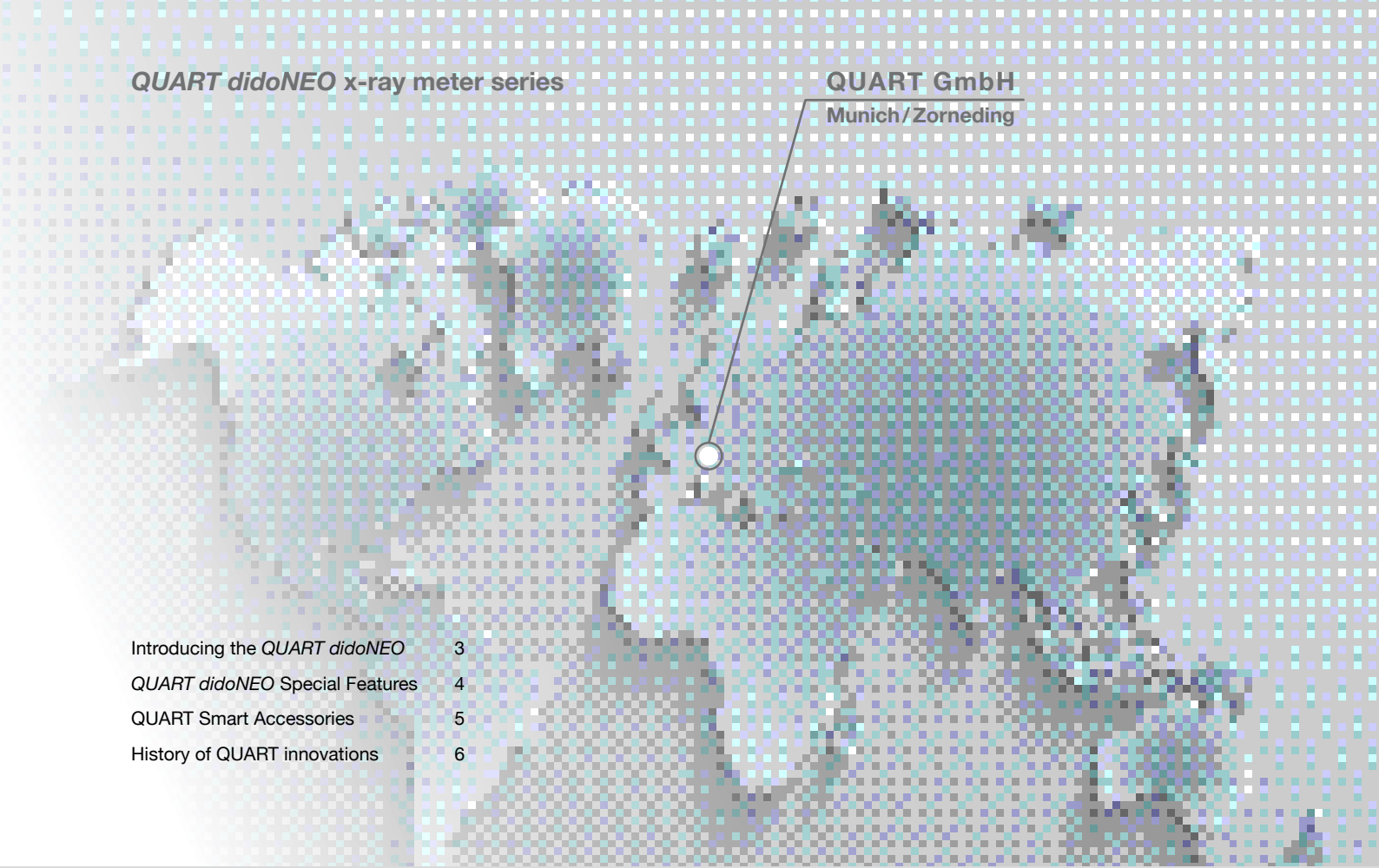
Meters for X-Ray Service and QA/QC

QUART
Quality Assurance in Radiological Technologies

QUART didoNEO

QUART didoNEO x-ray meter series

QUART GmbH
Munich / Zorneding



dido [/'dʌɪˌdɔː/] (abbr.) shortened form of “diagnostic dosimeter”
traditional ID for QUART meters

