

## HyperTerminal Commands Guide

- **login debug** = needs to be entered for more advanced commands to work
- **info** = basic information for connected battery (Firmware version, Bootloader version, S/N, battery version, etc.)
- **update** = Prepare battery for Firmware update
- **uboot** = Prepare battery for boot version update (must enter “login debug” command before uboot)
- **bat** = cell level data for connected battery: voltage, current, state, SOC %
  - bat will show data for battery physically connected to console cable. bat 1, bat 2, etc will show info for other batteries in group if there are multiple

```
PYTES_debug>bat
@
Battery Volt Curr Tempr Base State Volt. State Curr. State Temp. State Coulomb
0 3352 0 19000 Idle Normal Normal Normal 100% 100000 mAH
1 3365 0 19000 Idle Normal Normal Normal 100% 100000 mAH
2 3361 0 19000 Idle Normal Normal Normal 100% 100000 mAH
3 3357 0 19000 Idle Normal Normal Normal 100% 100000 mAH
4 3360 0 19000 Idle Normal Normal Normal 100% 100000 mAH
5 3367 0 19000 Idle Normal Normal Normal 100% 100000 mAH
6 3352 0 19000 Idle Normal Normal Normal 100% 100000 mAH
7 3354 0 19000 Idle Normal Normal Normal 100% 100000 mAH
8 3410 0 19000 Idle Normal Normal Normal 100% 100000 mAH
9 3419 0 19000 Idle Normal Normal Normal 100% 100000 mAH
10 3417 0 19000 Idle Normal Normal Normal 100% 100000 mAH
11 3421 0 19000 Idle Normal Normal Normal 100% 100000 mAH
12 3416 0 19000 Idle Normal Normal Normal 100% 100000 mAH
13 3418 0 19000 Idle Normal Normal Normal 100% 100000 mAH
14 3416 0 19000 Idle Normal Normal Normal 100% 100000 mAH
15 3419 0 19000 Idle Normal Normal Normal 100% 100000 mAH
```

- **pwr** = show data for all connected batteries in a group (1-8 or 1-16 depending on battery version). Displays current voltage, amps, temperature, SOC%, battery state

```
PYTES>pwr
```

Power	Volt	Curr	Tempr	Tlow	Thigh	Vlow	Vhigh	Base.St	Volt.St	Curr.St	Temp.St	Coulomb	Time	B.V.St	B.T.St	Barcode	DevType
1	54351	0	20000	19000	19000	3358	3433	Idle	Normal	Normal	Normal	100%	2000-01-15 18:05:39	Normal	Normal	LC0B010403010184	E-BOX-48100R-C
2	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
13	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
14	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	Absent	-	-	-	-	-	-	-	-	-

- **pwr #** = more detailed information and status on specific battery in group (# 1, 2.....15,16). Will show any present events and faults. If only single battery, enter "pwr 1"

```
PYTES>pwr 1
@
-----
Power 1

Voltage      : 54339          mV
SOC Voltage  : 54320          mV
Current      : 0             mA
Temperature   : 21000         mC
Coulomb      : 100           %
Total Coulomb : 360000000     mAS
Real Coulomb  : 100000        mAH
Total Power In : 1598         WS
Total Power Out : 370         WS
Charge Count  : 0
Discharge Count : 0
Charge Times  : 1755
Work Status   : 2
Bat Num       : 16
Barcode       : LC0B010403010184
DevType       : E-BOX-48100R-C
Next Device   : 0
Timeout       : 1
Basic Status  : Idle
Volt Status   : Normal
Current Status : Normal
Tmpr. Status  : Normal
Coul. Status  : Normal
Heater Status : Normal
Heater Status : OFF
CMOS Status   : ON
DMOS Status   : ON
Input Status  : Disconnected
Terminal Res. : On
Protect ENA   : BOV BHV BLV BUV BOT BHT BLT BUT POV PHV PLV PUV POT PHT PLT PUT COC COC2 COCA DOCA DOC DOC2 SC
Bat Events    : 0x0
Power Events  : 0x0
System Fault   : 0x0
```

## System faults

System faults Code	Description
0x001	Reverse connection of external power input
0x002	External power input overvoltage
0x004	Current detection error
0x008	OZ abnormal
0x010	Sleep module abnormal
0x020	temperature sensor error
0x040	Voltage detection error
0x080	I2C bus error
0x100	CAN bus address assignment error
0x200	Internal CAN bus communication error
0x400	Charge MOS FAIL
0x800	Discharge MOS FAIL

