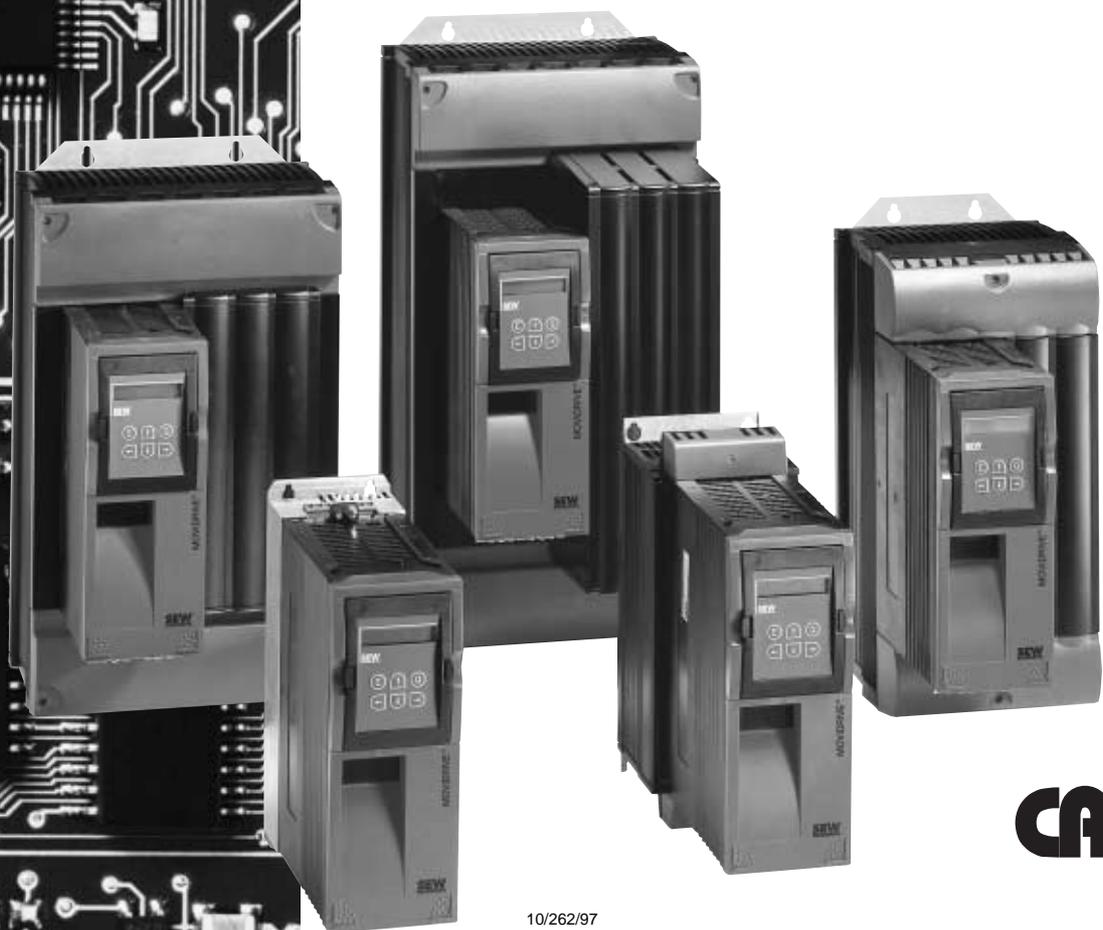


MOVIDRIVE® Drive Inverters

Manual

DFC11A CAN Bus Fieldbus Interface

Edition 04/98



CAN

10/262/97



0919 1313 / 0698

SEW EURODRIVE

Important Notes

- **Read this Manual carefully before you start installation and commissioning work on MOVIDRIVE[®] drive inverters with CAN bus.**

This manual assumes that the user is familiar with and has at his disposal all relevant documentation on the MOVIDRIVE[®] system, in particular the manual and the Installation and Operating Instructions.

- **Safety Instructions:**

Always follow the warnings and safety instructions contained in this manual. Safety instructions are marked as follows:



Electrical hazard, e. g. during live working



Mechanical hazard, e. g. when working on hoists



Important Instructions for the safe and fault-free operation of the driven machine / system, e.g. pre-settings before commissioning

- **General safety instructions for bus systems:**

The fieldbus option provides you with a communications system which allows you to match the MOVIDRIVE[®] drive inverter to the specifics of your application to a very high degree. As with all bus systems there is, however, the risk of a programming error in the program which may result in unexpected (though not uncontrolled) system behaviour.

- In this manual, **cross-references** are marked with a →, e.g.,
(→ MX_SCOPE) means: Please refer to the MX_SCOPE Manual for detailed information or information on how to carry out this instruction.
(→ Section x.x) means: Further information can be found in Section x.x of this manual.
- Each unit is manufactured and tested to current SEW-EURODRIVE technical standards and specifications.
The manufacturer reserves the right to make changes to the technical data and designs which are in the interest of technical progress.
A requirement for fault-free operation and fulfilment of any rights to claim under guarantee is that these instructions and notes are followed.

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1 Introduction

This *DFC11A CAN Bus Fieldbus Interface Manual* describes the procedure for installing the fieldbus interface in the drive inverter and for commissioning the MOVIDRIVE[®] drive inverter when connected to the CAN bus.

In addition to describing all the settings on the fieldbus interface, this manual further discusses the various options for connecting the drive inverter to the CAN bus in the form of commissioning examples.

In addition to this *DFC11A CAN Bus Fieldbus Interface Manual* we recommend that you familiarize yourself with the *Fieldbus Unit Profile Manual* (Part no. 0919 1607), which will provide you with the necessary information for simple and efficient connection of the MOVIDRIVE[®] to the CAN bus system.

The *Fieldbus Unit Profile Manual* gives a detailed description of the fieldbus parameters and their codes and discusses various control concepts and potential applications in the form of brief examples (including examples in S5 syntax).

The *Fieldbus Unit Profile Manual* contains a list of all the drive inverter parameters that can be read or written via the various communications interfaces such as RS-232, RS-485 and via the fieldbus interface.

Thanks to its high-performance universal fieldbus interface, the MOVIDRIVE[®] drive inverter with the *DFC11A (CAN bus)* option can be connected to and controlled from higher-level automation systems via the standardized CAN bus system.

MOVIDRIVE[®] and CAN Bus

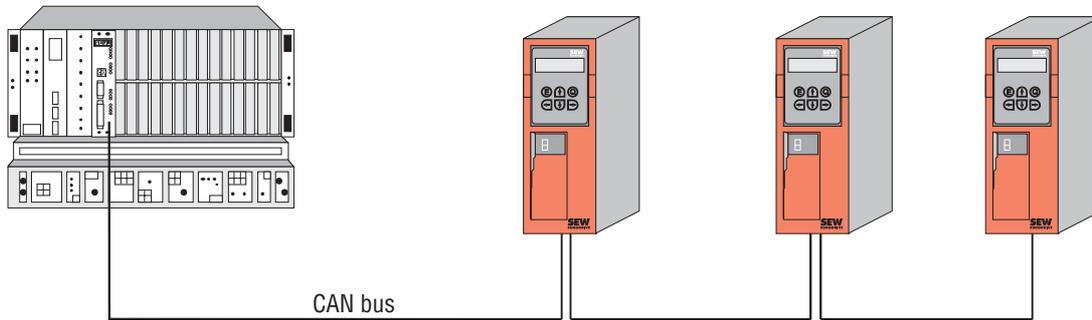
The drive inverter profile for CAN bus mode, i.e. the way the inverter operates and responds when in CAN bus mode, is independent of the type of fieldbus, and thus consistent for all fieldbus types. This allows the user to develop his drive applications independent of a particular fieldbus or change to another bus system, e.g. PROFIBUS-DP/FMS (*DFP11A* option) or the INTERBUS-S (*DFI11A* option) without any problems.

