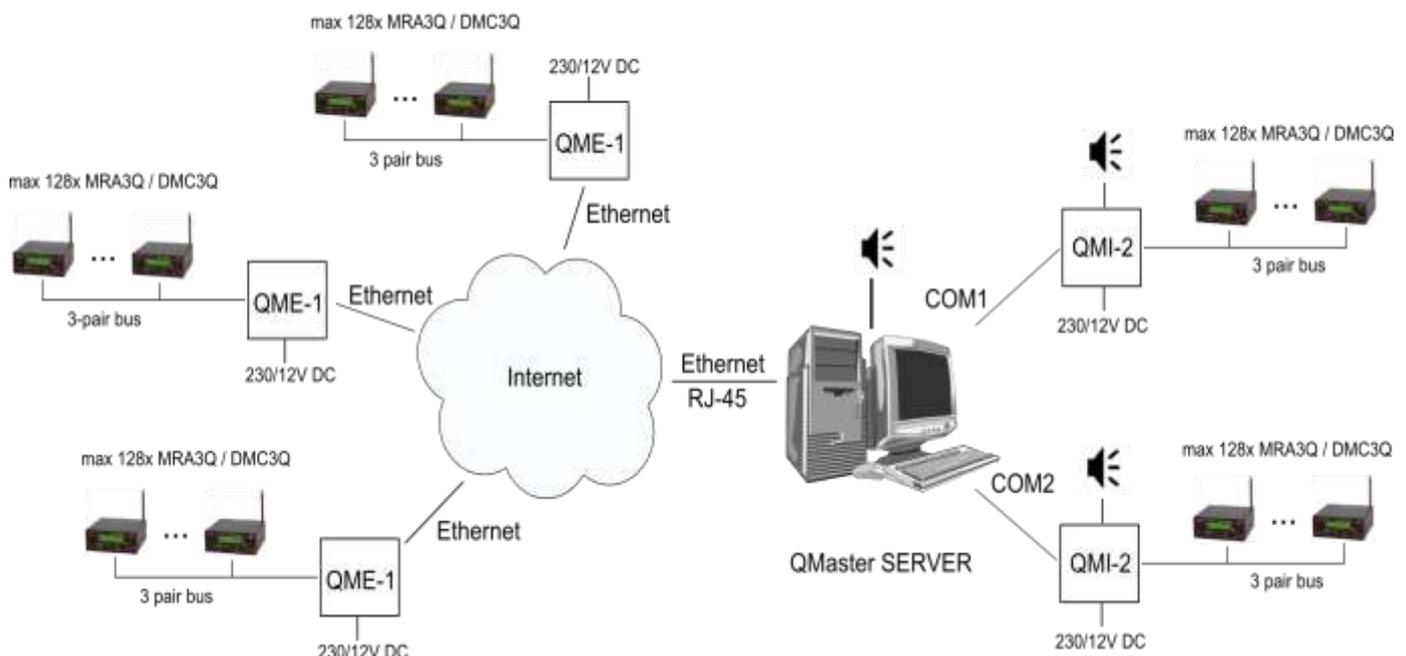# Complex protection against eavesdropping
Object system QM-5000

QM-5000 is an advanced network system for complex object protection against eavesdropping. The system allows remote control of up to 10000 MRA-5Q (or older MRA-3Q) memory radio analyzers and DMC-3Q mobile communication detectors from one PC. QM5000 can control up to 200 QME (Ethernet) buses and up to 9 local COM buses. Up to 128 MRA-5Q or DMC-3Q can be connected to each bus. The QME (Ethernet) buses can be used for remote locations (via Internet) or also for local connections to rooms to which the standard QMI bus can not be installed.

