

Yaw Rate Sensor YRS 3

This sensor is designed to measure the physical effects of yawing, lateral and longitudinal acceleration. In order to achieve this, the sensor features both a measuring element for yaw rate and two for acceleration, with one appropriate integrated circuit.

A rotation around the third orthogonal axis, a yaw rate, creates a Coriolis force on the accelerometers, which is detected by the element. Apart from the measuring element for yaw rate, a pure surface micromachined measuring element for acceleration is utilised to measure the vehicles lateral and longitudinal acceleration. This enables a very precise application.

The main feature and benefit of this sensor is its wide measuring range, the standardized 1 Mbaud/s CAN-signal output and the combination of high quality production part and robust design.



Application	
Application I	± 160 °/s
Application II	± 4.1 g
Operating temperature range	-40 ... 85 °C

Electrical Data	
Power supply	7 ... 18 V
Max input current	130 mA
CAN speed	1 Mbaud/s

Mechanical Data	
Weight w/o wire	65 g
Size	34 x 80 x 84 mm

Characteristic Application I	
Measuring range	± 160 °/s
Overrange limit	$\pm 1,000$ °/s
Absolute resolution	0.1 °/s
Cut-off frequency (-3 dB)	15 Hz

Characteristic Application II	
Measuring range	± 4.1 g
Overrange limit	± 10 g
Absolute resolution	0.01 g
Cut-off frequency (-3 dB)	15 Hz

Connectors and Wires

Connector	AMP 114-18063-076
Mating connector	F 02U B00 240-01
Pin 1	GND
Pin 2	CANL
Pin 3	CANH
Pin 4	UBAT
Pin 5	-

CAN Parameters

Byte order	LSB (Intel)
CAN speed	1 Mbaud/s
Bit mask	Signed
Offset (all signals)	0x8000 hex
Quantisation Yaw Rate 1	0.005 [°/s/digit]
Quantisation Yaw Ang. Acc	0.125 [°/s ² /digit]
Quantisation Acc X-Axis	0.0001274 [g/digit]
Quantisation Acc Y-Axis	0.0001274 [g/digit]

Application Hint

The YRS 3 can be connected directly to most control units and data logging systems.

The sensor is protected against reverse polarity and short-circuit.

Please avoid abrupt temperature changes.

For mounting please use only the integrated fixing holes.

Please ensure that the environmental conditions do not exceed the sensor specifications.

Please find further application hints in the offer drawing (<http://www.bosch-motorsport.com>).

Part Number

Yaw Rate Sensor YRS 3 **0 265 005 838**

CAN Message

CAN_ID_01 0x70

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

CAN_ID_02 0x80

Byte	0	1	2	3	4	5	6	7
Value	Yaw Angular Acceleration	Reserved	Reserved	Reserved	Acc X Axis	Reserved	Reserved	Unused

