

Correvit® AC-350

Non-Contact Optical Sensor

Type CA350A...

Patent No. DE 43 13 497 C2

The 2-axis Correvit AC-350 sensor is designed for direct, slip-free measurement of longitudinal and transversal vehicle dynamics, especially suited for aircraft applications.

- Working range of 350 ±100 mm
- Applicable from 0,5 ... 400 km/h
- Aviation suitable electronics unit
- An angular rate gyro mounted within the optical axis provides option to measure angular rate
- Adjustable filter time (unfiltered, moving average 8 ... 512 ms, FIR 2 ... 100 Hz)



Description

The AC-350 sensor is specially designed for aircraft applications; its technical features allow use during flight operations for testing purposes.

This sensor generation features 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.

The angular rate gyro module mounted within the optical axis provides a complete angular rate measurement solution in a compact package. Utilizing a measurement structure micro-machined in silicon, this module is robust enough to withstand the punishment of harsh environments in mobile vehicle testing.

The angular rate gyro module can be connected directly to the analog input or to a data acquisition system.

Application

High-precision, slip-free measurement of distance, speed (longitudinal/transversal) and angle; especially for measuring the landing gear movement during take-off and landing.

Technical Data

Performance Specifications

Speed range	km/h	±0,5 ... 400
Distance resolution	mm	2,47
Measurement accuracy ¹⁾	%FSO	<±0,2
Angle range	°	±40
Angle resolution ²⁾	°	<±0,1
Meas. accuracy angle ³⁾	°	<±0,2
Measurement frequency	Hz	250
Working distance/range	mm	350 ±100

Signal Outputs

Output Dig1, IVI or V _i ⁴⁾	pulses/m	1 ... 1 000/TTL
Output Dig2, V _q or angle ⁴⁾	kHz	0 ... 46/TTL
Output Ana1, IVI or V _i ⁴⁾	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 ⁵⁾	V	-10 ... 10
Counter input	kHz	0 ... 100

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 CeCalWin Pro possible

⁵⁾ The analog input can be used to acquire the angular rate sensor signal

Technical Data (Continuation)

Interfaces

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

System Specifications

Power supply	V	10 ... 28
Power consumption max. (at 12 V)	W	38
Temperature range		
Operation	°C	-25 ... 50
Storage	°C	-40 ... 85
Relative humidity (non-condensing)	%	5 ... 80
Protection standard (cable mounted)		
Sensor head		IP67
Electronics		IP65
Dimensions incl. connectors (LxWxH)		
Sensor head	mm	126x45x114
Electronics	mm	167x185x70
Weight (approx.)		
Sensor head	grams	530
Electronics	grams	1 360
Shock	g	50 half sine
	ms	6
Vibration	g	10
	Hz	10 ... 150
Illumination		Halogen

Performance Specifications Angular Rate Gyro

Sensitivity:	Nominal value	°/s	±150
		mV/°/s	12,5
Tolerance		%FSO	±10
Zero rate bias output:	Nominal value	VDC	+2,5
	Tolerance	mV	±100
Full scale span:	Nominal value	VDC	±2,0
	Tolerance	%FSO	±10
Frequency response:	Nominal value	Hz	25
		dB	-3
	Tolerance	%	±20
RMS equivalent noise:	Nominal value	°/s	1
	Tolerance	%	±25
Nonlinearity		%FSO	±0,1
Transverse sensitivity		°/s/g	0,2
Zero rate bias drift (-40 ... 85 °C)		mV	200

Mounting

Customer-specific.

