

AIDME

ACCIDENT OR EMERGENCY DEPLOYED MEASURING EQUIPMENT



EMERGENCY RESPONSE
MONITORING

DEPLOYABLE SYSTEM WITHIN
MINUTES

MEASURES GAMMA DOSE
RATE, ALPHA AND BETA
AEROSOLS, RADIO IODINE,
AND NOBLE GAS

Emergency response and emergency preparedness are most important in the general operation of nuclear facilities today. The AIDME system offers unparalleled performance in terms of speed of installation, integrity of results, ruggedness and accuracy of measurement. In use, the AIDME will significantly reduce potential exposure (ALARP) to the general public and operational teams in the unlikely event of a nuclear emergency.

The AIDME (Accident or Incident Deployed Measuring Equipment) is an advanced monitoring system that can be deployed and made operational within minutes. AIDME stations are normally used during emergency or accident situations ; typically to assess the spread of communication following a release of radioactive material and relay this information to a central control facility.

Offering a radiological monitoring range of tens of kilometers, each AIDME station can be deployed (by vehicle) to give rapid assessment of conditions within

towns and villages in vicinity of a plume path. The system may also be employed for routine measurements where the cabling costs would be high or at locations that lack the infrastructure required by conventional, less flexible, monitoring equipment.

To compliment this, Lab Impex Systems can provide a fully fitted-out emergency preparedness-monitoring vehicle with a variety of equipment including the AIDME system, survey meters and lab counting instruments etc. The AIDME is configured for individual customer requirements. Utilising proven, well established monitoring modules from the Lab Impex Systems product range, the system may be supplied with a choice of measurement / sampling channels, which include; (but are not limited to)

- Gamma Doserate
- Alpha and Beta Aerosols
- Radioiodine and Noble Gas
- CO2 and Meteorological sensors

The AIDME has been designed as a modular and flexible monitoring system. The

standard system configuration comprises of three IP55 (NEMA Type 12 equivalent) instrument enclosures, a mounting frame, a battery and a radio antenna. All the modules are designed to lock together to form the AIDME deployable system. Secure locking prevents unauthorised tampering with the function of the unit - (although this may be expanded or modified to satisfy specific monitoring or functionality requirements).

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Transportability and ease of assembly is naturally an important feature for such a system. The AIDME is fully transportable; the units can be unloaded from a vehicle, installed and made operational by one field operator within two minutes.

The AIDME is assembled by placing and securing the battery, antenna and 3 enclosures (containing the sensor, control and pump units) on to a base-plate. Once deployed the system is initiated via a protected start button. It is a rigid assembly, complete with a tilt sensor and intruder alert to safeguard against vandalism.

When fully operational, each AIDME unit collects measurement data from the onboard radiological sensors and Global Positioning System (GPS). This information is then relayed to a central base station.

Several communication methods for data transmission between AIDME and central station can be accommodated. Although the most typical communication method is RF, wireless cellular telephone, satellite and terrestrial telephone lines are all available. A central base station situated in or near the incident control

room polls data from the AIDME network. The LIS Windows based 9205EMS Alarm and Data management software provides a geographical representation of the AIDME network with a continually updating display of result data. This data is archived automatically as the historical record, and may be reviewed at a later date. Extended functionality such as report generation and an interface to other plant systems can be provided.

There are fully operational AIDME systems at various nuclear sites across the UK. The systems comprise of deployable and permanently deployed outstations, vehicle mounted stations and central and vehicle mounted control stations.

In line with station specifications, the AIDME is configured for alpha/beta or beta/gamma particulate and gamma dose rate monitoring. Maypack or prepacked filter cartridges with Charcoal or Silver Zeolite can be provided to allow a radioiodine sample to be taken for subsequent laboratory analysis. Additionally, other sensors may be fitted such as continuous CO₂ and meteorological devices.

GAMMA DOSE MEASUREMENT

The Lab Impex Continuous Monitoring Station (CMSGamma) is used at each AIDME outstation to provide continuous gamma dose rate measurement. When operational in the field, the system reports the dose rate (range from 0.1 mSv/h to 3 Sv/h or higher if required) at regular pre-programmed intervals to the central station

AEROSOL/IODINE MEASUREMENT

The moving filter monitor (CMS 2000 MFM) can provide the option of either continuous measurement of beta particulate and radioiodine airborne concentration or alpha/beta airborne concentration. The monitor consists of control electronics and moving filter mechanics housed in two separate AIDME enclosures. The system is used to continually monitor beta particulates and/or iodine deposited on a 10m GFA (or charcoal impregnated for Beta/Iodine) moving filter roll. The sample is drawn through the paper by an industrial sliding vane vacuum pump located in the third enclosure. As air is sampled through the filter, the flow rate is measured in order to derive an accurate result in Bq/m³ (DAC) Bq/m³(DAC_{hr}).

CENTRAL CONTROL SYSTEM

The 9205EMS Alarm and Data management and control system monitors, maintains and safeguards full operation of the off site AIDME network. Configured for user requirements, the delivered central station comprises two communication controllers (primary and secondary) and a 9205EMS data-logging computer (note: multiple 9205EMS data logging computers may be connected to a network. In operation AIDME continuously reports radiation levels along with its status and location to a base station via GPS and UHF radiomodems. Up to 30 AIDME may be controlled from a single base station. Each 9205EMS PC collates radiological, meteorological, GPS and status information, and displays this data on live and historic screens. Furthermore each 9205EMS Alarm and Data logger PC allows the operator to program working parameters remotely and initiate instructions to individual AIDME stations.

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PERFORMANCE SPECIFICATION

Operational temperature range	-10°C to + 40°C (14°F to 104°F)	Power Supply	<ul style="list-style-type: none"> • Supply voltage:10-15V • Frequency :DC • Max current: 7.5A • Boxed 12V lead acid units, 38-amp hour
Enclosure dimensions	600mm x 450mm x 300mm (Approx. 23"x 18"x12")	System Details	Provides continuous operation for a minimum of 24 hours (gamma measurement only) and with continuous pump operation, upto four hours. A battery charger is provided on top up batteries as required. This can be used in situ or when AIDME is not operating. Other options are available, please contact UENCS for details.
Assembled footprint	<ul style="list-style-type: none"> • Removable SAS GF/A filter cards, 25mm (1") diameter filter in a 37mm (1.45") cardboard hold • Membrane filters are also compatible, more details available on request 	Pump	Rotary sliding vane, 20 to 50 lpm
Flow Monitoring	0.7 square meters	Commu	RF via end fed dipole antenna (10Km line of sight range). Other options are available.
Weights	<ul style="list-style-type: none"> • Each transportable enclosure weighs less than 20 Kg (44lbs)(To comply with individual lifting directives) • Total assembled weight, 90Kg (198.5lbs) 	CE Marking	The CMS2000C and CMS2000MFM bear the CE mark. Declaration of conformity with : <ul style="list-style-type: none"> • EMC Directive:89/336/EEC, 92/31/EEC • Low Voltage Directive :92/23/EEC, 93/68/EEC • Conforms to EMC Standards BS EN50082-1 and BS EN50081-1
Performance	Dependent on measurement option, please contact UENCS for performance specifications and details.		
GPS	Typically accurate to within 10 m (328 ft)		



making a difference

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