COMBIVERT **F6**

INSTRUCTIONS FOR USE | **INSTALLATION F6 OPERATOR**

Preface

The hardware and software described in this document are products of KEB. The information contained in this document is valid at the time of publishing. KEB reserves the right to update this document in response to misprints, mistakes or technical changes.

Signal words and symbols

Certain procedures within this document can cause safety hazards during the installation or operation of the device. Refer to the safety warnings in this document when performing these procedures. Safety signs are also located on the device where applicable. A safety warning is marked by one of the following warning signs:

⚠ **DANGER**	Dangerous situation, which will cause death or serious injury iif this safety warning is ignored.

⚠ **WARNING**	Dangerous situation, which may cause death or serious injury if this safety warning is ignored.

⚠ **CAUTION**	Dangerous situation, which may cause minor injury if this safety warning is ignored.

NOTICE	Situation, which can cause damage to property if this safety warning is ignored.

RESTRICTION

Used when the following statements depend on certain conditions or are only valid for certain ranges of values.

ℹ	Used for informational messages or recommended procedures.

More symbols

►   This arrow starts an action step.

• / -   Enumerations are marked with dots or indents.

=>   Cross reference to another chapter or another page.

Note to further documentation.
https://www.keb-automation.com/search

Laws and guidelines

KEB Automation KG confirms with the EC declaration of conformity and the CE mark on the device nameplate that it complies with the essential safety requirements.

The EC declaration of conformity can be downloaded on demand via our website.

Warranty and liability

The warranty and liability on design, material or workmanship for the acquired device is given in the general sales conditions.

Here you will find our general sales conditions.
https://www.keb-automation.com/terms-conditions

Further agreements or specifications require a written confirmation.

Support

Although multiple applications are referenced, not every case has been taking into account. If you require further information or if problems occur which are not referenced in the documentation, you can request the necessary information via the local KEB agency.

The use of our units in the target products is outside of our control and therefore lies exclusively in the area of responsibility of the customer.

The information contained in the technical documentation, as well as any user-specific advice in spoken and written and through tests, are made to best of our knowledge and information about the intended use. However, they are regarded as being only informal and changes are expressly reserved, in particular due to technical changes. This also applies to any violation of industrial property rights of a third-party. Selection of our units in view of their suitability for the intended use must be done generally by the user.

Tests can only be done within the intended end use of the product (application) by the customer. They must be repeated, even if only parts of hardware, software or the unit adjustment are modified.

Copyright

The customer may use the instructions for use as well as further documents or parts from it for internal purposes. Copyrights are with KEB and remain valid in its entirety.

This KEB product or parts thereof may contain third-party software, including free and/or open source software. If applicable, the license terms of this software are contained in the instructions for use. The instructions for use are already available to you, can be downloaded free of charge from the KEB website or can be requested from the respective KEB contact person.

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1 Basic Safety Instructions

The products are designed and constructed in accordance with state-of-the-art techno-logy and the recognized safety rules and regulations. However, the use of such devices may cause functional hazards for life and limb of the user or third parties, or damages to the system and other material property.

The following safety instructions have been created by the manufacturer for the area of electric drive technology. They can be supplemented by local, country- or application-specific safety instructions. This list is not exhaustive. Violation of the safety instructions by the customer, user or other third party leads to the loss of all resulting claims against the manufacturer.

NOTICE	**Hazards and risks through ignorance!**
	► Read the instructions for use!
	► Observe the safety and warning instructions!
	► If anything is unclear, please contact KEB Automation KG!

1.1 Target group

This instruction manual is determined exclusively for electrical personnel. Electrical personnel for the purpose of this instruction manual must have the following qualifications:

• Knowledge and understanding of the safety instructions.
• Skills for installation and assembly.
• Start-up and operation of the product.
• Understanding of the function in the used machine.
• Detection of hazards and risks of the electrical drive technology.
• Knowledge of *DIN IEC 60364-5-54.*
• Knowledge of national safety regulations.

1.2 Validity of this manual

This manual describes the operator of the COMBIVERT F6.
The manual
• contains only supplementary safety instructions.
• is only valid in connection with the power unit manual of COMBIVERT F6.

1.3 Electrical connection

⚠ DANGER	**Voltage at the terminals and in the device!**

Danger to life due to electric shock !

► For any work on the unit switch off the supply voltage and secure it against switching on.

► Wait until the drive has stopped in order, that perhaps regenerative energy can be generated.

