

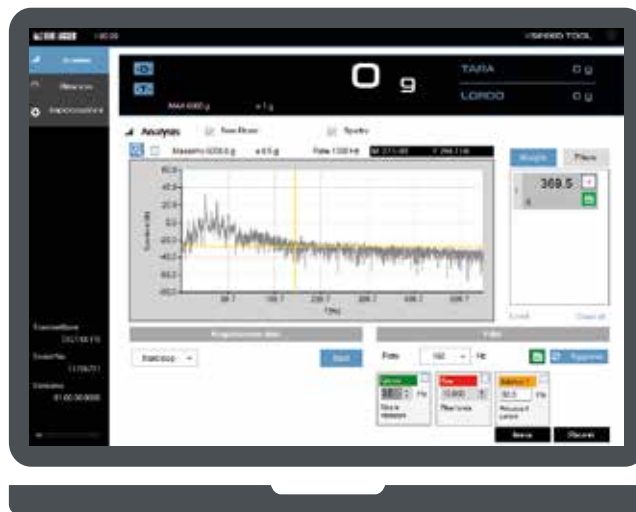


# X SPEED TOOL

Tool for diagnostic and configuration of the weighing filter

USER MANUAL

ENGLISH





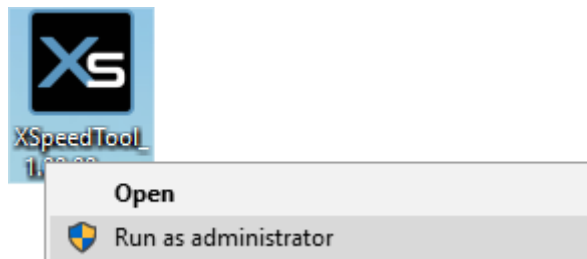
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## Recommended system requirements

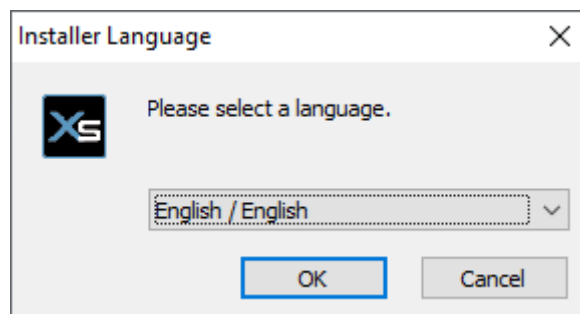
OS: Windows 10  
Processor: 1,6 Ghz  
Ram: 4 Gb  
Free space on hard drive: 250 Mb

## Installation procedure

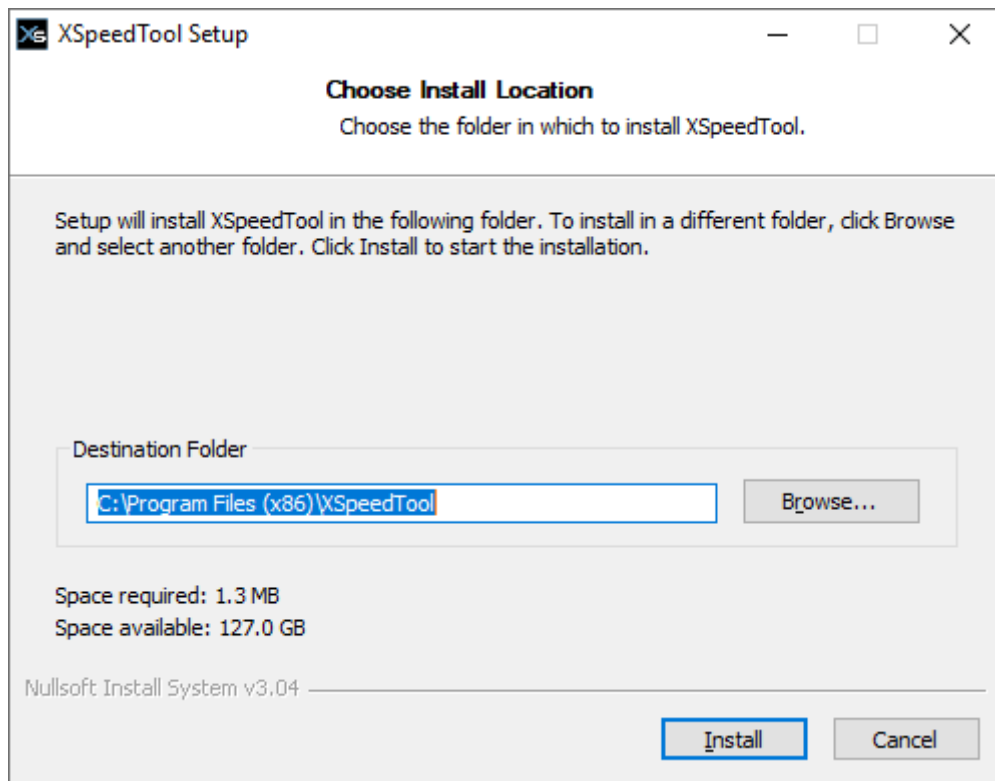
1. Run the setup file as administrator (Right click -> Run as administrator).



