PERKINS TONOMETER
Quick guide

CLEMENT CLARKE OPHTHALMIC

Indications for use

The Perkins Mk3 Tonometer is used to measure intraocular pressure (IOP), which is the fluid pressure inside the eye.

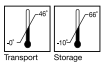
Safety and regulatory information

Product labelling & safety symbols

The labels affixed to the equipment are there to remind you of the safety precautions. Do not remove these labels.

Safety symbols

The Perkins Mk3 Tonometer and its labels include the following markings:

	Please read the instructions before using the equipment.
	Caution (Consult 'Instructions for use')
	Do not dispose of with household refuse. Please contact your local authority for your nearest recycling centre.
	Manufacturer
	Direct Current (D.C.)
	Medical electrical equipment Type B
	Country and date of manufacture
	Serial number
	Consult 'Instructions for use'
	Storage and transport
	Do not use if packaging damaged
	Keep dry
	Catalogue number
	Authorised representative in the European Community/European Union
	Humidity limitation
	Atmospheric pressure limitation

PATIENT USE

- In the event of any malfunction, contact your local distributor or visit our website to contact us directly.
- Use only the charger supplied with the device.
- The operator should not touch the accessible charger connector and the patient simultaneously.
- Medical devices manufactured by Haag-Streit UK Ltd conform to this EN60601-1-2 standard for both immunity and emissions.
- Nevertheless, special precautions need to be observed:
  The use of accessories and cables other than those specified by Haag-Streit UK Ltd, with the exception of cables sold by Haag-Streit UK Ltd as replacement parts for internal components, may result in increased emission or decreased immunity of the device.
- The medical devices should not be used to adjacent to or stacked with other equipment. If adjusted or stacked use is unavoidable, the medical device should be checked to ensure it operates as normal and should be tested for accuracy prior to use.
- Further guidance regarding the EMC environment (in accordance with EN60601-1-2) in which the device should be used is available at: http://www.haagstreituk.com/medicalquality.

Instructions

1) The Perkins tonometer should be held so that the thumb rests on the milled wheel.

2) Both eyes must always be anaesthetised (e.g. 2-3 drops each of an anaesthetic within half a minute) to reduce movements of the lids during examination.

Place a fluorescein paper strip near the external canthus in the lower conjunctival sac. After a few seconds the lacrimal fluid is sufficiently coloured and the paper can be removed.

It is recommended that patients are repeatedly asked to keep their eyes wide open during the examination. If required, the lids of the examined eye may be held open by the examiner's fingers, provided that no pressure is applied to the eye.

3) The light is switched on by turning the thumb-wheel until the scale reading is just above zero. 3.1) If the forehead rest is to be used, the stem should be extended after loosening the locking screw. 3.2) It is usually easier to hold the tonometer obliquely with the handle slanted away from the nose. 3.3) Care should be taken to prevent the prism touching the eyelid margin.

Instruct the patient to look straight ahead or slightly upward and, if necessary, use a fixation target.

The inner edges of the fluorescein rings must touch each other. The reading multiplied by ten gives the ocular pressure in mm Hg.

Force adjustment is achieved by turning the thumb-wheel until the inner margins of the semi-circles coincide. The tonometer is removed from the eye and the reading noted. The large divisions of the scale represent 0.2 grams.

The reading is multiplied by ten to give the tension in millimetres of mercury (mm Hg). Readings should be repeated until a steady value is obtained.

Charging the battery

The battery indicator displays fully-charged (green) or the battery needs charging (red).

Battery pack

The Perkins Mk3 Tonometer is powered by a 3.6V Ni MH chargeable battery pack that will last approx. 25 hours. The battery indicator LED indicates:

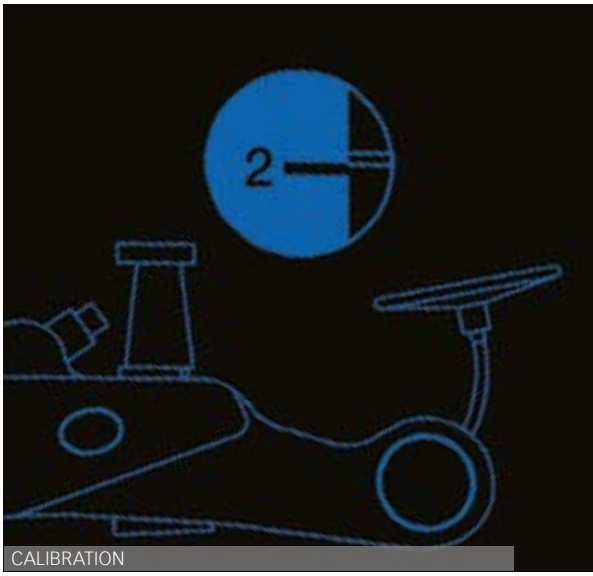
Green		Fully charged
Orange		Several hours of use left
Red		Battery needs to be charged

CHARGING

Calibration

For calibration, adjust the thumb-wheel to a line's width from the two mark, place the control weight on the prism tip and check the cone arm carries downwards.

Also, set the scale above the two mark and check the prism and weight remain at their highest position.



CALIBRATION

General notes

The measuring precedure can be repeated several times. Excited or anxious patients often display a higher ocular pressure during the first measurement.

For this reason, a reduction of tension is experienced during the first few minutes, as patients notice that tonometric examinations cause no unpleasant effects. A test measuring procedure should therefore be first made on each eye. These results can be disregarded. Thereafter, three measuring procedures are to be carried out on each eye. The readings will be correct when the pressure has been stabilised.

