



NetSure™ 7100 and 8100, PowerDirect 7100

DC Power Systems with NCU

Table of Set Values

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Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit <https://www.vertiv.com/support/> for additional assistance.

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Admonishments Used in this Document



DANGER! Warns of a hazard the reader ***will*** be exposed to that will ***likely*** result in death or serious injury if not avoided. (ANSI, OSHA)



WARNING! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



CAUTION! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



ALERT! Alerts the reader to an action that ***must be avoided*** in order to protect equipment, software, data, or service. (ISO)



ALERT! Alerts the reader to an action that ***must be performed*** in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Important Safety Instructions

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page iv.

General Safety



DANGER! YOU MUST FOLLOW APPROVED SAFETY PROCEDURES.

Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards.

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other metal objects.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present. Check for voltage with both AC and DC voltmeters prior to making contact.



NOTE! Always verify that your voltmeter is in good condition by testing it towards a recognized supply.

- d) Wear eye protection.
- e) Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed.
- f) This equipment is not suitable for use in locations where children are likely to be present.
- g) This product is intended only for installation in a Restricted Access Location.
- h) Only authorized and properly trained personnel should be allowed to install, inspect, operate, or maintain the equipment.
- i) Do not work on LIVE parts. If required to work or operate live parts, obtain appropriate Energized Work Permits as required by the local authority or by other national building codes and local regulations.

Voltages

Hazardous Voltage



DANGER! HAZARD OF ELECTRICAL SHOCK.

More than one disconnect may be required to de-energize the system before servicing.

AC Input Voltages



DANGER! This system operates from AC input voltage capable of producing fatal electrical shock. AC input power must be completely disconnected from the branch circuits wiring used to provide power to the system before any AC electrical connections are made. Follow local lockout/tagout procedures to ensure upstream branch circuit breakers remain de-energized during installation. DO NOT apply AC input power to the system until all electrical connections have been completed and checked.

DC Output



DANGER! This system produces DC power. Although the DC voltage is not hazardously high, the converters can deliver large amounts of current. Exercise extreme caution not to inadvertently contact or have any tool inadvertently contact an output terminal or exposed wire connected to an output terminal. NEVER allow a metal object, such as a tool, to contact more than one termination at a time, or to simultaneously contact a termination and a grounded object. Even a momentary short circuit can cause sparking, explosion, and injury.



DANGER! Follow local lockout/tagout procedures to ensure DC branch circuit protection devices remain de-energized during installation at loads, as required.

Battery



WARNING! Correct polarity must be observed when connecting battery leads.



WARNING! Special safety precautions are required for procedures involving handling, installing, and servicing batteries. Observe all battery safety precautions in this manual and in the battery instruction manual. These precautions should be followed implicitly at all times.



WARNING! A battery can present a risk of electrical shock and high short circuit current. Servicing of batteries should be performed or supervised only by properly trained and qualified personnel knowledgeable about batteries and the required precautions.

Personal Protective Equipment (PPE)



DANGER! ARC FLASH AND SHOCK HAZARD.

Appropriate PPE and tools required when working on this equipment. An appropriate flash protection boundary analysis should be done determine the “hazard/risk” category, and to select proper PPE.



Handling Equipment Containing Static Sensitive Components



ALERT! Installation or removal of equipment containing static sensitive components requires careful handling. Before handling any equipment containing static sensitive components, read and follow the instructions contained on the Static Warning Page.

Maintenance and Replacement Procedures



CAUTION! When performing any step in procedures that requires removal or installation of hardware, use caution to ensure no hardware is dropped and left inside the unit; otherwise service interruption or equipment damage may occur.



NOTE! When performing any step in procedures that requires removal of existing hardware, retain all hardware for use in subsequent steps, unless otherwise directed.

Static Warning



This equipment contains static sensitive components. The warnings listed below must be observed to prevent damage to these components. Disregarding any of these warnings may result in personal injury or damage to the equipment.

1. Strictly adhere to the procedures provided in this document.
2. Before touching any equipment containing static sensitive components, discharge all static electricity from yourself by wearing a wrist strap grounded through a one megaohm resistor. Some wrist straps have a built-in one megaohm resistor; no external resistor is necessary. Read and follow wrist strap manufacturer's instructions outlining use of a specific wrist strap.
3. Do not touch traces or components on equipment containing static sensitive components. Handle equipment containing static sensitive components only by the edges that do not have connector pads.
4. After removing equipment containing static sensitive components, place the equipment only on conductive or anti-static material such as conductive foam, conductive plastic, or aluminum foil. Do not use ordinary Styrofoam™ or ordinary plastic.
5. Store and ship equipment containing static sensitive components only in static shielding containers.
6. If necessary to repair equipment containing static sensitive components, wear an appropriately grounded wrist strap, work on a conductive surface, use a grounded soldering iron, and use grounded test equipment.

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1 Table of Set Values

These tables are based on software revision 2.2.71B for the NetSure™ Control Unit (NCU) used in NetSure™ 7100 and 8100, PowerDirect 7100 DC Power Systems. All settings and choices affect the functions of the power supply system. The values shall therefore not be changed without a consequence analysis. If a default value is adjusted, the new value shall be entered in the column “Plant-specific”.

2 Settings

2.1 Alarm Settings

2.1.1 Severity

Power System

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
	Default	Plant-specific	Default	Plant-specific	Remark	Sign. Date
Supervision Unit Internal Fault	Observation		None			
CAN Communication Failure	Critical		None			
Outgoing Alarms Blocked	Observation		None			
Maintenance Alarm	No Alarm		None			
Configuration Error from Backup	Observation		None			
Configuration Error from Default	Observation		None			
Abnormal Load Current	Critical		None			
Overload	No Alarm		None			
SPD	No Alarm		None			
Emergency Stop/Shutdown	Critical		None			
System Temperature 1 not Used	No Alarm		None			
System Temperature 2 not Used	No Alarm		None			
System Temperature 3 Not Used	No Alarm		None			
IB2 Temperature 1 Not Used	No Alarm		None			
IB2 Temperature 2 Not Used	No Alarm		None			
EIB Temperature 1 not Used	No Alarm		None			
EIB Temperature 2 not Used	No Alarm		None			
System Temperature 1 Sensor Fault	No Alarm		None			
System Temperature 2 Sensor Fault	No Alarm		None			
System Temperature 3 Sensor Fault	No Alarm		None			
IB2 Temperature 1 Sensor Fault	No Alarm		None			
IB2 Temperature 2 Sensor Fault	No Alarm		None			
EIB Temperature 1 Sensor Fault	No Alarm		None			
EIB Temperature 2 Sensor Fault	No Alarm		None			
DHCP Failure	Observation		None			
PLC Config Error	Observation		None			
485 Communication Failure	Critical		None			
OBSERVATION SUMMARY	No Alarm		DO3			
MAJOR SUMMARY	No Alarm		DO2			
CRITICAL SUMMARY	No Alarm		DO1			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. Date
	Default	Plant-specific	Default	Plant-specific		
Secondary NCU Lost	Critical		None			
Overvoltage 1	Critical		None			
Overvoltage 2	Critical		None			
Undervoltage 1	Critical		None			
Undervoltage 2	Critical		None			
Overvoltage 1 (24V)	No Alarm		None			
Overvoltage 2 (24V)	No Alarm		None			
Undervoltage 1 (24V)	No Alarm		None			
Undervoltage 2 (24V)	No Alarm		None			
Diesel Run Over Temperature	Observation		None			
DG1 is Running	Observation		None			
DG2 is Running	Observation		None			
Hybrid is High Load	Observation		None			
DG1 Failure	Observation		None			
DG2 Failure	Observation		None			
Grid is on	Observation		None			
High Ambient Temperature	Observation		None			
Low Ambient Temperature	Observation		None			
Very High Ambient Temperature	Observation		None			
Ambient Temp Sensor Fault	Observation		None			
DI1 Alarm	Critical		None			
DI2 Alarm	Critical		None			
DI3 Alarm	Critical		None			
DI4 Alarm	Critical		None			
DI5 Alarm	Critical		None			
DI6 Alarm	Critical		None			
DI7 Alarm	Critical		None			
DI8 Alarm	Critical		None			
IB Communication Failure	Critical		None			
High Load Level1	Major		IB1-DO6			
High Load Level2	Major		IB1-DO6			
DI9 Alarm	Critical		None			
DI10 Alarm	Critical		None			
DI11 Alarm	Critical		None			
DI12 Alarm	Critical		None			
High Load Level1	Observation		None			
High Load Level2	Observation		None			
DI9 Alarm	Critical		None			
DI10 Alarm	Critical		None			
DI11 Alarm	Critical		None			
DI12 Alarm	Critical		None			
Testing Relay 14	Observation		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. Date
	Default	Plant-specific	Default	Plant-specific		
Testing Relay 15	Observation		None			
Testing Relay 16	Observation		None			
Testing Relay 17	Observation		None			
Over Maximum Power Alarm	Observation		None			
SMS Modem Fail	Critical		None			
Manual State	Observation		None			
SNMP Config Error	Observation		None			
DG1 Test Start Fail	Critical		None			
DG2 Test Start Fail	Critical		None			
DG1 Test Stop Fail	Critical		None			
DG2 Test Stop Fail	Critical		None			
DG1 is Testing	Observation		None			
DG2 is Testing	Observation		None			
Hybrid Shift Active	Observation		None			
SolarShiftSOC Disabled BMSFail	Observation		None			
Mains Failure	Observation		None			
DG1 Failed to Stop	No Alarm		None			
DG2 Failed to Stop	No Alarm		None			
Internal Communication Failure	Major		None			

