

 **TOPCON**

Begin 21
65 years, — Beginning the 21st century.

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AUTO KERATO-REFRACTOMETER

KR-7000P



The New State of Auto Kerato-Refractometer.
In your pre-test room, the
KR-7000P provides accurate Refraction,
Keratometry measurements
and CORNEAL MAPPING
in a compact design.



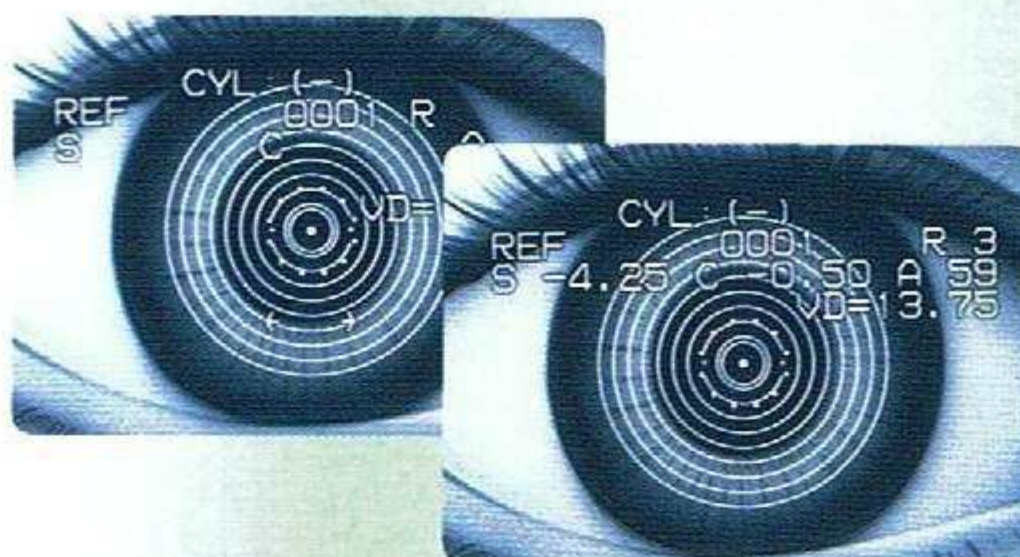
Simple Operation for Fast & Accurate Results

Auto-Measurement

This innovative function automatically starts the measurement process once the instrument is properly aligned. When proper alignment is maintained, the instrument will automatically take three readings of each eye. Once readings are taken on both eyes, a hard-copy printout is automatically generated.

Omni-Directional Joystick

This new instrument continues the Topcon tradition of quick, responsive instrument control through an omni-directional joystick. Even novice operators can easily obtain accurate measurements with one hand, while leaving the other hand free for other functions.



Scenic Fixation Chart

Each instrument incorporates a vivid four color landscape chart which aids in maintaining patient fixation. The automatic fogging function reduces the effects of instrument myopia and patient accommodation. The fixation chart has two levels of brightness to optimize measurement results on smaller pupils.



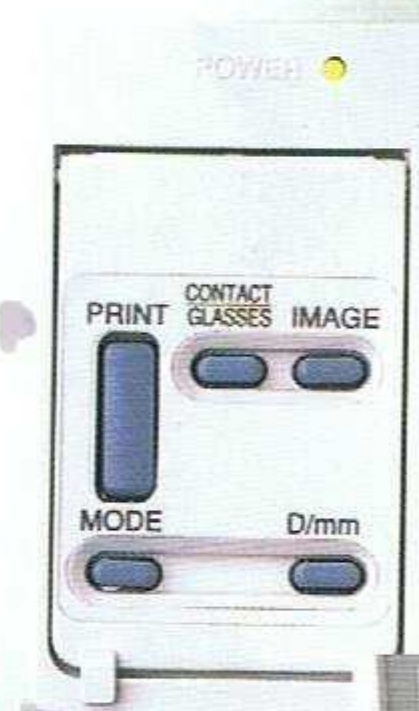
Alignment Marks

| | |
|-----|---|
| → ← | Move the instrument closer to the patient |
| ← → | Move the instrument away from the patient |
| — | Incorrect alignment |

Proper alignment will lead to automatic measurement.

A New Standard of Precision

The KR-7000P's innovative design and proprietary software assures the user unprecedented accuracy and reliability. Precise calculations are derived from the unique retinal image to provide reliable findings of sphere, cylinder and axis measurements.



