SIMATIC S5

COM DB1
Parameterization Software

Manual

EWA 4NEB 812 6113-02b

Introduction

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Introduction

The COM DB1 parameterization software allows you to parameterize CPUs of the low end and mid range. The time required for successful parameterization is minimal.

Until now, it has only been possible to parameterize the CPUs in plaintext via DB1. Editing of DB1 in plaintext was done with the DB editor of the STEP 5 package.

Customer advantage of parameterizing DB1 with COM DB1

- COM DB1 can interpret and modify every DB1 with parameterization data and provide it with comments.

- The user need no longer take into account the rules for DB1 parameterization in the PLC manuals since COM DB1 already knows these rules. The user is shown the CPU-specific parameters on the screen. The arguments and the value ranges of the arguments are available in special select boxes.

- COM DB1 can detect input errors in DB1 and indicate these errors in plaintext. Errors in DB1 are detected at the latest when transferring to the PLC or to the program file. This excludes the possibility of setting wrong parameters with COM DB1.

- COM DB1 can be used to generate further data blocks required for parameterization reasons (e.g. for send and receive mailboxes).

- COM DB1 has on-line capability, i.e. a generated DB1 can be transferred on-line to the CPU. In addition, a DB1 can be loaded on-line from the CPU to the programmer.

- A help text related to the current input can be called up on the screen at any point during parameterization.

Scope of supply of the COM DB1 software package

The COM DB1 software package consists of the following:

- One 5 1/4" diskette in MS-DOS format
- One 3 1/2" diskette in MS-DOS format
- "COM DB1 Parameterization Software" Manual

Files on the COM DB1 diskette:

File Name	Contents
s5pxcdbx.cmd	COM DB1 (command file)
s5pdcdbx.dat	Texts in German
s5pecdbx.dat	Texts in English
s5pfcdbx.dat	Texts in French
s5picdbx.dat	Texts in Italian
s5pscdbx.dat	Texts in Spanish

Scope of the manual

You as user require detailed information in order to be able to use COM DB1 to its full potential.

This manual describes how to start up and operate the COM DB1 parameterization software. The functional principle of DB1 parameterization is not dealt with in this manual. We have assumed that you possess the manual for the relevant CPU where the parameterizable functions are described in detail.

Experience with COM software is not required in order to work successfully with this manual.

Conventions

All the conventions listed in the introduction to the manual for the PLC to be parameterized also apply in this manual. Please refer to the PLC manual.

The definitions of the terms "Warning" and "Note" can be found in the "Safety-Related Guidelines for the User" at the end of this introduction.

There are correction forms at the end of this manual. Please use them to indicate any corrections, additions or suggestions you might have in the way of improvement that will benefit the next edition of the manual.

Contents of this manual

- Chapter 1
  This chapter gives an overview of the functions offered by COM DB1. It also tells you which programmable controllers/CPUs can be parameterized with COM DB1.

- Chapter 2
  This chapter explains the procedure for installing COM DB1. You will learn which hardware and software is required to run COM DB1 and how COM DB1 is started.

- Chapter 3
  This chapter contains all the information required for successful operation of COM DB1.
  You will learn:
  - The layout of the screen
  - The rules to observe when using COM DB1
  - The available onscreen help and error messages
  - How you can call up the individual functions on the screen
  In addition, there is an overview of the COM DB1 key assignments on the programmer.

- Chapter 4
  This chapter contains a complete "session" example from starting COM DB1 to loading DB1 into the PLC. All the functions provided by COM DB1 are explained in detail using this example.

In order to start up your system as quickly as possible, we recommend you use the manual as follows:

Read Chapter 2 first to install COM DB1.
Read Sections 3.3 to 3.5 which contain important basics for working with COM DB1.
Read Chapter 4; the COM DB1 functions are described and their use explained using a parameterization example for a PLC.

Safety-Related Guidelines for the User

This document provides the information required for the intended use of the particular product. The documentation is written for technically qualified personnel.

Qualified personnel as referred to in the safety guidelines in this document as well as on the product itself are defined as follows.
- System planning and design engineers who are familiar with the safety concepts of automation equipment.
- Operating personnel who have been trained to work with automation equipment and are conversant with the contents of the document in as far as it is connected with the actual operation of the plant.
- Commissioning and service personnel who are trained to repair such automation equipment and who are authorized to energize, de-energize, clear, ground, and tag circuits, equipment, and systems in accordance with established safety practice.

Danger Notices

The notices and guidelines that follow are intended to ensure personal safety, as well as protect the products and connected equipment against damage.

The safety notices and warnings for protection against loss of life (the users or service personnel) or for protection against damage to property are highlighted in this document by the terms and pictograms defined here. The terms used in this document and marked on the equipment itself have the following significance.

Note		**Warning**

contains important information about the product, its operation or a part of the document to which special attention is drawn.

indicates that death, severe personal injury or substantial property damage can result if proper precautions are not taken.

Proper Usage

⚠ **Warning**
- The equipment/system or the system components may only be used for the applications described in the catalog or the technical description, and only in combination with the equipment, components, and devices of other manufacturers as far as this is recommended or permitted by Siemens.
- The product will function correctly and safely only if it is transported, stored, set up, and installed as intended, and operated and maintained with care.

Tables

1 Performance Range of COM DB1

In this chapter, you will learn:

- The functions provided by COM DB1 and the restrictions to be observed
- Which CPUs you can parameterize with COM DB1.

1.1 What Functions does COM DB1 Provide?

The COM DB1 parameterization software is a user-friendly aid for parameterizing low-end and mid-range CPUs.
The functions offered by COM DB1 are described below. Some functions can only be executed with the CPU on-line. These are indicated specially in the text. All other functions can be used both in on-line and off-line mode. On-line and off-line mode is selected in the Defaults screen form of COM DB1.

- **Generating a new DB1**
  You have just processed a DB1 with COM DB1 and you want to delete it.
  Press the <F1> "New DB1" key in the "Overview Table" screen form. The DB1 just generated will be deleted and the parameter settings of the default DB1 will appear in the Overview Table.

- **Loading and, if required, modifying a DB1 that already exists in the PLC**
  You can modify parameters in a DB1 that already exists in the PLC by selecting "On-line mode", loading the DB1 from the PLC and overwriting the relevant parameters.

- **Loading and, if required, modifying a DB1 that already exist in a STEP 5 program file**
  You can modify parameters in a DB1 that already exists in a STEP 5 program file. Select the STEP 5 program file either in the Defaults form or in the "Loading DB1" form. Then load the DB1 from the STEP 5 program file and overwrite the relevant parameters.

- **Generating empty data blocks required for parameterization**
  (e.g. send mailbox DB for SINEC L1 parameterization)
  When you specify a DB in a parameter block, COM DB1 checks to see if this DB already exists in the PLC (only possible in on-line mode) or in a STEP 5 program file. If the DB exists but its length is not sufficient for the parameterization, the length is corrected.

- **Entering a comment on the entire DB1 or on the current parameter block**
  You can enter a comment on the entire DB1 or on the individual parameter blocks. A comment can consist of up to 80 characters (including spaces).

- **Transferring a DB1 to the PLC**
  You can transfer a DB1 to the PLC if you have first selected "On-line mode". If there is already a DB1 in the PLC, you will be asked if it is to be overwritten.

- **Transferring a DB1 to a STEP 5 program file**
  You can transfer a DB1 to a STEP 5 program file.
  Specify the STEP 5 program file either in the "Defaults" screen form or in the "Transferring DB1" screen form.

- **Outputting a DB1 to a printer**
  You can output DB1 parameters to a printer. All parameterization forms and the "Overview table" form can be printed.
  If you want to use a printer file and/or a footer file for your printout, the printer file or footer file must already exist, i.e. it must already have been generated with the STEP 5 package. You specify the printer file or footer file in the "Defaults" screen form.

- **Outputting a DB1 to a file**
  You can output a DB1 to a file. This is necessary if you want to print the DB1 on a printer that is not connected to the programmer. You specify the output file in the "Defaults" screen form.
  If you want to use a printer file and/or a footer file, the same conditions apply as for direct output of DB1 to a printer. The same contents are output to the file as are output direct to a printer ("Outputting a DB1 to a printer").

- **Deleting a parameter block**
  If you do not want to use parameter blocks, you can delete them in the Overview Table of COM DB1.

- **Executing PLC functions** if you first select "On-line mode":
  - Compressing the PLC memory
  - Switching the PLC from STOP to RUN, the DB1 parameters are updated in the CPU
  - Switching the PLC from RUN to STOP

In addition, COM DB1 provides a range of **Help functions** to make parameterization easier for you.

Erroneous parameterization is prevented since COM DB1:
- Detects errors as parameters are entered
- Examines all inter-parameter dependencies within a DB1
- Checks that the value ranges of the arguments are not violated
- Displays an error message in the event of an error and forces you to correct the error (an erroneous DB1 cannot be stored).

Special features of COM DB1

- COM DB1 can only process one DB1 at a time.

- COM DB1 cannot check the interdependencies of parameters between different PLCs (e.g. whether the same transmission rate is set for all nodes in a SINEC L2 network).

- Direct parameterization in the system data is not possible.

- Only those CPU functions which could previously be parameterized in DB1 can be parameterized with COM DB1.

- If a parameter block in the Overview Table of COM DB1 contains no parameters, the operating system of your PLC automatically writes the available default parameters into the system data.

- Default parameters enclosed between comment characters (#) (representation of the default DB1 in the relevant PLC manual) are not recognized by COM DB1 and will be lost.
  (If the default parameters enclosed in comment characters (#) are immediately in front of the DB1 end-of-text identifier "END", these characters will be interpreted as comments on the entire DB1.)

- The PLCs listed in Section 1.2 can be parameterized with COM DB1.
  The following rules apply to mature PLCs, i.e. same CPU/same PLC with new revision level:
  COM DB1 works with the latest PLC revision level known to it, i.e. in the case of a mature PLC, COM DB1 can only parameterize the functions it was able to parameterize in the last revision level, and it will not recognize any newly added parameters/parameter blocks and/or modified value ranges.

