FREEWAVE AVIATOR

TTL FLASH REMOTE SYSTEM

USER MANUAL

VELLO™

INTRODUCTION

Thank you for choosing the Vello FreeWave Aviator System. The FreeWave Aviator is a professional solution for wirelessly controlling off-camera TTL-capable flashes while retaining full TTL capability. The FreeWave Aviator System is an ideal tool for photographers on every level. The Aviator gives you the ability to fine tune your lighting and help you match your final shot to your creative vision.

The Vello FreeWave Aviator allows for an impressive range of wireless control. Supporting up to 16 channels, flashes can be arranged in three groups, which can each be set to TTL or Manual mode. The TTL EV compensation, manual power, and zoom levels for each group can be

changed separately, and groups can also be controlled with ratio-based adjustments. This allows the flexibility to be creative with different lighting treatments and effects. You can instantly raise and lower power levels on select lights, or use the zoom control to change the tone and shape of the lighting for exciting new looks.

With its multiple groups feature, you can easily configure up to three different light groups, which can be triggered individually or simultaneously, for a total of seven different combinations. (Simultaneous triggering of multiple flash groups requires additional FreeWave Aviator Receivers or Transceivers, available separately.)

The FreeWave Aviator does not require line-of-sight positioning, since its radio waves pass through and around objects, such as walls, windows, and floors. It also functions in all lighting conditions including bright daylight or direct sunshine.

TABLE OF CONTENTS

CONTENTS

Transceiver Kit

Receiver Kit

KEY FEATURES

Wireless TTL (Through-the-Lens): makes full use of your flashes' built-in TTL technology

16 Channels (2.4 GHz Radio): allow the setting of different channels to avoid interference

Three Flash Groups: enable configuration of different flash groups with individual settings

Master/Slave Function: enables the Transceiver to be used as either a Master (Transmitter) on your camera or as a Slave (Receiver) with a flash attached

TTL or Manual Mode: remotely sets your flash to TTL or Manual mode and can adjust power levels

TTL Exposure Compensation: enables fine tuning of TTL exposure by +/− 3 EV

High Speed Sync: allows flash synchronization up to 1/8000 of a second

Regular or Second Curtain Sync: allows you to create special effects and "after blur" images

Flash Zoom Control: remotely sets the zoom on all compatible flashes

Additional Lighting Options: can trigger Studio Lights together with your hot-shoe flashes

Backlit Digital Display: allows easy viewing and changing of settings in all lighting conditions on the Transceiver

Threaded PC-Sync Port: can be used for a more secure connection with a Receiver

TTL Hot Shoe: allows you to use a TTL flash on-camera (pass through)

**Battery Indicator:** displays battery life on the Transceiver

PRECAUTIONS

- Please read full manual before using device.

- Do not disassemble or modify. Failure to observe this precaution could result in electric shock or product malfunction. Should the product break open due to accidental damage, remove the batteries and send it to an authorized repair center.

- Keep dry. Do not handle with wet hands, immerse in water, or expose to rain or snow. Failure to observe this precaution could result in fire or cause electric shock.

- Do not use in the presence of flammable gases. Failure to observe this precaution could result in fire or explosion.

- Keep out of the reach of children. This product contains small parts that may pose a choking hazard. Should a child swallow any part of this product, consult a physician immediately.

- Turn off immediately should a malfunction occur. Should smoke or any unusual smell come from this product, shut it off and remove the batteries immediately. Send it to an authorized repair facility for service. Continued use may result in damage or physical injury.

- Do not expose to high temperature. Do not leave product in a closed vehicle in the sun or other area subject to extremely high temperature. Failure to observe this precaution could result in fire or damage to casing or internal parts.

- Observe precautions when handling batteries. Batteries may leak or explode if improperly handled. Please observe the following precautions when using batteries with this product.

- Use only batteries listed in this manual. Do not mix new and old batteries or different brands or types of batteries.

- Read and follow all warnings and instructions provided by the battery manufacturer.

