Product: GenX Mobile 5p Device

Installation Guide

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Distribution: GPS Customers
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Introduction

This installation manual covers the installation of the GenX Mobile 5p Device. This manual is for the professional installer and should be used to ensure a safe and functional install of the 5p Device.

NOTE: PLEASE READ INSTALLATION INSTRUCTIONS CAREFULLY AS CHANGES HAVE BEEN MADE IN AN EFFORT TO IMPROVE QUALITY & SERVICES

*** This free guide is provided as a reference and suggested method of installation only. GenX Mobile or DQ Technologies will not be liable for any damages arising from installation of units. Testing, operation and approval of installation/device will be sole responsibility of customer

Antenna Options

GenX devices come with either an internal or external antenna. If your unit has the purple and blue FARKA connectors as shown below, you must install the antenna for it to operate properly. If your unit does not have these connectors, then it has an internal antenna.

![External Antenna GPS Unit](image1.png)  ![Internal Antenna GPS Unit](image2.png)

Device Power Options

**Note there are different power cable options, all are outlined below, please contact DQ Tech if you are unsure about what power cable you are using**
3-Wire power cable (standard)

9-pin JBus Power
OBDII Power

Installing Power for your Device

3-Wire power cable (standard)

*** DQ Technologies install*** only the 3 bundled wires on the long black cord with the 3AMP in-line fuse (Red, Black, and White) need to be connected.

**Safety note ** Always disconnect the vehicle battery while installing this or any other automotive electronic product.
There are two acceptable methods of making a wire connections; soldering your connections of using scrapable connectors. Regardless of the method you choose, ensure the connection if mechanically sound and properly insulated.

The 5p device has an internal power management program that monitors the vehicle power at all times. The management program is continuously looking at the condition of the vehicle battery in order to detect the state of the vehicle operation. The module determines the state of the vehicle power by detecting changes in the battery voltage over time. It is critical in this installation that the vehicle power be taken from a source as close to the battery as possible. Possible sources besides the direct connection to the battery are the main fuse block panel or the point where the vehicle charging circuits are connected to the 12-volt system.

Connect the RED lead or fuse end of the power cable to +12-volt constant vehicle power. Connect the WHITE lead to +12 volt switched vehicle IGNITION. (Not accessory) Connect the BLACK lead to the vehicle chassis (GROUND).

This product is connected directly to the vehicle’s 12-volt system. There is no on-off switch on the unit. The installed unit operates 24 hours a day and should be energized to log vehicle events or send data as required by anyone using the service.

The 5P Device is shipped with in-line 3-amp fuse(s) attached to the power cable. This fuse must be installed as close as possible to the primary 12-volt source connection. The fuse protects the power cable should there be a short in the cable between the fuse and the module. **This fuse must be installed properly.** If the fuse is replaced, it should be of the same type as originally supplied from the factory. The original fuse supplied is a 3 amp 125-volt type 3AG.

Failure to use the proper fuse or to install the fuse in the recommended location could cause a vehicle fire hazard. The fuse provides overload protection for the power cable and GenX 5p Device. The wiring installed between the fuse and primary vehicle power is not protected from overheating if a short should occur. Use care when routing the power cable and fuse. Route the cables where they will be protected and uses commonly accepted install practices for aftermarket automotive electronic devices.
9-pin JBus Power

This cable has a 20-pin outlet on one end that plugs directly into the GenX and a 9-pin Jbus outlet on the other end that plugs directly into your vehicle's JBus.
**OBDII Power**

This cable has a 20-pin outlet on one end that plugs directly into the GenX and a 16 pin OBD2 outlet on the other end that plugs directly into your vehicle ECM.

**Powering the Device for the First Time**

**Selecting a Location for the Device**

The 5p Device should be mounted so it will not be exposed to damage from people or objects. The cables that connect to the 5p should also be routed to protect them from possible damage. The 5p device has a mounting base or flange with mounting holes. Normal installation is with these four holes and #6 or #8 sheet metal screws. In some cases adhesive tape and/or zip ties may be used. It is important that that unit be fixed firmly. The control module must be mounted where it will not be exposed to direct sunlight or excessive heat generated by the vehicle operation.

**Antenna Location**

The GenX device has two (purple & blue) FARKA connections for the antenna.

When installing a device with an external antenna connect the two cables of the antenna to the device securely, then connect the devices power system to the vehicle.
External Antenna
The 5p device uses one antenna. The antenna is for receiving GPS signals from the Navistar GPS satellites and for communication with the cellular networks.

There are two antenna cables (purple and blue) in addition to the power cable harness that must be connected to the GPS module, so be sure there is room to access the connectors for installation and service.

This antenna must be positioned to receive signals from GPS and cellular satellites. The antenna location must be selected carefully so that the antenna can receive the satellite signals.

The GPS antenna should be mounted inside the vehicle so it is not exposed to the weather.

The ideal location is in a place that allows line of sight reception from the GPS satellites in orbit above. The satellite signals will pass through glass or plastic if not coated with a film or metallic obstruction.

Antenna Placement Examples
The antenna should be placed with the word “Bottom” faced down.

