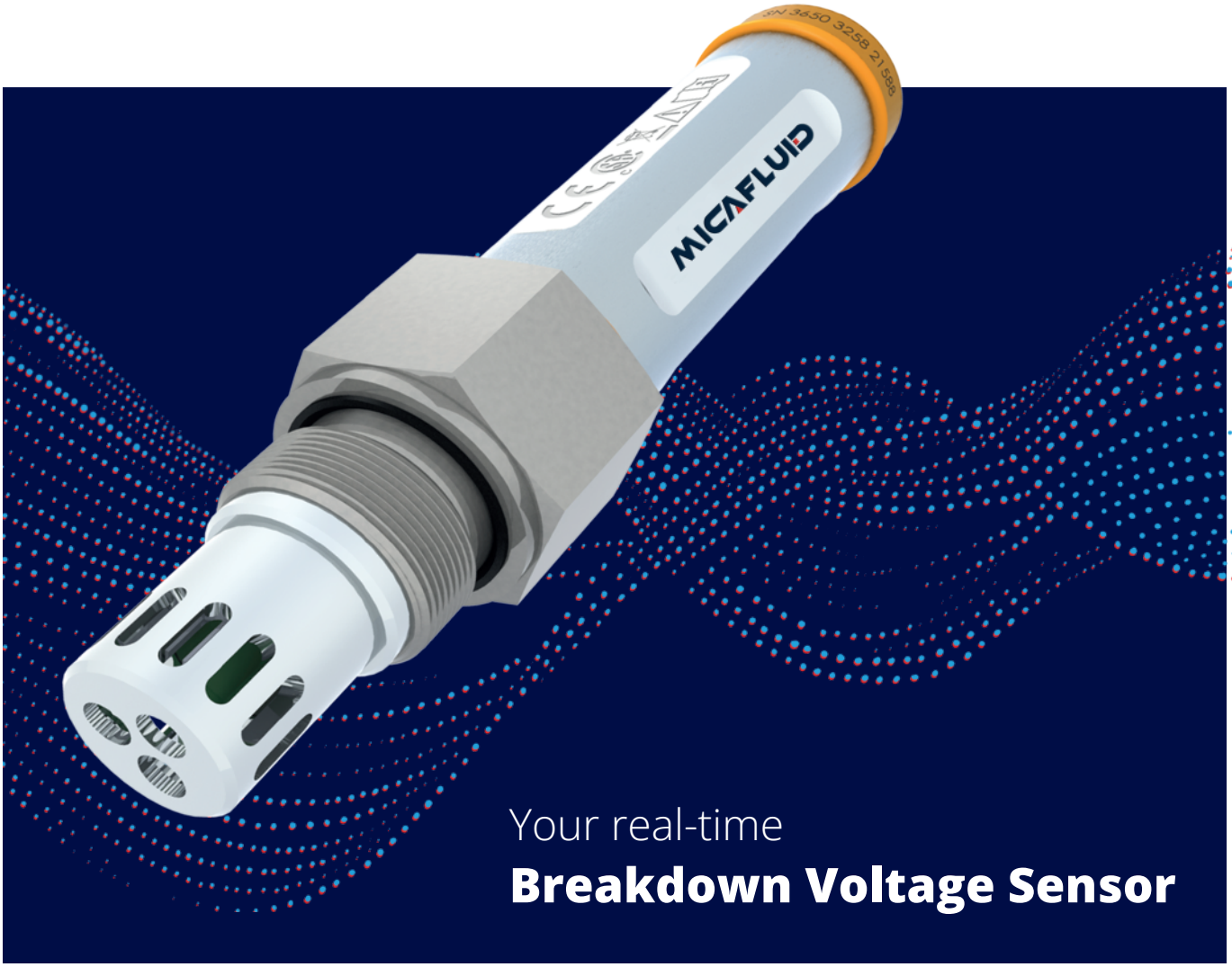
MicaSonic™ MS4A

Lab scale yet pocket sized



Your real-time

Breakdown Voltage Sensor

Where You Truly Need It:

- Oil treatment units
- Regeneration plants
- Transformers
- Tap changers
- Oil tanks
- Oil distribution systems

MICAFLUID

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ONLINE BREAKDOWN VOLTAGE SENSOR

Smart grid supervision for the electrical industry

APPLICATION

The MicaSonic™ MS4A sensor is developed especially for on-line use in the field and exclusively designed for continuous and repeatable measure of the:

- Current oil temperature [°C] in mineral transformer oil
- Breakdown voltage [kV] at the current oil temperature
- Breakdown voltage [kV] at 20 °C oil temperature according to the IEC standard
- Moisture content [ppm] at current oil temperature

The MicaSonic™ MS4A is designed to be installed in oil treatment, regeneration and filtration plants, but can also be mounted directly on transformer tanks, tap changers, oil tanks as well as in oil distribution systems.

DESCRIPTION

The external measurement electronics are installed in a robust metal housing, while the internal measurement zone is made of anodized aluminium. The holes in the measuring zone allow the mineral transformer oil to flow through the internal ultrasonic sensor detection field. The G1” stainless steel connector ensures easy installation of the device at the target place. The sensor can be mounted in any position, but a free permanent oil flow in the measuring zone must be guaranteed.