MOVIDRIVE[®] offers digital access to all drive parameters and functions via the CAN bus interface. The drive inverter is controlled by the high-speed process data. These process data messages provide the facility to specify setpoints such as speed setpoint, ramp generator times for acceleration and deceleration etc., and allow various drive functions such as enable, controller inhibit, stop, rapid stop, etc. to be triggered. These messages can also be used to read back actual values from the drive inverter, such as actual speed, current, inverter status, fault number or reference messages.

This exchange of parameter data via the MOVILINK[®] parameter channel enables applications where all major drive parameters are stored in the higher-level automation system (master control) to be implemented, thus avoiding manual parameter setting on the drive inverter itself, which can often be very time-consuming.

The process data and drive parameters can be sent synchronously or asynchronously with a synchronization message.

CAN bus master control



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Fig. 1: CAN bus with MOVIDRIVE®

The use of a fieldbus system in drive technology requires additional monitoring functions, such as fieldbus timeout or special emergency stop concepts. The monitoring functions of the MOVIDRIVE® can be matched to the specific application for which it is to be used. This feature enables you, for instance, to specify which response the drive inverter should trigger if an error should occur in the bus. A rapid stop will be practical for many applications, but it is also possible to freeze the last setpoints, so that the drive can continue with the last valid setpoints (e.g. conveyor belt). As the functionality of the control terminals is also ensured when the drive inverter is operated in the fieldbus mode, fieldbus-independent emergency stop concepts can still be implemented via the drive inverter's terminals.

The MOVIDRIVE® drive inverter offers numerous diagnostic facilities for commissioning and servicing. The MX_SHELL software offers even more convenient diagnostic facilities in that it provides a detailed display of the fieldbus and inverter status as well as the facility to set all the drive parameters (including the fieldbus parameters).

2 Assembly / Installation Instructions

2.1 Supported Drive Inverter Types

The DFC11A option pcb for connection to a CAN bus system can be used with all drive inverters of the MOVIDRIVE® family.

To set the fieldbus parameters you need the *MX_SHELL* user interface.

2.2 Fitting the Option PCB

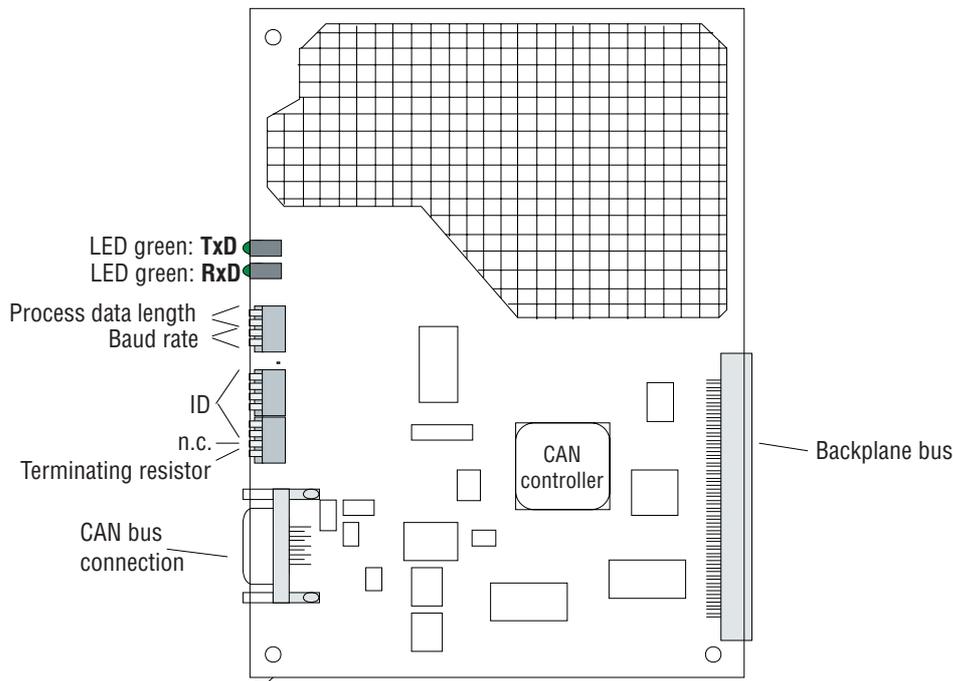
Please follow the instructions below when fitting the option pcb:

Before you start

- Discharge yourself with appropriate measures (earthing band, conductive shoes, etc.) before touching the option pcb.
- Store the option pcb in its original package and only unpack immediately before installation.
- Do not touch the option pcb more often than necessary and hold only by the edges. Do not touch components.

Procedure for Fitting the Option PCB:

- Disconnect inverter supply. Switch off mains and, if applicable, 24 V supply.
- Take off the lower protective cover of the control unit.
- Untighten screws of the electronics shielding terminal.
- Remove black sheet metal cover.
- Remove the shield terminal of the signal connections.
- Insert option pcb into the guide rails of OPTION1 slot.
- Press the front plate carefully to plug in option pcb. The pcb is correctly inserted when the front is flush with the controller pcb.
- Fasten electronics shielding terminal.
- Replace the protective cover of the unit.
- Depending on the D type connector used, it may not be possible to replace the protective cover. This does not effect the enclosure of the unit.
- The DFC11 option pcb is now completely fitted.

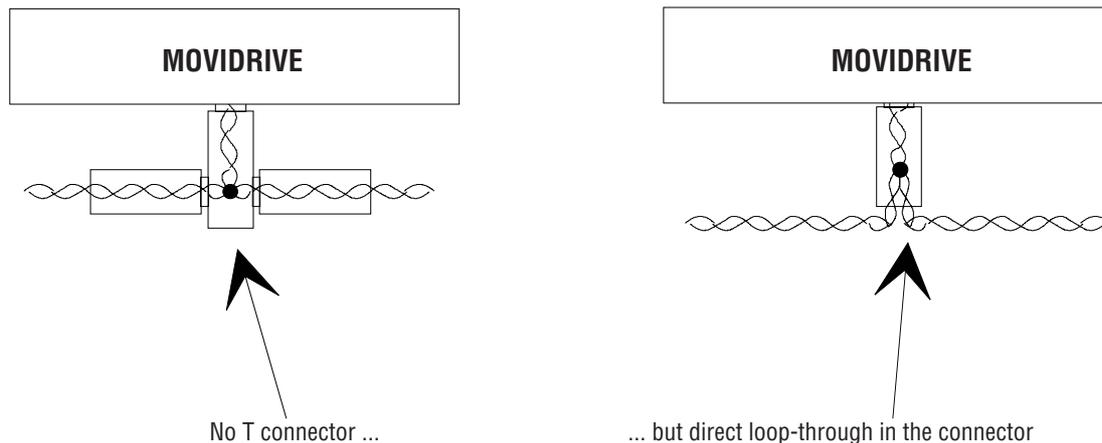


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Fig. 2: The DFC11A option pcb

2.3 Pin Assignment

The DFC11A option pcb is provided with a 9-pin type D connector (female). The CAN bus is connected with a 9-pin type D connector (male). The use of T-connectors is not permitted, as the spur line must be kept as short as possible. The bus cables must be looped directly in the connector.



