



## Multi Function Controller



## Instructions

Ver 4.3 - 30/11/2022

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Master & Slave Functions are not covered in this manual.

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## Introduction

The **Multi Function Controller** is a sophisticated remote head and camera controller. All accessible functions of both the remote head and the camera itself can be controlled from this controller including many camera engineering functions.

Up to 2 **Remote Camera Engineering Panels** (RCPs) can also be connected into the system via the XLR3 data input sockets on the back panel. (See additional Data Sheet) Each of these can control up to 4 cameras.

For systems with more than 8 cameras (up to 99) an additional **Multi Camera Selector** can be used alongside the **Multi Function Controller 2**.

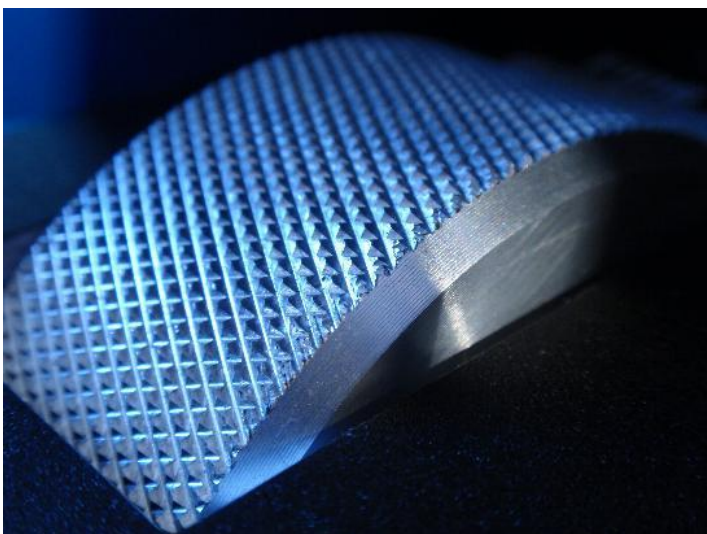
The data output is available on both XLR3 and XLR4 output connectors for easy connection with industry standard connectors and cables.

The Multi Function Controls are ergonomically arranged in 6 main control groups;

- |                               |  |
|-------------------------------|--|
| 1. Joystick and Head Controls | - on the right around the joystick             |
| 2. Lens Controls              | - on the left around the Focus & Zoom controls |
| 3. Head Selection             | - lower centre, 8 buttons                      |
| 4. Pre-set Positions          | - top left, 9 buttons                          |
| 5. Main LCD display           | - top centre display and buttons               |
| 6. Assignable RCP             | - top right & associated knobs                 |

Control groups 1 - 4 are individual controls with dedicated functions and as such are instantly accessible to the operator.

Control groups 5 & 6, with the associated LCD displays, are multifunctional and control a variety of functions depending on the displayed page or function. These include both Head and Camera adjustments.



Whilst we take every endeavour to ensure the software works perfectly there may be some 'quirks' still buried in the system. Please let us know if you find anything or if you would like it to operate differently. We always listen to our customers and put all suggestions forward for future revisions. Revisions are released periodically and are automatically installed if your equipment is returned to us for servicing or repair.

## Joystick & Head Controls

2 types of joysticks can be fitted;

1. 2 axis (pan & tilt)
2. 3 axis (3rd axis can be either roll, track or zoom depending on internal switch settings)

On the 2 axis joystick a **'Turbo'** button is fitted to the top of the stalk. When held down, the remote head moves at the highest available speed irrespective of the speed setting. This is useful for fast repositioning and instant return to the selected speed range.



The direction of the joystick operation can be changed via the **Head** option from the **Setup** page of the main menu. See **Main Menu** section.

On some remote heads, pan speed and tilt speed are individually adjustable. Knobs are provided for this purpose. For other remote heads the **Pan Speed** knob will adjust both pan and tilt speed simultaneously.

