

G201



TECHNICAL INSTRUCTION

Acquisition Module
for all types of
Analog sensors



G802_instr_eng_0.1.1.2026



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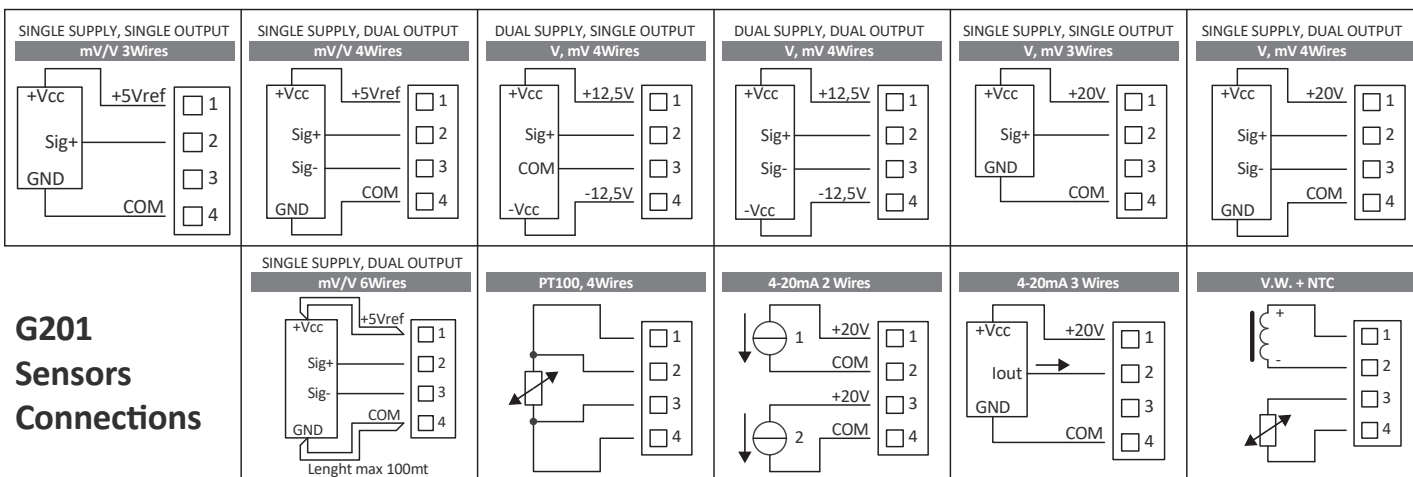
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GENERAL CHARACTERISTICS

- Supply 12 VDC. Optional 110/220 Vac or solar panel;
- Current supply typical with local battery 52 μ A;
- Operating temperature from -20° to +70°C;
- Protection defined by the box type;

- G201 channels number	4 + 4	8 + 8,	12 + 12	16 + 16
- Dimensions	48	72	97	122 x 101 x 119 mm
- Weight	277	405	533	656g

- Measuring type V, mV/V, 4-20 mA, VW, Pt100, NTC;
- Measurement resolution 24 bit (0.1 Hz for vibrating wire);
- Supply voltage + 20 V, + 12 V, +/-12 V, + 5 V;
- G201 Communication type RS485 for configuration and download of local data; GPRS or Wi-Fi for remote data uploading.



1. GENERAL INFORMATION

G201 is an acquisition module for all types of analog sensors, designed to be used in geotechnical, structural and environmental monitoring. G201 can read different types of sensors with different signal types (4/20 mA, mV/V, V) and all the vibrating wire instruments. It is also possible to read thermistor sensors as Pt100, NTC, etc.. G201 is available in four versions: from 4 channels up to 16 channels (including also 8 and 12 channels). Each channel has one four poles terminal block which can be used to power the transducer or to receive the analog signals. The function of the 4-pole terminal block changes depending on with the type of the instrument connected to it. In case the transducer has only two wires (such as some 4/20mA, Vibrating Wire and the NTC sensors) each individual channel can be configured to read two instruments. For example, a Vibrating Wire sensor and its temperature values can be read on the same channel. In fact, each channel can be considered double and a 16 channels multiplexer can actually be used to read 32 channels, if the types of sensor allows it. So, G201 can become 4+4, 8+8, 12+12 and 16+16 channels.

1.1 HOST SYSTEM REQUIREMENTS

1.1.1 HARDWARE

- Desktop or laptop computer with USB port;
- Provided USB cable;
- Software installation package.

