

AL551

Automatic Optical Biometer

For Myopia Management

*Fast, Precise & Automatic Biometric and topographic measurement
— Your Eyesight Guardian.*



Start with Scientific Myopia Prevention and Control

The prevalence of myopia has been observed to be increasing globally.

Prevalence of Myopia Estimated for Each Global Burden of Disease Region between 2000 and 2050

| Region | Prevalence (%) in Each Decade | | | | | |
|------------------------------|-------------------------------|------|------|------|------|------|
| | 2000 | 2010 | 2020 | 2030 | 2040 | 2050 |
| Andean Latin America | 15.2 | 20.5 | 28.1 | 36.2 | 44.0 | 50.7 |
| Asia-Pacific, high income | 46.1 | 48.8 | 53.4 | 58.0 | 62.5 | 66.4 |
| Australasia, 1 | 19.7 | 27.3 | 36.0 | 43.8 | 50.2 | 55.1 |
| Caribbean | 15.7 | 21.0 | 29.0 | 37.4 | 45.0 | 51.7 |
| Central Africa | 5.1 | 7.0 | 9.8 | 14.1 | 20.4 | 27.9 |
| Central Asia | 11.2 | 17.0 | 24.3 | 32.9 | 41.1 | 47.4 |
| Central Europe | 20.5 | 27.1 | 34.6 | 41.8 | 48.9 | 54.1 |
| Central Latin America | 22.1 | 27.3 | 34.2 | 41.6 | 48.9 | 54.9 |
| East Africa | 3.2 | 4.9 | 8.4 | 12.3 | 17.1 | 22.7 |
| East Asia | 38.8 | 47.0 | 51.6 | 56.9 | 61.4 | 65.3 |
| Eastern Europe | 18.0 | 25.0 | 32.2 | 38.9 | 45.9 | 50.4 |
| North Africa and Middle East | 14.6 | 23.3 | 30.5 | 38.8 | 46.3 | 52.2 |
| North America, high income | 28.3 | 34.5 | 42.1 | 48.5 | 54.0 | 58.4 |
| Oceania | 5.0 | 6.7 | 9.1 | 12.5 | 12.5 | 53.0 |
| South Asia | 14.4 | 20.2 | 28.6 | 38.0 | 46.2 | 53.0 |
| Southeast Asia | 33.8 | 39.3 | 46.1 | 52.4 | 57.6 | 62.0 |
| Southern Africa | 5.1 | 8.0 | 12.1 | 17.5 | 23.4 | 30.2 |
| Southern Latin America | 15.6 | 22.9 | 32.4 | 40.7 | 47.7 | 53.4 |
| Tropical Latin America | 14.5 | 20.1 | 27.7 | 35.9 | 43.9 | 50.7 |
| West Africa | 5.2 | 7.0 | 9.6 | 13.6 | 19.7 | 26.8 |
| Western Europe | 21.9 | 28.5 | 36.7 | 44.5 | 51.0 | 56.2 |
| Global | 22.9 | 28.3 | 33.9 | 39.9 | 45.2 | 49.8 |

Numbers and uncertainty are provided in the Supplemental Material (available at www.aojournal.org).

Data source: Brien A, Holden, et al. Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. Ophthalmology 2016; 123: 1036-1042.

Myopia, especially high myopia, increases the risk of myopic macular degeneration (maculopathy), retinal detachment, cataract and glaucoma.

Visual Field Changes in Different Eye Disorders



Normal Visual Field

Myopic macular degeneration

Retinal detachment

Cataract

Glaucoma

Precise

μm-level accuracy and repeatability.

Fast

Two eyes biometry can be captured within **20 seconds**.

Zero learning curve, master operation in **60 seconds**.

Automatic

Two times click, capture completed.

