

# GP-Probe DIN L1

GNSS probe with built-in RF blocker, onboard GNSS interference detection and LUA scripting. Compatible with GP-Cloud.

# Quick Start Guide

Document version 1.0



## Online user manual:

<https://support.gpspatron.com/support/solutions/folders/101000427657>



## Datasheet:

<https://gpspatron.com/gp-probe-din-l1-datasheet/>



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# General Safety Summary

Carefully read the following safety precautions to avoid any personal injury or damage to the instrument and any equipment connected to it. To avoid potential hazards, please use the instrument as specified.

## Electrical Safety

- The GP-Probe DIN L1 is designed for a power supply voltage ranging from 12 to 48 volts. Do not exceed this voltage range.
- Ensure that the power supply used with the GP-Probe DIN L1 is within the specified range and is sourced from a safe and reliable provider.
- Before making any electrical connections, make sure the device is powered off. This helps prevent electrical shock or device damage.

## Installation Safety

- Install the GP-Probe DIN L1 in locations free from excessive moisture, direct sunlight, and away from flammable materials.
- Do not install near any liquids or in locations where the device may come into contact with liquids.
- Ensure the device is securely attached and that there's no risk of it falling or being accidentally knocked over.

## Look Over All Terminals' Ratings

To avoid fire or electric shock, please look over all ratings and sign instruction of the instrument. Before connecting the instrument, please read the manual carefully to gain more information about the ratings.

## **Lightning protection**

GPSPATRON recommends installing lightning and surge protection equipment to protect GNSS antenna port on all permanent sites.

## **Cleaning**

Please perform the following steps to clean the instrument regularly according to its operating conditions.

1. Disconnect the instrument from all power sources, and then clean it with a soft wet cloth.
2. Clean the loose dust on the outside of the instrument with a soft cloth. When cleaning the LCD, take care to avoid scratching it.

To avoid damages to the surface of the instrument, please do not use any corrosive liquid or chemical cleanser.

Make sure that the instrument is completely dry before restarting it to avoid short circuits or personal injuries.

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# 1 Quick Start

Running GP-Probe DIN is easy! Just follow a few simple steps:

- 1.1 First power-on
- 1.2 GNSS Antenna Installation
- 1.3 Connect GP-Probe to GP-Cloud  
OR
- 1.4 Activate Onboard Signal Processing

## 1.1 First Power-On

GP-Probe TGE2 has no power button, so once you plug in the power cable the probe will start up immediately. If the GNSS antenna is not connected, you will see an error on the screen:



Once the GNSS antenna is connected, this error will be resolved. The probe will show the status "Connecting" and then "Offline":



Now, it is necessary to install a GNSS antenna and establish a connection to GP-Cloud or activate the Onboard Signal Processing option.

## 1.2 GNSS Antennas Installation

GPSPATRON is meticulously designed to detect and classify GNSS interference, even in the toughest conditions. For those on a budget, a simple magnetic GNSS antenna placed on an office windowsill will suffice. However, to maximize system efficiency, we recommend investing in a higher-quality antenna installation.

Best Practice Recommendations:

- Ensure an average SNR greater than 30 dB.
- Position the antenna for an unobstructed view of the entire sky.
- Minimize RF signal reflections to avoid interference.

## 1.3 Connect GP-Probe to GP-Cloud

To connect GP-Probe to GP-Cloud you need to follow the following three steps:

- Register GP-Probe in GP-Cloud.
- Configure GP Probe.
- Calibrate GP-Cloud algorithms.

In order to register, you need to know the unique GP-Probe ID. It can be found on the device screen and in the Web Configuration Panel:



The registration can solely be performed by the system admin on GP-Cloud's user interface:

- Navigate to the "Probes" menu and click on "Add New Probe".
- In the popup, choose the probe's model, make up a password (remember it for the next step), and type in the probe's ID.