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Fig. 3: Cabling of the CAN bus (viewed from above)

The following Figure shows the pin assignment of the 9-pin type D connector (female), which complies with CiA (CAN in Automation) recommendations. To avoid EMC problems, only use connectors with metal or metal-plated housings for connecting the drive inverter to the CAN bus.

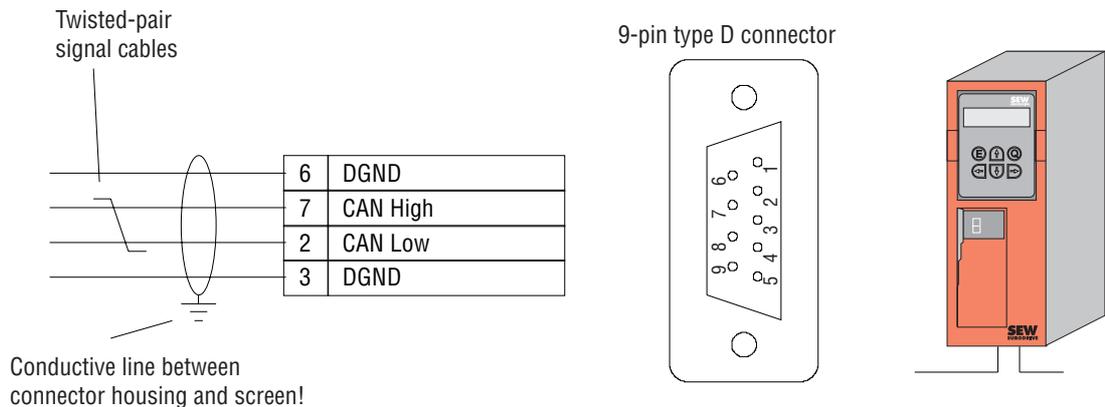


Fig. 4: Assignment of the 9-pin type D CAN-Bus connector

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The MOVIDRIVE[®] drive inverter is connected to the CAN bus via the 2-wire bus by a 4-core shielded cable with twisted-pair signal leads. The 2-wire bus consists of the signal lines CAN High and CAN Low.

2.4 Shielding and Laying of the Bus Cables

Technically correct shielding of the bus cables absorbs the electrical interference that can occur in an industrial environment. You will achieve the best shielding results if you adopt the following measures:

- Hand-tighten the fixing screws of plugs, modules and equipotential bonding conductors.
- Only use plugs with metal or metal-plated housings.
- Connect the shielding in the plug over as large an area as possible.
- Connect the shielding at both ends of the bus cable
- Do not lay signal and bus cables parallel to power cables (motor cables), but wherever possible in separate cable conduits.
- In an industrial environment use metallic, grounded cable trays.
- Run signal cables and the associated equipotential bonding conductor as close as possible to each other, using the shortest route.
- Avoid extending bus cables through the use of connectors.
- Run the bus cables close to existing grounded surfaces.

IMPORTANT



In the event of fluctuations in the ground potential, a circulating current may flow through any shielding which may be connected at both ends and connected to the ground potential (PE). In this case, ensure there is adequate equipotential bonding in accordance with the relevant DIN VDE provisions.

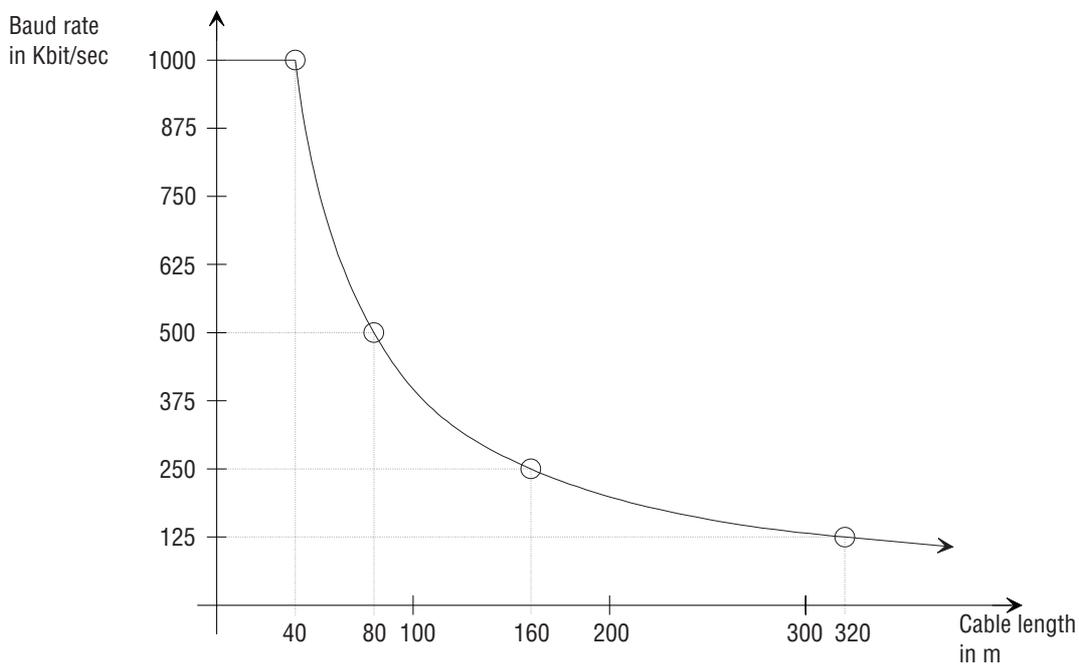
2.5 CAN Bus Transmission Cable

The DFC11A CAN bus option pcb supports data transmission technology in accordance with ISO 11898 and requires as a physical medium a 2-core, twisted-pair cable. The signal grounds can be connected via an additional two leads.

The maximum cable length depends on the set baud rate. Use the formula below to calculate the maximum cable length:

$$\text{Cable length}_{\max} < \frac{40 \cdot \frac{\text{Mbit}}{\text{seconds}} \cdot \text{metres}}{\text{baud rate}}$$

The following figure shows the relationship between maximum cable length and set baud rate.



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Fig. 5: Relationship between max. cable length and baud rate

2.6 DIP Switch Settings

After the DFC11A option pcb has been installed, the DIP switches on the pcb must be set. The DIP switch settings can be changed when the option pcb is installed. The functions of the various DIP switches are shown in the table below.

