

## How to test and initialise the GPS

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### 2. GMSplus settings

Enter bootloader by pressing Ctrl + Z	<pre>##### ##### Test and Initial Configuration Mode ##### ##### <b>Press Ctrl+Z to enter the test mode.....</b>  --- Flash Images and Boot Options --- L - List flash images Q - Reset instrument configuration to the user default V - Reset instrument configuration to the factory default 5 - Boot now X - Reboot the instrument Y - Power off  --- Hardware Setup and Monitor --- K - Instrument hardware parameters N - Network settings T - Battery installation dates  --- Test Functions --- P - Test RTC <b>M - Test GPS</b>  --- Security --- O - Set password J - Reset all passwords</pre>
Press "M" to test GPS If you want to initialise the GPS	<pre>Accessing the GPS module... ttyS2 is opened at the baud rate 4800 Do you want to initialize the GPS [Y/N]? <b>y</b></pre>

<p>press "Y",</p>	<p>Requesting GPS configuration...                  Collecting GPS configuration and information, may take up to 1 minute...                  Read sentence: \$PGRMC,A,00438.1,100,0000000.000,000.000000000,0000,0000,0000,A,3,1,2,19,3                  0.0*7F                  Fix Mode ..... Automatic                  Differential Mode ..... Automatic                  Measurement Pulse Output ..... Enabled                  1PPS Length ..... 400 ms                  Dead Reckoning Valid Time ..... 30 sec                  Read sentence: \$PGRMC1,1,1,2,,,1,A,N,,,1,2,2*6B                  NMEA Output Time ..... 1 sec                  Binary Phase Output ..... OFF                  Power Save Mode ..... OFF                  Measurement Pulse Auto Off .... OFF                  Read sentence: \$PGRMT,GPS 18x-LVC software ver. 3.70,,,,,,, *6B                  GPS Device Information ..... GPS 18x-LVC software ver. 3.70                  Initialising and verifying...                  Read sentence: \$PGRMC,,,,,,2,19,                  Measurement Pulse Output ..... Enabled                  1PPS Length ..... 400 ms                  GPS initialisation has been completed                  Waiting for the GPS information... Press any key to cancel                  \$PGRMO,,2                  \$PGRMO,GPGGA,1                  \$PGRMO,GPRMC,1                  \$GPRMC,143953,A,4723.9301,N,00826.1767,E,000.0,037.4,240314,001.5,E*79                  \$GPGGA,143953,4723.9301,N,00826.1767,E,1,07,1.0,436.9,M,46.8,M,, *4D                  \$GPRMC,143954,A,4723.9301,N,00826.1767,E,000.0,037.4,240314,001.5,E*7E                  \$GPGGA,143954,4723.9301,N,00826.1767,E,1,07,1.0,436.9,M,46.8,M,, *4A                  \$GPRMC,143955,A,4723.9301,N,00826.1767,E,000.0,037.4,240314,001.5,E*7F</p>
<p>if just to display the GPS connection, press "N", if the string does not appear (\$GPRMC,xxxxxx,A,....), abort by pressing any key and press again "m" and then "Y" to initialise the GPS first.</p>	<p>--&gt; m                  Accessing the GPS module...                  ttyS2 is opened at the baud rate 4800                  Do you want to initialize the GPS [Y/N]? <b>n</b>                  Waiting for the GPS information... Press any key to cancel  <b>\$GPRMC</b>,144409,<b>A</b>,4723.9332,N,00826.1911,E,000.0,037.4,240314,001.5,E*73                  \$GPGGA,144409,4723.9332,N,00826.1911,E,2,08,1.0,419.2,M,46.8,M,, *4D                  \$GPRMC,144410,A,4723.9332,N,00826.1911,E,000.0,037.4,240314,001.5,E*7B                  \$GPGGA,144410,4723.9332,N,00826.1911,E,2,07,1.0,419.1,M,46.8,M,, *49</p>
<p>Abort display the string by pressing any key.</p>	<p>5 – Boot now</p>

Start the GMSplus by pressing "5"

### 3. GMS settings

<p>During startup press "Ctrl + Z" to enter the bootloader</p>	<p>GSR-IA18 and GMS-XX Boot Loader, version 1.22 (2013-02-27) Press Ctrl+Z to enter the bootloader menu.....</p>
<p>Press "m" to access GPS</p>	<p>--- Flash Images and Boot Options ---                  B - Load image to the RAM via AUX COM port at 57600 baud                  G - Run the loaded image                  L - List flash images                  1 - Save the loaded RAM image to FLASH                  2 - Load an image from the FLASH to the RAM                  3 - Copy raw RAM memory block to the FLASH (0x20000 bytes)                  Q - Reset instrument configuration to the user default                  V - Reset instrument configuration to the factory default                  4 - Boot from the selected image                  5 - Boot from the default image                  X - Reboot the instrument                  Y - Power off                   --- Hardware Setup and Monitor ---                  K - Instrument hardware parameters                  N - Network settings                  T - Battery installation dates                   --- Test Functions ---                  P - Test RTC                  D - Test RAM                  F - Test FLASH                  M - Test GPS                  C - Test CF Card                  E - Test Ethernet controller                  R - Read word from an address                  Z - Test everything                   --- Security ---                  O - Set password                  J - Reset all passwords                   --&gt; m                  Do you want to initialize the GPS [Y/N]?</p>

