RaySafe i3

Visualize your radiation exposure in real time.

RaySafe™

- Radiation exposure from medical procedures has increased dramatically in the United States since 1980.
- Interventional cardiologists receive the highest amounts of radiation among medical personnel.
- Radiation exposure can be reduced significantly by optimizing behavior and by using protective devices.

RaySafe i3 builds a better Radiation Safety Culture™

RaySafe i3 visualizes X-ray exposure in real time using easy-to-read bar graphs. Instant feedback empowers medical staff to learn and adapt their behavior to minimize unnecessary radiation exposure.

The measurements are simultaneously stored for post-procedure analysis, to facilitate continued learning as well as to enable comparisons over time or between labs.

The RaySafe i3 system

Real-time Dosimeter

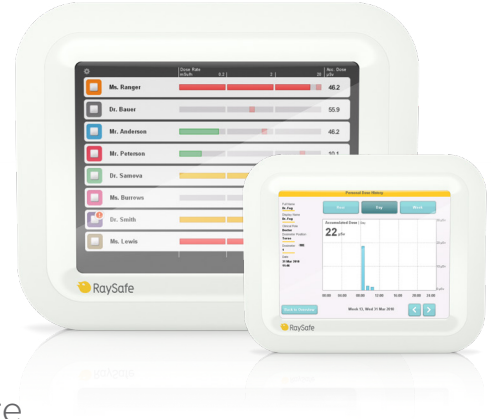
The Real-time Dosimeter measures and records radiation every second. Data is transferred wirelessly to the Real-time Display. A hidden USB connector connects the Real-time Dosimeter to the Dose Viewer software, which can be used to change settings and to view and export dose data.

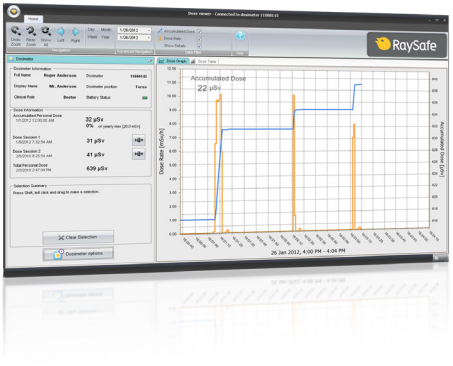
It is easy to wear, requires minimal maintenance and is made to be personalized.

Real-time Display

The Real-time Display shows dose data for connected dosimeters in real time. Green, yellow and red bars indicate the dose rate for each individual user; accumulated dose is displayed next to the bars.

By tapping your name, more detailed information about your personal dose history can be accessed.





Software

Dose Viewer is used for administrating dosimeters and viewing personal dose information. For advanced analysis, reporting and archiving of dose information, use Dose Manager. It manages multiple dosimeters and can retrieve dose information from multiple Real-time Displays throughout the hospital network or via USB storage.

ABCs for a Radiation Safety Culture™

A Avoidance

Protective clothing and devices, such as lead aprons, thyroid collars, glasses, ceiling suspended screens and table-mounted lead curtains, are the first line of defense against radiation exposure. Personal dosimeters are used to monitor and help regulate exposure.

