MARK ROBERTS MOTION CONTROL

MIMIC

HANDWHEELS

QUICK START GUIDE

Product Code: MRMC-2258-00

Mimic Handwheels Quick Start Guide

Product Code: MRMC-2258-00

Product covered: MRMC-1083-00

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Chapter 1 **Quick start**

Safety

- Do not use around flammable gas. All electrical equipment can generate sparks that can ignite flammable gas.

- Heads have powerful motors that can pinch, so take care not to get your hands trapped in the head or cabling.

- Keep the equipment dry. The system has **not** been made weatherproof. Do not use with wet hands.

- Keep cables tidy. Use cable ties to keep them out of harm's way. If you have a head with slip rings then make use of them; avoid running any cables between the base and the rotating head or camera.

Overview

Thank you for using the Mimic Handwheels controller from Mark Roberts Motion Control (MRMC). You can use the Mimic Handwheels unit as an integrated addition to a computerised camera installation running Flair Motion Control Software. The Mimic Handwheels unit is a robust controller designed for day-in, day-out use in professional studio and outside broadcast environments.

The Handwheels give you smooth, precise, real-time control over your choice of four axes. The axes can be a combination of head controls (pan, tilt, roll, etc.) and camera controls (typically zoom). The Mimic Handwheels is connected to a larger system that is using Flair motion control software running on a Windows PC to use the Handwheels as a mimic device to move the rig.

The controller includes the following features:

- Lens axis control – to give absolute position control when required

- Standard axis control – to give relative position control when required

- Control scaling – to allow fine adjustment or a fast response

- Serial lens control – Both Canon and Fujinon digital lenses can be controlled.

Connecting the cables

Connecting the Handwheels

Auxiliary focus input

Auxiliary zoom input
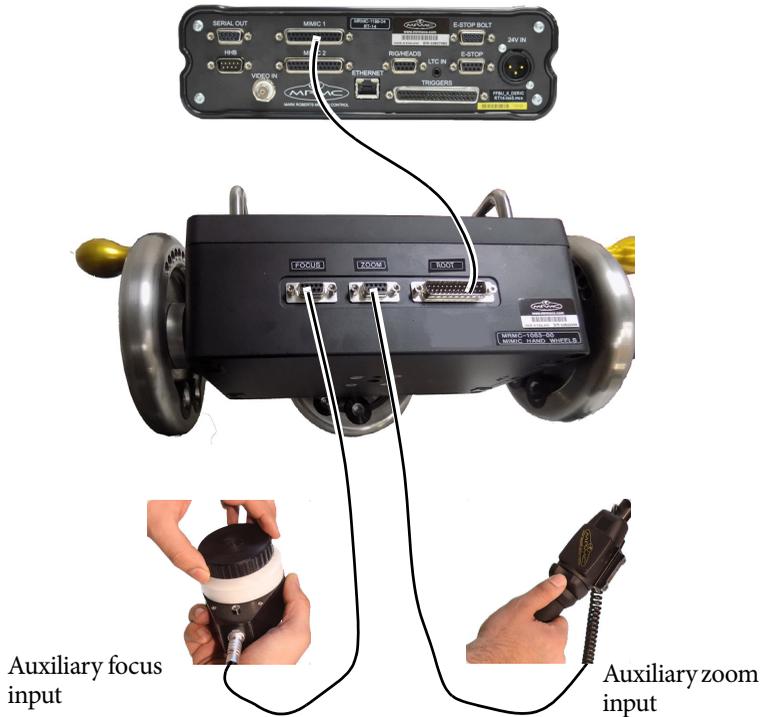
Powering up

There's no need to power the handwheels separately. The device is powered when the RT-14 that the Handwheels are plugged into is powered.

Mimic Handwheels controls

Wheel 1

Wheel 3

Handwheel **SCALE** controls: Stepped coarse adjustment switches (**x1**, **x2**, **x4**)
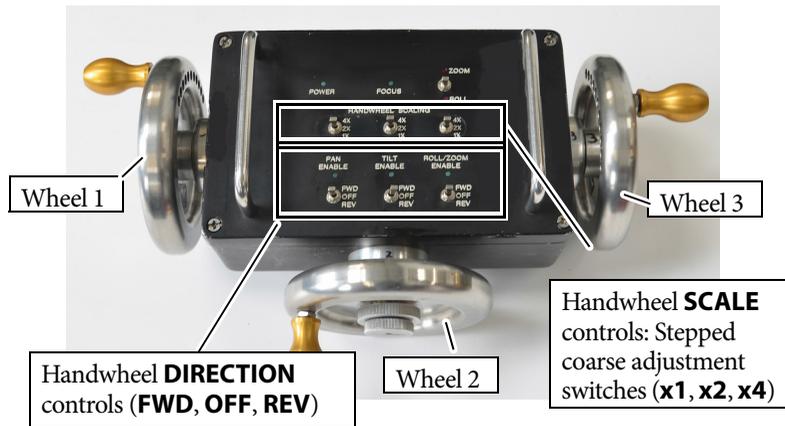
Handwheel **DIRECTION** controls (**FWD**, **OFF**, **REV**)

Wheel 2

On the Mimic Handwheels, two of the handwheels are typically assigned to the Pan and Tilt head axes, and the third handwheel is typically assigned to Roll or Zoom, although you can change the assignments in Flair if you want.

