TriCoil USER MANUAL

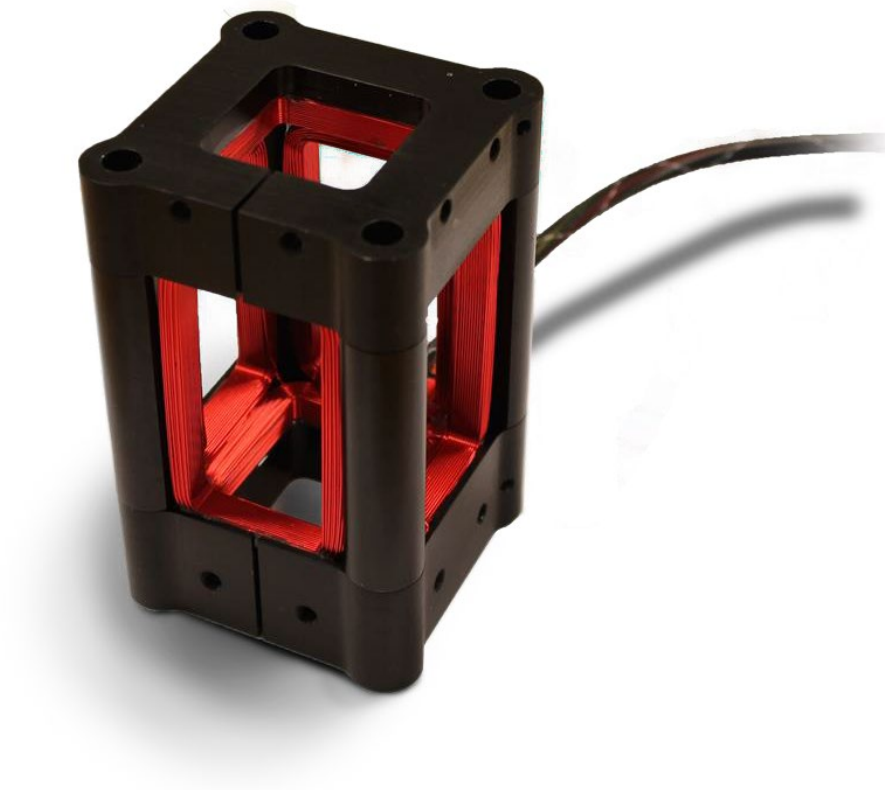

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Table of Contents

1. General Information

1.1 User Facilities Requirements

Ensure your lab or experimental setup has ample room to work around the cell for installation and laser safety. Always follow your institutional guidelines concerning a safe work environment.

1.2 Package Contents

Upon receiving the TriCoil, inspect the packaging for damage. If the packaging shows signs of damage, excessive shock or if the shock watch is red, notify the shipping company and then contact Infleqtion. **Keep all original packing materials.** Carefully remove the TriCoil and inspect for any damage. Please contact Infleqtion if there are signs of damage.

The shipment should contain the following items:

- Coil assembly
- Cable with micro-D and DB15 connectors
- Flying leads cable
- User manual (electronically)

If any of these items are missing, please If any of these items are missing, please contact Infleqtion to obtain replacements.

2. Safety

2.1 Definitions, Labels and Symbols

2.2 Warnings

	Caution! – Risk of electric shock
	Caution! – Risk of damage to equipment

2.3 Physical Safety

DANGER!	If you are wearing magnetic implants, take care to keep away from the magnets. Always warn persons wearing such implants of the presence of the magnetic field. Persons with any magnetically sensitive implants should consult their medical doctor regarding any potential applications.
DANGER! CAUTION!	The magnetic fields that extend beyond the protective housings of the device(s) can attract other magnetic materials. Keep small ferromagnetic objects like tools, razor blades, or screws away from the devices.

2.4 Electrical Safety

This is a product with electrical connections. The maximum amperage is 3A, and the maximum voltage is 3V. At minimum 4 channels of 3 amps are used to power this product. Take care not to have water or other liquids near this product or it's electrical connections.

2.5 Laser Safety

Disclaimer	This is not a laser product. This is for reference only. Please refer to the manufacturer manual and safety information for each laser system that you will use with this product. Please follow your institutional guidelines concerning laser safety.
DANGER!	If the equipment is used in a manner not specified by the manufacturer, then the protection provided by the equipment may be impaired.

3. Specifications

Dimensions	60.2 mm x 60.2 mm x 92.9 mm 2.4 in x 2.4 in x 3.7 in	
Mounting	doubleMOT rails, secured by eight #4-40 set screws	
Maximum Current	3 A	
Connection Type	Micro D	
X,Y Coil Dimensions	30.9 mm x 56.4 mm	
Z Coil Dimensions	34.5 mm x 34.5 mm	
Magnetic Properties	X, Y	Z
Magnitude	22 G/A	12.8 G/A
Gradient	14.4 G/cm-A	8.3 G/cm-A
Uniformity	5 G/cm^2	4 G/cm^2
Electrical Properties		
Resistance	2.71 ohm	4.20 ohm
Inductance	0.917 mega-ohm	1.63 Z mega-ohm
Thermal Properties		
Power Dissipation	15 W	

4. Regular Product Maintenance

4.1 Handling

Take care when handling TriCoil. Metal chips in the wire, dents in the housing or foreign objects in the micro-D connection or jumper pin connection may damage the unit.

