



Mini Pro



Instructions

Ver 1.0 – 05/09/2022

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Introduction

The **Mini Pro** is basically a smaller version of our popular **Proteân Remote Head** in a fixed size. It uses the same direct drive technology and has various options such as lens drivers and IP connectivity.

It is ideally suited for small 'box' type cameras like the Z-Cam and Panasonic cameras.

Connection and control is the same as all our other remote heads via RS485 or via the network connection. Fibre options are also available.

Mounting the Mini Pro

The **Mini Pro** can be mounted either, upright, as shown in the cover picture, or inverted. Use **at least** 2 mounting bolts when rigging the head inverted. **Always use the safety bond attachment on the base of the unit.** This is fitted with an M6 bolt for attaching to a safety bond or chain. This bolt passes through the base clamp and into the main pan shaft.

There are 5 mounting threads on the base of the unit. These are standard 3/8" UNC camera mounting threads. They are arranged spacings of 50mm & 80mm.

The **Mini Pro must** be mounted to a **rigid support**. Any movement in the support will result in unwanted oscillations.

Balancing the Camera

The **Mini Pro** can cope with slightly out of balance loads but uses more power to maintain position. When power is removed the camera will tend to rotate about the TILT axis to settle at the balance position.

With power removed adjust the balance of the camera so that it doesn't move or **just** moves to a settling position that you have set by balancing.

One suggestion is to balance the camera Fore and Aft perfectly but allow it to be **slightly** lower than neutral so that it tends to settle horizontally when the power is removed.

There are 3 bolts securing the camera plate to the drop arm. These are used to adjust the camera plate up and down for perfect balance. The camera plate can be moved fore or aft and secured with just 2 of the 3 bolts.

PID Adjustment

For certain camera loads with a higher *moment of inertia* it may be necessary to adjust the **PID** (Proportional, Integral, Differential) values of the motors.

These will need adjusting if the camera oscillates, overshoots a position or under shoots a position.

For details of how to adjust the PID values contact BR Remote for advice and guidance.

Pan & Tilt Home Position

When the unit powers up it does a few short movements to align the hall sensors on the motors. This is not an accurate 'Homing' but results in the minimum movement before it is operational.

Both the Pan and Tilt HOME positions are indicated with arrows on the pan and tilt axes. For accurate positional moves you would need to perform the '**Re-Home**' routine which accurately sets the absolute positions of pan and tilt.

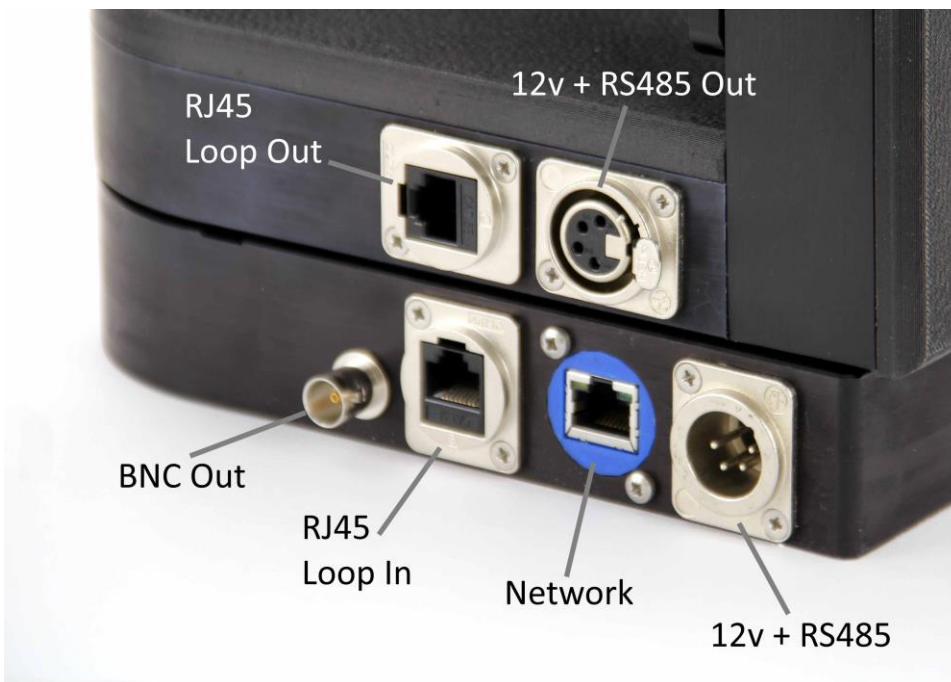
It is **very important** that when the unit is rigged, these positions are **both within the working arcs** of pan and tilt. Make sure that when the camera pans and tilts it can pass both these positions.

