Troubleshooting

V15 LFP Battery

Contents

Power a Better Life

Part 1

Charging / Discharging

CHARGING / DISCHARGING

Charging Current Limit

Reasons	Details
SOC	SOC is over 80%
Voltage	Single cell is over 3.5V or pack is over 56V
Temperature	<10°C or >55°C
Inverter	Battery charging current set on inverter is smaller than battery rated charging current
Inverter	Inverter max charging current is lower than total battery current
PV	Off-grid, PV generated insufficient power

Discharging Current Limit

| Reasons	Details
SOC	SOC is 20% less
Voltage	Single cell is over 2.8V or pack is 45V less
Temperature	<-5°C or >55°C
Inverter	Battery discharging current set on inverter is smaller than battery rated discharging current
Inverter	Inverter max discharging current is lower than total battery current
Load	Load is small, requires less than rated battery power

Part 2

Alarm Indicator

>>> INDICATOR LIGHTS

V15 Indicating Lights

V15	Normal/ Alarm/ Protection	ALM 🔴	RUN 🟢	Capacity LED	Description
Shutdown	/	OFF	OFF	OFF	All off
Power on	Normal	ON	ON	ON	All lights will be on for 1 second at the same time.
Standby	Normal	OFF	Blink 1	OFF	Standby
	Alarm	Blink 3	OFF	OFF	Low Voltage
Charging	Normal	OFF	Blink 3	Based on Capacity	
	Alarm	Blink 3	Blink 3		
	Protection	ON	OFF	All off	Protection triggered, charging stops
Discharging	Normal	OFF	ON	Based on Capacity	
	Alarm	Blink 3	ON		
	Protection	ON	OFF	All off	Protection triggered, discharging stops

>>> INDICATOR LIGHTS

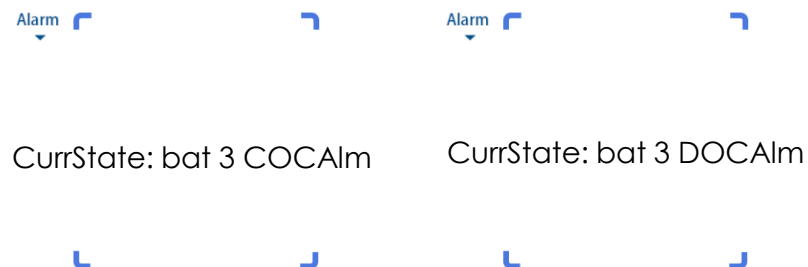## 2.1 Alarm Blink

1. Pack/Cell High Voltage

VoltState: bat 1 HV   Battery VolState: bat 1 HV
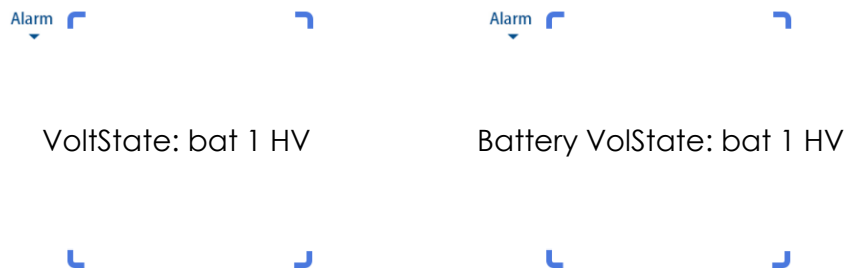
Solution:
Discharge the battery

