Operators Manual

**Vehicle Mounted
Cellular Connected
Weather and Status Monitor**

GEN4

www.vomax.com.au

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IMPORTANT INFORMATION for your Model 35

This instrument (Model 35) is designed to be a general productivity tool and is not a substitute for Government supplied data or data from certified instrument sources. This instrument has not been calibrated back to certified reference standards. It has been calibrated using methods and reference instruments that we believe to be of a practical accuracy.

In general this instrument is defaulted to either typical or worst case scenario values. Care should be taken to edit parameters to best suit your particular application.

"FDI" mean Fire Danger Index.

The default FDI values used are based on the 'Grassland" FDI formula.

If you need the "Forest" FDI formula change the selection from the App.

The following information should be maintained in the event that you require support from the manufacturer.

SERIAL NUMBER :

SOFTWARE VERSION : **V21p09**

BLUETOOTH ID :

User Name (email address):

 (Must be the email address you used to purchase the WeatherBox)

Password *(as selected by purchaser)* : _____

iPhone & Android App. name : **Gazeeka WeatherBox**

WeatherBox website : **via** **www.gazeeka.com.au/weatherbox/home.php**

Shipping Date **February** : **2023**

Android Gazeeka WeatherBox APP

https://play.google.com/store/apps/details?id=com.ccic.weatherbox

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iPhone Gazeeka WeatherBox APP

https://itunes.apple.com/au/app/gazeeka-weatherbox/id1305658724?mt=8

WeatherBox Home Page

www.gazeeka.com.au/weatherbox/home.php

WeatherBox Login/Register

www.gazeeka.com.au/weatherbox/login.php

QUICK START GUIDE

Congratulations on your purchase of a Gazeeka Gen4 WeatherBox – our most advanced weather monitoring and telematics system yet.

THIS QUICK START GUIDE IS NOT A SUBSTITUTE FOR READING THE MANUAL
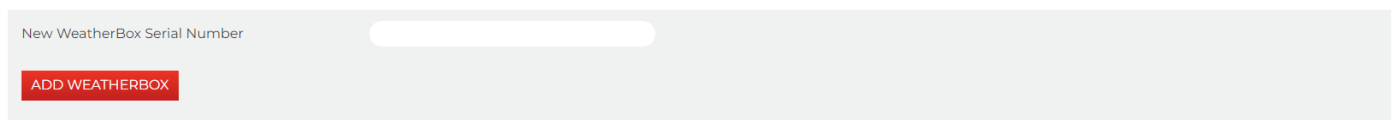
STEP 1: *(NEW CUSTOMER)* **CREATING ONLINE ACCOUNT AND REGISTERING WEATHERBOX**
If you are a new WeatherBox customer, you must first create your online account and register your new WeatherBox.

(EXISTING CUSTOMER) ADDING NEW WEATHERBOX
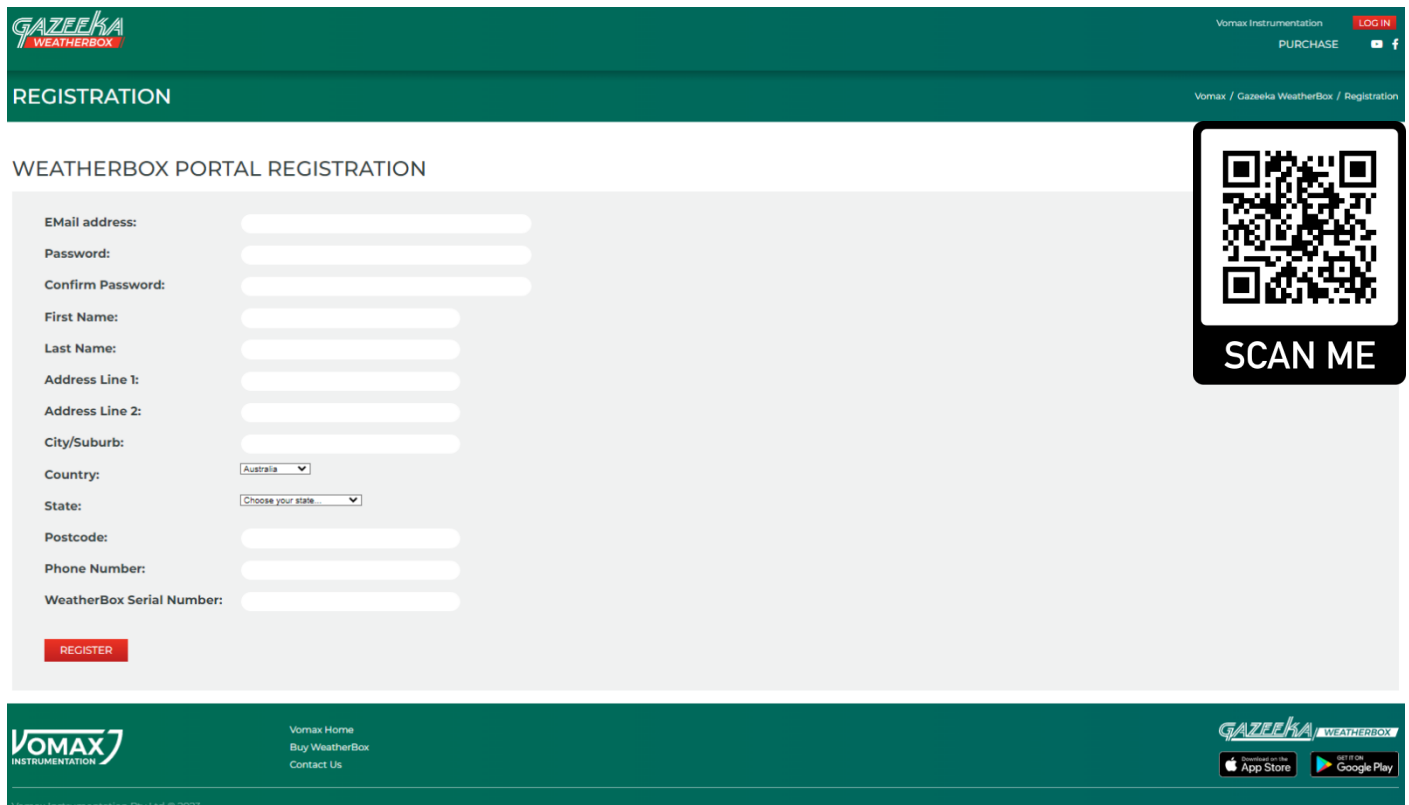
If you are an existing WeatherBox customer and already have an account setup and have purchased another WeatherBox, you don't need to go through the registration process. Simply login to your account and scroll to the bottom of the "Account" page to find "Add New WeatherBox", here you can enter your new WeatherBox serial number and add it to your account. Now go to **Step 2**.