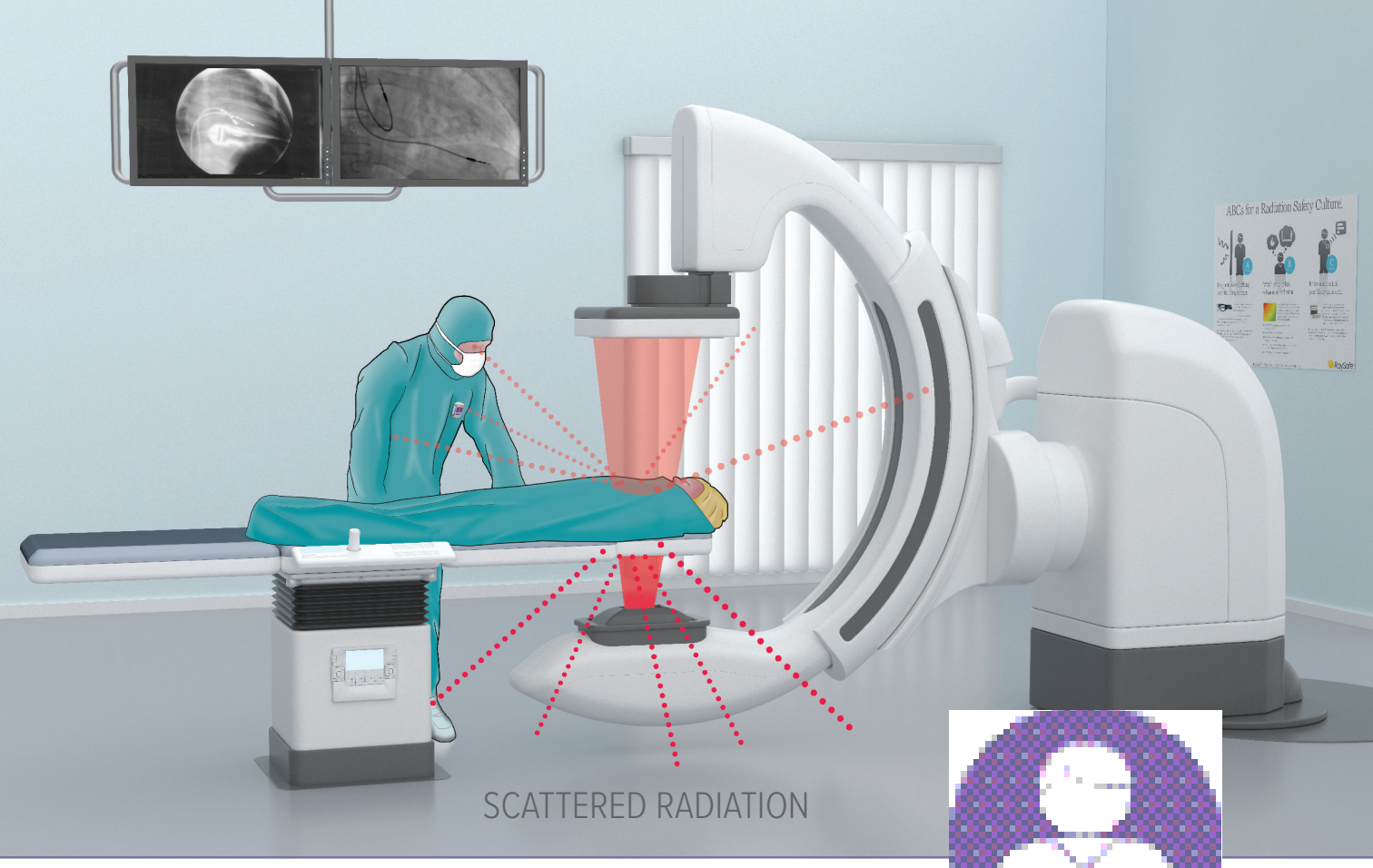
B Behavior

Your behavior will affect your radiation exposure. When feasible, increase the distance and decrease the exposure time. Furthermore, scatter radiation is typically lower on the detector side.

Finally, ensure that the proper equipment and appropriate techniques are used, including collimating the X-ray beam.

C Control

Ultimately, controlling your dose is easiest when it is known. Only an active dosimeter, such as RaySafe i3, provides constant, real-time radiation exposure information. With the information it provides, healthcare workers can take action to reduce their dose.



> The improvement in radiation protection has been more than dramatic at the URMC. There is no substitute for a constant and real-time reminder of the dose being received."

Labib H. Syed, M.D., M.P.H.
University of Rochester Medical Center

> We feel better about our work and our safety. Now that we see what RaySafe real-time dosimetry does for us, we wouldn't want to work at a place that doesn't have it."

