FALKEN Secure Networks

StreetEagle PROFESSIONAL

Dual Mode - Cellular with Satellite Failover

Real-time monitoring and M2M solutions for fleet enterprise management

Designed to Deliver Critical Location and Performance Data Needed for Managing Remote Mobile Assets and Heavy-Duty Vehicles in Harsh Environments

Dual-Mode devices along with the StreetEagle tracking platform from FSN combine both satellite and cellular communications to manage remote and mobile assets for optimal connectivity, cost and global coverage. FSN provides the hardware, network and applications that work together to deliver a cost-effective, integrated approach for tracking, monitoring, control, and management of vehicles, vessels and equipment anywhere in the world. IDP terminals are programmable to perform local processing of sensor and external bus information, only transferring data as required. The StreetEagle Tracking Solutions platform is the only software solution you need to gain complete visibility into the real-time location and activity of every mobile resource you depend upon to get your work done.

StreetEagle LMU-4520 Kit –Installation Ready

LMU-4520 is a ruggedized, fully weatherproof **Dual-Mode** location-and-messaging device for mining and construction markets that features both satellite and cellular communications as well as connection to the vehicles ECU(Engine Control Unit). The LMU-4520 offers a full set of fleet management features, comprehensive I/O system and expandable accessories, along with an IP67 environmental rating, that make it an industry leading value proposition.

The LMU-4520 is designed to support customers with market leading fleet management features on a single StreetEagle Tracking and Reporting Platform, 16G accelerometers for measuring motion, driver behavior

jPOD™ Vehicle Bus Adaptor

Power Harness, LMU-4200/5000, 4-pin, 4-Wire, with Fuse, 8 ft. Included

and impact events and multitude of interfaces such as two switched power serial ports, Mobile Data Terminal (MDT) support, a comprehensive I/O system . A heavy-duty vehicle data bus interface for SAE J1939-equipped engines provides access to vehicle information and fault codes that help assess location and operational characteristics, such as engine run time, oil pressure, temperature and other key performance metrics. . In addition to cellular based communications, the LMU-4520 offers optional Iridium Satellite or WiFi technologies. This expandable architecture saves upfront costs while allowing your solutions to grow with changing needs.

Flexibility

The LMU-4520 employs CalAmp's industry leading on-board alert engine, PEGTM (Programmable Event Generator). This advanced engine monitors external conditions and supports customer-defined exception-based rules to help meet the needs of your application. PEG continuously monitors the vehicle environment and responds instantaneously to pre-defined threshold conditions related to time, date, motion, location, geo-zone, input and other event combinations. With PEG, your unique application will meet demanding customer requirements. This behavior can be programmed by us before shipment, at a customer's facility, or over-the-air once the unit has been fielded.

Over-the-Air Serviceability

The LMU-4520 also leverages CalAmp's industry leading over-the-air device management and maintenance system, PULS™ (Programming, Updates, and Logistics System). Configuration parameters, PEG rules, and firmware can all be updated over the air. PULS™ offers out-of-the box hands free configuration and automatic post-installation upgrades. You can also monitor unit health status across your total fleet to quickly identify issues before they become expensive problems.

Experience The Advantage

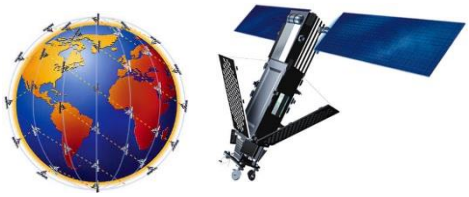
- Heavy Duty weatherproof IP67 rated enclosure
- Built-in 3-axis accelerometer for driver behavior, motion sensing hard braking, impact detection
- Dual reporting 20,000 event buffered message logs to manage Cellular, Satellite and Wifi communications channels
- Low Power sleep modes
- Backup battery
- 32 built-in geo fences, plus any combination of circle or polygon zones, up to 5,400 points
- Optional built-in heavy Duty engine Control Interface
- Garmin®, MDT, and other advanced peripherals support
- Comprehensive I/O system
- Switched power serial ports

StreetEagle sends position reports, monitors driver behaviour, tracks driving hours, reports sensor status and more. Simply configure a variety of pre-set event-based reports and set thresholds based on each user's unique needs related to location tracking, vehicle status, accident reconstruction and driver behaviour monitoring. Sample reports included in **StreetEagle** include:

- **Start/stop:** track location of the vehicles as they travel. Configure reporting frequency by time or distance travelled
- **Speeding:** receive notifications when vehicles start and stop speeding
- **Idling:** receive warnings when vehicles have been left on and are burning excessive fuel

