**Relay 6 Active**" bit. Address 4913, added **"Relay 6 Activation code"** register. New event codes (note (5)) added: **212, 213, 214**.
06-Feb-2025	3.2	R.P.	Modbus Registers added. Min "MCU 6.0 Z" version: - Address 4778: Bypass Enabled if not available - Address 4779: Shutdown type.

1 - Register Map.

Addr hex	Addr dec	Contents	Units	Type
1	1	b0 = Alarm: Rectifier Overload.	0=False/ 1=True	Only Read
		b1 = Alarm: Inverter Overload.	0=False/ 1=True	Only Read
		b2 = Alarm: Mains Failure. Battery Low Level.	0=False/ 1=True	Only Read
		b3 = Alarm: Inverter Voltage Out of Margins.	0=False/ 1=True	Only Read
		b4 = Alarm: DC Voltage Detected at the Output.	0=False/ 1=True	Only Read
		b5 = Alarm: Maintenance Bypass. Inverter Not Available.	0=False/ 1=True	Only Read
		b6 = Alarm: Battery Discharging.	0=False/ 1=True	Only Read
		b7 = Alarm: High Temperature. Reduce Output Load.	0=False/ 1=True	Only Read
		b8 = Alarm: Battery Switch Open. Switch it ON.	0=False/ 1=True	Only Read
		b9 = Alarm: Bypass Failure. Not Synchronised Inverter.	0=False/ 1=True	Only Read
		b10 = Alarm: Unit on Bypass. Initialise UPS.	0=False/ 1=True	Only Read
		b11 = Alarm: Some Unit(s) Blocked due to Maintenance Bypass.	0=False/ 1=True	Only Read
		b12 = Alarm: CAN BUS 1 Communication Failure.	0=False/ 1=True	Only Read
		b13 = Alarm: CAN BUS 2 Communication Failure.	0=False/ 1=True	Only Read
		b14 = Alarm: End of Battery Life.	0=False/ 1=True	Only Read
		b15 = Alarm: Battery Temperature too High.	0=False/ 1=True	Only Read
2	2	b0 = Alarm: Battery Test Not Succeeded.	0=False/ 1=True	Only Read
		b1 = Alarm: Battery Disconnection. Shutdown & Restart.	0=False/ 1=True	Only Read
		b2 = Alarm: Mains Phase Rotation. UPS Start Disabled.	0=False/ 1=True	Only Read
		b3 = Alarm: Bypass Phase Rotation. UPS Start Disabled.	0=False/ 1=True	Only Read
		b4 = Alarm: Input Voltage Wrong. Rectifier Stop.	0=False/ 1=True	Only Read
		b5 = Alarm: Rectifier Desaturation. Rectifier Stop.	0=False/ 1=True	Only Read
		b6 = Alarm: DSP Internal Error. Rectifier Stop.	0=False/ 1=True	Only Read
		b7 = Alarm: Input Phase Rotation. Rectifier Stop.	0=False/ 1=True	Only Read
		b8 = Alarm: Inverter Desaturation. Inverter Stop.	0=False/ 1=True	Only Read
		b9 = Alarm: Inverter Overload. Inverter Stop.	0=False/ 1=True	Only Read
		b10 = Alarm: Inverter Stopped due to Shutdown.	0=False/ 1=True	Only Read
		b11 = Alarm: Maintenance Bypass. Inverter Stop.	0=False/ 1=True	Only Read
		b12 = Alarm: Parallel System Disconnection. Inverter Stop.	0=False/ 1=True	Only Read
		b13 = Alarm: High Overload. Inverter Stop.	0=False/ 1=True	Only Read
		b14 = Alarm: Overtemperature. Inverter Stop.	0=False/ 1=True	Only Read
		b15 = Alarm: Rectifier Overload. Inverter Stop.	0=False/ 1=True	Only Read
3	3	b0 = Alarm: DSP Internal Error. Inverter Stop.	0=False/ 1=True	Only Read
		b1 = Alarm: Output Short-circuit. Inverter Stop.	0=False/ 1=True	Only Read
		b2 = Alarm: Bypass Phase Rotation. Inverter Stop.	0=False/ 1=True	Only Read
		b3 = Alarm: DSP Internal Error. UPS Stop.	0=False/ 1=True	Only Read
		b4 = Alarm: Low Battery. UPS Stop.	0=False/ 1=True	Only Read
		b5 = Alarm: Emergency Power Off. No Output Voltage.	0=False/ 1=True	Only Read
		b6 = Alarm: Output Short-circuit. No Output Voltage.	0=False/ 1=True	Only Read
		b7 = Alarm: DSP Internal Error. UPS Block All.	0=False/ 1=True	Only Read
		b8 = Alarm: DC BUS Voltage Wrong. Rectifier Block.	0=False/ 1=True	Only Read
		b9 = Alarm: Rectifier Blocked. BLK. UPS -> BLK Rectifier.	0=False/ 1=True	Only Read

Addr hex	Addr dec	Contents	Units	Type
		b10 = Alarm: Rectifier Desaturations. Rectifier Block.	0=False/ 1=True	Only Read
		b11 = Alarm: Voltage Ramp Error. Rectifier Block.	0=False/ 1=True	Only Read
		b12 = Alarm: DSP Execution Error. Rectifier Block.	0=False/ 1=True	Only Read
		b13 = Alarm: DSP Internal Error. Rectifier Block.	0=False/ 1=True	Only Read
		b14 = Alarm: Contactor Test Failure. Rectifier Block.	0=False/ 1=True	Only Read
		b15 = Alarm: Voltage Ramp Error. Inverter Block.	0=False/ 1=True	Only Read
4	4	b0 = Alarm: Output DC Voltage. Inverter Block.	0=False/ 1=True	Only Read
		b1 = Alarm: Inverter Blocked. BLK. UPS -> BLK Inverter.	0=False/ 1=True	Only Read
		b2 = Alarm: Inverter Desaturations. Inverter Block.	0=False/ 1=True	Only Read
		b3 = Alarm: DSP Execution Error. Inverter Block.	0=False/ 1=True	Only Read
		b4 = Alarm: DSP Internal Error. Inverter Block.	0=False/ 1=True	Only Read
		b5 = Alarm: UPS Blocked. BLK. Rectifier -> BLK. UPS.	0=False/ 1=True	Only Read
		b6 = Alarm: Internal Initialisation Error. UPS Block (DSP).	0=False/ 1=True	Only Read
		b7 = Alarm: Internal Execution Error. UPS Block (DSP).	0=False/ 1=True	Only Read
		b8 = Alarm: UPS Blocked. BLK. Inverter -> BLK. UPS.	0=False/ 1=True	Only Read
		b9 = Alarm: Internal Communication. UPS Block (DSP).	0=False/ 1=True	Only Read
		b10 = Alarm: DC Bus Voltage Wrong when Discharging. UPS Block.	0=False/ 1=True	Only Read
		b11 = Alarm: UPS Overtemperature. UPS Block.	0=False/ 1=True	Only Read
		b12 = Alarm: Rectifier Overload. UPS Block.	0=False/ 1=True	Only Read
		b13 = Alarm: Inverter Desaturations. UPS Block.	0=False/ 1=True	Only Read
		b14 = Alarm: DSP Internal Error. UPS Block.	0=False/ 1=True	Only Read
		b15 = Alarm: PFC & Inverter Blockage. UPS Block.	0=False/ 1=True	Only Read
5	5	b0 = Alarm: Inverter Failure/Overload. Inverter Stop.	0=False/ 1=True	Only Read
		b1 = Alarm: Inverter Failure. Inverter Block.	0=False/ 1=True	Only Read
		b2 = Alarm: Voltage Ramp Error. Inverter Stop.	0=False/ 1=True	Only Read
		b3 = Alarm: DC BUS Voltage Wrong. Rectifier Stop.	0=False/ 1=True	Only Read
		b4 = Alarm: Parallel System Rectifier Stop.	0=False/ 1=True	Only Read
		b5 = Alarm: Parallel System Inverter Stop.	0=False/ 1=True	Only Read
		b6 = Alarm: Pfc., Inv. Stop UPS Stop.	0=False/ 1=True	Only Read
		b7 = Alarm: Parallel System UPS Stop.	0=False/ 1=True	Only Read
		b8 = Alarm: Error Coms. Paral. Master Fixed.	0=False/ 1=True	Only Read
		b9 = Alarm: Alarm Paral. Sist. Redundancy Lost.	0=False/ 1=True	Only Read
		b10 = Alarm: Cont. Test Fail Rectifier Stop.	0=False/ 1=True	Only Read
		b11 = Alarm: Paral. Coms Error UPS Block.	0=False/ 1=True	Only Read
		b12 = Alarm: EEPROM Failure.	0=False/ 1=True	Only Read
		b13 = Alarm: Overtemperature. UPS Stop	0=False/ 1=True	Only Read
		b14 = Alarm: Frequency Detection Failure. UPS Block.	0=False/ 1=True	Only Read
		b15 = Reserved.		
6 ………… E	6 ………… 14	Reserved		Only Read
F	15	b0 = Warning: Do not Close the Battery Switch!	0=False/ 1=True	Only Read
		b1 = Warning: Unit in driving Signals Test Mode!	0=False/ 1=True	Only Read
		b2 = Warning: Unit working in Economy Mode!	0=False/ 1=True	Only Read
		b3 = Warning: Reset the Unit!	0=False/ 1=True	Only Read