4.2 Cleaning

The TriCoil housing is anodized aluminum. Typical lab solvents or cleaners like IPA, methanol, acetone, or deionized water are appropriate to clean the TriCoil if needed. Take care not to get liquid into the micro-D or pin connection.

5. Installation

5.1 Mounting

The TriCoil easily slides around the science cell of the doubleMOT using the guide rails around the cell. If a doubleMOT is ordered, the TriCoil is usually already installed around the cell to provide extra protection during shipment. If you must remove the TriCoil and replace it around the cell, do so with care as to not damage the science cell. The TriCoil is secured by eight #4-40 set screws. Loosen the set screws, and carefully slide the TriCoil directly up to remove. See technical drawings for the location of the set screws.

5.2 Electrical Connections

Please see the table in Section 9 for the pin designations and additional notes. The coil assembly comes with a cable for connecting the coils to appropriate current drivers. Please see the print in Section 9 for identification of the wires. **Please check the accompanying documentation with your product, as your product may be labeled differently than the print.** See technical drawings for the wiring diagram and pin connection diagram.

6. Operation

After installing the TriCoil around the science cell, plug in the micro-D connector. Typically, 0.5 A to 1 A of current will generate a magnetic field sufficient to create a 3D MOT.

If jumper pins are in (standard configuration) the Y and Z coil sets are in series. To control each coil set individually, use tweezers or narrow pliers to remove the jumper pins. See technical drawings for the location of the jumper pins.

7. Troubleshooting

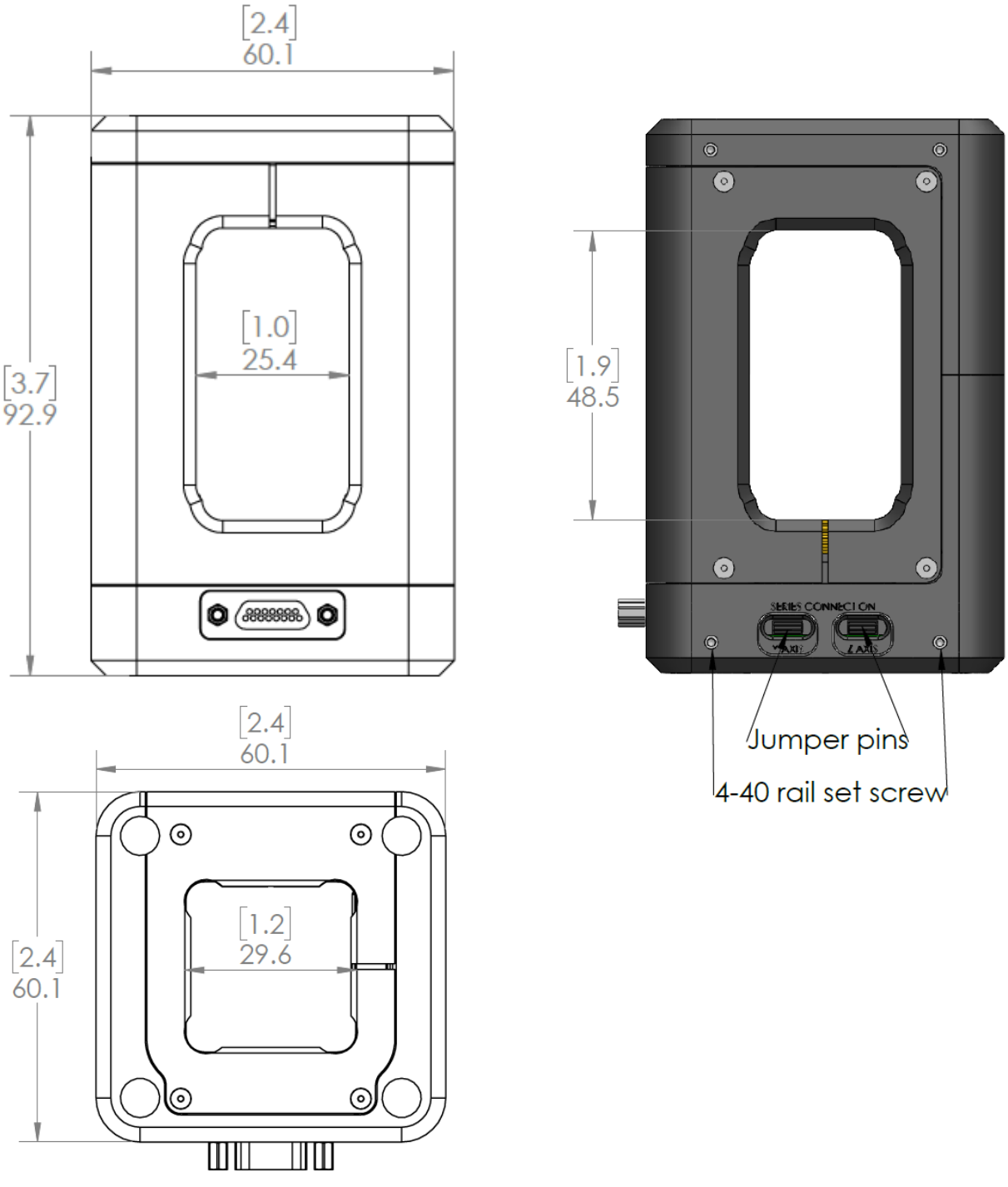
Problem	Solution
I see a 2D MOT, but I can't create a 3D MOT	• Check that all electrical connections are good • Ensure that each pin is connected to the corresponding pin out • Check if the jumper pin is installed or removed
The cable provided is too short. Can I use another cable?	Any cable at 22 AWG or lower will work. The maximum output is 3A.

