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**PRODUCT DATA**

# EMU Noise Logger

Noise monitoring is often required when new developments are planned or during compliance investigations. Assessments require sound levels to be measured over long periods of time to determine the impact on nearby communities, and it is not practical or efficient for acoustical experts to spend days or weeks on site taking continuous measurements. The EMU Noise Logger

performs real-time, unattended noise measurements efficiently, with consistency and accuracy. The system is intelligently packaged for easy transportation and on-site setup, is ready to measure all the parameters you need right out of the box, and includes an in-built 3G/4G router for remote field operation.



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## USES

- Measurements made:
  - Outdoors
  - Unattended
  - In workplaces and on construction sites
  - In remote locations
- Measurements for:
  - Area planning
  - Noise control
  - Complaint investigation
  - Venue licensing

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## FEATURES

- Weather protected
- Easy single-person transportation and setup (one man carry <19 kg)
- Tamper protection
- 90 W solar panel for continuous usage in most conditions
- 96 Wh additional battery enabling overnight use
- Weather proofed Microphone cable
- Outdoor Smart Microphone for long-term outdoor use
- Works as a standalone system, and also with Envirosuite's Sentinel and ANOMS systems.
- IEC 61672 and IEC 61260 Class 1 performance
- Level trigger
- Continuous sound recording at 32 bit depth and 48,000 samples per second
- Sound recording of events
- Automatic self check using Charge Injection Calibration (CIC) check
- Remote access available via communications on 3G/4G or wifi
- Periodic reports of all common sound metrics

## OVERVIEW

The EMU-based Noise Logger performs real-time, unattended noise measurements efficiently, accurately and reliably. Intelligently packaged for easy transportation and on-site setup, it is ready to measure all the parameters you need right out of the box, enabling you to take unattended noise measurements with confidence.

The logger includes the EMU Noise Analyzer and all of the software and accessories you need to complete your monitoring project, including full statistics, 1/3-octave band analysis, audio recording with event triggering and in-built memory for months of recordings.

When the in-built router is activated, wifi or 3G/4G is enabled allowing for a range of remote connectivity features that make logging convenient and streamlined. For example, measurements can be automatically uploaded to Sentinel or ANOMS environmental monitoring services, email alerts can notify you when pre-set noise levels have been exceeded or the internal battery is running low, or if the mains power is lost. For noise assessment scenarios that do not require remote connectivity, the router can be deactivated to offer additional operating run times while continuing to collect data 24x7.

The logger's rugged case protects all of the contents from the elements and provides a solid base for the outdoor microphone. The microphone cable is contained within the mast for protection from weather and wildlife.

An upgrade kit is available to convert any EMU that has a Outdoor Smart Microphone into a Noise Logger.



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## INSIDE THE CASE

The EMU Noise Logger is self contained and includes:

- 90 W solar panel mat and microphone mast stored in lid
- 96 Wh robust and efficient lithium iron phosphate battery
- Detachable microphone mast
- Mounting for a secondary mast
- EMU Noise Analyzer including router and antenna
- Outdoor Smart Microphone, stored in the case
- Rugged weatherproof case
- Outdoor-rated charger



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## TRANSPORTATION AND SETUP

### Easy transport, easy setup

The EMU Noise Logger has been specifically designed to meet these needs. Everything is contained within a single case, there's no need to carry a separate tripod and microphone. It can be deployed within a few minutes and operates continuously logging noise data. At the heart of it is an EMU Noise Analyzer and its Outdoor Smart Microphone giving sound level meter Class 1 measurements making it suitable for any monitoring application. Based on experience from use in hundreds of airports and unattended monitoring systems around the world, it will withstand the rigors of outdoor monitoring. The enclosed microphone cable and strong mounting arrangement make it resistant to attention from wildlife.

### Protection of the contents

Using equipment designed for long-term outdoor use, the Noise Logger gives you the peace of mind that it is doing the job you put it out there to do. During transportation all parts are secured. During measurement, the microphone cable is contained within the mast for protection from weather and wildlife, ensuring that monitoring continues uninterrupted.

