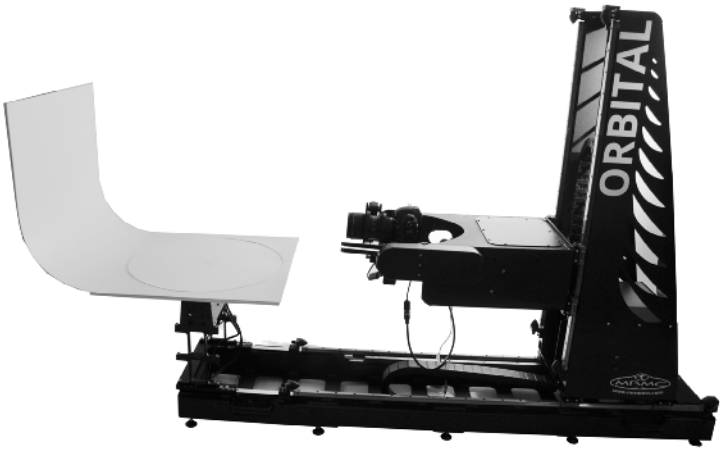
MARK ROBERTS MOTION CONTROL

ORBITAL RIG

AUTOMATED PRODUCT PHOTOGRAPHY



QUICK START GUIDE

Part number: MRMC-1540-02
Product code: MRMC-1016-10

Orbital Rig Quick Start Guide

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Chapter 1 **Quick Start**

Important safety instructions

To ensure the best from the product, please read this manual carefully. Keep it in the safe place for future reference.

To reduce the risk of electric shock, do not remove the cover from the unit. No user serviceable parts inside. Refer servicing to qualified personnel.

General care

- Do not force switches or external connections.
- When moving the unit, disconnect the mains cable.
- Do not attempt to clean the unit with chemical solvents or aerosol cleaners, as this may damage the unit. Use a clean dry cloth.
- Do not use around flammable gas. All electrical equipment can generate sparks that can ignite flammable gas.
- Keep away from pets and children. The head has powerful motors that can pinch, so take care not to get your hands trapped in the head or cabling.
- 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.

Location

Installation of this unit should be away from sources of excessive heat, vibration, and dust.

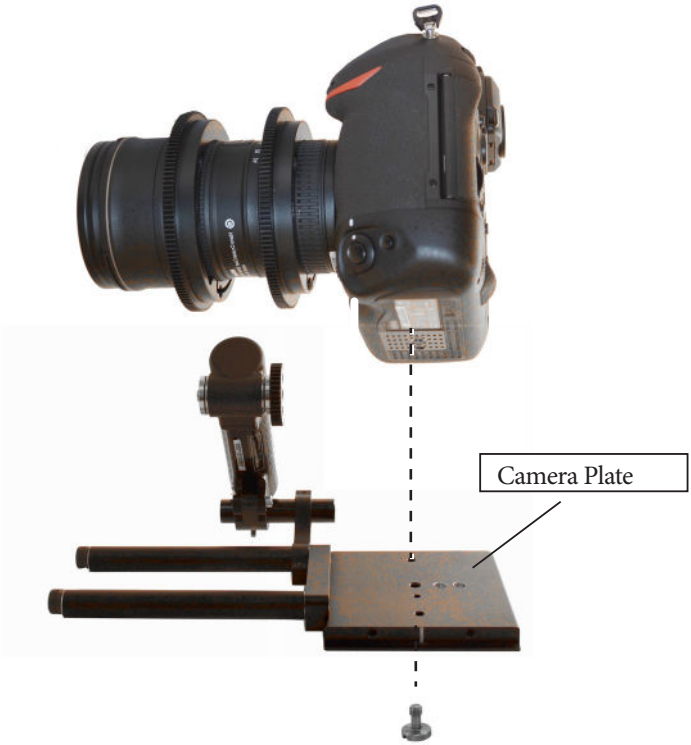
Intellectual property

This product includes confidential and/or trade secret property. Therefore, you may not copy, modify, adapt, translate, distribute, reverse engineer, or decompile contents thereof.

