DMI 553

Digital Measuring Instrument for AC and DC

Datasheet

HAEFELY

Current and voltage – our passion

Designed by Tettex

General Description

High Voltage measurements are done by connecting a specialized voltmeter (like the DMI 553) to the secondary unit of a voltage divider or to a current to voltage transducer (like a shunt).

The DMI 553 has been developed to measure, record and visualize events during dielectric and breakdown tests in high voltage applications according to IEC 61083-3:2020.

Measured values are shown as large digits on the computer screen using Haefely CaMS software. In addition, for pass/fail criteria during dielectric tests, Peak by √2 voltage is recorded & last value before breakdown is shown.

Graphical indications as scope function, FFT, datalogger or flash detetion are included.

To facilitate easy comprehension, voltage divider ratio or shunt conversion factor (A/V) can be incorporated in the calculation to display parameters directly in kV or A

Fiber optic connection guarantees galvanic isolation between the operator and high voltage test lab, increasing safety.

The DMI can generate reports based on templates which can be printed or saved as PDF. Snapshots of the display or charts can be easily included in the reports..

Features	Advantages
▪ Designed to measure voltage and current in high voltage applications.	☑ **Approved for dielectric tests as per IEC 61083-3– as** Peak/√2 is the required measured parameter.
▪ Measures AC voltage and currents as RMS, Peak and Peak/√2 among others	☑ **The Peak/√2 required value** during dielectric test is measured and recorded.
▪ Measures DC voltage and currents as Mean, Peak and ripple.	☑ **One device, 2 applications,** same device can be used for AC and DC application.
▪ Flash detection with voltage indication	☑ **Exact voltage just before failure is recorded and shown –** if a failure arise during the test, failure indication, voltage measured before the flash and waveshape during the flash is shown and recorder for further analysis.
▪ Real time scope and Frequency analysis FFT.	☑ **Waveshape quality** of the signal is continuously shown in the screen.
▪ Additional AC/DC current channel (optional).	☑ **Voltage and current readings in one single device –** values can be simultaneously shown and recorded.
▪ Computer controlled with Haefely CaMS graphical user interface	☑ **Reduced training time -** Modern SW makes the use of the device easier than ever. Operators can start using the device in minutes.
▪ Optically decoupled from computer ▪ Compact, reliable, and EMC hardened design, IP50	☑ **The galvanic isolation ensures the full safety of the operating personnel**. With the DMI 553 and, there is no electrical connection between the control room and the high voltage test room.
▪ Portable, Battery operated	☑ **Systems Voltage/Current Calibration** can be easily done without needs of mains connection.

Applications

- High voltage laboratories
- On site high voltage test
- Calibration laboratories

Scope of Supply

- DMI 553 measuring device
- FiberLink – LC to USB
- 20m LC fiber optic cable
- Battery with charger
- Connection accessories set - per channel.
- USB stick with software
- Manual (English)
- Quick start guide

Technical Data

Measured Values Voltage & Current(1)		
AC	Amplitude	±Peak, ±Peak/√2, RMS_{fund}, $Peak_{AVG}$, RM, RM_{Corr}, Mean, Peak Factor, Rate of Rise
	Frequency	Fundamental frequency
	Harmonics	1…20th individual (Amplitude, Phase, Ratio), THC, THD
	Peak-hold values	Peak Flash, RMS Flash, Rate of Rise Flash
DC	Amplitude	Mean, Ripple, f_{Ripple}, Peak, Rate of Rise
	Peak-hold values	Peak Flash, RM_{Corr} Flash, Rate of Rise Flash

(1) (External shunt not included)

AC & DC Measurement	
Input voltage	0…400 V_{pk}
Input impedance	1 MΩ || 3 pF
Frequency	DC, 10…600 Hz (Fundamental , 20th Harmonic ; 12 kHz)
Accuracy AC(1)	±(0.1 % +10 0µV)
Accuracy DC(1)	±(0.1 % +1 mV)
Averaging	100 ms…10 s (selectable)
Sampling rate	48.8 kS/s
ADC resolution	24 bits
Recording depth	500 kPoints of data stream

Interfaces	
2 Voltage Inputs	2 x BNC 50 Ohm (only one enabled in standard supply).
Fiber link adapter	Fiber-optic, HARTING connector to Ethernet 10/100 (data) and USB 2.0 (power/data)
Computer connection	USB 2.0 (in Fiber Link).
Digital outputs control	Ethernet port (at Fiber Link Adapter) to control an external digital I/O (not included) to generate hardware trigger signals after events (Flash, Trip).

Indicators in CaMS Software	
Meters	Selectable number of meters (measured values)
Charts	Scope (Waveshape), FFT, Data logger
Graphical	Flash (breakdown), Trip (Overvoltage)

Environmental, Mechanical and Power Supply	
Operating temperature	-20 °C … +55 °C
Storage temperature	-40 °C … +85 °C
Humidity	5 ... 95 % r.h., non-condensing
Dimensions (W x D x H)	342 x 315 x 86 mm (13.5 x 12.4 x 3.4 in)
Weight	1.3 kg (2.9 lb)
Protection class	IP 50
Battery.	Lithium-Ion rechargable battery; 11 V DC, 97.2 Wh. Operating time > 8h, charging time < 3h

PC, Screen Resolution and Operation System Requirements	
PC min. configuration	Minimum: Intel Core i5 (3rd Gen) or better, 4 GB RAM, Ethernet / USB 2.0 Recommended: Intel Core i7 (10th Gen) or better, 16 GB RAM, Ethernet / USB 2.0
Operation system	Windows 11™, 64-bit

Applicable Standards	
General	IEC 61083-3 , IEC 60060 Parts.
CE conformity	EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU

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