

Features

- 2 channels
- max. 1 Mbit bus speed
- synchronous sampling of analog and CAN data

Applications

- divided measuring tasks
- mobile measurement technology



With the module **MCAN** BMC Messsysteme GmbH is realizing measurements via the

... CAN interface ...

Like the other products of the module series (analog in/ output modules *MAD* and *MDA*) **MCAN** is designed for the

... individual equipment ...

of the PCI-BASE plate *PCI-BASE1000*.

The CAN technology (Controller Area Network) features high interference resistance, low costs and real-time operation, so that e.g. cabling efforts for connected sensors and measuring amplifiers are considerably reduced. CAN is

preferred especially in industry, like automobile industry, ship-building etc.

Two slots on the PCI plate are provided for the modules of the **MAD/MCAN/MDA** series. The different module types can be

... combined ...

with each other. For example, if using **MCAN** together with an analog input module, you can measure both

... analog and CAN data at the same time ...

In this case the measured values of **MCAN** and the analog module are

... synchronous in time ...

MCAN provides for two measuring channels, CAN1 and CAN2, which are accessible via the 37-pole Sub-D plug of the measuring card.

Transmission rates of

... up to 1 Mbit ...

can be reached with the CAN module. Without any jitters the

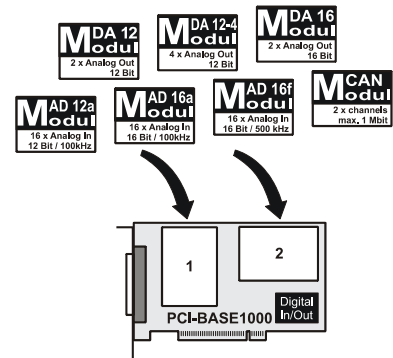
scan sequencies are created by a RISC controller.

For optimum results **MCAN** can be used with the modern data acquisition and analysis software

... NextView®4 ...

Please visit our homepage for further information and software updates:

<http://www.bmcm.de>



Installation on the PCI-BASE1000

The **MCAN** modules plug on any location of the *PCI-BASE1000*. When using the module combination **MCAN** and analog module the best solution is to plug the analog Module on M1 and **MCAN** on M2. In this way all analog channels of the Sub-D 37 socket of the PCI-BASE plate are available. When using two **MCAN** modules the channnels of the module on slot M2 can only be accessed at the internal pin connectors P9 and P10 of the *PCI-BASE1000* plate and can be lead out from the PC using the *ZUKA16* cable.

Plug the modules on the desired slot and ensure that the plugs and sockets fit together exactly (connect channel 1 (colored line) of ZUKA16 with pin 1 of the pin connector P9 (square pad)). If the modules are not plugged correctly, the modules and/or the *PCI-BASE1000* may be damaged! The modules are electrostatic sensitive devices - please provide for a conductive pad connected to ground during installation.

Available as accessory is the connector cable *ZUKA-CAN* leading the two CAN channels from the 37-pole Sub-D socket of the *PCI-BASE1000* or the *ZUKA16* to two 9-pole Sub-D plugs in standard CAN assignment.

Addressing the MCAN modules



If using two modules two different addresses must be assigned!

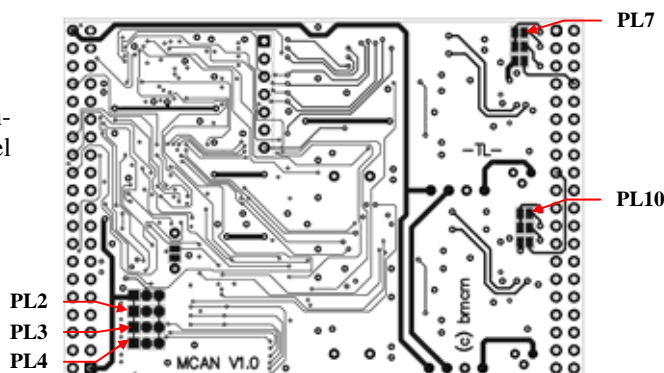
The setting of the address is done via jumpers PL2-4 (s. figure below) on the "component-free" side of the module. All **MCAN** modules are pre-jumpered to address 3. Addresses 6 and 7 are reserved. If using two modules the address determines the assignment of the channels. The **MCAN** module with the lower address for example is assigned to channel 1-2, the module with the higher address to the following channels.

Address	0	1	2	3	4	5
PL2						
PL3						
PL4						

Adresse 3 is the factory setting

Termination

Closing jumpers PL7 for channel 1 and PL10 for channel 2 turns on the termination for the respective channel (make settings on the "component-free" side).



Sampling sequence when using two MCAN modules

When using two **MCAN** modules for sampling, the channels of the module with the lower address are always scanned first with the preset sampling rate, then the channels of the module with the higher address.

Combining MCAN with MAD, MCAN or MDA modules

On the *PCI-BASE1000* **MCAN** can be combined with the following bmcm modules:

- CAN interface module MCAN
- Analog input modules MAD12a, MAD16a, MAD16f
- Analog output modules MDA12, MDA12-4, MDA16

Besides that you can use **MCAN** with the previous version *PCI-BASE300*.