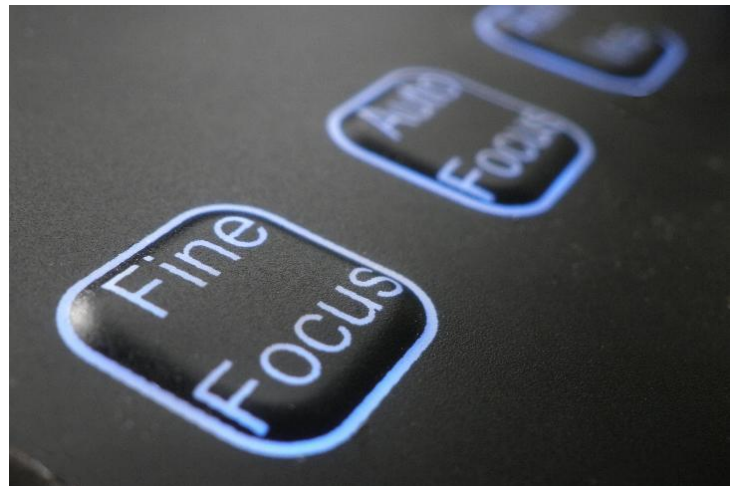
**Ramp** can be adjusted to give a smoother start and stop.

**Run/Stop** sends commands which can be used to control a recording deck. An interface is needed to use this function. This also sets the tally light On or Off.

## Lens Controls

There is a standard **Zoom** rocker and a side mounted **Focus** wheel. The **Fine Focus** button reduces the response of the focus control to offer finer control. The output of the Focus wheel is absolute so it operates as if the operator is holding the lens. Each time a different camera is selected the previous focus position for that camera is loaded onto the Focus wheel.

When **Fine Focus** is selected the Iris resolution is also increased from 5 steps per click to 1 step per click.



**Auto Focus** can be selected for lenses that offer this option.

**Iris** is a click stopped knob. The operation of this knob depends on the lens. Some lenses will move ½ stop per click with 18 steps from open to close. Other lenses will move 256 steps between open and close. The range of this knob is set for each camera via the main LCD display.

Touching down the **Iris** knob will change the operation to controlling a variable Neutral Density Filter if one is fitted. The central display will indicate the setting of the filter.

**Auto Iris** can be selected with a dedicated button.

On some BR Remote camera models, when Auto Iris is ON, the Iris knob adjusts Micro-Gain. Micro gain adjusts the gain in 0.1dB increments and can be used for very fine exposure control.

Other Lens adjustments are done via the **Lens** option from the **Setup** page of the main menu. See **Main Menu** section.



### Head Select Buttons

There are 8 head select buttons which can select up to 8 heads. When a head is selected all settings unique to that head are recalled. Including;

- Focus position
- Iris value
- Shutter setting
- Gain setting



These values will be displayed on the LCD displays if they are set to display them.

To re-assign a head to a new ident number first select the head you want to change. Push all 4 lower buttons (5-8) simultaneously. All 8 buttons will begin flashing. Now push the button you want the head to become. The buttons will flash for 3 seconds, then time out.

Be careful not to assign the head to an ident already being used or 2 heads will work as one and you will have to unplug one of them to assign them differently.

If you don't know the head ident No. you can re-set it to ident #01 using the **Head** option on the **Setup** page of the main menu. See the **Main Menu** section in this manual.

Up to 99 remote heads can be controlled from this panel but to access to heads 9-99 requires the additional **Multi Selector** panel.

For automatic monitor switching to follow the head selection an optional **Monitor Switching Module** interface is required which outputs either open collector switching, or serial data, onto the D-sub on the rear panel.

## Pre-set Position Buttons

Many remote heads can store pre-set positions. BR Remote Heads can each store either 8 or 64 pre-set positions of **Pan**, **Tilt**, **Zoom** and **Focus**.

- Set the shot to be stored with the joystick, zoom & focus controls.
- 
- Push the **Store** button - all 8 pre-set buttons will flash.
- Push the position button required. The flashing buttons will time out after 3 seconds.



To move to a pre-set position briefly push the button required. If the remote head is programmed to do a profile move to a position this will action the profile move. To move the head quickly to the pre-set position, just push the button again.

Pre-set positions are arranged in 8 banks of 8 positions. (Total 64 positions) The default is set to work in Bank 1 which accesses positions 1 – 8.

To work in another bank, push and hold one of the buttons. The LCD display will display the bank No. and the button will remain illuminated to indicate the bank selected.

