

REF/KERATO

AutoFocus AutoTrack Ref/Keratometer

AUTO REF/KERATOMETER

GR-3500KA
GR-3300K

NEW



Grand Seiko Co., Ltd.

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.
(GR-3500KA Only)



Auto Start

When the position and the focus are aligned, the measurement is taken automatically for the fixed times. Then, once both eyes are measured, print out will come out automatically.

Tilting Large LCD

Depending on the position of operator, the angle of LCD can be changed freely. With this Large Color LCD, the measurement can be done easily since the measurement information is shown in color and by icon.

Precise Measurement

With the newly designed optical system, the measurement accuracy has been improved.

User Friendly Fast Printer (with Auto Cutter)

For the replacement of paper, just put it in and close the cover. It is very simple and easy because there is no need to make any adjustment.



Simple Lock ※①

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



Electric Chin Rest ※②

Chin Rest moves electrically with the switch in front of operator.

Pupil Diameter Measurement

Simultaneously with refractive value, the pupil diameter at 0.1mm step (minimum 2mm) is shown on the LCD and can be printed out. It can measure the pupil diameter necessary for Multi Focus Contact Lens, IOL, and so on.

NEW IOL Mode

After redesigning the whole system and making the improvement, even the cataract and the IOL implanted subject can be measured much more than before.

Data Output

With RS232C and USB Interface, the measurement data can be sent to the external devices.

With the use of Data Collection Software (option), it is sent as spreadsheet data.

PD Measurement

Measures the Far PD and the Near PD is calculated accordingly (select working distance from 30, 35, 40, 45cm). The result can be printed out as NPD as well.

Small Pupil Measurement

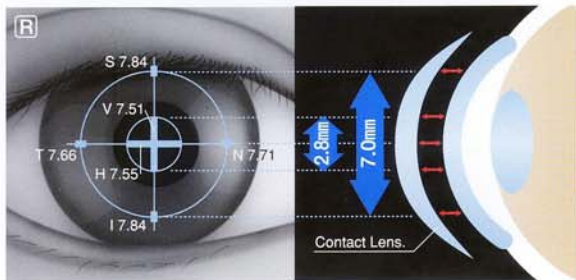
Compare to the previous model, it measures smaller pupil of 2.2mm diameter to allow the measurement of elderly and the person with long eyebrows easier.

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
Refractive data		
<R> mm	D	AX
R1 7.59	44.50	120
R2 7.57	44.50	30
AVE 7.58	44.50	
CYL		
	0.00	
Corneal data		
RESI	AST	
	-0.25	90
S	7.84	T 7.66
V	7.51	H 7.55
I	7.84	N 7.71
Corneal Peripheral Data		
e (VER)	0.554	
e (HCR)	0.396	
e (AVE)	0.475	
Left eye data		
<L> SPH	CYL	AX PUP.
-4.50	-0.75	90 5.0
-4.50	-0.75	90 5.0
-4.50	-0.75	89 5.0
-4.50	-0.75	90
Refractive data		
<L> mm	D	AX
R1 7.59	44.50	120
R2 7.57	44.50	30
AVE 7.58	44.50	
Corneal data		
Residual astigmatism		
Average		
Eccentricity		
Horizontal		
Eccentricity		
Vertical		
Eccentricity		
Representative value		
(Displayed when the measurement is taken 3 times)		



Corneal Peripheral Measurement

With the measurement of Corneal Peripheral, the base curve of contact lens can be chosen more precisely and the fitting of it become smoothly.



S(Superior) T(Temporal)
V(Vertical) H(Horizontal)
I(Inferior) N(Nasal)

Tonic Accommodation Measurement

The fatigueness during the near distance work and its recovery can be judged. At the same time, reliability of far point measurement can be confirmed.

Traditionally, it must be measured in a special room by showing an "EMPTY FIELD".

NAME	2009 05 28	13:10	Ref data
VD=12			
Right eye data	<R>	SE -5.43	Tonic accommodation data
		TA -5.48	
		TA-SE -0.05	
Left eye data	<L>	SE -5.43	Difference between Ref data and Tonic accommodation data
		TA -5.48	
		TA-SE -0.05	
Grand Seiko Co., Ltd. GR-3500KA			

Contact Lens Selection

With the addition of corneal peripheral, residual astigmatism, and pupil diameter data to the general refraction and corneal data, the accurate selection even for the progressive and the large size contact lens now become much easier.

LCD Display (GR-3500KA)

No. of measurement	1								
The result of refractive measurement	REF								
Sphere	S	-4.75							
Cylinder	C	-0.25							
Axis angle	A	90							
Pupil Diameter	PUPIL	4.0							
The result of radius measurement	KRT								
No. of measurement	1								
2nd principal meridian radius	R1	7.85							
1st principal meridian radius	R2	7.74							
2nd principal meridian axis angle	AX	90							
Interpupillary Distance	PD=64	(R30+L34)							

AUTO REF/KERATOMETER
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Specification

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

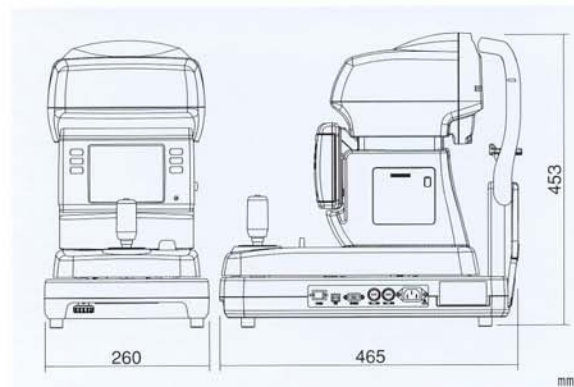
Accessories

- Test eye / 1 pc ● Power cable / 1 pc ● Printer paper / 3 rolls
- Fuse 2A / 2 pcs ● Chinrest paper / 1 pack (1000 sheets)
- Chinrest pin / 2 pcs ● Dust cover / 1 pc ● Contact lens holder / 1 pc
- Operation Manual / 1 pc ● USB Driver CD / 1 pc

Option

- MDC-1 The Measurement Data Collection software
- Electric table ● Chair

Overall Dimension



- Specifications and design are subject to change without prior notice for improvement.
- The screen is composed photograph.
- The color of instrument on the catalogue and the real product might be different.
- We judge that the LCD Monitor is qualified if the total "lit pixel" and/or "missing pixel" is less than five (excluding non-sharp one and less than half one).
- Production and Distribution Registration Number GR-3500KA:37B2X10001000037
 GR-3300K :37B2X10001000039



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Certified Management System
 • ISO 9001, JIS Q 9001
 • ISO 13485

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CAUTION For the proper and safety use, please read the Instruction Manual thoroughly before using the product.



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