Rectifier Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Multiple Rectifiers Failure	Critical		None			
Rectifier Lost	Critical		None			
ECO Mode Active	Observation		None			
All Rectifiers Comm Fail	Major		None			
ECO Cycle Alarm	Observation		None			
Low Rectifier Capacity	Major		None			
Hight Rectifier Capacity	Major		None			

Rectifier

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
AC Input Failure	Major		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Rectifier High Temperature	Major		None			
Rectifier Fault	Major		None			
Overvoltage	Major		None			
Rectifier Protected	Observation		None			
Fan Failure	Major		None			
Current Limit	No Alarm		None			
Communication Fail	Major		None			
Derated	Observation		None			
Current Sharing Alarm	Observation		None			
AC Undervoltage Protection	Major		None			
DC Output Shut Off	Observation		None			

Battery Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Short Battery Test Running	Observation		None			
Equalize Charge for Test	Observation		None			
Manual Test	Observation		None			
Planned Test	Observation		None			
AC Failure Test	Observation		None			
Manual Equalize Charge	Observation		None			
Automatic Equalize	Observation		None			
Cyclic EQ Charge	Observation		None			
Master Equalize charge in Progr	Observation		None			
Master Battery Test in Progress	Observation		None			
Discharge Current Imbalance	Observation		None			
Abnormal Battery Current	Observation		None			
Temperature Compensation Active	No Alarm		None			
Battery Current Limit Active	Observation		None			
Bad Battery	Observation		None			
Battery Discharge	Observation		None			
Battery Test Failure	Observation		None			
Very High Compensation Temperature	Major		None			
High Compensation Temperature	Observation		None			
Low Compensation Temperature	Observation		None			
Compensation Sensor Fault	Observation		None			
Very High BTRM Temperature	Major		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High BTRM Temperature	Observation		None			
BTRM Temperature Sensor Fault	Observation		None			
Li-Ion Battery Lost	Critical		None			
1 Li-Ion Battery Disconnect	Observation		None			
2+Li-Ion Battery Disconnect	Critical		None			
1 Li-Ion Battery No Reply	Observation		None			
2+Li-Ion Battery No Reply	Critical		None			
Inventory Update In Process	Observation		None			
ABCL is Active	Observation		None			
Battery Charge Prohibited Alarm	Observation		None			
Battery 1 Mid Point Alarm	Observation		None			
Battery 2 Mid Point Alarm	Observation		None			
Battery Test Multiple Abort	Observation		None			
BT Interrupted-Main Fail	Observation		None			
AC is on Standby	Observation		None			
PLS Control by SOC failed	Observation		None			
BMS Lost	Critical		None			

Battery

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Current Limit Exceeded	Observation		None			
Over Battery Current	Observation		None			
Low Capacity	Observation		None			
Battery Current Imbalance Alarm	Observation		None			
Battery Current High 1 Curr	Major		None			
Battery Current High 2 Curr	Major		None			

SMDU Battery

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Current Limit Exceeded	Observation		None			
Over Battery Current	Observation		None			
Low Capacity	Observation		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Battery Current Imbalance Alarm	Observation		None			

EIB Battery

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Current Limit Exceeded	Observation		None			
Over Battery Current	Observation		None			
Low Capacity	Observation		None			
Battery Current Imbalance Alarm	Observation		None			

SM BATT

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Current Limit Exceeded	Observation		None			
Over Battery Current	Observation		None			
Battery Leakage	Observation		None			
Low Acid Level	Observation		None			
Battery Disconnected	Observation		None			
High Battery Temperature	Observation		None			
Low Battery Temperature	Observation		None			
Cell Voltage Difference	Observation		None			
SM-BAT Unit Fail	Observation		None			
Battery Temperature Sensor Fail	Observation		None			
Low Capacity	Observation		None			
Battery Not Responding	Critical		None			
Temperature Sensor not Used	Observation		None			
Battery Current Imbalance Alarm	Observation		None			

SM BRC Battery Unit

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Low Cell Volt Alarm	Major		None			
Low Cell Temp Alarm	Major		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Low Cell Resistance Alarm	Major		None			
Low Inter Cell Resistance Alarm	Major		None			
Low Ambient Temperature Alarm	Major		None			
High Total Voltage	Major		None			
Low Total Voltage	Major		None			
High String Current	Major		None			
Low String Current	Major		None			
High Ripple Current	Major		None			
Low Ripple Current	Major		None			
Current Limit Exceeded	Observation		None			
Over Battery Current	Observation		None			
Low Capacity	Observation		None			
High Cell Voltage Alarm	Major		None			
High Cell Temperature Alarm	Major		None			
High Cell Resistance Alarm	Major		None			
High Inter Cell Resistance Alarm	Major		None			
High Delta Cell vs Ambient Temp	Major		None			
Battery Block 1 Temperature Probe Failure	Major		None			
Battery Block 2 Temperature Probe Failure	Major		None			
Battery Block 3 Temperature Probe Failure	Major		None			
Battery Block 4 Temperature Probe Failure	Major		None			
Battery Block 5 Temperature Probe Failure	Major		None			
Battery Block 6 Temperature Probe Failure	Major		None			
Battery Block 7 Temperature Probe Failure	Major		None			
Battery Block 8 Temperature Probe Failure	Major		None			
Temperature9 Not Used	Major		None			
Temperature10 Not Used	Major		None			
Temperature11 Not Used	Major		None			
Temperature12 Not Used	Major		None			
Temperature13 Not Used	Major		None			
Temperature14 Not Used	Major		None			
Temperature15 Not Used	Major		None			
Temperature16 Not Used	Major		None			
Temperature17 Not Used	Major		None			
Temperature18 Not Used	Major		None			
Temperature19 Not Used	Major		None			
Temperature20 Not Used	Major		None			
Temperature21 Not Used	Major		None			
Temperature22 Not Used	Major		None			
Temperature23 Not Used	Major		None			
Temperature24 Not Used	Major		None			
Battery Current Imbalance Alarm	Observation		None			

Battery Fuse

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Fuse 1 Alarm	Critical		None			
Fuse 2 Alarm	Critical		None			
Fuse 3 Alarm	Critical		None			
Fuse 4 Alarm	Critical		None			
Fuse 5 Alarm	Critical		None			
Fuse 6 Alarm	Critical		None			

SM DU Battery Fuse

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Fuse 1 Alarm	Critical		None			
Fuse 2 Alarm	Critical		None			
Fuse 3 Alarm	Critical		None			
Fuse 4 Alarm	Critical		None			
Fuse 5 Alarm	Critical		None			
Fuse 6 Alarm	Critical		None			

DC

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Overvoltage 1	No Alarm		None			
Overvoltage 2	No Alarm		None			
Undervoltage 1	No Alarm		None			
Undervoltage 2	No Alarm		None			
Overvoltage 1(24V)	No Alarm		None			
Overvoltage 2(24V)	No Alarm		None			
Undervoltage 1(24V)	No Alarm		None			
Undervoltage 2(24V)	No Alarm		None			
Current High Current	Major		None			
Current Very High Current	Major		None			
Current High 1 Curr	Major		None			
Current High 2 Curr	Major		None			