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Addr hex	Addr dec	Contents	Units	Type
		b4 to b15 = Reserved.		
10 ………. 18	16 ………. 24	Reserved		Only Read
19	25	b0 = Alarm Acknowledge: Rectifier Overload.	0=False/ 1=True	Read/Write
		b1 = Alarm Acknowledge: Inverter Overload.	0=False/ 1=True	Read/Write
		b2 = Alarm Acknowledge: Mains Failure. Battery Low Level.	0=False/ 1=True	Read/Write
		b3 = Alarm Acknowledge: Inverter Voltage Out of Margins.	0=False/ 1=True	Read/Write
		b4 = Alarm Acknowledge: DC Voltage Detected at the Output.	0=False/ 1=True	Read/Write
		b5 = Alarm Acknowledge: Maintenance Bypass. Inverter Not Available.	0=False/ 1=True	Read/Write
		b6 = Alarm Acknowledge: Battery Discharging.	0=False/ 1=True	Read/Write
		b7 = Alarm Acknowledge: High Temperature. Reduce Output Load.	0=False/ 1=True	Read/Write
		b8 = Alarm Acknowledge: Battery Switch Open. Switch it ON.	0=False/ 1=True	Read/Write
		b9 = Alarm Acknowledge: Bypass Failure. Not Synchronised Inverter.	0=False/ 1=True	Read/Write
		b10 = Alarm Acknowledge: Unit on Bypass. Initialise UPS.	0=False/ 1=True	Read/Write
		b11 = Alarm Ack: Some Unit(s) Blocked due to Maintenance Bypass.	0=False/ 1=True	Read/Write
		b12 = Alarm Acknowledge: CAN BUS 1 Communication Failure.	0=False/ 1=True	Read/Write
		b13 = Alarm Acknowledge: CAN BUS 2 Communication Failure.	0=False/ 1=True	Read/Write
		b14 = Alarm Acknowledge: End of Battery Life.	0=False/ 1=True	Read/Write
		b15 = Alarm Acknowledge: Battery Temperature too High.	0=False/ 1=True	Read/Write
1A	26	b0 = Alarm Acknowledge: Battery Test Not Succeeded.	0=False/ 1=True	Read/Write
		b1 = Alarm Acknowledge: Battery Disconnection. Shutdown & Restart.	0=False/ 1=True	Read/Write
		b2 = Alarm Acknowledge: Mains Phase Rotation. UPS Start Disabled.	0=False/ 1=True	Read/Write
		b3 = Alarm Acknowledge: Bypass Phase Rotation. UPS Start Disabled.	0=False/ 1=True	Read/Write
		b4 = Alarm Acknowledge: Input Voltage Wrong. Rectifier Stop.	0=False/ 1=True	Read/Write
		b5 = Alarm Acknowledge: Rectifier Desaturation. Rectifier Stop.	0=False/ 1=True	Read/Write
		b6 = Alarm Acknowledge: DSP Internal Error. Rectifier Stop.	0=False/ 1=True	Read/Write
		b7 = Alarm Acknowledge: Input Phase Rotation. Rectifier Stop.	0=False/ 1=True	Read/Write
		b8 = Alarm Acknowledge: Inverter Desaturation. Inverter Stop.	0=False/ 1=True	Read/Write
		b9 = Alarm Acknowledge: Inverter Overload. Inverter Stop.	0=False/ 1=True	Read/Write
		b10 = Alarm Acknowledge: Inverter Stopped due to Shutdown.	0=False/ 1=True	Read/Write
		b11 = Alarm Acknowledge: Maintenance Bypass. Inverter Stop.	0=False/ 1=True	Read/Write
		b12 = Alarm Acknowledge: Parallel System Disconnection. Inverter Stop.	0=False/ 1=True	Read/Write
		b13 = Alarm Acknowledge: High Overload. Inverter Stop.	0=False/ 1=True	Read/Write
		b14 = Alarm Acknowledge: Overtemperature. Inverter Stop.	0=False/ 1=True	Read/Write
		b15 = Alarm Acknowledge: Rectifier Overload. Inverter Stop.	0=False/ 1=True	Read/Write
1B	27	b0 = Alarm Acknowledge: DSP Internal Error. Inverter Stop.	0=False/ 1=True	Read/Write
		b1 = Alarm Acknowledge: Output Short-circuit. Inverter Stop.	0=False/ 1=True	Read/Write
		b2 = Alarm Acknowledge: Bypass Phase Rotation. Inverter Stop.	0=False/ 1=True	Read/Write
		b3 = Alarm Acknowledge: DSP Internal Error. UPS Stop.	0=False/ 1=True	Read/Write

