



XL TURNTABLE



QUICK START GUIDE

Product Code: MRMC-2058-00
Product Covered: MRMC-2032-01

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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 XL Turntable from Mark Roberts Motion Control (MRMC). You can use the Turntable for day in and day out use in product photography and filming.

The XL Turntable can be used as an additional axis of a Bolt on Track System or as a stand-alone EtherCAT unit controlled by Flair or RTL.

XL Turntable gives you the following features:

- High speed
- Zero backlash
- Precise movement
- Removable center disc so cables or power can be fed through to appliances
- Can take weight of up to 3 tonnes

Transporting the XL Turntable

Use the 4 x M20 threaded lifting points with lifting eye bolts in conjunction with lifting equipment.

In addition the 4 x Castor wheels can be used to manoeuvre the XL Turntable around.



Lifting XL Turntable using a Gantry Hoist

1. Tie a lifting sling around the 4 x lifting eye bolts on the XL Turntable and insert the hook from the gantry hoist on to it.
2. Use the gantry hoist to gently lift the XL Turntable and lower it in position.

3. Remove the gantry hook and the straps from the arm.

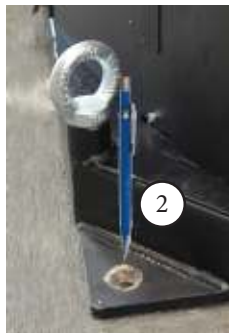
Removing Castor Wheels

When in position you can either jack the castor wheels up so they don't touch the ground or remove the castor wheels by removing the 2 x M10 cap head screws to prevent them from coming into way of the Turntable load.

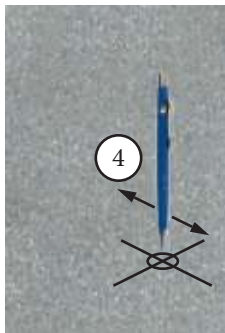


Anchoring XL Turntable to the floor

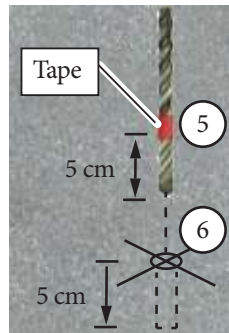
If you are setting up the XL Turntable in a permanent (or semi-permanent) location, it is recommended that you anchor the turntable to the ground. The following procedure tells you how to anchor the turntable to a concrete floor.



× 4 corners



× 4 corners



× 4 corners

1. Temporarily put the turntable into place where you want.

2. At one corner of the turntable, use one of the two holes to draw a circle on the concrete with a pencil, to mark the position of the hole. You can use either hole.

Repeat for the other three corners of the turntable.

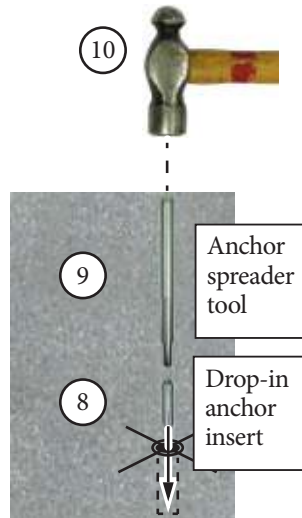
3. Add the lifting eye bolts to the 4xM20 threaded lifting points.
4. Tie straps to the lifting eye bolts and using a gantry hoist temporarily remove the turntable and at one of the four circles that you have drawn, draw a cross centred on the circle, to help you precisely locate the drill bit.

Repeat for the other three corners.

5. On the 15mm diameter drill bit, put tape around the bit 5 cm from the tip. This will help you gauge the depth of the hole in the next step.
6. At one of the corner circles, drill a hole 5 cm deep into the concrete, centred on the cross. When the tape on the drill bit reaches the floor, drilling is complete.

Repeat for the other three corners.

