Nidek RT-6100 Intelligent Refractor Head / SC1600 Chart

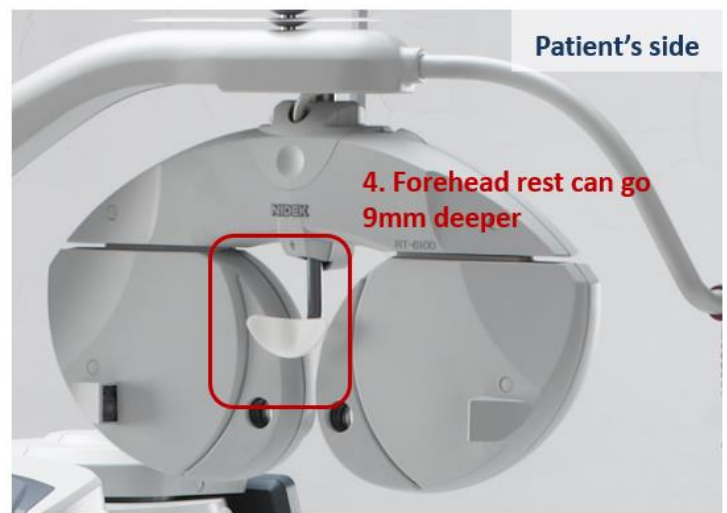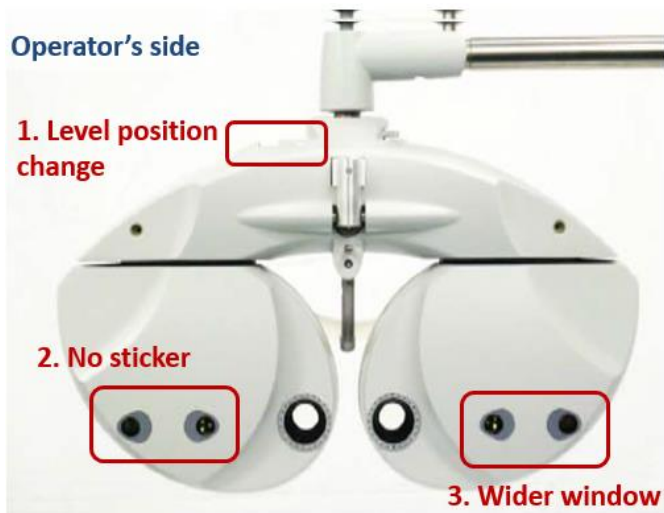## QUICK GUIDE

Features:

- Large, tilt-able LCD display screen
- 40 degrees field of view for patient
- Smooth, silent lens change
- Quick and comfortable refraction for patient and clinician
- Connectivity to other Nidek devices (eg. Tonoref III, LM-1800)
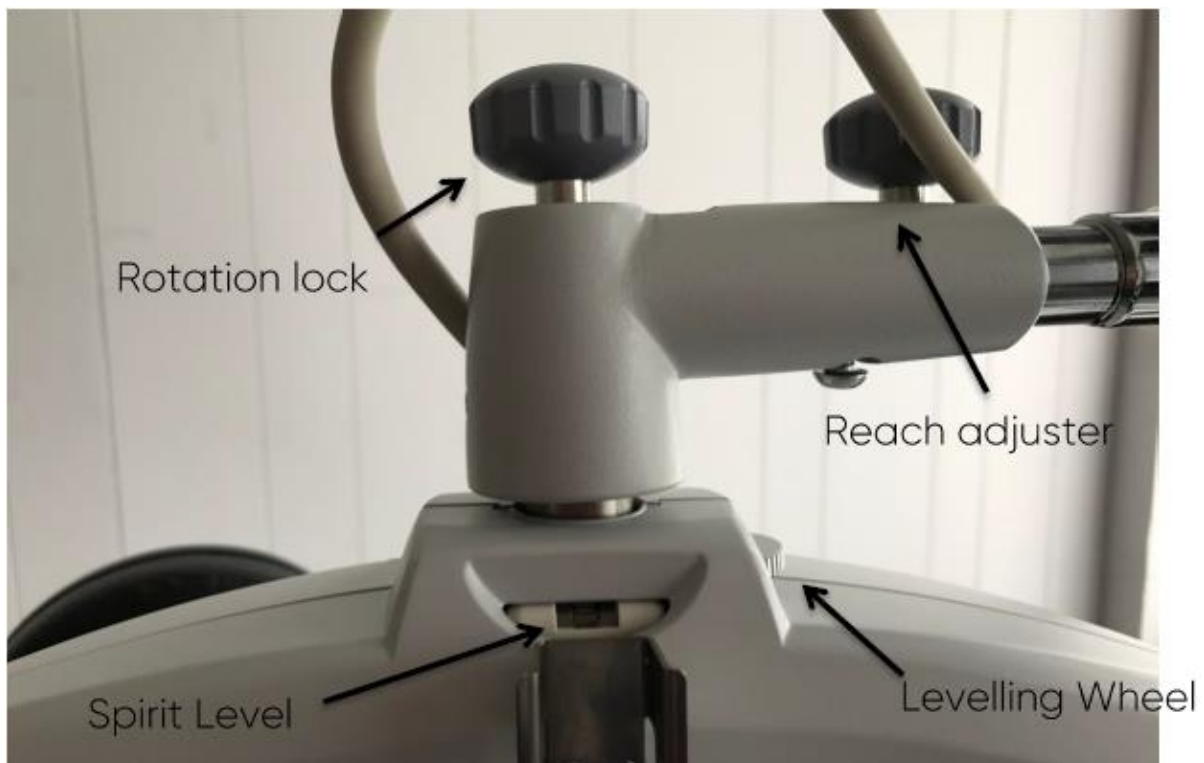
Upgrades from RT 5100:

- Larger, 10.4 inch LCD display screen (RT 5100: 8.4 inches)
- Easy and quick prism removal
- Enhanced connectivity (LAN/WLAN)
- Simplified console base unit
- Change in refractor head design
- Extended program editing tools
- OPD summary review

10

The Refractor Head:

Operator's side

1. Level position change
2. No sticker
3. Wider window

Patient's side

4. Forehead rest can go 9mm deeper

ADJUSTING THE REFRACTOR HEAD:

Rotation lock

Reach adjuster

Spirit Level

Levelling Wheel

The rotation, tilt and level of refractor head can be adjusted using the wheels labelled above.

For successful refraction, the refractor head should be adjusted to the comfort of the patient.

Phoropter arm locking handle

When a comfortable position has been achieved, the phoropter head can be locked into position using the locking handle.

SETTING UP THE PATIENT:

Forehead rest adjustment dial

Patient position indicator light

Patient Eyepiece

BVD checker

Patient position indicator light

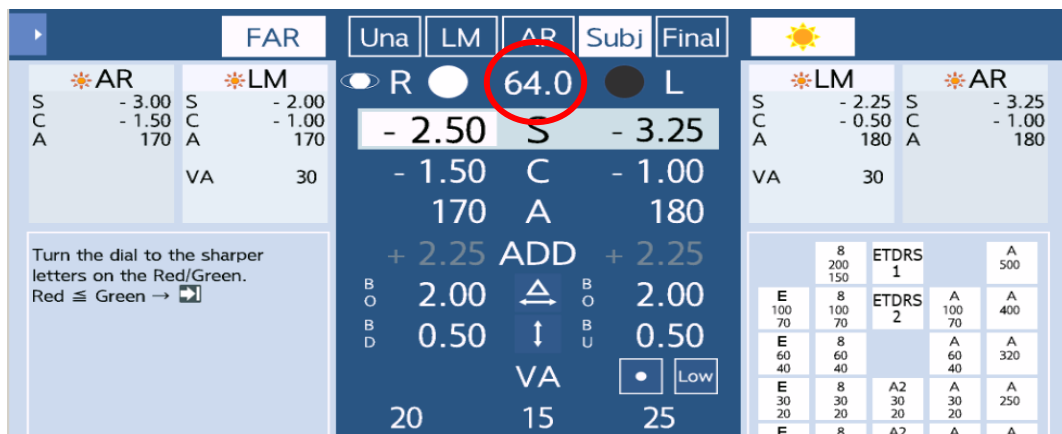**Patient Eyepiece with PD graticules**
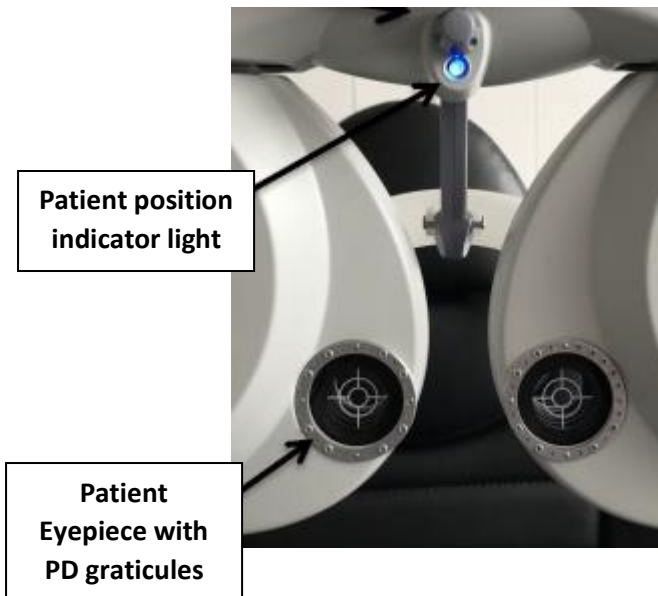
The RT-6100 refractor head contains a blue, LED, patient position indicator light.

When the patient is in the correct position (ie. against the forehead rest), the blue LED will be off.