Overview

Thank you for using the Orbital rig from Mark Roberts Motion Control (MRMC). The Orbital is a robust e-commerce solution for taking high-volume product shots in conjunction with the MRMC turntables providing full-control whether you are shooting stills, 360 spins, Multi-row photography or video. Camera controls and presets for the rig can be configured and saved in Flair Motion Control Software by MRMC for a fully automated product photography.

Mounting the camera on the camera bracket



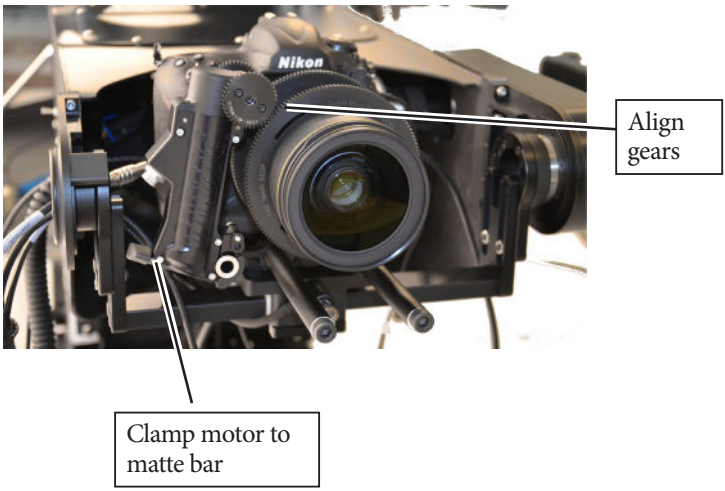
1. Remove the camera plate from the camera bracket by removing the two knurled knobs. Mount the camera on to the camera mounting Plate.

2. Aligning the centre of the camera with the tilt pivot, mount the Camera plate on to the camera bracket and screw the two knurled knobs.

Camera bracket underside

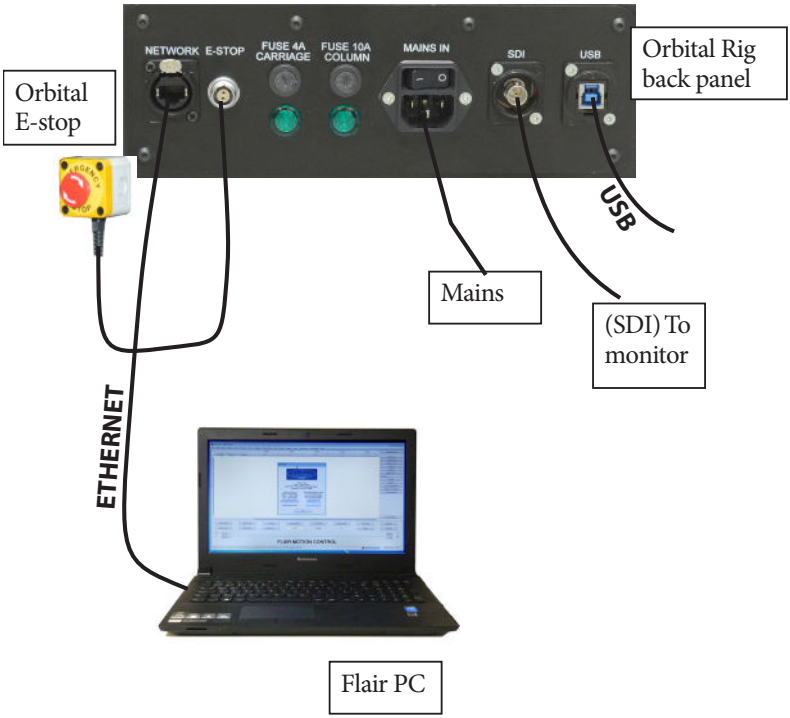
Mounting the lens control motor

1. Mount the lens control motor onto the camera bracket by clamping it on the matte bar and ensuring that the gears on the motor are in mesh with the lens ring gears.



2. Plug the required cables to the camera, such as the Ten Pin cable for the camera power, HDMI cable and USB cable.

Attaching the cables



The diagram shows a typical application. Attach the power cables last.

