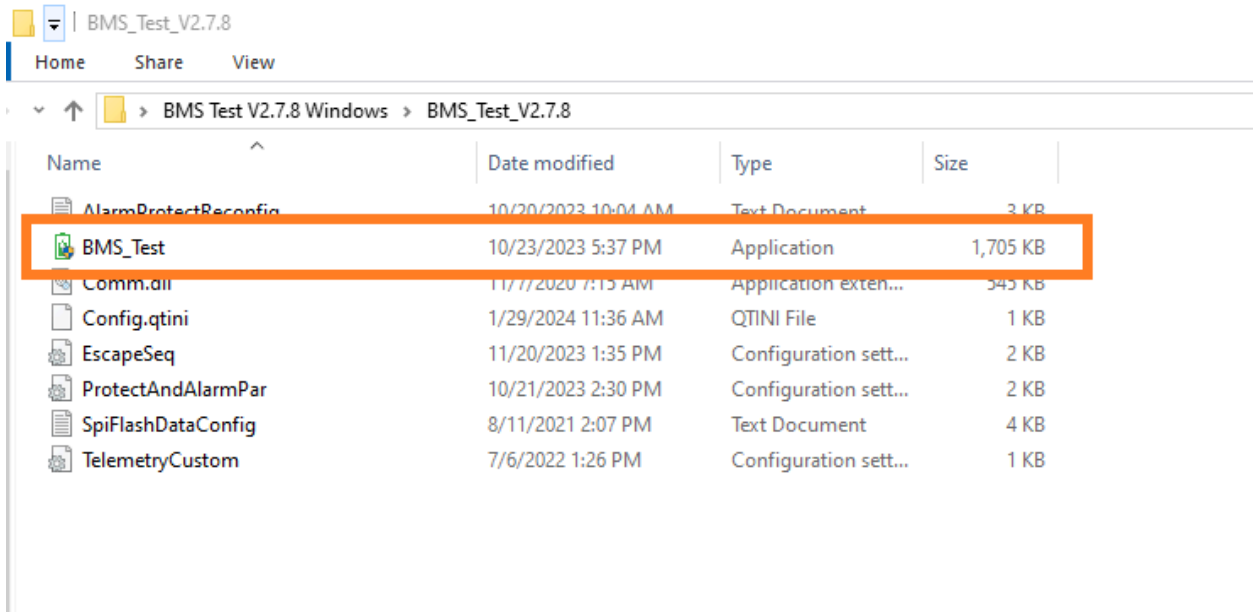


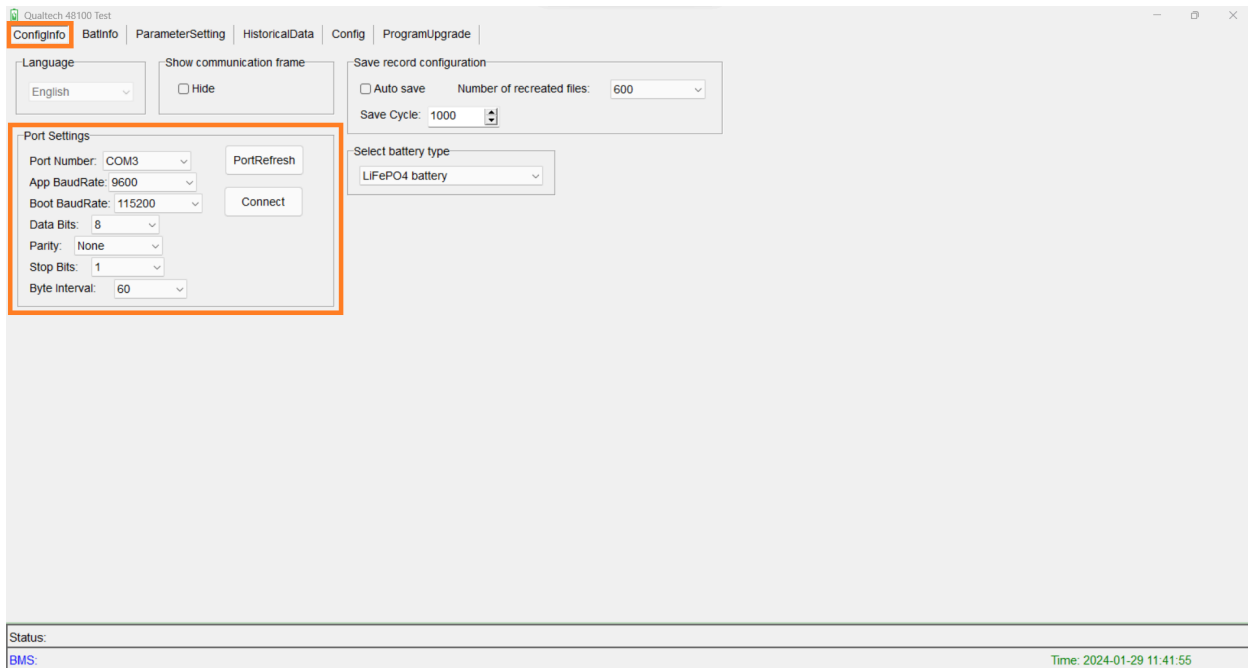


Connection guide for BMS Test V2.7

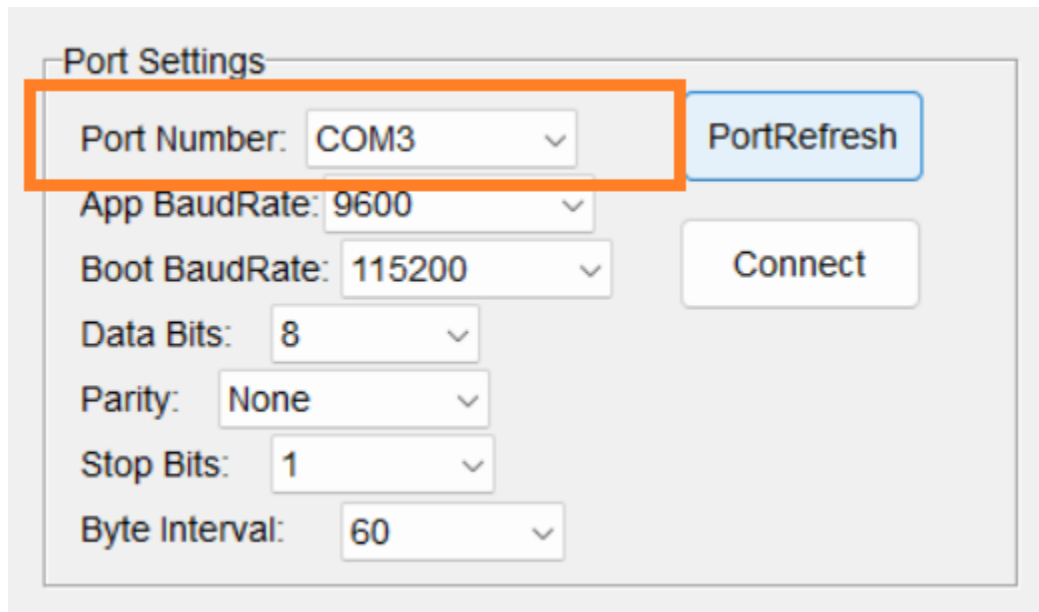
1. Using an RS-485 (RJ45 Pins 1-B,2-A) to USB-A connect to the RS-485 port of the battery and then to a USB-A port on a Windows computer.
2. Extract and open the BMS Test.zip file, then open the BMS_Test application file to open the program.



