Honeywell Safety Products
(formerly Sperian)

Titmus VSeries Vision Screeners

Medical Device Depot
www.medicaldevicedepot.com
1-877-646-3300
• Overview
  - Introduction
  - Importance of Vision Screening
  - What is vision screening?
  - Titmus instruments evolution
  - Titmus VSeries – Features & Benefits
  - Family of Titmus VSeries
  - Vision Screening Tests
• Importance of Vision Screening
  - To detect conditions that may result in blindness
  - Eyes transfer 90% of all information to brain
  - Impaired vision can cause learning, emotional and behavioral problems in children
  - Children are often not aware of impairment
  - Vision problems affect 1 in 20 preschoolers and 1 in 4 school-age children (Prevent Blindness America, 2000)
  - How many of you go for annual eye checks?
  - Vision Screening is an *Efficient, Practical* and *Economical* process to detect possible problems
• What is Vision Screening?

Some of the major aspects of vision screening are:

- Visual Acuity          Sharpness of the eye
- Binocular Vision       Both eyes working together
- Depth Perception       Distance of objects from one another in 3D
- Color Perception       Ability to differentiate colors
- Muscle Balance         Alignment of eyes in horizontal/vertical plane also known as PHORIA
- Peripheral Vision      Ability to see from “corner of the eye”
• What is different from a wallchart?

Wall chart only checks for acuity, what about other functions:
- Color: obvious reasons
- Depth: try pouring water in a glass with one eye closed
- Muscle Balance: possible visual fatigue
- Fusion: detect double vision
• What is a Vision Screener?

- ONE instrument with a variety of screening tests
- Device with controlled test distance for FAR / NEAR vision, hence precision and accuracy
- Simple to learn and user-friendly
- Can complete a comprehensive tests in 5 minutes or less
- Many more tests and better control as compared to a wall chart
Titmus Vision Screeners
• Evolution, TITMUS Vision Screener

1959
OV7

1985
TII

1994
T2

2006
TITMUSiSeries
• Evolution, TITMUS Vision Screener

Titmus VSeries
2010
• **Features & Benefits**
  - Compact and Portable
    - Features an in-built handle for ease of transport
    - Includes a carrying case with wheels
• Features & Benefits
  - Ergonomics
    ◆ Ensures patient is in a comfortable position for testing, whether seated or standing – needed for efficient and accurate testing
• **Features & Benefits**
  - Membrane Control Panel
    - Instrument controls located at your fingertips
    - Ease of placement – helps where space is limited
    - Indicators for ease of testing
• Features & Benefits
  - Fluorescent Light Source
    - Improves slide illumination, replicates actual daylight conditions and provides true color testing
    - Light will give years of extended service (10000 hours)
    - Membrane Panel indicates when to replace light
  - Foam Headrest
    - Soft headrest to ensure correct head position
    - Easy to clean
  - Head Sensor
    - Electronic check to ensure correct head position
    - Patient can’t see tests, if head is incorrectly positioned
## Family of instruments – Model comparison

<table>
<thead>
<tr>
<th>Model</th>
<th>Titmus V4</th>
<th>Titmus V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membrane Control Panel</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Built-In Membrane Switches</td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Electronic Pointing System</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ergonomics (Height Adjustment)</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>New Fluorescent Light Source</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Portability</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Soft Foam Headrest</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Head Positioning Sensor</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Peripheral Vision Testing</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Test Slide Advance/Reverse</td>
<td>Control Panel</td>
<td>Manual</td>
</tr>
<tr>
<td>Night Vision Testing</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Carrying Case</td>
<td>Optional</td>
<td>Optional</td>
</tr>
<tr>
<td>Standard Accessories</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>
### Family of instruments – Model comparison

<table>
<thead>
<tr>
<th>Model</th>
<th>Titmus V4</th>
<th>Titmus V2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suggested Resale Price</td>
<td>$3055.00</td>
<td>$2645.00</td>
</tr>
<tr>
<td>Product similar to TitmusiSeries</td>
<td>Titmusi400</td>
<td>Titmusi250</td>
</tr>
<tr>
<td>Product similar to Model 2</td>
<td>2a w/perimeter</td>
<td>2s w/perimeter</td>
</tr>
</tbody>
</table>
• Why replace your old vision screener?

