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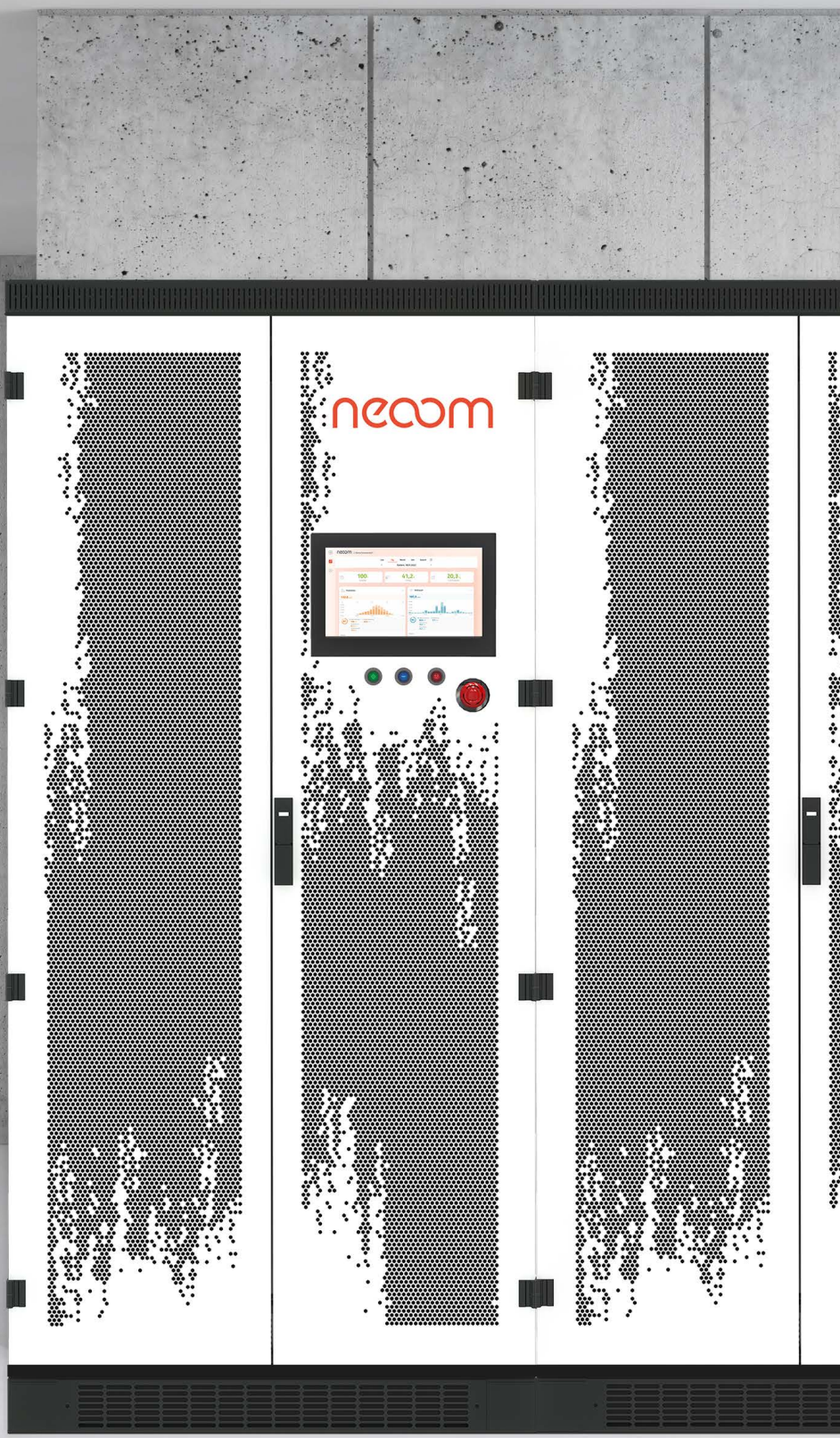

BLOKK Light NEA

MANUAL

Error list

Welcome to the world of renewable energies!

