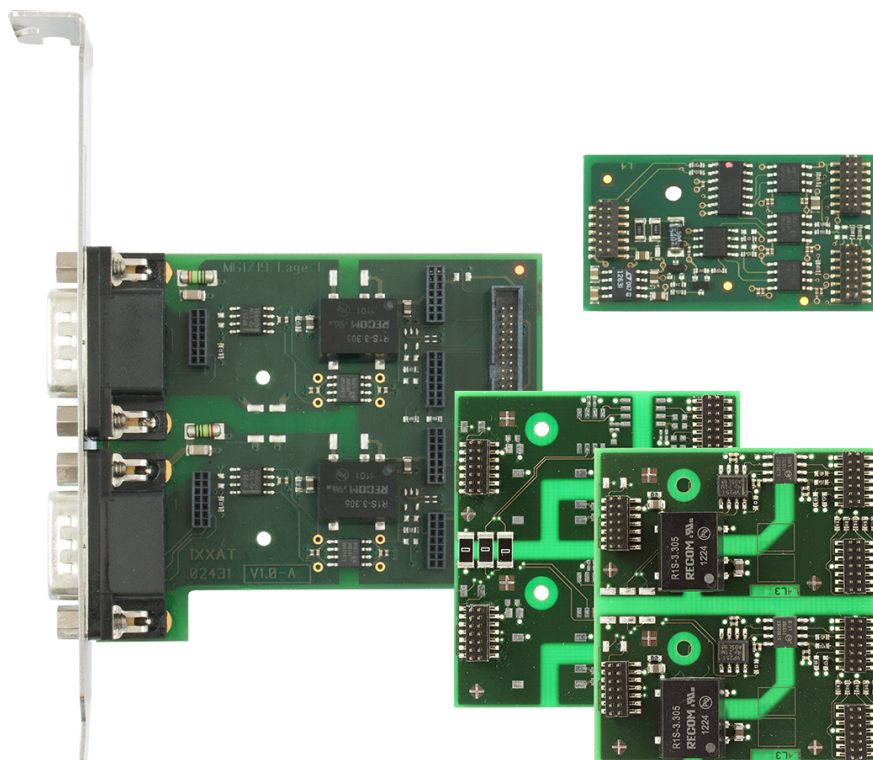


Expansions

for CAN-IB Series

USER MANUAL

4.01.0240.20000 2.4 en-US ENGLISH



Important User Information

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1 User Guide

Please read the manual carefully. Make sure you fully understand the manual before using the product.

1.1 Target Audience

This manual addresses trained personnel who are familiar with CAN technology and the applicable national standards. Only ESD trained staff is authorized to install the interface. The contents of the manual must be made available to any persons authorized to use or to operate the product.

1.2 Related Documents

Document	Author
User Manual <i>PC CAN Interface, CAN-IB Series for PCI/PCExpress</i>	HMS
User Manual <i>PC CAN Interface, CAN-IB Series XMC and PMC</i>	HMS

1.3 Document History

Version	Date	Description
2.0	June 2016	Revised and edited in new design, included manual 4.01.0241 and 4.01.0242
2.1	February 2018	Changed document subtitle, minor corrections
2.2	October 2018	Changed LIN transceiver and available fieldbus expansions
2.3	March 2019	Layout changes
2.4	September 2020	Changes VBAT LIN

1.4 Trademark Information

Ixxat® is a registered trademark of HMS Industrial Networks. All other trademarks mentioned in this document are the property of their respective holders.

1.5 Conventions

Instructions and results are structured as follows:

- ▶ instruction 1
- ▶ instruction 2
 - result 1
 - result 2

Lists are structured as follows:

- item 1
- item 2

Bold typeface indicates interactive parts such as connectors and switches on the hardware, or menus and buttons in a graphical user interface.

```
This font is used to indicate program code and other
kinds of data input/output such as configuration scripts.
```

This is a cross-reference within this document: [Conventions, p. 4](#)

This is an external link (URL): www.hms-networks.com

Safety advice is structured as follows:



Cause of the hazard!
Consequences of not taking remediate action.
How to avoid the hazard.

Safety signs and signalwords are used dependent on the level of the hazard.



This is additional information which may facilitate installation and/or operation.



