

microRemote System

User Guide

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Warranty for Redrock Micro Electronic Products

Redrock Micro provides a one year limited warranty for Redrock products that contain electronic components. This limited hardware warranty covers defects in workmanship and materials of our products for up to one year, and does not cover damage to this product that results from improper installation, accidents, abuse, misuse, negligence, natural disaster, insufficient or excessive electrical supply (if applies), damage from incorrect cabling, abnormal mechanical or environmental conditions, dust or any unauthorized disassembly, repair or modification.

microRemote Technical Specifications

The microRemote system complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (I.) this device may not cause harmful interference and (II.) this device must accept any interference received, including interference that may cause undesired operation.

Minimum Voltage 12VDC, 3A
Maximum Voltage 18VDC, 3A

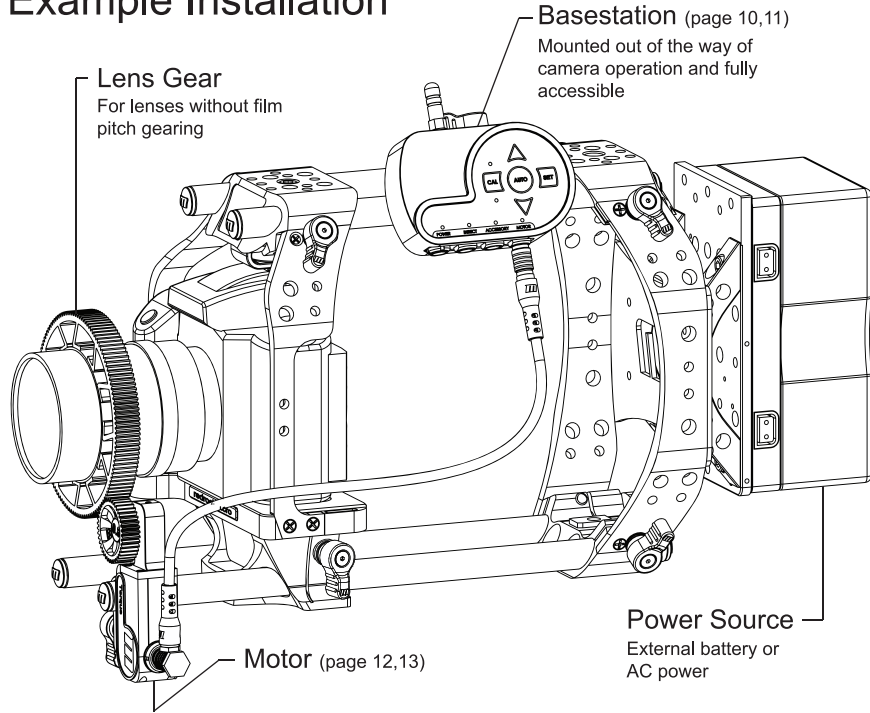


MADE IN USA

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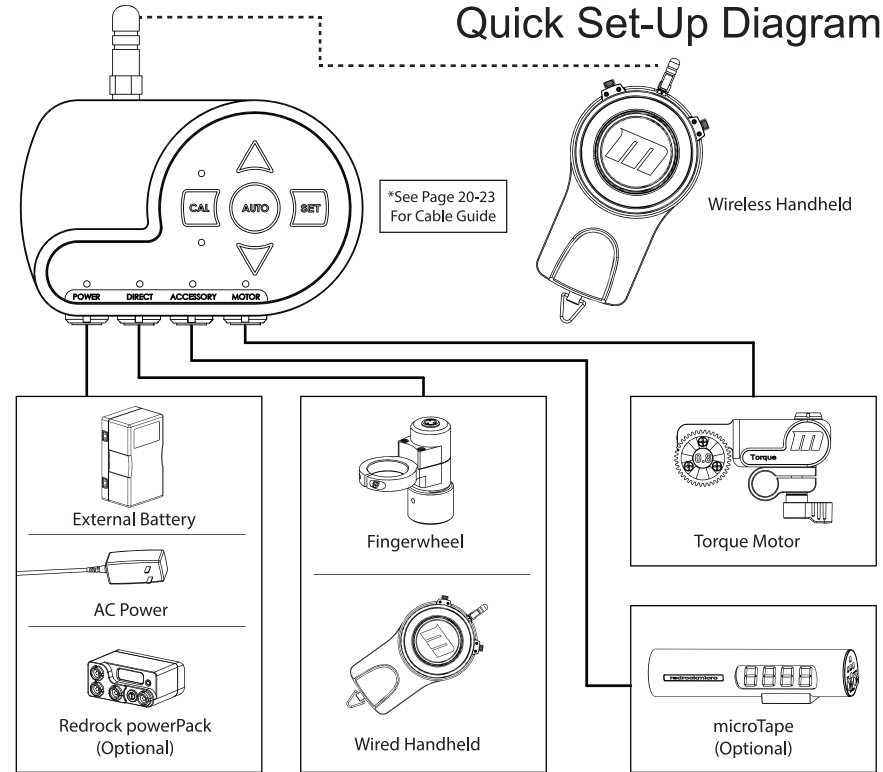
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Example Installation*