- **pwrsys** = detailed system level information, recommended values are what battery system sends to inverter

```

PYTES_debug>pwrsys
@
Power System Information
-----
System is idle
Total Num           : 1
Present Num         : 1
Sleep Num           : 0
System Volt         : 54257    mV
System Curr         : 0        mA
System RC           : 100000   mAH
System FCC          : 100000   mAH
Total Power In      : 0        100WH
Total Power Out     : 0        100WH
System SOC          : 100      %
System SOH          : 100      %
Work Status         : 2
Highest voltage     : 3426     mV
Highest voltage num : 11
Average voltage     : 3391     mV
Lowest voltage      : 3354     mV
Lowest voltage num  : 0
Highest temperature : 19000    mC
Highest temperature num : 0
Lowest temperature  : 19000    mC
Lowest temperature num : 0
Average temperature : 19000    mC
Recommend chg voltage : 56800   mV
Recommend dsg voltage : 44500   mV
Recommend chg current : 0        mA
Recommend dsg current : 50000   mA
Charge Delta        : 44        mv
Discharge Delta      : -56       mv

```

- **config** = values for BMS alarms and protections, recovery setpoints, delay timers

```

PYTES_debug>config
@
-----
Protect Attribution

Item          Battery      Power
Over Voltage  : 3700          58000 mV
Over VoltageR : 3600          56000 mV
High Voltage  : 3650          57800 mV
High VoltageR : 3550          56000 mV
Low Voltage   : 2900          47500 mV
Low VoltageR  : 3000          49000 mV
Under Voltage : 2800          45500 mV
Under VoltageR : 2900          48000 mV
Sleep Voltage : 2600          40000 mV

Charging OT   : 57000          57000 mC
Charging OTR  : 50000          50000 mC
Charging HT   : 55000          55000 mC
Charging HTR  : 50000          50000 mC
Charging LT   : 2000           2000 mC
Charging LTR  : 5000           5000 mC
Charging UT   : 0              0 mC
Charging UTR  : 5000           5000 mC
Discharging OT : 57000          57000 mC
Discharging OTR : 50000          50000 mC
Discharging HT : 55000          55000 mC
Discharging HTR : 50000          50000 mC
Discharging LT : -20000         -20000 mC
Discharging LTR : -15000         -15000 mC
Discharging UT : -22000         -22000 mC
Discharging UTR : -15000         -15000 mC

Charging OC   : 102000          mA
Charging OC Alarm : 60000          mA
Charging OC AlarmR : 40000          mA
Discharging OC : -102000         mA
Discharging OC Alarm : -80000          mA
Discharging OC AlarmR : -60000          mA
OC Delay      : 15000          mS
OC Release     : 60000          mS
Charging OC2   : 200000         mA
Discharging OC2 : -200000         mA
OC2 Delay      : 100           mS
OC2 Release     : 60000          mS
Discharging SC : -400000         mA
SC Delay       : 0             mS
SC Release     : 60000          mS
Charging Max Cur : 10000          mA
Balance Start   : 3360          mV
Balance Volt    : 30           mV

Shut time      : 72.0 H
BUV/PUV time   : 2400 S
Data Save Interval : 1800 S