- **Long-driving:** identify when drivers are on the road longer than their legislated allotment
- **Sensors:** be notified when sensors like fuel and panic button sensors cross high/low thresholds. Support for 1-Wire sensors enables more accurate readings and out-of-the-box iButton support for Driver ID.
- **Driver safety:** identify instances of harsh braking/acceleration, GPS/cell jamming and tampering, use geofences and enable accident reconstruction
- **StreetEagle Asset Scanning:** Quickly validate asset identity, maintenance service and perform quick inventory audits for shipping and receiving, compliance with shipping manifests with Barcode or RFID-enabled Handheld scanners or smartphones. A Utility App is available for download.
- **Regulatory compliance:** use driver identification to ensure only authorized drivers are operating vehicles and track driving hours
- **Reports**: StreetEagle offers over 90 customizable reports as well as a customizable KPI Dashboard for a single view of key management metrics.

WHY IRIDIUM?



The unique architecture of the Iridium constellation of 66 cross-linked low-Earth orbiting (LEO) satellites is ideally suited for Iridium Vehicle, Trailer, Container and Heavy Equipment solutions — including remote areas not reached by cellular networks.

Iridium has the largest commercial satellite constellation in the world consisting of 66 LEO operational and cross-linked satellites functioning as a fully-meshed and fault-tolerant network and 14 spares. This constellation ensures that every region on the globe is covered by at least one satellite at all times. The Iridium 9602 modem is built into the LMU-4520. Iridium supports data speeds from 2.4 kbps up to 10 kbps, with free compression software options for 15x faster email and 5x faster web browsing, which will be significantly increased with the launching of new satellites in 2015. Iridium expects available download speeds will increase to 1.5 megabits per second (Mbps) once the new Iridium NEXT constellation is fully up and running by 2017 and will be backward compatible for existing devices. The Iridium network provides the best performance & lowest latency – 5 to 20 seconds average – delivering short burst data service up to 270 bytes down and 340bytes up. Most M2M telematics messages including sensor data are less than 200 bits and do not require broadband.

The Iridium 9602 modem is ideal for M2M solutions, including tracking of maritime vessels, equipment monitoring, and automatic vehicle location. The 9602 SBD modem does not use a SIM card, it is identified by the network solely through its IMEI # and the customer account associated with that IMEI. Since the StreetEagle LMU-4520 device selects cellular service as first choice whenever available, only a minimum Iridium Service Plan is likely required when the use-case is for cellular to satellite failover to assure continuous network connectivity. In addition, FSN offers a global Sat-WIFI Hotspot device called Iridium GO! which enables use of up to 5 regular smartphone device or other WIFI –enabled devices within 30 meters(100 ft.).

STREETEAGLE LMU-4520 TECHNICAL SPECIFICATIONS

SATELLITE COMMUNICATION

- Satellite Service: Iridium Q9602 modem built-in
- Short-Burst M2M Data Message: 340 bytes max
- Typical Latency: <15 sec. average, 100 bytes
- Frequency: L-Band-1616 and 1626.5 MHz.

CELLULAR COMMUNICATION

- GPRS Frequencies: 850/900/1800/1900 MHz
- HSPA/UMTS Frequencies: 800/850/900/1700/1900/2100 MHz
- CDMA/1xRTT: 850/1900
- Security: Jamming detection

Transmitter Power:

GSM/GPRS 850/900 32.5 dBm
1800/1900 29.5 dBm
CDMA/1xRTT 850 24 dBm
1900 23 dBm
HSPA/UMTS (all bands) 23 dBm
HSPA data rates 5.6 Mbps upload / 7.2 Mbps dwn
HSPA Fallback EDGE/GPRS/GSM quad band

GPS

- Location Technology 50 channel GPS (with SBAS
  SBAS: WASS, EGNOS, MSAS, GAGAN

Acquisition Sensitivity -147dBm

- Accuracy: 2.0 m CEP (with SBAS)
- Tracking Sensitivity : -162 dBm
- Security: GPS signal jamming detection
- AGPS Capable

32 Built-In Geofences, plus any combination of circle or polygon zones up to 5400 points

- Up to 20,000 event message storage buffer

CERTIFICATIONS

Fully certified FCC, CE, IC, PTCRB, GCF and Applicable Carriers

COMPREHENSIVE I/O

Ignition Input 1 (fixed low bias)
Digital Inputs 7 (selectable high/low bias, 0-30 VDC)
Digital Outputs 5 (open collector 200mA relay driver)
2 (20mA current source / LED drivers)
A/D Inputs 4 (0-30 VDC, +/- 0.1V accuracy)
1-Wire® Interface 2 (Temperature Sense, Driver ID)

