



CAN-CBM-DP

PROFIBUS-DP / CAN-Gateway

Manual Configuration with Hex-Parameters via PROFIBUS-DP

Software Manual Appendix

NOTE

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This manual contains important information and instructions on safe and efficient handling of the module.

Carefully read this manual before commencing any work and follow the instructions. The manual is a product component, please retain it for future use.

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Changes in the software and/or the documentation

Version	Chapter	Changes in this manual versus previous version	Date
1.0	-	First issue.	-
1.1	-	Classification of Messages inserted	2017-06-15
	2.1	New web address of esd website	
	2.4.7	Chapter revised, description of Start deleted	

Technical data are subject to change without notice.

Classification of Messages

This manual contains noticeable descriptions and messages, which you must follow.

NOTICE

Notice statements are used to notify people on hazards that could result in things other than personal injury, like property damage.



NOTICE

This NOTICE statement contains the general mandatory sign and gives information that must be heeded and complied with for a safe use.

INFORMATION



INFORMATION

Notes to point out something important or useful.

Typographical Conventions

Throughout this manual the following typographical conventions are used to distinguish technical terms.

Convention	Example
File and path names	<code>/dev/null</code> or <code><stdio.h></code>
Function names	<i>open()</i>
Programming constants	<code>NULL</code>
Programming data types	<code>uint32_t</code>
Variable names	<i>Count</i>

Number Representation

All numbers in this document are base 10 unless designated otherwise. Hexadecimal numbers have a prefix of 0x. For example, 42 is represented as 0x2A in hexadecimal.

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1. Overview

Customers that do not work with the Siemens SIMATIC manager as described in the CAN-CBM-DP software manual have to send the configuration parameters as hexadecimal values in a so called 'parameter telegram' to the CAN-CBM-DP module

This manual appendix describes the meaning of the parameter telegrams hexadecimal values. It replaces the first part of chapter 5 'Configuration with the SIMATIC Manager' of the CAN-CBM-DP software manual.

2. Configuration Sequence

The following steps have to be executed to configure the CAN-CBM-DP module:

2.1 Load GSD-File

To apply the CAN-CBM-DP module to the PLC, the GSD-file that comes with the CAN-CBM-DP modules has to be loaded. The actual GSD-file can also be loaded from our website:

<http://www.esd.eu>

2.2 Insert the CAN-CBM-DP as a PROFIBUS-DP Slave Module

The way to insert a PROFIBUS-DP slave module depends on the software tool, that is used for the PROFIBUS-DP configuration.

2.3 Set PROFIBUS-DP Slave Address

The way to set the address of a PROFIBUS-DP slave module depends on the used software tool for the PROFIBUS-DP configuration. Normally the setting has to be done while the slave is inserted.

**NOTICE**

Here the *hexadecimal* address value that has been set at the coding switches has to be entered. Before the value is entered, it may be necessary to convert the hexadecimal value into a decimal value!

2.4 Parameter Telegram

After inserting the CAN-CBM-DP module, several configuration parameter can be set by the parameter telegram.

2.4.1 Structure

Byte ->	1	2	3	4	5	6	7	8	9
Content ->	always '00'	<i>Bitrate</i>	<i>General</i>	<i>Module-ID</i>	<i>reserved</i>	<i>reserved</i>	<i>Wakeup Time</i>	<i>Sync Time_L</i>	<i>Sync Time_H</i>

The first byte of the setting data has always to be set to '00'.

In the second byte *Bitrate* is set.

In the third byte various configuration bits can be set.

In the fourth byte the module ID of the gateway is specified, if it is operated as CANopen slave.

Bytes 5 and 6 are reserved for future applications.

In byte 7 the *Wakeup Time* of the module can be changed.

In bytes 8 and 9 the *SYNC Time* can be changed.

