
SMNP / WEB / MODBUS Manager

**CS141 series
Modbus manual**

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Description

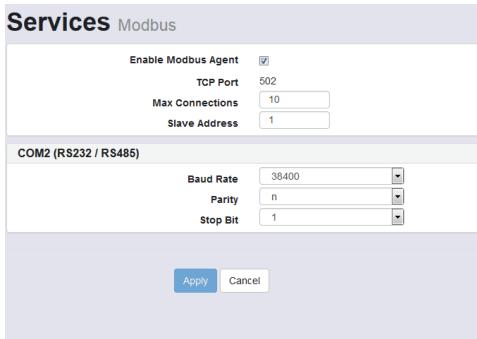
MODBUS is a protocol for serial communication. Data is transmitted in form of 16bit registers (integer) or data byte status information. It is an open protocol and a common protocol in industry machinery. The fundamental structure of MODBUS has never changed due to compatibility reasons. MODBUS is also a single master protocol. The master controls the whole transmission and monitors potential occurring timeouts. The connected devices are only allowed to send telegrams if the master requests.

For remote control and monitoring of devices the MODBUS interface in each CS141 can read out measurement values, events, status and other information in a master-slave protocol. Please note that not all UPS models support all or specific measurement values (e.g. battery low).

MODBUS Communication Parameters

There is the opportunity to configure the Modbus parameters on the web interface of the CS141. Please select Services→Modbus at the drop-down-menu on the left side:

Parameter	Values
Baud Rate	1200 2400 4800 9600 14400 19200 28800 38400¹ 56000 57600 115200
Parity	n: No Parity¹ o: Odd Parity e: Even Parity
Stop Bit	0: 0 Stop Bits 1: 1 Stop Bit¹ 2: 2 Stop Bits



¹: default Parameter

The default parameters marked with in red. The CS141 always uses 8 data bits for communication. We recommend to use highest baudrate supported by your device.

If you receive faulty answers (Timeout Errors, Transaction ID Errors, Write Errors etc.), it may be, that the polling cycle was defined to fast. This causes the non answered polling requests or even to a reboot of the CS141 through the integrated Watchdog, because the system is overloaded. Further on it can come to delayed answers during the MODBUS over IP or rather RS485 polling due to traffic into the bus or network, because the CS141 is a multi device, which has to handle several tasks at the same time.

Please define a response timeout of at least 500ms (at a fast MODBUS over IP or RS485 network/bus or rather higher accordingly, e.g. 4000ms at slow connections). The timeout has to be increased until the errors stay out.

MODBUS Connector

For the Modbus connection the Phoenix Contact Printer circuit board connector 1952267 is used. You are able to contact the open wires of your Modbus cable with the push in spring connection of these connector easily.



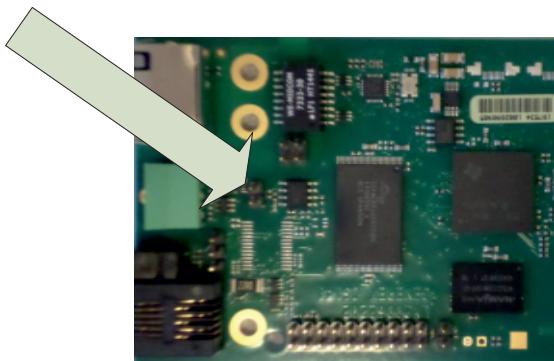
Pinning	
1:	GND
2:	RS485/A(+)
3:	RS485/B(-)

Picture: MODBUS - Connector

Bus termination

It is necessary to set the last bus device on the RS-485 Bus jumper for the bus termination. (120 Ohm) Please remove the 4 screws at the bottom of the adapter in order to open the box. You will find the jumper near the Modbus connector (see fig.).

Default is OFF = CS141 is NOT last device. To terminate the RS485 bus at your CS141, please close the Jumper.



Available Modbus Function Codes

Implemented MODBUS functions in the CS141:

- 01H - Read Coils
- 02H - Read Discrete Inputs
- 03H - Read Holding Registers
- 04H - Read Input Registers
- 05H - Write Single Coil

Which functions are supported depends on the connected UPS. For standard UPS only functions 03H and 04H are available. In this case the CS141 makes no difference between function 03H and 04H. The baud rate is adjustable up to 38400 Baud. Please note that the MODBUS adapter client allows a timeout of 40ms at 9600 baud for one value.

Exception Codes

Except for broadcast messages, when a master device sends a query to a slave device it expects a normal response. One of four possible events can occur from the master's query:

- If the slave device receives the query without a communication error, and can handle the query normally, it returns a normal response.
- If the slave does not receive the query due to a communication error, no response is returned. The master program will eventually process a timeout condition for the query.
- If the slave receives the query, but detects a communication error parity, LRC, or CRC, no response is returned. The master program will eventually process a timeout condition for the query.
- If the slave receives the query without a communication error, but cannot handle it (for example, if the request is to read a non-existent register the slave will return an exception response informing the master of the nature of the error).

Available Exception codes:

- 01H - Illegal: The command received in the query is not defined.
- 02H - Illegal: The address received in the query is not defined for the slave.
- 04H - Slave device failure: Internal slave device error.

Communication Example

The following tables contain the general command descriptions and examples with Modbus RTU framing.

Query:

slave no	function code	address of first word to read		word count		Checksum LRC or CRC
1 byte	1 byte	High byte	Low byte	High byte	Low byte	1 or 2 byte(s)

Answer:

slave no	function code	Byte count	high byte of first word	low byte of first word	bytes with contents of n words	Checksum LRC or CRC
1 byte	1 byte	1 byte	1 byte	1 byte	n * 2 bytes	1 or 2 byte(s)

Read Words (Functions 03h and 04h):

Example: Read Words, Function 04h

Read one word at address 63h (= 99 decimal):

Query:

Byte	1	2, 3	4, 5	6, 7	8, 9	10, 11	12, 13	14, 15	16	17
Meaning	Leading colon	Slave number	Function code	address of first word to read	word count to read	LRC	Carriage return	line feed LF		
HEX	[3A]	[30][31]	[30][34]	[30][30]	[36][33]	[30][30]	[30][31]	[39][37]	[0D]	[0A]

Answer:

Byte	1	2, 3	4, 5	6, 7	8, 9	10, 11	12, 13	14	15
Meaning	leading colon	Slave number	function code	byte count	contents of the word	LRC	carriage return	line feed LF	
					high byte	low byte			
HEX	[3A]	[30][31]	[30][34]	[30][32]	[31][32]	[33][34]	[42][33]	[0D]	[0A]

HEX: Hexadecimal values of the data

→ The word at address contains the value 1234h = 4660 decimal.

Example: Read Words, Function 04h, RTU Mode

Read one word at address 63h (= 99 decimal) (The word at address contains the value 1234h = 4660 decimal.):

Query:

Byte		1	2	3	4	5	6	7	8	
Meaning	silent interval ≥ 3,5 characters	Slave number	function code	address of first word to read	word count to read	CRC				silent interval ≥ 3.5 characters
RTU HEX		[01]	[04]	[00]	[63]	[00]	[01]	[C1]	[D4]	

Answer:

Byte		1	2	3	4	5	6	7	
Meaning	silent interval ≥ 3.5 characters	Slave number	function code	byte count	Contents of the word	CRC			
RTU HEX		[01]	[04]	[02]	[12]	[34]	[B4]	[47]	Silent interval ≥ 3.5 characters

UPS Parameters

Please note: The type U/S defines if the answer contains has a mathematical sign (+/-) or not. Type U means unsigend (without a mathematical sign), type S means sigend (with a mathematical sign). The answer may be true or false. Some clients (f.e. MODBUS Poll) use MODBUS addresses with a valid range between 0-65535. Some clients use as the valid range 1-65536, so it may be necessary to add 1 to the address. If you use a Piller UPS please take a look in the Piller UPS manual. If you use also simultaneously a BACS system, BACS values can not be retrieved via MODBUS.

Modbus addresses

OEM MODBUS Defaultadress (for all products/OEMs, not specified further down in this modbus manual)

Address	Type	Function	Name	Description	Length
97	U	3 / 4	OUTPUT_VOLT0	Output Voltage Phase 1 in V	1
98	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 2 in V	1
99	U	3 / 4	OUTPUT_VOLT2	Output Voltage Phase 3 in V	1
100	U	3 / 4	OUTPOWERO	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1
105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4		STATUS (e. g. UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below
110	S	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	Alarm Battery Bad	1 = active; 0 = not active	1
116	U	3 / 4	Alarm: On Battery	1 = active; 0 = not active	1
117	U	3 / 4	Alarm: Battery Low	1 = active; 0 = not active	1
118	U	3 / 4	Alarm: Battery Depleted	1 = active; 0 = not active	1
119	U	3 / 4	Alarm: Over temperature	1 = active; 0 = not active	1
120	U	3 / 4	Alarm: Input Bad	1 = active; 0 = not active	1
121	U	3 / 4	Alarm: Output Bad	1 = active; 0 = not active	1
122	U	3 / 4	Alarm: Output Overload	1 = active; 0 = not active	1
123	U	3 / 4	Alarm: On Bypass	1 = active; 0 = not active	1
124	U	3 / 4	Alarm: Bypass Bad	1 = active; 0 = not active	1
125	U	3 / 4	Alarm: Output Off as requested.	1 = active; 0 = not active	1
126	U	3 / 4	Alarm: UPS Off as requested.	1 = active; 0 = not active	1
127	U	3 / 4	Alarm: Charger Failed	1 = active; 0 = not active	1
128	U	3 / 4	Alarm: UPS Output Off	1 = active; 0 = not active	1
129	U	3 / 4	Alarm: UPS System Off	1 = active; 0 = not active	1
130	U	3 / 4	Alarm: Fan Failure	1 = active; 0 = not active	1
131	U	3 / 4	Alarm: fuse failure	1 = active; 0 = not active	1
132	U	3 / 4	Alarm: general fault	1 = active; 0 = not active	1
133	U	3 / 4	Alarm: diagnosis test failed	1 = active; 0 = not active	1
134	U	3 / 4	Alarm: communication lost	1 = active; 0 = not active	1
135	U	3 / 4	Alarm: awaiting power	1 = active; 0 = not active	1
136	U	3 / 4	Alarm: shutdown pending	1 = active; 0 = not active	1
137	U	3 / 4	Alarm: shutdown imminent	1 = active; 0 = not active	1
138	U	3 / 4	Alarm: test in progress	1 = active; 0 = not active	1
139	U	3 / 4	AUX Port 1	1 = active (high), 0 = not active (low)	1
140	U	3 / 4	AUX Port 2	1 = active (high), 0 = not active (low)	1
141	U	3 / 4	AUX Port 3	1 = active (high), 0 = not active (low)	1
142	U	3 / 4	AUX Port 4	1 = active (high), 0 = not active (low)	1
143	U	3 / 4	Sensormanager/SMTCOM sensor 1	Analog value	1
144	U	3 / 4	Sensormanager/SMTHCOM sensor 2	Analog value	1
145	U	3 / 4	Sensormanager sensor 3	Analog value	1
146	U	3 / 4	Sensormanager sensor 4	Analog value	1
147	U	3 / 4	Sensormanager sensor 5	Analog value	1
148	U	3 / 4	Sensormanager sensor 6	Analog value	1
149	U	3 / 4	Sensormanager sensor 7	Analog value	1
150	U	3 / 4	Sensormanager sensor 8	Analog value	1