The meanings of the lights on the Mimic Handwheels controller are as follows:

- **POWER** - The power is on.

- **ENABLE** - Indicates that this named axis on the head or camera (for example Pan, Tilt, Roll, Focus, or Zoom) is now connected to its corresponding control in the controller.

  You can control a maximum of four axes using one Mimic Handwheels, which is connected to the Mimic1 port in RT-14. The Mimic2 port also allows for four mimic inputs should you want to connect another set of Mimic Handwheels to mimic additional four axis on the rig.

Using the control direction switches

The Mimic Handwheels unit has three direction control switches across the bottom. Which controls are affected depends on how the Root Mimic Axes are assigned in Flair. They are typically assigned to left wheel, front wheel and right wheel.

The switch settings interact with Flair axis settings as follows:

- **FWD** (Forward) - The control will operate using the direction that you have set Flair.

- **OFF** - The control will be inactive.

- **REV** (Reverse) - The control will operate in the opposite sense to whatever direction you have set in Flair.

Using the Scaling Switches

SCALE switches on the Mimic Handwheels control the general speed of the axis movement when using the wheels. **SCALE** switches allow for normal axis control (1x), twice as fast (2x) or four times as fast (4x).

Note

The mode that Wheels would be used in is usually Encoder Pos, whereas the Focus Pot would be used in Encoder Pos, Encoder Vel or Encoder Pot. Any Zoom controller would be used in Speedboat mode.

Using a FIZ pot

If you plug a FIZ pot (**F**ocus-**I**ris-**Z**oom) into the handwheels, you identify it by the name of the connector that you attached it to, for example Zoom. You assign it to an axis by using the Flair Show Mimic feature.

If your FIZ pot moves the axis in the wrong direction then you need to first make sure the associated lens axis moves in the correct direction relative to its axis values in Flair Axis Setup dialog box, then adjust the direction setting of the FIZ pot control for that axis.

A FIZ pot differs from the controls on your Mimic Handwheels, in that a FIZ pot has hard stops that limit its rotation range to about 355°. This has several consequences, described below.

You might reach the FIZ pot hard stop before you reach the soft limit of its assigned axis. If this happens you can do the following:

1. Press and hold the Disable button on the FIZ pot, which disables the FIZ pot output.

Disable button

2. Rotate the FIZ pot back to centre (without affecting the axis).

3. Release the button and rotate the FIZ pot again in the original direction to continue moving the axis where you left off.

You can repeat this procedure as necessary until you get to the soft axis limit.

Chapter 2 **Setting up the Mimic Handwheels unit as a mimic device in Flair**

Once you plugged the Mimic Handwheels to RT-14, you can start controlling the axis using the Handwheels via the Flair Motion Control Software. You can still use the **DIRECTION** and **SCALE** switches on the Mimic Handwheels, and you can use the **Zoom/Roll** switch to toggle the control for the third mimic axis between the third handwheel and whatever device is plugged into the **ZOOM** port, such as a Zoom controller or FIZ pot.

System configuration and startup

You can add up to two mimic devices in Flair using RT-14 called the **RIC Mimic**, or **Root Mimic** devices. Each Root mimic device has four mimic control axes allocated to it in Flair as Rt Mimic Axis1, Rt Mimic Axis2 etc. A Focus Pot would normally be plugged into the Focus socket on the back and would appear on the Test Screen as Ric Axis 4.

The procedure below tells you how to configure Flair to recognise the Mimic Handwheels.

1. Make sure the relevant cables are attached as described in the previous section.

2. Edit the file **C:\Flair\Flair***x***\Flair.ini**. This file is a text file that you can edit with any text editor such as Notepad, either directly or by using the Flair menu option **Help > View .ini File**. You need to add or edit some lines in the file similar to the following lines.
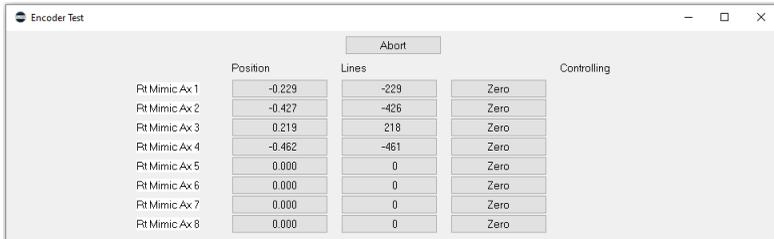
    *RICMimic: True
    This allows you to use the Root Mimic inputs.

    Remember to save the file after you have edited it.

3. With the Windows PC running but with Flair **not** running, attach the power cables the head, and the RT-14 unit.

4. When the RT-14 unit has finished starting up, start Flair by double-clicking on the Flair icon on the Windows Desktop.