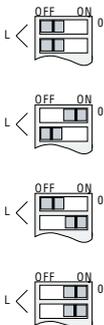
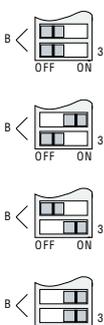
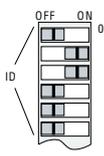
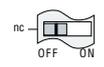
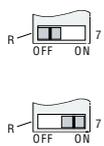
Dip switch block	Designation	Bit	Function	Setting	As-delivered settings are <u>underlined</u>
S1	L	1-0	Process data length		: Not defined : 1 process data word : 2 process data words : <u>3 process data words</u>
S1	B	3-2	Baud rate		: 125 kbaud : 250 kbaud : <u>500 kbaud</u> : 1 Mbaud
S2	ID	5-0	Identifier		Here, e. g. ID = 6 Q ... 63
S2	nc	6	Reserved		: Switch setting at <u>OFF</u>
S2	R	7	Terminating resistor for the CAN bus cable		: None : <u>120 Ω</u>

Table 1: DIP switch settings

The DIP switches of the S1 switch block (see Figure 6) serve to set the process data length (identified by 'L') and the baud rate (identified by 'B').

The DIP switches of the S2 switch block are used to set the basic ID and to connect the terminating resistor. The basic ID comprises 6 DIP switches. These are followed by a reserved DIP switch, which is to be set at OFF. The bottom switch of the block connects the 120 Ω terminating resistor for the bus cable. This terminating resistor is required for the first and the last inverter on the bus line to avoid reflections.

The CAN option pcb must be re-initialized each time a DIP switch setting is changed. To do this, switch the supply off and then on again.

2.7 Display Elements

The *DFC11A* option pcb has two LEDs for diagnosing the CAN bus system. These LEDs provide information about the transfer of MOVILINK® messages via the CAN bus. The meaning of the LEDs is shown in the table below.

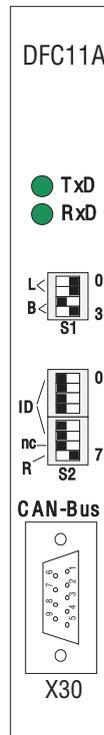


Fig. 6: Diagnostic LEDs for CAN bus

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LED name	Colour	State	Meaning
TxD	Green	Flickering	Option pcb is sending MOVILINK® messages
RxD	Green	Flickering	Option pcb is receiving MOVILINK® messages

Table 2: Meaning of the CAN bus diagnostic LEDs

3 Configuration and Commissioning

This Section explains how to configure and commission the MOVIDRIVE[®] drive inverter with the DFC11A option from the CAN bus master control.

3.1 Message Types

Different message types have been defined for communication between the DFC11A option pcb and the master control. These message types can be divided into three categories:

- Synchronization message
- Process Data messages
- Parameter messages.

On the CAN bus, these different message types must be distinguished by their ID. Therefore, the ID of a CAN bus message is made up of message type and basic ID, which is set with the DIP switches. See Table 3 below for details.

Identifier	Message Type
8× Basic ID + 0	Reserved
8× Basic ID + 1	Reserved
8× Basic ID + 2	Reserved
8× Basic ID + 3	Process Output Data message (PO), asynchronous
8× Basic ID + 4	Process Input Data message (PI), asynchronous
8× Basic ID + 5	Process Output Data message synchronized (PO sync), synchronous
8× Basic ID + 6	Reserved
8× Basic ID + 7	Reserved
8× Basic ID + 512 + 0	Reserved
8× Basic ID + 512 + 1	Reserved
8× Basic ID + 512 + 2	Reserved
8× Basic ID + 512 + 3	MOVILINK [®] Parameter Request message, synchronous/asynchronous
8× Basic ID + 512 + 4	MOVILINK [®] Parameter Response message, synchronous/asynchronous
8× Basic ID + 512 + 5	Reserved
8× Basic ID + 512 + 6	Reserved
8× Basic ID + 512 + 7	Reserved

Table 3: Setting the identifiers

The examples in Sections 3.2.1 and 3.2.2 illustrate this setup.

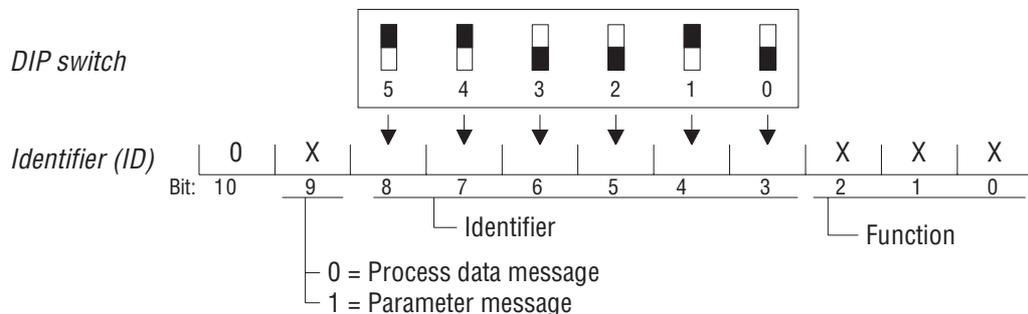


Fig. 7: Setting the identifiers

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3.1.1 Synchronization Message

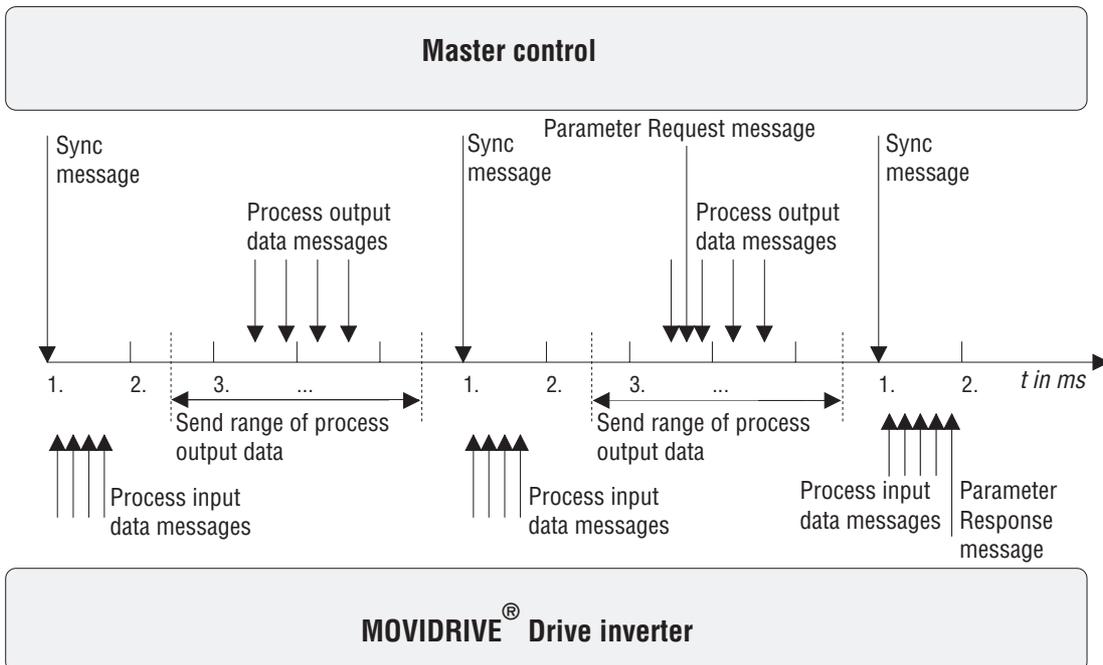


Fig. 8: The bus time is divided into bus cycles

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A fixed time basis of 1 ... X milliseconds must be set by the master control for the transfer of process data and parameter data. A synchronization message must therefore be sent from the master control to the connected drive inverters in the first millisecond of a cycle.

