

OMS 3



Description

The OMS 3 optical sensor combines non-contact optical sensing with inertial measurement technology in a compact and high-performance solution for longitudinal dynamic applications. By combining proven optical velocity measurement with the powerful OMS Race ECU, the system achieves maximum measurement accuracy, fast signal processing, and high dynamic performance.

Unlike the OMS 4, the OMS 3 features one-dimensional optics specifically optimized for longitudinal dynamics. This enables particularly robust and precise measurement even on surfaces with low texture or challenging surface properties. The optimized sensor geometry also ensures increased tolerance for curved measurement surfaces and allows for measurements on large pipes or other non-planar structures.

With its powerful OMS Race ECU, high measurement accuracy, and optimized sensor architecture, the OMS 3 is the ideal tool for demanding measurement tasks in longitudinal dynamics—especially where maximum robustness against challenging surface conditions and the highest signal quality are required.

Features

- Proven spatial filter principle
- Highest dynamics thanks to 1kHz update rate
- Parameterizable sensor fusion
- CAN / CAN FD output
- Diagnostic data via CAN
- Sensor / ECU exchangeable
- Long-life IR LED lighting
- Easy handling
- Precise one-dimensional optics

Applications

- Longitudinal dynamics tests
- Brake performance
- Tire performance
- Measurement on curved surfaces
- Indoor testing
- Land Survey
- Train and Trum
- Mobile machines
- Motorcycles
- Industrial applications

Technical data

	OMS 3	
Velocity		
Measuring range	250 / 400	km/h
Non-linearity	< ±0.1	%FS
Optical resolution	≈0.6	mm
Working distance	300 ±150	mm
Angular rates (Y, Z)		
Measuring range	±500	°/s
Accelerations (X, Z)		
Measuring range	±20	g
Measuring frequency	1000	Hz
Signal delay	3.75	ms
Sensor fusion	Balanced / Optical priority / No fusion (adjustable)	
Supply	Galvanically isolated	
Voltage	10 ... 36	V
Consumption (at 12 V)	< 16	W
Ambient conditions		
Storage / Operation	-40 ... 85 / -25 ... 50	°C
Shock / Vibration (sensor)	Tested with profiles from F1 teams	
Dimensions		
Sensor (without plug)	95x65x40	mm
ECU	121 x 84 x 22	mm
Weight		
Sensor	390	g
ECU	270	g
Protection class		
Sensor (cable plugged in)	IP68	
ECU	IP67	
Lighting	IR	
	850	nm
CAN interface	FD / 2.0B (galvanically isolated)	
Number of individual nodes	1	
Baud rate	125 / 250 / 500 / 1000	kBaud
	FD Data: up to 8	Mbit
Terminating resistor	Switchable	
Ethernet interface	Galvanically isolated	
Parameterization	Web interface	
Measurement data	TCP/IP or UDP (protocol on request)	
I/O interface	Digital In / Digital Out (TTL; galvanically isolated)	

Order code

OMS3-AAA.B.C.D

AAA	Velocity [km/h]	250* 400
B	Sensor alignment	L: longitudinal*
C	Plug alignment	H: horizontal V: vertical*
D	Sensor cable length [m]	5*

*) Standard: OMS3-250.L.V.5

Scope of delivery

Sensor	
Sensor cable 5m	
Power cable	MT0000374
CAN cable	MT0000376
ETH cable	MT0000377

Case	MT0000207
USB stick	MT0000212
Screw set	MT0000213
Hex key L-wrenches	MT0000214
Measuring tape	MT0000208

Customized cable assembly on request

Optional accessories OMS 3

Side holder S1	MT0000210
Side holder M1	MT0000211

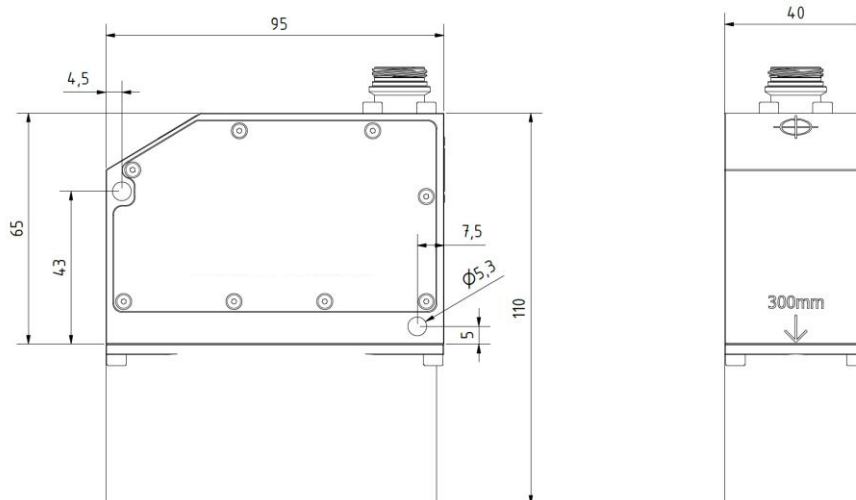
Towing eye holder T1	MT0000209
Wheel holder W1	MT0000330

Additional product information:

Country of origin: Germany, Goods tariff: 90318020

Drawings

Sensor OMS 3



ECU