*Shown on a Redrock ultraCage Studio bundle. Visit redrockmicro.com for more rig configurations.

Quick Set-Up Diagram



Your New microRemote

Congratulations on your purchase of the microRemote system. The microRemote system is a versatile, expandable, remote focusing system. This booklet will guide you through the setup and function of each component. You may not have purchased some of the items described within, as this manual is comprehensive of the entire microRemote System. Please review this entire manual before attempting your initial setup.

Quick Start Guide

- 1 Insert batteries into Handheld unit (page 9). Turn on power switch on rear of unit. All LEDs should flash in sequence and then in unison, then settle into their operational mode. *For wired setup only:* connect Control cable to the Direct port on the Basestation, and connect opposite end to your controller (Handheld, Fingerwheel, etc.)
- 2 Plug in 7 pin Motor Cable (page 21) to Motor and Basestation. The larger connector connects to the Motor. See page 12.
- 3 Apply power to Basestation (via your wall mount, external battery, etc.) being careful NOT to insert the Power connector into the Motor port (page 10). After power up sequence, the blue motor light will blink, indicating the Basestation is ready for motor calibration.
- 4 Rotate your lens' focus ring to approximately center of the lens. Attach the Torque motor to your rig in the appropriate position (page 12,13). Press the drive gear against the lens gear using light pressure until teeth interlock.
- 5 Calibrate Lens: Make sure the motor is positioned approximately in the middle of the lens' focus range, and any lens gear screws or hardware will not interfere with motor operation. Avoid starting at either end of the focus. CONTINUED NEXT PAGE...

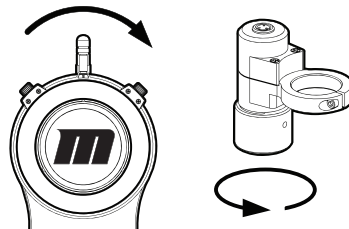
A. Auto Calibration: use with cinema lenses or lenses with hard stops

Press the **AUTO** button on the Basestation (page 10). The motor will travel from one end of the lens to the other, then return to the position of the controller. Your lens is now calibrated.

B. Manual Calibration: use with DSLR lenses or lenses without hard stops

OS 4.0 and above: *calibrate lens using the handheld controller or fingerwheel.*

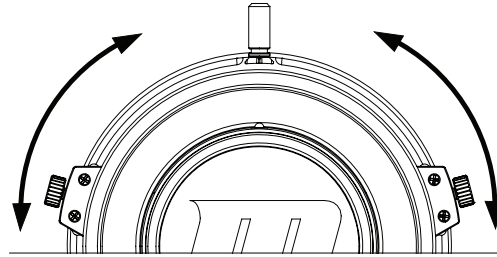
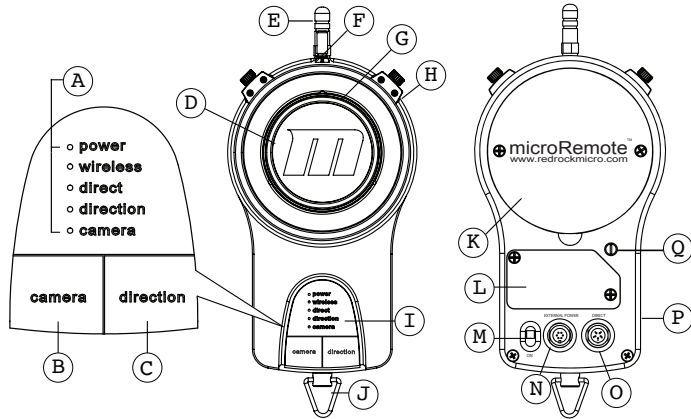
- a. Press CAL button on the Basestation (page 10) to enter manual calibration.
- b. **Handheld controller:** Turn knob clockwise first (M logo facing you), press SET. Turn knob counterclockwise, press SET.
Fingerwheel controller (mounted): Turn knob counterclockwise first, press SET. Turn knob clockwise, press SET.