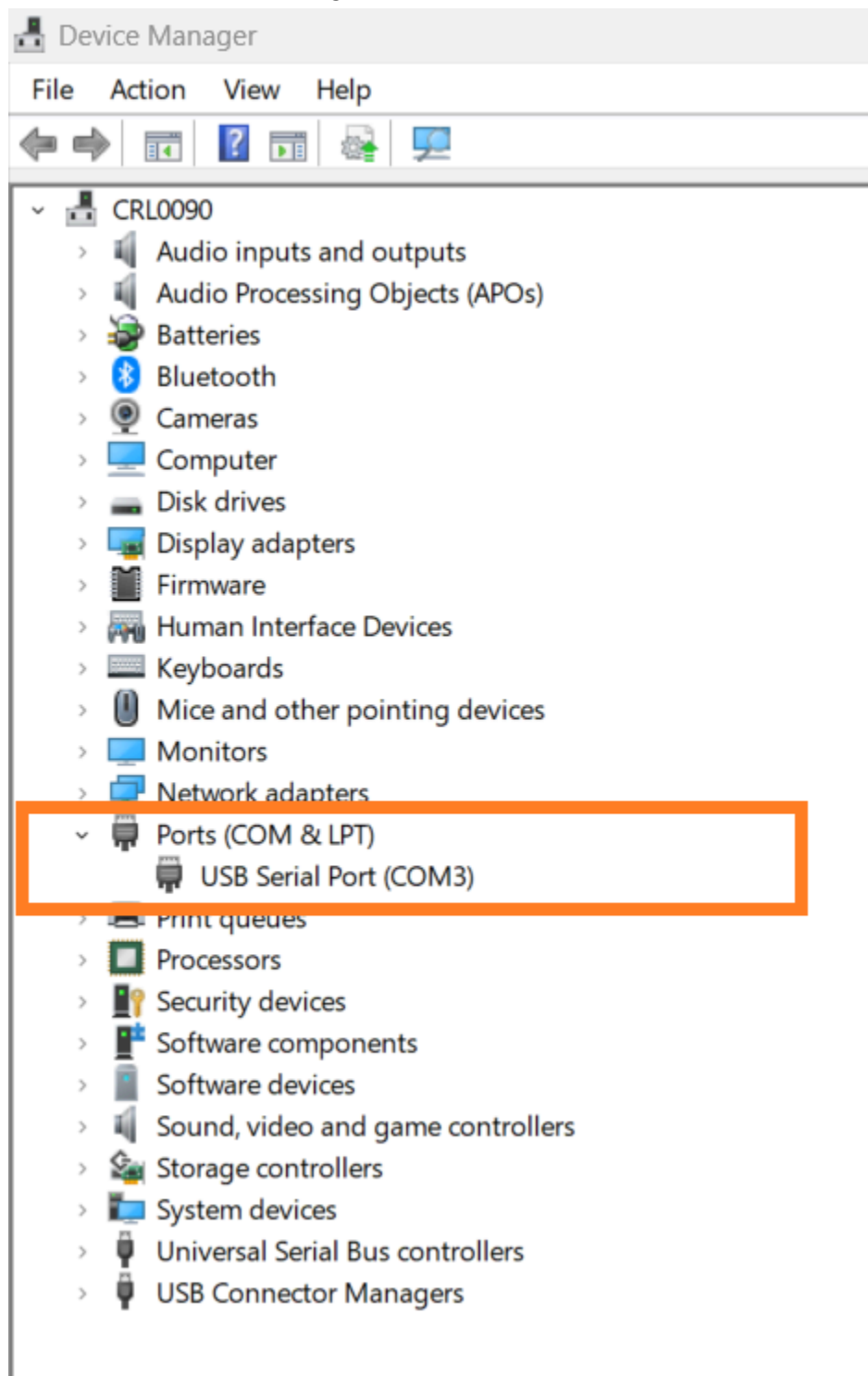
3. On the Config Info tab, this will be the tab where the RS485 cable is configured. Under Port Settings is where the Port Number: COM3-EXAMPLE will be chosen.



The Port Number: will depend on how many devices Windows has assigned. The RS485 cable will be assigned a COM number. Please refer to the Device Manager for the correct COM.