- Advantages over the earlier Models
- Older units might have faded Test Slides, especially color test
- Pointing – Object-at-a-Time™, Line-at-a-Time™
- Built-in Portability
- Ergonomics – proper position while testing
- Membrane panel for ease of testing
- Fluorescent Light Source – long life (do not have to change bulbs often)
- Electronic sensing of correct head position
- Foam Headrest – no more head rest tissues (paper)
• Reasons to purchase a vision screener?
  - Are you doing vision screening? If no, why you should-
    - vision changes with age
    - do you know if a person is suited for a job
    - drivers - test for depth, color, Federal std
    - computer users - are they being affected
    - random pick 10 people: @ 3-4 will fail
    - people don’t get their eyes checked yearly
  - If you are screening for vision, but only using a wall chart -
    - This only checks for acuity, what about other functions:
      - color: obvious reasons
      - depth: try pouring water in a glass with one eye closed
      - muscle balance: possible visual fatigue
      - fusion: detect double vision
**Competitive comparison**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Titmus</th>
<th>Stereo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>12 lbs</td>
<td>15 lbs</td>
</tr>
<tr>
<td>Floor space needed</td>
<td>1.25 sq ft</td>
<td>2 sq ft</td>
</tr>
<tr>
<td>Portability</td>
<td>Smaller compact shape makes it very portable, built-in carrying handle</td>
<td>Larger shape makes it bulky, in-built carrying handle</td>
</tr>
<tr>
<td>Ergonomics (Height Adjustment)</td>
<td>Horizontal to 50+ degrees. Fits both children &amp; adults</td>
<td>Only a few degrees of motion. Hence difficult to test children</td>
</tr>
<tr>
<td>Number of tests</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Same tests can be used for FAR and NEAR vision testing (8 tests x 2)</td>
<td>Different tests for FAR and NEAR vision</td>
</tr>
<tr>
<td>Warranty</td>
<td>2 years</td>
<td>1 year</td>
</tr>
</tbody>
</table>
### Competitive comparison (continued)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Titmus</th>
<th>Stereo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pointing System</td>
<td>Patented electronic system for line-at-a-time, object-at-a-time (Titmus V3 only)</td>
<td>Manual using a pointer, door needs to be opened that allows stray light to enter</td>
</tr>
<tr>
<td>Light source</td>
<td>True white light source, hence ideal for color testing</td>
<td>LED light source, hence requires color correction</td>
</tr>
<tr>
<td>Head Positioning Sensor</td>
<td>Non-contact infra-red sensor, hence less chance of failure</td>
<td>Push-button switch, hence susceptible to failure</td>
</tr>
<tr>
<td>Soft Foam Headrest</td>
<td>Provides a comfortable surface for testing</td>
<td>No such headrest</td>
</tr>
<tr>
<td>Power supply</td>
<td>In-built into the instrument</td>
<td>External to the instrument</td>
</tr>
<tr>
<td>Electrical Standards</td>
<td>Meets UL, CSA and CE (most stringent of all)</td>
<td>Meets UL</td>
</tr>
</tbody>
</table>
Vision Screening Tests
• Visual Acuity

• Sharpness of the vision at different distances

• Most Common Vision Defect

• Near Sightedness is called ‘myopia’ (One cannot see distant objects sharply)

• Far Sightedness is called ‘hyperopia’ (One cannot see near objects sharply)
• Visual Acuity Test (Adults)
  - Using Letters
  - Using Landolt rings (Landolt, TNO, G37)
• **Visual Acuity Test (Children)**
  - Using Letters, “E” pointing in different directions
  - Using Symbols (LEA, Allen Preschool, Michigan Preschool)
• **Binocular vision**

• Coordinated use of both eyes i.e. ability of the two eyes to work together to form a fused image in the brain from two separate images.