DC Fuse Unit

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Fuse 1 Alarm	Critical		None			
Fuse 2 Alarm	Critical		None			
Fuse 3 Alarm	Critical		None			
Fuse 4 Alarm	Critical		None			
Fuse 5 Alarm	Critical		None			
Fuse 6 Alarm	Critical		None			
Fuse 7 Alarm	Critical		None			
Fuse 8 Alarm	Critical		None			
Fuse 9 Alarm	Critical		None			
Fuse 10 Alarm	Critical		None			
Fuse 11 Alarm	Critical		None			
Fuse 12 Alarm	Critical		None			

SM DU DC Fuse

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Fuse 1 Alarm	Critical		None			
Fuse 2 Alarm	Critical		None			
Fuse 3 Alarm	Critical		None			
Fuse 4 Alarm	Critical		None			
Fuse 5 Alarm	Critical		None			
Fuse 6 Alarm	Critical		None			
Fuse 7 Alarm	Critical		None			
Fuse 8 Alarm	Critical		None			
Fuse 9 Alarm	Critical		None			
Fuse 10 Alarm	Critical		None			
Fuse 11 Alarm	Critical		None			
Fuse 12 Alarm	Critical		None			
Fuse 13 Alarm	Critical		None			
Fuse 14 Alarm	Critical		None			
Fuse 15 Alarm	Critical		None			
Fuse 16 Alarm	Critical		None			

SM DU+ DC Fuse

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
	Default	Plant-specific	Default	Plant-specific	Remark	Sign. date
Fuse 1 Alarm	Critical		None			
Fuse 2 Alarm	Critical		None			
Fuse 3 Alarm	Critical		None			
Fuse 4 Alarm	Critical		None			
Fuse 5 Alarm	Critical		None			
Fuse 6 Alarm	Critical		None			
Fuse 7 Alarm	Critical		None			
Fuse 8 Alarm	Critical		None			
Fuse 9 Alarm	Critical		None			
Fuse 10 Alarm	Critical		None			
Fuse 11 Alarm	Critical		None			
Fuse 12 Alarm	Critical		None			
Fuse 13 Alarm	Critical		None			
Fuse 14 Alarm	Critical		None			
Fuse 15 Alarm	Critical		None			
Fuse 16 Alarm	Critical		None			
Fuse 17 Alarm	Critical		None			
Fuse 18 Alarm	Critical		None			
Fuse 19 Alarm	Critical		None			
Fuse 20 Alarm	Critical		None			
Fuse 21 Alarm	Critical		None			
Fuse 22 Alarm	Critical		None			
Fuse 23 Alarm	Critical		None			
Fuse 24 Alarm	Critical		None			
Fuse 25 Alarm	Critical		None			

LVD

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
	Default	Plant-specific	Default	Plant-specific	Remark	Sign. date
LVD 1 Disconnect	Observation		None			
LVD 2 Disconnect	Observation		None			
LVD 1 Failure	Critical		None			
LVD 2 Failure	Critical		None			

SM DU LVD

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
LVD1 Disconnected	Observation		None			
LVD2 Disconnected	Observation		None			
LVD1 Contactor Failure	Critical		None			
LVD2 Contactor Failure	Critical		None			

Rectifier AC

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High Line Voltage L1-L2	Observation		None			
Very High Line Voltage L1-L2	Observation		None			
Low Line Voltage L1-L2	Observation		None			
Very Low Line Voltage L1-L2	Observation		None			
High Line Voltage L2-L3	Observation		None			
Very High Line Voltage L2-L3	Observation		None			
Low Line Voltage L2-L3	Observation		None			
Very Low Line Voltage L2-L3	Observation		None			
High Line Voltage L3-L1	Observation		None			
Very High Line Voltage L3-L1	Observation		None			
Low Line Voltage L3-L1	Observation		None			
Very Low Line Voltage L3-L1	Observation		None			
High Phase Voltage L1	Observation		None			
Very High Phase Voltage L1	Observation		None			
Low Phase Voltage L1	Observation		None			
Very Low Phase Voltage L1	Observation		None			
High Phase Voltage L2	Observation		None			
Very High Phase Voltage L2	Observation		None			
Low Phase Voltage L2	Observation		None			
Very Low Phase Voltage L2	Observation		None			
High Phase Voltage L3	Observation		None			
Very High Phase Voltage L3	Observation		None			
Low Phase Voltage L3	Observation		None			
Very Low Phase Voltage L3	Observation		None			
Mains Failure	Critical		None			

SMAC Unit

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
	Default	Plant-specific	Default	Plant-specific	Remark	Sign. date
Supervision Fail	Observation		None			
High Line Voltage L1-L2	Observation		None			
Very High Line Voltage L1-L2	Major		None			
Low Line Voltage L1-L2	Observation		None			
Very Low Line Voltage L1-L2	Major		None			
High Line Voltage L2-L3	Observation		None			
Very High Line Voltage L2-L3	Major		None			
Low Line Voltage L2-L3	Observation		None			
Very Low Line Voltage L2-L3	Major		None			
High Line Voltage L3-L1	Observation		None			
Very High Line Voltage L3-L1	Major		None			
Low Line Voltage L3-L1	Observation		None			
Very Low Line Voltage L3-L1	Major		None			
High Phase Voltage L1	Observation		None			
Very High Phase Voltage L1	Major		None			
Low Phase Voltage L1	Observation		None			
Very Low Phase Voltage L1	Major		None			
High Phase Voltage L2	Observation		None			
Very High Phase Voltage L2	Major		None			
Low Phase Voltage L2	Observation		None			
Very Low Phase Voltage L2	Major		None			
High Phase Voltage L3	Observation		None			
Very High Phase Voltage L3	Major		None			
Low Phase Voltage L3	Observation		None			
Very Low Phase Voltage L3	Major		None			
Mains Failure	Critical		None			
Severe Mains Failure	Critical		None			
High Frequency	Major		None			
Low Frequency	Major		None			
High Temperature	No Alarm		None			
Low Temperature	No Alarm		None			
Phase L1 High Current	Observation		None			
Phase L2 High Current	Observation		None			
Phase L3 High Current	Observation		None			

IB

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Communication Fail	Critical		None			

EIB

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
EIB Communication Fail	Critical		None			
Bad Battery Block	Observation		None			
Testing Relay 9	Observation		None			
Testing Relay 10	Observation		None			
Testing Relay 11	Observation		None			
Testing Relay 12	Observation		None			
Testing Relay 13	Observation		None			
Current 1 High Current	Major		None			
Current 1 Very High Current	Major		None			
Current 2 High Current	Major		None			
Current 2 Very High Current	Major		None			
Current 3 High Current	Major		None			
Current 3 Very High Current	Major		None			
Current1 High 1 Current	Major		None			
Current1 High 2 Current	Major		None			
Current2 High 1 Current	Major		None			
Current2 High 2 Current	Major		None			
Current3 High 1 Current	Major		None			
Current3 High 2 Current	Major		None			

SM DU 1 up to 8

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Low Voltage	No Alarm		None			
High Voltage	No Alarm		None			
Communication Interrupt	Major		None			
High Current 1	Major		None			
Very High Current 1	Major		None			
High Current 2	Major		None			
Very High Current 2	Major		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High Current 3	Major		None			
Very High Current 3	Major		None			
High Current 4	Major		None			
Very High Current 4	Major		None			
High Current 5	Major		None			
Very High Current 5	Major		None			
Shunt 1 Size Conflicting	Observation		None			
Shunt 2 Size Conflicting	Observation		None			
Shunt 3 Size Conflicting	Observation		None			
Shunt 4 Size Conflicting	Observation		None			
Shunt 5 Size Conflicting	Observation		None			

Converter GROUP

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Multiple Converters Failure	Critical		None			
Converter Lost	Critical		None			
All Converters Comm Fail	Major		None			
OverCurrent	Critical		None			
Converter Protected	Major		None			

Converter

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Communication Fail	Major		None			
Over Temperature	Major		None			
HVSD Alarm	Major		None			
Fan Fail	Major		None			
Power Limited for Temperature	Observation		None			
Low Input Volt	Major		None			
Converter Failure	Major		None			
EEPROM Fail	Major		None			
Thermal Shutdown	Major		None			
Mod ID Overlap	Major		None			
Undervoltage	Critical		None			
Overvoltage	Critical		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Under Voltage(24V)	Critical		None			
Over Voltage(24V)	Critical		None			

SM IO Unit 1

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
SMIO Failure	Observation		None			