The **Multi Function Controller** stores and recalls all the focus settings for each pre-set position of up to 64 remote heads.

Some remote heads can only store 8 or 32 positions so will not work with banks above 1 or 4 respectively.

## Main LCD Display

The central LCD display has 12 associated buttons. 4 down each side, which correspond to the 4 lines of the display, and 4 below for page selection and value entering.

The '**<Page**' and '**Page>**' buttons change the pages. The '**up**' and '**down**' buttons change values when required.

The default page (Page 1) displays status information. No adjustments are possible on this page. The values are changed elsewhere and reflected on this page.



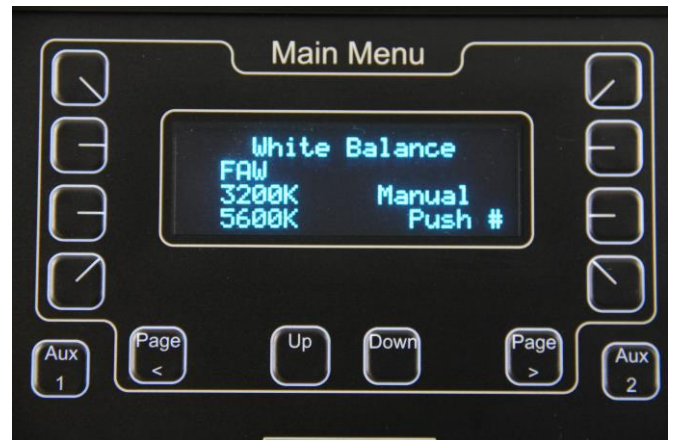
## Page 1 - Display Only

Iris setting  
ND setting  
Gain setting  
Shutter Setting



## Page 2

White Balance Manual  
White Balance Auto Tracing  
White Balance 'PUSH'  
White pre-set 5600K  
White pre-set 3200K



## Page 3

Digital Zoom On/Off  
Remote Relay On/Off (this operates the heater if fitted)  
Stabiliser On/Off  
Night Vision On/Off

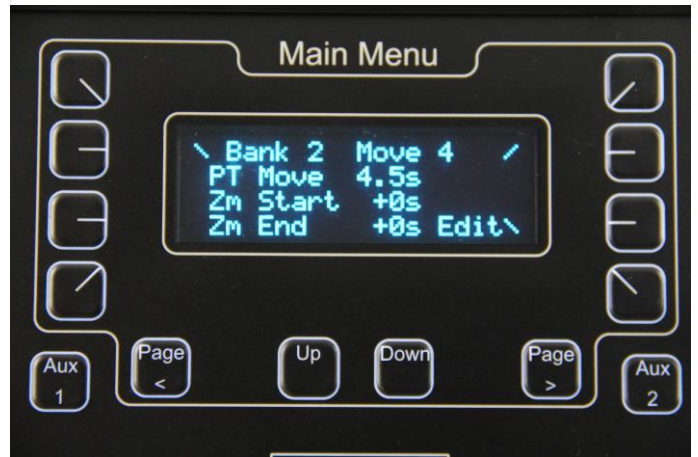


### Profile Move

Select move No. with the top 2 buttons.

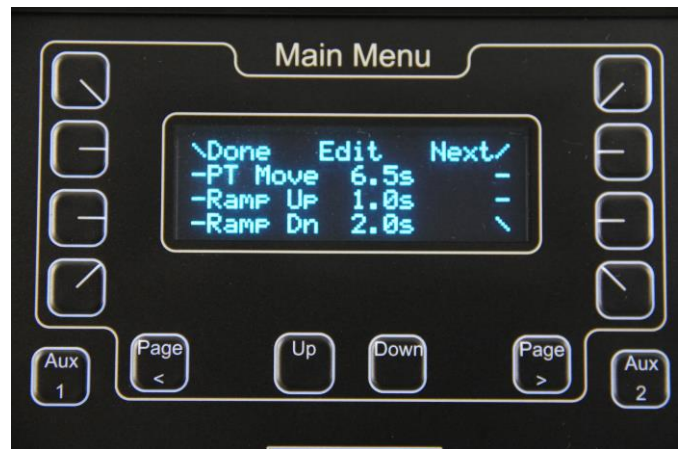
This screen shows the basic details for the profile move to the pre-set position shown.

