

Ultra-compact in size, yet powerful in performance.

tSDR

3000

Digital Refractor



Revision date May 28, 2026
(EN)

Compact Single-Body Design



The TSDR-3000's compact single-body design improves interaction with patients while enhancing comfort during refraction examinations.

Wireless Control with the Latest Tablet PC

SAMSUNG Galaxy Tab enables faster and more convenient visual acuity testing without any physical buttons. It controls not only the rotation of the lens disc, but also the test progress information and the visual acuity chart using a single tablet device.



Bluetooth Mouse

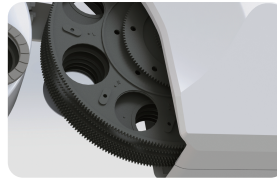
Although the system can be operated by directly touching or dragging the tablet's screen with a finger, it provides a Bluetooth mouse for optometrists who are familiar with conventional mechanical operation. The mouse wheel provides functionality similar to a conventional jog dial for intuitive operation.



Portable thermal printer

The portable thermal printer features a built-in rechargeable battery and Bluetooth connectivity for flexible wireless operation.

Low-noise, High-speed



The TSDR-3000's lens discs, which have been successfully lightened using special materials, reduce friction and increase rotation speed, enabling quiet and fast lens loading.

This minimizes accommodative interference and eye fatigue during visual acuity testing, improving patient comfort and examination accuracy.

Tilting functions & built-in digital near chart

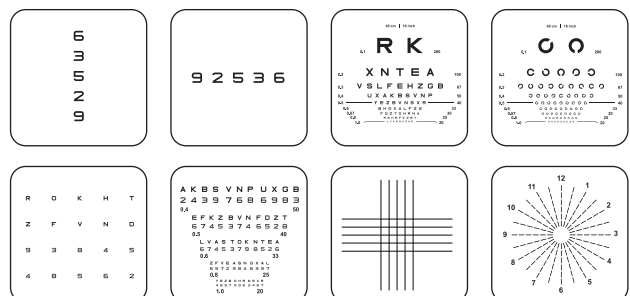


The unit can be tilted up to 45 degrees for convenient near vision testing. The built-in digital near chart on the tablet PC includes numbers, alphabets, Landolt rings, and Tumbling E optotypes. Near vision testing can be performed at distances from 35 cm to 70 cm.

Presbyopia test (near vision)



The convergence function of the lens disc set and high-brightness LED illumination enable quick and convenient presbyopia and near vision testing without additional user operation.



Various Cross Cylinder

It provides $\pm 0.25D$ and $\pm 0.50D$ Jackson cross-cylinder lenses and dual cross-cylinder lenses for fast and precise astigmatism and axis measurements.



Automatic occlusion

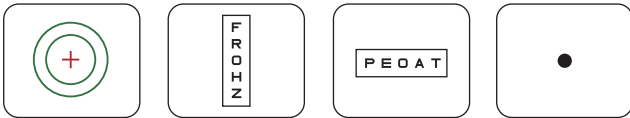
To minimize accommodative interference, the occlusion function is automatically activated during function changes or lens rotation, enabling accurate and comfortable visual acuity testing.

Precise Testing with a Wide Prism Range

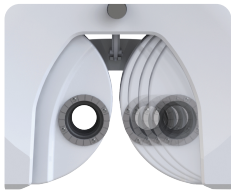
Prism measurements can be performed up to 20Δ in increments as small as 0.1Δ , providing highly precise phoria testing with automatic occlusion.

Comprehensive Phoria Testing

Offers various phoria testing methods to support accurate prescriptions and more efficient examinations.



Monocular PD adjustment



It is possible to adjust monocular PD by operating the left and right eyes independently. This enables more precise visual acuity testing and refraction based on the patient's facial structure and posture.

