

OPERATION MANUAL

Constant Current Load Tester
(420A) 24V100A



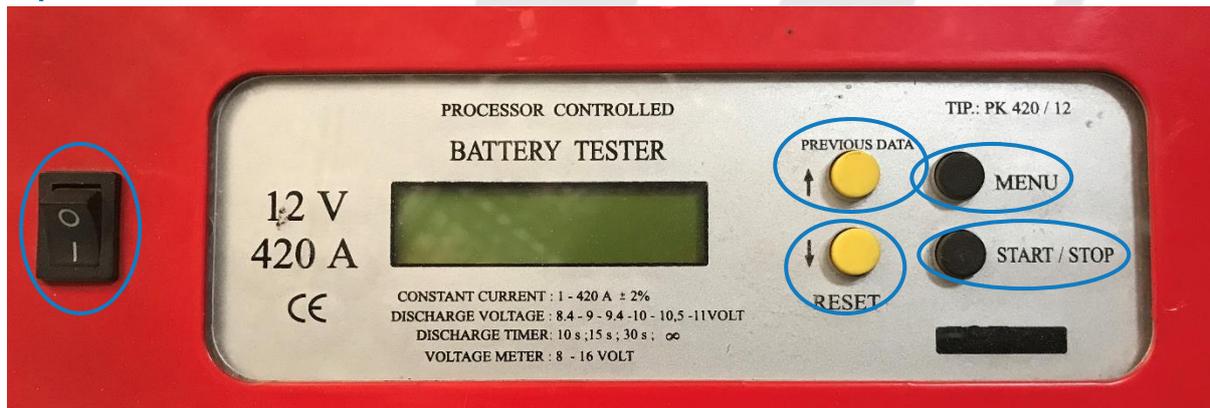
General Description

This tester is used for examination of the starting ability of 24V batteries, measurement of the 1-20Ah capacity or of the reserve capacity, and the controlling of 24V generators.

Technical Parameters

Discharging Currents	1A to 20A with 1A steps, 20A to 100A with 5A steps
Current Stability	Better than $\pm 2\%$ or $\pm 0.2A$
Cut-off Voltage	1VPV to 1.95VPC with 0.05VPC Steps
Switch Off Voltages	15V to 22.8V (in 0.6A steps)
Voltage Measuring Accuracy	Between 15V to 32V Better than 1% (if the voltage is over 16.8V) Below 16.8V the current error changes according to the voltage
Discharging Time	1 to 20 hours with 1 hour step, or infinite time
Sampling Time	0.1 to 240 seconds
Discharged Ah Measurement	0Ah, 1Ah to 100000Ah 0.4% accuracy
No. of Possible Measurement	15
Parallel Connection	Max. 4 testers at a time (paralleling unit is an option)
Dimensions	260 x 220 x 270mm

Operational Device



- Ⓞ **ON/OFF** to switch the tester on and off
- Ⓞ **START/STOP** starts or stops measuring
- Ⓞ **RESET** clears the measuring result from the display
- Ⓞ **PREVIOUS DATA** shows result of last measurement
- Ⓞ **MENU** starts the menu for setting parameter

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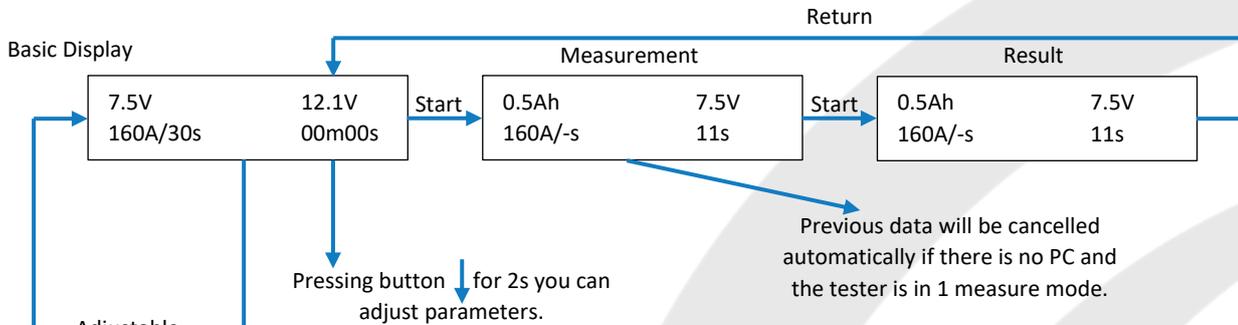