Section OEM: ABB/NEWAVE UPS Type Concept Power

Address	Type	Function	Name	Description	Length
100	U	3 / 4	OUTP0WER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1
105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
			STATUS (e. g.		
109	U	3 / 4	UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below	1
110	S	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	Alarm: Battery Bad	1 = active; 0 = not active	1
116	U	3 / 4	Alarm: On Battery	1 = active; 0 = not active	1
117	U	3 / 4	Alarm: Battery Low	1 = active; 0 = not active	1
118	U	3 / 4	Alarm: Battery Depleted	1 = active; 0 = not active	1
119	U	3 / 4	Alarm: Over temperature	1 = active; 0 = not active	1
120	U	3 / 4	Alarm: Input Bad	1 = active; 0 = not active	1
121	U	3 / 4	Alarm: Output Bad	1 = active; 0 = not active	1
122	U	3 / 4	Alarm: Output Overload	1 = active; 0 = not active	1
123	U	3 / 4	Alarm: On Bypass	1 = active; 0 = not active	1
124	U	3 / 4	Alarm: Bypass Bad	1 = active; 0 = not active	1
125	U	3 / 4	Alarm: Output Off as requested.	1 = active; 0 = not active	1
126	U	3 / 4	Alarm: UPS Off as requested.	1 = active; 0 = not active	1
127	U	3 / 4	Alarm: Charger Failed	1 = active; 0 = not active	1
128	U	3 / 4	Alarm: UPS Output Off	1 = active; 0 = not active	1
129	U	3 / 4	Alarm: UPS System Off	1 = active; 0 = not active	1
130	U	3 / 4	Alarm: Fan Failure	1 = active; 0 = not active	1
131	U	3 / 4	Alarm: fuse failure	1 = active; 0 = not active	1
132	U	3 / 4	Alarm: general fault	1 = active; 0 = not active	1
133	U	3 / 4	Alarm: diagnose test failed	1 = active; 0 = not active	1
134	U	3 / 4	Alarm: communication lost	1 = active; 0 = not active	1
135	U	3 / 4	Alarm: awaiting power	1 = active; 0 = not active	1
136	U	3 / 4	Alarm: shutdown pending	1 = active; 0 = not active	1
137	U	3 / 4	Alarm: shutdown imminent	1 = active; 0 = not active	1
138	U	3 / 4	Alarm: test in progress	1 = active; 0 = not active	1
139	U	3 / 4	Manual Bypass Switch Closed	0 = open 1 = closed	1
140	U	3 / 4	OUTPUT_VOLT0	Outputvoltage Phase 1	1
141	U	3 / 4	OUTPUT_VOLT1	Outputvoltage Phase 2	1
142	U	3 / 4	OUTPUT_VOLT2	Outputvoltage Phase 3	1
143	U	3 / 4	OutputCurrent Phase A * 10	Output Current Phase 1 in Ampere devided by 10	1
144	U	3 / 4	OutputCurrent Phase B * 10	Output Current Phase 1 in Ampere devided by 10	1
145	U	3 / 4	OutputCurrent Phase C * 10	Output Current Phase 1 in Ampere devided by10	1
146	U	3 / 4	xid3017 Bits 0-15	Statusbit, for details please contact NEWAVE	1
147	U	3 / 4	xid3017 Bits 16-31	Statusbit, for details please contact ABB/NEWAVE	1
148	U	3 / 4	xid645 Bits 0-15	Alarmbit, for details please contact ABB/NEWAVE	1
149	U	3 / 4	xid645 Bits 16-31	Alarmbit, for details please contact ABB/NEWAVE	1
150	U	3 / 4	xid645 Bits 32-47	Alarmbit, for details please contact ABB/NEWAVE	1
151	U	3 / 4	xid645 Bits 48-63	Alarmbit, for details please contact ABB/NEWAVE	1
152	U	3 / 4	Sensormanager/SMTCOM sensor 1	Analog value	1
153	U	3 / 4	Sensormanager/SMTHCOM sensor 2	Analog value	1
154	U	3 / 4	Sensormanager sensor 3	Analog value	1
155	U	3 / 4	Sensormanager sensor 4	Analog value	1

Address	Type	Function	Name	Description	Length
156	U	3 / 4	Sensormanager sensor 5	Analog value	1
157	U	3 / 4	Sensormanager sensor 6	Analog value	1
158	U	3 / 4	Sensormanager sensor 7	Analog value	1
159	U	3 / 4	Sensormanager sensor 8	Analog value	1
160	U	3 / 4	TrueOutputPower Phase A in KW	True Output Power Current Phase 1 in Kilowatt	1
161	U	3 / 4	TrueOutputPower Phase A in KW	True Output Power Current Phase 1 in Kilowatt	1
162	U	3 / 4	TrueOutputPower Phase A in KW	True Output Power Current Phase 1 in Kilowatt	1
163	U	3 / 4	AUX Port 1	1 = active (high), 0 = not active (low)	1
164	U	3 / 4	AUX Port 2	1 = active (high), 0 = not active (low)	1
165	U	3 / 4	AUX Port 3	1 = active (high), 0 = not active (low)	1
166	U	3 / 4	AUX Port 4	1 = active (high), 0 = not active (low)	1
167	U	3 / 4	BATTERYCURRENT	Battery Current in Ampere	1
168	U	3 / 4	OUTFREQ0	Output Frequency Phase 1 in Hz	1
169	U	3 / 4	UPSIDMASK&0xFFFF	for details please contact NEWAVE	1
170	U	3 / 4	(UPSIDMASK&0xFFFF0000)>>16	for details please contact NEWAVE	1
171	U	3 / 4	AUXINPFREQ0	Auxiliary Input Frequency Phase 1	1
172	U	3 / 4	AUXINPFREQ1	Auxiliary Input Frequency Phase 2	1
173	U	3 / 4	AUXINPFREQ2	Auxiliary Input Frequency Phase 3	1
174	U	3 / 4	AUXINPVOLT0	Auxiliary Input Voltage Phase 1	1
175	U	3 / 4	AUXINPVOLT1	Auxiliary Input Voltage Phase 2	1
176	U	3 / 4	AUXINPVOLT2	Auxiliary Input Voltage Phase 3	1
177	U	3 / 4	BP_FREQ0	Bypass Frequency	1
178	U	3 / 4	BP_VOLT0	Bypass Voltage Phase 1	1
179	U	3 / 4	BP_VOLT1	Bypass Voltage Phase 1	1
180	U	3 / 4	BP_VOLT2	Bypass Voltage Phase 3	1
181	U	3 / 4	(RAWSTATEB&0x8)!=0x8	Statusbit, for details please contact ABB/NEWAVE	1

Section OEM: MASTERSGUARD

Address	Type	Function	Name	Description	Length
97	U	3 / 4	OUTPUT_VOLT0	Output Voltage Phase 1 in V	1
98	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 2 in V	1
99	U	3 / 4	OUTPUT_VOLT2	Output Voltage Phase 3 in V	1
100	U	3 / 4	OUTP0WER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTP0WER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTP0WER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1
105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4	STATUS UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below	1
110	S	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	Alarm Battery Bad	1 = active; 0 = not active	1
116	U	3 / 4	Alarm: On Battery	1 = active; 0 = not active	1
117	U	3 / 4	Alarm: Battery Low	1 = active; 0 = not active	1
118	U	3 / 4	Alarm: Battery Depleted	1 = active; 0 = not active	1
119	U	3 / 4	Alarm: Over temperature	1 = active; 0 = not active	1
120	U	3 / 4	Alarm: Input Bad	1 = active; 0 = not active	1
121	U	3 / 4	Alarm: Output Bad	1 = active; 0 = not active	1
122	U	3 / 4	Alarm: Output Overload	1 = active; 0 = not active	1
123	U	3 / 4	Alarm: On Bypass	1 = active; 0 = not active	1
124	U	3 / 4	Alarm: Bypass Bad	1 = active; 0 = not active	1
125	U	3 / 4	Alarm: Output Off as requested.	1 = active; 0 = not active	1
126	U	3 / 4	Alarm: UPS Off as requested.	1 = active; 0 = not active	1
127	U	3 / 4	Alarm: Charger Failed	1 = active; 0 = not active	1

128	U	3 / 4	Alarm: UPS Output Off	1 = active; 0 = not active	1
129	U	3 / 4	Alarm: UPS System Off	1 = active; 0 = not active	1
130	U	3 / 4	Alarm: Fan Failure	1 = active; 0 = not active	1
131	U	3 / 4	Alarm: fuse failure	1 = active; 0 = not active	1
132	U	3 / 4	Alarm: general fault	1 = active; 0 = not active	1
133	U	3 / 4	Alarm: diagnose test failed	1 = active; 0 = not active	1
134	U	3 / 4	Alarm: communication lost	1 = active; 0 = not active	1
135	U	3 / 4	Alarm: awaiting power	1 = active; 0 = not active	1
136	U	3 / 4	Alarm: shutdown pending	1 = active; 0 = not active	1
137	U	3 / 4	Alarm: shutdown imminent	1 = active; 0 = not active	1
138	U	3 / 4	Alarm: test in progress	1 = active; 0 = not active	1
139	U	3 / 4	PXWARN		2
141	U	3 / 4	FAULT CODE 1		1
142	U	3 / 4	FAULT CODE 2		1
143	U	3 / 4	FAULT CODE 3		1
144	U	3 / 4	FAULT CODE 4		1
145	U	3 / 4	BADBATTBLOCK 1		1
146	U	3 / 4	BADBATTBLOCK 1		1
147	U	3 / 4	BADBATTBLOCK 1		1
148	U	3 / 4	BADBATTBLOCK 1		1
149	U	3 / 4	BADBATTBLOCK 1		1
150	U	3 / 4	BADBATTBLOCK 1		1

Section: OEM: Centiel UPS

Address	Type	Function	Name	Description	Length
97	U	3 / 4	OUTPUT_VOLT0		1
98	U	3 / 4	OUTPUT_VOLT1		1
99	U	3 / 4	OUTPUT_VOLT2		1
100	U	3 / 4	OUTPOWER0		1
101	U	3 / 4	OUTPOWER1		1
102	U	3 / 4	OUTPOWER2		1
103	U	3 / 4	BATTCAP		1
104	U	3 / 4	INVOLT0		1
105	U	3 / 4	INVOLT1		1
106	U	3 / 4	INVOLT2		1
107	U	3 / 4	TEMPDEG		1
108	U	3 / 4	AUTONOMTIME		1
109	U	3 / 4	STATUS		1
110	U	3 / 4	BATTVOLT		1
111	U	3 / 4	INFREQ0		1
112	U	3 / 4	INFREQ1		1
113	U	3 / 4	INFREQ2		1
114	U	3 / 4	CNT_PF		1
115	U	3 / 4	(SNMPALARMS&0x1)		1
116	U	3 / 4	(SNMPALARMS&0x2)>>1		1
117	U	3 / 4	(SNMPALARMS&0x4)>>2		1
118	U	3 / 4	(SNMPALARMS&0x8)>>3		1
119	U	3 / 4	(SNMPALARMS&0x10)>>4		1
120	U	3 / 4	(SNMPALARMS&0x20)>>5		1
121	U	3 / 4	(SNMPALARMS&0x40)>>6		1
122	U	3 / 4	(SNMPALARMS&0x80)>>7		1
123	U	3 / 4	(SNMPALARMS&0x100)>>8		1
124	U	3 / 4	(SNMPALARMS&0x200)>>9		1
125	U	3 / 4	(SNMPALARMS&0x400)>>10		1
126	U	3 / 4	(SNMPALARMS&0x800)>>11		1
127	U	3 / 4	(SNMPALARMS&0x1000)>>12		1
128	U	3 / 4	(SNMPALARMS&0x2000)>>13		1
129	U	3 / 4	(SNMPALARMS&0x4000)>>14		1
130	U	3 / 4	(SNMPALARMS&0x8000)>>15		1
131	U	3 / 4	(SNMPALARMS&0x10000)>>16		1
132	U	3 / 4	(SNMPALARMS&0x20000)>>17		1
133	U	3 / 4	(SNMPALARMS&0x40000)>>18		1
134	U	3 / 4	(SNMPALARMS&0x80000)>>19		1
135	U	3 / 4	(SNMPALARMS&0x100000)>>20		1
136	U	3 / 4	(SNMPALARMS&0x200000)>>21		1
137	U	3 / 4	(SNMPALARMS&0x400000)>>22		1
138	U	3 / 4	(SNMPALARMS&0x800000)>>23		1
139	U	3 / 4	AUX1STATE		1
140	U	3 / 4	AUX2STATE		1
141	U	3 / 4	AUX3STATE		1
142	U	3 / 4	AUX4STATE		1

143	U	3 / 4	TEMP1	1
144	U	3 / 4	TEMP2	1
145	U	3 / 4	TEMP3	1
146	U	3 / 4	TEMP4	1
147	U	3 / 4	TEMP5	1
148	U	3 / 4	TEMP6	1
149	U	3 / 4	TEMP7	1
150	U	3 / 4	TEMP8	1
151	U	3 / 4	(MODULEMASK&0xFFFF)	1
152	U	3 / 4	(MODULEMASK&0xFFFF0000)>>16	1
153	U	3 / 4	(RAWSTATEB&0xFFFF)	1
154	U	3 / 4	(RAWSTATEB&0xFFFF0000)>>16	1
155	U	3 / 4	(RAWSTATEA&0xFFFF)	1
156	U	3 / 4	(RAWSTATEA&0xFFFF0000)>>16	1
157	U	3 / 4	(RAWSTATED&0xFFFF)	1
158	U	3 / 4	(RAWSTATED&0xFFFF0000)>>16	1

