KLARI-PROBES

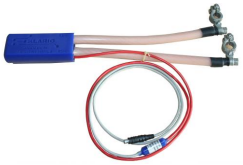
KLARI-MOD MC3

KLARI-FUSE 2

KLARI-CORD 4-Display

FK-PROBE

BF-Shunt



Special-PROBE

Features

- **KLARI-PROBES** are the convenient measuring units for low voltage modules up to 80 V of Co.Klaric.
- For current measurements the PROBES are equipped with low resistive accuracy resistors, for voltage measurements with voltage dividers. Temperature measurements are executed with PT1000 resistance thermometers which are also available in acid resistant version.
- All **KLARI-PROBES** have a memory device with a communication cable to the module. Therefore the configuration data (type, adjustment values, serial number etc.) are read out of the PROBE and transmitted to the module.
- The adjustment values are considered for the measurement result calculation. This implicates a very high degree of accuracy.
- Because the shunts only have marginal temperature drift, temperature compensation is not needed.
- A factory calibration is included in scope of delivery. On request we are pleased to offer a DAkkS calibration.

Versions

- **LI-PROBES:** These PROBES are used to measure currents in range of 0,25 µA…150 A (peak current). The user has to take care of protecting the measuring circuit.
- **MICRO2- / MICRO3-PROBES:** Current measurements at defined electric circuits inside vehicle fuse box. The measuring circuit/s is/are protected in the ranges of 5…30 A by 1 or 2 FK1 fuse/s with the equivalent current value/s like the original fuse/s.
- **FK1- / FK2- / FK3-PROBES:** Current measurements at defined electric circuits inside vehicle fuse box.The measuring circuit is protected in the ranges of 5…70 A by the original fuse.
- **MCASE/JCASE-PROBES:** Current measurements at defined electric circuits inside vehicle fuse box. The measuring circuit is protected in the ranges of 20…60 A by 1 JCASE fuse with the equivalent current value like the original fuse.
- **HI-PROBES:** Depending on the selected PROBE current measurements may be performed in ranges of 2,5 mA…+7.200/-3.000 A (peak current when using a 100 µΩ-Shunt). The user has to take care of protecting the measuring circuit.
- **U-PROBES:**With these PROBES voltage measurements are available in ranges of 170 µV…+/- 80 V.
- **T-PROBES:**With these PROBES temperature measurements are available in range of -40…+105 °C.

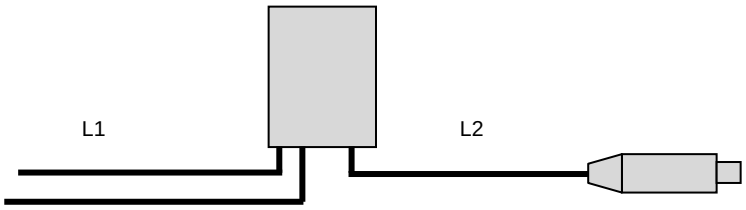
LI - PROBES

Measuring unit with cable lead-out for looping the PROBE into the measuring circuit. The protection of the measuring circuit has to be provided by the user. The shunt is integrated in a grouted casing.

Construction:

- cable lead-out = L1 (1 m), (heat resistant and highly flexible) with loose cable ends
- grouted casing with integrated shunt
- data cable = L2 (1…5 m) with 6-pin push-pull connector
- memory device, used for PROBE-identification and calibration data

Caution: The maximum continuous current is lower than the measuring range.
Please refer to the user manual.



