

# Correvit® SFII Sensors

## Non-Contact Optical Sensors

Type CSF2A...

Patent No. DE 43 13 497 C2

The Correvit SFII sensors are designed for racing applications to measure longitudinal and transversal speed.

- Developed for measurement of tire slip angle from 0,3 ... 250 km/h; Racing version with speed range 0,3 ... 400 km/h available
- Small and lightweight – just 250 g
- Adjustable filter time (unfiltered, moving average 8 ... 512 ms)
- Measurement accuracy  $<\pm 0,5\%$
- Improved features by application of advanced DSP technology
- Signal outputs: Analog, Digital, CAN-Bus or RS-232C



### Description

Correvit SFII sensors represent an advanced development of the Formula-1 proven Correvit SF sensor, with its long-life, vibration-resistant infrared LED illumination. Consistent miniaturization and a low weight enable universal mounting positions, e.g. below the vehicle near the center of gravity. The applied state-of-the-art technology provide improved performance, even under harsh environmental conditions.

Equipped with 4 analog and 4 digital outputs, SFII sensors permit simultaneous measurement of longitudinal, transversal, and magnitude speed, as well as angle measurement. Complemented with high-speed data transfer via CAN Bus, RS-232C, or USB, the SFII sensors can be used with any current data acquisition system.

A protective optical-glass lens prevents damage to the optics and the illumination source and can be easily replaced without use of special tools.

### Application

High-precision, slip-free measurement of distance, longitudinal and transversal speed as well as angle for vehicle dynamics testing.

### Technical Data

Performance Specifications		SFII	SFII-P
Speed range <sup>1)</sup>	km/h	0,3 ... 250	
Distance resolution	mm	2,08	
Measurement accuracy <sup>2)</sup>	%FSO	$<\pm 0,5$	
Angle range	°	$\pm 40$	
Angle resolution <sup>3)</sup>	°	$<\pm 0,1$	
Measurement accuracy angle <sup>3)</sup>	°	$<\pm 0,5$	
Measurement frequency	Hz	250	
Working distance and range	mm	180 $\pm$ 50	

### Signal Outputs

Output Dig1 - IVI	Pulses/m	1 ... 1 000/TTL	
Output Dig2 - $V_I$	Pulses/m	1 ... 1 000/TTL	
Output Dig3 - $V_q$	kHz	0 ... 46/TTL	
Output Dig4 - angle	kHz	0 ... 46/TTL	
Output Ana1 - IVI	V	0 ... 10	
Output Ana2 - $V_I$	V	0 ... 10	
Output Ana3 - $V_q$	V	-10 ... 10	
Output Ana4 - angle	V	-10 ... 10	

### Interfaces

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

<sup>1)</sup> optional: calibrated up to 400 km/h

<sup>2)</sup> determined on test surface with distance  $>200$  m

<sup>3)</sup> determined at 50 km/h and standard settings

CSF2A\_000-812e-01.12

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Page 1/3

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**Technical Data (Continuation)**

System Specifications		SFII	SFII-P
Power supply	V	10,5 ... 24	
Power consumption at 12 V	W	28	
Temperature range			
Operation	°C	-25 ... 50	
Storage	°C	-40 ... 85	
Relative humidity (non-condensing)	%	5 ... 80	
Protection standard			
Sensor head (cable mounted)		IP67	
Electronics (cable mounted)		IP50	
Dimensions (LxWxH)			
Sensor head	mm	100x28x40	118x33x45
Electronics	mm	130x86x33	130x86x33
Weight			
Sensor head	grams	180	250
Electronics	grams	490	490
Shock	g	50 half-sine	
	ms	6	
Vibration	g	10	
	Hz	10 ... 150	
Illumination		LED-IR 850 nm Laser class 1	

