

HTR-1A

Auto Ref/Keratometer  
Non-contact Tono/Pachymeter

Specifications

|                                     |                                                                                                                  |                                                                                                                                               |         |              |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|
| Refractive power measurement        | Distance between vertex of cornea (VD)                                                                           | 0.0, 12.0, 13.75, 15.0                                                                                                                        |         |              |
|                                     | Spherical prescription (SPH)                                                                                     | -30.00 ~ +25.00 D (VD = 12 mm) (0.01/0.12/0.25 D unit)                                                                                        |         |              |
|                                     | Astigmatism prescription (CYL)                                                                                   | 0.00 ~ ±12.00D (0.01/0.12/0.25 D unit)                                                                                                        |         |              |
|                                     | Astigmatism axis angle (AX)                                                                                      | 0 ~ 180° (1° unit)                                                                                                                            |         |              |
|                                     | Astigmatism indication                                                                                           | -, +, MIX                                                                                                                                     |         |              |
|                                     | Pupil distance (PD)                                                                                              | 10 ~ 85 mm                                                                                                                                    |         |              |
|                                     | Minimum pupil diameter that can be measured                                                                      | Ø2.0 mm                                                                                                                                       |         |              |
|                                     | The accuracy specifications are based on the results of eye model testing preformed in accordance with ISO10342. |                                                                                                                                               |         |              |
| Cornea curvature radius measurement | Corneal curvature radius                                                                                         | 5.0 ~ 13.0 mm (0.01 mm unit)                                                                                                                  |         |              |
|                                     | Cornea refractive power                                                                                          | 25.96D~67.50D<br>(cornea equivalence's refractive index: 1.3375)<br>indication unit: 0.05/0.12/0.25D unit                                     |         |              |
|                                     | Cornea astigmatism prescription                                                                                  | 0.0 ~ -15.00 D<br>(Increments: 0.05/0.12/0.25 D)                                                                                              |         |              |
|                                     | Cornea astigmatism axis angle                                                                                    | 0 ~ 180° (1°/ 5° unit)                                                                                                                        |         |              |
|                                     | Cornea diameter measurement                                                                                      | 2.0 ~ 14.0 mm (0.1 mm unit)                                                                                                                   |         |              |
|                                     | Keratometry is in accordance with TypeB, ISO 103432014.                                                          |                                                                                                                                               |         |              |
| IOP measurement                     | IOP range                                                                                                        | 1 ~ 60 mmHg<br>SPC 30 / SPC 60, 30 / 60                                                                                                       |         |              |
|                                     | Measurement increment                                                                                            | 1 mmHg (Average : 0.1 mmHg)                                                                                                                   |         |              |
|                                     | Accuracy                                                                                                         | ±5.0 mmHg                                                                                                                                     |         |              |
| Corneal thickness measurement       | CCT measurement range                                                                                            | 300 ~ 800 µm                                                                                                                                  |         |              |
|                                     | Measurement increment                                                                                            | 1 µm                                                                                                                                          |         |              |
|                                     | Accuracy                                                                                                         | ±10.0 µm (in case of The calibration Model eye)                                                                                               |         |              |
| Wireless I/F                        | Protocol                                                                                                         | IEEE802.11b 2.4GHz WiFi                                                                                                                       |         |              |
|                                     | Security mode                                                                                                    | WPA2-PSK                                                                                                                                      |         |              |
|                                     | IP configuration                                                                                                 | DHCP mode                                                                                                                                     |         |              |
| Auto travel distance                | Up and down                                                                                                      | 83 mm (±3 mm) : Total                                                                                                                         | RK Mode | 40 mm (±5mm) |
|                                     |                                                                                                                  |                                                                                                                                               | NT Mode | 40 mm (±5mm) |
|                                     | Left and right                                                                                                   | 90 mm (±2 mm)                                                                                                                                 |         |              |
|                                     | Front and back                                                                                                   | 40 mm (±2 mm)                                                                                                                                 |         |              |
| Automatic tracking scope            | Up and down                                                                                                      | ± 5 mm                                                                                                                                        |         |              |
|                                     | Left and right                                                                                                   | ± 5 mm                                                                                                                                        |         |              |
|                                     | Front and back                                                                                                   | ± 5 mm                                                                                                                                        |         |              |
| Chin rest travel distance           | Up and down                                                                                                      | 65 mm (±3 mm)                                                                                                                                 |         |              |
| Data memory                         | 10 session worth of measurement values for each of the eyes on the left and right                                |                                                                                                                                               |         |              |
| Interface                           | RS-232C                                                                                                          |                                                                                                                                               |         |              |
|                                     | USB                                                                                                              | Internal Software Update from PC (Engineer Only)                                                                                              |         |              |
|                                     | Ethernet                                                                                                         |                                                                                                                                               |         |              |
|                                     | WiFi                                                                                                             |                                                                                                                                               |         |              |
|                                     | Ext. VIDEO                                                                                                       |                                                                                                                                               |         |              |
| Hardware specs                      | Built-in printer                                                                                                 | Thermoelectric line printer/Auto Cutting                                                                                                      |         |              |
|                                     | power-saving function                                                                                            | Key power is blocked when the measurement is stopped up the set time.<br>Recovered when pressing on the button or when the screen is touched. |         |              |
|                                     | Monitor                                                                                                          | 85° Tilttable 7" Color LCD IPS Panel (800*480)<br>Resistive Touch panel                                                                       |         |              |
|                                     | Dimensions                                                                                                       | 301(W) x 535(D) x 506(H) mm                                                                                                                   |         |              |
|                                     | Weight                                                                                                           | 23.8 Kg                                                                                                                                       |         |              |
|                                     | Power supply                                                                                                     | AC100-240, 50/60Hz, 0.6-0.9A, 144VA(Max.)                                                                                                     |         |              |

