EYECHARTS

USER GUIDE

CONTENTS

Edition Date: 2023-04-17

WARNINGS & CAUTIONS

EyeCharts® and its associated company is not responsible for the safety and reliability of this software when:

- Assembly, disassembly, repair, or modification is made by unauthorized

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- Software is not used in accordance with this user's guide.

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Warning: this instrument should be used in strict accordance with The instructions outlined in this user's guide. The safety of the operator and the performance of the instrument cannot be guaranteed if used in a manner not specified by EyeCharts® technologies.

Warning: modifications to this software are not allowed. Any modification to this software unit must be authorized by EyeCharts® company.

For more information, please read our EULA in the following link:

https://eyecharts.org/eula

INTRODUCTION

EyeCharts is a professional visual acuity assessment system. EyeCharts is a StartUp that offers professional visual acuity charts on devices and screens.

Compatibility

EyeCharts team is is always developing for a larger number of devices. For this, we carry out international partnerships and tests with real individuals to pass quality assurance tests, such as the LG Quality Assurance, an indispensable seal to guarantee the quality of the product to be made available on Smart TVs.

Check the following compatible devices. Warning: that this list can be modified depending on new partnerships and emergence of new operating systems.

SAMSUNG SMART-TV		
2023	23TV_PREMIUM1	MCWS1, QCQ800, QCQ900
	23TV_PREMIUM2	G75NC, G85NC, G95SC, QCQ700
	23TV_PREMIUM3	LS03C QCQ80, QCQ80D, QCQ80TL, QCQ83, QCQ85, QCQ85D, QCQ85TL, QCQ88, QCQ8X, QCQ90, QCQ90D, QCQ90TL, QCQ95, QCQ95D, QCQ95TL, QCQ9X, QCQS90, QCQS90D, QCQS90TL, QCQS95, QCQS95D, QCQS95TL, QCQS9X
	23TV_PREMIUM4	M70C,M80C,QCQ70
	23TV_STANDARD1	M50C,QCQ60
	23TV_BASIC1	LSP3C,UCU7000
	23TV_BASIC2	UCU8000TL_PML,UCU8000_PML,UCU800M_PML,UCU80MD_PML
	23TV_BASIC3	UCU8000
2022	22TV_PREMIUM1	QBQ900, QBQ850, QBQ800, QBQ100, MBWS1, G97NB
	22TV_PREMIUM2	QBQ700, G85NB, G75NB, G95NB
	22TV_PREMIUM3	LS04B, LS03B, QBQ75, QBQS95, QBQS90,QBQD90, QBQ9X, QBQ9D, QBQ95, QBQ90S, QBQ90, QBQ8D, QBQ85D, QBQ85, QBQ83, QBQ80, QBQ7X, QBQ70, QBQX3, LS01B, LS05B, G65B, G70B, G8QNB, M80B
	22TV_PREMIUM4	G65B, G70B, G70NC, G85SB, LS01B_ML, LS05B_ML, QBQ70_ML, QBQ7X_ML, QBQ80_ML, QBQ83_ML, QBQ85D_ML, QBQ85_ML, QBQ8D_ML, QBQ90_ML, QBQ9D_ML, QBQ9X_ML

