HAEFELY

Current and voltage – our passion

RIC 422

Reference Impulse Calibrator

■ The HAEFELY RIC 422 calibrator is used for the supervision and calibration of all kinds of impulse measuring systems.

The calibrator generates Lightning (LI), Switching (SI) and front-chopped Lightning (LIC) reference impulses according to the standards IEC 61083 and IEEE 1122. In addition it can produce accurate DC voltages and unit steps.

The accuracy of each calibrator can be traced back to the standard from PTB (Physikalisch-Technische Bundesanstalt, Braunschweig, Germany).

A built-in impulse circuit with an adjustable charging voltage generates the impulses. A peak value comparator circuit calibrates the output voltage of the impulse circuit. The outstanding output voltage accuracy and stability, which in a certain range is load independent, is achieved by gradual approximation to a reference value. This procedure is always performed before certain shapes or levels of impulses are generated and it guarantees the excellent stability.

Combined with the HAEFELY HiAS™ 744, HiAS™ 743 or DiAS™ 733 software, the RIC 422 can execute a fully automated calibration procedure according IEC 61083 for these impulse analyzing systems.

FEATURES

- ☑ Switching reference impulse type
- ☑ Lighting reference impulse type
- ☑ Front chopped Lighting reference impulse type
- ☑ Outstanding output voltage accuracy and stability.
- ☑ High-precision impulse circuit with adjustable charging voltage to generates the impulses.
- ☑ Remote controllable from HiAS™ and DiAS™ digitizers
- ☑ Output voltage is automatically load calibrated by gradual approximation to the reference value

BENEFITS

■ Settings and control can be made via the remote interface. When installed with a HAEFELY impulse analysing system, the system's software selects and initiates the appropriate RIC 422 settings and control for a fully automated digitizer calibration.

APPLICATIONS

■ Calibration and verification of impulse analyzing systems according to IEC 61083 and IEEE 1122.



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TECHNICAL SPECIFICATIONS

Lightning Impulse LI		
Time	0.84 µs / 60 µs	Front time T_1 / Time to half value T_2
Peak value $\hat{U}_{pk}$	± 80 V .. ± 1600 V	Adjustable in 1 V steps
Switching Impulse SI		
Time	20 µs / 4000 µs	Time to peak T_p / Time to half value T_2
Peak value $\hat{U}_{pk}$	± 80 V .. ± 1600 V	Adjustable in 1 V steps
Front chopped Lightning Impulse LIC		
Chopping time T_C	0.50 µs	
Peak value $\hat{U}_{pk}$	± 400 V .. ± 1250 V	Adjustable in 1 V steps
Step Function		
Transient time T_r	< 20 ns	Repetition frequency 10 Hz
Voltage U	+ 1000 V .. + 2000 V	Adjustable in 1 V steps
DC Voltage		
Voltage U	+ 200 V .. + 2000 V	Adjustable in 1 V steps
Impulse Sequence		
Repetition interval	1 sec .. 999 sec	Adjustable in 1 sec steps
Stability		
Front time T_1, Time to half T_2, Peak time T_p	± 2.0 % / ± 0.2 %	Long-term / short-term deviation
Chopping time T_C	± 2.0 % / ± 1.0 %	Long-term / short-term deviation
Peak value $\hat{U}_{pk}$ (LI, SI)	± 0.5 % / ± 0.1 %	Long-term / short-term deviation
Peak value $\hat{U}_{pk}$ (LIC)	± 1.0 % / ± 0.2 %	Long-term / short-term deviation
Voltage U, (Step Function)	± 1.0 % / ± 0.2 %	Long-term / short-term deviation
DC Voltage	± 0.2 % / ± 0.1 %	Long-term / short-term deviation
Load Impedance Range		
Reference operation	> 250 kΩ // 100 .. 300 pF	To guarantee max. deviations
Outputs, Inputs		
Trigger HV / Trigger LV	150 V / 15 V	BNC connector
Impulse output	see above	LEMO RA 4250
Remote control	IEEE 488 / RS 232 / Ethernet over LAN/GPIB converter	Only in 4-channel version
Environmental		
Temperature range	5°C .. 40°C (20°C .. 25°C)	(Reference mode)
Humidity	35 % .. 80 % r.h.	Non-condensing
General		
Dimensions (W x H x D)	520 x 165 x 435 mm	
Weight	Approx. 10 kg	
Power supply	115 / 230 V, 50 / 60 Hz, 100 VA	

ORDER INFORMATION

Code		Scope of Supply
RIC 422-1	1-channel desk top version	Instrument, 1 LEMO cable 1m, Mains cable, Manual
RIC 422-4	4-channel desk top version with remote control	Instrument, 4 LEMO cable 1m, Mains cable, Manual
HS RIC	4-channel 19” rack version with remote control	Instrument, 4 LEMO cable 0.6m, Mains cable, Manual