

Technical Specifications

Zenith

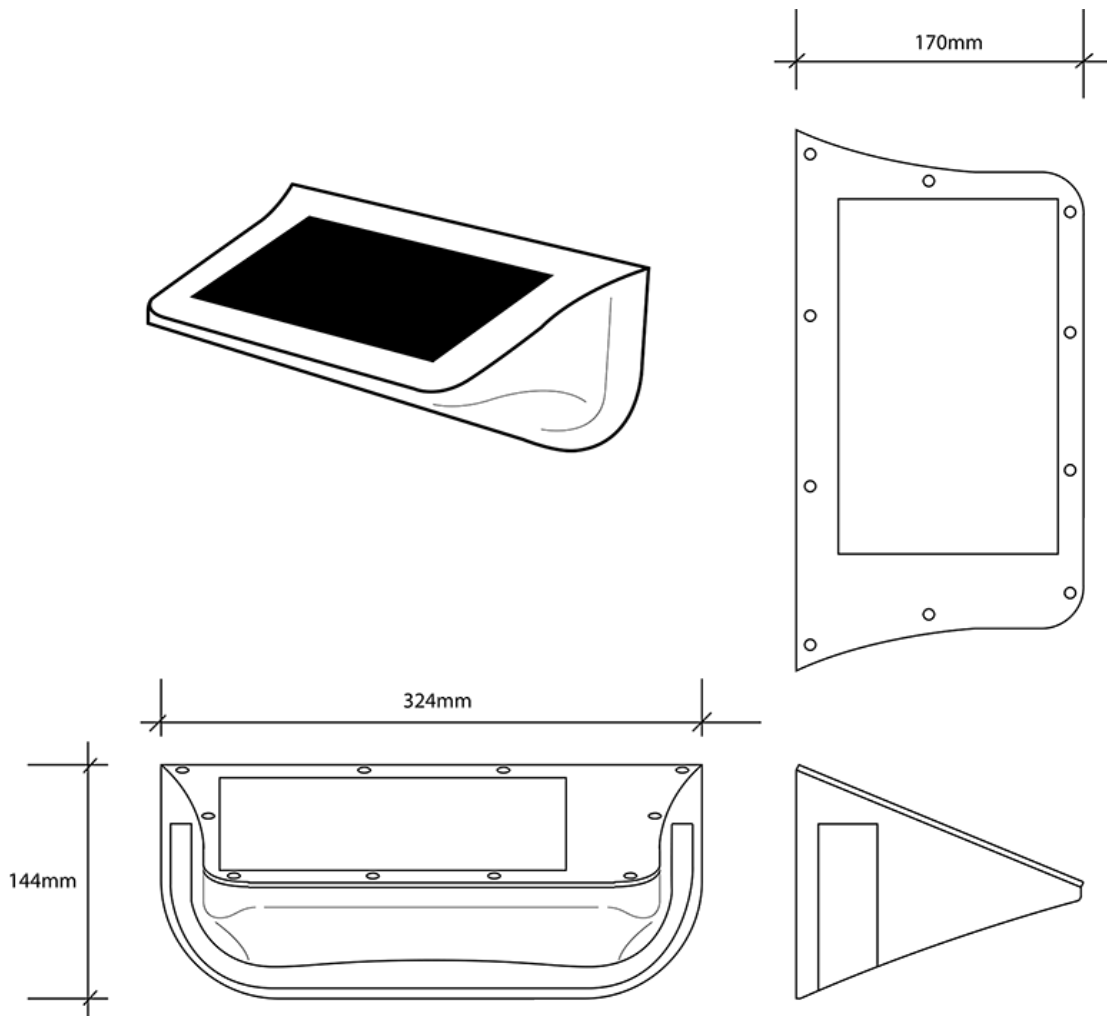
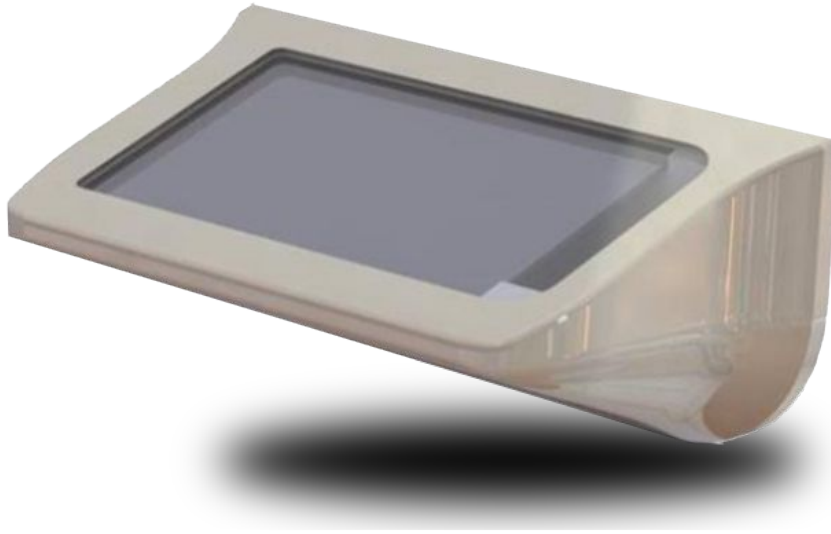