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	22TV_PREMIUM5	QAQ70, QAQ7D, QAQ90
	22TV_STANDARD1	QBQ6D, QBQ63, QBQ60_DPP, QBQ60, M70BO, M70B, M50B, UAU8000_L
	22TV_BASIC1	QAQ60_K, UAU850D_K65, UAU8000_K65, UAU8000_K, LS03BS, UBU7000, UBU8000, LSP3B
	22TV_BASIC3	UBU8000_X
2021	21TV_PREMIUM1	QAQ9X, QAQ9D, QAQ95, QAQ90_NS, QAQ90, QAQ8D, QAQ85_NS, QAQ85D, QAQ85, QAQ80_NS, QAQ80, QAQ7D, QAQ70_NS, QAQ70, LST5A, QAQ7A, LS03A_NS, LS03AP, LS03A, LS03APD, LS03AD
	21TV_PREMIUM2	QAQ900, QAQ850, QAQ800, QAQ700_P, MAWS1
	21TV_PREMIUM3	QAQ700, QAQ700_S
	21TV_STANDARD1	UAU9070, UAU9000, QAQ6D, QAQ60, UAU850D, UAU8000, LS05AL
	21TV_BASIC1	QAQ6D_K, QAQ60_K, QAQ50_K, UAUE60A, UAU7500, UAU7000, UAUE70A, UAU850D_K, UAU8000_K, UAU7700, LSP3, BEA_HB
	21TV_BASIC4_LIC	KTSU2EL_ATM, KTSU2EL_HKC, KTSU2EL_HKC, KTSU2EL_REF, KTSU2EL_TPO, KTSU2EL_TPO
2020	20TV_PREMIUM	QTQ800, QTQ800_NS, QTQ850, QTQ900, QTQ950, QTQ950_NS, LSR9, LST7T, QTQ70, QTQ70_NS, QTQ72, QTQ7D, QTQ7X, QTQ80, QTQ80_NS, QTQ8D, QTQ8E, QTQ90, QTQ90_NS, QTQ95, QTQ95_NS, LS05T, LS03T, LS03T_NS, LS01T, LS01T_NS, MTWS1
	20TV_STANDARD	QTQ60, QTQ62, QTQ6D, QTQ6E, QTQ6X, UTU8500, UTU850D, UTU8510, UTU8570, UTU85A0, QTQ6AC, QTQ6SC, QTQ6XC, UTU8000, UTU800D, UTU8200, UTU8300, UTU8400
	20TV_BASIC1	LS03TS, UTU7000, UTU700D, UTU7090
	20TV_BASIC2	UT4310, UT4500, UT4700, UT5310, UT5500, UT5770, UT4300, UT4400, UT5300, UT430E, UT530E
2019	19TV_PREMIUM	QRQ900B, QRQ90, QRQ85_OC, QRQ80_OC, QRQ80, QRQ75S, QRQ75, QRQ70, QRQ6X, QRQ69, QRQ65A, QRQ60, LS03R, LS05R, LS01R, URU800D, URU8000, MLS07R
	19TV_STANDARD	QRQ50S, QRQ50, URU7800, URU7700, URU74A0, URU7470, URU7450, URU7410, URU740D, URU7400, URU730D, URU7300, URU710D, URU7100,URU7790,URU77FA
	19TV_BASIC1	URU7000, URU6900, URUF58T, RUF58T
	19TV_BASIC2	UR6000, UR5500, UR4500
2018	18TV_PREMIUM	QRQ900,QNQ9S, QNQ9F, QNQ8FB, QNQ8F, QNQ8C, QNQ7FH, QNQ7F, QNQ7C, QNQ75F, QNQ75C, QNQ6FK, QNQ6F, QNQ65FB, QNQ65F,UNU850D, UNU8500, UNU80A0, UNU800D, UNU8000,UNU76A0, UNU7500, UNU74A0, UNU7450, UNU7400,ULS03NU
	18TV_STANDARD1	UNU730D, UNU7300, UNU710D, UNU7103, UNU7100
	18TV_STANDARD2	URU7000, UNU7120, UNU709D, UNU7090, UNU7080, UNU7050, UNU6950
	18TV_STANDARD3	UN5510, UN5500, UN5350, UN5305, UN5300, UN5200, UN4510, UN4500, UN4350, UN4310, UN4300, BERTB, BERTA

INTRODUCTION

Compatibility – continuation

LG SMART TV

LG Smart Tv's with Web-OS 3.0 and later (LG TV's 2017 and later).

Amazon Smart TV

Amazon Fire TV Stick or Amazon Fire TV Stick Lite.

Android OS Devices

Android TV OS 7.0-12.0 with Google Play Store built-in.

Windows 10 & 11

Windows 10 ou 11 PC.
Screen Resolutions
1440x900px / 1400x1050px / 1366x768px / 1360x768px / 1280x1024px / 1280x960px

INTRODUCTION

Recommended display sizes

EyeCharts software is compatible with many settings *. You can configure the screen size and also the room size in settings page.

* Recommended range of screen sizes: 17” – 50”.

Recommended room sizes

The recommended range of room sizes are: 2.8m – 8m (9,2 feet – 26 feet)

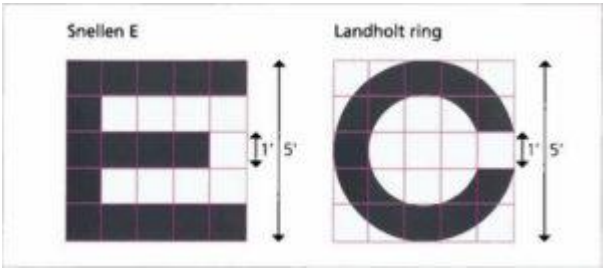
Detailed App specs

1) LANGUAGE
    a. EyeCharts Language options are: English, Portuguese, Spanish.
    b. Optotype Alphabet options are: Latim, Hindi and Cyrilic.

