Sensoric Solutions

# OMS 4


## Description

The OMS 4 optical sensor combines non-contact, optical with inertial measurement technology.

The optical speed measurement is characterized by its long-term stability and high accuracy. The high bandwidths of angular rate and acceleration sensors enable the detection of the smallest, highly dynamic changes in movement.

The fusion of optical speed measurement and movement data from angular rate and acceleration sensors enables the measurement of all necessary longnitudinal parameters with unprecedented accuracy and dynamics. In this way, the OMS 4 helps our customers to successfully perform their longitudinal measurement tasks in an efficient and simple way.

## Features

- Proven spatial filter principle
- Integrated angular rate and acceleration sensors
- Sensor fusion
- Highest dynamics due to 1kHz update rate
- CAN output
- Simple parameterization via Ethernet
- Long-life IR-LED lighting
- POI conversion
- Easy handling
- Precise optics / optomechanics
- Protection against undervoltage by UPS

## Applications

- Longitudinal dynamics
- Brake measurement
- Tire performance
- Indoor testing
- Land Survey
- Rail Applications
- Mobile machines
- Motorcycle
- Industrial Applications



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## Technical data

| | | |
|---|---|---|
| Speed | | |
| Measuring range | 250/350/450 | km/h |
| Nonlinearity | < ±0.2 | %FS |
| Optical resolution | ≈0.6 | mm |
| Working distance | 300 ±150 | mm |
| Angular rates | | |
| Measuring range | ±500 | °/s |
| Accelerations | | |
| Measuring range | ±20 | g |
| Measurement frequency | 1000 | Hz |
| Signal delay | 4.5 | ms |
| Supply | | |
| Voltage | 10 … 36 | V |
| Power consumption (at 12 V) | < 25 | W |
| UPS | 3 | s |
| Environmental conditions | | |
| Storage / Operation | -40 … 85 / -25 … 50 | °C |
| Shock / Vibration (Sensor) | 50 / 10 | g |
| Dimensions | | |
| Sensor (without connector) | 95 x 65 x 40 | mm |
| ECU | 155 x 125 x 60 | mm |
| Weight | | |
| Sensor | 390 | g |
| ECU | 900 | g |
| Protection class | | |
| Sensor (cable plugged) | IP68 | |
| ECU | IP40 | |
| Illumination | IR | |
| Wavelength | 850 | nm |
| CAN Interface | 2.0B (galv. isolated) | |
| Number of individual nodes | 2 | |
| Speed | 125 / 250 / 500 / 1000 | kBaud |
| Terminating resistor | switchable | |
| Ethernet Interface | galvanically insulated | |
| Parameterization | Webinterface | |
| Measurement data | TCPIP (protocol on request) | |
| USB Interface | Protocol on request | |
| I/O Interface | Light barrier / brake switch / synchronization / PPM output (galv. Isolated) | |



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## Ordering Code

OMS4 □□□.□.□.□

| | |
|---|---|
| Speed range [km/h] | 250<br>350<br>450 |
| Orientation sensor | L: longitudinal<br>T: transversal |
| Orientation connector | H: horizontal<br>V: vertical |
| Length sensor cable [m] | 5 |

## Scope of delivery

| | |
|---|---|
| Sensor | |
| Sensor cable | MT0000227 |
| Power cable | MT0000063 |
| Transport case | MT0000207 |
| Measuring tape | MT0000208 |

| | |
|---|---|
| CAN cable | MT0000061 |
| ETH cable | MT0000064 |
| USB Stick | MT0000212 |
| Set of screws | MT0000213 |
| Screwdriver | MT0000214 |

## Optional accessories

| | |
|---|---|
| Towing Lug Mount T1 | MT0000209 |
| Side Mount S1 | MT0000210 |
| Side Mount M1 | MT0000211 |
| Light barrier | MT0000264 |
| Brake switch | MT0000265 |

| | |
|---|---|
| USB cable | MT0000065 |
| I/O cable open end | MT0000066 |
| I/O cable BNC | MT0000263 |
| I/O cable customized | on request |
| | |