1.1.2 WINDOWS OPERATING SYSTEM

The following Microsoft™ Windows operating systems can be used: • Windows 7 • Windows 8 • Windows 10

1.1.3 FTDI

Drivers included.

1.2 INSTALLING G201 SOFTWARE

Prior to installing the software ensure the following:

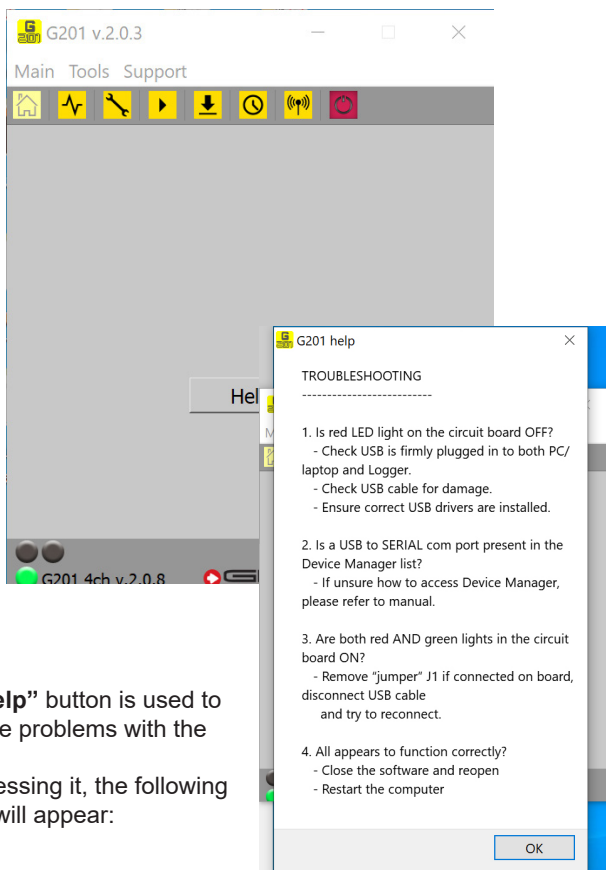
- The host device is turned “ON”.
- The USB cable is connected to both the host device and the G201 software is loaded onto the USB supplied.



- The G201 logger is powered (Internal light is illuminated).
 - FTDI drivers are correctly installed.
- Double click on the **setup.exe** file and follow the instructions to complete the software installation.

1.3 RUNNING THE SOFTWARE

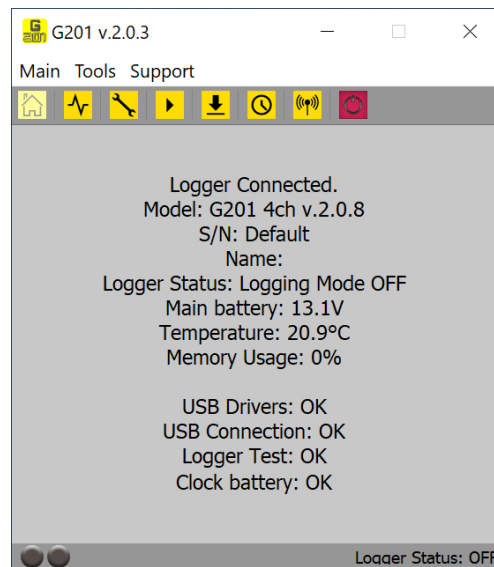
Open the software on the host device and the following screen could be shown:



The “**Help**” button is used to diagnose problems with the logger.
After pressing it, the following screen will appear:

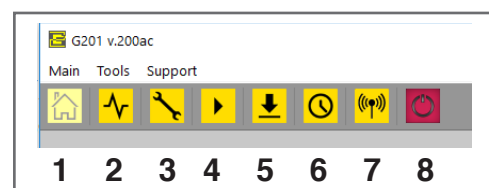
1.4 HOME PAGE

After connecting the logger the green light at the bottom left will remain “ON”. The following information is displayed on the home page:



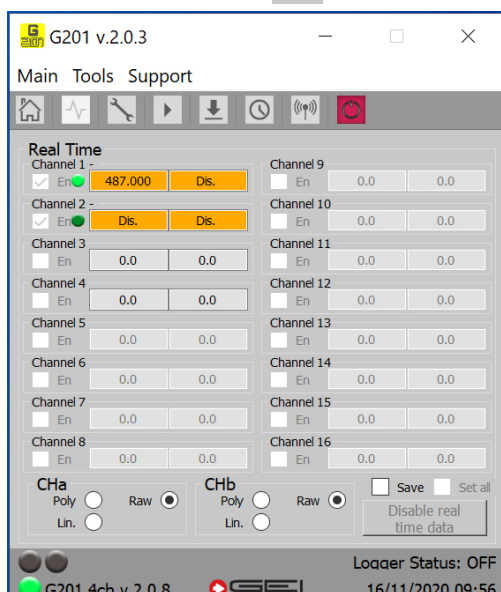
- Logger connection status;
- The data logger model & firmware version;
- S/N (serial number);
- The saved name of logger;
- Logging status;
- Main battery supply charge;
- Temperature of the logger;
- Memory usage;
- Status of the Drivers;
- Status of the USB connection;
- Status of the automatic logger operation test;
- Status of the internal clock battery.

1.4.1 MENU ICONS



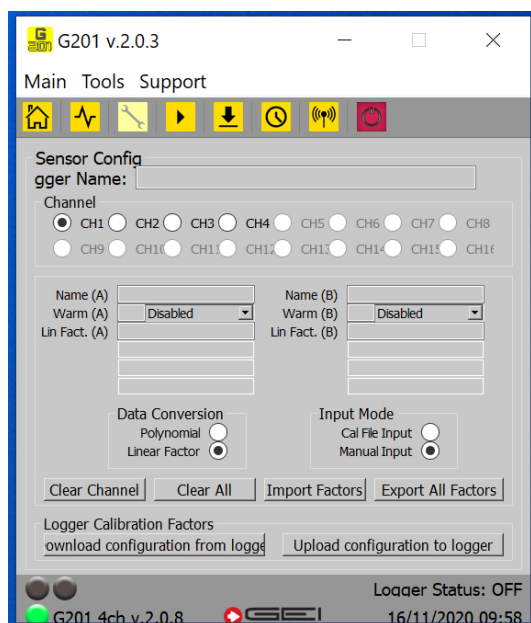
1. Home Page
2. Real time (real time control of the sensors)
3. Sensor config (complete configuration of the sensors and calibration factors)
4. Logger config (sets the intervals and dates of storage, i.e. sampling periods)
5. Download data (download and add data)
6. Time sync (allows you to synchronize date and time from the connected host device)
7. Remoting data (remote transfer to FTP server)
8. Exit

1.5 REAL TIME READING



Use the “**Real Time**” menu to test the correct operation of the sensors. Select the button next to the channels. Press “**Enable real time Data**” to start real time readings and then press “**Disable real time Data**” when you have finished reading.

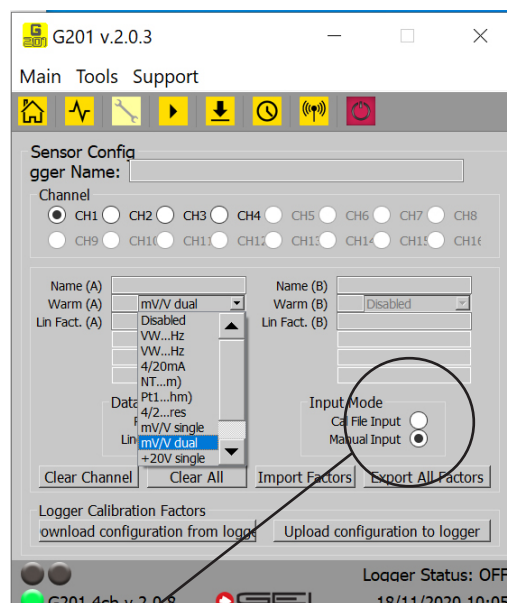
1.6 SENSOR CONFIG.



The “**Sensor Config**” menu allows you to load the calibration factors of the various sensors that you want to read on the G201 software.

Calibration information is normally provided via a text file with the *.geocal extension.

- Indicate the name of the logger;
- Select the channel;
- Select the type of sensor you want to read in the two columns;
- Check the data to be imported is in “**Linear factor**” mode.



Press “**MANUAL INPUT**” to fill or modify all the available fields. Choose “**POLYNOMIAL**” or “**LINEAR FACTORS**” to enable the related fields.

REPEAT FOR ALL CHANNELS AS NECESSARY

Once all the information has been entered into all the necessary channels select and press:

“**UPLOAD CONFIGURATION TO LOGGER**” button

At this stage you have the option to confirm or to cancel. To confirm select “**Yes**”. All the entered data will then be uploaded to the logger. To cancel select “**Abort**”. This will take you back to the previous screen.