Failure to ensure this will render the pre-set positions and profile moves inaccurate.

A 'User Home' position can be set if required. The absolute HOME position cannot be changed.

If the unit fails to HOME correctly it can be driven to a position close to HOME and use the '**Re-Home**' command.

Connections



12v + RS485: As standard this is an XLR4 connector for power and control over RS485.

- Pin 1 = GNC**
- Pin 2 = RS485 A**
- Pin 3 = RS485 B**
- Pin 4 = +12v - +24v**

Network: The head can be controlled via an IP network. The default network settings will be shown on a label.

The **Free-D** data is always streamed onto the network at the same time.

BNC Out: This is a 3Gb link to the BNC on the moving front part of the head.

Camera Power: 4pin XLR supplies 12v @ 5A for powering cameras. It also has RS485 on pins 2 & 3. The total power from this socket will depend on the power supply.

RJ45 Loop In: Used to connect the camera to the network via the **RJ45 Loop Out** above.

Connectors – Front



BNC In: Video input to BNC Out on base.

Lens Drive: The female connector duplicates the connector found on many cameras. Using this connector rather than the camera connector gives the head the ability to control the iris directly and the **zoom position** for the pre-set positioning functions. This connector also provides power for the lens.

The male 12pin connector is a standard remote lens connector and outputs zoom, focus & iris control for 'remote-type' lenses. If the lens is not a 'remote-type' and has only one cable, you will need an adapter cable for the particular lens.

Note: Canon & Fujinon broadcast lenses sometimes use similar connectors but control the zoom on different pins.

Lens Servo: If using external lens servos, this socket can be fitted and configured to supply data and power for lens servos. An optional tally light can also be fitted into this position.

LCD Display

The LCD display on the side of the unit shows both operational and diagnostic information on several pages. The pages are scrolled using the **Echo Head Display** function in the MFC main menu.



For diagnostic purposes the cover over the display can be removed to expose **Page up** and **Page down** buttons on the PCB. The display also shows many of the internal registers and

settings. These values may assist in diagnosing any issues that may arise. **BR Remote** technicians will guide you through this process if needed.

A useful page is the Data Input page. This shows the data sent from the controller in Dstar format.

Pre-Set Positions & Profile Moves

Up to 64 pre-set positions can be stored and recalled in the head. (dependent on controller) Each position includes, Pan, Tilt, Zoom and Focus positions. Once stored, the positions are saved during power loss. Simply drive the head to the required position and **Store** this position as a Pre-Set.

A major feature of the **Mini Pro** is that it always does a **Smooth Profile Move** to each pre-set position. The profile of this move can be specified by the operator using the **Multi Function Controller**. All axes, Pan, Tilt, Zoom & Focus, default to move in the same amount of **time** to the pre-set position. The Zoom can be adjusted to start and stop before or after the main pan/tilt move.

Default Total Time = 4.5sec.
 Default Ramp Up = 1.5sec.
 Default Ramp Down = 1.5sec.

These settings are automatically stored but can be adjusted at any time from the **Multi Function Controller** Total Time, Ramp Up time, and Ramp Down time.

The Zoom Start and Zoom Stop can be adjusted by the operator for each pre-set position independently.

This gives to start or finish the zoom move before or after the pan and tilt start and stop times.