- 6 **SAVE Lens Calibration during Power Down:** Before turning off microRemote, hold SET button until both red status LED's blink on the Basestation. When you power back on, your lens will remain calibrated. Calibration stored for one power cycle only.

Handheld

In wireless mode the Remote Handheld unit can be used up to 1 mile (line-of-sight). The Handheld unit can also be wired to the Basestation (tethered) when wireless is not available or desired. Turning on the wireless Handheld controller overrides the Fingerwheel connection. Removing the tethered cable from the Handheld controller reactivates wireless communication.



Adjusting the Hard Stops

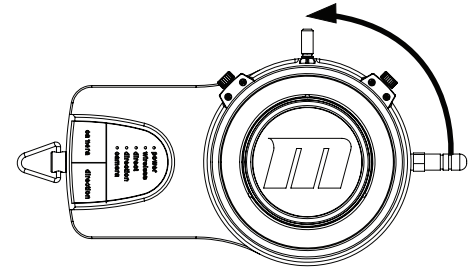
Rather than relying solely on marks on the marking disk, the adjustable hard stops help you achieve better accuracy and repeatable focus.

Loosen the hard stop thumb screw. Slide to desired position. Tighten thumb screw.

Adjusting the Indicator

The adjustable indicator allows you to hold the Handheld unit however you find most comfortable. Decide which position works best for you and bring the indicator to the 12 O'clock position.

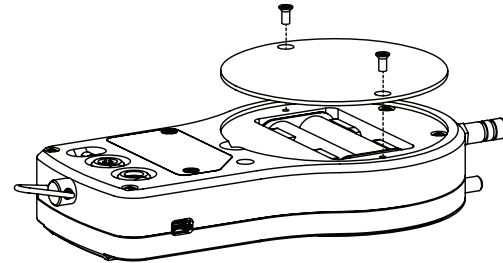
To adjust the indicator, loosen the indicator knob. Slide to desired position. Tighten knob.



- | | | |
|---|--|---------------------------------|
| A LED function indicators | F Adjustable Indicator | L Radio compartment |
| B Camera run/stop button* | G Illuminated (optional) marking disk** | M On/Off switch |
| C Motor direction button
<i>(Hold for 3 sec. to toggle)</i> | H Adjustable hard stop | N Power port |
| D Control knob | I Control pad | O Direct control port |
| E Wireless radio antenna | J Lanyard hook | P Mini USB port |
| | K Battery compartment | Q Radio channel selector |

*With optional cable (camera specific, camera capable) camera run/stop can be controlled from the microRemote.

**See page 17 for illuminated marking disk information

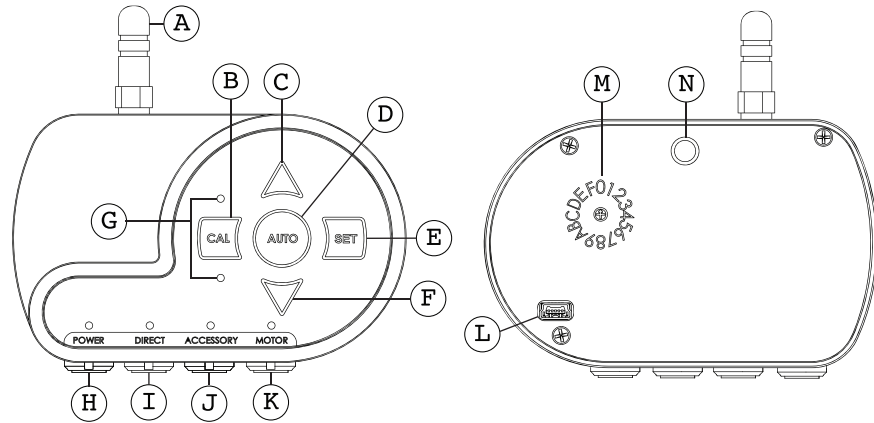


Changing the Batteries

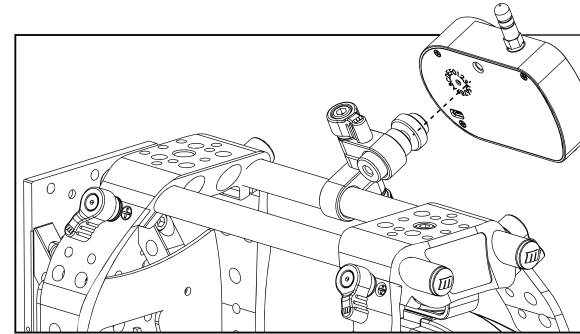
The handheld unit runs on 2 AA batteries, included with your purchase. Loosen the two screws in the battery compartment cover. Remove the cover, insert batteries, and replace cover.