Notes

Chapter 2 **Spin Rig Setup**

Overview

Spin Rig is a tool built into Flair Motion Control software that, once configured, allows you to communicate with digiCamControl software to trigger capture, download pictures, and to control camera settings via USB.

digiCamControl is used to control the camera remotely from your Windows PC via USB. You can use digiCamControl to trigger image capture, review images right after photo is captured, control camera settings, view the image in LiveView as you see it in the camera's viewfinder and autofocus and zoom in and out remotely.

This guide tells you how to install digiCamControl on a Windows PC running Flair Motion Control Software and setting up Spin Rig display to use the digiCamControl functions.

PC Requirements

- Personal computer using the Intel x86 architecture
- Windows 7 Professional
- USB capability
- 4 Gbytes of memory
- DSLR camera
- USB cable compatible with the camera
- Setup files

System preparation

Make changes to the following settings, which you can access in **Windows Control Panel**:

1. Set file extensions to be visible:

   Appearance and Personalization > Folder Options, and in the pop-up go to the **View** tab and turn off "**Hide extensions for known file types**", and then click on **OK**.

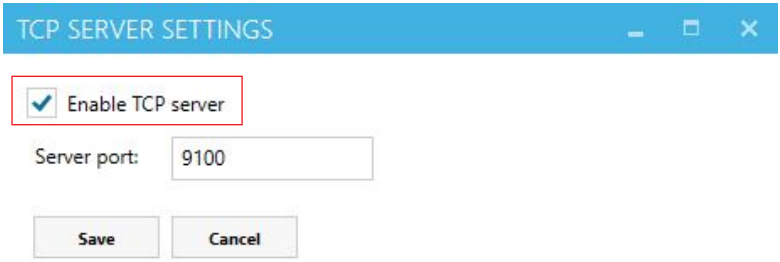
2. Obtain the installer for digiCamControl for Flair.

Installing and setting up the digiCamControl software

digiCamControl is open source software and MRMC has written plug ins for digiCamControl to work with Flair. These plug ins have been written for digiCamControl v2.1.1 and will not work on other versions.

1. Download the digiCamControl installer and plug ins from MRMC here: https://cloud.mrmoco.com/s/DDN9Dboe7LXebcj
2. Run the installer for digiCamControl v2.1.1 and follow the on-screen instructions to install digiCamControl.
3. Copy the plugins into **`C:\Program Files (x86)\digiCamControl\Plugins\CameraControl.Plugins\`** and overwrite any existing files.
4. If not already connected, connect the camera with the PC via USB. Ensure that the camera is turned on.
5. Use the controls in digiCamControl to make sure that the software is talking to the camera.

   5.1 Turn on the LiveView in digiCamControl.
6. Choose **Plug ins >Tools >TCP Server settings**.
7. Check **Enable TCP server**.



8. Click on **Save**.

Setting up Flair

1. Navigate to the FLAIR6 folder **C:\Flair\Flair6** and open the **`Flair.ini`** file.
2. Change the values of the following fields to these values for **Standard Orbital:**
   - **`*KineModel:spinrig`**

For **Medium Orbital**:

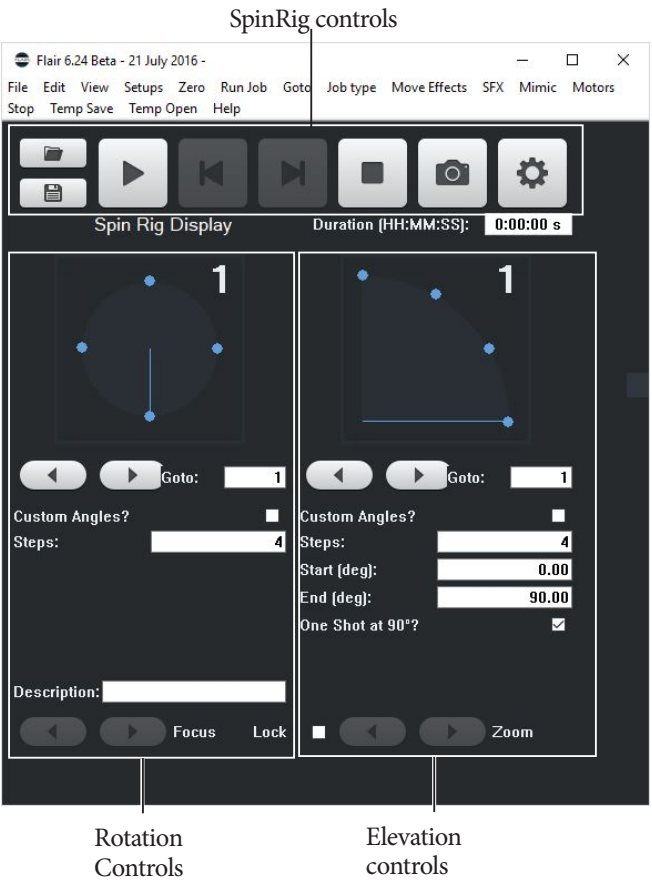
- **`*KineModel: ORBITAL1.5X`**
- **`*LoadFromHC: True`**