We congratulate you on purchasing your new neoom product. Not only are you contributing to the energy transition, but you have also chosen a high-quality device made in Austria. We want to make it as easy as possible for you to get started and have summarized all the important information for you in this manual.

Have fun with your investment in a sustainable future.

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1 Introduction

Thank you for choosing the BLOKK Light NEA electric storage unit (hereinafter referred to as BLOKK). neoom international gmbh (hereinafter referred to as neoom) produces high-quality products that are state-of-the-art and, when properly installed and operated properly, will provide electrical energy from environmentally friendly sources for many years.

This document lists all errors and other information required to rectify an error in your system.

To avoid misunderstandings between the product manuals of the individual components and the BLOKK Light NEA, the error list is provided in English only.

☞ If you need assistance with troubleshooting, you can contact neoom customer service. All contact options can be found in chapter 1.4 „Customer support" in the BLOKK Light NEA manual.

2 Security

Troubleshooting is carried out using the error list and may only be performed by authorized and trained electricians who have read and understood the BLOKK Light NEA manual in full. For better traceability, the execution of the instruction must be documented.

When rectifying faults, always wear the protective equipment mentioned in the respective chapter and observe all safety and hazard information in the BLOKK Light NEA manual.

☞ If troubleshooting requires decommissioning, dismantling, disassembly or replacement of the BLOKK system, follow the steps in chapters 16 and 17 of the BLOKK Light NEA manual.

3 Error lists

The error list can be called up on the touch panel of the master BLOKK (neoom CONNECT user interface and off-grid visualization).

Depending on the error, however, it may be necessary to check the display of the inverter, the LEDs on the MBMS or the BMS and to examine the individual error lists of the individual components.

☞ To access the error list, see Chapter 20 "Troubleshooting" and for operating instructions see Chapter 19 "Operation and operating modes" in the BLOKK Light NEA manual.

3.1 Touchpanel

Use the following table to identify and troubleshoot system errors:

i **{Numbers} in the table are parameters of the software.**

ID	Severity	Text	Remedy
1	Error	Emergency stop active.	Release emergency stop button.
2	Error	External emergency stop active.	Release and reset emergency stop in connected system (e.g. fire alarm system)
3	Error	Emergency stop active, waiting for reset.	Press reset to restart operation.
4	Critical	Unexpected fatal error	Contact neoom support.
5	Critical	Unexpected critical error	Contact neoom support.
6	Error	Unexpected error	Contact neoom support.
7	Critical	Error at IO-terminal {0}	Check IO-terminal connection problem or faults.
8	Critical	IO-terminal error {0}	Check IO-terminals for faults.
9	Critical	BLOKK power switch not tripped although trigger condition is active.	Check power switch and electrical connection.
10	Error	BLOKK power switch tripped due to overcurrent.	Check power switch settings and BLOKK components for damage.
11	Error	RCD auxiliary power supply tripped.	Check auxilary power supply for ground faults.
12	Error	Circuit breaker auxiliary power supply tripped.	Check auxilary power supply for defects.

13	Error	Power supply 24V/12V not operational.	Check auxilary power supply webserver for diagnosis.
14	Warning	Circuit breaker cabinet support plug 230V tripped.	Disconnect and check device at cabinet support plug and close circuit breaker.
15	Warning	Circuit breaker cabinet fan supply tripped.	Check cabinet fan for defects.
16	Error	Circuit breaker measurement voltage BLOKK before power switch tripped.	Check EL3443 for defects.
17	Error	Circuit breaker measurement grid voltage tripped.	Check EL3443 for defects.
18	Error	Circuit breaker trafo and PEN relay actuator tripped.	Check for electrical defects at the trafo and PEN relay.
19	Warning	Over voltage protection device fault.	Exchange overvoltage protection device.
20	Error	Residual current detected.	Check for ground faults and reset if everything is okay.
21	Critical	The grid protection relais power switch closed during offgird mode.	Check for electrical defects at grid and system protection device.
22	Error	Transformer and PEN switch opened in offgrid mode.	Check trafo and PEN relais for defects.
23	Error	Offgrid shutdown due to overvoltage.	Contact neoom support.
24	Error	Unknown offgrid failure.	Contact neoom support.
25	Error	Maximal number of restarts in case of failures in the offgrid mode exceeded.	Disconnect consumers and retry by pressing the Reset button.

