Color Star

**Advanced Talking Color Identifier
Light Detector and Light Analyzer**
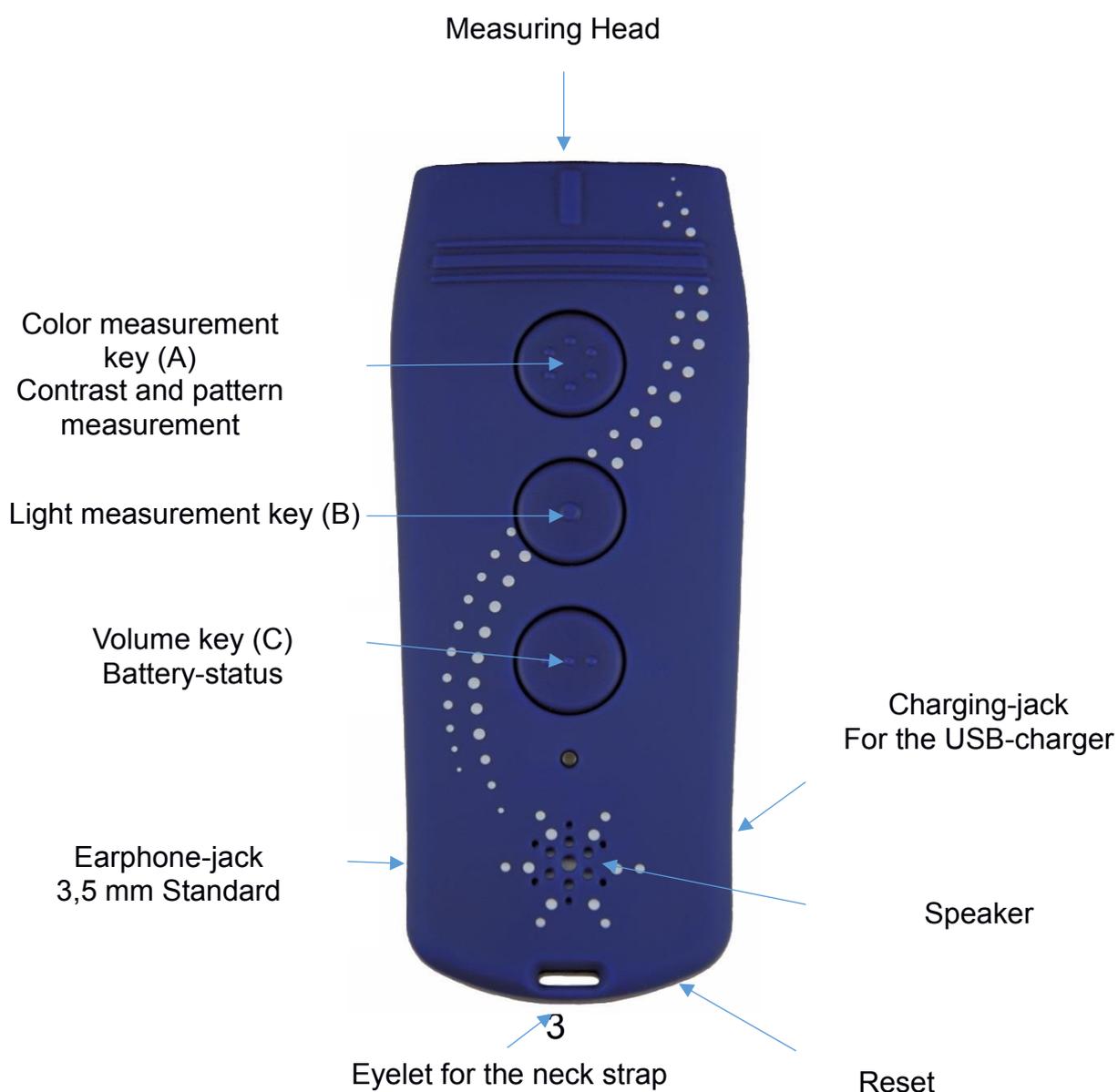
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1. INTRODUCTION

Color Star is a powerful color identifier. With its clear spoken voice output it recognizes more than 1000 different color shades, identifies contrast measurements, recognizes the color of LED-lights, perceives the light intensity in the surrounding environment and recognizes patterns.