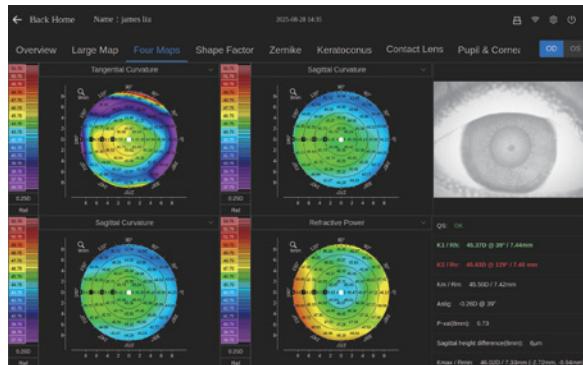
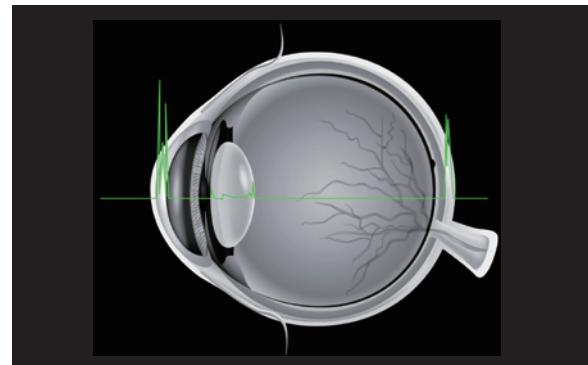
Voice prompts guide users through the capture.



Accuracy Meets Innovation

OLCR (Optical Low-Coherence Reflectometry) Measurement Technology

- The high signal-to-noise ratio makes the measurement more precise compared with traditional measurement.
- The 1060nm wavelength provides greater penetration of eye tissue than other wavelength, enabling precise measurement.



Placido Disc

- The 50-ring design Placido disc can provide 125,600 accurate analysis data points.
- The large cone design covers more than 9.8mm diameter of central cornea to obtain more precise measurement data.

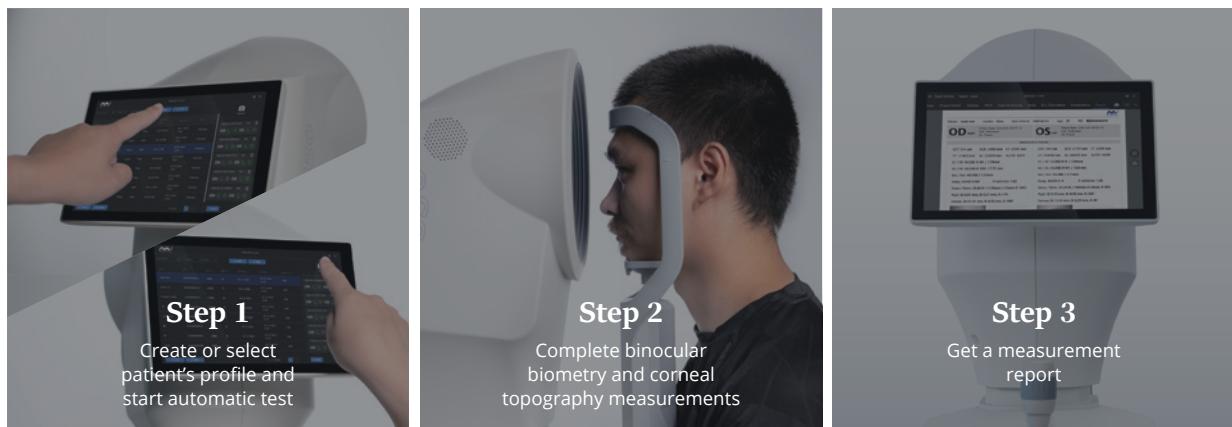
Sleekness Transcends Form

Space-Saving Design

- Integrated touchscreen, with clear data and intuitive operation at a glance.
- Combined OLCR & Placido technologies – no repeated measurements needed.