SM IO Unit 3 up to 8

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High Analogue Input 1 Alarm	Observation		None			
Low Analogue Input 1 Alarm	Observation		None			
High Analogue Input 2 Alarm	Observation		None			
Low Analogue Input 2 Alarm	Observation		None			
High Analogue Input 3 Alarm	Observation		None			
Low Analogue Input 3 Alarm	Observation		None			
High Analogue Input 4 Alarm	Observation		None			
Low Analogue Input 4 Alarm	Observation		None			
High Analogue Input 5 Alarm	Observation		None			
Low Analogue Input 5 Alarm	Observation		None			
High Frequency Input Alarm	Observation		None			
Low Frequency Input Alarm	Observation		None			
SMIO Failure	Observation		None			
Testing Relay 1	Observation		None			
Testing Relay 2	Observation		None			
Testing Relay 3	Observation		None			

DIESEL Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Diesel Test in Progress	Observation		None			
Diesel Test Failure	Major		None			

DIESEL Generator

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Low DC Voltage	Major		None			
Diesel Supervision Failure	Observation		None			
Diesel Generator Failure	Critical		None			
Diesel Generator Connected	Observation		None			
Low Fuel Level	Major		None			
High Water Temperature	Major		None			
Low Oil Pressure	Major		None			
Periodical Maintenance Required	Observation		None			

Rectifier Group 2 up to 4

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
All Rectifiers Comm Fail	Major		None			
Secondary Rectifier Lost	Critical		None			
Communication Failure	Critical		None			
Mains Fail	Observation		None			
Multiple Rectifiers Fail	Critical		None			

Group 2 up to 4 Rectifier

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
AC Input Fail	Major		None			
Rectifier High Temperature	Major		None			
Rectifier Fault	Major		None			
Overvoltage	Major		None			
Rectifier Protected	Observation		None			
Fan Failure	Major		None			
Current Limit	No Alarm		None			
Communication Fail	Major		None			
Derated	Observation		None			
Current Share Alarm	Observation		None			
AC Undervoltage Protection	Major		None			
DC Output Shut Off	Observation		None			

SMDUP Unit

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)	Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific	
Communication Interrupt	Major		None		
High Current 1	Major		None		
Very High Current 1	Major		None		
High Current 2	Major		None		
Very High Current 2	Major		None		
High Current 3	Major		None		
Very High Current 3	Major		None		
High Current 4	Major		None		
Very High Current 4	Major		None		
High Current 5	Major		None		
Very High Current 5	Major		None		
High Current 6	Major		None		
Very High Current 6	Major		None		
High Current 7	Major		None		
Very High Current 7	Major		None		
High Current 8	Major		None		
Very High Current 8	Major		None		
High Current 9	Major		None		
Very High Current 9	Major		None		
High Current 10	Major		None		
Very High Current 10	Major		None		
High Current 11	Major		None		
Very High Current 11	Major		None		
High Current 12	Major		None		
Very High Current 12	Major		None		
High Current 13	Major		None		
Very High Current 13	Major		None		
High Current 14	Major		None		
Very High Current 14	Major		None		
High Current 15	Major		None		
Very High Current 15	Major		None		
High Current 16	Major		None		
Very High Current 16	Major		None		
High Current 17	Major		None		
Very High Current 17	Major		None		
High Current 18	Major		None		
Very High Current 18	Major		None		
High Current 19	Major		None		
Very High Current 19	Major		None		
High Current 20	Major		None		
Very High Current 20	Major		None		

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High Current 21	Major		None			
Very High Current 21	Major		None			
High Current 22	Major		None			
Very High Current 22	Major		None			
High Current 23	Major		None			
Very High Current 23	Major		None			
High Current 24	Major		None			
Very High Current 24	Major		None			
High Current 25	Major		None			
Very High Current 25	Major		None			
Shunt Coefficient Conflict	Observation		None			

SMDUH 1 up to 8

Alarm Name	Level (Critical/Major/Observation/No Alarm)	Output (None, 1 to 8)		Relay	Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Under Voltage	No Alarm		None			
Over Voltage	No Alarm		None			
Communication Fail	Major		None			
Current1 High Current	Major		None			
Current1 Very High Current	Major		None			
Current2 High Current	Major		None			
Current2 Very High Current	Major		None			
Current3 High Current	Major		None			
Current3 Very High Current	Major		None			
Current4 High Current	Major		None			
Current4 Very High Current	Major		None			
Current5 High Current	Major		None			
Current5 Very High Current	Major		None			
Current6 High Current	Major		None			
Current6 Very High Current	Major		None			
Current7 High Current	Major		None			
Current7 Very High Current	Major		None			
Current8 High Current	Major		None			
Current8 Very High Current	Major		None			
Current9 High Current	Major		None			
Current9 Very High Current	Major		None			
Current10 High Current	Major		None			
Current10 Very High Current	Major		None			
Current11 High Current	Major		None			

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Current11 Very High Current	Major		None			
Current12 High Current	Major		None			
Current12 Very High Current	Major		None			
Current13 High Current	Major		None			
Current13 Very High Current	Major		None			
Current14 High Current	Major		None			
Current14 Very High Current	Major		None			
Current15 High Current	Major		None			
Current15 Very High Current	Major		None			
Current16 High Current	Major		None			
Current16 Very High Current	Major		None			
Current17 High Current	Major		None			
Current17 Very High Current	Major		None			
Current18 High Current	Major		None			
Current18 Very High Current	Major		None			
Current19 High Current	Major		None			
Current19 Very High Current	Major		None			
Current20 High Current	Major		None			
Current20 Very High Current	Major		None			

Fuel Tank Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
Fuel Group Communication Fail	Observation		None			

Fuel Tank

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
					Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific		
High Fuel Level Alarm	Major		None			
Low Fuel Level Alarm	Major		None			
Fuel Theft Alarm	Critical		None			
Multi-Shape Height Error	Observation		None			
Fuel Tank Config Error	Observation		None			

DC Meter Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay		Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific				
DC Meter Lost	Critical		None					

DC Meter

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay		Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific				
Communication Fail	Major		None					

Inverter Group

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay		Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific				
Inverter Lost	Critical		None					
All Inverters Communication Failure	Major		None					
Inverter High Load	Major		None					
Synchronization Phase Failure	Major		None					
Synchronization Voltage Failure	Major		None					
Synchronization Frequency Failure	Major		None					
Synchronization Mode Failure	Major		None					
Redundancy Warning	Observation		None					
Redundancy Lost	Observation		None					
Redundancy Lost+1	Major		None					
Redundancy Lost+2	Major		None					
Redundancy Lost+3	Major		None					

Inverter

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay		Remark	Sign. date
	Default	Plant-specific	Default	Plant-specific				
No Response	Major		None					
Inverter Fail	Major		None					
Input AC Volt Abnormal	Major		None					
Input DC Volt Abnormal	Major		None					
Over Temperature	Major		None					

Alarm Name	Level (Critical/Major/Observation/No Alarm)		Output (None, 1 to 8)		Relay	
	Default	Plant-specific	Default	Plant-specific	Remark	Sign. date
Fan Fault	Major		None			
About Over Load	Major		None			
Over Load	Major		None			
Module ID Repeated	Major		None			
Parallel Flow Anomaly	Major		None			
Parallel Out of Sync	Major		None			
Parallel CAN Comm Fail	Major		None			
Phase Anomaly	Major		None			
Over Load Times Up Limit	Major		None			
Software Remote Stop	Major		None			
Hardware Remote Stop	Major		None			
Low Output Voltage	Major		None			
Inverter Derating	Major		None			

2.1.2 Alarm Relay

There are eight potential free relay outputs are provided on NCU. Three of the relays are default configured and mapped to alarms:

- Relay 1 – Critical alarm
- Relay 2 – Major alarm
- Relay 3 – Observation alarm

Alarm Settings (on Local Display)

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Audible Alarm	Off	On /Off / 3min / 10 min / 1 Hour / 4 Hours	Buzzer setting		
Alarm Blocked	Normal	Normal / Blocked	Blocking of outgoing alarms		
Clear Comm Fail	Y(Yes)	Y / N			
Reset Rect Lost	Y(Yes)	Y / N			
Reset Bad Bat	Y(Yes)	Y / N			
Clear Test Fail	Y(Yes)	Y / N			
Reset Cycle Alm	Y(Yes)	Y / N			
Reset AbCur Alm	Y(Yes)	Y / N			
Reset Im Cur Alm	Y(Yes)	Y / N			
ClrAllConvCommFail	Y(Yes)	Y / N			
ClrConvCommFail	Y(Yes)	Y / N			
Clear Conv Lost	Y(Yes)	Y / N			
ResetNCULost	Y(Yes)	Y / N			