Handling of the individual COM DB1 functions is described in detail in the example of a complete DB1 parameterization in Chapter 4.
The COM DB1 help and error handling concept is explained in Section 3.4.

1.2   Which PLCs can You Parameterize with COM DB1?

Using COM DB1, you can parameterize all the programmable controllers/CPUs listed in the table below:

Table 1-1.   Programmable Controllers/CPUs Which Can Be Parameterized with COM DB1

Programmable Controller/CPU	Parameterizable with COM DB1 from Order Number and Revision Level	
• S5-90U programmable controller	6ES5 090-8MA01	A01
S5-95U programmable controller:		
• Basic unit	6ES5 095-8MA01	A01
• With SINEC L2 interface	6ES5 095-8MB01	A01
• With two serial interfaces	6ES5 095-8MC01	A01
• With SINEC L2-DP - interface	6ES5 095-8MD01	A01
S5-100U programmable controller:		
• CPU 103	6ES5 103-8MA03	A01
S5-115U programmable controller:		
• CPU 941	6ES5 941-7UB11	A01
• CPU 942	6ES5 942-7UB11	A01
• CPU 943 with one serial interface	6ES5 943-7UB11	A01
• CPU 943 with two serial interfaces *	6ES5 943-7UB21	A01
• CPU 944 with one serial interface	6ES5 944-7UB11	A01
and operating system module	6ES5 816-1BB11/21	A01
• CPU 944 with two serial interfaces *	6ES5 944-7UB21	A01
and operating system module	6ES5 816-1BB11/21	A01
• CPU 945 with 256-Kbyte memory	6ES5 945-7UA11	A01
and operating system module	6ES5 816-5AA01	A01
• CPU 945 with 384-Kbyte memory	6ES5 945-7UA21	A01
and operating system module	6ES5 816-5AA01	A01

*   Second serial interface cannot be parameterized with COM DB1

Tables	

2 How Do You Install and Start COM DB1?

This Chapter shows you:

- The hardware and software prerequisites you require for operating COM DB1
- How to install COM DB1 on a programmer
- How to start COM DB1 on a programmer.

2.1 Hardware and Software Prerequisites for COM DB1 Operation

COM DB1 runs on the PG 710, PG 730, PG 740, PG 750 and PG 770 programmers and on AT-compatible personal computers (PCs). See Table 2-1 below for the necessary software prerequisites.

Table 2-1. Software Prerequisites for COM DB1 Operation

Software Prerequisites for	
Programmers (4 Possibilities)	**PCs (3 Possibilities)**
• S5-DOS/**ST** (MS-DOS)/Stage : Version 3.0 • MS-DOS 3.3	• STEP 5 Basic Package for PC/Stage • MS-DOS 3.3
• S5-DOS/**ST** (MS-DOS)/Stage : Version 6.0 • MS-DOS 5.0	• STEP 5 Basic Package for PC/Stage • MS-DOS 5.0
	• STEP 5 Basic Package for Mini PLCs for PC/Stage : Version 6.03

Note
All information in the subsequent chapters regarding startup of COM DB1 refers to working with a programmer.

2.2 Creating the Backup Copy of COM DB1

When working with COM DB1, it is advisable to make a backup copy of all COM DB1 files.

Start the MS-DOS operating system.
Copy the original diskette.
MS-DOS offers the "DISKCOPY" utility program for copying diskettes.

Calling the "DISKCOPY" utility program
Call the "DISKCOPY" utility program with the following command line:
DISKCOPY A: A: <1>

See the description of this utility program in the programmer manual for details of how to proceed further.

2.3 Installing COM DB1

Generate an executable version of COM DB1 on the hard disk of the programmer. To do so, proceed as follows:

In programmer mode with **Stage V**:
Start the MS-DOS operating system.
Insert the COM DB1 diskette in the diskette drive (e.g. drive A).
Copy all COM DB1 files into the SIMATIC S5 directory* by entering the following command line:
COPY A:*.* C:\SIMATIC\S5_SYS <1>

In programmer mode with **Stage VI**:
In the programmer mode with Stage VI, COM DB1 need not necessarily be installed on the hard disk. COM DB1 can also be started from any other drive (e.g. diskette drive). If you still want to store DB1 in a working directory on the hard disk, then
Start the MS-DOS operating system.
Insert the COM DB1 diskette in the diskette drive (e.g. drive A).
Copy all COM DB1 files into your working directory** by entering the following command line:
COPY A:*.* C:\[working directory] <1>

COM DB1 is then installed and can be started from the S5 command interpreter level.

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*   The directory of the STEP 5 package
    We have assumed that you have the system files of the STEP 5 package installed in the C:\SIMATIC\S5_SYS directory; other destination paths are also possible.
** Any directory;
    however, the directory containing the system files of the STEP 5 package may not be used.

2.4 Starting COM DB1

Now start the COM DB1 parameterization software from the hard disk of the programmer.

In programmer mode with **Stage** :
 Start the S5-DOS/ST operating system (Stage V).
 The KOMI screen form appears briefly during loading. The KOMI screen form is replaced by the "Package Selection" screen form.
 Use the cursor to select the COM DB1 package in the Package selection screen form.
 Start loading COM DB1 with the <F1> "PACKAGE" function key or the <INSERT> key.

In programmer mode with **Stage** :
 Start the S5-DOS/ST operating system (Stage VI).
 Key on to the "Further SIMATIC S5 programs" start window:
 [Change] [further ...] <1>
 Make the directory in which you have stored COM DB1 your working directory.
 Select the "COM DB1" program in the "Further SIMATIC S5 programs" select box.
 Start loading COM DB1 with "<OK>" or the <INSERT> key.

The "Select Language" screen form (the COM DB1 start screen form) appears on the programmer screen.

3	**How Do You Operate COM DB1?**	

3 How Do You Operate COM DB1?

This Chapter shows you:

- How to proceed when parameterizing with COM DB1 (general operating concept)
- The layout of the COM DB1 screen forms
- How to make entries in the COM DB1 screen forms and the rules to observe in doing so
- The help functions and error messages provided by COM DB1.

Note
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Section 3.5 contains an overview of all keys and key combinations for initiating COM DB1 functions and for calling help texts or error messages during COM DB1 operation.

3.1 Hierarchy of COM DB1 Operator Functions

COM DB1 is operated via screen forms organized into several operator levels. The following applies for all operator levels of COM DB1:

- By pressing one of the function keys <F1> to <F7> you can execute a COM DB1 function or change to a lower-level COM DB1 screen form.
- You can exit every COM DB1 screen form with the <F8> function key and return to the next higher screen form.

The following screen form tree explains the operating concept when parameterizing with COM DB1.

Start screen form:
Select language

COM DB1

F8 : In all screen forms,
<F8> takes you back to
the next higher
screen form

F1 ··· **F5**

Defaults

1st   operator
       level:

F6

Overview table

2nd   operator
        level:

3rd   operator
        level:

F2 ··· **F4**   **F6**   **F7**

Loading DB1
Transferring DB1
Printing DB1

Parameter block, e.g.CLP

Overview table SINEC L2

PLC functions

F6

SINEC L2 Parameter block

4th   operator
        level:
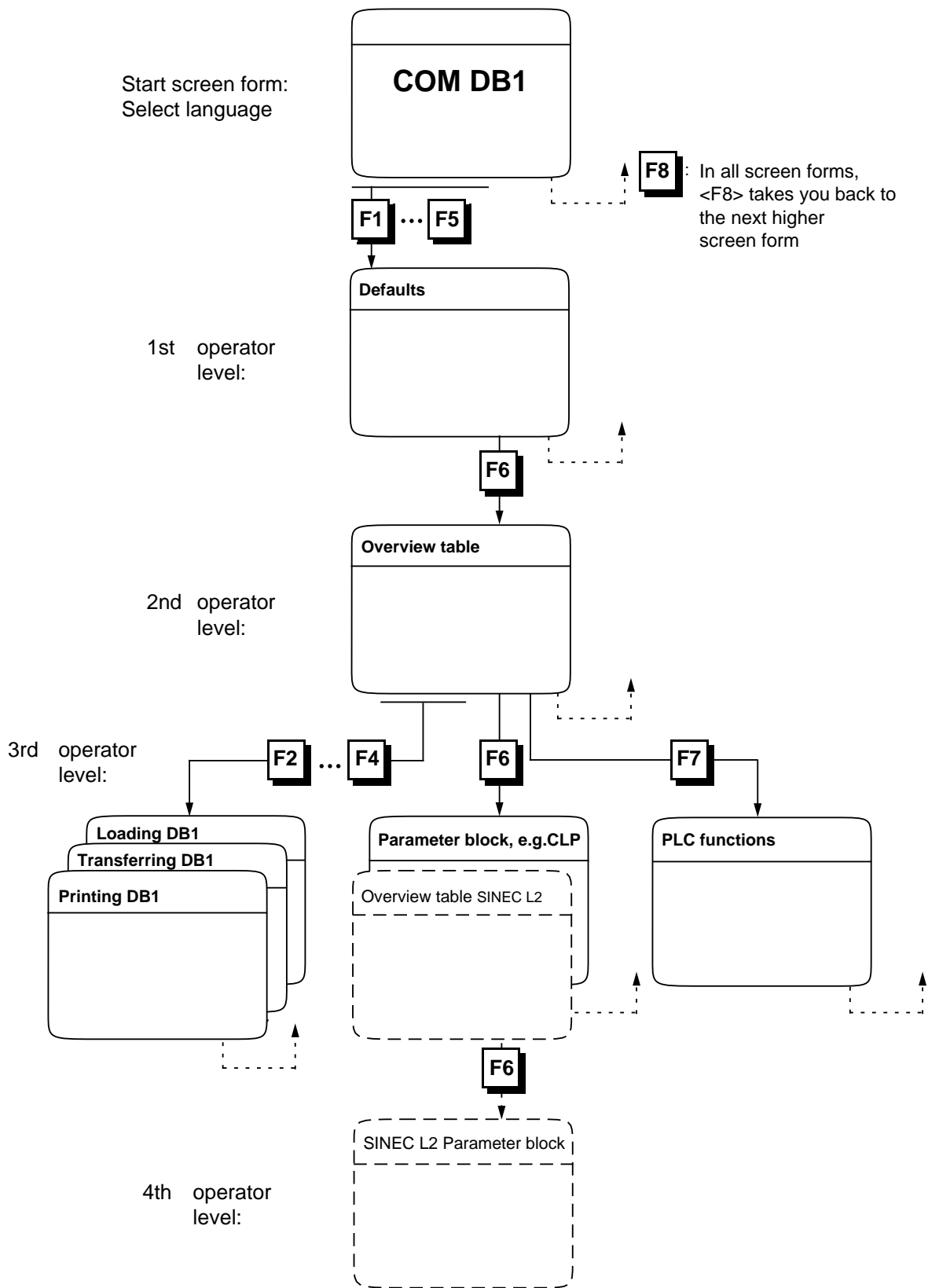
Figure 3-1.   Hierarchical Structure of COM DB1

General operating concept when parameterizing DB 1 with COM DB1

- **Start screen form: Select language**
  After starting COM DB1, the first COM DB1 screen form appears. This is the "Select Language" screen form. Use the function keys to select COM DB1 in the desired language.

