

## Surgical Detector. DGC-II Gamma Probe



### Introduction

The DGC-II has been designed for intraoperative detection of increased radioactivity uptake areas.

The DGC-II system comprises a Detector Probe and a Control and Visualization Unit.

The Detector Probe has more sensitivity and better spatial resolution than required for the accurate identification of hot spots like sentinel lymph nodes and other small hot points inherent to radio guided surgery.

The Probe Head contains a CdTe (Zn) crystal surrounded by a tungsten shielding – collimator assembly. A low noise preamplifier is located into the Probe handle, to adequate the signals produced at the crystal every time it is reached by a gamma ray.

The Control and Visualization Unit receives such signals and, after analyzing it, shows digitally the count rate on a large numeric display. In addition to this, the read out is accomplished also by an audible signal and a bar LEDs array where the number of bars lit is proportional to the count rate. The Control and Visualization Unit is supplied only by a built in recargable battery. No mains cable is present while operating.

The DGC-II is capable of detecting different nuclides commonly used in nuclear medicine. The standard option is factory adjusted for Tc-99m.

### Detector Probe and Interface Cable

Detector probe housing is a stainless steel one. Probe has the detection head in one side and an interface cable in the other.

The Probe Head contains a CdTe (Zn) crystal surrounded by a tungsten shielding – collimator assembly. A low noise preamplifier is located into the Probe handle, to adequate the signals produced at the crystal every time it is reached by a gamma ray.



When used, detection Probe and cable is normally placed in a disposable sterile sheath. Just in case of a contamination, it can be sterilized by using ethylene oxide gas.

## Control and Visualization Unit

The Control and Visualization Unit receives the probe signals and, after analysing it, shows digitally the count rate on a large numeric display.

In addition to this, the read out is accomplished also by an audible signal and a bar LEDs array where the number of bars lit is proportional to the count rate. The Control and Visualization Unit power is supplied by built in rechargeable battery; so no mains cable is present while operating.



## Features

- High efficiency solid state detector
- Angled probe handle with ergonomic design
- Unsurpassed spatial resolution
- Optimized discrimination between hot spots and background
- Direct read out on a high luminosity numeric display
- Audible signal proportional to count rate
- Large autonomy, built in rechargeable batteries
- Carrying case (optional)

## Specifications

### Detector Probe

- **Detector:** CdTe (Zn) Crystal 5 x 5 x 3 mm
- **Low noise pre-amplifier** built into central shaft
- **Energy Range: 20 to 200 keV**
- **Type of Collimator:** Internal, made of tungsten
- **Storage temperature range:** + 5°C to + 40°C
- **Housing material:** Stainless steel
- **Dimensions** (without cable):
  - f* **Total length:** 170 mm
  - f* **Diameter of the head:** 12 mm
  - f* **Central shaft diameter:** 10 mm
- **Angle of the head,** in relation to central shaft: 35° (simplifies access in small incisions)
- **Weight:** 70 g
- **Relative humidity** < 80% (not condensing)

### Detector Probe

- **Power:** Built in rechargeable batteries
- **Battery charger** powered by an external source (not provided by the manufacturer) that can supply 18 VAC @ 1 A
- **Maximum count rate:** 20000 cps (counts per second)
- Three user selectable energy windows
- **Operation Temperature Range:** + 15°C to + 40°C
- **Storage temperature range:** + 5°C to + 40°C
- **Relative humidity:** less than 80% (non-condensing)
- **Size:** (excluding handle)
  - Height: 10 cm
  - Width: 30 cm
  - Depth: 30 cm
- **Weight:** 4 kg
- **Preset isotope:** Tc-99m
- **Autonomy:** > 7 hours with full battery charge