8. Warranty

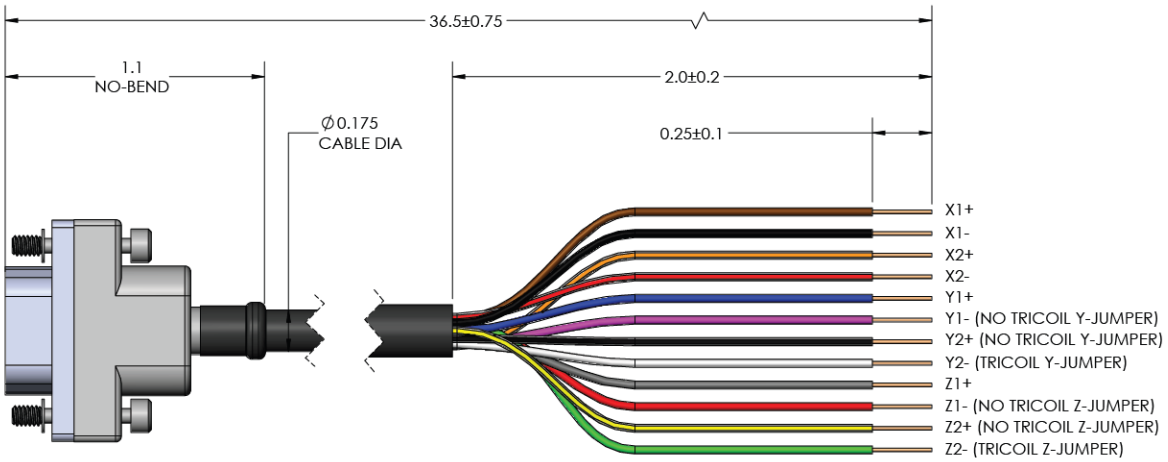
Infleqtion's Terms and Conditions, including the warranty, can be found at: https://infleqtion.com/terms

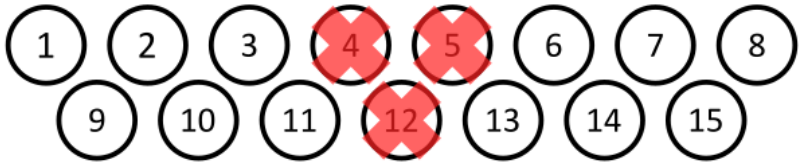
9. Technical Drawings and Dimensions

Measurements in mm and [inches].



UNCONTROLLED SALES DRAWING





WIRING CHART		
MICRO-D 15 SOCKET PIN #	WIRE COLOR (FOR REFERENCE)	FUNCTION
1	BLACK	Y1-
2	BROWN	Y1+
3	RED	Z2-
4	ORANGE	NO CONNECTION
5	YELLOW	NO CONNECTION
6	GREEN	Z1-
7	BLUE	X1+
8	VIOLET	X1-
9	GREY	Z2+
10	WHITE	X2+
11	WHITE/BLACK	X2-
12	WHITE/BROWN	NO CONNECTION
13	WHITE/RED	Y2+
14	WHITE/ORANGE	Y2-
15	WHITE/YELLOW	Z1+

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MA-00035

TRICOIL DATASHEET

REVISION CONTROL

When any part of this procedure requires amendment, the document shall be re-issued in its entirety; requests for change shall be addressed to the document owner.

Revision	Date	Change Description	ECO	Originator(s)
Previous	April 2014	Document Creation		D. Anderson
1.0	September 2025	• New format and new Infleqtion branding • Technical drawings updated • Removed reference to pins and pin out board	S1025	C. Ward C. Williams