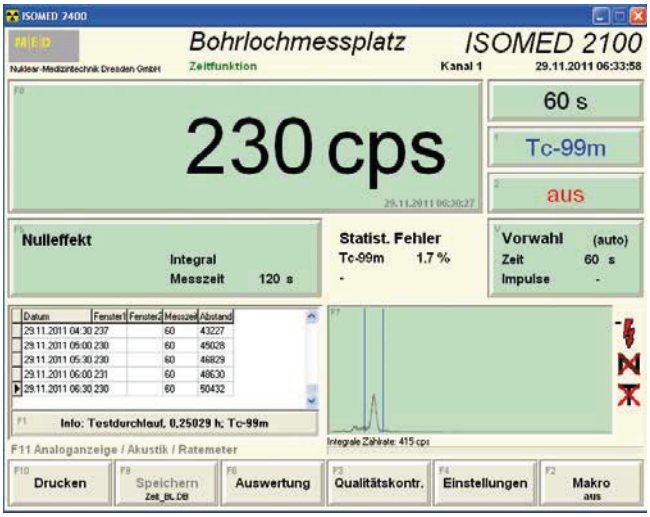
Well-Counter ISOMED 2100

The PC-based **well-counter ISOMED 2100** is a standard measuring system for clinical use. Equipped with a fast MED multi-channel analyser and a high-sensitive NaI-scintillation detector, the digital measuring value and the energy spectrum are displayed online during measurement. An automatic dead time and background correction can be activated. The measuring values can be stored and printed. Measuring value tables can be displayed graphically (as a function of the time) and the energy spectra can be evaluated by means of spectroscopy. A menu to carry out the quality checks according to IEC 61948-1 is integrated in the standard software.



Additional software

Clearance program Clear2000

The clearance program Clear2000, for calculation of the kidney clearance in case of decreasing plasma level (slope), is based on a procedure of Tauxe et al. This procedure, in which the specific plasma concentration at defined times after application of a renally eliminated substance are empirically assigned to the clearance values of a reference method, means that only a blood sample is required. By normalising the plasma concentration and taking into account the different body dimensions, this method was modified in such way, that also tubulus functions of children and babies can also be quantified.

Separate menus allow both the determination of the tubular extraction rate with MAG3 and the determination of the glomerular filtration rate.

Probe Counter ISOMED 2101

The Probe Counter ISOMED 2101 is a measuring system for general applications in nuclear medicine and research. It is offered separately or as a component of combined counters, together with other components and medical software. Typical fields of application are: medical function checks, ILP-monitoring and spectroscopy evaluations. Preferably NaI-probes are used as detectors.

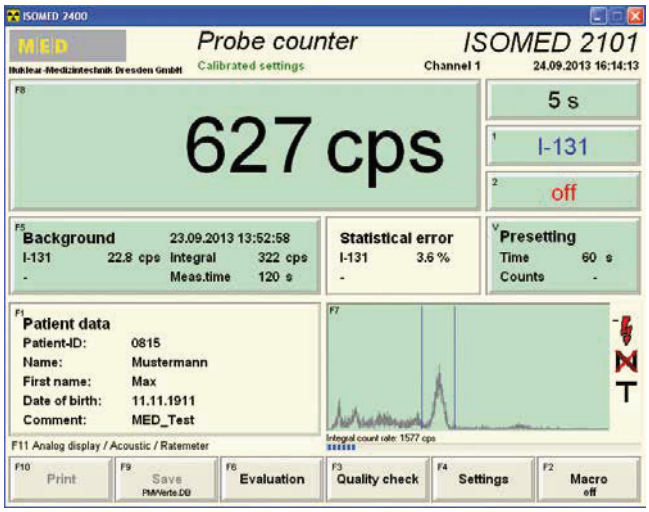
The measuring system works on PC-basis as a Windows application with a fast MED multi-channel analyser and has an automatic dead time and background correction. The used menu structure guarantees a simple operation. The preset energy calibrations allow a simple and quick setting of nuclide-specific isotope windows. In addition to the digital measuring value display, an analogue display with acoustic function is integrated. Measuring value tables can be displayed graphically and the energy spectra can be evaluated by means of spectroscopy. A special menu is meant to carry out the quality checks according to IEC 61948-1. The current energy spectrum is displayed in a control window and informs the user continuously about the measuring function. All measuring values can be stored and printed. Network integration is possible.