Add New WeatherBox

New WeatherBox Serial Number

[ADD WEATHERBOX]

Web link: https://gazeeka.com.au/weatherbox/login.php

For **new customers**, scan the QR Code below and jump straight to the registration page to get started.

TIP: Your WeatherBox serial number is located on a sticker on the underside of the unit or the third page of this manual. When entering it into the "WeatherBox Serial Number" of the registration page (as displayed above), remember to include all characters e.g. 23-0000.

Web link: https://gazeeka.com.au/weatherbox/register.php

STEP 2: PAY SUBSCRIPTION

Once your WeatherBox has been registered to your account, the next step is to subscribe. This is done on the "Account" page under "Active WeatherBoxs" – as highlighted below.

When you click "Subscribe" you will then be directed to a PayPal payment portal, here you will be able to pay your subscription fee securely using your PayPal account.

TIP: This is also where you can name your WeatherBox. Just type your preferred name into the "Name/Location" field and press update.

If you are renewing a subscription for an expired WeatherBox, this is done in the exact same spot. If the subscription is still valid or expired, a "Renew" button will be visible. This will once more direct you to a PayPal payment portal where you can securely renew your subscription using your PayPal account.

STEP 3: DOWNLOAD WEATHERBOX APP

Download the WeatherBox mobile app using the QR Codes below and login using your account credentials previously created on the portal.

TIP: Select the "Setup" (gear icon) and scroll to the bottom of the list and select "Save Login Details" to prevent having to login every time you want to access the app.

STEP 4: POWER UP

Your WeatherBox is now ready to use. Correctly power up the unit and you are ready to go. **Please note:** it may take up to an hour for the WeatherBox to connect to the server and begin logging weather data.

1.   Introduction

1.1   *System Components*

The Gazeeka Weather-Box consist of the following components:

- *Operator's manual*

- *Sensor Module*

Swivel mount

- Power Cables (Standard supply)

035-E01-R00   035-E03-R00

- Other Power Cables (Options as ordered)

1.2   *How it Works*

The Weather-Box has a number of sensors as follows:

Measurements
- ► Temperature and Relative Humidity
- ► Wind Speed   (corrected for vehicle movement < 20 km/h*).
- ► Wind Direction   (corrected for vehicle movement < 20 km/h*).
- ► Barometric Pressure
- ► GPS Location.
- ► Movement detection.
- ► Slope.
- ► Orientation (reference to magnetic North).
- ► Battery voltage level.
- ► Tipping rain gauge input for stationary applications.
- ► Optional Solar Radiation (Pyranometer) sensor

* No correction when in Static Installation use.

* The wind speed is a 10-minute average of the one second samples (one-minute samples in "Low" mode). For instance, in an extreme example, if the wind is North for 5 minutes, then South for 5 minutes, the average is zero. We use the average vectors because that is typically how the weather bureaus calculate wind speed and is generally regarded as best practice.

Calculations
- ► Fire Danger Index **FDI**** (Grassland- GFDI or Forest FFDI)
- ► **Dew Point**
- ► **Delta T** for spraying. (The difference between the dry bulb temperature and the calculated wet bulb temperature).