26	Info	Grid and system protection: mains disconnection.	Contact energy provider in case of persiting problem.
27	Info	Grid and system protection: mains disconnection due to overvoltage.	Contact energy provider in case of persiting problem.
28	Info	Grid and system protection: mains disconnection due to under voltage	Contact energy provider in case of persiting problem.
29	Info	Grid and system protection: mains disconnection due to over frequency	Contact energy provider in case of persiting problem.
30	Info	Grid and system protection: mains disconnection due to under frequency	Contact energy provider in case of persiting problem.
31	Warning	UPS battery is low.	Start offgrid mode to recharge or shutdown BLOKK to safe UPS power.
32	Info	UPS is operating on battery, grid power not available	
33	Error	UPS error active	Check auxilary power supply webserver for diagnosis.
34	Warning	Temperature of offgrid transformator core is high.	Balance load of single phase consumers over three phases.
35	Error	Temperature of offgrid transformator core is above upper operation limit.	Wait for transformator to cool down. Balance load of single phase consumers over three phases.
36	Error	Temperature within master cabinet is above upper operation limit.	Reduce room temperature.
37	Warning	Temperature within master cabinet is high.	Reduce room temperature.
38	Warning	Temperature within master cabinet is below lower operation limit.	Increase room temperature.

39	Error	Relative humidity within master cabinet is above upper operation limit.	Reduce ambient humidity.
40	Warning	Relative humidity within master cabinet is high.	Reduce ambient humidity.
41	Warning	Relative humidity within master cabinet is below lower operation limit.	Increase ambient humidity.
42	Error	Temperature within inverter cabinet {0} is above upper operation limit.	Reduce room temperature.
43	Warning	Temperature within inverter cabinet {0} is high.	Reduce room temperature.
44	Warning	Temperature within inverter cabinet {0} is below lower operation limit.	Increase room temperature.
49	Error	No inverter operational.	Check for inverter warnings with more details.
50	Warning	Inverter {0} state indicates a problem. Check inverter state for diagnosis.	Check inverter display for error code.
51	Warning	Inverter {0} overload detected. Inverter may shut down on further operation	Shut down power consumers in offgrid mode.
52	Warning	Inverter {0} shutdown because of overload.	Shut down power consumers in offgrid mode.
53	Warning	Inverter {0} detected a leakage current.	Check for ground fault in DC circuit of inverter and battery.
54	Info	Active power feed in limit (ripple control) level 1 is active (limit: {0}%).	
55	Info	Active power feed in limit (ripple control) level 2 is active (limit: {0}%).	

56	Info	Active power feed in limit (ripple control) level 3 is active (limit: {0}%).	
57	Warning	Smart meter connection problem. Peak-Shaving and Self-Consumption Optimization impossible.	Check smart meter and network connection.
58	Warning	UPS Connection Timeout.	
59	Warning	MBMS connection timeout.	Check MBMS state and network connection.
60	Warning	Inverter {0} connection timeout.	Check inverter state, MBMS state and network connection.
61	Error	Timeout on closing the offgrid trafo and PEN switch	Check trafo and PEN switch and electrical connections.
62	Error	Timeout on opening the offgrid trafo and PEN switch.	Check trafo and PEN switch and electrical connections.
63	Error	Timeout on enabling an inverter.	Check inverter display for error code.
64	Warning	Timeout on enabling inverter {0}.	Check inverter display for error code.
65	Warning	Timeout on disabling an inverter.	Contact neoom support.
66	Error	Timeout on closing the BLOKK power switch.	Check BLOKK power switch and electrical connection for defects.
67	Error	Timeout on opening the BLOKK power switch.	Check BLOKK power switch and electrical connection for defects.
68	Error	Timeout on setting the inverters to offgrid mode	Contact neoom support.