	<p>Waiting for the GPS information... Press any key to cancel</p> <p>\$GPRMC,145712,V,4723.9509,N,00826.2011,E,,,240314,001.5,E*68</p> <p>\$GPGGA,145712,4723.9509,N,00826.2011,E,0,00,,M,,M,,*50</p> <p>\$GPRMC,145712,V,4723.9509,N,00826.2011,E,,,240314,001.5,E*68</p> <p>\$GPGGA,145712,4723.9509,N,00826.2011,E,0,00,,M,,M,,*50</p> <p>\$GPRMC,145712,A,4723.9414,N,00826.0652,E,000.0,000.0,240314,001.5,E*71</p> <p>\$GPGGA,145712,4723.9414,N,00826.0652,E,1,05,2.0,523.8,M,46.8,M,,*40</p> <p><b>\$GPRMC,145713,A,4723.9423,N,00826.0691,E,000.0,000.0,240314,001.5,E*7B</b></p> <p>\$GPGGA,145713,4723.9423,N,00826.0691,E,1,07,1.4,518.5,M,46.8,M,,*4A</p>
<p>If the correct string does not appear (\$GPRMC,xxxxxx,A), press "Y" to initialise the GPS</p>	

#### 4. GSR-xx settings in GeoDAS

Login to the GSR and open the Instrument Setup

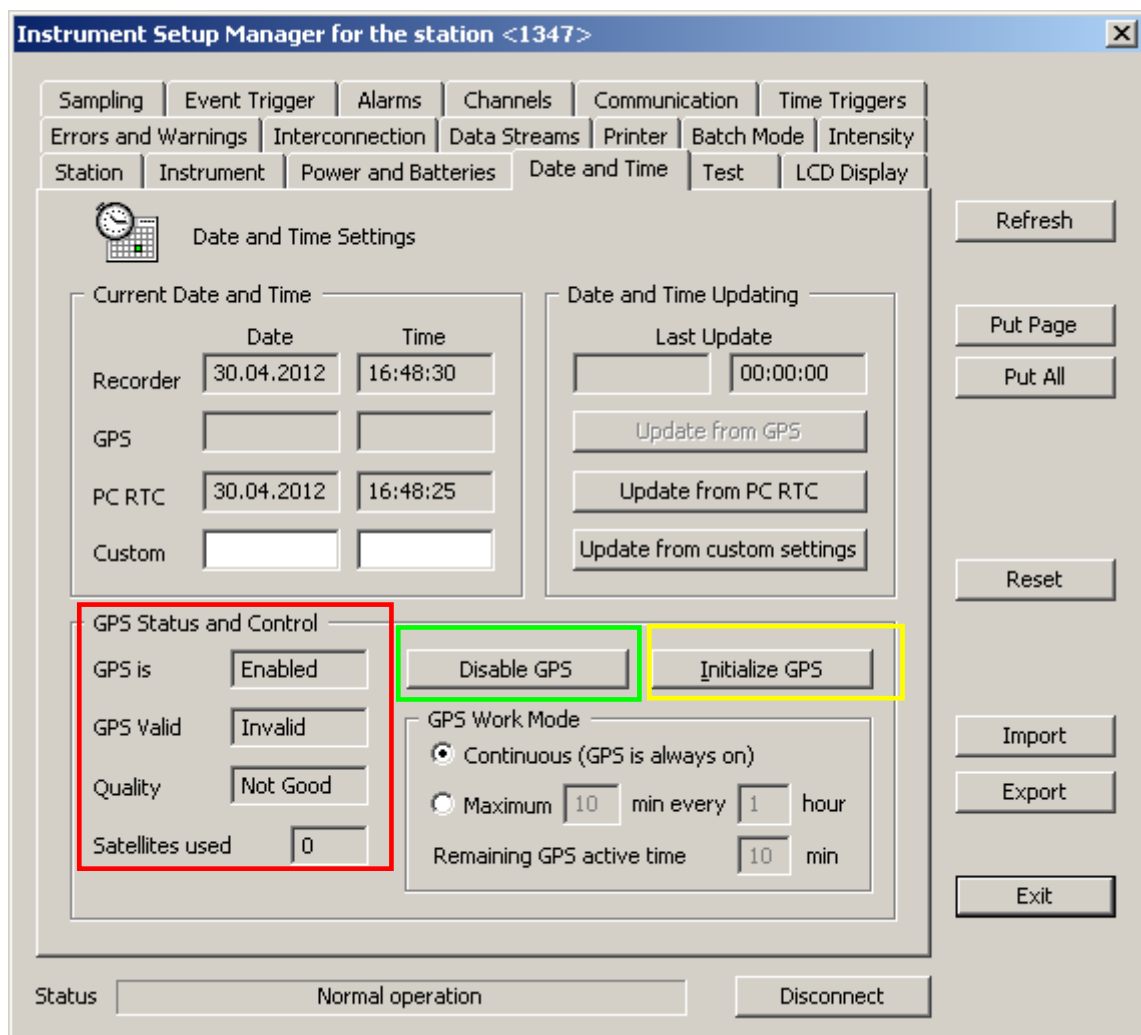


Fig 1. Example where GPS is enabled but no signal arrives

Check the status according to the below list and take the action if needed.

GPS Status and Control	good	not good	Action
GPS enabled	Enabled	Disabled	Enable GPS
GPS valid	Valid	Invalid	Make sure GPS is enabled and initialised
Quality	Good	Not good	Check position of the GPS (free view to sky)
Satellites used	at least 3	0 - 3	Same as under Quality

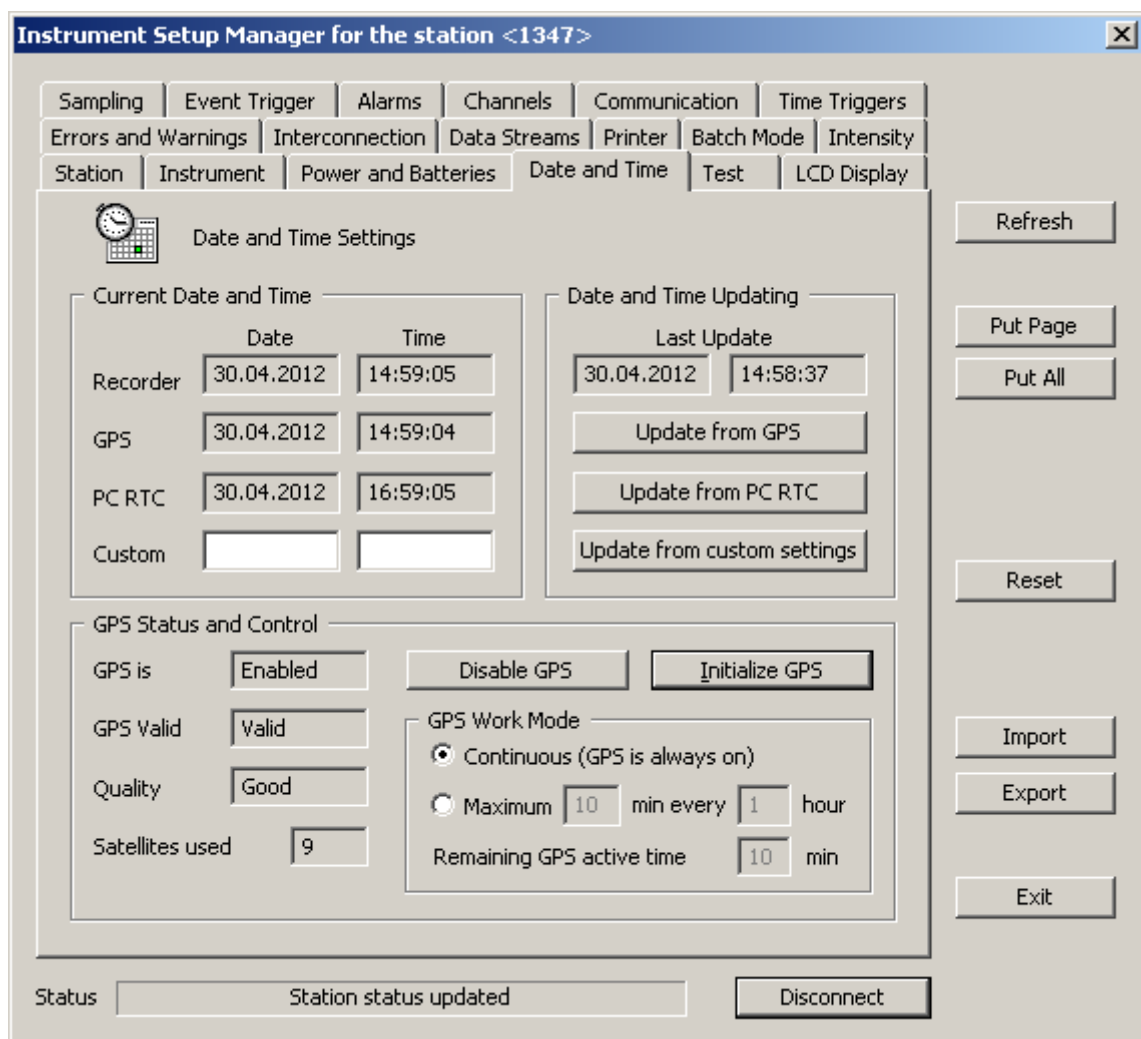


Fig 2. Example where GPS signal is good

## 5. Jumper settings in the GPS Box

There is the possibility to set a jumper inside the GPS to indicate different status.

