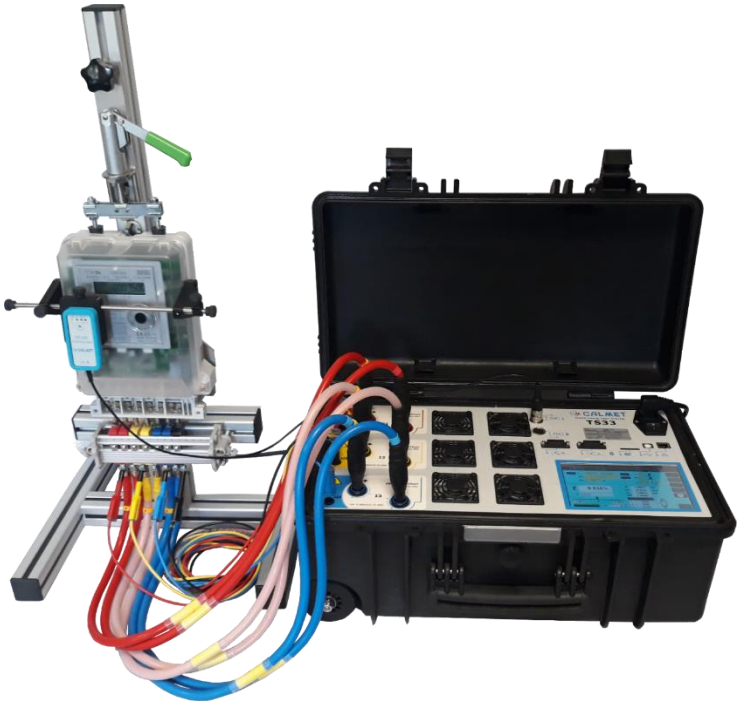
How to test energy meter start up current in automatic procedure using TS33 Test System

CALMET
Smart Calibration Devices

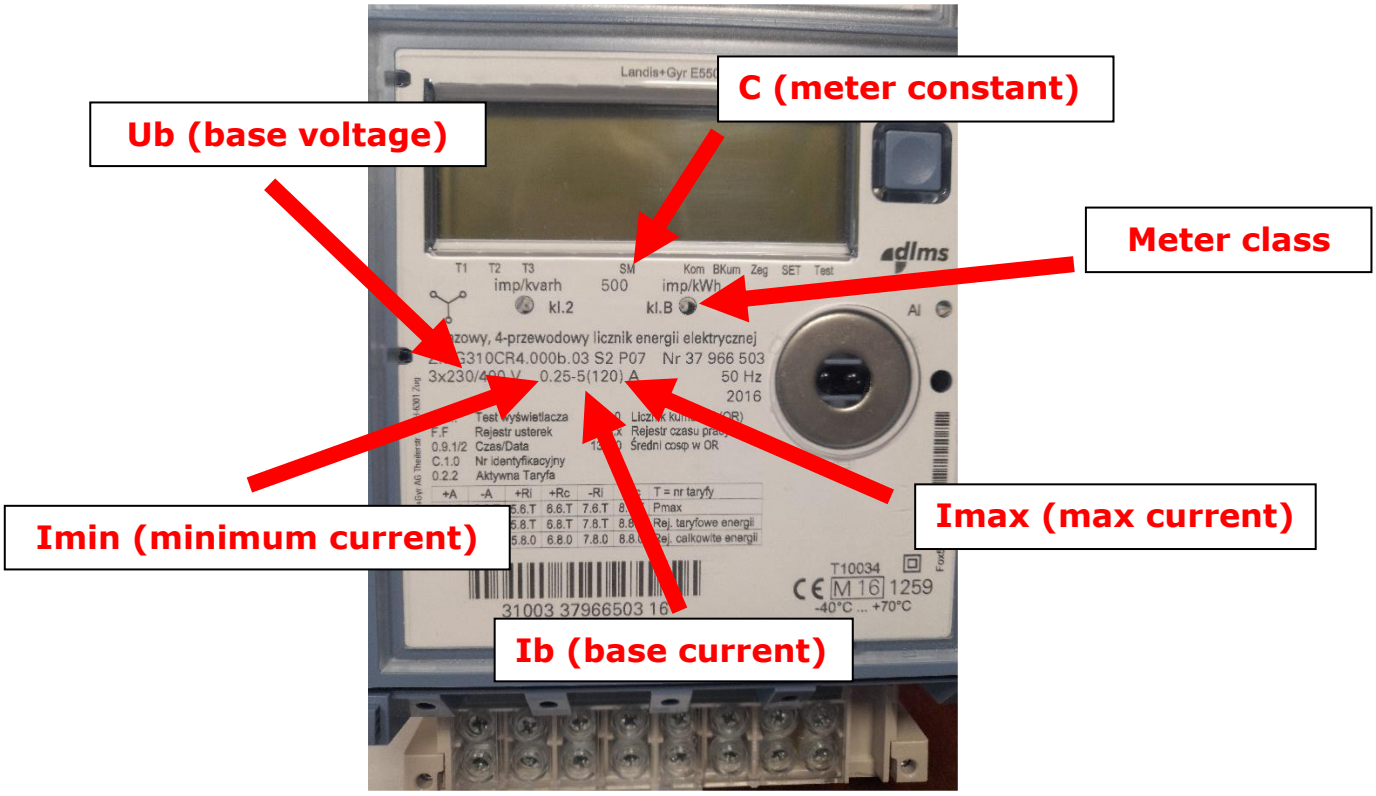
Information Note AN38

The measurement system consists of:

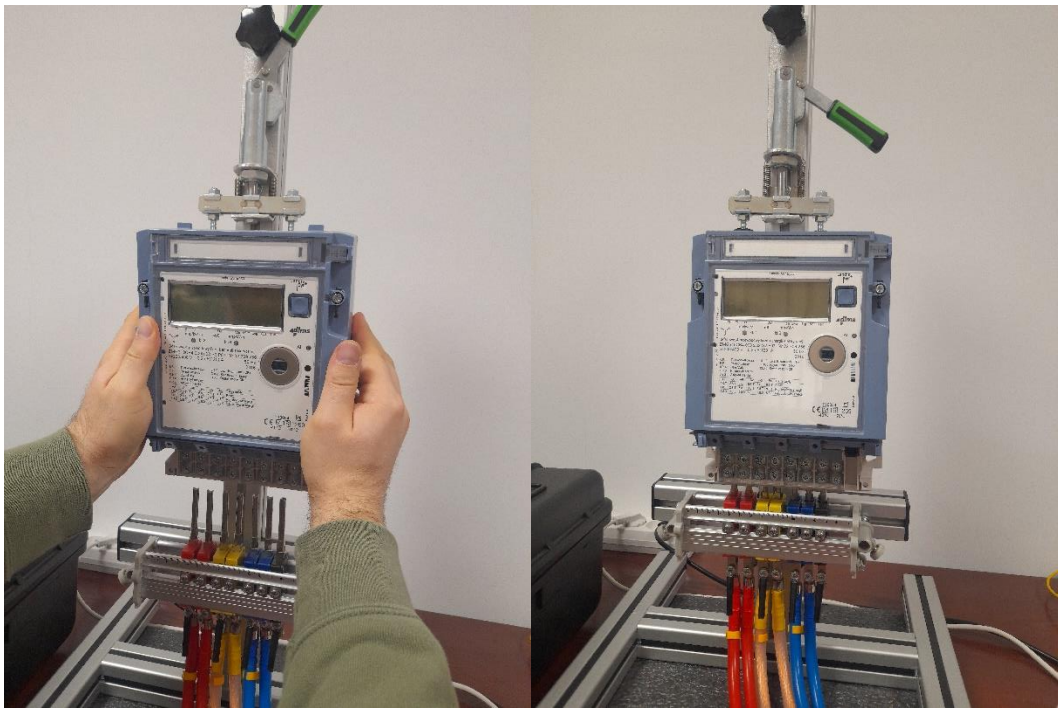
- Calmet TS33 Three-phase Automatic Test System;
- ER10H.3 Single position rack with quick connection device;
- CF106H Universal Photohead with holder;
- Device under test – three-phase electricity meter.



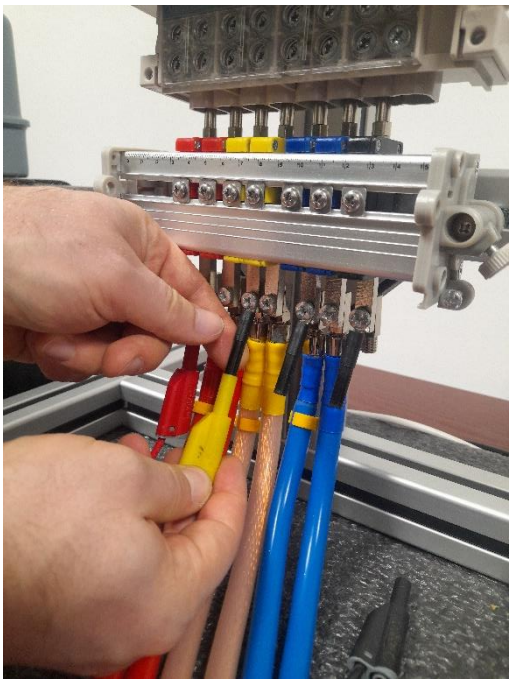
Front plate of meter under test and its parameters that are needed to perform the test:



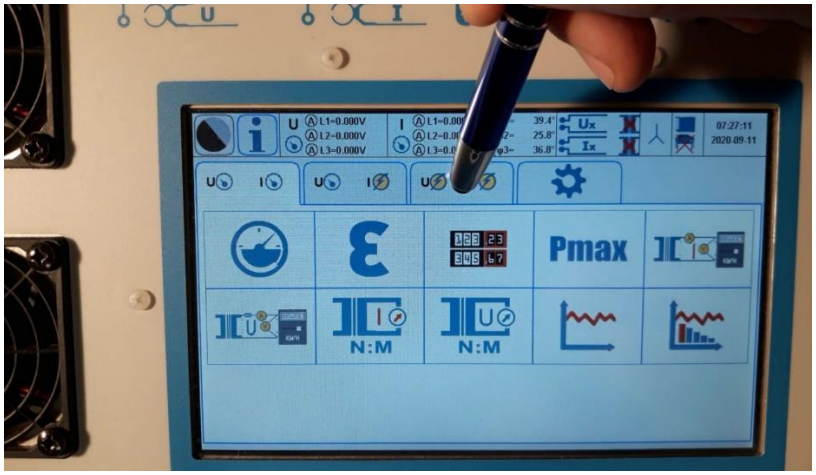
Hanging the energy meter on ER10H.3 Single position rack with quick connection device:



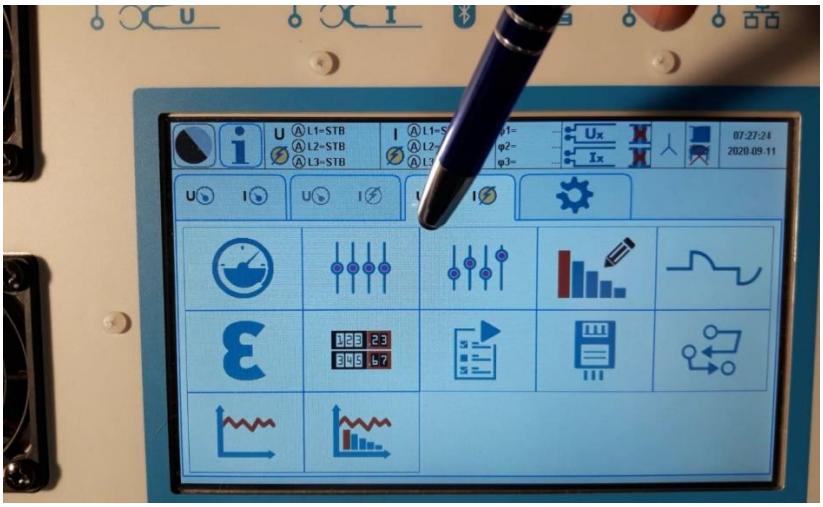
Connection of safety voltage cables to tested meter