This instruction must be followed to avoid a risk of reduced functionality and/or damage to the equipment, or to avoid a network security risk.



Caution

This instruction must be followed to avoid a risk of personal injury.



WARNING

This instruction must be followed to avoid a risk of death or serious injury.

2 Safety Instructions

2.1 Information on EMC



Risk of interference to radio and television if used in office or home environment!

Use exclusively included accessories.

Make sure that the shield of the interface is connected with the device plug and the plug on the other side.

Use exclusively shielded cables.

2.2 General Safety Instructions

- ▶ Protect product from moisture and humidity.
- ▶ Protect product from too high or too low temperature (see [Technical Data, p. 10](#)).
- ▶ Protect product from fire.
- ▶ Do not paint the product.
- ▶ Do not modify or disassemble the product. Service must be carried out by HMS Industrial Networks.
- ▶ Store products in dry and dust-free place.

2.3 Intended Use

The expansions are used to expand Ixxat PC CAN interfaces (CAN-IB Series for PCI/PCIexpress, XMC and PMC). The expansions are intended for the installation in computer systems with closed housing.

3 Product Information and Compatibility

HMS Industrial Networks offers the following expansions to expand the Ixxat interfaces:

- Fieldbus expansion
- CAN expansion board
- MultiCAN expansion

Information about the compatibility of expansion and interface is included in the user manual of the respective interface and is available on www.ixxat.com.

3.1 Fieldbus expansion

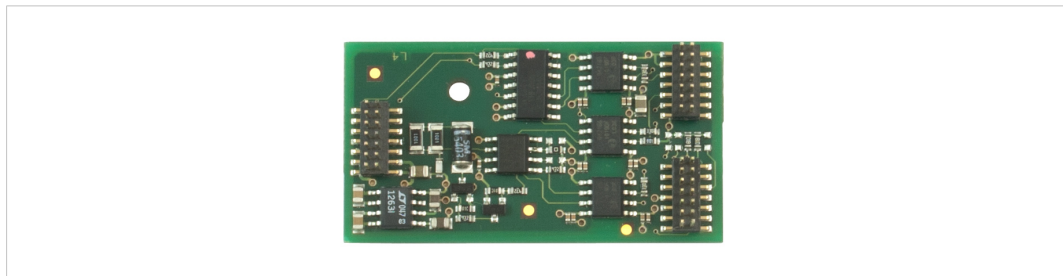


Fig. 1 Fieldbus expansion

The following fieldbuses are available for the CAN-IB Series (PCI/PCIexpress, XMC, PMC):

- CAN low-speed
- LIN with ext. V_{BAT}
- CAN low-speed and LIN

3.2 MultiCAN Expansion



By using the MultiCAN expansion the pin allocation of the CAN interface is changed!
Observe the different pin allocations that are described in the user manual of the respective CAN interface.

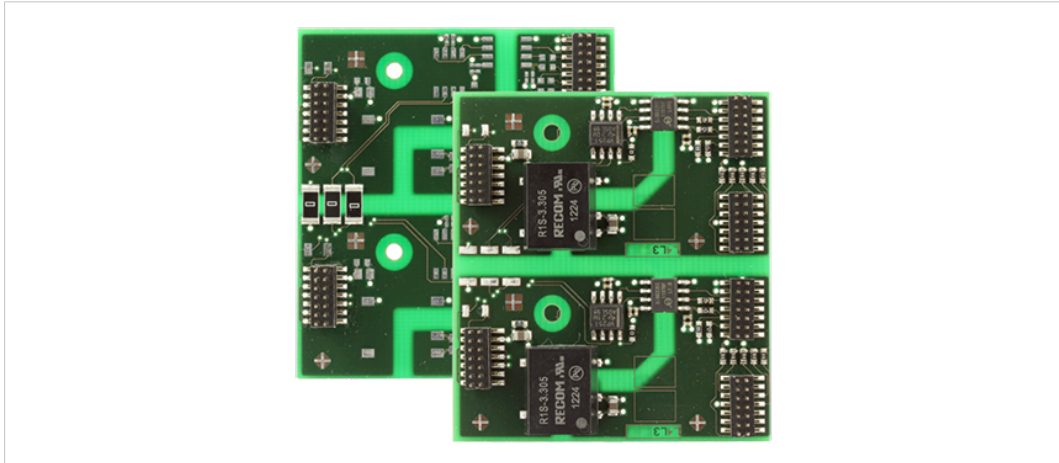


Fig. 2 MultiCAN expansion

By using a MultiCAN expansion the number of available CAN high-speed channels on a D-Sub 9 connector of the specific CAN interface is doubled and the number of required slots is halved.