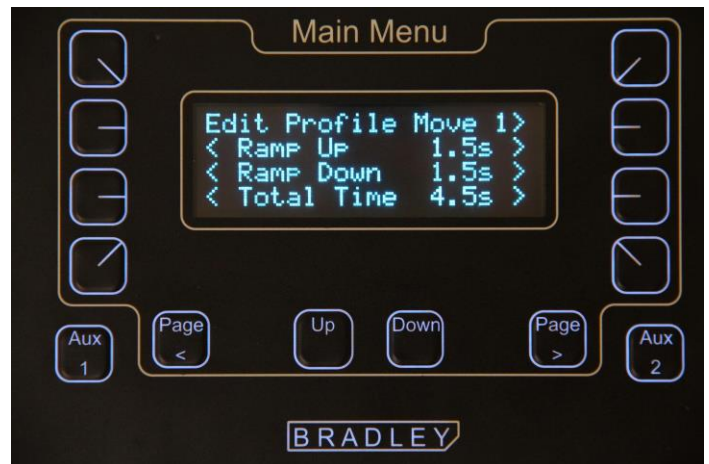
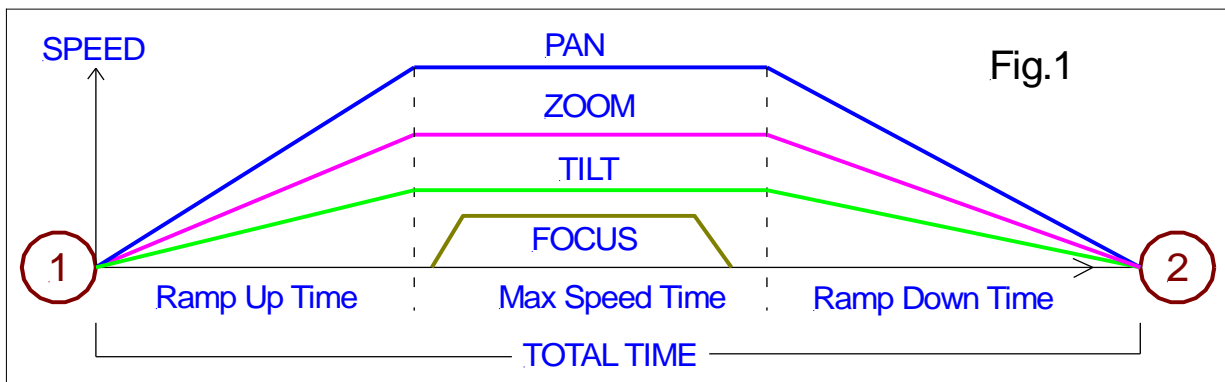
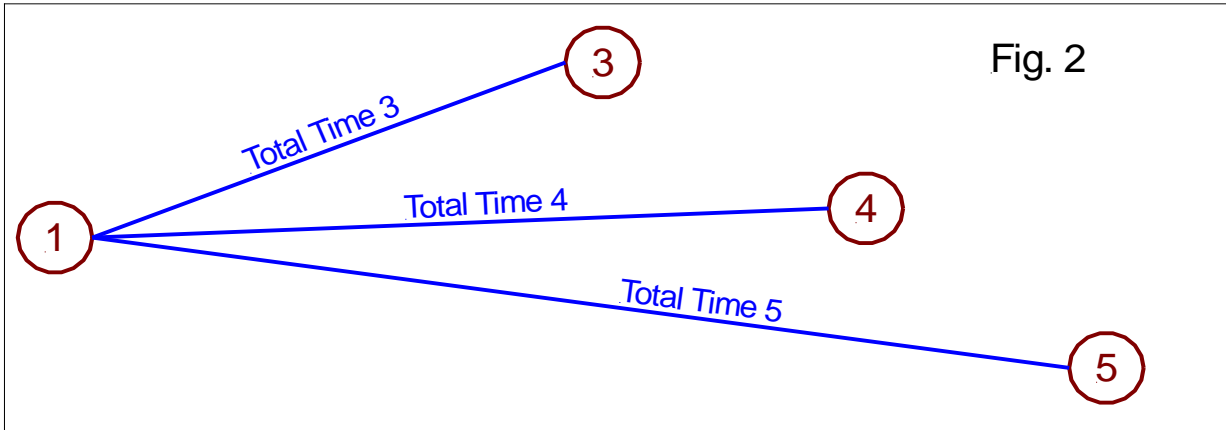


Fig.1 shows a profile move for Pan, Tilt., Zoom and Focus. In the move illustrated, pan has further to move than tilt, therefore pan moves at a faster speed than tilt so that it stops at position 2 at the same instant as tilt.