    At this point, ignore any Flair error messages and Mimic Handwheels LED lights.

5. Check that Flair is receiving data from the encoders in the Mimic-Handwheels by using Flair menu option **Setups > Test Mimic Inputs** and making sure that the relevant Root mimic axes numbers change when you move the handwheels:


- Typically the left wheel is assigned to Pan axis on the head and appears as Ric Axis 1.

- Typically, the middle wheel is assigned to Tilt axis on the head and appears as Ric Axis 2.

- If a Zoom controller is plugged into the **ZOOM** port and the **ROLL/ZOOM** switch is in the ZOOM position, then this will appear as Ric Axis 3. If the **ROLL/ZOOM** switch is on the **ROLL** position, then the right wheel can be assigned to Roll axis and appears as Ric Axis 3.

- If a FIZ pot or Zoom controller is plugged into the **FOCUS** port at the rear, then this will appears as Ric Axis 4.

6. In the Flair window, click **Show Mimic**. The additional Root Mimic options appear below each rig axis.

7. In the Controller drop-down, specify which Root Mimic axis you want to control this axis, for example to assign Pan to Wheel 1, select the Controller as **Rt Mimic 1**, or **RIC Mimic 1**:
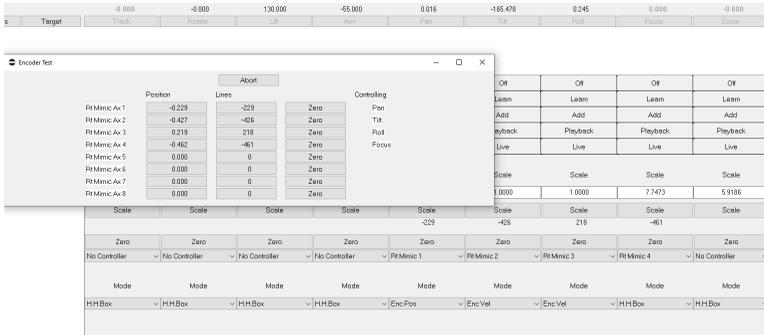
(The mimic axis numbers are the same ones listed earlier in the **Setups > Test Mimic Inputs** pop-up.) Note that after you assigned the Root Mimic Axes the axes names appear in the **Controlling** column in the Test Mimic Inputs dialog box.

8. Specify the other Mimic Settings that you want to use for this control.

9. Specify **Live** for the axes that you have assigned the handwheels to, then **Apply**. After you have tested the mimic operation you can use other settings; see the Flair manual for details.

Moving a handwheel should now move the associated axis and change the axis position numbers on the Flair screen.

Appendix 1 **Troubleshooting**

Typical symptoms, causes, and actions

| Symptoms or message	Cause and/or action
Controls move in the wrong direction	Change the working direction of the controls to your preference.
Limits are being ignored or causing the head to oscillate when reached.	The axes have not been zeroed. You must do this at the beginning of each session just after you load the head.
Can't set limits, or the head oscillates when you set a limit.	When you set soft limits, you must set the MAX limit to the higher (or more positive) axis value, and set the MIN limit to the lower (or more negative) value.
The head moves too slowly or too quickly.	Check the scaling of the axis on the Mimic Handwheels. If the axis is moving too fast, then lower the scaling and vice versa if it is going too slow.

Appendix 2 **Back panel**

Connector Pinouts summary

Auxiliary connectors for Focus, and Zoom

The pin assignments for these connectors are identical.
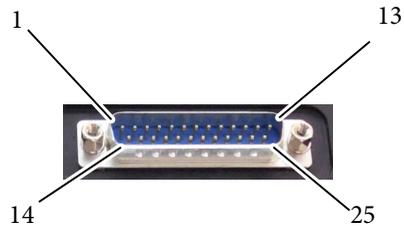
1. A+
2. B+
3. N/C
4. N/C
5. +5V
6. A–
7. B–
8. N/C
9. GND
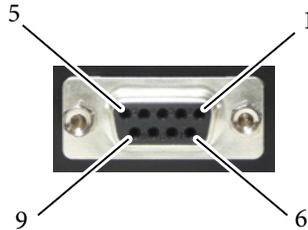
Root Connector

Root is a (25-way D-type Female) connector.

1.   A1+
2.   B1+
3.   A2+
4.   B2+
5.   A3+
6.   B3+
7.   A4+
8.   B4+
9.   Mimic GPO 1 (Open collector) LED
10. Mimic GPO 2 (Open collector) LED
11. Mimic GPO 3 (Open collector) LED
12. Mimic GPO 4 (Open collector) LED
13. +12V
14. A1–
15. B1–
16. A2–
17. B2–
18. A3–
19. B3–
20. A4–

21. B4–
22. +5V
23. GND
24. GND
25. GND

Appendix 3 **Specifications**

Weight: Unit with stainless steel handwheels: 10.2 Kg
                Unit with aluminium handwheels: 6.2 Kg

Temperature range: 0-45 °C (32-113 °F)

Humidity tolerance: 0% to 85% relative humidity, non-condensing

Notes

Notes

Notes

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