Add the following lines in the **`Flair.ini`** file.

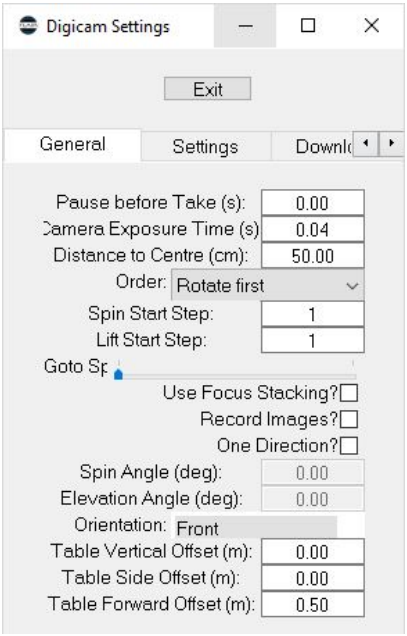
- **`*Spinrig:Default`**
- **`*DigiCamControl:True`**
- **`*DigiCamAddress:127.0.0.1`**
- **`*DigiCamPort:9100`**

3. Save and close **`Flair.ini`**.
4. Ensure that digiCamControl is running and the DSLR camera is connected via USB to the PC.

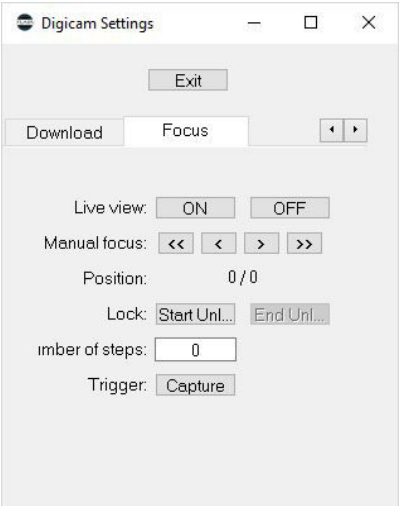
5. Launch Flair and check that Flair opens in the Spin Rig Display. Use this page to set up Steps, Goto Speed, Angle and Time settings for the Spin Rig.



6. Choose the Settings button or choose **Setups >Digicam settings** in Flair. You can use this interface to specify the camera control settings that will be effective in digiCamControl.



