

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 the new CDS 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 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 resolution	mm	9,5
Measurement accuracy ¹⁾	%FSO	<±0,5
Measurement frequency	Hz	250
Working range	mm	300 ... 1 200

¹⁾ determined on test surface with distance >200 m

CMSTRA_000-894e-01.12

Technical Data (Continuation)

Signal Outputs

Digital output 1 - V _L	pulses/m	1 ... 1 000/TTL
Analog output 1 - V _L	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 (non condensing)	%	5 ... 80
Protection standard		
Sensor head (cable mounted)		IP65
Electronics (cable mounted)		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	°	2 x 45 ±10
Transversal direction	°	90 ±7,5

Included Accessories

• Power cable	Type/Art. No.	KCD17180
• Sensor cable, l = 5 m		KCD17390
• Connection cable CAN, l = 2 m		KCD13946
• Connection cable RS-232C, l = 2 m		KCD13425
• Connection cable USB, l = 2 m		KCD13947
• Distribution cable, D-Sub, 2 x BNC, l = 1 m		KCD10532
• Transport case, complete		KCD17415
• Mini folding rule		KCD14643
• Multimedia-CD incl. software & manuals		KCD11343
• Sensor calibration		KCD11427
• Screw set for Microstar II		KCD17416
• Tools: Hexagron wrench, 6 kt, 3 mm		KCD11285

Optional Accessories

• Suction holder Microstar	Type/Art. No.	KCD17418
• Magnet holder Microstar		KCD17417

Ordering Key

		Type CMSTRA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sensor Head								
Standard*	1							
Sensor Cable								
2 m	1							
5 m*	2							
10 m	3							
Electronics								
Standard*	1							
Interface Outputs								
±10 V*	1							
±5 V	2							
Mounting Direction								
Longitudinal*	1							
Interface Inputs								
±10 V*	1							
0 ... 5 V	2							

Ordering Example*

Type CMSTRA121111

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

* Standard configuration