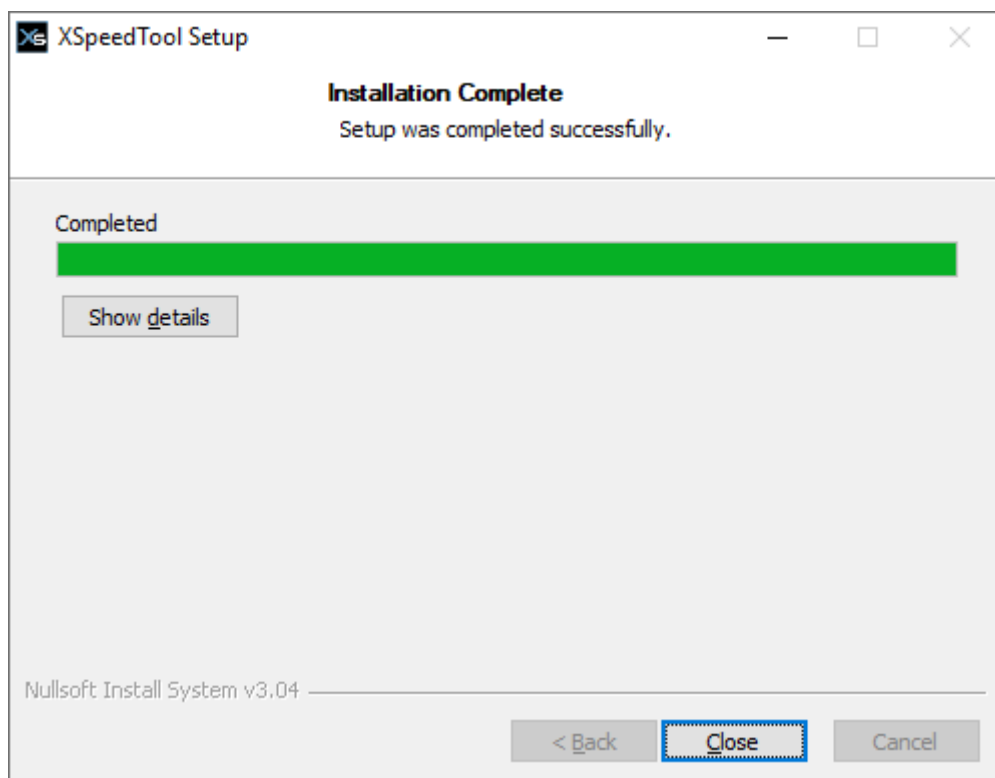
2. Select the installation language.



3. Select the installation folder (default: C:\Program Files (x86)\XSpeedTool).



4. Wait for the end of the installation.



Once the installation is complete, a shortcut will be created on desktop.

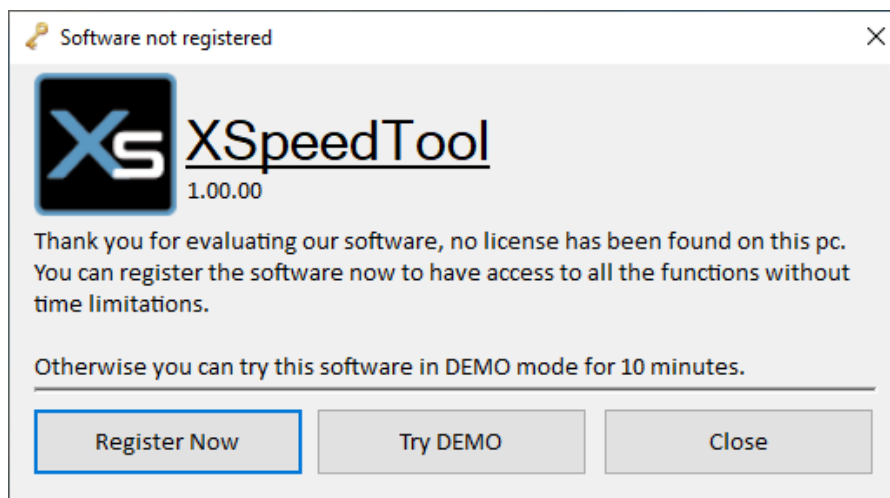
## DEMO mode

Using XSpeedTool software in DEMO mode has the following restrictions:

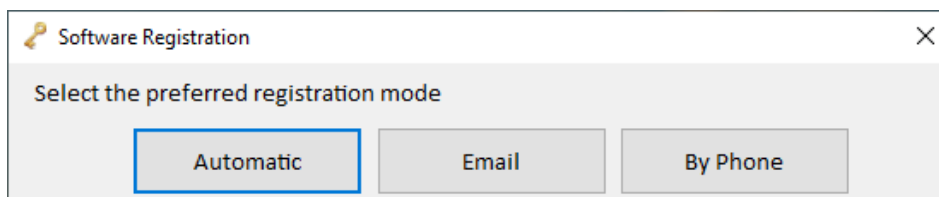
- 10 minutes of use.
- Disabled sending the filter to the instrument.

## License activation

At first startup, the program requires you to enter your license. Click on “**Register Now**”.