The synchronization message is a broadcast message. This means that all drive inverters will receive this message. The identifier of this message is factory-set at 1. You may set the identifier at any value between 0 and 2047, however, make sure that it does not overlap with the identifiers of the Process Data and Parameter Data messages.

3.1.2 Process Data Messages

The process data are sent at certain points of time within the freely adjustable, fixed time interval. A distinction is made between synchronous and asynchronous process data. The synchronous process data are sent at specific times within the given time interval. The master control can send the process output data no earlier than 500 μ s after the 2nd millisecond and no later than 500 μ s before the 1st millisecond (see Fig. 8). The process input data sent by the MOVIDRIVE[®] drive inverter in response are transferred in the 1st millisecond.

Asynchronous process data are not sent within this time interval. The master control may send the process output data at any point of time and the drive inverter will respond by sending a process input data message no later than 1 millisecond max.

3.1.3 Parameter Messages

The parameter messages, too, are divided into synchronous and asynchronous messages.

Synchronous parameter messages are responded to within the time interval of 1 ... X milliseconds. The Response message is sent in the 1st millisecond.

The response to asynchronous parameter messages is independent of the time interval.

3.2 Configuration Examples

3.2.1 Configuration Example 1

The following settings shall be made:

- 4 drive inverters
- Process data length 1
- Baud rate 125 Kbit/s

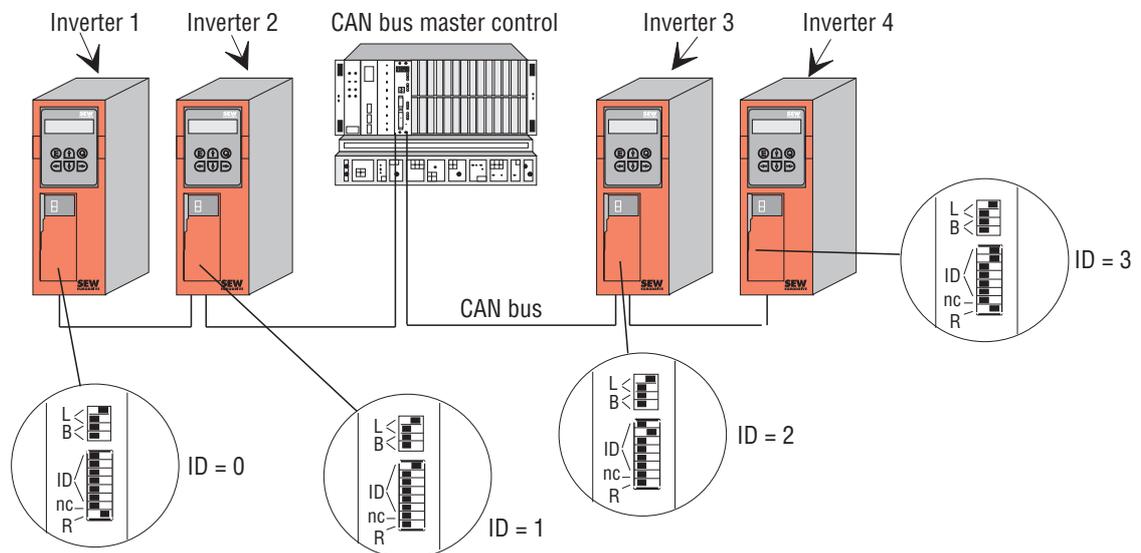


Fig. 9: Example for configuration 1

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Fig. 9 shows the system to be configured. The DIP switch settings are shown enlarged.

First of all, set the process data length and the baud rate on all the drive inverters. This is done on the upper DIP switch block. See for the setting of one process data word and a baud rate of 125 Kbit/s.

Then the basic ID is set for the drive inverters. In this example the drive inverters are assigned their basic ID in accordance with Table 4:

Drive Inverter	Basic ID
1	000000 bin. = 0 dec.
2	000001 bin. = 1 dec.
3	000010 bin. = 2 dec.
4	000011 bin. = 3 dec.

Table 4: Assignment of basic IDs for the drive inverters

In addition, the terminating resistor must be connected at the line ends. Set the DIP switch identified by an 'R' on drive inverters 1 and 4 at ON.

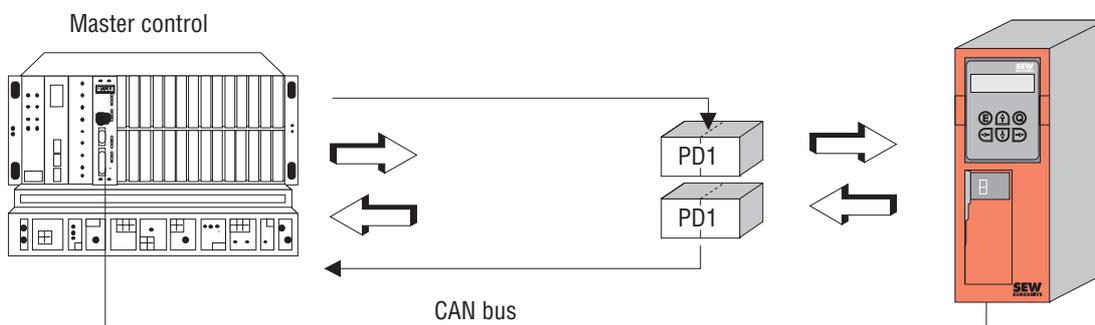
On the CAN bus the IDs listed in Table 5 are assigned as follows:

Drive Inverter	ID	Message type
1 (Basic ID = 0)	3 (Basic ID x 8 + 3)	Process Output Data message (PO)
	4 (Basic ID x 8 + 4)	Process Input Data message (PI)
	5 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	515 (Basic ID x 8 + 512 + 3)	Parameter Response message
	516 (Basic ID x 8 + 512 + 4)	Parameter Request message
2 (Basic ID = 1)	11 (Basic ID x 8 + 3)	Process Output Data message (PO)
	12 (Basic ID x 8 + 4)	Process Input Data message (PI)
	13 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	523 (Basic ID x 8 + 512 + 3)	Parameter Request message
	524 (Basic ID x 8 + 512 + 4)	Parameter Response message
3 (Basic ID = 2)	19 (Basic ID x 8 + 3)	Process Output Data message (PO)
	20 (Basic ID x 8 + 4)	Process Input Data message (PI)
	21 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	531 (Basic ID x 8 + 512 + 3)	Parameter Request message
	532 (Basic ID x 8 + 512 + 4)	Parameter Response message
4 (Basic ID = 3)	27 (Basic ID x 8 + 3)	Process Output Data message (PO)
	28 (Basic ID x 8 + 4)	Process Input Data message (PI)
	29 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	539 (Basic ID x 8 + 512 + 3)	Parameter Request message
	540 (Basic ID x 8 + 512 + 4)	Parameter Response message

Table 5: IDs used on the CAN bus

The IDs are calculated from the basic ID set via the DIP switches and the offset describing the corresponding message (see Table 3).

