

> QinetiQ Ocellus S100e / S100u

High Performance GPS Surveillance & Tracking

- > **High sensitivity GPS** integrated for installation without external antennas
- > **GSM/GPRS tri-band communications** for economical global operation 2 variants available (S100e / S100u)
- > **Rechargeable internal battery** enables extended long term operation, with no requirement to replace batteries
- > **Very compact and easily installed**, with self-contained antennas for zero installation costs and high reliability
- > **All included in one box**, including multifunction magnetic mount and mains charger
- > **May be permanently powered**, by connection to vehicle power via an optional vehicle charger

Ocellus S100 is a High Sensitivity GPS/GPRS remote surveillance and tracking device, which allows users to monitor the location of vehicles and assets of all kinds. High Sensitivity GPS enables operation in urban canyons, under heavy foliage and even indoors, and permits installation in locations where a direct sky view is not available. It is particularly suitable for operation in and under vehicles.

Its internal activity sensor enables powersaving by allowing the unit to power down in between position fixes, contributing to its exceptional battery life.



Attachment to any tracking subject is simple because of its small size (133 x 48 x 25 mm) and removable multifunction magnetic mount.

The integrated antennas and battery make the unit highly reliable by removing the need for a complex wiring installation. With its High Sensitivity GPS, sophisticated power management and integrated tri-band GSM/GPRS module, the Ocellus S100 enables users to both enhance existing telematics applications and enable new business concepts to be realised.

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Applications

- > **Covert Surveillance** – rapidly attachable to targets, and capable of tracking in difficult environments, eg. Under a vehicle.
- > **Fleet Management** – may be installed temporarily or permanently to any vehicle, either self-powered from its internal rechargeable battery, or powered via one of two optional vehicle chargers,.
- > **Asset Tracking** – may be used to track valuable goods in the supply chain.
- > **Theft Prevention** – use S100 to monitor the position of valuable items like vehicles, caravans, temporary buildings, boats etc. for extended periods.

Configuration Settings

Ocellus S100 is remotely configurable to suit the user's requirements, through a web enabled QinetiQ mapping interface, or tracking services provided by third parties. Reporting frequency, alert thresholds, positioning variables and numerous other parameters are easily configurable, enabling Ocellus S100 to support a wide variety of tracking requirements. The following parameters are all remotely configurable:

Device Settings

- > **LED Indicators, Covert Mode** – Ocellus may be configured to have LED indicators at 'full brightness', turned 'off' for covert deployment, or set on 'dim' in order to limit distraction, eg. When fitted inside a vehicle.
- > **GPS Throttle** – a configurable setting that defines how hard the GPS engine should work to obtain a position fix, enabling the user to prioritise between extended battery life and improved position availability.

- > **Motion Sensor Sensitivity** – permits the setting of the time period over which the motion sensor should detect motion in order for Ocellus to interpret disturbance as motion, thus avoiding false alarms.
- > **GPRS and SMS Credit** – supports the limiting of number of reports the unit is permitted to send over either GPRS or SMS, enabling low cost operation over GPRS, or capping tracking expenditure.



Position and Information Reports

S100 may be configured to provide combinations of the following report types:

- > **Motion** - while moving (with reporting intervals configured as required).
- > **Periodic** - while stationary (with reporting intervals configured as required), e.g. for 'confidence' reports.
- > **Go** - when a unit starts to move.
- > **Stop** - when a unit stops moving.

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Additional Parameters Available with Reports

- > **Altitude**
- > **Speed**
- > **Horizontal and Vertical Accuracy Estimates**
- > **Course Over Ground** – provides heading information, enabling the direction of travel to be interpreted by the tracking service provider (eg. To show a direction arrow on the map).
- > **Battery % Remaining** – allows remote monitoring of the unit's battery condition. Also allows the tracking service provider to send the user an alert if the battery level drops below a pre-set level.
- > **Report Interval** (ie. time elapsed since the last report).
- > **Seconds in Motion** – since the last report.
- > **Initial and Remaining Credits of Position Reports over SMS and GPRS** – enables the user to check at a glance how report credits have reduced, to calculate the cost of operation.