2.2 Settings->Quick Settings

Selection	Default	Range	Remark	Plant-specific	Sign. Date
SITE SETTINGS					
Site Name	NCU				
Site Location	Europe				
Site Description	NCU				
TIME SETTINGS					
Date and Time	-				
SIGNAL SETTINGS					
Float Charge Voltage	54.5 V	42 – 58 V			
Equalize Charge Voltage	56.4 V	42 – 58.5 V			
Automatic Equalize	No	No / Yes			
Sensor for Temperature Compensation	Temperature 1	None / Max / Average / Temp1 / Temp2			
Compensation Coefficient	96.0 mV/deg.C	0 – 500 mV/deg.C			
Temp Compensation Center	20.0 deg.C	0 – 40 deg.C			
LVD1 Voltage	45.0 V	36 – 60 V			
LVD 1 By Battery Capacity	Disabled	Disabled / Enabled			
LVD 1 Disconnect Capacity	10 %	5 – 90 %			
LVD 1 By Time	Disabled	Disabled / Enabled			
LVD1 Time	600 min	1 – 1000 min			
LVD2 Voltage	46.0 V	36 – 60 V			
LVD 2 By Battery Capacity	Disabled	Disabled / Enabled			
LVD 2 Disconnect Capacity	20 %	5 – 90 %			
LVD 2 By Time	Disabled	Disabled / Enabled			
LVD2 Time	300 min	1 – 1000 min			
ECO Mode	Disabled	Disabled / Enabled			
Load Fluctuation Range	10 %	1 – 50 %			
Cycle Period	168 h	1 – 8760 h			
All Rectifiers ON Time	120 min	0 – 255 min			
Outgoing Alarms Blocked	Normal	Normal / Blocked			
Auto/Man State	Auto	Auto / Manual			
Battery1 Rated Capacity	100 Ah	50 – 50000 Ah			
Batt Ext1 Rated Capacity	100 Ah	50 – 50000 Ah			

2.3 Settings->System

Selection	Default	Range	Remark	Plant-specific	Sign. Date
POWER SYSTEM					
Reset Maintenance Run Time	Yes	Yes			
Clear Energy Accumulated	Yes	Yes			
Auto/Man State	Auto	Auto / Manual			
To Auto Delay	0 h	0 – 24 h			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Maintenance Interval	360 d	10 – 7200 d			
Outgoing Alarms Blocked	Normal	Normal / Blocked			
Overvoltage 1	57.0 V	36 – 60 V			
Overvoltage 2	58.5 V	36 – 60 V			
Undervoltage 1	49.0 V	36 – 60 V			
Undervoltage 2	47.5 V	36 – 60 V			
System Type	Mixed	Mixed / Inverter Only			
High Load Level1	70 %	5 – 100 %			
High Load Level2	85 %	5 – 100 %			
Fuse Threshold Value	70 %	0 – 100 %			
Fuse Overload Value	80 %	0 – 100 %			
Cab X Num(Valid After Reset)	10	1 - 10			
Cab X Num(Valid After Reset)	5	1 - 5			
Solar Mode	Disable	Disable / RECT-SOLAR / SOLAR			
Running Way(For Solar)	SOLAR First	RECT First / SOLAR First			
Complete Recharge by Solar	Disable	Disable / Enable			
Rech by Solar Start Time	10:00	05:00 – 17:00			
Rech by Solar Stop Time	13:00	06:00 – 18:00			
Rech by Solar Min SOC	50 %	20 – 100 %			
Rech by Solar Min Curr Of Load	5	2 – 20			
Delay For SolarEnough DG Stop	5 min	1 – 10 min			
System Expansion	Inactive	Inactive / Primary / Secondary			
Secondary System Address	201	201 / 202 / 203			
Reconfig FCUPlus	30 min	1 – 60 min			
Slave Current Limit	60 %	10 - 90 %			
Slave Delta Voltage	0.5 V	0.1 – 2 V			
PowerSplit Contactor Mode	Master Controlled	Master Controlled / Slave			
Only Monitor BMS and FCUP	Yes	No / Yes			
SSH Enabled	Enabled	Disabled / Enabled			
DHCP Enable	Disable	Disable / Enable			
AC Equipment					
Nominal Phase Voltage	230 V	50 – 450 V			
Mains Failure Alarm Threshold 1	25 %	0 – 100 %			
Mains Failure Alarm Threshold 2	25 %	0 – 100 %			
LVD GROUP					
HTD Point	40.0 deg.C	20 – 80 deg.C			
HTD Reconnect Point	38.0 deg.C	20 – 80 deg.C			
Fuel Group					
OB Fuel Number	0	0 / 1 / 2			
Fuel Tank 6 - 7					
Reset Theft Alarm	Yes	Yes			
Setting Configuration Done	Yes	No / Yes			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Fuel Tank Type	Square Tank	Square Tank / Vertical Cylinder Tank / Horizontal Cylinder Tank / Multi Shape Tank			
Square Tank Length	0.0 mm		Available when selected Fuel Tank Type is Square Tank		
Square Tank Width	0.0 mm				
Square Tank Height	0.0 mm				
Vertical Cylinder Tank Diameter	0.0 mm		Available when selected Fuel Tank Type is Vertical Cylinder Tank		
Vertical Cylinder Tank Height	0.0 mm				
Horiz Cylinder Tank Length	0.0 mm		Available when selected Fuel Tank Type is Horizontal Cylinder Tank		
Horiz Cylinder Tank Diameter	0.0 mm				
Number of Calibration Points	10	10 - 20			
Height 1 of Calibration Point	0.0 mm		Available when selected Fuel Tank Type is Multi Shape Tank		
Volume 1 of Calibration Point	0.0 l				
...					
Height N of Calibration Point	0.0 mm				
Volume N of Calibration Point	0.0 l				
Low Fuel Level Limit	0.0 l				
High Fuel Level Limit	10000.0 l				
Maximum Consumption Speed	1.0 l/min				
X1	4.0 mA				
Y1	0.0 mm				
X2	20.0 mA				
Y2	1000.0 mm				
EIB1					
Shunt1 Set As	Not Used	Not Used / General / Load / Battery			
Shunt2 Set As	Not Used	Not Used / General / Load / Battery			
Shunt3 Set As	Not Used	Not Used / General / Load / Battery			
Shunt 1 Full Current	500.0 A	50 – 5000 A			
Shunt 1 Full Voltage	25.0 mV	1 – 150 mV			
Shunt 2 Full Current	500.0 A	50 – 5000 A			
Shunt 2 Full Voltage	25.0 mV	1 – 150 mV			
Shunt 3 Full Current	500.0 A	50 – 5000 A			
Shunt 3 Full Voltage	25.0 mV	1 – 150 mV			
Voltage Type	48(Block4)	48(Block4)/ Midpoint / 24(Block2)/ Disable			
Number of Used Blocks	0	0 – 8			
Block Voltage Diff	1.00V	0 – 2 V			
SMDU Equipment					
Shunt 1 Voltage	25 mV	25 – 75 mV			
Shunt 1 Current	1000 A	100 – 2000 A			
Shunt 2 Voltage	25 mV	25 – 75 mV			
Shunt 2 Current	500 A	100 – 2000 A			
Shunt 3 Voltage	25 mV	25 – 75 mV			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Shunt 3 Current	500 A	100 – 2000 A			
Shunt 4 Voltage	25 mV	25 – 75 mV			
Shunt 4 Current	500 A	100 – 2000 A			
Shunt 5 Voltage	25 mV	25 – 75 mV			
Shunt 5 Current	500 A	100 – 2000 A			
Current 1 Breaker Size	800 A	10 – 5000 A			
Current 1 High Limit	75 %	1 – 100 %			
Current 1 Very High Limit	80 %	1 – 100 %			
Current 2 Breaker Size	800 A	10 – 5000 A			
Current 2 High Limit	75 %	1 – 100 %			
Current 2 Very High Limit	80 %	1 – 100 %			
Current 3 Breaker Size	800 A	10 – 5000 A			
Current 3 High Limit	75 %	1 – 100 %			
Current 3 Very High Limit	80 %	1 – 100 %			
Current 4 Breaker Size	800 A	10 – 5000 A			
Current 4 High Limit	75 %	1 – 100 %			
Current 4 Very High Limit	80 %	1 – 100 %			
Current 5 Breaker Size	800 A	10 – 5000 A			
Current 5 High Limit	75 %	1 – 100 %			
Current 5 Very High Limit	80 %	1 – 100 %			