Basestation

The Basestation controls all the major functions of the microRemote system: lens calibration, motor torque adjustment, and accessory control.



- | | |
|---|---|
| A Wireless antenna | H Power port / power LED indicator |
| B Manual calibration button | I Direct connect port / direct connect LED indicator |
| C Up button | J Accessory port / accessory LED indicator |
| D Auto calibration button | K Motor port / motor LED indicator |
| E Manual calibration set button | L Mini USB port |
| F Down button | M Radio channel selector |
| G Calibration direction / Error indicators | N 1/4-20 mounting point |



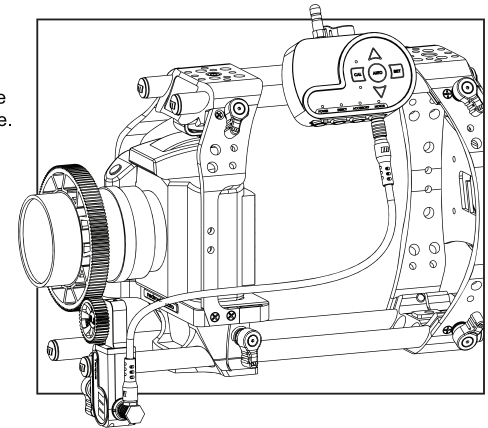
Mounting to Your Rig

Attach a microMount™ or other 1/4-20 mounting device to any 15mm rod on your rig. The Basestation can be mounted up to 18 inches away from the motor (cable length limited).

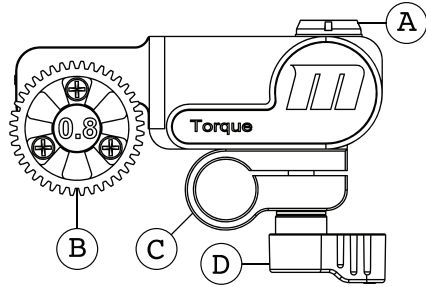
Lens Calibration

The Basestation motor controller contains an auto-torque feature. This feature calculates the ideal amount of torque for optimal performance. Please follow these steps **EACH TIME** you remove the motor or replace the lens.

1. Attach motor to rails in line with focus/iris/zoom gear, carefully following the instructions on page 13.
2. If performing an auto-calibration, simply tap the AUTO button (D).
3. If performing a manual calibration, refer to Quick Start guide (page 7).



Torque Motor™



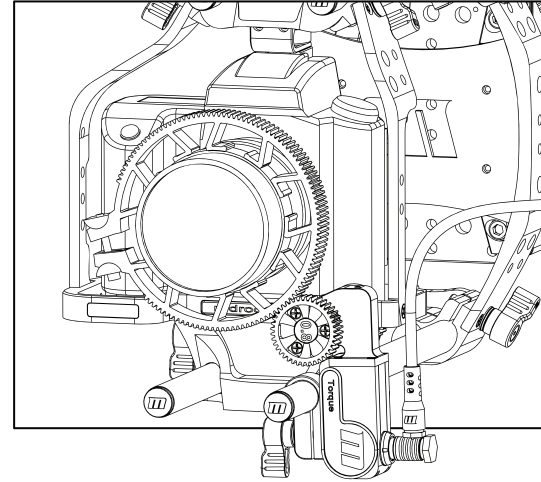
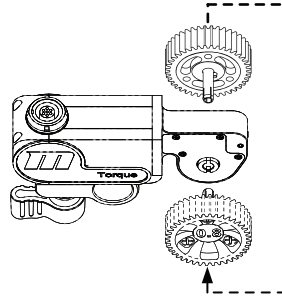
The Torque Motor is designed with a small footprint, making it perfect for compact rigs but powerful enough for almost any set-up. The Torque Motor comes with a 15mm rod mounting clamp. It can be mounted in any position necessary to achieve optimal performance and usability.

- A Control cable port
- B Reversible drive gear
- C 15mm rod clamp
- D Adjustable ratcheting thumb screw

Flipping the Gear

To accommodate almost any lens you shoot with, the Torque Motor drive gear is functional on both sides.