- Do not attempt to short-circuit or disassemble batteries.

- Do not put batteries in a fire, or apply direct heat to them.

- Do not attempt to install batteries in the reverse direction.

- Batteries may leak when fully discharged. To avoid damage to the product, be sure to remove the batteries if the product will not be used for an extended period of time or if the battery power is low.

- Should fluid from damaged batteries come into contact with skin or clothing, rinse immediately with fresh water.

- Pictures are for illustration only.

OVERVIEW

Transceiver

1. LCD Display Screen
2. Group Settings Buttons (A, B, and C)
3. LED Indicator
4. Test Button
5. Menu Button
6. Option Button
7. Flash Sync Mode Button
8. Select Button
9. + and − Buttons
10. TTL-Dedicated Hot Shoe
11. Battery Compartment
12. Locking Wheel
13. Power Switch
14. 3.5 mm Sync Output Port
15. USB Port

Front

Right

Back

Left
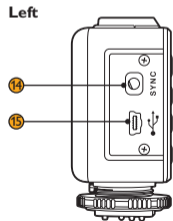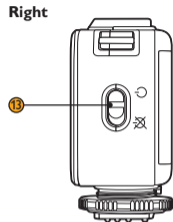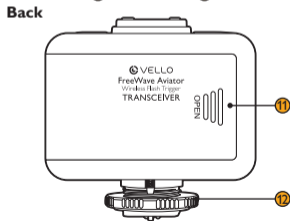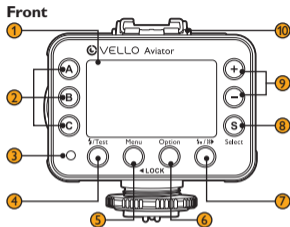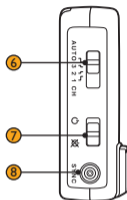
1. LED Indicator
2. Test Button
3. TTL-Dedicated Hot Shoe
4. Battery Compartment
5. 1/4˝-20 Lightstand Socket
6. Channel Switch
7. Power Switch
8. Threaded PC Sync Output Port
9. Group Switch
10. USB Port
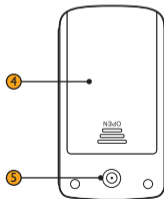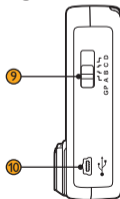11. 3.5 mm Sync Output Port
12. Lanyard Mount

Top
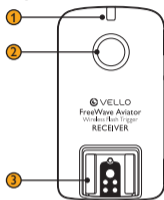
Left

Bottom

Right

Front
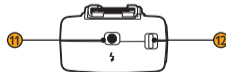
BEFORE YOU BEGIN

Installing the Batteries

The Aviator Transceiver and Receiver units each require two AA batteries to operate.

To install, open the battery compartment door and insert the batteries as indicated by the polarity icons in the compartment. Once installed, close the compartment door.

COMPATIBLE DEVICES

The Vello FreeWave Aviator is available in models for both Nikon i-TTL and Canon E-TTL cameras. The Nikon and Canon models are each compatible with the respective company's TTL (Through-The-Lens) technology.

To make full use of the Aviator system, we recommend using TTL-capable hot-shoe flashes that are fully compatible with your camera's TTL system.

FreeWave Aviator Transceivers and Receivers do not provide high-voltage sync protection, and they are not recommended for use with flash units that have a trigger voltage of more than 6V.

MOUNTING/TURNING ON THE TRANSCEIVER

1. With your camera and Transceiver Off, loosen the Transceiver's locking ring.

2. Insert the Transceiver's hot shoe on your camera's hot-shoe mount with the LCD panel facing the rear of the camera.

3. Tighten the Transceiver's locking ring.

4. Turn on the Camera and then slide the Transceiver's Power Switch to On.

5. Slide to Off position to turn the Transceiver off.

Note: make sure that your Master Transceiver and all Receiver units and Slaves are set to the same Channel before use.

