PRODUCT BRIEF

XENSIV™ - TLE480x

Inductive position sensing

Enabling high accuracy, stray field robust inductive sensing

The ongoing electrification of cars with internal combustion engines and the introduction of electric main drives for electric vehicles continuously increase the potential of electro-magnetic interference which can cause issues for electronic sub systems.
TLE480x products intrinsically support excellent stray field robustness, this way they eliminate the need for shielding against electro-magnetic disturbances.
The TLE480x products represent an excellent solution for inductive angle & inductive linear sensor applications such as torque & steering angle or rack position sensing for electric power steering or pedal applications.
The members of the TLE480x family support inductive sensor solutions which provide significantly higher accuracy compared to magnetic sensor technologies.
The TLE480x family provides high flexibility on system level. The ICs support a variety of design architectures such like End of Shaft (EoS) or Out of Shaft applications (OoS) as well as O-shape, arc-shape or even linear sensor PCB designs.

The TLE480x family is optimized to meet different use cases:

- TLE4802: Fully flexible including cyber security
- TLE4801: TAS optimized solution with calculated torque & angle
- TLE4803: Dual angle information for pedal and stroke sensing

The TLE480x products include a coil system driver, signal- conditioning circuits as well as a DSP for torque and angle calculation within a single device.
The single chip design is designed according ISO 26262 Safety Element out of Context (SEooC) and enables system design safety levels up to ASIL D, crucial for meeting future fail operational system safety requirements.



Key features

Inductive based measurement principle
- Overvoltage and reverse polarity protection
- Calibration & configuration registers
- Dual angle and torque information
- Stray field robust acc. ISO 11452-8:2015
- ISO 26262:2018 (SEooC) meets ASIL D
- Cyber security feature (opt.)
- SENT (based on SAE J2716-2016) & SPC interface
- PG-TSSOP-16
- Grade 0: -40°C to 150°C
- RoHS compliant and halogen-free package

Key benefits

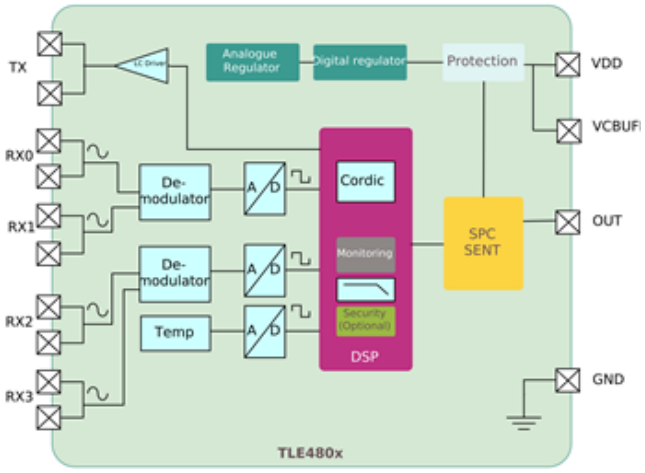
- Combines torque and angle information in one device
- Saves cost of shielding with intrinsic stray field robustness according to ISO 11452-8:2015
- Easy to use high precision sensing
- Saves efforts to achieve functional safety rating ASIL D
- Including cyber security option acc. ISO 21434 (TLE4802)

ISO 26262 compliant
Stray field robust
Inductive

www.infineon.com/inductive-position-sensing

PRODUCT BRIEF

Block diagram TLE4802SC16-S0000



Inductive sensing products

Product	SP Number	Package	Interface	Safety	Description
TLE4801C16-S0000	SP006068554	TSSOP -16 (Grade 0)	SPC	ASIL D	Digital output signal Torque and angle information
TLE4801S16-S0000	SP006068552	TSSOP -16 (Grade 0)	SENT	ASIL D	Digital output signal Torque and angle information
TLE4802SC16-S0000	SP006068556	TSSOP -16 (Grade 0)	SPC, SENT	ASIL D	Digital output signal Flexible programmable torque and angle sensor with cyber security feature
TLE4803C16-S0000	SP006068564	TSSOP -16 (Grade 0)	SPC	ASIL D	Digital output signal Two angle sensor information
TLE4803S16-S0000	SP006068562	TSSOP -16 (Grade 0)	SENT	ASIL D	Digital output signal Two angle sensor information

Published by
Infineon Technologies AG
Am Campeon 1-15, 85579 Neubiberg
Germany

© 2024 Infineon Technologies AG
All rights reserved.

Public

Version: V1.0_EN
Date: 04/2025

Scan QR code and explore offering
www.infineon.com

Please note!
This Document is for information purposes only and any information given herein shall in no event be regarded as a warranty, guarantee or description of any functionality, conditions and/or quality of our products or any suitability for a particular purpose. With regard to the technical specifications of our products, we kindly ask you to refer to the relevant product data sheets provided by us. Our customers and their technical departments are required to evaluate the suitability of our products for the intended application.

We reserve the right to change this document and/or the information given herein at any time.

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by us in a written document signed by authorized representatives of Infineon Technologies, our products may not be used in any life-endangering applications, including but not limited to medical, nuclear, military, life-critical or any other applications where a failure of the product or any consequences of the use thereof can result in personal injury.