2.4 Settings->Battery Charge

Selection	Default	Range	Remark	Plant-specific	Sign. Date
CHARGE					
Number of Battery Shunts	1	0 / 1 / 2			
Very High Battery Temp Action	Lower Voltage	Disabled / Lower Voltage			
Very High Temp Voltage	49.0 V	45.0 – 55.0 V			
Low Capacity Level	75 %	25 - 100 %			
Float Charge Voltage	54.5 V	42.0 – 58.5 V	Only visible if Solar Mode is disabled, or Curr Limited Mode is set to Voltage.		
Equalize Charge Voltage	56.0 V	42.0 – 58.5 V			
Float Voltage(Solar)	54.0 V	38.0 – 58.5 V	Only visible if Solar Mode is set to SOLAR or RECT-SOLAR, and Curr Limited Mode is set to Current.		
Equalize Voltage(Solar)	56.4 V	38.0 – 58.5 V			
Float Voltage(RECT)	51.5 V	38.0 – 58.5 V			
Equalize Voltage(RECT)	56.0 V	38.0 – 58.5 V			
Battery Current Limit	0.25 C10	0.1 - 0.25 C10			
Over Current Setpoint	1.00 C10	0.3 - 1.00 C10			
Automatic Equalize	No	No / Yes			
Equalize Start Current	0.060 C10	0.04 – 0.08 C10			
Equalize Start Capacity	80.0 %	0 – 99 %			
Equalize Stop Current	0.010 C10	0.002 – 0.02 C10			
Equalize Stop Delay Time	60 min	0 – 1440 min			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Maximum Equalize Charge Time	300 min	60 – 2880 min			
Equalize Charge for Test	Disabled	Disabled / Enabled			
Cyclic Equalize Charge	No	No / Yes			
Cyclic EQ Charge Start Time	2016-12-01 12	>1970-01-01 00			
Cyclic Equalize Charge Interval	180 d	2 – 365 d			
Cyclic Equalize Charge Duration	300 min	30 – 2880 min			
Temp Compensation Center	20.0 deg.C	0 – 40 deg.C			
Compensation Coefficient	96.0 mV/deg.C	0 – 500 mV/deg.C			
EQTemp Comp Coefficient	0.0 mV/deg.C	0 – 500 mV/deg.C			
Charging Efficiency	96 %	10 – 100 %			
Curr Limited Mode	Voltage	Disabled / Current / Voltage			
Battery1 Rated Capacity	100 Ah	50 – 50000 Ah			
Equalize/Float Charge Control	Float Charge	Float Charge / Equalize Charge			
Reset Abnormal Batt Curr Alarm	Yes	Yes			
Reset Battery Capacity	Yes	Yes			
Battery Charge Prohibit	Disabled	Disabled / Enabled			
DI for Charge Prohibit	DI 1	IB1-DI1 / IB1-DI2 / IB1-DI3 / IB1-DI4 / IB1-DI5 / IB1-DI6 / IB1-DI7 / IB1-DI8 / IB0-DI1 / IB0-DI2 / IB0-DI3 / IB0-DI4			
Number of Batteries per SMBAT	4	1 - 4			
Batt Current Positive Threshold	10.0 A	0 – 100 A	1% of battery shunt max current		
Batt Current Negative Threshold	-10.0 A	-100 – 0 A	1% of battery shunt max current		
Monitor BattCurrImbal	Disabled	Disabled / Enabled			
Min Voltage for BCL	47.0 V	40 – 60 V			
Voltage Adjust Gain	0.10 V/Cell	0.01 – 2 V			
Upper Limit	0.350 C10	0.1 – 1 C10			
Slow Speed Coefficient	0.25	0.1 – 1			
Fast Speed Coefficient	0.25	0.1 – 1			
Cycle Number	110 s	1 – 5 10s			
Peak Load Shift Enable	Enabled	Disabled / Enabled			
Peak Load Shift Volt	48.5 V	40 - 58 V			
Peak Load Shift Batt SOC	70 %	0 – 100 %			
PeakLoad Period1 Start	00:00:00	hh:mm:ss			
PeakLoad Period1 Stop	00:00:00	hh:mm:ss			
PeakLoad Period2 Start	00:00:00	hh:mm:ss			
PeakLoad Period2 Stop	00:00:00	hh:mm:ss			
PeakLoad Period3 Start	00:00:00	hh:mm:ss			
PeakLoad Period3 Stop	00:00:00	hh:mm:ss			
PeakLoad Period4 Start	00:00:00	hh:mm:ss			
PeakLoad Period4 Stop	00:00:00	hh:mm:ss			
MPPT Input Voltage Threshold	100.0 V	100 – 400 V			
Max Diff Volt of Solar and RECT	0.5 V	0.2 – 3 V			
MinDiff Volt of Solar and RECT	0.3 V	0.2 – 3 V			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Use Soc BMS	No	No / Yes			
Use Rated Batt Cap From BMS	No	No / Yes			
Use BMS BCL	No	No / Yes			
Shift to Trad. Cap if BMS Comm Fail	Enabled	Disabled / Enabled			
DG Start SOC Only	No	No / Yes			
Cold Limit Enable	Disabled	Disabled / Enabled			
Cold Limit Temp Threshold	10.0 deg. C	-10 – 15 deg.C			
Reduced BCL Point	0.05 C10	0.01 – 0.25 C10			
Action of BattFuseAlm	None	Adjust to Min Voltage / Adjust to Default Voltage / None			

2.5 Settings->ECO

Selection	Default	Range	Remark	Plant-specific	Sign. Date
ECO					
Eco Mode	Disabled	Enabled / Disabled			
Best Operating Point	80 %	30 – 90 %			
Load Fluctuation Range	10 %	1 – 50 %			
ECO Mode Capacity Limit	45 %	10 – 90 %			
Cycle Period	168 h	1 – 8760 h			
All Rectifiers ON Time	120 min	0 – 255 min			
Switch Off Delay	5 min	1 – 60 min			
Reset ECO Cycle Alarm	Reset	Reset			

2.6 Settings->LVD

Selection	Default	Range	Remark	Plant-specific	Sign. Date
LVD MAIN CABINET					
LVD1	Enabled	Disabled / Enabled			
LVD 1 By Battery Capacity	Disabled	Enabled / Disabled			
LVD 1 Disconnect Capacity	10 %	5 – 90 %			
LVD1 Voltage	45.0 V	36 – 60 V			
LVD1 Reconnect Voltage	50.0 V	40 – 60 V			
LVD1 Reconnect Delay	2 min	0 – 30 min			
LVD 1 By Time	Disabled	Enabled / Disabled			
LVD1 Time	600 min	1 – 1000 min			
LVD1 Dependency	None	LVD1 / LVD2 / LVD3			
LVD1 AC Fail Required to Disconnect	No	No / Yes			
LVD1 AC Required to Reconnect	Yes	No / Yes			
LVD1 Control	Connected	Connected /			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
		Disconnected			
High Temp Disconnect 1	Disabled	Disabled / Enabled			
LVD1 Contactor Type	Bistable	Bistable / Monostable/ Monostable with sampler	Set to "Monostable" if EPO is included in the system.		
LVD1 EXT1 CABINET					
LVD1	Enabled	Disabled / Enabled			
LVD 1 By Battery Capacity	Disabled	Enabled / Disabled			
LVD 1 Disconnect Capacity	10 %	5 – 90 %			
LVD1 Voltage	45.0 V	36 – 60 V			
LVD1 Reconnect Voltage	50.0 V	40 – 60 V			
LVD1 Reconnect Delay	2 min	0 – 30 min			
LVD 1 By Time	Disabled	Enabled / Disabled			
LVD1 Time	600 min	30 – 1000 min			
LVD1 Dependency	None	LVD1 / LVD2			
LVD1 AC Fail Required to Disconnect	No	No / Yes			
LVD1 AC Required to Reconnect	Yes	No / Yes			
High Temp Disconnect 1	Disabled	Disabled / Enabled			

