

SPECIFICATIONS BLACK PIRANHA

PIRANHA GENERAL

Size	133 x 75 x 26 mm
Weight	Approx. 400 g
Display	PC or Windows Tablet
Software	Ocean (Complete Software for QA)
Databas Support	Yes
Trend Analysis	Yes
Interface Type	Built-in bluetooth and USB
Detector Position Check	Yes
Simultaneous Dose Measurements	Yes (max 2 detectors)
Use of Dose Detecor with Active AEC	Yes****
Bluetooth Range	100 m (free-in-air)
USB Cables	Not needed but included
Power Source	Rechargable Li ion battery, ext. power supply
Battery Life	~ 15 hours
Battery Tested	According to UN 38.3
Exposures Needed for Measurement	One
Min. Exposure Time	0.1 ms
Memory	Unlimited
Operating Temperature	-15–35°C
Storage Temperature	-10–50°C
Backscatter Protection	Yes (both main unit and all detectors)
Warranty	2 years
Extended Warranty	up to 10 years
Calibration Cycle	2 years
Standard	Complies with relevant parts of the standards IEC 61674 and IEC 61676 for Dosimetric instruments.
EMC Tested	According to IEC 61326-1:2012
PTB Approval	<u>23.04</u> <u>08.01</u>

ISO/IEC 17025:2005 CALIBRATION LABORATORY

Tube Potential	Mam, R/F, CT, Dental
Dose	Mam, R/F, CT, Dental
Dose Area Product	R/F
Dose Length Product	CT
Tube Current and Charge	Mam, R/F, CT, Dental
Photometry	Luminance, Illuminance
Electrometers	Current, Charge



**CT Dose Profiler

***RTI Light Probe

****RTI T20

Colored specifications: Features unique for RTI instruments.

All specifications are based on the Black Piranha model 657.

Specifications in this folder may be changed without notice.

PIRANHA RADIOGRAPHY/FLUOROSCOPY

Included in main unit	Yes
Total Filtration	60–120 kVp, 1–90 mm Al or 2 mm Cu

Auto Compensation

Dose/Dose Rate	50–150 kVp, 1–90 mm Al or 2 mm Cu
kVp	50–150 kVp, 1–90 mm Al or 2 mm Cu

Dose

Range	0.1 nGy–1500 Gy*
Inaccuracy	5%

Dose Rate

Range	1 nGy/s*–450 mGy/s
Resolution	0.2 nGy/s*
Trig level	40 nGy/s
Inaccuracy	5% or 0.25 nGy/s

kVp

Range	35–160 kVp
Minimum dose rate	0.1 μ Gy/s
Inaccuracy	1.5%
PPV	Yes

HVL

Range	0.72–13 mm Al
Minimum dose rate	0.1 μ Gy/s
Inaccuracy	10% or 0.2 mm Al
Quick HVL in one exposure	Yes

Total filtration

Range	1.0–90 mm Al
Minimum dose rate	0.1 μ Gy/s
Inaccuracy	10% or 0.3 mm Al

Pulses

Range	1–9999 pulses
Minimum dose rate	0.23 μ Gy/s
Minimum pulse width	0.5 ms at 1.8 μ Gy/s

Pulse Rate

Range	0.5–180 pulses/s
Minimum dose rate	0.23 μ Gy/s

Dose/Pulse

Range	1 nGy/pulse–3000 Gy/pulse*
Minimum dose rate	0.23 μ Gy/s*

Time

Range	0.1 ms–2000 s
Resolution	0.5 ms
Bandwidth	1 kHz
Inaccuracy	1% or 0.5 ms
Effective time	Yes (Effective Exposure time)

Waveforms

Resolution	0.5 ms
Bandwidth kV	\leq 1 kHz
Bandwidth dose rate	\leq 1 kHz

*RTI Dose Probe

Colored specifications: Unique features for RTI instruments only.