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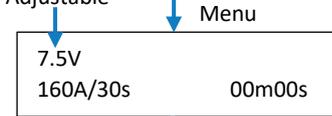
Basic Case

Basic Case

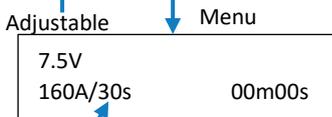
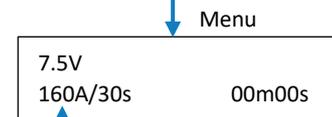
Pressing ↑ button for 2s you enter sending data



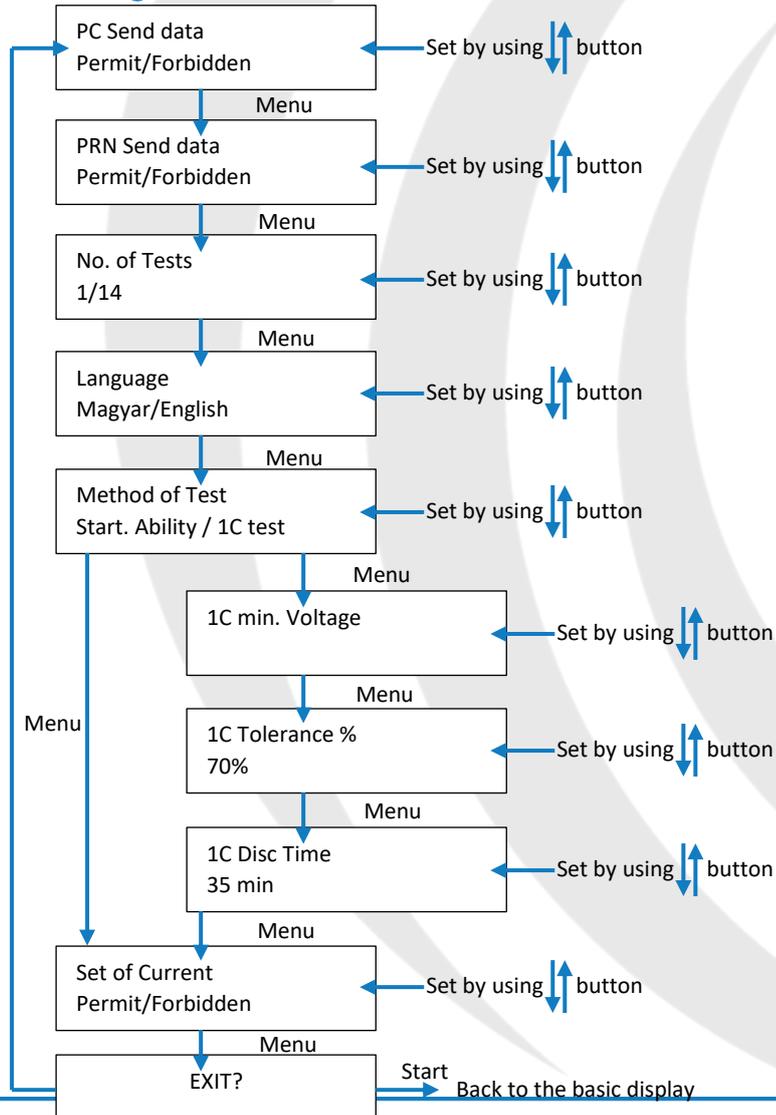
Adjustable



Pressing button ↓ for 2s you can adjust parameters.