To perform the start up current test, run the TS33 in the three phase voltage, current source and meter mode



After switching, you will be able to view the following functions:

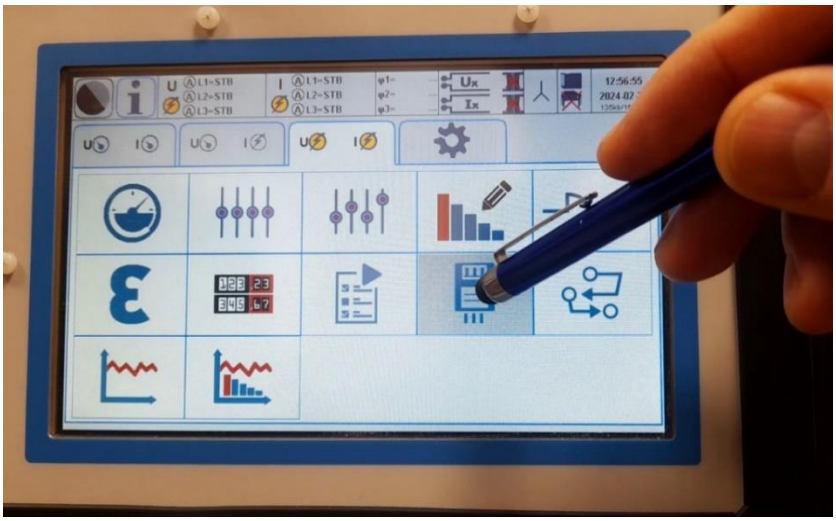


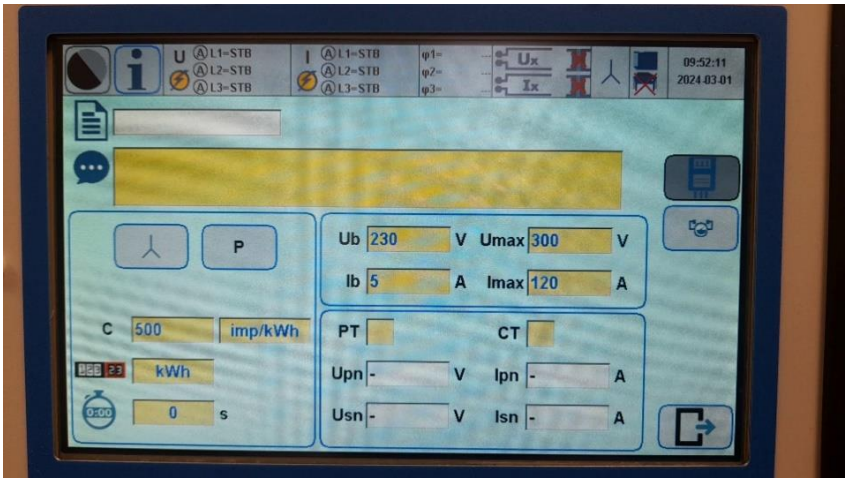
To perform a start up current test using the TS33 testing system, three steps must be performed:

1. **Declaring the meter type**
2. **Preparing the procedure**
3. **Starting the autotest**

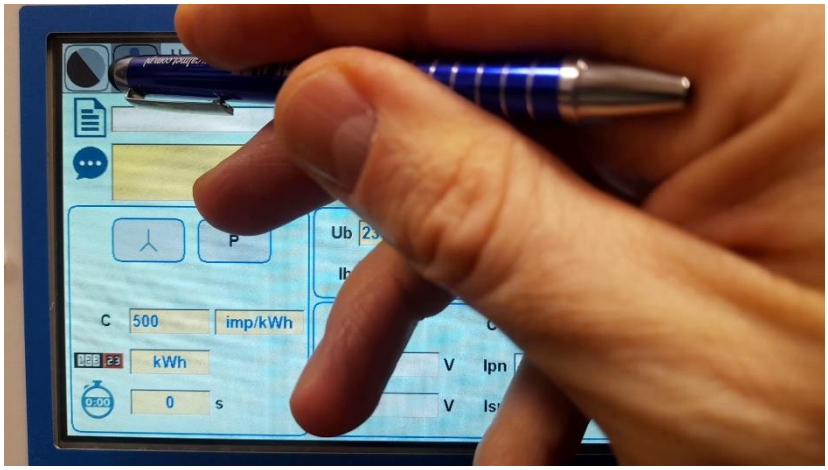
1. Declaring the meter type

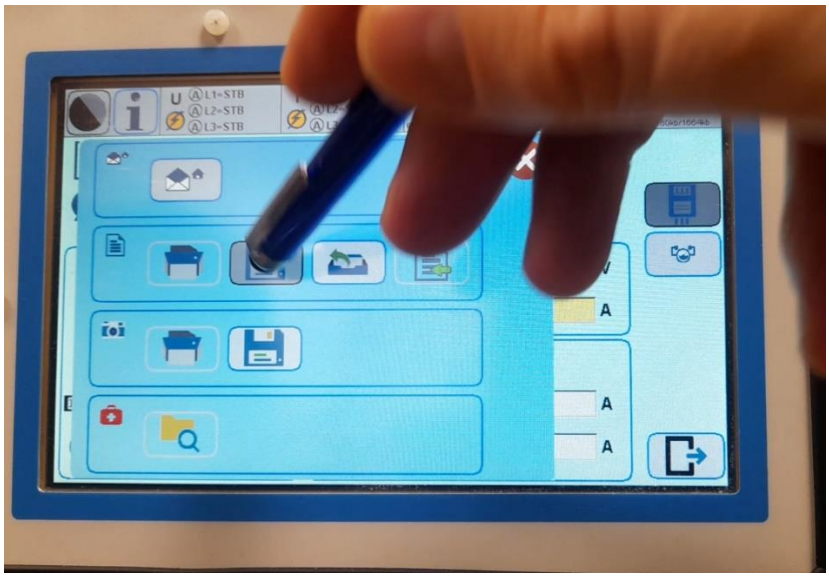
On the TS33 main screen in the three phase voltage, current source and meter mode, push the icon indicating the meter type for entering the tested meter's parameters (meter name, meter comment, value and unit of impulse meter constant, maximum and basic values of voltage and current)

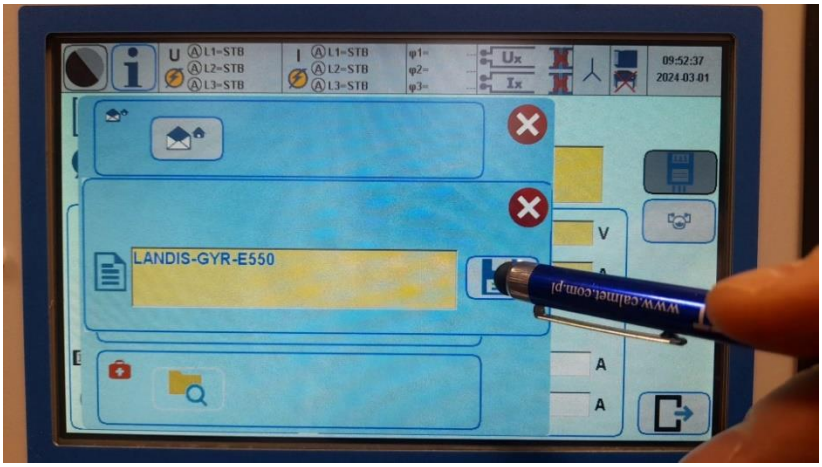


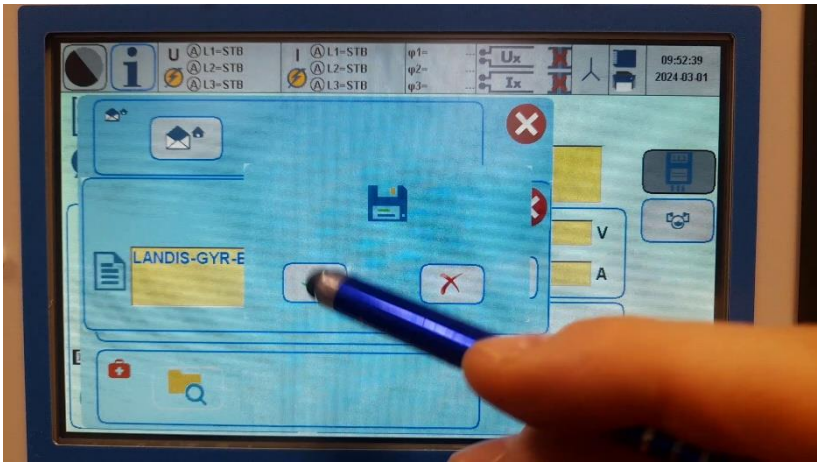


And we save it on the device's memory card







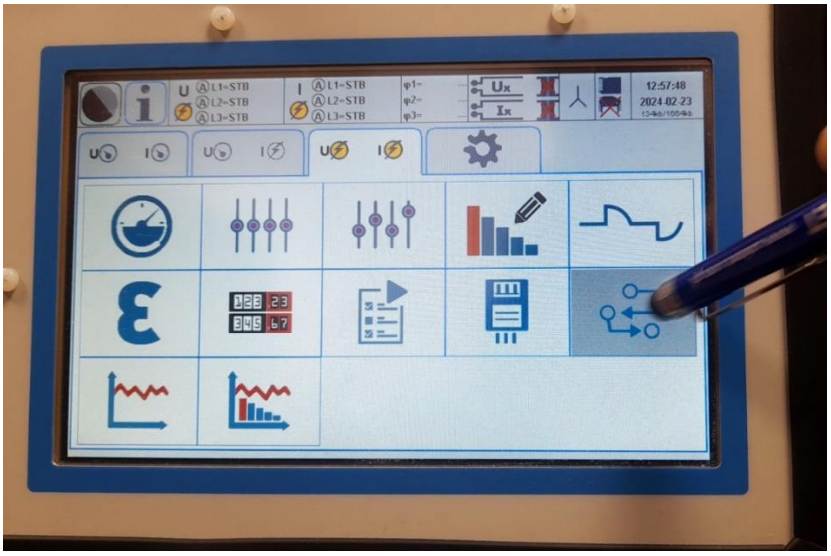


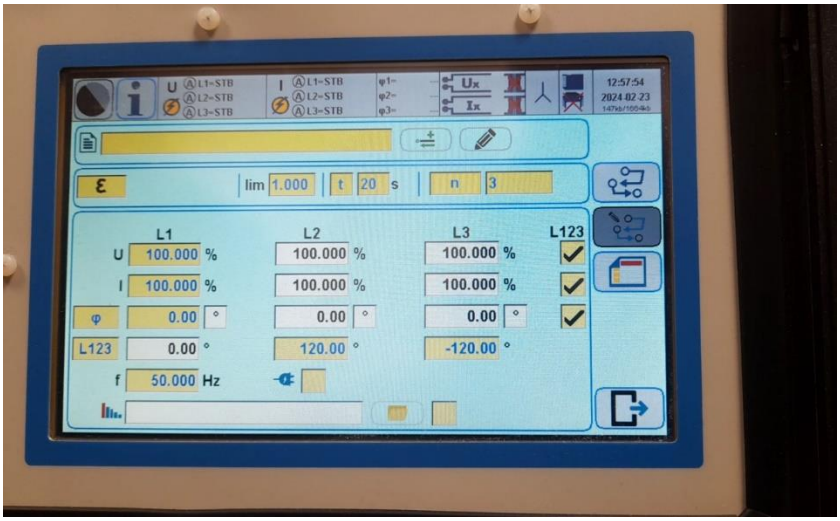
After saving the meter type, go to the main screen using the icon and then move on to prepare the procedure (icon)

