# NEUTRON MONITOR
## 2222A HE-3

## MEASURES BOTH DOSE AND DOSE RATE

The Neutron Monitor 2222A He-3, DigiPig, is a new version of the former famous model 2222A. To apply new IATA transport regulations He-3 detector is used, with moderator containing polyethylene and boron plastic. Integration with SMD-technology gives a very compact monitoring including µ-processor, memory functions and real-time clock. With these electronics a number of new functions have been integrated.

The 2222 is intended as a general purpose instrument for radiation protection purposes as well as for continous monitoring of levels of neutron radiation in locations where permanent dose monitoring is required.

The instrument measures the neutron dose rate in the unit of mSv/h with approximately correct ICRP Sv response curve in the energy range from thermal neutrons to 17 MeV. The instrument is essentially independent of direction of the source and has a very low sensitivity to gamma radiation.

Each unit is delivered with calibration protocol. The dose rate is presented in analogue as well as digital form. The instrument is also measuring the accumulated dose presented in µSv and mSv.

Average dose rate values during 5 minute intervals are stored in RAM-memory for up to 16 hours operation. The content of the memory can be sent to an RS-232 terminal.

The instrument is also equipped with five presettable dose rate alarm levels, one in each decade. Pulse output for an external counter can be connected to the unit for remote readings.

WINPIG

As an option the 2222 can be supplied with software (Windows) for usage in data communication applications. Data is transferred to a PC by a communication protocol. In addition alarm levels, date, time can be programmed remote via a PC. If a preprogrammed alarm level is reached the 2222 alerts the PC and forwards the alarm. WinPig software supports the PC application and gives advanced graphics to stored data.


## FEATURES

- Measured vaues are displayed in digital and bar-graph form on LCD
- Measuring both dose rate and dose
- He-3 nuetron counter meeting IATA transport regulations
- External pulse output
- Fulfils IEC61005
- Battery operated
- Internal data memory, RS-232 for communication
- Win Pig software for Windows PC

# SPECIFICATION

| | |
|---|---|
| **Detector** | Helium tri filled counter (He-3) |
| **Moderator** | Polyethyleme and boron plastic |
| **Energy Range** | 0.025 eV - 17 MeV |
| **HV Power Supply** | Voltage 260 V - 1340 V, drift 1V/°C frequency from DC/AC converter. 50 kHz |
| **Neutron Sensitivity** | 0.35 - 0.5 cps/µSv/h (individual variation) |
| **Gamma Sensitivity** | 1 Gy/h $^{137}$Cs gives <5 µSv/h |
| **Real-Time Clock** | Presentation of date (yy/mm/dd) time<br>Example: 990420 14:13 |
| **Memory Size** | 200 values stored in RAM |
| **Output** | Connector RS-232 to terminal programme |
| **Display** | LCD with eligible background light interval |
| **Presentation Dose Rate** | Analogue logscale, range 0.001 - 100 mSv/h<br>Digital range 0.001 - 999.9 mSv/h<br>999.9 mSv/h indicates OVERFLOW |
| **Presentation Dose** | Summarised dose in digital range 0.01 µSv - 999.9 mSv<br>999.9 mSv/h indicates OVERFLOW |
| **Dose Rate Alarm** | Five preset values for dose rate manually selected by push button, selectable values are:<br>100 µSv/h, 100 µSv/h, 1 mSv/h, 10 mSv/h, 100 mSv/h |
| **Pulse Output** | Height +2.8 V, length 700 ns, load 10 kohm min |
| **Power Supply** | Internal: Alkaline batteries 6 x 1.5 V IEC LR14<br>operational time 80 hrs<br>External: Via connector. A battery eliminator can be used |
| **Power Consumption** | Power off mode 0.25 mA<br>Power on mode 75 mA |
| **Temperature Range** | -10°C to +40°C |
| **Dimensions** | Ø215 x 325 mm<br>10.5 kgs including batteries |

southern scientific

Scientific House, The Henfield Business Park,
Shoreham Road, Henfield, West Sussex, BN5 9SL
Tel: +44 (0)1273 497600
Email: info@southernscientific.co.uk