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Addr hex	Addr dec	Contents	Units	Type
		b4 = Alarm Acknowledge: Low Battery. UPS Stop.	0=False/ 1=True	Read/Write
		b5 = Alarm Acknowledge: Emergency Power Off. No Output Voltage.	0=False/ 1=True	Read/Write
		b6 = Alarm Acknowledge: Output Short-circuit. No Output Voltage.	0=False/ 1=True	Read/Write
		b7 = Alarm Acknowledge: DSP Internal Error. UPS Block All.	0=False/ 1=True	Read/Write
		b8 = Alarm Acknowledge: DC BUS Voltage Wrong. Rectifier Block.	0=False/ 1=True	Read/Write
		b9 = Alarm Acknowledge: Rectifier Blocked. BLK. UPS -> BLK Rectifier.	0=False/ 1=True	Read/Write
		b10 = Alarm Acknowledge: Rectifier Desaturations. Rectifier Block.	0=False/ 1=True	Read/Write
		b11 = Alarm Acknowledge: Voltage Ramp Error. Rectifier Block.	0=False/ 1=True	Read/Write
		b12 = Alarm Acknowledge: DSP Execution Error. Rectifier Block.	0=False/ 1=True	Read/Write
		b13 = Alarm Acknowledge: DSP Internal Error. Rectifier Block.	0=False/ 1=True	Read/Write
		b14 = Alarm Acknowledge: Contactor Test Failure. Rectifier Block.	0=False/ 1=True	Read/Write
		b15 = Alarm Acknowledge: Voltage Ramp Error. Inverter Block.	0=False/ 1=True	Read/Write
1C	28	b0 = Alarm Acknowledge: Output DC Voltage. Inverter Block.	0=False/ 1=True	Read/Write
		b1 = Alarm Acknowledge: Inverter Blocked. BLK. UPS -> BLK Inverter.	0=False/ 1=True	Read/Write
		b2 = Alarm Acknowledge: Inverter Desaturations. Inverter Block.	0=False/ 1=True	Read/Write
		b3 = Alarm Acknowledge: DSP Execution Error. Inverter Block.	0=False/ 1=True	Read/Write
		b4 = Alarm Acknowledge: DSP Internal Error. Inverter Block.	0=False/ 1=True	Read/Write
		b5 = Alarm Acknowledge: UPS Blocked. BLK. Rectifier -> BLK. UPS.	0=False/ 1=True	Read/Write
		b6 = Alarm Acknowledge: Internal Initialisation Error. UPS Block (DSP).	0=False/ 1=True	Read/Write
		b7 = Alarm Acknowledge: Internal Execution Error. UPS Block (DSP).	0=False/ 1=True	Read/Write
		b8 = Alarm Acknowledge: UPS Blocked. BLK. Inverter -> BLK. UPS.	0=False/ 1=True	Read/Write
		b9 = Alarm Acknowledge: Internal Communication. UPS Block (DSP).	0=False/ 1=True	Read/Write
		b10 = Alarm Acknowledge: DC Bus Volt. Wrong Discharging. UPS Block.	0=False/ 1=True	Read/Write
		b11 = Alarm Acknowledge: UPS Overtemperature. UPS Block.	0=False/ 1=True	Read/Write
		b12 = Alarm Acknowledge: Rectifier Overload. UPS Block.	0=False/ 1=True	Read/Write
		b13 = Alarm Acknowledge: Inverter Desaturations. UPS Block.	0=False/ 1=True	Read/Write
		b14 = Alarm Acknowledge: DSP Internal Error. UPS Block.	0=False/ 1=True	Read/Write
		b15 = Alarm Acknowledge: PFC & Inverter Blockage. UPS Block.	0=False/ 1=True	Read/Write
1D	29	b0 = Alarm Acknowledge: Inverter Failure/Overload. Inverter Stop.	0=False/ 1=True	Read/Write
		b1 = Alarm Acknowledge: Inverter Failure. Inverter Block.	0=False/ 1=True	Read/Write
		b2 = Alarm Acknowledge: Voltage Ramp Error. Inverter Stop.	0=False/ 1=True	Read/Write
		b3 = Alarm Acknowledge: DC BUS Voltage Wrong. Rectifier Stop.	0=False/ 1=True	Read/Write
		b4 = Alarm Acknowledge: Parallel System Rectifier Stop.	0=False/ 1=True	Read/Write
		b5 = Alarm Acknowledge: Parallel System Inverter Stop.	0=False/ 1=True	Read/Write
		b6 = Alarm Acknowledge: Pfc., Inv. Stop UPS Stop.	0=False/ 1=True	Read/Write
		b7 = Alarm Acknowledge: Parallel System UPS Stop.	0=False/ 1=True	Read/Write
		b8 = Alarm Acknowledge: Error Coms. Paral. Master Fixed.	0=False/ 1=True	Read/Write
		b9 = Alarm Acknowledge: Alarm Paral. Sist. Redundancy Lost.	0=False/ 1=True	Read/Write
		b10 = Alarm Acknowledge: Cont. Test Fail Rectifier Stop.	0=False/ 1=True	Read/Write

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Addr hex	Addr dec	Contents	Units	Type
		b11 = Alarm Acknowledge: Paral. Coms Error UPS Block.	0=False/ 1=True	Read/Write
		b12 = Alarm Acknowledge: EEPROM Failure.	0=False/ 1=True	Read/Write
		b13 = Alarm Acknowledge: Overtemperature. UPS Stop	0=False/ 1=True	Read/Write
		b14 = Alarm Acknowledge: Frequency Detection Failure. UPS Block.	0=False/ 1=True	Only Read
		b15 = Reserved.		
1E ………… 26	30 ………… 38	Reserved		Only Read
27	39	b0 = Warning Acknowledge: Do not Close the Battery Switch!	0=False/ 1=True	Read/Write
		b1 = Warning Acknowledge: Unit in driving Signals Test Mode!	0=False/ 1=True	Read/Write
		b2 = Warning Acknowledge: Unit working in Economy Mode!	0=False/ 1=True	Only Read
		b3 = Warning: Acknowledge: Reset the Unit!	0=False/ 1=True	Read/Write
		b4 to b15 = Reserved.		
28 ………… 44	40 ………… 68	Reserved		Only Read
45	69	b0 = Relay 1 Active.	0=False/ 1=True	Only Read
		b1 = Relay 2 Active.	0=False/ 1=True	Only Read
		b2 = Relay 3 Active.	0=False/ 1=True	Only Read
		b3 = Relay 4 Active.	0=False/ 1=True	Only Read
		b4 = Relay 5 Active.	0=False/ 1=True	Only Read
		b5 = Relay 6 Active.	0=False/ 1=True	Only Read
		b6 a b15 = Reserved.		
46	70	Reserved		Only Read
47	71	b0 = UPS Ouput : Bypass.	0=False/ 1=True	Only Read
		b1 = UPS Ouput : Inverter.	0=False/ 1=True	Only Read
		b2 = Inverter ON.	0=False/ 1=True	Only Read
		b3 = Rectifier ON.	0=False/ 1=True	Only Read
		b4 = UPS Executing Battery Test.	0=False/ 1=True	Only Read
		b5 = Battery Floating.	0=False/ 1=True	Only Read
		b6 = Active Alarms.	0=False/ 1=True	Only Read
		b7 = Unit running on Economy Mode.	0=False/ 1=True	Only Read
		b8 = Reserved.		
		b9 = Single Phase Input Rectifier.	0=False/ 1=True	Only Read
		b10 = Three-phase Input Rectifier.	0=False/ 1=True	Only Read
		b11 to b15 = Reserved.		
48	72	Reserved		Only Read
49	73	b0 = Communication Card detected in the slot.	0=False/ 1=True	Only Read
		b1 = Output Switch closed.	0=False/ 1=True	Only Read
		b2 = Maintenance Bypass Switch closed.	0=False/ 1=True	Only Read
		b3 = Battery Switch closed.	0=False/ 1=True	Only Read
		b4 = External EPO.	0=False/ 1=True	Only Read
		b5 = External Shutdown.	0=False/ 1=True	Only Read
		b6 = Test Mode Switch ON.	0=False/ 1=True	Only Read

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Addr hex	Addr dec	Contents	Units	Type
		b7 to b15 = Reserved.		
4A 4B	74 75	Reserved		Only Read
4C	76	Parallel Unit status	0 = No Connect 1 = Slave of Bypass 2 = Slave of Voltage 3 = Master of Bypass 4 = Master of Voltage 5 = Not Connect Reserve 6 = Slv. Bypass Reserve 7 = Slv. Voltage Reserve 8 = Master Bypass Rsv 9 = Master Voltage Rsv 10 = No Parallel Unit	Only Read
4D 5C	77 92	Reserved		Only Read
5D	93	Start/Stop Inverter	0 = Stop. 1 = Start.	Read/Write
5E	94	Battery Test	-1 = Not Available 0 = No Test 1 = Battery Test	Read/Write
5F	95	Fast Battery Charge	-1 = Not Available 0 = Not Running 1 = Running Automatic 2 = Running in Manual 3 = Manual Start 4 = Manual Stop	Read/Write
60	96	Discharge Test Status	1 = Not Available 2 = Available 3 = Executing	Only Read
6A	97	Discharge Test	0 = No Test 1 = Test	Read/Write*
6B 70	98 112	Reserved		Only Read
71	113	Datalogger Register Number	-----	Only Read
72	114	Datalogger Most Recent Register.	-----	Only Read
73	115	Inverter ON hours (Low).		Read/Write***
74	116	Inverter ON hours (High).		Read/Write***
75	117	Datalogger Reset	0 = No reset	Read/Write*

