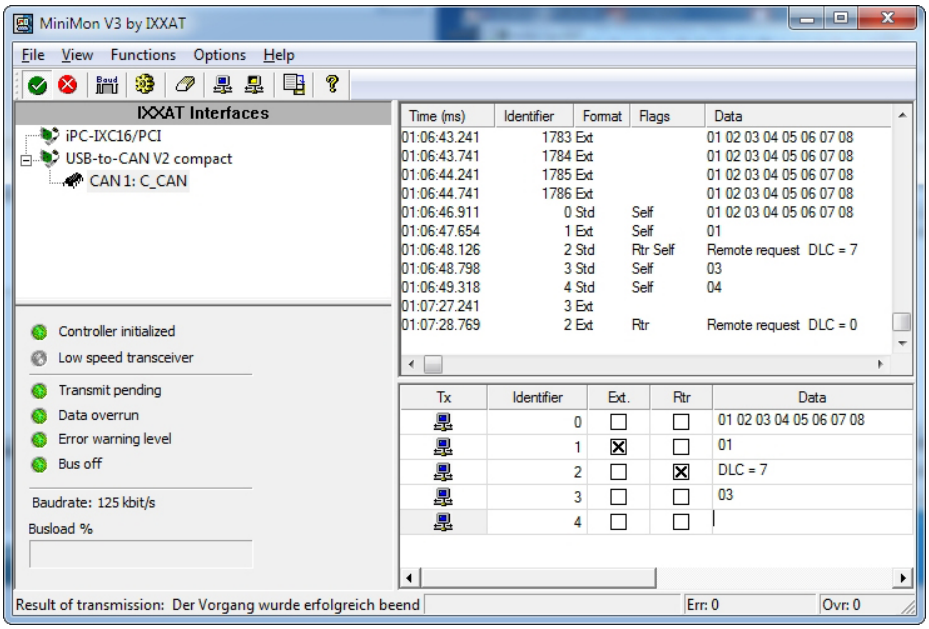
Manual

miniMon

CAN Monitoring Tool for Windows

Software Version 3



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1 Overview

The miniMon V3 is a CAN monitor program which enables online monitoring of bus traffic on the CAN bus and the transmission of individual CAN objects. The miniMon is contained in the VCI V3 and therefore available under Windows.

The main window of the miniMon V3 provides the following areas:

- Overview of the available CAN interfaces
- Current state of the selected CAN controller
- Display of the messages received
- Display of transmit messages