2) OPTOTYPES
    a. Opotypes size: Visual Acuity Chart letters can be constructed based on the following criteria.
        i. Measurement of minimum separable acuity
        ii. Measurement of minimum recognizable acuity
        iii. The letters in the chart are called optotypes.
        iv. PRINCIPLE of the construction:
            1. Two distinct points can only be recognized as separate when they subtend an angle of one-minute arc at the nodal point of the eye

INTRODUCTION

2. At 6 meter (20 ft), the letters on the 6/60 (or 20/20) line should subtend 5 minutes of arc (each limb of the letters subtend 1 minute of arc)
3. If visual acuity is 6/6 it is considered as normal visual acuity
4. Letters are constructed usually on a 5 x 5 grid so that the size of the critical detail (each gap width) subtends 1/5th of the overall height, as seen in image bellow.



5. The size of the standard optotypes can be measure by a formula that uses the following variables: Visual acuity, distance from the optotype to the eye and a calibrator that varies depending on the size of the screen / display:

0.0725xDxVAx3.779x(c)

0.0725 = tg(5')
D = Distance to screen
VA = Visual Acuity
3.779 = conversion mm to pixel
(c) = calibrator, depends on the screen size.

b. Optotype Symbols:

Sloan (10 letters) R T F N	Landolt C O O O	Tumbling E E E E	Cyrillic. alphabet Г Ж Е И
Numeric 2 3 5 6	Hand  	Lea Sumbols ♡ ⌂ □ ○	Hindi alphabet प ज म फ

INTRODUCTION

3) MEASUREMENT UNITS
    a. Imperial: Visual Acuity in feet unit (20/40)
    b. Meter: Visual Acuity in meter unit (6/12)
    c. Decima: Visual Acuity in decimal (0.5)
    d. Fraction x/10: visual acuity in decimal divided by 10.

4) ETDRS TEST
    a. ETDRS stands for Early Treatment of Diabetic Retinopathy Study. The program was designed following the strict criteria of the ETDRS, an international study that used the Sloan Letters to measure the visual acuity of patients with diabetic retinopathy.
    b. ETDRS charts have five Sloan letters on each line; the lines are of equal difficulty, and there is a geometric progression (LogMar) in letter size from line to line. LogMar stands for Log of Minimum Angle of Resolution. The design of this chart allows for a logarithmic or proportional change in letter size and spacing. This results in the visual angle on the chart doubling every three lines. In addition, by design the spacing between rows is logarithmic following the size of the letters. Spacing between letters is also uniform and correlates to the size of the letter. This provides a similar task for each line on the chart with the letter size being the only variable. Charts with different letter sequences are used for testing right and left eyes.

5) VIDEOS
    a. Format: mp4
    b. Frame rate: 30fps
    c. Resolution: 800 x 600 px
    d. Licenses: ALL VIDEOS IN THE PROGRAM ARE LICENSED OR PRODUCED BY THE DEVELOPMENT TEAM.

6) SCREEN SIZE SETTINGS
    a. Screen size can be calibrated in settings page.
    b. Measurement Units: choose between mm or inch.
    c. Min. to max. range: 20mm to 400 mm

7) DISTANCE SETTINGS
    a. Distance value can be calibrated in settings page.

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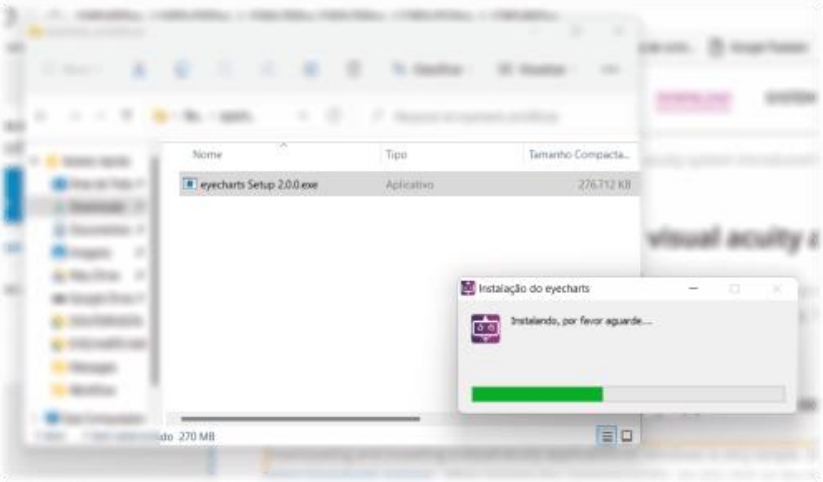
b. Measurement Units: choose between meters or feet.
c. Min. to max. range: 2.8m to 10m.

