Tilta WLC-T04

Tilta Nucleus-Nano Wireless Lens Control System User Manual

Model: WLC-T04

Brand: Tilta

Important Safety Instructions

Please read and understand all safety instructions before using the Tilta Nucleus-Nano Wireless Lens Control System. Failure to follow these instructions may result in injury or damage to the product.

- Do not expose the device to water, moisture, or extreme temperatures.
- Use only the specified 14500 Lithium Ion batteries and charger.
- Keep the device away from strong magnetic fields.
- Do not attempt to disassemble, repair, or modify the device. Refer all servicing to qualified personnel.
- Keep out of reach of children.
- Ensure proper ventilation when charging batteries.

Product Overview

The Tilta Nucleus-Nano is a compact, high-performance wireless lens control system designed for precise focus and zoom adjustments on DSLR and cine-style lenses, especially suited for handheld gimbal systems.

Key Components

- Nucleus-Nano Hand Wheel Controller
- Nucleus-Nano Wireless Follow Focus Motor
- 15mm Single Rod Mounting Baseplate
- Photographic lens follow focus gear rings

- USB power cables
- 14500 Battery Charger
- 14500 Batteries
- Allen keys (M4, M6)
- Soft Case
- User Guide (this manual)

Figure 1: Nucleus-Nano Hand Wheel Controller and Follow Focus Motor

Features

- Revolutionary wireless lens control system specifically designed for handheld gimbal systems.
- Power-efficient miniature motor with low noise and high torque for fast, silent focus pulls.
- Built-in 15mm rod adapter allows for flexibility and compatibility with a wide range of camera rigs and professional mounting solutions.
- Includes adapters for Ronin-S and Zhiyun Crane gimbals.
- Fully compatible with Tilta's Nucleus-M motors & controllers + G2X gimbal.

PRODUCT SPECS

Name: Nucleus-Nano Wireless Lens Control System	**Number:** WLC-T04
Materials: Aluminum, plastic, stainless steel	**Mount Type:** Rosette
Weight: 0.5 lb	**Color:** Black

Figure 2: Nucleus-Nano Product Specifications

Nucleus-Nano Hand Wheel Controller*1	1/4″-20 Hex Screws*2
Nucleus-Nano Wireless Follow Focus Motor*1	Rod Mount Hex Screw*2
15mm Single Rod Mounting Baseplate For 95mm Lens*1	15mm x 100mm Black Aluminum Rod*1
Photographic lens follow focus gear rings*2	14500 Battery Charger*1
31cm 5V Micro USB male to 5V Micro USB male motor power cable*1	14500 Batteries*2
12V / 2A Ronin-S to 5V Micro USB male motor power cable*1	M4 Allen key*1
Nucleus-Nano Hand Wheel Attachment Plate for Ronin-S/G2x*1	M6 Allen key*1
Nucleus-Nano Hand Wheel Attachment Adapter for Zhiyun Crane 1*1	Soft Case*1
	User Guide*1

Figure 3: Nucleus-Nano Packing List

Initial Setup and Installation

Charging Batteries

Insert the 14500 batteries into the provided charger. Connect the charger to a USB power source. The indicator lights on the charger will show the charging status. Ensure batteries are fully charged before first use.

Hand Wheel Controller Power

Insert a charged 14500 battery into the Hand Wheel Controller's battery compartment. To power on the controller, press and hold the **REC** button for a few seconds. The OLED display will illuminate, indicating the device is ready for use.

Figure 4: Compact Hand Wheel Controller

Motor Installation

Attach the 15mm Single Rod Mounting Baseplate to your camera rig. Secure the Nucleus-Nano Wireless Follow Focus Motor onto the 15mm rod. Ensure the motor's gear aligns precisely with your lens's focus or zoom gear. Adjust the motor's position along the rod for optimal engagement with the lens gear.

Figure 5: Motor Mounting Options

Powering the Motor

The Nano Motor requires external power. Connect the motor to a power source (e.g., V-mount battery, power bank) using the provided USB cable. If using a Ronin-S, utilize the USB cable from the Ronin-S kit for direct power from the gimbal.

Video 1: Tiltaing BMPCC 4K Cage & Accessories. This video demonstrates various accessories and mounting options, including those relevant for powering the Nucleus-Nano motor on a camera rig.

Operation Guide

Hand Wheel Controller Functions

The Hand Wheel Controller provides precise control over lens focus or zoom. The OLED display shows current settings and status, including channel and end-point values.

Frequency Selection

To change the operating frequency, press the up/down arrows on the controller. Ensure the controller and motor are on the same frequency for proper communication.

Figure 6: Wireless Control Distance of the Hand Wheel Controller

A/B Point Setting

To set A/B focus points, rotate the wheel to the desired start point (A) and press the **SET** button once. Rotate to the desired end point (B) and press **SET** again. The wheel will now operate within these defined limits. To deactivate A/B points and return to free rotation, press **SET** again.

Motor Calibration

To ensure accurate and smooth operation, it is crucial to calibrate the motor and controller. This process defines the full range of motion for your lens.

1. Hold the **UP** button on the Hand Wheel Controller to enter the menu system.
2. Navigate through the menu options using the arrow buttons until you find "CAL Knob". Double-click the **UP** button to select it.
3. The display will prompt you to turn the knob. Rotate the knob clockwise until it reaches its physical end point. Double-click the **DOWN** button to confirm this end point.

4. Verify calibration by checking the numbers on the display. They should accurately reflect the full range of motion, typically from 000 to 999 at the respective end points.

If the numbers do not reach the full range (000 to 999) or if the motor jumps, repeat the calibration process. Ensure the lens gears are properly seated and the motor is securely mounted.