Example of what Windows has assigned the RS485 cable as USB Serial Port(COM3)



4. After configuring the correct COM, click Connect. On the bottom of the program, Status: Port opened successfully! Will begin flashing.

The screenshot displays the 'Qualtech 48100 Test' application window. The 'ConfigInfo' tab is active, showing various configuration options. In the 'Port Settings' section, the 'Port Number' is set to 'COM3', 'App BaudRate' is '9600', 'Boot BaudRate' is '115200', 'Data Bits' is '8', 'Parity' is 'None', 'Stop Bits' is '1', and 'Byte Interval' is '60'. The 'Disconnect' button is highlighted with an orange rectangle. The 'Status' bar at the bottom left shows 'Status: Port opened successfully! [2024-01-29 11:43:31]' with a timestamp. The 'Time' bar at the bottom right shows 'Time: 2024-01-29 11:43:39'.

Qualtech 48100 Test

ConfigInfo | BatInfo | ParameterSetting | HistoricalData | Config | ProgramUpgrade

Language: English

Show communication frame: ☐ Hide

Save record configuration: ☐ Auto save Number of recreated files: 600 Save Cycle: 1000

Port Settings:

Port Number: COM3 PortRefresh

App BaudRate: 9600

Boot BaudRate: 115200 Disconnect

Data Bits: 8

Parity: None

Stop Bits: 1

Byte Interval: 60

Select battery type: LiFePO4 battery

Status: Port opened successfully! [2024-01-29 11:43:31]

BMS: Time: 2024-01-29 11:43:39

5. Next navigate to the BatInfo tab, this is the tab where all battery information will be populated.

Qualtech 48100 Test

ConfigInfo | **BatInfo** | ParameterSetting | HistoricalData | Config | ProgramUpgrade

SinglePack | MultiPacks

Packs Number: 1

Start Addr: 1

Add address to sequence

Address for testing:

✓Adr: 1

Total_Volt: V
Current: A
Max_Volt: V
Min_Volt: V
Max_Diff: V
Max_Temp: °C
Min_Temp: °C
MOS_Temp: °C
ENV_Temp: °C

CMOS/DMOS state

● CMOS: ● DMOS: ● State:
● Heater: Off ● Limiter: Off

SN:
Address of display information: 0

Num	Alarm Status
1	None

Num	Protection Status
1	None

Name	Value	Unit
------	-------	------

Status: Address 1 read remote measurement information failed! [2024-01-29 11:44:51]

BMS: Time: 2024-01-29 11:44:52

The Pack Number: # will be determined by the amount of Lifepower4 batteries you are wanting to view in a multipack.

Qualtech 48100 Test

ConfigInfo | **BatInfo** | ParameterSetting | HistoricalData | Config | ProgramUpgrade

SinglePack | MultiPacks

Packs Number: 1

Start Addr: 1

Add address to sequence

Address for testing:

✓Adr: 1

Total_Volt: V
Current: A
Max_Volt: V
Min_Volt: V
Max_Diff: V
Max_Temp: °C
Min_Temp: °C
MOS_Temp: °C
ENV_Temp: °C

CMOS/DMOS state

● CMOS: ● DMOS: ● State:
● Heater: Off ● Limiter: Off

SN:
Address of display information: 0

Num	Alarm Status
1	None

Num	Protection Status
1	None

Name	Value	Unit
------	-------	------

Status: Address 1 read remote measurement information failed! [2024-01-29 11:45:50]

BMS: Time: 2024-01-29 11:45:50

- The screenshot displays the Qualtech 48100 Test software interface. At the top, a menu bar includes options like ConfigInfo, BatInfo, ParameterSetting, HistoricalData, Config, and ProgramUpgrade. Below the menu, there are tabs for SinglePack and MultiPacks.