Note: the Aviator Transceiver can also be mounted on any hot-shoe or cold-shoe compatible stand.

MOUNTING THE RECEIVER

1. With your Receiver and flash Off, mount ◀
    the Receiver to your 1/4˝-20 light stand
    or accessory stand. Take care not to
    overtighten the Receiver.

2. Slide the Group Switch to A, B, or C to
    select the desired Group. (The Group
    D setting on the Receiver is for factory
    calibration only and is not available
    for use.)

3. Slide the Channel Switch to 1, 2, ◀
    3, or Auto. ("Auto" is equal to the
    Transceiver's Channel "4".)

Note: make sure that all your FreeWave Aviator units are set to the same channel before use.

MOUNTING A HOT-SHOE FLASH TO A RECEIVER/TRANSCEIVER

1. Make sure the flash and Receiver or Transceiver are turned Off.

2. Switch the flash's locking switch to the unlocked position.

3. Insert the flash's hot-shoe foot into the Receiver or Transceiver's hot-shoe mount.

4. Switch the flash's locking switch to the locked position.

5. Turn on the flash.

6. Your flash must be in TTL mode in order to function properly in all modes with the FreeWave Aviator. (See your flash's manual for assistance.)

7. Turn on your Aviator Receiver or Transceiver by moving the switch to the On position.

USING STUDIO FLASHES WITH A RECEIVER OR TRANSCEIVER

For more complex lighting needs, the FreeWave Aviator can also trigger studio flashes independently or alongside hot-shoe flashes. (Note that TTL compatibility is only available for TTL-capable flashes.)

Both the Aviator Receiver and Transceiver have 3.5 mm Sync Ports, and the Receiver also has a PC Sync Port which allows you to connect a sync cable to your studio flashes.

Note: the PC Sync Port will also accept a PC locking cable.

Connecting with a 3.5 mm Cable

1. Plug the 3.5 mm cable into the Receiver or Transceiver's Sync Port.

2. Plug the other end of the cable into the studio flash's 3.5 mm jack.

3. If your studio flash has a 1/4″ monoplug jack, you will need to use the included 3.5 mm to 1/4″ monoplug cable.


Connecting with a PC Sync Cable

1. Using a PC Sync to 3.5 mm cable (not included), plug the PC Sync end into the Receiver's PC Sync port.

2. Plug the 3.5 mm end of the cable into the studio flash's 3.5 mm jack.

3. If your studio flash has a 1/4″ monoplug jack, you will need to use a PC Sync to 1/4″ monoplug cable (not included).

ABOUT TTL

The FreeWave Aviator automatically sets the appropriate flash level using your camera's through-the-lens (TTL) metering system data, calculating the correct power for all communicating TTL compatible flashes.
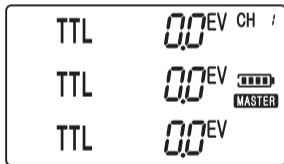
The startup or default screen for the Aviator Transceiver is called the TTL Screen. Many of the instructions start out from the TTL Screen, so it will be helpful to remember how to return to it.

To return to the TTL Screen while in Master mode (see page 17), simply press the **Option** button once or twice until the screen appears. (If the device is in Slave mode, you will first have to return to Master mode.)

Once set, the Aviator Transceiver retains all changes made to its settings, even after the device is turned off.

Note: see page 29 for resetting the Transceiver to factory default settings.

SETTING CHANNELS

To set the desired Channel,
do the following:

1. From the TTL Screen or the Slave Mode
   screen, press **Menu** to enter Channel
   Select.

2. Use the **+** and **−** buttons to select the
   desired channel from 1-16 (channels
   5-16 are only available when using two
   Aviator Transceiver units).

3. Press **Select** to apply the setting.

Channel

While the Receiver is Off, slide the Channel
switch to the desired Channel (1, 2, 3
or Auto). Then turn the Receiver on.