► Wait untill the DC-Link capacitors are discharged (5 minutes). Verify by measuring the DC voltage at the terminals.

► Never bridge upstream protective devices (also not for test purposes).

For a trouble-free and safe operation, please pay attention to the following instructions:

- The electrical installation shall be carried out in accordance with the relevant requirements.
- Cable cross-sections and fuses must be dimensioned by the user accordly to the specified minimum / maximum values for the operation.
- Within systems or machines the person installing electrical wiring must ensure that on existing or new wired safe ELV circuits the EN requirement for safe insulation is still met!
- For drive converters that are not isolated from the supply circuit (in accordance with *EN 61800-5-1*) all control lines must be included in other protective measures (e.g. double insulation or shielded, earthed and insulated).
- When using components without isolated inputs/outputs, it is necessary that equipotential bonding exists between the components to be connected (e.g. by the equipotential line). Disregard can cause destruction of the components by equalizing currents.

1.4 Start-up and operation

The start-up (i.e. for the specified application) is forbidden until it is determined that the installation complies with the machine directive; account is to be taken of *EN 60204-1*.
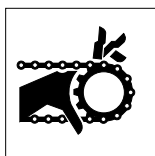
⚠ WARNING	**Software protection and programming!**

Hazards caused by unintentional behavior of the drive!

► Check especially during initial start-up or replacement of the drive controller if parameterization is compatible to application.

► Securing a unit solely with software-supported functions is not sufficient. It is imperative to install external protective measures (e.g. limit switch) that are independent of the drive controller.

► Secure motors against automatic restart.

2 Product description

The device series F6 is a series of single axis drive controllers. These devices are equipped with a diagnostic interface (description see F6 control boards). The F6 operators can be connected to this interface.

These operators can perform the following tasks:

- Providing a user surface (keyboard and display)
- Providing a diagnostic interface (USB or Ethernet)

The operators can not perform the following tasks:

- Providing of interfaces for permanent installation (fieldbuses / IO / etc.)

Information about the F6-A control boards can be found here.
www.keb.de/fileadmin/media/Manuals/dr/ma_dr_f6-cu-a-inst-20118593_en.pdf

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Information about the F6-K control boards can be found here.
www.keb.de/fileadmin/media/Manuals/dr/ma_dr_f6-cu-k-inst-20144795_en.pdf

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Information about the F6-P control boards can be found here.
www.keb.de/fileadmin/media/Manuals/dr/ma_dr_f6-cu-p-inst-20182705_en.pdf

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2.1 Intended use

The COMBIVERT serves exclusively for the control and regulation of three-phase motors. It is intended for the installation into electrical systems or machines.

Technical data and information for connection conditions shall be taken from the type plate and from the instruction manual and must be strictly observed.

The used semiconductors and components of the KEB Automation KG are developed and dimensioned for the use in industrial products.

Restriction

If the product is used in machines, which work under exceptional conditions or if essential functions, life-supporting measures or an extraordinary safety step must be fulfilled, the necessary reliability and security must be ensured by the machine builder.

2.1.1 Residual risks

Despite intended use, the drive controller can reach unexpected operating conditions in case of error, with wrong parameterisation, by faulty connection or non-professional interventions and repairs.

This can be:

- wrong direction of rotation
- motor speed too high
- motor is running into limitation
- motor can be under voltage even in standstill
- automatic start

2.2 Unintended use

The operation of other electric consumers is prohibited and can lead to the destruction of the device. The operation of our products outside the indicated limit values of the technical data leads to the loss of any liability claims.

2.3 Order data

Material number	Version
00F6P00-1000	Operator without interface
00F6P00-2000	Operator with Ethernet interface
00F6P00-3000	Operator with USB interface
Table 1: Order data	

3 Description of the operator

Legend			
①	Locking lever	⑤	Nameplate
②	LC display 160 x 160 pixel, 32 levels of grey	⑥	Version without interface
③	Control panel	⑦	Version with USB interface (USB-B)
④	X6A: Interface to the drive controller	⑧	Version with Ethernet interface

Figure 1:   Description of the operator

3.1 Control card block incl. operator

| *Figure 2:* | *Control card block incl. operator (front panel)* |

3.2 Operating conditions

The description of the operating conditions can be found in the instructions for use of the used COMBIVERT F6 drive controller.

NOTICE	**Avoidance of faulty shutdowns**

When the operator is plugged into an operational device (supply voltage and 24 V voltage switched on), the message "42 exception state: ERROR power unit SACB comm." can be displayed.