The following MultiCAN expansions are available:

- MultiCAN-PB
- MultiCAN-PB/LP for low-profile interfaces

MultiCAN-PB

The expansion redirects the channel CAN 3 to the D-Sub 9 connector of CAN 1 and channel CAN 4 to D-Sub 9 connector of CAN 2. Galvanic isolation of CAN channels remains.

If the MultiCAN-PB is used the use of the following expansions is not possible:

- CAN expansion board
- fieldbus expansions

MultiCAN-PB/LP

If used in conjunction with low profile CAN interfaces the expansion redirects the channel CAN 2 to the CAN 1 connector.

If used in conjunction with the CAN expansion board the expansion redirects the channel CAN 4 to the CAN 3 connector.

Galvanic isolation of CAN channels remains.

The use of fieldbus expansions is not possible.

3.3 CAN Expansion Board

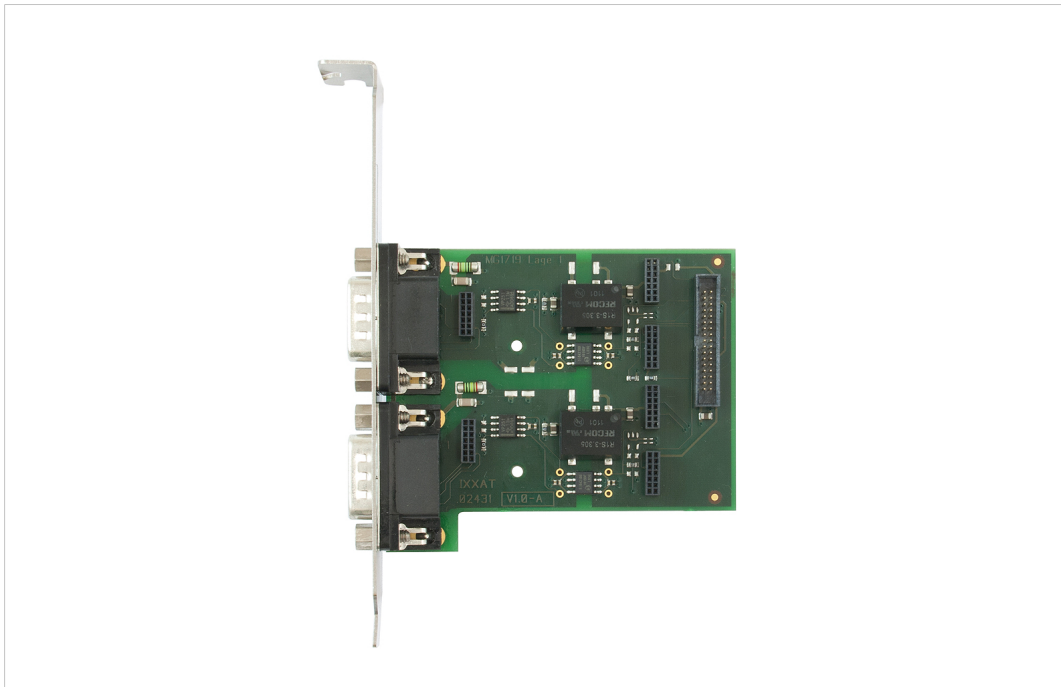


Fig. 3 CAN expansion board

Features:

- 2 independent CAN circuits
- ISO 11898-2 CAN bus coupling (high-speed)
- expandable with fieldbus expansions or MultiCAN expansions
- available as standard and as low-profile version

The bus coupling can optionally be galvanically isolated. With galvanic isolation the shield of the CAN connector is connected to CAN ground through a 1 M Ω resistor and a 10 nF capacitor. The shields of the CAN connectors are connected directly together.

For a not galvanically isolated interface, the CAN ground and PC ground are at the same potential.



