

# Operating Instructions

Part-No.: 315 160 002 001

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## Testing and Measuring Instrument

### PG-UL60

Part-No.: PG-UL60.040000



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# Calibration instruction for Charger / Analyzer UL60

## Step 1: Setting voltage

Connect the two charging cables from the PG-UL60 to the UL60.



Fig. 1: Connected PG-UL60 to UL60

Switch on the PG-UL60 and the UL60.

The selection-switch of the PG-UL60 must be on “I Regulation”.

Start the execution of the UL60 program.

↓ Select Battertype ↓

System preferences

Press “Enter” for the following page:

System preferences

↓ select Batteryprocessing: ↓

Calibration / Unit-No.

Press “Enter” and the password will be requested.

Enter password “**32**” and press “Enter”

**Important:** This password will be requested every time a calibration cycle is finished or canceled by pressing “Break” on the UL60.

The UL60 displays:

System preferences  
serial number = 0 update = 1  
calibration celltest = 2  
calibration voltage = 3 current = 4

Choose 3 for calibration voltage.

The UL60 displays:

System preferences  
0,5 Volt output  
switch PG-UL60 on I-Regulation  
ready => **E**  
ENTER

Press “Enter” and wait until the UL60 is switched on and the measurement is stable.



**Fig. 2: Measurement calibration voltage 0.5 volts**

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Enter the voltage into the UL60 incl. two decimal places:

System preferences  
0,5 Volt output  
Insert real Voltage  
Rated voltage ? 00.00 V

After confirming with the “Enter” key the UL60 displays:

System preferences  
38 Volt output  
switch PG-UL60 on U-Regulation  
ready => E  
ENTER

Choose “U Regulation” with the selection-switch of the PG-UL60  
Press “Enter” and wait until the UL60 is switched on and the measurement is stable



Fig. 3: Measurement calibration voltage 38 volts

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Enter the voltage into the UL60 incl. two decimal places:

System preferences	
38 Volt output	
Insert real Voltage	
Rated voltage ?	00.00 V

After confirming with the “Enter” key the UL60 displays the internal values for the calibration:

System preferences	
next =	E ENTER
Umess0: old: xxxxx   new: xxxxx	
Umess: old: xxxxx   new: xxxxx	

Press “Enter” for the next page:

System preferences	
next =	E ENTER
Uout0: old: xxxxx   new: xxxxx	
Uout: old: xxxxx   new: xxxxx	

These values are internal originated and ensure the accuracy of the displayed results.

Press and hold the “Enter” key to perform a further control measurement with 20 volts:

System preferences	
20 Volt output	
PG-UL60 on U-Regulation	
ready =>	E ENTER

---

Press “Enter” for the next step:

**System preferences**

20 Volt output

OK ? => **E**

19,99 V

If the value is between 19.98 and 20.02 volts the result is fine.

Press the “Enter” key and the calibration will be saved.

If the value exceeds the limit of the permitted range press “Break” and restart this procedure.

Before the next procedure can be started press “Break” on the UL60 to return to the System preferences:

↓ Select Battertype ↓

System preferences

## Step 2: Setting current.

Connect the two charging cable from the PG-UL60 to the UL60.

The selection-switch of the PG-UL60 must be on “I Regulation”.

Enter password “32”

Start the execution of the UL60 program:

System preferences  
serial number = 0 update = 1  
calibration celltest = 2  
calibration voltage = 3 current = 4

Choose 4 for calibration current.

The UL60 displays:

System preferences  
0,5 Amp output  
switch PG-UL10 on I-Regulation  
ready => E  
ENTER

Press “Enter” and wait until the UL60 is switched on and the measurement is stable.

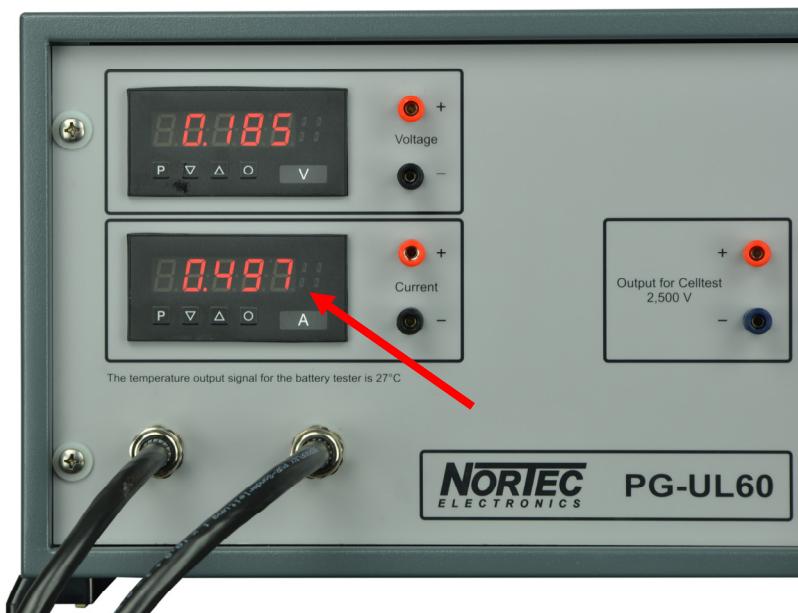


Fig. 4: Measurement calibration 0.5 amps

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Enter the amps into the UL60 incl. two decimal places:

System preferences	
0,5 Amps output	
Insert real current	
Rated current?	00.00 A

After confirming with the “Enter” key the UL60 displays:

System preferences	
40 Amps output	
Insert real current	
Rated current?	00.00 A



Fig. 5: Measurement calibration 40 amps

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Enter the amps into the UL60 incl. two decimal places:

System preferences	
40 Amps output	
Insert real current	
Rated current ?	00.00 A

After confirming with the “Enter” key the UL60 displays the internal values for the calibration:

System preferences	
next =	E ENTER
Imess0: old: xxxxx   new: xxxxx	
Imess: old: xxxxx   new: xxxxx	

Press “Enter” for the next page:

System preferences	
next =	E ENTER
Iout0: old: xxxxx   new: xxxxx	
Iout: old: xxxxx   new: xxxxx	

Press and hold the “Enter” key to perform a further control measurement with 20 amps:

System preferences	
20 Amps output	
PG-UL60 on I-Regulation	
ready =>	E ENTER

---

Press “Enter” for the next step:

## System preferences

20 Amps output

OK ? => **E**

19,98 A

If the value is between 19.98 and 20.02 amps press the “Enter” key and the calibration will be saved.



**Fig. 6: Measurement calibration 20 amps**

If the value exceeds the limit of the permitted range press “Break” and restart this procedure.

Before the next procedure can be started press “Break” on the UL60 to return to the System preferences:

↓ Select Battertype ↓

System preferences

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### Step 3: Adjust the celltest.

Connect the cable type 025D to the UL60.

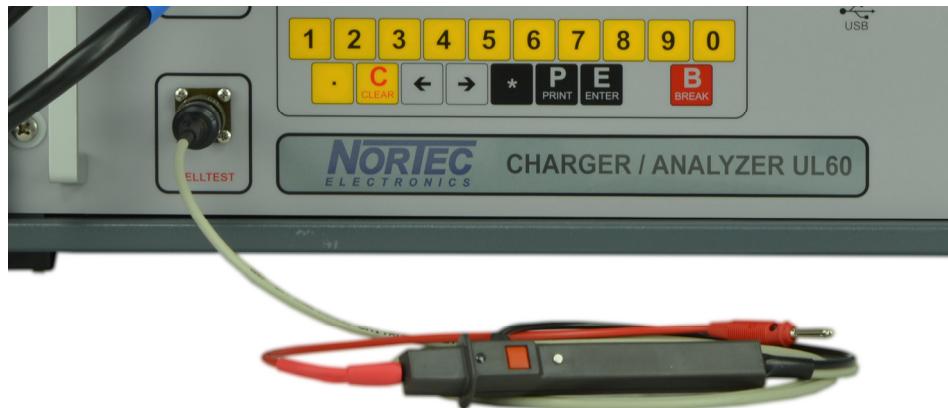


Fig. 7: Connected celltest 025D to the UL60

The selection-switch of the PG-UL60 must be on “I Regulation”.

Enter password “**32**”

Start the execution of the UL60 program:

The red and black connector of the celltest has to short circuit:



Fig. 8: Celltest 025D 0 volts

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Start the execution of the UL60 program:

**System preferences**  
serial number = 0 update = 1  
calibration celltest = 2  
calibration voltage = 3 current = 4

Choose 2 for calibration celltest.

The UL60 displays:

**System preferences**  
0 Volt input celltest: ready => E  
ENTER  
0,0001 V  
old: xxx | new: xxx

Press the “Enter” key and connect the celltest cable to the PG-UL60 with the reference voltage of 2.500 volts and press “Enter” again.