Simply pull the gear out, position it on the opposite side, line up with peg, and push firmly into place. **Make sure drive gear is fully seated and engaged before using.**



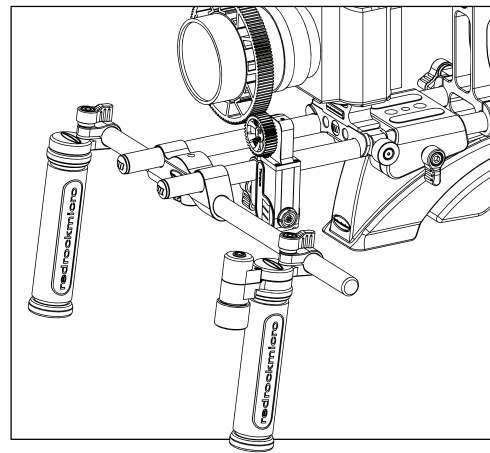
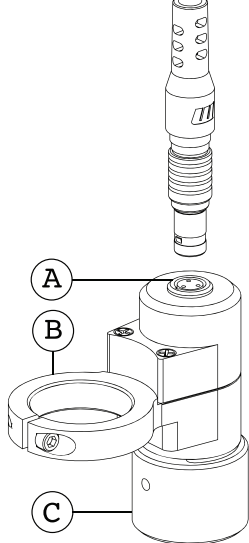
Mounting to Your Rig

Loosen the motor thumb screw, which loosens both the 15mm clamp and the vertical height adjustment mechanism. Engage the teeth of the motor drive gear with the teeth of the lens or lens gear **without applying any pressure. Mounting the gear too tightly may affect its performance and noise.** Tighten the 15mm clamp. The motor can also be mounted upside-down to create a larger distance between the rail and the drive gear.

Fingerwheel Controller

The Fingerwheel controller mounts to Redrock Micro handgrips as well as any other .878" diameter rails. Once mounted to a handgrip, the Fingerwheel controller allows you to support your rig and pull focus simultaneously. It can be mounted on any handgrip on your rig, in any position.

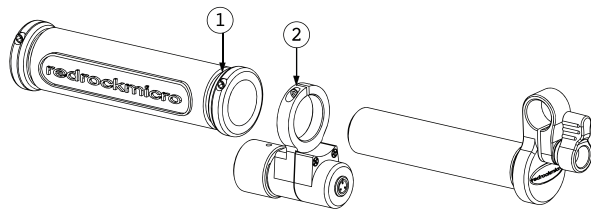
- A Control cable port
- B Hand grip mounting clamp with 3/32" Allen screw
- C Focus control knob



Mounting to Your Rig

Once the Fingerwheel is mounted to your handgrip, attach the handgrip to your rig in the right or left handed position. Route the cable to the direct port on Basestation using microTies™ for a cleaner/safer installation.

If you already own the microRemote Handheld system, fingerwheel control can be achieved by purchasing part # 8-114-0004 (Fingerwheel controller add-on option).



Mounting to a microHandgrip

Loosen the handgrip clamp screw (1) with a 3 mm hex wrench and slide blue grip off stud. Loosen the Fingerwheel clamp screw (2) and slide onto stud as shown. Tighten in place. Slide blue grip back onto stud and tighten.

Reversing Motor Direction When Using Fingerwheel

When using the Fingerwheel and reversing motor direction is desired, tap the SET button on the Basestation (page 10). This will reverse direction of the lens. Tap SET button to return to original direction.

Advanced Features

microGain Matrix

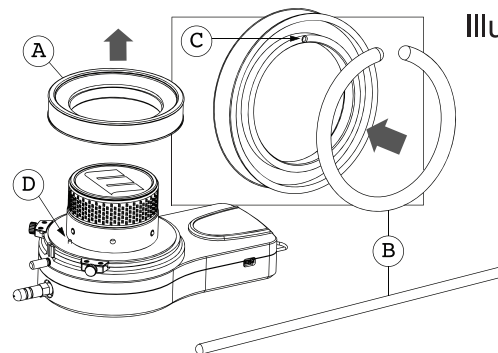
The microGain Matrix allows you to customize the sensitivity of your microRemote to better accommodate your personal touch. The Motor's torque power is inversely related to the smoothness of its revolutions. Use the UP and DOWN arrows on the Basestation (page 10) to find a setting that works best for you.

Example: If you have set the Basestation at a high torque setting, the control knob will be very sensitive and may result in more jerky movement. Inversely, if you have the Basestation set very low for maximum smoothness, the motion of the control knob may not be as responsive to subtle hand movements.



Setting the Gain

Before adjusting the gain, perform a lens calibration taking care not to apply too much pressure to the lens gear from the motor. The Basestation comes set from the factory at the optimized setting 5. To adjust the gain, tap either the UP (C) or DOWN (F) (see diagram on page 10). After each tap the red LEDs will indicate the current setting by blinking in succession. Example: If you are at setting 3, the LEDs will blink three times. Allow for the succession of flashes to complete before tapping either up or down again. Controller will be unresponsive during the blinks.