- **1st operator level: Defaults**
  After selecting the language, you reach the Defaults screen form. This is where you establish the defaults required by COM DB1 to execute its functions.

  You must specify the following in the Defaults screen form:
  1. Function mode between COM DB1 and the CPU (online, offline)
  2. Order number of the CPU
  3. Revision level of the PLC.

  Entries in the other input fields of the Defaults screen form depend on the functions you want to execute in the subsequent screen forms. (If, for example, you want to store a DB1 in a program file, you can enter the name of the program file (destination file) in the "Program file:" input field provided for that purpose in the Defaults screen form).

- **2nd operator level: Overview table**
  When the defaults have been entered, you reach the "Overview Table" screen form. The Overview Table contains all the parameter blocks possible for the CPU type defined in the Defaults screen form. The "Setting" appears beside each individual parameter block (e.g. "Not parameterized", "Parameterized (default)", etc.).

  You can decide the following in the "Overview Table" screen form:
  - If you want to load, transfer or print a DB1 that exists in the PLC or in a program file (DB1 utility functions)
  - If you want to modify or delete parameter blocks of a loaded DB1
  - If you want to generate a new DB1
  - If you want to branch to a PLC function.

  The first time you make the transition from the Defaults screen form to the "Overview Table" screen form, you will be informed in the message line as to whether there is a DB1 in a program file and/or in the PLC. If you load an existing DB1, the Overview Table will be updated.

- **3rd operator level: DB1 Utility functions/Parameter block .../PLC functions**
  If you have selected a DB1 utility function (e.g. "Loading DB1") or a PLC function in the 2nd operator level, the relevant screen form for executing the function appears then in the 3rd operator level.

  If you have selected a parameter block in the 2nd operator level, you branch to the parameterization screen form in the 3rd operator level. The parameterization screen form contains a list of all the parameters belonging to the parameter block. Already existing parameterization data (e.g. after loading a DB1) appears in the relevant input fields of the parameterization screen form. Some input fields without parameterization contain default values.

SPECIAL CASE (indicated in Figure 3-1 by broken lines)

- **3rd operator level: SINEC L2 Overview table**
  One screen is not sufficient for listing all parameters of the "SINEC L2" parameter block. In this case, the parameter block is divided into logical subunits. After selecting this parameter block in the "Overview Table" screen form, the system takes you to the "SINEC L2 Overview Table" screen form containing the logical subunits (Chapter 4, for example).

- **4th operator level: SINEC L2 Parameter block**
  The fourth operator level only exists if the "SINEC L2 Overview Table" screen form with the logical subunits appears in the 3rd operator level of COM DB. Each subunit has its own parameterization screen form. In the 4th operator level, "SINEC L2 Parameter Block", the same entries can be made as in the 3rd operator level "Parameter Block...".

3.2 Layout of the COM DB1 Screen Forms

All COM DB1 functions can be executed by entries in screen forms. The COM DB1 screen forms all share the same basic layout. They are divided into five areas. The example below of the "Clock Parameters (CLP)" parameterization screen form shows the divisions of COM DB1 screen forms.

"Clock parameters (CLP)" parameterization screen form

Figure 3-2. COM DB1 "Clock Parameters (CLP)" Screen Form: Division of COM DB1 Screen Forms into Areas

- **Header**
  The headers of all COM DB1 screen forms are one line long and separated from the rest of the screen form area by one line. It indicates the contents of the COM DB1 screen form. The header cannot be changed in any COM DB1 screen form.

- **Comment line**
  Here you can enter a comment on the parameter block (in the relevant parameterization screen form) or on the entire DB1 (in the "Overview Table" screen form). The comment line is one line long and can contain up to 80 characters.

- **Input/output area**
  The large middle area of the screen is the input area of the COM DB1 screen forms. This area contains fixed texts and input fields, depending on the operator level, in which parameters can be set. Using the keyboard, you can enter the relevant and permissible parameters for the selected function in these input fields and then transfer them to a program file or the PLC.

In the same area, you can view the parameterization data of a DB1 existing in a program file or in the PLC (output area). This is also the area where COM DB1 displays select boxes, help windows and warnings for supporting COM DB1 operation.

- **Message line**
  COM DB1 uses the message line to inform you about current processes, operator errors or faults. The first time you make the transition from the Defaults screen form to the "Overview Table" screen form, COM DB1 informs you in the message line as to whether a DB1 exists in a program file and/or in the PLC.

- **Menu line**
  The menu line (function keys <F1> to <F8>) on the bottom edge of the screen tells you which function key on the keyboard executes which COM DB1 function. COM DB1 functions which are not possible in off-line mode (e.g. "Load from PLC") are not supported by the relevant function keys in off-line mode.

3.3   Possible Entries in COM DB1 Screen Forms and Rules to Observe

This Section shows you:

*   How to make entries in the input fields
*   How to enter comments in the comment line
*   Points to remember when editing.

All inputs to the COM DB1 screen forms are cursor-oriented.

Note

In Section 3.5 of the Manual, you can see which keyboard keys to use for moving the cursor within and between the input fields.
Mouse operation of the cursor is not supported by COM DB1.

Making entries in the input fields

There are two ways of entering parameter values in the input fields with cursor support:

Entering the text character-by-character via the keyboard.
Selecting the text from a select box belonging to the input field (if available) (with <F3> "Select").

Note

The <F6> "Store" key then stores the modified parameterization data in DB1. The data is stored only if all parameterization data of the block is free of errors. After the data is stored, COM DB1 switches automatically to the "Overview Table" screen form.

Example of : Entering a correction factor character-by-character

Position the cursor on the "Correction factor:" input field (Section 3.5 for details of cursor control).
Enter the desired parameter via the keyboard (e.g. "9").
Terminate the entry by pressing <⌐> or <INSERT>.
(Press <ESC> to abort the text.)

Example of : Entering the day of the week via a select box

Position the cursor on the "Weekday:" input field.
Open the select box belonging to the input field by pressing <F3> "Select".

```
┌──────────────────────────────────────────────────────────────────┐
│                                                                    │
│  Clock parameters (CLP)                         SIMATIC S5/COM DB1 │
│ ░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░ │
│                                                                    │
│   Location of the status word          ░░   No.: ░░               │
│   Location of the clock data           ░░   No.: ░░               │
│   Corr. factor:        9░░ Updating the clock ┌──────────┐         │
│                                               │ SU       │         │
│   Save clock time:    ░░                      │ MO       │         │
│                                               │ TU       │         │
│   Date/time:       Clock mode:     ░░         │ WE       │  ░░ ░░  │
│   Weekday: ░░  Date (dd mm yy): ░░            │ TH       │         │
│                                               │ FR       │         │
│   Prompting:       Clock mode:     ░░         │ SA       │         │
│   Weekday: ░░  Date (dd mm): ░░               │ XX       │  ░░ ░░  │
│   Set the operating hours counter (hhhhhh mn ss):  ░░ ░░ ░░       │
│                                                                    │
│   Enable the operating hours counter:         ░░                  │
│                                                                    │
│ ░F1░ ░F2░ ░F3░ ░F4░ ░F5░ ░F6░ ░F7░ ░F8░                           │
│            Select              Store  Info  Return                 │
└──────────────────────────────────────────────────────────────────┘
```

Figure 3-3.   COM DB1 "Clock Parameters (CLP)" Screen Form; Selecting the Day of the Week

Position the cursor on the relevant text line in the select box.
Enter the selected weekday in the input field by pressing < > or <INSERT>. The selected text appears in the input field.
(Press <ESC> to abort the entry.)

Entering comments

With COM DB1, you can enter

  Comments concerning the entire DB1 in the "Overview Table" screen form and
  Comments concerning each parameter block in the relevant parameterization screen form.

You enter the comment in the comment line provided at the top edge of the COM DB1 screen form. The comment can be up to 80 characters long (including spaces).

Example of : Entering a comment concerning the "Clock Parameters (CLP)" parameter block

  Press the <COM> comment key in the "Clock Parameters (CLP)" parameterization form (Section 3.5).
  The cursor will then jump to the comment line.
  Enter the comment via the keyboard (e.g. "Setting the prompter interval of maintenance unit 1").
  Terminate the entry by pressing <↓> or <INSERT>.
  (Press <ESC> to exit the comment line without changing the original contents.)

Note _____

A comment concerning a parameter block is stored together with the parameter block (with <F6> "Store") in DB1.

Rules and points to remember when making entries in COM DB1 screen forms

We have collected a few points to remember and rules for parameterizing DB1 with COM DB1 under the "Note" heading below.

