

MB4U

BiSS, SSI, PC-USB 2.0 ADAPTER

preliminary



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FEATURES

USB 2.0 high speed PC interface
FPGA based logic
Hardware implemented interface protocols
Fast realtime data communication (10 MHz *BiSS*; 4 MHz SSI)
API for Windows: *BiSS*-Interface DLL
Field capable design: box, field interfaces, USB bus powerable
USB powered 5 V and 12 V supplies for external applications
Supported interfaces:
BiSS / SSI controlled by FPGA application

APPLICATIONS

BiSS / SSI application development
BiSS / SSI debugging
Flexible interface configuration
Encoder calibration
Portable applications

SYSTEM VIEW



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DESCRIPTION

The MB4U is a PC-USB 2.0 high speed interface *BiSS* master based on FPGA logic system design.

BiSS Interface Functions and Features:

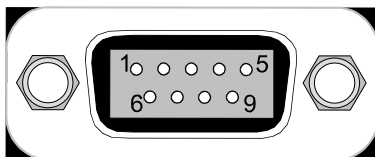
- Up to 8 *BiSS* slaves
- RS422 10 MBit/s maximum data transfer rate
- SSI master
- *BiSS* C unidirectional and *BiSS* C master
- *BiSS* master MB100 *BiSS* IP based
- USB 2.0 interface up to 30 MBit/s data transfer
- USB 1.1 interface compatibility to 12 MBit/s data transfer
- Adapter and devices bus powerable
- Available drivers for Windows 2000, XP, Vista, 7
- FPGA integrated 1st level RAM

The device offered here is a multifunctional iC that contains integrated *BiSS* C interface components. The *BiSS* C process is protected by patent DE 10310622 B4 owned by iC-Haus GmbH. Users benefit from the open *BiSS* C protocol with a free license which is necessary when using the *BiSS* C protocol in conjunction with this iC.

Download the license at www.biss-interface.com/BUA

CONNECTORS

PIN CONFIGURATION *BiSS*

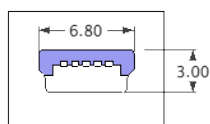


PIN FUNCTIONS

No. Name Function

1	VB	Field power supply
2	MA+	Clock output P
3	MA-	Clock output N
4	VDD	Logic power supply
5	MO-	Master data output N
6	GND	Ground (0 V)
7	SL+	Device data input P
8	SL-	Device data input N
9	MO+	Master data output P

PIN CONFIGURATION Mini USB



PIN FUNCTIONS

No. Name Function

1	VCC	5 V USB supply
2	D-	Data -
3	D+	Data +
4	ID	Identifier: A = GND, B n.c.
5	GND	Ground (0 V)

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ABSOLUTE MAXIMUM RATINGS

Beyond these values damage may occur; device operation is not guaranteed.

Item No.	Symbol	Parameter	Conditions	Min. Max.		Unit
				Min.	Max.	
G001	Power USB	Maximum Power Consumption from USB Bus	see USB specifications		500	mA
G002	VDD	Logic Power Supply		4.0	5.5	V
G003	I(VDD)	Logic Power Supply	VDD = 5 V, I(VB) = 0 mA	250	350	mA
G004	VB	Interface Power Supply		9	13	V
G005	I(VB)	Interface Power Supply	VB = 12 V, I(VDD) = 0 mA	90	125	mA

THERMAL DATA

Item No.	Symbol	Parameter	Conditions	Min. Typ. Max.			Unit
				Min.	Typ.	Max.	
T01	Temp	Temperature Range		0		50	°C
T02	HUM	Humidity	non condensating	5		95	%

All voltages are referenced to ground unless otherwise stated.

All currents flowing into the device pins are positive; all currents flowing out of the device pins are negative.

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BiSS POWER SUPPLY CONTROL

The MB4U supplies VB and VDD voltages with allocating and initializing the adapter. With closing the adapter resource or the software the voltages are turned off to permit a safe unplugging of connected de-

vices. The unpowering of VB and VDD requires a non volatile content storing before closing the interface adapter in any software environment.

BiSS MASTER IP MB100

The MB4U is based on the MB100 *BiSS* master IP. With this implementation it is possible to connect one or more *BiSS* C devices or a single SSI device to the adapter. *BiSS* C protocol is fully supported. The adapter supports an unlimited count of *BiSS* C slave devices.

With *BiSS* there is 10 MBit/s RS422 maximum clocking available. The SSI protocol is also configurable.

With high speed buffered transfer the real-time measured data can be block-wise transferred to a Windows PC application for analysis, documentation, data processing, etc..

BiSS SOFTWARE ENVIRONMENT

iC-Haus Evaluation Software

iC-Haus *BiSS* software for PCs running on Windows operating systems as well as the required USB and/or LPT driver are available as a ZIP file. iC-Haus software built with LabVIEW™ requires the installation of the LabVIEW™ Run-Time Engine (RTE).

MB4U capable software and product DLLs are available on request (*BiSS* Reader GUI, iC-MN GUI, iC-LGC GUI, iC-NQC GUI, iC-MH GUI).

iC-Haus *BiSS* Interface DLL

For custom software running on Windows operating systems the *BiSS* Interface DLL enables rapid software development. Direct access to eval board adapter and high level protocol functions are directly available.

The *BiSS* DLL revision 5.2 supports multiple MB4U adapter in one application.

Download *BiSS* Interface DLL: http://www.ichaus.de/biss1sl_interface

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REVISION HISTORY

Rev	Notes	Pages affected
A1	First release	
A2	Order codes added	6
A3	Software links removed	4
B1	BiSS C, BiSS C unidirectional, SSI	1
B2	Power control hint added	4
B3	BUA info added	2
	BiSS DLL 5.2 supports multiple MB4U adapter in one application	4

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ORDERING INFORMATION

Type	Package	Order Designation
MB4U	105 mm x 33 mm x 16 mm Aluminium blue anodized	iC-MB4 iCSY MB4U

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