\* Specification and design are subject to change without notice.



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Innovative  
Ophthalmology  
Solutions

Auto Ref/Keratometer, Non-contact Tono/Pachymeter

Huvitz 4 in1 HTR-1A



## Efficient Multitasking by Huvitz 4 in 1 HTR-1A

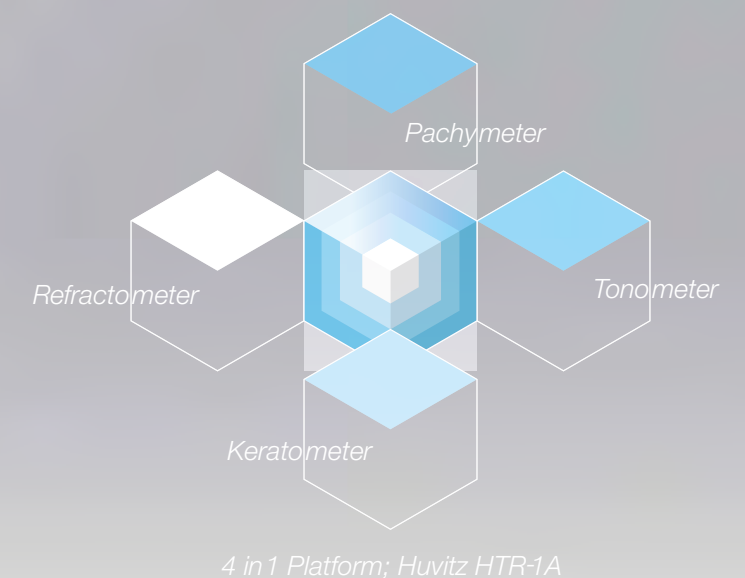
Huvitz HTR-1A is optimized for eye health care in order to accurate measurement & diagnosis.

4 types of diagnostic device are completed with 4 in 1 System in Compact Design.

Also, Full Auto Tracking & Shooting functions provide user convenience.

Huvitz HTR-1A is now ready to surprise users by strong multitasking.

Auto Refractometer  
Auto Keratometer  
Non-contact Tonometer  
Non-contact Pachymeter



### 4 in 1 System

The 1 device includes 4 functions;  
Full Auto Ref/Keratometer, Non-contact Tono/Pachymeter.  
Essential data for Customized Lens prescription such as Cornea Thickness,  
Intraocular Pressure and Refractive Power is accurately measured and acquired.

### Compact Design

By compact design and size, HTR-1A is possible to save users' space.  
4 measurements from 1 device, patients don't need to move their places and it can save their time as well.

### Full Auto Tracking & Shooting

HTR-1A supports Full Auto Tracking & Shooting.  
By clicking one button it automatically follows measuring pupil points and calculates accurate data.

# Kerato/Refracto



Evaluating Analyzed Refractive Data,  
It's Possible for Quick & Accurate Diagnosis and Prescription.

Monitoring Pre & Post Refractive Surgery,  
Customized Lens Prescription;  
Cutting Edge Optometry Technology

## Wavefront Technology for High Order

By Huvitz's own Wavefront analyzing algorithm & Micro Lens Array provide accurate and reliable Refractometry data. User can monitor pre & post refractive surgery (Spherical Aberration) and analyze high order data in order to customized lens prescription.

## KER/REF Measurement

High reliability of Kerato Data from Cornea Curvature can be acquired by minimizing measurement error using high-intensity Mire Ring & Two focus LED light sources. Also, REF Data is provided with high accuracy by minimizing intervention of accommodative power.

## Iris & Pupil Measurement

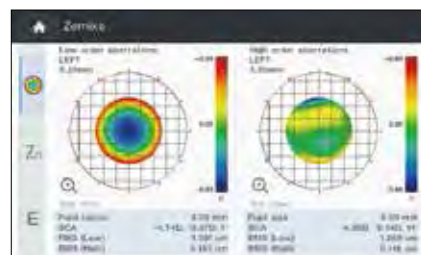
By image capturing function, user can measure Iris & Pupil distance up to 14 mm. Also, minimum pupil measurement is supported up to 2 mm.

