

IDAS 2823-REF

Highest Precision $\tan \delta$ / Power factor Measuring Instrument

Datasheet



HAEFELY

Current and voltage – our passion

Designed by

Tetex 

General Description

The IDAS 2823 Highest Precision $\tan \delta$ / power factor measuring instrument is designed for measurement of very low dielectric losses of high-voltage apparatus at reference level accuracies.

The IDAS 2823-REF is the most accurate dielectric losses analysing system available. It is used by reference laboratories and for those applications where accuracy is the key (ex. shunt reactor losses measurement).

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.

It is capable of analyzing capacitive and inductive loads with outstanding accuracy and stability certified by a leading metrology institute.

Features	Advantages
<ul style="list-style-type: none">▪ Compact, reliable and EMC hardened design, IP50.	<ul style="list-style-type: none">☑ Built to be located the HV laboratory attached to the nominal capacitor, which increases safety and reduces connecting time.
<ul style="list-style-type: none">▪ Optically decoupled from computer with industrial grade fiber optic connectors.	<ul style="list-style-type: none">☑ The galvanic isolation ensures full safety of the personnel. With the IDAS 2823, there is no electrical connection between the control room and the high voltage test field.
<ul style="list-style-type: none">▪ Up to 15A input current with auto-range.	<ul style="list-style-type: none">☑ Simple connection to test objects without external shunts and no need for a hardware reconnection due to the high input current range
<ul style="list-style-type: none">▪ Extremely low input impedance	<ul style="list-style-type: none">☑ Increased linearity and extended frequency measuring range up to 1 kHz.
<ul style="list-style-type: none">▪ LEMO type measuring cables	<ul style="list-style-type: none">☑ Backward compatible with older instruments and cabling, same connectors used for over 40 years.
<ul style="list-style-type: none">▪ Mains Powered	<ul style="list-style-type: none">☑ Connect and forget, no battery pack or recharge needed.
<ul style="list-style-type: none">▪ Highest accuracy up to 0.02 % , $\tan \delta 1 \times 10^{-5}$	<ul style="list-style-type: none">☑ Best device for reference laboratories or special applications like cables or shunt reactor losses measurement.

Applications

Routine and type tests of:

- Power cables and Accessories
- Shunt Reactor losses
- Capacitors
- Generators and generator bars
- Bushing and isolators
- Instrument Transformers and Others
- Research & Development

Technical Data

Measurement	Range	Max. Resolution	Accuracy
Dissipation Factor ($\tan \delta$) ⁽¹⁾	0 ... 100	1×10^{-6}	$\pm 0.1 \% \text{ RD} \pm 1 \times 10^{-5}$
Power Factor ($\cos \varphi$) ⁽¹⁾	0 ... 1	1×10^{-6}	$\pm 0.1 \% \text{ RD} \pm 1 \times 10^{-5}$
Capacitance ⁽²⁾	$\geq 0.1 \text{ pF}$	0.001 pF	$\pm 0.02 \% \text{ RD} \pm 0.01 \text{ pF}$
Inductance ⁽²⁾	$\leq 1000 \text{ kH}$	0.1 mH	$\pm 0.1 \% \text{ RD} \pm 0.3 \text{ mH}$
Test voltage	$> 5 \text{ V}$	1 V	$\pm 0.2 \% \text{ RD} \pm 1 \text{ V}$
Test Current @ Input Cn ⁽²⁾	10 μA ... 300 mA	0.1 nA	$\pm 0.05 \% \text{ RD} \pm 0.05 \text{ nA}$
Test Current @ Input Cx ⁽²⁾	10 μA ... 15 A	0.1 nA	$\pm 0.05 \% \text{ RD} \pm 0.05 \text{ nA}$
Test Frequency	15 ... 1000 Hz	0.01 Hz	$\pm 0.1 \% \text{ RD} \pm 0.02 \text{ Hz}$
Apparent Power S ⁽²⁾	$\geq 1 \text{ mVA}$	0.1 mVA	$\pm 0.3 \% \text{ RD} \pm 1 \text{ mVA}$
Real Power P ⁽²⁾	$\geq 1 \text{ mW}$	0.1 mW	$\pm 0.3 \% \text{ RD} \pm 1 \text{ mW}$
Reactive Power Q ⁽²⁾	$\geq 1 \text{ mVAr}$	0.1 mVAr	$\pm 0.3 \% \text{ RD} \pm 1 \text{ mvar}$

⁽¹⁾ valid for temperature 5 .. 45 °C

⁽²⁾ valid for reference conditions 23 °C \pm 5 °C

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 ($\tan \delta$), DF ($\tan \delta$)@20 °C, DF($\tan \delta$)[%], DF ($\tan \delta$)[%]@20 °C, PF ($\cos \varphi$), PF ($\cos \varphi$)@20 °C, PF ($\cos \varphi$)[%], PF ($\cos \varphi$)[%]@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), C _n (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} /√3, U _{peak} /√2, I _{X RMS} , I _{N RMS} , I _m , I _{fe} , Impedance Z _x , Phase-angle φ (Z _X), Admittance Y _x , Frequency _{Test} , Apparent Power S, Real Power P, Reactive Power Q, Real Power@2.5 kV, Real Power@10 kV
Screen resolution	1280 x 800 (WXGA)
Operation system	Windows 10™

Environmental Mechanical and Power Supply	
Operating temperature	0 °C ... +55 °C
Storage temperature	-20 °C ... +70 °C
Humidity	5 ... 90 % r.h., non-condensing
Dimensions (W x D x H)	345 x 360 x 130 mm (13.6 x 14.2 x 5.2 in)
Weight	7.2 kg (15.9 lb)
Power supply Spec.	90 ... 264 V AC, 50/60 Hz, 50VA

Applicable Standards	
Protection Class	IP 50
CE conformity	EMC Directive 2014/30/EU and RoHS Directive 2011/65/EU
Vibration Tests	IEC 60068-2-64 Spec A1 Transportation a1

Global Presence

Europe

HAEFELY AG
Birsstrasse 300
4052 Basel
Switzerland

☎ + 41 61 373 4111
✉ sales@haefely.com

China

HAEFELY AG Representative Office
8-1-602, Fortune Street, No. 67
Chaoyang Road, Beijing 100025
China

☎ + 86 10 8578 8099
✉ sales@haefely.com.cn

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HAEFELY

Current and voltage – our passion



HIGH VOLTAGE



INSTRUMENTS



EMC

precision. 
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