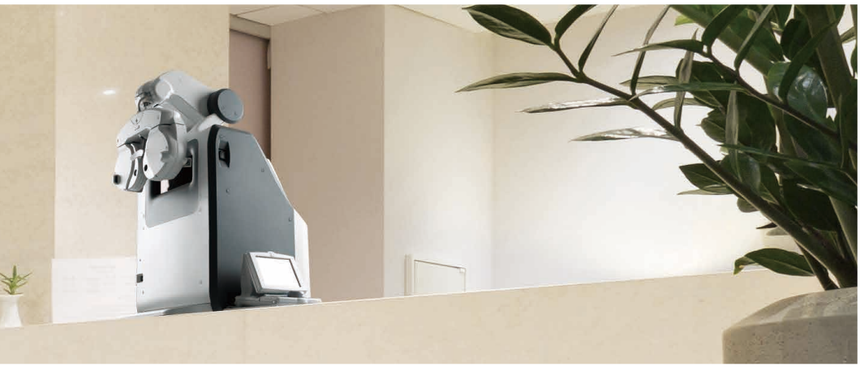
NIDEK

Tabletop Refraction System

TS-610/310

THE ART OF EYE CARE

DESIGN YOUR SPACE



The TS-610 and TS-310 are tabletop subjective refraction workstations that integrate chart and refractor into a single unit.

NIDEK's recognized pedigree of quality examination process is embodied in a groundbreaking design that redefines conventional refraction systems and significantly minimizes the examination footprint.

Compact design enables easy installation and office assimilation, while the stylish shape complements the progressive image of your facility.

You can choose between two different models, which are the high-end TS-610, offering a more advanced examination, and the standard TS-310 with core examination functions.

The TS series is a remarkably flexible workstation that creatively maximizes versatile applications wherever space limitations exist.

TS-610

Advanced space-saving refractions for efficient workflow

The enhanced capabilities of the TS-610 best serve operators who need the highest refractive performance. This all-in-one workstation will exceed your expectations for subjective refraction capabilities. The expanded network capability improves usability and adapts to various usage situations.
With the TS-610, you have the flexibility to add optional functions such as Fully Assisted Refraction System and/or CB for Windows as needed, and customize the examination style to adapt to the varying workstyles of eye care professional (ECPs) or clinic workflow.

Advanced refraction

10.4-inch color LCD touch screen

The 10.4-inch color LCD touch screen displays a great deal of information including near chart images, refraction diagrams, eye diagram, visual images as viewed through eyes with pathology, NIDEK OPD-Scan III summary, and amsler grid. The images in the SD memory card can be displayed on the control console screen. A list of images is displayed as thumbnails for easy management. The display can be flipped to the patient's side when used in near vision check or patient education.

Productive refraction workflow

The TS-610 offers various standard examination programs which support your efficient workflow. The binocular open refraction program, using fogging, takes measurements in more natural viewing conditions. Easy programming and editing are also possible. Moreover, if you bookmark the frequently used charts, you can conveniently select them later and further improve practice efficiency.

Patient-friendly features

Comfortable forehead rest reduces patient discomfort and stress for a more stationary and relaxed examination position. Extremely smooth, quiet and speedy lens changes ensure reliable and comfortable measurement without distraction.

Seamless data connectivity

The TS-610 builds network by LAN or optional WLAN to communicate with other NIDEK products. Various connection patterns can be adopted according to usage.

Expandable as your needs change

You can increase functionalities with an optional kit and software. These additions enable a more efficient refraction for improved patient throughput and staff allocation.

Optional kit:
Fully Assisted Refraction System (FARS)

FARS is used to determine the full correction based on patient response using objective data or spectacle data.

Optional control software:
CB for Windows

This software delivers the comprehensive examination capabilities of the existing control console through a Windows computer*.

*Microsoft and Windows are registered trademarks or trademarks of Microsoft Corporation in the United States and other countries.
The computer and tablet described in this brochure are not provided by NIDEK.

TS-310

Simple and reliable refraction in an attractive design

The TS-310 will provide reliable, standard examinations with simple, core functions. Super space-saving design of the TS-310 offers flexible room arrangement without compromising the precision needed in every refraction.

Simple and reliable refraction

Operation-rich control box

The 5.7-inch color LCD touch screen displays all data with high visibility. Simple, understandable, and comfortable user interfaces ensure an effective operation.

Dial button with S/C/A mode key

Ergonomically focused, the main control dial, which has S/C/A mode key in its center, allows for quick and smooth refractive value changes.