The error is reset by switching the 24 V voltage of the drive controller off and on again.

This behaviour can occur for devices of the F6 series with housing 6, 7, 8 and 9. From the revision levels listed in the table, an operator can be plugged in without regard to the operating state.

Series	Housing	Revision [1]
COMBIVERT F6	6	2K
	7	2V
	8	1K
	9	0P
Table 2: Revision levels of the housings		

[1]   *The information on the revision level can be found on the nameplate*

4 Interfaces

4.1 Operator interface

The interface fulfills the following functions:

• Communication with the F6 device (protocol DIN 66019 II)
• Voltage supply of the operator

A combined RS485 interface is used as interface, which is provided as 9-pole D-Sub plug connector.
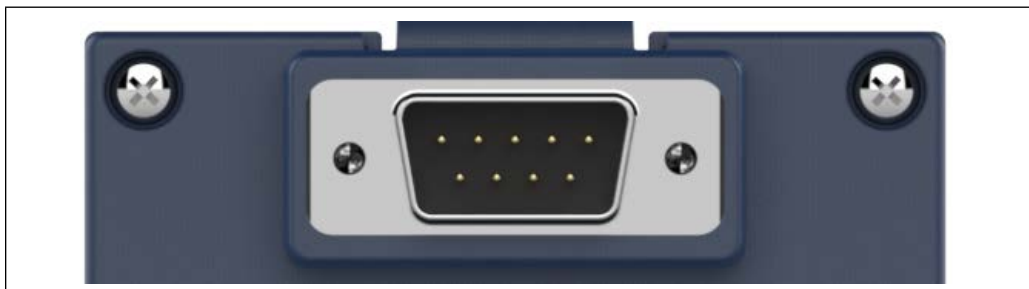
| Figure 3: | D-Sub 9-pole |

4.1.1 Remote control

| **NOTICE** | **Malfunctions in case of own manufacture!** |

► When manufacturing an extension cable yourself, the assignment must be made without pins 1, 2 and 3.

► Connections of pins 4, 5, 6, 7, 8, 9 and the shield are sufficient.

► The maximum length is 10 meters (depending on the cable cross-section).

4.2 Diagnostic interfaces

4.2.1 Ethernet interface

Figure 4:   Ethernet interface

The Ethernet interface emulates the diagnostic interface on the F6 device. DIN 66019 II is used as protocol via TCP or UDP on port 8000 and KebFtp on port 8002. Additionally it can be accessed to parameters / objects of the operator. The operator responds to all node addresses.

4.2.2 USB interface
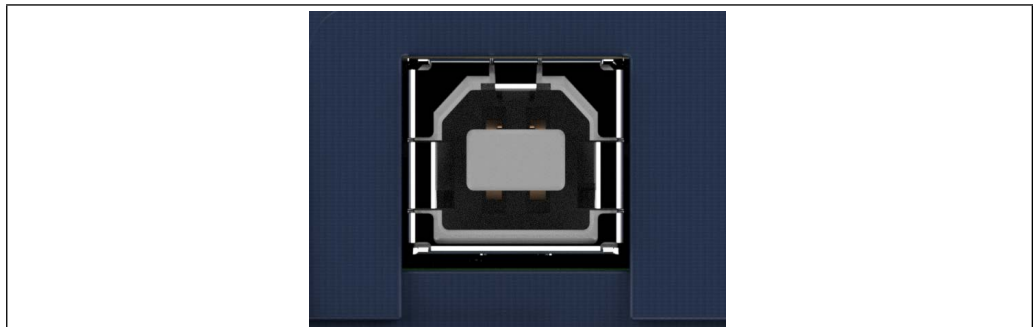
Figure 5:   USB interface

The DIN 66019 II protocol transmitted via USB is output by the operator on the serial interface. The baud rate does not correspond to the baud rate set in COMBIVIS. The operator and the control board check for the fastest possible baud rate. Additionally it can be accessed to parameters / objects of the operator. The USB interface is electrically isolated.The operator responds to all node addresses.

5 Assembly of the operator

Exemplary assembly on a COMBIVERT F6 housing 2.

► Loosen the blind cover by pressing the locking lever and remove it.

Figure 6:   Remove the blind cover

► Attach the F6 operator at the lower edge and tilt it into the cutout.

► Engage the locking lever.

