HAEFELY

Current and voltage – our passion

2823

High-Precision tan δ / Power factor Measuring Instrument

■ The **2823** High Precision tan δ / power factor measuring instrument is designed for measurement of very low dielectric losses of high-voltage apparatus.

HAEFELY, the pioneer in high voltage testing since 1904, has been continuously developing and improving this product line since the first manual measuring bridge Tettex type-2801 was introduced in 1963.

Tettex brand, a part of Haefely, is world-wide recognized for the accuracy and reliability of our measuring instruments. The new 2823 belongs to our new generation of measuring instruments, which includes a perfect combination of more than 50 years experience in this field together with state of the art technologies.

The use of an optically decoupled connection allows complete galvanic isolation between control room and test field, and guarantees highest safety level of test personnel.

Additional information about this device can be found in our web page, www.haefely.com.

FEATURES

- ☑ High accuracy: capacitance 0.1 % , tan δ 5 x 10^{-5}
- ☑ Compact, reliable and EMC hardened design, IP50
- ☑ Optically decoupled from computer
- ☑ Up to 15 A input current with auto-range
- ☑ Extremely low input impedance
- ☑ Industrial measuring and fiber optic connectors
- ☑ Mains powered

BENEFITS

- ■ The **galvanic isolation** fully ensures safety of the personnel. With the 2823, there is no electrical connection between the control room and the high voltage test room
- ■ **Simple connection** to test objects without external shunts or hardware reconnections due to the high input current range
- ■ **Increased** linearity and extended frequency measuring range up to 1 kHz.
- ■ **Backwards compatible** with older instruments and cabling, same connectors used for over 40 years.
- ■ **Turn key solution** from one supplier possible (including power supplies, standard capacitors, current comparators, test cells, certified calibration…).
- ■ Connect and forget, No battery pack or recharge needed.

APPLICATIONS

Routine and type tests of:

- ■ Generators and generators bars
- ■ Bushings and isolators
- ■ Instrument Transformers

Others

- ■ Research and development

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technical specifications

Measurement

	Range	Max. Resolution	Accuracy
Dissipation Factor (tan δ) (1)	0 .. 100	1 x 10^{-5}	± 0.1% RD ± 5 x 10^{-5}
Power Factor (cos φ) (1)	0 .. 1	1 x 10^{-5}	± 0.1% RD ± 5 x 10^{-5}
Capacitance (2)	≥ 0.1 pF	0.01 pF	± 0.1% RD ± 0.05 pF
Inductance (2)	≤ 1000 kH	0.1 mH	± 0.2% RD ± 0.3 mH
Test Voltage	> 5 V	1 V	± 0.2 % RD ± 1 V
Test Current @ Input Cn (2)	10 uA .. 300 mA	1 nA	± 0.1% RD ± 0.1 nA
Test Current @ Input Cx (2)	10 uA .. 15 A	1 nA	± 0.1% RD ± 0.1 nA
Test Frequency	15 .. 1000 Hz	0.01 Hz	± 0.1% RD ± 0.02 Hz
Apparent Power S (2)	≥ 1 mVA	0.1 mVA	± 0.5% RD ± 1 mVA
Real Power P (2)	≥ 1 mW	0.1 mW	± 0.5% RD ± 1 mW
Reactive Power Q (2)	≥ 1 mVAr	0.1 mVAr	± 0.5% RD ± 1 mvar

(1) valid for temperature 5 .. 45°C (2) valid for reference conditions 23°C ±5°C 50/60 Hz

Hardware

Measuring Channels	2 (C_N & C_X)
Link 2823 to Media Box	Fiber optic cable with rugged HARTING connectors, Han3A-gw-M20, SC type, IP44
Link Media Box to Controller	USB 2.0
Controller	External Computer (not included)

Software

Controller requirements	Intel Core i3® / AMD Athlon II X2® or better, 1 GB RAM, Microsoft Windows 7 or 10. 1 x USB 2.0 port free
Measuring time	0.3 s / measurement
Data format	XML & CSV
Recorded values	DF (tanδ), DF (tanδ)$_{@20°C}$, DF (tanδ) [%], DF (tanδ) [%]$_{@20°C}$, PF (cosφ), PF (cosφ)$_{@20°C}$, PF (cosφ) [%], PF (cosφ) [%] $_{@20°C}$, QF (quality factor), QF (quality factor)$_{@20°C}$, C_P (Z_X= C_P || R_P), R_P (Z_X= C_P || R_P), C_S (Z_X= C_S + R_S), R_S (Z_X= C_S + R_S), Cn (Standard Capacitor Value), L_S (Z_X= L_S + R_S), R_S (Z_X= L_S + R_S), L_P (Z_X= L_P || R_P), R_P (Z_X= L_P || R_P), U_{RMS}, $U_{RMS}/\sqrt{3}$,$U_{peak}/\sqrt{2}$, Ix $_{RMS}$, In $_{RMS}$, I_m, I_{fe}, Impedance Zx, Phase-angle φ (Zx), Admittance Yx, Frequency$_{Test}$, Apparent Power S, Real Power P, Reactive Power Q, Real Power$_{@2.5kV}$, Real Power$_{@10kV}$,

Mains Power Supply

Voltage	90 .. 264 V AC
Power	50 VA
Frequency	50 / 60 Hz

Environmental

Operating temperature	0°C +55°C
Storage temperature	-20°C +70°C
Humidity	5 .. 90% r.h. , non-condensing

Mechanical

Protection Class	IP 50
Dimensions (W x D x H)	345 mm x 360 mm x 130 mm
Weight	7.2 kg
Vibration Tests	IEC60068-2-64 Spec A1 Transportation a1

Configurations, accessories and options in the 2823 leaflet available at www.haefely.com