Fig1. Zenith

The Zenith is a compact, solar charged, water-resistant tracking device which can be attached to stationary or mobile locations in order to monitor, report and share information about discovered items.

The Zenith can be used to track, trace and record the journey a vehicle or unit has taken, and its current position. It can also be used to track 'assets' in both mobile and stationary situations. The unit is also able to act as a receiving and transmitting gateway in other applications.

Its solar cell means that it is environmentally efficient and can be deployed in a situation where there is very limited power availability or where it needs to stand-alone from mains power sources.

Applications

The Zenith can be used in a wide variety of end-user sectors and applications, such as: transportation, logistics, manufacturing, retail, food & beverage, pharmaceutical, entertainment & media, leisure sectors to track, trace and record the journey of a trailer, tractor, van, barge or any other vehicle. It can also be used in a stationary environment such as a warehouse, storage yard, dealer forecourts, farmyard or other industrial/manufacturing facility. The ability to identify and locate enables businesses to optimise production, assembly and distribution of raw materials and finished goods in the supply chain.

As part of an asset management solution, the Zenith can be deployed to detect the presence and movement of an asset, for security, identification or 'seek and find' functionality. This enables businesses to reduce the lost time and cost associated with mislaying components or finished goods within their operational ecosystem. Examples include cages, barrels, pallets even valuable individual parcels.

The Zenith can also be deployed as part of a distribution and logistics operation, in order to optimise the reliability and precision of deliveries.

The Zenith can also be used as a real-time gateway for monitoring aspects of an Internet-of-Things or operational facility. This means that certain trigger factors can be monitored in order to ensure activation, deactivation or ad-hoc crisis management which can be remotely identified, maintained or managed as necessary to optimise operation or prevent breakdown or disaster.

List of Features

Waterproof – to IP67 rating.

Roaming Internet Access - the GPRS device will attach to the strongest mobile/cellular signal available. **Mobile Provider Independent** - as a signal drops from one provider/mast it will connect with a strong detected signal irrespective of provider.

Bluetooth LE – enables it to act as a primary or secondary device depending upon the user requirement. The Zenith supports BLE 4.2 & 5.0 including coded PHY.

Bluetooth Pairing - can be used to pair with other devices.

