

# LED INSTA-LINE Quantum™

## INSTRUCTION MANUAL



**GOOD-LITE™**



**914000**

Basic LED Insta-Line Quantum™

**915000**

Complete LED Insta-Line Quantum™

**916000**

Preschool LED Insta-Line Quantum™



**904025:** Lea Symbols® Test Set



**904030:** HOTV Test Set



**904015:** Crowded HOTV Test Set



**904026:** Lea Numbers® Chart



**904029:** Sloan Letter Chart



**904011:** Sloan Letter Chart



**904012:** "E" Chart



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## Introduction

CONGRATULATIONS on your purchase of a top-quality Good-Lite® product which has been thoroughly tested to meet our exacting quality control standards. The LED Insta-Line Quantum™ is a “3-in-one” instrument designed to test visual acuity, hyperopia and muscle imbalance. It can be used to test visual acuity in preschool and school age populations. The LED Insta-Line Quantum™ is housed in a sturdy carrying case to meet the rigid demands of active nurses or examiners who are often moving between locations. This self contained vision testing unit is a precision instrument with standardized illumination that is designed for use in a 10 foot testing lane.

The LED Insta-Line Quantum™ can be powered with the charger/power adapter and/or the lead acid batteries. These guidelines and safeguards help insure that your new LED Insta-Line Quantum™ operates effectively. Please read all instructions carefully before using your LED Insta-Line Quantum™. Please take a few moments to review the following IMPORTANT INFORMATION before using this product.

**READ ALL INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE. FAILURE TO FOLLOW ALL INSTRUCTIONS, WARNINGS AND CAUTIONS MAY RESULT IN SERIOUS PERSONAL INJURY, PROPERTY DAMAGE AND/OR MAY VOID YOUR WARRANTY.**

## Service & Important Safeguards

### Service Information

**WARNING:** Any repairs requiring disassembly should be performed by Good-Lite®. There are no user serviceable parts except for the 4 AA batteries in the RCD.

**WARNING:** To reduce the risk of fire, electrical shock, injury, or damage to your machine:

Do not use if unit is damaged in any way.

Use this product only for its intended use as described in this manual.



Never leave your LED Insta-Line Quantum™ plugged in for **long term storage**.

Never insert or drop any object into any opening on the device.

Do not use on or near hot surfaces.

Only use the charger/power adapter supplied to recharge this unit. Do not use the supplied charger/power adapter with any other appliance.

To protect against risk of electrical shock, do not put charger in water or other liquid.

To avoid damage to the charger/power adapter and cord, never carry the charger by the cord or yank to disconnect from an outlet. Instead, firmly grasp the charger body and pull to disconnect. Do not pull cord around sharp edges or corners.

Do not allow the cord to hang over the edge of a table or counter or touch hot surfaces.

Do not operate with a damaged cord or charger/power adapter.

**Do not use or store charger/power adapter outdoors.** Charge your LED Insta-Line Quantum™ in a clean, dry place. Do not expose charger/power adapter to rain, or extreme temperatures.

For best results, operate the charger/power adapter in a location where the temperature is more than 50 degrees F but less than 100 degrees F.

The use of extension cords is not recommended. Plug the charger/power adapter into a properly grounded standard electrical outlet (120v/60Hz) only.

If unit is not working as it should, or has been dropped or damaged in any way, return it to Good-Lite® before using.

It is not recommended to use 2 or more units in the same room. RF signals used to operate the remote from one unit may interfere with the operation of the other.



This product contains a sealed lead acid battery. Do not incinerate battery as it will explode at high temperatures. Always dispose of the battery in accordance with your state law.

- **Battery must be recycled. For recycling information inside USA CALL 800-278-8599.**

Leaks from a battery cell can occur under extreme conditions. If the battery liquid gets on the skin, wash immediately with water. If it gets in your eyes, immediately flush your eyes with a mild solution of baking soda and water and seek medical attention.

### Product Specifications

- LED Insta-Line Quantum BATTERY 12 Volt, DC
- Charger/Power Adapter Rating 120v, 60 Hz AC only
- Charger/Power Adapter Voltage 12 Volt
- Charger Rate 6-8 Hours

## Charging your LED Insta-Line Quantum™ Battery

### BATTERY PRECAUTIONS:

- **Do not charge in a gas tight container.**
- **Do not short the battery terminals**
- **Do not incinerate.**
- **Flush with water at once if contaminated with electrolyte (Acid).**
- **Battery must be recycled. For recycling information inside USA CALL 800-278-8599.**

The battery pack for your LED Insta-Line Quantum™ has been shipped in a low voltage condition. ***It should be charged overnight prior to use.***

**WARNING:** The LED Insta-Line Quantum™ is for indoor use only.

**WARNING:** Do not expose the LED Insta-Line Quantum™ or charger/power adapter to excessive moisture or extreme heat or cold. Charge battery only with the battery charger/power adapter provided.