NOTE: If necessary, you can export the configuration from the software to your computer as a back up.

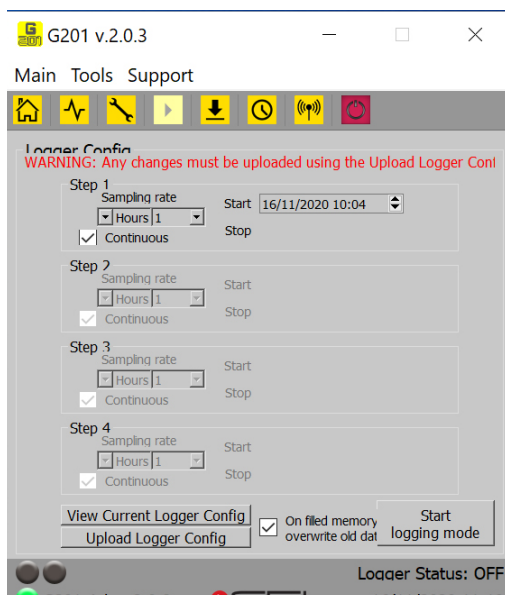
Once you have selected “**Export all factors**” the browser on your computer will open.

Select the required location (folder path). Press on “**Select folder**” and select the required folder. The text file with the calibration factors will be saved in this location.

If available press “**IMPORT FACTORS**” button, search for the relevant Calibration file (*.geocal) and select “**OPEN**”.

If the calibration factors are mistakenly deleted, they can be imported from the logger to the software on the PC.

1.7 LOGGER CONFIG.



In this menu you set the sampling periods in which the logger will take sensor readings.

It is possible to set up to 4 different sampling steps (periods).

- SAMPLING RATE (If one or more steps):

The sampling rate (interval) can be selected in Seconds /Minutes / Hours / Days.

- START & STOP (DATE):

Set the period (date and time) in which you want to carry out the sampling period.

NOTE: Use the Up and Down arrows and the mouse cursor to change the day / month / year / hour / minute on each step (period).

Set “**Continuous**” if you don’t want to give a sampling end date. The readings will take place continuously.

- CONFIGURATION OF LOGGER

Once all settings have been selected they must be loaded into the data logger. Select “**UPLOAD LOGGER CONFIG**”. At this point it is possible to confirm or cancel, to confirm select “**YES**”. All entered data will then be loaded into the logger. To cancel, select “**ABORT**”. This will bring you back to the previous screen.

- CONFIGURATION CONFIRMED

If all the fields have been filled in correctly, the “**LOGGER SUCCESSFULLY CONFIGURED**” message will be displayed.

1.7.1 START & STOP LOGGING STATUS

If the logger status is “**OFF**”, “**START LOGGING MODE**” must be selected.

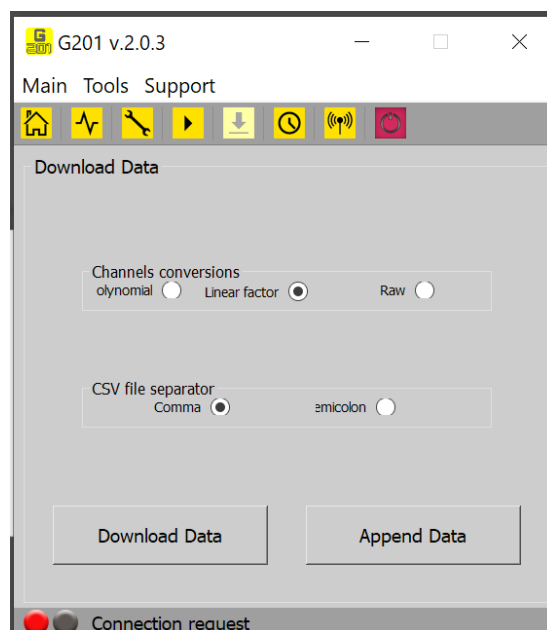
Before logging mode is started, “**CONFIRMATION**” of the logging configuration is requested. If everything is correct select “**YES**”. The status of the logger is shown at the bottom right of the screen. You must select “**START LOGGING MODE**” to download data.

Downloading or adding data can then be performed. Data can also be downloaded to different units by selecting the relevant units.