2. Preparing the procedure

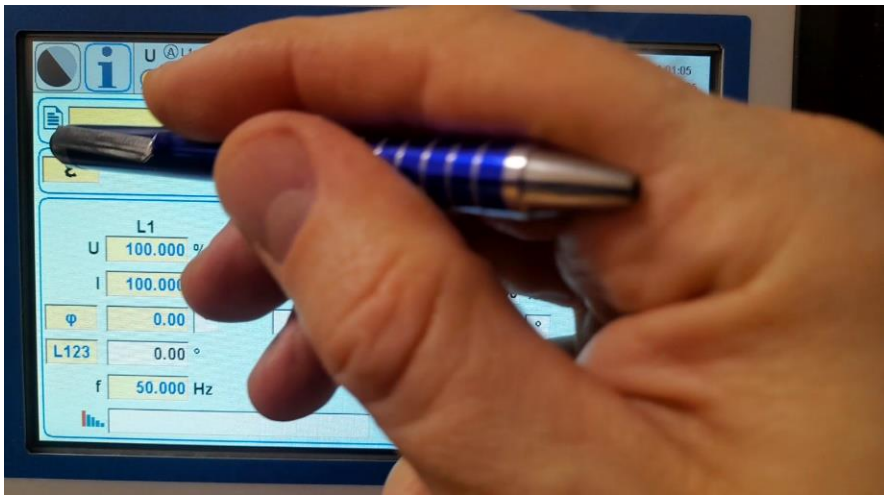
The second step is to prepare the procedure ( )

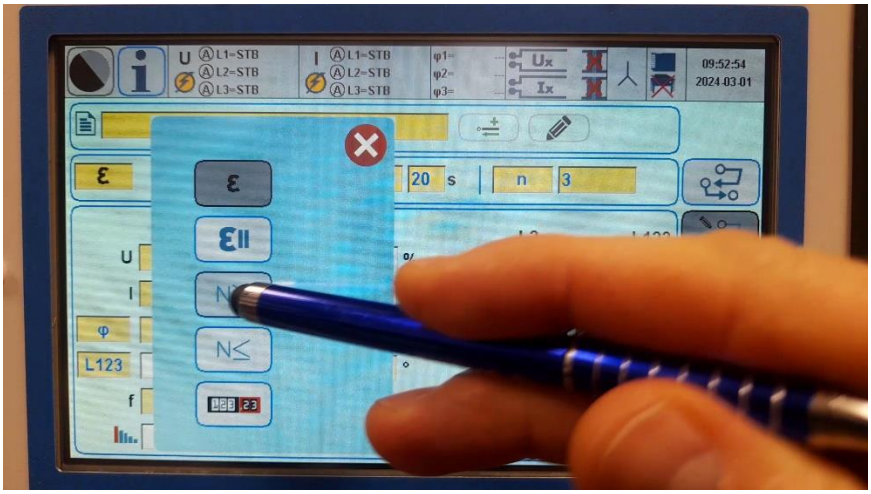
A window will then appear in which we define individual points of the procedure.
In our case, this will be the point at which we check the meter's starting current



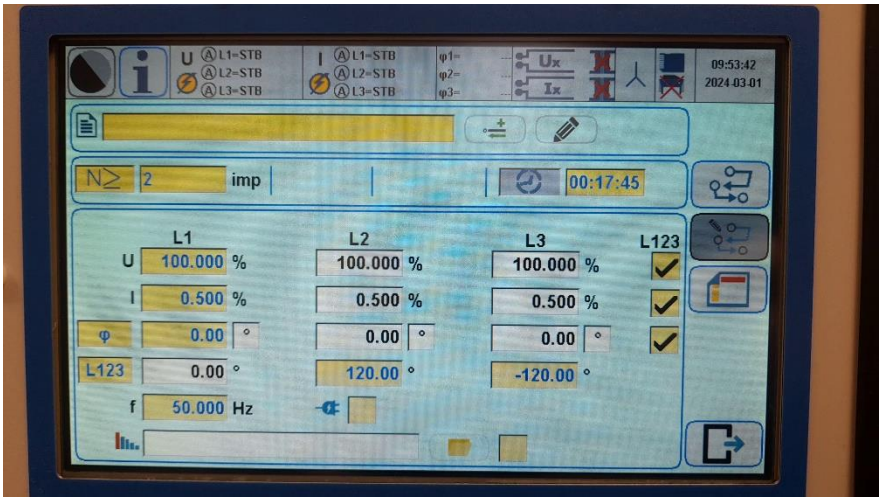


In the first step, we choose the type of test – start up current test ( ), as shown below



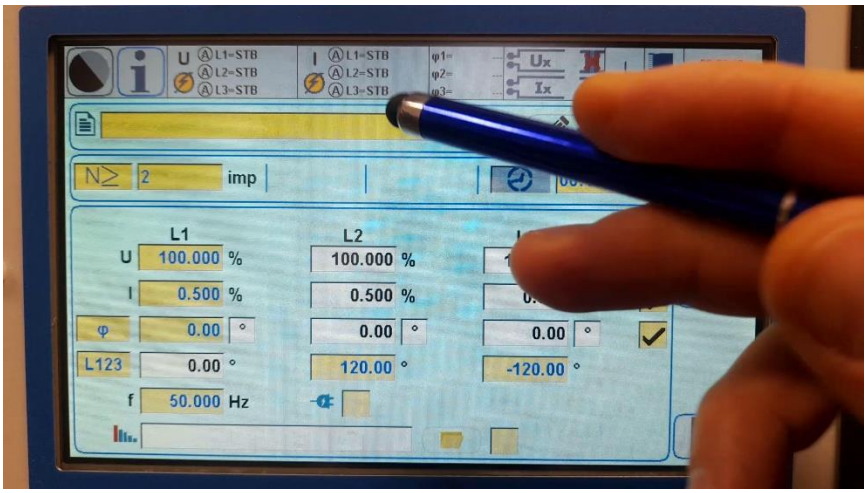


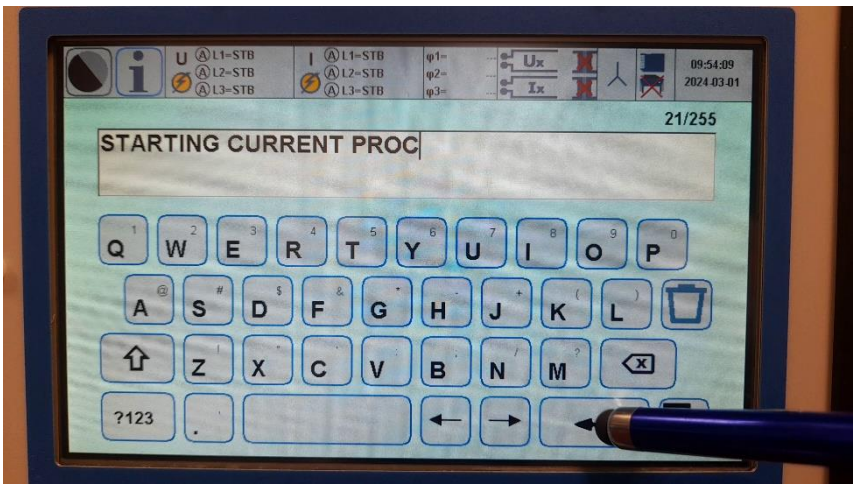
Then we set the procedure point parameters as shown below:



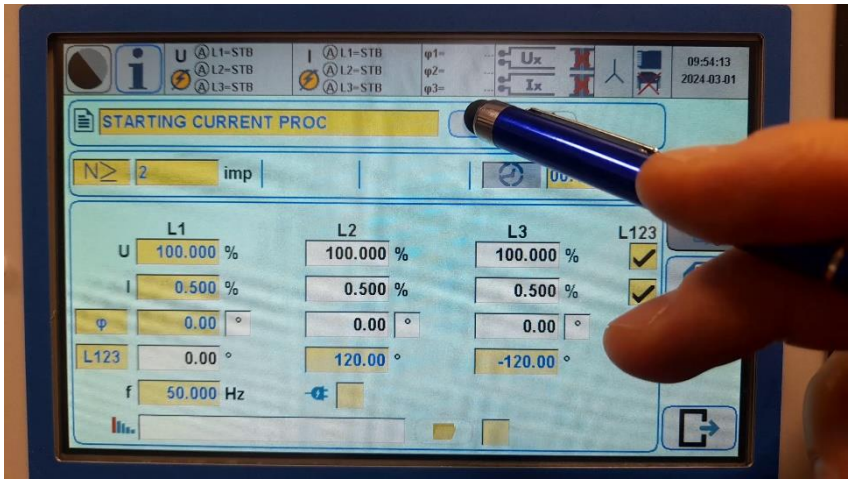
In accordance with the requirements of the standard, during start up current test, the nominal voltage and value of starting current is supplied to the meter terminals