When the process data length is set at 1, the drive inverter will receive exactly one process output data word and then send one process input data word to the master control. Fig. 10 illustrates this concept.



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Fig. 10: Configuring for one process data word

The content of the process data word is defined by the Process Output Data Description 1 and Process Input Data Description 1 parameters.

3.2.2 Configuring Example 2

The following settings should be made:

- 4 drive inverters
- Process data length 3
- Baud rate 500 kbit/s

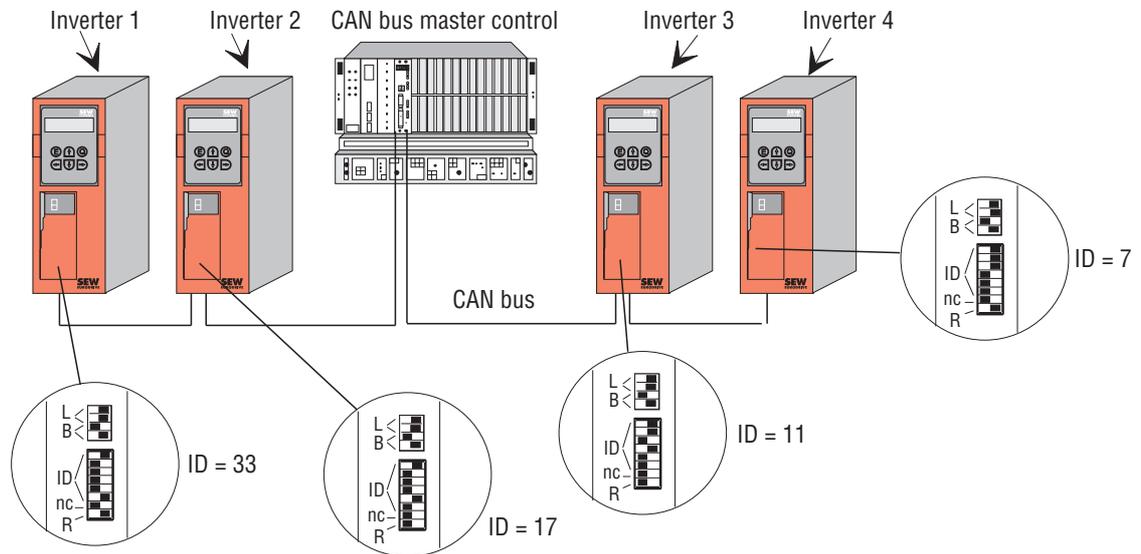


Fig. 11: Example for configuration 2

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Fig. 11 shows the system to be configured. The DIP switch settings are shown enlarged.

First of all, set the process data length and the baud rate on all the drive inverters. This is done on the upper DIP switch block. See Table 1 for the setting of 3 process data words and a baud rate of 500 Kbit/s.

Then the basic ID is set for the drive inverters. In this example, the drive inverters are assigned the basic ID in accordance with Table 6:

Drive Inverter	Basic ID
1	100001 bin. = 33 dec.
2	010001 bin. = 17 dec.
3	001011 bin. = 11 dec.
4	000111 bin. = 7 dec.

Table 6: Assignment of basic IDs for the drive inverters

As you can see, you need not observe a specific order when setting the basic ID via the DIP switches. However, the basic IDs may not be assigned more than once, i.e. no two drive inverters should have the same basic ID.

In addition, the terminating resistor must be connected at the line ends. Set the DIP switch identified by an 'R' on drive inverters 1 and 4 at ON.

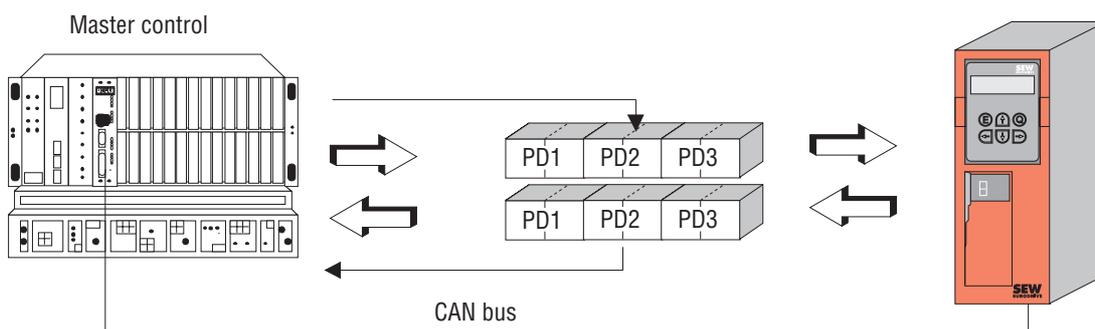
On the CAN bus the IDs listed in Table 7 are assigned as follows:

Axis	ID	Message type
1 (Basic ID = 33)	267 (Basic ID x 8 + 3)	Process Output Data message (PO)
	268 (Basic ID x 8 + 4)	Process Input Data message (PI)
	269 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	779 (Basic ID x 8 + 512 + 3)	Parameter Request message
	780 (Basic ID x 8 + 512 + 4)	Parameter Response message
2 (Basic ID = 17)	139 (Basic ID x 8 + 3)	Process Output Data message (PO)
	140 (Basic ID x 8 + 4)	Process Input Data message (PI)
	141 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	651 (Basic ID x 8 + 512 + 3)	Parameter Request message
	652 (Basic ID x 8 + 512 + 4)	Parameter Response message
3 (Basic ID = 11)	91 (Basic ID x 8 + 3)	Process Output Data message (PO)
	92 (Basic ID x 8 + 4)	Process Input Data message (PI)
	93 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	603 (Basic ID x 8 + 512 + 3)	Parameter Request message
	604 (Basic ID x 8 + 512 + 4)	Parameter Response message
4 (Basic ID = 7)	59 (Basic ID x 8 + 3)	Process Output Data message (PO)
	60 (Basic ID x 8 + 4)	Process Input Data message (PI)
	61 (Basic ID x 8 + 5)	Process Output Data message synchronized (PO sync)
	571 (Basic ID x 8 + 512 + 3)	Parameter Request message
	572 (Basic ID x 8 + 512 + 4)	Parameter Response message

Table 7: IDs used on the CAN bus

The IDs are calculated from the basic ID which is set via the DIP switches and the offset describing the corresponding message (see Table 3).

When the process data length is set at 3, the drive inverter will receive exactly three process output data words and send three process input data words to the master control. Fig. 12 illustrates this concept.



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Fig. 12: Configuring for three process data words

The content of the process data words is defined by the Process Output Data Description 1...3 and Process Input Data Description 1...3 parameters.

4 Parameter Setting via CAN Bus

With the DFC11A option pcb, the MOVIDRIVE[®] drive inverter supports the “MOVILINK[®] parameter channel” and the “MOVILINK[®] SYNC parameter channel”.