Convenient Control Panel



Fully Reliable Measurements For All Patients

Minimal 2.5mm Pupil Dilation

Taking full advantage of Topcon's sophisticated optical technology, the KR-7000P is able to obtain accurate refractive readings through pupil diameters as small as 2.5mm. This feature simplifies measurements with elderly patients and patients taking medication.

Simultaneous Measurement of Corneal Curvature

The KR-7000P provides precise measurement of corneal curvature. Either Central or Central/Peripheral measurements can be selected with up to eight peripheral points being analyzed.

Cornea Diameter Measurement

The patient's corneal diameter can be measured by using either the live image on the monitor or by a "still" image that can be recalled on the monitor. Measurements can be obtained for both eyes and if desired, the information can be recorded on the hard-copy printout.



Improved Functional Convenience

Automatic Shut-Off

When the instrument is left idle for more than 5 minutes, the power is automatically shut-off to the monitor and internal circuitry. This conserves energy and increases the useful life of electrical components.

Automatic PD Measurement

The instrument automatically computes the PD measurement when binocular readings are taken. This value is then printed out together with the results of the objective testing.

Data Transfer

The KR-7000P is supplied with two RS-232C connectors. One connector can receive data from the auto-lensmeter (data in) while the second connector can transfer the recorded information to external devices (data out). These functions allow the instrument to effectively work in a networking environment. (*The corneal mapping data can not be transferred.)

Hard Copy Printouts

With one touch of the Print switch, the operator can obtain a complete hard copy record of the test results. Refractive and keratometric measurements can be combined with the corneal mapping printout to provide detailed diagnostic information.

Complete Assessment Of The Cornea

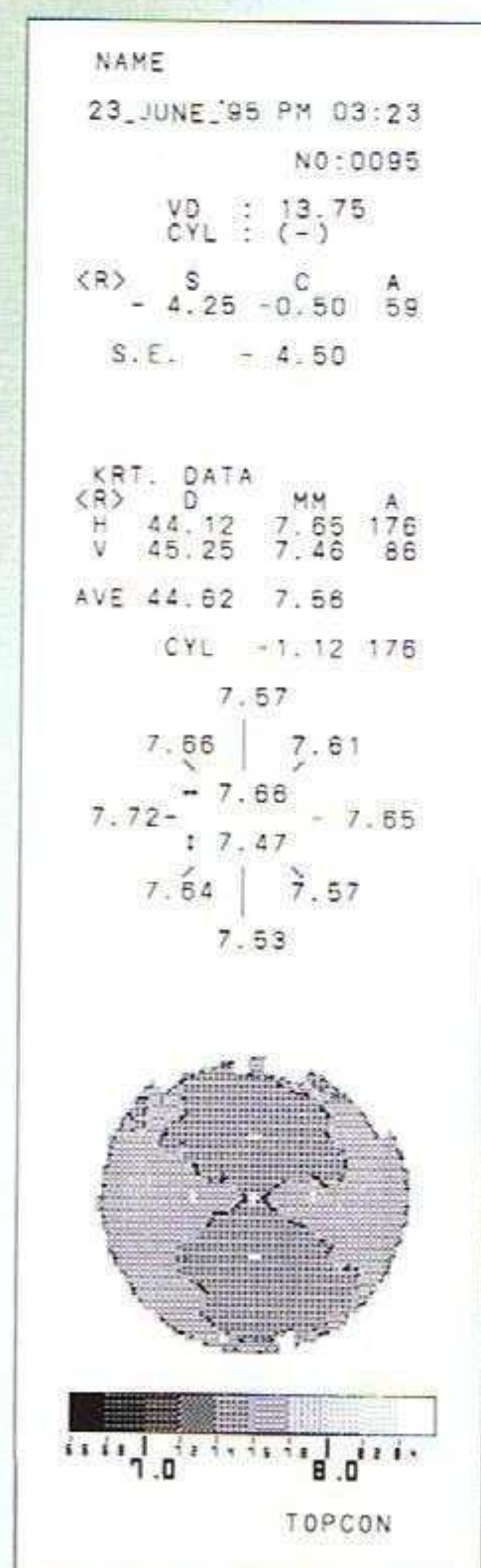
An assessment of the cornea surface can be made by observing the regularity of the nine Placido rings that are projected onto the front surface of the cornea. If desired, this image can be printed out.

