

HGT1

User Manual



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The product information, specifications, and technical data embodied in this manual represent the technical status at the time of writing and are subject to change without prior notice.

We have done our best to ensure that the information given in this manual is useful, accurate and entirely reliable. However, OMICRON electronics does not assume responsibility for any inaccuracies which may be present.

The user is responsible for every application that makes use of an OMICRON product.

OMICRON electronics translates this manual from the source language English into a number of other languages. Any translation of this manual is done for local requirements, and in the event of a dispute between the English and a non-English version, the English version of this manual shall govern.

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About this manual

This User Manual provides information on how to use the *HGT1* safely, properly and efficiently. The *HGT1* User Manual contains important safety rules for working with the *HGT1* and gets you familiar with operating the *HGT1*. Following the instructions in this User Manual will help you to prevent danger, repair costs and possible down time due to incorrect operation.

The *HGT1* User Manual must be read and observed by all users of the *HGT1*.

Reading the *HGT1* User Manual alone does not release you from the duty of complying with all national and international safety regulations relevant to working on high-voltage equipment.

Symbols used

In this manual, the following symbol indicates paragraphs with special safety-relevant meaning:

DANGER



Death or severe injury will occur if the appropriate safety instructions are not observed.

WARNING



Death or severe injury can occur if the appropriate safety instructions are not observed.

CAUTION



Minor or moderate injury may occur if the appropriate safety instructions are not observed.

NOTICE

Equipment damage or loss of data possible

1 Safety rules

Before operating the *HGT1*, read the following safety rules carefully. If you do not understand some safety rules, contact OMICRON before proceeding.

For information on the maintenance and repair of the *HGT1* refer to 2.2 "Warranty" on page 8.

1.1 General

Always observe the five safety rules:

- ▶ Disconnect completely
- ▶ Secure from reconnection
- ▶ Verify that the installation is dead
- ▶ Carry out grounding and short-circuiting
- ▶ Provide protection against adjacent live parts

1.2 Operator qualifications and safety standards

Working on high-voltage assets can be extremely dangerous. Testing with the *HGT1* must be carried out only by qualified, skilled and authorized personnel. Before starting to work, clearly establish the responsibilities.

Personnel receiving training, instructions, directions, or education on the *HGT1* must be under constant supervision of an experienced operator while working with the equipment.

Testing with the *HGT1* must comply with the internal safety instructions as well as additional relevant documents.

In addition, observe the following safety standards, if applicable:

- EN 50191 (VDE 0104) "Erection and Operation of Electrical Equipment"
- EN 50110-1 (VDE 0105 Part 100) "Operation of Electrical Installations"
- IEEE 510 "IEEE Recommended Practices for Safety in High-Voltage and High-Power Testing"

1.3 Operating the measurement setup

The operator is responsible for the safety requirements during the whole test.

- ▶ Do not enter the high-voltage area while working with the *HGT1*.
- ▶ Always obey the five safety rules and follow the detailed safety instructions in the respective user manuals.

Before performing tests, observe the following instructions:

- ▶ Do not insert objects (for example screwdrivers, etc.) into any input/output socket.

- ▶ Do not operate the *HGT1* under ambient conditions that exceed the temperature and humidity limits listed in 8 "Technical specifications" on page 30.
- ▶ Do not operate the *HGT1* in the presence of explosives, gas or vapors.
- ▶ Opening the *HGT1* invalidates all warranty claims.
- ▶ If the *HGT1* does not seem to function properly, do not use it anymore. Please call the OMICRON technical support.

1.4 Orderly measures

The *HGT1* User Manual must be read and observed by all users of the *HGT1*. The *HGT1* may be used only as described in this manual. Any other use is not in accordance with the regulations.

The manufacturer and/or distributor is not liable for damage resulting from improper usage. The user alone assumes all responsibility and risk.

Following the instructions provided in this User Manual is also considered part of being in accordance with the regulations.

1.5 Disclaimer

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

1.6 Compliance statement

Declaration of Conformity (EU)

The equipment adheres to the guidelines of the council of the European Community for meeting the requirements of the member states regarding the electromagnetic compatibility (EMC) directive, the low voltage directive (LVD) and the RoHS directive.

2 Introduction

NTi's FFT voltmeter *HGT1* is primarily designed for professional acoustical test applications. For step and touch voltage measurements, the *HGT1* is delivered with an OMICRON software which allows measuring the frequency-selective voltage level by using a real-time Zoom FFT. This User Manual describes in detail the OMICRON-specific *HGT1* functions and measurements.

2.1 Delivery

The following items are delivered with the *HGT1* system:

- *HGT1* measurement device
- Rechargeable Li-Po battery
- USB cable
- MicroSD memory card

2.2 Warranty

International warranty

NTi Audio guarantees the function of its products and the individual components for a period of one year from the date of sale. During this period, defective products will either be repaired free of charge or replaced.

Limitations

These guarantee provisions do not cover damage caused by accidents, transportation, incorrect use, carelessness, non-original accessories, the loss of parts, operation with non-specified input voltages, adapter types or incorrectly inserted batteries. NTi Audio accepts no responsibility for subsequent damage of any kind. The warranty will be voided by carrying out repairs or services by third parties who are not part of an approved NTi Audio Service Center.

Statutory Rights

Consumers may have legal (statutory) rights under applicable national laws relating to the sale of consumer products. This warranty does not affect your statutory rights. You may assert any legal rights you have at your sole discretion.

