BATTERY LOAD TESTER

24V 100A

RS232

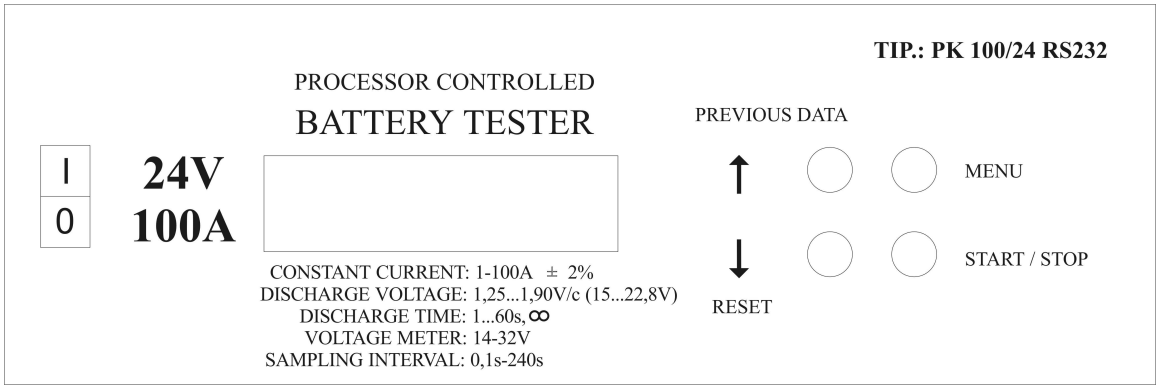
General Description:

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

Technical Parameters:

- Discharging currents: 1A-20A with 1A steps, 20A – 100A with 5A steps
- Current stability: better than 2% or + 0.2A
- Cut off voltage: 1.0 V/cell – 1.95V/cell with 0.05V/cell steps
  15V – 18V és 27,6V-32V 10% current accuracy
- Switch off voltage: 15V – 22,8 V (in 0.6 A steps)
- Voltage measure: between 15V – 32V
- Accuracy : better than 1% (if the voltage is over 16.8V) Below 16.8V the current error changes according to the voltage.
- Discharging time: 1-20 hours with 1 hour step, or infinite time
- Sampling time : 0,1 – 240 sec
- Discharged Ah measurement: 0,1 – 1000 Ah, 0,4% accuracy
- Number of possible measures: 15
- Parallel connection: max. 4 testers at a time (parallelling unit is an option)
- Dimensions: 260 x 220 x 270 mm

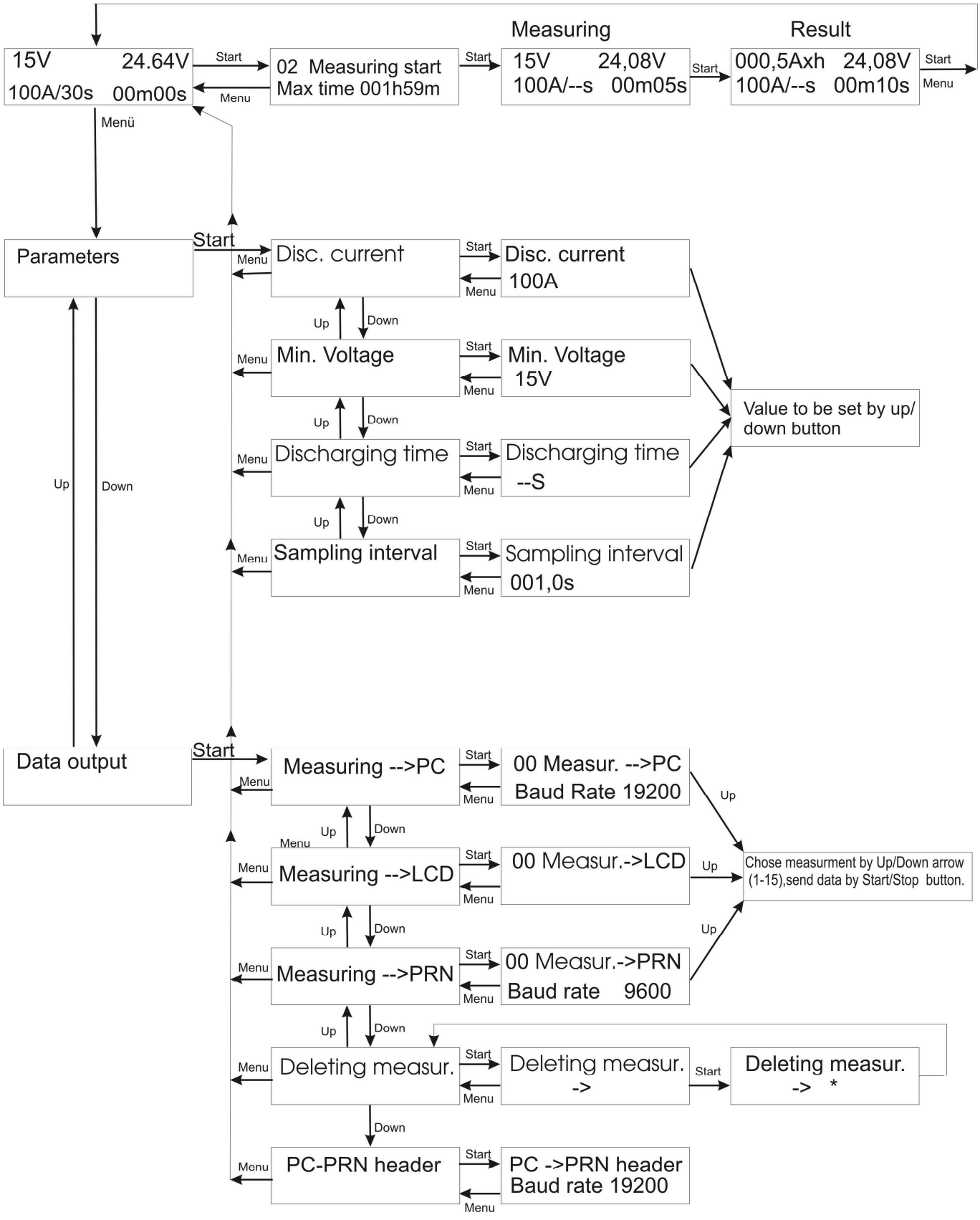
Operating device:



- ON / OFF: I/0 - to switch on and off the tester
- START / STOP - to start or stop measuring
- RESET - to clear the measuring result from the display
- PREVIOUS DATA - to have the result of the last measuring displayed
- MENU - to start the menu for setting parameters

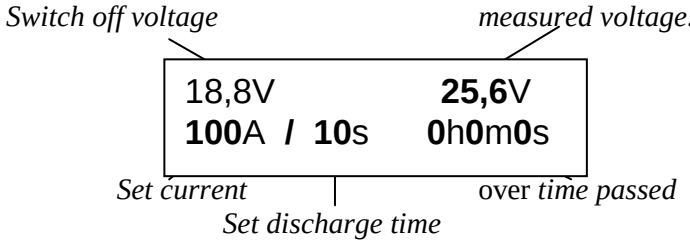
Check further functions of the buttons at menu.

Menu system


Measuring
Result
15V 24.64V
100A/30s 00m00s
Start
Menu
02 Measuring start
Max time 001h59m
15V 24,08V
100A/--s 00m05s
000,5Axh 24,08V
100A/--s 00m10s
Menü
Parameters
Disc. current
Disc. current
100A
Min. Voltage
Min. Voltage
15V
Discharging time
Discharging time
--S
Sampling interval
Sampling interval
001,0s
Up
Down
Value to be set by up/
down button
Data output
Measuring -->PC
00 Measur. -->PC
Baud Rate 19200
Measuring -->LCD
00 Measur.->LCD
Measuring -->PRN
00 Measur.->PRN
Baud rate 9600
Chose measurment by Up/Down arrow
(1-15),send data by Start/Stop button.
Deleting measur.
Deleting measur.
->
Deleting measur.
-> *
PC-PRN header
PC ->PRN header
Baud rate 19200

Setting for measuring

When switching on the display it shows the following:



Press START for a measure that equals in all the 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 sec. Then the measuring starts.
At the end of the test the display shows the a kivett A×h-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 memory.

For a measure of new parameters set the necessary data in the following way.
Whan the starting picture appears press MENU, and at PARAMETERS press Start. By this You enter the menu where You can set test parameters.
- ***Discharge current***
- ***Discharge cut off voltage***
- ***Discharge time :*** No time limit when setting infinite, measuring only stops when voltage reaches the limit.
- ***Sampling time***

Stepping between the parameters is possible by ↑↓ arrows. The required parameter can be chosen by the START button.
The desired value can be set by ↑↓ arrows.
Stepping 'upwards' in the menu is possible by the MENU button.
After setting any parameter you can exit the setting parameters menupoint by pressing the Menu, without stepping over to the end of the row of parameters.
For example setting the discharge current from 80A to 100A is possible by the following buttons starting from the initial page on the display: Menu – Start – Start - ↑↑ - Menu – Menu.

You can follow the voltage of the battery and the passed time of the measure on the display

You can stop the measuring by ˝**STOP**˝ any time.
For restarting we have to delet the AH by pressing, ˝RESET˝ or ˝**START**˝.
By another pressing of the ˝RESET˝ button the temporary voltage is displayed.

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 can not fall under 19,2V, not even after 2-3 following loads.

Measuring capacity: *(reserve capacity)*
Reserve capacity: set the voltage limit to 21V, 25 A load currency, infinite time and eg 1 min 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.

Measuring by 1×C-: Set 19,2V bottom voltage , 1×C(A) discharge current, infinite time and e.g.. 1 min. sampling time, then start measuring. By the T/min shown at the end of the measuring the 20 hour capacity can be easily calculated with a simple antecedent. At a 100% wet batteries can provide 1×C for 35 minutes.

Generator testing *[option /:]*

Connect the tester to the battery installed in the car. Set the voltage liminal value to 21V, 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 27,4V!!)

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.

Connecting the tester through a 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 to 19200 baud.

Pressing the **Menu - ↓ - Start - Start** buttons on the tester step into "Test > PC" menupoint, thenif You have made several tests, select the required test by the ↑↓ buttons. Then press START button. Test results then are dowloaded to the PC and then can be analized in the programme.

Data transfer:

The test results can be downloaded in the menupoint 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 menupoint. 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.

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, an error message is displayed. 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 that was selected, because of a faulty relay.

Repeat the test and have the tester repaired.

System of testers:

The elements of the system are 24V/100A testers, that can function one by one as separate testers.

It is possible to connect maximum 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 equally positioned Slaves.

A Master always has to have a tester connected to it. The number of Slaves can be 1, 2, 3 depending on the necessary discharge current.

The below table shows the the possible discharge currents .

Slave	Max. current	Min. current
1	200A	50A
2	300A	75A
3	400A	100A