INSTALLATION, CONTROLS & FUNCTIONS

Installing

Windows PC

a. Device Requirements: Windows 10; Windows 11.
b. Screen Resolutions: 1440x900px / 1400x1050px / 1366x768px / 1360x768px / 1280x1024px / 1280x960px
c. Download Instructions:
    a. Download the compressed .zip file (link: http://eyecharts.org/win);
    b. Extract the downloaded .zip file content;
    c. Click on “eyecharts Setup.exe” file to install the software automatically.

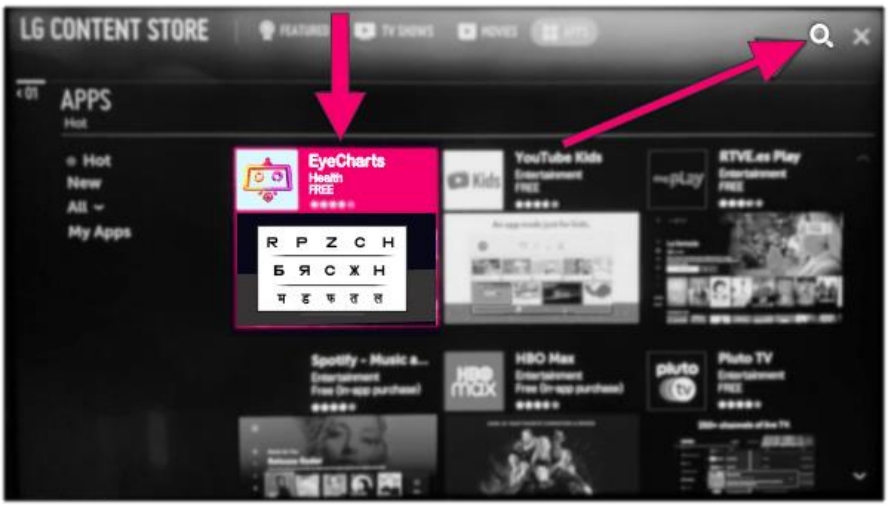


LG Smart TV

a. Device Requirements: LG Smart Tv’s with Web-OS 3.0 and later (LG TV’s 2017 and later).
b. Screen Resolutions: Recommended screen sizes: 17” – 50”.
c. Download Instructions
    a. Open LG Content Store on your TV.
    b. Search for EyeCharts.
    c. Download and Install the App.

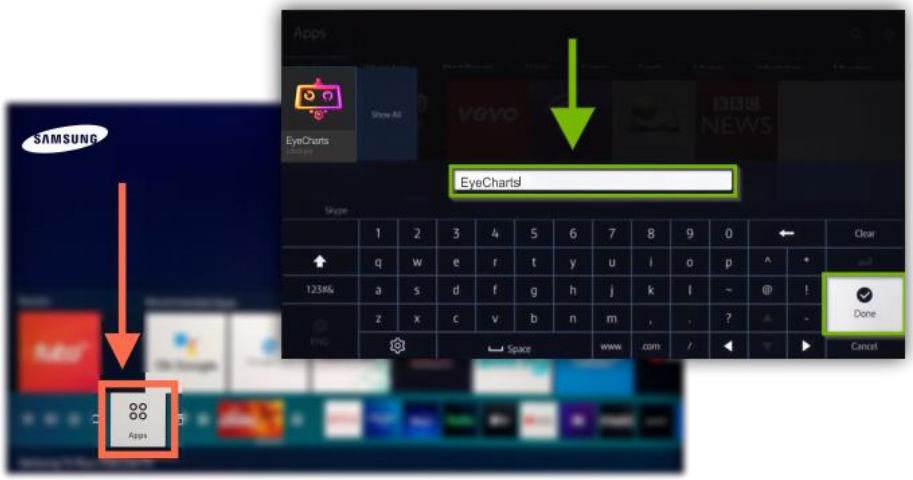
INSTALLATION, CONTROLS & FUNCTIONS

LG Smart TV – cont.



