Manual

DOLIGO

NDI Camera Motorized Head

Contents

1. Precautions before installation

Describes basic precautions that users should be aware of when installing and using the product in case of a situation that may cause bodily harm. Therefore, before installing or using the product, be sure to familiarize yourself with the information described here.

General precautions

During and after installation of the product, the area around the product must be kept clean and dust-free.

Do not leave tools, cables, etc. in the aisle, as this may result in personal injury.

When installing the product, avoid wearing loose-fitting clothes, neckties, scarves, or sleeves that may get caught in the product.

Do not take any action that could cause damage to persons or equipment.

If you need to open the cover of the product to extend the product's performance or repair a malfunction, be sure to contact the place of purchase for professional help.

Power Precautions

When connecting power to the product, first check that the wiring is not overloaded.

When connecting the power to the product, do not wear jewelry such as rings, necklaces, or watches. If these accessories are connected to a power source or ground, there is a risk of burning the parts.

Always check the work area for potential hazards. Be sure to check for wet floors, ungrounded power extension cables, frayed internal power cords, and floors that do not have a safety grounding facility.

There must be an outlet near the appliance and the outlet must be easily accessible.

Install by service personnel and install the appliance so that it is connected to a socket-outlet with a protective earth wire

Before proceeding with hardware installation, turn off the power of the system to be installed, and then touch a grounded surface such as the metal side of the power supply to discharge static electricity from the body.

The manufacturer assumes no liability for direct or indirect damage resulting from the use of improper parts by unauthorized service personnel.

If power is supplied during installation, it may cause damage to system components and body.

Power

The power cord and power outlet act as the main power disconnect device in case of an emergency such as a fire, so do not stack or block objects in front of the power outlet so that you can unplug the power cord from the power outlet at any time.

FCC Compliance Statement

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

CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Warranty

Standard 1 Year Warranty

- Tinno product is guaranteed against any manufacturing defects for one year from the date of purchase.

- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.

- The product warranty period beings on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Tinno office.

- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.

- Viruses and malware infections on the computer systems are not covered under warranty.

- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.

- All mail or transportation costs including insurance are at the expense of the owner.

- All other claims of any nature are not covered. All accessories including headphones, cables, batteries, metal parts, housing, cable reel and consumable parts are not covered under warranty.

- Warranty only valid in the country or region of purchase.

- Your statutory rights are not affected.

DOLIGO, NDI Camera Motorized Head
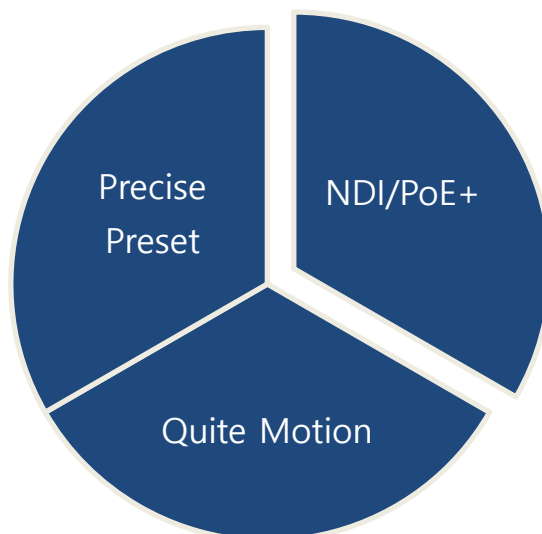
Robotic Pan Tilt Head

1. Introduction

*Bring the remote-control functionality to your Hand-held camcorder with the **DOLIGO Robotic Pan Tilt Head** from **Tinno.** More than just a motorized head, DOLIGO interfaces with PTZ-compatible control systems, allowing you the same kind of experience. From pan and tilt control to powering your camera and controlling its zoom lens via LANC or other protocols, this head is a compact PTZ solution for cameras weighing up to 3.2Kg.   The head easily mounts to most tripod legs and with an optional bracket, it can be mounted on a wall or ceiling. It can send your camera's video output to external video displays, switchers, and controllers while also receiving control information for pan and tilt operations via VISCA IP or NDI . The head is equipped with LED indicators, a tally light, and a remote port that allows you to adjust the zoom and focus of select camera lenses.*