Once the button is pressed, the logger starts recording. When data collection is complete, the logger should be left unused. To conserve battery life and memory, “**STOP LOGGING MODE**” must be selected.

If you forget to select “**STOP LOGGING MODE**” press the “**EXIT**” button to exit the software.

1.8 DOWNLOAD & APPEND DATA



Select “**DOWNLOAD DATA**”, a progress bar will appear saying “**DATA DOWNLOAD PACKET**” and a browser window will open, allowing the user to select the location to save the data by naming the file that contains it.

The G201 software creates, by default, files in *.csv format. The conversion factors are set in the “**SENSOR CONFIG**” menu screen (par. 1.6). Engineering unit values or raw data units are available in the *.csv file.

These can be imported from text files, read from the logger or compiled manually.

The “**Channel conversion**” menu is set to Linear Factor.

If you want to select RAW, there will also be a raw column in the *.csv file.

In the lower part you can set the types of separators to be used, whether comma or semicolon.

Check in your device (computer, laptop, etc.) the default settings of the operating system used in the folders “**Control Panel**”----> “**International Options**” and “**Language**”.

If the software and operating system settings match, opening the file with Excel program will display the correct *.csv file preview.

Use the “**Append Data**” button if you want to add the downloaded data to an existing file. When the button is selected, the browser will open to allow the user to select the location to which the data is to be added.

WARNING! Failure to delete old data between logging sessions, may result in duplicate data.

aaa.csv																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	G201 4ch v.1.0.0																	
2	13/04/2018 13:05																	
3	Data Conversion: Row																	
4																		
5	Channels Setup					Channel 1		Channel 2		Channel 3		Channel 4						
6	SensornameA					g1cv		piezo		cella carico		pt100						
7	CHA					VW f<1600Hz		VW f>1600Hz		mV/V dual		Pt100 (R<250Ohm)						
8	WarmA					1		1		1		1						
9	LinFactorA																	
10	ConstAA																	
11	ConstBA																	
12	ConstCA																	
13	SensornameB					g1ntc		piezontc										
14	CHB					NTC (R>250Ohm)		NTC (R>250Ohm)		Disabled		Disabled						
15	WarmB					1		1		1		1						
16	LinFactorB																	
17	ConstAB																	
18	ConstBB																	
19	ConstCB																	
20	N.U.																	
21	N.U.																	
22																		
23	Date/time	Vbatt	Temp.			Channel 1		Channel 2		Channel 3		Channel 4						
24	11/04/2018 11:06	13	17.4			768.1	3419.3	3033.4	3353.2	395.316	Dis.	0.0429	Dis.					
25	11/04/2018 11:07	13.7	17.2			768.2	3417.6	3033.5	3346.6	395.316	Dis.	0.0429	Dis.					
26	11/04/2018 11:07	13	17.2			768.1	3415.2	3033.5	3341.1	395.314	Dis.	0.0429	Dis.					
27	11/04/2018 11:08	13	17.5			768.2	3413	3033.4	3341.4	395.308	Dis.	0.043	Dis.					
28	11/04/2018 11:18	15.2	18.3			768.6	3383.9	3033.6	3306.5	395.321	Dis.	0.0431	Dis.					
29	11/04/2018 11:19	13.1	18.4			768.7	3381.8	3033.6	3298.9	395.332	Dis.	0.0431	Dis.					
30	11/04/2018 11:20	13.9	18.2			768.5	3380.7	3033.5	3296.2	395.331	Dis.	0.0431	Dis.					
31	11/04/2018 11:20	13	18.2			768.9	3379.6	3033.6	3296.4	395.336	Dis.	0.0431	Dis.					
32	11/04/2018 11:21	13	18.2			768.7	3377.5	3033.5	3293.3	395.338	Dis.	0.0431	Dis.					
33	11/04/2018 11:22	13.7	18.2			768.7	3376.4	3033.6	3291.4	395.332	Dis.	0.0431	Dis.					
34	11/04/2018 11:22	13.2	18.5			768.9	3375.3	3033.5	3291.3	395.341	Dis.	0.0431	Dis.					

1.9 TIME SYNC



Select the “Time Sync” icon to synchronise the date and time between your device and the logger.

1.10 REMOTING DATA



Before proceeding, check that:

- Channel settings are configured;
- The sampling frequency is set to the desired values.
- The clock is synchronised;
- The logger is set to “**LOGGER STATUS: ON**” (written in red at the bottom right of the window).