Ease of Operation



22 Parameters

Axial Length (AL)
Trend of AL
Axial Length/Corneal Radius Ratio (AL/CR)
Trend of AL/CR
Flat Keratometry (K1)
Steep Keratometry (K2)
Mean Keratometry (Km)
Maximum Keratometry (Kmax)

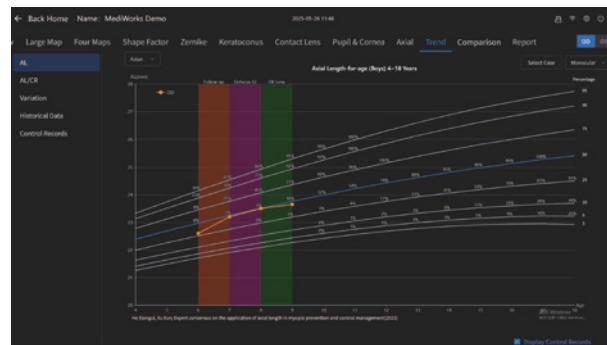
Astig (AST)
Astig Axis
Keratoconus Incides
Pupil Diameter (PD)
Pupil Center Position (Kappa Angle)
White-to-White (WTW)
Cornea Center Position (Alpha Angle)

Eccentricity Value (Ecc)
Central Corneal Thickness (CCT)
Anterior Chamber Depth (ACD)
Lens Thickness (LT)
Vitreous Thickness (VT)
Higher Order Aberration (RMS)
Strehl Ratio (SR)

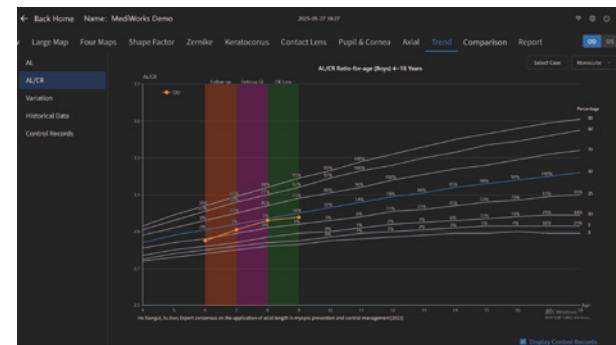
Application in myopia management and keratoconus screening

Trend Curve of AL, AL/CR and Myopia & High Myopia Probability

AL551 delivers accurate AL, AL/CR data and their respective trends for children across different age groups, enabling precise identification of children's myopia progression and targeted development of myopia prevention and control strategies.



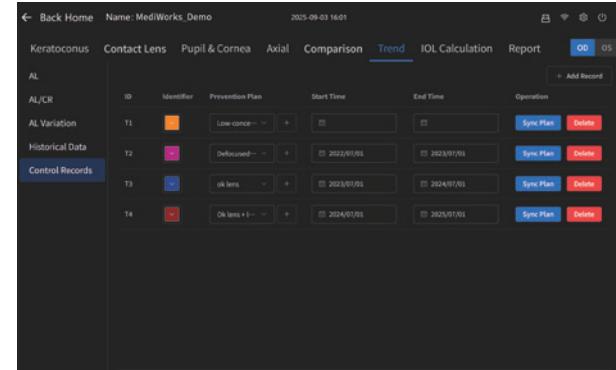
Trend Curve of AL & Myopia Probability in the Asian Population [1]



Trend Curve of AL/CR & Myopia Probability in the Asian Population [1]

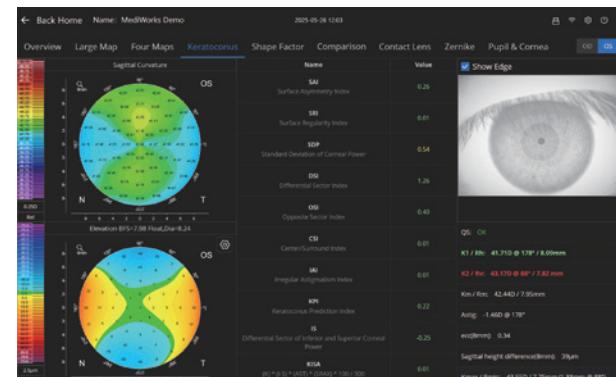
Customized Prevention and Control Plan

AL551 enables users to customize the myopia control measures and their corresponding timelines, aiming to delay AL elongation and lower the risk of myopia progression.