**NOTE:** The instrument will alert the operator by a pulsing beep every hour when the battery is low and requires recharging. LED Insta-Line Quantum™ operation will not be possible when the battery is low on charge.



## PRECAUTIONS:

**Make sure power supply is normal household voltage, 120 volts, 60 Hz, AC only.**

**Do not use or store your charger/power adapter outdoors.** Charge battery indoors in a clean dry place. For best results, your LED Insta-Line Quantum™ battery should be charged in a location where the temperature is above 50 degrees F and below 100 degrees F.

**Only use the charger/power adapter (ESV1250) supplied to recharge this LED Insta-Line Quantum™.** Do not use the supplied charger/power adapter with any other appliance or damage may occur.

Unplug the charger/power adapter from outlet before any routine cleaning or maintenance.

The use of extension cords is not recommended. Plug the charger/power pack into a properly grounded standard electrical outlet (120v/60Hz) only.

To protect against risk of electrical shock, do not put unit charger/power pack in water or other liquid.

To avoid damage to the charger/power adapter and cord, never carry the charger/power adapter by the cord or yank to disconnect from an outlet. Instead, firmly grasp the charger body and pull to disconnect. Do not pull cord around sharp edges or corners.

Do not allow the cord to hang over the edge of a table or counter or touch hot surfaces. The unit should be placed or mounted away from such hot surfaces.



### TO CHARGE:

The battery allows operating the LED Insta-Line Quantum™ on battery power without the use of the charger/power adapter (Good-Lite #ESV1250).

Locate the female receptacle in the rear recession area of the instrument case. Install the male plug from the charger/power adapter into the female receptacle.

The battery pack can be charged while the instrument is being operated. Proper safe operation can only be achieved by using the specified charger/power adapter (Good-Lite® ESV1250). Using other than the specified charger/power adapter can cause damage to the unit or battery pack not covered by the equipment warranty. The battery pack will operate the instrument for **10 to 20 hours** between charging and recharge time is approximately **6 to 8 hours**. The unit will beep every hour when it's time to recharge. Beeping will continue until the unit is recharged or all energy is expelled from the battery. When the battery has been fully discharged, charging time will be increased. The unit may be left charging when not in use. Fully discharging the battery will decrease overall life expectancy of the battery.

When using your Insta-Line Quantum with battery on a daily basis, always plug in charger for overnight charging. **NOTE:** When not using for long periods of time or storing, disconnect from charger.





## Screening Lane Setup

The only requirements needed for vision testing with the LED Insta-Line Quantum™ is a 10 foot testing lane, two chairs, a table and an electrical outlet if battery is not used. Place the instrument on a low table, remove front and back panels, insert test chart to be used. Remove the Remote Control Device (RCD) from back holder and unwind power cord.

A 10 foot cord is included to measure test distance. One end of the cord should be placed flush with the face of the chart and the other end is pulled tight should be located at the face of the child being tested. After completing testing lane setup plug power cord into a source of 120 VAC, 60 Hz outlet if not using battery. The RCD

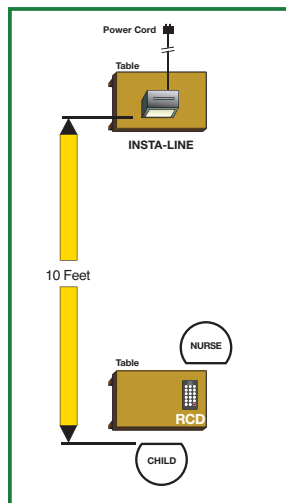


FIG. 1

should be placed on a table with a chair placed on each side of the table. The child faces the instrument while the examiner faces the child with their back to the chart (FIG. 1). This allows the examiner to observe the child at all times, to detect squinting or faulty head positions. No intense light sources should be within the field of vision as the child looks at the instrument from 10 feet away.

RCD overlays (FIG. 2) are provided with each chart. RCD overlays are also available separately (refer to section 21 for more information). Attach RCD overlay with hook and loop fasteners noting bottom label on the RCD and back of overlay.

## Remote Control Device (RCD)

This remote control device (RCD) is **only compatible** with this test cabinet. It is important that you register your Good-Lite® product if you require technical support or service. This will ensure that we have the necessary information needed for replacements or repairs. Please fill in and return enclosed registration card.



The RCD has several features built into the electronic design to enhance the overall operation.

Depressing the keypad buttons will turn ON the respective light in the test cabinet. Although each frosted light bulb will turn OFF in approximately thirty seconds, the OFF button may be depressed to turn OFF earlier.

The RED muscle light bulbs will stay on for approximately one minute or may be turned OFF earlier by depressing the OFF button.