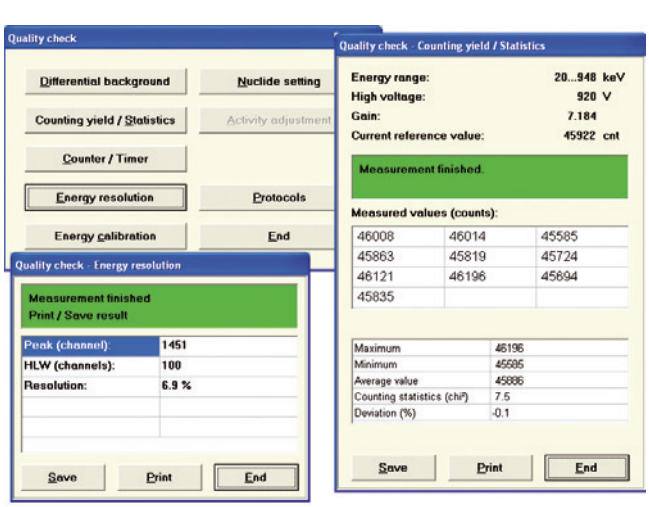
ILP Counter ISOMED 2166 with software LK 2005

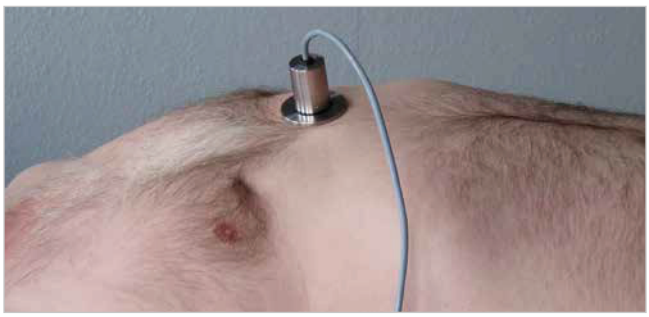
Isolated limb perfusion is a special procedure for the treatment of soft tissue tumors in the extremities. The blood circulation of the limb to be treated is temporarily separated from the systemic circulation. The tumor is treated with a cytostatic agent. To reduce the side-effects of this high-dosed chemotherapy, the transfer (leakage) of the cytostatic agent into the general blood circulation can be minimized. Radionuclides such as Tc-99m are used for this leakage control.

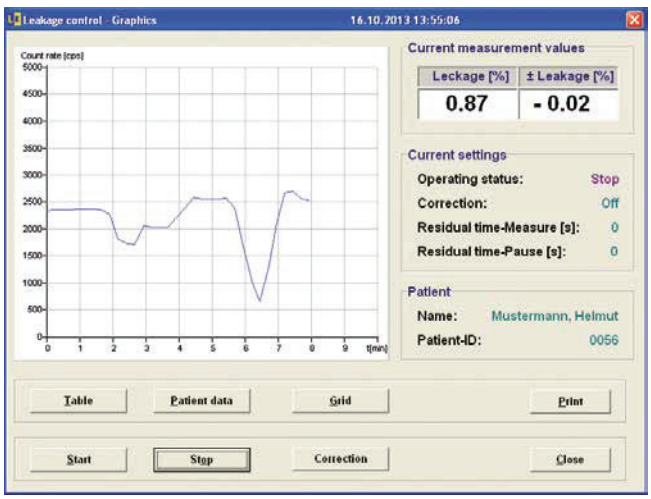
The ILP counter is used to check the activity during operation using one or more detectors in order to report a leakage to the surgical oncologist.

The ILP counter consists of a mobile PC system (notebook) with an MED multi-channel analyser connected via USB interface and a collimated NaI-detector. This mini detector (picture) can be secured directly on the patient's body. During the operation process, the probe measures the count rate cyclically and displays the measured values graphically. This enables you to quickly detect any leakage of the cytostatic agent and to respond accordingly.









On the next pages we will show you the possibilities to adapt the probe counter ISOMED 2101 to your field of use by means of application-specific components and software programs. Combinations of different applications on one counter are also possible.

Thyroid Counter ISOMED 2162

The Thyroid Counter ISOMED 2162 is a universal in vivo-counter, especially for diagnostics and therapy of the thyroid. The measuring system consists of a powerful PC-system with integrated MED multi-channel analyser and a stand system accommodating the shielded NaI-scintillation detector. The heart of the measuring system is the user-specific software Upt2000 (See description). Apart from the field of application thyroid, the measuring system can also be used for kinetic function analyses or incorporation monitoring of personnel working in the therapy field.

Many accessories like e.g. collimators, absorbers, thyroid phantoms and test sources complete the thyroid counter.

ISOMED 2162 with a 1-column stand

Essential characteristics are:

- calibration for I-123, I-131 and Tc-99m under maximum 9 different calibration conditions (distance, absorber, ...) for diagnostics and therapy
- manual input of the thyroid mass or calculation from the scintigraphy and/or sonography data
- uptake determination from background and thyroid activity or from thyroid and whole body activity
- determination of the therapy activity and focal dose also from an uptake
- graphic display of the uptake curve as a function of the time
- calculation of the required period as an in-patient and its earliest possible release. Limit values can be chosen from activity, dose rate and yearly dose.
- post-applications can be taken into account
- possibility for self-measuring of patients. The patient identification takes place by means of a transponder.
- network connection between several thyroid counters. In this way e.g. a transmission between diagnostics and therapy wards is possible.

Our software fulfils the current regulations, standards and directions. The software was created in intensive cooperation with our customers and is based on their experiences.

Thyroid program Upt2000

The thyroid program Upt2000 is used for diagnostics and therapy of the thyroid. From a maximum of 30 uptakes for a patient, the program calculates the parameters effective half-life and maximum storage. With these parameters, the activity for the dose planning of the radiotherapy and/or the effective focal dose during therapy.

