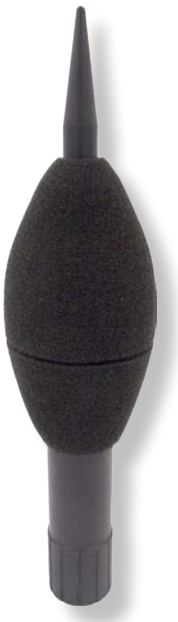
Noise Mapper Compact

ENVIRONMENTAL NOISE MONITORING SYSTEM

CONTINUOUS SURVEILLANCE WITH REAL TIME DATA



FOR CONTINUOUS AMBIENT NOISE MONITORING OF

- Urban areas
- Roads, highways, railways
- Airports and heliports
- Industrial zones
- Civil works

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GENERAL DESCRIPTION

The **Noise Mapper Compact System** has been designed to monitor the environmental noise or acoustic contamination produced by road traffic in cities and roads, airplanes and railway traffic, or noise produced in construction sites. It applies to the monitoring of any other source of noise disrupting the welfare of the inhabitants. **Geonica**, established in 1974, has accumulated a large experience in the design of data acquisition and transmission remote terminals for the monitoring of environmental parameters. This allowed us to develop an advanced environmental noise monitoring system with real-time data transmission, generating dynamic noise maps covering areas of interest. The **Noise Mapper Compact** acquires, stores and transmits the noise levels and other meteorological parameters of each location to a Central Station where the data is received, processed and displayed.

NOISE MAPPER COMPACT DESCRIPTION

The **Noise Mapper Compact** consists of the following elements:

- Outdoor microphone Model **NM-4112/4110**
- **METEODATA 3000** Data Recording and Transmission Unit
- Software Packages **GEONICA Suite** and **WEBTRANS** Internet Platform
- Other sensors: Meteorology, Air Quality, Vehicle Traffic Monitoring.

METEODATA 3000 DATA ACQUISITION AND TRANSMISSION UNIT

One of the main components of the **Noise Mapper Compact** is the Data Acquisition and Transmission Unit Model **METEODATA 3000** main features are summarized below:

Outdoor Microphone Model **NM-4112/4110**

Communication ports (4 basic and up to 6 optional):

- Com 1: General purpose RS232 serial port
- Com 2: Serial port exclusively for development
- Com 3: General purpose, programmable RS232/ RS422/RS485 serial port
- Com 4: Serial port to connect to modems 3G, GPRS, etc.
- Com 5/6:Additional optional serial ports for RS232/ RS422/RS485/UART/SDI12/Ethernet 10/100 Mbit/s

Model **METEODATA 3000CM**

Internal Clock Accuracy

- ±60 seconds/month. Optional ±12 seconds/month

Logic channels

- 24

Storage memory

- 64 MB internal memory. Expandable to 128MB
- Optionally, 2GB SD removable card (8GB ASCII equivalent)

Inputs and Outputs

- 8 or 16 analog differential inputs for meteorological sensors with analog output. Resolution 24 bit A/D converter.
- 4 digital inputs of 16 bits for frequency or impulsive signal (pluviometer, anemometer, etc).
- 2 opto-relay input with 4000V galvanic isolation (e.g. tamper switch signal).
- 2 opto-relay output with 4000V galvanic isolation.

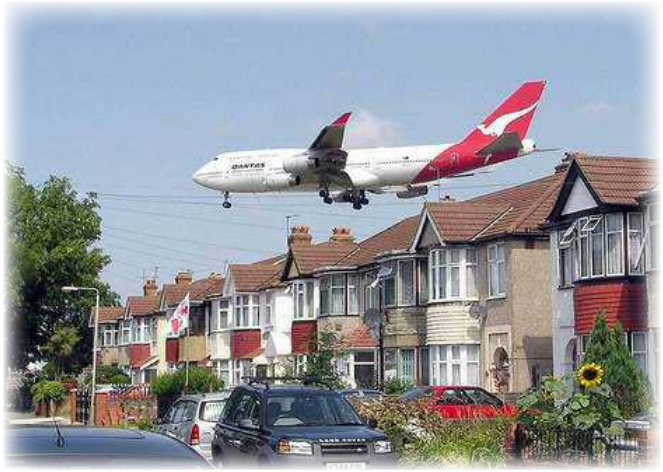
Such flexibility on the communication ports, inputs and out-puts and memory capacity allows the system to be connected to a large number of different sensors like wind, temperature,humidity, etc, and also vehicle counters or digital cameras for image acquisition and transmission.
Depending on the user requirements, Unit 3000 is capable of transmitting the data to the central facility in either way.
All information coming from the Noise sensor, but also data from other sensors if any, are stored in the 3000 unit in configurable time periods of 1, 2, 5, 10, 15, 30 or 60 minutes. This includes statistical data such as average, max and min values for each parameter.

Data transmission options

- Serial port RS232/422/485/USB
- GSM/GPRS/CDMA/3G/4G
- Ethernet/PSTN/Internet
- Radio link
- Fiber optic
- Wi-Fi/Bluetooth
- Satellite (INMARSAT, INSAT, VSAT, etc.)

Display and Keyboard for on site service & maintenance

High brightness and angle viewing alphanumeric display (LCD) of 4 lines per 20 character, with integrated 18-key membrane keypad mounted on a front internal door.



POWER SUPPLY AND BATTERY LIFE

The Noise Mapper Compact consisting of the microphone and data acquisition and transmission unit, is supplied with batteries included in the 3000 unit. The single PCB (printed circuit board) inside the 3000 contains the power supply to be connected to the mains power (100/220V 50-60Hz) or to a solar panel. Ultra low power consumption of the 3000 unit 10mA@12V and of the rest of the components, allows the system to operate with internal 2 x 9 Ah batteries recharging from main power or solar panel giving a high autonomy.