The RCD resumes a low power mode after the pressed keypad button is released, to conserve battery life. However, the batteries will eventually become too low for proper operation. A built-in battery detector will cause multiple beeps when the keypad is depressed to alert the operator to replace the four (4) AA alkaline batteries. Replace batteries as soon as multiple beeps are heard. **Rechargeable batteries should never be used.** When the RCD will not be used for several weeks, the batteries should be removed to prevent unnecessary drain. Other than replacing batteries, there are no user serviceable parts inside the RCD.

Batteries are removed by sliding off the battery cover. Remove the batteries and replace the new ones with the proper polarity "+" and "-" as indicated inside the battery compartment. When the last battery is inserted into place, a single beep will be produced indicating the RCD is ready to operate. Replace battery cover.

**NOTE:** If any batteries are installed incorrectly, multiple beeping will occur when any of the keys are depressed.

## Key Press Beep

The RCD emits a beep when a key is depressed. This feature can be turned off by depressing the two outer buttons on the second row from the top. Depressing the same buttons will turn the beep on again.



FIG. 2



### Light Test Auto Run

The RCD also includes a light test auto run feature for a quick light test and demonstration purposes. The mode is entered by simultaneously depressing the two lower outside keypad buttons. The lights on the LED Insta-Line Quantum will sequence continually until the OFF key is depressed.

### LED Insta-Line Quantum™

The LED Insta-Line Quantum™ is controlled by the RCD explained in Section 3.

***Please note that the LED Insta-Line Quantum™ is always on when unit is plugged in or running on battery power.***

When the unit is plugged into a source of 120 VAC, 60 Hz power, a short beep will be heard to signal it is ready to operate and receive signals from the RCD. If the beep is not heard, check the AC plug connection for power availability.

When plugged into power, the LED Insta-Line Quantum™ will emit a short beep approximately every fifteen minutes (if a RCD command is not received) to alert the user power is still being applied.

When the LED Insta-Line Quantum™ receives a command from the RCD, the selected light will turn ON and unless commanded to turn OFF by the remote control, will stay ON for only 30 seconds for the frosted light bulbs or 60 seconds for the red muscle light bulbs. However, when the remote control sends the unique two key light test - auto run command, the auto run will continue to run until the OFF key is depressed on the remote control.

Other than replacing the four (4) AA batteries, there are no user serviceable parts inside the LED Insta-Line Quantum™ or the RCD.

**WARNING:** If service is necessary, return the entire unit with the RCD to the factory for authorized repair. See page 25 for more information.

Optional accessories can be purchased for your LED Insta-Line Quantum™ refer to page 21 for more information.



## Amblyopia

In order for a person to see the brain and the eye work together to produce vision. Light enters the eye and is changed into nerve signals that travel along the optic nerve to the brain.

When an infant is born these visual pathways are not mature and visual acuity is poor in both eyes. It improves when the visual pathways carrying signals to the brain and the brain's cortical functions develop.

If for some reason one eye sees well and the other eye poorly, a double image is sent to the brain. The brain solves the confusion by ignoring the poorer image. This decreases the influence of the poorly seeing eye. Vision of the poorly seeing eye in the primary visual cortex remains weak, while that of the dominant eye steadily increases. This condition is called **amblyopia** or **lazy eye**.

There are several causes of amblyopia: strabismus (crossed eye), unequal refractive error (anisometropia), and other factors causing a difference in image quality between the eyes.

In many cases of amblyopia the eye looks normal, but its visual acuity is at least two lines lower than that of the other eye. If not treated early enough an amblyopic eye may never develop good vision and may even become functionally blind. Therefore in screening we need to find out the best visual acuity of both eyes.

Because amblyopia may develop at any time before 7 years of age it is important to follow the early development of vision. If it shows signs of deviation from the normal development, treatment needs to be started without delay. No "wait-and-see"!

Amblyopia is the most common cause of vision loss in children. A child with one amblyopic eye functions normally but does not have a reserve eye if later in life something happens to the leading eye. Since amblyopia is symptom free it must be found by screening. If there is a difference in visual acuity greater than two lines both at distance and at near, it is highly likely that the eye with lower visual acuity is amblyopic and needs to be treated.



However, the eye may have refractive error and not amblyopia so it is wise not to tell the parents that the eye is a lazy eye. Tell the parents what you have found: “one eye sees less clearly than the other and the cause for that needs to be discovered because the child may need treatment”.

## Screening Procedure

From birth to six years of age the vision process matures. If this developmental process is interrupted before six years of age, permanent changes may occur in the visual pathways resulting in amblyopia (lazy eye). Prevention of amblyopia through early identification of children with risk to develop amblyopia, with observable symptoms or visual acuity problems is of primary importance in vision screening.



When screening preschool children it is important to find out whether the infant/child uses both eyes together and how each eye is seeing independently.