Select the software activation method:



**Automatic:** enter the activation code (supplied by the dealer).

**Email:** send an email to Dini Argeo with the license request file attached. (follow the instructions)

**By Phone:** call Dini Argeo offices to get a license.

DINI ARGEO 1.02.01 XSPEED TOOL

Analysis  
Scale  
Settings

MAX 6000 g e 1 g

TARA 0 g  
LORDO 0 g

### Settings

#### Language

- 中国
- Deutsch
- English
- Español
- Français
- Italiano

#### Communication settings

Port

Id

Device DGT4X  
Serial No. 793100111  
Release 01.00.01

XSpeedTool® (2020) Licencia 1-15019 04/05/2020-10/04/2120

OK

## Communication

### INSTRUMENT

Connect the instrument to the PC using the USB port.

The tool is configured by default to communicate with the program.

**i** By connecting the instrument to the PC via the USB port, a virtual COM port is automatically installed. Check the assigned port number in the “**Device Manager**” window of Windows OS:

- Ports (COM & LPT)
  - Dispositivo seriale USB (COM3)
- Print queues

## XSPEEDTOOL

Select the correct COM port.

*Set the ID if you are using 485 protocol.*

Communication settings

Port	<input style="width: 100%;" type="text" value="COM19"/>	<input type="button" value="Q"/>
Id	<input style="width: 100%;" type="text" value="None"/>	

## CONNECTION STATUS

Green ■ → Connection OK.

Grey ■ → Ongoing connection.

Red ■ → Missing connection.

## Language

Select the desired language and press .



**Scale**

Junction box mode
  Independent channels mode

Scale settings	Adjustment	Theoretical adjustment
Unit: kg	0 0 <b>Capture</b> -0.00022 mV/V -238 ADC	Load cells capacity: [ ] kg
Max: 10000	1 3000 <b>Capture</b> 2.01632 mV/V 2165007 ADC	Load cells output: [ ] mV/V
Resolution: 1	+ Add point	Input dead load: [ ] kg
Number of channels: 1		Capture dead load: <b>Zero</b>
		<b>Set data</b>
<b>Store</b>		<b>Send</b> <b>Receive</b>

## Calibration parameters

Set scale calibration parameters:

- Unit of measure
- Max capacity
- Division
- Number of used channels (in independent channel mode only one channel can be used)

## Calibration

It's possible to calibrate the instrument with sample weights.  
For each point (up to 8), insert the weight value in the text box.  
Load the weight on the scale and press **Capture**.

Once you have acquired all the points, send the calibration to the instrument by pressing **Send**.

Save the calibration on the instrument by pressing **Store**.

## Theoretical calibration

Set the values of theoretical calibration:

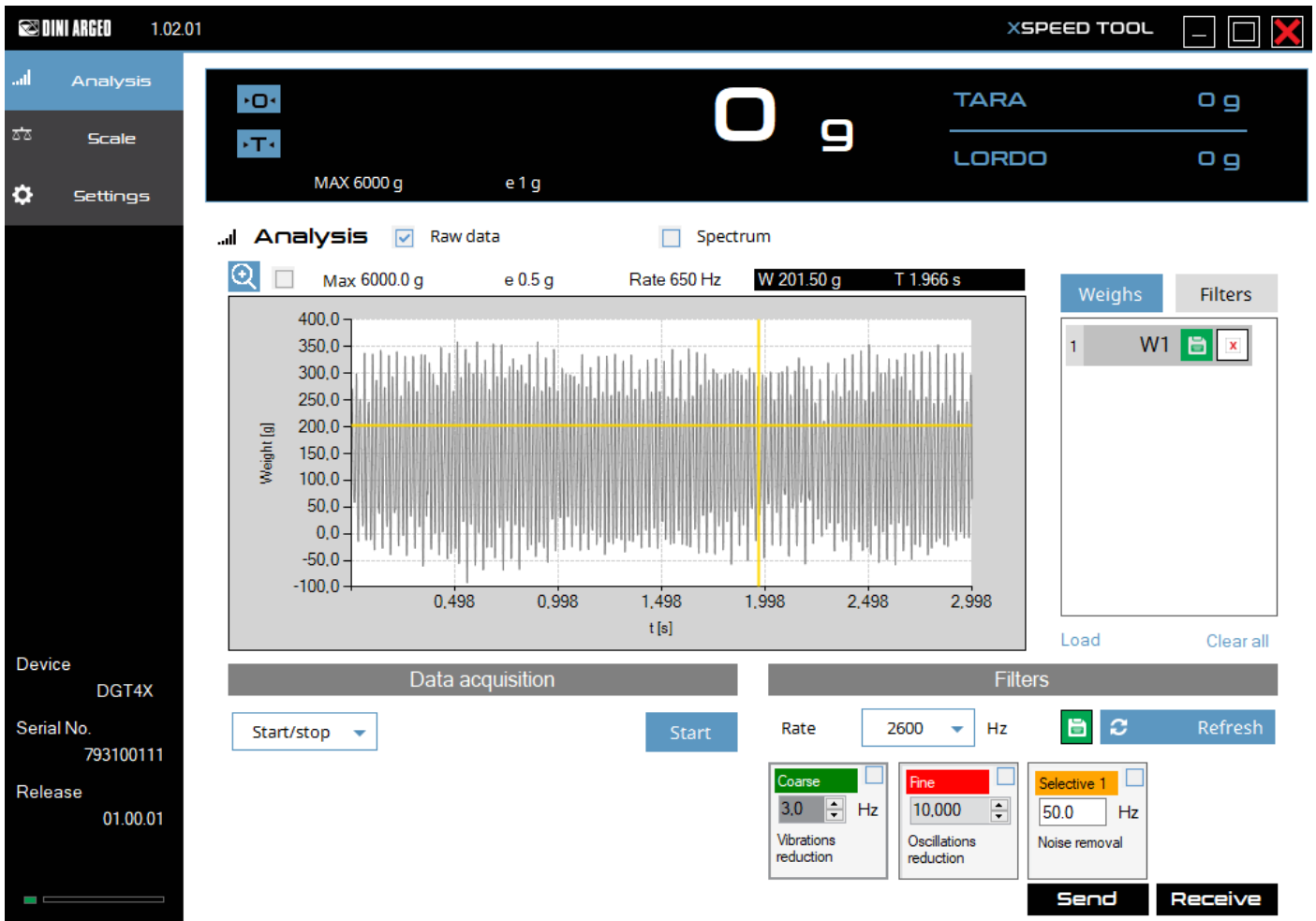
Total load cells capacity (sum of the capacities of each cell).