Together with the Probe Counter ISOMED 2101, the thyroid program is generally part of the Thyroid Counter ISOMED 2162 or of combined counters, with online processing of the measured count rates. Together with the patient data, the examination results can be stored in a database, printed as a protocol and transmitted to a network.

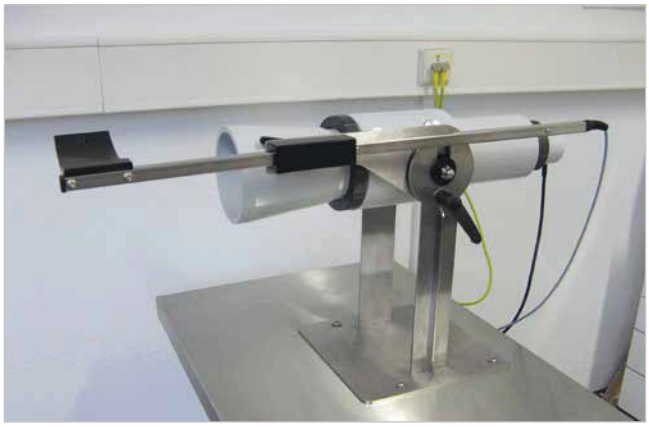
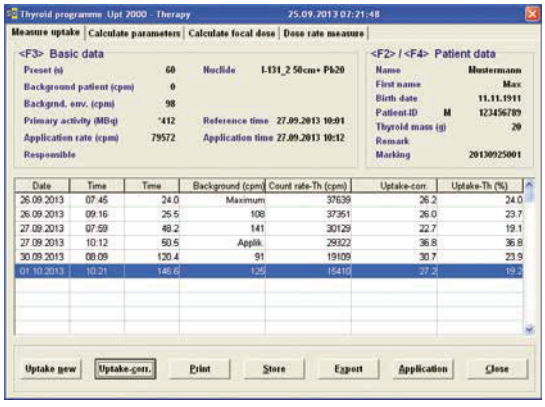


Table stand with chin support



Thyroid program Upt2000

Incorporation Counter ISOMED 2163

According to the German Radiation Protection Ordinance and the "Directive for Physical Radiation Protection Control", a frequent incorporation check to calculate the partial body dose of the thyroid has to be performed on all employees of a radioiodine therapy ward. The monitoring interval for I-131 is 2 weeks. Normally, the incorporation measurements are carried out at a licensed, external measuring institute. Due to the distance, is time consuming, a high strain on the employees and also on organising the sequence of work in the hospital. Additionally to the time and organising efforts and the external incorporation monitoring also requires rather high costs.

As an alternative to the external monitoring, a frequent measurement of the partial body dose on own responsibility is possible and has been proved in practice with the incorporation monitor ISOMED 2163.

The Incorporation Counter ISOMED 2163 consists of:

- PC-based Probe Counter ISOMED 2101 with integrated MED multi-channel analyser
- NaI-scintillation probe 3" x 3" with shielding and collimator
- stand or special chair (picture)
- software Ink2000

Incorporation program Ink2000

The incorporation program Ink2000 is meant for routine incorporation measurement. The measuring system measures the count rates of the thyroid and calculates the thyroid activity. In addition to the activity, the accumulated dose over a definable time period is calculated too. Measurement and evaluation are possible for I-123, I-125 and I-131. Together with personnel data, the examination results and evaluations can be stored in a database, printed as a protocol and transmitted via a network. They fulfil the requirements of the governmental institutes. You can choose between two monitoring procedures. In case of the usual procedure up to now, with the typical measuring intervals of 2 weeks (for I-131), the time moment of incorporation is supposed to be in the middle of the interval. The single doses are calculated by means of integration till the end of life. The required detection limit (is calculated and displayed) may not be exceeded in this case. In case of the individual procedure, the incorporation measurements take place in shorter intervals, in general daily. The single doses are calculated by means of integration till the next measurement. The continuous recording of the activity as a function of the time and the small statistic error allow the recognition of 3% of the allowed yearly dose limit value in spite of exceeding the detection limit. The allowed measuring error makes it possible to use smaller shielding and shorter measuring times.

Essential characteristics are:

- online processing of the measured count rates from Probe Counter ISOMED 2101.
- taking into account the individual thyroid mass and the effective half-life
- taking into account the rest activity of the previous incorporation measurement
- calculation of the partial body dose and effective dose over a definable time period
- graphic display of the activity course during a calendar year and of the current energy spectrum
- listing of the measured thyroid activities and the calculated dose values of all employees over a definable time period
- listing of the performed checks of each employee
- log-on of the person to be measured by means of transponder or chip card
- possibility of obligatory contamination check by means of HFC-monitor before incorporation measurement
- transmission of patient data and examination results via standard network or GDT-interface
- menus for data storage and archiving
- protection for manipulations and wrong operations by several menu levels protected by passwords

The program Ink2000 works on PC-basis as a Windows application. The used menu technique guarantees a simple operation. A combination with the thyroid program Upt2000 using the same hardware is possible.