Customized cable on request

## Additional Information:

State of origin: Germany, Tariff Code: 90318020



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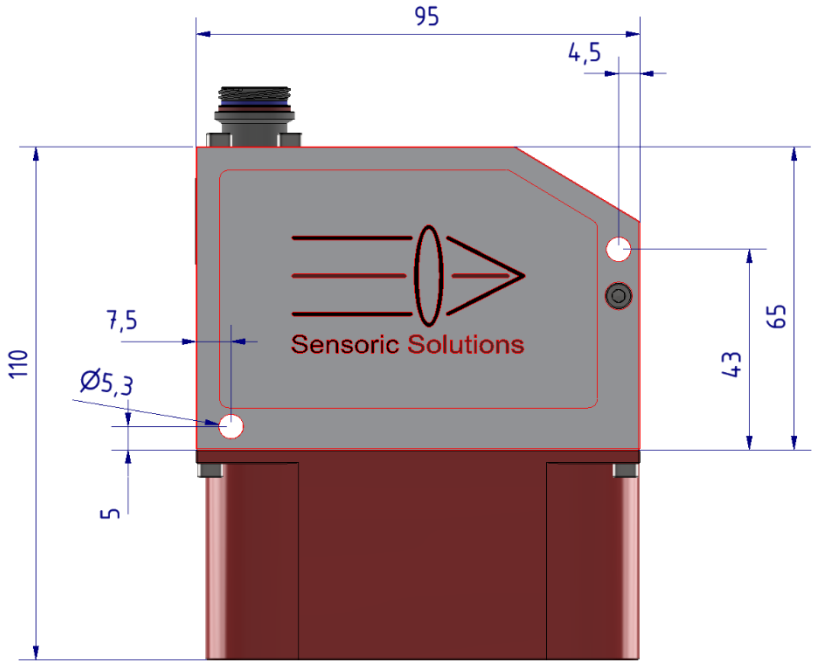
## Drawings

## Sensor

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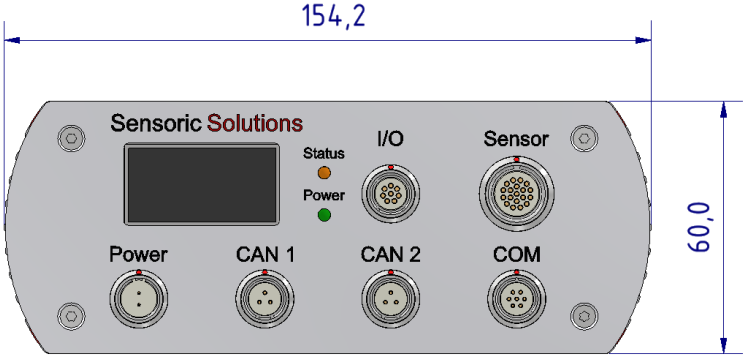
## ECU

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# Software extension for brake & acceleration measurement

## Extension for OMS 4 and OMS 7 Sensors

### Description

Our latest software extension offers you a wide range of functions and options for carrying out brake and acceleration measurements with our OMS 4 and OMS 7 sensors. With this extension, you can calculate precise characteristic values directly and use various output options.

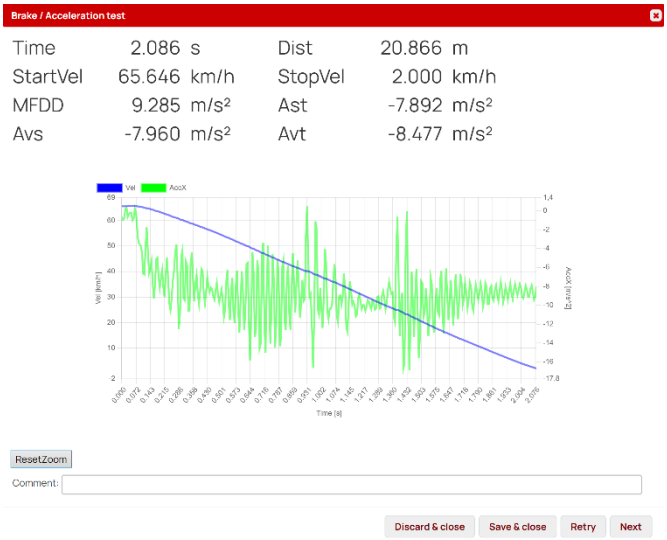


*Fig. 1: Example of a braking measurement*

You can output the acquired measurement data directly via the CAN bus or via Ethernet, which enables seamless integration into existing systems. It is also possible to save the measurements in a CSV file. By using the CSV format, you have the flexibility to easily open, analyze and further process the recorded data in common software applications or simply print out the measurement results.

To make the measurement process efficient, the software has an automatic sequence control. It is also possible to control the measurements via CAN commands, which enables a high degree of flexibility in the process.

Various trigger options, such as light barrier, brake switch, speed, distance and time, allow you to adapt the measurement process precisely to your requirements. These comprehensive trigger options ensure precise and reproducible data acquisition, regardless of the specific conditions of your application.