Load cells sensitivity (in junction box mode, insert the sum value of the signals).

Mechanical tare (If not known, unload the scale and press **Zero**).

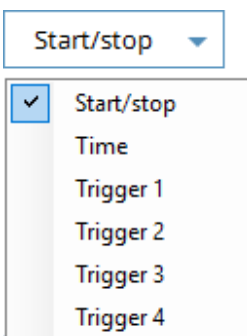
Once you have entered the values, calculate the value of the points by clicking **Set data**.

Save the calibration on the instrument by pressing **Store**.



## Data acquisition

Acquisition can be done in several ways:



⚠ If the instrument is configured in junction box mode (dependent channels) the available acquisition rates are: 5, 10, 20, 40, 80, 160, 320.

### START/STOP

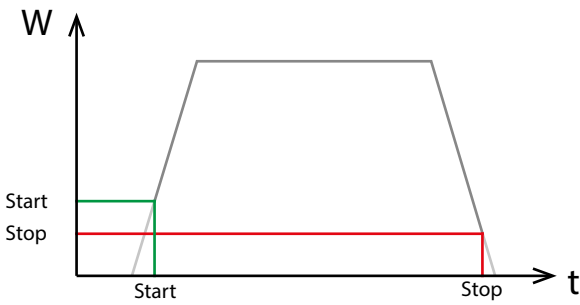
The acquisition begins when you press **Start** and ends when **Stop** is pressed.

### TIME

The acquisition begins when you press **Start** and ends automatically after the time set in Time (s).

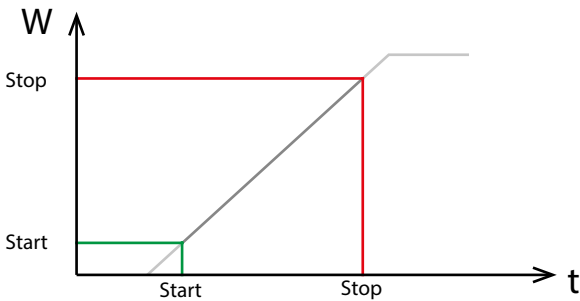
### TRIGGER 1

Once **Start** has been pressed, the acquisition begins when the weight exceeds the upper threshold (Start) and ends when the weight falls below the lower threshold (Stop).



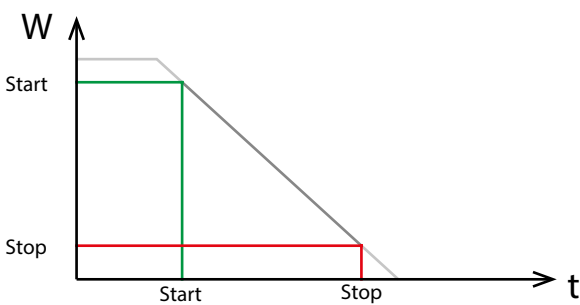
### TRIGGER 2

Once **Start** has been pressed, the acquisition begins when the weight exceeds the lower threshold (Start) and ends when the weight reaches the upper threshold (Stop).



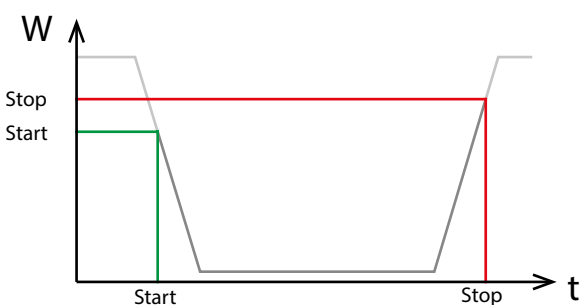
### TRIGGER 3

Once **Start** has been pressed, the acquisition begins when the weight falls below the upper threshold (Start) and ends when the weight falls below the lower threshold (Stop).




### TRIGGER 4

Once **Start** has been pressed, the acquisition begins when the weight falls below the lower threshold (Start) and ends when the weight reaches the upper threshold (Stop).



## Weighs list









On the right side all the acquired weighs are saved.  
Select a weight to show it on the graph.

 Saves the weight on the PC.

 Deletes the weight.

**Load** Loads the weight saved on the PC (.xsd format).

**Clear all** Deletes all weighs.

Weighs		Filters	
1	W1		
2	W2		
3	W3		
4	W4		

**Load** **Clear all**

## Graph processing

After the acquisition, the graph shows the weighing trend.

