Auto refractors and keratometers

HTR-1A

Refraction, cornea and intraocular pressure in a combined platform.

The Huvitz HTR-1A refracto-tonometer is a versatile ophthalmic instrument. The Huvitz ophthalmic equipment system offers a comprehensive solution for ophthalmology professionals. Wavefront technology and Zernike analysis provide precise refraction, keratometry and optical aberration data. Specific tools, including fluorescein imaging and rigid lens base-curve assessment, support contact lens fitting. In tonometry, intelligent air-puff control and corneal data support reliable measurements. Specialised modes allow observation of abnormalities ranging from lens opacities to signs of dry eye. The Huvitz HTR-1 supports comprehensive, personalised assessment, combining performance and comfort for patient care.



HTR-1A · Equipment view

Sources and documentation

Request a quote

View product

Generated on 2026-11-29

This product sheet is prepared by ASEM. It does not replace the manufacturer’s official documentation or instructions for use.

Key advantages

Refraction and keratometry

Two refraction examination measurements combined.

Sources and documentation · Source checked on 2026-10-05

Non-contact tonometry

Intraocular pressure measurement without contact.

Sources and documentation · Source checked on 2026-10-05

Corneal pachymetry

Corneal thickness measurement in the same instrument.

Sources and documentation · Source checked on 2026-10-05

Prepare lens fitting

The fitting guide documents parameters used for contact-lens fitting.

Sources and documentation · Source checked on 2026-08-30

Review meibomian glands

The meibography view complements ocular-surface assessment in the same workflow.

Sources and documentation · Source checked on 2026-08-30

Document the tear film

TFBUT analysis displays timing markers used to review tear-film stability.

Sources and documentation · Source checked on 2026-08-30

Objective measurement

A workflow dedicated to refraction data acquisition.

Organised settings

Useful information remains accessible in the interface.

Connected flow

Results can join the practice refraction workflow.

Capabilities in practice

Refractometry

Sources and documentation

Keratometry

Sources and documentation

Non-contact tonometry

Sources and documentation

Pachymetry

Sources and documentation

Bring four measurements to one station

HTR-1A combines refraction, keratometry, non-contact tonometry and pachymetry. The patient remains at the same station for these four instrument measurements.

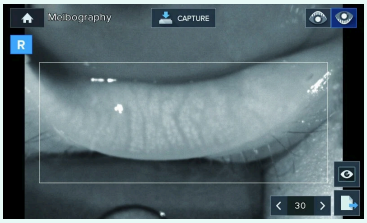
- Refraction and keratometry at one station.
- Integrated non-contact tonometry and pachymetry.

Sources and documentation

Add ocular-surface views

Manufacturer-documented Color View, TFBUT and meibography views complement the assessment. The fitting guide and peripheral keratometry provide contact-lens information.

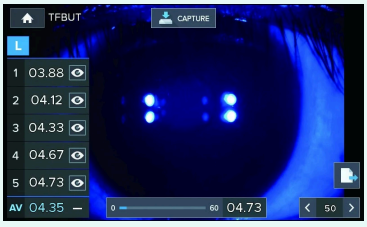
- TFBUT and meibography in the interface.
- Colour view for surface and contact-lens observation.



HTR-1A · Manufacturer capture

Manufacturer illustration: the configuration shown may differ from the delivered configuration.

Sources and documentation



HTR-1A · Manufacturer capture

Manufacturer illustration: the configuration shown may differ from the delivered configuration.

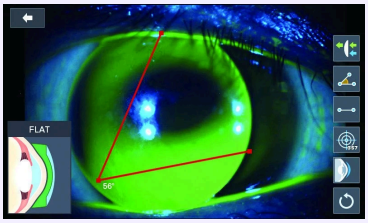
Sources and documentation

Sources and documentation

Support contact-lens fitting

The fitting guide uses blue illumination and peripheral keratometry values.

- Fitting observation with fluorescein.
- Curvature review around the corneal centre.



HTR-1A · Manufacturer capture

Manufacturer illustration: the configuration shown may differ from the delivered configuration.

Sources and documentation

Sources and documentation

Main features

4-in-1 system integrating:

Autorefractometer/keratometer.

Air-puff tonometer.