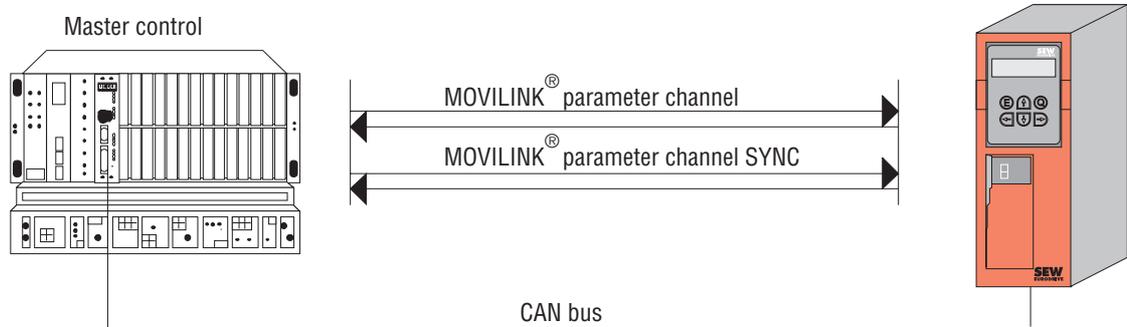


Fig. 13: CAN-Bus services

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4.1 Services

To read and write drive inverter parameters via the fieldbus system the “MOVILINK[®] parameter channel” and the “MOVILINK[®] synchronized parameter channel” services of the application layer (layer 7) are used.

4.1.1 Structure of the Parameter Message

Setting the parameters of field units using fieldbus systems, which do not provide an application layer, requires the emulation of the most important functions and services such as READ and WRITE for the reading and writing parameters. In the case of the CAN bus, e.g., this requires a parameter message to be defined. This parameter message is described by an Identifier, which depends on the basic address set on the CAN option pcb. The parameter data are then transferred via the parameter message (Fig. 14).

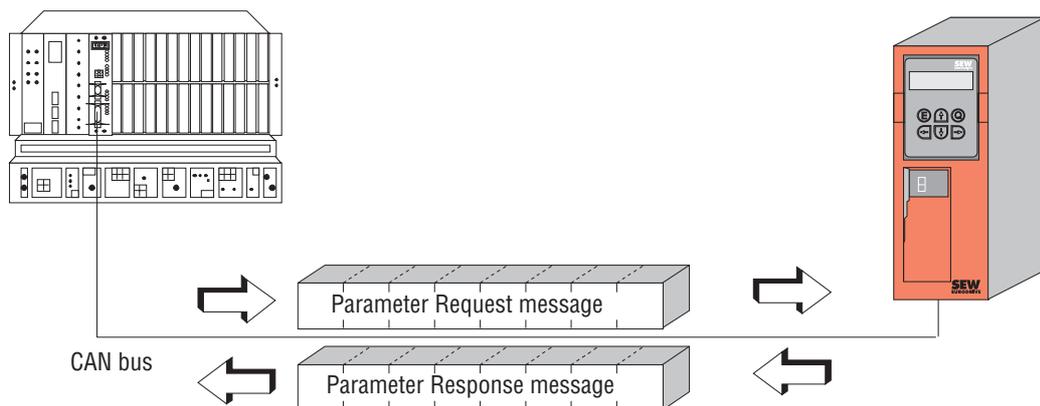
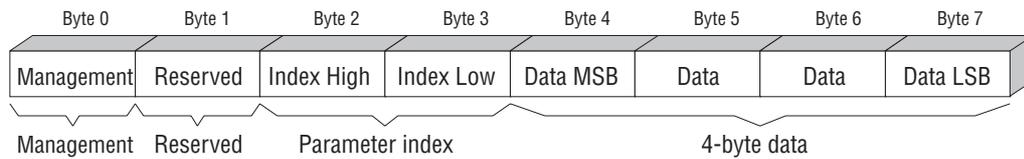


Fig. 14: Parameter message for CAN

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Fig. 15 shows the structure of the parameter message. It generally consists of a management byte, an index word, a reserved byte and four data bytes.



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Fig. 15: Structure of the parameter message

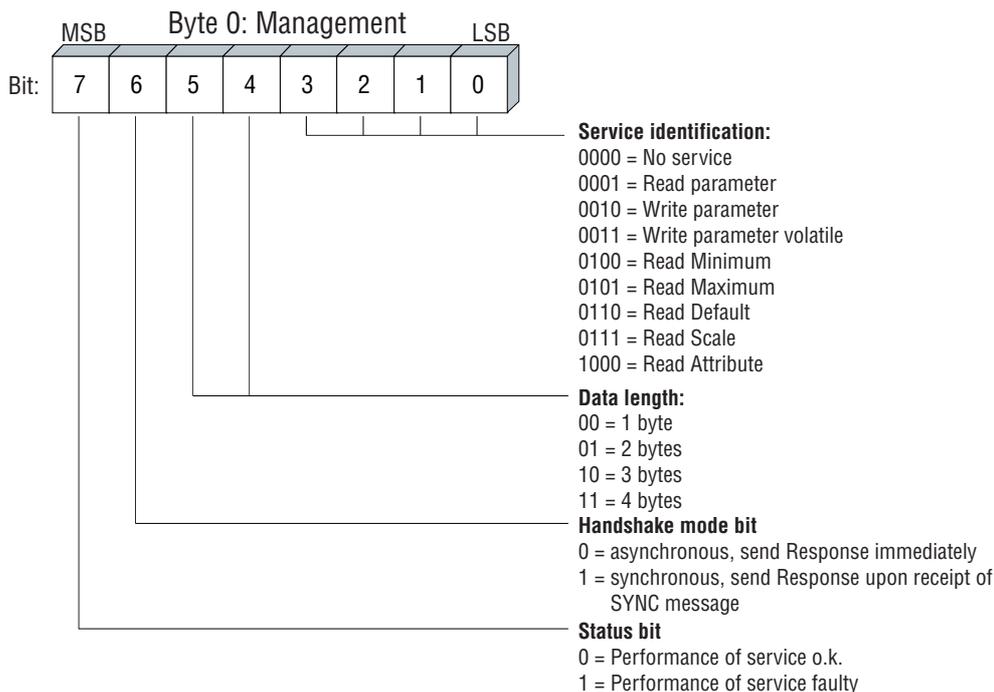
4.1.1.1 Management of the Parameter Message

The entire parameter adjustment sequence is co-ordinated using byte 0: Management. This byte provides important service parameters such as Service Identifier, data length, execution and status of the executed service. Fig. 16 shows that bits 0 to 3 contain the Service Identifier, in other words they define which service is to be executed. Bits 4 and 5 specify the data length in bytes for the WRITE service, which in the case of SEW drive inverters should generally be set at 4 bytes.

Handshake bit 6 = 0: Asynchronous response to the Synchronization message

Handshake bit 6 = 1: Synchronous response to the Synchronization message in the first millisecond.

Status bit 7 indicates whether the service was executed properly or whether it produced a fault. .