The grey curve indicates the unfiltered signal. To hide it, remove the tick on  Raw data .


Hovering the mouse over the curve will highlight the coordinates of the point above the graph:


**W 201.50 g    T 1.966 s**

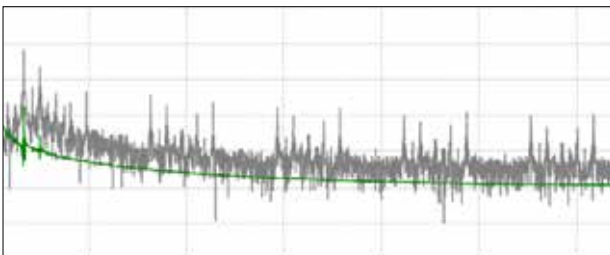
### ZOOM FUNCTION

It is activated by ticking the magnifying glass  . By holding down the left mouse button and dragging the cursor over the graph, the selected area is zoomed in.

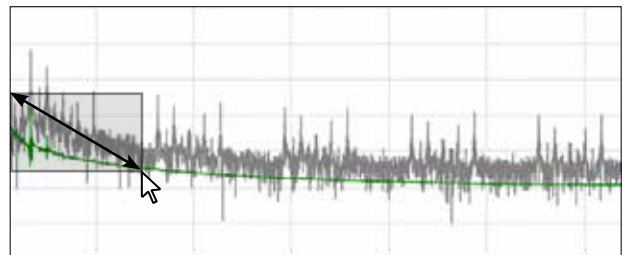
To restore the graph, remove the tick and click  **Refresh** .

By clicking the buttons  only the desired axis is zoomed out.

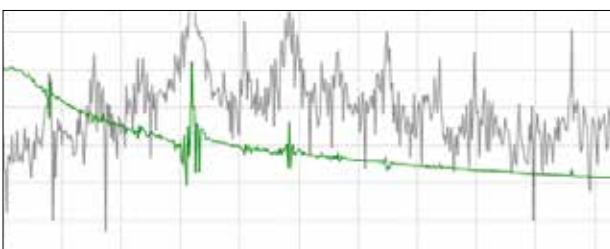
1. Enable zoom function  .



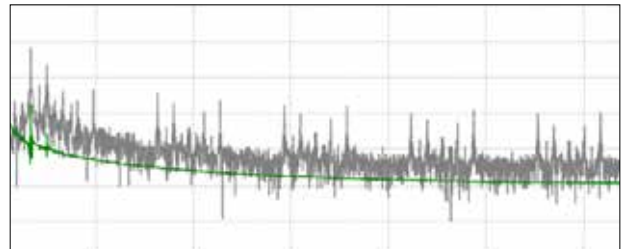
2. Select the area to zoom in.



3. Only the selected part of the graph is displayed.



4. Disable zoom function   and press  **Refresh** to restore the original graph.



# Spectrum

The spectrum describes the acquired signal in the frequency domain.

By analyzing the spectral graph of the signal and applying the appropriate filters, you can eliminate the vibrations and disturbances that negatively affect system performance.

Click on the tick  Spectrum to activate the spectrum visualization.

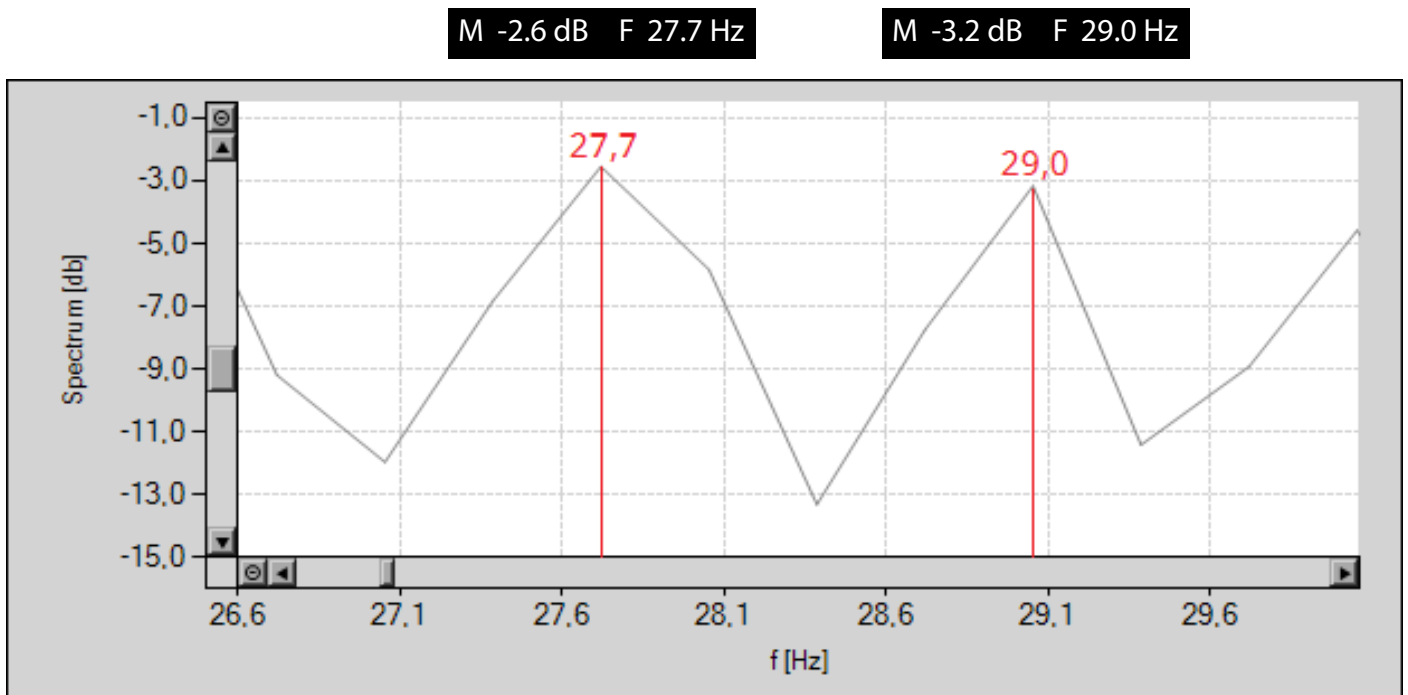
**Note:** The spectrum calculation may take several seconds, depending on the amount of data to be analyzed.

