Electronic Enterprises (I) Pvt Ltd
Para Electronics—Mfg Division

Application Note
Micro-R Survey Meter Model : D-MRSM

Introduction

Radio-active contamination free material is today's demand of the world considering health of every living being. However to detect it one must have reliable, simple, robust equipment.

Since human senses can not detect nuclear contamination; a simple, robust and sensitive instrument is a genuine need of the present homeland security, cargo industry, & mainly all metal/ steel parts manufacturers, metal scrap processing companies/ individuals. It has been estimated that 70% of the new steel comes out of scrap. This scrap is the main source of nuclear contamination. Now it has become essential that all metal industry should check their raw material (scrap as well as new ore), in process goods and final product for radioactive contamination regularly. This can save their efforts, money and time.

Few years back, we introduced GM tube based portable contamination monitor Model PCM-3 for such requirement. GM tube being small in size and delicate in nature, PCM-3 had limitations for contamination measurement due to limited sensitivity of the GM tube. However GM tube being easily available & widely used gamma detector, PCM-3 is economic solution for checking the material, be it ferrous or nonferrous , metallic or non metallic.

The need of more sensitive instrument was fulfilled by introduction of portable, Micro R Survey Meter, Model DMRSM It has a digital display for indicating dose rate in µSv/Hr or µR/Hr or CPS, and alarm setting in µSv/Hr .

D-MRSM uses 1" dia x 1" Thick, NaI(Tl) detector which is highly sensitive to low to medium range energies, hence most suitable for Health Physics applications, Radioisotope Laboratories, Nuclear Power Plants. Additionally it will useful in agricultural, medical and industrial application where radio isotopes are being used.

In industrial application it is useful for detecting radio active contamination in large areas where goods are stored or kept. General scanning of metal sheets, scrap, boxes containing small parts in process or in finished form in quantities.

About D-MRSM

D-MRSM, is a highly sensitive portable survey meter which is primarily designed to measure low level gamma radiation. It employs an internally housed 1" Dia x 1" L NaI (Tl) Scintillator integrally coupled to a 1" Dia PMT that offers an optimum performance in measuring low level gamma radiation dose rate. DMRSM, can measure and display dose rate in the range of 0 to 500 uR/Hr, 0 to 5 uSv/Hr, or 0-999 CPS on a 128 x 128 pixel graphic LCD screen on the front panel. Various important parameters such as the dose rate alarm level, the battery voltage and the HV applied to the detector are also displayed on the LCD screen. The front-panel controls include a potentiometer for setting dose rate alarm level, a power On/Off switch, and a keypad for selecting the dose rate unit among uR/Hr, uSv/Hr and CPS. The alarm is adjustable over the entire scale range of 0-500 uR/Hr. Whenever incident dose rate exceeds set alarm level, Alarm is activated and it is indicated by a red LED and a buzzer on the front panel.

An elegant ABS enclosure with handle houses sealed battery compartment offers an industrial robustness and quality that promotes long-lasting protection and instrument life.

D-RMSM specs.....

- NaI(Tl) detector based
- Offers high sensitivity over large gamma energy spectrum
- Dose rate measured upto 0-500uR/Hr & in uSv/Hr & CPS units
- Elegant Simple design
- Battery operated & light weight, 128 x 128 pixel graphic LCD
- Re-chargable battery 2100 mAh
- Communication through RS-232 to PC/LapTop

Issue Contains

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Electronic Enterprises (I) Private Limited, Para Electronics—Mfg Division, has been engaged in continuous research and new developments of indigenous products by implementing advance and latest technology. PARA Electronics has the custom engineering capability to provide equipment /accessories to suit a particular application. It has extensive capabilities in electronics designing, mechanical fabrication with good electronics production practices. Well trained and enthusiastic staff offers best possible technical support directly from the factory to the all locations in the country. Customized products are one of the major areas where Para Electronics specializes about. Many products have been designed and developed over past 25 years.

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D-MRSM Continues ….

DMRSM, is very easy to operate and install. User can set the alarm through out the range and set value is displayed on LCD display. Alarm is indicated by RED LED and audio buzzer. Over range indication is displayed on the screen. After every 4 seconds fresh reading will be displayed on the screen.

Battery operated D-MRSM requires five nos. of 1.2V Rechargeable Ni-MH batteries providing 12 Hrs of operational life. External battery charger is supplied with the instrument.

D-MRSM can be calibrated using Cs-137 source or Co-60 source as required by the user or application. User can get proper readings since instrument is calibrated for the energy he is looking for.

We feel that all these survey instruments will assist various industries and concerned people to take necessary precautions while working from radioactive contamination.

It is certainly the most economical instrument to deal with nuclear contamination in steel. It can save crores of Rupees from steel industry and also avoid rejection of material at foreign entry ports.

Typical Applications :

- Nuclear Contamination in Steel and other metals

- Health physics applications

- Nuclear medicine

- Home land security

- Metal Industry for screening raw material, scrap monitoring, in process goods & finished products

- Cargo Industries