Samsung Smart TV

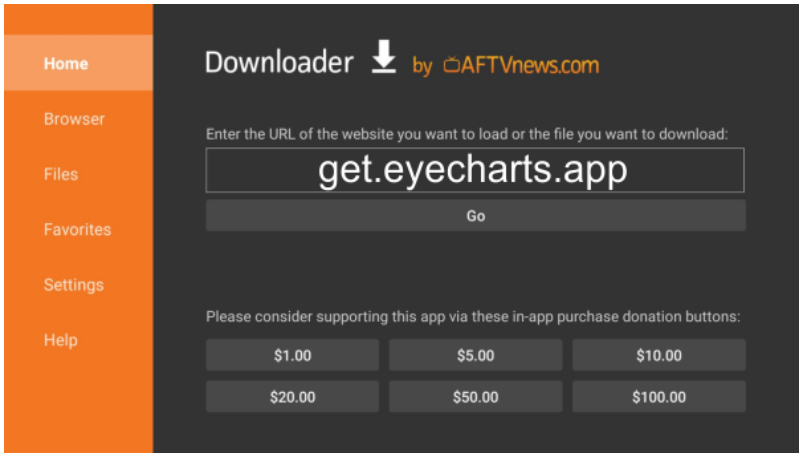
a. Device Requirements: Samsung Smart TVS 2020, 2021, 2022, 2023 (see item: Compatibility. Page: 4)
b. Screen Resolutions: Recommended screen sizes: 17” – 50”.
c. Download Instructions
    a. Open “Samsung Apps”.
    b. Then search for “EyeCharts” as shown below.
    c. Just click Install and the app will be visible in your TV’s menu bar.



INSTALLATION, CONTROLS & FUNCTIONS

Amazon Fire

a. Device Requirements: Amazon Fire TV Stick or Amazon Fire TV Stick Lite.
b. Screen Resolutions: Recommended screen sizes: 17” – 50”.
c. Download Instructions
    a. Download and open the app called “Downloader” on Amazon Fire Stick;
    b. After the “Downloader” app is open, just type the following link “get.eyecharts.app” and click “Go”;



    c. Wait for the dowload to finish. Just click Install and the app will be visible in your TV’s menu bar.
    d. Note: It may be necessary to enable Apps from “Unknown Sources” on Fire TV Settings/configurations. Guide to enable Apps from Unknown Sources on Fire TV (http://eyecharts.org/fire-tv)

Android Os

a. Device Requirements : Android TV OS 7.0-12.0 with Google Play Store built-in.
b. Screen Resolutions: Recommended screen sizes: 17” – 50”.
c. Download Instructions
    a. Open Google Play Store in your smart device;
    b. Search for EyeCharts;
    c. Click to Download EyeCharts.
    d. Then click to Install EyeCharts App

INSTALLATION, CONTROLS & FUNCTIONS

Controls

PC KEYBOARD

EyeCharts is compatible with any kind of keyboard controllers (standard keyboards, wifi keyboards, mini-keyboards).

Letter Shortcuts

- **[W] Worth 4 dot test**
- **[E] Tumbling E**
- **[R] Letters**
- **[T] ETDRS**
- **[I] Ishihara Test**
- **[O] Optokinetic test**
- **[P] Fixation Point**
- **[A] Amsler grid**
- **[D] Astigmatic Dial**
- **[F] Figures**
- **[G] Glaucoma simulator**
- **[H] HTOV test**
- **[L] LEA symbols**
- **[Z] Settings**
- **[C] Landolt C test**
- **[B] Bichromatic test**
- **[N] Numbers**
- **[M] One Hand**

Number Shortcuts

- **1-9: Change Visual Acuity Value (optotipe size)**

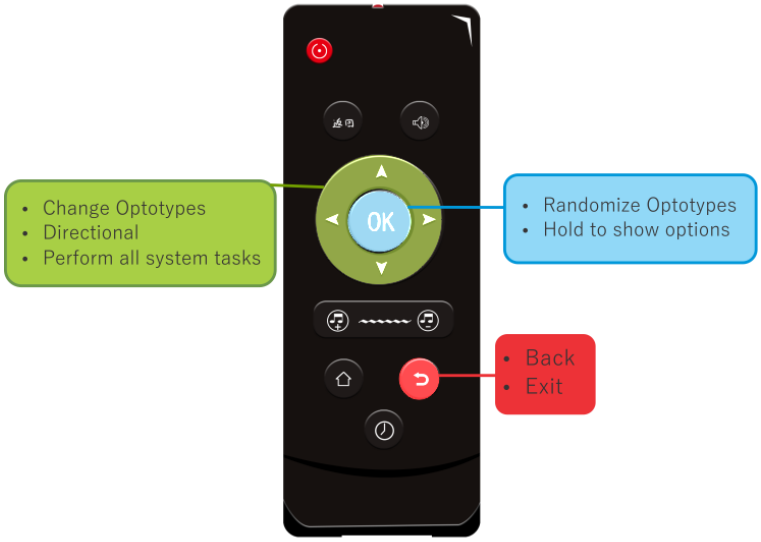
INSTALLATION, CONTROLS & FUNCTIONS

Controls – cont.