Illuminated Marking Disk

Remove the marking disk (A) from the Handheld by simply pulling it straight off. Snap an illuminating flare (B) to initiate glow, and flex until it glows evenly throughout. Bend flare into a circle and push it into place in the inside ring of the marking disk. When putting the illuminated marking disk back into place on the Handheld, **make sure that the guide hole (C) lines up with the guide pin (D).**

Radio Channel Selector

As with any remote control device, you may find your microRemote picking up radio interference and may have to switch to another channel. When changing the radio channel selector dial, **make sure to set the Basestation and Handheld units to the same channel.** Use a flat-head screwdriver to turn the dial to desired channel. Cycle power (Basestation and Handheld) after any change.

If you are using WiFi near the microRemote you may experience overlap interference. Consult the chart (right) and adjust the radio channel of the microRemote.

Not Used*	Remote Channel	RF Channel	Frequency	WiFi Overlap
X	0	11	2,405 GHz	Ch. 1
	1	12	2,410 GHz	Ch. 1
	2	13	2,415 GHz	Ch. 1
	3	14	2,420 GHz	Ch. 1
	4	15	2,425 GHz	Ch. 6
	5	16	2,430 GHz	Ch. 6
	6	17	2,435 GHz	Ch. 6
	7	18	2,440 GHz	Ch. 6
	8	19	2,445 GHz	Ch. 6
	9	20	2,450 GHz	Ch. 11
	A	21	2,455 GHz	Ch. 11
	B	22	2,460 GHz	Ch. 11
	C	23	2,465 GHz	Ch. 11
X	D	24	2,470 GHz	Ch. 11
X	E	25	2,475 GHz	None
X	F	26	2,480 GHz	None

*Due to higher powered radio

Fine Tuning Manual Lens Calibration Accuracy

When manually calibrating certain lenses (such as still photo lenses), the lens' short throw (distance between close focus and infinity) can make hitting the end marks on the lens challenging. You can use the gain setting on the microRemote to simplify this process:

Set the gain level on the microRemote prior to manually calibrating your lens (page 16). Setting the gain lower results in slower movement when pressing the direction arrows. If the motor will not turn your lens on a low setting, increase the gain until the motor turns your lens. Once gain is properly set, enter Manual Calibration mode by pressing "CAL". (page 7)

Utilizing the Camera Run/Stop

The microRemote features camera run/stop capability from the handheld unit to start and stop the camera recording. The availability and function of this feature depends on the camera used. Contact support@redrockmicro.com for your specific camera needs. Currently Redrock has a run/stop cable available for Red Scarlet/Epic and compatible cameras. The proper mode of the remote will need to be set for your specific camera, and can be set as follows:

1. "ARRI" mode: This is an industry-standard mode. The microRemote ships in this mode by default.
2. "RED" mode: Designed for RED Digital Cinema Cameras.

To toggle between the two modes: Press and hold CAL. Press SET and release both buttons.

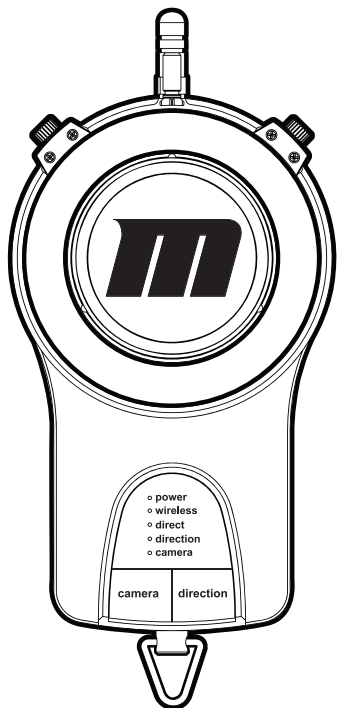
All system LEDs blink once: ARRI mode
All system LEDs blink twice: RED mode

Electronic Backlash Adjustment

The microRemote includes a feature to electronically improve performance when there is additional backlash caused by the lens or the camera.

1. Power on and Calibrate your microRemote System normally.
2. Hold down the AUTO button on the microRemote Basestation until the two red LEDs alternate.
3. Set your Handheld controller's adjustable hardstops to their maximum values, then travel the entire range of the lens.
4. From Infinity, go directly to a witness mark near the center of the lens. Do not change direction.
5. Press SET on the Basestation once squarely on a mark.
6. Remove backlash by slowly rotating the focus knob back towards infinity, carefully watching for lens movement. The goal is to turn the controller as much as you can without moving off of the witness mark on the lens. Once you have moved the control knob as far as you can without making the lens move (or as little as possible) stop.
7. Press SET on the Basestation, then travel the full range of the lens.
8. Make a new mark on your controller and test for accuracy in both directions.