REMOTE TERMINAL CABINET

Batteries, charge regulator, communications modem, keyboard and visual display (optional) are all enclosed into the same cabinet, as a totally compact mount. The data acquisition and transmission unit 3000CP is enclosed into a IP-67 Polypropylene housing, and unit 3000 CM in a IP-66 Metallic housing.

OPTIONAL METEOROLOGICAL SENSORS

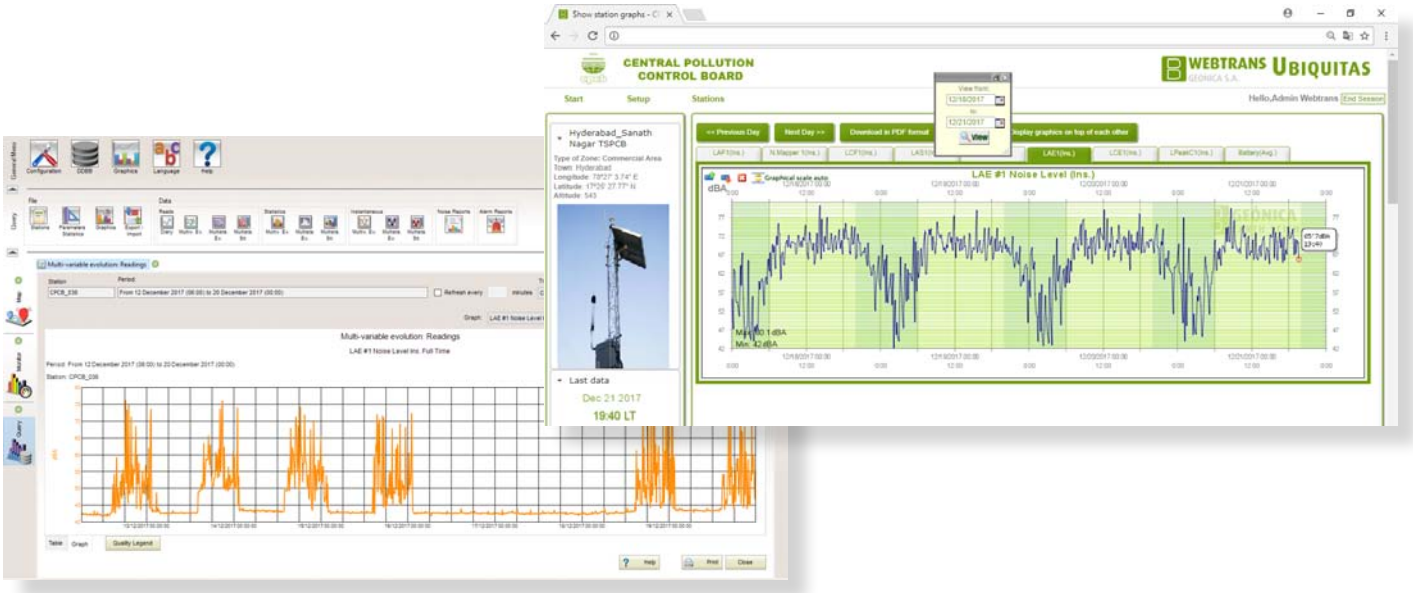
Optional meteorological sensors can also be connected directly to the 3000 unit, in order to measure air temperature,relative humidity, atmospheric pressure, wind, precipitation, etc.

CENTRAL RECEIVING STATION - DATA ANALYSIS AND NETWORK MANAGEMENT

GEONICA SUITE is a set of software applications developed by Geonica for remote station configuration and data management. The software package runs under Windows operating system. Data management goes from data download (locally or remotely) of the remote terminal (Noise Mapper Compact) to historical data display and analysis.

See Brochure No. 9780.0040 for a description of GEONICA SUITE package components.

GEONICA WEBTRANS Internet Platform is a WEB application to manage, query and monitor data collected by Noise Mapper Compact Stations. See Brochure No. 9780.0030 for a description of WEBTRANS.



Technical Specifications	NM - 4112	NM - 4110
Applicable Standards	IEC61672 Class 1 GB/T3785 Type 1	IEC61672 Class 2 GB/T3785 Type 2
Measurement Range	25 ~ 130 dBA (customizable from 20 to 140 dBA within dynamic range)	
Dynamic Range	≥ 110 dB, no range selection needed	
AD Sampling Rate	48 kHz	
Background Noise	19 dB(A) 20 dB(C) 23 dB(Z)	22 dB(A) 23 dB(C) 24 dB(Z)
Frequency Range	10Hz ~ 20kHz	
Frequency Weighting	A (default) , C , Z	
Time Weighting	F (default), S	
Measurement Function	NM-4112A / 4110A (4-20mA output): Lp or LAeq	
	NM-4112D / 4110D (RS485 output, Integration time can be customized): - Freq. Weighting A: LAF, LAS, LAF max, LAS max, LAPeak, LAeq, LA10, LA50, LA90 - Freq. Weighting C: LCF, LCS, LCF max, LCS max, LCPeak, LCeq, LC10, LC50, LC90 - Freq. Weighting Z: LZF, LZS, LZF max, LZS max, LZPeak, LZeq	
Option CIC-411 (for NM-4112D / 4110D)	The Charge Injection Check (CIC) feature allows precise verification of the microphone (including preamplifier and cabling) at remote sites