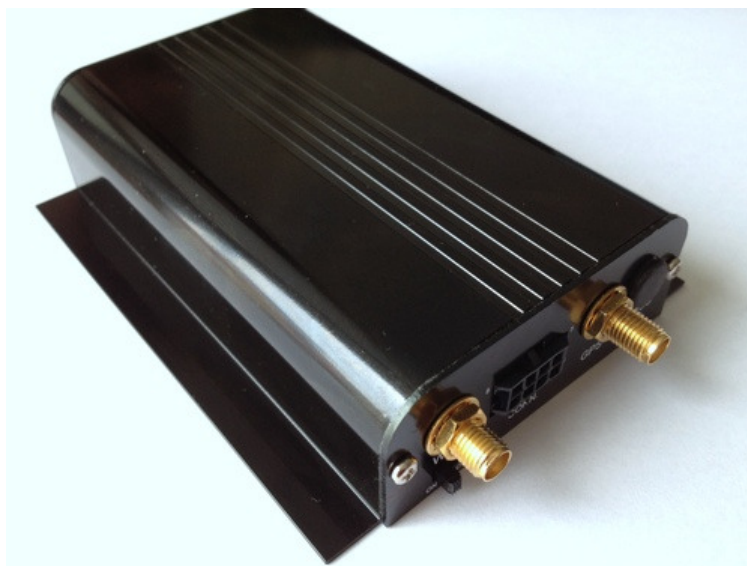


WLAN/GPS

Automatic Vehicle Locator



VT-1052W

Data Sheet

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Version History

Date	Version	Description of change	Author
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1. Introduction

UniTraQ's next generation AVL, VT-1052W, is a versatile and economical platform for GPS and WLAN positioning applications. It integrates UniTraQ GPS module with WiFi wireless interface network communication module and powerful microcontroller all onto a single board. The VT-1052W provides economic and high-speed link functionality by WLAN interfaces. It is enclosed in a solid casing for easy installation. Many applications request high bandwidth can be implemented by this new generation AVL tracking device.

The VT-1052W can, based on WLAN and GPS satellite positioning system, track far-way objects conveniently by internet. VT-1052W also uses the WiFi positioning technology to locate the object while GPS is not available. With the IOs and serial ports, the status of vehicles can send to control center. The serial channels, RS232 and USB are also helpful to connect to external devices for more applications. Benefits such as increased fleet efficiency, improved public and driver safety, enhanced fleet control, good public relations, and collection of industrial data are all realized through the proper implementation of VT-1052W system.

The VT-1052W system can transmit messages or data to Control Center for monitoring through wireless internet. Control center sets devices by sending commands through internet. VT-1052W can send data upon pre-set conditions. It will also save the data in the memory and then send to control center while the network is available. Taking advantage of Java machine, it is easy for users to design their own applications. In addition to the tracking device, the VT-1052W supports for many other powerful applications, such as WLAN modem for industrial management.

2. Features

- WLAN Compliant to 802.11b/g/n
- Network scan and log in automatically
- 10 sets of SSID in memory for network connection
- Supports WPA2- (AES), WEP (64 and 128 bit) modes of security
- GPS 50 channels all-in-view tracking with AGPS supported.
- GPS high sensitivity -162 dBm
- Java platform MIDP_2.0 virtual machine for easy and fast application development
- Supports TCP/UDP/HTTP
- Configurable data reporting and status monitoring
- Management capability through wireless internet
- Data logger capability with built-in flash memory to record time stamp, position and event status.
- Data re-send while network available
- WiFi positioning supporting
- 3 Bi-directional digital IO ports and 3 Analogue ports with voltage to 12V
- 1 RS232 interface with DB9 connector for Java program updating
- Additional 2 RS232 interfaces for data communication with external devices
- 1 USB host interface for USB device connection
- Over speed, low battery notification capability.
- Power supply and low battery detection acknowledge
- Support sleeping mode
- Over the air(OTA) firmware update
- 4 LED indicators for Power, Battery Charging, WLAN, GPS status
- Built in Tri-axial G-sensor to report motion or accident sensing, sensitivity range $\pm 4G$
- Built-in 1100mAh Recharge battery

3. Applications

- Commercial vehicle monitor and driver performance monitor
- Fleet management
- Logistics
- Security data collector
- Industrial WLAN modem

4. Java program functions

- Data logger in flash mode
- Self Geofence and out of range alert
- Speed detection
- GPS reporting internal user programmable
- System status report(IO, power, battery)
- Security administration
- OTAP function
- Data re-send function

5. Electrical Specifications

5.1 General Specifications

Parameter	Specification
Platform	Java, MIDP 2.0
Power Supply	9~40 VDC
Power Consumption	Sleeping mode : 20 mA(Typical)
	Normal:300 mA
Firmware Upgrade	RS232 interface, by the air interface,
Function Setting	RS232 interface, by the air interface
LED Status Indicator	Power, Battery charging, WLAN ,GPS
Serial port interface	1 RS232 interface for Menu interface and configurations 2 RS232 optional for data communications USB host interface
IO Ports	3 Bi-directional digital IO and 3 Analogue Input ports (~12V)

