



## THM1176: THE ONLY HANDHELD 3-AXIS HALL MAGNETOMETER

The world's most compact 3-axis Hall magnetometer.  
Lightweight, low-power, go-anywhere, measure-anything.

- Active volume of the sensor: 0.15 x 0.15 x 0.01 mm
- Field ranges: up to 20 T
- Accuracy:  $\pm 1\%$  in any orientation
- Precision: 3.5 digits
- Sample rate: up to 2kSamples/sec continuous
- Plug & Play USB interface

# THM1176: A BREAKTHROUGH IN MAGNETIC MEASUREMENT

Thanks to its USB connection and the world's smallest 3-axis sensor, the THM1176 magnetometer marks a significant breakthrough in magnetic measurement. High-intensity fields can now be easily measured with a full standards-compliant instrument that will go anywhere, even into very small gaps.



Handheld kit



Desktop kit

## THE WORLD'S SMALLEST 3-AXIS MAGNETOMETER

This unique magnetometer has been reduced to a cable with a few fat spots. The 113 x 16 x 10 mm plastic probe is easy to manipulate. You can also remove the cap, revealing a thin stem measuring 65 x 8.2 x 4.1 mm. You can even unclip the sensor from the stem: it measures just 16.5 x 5.1 x 1.3 mm.

- Transport and set up anywhere
- Get into gaps where no other three-axis magnetometer can go
- Increase positioning accuracy
- Obtain consistent measurement in non-homogeneous fields

## FOUR MEASUREMENT RANGES FROM 0.1 TO 20T

THM1176 offers four measurement ranges, with automatic or manual scaling: 100 mT, 500 mT, 3T, and 20T.

- Measure millitesla fields to ensure safety in working environments
- Measure a fraction of a Tesla generated by permanent magnet systems, as for example electromotors...
  - ...as well as the enormous main and fringe fields of whole-body MRI scanners

## PLUG AND PLAY

Nothing is more straightforward than the standard USB THM1176 connection. Compliance with standards such as USBTMC/USB488, SCPI and VISA simplify the programming.

- Connect your probe to any PC or the optional handheld computer, get and record all data instantly...
- Gain more freedom

## SOFTWARE... AND SOURCE CODE

The standard offering includes a turnkey application. It displays the total field and its components, in numerical or graphical format, as well as offering recording and play-back capabilities. The instrument also comes with the LabVIEW™ source code and a fully documented application- and user-interface.

- Use your THM1176 out of the box
- Open up new data processing possibilities
- Integrate the THM1176 into your test system

## OPTIONAL HANDHELD KIT

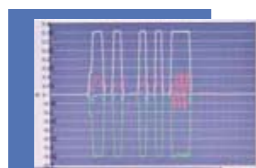
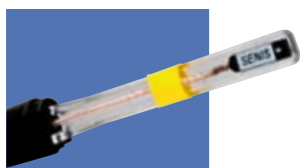
The industrial-quality handheld computer included in the optional kit offers the same software capabilities. The heavy-duty battery plus the spare provide about a full day of autonomy.

- Display all numerical or graphical data on your handheld computer
- Transfer recorded data to networks via USB, Wi-Fi, Bluetooth...

## PROBE ARRAY CAPABILITY

A standard USB hub allows you to easily turn a handful of THM1176 probes into a probe array.

- Map fields rapidly in applications where this was previously inconceivable
- Master complex field mapping problems!



# THREE-AXIS HALL MAGNETOMETER THM1176

## TECHNICAL SPECIFICATIONS

### MEASUREMENT

**Output:**  $B_x$ ,  $B_y$ ,  $B_z$ , Temp, Time

**Units:** T, mT, G, kG, MHz<sub>p</sub>

**Ranges / Resolution:**

0.1 T: 0.3 mT

0.5 T: 0.5 mT

3 T: 3 mT

20 T: 15 mT

No oversampling; resolution  $\sim 1/\sqrt{N}$

**Accuracy:**  $\pm 1\%$  of reading (up to 3 T), limited by resolution

**User offset correction:** before each set of measurements

**Bandwidth:** DC to 1 kHz

**Trigger mode / Sample rate:**

Immediate:  $< \sim 12$  kHz

Timed: 0.36 – 2048 Hz

Bus:  $< \sim 400$  Hz

### MECHANICAL

**Cable length:** 3 m, 6 m optional

**Weight:** 150 g (280 g for 6 m)

**Electronics:** 76 x 22.5 x 14 mm

**Probe:** 113 x 16 x 10 mm with housing,  
65 x 8.2 x 4.1 mm without

**Sensor:** 16.5 x 5.1 x 1.3 mm

**Field sensitive point:** 150 x 150 x 10  $\mu$ m

**Probe mounting:** M2.5 screw

### INTERFACE

**USB 2.0:** full speed (12 Mbps)

**Connector:** USB Type A

**Driver:** USBTMC/USB488, DFU

**Protocol:** IEEE 488.2, SCPI

**Power:** USB bus, 4.3 – 5.25 V

**Wake-up time:** 100 ms

### SOFTWARE FUNCTIONALITY

- Supported in Windows, Mac OS X and Windows Mobile
- Displays  $B$ ,  $B_x$ ,  $B_y$ ,  $B_z$
- Numerical or graphical display

- "Hold" and "Max" functions
- Selection of range, units and oversampling factor
- Save to file, recall from file
- Zero offset correction

### KIT CONTENTS

**Desktop kit:**

- 3-axis Hall probe
- Zero-gauss chamber
- Calibration to 3 T
- CD with acquisition software, source code and manual
- Metrolab software license, including free upgrades

**Handheld kit – in addition:**

- Rugged handheld computer
- Heavy-duty battery, plus spare
- USB instrument adaptor cable
- USB host adaptor cable
- Software licenses from Metrolab and National Instruments
- Carrying case

### OPERATING CONDITIONS

**Operating temperature:** 0 to 40°C

**Storage temperature:** -20 to 60°C

**Magnetic field:** electronics  $< 3$  T,  
handheld computer  $< 1$  T

### WARRANTY, CALIBRATION, CERTIFICATION AND MAINTENANCE

**Warranty:** 2 years

**Calibration interval:** 18 months

**Certification:** CE approved

**Maintenance:** upgradable firmware

For detailed specifications,  
please see <http://www.metrolab.com>.

METROLAB

110, ch.du Pont du Centenaire

CH-1228 Geneva Switzerland

Tel: +41 (22) 884 33 11

Fax: +41 (22) 884 33 10

E-mail: [contacts@metrolab.com](mailto:contacts@metrolab.com)

Web: [www.metrolab.com](http://www.metrolab.com)