```

- **datalist event 0** = shows snapshot with time stamp of battery voltage, current, temperature (hi and low), cell voltage (hi and low), and state. Use to see alarm history of battery. Press enter to see more events

```

PYTES_debug>datalist event 0
@
Item Time          Vo(mV) Cu(mA) Tempr Tlow Thigh Vlowest Vhighest Base.St Volt.St Curr.St Temp.St Per% Events
0 23-01-08 05:03:19 55950 1478 30000 29000 30000 3451 3650 Charge Normal Normal Normal 100% BHV
1 23-01-08 05:14:49 55955 1178 31000 29000 30000 3445 3700 Charge Normal Normal Normal 100% BOV
2 23-01-08 05:18:35 55066 0 31000 29000 30000 3404 3600 Charge Normal Normal Normal 100% BHV
3 23-01-08 05:18:43 55953 9230 31000 29000 30000 3445 3710 Charge Normal Normal Normal 100% BOV
4 23-01-08 05:22:19 55010 0 31000 29000 30000 3401 3600 Charge Normal Normal Normal 100% BHV
5 23-01-08 05:22:25 55859 12346 31000 29000 30000 3441 3705 Charge Normal Normal Normal 100% BOV
6 23-01-08 05:26:09 54962 0 31000 29000 30000 3398 3600 Charge Normal Normal Normal 100% BHV
7 23-01-08 05:26:15 55829 13435 31000 29000 30000 3439 3710 Charge Normal Normal Normal 100% BOV
8 23-01-08 05:30:37 54903 0 31000 29000 30000 3395 3600 Charge Normal Normal Normal 100% BHV
9 23-01-08 05:30:43 55787 12958 31000 29000 30000 3436 3714 Charge Normal Normal Normal 100% BOV
10 23-01-08 05:35:49 54846 0 31000 29000 30000 3392 3600 Charge Normal Normal Normal 100% BHV
11 23-01-08 05:35:53 55667 22594 31000 29000 30000 3431 3702 Charge Normal Normal Normal 100% BOV
12 23-01-08 05:40:57 54798 0 30000 29000 30000 3389 3600 Charge Normal Normal Normal 100% BHV
13 23-01-08 05:41:01 55647 23090 30000 29000 30000 3430 3709 Charge Normal Normal Normal 100% BOV
14 23-01-08 05:46:55 54742 0 30000 29000 30000 3386 3600 Charge Normal Normal Normal 100% BHV

```

- **data event #** = shows more details from specific event, # corresponds to item number from “datalist event 0”. Includes individual cell data for connected battery

```

PYTES_debug>data event 14
@
-----
Item Index      : 14
Time            : 23-01-08 05:46:55
Voltage         : 54742      mV
Current         : 0          mA
Temperature     : 30000      mC
Percent         : 100        %
Total Coulomb   : 100000     mAH
Max Voltage     : 58000      mV
Base State      : Charge
Volt. State     : Normal
Curr. State     : Normal
Tempr. State    : Normal
Coul. Status    : Full
Power Events    : 0x0
Bat Events      : 0x2        BHV
Bat Protect ENA : BOV BHV BLV BUV BSLP BOT BHT BLT BUT
Pwr Protect ENA : POV PHV PLV PUV PSLP POT PHT PLT PUT COC2 COC COCA DOCA DOC DOC2 SC
System Fault    : 0x0
-----

```

Battery	Volt	Curr	Tempr	Base State	Volt. State	Curr. State	Temp. State	Coulomb
0	3431	0	30000	Charge	Normal	Normal	Normal	100%
1	3413	0	30000	Charge	Normal	Normal	Normal	100%
2	3410	0	30000	Charge	Normal	Normal	Normal	100%
3	3409	0	30000	Charge	Normal	Normal	Normal	100%
4	3432	0	30000	Charge	Normal	Normal	Normal	100%
5	3391	0	29000	Charge	Normal	Normal	Normal	100%
6	3408	0	29000	Charge	Normal	Normal	Normal	100%
7	3398	0	29000	Charge	Normal	Normal	Normal	100%
8	3405	0	29000	Charge	Normal	Normal	Normal	100%
9	3600	0	29000	Charge	High	Normal	Normal	100%
10	3430	0	29000	Charge	Normal	Normal	Normal	100%
11	3397	0	29000	Charge	Normal	Normal	Normal	100%
12	3415	0	29000	Charge	Normal	Normal	Normal	100%
13	3421	0	29000	Charge	Normal	Normal	Normal	100%
14	3396	0	29000	Charge	Normal	Normal	Normal	100%
15	3386	0	29000	Charge	Normal	Normal	Normal	100%

- **time year month day hour minute second** = manually resets internal battery clock. By default internal battery clock is Shanghai China time. Ex: "time 2024 05 23 16 28 30" (May 23, 2024 16:28:30 hrs)
- **DLG** = command can be used to recover frozen battery or Hub. With battery connected to computer via console cable, when turned on if it shows "Bootloader soft version V1.xxx" need to enter "DLG" command immediately. Hyperterminal will not show this command in window. MUST BE ALL CAPS. This is similar to wake button in BMSQt. If another line of "Bootloader soft version V1.xxx" appears before DLG is entered, it is too late. Battery must be turned off and turned back on again. If DLG entered at right time, Hyperterminal will show "Updata is ready! Program Start!", then can proceed with firmware update following normal process.