## Zernike Map for Customized Lens

Zernike Map & Graph can be displayed in 2D & 3D so that users can easily understand Spherical, Cylinder, Axis and High order aberration data.



Wavefront Technology / Micro Lens Array Concept



Low High Order Aberration Zernike Map

Contact Lens Fitting & Auto Recognition Function;  
Increasing Accuracy and User Convenience

## Color View Mode

Users can utilize the color view mode for contact lens fitting and prescription.

## Contact Lens Fitting Assistance

The guide automatically recognizes fitting condition by image processing with fluorescence & cobalt blue filter.

## Auto Calculation for Lens Base Curve Radius

It's possible to capture & adjust contrast images while monitoring. In case of RGP lens, this function automatically calculates and shows Lens Base Curve data. Also, users can evaluate Steepness & Flatness after fitting hard lens.

## Retro illumination Mode

Users can check the eye lens opacity or corneal damage. SPH, CYL and AXIS measurement data can be acquired in order to utilize for eyeglass and contact lens prescriptions.

## TFBUT & Meibography

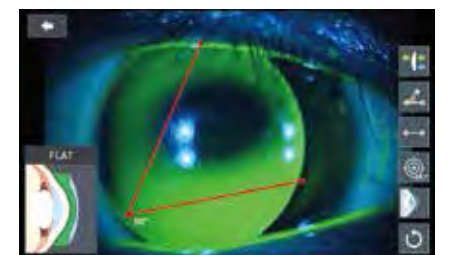
TFBUT (Tear Film Break-Up Time) function can be utilized with tear film and dry eye diagnosis. Since Huvitz Meibography function has adopted Image Enhancement technology, users can check patients' conditions conveniently.

## Peripheral Cornea Measurement

It is useful for accurate contact lens fitting prescription as this function continuously measures cornea curvature up/down/left/right side from cornea's center.



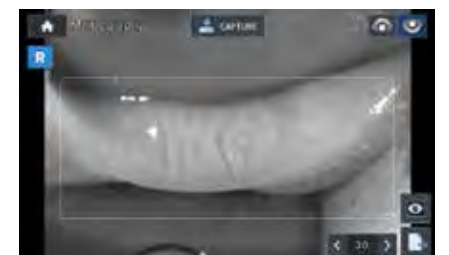
Color View Mode



Contact Lens Fitting Assistance Guide



TFBUT(Tear film break up time)



Meibography Measurement



Peripheral Keratometry Measurement

# Tono/Pachy



# Convenience/ Connectivity



1,2) Touch & Tilting Color Display 3) Joystick & Auto Cutting Printer

Smart Puffing Control with Auto-Adjustment  
& IOP with Cornea Thickness Compensation;  
Easy to measure Customized IOP

## Smart Puffing Control

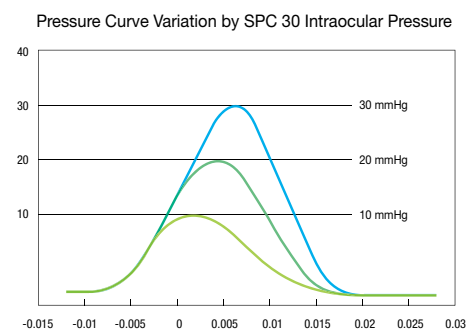
Users can measure customized IOP by auto adjusting intensity of Air Puffing per Patients' pressure.

## Compensted IOP

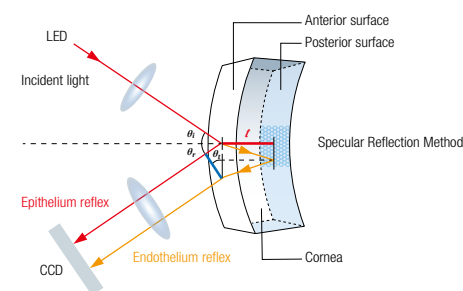
Users can acquire calibrated IOP value by inputting patients' corneal thickness.

## CCT (Central Cornea Thickness)

Adopting Specular Reflection Method HTR-1A is able to measure Corneal Thickness with high accuracy.



CCT Measurement / IOP Compensation



CCT (Central Cornea Thickness) Measurement Concept

User-Centric Environment;  
Multi-function, Easy Instructions, Instant  
Connectable Network

## User Friendly Interface

Icon-based intuitive & user friendly interface is convenient for any users to operate.

## Flexible Joystick for easy Adjustment

With the flexible joystick & continuous direction guide, users can adjust position accurately & easily.

## High Speed & Low Noise Auto Cutting Printer

10 times of measurement can be printed within 2~3 seconds.  
Auto paper cutting function and one-touch paper change provide user convenience.

## Tiltable 7" Touch Color Display

Adopting Wide Color LCD IPS Panel, HTR-1A provides high resolution image.  
With touch & 85° Tilting display, it's easy to monitor and share information with clients.

## Upgraded Network Connectivity

By RS-232C/Ethernet support, users can export or import measurement data with previous devices and external PCs.  
(EMR compatible) Wireless data connection with HDR-9000 and HLM-9000 is available by WiFi.