- o Multiple signal interfaces such as, HDMI, NDI, tally, and LANC
- o Sturdy aluminum construction
- o Camera pan, tilt, and zoom control
- o VISCA IP and NDI remote control
- o Compatible with NDI Studio Monitor, Tinno proStick Controller.
- o Built-in tally light
- o Ideal for live events
- o Control a variety of Sony, Panasonic, Canon, and JVC cameras
- o D-Tap power output to power camera and accessories
- o Plate with ¼ thread for camera mounting

2. Key Highlight

Tinno introduces DOLIGO, the world's first NDI® motorized camera head.
• Fitted with up to a 3.2 kg camera it moves up to 340 PAN degrees and TILT Down 35 degrees as well as 20 degrees UP 1 at a rate of 15 degrees per second.

• This exquisitely designed DOLIGO is incredibly quiet and smooth in motion, so it won't interfere with in-studio shooting or your live Streaming.

• The NDI® hardware (silicon-based) achieves about 140Mbit at 1080p60 and is visually lossless.

• Power (POE+) and NDI stream through an Ethernet cable. The camera's zoom-in-out, focus and IRIS can be controlled remotely using the LANC input. DOLIGO simplifies video streaming with cableless.

• It stores and recalls up to 10 positions with a precision less than 0.1 degrees. Whether at the studio or on the stage, memorizes the previous location with extreme accuracy and immediately begins shooting.

3. Technical Specification

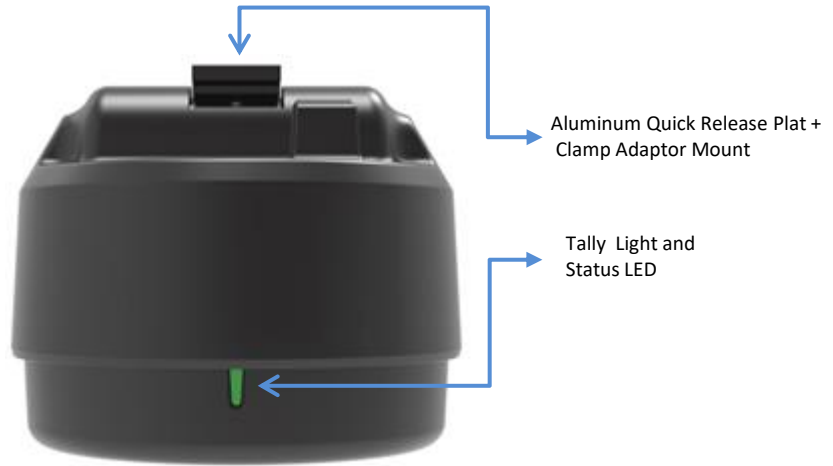|	
	• Robotic Pan / Tilt Head
Input	• Supports Sony VISCA operation via Ethernet connection • POE+ (Power over Ethernet – 802.3at) support • HDMI video/audio input
Pan	Turning radius 170 degrees to the right and 170 degrees to the left (340 degrees) ** 360 degrees possible when the sensor is off** Speed: 180 degrees in 10 seconds (Variable speed in 1~24 steps)
Tilt	Turning radius up 20 degrees down 35 degrees Speed: 15 degrees per second (Variable speed from 1 to 24 steps)
Preset	10 position Save Save Pan/Tilt Position Save , Speed Save Zoom In/Out Position Save , Speed Save Pan/Tilt 1/3 (at Zoom Servo)
Ex-Control	1.LANC input Camera Remotely control Zoom In/Out (Speed 1~12 step), Focus 2. Sony Multi Control (option) 3. Zoom Servo Control (option)
Tally	Internal / external Tally support
Output	NDI output to IP over Ethernet connection 1080p60 full HD resolution support Tally Light LANC , Sony Multi , Zoom Servo
Management	Front status LED support Support rear USB port service terminal Support for remote firmware update
Physis	Dimension : 128(H) X 157(W) X 157(D) Operation Temperature : 0~45℃ Weight : 1.87 Kg Power Consumption: Max 30W

