



MARK ROBERTS MOTION CONTROL

DRS - DUAL RAIL SYSTEM



QUICK START GUIDE

QSG Product code: MRMC-1511-00

Product Covered: MRMC-8135-00, MRMC-8030-02, MRMC-8136-00

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Chapter 1 Quick Start

Overview

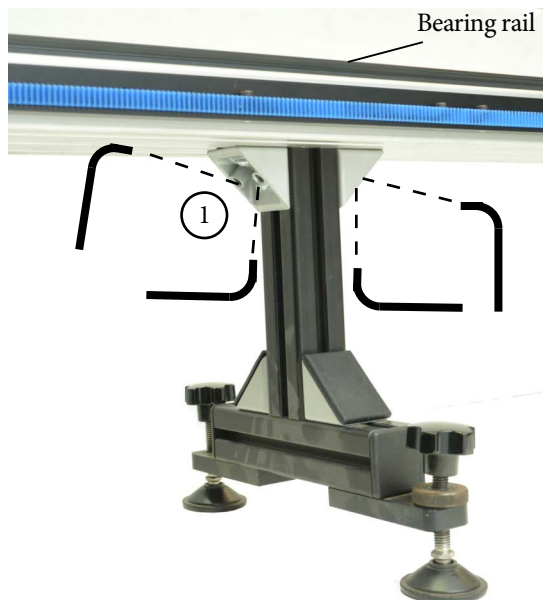
Thank you for using the DRS - Dual Rail System Track from Mark Roberts Motion Control (MRMC). The DRS is designed for reliable day-in, day out use in professional studio environments. The DRS is designed to help you achieve smooth, repeatable camera motions. It is suitable for live action, stills, and time-lapse applications, and can handle a total camera and head payload of up to 18 kg.

Safety

- Do not use around flammable gas. All electrical equipment can generate sparks that can ignite flammable gas.
- Keep Away From Pets And Children. The track and camera heads have powerful motors that can pinch, so take care not to get your hands trapped in the gears 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, and use the cable arm supplied with the DRS to keep any trailing cables (such as Ethernet and power cables) away from the track motor gear and rack. If you have a head with slip rings then make use of them; avoid running any cables between the base of the head and the rotating part of the head or camera.

Assembling the DRS

1. If your DRS was delivered in sections, attach the leg unit to the main rail.



2. If your DRS came with the end stops already installed, remove one of the stops from the end of the rail shown in the next picture, by removing the two bolts that hold the end stop on.



Joining Multiple Rail Sections

1. Place the two lengths of rail so that the ends with the joiner block meet and the racking is on the same side for both the lengths.
2. Using a spirit level, level one length of rail using by turning the star nuts on the feet.



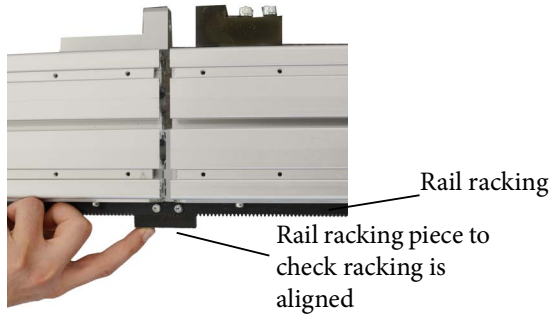
Level the two lengths of rail individually

3. Similarly level the other length of rail. Then, place the spirit level in centred where the two rails meet and level them. It is important that the rails are levelled both individually and together.

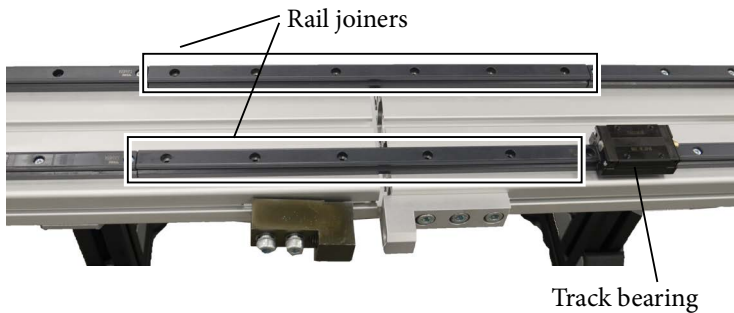


Level the two lengths of rail together

4. Use the piece of rail racking supplied to ensure that the racking in both the lengths is perfectly aligned.



5. Insert the two rail joiners supplied between the two bearing rails of the two sections to be attached and slide the track bearing supplied from one end of either of the rails.



