Wide Range Smart Gamma Probe

TYPE GP200

Technical Data

Features :

- ❑ Uses SoC, based on ARM Cortex A5 400MHz ,1.5MB SRAM,128MB Flash,extensive use of peripheral devices & Ethernet interface has been employed.
- ❑ Uses Microcontroller for counting radiation pulses, fault diagnostics, setting HV etc.
- ❑ Dose rate, range covered is (0.01 - 10000.00) mR/hr by default, with option of selection of other three 'units' namely µSv/hr, CPS & CPM.
- ❑ Auto ranging & auto TC selection in the range of 10 sec to 0.5 sec depending upon detector count rate.
- ❑ The user interface is through Radgrid Software
- ❑ Designed using GM tube type LND 713 or its equivalent.
- ❑ Normal and Active alarm conditions will display on Radgrid software screen & IN ALARAM UNIT.
- ❑ ACK / RST through RadGrid Software.

Wide Range Smart Gamma Probe Type GP200, manufactured & supplied by Nucleonix Systems is primarily designed to indicate dose rates in the measuring unit selected & produces audio/visual alarms, if the dose rate exceeds preset value. By default the unit is set to be in mR/hr & the range is (0.01 - 10000mR/hr). It uses latest state-of-art electronic devices including SoC based on ARM cortex A5 400MHz CPU with associated peripheral devices and other discrete ICs & components. Use of these devices makes it compact & highly reliable. Powerful embedded code adds-up and enhances its performance and gives extra advantage from the angle of fault diagnostics, programmable features & measurement of dose rate & data communication under networked environment. This Wide Range Smart Gamma Probe type GP200 will be useful for monitoring Low AND HIGH Gamma dose rate levels in mR/hr & R/hr working areas of Radio Isotope Laboratories, Radiotheraphy departments, Medical & Industrial Radiological installations apart from its usefulness in Atomic Power Stations, radiochemical plants, waste immobilization   plants etc.,

With power ON, initialization of SoC, peripheral devices, counter etc, takes place. Followed by this, dose rate, calculation takes place in the selected unit such as mR/hr. Additionally, hardware & fault diagnostic check will be carried out. Wide Range Smart Gamma Probe GP200 indicates dose rate digitally on Radgrid software screen . There is   a visual annunciator unit GREEN , YELLOW & RED for NORMAL, HARDWARE FAILURE & ACTIVE conditions respectively,   shown Radgrid software screen.

User interface is through Radgrid Software by using Ethernet Communication, Multiple Units can be networked. The user interface is through Radgrid Software by using Ethernet Communication.It can be installed in the measurement area, where as the display unit can be in the Operations / Control Room.

SPECIFICATIONS

Radiation to be detected :
Gamma Radiation & X- Rays.

Range :
0.01 −10000 mR/hr
0.1- 100mSv/hr
0- 50000 CPM

Detector : Energy compensated
Halogen -quenched G. M. Tube
having a sensitivity of 7.5 cps /
mR/ hr .

Energy response : +/-25% from
100keV upto 1.25MeV.

Accuracy : +/ - 10% Full scale
with Cesium source.

EHT : 400 V to 700 V DC adjustable
(Typical 500V) (factory set).

Overload : Senses overload above
200% of full scale and upto
10 R/ h & indicates on display "OFL".

Over-range : Senses if the
radiation field being measured has
exceeded the measurement
range of the instrument and
upto 200% of the instrument and
displays "OVR".

Time Constant: First Stable
reading on Power ON within 1 min.

Normal (Slow): 30sec to 0.5 sec
automatically varying inversely with
the radiation level.

Abrupt detection : Update the
current reading within 2 sec.

Calibration Accuracy : +/- 10%
through out the range.

Alarm range :
0.1 mR/Hr to 9999mR/hr.
1 μSv/Hr to 99.99mSv/hr.
1-50000 CPM .
The alarm level setting will be carried
out through Radgrid Software by
Ethernet Communication.

Alarm Indication:

a) Red LED flashing in ALARAM
UNIT.

b) Loud alternating audio tone
(Dual frequency tone)

Alarm annunciation scheme
As tabulated below:

Parameter Status	Visual indication	Audio
Normal	GREEN	OFF
ACTIVE	RED	ON
On ACK	Steady Red	OFF
On Reset after normal	Steady Red	OFF
Hard ware failure	Blinking YELLOW	OFF

Instrument Controls:

a) Acknowledgement icon for
muting audio alarm.
b) Reset icon for resetting the Alarm
indication and alarm relay.

Instrument Fault indication:

HV failure: Visual alarm with
flashing Red LED in ALARM UNIT.

Detector failure :
Visual alarm with flashing Red
LED in ALARM UNIT.

External Console:

RJ 45 connector for Ethernet port

Computer Interface : The monitor
has a Ethernet 10/100Mbps port for
interfacing with a remote Windows
PC. The features supported by
Ethernet port are given below.

- The PC and the GP200 unit shall
operate in a Client/Server configuration
and the software(RADGRID) protocol
will be TCP.

- The PC software shall give commands
and send queries. The GP200 unit will
carry out various functions in
response to the queries.

The firmware of the monitor shall
be able to send the instrument
data like instrument IP, instrument
type, input range, display range,
alarm settings, alarm status,
current reading, diagnostic status of
EHT/GM tube etc. to the Host PC on
demand.

- The firmware shall be able to
receive commands from Host PC and
carry out the setting of different
parameters like instrument IP,
instrument type, input range, display
range, alarm settings, Ack, Reset,
instrument address etc.

- It can store data for every second. Last 60
Days data will be stored in the Instrument.