### 5.1. GPS-RS485 (GXR-GPS-485)

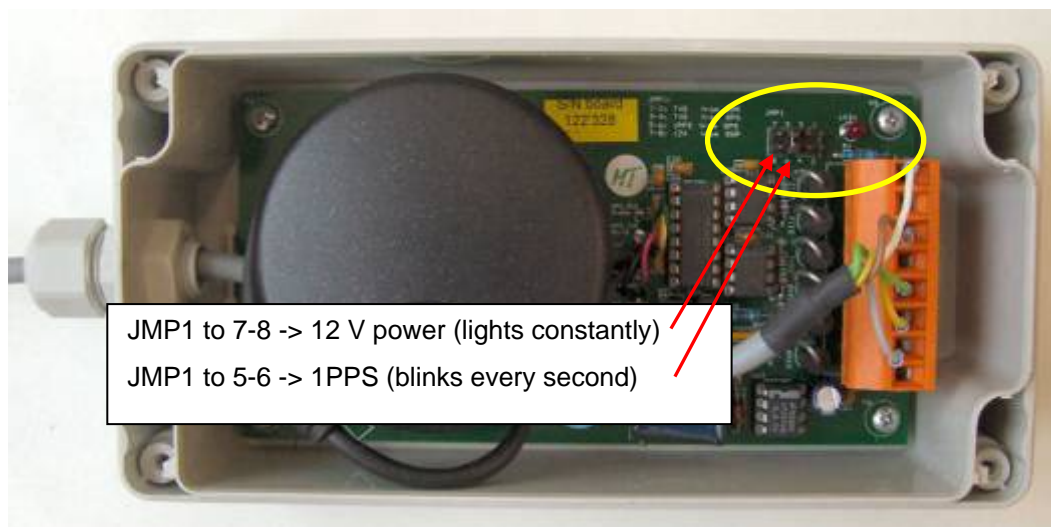


Fig 3. GPS-RS485

### 5.2. GPS-RS232 (GXR-GPS-BOX)

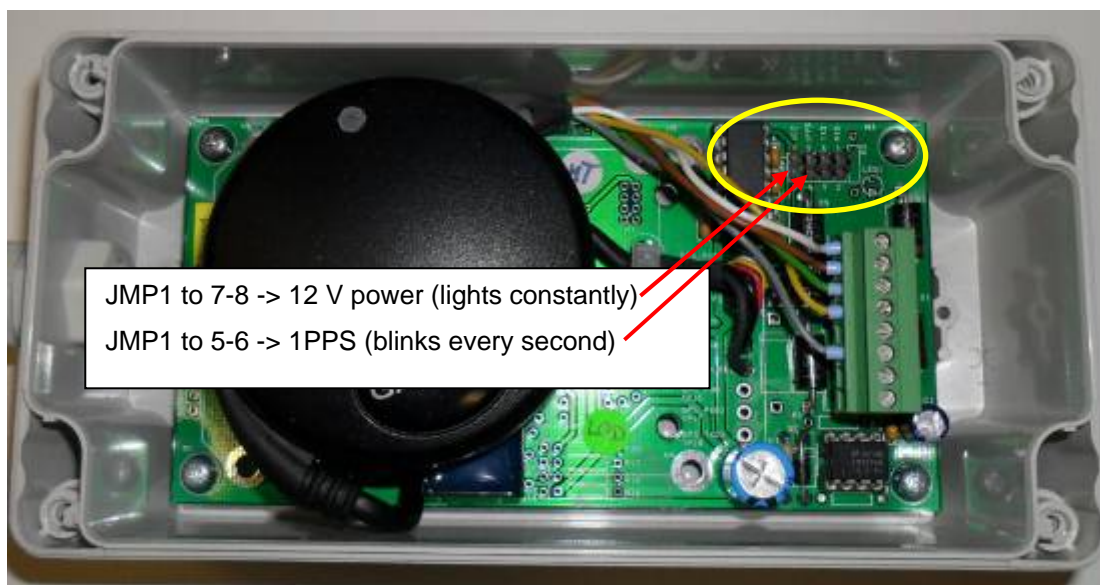


Fig 4. GPS-RS232 (GXR-GPS-BOX)