The more clinically useful procedure will be to obtain a grey-scale printout of the cornea, which is derived by cal-

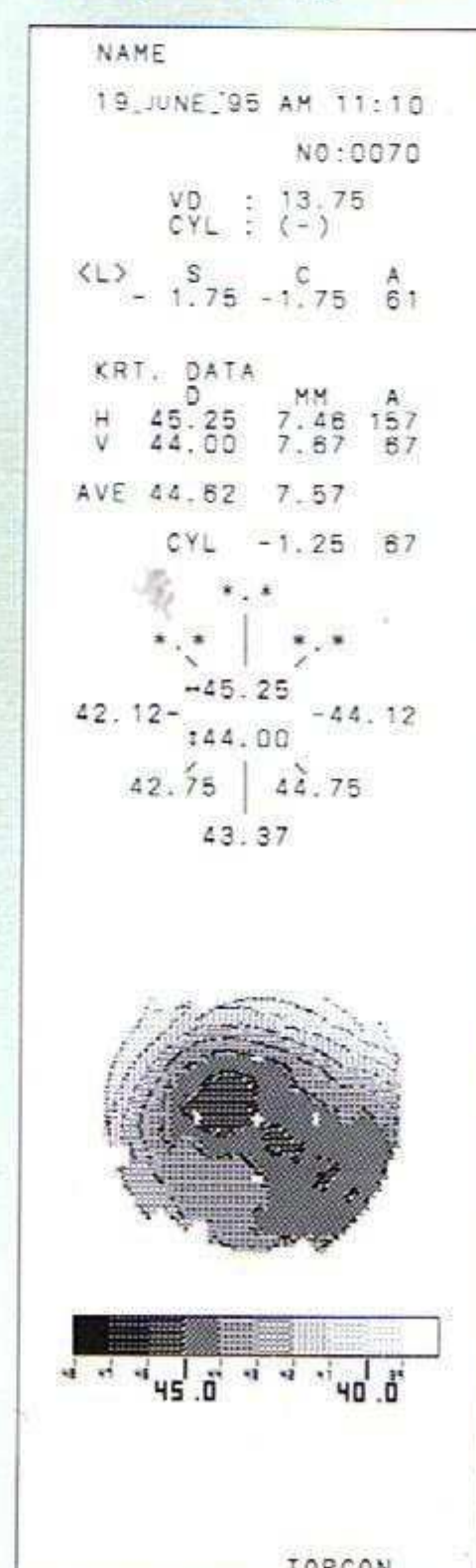
culating the variations in contours from the projected Placido rings. This valuable mapping information allows for confident diagnosis of corneal pathology including diagnosis of all types of astigmatism, keratoconus, contact lens-induced corneal distortion, pre-operative surgical evaluations and post-operative follow-up.