Next:

- Close the software;
- Disconnect the USB cable from the logger and the PC.

ATTENTION! Once the settings have been made, disconnect the USB cable, otherwise the UAD will consume too much battery power and will NOT send data to the FTP server.



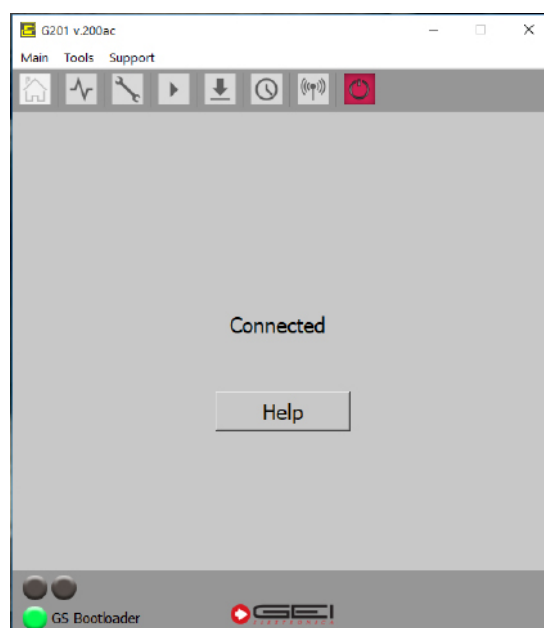
2.0 UPDATING FIRMWARE

As part of continual improvement updates to firmware may occur. In order to install new firmware:

- Verify that you have installed the logger’s drivers correctly.
- Switch “**OFF**” G201.
- Make sure you have enough G201 battery life otherwise re-charge it.
- If you are using a laptop, make sure you have enough battery life for at least half an hour otherwise plug in the laptop into mains.

Disconnect the USB cable.

- Connect the logger to the PC using the USB cable. Ensure both the red and green LED’s are ON.
- The program will connect to the logger automatically.



Once connected, confirmation will be given by the message **“GS BOOTLOADER”** and the green light will illuminate.

- In the **“TOOLS”** menu, select **“FW UPGRADE”** and then select the *.hex file path of the desired upgrade supplied.

- Wait for the progress bar to finish. During this process the red and green LED's flash alternately, the red very fast and the green much slower.

DO NOT DISCONNECT THE USB CABLE DURING THE PROCESS AND DO NOT USE THE SOFTWARE OR COMPUTER WHILE THE LIGHTS ARE BLINKING.

Once the progress bar has reached the end, the program will reconnect to the logger.

The program will reconnect to the logger in standard mode and the new version of firmware is shown in the bottom left of the main window.

3.0 MEMORY FORMAT

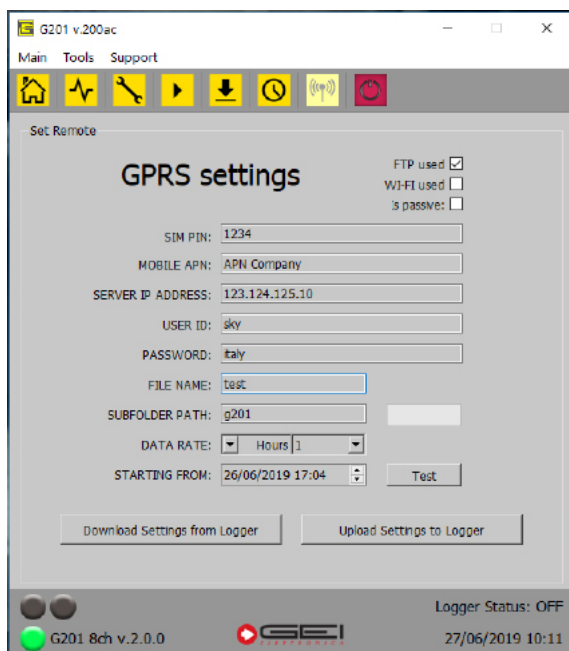
WARNING! Once the firmware has been updated it is necessary to carry out a Memory Format.

IT IS RECOMMENDED TO DOWNLOAD ALL DATA BEFORE UPGRADING THE FIRMWARE AS THIS WILL DELETE ALL OLD AQUISITIONS. Select **“MEMORY FORMAT”** from **“TOOLS”** menu and press the **“YES”** button.

4.0 REMOTING DATA

G201 can be equipped with modules for remoting acquired data to an FTP server. The server can be accessed via GPRS mobile network or by a standard Wi-Fi connection. The fields of the dedicated software tab must be properly filled in order to correctly send data to the FTP server.