Note

- If you do **not** enter the revision level of the CPU in the Defaults screen form, COM DB1 will access the parameter set (parameter blocks, value ranges) of the highest revision level known to it. COM DB1 enters the valid revision level in the relevant input field in the Defaults screen form.

- In the case of CPU 944 with two serial interfaces, you must additionally specify the order number and the version of the operating system module in the Defaults screen form.

- When loading a DB1 generated with STEP 5, comments may be lost if:
  - the comment is longer than 80 characters
  - the comment concerning the entire DB1 is not located immediately in front of the "END" end-of-text identifier
  - the comment concerning a parameter block is not located immediately after the relevant block identifier.

  Parameter blocks enclosed between comment characters (#) in the default DB1 will also be lost.

- If, before storing a parameter block, you delete a parameter to which a default value has been assigned, the default value remains valid in the PLC.

  The next time the parameterization screen form is selected, the default value appears in the input field of the parameter.

3.4 COM DB1 Help and Error Handling Concept

COM DB1 supports you with an extensive help and error handling concept in programming DB1.

This Section gives you an overview of the following:

- All the help information which COM DB1 offers during parameterization
- All error messages which COM DB1 displays during programming of DB1

3.4.1 Help Concept

The COM DB1 help concept is based closely on the STEP 5 concept.

You can request help texts on the screen depending on the selected COM DB1 screen form and the current cursor position. COM DB1 provides three types of help:

Message line: Notes and error messages in the message line of the COM DB1 screen forms
Help screen forms: Help texts with explanations of the current COM DB1 screen form and function key assignments
Info window: Help texts with information on the input fields

Message line: Notes and error messages in the message line of COM DB1

COM DB1 informs you about the following in the message line of the COM DB1 screen forms (Figure 3-2):

- COM DB1 operator errors (e.g. "Invalid entry")
- Parameterization errors (Section 3.4.2 "Error Handling Concept")
- Currently executing COM DB1 functions (e.g. "DB1 is being loaded. Please wait...")
- Existence of a DB1 on a program file and/or in the PLC when changing from the Defaults screen form to the "Overview Table" screen form.

Help screen forms: Help texts with explanations of the current COM DB1 screen form and function key assignments

If you press the **<HELP> key** inside a COM DB1 screen form (Section 3.5), a help form appears on the screen with a short explanation of the selected screen form and the current function key assignments.

The old screen contents are deleted and the relevant help text is displayed.

If one screen is not sufficient, you can scroll to the next page using the <INSERT> or <1> keys.

Press the **<ESC> key** to exit the help screen form. The old screen contents are restored.

Example: Help screen form: Explanations of the current COM DB1 "Clock Parameters (CLP)" screen form and function key assignments.

```
Clock Parameters (CLP)                                    SIMATIC S5/COM DB1

  Parameter block for integral clock (CLP):

  You can parameterize the integral clock for
  - Clock and calendar functions (e.g. to configure a clock-time dependent
    control)
  - Prompt and alarm functions (e.g. to monitor the duration of a process)
  - Operating hours counter (e.g. to monitor inspection intervals)
  The memory space required is determined depending on the clock functions used.
  If DBs are used, COM DB1 checks the PLC or relevant file after the transfer to
  find out whether these DBs exist at all and have the required size. It
  generates these DBs if necessary. The PLC also starts up if they do not exist!

  <F3>    Opens select box with permissible entries
  <F7>    Provides information on the input field to which the cursor is positioned
  <F6>    Transfers the changes
  <COM> or <-:-> Editing a comment concerning the entire parameter block.
  <ESC> or <F8> Cancels the changes
  <ESC>   Closes the window

   F1      F2      F3      F4      F5      F6      F7      F8
                  Select                  Store    Info   Return
```

Figure 3-4.   Help Screen Form: Explanations of the Current COM DB1 "Clock Parameters" Screen Form and Function Key Assignments

Info window: Help texts with information on the input fields

You can request help information concerning the input fields of COM DB1 by pressing function key **<F7> "Info"** (if selectable) . Depending on the cursor position, all possible and permissible inputs are briefly described in an info window.

In contrast to the help screen forms, described above, for explaining function key assignments, each info window only overlaps part of the screen so the input field remains visible.

Only one info window can be opened at a time.

The info window must be closed before filling in the input field or positioning the cursor on the next input field. Press the **<ESC> key** to close the info window.

Example: Info window: information concerning the "Weekday" input field of the COM DB1 "Clock Parameters (CLP)" screen form

```
 Clock Parameters (CLP)                              SIMATIC S5/COM DB1

 Setting the prompter interval of maintenance unit 1

  ┌──────────────────────────────────────────────────────────────────┐
  │ Enter the abbreviation for the weekday:                          │
  │ Mo - Monday, Tu - Tuesday, We - Wednesday, Th - Thursday, Fr - Friday, │
  │ Sa - Saturday, Su - Sunday,XX                                    │
  │ If XX is entered, the clock continues with the current weekday.  │
  │                                                                  │
  │ <ESC>: Closes the window                                         │
  └──────────────────────────────────────────────────────────────────┘
  Weekday:          Date (dd mm yy):            Cl. time (hh mn ss):

  Prompting:              Clock mode:
  Weekday:          Date (dd mm):              Cl. time (hh mn ss):

  Set the operating hours counter (hhhhhh mn ss):

  Enable the operating hours counter:



   F1       F2       F3       F4       F5       F6       F7       F8

                   Select                            Store     Info    Return
```

Figure 3-5. Info Window: Information Concerning the "Weekday" Input Field of the COM DB1 "Clock Parameters (CLP)" Screen Form

3.4.2   Error Handling Concept

The COM DB1 error handling concept is based closely on the STEP 5 error handling concept. COM DB1 can detect errors and inform the user of them with the relevant messages on the screen.

COM DB1 reacts to the following errors:

>   Errors detected during loading or transferring of DB1
>   Errors during programming of DB1 (operator errors)

COM DB1 reacts to the above listed errors in following ways:
either
- With an error message
  Error messages are displayed as in STEP 5 in a shortened form in the **message line** on the screen (e.g. "Invalid value range").
or
- With a warning (safety prompt)
  Warnings are displayed in a plain-bordered **window** in the center of the screen (e.g.: "Do you want to discard the parameter assignment?").
  Safety prompts must be acknowledged with <ESC> or answered according to the prompt text with <ESC> for "No, or Abort" or <1> for "Yes".

Errors detected during loading or transferring of DB1

When loading DB1 from a program file or the PLC, and during transfer of DB1 to the program file or PLC, all parameters are checked for:

- Value range violations
- Parameter dependencies within blocks
- Parameter dependencies between blocks

If COM DB1 detects an **error** (e.g. "Gaps in input or output area or multiple assignments"), it automatically calls the "Overview Table" in which the parameter blocks concerned are labelled as "errored":

- In the "errored" block, the "genuine" parameterization errors are marked with a "**!**" in front of the input field.

- The system enters "*" in the input field in those cases where data for parameters in the "errored" block cannot be "interpreted" (this can only occur in a DB1 which has been programmed with the DB editor of the STEP 5 package).

Note _____

If you position the cursor on the erroneous ("!") parameter in the parameterization screen form, the relevant error message will appear in the message line.

Example: Marking erroneous parameters in the "Clock Parameters (CLP)" block after loading DB1. DB1 has been generated with the DB editor of the STEP 5 package.

1st error: "NB" was entered instead of "MB" for the position of the status word. (Typing error, unexpected entry).

2nd error: "AM" was entered instead of "PM" for the clock mode. (Wrong value range).

Figure 3-6.   Display of Erroneous Parameters in the Parameterization Screen Form

Errors during programming of DB1 (operator errors)

Impermissible user inputs are blocked by COM DB1 during programming:

- The input texts are checked by COM DB1 after the entry has been terminated with <↵>:
  The user is informed of syntax errors or value range violations with an **error message** e.g.
  "Invalid value range"). Erroneous parameters are indicated by a **"!"** in front of the input field.

- When the parameterization data is stored in DB1 with <F6> "Store", additional parameter
  dependencies within the block are checked:
  The user is informed of "unfulfilled" parameter dependencies with the **warning** "The parameter
  assignments cannot be stored since they still contain errors". After acknowledging with
  <ESC>, the erroneous parameter settings found in this way are indicated with a **"!"** in front of
  the input field.

Note
If you position the cursor on the erroneous (**"!"**) parameter in the parameterization screen form, the relevant error message will appear in the message line.

Note
Only after all parameters have been correctly entered can the parameter block be stored with <F6> "Store".

3.5   Key Assignments of the COM DB1 Editing Functions

In this section, we have listed all the keys and key combinations which you require for making entries in COM DB1 screen forms and for requesting help/error texts.