To present to PD graticules to the patient eyepieces, select the default PD on the console touch screen.

The PD can then be adjusted using the dial on the console base.

The patient's pupil should be visible in the centre of the eyepiece graticule.

Monocular PDs can be inputted by touching individual eyes on the console touch.

screen.

Select final PD on console touch screen to exit PD mode and remove eyepiece graticules
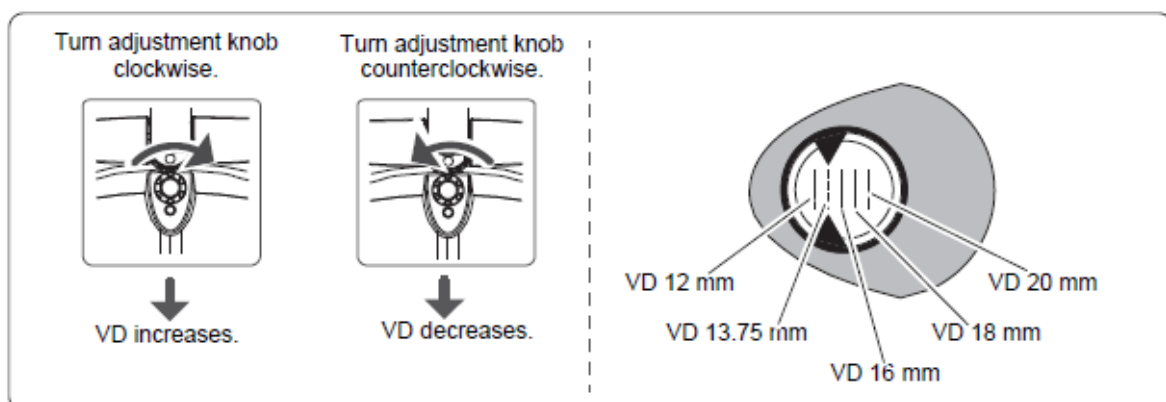
BVD checker

Forehead Rest

To accurately measure the patient's BVD, the patient must be correctly positioned on the forehead rest.
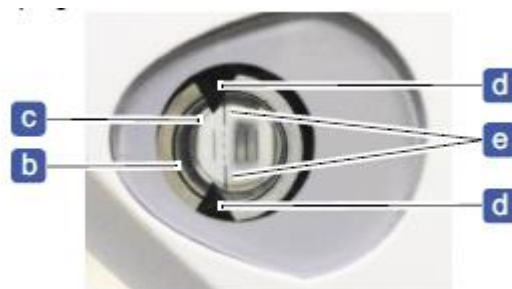
Using the BVD window (labelled above), the patient position can be checked.

If the position is correct, circle 'b' (on front of window) and circle 'c' (on back of window) should appear concentric.
Triangles 'd' should appear aligned with and overlapping with the solid lines at top and bottom of 'e'.

Turn adjustment knob clockwise.

VD increases.

Turn adjustment knob counterclockwise.

VD decreases.

VD 12 mm

VD 13.75 mm

VD 16 mm

VD 18 mm

VD 20 mm

The patient position can be adjusted using the forehead rest adjuster and the BVD measured using the graticules within the BVD window
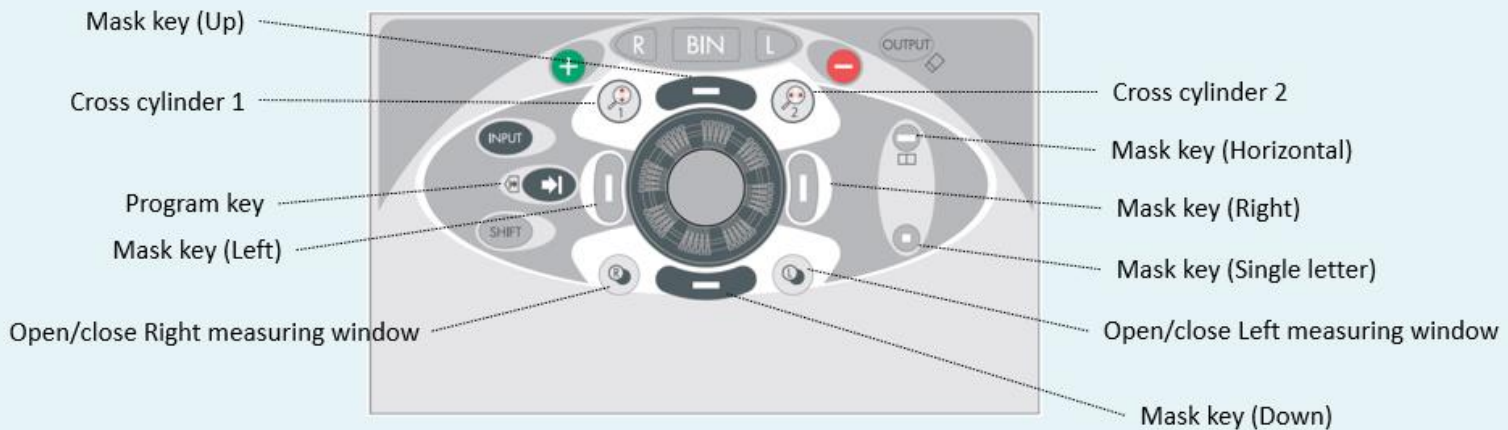
The Console:

Console touch screen

Touch screen pen

Console base unit

The console can be controlled using the touch screen or controls on the base unit.