LI - PROBES

Resistor [mOhm]	Measuring range [A]	Resolution/Bit* [µA]	Maximum permanent current ** [A]
1000	-0,3…+0,72	0,25	0,72
500	-0,6…+1,44	0,5	1,44
100	-3…+7,2	2,5	6,5
50	-6…+14,4	5	9,5
25	-12…+28,8	10	12
10	-30…+72	25	21
5	-60…+144	50	25
2	-150…+360	125	40

* indicated for the lowest measuring range
** at room temperature (23°C)

size (l/w/h): 50x40x16 mm

Ordering:
<name> - <resistance value> - <L1> - <L2> - <L3>
LI - 1000 / … / 2 - 1 - 1…5 - 0

Stefan Klaric GmbH & Co. KG • www.klaric.de • info@klaric.de • phone: +49 (0) 711-327776-0

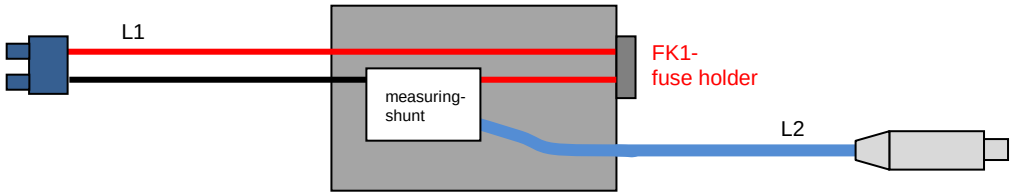
MICRO2 - PROBES

Measuring unit with MICRO2 connector, which is plugged into the vehicle's fuse holder instead of the original fuse. The measuring circuit is protected by a FK1 fuse with the equivalent current value to ensure that the measuring circuit is protected. The FK1 fuse is plugged into the fuse holder at the aluminium casing. The measuring shunt is integrated in the casing.

Construction:

- MICRO2 connector
- cable with fuse = L1 (high flexible and heat resistant)
- aluminium casing with integrated shunt and fuse holder for measuring circuit protection
- data cable = L2 (1…5 m) with 6-pin push-pull-connector
- memory device, used for PROBE-identification and calibration data

Caution: The maximum continuous current may be lower than the measuring range.
Please refer to the user manual.



MICRO2 - PROBES

Type	Measuring range [A]	Resolution/Bit* [µA]	R [mΩ]	Cross section [mm²]
5 A	5	10	25	1,5
10 A	10	25	10	2,5
20 A	20	50	5	4
30 A	30	125	2	4

size (l/w/h): 50x41x20 mm

* indicated for the lowest measuring range

Ordering:

<name>	-	<fuse value>	-	<L1>	-	<L2>	-	<L3>
MICRO2	-	5 / … / 30	-	1 / 3	-	1…5	-	0

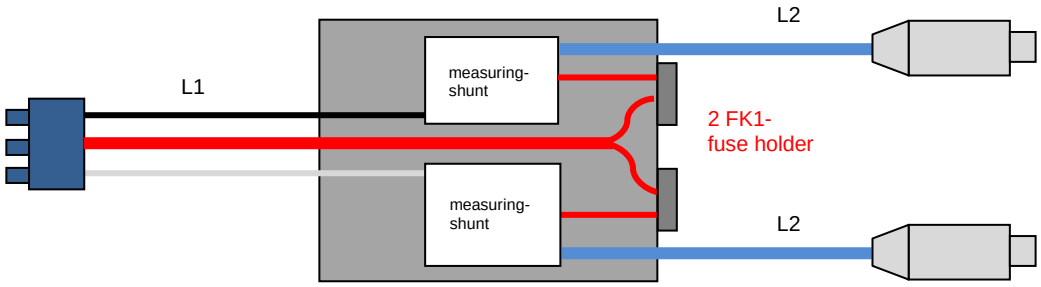
MICRO3 - PROBES

Measuring unit with MICRO3 connector, which is plugged into the vehicle's fuse holder instead of the original fuse. The measuring circuits are protected by 2 FK1 fuses with the equivalent current values to ensure that the measuring circuits are protected. The FK1 fuses are plugged into the fuse holders at the aluminium casing. The 2 measuring shunts are integrated in the casing.

Construction:

- MICRO3 connector
- cable with fuse = L1 (high flexible and heat resistant)
- aluminium casing with integrated 2 shunts and 2 fuse holders for measuring circuit protection
- data cable = L2 (1…5 m) with 6-pin push-pull-connector
- memory device, used for PROBE-identification and calibration data

Caution: The maximum continuous current may be lower than the measuring range.
Please refer to the user manual.