The screenshot displays the X SPEED TOOL software interface. At the top, the title bar shows 'DINI AR GEO 1.02.01' and 'X SPEED TOOL'. The main window is divided into several sections:

- Top Panel:** Shows a large '0 g' reading, 'TARA' and 'LORDO' buttons, and a 'MAX 6000 g e 1 g' indicator.
- Left Sidebar:** Contains navigation options: 'Analysis' (selected), 'Scale', and 'Settings'. Below this, device information is listed: 'Device DGT4X', 'Serial No. 793100111', and 'Release 01.00.01'.
- Analysis Section:** Features a 'Spectrum' graph with 'Raw data' and 'Spectrum' checkboxes. The graph shows 'Spectrum [db]' on the y-axis (ranging from -39.1 to 15.9) and 'f [Hz]' on the x-axis (ranging from 19.3 to 119.3). A yellow vertical line is positioned at 122.4 Hz. Above the graph, parameters are displayed: 'Max 6000.0 g e 0.5 g', 'Rate 650 Hz', 'M -23.7 dB', and 'F 122.4 Hz'.
- Filters Section:** Includes a 'Filters' panel with a 'Weighs' list containing '1 W1'. Below it are 'Load' and 'Clear all' buttons. The 'Filters' section also has a 'Rate' dropdown set to '2600 Hz' and a 'Refresh' button. Three filter settings are visible: 'Coarse' (3.0 Hz, 'Vibrations reduction'), 'Fine' (10.000 Hz, 'Oscillations reduction'), and 'Selective 1' (50.0 Hz, 'Noise removal').
- Bottom Panel:** Contains 'Data acquisition' controls with a 'Start/stop' dropdown and a 'Start' button, and 'Send' and 'Receive' buttons.


## Spectrum analysis


To evaluate the vibration frequency, zoom in on the graph until you see the wavelength of the signal.





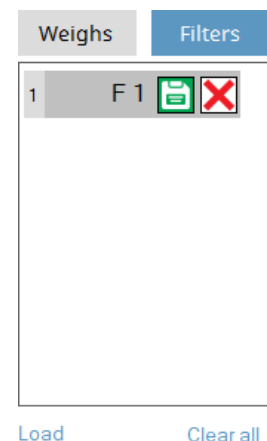
In the example of the above graph, the wavelength is given by the difference  $29,0 - 27,7 = 1,3$  Hz.

## Filters list

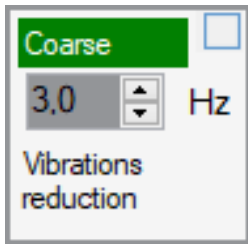
Click on  to save a filter in the filters list.

Click on a filter and then on  Refresh to see the filter action on the graph.

-  Saves the filter on the PC.
-  Deletes the filter.
- Load Loads a filter saved on the PC (.xsf format).
- Clear all Deletes all filters.



## Filters

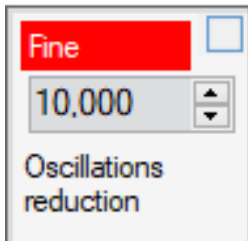


### Coarse filter

Filter for removing signal vibrations.

**Recommended value:**  $2 \div 10$  Hz (go below 2 only with rate 2600 Hz)  
A smaller value makes the weight more stable.

*The set value must be less than half the acquisition rate.*

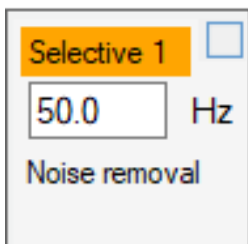


### Fine filter

Fine filter, expressed in percentage.

**Recommended value:**  $10 \div 50$  %

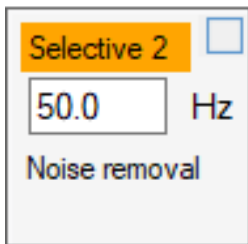
A smaller value makes the weight more stable.



### Selective filter 1

Filter for the removal of fixed frequency noise.

Enter the noise frequency.



### Selective filter 2 (\*)

Filter for the removal of fixed frequency noise.

Enter the noise frequency.