And we save the point on the memory card

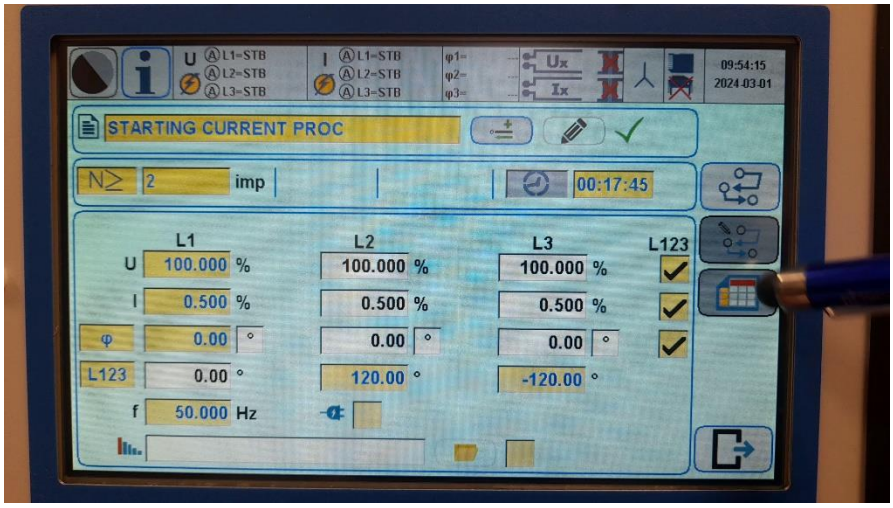




In the next step, we add it to the procedure using the button

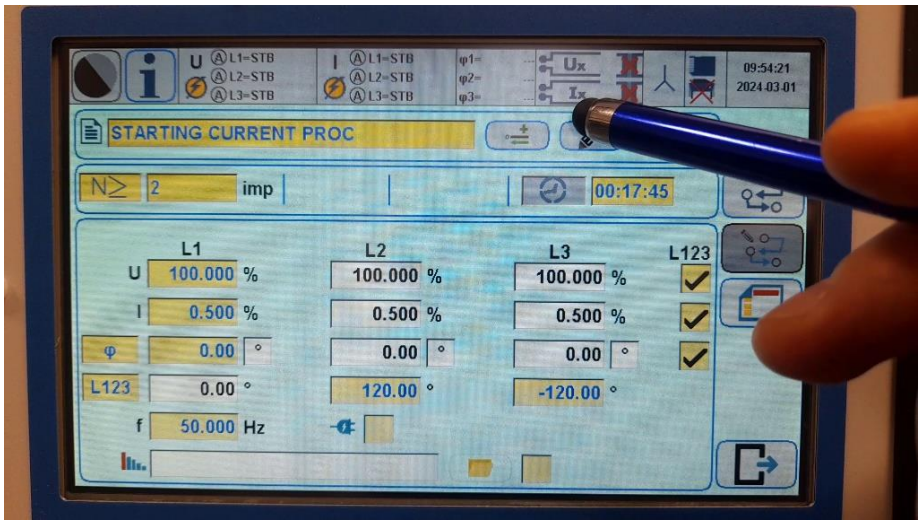


Then we go to the table view, by pressing the button

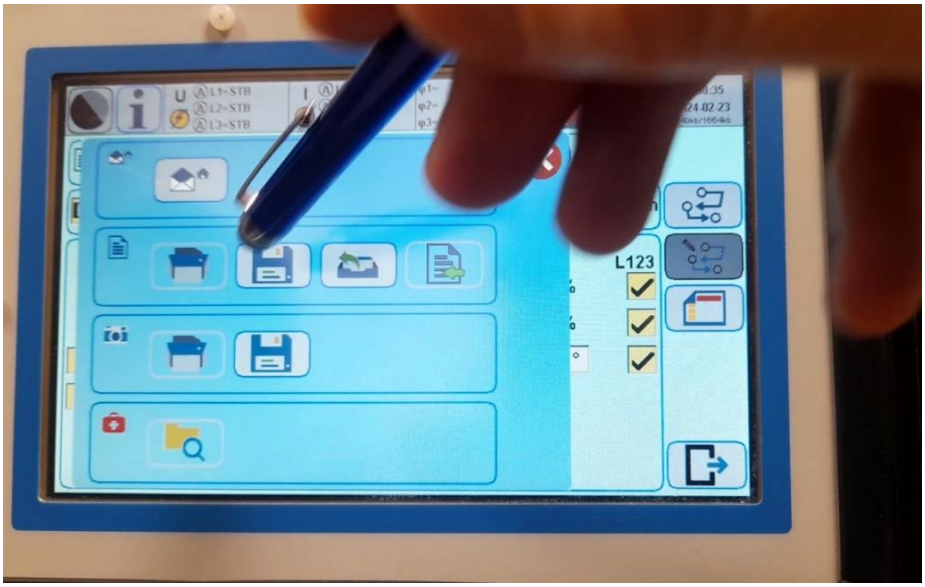


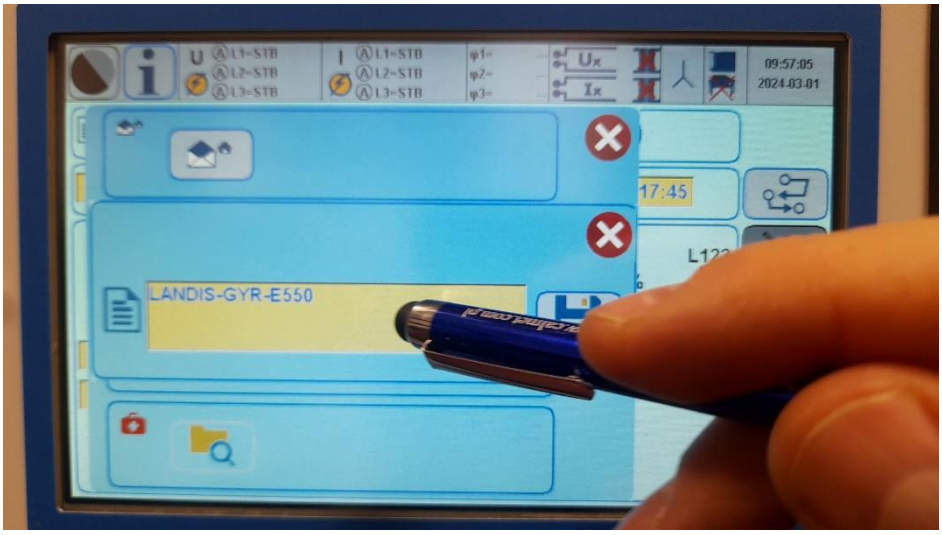
Where we can see the saved procedure point

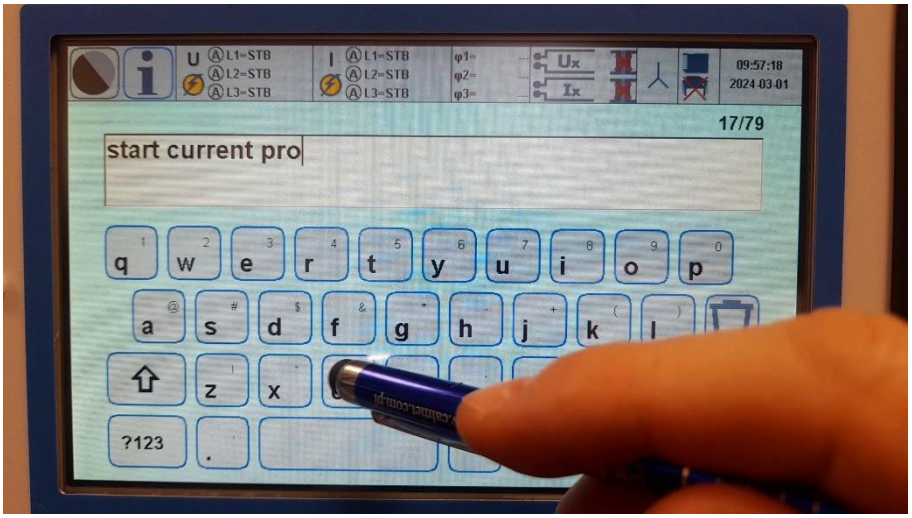
Then we return to the previous view and save the procedure

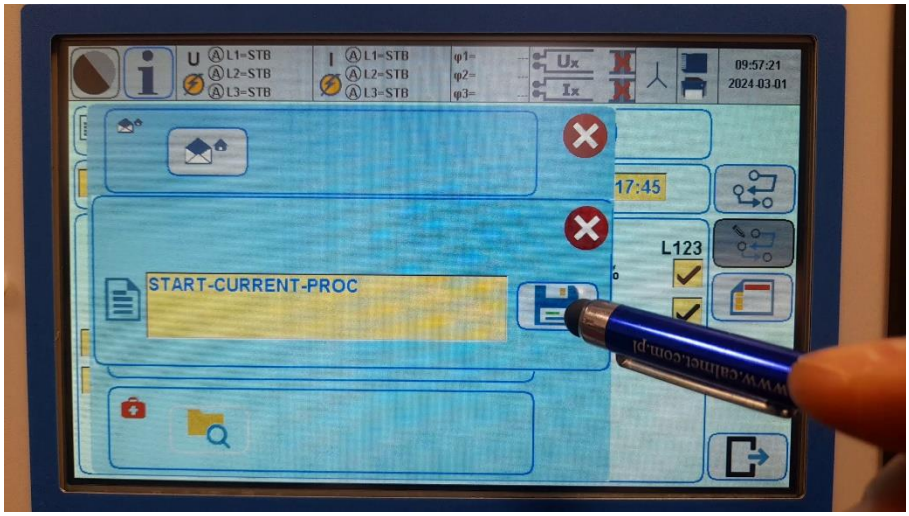


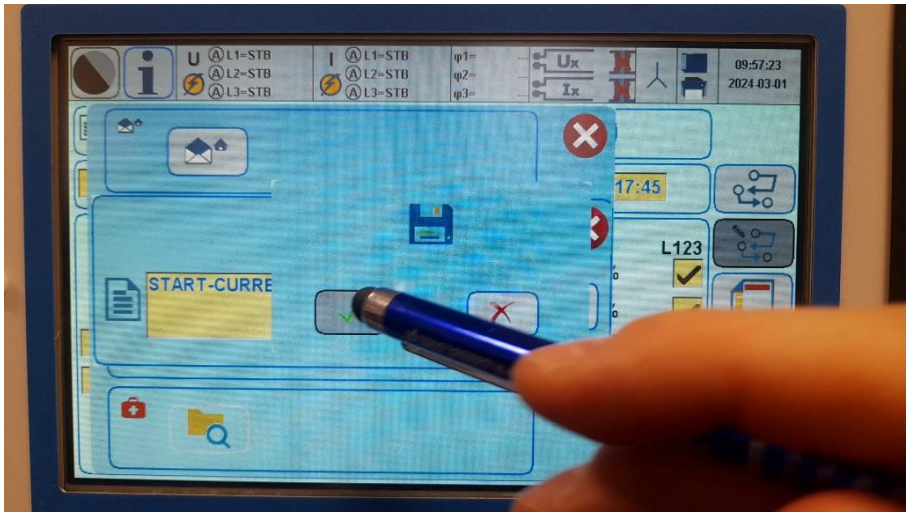
09:54:24
2024-03-01
STARTING
N≥ 2 imp
L1
U 100.00
I 0.500
0.500
φ 0.00 °
L123 0.00 °
f 50.000 Hz