The default setting is that zoom also moves in the same time but the zoom start and stop times can be adjusted. The Zoom Start can be adjusted to be before or after the main move. The Zoom End can also be adjusted to be before or after the main move. Focus moves during the centre portion of the move so that objects of interest are not de-focused during the start or end of the move.



The Profile of each move is stored with each position. **Fig.2** illustrates that each move **TO** a pre-set position will take the time associated with that end position. Understanding this enables efficient use of the same start position.

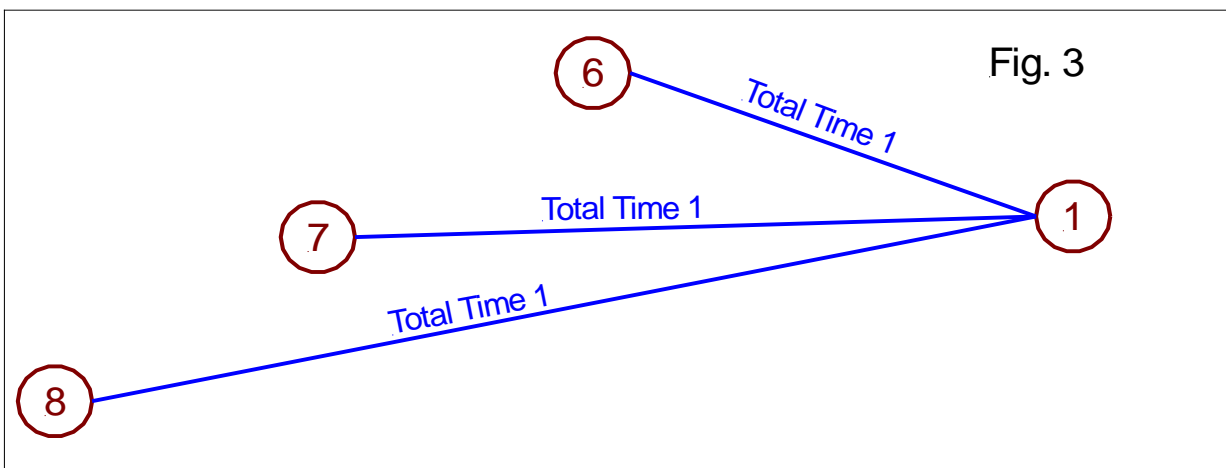


Fig.3 illustrates the opposite situation to Fig.2. Because each of these moves ends with position 1, each move will take the same amount of **time** – as defined by the profile associated with position 1. Therefore, the speed from position 8 will be the fastest.

If the move is taking too long the operator simply needs to push the pre-set position button again and the camera will reposition as fast as possible.

The camera will make the profile move from **wherever it is** to the pre-set position selected, always in the same amount of **Time**. Therefore, the camera will move faster if the move is further.

To perform the same move repeatedly use 2 pre-set positions. One for the start position and another for the end position.

Should you just want to move to a pre-set position as quickly as possible, just push the button again or send the GoTo command again. The head will interpret this as a command to get there as quickly as possible.

Motion Control

Full positional motion control can be achieved by using any number of motion control software applications. The unit continuously outputs **Free-D** or **Mstar** metadata in either standard angular format or RAW numerical format. The RAW format enables metadata and control over the full 360degrees of movement.

The unit can be controlled with commands in **Dstar**, **Mstar**, **DMX** or **Free-D** protocols. Using **Mstar** protocols enables simultaneous motion control along with all other commands (eg. CCU commands) to be sent on the same data stream, either via RS422 or via an IP network.

Dstar protocol

RS485, 9,600 baud, 8 data bits, no parity, 1 stop bit.

Or: RS485, 38,400 baud, 8 data bits, odd parity, 1 stop bit

The **Mini Pro** will automatically detect the data baud rate.

Mstar protocol

RS422, 38,400 baud, 8 data bits, 1 stop bit.