In this example the pre-set is No. 4 on Bank 2.



Pushing the **Edit** button will move to the first of 2 edit screens.

This screen adjusts the Ramps and Total Time for the move.



Pushing the **Next** button moves to the next screen

By default the zoom starts and finishes at the same time as the pan & tilt.

This screen enables the Zoom to start either before or after the main Pan/Tilt move.

The Zoom movement can also end before or after the main Pan/Tilt move.



In the example shown, the zoom will start 2 seconds before the Pan/Tilt move and end 1 second after the Pan/Tilt move has finished.

Remember that the **Total Time** is the time of the Pan/Tilt move.

Push the **Back** button twice to exit to the main menu screens.



### Home Position

**Re-Home** initiates the homing routine normally done at power up.

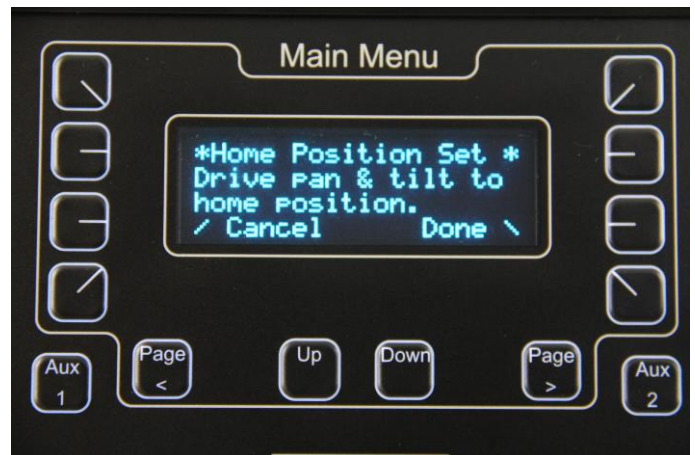
**Set Home** allows the user to set a different Home Position.

**GoTo Home** sends the remote head to the Home Position.



This is the **Set Home** screen.

Follow the instructions on the screen to set a new Home Position.



## Page 6

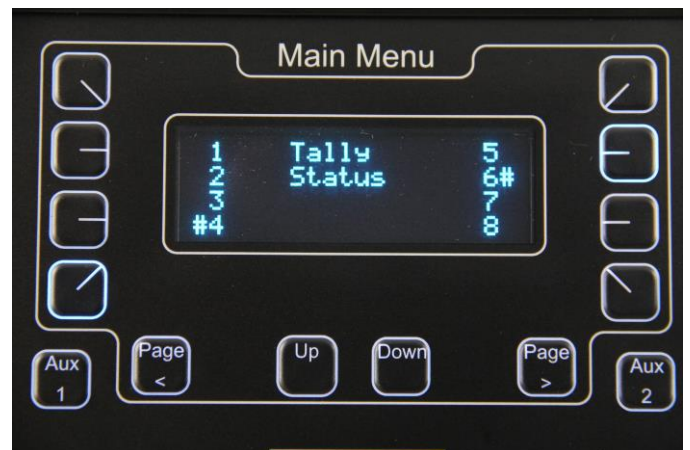
### Tally Status

If the tally commands are connected into the system this page will show which tally light is active.



In this example the tally lights for camera 4 and camera 6 are active.

The buttons adjacent to the tally numbers can be used to turn any tally light on or off.



## Echo Head Display

If the remote head is connected to the Multi Function Controller using the RS485 XLR4 output then bi-directional communication can take place.

When **Start** is pushed the MFC will attempt to establish 2 way communication with the remote head and display the same screen as shown on the side of the remote head.



**Do not try to operate a remote camera whilst this screen is active.**

If the MFC does not receive a reply from the head it displays this message.

This is **not** a problem for operating as the remote heads only need to **receive** data to operate.

Even if the return communication is not available the pages on the remote head display can still be cycled with the **Next** and **Prev** buttons.



### Setup

This page accesses the various setups of the controller, cameras, heads, and lenses.

Each of the buttons opens a series of further menus.