*Note: "Auto" is equal to the
Transceiver's Channel "4"*

Note: all devices must be set to the same channel for the system to function properly.

16

## ADJUSTING MASTER/SLAVE MODE ON THE TRANSCEIVER

Using the FreeWave Aviator System requires at least two units: one Transceiver set to Master mode and either a Receiver or a second Transceiver set to Slave mode. The Transceiver you are using to control your lighting must be set to Master mode.

To set a Transceiver to either Master or Slave mode, do the following:

1. From the TTL Screen, press **Menu** twice. The device's current mode will start blinking.

2. Toggle between Master and Slave mode using the **+** and **−** buttons.

3. Press **Select** when the desired mode is displayed to apply the setting.

Note: when using a flash in the hot shoe atop a Transceiver set to Master mode, the flash will operate as a 4th TTL Group in "fully" automatic mode. Adjustments are limited to "fully" TTL (i.e. TTL EV Adjustments are not available) or Manual power settings.

CH *i*

MASTER

Master Mode

Note: when a Transceiver is set to Slave mode, the Flash/Test button will not function.
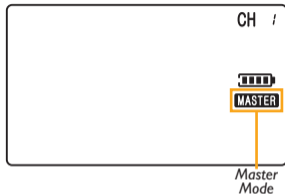
SETTING FLASH GROUPS

The Aviator Transceiver allows individual control of flash settings for groups A, B and C. It can also fire all groups simultaneously.

To set the mode of a particular flash group, do the following:

1. Press the desired group to toggle through the modes, (between TTL, Manual and OFF)
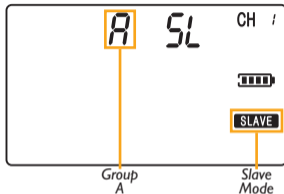
When the Transceiver is in Slave mode, set the desired group by pressing **A**, **B**, or **C**.

Group A
Slave Mode

Flash Group Mode Setting

Slide the Group switch on the
Aviator Receiver to the desired
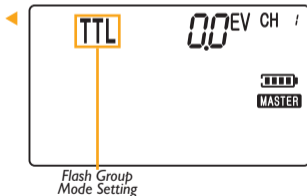Group (either A, B, or C).

◄

To assign multiple Receivers to the same
flash group, simply select the same group
letter for each Receiver in the flash group.

*Note: you can combine studio lights
and speedlights within the same flash
group. (Be aware of the independent
recycling time of each flash to ensure
all flash units are ready to fire).*

*Note: the Group D setting is reserved for
factory calibration and is not available for use.*

ADJUSTING A FLASH GROUP'S TTL POWER (EV)

Using a Transceiver in Master mode:

1. From the TTL Screen, press **Select**. The screen will start flashing.

2. Press **A**, **B**, or **C** to select the desired flash group. The selected group will start flashing.

3. Use the **+** and **−** buttons to set the EV (exposure) in TTL mode.

4. Press **Select** twice when done to apply the settings.

5. Press ⚡/**Test** to confirm settings.

Note: ⚡/**Test** fires a test flash on all connected hot-shoe lights and studio lights. It is advisable to always test fire your flashes after making changes to confirm your settings.

TTL+ 0.3EV CH ⓘ
MASTER

TTL EV Setting
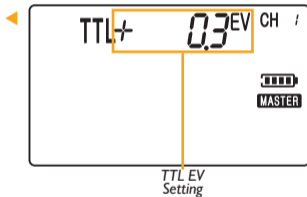
ADJUSTING A FLASH GROUP'S ZOOM

The FreeWave Aviator has the ability to refine your flash output by adjusting a flash group's zoom. This function controls the concentration and diffusion of light emitted by your flash.

Using a Transceiver in Master mode:

1. From the TTL Screen, press **Select** twice to enter Zoom Select.

2. Press **A**, **B**, or **C** to select the desired Group.

3. Use **+** and **−** buttons to set the zoom level (Auto, 24, 28, 35, 50, 70, 80, or 105 mm) for the selected group (Auto is one level below 24 mm and appears as "Au").