Learn more here about how to register a GP-Probe in the cloud:

<https://support.gpspatron.com/en/support/solutions/articles/101000492697-gp-probe-registration-in-gp-cloud>



For GP-Probe configuration you should login to the Web Configuration Panel with the following default credentials:

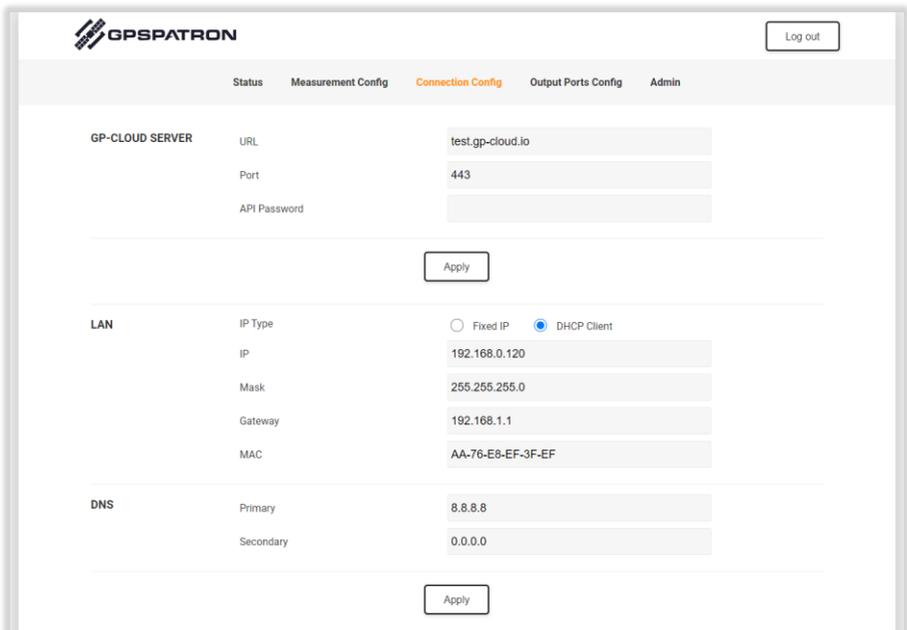
Default URL: <http://192.168.0.120>

Default user: admin

Default password: admin

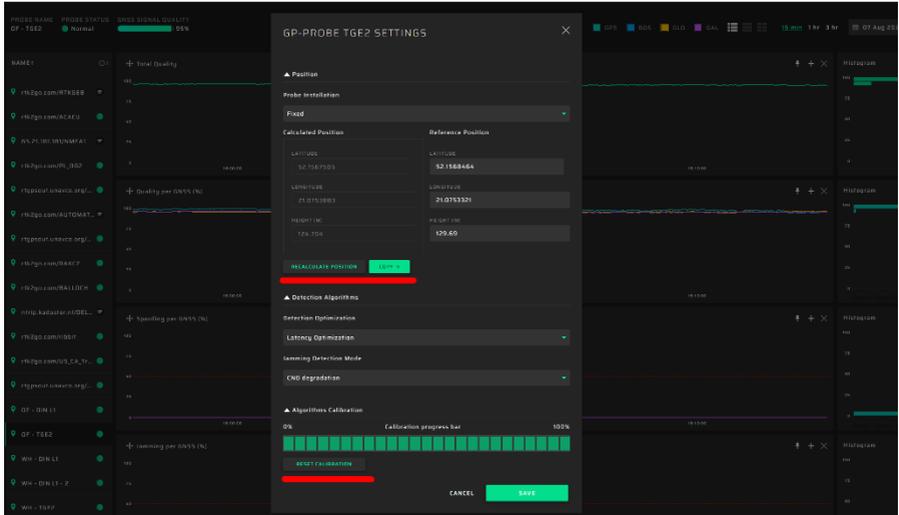
Then proceed as follows:

- Navigate to the "Connection Config" menu.
- Enter the URL/IP of your GP-Cloud server instance. If you're using our cloud service, then leave gp-cloud.io
- Enter the API password you created when registering the probe in the GP-Cloud.
- Set up the network IP connection as required:



That's it! Your GP-Probe should now be connected and ready to stream data.

Now you can access the data coming from the probe through your GP-Cloud account, but the probe's status may not be displayed as "Normal". It is more likely to show "Anomaly" or "Low Position Accuracy". To rectify this, simply open the Probe Config Popup, recalculate a new reference position, and reset the calibration:



Here, you can find more information on how to calibrate your GP-Probe:  
<https://support.gpspatron.com/en/support/solutions/articles/101000492698-gp-probe-calibration>

