

Mag644

Fluxgate Probe

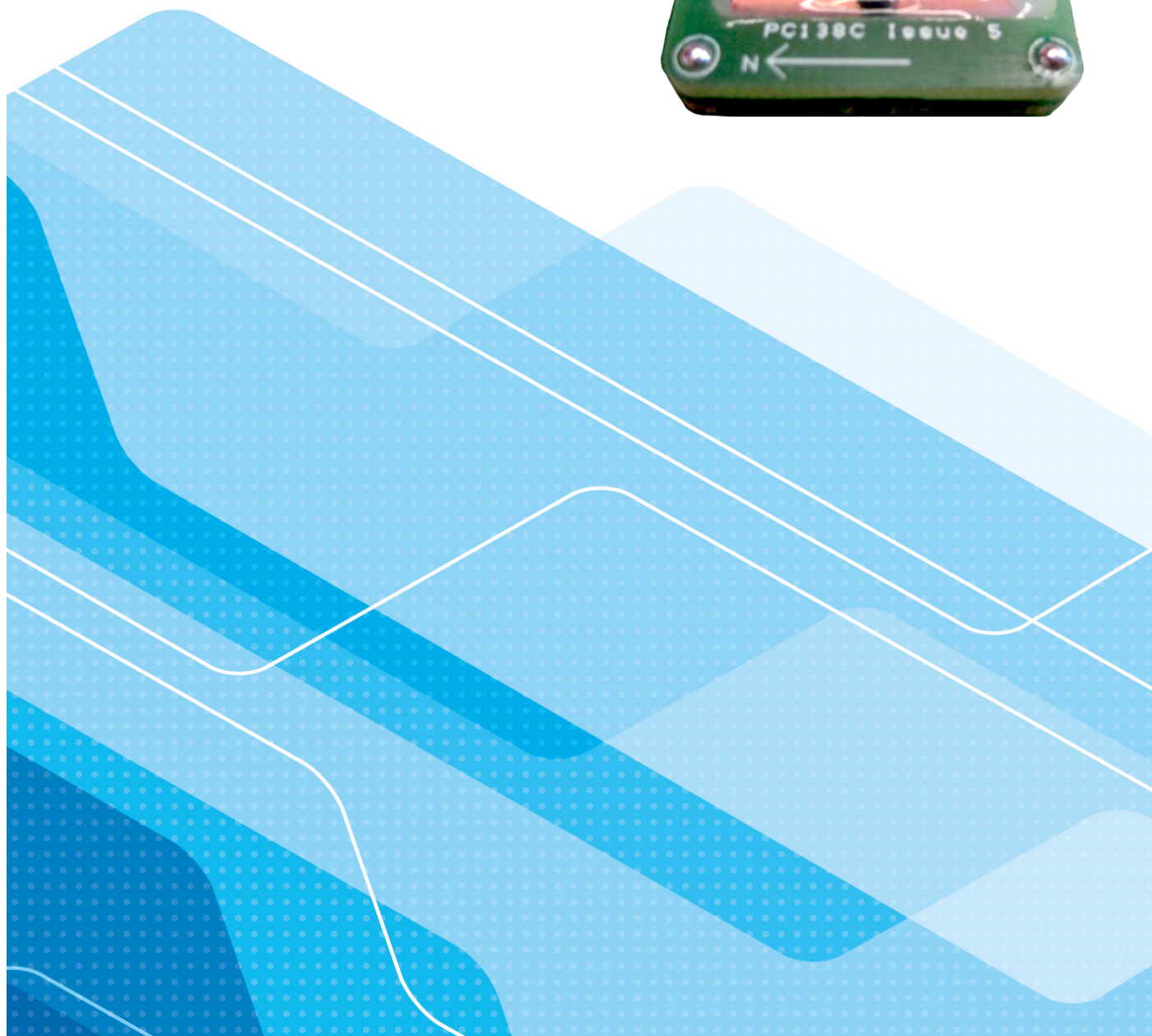


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1. About this Manual

This manual provides the information necessary to help customers connect, install and operate, the Mag644 Fluxgate probe.

Technical specifications of the product can be found in [DS5003](#), and the outline drawing in [DR5003](#).