6. Loosely add the 6 x screws to the rail joiner and using the track bearing to align the rail joiner so the bearing moves freely over the joint, tighten the screws.



7. Once 6xscrews have been tightened, ensure that the track bearing moves freely on the rail. Use the same technique to secure the rail joiner to the other rail.
8. Attach the two ends of the joiner block and tighten the M10 screw. Also tighten the 5xscrews on the joiner block to secure the two lengths of rail together.



Adding the carriage

1. Carefully slide the carriage track bearings onto the bearing rail of the track as shown.

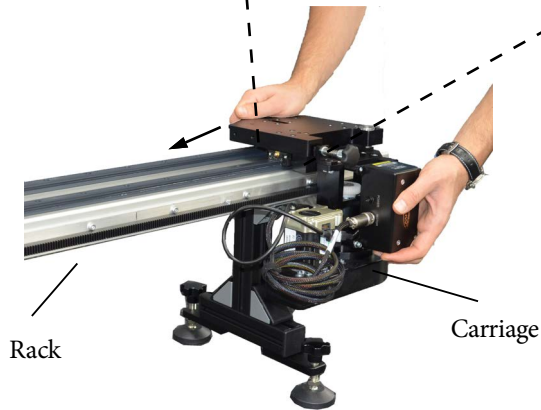
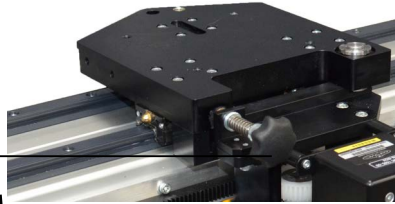
Caution

Misaligning the carriage can damage the track bearings. Carefully feed the first track bearing onto the bearing rail. As you push the carriage onto the rail, the track motor gear in the carriage will engage with the toothed rack. Keep going until the rest of the track bearings engages with the bearing rail and the carriage is completely on the rail.

If the carriage or track bearings are not sliding on easily or aligning properly, DO NOT force them onto the bearing rail as it will heavily damage the bearing blocks.

2. If there is a misalignment issue, you need to loosen the 12 screws that hold the 3 bearing blocks on and then the carriage will slide on and then tighten the bearing blocks.

Track motor
tensioner



Rack

Carriage

3. Make sure the track motor tensioner is tight. This holds the track motor gear (in the carriage) against the rack.
4. Replace the end stop on the track, and install the other end stop at the other end of the track if this has not already been done for you. **Make sure both end stops overlap the ends of the bearing rail so that the carriage cannot run off the end of the bearing rail.**