Starting from a date and time, with a rate defined by the operator, the G201 logger sends acquired data values to an FTP server. The data can be stored in a subfolder defined by the operator or in the Root path.



If a subfolder is used for data storage, this must be created manually by the operator.

In addition, a sub-folder named **“Config”** must be added. Whenever the logger saves data to the defined FTP folder, a text file called **“curr.txt”**, containing the current configuration of the logger, is updated in the sub-folder **“config”**.

The first time new sensor settings are stored in the G201 logger, another file called **“sens.txt”** is also created in the **“config”** subfolder. This file contains information about the sensors configured and stored in the G201 logger. Using dedicated software, the contents of the **“curr.txt”** file can be modified to generate a file called **“conf.txt”** which contains new logger settings. This can be used to remotely change the configuration of the G201 logger. Each time the logger connects to the FTP server, the **“conf.txt”** file is checked for availability. If available, it is downloaded from the logger to update its settings and then deleted. The data file **“curr.txt”** is then created and updated. When the procedure for updating the remote settings is successfully carried out, the **“conf.txt”** file disappears and its contents are moved to the **“curr.txt”** file.

4.1 FTP used

Select the check box to enable FTP features.

4.2 Wi-Fi used

If a Wi-Fi module is used to connect to FTP server this check box must be selected.

4.3 Passive

The setting is used to switch between active and passive mode FTP transmission.

4.4 SIM PIN / SSID

The pin code of the mobile sim card must be filled in this field. If the pin code is not used please leave the field empty. When the Wi-Fi connection is used, the SSID name of the network must be set.

4.5 MOBILE APN / PASSWORD

This field must be filled with the mobile APN provided by your mobile provider and that is used to connect to the Internet. If wi-fi mode is selected this field must contain the password of the network where the module has to be connected.

4.6 SERVER IP ADDRESS

The IP address of the FTP, in the format a.b.c.d, must be written in this field.

4.7 USER ID

This field must be filled with your FTP access credentials, user part.