69	Error	Timeout on setting the inverters to ongrid mode	Contact neoom support.
70	Warning	Timeout on ramping down the inverter power.	Contact neoom support.
71	Warning	Timeout on disabling the battery management system for deactivated inverters and batteries.	Contact neoom support.
72	Warning	Inverter {0}: Low SoC at offgrid startup. If no energy surplus is available within 10 minutes, the inverter will shut down.	Wait for PV inverters to provide power or stop BLOKK in case no power surplus is expected.
73	Warning	Inverter {0}: Minimal SoC for offgrid operation undercut. Inverter deactivated	Restart BLOKK with grid connection or local power surplus.
74	Warning	Inverter {0}: Maximal DC power exceeded. Inverter temporarily deactivated.	Shut down consumers to draw less power in offgrid mode.
75	Warning	Inverter {0}: Maximal SoC for offgrid operation exceeded. Inverter deactivated.	Disconnect power producers.
77	Warning	Error from battery management system at inverter {0}.	Contact neoom support.
78	Warning	Battery management system at inverter {0}: internal DC+ relay open.	Contact neoom support.
79	Error	The BLOKK SPS cofiguration value {0} is invalid.	Contact neoom support.
80	Warning	The BLOKK control settings in neoom CONNECT has all modes disabled.	Configure BLOKK in neoom CONNECT control settings.
81	Warning	The BLOKK control settings in neoom CONNECT has invalid SOC levels configure.	Check BLOKK control settings in neoom CONNECT.

82	Error	Unexpected detection of internal voltage while inverters are off.	Check inverter state and electric connection.
83	Error	Unexpected detection of voltage at BLOKK when grid protection relais should disconnect BLOKK from grid.	Check grid and system protection relais and power switch.
84	Warning	No voltage detected at BLOKK output while grid and system protection power switch is closed.	Check grid and system protection power switch feedback contact and voltage measurement.
85	Warning	No voltage detected at mains connection point while grid and system protection power switch is closed.	Check grid and system protection power switch feedback contact and voltage measurement.
86	Warning	No voltage detected at BLOKK output while ongird mode running.	Check voltage measurement.
87	Warning	No voltage detected at mains connection point while ongird mode running.	Check voltage measurement.

3.2 Inverter

You can use the following table to determine and solve the system error shown on the inverter display:

Fault codes	Fault type	Description	Advice
0	AC O/V	The voltage of power grid is higher than the set upper limit. After faults are recovered, the inverter will restart automatically.	This fault is caused by the instantaneous condition of the power grid. Waiting for a while, the inverter can return to normal. If the fault persists, please contact neoom customer support.
1	AC U/V	The voltage of power grid is lower than the set lower limit. After faults are recovered, the inverter will restart automatically.	This fault is caused by the instantaneous condition of the power grid. Waiting for a while, the inverter can return to normal. If the fault persists, please contact neoom customer support.
2	AC O/F	The frequency of power grid is higher than the set range. After faults are recovered, the inverter will restart automatically.	This fault is caused by the instantaneous condition of the power grid. Waiting for a while, the inverter can return to normal. If the fault persists, please contact neoom customer support.
3	AC U/F	The frequency of power grid is lower than the set range. After faults are recovered, the inverter will restart automatically.	This fault is caused by the instantaneous condition of the power grid. Waiting for a while, the inverter can return to normal. If the fault persists, please contact neoom customer support.
4	Ugrid unblance	The voltage of 3-phase power grid is imbalanced.	Waiting for a while, the inverter can return to normal. If the fault persists, please contact neoom customer support.
5	Grid Reverse	The phase sequence of AC power grid is inverse.	Check the grid phase sequence wiring, correct it and restart it.
6	Islanding	There is islanding in energy storage inverter.	1. Check whether the grid is reliable 2. Check that the circuit breaker is closed properly If the fault persists, contact neoom customer support.