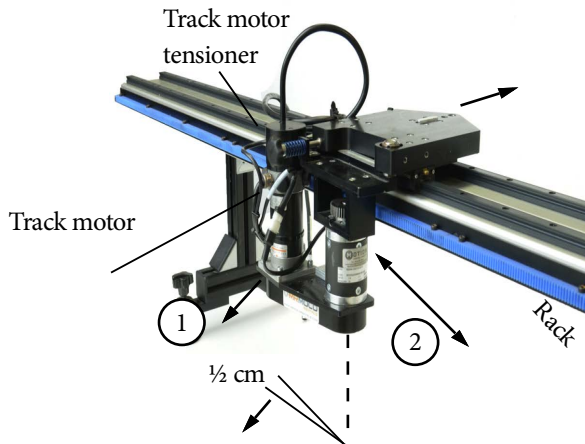
End stop



5. Attach the cable arm to the carriage.

Moving the carriage along the track by hand

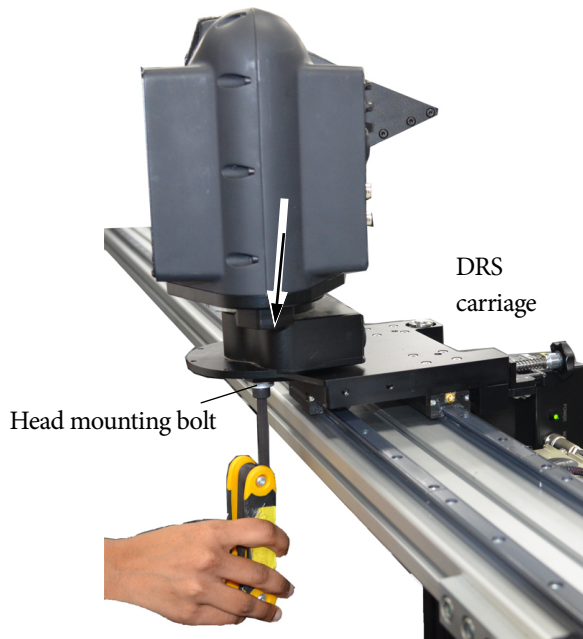
Although you can push the carriage along the track when the rig is switched off, this is not ideal as it stresses the track motor gears. The track motor and its gear are mounted on a sprung pivot with about $\frac{1}{2}$ cm of movement, so if necessary you can move the carriage along the track by the following method:



1. Pull the track motor gear away from the rack on its spring. If necessary you can loosen the track motor tensioner, although this is not usually necessary.
2. Slide the carriage along the track.
3. Re-tighten the track motor tensioner if you loosened it.

Mounting a head onto the DRS carriage

Example: AFC 100S head

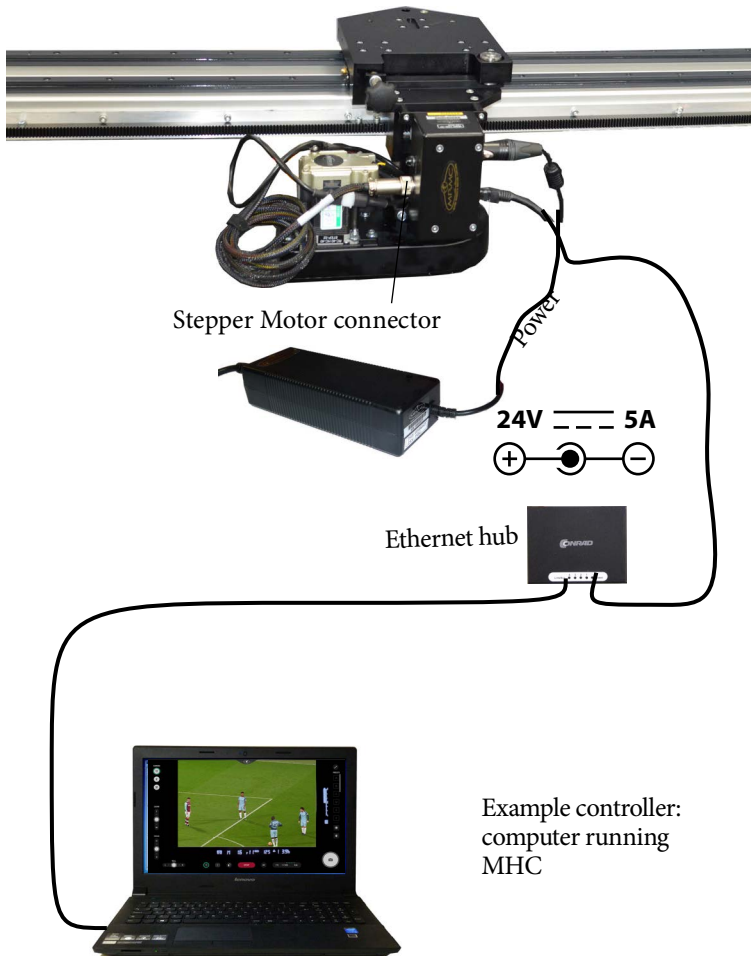


When mounting the head, make sure you line up the key (on the carriage) with the slot in the head.