Built-in high-speed line printer

The control box includes a built-in, high-speed printer which automatically outputs all measurement data in a format that provides easy interpretation and explanation to patients.

Sophisticated refractor head

Beautiful ergonomic design enhances a stress-free examination environment for both operator and patient, while maintaining superior accuracy.

Smooth lens change

Speedy, smooth and quiet lens changing enables operators to make minute changes of prescription at the touch of a button.

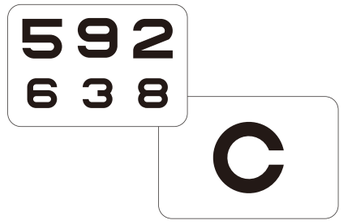
Easy maintenance

Antifogging protective glass, detachable forehead rest and face shields, support easy maintenance.

Reliable chart unit

Same charts for distance and near vision measurement

The TS series uniquely uses the same high resolution charts for both distance and near testing. Switching between distant and near is smoothly achieved with a single button push.

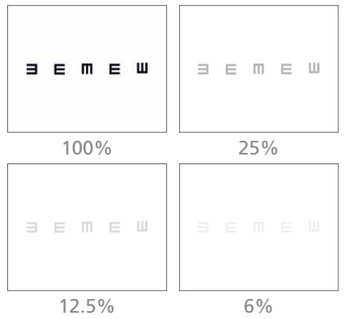


High precision, large, color LCD

The brilliant clarity of the LCD, allows visual acuity at 5 m and near visual acuity at 40 cm to be measured with the same accuracy as actual distances.

Contrast test

To support patients who have undergone cataract or refractive surgery, the TS series has the ability to measure contrast sensitivity at three different levels below the normal threshold.



Black and white inversion function

The VA chart can be selected from black on white to white on black.

Multiple chart types

The TS series has 6 chart types to meet every demand. Special charts are available for each type.

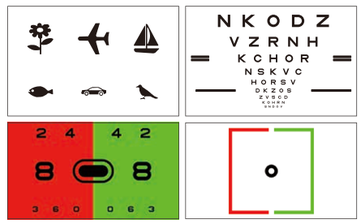


Chart Types

	Type T		Type UK		Type M		Type P		Type PhM		Type C	
	Distance / near	Near	Distance / near	Near	Distance / near	Near	Distance / near	Near	Distance / near	Near	Distance / near	Near
Letter	0.04 to 1.5	0.1 to 1.0	150 to 4	60 to 6	500 to 10	200 to 20	0.04 to 2.0	0.1 to 1.0	0.04 to 2.0	0.1 to 1.0	0.08 to 2.0	0.1 to 1.0
Number	0.04 to 1.5	0.1 to 1.0	12 to 4	60 to 6	200 to 10	200 to 20	0.1 to 1.25	0.1 to 1.0	–	–	0.08 to 2.0	0.1 to 1.0
Tumbling E	0.1 to 1.5	0.1 to 1.0	–	–	100 to 10	200 to 20	0.1 to 1.2	0.1 to 1.0	0.04 to 1.6	0.1 to 1.0	0.08 to 2.0	0.1 to 1.0
Landolt C	–	–	150 to 4	60 to 6	–	–	–	–	–	–	0.08 to 2.0	0.1 to 1.0
Children	0.1 to 1.0	–	38 to 6	–	200 to 20	–	0.1 to 1.0	–	0.1 to 1.25	–	0.1 to 1.6*	–
ETDRS style letters	0.32 to 2.0	–	20 to 3	–	64 to 10	–	0.32 to 2.0	–	0.32 to 2.0	–	–	–
Letters and Numbers	–	0.63	–	10	–	30	–	0.63	–	0.63	–	0.631*
Astigmatism clock dial		–		–	–	–	–	–		–		–
Dots		–		–		–		–	–	–		–
Red-green		–		–		–	–	–		–		–
Cross grid		–	–		–			–		–		–
Binocular balance		–		–		–		–		–		–
Duochrome balance		–		–	–	–		–		–		–
Phoria		–	–	–	–	–	–	–	–	–		–
Phoria with fixation point		–	–	–		–	–	–		–		–
Vertical line	–		–			–	–		–			–
Horizontal line	–		–			–	–		–			–
Vertical coincidence		–	–	–		–		–	–	–		–
Horizontal coincidence	–	–	–	–	–	–		–	–	–	–	–
Schober		–	–	–	–	–		–		–		–
Stereo		–		–		–		–		–		–
Worth four dot		–		–		–		–		–		–
Fixation point		–		–		–		–		–		–
Others	–	–	Muscle	–	–	–	–	–	Mallet (horizontal phoria) Mallet (vertical phoria)	–	Double pointer	–

*Specifications vary for China.