3.5.1   Key Assignments on the Programmer

The COM DB1 editing functions are assigned to the numeric keypad of the programmer keyboard or are implemented as special function keys.
In Figure 3-7, the keys on the programmer keyboard relevant for COM DB1 operation are represented in white.
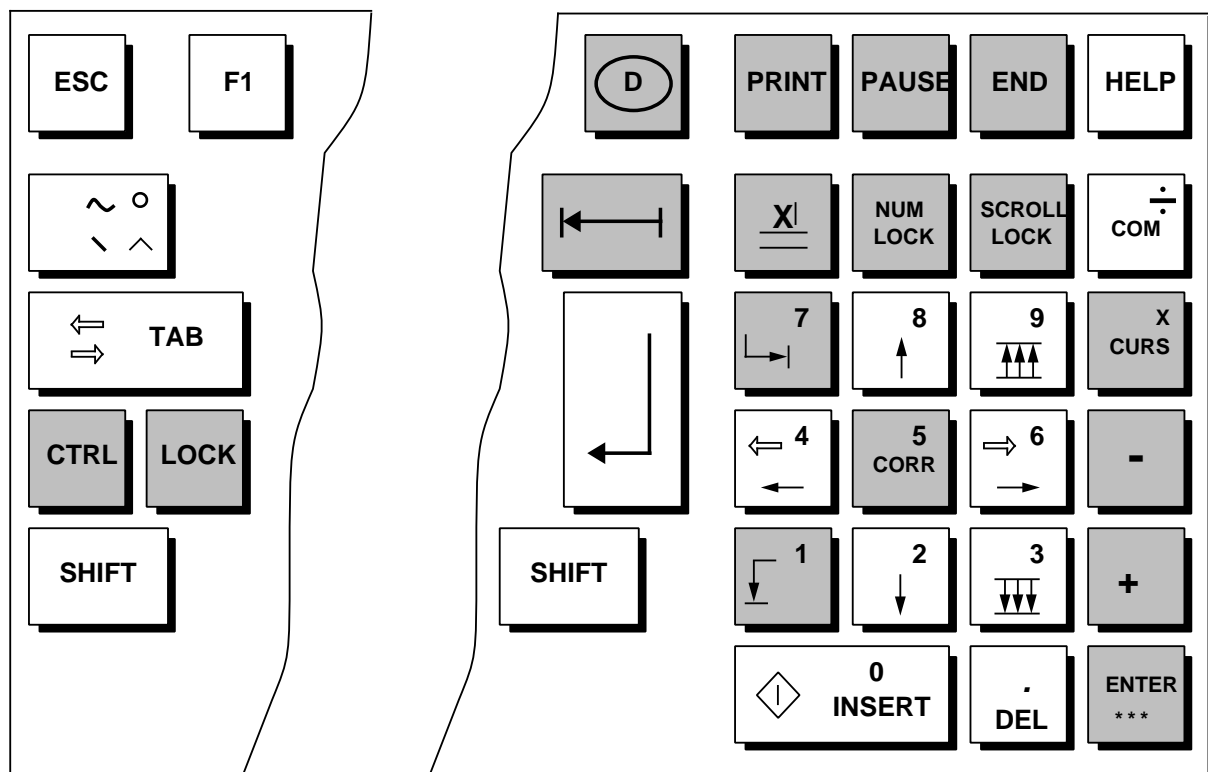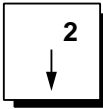
Figure 3-7.   Key Assignments of the COM DB1 Editing Functions

Entering comments:
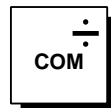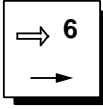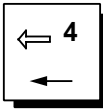
	: Comment key:
COM	- Press <COM> in the "Overview Table" screen form: you can then enter a comment concerning the entire DB1.
	- Press <COM> in the parameterization screen form: you can then enter a comment concerning the parameter block (Section 3.3).
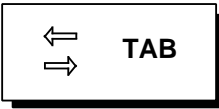
Cursor control:
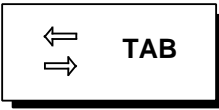
2 ↓	: Cursor down: - Position the cursor on the next input field. - Position the cursor on the next lower option in the select box.
8 ↑	: Cursor up: - Position the cursor on the previous input field. - Position the cursor on the next higher option in the select box.
⇒ **6** →	: Cursor to the right: - Move the cursor character-by-character to the right in the input field.
⇐ **4** ←	: Cursor to the left: - Move the cursor character-by-character to the left in the input field.
⇐ ⇒ **TAB**	: Cursor to the right: - Position the cursor on the next input field.
SHIFT + ⇐ ⇒ **TAB**	: SHIFT + cursor to the left: - Position the cursor on the previous input field.
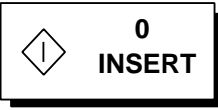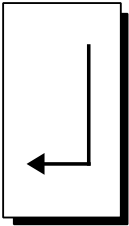
Delete function:

. **DEL**	: Delete key: - Delete character at current cursor position.

Insert function:

◇ **0 INSERT** : / ↵	: Insert/return key: The <INSERT> and return <┘> keys have the same meaning: - Exit input field **and** store the entry. - Exit select box **and** store the option at the current cursor position. - "Acknowledge" COM DB1 warning (safety prompt) (Section 3.4).

Special functions outside the numeric keypad:

HELP : Help key:
- Request information on the selected COM DB1 screen form and on the current function key assignments.

ESC : Escape key:
- Exit input field **without** storing the entry. The original contents are displayed.
- Exit select box **without** storing any of the options.
- "Ignore" COM DB1 warning (safety prompt) (Section 3.4).
- Exit COM DB1 screen form and enter higher-level COM DB1 screen form (same meaning as <F8> "Return").

9 : Page Up key:
- Page backward in the select box.

3 : Page Down key:
- Page forward in the select box.

Function key support:

The eight function keys <F1> to <F8> in the menu line of the selected COM DB1 screen form have been assigned specific meanings. The function keys <F3>, <F6>, <F7> and <F8> have the following meanings:

F3 : <F3> "Select":
- Open the select box for the input field at the current cursor position.

F6 : <F6> "Store":
- Store the parameterization data in the input fields in DB1 and change to the next higher COM DB1 screen form.

F7 : <F7> "Info":
- Request help text concerning input field at current cursor position.

F8 : <F8> "Return":
- Exit COM DB1 screen form and go to next higher COM DB1 screen form.

3.5.2 PC Key Assignments

The COM DB1 editing functions possible on the PC are assigned to the numeric keypad of the PC keyboard. However, some editing functions are initiated by keys and key combinations different to those used in programmer operation.

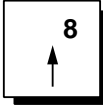The following pages show how to initiate all COM DB1 editing functions on the PC.

Entering comments:

÷ : - Press <Shift><5> in the "Overview Table" screen form:
  you can then enter comments concerning the entire DB1.
  - Press <Shift><5> in a parameterization screen form:
  you can then enter a comment concerning the parameter block (Section 3.3).

Cursor control:
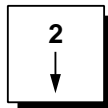
2 ↓ : Cursor down:
  - Position the cursor on the next input field.
  - Position the cursor on next lower option in the select box.
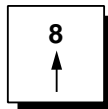
8 ↑ : Cursor up:
  - Position the cursor on the previous input field.
  - Position the cursor on the next higher option in the select box.

6 → : Cursor to the right:
  - Move the cursor character-by-character to the right in the input field.

4 ← : Cursor to the left:
  - Move the cursor character-by-character to the left in the input field.

Tab : Cursor to the right:
  - Position the cursor on the next input field.

Shift + Tab : SHIFT + cursor to the left:
  - Position the cursor on the previous input field.

Delete function:

·
Del
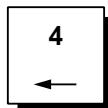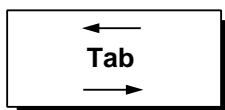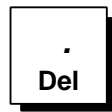
: Delete key:
 - Delete character at current cursor position.

Special functions outside the numeric keypad:

F12

: Help key:
 - Request information on the selected COM DB1 screen form and on the current function key assignments.

Esc
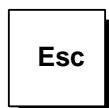
: Escape key:
 - Exit input field **without** storing the entry. The original contents are displayed.
 - Exit select box **without** storing any of the options.
 - "Ignore" COM DB1 warning (safety prompt)
 (Section 3.4).
 - Exit COM DB1 screen form and enter next higher COM DB1 screen form (same meaning as <F8> "Return").

9
Pg Up

: Page Up key:
 - Page backward in the select box.

3
Pg Dn

: Page Down key:
 - Page forward in the select box.

Function key support:

The eight function keys <F1> to <F8> in the menu line of the selected COM DB1 screen form have been assigned specific meanings. The function keys <F3>, <F6>, <F7> and <F8> have the following meanings:
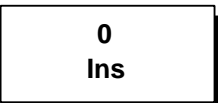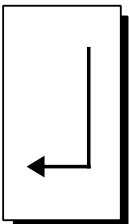
F3	: <F3> "Select": - Open the select box for the input field at the current cursor position.

F6	: <F6> "Store": - Store the parameterization data in the input fields in DB1 and change to the next higher COM DB1 screen form.

F7	: <F7> "Info": - Request help text concerning input field at current cursor position.

F8	: <F8> "Return": - Exit COM DB1 screen form and go to next higher COM DB1 screen form.

Insert function:

0 Ins	: /	: Ins/return key: The <Ins> and return <┘> keys have the same meaning: - Exit input field **and** store the entry. - Exit select box **and** store the option at the current cursor position. - "Acknowledge" COM DB1 warning (safety prompt) (Section 3.4).

4	**Example of a Complete DB1 Parameterization with COM DB1**	

4 Example of a Complete DB1 Parameterization with COM DB1

Using a concrete example, this Chapter shows you how to proceed when parameterizing with COM DB1.
This chapter is concerned with the handling of COM DB1 and not with the function to be parameterized in DB1. You will find an explanation of the function and its parameters in the relevant PLC manual.

You should read the example below and transfer the principle to your specific application.

The table below contains:

- All the steps required to parameterize a PLC;
- All the screen forms in which these steps are executed. (We have included the S5-95U with integral SINEC L2 interface specially for our example).

The individual steps will appear as subtitles in this Chapter.

Table 4-1. Overview of Procedure for Parameterizing a PLC with COM DB1
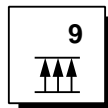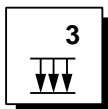
Steps to be Executed in the Following Order and ...	... the Screen Forms You Require	Section
1. Install COM DB1	**-**	2.3
2. Start COM DB1	**-**	2.4
3. Select language	"Select Language" screen form	4.1
4. Enter defaults	"Defaults" screen form	4.2
5. Switch PLC from RUN to STOP	"PLC Functions" screen form	4.3
6. Load Default DB1 from PLC; Enter comment concerning DB1; Select parameter block	"Loading DB1" screen form	4.4
7. Enter comment concerning parameter block	"SINEC L2 Overview Table" screen form	4.5
8. Edit parameters	"Basic Parameters" screen form "Standard Connection" screen form	4.6
9. Output DB1 to printer	"Printing DB1" screen form	4.7
10. Transfer DB1 to PLC	"Transferring DB1" screen form	4.8
11. Save DB1 to STEP 5 program file	"Transferring DB1" screen form	4.9
12. Switch PLC from STOP to RUN	"PLC Functions" screen form	4.10

Description of example task:

An S5-95U with integral SINEC L2 interface is to be parameterized. The S5-95U is to communicate with another PLC via the standard connection.
The standard connection is parameterized with COM DB1 as described below.
(The parameters and their arguments are taken from the DB1 parameterization example for the standard connection in the "SINEC L2 Interface of the S5-95U Programmable Controller" Manual.)