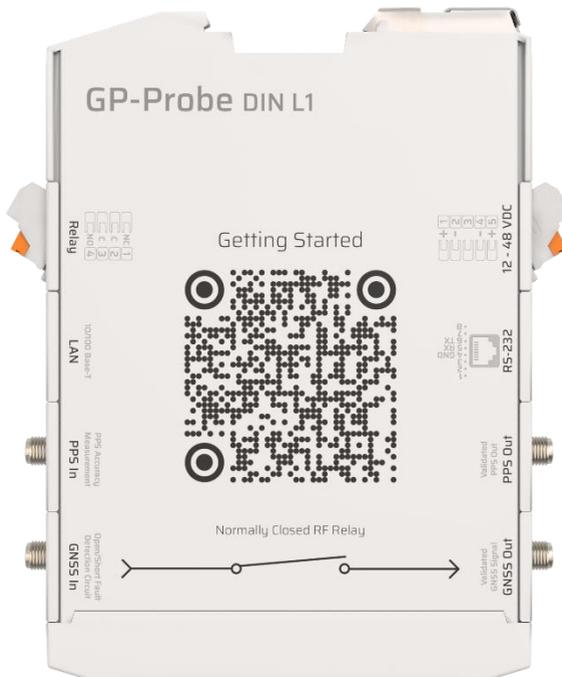


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## Connector Description

GP-Probe DIN L1 contains the following connectors:

- GNSS In
- GNSS Out
- PPS Input
- PPS Output
- NO/NC Relay
- RS-232
- LAN
- 12-48VDC Power connector



## **GNSS In**

Port for connecting an external GNSS antenna. GNSS antenna can be either active or passive.

The power supply voltage of the active antenna is 3.3 V. The port is equipped with current consumption monitoring circuits to detect short circuits and antenna failure.

## **GNSS Output**

GP-Probe DIN L1 is equipped with a GNSS output port that is connected to the GNSS input if the probe does not detect interference or GNSS signal anomaly.

If interference/anomaly is detected, the port is disabled by a built-in RF relay. To combat powerful fake GNSS signals, the probe is equipped with a built-in gns jammer that additionally blocks powerful fake signals leaking through the relay.

## **Power Port**

The GP-Probe DIN L1 is designed for a power supply voltage ranging from 12 to 48 volts. It is possible to connect two independent power supplies.

## **PPS Input/Output**

The GP-Probe DIN L1 has a PPS output coming from the built-in GNSS receiver. The pulse is generated only if the status of the GP-Probe DIN L1 is "Normal".

The GP-Probe DIN L1 has a built-in PPF phase difference measurement module. When an external pulse source, such as a time server, is connected to the "PPS In" port, the GP-Probe DIN L1 determines the phase difference every second and sends the data to GP-Cloud. If a specified threshold is exceeded, GP-Cloud sets the probe status to "PPS Offset".

The "PPS In" port supports low-voltage PPS signal sources.

## Relay Terminal

Integrating GP-Probe into existing infrastructure is made simple with the use of a relay. The relay's behavior can be configured through the web configuration panel. If interference is detected, the relay will switch, making it easy to control external equipment.

## RS-232

The ports are intended to control external equipment with an embedded LUA scripting engine. The sent commands, as well as the port operation modes, are determined by a script developed using the LUA language.

Learn more here about LUA scripting engine:

<https://support.gpspatron.com/support/solutions/folders/101000427666>



## LAN

The LAN port has a standard 10/100BASE-T RJ45 interface pinout. POE power supply is not supported.

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## Reset to Default Settings

If you have forgotten the password to access the Web Configuration Panel or if you need to switch the device to use a static IP address, you can reset the probe to the factory default settings.

When resetting, the following settings will be restored:

- IP type: static
- IP: 192.168.0.120
- username/password: user/user, admin/admin

Access settings for GP-Cloud and LUA script will not be affected.

To reset, you should:

- Disconnect the device from the power source
- Press and hold the “← Left” button on the front panel
- Connect the power supply
- Wait five seconds until the message "Are you sure you want to reset settings?" appears on the screen:
- Release the button
- Press and hold the button again for five seconds.

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## Troubleshooting

The GP-Probe DIN L1 has a built-in self-diagnostic system. When an error is detected, the device displays an error code on the screen and sends the error to GP-Cloud. All errors are saved in the GP-Cloud logs.

<b>Error code</b>	<b>Description</b>
<b>476</b>	GP-Probe DIN L1 built-in memory error
<b>477</b>	GNSS Port Driver Failure
<b>478</b>	GNSS Antenna Not Connected
<b>479</b>	GNSS Antenna Short Circuit
<b>481</b>	External PPS is not coming to the "PPS In" port
<b>482</b>	Low GNSS signal quality