** The FDI is set to zero if the vehicle movement is greater than 20 km/h

Inputs
- ► Fuel load   (GFDI only) 0 to 50 Tons/Ha - default 10
- ► Degree of grassland curing (GFDI only) 0 to 100% - default 100
- ► Drought Factor   (**F**FDI only) 0 to 10 - default 10

Installation type	From the WeatherBox App, two modes of use can be chosen. **Mobile Installation** for using on mobile machinery and **Static Installation** for static use like being in a field on battery/PV cell power.
	Note: For best temperature and humidity accuracy, (especially for DeltaT) the instrument should be in the shade.
Operation	An annual subscription allows the data to be sent to a server via a cellular data link. The data is then made available via an App (iPhone or Android) using a User name and Password.

App Features
- ♦ Set up Alerts
- ♦ Display current Status
- ♦ Input local settings
- ♦ Retrieve historical data
- ♦ Display location
- ♦ Setup account
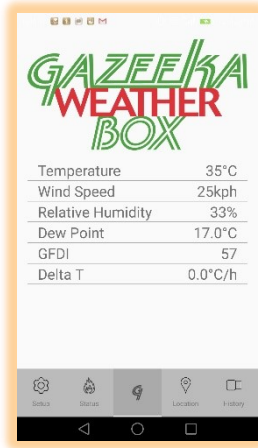
The Weather-Box is supplied with a cellular phone data SIM card. This includes the following:

- A unique ID number for the cellular modem in the Weather-Box instrument. This number is called the **IMEI (International Mobile Equipment Identity)** and is a unique 15-digit serial number given to every cellular device which can then be used to check information such as the phone's Country of Origin, the Manufacturer and its Model Number.

- Unique SIM card number

When you purchase a Weather-Box you will need to pay the first of an annual fee (subscription) which will activate your SIM card and commence collecting data and sending it to the Weather-Box data base ready to resend to you cell phone APP. (Allow about 2 working days for activation after paying the subscription).

An activated SIM card will automatically send data to the Weather-Box data base on the Gazeeka web site when powered up.

To Activate First Register your WeatherBox on the Gazeeka website login page

After registration login and access the Account Tab and select Subscribe to activate your ID Number in Active WeatherBox area (see Appendix B for more detail)

Download the Weather-Box app for your iPhone or Android phone via APP Store or Google Play.

Starting the Weather-Box App will then ask for a Weather-Box ID and a password.

You can then access all the data for your Weather-Box via the Weather-Box App.

Note that no data is held in the phone. In this way if the phone is lost or changed over no data is lost.

The Weather-Box data base will hold at least a year's worth of data which can be accessed at any time.

The WeatherBox App or an email will tell you when you need to renew your subscription.

1.3   Using the Smart Phone App.

1.3.1   Default Settings and Alerts`

1. To change Situation Settings, Notifications and Custom Alerts, both the WeatherBox instrument and the mobile phone operating the APP must be connected to the mobile cellular network. Changes may take up to two 10 minutes cycles to update.

2. Connection to the WeatherBox via Bluetooth will enable the mobile phone APP to update at 30 second intervals.
    Note: Changes made to Settings, Notification and Custom Alerts will not be saved while using the Bluetooth connection. This must be done via the cellular network.

3. When changing values in the WeatherBox APP, navigate out of the Settings Screen for these values to be retained.
    Note: These changes will not be retained if the Gazeeka WeatherBox APP does not have access to an Active Mobile Network or Wi-Fi Network on your Mobile Phone.

1.3.2   Bluetooth Connection.

1. To connect via Bluetooth first check if this is "ON" in the WeatherBox APP. To check this, go to the "Setup" tab at the bottom left in the APP, "Connections, Bluetooth Connection" this will take 10min to update and activate the Bluetooth feature.

2. Pair the new Bluetooth device with your mobile phone. The WeatherBox Bluetooth ID name will look similar to RN4678-94CD and will be documented in the front of this user manual.

2.1 Android Device: pairing the device is required first before accessing the WeatherBox APP (see settings/connections/Bluetooth, scan and add device). Now open the APP and select the "Bluetooth Connection" to access live data.

2.2 iPhone: Open the WeatherBox APP, Select Bluetooth Connection and the APP will scan for devices, select Bluetooth to access live data.

> **Note:** Some features of the APP will be unavailable or partially inactive because some of the calculations are done in the WeatherBox Server ("The Cloud"), not in the WeatherBox instrument.

3. If the Mobile Network is lost or out of range the Bluetooth will automatically switch on even if set to off within the APP. This is done so that access can still be obtained using your phone's Bluetooth connection if the Mobile Network is lost or out of range.

1.3.3   Logging in and out of the APP.

1. Log into the WeatherBox APP with your User Name (Email Address) and the password you have chosen when registering this device, then select LOGIN

2. To log out of the APP go to the Setup Tab, scroll to the bottom of the APP and select Sign Out, this will save your battery power.
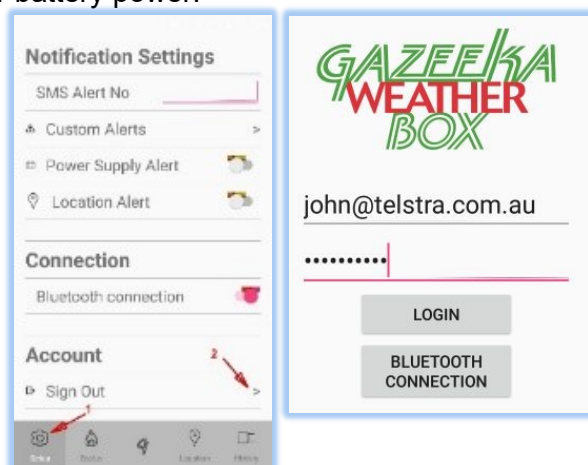
1.4   Using the Data provided by your Weather-Box.
Understanding the limitations of the readings.
Some of these points are reasonably obvious, but are documented here to clear up any misunderstanding:

- *Accuracy.* – All instruments have tolerances on their accuracy. The Weather-Box is no different. When using the data provided by the Weather-Box you need to keep in mind the tolerances of the data being provided. The data needs to be assessed using the information in the specifications section of this document.

- *Wind speed.* – Wind speed is one of the inputs into the calculation of the Fire Danger Index (FDI). The speed and direction of the vehicle determined by the GPS is added to the measured wind speed and direction (The two vectors and added together) to give the true wind speed and direction and NOT the relative wind speed and directions caused by the vehicle movement.

  Note that the vehicle movement correction only applies when the WeatherBox is in Mobile Use mode and at vehicle speeds of less than 20 Kilometers per Hour.

  However, to obtain the most accurate FDI reading one should stay stationary for a little over 10 minutes. The FDI formula used by the Weather Bureau's defines the wind speed as a ten-minute average.

Indemnity 1

Vomax Instrumentation Pty. Ltd. (the company which sells the Gazeeka brand) shall not be responsible for any consequential damage cause by the use of the Weather-Box. The Weather-Box instrument is an extra tool which should assist the operator in assessing and controlling the operational status of whatever work is being done.

The values provided by the instrument should not be used to determine contractual or custody transfer issues. *These issues should be determined by certified methods or instruments to national or international standards.*

1.5   Terms and Conditions of Sale

This instrument has been sold under the Vomax Instrumentation Terms and Conditions of Sale (Contract). These Terms and Conditions of Sale are available on the Gazeeka and Vomax Instrumentation web sites (www.gazeeka.com.au and www.vomax.com.au). Warranty period is typically 12 months from delivery.

Vomax Instrumentation pays a telecom company (typically Telstra) to provide the communications with the WeatherBox via the Cellular network. Whilst all due care is taken by Vomax Instrumentation to choose a provider and a plan to best suit the WeatherBox, the quality of the Cellular network connection and data transfer is the responsibility of the telecom provider and as such is out of the reasonable control of Vomax Instrumentation.

1.6   Data sharing

A number of public organizations have expressed an interest in obtaining the weather data from Gazeeka WeatherBox units for analysis. Such bodies include the Bureau of Meteorology, country fire services and some agricultural research bodies. We would like to allow these bodies to have access to this data for the common good of society. This will NOT include private companies such as insurance companies or agronomy companies. Also, we would also like to eventually produce an Australian map with each WeatherBox "pinned" on it so that ONLY people who have purchase a WeatherBox can see the current data (not historical) on other active Weather Boxes.
This is an opt Out arrangement.
If you don't want to share your data with these organizations, please email your request to opt out to sales@gazeeka.com.au with your name, and serial number of the Instrument and make sure you get a return receipt and save it.

2.   Installation

2.1   *General*

Try to install the WeatherBox instrument in a position that is likely to minimise interference to the WeatherBox sensors, especially the wind and temperature sensors.

An installation which is properly carried out and takes into account all of the issues raised in this manual will minimise any risk that the readings obtained from the Gazeeka WeatherBox will be erroneous.

Other than the specific issues raised in this chapter, the general issues of good installation practice and common sense still apply if the best results are to be obtained.

General items not supplied by Gazeeka.

Gazeeka's normal supply does not include the following:

- Electrical Noise filters or isolation that may be required on the vehicle.

- Lightening protection.

Transport

It is recommended that you retain the box that the WeatherBox came in so that your WeatherBox can be easily and safely transported when required.

Indemnity 2

The Gazeeka Weather-Box has been designed to withstand reasonable levels of normal electrical "noise"; however, warranty does not cover any damage cause by electrical noise which may include electrostatic discharge, lightning strike, load dumping (disconnecting the battery whilst the alternator is still charging), welding etc. Neither Gazeeka or Vomax shall not be responsible for any consequential damage cause by the use of the Weather-Box.

2.2   *Installation*

1. Unpack the box of Weather-Box components and read the manual.

2. Via the Internet download the Weather-Box App from the iTunes store or Play-Store depending on your type of phone (iPhone or Android).

3. Install the WeatherBox in its preferred location.

4. Connect the WeatherBox module to an automotive 12Volt power supply. Note that the 12V power source should be direct to the battery (a non-switched supply). The WeatherBox is supplied with an unterminated lead. Alternative optional power leads are available such as a John Deere part no. RE67013, "D" type connectors for AGCO tractors or AMP type connectors for Case tractors etc.

5. Via the Internet, go to the **www.gazeeka.com.au/weatherbox/home.php** web site and register your Instrument. Your user name will be the email address used to purchase the ID number for your device.

