

Magnetic-Field Test System MTS-800



Description

The MTS-800 is a compact test system for broadband generation and measurement of magnetic fields. Its internal components allow automatic EMC tests according to automotive standards where high field strength need to be generated or measured.

In combination with our triaxial Helmholtz coils full automated susceptibility tests are possible at magnetic field strength up to 1000 A/m for frequencies from DC to 1 kHz. Lower field strength can be generated for frequencies up to 250 kHz. Due to the triaxial set-up of our Helmholtz coil major improvement in device handling is achieved because there is no need to turn an EUT during tests.

The MTS-800 complies to all magnetic field requirements of relevant EMC and military standards.

Tests and measurements are controlled by a program which will set most parameter automatically. For any relevant standard, which are fulfilled by the MTS-800, limit values are already included into the software package, although any different value can be defined by a user. After every test full reports will be created automatically. Report layout is pre-defined, though any user-defined layout is possible. High performance is guaranteed by a self-calibration process which utilizes an internal source as reference.

According to

IEC/EN 55103-1/2, IEC/EN 61000-4-16, IEC/EN 61000-4-8, SAE J1113-22, ISO 11452-8, MIL-STD-461E (CE101, RE101, CS101, CS109 and RS101), Automotive manufacturer standards

Special Features:

- Frequency range for emission and immunity measurements: DC – 250 kHz
- 800W precision power amplifier, signal generator and spectrum analyzer in one compact unit
- All instruments may as well be used as stand-alone devices
- Powerful but easy to operate software, fully expandable for future standards modifications
- Standard software allows easy operation, report generation and integration of external measuring instrument for EUT monitoring
- Prepared for connection of external multimeter for EUT control
- Fully automated tests with triaxial Helmholtz coil. Software controlled generation of magnetic field in x-, y- and z- direction; no need to turn the EUT!
- Large variety of extensive accessories available

Technical specifications

Voltage input (Analyzer)

Frequency range	DC - 250 kHz
Input impedance	1 M Ω / 50 Ω switchable
Connector	XLR, unbalanced
Max. input voltage	100 V continuous (attenuator autoset at overvoltage); 10 V at 50 Ω
Gain	-20/0/20 dB Preamplifier, 0/20/40 dB ADC Amplifier; Self-calibration with ultra stable on-board reference

Current input

Frequency range	DC - 250 kHz
Shunts	10 m Ω / 1 Ω / 100 Ω
Max. input current	20 A continuous (overload protection); 1 Ω and 100 Ω shunt are protected by an additional 1.5 A fuse
Connector	4 mm safety jack (+, -) measurement via insulation amplifier or input jacks
Measurement range	20 A, 10 A, 1 A, 100 mA, 10 mA, 1 mA automatic offset and gain; Self-calibration with ultra stable on-board reference

AD converter

Resolution	16 Bit
Sampling rate	1.25 MSPS
Aliasing filter	0.01 dB Tschebyscheff filter, fg = 260 kHz; filter may be switched off
Generator	
Frequency range	DC - 250 kHz
Output impedance	50 Ω
Connector	BNC, unbalanced
Signal	Sine wave / triangular /square wave/ DC
Amplitude	0 to 10 VAC, -10 V to +10 VDC
Resolution	12 Bit (2.5 mV), Switchable - 20 dB Attenuator; Self-calibration with ultra stable on-board reference

Amplifier

Frequency range	DC - 1 MHz
Connector	4 mm safety jacks (output); BNC, unbalanced (input)
Current	16 Arms
Voltage	50 Vrms / 75 VDC
Distortion (DC-100 kHz, load \geq 4 Ω)	< 0.10 %

General data

EUT control / Connector	9-pin Sub-D; RS232
Connection to Computer	USB
Temperature range	0 to 40 $^{\circ}$ C
Warm-up time	15 min.
Housing	19"-Subrack or desktop case
Dimensions (W x H x D)	449 x 177 x 580 mm
Weight (shipping)	approx. 40 kg (net 34 kg)
Gain	10 \pm 0.1 % (\pm 0.01 % / $^{\circ}$ C)