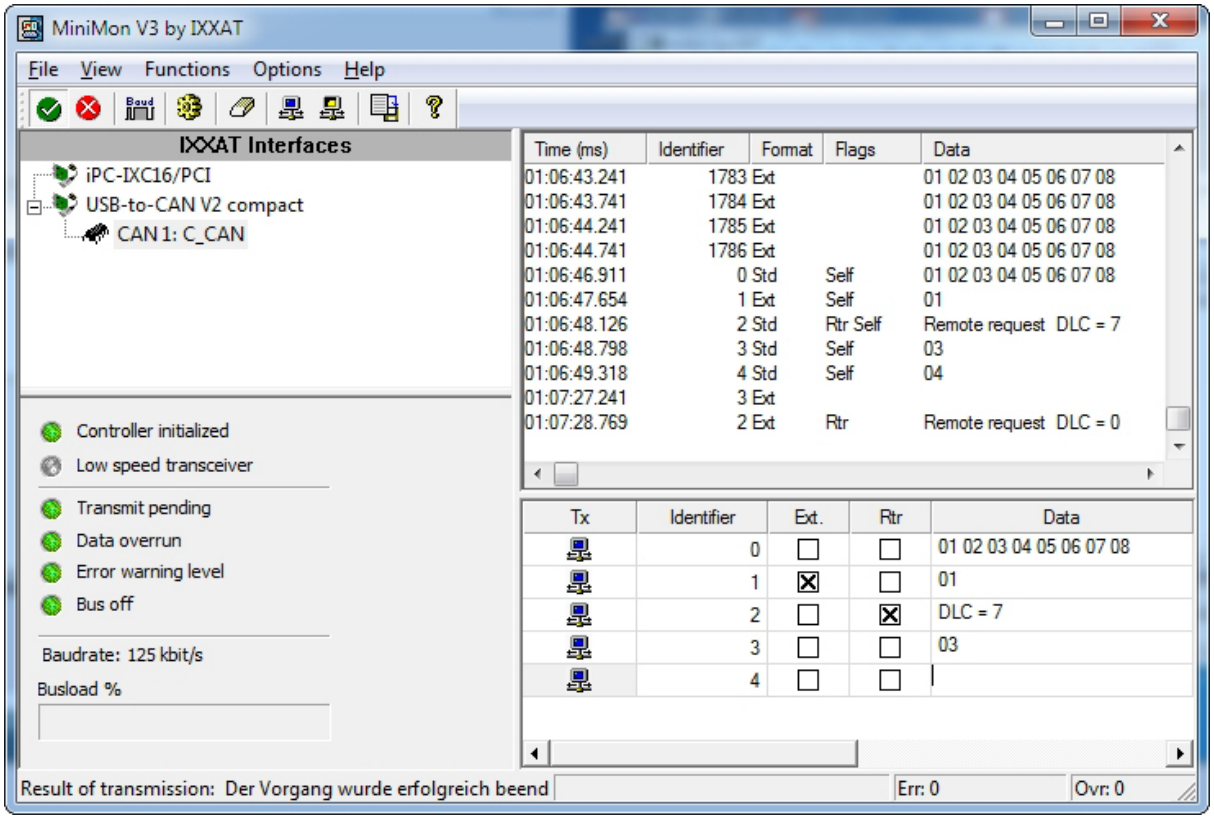

Fig. 1-1: Main window of the miniMon

2 Functions and operation

2.1 Starting the program

You can start the miniMon from the Start menu of the VCI or by manually running the file miniMonV3.exe.

If only one CAN controller is available, the controller configuration dialogue is displayed directly, otherwise a controller has to be selected manually in the controller selection window.

2.2 Configuration of the CAN controller

2.2.1 Selection of the CAN interface

The available CAN interfaces are listed in the top left-hand corner of the main program window.

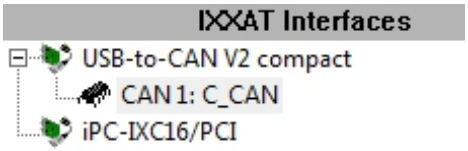

Fig. 2-1: Available CAN interfaces

By clicking once, with the left-hand mouse button, additional data is displayed in the bottom left-hand corner.

Fig. 2-2: Information about the selected CAN interface

A "+" symbol now appears in front of the selected CAN interface. The available CAN controllers are displayed by clicking on the "+" symbol.

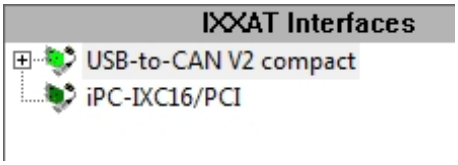

Fig. 2-3: Available controllers on the CAN interface board

2.2.2 Selection and configuration of the CAN controller

Now, a CAN controller can be selected with the mouse button.

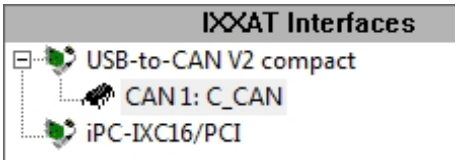

Fig. 2-4: Selected and marked CAN controller

If the selected CAN controller is already used by another program, the icon of the CAN Controller ( ) is blue.

The bit rate to be used can be set via the menu item Options/Configurations. Here you can set a specified standard baud rate (according to CiA) or enter the appropriate baud rate for your CAN network via bit timing register.

To show CAN error frames, the checkbox “Show Error Frames” must be checked.

If your hardware contains a low speed bus interface, the controller can be switched to the low speed mode.

