

Dose Area Product Measuring System

VacuDAP-C

Ref: 160 01+922 1



The VacuDAP - C measuring system determines the radiation level a patient is exposed to in radiological diagnostics, especially if fluoroscopic units are used. The following values are measured simultaneously:

- Dose area product (DAP, cumulative)
- Dose area product rate (DAP rate) · Irradiation time (cumulative)

Via a serial interface RS-232 (half-duplex mode, without galvanic isolation) the measuring data are transmitted to the host computer.

The VacuDAP - C meets the requirements of the European Standard IEC 60580 for dose area product meter.

The non transparent ionization chamber and the electronics have been developed for installation in a scanning digital radiography system. Both components have been calibrated together (filtration 3.5 mm Al, 70 kV) and have the same serial number.

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Technical data

All technical data are valid for the specified ambient conditions according to IEC 60580.

Ionization chamber

Response

standard calibration	2.4 pC / $\mu\text{Gy}\cdot\text{cm}^2$
additional absorber (0.5 mm Al)	2.6 pC / $\mu\text{Gy}\cdot\text{cm}^2$

Leakage current

≤ 0.1 pA

Response versus radiation quality

without automatic correction function	see Graph 1
with automatic correction function	$< \pm 2\%$

Quality equivalent filtration (70 kV)

0.5 mm Al

Active Area (max.) ¹

8 x 242 mm²

Chamber voltage

300 V

Distance of the electrodes

6 mm

Stabilization time

5 min

Measuring system

Digital resolution

Dose area product	4 $\mu\text{Gy}\cdot\text{cm}^2$
Dose area product rate	4 $\mu\text{Gy}\cdot\text{cm}^2/\text{s}$
Irradiation time	0.001 s

Combined standard uncertainty (acc. IEC 60580)

± 25 %

Rated range of use

Tube voltage	(50 ... 130) kV
Dose area product rate	($4\cdot 10^1$... $4\cdot 10^5$) $\mu\text{Gy}\cdot\text{cm}^2/\text{s}$
Air kerma rate ¹	(10... $3\cdot 10^6$) $\mu\text{Gy}/\text{s}$
Atmospheric pressure	(80.0 ... 106.0) kPa
Temperature	(+10 ... +55) °C
Air humidity	(10 ... 80) % rel. humidity (max. 20 g/m ³)

Supply voltage (+U_S)

(+ 10 ... + 30) V DC

Power consumption

max. 2 W

Weight

Ionization chamber	170 g
Electronics	135 g

1) at the position of the chamber