Refer to the documentation that came with your head for details of connecting cables to the head and mounting a camera onto it.

The controller that you connect the head to can be any MRMC controller such as the Large Flat Panel (LFP), MSA-20 Handwheels, Joystick Controller, Mini MSA, or a PC running Flair Motion Control Software.

You use the cable arm on the DRS in combination with cable ties to help tidy the trailing cables that go to the controller (usually Ethernet and Power), so they don't catch on the track or track motor when the rig is moving up and down the track:



Adjusting the racking

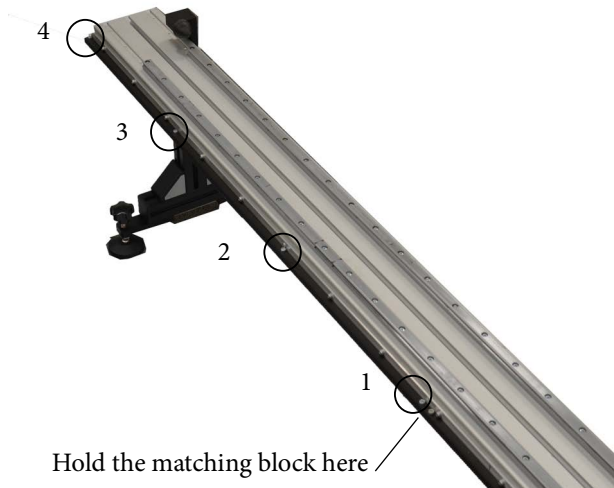
If the motor gear doesn't pass across the join smoothly or if there is a jump in the video feed from the camera as it passes across one piece of racking to another, the racking might need to be adjusted:

1. Loosen the four screws that hold one of the two pieces of racking on (preferably the end piece if it is a short length of track)
2. Use the matching block to align the two pieces of racking that have the problem.

Hold the
matching
block at the
problematic
joint



3. While securely holding the matching block against the rack, tighten the four screws, starting closest to the join working away.



4. If it is a 6m length of rail and one of the middle pieces of racking has the problem, you will need to check each piece of racking as you go towards the closest end to make sure that the adjustment hasn't effected any other join.

Datum magnet

The DRS has a Datum magnet which can be detected by the Datum Switch on the carriage. The Datum magnet defines a fixed reference point on the track for the electronics. The rig controller (such as a Joystick Controller, Mini MSA, or computer running the software) can then use this position as the **home** position or **zero point**, from which all positions, movements, and soft limits along the track are measured.



Hint

If you move the Datum magnet to a different position along the track, remember to change the soft limits in your controller or Flair/MHC computer to cater for the new Home position.

Appendix 1 Specifications

Weight: 11.3kg/25lbs for the DRS track and legs
3.7kg/8.2lbs for the carriage

Power requirements: 110-240VAC 3A max

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

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

Maximum payload (head + camera): 45kg/99lbs

Rail Length 2m/3m (6.56 feet/9.84 feet) as standard.

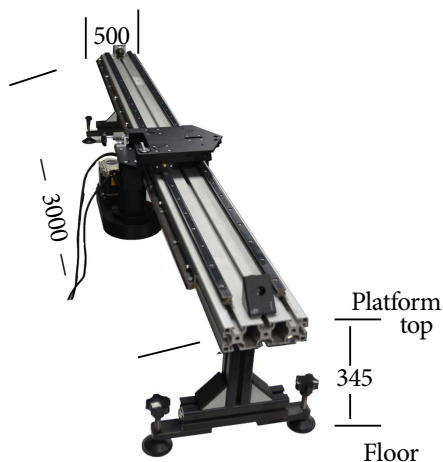
Custom lengths possible upon request.

Maximum Acceleration: 20cm/s^2 , or 8in/s^2

Maximum Speed: 25cm/s , or 10in/s

Control Ethernet – RJ45

Dimensions: All measurements are in mm:



Notes

Notes



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