

## Correvit<sup>®</sup> S-350

### Non-Contact Optical Sensors

Type CS350A...

Patent No. DE 43 13 497 C2

The 2-axis Correvit S-350 sensors are designed for direct, slip-free measurement of longitudinal and transverse vehicle dynamics.

- Correvit S-350 Aqua sensors with working range of 350 ±100 mm
- Applicable from 0,5 ... 250 km/h (optionally calibrated up to 400 km/h)
- The S-350 Aqua sensor electronics provide option for connection of a gyro to attain yaw rate for measurement of sideslip angle relative to the vehicle's center of gravity
- Adjustable filter time (unfiltered, moving average 8 ... 512 ms, FIR 2 ... 100 Hz)



#### Description

Correvit S-350 sensors produce unparalleled accuracy on all standard testing surfaces, even under the most challenging conditions.

Compact and lightweight, Correvit S-350 sensors can be easily operated. Versatile mounting equipment enables quick and easy sensor installation.

S-350 sensors feature high-quality optical elements, the newest optoelectrical components and state-of-the-art high-performance signal processing based on DSP and FPGA's. Speed and distance information is updated at 250 Hz to track every highly dynamic maneuver.

Programmable, standardized signal outputs and interfaces allow direct connection to PC and virtually all data acquisition systems, making all measured values directly available.

Durable technology guarantees negligible service and maintenance requirements.

#### Application

High-precision, slip-free measurement of distance, speed (longitudinal/transversal) and angle for dynamic vehicle testing, e.g. steady-state circular-course driving (ISO 4138).

The extended working range of the Correvit S-350 sensors make them ideal for measurement of transverse dynamics with trucks, busses, and off-road vehicles.

#### Technical Data

##### Performance Specifications

Speed range <sup>1)</sup>	km/h	0,5 ... 250
Distance resolution	mm	2,47
Measurement accuracy <sup>2)</sup>	%FSO	<±0,2
Angle range	°	±40
Angle resolution <sup>3)</sup>	°	<±0,1
Measurement accuracy angle <sup>4)</sup>	°	<±0,2
Measurement frequency	Hz	250
Working distance and range	mm	350 ±100

##### Signal Outputs

Output Dig1 –  V  or V <sub>I</sub> <sup>5)</sup>	Pulses/m	1 ... 1 000/TTL
Output Dig2 – V <sub>q</sub> or angle <sup>5)</sup>	kHz	0 ... 46/TTL
Output Ana1 –  V  or V <sub>I</sub> <sup>5)</sup>	V	0 ... 10
Output Ana2 – V <sub>q</sub>	V	-10 ... 10
Output Ana3 - angle	V	-10 ... 10

##### Signal Inputs

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

<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 default settings

<sup>4)</sup> determined on test surface with distance >200 m in the range of ±30 °

<sup>5)</sup> switching-over between the respective measured variables via KiCenter possible

**Technical Data (Continuation)**

**Interfaces**

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

**System Specifications**

Power supply <sup>6)</sup>	V	10 ... 28
Power consumption (at 12 V)	W	33
Temperature range		
Operation	°C	-25 ... 50
Storage	°C	-40 ... 85
Relative humidity (non-condensing)	%	5 ... 80
Degree of protection (cable mounted)		
Sensor head		IP67
Electronics		IP50
Dimensions (LxWxH)		
Sensor head	mm	125x70x45
Electronics	mm	180x125x95
Weight		
Sensor head	grams	500
Electronics	grams	1 100
Shock	g	50 half-sine
	ms	6
Vibration	g	10
	Hz	10 ... 150
Illumination		Halogen

**Mounting**

With Kistler mounting equipment S-350 (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).

