



# Keeler Tonometers

let's fight glaucoma

**Keeler**

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# Keeler - excellence in manufacturing experience and quality

For over 90 years Keeler has continued to innovate, design and manufacture world class ophthalmic instruments in our Windsor factory.

In 1986 the Pulsair Tonometer revolutionised non contact tonometry with its unique hand held and portable system bringing a new dimension to patient care and the management of space and time.

Pulsair and tonometry are synonymous – the 5th generation IntelliPuff hand held model combines contemporary style together with new technologies and the new Pulsair Desktop brings the Pulsair name to those requiring a chinrest desktop device.

Applanation Tonometry is a widely practiced and respected technique; the Keeler Applanation Tonometers (KAT™ and the new digital D-KAT) will match that level of respect with our exceptional build quality and manufacturing consistency.



## Pulsair Tonometers - stylish and practical

Both Pulsair Desktop and Pulsair IntelliPuff have exceptional patient visualisation; the slim profiles of the Pulsair optical mainframe allow the clinician to maintain visual contact with the patient at all times during the measurement process.

The Pulsair Desktop has a small and space saving footprint that combined with the elegant, slim optical mainframe allows it to blend seamlessly into the clinical environment. The openness of the design increases the confidence of both patient and clinician.

Pulsair IntelliPuff brings versatility to tonometry; wall mounted or desk mounted the lightweight hand held optical mainframe allows the clinician to measure all patients with equal comfort and respect. The flexibility of use and space saving makes this instrument virtually unbeatable for performance and value.



Pulsair desktop



Pulsair IntelliPuff

# Pulsair Desktop - comfort and speed

Less is more. Pulsair Desktop is uncomplicated and therefore quick to use for the novice and professional alike. Taking control of tonometry has never been easier or faster. Clear user controls and a colour video alignment screen combine to set a new standard in usability.



## Sophisticated Technology

Keeler Pulsair tonometers use advanced optical and sensor technology for positional detection and puff control.

Pulsair Desktop and Pulsair IntelliPuff have software controls to manage the measurement data; if two consecutive readings are within  $\pm 1$ mmHg of each other the Pulsair will inform the user that sufficient readings may have been taken for that eye, saving precious time and increasing patient comfort.



# intelliPuff - hand held and wall mounted

Being hand held, Pulsair intelliPuff avoids the need to position the patient in a chinrest removing an entire process from the patient journey – fast and easy to use while the patient is already seated in an examination chair, space and time under control.



## Engineering and design excellence

Pump, solenoid control valves, plenum chamber and optical mainframe are all designed to function optimally leading to efficient and fast measurement. LED illumination provides a constant and reliable light source for the alignment camera and the positional detection systems.

Quietly cost effective, the Pulsair tonometers require no sterile consumables, printing is under your control so ongoing costs are managed.

Space saving flexibility - intelliPuff can be wall or desk mounted

# Pulsair Specifications

## Pulsair Desktop

Calibrated range	5mmHg to 50mmHg
Displayed accuracy	Display accuracy to 1 decimal place e.g. 12.3
Displayed scale	Single line 16 character alphanumeric display
Illumination system	LED infra red
Working distance	20mm
Dimensions	475 x 410 x 245mm (H x D x W)
Weight	16kg
Complies with	Electrical Safety (Medical) BS EN 60601-1:2006. Electromagnetic compatibility EN 60601-1-2:2007. Ophthalmic instruments - fundamental requirements and test methods ISO 15004-1:2006. Optical radiation hazard ISO 15004-2:2007
Power Supply Unit	Switch mode, (110 – 240V)+/- 10% multi plug type compliant to EN 60601-1 EN 61000-6-2, EN 61000-6-3
Power supply output	30 VA (12V DC 2.5A)
Frequency	50/60 Hz
Printer	Thermal line printer

Part Numbers:	2417-P-2000 Pulsair Desktop Tonometer
	3104-L-8201 Chinrest Papers
	2208-L-7008 Printer Paper

## Pulsair IntelliPuff

Calibration range	5mmHg to 50mmHg
Measurement scale	mmHg (millimetres of mercury)
Displayed accuracy	0.1mmHg
Display	4 character dot matrix scrolling
Firing system	Automatic and objective
Illumination system	LED infra red
Working distance	20mm
Mounting system	Table/desktop/wall
Base unit dimensions	260 x 215 x 220mm (H x D x W)
Base unit weight	2.465Kg
Handpiece dimensions	315 x 150 x 46mm (H x D x W)
Handpiece weight	0.890Kg
Umbilical cord length	2.0m
Printer	Thermal line printer

Part Numbers:	2414-P-2001 IntelliPuff unit
	2414-L-7008 Printer paper roll

# New D-KAT - Digital Applanation Tonometer

## Goldmann applanation principle

Keeler Applanation Tonometers operate according to the Goldmann applanation principle by measuring intraocular pressure from the force required to flatten (applanate) a constant area (3.06mm) of the cornea.

## New D-KAT Digital Applanation Tonometer

Discover the new standard ... the Keeler D-KAT Digital Applanation Tonometer. Designed and manufactured in the UK to the same exacting standards as all Keeler products, the Keeler D-KAT delivers reliability and ease of use.

