



# SPECIFICATION SHEET PADOS Patient Dosimetry System



PADOS is a PC-based measuring system for dosimetric monitoring of patients on radioiodine therapy wards. Patients can be discharged from inpatient treatment after application of radioactive substances only if the dose rate does not exceed a specified value. PADOS allows you to periodically determine and record the dose rate when the patient is at rest. In addition, the control area exits can be monitored.

#### **Benefits**

- Allows optimised occupancy planning of the therapy ward
- Complete overview with graphic representation of the ward floor plan
- Free choice of colours for the representation of beds and probes in the ward floor plan and of curve trends in the graphics
- $\cdot$  Calculation of the discharge date
- As an information system for doctors and nurses it can help reduce staff exposure to radiation

# Key figures



➡ Probes can be connected



# **Scope of application**

Due to radiation protection regulations, radioiodine therapy may only be performed under inpatient conditions. Discharge of a patient from hospital after treatment with I-131 is permitted only if the dose rate does not exceed e.g.  $3.5 \ \mu$ Sv/h at a distance of 2 m. This corresponds to a residual activity of approx. 250 MBq.

PADOS is used to periodically measure the activity or dose rate of patients.

# **Product description**

A detector collimated to the area of interest is mounted above the bed for measurement acquisition. Either Nal scintillation probes or Geiger-Müller probes are used as detectors. The detectors are connected to the central PC system via a serial interface (RS-485).

The cabling is carried out from one detector to the next to the PC system. The measurement data is analysed and stored by the PC system.

Only constant measuring intervals are used for the monitoring. The system software calculates the expected patient's release date based on the periodically recorded data. The data measured by the detectors is sent to the central PC system via the data network. This data is summarized to provide a general overview, including a graphical representation of the ward floor plan.



## **Functionalities**

- · Manual and automatic measurements possible.
- Radiological data can be recorded, displayed, exported and printed for each patient.
- Application and measurement values are displayed graphically for each patient.
- The discharge value (maximum value that may be measured on the day of discharge) is represented by a red line in the graph.
- Medical data can be combined with the radiological data, for example, to create a discharge report.



- Free and occupied beds can be marked in different colours in the ward overview; colours can be defined as desired.
- Bed probes are represented by circles in the ward overview. The colours indicate whether the measurement is running normally or whether there are any malfunctions:
  - green circle: normal, undisturbed measurement
  - brown circle + display "Overflow": measured count rates exceed 20 000 cps
  - brown circle + display "Probe Error": other errors
  - grey circle + display "No Com": Probe not receiving signals
- Representation of probes for exit monitoring of the control area.



## **Extensions and options**

• If probes cannot be installed, for constructional reasons, in every room, a central measuring system can also be set up as an individual counter, using a transponder system for patient identification.

• The system can optionally be equipped with alarm probes to monitor the exits of the control area.

#### **Quality assurance**

Regular inspection of the detectors by means of recurring tests (recurring measurements), which are carried out with a test source.

# Technical data of the probes

| Probe                                    | Nal(TI) probe  |
|--|--|
| Type of radiation                        | for the measurement of gamma radiation               |
| Calibration                              | Depending on the therapy nuclide (e.g. I-131)        |
| Nominal operating range of photon energy | 25 keV-1.3 MeV                                       |
| Detector                                 | Nal crystal<br>Dimension: 5 mm x 25 mm Ø             |
| Nominal operating range of temperature   | $\begin{array}{llllllllllllllllllllllllllllllllllll$ |
| Detector voltage                         | up to approx. 1500 V                                 |

The probes are collimated onto the patient to minimise the effect of any cross scattering that may be present.