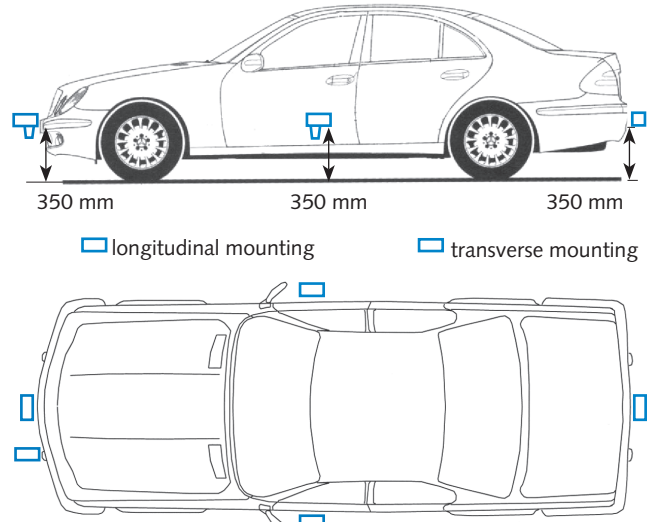


Fig. 1: Possible mounting positions

<sup>6)</sup> S-350: from serial number 640-084100

**Dimensions**

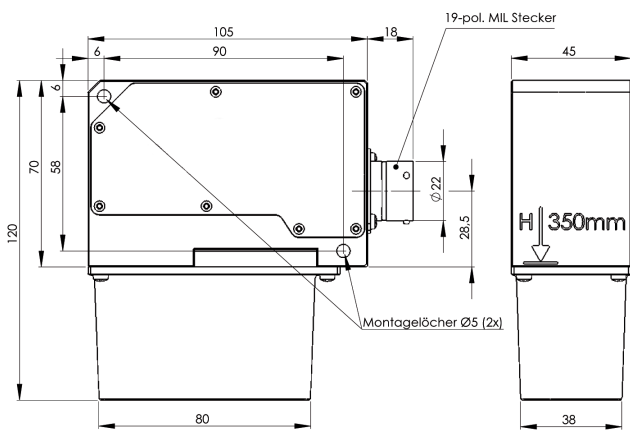


Fig. 2: Correvit® S-350 sensor dimensions

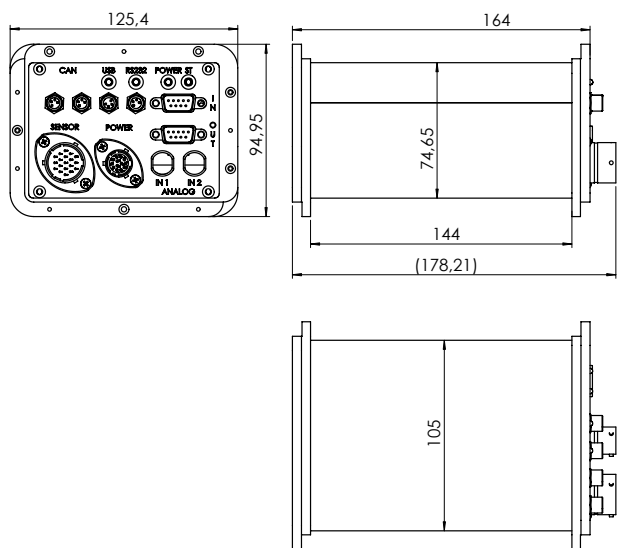


Fig. 3: Correvit® S-350 electronics dimensions

CS350A\_000-807e-04.14

This information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes. Liability for consequential damage resulting from the use of Kistler products is excluded.

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**Included Accessories S-350 Aqua Sensors**

- Power cable, MIL, 6 pin Banana, l = 2 m
- Connection cable CAN, l = 2 m
- Connection cable RS-232C, l = 2 m
- Connection cable USB, l = 2 m
- Connection cable, D-Sub, 2 x BNC, l = 1 m
- Halogen lamp 20 W/12 V
- Tool to exchange the sensor halogen lamp
- Mini folding rule
- Multimedia-CD incl. software & manuals
- Sensor calibration (DIN EN ISO 9001)
- Hexagon wrench 6 kt 4 mm
- Screw set for S-350
- Screw driver Torx T10
- Transport case, complete

**Optional Accessories**

- Suction holder S-350
- Magnetic holder S-350
- Brake switch
- Light barrier

**Ordering No.**

18012634  
18012482  
18012469  
18012483  
18012382  
18012531  
55064735  
55064207  
55082182  
44000607  
55063983  
55082183  
55065040  
55066876

**Ordering No.**

18012551  
18012545  
18012409  
18012428

**Ordering Key**Type CS350A      **Sensor Head**

S-350 (Halogen)	2
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**Sensor Cable**

2 m	1
5 m	2
10 m	3
15 m	4
20 m	5

**Electronics**

Standard	1
Calibrated up to 400 km/h	2

**Interfaces Outputs**

±10 V	1
0 ... 5 V	2

**Mounting Direction**

Longitudinal	1
Transverse	2

**Interfaces Inputs**

±10 V	1
0 ... 5 V	2

**Ordering Example****Type CS350A221111**

S-350 sensor, standard halogen illumination, 5 m cable, standard electronics, ±10 V, longitudinal mounting direction