7	Grid Switch F	Grid-tied and off-grid shifting is abnormal.	Confirm that the AC grid is disconnected when switching off-grid mode. If the fault persists, please contact neoom customer support.
8	GND fault	Leakage current detection is out of limits.	Check for ground faults, if the fault persists, please contact Sinexcel Electric Customer Service Center. If the fault persists, please contact neoom customer support.
9	Grid lock fault	Grid voltage harmonic is too large, which cause fault of phase phasing.	1. Check if the power supply is normal 2. Wait for the inverter to return to normal. If the fault persists, please contact neoom customer support.
A	Over-temp 1	The temperature of internal environment of inverter is too high.	1. Check if the fan is working 2. Check if the output power exceeds the rated value too much If the fault persists, please contact neoom customer support.
B	ON_ GRID Timeout	The grid detection time does not meet the grid connection requirements.	1. Check whether the grid voltage and frequency are within the permitted grid connection conditions 2. Check if the quantity of the parameters under the conditions of grid-connected permission is reasonable If the fault persists, please contact neoom customer support.
10	EPO	Emergency shutdown	Wait 20s after resetting the emergency stop button, the fault can be cleared automatically. If the fault persists, please contact neoom customer support.
11	Init fault	The monitoring parameter is set incorrectly.	If this fault occurs, please restart the inverter. If the fault persists, please contact neoom customer support.
12	DSP Ver A/N	DSP version error	If the fault occurs, please contact neoom customer support.

13	CPLD Ver A/N	CPLD version error	If the fault occurs, please contact neoom customer support.
14	M3 fault	Hardware version error	If the fault occurs, please contact neoom customer support.
15	CAN A fault	Internal communication failure	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
16	AuxiliaryPower F	15V Auxiliary power voltage is too low.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
17	Fan fault	Inverter internal fan failure	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
18	Ubus O/V	The DC bus voltage in the inverter is too high.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
19	Ubus U/V	During normal operation, DC bus voltage is too low.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
1A	Ubus unbalance	Voltage difference is too large between bus in the inverter.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
1C	AC relay OFF F	AC relay has a short circuit.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
1D	Uout A/N	Output voltage may be syntonic	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.

1E	Igrid unbalance	During grid connection, the difference of 3-phase current is relatively large.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
1F	Over-temp 2	The radiator temperature in inverter power module is too high.	1. Check if the fan is working 2. Clean the vents If the fault occurs repeatedly, please contact neoom customer support.
20	Inv Output O/L/T	The output overload and timeout of the inverter exceed the limit.	Reduce the load. If the fault persists, please contact neoom customer support.
21	AC continuous OV	Grid voltage abnormal oscillation	1. Check whether the grid voltage amplitude is stable within the limit value 2. Check if the continuous overvoltage limit value setting is reasonable If the fault persists, please contact neoom customer support.
22	AC soft start F	AC relay does not close properly	If the fault occurs repeatedly, please contact neoom customer support.
23	UI soft start F	Fail in the process of inverter soft start.	If the fault occurs repeatedly, please contact neoom customer support.
24	AC switch ON F	AC relay cannot be closed normally.	If the fault occurs repeatedly, please contact neoom customer support.
25	U2 fault	U2 board with U1 board communication is disconnected.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
26	DC Component F	DC component in the AC output current value exceeds 1A.	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.
27	Sampling fault	Inconsistent sampling values of master controller and slave controller	Wait for the inverter to return to normal. If the fault occurs repeatedly, please contact neoom customer support.