Section OEM: RITTAL PMC Extension

Address	Type	Function	Name	Description	Length
Digital Input Status(DI)					
0	bit	2	Bypass working	Status 0: Normal, Status 1: Alert	1
1	bit	2	Bypass Interruption	Status 0: Normal, Status 1: Alert	1
2	bit	2	Rectifier Failure	Status 0: Normal, Status 1: Alert	1
3	bit	2	Inverter Failure	Status 0: Normal, Status 1: Alert	1
4	bit	2	Over Temperature	Status 0: Normal, Status 1: Alert	1
5	bit	2	Over Load	Status 0: Normal, Status 1: Alert	1
6	bit	2	0	Status 0: Normal, Status 1: Alert	1
7	bit	2	Battery Voltage too Low	Status 0: Normal, Status 1: Alert	1
8	bit	2	Fuse broken	Status 0: Normal, Status 1: Alert	1
9	bit	2	Battery discharging	Status 0: Normal, Status 1: Alert	1
10	bit	2	0	Status 0: Floating charge, Status 1: Instant charging	1
11~30	bit	2	For future expansion		1
After 31	bit	2	Venders own definition		1
Analog Measurement point (AI)					
00	word	4	U in R phase input voltage	0.1 Volt	
01	word	4	U in S phase input voltage	0.1 Volt	
02	word	4	U in T phase input voltage	0.1 Volt	
03	word	4	I in R phase input current	0.1A	
04	word	4	I in S phase input current	0.1A	
05	word	4	I in T phase input current	0.1A	
06	word	4	F input frequency	0.1Hz	
07	word	4	U out R phase output voltage	0.1 Volt	
08	word	4	U out S phase output voltage	0.1 Volt	
09	word	4	U out T phase output voltage	0.1 Volt	
10	word	4	I out R phase output current	0.1A	
11	word	4	I out S phase output current	0.1A	
12	word	4	I out T phase output current	0.1A	
13	word	4	P out output power	0.1kVA	
14	word	4	P out output power	0.1kW	
15	word	4	PF output power factor	0.01Cos	
16	word	4	U Bypass, R phase voltage	0.1 Volt	
17	word	4	U Bypass, S phase voltage	0.1 Volt	
18	word	4	U Bypass, T phase voltage	0.1 Volt	
19	word	4	F out output frequency	0.1Hz	
20	word	4	U Bat battery voltage	0.1 Volt	
21	word	4	I charch Bat battery charging/discharging	0.1A	
22	word	4	Temp 1 battery temperature	0.1degC	
23	word	4	Temp 2 battery temperature	0.1degC	
24	word	4	Temp 3 battery temperature	0.1degC	
25	word	4	Temp 4 battery temperature	0.1degC	
26	word	4	Temp 5 UPS shelf temperature	0.1degC	
Digital output (DO) (Function 1 to read data; 5 to control the function)					
0	bit	1 / 5	UPS Turn On		
1	bit	1 / 5	UPS Shut down		
2	bit	1 / 5	Alarm Reset		
3	bit	1 / 5	Battery Instant Charging		
4	bit	1 / 5	Battery Floating Charging		
5~10	bit	For future expansion			
After		Vendor self-definition			

Address	Type	Function	Name	Description	Length
100	U	3 / 4	OUTPOWER0	True Output Power Current Phase 1 in Kilowatt	1
101	U	3 / 4	OUTPOWER1	True Output Power Current Phase 2 in Kilowatt	1
102	U	3 / 4	OUTPOWER2	True Output Power Current Phase 3 in Kilowatt	1
103	U	3 / 4	BATTCAP	Battery Capacity in %	1
104	U	3 / 4	INVOLT0	Input Voltage Phase 1	1
105	U	3 / 4	INVOLT1	Input Voltage Phase 2	1
106	U	3 / 4	INVOLT2	Input Voltage Phase 3	1
107	U	3 / 4	TEMPDEG	Temperature in Degree C°	1
108	U	3 / 4	AUTONOMTIME	Autonomy Time in Minutes	1
109	U	3 / 4	STATUS	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below	1
110	U	3 / 4	BATTVOLT	Battery Voltage	1
111	U	3 / 4	INFREQ0	Input Frequency Phase 1 in Hz	1
112	U	3 / 4	INFREQ1	Input Frequency Phase 2 in Hz	1
113	U	3 / 4	INFREQ2	Input Frequency Phase 3 in Hz	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
116	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
117	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
118	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
119	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
120	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
121	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
122	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
123	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
124	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
125	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
126	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
127	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
128	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
129	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
130	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
131	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
132	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
133	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
134	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
135	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
136	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
137	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
138	U	3 / 4	SNMP_Alarm	Alarmit, for details please contact NEWAVE	1
139	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
140	U	3 / 4	OUTPUT_VOLT0	Output Voltage Phase 1	1
141	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 2	1
142	U	3 / 4	OUTPUT_VOLT2	Output Voltage Phase 3	1
143	U	3 / 4	OUTPUT_CURR0	Output Current Phase 1 in KW	1
144	U	3 / 4	OUTPUT_CURR1	Output Current Phase 2 in KW	1
145	U	3 / 4	OUTPUT_CURR2	Output Current Phase 3 in KW	1
146	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
147	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
148	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
149	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
150	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
151	U	3 / 4	Status_Bit	Statusbit, for details please contact NEWAVE	1
152	U	3 / 4	TEMP1	SensorManager/SM_T_H_COM Analog Value	1
153	U	3 / 4	TEMP2	SensorManager/SM_T_H_COM Analog Value	1
154	U	3 / 4	TEMP3	SensorManager Analog Value	1
155	U	3 / 4	TEMP4	SensorManager Analog Value	1
156	U	3 / 4	TEMP5	SensorManager Analog Value	1
157	U	3 / 4	TEMP6	SensorManager Analog Value	1
158	U	3 / 4	TEMP7	SensorManager Analog Value	1
159	U	3 / 4	TEMP8	SensorManager Analog Value	1
160	U	3 / 4	LOADKVA0	Load Phase 1 in KW	1
161	U	3 / 4	LOADKVA1	Load Phase 2 in KW	1

Address	Type	Function	Name	Description	Length
162	U	3 / 4	LOADKVA2	Load Phase 3 in KW	1

Section OEM: Netminder for all LT and MD types

Address	Type	Function	Name	Description	Length
100	U	3/4	INVOLT	Input Voltage	1
101	U	3/4	OUTPUTVOLT	Output Voltage	1
102	U	3/4	BATTVOLT	Battery Voltage	1
103	U	3/4	OUTPUTCURR	Output Current	1
104	U	3/4	LOADPERC	Load (%)	1
105	U	3/4	OUTPUTPOW	Output Power in W	1
106	U	3/4	KVA	KVA	1
107	U	3/4	FREQUENCY	Frequency	1
108	U	3/4	CS141UPSSTAT	CS141 UPS Status	1
109	U	3/4	Alarm: Battery Bad	1 = active; 0 = not active	1
110	U	3/4	Alarm: On Battery	1 = active; 0 = not active	1
111	U	3/4	Alarm: Battery Low	1 = active; 0 = not active	1
112	U	3/4	Alarm: Battery Depleted	1 = active; 0 = not active	1
113	U	3/4	Alarm: Overtemperature	1 = active; 0 = not active	1
114	U	3/4	Alarm: Input Bad	1 = active; 0 = not active	1
115	U	3/4	Alarm: Output Bad	1 = active; 0 = not active	1
116	U	3/4	Alarm: Output Overload	1 = active; 0 = not active	1
117	U	3/4	Alarm: On Bypass	1 = active; 0 = not active	1
118	U	3/4	Alarm: Bypass Bad	1 = active; 0 = not active	1
119	U	3/4	Alarm: Output Off As Requested	1 = active; 0 = not active	1
120	U	3/4	Alarm: UPS Off As Requested	1 = active; 0 = not active	1
121	U	3/4	Alarm: Charger Failed	1 = active; 0 = not active	1
122	U	3/4	Alarm: UPS Output Off	1 = active; 0 = not active	1
123	U	3/4	Alarm: UPS System Off	1 = active; 0 = not active	1
124	U	3/4	Alarm: Fan Failure	1 = active; 0 = not active	1
125	U	3/4	Alarm: Fuse Failure	1 = active; 0 = not active	1
126	U	3/4	Alarm: General Fault	1 = active; 0 = not active	1
127	U	3/4	Alarm: Diagnosis Test Failed	1 = active; 0 = not active	1
128	U	3/4	Alarm: Communication Lost	1 = active; 0 = not active	1
129	U	3/4	Alarm: Awaiting Power	1 = active; 0 = not active	1
130	U	3/4	Alarm: Shutdown Pending	1 = active; 0 = not active	1
131	U	3/4	Alarm: Shutdown Imminent	1 = active; 0 = not active	1
132	U	3/4	Alarm: Test In Progress	1 = active ; 0 = not active	1
133	U	3/4	AUX Port 1	1 = active (high) ; 0 = not active (low)	1
134	U	3/4	AUX Port 2	1 = active (high) ; 0 = not active (low)	1
135	U	3/4	AUX Port 3	1 = active (high) ; 0 = not active (low)	1
136	U	3/4	AUX Port 4	1 = active (high) ; 0 = not active (low)	1
137	U	3/4	SensorManager/SMTH_COM, Sensor 1	Analog Value	1
138	U	3/4	SensorManager/SMTH_COM, Sensor 2	Analog Value	1
139	U	3/4	SensorManager/Sensor 3	Analog Value	1
140	U	3/4	SensorManager/Sensor 4	Analog Value	1
141	U	3/4	SensorManager/Sensor 5	Analog Value	1
142	U	3/4	SensorManager/Sensor 6	Analog Value	1
143	U	3/4	SensorManager/Sensor 7	Analog Value	1
144	U	3/4	SensorManager/Sensor 8	Analog Value	1
145	U	3/4	Result of the last Battery Test	Value 3 = Battery Test passed, Value 4 = Battery Test failed	1

Section OEM: Netminder EON

Address	Type	Function	Name	Description	Length
11	U	3 / 4	Manufacturer	Manufacturer	1
27	U	3 / 4	Version	Version	1
43	U	3 / 4	Identification	Identification	1
75	U	3 / 4	MODEL	UPS Model	1
107	U	3 / 4	AUTONOMTIME	Autonomy time in minutes	1
108	U	3 / 4	BATTCAP	Battery capacity in percent	1
109	U	3 / 4	OUTFREQ0	Output Frequency	1
110	U	3 / 4	OUTPUTVOLTO	Output Voltage Phase 1	1
111	U	3 / 4	OUTPUTVOLT1	Output Voltage Phase 2	1

112	U	3 / 4	OUTPUTVOLT1	Output Voltage Phase 3	1
113	U	3 / 4	OUTPOWER0	Outpower Phase 1 in %	1
114	U	3 / 4	OUTPOWER1	Outpower Phase 2 in %	1
115	U	3 / 4	OUTPOWER2	Outpower Phase 3 in %	1
116	U	3 / 4	OUTPOWER0	Outpower Phase 1 in VA	1
117	U	3 / 4	OUTPOWER1	Outpower Phase 2 in VA	1
118	U	3 / 4	OUTPOWER2	Outpower Phase 3 in VA	1
119	U	3 / 4	INPUTFREQ0	Input Frequency Phase 1 in Hz	1
120	U	3 / 4	INPUTFREQ1	Input Frequency Phase 2 in Hz	1
121	U	3 / 4	INPUTFREQ2	Input Frequency Phase 3 in Hz	1
122	U	3 / 4	INPUTVOLTO	Input Voltage Phase 1 in V	1
123	U	3 / 4	INPUTVOLT1	Input Voltage Phase 2 in V	1
124	U	3 / 4	INPUTVOLT2	Input Voltage Phase 3 in V	1
125	U	3 / 4	INPUTCURR0	Input Current Phase 1 in A	1
126	U	3 / 4	INPUTCURR1	Input Current Phase 2 in A	1
127	U	3 / 4	INPUTCURR2	Input Current Phase 3 in A	1
128	U	3 / 4	INPUTPOW0	Input Power Phase 1 in W	1
129	U	3 / 4	INPUTPOW1	Input Power Phase 2 in W	1
130	U	3 / 4	INPUTPOW1	Input Power Phase 3 in W	1
131	U	3 / 4	BATTVOLT	Battery Voltage in V	1
132	U	3 / 4	BATTTEMPDEG	Battery Temperature in Degree Celsius	1
133	U	3 / 4	BATTSEC	Seconds on Battery	1
134	U	3 / 4	Battery Condition	Battery Condition	1
135	U	3 / 4	Amount of Input Phases	Amount of Input Phases	1
136	U	3 / 4	Amount of Output Phases	Amount of Output Phases	1
137	U	3 / 4	Results of Battery Test	1:Ok, 2: Active, 3: Canceled, 4: Failed, else: not started yet	1
138	U	3 / 4	Powerfail	Powerfail	1
139	U	3 / 4	System Shutdown	System Shutdown	1
140	U	3 / 4	UPSMAN started	UPSMAN started	1
141	U	3 / 4	UPS Connection lost	UPS connection lost	1
142	U	3 / 4	UPS Battery old	UPS Battery old	1
143	U	3 / 4	Load >80%	Load >80%	1
144	U	3 / 4	Load >90%	Load >90%	1
145	U	3 / 4	Overload	Overload	1
146	U	3 / 4	Overtemperature Condition	Overtemperature Condition	1
147	U	3 / 4	Bypass on	Bypass on	1
148	U	3 / 4	Battery low	Battery low	1
149	U	3 / 4	Batteries are weak	Batteries are weak	1
150	U	3 / 4	General Alarm Condition	General Alarm Condition	1
151	U	3 / 4	Input Bad Condition	Input Bad Condition	1
152	U	3 / 4	Output Bad Condition	Output Bad Condition	1
153	U	3 / 4	Bypass Not Available	Bypass Not Available	1
154	U	3 / 4	Low Battery Shutdown	Low Battery Shutdown	1
155	U	3 / 4	System off	System off	1
156	U	3 / 4	System Shutdown	System Shutdown	1
157	U	3 / 4	Charger Failure	Charger Failure	1
158	U	3 / 4	Manual Restart Required	Manual Restart Required	1
159	U	3 / 4	Output Circuit Breaker Open	Output Circuit Breaker Open	1
160	U	3 / 4	Remote Emergency Power off	Remote Emergency Power off	1
161	U	3 / 4	Shutdown imminent	Shutdown imminent	1

