

SMARTGUARD

ENVIRONMENTAL RADIATION MONITORING SYSTEM



EASY MONITORING

SMARTGUARD

How to easily monitor a radiopharmaceutical production Lab

Problems

- You want real-time control of your radiopharmaceutical production facility but you're a bit lost with all those different environmental measuring devices hanging around everywhere
- You use your own building management system and don't want another software package
- You want to keep track of all the cumbersome measurement paper system
- You need to know with one glance that a department is under control.

Possible alternatives

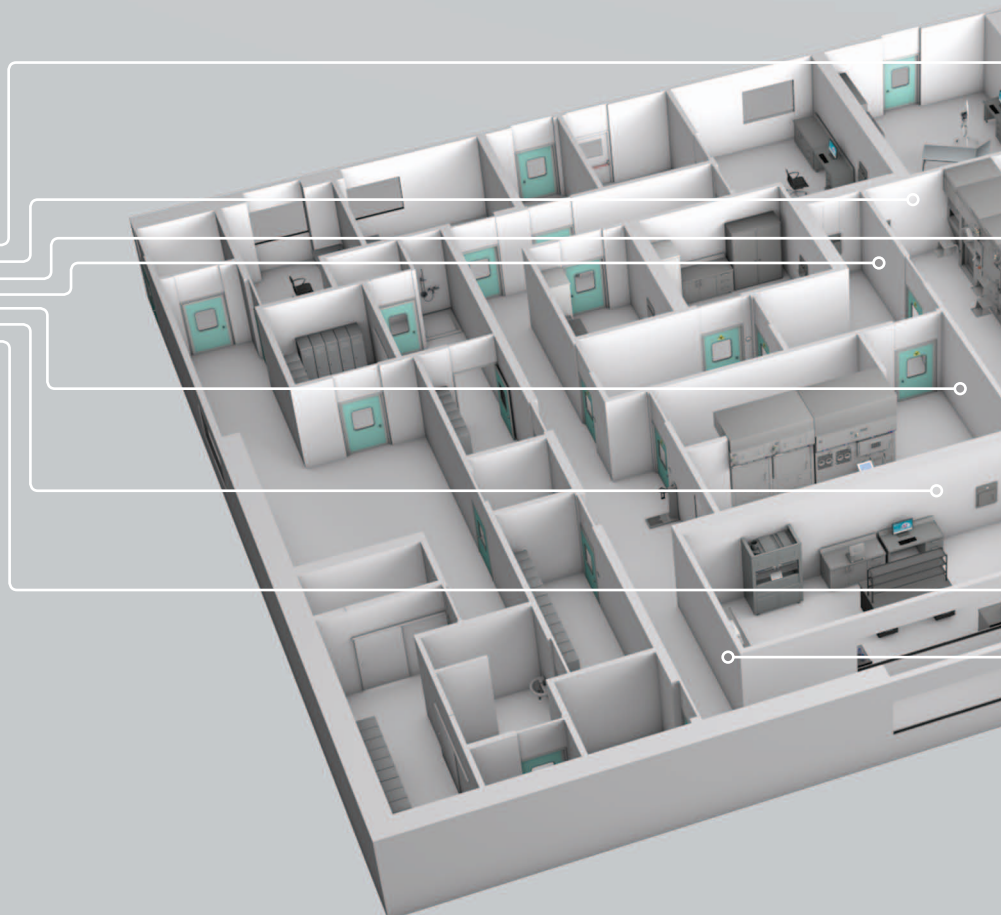
- You could buy all the detectors separately
- You could see the current status on the display of each individual device
- You would never get the single-point overview control (with 10-20 device scattered around the facility).

Comecer SmartGuard solutions

The Comecer SmartGuard is a modular environmental radiation monitoring system that permits operators to have a real time and continuous control of the whole facility by means of a clear and immediate visualization of all potentially dangerous events.

The system can be configured to meet the specific needs of a site by choosing from available modules. The main modules are:

- VRM-303, Geiger Muller probe
- VMS-LA, Luminous alarm column
- VRM-SM, Stack Monitor for continuous air activity measurement in the stack
- VMS-POE, Power over Ethernet switch
- VMS-CS, Control Station.



Benefits of the Comecer SmartGuard solutions

- See the status of measuring devices immediately with the VMS-RD remote display. See your entire facility all at once on a pleasant and easy to use screen
- Get an e-mail automatically if a measuring device causes an alarm
- Get notified directly in case of an alarm with the light columns (VMS-LAs) mounted at strategic points.
- SmartGuard's VMS software has an optional BACnet interface, which will merge with your own building management system (BMS), making it work the way you want it to work: VMS will become a slave to the BMS and integrate with it
- Achieve a paperless system with the online reporting capabilities of VMS
- Configure all devices from the same seat using VMS. You don't have to physically go to the obscurely located devices anymore.



VRM-303 **Detection unit with** **VRM-GP detector**

Wall mount, wide range, energy compensated Geiger-Muller detectors



VRM-NP **Neutron detector (KWD** **2222A) with VMS-CS** **interface**

The 2222A Neutron monitor can be used stationary (with wall mount) as well as portable



VRM-MD **Motion detector**

Standalone motion detector. It has eight sector indicators (laser-based) which detect and show the direction of intrusion or movement



VRM-SM **Stack Monitor for** **continuous air activity** **measurement in the** **stack**

The VRM-SM is designed to continuously measure the average value of low activity concentrations in the exhaust or ventilation ducts of a radiopharmaceutical production facility



