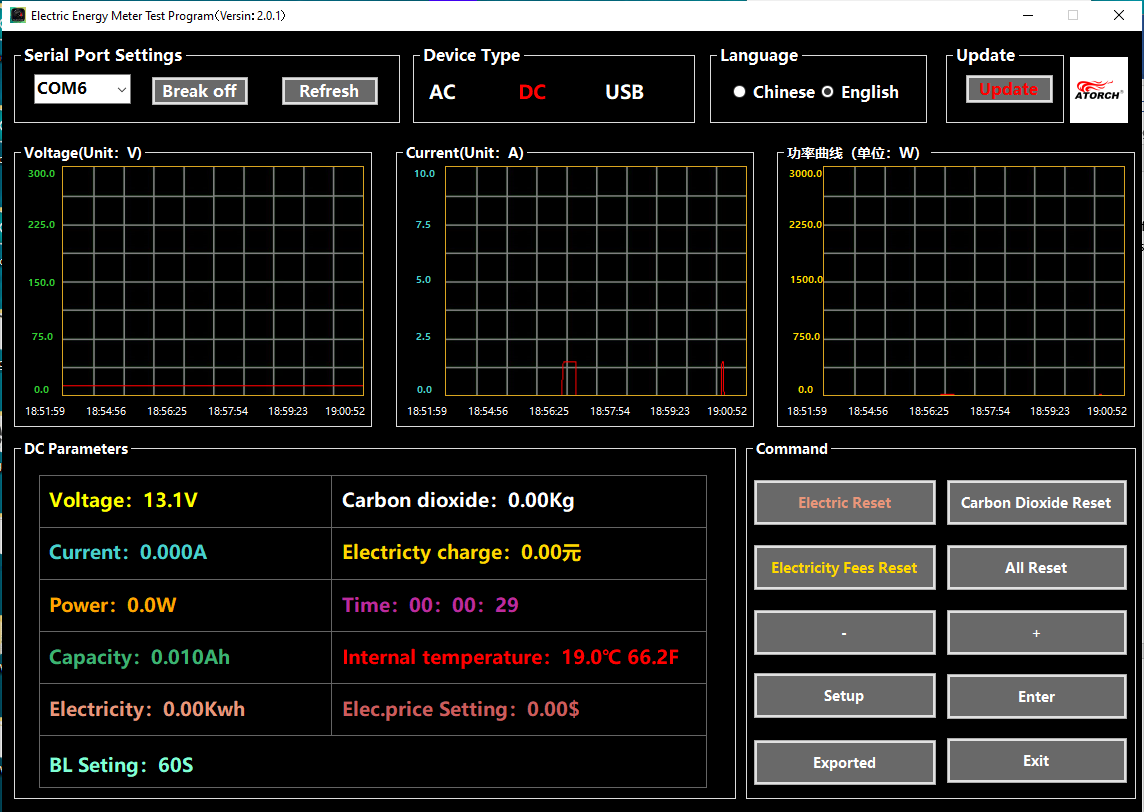
DL24

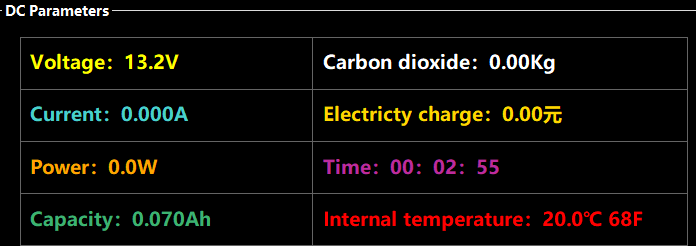
**Features:**  
- 2.4-inch HD large color screen blue digital transmission curve version high-power tube digital load meter.  
- Support discharge aging test, which can be used to test the voltage, current, power, capacity, electricity, temperature, discharge resistance, time-limited discharge settings, stop voltage setting and other parameters and operation of various power supplies such as USB chargers, mobile power banks, battery and battery capacity, power adapters, etc.  
- Support Bluetooth wireless connection and wired computer connection modes.  
- Support four kinds of online APP (support for Android, Apple, PC computer Bluetooth wireless online APP and data wired online APP)  
- Four discharge modes: constant current, constant power, constant resistance, constant voltage.  
- High-power and large-discharge tube discharge test is used internally, summarizing the principle and evolution of hundreds of large-scale instrumentation circuits, integrating all major advantages in one, and displaying a variety of parameters on the screen of discharge aging, convenient and fast test, and powerful function!  
- 150W high power; 200V wide voltage; 20A high current. Strong performance, can be used for various discharge and aging detection.  
- 4 Operating Modes: CC-constant current operation; CV-constant voltage operation; CW-constant power operation; CR-constant resistance operation.  
- Intelligent temperature control fan: high-power, long-life cooling fan.

**Technical Parameters:**  
- Test voltage: 2~200V (reads about 0.5-1% low)  
- Working current: 0.2~20A (about +- 1%) – display supports up to 30A, so?  
- Constant load adjustment rate: +/-3%+3 bytes  
- DL24 discharge power: voltage x current <150W  
- DL24P discharge power: voltage x current <180W

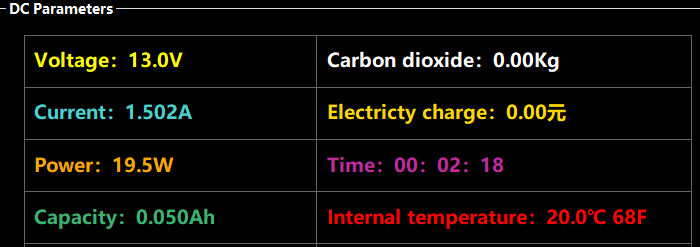
The serial speed is 9600 bps.

