

Correvit S-175 Racing

Non-contact optical sensor

Type 2057A

Patent No. DE 43 13 497 C2

The Correvit S-175 Racing sensor is designed for direct, slip-free measurement of longitudinal and transverse vehicle dynamics at high speed.

- Working range 175 ±25 mm
- Applicable from 0.5 ... 400 km/h
- High measurement accuracy, also on wet surfaces
- High shock and vibration resistance
- Adjustable filter time (unfiltered, moving average)
- 8 ... 512 ms, FIR 2 ... 100 Hz)
- All measured values directly available
- Intensely tested in motor sports applications



Description

The Correvit S-175 Racing sensor produces unparalleled accuracy on all standard testing surfaces, even under the most challenging conditions, for example wet test track.

Compact and lightweight, the Correvit S-175 Racing sensor can be easily operated. The low working range enables to install the sensor directly on the car underbody.

This sensor generation 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 at high speeds, for example under racing conditions.

Technical data

Performance Specifications

Speed range	km/h	0.5 ... 400
Distance resolution	mm	2,47
Measurement accuracy ¹⁾	%FSO	<±0.2
Angle range	°	±30
Angle resolution ²⁾	°	<±0.1
Angle measurement accuracy ³⁾	°	<±0.2
Measurement frequency	Hz	250
Working distance and range	mm	175 ±25

Signal outputs

Output Dig1 – V _I or V _I ⁴⁾	pulses/m	1 ... 1,000/TTL
Output Dig2 – V _q or angle ⁴⁾	kHz	0 ... 46/TTL
Output Ana1 – V _I or V _I ⁴⁾	V	0 ... 10
Output Ana2 – V _q or angle ⁴⁾	V	-10 ... 10

Interfaces

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

¹⁾ Determined on test surface with distance >200 m

²⁾ Determined at 50 km/h and default settings

³⁾ Determined on test surface with distance >200 m in the range of ±30 °

⁴⁾ Switching-over between the respective measured variables via KiCenter possible

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Technical data (continuation)

System specifications

Power supply	V	10 ... 28
Power consumption max. (at 12 V)	W	35
Temperature range		
Operation	°C	-25 ... 50
Storage	°C	-40 ... 85
Relative humidity (non-condensing)	%	5 ... 80
Degree of protection (cable mounted)		
Sensor head		IP65
Electronics		IP50
Dimensions (LxBxH)		
Sensor head approx	mm	122x70x45
Electronics	mm	145x107x37
Weight		
Sensor head	grams	500
Electronics	grams	555
Shock	g	50 half sine
	ms	6
Vibration	g	10
	Hz	10 ... 150
Illumination		LED-IR, 850 nm Laser class 1

Mounting

When mounting the sensor at the vehicle, the mounting distance from the lower surface of the sensor body to the road must be within the specified range (see technical data, page 1).

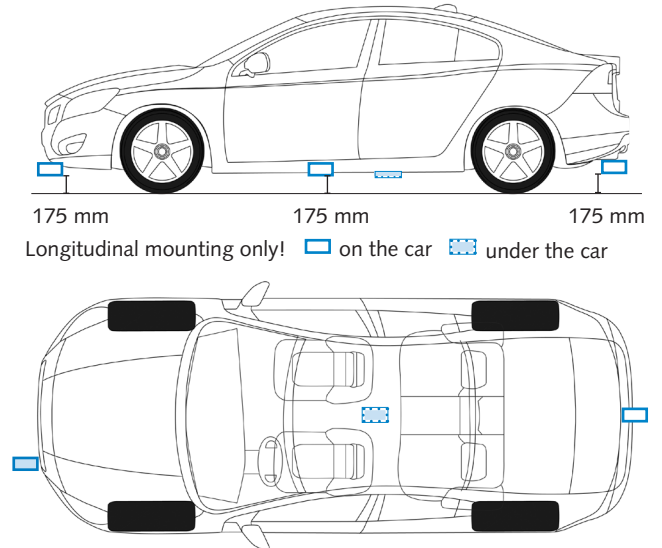


Fig. 1: Possible mounting options

Dimensions

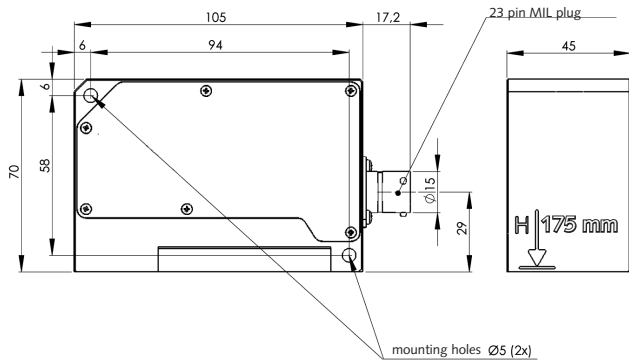


Fig. 2: Correvit S-175 Racing sensor head dimensions

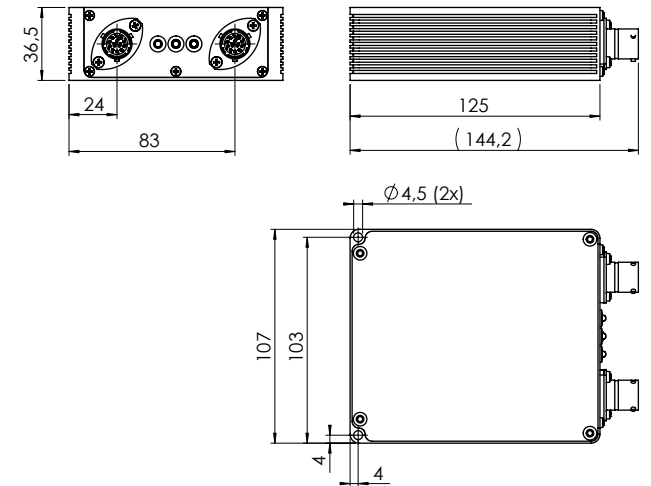


Fig. 3: Correvit S-175 Racing electronics dimensions

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Included accessories

- Sensor head, S-175 Racing
- Evaluation electronics
- Sensor cable, MIL, l = 2 m
- Power/CAN/ANA/DIG cable
- USB adapter
- Mini folding rule
- Hexagron wrench key 6 kt 4 mm
- Angled pin spanner torx
- Screw set for L-350
- USB memory stick: software + manuals
- Transport case, complete

Ordering no.

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