## More reliable and accurate

With less moving parts, the D-KAT is more reliable, accurate and recalibration takes just seconds.

## T type or R type

The D-KAT is available in both T type and R type variants. The T type is removable and is convenient to use on multiple slit lamps. The R type can be fixed to the Slit Lamp.



D-KAT

## KAT™ Tonometers

For the original, beautifully engineered, KAT™ Tonometers, please see overleaf.



KAT



## The new standard



### D-KAT Features

- British built
- LED display for ease of use in darkened environments
- Lightweight and portable
- Display reading to 1 decimal point
- Low battery usage
- Less moving parts, meaning increased reliability and less maintenance

### LED display

With its LED display and internal electronics it allows for the fast accurate measurement of IOP, (intraocular pressure).

### Accessories

Your Keeler D-KAT will come with all the items you need. Each unit contains a calibration arm and a re-usable doubling prism. You will also receive a guide plate or connection post depending on your choice of D-KAT. However, if you need further accessories you will find them listed here.

## D-KAT Specifications

**Installation: Keeler Digital T type: for tower illumination Slit Lamps** Fitted to the guide plate on the optical axis for the microscope and illumination unit arm

**Keeler Digital R type: for tower illumination Slit Lamps** Mountable on a post fitted to the microscope optical body

**Measurement range** 5 - 65 mmHg (0.66 - 8.65 kPa)

**Measurement deviation** 0.49 mN or 1.5% of measurement value, whichever is the greater

**Operating temperature range** from 10°C to 35°C

**Reverse span (Hysteresis)**  $\leq$  0.49 mN

#### Net weights:

**Keeler Digital T type** 0.37 kg (without accessories)

**Keeler Digital R type** 0.58 kg (without accessories)

**Part Numbers 2414-P-2032** D-KAT - Keeler Digital Applanation Tonometer T type

**2414-P-2042** D-KAT - Keeler Digital Applanation Tonometer R type

**Accessories 3414-P-7010** D-KAT Digital tonometer luxury carrying case

**2414-P-5001** D-KAT Digital tonometer doubling prism

**2414-P-5032** D-KAT Digital tonometer T type guide plate

**2414-P-5042** D-KAT Digital tonometer R type mounting post

**2414-P-5005** D-KAT Digital tonometer calibration arm assembly

**1909-P-7129** D-KAT Digital tonometer replacement battery

# KAT™ - Keeler Applanation Tonometer

The Goldmann principle is considered to be the most prevalent method of tonometry as it is the most widely accepted method of determining the approximate intraocular pressure.

The Keeler manufactured applanation tonometers are designed and built to our exacting standards to give you the accuracy and quality you expect from a Keeler device.

## T type, R type or BQ type

The take-away T type KAT™ is fitted to the guide plate on the optical axis for the microscope and illumination unit arm. The fixed R type is mounted on a post fitted to the microscope optical body. The BQ KAT™ is designed specifically to fit the Haag Streit BQ, BP and BX Slit Lamps and fits directly to the optics support arm.



KAT T type (Take-Away)



KAT R type (Fixed)

KAT BQ type



KAT T type on Slit Lamp



KAT R type on Slit Lamp

KAT™ - the gold standard of tonometry

## Robust and reliable

Our all metal parts, manufactured to a high precision engineering design will withstand the test of time and deliver reliable and repeatable results year after year.

The T type and R type KATs™ will be supplied with a reusable doubling prism, the calibration check bar and either the R type post or the T type aluminium guide plate for Slit Lamp use.

To protect your investment when travelling or for when the instrument is not in use, purchase our high quality aluminium carrying case to ensure your tonometer will always be stored and protected.



T type guide plate

R type mounting post



Doubling prisms



## KAT™ Specifications

<b>Measurement force</b>	By leverage weight
<b>Installation: Keeler T type: for tower illumination Slit Lamps</b>	Fitted to the guide plate on the optical axis for the microscope and illumination unit arm
<b>Keeler R type: for tower illumination Slit Lamps</b>	Mountable on a post fitted to the microscope optical body
<b>Measurement range</b>	0 - 80 mmHg (0 - 10.64 kPa)
<b>Approximation of the impact force on the measurement head for a 0 to 58,84 mN measurement range</b>	Standard divergence: $0.49 \text{ mN} \leq 3s \leq 1.5 \%$ of nominal value
<b>Operating temperature range</b>	from 10°C to 35°C
<b>Measurement accuracy</b>	< 0.49 mN
<b>Net weights: Keeler T type</b>	0.41 kg (without accessories)
<b>Keeler R type</b>	0.69 kg (without accessories)
<b>Keeler BQ type</b>	0.712 kg (without accessories)

<b>Part Numbers</b>	2414-P-2030	KAT – Keeler Applanation Tonometer T type
	2414-P-2040	KAT – Keeler Applanation Tonometer R type
	2414-P-2020	KAT – Keeler Applanation Tonometer BQ type
<b>Accessories</b>	3414-P-7000	KAT Aluminium carrying and storage case
	2414-P-5001	KAT doubling prism
	2414-P-5032	KAT T type guide plate
	2414-P-5042	KAT R type mounting post
	2414-P-5005	Calibration arm assembly



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