



iC-MCB

SPI-to-BiSS Bridge with RS422 Transceiver

Description

iC-MCB is a BiSS slave bridging iC to implement BiSS slave functionality into any sensor technology and platform. BiSS sensor implementations are possible, downgrading to SSI operation is also possible. Full BiSS C protocol functionality including single cycle data (SCD) for sensors (SCDS) and control communication for commands and register access and BiSS bus structures. Timing critical protocol response is handled directly by the iC-MCB and relieves the host microcontroller. The host microcontroller configures and controls the iC-MCB via SPI interface. iC-MCB can access and control various sensors directly by the Fast Sensor Interface on the I/O crossbar. The integrated RS422 transceiver enables BiSS point-to-point encoder applications with a maximum clock rate of 10 MHz.

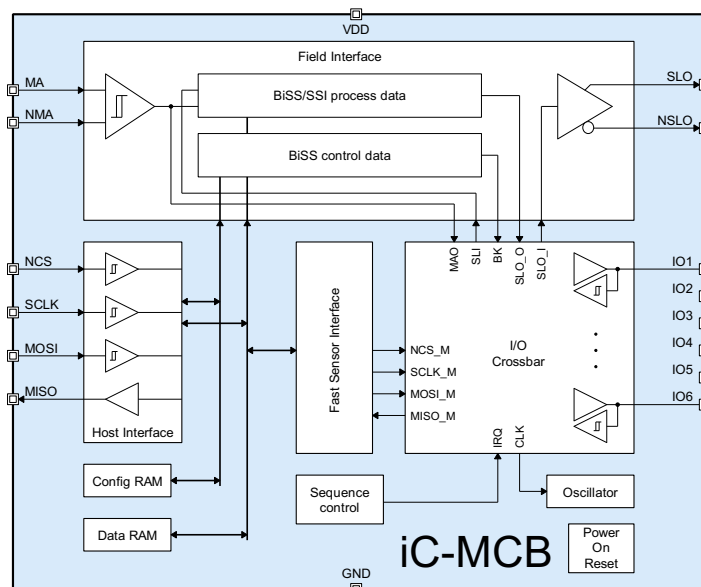
Features

- BiSS Interface slave
- Full BiSS protocol support
- Single cycle data buffer of 64 byte organized in multiple banks for simultaneous access
- Built-in control communication
- RS422 line driver/receiver for BiSS/SSI point-to-point network
- BiSS bus structure capable
- SPI slave interface for sensor data provided by microcontroller
- BiSS safety related features (16 bit CRC + CRC start value)
- BiSS timeout: adaptive, 2 μs, 20 μs
- SSI protocol support
- Operation from 3.0 to 5.5V
- Operational Temperature -40 to +125 °C
- Space-saving 16-pin QFN package

Applications

- BiSS slave implementation
- Multiple sensor devices
- Encoder, torque sensor, inclinometer, acceleration sensor
- Safety light curtain
- BiSS diagnosis extension
- Condition monitoring extension

Block Diagram



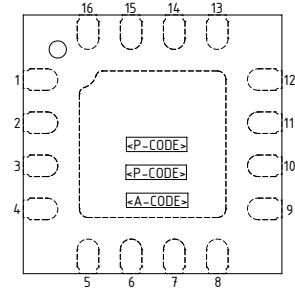
iC-MCB

SPI-to-BiSS Bridge with RS422 Transceiver

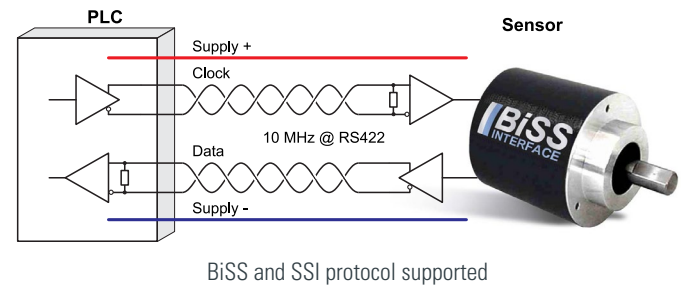
Pin Functions

No.	Name	Function
1	MISO	SPI Serial Data Output
2	NCS	SPI Chip Select Input
3	SCLK	SPI Clock Input
4	MOSI	SPI Serial Data Input
5	IO1	Digital Port Input/Output
6	IO2	Digital Port Input/Output
7	IO3	Digital Port Input/Output
8	IO4	Digital Port Input/Output
9	IO5	Digital Port Input/Output
10	IO6	Digital Port Input/Output
11	GND	Ground
12	VDD	3.0 to 5.5 V Supply Voltage
13	NSLO	BiSS Data Line Output (inverted)
14	SLO	BiSS Data Line Output
15	MA	BiSS Clock Line Input
16	NMA	BiSS Clock Line Input (inverted)
	BP (TP)	Backside Paddle (GND)

Pin Configuration QFN16-3x3



Point to Point Communication



BiSS and SSI protocol supported

Application Example