2.7 Settings->Temperature

Selection	Default	Range	Remark	Plant-specific	Sign. Date
TEMPERATURE					
Ambient Temperature Sensor	None	None/ Max/ Average/ Temp1/ Temp2			
Very High Ambient Temperature	55 deg.C	-40 – 100 deg.C			
High Ambient Temperature Level	35 deg.C	-40 – 100 deg.C			
Low Ambient Temperature Level	5 deg.C	-40 – 100 deg.C			
System Temperature 1	Battery	None / Ambient / Battery			
System Temperature 2	None	None / Ambient / Battery			
System Temperature 3	None	None / Ambient / Battery			
IB2 Temperature 1	None	None / Ambient / Battery			
IB2 Temperature 2	None	None / Ambient / Battery			
EIB Temperature 1	None	None / Ambient / Battery			
EIB Temperature 2	None	None / Ambient / Battery			
Sensor for Temp Compensation	Temperature 1	None/ Max/ Average/ Temp1/ Temp2			
Very High Compensation	55 deg.C	0 – 100 deg.C			
High Compensation Temperature	40 deg.C	0 – 100 deg.C			
Low Compensation Temperature	0 deg.C	-40 – 100 deg.C			
BTRM Temperature Sensor	Temperature 1	None/ Max/ Average/ Temp1/ Temp2			

2.8 Settings->Rectifiers

Selection	Default	Range	Remark	Plant-specific	Sign. Date
RECTIFIERS					
Rectifier Current Limit	121 %	0 – 121 %	Control value sent by NCU to rectifiers.		
Voltage Trim	54.5 V	42 – 58.5 V			
High Voltage Limit	59.0 V	56 – 59.5 V			
Restart on Overvoltage Enabled	Enabled	Disabled / Enabled			
Restart Time on Overvoltage	300 s	0 – 300 s			
Sequence Start Interval	0 s	0 – 10 s			
WALK-In	Disabled	Disabled / Enabled			
WALK-In Time	8 s	8 – 128 s			
Input Current Limit	30.0 A	1 – 50 A			
Diesel Power Limitation	Disabled	Disabled / Enabled			
Diesel DI Input	None	None/ DI1/ DI2/ DI3/ DI4/ DI5/ DI6/ DI7/ DI8			
Diesel Power Limit Point Set	40.0 %	40 – 100 %			
Confirm Rect Position/Phase	Yes	Yes			
Reset Rectifier IDs	Yes	Yes			
Clear Rectifier Comm Fail Alarm	Yes	Yes			
Reset Rectifier Lost Alarm	Yes	Yes			
Delay of LowRectCap Alarm	0 min	0 – 120 min			
Maximum Redundancy	50 %	0 – 100 %			
Benchmark Rectifier	R48-3500e3	R48-3500e3 / R48-3200 / 96% / 95% / 94% / 93% / 92% / 91% / 90%			
Cost per kWh	0.15	0 – 10			
Currency	USD	USD / CNY / EUR / GBP / RUB			
Percentage 98%	100%	100% / 90% / 80% / 70% / 60% / 50% / 40% / 30% / 20% / 10%			
Default Voltage	53.5 V	42 – 58 V			
Delta Voltage for Rect Enable	Disabled	Disabled / Enabled			
Delta Voltage for Rect	1.0 V	0 – 2 V			

2.9 Settings->Solar

Selection	Default	Range	Remark	Plant-specific	Sign. Date
SOLAR					
Solar Converter Current Limit	121 %	0 – 121 %	Control value sent by NCU to solar converters.		
Solar Converter Trim	54.5 V	42 – 58.5 V			
Clear Solar Converter Lost Alarm	Yes	Yes			
Confirm Solar Converter ID	Yes	Yes			
Reset Solar Converter IDs	Yes	Yes			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
High Voltage Shutdown Limit	59.0 V	56 – 59.5 V			
Restart on HVSD	Disabled	Disabled / Enabled			
HVSD Restart Time	300 s	0 – 300 s			
WALK-In	Disabled	Disabled / Enabled			
WALK-In Time	8 s	8 – 128 s			
Sequence Start Interval	0 s	0 – 10 s			
Clear Solar Converter Comm Fail	Yes	Yes			
Solar Failure Min Time	3 day	1 – 7 day			
MPPT Default Voltage	53.5 V	42 – 58 V			
Delta Voltage for MPPT Enable	Disabled	Disabled / Enabled			
Delta Voltage for MPPT	0.5 V	-3 – 3 V			
Solar Converters Off by Voltage	Disabled	Disabled / Enabled			
Solar Converters Off Voltage	46.0 V	40 – 58 V			
Solar Converters On Voltage	48.0 V	40 – 58 V			
Solar Converters Off by DI	Disabled	Disabled / Enabled			
Solar Converters Off DI	None	None/ IB1-DI1 / IB1-DI2 / IB1-DI3 / IB1-DI4 / IB1-DI5 / IB1-DI6 / IB1-DI7 / IB1-DI8 / IB0-DI1 / IB0-DI2 / IB0-DI3 / IB0-DI4			

2.10 Settings->Battery Test

Selection	Default	Range	Remark	Plant-specific	Sign. Date
BATTERY TEST					
AC Fail Test	Disabled	Disabled / Enabled			
Constant Current Test	Disabled	Disabled / Enabled			
Constant current Test Current	9999.0 A	1 – 9999 A			
Test Voltage Level	45.0 V	43 – 53.5 V			
End Test Voltage	46.4 V	43.2 – 53.5 V			
End Test Time	60 min	1 – 1440 min			
End Test Capacity	30 %	0 – 100 %			
Record Threshold	0.050 V	0.1 – 1 V			
Lowest Capacity for Battery Test	99 %	70 – 100 %			
Battery Test Control	Stop	Stop / Start			
Reset Bad Battery Alarm	Yes	Yes			
Clear Battery Test Fail Alarm	Yes	Yes			
Reset Discharge Curr Imbalance	Yes	Yes			
Planned Test Enable	Disabled	Disabled / Enabled			
Test Interval	84 Days	7 – 364 Days			
Periodic BDT Start Time	8 Hrs	0 – 23 Hrs			
Guard Period	48 Hrs	0 – 168 Hrs			
Initial Test Date	2022-10-27	> 2022-01-01			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Next BDT Date	2023-09-28	This not a setting, just information about when next test will be done.			

2.11 Settings->Time Settings

Selection	Default	Range	Remark	Plant-specific	Sign. Date
TIME SYNCHRONIZATION					
Type	Specify Time	Specify Time / Get time automatically from the following time servers			
Date & Time					
Local Zone	GMT +00:00				
Primary Server IP	0.0.0.0				
Secondary Server IP	0.0.0.0				
Interval to Adjust Time	60 min				

2.12 Settings -> Independent Input

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Independent Input					
Input Current	Disabled	Disabled / Enabled			
Shunt Current	200.0 A	50 – 5000 A			
Shunt Voltage	25.0 mV	1 – 150 mV			

2.13 Settings->Output Relays

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Output Relays					
Relay IB1-DO1 Normal State	Energized	Non-Energized / Energized			
Relay IB1-DO2 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO3 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO4 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO5 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO6 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO7 Normal State	Non-Energized	Non-Energized / Energized			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Relay IB1-DO8 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB0-DO1 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB0-DO2 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB0-DO3 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB0-DO4 Normal State	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO1 Normal State	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO2 Normal State	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO3 Normal State	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO4 Normal State	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO5 Normal State	Non-Energized	Non-Energized / Energized			
Relay IB1-DO1	Energized	Non-Energized / Energized			
Relay IB1-DO2	Non-Energized	Non-Energized / Energized			
Relay IB1-DO3	Non-Energized	Non-Energized / Energized			
Relay IB1-DO4	Non-Energized	Non-Energized / Energized			
Relay IB1-DO5	Non-Energized	Non-Energized / Energized			
Relay IB1-DO6	Non-Energized	Non-Energized / Energized			
Relay IB1-DO7	Non-Energized	Non-Energized / Energized			
Relay IB1-DO8	Non-Energized	Non-Energized / Energized			
Relay IB0-DO1	Non-Energized	Non-Energized / Energized			
Relay IB0-DO2	Non-Energized	Non-Energized / Energized			
Relay IB0-DO3	Non-Energized	Non-Energized / Energized			
Relay IB0-DO4	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO1	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO2	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO3	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO4	Non-Energized	Non-Energized / Energized			
Relay EIB1-DO5	Non-Energized	Non-Energized / Energized			

