

Technical Data

FEATURES :

- Primarily serves as a Gamma Zone monitor, for cobalt therapy & Brachytherapy machines, also recommended for installation at different locations in a medical cyclotron facility.
- Provided with Internal detector / External detector probe (length from 1 meter / 10 meters or more).
- Facilitates networking of multiple Area monitors for centralized monitoring of dose rate & alarm status through software.
- Calibration accuracy within +/- 10% with Cesium source.
- Energy response within +/-25% from 100keV upto 1.25MeV.
- Dose rate range covered (0.1 - 100) mR/hr.
- Auto ranging & auto TC selection in the range of 16 sec to 0.5 sec depending upon dose rate.
- Large size 6 x7 segment LED indication for dose rate is provided.
- Designed using GM tube type 130E.
- Large size WINDOWS for NORMAL & ACTIVE alarm condition.
- 16x2 LCD dot-matrix display for visualization of other parameters.

Area Gamma Monitor type GA 720H, designed & manufactured by NUCLEONIX SYSTEMS is primarily meant to serve as a Gamma Zone Monitor to indicate dose rates and alarm status (visual and aural), once the dose rates exceed the preset level fixed by the user. Also relays will be activated on alarm condition. Unit also indicates fault diagnostic conditions on 1/2" LED display.

Unit is provided always with an external detector probe mounted on the top of Area gamma monitor enclosure by a clamp, with a short cable of 1 meter length by default. Longer cable lengths can be provided on request.

This unit will be useful for monitoring Gamma dose rate levels in working areas of radioisotope laboratories, in oncology departments near cobalt therapy machines or Brachytherapy machines or at other similar medical systems & also in a medical cyclotron facility, or at other medical & industrial radiological installations.

This unit indicates the dose rate digitally on a 6 x 7 segment LED display. Each of the annunciator windows for NORMAL and ACTIVE conditions has LED array. Once alarm triggers ACTIVE window starts blinking.

Unit can be programmed / configured using front panel keypad which can be deactivated after completion of programming. Configuring the unit namely setting preset level, setting reset mode - AUTO/MANUAL etc are achieved by this keypad.

Unit also performs self-diagnostics for HV failure, pulse processing electronics failure and detectors failure on power up.



With Internal Detector



With External Detector probe

SPECIFICATIONS

Radiation detected :

X – ray & Gamma Radiation

Range : 0.1 mR/hr to 100 mR/hr

Detector :

Halogen quenched GM tube GM 130E or Equivalent.

Calibration Accuracy :

+/-10% throughout the range.

Display :

Auto – ranging direct reading, 6 digit 7 segment LED display & 16x2 LCD display. 6 x 7 segment display is interfaced using multiplexed display driver IC & used for display of dose-rate information. 16x2 LCD for visualization of preset alarm & other parameters.

Time Constant :

Time constant varies continuously from 16 sec to 0.5 sec depending upon countrate.

Alarm range :

0.1 mR/hr to 99.9 mR/hr.

Alarm

setting accuracy, calibration stability. Better than +/-10% over a period of six months.

Alarm System :

- a. Alarm indication is by flashing Red (LED) large area window display and Loud audio alarm.
- b. Distinctive EHT / Detector failure alarm.
- c. The instrument has alarm acknowledgement and Reset switches on front panel.
- d. Provision for remote alarm acknowledge and reset.
- e. Alarm annunciation scheme: as tabulated below.

Parameter Status	Visual indication (Red LED)	Audio
Normal	OFF	OFF
Abnormal (Active)	Flashing	ON
On ACK After being abnormal	Steady Red	OFF
Reset after returning to Normal	OFF	OFF

Monitor Enclosure :

Vapour-tight, rugged & elegant. The instrument can be offered with compliance to required IP standards.

Mounting :

Monitor is wall-mountable type.

Self Diagnostics : The monitor has built-in self diagnostics. On being powered it performs tests to ensure that all components and sub-systems are functioning properly. It checks for the Power supply, High Voltage Supply, Detector and pulse processing electronics.

Input Power :

230VAC +/-10%, 50Hz, single phase supply. Power ON/OFF switch is provided with a neon indicator. Spike suppressor and line filter are also provided.

Environment :

This instrument can withstand temperature upto 50 deg C and relative humidity upto 90% in radiation areas.

Environmental compliance :

As per IS 9000 / ANSI N 42.17

The instrument enclosure and detector assembly are IP-54 compliant.. Electronic unit will withstand cumulative radiation dose of 10000 Rad. (30 years of operation).

Seismic qualification :

Electronic unit, its wall mounting bracket, detector probe, wall mounting clamp and floor mounting stand are seismic qualified confirming to IEEE-344

EMI / EMC compliance :

As per IEC 61000 / ANSI N42.17

Mechanical Enclosure :

Size : 357H x 380W x 140D, Weight : 8.5kg approx

Optional Accessories / Additionally Features (at extra cost) :

- i. Detector probe to measuring unit cable lengths, 5,10,15&20 meters can be provided on request.
- ii. (4-20) mA current loop output.
- iii. Relay contacts through circular I/O connector for external control & use.
- iv. RS485 output for networking & data communication.
- v. Networking software (Net count).