4. Press **Select** when done to apply the setting.

5. Press ⚡/**Test** to confirm settings.
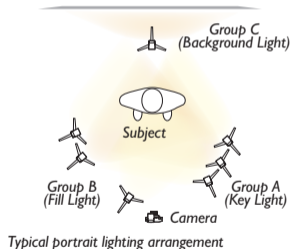
USING TTL RATIO ADJUSTMENT MODES

Ratio Adjustment Mode gives you the convenience of not having to make individual adjustments to each flash group. You can make simple adjustments to the relationship between Group A and B, or Groups A, B and C (with Group C adjusting itself in relation to Group B), using a FreeWave Aviator Transceiver.

A standard portrait lighting setup uses a main (or key) light set at 100% power, a fill light at 50%, and a background light set as needed. In the device's Ratio Mode, you only need to adjust your ratio settings. The others will self-adjust and maintain their relative settings automatically.

For example, in Ratio A:B Mode, when setting the ratio as 2/1 (or 2:1), Group A will be twice as powerful as Group B.

In Ratio A:BC Mode, the device allows adjustments to the power of Group C in relation to Group B. Adjustments to Group C are set in EV. Each EV stop higher or lower will be either twice or half the power of the previous stop respectively (setting the EV to −1 would mean that Group C is 1 stop less powerful – or half the power of Group B). The EV can be adjusted in increments of 1/3 of a stop.

For example, in Ratio A:BC mode, if B is set to be half (−1 stop) of A, and C is set to an EV of −1 (1 stop less than B), C would actually be 1/4 (−2 stops) the power of A.

Typical portrait lighting arrangement

Ratio A:B Mode

Using a Transceiver in Master mode:

1. Set your TTL-compatible hot-shoe flash to TTL mode.

2. From the TTL Screen, press **Option** to enter Ratio A:B Mode.

3. Press **Select** to access the ratio adjustment.

4. Use **+** and **−** buttons to adjust the ratio (up to 7 stops plus or minus).

5. Press **Select** when done to apply the setting.

6. Press **⚡/Test** to confirm settings.

Ratio A:BC Mode

Using a Transceiver in Master mode:

1. From the TTL Screen, press **Option** twice to enter Ratio A:BC Mode.

2. Press **Select** to access the ratio adjustment.

3. Use **+** and **−** buttons to adjust the ratio (up to 7 stops plus or minus).

4. Press **Select** to access an EV (exposure adjustment) to Group C, which will adjust its power in relation to group B.

5. Use the **+** and **−** buttons to adjust the EV ratio.

6. Press **Select** when done.
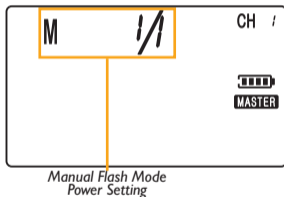
7. Press **⚡/Test** to confirm settings.

Ratio Mode Indicator *Group A:B Ratio Setting* *Group C EV Setting*
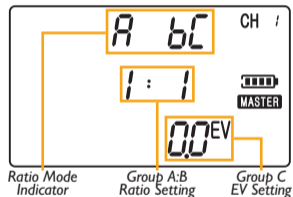
CHANGING A FLASH GROUP'S POWER MODE

Set a Flash Group to Manual mode

Using a Transceiver in Master mode:

1. Set your compatible TTL hot-shoe flash to TTL mode.

2. From the Transceiver's TTL Screen, press the **Select** button, and the screen will begin to blink.

3. Press the desired group button (A, B, or C) twice to set that group to manual mode.

4. Use the **+** and **−** buttons to adjust the manual power setting.

5. Press **Select** twice when done to apply the settings.

6. Press ⚡/**Test** to confirm settings.

Manual Flash Mode Power Setting

Turn a Flash Group Off

Using a Transceiver in Master mode:

1. Press the desired group button (A, B, or C) to toggle through the power modes until you reach Off.

2. Press ⚡/**Test** to confirm settings.

Flash Group set to Off
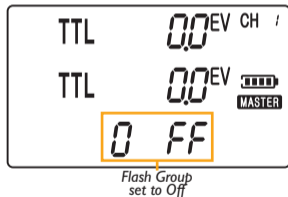
USING HIGH SPEED SYNC/SECOND CURTAIN SYNC MODES

The Vello FreeWave Aviator supports Hi-Speed Sync (HSS) up to 1/8000 of a second on compatible cameras and TTL flashes. This means that the entire duration of the shot, including the flash, can be as short as 1/8000 of a second.

The FreeWave Aviator also supports second-curtain sync mode on compatible cameras and TTL flashes.

Consult your camera's user manual to find out how to activate these modes.

Using a Transceiver in Master mode:

1. From the TTL Screen choose a flash sync mode by pressing the **Flash Sync Mode [≫]** button.

- **Second Curtain Sync** (≫)

   Note: High Speed Sync is controlled directly by the camera on Nikon systems – no settings are needed on the FreeWave Aviator.

Second Curtain Sync Mode
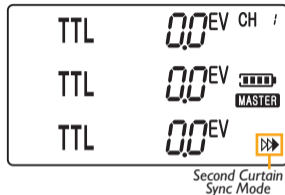
Note: these functions work only with compatible cameras and TTL flashes.
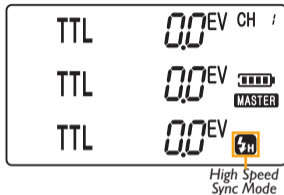
Using a Transceiver in Master mode:

2. From the TTL Screen choose a flash sync mode by pressing the **Flash Sync Mode [4ʜ / ⧸⧸]** button to cycle through and choose an option.

- **Second Curtain Sync** (⧸⧸)

- **High-Speed Sync** (4ʜ)
  Note: Canon systems requires setting High Speed or Second Curtain Sync on the Transceiver.

High Speed Sync Mode

SETTING AUTO-FOCUS ASSIST (NIKON ONLY)

To configure your Nikon flash's Auto-Focus Assist (AF Assist) from the Transceiver:

1. Make sure your flash's AF Assist is turned on (see your flash's manual)

2. From the TTL Screen, press the **Menu** button three times

3. Press **+** or **−** to turn AF Assist On or Off

4. Press **Select** to apply the setting.

Note: for turning off a Nikon Camera's AF light, see your cameras manual.

Note: for Canon systems, AF illumination is controlled directly by the flash (see your flash's manual)

AF Assist Setting
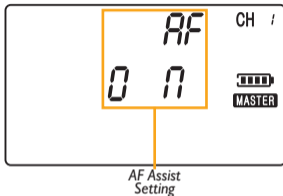
ADDITIONAL FEATURES

TTL Pass-through

When a Transceiver is set to Master mode and mounted on your camera, a hot-shoe flash attached to its hot shoe receives TTL exposure data from the Master Transceiver unit to ensure that your photos will be properly exposed. It functions as a separate unit, independent of Groups A, B, and C. Adjustments to that flash are limited to Auto TTL (meaning that TTL EV adjustments are not available) or Manual power settings.


Flash Wake-Up

If your flash has a wake-up function press the ⚡/**Test** button on the Transceiver to wake your flash.

If your flash does not have a wake-up function, you may be able to turn off sleep mode: Refer to your flash's manual to find out if you can turn off sleep mode.