6. Whilst on the WeatherBox website, pay the first of the annual subscription fees. Once this payment is accepted, the process of making your Weather-Box live on the cellular network will commence. Note this may take a few working days.

7. If you have cellular coverage and the SIM card has been activated, new data should appear on your phone App within 15 minutes or so.

2.3   *Environmental Considerations*

Refer to the Typical Specifications section in this manual.

2.4 Licensing Issues

The Weather-Box uses a standard cellular phone radio frequency connection such that licensing is not required.

3. Operation

3.1 General Information

The original Fire Danger Index (FDI) was developed by McArthur in the CSIRO in the 1960's for forest fires. Since then, it has been modified by various scientific and regulatory bodies and now includes a Grassland version on the FDI.

The "Fuel Loading" and degree of "Curing" are our own estimates of these values for baling and harvesting times. Note that the accuracy of these values has less influence on the FDI calculations than wind speed (most critical variable), or humidity (next most critical) during the baling and harvesting season.

Please note that for accuracy, anemometers are typically set a 10metres above ground and in an area of clear terrain. Thus, when using the data from the WeatherBox, the lack of reference positioning (especially when used in mobile mode) needs to be taken into account.

3.2 Modes at different battery voltages

3.2.1 Mobile Installation use

This type of use assumes your WeatherBox is mounted on a mobile machine or vehicle and will operate in various operational modes depending on the battery voltage level. There are three voltage levels involved in the decision-making process as follows:

> Vrun   (Default 13 Volts)
>
> Vlow   (Default 12.2 volts)
>
> Vflat   (default 12.0 volts)

In "Run" mode (the battery voltage is greater than Vrun) the WeatherBox makes full use of the power available. The Bluetooth is operational and it takes many GPS reading a minute and talks over the cellular network to the WeatherBox server.

In "Remote" mode (the battery voltage is between Vrun and Vlow) the system assumes the battery is not being changed. It assumes the WeatherBox is not moving and it takes just one data point per minute and goes into a "sleep" mode in between readings to save power. The GPS is read only the once for each 10-minute data transmission.

In "Low" mode (the battery voltage is between Vlow and Vflat) the system assumes the battery is getting low in energy reserves.

If enabled, a push notification will be an alert to indicate this mode has been reached.

After each 10-minute reading, it goes to sleep and wakes up after 10 minutes to take another reading (including battery voltage). Bluetooth is disabled, GPS is not used and latitude and longitude are set to 0,0.

In "flat" mode (the battery voltage is less than Vflat). The first time the voltage is detected to be below Vflat for a minute, the WeatherBox goes permanently to sleep. Only power off then on again wakes the system up.

3.2.2 Static Installation use

This type of use assumes your WeatherBox is mounted in a fixed (stationary) position in the field operating from a battery (possibly with a solar cell charger). Since the WeatherBox is not being used in a moving situation, the "run mode" is not used, thus saving power. Furthermore, the voltage levels for each mode transition are different. However, to configure the WeatherBox for a Static Installation, you will need to change the Use mode from Mobile to Static in your WeatherBox App. The Mobile Installation use is the factory default when purchased.

There are three voltage levels involved in the decision-making process in the Static Installation use as follows:

V run   (Default 12 Volts)

V low   (Default 11.5 volts)

V flat   (default 11.0 volts)

The operational modes at the various voltage levels is the same as described in the Mobile Installation use above, except the run mode is now the same as the remote mode.

3.2.2 LED activity meaning

Underneath the WeatherBox instrument is a red activity LED. Between off periods, this LED will flash a number of times to indicate what operational mode the WeatherBox is in. Below is a list of the meanings for the number of flashes.

1 flash   – Run Mode

2 flashes   – Remote Mode

3 flashes   – Battery low mode

6 flashes   – SIM not activated or WeatherBox Subscription not valid.
                        (Contact Gazeeka 08 8297 0000).

Off   – In very low power sleep mode.
                        (Will require to be turned fully off then on again to start).

3.3 Using the Weather-Box App.

An annual subscription allows the data to be sent to a server ("The Cloud") via a cellular data link. The data is then made available via an App (iPhone or Android) using a Username and Password. The main features of the App are as follows:

- ♦ Set up Alerts
- ♦ Display current Status
- ♦ Input local settings
- ♦ Retrieve historical data
- ♦ Display location
- ♦ Setup account
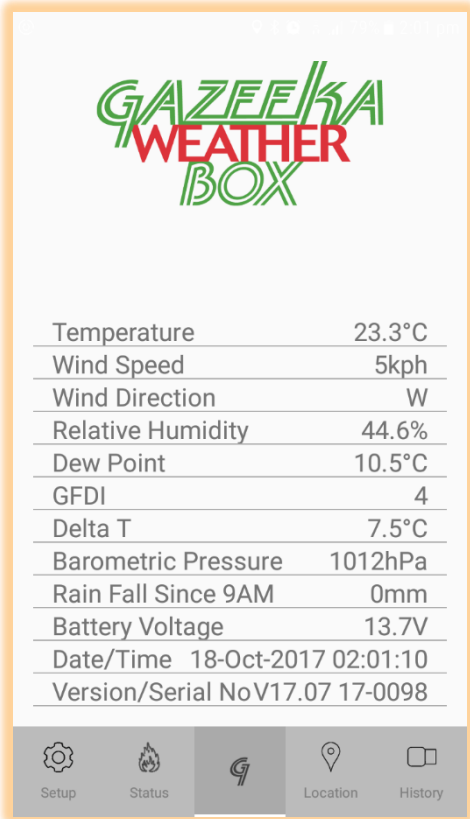
Home Page (Android)   Status Page (iPhone)

Home Page
> This page provides you with a current list of the sensor readings and calculated values.