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Addr hex	Addr dec	Contents	Units	Type
			1 = Reset	
76	118	Datalogger Register 1: Alarm Type and Start Hour.	Alarm Type, Hours (1)	Only Read
77	119	Datalogger Register 1: Alarm Start Minutes and seconds.	Minutes, seconds (1)	Only Read
78	120	Datalogger Register 1: Alarm Start Day and Month.	Day, Months (1)	Only Read
79	121	Datalogger Register 1: Alarm Start Year and End Hour.	Years, Hours (1)	Only Read
7A	122	Datalogger Register 1: Alarm End Minutes and Seconds.	Minutes, seconds (1)	Only Read
7B	123	Datalogger Register 1: Alarm End Day and Month.	Days, Month (1)	Only Read
7C	124	Datalogger Register 1: Unit and Rectifier States.	State Codes (1)	Only Read
7D	125	Datalogger Register 1: Inverter and Parallel system States.	State Codes (1)	Only Read
7E	126	Datalogger Register 1: Status Flags.	Status Flags (1)	Only Read
7F	127	Datalogger Register 2: Alarm Type and Start Hour.	Alarm Type, Hours (1)	Only Read
80	128	Datalogger Register 2: Alarm Start Minutes and seconds.	Minutes, seconds (1)	Only Read
81	129	Datalogger Register 2: Alarm Start Day and Month.	Day, Months (1)	Only Read
82	130	Datalogger Register 2: Alarm Start Year and End Hour.	Years, Hours (1)	Only Read
83	131	Datalogger Register 2: Alarm End Minutes and Seconds.	Minutes, seconds (1)	Only Read
84	132	Datalogger Register 2: Alarm End Day and Month.	Days, Month (1)	Only Read
85	133	Datalogger Register 2: Unit and Rectifier States.	State Codes (1)	Only Read
86	134	Datalogger Register 2: Inverter and Parallel system States.	State Codes (1)	Only Read
87	135	Datalogger Register 2: Status Flags.	Status Flags (1)	Only Read
88 ………… 3F9	136 ………… 1017	Datalogger registers from 3 to 100		Only Read
21B ……… 121E	1018 ……… 4638	Reserved		Only Read
121F	4639	L1-L2 Input Voltage Measure.	0.1 Volts	Only Read
1220	4640	L2-L3 Input Voltage Measure.	0.1 Volts	Only Read
1221	4641	L1-L3 Input Voltage Measure.	0.1 Volts	Only Read
1222	4642	L1-N Input Voltage Measure.	0.1 Volts	Only Read
1223	4643	L2-N Input Voltage Measure.	0.1 Volts	Only Read
1224	4644	L3-N Input Voltage Measure.	0.1 Volts	Only Read
1225	4645	Input Frequency Measure.	0.1 Hertz	Only Read
1226	4646	L1 Input Current Measure.	0.1 Amperes	Only Read
1227	4647	L2 Input Current Measure.	0.1 Amperes	Only Read
1228	4648	L3 Input Current Measure.	0.1 Amperes	Only Read
1229	4649	Reserved	-----	Only Read
122A	4650	Reserved	-----	Only Read
122B	4651	Reserved	-----	Only Read
122C	4652	L1 Input Apparent Power Measure.	0.1 kVA	Only Read
122D	4653	L2 Input Apparent Power Measure.	0.1 kVA	Only Read
122E	4654	L3 Input Apparent Power Measure.	0.1 kVA	Only Read
122F	4655	Total Input Apparent Power Measure.	0.1 kVA	Only Read
1230	4656	L1 Input Active Power Measure.	0.1 kW	Only Read
1231	4657	L2 Input Active Power Measure.	0.1 kW	Only Read

Addr hex	Addr dec	Contents	Units	Type
1232	4658	L3 Input Active Power Measure.	0.1 kW	Only Read
1233	4659	Total Input Active Power Measure.	0.1 kW	Only Read
1234	4660	L1 Input Power Factor Measure.	From 0.01 to 1.00	Only Read
1235	4661	L2 Input Power Factor Measure.	From 0.01 to 1.00	Only Read
1236	4662	L3 Input Power Factor Measure.	From 0.01 to 1.00	Only Read
1237	4663	L1-N Inverter Voltage Measure.	0.1 Volts	Only Read
1238	4664	L2-N Inverter Voltage Measure.	0.1 Volts	Only Read
1239	4665	L3-N Inverter Voltage Measure.	0.1 Volts	Only Read
123A	4666	L1 Inverter Current Measure.	0.1 Amperes	Only Read
123B	4667	L2 Inverter Current Measure.	0.1 Amperes	Only Read
123C	4668	L3 Inverter Current Measure.	0.1 Amperes	Only Read
123D	4669	L1-N Bypass Voltage Measure.	0.1 Volts	Only Read
123E	4670	L2-N Bypass Voltage Measure.	0.1 Volts	Only Read
123F	4671	L3-N Bypass Voltage Measure.	0.1 Volts	Only Read
1240	4672	Bypass Frequency Measure.	0.1 Hertz	Only Read
1241	4673	L1 Bypass Current Measure.	0.1 Amperes	Only Read
1242	4674	L2 Bypass Current Measure.	0.1 Amperes	Only Read
1243	4675	L3 Bypass Current Measure.	0.1 Amperes	Only Read
1244	4676	L1 Output Voltage Measure.	0.1 Volts	Only Read
1245	4677	L2 Output Voltage Measure.	0.1 Volts	Only Read
1246	4678	L3 Output Voltage Measure.	0.1 Volts	Only Read
1247	4679	Output Frequency Measure.	0.1 Hertz	Only Read
1248	4680	L1 Output Current Measure.	0.1 Amperes	Only Read
1249	4681	L2 Output Current Measure.	0.1 Amperes	Only Read
124A	4682	L3 Output Current Measure.	0.1 Amperes	Only Read
124B	4683	Reserved	-----	Only Read
124C	4684	Reserved	-----	Only Read
124D	4685	Reserved	-----	Only Read
124E	4686	L1 Output Apparent Power Measure.	0.1 kVA	Only Read
124F	4687	L2 Output Apparent Power Measure.	0.1 kVA	Only Read
1250	4688	L3 Output Apparent Power Measure.	0.1 kVA	Only Read
1251	4689	Total Output Apparent Power Measure.	0.1 kVA	Only Read
1252	4690	L1 Output Active Power Measure.	0.1 kW	Only Read
1253	4691	L2 Output Active Power Measure.	0.1 kW	Only Read
1254	4692	L3 Output Active Power Measure.	0.1 kW	Only Read
1255	4693	Total Output Active Power Measure.	0.1 kW	Only Read
1256	4694	L1 Output Power Factor Measure.	From 0.01 to 1.00	Only Read
1257	4695	L2 Output Power Factor Measure.	From 0.01 to 1.00	Only Read
1258	4696	L3 Output Power Factor Measure.	From 0.01 to 1.00	Only Read
1259	4697	L1 Output Load Level Measure.	0.1 %	Only Read
125A	4698	L2 Output Load Level Measure.	0.1 %	Only Read
125B	4699	L3 Output Load Level Measure.	0.1 %	Only Read
125C	4700	Total Output Load Level Measure.	0.1 %	Only Read
125D	4701	Positive DC Bus Voltage Measure.	0.1 Volts	Only Read

Addr hex	Addr dec	Contents	Units	Type
125E	4702	Negative DC Bus Voltage Measure.	0.1 Volts	Only Read
125F	4703	Positive Battery Voltage Measure.	0.1 Volts	Only Read
1260	4704	Negative Battery Voltage Measure.	0.1 Volts	Only Read
1261	4705	Positive Battery Charging Current Measure.	0.1 Amperes	Only Read
1262	4706	Negative Battery Charging Current Measure.	0.1 Amperes	Only Read
1263	4707	Positive Battery Discharging Current Measure.	0.1 Amperes	Only Read
1264	4708	Negative Battery Discharging Current Measure.	0.1 Amperes	Only Read
1265	4709	Rectifier Heatsink Temperature Measure.	Celsius Degrees (2)	Only Read
1266	4710	Inverter Heatsink Temperature Measure.	Celsius Degrees (2)	Only Read
1267	4711	Battery Temperature Measure.	Celsius Degrees (2)	Only Read
1268	4712	Estimated Backup Time.	Minutes	Only Read
1269	4713	Estimated Battery Charge.	%	Only Read
126A	4714	Total Input Load.	0.1 %	Only Read
126B 1292	4715 4754	Reserved		Only Read
1293	4755	Clock-Calendar Hour and Minutes.	Hours, Minutes (3)	Read/Write
1294	4756	Clock-Calendar Seconds and Week Day.	Seconds,Day number (3)	Read/Write
1295	4757	Clock-Calendar Month Day and Month.	Days, Months (3)	Read/Write
1296	4758	Clock-Calendar Year.	Years (3)	Read/Write
1297 .... 129F	4759 4777	Reserved		Only Read
12AA	4778	Bypass Enabled if not available.	1 = NO. 2 = YES.	Read/Write
12AB	4779	Shutdown type	1 = Normally Open 2 = Normally Closed	Read/Write
12AC	4780	Serial Ports Setting	1 = Only Port 0 2 = Ports 0 and 1 3 = Ports 0 and 2 4 = Ports 0, 1 and 2	Read/Write*
12AD	4781	Serial Port 0 Communication Protocol.	1 = SEC 2 = MODBUS	Read/Write
12AE	4782	Serial Port 0 Baudrate.	1 = 1200 Bauds 2 = 2400 Bauds 3 = 4800 Bauds 4 = 9600 Bauds 5 = 19200 Bauds	Read/Write
12AF	4783	Serial Port 0 Parity.	1 = Even 2 = Odd 3 = No Parity	Read/Write
12B0	4784	Serial Port 0 Stop Bits.	1 = 1 Bit 2 = 2 Bits	Read/Write
			1 = SEC	