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## POWER

The solar panel delivered with the unit is a robust 90 W mat that you fold out and affix to the ground using the supplied pegs. It enables long periods of operation without visits to change batteries. Operating life is dependent on the amount of sunlight and intensity. The solar panel supplied is designed for low light conditions and thus provides power even under overcast or cloudy conditions. It will operate continuously, self-sustained by the solar panel provided there are 3 solar hours of sunlight daily. This means that the Noise Logger continuously measures and streams data in summer in most places around the world and in many locations continuously throughout the year, when in low power logging mode. These are worst case scenarios and we provide data to help you determine operating life based on time of year and location.



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## OPERATION

Noise Logger can operate in two modes:

### 1. Offline

Here it becomes a fully equipped logger for long-term deployment. Data can be transferred from site by connecting to the unit via Wifi, for example when you bring it back to your office.

### 2. With Communications

Activating digital mobile or wifi communications enables you to view noise data in real time, check equipment functionality, transfer data and manage measurements during the survey. Specific times of communication availability can be set to allow longer battery run time and still allow remote access time periods.

### Features

- Simple to install – set up in a matter of minutes
- Convenient – rugged outdoor case for easy transport
- Solar powered – continuous operation in many conditions

- Robust – an outdoor microphone and mountable microphone and enclosed cables prevent damage from weather and wildlife.

The EMU Noise Logger is compatible with Sentinel On Demand service, which transitions the unit into a fully fledged real-time noise compliance monitor. A specific variant of the EMU Noise Logger can be used with ANOMS airport noise management solutions.

The robust Outdoor Smart Microphone is suitable for long periods of unattended outdoor operation. The microphone is protected against the effects of wind, rain and perching birds and fulfills IEC 61672 Class 1 requirements.

Inside, the microphone is a highly stable prepolarized free-field ½" microphone cartridge with a stainless steel diaphragm.



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## MEASUREMENT CAPABILITY

The Noise Logger is ready to measure all the parameters you need right out of the box, including full statistics, 1/3-octave band analysis and audio recording. Noise data can be exported to Excel for processing. The software will log broadband and narrow band data. Broadband data, statistics and frequency spectra can all be logged in parallel. With long-duration measurements, it provides periodic reports, continuous measurement, and resumption of operations in case of power outages. Charge Injection Check (CIC) is built in, which allows an audit trail to be created showing the measurement chain is within permitted tolerances and will deliver a pass result to show that all is in order. CIC can be scheduled at preset times, allowing you to manage when the system performs a self check. For details of the measurement capability of the Noise Logger, see the Product Data sheet for the Environmental Monitoring Unit, the EMU.

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## RELIABLE UNATTENDED MEASUREMENTS

Measurement integrity is of primary importance in noise measurement situations. Class 1, as described in the current sound level meter standard IEC 61672 – 1:2013, is the grade of accuracy often required for compliance and monitoring activities. In addition, nothing less than Class 1 accuracy and precision is required for outdoor measurement systems which incorporate rain shields and wind shields to ensure appropriate levels of environmental protection are in place for the microphone. The Logger is a type-approved system, independently approved to Class 1 accuracy. This ensures that the measurement system complies with requirements of accuracy for unattended noise measurement, a consideration often overlooked in portable noise measurement systems. Type approval of the system to IEC 61672 – 1:2013 is underway. The unit can be laboratory accredited calibrated.




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**POST-PROCESSING**

When the logger is used stand alone, it produces sets of data in Excel format for post-processing and analysis. The EMU Noise Logger can be used with Sentinel™ and Sentinel On Demand. Sentinel is a Web-based subscription service that provides continuous, real-time monitoring and compliance management. It provides audio playback for investigation and comprehensive reporting providing a traceable record of regulatory compliance. Sentinel is aimed at permanent or multi-year monitoring in urban and industrial areas, and includes noise, ground vibration, dust and air quality. Sentinel On Demand is intended for shorter-term monitoring projects. A specific variant of the EMU Noise Logger can be used with ANOMS airport noise management solutions.