Section OEM: Netminder for all other types

Address	Type	Function	Name	Description	Length
100	U	3/4	INVOLT	Input Voltage (I1-n)	1
101	U	3/4	INVOLT	Input Voltage (I2-n)	1
102	U	3/4	INVOLT	Input Voltage (I1-2)	1
103	U	3/4	OUTPUTVOLT	Output Voltage (I1-n)	1
104	U	3/4	OUTPUTVOLT	Output Voltage (I2-n)	1
105	U	3/4	OUTPUTVOLT	Output Voltage (I1-2)	1
106	U	3/4	OUTPUTCURR	Output Current (I1-n)	1
107	U	3/4	OUTPUTCURR	Output Current (I2-n)	1
108	U	3/4	OUTPUTWAT	Output Watts (I1-n)	1
109	U	3/4	OUTPUTWAT	Output Watts (I2-n)	1
110	U	3/4	OUTPUTWAT	Output Watts (I1-2)	1
111	U	3/4	OUTPUTWATTOT	Output watts (total)	1
112	U	3/4	OUTPUTVA	Output VA (I1-n)	1
113	U	3/4	OUTPUTVA	Output VA (I2-n)	1

114	U	3/4	OUTPUTVA	Output VA (I1-I2)	1
115	U	3/4	OUTPUTVATOT	Output VA (total)	1
116	U	3/4	OUTPUTLOAD	Output Load (I1-n)	1
117	U	3/4	OUTPUTLOAD	Output Load (I2-n)	1
118	U	3/4	OUTPUTFREQ	Output Frequency	1
119	U	3/4	BATTVOLT	Battery Voltage	1
120	U	3/4	PERCBATT	Percentage Battery	1
121	U	3/4	DCCHARGECURR	DC Charging Current	1
122	U	3/4	CS141UPSSTAT	CS141 UPS Status	1
123	U	3/4	Alarm: Battery Bad	1 = active; 0 = not active	1
124	U	3/4	Alarm: On Battery	1 = active; 0 = not active	1
125	U	3/4	Alarm: Battery Low	1 = active; 0 = not active	1
126	U	3/4	Alarm: Battery Depleted	1 = active; 0 = not active	1
127	U	3/4	Alarm: Overtemperature	1 = active; 0 = not active	1
128	U	3/4	Alarm: Input Bad	1 = active; 0 = not active	1
129	U	3/4	Alarm: Output Bad	1 = active; 0 = not active	1
130	U	3/4	Alarm: Output Overload	1 = active; 0 = not active	1
131	U	3/4	Alarm: On Bypass	1 = active; 0 = not active	1
132	U	3/4	Alarm: Bypass Bad	1 = active; 0 = not active	1
133	U	3/4	Alarm: Output Off As Requested	1 = active; 0 = not active	1
134	U	3/4	Alarm: UPS Off As Requested	1 = active; 0 = not active	1
135	U	3/4	Alarm: Charger Failed	1 = active; 0 = not active	1
136	U	3/4	Alarm: UPS Output Off	1 = active; 0 = not active	1
137	U	3/4	Alarm: UPS System Off	1 = active; 0 = not active	1
138	U	3/4	Alarm: Fan Failure	1 = active; 0 = not active	1
139	U	3/4	Alarm: Fuse Failure	1 = active; 0 = not active	1
140	U	3/4	Alarm: General Fault	1 = active; 0 = not active	1
141	U	3/4	Alarm: Diagnosis Test Failed	1 = active; 0 = not active	1
142	U	3/4	Alarm: Communication Lost	1 = active; 0 = not active	1
143	U	3/4	Alarm: Awaiting Power	1 = active; 0 = not active	1
144	U	3/4	Alarm: Shutdown Pending	1 = active; 0 = not active	1
145	U	3/4	Alarm: Shutdown Imminent	1 = active; 0 = not active	1
146	U	3/4	Alarm: Test In Progress	1 = active; 0 = not active	1
147	U	3/4	AUX Port 1	1 = active (high) ; 0 = not active (low)	1
148	U	3/4	AUX Port 2	1 = active (high) ; 0 = not active (low)	1
149	U	3/4	AUX Port 3	1 = active (high) ; 0 = not active (low)	1
150	U	3/4	AUX Port 4	1 = active (high) ; 0 = not active (low)	1
151	U	3/4	Sensormngr 1 / SMT_COM,	Analog Value	1
152	U	3/4	Sensormngr 2 /SMTH_COM,	Analog Value	1
153	U	3/4	SensorManager/Sensor 3	Analog Value	1
154	U	3/4	SensorManager/Sensor 4	Analog Value	1
155	U	3/4	SensorManager/Sensor 5	Analog Value	1
156	U	3/4	SensorManager/Sensor 6	Analog Value	1
157	U	3/4	SensorManager/Sensor 7	Analog Value	1
158	U	3/4	SensorManager/Sensor 8	Analog Value	1
159	U	3/4	Result of the last Battery Test	Value 3 = Battery Test passd Value 4 = Battery Test failed	1

Section OEM : AEG Protect 3. M 2.0

Address	Type	Function	Name	Description	Length
100	U	3/4	(SNMPALARMS&0x6102)==0	Normal Operation	1
101	U	3/4	(SNMPALARMS&0x100)>>8	On Bypass	1
102	U	3/4	(SNMPALARMS&0x2)>>1	On Battery	1
103	U	3/4	(SNMPALARMS&0x4000)>>14	UPS System Off	1
104	U	3/4	(SNMPALARMS&0x20000)>>17	General Fault	1
105	U	3/4	(SNMPALARMS&0x80000)>>19	Communication Lost	1
106	U	3/4	(SNMPALARMS&0x20)>>5	Input Bad	1
107	U	3/4	(SNMPALARMS&0x1000)>>12	Charger Failed	1
108	U	3/4	(SNMPALARMS&0x1)	Battery Bad	1
109	U	3/4	(SNMPALARMS&0x40)>>6	Output Bad	1
110	U	3/4	(SNMPALARMS&0x200)>>9	Bypass Bad	1
111	U	3/4	(SNMPALARMS&0x4)>>2	Low Battery	1
				Depleted Battery	
112	U	3/4	(SNMPALARMS&0x8)>>3		1
113	U	3/4	(SNMPALARMS&0x10)>>4	Temperature Bad	1
114	U	3/4	(SNMPALARMS&0x80)>>7	Output Overload	1
115	U	3/4	(SNMPALARMS&0x8000)>>15	Fan Failure	1
116	U	3/4	(SNMPALARMS&0x2000)>>13	UPS Output Off	1
117	U	3/4	AUX1STATE	1 = active (high) ; 0 = not active (low)	1

118	U	3/4	AUX2STATE	1 = active (high) ; 0 = not active (low)	1
119	U	3/4	AUX3STATE	1 = active (high) ; 0 = not active (low)	1
120	U	3/4	AUX4STATE	1 = active (high) ; 0 = not active (low)	1
121	U	3/4	AMBTEMP		1
122	U	3/4	INFREQ0	Input Frequency Hz Phase 1	1
123	U	3/4	INVOLT0	Input Voltage Phase 1 V	1
124	U	3/4	INVOLT1	Input Voltage Phase 2 V	1
125	U	3/4	INVOLT1	Input Voltage Phase 3 V	1
126	U	3/4	INCURR0	Input Current Phase 1 in Ampere	1
127	U	3/4	INCURR1	Input Current Phase 2 in Ampere	1
128	U	3/4	INCURR2	Input Current Phase 3 in Ampere	1
129	U	3/4	EX_BYP_FREQ		1
130	U	3/4	EX_BYP_VOLT0		1
131	U	3/4	EX_BYP_VOLT1		1
132	U	3/4	EX_BYP_VOLT2		1
133	U	3/4	(EX_BATT_VOLTNEG+EX_BATT_VOLTPOS)*10.0		1
134	U	3/4	(EX_BATT_CURRNNEG+EX_BATT_CURRPOS)*5.0		1
135	U	3/4	MIN(ftoi(BATTCAP),ftoi(EX_BATT_CAPNEG))		1
136	U	3/4	AUTONOMTIME	Autonomy Time Minutes	1
137	U	3/4	TEMPDEG	Temperature C°	1
138	U	3/4	OUTFREQ0	Output Frequency Hz	1
139	U	3/4	OUTPUT_VOLT0	Output Voltage Phase 1 V	1
140	U	3/4	OUTPUT_VOLT1	Output Voltage Phase 2 V	1
141	U	3/4	OUTPUT_VOLT2	Output Voltage Phase 3 V	1
142	U	3/4	OUTPOWER0	Outpower Phase 1 %	1
143	U	3/4	OUTPOWER1	Outpower Phase 2 %	1
144	U	3/4	OUTPOWER2	Outpower Phase 3 %	1
145	U	3/4	EX_OUT_CURR0		1
146	U	3/4	EX_OUT_CURR1		1
147	U	3/4	EX_OUT_CURR2		1
148	U	3/4	EX_OUT_WATT0		1
149	U	3/4	EX_OUT_WATT1		1
150	U	3/4	EX_OUT_WATT2		1

Section OEM: AEG Protect 3.31, 5.31, 8.31

Address	Type	Function	Name	Description	Length
100	U	3/4	(FKTSTATUS&0x4102)==0	Normal Operation	1
101	U	3/4	SNMPALARMS&0x100>>8	On Bypass	1
102	U	3/4	(SNMPALARMS&0x2)>>1	On Battery	1
103	U	3/4	(SNMPALARMS&0x4000)>>14	UPS System Off	1
104	U	3/4	CNT_PF	Powerfail Counter	1
105	U	3/4	(SNMPALARMS&0x20000)>>17	General Fault	1
106	U	3/4	(SNMPALARMS&0x80000)>>19	Communication Lost	1
107	U	3/4	(SNMPALARMS&0x20)>>5	Input Bad	1
108	U	3/4	(SNMPALARMS&0x1000)>>12	Charger Failed	1
109	U	3/4	(SNMPALARMS&0x1)	Battery Bad	1
110	U	3/4	(SNMPALARMS&0x40)>>6	Output Bad	1
111	U	3/4	(SNMPALARMS&0x200)>>9	Bypass Bad	1
112	U	3/4	(SNMPALARMS&0x4)>>2	Low Battery	1
113	U	3/4	(SNMPALARMS&0x8)>>3	Depleted Battery	1
114	U	3/4	(SNMPALARMS&0x10)>>1	Temperature Bad	1
115	U	3/4	(SNMPALARMS&0x80)>>7	Output Overload	1
116	U	3/4	(SNMPALARMS&0x8000)>>15	Fan Failure	1
117	U	3/4	(SNMPALARMS&0x2000)>>13	UPS Output Off	1
118	U	3/4	AUX1STATE	State AUX Port 1 1 = active (high) ; 0 = not active (low)	1
119	U	3/4	AUX2STATE	State AUX Port 2 1 = active (high) ; 0 = not active (low)	1
120	U	3/4	AUX3STATE	State AUX Port 3 1 = active (high) ; 0 = not active (low)	1
121	U	3/4	AUX4STATE	State AUX Port 4 1 = active (high) ; 0 = not active (low)	1
122	U	3/4	INFREQ0*10.0	Input Frequency Hz Phase 1	1
123	U	3/4	INVOLT0	Input Voltage Phase 1 V	1
124	U	3/4	INVOLT1	Input Voltage Phase 2 V	1
125	U	3/4	INVOLT2	Input Voltage Phase 3 V	1
126	U	3/4	BP_FREQ0*10.0	Output Frequency [Hz]	1
127	U	3/4	BP_VOLT0	Bypass Voltage Phase 1 V	1

128	U	3/4	BATTVOLT*10.0	Battery Voltage [V] x 10	1
129	U	3/4	SOLABATT*10.0	Battery Current [A] x 10	1
130	U	3/4	AUTONOMTIME	Autonomy Time in Minutes	1
131	U	3/4	BATTCAP	Battery Capacity	1
132	U	3/4	TEMPDEG*10.0	Temperature [°C] x 10	1
133	U	3/4	OUTFREQ0*10.0	Output Frequency [Hz] x 10	1
134	U	3/4	OUTPUT_VOLT0	Output Voltage Phase 1 [V]	1
135	U	3/4	OUTPOWER0	Outpower Phase 1 [%]	1
136	U	3/4	OUTPUT_CUR0	Output Current Phase 1 [A]	1
137	U	3/4	OUTPUT_POW0	Outpower Phase 1 [W]	1