28	EEP-ROM1 read E	U1 board EEPROM read error during initialization	If this fault occurs, please re-power and restart the inverter. If the fault persists after repeated operation several times, please contact neoom customer support.
29	EEP-ROM2 read E	U1 board EEPROM read error during initialization.	If this fault occurs, please re-power and restart the inverter. If the fault persists after repeated operation several times, please contact neoom customer support.
2A	EEP-ROM3 read E	U1 board EEPROM read error during initialization	If this fault occurs, please re-power and restart the inverter. If the fault persists after repeated operation several times, please contact neoom customer support.
2B	Over-load	There is an overload in the AC of inverter. Load needs to be reduced. Otherwise, shutdown will occur due to timeout.	Reduce the load. If the fault persists, please contact Sinexcel Electric Customer Service Center.If the fault persists, please contact neoom customer support.
38	DC input O/V	DC input voltage is higher than the upper limit. After faults are recovered, the inverter will restart automatically.	1. Set the inverter power to discharge power to discharge the battery and decrease the battery voltage 2. Check if the charging voltage, float voltage and battery voltage upper limit are reasonable If the fault occurs repeatedly, please contact neoom customer support.
39	DC L/V	DC input voltage is lower than the lower limit. After faults are recovered, the inverter will restart automatically.	1. Check whether the battery is normally connected to the inverter 2. Set the inverter power to charge direction, charge the battery and increase the battery voltage 3. Check if the EOD voltage setting is reasonable If the fault persists, please contact neoom customer support.

3B	BMS fault	BMS sets fault flag and requires inverter shutdown	Check the BMS fault flag to find out the cause of the BMS alarm. After the BMS clears the fault flag, the fault is cleared automatically.
3C	BMS TimeOut	Inverter loses communication with BMS	1. Check whether the communication cable between the inverter and BMS is firmly connected 2. If the inverter does not need to communicate with the BMS, set the BMS timeout to 0
3D	EMS TimeOut	Inverter loses communication with EMS	1. Check whether the communication cable between the inverter and EMS is firmly connected 2. If the inverter does not need to communicate with the EMS, set the BMS timeout to 0
40	DC soft start F	Fail in the process of DC soft start.	If the fault occurs repeatedly, please contact neoom customer support.
41	DC switch OFF F	Short circuit in DC relay.	If the fault occurs repeatedly, please contact neoom customer support.
42	DC switch ON F	DC relay does not close properly.	If the fault occurs repeatedly, please contact neoom customer support.
43	Bat Output O/L/T	Power overload time in DC exceeds the limit.	If the fault occurs repeatedly, please contact neoom customer support.
44	Bus soft start F	Fail in the establishment of DC busbar.	Restart inverter, wait for the inverter to return to normal. If the fault persists, please contact neoom customer support.
45	DC fast O/A	/	If the fault occurs repeatedly, please contact neoom customer support.
48	DC O/A	DC battery has overcurrent. Load needs to be reduced. Otherwise, shutdown will occur due to overload.	Reduce load power. If the fault persists, please contact neoom customer support.

90	Setting fault	Unreasonable hardware parameter settings	Reconfigure reasonable hardware parameters. After the setting is complete, you need to power on again to clear the fault. If the fault persists, please contact neoom customer support.
91	OFF Grid U/V	Battery voltage is lower than EOD voltage in off-grid mode.	1. Set the inverter to grid mode and charge the battery 2. Check if the EOD voltage setting is reasonable
92	N Pha Lost	Inverter AC side N line is not connected.	1. Check whether the N wire on the AC side of the inverter is firmly connected 2. If the inverter does not need to connect N lines, please disable the N detection function.
93	SM Ubus O/V	During the standby process, if the grid voltage amplitude is too high will cause the internal bus voltage of the inverter is too high.	Check if the grid voltage amplitude is abnormal and wait for the inverter to return to normal.
95	F Sud-Change Flt	The frequency change rate of the grid exceeds the limit value.	Check if the grid frequency is abnormal and wait for the inverter to return to normal.
96	A Sud-Change Flt	The phase angle mutation of the grid exceeds the limit value	Check if the grid phase angle is abnormal and wait for the inverter to return to normal.

