ASCLIN
Asynchronous Synchronous Interface

AURIX™ TC3xx Microcontroller Training
V1.0 2020-06

Please read the Important Notice and Warnings at the end of this document
ASCLIN
Asynchronous Synchronous Interface

**Key Features**

3 in 1 module

Configurable oversampling per bit

**Highlights**

Provide asynchronous serial communication with external devices using only data-in, data-out signals. The focus of the module is set to fast and flexible communication: either fast point-to-point or master-to-many slaves communication using the LIN protocol.

**Customer Benefits**

Customer can use single module for ASC (UART), LIN and Master SPI applications

Choose up to 16 oversampling per bit for higher accuracy for higher baud rates.
ASCLIN module supports three different serial protocol standards:
- ASC(UART)
- LIN
- SPI

Customer can leverage three protocols support without additional hardware

SPI master is supported with three or four wire approach (with or without slave select output signal)
ASCLIN
Configurable oversampling per bit

- Programmable oversampling of 4 to 16 times per bit as shown in figure waveform
- Programmable sample point position with respect to the oversampling points in the range of 0 to 15
- Programmable number of samples per bit between 1 or 3
ASCLIN module is integrated to provide following benefits:

- Interrupts signals capable of triggering either CPU or DMA
- Internal loop-back mode for test functionality
- Up to 12 ASCLIN channels available with flexible connections to multiple GPIO via multiplexers for transmission and reception respectively
Application example
LIN

Overview
› Supports all four elementary LIN transactions including header/response transmission & reception, as master or slave
› Supports standard LIN v1.3/2.0/2.1/2.2 and J2602 with collision detection

Advantages
› Auto baud detection
› Optional collision detection
› Bus idle monitoring and wake-up capabilities
› Stuck at zero/one monitoring for safety
Application example
ASC

Overview

› Configure UART communications
› Supports baudrates up to 25 MBaud

Advantages

› Extended supports of different sensors through high-speed ASC extension
› Extension in functionality to support optional handshaking (RTS/CTS) for high-speed ASC communication
Application example
SPI master

Overview
› SPI master configuration for SPI based communications in multiple configurations
› Support of full and half duplex
› Supports baudrates up to 25 MBaud

Advantages
› Up to 16 bit data width supported
› Programmable leading & trailing delays
IMPORTANT NOTICE
The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”).

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer’s products and any use of the product of Infineon Technologies in customer’s applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer’s technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS
Due to technical requirements 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 Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies’ products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.