Geofencing

- > **Geofencing** is enabled by the web tracking services which support Ocellus.

Alarms

- > **Alarms** are alerts sent to the user by the tracking service. These can be created by the tracking service provider, based on information provided by Ocellus. Examples include geofence breaches and 'battery low' alarms.

GSM Frequencies Supported

Ocellus S100 is available in two tri-band variants:

- > S100e supports the 900 and 1800MHz frequencies used in Europe, Asia and most of the world outside the American continent, and additionally provides the 1900MHz band for roaming in the Americas.
- > S100u supports the 850 and 1900MHz frequencies used in the USA and most of the American continent, and provides support for the 1800MHz band for roaming in Europe and the rest of the world.



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Ocellus S100e / S100u Specification

GPS PERFORMANCE (12 CHANNEL)	RF Reception Sensitivity:	-186 dBW tracking -184 dBW acquisition		
	Signal Acquisition	Hot:	<1 sec	
		Warm:	<38 sec	
		Cold:	<45 sec	
	Re-acquisition	<0.5 sec		
ACCURACY	Position: Outdoor/Indoor	<5m / <50m typical		
	Velocity (Outdoor):	<0.05ms-1		
GSM/GPRS PERFORMANCE	S100e:	900/1800/1900 MHz		
	S100u:	850/1800/1900 MHz		
	GPRS Class 10:	Max 85.6 kbps		
	Point-to-point SMS:	MO and MT		
	Text and PDU mode SMS			
	GSM phase 2/2+ compliant			
	Output Power – GSM850/900	2W		
	Output Power - GSM1800/1900	1W		
POSITION FIXES STORED	(In Internal Memory)	Up to 4,000 positions		
PHYSICAL	Ocellus S100 Dimensions:	133mm (L) x 48mm (W) x 24mm (H)		
	Weight:	141g		
	Ocellus Case:	All plastic		
	Multifunction Mount:	Anodised aluminium, incorporating 4 magnets		
	Multifunction Mount Dimns:	90mm (L) x 80mm (W) x 6mm (H)		
ENVIRONMENTAL	Operating / Storage Temp:	-20°C to +60°C / -45°C to +85°C		
	Max Velocity / Altitude:	515ms-1 / 18,000m		
	Max Acceleration / Jerk:	Complies with DEF STAN 00-35 (Part 3)		
	Dust / Water Ingress Protection:	IP56		
POWER	Internal Battery	Lithium Polymer		
	Charging Requirements:	5V, 600mA		
	Mains Charger:	5V, 1000mA output, 110 – 240V, 50-60Hz AC input, supplied with Euro, UK, US and Australian adapters		
POWER EFFICIENCY	Number of Positions Reported (on one battery charge) - Outdoors: - Inside a vehicle, e.g. boot - Under a vehicle	Reporting Once /Day	Reporting 10 Times/Day	Reporting 100 Times/Day
		250**	850*	1400*
		200*	600*	1000*
		130*	250*	450*
		* Depending on installation conditions; these figures are for guidance only.		
		** Tests have shown that battery life can exceed one year on a single charge, reporting once/day outdoors.		
ALARMS	Battery Low, Geo-Fencing	Enabled by web tracking service		
INTERFACES	On/Off Switch:	Activates / de-activates the unit		
	Status Indicator LEDs x 4:	Status monitoring		
	Battery Charging Port:	Enables battery charging		
	Web Interface:	Enables remote monitoring and configuration of Ocellus over the web		
ACCESSORIES	5V Universal Mains Charger:	Part No. QP0020-248 (supplied with S100)		
	Multifunction Mount Assembly:	Part No. QP0020-100 (supplied with S100)		
	Vehicle Charger (10-32V input):	Part No. QP1007-128		
	In-Line Vehicle Charger (10-32V):	Part No. QP1007-129		
		***Ocellus is available in bulk packaging (without retail packaging) with accessory chargers in place of the mains charger if required.		

This specification is subject to change without notice.