Mask key (Up)

Cross cylinder 1

Program key

Mask key (Left)

Open/close Right measuring window

Cross cylinder 2

Mask key (Horizontal)

Mask key (Right)

Mask key (Single letter)

Open/close Left measuring window

Mask key (Down)

THE TOUCHSCREEN:

Sub windows

Enter Side Menu

Data buttons

Chart buttons

Program message

Operation message

The button of the centre dial, on the console base unit, can be pressed to change between different parts of the patient prescription.

'S' Sphere

'C' Cyl

'A' Axis

Data Output

Data Input

The data input button can be used to communicate data from various devices to the RT-6100 refractor.

'LM' Lens meter

'AR' Auto refractor

The touchscreen can then be used to quickly compare patient visual acuity using different prescriptions.

'Una' Unaided

'LM' Lens meter

'AR' Autorefractor

'Subj' Subjective

'Final' Final Rx

The final Rx can then be communicated with patient management software using the output button on the console base unit.
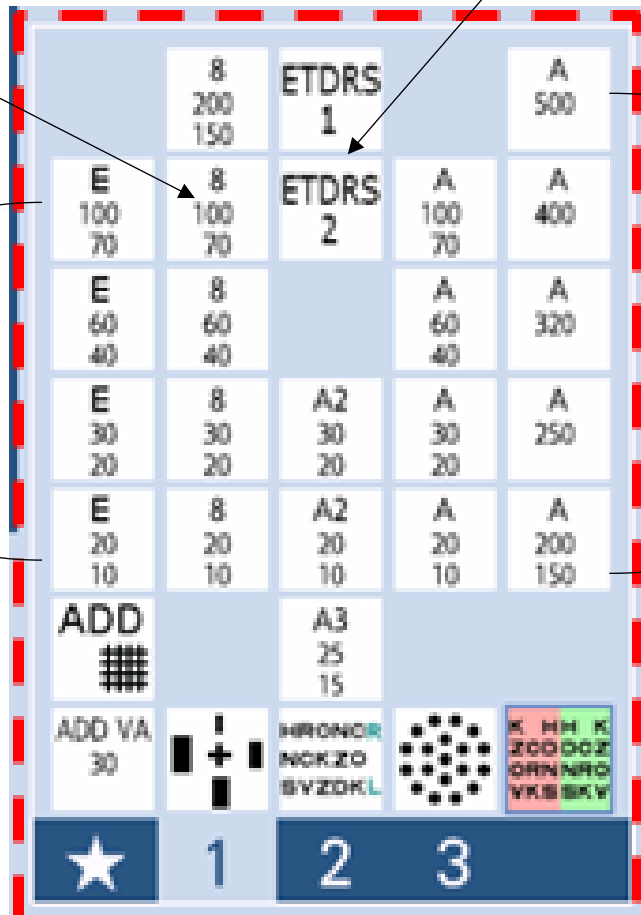
THE CHARTS:

Page 1:

ETDRS logMAR selection

2 full chart options available

Snellen number selection

6/150-6/4

(UK Version)

	8 200 150	ETDRS 1		A 500
E 100 70	8 100 70	ETDRS 2	A 100 70	A 400
E 60 40	8 60 40		A 60 40	A 320
E 30 20	8 30 20	A2 30 20	A 30 20	A 250
E 20 10	8 20 10	A2 20 10	A 20 10	A 200 150
ADD ▦		A3 25 15		
ADD VA 30	▮✚▮	HRONCR NCKZO SVZDKL	⣿	K HH K ICO OOI ORN NRO YKS SKY
★	1	2		3

Illiterate E selection

NB: UK version will show Landolt C's (6/150-6/4)

Snellen letter selection

6/150-6/4

(UK Version)

Page 1 displays visual acuity testing charts and most commonly used auxillary testing charts