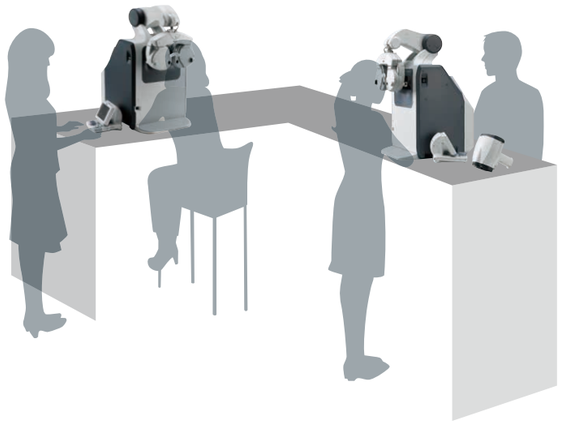
User-friendly features

Design symmetry

Clean symmetric design, without a refractor pole, allows examination from both right and left side of patients. In this way, multiple units of the TS series workstations can be positioned with greater flexibility.

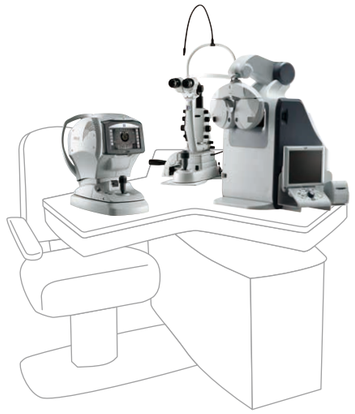
Flexible measurement options

Regardless of personal measurement style, or sitting/standing ergonomic preferences, the TS series ensures comfortable refractive examinations for patients and operators alike.



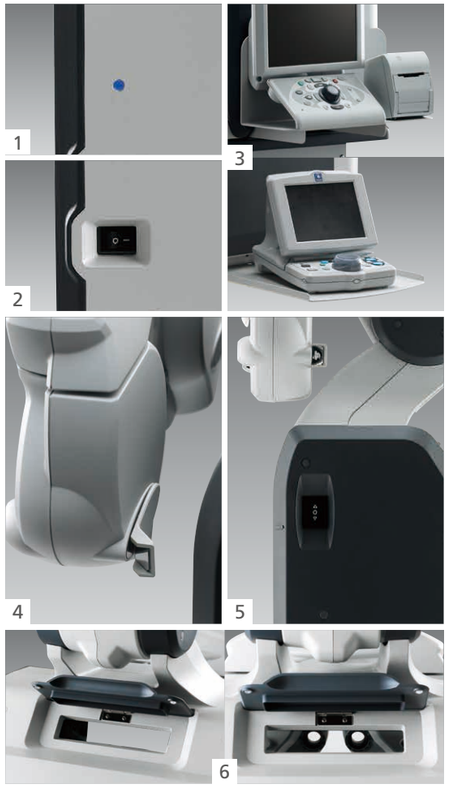
Easy installation

The TS series does not require complex angle and distance adjustments during installation, which can be achieved by any staff member without expert knowledge. It can be easily transported and installed in any facility including eyecare practices, clinics, mobile optometric vehicles, and care facilities for temporary use.



Operational efficiency

The TS series embodies numerous ingenuities, which enhance both accuracy and functional flexibility, to create a new standard in examination productivity and efficiency.



1. Pilot lamp for power on / off / auto off mode
2. Power switch
3. Control console/box tray (optional)
4. VD check adapter
   (standard / additional adapters are optional.)
5. Refractor head vertical motion switch
6. Pupil position check window / cover

Scalable according to your needs

Due to the compact and simple body shape, the TS series fits any table or location.
NIDEK refraction products allow for quick and easy wireless data transfer* using the Eye Care card, LAN/WLAN or infrared communication. This is helpful for making a simple refraction system without complicated wired connection.

*The specifications for wireless data transfer differ according to each product and from country to country.
The requirements also differ depending on the method of wireless data transfer.

