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Sensor

KITAS 4.0 (2185.21)

The KITAS 4.0 (2185.21) is a speed sensor for the smart tachograph system that complies with the legislation under the Implementing Regulation (EU) 2018/502 (Annex 1C / 1C V2). All vehicles in the EU that are subject to the provisions of the regulation have to be equipped with a smart tachograph system latest since June 15th of 2019. In addition, the KITAS 4.0 sensor is also interoperable with tachograph systems according to Annex 1B¹⁾ of Regulation (EC) No. 1266/2009.

Its Hall-IC allows the KITAS 4.0 sensor to record the vehicle's gearbox speed without contact. The signals are then processed by microprocessors of the latest generation. In addition to the signal output in the form of a real-time signal, an encrypted data signal is made available to the tachograph. For this purpose, a new type of security processor is used which, in addition to the latest cryptographic algorithms, employs advanced security key management.

A new level of tamper detection is achieved by comparing the two signals in the tachograph and the additionally innovative extended data communication possibilities of KITAS 4.0.

General Features

- Legal basis: (EU) 2018/502 (Annex 1C / 1C V2) and (EU) 165/2014 respectively
- Common Criteria certified: EAL4+ augmented by ATE_DPT.2 and AVA_VAN.5.
- Interoperable with tachograph¹⁾ systems according to (EC) 1266/2009
- EMC approval according to UN ECE R10 Rev.06
- REACH directive EG 1907/2006
- End of life directive 2000/53/EC & amendments
- UKCA certification EMA21UKEX0030X
- The sensor is not designed according to ISO 26262 (Road vehicles - Functional safety)
- Comprehensive security concept for tamper detection
- Latest generation security processor with extended cryptographic key management
- Contactless measuring method with Hall IC
- Microcontroller-based signal acquisition and processing, with external field detection
- Intelligent power management
- Can be integrated into vehicle gearboxes in conjunction with combustion engine or electric motor
- Sealing to gearbox with integrated O-ring seal
- Interface according to ISO 16844-3 with extended command set
- Optional sealing of the connector/housing
- Standard plug according to ISO 15170-1

¹⁾ currently not compatible to all Annex 1B tachographs

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Technical information

Operating voltage U_E	6,5 V to 9 V	Dimensions (L in mm)	18 / 18.6 / 19.8 / 23.8 / 25 / 33.8 / 62 / 63.2 / 88.8 / 113.8
Power Consumption	max. 15 mA	Variants	Input signal splitter / Optimized external field
Operating temperature	-40 °C to +145 °C or +120 °C ADR (T4)	Weight	ca. 59 g to 90 g
General temp. restriction for ATEX applications	max. +120 °C to +145 °C for 6 250 h)	Vibration resistance	10 Hz to 3.5 kHz, 228m/s ² (max)
Storage temperature	-40 °C to +120 °C	Shock stability	1 000 g
(Pin 3) output signal	Real time signal	Air gap	0.8 mm to 2.0 mm
(Pin 3) signal format	Rectangular	Gear interface	M18 × 1.5 thread Sealing via O-ring
(Pin 3) output level	U_L max = 0,8 V (at I = 250 µA) U_H min = UE -1,5V (at I = -150 µA)	External magnetic field	< 5 mT
Frequency range	1 Hz to 2 000 Hz (1:1 divider) 1 Hz to 500 Hz (4:1 divider)	Sensor standard plug connection	Acc. to ISO 15170-1
(Pin 4) Data signal	Bi-directional interface acc. to ISO 16844-3 with extensions	Housing	Anodized aluminum
(Pin 4) Data level	U_{low} out = 1.0 V (at I = 1 mA) U_{High} out = 5.4 V (at I = -20 µA) U_{low} in = 1.2 V (at I = -1 mA) U_{High} in = 5.2 V (at I = -0.5 mA)	Protection class	ISO 20653:2013 IP6K7 + IP6K9K with connected harness Security seal based on IPX9K with restrictions
ESD resistance	Air discharge: ±15 kV Contact discharge: ±8 kV	Fixation torque	Max. 40 N·m
Short circuit strength	32 V for 1 min at 25 °C	Wrench size	27 mm
EMC immunity	ISO 7637 / CISPR 25 / ISO 11452		