L123


09:57:05
2024-03-01
17:45
LANDIS-GYR-E550

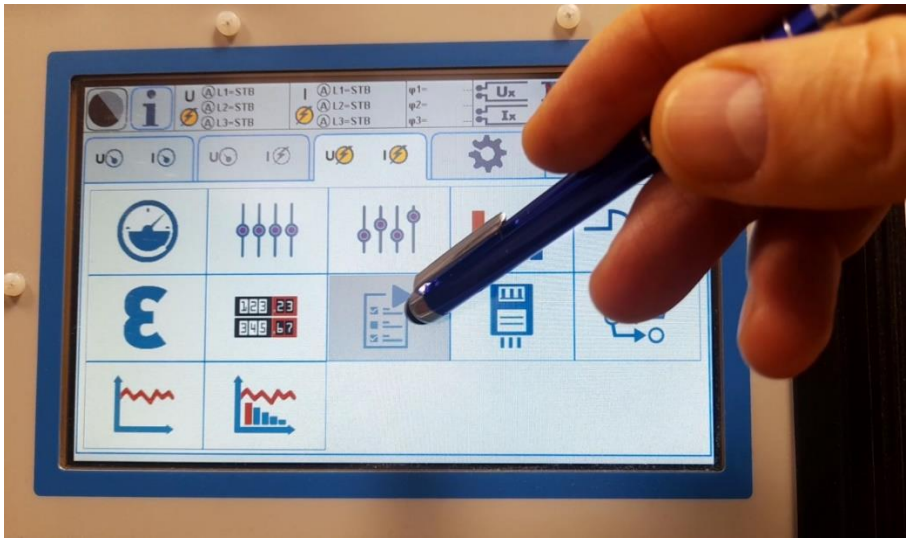

09:57:18
2024-03-01
17/79
start current pro


09:57:21
2024-03-01
17:45
L123
START-CURRENT-PROC

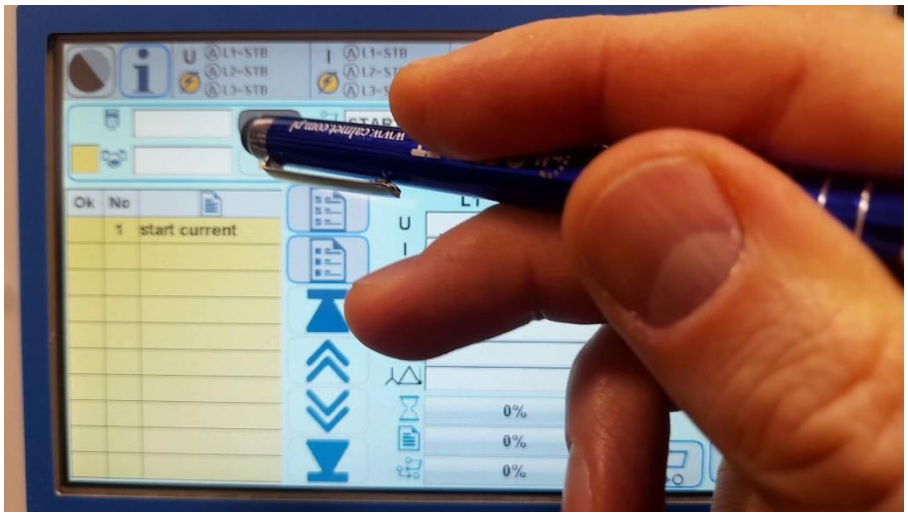

09:57:23
2024-03-01
17:45
L123
START-CURRE

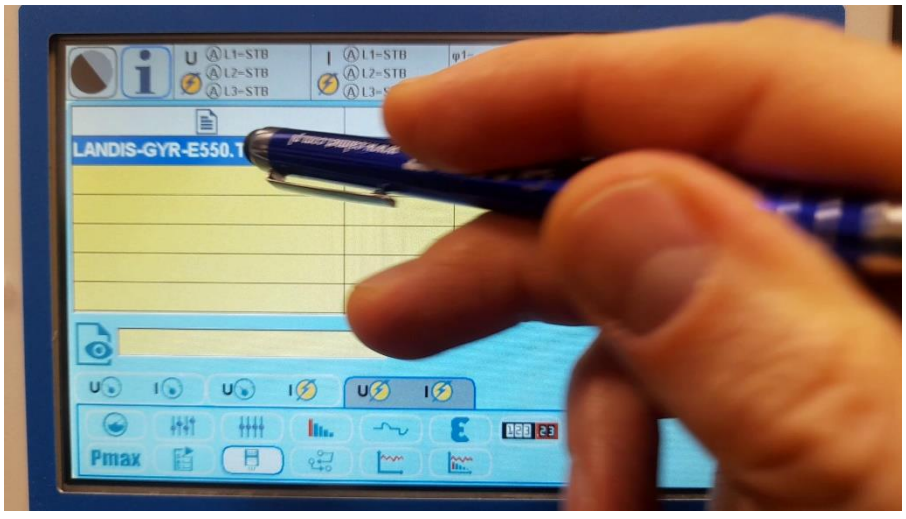
3. Starting the autotest

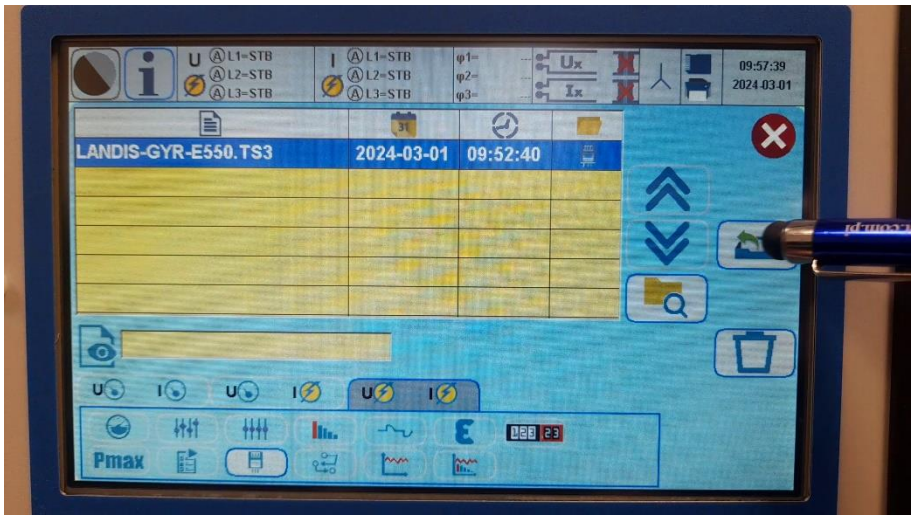
The third step is to proceed to the autotest ( )



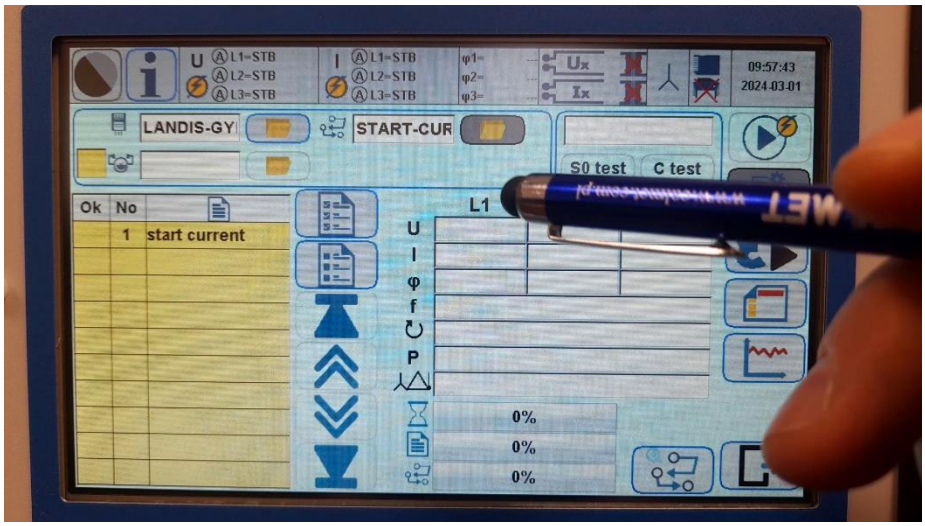
We select the meter type in the autotest, using the field:

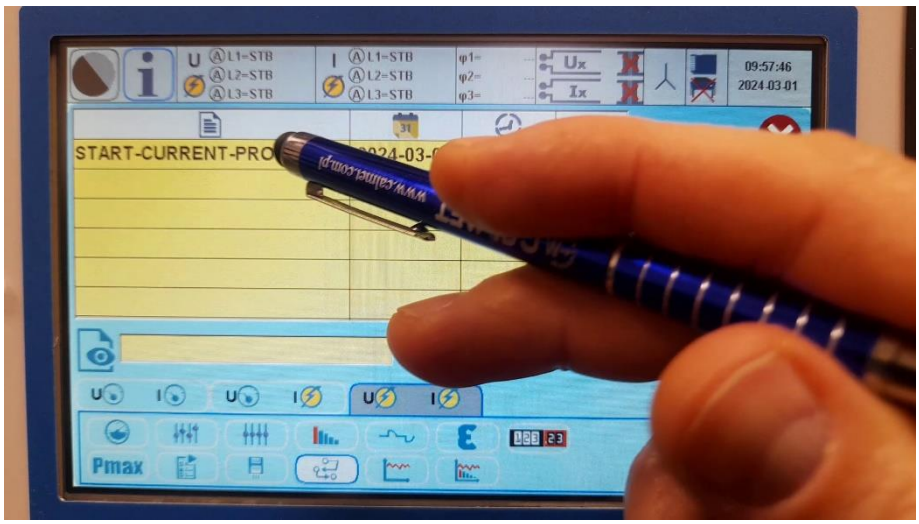


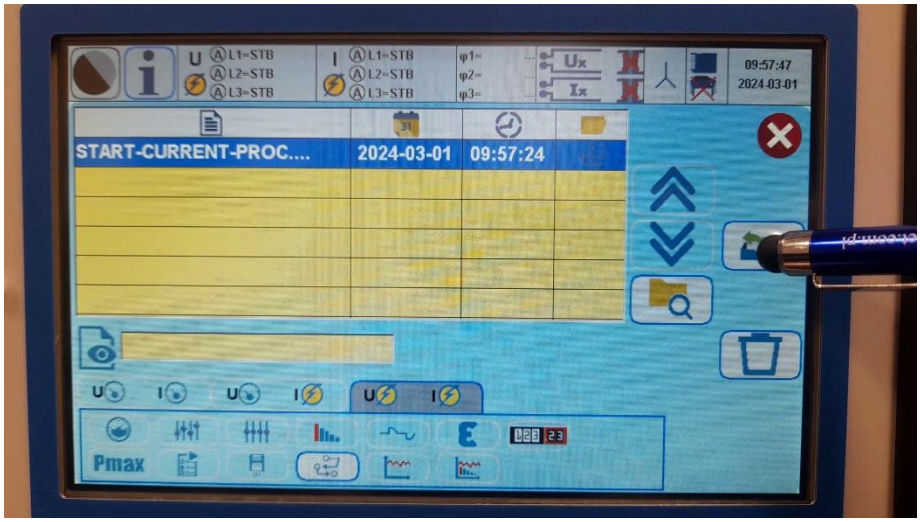




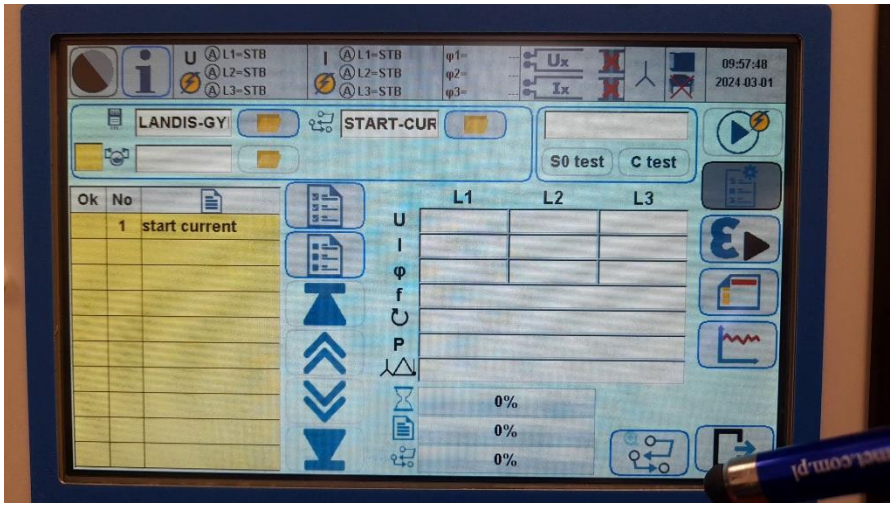
and then select the previously prepared procedure, using the field:



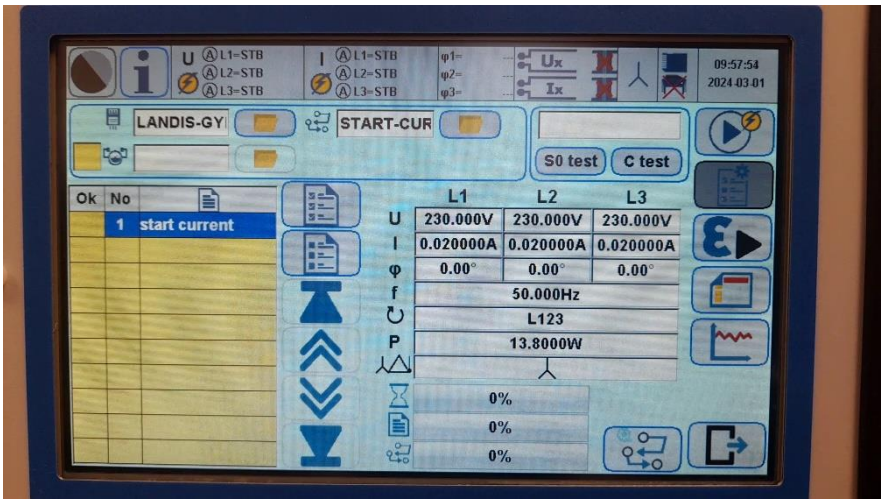




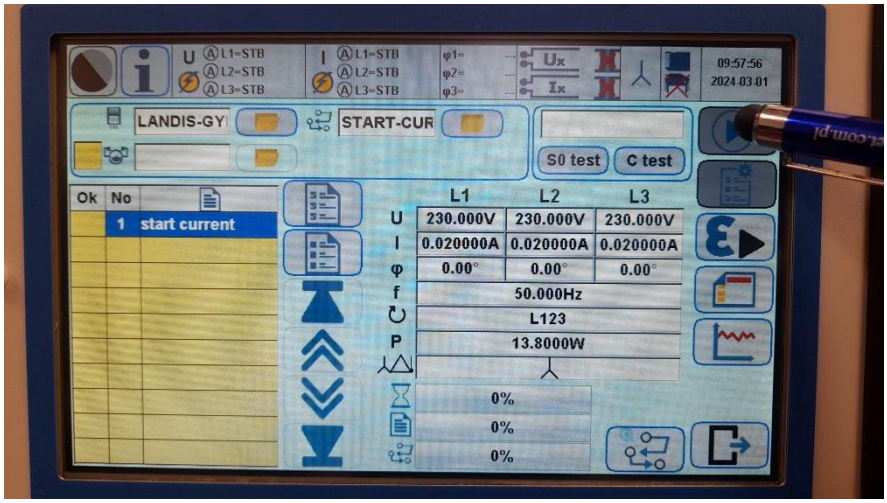
after selecting the procedure, the autotest window will look like this



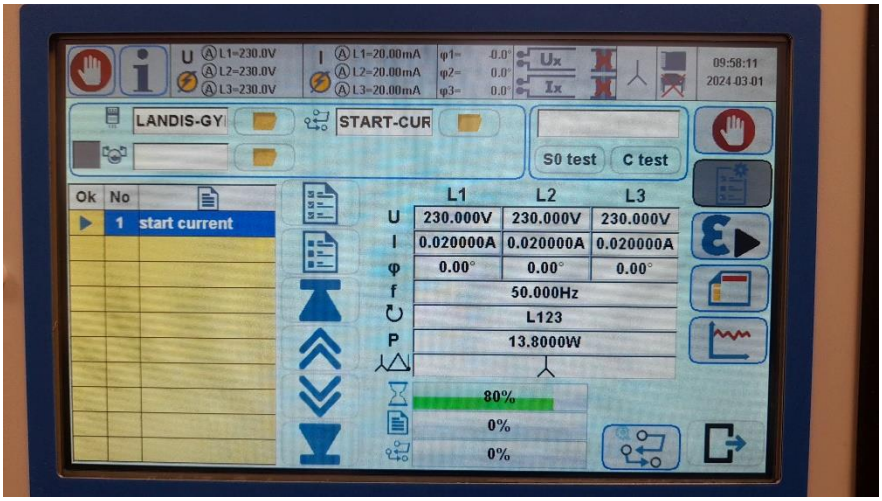
at this point we can mark a point in the procedure, thanks to which its parameters will appear in the table on the right (so we can check their correctness)



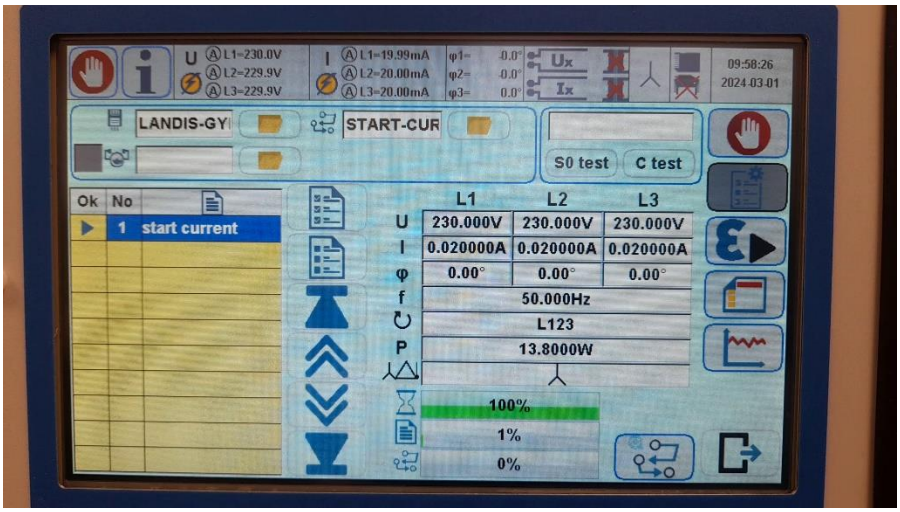
In the next step, we run the procedure, by clicking icon

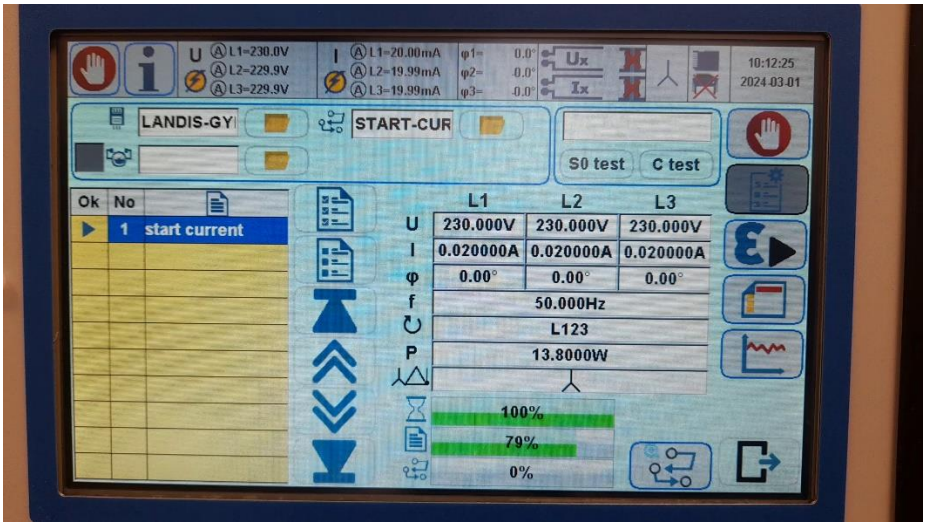


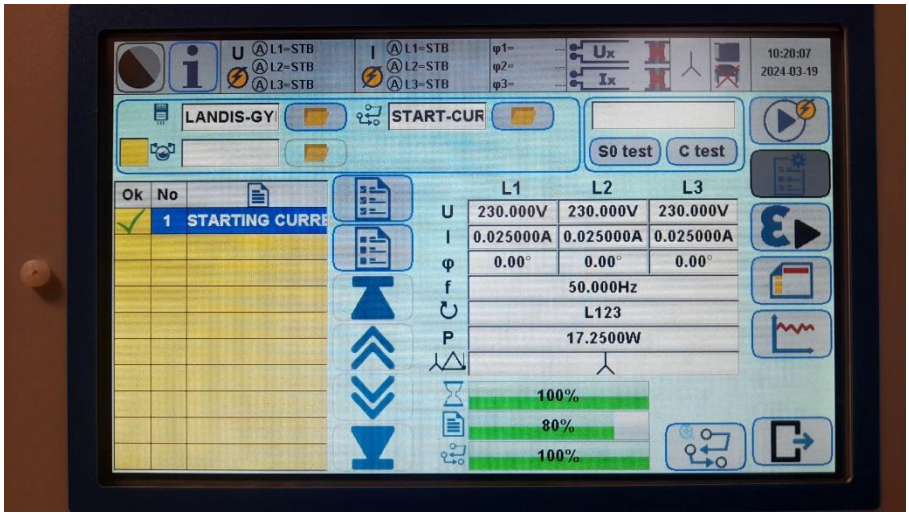
Before the test begins, stabilization takes place, as evidenced by the first progress bar marked below



Then the test begins, in which a defined starting current flows through the tested meter, at which the meter should generate the number of pulses (or rotor turns) specified in the procedure for a given time.







