



# REF/KERATO

AutoFocus AutoTrack Ref/Keratometer

AUTO REF/KERATOMETER  
**GR-3500KA**  
**GR-3300K**

## 3D Auto Measurement

With Auto Focus + Auto Track + Auto start, the measurement is taken at the most proper position automatically without operating the joystick precisely nor pushing the start switch.



## Auto Start

Automatically starts the measurement once the eye position and the focus are aligned.

## Tilting Large LCD

Operator can be at any position and the large color LCD make the measurement easy.

## Precise Measurement

Improved measurement accuracy with newly designed optical system.

## User Friendly Printer with Auto Cutter

Just throw a paper roll into the printer box without any adjustment and the Auto Cutter makes easy to tear off the printout.



## Simple Lock

Just turn the knob to stop the main unit temporary. It can be put on the slind-ing table safely.



## Electric Chin Rest

The chin rest can be adjusted to the proper level from the operator side with the switch.

## Pupil Diameter Measurement

Useful feature for the subject with Multi Focus Contact Lens and IOL. The pupil diameter at 0.1mm step (minimum 2mm) is measured simultaneously with refractive value.

## Advanced IOL Mode

Improved measurement accuracy of the subject with the cataract and/or the IOL implanted.

## Data Output

The measurement data can be transferred to the external devices by RS232C and USB interface. The data can be retrieved into the spread sheet using Data Collection Software (Optional).

## PD Measurement

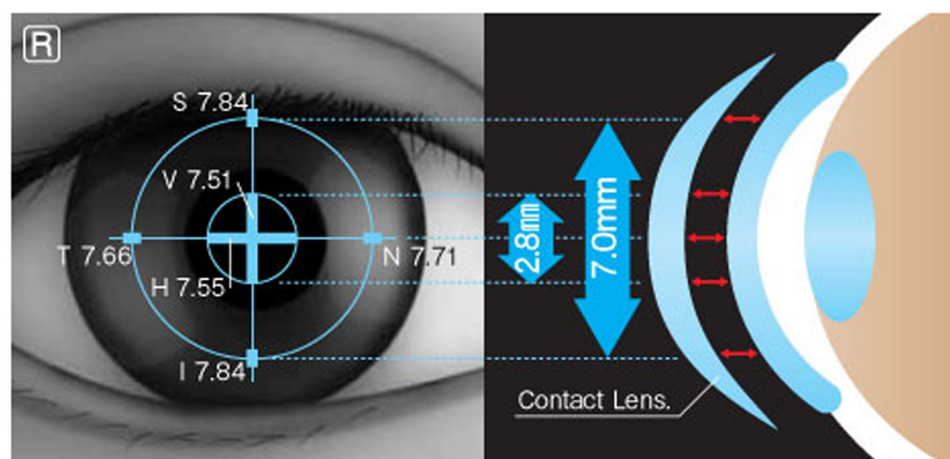
In addition to the measurement of Far PD, Near PD is calculated based on it at the selected distance.

## Small Pupil Measurement

Improved system allows to measure smaller pupil diameter as small as 2.2mm and the subject with long eyebrows and smaller eyes can be measured more easily.

## Corneal Peripheral Measurement

Measuring corneal peripheral is useful to determine the base curve for fitting contact lens.



Right eye data Date & time

### Message Area

No. 00001  
NAME  
2009 05 28 13:10  
VD=12  
<R> SPH CYL AX PUP.  
-4.75 -0.25 90 5.0  
-4.75 -0.25 90 5.0  
-4.75 -0.25 90 5.0

-4.75 -0.25 90

<R> mm D AX  
R1 7.59 44.50 120  
R2 7.57 44.50 30  
AVE 7.58 44.50  
CYL 0.00

RESI AST -0.25 90

S 7.84 T 7.66  
V 7.51 H 7.55  
I 7.84 N 7.71

e (VER) 0.554  
e (HOR) 0.396  
e (AVE) 0.475

<L> SPH CYL AX PUP.  
-4.50 -0.75 90 5.0  
-4.50 -0.75 90 5.0  
-4.50 -0.75 90 5.0

-4.50 -0.75 90

<L> mm D AX  
R1 7.59 44.50 120  
R2 7.57 44.50 30  
AVE 7.58 44.50

Left eye data

Average

Eccentricity

Horizontal

Eccentricity

Vertical

Eccentricity

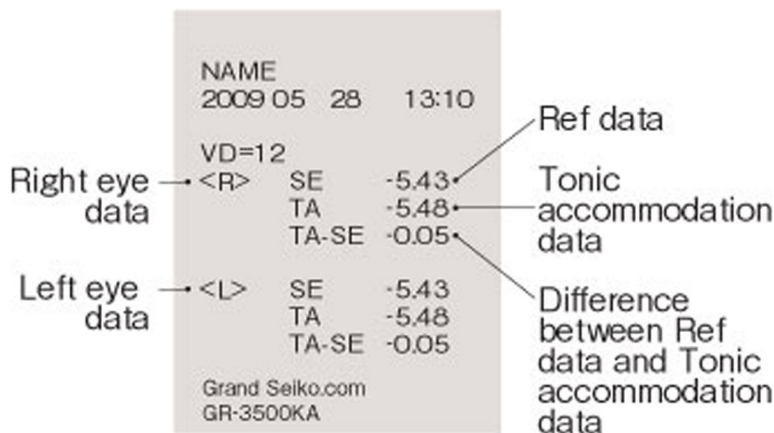
Representative value

(Displayed when the measurement is taken 3 times)