01027AEN

Fig. 16: Structure of the management byte

4.1.1.2 Parameter Index Addressing

Byte 2: Index High and byte 3: Index Low are used to identify the parameter to be read or written via the fieldbus system. The parameters of a drive inverter are addressed using a standard index, irrespective of the type of fieldbus system. Byte 1 should be considered reserved and must generally be set at 0x00.

4.1.1.3 Data Area

As shown in Fig. 17, the data are contained in bytes 4 to 7 of the parameter message. This allows a maximum of 4-byte data to be transferred per service. The data are generally entered flush right, i.e. byte 7 contains the least significant data byte (data LSB), byte 4 correspondingly the most significant data byte (data MSB).

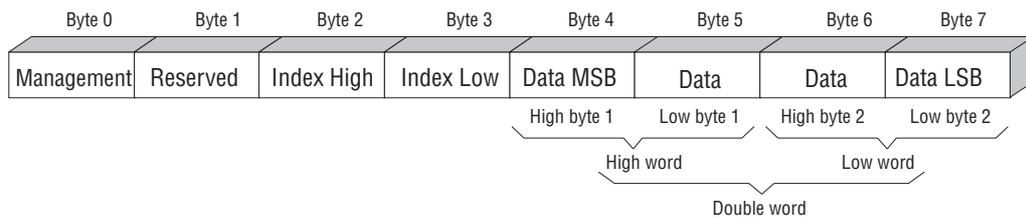


Fig. 17: Definition of the data area in the parameter message

MD0232AE

4.1.1.4 Faulty Execution of Service

Faulty execution of service is signalled by setting the status bit in the management byte. If the status bit indicates an error, the error code is entered in the data area of the parameter message (Fig. 18). Bytes 4 - 7 provide the return code in a structured format (see MOVILINK[®] Communications Profile Manual).

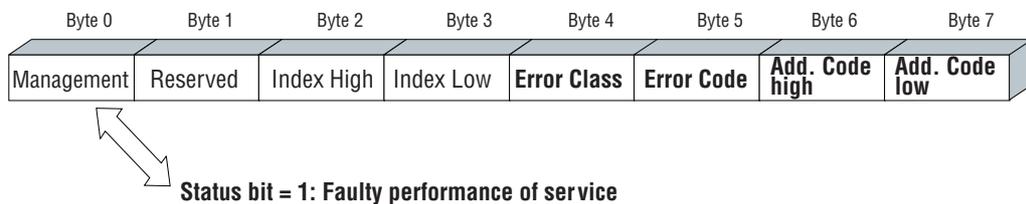


Fig. 18: Structure of the parameter message in the event of faulty execution of service

MD0233AE

4.1.2 MOVILINK[®] Parameter Channel

The "MOVILINK[®] Device and Communications Profile" manual provides a detailed description of the MOVILINK[®] parameter channel.

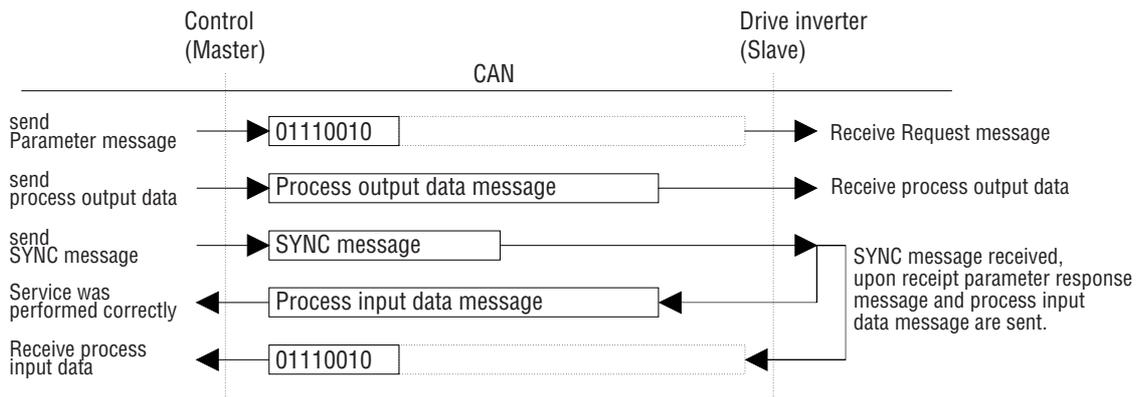
For the CAN bus system it is important to differentiate between synchronized and non-synchronized parameters.

- In the case of **non-synchronized** parameter messages, service acknowledgement is independent of the Sync message.
- In the case of **synchronized** parameter messages, the service acknowledgement is sent in the first millisecond after receipt of the Sync message only.

4.1.3 Sequence of Parameter Setting via CAN

Using the WRITE SYNC service as an example, Fig. 19 shows the sequence of parameter setting between control system and drive inverter on the CAN bus. To simplify the sequence, only the management byte of the parameter message is shown in Fig. 19.

While the higher-level control system sets up the parameter message for the WRITE SYNC service, the drive inverter receives the SYNC messages and receives and returns Process Data messages. The service is activated when the inverter has received the Parameter Request message. The drive inverter then looks at the parameter message and processes the WRITE SYNC service, and, at the same time, responds to all Process Data messages. The drive inverter will only send the Parameter Response message when it has received the SYNC message.



01028AEN

Fig. 19: Sequence of parameter adjustment via CAN

4.1.4 Parameter Data Format

When setting parameter via the fieldbus interface, the same parameter coding is used as when setting them via the RS-232 and RS-485 serial interfaces.

For details of the data formats and value ranges of the individual parameters please refer to the SEW MOVIDRIVE® Manual.

4.2 Drive Parameter Description

The drive parameters of the MOVIDRIVE® drive inverter are described in detail in the Fieldbus Unit Profile Manual. In addition to the parameter index, i.e. the number with which you can address the appropriate parameter via the communications interfaces of the inverter, you will find further information about the coding, range of values and meaning of the parameter data.

5 Return Codes during Parameter Setting

If parameters are adjusted incorrectly, different return codes are sent back from the drive inverter to the master, providing detailed information about the cause of the error. These return codes are generally structured according to DIN 19245 Part 2. A distinction is made between the following elements

- Error class
- Error code
- Additional code.

These return codes are described in detail in the MOVILINK[®] Communications Profile Manual.

5.1 Special Cases

The fieldbus software describes errors during parameter setting, which can neither be identified by layer 7 nor by the system software of the drive inverter.

These special cases are:

5.1.1 Errors during Parameter Setting

An incorrect coding was entered in the management byte when a Read or Write service was executed via the CAN bus.

	Code (dec)	Meaning
Error class:	5	Service
Error code:	5	Illegal value
Add. code high:	0	-
Add. code low:	0	-

Table 8: Return code for incorrect coding of the management byte

6 Technical Data of the DFC11A Option

Part no.: 822 725 X

Technical Data of the DFC11A Option:

- Number of process data words:
DIP switch selectable: 1, 2 or 3 process data words

- Baud rate:
DIP switch selectable: 125, 250, 500 or 1000 Kbit/sec

- ID: 3 - 1020
Basic ID: DIP switch selectable: 0...63

- Connection system:
2-wire bus with 9-pin type D connectors
Pin assignment to CiA standard.
Type of connector: type D

- Terminating resistor (120 Ω):
via DIP switch.

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