When testing adults it is customary to test distance vision first, followed by near vision. It is also customary to first test each eye separately, then binocularly. When testing children, better results are obtained by starting with near vision testing before proceeding to distance vision testing. This allows the child to learn the testing procedures and symbols. The examiner learns what to expect from the child under the most favorable conditions. Also, when testing children, it is important to create a pleasant play situation before testing near and distance vision. Test both eyes first, then each eye separately.

During visual acuity testing, near vision is measured first. The functionally important value is the value measured with both eyes open, because that is the vision the child uses in communication and learning.



## Details about Testing

Start testing with binocular testing at near. Distance testing and monocular testing with occlusion of one eye follows naturally once confidence with the child is established. When testing monocularly, test the right eye (O.D.) first followed by the left eye (O.S.), unless there is an obvious negative response to occlusion of the left eye.



During measurement of distance vision the child should be seated in a chair facing the test cabinet (see FIG. 1). Visual acuity is first measured with both eyes open. Then the left eye is occluded and the right eye is tested. Tell the child you are going to cover one eye. Place your Good-Lite® occluder over the left eye. Remember this is a monocular test, cover the eye well and watch for peekers! Illuminate the optotypes allowing response time between them. Test until the **threshold line** is reached. The threshold line is the smallest line size that the child can read correctly. Repeat test procedure occluding right eye.

If the child becomes upset when the left eye is covered, quickly move the cover on the right eye and test the left eye first. The right eye may be amblyopic or near sighted.

## Definition of Visual Acuity Threshold

According to the Visual Acuity Measurement Standard, “A line of optotypes is generally considered to have been read correctly when more than 50% (e.g. 3 of 5, 4 of 6) of the optotypes presented have been read correctly.”

## Suggested Passing

There shall not be a difference between the two eyes greater than two lines in any age group.

3 year olds use 20/40 optotypes

4 year olds use 20/30 optotypes

5 year olds use 20/25 optotypes

7 year olds use 20/20 optotypes

(Above are suggestions, please check your mandated criteria.)




peekers! Illuminate the optotypes allowing response time between them. Test until threshold. Repeat test procedure occluding right eye.

## Pass/Fail Criteria - Preschool (distance).

The child must correctly identify 3 out of 5 optotypes at the age appropriate level described in your mandated criteria, If there is a difference between the two eyes greater than two lines, measure monocular visual acuity values at near. If there is the same two line difference in the near visual acuity values, amblyopia should be suspected and the child referred (AAP recommendation 1996).

## Muscle Imbalance

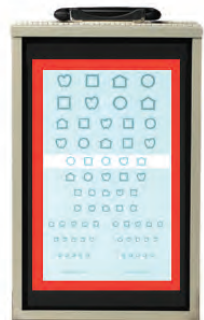
The following are required for the test:

1. The red rectangle target that is illuminated by pressing the red  muscle button on the RCD.
2. An eight diopter prism with handle.
3. 5x9 inch plastic recognition panel with red rectangles on one side, and black rectangles showing those that pass and fail with explanation on the other side.

## Procedure

The subject is to keep BOTH EYES OPEN and look at the red target while the examiner holds the prism VERTICALLY over first one eye and then the other; allow at least 15 seconds for the subject's response. Older children are asked, "Do the red rectangles (squares) touch or overlap?" When the prism is placed over each eye. If they do, they pass.

Another method is to use the 5x9 inch recognition panel. Children may readily point to the one or pair of rectangles that are like what they saw.





## Software License

The Good-Lite® products described in this manual may include copyrighted Good-Lite® and third party software stored in semiconductor memories or other media. Laws in the United States and other countries preserve for Good-Lite® and third party software providers certain exclusive rights to distribute or reproduce the copyrighted software. Accordingly, any copyrighted software contained in the Good-Lite® products may not be modified, reverse-engineered, distributed, or reproduced in any manner to the extent allowed by law. Furthermore, the purchase of the Good-Lite® products shall not be deemed to grant either directly or by implication, estoppel, or otherwise, any license under the copyrights, patents, or patent applications of Good-Lite® or any third party software provider, except for the normal, non-exclusive, royalty-free license to use that arises by operation of law in the sale of a product.

## Frequently Asked Questions

**Question:** How many optotypes can an individual miss and still receive credit for a specific line on an eye chart?

**Answer:** Credit is given to a specific line of optotypes when 50% (e.g. 3 of 4, 4 of 6) or more have been correctly identified.

**Question:** What is an optotype anyway?

**Answer:** It is a character of uniform size and shape that is calibrated to a standard.

**Question:** How can I obtain replacement parts and repair service for my Good-Lite® product?

**Answer:** Replacement parts/service can be obtained by contacting;

**GOOD-LITE®**

1155 Jansen Farm Drive  
Elgin, IL 60123

Phone: 1-800-362-3860

Fax: 1-888-362-2576

Web Site: [www.good-lite.com](http://www.good-lite.com)





## Important Tips & Storage

**WARNING:** Do not attempt to modify this unit or create accessories not approved for use with this unit. Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious injury. The LED Insta-Line Quantum™ has NO USER SERVICEABLE PARTS except for the 4 AA batteries in the RCD. Do not attempt in any way to destroy or disassemble UNIT or any of its components. Failure to follow these instructions may void your warranty agreement.