Figure 7:   Attach the operator

6 Operation of the operator

6.1 Control elements
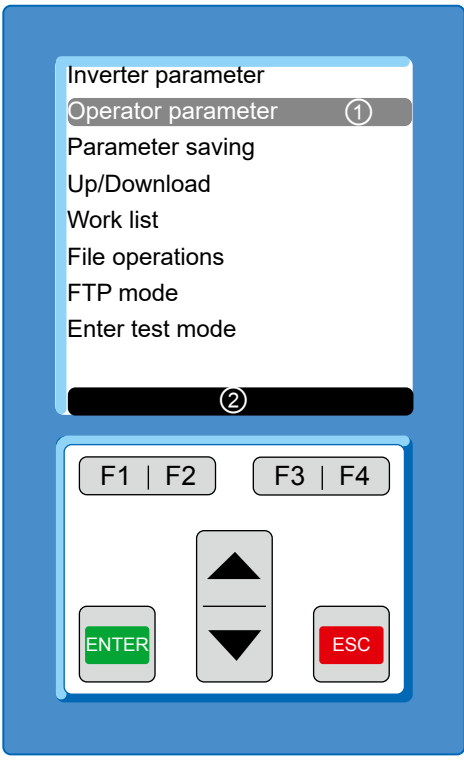
	Name	Function
	①	Menu bar
	②	Function bar
	F1	Function key 1
	F2	Function key 2
	F3	Function key 3
	F4	Function key 4
	▲	Menu bar to top or increase parameter value "Up"
	▼	Menu bar to bottom or decrease parameter value "Down"
	ENTER	Select / confirm
	ESC	Return to the next menu level up

Inverter parameter
Operator parameter ①
Parameter saving
Up/Download
Work list
File operations
FTP mode
Enter test mode
②
F1 | F2   F3 | F4
ENTER   ESC

Figure 8: Control elements

6.1.1 Description of the control elements

6.1.1.1 Menu bar

The menu bar displays the actual selection in the menu. It can be shifted with the keys ▲ and ▼. Press ENTER to change to the subordinate operating level, and ESC to change back to the next higher operating level.

6.1.1.2 Function keys and function bar

The function keys F1...F4 are variable assigned depending on the menu item. The function bar displays the actual assignment of the function keys F1...F4.

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6.2 Initial start-up

6.2.1 Switching on

The operator is supplied by the drive controller. The operator switches on and off with the drive controller. After switching on the operator searches automatically for the connected drive controller, also in case of communication failure to the drive controller. The actual checked node address is displayed on the bottom line in the start image and main menu. This node number can also be read out in the operator parameter OS13.

When accessing via the Ethernet or USB interface, the used node address is optionally, i.e. the operator responds to all node addresses.

Inverter parameter Operator parameter Parameter saving Up/Download Work list File operations FTP mode Enter test mode	The main menu is the uppermost menu level. With the keys ▲ and ▼ you can select the desired submenu. Press ENTER to jump to the selected submenu.
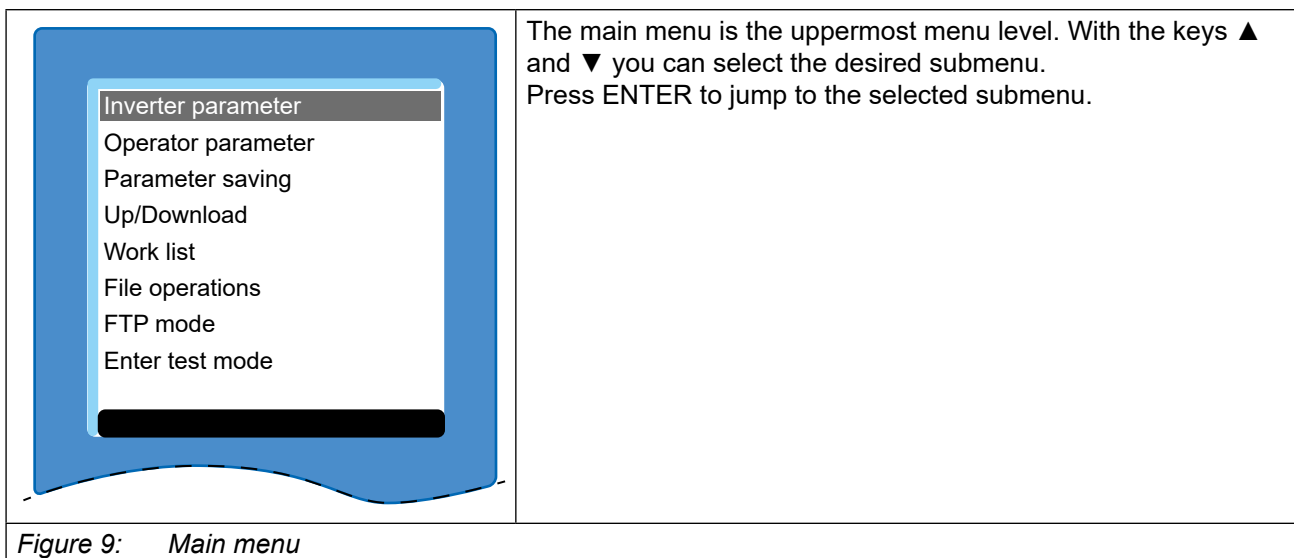
Figure 9:   Main menu