When the staring current test ends we can press the icon and see the below view

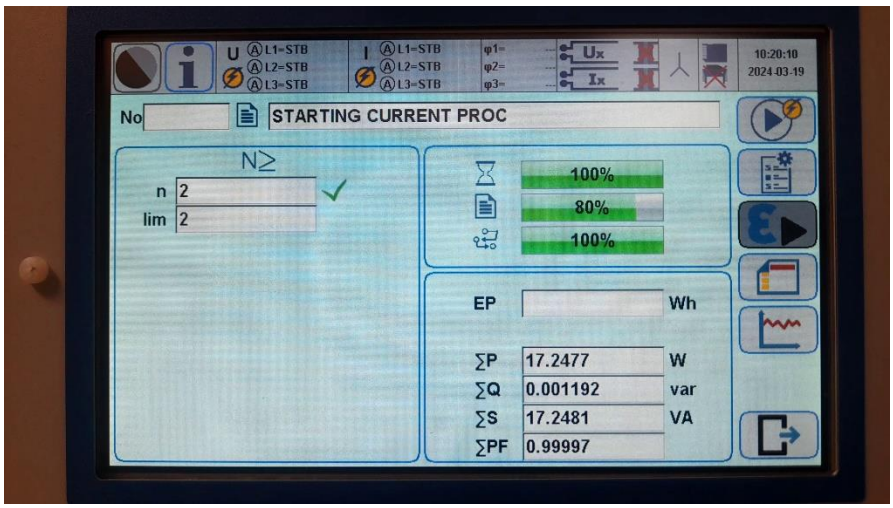
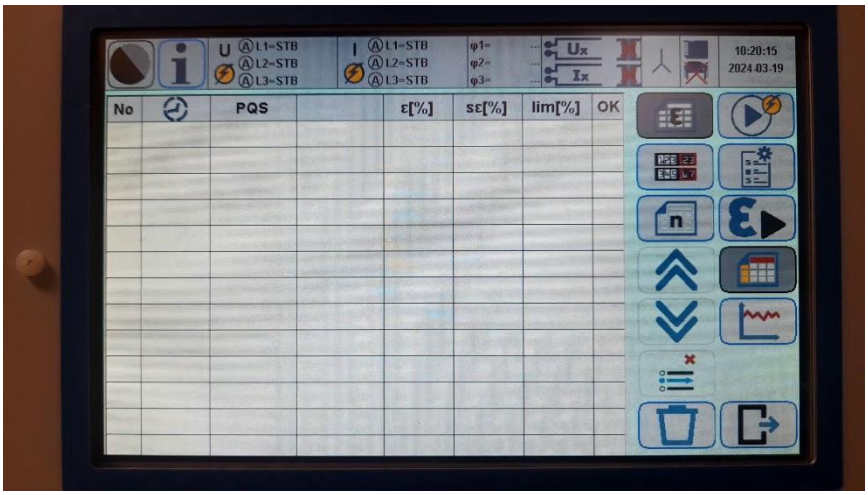
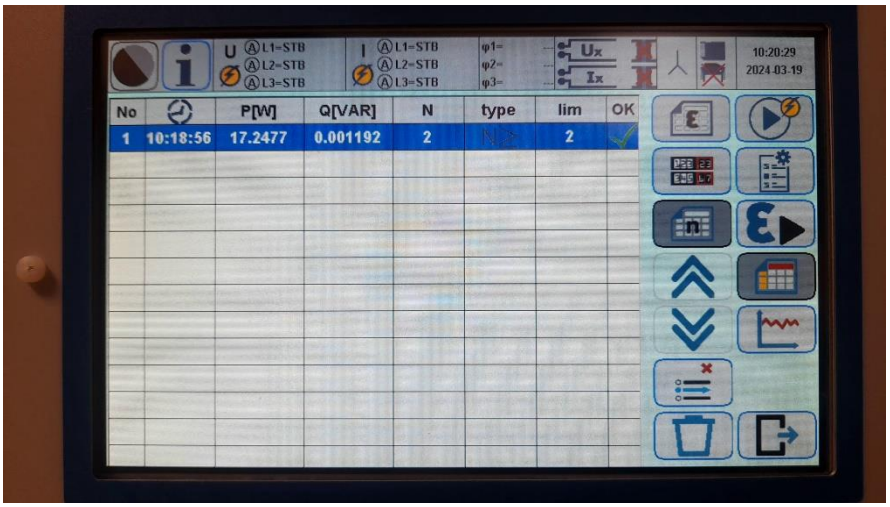


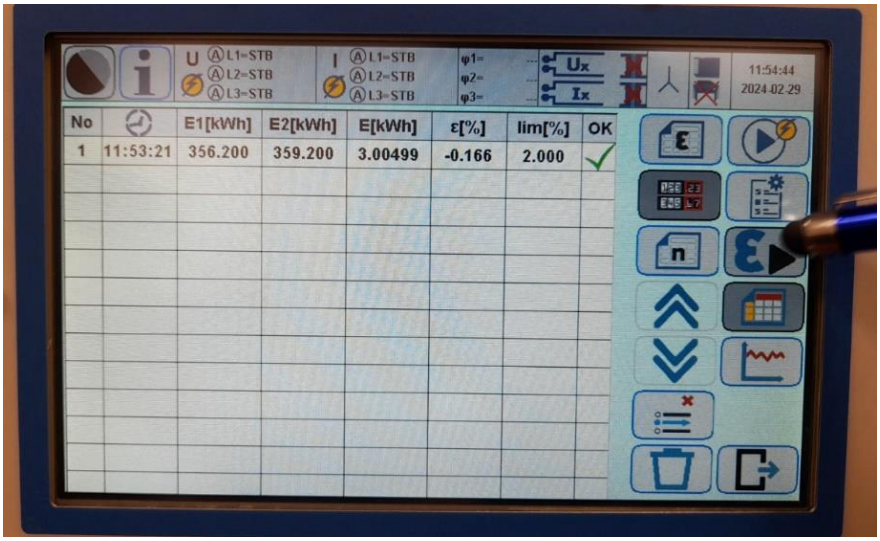
Table view



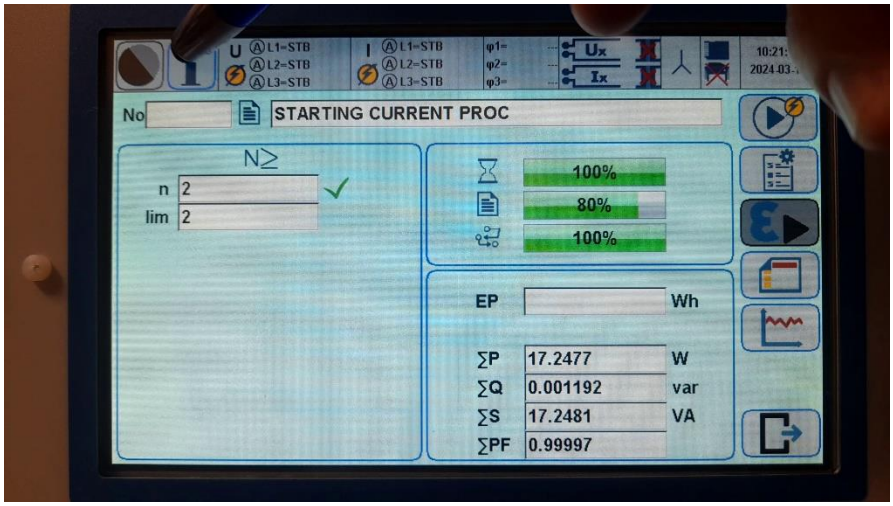
The test results are available by clicking the icon



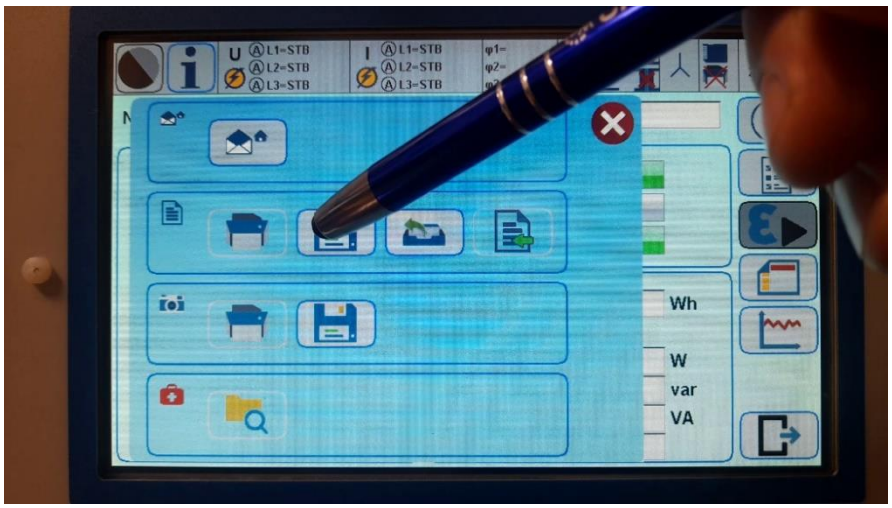
Then we can proceed using the icon

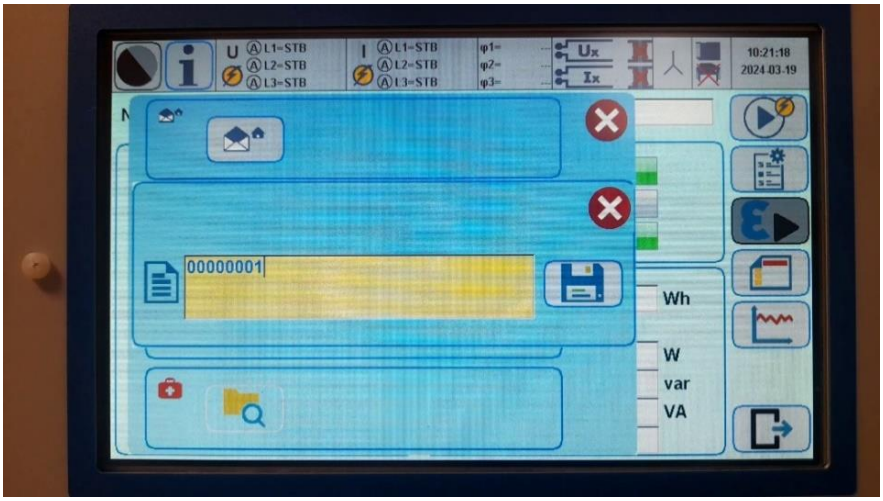


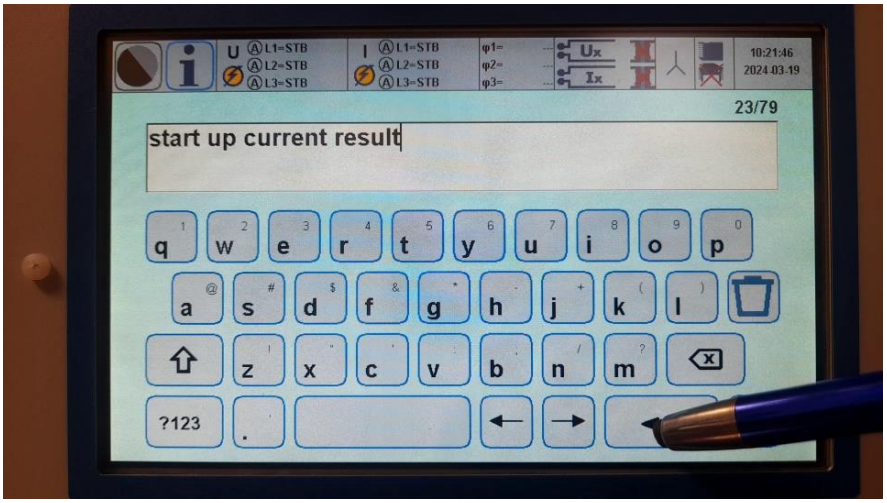
We can see the view below

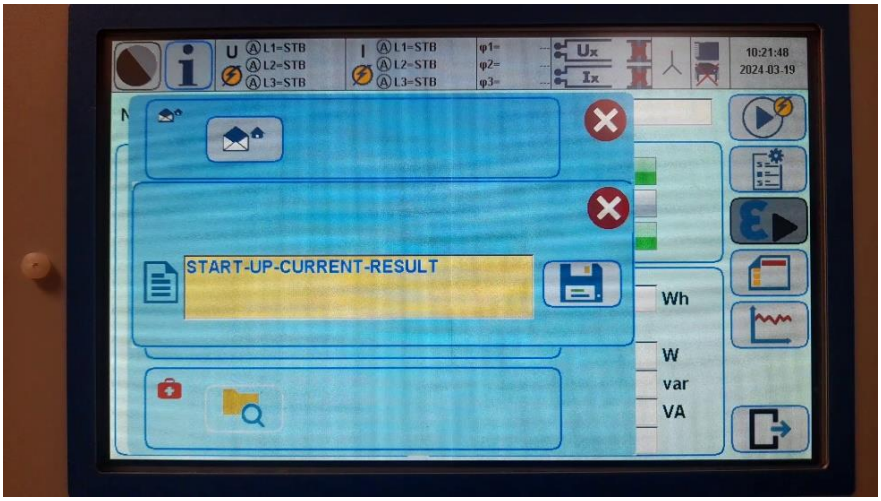


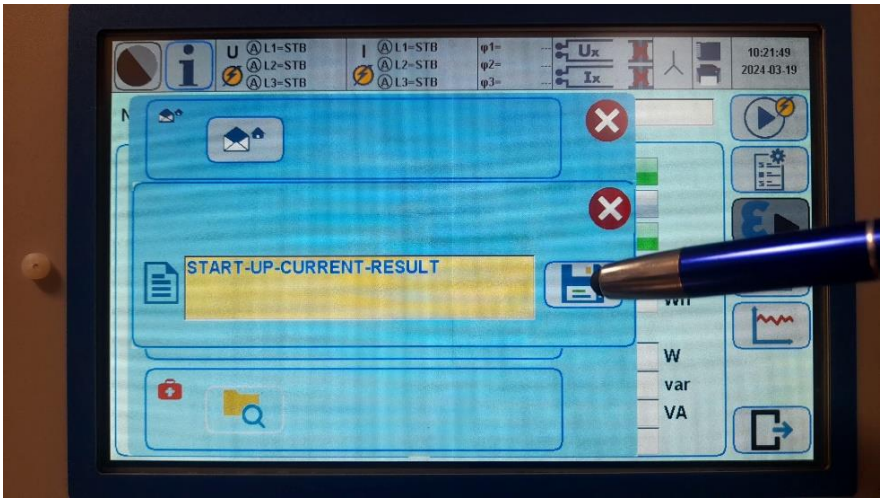
The achieved results can be also stored in the internal SD card by carrying out the sequence of actions presented below