**NOTE:** Any repairs requiring disassembly must be performed by Good-Lite®. Unauthorized repairs will void the warranty.

### Storing the LED Insta-Line Quantum

The battery and circuit board in the LED Insta-Line Quantum™ are long lasting and proper care will help to prolong the life of your product.

Store your LED Insta-Line Quantum™ in a clean, dry place when not in use. Do not leave in direct sunlight, or exposed to extreme heat or cold when possible.

**NOTE:** Remove LED Insta-Line Quantum™ from charger/power adapter before storage. When not in use, your LED Insta-Line Quantum™ should be stored indoors, in a clean dry location sheltered from direct sunlight, extreme temperatures and rain.

When the RCD will not be used for several weeks, the batteries should be removed to prevent unnecessary drain. Other than replacing batteries, there are no user serviceable parts inside the RCD.

### Long Term Storage

Follow the above storage instructions and unplug the charger/power adapter from the electrical outlet.



### Charts

STOCK NO.	DESCRIPTION
900700	Letter Chart (900-L)
900702	E Chart (900-E)
900704	20/25 Letter Chart
900706	20/25 HOTV CHART
900707	HOTV CHART (900-HO)
900709	LEA Symbols® Threshold Chart
900710	LEA Numbers® Threshold Chart
900711	Sloan Letter Threshold Chart
900712	HOTV Threshold Chart

### Overlays

STOCK NO.	DESCRIPTION
904003	Overlay For Letter Chart #900700
904004	Overlay For E Chart #900702
904007	Overlay For HOTV Chart #900707
904008	Overlay For 20/25 Letter Chart #900704
904009	Overlay For 20/25 HOTV Chart #900706
904021	Overlay for LEA Symbols® #900709
904022	Overlay for LEA Numbers® #900710
904027	Overlay for Sloan Letters #900711
904028	Overlay for HOTV #900712



purchase against defects in materials or workmanship after normal use. Good-Lite® will, at its option repair or replace products found to be defective.

If service is necessary, return the entire unit with the remote control device (RCD) to the factory for authorized repair.

A built-in battery detector will cause multiple beeps when the keypad on the RCD is pressed to alert the operator to replace the four (4) AA alkaline batteries. Rechargeable batteries should never be used. When the RCD will not be used for several weeks, the batteries should be removed to prevent unnecessary drain. See section 5 for more information on battery replacement.

**Other than the four (4) AA batteries in the RCD, there are no user serviceable parts inside the LED Insta-Line Quantum™ or the RCD.**

## Cleaning and Care

You may clean the exterior of your LED Insta-Line Quantum™ with any **NON-ABRASIVE** commercially available cleaner. Cleaners or water should **NEVER** be sprayed directly on the LED Insta-Line Quantum™ or the RCD. Charts may also be cleaned in this manner. Avoid using solvents when cleaning plastic parts. Most plastics are susceptible to damage from various types of commercial solvents and may be damaged by their use. Use clean cloths to remove dirt, dust, oil, grease etc.

**CAUTION:** Do not at any time let brake fluids, gasoline, petroleum based products, penetrating oils, etc. come in contact with plastic parts. They contain chemicals that can damage, weaken, or destroy plastic.



## Referral Slips

Each school has its own form for yearly health records and referral slips to doctors. The report to the doctors would be of greatest value if it gave the reason for referrals such as:

1. Poor distant vision
2. Reading difficulty
3. Failure of hyperopia test
4. Muscle imbalance
5. Inflamed eyes.

The form should then be returned to the school by the doctor indication:

1. Corrected vision in each eye
2. When glasses are to be worn
3. Special consideration in school, such as front seat, large print, selection of games suited for children without depth perception, etc.

## Those Wearing Glasses

Many eye consultants prefer that the children wearing glasses should not be screened, but the advantages of testing children who are wearing glasses are as follows:

1. All children are tested equally
2. Children with glasses generally average poorer vision than those without, and some may require special classes or consideration
3. Errors such as wearing an old prescription or someone else's glasses can be checked.

**HOWEVER, USUAL SCREENING PASS/FAIL LIMITS DO NOT APPLY IN THESE CASES BUT HAVE TO BE COMPARED WITH THE RESULT REPORTED BY THE CONSULTING DOCTOR.**



The above high standards are designed to detect the students who may benefit from a professional examination, especially if their grades are below average. In addition, it must be kept in mind that any screening test for such complicated mechanisms as VISION, must be considered only a partial testing. Passing the tests does not mean that the eyes and vision are normal. **SCREENING IS APPLICABLE TO SYMPTOM FREE INDIVIDUALS ONLY.** Therefore, other factors such as poor grades, inflamed eyes, and faulty head and eyelid positions should be used as additional criteria for referrals.