2. Pack/Cell Low Voltage

VoltState: bat 2 LV   Battery VolState: bat 2 LV

Solution:
Charge the battery

3: Charge/Discharge Current Over Rated Current

CurrState: bat 3 COCAlm   CurrState: bat 3 DOCAlm

Solution:
① Adjust the charging current on the inverter
② Reduce loads to match system rated output power
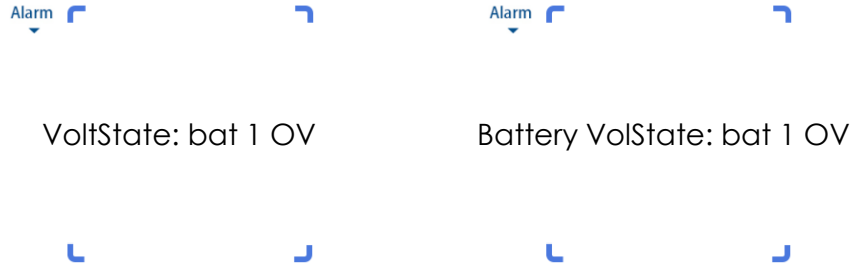
4: Battery High/Low Temperature

Tempstate: bat 4 HT
TempState bat 5 LT

Solution:
Restore the Temp. to normal operating Temp.

>>> INDICATOR LIGHTS

2.2 Alarm Constantly Lights Up

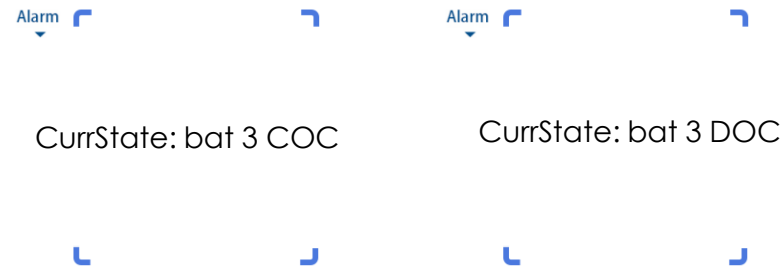### 1. Pack/Cell Over Voltage

VoltState: bat 1 OV

Battery VolState: bat 1 OV

Solution:
Discharge the battery

2. Pack/Cell Under Voltage

VoltState: bat 2 UV

Battery VolState:bat 2 UV
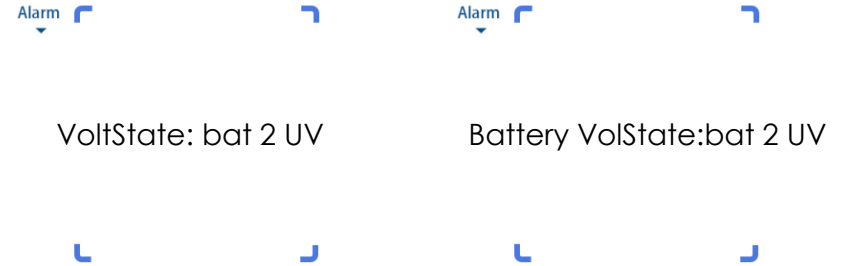
Solution:
Charge the battery

3: Battery over Current

CurrState: bat 3 COC

CurrState: bat 3 DOC

Solution:
Wait 60s to recover
1. Adjust the charging/discharging current on inverter
2. Reduce loads to match inverter AC output power
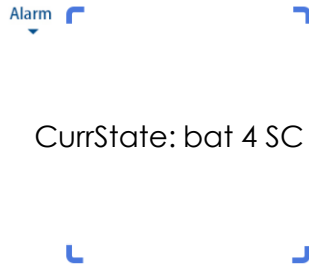
4: Battery Over/Under Temperature

Tempstate: bat 5 OT
TempState bat 5 UT

Solution:
Restore the Temp. to normal operating Temp.