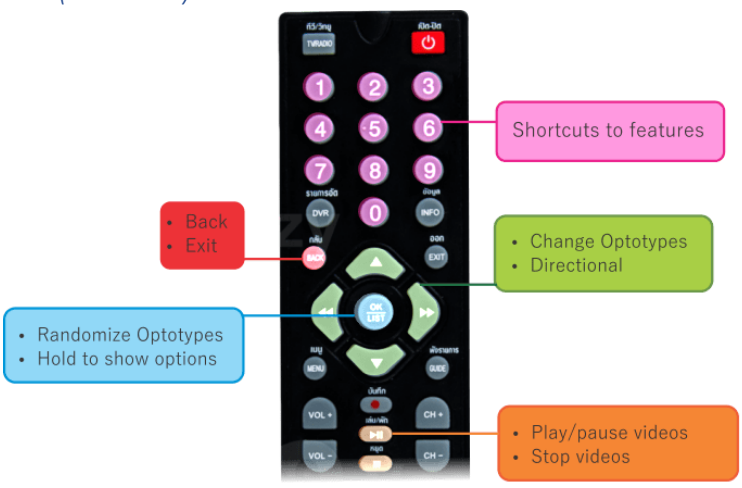
REMOTE CONTROL

EyeCharts works with any kind of remote controls of compatible devices:

*TV Remote control (**slim**):*



*TV Remote control (**standard**):*



- **[1] Letters**
- **[2] Numbers**
- **[3] Figures**
- **[4] Lea Symbols**
- **[5] Tumbling E**
- **[6] Landolt C test**
- **[7] ETDRS**
- **[8] ETDRS – Figures**
- **[9] Astigmatic Dial**
- **[0] Show/Hide Bichromatic test**

INSTALLATION, CONTROLS & FUNCTIONS

Configuring

1. Working Distance

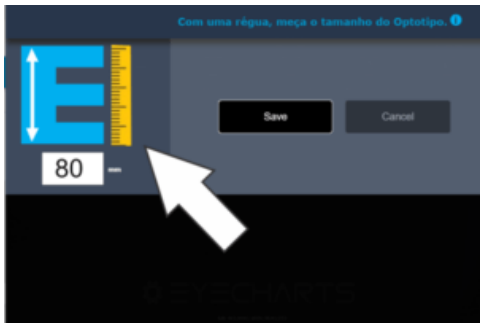
Measure the distance between the patient's eyes and the screen.

Measure the distance between the patient's eyes and the screen. Note: if you use a mirrored room you should enter the full distance (screen to mirror plus mirror to eyes)

Setting up the distance of the room.

2. Screen Resolution

To configure the screen resolution, use a ruller to measure the blue optotype that shows in the screen.



Setting up screen resolution for EyeCharts (calibrating display size)

INSTALLATION, CONTROLS & FUNCTIONS

3. Starting Chart

Here you can select the chart to display when you start EyeCharts. You can also select the starting visual acuity.

4. Visual Acuity notation

- Choose your preferred visual acuity notation: imperial, meters, decimal or x/10 fraction.
- They will be set to preferred visual acuity units every time you run EyeCharts.

INSTALLATION, CONTROLS & FUNCTIONS

Mirrored System

- You can change the settings to mirrored offices. You can chose to mirror all the pages or only the optotypes.
- Note: if you use a mirrored room you should enter the full distance (screen to mirror plus mirror to eyes) in the distance settings.

5. Activating Premium Version

- When in activation menu, just read the QR code and you will be transferred to EyeCharts system shop page.
- After you complete the premium version purchase, your License code will be sent instantly to your e-mail. You can also check your licenses in your Account page.
- Note: If your are buying from a third part seller, the system is already activated.

Activating the Premium Version. Just read the QR code.

INSTALLATION, CONTROLS & FUNCTIONS

Functions

❖ Changing optotypes

Use arrows to control the optotypes sizes.

Use the OK/Enter button to change the optotypes.