### Some of the reasons for doing these tests as outlined are:

1. Early detection of amblyopia is essential to successful treatment. The difference in the vision of each eye is important. For example, a child with 20/40 and 20/25 or 20/30 and 20/20 vision is the other eye is in greater need of referral than a child with 20/40 vision in each eye.
2. Children are almost never aware of their poor vision. Someone must point it out to them. The Blannual visual acuity test is **ADVISABLE** because myopia **MAY RAPIDLY** increase in the growing child. Generally a child is greatly handicapped for blackboard work when his vision is less than 20/30.
3. The reason for the hyperopia test is to save the far sighted child excessive eye strain. Eye glasses worn at least for study may be of great value.

## Pre-School and Kindergarten Acuity Testing

Kindergarten and preschool children can be easily tested with the LEA Symbols® by Lea Hyvärinen, M.D. or HOTV by Otto Lippmann, M.D. These optotypes adhere to recognized standards. They are not reversed when viewed in a mirror, so they can be used with children who have difficulty with mirrored images.

The LEA Symbols® and HOTV matching method will determine visual acuity more accurately and at a younger age than any other method. The first step is to familiarize the child with the four optotypes which are referred to as objects. Flash cards are provided with the tests for this purpose. It



## Visual Acuity Matching Objects (optotypes) LEA Symbols® & HOTV

Matching is a good method in determining visual acuity at an early age. The first step is to familiarize the child with the four optotypes prior to the vision screening. Before you begin screening, show the child the conditioning flash cards and ask the child to point to the same shape on the response panel. A verbal response is acceptable if the child is consistently accurate and knows his/her optotypes during the conditioning phase. Continue revealing the flash cards until you are confident the child can point to each shape or can verbally identify each optotype. When the child can respond without difficulty, it is time to start testing with the LED Insta-Line Quantum™ test chart.

The child should be seated in a chair facing the instrument, with the response panel on the table in front of the child (see FIG. 3) if the child prefers matching. The response panel, when placed on the table, should show all the optotypes in their normal upright position (FIG. 3). To start, show a few large optotypes on the test chart. Next, show one optotype on each line in sizes 20/50, then 20/40, 20/30, 20/25 and 20/20 until the child hesitates or misidentifies the optotype. Go up one line and ask the child to read all the lighted optotypes. Repeating previously shown optotypes may be necessary to achieve three out of five correct responses. Always test until threshold (the smallest optotype size the child can correctly read) to be able to detect the difference between the visual acuity values of the two eyes.

Once the child has successfully responded in the binocular testing, the left eye is occluded and the right eye is tested. Tell the child you are going to cover one eye. Place your Good-Lite® occluder over the left eye. Remember this is a monocular test, cover the eye well and watch for

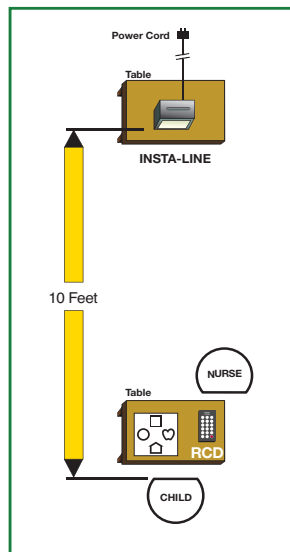
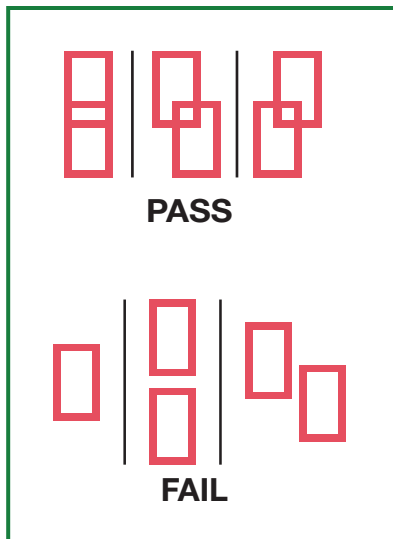


FIG. 3



Referrals are made for those who see only one rectangle (SUPPRESSION) and those who see two rectangles that DO NOT overlap.

School consultants, states and others differ on the need and method of testing eye alignment (muscles). It is relatively safe to say that this test was not done 25 years ago and that today many schools are referring children for this finding. This test is built into the LED Insta-Line Quantum™ so it is readily available. It refers those with over 6 diopters eso or exophoria, 1 1/2 diopters hyperphoria and suppression. It has a very definite pass or fail response and agrees with the eye doctor's findings.