Distance stereopsis testing

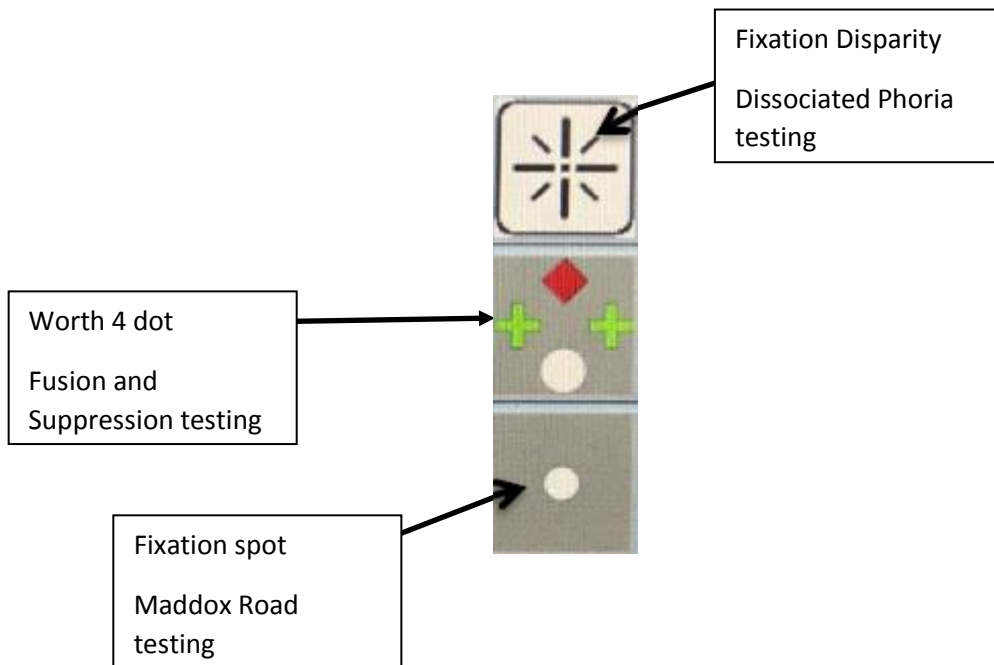(10'-1')

Binocular balance

Cross Cyl

Duochrome

The buttons above and below the centre dial on the console base, can be used to increase and decrease the size of the selected visual acuity test chart.

The buttons to the side of the console dial can be used to isolate single lines, horizontally or vertically, or a single letter.

Page 2:

Page 2 displays functional test charts, extra visual acuity testing (Snellen pictures) and the same most commonly used auxillary charts as displayed on page 1

Fixation Disparity

Dissociated Phoria testing

Worth 4 dot

Fusion and Suppression testing
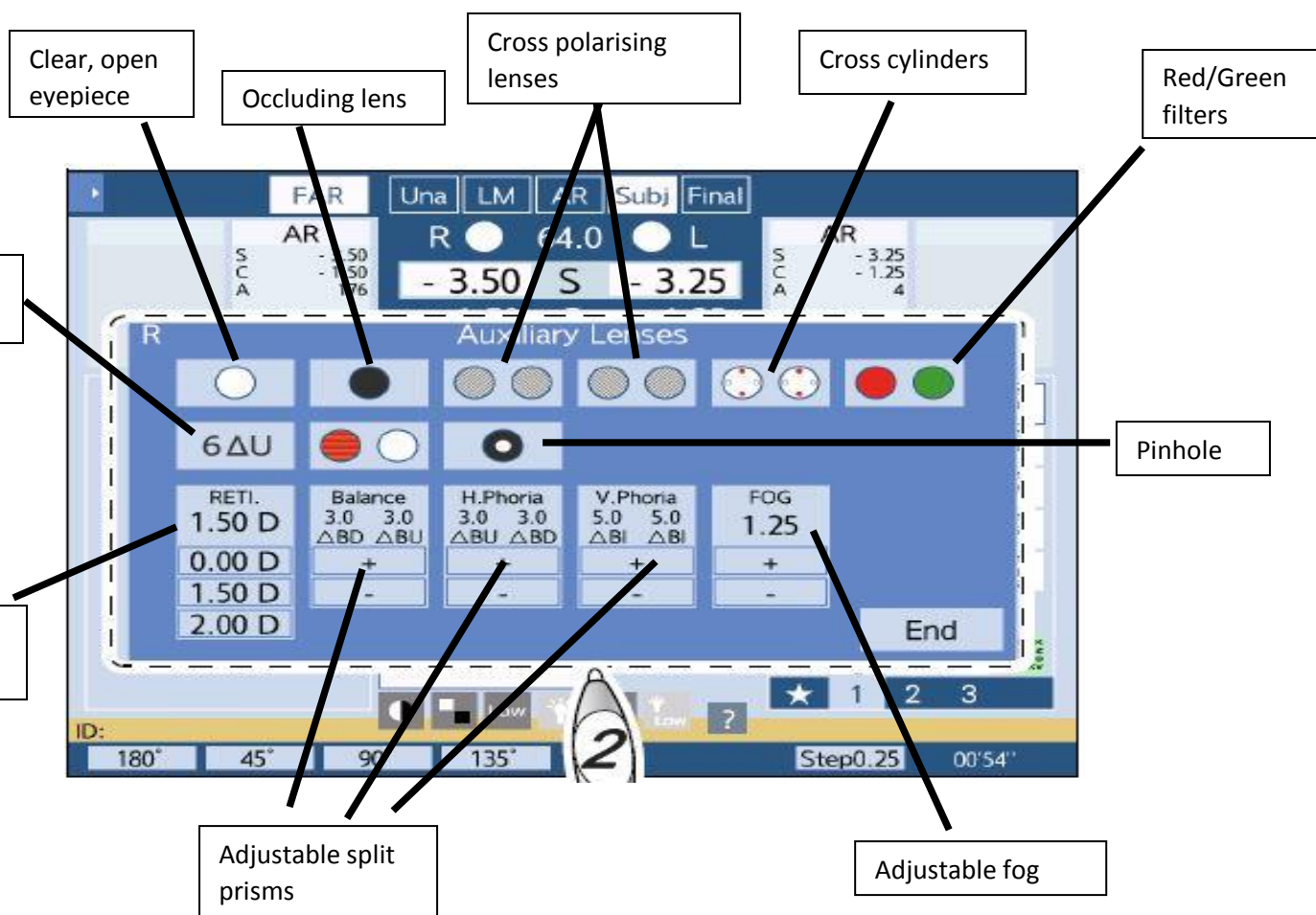
Fixation spot

