

Real-Time and Wireless Environmental Monitoring

A New Concept and New Technologies to Measure, Analyse, Storing and Sending of data of Environment Quality in multi-parameters configuration.

Web based configuration and monitoring interface, Abundant on-board storage, Run custom programs on-board for autonomous operation, Wireless sensors, Autopowered, Solid-state elements, Mems, etc.

Customized solution to adapt to any circumstance of monitoring in big and small town, for traffic, city-train, high speed train, harbour, internal living, public place, garden. *An integral part in Urban design, Soundscape, City monitoring.*



Measured Parameters:

- Noise monitoring
- Noise Source Direction
- Noise Recognition
- Ground/Buildings Vibration
- Meteo data
- Measure of CO, NOx, SOx
- Detection of Aromatic gas
- Detection of Oxide-Reduction
- Measure of PM 2,5 and PM 10
- Traffic counter
- Vehicles Speed and Class
- Measure of Solar radiation
- Video and Audio streaming

SCS-9077 & EnviNetWork Project

SCS-9077 represent the next evolution of the EnviNetWork project (upon directions of Environmental Protection Agencies and Universities in Italy North-east) with the goal to develop low-cost and low power Multi-parameter Environmental Monitoring Systems using software released under [GNU-GPLv3](#) license and [CreativeCommons](#) CC-BY-SA. The main application of the SCS-9077 is to monitor the territory and make all data available to a NetWork, either for professional, private or public access to data. Two are the specific and unique features of the system: the *proprietary data-base* technology which allows to keep all-way synchronized locally stored data (inside each station) with the central/common data-base within a professional studio, public office or Surveillance town center, and the *wireless characteristic* of all sensors and data transmission.

Station features:

- 1 GHz RISC CPU low power, supporting C, C++, Java, .net, Linux, Android environment
- Embedded WiFi, 6 x USB, 8 analog Inputs, 8 Digital I/O, up to 32 GB memory, GPS
- Embedded HSUPA wireless modem supporting HSUPA, HSDPA, UMTS, EDGE, GPRS, GSM network
- Internal web pages and ftp server for setup and data download
- Outdoor box IP 66, forced ventilation IP61 (optional for Tropical environment)

Internal configuration and pre-settings options:

- Sound Level Meter and Real Time Analyzer (multiple trademarks supported) – Type 1 EN-ISO-ANSI standard
- 1 to 4 channels A/D converter 51.2 kHz/ch, 24 bits for Noise and/or Vibration monitoring
- Meteo data console or DAQ device
- Traffic counter, vehicles classifications and speed
- PM particles pump
- Li-Ion batteries for 1 full week powering (Full option)
- Solar panel for end-less time autopowering

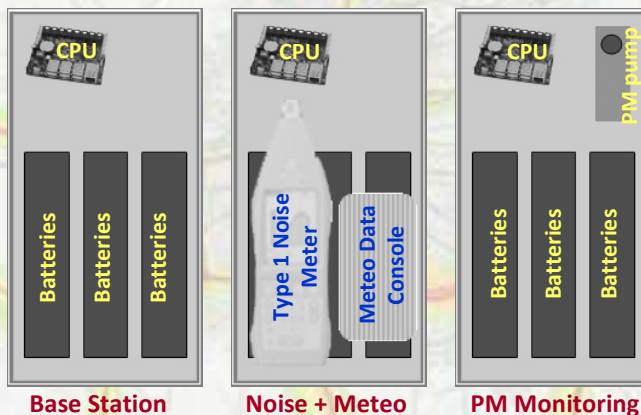
SCS 9077 Station



Technical Features and Options (Main Functions)

Noise Monitoring	From 100ms time base From DC and up to 20 kHz Frequency band depending on hardware selection •Standards: IEC 61672-1:2002 Class 1, IEC 61260:1995 Class 1, ANSI S1.4-1983 Type 1, ANSI S1.11-2004 Class 1
Outdoor microphone system	•Simple Wind, Rain protection, •Wind, Rain protection, Preamplifier heather, automatic calibration
Measuring Instrument	•Basic Microphone system and A/D conversion 24 bits/51 kHz, •Wide selection of market available SLM/RTA Type 1 approved
Basic Functions	Leq, Lmin, Lmax, 1/3 octave spectrum, Weighting A/Z, LN
Additional Functions	Audio wav/MP3 on Trigger level, Time duration, LN Spectra, FFT spectra
Others Functions	Depending on Instruments selection
Meteo data Sensors solar powered	rain collector, temperature and humidity, anemometer, wind direction
Station CPU	Core ARM920T - CPU Speed 1GHz, 8 analog inputs, 8 digital I/O, built-in SSH server, RAM up to 32 GB
Interfaces	Ethernet 10/100baseT, WiFi, USB 6-Port Full Speed
Internal Modem	GSM850/900/1800/1900MHz, UMTS 850/1900/2100MHz, UMTS2100MHz
Data send	All measured or calculated
Local storage	All measured or calculated
Noise, Smoke and Gas	COx: 10-1000 ppm; Δ 1 ppm. NOx: 0,05-5 ppm; Δ 0,05 ppm. SO2: 0-20 ppm; Δ 0,1 ppm. VOC: 10-1000 ppm; Δ 1 ppm; <i>Volatile Organic Compound" idrocarbur in air.</i>
Particles	PM 10: 0-100 µg/m3; Δ 1 µg/m3; Φ 1h. PM 2,5: 0-100 µg/m3; Δ 1 µg/m3; Φ 1 h.
Traffic	Vehicles counter; Class of Cars and Trucks, motorbikes
Wireless magnetometer	Road surface deformation.
Vibration	Accelerometers
Inertial platform	Accelerometer: -5/5 g; Δ 228 µg; 1KHz Giroscopy: -400/+400 °/s; Δ 0.02 °/s; 1KHz Magnetometer: -4/4 G; Δ 400 µG; 1 KHz
Station	IP66 or IP61 box (optional ventilation)
Fixation	Fixing accessories available for piles, facade, ground piles, etc.
Operating Temperature	-20 / +80 °C
Batteries	Li-Ion 15V, 10 to 30 Ah (upon request) No-memory, IC protection chip
Solar panel	0.25/0.5/1.0 m ² (upon request) Polycrystal

SCS 9077 Station – Layout Flexibility



High Level of Customization: all possible configurations are available in the same box-station, still with 7 days autopowering, to monitor: Noise, Vibration, Meteo, Gas, PM, Traffic, etc.

SCS 9077 Station - Application

- City monitoring, traffic control, public area protection
- Video-audio surveillance
- Highway and railways monitoring
- Port and Airport monitoring
- Eolic farms monitoring
- Production site noise monitoring
- Working place, infrastructures and building construction area
- Recreation area, Touristic and Historical site, Soundscape
- EU Directive 49 – information to public
- Interface to Prediction Softwares for Noise mapping and Air-Pollution cartographies
- Rotating machines surveillance: noise, vibration, etc.
- Additional Parameters and more Specific applications:
 - Oxidation-Reduction, pH, Temperature in civil structures
 - Fuel dilution
 - Indoor or outdoor parking control
 - Current and Voltage, electrical consumption
 - Water, Electricity, Gas counters control
 - Monitoring of lifting devices (Elevators, cranes)

SCS 9077 - Networking

- 3 operational modes:
- Single station setup, control and usage using any WiFi device with web browser; Smartphone, Notebook, etc.
 - Peer-to-Peer over internet using any PC connected to internet
 - Central server and cloud computing: using a central server for several stations control and data collection

Your Local Agency/Distributor