Internal Antenna
For units with an internal antenna it is important that the device be placed in a position where the top of the unit has a line of sight to the sky with NO METALIC OBSTRUCTIONS. Refer to the LED lights in the troubleshooting section to determine if the unit is having issues gaining GPS satellite or cellular connectivity.

System Testing & Troubleshooting
The GenX devices has LEDs that can indicate if the GenX is having issues communicated, getting GPS fixes, and more.
**Green & Red LED reference**

The green and red LEDs are intended to troubleshoot installations. Below is a summary of their behavior.

### 6.1 Green LED

When the ignition is first turned on the GNX will power-up. The Green LED will show solid for approximately 30 seconds. At no other time should the green LED remain on solid for such a long period.

After 30 seconds the green LED will start to flash at the following rates:
- 25 times on-off every 10 seconds when the ignition is on (this is quite rapid)
- 8 times on-off every 10 seconds when the ignition is off (this is quite slow)
- Very short blip once every 3 seconds when in sleep mode

The green LED will also show if there is a PTO (a.k.a. input) active by flashing a number of times corresponding to the PTO (1,2,3,4). For example if PTO 4 is active then there will be 4 short flashes every 3 seconds.

### Red LED

The RED LED flashes 2-digit codes. Roughly speaking the first digit tells you what general area is having a problem (hardware, modem, GPS, end-end service). The second digit gives specific error information. Since there can be more than one error condition the GNX rotates through the error codes (for example if GPS is tracking no satellites and the modem is not registered).

<table>
<thead>
<tr>
<th>Flash Code</th>
<th>Problem Description</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Low supply voltage</td>
<td>Check power cable installation, use voltmeter</td>
</tr>
<tr>
<td>1-3</td>
<td>Allocated data usage exhausted</td>
<td>Contact DQ Tech to have device resynced</td>
</tr>
<tr>
<td>2-1</td>
<td>Modem module fault</td>
<td>Contact DQ Tech for RMA</td>
</tr>
<tr>
<td>2-2</td>
<td>No SIM inserted</td>
<td>Open black box and re-seat SIM</td>
</tr>
<tr>
<td>2-3</td>
<td>No signal</td>
<td>Check antenna placement, try a known working antenna</td>
</tr>
<tr>
<td>2-4</td>
<td>Network not found</td>
<td>Check the SIM to make sure it is firmly in place</td>
</tr>
<tr>
<td>2-5</td>
<td>Last data session failed</td>
<td>Contact DQ Tech to set APN</td>
</tr>
<tr>
<td>3-1</td>
<td>GPS module fault</td>
<td>Contact DQ Tech for RMA</td>
</tr>
<tr>
<td>3-2</td>
<td>GPS antenna fault</td>
<td>Check antenna placement, try a known working antenna</td>
</tr>
<tr>
<td>3-3</td>
<td>GPS not tracking any satellites</td>
<td>Check that the GPS antenna has a clear, unobstructed view of the sky, and has been operating for at least 5 minutes</td>
</tr>
<tr>
<td>3-4</td>
<td>GPS no fix</td>
<td>If antenna has only partial view of sky due to the position of the vehicle (under a cover, close proximity to a building) then try to move the vehicle to ensure that it will be able to make fixes when standing in the open. If the vehicle has a full view of the sky try to reposition the GPS antenna</td>
</tr>
<tr>
<td>4-2</td>
<td>Data transfer failed</td>
<td>Indicates a failure to resync with the e server, or a failure to upload position data. If the condition persists then contact DQ Tech. Note that since mobile data communication is inherently unreliable this code can appear from time to time even on a perfectly healthy GNX, and is not necessarily indicative of a hardware, firmware, or installation problem</td>
</tr>
</tbody>
</table>
Wiring Schematic Diagram

GNX-5P (GPRS) Wiring Schematic

Applies to HW 64x only

POWER CONNECTOR

<table>
<thead>
<tr>
<th>Pin</th>
<th>Name</th>
<th>Wire Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Yellow</td>
<td>Relay 2 output (-)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Green</td>
<td>Relay 3 output (-)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Orange</td>
<td>Relay 4 output (-)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Blue</td>
<td>Switch 3 input (-)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>1-Wire Data</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>N/C Unused</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Red (bundle)</td>
<td>Power input (+8 to +30v constant)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>Backup Battery (12v/24v lead-acid type)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Black (bundle)</td>
<td>GND</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>White</td>
<td>Switch 2 input (+)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>White</td>
<td>Carphone Output (+) (option)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Red/White</td>
<td>Switch 4 input (-)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Red/White</td>
<td>Microphone Input (+) (option)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>White (bundle)</td>
<td>Ignition Input (+)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>White/Brown</td>
<td>Relay 1 output (-)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>GND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Green/Yellow</td>
<td>Switch 1 input (+)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>LED Output (+20mA max)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Brown</td>
<td>Analog Input (0 – 18v)</td>
<td></td>
</tr>
</tbody>
</table>

GNX-5P GPRS Wiring Schematic  ver 2.3

10/15/2009