

Correvit 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 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 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

S-350 sensors produce unparalleled accuracy on all standard testing surfaces, even under the most challenging conditions. Compact and lightweight, 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 optoelectronic 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, transverse) and angle for dynamic vehicle testing, e.g. steady-state circular-course driving (ISO 4138).

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

Technical data

Performance specifications

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

Signal outputs

Output Dig1 – V or V_I ⁵⁾	Pulses/m	1 ... 1 000/TTL
Output Dig2 – V_q or angle ⁵⁾	kHz	0 ... 46/TTL
Output Ana1 – V or V_I ⁵⁾	V	0 ... 10
Output Ana2 – V_q	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

¹⁾ Optional: calibrated up to 400 km/h

²⁾ Determined on test surface with distance >200 m

³⁾ Determined at 50 km/h and default settings

⁴⁾ Determined on test surface with distance >200 m in the range of $\pm 30^\circ$

⁵⁾ 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 ⁶⁾	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		IP30
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

⁶⁾ S-350: from serial number 640-084100

Dimensions

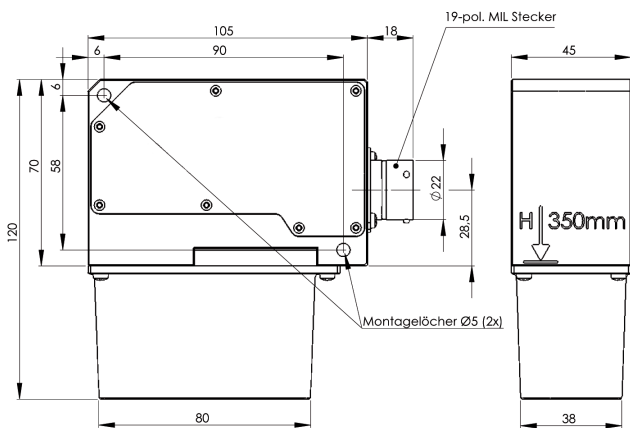


Fig. 2: Correvit S-350 sensor dimensions

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).

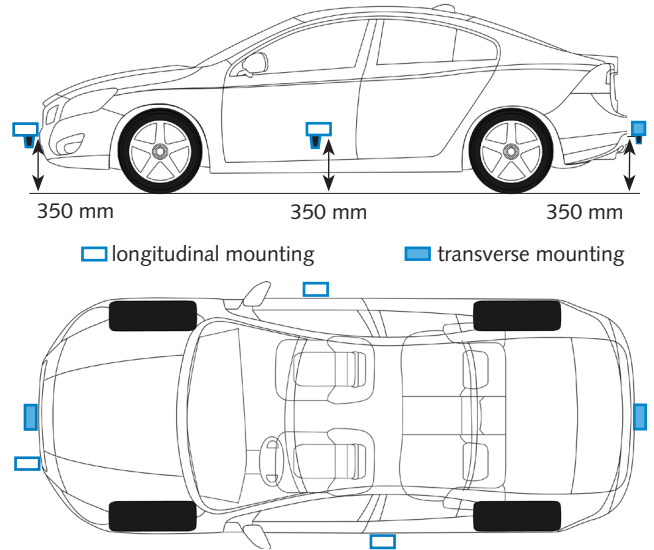


Fig. 1: Possible mounting options

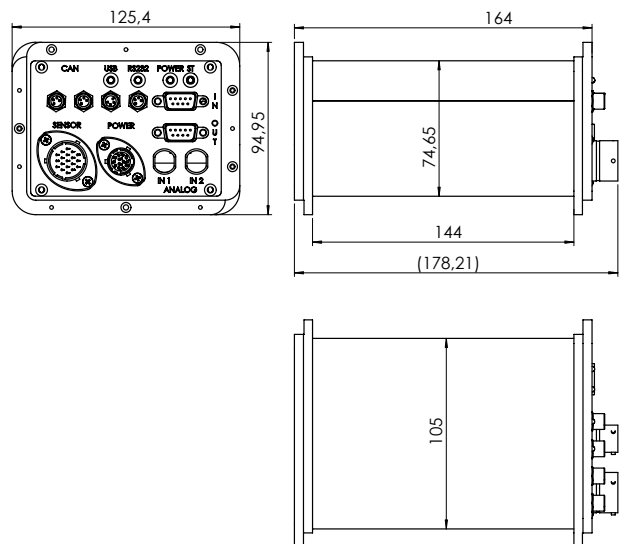


Fig. 3: Correvit S-350 electronics dimensions

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Included accessories CS350A... Sensors

- Connection cable CAN, l = 2 m
- Connection cable RS-232C, l = 2 m
- Connection cable USB, l = 2 m
- Dist. cable, 9 pin DSub f/5xBNC, l = 1 m
- Halogen lamp 20 W/12 V
- Tool to exchange the sensor halogen lamp
- Mini folding rule
- USB stick software + manual
- 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.

18012482
18012469
18012483
55061503
18012531
55064735
55064207
55082182
44000607
55063983
55082183
55065040
55066876

Ordering no.

18012551
18012545
18012409
18012428

Ordering keyType 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: 250 km/h	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