2.3 Calibration certificate

Your NTi Audio instrument has been carefully tested during production and corresponds to the specifications listed in 8 "Technical specifications" on page 30. Calibration certificates are included in the delivery.

NTi Audio recommends annual calibration of the products after the purchase. The calibration provides documented and traceable measurement accuracy and confirms that your NTi Audio product meets or exceeds the published

specifications. The calibration and adjustment procedures follow the documentation and traceability requirements of the standard EN ISO / IEC 17025.

For calibrations kindly follow the service guidelines at www.nti-audio.com/service.

2.4 Rain protection

In order to protect the *HGT1* from rain it can also be operated in a plastic bag as shown in the image below. OMICRON recommends the A5 Document Bag by Ortlieb (www.ortlieb.de).



Figure 2-1 *HGT1* with waterproof bag

- If you use a waterproof bag, use the navigation buttons instead of the navigation wheel.

2.5 Recycling



This test set (including all accessories) is not intended for household use. After use the test set cannot be disposed of as household waste!

For customers in EU countries (incl. EEA)

OMICRON test sets are subject to the EU Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE directive). As part of our legal obligations under this legislation, OMICRON offers to take back the OMICRON test set and ensure that it is disposed of by authorized recycling agents.

For customers outside the EEA

Please contact the competent authorities for the relevant environmental regulations in your country and dispose the OMICRON test set only in accordance with your local legal requirements.

3 Hardware overview



Figure 3-1 HGT1 front view

Table 3-1 HGT1 buttons

Button	Description
Escape	Cancel an action or place the cursor on top of the screen
Auto-amplitude	Adapt the voltage range according to the measured voltage
Input impedance selection	Switch between input impedances of the HGT1 Options: <ul style="list-style-type: none"> • 1 kΩ • 1 kΩ + 1 kΩ voltage divider • High impedance

Table 3-1 HGT1 buttons

Button	Description
Start/stop measurement	Press to start/stop a measurement <ul style="list-style-type: none"> • Green LED: measurement is running • Orange LED: measurement is stopped and Save Dialog is open (see 6 "Recording and saving data" on page 21)

3.1 Connectors

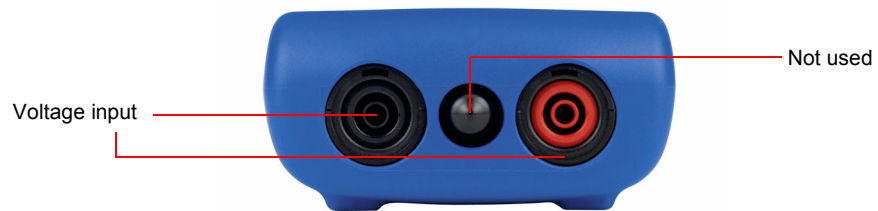


Figure 3-2 HGT1 connectors, top



Figure 3-3 HGT1 connectors, bottom



Figure 3-4 HGT1 connectors, left side



Figure 3-5 *HGT1* connectors, right side

3.2 Power supply

The *HGT1* offers two power supply options:

- A rechargeable lithium polymer (Li-Po) battery
- Four AA batteries (not included)

The new Li-Po battery is charged to approximately 50 % and should be fully charged before use. It can either be charged via the USB connector or the DC power socket (charger not included).

- ▶ Switch off the *HGT1* for faster charging.


WARNING



Severe injury caused by electric discharge and burns possible


- ▶ Do not heat the battery above 60 °C (140 °F).
- ▶ Do not place the battery in or near fire.
- ▶ Do not solder directly on to the battery.
- ▶ Do not disassemble the battery or insert it in reverse polarity
- ▶ Switch off the *HGT1* before opening the battery cover in order to prevent any electric discharges.
- ▶ Avoid short-circuits.
- ▶ Operate and charge the battery between 0 °C (32 °F) and 45 °C (113 °F).

Table 3-2 **DC power supply specifications**

Voltage:	7.5 V ... 23.0 V
Power:	min. 6 W
Connector type:	2.1 mm x 5.5 mm x 9.5 mm
Polarity:	

4 System and Firmware Settings

4.1 System Settings

- ▶ To access the **System Settings**, navigate to the left side of the menu bar and select **System Settings**.
- ▶ Confirm by pressing .

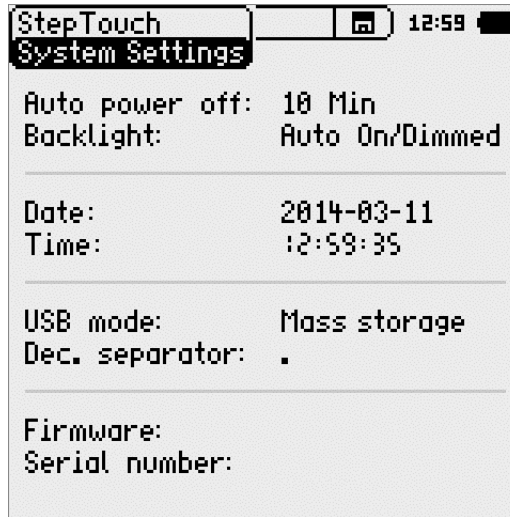


Figure 4-1 HGT1 System view

Table 4-1 Items available in the **System** view





Option	Description
Auto power off	If no button has been pressed for the defined time period, the instrument will switch off.
Backlight	<p>Toggle the backlight with the Power/Backlight button and choose from the following options:</p> <ul style="list-style-type: none"> • Auto On/Dimmed: The backlight is dimmed automatically after two minutes. Press  to dim it manually. • Auto On/Off: The backlight is switched off automatically. Press  to switch it off manually. • Manual: The backlight is neither automatically dimmed nor switched off. Press  to manually dim or switch off the backlight.
Date and Time	The date format is yyyy-mm-dd. All measurements are logged with a date and time stamp. Use the navigation wheel to set the date and time and confirm each setting by pressing  .

