

## imc Accelerometers: imc AC series



The capacitive accelerometers are based on micro-electromechanical systems (MEMS technology) and allow static measurement of acceleration forces from 0 Hz upward. The scope of application possibilities includes the fields of vehicle dynamics, endurance strength testing, vehicle inspections, brake testing, driving comfort measurement, structure monitoring, or in general wherever reliable measurement of acceleration is needed.

The sensors feature especially low noise and excellent stability over a wide operating temperature range (-20°C to +80°C), so that even the smallest accelerations can be precisely measured. The sensors are enclosed in waterproof sealing and in a low-weight anodized aluminum housing (IP67). Versions with different measurement ranges ( $\pm 2$  g up to  $\pm 200$  g) can be ordered, where the upper cutoff frequency (bandwidth) is between 700 and 1800 Hz depending on the model.

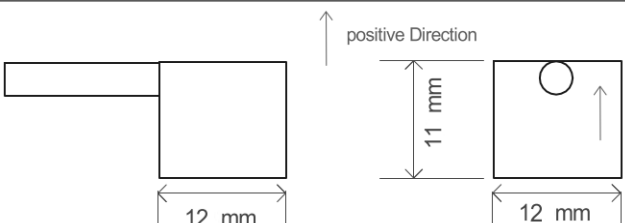

At a nominal measurement range, the active sensors output a  $\pm 2.7$  V signal at a differential output ( $\pm OUT$ ) and are supplied with 5 to 40 V DC. They can be directly

connected at any imc voltage amplifier having sensor power supply, as well as to any imc bridge amplifier - the supply power is provided via the amplifier. In particular, this sensor is suitable for HV measuring modules of type HISO-UT-6, which provide a 5V sensor supply.

### Features

- very low signal noise (low-noise sensor elements)
- very small (12 x 12 x 11 mm) and light-weight (3 g)
- direct connection to all imc bridge amplifiers or voltage amplifiers having sensor power supply
- LEMO terminal connectors with TEDS is optional
- suitable with HISO-UT-6

Overview of available variants

MEMS sensors uniaxial aluminum: imc AC1Axxx		
<div></div>		
SEN/ACC-AC1A002	accelerometers MEMS 2 g uniaxial	1390000x
SEN/ACC-AC1A005	accelerometers MEMS 5 g uniaxial	1390000x
SEN/ACC-AC1A010	accelerometers MEMS 10 g uniaxial	13900026
SEN/ACC-AC1A025	accelerometers MEMS 30 g uniaxial	1390000x
SEN/ACC-AC1A050	accelerometers MEMS 50 g uniaxial	13900027
SEN/ACC-AC1A100	accelerometers MEMS 100 g uniaxial	1390000x
SEN/ACC-AC1A200	accelerometers MEMS 200 g uniaxial	1390000x
Included accessories: detailed calibration certificate		
Options:		
SEN/ACC-AS1A-1M	one meter cable	13940001
SEN/ACC-AS1A-LEMO	one LEMO plug in imc pinout	1394000x