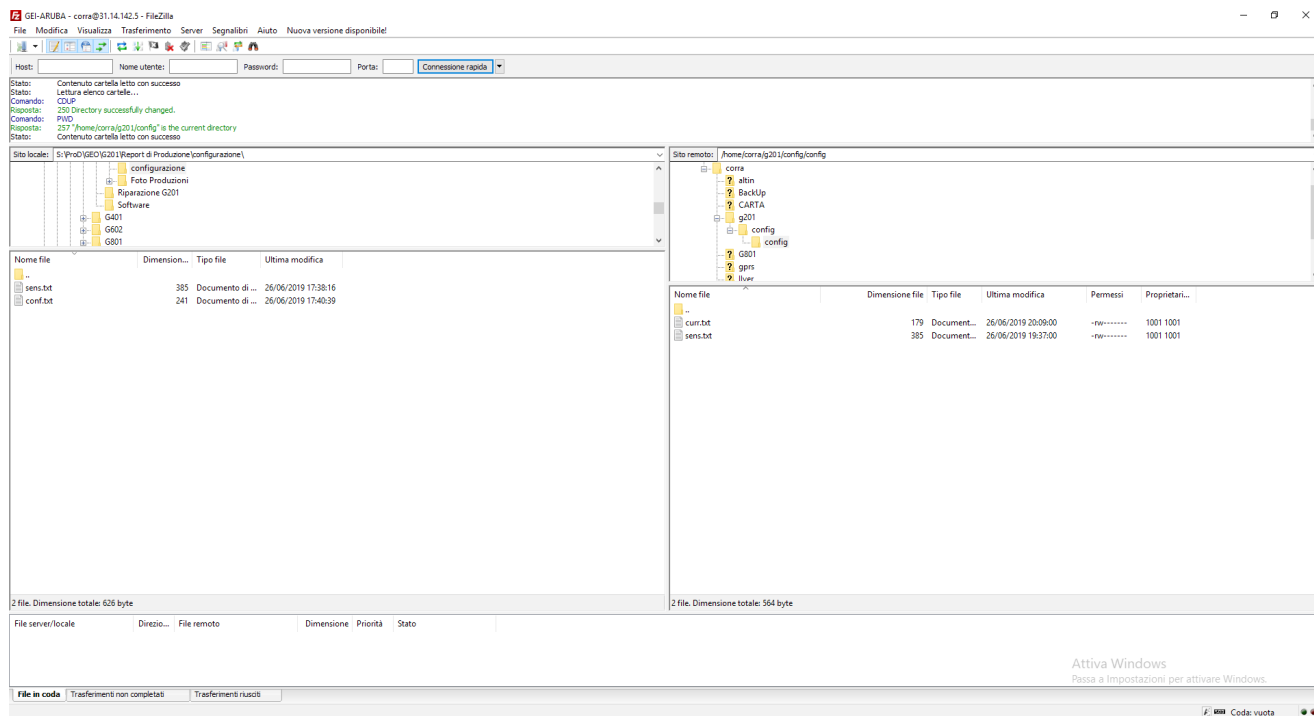
4.8 PASSWORD

This field must be filled with your FTP access credentials, password part.

4.9 FILE NAME

Please write in this field the name of the file used to store data on the FTP server. The files will be saved as a *.csv text file in the format name_DDMMYYYYHHmmSS.csv where name: is the name stored in the **“FILE NAME”** fields.

- DD: Day;
- MM: Month;
- YYYY: Year;
- HH: hours;
- mm: minutes;
- SS: seconds.



According to this format, any file stored on the FTP server has unique name.

4.10 SUBFOLDER PATH

If needed, each G201 logger data can be stored in specific subfolders in order to organize data on the FTP server. Please leave this field empty to store data in the root folder.

WARNING!

If a subfolder is used it must be manually created on the FTP server as the logger is not able to generate it independently.

4.11 DATA RATE

Please set the desired transmissions data rate setting to proper values on the two available combo boxes.

4.12 STARTING FROM

The date and time of the first data transmission can be fixed with this box.

NOTE:

Current date and time at the moment the software is opened is the default value. If not modified it shows a date and time in the past.

For this reason, when a new configuration of G201 is set and the PC connection removed, the G201 logger sends available data to FTP server before moving to sleep mode. This procedure is useful to test FTP feature functionality.

4.13 Test

The test button is used to send a demo TXT file to the FTP server and check settings coherence.

While the logger sends data to the server, a couple of bars are shown, one to visualize mobile signal strength and the second reports the steps performed by the logger in order to correctly perform an FTP transmission.

A red error writing is shown If something goes wrong. Looking at when the error comes is a useful way to debug the procedure and understand which setting is set wrong.

4.14 Download Setting from Logger

Press this button to get the current setup values.

4.15 Upload Settings to Logger

Once filled the whole field of the setup windows please press this button to store the values in the G201 datalogger.

INFORMATION FOR USERS

Pursuant to Legislative Decree no. 49 of 14 March 2014 (WEEE Directive), the crossed-out wheeled bin symbol  on the appliance indicates that the product, at the end of its useful life, must be disposed of separately from household or general waste. Users must take the appliance to appropriate municipal recycling centers (drop-off points) for waste electrical and electronic equipment (WEEE). Alternatively, as the direct manufacturer of the device, we are available to provide you with the information necessary for the proper management and collection of the product at the end of its life, in accordance with current legislation. Correct recycling helps prevent potential negative effects on the environment and health, promoting the recovery of materials. The company participates in the Cobat WEEE Collective System to ensure proper end-of-life management of the product.



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Dichiarazione di Conformita'



Declaration of Conformity

La società Gei S.r.l. (a S.U.), nella figura del Responsabile dell'Ufficio Tecnico, dopo aver verificato la corrispondenza alle disposizioni delle seguenti Direttive Comunitarie,

Gei S.r.l. (a S.U.), as the Technical Officer, after having checked the correspondence to the provisions of the following Community Directives,

2014/30/UE (Compatibilità Elettromagnetica - Electromagnetic Compatibility)

2011/65/CE (RoHS)

e delle norme armonizzate vigenti, con relative revisioni
and of the current harmonized standards, with relative revisions

EN 61000-6-2, EN 61000-6-3

Dichiara - States

che il prodotto modello G201 risulta conforme alle specifiche imposte dalle norme in materia di Direttiva Compatibilità Elettromagnetica, Direttiva Bassa Tensione e Direttiva RoHS.

that the G201 model product complies with the specifications imposed by the regulations regarding the Electromagnetic Compatibility Directive, the Low Voltage Directive and the RoHS Directive.

Parma, 15/10/2021

Il Responsabile Ufficio Tecnico
The Technical Officer

Ing. Corrado Carini

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