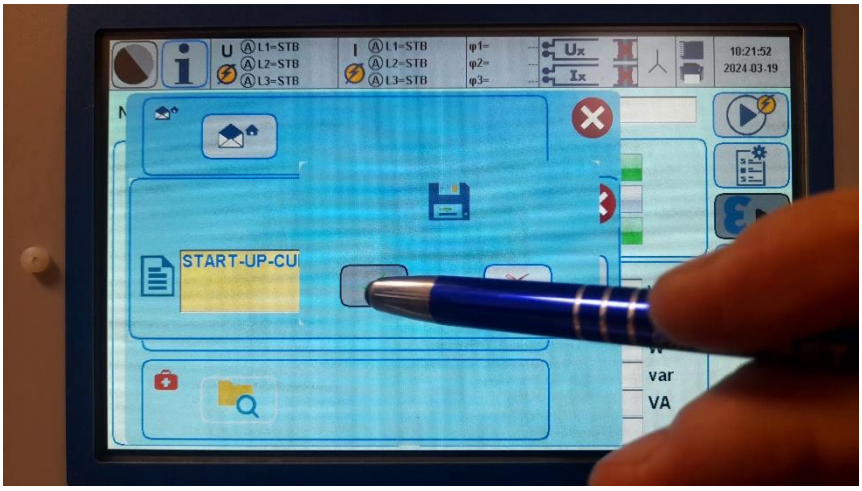


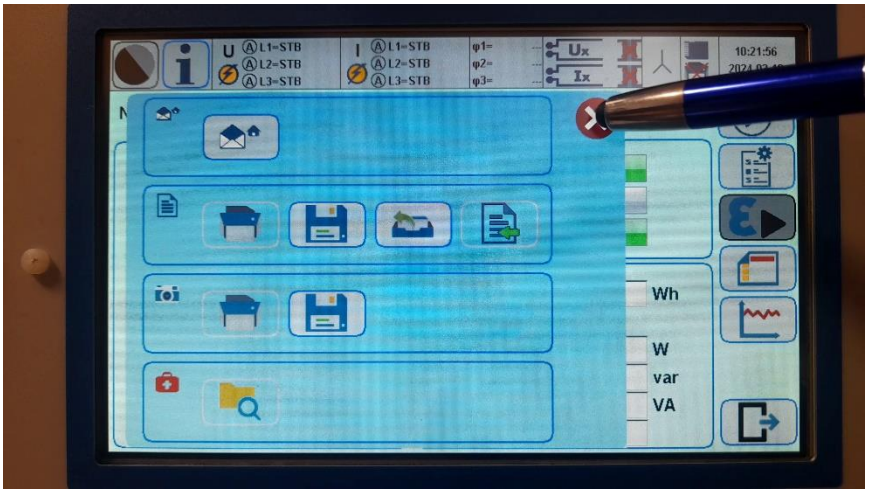



U L1=STB L2=STB L3=STB
I L1=STB L2=STB L3=STB
φ1= φ2= φ3=
Ux Ix
10:21:46
2024-03-19
23/79
start up current result
?123


U L1=STB L2=STB L3=STB
I L1=STB L2=STB L3=STB
φ1= φ2= φ3=
Ux Ix
10:21:48
2024-03-19
START-UP-CURRENT-RESULT
Wh
W
var
VA

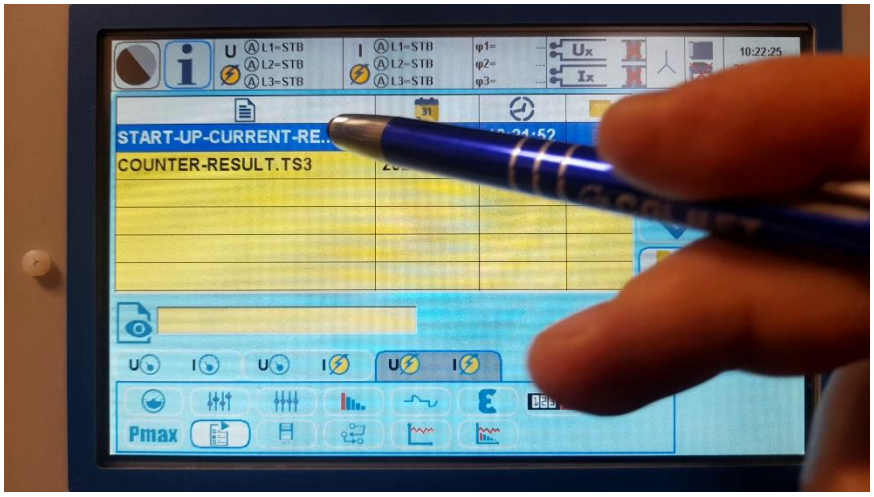

U L1=STB L2=STB L3=STB
I L1=STB L2=STB L3=STB
φ1= φ2= φ3=
Ux Ix
10:21:49
2024-03-19
START-UP-CURRENT-RESULT
W
var
VA

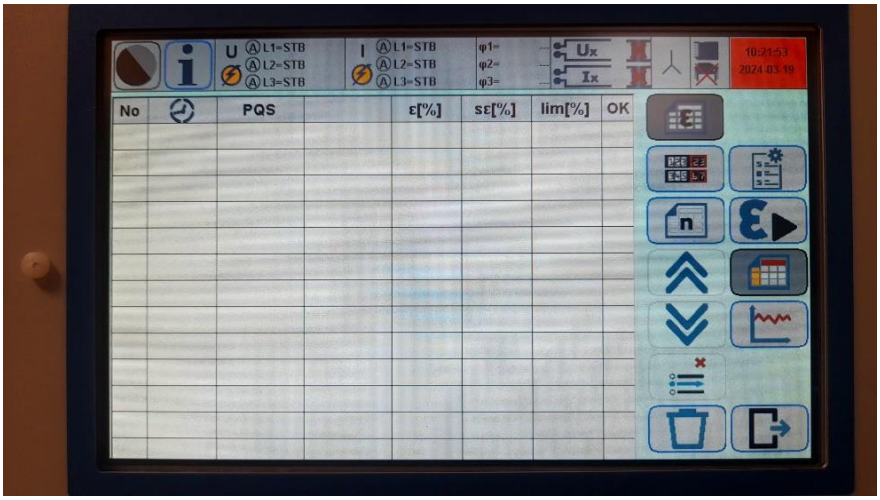


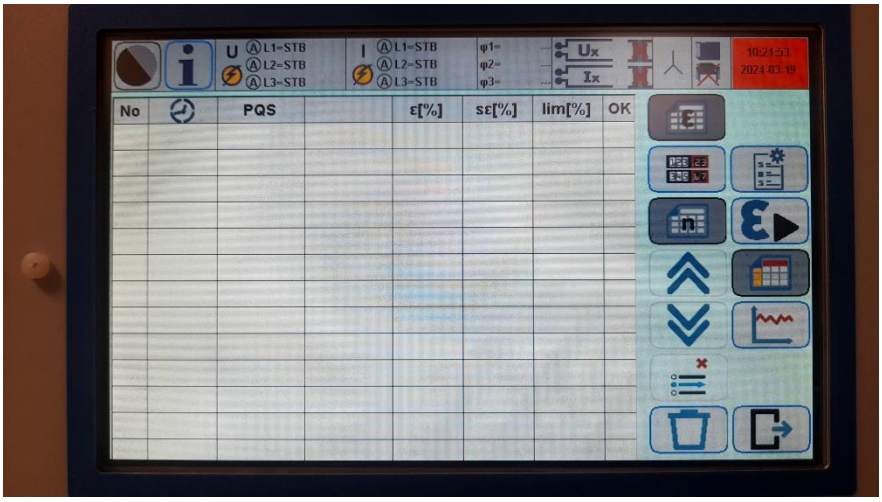


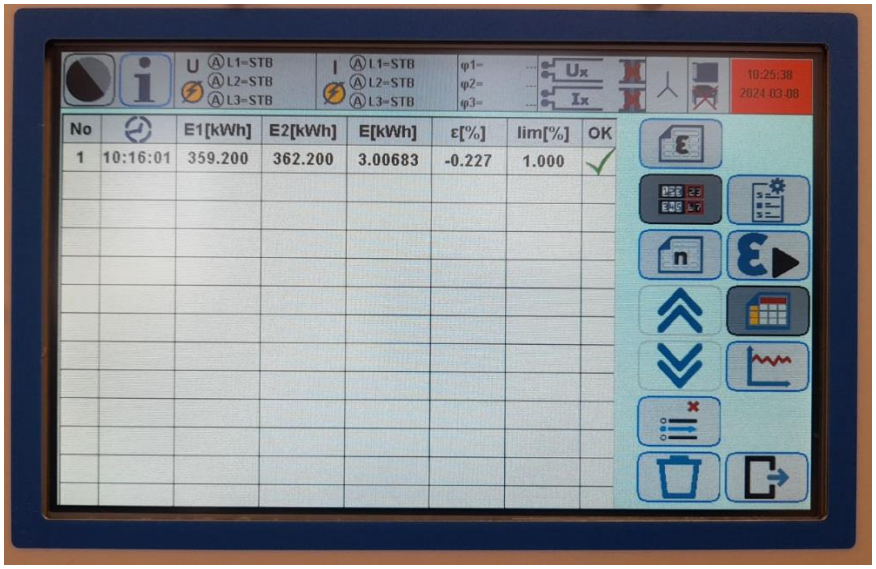
The stored results can be displayed on TS33 display by carrying out the sequence of actions presented below

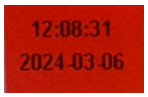
10:22:07
2024-03-19


10:22:25
START-UP-CURRENT-RE..
COUNTER-RESULT.TS3
Pmax


No
PQS
ε[%]
sε[%]
lim[%]
OK







Note, that for stored result the field of time and date is displayed in red background

The results stored on SD card can be sent to PC using the TS PC-Soft for preparing the measurement report and exporting data to MS Excel.

Calmet sp. z o.o.
Kukulcza 18, 65-472 Zielona Gora, Poland Phone +48 68 324 04 56
E-mail: mail@calmet.com.pl Fax +48 68 324 04 57