Status Page
> This page provides you with the typical fire danger index graphic.

Location Page
> This page provides you with the current location of the Weather-Box.
> - Location in Map or Satellite view.
> - Distance from the phone (if location is turned on in your phone)
> - Speed of the Weather-Box instrument.

History Page
> This page provides you with a date-based data storage of the Weather-Box data broken down in timed intervals. The data is stored for at least 12 months.

Setup Page
> This page provides you with the facilities to do the following:
> - Go into your account and renew your subscription.
> - Edit some of the variables used in the FDI calculations (Fuel load and Curing).
> - Set up notifications and alerts that sends push notifications via the app to you based on the settings you have provided.

3.4 Alarm Conditions

All alarm conditions are raised via push notification on the cellular phone App, but only when the conditions for such alarms and or notifications have been set by the end user via the WeatherBox App.

Note that an alarm is raised when a parameter goes past a set point you have set. (Goes above a maximum set point, or below a minimum set point).

No new alarm will be sent unless the parameter drops out of the alarm region and then goes back into the alarm region again.

3.5 Downloading Data

For this task, a computer rather than a phone is recommended.

The historical data is available as a CSV (Comma Separated Variables) file from the WeatherBox data base after you have logged on to your instrument. This can be downloaded and inserted into an Excel Spreadsheet or a specific program written for the task as an aid for agronomists. We only make the data available. We are not involved in the methods of displaying or using the data.

This data can be accessed via the account tab after logging into the WeatherBox page
http://www.gazeeka.com.au/weatherbox/login.php

3.6 General Operational Notes

The GFDI or FFDI (whichever is being used) is forced to zero if the GPS indicates that the vehicle is moving at 20 KPH or above.

The wind speed is the dominant factor in the two FDI calculations.

At higher vehicle speeds the anemometer and wind vane position (apparent wind vector) may not be accurate enough for a GPS vehicle movement vector correction to be accurate enough for a reliable FDI calculation.

3.7 Saving Login details

Sick of typing in your email address and password each time you want to login?
Go to the Setup page and scroll to the bottom.
Set the "Save Login Details" to on.

4. Safety Considerations

The Weather-Box is an emitter of electromagnetic radiation in the same way as a cellular phone is and the same safety precautions should be taken as you would with a cellular (mobile) phone.

The Weather-Box uses a Telstra connection and information about safety when using mobile phones can be found on their web site as below:

www.telstra.com.au/consumer-advice/eme/mobile-phones

In windy conditions, the anemometer may rotate rapidly and although it is light may gain enough rotary inertia to cause damage to fingers or other body parts put in its path. Keep all body parts away from the anemometer and wind wave (sharp parts) at all times.

5. Compliance issues

IMPORTANT NOTE.
To ensure that the instrument maintains its electromagnetic compatibility and electrical safety rating, the physical and electrical arrangements and component choice must remain as the instrument was supplied. All interfacing to the instrument must be carried out as per the drawings supplied in this manual.

Safety Compliance

This instrument has been designed to meet standards for electrical safety relevant to its intended application and use in accordance with the information in this Manual.

Environmental Protection Compliance (IP / NEMA rating)

This instrument has been designed to meet standards for environmental protection relevant to its intended application and use in accordance with the information in this Manual

6. Maintenance Procedures

Subscription
Renew the annual subscription which covers cellular connection and data management.

Anemometer, Temperature, RH, and other Sensors
These sensors should need no maintenance. It is highly likely that failure to perform will only be resolved by replacement with new parts.

6.1 *Calibration.*

The majority of sensor in the WeatherBox instrument are micro electronic sensors such as the sensors to measure barometric pressure, temperature, humidity, global position, and radiation. The calibration of these sensors is done by the sensor manufacturer. The only parts that are reasonably likely to incur wear and effect accuracy are the bearings in the anemometer (wind speed sensor).

Comparisons with other measuring methods
The formula used by the Weather-Box to determine the Grassland Fire Danger Index (grassland FDI) is the same as is used by the various state Bureaus of Meteorology.
Note the local weather conditions may vary considerably from the locations that the Bureau of meteorology is getting their information from, which means the FDI value may be considerably different.
Calibration of the anemometer

Note the WeatherBox may be in either Mobile of Static mode to do this test.

The anemometer can be calibrated using the following conditions with the WeatherBox fixed above the roof of your mobile vehicle.

    a) Must be done on a still day (no wind movement).

b) Vehicle must be travelling in a straight line.

c) Vehicle must be travelling at a constant speed.

d) The constant speed can be anywhere between 20 and 100 Km/hr.