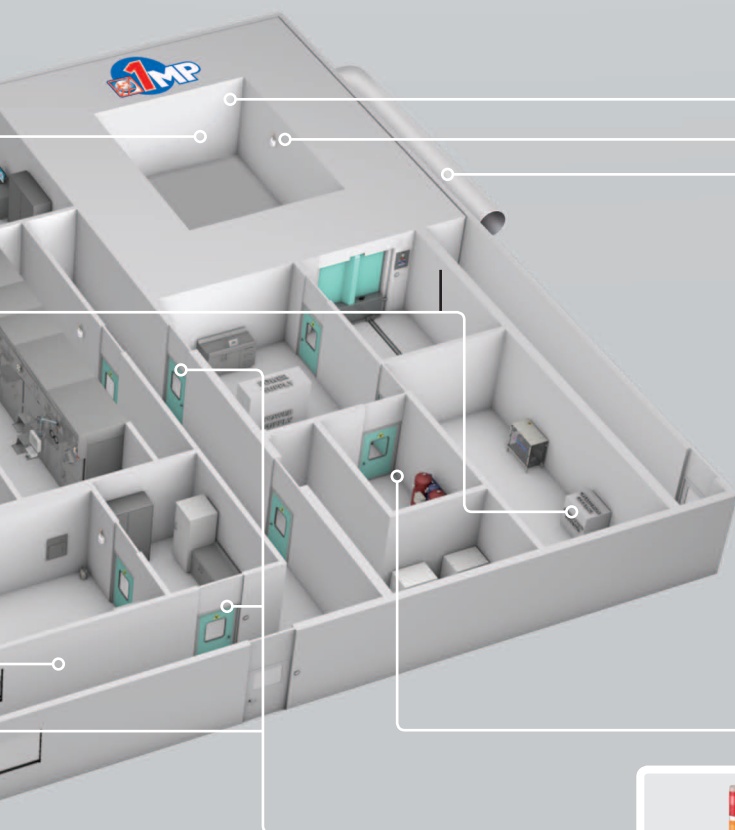
VMS-LA **Luminous alarm** **column**

A luminous alarm column is an easy to use and easy to install signalling device with bright LEDs. It can show a department's status in one glance with only one activated color



VRM-AM **System for air** **sampling and activity** **concentration** **measurement**

The VRM-AM allows air activity concentration monitoring using an air sampling system to collect air samples from various rooms



SmartGuard - Environmental Radiation Monitoring System

SmartGuard Architecture

The heart of a SmartGuard system is the (VMS-CS) Control Station, a PC running the VMS software. A number of Detection Units are connected to this PC, using Power over Ethernet (PoE) with standard LAN cabling. For different tasks, different Detection Units are available. A Detection Unit consists of a detector and a controller/display unit. The detector type varies with the task at hand. Detection Units for the following tasks are available:

- Production monitoring (hotcell)
- Area monitoring (lab)
- Air monitoring (stack/room/hotcell)
- Neutron monitoring (vault)
- Cleanroom monitoring (isolator).

Up to 128 Detection Units can be handled by the Controller Station. As SmartGuard is a fully client-server based system, remote displays (VMS-RD) can be set up in any room of the facility (for example Radiochemistry Lab, Quality Control, etc.), to visualise the system status. Production monitoring in the hot cell and Area monitoring in the lab is covered by the VRM-303 radiation monitor fitted with a VRM-GP Geiger-Müller detector. Measuring data is available locally as well as at the central Control Station.

Comecer's Hot Cell Monitors are also fully compatible with the SmartGuard system allowing facility-wide control and data storage.

For air monitoring two Detection Units are available. The first system (VRM-SM) is meant for measuring activity (concentration) in stacks and ventilation ducts. The second system (VRM-AM) is meant to measure the activity (concentration) inside hot cells or rooms. Air from inside the hot cells (or rooms) is sampled, and the standard VRM-AM supports up to four rooms. An option is available to increase this with five additional rooms for a total of nine rooms.

For neutron monitoring the Detection Unit consists of a KWD 2222A detector, connected to a VRM-NP ethernet module.

Additional room monitoring is available by using temperature, relative humidity and/or (differential) pressure Detection Units. In all facilities subject to GMP regulations, installation is very important. The presence of visible cables, holes where dust can deposit, irregular surfaces, can impede good cleaning procedures.

Wall mounted Detectors can be installed without visible cables thanks to:

- Hidden cables (also in case of remote detectors)
- Low profile connectors in the back panel of readout units
- Integrated detector
- Roughed in cables for the installation

Remote display's (VMS-RD) are also installed without visible cables and can be easily cleaned.

System access

Access to the system is guarded by user passwords. Three user levels are implemented:

- Technologist: Carries out (routine) laboratory proceedings
- Safety expert: Responsible for safety and device configuration
- Service engineer: Responsible for technical installation and configuration.

Virtual maps

The application shows a virtual map of all the areas of a facility. The virtual map allows a quick localisation of all the areas which are being monitored, showing the status and levels of the detectors in the individual areas.

During installation the software is tailored to the specific customer configuration, using the site map usually supplied by the customer.

Event notification

Any anomalous event is visualized on the VMS-CS computer monitor. The clear graphical layout, together with local alarm signals, allows the operator to take appropriate measures in case of such an event.

History of measurements/events

Measurements and events are stored on the VMS-CS and can be presented and exported either as a graph (chart view) or a table (grid view).

For each measurement the following data are stored:

- Date/time
- Detector
- Measuring value
- Alarm level

For each detector the following data are available (within a selectable period of time):

- Total number of events
- Mean value of measurements
- Minimum and maximum of measurements.

Supply conditions

Some units will be powered locally. The customer must assure the line power and ground level consistency throughout the site. Most units are powered by Power over Ethernet, and we suggest that the customer is responsible for the implementation of this LAN infrastructure.

Of course Comecer can be of service in this process, if required.

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