Table 4-1 Items available in the **System** view

Option	Description
USB mode	The USB mode setting defines how the PC recognizes the connected <i>HGT1</i> : <ul style="list-style-type: none"> • Ask on connect: Select either the Mass storage or COM port mode after connecting the <i>HGT1</i> to the PC. • Mass storage: The PC automatically recognizes the <i>HGT1</i> as a mass storage device. This allows you to download <i>HGT1</i> measurement reports. • COM port: For OMICRON-internal use
Dec. separator	Set the decimal separator to match the generated measurement reports to the PC settings.
Firmware	Firmware version number
Serial number	Device's serial number

4.2 Firmware Update

Complete the steps below to update the *HGT1* firmware:

- ▶ Set the **USB mode** to **Mass storage** (see "USB mode" in table 4-1).
- ▶ Connect the *HGT1* to a computer using the USB cable included in the delivery.
- ▶ Copy the update file (format .00) from one of the following locations:
 - On the *CPC 100 Toolset* CD-ROM:

```
_EmbeddedSoftware\HGT1\
```
 - With Primary Test Manager installed:

```
C:\Program Files (x86)\Common Files\OMICRON\
UpgradeImages\HGT1\
```
- ▶ Copy the update file to the *HGT1*'s root directory `OMICRONHGT`.
- ▶ Restart the *HGT1*.
The update is automatically executed during the booting process. After the update is complete, the update file is automatically deleted.
- ▶ Enter the **System** view to check if the update was successful (see Figure 4-1 "HGT1 System view" on page 14).

5 Step and touch voltage meter

- To open the **StepTouch** view, navigate to the menu bar and select **StepTouch** on the left.

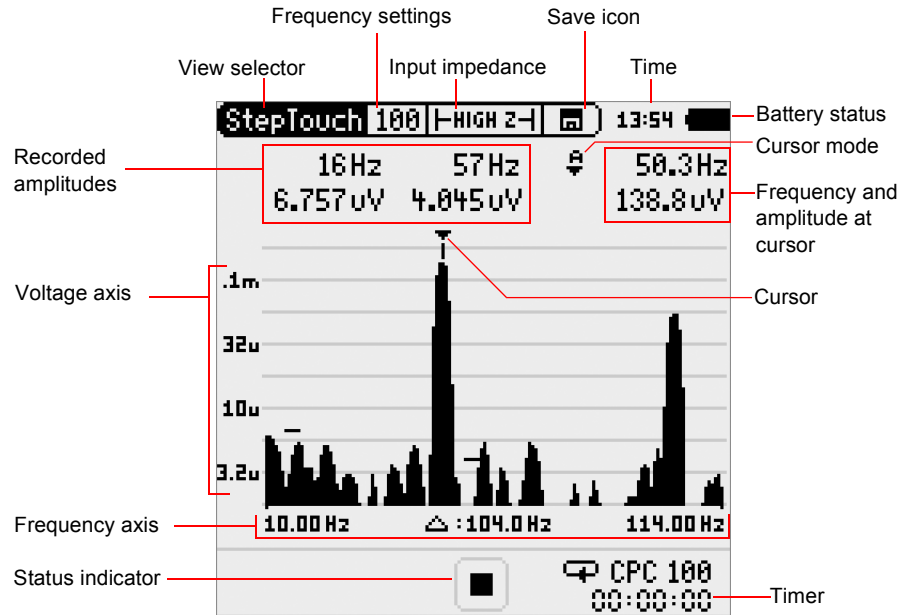


Figure 5-1 HGT1 StepTouch view

Table 5-1 Items available on the StepTouch view

Feature	Description
View selector	StepTouch or System Settings
Frequency settings	Switch between frequency ranges See 5.1 "Frequency range selection" on page 17
Input impedance	Change the input impedance of the HGT1 See 5.2 "Input Impedance selection" on page 18
Save icon	Start and close datasets; store measurement points See 6 "Recording and saving data" on page 21
Time	Can be changed in the System view
Battery status	Indicates battery status and USB connection
Recorded amplitudes	Recently measured amplitudes of measurement frequencies; Independent from cursor mode, frequency and amplitude at the cursor, and maximum amplitude
Cursor mode	<ul style="list-style-type: none"> • A: automatic search for maximum amplitude • M: manual cursor positioning

Table 5-1 Items available on the **StepTouch** view

Feature	Description
Frequency and amplitude at cursor	Click frequency to start frequency zoom mode
Cursor	Positioned automatically or manually See Cursor mode in this list
Voltage axis	Click top value to enter amplitude zoom mode See 5.4 "Voltage axis" on page 19
Frequency axis	See 5.3 "Frequency axis" on page 19
State indicator	<ul style="list-style-type: none"> Paused: <input type="checkbox"/> Measurement running: <input checked="" type="checkbox"/>
Timer	Starts every time a measurement is finished to help estimate when the <i>CPC 100</i> will execute the next injection

5.1 Frequency range selection

- Change the frequency settings in the menu bar.