INDICATOR LIGHTS

2.2 Alarm Constantly Lights Up

5. Battery Short Circuit

Alarm

CurrState: bat 4 SC
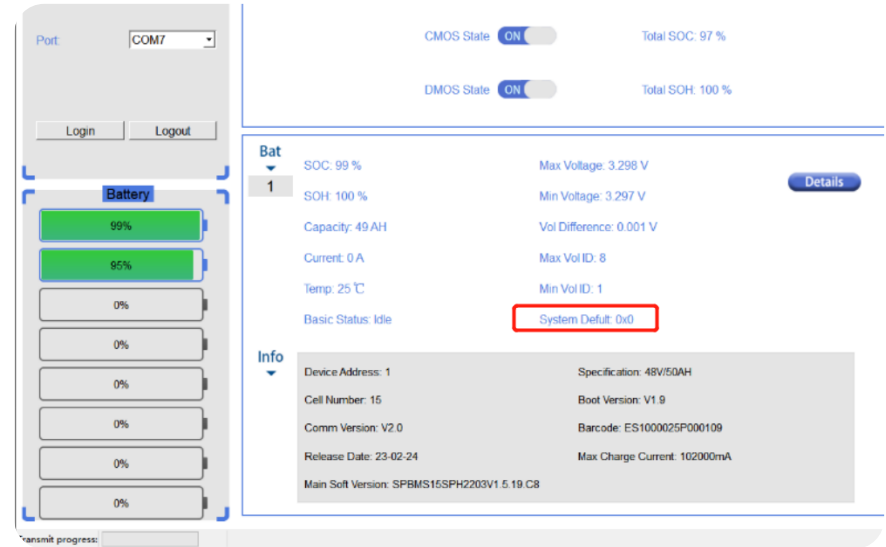
Solution:
1. Turn off battery and measure + - terminal voltage.
2. If there is no voltage, restart.
3. If there's voltage, contact Pytes.
4. If battery can't charge, discharge, contact Pytes.

6. System Fault

Solution:
Contact Pytes for service by sending above Screenshot

>>> INDICATOR LIGHTS

2.3 No Lights on

1. Battery Out of Power

If battery can be charged normally, it is out of power. The indicator lights will revert to normal.

Avoid deep discharge the battery.
Charge the battery to 90% of rated capacity.

2. Indicator Light Belt Damaged

If battery can be charged and discharged normally, and BMSQt displays normal, the indicator light Belt is damaged.

Contact Pytes for after-sales service.

3. Battery Needs to Awake

Test
If battery can not be charged,
No information displays on BMSQt

Analysis
Battery upgrade is interrupted
Or wrong software version is upgraded to the battery.

Solution:
1. Contact Pytes for correct firmware.
2. Follow BMSQt User Manual to awake battery.
3. Follow BMSQt User Manual to upgrade firmware.

Part 3

Error to Solution

>>> TROUBLE SHOOTING

System Fault Code & General Solution

Fault Codes	Description	General Solution
0x001	Reverse connection of external power input	Check external cable connection. Measure terminal voltage
0x002	External power input overvoltage	Check external cable connection. Measure terminal voltage
0x004	Current detection error	Current calibzation. Replace control board if problem is not solved.
0x008	BMIC abnormal	Replace control board
0x010	System voltage detection abnormal	Replace control board
0x020	Temperature sensor error	Replace control board
0x040	Voltage detection error	Replace control board
0x080	12C bus error	Replace control board
0x100	CAN bus address assignment error	Check communication cable connection and battery barcode. Replace control board if problem is not solved.
0x200	Internal CAN bus communication error	Check communication cable connection and battery barcode. Replace control board if problem is not solved.
0x400	Charge Relay Fail	Replace power board
0x800	Discharge Relay Fail	Replace power board
0x1000	RAM abnormal	Replace control board
0x2000	Flash abnormal	Replace control board
0x4000	Register abnormal	Replace control board
0x8000	Code abnormal	Replace control board
0x10000	Timer abnormal	Replace control board
0x20000	I2C0 abnormal	Replace control board
0x40000	I2C1 abnormal	Replace control board
0x80000	Heating Pad abnormal	Return to repair. Check heating pad circuit (Optional Device)
0x100000	Temperature deviation abnormal	Replace control board
0x200000	BMM timer abnormal	Replace control board
0x400000	LED timer abnormal	Replace control board
0x800000	COMM timer abnormal	Replace control board

System Fault Code Address

Follow guides in **BMSQt User Manual.pdf** to install the software.
Then obtain the system Fault Code from BMSQt.