Maddox Road testing

Page 3:

Page 3 contains a series of preloaded images that can be used for fixation or stereopsis testing

AUXILLARY LENSES:

The refractor head will automatically change the auxillary lens within the patient eyepiece that corresponds to the testing chart selected by the practitioner.

Un-aided	LM	AR	Subj	Final

R ● 64.0 ● L
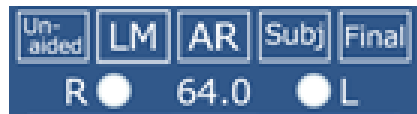
It is possible to manually change the auxillary lens displayed by selecting the circular lens icon next to 'R' and 'L' on the console touch screen.

Clear, open eyepiece

Occluding lens

Cross polarising lenses

Cross cylinders

Red/Green filters

Prism dissociation

Retinoscopy fog lens

Pinhole

Adjustable split prisms

Adjustable fog

Near testing:

To enter into near testing mode, select the 'Far' option at the top of the touch screen. Or either of the Add options under the test chart selections.
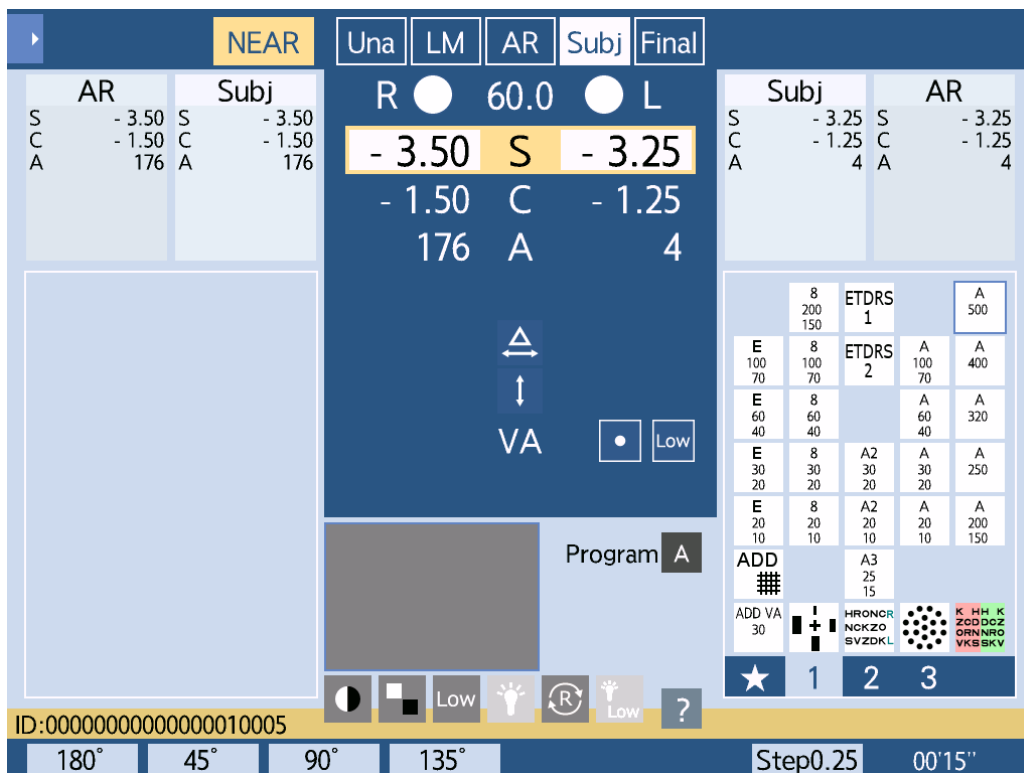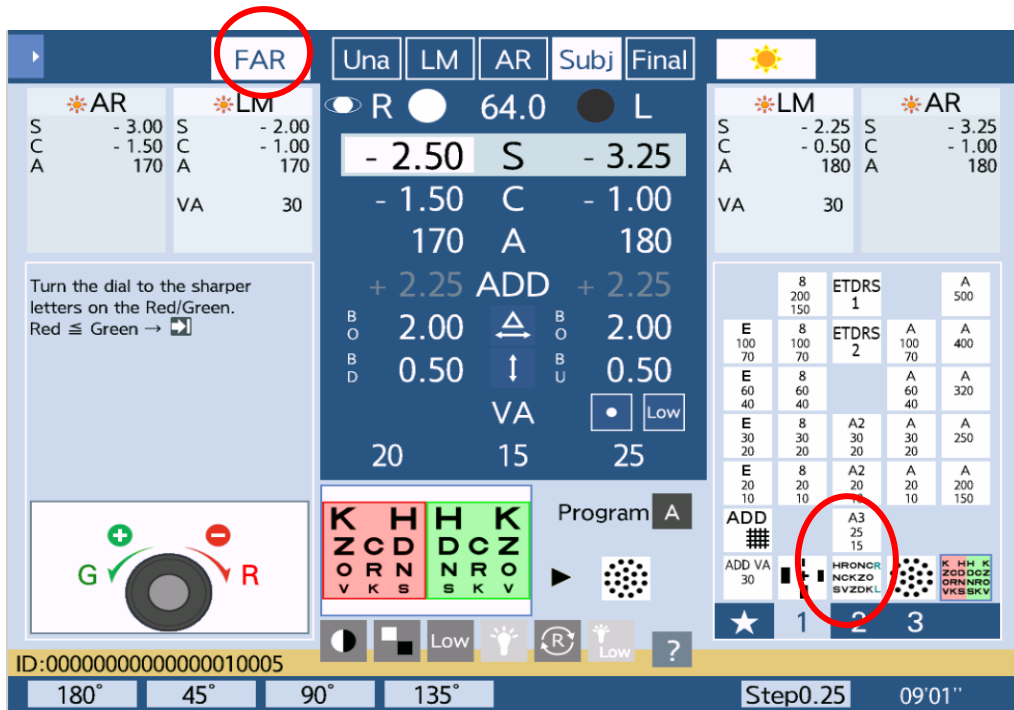
On entering 'Near' mode, the console touch screen will ask for the patient's age, to calculate a starting addition for near visual acuity testing.