Note: The wider the frequency range, the lower the resolution of the FFT. Refer to 8 "Technical specifications" on page 30 for more information.

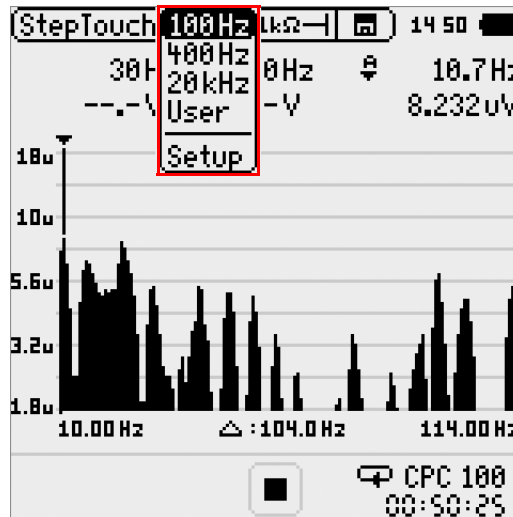


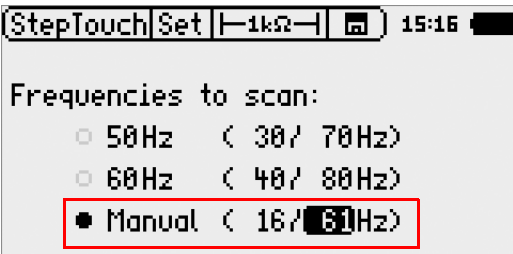
Figure 5-2 Frequency range selection in the **StepTouch** view

- Press **esc** to confirm and return to the previous screen.

Table 5-2 Frequency range options

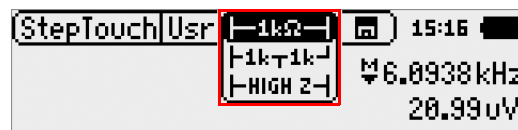
Feature	Description
100 Hz	Default setting for frequency axis: 10 Hz ... 114 Hz

Table 5-2 Frequency range options

Feature	Description
400 Hz	Default setting for frequency axis: 14 Hz ... 430 Hz
20 kHz	Default setting for frequency axis: 484 Hz ... 20.45 kHz
User	The most recent settings applied to the frequency axis are stored and can be re-applied by selecting User .
Setup	<p>The <i>HGT1</i> allows defining two frequencies at which the maximum value during a measurement is detected. This option is only available for the 100 Hz and 400 Hz selection. In the Setup view the following settings for the two frequencies are available:</p> <ul style="list-style-type: none"> • 50 Hz: default setting for mains frequency at 50 Hz (measurement at 30 Hz and 70 Hz) • 60 Hz: default setting for mains frequency at 60 Hz (measurement at 40 Hz and 80 Hz) • Manual: user-defined setting To change the frequencies using the Manual option, move the marker into the brackets and change the value: 

5.2 Input Impedance selection

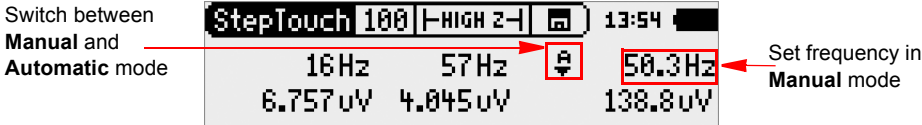
The input impedance selection offers three different settings:



- **1 kΩ**: simulates body resistance
- **1 kΩ + 1 kΩ**: simulates shoe + body resistance; measurement only via body resistance
- **HIGH Z (high impedance)**: no-load measurement; prospective touch voltage

5.3 Frequency axis

The cursor frequency can be set either automatically or manually.



- **Automatic** mode: The cursor switches to the frequency with the highest amplitude. In this mode, the frequency and the corresponding voltage are displayed.
- **Manual** mode: Click the frequency and move the cursor using the navigation wheel. In this mode, the corresponding voltage is displayed.

- ▶ In order to change the frequency, mark the frequency on the right side of the screen and press .
- ▶ Change the value using the navigation wheel. You can now change the zoom on the frequency axis by holding and turning the navigation wheel.

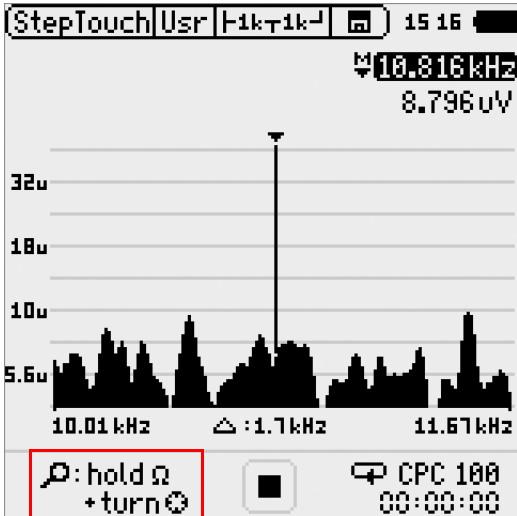


Figure 5-3 StepTouch view with frequency zoom

Note: The zoom is available in both the **Manual** and the **Automatic** mode.