These instructions for the muscle test are included with the accessories for the test.

## Hyperopia

The visual acuity test does not detect hyperopia. Therefore, various plus strength sphere glasses are used to screen out different percentages of hyperopic children.

Glasses are used with this test and they vary in strength from 2.50 diopters for the youngest child to plus 1.75 diopters for adults. These glasses should be worn at least one minute prior to the test to allow for relaxation of accommodation.

Hyperopia is tested with BOTH EYES OPEN and is done with the 20/30 line on the test chart. If the child can read the 20/30 line on the chart he/she fails; if he/she can not, he/she passes.

Both eyes can be tested together, because the examiner is not required to determine if both or just one eye has excessive hyperopia. Individual eye



**Question:** Where should the eye chart be positioned?

**Answer:** It should be placed so that the patient's eyes are level with the center of the eye chart. Approximately at the 20/50 line.

**Question:** What is considered passing for near and far vision screening?

**Answer:** 3 - 4 years old 20/40 line, 5 year olds 20/30 line, 6 year olds 20/25, 7 years old 20/20 line

**Question:** Can I leave my LED Insta-Line Quantum® on the charger all the time?

**Answer:** When using your Insta-Line Quantum with battery on a daily basis, always plug in charger for overnight charging. **NOTE:** When not using for long periods of time or storing, disconnect from charger.

**Question:** Can I replace the batteries myself?

**Answer:** Under no circumstances should you attempt to open the LED Insta-Line Quantum® or battery enclosure. The battery and circuit board are factory installed and sealed, and your rechargeable battery should give you many hours of use. If your LED Insta-Line Quantum®, battery, or charger/power adapter stop working, send to Good-Lite®. The four (4) AA batteries in the RCD can be replaced by the user.

**Question:** Can 2 or more Insta-Lines be used in the same room?

**Answer:** Due to the RF signals used to operate the Insta-Line, it is not recommended. The remote from one Insta-Line may interfere with the operations of the other.





## Warranty

Good-Lite® warrants this product for two years against any defects in material or workmanship under normal use and service, subject to conditions and limitations as described below.

Parts not covered under warranty: Four (4) AA batteries in the RCD, charts and accessories other than manufacturing defects.

This warranty covers only normal use. Damage, defect, malfunctions or any use, which does not comply with the operator instructions, are excluded. Damage or any failure caused by repair, which is done by anyone other than Good-Lite®, shall not be covered.

The warranty obligations of Good-Lite® shall be limited to repair or replacement of the product. Good-Lite® Co. shall not be liable or responsible under any circumstances or in any amount for consequential or incidental damages, or for injury or damages to persons or property using or used in connection with the product or for loss of profits or other costs or expenses of any kind of character. There are no other warranties or representations by Good-Lite® other than as set forth herein, either expressed or implied and no person, firm or corporation is authorized to make any representation or incur any obligation in the name or on behalf of Good-Lite® except as stated herein.

## Legal Notices

### FCC Notification

Changes or modifications not expressly approved by Good-Lite® may void the user's authority granted by the FCC to operate the subject equipment and should not be made. Replacement of any component not authorized by the FCC equipment authorization for this equipment could violate FCC rules.



## Charts and Test Sets with Overlays

STOCK NO.	DESCRIPTION
904011	Letter Chart #900700 with Overlay
904012	E Chart #900702 with Overlay
904015	HOTV Chart #900707 with Response Panel, Flash Cards & Overlay
904016	20/25 Letter Chart #900704 with Overlay
904017	20/25 HOTV Chart #900706 with Response Panel, Flash Cards & Overlay
904025	LEA Symbols® Chart #900709 with Response Panel, Flash Cards & Overlay
904026	LEA Numbers® Threshold Chart & Overlay
904029	Sloan Letter Threshold Chart & Overlay
904030	HOTV Threshold Chart Set & Overlay
904031	HOTV Threshold Chart & Overlay
904032	LEA Symbols® Threshold Chart & Overlay

## Test Set Parts

STOCK NO.	DESCRIPTION
700515	HOTV Flash Cards (4)
700523	HOTV Response Panel
251700	LEA Symbols® Response Panel
251800	LEA Symbols® Flash Cards (4)



## Accessories and Replacement Parts

STOCK NO.	DESCRIPTION
914000	Basic <b>LED Insta-Line QUANTUM™</b> with maintenance kit, Occluder (no charts)
915000	Complete <b>LED Insta-Line QUANTUM™</b> with LEA Symbols® and HOTV Sets, LEA Numbers®, Letter and E Chart (includes overlays, muscle test, and three pairs of Hyperopia Glasses)
916000	Pre-School <b>LED Insta-Line QUANTUM™</b> with LEA Symbols® and HOTV Sets