7. Clean the four holes.
8. At one of the holes insert the drop-in anchor insert, threads upward, all the way to the bottom.
9. Insert the anchor spreader tool into the drop-in anchor insert.
10. Hit the top of the anchor spreader tool with a hammer until the anchor is fully spread in the concrete.
11. Remove the anchor spreader tool.
12. Repeat steps 8 to 11 for the other three corners.
13. Put the turntable in place over the holes.



14. Insert the four retaining bolts through the corners of the base and into the drop-in anchor inserts, and tighten.

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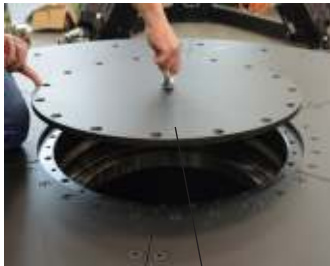
Fixing Equipment (Motion Base etc.) on XL Turntable

Use the M16 threaded holes on the outer ring to fix equipment on the XL Turntable.

If required, you can remove the top plate to allow the cables to pass through. To do this:

1. Remove the M16 screws from the centre plate.
2. Screw an M16 lifting eye bolt to the centre, then use it to lift the centre plate off the turntable.

Use the cable tube in the centre of the turntable if you require cables to pass through.

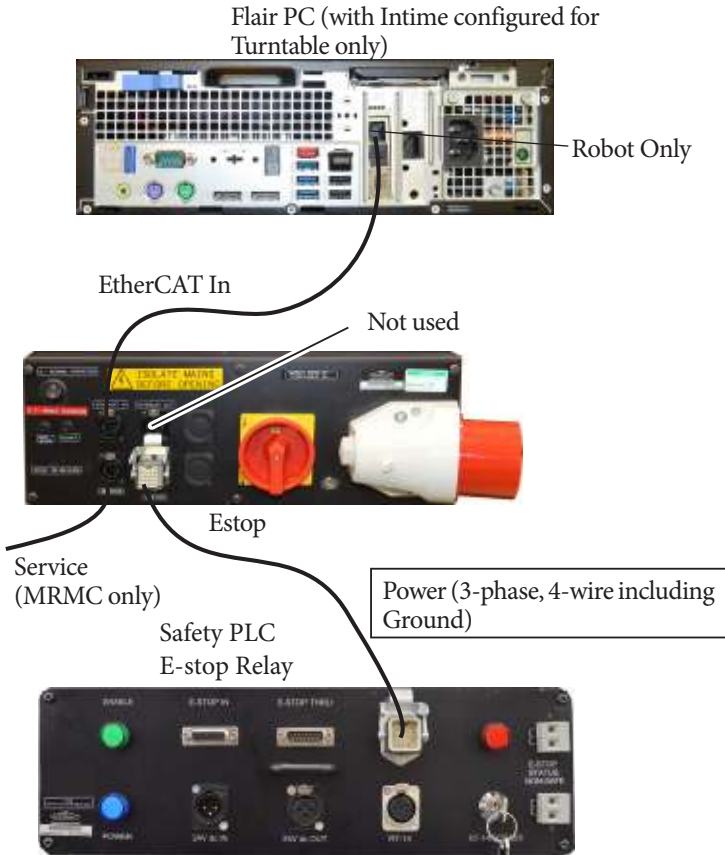


Centre plate



Cable tube

Connecting the Cables for XL Turntable as a Stand-alone



Using the XL Turntable as a Stand-alone

1. Connect all the cables as shown in *Connecting the Cables for XL Turntable as a Stand-alone* section. Refer to the *Universal Estop Quick Start Guide* for help on the remaining Estop connections.

2. Turn the power on using the power switch on the XL Turntable.
3. Start the Flair PC (if not already turned on).
4. Start Flair on the Flair PC. Ensure that Flair is not running before the XL Turntable has fully powered up.