Video 2: Nucleus-Nano Handwheel Calibration. This video provides a step-by-step guide on how to calibrate the handwheel controller for optimal performance.

Video 3: Tiltamax Nucleus-Nano Wireless Lens Control System. A general overview demonstrating the system's capabilities and ease of use in various shooting scenarios.

Care and Maintenance

Proper care will extend the lifespan and ensure the reliable performance of your Nucleus-Nano system.

- **Cleaning:** Keep the device clean and free from dust, dirt, and debris. Use a soft, dry, lint-free cloth for cleaning. Do not use harsh chemicals or abrasive materials.
- **Storage:** Avoid exposing the unit to extreme temperatures, high humidity, or direct sunlight. Store the Nucleus-Nano in its provided protective case when not in use to prevent physical damage.
- **Battery Care:** Remove batteries from the Hand Wheel Controller if storing for extended periods. Store batteries in a cool, dry place.
- **Cable Inspection:** Regularly check all cables for signs of wear, fraying, or damage. Replace damaged cables immediately to prevent malfunction or electrical hazards.

Common Issues and Solutions

If you encounter any problems with your Nucleus-Nano system, refer to the table below for potential solutions.

Problem	Possible Cause	Solution
Motor not responding	Low battery on Hand Wheel Controller or Motor.	Charge or replace batteries. Ensure motor is properly powered via USB.
Inaccurate focus/zoom control	Motor or Hand Wheel Controller calibration issue.	Recalibrate the motor and/or Hand Wheel Controller (refer to "Motor Calibration" section).
Motor jumps or stutters	Uncalibrated knob or motor, or improper gear engagement.	Perform knob and motor calibration. Ensure lens gears are properly seated and motor is securely mounted.
Connection issues	Interference, out of wireless range, or incorrect frequency.	Move closer to the motor. Check for strong interference sources. Ensure both devices are on the same frequency.

Technical Specifications

- **Product Name:** Nucleus-Nano Wireless Lens Control System
- **Model Number:** WLC-T04
- **Materials:** Aluminum, plastic, stainless steel
- **Item Weight:** 1.6 pounds (0.73 kg)
- **Product Dimensions:** 7.5 x 7.5 x 3.2 inches
- **Batteries:** 2 Lithium Ion batteries (14500) required (included)
- **Mount Type:** Rosette (for Hand Wheel Controller)
- **Color:** Black
- **Wireless Control Distance:** Up to 50-70 meters

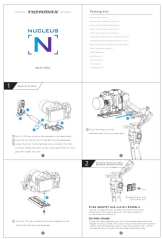
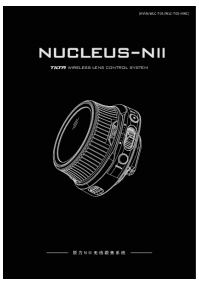
Warranty and Customer Support

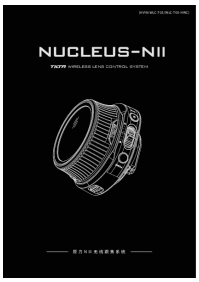
Tilta products are covered by a limited warranty. For detailed warranty information, technical support, or service inquiries, please visit the official Tilta website or contact their customer service department.

Official Tilta Website: www.tilta.com

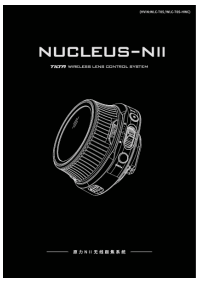
For additional resources, including the official PDF installation manual, please refer to theInstallation Manual (PDF).

Related Documents - WLC-T04

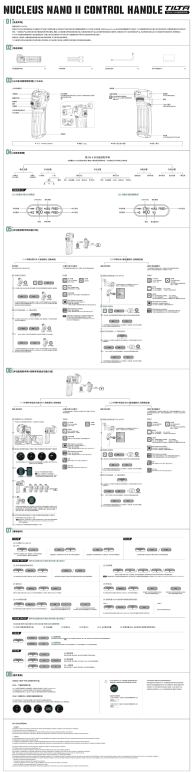
	Tilta Nucleus-Nano Wireless Lens Control WLC-T04 User Guide A comprehensive guide to setting up and using the Tilta Nucleus-Nano Single Channel Wireless Lens Control system (WLC-T04), including attaching the motor and handwheel, auto-calibration, and wireless control assignment.
	Tilta Nucleus-N II Wireless Lens Control System User Manual User guide for the Tilta Nucleus-N II Wireless Lens Control System (WLC-T05), detailing hand unit and motor setup, operation, pairing, firmware updates, and safety precautions.
	Tilta Nucleus-M WLC-03 Wireless Follow Focus System User Guide Comprehensive user manual for the Tilta Nucleus-M WLC-03 Wireless Follow Focus System, covering product overview, technical specifications, component functions, calibration procedures, and syncing instructions for motors, handles, and the FIZ unit.



[Tilta Nucleus-N II Wireless Lens Control System User Manual]
Comprehensive user manual for the Tilta Nucleus-N II Wireless Lens Control System, covering hand unit and motor features, setup, operation, pairing, and firmware updates.



[Tilta Nucleus-NII Wireless Lens Control System: User Manual]
Detailed user manual for the Tilta Nucleus-NII Wireless Lens Control System, covering hand unit and motor setup, operation, calibration, and advanced settings for professional filmmakers.



[Tilta Nucleus Nano II Control Handle WLC-T05-CH User Manual]
Comprehensive guide to the Tilta Nucleus Nano II Control Handle (WLC-T05-CH), detailing its features, specifications, and operation for professional camera control.