

KLARI-MOD MC 2-1000V



THE REQUIREMENTS

- Safe measurement at high voltage potentials up to 1 kV.
- Dynamic current and voltage measurement for automotive hybrid or electrical power train with CAN data output.
- Two measuring channels, usable for current or voltage measurement.
- Easy use of the measurement technology for various applications.

FIELDS OF APPLICATION

Use in laboratories and automotive:

- Measuring current and voltage in DC circuits.
- Measuring current and voltage in AC circuits.

THE CONCEPT

- KLARI-MOD_{MC2-1000V} provides an electrical isolation of 1000 V DC between measuring circuit and data output as well as measuring channels.
- Each measuring channel is equipped with an ASIC. Each ASIC has 5 measuring ranges and autorange function.

THE DESIGN

- Compact and robust measuring module in grouted casing (potting compound).
- Optimal adaption to the measuring task by a number of pluggable PROBES for current, voltage and temperature measurements with automatic PROBE-identification.
- Manifold configuration possibilities via PC. The corresponding configuration can be stored in the measuring module.

YOUR BENEFIT

- Safe measurement based on 1 kV isolation.
- Investment protection by easy adaption of the measuring technology to different measuring tasks.
- Precise and reproducible measured values in every measuring range by +/-15 bit resolution.
- Correct measurement results by automatic PROBE-identification with calibration value transmission.
- Easy implementation of CAN data export in common CAN loggers and analysis tools via supplied CAN data base.
- Quick measurement results: The KLARIC-team will give you reliable and non-bureaucratic support, if you have questions and need support.

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SPECIFICATIONS

Inputs / characteristics	<ul style="list-style-type: none"> • 2 galvanically insulated measuring channels with ASIC each • current or voltage PROBE pluggable • measuring range: depending on the connected PROBE, examples see table
Resolution	<ul style="list-style-type: none"> • ± 15 Bit/measuring range • 5 measuring ranges with selectable autorange function
Accuracy	<ul style="list-style-type: none"> • $\pm 1\%$ of measuring value ± 3 bit per measuring range (temperature range - 40...+ 85°C)
Sample rate	<ul style="list-style-type: none"> • single channel mode: max. 8000 measuring values/sec., • 2-channel mode: max. 4000 measuring values/sec. each • continuous measurement with averaging over the measurement period, measurement period adjustable
Additional functions	<ul style="list-style-type: none"> • selectable data output (CAN and/or USB 2.0) • CAN data export – parameter driven (baud rate, identifier etc.) • integrated CAN termination, switchable via software • automatic PROBE identification • calibration value of the PROBE is considered at measuring value processing
Outputs	<ul style="list-style-type: none"> • CAN output, parameter driven • potential-free High-Speed-CAN with up to 1 MBaud
Time basis	<ul style="list-style-type: none"> • $\sim 30 \mu\text{s}$ resolution
Casing (LxWxH)	<ul style="list-style-type: none"> • grouted casing (potting compound), approx. 120x65x55 mm
Weight	<ul style="list-style-type: none"> • approx. 550 g
Power supply	<ul style="list-style-type: none"> • 6,0...50 V DC
Current consumption	<ul style="list-style-type: none"> • approx. 300 mA at 12 V DC
Configuration	<ul style="list-style-type: none"> • via CAN or USB 2.0. Configurations can be set, created, managed and loaded into the measurement module
Operating modes	<ul style="list-style-type: none"> • multichannel mode with: <ul style="list-style-type: none"> ○ autorange function for all channels across all measuring ranges ○ adjustable measurement period per measuring channel ○ adjustable averaging for all measuring channels for minimizing the data volume
Temperature range	<ul style="list-style-type: none"> • - 40...+ 85°C for the measuring module • - 40...+ 130°C for the shunt
Isolation voltage	<ul style="list-style-type: none"> • 1000 V DC
Protection class	<ul style="list-style-type: none"> • IP65

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Measuring ranges:

Examples for measuring ranges and measurement value resolutions								
Range/ Gain	200 V PROBE		1000 V PROBE		1 mΩ PROBE		200 μΩ PROBE	
	Measuring range	Resolution/bit	Measuring range	Resolution/bit	Measuring range	Resolution/bit	Measuring range	Resolution/bit
1	+/-200 V	16,344 mV	+/-1000 V	120 mV	+720 A -300 A	24 mA	+3600 A -1500 A	120 mA
6	+/-80 V	2,724 mV	+/-600 V	20 mV	+/-120 A	4 mA	+/-600 A	20 mA
24	+/-20,43 V	681 μV	+/-150 V	5 mV	+/-30 A	1 mA	+/-150 A	5 mA
50	+/-10,215 V	340,5 μV	+/-75 V	2,5 mV	+/-15 A	500 μA	+/-75 A	2,5 mA
100	+/-5,1075 V	170,25 μV	+/-37,5 V	1,25 mV	+/-7,5 A	250 μA	+/-37,5 A	1,25 mA

The measuring inputs are galvanically isolated from each other and from the electronic measuring equipment.

All interfaces and the power supply are galvanically isolated.

Measurements are possible in plus and minus path.

STANDARD SCOPE OF DELIVERY

- KLARI-MOD MC 2-1000V measuring module, isolation tested, order number: IMMCM-ZU005-0000
Please order KLARI PROBES separately!
- PC software for the configuration via USB 2.0
- CAN data base and documentation on CD-ROM
- We will give you reliable and competent support, if you have question or need support.

On demand we offer manufacturers calibration with certificate.

ACCESSORIES

Harness IP65

This harness is used for connecting the measuring modules to a notebook or PC.

The following signals are led through separately:

- CAN, Sub-D, 9-pole, female
 - Supply of the module
- | | | |
|------------------|---|------|
| IMKAB-01105-0000 | - | 1 m |
| IMKAB-04105-0000 | - | 4 m |
| IMKAB-10105-0000 | - | 10 m |



KLARI-PROBES, 1000 V

Standard measuring adapters for currents and voltages
(Selection. For further types see data sheet "KLARI-PROBES_{1000V}")

- **HV-LI current-PROBES**, isolation 1 kV,
100 mOhm, PBV, measuring range 0...-3 A/+7,2 A,
resolution 2,5 μ A/bit*, permanent current ca. 6,5 A**
IMFIP-45A02-0SHV - 3 m

50 mOhm PBV, measuring range 0...-6 A/+14,42 A
resolution 5 μ A/bit*, permanent current ca. 7,5 A**
IMFIP-A5A02-0SHV - 3 m

10 mOhm, PBV, measuring range 0...-30 A/+72 A
resolution 25 μ A/bit*, permanent current ca. 23 A**
IMFIP-C5A02-0SHV - 3 m
- **HV-I current- PROBES**, isolation 1 kV,
2 mOhm, BF-1, measuring range 0...-150 A/+360 A
resolution 125 μ A/bit, permanent current ca. 60 A**,
MFIP-H4802-0SHV - 3 m

1 mOhm, BF-1, measuring range 0...-300/+720 A
resolution. 250 μ A/bit*, permanent current ca. 80 A**
IMFIP-M4802-0SHV - 3 m

0,2mOhm, BF-2, measuring range 0...-1500/+3600 A,
resolution 1,25 mA/bit*, permanent current ca. 180 A**
IMFIP-R2602-0SHV - 3 m

0,1mOhm, BF-2, measuring range 0...-3000/+7200 A,
resolution 2,5 mA/bit*, permanent current ca. 400 A**
IMFIP-U2602-0SHV - 3 m

* indicated for the lowest measuring range

**depending on the type of connection !



ACCESSORIES

- **HV-U voltage-PROBES**, isolation 1 kV

Range ± 1000 V,
resolution 1,25mV/Bit*

IMFVP-00007-0SHV	-	1 m
IMFVP-00009-0SHV	-	3 m

Range ± 200 V,
resolution 170 μ V/Bit*

IMFVP-00007-NSHV	-	1 m
IMFVP-00009-NSHV	-	3 m

* indicated for the lowest measuring range
See separate catalogue excerpt or data sheets.

Individual measuring adapters

- Measurement-adapters with original automobile plug connectors. They are placed directly into the measuring circuit.
- Application of battery-interruptor for current measurement via "Service Plug".

For further types see data sheet "KLARI-PROBES_{1000V}".

We are pleased to quote individual solutions.