With our software extension, you have full control over the start and end of the measurements so that you can record the desired data in a targeted and reliable manner. This enables you to carry

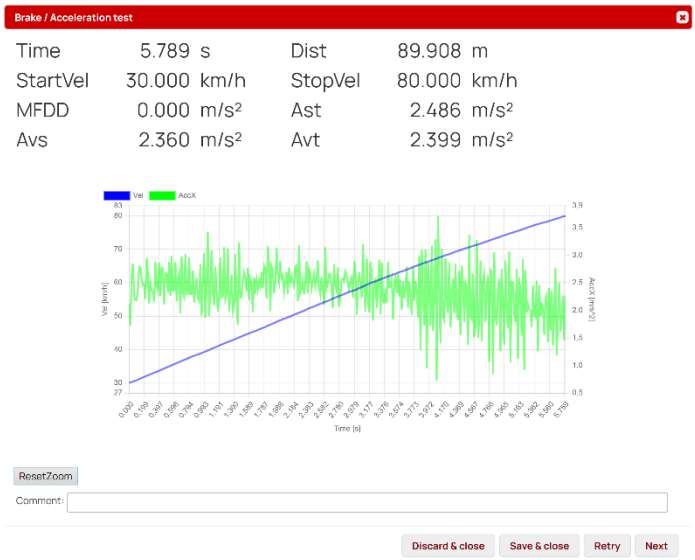


*Fig. 2: Example of an acceleration measurement*

out a detailed analysis of the braking and acceleration processes and helps you to optimize your tests and develop new findings.

Another practical function is the graphical display of the measurement data via a web browser. No additional PC installation is required for this. You can visualize and analyse the data by simply opening the web browser.

Our software extension provides you with a powerful tool for carrying out brake and acceleration measurements. The extensive functions and output options enable you to record the measured values efficiently and precisely, whether as an extension for your existing data acquisition solution or as a stand-alone solution without additional data acquisition.

## Feastures

- Direct calculation of characteristic values (e.g. MFDD, Dist, StartVel, ...)
- Output to CAN bus / Ethernet
- Storage of measurements in a CSV file
- Various trigger options
- Automatic sequence control
- Sequence control via CAN commands possible
- Graphic display via web browser possible

## Order number

| | |
|---|---|
| Software extension for brake & acceleration measurement | MT0000295 |

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# OMS 7


## Description

The OMS 7 optical sensor combines non-contact, optical with inertial measurement technology. This allows the simultaneous measurement of a wide range of variables such as vehicle speeds, slip, pitch and roll angles, accelerations and angular rates.

The optical speed measurement is characterized by its long-term stability and high accuracy. The high bandwidths of angular rate and acceleration sensors enable the detection of the smallest, highly dynamic changes in movement.

The fusion of optical speed measurement and movement data from angular rate and acceleration sensors enables the measurement of all necessary parameters with unprecedented accuracy and dynamics. In this way, the OMS 7 helps our customers to successfully perform their measurement tasks in an efficient and simple way.

## Features

- Proven spatial filter principle
- Precise, low-noise sideslip angle
- Integrated angular rate and acceleration sensors
- Sensor fusion
- Highest dynamics due to 1kHz update rate
- CAN output
- Simple parameterization via Ethernet
- Long-life IR-LED lighting
- POI conversion
- Easy handling
- Precise optics / optomechanics
- Protection against undervoltage by UPS

## Applications

- Longitudinal and lateral dynamics
- Tire and brake performance
- Indoor testing
- Motorsport
- Land Survey
- ADAS testing
- Rail Applications
- Mobile machines
- Motorcycle
- Parking tests
- Industrial Applications



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## Technical data

| | | |
|---|---|---|
| Speed | | |
| Measuring range | 250/350/450 | km/h |
| Nonlinearity | < ±0.2 | %FS |
| Angle | | |
| Measuring range | ±30 | ° |
| Measuring accuracy ±10° | < 0.1 | ° |
| Measuring accuracy ±30° | < 0.2 | ° |
| Optical resolution | ≈0.6 | mm |
| Working distance | 300 ±150 | mm |
| Angular rates | | |
| Measuring range | ±500 | °/s |
| Accelerations | | |
| Measuring range | ±20 | g |
| Measurement frequency | 1000 | Hz |
| Signal delay | 4.5 | ms |
| Supply | | |
| Voltage | 10 … 36 | V |
| Power consumption (at 12 V) | < 25 | W |
| UPS | 3 | s |
| Environmental conditions | | |
| Storage / Operation | -40 … 85 / -25 … 50 | °C |
| Shock / Vibration (Sensor) | 50 / 10 | g / ms |
| Dimensions | | |
| Sensor (without connector) | 95 x 65 x 40 | mm |
| ECU | 155 x 125 x 60 | mm |
| Weight | | |
| Sensor | 390 | g |
| ECU | 900 | g |
| Protection class | | |
| Sensor (cable plugged) | IP68 | |
| ECU | IP40 | |
| Illumination | IR | |
| Wavelength | 850 | nm |
| CAN Interface | 2.0B (galv. isolated) | |
| Number of individual nodes | 2 | |
| Speed | 125 / 250 / 500 / 1000 | kBaud |
| Terminating resistor | switchable | |
| Ethernet Interface | galvanically insulated | |
| Parameterization | Webinterface | |
| Measurement data | TCPIP (protocol on request) | |
| USB Interface | Protocol on request | |
| I/O Interface | Light barrier / brake switch / synchronization / PPM output (galv. Isolated) | |