The main window is divided into several sections. On the left, a vertical list of addresses (0 to 29) is shown, with address 1 highlighted. To the right of this list, a configuration window for 'Packs Number: 1' is open. This window contains a battery icon, various sensor readings (Total_Volt, Current, Max_Volt, Min_Volt, Max_Diff, Max_Temp, Min_Temp, MOS_Temp, ENV_Temp), a CMOS/DMOS state section with three red indicator lights, and a section for SN and Address of display information. Below these, there are two tables: 'Alarm Status' and 'Protection Status', both showing a single row with '1' and 'None'.

On the right side of the interface, there is a large table with three columns: Name, Value, and Unit. The table is currently empty.

At the bottom of the screen, a status bar displays the message: 'Status: Address 1 read remote measurement information failed! [2024-01-29 11:46:12]'. Below this, there are two more status indicators: 'BMS:' and 'Time: 2024-01-29 11:46:12'.

7. Then click Add address to sequence. This will then begin to monitor the Pack number: 1 & Start Adr:0 to be populated

The screenshot shows the Qualtech 48100 Test software interface. The left sidebar has a button labeled "Add address to sequence" highlighted with a red box. The main window displays the following information:

- Packs Number:** 1
- Start Adr:** 0
- Address for testing:** Adr: 0
- Battery Status:** 15.40% SOC
- Total_Volt:** 53.35 V
- Current:** 0.00 A
- Max_Volt:** 3.335 V
- Min_Volt:** 3.334 V
- Max_Diff:** 0.001 V
- Max_Temp:** 21 °C
- Min_Temp:** 21 °C
- MOS_Temp:** 22 °C
- ENV_Temp:** 22 °C
- CMOS/DMOS state:** CMOS: On, DMOS: On, State: Idle, Heater: Off, Limiter: Off
- SN:** Address of display information: 0
- Alarm Status:**

Num	Alarm Status
1	SOC low alarm
- Protection Status:**

Num	Protection Status
1	None
- Cell Voltages Table:**

Name	Value	Unit
Cell_1	3.335	V
Cell_2	3.335	V
Cell_3	3.335	V
Cell_4	3.335	V
Cell_5	3.335	V
Cell_6	3.335	V
Cell_7	3.335	V
Cell_8	3.335	V
Cell_9	3.335	V
Cell_10	3.335	V
Cell_11	3.335	V
Cell_12	3.335	V
Cell_13	3.335	V
Cell_14	3.335	V
Cell_15	3.335	V
Cell_16	3.334	V
Avg_Volt	3.335	V
Max_Diff	0.001	V
Max_Volt	3.335	V
Min_Volt	3.334	V
Temp_1	21.0	°C
Temp_2	21.0	°C
Temp_3	21.0	°C
Temp_4	21.0	°C
ENV_Temp	22.0	°C

Status: BMS: QT-YS00-16SV100A-V3.37 Time: 2024-01-29 11:48:49

In the bottom left corner we can see the Lifepower4 firmware version. The last 4 characters are the bms firmware version. Example: V3.37

The screenshot shows the Qualtech 48100 Test software interface. The left sidebar has a button labeled "Add address to sequence" highlighted with a red box. The main window displays the following information:

- Packs Number:** 1
- Start Adr:** 0
- Address for testing:** Adr: 0
- Battery Status:** 15.40% SOC
- Total_Volt:** 53.35 V
- Current:** 0.00 A
- Max_Volt:** 3.335 V
- Min_Volt:** 3.334 V
- Max_Diff:** 0.001 V
- Max_Temp:** 21 °C
- Min_Temp:** 21 °C
- MOS_Temp:** 22 °C
- ENV_Temp:** 22 °C
- CMOS/DMOS state:** CMOS: On, DMOS: On, State: Idle, Heater: Off, Limiter: Off
- SN:** Address of display information: 0
- Alarm Status:**