Addr hex	Addr dec	Contents	Units	Type
12B1	4785	Serial Port 1 Communication Protocol.	2 = MODBUS	Read/Write
12B2	4786	Serial Port 1 Baudrate.	1 = 1200 Bauds 2 = 2400 Bauds 3 = 4800 Bauds 4 = 9600 Bauds 5 = 19200 Bauds	Read/Write
12B3	4787	Serial Port 1 Parity.	1 = Even 2 = Odd 3 = No Parity	Read/Write
12B4	4788	Serial Port 1 Stop Bits.	1 = 1 Bit 2 = 2 Bits	Read/Write
12B5	4789	Serial Port 2 Communication Protocol.	1 = SEC 2 = MODBUS	Read/Write
12B6	4790	Serial Port 2 Baudrate.	1 = 1200 Bauds 2 = 2400 Bauds 3 = 4800 Bauds 4 = 9600 Bauds 5 = 19200 Bauds	Read/Write
12B7	4791	Serial Port 2 Parity.	1 = Even 2 = Odd 3 = No Parity	Read/Write
12B8	4792	Serial Port 2 Stop Bits.	1 = 1 Bit 2 = 2 Bits	Read/Write
12B9	4793	Unit Address	-----	Read/Write
12BA	4794	Active CAN Bus	1 = No 2 = Yes	Read/Write*
12BB	4795	Enabled CAN Bus Alarm	1 = No 2 = Yes	Read/Write*
12BC	4796	Reserved	-----	Only Read
12BD	4797	Parallel Unit Address	-----	Read/Write*
12BE	4798	Reserved	-----	Only Read
12BF	4799	LCD Message Language	1 = Spanish 2 = English 3 = French 4 = German 5 = Turkish 6 = Russian 7 = Portuguese	Read/Write
12C0	4800	Nominal Input Voltage.	Volts	Read/Write*
12C1	4801	Minimum Input Voltage Margin.	%	Read/Write*
12C2	4802	Maximum Input Voltage Margin.	%	Read/Write*
12C3	4803	Nominal Bypass Voltage.	Volts	Read/Write*
12C4	4804	Minimum Bypass Voltage Margin.	%	Read/Write*

Addr hex	Addr dec	Contents	Units	Type
12C5	4805	Maximum Bypass Voltage Margin.	%	Read/Write*
12C6	4806	Nominal DC BUS Voltage.	Volts	Read/Write*
12C7	4807	DC Current Probe Nominal Current.	Amperes	Read/Write**
12C8	4808	Nominal Battery Charging Current.	0.1 Amperes	Read/Write*
12C9	4809	Nominal Inverter Voltage.	Volts	Read/Write*
12CA	4810	Nominal Output Voltage.	Volts	Read/Write*
12CB	4811	Output Nominal Current	0.1 Amperes	Only Read
12CC	4812	Rectifier Nominal Frequency.	1 = 50 Hz 2 = 60 Hz 3 = Auto	Read/Write*
12CD	4813	Rectifier Synchronisation Margin.	1 = 0.5 Hz 2 = 1.0 Hz 3 = 2.0 Hz 4 = 5.0 Hz	Read/Write*
12CE	4814	Rectifier Synchronisation Histeresis Margin.	1 = 0.2 Hz 2 = 0.5 Hz 3 = 1.0 Hz 4 = 2.0 Hz	Read/Write*
12CF	4815	Inverter Nominal Frequency	1 = 50 Hz 2 = 60 Hz 3 = Auto	Read/Write*
12D0	4816	Inverter-Bypass Synchronisation	1 = NO 2 = YES 3 = GEN	Read/Write*
12D1	4817	Inverter Synchronisation Margin	1 = 0.5 Hz 2 = 1.0 Hz 3 = 2.0 Hz 4 = 5.0 Hz	Read/Write*
12D2	4818	Inverter Synchronisation Histeresis Margin.	1 = 0.2 Hz 2 = 0.5 Hz 3 = 1.0 Hz 4 = 2.0 Hz	Read/Write*
12D3	4819	Unit Type	1 = Single - Single 2 = Single - Three 3 = Three - Single 4 = Three - Three 5 = Auto - Single 6 = Auto - Three	Read/Write**
12D4	4820	Bypass Type	1 = No Bypass 2 = Not Indep. Bypass. 3 = Independent Bypass. 4 = F.C. Inverter Ramp.	Read/Write**

Addr hex	Addr dec	Contents	Units	Type
12D5	4821	Switching Frequency	1 = 7.5 kHz 2 = 15 kHz 3 = 10 kHz 4 = 7.5 to 10 kHz	Read/Write**
12D6	4822	Smart Eco-Mode	1 = NO 2 = YES	Read/Write
12D7	4823	Overload Limit.	1 = Default 2 = 110 % 3 = Adjustable 4 = Default 2 5 = Default 3 6 = Default 4	Read/Write*
12D8	4824	Overload Maximum Level.	%	Read/Write*
12D9	4825	Overload Time.	Seconds	Read/Write*
12DA	4826	Battery Voltage Booster.	1 = NO 2 = YES	Read/Write**
12DB	4827	Battery Number.	-----	Read/Write**
12DC	4828	Battery Capacity.	0.1 Ah	Read/Write*
12DD	4829	Battery Life Time.	Years	Read/Write***
12DE	4830	Battery Voltage Temperature Compensation.	mV/Celsius Degree	Read/Write*
12DF	4831	Rectifier Heatsink Maximum Temperature.	Celsius Degrees	Read/Write*
12E0	4832	Inverter Heatsink Maximum Temperature.	Celsius Degrees	Read/Write*
12E1	4833	Heatsink Temperature Probe Beta.	Kelvin Degrees	Read/Write**
12E2	4834	Battery Temperature Probe Beta.	Kelvin Degrees	Read/Write**
12E3	4835	Rectifier Maximum Desaturation Number.	-----	Read/Write**
12E4	4836	Battery Booster Maximum Desaturation Number.	-----	Read/Write**
12E5	4837	Bypass enabled with Peak Shaving function active	1 = NO 2 = YES	Read/Write
12E6	4838	Inverter Maximum Desaturation Number.	-----	Read/Write**
12E7	4839	Rectifier Power Limit.	%	Read/Write**
12E8	4840	Battery Booster Current Limit.	%	Read/Write**
12E9	4841	Inverter Peak Current Limit.	%	Read/Write**
12EA	4842	Inverter RMS Current Limit.	%	Read/Write**
12EB	4843	Inverter Synchronisation Speed.	0.1 Hz/s	Read/Write*
12EC	4844	AC Current Probe Nominal Current.	0.1 Amperes	Read/Write**
12ED	4845	Rectifier Controller Code	-----	Read/Write**