Dimensions

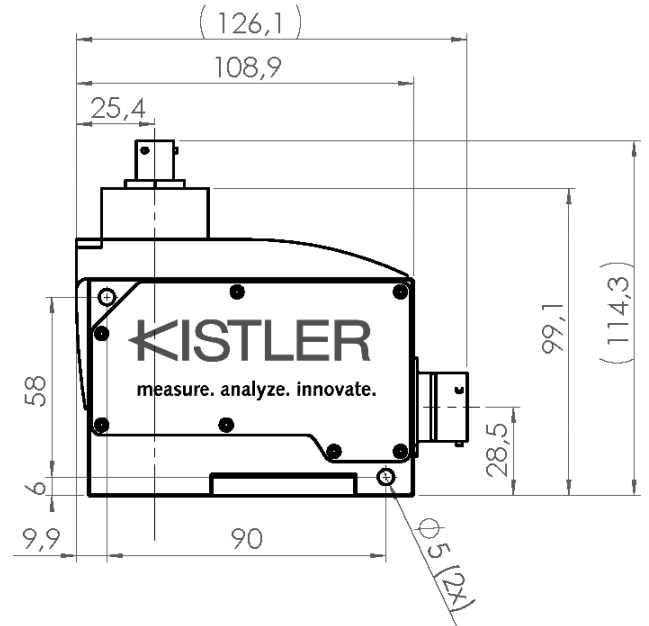


Fig. 1: Dimensions Correvit® AC-350 sensor head

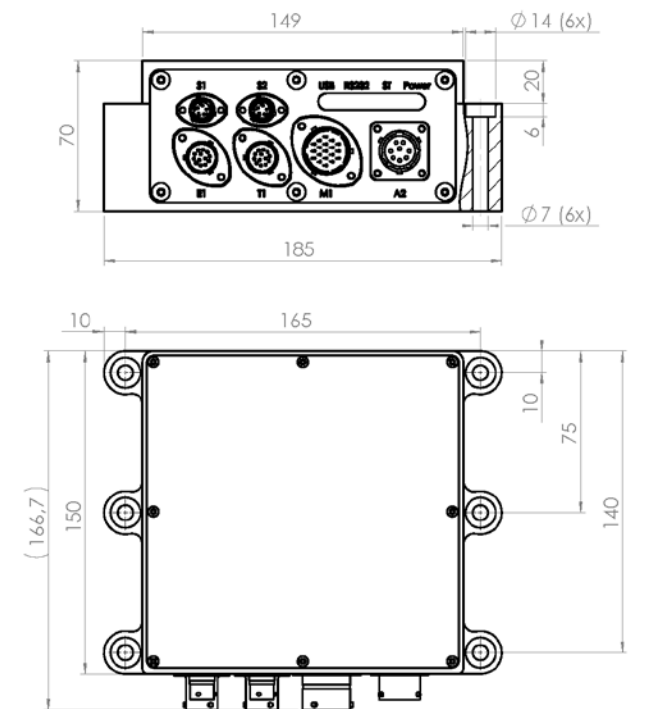


Fig. 2: Dimensions Correvit® AC-350 electronics

CA350A_000-988-e-06.12

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

- 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
- Gyro SAG
- Power cable, MIL, 6 pin. Banana, l = 2 m
- Connect. cable USB/CAN/RS-232C l = 2 m
- Distribution cable, D-Sub, 4 x BNC, l = 1 m
- Distribution cable, 3 x BNC, l = 1 m
- Halogen lamp 20 W/12 V
- Tool to exchange the sensor halogen lamp
- Screw driver Torx T10
- Transport case, complete

Type/Art. No.

- KCD14643
- KCD11343
- KCD11427
- KCD14283
- KCD17193
- KCD16008
- KCD17332
- KCD17328
- KCD17336
- KCD17329
- KCD14893
- KCD15437
- KCD15887
- KCD17595

Ordering Key

Sensor Head

Halogen (aviation)	1
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Sensor Cable

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

Electronics

Aviation	1
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Interface Outputs

±10 V*	1
±5 V	2

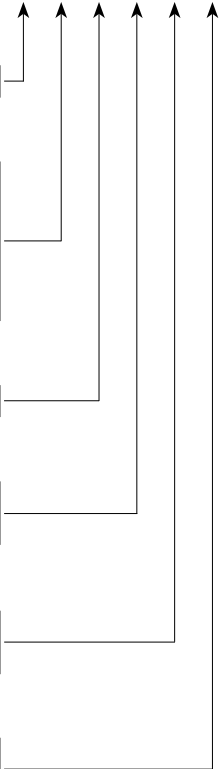
Mounting Directions

Longitudinal*	1
Transversal	2

Interface Inputs

±10 V*	1
0 ... 5 V	2

Type CA350A



Ordering Example

Type CA350A151111

AC-350 sensor, halogen (aviation) illumination, 20 m cable, aviation electronics, ±10 V, longitudinal mounting direction, ±10 V interface input

* Standard configuration

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