### Desk

- Electronic Joystick Centering
- Settings for global reverses of controls
- Backlight intensity
- Buzzer

The buttons lead to further menus with on-screen instructions.



### Product

Allows setting of the PID and other values for various products.

New products and adjustments are added as required.

Contact BR Remote for technical support before changing these values.



## Limits

Allows setting of pan and tilt soft limits.

First select the axis for which the limits are to be set and then follow the on-screen instructions

This also has the capability to set limits for all other axes, if the remote heads support this.

Roll, Track X,Y, Rise Z, Zoom, Focus



First, erase the current limits for the selected axis by pushing **OK**.



Then follow the on-screen instructions and push **Save**.



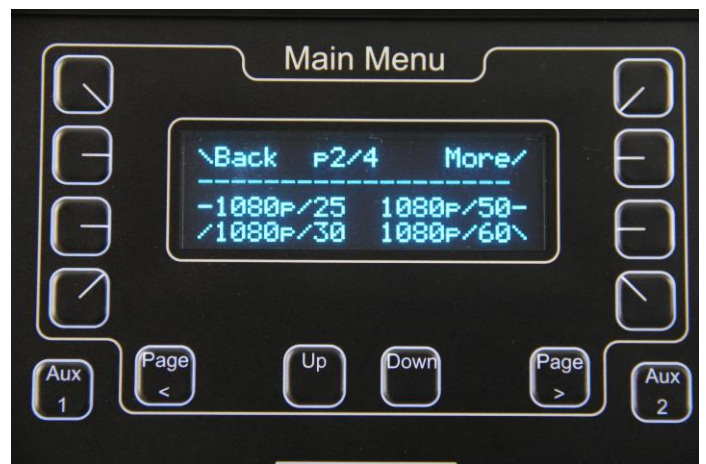
### Cam

Some remote heads allow the camera settings to be changed via the BR Remote system.



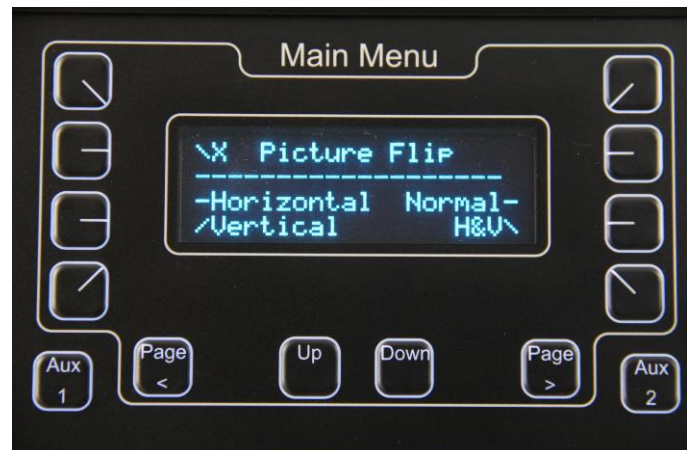
### Standard

There are multiple standard that can be selected however only the standards available on the camera will be able to be set.



### Picture Flip On-Screen Display

Various options are selectable if supported by the camera.



## Lens

A number of settings can be accessed for the lens.



## Iris Range

Most lenses operate with in Iris Range of 255 steps.

Some older integrated camera lenses only have 18 steps of iris. This needs to be set if the iris does not function correctly.



## Zoom Drift

This often needs to be adjusted for individual lenses to stop the zoom from moving when the zoom rocker is centered.

Use the zoom rocker on the controller to hold the zoom stopped and then push **Save**.

Release the zoom rocker and the zoom should stop moving.



## Head

**Reverse** and **Aux Protocol** apply only to the remote head that is selected on the camera buttons.



## Reset IDs

This applies to **ALL** heads that are connected on the system.

Only use this function if you don't know the remote head ID. Disconnect all other remote heads from the system.

Hold **OK** for more than 2 seconds and the connected remote head will become ID 01



## Reverse

Reversing the direction of movement for the selected remote head. This only applies to the remote head selected, not to the controller.

If a remote head is underslung the direction of pan will need reversing to make it operate the same as other remote heads.





### Aux Protocol

The Aux Protocol is the protocol input via the Dsub on BR Remote Heads.