Section OEM: AEG Protect 2.33, 3.33, 4.33, 5.33, 8.33, blue

Address	Type	Function	Name	Description	Length
100	U	3/4	(FKTSTATUS&0x4102)==0	Normal Operation	1
101	U	3/4	(SNMPALARMS&0x100)>>8	On Bypass	1
102	U	3/4	(SNMPALARMS&0x2)>>1	On Battery	1
103	U	3/4	(SNMPALARMS&0x4000)>>14	UPS System Off	1
104	U	3/4	CNT_PF	Powerfail Counter	1
105	U	3/4	(SNMPALARMS&0x20000)>>17	General Fault	1
106	U	3/4	(SNMPALARMS&0x80000)>>19	Communication Lost	1
107	U	3/4	(SNMPALARMS&0x20)>>5	Input Bad	1
108	U	3/4	(SNMPALARMS&0x1000)>>12	Charger Failed	1
109	U	3/4	(SNMPALARMS&0x1)	Battery Bad	1
110	U	3/4	(SNMPALARMS&0x40)>>6	Output Bad	1
111	U	3/4	(SNMPALARMS&0x200)>>9	Bypass Bad	1
112	U	3/4	(SNMPALARMS&0x4)>>2	Low Battery	1
113	U	3/4	(SNMPALARMS&0x8)>>3	Depleted Battery	1
114	U	3/4	(SNMPALARMS&0x10)>>4	Temperature Bad	1
115	U	3/4	(SNMPALARMS&0x80)>>7	Output Overload	1
116	U	3/4	(SNMPALARMS&0x8000)>>15	Fan Failure	1
117	U	3/4	(SNMPALARMS&0x2000)>>13	UPS Output Off	1
118	U	3/4	AUX1STATE	State AUX Port 1 1 = active (high) ; 0 = not active (low)	1
119	U	3/4	AUX2STATE	State AUX Port 2 1 = active (high) ; 0 = not active (low)	1
120	U	3/4	AUX3STATE	State AUX Port 3 1 = active (high) ; 0 = not active (low)	1
121	U	3/4	AUX4STATE	State AUX Port 4 1 = active (high) ; 0 = not active (low)	1
122	U	3/4	INFREQ0*10.0	Input Frequency Hz Phase 1	1
123	U	3/4	INVOLTO	Input Voltage Phase 1 V	1
124	U	3/4	INVOLT1	Input Voltage Phase 2 V	1
125	U	3/4	INVOLT2	Input Voltage Phase 3 V	1
126	U	3/4	BP_FREQ0*10.0	Output Frequency [Hz]	1
127	U	3/4	BP_VOLTO	Bypass Voltage Phase 1 [V]	1
128	U	3/4	BP_VOLT1	Bypass Voltage Phase 2 [V]	1
129	U	3/4	BP_VOLT2	Bypass Voltage Phase 3 [V]	1
130	U	3/4	BATTVOLT*10.0	Battery Voltage [V] x 10	1
131	U	3/4	SOLABATT*10.0	Battery Current [A] x 10	1
132	U	3/4	AUTONOMTIME	Autonomy Time in Minutes	1
133	U	3/4	BATTCAP	Battery Capacity	1
134	U	3/4	TEMPDEG*10.0	Temperature [°C] x 10	1
135	U	3/4	OUTFREQ0*10.0	Output Frequency [Hz] x 10	1
136	U	3/4	OUTPUT_VOLT0	Output Voltage Phase 1 [V]	1
137	U	3/4	OUTPOWER0	Outpower Phase 1 [%]	1
138	U	3/4	OUTPUT_CUR0	Output Current Phase 1 [A]	1
139	U	3/4	OUTPUT_POW0	Outpower Phase 1 [W]	1
140	U	3/4	OUTPUT_VOLT1	Output Voltage Phase 2 [V]	1
141	U	3/4	OUTPOWER1	Outpower Phase 2 [%]	1
142	U	3/4	OUTPUT_CUR1	Output Current Phase 2 [A]	1
143	U	3/4	OUTPUT_POW1	Outpower Phase 2 [W]	1
144	U	3/4	OUTPUT_VOLT2	Output Voltage Phase 3 [V]	1
145	U	3/4	OUTPOWER2	Outpower Phase 3 [%]	1
146	U	3/4	OUTPUT_CUR2	Output Current Phase 3 [A]	1
147	U	3/4	OUTPUT_POW2	Outpower Phase 3 [W]	1

Section OEM: POWERTRONIX

Adress	Name	MIZAR ALCOR	QUASAR	SUPERNOVAE
100	Outpower Phase 1 %	x	x	x
101	Outpower Phase 2 %	x	x	x
102	Outpower Phase 3 %	x	x	x
103	Battery Capacity %	x	x	x
104	Input Voltage Phase 1 V	x	x	x
105	Input Voltage Phase 2 V	x	x	x
106	Input Voltage Phase 3 V	x	x	x
107	Temperature °C	not supported	x	x
108	Autonomy Time minutes	x	x	x
109	UPS Status (ASCII Hex)	x	x	x
110	Battery Voltage V	x	x	x
111	Input Frequency Phase 1 Hz	not supported	x	not supported
112	Input Frequency Phase 2 Hz	not supported	x	not supported
113	Input Frequency Phase 3 Hz	not supported	x	not supported
114	Powerfail Counter	x	x	x
115	Alarm: Battery Bad	x	x	x
116	Alarm: On Battery	x	x	x
117	Alarm: Battery Low	not supported	not supported	x
118	Alarm: Battery Depleted	x	not supported	x
119	Alarm: Overtemperature	x	not supported	x
120	Alarm: Input Bad	x	x	x
121	Alarm: Output Bad	not supported	x	not supported
122	Alarm: Output Overload	x	x	x
123	Alarm: On Bypass	x	x	x
124	Alarm: Bypass Bad	x	x	x
125	Alarm: Output Off As Requested	x	x	x
126	Alarm: UPS Off As Requested	x	x	x
127	Alarm: Charger Failed		x	x
128	Alarm: UPS Output Off	x	x	x
129	Alarm: UPS Sytem Off	not supported	x	not supported
130	Alarm: Fan Failure	x	not supported	x
131	Alarm: Fuse Failure	not supported	not supported	not supported
132	Alarm: General Fault	x	x	x
133	Alarm: Diagnose Test Failed	not supported	not supported	not supported
134	Alarm: Communication Lost	x	x	x
135	Alarm: Awaiting Power	not supported	not supported	not supported
136	Alarm: Shutdown Pending	not supported	not supported	not supported
137	Alarm: Shutdown Imminent	not supported	not supported	not supported
138	Alarm: Test In Progress	x	not supported	not supported
139	AUX Port 1	x	x	x
140	AUX Port 2	x	x	x

141	AUX Port 3	x	x	x
142	AUX Port 4	x	x	x

Section OEM: Socomec UPS

Address	Type	Function	Name	Description	Length
97	U	3 / 4	OUTPUT_VOLT0	Output Voltage Phase 1 in V	1
98	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 2 in V	1
99	U	3 / 4	OUTPUT_VOLT2	Output Voltage Phase 3 in V	1
100	U	3 / 4	OUTPOWER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1
105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4	STATUS	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below (e. g. UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	1
110	S	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	Alarm: Battery Bad	1 = active; 0 = not active	1
116	U	3 / 4	Alarm: On Battery	1 = active; 0 = not active	1
117	U	3 / 4	Alarm: Battery Low	1 = active; 0 = not active	1
118	U	3 / 4	Alarm: Battery Depleted	1 = active; 0 = not active	1
119	U	3 / 4	Alarm: Over temperature	1 = active; 0 = not active	1
120	U	3 / 4	Alarm: Input Bad	1 = active; 0 = not active	1
121	U	3 / 4	Alarm: Output Bad	1 = active; 0 = not active	1
122	U	3 / 4	Alarm: Output Overload	1 = active; 0 = not active	1
123	U	3 / 4	Alarm: On Bypass	1 = active; 0 = not active	1
124	U	3 / 4	Alarm: Bypass Bad	1 = active; 0 = not active	1
125	U	3 / 4	Alarm: Output Off as requested.	1 = active; 0 = not active	1
126	U	3 / 4	Alarm: UPS Off as requested.	1 = active; 0 = not active	1
127	U	3 / 4	Alarm: Charger Failed	1 = active; 0 = not active	1
128	U	3 / 4	Alarm: UPS Output Off	1 = active; 0 = not active	1
129	U	3 / 4	Alarm: UPS System Off	1 = active; 0 = not active	1
130	U	3 / 4	Alarm: Fan Failure	1 = active; 0 = not active	1
131	U	3 / 4	Alarm: fuse failure	1 = active; 0 = not active	1
132	U	3 / 4	Alarm: general fault	1 = active; 0 = not active	1
133	U	3 / 4	Alarm: diagnosis test failed	1 = active; 0 = not active	1
134	U	3 / 4	Alarm: communication lost	1 = active; 0 = not active	1
135	U	3 / 4	Alarm: awaiting power	1 = active; 0 = not active	1
136	U	3 / 4	Alarm: shutdown pending	1 = active; 0 = not active	1
137	U	3 / 4	Alarm: shutdown imminent	1 = active; 0 = not active	1
138	U	3 / 4	Alarm: test in progress	1 = active; 0 = not active	1
139	U	3 / 4	AUX Port 1	1 = active (high), 0 = not active (low)	1
140	U	3 / 4	AUX Port 2	1 = active (high), 0 = not active (low)	1
141	U	3 / 4	AUX Port 3	1 = active (high), 0 = not active (low)	1
142	U	3 / 4	AUX Port 4	1 = active (high), 0 = not active (low)	1
143	U	3 / 4	Sensormanager/SMTCOM sensor 1	Analog value	1
144	U	3 / 4	Sensormanager/SMTHCOM sensor 2	Analog value	1
145	U	3 / 4	Sensormanager sensor 3	Analog value	1
146	U	3 / 4	Sensormanager sensor 4	Analog value	1
147	U	3 / 4	Sensormanager sensor 5	Analog value	1
148	U	3 / 4	Sensormanager sensor 6	Analog value	1
149	U	3 / 4	Sensormanager sensor 7	Analog value	1
150	U	3 / 4	Sensormanager sensor 8	Analog value	1
151	U	3 / 4	INCURR0	Input Current Phase 1	1
152	U	3 / 4	INCURR1	Input Current Phase 2	1
153	U	3 / 4	INCURR2	Input Current Phase 3	1
154	U	3 / 4	OUTFREQ0	Output Frequency Phase 1	1

Address	Type	Function	Name	Description	Length
155	U	3 / 4	EX_OUT_CURR0	External Output Current Phase 1	1
156	U	3 / 4	EX_OUT_CURR1	External Output Current Phase 2	1
157	U	3 / 4	EX_OUT_CURR2	External Output Current Phase 3	1

Section MHD Modular / Multimatic Modular / AEG Protect 1. Modular, ENIGMA

Address	Type	Function	Name	Description	Length
100	U	3 / 4	OUTPOWER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1
105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4	STATUS (e. g. UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	UPS Status (ASCII HEX), please note UPSMAN status bytes table below	1
110	U	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	(SNMPALARMS&0x1)	Alarm Battery Bad	1
116	U	3 / 4	(SNMPALARMS&0x2)>>1	Alarm: On Battery	1
117	U	3 / 4	(SNMPALARMS&0x4)>>2	Alarm: Battery Low	1
118	U	3 / 4	(SNMPALARMS&0x8)>>3	Alarm: Battery Depleted	1
119	U	3 / 4	(SNMPALARMS&0x10)>>4	Alarm: Over temperature	1
120	U	3 / 4	(SNMPALARMS&0x20)>>5	Alarm: Input Bad	1
121	U	3 / 4	(SNMPALARMS&0x40)>>6	Alarm: Output Bad	1
122	U	3 / 4	(SNMPALARMS&0x80)>>7	Alarm: Output Overload	1
123	U	3 / 4	(SNMPALARMS&0x100)>>8	Alarm: On Bypass	1
124	U	3 / 4	(SNMPALARMS&0x200)>>9	Alarm: Bypass Bad	1
125	U	3 / 4	(SNMPALARMS&0x400)>>10	Alarm: Output Off as requested.	1
126	U	3 / 4	(SNMPALARMS&0x800)>>11	Alarm: UPS Off as requested.	1
127	U	3 / 4	(SNMPALARMS&0x1000)>>12	Alarm: Charger Failed	1
128	U	3 / 4	(SNMPALARMS&0x2000)	Alarm: UPS Output Off	1