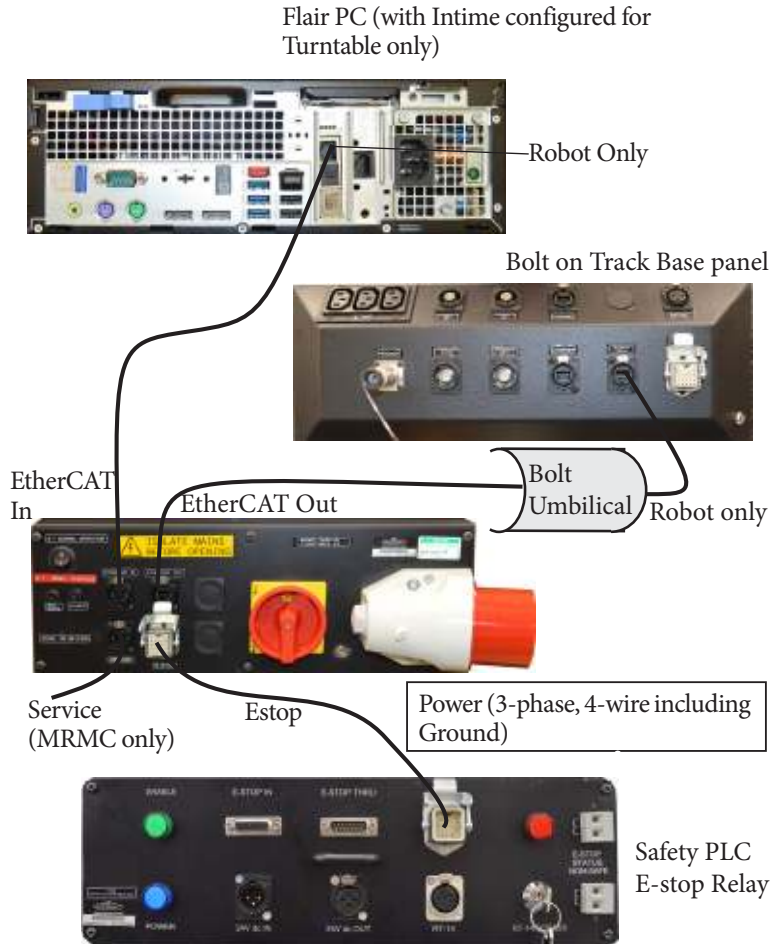


5. Release the E-stop that is plugged into the computer stack, by turning the button clockwise until the red button pops up and then pressing the Reset button. Also make sure the key in the Safety PLC E-stop Relay is in the vertical position.



Reset
button

Connecting the Cables for XL Turntable when used with a Bolt on Track



Using the XL Turntable with Bolt on Track

1. Connect all the cables as shown in *Connecting the Cables for XL Turntable when used with a Bolt on Track* section. Ensure that the

PC used in this configuration is that configured for use with XL Turntable and Bolt. You do not need to open the Bolt Base side panel. These would be done as part of the installation of the rig.

Note

This guide covers the connections that you need to make when using the Turntable with Bolt on Track. For other connections for Bolt on Track, refer to the Bolt Quick Start Guide.

2. Turn the power on using the power switch on the XL Turntable and Bolt on Track.
3. Start the Flair PC (if not already turned on).
4. Start Flair on the Flair PC. Ensure that Flair is not running before the XL Turntable has fully powered up.
5. Release the E-stop that is plugged into the computer stack, by turning the button clockwise until the red button pops up and then pressing the Reset button. Also make sure the key in the Safety PLC E-stop Relay is in the vertical position.



Reset button

Brake Release

If, during operation, the XL Turntable stalls, brake release system in the unit can be used to resolve this. Switch the Brake Release button to 'I'. The **BRAKE RELEASE** LED will light up indicating that the brakes are overridden. Once the Turntable starts moving normally switch the Brake Release back to 'O'.



Brake Release switch

Brake Release LED

Zero Position Marker

The XL Turntable uses absolute encoders and therefore stores its position even when turned off and doesn't need to be zeroed. To move the XL Turntable physically to the zero position, the physical zero marker arrows can be used.