3.3 Master Battery management system

Error Code checked from MBMS(Modbus protocol Appendix IV or CAN ID 0*4250&0*4290)

Use the following table to identify and resolve MBMS system errors:

Fault No.	Content Failure Mode	Possible reason	Solution
1	All BMS offline error (Bit20)	1. Battery system over discharged 2. Comm. cable issue 3. Ethernet switch issue 4. MBMS CMU issue 5. Firmware issue	1. Check whether the batter system has been over-discharged or not via multimeter. 2. Check the comm. cables between BMS and MBMS, make sure the cable is 8PIN pin – pin CAT5 ethernet cable. If BMS and MBMS is communication via CANBUS(no ethernet switch), make sure the CANBUS physical length is less than 15m. Restart the system. 3. Check the ethernet switch condition, completely restart the system. 4. Reverse sequence connect the comm. cable between the BMSs and change the ADD address settings. Restart the system. 5. Change the MBMS CMU 6. If problem remain, contact Pylontech service engineer.
2	Emergency stop (Bit13)	Command by external device via dry contactor	Command by external device, not an error actively report by Battery system.

3	Communi-cation erro between MBMS and BMS (Bit17)	1. Battery string(s) over-discharged 2. BMS CMU error	1. Check whether the battery string(s) has been over-discharged or not via multimeter. 2. Check the comm. cables between BMS and MBMS, make sure the cable is 8PIN pin – pin CAT5 ethernet cable. If BMS and MBMS is communication via CANBUS(no ethernet switch), make sure the CANBUS physical length is less than 12m. Restart the system. 3. Reverse sequence connect the comm. cable between the BMSs and change the ADD address settings. Restart the system. 4. Change the BMS CMU or BMS 5. If problem remain, contact Pylontech service engineer.
4	Insulation fault(Bit12)	External insulation detection device reports a failure	Check the external insulation detection device.

Alarm Code checked on MBMS(Modbus protocol Appendix I-4 or CAN ID 0*4290)

Fault No.	Content Alarm definition	Possible Solution	Solution
1	BMS disconnect alarm (Alarm status 2 Bit3)	BMS disconnect due to comm. offline.	If the alarm is not continuously or frequently, the system can continuous working without issue.
		BMS disconnect due to voltage difference between multiple racks.	1. Restart the system and make a fully discharge of the system followed by a fully charge, in order to align the voltage of multiple racks.
		BMS disconnect due to BMS error.	1.Reference from Section B (1) to troubleshoot the BMS. 2.Restart the system and make a fully discharge of the system followed by a fully charge, in order to align the voltage of multiple racks.
2	BMS communication lost alarm (Alarm status 2 Bit2)	Exist BMS offline but system can continuous operation.	1.Reference from Section B (2) Bit 17 to troubleshoot the BMS and MBMS. 2.Restart the system and make a fully discharge of the system followed by a fully charge, in order to align the voltage of multiple racks.

3.4 Battery management system

Error Code checked from BMS (Modbus protocol Appendix IV or CAN ID 0*4250&0*4290). The Failure Definition and Failure Mode column is reference from Pylontech Modbus protocol Appendix IV Error code 1 bits to present.

Use the following table to identify and resolve BMS and battery module system errors:

Fault Mode	Possible Reason	Solution
Battery system do not start up after power supply and correct start up procedure	External power supply issue	1. Check external power supply condition a. Require 100 – 240Vac, 50/60Hz b. Power needed for device wake up: M1/M1C BMS – 150W M2A180 – 225W M3A100 – 360W M3A180 BMS & air fan – 1500W MBMS – 5W
	Power supply cable issue	2.Use multimeter to check the power supply cable connectivity 3. Check the connection reliability
	PMU failure	4. Open BMS case, use multimeter check PMU 12Vdc output and CMU LEDs. If neither is on, please swap the PMU.
	Other error	5. If problem remain, contact Pylontech service engineer.