❖ ETDRS Chart

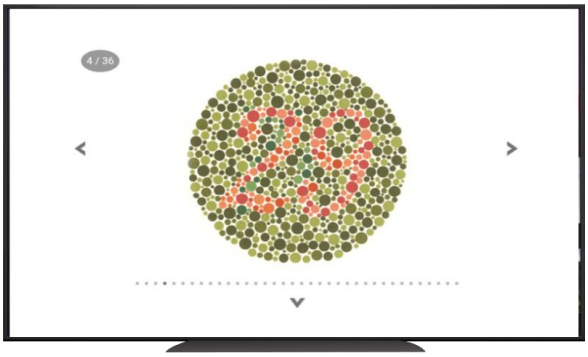
Use arrows to Focus the optotypes.

Use the OK/Enter button to change the optotypes.

INSTALLATION, CONTROLS & FUNCTIONS

You can also convert to columns usign rigtht and left arrows.

❖ Color Blind test



Use arrows LEFT and RIGHT to control the plate of color blind test.

Us arrows UP and Down to Show or Hide the result of color blind test.

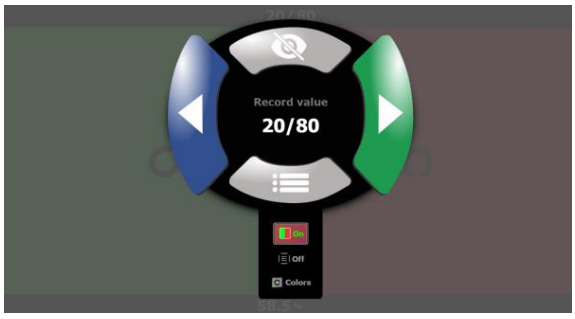
INSTALLATION, CONTROLS & FUNCTIONS

❖ Recording Visual Acuity

To record the Visual Acuty just HOLD OK/Enter button to show the options.

Then click left arrow to record to Left Eye or Right arrow to record to Right Eye.

❖ Red-Green / Bichromatic Test

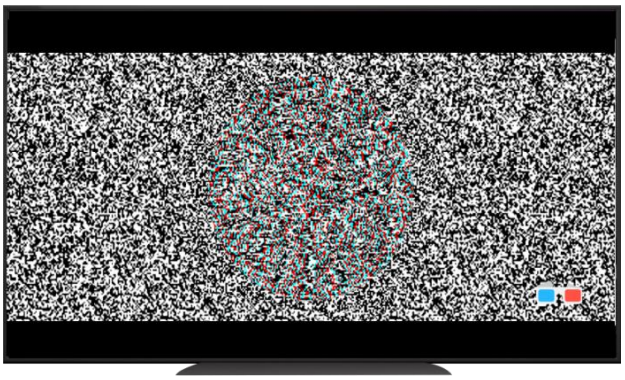


On the optotypes page, just HOLD the OK/Enter button to show options. Touch down arrow to show all Options.

Then set the Red-Green Test options to ON.

INSTALLATION, CONTROLS & FUNCTIONS

❖ Depth Perception test

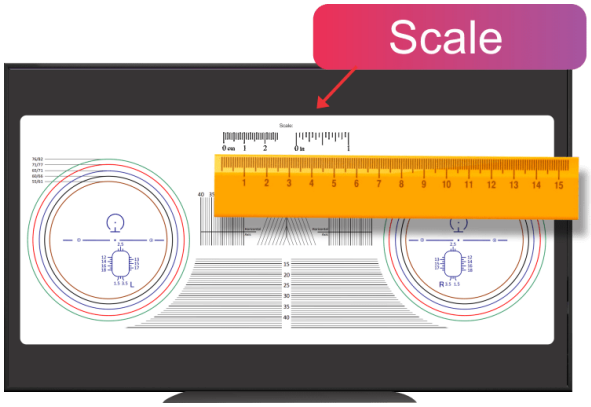


Use blue-red eyeglass to test the depth perception test. When depth perception is present, the individual will see a 3D wheel as an object jumping off the screen.

You can change to green-red eyeglasses using the arrows

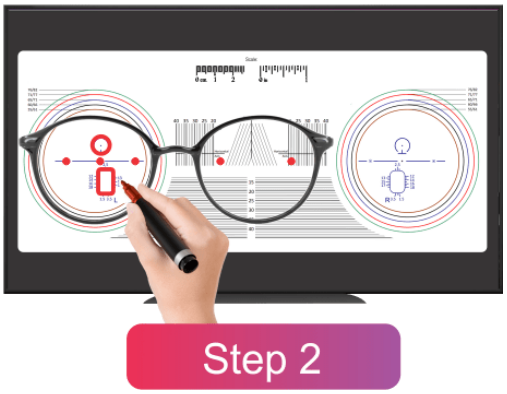
❖ Eyeglass Layout / Cutout chart

On EyeCharts you can verify progressive eyeglass measurements. After you configure the screen resolution on settings page, the System calculate automatically the Eyeglass Layout scale.