NEO [/'ne-ˌɔː/] (ancient Greek) new, recent, current

The *QUART didoNEO*
line of meters introduce a new
approach to the market of diagnostic x-ray measurement

- The system features the **smallest** and **thinnest** multi-parameter detector available.
- It has the **lightest** multi-functional base unit ever designed in our industry.
- The user can access a **waveform preview** on the unit’s display in the field – without the need to access a PC or laptop.
- Up to **10.000 exposures** can be **stored** in full for future reference or reporting.
- Together with the system, **several system options** are available providing **functional enhancement**.
- Technical **upgrades** will future proof the meters to cater for changes in user requirements.

Actual Size

QUART didoNEO Special Features

Compact Design Concept

Base unit and detector optimised in size and weight.
Most compact x-ray meter sensor in the industry.
Measurement behind scatter radiation grid for equipment attenuation factor / very low influence on fluoroscopy AEC.
Efficient vertical positioning (dental OPG)*.

Instant HVL and Total Filtration Measurement

Integrated direct-HVL measurement.
Instant total filtration measurement.
Both features are integrated and not charged extra.

Exposure Data Storage Capacity

- Integrated long-time memory storage capacity.
- Storage of up to 10.000 measurements (depending on exposure event).

Wave Form Preview

Tilt of the device provides exposure waveform.
Zoom-in and out for detailed visual analysis of the exposure graph.

QUART NEOtec - Data Management and Reporting Software Tool

Transfer all measured data from didoNEO into the NEOtec software module for data management and analysis
Data base enables customer management, x-ray equipment data organisation and long-term data storage.
Further Microsoft Excel export enables customised reporting and hardcopy printing.

Accurate Dental OPG Measurement (The Dose-Width Product)

Wide sensor-surface design for accurate measurement at dental panoramic x-ray equipment.
didoNEO automatically measures the dose-width product (DWP) of the OPG beam**.
Method accuracy as featured in didoNEO and didoEASY detectors officially verified by the University of Glasgow*.

Full Automatic Compensation

The didoNEO system is equipped with a multi-functional solid state detector.
Measures almost any beam quality used in diagnostic x-ray technology without preset procedure.
Minimal user interaction required.

Exchangeable Detectors

To future-proof the meter for new requirements of our users additional detectors will be available for the didoNEO system (Release pending). These will cover:

- Mammography
- mA/mAs
- DLP in CT
- Survey Dose Measurements.

* S A Mitchell and C J Martin, Comparison of ionisation chamber and semiconductor detector devices for measurement of the dose–width product for panoramic dental units, J. Radiol. Prot. 33 321 (2013)

** In 1999 the National Radiological Protection Board (NRPB) recommended the introduction of dose–width product (DWP) for the measurement of patient dose in panoramic dental radiology. The DWP has further been recommended as a dose reference: Napier ID. Reference doses for dental radiography. Br Dent J (1999) 186: 392–6.

QUART Smart Accessories

QUART Bridge Holder

☑ Developed for easy and quick vertical positioning of our detectors.
Holder provides superb fix on any smooth surface.
Detector‘s padded anti-slip back prevents skidding on surfaces.
Optional accessory.

Base Unit Support

☑ Base stand for display readability from a distance.
Enables tracking of displayed dose rate from a distance while measurement is running (e.g. in fluoroscopy applications).
Quick set-up.
Base stand is included in delivery.

Hardshell Transport Case

☑ Robustly contructed case for all-time protection of your didoNEO - even when conditions are challenging.
Bespoke foam insert designed to accept all system components plus accessories.
Case is included in delivery.