*(\*) Available depending on the model.*

## Sending and saving the filter

To send the filter to the instrument, click on **Send**.

By restarting the instrument, you lose the filter sent.

To save the filter on the instrument click **Store** on the "Scale" tab.

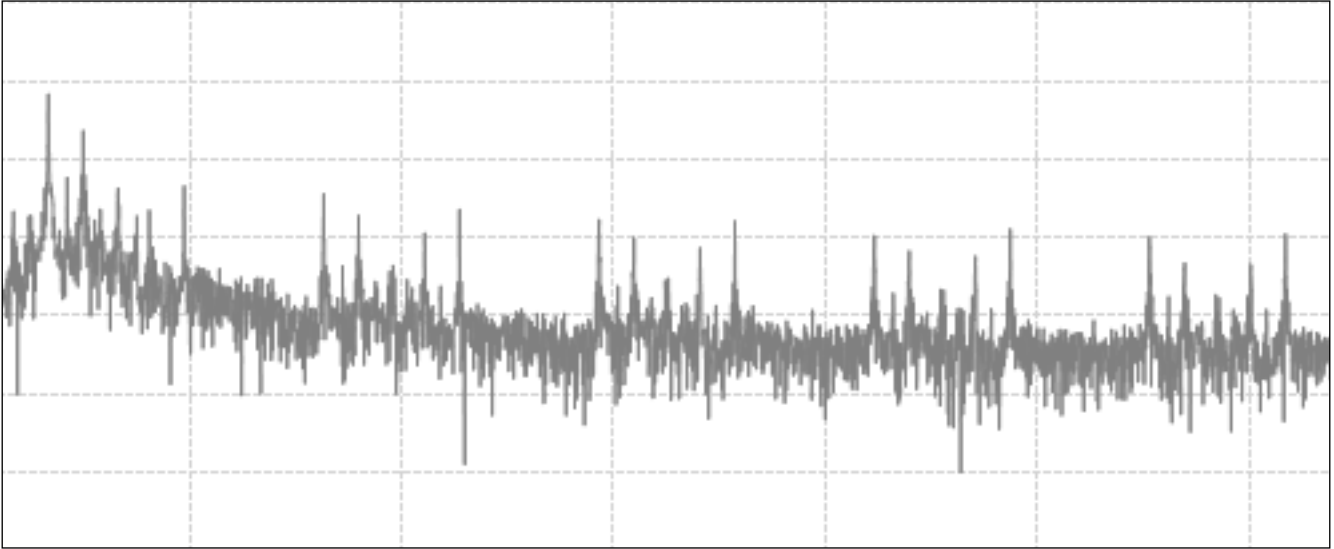


In **DEMO** mode, it's not possible to send the the filter to the instrument.