5.4 Voltage axis

- ▶ To activate the amplitude zoom, click the top value of the voltage axis.
- ▶ Choose the zoom mode (20, 10, 5 or 2.5 dB/div) and adjust the axis using the navigation wheel.

- ▶ Press **a↑** to reset the zoom.

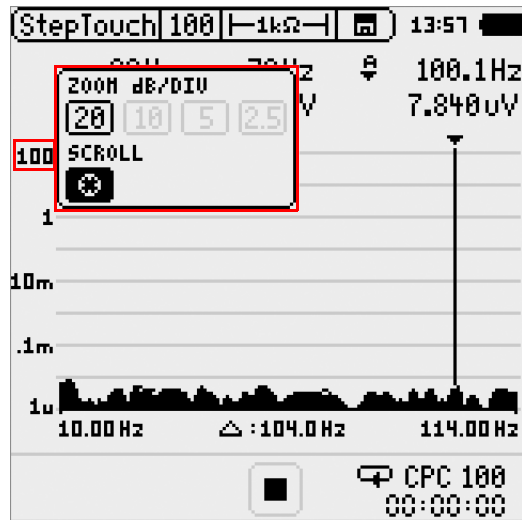


Figure 5-4 Amplitude zoom in the **StepTouch** view

6 Recording and saving data

The *HGT1* saves measurement points consisting of the amplitudes of two measurement frequencies. Measurement points are saved in datasets (1 dataset = 1 TXT file in the device memory).

6.1 Start new dataset

- To create a new dataset before starting the measurement, click the **Save** icon and select **Start New Dataset**.

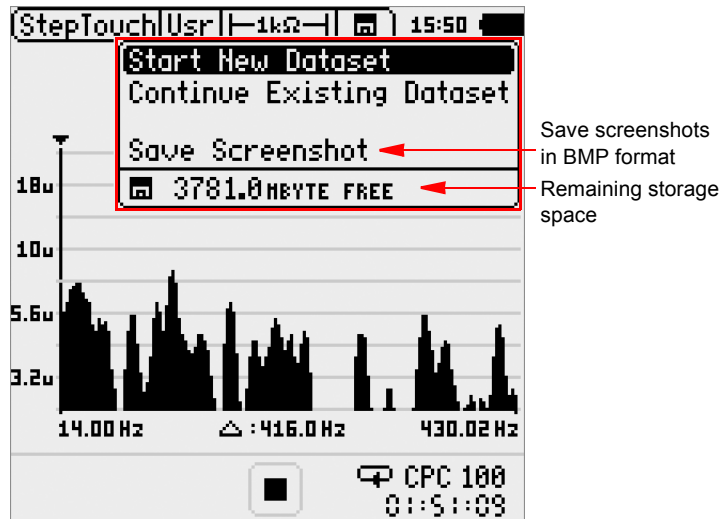


Figure 6-1 **Save** menu

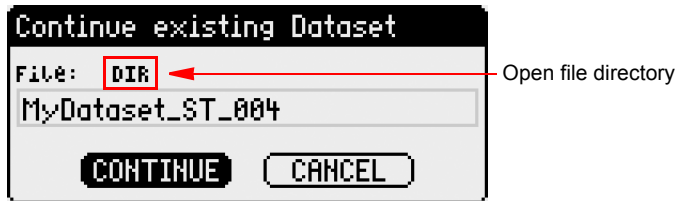
- Change the suggested dataset name or search existing names and adjust them if necessary:



6.2 Continue existing dataset

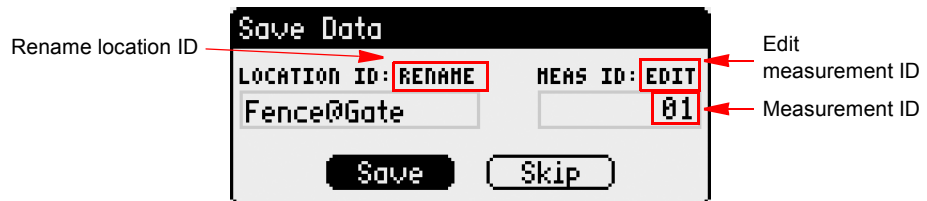
- To continue a dataset, click **Continue Existing Dataset** in the **Save** menu. By default, the most recent dataset is displayed and can be opened by clicking **Continue**.

- ▶ To choose a different dataset, click **DIR**:



6.3 Saving data

- ▶ After opening a dataset, start recording step and touch voltages.
- ▶ Start a measurement point by pressing . Pressing again will complete the measurement. This will prompt the **Save Data** window:



For each new measurement point, the measurement ID is automatically increased by 1.

- ▶ If you skip a measurement point or would like to use one ID several times, edit the ID by marking **EDIT** and pressing .

Note: If you use a measurement ID more than once, new results will *not* overwrite old results with the same ID (see Figure 6-2 "HGT1 measurement report" on page 24).

Alternatively, datasets can be opened *after* a measurement has been completed. In this case, the icon indicates unsaved data:

- ▶ Mark the icon using the scroll wheel, press and save the measurement by starting a new dataset or opening an existing one (see 6.1 "Start new dataset" on page 21 and 6.2 "Continue existing dataset" on page 21).

NOTICE

Loss of data

- ▶ Save every measurement point. Otherwise it will be overwritten by the next measurement you perform.