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## Ordering Code

OMS7 □□□.□.□.□

| | |
|---|---|
| Speed range [km/h] | 250<br>350<br>450 |
| Orientation sensor | L: longitudinal<br>T: transversal |
| Orientation connector | H: horizontal<br>V: vertical |
| Length sensor cable [m] | 5 |

## Scope of delivery

| | |
|---|---|
| Sensor | |
| Sensor cable | MT0000227 |
| Power cable | MT0000063 |
| Transport case | MT0000207 |
| Measuring tape | MT0000208 |

| | |
|---|---|
| CAN cable | MT0000061 |
| ETH cable | MT0000064 |
| USB Stick | MT0000212 |
| Set of screws | MT0000213 |
| Screwdriver | MT0000214 |

## Optional accessories

| | |
|---|---|
| Towing Lug Mount T1 | MT0000209 |
| Side Mount S1 | MT0000210 |
| Side Mount M1 | MT0000211 |
| Light barrier | MT0000264 |
| Brake switch | MT0000265 |

| | |
|---|---|
| USB cable | MT0000065 |
| I/O cable open end | MT0000066 |
| I/O cable BNC | MT0000263 |
| I/O cable customized | on request |
| | |

Customized cable on request

## Additional Information:

State of origin: Germany, Tariff Code: 90318020



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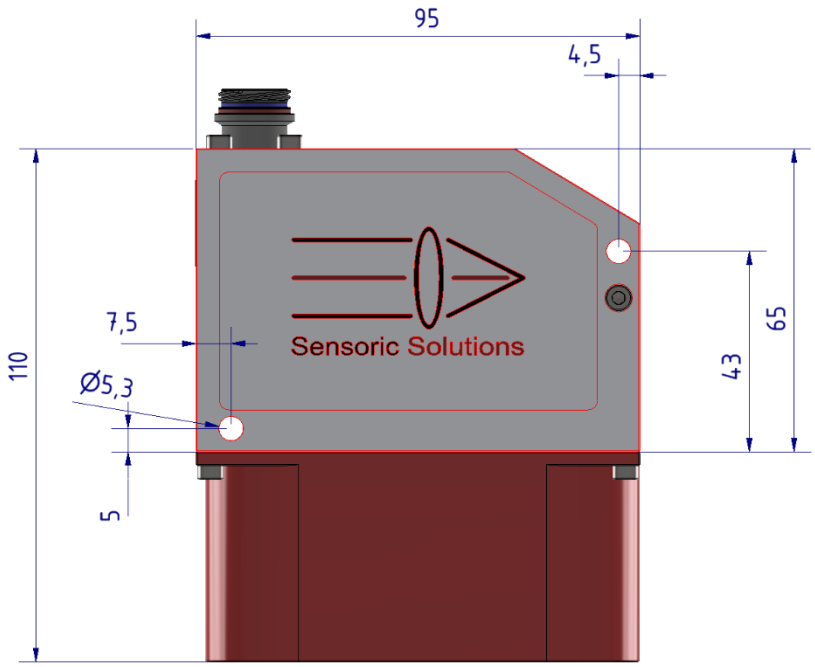
## Drawings

## Sensor

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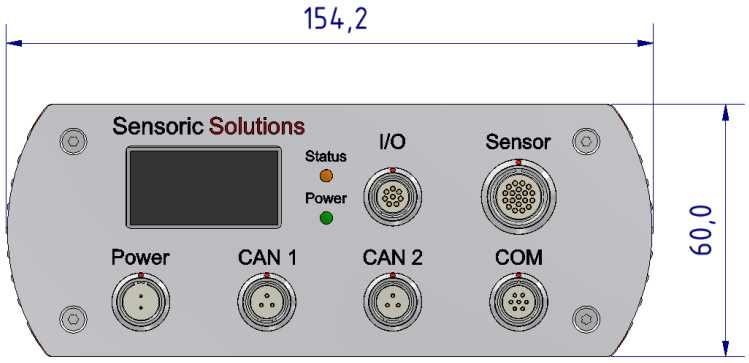
## ECU

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