7. Use the **Focus** tab to trigger camera captures via Flair.

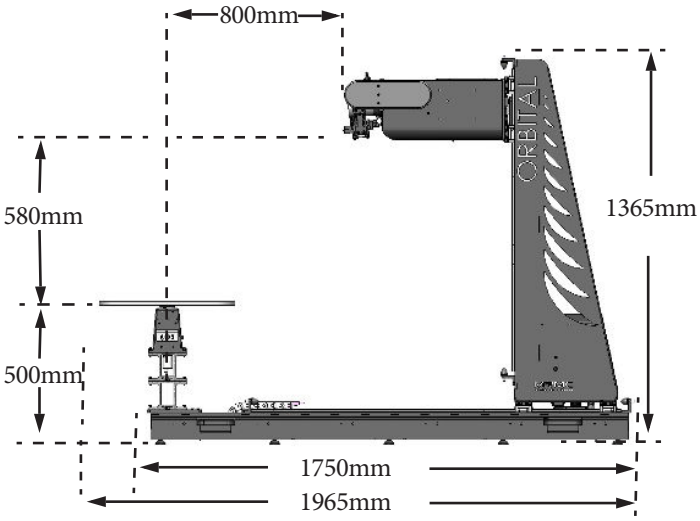


Appendix 1 **Specifications**

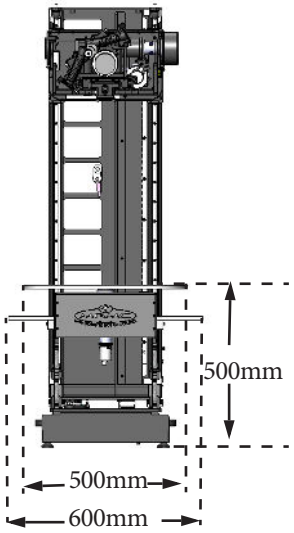
Specification	Value
Weight	Standard Orbital: 90 kg (198 lbs) without camera and turntable, 100 kg (220.4lbs) including Medium Turntable Medium Orbital: 157kg (346lbs) without camera and turntable, 167kg (368lbs) including Medium Turntable
Payload	15kg
Power requirements	110-240 Volts AC (earthed/grounded) AC 50-60Hz
Temperature range	0-45 °C (32-113 °F)
Humidity tolerance	0% to 85% relative humidity, non-condensing
Dimensions	Standard Orbital: 0.5m x 1.8m x 1.4m (WxLxH) Orbital Medium: 0.5m x 2.5m x 1.8m (WxLxH)
Axes Range of Motion	Standard Orbital: Horizontal: 1m, Lift: 1.06m, Vertical: +15 deg,-90 deg, Orbital Medium: Horizontal: 1.7m, Vertical: 1.22m, Tilt: +15 deg,-90 deg

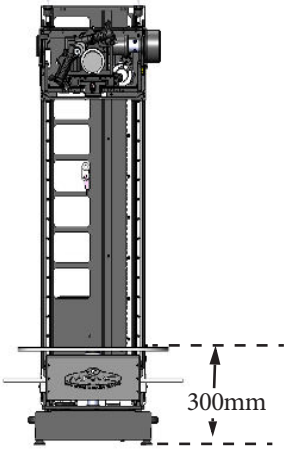
Specification	Value
Maximum speed	Standard Orbital: Track: 20cm/s, Lift: 20cm/s, Tilt: 60deg/sec Orbital Medium: Track: 20cm/s, Lift: 19cm/s, Tilt: 60deg/sec Medium Turntable: 90deg/s

Standard Orbital:

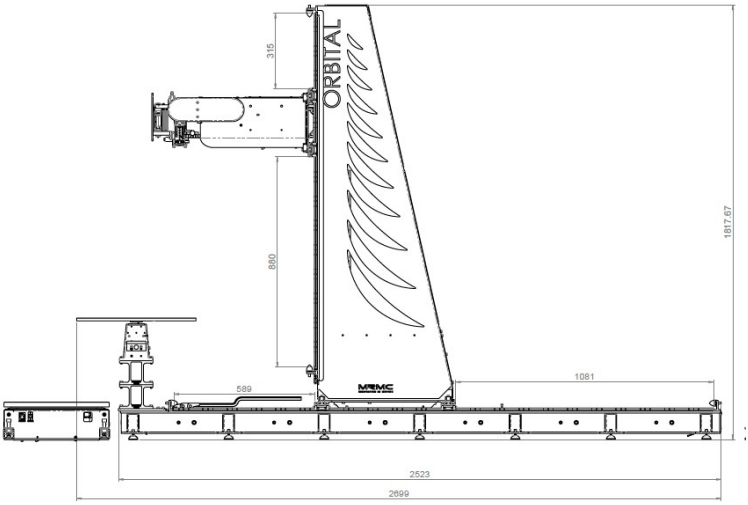


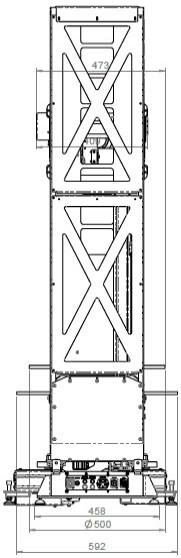
All measurements are in mm.