6.3.1 Close dataset

- ▶ Close a dataset by clicking the **Save** icon and selecting **Close Dataset**:



You can still save measurement points in any dataset by clicking the **Save** icon and selecting **Continue existing Dataset** (see Figure 6-1 "Save menu" on page 21).

6.4 Reports

The folder `OMICRONHGT1:\Measurements\StepTouch` contains the measured data in TXT and XL2 format, and the screenshots you made in the **Save** menu (see Figure 6-1 "Save menu" on page 21).

Note: This path is only available if the *HGT1* is connected in **USB mode**.

NOTICE

Loss or corruption of data

- ▶ The XL2 files saved on the *HGT1* are system files. Do not edit or move them.

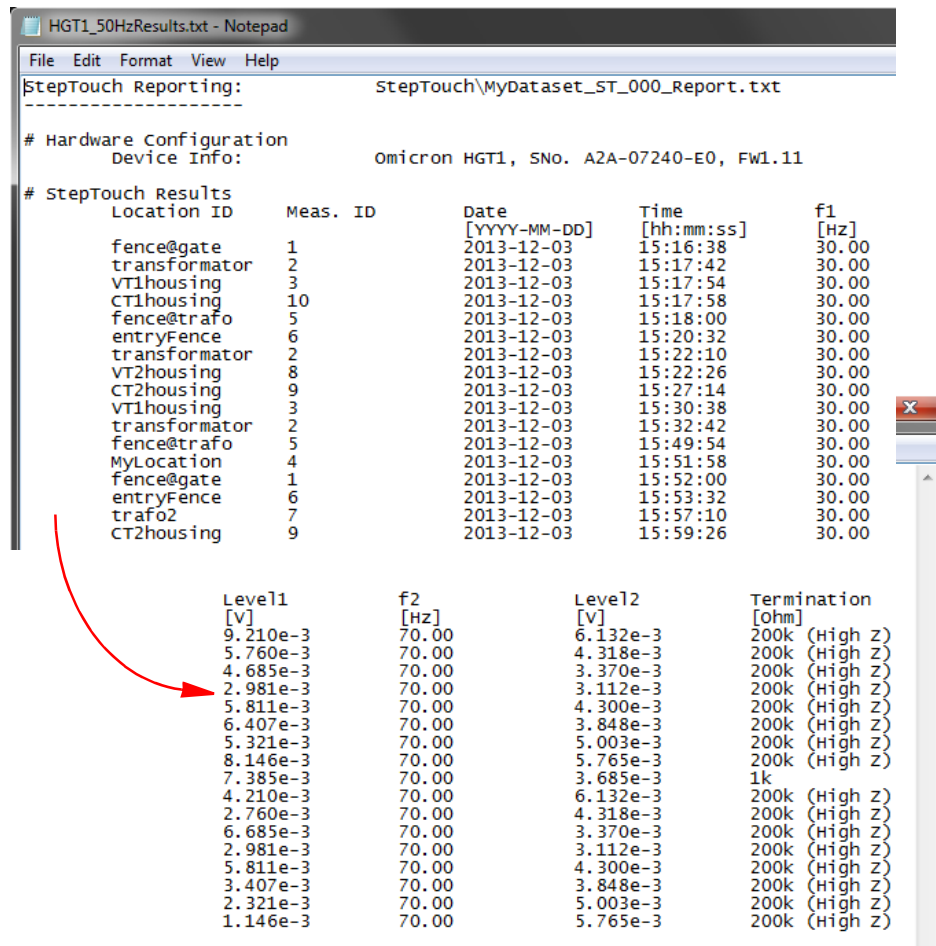


Figure 6-2 HGT1 measurement report

► To create a Microsoft Excel report containing the data measured with the HGT1, use the Excel template "Step&Touch using HGT1.xlt" available on the **CPC Start Page**:

1. Load the "Step & Touch using HGT1" template on the **CPC Start Page**:
 Grounding systems > StepTouch using HGT1 >
 StepTouch HGT1 20A50Hz > Open StepTouch using HGT1.xlt
2. Open a CPC 100 result file.
3. Open a HGT1 result file.
4. Click **Test Report** to generate the report.
5. Enter the **Current Reduction Factor *r*** and the **Maximum Fault Current**.

In the Excel report, the measurement points are arranged in ascending order, according to their measurement ID. If there are several measurement points with the same ID, only the latest measurement point is included in the test report. In case a measurement ID has not been used for measuring, it will not be included in the report.

- Refer to the *CPC 100* and *CP CU1* manuals for further information on templates.