Note: There are several methods for measuring colors such as the spectral analysis or the three range color sensor procedure. Color Star is based on the color sensor method, where three sensors are used to measure colors the same way that receptors in human eyes function. Color Star offers two different types of announcement: Universal color names and Artistic color names. The universal color names are scientific and based on mathematical color-guideline tables, developed by the International Commission on Illumination (CIE) with lighting conditions D65 corresponding to average midday sunlight. The artistic color names are common color names which are used in everyday language.

Nevertheless everyone has a different sense and idea of color and light. Differences between individual perception and that of the device can occur, but these circumstances do not influence the accuracy of the Color Star measurements

2. DESCRIPTION OF THE DEVICE

Measuring Head

Color measurement key (A)
Contrast and pattern measurement

Light measurement key (B)

Volume key (C)
Battery-status

Charging-jack
For the USB-charger

Earphone-jack
3,5 mm Standard

Speaker

3

Eyelet for the neck strap

Reset

Place/hold the Color Star in front of you so that the front panel with the control buttons faces you and the top end of the device with three horizontal lines (tactile markings) is furthest away from you.

Upper side/Device face

On the top end above the three horizontal lines (tactile markings) there is a short vertical line (tactile marking) in the middle of the device. This indicates where the measuring sensor is located, just over the lip on the top end of the device.
Below the horizontal lines, a vertical arrangement of three round control buttons (A, B, C) with clear tactile markings allow users to perform all operating steps. Below the control buttons a small light-emitting diode can be detected which serves as a status display for the battery charging and below this a star-shaped pattern of holes, which is the speaker. Under it there is an eyelet for a cord strap if required.

The button located closest to the measuring head is the color measurement button (A) which has 6 tactile markings arranged in a circle. Directly below button (A) is the light measurement button (B) which has a unique tactile marking placed in the center and bottom.

The volume button (C), has 3 tactile markings arranged in a line and is directly below button (B).

Front End

On the front end there is the measuring sensor and on the left side is – at the same height as the speakers – the jack for the earphones (a 3,5 mm stereo headset is included in the package content). On the opposite right side there is a micro-USB jack for charging with the USB-charger (also included in the package). At the lower end there is a 1mm hole (almost unnoticeable) for the RESET function. See "Troubleshooting" for an explanation on RESET.

Device Underside

On the corners of the underside are 4 sunken screws. In the middle of the underside is a sticker with the serial number and brand name.

3. CHARGING THE BATTERY

The device is equipped with a permanently installed rechargeable Lithium-Polymer battery. When the battery is low, a siren-like tone can be heard. Connect the USB-charger to the charging socket on the right side of the device and connect the charger to a wall socket.

"Battery charging" can be heard and the LED light turns red. "Charging complete" and a green LED light indicate loading completion. A full loading cycle can take up to 2 hours. In normal usage the charging status can be indicated by holding the volume button (C).

4. HOW TO TURN ON/TURN OFF

Turn the device ON with a short press of the color measuring button (A). To save energy, the device automatically turns itself OFF after 3 minutes if no button is pressed. You can also turn the Color Star OFF by simultaneously holding the color measurement button (A) and the light measurement button (B). Five seconds before turning off, the device emits a notification sound.

5. FUNCTIONS OF THE COLOR STAR

Quick overview:

Button / Press	Color measurement (A)	Light measurement (B)	Volume button (C)
Short	Turning ON Color measurement	Color comparison	Adjust volume
Long	Pattern recognition	Light detector	Battery status
Short A+B	Repeating color announcement	Repeating color announcement	
Long B+C		Set color announcement-mode (universal, artistic or both together)	Set color announcement-mode (universal, artistic or both together)

5.1. COLOR MEASUREMENT

Always hold the measuring head at a right angle to the surface of the object to measure the color. A short press on the color measurement button (A) and the color will be announced in a clear spoken voice.