The RT-6100 refractor head will automatically converge to allow PD adjustment optimal for reading at 40cm.

In addition, 2 LED reading lights at the front of the refractor head, will automatically switch on in 'Near' mode.

These can be turned off using the side menu of the Console Touch Screen.
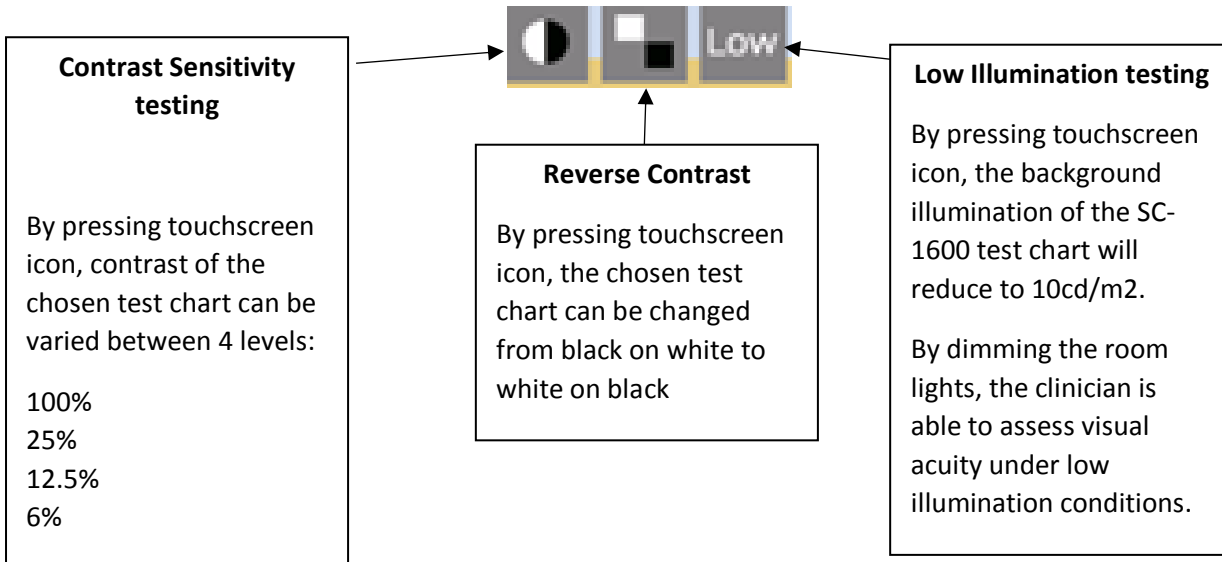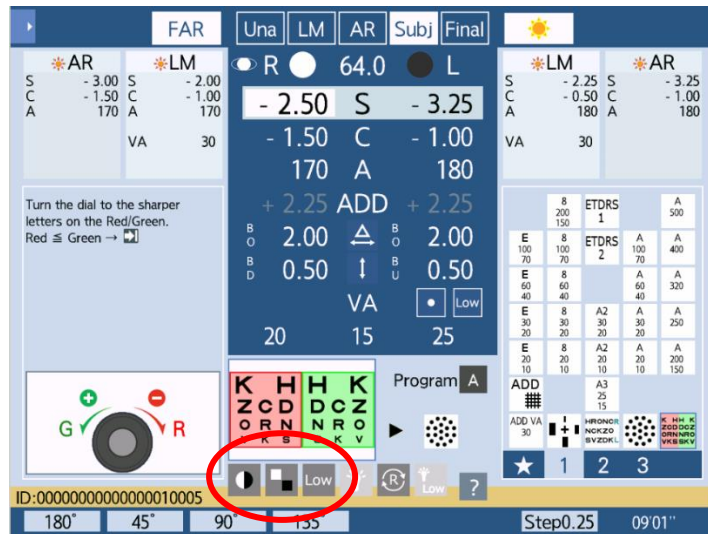
Side Menu