Pachymeter.

Automatic eye tracking.

Automatic measurement capture.

Monitoring before and after refractive surgery.

Personalised contact lens prescribing.

Contact lens fitting and automatic recognition.

Personalised IOP measurement.

Intelligent air-puff control with automatic IOP adjustment.

Corneal thickness compensation.

Zernike maps for customised lenses.

Pupil measurement down to 2 mm.

Iris measurement up to 14 mm.

Zernike maps and graphs can be displayed in 2D and 3D to interpret sphere, cylinder, axis and higher-order aberration data.

KER/REF measurement with a high-intensity mire ring and two focused LED sources for reliable keratometry data.

Precise refraction measurements reduce the influence of accommodation.

Iris and pupil measurement using image capture.

Iris measurement up to 14 mm.

Pupil measurement down to 2 mm.

Zernike maps for customised lenses.

Zernike maps and graphs can be displayed in 2D and 3D to interpret sphere, cylinder, axis and higher-order aberration data.

Colour mode for contact lens prescribing.

Contact lens fitting.

Automatic recognition of lens fit.

Image processing with fluorescence and a cobalt blue filter.

Automatic calculation of the contact lens base-curve radius.

Contrast image capture and assessment of rigid gas-permeable (RGP) lens fitting.

Automatic display of lens base-curve data.

Retro-illumination mode to observe lens opacity or corneal damage.

SPH, CYL and AXIS measurement data.

TFBUT function for tear film break-up time and dry eye assessment.

Meibography with image enhancement.

Peripheral corneal measurement for contact lens fitting, continuously measuring corneal curvature superiorly, inferiorly, left and right from the corneal centre.

Technical specifications

Refraction measurement

Sphere (SPH): -30.00 to +25.00 D
Cylinder (CYL): 0.00 to ±12.00 D
Axis (AX): 0 to 180°
Pupillary distance (PD): 10 to 85 mm
Minimum pupil diameter: Ø2.0 mm
Corneal curvature measurement:

Curvature radius: 5.0 to 13.0 mm
Corneal refractive power: 25.96 to 67.50 D
Corneal astigmatism: 0.0 to -15.00 D
Astigmatism axis: 0 to 180°
Corneal diameter: 2.0 to 14.0 mm
Intraocular pressure (IOP) measurement:

Measurement range: 1 to 60 mmHg
Accuracy: ±5.0 mmHg
Central corneal thickness (CCT) measurement:

Measurement range: 300 to 800 µm
Accuracy: ±10.0 µm
User interface: 7-inch colour IPS LCD screen tilting to 85°, with a resistive touchscreen for intuitive navigation.

Connectivity: RS-232C, USB, Ethernet and Wi-Fi interfaces for integration with other instruments and medical information systems.

Dimensions: 301 mm (W) x 535 mm (D) x 506 mm (H)

Weight: approximately 19 kg.

Why choose the HTR-1A?

Multifunctional medical instrument

Integrated refraction, keratometry, pachymetry and tonometry for comprehensive clinical assessment.

Support for complex conditions

Provides key information for diagnosing and managing corneal, refractive and glaucomatous conditions.

Workflow efficiency

Shorter examinations with greater reliability support both care quality and practice efficiency.

Advanced medical features

1. Corneal biomechanical analysis

By combining pachymetry and non-contact tonometry, the HTR-1A provides individual IOP assessment corrected for central corneal thickness (CCT).
Supports identification of patients at increased risk of glaucoma or corneal disease.

2. Contact lens fitting

Advanced keratometry precisely measures curvature radius and corneal astigmatism axes, assisting rigid and toric lens fitting.
Detailed monitoring assesses lens stability and comfort over time.

3. Multifocal refraction assessment

An optimised refraction algorithm for patients with cataract or accommodative disorders supports precise dynamic visual acuity assessment, including in low light.

4. Detection of corneal disorders

Retro-illumination reveals corneal irregularities, including opacities or dystrophies, supporting early assessment of conditions that could compromise surgery.

5. Detailed astigmatism mapping

Detailed corneal and refractive aberration analysis supports refractive procedures such as LASIK and toric IOL implantation.

