

# Quick Setup Manual for Wireless GSP station

Version: 1.0. (12-12-2015).

Download product documentation and the related software at:

<http://vfdstation.jimdo.com>

Or You can contact us via email:

[zjjszhangf@gmail.com](mailto:zjjszhangf@gmail.com)

433M Wireless  
GPS time Station



## Notice

The GPS antenna (receiver) will need to face upwards with a clear view of the sky to get a good signal. (If the GPS antenna faces with a full view of the sky, it will be perfect.)

Waterproofing is needed when you install the GPS antenna (receiver) outside constantly. Like using a plastic bottle cut in half or using plastic bag, etc., figure it out yourself.

Please remember to install the 433M wireless antenna before using.

## Specifications

Supply: 5V DC via USB;

Working Current:  $\leq 250\text{mA}$ ;

Size: 70mm(L) \* 56mm(W) \* 18mm(H)

PCB Size: 64mm \* 50mm;

PCB Color: Black;

Weight: ~64g;

Wireless Cover Range: 800m (\*In a open space. The range also depends on the antenna,

obstructions, interference, and the ability of receiver devices.)

GPS TTL speed: 4800bps.

**The item works with any standard USB supply, use high-quality adapter!**

## Features

- 1).5V **Mini-USB** powered, easy to be used. Can connect to your computer's USB plugs directly.
- 2).OLED display on board, can display all the information, easy to set and use.
- 3).433M digital wireless module with PA inside, can cover long distance.
- 4).Beautiful CAD designed **acrylic case** made using a laser cutter makes the station look beautiful. You can assemble/disassemble the case by using only 4 screws on the bottom of the case. The case also has 4 **bumpers** as feet on the bottom of the case in order to stop to prevent case's damage.

## Two buttons

It contains two buttons. When in [**Setup mode**], one is [SET] (Near the OLED panel) key, the other is [+] key; When in [**Normal Working Mode**] one is [**Page UP/Down**] (Near the OLED panel) function, the other is [**Sending**] function.

## Turn Power ON/OFF

The station has two working modes, one is [**Setup mode**], the other is [**Normal working Mode**];

When you plug the USB with power supply to the station, the station will turn on automatically, with OLED displays the information. Now it's the [**Normal Working Mode**]; If you keep pressing any button(s) down(with no USB power), then plug the USB power in, it will enter the [**Setup mode**], in this mode, you can setup parameters like Time Zone/Wireless Power etc.

## Setup the TIMEZONE and other parameters

Unplug the USB power first, keep press one button down, then you can plug the USB power, wait for the OLED displays the [SETUP info]:

- 1). Time Zone

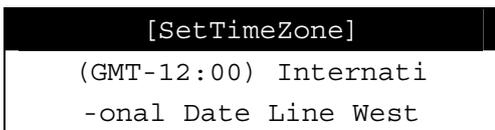
[1]	TimeZone: (GMT-12:00) Int -ernational Date Line West
-----	---

Then release the button. (Note: If you still keep pressing the [SET] button for few second ,it will trig the [Long click], then will enter the set mode; Or if the button is [+] ,it may switch to another parameters, it's normal).

In the [Setup mode], you can use [+] button to switch to display difference parameters ,if you want to change the parameters, you can long click the [SET] button, it will enter the [Set mode], which you can use [+] button to change the current parameter, after finish changing, click [SET] button can return back.

Like the Time Zone Setting part:

If the current Time Zone which displays on the screen does not fit, you can long click the [SET] button until it enter the [TimeZone Set Mode], it displays like:

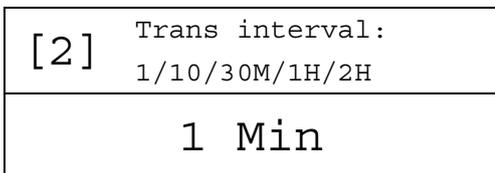


Then you can press the [+] button to change it to your Time Zone you need. It's a loop options, if you passed the right one, keep click the [+] button, it will loop back.

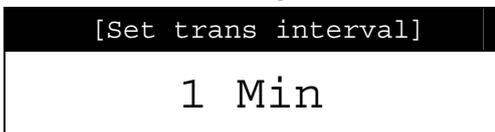
After you have select right Time Zone on the screen, you can single click the [Set] button back to the [TimeZone Display Mode];

### 2). Transmit Interval

You can set the wireless time signal auto sending time interval.