5.2 WLAN Interface Specifications

Parameter	Specification
Standard	IEEE 802.11b/g/n Standard
Host Interface	USB2.0 Interface
Operating Voltage	3.3V ± 10%
Antenna Connector	SMA connector
Operating Frequency	b/g/n ISM Band: 2.412~ 2.472GHz, 2.484GHz
Support Data Rate	802.11b(11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps)

	802.11g(54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, 9 Mbps, 6 Mbps)
	802.11n(up to 150Mbps)
Range	Indoors: up to 50meters; Outdoors: up to 250meters (The transmission speed may vary according to the environment)

5.3 GPS Specifications

Parameter	Specification
Protocol	NMEA 0183 Ver2.3
Receiver channels / Fixing method	50 channels all in view
Acquisition sensitivity	-144 dBm
Tracking sensitivity	-160 dBm
Receiver frequency	1575.42MHz L1 C/A Code
Accuracy (1)Position (2)Datum	2.5m CEP WGS-84 (Default)
Time To First Fix (1)Cold start (2)Warm start (3)Hot start	29 Sec(typ) 29 Sec(typ) 1 Sec(typ)
Dynamic condition	4G (39.2m/sec ²)
Interface	UART
Operational Limits (1) Altitude (2) velocity	< 50,000m < 500m/s
Bit rate	9600 bps
Start bit	1 bit
Stop bit	1 bit
Data bit	8 bit
Parity	None
Output sentences	GGA, GLL, GSA, GSV, RMC, VTG, TXT
Refresh time	1 sec (Max.:4Hz)

6. RS232 Interface

VT-1052W offers RS232 interface and RS232 meets the requirements of TIA/EIA-232-F. The RS232 interface can be extend to three physical RS232 ports. Three RS232 ports are designed for using as a DCE to connect to other devices, such as RFID reader, CAN bus reader, and Barcode reader. The port B on the UniTraQ's Com port extended cable is primarily designed for debugging, downloading and setting functions. It is not available during Java run time.

7. Antenna Interface

7.1 WLAN Antenna Connector

VT-1052W offers a SMA type connector which must be connected to an external WLAN antenna.

7.2 GPS Antenna Connector

VT-1052W offers a SMA type connector which must be connected to an external GPS active antenna. The connector receives RF signal input and antenna power supply.

8. USB Interface

The VT-1052W system provides one USB 2.0 Host interface with mini USB 5 pin plug header. It can connect external USB devices (e.g. USB Reader) or outside storage device for downloading data.

9. LED Indicator

9.1 Main Power /Backup Battery Charger Indicator

1.For the Main Power Indicator through **green** LED, detailed information is shown in the following table.

LED mode	Operation status
On	Main power on
Off	Main power off

2.For the Backup Battery Charger through **red** LED, detailed information is shown in the following table.

LED mode	Operation status
On	Backup battery charge in progress
Off	Backup battery charge complete

9.2 GPS Status Indicator

For the GPS status indicator through **green** LED, detailed information is shown in the following table.

LED mode	Operation status
On	GPS fixed
Off	Tracking satellite

9.3 WLAN Status Indicator

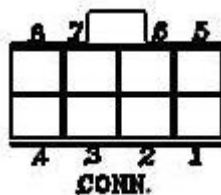
For the WLAN status indicator through **green** LED, detailed the information is shown in the following table.

LED mode	Operation status
Off	WLAN is not running
On	WLAN is activated.

10. External Connection

10.1 8 PIN IO connector

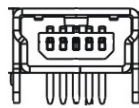
Pin	Signal	Type	Description
1	Digital_ I/O1	I/O	Bi-directional I/O
2	Digital_ I/O 2	I/O	Bi-directional I/O
3	GND	GND	GND
4	Vcc	Vcc	Connection to power (9~40 VDC)
5	Digital_ I/O 3	I/O	Bi-directional I/O
6	Analogue_ In 1	I/O	Analogue Input
7	Analogue_ In 2	I/O	Analogue Input
8	Analogue_ In 3	I/O	Analogue Input



Front view of External Connector

10.2 Mini USB connector

Pin	Signal	Description
1	VBUS	Power
2	D-	USB 2.0 differential pairs
3	D+	
4	ID	not connected
5	GND	Bi-directional I/O



Front view of Mini USB Connector

11. Mechanical specification

Parameter	Specification
Dimension	10.5 mm(L) X62.5 mm(W) X 28 mm(H)
Weight	180g

12. Environment specification

Parameter	Specification	
Temperature	Operating	-20 °C to +60 °C
	storage	-40 °C to +80 °C

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