Designed for a smoother workflow

Track the measurement point in three dimensions

When the eye is within the tracking range, the three-dimensional mechanism aligns the measurement point and triggers acquisition. One control starts the two-eye measurement sequence.

- Three-dimensional automatic tracking and shooting.
- Two-eye measurement sequence from one control.

Sources and documentation

Designed for daily practice

Fast workflow

Steps remain easy to sequence.

Sources and documentation

Readable data

Results are easy to review.

Sources and documentation

Workflow continuity

Measurement fits into consultation.

Sources and documentation

Team comfort

Daily use remains structured.

Sources and documentation

Technical specifications & documentation

Brand
Huvitz

Model
HTR-1A

Technology
Refractor / auto-refractor

Clinical use
Diagnostics and biometry

Minimum sphere
-30 D

Vertex distance 12 mm.

Sources and documentation

Maximum sphere
25 D

Sources and documentation

Maximum cylinder
12 D

Sources and documentation

Minimum pupil diameter
2 mm

Sources and documentation

Connectivity
RS-232 · USB for maintenance · Ethernet · Wi-Fi · External video output

Sources and documentation

Adjustment ranges
Total vertical 83 mm; lateral 90 mm; longitudinal 40 mm; chin rest 65 mm

Sources and documentation

Power supply
100–240 V AC ; 50–60 Hz

Sources and documentation

Dimensions
301 × 535 × 506 mm

Sources and documentation

Weight
23.8 kg

Sources and documentation

Vertex distance 12 mm.

Downloads & resources

- https://huvitz.com/wp-content/uploads/2024/10/HTR-1A_8p_eng_20220222.pdf
  Source checked on 2026-10-05
- https://huvitz.com/wp-content/uploads/2024/10/HTR-1A_8p_eng_20220222.pdf
  Source checked on 2026-08-30
- https://huvitz.com/en/product/htr-1a/
  Source checked on 2026-08-30
- https://huvitz.com/ko/product/htr-1a/
  Source checked on 2026-10-18

Your questions about HTR-1A

What is the documented Minimum sphere of HTR-1A?

-30 D — Vertex distance 12 mm.

Sources and documentation

What is the documented Maximum sphere of HTR-1A?

25 D

Sources and documentation

Which configuration should I confirm for HTR-1A?

Vertex distance 12 mm.

Sources and documentation

How does it differ from an auto ref-keratometer alone?

HTR-1A adds non-contact tonometry and pachymetry to refraction and keratometry. All four functions are described for this integrated model.

Sources and documentation

What does automatic tracking do?

Once the eye is in the tracking range, the mechanism follows in three dimensions, aligns the measuring point and triggers capture. The practitioner prepares patient positioning.

Sources and documentation

Does the device offer only the four main measurements?

No. The manufacturer also describes Color View, TFBUT, meibography, contact-lens fitting guidance and peripheral keratometry.

Sources and documentation

Related products



HRK-1

Huvitz

Auto refractors and keratometers

Refraction, keratometry and contact lens fitting assistance.

View product



HRK-8100A

Huvitz

Auto refractors and keratometers

Automatic refraction with central and peripheral keratometry.

View product



HRK-9000A

Huvitz

Auto refractors and keratometers

Refraction and ocular surface assessment in one instrument.

View product



Eyestar 900

Haag-Streit

Optical biometry

Optical biometry and keratometry in a system using EyeSuite.

View product

Explore the ASEM clinical catalogue

Browse related areas of the ASEM catalogue. These links do not extend the indications of this device.

Diagnostics and biometry

More than a device, a long-term partnership

Discuss your project with ASEM: equipment selection, installation, training and technical support.



Service illustration

Installation

Discuss the installation requirements and configuration with our technical team.

Learn more

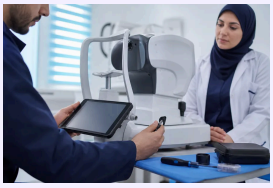


Service illustration

Training

Ask about the training and familiarisation available for your equipment.

Learn more



Service illustration

After-sales service

Contact ASEM for technical assistance and the support appropriate to your equipment.

Learn more



Service illustration

Expert advice

Tell us about your clinical needs to discuss a suitable equipment selection.

Learn more

Contact a specialist | Explore all products | Manufacturer website

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