**Dimensions**

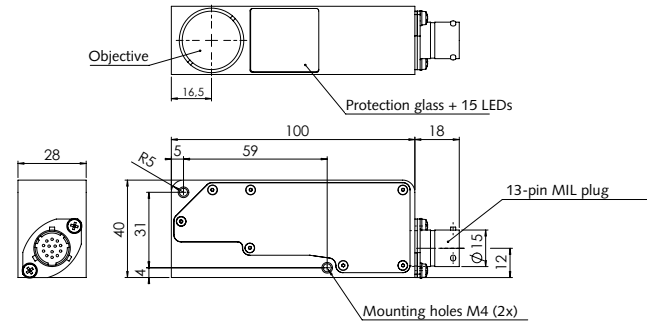


Fig. 1: Dimensions Correvit® SFII sensor

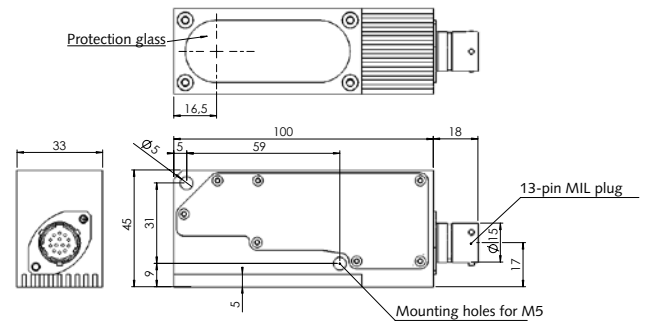


Fig. 2: Dimensions Correvit® SFII-P sensor

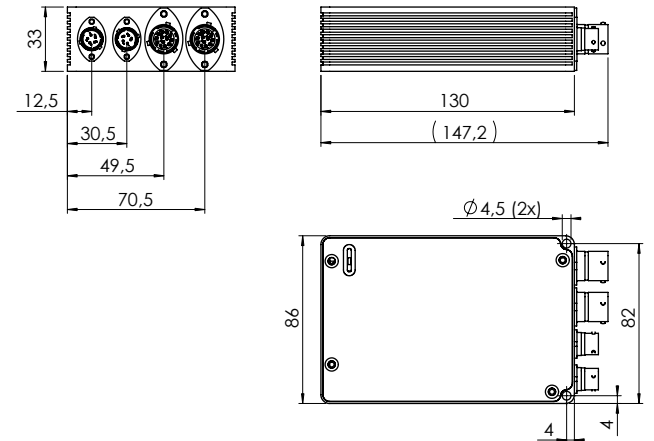


Fig. 3: Dimensions Correvit® SFII/SFII-P electronics

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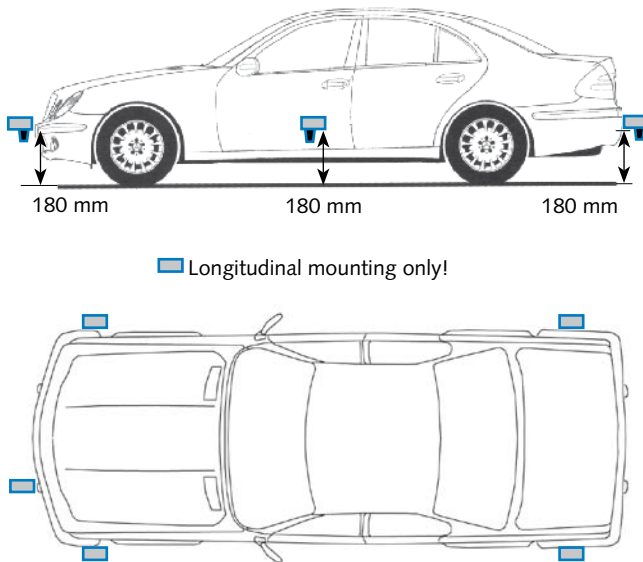
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### Mounting

With Kistler mounting equipment (see optional accessories).

When mounting the sensor at the vehicle, the mounting distance from the lower surface of the sensor body (not including the spray guard) to the road must be within the specified range (see technical data, page 1).



### Ordering Key

Type CSF2A

#### Sensor Head

SFII-P (Infrared, with protection glass)*	1
SFII (Infrared, without protection glass)	2

#### Sensor Cable

2 m	1
5 m*	2

#### Electronics

Standard*	1
Racing, 400 km/h	2

#### Interface

±10 V*	1
±5 V	2

#### Mounting Direction

Longitudinal*	1
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### Ordering Example

Type CSF2A12111

SFII-P sensor, infrared with protection glass, 5 m cable, standard electronics, ±10 V, longitudinal mounting direction

\* Standard configuration

### Included Accessories

	Type/Art. No.
• Power cable, MIL, 5 pin, 2 x bunch, l = 2 m	KCD13854
• Connection cable CAN, l = 2 m	KCD13683
• Connection cable RS-232C, l = 2 m	KCD13682
• Signal cable analog-digital, l = 2 m	KCD14273
• USB adapter	KCD13971
• Mini folding rule	KCD14643
• Multimedia-CD incl. software & manuals	KCD11343
• Sensor calibration 2-axis sensors	KCD11427
• Cooling element left & right, black	KCD14044
• Screw set for SF	KCD17194
• Transport case, complete	KCD17197

### Optional Accessories

	Type/Art. No.
• 3-point suction holder	KCD16049
• 8-point magnetic holder	KCD14091

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