2.4.2 Bitrate

The value of the bit rate is coded as follows:

Value of Byte <i>Bitrate</i>	Bit Rate [kbit/s]
0x0	1000
0x1	666.6
0x2	500
0x3	333.3
0x4	250
0x5	166
0x6	125
0x7	100
0x8	66.6
0x9	50
0xA	33.3
0xB	20
0xC	12.5
0xD	10

Table 2.4.1: Setting the bit rate in 14 steps

2.4.3 General Configuration

Byte 3 of the configuration data is evaluated bit by bit:

Bit No.	Name	Status after reset	Description	Level assignment	
7	CW	0	Activate Communication Window in Page Mode.	0	no Communication Window
				1	Communication Window active
6	-	0	Reserved (bit must always be set to 0).	-	
5		0			
4	NR	0	Transmit RTR-frames for the Rx-identifiers configured via PROFIBUS.	0	RTR-frames are transmitted
				1	no RTR-frames are transmitted
3	CS	0	Configure gateway as CANopen slave.	0	no CANopen slave
				1	CANopen slave
2	CM	0	Configure gateway as CANopen master.	0	no CANopen master
				1	CANopen master
1	AS	0	After wake-up time has expired, a start frame is transmitted, if the gateway is a master (autostart).	0	no start frame after wake-up time
				1	start frame after wake-up time
0	PM	0	Activate Page Mode.	0	no Page Mode
				1	Page Mode active

Table 2.4.2: General parameter data in byte 3

Permissible combinations:

Bit								Meaning
7	6	5	4	3	2	1	0	
CW	-	-	NR	CS	CM	AS	PM	
x	x	x	0	1	0	x	0	- after wake-up time the module automatically transmits <i>128 dec + Module-No.</i> and is in 'Pre-Operational' status - after a start frame has been received: put out TxId, transmit RTR-frames on RxId
x	x	x	1	1	0	x	0	- after wake-up time the module automatically transmits <i>128 dec + Module-No.</i> and is in 'Pre-Operational' status - after a start frame has been received: put out TxId
x	x	x	0	0	1	0	0	- after wake-up time, put out TxId - transmit RTR-frames on RxId
x	x	x	1	0	1	0	0	- after wake-up time, put out TxId
x	x	x	0	0	1	1	0	- after wake-up time start frame, put out TxId, transmit RTR-frames on RxId
x	x	x	1	0	1	1	0	- after wake-up time start frame, put out TxId

(0 ... no, 1... yes)

Table 2.4.3: Example for permissible settings of byte 3

2.4.4 *Module-ID* of Gateways as CANopen Slave

The *Module-ID* under which the gateway is addressed is set via this byte if the gateway has been configured as CANopen slave.

Value range: 0x01 ... 0x7F (1...127 decimal)

2.4.5 Parameter Data Byte 5 and 6: Reserved for Future Applications

Bytes 5 and 6 of the configuration data are without any function at the moment. They are reserved for future applications and should always be set to '0'.

2.4.6 Wakeup Time

Via parameter *Wakeup Time* a delay in seconds is specified. It determines the time a module has to wait after a RESET or power-on, before it starts to transmit data to CAN.

The *Wakeup Time* specified here, overwrites the value of *Wakeup Time* stored previously in the CAN-CBM-DP gateway, if another value than 0xFF was specified. If 0xFF is specified, the value stored in the gateway will be used.

If parameter *Wakeup Time* is set to '0', the module does not wait, but starts the transmission of data as soon as they are available.

The *Wakeup Time* is specified as a hexadecimal value, here.

Parameter	Value range in [s]	Explanations
<i>Wakeup Time</i>	0x00	Wakeup Time function off
	0x01...0xFE	Wakeup Time in seconds
	0xFF	Use current value from gateway (default)

Table 2.4.4: Function of parameter *Wakeup Time*

Attention: *Wakeup Time* can be set in two different ways:

1. Via byte 7 of the configuration data, as described above.
2. Via the configuration tool *CICT* (refer to CAN-CBM-DP software manual)

Both entries are equal. That means that the last specification is valid!

2.4.7 SYNC Time

The CAN-CBM-DP module can cyclically transmit the command SYNC for simple CANopen applications. The cycle for the transmission can be specified via bytes 8 and 9 or via the Communication Window.

The cycle is specified in bytes 8 and 9. The specified cycle is used for the SYNC command. It is specified in milliseconds.

SYNC Time is specified as a hexadecimal value, here.

Parameter	Value range in [ms]	Explanations
<i>SYNC Time</i>	0x0000 0x0001...0xFFFE 0xFFFF	No SYNC transmissions possible SYNC Time in milliseconds (1...65534 ms) Use current value from gateway (default)

Table 2.4.5: Function of parameter *SYNC Time*

Attention: *SYNC Time* can be set in two different ways:

1. Via bytes 8 and 9 of the configuration data as described above.
2. Via bytes 4 and 5 of the Communication Window
(refer to CAN-CBM Software Manual)

Both specifications are equal. That means that the last specification is valid!
The cyclical transmission can *only* be activated via the Communication Window!