Setting Parameters



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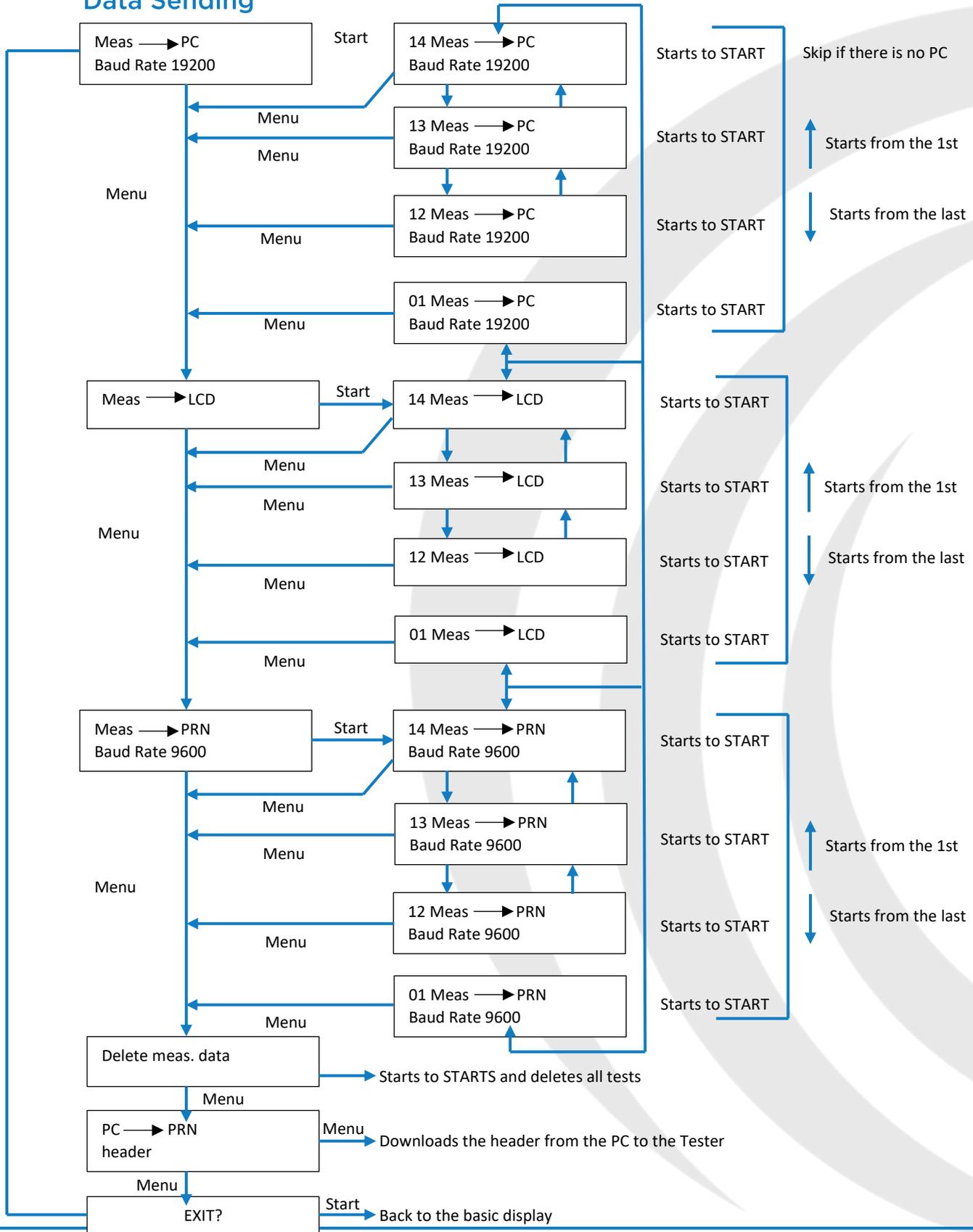
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Data Sending



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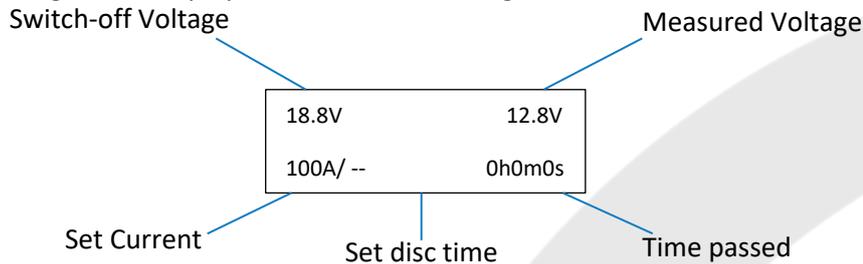
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Setting up for Measuring

When switching on the display, it shows the following:



Press START for a measure that equals in all parameters of the former measure. The possible maximum measuring time appears on the display. If this corresponds to the expected measuring time, then press START again for 1 second then the measuring starts.

At the end of the test the display shows the a kivett Axh-t and the time of measuring. If the expected measuring time is longer than the disposable storage time, then by the help of the MENU button it is possible to get back to setting parameters or deleting the memory.