### ACCESSORIES

STOCK NO.	DESCRIPTION
914100	LED Insta-Line Mounting Bracket for Universal Stand
904001	Remote Control Device (RCD)
904526	Instruction Book
904024	Maintenance Kit With Bulb Changer, 1 Frosted and 1 Red Bulb
900525	Bulb Changer
900542	Frosted Bulbs (10 Pack)
904576	#63 Red Muscle Bulbs (10 Pack)
900009	Muscle Imbalance Test (Prism, Rectangles & Grading Card)
900500	Prism Only
900522	Plastic Red Rectangles Only
900550	Muscle Test Grading Card
900002	Plus 2.25 Hyperopia Glasses
900003	Plus 1.75 Hyperopia Glasses
904527	Set Of 4 AA Batteries



## An Ideal Eye Program

This program will require teamwork between the visual acuity examiner, parents, doctors and teachers.

1. Testing at near and at a distance with standard size equipment similar to that used by eye doctors.
2. Cooperation with the local eye doctor adjusting the referrals up or down to avoid under- and over-referrals.
3. Parents and teachers must understand each child's situation and follow the doctor's recommendation as to when and how much the glasses or other aids are to be worn.
4. Special education will be required for a few severely visually impaired children.

Visual acuity, faulty eye alignment, and other conditions are readily detectable in pre-school and school children. Their detection and correction, or help from special education can be the most rewarding function of our schools.

However, it is important to remember that there are children whose visual acuity and eye alignment are normal, yet they have major problems with the use of vision because of brain damage related vision impairments.

## Reimbursement

The standard code for acuity vision screening is 99173 "screening test of visual acuity, quantitative, bilateral".

## Maintenance and Service

All Good-Lite® products are warranted for 1 year from date of original



is suggested that the LEA TEST or HOTV be used with the LED Insta-Line Quantum™ or with the Good-Lite® No. 600600 Eye Cabinet. When an object is shown on the chart, the child is asked to match it with an object on his response panel. The child may either point to or cover up the object on the response panel to indicate his choice. Vision is recorded at the line where 4 out of 6 responses are correct.

LEA Symbols® and HOTV sets are also available for testing with portable charts.

### Color Vision

During the last five years there has been an increased interest in color vision. Children are never color blind, but 5% or more of the boys are color deficient for red and/or green. They generally can state the color of objects but can not match colors in fine shades of orange-yellow-chartreuse, or blue green to purple. They have a congenital defect that is not correctable. The value of the test is to warn students, teachers and parents of this defect. For this test, we recommend Good-Lite® No. 730000 16 Plate Color Test. Its durable non-fading color plates are mounted in a loose-leaf binder and can easily be replaced if soiled. ***IT IS A VERY SENSITIVE SCREENING TEST AND DOES NOT REVEAL THE SEVERITY OF THE COLOR DEFICIENCY. SOMETIMES A PERSON WITH NORMAL COLOR VISION MAKES ERRORS IN THIS TEST. THEREFORE POSITIVE FINDINGS SHOULD BE CHECKED WITH A QUANTITATIVE TEST (#260100) FOR QUANTIFYING COLOR DEFICIENCY.***

### Near Vision (Near Point)

Near vision cards should be used in the lower grades to determine reading readiness. Good-Lite® has several products to help assess near vision.

Between the ages of 40 and 45 people lose their ability to read close or accommodate. Good-Lite® has a suitable reading card for testing reading vision.



testing would result in a higher number of failures. Also, since the longer the subject looks through the glasses the better he will see, he should wear the glasses one minute before final appraisal.

Those who can read the 20/30 line with both eyes open “fail”. The number who fail is normally about 10 percent, and of this number, only those who are doing less than average work scholastically or who have an obvious positive response to the glasses should be referred.

Hyperopia is a normal condition for children and is harmful to the child only if it affects his muscle balance or reading ability.

Hyperopia testing is of little value in the lower primary grades, because most children have as much as 10 diopters of accommodation, and because books are printed in very large type.

+1.75, +2.25, and +2.50 diopter strength test glasses are available from Good-Lite®.

### **Suggested Guide for Screening Programs with the use of Good-Lite® Equipment**

During the past 30 years school testing of visual acuity has become almost universal. This has been due to the combined efforts of the school nurse, ophthalmologist, optometrist, public health officer, Prevent Blindness America, Lions' Club and others. Today the question is not whether to give the test, but rather how extensively, how frequently, and how accurately. Accuracy is important because erroneous referrals, over-referrals, will frequently discredit an otherwise splendid program.

All new students are to be given all three tests according to their grade.

Adults over 40 years require a reading test.

Use age appropriate test charts. ( LEA Symbols®, Letter, HOTV, etc.)

College students, office and exacting shop workers require 20/20 vision at near and at distance (the normal mean value is 20/16), an excessive hyperopia test and a muscle test.



# **GOOD-LITE®**

The Quality Always Shines Through

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