GPS Accuracy – utilising GPS, GLONASS, QZSS, BeiDou, Galileo, accuracy <0.5m up to per second tracking **GPS ‘Dead Reckoning’** - maintains accuracy for up to 15 minutes even when a GPS signal is not available. **Solar-Cell** - device is battery powered, solar charged via a 5 Watt solar cell

Large Battery Capacity – the 18.2Ah (Amp hour) capacity will allow 24/7- operation without external charging **External Connector** - IP67 waterproof standard. It can be used to provide power to the unit.

External Interface Types I2C, Serial, SPI - will allow connection as a gateway to other external peripherals. For example: fleet telematic environments, door contacts or temperature sensors to name but a few.

Mobile Mode - the Zenith will transmit its status every 30 minutes including its current coordinates. It is also capable of sending its ‘breadcrumb’ trail allowing the user to see where the device has been during the last 30 minutes

Static Mode – the Zenith is able to monitor assets and other local items, transmitting its status and associated item/asset status every 30 minutes.

Transmit Status – the Zenith can transmit time at any interval however if more frequent than every 30 minutes, external power may be required from external solar cell or mains power.

Asset/Item Tracking Option – allows an asset/item to be more frequently polled.

Geofencing – the user can define a geographic area for more frequent status transmissions and information, e.g. for enabling accurate tracking and management of movements/assets/inventory.

Example 1: Within a geofenced area assets can be moved in and out of a trailer and outside of a geofenced area the Zenith can raise an alarm and turn on a video recorder for security.

Example 2: Change the frequency of the status beacon from every 30 minutes to every 10 seconds whilst moving, in order to track trailers within a hub.

Inventory Mapping Algorithm – prevents duplication of asset/item visibility within mobile mode.

Tag Tracking Options – The Zenith can also manage other inbound tag data for example, temperature, smart battery status and signal strength. These items enable the user to more efficiently track, trace and monitor assets.

Data Security – the Zenith transmits using HTTP protocol formats, utilising AES 256 Encryption for the payload.

Presentation Server – users are presented with simple GUI output.

Registration Server – manages the Zenith, assets and user components.

Web Service APIs – enable users to integrate collected information into their other business applications. **Data Push Interface** – upon certain user-identified events, information can be pushed to the users’ systems. **Mobile Application Support** – users can use the DSTL Android Locator & PopTag Apps to seek-and-find, plus register and maintain assets.

Topology – the service can be deployed on user premises or in-the-cloud.

Zenith

MATERIAL

Casing Material: ABS Polylac - PA-757(+)
Flame retardant

CONNECTIVITY

BLE 4.2 Compliant

Usable distances:

Quiet RF Background 100m

Medium RF Background 80m Noisy RF

Background 30 metres

BLE 5.0 Compliant

BLE 5.0 using LE coded PHY

Quiet RF Background up to 500m

WIRELESS

UMTS/HSPA 850/1900 and 900/2100 MHz 800/850/900/1900/2100 MHz 3GPP
Release 7 5.76 Mbit/s uplink, 7.2 Mbit/s downlink GSM 850/1900 and 900/1800
MHz Quad-band, 850/1900, 900/1800 MHz GPRS Class 12, CS1-CS4, up to 85.6
kbit/s EDGE Class 12, MCS1-9, up to 236.8 kbit/s

GPS

GPS Standard Accuracy 3m approximately when mobile

GPS, GLONASS, QZSS, BeiDou, Galileo, Accuracy 0.5m when not moving
(requires additional "Standard Zenith" for reference)

CODING

AES 256 Encryption for data transmission, each Zenith has its own unique
32byte key

LE Coded PHY Modulation

ENERGY

Solar Cell Monocrystalline 5 Watts

PROTECTION

Water/dust resistant IP67

INTERFACES

External Interfaces I2C, Serial, SPI at 1.8V, power at 5V
External Connector Input Voltage Range 12 to 24V DC
External Connector Output Voltage 5V

TEMPERATURE

Working Temperature -20° to +65° Celsius

CERTIFICATION

CE/FCC/WEEE RoHS Certified

Zenith is a device designed by:

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