



## AEC CHAMBERS – PATIENT SAFETY

### General

The AEC chamber is an accessory for X-ray systems (projection radiography). The AEC chamber provides a signal proportional to the image receptor dose, enabling X-ray imaging with optimal diagnostic image quality with minimal patient radiation exposure. The AEC chamber is designed for continuous operation in professional health care facilities (clinics, hospitals, medical practices).

### Configuration



The AEC chambers are air-filled parallel-plate ionization chambers with typically one or three independent sensor fields. Several different outer dimensions are available. Each VacuTec AEC chamber is equipped with a preamplifier and electronics, which converts the low ionization current into EMC stable digital signals. Additionally it supplies the voltage for the chamber operation and allows selection of the sensor fields.

### Selection of AEC chambers with digital interface

| REF       | No. of Measuring fields | Connector   | Size (mm) |
|-----------|-------------------------|-------------|-----------|
| 140 00 13 | 3                       | Sub-D 9 pin | 374 × 354 |
| 141 00 18 | 3                       | Sub-D 9 pin | 374 × 374 |
| 141 00 20 | 3                       | Sub-D 9 pin | 320 × 320 |
| 142 00 13 | 1                       | Sub-D 9 pin | 374 × 374 |
| 143 00 06 | 3                       | Sub-D 9 pin | 374 × 450 |
| 145 00 44 | 3                       | Sub-D 9 pin | 450 × 450 |
| 145 00 45 | 3                       | RJ45        | 450 × 450 |
| 151 00 18 | 3                       | Sub-D 9 pin | 450 × 450 |
| 151 00 21 | 3                       | Sub-D 9 pin | 450 × 470 |
| 151 00 22 | 3                       | RJ45        | 450 × 470 |

Optionally the digital output signal can be transformed into an analogue voltage by using an additional ramp module.

# Selection of ramp modules

(for Sub-D type AEC chambers)

| REF       | Description  |
|-----------|--|
| 902 00 42 | for 1 and 3 field AEC chambers                       |
| 902 00 11 | for 1 and 3 field AEC chambers, with cable extension |

## Specification

|   |   |
|---|---|
| Energy range / tube voltage                 | 40 ... 150 kV   |
| Dose rate range                             | 0.5 ... 1000 $\mu\text{Gy/s}$                             |
| Exposure dose range                         | 1 ... 100 $\mu\text{Gy}$                                  |
| Digital resolution (selectable)             | 0.025 $\mu\text{Gy}$                                      |
| Exposure time range                         | 1 ms ... 10 s   |
| Sensitivity tolerance between sensor fields | < 5 %   |
| Attenuation factor                          | < 1.04  |
| Aluminum equivalent                         | < 0.75 mm Al  |
| Supply voltage AEC chamber                  | +12 ... +16 V DC  |
| Power consumption                           | max. 2 W  |
| Digital output                              | Differential signal (RS 422), pulse width 2 $\mu\text{s}$ |

## When using ramp module

|                |                                 |
|----------------|---------------------------------|
| Supply voltage | $\pm(12 \dots 16) \text{ V DC}$ |
| Ramp output    | 0 ... 10 V                      |

## Flowchart AEC