Num	Alarm Status
1	SOC low alarm
- Protection Status:**

Num	Protection Status
1	None
- Cell Voltages Table:**

Name	Value	Unit
Cell_1	3.335	V
Cell_2	3.335	V
Cell_3	3.335	V
Cell_4	3.335	V
Cell_5	3.335	V
Cell_6	3.335	V
Cell_7	3.335	V
Cell_8	3.335	V
Cell_9	3.335	V
Cell_10	3.335	V
Cell_11	3.335	V
Cell_12	3.335	V
Cell_13	3.335	V
Cell_14	3.335	V
Cell_15	3.335	V
Cell_16	3.334	V
Avg_Volt	3.335	V
Max_Diff	0.001	V
Max_Volt	3.335	V
Min_Volt	3.334	V
Temp_1	21.0	°C
Temp_2	21.0	°C
Temp_3	21.0	°C
Temp_4	21.0	°C
ENV_Temp	22.0	°C

Status: BMS: QT-YS00-16SV100A-V3.37 Time: 2024-01-29 11:48:49

8. To view multiple batteries at the same time, also known as a MultiPack. Begin by changing the Packs Number:# to the amount of batteries you are going to communicate with. Last click Add address to sequence. This will now populate all batteries in the Address for testing:

The screenshot shows the Qualtech 48100 Test software interface. The 'BatInfo' tab is selected. On the left, the 'Packs Number' is set to 6, and 'Start Addr' is 0. The 'Add address to sequence' button is highlighted. Below this, the 'Address for testing' section shows a list of addresses (Addr 0 to Addr 5) with checkboxes. A battery icon displays '34.10%' charge. The 'CMOS/DMOS state' section shows 'CMOS: On', 'DMOS: On', and 'State: Discharging'. The 'Address of display information' is set to 5. The 'Alarm Status' and 'Protection Status' sections show 'None'. The main table displays various battery parameters for 16 cells (Cell_1 to Cell_16) and summary values (Avg_Volt, Max_Diff, Max_Volt, Min_Volt, Temp_1 to Temp_4, ENV_Temp). The status bar at the bottom shows 'BMS: QT-YS00-16SV100A-V3.37' and 'Time: 2024-01-29 13:52:56'.

Name	Value	Unit
Cell_1	3.262	V
Cell_2	3.262	V
Cell_3	3.260	V
Cell_4	3.261	V
Cell_5	3.264	V
Cell_6	3.263	V
Cell_7	3.259	V
Cell_8	3.260	V
Cell_9	3.260	V
Cell_10	3.261	V
Cell_11	3.258	V
Cell_12	3.258	V
Cell_13	3.262	V
Cell_14	3.259	V
Cell_15	3.261	V
Cell_16	3.264	V
Avg_Volt	3.261	V
Max_Diff	0.006	V
Max_Volt	3.264	V
Min_Volt	3.258	V
Temp_1	37.0	°C
Temp_2	37.0	°C
Temp_3	38.0	°C
Temp_4	38.0	°C
ENV_Temp	28.0	°C

Click on MultiPacks to view all batteries in real time.

The screenshot shows the Qualtech 48100 Test software interface with the 'MultiPacks' tab selected. The 'MultiPacks' button is highlighted. The main table displays various battery parameters for 6 packs (PACK_1 to PACK_6) across 16 cells (Cell_1(V) to Cell_16(V)) and summary values (Avg_Volt(V), Max_Diff(V), Max_Volt(V), Min_Volt(V)). The status bar at the bottom shows 'BMS: QT-YS00-16SV100A-V3.37' and 'Time: 2024-01-29 13:53:55'.