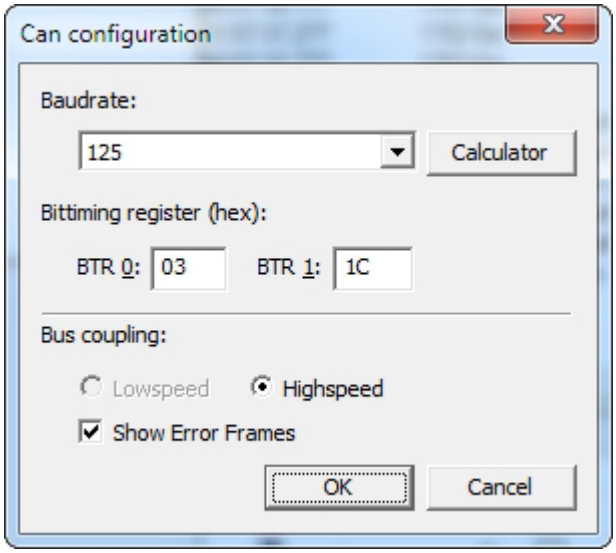

Fig. 2-5: Configuration dialog of the CAN controller

Via calculator button, a dialogue for calculation of the bit timing parameters can be opened. The relevant bit timing values can be calculated by entering a bit rate.

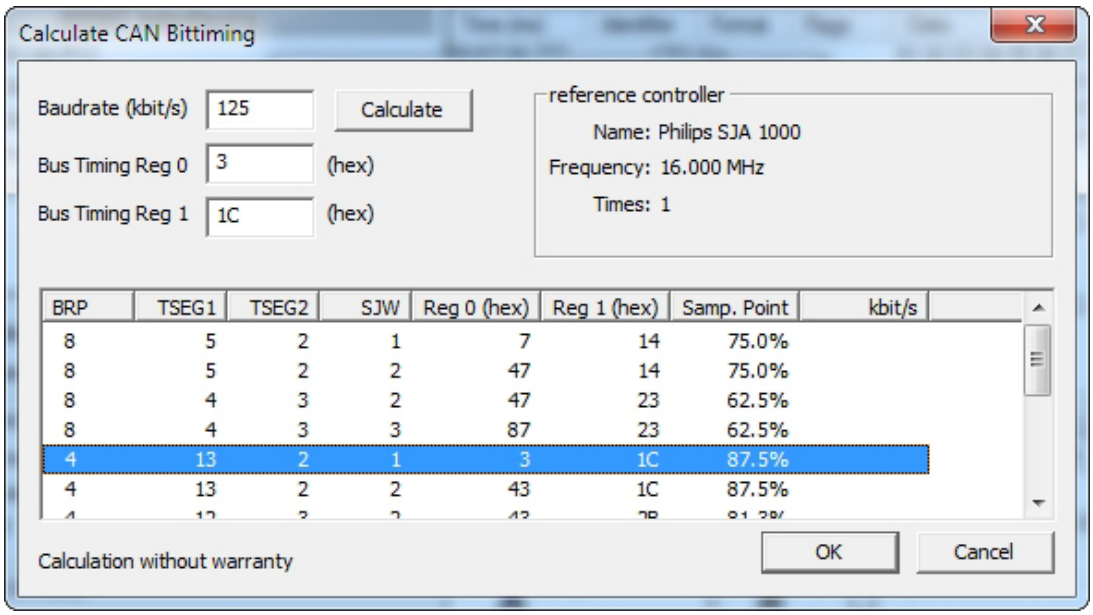

Fig. 2-6: Bit rate configuration

2.2.3 Description of the input boxes

- Baud rate (kbit/s) – Baud rate to be calculated in kbit per second
- Bus Timing Reg 0 – Value of the Bus Timing Register 0
- Bus Timing Reg 1 – Value of the Bus Timing Register 1

2.2.4 Description of the columns in the calculator window

- BRP – Baud Rate Prescaler
- TSEG1 – Timing Segment 1
- TSEG2 – Timing Segment 2
- SJW – Synchronization Jump Width
- Reg 0 (hex) – Bit Timing Register 0 (hexadecimal format)
- Reg 1 (hex) – Bit Timing Register 1 (hexadecimal format)
- Samp. Point – Sample Location
- kbit/s – Calculated baud rate with the values of the marked line

2.2.5 Starting the CAN controller

The CAN controller now can be started via the menu item Functions/Start and is then ready to transmit and receive.