For best noise immunity use shielded CAN cables.

Pin Allocation of D-Sub 9 Connector			
Pin no.	Signal	Additional signals via fieldbus expansion	Additional signals via MultiCAN expansion
1	—	CAN low (low-speed)	CAN low (high-speed)
2	CAN low (high-speed)		
3	CAN GND		
4	—	CAN high (low-speed)	CAN high (high-speed)
5	—		CAN GND
6	—		
7	CAN high (high-speed)		
8	—	LIN	
9	—	VBAT _{LIN} (8-48 V DC)	

4 Installation



Risk of ESD damages caused by improper handling!
Use ESD protective measures to avoid equipment damage.



By using the MultiCAN expansion the pin allocation of the CAN interface is changed!
Observe the different pin allocations that are described in the user manual of the respective CAN interface.

- ▶ Observe information about available expansions and the compatibility with interfaces on www.ixxat.com
- ▶ For the installation observe the instructions in user manual of the interface on which the expansion shall be applied.

5 Technical Data

5.1 Fieldbus Expansion

CAN transceiver (low-speed)	TJA 1054
LIN transceiver	MCP2003B
LIN VBAT	8-48 V DC (product version 3.0 and newer) 8-18 V DC (product version 2.0 and older)
Dimension	25 x 47 mm
Weight	Approx. 7 g
Operating temperature	0 °C to +70 °C
Storage temperature	-40 °C to +85 °C
Galvanic isolation	500 V AC for 1 minute between CAN bus and internal logic
Relative humidity	10 to 95 %, no condensation
Power supply	CAN interface board (3.3 V DC)
CAN propagation delay	With galvanic isolation, typical 6 ns, max. 10 ns
CAN baud rate	10 kBaud to 25 kBaud (low-speed)

5.2 MultiCAN Expansion

5.2.1 MultiCAN-PB

CAN transceiver	TI SN65HVD251
Dimension	47 x 52 mm
Weight	Approx. 12 g
Operating temperature	0 °C to +70 °C
Storage temperature	-40 °C to +85 °C
Galvanic isolation	500 V AC for 1 minute between CAN bus and internal logic
Relative humidity	10 to 95 %, no condensation
CAN propagation delay	Typical 6 ns, max. 10 ns
CAN baud rate	10 kBaud to 1 MBaud (high-speed)

5.2.2 MultiCAN-PB/LP

Dimension	47 x 52 mm
Weight	Approx. 9 g
Operating temperature	0 °C to +70 °C
Storage temperature	-40 °C to +85 °C
Galvanic isolation	See respective CAN interface
Relative humidity	10 to 95 %, no condensation

5.3 CAN Expansion Board

CAN transceiver (high-speed)	TI SN65HVD251
CAN transceiver (low-speed)	TJA 1054, via optional fieldbus expansion
LIN transceiver	TJA 1020T, via optional fieldbus expansion
Dimension	64 x 105 mm
Weight	Approx. 55 g
Operating temperature	0 °C to +70 °C
Storage temperature	-40 °C to +85 °C
Galvanic isolation	500 V AC for 1 minute between CAN bus and internal logic
Relative humidity	10 to 95 %, no condensation
Power supply	CAN interface board (3.3 V DC)
CAN propagation delay	With galvanic isolation, typical 6 ns, max. 10 ns
CAN baud rate	10 kBaud to 1 MBaud (high-speed) 10 kBaud to 25 kBaud (low-speed)

6 Support/Return Hardware

6.1 Support

- ▶ For problems or support with the product request support at www.ixxat.com/support.
- ▶ If required use support phone contacts on www.ixxat.com.

6.2 Return Hardware

- ▶ Fill in the form for warranty claims and repair on www.ixxat.com/support/product-returns.
- ▶ Print out the Product Return Number (PRN resp. RMA).
- ▶ Pack product in a physically- and ESD-safe way, use original packaging if possible.
- ▶ Enclose PRN number.
- ▶ Observe further notes on www.ixxat.com.
- ▶ Return hardware.

A Regulatory Compliance

A.1 EMC Compliance (CE)



The product is in compliance with the Electromagnetic Compatibility Directive. More information and the Declaration of Conformity is found at www.ixxat.com.