FreeD Protocol

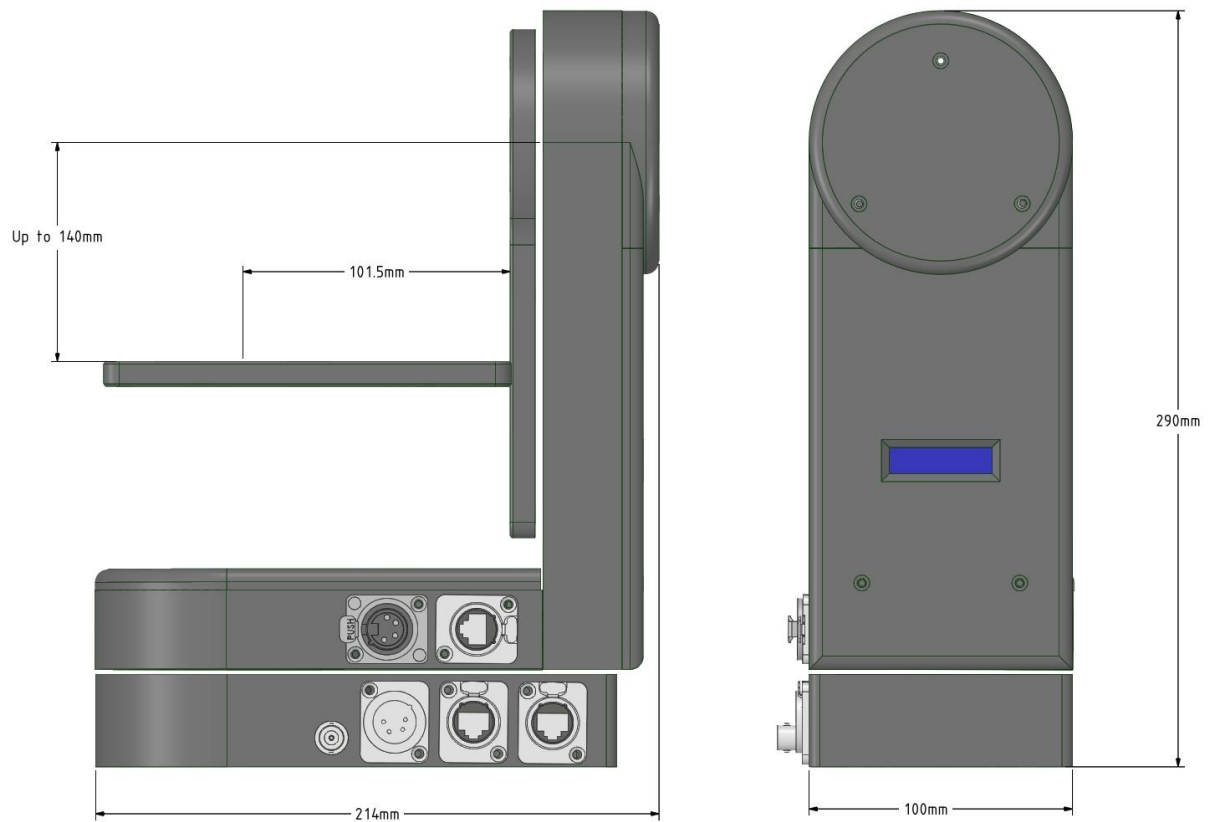
RS422, 38,400 baud, 8 data bits, odd parity, 1 stop bit. Transported over the IP network. See label for IP address details.

Full details of both **Dstar** and **Mstar** protocols are available on request.

Multi Function Controller

This controller has all the functionality to achieve the best from the **Mini Pro**. It has access to all the set-ups and enables configuration of protocols, limits, PID settings etc. etc.





Specifications

Power: 12v @ 0.3A quiescent. 4A full drive both axes. + camera power.

Weight: 3.6kg

Max Load: 4kg

Inputs: RS485, IP Network.

Outputs: BNC loop thru, RJ45 Loop thru. **Free-D** onto network

Lens Drive: 2 x 12pin Hirose or PD Movie drive. (6pin Lemo)