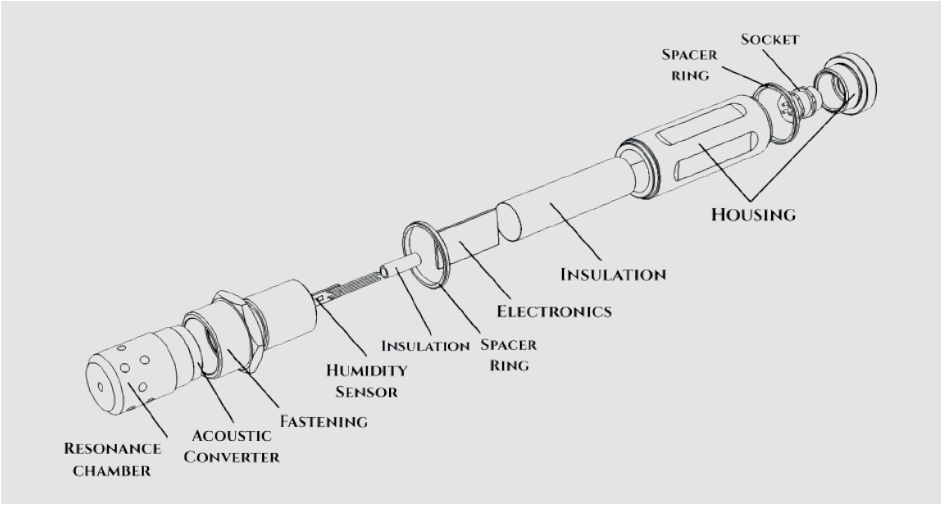
The cable plug socket is placed on the top of the unit. The link between the device and the host is provided by the delivered TCP-IP cable with the IP68 connector. As host, a machine’s PLC, computer, router or a similar device can be used. All measuring data is available by ModbusTCP registers and can be displayed on any connected HMI and stored there for further data evaluation and reporting.

TECHNICAL SPECIFICATIONS

Performance	
Breakdown voltage (BDV)	10kV .. 120kV (± 2.5%)
Water Content (Wc)	2.0 ppm .. 80 ppm (± 2%)
Temperature measurement range	-40°C .. 120°C (± 0.2°C)
Measurement interval (selectable)	0.1s (via MODBUS)
Operating environment	
Ambient temperature range	-20°C .. 70°C
Oil temperature range	-20°C .. 85°C
Operating pressure	up to 3bar
Inputs and outputs	
Power supply	5.0 V DC
Communication interface	MODBUS TCP/IP
General	
Connection cable	2.5 .. 10m length
Housing material	EN-AW-6063
Measuring zone material	EN-AW-7075
Mechanical connection	Parker RI1EDX3/471
Housing classification when assembled	IP68
Absolute maximum ratings	
Maximum operating temperature	-40°C .. 100°C
Maximum operating pressure	5 bar
Stress above those listed under "Absolute maximum ratings" may cause permanent damage to the device.	

MicaSonicTM MS4A has been tested by an accredited unit according to EN61326-1, a Class A measuring instrument. The accredited unit confirm the complies with the following regulatory requirements: EN 61000-4-2: 2011 / EN 61000-4-3: 2014 / EN 61000-4-4: 2013 / EN 61000-4-5: 2014 / EN 61000-4-6: 2014 / EN 61000-4-11: 2007 / CISPR11: 2015 + AMD1: 2016, EN55011: 2016 + A1: 2017, EN55011: 2016 + A1: 2017-06 / EN 60950-1: 2007 + A11: 2009 + A1: 2011 + A12: 2011

MEASURING CELL CONSTRUCTION

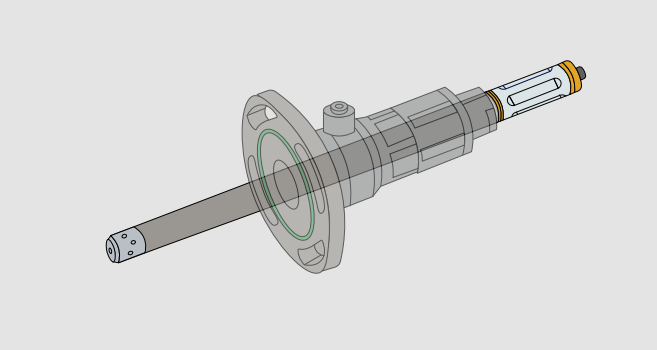


STANDARD VERSION

The standard MicaSonic™ MS4A has a head length of 33mm and can be installed directly in any mineral transformer oil plant or piping system, or as a stand-alone measuring device in its own flow cell with HMI solution.

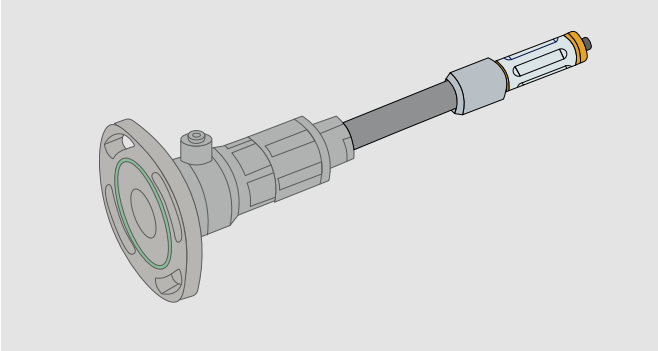
LONG VERSION

The sensor MicaSonic™ MS4A-L has an installation length of 380mm with a connection flange DN50 and manual stop valve. This sensor is suitable for direct installation on medium up to large size transformers and oil storage tanks.



EXTRA-LONG VERSION

The sensor MicaSonic™ MS4A-XL has an installation length of 980mm with a connection flange DN50 or DN80 with manual stop valve. This sensor is suitable for direct installation on the largest transformers and biggest oil storage tanks.



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