(i)	**Caution:** If the measuring head is not held at a right angle, an error message could be given. This is due to the measurement being affected by too much ambient light (Signal 1).
	If the device is moved during the measuring process, an error message appears, this is due to the color measuring having taken place twice for precision reasons and the second measurement does not match the first due to device movement (Signal 2).

5.2. PATTERN RECOGNITION

Color Star offers the option to measure patterns. To do so, it is necessary to press and hold button (A) during the measurement process. If the signal sequence is constant, the surface is a single solid color. If a high pitch sound is emitted the color is bright, if a deep sound is emitted the color is dark. If the signal sequence varies, the surface has a pattern (for example a document/text). If the signal sequence is dynamic and vibrant, the surface is multicolored (for example a picture/photo).

Depending on the signal sequence it can be established if a piece of paper is labeled or not, where the text section is located or if any pictures are present and where exactly they are located.

5.3. LIGHT DETECTOR WITH LIGHT ANALYSIS

This function indicates the color hue and intensity from a natural or artificial light source. Up to 15 color hues can be recognized with an intensity of 1 to 10000.

The higher the tone pitch, the stronger the light source. With this function it can be determined if a light diode, a telephone, computer, etc. is "on" or "off" and also which color hue they have.

To locate light sources, press and hold the light measurement button (B) and move the device around or in the direction of the light source (for example a window). Based on the particular signal you can determine the light intensity:

- the higher the signal pitch, the stronger the light source

- the deeper the signal pitch, the weaker the light source

When you release the button, you get the same message as with the light analysis for color hue and intensity of the light source; for example: "Color hue of light is red, intensity 4".

5.4. COLOR COMPARISON

With this function, the user is able to compare colors. After a color measurement, activate button (B) with a short press. Depending on the grade of the difference between the measured colors, the device announces one of the following: "Colors are the same", "Colors are slightly different", "Colors are appreciably different" or "Colors are strongly different".

If there was no previous color measuring and a comparison is impossible, Color Star indicates the name of the measured color.

5.5. COLOR ANALYSIS

Color Star offers you 3 different modes for color analysis. Press and hold button (B) and (C) to select the required mode.

Universal Color name:

A color group that the measured color belongs to. These groups are based on scientific research.

Artistic Color name:

These are invented color names. Please keep in mind that the interpretation of colors may vary from person to person.

Combination Universal and Artistic names:

In this mode, Color Star announces both: first the universal and then the artistic color name. If the universal and artistic names are identical, the color will be announced only once.

5.6. REPEAT FUNCTION OF THE COLOR ANNOUNCEMENT

To repeat the color announcement press button (A) and (B) simultaneously. The last measurement result will be announced again. After the device is turned off, the last measurement will be deleted from the memory.

5.7. VOLUME CONTROL

The device has five volume levels. By pressing the volume button (C), the current volume will be given. By pressing this button you can increase the volume up to level 5. After level 5 the device reverts to level 1 and if it takes more than 3 seconds to press button (C), the device will remain in the current volume level and repeats the last announcement.

6. SAFETY INSTRUCTIONS

- ➢ Ensure that no moisture enters the device.
- ➢ Take care that the measuring head is not contaminated, especially when the device is used with wet or creamy material (for example lipstick).
- ➢ Do not expose the Color Star to extremely high humidity, extremely high or low temperatures or any dust or dirt. The operating temperature of the device is between 0 and 40 degrees Celsius (32 to 104 degrees Fahrenheit). If any liquid enters the device, wipe the case dry with a cloth and let the device dry completely before starting it again.
- ➢ Only use the device if it works correctly.
- ➢ Please note that this device is not a children's toy.
- ➢ If you use the device with earphones or a headset use a suitable low volume level to protect hearing sensitivity.

7. TROUBLESHOOTING

If a siren-like signal sequence can be heard, please charge the battery (see more in chapter 3. Power supply).