RESETTING THE TRANSCEIVER TO FACTORY DEFAULT SETTINGS

The FreeWave Aviator Transceiver remembers the last Group Mode, Channel, Zoom and Master/Slave settings when powered off. To reset your Transceiver to factory default settings, press and hold the **Menu** and **Option** buttons together for 3 seconds. The LCD display should show "All Settings Cleared."
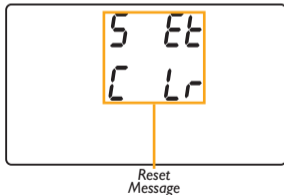
Channel	1
Master/Slave Mode	Master Mode
Flash Group Power Mode	TTL Mode
TTL Mode Power (EV)	0.0 EV for Groups A,B, and C
Manual Mode Power	1/1 for Groups A,B, and C
Flash Zoom	Auto
Ratio A:B Mode	1:1
Ratio A:BC Mode	1:1 and 0.0EV
Flash Sync Mode	First Curtain Sync
AF Assist (Nikon Only)	On

Reset Message

SPECIFICATIONS

	Transceiver	Receiver
Dimensions (W × H × D)	2.75″ × 2.63″ × 1.25″ (70 × 67 × 32 mm)	1.75″ × 1.25″ × 3.19″ (45 × 32 × 81 mm)
Weight (without battery)	4.8 oz. (136 g)	2.4 oz. (68 g)
Power	2 AA batteries (240 hrs. on standby)	2 AA batteries (400 hrs. on standby)
Output	3.5mm Sync Port , TTL Pass-through Shoe	TTL hot shoe, PC sync port, 3.5 mm sync port
Channels	16 channels	4 channels
Groups	3 groups (A, B and C)	
Range	Up to 300′ (100 m)	
Sync Speed	Up to 1⁄8000 second	
Flash Sync Modes	First Curtain Sync and Second Curtain Sync	
EV Compensation	±3 EV	

TROUBLESHOOTING

- Check the contact between the light's hot shoe foot and the Receiver's hot shoe, and between the camera's hot shoe and the Transceiver's hot-shoe foot.

- Make sure the hot-shoe light's locking switch is set to the lock position.

- Make sure that the Receiver is powered on and at the correct setting.

- Remove the batteries from the Transceiver and Receiver, wait a moment and then replace.

- Change the channel by adjusting the switch on the Receiver and the setting on the Transceiver to a different combination, taking care to ensure that both the Transceiver and Receiver are set identically.

- Ensure that your TTL compatible flash is set to TTL mode, even when using the Transceiver to trigger in manual mode.

- After changing settings on the Aviator Transceiver, push the ⚡/**Test** button to confirm new settings.

FCC COMPLIANCE

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.

2. This device must accept any interference received, including interference that may cause undesired operation.

ONE-YEAR LIMITED WARRANTY

This VELLO product is warranted to the original purchaser to be free from defects in materials and workmanship under normal consumer use for a period of one (1) year from the original purchase date or thirty (30) days after replacement, whichever occurs later. The warranty provider's responsibility with respect to this limited warranty shall be limited solely to repair or replacement, at the provider's discretion, of any product that fails during normal use of this product in its intended manner and in its intended environment. Inoperability of the product or part(s) shall be determined by the warranty provider. If the product has been discontinued, the warranty provider reserves the right to replace it with a model of equivalent quality and function.

This warranty does not cover damage or defect caused by misuse, neglect, accident, alteration, abuse, improper installation or maintenance. EXCEPT AS PROVIDED HEREIN, THE WARRANTY PROVIDER MAKES NEITHER ANY EXPRESS WARRANTIES NOR ANY IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. This warranty provides you with specific legal rights, and you may also have additional rights that vary from state to state.

To obtain warranty coverage, contact the Vello Customer Service Department to obtain a return merchandise authorization ("RMA") number, and return the defective product to Vello along with the RMA number and proof of purchase. Shipment of the defective product is at the purchaser's own risk and expense.

For more information or to arrange service, visit www.vellogear.com or call Customer Service at 212-594-2353.

Product warranty provided by the Gradus Group.

www.gradusgroup.com

VELLO is a registered trademark of the Gradus Group.
© 2015 Gradus Group LLC. All Rights Reserved.

www.vellogear.com

VELLO™
A Gradus Group Brand

All other trademarks are the property of their respective owners.

GG1