PIRANHA CT

Weight	50 g**
Size	12.5x12.5x210 mm**
Size ϕ	12.5 mm**
Energy Dependence	Auto compensated
Automatic environmental compensation	Not needed
Spatial resolution**	0.3 mm
Achievable parameters**	CTDI100, CTDIw, CTDIvol, DLP, FWHM, Geometric Efficiency
CT dose profile	Yes**
Maximum beam width	Unlimited**

Dose

Range	1.8 nGy–22 kGy**
Inaccuracy	5%**

Dose Length Product

Range	1.8 nGycm**–22 kGycm** at 10 mm collimation
Inaccuracy	5%**

Dose Rate

Range	0.04 μ Gy/s–760 mGy/s**
Inaccuracy	5%**

Time

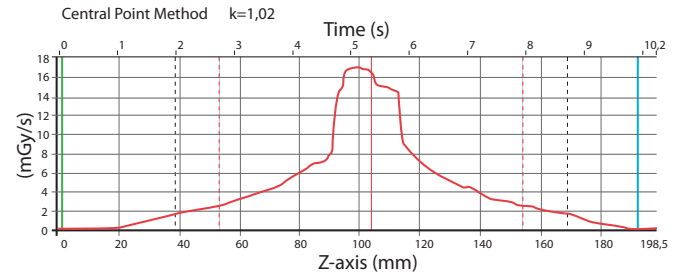
Range	0.1 ms–3400s
Resolution	\geq 0.5 ms
Bandwidth	\leq 1 kHz
Inaccuracy	1% or 0.5 ms

Waveforms

Resolution	\geq 0.5 ms
Bandwidth	\leq 1 kHz

kV

Range	45–160 kVp
Inaccuracy	1.5%
PPV	Yes



Dose (mGy) **42,88**

DLP (mGycm) **655** CTDI_{vol} (mGy) **38,5**

CTDI₁₀₀ (mGy) **36,6** CTDI_w (mGy) **37,3**



**CT Dose Profiler

Colored specifications: Unique features for RTI instruments only.

PIRANHA MAMMOGRAPHY

Included in main unit	Yes
Tailormade calibrations for different manufactures	Yes
Full mammo range available without adding extra filters or repositioning or changing detector.	Yes

Auto Compensation

kV/Dose/Dose rate & HVL	Mo/Mo	18–49 kVp
	Mo/Rh	22–46 kVp
	Mo/Al	18–49 kVp
	W/Rh	20–49 kVp
	W/Ag	20–40 kVp
	W/Al	20–48 kVp
	W/Cu	40–49 kVp
	Rh/Rh	25–49 kVp
	Mo/Cu	40–49 kVp
	Rh/Cu	40–49 kVp

Tailormade Calibrations

kV/Dose/Dose rate & HVL	Fujifilm: Amulet innovality
	GE: Pristina
	IMS: Giotto
	Hologic: Selenia, Selenia Dimensions, Affirm Prone

Dose

Range	0.2 nGy–3000 Gy*
Inaccuracy	5%

Dose Rate

Range	8 nGy/s – 900 mGy/s*
Inaccuracy	5%

kVp

Range	18–49 kVp
Minimum dose rate	0.2 μ Gy/s
Inaccuracy	1.5% or \pm 0.7 kV for Mo/Mo
PPV	Yes

HVL

Range	0.19–4.0 mmAl
Minimum Dose rate	0.2 μ Gy/s
Inaccuracy	10%
Quick HVL	Yes

Time

Range	0.1 ms–2000 s
Resolution	0.5 ms
Bandwidth	1000 Hz
Inaccuracy	1% or 0.5 ms

Pulses

Range	1–9999 pulses
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Pulse Rate

Range	0.5–180 pulses/s
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Dose/Pulse

Range	2 nGy/pulse–6000 Gy/pulse*
Minimum Dose Rate	0.46 μ Gy/s

Waveforms

Resolution	0.5 ms
Bandwidth	1000 Hz

*RTI Dose Probe

Colored specifications: Unique features for RTI instruments only.

PIRANHA MAS-1

mAs

Range	0.001–9999 mAs
Resolution	0.001 mAs
Inaccuracy	1%

mA

Range	0.1–3000 mA
Resolution	0.01 mA
Inaccuracy	1% or 0.01 mA

Time

Range	0.1 ms–34000 s
Resolution	0.5 ms
Bandwidth	500 Hz
Inaccuracy	1 % or 0.5 ms

Pulses

Range	1–65535 pulses
Resolution	1 pulse
Inaccuracy	1 pulse

Pulse Rate

Range	0.5–100 Hz
Resolution	0.5 Hz

mAs/Pulse

Range	0.001–9999 mAs
Resolution	0.001 mAs
Inaccuracy	1%

Waveform

Resolution	0.5 ms
Bandwidth	0.5 kHz

PIRANHA MAS-2 (NON INVASIVE)