Pin assignment of the MCAN module on the PCI-BASE1000

The following tables show which pins are used for the connection of the CAN channels, depending on which slot the CAN module is plugged on or if the connector cable ZUKA-CAN (Sub-D 37 to 2x Sub-D 9) is used.

Module slot M1 → Sub-D 37, P1, P2

PCI-BASE Sub-D37	MCAN	PCI-BASE P1, P2
1	n. c.	P1/1
2	CAN1 L	P1/3
3	CAN1 GND	P1/5
4	n. c.	P1/7,9,11
5	n. c.	P1/7,9,11
6	n. c.	P1/7,9,11
7	CAN2 H	P1/13
8	n. c.	P1/15
9	CAN2 5V	P2/1
10	n. c.	P2/3
11..16	n. c.	P2/5,7,...,13,15
17..19	n. c.	-
20	n. c.	P1/2
21	CAN1 H	P1/4
22	n. c.	P1/6
23	CAN1 5V	P1/8
24	n. c.	P1/10
25	CAN2 L	P1/12
26	CAN2 GND	P1/14
27	n. c.	P1/16
28	n. c.	P2/2
29	n. c.	P2/4
30..35	n. c.	P2/4,6,...,14,16
36, 37	n. c.	-

Module slot M2 → P9, P10, ZUKA16

PCI-BASE P9, P10	MCAN	Pin assignment ZUKA16
P9/1	n. c.	1
P9/3	CAN1 L	2
P9/5	CAN1 GND	3
P9/7,9,11	n. c.	4
P9/7,9,11	n. c.	5
P9/7,9,11	n. c.	6
P9/13	CAN2 H	7
P9/15	n. c.	8
P9/17	CAN2 5V	9
P9/19	n. c.	10
P10/1,3,5,7,9,11	n. c.	11..16
-	n. c.	17..19
P9/2	n. c.	20
P9/4	CAN1 H	21
P9/6	n. c.	22
P9/8	CAN1 5V	23
P9/10	n. c.	24
P9/12	CAN2 L	25
P9/14	CAN2 GND	26
P9/16	n. c.	27
P9/18	n. c.	28
P9/20	n. c.	29
P10/2,4,...,10,12	n. c.	30..35
-	n. c.	36, 37

ZUKA-CAN

2x Sub-D9/Pin
1/1
1/2
1/3
1/4
1/5
2/6
2/7
2/8
2/9
n. c.
n. c.
n. c.
1/6
1/7
1/8
1/9
2/1
2/2
2/3
2/4
2/5
n. c.
n. c.
n. c.

Sampling rate for analog or CAN measurements

Depending on the number of analog inputs sampled between 20 and 60µsec are required to scan the CAN bus.

Important notes for using MCAN

- The modules are only suitable for extra-low voltages - please observe the relevant regulations!
- The modules must only be used in closed PC housings (for reasons relating to EMC).
- All accessible pins are electrostatic sensitive devices. Provide for a grounded conductive work place.
- Wrong installation of the modules on the *PCI-BASE1000* can damage the modules and/or the *PCI-BASE1000*.
- To remove the module first loosen it on one plugged side by levering the module with the utmost caution using a blunt object (e.g. plastic ballpoint pen). Then carefully lift up the other side with your hand moving it back and forth.
- Exposing the card to strong vibrations requires additional protection of the modules.
- For cleaning use water and mild detergent only. The modules are designed to be maintenance-free.
- The modules must not be used for safety-relevant tasks.
- With the use of the product the customer becomes manufacturer by law and is therefore fully responsible for the proper installation and use of the product.
- In the case of improper use and/or unauthorized interference our warranty ceases and any warranty claim is excluded.



Do not dispose of the product in the domestic waste or at any waste collection places. It has to be either duly disposed according to the WEEE directive or can be returned to bmcm at your own expense.

Technical data MCAN (typ. at 20°C, 5V and after 10min.)

Channels:	2 CAN interfaces, electrically isolated from each other and from the PC
Termination:	with 120Ω (to be set by jumper)
Max. transmission rate:	1Mbit
Frequency accuracy:	±50ppm
Frequency drift:	±50ppm/°C
Power supply:	+4.5V..+5.5V from PCI-BASE1000, max 250mA
CE standards:	EN61000-6-1, EN61000-6-3, EN61010-1; for decl. of conformity (PDF) visit www.bmcm.de
ElektroG // ear registration:	RoHS and WEEE compliant // WEEE Reg.-No. DE75472248
Max. perm. potentials:	60V DC nach VDE , max. 1kV ESD on open lines
Temperature ranges:	operating temp. -25°C..+50°C, storage temp. -25°C..+70°C
Dimensions:	app. 74 x 52 x 13 mm ³
Rel. humidity:	0-90% (not condensing)
Delivery:	product, description
Available accessories:	connector cable ZUKA-CAN (Sub-D 37 plug to 2x Sub-D 9 plugs)
Software support:	Measuring and analysis software NextView®4 under Windows® 2000/XP for optimum performance of the module.
Guarantee:	2 years with effect from sales date, damages at product resulting from improper use excluded