

Bosch Motorsport Yaw/Acceleration Sensor MM5.10



Brand: Bosch Motorsport

Product Code: BOSF02UV02590-01

Availability: 7 Days

Weight: 0.10kg

Dimensions: 5.00cm x 5.00cm x 5.00cm

Price: \$968.00

Short Description

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Description

The MM5.10 was designed to measure the physical effects of rotational and linear acceleration. In order to achieve this, the sensor includes MEMS measuring elements connected to an appropriate integrated circuit.

A rotational acceleration around the integrated sensing elements generates a Coriolis force which changes the internal capacity of the micro machined sensing parts. Furthermore, a pure surface micromachined element is used to measure the vehicle linear acceleration in all 3 axis. This combination of rotational and linear acceleration sensors enables a precise measurement of the vehicle dynamics.

The main feature and benefit of this sensor is the combination of 3 linear and 2 rotational accelerometers and its high speed 1 Mbaud CAN-signal output.

Specifications

Application

Application I $\pm 163^\circ/\text{s}$ (roll rate/yaw rate)

Application II $\pm 4.2 \text{ g}$ (X, Y and Z acceleration)

Operating temperature range -20 to 85°C

Technical Specifications

Mechanical Data

Weight w/o wire 35 g

Size 80 x 56 x 21 mm

Electrical Data

Power supply 7 to 18 V

Max input current 90 mA

CAN speed 1 Mbaud or 500 kbaud

CAN Message

CAN ID 01 0x174

Byte	Value
0	Yaw Rate
1	
2	Reserved
3	
4	Accel Y-Axis
5	
6	Reserved
7	Unused

CAN ID 02 0x178

Byte	Value
0	Roll Rate
1	
2	Reserved
3	
4	Accel X-Axis
5	
6	Reserved
7	Unused

CAN ID 03 0x17C

Byte	Value
0	Reserved
1	
2	Reserved
3	
4	Accel Z-Axis
5	
6	Reserved
7	Unused

CAN Parameters

Byte order LSB (Intel)

CAN speed 1 Mbaud or 500 kbaud

Bit mask unsigned

Offset (all signals) 0x8000 hex

Quantization Yaw Rate 0.005 [°/s/digit]

Quantization Roll Rate 0.005 [°/s/digit]

Quantization Acc X-axis 0.0001274 [g/digit]

Quantization Acc Y-axis 0.0001274 [g/digit]

Quantization Acc Z-axis 0.0001274 [g/digit

Characteristic

Characteristic Application I

Measuring range $\pm 160^\circ/\text{s}$

Over range limit $\pm 1,000^\circ/\text{s}$

Absolute physical resolution $0.1^\circ/\text{s}$

Cut-off frequency (-3 dB) 15 Hz; 30 Hz; 60 Hz

Characteristic Application II

Measuring range $\pm 4.2 \text{ g}$

Over range limit $\pm 10 \text{ g}$

Absolute physical resolution 0.01 g

Cut-off frequency (-3 dB) 15 Hz; 30 Hz; 60 Hz

Connectors and Wires

Connector (1) AMP 114-18063-076

Mating connector (1) F02U.B00.435-01

Pin 1 Gnd

Pin 2 CANL

Pin 3 CANH

Pin 4 UBat

Drawings