Medium Orbital:

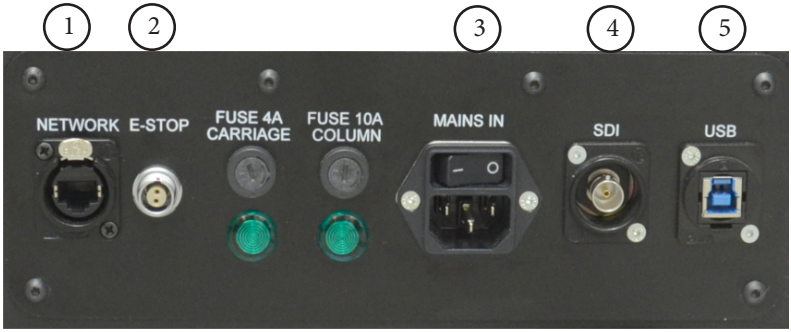




Notes

Appendix 2 **Rear Panel**

Panel and connector summary



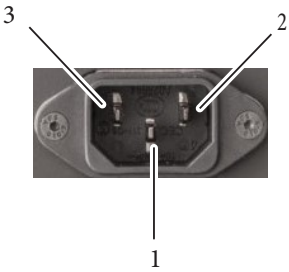
1. **NETWORK** RJ45 connector, for connection to the PC running the Flair Motion Control software. The Ethernet port is rated at 100Mbits/sec but can operate at lower speeds of 10 Mbits/sec or less.
2. **E-STOP** connector for connecting to the Emergency Stop. The Emergency stop or E-Stop is a necessary safety feature fitted to almost all motion control equipment. The E-Stop button is placed close to the operator and pressed when the rig is required to be stopped immediately. For pin-out information see *E-Stop Connector* on page 18.
3. **MAINS IN** connector to supply power. Orbital requires a 15A 240V DC power supply. For pin-out information see *Mains In connector* on page 18.
4. **SDI** port for viewing the HDMI output from the camera to a display.
5. **USB** port for downloading pictures and videos from the camera to the PC.

Connector pin-out information

E-Stop Connector

The **ESTOP** connector is a two-pin female connector, to which you attach the dedicated external E-stop buttons. The polarity does not matter, so there are no specific pin-out allocations. The rig will not operate without the E-stop buttons attached, as they complete the E-stop circuit loop and allow the rig to run. Breaking the circuit loop at any point (for example by depressing an E-stop button) invokes the E-stop for the entire rig.

Mains In connector

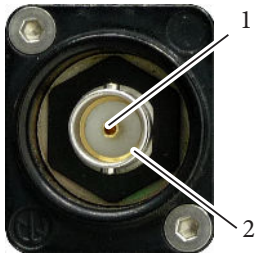


Power input connector for the Orbital. It is a 3-Way (Male) C14 IEC connector. 240 Volts AC.

1. Earth
2. Live
3. Neutral

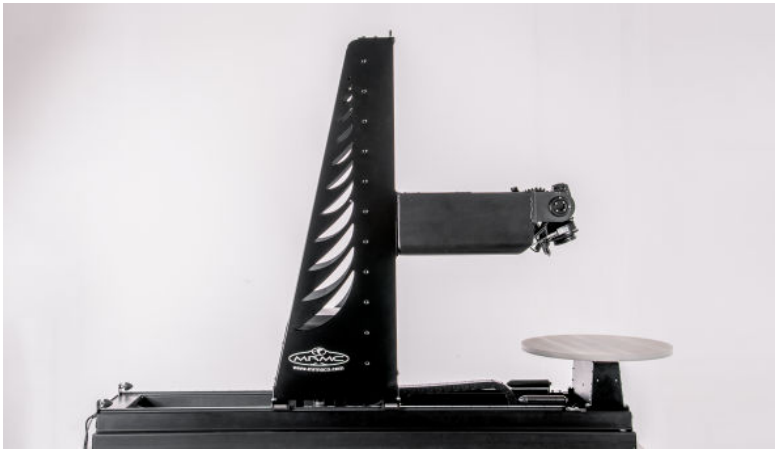
SDI connector

The **VIDEO** connectors on the Orbital is rated at 3 GHz BNC connector allowing the camera signal come out through the base.



1. VIDEO (inner)
2. GND (outer)

Notes



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