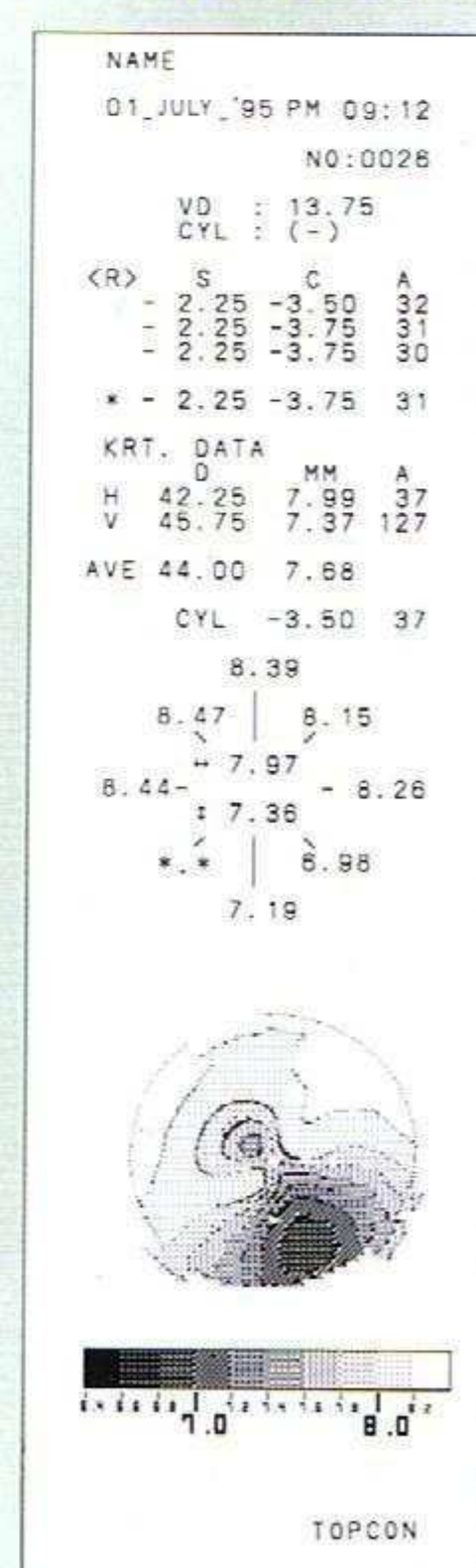
Normal



Oblique Astigmatism



Keratoconus

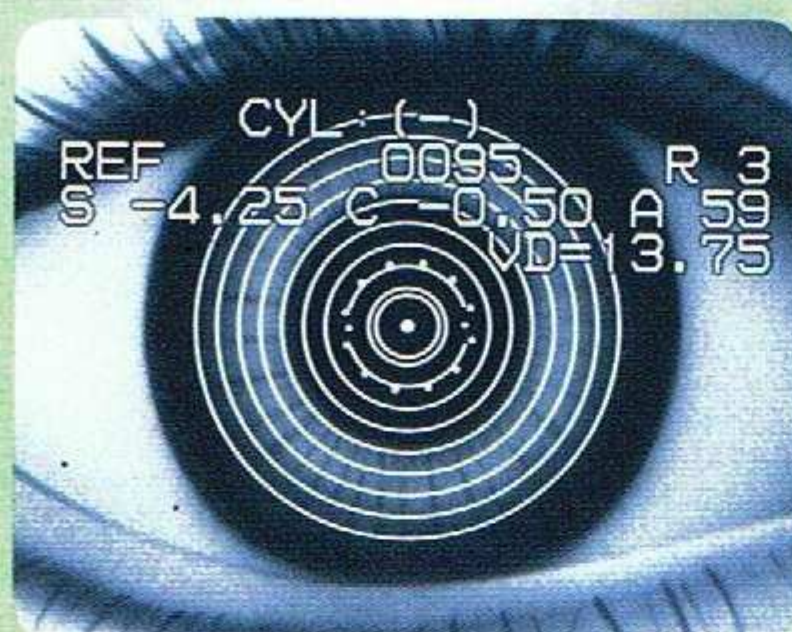




Triple Functions



Auto Refractometer Function

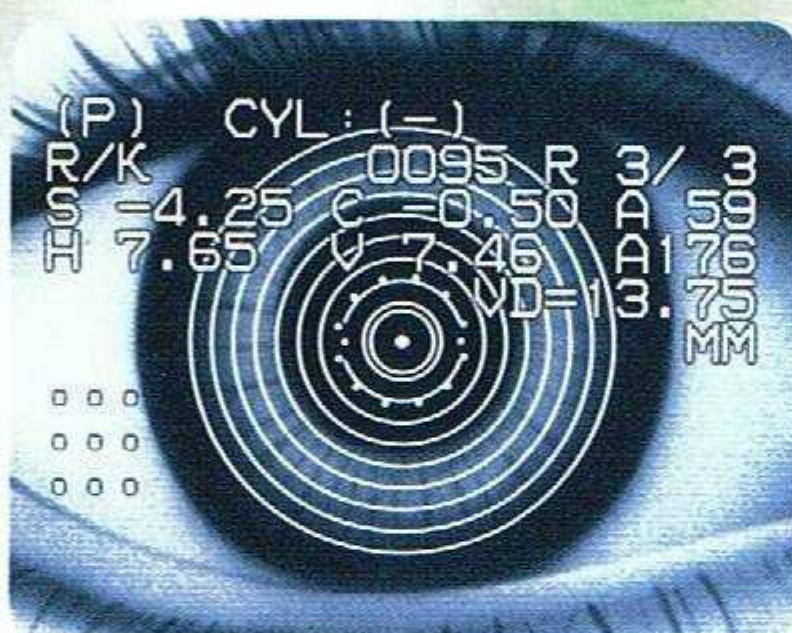


The refractive readings are based on TOPCON's well known standards of excellence and advanced opto-electronic technology. Up to 10 readings per eye can be obtained with average value and spherical equivalent data being calculated. This information can be printed out in three different formats.

```
NAME
01_JULY_95 PM 03:28
NO:0095
VD : 13.75
CYL : (-)
<R> S C A
- 4.25 -0.50 59
- 4.25 -0.50 59
* - 4.25 -0.50 59
S.E. - 4.50
TOPCON
```