Patient posture alarm



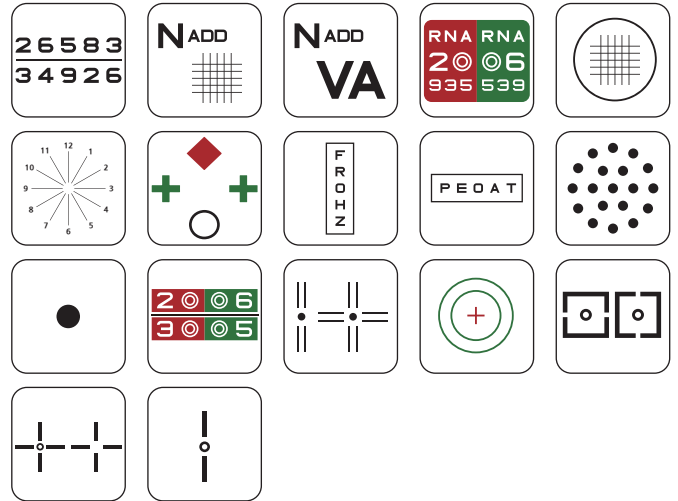
When the patient's forehead moves away from the forehead rest, LED indicators notify the operator to help maintain proper examination posture.

Convenient Guidance Features

The tablet PC screen displays a description of the function and operation of each test mode, providing the operator with important information about that test.

Various test methods

Provides 40 visual acuity test charts and 30 monocular and binocular correction test charts to support various examination methods preferred by operators.



Unit test and test-program feature

In addition to the regular tests provided by the TSDR-3000, operators can create up to 99 customized unit tests and test programs for different examination environments.



Bluetooth Device Connectivity



Various devices such as auto ref-keratometers, lensmeters, and visual acuity charts can be easily connected through the Bluetooth wireless pairing function. In particular, multiple devices can be connected without separate settings, allowing more efficient configuration of examination room environments.

SCIENCETERA is increasing compatibility with third-party equipment through continuous updates. Please consult your local distributor for compatibility information.

The combination of a streamlined refractor and a user-friendly control console enables exceptionally precise and efficient examinations. Enhanced data communication functions provide seamless connectivity in various clinical environments.



tSDR-3000

Digital Refractor

Specifications

• Measurement Range

Spherical Lenses	-29.00 ~ +26.75D (Regular) -19.00 ~ +16.75D (In case of XC or prism tests) (0.12 / 0.25 / 0.50 / 1 / 2 / 3D step)
Cylinder lenses	0.00 ~ ±8.75D (0.12 / 0.25 / 0.50 / 1 / 2 / 3D step)
Cylinder axis	1 ~ 180° (1 / 5 / 15° step)
Pupillary distance	48 ~ 80mm (0.5 / 1.0mm step) Near 50 ~ 74mm (0.5 / 1.0mm step) Near working distance 35 ~ 70cm
Rotary prism lens	0Δ ~ 20Δ (0.1 / 0.2 / 0.5 / 1 / 2Δ step)
Cross cylinder	±0.25D ±0.50D ±0.25D prism split lens (Dual cross cylinder)
Retinoscopic lens	+1.5D, +2.0D (Measurement distance 67cm, 50cm)

• Auxiliary Lenses

Occluding aperture	-
Pinhole lens	∅ 2mm
Maddox rod	Right eye (Red, Horizontal) / Left eye (Red, Vertical)
Red/Green filter	Right eye (Red) / Left eye (Green)
Polarizing filter	Right eye (135°, 45°) / Left eye (45°, 135°)
Split prism	Right eye (6Δ BU) Left eye (10Δ BI, 0 ~ 5Δ complement)
PD check lens	-
Fixed XC lens	(±0.50D, with the axis fixed at 90°)
Visual field	40° (At VD is 12mm)

• Hardware

Head unit	343(W) x 105(D) x 277(H)mm, 2.8kg
Junction box	142(W) x 180(D) x 51(H)mm, 0.8kg
Portable printer	75(W) x 105(D) x 45(H)mm, 0.2kg
Tablet PC	257(W) x 168(D) x 7(H)mm, 0.5kg / SAMSUNG Galaxy Tab
Power	AC 100-240V, 50/60Hz, 0.3A

Designs and specifications are subject to change without prior notice for product improvement.



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