Login to your WeatherBox APP using the **Bluetooth option**.

When the above conditions are met, press **Calibrate**.

10 seconds later you should receive a message **Calibrated**.

If the new calibration is too far from the expected value, you will receive one of two messages:

"**Speed Error**", and calibration will reset to the factory default.
(The measured GPS speed is too different from the measured wind speed). Maybe this is not a still day.

"**Calibration Out of Range**", and the calibration will reset to the factory default.
(The calibration coefficient is unrealistically different from the factory calibration).

6.2   Electrical Connections.

WEATHERBOX IN/OUT CONNECTOR
CONNECTOR TYPE TE 1-776262-1

Version 170511

PIN No.	FUNCTION
1	POWER IN +12V
2	RS422 A. Tx- /RS485-
3	RS422 A. Tx+ / RS485+
4	RS422 B. Tx- /RS485-
5	RS422 B. Tx+ / RS485+
6	RS422 A. Rx-
7	RS422 A. Rx+
8	RS422 B. Rx-
9	RS422 B. Rx+
10	GROUND
11	CAN L
12	CAN H
13	TIP RAIN (reed SW)
14	TIP RAIN (reed SW 0V)

6.3   Software Upgrades.

WeatherBox Software Upgrade via the Cellular Network.

If a Software Upgrade is available, then an SMS will be sent to your phone informing you that it is ready to download.

The new software will reside in the WeatherBox server ("The Cloud") and will only be downloaded to your WeatherBox instrument when you tell it to via the WeatherBox Bluetooth link.

1. Make sure your WeatherBox and phone have been switched on and connected to receive data into your Gazeeka WeatherBox APP via the Internet.

2. Logout of your APP **and turn off your Phone WiFi and Mobile Data**, then re-open the Gazeeka WeatherBox APP again but connect to the WeatherBox via the Bluetooth connection. You should then see a Message notifying a new Software version is available (See Image).

3. Click YES to update the software version. This will take a few minutes, the LED under the WeatherBox will flash rapidly while the update is in progress.

<u>**Important Notes:**</u>

DO NOT remove power from the phone or WeatherBox while the software is updating".

DO NOT connect to the WeatherBox via the Cellular Network while the software is updating.

DO NOT start Step 2 until directly after a data upload (date/time stamp on the home screen of the WeatherBox app is within 3 minutes of the current time)

Failure to observe the above notes will result in a partial software update and the only way to fix this is to return the WeatherBox to the factory.
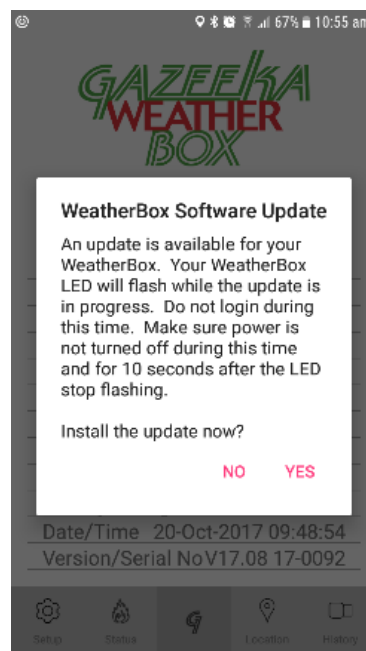
7. Typical Specifications [1]

PARAMETER	UNITS	VALUE
Operational		
Temperature	Degrees Celsius	+/- 2.0 (30 seconds)
Relative Humidity	Percent	+/- 3.0 (8 seconds)
GPS accuracy	Metres	+/- 2.5 (approximately)
GPS response time	seconds (cold start)	32
Wind speed Minimum *	Metres / second (km/h)	0.7 (2.0)
Wind speed Maximum *	Metres / second (km/h)	70 (250)
Wind speed accuracy *	Metres / second (km/h)	+/- 1 (4) (from 10 to 50 km/h)

* Wind speed is an average vector for 10 minutes (See how it works section of the manual)

Calculated		
Dew Point	Degrees Celsius	+/- 2
Fire Danger Index (FDI)	No dimensions	Based on parameter inputs

Note: The accuracy of the FDI cannot be guaranteed on a moving vehicle, even if the system uses the relative wind vector and vehicle movement vector from the GPS signal to calculate the true wind speed.

Environmental		
Protection	Successfully tested in hay baling conditions.	
Temperature	degrees Celsius	0 to 45 (32-115^{0}F)

Power (Mobile Mode - typical)		
Voltage	Volts	12.0 to 13.8
Current (Run mode 13.8V)	milli-amps	70 mA Average
Current (Run Mode 13.8V)	milli-amps	115mA when transmitting
Current (Low mode 12.5V)	milli-amps	50 mA Average
Current (Low mode 12.5V)	milli-amps	111mA when transmitting
Current (flat mode 12.0V)	milli-amps	22mA Average (No TX)
Maximum disconnect voltage	Volts	30V (load dumping)
		(for 500 milli seconds)

(No protection is provided for lightning strikes, welding, excessive electrical noise etc.)