Address	Type	Function	Name	Description	Length
>>13					
129	U	3 / 4	(SNMPALARMS&0x4000)	Alarm: UPS System Off	1
			>>14		
130	U	3 / 4	(SNMPALARMS&0x8000)	Alarm: Fan Failure	1
			>>15		
131	U	3 / 4	(SNMPALARMS&0x1000 0)>>1	Alarm: fuse failure	1
132	U	3 / 4	(SNMPALARMS&0x2000 0)>>1	Alarm: general fault	1
133	U	3 / 4	(SNMPALARMS&0x4000 0)>>1	Alarm: diagnose test failed	1
134	U	3 / 4	(SNMPALARMS&0x8000 0)>>1	Alarm: communication lost	1
135	U	3 / 4	(SNMPALARMS&0x1000 00)>>	Alarm: awaiting power	1
136	U	3 / 4	(SNMPALARMS&0x2000 00)>>	Alarm: shutdown pending	1
137	U	3 / 4	(SNMPALARMS&0x4000 00)>>	Alarm: shutdown imminent	1
138	U	3 / 4	(SNMPALARMS&0x8000 00)>>	Alarm: test in progress	1
139	U	3 / 4	AUX1STATE	AUX Port 1	1
140	U	3 / 4	AUX2STATE	AUX Port 2	1
141	U	3 / 4	AUX3STATE	AUX Port 3	1
142	U	3 / 4	AUX4STATE	AUX Port 4	1
143	U	3 / 4	TEMP1	Sensormanager/SMTCOM sensor 1	1
144	U	3 / 4	TEMP2	Sensormanager/SMTHCOM sensor 2	1
145	U	3 / 4	TEMP3	Sensormanager sensor 3	1
146	U	3 / 4	TEMP4	Sensormanager sensor 4	1
147	U	3 / 4	TEMP5	Sensormanager sensor 5	1
148	U	3 / 4	TEMP6	Sensormanager sensor 6	1
149	U	3 / 4	TEMP7	Sensormanager sensor 7	1
150	U	3 / 4	TEMP8	Sensormanager sensor 8	1
151	U	3 / 4	AEESerModulePresent(1)	Status data, for details contact Effekta	1
152	U	3 / 4	AEESerModulePresent(2)	Status data, for details contact Effekta	1
153	U	3 / 4	AEESerModulePresent(3)	Status data, for details contact Effekta	1
154	U	3 / 4	AEESerModulePresent(4)	Status data, for details contact Effekta	1
155	U	3 / 4	AEESerModulePresent(5)	Status data, for details contact Effekta	1
156	U	3 / 4	AEESerModulePresent(6)	Status data, for details contact Effekta	1
157	U	3 / 4	AEESerModuleError(1,1)	Status data, for details contact Effekta	1
158	U	3 / 4	AEESerModuleError(1,2)	Status data, for details contact Effekta	1

Address	Type	Function	Name	Description					Length			
				Effekta								
159	U	3 / 4	AEESerModuleError(1,3)	Status	data,	for	details	contact	1			
				Effekta								
160	U	3 / 4	AEESerModuleError(1,4)	Status	data,	for	details	contact	1			
				Effekta								
161	U	3 / 4	AEESerModuleError(2,1)	Status	data,	for	details	contact	1			
				Effekta								
162	U	3 / 4	AEESerModuleError(2,2)	Status	data,	for	details	contact	1			
				Effekta								
163	U	3 / 4	AEESerModuleError(2,3)	Status	data,	for	details	contact	1			
				Effekta								
164	U	3 / 4	AEESerModuleError(2,4)	Status	data,	for	details	contact	1			
				Effekta								
165	U	3 / 4	AEESerModuleError(3,1)	Status	data,	for	details	contact	1			
				Effekta								
166	U	3 / 4	AEESerModuleError(3,2)	Status	data,	for	details	contact	1			
				Effekta								
167	U	3 / 4	AEESerModuleError(3,3)	Status	data,	for	details	contact	1			
				Effekta								
168	U	3 / 4	AEESerModuleError(3,4)	Status	data,	for	details	contact	1			
				Effekta								
169	U	3 / 4	AEESerModuleError(4,1)	Status	data,	for	details	contact	1			
				Effekta								
170	U	3 / 4	AEESerModuleError(4,2)	Status	data,	for	details	contact	1			
				Effekta								
171	U	3 / 4	AEESerModuleError(4,3)	Status	data,	for	details	contact	1			
				Effekta								
172	U	3 / 4	AEESerModuleError(4,4)	Status	data,	for	details	contact	1			
				Effekta								
173	U	3 / 4	AEESerModuleError(5,1)	Status	data,	for	details	contact	1			
				Effekta								
174	U	3 / 4	AEESerModuleError(5,2)	Status	data,	for	details	contact	1			
				Effekta								
175	U	3 / 4	AEESerModuleError(5,3)	Status	data,	for	details	contact	1			
				Effekta								
176	U	3 / 4	AEESerModuleError(5,4)	Status	data,	for	details	contact	1			
				Effekta								
177	U	3 / 4	AEESerModuleError(6,1)	Status	data,	for	details	contact	1			
				Effekta								
178	U	3 / 4	AEESerModuleError(6,2)	Status	data,	for	details	contact	1			
				Effekta								
179	U	3 / 4	AEESerModuleError(6,3)	Status	data,	for	details	contact	1			
				Effekta								
180	U	3 / 4	AEESerModuleError(6,4)	Status	data,	for	details	contact	1			
				Effekta								
181	U	3 / 4	AEESerModuleWarning(1)	Status	data,	for	details	contact	1			
				Effekta								
182	U	3 / 4	AEESerModuleWarning(2)	Status	data,	for	details	contact	1			
				Effekta								
183	U	3 / 4	AEESerModuleWarning(3)	Status	data,	for	details	contact	1			
				Effekta								

Address	Type	Function	Name	Description	Length
184	U	3 / 4	AEESerModuleWarning(4)	Status data, for details contact Effekta	1
185	U	3 / 4	AEESerModuleWarning(5)	Status data, for details contact Effekta	1
186	U	3 / 4	AEESerModuleWarning(6)	Status data, for details contact Effekta	1
187	U	3 / 4	AEESerModuleState(1)	Status data, for details contact Effekta	1
188	U	3 / 4	AEESerModuleState(2)	Status data, for details contact Effekta	1
189	U	3 / 4	AEESerModuleState(3)	Status data, for details contact Effekta	1
190	U	3 / 4	AEESerModuleState(4)	Status data, for details contact Effekta	1
191	U	3 / 4	AEESerModuleState(5)	Status data, for details contact Effekta	1
192	U	3 / 4	AEESerModuleState(6)	Status data, for details contact Effekta	1
193	U	3 / 4	AEESerModuleVolt(1)	Status data, for details contact Effekta	1
194	U	3 / 4	AEESerModuleVolt(2)	Status data, for details contact Effekta	1
195	U	3 / 4	AEESerModuleVolt(3)	Status data, for details contact Effekta	1
196	U	3 / 4	AEESerModuleVolt(4)	Status data, for details contact Effekta	1
197	U	3 / 4	AEESerModuleVolt(5)	Status data, for details contact Effekta	1
198	U	3 / 4	AEESerModuleVolt(6)	Status data, for details contact Effekta	1
199	U	3 / 4	AEESerModuleCurr(1)	Status data, for details contact Effekta	1
200	U	3 / 4	AEESerModuleCurr(2)	Status data, for details contact Effekta	1
201	U	3 / 4	AEESerModuleCurr(3)	Status data, for details contact Effekta	1
202	U	3 / 4	AEESerModuleCurr(4)	Status data, for details contact Effekta	1
203	U	3 / 4	AEESerModuleCurr(5)	Status data, for details contact Effekta	1
204	U	3 / 4	AEESerModuleCurr(6)	Status data, for details contact Effekta	1
205	U	3 / 4	seconbat	Time on Battery [sec.]	1
206	U	3 / 4	OUTPUT_VOLT0	Output Voltage [V]	1
207	U	3 / 4	E_OUTPOWER*10.0	Enigma total output power [KW]	1
208	U	3 / 4	E_OUTCPOWER*10.0	Enigma total output compl. power [KVA]	1

Section Borri 4000 Std. Panel / E-Tec 310 to 380 (m) / SALICRU SLC NX/DL/CUBE

Address	Type	Function	Name	Description	Length
1	U	3 / 4	Manufacturer	Manufacturer	1
17	U	3 / 4	Version	Version	1
33	U	3 / 4	Identification	Identification	1
65	U	3 / 4	Model	Model	1
97	U	3 / 4	AUTONOMTIME	Autonomy time in minutes	1
98	U	3 / 4	BATTCAP	Battery capacity in percent	1
99	U	3 / 4	OUTPUT	Output Source 0 Mains, 1 Battery, 2 Bypass	1
100	U	3 / 4	OUTFREQ0	Output Frequency	1
101	U	3 / 4	SOLAWROV0	Outputvoltage Phase 1 in V	1
102	U	3 / 4	SOLAWROV1	Outputvoltage Phase 2 in V	1
103	U	3 / 4	SOLAWROV2	Outputvoltage Phase 3 in V	1
104	U	3 / 4	SOLAWROC0	Output Current Phase 1 in A	1
105	U	3 / 4	SOLAWROC1	Output Current Phase 2 in A	1
106	U	3 / 4	SOLAWROC2	Output Current Phase 3 in A	1
107	U	3 / 4	OUTPOWER0	Outpower Phase 1 %	1
108	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
109	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
110	U	3 / 4	SOLSETEMPBAD	Temperature bad	1
111	U	3 / 4	SOLSEINPUTBAD	Input bad	1
112	U	3 / 4	SOLSEOVERLOAD	Overload	1
113	U	3 / 4	SOLSEBYPASSFAULT	Bypass fault	1
114	U	3 / 4	SOLSECHARGERFAULT	Charger fault	1
115	U	3 / 4	SOLSEGNERALFAULT	General fault	1
116	U	3 / 4	SOLSESDEPENDING	Shutdown pending	1
117	U	3 / 4	SOLSETESTRESULT	Test result	1
118	U	3 / 4	(SNMPALARMS&0x80000)>>19	Communication Lost Alarm	1
119	U	3 / 4	INFREQ0	Input Frequency Phase 1 in Hz	1
120	U	3 / 4	INFREQ1	Input Frequency Phase 2 in Hz	1
121	U	3 / 4	INFREQ2	Input Frequency Phase 3 in Hz	1
122	U	3 / 4	INVOLT0	Input Voltage Phase 1 in V	1
123	U	3 / 4	INVOLT1	Input Voltage Phase 2 in V	1
124	U	3 / 4	INVOLT2	Input Voltage Phase 3 in V	1
125	U	3 / 4	INCURR0	Input Current Phase 1 in A	1
126	U	3 / 4	INCURR1	Input Current Phase 2 in A	1
127	U	3 / 4	INCURR2	Input Current Phase 3 in A	1
128	U	3 / 4	EX_BYP_VOLT0	Bypass Voltage Phase 1 in V	1
129	U	3 / 4	EX_BYP_VOLT1	Bypass Voltage Phase 2 in V	1
130	U	3 / 4	EX_BYP_VOLT2	Bypass Voltage Phase 3 in V	1
131	U	3 / 4	EX_BYP_CURR0	Bypass Current Phase 1 in A	1
132	U	3 / 4	EX_BYP_CURR1	Bypass Current Phase 2 in A	1
133	U	3 / 4	EX_BYP_CURR2	Bypass Current Phase 3 in A	1
134	U	3 / 4	EX_BYP_WATT0	Bypass Power Phase 1 [W]	1
135	U	3 / 4	EX_BYP_WATT1	Bypass Power Phase 2 [W]	1
136	U	3 / 4	EX_BYP_WATT2	Bypass Power Phase 3 [W]	1
137	U	3 / 4	EX_BYP_FREQ0	Bypass Frequency [Hz]	1
138	U	3 / 4	EX_INP_WATT0	Input Power Phase 1 [W]	1
139	U	3 / 4	EX_INP_WATT1	Input Power Phase 2 [W]	1
140	U	3 / 4	EX_INP_WATT2	Input Power Phase 3 [W]	1
141	U	3 / 4	BATTVOLT	Battery Voltage [V]	1
142	U	3 / 4	TEMPDEG	Temperature [°C]	1
143	U	3 / 4	EX_BATT_SECONBATT	Time on Battery [sec.]	1
144	U	3 / 4	EX_BATT_CURRPOS	positive battery current [A]	1
145	U	3 / 4	BATTCONDITION	Flags for battery condition	1
146	U	3 / 4	INPHASES	amount of Phases at Input	1
147	U	3 / 4	OUTPHASES	amount of Phases at Output	1
148	U	3 / 4	SOLABATTIC	Battery Current [A]	1

Section Inform UPS / Pyramid DSP/Online DSP

Address	Type	Function	Name	Description	Length
100	U	3 / 4	OUTPOWER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery Capacity %	1
104	S	3 / 4	INVOLT0	Input Voltage Phase 1 V	1