Status LEDs GPS and Cellular/Satellite

ELECTRICAL

Operating Voltage 7-32 VDC (momentary)
9-30 VDC (start-up, operating)
Power Consumption 3.3mA @ 12V (deep sleep)
23mA @ 12V (radio-active sleep)
29mA @ 12V (SMS+UDP connection, GPS off)
90Ma @ 12V (continuous transmit)
Back Up Battery Lithium-Ion 1000mAh
(See online technical specifications for latest details regarding battery options)

ENVIRONMENTAL

Temperature -30° to + 75° C
(connected to primary power)
-40° to + 85° C (storage)
Humidity 95% R.H. @ 50° C non-condensing
Shock and Vibration U.S. Military Standard 202G and 801G,
SAE J1455
EMC/EMI SAE J1113
Heavy Duty Sealed Enclosure - IP67 Rating

CONNECTORS, SIM ACCESS

Cellular Antenna SMA
GPS Antenna SMA
Power, GND, Ignition, ADC 34-pin JAE Weatherproof Connector
Serial Interlaces 2 switched power TTL level Interfaces
Vehicle Bus Option 12-pin JAE Weatherproof Connector
WiFi Option Antenna RP-SMA
SIM Access Internal

PHYSICAL

Dimensions 6.8”x4.5”x1.7 (175x115x45mm)

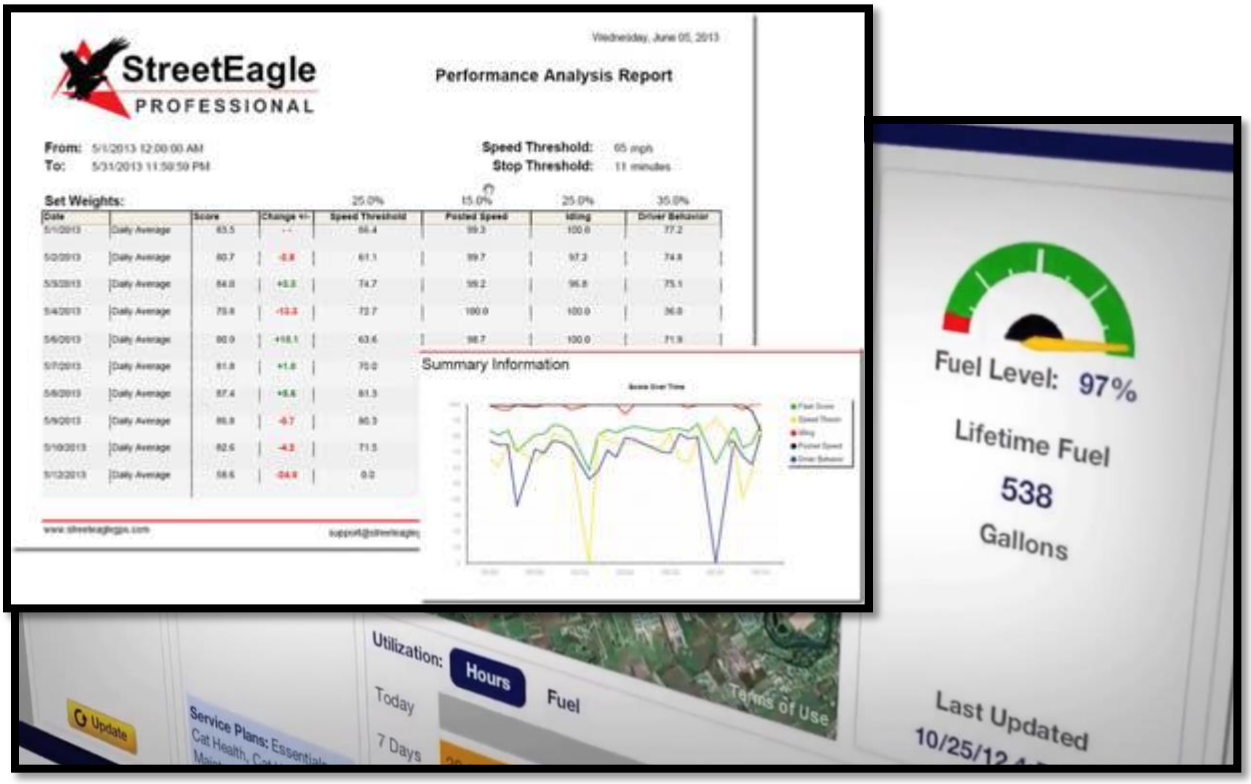
Weight 12oz/340g (with 1000mAh battery)