2.3 State of the CAN controller

The current controller state is displayed in the state window in the bottom left-hand corner.

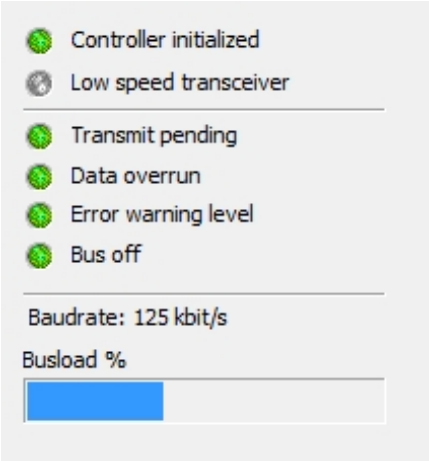

Fig. 2-7: Controller state

2.3.1 Meaning of the state LEDs

Name	Meaning
Controller initialized	green = CAN controller is started dark blue = Internal error reading the controller status
Low speed transceiver	green = Low speed transceiver is enabled red = The CAN controller recognizes a coupling problem
Transmit pending	red = There are messages not yet transmitted in the transmit queue
Data overrun	red = CAN controller data overrun, messages may have been lost
Error warning level	red = CAN controller in Error warning level
Bus off	red = CAN controller in Bus off

Below the LEDs, the currently set bit rate is displayed. If the bit rate is not a CiA compliant standard rate, the bit timing values are displayed as hexadecimal figures.

With some CAN interfaces, the current bus load of the CAN bus is displayed as a graphic bar in percent.

2.4 Menu and toolbar

2.4.1 Menu reference and toolbar buttons

2.4.1.1 File menu

Menu item	Toolbar	Function
Exit		Quits the miniMon

2.4.1.2 View menu

Menu item	Toolbar	Function
Clear		Clears the display of the received data
Toolbar		Shows/hides the toolbar
Statusbar		Shows/hides the statusbar

2.4.1.3 Functions menu

Menu item	Toolbar	Function
Transmit Message		Transmits the currently marked message from the transmit table
Transmit Cyclic		Send the marked message cyclic
Start		Starts the CAN controller
Stop		Stops the CAN controller
Automatic Baud detection		Listens on the CAN bus and attempts to detect the current bit rate
Logging to file		Writes the received data in a CSV file

2.4.1.4 Options menu

Menu item	Toolbar	Function
Configuration		Opens the configuration dialogue
Filter...		Opens a dialog for message filtering

2.4.1.5 Help menu

Menüpunkt	Toolbar	Function
Open Manual		Opens the PDF manual
About		Displays a dialogue with the version information

2.5 Receiving messages

Received CAN objects are displayed in the receive window with timestamp, state, identifier and data.

Time (ms)	Identifier	Format	Flags	Data
00:07:46.511	1700	Ext		01 02 03 04 05 06 07 08
00:07:49.783	1	Std		01 02 03 04 05 06 07 08
00:07:51.214	2	Std	Rtr	Remote request DLC = 8
00:07:54.723	Stuff Error			
00:07:54.723	Form Error			
00:08:02.884	CRC Error			
00:08:09.311	101	Std	Self	0A 0B 0C
00:08:28.968	7FF	Std	Rtr Self	Remote request DLC = 3