Fault No.	Failure Type	Failure Definition	Possible Reason	Solution
1	External	Input RV Err (Bit4)	D+ D- reversely connected	Check the external power cables of the polarity and connection

2	External	DC OV ERR input over voltage error (Bit3)	D+ D- voltage extremely higher than battery system voltage	Check external inverter`s voltage whether match with the battery system or not.
3	External	Emergency stop (Bit13)	Command by external device via dry contactor	Command by external device, not an error actively report by Battery system.
4	Current Leakage	Current Leakage Error (Bit21)	Current Leakage >25mA	1.With insulation glove, disconnect the battery system and contact Pylontech service engineer.
5	Self-test	Self-test module Initial Error (Bit16)	Self-test failed	1. Restart 2.If problem remain, contact Pylontech service engineer.
6	Self-test	Self-test module coulomb error (Bit15)	Self-test failed	contact Pylontech service engineer
7	Self-test	Self-test module detecting amount error (Bit14)	Self-test failed	contact Pylontech service engineer.
8	Self-test	Safety check failure (Bit11)	Chip self-test failed	1.Restart 2.If problem remain, contact Pylontech service engineer.
9	Self-test	Self-test volt error (Bit10)	Battery cell voltage measurement mismatch with DCBUS voltage measurement	1. Restart 2.Check the connectivity and reliability of the power and comm. cable by reconnection. 3. Swap the current measurement board or BMS 4.If problem remain, contact Pylontech service engineer.

10	Battery cell	Battery damage error (Bit6)	Battery cell voltage measured at <2.0V	1. Restart 2. Swap out the RED LED module 3. Use multimeter to measure the battery module power terminal voltage, if is the same as the BMS reading value, then it`s a true cell damage. Otherwise please swap the BMU of the module.
11	Comm. and hardware	BMIC error (Bit8)	Sensor chip error	1. Restart 2. If observed a module LED is off, try to bypass the module on both comm. and power side and see whether rest modules` LED could be on and green. If so, then please change the BMU of the bypassed module. If not, further bypass the next LED off module and repeat the process. 3. If problem remain, contact Pylontech service engineer.
12	Comm. and hardware	Internal Comm. ERR (Bit2)	Communication offline between module and BMS	1. Check the connectivity and reliability of the comm. cable between BMS and battery modules. 2. Restart 3.If problem remain, contact Pylontech service engineer.
13	Comm. and hardware	BMU Internal bus error (Bit18)	BMU internal error	1. Change the BMU of the RED LED module. 2.If problem remain, contact Pylontech service engineer.
14	Comm. and hardware	BMS Internal bus error (Bit9)	CMU internal error or I2C issue	1. Restart 2.Change the current measurement board 3. Change the CMU or BMS. 4.If problem remain, contact Pylontech service engineer.

15	Hare-ware	Shut-down cir-cuit error (Bit7)	Cannot com-pletely switch off the system during self-pro-tection	1.Change PMU 2.If problem remain, contact Pylontech service engineer.
16	Hare-ware	Relay Er-ror (Bit5)	1.Start-up pro-cedure problem 2. Relay adhesion 3. Relay damage	1. Completely switch off inver-ter and battery system. Make sure DCBUS has no voltage. 2. Switch on each BMS first before switch on the MBMS. After the battery system finish self-test(require ~3mins), switch on the inverter. 3. Change the relay or BMS. 4.If problem remain, contact Pylontech service engineer.
17	Hare-ware	tempera-ture sen-sor error (Bit1)	1. Sensor cable issue 2. Sensor connec-tion issue	1.Change the RED LED modu-le`s BMU 2. Check the temp. sensor cable connect between BMU and battery pack of the con-nectivity 3. Change the RED LED module. 4.If problem remain, contact Pylontech service engineer.
18	Hare-ware	voltage sensor error (Bit0)	1. Sensor cable issue 2. Sensor connec-tion issue 3.BMU issue	1.Change the RED LED modu-le`s BMU 2. Check the voltage sensor cable connect between BMU and battery pack of the con-nectivity 3. Change the RED LED module. 4.If problem remain, contact Pylontech service engineer.