OPTIONAL FEATURES/FUNCTIONS INCLUDED

- Built-in Q9602 Iridium modem
- Built-in heavy duty J1939/J1708 vehicle bus reader, JPOD ECU Interface
- Built-in WiFi modem
- Built-In 3-Axis Accelerometer
- External Antennas (GPS, cellular, combined GPS/cellular)
- Serial RS232 Adapter Cable
- Connectorized I/O wiring harness
- Garmin, MDT and other advanced peripherals support(additional hw req’d)

DEVELOPMENT SUPPORT OPTIONS

Customized hardware and software development available on request



Plan and Track Vehicle Telematics, Maintenance, Driver Behaviour compliance to corporate standards

GT-1100 TERMINAL

GT – 1100

Global Trailer, Container and Container Chassis Tracking

Dual-Mode, Award-Winning, Solar Powered

Our dual-mode GT 1100 (solar-powered) Cellular/Satellite device is designed specifically for tracking trailers, intermodal containers and container chassis' which normally do not have their own power supply. Its low profile and sleek design make it easy to install on trailers and in the groove of intermodal containers and eliminates the administration involved with batteries. The ruggedized GT 1100 is self-powered with solar recharging technology for low power consumption, efficient messaging and long maintenance-free service life in the field. The GT 1100 dual-mode communications platform combines the benefits of satellite and cellular technologies, providing complete global coverage and allowing you to build your messaging schedule around your business without any message restrictions. You can transmit twice one day or seven times the next without any extra costs, giving you optimal connectivity, least cost routing and flexibility. Integrates with our CargoWatch™ tracking application platform.

Complete Fleet Visibility

Gain visibility and improve the bottom line with advanced tracking features like:

- **Interval Position Reporting:**
  Send reports once or multiple times per day.
- **Heartbeat and Status Reports:**
  Send in 1 day intervals if no other messages sent in the specified time.
- **Motion Start/Stop Report:**
  Send a report when motion starts or stops.
- **Optional Sensor Reports:**
  Door open/closed, tractor power on/off, cargo detected/not detected(sensor hw required)
- **Powerful Web Application:**
  Integrated with web-accessible CargoWatch® Fleet management, automation and dashboard application.

BENEFITS

- Low cost of ownership
- Self-powered with solar recharging or battery
- Dual-mode communications platform
- Long service life in the field
- More messages,
- Less maintenance, less expense
- Quick, easy installation
- Includes robust web application

The GT 1100 solution includes CargoWatch®, a robust web reporting application for comprehensive device management. This state-of-the-art application delivers near-real-time alerts on trailer status, location, history, as well as arrival and departure, providing greater visibility and utilization for fleet managers.

TECHNICAL SPECIFICATIONS GT-1100

Dimensions
• 11.4 cm (w) × 33.8 cm (l) x 2.5 cm (h)

Electrical Usage
• Input Voltage: 9 VDC to 32 VDC
• Input Current
- Transmit Mode: 1.6 A
- GPS On: 35 mA
- Receive Mode: 70 mA
- Sleep Mode, Standby: 10 µA and Deep: 3 µA
• Load Dump Protected

International Regulatory Compliance
• FCC: CFR 47, Part 25 and 15
• CE: EN 301 721, EN301 489-20, EN300 832
• Industry Canada • ANATEL • PTCRB

Vibration and Shock
•MIL-STD-810E, Tracked Vehicle and Aircraft
• EN 300 721 (IEC Pub. 68-2-36)
• SAE J1455, Cab Mounted & Transverse Axis Radiated

Environmental
• Temperature: SAE J1455
- Operating: -40C to +85C and Storage: -50C to +125C
• IP67 Rated
• SAE J1455 Off-Road Compliant

Key Features (Vary by model)
• Interfaces: 16b A/D (4), CAN (1), GPIO (4), Serial (2), USB (1)
• Accelerometer: 3 Axis
• GPS: Rapid TTF via ORBCOMM-Provided Ephemeris

Network
•Dual-mode communications: GSM or CDMA Cellular plus ORBCOMM Satellite Network
• Cellular communications: GSM or CDMA

ANTENNA SPECIFICATIONS

Mechanical
• 21.5” (l) x 2.63” (h) x 3.5” (w)

Frequency Range
•Rx: 137-138 MHz; Tx: 148-150.05 MHz

Polarization
• Vertical

Mounting and Mounting Surface
• Screw Through Flange; Ground Plane Independent

Connector Placement
•Base, End or Bottom Feed•Rx: 137-138 MHz; Tx: 148-150.05 MHz

HE – 4000

Powerful, Dual-Mode for heavy equipment Fleet Mgmt.