	A	B	C	D	E	F	G	H				
1	Step & Touch using HGT1											
2	Template:		Step&Touch HGT1							<input type="button" value="Load XML-File"/>		
3	Version:		1.50									
4	Test Execution by:					<input type="button" value="Print Report"/>						
5	Omicron electronics GmbH											
6	Oberes Ried 1											
7	A-6833 Klaus											
8	Tel.: +43 59495 4444											
9	support@omicron.at					<input type="button" value="Load HGT1 Results"/>						
10	Test Direction:											
11	Tom Tester											
12	Test Participation:											
13												
14												
15	Test Objects:											
16												
17												
18												
19												
20	Current Reduction Factor <i>r</i> (as specified in CENELEC HD637 or DIN VDE 0101)		1.00									
21	Test Information:											
22	Date of Measurement:											
23	CPC Result File:											
24	Comment:											
25												
26												
27												
28	Current Measurement:		Enter maximum fault current			30.0Hz		70.0Hz				
29	Output Current Measured:					30.03A		30.10A				
30	Maximum Fault Current:		Imported from HGT1			I _G						
31						20000A						
32	ID		Location		HGT1 Results		Calculated Touch Voltage					
33					30.0Hz		70.0Hz					
34	1		fence@gate		0.00581V		0.00430V		3.36V			
35	2		transformator		0.00276V		0.00432V		2.35V			
36	3		VT1housing		0.00421V		0.00613V		3.44V			
37	4		MyLocation		0.00298V		0.00311V		2.03V			
38	5		fence@trafo		0.00669V		0.00337V		3.34V			
39	6		entryFence		0.00341V		0.00385V		2.41V			
40	7		trafo2		0.00232V		0.00500V		2.44V			
41	8		VT2housing		0.00815V		0.00577V		4.63V			
42	9		CT2housing		0.00115V		0.00577V		2.30V			
43	10		CT1housing		0.00298V		0.00311V		2.03V			

Figure 6-3 "Step & Touch using HGT1" template

7.1 CPC 100 template

- ▶ Load the “Step&Touch HGT1” template on the *CPC 100*:

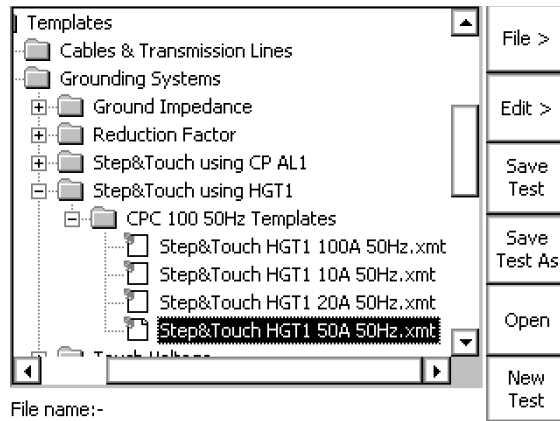


Figure 7-2 *CPC 100* “Step&Touch HGT1” template

- ▶ Load the template corresponding to the selected CU1 current range.

NOTICE

Loss of data possible

- ▶ Save the file after the template has been loaded in order to reduce the risk of data loss due to unexpected power loss.

The template contains the following test cards:

- **Connection:** shows the connection at the *CP GB1*
- **Output:** used for the injection of the test current
- **Version:** version check (no action required)

Figure 7-3 shows the settings of the sequencer test card in the step & touch voltage template.

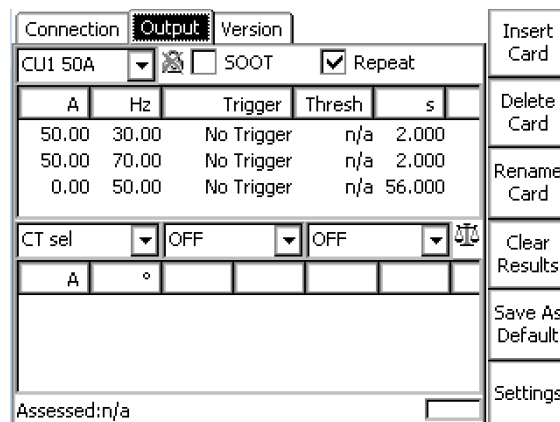


Figure 7-3 Output test card

The sequence consists of three states which are applied in an endless loop since **Repeat** is activated in the test card:

- ▶ Injection of the test current at 30 Hz for 2 s:
Measure touch voltage at designated location at 30 Hz
- ▶ Injection of the test current at 70 Hz for 2 s:
Measure touch voltage at designated location at 70 Hz
- ▶ No injection for 56 s:
Go to next location and check timer for next injection

7.2 HGT1 settings

Figure 7-4 below shows which settings must be considered when measuring step and touch voltage with the *HGT1*.

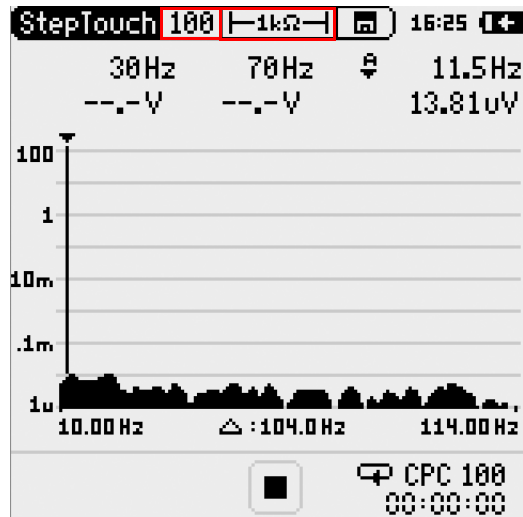


Figure 7-4 StepTouch view

The 100 Hz range (10 – 114 Hz) is recommended since frequencies higher than 100 Hz are not relevant for the measurement.

In Figure 7-4, 1 kΩ is selected as input impedance.

- ▶ If required, select an alternative setting, for example **High Z**, in order to measure the prospective touch voltage.
- ▶ Check if the two settings for the detection frequency equal the frequency of the injected current.
- ▶ Refer to the chapter 5.1 "Frequency range selection" on page 17 for information on how to adapt the frequency.