To check if scale is correct, use the scale of the Layout Chart to check the right size. With a ruler, check if it fits with the scale ruler, as shown in the figure.

INSTALLATION, CONTROLS & FUNCTIONS



- **Step 1.** Mark the temporal and nasal reference points of the progressive lenses.
- **Step 2.** Put on the progressive lenses and look through the chart and mark all the reference points and areas (Distance reference point, near reference point and fitting cross reference point).
- **Note:** EyeCharts use universal standard cutout chart. Specific layout charts may change depending on lens maker.

PROBLEMS AND SOLUTIONS

Installing EyeCharts

Problem1. Can’t Install EyeCharts on Windows.

Solutions:

a. Check your disk/HD storage;
b. Allow windows to install apps from unknown sources;
c. Check if you have unzipped the installation file.

Problem2. Can’t Install EyeCharts on Amazon.

Solutions:

a. Check your disk/HD storage;
b. Check if you have downloaded eyecharts from the App “Downloader” and have type the correct link: “get.eyecharts.app”;
c. Check if you have enabled the DEVELOPER OPTION in your Amazon FireStick.
d. Check if you have allowed to install apps from unknown sources.

Problem3. Can’t Install EyeCharts on my Smart TV.

Solutions:

a. Check if you have searched for EyeCharts in your TV App store;
b. Check compatibility (see Compatibility pag. 4)

Running EyeCharts

Problem1. EyeCharts is not starting properly.

Solutions:

a. Uninstall and reinstall the App.
b. Clear EyeCharts App Cache. Note: Clearing cache depends on the device you are using. Check specs from your device.

PROBLEMS AND SOLUTIONS

Problem2. EyeCharts runs with any other error:

Solutions:

a. Check your settings page (top right button on menu).
b. Reset EyeCharts App (top right button on menu)*.
c. Contact support.

- WARNING: Once you have EyeCharts reset, you will need your license key to activate the system again.

Activating EyeCharts

Alert messages and solutions:

*Incorrect Key: Check Key and try again. Check internet connection and try again	May be you type the wrong key. Check your key and try again. Remember: to activate EyeCharts you need internet connection.
* Alert: You may have reached the maximun activation count.	You get this message when you have activated EyeCharts in a previous device. **Solution**: You might click on 'deactivate' license key in previous device and then 'activate' the license key in your new device. *Note: Only uninstalling the app on the previous device does not enable the code for use on new devices. You should click 'deactivate' in previous device. ** Note: If you have uninstalled the App in previous device, you should install in previous device again, reactivate using the same license code, then click deactivate. By doing this, your code can be used on a new device.
* Security Issue with your license!	This means that you have tried to activate your serial many times. It's happens when it crosses the security threshold. **Solution**: Contact support

PROBLEMS AND SOLUTIONS

I need to change the device to use Eyecharts

Solution:

a. You might click on ‘deactivate’ license key in previous device and then ‘activate’ the license key in your new device.
b. *Note: Only uninstalling the app on the previous device does not enable the code for use on new devices. You should click ‘deactivate’ in previous device.
c. **Note: If you have uninstalled the App in previous device, you should install in previous device again, reactivate using the same license code, then click deactivate. By doing this, your code can be used on a new device.

My Device has broken, and I need to install EyeCharts on a new device.

Solution:

If your device breaks you can contact us during the support period to recover a new License Code to use on another device.

What happens when the Warranty & Support period expires?

a. You keep your system and updates forever. But in case any of your devices (PC, TV) break, we can generate a new code free of charge to be used in a new device only during the Warranty & Support period.
b. So, if your device breaks down and your Warranty & Support period expires, you need to purchase a new license code.
c. Note: The Support & Warrant periods depends on the product you purchase and are shown in the purchase process.
d. If your device breaks beyond our support service (outside our warranty period) you will need to purchase another license. EyeCharts may release a coupon for our returning users.

WARRANTY

Support & Warrant period

The S&W period is the time you have with our exclusive technical support. It serves to guarantee your software in the warranty period.

When the Support and Warrant period expire you still keep your system and have free of charge updates forever. In case any of your devices (PC, TV) break, we can generate a new code free of charge only during the warranty period.

The Support & Warrant periods depends on the product you purcahse and are shown in the purchase process.

If your device breaks beyond our support service (outside our warranty period) you will need to purchase another license. EyeCharts may release a coupon for returning users, please contact us.

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