If there is still backlash or the witness mark is still off, hold down AUTO, press SET twice (without moving the controller at all) and then go back to Step 2. It may take several attempts to perfect the backlash adjustment. Once it is completed you do not need to repeat for lens changes.

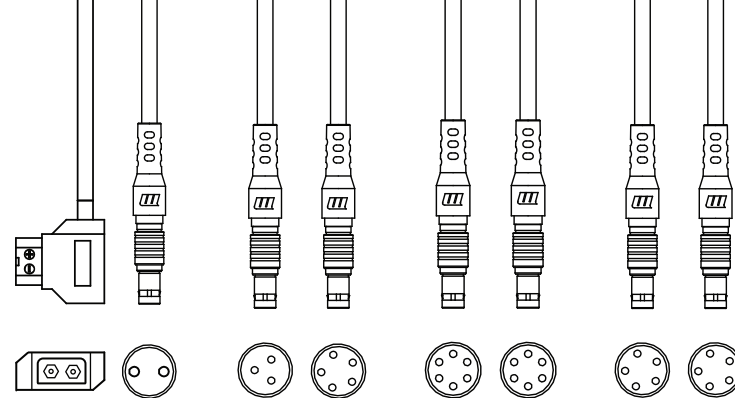


ARTISTRY™

Artistry intelligently evens out your focus pulls and adds a gentle feathering to start and end movements. Dial in as much or as little as you like.

Setting Artistry Level

1. With Handheld Unit powered OFF, press and hold CAMERA and DIRECTION buttons.
2. Power on Handheld Unit
3. Once all lights blink twice, release CAMERA, then DIRECTION buttons
4. Lights blink in succession which level of Artistry is set (e.g. lights blink twice = Artistry level 2)
5. Turn the control knob clockwise for less Artistry (all the way clockwise = Level 0), counterclockwise for more Artistry (all the way counterclockwise = Level 10)
6. Press and hold Camera until all lights blink. Your Artistry level is now set.



Cable Guide

We strongly recommend the use of Redrock Micro cables when connecting your remote gear. This will help ensure safe, reliable use.

Due to the large selection of cables and available options, please visit our website to learn more about cable options.

store.redrockmicro.com/flexCables

FLEX
C A B L E S

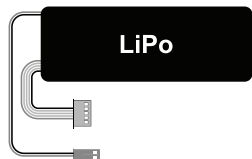
Cautions When Using Third Party Cables

When used properly the microRemote and LiPo batteries operate beautifully together, and together deliver the lightest, most compact solution available for focus control on gimbal rigs. However, if incorrect cabling or wiring is used, it may damage the microRemote and render it inoperable.

Keep in mind any damage to the microRemote caused by improperly used cables, improperly wired third party cables, or inappropriate power sources is not covered under the microRemote warranty.

Redrock wants our customers to have a great experience with our products and use with third party systems. Our goal is to inform customers how to avoid damaging the microRemote with third party cables and offers these tips on how to avoid problems.

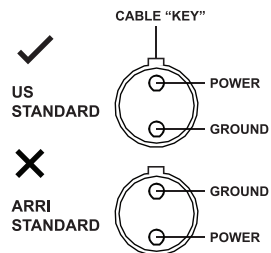
WHEN USING THIRD PARTY POWER CABLES, EXERCISE CAUTION AND FOLLOW THESE TIPS:



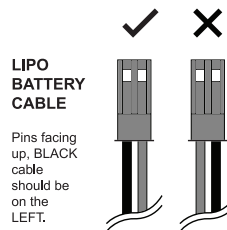
1. Use Correct Voltage

The microRemote can accept power from **12-18VDC**. To avoid damage to your system, the Basestation is to be operated from 12-18VDC ONLY. If you are using lipo batteries typically only a four cell lipo battery falls within this range.

2. Use The Correct Cable Standard



Use only US-standard 2-pin power cables. There are unfortunately two standards for 2-pin Lemo-style power connectors: The US standard which dictates Pin 1 (one) as power, and pin 2 (two) as ground. This is the standard the microRemote uses. There is a second "Arri standard" which has the pin assignments reversed, so pin 2 has power. **Do not use any cable designated Arri standard with the microRemote.** 2-pin power cables that are known to use Arri standard include cables for powering Teradek and certain Paralinx products. If your cable does not have a key for reference, or if you have any question on the cable wiring, please consult your cable provider.



