VacuTec Meßtechnik GmbH
Phone: +49 (0) 351 31724-0
E-Mail: info@vacutec-gmbh.de
www.vacutec-gmbh.de

VACUDAP - OEM *DUO*, VACUDAP *DUO* & VACUDAP-C *DUO*

IONIZATION CHAMBERS FOR MEASUREMENT OF AIR KERMA IN ADDITION TO DOSE AREA PRODUCT

General

The Dose / Dose Area Product Measuring System VacuDAP *duo* is an accessory for radiography and fluoroscopy diagnostic X-ray equipment and is perfectly suitable to monitor the patient dose in radiological applications according to the local regulations. The display of air kerma and air kerma rate at the reference point as a measure of the skin dose are required for fluoroscopy and interventional X-ray equipment. The devices of the VacuDAP family with the suffix "*duo*" provide the prerequisite to fully comply with the technical standards.

VacuDAP *duo* & VacuDAP-C *duo*

- The VacuDAP - OEM *duo*, VacuDAP *duo* and VacuDAP-C *duo* are intended for simultaneous determination of the dose (referred to as reference air kerma) and dose rate (referred to as reference air kerma rate), dose area product, dose area product rate and irradiation time.
- Special technology for creation of two measuring fields, completely invisible on the X-ray image
- Transparent ionization chambers in two sizes
- A circular ionization chamber with separated electronics suitable for C-arm systems

Since the air kerma depends on the distance from the focus, it is important to clearly define the position of the measurement chamber and the reference point. Both distances affect the measuring values and must be transferred and updated to the VacuDAP.

Features:

- RS232 at display unit
- RS485 at DAP chamber
- Adapter *Bluetooth*® available for VacuDAP-C *duo*

General technical specification / Rated range of use:

	VacuDAP - OEM *duo*	VacuDAP *duo*	VacuDAP-C *duo*	VacuDAP-C *duo* with display unit
Chamber dimension [mm]	158 × 140 × 18 REF 456 00 15 182 × 164 × 18 REF 458 00 15		Ø 100 REF 161 xy+922 wz	
Active area [mm]	14 x 14 ... 123 x 123 REF 456 00 15 14 x 14 ... 147 x 147 REF 458 00 15		Ø 8 ... 72 REF 161 xy + 922 wz	
Light transparency	yes		no	
Electronics dimension	N.A.		80 × 50 × 179 mm³ REF 161 xy+922 xy only available as pair „Ion chamber + electronics“	
Display unit	N.A.	Display *duo* REF 943 00 03 Dimension: 169 × 94 × 37 mm³	N.A.	Display *duo* REF 943 00 03 Dimension: 169 × 94 × 37 mm³ Adapter *Bluetooth*® + Display *Bluetooth*® REF 943 41+943 06
Cable	Interface-cable RS232 952 00 61-xy (3, 5, 6, 15, 20, 25, 30 m)	Cable MEDI-SNAP® 943 00 40-xy (6, 15, 20, 25, 30 m)	Interface-cable RS232 952 00 61-xy (3, 5, 6, 15, 20, 25, 30 m)	Cable MEDI-SNAP® 943 00 40-xy (6, 15, 20, 25, 30 m)
Power	Plug-in power supply in combination with Interface cable RS232	Plug-in power supply EU, UK, US, AU, WW 950 00 75-xy	Plug-in power supply in combination with Interface cable RS232	Plug-in power supply EU, UK, US, AU, WW 950 00 75-xy
Rails and adapter	Guide-pair 147, 150, 152, 170, 176 mm U-guides 132, 140, 150 mm Adapter (for additional filter) 140, 147, 152, 170, 171, 176 mm Universal Adapter 140 ... 190 mm		N.A.	
Printer	N.A.	Label printer ZD410 REF 950 00 80 Printer cable 943 00 36	N.A.	Label printer ZD410 REF 950 00 80 Printer cable 943 00 36
Interface	Serial interface RS485, (MEDI-SNAP®) RS232 with cable 952 00 61 USB with USB-Converter 952 00 67 CAN Bus with CAN-BUS-Converter 952 00 65/66 (sub-D 9 pin/RJ45)	RS232 at display unit (sub-D 9 pin) PC connection with Nullmodem cable 943 00 38-xy (3, 5, 10 m)	Serial interface RS485 (MEDI-SNAP®) RS232 with cable 952 00 61 USB with USB-Converter 952 00 67 CAN Bus with CAN- BUS-Converter 952 00 65/66 (sub-D 9 pin/RJ45) *Bluetooth*® with Adapter-*Bluetooth*® REF 943 00 41, 58 × 39 × 20 mm³	RS232 at display unit (sub-D 9 pin) PC connection with Nullmodem cable 943 00 38-xy (3, 5, 10 m)
Digital resolution – DAP	0.01 µGym²*			
Measuring range – DAP rate	6 ... 2 220 000 µGym²/min*			
Digital resolution – Dose**	0.003 mGy*			
Measuring range – Dose rate**	2 ... 12 000 mGy/min*			
Time resolution	1 ms			
Radiation quality	40 ... 150 kV			
Atmospheric pressure	80 ... 106 kPa			
Temperature	+10 ... +40 °C			
Air humidity	10 ... 80 % rel. humidity (max. 20 g/m³)			
Standards	IEC 60580, IEC 60601-1 as well as prerequisites for IEC 60601-2-43, CFR 1020.32, IEC 60601-2-54			

* VacuDAP-C *duo* differs slightly, please refer to datasheet

** Distance focus-chamber: 28 cm; Distance focus-reference point: 100 cm

VacuTec Meßtechnik GmbH
Dornblüthstr. 14a, 01277 Dresden, Germany
info@vacutec-gmbh.de | www.vacutec-gmbh.de

CE 0197

TÜVRheinland CERTIFIED
Management System EN ISO 13485:2016 ISO 9001:2015
www.tuv.com ID 0000062000