6.2.2 Required files

The operator requires the following files in its flash memory for correct operation:

File	Feature
language_f6.dat	Contains the operator texts for the operator in all languages.
paras.blb	Contains the parameter descriptions of all F6 operators as well as some F6 drive controllers.
xxxxx.blb	Files to install additional drive controller types. Can be read out directly by some drive controllers.

Table 3:   Operator files

The information required for correct operation is normally read out automatically from the drive controller by the operator.

If any of the files listed are missing for any reason, please contact KEB.

For independent installation of the files => *FTP mode.*

6.3 Non-changeable parameters

ℹ️ The parameter groups are dependent on the drive controller type.


```
OS Operator system
Fb Fieldbus
Fl flash file system
Db Debugging




Menu   CList    Top Bottom
```

F1 | F2   F3 | F4

ENTER

→

←

ESC

```
OS04 Language ▲
[ ] Deutsch
OS05 Contrast
[ ] 14
OS06 Font size
[ ] 2.13 pixel
OS07 Backlight mode    _
[ ] Auto
OS08 Software date
[ ] 2015.1201
OS09 Serial number      ▼
           DezHex   Top  Bottom
```

F1 | F2   F3 | F4

ENTER

ESC

```
OS08 2182h
Software date


      2016.0323




         DezHex
```

F1 | F2   F3 | F4

↓ **ENTER**

For non-changeable parameters:
Only ESC possible!
→ Parameter non-changeable!

