The PASCAL is the most accurate tonometer ever designed.

Every study done to date supports the accuracy of the PASCAL Dynamic Contour Tonometer, including multiple independent intraocular pressure calibrations done at the time of cataract surgery.

Comparison plot of intraocular pressure measurement with the PASCAL Dynamic Contour Tonometer.

- Smart IOP. No doubt.

• For my diagnostic decisions, the PASCAL is much more important than Pachymetry or correction tables.”
• “For my diagnostic decisions, the PASCAL is much more important than Pachymetry or correction tables.”

True IOP. No doubt.

Technical Data

- Class II medical device, CE-marked, FDA 510(k) cleared.
- Device meets tonometer bracket or accessory
- Footplates of slitlamp.
- Dimensions: Housing: 170 mm (H) × 88 mm (W) × 40 mm (D)
- Display of results: backlit LCD 58 × 24 mm (2.2’’ by 1’’)
- Detection range: 0.5 – 80 mmHg (1000 Hg)
- Appositional force: 1 gram.
- SensorTip diameter: 7 mm (pressure sensor: 1.2 mm)
- Cleaning/sterilization: SensorTip is protected from direct eye contact by sterile, single-use SensorCaps covers.
- Power: battery operated; 3V disposable battery packs (standard), or rechargeable battery pack with battery charger (optional).
- Wireless interface capability to connect to the optional printer or to user’s PC or EMR system.

Additional References:


Product Information

- Manufacturer: Ziemer Ophthalmic Systems AG, CH-2562 Port, Switzerland
- Sales & Service: Ziemer Ophthalmic Systems AG, CH-2562 Port, Switzerland
The PASCAL Dynamic Contour Tonometer (DCT) is a third-generation, digital, contact tonometer for ophthalmological applications. The slitlamp-mounted device furnishes a numeric output of intraocular pressure (IOP) and of ocular pulse amplitude (OPA) upon touching the cornea for a few seconds. It measures pulse IOP directly and continuously (dynamically).

**Features**
- Direct measurement of pressure eliminates systematic errors from force-to-pressure conversion.
- Numerical display of result on LCD screen avoids operator bias and reading errors.
- Audio feedback during measurement aids alignment and data taking.
- Completeness objective measurement – no mirs to align!
- Quality reading (“Q score”) avoids erroneous readings due to poor data quality.
- Attaches to slitlamp like the familiar Goldmann tonometer.
- The need for fluorescein, Rajch light can remain.
- Read IOP dynamically at 1BD/min/second.
- All functions are accessed with the unique Blue Knob – easy, single button operation.
- Self-calibrates at the beginning of every measurement – no calibration required.

**Clinical Benefits**
- Unlike applanation tonometers, which are influenced by corneal thickness and other characteristics of the cornea, and hence may produce misleading estimates of IOP, the PASCAL provides an accurate, direct measurement of true IOP which is independent of inter-individual variations in corneal properties and biomechanics.
- IOP measurement is accurate even on post-LASER and keratoconic eyes.
- PASCAL detects and accurately measures the dynamic fluctuations in IOP and thus permits a more detailed assessment of the pressure range to which the eye is subjected due to pulsatile ocular blood flow.
- Silicone tip covers prevent cross-contamination and eliminate the possibility of corneal abrasions, even with an inexperienced user.
- Convenient documentation and visualization of IOP curve with optional wireless printer or PASCAL DataWizard software.

**How the PASCAL Tonometer works**

The pressure in the eye is detected 100 times per second and is digitized and stored in the PASCAL’s memory. A built-in microprocessor calculates the intraocular pressure (IOP) and its possible fluctuations caused by the patient’s heartbeats and ocular pulse amplitude, or OPA. The IOP and OPA are displayed on an analog scale on the LCD display, along with a Q score which reflects the quality of the data obtained during the measurement.

The Circular Pulse Amplitude (an often overlooked jewel of information) provided by the PASCAL may furnish additional clinically useful information pertaining to ocular perfusion and its potential relation to corneal, and even systemic, diseases. However, the clinical relevance of OPA and ocular blood flow is not yet fully-understood and warrants further clinical investigation. Early evidence appears to show that low OPA (poor ocular perfusion) is a risk factor for progression of visual field loss in patients already diagnosed with glaucoma. Significantly different OPAs between eyes could indicate a central obstructive disease.

**Ziemer Group**

We develop and produce diagnostic and surgical products for the ophthalmic market that distinguish themselves from established standards in terms of usability, precision, quality, and productivity.

**The PASCAL**

- 1. SensorTip with contour-matched contact surface
- 2. PASCAL main components
- 3. Cantilever (spring-loaded arm)
- 4. Mounting bracket
- 5. Sensor module (‘Blue Knob’)
- 6. LCD Display
- 7. Wireless printer (optional)

**How to calibrate the PASCAL tonometer**

1. “You can have a thick cornea that’s soft, and a thin cornea that’s relatively rigid. Rather than compensating for these factors, we want to eliminate them from the equation, and the DCT seems to do that...”
2. “We found that the Goldmann measurements weren’t significantly different between contralateral eyes in any given glaucomatous patient. In contrast, the PASCAL DCT showed a higher pressure in the eye with greater damage. The only way we would have noticed a pressure difference is with the PASCAL...”

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* Ike Ahmed, MD*