**Free-D** also applies to the metadata output.

The selection leads to further options.



### Free-D

Free-D is available in 2 formats.

**Angular** is the original format and is in degrees and decimals of a degree.

**Raw** is the actual encoder values which is more accurate as there is no conversion to degrees.



### DMX

When selected the menu then allows the selection of the **DMX Base Address**.

This is the first DMX channel of the 8 required for DMX control.

DMX control channels;

Base Address	Pan Coarse
+1	Pan Fine
+2	Tilt Coarse
+3	Tilt Fine
+4	Zoom Coarse
+5	Zoom Fine
+6	Focus
+7	Iris



\*\*\*Not all functions are available on all cameras and heads\*\*\*

## Assignable Function LCD Display

The assignable LCD display is at the top right of the panel. It is used for **basic** camera engineering functions. There are 3 knobs associated with this display.

Holding down a knob whilst rotating it will change the parameter controlled by the knob. When the knob is released it will then adjust the value of that parameter.

All 3 knobs can be assigned to any of the parameters available. The parameters will remain until changed. On power-up the parameters and values will return to the last settings.



At the time of writing this has; Gain, Shutter, Aperture Correction (Detail), Red Gain, Blue Gain, Master Pedestal. **Not all functions work with all cameras so check with your supplier.**

## Auxilliary Buttons

There are 3 **Aux** buttons located around the panel. These are 'hot keys' and can be assigned to any function for instant access.

Push and hold the button until it flashes. The next action will be stored under that button. eg; white balance, GoTo pre-set position etc. The **Head No.** is also stored.

You can use these buttons no matter which camera is selected. The **Head No.** stored with the **Aux** button will be used.



For example; **Aux 1** might be programmed to send Cam1 to a wide safety shot. Even if you are operating Cam 2 with the joystick you can push Aux 1 and Cam1 will do a smooth profile move to the wide shot at the same time.

## Connections

There are 8 sockets on the back panel.  
(The normal cable colours are illustrated.)

### XLR4 male - Power input

**Pin 1** = GND

Pin 2 = n/c

Pin 3 = n/c

**Pin 4** = +ve (12-16 volts @ 500mA)

Up to **2A** if 'thru powering' a remote head

### XLR4 female - Power & Data Input/Output

**Pin 1** = GND

**Pin 2** = RS485

This output is also used for return data from the remote equipment

**Pin 3** = RS485

**Pin 4** = +ve (looped from input)

### XLR3 female - Data Output

**Pin 1** = GND

**Pin 2** = RS485

This output cannot be used for return data

**Pin 3** = RS485

### XLR3 pin - RCP Data Inputs x 2

**Pin 1** = GND

**Pin 2** = RS485

**Pin 3** = RS485

### XLR3 pin - AUX

For future expansion.

### D-sub 9 pin

Open collector grounding for monitor switching.

Pins 1 – 8 = Camera selection

Pin 9 = GND

### Network

Connection for a network. Factory settings are shown on the adjacent label. For more information visit: <https://www.wiznet.io/product-item/wiz505sr-rp>



## Data and power

Data and power can be sent in the same cable up to distances of about 50 metres. For longer distances power will need to be supplied locally to the head & camera. Data can reach cable distances of 1km or more using balanced audio cable.

The output data is sent to all the remote heads and cameras simultaneously. It is best to connect these in a 'daisy chain' fashion however it has been proven that 'star' configuration works just as well if the cables are not too long.

Remember to use a 4 core cable for the output if you need to power a head or transmitter directly from the controller.

## Requesting Replies

When requesting a reply from a remote head, for example; using the LDC echo page from the **Proteân** only 1 XLR connector can receive these replies. Either the 4pin XLR or the 3pin XLR can be re-plugged internally to receive this data.

## Dimensions

w 375mm, d 250mm,  
h 90mm (excl. joystick),  
Weight 3.5kg  
Power: 10 – 16v 5 watts

There are numerous menu layers and hidden functions for engineering set-ups and adjustments. Should you need to access any more than shown on the primary displays, contact BR Remote who will guide you through.

There are also some short '**How To**' videos on our YouTube site. Search for **BR Remote** in YouTube.



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