Keratoconus Screening

AL551 provides the maps of anterior corneal sagittal curvature and elevation, and a variety of keratoconus indices, enabling eye-care professionals to intuitively and quickly understand the patient's corneal morphology and assisting in the screening of diseases such as keratoconus and marginal corneal degeneration.

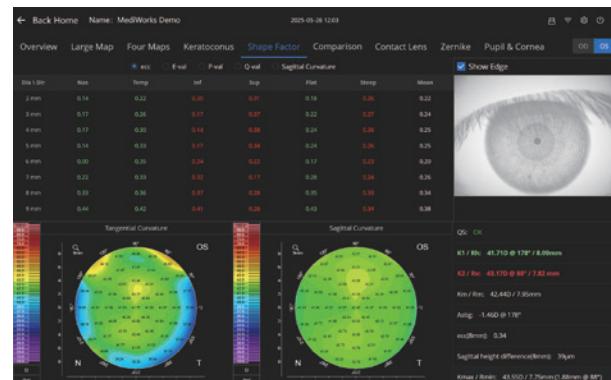


[1] He X, Sankaridurg P, Naduvilath T, et al. Normative data and percentile curves for axial length and axial length/corneal curvature in Chinese children and adolescents aged 4-18 years. Br J Ophthalmol. 2023;107:167-175.

Application in Orthokeratology Lens Fitting

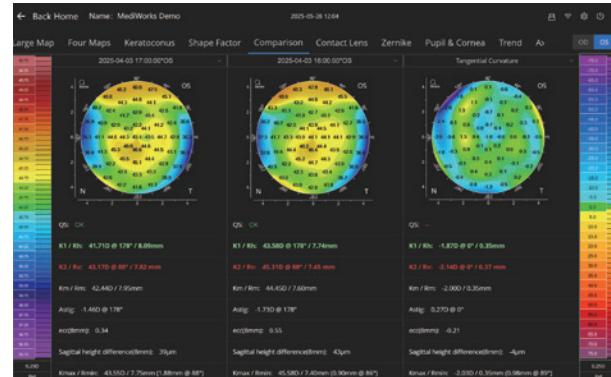
Selection of Orthokeratology Trial Lens

AL551 provides orthokeratology lens fitting-related parameters including flat K, steep K, astigmatism, flat eccentricity, steep eccentricity, corneal sagittal height difference, offering comprehensive data support for eye-care professionals to select

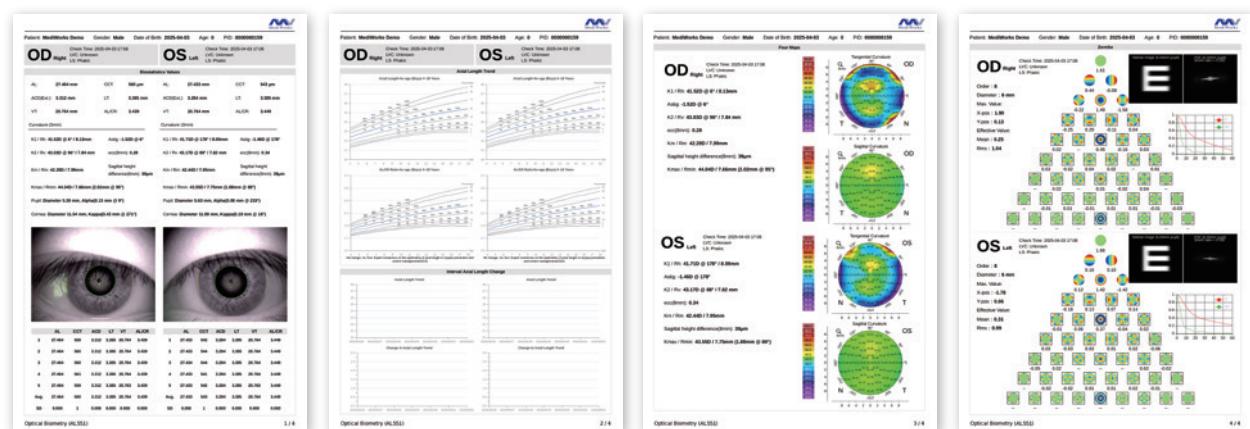


Evaluation of Orthokeratology Lens Wearing Effect

AL551 provides tangential curvature difference map before and after lens wear, which can assist eye-care professionals in evaluating the wearing effect of orthokeratology lenses.