• Defect Causes ‘Double Image’ (Diplopia)
Binocular Vision Test

- Normal Vision
- NO binocular vision, can see with left eye only
- Possible esophoria
- Possible exophoria
• **Stereo Depth Perception**

• Ability to perceive depth in 3D space i.e. ability of eyes to judge distances and relationship of objects in space

• Defect causes misjudgment of distances and depths
• Depth Perception Test (for children)
  - Symbols on the slide are easily identified by children
  - Consists of a Random Dot Stereogram (RDS)
  - First time an RDS has been used inside an instrument
  - No special glasses needed to view the slides
• Color Perception
• Ability of eyes to judge colors correctly
• Defect causes confusion in identifying different colors
• Difficulty to decipher color coded material
• Genetic and Acquired deficiency
• Color Perception Test
  - For adults - Ishihara plates with numbers
  - For children - Color plates with “E” pointing in different directions
- **Muscle Balance or Phoria**
- **Misalignment of Eye in Horizontal Plane** - Lateral Phoria
- **Misalignment of Eye in Vertical Plane** - Vertical Phoria
- **Strabismus**
- **Visual Fatigue**
• **Lateral Phoria Test**
  - Test muscle balance in horizontal plane
  - Measures in 1 prism diopter steps

• **Vertical Phoria Test**
  - Test muscle balance in vertical plane
  - Measures in 0.5 prism diopter steps
• Combined Phoria Test
  - Measures both lateral & vertical phoria
  - Quick pass/fail determination
  - Ball-in-box
  - New improved version for more information and simplicity of test
• **Peripheral Vision**

• The ability to perceive objects outside of the direct line of vision or the part of vision that occurs outside the very center of gaze

• Also referred as Visual Field Defect

• Eye can detect motion at a wide angle, colors at a narrow angle, and detailed shapes at a surprisingly narrow angle
• Peripheral Vision
• Ensure fixation using any slide inside instrument
• Horizontal only, 55 / 70 / 85 / Nasal
• Total angle tested / eye = Max. of (55, 70 or 85) + Nasal (45)
• Maximum angle we can test = 85 + 45 = 130 degrees
• Example = Person saw 55 & 70, did not see 85, also saw nasal (45), hence total = 70 + 45 = 115
• Intermediate / Plus Lenses
  - Plus Lens for testing children’s vision:
    +1.00, +1.50, +1.75 and +2.25
  - Plus Lenses for excessive farsightedness test (one of the test for amblyopia or lazy eye)

  - Intermediate Lens to test vision at following distances
    19, 22, 26, 32 and 40 inches (50, 57, 67, 80 and 100 cm)
  - Intermediate Lens to test at “actual working distance”
Maintenance & Service
• Product Maintenance

• Recommended Service Schedule
  - AFTER EACH PATIENT OR AS REQUIRED
    - Clean/disinfect the headrest foam
    - Clean the front surface of the unit
  - DAILY
    - Inspect Instrument
    - Clean front test lens
  - WEEKLY
    - Clean outside of instrument
  - MONTHLY
    - Clean test slides
  - PARTS TO BE REPLACED
    - Replace Light Module: Light module is expected to last 5 years or more, based on usage.
    - No calibration of instrument required
• **Warranty**
  - 2-year manufacturer’s warranty from date of shipping from our manufacturing facility

• **Spare Parts**
  - Spare parts for current models will be available for a period of five (5) years from the date of purchase, until the model is discontinued.
  - Spare parts for discontinued models will be available for a period of five (5) years from the date of discontinuance. Beyond the five (5) year period, spare parts will be discontinued or available based on stock.