Parameter setting screen

The parameter setting screen allows the clinician to customise and change the default of many features of the RT-6100 refractor system.

Near visual acuity testing can be performed using the Nidek RT 6100 reading rod.

When linked to the Nidek SC-1600 test chart, the RT-6100 refractor unit can preform a number of enhanced assessments of visual function.

Contrast Sensitivity testing

By pressing touchscreen icon, contrast of the chosen test chart can be varied between 4 levels:

100%
25%
12.5%
6%

Reverse Contrast

By pressing touchscreen icon, the chosen test chart can be changed from black on white to white on black

Low Illumination testing

By pressing touchscreen icon, the background illumination of the SC-1600 test chart will reduce to 10cd/m2.

By dimming the room lights, the clinician is able to assess visual acuity under low illumination conditions.

Using the side menu on the console touch screen, the clinican can access additional patient information displays.
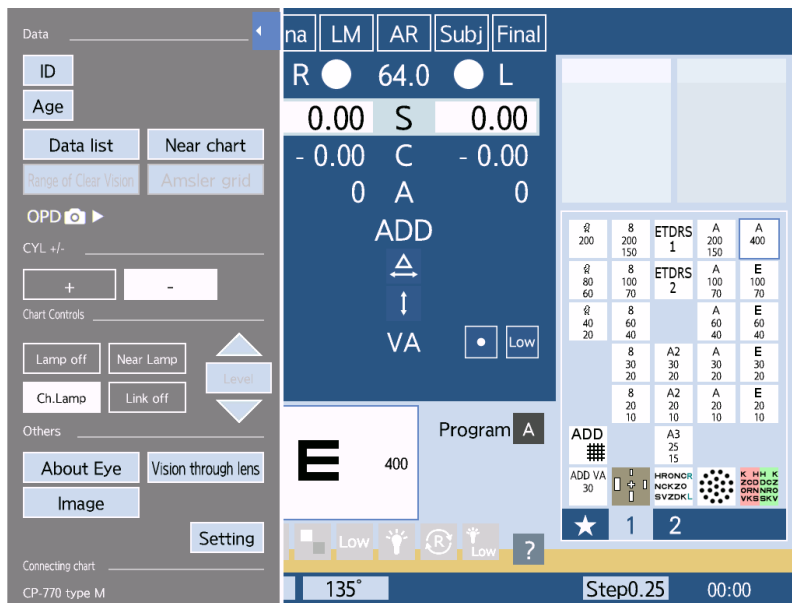
'About Eye'

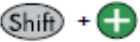- Information about ocular anatomy and visual simulations from a variety of eye diseases
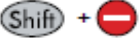
'Vision through lens'

- Dispensing tool offering visual simulations through a range of different spectacle corrections

'Near Chart'

-Tiltable console can be used to show px a variety of different Near acuity and functional test charts such as Amslet

FUNCTION	BUTTON
Randomise	Isolate single line ⊖
Apply red green filter behind any selected test chart	Shift + ⊖
Clear all data	Shift + Output
Increase step size of cyl axis (When in cross cyl mode)	Shift + Turn control dial
±1.00D step changes	Shift + ⊕ Shift + ⊖

QUICK PRISM REMOVAL:

While pressing Shift button, press where the background of value field is white (If only R or L value is white background, press the value field.)

Rotary prism of selected direction (horizontal or vertical) is removed from measuring window. Field color changes to green to show the prism removal.
Prism value can be changed in this condition.

Press where the background of value field is white (If only R or L value is white background, press the value field.)

All rotary prism is removed from measuring window/Field color changes to green to show the prism removal. Prism value can be changed in this condition.