Specifications subject to change without notice.

[1] These are typical performance specifications for an ideal site, and may differ from any contractual agreement.

Appendix A – Data Limits

Limits for the display and editing of the smart phone app parameters

PARAMETER	MIN	MAX	Int / DP's
Temperature	-20.0	55.0	1dp
Wind Speed	5	200	INTEGER
Wind direction			
Relative Humidity	0.0	100.0	1dp
Dew Point	0.0	100.0	1dp
GFDI	0	120	INTEGER
FFDI	0	120	INTEGER
Delta T	0.0	50.0	1dp
Barometric pressure	900	1100	INTEGER
Battery Voltage	10.0	14.0	1dp
Fuel Load	0	50	INTEGER
Curing	0	100	INTEGER
Drought Factor (FFDI)	0.0	10.0	1dp
FDI Initial Alert	10	40	INTEGER
Temperature High	0.0	55.0	1dp
Temperature Low	-20.0	30	1dp
Wind High	10	100	INTEGER
Wind Low	5	50	INTEGER
RH High	10.0	100.0	1dp
RH Low	0.0	50.0	1dp
Battery Running	12.0	14.0	1dp
Battery Low	11.5	13.0	1dp
Battery Flat	10.0	12.5	1dp

Appendix B – Subscription Renewal/Advice

PLEASE NOTE: Vomax Instrumentation is paying AT&T for the SIM card and server use, even if you have not renewed your subscription. Thus, if you renew your subscription late, then that subscription only covers the remaining time in that annual subscription period, not a full year.

Your SIM will be cancelled if a subscription is not purchased/renewed within 7 months of purchase/subscription expiry. The unit will need to be returned and reactivated at the factory, at your expense. We approximate the total cost of the renewal to be $490.00 + GST (if applicable), which includes your 12-month subscription fee, which must be paid before the unit is returned to you.

To renew your WeatherBox subscription(s), login to your account via the WeatherBox portal. This can be accessed by visiting the Vomax website (www.vomax.com.au), clicking the yellow "Login" button at the top right of the page and then scrolling down and selecting WeatherBox Login "GO" (or scanning the QR code below).

(https://gazeeka.com.au/weatherbox/login.php)

Once logged in using your email address and password, under the "Account" heading you'll see "Active WeatherBox(s)" - as highlighted below. If the subscription is still valid or expired, a "Renew" button will be visible. When clicked, you will be directed to a PayPal payment portal where you can securely renew your subscription using your PayPal account.

TIP: This is also where you can name your WeatherBox. Just type your preferred name into the "Name/Location" field and press update.
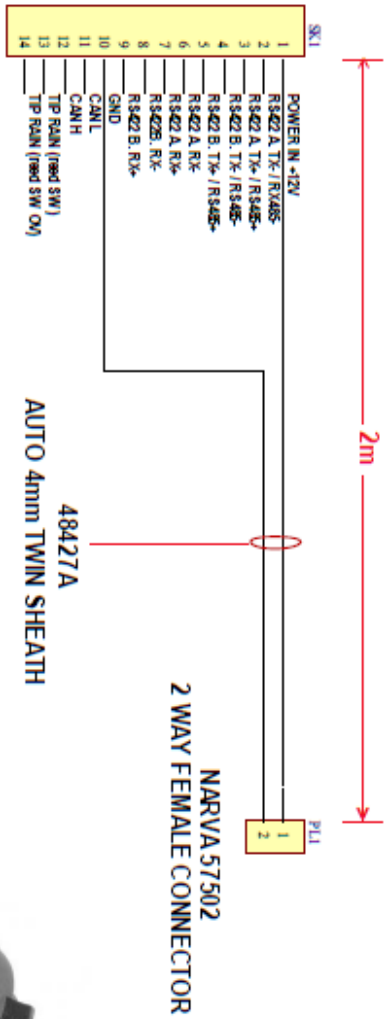
Appendix C – Standard Terms and Conditions

STANDARD TERMS AND CONDITIONS OF CONTRACT
Vomax Instrumentation Pty. Ltd (ABN 30 123 874 831)

Refer to the current Terms and Conditions on the web site: www.vomax.com.au

Appendix D – Interface cable.

AMPSEAL 776273-1
PLUG & SOCKET HOUSING

AMPSEAL 770854-1
CONTACT RECEPTACLE

SK.1	
1	POWER IN +12V
2	RS422 A.TX- / RX485-
3	RS422 A.TX+ / RS485+
4	RS422 B.TX+ / RS485-
5	RS422 B.TX- / RS485+
6	RS422 A.RX+
7	RS422 A.RX-
8	RS422 B.RX+
9	RS422 B.RX-
10	GND
11	CAN L
12	CAN H
13	TIP RAIN (reed SW)
14	TIP RAIN (reed SW 0v)

2m

48427A
AUTO 4mm TWIN SHEATH

NARVA 57502
2 WAY FEMALE CONNECTOR

PL1	
1	
2	

Title	WEATHERBOX IN/OUT CONNECTOR		
Size	Number		Revision
A4	035-E01-R00		R0