Hang Case

☑ Hang case provides safe storage for the meter where placement options are limited
Viewing window provides reading the data while measurement is running.
Optional accessory.

Hang Case

Bridge Holder

Robust Hardshell Transport Case

Customized Design Base Unit Stand

History of QUART innovations

1975

QUART Integrator I

For diagnostic x-ray measurements, the Integrator I was the major step forward in the x-ray meter industry. The **world-wide first application of solid-state technology** in QUART's x-ray detectors, instead of utilising ionisation chambers, changed the characteristics of x-ray test equipment considerably. Once bulky and heavy, meters could now be easily handled and transported.

1983

QUART dido

The Integrator II, one year later (1984) renamed to QUART dido, became the conceptual base of all future QUART meters. The dido was the **first PTB* approved diagnostic dosemeter of its kind** - featuring solid-state detector technology. Equipped with a slanted display for better reading from a distance or from above, the QUART dido set a new standard for shape and design of x-ray QA testing devices already at that time.

1985

QUART SPvario

The introduction of x-ray image quality assurance standards in the 1980s required the development of comprehensive but easy-to-use tools. Thanks to QUART's expertise and understanding, a **new generation of technical x-ray QA phantoms** was available from the beginning of this process.

1988

QUART dido/time | QUART RöVi

Some time after its launch, the QUART RöVi/time was further developed to become the **first sandwich/ double dosimeter.** It could be used to measure dose before and after patient equivalent filtration in constancy tests – in only one x-ray exposure.

1992

The DAVID System

The DAVID system for the first time featured a compact laptop computer as a **waveform analysis tool** to replace oscilloscopes previously used. Designed as a sophisticated and complete measurement system, it was the perfect tool for service experts and state radiation inspectors. After its launch it gained a reputation for causing a "toolbox revolution" in x-ray quality control. The system name DAVID transcribes as „**D**igital **A**nalyser for High-**V**oltage, **I**nherent Filtration and **D**ose Rate".

* The German PTB (Physikalisch-Technische Bundesanstalt) is the National Admission Authority to issue Type Approvals for measuring equipment. In Europe, the type approval usually is obligatory for meters used in commissioning tests.

[1] Deutsches Institut für Normung

[2] International Electrotechnical Commission

1992

Dental Test Phantom

The development of image quality test phantoms was launched quickly after the dental x-ray industry started inquiring for respective solutions. Until today, the general design features of QUART's dentFS and dent/digitest phantoms are still part of the **DIN[1] & IEC[2] standard for dental image quality control**.

1993

QUART SPdigi

The transformation from conventional to digital x-ray required a new approach on technology for x-ray QA. The **QUART-developed and standardised SPdigi phantom** has been encorporating test objects to specifically assess image quality of digital x-ray equipment.

1996

Digital Subtraction Angiography Phantom

The introduction of QUART's DSA phantom featuring longitudinal sliding technology has enabled a **precise** way to assess the imaging quality of subtraction angiography equipment. The method is still up-to-date and widely used. With a dedicated protocol, the test images can be evaluated using **modern digital methods.**

2004 – 2005

QUART dido2000K and dido2100K

The *dido2000K/2100K* series dosimeters are **all-in-one instruments** that incorporate kV and dose next to time, pulse and dose rate measurement. With their optional feature to output data via an USB interface, they further enabled waveform analysis and protocol print-outs.

2008

QUART ConeBeam CT Phantom and Software

The combination of phantom and software to analyse purely digital parameters, such as MTF and CNR, introduced a **whole new concept** into x-ray QA/QC. The software automatically evaluates phantom images and thus objectively assesses the imaging performance of CBCT x-ray systems.

2012

QUART didoNEO Series

The new didoNEO continues to advance the role that **genuine technology plays in latest measurement applications.** It expands user capabilities, maximises efficiency, increases flexibility and thus improves quality control and service workflow. The system was first presented in 2012.

We help to help others
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