

RIC 422

Reference Impulse Calibrator

■ The HAEFELY HIPOTRONICS 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 HIPOTRONICS 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 HIPOTRONICS 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.



TECHNICAL SPECIFICATIONS

Lightning Impulse LI

| | | |
|---------------------------|----------------------------|---------------------------------------------|
| Time | 0.84 μ s / 60 μ s | 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 μ s / 4000 μ s | 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 μ s | |
| 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 k Ω // 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 |

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