105	S	3 / 4	INVOLT1	Input Voltage Phase 2 V	1
106	S	3 / 4	INVOLT2	Input Voltage Phase 3 V	1
107	S	3 / 4	TEMPDEG	Temperature C°	1
108	S	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4	STATUS UPS normal = "4", Powerfail = "12", Battery test running = "68", Bypass = "5")	UPS Status (ASCII HEX) Please note UPSMAN status bytes table below	1
110	S	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	Alarm Battery Bad	1 = active; 0 = not active	1
116	U	3 / 4	Alarm: On Battery	1 = active; 0 = not active	1
117	U	3 / 4	Alarm: Battery Low	1 = active; 0 = not active	1
118	U	3 / 4	Alarm: Battery Depleted	1 = active; 0 = not active	1
119	U	3 / 4	Alarm: Over temperature	1 = active; 0 = not active	1
120	U	3 / 4	Alarm: Input Bad	1 = active; 0 = not active	1
121	U	3 / 4	Alarm: Output Bad	1 = active; 0 = not active	1
122	U	3 / 4	Alarm: Output Overload	1 = active; 0 = not active	1
123	U	3 / 4	Alarm: On Bypass	1 = active; 0 = not active	1
124	U	3 / 4	Alarm: Bypass Bad	1 = active; 0 = not active	1
125	U	3 / 4	Alarm: Output Off as requested.	1 = active; 0 = not active	1
126	U	3 / 4	Alarm: UPS Off as requested.	1 = active; 0 = not active	1
127	U	3 / 4	Alarm: Charger Failed	1 = active; 0 = not active	1
128	U	3 / 4	Alarm: UPS Output Off	1 = active; 0 = not active	1
129	U	3 / 4	Alarm: UPS System Off	1 = active; 0 = not active	1
130	U	3 / 4	Alarm: Fan Failure	1 = active; 0 = not active	1
131	U	3 / 4	Alarm: fuse failure	1 = active; 0 = not active	1
132	U	3 / 4	Alarm: general fault	1 = active; 0 = not active	1
133	U	3 / 4	Alarm: diagnose test failed	1 = active; 0 = not active	1
134	U	3 / 4	Alarm: communication lost	1 = active; 0 = not active	1
135	U	3 / 4	Alarm: awaiting power	1 = active; 0 = not active	1
136	U	3 / 4	Alarm: shutdown pending	1 = active; 0 = not active	1
137	U	3 / 4	Alarm: shutdown imminent	1 = active; 0 = not active	1
138	U	3 / 4	Alarm: test in progress	1 = active; 0 = not active	1
139	U	3 / 4	AUX Port 1	1 = active (high), 0 = not active (low)	1
140	U	3 / 4	AUX Port 2	1 = active (high), 0 = not active (low)	1
141	U	3 / 4	AUX Port 3	1 = active (high), 0 = not active (low)	1
142	U	3 / 4	AUX Port 4	1 = active (high), 0 = not active (low)	1
143	U	3 / 4	Sensormanager/SMTCOM sensor 1	Analog value	1
144	U	3 / 4	Sensormanager/SMTHCOM sensor 2	Analog value	1
145	U	3 / 4	Sensormanager sensor 3	Analog value	1
146	U	3 / 4	Sensormanager sensor 4	Analog value	1
147	U	3 / 4	Sensormanager sensor 5	Analog value	1
148	U	3 / 4	Sensormanager sensor 6	Analog value	1
149	U	3 / 4	Sensormanager sensor 7	Analog value	1
150	U	3 / 4	Sensormanager sensor 8	Analog value	1
151	U	3 / 4	OUTPUT_VOLT0	Outputvoltage Phase 1	1
152	U	3 / 4	OUTPUT_VOLT1	Outputvoltage Phase 2	1
153	U	3 / 4	OUTPUT_VOLT2	Outputvoltage Phase 3	1
154	U	3 / 4	OUTPUT_CURRENT0	Output Current Phase 1 in Ampere *10	1
155	U	3 / 4	OUTPUT_CURRENT1	Output Current Phase 2 in Ampere *10	1
156	U	3 / 4	OUTPUT_CURRENT2	Output Current Phase 3 in Ampere *10	1

Section Transfer Switches (All Transfer Switch vendors, except PILLER, STS TUMEL)

Address	Type	Function	Name	Description	Length
1	U	3 / 4	Sources Asynchronous	Warning, input current difference, switching might not be possible	1
2	U	3 / 4	Static Switch A Failure	Alarm, switching failure	1
3	U	3 / 4	Static Switch B Failure	Alarm, switching failure	1
4	U	3 / 4	On Static Switch A	Supplied from input A	1
5	U	3 / 4	On Static Switch B	Supplied from input B	1
6	U	3 / 4	On Manual Bypass A	Supplied via bypass from input A	1
7	U	3 / 4	On Manual Bypass A	Supplied via bypass from input B	1
8	U	3 / 4	Source A Failure	Alarm, input A failure, problem with voltage	1

9	U	3 / 4	Source B Failure	Alarm, input B failure, problem with voltage	1
10	U	3 / 4	General Fault	General alarm	1
11	U	3 / 4	Redundancy Lost	Redundancy lost,	1
12	U	3 / 4	Output Overload	To much load	1
13	U	3 / 4	Output Failure	Output failure	1

Section STS TUMEL Transfer Switch

Address	Type	Function	Name	Description	Length
100	U	3 / 4	INPVOLT_NET_10	Input Voltage	1
101	U	3 / 4	INPVOLT_NET_11	Input Voltage	1
102	U	3 / 4	INPVOLT_NET_12	Input Voltage	1
103	U	3 / 4	INFREQ_NET_1	Input Frequency	1
104	U	3 / 4	INPVOLT_NET_20	Input Voltage	1
105	U	3 / 4	INPVOLT_NET_21	Input Voltage	1
106	U	3 / 4	INPVOLT_NET_22	Input Voltage	1
107	U	3 / 4	INFREQ_NET_2	Input Frequency	1
108	U	3 / 4	STS_SYNCANGLE		1
109	U	3 / 4	STS_SYNDIFF		1
110	U	3 / 4	STS_S1BALANCE		1
111	U	3 / 4	STS_S2BALANCE		1
112	U	3 / 4	TEMPDEG	Temperature in degrees C°	1
113	U	3 / 4	OUTPUT_VOLT0	Output Voltage Phase 1	1
114	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 2	1
115	U	3 / 4	OUTPUT_VOLT1	Output Voltage Phase 3	1
116	U	3 / 4	EX_OUT_CURR0		1
117	U	3 / 4	EX_OUT_CURR1		1
118	U	3 / 4	EX_OUT_CURR2		1
119	U	3 / 4	OUTPOWER0	Output Power Phase 1	1
120	U	3 / 4	OUTPOWER1	Output Power Phase 2	1
121	U	3 / 4	OUTPOWER2	Output Power Phase 3	1

Section OEM TRIMOD

Address	Type	Function	Name	Description	Length
100	U	3 / 4	OUTPOWER0	Outpower Phase 1 %	1
101	U	3 / 4	OUTPOWER1	Outpower Phase 2 %	1
102	U	3 / 4	OUTPOWER2	Outpower Phase 3 %	1
103	U	3 / 4	BATTCAP	Battery capacity in percent	1
104	U	3 / 4	INVOLT0	Input Voltage Phase 1 in V	1
105	U	3 / 4	INVOLT1	Input Voltage Phase 2 in V	1
106	U	3 / 4	INVOLT2	Input Voltage Phase 3 in V	1
107	U	3 / 4	TEMPDEG	Temperature C°	1
108	U	3 / 4	AUTONOMTIME	Autonomy Time minutes	1
109	U	3 / 4	STATUS	GENEREX UPS status	1
110	U	3 / 4	BATTVOLT	Battery Voltage V	1
111	U	3 / 4	INFREQ0	Input Frequency Hz Phase 1	1
112	U	3 / 4	INFREQ1	Input Frequency Hz Phase 2	1
113	U	3 / 4	INFREQ2	Input Frequency Hz Phase 3	1
114	U	3 / 4	CNT_PF	Powerfail Counter	1
115	U	3 / 4	(SNMPALARMS&0x1)	Alarmbit,contact legrand / Meta	1
116	U	3 / 4	(SNMPALARMS&0x2)>>1	Alarmbit,contact legrand / Meta	1
117	U	3 / 4	(SNMPALARMS&0x4)>>2	Alarmbit,contact legrand / Meta	1
118	U	3 / 4	(SNMPALARMS&0x8)>>3	Alarmbit,contact legrand / Meta	1
119	U	3 / 4	(SNMPALARMS&0x10)>>	Alarmbit,contact legrand / Meta	1
120	U	3 / 4	(stoi(TRIMOD_STATUS)&0x8)	Alarmbit,contact legrand / Meta	1
121	U	3 / 4	(CBSER2ALARM&0x40)>>6	Alarmbit,contact legrand / Meta	1
122	U	3 / 4	(SNMPALARMS&0x80)>>7	Alarmbit,contact legrand / Meta	1
123	U	3 / 4	(SNMPALARMS&0x100)>>8	Alarmbit,contact legrand / Meta	1
124	U	3 / 4	(stoi(TRIMOD_STATUS)&0x8)	Alarmbit,contact legrand / Meta	1
125	U	3 / 4	(SNMPALARMS&0x2000)>>13	Alarmbit,contact legrand / Meta	1
126	U	3 / 4	(SNMPALARMS&0x4000)>>14	Alarmbit,contact legrand / Meta	1
127	U	3 / 4	(SNMPALARMS&0x1000)>>12	Alarmbit,contact legrand / Meta	1
128	U	3 / 4	(SNMPALARMS&0x2000)>>13	Alarmbit,contact legrand / Meta	1
129	U	3 / 4	(SNMPALARMS&0x4000)>>14	Alarmbit,contact legrand / Meta	1
130	U	3 / 4	(SNMPALARMS&0x8000)>>15	Alarmbit,contact legrand / Meta	1
131	U	3 / 4	(SNMPALARMS&0x10000)>>16	Alarmbit,contact legrand / Meta	1

132	U	3 / 4	(SNMPALARMS&0x20000)>>17	Alarmbit,contact legrand / Meta	1
133	U	3 / 4	(stoi(CP_TESTRESULT)==2)	Alarmbit,contact legrand / Meta	1
134	U	3 / 4	(SNMPALARMS&0x80000)>>19	Alarmbit,contact legrand / Meta	1
135	U	3 / 4	(SNMPALARMS&0x100000)>>20	Alarmbit,contact legrand / Meta	1
136	U	3 / 4	(CBSER2ALARM&0x200000)>>2	Alarmbit,contact legrand / Meta	1
137	U	3 / 4	(CBSER2ALARM&0x400000)>>2	Alarmbit,contact legrand / Meta	1
138	U	3 / 4	(SNMPALARMS&0x800000)>>23	Alarmbit,contact legrand / Meta	1
139	U	3 / 4	(stoi(TRIMOD_STATUS)&0x10)	Alarmbit,contact legrand / Meta	1
140	U	3 / 4	OUTPUT_VOLT0	Outputvoltage Phase 1	1
141	U	3 / 4	OUTPUT_VOLT1	Outputvoltage Phase 2	1
142	U	3 / 4	OUTPUT_VOLT2	Outputvoltage Phase 3	1
143	U	3 / 4	TRIMOD_OUTCURR0*10.0	Output Current 1	1
144	U	3 / 4	TRIMOD_OUTCURR1*10.0	Output Current 2	1
145	U	3 / 4	TRIMOD_OUTCURR2*10.0	Output Current 3	1
152	U	3 / 4	TEMP1	Sensorman. sensor 1 / SMTCOM	1
153	U	3 / 4	TEMP2	Sensorman. sensor 2 / SMTHCOM	1
154	U	3 / 4	TEMP3	Sensormanager sensor 3	1
155	U	3 / 4	TEMP4	Sensormanager sensor 4	1
156	U	3 / 4	TEMP5	Sensormanager sensor 5	1
157	U	3 / 4	TEMP6	Sensormanager sensor 6	1
158	U	3 / 4	TEMP7	Sensormanager sensor 7	1
159	U	3 / 4	TEMP8	Sensormanager sensor 8	1
160	U	3 / 4	TRIMOD_OUTACTPWR0/1000.0	Output Phase 1	1
161	U	3 / 4	TRIMOD_OUTACTPWR1/1000.0	Output Phase 2	1
162	U	3 / 4	TRIMOD_OUTACTPWR2/1000.0	Output Phase 3	1
163	U	3 / 4	AUX1STATE	AUX Port 1	1
164	U	3 / 4	AUX2STATE	AUX Port 2	1
165	U	3 / 4	AUX3STATE	AUX Port 3	1
166	U	3 / 4	AUX4STATE	AUX Port 4	1

Section: EverExceed Inverter

Address	Type	Function	Name	Description	Length
100	U	3 / 4	TEMPDEG	Temperature in Degrees	1
101	U	3 / 4	INFREQ0	Line frequency	1
102	U	3 / 4	INVOLTO	Line voltage	1
103	U	3 / 4	OUTFREQ0	Frequency	1
104	U	3 / 4	OUTPUT_VOLT0	Output voltage	1
105	U	3 / 4	EX_OUT_VA0	Output power	1
106	U	3 / 4	STATUS	GENEREX UPS status (see below)	1
107	U	3 / 4	EX_EXTSTATUS	Alarm information	1
108	U	3 / 4	STATUS&1	Bypass mode, 1 = on, 0 = off	1
109	U	3 / 4	(STATUS&0x02)>>2	Output active, 1 = on, 0 = off	1
110	U	3 / 4	(STATUS&0x100)>>8	Overload, 1 = on, 0 = off	1
111	U	3 / 4	(STATUS&0x2000)>>13	General alarm, 1 = on, 0 = off	1

UPS Status EverExceed	Hex-Value	Dec-Value	Description
UPS_SB_BYPASS_MODE	0x0001	1	Bypass mode
UPS_SB_OUTPUT_ACT	0x0004	4	Output active
UPS_SB_OUTPUT_HIGH	0x0100	256	Overload
UPS_SB_UPS_FAILED	0x2000	8192	General alarm

Other OEM's : See OEM MODBUS Defaultaddress 100 – 146 above

UPSMAN Status Bytes - Standard Device Status Bits

UPS Status	Hex-Value	Dec-Value	Description
UPS_SB_BYPASS_MODE	0x0001	1	power piped thru
UPS_SB_SHUTDOWN	0x0002	2	shutdown ups
UPS_SB_OUTPUT_ACT	0x0004	4	inverter on = UPS OK
UPS_SB_BACKUP_MODE	0x0008	8	battery power
UPS_SB_BATTERY_LOW	0x0010	16	low battery err
UPS_SB_OVER_TEMP	0x0020	32	over temp err
UPS_SB_TEST_ACT	0x0040	64	test in progress
UPS_SB_INPUT_HIGH	0x0080	128	over power err
UPS_SB_OUTPUT_HIGH	0x0100	256	over load err
UPS_SB_INVERTER_FAIL	0x0200	512	Inverter error
UPS_SB_BATTERY_BAD	0x0400	1024	Battery error
UPS_SB_ECO_MODE	0x0800	2048	eco - bypass
UPS_SB_INVERTER_WAR_N	0x1000	4096	eco - bypass
UPS_SB_UPS_FAILED	0x2000	8192	prser flag
UPS_SB_COMM_LOST	0x4000	16384	for snmp
UPS_SB_DVG_ALARM	0x8000	32768	SiteManager/SiteMonitor

Example (decimal):

STATUS= „5“ means UPS_SB_OUTPUT_ACT (4) + UPS_SB_BYPASS_MODE (1) are active ! = UPS on Bypass!