1.1. Symbols Glossary

The following symbols used within this manual call your attention to specific types of information:



WARNING: Indicates a situation in which serious bodily injury or death could result if the warning is ignored.



Caution: Indicates a situation in which bodily injury or damage to your instrument, or both, could result if the caution is ignored.



Identifies items that must be disposed of safely to prevent unnecessary damage to the environment.

Note: Provides useful supporting information on how to make better use of your purchase.

2. Safe Use



WARNING: These products are not qualified for use in explosive atmospheres or life support systems. Consult Bartington Instruments for advice.

WARNING: Environmental and electrical specifications should not be exceeded.

Note: Do not expose to strong magnetic fields while being stored as this can magnetise the sensor and affect its offset performance.

3. Introduction

The Mag644 is a fluxgate probe designed for integration into the user's application. It is designed to be fitted to a PCB via thru-hole pins.

Each probe is intended to be used with fluxgate electronics to provide measurements of static and alternating magnetic fields.

4. Overview of the Mag644

The probe is designed to be installed by customers onto a PCB for their own particular application. See [Appendix A. Outline Drawing](#) for further information on sensor dimensions.

Drive electronics are not provided with this probe.

5. Probe Location and Mounting Recommendations

The probe should be located away from large sources of magnetic fields that may over-range the sensor or interfere with the field being measured.

For details of the mounting arrangements for the probe, refer to drawing [DR5003](#).

Note: The use of magnetic materials in the mounting arrangement must be avoided. All mounting components should be checked before installation, by introducing the component within the immediate vicinity of the sensing elements of a working magnetic field sensor, and observing any variation in the background field.

6. Connections

Connection details for the Mag644 probes are provided in [DR5003](#).

7. Mag644 Operation

The Mag644 is not supplied with drive electronics. It is designed to be integrated into a customer's own application, so does not function on its own.

8. Electromagnetic Compatibility

Note: The Mag644 probe is not shielded for immunity from, or emission of, electromagnetic fields.

Note: The Mag644 is intended for integration into other systems. Ensure these meet the appropriate level of shielding.

9. Troubleshooting

The sensor is unlikely to suffer any defects in normal use: no internal components are serviceable. The most likely causes of failure, and their solutions, are detailed in the following table.

In the event of any apparent malfunction beyond those described in the table below, please email service@bartington.com, or telephone the Bartington Instruments service team on +44 (0)1993 706565.

Problem	Cause	Solution
There are no analogue outputs present in X, Y or Z	Sensor head not connected	Ensure that the sensor head is connected to its drive electronics.
	Broken coil	If only one or two axes is (are) not responding, one of the fluxgate coil can be damaged. Please return the unit to us for assessment.
	Component damage	If only one or two axes is (are) not responding, one component can be damaged. Please return the unit to us for assessment.
There is an abnormal current draw on the sensor	Faulty component	A faulty component can lead to an abnormal current draw before it fails. Please return the unit to us for assessment.
The amplitude of the Earth's field is abnormal	Erroneous scaling factor	If the scaling factor applied to convert volts into field amplitude is erroneous, the field reading will appear either systematically high or low depending on the error on the scaling factor. Please check the conversion rate used in the acquisition software.
The noise on the output is much higher than the specified noise at low frequency	Ambient environment is noisy	A noisy environment will be picked up by the sensor. Noise tests should be carried out in a shielded environment.
	Sensor breakthrough not filtered properly	The sensor has a high frequency noise component referred to as breakthrough in the datasheet. This signal at the excitation frequency of the sensor, if unfiltered can be aliased creating an apparent low frequency noise. Check that a suitable low pass filter is used or that the signal is sampled at a suitable frequency (at least twice the breakthrough frequency).

10. Care and Maintenance



Surface dirt contamination on the Mag644 probe should be removed using a mild detergent solution only. Electronics should be cleaned with an antistatic cloth only.

Note: Store only within the temperature range specified in the product brochure.

Note: Do not expose to strong magnetic fields while being stored as this can magnetise the sensor and affect its offset performance.

11. Disposal



This product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

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The specifications of the products described in this brochure are subject to change without prior notice.

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