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Addr hex	Addr dec	Contents	Units	Type
12EE	4846	Batteries Installed?	1 = NO 2 = YES	Read/Write*
12EF	4847	Battery Connection?	1 = Fuse. 2 = Switch. 3 = Fuse/Switch with auxiliar contact	Read/Write*
12F0	4848	Common Batteries?	1 = NO 2 = YES	Read/Write*
12F1	4849	Rectifier Running Mode.	1 = Ideal. 2 = Resistive.	Read/Write**
12F2	4850	Parallel UPS?	1 = NO 2 = YES	Only Read
12F3	4851	Parallel Mode?	1 = Master. 2 = Slave. 3 = Auto.	Only Read
12F4	4852	UPS Model	-----	Read/Write**
12F5	4853	Inverter Controller Code	-----	Read/Write**
12F6	4854	Low Voltage Unit	1 = NO 2 = LV1 3 = LV2	Read/Write**
12F7	4855	Contactor Test?	1 = NO 2 = YES	Read/Write**
12F8	4856	Transfer to Bypass due to Inverter Voltage out of margins?	1 = NO 2 = YES	Read/Write*
12F9	4857	Number of units in parallel.	-----	Read/Write*
12FA	4858	Number of redundant units in the parallel system.	-----	Read/Write*
12FB	4859	PFC absolute maximum input current.	dA	Read/Write**
12FC	4860	Peak Shaving Limit	kW	Read/Write*
12FD	4861	Temperature control through thermal switch?	1 = NO 2 = YES	Read/Write**
12FE	4862	Unit output power factor.	0.01	Read/Write**
12FF	4863	Efficiency Plus?	1 = NO 2 = YES	Read/Write**
1300	4864	Disable Buzzer Alarm?	1 = NO 2 = YES	Read/Write
1301	4865	Extended Languages?	1 = NO 2 = YES	Read/Write*
1302	4866	Battery Life Control?	1 = NO 2 = YES	Read/Write***
1303	4867	One-way PFC rectifier?	1 = NO 2 = YES 3 = Regenerative	Read/Write**
1304	4868	DC BUS Brake Tmin.	Seconds	Read/Write**
1305	4869	Installation menu?	1 = NO 2 = YES	Read/Write***
1306	4870	Input Transformer Ratio.	0.01	Read/Write**

Addr hex	Addr dec	Contents	Units	Type
1307	4871	Output Transformer Ratio.	0.01	Read/Write**
1308	4872	PFC Limit Mode.	1 = Power. 2 = Current. 3 = Peak Shaving	Read/Write**
1309	4873	Unit Auto-restart	1 = NO. 2 = YES.	Read/Write**
130A	4874	Battery Type	1 = AGM 2 = Gel 3 = NiCd	Read/Write*
130B	4875	NiCd Battery Float Voltage	0.01 Volts	Read/Write*
130C	4876	Fast Battery Charge Voltage	0.01 Volts	Read/Write*
130D	4877	Fast Battery Charge Time	Hours	Read/Write*
130E	4878	Fast Battery Charge Interval	Months	Read/Write*
130F	4879	Battery Cut-off Voltage	0.01 Volts	Read/Write*
1310	4880	Walk-in Time	Seconds	Read/Write*
1311	4881	Walk-in Delay	Seconds	Read/Write*
1312	4882	Inverter Power Derating	From 0.10 to 1.00	Read/Write*
1313	4883	Bypass Failure Alarm Enable	1 = NO. 2 = YES.	Read/Write*
1314	4884	Automatic Battery Test: Type and day of week.	Type, Day of week (4)	Read/Write
1315	4885	Automatic Battery Test: Hour and Minutes.	Hours, Minutes (4)	Read/Write
1316	4886	Automatic Battery Test: Month and day of Month.	Months, days (4)	Read/Write
1319 ········· 132B	4887 ········· 4907	Reserved		Only Read
132C	4908	Relay 1 Activation Code.	Event Code (5)	Read/Write*
132D	4909	Relay 2 Activation Code.	Event Code (5)	Read/Write*
132E	4910	Relay 3 Activation Code.	Event Code (5)	Read/Write*
132F	4911	Relay 4 Activation Code.	Event Code (5)	Read/Write*
1330	4912	Relay 5 Activation Code.	Event Code (5)	Read/Write*
1331	4913	Relay 6 Activation Code.	Event Code (5)	Read/Write*
1332 ········· 1345	4914 ········· 4933	Reserved.		Only Read
1346 ········· 1348	4934 ········· 4936	Unit Identifier (6)	ASCII	Read/Write
1349 ········· 135D	4937 ········· 4957	Reserved.		Only Read
135E ········· 1367	4958 ········· 4967	Manufacturer Name (6)	ASCII	Read/Write*
1368 ·········	4968 ·········	Reserved		Only Read

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Addr hex	Addr dec	Contents	Units	Type
137D	4989			
137E ········ 1383	4990 ········ 4995	Model Name (6)	ASCII	Read/Write*
1384 ········ 1398	4996 ········ 5016	Reserved		Only Read
1399 ········ 139E	5017 ········ 5022	Microcontroller Software Version (6)	ASCII	Only Read
139F ········ 13B3	5023 ········ 5043	Reserved		Only Read
13B4 ········ 13B9	5044 ········ 5049	DSP Software Version (6)	ASCII	Only Read
13BA ········ 13CE	5050 ········ 5070	Reserved		Only Read
13CF ········ 13D6	5071 ········ 5078	Serial Number (6)	ASCII	Read/Write***
13D7 ········ 13EA	5079 ········ 5098	Reserved		Only Read
13EB	5099	Password	-----	Read/Write
13EC ········ 141D	5100 ········ 5149	Reserved		Only Read
141E	5150	L1-N Input Voltage Measure for calibration.	0.1 Volts	Only Read
141F	5151	L2-N Input Voltage Measure for calibration.	0.1 Volts	Only Read
1420	5152	L3-N Input Voltage Measure for calibration.	0.1 Volts	Only Read
1421	5153	L1 Input Current Measure for calibration.	0.1 Amperes	Only Read
1422	5154	L2 Input Current Measure for calibration.	0.1 Amperes	Only Read
1423	5155	L3 Input Current Measure for calibration.	0.1 Amperes	Only Read
1424	5156	L1-N Inverter Voltage Measure for calibration.	0.1 Volts	Only Read
1425	5157	L2-N Inverter Voltage Measure for calibration.	0.1 Volts	Only Read
1426	5158	L3-N Inverter Voltage Measure for calibration.	0.1 Volts	Only Read
1427	5159	L1 Inverter Current Measure for calibration.	0.1 Amperes	Only Read
1428	5160	L2 Inverter Current Measure for calibration.	0.1 Amperes	Only Read
1429	5161	L3 Inverter Current Measure for calibration.	0.1 Amperes	Only Read
142A	5162	L1-N Bypass Voltage Measure for calibration.	0.1 Volts	Only Read
142B	5163	L2-N Bypass Voltage Measure for calibration.	0.1 Volts	Only Read
142C	5164	L3-N Bypass Voltage Measure for calibration.	0.1 Volts	Only Read