STATUS= „12“ means UPS_SB_OUTPUT_ACT (4) + UPS_SB_BACKUP_MODE (8) are active ! = UPS Powerfail!

STATUS= „22“ means UPS_SB_OUTPUT_ACT (4) + UPS_SB_BACKUP_MODE (8) + UPS_SB_BATTERY_LOW (10) are active ! = UPS Powerfail and Battery low!

STATUS= „4“ means UPS_SB_OUTPUT_ACT (4) + no other alarms = UPS OK

BACS MODBUS Parameter

Standard BACS – Address Description

Note: the max. number of BACS Modules requestable through MODBUS is 512.

Address	Type	Function	Name	Description	Length
Note:					
“Type U/S”: this defines whether the answer has an algebraic sign (math. +/-) or not. U means “unsigned”. S means “signed”, this answer may be positive or negative.					
1000	U	3 / 4	BACS_Alarm	BACS Alarm Flags (see alarm flag definition below) *4	1
1001	U	3 / 4	BACS_ALARM	BACS Alarm Flags (see alarm flag definition below) *5	1
1002	U	3 / 4	BACS_ALARM	BACS Alarm Flags (see alarm flag definition below) *6	1
1003	U	3 / 4	BACS_NUMSTRINGS	Number of BACS Strings	1
1004	U	3/4	BACS_NUMMODULES	Total number of BACS modules	1
<i>This address range describes current and voltage of each single string as configured</i>					
1010	S	3 / 4	STRING_01_CUR	String 1 current in Ampere [A]	1
1011	S	3 / 4	BACS_StrSumVolt	String 1 Overall BACS string voltage	1
1012	S	3 / 4	BACS_StrAvgVolt	String 1 Average BACS string voltage	1
1013	S	3 / 4	BACS_Str_CurrAC	String 1 BACS string current	1
1014			<RESERVED>	Do not use	
1015	S	3 / 4	STRING_02_CUR	String 2 current in Ampere [A]	1
1016	S	3 / 4	BACS_StrSumVolt	String 2 Overall BACS string voltage	1
1017	S	3 / 4	BACS_StrAvgVolt	String 2 Average BACS string voltage	1
1018	S	3 / 4	BACS_Str_CurrAC	String 2 BACS string current	1
1019			<RESERVED>	Do not use	
1020	S	3 / 4	STRING_03_CUR	String 3 current in Ampere [A]	1
1021	S	3 / 4	BACS_StrSumVolt	String 3 Overall BACS string voltage	1
1022	S	3 / 4	BACS_StrAvgVolt	String3 Average BACS string voltage	1
1023	S	3 / 4	BACS_Str_CurrAC	String 3 BACS string current	1
1024			<RESERVED>	Do not use	
[...]	[...]	[...]	<i>[...Continue modbus string count until address ...]</i>		[...]
1055	S	3 / 4	STRING_10_CUR	String 10 current in Ampere [A]	1
1056	S	3 / 4	BACS_StrSumVolt	String 10 Overall BACS string voltage	1
1057	S	3 / 4	BACS_StrAvgVolt	String 10 Average BACS string voltage	1
1058	S	3 / 4	BACS_Str_CurrAC	String 10 BACS string current	1
1059			<RESERVED>	Do not use	
<i>This address range describes the BACS module modbus address range for module 1-330:</i>					
<i>Each module section contains 5 measuring values. There is no reserved address between the modules!</i>					
1060	S	3 / 4	MODULE_001_TEMP	Module 1 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
1061	S	3 / 4	MODULE_001_VOLT	Module 1 Voltage in Volt [V] *2	1
1062	S	3 / 4	MODULE_001_IMPC	Module 1 Impedance in milliOhm [mΩ] *3	1
1063	U	3 / 4	MODULE_001_ALARM	Module 1 Alarm flags *6	1

1064	S	3 7 4	Module_001_ModBypVoltPc	Module 1 Exuqlizing / Balancing in %	1
1065	S	3 / 4	MODULE_002_TEMP	Module 2 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
1066	S	3 / 4	MODULE_002_VOLT	Module 2 Voltage in Volt [V] *2	1
1067	S	3 / 4	MODULE_002_IMPC	Module 2 Impedance in milliOhm [mΩ] *3	1
1068	U	3 / 4	MODULE_002_ALARM	Module 2 Alarm flags *6	1
1069	S	3 7 4	Module_002_ModBypVoltPc	Module 2 Exuqlizing / Balancing in %	1
1070	S	3 / 4	MODULE_003_TEMP	Module 3 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
1071	S	3 / 4	MODULE_003_VOLT	Module 3 Voltage in Volt [V] *2	1
1072	S	3 / 4	MODULE_003_IMPC	Module 3 Impedance in milliOhm [mΩ] *3	1
1073	U	3 / 4	MODULE_003_ALARM	Module 3 Alarm flags *6	1
1074	S	3 7 4	Module_003_ModBypVoltPc	Module 3 Exuqlizing / Balancing in %	1
[...]	[...]	[...]	...Continue modbus BACS module count until address ...		
2705	S	3 / 4	MODULE_330_TEMP	Module 330 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
2706	S	3 / 4	MODULE_330_VOLT	Module 330 Voltage in Volt [V] *2	1
2707	S	3 / 4	MODULE_330_IMPC	Module 330 Impedance in milliOhm [mΩ] *3	1
2708	U	3 / 4	MODULE_330_ALARM	Module 330 Alarm flags *6	1
2709	S	3 / 4	Module_330_ModBypVoltPc	Module 330 <DESCRIPTION>	1
The following address range describes single string current and voltage for BACS strings 11-16					
2710	S	3 / 4	STRING_11_CUR	String 11 current in Ampere [A]	1
2711			<RESERVED>	Reserved, do not use	
2712			<RESERVED>	Reserved, do not use	
2713	S	3 / 4	String_11_AC	String 11 voltage	1
2714			<RESERVED>	Reserved, do not use	
2715	S	3 / 4	STRING_12_CUR	String 12 current in Ampere [A]	1
2716			<RESERVED>	Reserved, do not use	
2717			<RESERVED>	Reserved, do not use	
2718	S		String_12_AC	String 12 voltage	1
2719			<RESERVED>	Reserved, do not use	
...Continue modbus BACS String count until address ...		
2735	S	3 / 4	STRING_16_CUR	String 16 current in Ampere [A]	1
2736			<RESERVED>	Reserved, do not use	
2737			<RESERVED>	Reserved, do not use	
2738	S		String_12_AC	String 12 voltage	1
2739			<RESERVED>	Reserved, do not use	
This address range describes the BACS module modbus address range for module 331-512: Each module section contains 5 measuring values. There is no reserved address between the modules!					
2740	S	3 / 4	MODULE_331_TEMP	Module 331 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1

2741	S	3 / 4	MODULE_331_VOLT	Module 331 Voltage in Volt [V] *2	1
2742	S	3 / 4	MODULE_331_IMPC	Module 331 Impedance in milliOhm [$m\Omega$] *3	1
2743	U	3 / 4	MODULE_331_ALARM	Module 331 Alarm flags *6	1
2744	S	3 / 4	Module_331_ModBypVoltPc	Module 331 Exuqlizing / Balancing in %	1
2745	S	3 / 4	MODULE_332_TEMP	Module 332 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
2746	S	3 / 4	MODULE_332_VOLT	Module 332 Voltage in Volt [V] *2	1
2747	S	3 / 4	MODULE_332_IMPC	Module 332 Impedance in milliOhm [$m\Omega$] *3	1
2748	U	3 / 4	MODULE_332_ALARM	Module 332 Alarm flags *6	1
2749	S	3 / 4	Module_332_ModBypVoltPc	Module 332 Exuqlizing / Balancing in %	1
...	<i>[...Continue modbus BACS module count until address ...]</i>		
3645	S	3 / 4	MODULE_512_TEMP	Module 512 Temperature in Celsius [°C] (see Temfjasdfashfklashf) *1	1
3646	S	3 / 4	MODULE_512_VOLT	Module 512 Voltage in Volt [V] *2	1
3647	S	3 / 4	MODULE_512_IMPC	Module 512 Impedance in milliOhm [$m\Omega$] *3	1
3648	U	3 / 4	MODULE_512_ALARM	Module 512 Alarm flags *6	1
3649	S	3 / 4	Module_512_ModBypVoltPc	Module 512 Exuqlizing / Balancing in %	1

Note: A value of -1 or -9999 means: This value is currently “Not available” (“N/A”).

***1 - Temperature value definition:**

$$\text{Temperature } T \text{ in } ^\circ\text{C} \quad T = \frac{X-78}{2} \quad \text{e.g. } T = \frac{128-78}{2} = 25$$

0xXX → 0 bis 255

0x7F 127 => 24,5°C

0x80 128 => 25°C

0x81 129 => 25,5°C

***2 - Voltage value definition:**

$$\text{Voltage } U \text{ in V} \quad \text{Wert / 1000}$$

$$\text{e.g. Voltage } U \text{ in V} = 12825 / 1000 = 12,825 \text{ V}$$

***3 - Impedance value definition:**

$$\text{Impedance } Z \text{ in } m\Omega \quad \text{Wert / 100}$$

$$\text{e.g. Impedance } Z \text{ in } m\Omega = 4372 / 1000 = 43,72 \text{ m}\Omega$$

***4 – Address 1000 MODBUS/SNMP** (hexadecimal) (decimal)

BACS_STATE_NONE	0x0000	0
BACS_STATE_RUNNING	0x0001	1
BACS_STATE_CONNECTED	0x0002	2
BACS_STATE_MODULE_LOST	0x0004	4
BACS_STATE_DISCHARGING	0x0008	8
BACS_STATE_CHARGING	0x0010	16
BACS_STATE_DISCHARGING_STOPPED	0x0020	32
BACS_STATE_FLOAT_CHARGING	0x0040	64
BACS_STATE_EQUALISATION	0x0080	128
BACS_STATE_SYSTEM_FAILURE	0x0100	256
BACS_STATE_VOLTAGE_OUTOFRANGE	0x0200	512
BACS_STATE_TEMPERATURE_OUTOFRANGE	0x0400	1024
BACS_STATE_RESISTOR_OUTOFRANGE	0x0800	2048
BACS_STATE_MODULE_ADDRESSING	0x1000	4096
BACS_STATE_MODULE_SEARCHING	0x2000	8192
BACS_STATE_MODULE_INITIALIZING	0x4000	16384
BACS_STATE_MODULE_POLLING	0x8000	32768

***5 – Address 1001 MODBUS/SNMP (hexadecimal) (decimal)**

BACS_STATE-GENERAL-ALARM	0x0001	1
BACS_STATE-VOLTAGE-DIFF-HIGH	0x0002	2
BACS_STATE-BATTERY-BREAKER-OPEN	0x0004	4
BACS_STATE_THERMAL_RUNAWAY	0x0008	8

***6 – Address 1002 Alarm Flags MODBUS/SNMP (hexadecimal) (decimal)**

BACS_ALARM_NONE	0x0000	0
BACS_ALARM_GENERAL_ALARM	0x0001	1
BACS_ALARM_COMMUNICATION_LOST	0x0002	2
CS_ALARM_VOLTAGE_HIGH	0x0004	4
BACS_ALARM_VOLTAGE_LOW	0x0008	8
BACS_ALARM_TEMPERATURE_HIGH	0x0010	16
BACS_ALARM_TEMPERATURE_LOW	0x0020	32
BACS_ALARM_RESISTOR_HIGH	0x0040	64
BACS_ALARM_RESISTOR_LOW	0x0080	128
BACS_ALARM_EQUALISATION_ERR	0x0100	256
BACS_ALARM_VOLTAGE_WARN_HIGH	0x0200	512
BACS_ALARM_VOLTAGE_WARN_LOW	0x0400	1024
BACS_ALARM_TEMPERATURE_WARN_HIGH	0x0800	2048
BACS_ALARM_TEMPERATURE_WARN_LOW	0x1000	4096
BACS_ALARM_RESISTOR_WARN_HIGH	0x2000	8192
BACS_ALARM_RESISTOR_WARN_LOW	0x4000	16384
BACS_ALARM_MODREV_INCOMPATIBLE	0x8000	32768

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