



CBT 25-24

Battery tester



1. Introduction

1.1 Product description

The Cellpower CBT 25-24 Battery tester allows you to measure the capacity of your battery. You can set the cut-off voltage, the discharge current and the charging time between cycles. The CBT 25-24 Battery tester measures the charged/discharged Ah and the elapsed time since the start of each cycle.

All test results can be stored on a USB-Drive (not included). The results can then be opened and analyzed on your PC using the Cellpower Battery Analyzer Software.

1.2 Box contents

- 1x CBT 25-24 Battery tester
- 2x Battery clamps (attached to the tester)

1.3 Certifications and standards



2. Specifications

2.1 Technical specifications

Measured V range	12.0 - 30.0V
Max. Input Voltage	30.0V
Min. Input Voltage	12.0V
Discharge current	0.3 - 25A (0.1A steps)
Current error	+2% + 0.05A
Cut-off Voltage	12.0 - 30.0V
Charging time	1h - 99h
Max. No. of Cycles	200
Dimensions	200x140x190mm
Weight	2.0kg

3. Use

3.1 Warnings before use

Before you install or use the CBT 25-24, you should take note of the following warnings and instructions. Failure to do so may potentially lead to damage to the product or causing injury. In addition, failure to comply with these instructions may result in partial or even full cancellation of the warranty.

1: Use and handle the CBT 25-24 only as prescribed in the User Manual.

2: Do not try to disassemble the CBT 25-24 or any of its accessories.

3: Excessive vibrations, shocks or impacts could lead to failure of the product, and should thus be avoided.

4: The CBT 25-24 should only be maintained in a professional manner by an authorized person.

3.2 Interface operation

The main menu consists of 6 different screens. You can switch between these screens using the 'Display Change' button. Doing so will reveal the following options.

1. Voltage

Voltage	25.60V
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View the current Voltage of the connected battery.

2. Test Parameters

Test parameters

Set the desired battery test parameters, like the number of cycles, the charging time and cut-off Voltage. See '3.3 Setting test parameters' for all options.

3. Read Test Result

Read test result

View the test results directly on the CBT 25-24. See '6.3 Analyzing test results on the CBT 25-24' for more information.

4. Charge

Charge 24V

Start the test with charging the battery. See '4. Performing a battery test' before selecting this option.

5. Discharge

Discharge

Start the test with discharging the battery. Start the test with charging the battery. See '4. Performing a battery test' before selecting this option.

6. Suspend USB-Pendrive

Pdrv suspend

If a USB-Drive has been plugged into the CBT 25-24 to store test results, it should not be removed before selecting the 'Pdrv suspend' option. Not doing so could result in loss of data or permanent damage to the USB-drive. See '6.1 Storing the test results on a USB-drive' for more information about safely removing the USB-drive from the CBT 25-24.

To enter a sub menu, press the 'Start/Stop' button when the preferred option is being displayed.

3.3 Setting test parameters

To set the test parameters, switch to the 'Test Parameters' option first, then press the 'Start/Stop' button. You will enter a submenu consisting of 4 different options. Press the 'Display change' button to switch between these options. Use the Up and Down buttons to change the values being displayed. Press and hold the Up or Down button to change the values more rapidly.

You can set the following test parameters.

1. Number of cycles

Number of cycles	
Write	001

You can set the desired number of cycles from 1 up to 200.

2. Charging time

Charging time	
Write	01h

You can set the desired charging time from 1 up to 99 hours.

3. Discharge current

Disch. current	
Write	05,5A

You can set the desired discharge current from 0.3A up to 25A in 0.1A steps.

4. Cut-off Voltage

U-cut off	19.20V
Write	1.60V/c

You can set the desired cut-off Voltage (Volts or Volt/cell) from 12.0V up to 30.0V in 0.6V steps (0.05V/cell per step).

After setting up the desired test parameters, the following screen will appear.

Sampl. interval	
Write	Aut.

Here you can select the required sampling interval. It is recommended to use 'Automatic' sampling. The automatic sampling program measures at 2000 intervals, creating a small and easily editable file. However, if a longer battery test is being conducted, the resolution of the test results will be quite low. In such a case it is recommended to select a higher number of sample intervals.

4. Performing a battery test

4.1 Before starting a battery test

If you want to store the test results of the battery test you are about to conduct, make sure a compatible USB-drive has been inserted to the CBT 25-24. The results will be automatically stored on the USB-drive during the battery test. It should therefore not be removed before the battery test has finished. See '6. After the battery test' for more information.

4.2 Testing an already fully charged battery

If the battery that you are about to test is already fully charged, you should start the battery test with discharging the battery.

To start the battery test, connect the battery to the tester first using the battery clamps. Make sure that the positive (red) clamp is attached to the positive terminal of the battery, and the negative (black) clamp to the negative terminal of the battery. The CBT 25-24 will start up automatically once it has been connected correctly to the battery.

Make sure you set up the battery test parameters correctly first in the 'Test parameters' submenu before actually starting the battery test (see '3.2 Interface operation' and '3.3 Setting test parameters' for more information).

Before the battery test can be started, a battery charger should be connected to the CBT 25-24. Attach the positive clamp of the battery charger to the positive (left) terminal of the CBT 25-24, and the negative clamp to the negative (right) terminal of the CBT 25-24.

Scroll through the main menu using the **'Display Change'** button (as described in **'3.2 Interface operation'**) until option 5 **'Discharge'** appears on screen. Press and hold the **'Start/Stop'** button for 1 second, and the battery test will start according to the set parameters.