Fig. 2-8: Example of received messages

2.5.1 Description of the columns in the Receive window

- **Time** The time of reception of the messages is displayed here in increments of 0.01 seconds
- **Identifier** The message identifier is displayed in hexadecimal format. Error frame types will also be shown in this column.
- **Format** **Std** standard CAN format (11 bit identifier)
  Ext extended CAN format (29 bit identifier)
- **Flags** Additional information concerning the message:
  Ovr Messages were lost after this message
  Rtr A remote request message
  Self Self-reception message, sent by miniMon
- **Data** The data of the CAN message are displayed byte-wise in hexadecimal format

2.5.2 Error frames

In the identifier column also the type of received error frames is displayed. The miniMon can show the following error types:

- **Stuff Error** Bit Stuff Error
- **Form Error** Format Error
- **ACK Error** Acknowledge Error
- **Bit Error** Bit Error
- **CRC Error** CRC Error
- **Other Error** Other unspecified error

2.5.3 Message filtering

With the aid of filters, certain messages become visible or invisible

(Fig. 2.8.2.). This is selected via the identifier. The filter dialog contains the following elements:

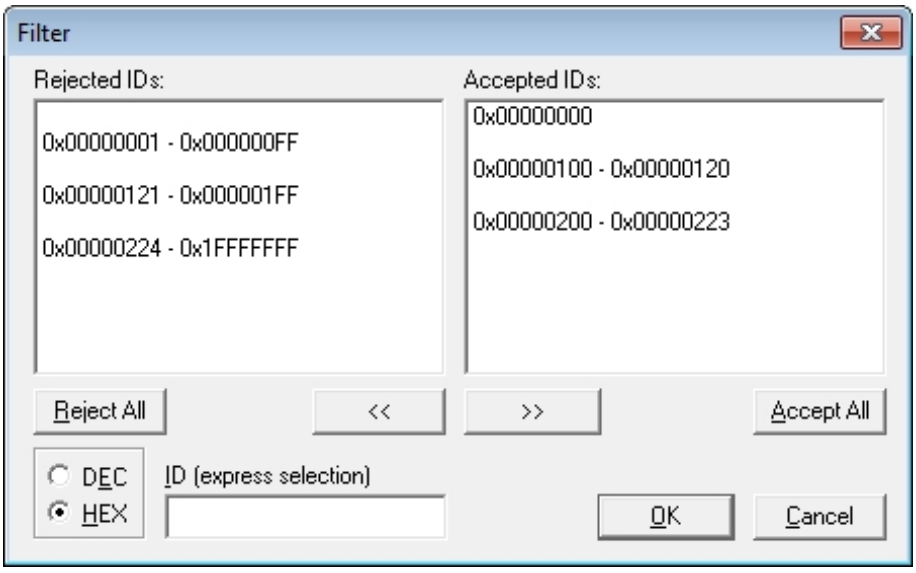

Fig 2.8.2: Id Range Filter configuration

Element	Meaning
Rejected IDs	List of the identifiers whose assigned messages do not pass the filter
Accepted IDs	List of the identifiers which pass the filter
>>	Assignment of the identifier group selected in the list Rejected IDs to the list Accepted IDs
<<	Deletion of the entry selected in the list Accepted IDs
Accept all	When this button is pressed, all messages are received (all identifiers are entered in the list Accepted IDs)
Reject all	When this button is pressed, all messages are blocked (all identifiers are deleted from the list Accepted IDs and entered in the list Rejected IDs)
ID (Auswahl durch Befehl)	A filter function can be entered alphanumerically via this command line. This enables quick selection of identifiers. Individual identifiers or complete identifier arrays can be blocked or released. Individual filter commands are separated by a space. The command line facilitates selection of identifiers.
DEZ/HEX	This checkbox is used to select whether the identifiers are displayed in this dialog window in hexadecimal or decimal form.