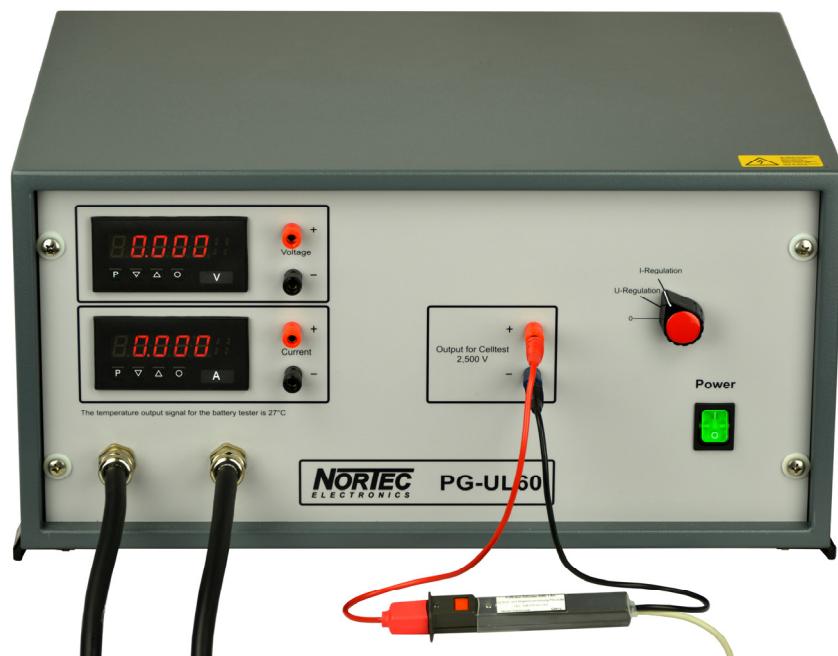
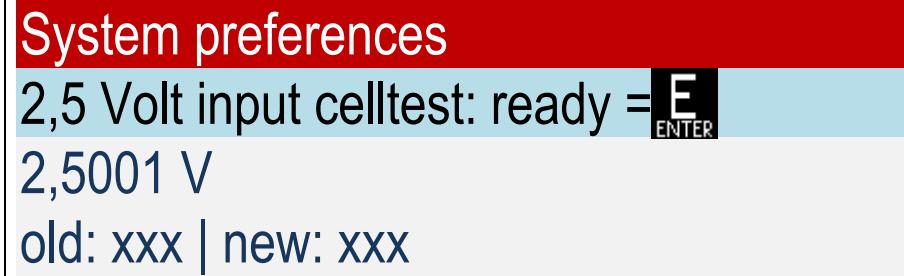


Fig. 9: Celltest 2.500 volts

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The UL60 displays:



If the value is between 2.49 and 2.51 volts the result is fine.  
Press the "Enter" key and the calibration will be saved.

If the value exceeds the limit of the permitted range press "Break" and restart this procedure.

Before the next procedure can be started press "Break" on the UL60 to return to the System preferences:



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## **Technical Specifications:**

Input: 230 V

Output:  $2.500 \pm 0.001$  V for cell test  
 $3.00 \pm 0.01$  V for temperature  $\geq 300$  K  $\geq 27$  °C

Measurement:  $50$  V  $\pm 0.01$  V for U-Regulation  
 $40$  A  $\pm 0.02$  A for I-Regulation  
With temperature protection switch against overheating

Load: For U-Regulation:  $50$  Ω  
For I-Regulation: ca.  $0.5$  Ω

### **Manufacturer:**

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## **Calibration Certificate (for copy)**

Results before calibration

		Soll	Ist
U 0.5	Output	0.50 V $\pm$ 1%	
U 0.5	Display	0.50 V $\pm$ 1%	
U 38	Output	38.00 V $\pm$ 1%	
U 38	Display	38.00 V $\pm$ 1%	
I 0.5	Output	0.50 A $\pm$ 2%	
I 0.5	Display	0.50 A $\pm$ 2%	
I 40	Output	40.00 A $\pm$ 2%	
I 40	Display	40.00 A $\pm$ 2%	
Zell 0	Display	0.0 V $\pm$ 1%	
Zell 2.5	Display	2.50 V $\pm$ 1%	

Results after calibration

		Soll	Ist
U 0.5	Output	0.50 V $\pm$ 0.01 V	
U 0.5	Display	0.50 V $\pm$ 0.01 V	
U 38	Output	38.00 V $\pm$ 0.01 V	
U 38	Display	38.00 V $\pm$ 0.01 V	
I 0.5	Output	0.50 A $\pm$ 0.01 A	
I 0.5	Display	0.50 A $\pm$ 0.01 A	
I 40	Output	40.00 A $\pm$ 0.01 A	
I 40	Display	40.00 A $\pm$ 0.01 A	
Zell 0	Display	0.0 V $\pm$ 0.01 V	
Zell 2.5	Display	2.50 V $\pm$ 0.01 V	

Passed

Not passed

# **Konformitätserklärung**

## **Declaration of Conformity**



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Product name: Prüf- und Abgleichvorrichtung PG-UL60

Part-No.: PG-UL60.040000

The designated product complies with the following requirements of the European Principles:

EN 60950 et IEC 536

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A handwritten signature in black ink, appearing to read "W. Ecke".

Ahrensburg  
11.01.2018

Unterschrift  
Signature