# Yaw Rate Sensor YRS 3

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- Yaw rate and acceleration measurement
- CAN output
- 15 Hz low-pass filtered
- Measurement ranges: ±4.1 g; ±160°/s

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 micro machined measuring element for acceleration is utilized 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 to 85°C |

## Technical Specifications

### Mechanical Data

| | |
|---|---|
| Weight w/o wire | 65 g |
| Size | 34 x 80 x 84 mm |

### Electrical Data

| | |
|---|---|
| Power supply | 7 to 18 V |
| Max input current | 130 mA |
| CAN speed | 1 Mbaud/s |

### CAN Message

**CAN_ID_01 0x70**

| Byte | Value |
|---|---|
| 0 | Yaw Rate 1 |
| 1 | |
| 2 | Reserved |
| 3 | |
| 4 | Acc Y-axis |
| 5 | |

| | |
|---|---|
| 6 | Reserved |
| 7 | Unused |
| **CAN_ID_02 0x80** | |
| Byte | Value |
| 0 | Yaw Angular Acceleration |
| 1 | |
| 2 | Reserved |
| 3 | |
| 4 | Acc X-axis |
| 5 | |
| 6 | Reserved |
| 7 | Unused |

## Characteristic

| | |
|---|---|
| **Characteristic Application I** | |
| Measuring range | ±160 °/s |
| Over range limit | ±1,000 °/s |
| Absolute resolution | 0.1 °/s |
| Cut-off frequency (-3 dB) | 15 Hz |
| **Characteristic Application I I** | |
| Measuring range | ±4.1 g |
| Over range 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 4-pole DRS | F 02U B00 435-01 (connector kit)<br>F 02U 002 460-01 (connector housing) |
| Pin 1 | Gnd |
| Pin 2 | CANL |
| Pin 3 | CANH |
| Pin 4 | UBat |

## CAN Parameters

| | |
|---|---|
| Byte order | LSB (Intel) |
| CAN speed | 1 MBaud/s |
| Bit mask | signed |
| Offset (all signals) | 0x8000 hex |
| Quantization Yaw Rate 1 | 0.005 [°/s/digit] |
| Quantization Yaw Ang. Acc | 0.125 [°/s²/digit] |
| Quantization Acc X-axis | 0.0001274 [g/digit] |
| Quantization Acc Y-axis | 0.0001274 [g/digit] |

## Installation Notes

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

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

Please avoid abrupt temperature changes.

For mounting please use only the integrated fixing holes.

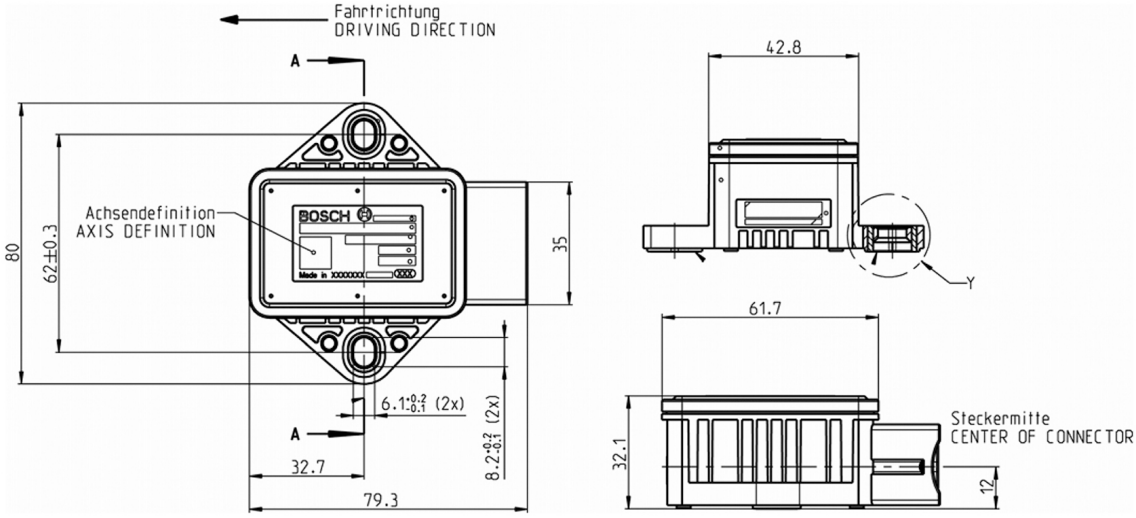
Please ensure that the environmental conditions do not exceed the sensor specifications.

Please find further application hints in the offer drawing at our homepage.

## Ordering Information

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

## Dimensions




**Represented by:**

**Europe:**
Bosch Engineering GmbH
Motorsport
Robert-Bosch-Allee 1
74232 Abstatt
Germany
Tel.: +49 7062 911 79101
Fax: +49 7062 911 79104
motorsport@bosch.com
www.bosch-motorsport.de

**North and South America:**
Bosch Engineering North America
Motorsports
38000 Hills Tech Drive
Farmington Hills, MI 48331-3417
United States of America
Tel.: +1 248 876 2977
Fax: +1 248 876 7373
motorsport@bosch.com
www.bosch-motorsport.com

**Asia-Pacific:**
Bosch Engineering Japan K.K.
Motorsport Department
18F Queen's Tower C, 2-3-5 Minato Mirai
Nishi-ku, Yokohama-shi
Kanagawa 220-6218
Japan
Tel.: +81 45 650 5610
Fax: +81 45 650 5611
motorsport@bosch.com

**Australia (New Zealand, ASEAN and India):**
Robert Bosch Pty. Ltd
1555 Centre Road
Clayton, Victoria, 3168
Australia
Tel.: +61 (3) 9541 3901
Fax: +61 (3) 9541 7225
motor.sport@au.bosch.com


2778925323 | en, V1, 16. Sep 2013