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Appendix 1 Specifications

System Properties

Turntable Platform Diameter	2,200 mm (maximum)
Table Hollow Bore Diameter	520 mm (minimum)
Turntable Max. Width	2,500 mm (maximum, excluding removable jacking castors)
Turntable Max. Depth	2,500 mm (maximum, excluding removable jacking castors)
Turntable Max. Height	380 mm
Motion	Continuous Rotary Motion
Direction	Bi-directional
Orientation	Horizontal
Max. Payload	3,000 kg (With CofG centred over CofR)
Max. Turntable Weight	870 kg

Motion Performance

Max. Velocity	90°/Sec – Max. velocity is derated by applied payload. See below
Max. Acceleration	180°/Sec ² – Max. acceleration is derated by applied payload. Please see below
Max. Deceleration	Typical velocity profiles are trapezoidal NB: Maximum deceleration will be limited to regeneration capacity in the system. At higher payloads with higher speeds, deceleration rates may need to be limited to avoid nuisance tripping of the servo drive
Maximum Operating Time	Typically, up to 1 minute of continuous operation at full speed/full load
Max. Operating Duty Cycle	50%

Control/Drive Enclosure

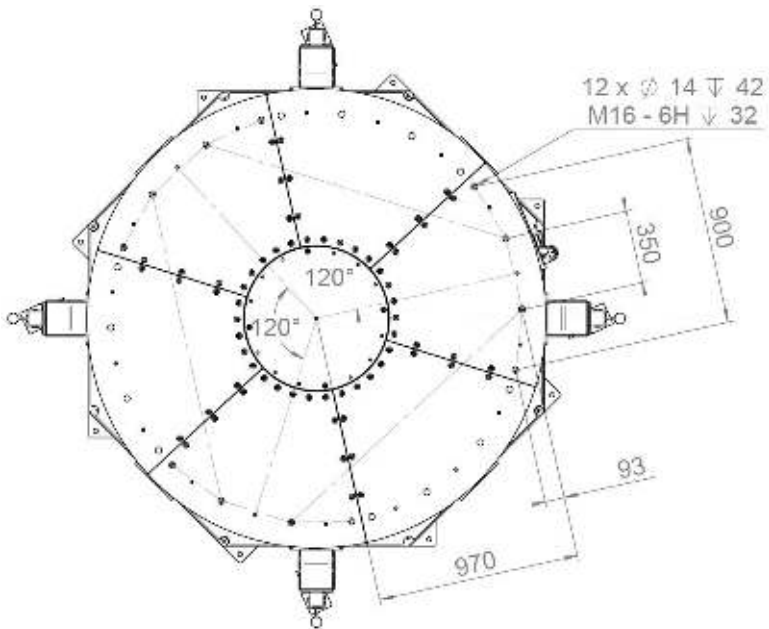
Host Control	MRMC Flair 6
Supply Voltage	415V AC Three Phase

Supply Current	48 Amps
Number of Axes	1
Command Interface	EtherCAT
Operator Controls	Rotary Mains Isolator Emergency Stop Buttons
Operator Illuminators	Servo Power ON: Blue LED on electrical panel
Emergency Stop Input	Single Channel
Power Connector	Industrial 5 Pin Chassis Mount Receptacle (Pins)
Motor/Brake Connector	Direct to drive
Feedback Connector	Direct to drive
Drive General Purpose IO	NA
Control Communications	EtherCAT RJ45
Service Communications	EtherCAT RJ45
IP Rating	IP54
Operating Temperature Range	0-40 Degs C

Payload Mounting

Turntable Payload Fixings	12 off M16 on 1,972 mm PCD (Position shown below)
MRMC Motionbase Fixings	12 off M16 on 1,972 mm PCD (Position shown below)
Payload Loading Method	User's responsibility

Physical Specification



Notes



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