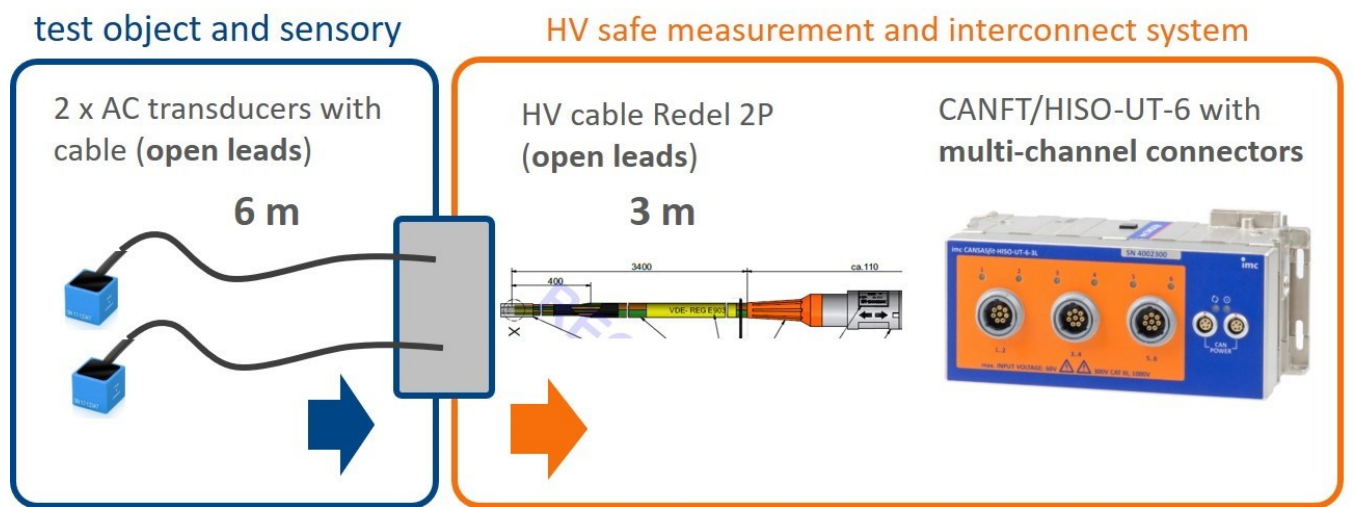
Optional accessories

HV cable Redel 2P		
ACC/SENSORCABLE-2HV-L2P-3M	cable with 8 wires and open leads, length 3 m	13500356

Suitable cable with Redel.2P connector for use with imc CANSASfit module HISO-UT-6-3L.

This cable meets personal safety requirements for HV applications.

The connection between this HV-suitable cable and the connection cable of the AC sensor can be made by the user, e.g. by soldering, clamping strip, heat shrink insulation, etc. Both cables have free open ends on one side. This connection thus represents a controlled interface and clear separation between the fully specified HV-safe measuring module with HV-safe connection plug system on the one hand, and customer- and DUT-specific cables and sensors on the other, which are subject to other protection rules and are the responsibility of the user.



The AC sensor itself and its connection cable are not subject to HV insulation requirements! The sensor has a functional insulation to the sensor housing.

## Technical Specs - imc AC series

### Sensor types

Type designation		AC1A002	AC1A005	AC1A010	AC1A030	AC1A050	AC1A100	AC1A200
Measurement range	±g	2	5	10	30	50	100	200
Sensitivity	mV/g	1350	540	270	90	54	27	13.5
Analog bandwidth <sup>1</sup>	Hz	700	700	1400	1600	1800	1800	1800
Destruction limit	±g	6000						
Non-linearity	% FSO	0.5 %						
Transverse sensitivity	%	3						
Settling time	ms	<1						
Power supply <sup>2</sup>	V DC	5...40						
Current demand	mA	5						
Output signal (nom. range) <sup>3</sup>	V	±2.7						
Output impedance	Ω	300						
Spectral noise density	μg/√Hz	10	20	35	100	170	340	680
Inherent noise/Broadband noise <sup>4</sup>	μV	360	290	360	360	390	390	390
Temperature coefficient <sup>5</sup>	%/°C	0.01						
Operating temperature	°C	-20°C ... +80°C						
Storage temperature	°C	-40°C ... +100°C						
Sensor element		MEMS capacitive						
TEDS		upon request <sup>6</sup>						
Isolation to ground		yes						

All stated specifications are typical values.

- 1 Linear frequency range (±5%)
- 2 Compatible with imc measurement amplifiers with sensor supply
- 3 Differential output signal ±OUT
- 4 Over full bandwidth
- 5 Sensitivity drift
- 6 Not in combination with the HISO-UT-6-3L module

Housing type	Uni-axial aluminum
Sealing	epoxy resin
Housing material	aluminum
Cable length	6 m, open end
Cable type	AWG 30, polyurethane, Ø 3 mm, 12 grams/m
Plug-in connector	optional
Mounting holes	none, adhesive mounting
Weight	3 g
Optional accessories	additional cable length n x 1 m, LEMO configured in imc pinout

### Cable configuration

Sensor	AC1Axxx
Signal	
+Supply	red
-Supply	black
+Signal	green
-Signal	white