Sent from the device.

FF 55 01 02 00 00 84 00 00 00 00 00 07 00 00 00 00 00 00 00 00 00 00 00 00 13 00 00 02 33 3C 00 00 00 00 56



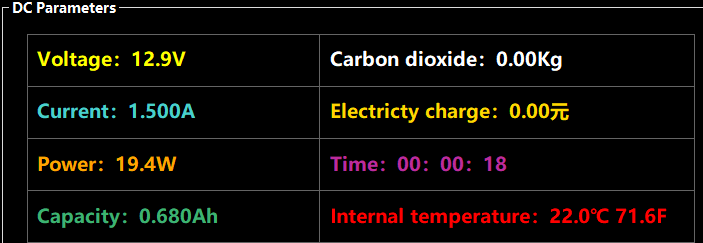
FF 55 01 02 00 00 83 00 05 DB 00 00 04 00 00 00 00 00 00 00 00 00 00 00 00 13 00 00 01 32 3C 00 00 00 00 A8



The current reading is the 9th and 10th 8 bit fields. 05DB = 1499d, but this is close enough to 1502d that the difference in time between captures causes this difference.

The voltage reading seems to be the 7th 8 bit field. 84 = 132d, 83 = 131d MSB only.

FF 55 01 02 00 00 81 00 05 DA 00 00 35 00 00 00 00 00 00 00 00 00 00 00 00 17 00 00 15 1E 3C 00 00 00 00 5A



Here we see the 4th field 81 = 129d. This consistent with 12.9V (fixed point).

The serial protocol seems to support only 3 significant digits, though the unit display shows 5 significant digits. Is this a problem? I’d say not really. The extra 2 digits are near the noise floor and probably are not useful anyway.

So, this leaves temperature. The unit has an internal sensor, which displays temperature near the MOSFET. But, the board also offers an external temperature sensor. The internal temperature seems to be represented by the 26th 8 bit field (MSB only). 13 = 19d and 17 = 23d, which is “close” to the displayed values of temperature. The PC application does not appear to support the external temperature sensor. More study needed.

FF 55 01 02 00 00 81 00 05 D9 00 00 81 00 00 00 01 00 00 00 00 00 00 00 00 16 00 00 33 2F 3C 00 00 00 00 DC

The blue fields in bit position 28-30 are hours, minutes, and seconds since the test started, in “run mode” by either sending the start/stop command or my manually pressing the Start/Stop pushbutton on the board. This time is all zeros when the board is initially powered up **and** when the Reset command is sent from the PC. The time does not reset to zero when the board mode is changed to Stop, so a subsequent Start will resume from the previous time.

The highlighted orange fields may be associated with the external sensor. The scaling is difficult to interpret because the actual room temperature is about 17 degrees C (x11). However, these two bytes (three if the C3 contributes) showed a significant difference when the external temperature sensor was connected. Still more to think about, if this feature is to be understood.

The field 3C may be measured AC frequency, but with no AC input, this would be noise, so I’m puzzled.

What about commands from the PC application?

Reset: FF 55 11 02 05 00 00 00 00 5C

Setup: FF 55 11 02 31 00 00 00 00 00 repeated presses cycle through digits of current set point

Plus: FF 55 11 02 33 00 00 00 00 02 increment selected current digit

Minus: FF 55 11 02 34 00 00 00 00 03 decrement selected current digit

Enter: FF 55 11 02 32 00 00 00 00 01 toggles start/stop

Electric Reset, Electric Fees Reset, and Carbon Dioxide Reset: FF 55 11 02 01 00 00 00 50

Brown byte in the 13th byte is yet to be identified.

Settings are not retained when power to board is cycled.

Checksum is calculated by summing the Xor of the present byte with the checksum of previous bytes(??)

After a reset message is sent from the PC, the first receive packet is:

FF 55 02 01 01 00 00 40 FF 55 01 02 00 00 82 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 14 00 00 00 00 3C 00 00 00 00 91 - Note, that 02 01 01 seems to be an acknowledgement (the equivalent field in a “normal” packet is 01 02 00). The board zeros the time when reset, and this packet acknowledges this action. There may be more meaning hidden in this packet.

FF 55 02 01 01 00 00 40 is the acknowledgement packet sent when all commands are issued. This does not appear to contain any board or measurement state information.

The DL24 Bluetooth adapter supports SSP connections. To use it wirelessly with your BT equipped PC, open:

Settings (Gear icon)

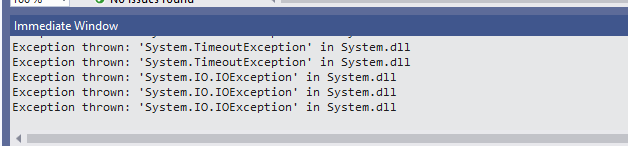
Bluetooth & other devices

Bluetooth (Mice, keyboards, pens, or audio and other kinds of devices)

Make certain the DL24 is powered up

Select DL24-SSP (not BLE) and enter the passcode 1234

On my computer this enumerates as COM8, but the actual port assignment will vary from PC to PC.



12V