Dawn Dowling, Technologist
Lawrence General Hospital

RaySafe i3 overview

SELECTED SPECIFICATIONS

DOSIMETER

WEIGHT	34 g (1.20 oz)
DIMENSIONS	40 × 58 × 17 mm 1.6 × 2.3 × 0.7 in
OPERATIONAL QUANTITY	$H_p(10)$
ENERGY DEPENDENCE	< 25% (N-series, 40 – 150 kV)
TEMPERATURE DEPENDENCE	< 5% (18 °C – 26 °C) < 25% (15 °C – 18 °C, 26 °C – 35 °C)
RESPONSE TIME	< 1 s, above 100 µSv/h < 5 s, below 100 µSv/h
INTEGRATION INTERVAL	1 s
DETECTION LIMIT	< 30µSv/h
DOSE RATE UNCERTAINTY (CONTINUOUS RADIATION)	10% or 10µSv/h (40 µSv/h – 150 mSv/h) 20% (150 mSv/h – 300 mSv/h) 40% (300 mSv/h – 500 mSv/h) The measured dose rate is monotonically increasing up to 1 Sv/h.
DOSE REPRODUCIBILITY	10% or 1 µSv
MAXIMUM LIFETIME DOSE	10 Sv
BATTERY	CR2450 (replaceable, 1 – 2 years lifetime depending on usage)
COMMUNICATION	Radio communication to real-time display, carrier frequency depending on region. USB port for connection to PC

REAL-TIME DISPLAY

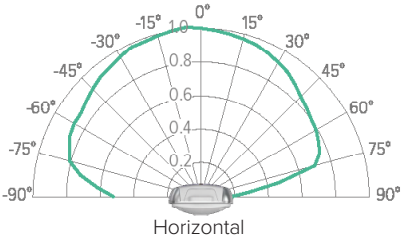
DOSE UNIT	Sv or rem
DIMENSIONS	300 × 250 × 60 mm 11.8 × 9.8 × 2.4 in
WEIGHT	1 240 g (43.74 oz)
DISPLAY	10.4” touch screen
STORAGE	Dose rate by second and accumulated dose by hour for connected dosimeters. For 50 dosimeters the memory size allows storage of up to 5 years of accumulated dose and dose rate for the last 250 hours of exposure each.
INTERFACES	Ethernet connection for Dose Manager USB connection for synchronizing data to USB memory stick
POWER	12 V DC, <1.5 A External power supply included

SOFTWARE REQUIREMENTS

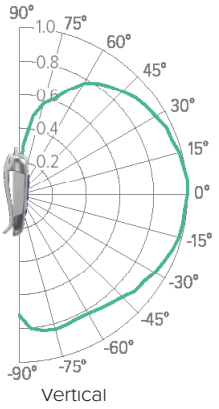
OPERATING SYSTEM	Windows XP, Vista, 7, 8, 10 or 11
SYSTEM MEMORY	At least 1 GB (Dose Viewer) At least 2 GB (Dose Manager)
USB CONNECTION	1 × USB 2.0
HARD DRIVE	At least 15 GB available space (Dose Manager)

Instrument specifications are subject to purchased configuration. All specifications may change without notice.
Product is not available in every country. Check with your local representative for further information.

TYPICAL ANGULAR RESPONSE (RELATIVE TO 0°)

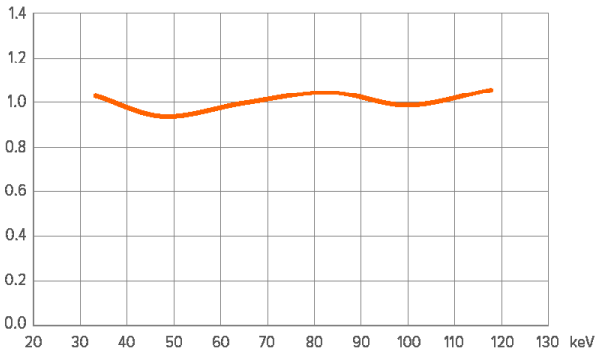


Horizontal



Vertical

TYPICAL ENERGY RESPONSE



Like a canary in a coal mine

In the early days of coal mining, canaries were used as warning systems. If the little yellow bird stopped singing, the miners knew that the level of dangerous gases had substantially increased and it was time to exit the mine.

In the operating room, RaySafe i3 is the modern-day canary. By providing real-time, accurate and easy-to-interpret dose information, RaySafe i3 helps healthcare workers decide when it is time to adjust their working behavior to avoid unnecessary exposure.

Unfors RaySafe offers comprehensive solutions for the X-ray room

to measure the performance of X-ray equipment and
to monitor medical staff dose in real-time

RaySafe helps you avoid unnecessary radiation.

www.raysafe.com

RaySafe™