QM-5000 allows full remote control of each device, and supports numerous additional features like spectrum analysis in the range of 34–5900MHz, audio signal analysis, background statistic, new signal statistic, automatic audio sampling, frequency and spectrum records, selective statistic, system statistic, etc. All these features are easily accessible from the QMaster software - a user friendly control application with ergonomic graphical user interface. QM-5000 is not only a comprehensive solution for object permanent protection, but also a very effective tool for electronic countermeasures specialists since it gives a clear graphical picture of the current RF signals. QM-5000 allows to detect and record even such dangerous systems like spread spectrum, or modified WiFi, DECT, and GSM.

The MRA-5Q is an advanced automatic radio scanner suited for instant detection of various types of radio bugs in the frequency range 34 – 5900 MHz. The basis of the system is the radio spectrum memory combined with an ultrafast scanning. The whole frequency range is scanned every ten seconds and the currently received signals are compared with the initially stored "clean" background spectrum. The presence of a new signal activates a three level alarm output and time & frequency information are stored in the new signal memory. Although the MRA-5Q alone is a very effective protection tool against RF eavesdropping when connected to the QM-5000 object network controlled by the QMaster software its efficiency and functionality is greatly extended.

- ## QM-5000 system configuration (for MRA5Q=MRA3Q and DMC3Q)

DMC-3Q is an advanced highly sensitive radio frequency analyzer automatically monitoring frequency range from 860 to 2500 MHz. The DMC-3Q devices can be connected to an object bus and then all events and parameters can be monitored and controlled from a master PC.

DMC-3/DMC-3Q is designed for detection of mobile phone activity and for protection of objects in which is usage of mobile wireless terminals prohibited. The detected frequency spectrum is divided into 4 sections according to the ETSI telecommunication standard: GSM, UMTS, DECT+TDD, WiFi+Video+Bluetooth. The main advantage of DMC-3/DMC-3Q is the detection of communication in the 3G (UMTS) telecommunication standard.

Basic features of QM5000 system

- System allowing comprehensive protection of an object using just 3-pair parallel bus
- Remote control over LAN / Ethernet / Internet
- One master PC controls and automatically analyses data from up to 128 MRA-5Q (3Q) scanners or DMC-3Q on one bus. Using more interfaces QMI-2 or QME-1 up to 10000 devices can be controlled by single PC
- Full remote control of any device including audio monitoring
- Graphical display of alarm history for selected devices or entire system
- Tabular and graphical processing of received signals and their statistics
- Radio background management, easy and effective background optimization
- Adjustable parameters of audio sampling
- Each audio record contains time, length of the sample, frequency, and signal strength information
- GSM, UMTS, DECT, WiFi special processing and warning
- Selective DECT, WiFi, GSM900, GSM1800 and UMTS graphical output
- Detailed spectrum analysis 34 – 5900 MHz, graph printing and saving, simultaneous display of reference spectrum for comparisons
- Audio analysis of detected signal, visual recognition of digital signals, graph printing and saving
- Complete mouse control, comprehensive help function for all instructions and outputs
- QMaster software is Windows 2000, XP and higher compatible

Technical Specification of QM-5000

- Up to 9 local interfaces QMI-2 and up to 200 Ethernet interfaces QME-1
- QMI-2 **-** 3-pair, parallel bus: power, audio, RS485 max. 1200 meters
  - QMI-2 interface: voltage stabiliser for MRA and DMC, audio filter, RS232/RS485 converter
  - PC interface: COM 1-9 RS232, microphone audio input, audio output
  - Local audio: active PC loudspeaker or 2 x 24 ohm earphone
- QME-1 **-** 3-pair, parallel bus: power, audio, RS485 max. 1200 meters
  - QME-1 system interface: voltage stabiliser for MRA and DMC, audio filter, RS232/RS485 converter
  - PC interface: Ethernet/RJ45
  - Local audio: using PC audio outputs (earphone or loudspeaker)
- PC SW/HW specification: Windows 2000, XP and higher, min. 500 MHz, fulfilling EN EMC standards

Examples of graphical output: 1. Analysis of 34-5900MHz   2. Audio analysis of voice