

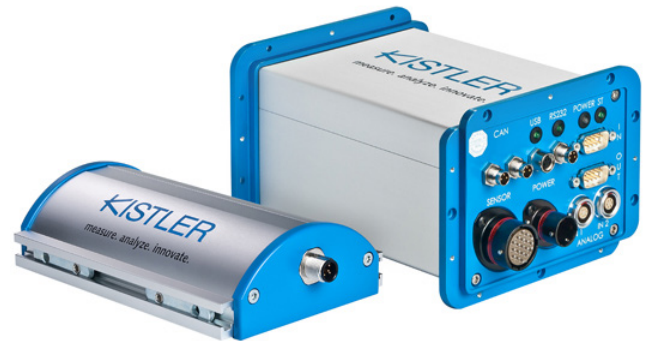
# Microstar II

Type CMSTRA...

## Non-contact microwave sensors

Microstar II sensors are designed for longitudinal vehicle dynamics tests which require a large working range, making them ideally suited for off-road applications.

- Working range of 300 ... 1,200 mm, speed range 0.5 ... 400 km/h
- Adjustable filter time (unfiltered, moving average 8 ... 512 ms, FIR-Filter 2 ... 100 Hz)
- Compensation of mounting angle errors (pitch angle) by two-beam planar antenna
- Direct connection to PC or various evaluation systems
- Signal outputs: Analog, digital, CAN bus, USB or RS-232C
- Negligible service and maintenance requirements



### Description

The measurement principle of the Microstar II sensor is based on the Radar-Doppler-Effect. The sensor consists of a two-beam planar antenna and an electronics unit with CAN bus. The very large working distance of 300 ... 1,200 mm makes it ideally suited for applications with utility and off-road vehicles and to accurately measure longitudinal speed under extreme conditions, e.g. in woods or mountains, where GPS or optical sensors are not capable of good measurements.

Within the product range, sensors of the Microstar type are the most cost-efficient solution for measuring longitudinal dynamics.

Microstar II microwave sensors measure the relative movement between sensor and test surface using a planar antenna, which projects two radar beams at 45° angles. Upon striking the test surface, the beams are reflected back to the sensor antenna. The resulting double frequency (equal to the difference of sent and received frequencies) is directly speed-proportional. The gained signal is converted to the desired dimension via high-performance signal processing and then sent to the corresponding outputs.

Additional connections, such as an interface for flow-measurement systems (for consumption tests), or trigger inputs for light barriers or brake switches, provide exceptional testing power and flexibility in a highly compact package.

When used with the delivered software, the Microstar II

sensor functions as a complete data acquisition and evaluation system. The software enables test parameters and definitions to be permanently saved via software, along with online displays and evaluations, e.g. charts and plots. All measured signals can be saved and evaluated off-line.

### Application

For non-contact distance and speed measurement, e.g.:

- Driving performance measurements
- Determination of longitudinal parameters
- Fuel consumption measurements
- Off-road measurements
- Monitoring the actual speed of off-road vehicles, e.g. Jeeps, Quads, military vehicles, agricultural vehicles, etc.

### Technical data

#### Performance specifications

Speed range	km/h	0.5 ... 400
Distance resolutions	mm	9.5
Measurement accuracy <sup>1)</sup>	%FSO	<±0.5
Measurement frequency	Hz	250
Working range	mm	300 ... 1,200

<sup>1)</sup> Determined on test surface with distance >200 m

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## Technical data (continuation)

### Signal Outputs

Digital output 1 – VL	pulses/m	1 ... 1,000/TTL
Analog output 1 – VL	V	0 ... 10

### Signal inputs

Trigger input calibration		yes
Analog input 1+2	V	-10 ... 10
Counter input	kHz	0 ... 100

### Interfaces

CAN (Motorola/Intel)		2.0B
USB (Full Speed)		2.0
RS-232C		yes

### System specifications

Power supply	V	10 ... 28
Power consumption at 12 V	W	10
Temperature range		
Operation	°C	-25 ... 50
Storage	°C	-40 ... 85
Relative humidity (con condensing)	%	5 ... 80
Degree of protection (cable mounted)		
Sensor head		IP65
Electronics		IP30
Dimensions (LxWxH)		
Sensor head	mm	166x44x108
Electronics	mm	180x125x95
Weight		
Sensor head	grams	550
Electronics	grams	1,100
Shock	g	50 half-sine
	ms	6
Vibration	g	10
	Hz	10 ... 150

### Antenna Specifications

Transmission frequency	GHz	24.125 ±0.05
Transmission power	dBm	<+25
Source power	mW	5
Radiation angle		
Longitudinal direction	°	2x45 ±10
Transverse direction	°	90 ±7.5

### Included accessories

	Type/art. no.
• Power cable	18012634
• Connection cable CAN, l = 2 m	18012482
• Connection cable RS-232C, l = 2 m	18012469
• Connection cable USB, l = 2 m	18012483
• Distribution cable, D-Sub, 2 x BNC, l = 1 m	18012382

• Mini folding rule	55064207
• USB stick software + manuals	55158846
• Sensor calibration	44000607
• Screws: 6 kt M6x12 ISO4017, 2 pcs.	55061221
• Screws: 6 kt M6x16 ISO4017, 2 pcs.	55061222
• Screws: U M6 ISO7089, 2 2 pcs.	55061130
• Tool: Hexagon wrench, 6 kt, 3 mm	55061927
• Tool: Hexagon wrench, Torx T8	55065078
• Tool: Double-head open end wrench 10/13	55061923
• Transport case, complete	55066878

### Optional accessories

• Suction holder Microstar	Type/art. no.
	18012638
• Magnetic holder Microstar	18012637

### Ordering key

Art. No. 18017732

Type CMSTRA

#### Sensor head

Standard *	1
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#### Sensor cable

Without cable	0
2 m	1
5 m *	2
10 m	3

#### Electronics

Standard*	1
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#### Interface outputs

±10 V *	1
±5 V	2

#### Mounting direction

Longitudinal *	1
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#### Interface inputs

±10 V *	1
0 ... 5 V	2

### Ordering example\*

Type CMSTRA121111

Microstar II standard sensor head, 5 m sensor cable, standard electronics, interface output ±10 V, longitudinal mounting direction, interface input ±10 V

\* Standard configuration