Input Voltage AC220V 60Hz/ AC110V 60Hz/AC 24V 60Hz Power Consumption PAN: 4.4W TILT: 4.4WP/T Operating Speed Left/Right Rotation Speed: 5°/sec Up/Down Rotation Speed: 2°/sec P/T Operation Angle Left/Right Rotation Angle: 0°~340° Up/Down Rotation Angle: +45°~-85° Operating Temperature -20°C~+50°C Operating Humidity Less than 90% Accurate Load 5Kg Color IVORY Dimensions 152 (L)X147(H)X215(W) Material ABS & ALUMINUM PLATE Weight Approx. 2.2K

Installation Precautions • It is recommended to install so that the height of the center of the housing at the top of the CAMERA MOUNT BASE is less than 50mm. Cause • Do not exceed the loading weight (5kg) of this PAN-TILT and install it so that the center of the housing member coincides with the center of this PAN-TILT. How to operate TILT (upper, lower) angle In the figure above, if you loosen two bolts in the part where the label is drawn, you can see two bolts in the half-moon-shaped groove. Loosen these two bolts 2-3 turns to adjust to the desired angle position, and tighten so that it does not loosen, the angle adjustment is successful. How to operate the PAN (left, right) angle SPT-510 There are two bolts on the top of the connector at the bottom of the outside. Loosen these two bolts 2-3 turns to adjust them to the desired angle and tighten them so that they do not loosen.
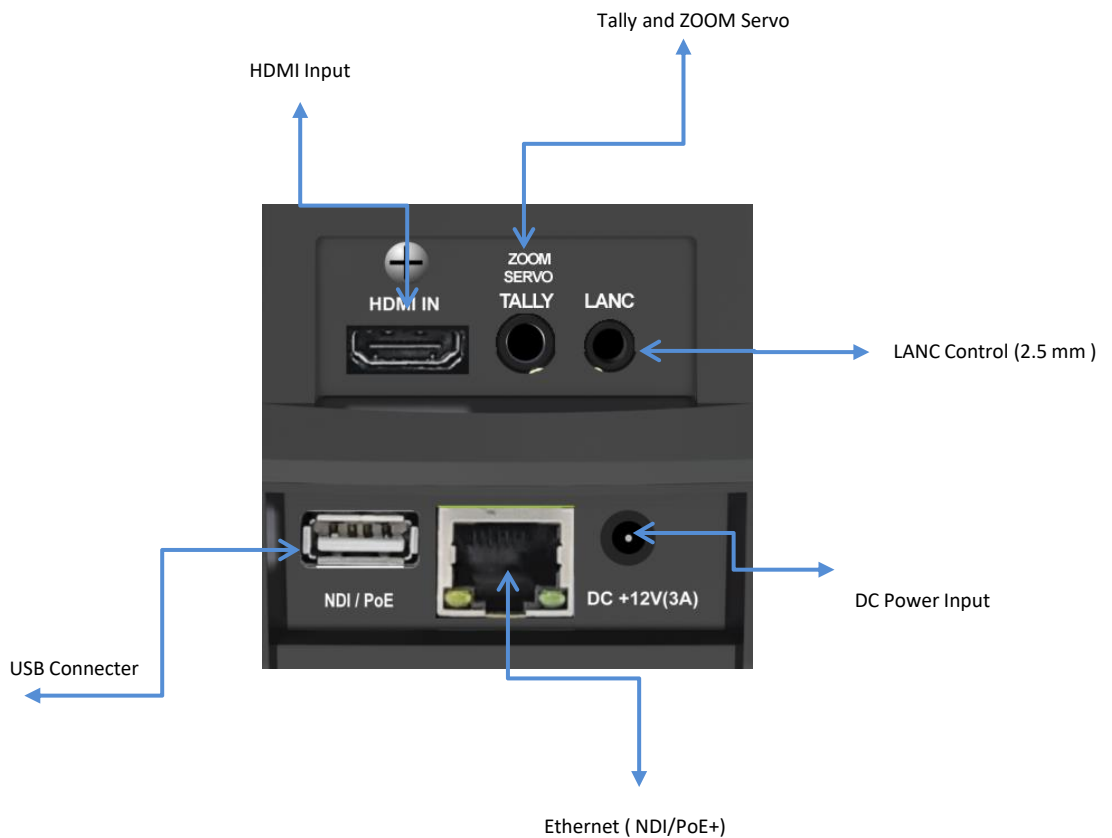
4. Product Overview