TS-610/310 Specifications

Model	TS-610	TS-310
Chart		
Chart type	T, UK, M, P, PhM, C	←
Refraction distance	Distance: 5 m, Near: 40 cm	
Mask	Horizontal line, Vertical line, Single letter	
Filter	Red/Green	
Binocular vision test	Red-green, Prism	
Refractor		
Measurement range		
Sphere	-29.00 to +26.75 D (0.12/0.25/0.50 to 3.00 D increments) -19.00 to +16.50 D (cross cylinder test, prism test)	-19.00 to +16.75 D (0.25/0.5 to 3 D increments)
Cylinder	0.00 to ±8.75 D (0.25/1.00/2.00/3.00 D increments)	0.00 to ±6.00 D (0.25/1 D increments)
Axis	0 to 180° (1°/5°/15° increments)	0 to 180° (1°/5° increments)
PD	48 to 80 mm	←
	54 to 80 mm (100% convergence possible PD)	←
Prism	0.00 to 20.00Δ (0.1/0.5/2Δ increments)	←
Auxiliary lens		
Cross cylinder lens	±0.25, ±0.50, ±0.25 D auto cross	±0.25 D
Occluder	Available	←
Pinhole plate	ø2.0 mm	←
Red/Green filter	Right eye: red, Left eye: green	←
PD check lens	Available	←
Fixed cross cylinder lens	±0.50 D (fixed with the Axis set at 90°)	←
Spherical lenses for retinoscope	0/+1.5/+2.0 D (selectable by setting)	+1.5/+2.0 D (selectable by setting)
Red maddox rod	Right eye: horizontal, Left eye: vertical	←
Dissociation prism	Right eye: 6ΔBU / Left eye: 10ΔBI	Right eye: 6ΔBU / Left eye: 10ΔBI, Right eye: 3ΔBD / Left eye: 3ΔBU
Dissociation prism for binocular balance[*1]	Right eye: 3 to 10ΔBD / Left eye: 3 to 10ΔBU	–
Dissociation prism for horizontal phoria[*1]	Right eye: 3 to 10ΔBU / Left eye: 3 to 10ΔBD	–
Dissociation prism for vertical phoria[*1]	Right eye: 5 to 15ΔBI / Left eye: 5 to 15ΔBI	–
Fixed cross cylinder & dissociation prism for horizontal phoria[*1]	Right eye: 3 to 10ΔBU / Left eye: 3 to 10ΔBD	–
Binocular open fogging	0.00 to +9.00 D	–
Visual field	40° (VD = 12 mm), 39° (VD = 13.75 mm)	←
Forehead rest adjustment	25±5 mm	14 ±2 mm
Vertex distance marking	12, 13.75, 16, 18, 20 mm	←
Level adjustment	±2.5°	←
Refractor arm	Electrically-driven	←
Up-and-down of refractor arm	190 mm	←
Display	10.4-inch color LCD	5.7-inch color LCD
Printer	High speed line printer	Built-in high speed line printer
Interface	LAN: 3 ports USB: 1 port Wireless LAN (WLAN)[*2] (optional)	RS-232C: 1 port for an auto refractometer or a computer
Power supply	100 to 240 V AC, 50/60Hz	←
Power consumption	200 VA	130 VA
Dimensions[*3]	The refractor head vertical motion unit is at the bottom. 446 (W) x 520 (D) x 763 (H) mm 17.6 (W) x 20.5 (D) x 30.0 (H)" The refractor head vertical motion unit is at the top. 446 (W) x 487 (D) x 907 (H) mm 17.6 (W) x 19.2 (D) x 35.7 (H)"	The refractor head vertical motion unit is at the bottom. 446 (W) x 519 (D) x 763 (H) mm 17.6 (W) x 20.4 (D) x 30.0 (H)" The refractor head vertical motion unit is at the top. 446 (W) x 487 (D) x 907 (H) mm 17.6 (W) x 19.2 (D) x 35.7 (H)"
Mass	34.3 kg[*4] 75.6 lbs.[*4]	32.0 kg[*5] 70.5 lbs.[*5]
Standard accessories	Forehead rest, Face shields, VD check adapter, Stylus pen, Printer paper, Dust cover, Power cord, Cover plate, Cap, Screw, Hexagonal wrench, Phillips screwdriver, Communication cable	←
Optional accessories	Eye Care card, Wireless LAN module, Memory box, LAN cable, Control console tray, Control console - printer adapter, Fully Assisted Refraction System, CB for Windows	Eye Care card, Memory Box, Communication cable for an auto refractometer, Communication cable for a computer, Control box tray

*1 Changeable in increments of 0.5Δ for monocular measurement *2 Only for the countries (regions) certified by the Radio Law
*3 Control console/box excluded *4 Refractor head, control console, relay box, and printer included *5 Refractor head and control box included

Product/model name: REFRACTOR RT-6100
Tabletop Refraction System TS-310
Brochure and listed features of the device are intended for non-US practitioners.
The availability of products differs from country to country depending on the status of approval.
Specifications may vary depending on circumstances in each country.
Specifications and design are subject to change without notice.
All LCD images are simulated.

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