Prerequisites for the example:

- An S5-95U with SINEC L2 interface (Order No.: 6ES5 095-8MB12, Edition 01).
- A PG 710 II programmer plugged into the programmer port of the S5-95U.
- The bus connector must not be plugged into the SINEC L2 interface.
- The S5-95U must be in RUN.
- You have generated a program file "AG95L2ST.S5E" with the STEP 5 package.
- You have generated a printer file or footer file with the STEP 5 package.
- You have installed and started COM DB1 correctly on the PG 710 II (Chapter 2).

4.1   Selecting the Language

After starting COM DB1, the "Select Language" screen form appears. Use keys <F1> to <F5> to select the language in which COM DB1 is to appear on the screen.
    Press <F2> "English".
    (You can exit COM DB1 by pressing <F8> "Return" or the <ESC> key.)

```
                                                    SIMATIC S5/COM DB1



                                  COM DB1
                                  Version  x.y





    F1       F2       F3       F4       F5       F6       F7       F8

  deutsch  english  francais  espanol  italiano                    Return
```
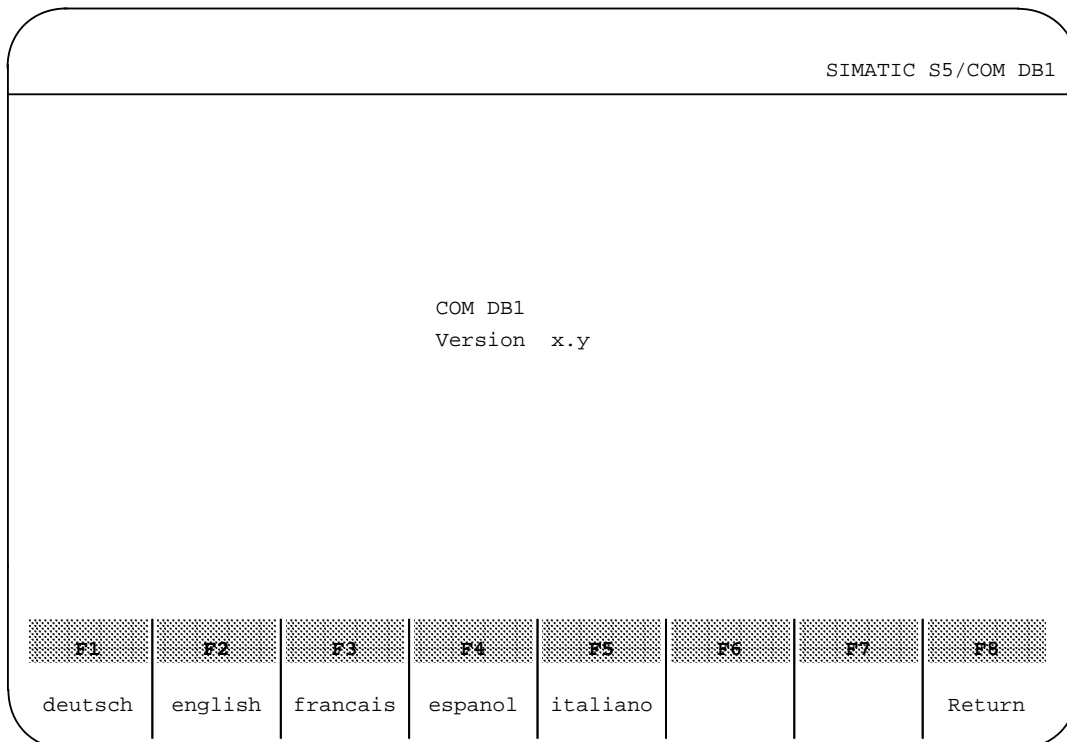
Figure 4-1.   COM DB1 "Select Language" Screen Form

4.2 Defining Defaults

You define the defaults for parameterization with COM DB1 in the "Defaults" screen form as described below.

- Defining the operating mode between COM DB1 and the CPU:
  After selecting the Defaults screen form, the cursor is positioned at the "On-line/Off-line:" input field.
  > Press <F3> "Select" to open the select box belonging to the "Online/Offline:" input field.
  > Press <↓> or <INSERT> to enter "Online" in the input field. "Online" appears in the input field.
  > Press <↓> or <INSERT> to position the cursor on the next input field.

- Defining the order number:
  > To define the order number, proceed exactly as you did for "Defining the operating mode between COM DB1 and the CPU". (You can position the cursor on either the line "095-8MB22" or "095-8MB02" in the select box.)

- Defining the PLC revision level:
  > Enter PLC revision level "01" via the keyboard and terminate the entry by pressing <↓> or <INSERT>. (You can abort the entry with <ESC>, i.e. the input field will be empty again.)

When you have entered all defaults, the screen form will look like this:

```
 Defaults                                              SIMATIC S5/COM DB1


    Online/Offline:      Online

    Order No.:         6ES5   095-8MB12
    PLC rev. level:    01

    Drive:                                Program file:        ST.S5D

    Drive:                                Printer file:        DR.INI

    Drive:                                Footer file:         F1.INI

    Drive:                                Output file:         LS.INI




     F1        F2        F3        F4        F5        F6        F7        F8
                       Select                        Store     Info     Return
```

Figure 4-2. COM DB1 "Defaults" Screen Form; Entering the Defaults

Store the entries by pressing <F6> "Store". The "Overview Table" screen form appears.

4.3 Switching the PLC from RUN to STOP

COM DB1 knows the possible parameter blocks and parameter settings in the default DB1 for the PLC entered in the "Defaults" screen form.

COM DB1 generates the following screen form for the S5-95U:

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│  Overview table                               SIMATIC S5/COM DB1  │
│                                                                   │
│░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░░│
│                                                                   │
│   ┌──────────────────────────────────────┬──────────────────────┐│
│   │  Permissible parameter blocks        │    Settings          ││
│   │                                      │                      ││
│   │ Onboard interrupt              (OBI) │ Parameterized (default)│
│   │ Onboard counter                (OBC) │ Parameterized (default)│
│   │ Onboard analog inputs          (OBA) │ Parameterized (default)│
│   │ SINEC L1                       (SL1) │ Not parameterized    ││
│   │ Timer function block           (TFB) │ Parameterized (default)│
│   │ Clock parameters               (CLP) │ Not parameterized    ││
│   │ System-dependent parameters    (SDP) │ Parameterized (default)│
│   │ SINEC L2                       (SL2) │ Not parameterized    ││
│   │ Error return                   (ERT) │ Not parameterized    ││
│   │                                      │                      ││
│   └──────────────────────────────────────┴──────────────────────┘│
│                                                                   │
│ ┌─────┬─────┬──────────┬───────┬────────┬────────┬──────────┬────┐│
│ │ F1  │ F2  │   F3     │  F4   │  F5    │  F6    │   F7     │ F8 ││
│ │ New │Load │ Transfer │ Print │ Delete │ Select │   PLC    │Return│
│ │ DB1 │ DB1 │   DB1    │  DB1  │ block  │ block  │ function │    ││
│ └─────┴─────┴──────────┴───────┴────────┴────────┴──────────┴────┘│
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-3.   COM DB1 "Overview Table" Screen Form; Selecting PLC Function

You can change the operating mode of the PLC in the "PLC Functions" screen form:
    Press <F7> "PLC function" for this purpose.

Change the operating mode by pressing <F2> "Run   Stop". The PLC is now in STOP.

```
 ╭──────────────────────────────────────────────────────────────────╮
 │                                                                    │
 │  PLC functions                                  SIMATIC S5/COM DB1 │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │                                                                    │
 │  ┌──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┐         │
 │  │  F1  │  F2  │  F3  │  F4  │  F5  │  F6  │  F7  │  F8  │         │
 │  │Compress│Run ->│Stop ->│      │      │      │      │Return│      │
 │  │  PLC │ Stop │ Run  │      │      │      │      │      │         │
 ╰──────────────────────────────────────────────────────────────────╯
```

Figure 4-4.   COM DB1 "PLC Functions" Screen Form;
Switching the PLC from RUN to STOP

Press <F8> "Return" to return to the "Overview Table" screen form.

4.4 Loading the Default DB1 from the PLC; Entering Comments Concerning DB1; Selecting the Parameter Block

The DB1 in the PLC is to be loaded into COM DB1 and modified.

- Loading DB1 from the PLC:
  Press <F2> "Load DB1" in the "Overview Table" screen form (Figure 4-3).
  The "Loading DB1" screen form appears as shown below:

```
  Loading DB1                                    SIMATIC S5/COM DB1




















     Drive:

     Program file:          T.S5D


     F1          F2         F3        F4        F5        F6        F7        F8
    Load        Load      Select                                  Info     Return
   from FD    from PLC
```

Figure 4-5.   COM DB1 "Overview Table" Screen Form; Selecting "Load from PLC"

Press <F2> "Load from PLC".
When loading is completed the parameter settings of DB1 in the PLC will be displayed in the Overview Table. Since you have not yet set any parameters in DB1 of the PLC, the default DB1 will be displayed (Figure 4-6).

- Entering a comment concerning DB1:

  If you want to enter a comment, press the <COM> key. The cursor will now be in the comment line of the "Overview Table" screen form.

  Enter the comment, consisting of up to 80 characters;

  for our example: "Parameterization of SINEC L2 interface (standard connection only)"

  (Figure 4-6).

  Press either <1> or <INSERT>. The cursor then appears in the first line of the "Permissible parameter blocks".