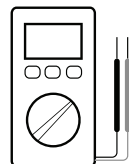
Pins facing up, BLACK cable should be on the LEFT.

3. Make Sure Cable and Power are Wired Correctly

We've received reports of some cables being wired backwards, or some batteries that are wired backwards. Unless the cables and pins are clearly labeled, the only way to accurately determine pin assignment is by testing the cable and battery using a multi-meter. For additional information on LiPo battery handling, visit <http://bit.ly/liposafety>

4. When In Doubt, Do NOT Use a Questionable Power Source

Instead, test the cable and/or battery using a multi-meter to confirm correct pin assignment and voltage levels. DO NOT plug in the microRemote basestation until you are sure of the correct power and polarity.



Troubleshooting

Handheld/Basestation Wireless Communication:

Check that the Wireless Indicator LED is illuminated on the Handheld. If the Handheld is communicating with the Basestation, the light will be on. *Note: wireless communication overrides any directly connected devices (i.e. Fingerwheel).*

1. Check / replace Handheld batteries (page 9). Fast blinking LEDs indicate low batteries.
2. Power off the Handheld and Basestation. Power up the Basestation first, then the Handheld.
3. Check all cable connections and make sure they are in their correct port and fully plugged in.
4. Make sure Handheld and Basestation antennae are tightly fastened.
5. Confirm Handheld and Basestation are on the same RF channel (page 17).
6. Check for RF/WiFi interference. If interference is present, select an alternate RF channel on Handheld and Basestation (page 17).
7. Make sure you have properly performed a lens calibration (page 7, 11).
8. To eliminate the possibility of hardware issues, attempt a Direct Connect to test system function. (Direct connect cable part #2-100-0012) If there is full system function in Direct Connect Mode, contact support for further wireless diagnostics.

Handheld/Basestation Tethered Communication:

In tethered mode the Wireless LED on the Handheld will be off and the Direct LED on the Handheld and the Basestation will be on. *Note: wireless communication overrides any directly connected devices (i.e. Fingerwheel).*

1. Check / replace Handheld batteries (page 9). Fast blinking LEDs indicate low batteries.
2. Power off the Handheld and Basestation. Power up the Basestation first, then the Handheld.
3. Check all cable connections and make sure they are in their correct port and fully plugged in.
4. Make sure you have properly performed a lens calibration (page 7, 11).

Motor:

Communication Issues

1. Make sure you are using the right cable (part #2-100-0011) and that it is fully plugged into the motor port on the Basestation.
2. Make sure you have properly performed a lens calibration (page 7, 11)

Motor Function

1. Motor won't calibrate
 - a. See Motor Communication section above.
 - b. See page 13 to ensure your motor is properly set up.
2. Motor is loud, jittery and/or unresponsive
 - a. Check your power supply. (**minimum 12VDC, 3A. maximum 18VDC, 3A**)
 - b. Make sure the drive gear is properly seated (Flipping the Gear, page 12).
 - c. Lower microGain setting.
 - d. Confirm firmware compatibility between handheld and basestation.

Basestation:

1. See the appropriate communication section at the left for Basestation communication issues.
2. Motor attempts but fails to calibrate: red flashing lights on Basestation.
 - a. This occurs when the lens requires more torque than is available. Check to make sure your lens is not jammed or the motor is not in a bind with the lens gear. Once checked, perform a lens calibration (page 7, 11).
 - b. Adjust the microGain Matrix one increment at a time until a successful calibration has been performed (page 16).
 - c. Attempt a calibration with the motor off the lens. Press AUTO, count to three, stop the drive gear from turning, release. The motor will change direction. Count to three again, stop the drive gear from turning, release.

Troubleshooting Checklist

Most potential issues that you may encounter with your microRemote system can be solved by reviewing this list and the diagram on the opposite page.

- Power cycle system
- Battery is charged in handheld, battery for basestation, battery mount
- Check that all cables are plugged in to correct ports and fully seated (page 6, 22-23)
- Make sure lens is calibrated properly (page 7, 11)
- Check that microGain setting is not too high or low (page 16)
- Check for interference (page 17)
- Make sure wireless channel matches on handheld and basestation (page 17)
- Make sure lens gear and motor gears are properly meshed (page 13)
- Calibrate after any lens change or motor reposition (page 11)
- Make sure hard stops on handheld unit are not stopping movement (page 9)

If you are still experiencing issues with your microRemote after consulting the Troubleshooting solutions please contact Redrock Support toll free at 1-888-214-3903 or support@redrockmicro.com.

