DESCRIPTION:

Low Noise Teslameter with integrated Hall Probe incorporates a high accuracy magnetic field-to-analog-voltage transducer with a high-level, temperature compensated output signal for each of the three components of the measured magnetic flux density. A digital module is additionally applied to the analog transducer to form the digital Teslameter. Digital Teslameter provides the possibility of automatic data acquisition via a USB serial interface by a host computer. In this way, customers can easily integrate a measurement routine into their measurement system using its programming tools such as Basic, C, C++, Delphi, LabVIEW, etc.

The temperature measurement feature allows user to obtain current temperature values while monitoring the magnetic field.

The transducer consists of two modules:

1. Hall probe and Cable (Module H), and
2. Electronics (Module E).

The Low-Noise Digital Teslameter is a high accuracy temperature-stabilized instrument for the precise measurement of magnetic field.

Each Transducer is calibrated with the individual correction data for the connected probe, so the probe is replaceable.

KEY FEATURES:

- **Teslameter for Laboratory Applications**
- **Teslameter with integrated 1-,2-,3-axis Hall Probes for measuring DC & AC magnetic fields up to 5kHz**
- **Very High Resolution: 1ppm at magnetic field range: 0.2T, 2T, 20T**
- **Accuracy up to approx. 0.01%**
- **High temperature stability (< 20ppm/°C)**
- **Auto range, zeroing, hold reading capability**
- **Relative reading (e.g. to offset value)**
- **Trigger input/output**
- **Signal Analysis (signal frequency measurement, rms value, min/max value, etc.)**
- **Units in gauss (G), tesla (T) or Oersted (Oe)**
- **TFT LCD graphic display (107x71mm), displaying Bx, By and Bz components and the temperature value measured on the Hall Probe**
- **Data Acquisition & Visualization PC Software runs on Windows 7/XP (USB 2.0)**
- **Remote software access for measurements monitoring (LabVIEW VI)**
- **Measured Channel Selection (Bx, By, Bz)**

TYPICAL APPLICATIONS:

- **Quality control and monitoring of permanent magnets & magnet systems (generators, motors)**
- **Development of magnet systems & process control**
- **Magnetic field mapping**

Figure 1. **Low-Noise Teslameter 3MH5A with integrated Hall Probe**

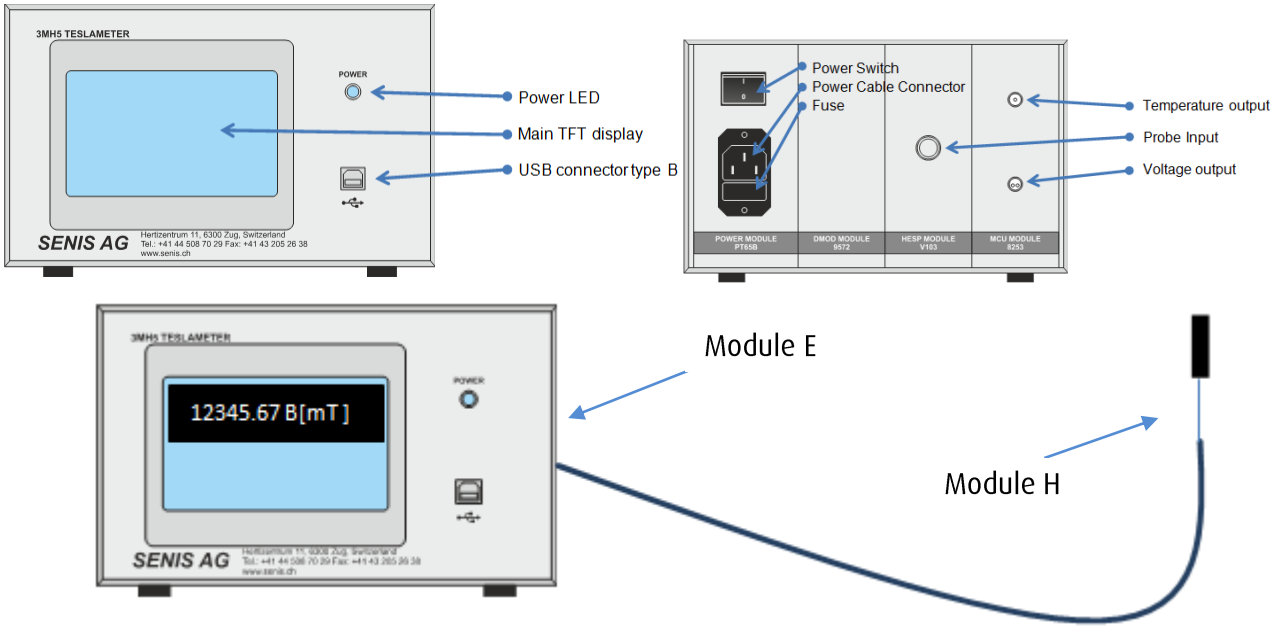

Figure 2. **Structure of the Low-Noise Teslameter 3MH5A with integrated Hall Probe**
- Module H, consisting of the Hall Probe and the CaH Cable;
- Module E, analog and digital electronics for signal conditioning.

HALL PROBE SPECIFICATIONS (Module H):

The Hall Probe contains a CMOS integrated circuit, three groups of mutually orthogonal Hall elements and a temperature sensor. The integrated Hall elements occupy very small area (150µm x 150µm), which provides very high spatial resolution of the probe.
The output of the Hall Probe are high-level analog voltages proportional to the measured components of a magnetic field and a voltage proportional with the probe temperature.
There are a number of different geometries/dimensions of Hall probes available, in order to fulfill a wide range of customer's application requirements.

For Probe selection, please see Hall Probes Sections at www.senis.ch

HALL PROBE KEY FEATURES

The unique advantages of the fully integrated probe include:

- Measurement of magnetic field components
- Very low noise and offset fluctuations
- High disturbance immunity
- Virtually no planar Hall Effect
- Negligible inductive loops
- The probe provides a temperature signal for an efficient compensation of temperature effects

MAGNETIC AND ELECTRICAL SPECIFICATIONS:
(FOR DETAILS, PLEASE SEE THE SPECIFIC DATASHEET WITH SELECTED HALL PROBE)

Magnetic field measurement range:	± 200mT, 2T, 20T (different ranges available)
Total measuring Accuracy:	approx. 0.01%