

# CMS300

Angular Rate and Dual-Axis Linear Acceleration Combi-Sensor

## CMS300



Actual size

## CMS390



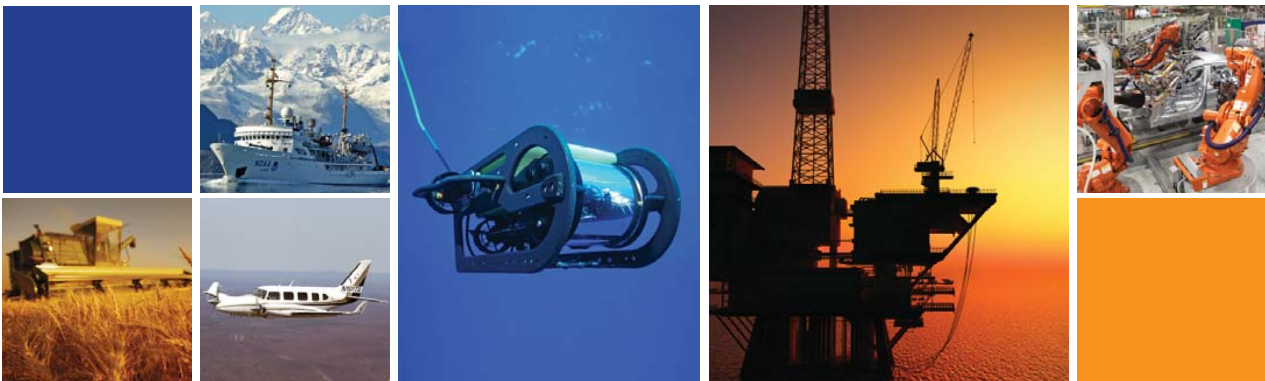
Actual size

### Key features

- Small (CMS300: 10.4 x 6.0 x 2.2mm  
CMS390: 10.4 x 6.7 x 2.7mm)
- Proven and robust silicon MEMS vibrating ring gyro and dual-axis accelerometer
- Excellent bias over temperature (1.75°/s, 30mg)
- Flat and orthogonal mounting options (CMS300 and CMS390)
- User selectable dynamic ranges (150°/s, 300°/s, 2.5g and 10g)
- Digital (SPI®) output mode
- User selectable bandwidth (Rate; 45, 55, 90 or 110Hz  
Acc; 45, 62, 95 or 190Hz)
- Range and bandwidth independently selectable for each axis
- Low power consumption (8mA) from 3.3V supply
- High shock and vibration rejection
- Temperature range -40 +125°C
- Hermetically sealed ceramic LCC surface mount package for temperature and humidity resistance
- Integral temperature sensor
- RoHS compliant
- AEC Q100 tested

### Typical applications

- Measurement and control
- Navigation and personal navigation
- Inertial Measurement Units
- Inclinometer/tilt sensors
- Low cost AHRS and attitude measurement
- Levelling
- Robotics



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# CMS300

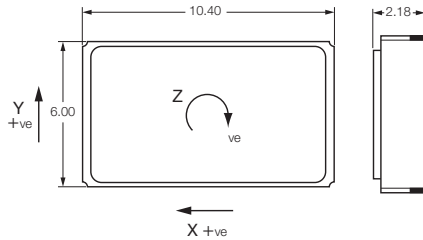
## Angular Rate and Dual-Axis Linear Acceleration Combi-Sensor



For full technical datasheets please go to our website where the documents can be downloaded

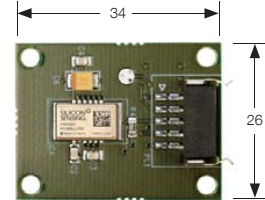
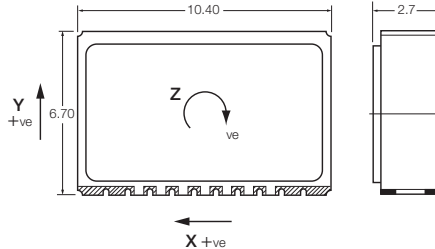
### CMS300

All dimensions in millimetres

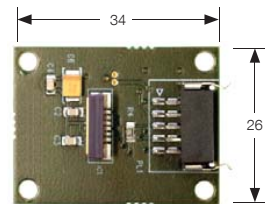


### CMS390

All dimensions in millimetres



CMS300 Evaluation Board -  
(P/N CMS300-EVB)



CMS390 Evaluation Board -  
(P/N CMS390-EVB)

### Typical Data

Parameter	Typical
Ordering Part Number	CMS300, CMS390
Number of sense axes	Single axis angular rate (Z) and 2-axis linear acceleration (X, Y)

#### Angular Rate Channel

Dynamic range	$\pm 150^\circ/\text{s}$ , $\pm 300^\circ/\text{s}$ (set by user via SPI <sup>®</sup> )
Scale factor	204.8 lbs <sup>2</sup> /s ( $\pm 150^\circ/\text{s}$ ), 102.4 lbs <sup>2</sup> /s ( $\pm 300^\circ/\text{s}$ )
Resolution	0.005 <sup>°</sup> /s (150 <sup>°</sup> /s), 0.01 <sup>°</sup> /s (300 <sup>°</sup> /s)
SF over temperature	$< \pm 1\%$
SF non-linearity	$< \pm 0.15^\circ/\text{s}$ (150 <sup>°</sup> /s), $< \pm 0.30^\circ/\text{s}$ (300 <sup>°</sup> /s)
Bias over temperature (-40°C to +125°C)	$\pm 1.0^\circ/\text{s}$
Bandwidth (-3dB)	45Hz, 55Hz, 90Hz, 110Hz (independently set by user via SPI <sup>®</sup> )
Noise (RMS in 45Hz)	0.06 <sup>°</sup> /s

#### Linear Acceleration Channels

Dynamic range	$\pm 2.5\text{g}$ , $\pm 10\text{g}$ (each axis independently set by user via SPI <sup>®</sup> )
Scale factor	12,800 lsb/g ( $\pm 2.5\text{g}$ ) 3,200 lsb/g ( $\pm 10\text{g}$ )
Resolution	0.079mg (2.5g), 0.313mg (10g)
SF over temperature	$\pm 1\%$
SF non-linearity	$< \pm 3\text{mg}$ (2.5g), $< \pm 5\text{mg}$ (10g)
Bias over temperature (-40°C to +125°C)	$\pm 20\text{mg}$ (2.5g), $\pm 50\text{mg}$ (10g)
Bandwidth (-3dB)	45Hz, 62Hz, 95Hz, 190Hz (independently set by user via SPI <sup>®</sup> )
Noise (RMS in 45Hz)	1mg

#### General

Temperature	-40°C to +125°C (operating), -55°C to +150°C (storage)
Shock	95g 6ms ½ sine (operating), 10,000g 0.5ms ½ sine (unpowered)
Vibration	8.85g rms 10Hz - 5kHz
Start-up time	150ms
Supply voltage	3.15V to 3.45V
Current consumption	8mA
Mass	0.4g (CMS300) 0.6g (CMS390)

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