4.1. Part

4.1. 1 Front

Aluminum Quick Release Plat +
Clamp Adaptor Mount

Tally Light and
Status LED

4.2. Rear

Tally and ZOOM Servo

HDMI Input

ZOOM
SERVO
HDMI IN   TALLY   LANC

LANC Control (2.5 mm)

NDI / PoE   DC +12V(3A)

DC Power Input

USB Connecter

Ethernet (NDI/PoE+)

4.3 Components

This product consist of .

       1. DOLIGO PAN TILT Head

       2. DC Power : DC 12V 3A

       3. Quick Release Clamp Adaptor

       4.. LANC Cable (2.5 π 3pol, 2.5 π 3pol)

       5.Multiport Converter Cable (Option) Multi Protocol (3.5 π 4pol , Multiport)

       6.Multiport Lanc Cable (Option) Lanc Protocol (2.5 π 3pol , Multiport)

1. DOLIGO PAN TILT Head	2.DC power	3.Quick Release Clamp
4.LANC cable	5.Multiport Converter Cable (Option)	6.Multiport Lanc Cable (Option)

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5. Operation

5.1. LED Status

The status LED has two colors, green and red, and the meaning of each color is as follows.

- Green blinking during booting
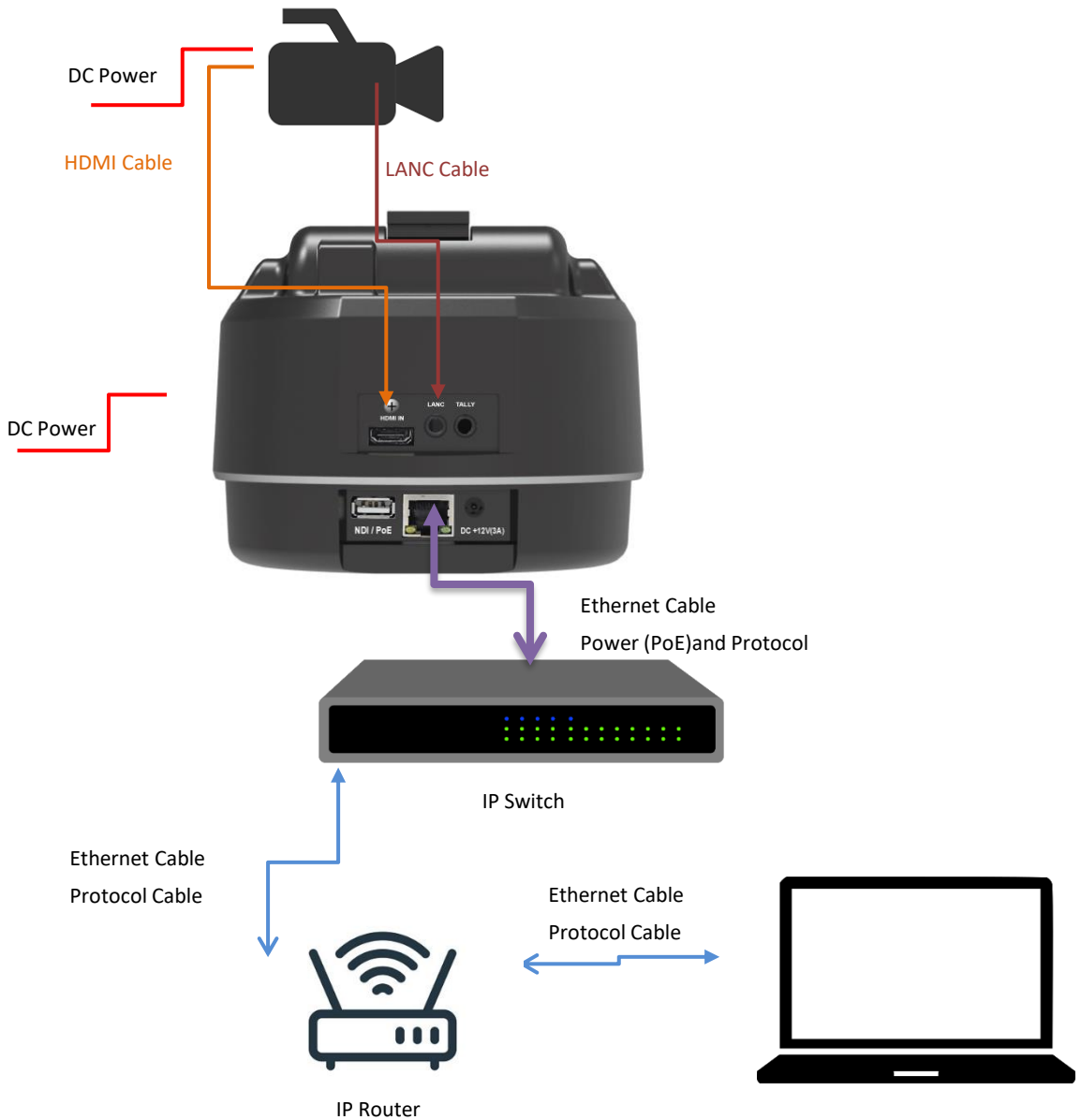- Green blinks when command is received

- Red LED lights up when Tally On command
- Red LED turns off when Tally Off command

DOLIGO performs calibration by rotating 348 degrees at every boot.

348°

5.2. System Diagram

As shown in the figure below, DOLIGO is easily connected to the legacy Internet network with a camera, IP switch, router and PC with a minimal cable Ethernet cable.

DC Power

HDMI Cable

LANC Cable

DC Power

Ethernet Cable

Power (PoE)and Protocol

IP Switch

Ethernet Cable

Protocol Cable

Ethernet Cable

Protocol Cable

IP Router

5.3 DOLIGO Controlling

- It is possible to operate and intuitive preset with fine movements through VISC IP with SHARON proSTICK Controller
- Camera OSD, PAN TILT, Preset, can be controlled with Free SW (DOLIGO webserver) through NDI network.

- Free Studio monitors available on NDI.TV

SHARON proSTICK Controller

5.4 CAMERA COMPATIBILITY

- You should make sure that 2.5 mm LANC terminal is on the camera
- It must not exceed 3.2Kg including the lens
- To operate the ZOOM remotely, the motorized zoom (electric) must be installed on the camera.
- Auto or Manual is not converted thru LANC, but the Camera must be manually select in advance to able to remotely support Focus and Iris

Black Magic Cinema   SONY   Panasonic   Canon   JVC

5.5   Video Over IP (NDI) Workflow

SHARON proSTICK

TRICASTER