Residual astigmatism

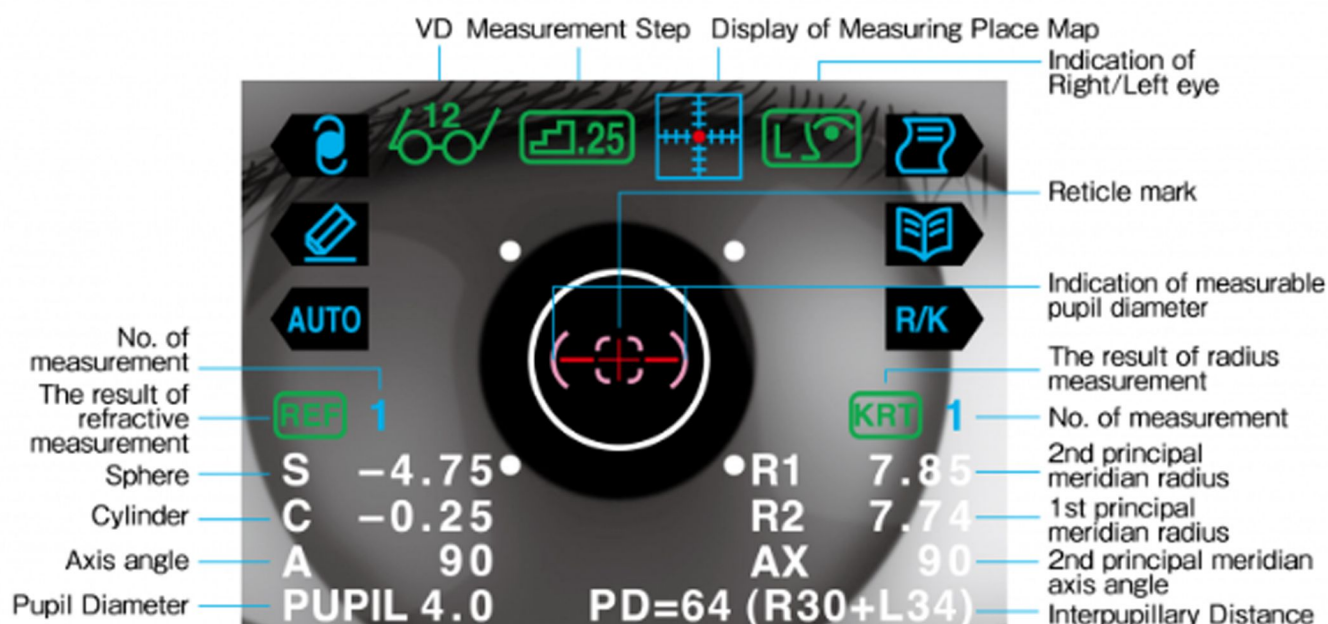
## Tonic Accommodation Measurement

The level of fatigue and its recovery can be measured. This feature is able to prove reliability of far point measurement. Measuring tonic accommodation traditionally required a special settings such as showing empty field to the subject in the special room.





## LCD Display



## Specification

Model	GR-3500KA	GR-3300K
Refraction Measurement	Sphere -22~+30D (VD=0mm)	
	-30~+22D (VD=12mm) (0.01/0.12/0.25DStep)	
	Cylinder 0~±10D (0.01/0.12/0.25DStep)	
	Axis angle 1~180° (1°Step)	
Measurement of Corneal Radius	Corneal radius 5.0~10.0mm (0.01mmStep)	
	Refractive power 33.75~67.5D	
	(Corneal Refractive Index n=1.3375)	
	(0.01/0.12/0.25DStep)	
	Cylindrical power 0~±10D	
Corneal Measured Area	Axis angle 1~180° (1°Step)	
	φ2.8mm(Ring Measurement/at 8.0mm of Corneal Radius)	
Pupil Diameter Measurement	φ7.0mm(4 Point Peripheral Measurement/at 8.0mm of Corneal Radius)	
Vertex Distance	φ2~φ8mm (0.1mm step)	
Minimum Pupil Diameter	0, 10, 12, 13.5, 15mm	
Pupillary Distance	φ2.2mm	
Auto Start	Measurement Range 0~85mm (1mmStep)	
Auto Focus/Auto Track	○	
Printer	○	
Internal Monitor	×	
Movable Distance	Thermal printer with Automatic Cutter (Width 57mm)	
Movable Distance of Chinrest	5.7 inch LCD Display (Color)	
Overall Dimension	Back/Force ±17mm Right/Left ±43mm Up/Down ±17mm	
Weight	±30mm	
Output	(W) 260mm×(D) 465mm×(H) 453mm	
Rated Voltage	About 20kg	
Consumption	About 17kg	
Power Save	RS-232C, USB2.0 Interface	
	100~240V 50/60Hz	
	90VA	
	80VA	
	OFF, 3, 5, 10 min. (Selectable)	