2.14 Settings->Inverter

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Inverters					
AC Phases	Single Phase	Single Phase / Three Phases	This setting is only available when inverters have been switched off via setting "Output On/Off".		
Output Voltage Level	230 V	200V / 208 V / 220 V / 230 V / 240 V	This setting is only available when inverters have been switched off via setting "Output On/Off".		
Output Frequency	50 Hz	50 Hz / 60 Hz	This setting is only available when inverters have been switched off via setting "Output On/Off".		
DC Low Voltage Off	41.0 V	40 – 48V			
DC Low Voltage On	45.0 V	40 – 48V			
DC High Voltage Off	58.0 V	48 – 58.5V			
DC High Voltage On	57.0 V	48 – 58.5V			
Inv Primary Input Power	AC	AC / DC / DC Only			
Inverters LED Control	Stop Flashing	Stop Flashing / All Flashing			
Output On/Off	Switch On All	Switch On All / Switch Off All			
Fan Speed	Automatic Speed	Automatic Speed / Full Speed			
Clear Inverter Lost Alarm	Yes	Yes			
Confirm Inverter ID/Phase	Yes	Yes			
Clear Inverter Comm Fail Alarm	Yes	Yes			
Reset Inverter IDs	Yes	Yes			
Clear Fault	Yes	Yes			
Reset Energy	Yes	Yes			
Qty of Invt redundant modules	8	0 - 24			
Redundancy	1	1 / 2 / 3			

2.15 Advanced Settings->Ethernet

Selection	Default	Range	Remark	Plant-specific	Sign. Date
IPv4					
IP Address	192.168.1.1				
Subnet Mask	255.255.255.255				
Default Gateway					
IPv4 DHCP					
Server IP	192.168.100.100		Only possible to view		
IPv6					
Link-Local Address	Fe80::209:f5ff:fe10:10b / 64				
IPv6 Address					
Subnet Prefix					
Default Gateway					

Selection	Default	Range	Remark	Plant-specific	Sign. Date
IPV6 DHCP					
Server IP					
IPTABLE					
Enable IPTABLE		Disabled / Enabled			
Start IP	0.0.0.0				

2.16 Advanced Settings->Users

Selection	Default	Range	Remark	Plant-specific	Sign. Date
USER INFORMATION					
admin	Administrator				
demo	Browser				
control	Engineer				
ADD OR MODIFY USER					
User Name					
Authority		Browser / Operator / Engineer / Administrator			
Password			Must be at least eight characters		
Confirm			Re-type password		
RADIUS SERVER SETTINGS					
Enable Radius	Disabled	Disabled / Enabled			
Primary Server					
Secondary Server					
Secret Key					
Confirm					
NAS-Identifier	Disabled	Disabled/Enabled			
Primary Port	1812				
Secondary Port	1812				

2.17 Advanced Settings->SNMP

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Accepted Trap Level	Not Used	Not Used / All Alarms / Major Alarms / Critical Alarms			
NMSV2 CONFIGURATION					
NMS IP					
Public Community					
Private Community					
Trap Enabled		Disabled / Enabled			
NMSV3 CONFIGURATION					

Selection	Default	Range	Remark	Plant-specific	Sign. Date
User Name					
Priv Password DES					
Auth Password MD5					
Trap Enabled		Disabled / Enabled			
Trap IP					
Trap Security Level		NoAuthNoPriv / AuthNoPriv / AuthPriv			

2.18 Advanced Settings->Language

Selection	Default	Range	Remark	Plant-specific	Sign. Date
LOCAL LANGUAGE					
		Deutsch / Español / Français / Italiano / Русский / Portuguese 简体中文 / Türk			

2.19 Advanced Settings->Alarm Report

Selection	Default	Range	Remark	Plant-specific	Sign. Date
SMTP					
Email To					
Server IP					
Server Port					
Email From					
Authority	Enabled	Enabled / Disabled			
SMTP Account					
SMTP Password					
Alarm Report Level	None	None / All Alarms / Major and Critical Alarm / Critical Alarm			
SMS					
Cell Phone Number 1					
Cell Phone Number 2					
Cell Phone Number 3					
Alarm Report Level	None	None / All Alarms / Major and Critical Alarm / Critical Alarm			

2.20 Advanced Settings->Shunt

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Shunt					
Battery1 Shunt Full Current	1000 A	50 – 5000 A			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Battery1 Shunt Full Voltage	25.0 mV	1 – 150 mV			
DC Distribution Load Shunt Exists	No	No / Yes			
DC Distribution Shunt Full Current	500 A	50 – 5000 A			
DC Distribution Shunt Full Voltage	75.0 mV	1 – 150 mV			

2.21 Advanced Settings -> Generator

Selection	Default	Range	Remark	Plant-specific	Sign. Date
DG					
Hybrid Mode	Disable	Disable / Capacity / Cyclic			
Used DG for Hybrid	DG2	DG1 / DG2 / Both			
DG Stop SOC	85.0 %	30 – 100 %			
Depth of Discharge	40.0 %	20 – 96 %			
DG Start SOC Only	No	No / Yes			
Hybrid High Load Level	40.0 %	20 – 80 %			
DG Run at High Temperature	Enable	Disable / Enable			
DG Run Time at High Temperature	60 min	30 – 120 min			
DI for Grid	NA	DI1 / DI2 / DI3 / DI4 / DI5 / DI6 / DI7 / DI8 / DI9 / DI10 / DI11 / DI12			
Diesel Alarm Delay	300 s	30 – 500 s			
Fail Safe Mode(Hybrid)	NC	NC / NO			
Relay For DG1	NA	NA / Relay IB1-DO1 / Relay IB1-DO2 / Relay IB1-DO3 / Relay IB1-DO4 / Relay IB1-DO5 / Relay IB1-DO6 / Relay IB1-DO7 / Relay IB1-DO8 / Relay IB0-DO1 / Relay IB0-DO2 / Relay IB0-DO3 / Relay IB0-DO4			
Relay For DG2	NA	NA / Relay IB1-DO1 / Relay IB1-DO2 / Relay IB1-DO3 / Relay IB1-DO4 / Relay IB1-DO5 / Relay IB1-DO6 / Relay IB1-DO7 / Relay IB1-DO8 / Relay IB0-DO1 / Relay IB0-DO2 / Relay IB0-DO3 / Relay IB0-DO4			
Hybrid Equalising Mode	SOC Only	Normal / SOC Only / Volt Only			
Bad Grid to Grid	Disable	Disable / Enable			

Selection	Default	Range	Remark	Plant-specific	Sign. Date
Bad Grid Delay Time	15 min	1 – 60 min			
Bad Grid Soc Threshold	60.0 %	50 – 90 %			
DG Warmup Enabled	Disable	Disable / Enable			
DG Cooldown Enabled	Disable	Disable / Enable			
Rect On Soc Threshold	60.0 %	10 – 90 %			
Rect On Volt Threshold	46.0 V	40 – 60 V			
DG Noload Time	3 min	1 – 60 min			
Volt Stop DG Enabled	Disable	Disable / Enable			
Stop DG Voltage	56.0 V	40 – 60 V			
DG Test Enabled	Disable	Disable / Enable			
DG Test Start Time	7 hh	0 – 23 hh			
DG Schedule Test Period	168 hrs	72 – 720 hrs			
DG Test Run-Time	15 min	10 – 360 min			
Delay of DG Test Operation	5 min	1 – 8 min			
DGOnly	DGOnly	DGOnly / DG+Grid			
Clear DG Test Alarm	Yes	Yes			
Hybrid Shift Enabled by Volt	Disable	Disable / Enable			
DG Stop Point 1 Volt	54.0 V	0 – 60 V			
DG Stop Point 1 Start Time	03:00:00 hh:mm:ss	00:00:00 – 23:59:59 hh:mm:ss			
DG Stop Point 1 Stop Time	09:00:00 hh:mm:ss	00:00:00 – 23:59:59 hh:mm:ss			
DG Stop Point 2 Volt	0.0 V	0 – 60 V			
DG Stop Point 3 Volt	0.0 V	0 – 60 V			
DG Stop Point 4 Volt	0.0 V	0 – 60 V			
Hybrid Shift Enabled by SOC	Disable	Disable / Enable			
DG Stop Point 1 SOC	75.0 %	0 – 100 %			
DG Stop Point 2 SOC	0.0 %	0 – 100 %			
DG Stop Point 3 SOC	0.0 %	0 – 100 %			
DG Stop Point 4 SOC	0.0 %	0 – 100 %			
DG Stop BMS 1 Start Time	03:00:00 hh:mm:ss	00:00:00 – 23:59:59 hh:mm:ss			
DG Stop BMS 1 Stop Time	09:00:00 hh:mm:ss	00:00:00 – 23:59:59 hh:mm:ss			

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