Now the step and touch voltage can be measured at designated locations.

The automatic detection of the step and touch voltage requires the following workflow in order to avoid a faulty measurement:

- ▶ Place the ground electrode on the floor and step on it. Alternatively, drive the rod into the soil.

- ▶ Connect the test probe to the object under test.
It is important to establish a solid contact to the object. If the connection is impaired by an insulating layer, one option is to remove the layer using a file. The *HGT1*'s filter adapts to the connected impedance which results in a temporary increase of the voltage over the entire frequency spectrum. If the measurement is started **before** the test probe is connected to the object, the measured values could be too high. The reason for this is that the values measured during the adaptation phase of the filter can be higher than the values generated by the injected test current.
- ▶ Start the measurement on the *HGT1*.
- ▶ Until the measurement is completed, check that the filter is not being adapted again. A worn test probe can cause connection problems resulting in several adaptations of the filter during the measurement. Using a pointy test probe free from defects avoids this problem.
- ▶ Wait for the next test current injection by checking the clock. At a 50 Hz mains frequency, a signal of 30 Hz and 70 Hz is displayed on the screen. The maximum value for 30 and 70 Hz is saved. At a 60 Hz mains frequency, 40 Hz and 80 Hz are used for injection.
- ▶ Stop the measurement as soon as the 70 Hz value has been detected.
- ▶ Remove the test probe from the object.
- ▶ Do not remove the test probe before the measurement has stopped. Disconnecting the test probe will cause an adaption of the filter.
- ▶ Save the measurement point and go to the next point.

8 Technical specifications

Table 8-1 *HGT1* Input

Input Impedance Selection	Input Impedance	Voltage	Accuracy (15 Hz ... 20 kHz)	Residual Noise (100 Hz mode)
1 k Ω	1 k Ω	25 V _{RMS}	+0.5 %; -1.0 %	< 10 μ V
1 k Ω + 1 k Ω	2 k Ω	50 V _{RMS}	+0.5 %; -1.0 %	
HIGH Z	200 k Ω	25 V _{RMS}	+0.5 %; -1.0 %	

Table 8-2 FFT Specifications

The *HGT1* uses zoom FFT with the following parameters:

- FFT size: 512 samples
- FFT resolution: 142 bins
- FFT repetition rate: 187,5 Hz (one FFT per 5.3 ms).
The results of the FFT shown on the *HGT1*'s screen are updated every 50 ms by averaging the individual FFT results.

Table 8-3 FFT parameters for 100 Hz and 400 Hz frequency range selection

Frequency range selection	100 Hz	400 Hz
Frequency range	104 Hz	414 Hz
Frequency resolution	0.73 Hz	2.92 Hz
Window size	1.37 s	342 ms
Overlapping	99.6 %	98.4 %

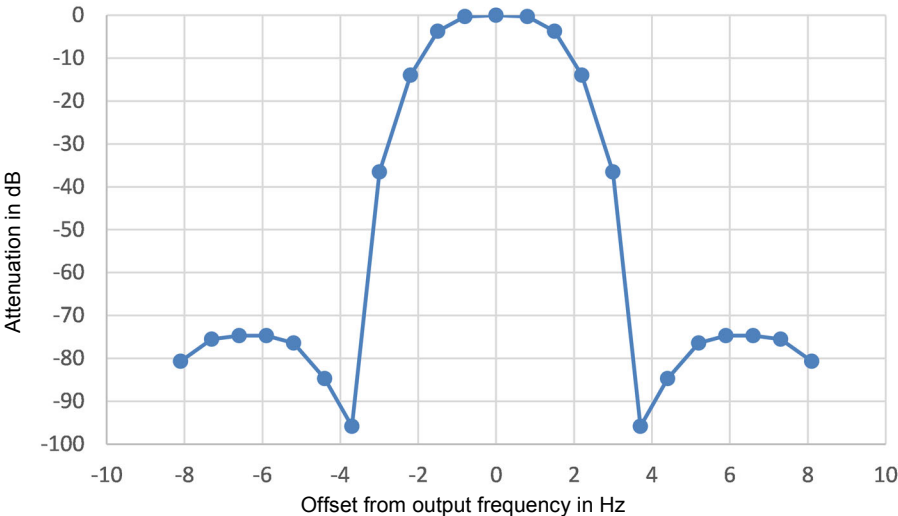


Figure 8-1 Filter selectivity for 100 Hz range

Table 8-4 Environmental Conditions

Temperature	-10 °C (14 °F) ... +50 °C (122 °F)
Humidity	5 % to 90 % RH, non-condensing

Table 8-5 Mechanics

Dimensions (L x W x H)	180 mm x 90 mm x 45 mm 7.1" x 3.5" x 1.8"
Weight	480 g (1 lb) including Li-Po battery

8.1 CE declaration of conformity



We, the manufacturer

NTi Audio AG
Im alten Riet 102
9494 Schaan
Liechtenstein, Europe

do hereby declare that the *HGT1*, released in 2013, complies with the following standards or other standard documents:

- EMC: 2004/108/EG
- Harmonized standards: EN 61326-1
- Explosive atmospheres (ATEX): 94/9/EG
- Directive 2011/65/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).
- Directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

This declaration will become invalid if modifications to the instrument are carried out without the written approval of NTi Audio.

Date: 1. February 2013

Signature: 

Position: Technical Director

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