



## Digital Thyroid Camera GKS-1

reliable software

easy to use

fits nicely even into small spaces

high comfort for your patients

### Stand

automatic vertical positioning  
 detector tilt possible  
 acquisitions of patients in lying or sitting position

floor space	63 cm x 83 cm
height	85 - 132 cm
lift	47 cm

### Detector

case	14 mm aluminium
shielding	12 mm lead
dimensions (in cm)	29x34x34 (HxWxD)
weight	70 kg

### Crystal

type	NaI
thickness	6,5 mm (f.Tc99)
optional (up to 400 KeV)	9,5 mm (3/8")
form	square
dimensions (cm x cm)	21 x 21
field of view (cm x cm)	18 x 18

### Photomultipliers

number	25
form	round
assembly	square
diameter	54 mm

### Collimators

standard	LEHR (140 KeV)
optionally available	HEGP
collimator cart	optional

### Digital Camera Electronics

with following devices

#### **Electronics Case**

configured as tower case  
 dimensions (in cm): 40 x 20 x 50 (H x W x D)

power supply for low voltage (+- 5 volt)  
 power supply for high voltage (0-1500 V),  
 switchable by computer

#### **Digital Detector Electronics**

Digital detector electronics with high performance FPGA processor (integrated in detector case) consisting of:

#### **25 digitally controlled preamplifiers for**

- adjustable amplification with 24 bit
- adjustable offset with 12 bit
- LED-calibration for photomultipliers
- differential output to A/D-converter

#### **Connection and distribution board**

Connection of the signals between preamplifier and processor board

#### **FPGA processor board with 32 A/D converters**

40 MHz continuous sampling rate per channel  
 integration time 25-1000 nsec,  
 adjustable by software  
 processing rate about 500.000 incidents/sec.  
 digital offset correction  
 pileup recognition  
 calculation of the digital summation signals for coordinates and energy

#### **USB connection adapter**

Control of the electronics  
 transfer of the results to the computer  
 via USB 2.0

### Software

Operating software LINUX  
User software and manual  
available in English, French and German,  
other languages on request

Nuclear Medical Software Packages (NSP):

**NSP-00** basic software  
for general purpose functions  
(organ-independent)  
including quality checks

**NSP-01** thyroid scintigraphy

### Hardware

Current specifications:  
see Processing System GMS-586

### Peripherals

TFT colour monitor	19"
colour laser printer	optional
mouse, keyboard	
foot switch	

### Additional Equipment

#### **OP-101 Upgrade I-131 (therapy)**

crystal 9,5 mm  
collimator High Energy General Purpose  
incl. cart  
reinforced detector shielding

#### **OP-102 Upgrade I-131 (diagnostics, uptake)**

crystal 9,5 mm  
collimator High Energy General Purpose  
incl. cart

### **DICOM**

Store, Query/Receive, Print, Worklist, MPPS

Uninterruptable Power Supply (UPS)

### Technical Specifications

#### **Range of Energy**

standard	60-200 KeV
optional	60-400 KeV

#### **Performance parameters (DIN IEC 789)**

intrinsic spatial resolution (for 6,5mm crystal)  
- FWHM <3,3 mm

uniformity  
- integral <2,5%  
- differential <2,0%

linearity  
- absolute <0,4 mm  
- differential <0,2 mm

#### **Count rate processing**

- max. count rate	250.000 cps
- 20% count rate loss	100.000 cps
intrinsic energy resolution	<9,5%

#### **Ambient Conditions**

temperature	operating range 18° - 26°
relative humidity	operating range 20 - 80 % (non-condensing)

change of temperature	max. +3° /h
line voltage	230 V, 50 Hz, 16 A
heat dissipation	450 W
current	approx. 2 A

#### **Minimal Spatial Requirements**

stand with detector	63 cm x 83 cm
electronics	60 x 45 cm
peripherals	120 x 80 cm (recommended)

#### **Weight**

Camera system	120 kg
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