Syntax of the command line:

Command	Meaning
-ID	Move identifier ID into the list of rejected IDs
-ID1,ID2	Move identifier array ID1 to ID2 into the list of rejected IDs
+ID	Move identifier ID into the list of accepted IDs
+ID1,ID2	Move identifier array ID1 to ID2 into the list of accepted IDs
z.B.: -3,8	Moves the identifiers 3 to 8 into the list of rejected IDs, i.e. the identifiers 3 to 8 are filtered out

2.6 Transmitting messages

2.6.1 Overview

Individual messages can be sent. This is done by clicking on the symbol in the TX column, or by marking the message and then pressing the "F5" key, or via the menu items Functions/Transmit Message.

Also cyclic messages are possible. Press the control key and click on the symbol, or marking the message and then press the “F6” key, or via the menu item Function/Transmit Cyclic.

Up to 5 transmit messages can be set up.

Tx	Identifier	Ext.	Rtr	Data	Cycle Count	Cycle Time (ms)	Cyle Mode	Cycle Byte
	0	☐	☐		2048	1	Identifier	
	1	☐	☐	00 00 00 00 00 00 00 00	10000	10	Word (Data)	2
	2	☐	☒	DLC = 7	0	0	None	
	3	☒	☐		0	0	None	
	4	☒	☐		0	0	None	

Fig. 2-9: Example of transmit data

2.6.2 Description of the columns in the transmit window

- **ID** The identifier of the message is displayed here in hexadecimal format.
  In standard format (11 bit), the value can be between 0 and 7FFh.
  In extended format (29 bit), the value can be between 0 and 1FFFFFFFh.
- **EXT** The message is transmitted in extended format (29 bit), even if the identifier is less than 7FFh.
  With an identifier of more than 7FFh, the column is automatically marked with a cross.
- **RTR** If marked, the message is a data request telegram (remote frame).
- **Data** Up to 8 databytes in hexadecimal format can be entered here.
  In the case of two-digit data, the next databyte is automatically jumped to, with single digit data it is possible to move on with the spacebar.
  In the case of data request telegrams, the data length code can be defined here.
- **Cycle Count** Number of messages to send. Zero means infinite.
- **Cycle Time** Time gap between the messages.
- **Cycle Mode** None = nothing will be changed, Identifier = the CAN identifier will be incremented, Byte and Word = one or two data bytes will be incremented
- **Cycle Byte** Byte 1 till 8 which should be incremented. Only possible when the cycle mode is Byte of Word increment.

2.7 Logging messages

The received CAN messages can be stored in a file as ASCII text.

The format of the text corresponds to the CSV format (comma separated value file) and can be read with Excel.

Example:

ASCII Trace IXXAT miniMon V3 Version: 1.0.0.5				
Date: 31.03.2006				
Start time: 13:22:07				
Stop time: 13:23:34				
Baud rate: 1000 kbit/s				
Time	Identifier (hex)	Format	Flags	Data (hex)
00:03:27.72	770	hrs		00 0C 87 71 00 00 00
00:03:27.72	771	hrs		00 0C 87 72 00 00 00 00
---------- Logging Overrun ----------				
00:03:27.73	7DE	hrs		
00:03:27.73	7DF	hrs		00
00:03:27.73	7E0	hrs		00 0C
00:03:27.73	7E1	hrs		00 0C 87
00:03:27.73	7E2	hrs		00 0C 87 E3
00:03:27.73	7E3	hrs	**Ovr**	00 0C 87 E4 00
00:03:27.73	7EF	hrs		00 0C 87 F0 00 00 00 00
00:03:27.73	7F0	hrs		
00:03:27.73	7F1	hrs		00

The marked overruns have the following meaning:

- Logging Overrun = Data were lost when writing to the hard drive. The hard drive may be too slow.
- Ovr in the Flags column = Messages were lost after this message

3 Support

For more information on our products, FAQ lists and installation tips, please refer to the support section of our website (http://www.ixxat.de), which also contains information on current product versions and available updates.

If you have any further questions after studying the information on our website and the manuals, please contact our support department. The support section on our website contains the relevant forms for your support request. In order to facilitate our support work and enable a fast response, please provide precise information on the individual points and describe your question or problem in detail.

If you would prefer to contact our support department by phone, please also send a support request via our website first, so that our support department has the relevant information available.