Addr hex	Addr dec	Contents	Units	Type
142D	5165	L1 Output Voltage Measure for calibration.	0.1 Volts	Only Read
142E	5166	L2 Output Voltage Measure for calibration.	0.1 Volts	Only Read
142F	5167	L3 Output Voltage Measure for calibration.	0.1 Volts	Only Read
1430	5168	L1 Output Current Measure for calibration.	0.1 Amperes	Only Read
1431	5169	L2 Output Current Measure for calibration.	0.1 Amperes	Only Read
1432	5170	L3 Output Current Measure for calibration.	0.1 Amperes	Only Read
1433	5171	Positive DC Bus Voltage Measure for calibration.	0.1 Volts	Only Read
1434	5172	Negative DC Bus Voltage Measure for calibration.	0.1 Volts	Only Read
1435	5173	Positive Battery Voltage Measure for calibration.	0.1 Volts	Only Read
1436	5174	Negative Battery Voltage Measure for calibration.	0.1 Volts	Only Read
1437	5175	Positive Battery Charging Current Measure for calibration.	0.1 Amperes	Only Read
1438	5176	Reserved		Only Read
1439	5177	Positive Battery Discharging Current Measure for calibration.	0.1 Amperes	Only Read
143A	5178	Reserved		Only Read
143B	5179	L1-L2 Input Voltage Measure for calibration.	0.1 Volts	Only Read
143C	5180	L2-L3 Input Voltage Measure for calibration.	0.1 Volts	Only Read
143D	5181	L1-L3 Input Voltage Measure for calibration.	0.1 Volts	Only Read
143E	5182	Inverter L1 DC Voltage measure.	0.01 Volts	Only Read
143F	5183	Inverter L2 DC Voltage measure.	0.01 Volts	Only Read
1440	5184	Inverter L3 DC Voltage measure.	0.01 Volts	Only Read
1441 ········ 144E	5185 ········ 5198	Reserved		Only Read
144F	5199	Line 1-N Input Voltage calibration factor.	0.1 %	Read/Write*
1450	5200	Line 2-N Input Voltage calibration factor.	0.1 %	Read/Write*
1451	5201	Line 3-N Input Voltage calibration factor.	0.1 %	Read/Write*
1452	5202	Line 1 Input Current adjustment.	0.1 %	Read/Write*
1453	5203	Line 2 Input Current adjustment.	0.1 %	Read/Write*
1454	5204	Line 3 Input Current adjustment.	0.1 %	Read/Write*
1455	5205	Line 1-N Bypass Voltage calibration factor.	0.1 %	Read/Write*
1456	5206	Line 2-N Bypass Voltage calibration factor.	0.1 %	Read/Write*
1457	5207	Line 3-N Bypass Voltage calibration factor.	0.1 %	Read/Write*
1458	5208	Line 1-N Inverter Voltage adjustment.	0.1 %	Read/Write*
1459	5209	Line 2-N Inverter Voltage adjustment.	0.1 %	Read/Write*
145A	5210	Line 3-N Inverter Voltage adjustment.	0.1 %	Read/Write*
145B	5211	Line 1 Inverter Current adjustment.	0.1 %	Read/Write*
145C	5212	Line 2 Inverter Current adjustment.	0.1 %	Read/Write*
145D	5213	Line 3 Inverter Current adjustment.	0.1 %	Read/Write*
145E	5214	Line 1-N Output Voltage calibration factor.	0.1 %	Read/Write*
145F	5215	Line 2-N Output Voltage calibration factor.	0.1 %	Read/Write*
1460	5216	Line 3-N Output Voltage calibration factor.	0.1 %	Read/Write*
1461	5217	Line 1 Output Current calibration factor.	0.1 %	Read/Write*
1462	5218	Line 2 Output Current calibration factor.	0.1 %	Read/Write*
1463	5219	Line 3 Output Current calibration factor.	0.1 %	Read/Write*

Addr hex	Addr dec	Contents	Units	Type
1464	5220	Positive DC BUS Voltage adjustment.	0.1 %	Read/Write*
1465	5221	Negative DC BUS Voltage adjustment.	0.1 %	Read/Write*
1466	5222	Positive Battery Voltage calibration factor.	0.1 %	Read/Write*
1467	5223	Negative Battery Voltage calibration factor.	0.1 %	Read/Write*
1468	5224	Positive Battery Charging Current adjustment.	0.1 %	Read/Write*
1469	5225	Reserved		Only Read
146A	5226	Positive Battery Discharging Current calibration factor.	0.1 %	Read/Write*
146B	5227	Reserved		Only Read
146C	5228	Line 1-2 Input Voltage calibration factor.	0.1 %	Read/Write*
146D	5229	Line 2-3 Input Voltage calibration factor.	0.1 %	Read/Write*
146E	5230	Line 1-3 Input Voltage calibration factor.	0.1 %	Read/Write*
146F 149F	5231 5279	Reserved		Only Read
14A0	5280	L1 Inverter Voltage offset.	0.01 V	Read/Write*
14A1	5281	L2 Inverter Voltage offset.	0.01 V	Read/Write*
14A2	5282	L3 Inverter Voltage offset.	0.01 V	Read/Write*
14A3	5283	Positive Charging Battery Current offset.	0.1 A	Read/Write*
14A4	5284	Reserved		Only Read
14A5	5285	Positive Discharging Battery Current offset.	0.1 A	Read/Write*
14A6 .... 14D6	5286 5334	Reserved		Only Read
14D7	5335	b0 = Enable/Disable PFC L1 b1 = Enable/Disable PFC L2 b2 = Enable/Disable PFC L3 b3 = Enable/Disable Inverter L1 b4 = Enable/Disable Inverter L2 b5 = Enable/Disable Inverter L3 b6 to b15 = Reserved.	0 = Disable/ 1 = Enable 0 = Disable/ 1 = Enable 0 = Disable/ 1 = Enable 0 = Disable/ 1 = Enable 0 = Disable/ 1 = Enable 0 = Disable/ 1 = Enable	Read/Write* Read/Write* Read/Write* Read/Write* Read/Write* Read/Write* Only Read
14D8	5336	UPS Test Mode	1= Normal Function 2 = Inverter Driving 3 = PFC Driving 4 = PFC/Inverter Driving	Read/Write*
14D9	5337	PFC Test Mode	0 = OFF 1 = ON	Read/Write*
14DA	5338	Inverter Test Mode	0 = OFF 1 = ON	Read/Write*
14DB	5339	PFC Control Internal State	-----	Only Read
14DC	5340	Inverter Control Internal State	-----	Only Read
14DD	5341	Battery Control Internal State	-----	Only Read
14DE	5342	UPS Control Internal State	-----	Only Read
14DF	5343	Parallel Control Internal State	-----	Only Read
14E0	5344			

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Addr hex	Addr dec	Contents	Units	Type
········ 14F2	········ 5362	Reserved		Only Read
14F3	5363	DSP: Current state and Error state.	-----	Only Read
14F4	5364	PFC State: Current state and Error state.	-----	Only Read
14F5	5365	Inverter State: Current state and Error state.	-----	Only Read
14F6	5366	Bypass State: Current state and Error state.	-----	Only Read
14F7	5367	Parallel State: Current state and Error state.	-----	Only Read
14F8 ········ 150C	5368 ········ 5388	Reserved		Only Read
150D	5389	Current DSP alarms 1 (high)	-----	Only Read
150E	5390	Current DSP alarms 1 (low)	-----	Only Read
150F	5391	Error DSP alarms 1 (high)	-----	Only Read
1510	5392	Error DSP alarms 1 (low)	-----	Only Read
1511	5393	Current DSP alarms 2 (high)	-----	Only Read
1512	5394	Current DSP alarms 2 (low)	-----	Only Read
1513	5395	Error DSP alarms 2 (high)	-----	Only Read
1514	5396	Error DSP alarms 2 (low)	-----	Only Read
1515	5397	Current DSP alarms 3 (high)	-----	Only Read
1516	5398	Current DSP alarms 3 (low)	-----	Only Read
1517	5399	Error DSP alarms 3 (high)	-----	Only Read
1518	5400	Error DSP alarms 3 (low)	-----	Only Read
1519	5401	Current DSP alarms 4 (high)	-----	Only Read
151A	5402	Current DSP alarms 4 (low)	-----	Only Read
151B	5403	Error DSP alarms 4 (high)	-----	Only Read
151C	5404	Error DSP alarms 4 (low)	-----	Only Read
151D	5405	Current DSP alarms 5 (high)	-----	Only Read
151E	5406	Current DSP alarms 5 (low)	-----	Only Read
151F	5407	Error DSP alarms 5 (high)	-----	Only Read
1520	5408	Error DSP alarms 5 (low)	-----	Only Read
1521 ········ 1535	5409 ········ 5429	Reserved		Only Read
1536	5430	Reset Settings	0 = Do nothing. 1 = Calibrat. & Offsets. 2 = Parameters. 3 = EEPROM	Read/Write*
1537 ········ 1539	5431 ········ 5433	Battery Reset Code	ASCII	Read/Write*
154A ········ 2091	5434 ········ 8337	Reserved		Only Read
2092	8338	Battery Strings Number	-----	Read/Write*

Addr hex	Addr dec	Contents	Units	Type
2093	8339	Single Battery Block Capacity	0.1 Ah	Read/Write*
2094	8340	Unit Id Code	-----	Only Read
2095	8341	Unit Nominal Power	0.1 kVA	Only Read
2096 .... 209A	8342 8346	Reserved		Only Read
209B	8347	Controller Adjustment Parameter K1	-----	Read/Write**
209C	8348	Controller Adjustment Parameter K2	-----	Read/Write**
209D	8349	Controller Adjustment Parameter K3	-----	Read/Write**
209E	8350	Controller Adjustment Parameter K4	-----	Read/Write**
209F	8351	Controller Adjustment Parameter K5	-----	Read/Write**
20A0	8352	Controller Adjustment Parameter K6	-----	Read/Write**
20A1	8353	Controller Adjustment Parameter K7	-----	Read/Write**
20A2	8354	Controller Adjustment Parameter K8	-----	Read/Write**
20A3	8355	Controller Adjustment Parameter K9	-----	Read/Write**
20A4	8356	Controller Adjustment Parameter KA	-----	Read/Write**
20A5	8357	Controller Adjustment Parameter KB	-----	Read/Write**
20A6	8358	Controller Adjustment Parameter KC	-----	Read/Write**
20A7 .... 270F	8359 9999	Reserved		Only Read

*, **, ***: To be able to write in these registers it is necessary to previously write the password in the register "Password". This register will be cleared ten minutes later.

