TYPICAL HARDWARE STRUCTURE (POINT-TO-POINT)

The *BiSS Interface* has been developed for fast, isochronous and robust data transmissions in motor feedback applications. Typically, *BiSS* systems are based on the RS-422 standard which provides a full-duplex communication with high data rates up to 10 Mbit/s using differential signalling (twisted pairs).

In point-to-point configuration, only one sensor device (with one or several sensors) is connected to the master device using six wires (a twisted pair for the clock signal, a twisted pair for the data signal and two wired for supply and ground). In this setup, *BiSS* is hardware compatible to the well-established SSI protocol.

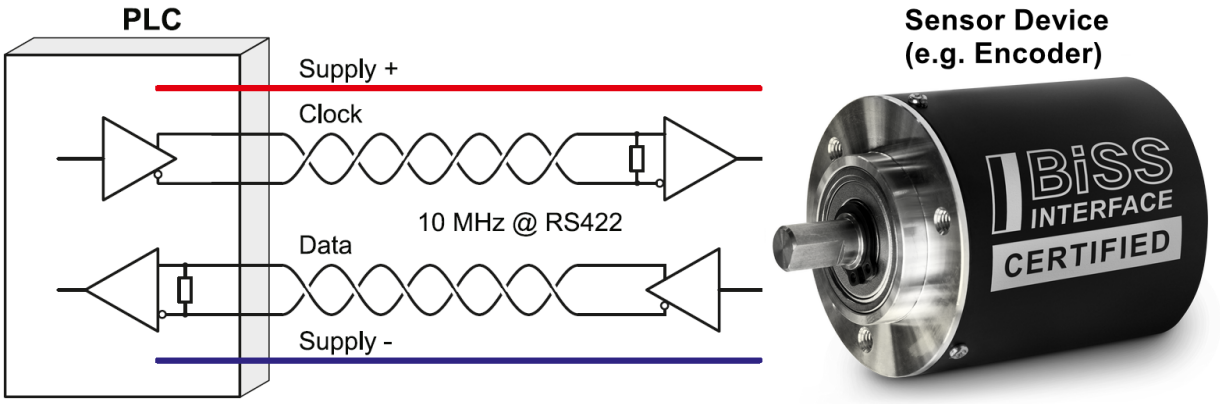

Figure 1: Typical *BiSS* application (point-to-point)

TYPICAL HARDWARE STRUCTURE (BUS)

In bus configuration, several sensor devices and additionally actuator devices can be connected to the master device. In bus configuration, an additional pair of wires is required to enable data transmission from the master to the slaves resulting in a total of eight wires.

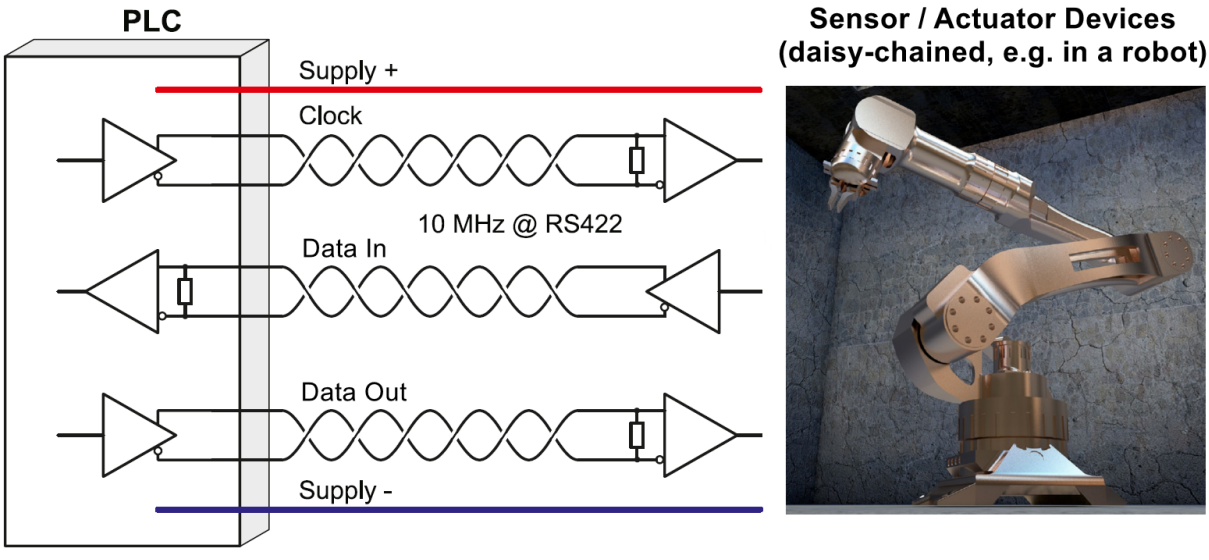

Figure 2: Typical *BiSS* application (bus)

OPTIONS FOR IMPLEMENTING A BiSS MASTER

BiSS Association e.V. offers a **BiSS Master VHDL IP core package** to *BiSS* device manufacturers (e.g. drive, PLC, robot manufacturers) at no charge. The *BiSS* Master VHDL IP core package contains the VHDL source code (MB100) and an implementation example. It is suitable for FPGA implementations. An external RS-422 transceiver may be required in a standard *BiSS* application.

iC-Haus GmbH offers a ready-to-operate **BiSS Master bridge component iC-MB4 with integrated RS-422 transceiver**. It is controlled via SPI and takes care of time-critical protocol actions, e.g. by automatically considering the *BiSS* Slave's processing time and by managing the register communication with one bit in each direction.

Some **microcontrollers (e.g. Renesas RZ/T2L)** have implemented a *BiSS Interface* in hardware or offer software libraries. Please check www.biss-interface.com for available *BiSS* products.

REVISION HISTORY

Rel.	Rel. Date*	Chapter	Modification	Page
A1	2012-02-08	All	Initial release	All

Rel.	Rel. Date*	Chapter	Modification	Page
B1	2024-09-17	All	Overall revision and update	All

* Release Date format: *YYYY-MM-DD*