Auto Keratometer Function



The keratometer function provides precision measurements of both central and peripheral areas of the cornea. The Placido ring system is used to obtain the data, thus giving extremely precise measurement values for corneal curvature.

```
NAME
01_JULY_95 PM 03:27
NO:0095
VD : 13.75
CYL : (-)
<R> S C A
- 4.25 -0.50 59
- 4.25 -0.50 59
* - 4.25 -0.50 59
S.E. - 4.50
```

```
KRT. DATA
<R> D MM A
H 44.12 7.65 176
V 45.25 7.46 86
AVE 44.62 7.56
CYL -1.12 176
7.57
7.66 | 7.61
- 7.66 - 7.65
7.72- 7.47 - 7.65
7.64 | 7.57
7.53
```

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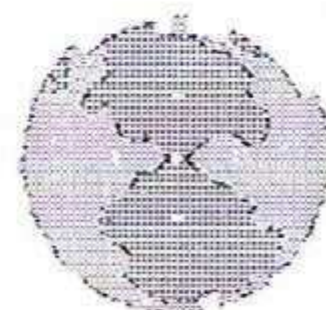
Corneal Mapping Function



The corneal mapping system has the capability of displaying the Placido rings on the monitor, and offers the clinically valuable grey-scale corneal map for evaluating corneal pathology.

```
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- 4.25 -0.50 59
S.E. - 4.50
```

```
KRT. DATA
<R> D MM A
H 44.12 7.65 176
V 45.25 7.46 86
AVE 44.62 7.56
CYL -1.12 176
7.57
7.66 | 7.61
- 7.66 - 7.65
7.72- 7.47 - 7.65
7.64 | 7.57
7.53
```



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Optional System

The following optional accessories enhance the performance of the KR-7000P.

VIDEO PRINTER

KR-7000P can be directly connected to an optional video printer to provide copies of the Placido ring image.



EXTERNAL MONITOR

A larger Placido Ring image can be displayed on an optional external monitor.



IMPORTANT

In order to obtain the best results with this instrument, please be sure to review all user instructions prior to operation.

SPECIFICATIONS

Refraction Measurement

| | |
|---------------------------|---|
| Measuring range | |
| Hyperopia: | 0 to +22D (0.12 or 0.25D steps) |
| Myopia: | 0 to -25D (0.12 or 0.25D steps) |
| Astigmatism: | 0 to -7D or +7D (0.12 or 0.25D steps) |
| Axis: | 0° to 180° (1° step) |
| Method of relaxation: | Automatic fogging |
| Measurement data display: | TV monitor screen |
| Measurement recording: | Built-in printer (Up to 10 measurements of each eye can be stored) |

Corneal Curvature Measurement

| | |
|----------------------------------|--|
| Measuring range: | Corneal curvature radius 5.00 - 10.00mm (0.01mm steps) |
| Corneal refraction: | 67.50 to 33.75D (0.12D steps) (Corneal refraction factor = 1.3375) |
| Corneal Astigmatism: | 0 to -7D or +7D (0.12D steps) |
| Corneal Astigmatism axial angle: | 0° to 180° (1° step) |
| Measurement recording: | Built-in printer (Up to 10 measurements of each eye can be stored. At R/K mode, only the representative value will be printed.) |

Corneal Mapping

| | |
|------------------------|--|
| Measuring area: | 1.5mm to 8mm (R = 7.7) |
| Measuring steps: | 0.50D, 1.00D or 1.50D |
| Measurement reading: | Built-in printer |
| Placido image reading: | Built-in printer or Video printer (option) |
| Image display: | TV monitor screen |
| Image output: | BNC |

Others

| | |
|-------------------------|----------------------------|
| Alignment: | Screen display |
| Monitor television: | 5 inches |
| Power supply: | 100, 120, 220 and 240V |
| Dimensions: | 275(W) x 475(D) x 490(H)mm |
| Weight: | 25kg |
| P.D. Measurement range: | Max 85mm in 1mm step |
| Output terminal: | RS-232C |

*Subject to change in design and/or specifications, without advance notice.



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