- Selecting the parameter block:

  To select the parameter block, position the cursor on the parameter block "SINEC L2" (cursor control Section 3.5).

```
 Overview table                                          SIMATIC S5/COM DB1

 Parameterization of SINEC L2 interface (standard connection only)

   ┌──────────────────────────────────────────┬──────────────────────────┐
   │  Permissible parameter blocks            │    Settings              │
   │                                          │                          │
   │  Onboard interrupt              (OBI)    │  Parameterized (default) │
   │  Onboard counter                (OBC)    │  Parameterized (default) │
   │  Onboard analog inputs          (OBA)    │  Parameterized (default) │
   │  SINEC L1                       (SL1)    │  Not parameterized       │
   │  Timer function block           (TFB)    │  Parameterized (default) │
   │  Clock parameters               (CLP)    │  Not parameterized       │
   │  System-dependent parameters    (SDP)    │  Parameterized (default) │
   │  SINEC L2                       (SL2)    │  Not parameterized       │
   │  Error return                   (ERT)    │  Not parameterized       │
   │                                          │                          │
   │                                          │                          │
   └──────────────────────────────────────────┴──────────────────────────┘

  ┌───────┬───────┬─────────┬───────┬────────┬────────┬──────────┬────────┐
  │  F1   │  F2   │   F3    │  F4   │   F5   │   F6   │    F7    │   F8   │
  │  New  │ Load  │Transfer │ Print │ Delete │ Select │   PLC    │ Return │
  │  DB1  │ DB1   │  DB1    │  DB1  │ block  │ block  │ function │        │
  └───────┴───────┴─────────┴───────┴────────┴────────┴──────────┴────────┘
```

Figure 4-6. COM DB1 "Overview Table" Screen Form; Selecting the Parameter Block

Press either <1> or <INSERT>. The "Overview table SINEC L2" screen form appears on the screen.

4.5 Entering Comments Concerning the Parameter Block

You can enter a comment concerning the SINEC L2 parameter block in the "Overview table SINEC L2" screen form.

>
> Press <COM>. The cursor is now in the comment line.
> Enter the comment consisting of up 80 characters.; for our example: "Parameterization of standard connection between station 2 and station 1".
> Press either <1> or <INSERT>. The cursor then appears in the line "Basic parameters".

```
┌──────────────────────────────────────────────────────────────────────────┐
│ Overview table SINEC L2                                    SIMATIC S5/COM   │
│                                                                            │
│ Parameterization of standard connection between station 2 and station 1    │
│   ┌────────────────────────────────────────┬─────────────────────────┐    │
│   │   Permissible parameter blocks          │        Settings         │    │
│   ├────────────────────────────────────────┼─────────────────────────┤    │
│   │ _Basic parameters                       │ Not parameterized       │    │
│   │  Standard connection                    │ Not parameterized       │    │
│   │  PLC-to-PLC link                        │ Not parameterized       │    │
│   │  Cyclic I/O-master                      │ Not parameterized       │    │
│   │  Cyclic I/O-slave                       │ Not parameterized       │    │
│   │  FMA services                           │ Not parameterized       │    │
│   │  Layer 2 services                       │ Not parameterized       │    │
│   │                                         │                         │    │
│   │                                         │                         │    │
│   │                                         │                         │    │
│   └────────────────────────────────────────┴─────────────────────────┘    │
│                                                                            │
│  F1      F2      F3      F4      F5       F6       F7       F8              │
│                                 Delete   Select             Return         │
│                                 block    block                             │
└──────────────────────────────────────────────────────────────────────────┘
```

**Figure 4-7.   COM DB1 "Overview Table SINEC L2" Screen Form;
Selecting the SINEC L2 Function**

4.6   Editing Parameters

In the "Overview table SINEC L2" screen form, you can select the SINEC L2 functions you want to parameterize.

Note _____

You must always define the basic parameters as the first step since these apply to all SINEC L2 functions. Only after this can you define the parameters for the special SINEC L2 functions.

Editing basic parameters

- Selecting "Basic parameters":
  After selection of the "Overview Table" screen form, the cursor is positioned at the "Basic parameters" line.
    Press either <F6> "Store", <↓> or <INSERT>. The "Basic parameters" screen form appears (Figure 4-8.).

- Defining the station number:
  After selecting the "Basic parameters" screen form, the cursor is positioned at the "Station number:" input field.
    Enter "2" via the keyboard.
    Store the entry by pressing <↓> or <INSERT>. The cursor is now at the next input field.
    (you can abort the entry with <ESC>, i.e. the input field will be empty again.)

- Defining station status:
    Press <F3> "Select" to open the select box belonging to the "Station status:" input field.
    The cursor is at the "ACTIV(E)" line of the select box.
    Enter "ACTIV(E)" in the input field by pressing <↓> or <INSERT>.
    Position the cursor on the next input field by pressing <↓> or <INSERT>.

- Enter all further arguments of the basic parameters as described above:
    - Either direct via the keyboard (you can call up a display of the value range of the arguments via <F7> "Info") or
    - Using the select box.
  Please see the screen form in Figure 4-8. for the parameter arguments.

When you have entered all basic parameter arguments, the screen form appears as shown below:

```
SINEC L2 basic parameters                              SIMATIC S5/COM DB1


   Own station address:                                  8

   Own station status:                                   ACTIVE

   Baud rate:                                            500

   Highest station address on bus:                       10

   Target rotation time:                                 5120

   Set-up time:                                          0

   Slot time:                                            400

   Shortest delay time:                                  12

   Longest delay time:                                   360



   F1        F2        F3        F4        F5        F6        F7        F8
                     Select                        Store     Info      Return
```

Figure 4-8.   COM DB1 "SINEC L2 Basic Parameters" Screen Form; Editing the Basic Parameters

Press <F6> "Store". The basic parameters are stored in DB1 and the "Overview table SINEC L2" screen form appears (Figure 4-7.). "Parameterized" appears in the "Basic parameters" line in the screen form.

(Press <ESC> or <F8> "Return" to abort the entry. The "Overview table SINEC L2" screen form then appears in its original form.)

Editing parameters for standard connection

• Select "Standard connection":
  The cursor is in the "Overview table SINEC L2" (Figure 4-7) screen form at the "Standard connection" line.
    Press either <F6> "Store", <1> or <INSERT>. The "SINEC L2 Standard Connection" screen form appears.

• Enter all parameter arguments as described for the basic parameters:
  - Either direct via the keyboard or
  - Using the select box.
  Please see the screen form in Figure 4-9 for the parameter arguments.

When you have entered all the arguments, the screen form appears as shown below:

```
┌─────────────────────────────────────────────────────────────────────┐
│                                                                       │
│  SINEC L2 standard connection                       SIMATIC S5/COM DB1│
│                                                                       │
│                                                                       │
│    Own station address 2     /  Station active                        │
│                                                                       │
│    Location of receive mailbox              DB   No.: 9   DW No.:  0   │
│                                                                       │
│    Location of receive coordination byte:   MB   No.: 61              │
│                                                                       │
│    Location of send mailbox:                DB   No.: 8   DW No.:  0   │
│                                                                       │
│    Location of send coordination byte:      MB   No.: 60              │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│   ┌─────┬─────┬─────┬─────┬─────┬─────┬─────┬─────┐                   │
│   │ F1  │ F2  │ F3  │ F4  │ F5  │ F6  │ F7  │ F8  │                   │
│   │     │     │Select│    │     │Store│Info │Return│                  │
│   └─────┴─────┴─────┴─────┴─────┴─────┴─────┴─────┘                   │
└─────────────────────────────────────────────────────────────────────┘
```

Figure 4-9.   COM DB1 "Standard Connection" Screen Form; Editing the Standard Connection Parameters

Press <F6> "Store". The parameters are stored in DB1 and the "Overview table SINEC L2" screen form appears (Figure 4-7). "Parameterized" appears in the "Standard connection" line in the screen form.
(Press <ESC> or <F8> "Return" to abort the entry. The "Overview table SINEC L2" screen form then appears in its original form.)

The parameterization of example DB1 is now complete.

4.7 Outputting DB1 to the Printer

The DB1 just generated is to be printed out.

Press <F8> "Return" twice to return to the "Overview table" screen form.

The "Overview table" screen form has changed; the SINEC L2 parameter block is displayed as parameterized:

```
Overview table                                    SIMATIC S5/COM DB1

Parameterization of SINEC L2 interface (standard connection only)

   Permissible parameter blocks                │       Settings

  Onboard interrupt                     (OBI)  │  Parameterized (default)
  Onboard counter                       (OBC)  │  Parameterized (default)
  Onboard analog inputs                 (OBA)  │  Parameterized (default)
  SINEC L1                              (SL1)  │  Not parameterized
  Timer function block                  (TFB)  │  Parameterized (default)
  Clock parameters                      (CLP)  │  Not parameterized
  System-dependent parameters           (SDP)  │  Parameterized (default)
  SINEC L2                              (SL2)  │  Parameterized
  Error return                          (ERT)  │  Not parameterized


     F1         F2         F3        F4        F5        F6        F7        F8
    New       Load     Transfer   Print     Delete    Select     PLC      Return
    DB1       DB1        DB1       DB1       block     block    function
```

Figure 4-10.   COM DB1 "Overview Table" Screen Form; Selecting "Print DB1"

Press <F4> "Print DB1".

The "Printing DB1" screen form appears as shown below:

```
╭──────────────────────────────────────────────────────────────────╮
│                                                                    │
│  Printing DB1                                    SIMATIC S5/COM DB1 │
│ ┌────────────────────────────────────────────────────────────────┐ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │                                                                  │ │
│ │ ░F1░  ░F2░  ░F3░  ░F4░  ░F5░  ░F6░  ░F7░  ░F8░                   │ │
│ │ Print  Print                                          Return     │ │
│ │ printer on FD                                                    │ │
│ └────────────────────────────────────────────────────────────────┘ │
╰──────────────────────────────────────────────────────────────────╯
```

Figure 4-11.   COM DB1 "Printing DB1" Screen Form; Selecting Print Printer

Press <F1> "Print printer".
This prints the "Overview table" screen form, the "Overview table SINEC L2" screen form and all parameterization forms of the SINEC L2 block. The number of the page currently being printed is displayed in the message line.