If the device does not work at all, then follow these instructions: Connect the device for at least an hour to the USB-charger which was included in the package. Now try to turn the device ON again. If it does not react, pick a sharp object (for example a paperclip), insert it into the little reset hole on the bottom end of the device and press it in briefly. If you now hear the „welcome on-melody", the device is ready for use. If the reset-action does not show any effect, the device must be repaired. In this case contact the distributor or manufacturer.

Please note the color recognition is also dependent on the texture of the measured object. A rough knitted pullover can therefore look darker than it really is. Furthermore, with transparent (or also rough woven) fabrics the surface can shimmer and distort the result. We recommend folding the cloth several times, smooth it and then, press a finger from behind against the measuring head.

8. CLEANING AND MAINTENANCE

Use a slightly damp or dry cloth to clean the case of the device. Do not use abrasive or aggressive cleaning products.

⚠	**Caution:** No liquid should enter the device! Avoid strong acid or scrubbing cleaners and do not clean the surface with rough sponges as they might damage the case of the device.

⚠	**Caution:** For a reliable color measurement it is essential to protect the area next to the measuring sensor against contamination. This area can only be cleaned by a service technician.

9. TECHNICAL DETAILS

Dimensions:	length: 90 mm (11/32 " inches) width: 35 to 38 mm (1 and 3/8" to 1 and 7/16" inches) height: 14 to 18 mm (17/32" to 25/32" inches)
Weight:	42 g (0.09 lb.) including battery
Power Supply:	Integrated Lithium-Polymer battery
Color Recognition:	detects up to 1000 color nuances
Light Recognition:	distinguishes the intensity of light at 10000 levels
Speech output:	Many languages available, high quality spoken voice
Volume control:	5 volume levels
Earphone socket:	3,5 mm socket
Operating temperature:	0° to 40° Celsius (32° to 104° Fahrenheit)
USB-port:	micro USB-port for the charging unit
More details:	interface for software updates

	eyelet to attach a cord strap
Package Content:	Color Star color recognition device, stereo earphones, USB charging unit (5V/1A), lanyard/cord strap, storage case, printed user manual and CD

10. GUARANTEE AND SERVICE

From the date of purchase, we issue to the original purchaser of this product a guarantee of:

- twenty four (24) months on the device itself,
- twelve (12) months on the accessories (e.g. power supply, earphones etc.),
- six (6) months on durable parts (e.g. battery, case etc.)
- Please note that we do not issue any guarantee for external media (CDs or memory cards) and batteries.

During the guarantee periods mentioned above, should the device stop working or malfunction and the trouble shooting tips not help restore working conditions, the product will be either repaired or replaced free of charge. In no event will CareTec be liable for indirect, special or consequential damages. The exposure of the device to liquids, strong electromagnetic fields, heat as well as the dropping of the device or opening of the case results in the immediate loss of guarantee. Should difficulties occur please contact CareTec or a local distributor before returning the device for no apparent reason. Necessary procedures will be communicated. The device can only be opened by an authorized technician!

CareTec reserves the right to make any changes or improvements to its products without further notice.

11. LEGAL NOTICE ON THE DISPOSAL OF ELECTRONIC DEVICES

11.1. DISPOSAL OF USED ELECTRONIC DEVICES

	This product must be disposed of separately from household waste at specially designated collection and recycling points. For further information please contact your local authorities.

11.2. RECYCLING BATTERIES

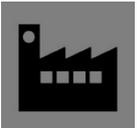|	
	Batteries must not be disposed of in household waste. As a consumer you are legally obligated to bring your old batteries to public collecting points (in your community or any shop that provides these batteries).

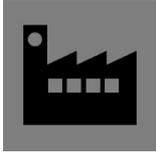Pb-Cd-Hg   These signs can be found on contaminant-laden batteries.

Pb = containing lead

Cd = containing cadmium

Hg = containing mercury

12. SYMBOLS USED

	Caution

	Note

	Dispose separately from household waste

	Manufacturer

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