>>> ERROR TO SOLUTION

Error	Solution
Fail to Power on/off	**A. Bootloader Error. Battery Dead** 1. Awake battery with BMSQt. 2. If above fail, replace Control Board.
	B. Battery Over discharge, Battery Under Voltage 1. Measure battery P+P-, no voltage 2. Open battery top cover, measure B+B- voltage, less than 32V 3. Set 52V, 5A on DC charger to charge battery. 4. Stop immediately if Voltage does NOT rise in one minute.
	C. Power Board Damaged 1. Measure battery P+P-, no voltage 2. Open battery top cover, measure B+B- voltage, normal. 3. Replace Power Board.
	D. Cell Fail 1. Measure battery P+P-, no voltage 2. Open battery top cover, no voltage at B+B- 3. Contact Pytes
	E. Control board Damaged 1. Battery on and off repeatedly 2. Replace Control Board

ERROR TO SOLUTION

Error	Solution
Communication Error	1. BMSQt Faulty Code, i.e. 0x200 2. Check cabling, DIP, battery barcode 3. Upgrade battery firmware to the lastest 4. Replace communication cable 5. Replace Control Board
Temperature Sampling Error	1. Unplug & plug sampling line 2. If 1 doesn't work. Replace sampling line. 3. If 2 doesn't work, replace Control Board. 4. If 3 doesn't work, inner sampling board error, Contact Pytes.
Voltage Sampling Error	A. Cell Voltage Discrepancy 1. Float charge battery with 56.8V, 2A at charging end. 2. If above doesn't work, compare P+P- voltage, to value on BMSQt 2.1 If different, replace sampling line/Control Board. 2.2 If same, cell fail. B. Sampling Line Fail 1. Cell voltage is over normal range, i.e. 10V 2. Replace sampling line.

FAQ

>>> FAQ

Topic	**Force Charge**
Q1	Will battery send force charge request if low voltage?
A1	Yes.
Q2	At what SOC or voltage, force charge will be triggered?
A2	x% SOC, single cell at xxV(待更新)

Topic	**Sleep Mode**
Q1	Does battery have sleep mode?
A1	Yes
Q2	In which condition battery will enter sleep mode?
A2	In 72 hours no charging or discharging. Or in 40 minutes after battery reaches under voltage value.
Q3	What is the battery under voltage value?
A3	47V
Q4	What is the battery power self consumption when battery is in sleep mode?
A4	<=3% SOC per month.

Topic	**Low/Under Voltage**
Q1	Is there a specific requirement in terms of time, to charge the battery after under voltage protection triggered?
A1	Within 12 hours after battery under voltage protection triggered.

FAQ

Topic	**Battery Balance**
Q1	What is the condition that will trigger battery balance?
A1	Battery Idle or Charging, single cell reaches 3360mV, and voltage discrepancy is over 30mV.

Topic	**Battery Parallel Connection**
Q1	What is the max voltage difference that batteries can be parallel connected?
A1	Pack voltage not over 1.5V.
Q2	Can new batteries be added to an existing system?
A2	Yes, and upgrade all batteries to the latest firmware, and fully charge each battery individually before connection.
Q3	What are the possible reasons may cause closed loop communication failure with inverter
A3	DIP switch, Communication Cable Pin Sequence, Cabling, Inverter Setting, Firmware version, barcode

Topic	**Battery Monitoring Software**
Q1	Is there a battery monitoring software?
A1	Yes, it is BMSQt, version number 2.8.4.
Q2	Is there firmware upgrade guidance document?
A2	Yes. It is BMSQt User Manual.pdf.

Thank You!

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