SN	PACK_1	PACK_2	PACK_3	PACK_4	PACK_5	PACK_6
Addr	0	1	2	3	4	5
Comm(RxTx)	28/27	27/27	24/24	24/24	24/25	24/25
PACK_BARCODE						
PCB_BARCODE						
DateTime	2024-01-29 13:53:52	2024-01-29 13:53:54	2024-01-29 13:53:46	2024-01-29 13:53:47	2024-01-29 13:53:49	2024-01-29 13:53:50
Cell_1(V)	3.265	3.260	3.265	3.265	3.262	3.265
Cell_2(V)	3.265	3.260	3.266	3.266	3.263	3.263
Cell_3(V)	3.263	3.262	3.268	3.264	3.262	3.261
Cell_4(V)	3.264	3.262	3.266	3.265	3.261	3.263
Cell_5(V)	3.262	3.262	3.268	3.241	3.265	3.266
Cell_6(V)	3.263	3.262	3.266	3.265	3.262	3.265
Cell_7(V)	3.264	3.262	3.267	3.263	3.263	3.261
Cell_8(V)	3.263	3.264	3.269	3.267	3.264	3.262
Cell_9(V)	3.265	3.264	3.269	3.267	3.262	3.261
Cell_10(V)	3.263	3.263	3.267	3.267	3.262	3.263
Cell_11(V)	3.263	3.264	3.267	3.237	3.264	3.260
Cell_12(V)	3.262	3.262	3.270	3.264	3.262	3.259
Cell_13(V)	3.264	3.263	3.269	3.267	3.262	3.264
Cell_14(V)	3.263	3.262	3.266	3.266	3.264	3.260
Cell_15(V)	3.265	3.262	3.248	3.267	3.262	3.262
Cell_16(V)	3.265	3.260	3.265	3.264	3.261	3.265
Avg_Volt(V)	3.264	3.262	3.266	3.262	3.263	3.263
Max_Diff(V)	0.003	0.004	0.022	0.030	0.004	0.007
Max_Volt(V)	3.265	3.264	3.270	3.267	3.265	3.266
Min_Volt(V)	3.262	3.260	3.248	3.237	3.261	3.259

Bottom columns of the MultiPack tab.

Qualtech 48100 Test

ConfigInfo

BatInfo

ParameterSetting

HistoricalData

Config

ProgramUpgrade

SinglePack

MultiPacks

SN	PACK_1	PACK_2	PACK_3	PACK_4	PACK_5	PACK_6			
Cell_11(V)	3.264	3.264	3.268	3.237	3.265	3.261			
Cell_12(V)	3.263	3.263	3.271	3.265	3.263	3.260			
Cell_13(V)	3.265	3.264	3.270	3.268	3.263	3.265			
Cell_14(V)	3.263	3.263	3.267	3.267	3.265	3.261			
Cell_15(V)	3.266	3.263	3.249	3.268	3.263	3.263			
Cell_16(V)	3.266	3.261	3.267	3.265	3.262	3.266			
Avg_Volt(V)	3.265	3.263	3.267	3.263	3.264	3.263			
Max_Dir(V)	0.004	0.004	0.022	0.031	0.004	0.007			
Max_Volt(V)	3.267	3.265	3.271	3.268	3.266	3.267			
Min_Volt(V)	3.263	3.261	3.249	3.237	3.262	3.260			
Temp_1(°C)	36.0	38.0	38.0	36.0	33.0	37.0			
Temp_2(°C)	36.0	38.0	38.0	37.0	35.0	37.0			
Temp_3(°C)	36.0	38.0	38.0	37.0	35.0	38.0			
Temp_4(°C)	35.0	37.0	37.0	36.0	35.0	38.0			
ENV_Temp(°C)	32.0	34.0	32.0	31.0	30.0	28.0			
MOS_Temp(°C)	34.0	34.0	33.0	32.0	30.0	32.0			
Current(A)	3.61	0.00	-2.75	0.00	-1.07	-1.43			
Total_Volt(V)	52.23	52.20	52.27	52.20	52.21	52.21			
Remain_Bat_Cap(Ah)	31.55	30.76	29.92	32.50	29.60	33.55			
Full_Bat_Cap(Ah)	98.00	98.30	97.80	97.60	97.40	98.40			
Cycles(N)	631	535	683	755	823	498			
SOC(%)	32.19	31.29	30.59	33.30	30.39	34.10			
Alarm_status									
Protection_status									
—									

Status:

BMS: QT-YS00-16SV100A-V3.37

Time: 2024-01-29 13:54:34