If no battery charger has been connected to the CBT 25-24, or if the battery charger has been connected incorrectly, the screen will display the following error message: **'Charger OK?'**. Please check whether the battery charger has been connected correctly before attempting to continue.

If no suitable USB-drive had been plugged into the CBT 25-24, the following error message will appear when attempting to start the battery test: **'No pendrive 000'**. To save test results, a suitable USB-drive should be inserted into the white USB-port on the front of the CBT 25-24.

4.3 Testing a (partially) discharged battery

If the battery that you are about to test is (partially) discharged, you should start the battery test with charging the battery.

To start the battery test, connect the battery to the tester first using the battery clamps. Make sure that the positive (red) clamp is attached to the positive terminal of the battery, and the negative (black) clamp to the negative terminal of the battery. The CBT 25-24 will start up automatically once it has been connected correctly to the battery.

Make sure you set up the battery test parameters correctly first in the **'Test parameters'** submenu before actually starting the battery test (see **'3.2 Interface operation'** and **'3.3 Setting test parameters'** for more information).

Before the battery test can be started, a battery charger should be connected to the CBT 25-24. Attach the positive clamp of the battery charger to the positive (left) terminal of the CBT 25-24, and the negative clamp to the negative (right) terminal of the CBT 25-24.

Scroll through the main menu using the **'Display Change'** button (as described in **'3.2 Interface operation'**) until option 4 **'Charge'** appears on screen. Press and hold the **'Start/Stop'** button for 1 second, and the battery test will start according to the set parameters.

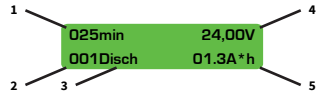
If no battery charger has been connected to the CBT 25-24, or if the battery charger has been connected incorrectly, the screen will display the following error message: **'Charger OK?'**. Please check whether the battery charger has been connected correctly before attempting to continue.

If no suitable USB-drive had been plugged into the CBT 25-24, the following error message will appear when attempting to start the battery test: **'No pendrive 000'**. To save test results, a suitable USB-drive should be inserted into the white USB-port on the front of the CBT 25-24.

5. During the battery test

5.1 Monitoring the battery test

During the battery test, you can monitor various battery parameters on the screen of the CBT 25-24. The following screen will be displayed.



- 1. **Elapsed time**
The time since the beginning of the actual process (charging or discharging)
- 2. **Cycle number**
Current cycle
- 3. **Process**
Indicates whether the battery is currently in the process of being charged or discharged
- 4. **Voltage**
The current Voltage of the battery (during discharging), or the charging Voltage (during charging)
- 5. **Ah**
The actual charged or discharged A*h since the start of the current process.

Press the **'Display Change'** button during the battery test to scroll through the results of cycles that have already been completed.

To stop a battery test in progress, press the **'Start/Stop'** button twice. The test results up until that point will be saved on the USB-drive.

6. After the battery test

6.1 Storing the test results on a USB-drive

During the battery test, the results will be automatically stored on the inserted USB-drive. Make sure the battery test has completely finished before considering removing the USB-drive. Once the test has finished, scroll through the main menu until the option **'Pdrv Suspend'** appears on screen. Press the **'Start/Stop'** button, after which the USB-drive can be safely removed.

Removing the USB-drive before the battery test has finished, before selecting the **'Pdrv Suspend'**, or disconnecting the battery before the USB-drive has been safely removed, could lead to partial or complete loss of test results and should thus be avoided.

6.2 Analyzing test results on your PC

To analyze the battery test results, plug the USB-drive on which the results are stored in to a PC. Using the **'Cellpower Battery Analyzer software'**, you can easily open the recorded results and analyze them.

The required (free) software is available for download at:

www.cellpowerbatteries.com/downloads/

You can open the test results stored on the USB-drive and analyze them on your PC.

6.3 Analyzing test results on the CBT 25-24

To view the test results of the most recent conducted battery test, select the **'Read Test Result'** option in the main menu using the **'Start/Stop'** button.

After entering the **'Read test result'** submenu, you can scroll through the results of each cycle using the **'Display change'** button. One full cycle consists of a full charging of the battery, followed by a full discharge of the battery.

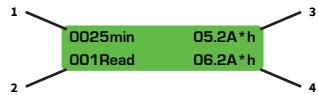
The last cycle of the battery test is a half cycle. This is because the CBT 25-24 will leave the battery fully charged after the test has been conducted, so that it can be used immediately again after testing.



Reliable energy

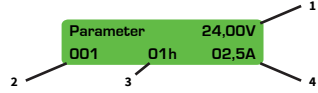


When the **'Read test result'** option is selected, you will see the following screen.



- 1. **Duration of the performed test (in minutes)**
- 2. **Cycle number**
- 3. **Discharged A*h**
- 4. **Charged A*h**

Press the **'Display Change'** button to view the test parameters of the most recently conducted battery test. The following screen will appear.



- 1. **Cut-off Voltage**
- 2. **Number of cycles**
- 3. **Time**
- 4. **Discharge current**

Press the **'Start/Stop'** button to return to the main menu.

Cellpower, more than a decade of reliable quality

More than 10 years ago, Cellpower was incorporated and from day one we have had one main objective: delivering reliable energy. A battery shouldn't be a cause of concern, it should just work.

That applies to more than just the battery, as any power system is only as reliable as its weakest link. Therefore Cellpower has spent the last years working on a broad spectrum of perfectly matched, reliable accessories.

Cellpower battery accessories

If you want to make optimum use of a battery you need the right accessories. Cellpower provides a broad range of accessories to monitor and retain the quality of the battery. All accessories are manufactured in Europe and have the same high quality as the Cellpower battery series. You can create a reliable power system from Cellpower products from beginning to end.