mAs

Range	0.1 mAs–9999 mAs
Resolution	0.01 mAs
Inaccuracy	5%

mA

Range	10 mA–4000 mA
Resolution	1 mA
Inaccuracy	5% or 2 mA

Time

Range	0.1 ms–34000 s
Resolution	0.5 ms
Bandwidth	1 kHz
Inaccuracy	1 % or 0.5 ms

Pulses

Range	1–65535 pulses
Resolution	1 pulse
Inaccuracy	1 pulse

Pulse Rate

Range	0.5–100 Hz
Resolution	0.5 Hz

mAs/Pulse

Range	0.1–9999 mAs
Resolution	0.01 mAs
Inaccuracy	5%

Waveform

Resolution	0.5 ms
Bandwidth	0.5 kHz

PIRANHA SURVEY*

Weight	85 g
Size	45x19x7 mm
Standard	Complies with IEC standard EN 60601-1-3
Active compensation	(Air kerma) No active compensation required. RTI Dose Probe auto-compensate.

Trig Models

Manual	Yes. Manual start / stop of measurement
Auto	Yes. Trig with threshold 40nGy/s

Air Kerma

Range	1 nGy/s–150 mGy/s
Resolution	0.2 nGy/s
Inaccuracy	5% or 0.25 nGy

Air Kerma Rate

Range	1 nGy/s–150 mGy/s
Inaccuracy	5% or 0.9 μ Gy/h

Mean Energy

Range	18–160 keV
Inaccuracy	5%
Minimum dose rate	4 mGy/h

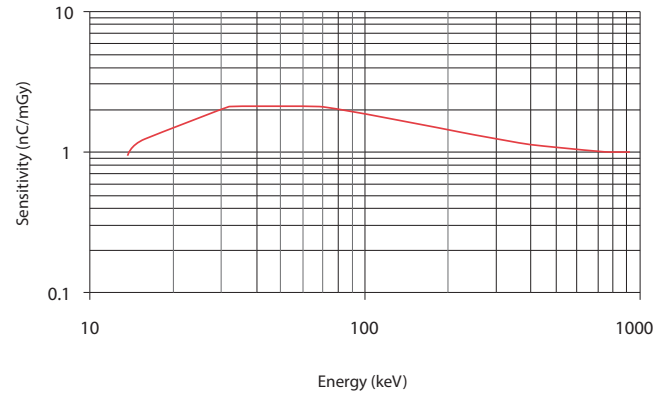
Time

Range	0.1 ms–2000 s
Resolution	0.5 ms
Bandwidth	≤ 1 kHz
Inaccuracy	1% or 0.5 ms

Waveform

Resolution	0.5–64 ms
Bandwidth	≤ 1000 Hz
Minimum dose rate	No limitation

Typical Response for Survey:



PIRANHA LIGHT

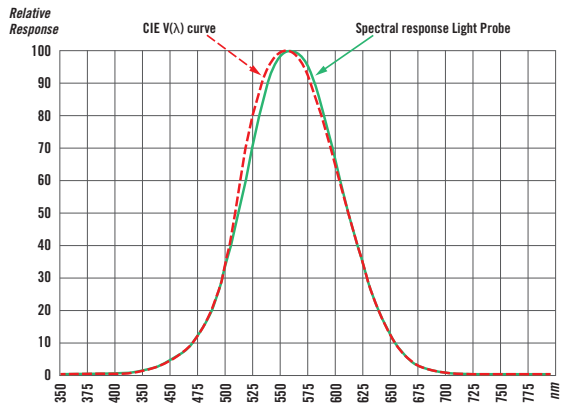
Weight	190 g***
Size	79x47x29 mm***

Luminance

Range	0.04–128000 cd/m ²
Resolution	0.5 mcd/m ²
Aperture Angle	3.6°
Measurement Area	∅ 7
Inaccuracy Illuminant	5%

Illuminance

Range	0.014–48000 lux
Resolution	0.2 mlux
Uncertainty illuminant A	5%
Deviation from human eye (λ) (f1')	See figure
Cosine deviation (f2)	<3%



***RTI Light Probe

FIND YOUR LOCAL DISTRIBUTOR AT WWW.RTIGROUP.COM



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