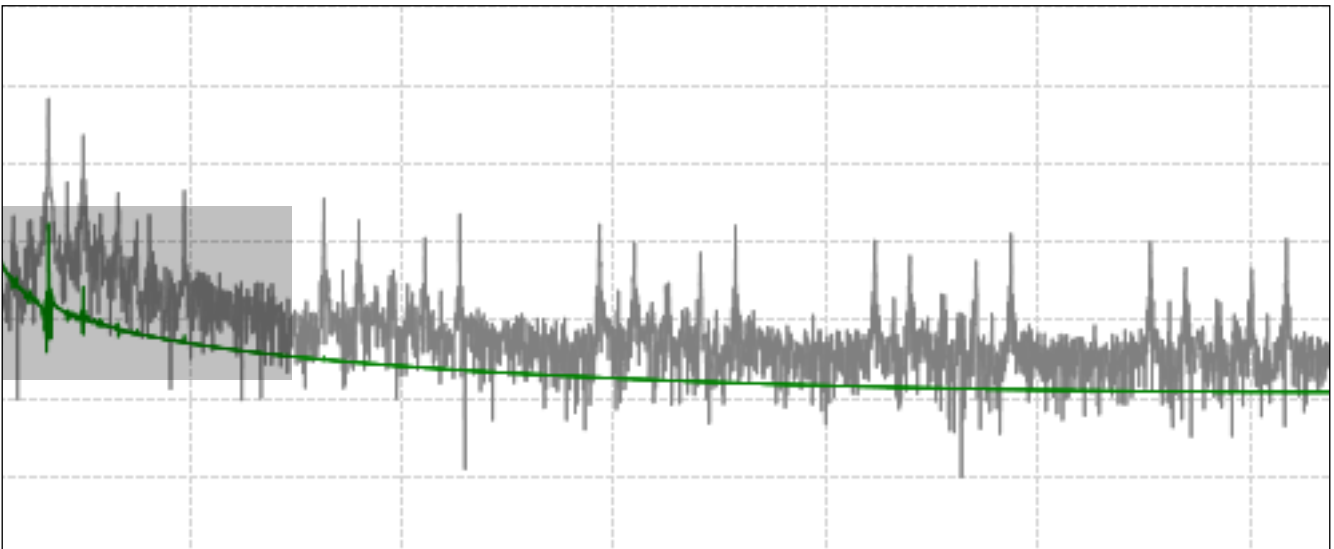


## Example

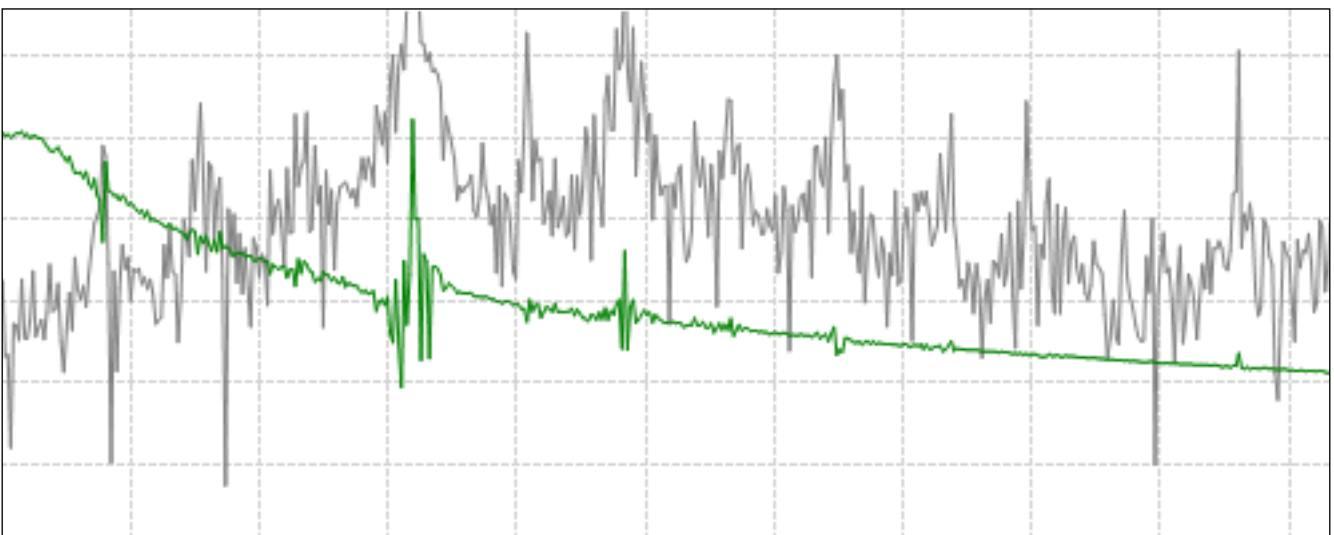
After acquiring the weight, the spectral representation of the signal appears to be:



By applying a coarse filter at 10 Hz:

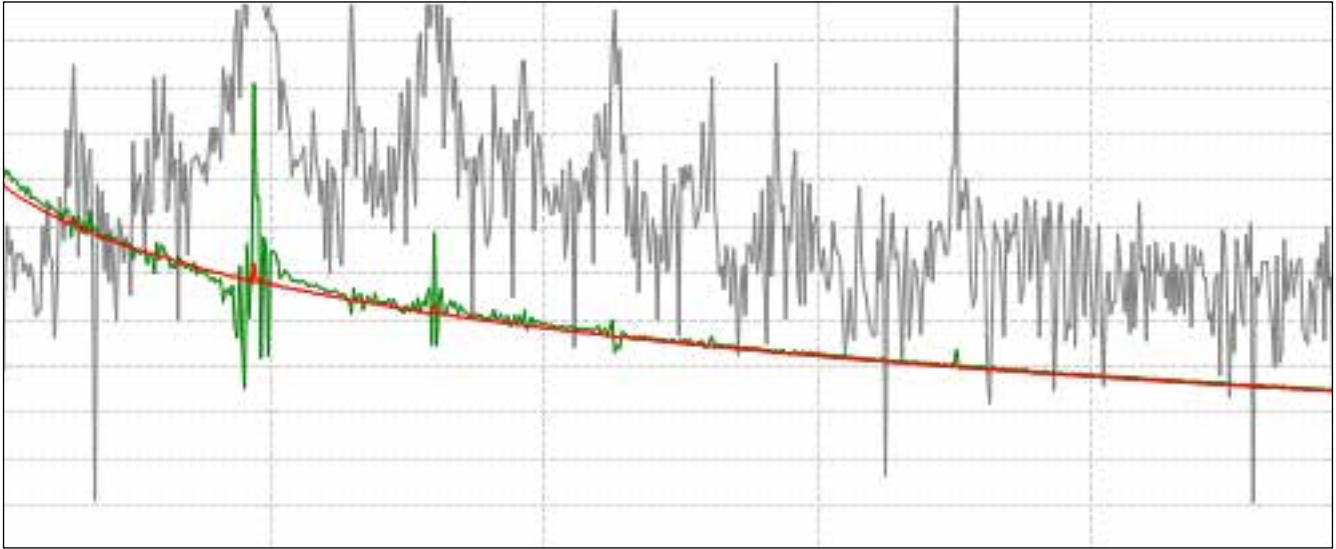


The signal is still not stabilized (zoom in to check the stability in each area of the graph):



There are two ways to proceed:

1. Further reduce the frequency of the Coarse filter.
2. **Activate the Fine filter:**



*The graph above has been obtained by setting the fine filter to 50%.*

The combination of the two filters removes instability due to vibrations and at the same time maintains an excellent weighing speed.

An additional filter (two for some models) is also available for noise removal.

Apply it in case you observe a noise caused by a specific frequency (e.g. 50 Hz power supply).





A RICE LAKE WEIGHING SYSTEMS COMPANY

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