  *   : After Sales Service password level 1.

 ** : After Sales Service password level 2.

*** : Factory password level.

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(1) The dataloger file has got 100 registers, which consist of 9 Modbus, registers. The data is as follows:

First Register		Second Register		Third Register		Fourth Register		Fifth Register	
(High)	(Low)	(High)	(Low)	(High)	(Low)	(High)	(High)	(Low)	(Low)
Alarm Type	Alarm Start Hour	Alarm Start Minutes	Alarm Start Seconds	Start Month Day.	Start Month	Start Year.	End Hour.	End Minutes	End Seconds

Sixth Register		Seventh Register		Eighth Register		Ninth Register
(High)	(Low)	(High)	(High)	(High)	(Low)	
End Month Day	End Month	UPS State	Rectifier State	Inverter State	Parallel State	Status Flags

Each field needs half register and the data is in decimal format. If any of the data of the fields is 0xFF, it means that it has not been initialisated.

Alarm type code is as follows:

Code	Alarm
1	Rectifier Overload.
2	Inverter Overload.
3	Mains Failure. Battery Low Level.
4	Inverter Voltage Out of Margins.
5	DC Voltage Detected at the Output.
6	Maintenance Bypass. Inverter Not Available.
7	Battery Discharging.
8	High Temperature. Reduce Output Load.
9	Battery Switch Open. Switch it ON.
10	Bypass Failure. Not Synchronised Inverter.
11	Unit on Bypass. Initialise UPS.
12	Some Unit(s) Blocked due to Maintenance Bypass.
13	CAN BUS 1 Communication Failure.
14	CAN BUS 2 Communication Failure.
15	End of Battery Life.
16	Battery Temperature too High.
17	Battery Test Not Succeeded.
18	Battery Disconnection. Shutdown & Restart.
19	Mains Phase Rotation. UPS Start Disabled.
20	Bypass Phase Rotation. UPS Start Disabled.
21	Input Voltage Wrong. Rectifier Stop.
22	Rectifier Desaturation. Rectifier Stop.
23	DSP Internal Error. Rectifier Stop.
24	Input Phase Rotation. Rectifier Stop.
25	Inverter Desaturation. Inverter Stop.
26	Inverter Overload. Inverter Stop.

Code	Alarm
27	Inverter Stopped due to Shutdown.
28	Maintenance Bypass. Inverter Stop.
29	Parallel System Disconnection. Inverter Stop.
30	High Overload. Inverter Stop.
31	Overtemperature. Inverter Stop.
32	Rectifier Overload. Inverter Stop.
33	DSP Internal Error. Inverter Stop.
34	Output Short-circuit. Inverter Stop.
35	Bypass Phase Rotation. Inverter Stop.
36	DSP Internal Error. UPS Stop.
37	Low Battery. UPS Stop.
38	Emergency Power Off. No Output Voltage.
39	Output Short-circuit. No Output Voltage.
40	DSP Internal Error. UPS Block All.
41	DC BUS Voltage Wrong. Rectifier Block.
42	Rectifier Blocked. BLK. UPS -> BLK Rectifier.
43	Rectifier Desaturations. Rectifier Block.
44	Voltage Ramp Error. Rectifier Block.
45	DSP Execution Error. Rectifier Block.
46	DSP Internal Error. Rectifier Block.
47	Contactor Test Failure. Rectifier Block.
48	Voltage Ramp Error. Inverter Block.
49	Output DC Voltage. Inverter Block.
50	Inverter Blocked. BLK. UPS -> BLK Inverter.
51	Inverter Desaturations. Inverter Block.
52	DSP Execution Error. Inverter Block.
53	DSP Internal Error. Inverter Block.
54	UPS Blocked. BLK. Rectifier -> BLK. UPS.
55	Internal Initialisation Error. UPS Block (DSP).
56	Internal Execution Error. UPS Block (DSP).
57	UPS Blocked. BLK. Inverter -> BLK. UPS.
58	Internal Communication. UPS Block (DSP).
59	Parallel System Discharging. UPS Block.
60	UPS Overtemperature. UPS Block.
61	Rectifier Overload. UPS Block.
62	Inverter Desaturations. UPS Block.
63	DSP Internal Error. UPS Block.
64	PFC & Inverter Blockage. UPS Block.
65	Inverter Failure/Overload. Inverter Stop.
66	Inverter Failure. Inverter Block.
67	Voltage Ramp Error. Inverter Stop.
68	DC BUS Voltage Wrong. Rectifier Stop.
69	Parallel System Rectifier Stop.
70	Parallel System Inverter Stop.

Code	Alarm
71	Pfc., Inv. Stop UPS Stop.
72	Parallel System UPS Stop.
73	Error Coms. Paral. Master Fixed.
74	Alarm Paral. Sist. Redundancy Lost.
75	Cont. Test Fail Rectifier Stop.
76	Paral. Coms Error UPS Block.
77	EEPROM Failure.
78	Overtemperature. UPS Stop.
79	Frequency Detection Failure. UPS Block.

(2) A2 Complement value.

(3) The data in these registers is as follows:

First Register		Second Register		Third Register		Fourth Register
High	Low	High	Low	High	Low	
Hour	Minutes	Seconds	Week Day	Day of Month	Month	Year

The data format is BCD.

(4) The data in these registers is as follows:

First Register		Second Register		Third Register	
High	Low	High	Low	High	Low
Type	Day of the Week	Hour	Minutes	Month	Day

Where:

1) The field Type is the type of Automatic Battery Test: 1 = DISABLED, 2 = WEEKLY, 3 = MONTHLY and 4 = YEARLY.
2) The field Day of the Week is the day of the week the Automatic Battery Test will be run: 1 = MONDAY, 2 = TUESDAY, ….,7 = SUNDAY.
3) The field Hour is the hour the Automatic Battery Test will be run: 0 to 23.
4) The field Minutes is the minutes of the hour the Automatic Battery Test will be run: 0 to 59.
5) The field Month is the month of the year the Automatic Battery Test will be run: 1 = JANUARY, 2 = FEBRUARY, ….,12 = DECEMBER.
6) The field Day is the day of the month the Automatic Battery Test will be run: 1 to 31.

Notes:

1) If the field Type value is DISABLED, none of the other field values are taken into account.
2) If the field Type value is WEEKLY, only the following fiels are taken into account: Day of the Week, Hour and minutes.
3) If the field Type value is MONTHLY, only the following fiels are taken into account: Day, Hour and minutes.
4) If the field Type value is YEARLY, only the following fiels are taken into account: Month, Day, Hour and minutes.

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(5) Event/Alarm code in A2 complement. If the code is positive, the relay is activated when the condition is true. If the code is negative, the relay is activated when the condition is false. You can see the alarm codes in note (1).

The status codes are as follows:

Code	Unit Status
201	UPS Ouput : Bypass.
202	UPS Ouput : Inverter.
203	Inverter ON.
204	Rectifier ON.

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Code	Unit Status
205	UPS Executing Battery Test.
206	Battery Floating.
207	Active Alarms.
208	Unit running on Economy Mode
209	DC Bus Break ON
210	Single Phase Input Rectifier
211	Three-phase Input Rectifier
212	Output Voltage OK
213	Inverter Voltage ready for Fans
214	Battery Disconnection

(6) These registers contain data in ASCII format. Each register has got two characters. By linking the characters in the registers with the same name, the whole information will be obtained. The information ends with the code 0.

(7) The Inverter ON hours is given as a 32 bit number. The low 16 bits are in the register "Inverter On Hours (Low)" and the 16 upper bits in the register "Inverter On Hours (High)".