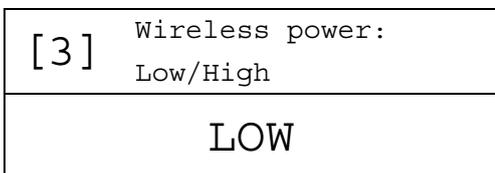


The options are : 1 minute; 10minutes; 30 minutes; 1hour; 2 hours. If you set to 1MIN which means the station will send the wireless time signal out per each 1 minute if the GPS time signal is valid at the time.



### 3). Wireless Power Level

You can set the wireless power level.



The options are : Low; High; If set to high, the station will turn the wireless sending AP on when sending the signal out, which means need more power and more tans distance.

[Set wireless Power]
LOW

4). Time delay compensation

You can set the Time delay compensation for the low speed device or to compensate the signal delay/processing delay/transmit/decode etc. delay.

[4] Time delay comp -ensation:
OFF

The options are: OFF; 100ms; 200ms; 300ms; 400ms; 500ms; 600ms; 700ms; 800ms; 900ms; Usually we recommend to set it to [OFF], which means when received the valid GPS time data then send it out immediately.

eg: If set to [200ms], it means between your time source (like GPS receiver) and the dst Clock finished decoding the wireless time signal needs 200ms time. So the time station's behavior is after received the time source like 18:00, it will delay for 1000ms-200ms=800ms, then send the time source+1s time (like 18:01) out via the wireless module to compensate the delay.

[Set compensation]
100ms

5). OLED display direction

You can set the OLED display direction.

[5] OLED Direction: Normal/Invert
NORMAL

The options are : Normal; Invert; If set to Invert, you can turn the station 180 degree to install it, depends on how you want to place the station.

[Set display Dir]
NORMAL

6). Version and copyright info

[Ver:] 1.x.
Copyright info

The options are : 00/01; if set to [01], then click the [SET] button, the station will reset itself then enter the normal working mode.

[Version info]
00

## Normal Working mode

After finished setting all the parameters, you can just unplug the USB power then re-plug the USB power(with no button pressed) to enter the [Normal Working Mode]. The screen will display the init information looks like:

Wireless Time Station [Ver 1.x] ----- Init cc1101...
---

If stopped in the [Init cc1101...] which means may have problem in init the CC1101 wireless module.

If all fine, and you have not plug the GPS receiver in, it will remind you:

Pls Plug the GPS in..
-----------------------

After you plug the GPS receiver in the 3.5mm socket, if all fine, the screen will start to display all the GPS time info, looks like:

2015-12-31 [01] 0115
12:03:15 VOID
.128
\$GPRMC,xxxxx,xxxx,xxxx

The first line on top shows the Date from the GPS, [01] means how many times the wireless time signal has been sent out, the number on the right side is the second count down to the next wireless sending time.

The middle part is the main time in HH:MM:SS.xxx format, always [UTC] time from the GPS receiver, the [VOID] on the right side means the current time is not valid. If the time is valid, the [VOID] part will became [UTC].

The bottom line is the current original NMEA date received from the GPS receiver. Normally when the sending time count down to 0 and current GPS time is valid, the station will send a wireless time signal automatically. If you want to send it by

hand, you can single click the [+] button(which is called [Sending button] in this mode), if the GPS time is valid, the wireless time signal will be sent out immediately.

If you click the [SET] button(which is called [PAGE UP/DOWN] in this mode), screen will turn to next page (click again will turn back), it may contains more info:

\$GPRMC,xxxxx,xxxx,xxxx			
Lat	0	Cor	0
Lon	0	Spd	0
TMZ	GMT+00:00	Alt	0

LAT=latitude;

Lon=longitude;

Cor=course;

Spd=speed;

Alt=altitude;

TMZ=timezone;

Those information is decoded from the NMEA string, for reference only.

**In [Normal Working Mode] if has no button clicking for a while, the station will turn the OLED screen into low brightness mode for saving the power and the screen life, it will be turn back to the normal brightness after click any button.**

## FAQ

Q1.

A:

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# The State Machine of Wireless GPS Time Station V1.0