When the measuring procedure lasts too long on one eye, drying will occur on the cornea epithelium of both eyes. A ring of fluorescein-positive deposits around the contact positions of the cornea and the measuriing element will occur on the eye under examination.


CORRECT POSITION

Storage of Prism & Tonometer

The doubling prism must always be removed from the tonometer, cleaned following the cleaning instructions supplied with the prisms and inserted, cone downward, into the hole in the foam interior of the carrying case. The tonometer should then be returned to the carrying case.

Tonosafe disposable prisms are recommended as they are supplied fully-sterile to help eliminate the risk of cross-infection.

Do not pack the Perkins tonometer with the prism still in the instrument.

Never store the instrument with the spring under load - i.e. return the milled thumb-wheel to below zero.

Goldmann-compatible

The Perkins applanation tonometer functions according to the 'Goldmann' principles; the measuring of the pressure required to maintain a uniform applanation of the surface of the cornea.

The prism must be inserted prior to use on a patient.

Anaesthetic and fluorescein must be applied prior to testing.

Cleaning & equipment

Cleaning (manual) - non-immersion for Ophthalmic medical devices.

Non-immersion manual cleaning methods are appropraite for low risk items (those items that come into contact with intact skin or do not contact the patient) where soaking in aqueous solution, e.g. electrical and electronic equipment, will compromise the device.

Alcohol wipes should be used to clean electrical contacts on equipment.

The Perkins Tonometer MK3 devices are suitable for cleaning daily with approved CE marked disinfectant wipes for the lifetime of the device.

Equipment required

- A warm water/detergent solution at correct/recommended dilution.
- A clean, disposable, absorbent, non-shedding cloth for application of detergent solution.
- A clean, disposable, absorbent, non-shedding cloth for application of drying equipment.
- An appropriate chemical neutraliser, first aid kit and eyewash, in case of splashing with detergent.

Procedure

- Ensure that it is disconnected from the charger and the unit is switched off (pointer reaches just below zero) before commencing the cleaning procedure.
- Wearing protective clothing, immerse the cleaning cloth in the detergent solution and wring thoroughly.
- Commencing with the upper surface of the item, wipe thoroughly ensuring that detergent solution does not enter the electrical components.
- Periodically rinse the cloth in clean water and repeat the above steps.
- Surfaces should be carefully hand-dried using a fresh dry cloth.
  Note: Non-immersion, manual cleaning is not a disinfection process, but where an alcohol wipe is used to dry surfaces, this may have a disinfecting effect.
- Safely dispose of cleaning materials and alcohol wipes, if used.

⚠ Cautions & warnings

Only to be conducted by qualified and trained personnel.

Any misuse, incorrect assembly or installation could result in the equipment becoming unsafe. It must not be repaired except by competent persons under the manufacturer's instructions.

Massage effect DOES occur if repeated measurement occurs.

This product is intended for indoor use only.

This product is not suitable for operation in the presence of a flammable anaesthetic mixture with air or with oxygen or with nitrous oxide.

Not protected against the ingress of water or other fluids.

Avoid examinations in cases of eye infections or injured corneas.

Incorrect medical disinfection can cause patients to be infected and can also cause damage to the eyes.

Residue from the disinfection may cause a caustic reaction to the patients eye, therefore rinse throughly.

If the prism touches the cornea without any force applied, the pressure arm can vibrate and may disturb the patient. For this reason, the scale is set to read 1 before applying the prism face to the cornea.

The lighting is designed to give optimum fluorescence only when the prism cone is at its calibrated position i.e. when the rim of the prism holder is level with, or not more than 1mm above the case surface.

Only the shortest possible measuring time periods should be carried out on each eye. Should dying of the cornea epithelium be observed, then vision and field of sight should be checked in advance.

Waste Electrical Electronic Equipment (WEEE)

End of life and disposal

The battery may contain toxic or hazardous material and must be disposed of as Waste Electrical Electronic Equioment (WEEE).

For all applicable devices under the WEEE directive, which have reached their end of life, please contact Haag-Streit customer services on (+44) 01279 414969, who will instruct you how to return the device for disposal.

Technical Specification

Specifications	Measurement range	0-50 mmHg (0 – 66.5 kPa)
	Standard divergence	0.49 mN
	Reverse span	=/< 0.49 mN
	Weight	1.0 kg (Packed)
	Light source	LED 450 – 490nm
	Power supply	3.6V NiMh battery
Environmental conditions	Temperature	-10 to +35 C
	Humidity	30% to 90%
	Atmospheric pressure	800 to 1060 hPa
Regulatory	Classification	CE Class IIa
	Standards	MDD 93/42/EEC ISO 8612:2009 ISO 15004-1:2006 EN60601-1 EN60825-1 RoHS 2 (2011/65/EU)
Part numbers	Perkins tonometer (UK) Perkins tonometer with Tonosafe Perkins tonometer (EU) Perkins tonometer (US) Perkins tonometer (AUS)	5806000A 5806001A 5806001B 5806002 5806004
Transport conditions	Temperature: Relative humidity: Atmospheric pressure: Vibration, sinusoidal: Shock: Bump:	-40°C to +70°C 10% to 95% 500hPa to 1060hPa 10Hz to 500Hz: 0.5g 30g, duration 6ms 10g, duration 6ms
Storage conditions:	Temperature: Relative humidity: Atmospheric pressure:	-10°C to +55°C 10% to 95% 1060hPa

INSERTING TONOSAFE

HAAG-STREIT UK
Edinburgh Way
Harlow
Essex
CM20 2TT
United Kingdom
Phone +44 (0)1279 414969
perkins@haag-streit-uk.com
www.haagstreituk.com/ifu

CE 1639