MICRO3 - PROBES

Type	Measuring range [A]	Resolution/Bit* [µA]	R [mΩ]	Cross section [mm²]
5 A	5	10	25	1,5
10 A	10	25	10	2,5
20 A	20	50	5	4

size (l/w/h): 80x55x24 mm

* indicated for the lowest measuring range

Ordering:
<name> - <fuse value> - <L1> - <L2> - <L3>
MICRO3 - 5 / 10 / 20 - 1 / 3 - 1…5 - 0

FK - PROBES

Measuring unit with FK1-, FK2- or FK3-connector, which is plugged into the vehicle's fuse holder instead of the original fuse. The original fuse has to be plugged into the PROBE's fuse holder to ensure that the measuring circuit is protected. The fuse holder and the shunt are integrated in a small aluminum casing.

Construction:

- FK1-, FK2-, FK3- connector
- cable with fuse = L1 (high flexible and heat resistant)
- aluminium casing with integrated shunt and fuse holder for measuring circuit protection
- data cable = L2 (1…5 m) with 6-pin push-pull-connector.
- memory device, used for PROBE-identification and calibration data.

Caution: The maximum continuous current may be lower than the measuring range.
Please refer to the user manual.

FK1- PROBES

Type	Measuring range [A]	Resolution/Bit* [µA]	R_{Nenn} [mΩ]	Cross section [mm^2]
5 A	5	10	25	1,5
10 A	10	25	10	2,5
20 A	20	50	5	4
30 A	30	125	2	4

size (l/w/h): 50x41x20 mm

* indicated for the lowest measuring range

Ordering:

<name>	-	<fuse value>	-	<L1>	-	<L2>	-	<L3>
FK1	-	5 / … / 30	-	1…3	-	1…5	-	0

FK2 - PROBES

Type	Measuring range [A]	Resolution/Bit* [µA]	R_{Nenn} [mΩ]	Cross section [mm²]
5 A	5	10	25	1,5
10 A	10	25	10	2,5
20 A	20	50	5	4

size (l/w/h): 50x41x20 mm

Type	Measuring range [A]	Resolution/Bit* [µA]	R_{Nenn} [mΩ]	Cross section [mm²]
30 A	30	125	2	4
40 A	40	250	1	4

size (l/w/h): 80x55x24 mm

* indicated for the lowest measuring range

Ordering: <name> - <fuse value> - <L1> - <L2> - <L3>
FK2 - 5 / … / 40 - 1…3 - 1…5 - 0

FK3 - PROBES

Type	Measuring range [A]	Resolution/Bit* [µA]	R_{Nenn} [mΩ]	L1 [m]	Cross section [mm²]
30 A	30	125	2	1 / 3	4
50 A	50	250	1	1	6
70 A	70	500	0,5	0,5	6

size (l/w/h): 80x55x24 mm

* indicated for the lowest measuring range

Ordering: <name> - <fuse value> - <L1> - <L2> - <L3>
FK3 - 30 / 50 / 70 - s.table - 1…5 - 0

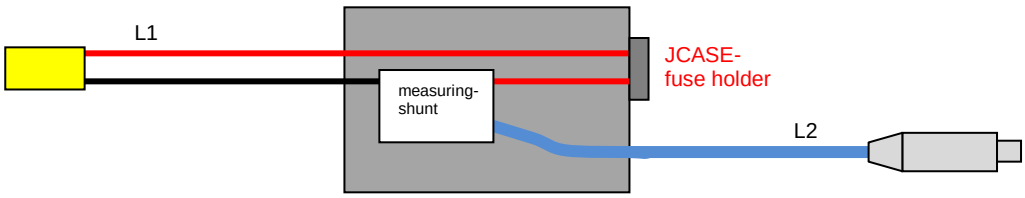
JCASE - und MCASE - PROBES

Measuring unit with JCASE or MCASE connector, which is plugged into the vehicle's fuse holder instead of the original fuse. The measuring circuit is protected by a JCASE fuse with the equivalent current value to ensure that the measuring circuit is protected. The JCASE fuse is plugged into the fuse holder at the aluminium casing. The measuring shunt is integrated in the casing.

