

# Acceleration modules

Type KCD15760, KCD15951,  
KCD15911

## SAA (1-axis), DAA (2-axis), TAA (3-axis)

Measuring modules for dynamic acceleration measurement.

- Integrated 1-, 2- or 3-axis measurement
- Measurement range  $\pm 3$  g, others on request
- Limit frequency 5 Hz
- 7 ... 42 V power supply
- Operating temperature range  $-40 \dots 85$  °C
- Housing made of anodized die cast aluminum



### Description

Utilizing a measurement structure micro-machined in silicon, the low-weight, compact accelerometer modules are robust enough to withstand the punishment of harsh industrial and automotive environments.

The measurement signal is generated via a change in the capacitive property of the structure, caused by a change in velocity, i.e. acceleration, and converted into an electrical signal which is amplified, filtered, and voltage-compensated, resulting in a highly accurate and linear measurement.

### Application

- Measurements of lateral and longitudinal acceleration
- Ride comfort measurements
- Position and motion sensing
- Tilt sensing
- Vibration analysis
- Crash sensing

### Technical data

#### Performance specifications

Sensitivity		
Nominal value	mV/g	666
Tolerance	%FSO	$\pm 1$
Measuring range	g	$\pm 3$
Zero g bias output		
Nominal value	VDC	$\pm 2.5$
Tolerance	mV	$\pm 100$
Full scale span		
Nominal value	VDC	$\pm 2.0$
Tolerance	%FSO	$\pm 1$
Frequency response		
Nominal value	Hz	5
	dB	-3
Tolerance	%	$\pm 10$

RMS noise			
Nominal value	RMS typ.	$\mu$ g	560
	Band width	Hz	5
	Tolerance	%	$\pm 15$
Non-linearity, nominal value		%	$\pm 0.2$
Alignment			
Nominal value		°	$\pm 2$
Tolerance		°	$\pm 1$
Transverse sensitivity, nominal value		%FSO	$\pm 2$
Zero rate bias drift ( $-40 \dots 85$ °C max.)		g	0.2

#### System specifications

Supply voltage	VDC	7 ... 42
Supply current (no load)		
SAA (1-axis)	mA	$4 \pm 1$
DAA (2-axis)	mA	$8 \pm 2$
TAA (3-axis)	mA	$12 \pm 3$
Temperature range		
Operation	°C	$-40 \dots 85$
Storage	°C	$-65 \dots 100$
Dimensions (LxWxH), approx.	mm	51x34x19
Weight		
Nominal value	grams	45
Tolerance	grams	$\pm 10$
Shock		
Operation	g	500
Transport	g	1,000

**Note:** additional ranges and limit frequencies available.

**Dimensions**

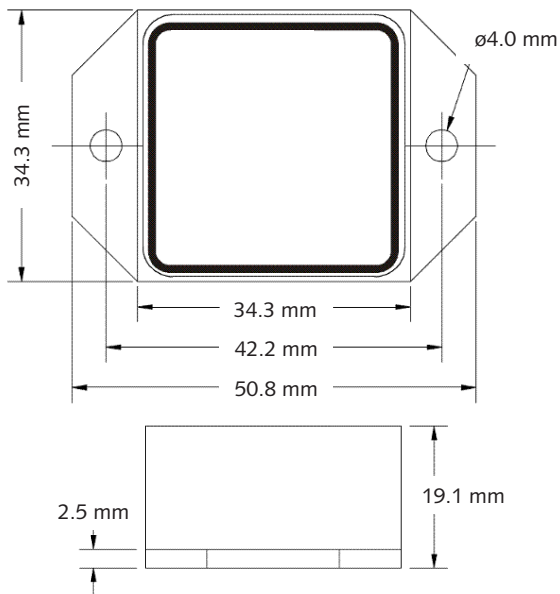


Fig. 1: Dimensions acceleration module

**Pin assignment**

Pin	Color	Signal
1	red	DC power supply
2	green	only with TAA: Signal axis A3
3	blue	Signal GND
4	yellow	only with DAA/TAA: Signal axis A2
5	white	Signal axis A1
6	black	DC GND

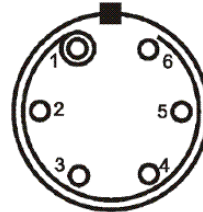


Fig. 2: 6 pin LEMO connector

**Note:** cables are not included in the scope of delivery and must be ordered additionally.

**Cables**

- 6 pin LEMO for SAA, l = 5 m
- 6 pin LEMO for DAA, l = 5 m
- 6 pin LEMO for TAA, l = 5 m

**Ordering No.**

- 18012577
- 18012589
- 18012634

Other cables on request.

**Ordering Code**

- Acceleration module SAA, 1-axis, ±3g **22000357**
- Acceleration module DAA, 2-axis, ±3g **22000369**
- Acceleration module TAA, 3-axis, ±3g **22000367**

All other measurands on request.