When printing has been completed, the "Overview table" screen form automatically appears. (If DB1 has not been printed, you will receive a relevant message.)

4.8   Transferring DB1 to the PLC

The DB1 just generated is to be transferred to the PLC.

    Press <F3> "Transfer DB1" in the "Overview table" screen form (Figure 4-10).

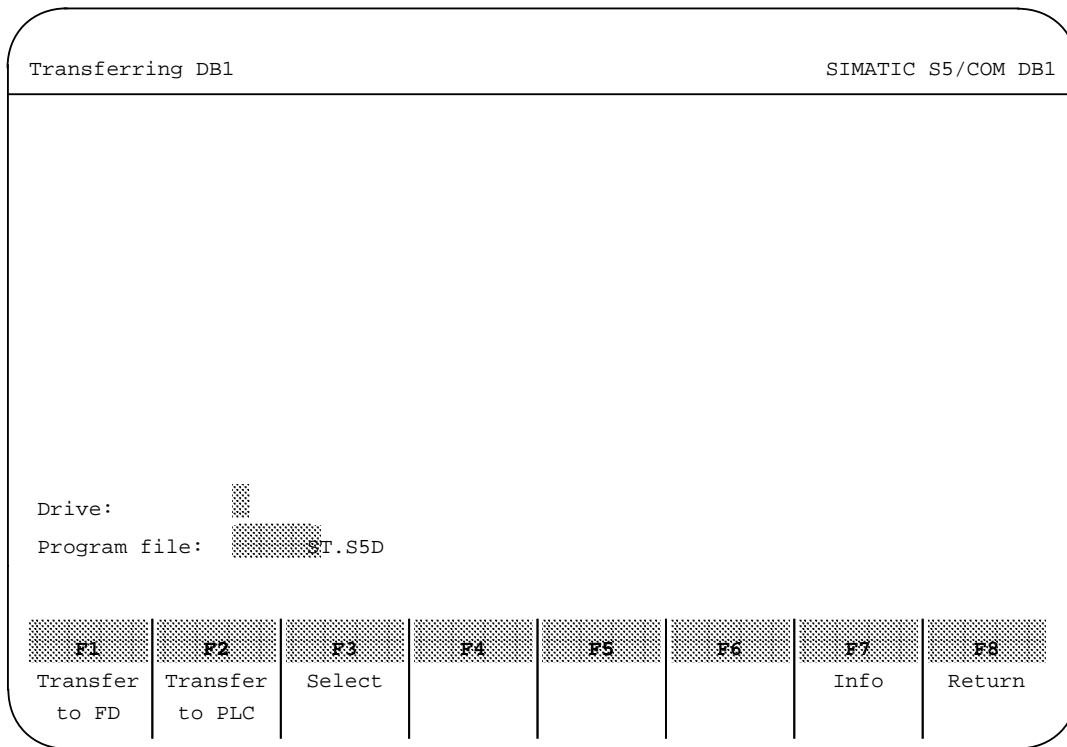The "Transferring DB1" screen form appears as shown below:

```
┌─────────────────────────────────────────────────────────────────┐
│                                                                   │
│  Transferring DB1                               SIMATIC S5/COM DB1 │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│                                                                   │
│   Drive:             ▒                                            │
│   Program file:    ▒▒▒▒▒ST.S5D                                    │
│                                                                   │
│  ┌──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┐       │
│  │  F1  │  F2  │  F3  │  F4  │  F5  │  F6  │  F7  │  F8  │       │
│  │Transfer│Transfer│Select│      │      │      │ Info │Return│   │
│  │ to FD │ to PLC│      │      │      │      │      │      │      │
│  └──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┘       │
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-12.   COM DB1 "Transferring DB1" Screen Form; Selecting "Transfer to PLC"

    Press <F2> "Transfer to PLC". The message line now informs you that DB1 is being
    transferred. The DB1 in the PLC is simultaneously overwritten.

When transfer of DB1 is complete, the "Overview Table" screen form automatically appears.
(If there are errors in DB1, you will get the relevant message and DB1 will not be transferred. The
erroneous parameter block will be indicated in the Overview screen form.

4.9   Saving DB1 to a STEP 5 Program File

The DB1 you have just transferred to the PLC should be saved/archived to a STEP 5 program file (or diskette).
For this purpose, you must specify the STEP 5 program file to which DB1 is to be stored in the "Transferring DB1" screen form. It was a condition for our example that you had already generated the STEP 5 program file "AG95L2ST.S5E" with the STEP 5 package.

    Press <F3> "Transfer DB1" in the "Overview table" screen form (Figure 4-10).
    The "Transferring DB1" screen form appears.
    Enter the STEP 5 program file and the drive (Figure 4-13).

```
╭──────────────────────────────────────────────────────────────────╮
│                                                                    │
│   Transferring DB1                            SIMATIC S5/COM DB1    │
│  ┌──────────────────────────────────────────────────────────────┐ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │                                                              │ │
│  │   Drive:            C                                        │ │
│  │                                                              │ │
│  │   Program file:     AG95L2ST.S5D                            │ │
│  │                                                              │ │
│  │ ┌──────┬──────┬──────┬──────┬──────┬──────┬──────┬──────┐  │ │
│  │ │  F1  │  F2  │  F3  │  F4  │  F5  │  F6  │  F7  │  F8  │  │ │
│  │ │Transfer│Transfer│Select│      │      │      │ Info │Return│ │
│  │ │ to FD │ to PLC │      │      │      │      │      │      │  │ │
│  │ └──────┴──────┴──────┴──────┴──────┴──────┴──────┴──────┘  │ │
╰──────────────────────────────────────────────────────────────────╯
```

Figure 4-13.   COM DB1 "Transferring DB1" Screen Form; Selecting "Transfer to FD"

    Press <F1> "Transfer to FD". The message line then informs you that DB1 is being transferred.

When transfer of DB1 is complete, the "Overview table" screen form automatically appears.
(If there are errors in DB1, you will get the relevant message and DB1 will not be transferred. The erroneous parameter block will be indicated in the Overview screen form.

4.10   Switching the PLC from STOP to RUN

You can change the operating mode of the PLC in the "PLC functions" screen form.

Press <F7> "PLC functions" in the "Overview table" screen form (Figure 4-10). The "PLC functions" screen form appears.

Change the operating mode by pressing <F3> "Stop   Run". You will be asked if the parameter settings in the PLC are to be updated.

To acknowledge, press <1> or <INSERT>. The parameter settings will be transferred to the operating system of the PLC.

(You can abort updating in the PLC with <ESC> or <F8> "Return".)

The parameter settings in the PLC have been updated and the PLC is in RUN.

```
 PLC functions                                      SIMATIC S5/COM DB1



















┌─────────┬─────────┬─────────┬─────────┬─────────┬─────────┬─────────┬─────────┐
│   F1    │   F2    │   F3    │   F4    │   F5    │   F6    │   F7    │   F8    │
│Compress │ Run ->  │ Stop -> │         │         │         │         │ Return  │
│  PLC    │  Stop   │   Run   │         │         │         │         │         │
```
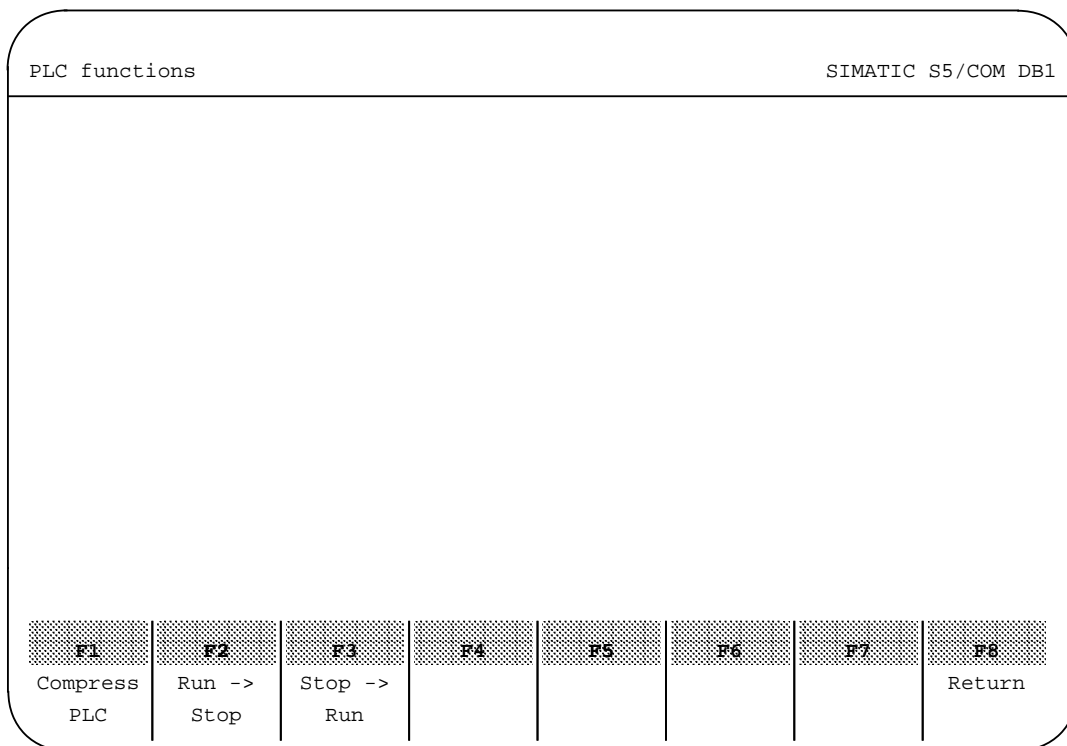
Figure 4-14.   COM DB1 "PLC Functions" Screen Form; Switching the PLC from STOP to RUN

Exit COM DB1 by pressing <F8> "Return" 4 times.

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