Construction:

- JCASE or MCASE connector
- cable with fuse = L1 (high flexible and heat resistant)
- aluminium casing with integrated shunt and fuse holder for measuring circuit protection
- data cable = L2 (1…5 m) with 6-pin push-pull-connector
- memory device, used for PROBE-identification and calibration data

Caution: The maximum continuous current may be lower than the measuring range.
Please refer to the user manual.



JCASE - PROBES

Type	Measuring range [A]	Resolution/Bit * [µA]	R [mΩ]	L1 [m]	Cross section [mm²]
JCASE	20	50	5	1 / 3	2x2,5 / 4
JCASE	30	125	2	1 / 3	2x2,5 / 4
JCASE	40	250	1	1 / 3	2x2,5 / 4

size (l/w/h): 80x55x24 mm

Type	Measuring range [A]	Resolution/Bit * [µA]	R [mΩ]	L1 [m]	Cross section [mm²]
JCASE	50	250	1	1	6
JCASE	60	500	0,5	0,5	6

size (l/w/h): 80x105x26 mm

* indicated for the lowest measuring range

Ordering: <name> - <fuse value> - <L1> - <L2> - <L3>
JCASE - 20 / … / 60 - s.table - 1…5 - 0

MCASE - PROBES

Type	Measuring range [A]	Resolution/Bit * [µA]	R [mΩ]	L1 [m]	Cross section [mm²]
MCASE	20	50	5	1 / 3	2,5
MCASE	30	125	2	1 / 3	2,5
MCASE	40	250	1	1 / 3	2,5

size (l/w/h): 80x55x24 mm

Type	Measuring range [A]	Resolution/Bit * [µA]	R [mΩ]	L1 [m]	Cross section [mm²]
MCASE	50	250	1	0,5	2,5 / 4
MCASE	60	500	0,5	0,5	2,5 / 4

size (l/w/h): 80x105x26 mm

* indicated for the lowest measuring range

Ordering: <name> - <fuse value> - <L1> - <L2> - <L3>
MCASE - 20 / … / 60 - s.table - 1…5 - 0

HI – PROBES (without measuring circuit protection)

At these PROBEs the shunt has to be placed directly into the measuring circuit.
The protection of the measuring circuit has to be provided by the user.

Construction:

- Shunt (type BF1 or BF2) with mounting straps (temperature range -40…+130°C)
- data cable = L2 (1…5 m) with 6-pin push-pull connector
- memory device, used for PROBE identification and calibration data

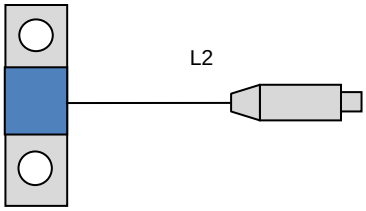
Caution: The maximum continuous current is lower than the measuring range.
Please refer to the user manual.

HIGH-CURRENT - PROBES

BF 1

Resistor [mΩ]	Measuring range [A]	Resolution/Bit* [mA]	Maximum permanent current** [A]
2,5	-120…+288	0,1	60
1	-300…+720	0,25	80
0,5	-600…+1440	0,5	120
0,2	-1500…+3600	1,25	150

size (l/w/h): 42x16x15 mm
the shunts are linked with a copper bar 20x3x200 mm
* indicated for the lowest measuring range
**at room temperature (23°C)



BF 2

Resistor [mΩ]	Measuring range [A]	Resolution/Bit* [mA]	Maximum permanent current** [A]
2	-150…360	0,125	80
1	-300…+720	0,25	120
0,5	-600…+1440	0,5	130
0,2	-1500…+3600	1,25	180
0,1	-3000…+7200	2,5	310

size (l/w/h): 68x27x15 mm
the shunts are linked with a copper bar 20x3,5x200 mm
* indicated for the lowest measuring range
**at room temperature (23°C)

Ordering:

<name>	-	<resistance value>	-	<L1>	-	<L2>	-	<L3>
HI-BF1	-	2 / … / 0,2	-	0	-	1…5	-	0
HI-BF2	-	2 / … / 0,1	-	0	-	1…5	-	0

HI

HI-SPECIAL-PROBES

Resistor [mΩ]	Measuring range [A]	Resolution/Bit* [mA]	Maximum permanent current shunt** [A]
0,2	-1500…3600	1,25	150
0,1	-3000…+7200	2,5	250
0,05	-6000…+8000	5	300
0,025	-8000…+8000	10	400

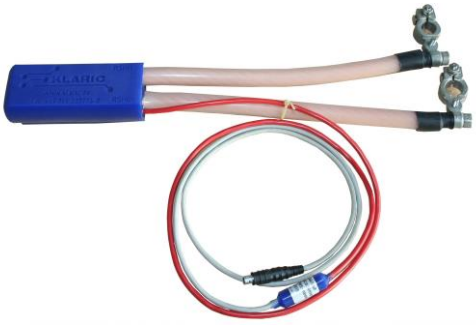
size: (l/w/h): 150x65x40mm (without cables)

* indicated for the lowest measuring range
** at room temperature (23°C)
the maximum permanent current is limited by the cross-section of the connected cables L1:

selectable: 35 mm^2 / 70 mm^2
allowed max. permanent current at 80°C: 200 A / 305 A

- for installation in a drug battery-box instead of the stud between the batteries
- Standard connection cable shoe, other connections after consultation with us

Ordering:
<name> - <resistance value> - <L1> - <L2> - <L3>
HI-SPECIAL - 0,2 / … / 0,025 - 0,7 - 1…5 - 0



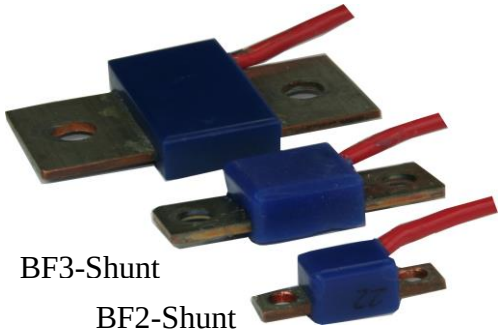
grouted HI-PROBE

BF3 - SHUNT

Resistor [mΩ]	Measuring range [A]	Resolution/Bit* [mA]	Maximum permanent current** [A]
0,05	-6000…+8000	5	300
0,025	-8000…+8000	10	420

size: (l/w/h): 90x42x15mm
the shunts are linked with a copper bar 20x3x200mm
* indicated for the lowest measuring range
** at room temperature (23°C)

Ordering:
<name> - <resistance value> - <L1> - <L2> - <L3>
HI-BF3 - 0,05 / 0,025 - 0 - 1…5 - 0



BF3-Shunt
BF2-Shunt
BF1-Shunt

Various resistors and PROBE types available. We would be pleased to help you finding the appropriate PROBE for your measuring task.

Stefan Klaric GmbH & Co. KG • www.klaric.de • info@klaric.de • phone: +49 (0) 711-327776-0

ACCESSORIES

T - PROBE (acid-resistant)

PT1000 sensor for temperature measurements

temperature measuring range: -40 to +105 °C

data cable = L2 (1…5 m)

PT1000 sensor cable = L1 (2 m)

Ordering: <name> - <L1> - <L2> - <L3>
T-80V - 2 - 1…5 - 0

U - PROBE

voltage measuring unit

measuring range +/-80 V

resolution: 170 µV/Bit

data cable: 1 m

measuring cable: See below / depends on variant

total length: data cable + measuring cable

Gain	Measuring range [V]	Resolution/Bit* [µV]
100	+/- 5	170
50	+/- 10	340
24	+/- 20	680
6	+/- 80	2720

* indicated for the lowest measuring range

Ordering: <name> - <L1> - <L2> - <L3>
U-80V - 1…5 - 1 - 0

Extension cable for the PROBES

Ordering: <name> - <L1> - <L2> - <L3>
PROBE-EXT-80V - 0 - 2 / 4 - 0