## COMPLIANCE WITH STANDARDS

	<p>The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EU directives</p> <p>RCM mark indicates compliance with applicable ACMA technical standards – that is, for telecommunications, radio communications, EMC and EME</p> <p>China RoHS mark indicates compliance with administrative measures on the control of pollution caused by electronic information products according to the Ministry of Information Industries of the People's Republic of China</p> <p>WEEE mark indicates compliance with the EU WEEE Directive</p>
<p><b>Safety</b></p>	<p>EN/IEC 62368-1 Audio/video, information and communication technology equipment - Part 1: Safety requirements</p>
<p><b>Electromagnetic emission &amp; immunity</b></p>	<p>EN/IEC/ 61000 – 4 – 2: Testing and measurement techniques - Electrostatic discharge immunity test</p> <p>EN/IEC/ 61000 – 6 – 2: 2005 PART 6-2: Generic standards - Immunity for industrial environments</p> <p>EN/IEC/ 61000 – 6 – 3: Generic emission standard for residential, commercial and light industrial environments</p> <p>AS/NZS 2772.2: 2016 Radio frequency fields. Principles and methods of measurement and computation - 3 kHz to 300 GHz</p> <p>EN/IEC/AS/NZS 61000 – 6 – 4: Generic emission standard for industrial environments</p> <p>EN/IEC EN 61326-1: 2013 Electrical equipment for measurement, control and laboratory use - Envirosuite requirements - Part 1: General requirements (IEC 61326-1: 2012 (EQV))</p> <p>EN 62311: Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 HZ - 300 GHZ)</p> <p>EN 301489-1, 17, 24: Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 33: Specific conditions for ultra-wideband (UWB) devices - Harmonised standard covering the essential requirements of Article 3.1 (B) of directive 2014/53/EU</p> <p>EN/IEC/AS/NZS 55032: 2015 + AC 2016: Electromagnetic compatibility of multimedia equipment - Emission requirements</p> <p>EN/IEC/AS/NZS 55024: Information technology equipment - Immunity characteristics - Limits and methods of measurement</p> <p>IEC 616172-1: 2013 - Emissions and immunity criteria</p> <p>CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits</p> <p>FCC Rules, Part 15: Complies with the limits for a Class B digital device</p> <p>This ISM device complies with Canadian ICES – 003 (standard for interference-causing equipment)</p>
<p><b>Battery</b></p>	<p>UN 38.3</p> <p>UN3481 PI967 Part II</p> <p>IEC61233, Second edition</p>
<p><b>Temperature</b></p>	<p>IEC 60068 – 2 – 1 &amp; IEC 60068 – 2 – 2: Environmental Testing. Cold and Dry Heat Operating</p> <p>Battery powered Temperature: -20 to 60 °C; -10 to +60 °C for compliance with IEC 61672 Class 1</p> <p>Charge Temperature: -10 to 53 °C (32 to 113 °F)</p> <p>Storage Temperature: -40 to 60 °C (32 to 104 °F)</p>
<p><b>Humidity</b></p>	<p>IEC 60068 – 2 – 78: Damp Heat: 93% RH (non-condensing 40 °C (104 °F)). Recovery time 2 - 4 hours</p>
<p><b>Enclosure</b></p>	<p>IEC 60529 Protection provided by enclosure: 3710 IP66, 3720 &amp; 3730 IP67</p>



## EMU NOISE LOGGER - SPECIFICATIONS

### Battery

Approvals	UN 38.3/IEC 62133 Second Edition
Chemistry	Li Fe Po
Weight	4.8 kg (10.6 lb)
Nominal Voltage	12.8 V
Nominal Capacity	7.5 Ah
Energy	96 Wh
Expected Life Cycles	> 2000 cycles at 100% discharge >80% rated capacity
Charge Retention in Storage	1 year at 30 °C (86 °F) to > 90% charge retained

### Solar Panel

Mains Input	100 – 240 V AC, 50 – 60 Hz
DC Outputs	12 V
Rated Capacity	90 W
Open-Circuit Voltage	22 V

### Charger

Weight	0.85 kg
Nominal Voltage	16.0 V, max. 4 A

### Physical

Dimensions (L × W × D)	733 x 426 x 232 mm (28.9 x 16.8 x 9.1 in)
Weight (with AC-DC charger)	19.5 kg
Weight (without AC-DC power supply)	18.6 kg
Max. Height (assembled, to centre line of microphone)	150 cm (4' 11")

### Operating Life

Minimum sunlight for continuous operation	> 3 solar hours/day
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## DISCLAIMER

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