HE 4000 is a ruggedized, dual-mode tracking and monitoring solution that can be used for a broad range of heavy equipment types and sizes in the construction, mining, rail and utility industries. The HE 4000 utilizes global satellite and cellular communications to provide accurate and timely status and position information along with key operational metrics so OEMs, dealers and end users can proactively manage their fleet anywhere in the world. By leveraging valuable equipment utilization and maintenance reports, customers can know where their equipment is, if it is productive, if it needs maintenance, if the oil pressure is within limits, and how it is being used in order to better allocate resources and improve operational efficiency.

In addition, equipment alerts, including unauthorized movement or threshold - exceeding sensor readings, such as loss of oil pressure or high coolant temperature, can be communicated quickly to any Internet-accessible device, including a cell phone. To enhance functionality and performance, a wide array of accessories is offered to interface with the HE 4000, including thermostats, pressure sensors, CAN/J1939 tee connectors, operator touch screen terminals as well as tire pressure and temperature subsystems. Custom interface design and fabrication services are also available.

Gain Complete Visibility The HE 4000 includes the robust FleetEdge web application, which provides fleet managers with complete visibility and control over every asset in their fleet. The critical status, position and history reports generated by the HE 4000 are transmitted at pre-determined times or intervals to FleetEdge and can be viewed by customers via the Internet anytime, anywhere. Customers can also remotely initiate an over-the-air command to generate a status or location report. The powerful combination of HE 4000 and FleetEdge offers customers a complete fleet management solution.

HE 4000 SPECIFICATIONS

Mechanical

• ABS Ruggedized IP67 Enclosure, Dust & Moisture Resistant
• Dimensions: 6.0" L x 5.0 W" x 2.5" H
• Weight: 21 oz.

Environmental/Temperature

• Operating: -40C to +60C
• Non-Operating: -40C to +70C

Power Requirements

• External Power: 9 to 32 Volts
• Receive/Monitor Mode: 65 mA
• GPS (Periodic): 35 mA
• Transmit Mode: 1,500 mA (Burst)
• Sleep Mode: 10 mA

Certifications

• Transceiver
- FCC Part 15 Class A
- CE Emissions and Immunity
- EMC/J1113-22,23,41 Emissions
• Mechanical
- J1455 Vibration, Meets or Exceeds All J1455

Dual Mode: Satellite and Cellular Transceiver and GPS

• Integrated Satellite and Cellular (GSM/GPRS) Communications Transceivers
• Time/Date Clock Synchronized to GPS or Data Network
• Remote Configuration Feature with Over-the-Air Command Set
• GPS Receiver: 12 Channel with 3 Meter Accuracy

Interface

• Digital Inputs (Activate with > 2 Volts): 8
• Analog Inputs (0 - 32 Volts): 2
• Digital Outputs (Supplies Ground when Active, 1A Sink): 2
• Data Link: Serial RS-232 (1=Main, 2=Auxiliary): 3
• CAN/J1939 Bus Master Connection to Electronic Control Modules: 1

External Connections

• Antennas: Satellite, GPS, Optional GSM/GPRS
• Power/Data Cable (1 meter, 20 Conductor Cable) with Standard Quick-Connect System
• Service Port (Requires Service Cable to Monitor Functions in Near-Real-Time)

Antenna Options

• Whip and Low Profile with Combination Satellite and GPS Elements

FEATURES

- Track and monitor equipment anywhere in the world
- Monitor Operational Metrics
- Engine Hours, Fuel Consumption, Mileage, Production
- Report Alerts:
- Engine Diagnostics, Unauthorized Use, Temperature & Pressures, Hydraulics, Tire Performance, Personal Safety, Location, Geofence & Speed
- Dual-mode satellite and cellular communications
- Versatile reporting capabilities
- Ruggedized IP67 rated to withstand harsh environments
- Works with 12 or 24 Volt On-board Power Sources
- Meets or Exceeds All J1455 Vibration Certifications
- CAN/J1939 Bus Master Connection to Electronic Control Modules (ECM)
- Embedded Customer Software Application
- Robust web application for fleet management
- Easy integration to corporate management systems

With nearly 20 years of innovation and expertise in M2M, ORBCOMM has more than 1.2 million subscribers with a diverse customer base including premier OEMs such as Caterpillar Inc., Doosan Infracore America, Hitachi Construction Machinery Co., Ltd., John Deere, Komatsu Ltd., and Volvo Construction Equipment, as well as end-to-end solutions customers such as C&S Wholesale, Canadian National Railways, CR England, Hub Group, J.B. Hunt, Marten Transport, Swift Transportation, Target, Tropicana, and Tyson Foods

Need a Quotation or Place an Order?

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