For a Measure of New Parameters set the Necessary Data

At the starting screen, press the MENU button. The cursor will blink at the switch-off voltage. With the \uparrow / \downarrow buttons on the display, you can set the proper final voltage. For the measurement of a general starting ability the switch-off voltage is 9.6V.

By pressing the MENU button again, the cursor jumps to the discharge current. Now you can set the constant flowing current using the \uparrow / \downarrow button. Generally, for measuring the starting ability, set the half of the starting current value EN/2 given according to the EN standard.

By pressing the MENU button again, you can set the time of discharging. The range can be set from 1-60 seconds or in case of measuring capacity, to infinite time. For measuring the starting ability set 15 seconds in general. By pressing the MENU button again, you'll get back to the basic screen, where by pressing the START button you can start the test.

You can stop the measuring by pressing the STOP button at any time. For restarting we have to delete the Ah by pressing the RESET or START buttons.

Suggested Testing of Starting Ability:

- ⦿ Load the battery with half of the starting current suggested in EN for 15 seconds.
- ⦿ During this time, the voltage of the battery able to start cannot fall under 19.2V. Not even after 2 to 3 following loads.

Measuring Reserve Capacity:

- ⦿ Set the voltage limit to 21V, 25A load currency, infinite time and e.g. 1 minute sampling time, then start the measure according to the above.
- ⦿ At the end of the measuring we can read the measured battery's reserve capacity (RC) in minutes.

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Measuring by 1xC:-

- Ⓞ Set 9.6V bottom voltage, 1xC (A) discharge current, infinite time, and then start measuring.
- Ⓞ By the T/min. shown at the end of measuring the 20 hour capacity can be easily calculated with a simple antecedent. At the 100% wet batteries can provide 1xC for 35 minutes.

Generator Testing (optional):

- Ⓞ Connect the tester to the battery installed in the car. Set the voltage limit to 10.5V, current to 1A, time to infinite /-/. Start the tester.
- Ⓞ The current can be set under loading, by this defining the load capacity of the generator (up to 13.6V).

Data Loading:

- Ⓞ During the test, the tester stores the measured data in its own memory. The stored data can be loaded to the PC by RS232 serial port for further analysis, printing or storing.
- Ⓞ The PC's programme (AKKU.EXE) does not need installation, it is enough if you save it to a HDD. Connect the tester through an RS232 serial port. Start the AKKU.EXE programme on the PC. Set the serial port in the software.
- Ⓞ Press FILE-Read measure menu or Read measure icon, then set the transfer speed 19200 baud. Pressing the MENU -↓ - START - START buttons on the tester, steps into 'Test > PC' menu point, and then if you have made several tests, select the required test by using the ↑↓ buttons. Then press the START button. Test results are then downloaded to the PC and can be analysed in the program.

Data Transfer:

- Ⓞ The test results can be downloaded in the menu point to PC, be displayed, or can be printed directly to a SP printer. It is possible to set the heading of the printed test result tape here, that can be downloaded from the PC programme to the tester.
- Ⓞ It is possible to reset tests in the same menu point. When deleting, all the tests will be deleted at the same time.
- Ⓞ When using the data transfer menu, please follow the instruction in the Menu System.

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Self-checking Function:

- Ⓒ At the end of the test the tester switches on the relays used during the test one by one, to check if they operated correctly, if the test was longer than 3 seconds. If there is a wrong connection or relay, it displays an error message. This is possible to clear with the RESET button and the test results can be seen, but it is possible that the discharge current was less than what was selected because of a relay fault.
- Ⓒ Repeat the test and have the tester repaired.

Systems of Testers:

- Ⓒ The elements of the system are 12V420A testers that can function one by one as separate testers, it is possible to connect a max. of 4 testers at a time to the paralleling device by the help of an RS232 cable. One of the 4 testers is of an advanced function tester, a so-called Master, while the other three are of equal positioned Slaves.
- Ⓒ A master always has to have a tester connected to it. The number of Slaves can be 1, 2, and 3 depending on the necessary discharge current.
- Ⓒ The below table shows the possible discharge currents:

Slave	Max. Current	Min. Current	Max. Current by Infinite Time
1	840A	200A	320A
2	1260A	300A	480A
3	1680A	400A	640A

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