Comprehensive and Easy-to-Access Digital Report



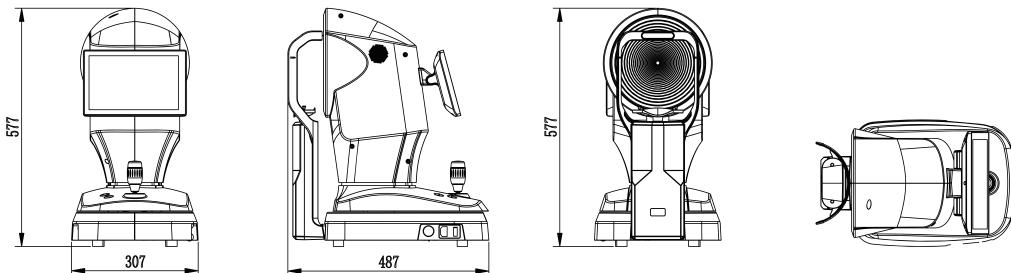
A comprehensive report with rich information on ocular biometric data, corneal topographic maps and wavefront aberrations of anterior corneal surface can help eye-care professionals scientifically evaluate patients' eye health status, so as to better guide their daily practices on myopia management.

Specifications

| FEATURE | SPECIFICATION |
|---------------------|--|
| Keratoscopic cone | 50-ring Placido |
| Analyzed points | 125,600 |
| Measured points | 18,000 |
| Diopter power range | 32.14 ~ 61.36D ($\pm 0.1D$) |
| Axial Biometry | Optical Low-coherence Reflectometry (1,060nm) |
| Focus mode | One-touch, XYZ axes autofocus tracking measurement |
| OS/OD Recognition | Automatic |
| Monitor | 10.1" touchscreen |
| Illumination | Red, Infrared |
| Database | Internal |
| Working environment | +5°C~+40°C, Relative humidity $\leq 80\%$ (no condensing), Atmospheric pressure 700 – 1,060 hPa |
| Power supply | ~100 - 240 VAC, 50/60 HZ |
| Power consumption | 100 VA |
| Dimensions | 307 mm (W) x 487 mm (L) x 577 mm (H) |
| Weight | 21kg |
| Printing options | USB printer, Network printer, PDF on network shared folder, PDF on USB PDF or Image on network folder or on USB |
| Operating System | Linux |
| Hard Disk | 1TB |

INFORMATION ON MEASUREMENTS

| MEASUREMENT | Measuring Range | Tolerance Value | Display Resolution |
|-----------------------------|---|----------------------|--------------------|
| Axial Length | 0 - 40 mm | $\pm 10 \mu\text{m}$ | 1 μm |
| Corneal Thickness | 0.2 - 1.2 mm | $\pm 10 \mu\text{m}$ | 1 μm |
| Anterior Chamber Depth | 0.7 - 8 mm | $\pm 10 \mu\text{m}$ | 1 μm |
| Lens Thickness | 1.5 - 6.5 mm | $\pm 10 \mu\text{m}$ | 1 μm |
| White-to-White | 8 - 16 mm | $\pm 0.1 \text{ mm}$ | |
| Pupil Diameter | 1 - 13 mm | $\pm 0.1 \text{ mm}$ | |
| Projection ring diameter | > 9.8 mm | | |
| Corneal Radius of Curvature | 5.5 - 10.5 mm (Accuracy $\pm 0.02 \text{ mm}$) | | |
| Axis | 0 ~ 180° | | |



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