Changeable parameters

Figure 10:   Non-changeable parameters

6.4 Changeable parameters

6.4.1 Changing with "Up" and "Down"

```
┌─────────────────────────────────────────────────────────┐
│                    OS03 Startup mode        ▲            │
│                    [ ] 0                                  │
│                    OS04 Language                          │
│                    [ ] German               _            │
│                    OS05 Contrast                          │
│                    [ ] 14                                 │
│                    OS06 Font size                         │
│                    [ ] 2:13 pixel                         │
│                    OS07 Backlight mode                    │
│                    [ ] Auto                               │
│                    OS08 Software date       ▼            │
│                         DezHex   Top  Bottom             │
│                                                          │
│                    F1 | F2    F3 | F4                    │
│                    ESC   ↑ ↓   ENTER                     │
│                                                          │
│                    OS05 2381h                            │
│                    Contrast                              │
│                          14              ←──────┐        │
│                                                 │        │
│                         DezHex                  │        │
│                                           Parameter value│
│                    F1 | F2    F3 | F4     Memory         │
│                    ESC   ↑ ↓   ENTER                     │
│                                               ↑ ENTER    │
│                    OS05 2381h                            │
│         F4         Contrast                              │
│  Numeric    ←──        14          ──→   Inrease or      │
│  input                                   decrease        │
│                                          parameter value │
│                         DecHex    Num    with "Up" and   │
│                                          "Down"          │
│                    F1 | F2    F3 | F4                    │
└─────────────────────────────────────────────────────────┘
```
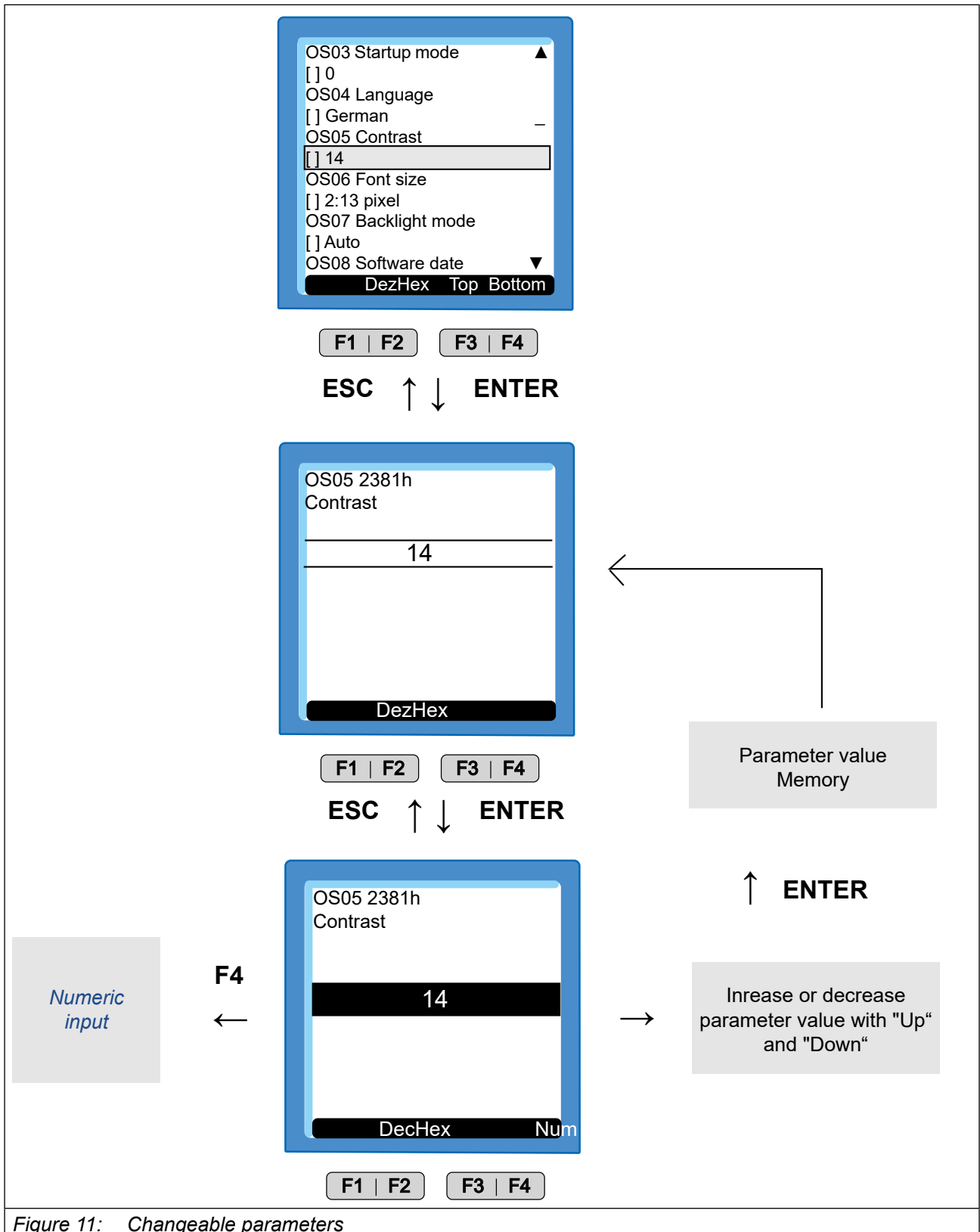
Figure 11:   Changeable parameters

6.4.2 Selection of subindices

Selection of a parameter with subindices

recognizable by [C] (C = Count)

dr00 motor type
[ ] 0: asynchron. motor (ASM) _
dr01 motor part number
[C] 101
dr02 motordata state
[ ] 00h
dr03 rated current
[ ] 1A
dr04 rated speed
[ ] 0.000 1/min
dr05 rated voltage ▼
Sub DezHex Top Bottom

F1 | F2   F3 | F4

F1 ↓

Open the subindices

dr00 motor type
[ ] 0: asynchron. motor (ASM) _
dr01 motor part number
[1] 101
[2] 201
[3] 301
[4] 401
[5] 501
[6] 601
[7] 701
[8] 801 ▼
Sub DezHex Top Bottom

F1 | F2   F3 | F4

F1 ↓

Closing the subindices

dr00 motor type
[ ] 0: asynchron. motor (ASM) _
dr01 motor part number
[C] 101
dr02 motordata state
[ ] 00h
dr03 rated current
[ ] 1A
dr04 rated speed
[ ] 0.000 1/min
dr05 rated voltage ▼
Sub DezHex Top Bottom

F1 | F2   F3 | F4

Figure 12:   Selection of subindices

6.4.3 Numeric input

F1	F2	F3	F4
The sign is changed	Removes the digit with the smallest value.	A point and a further digit are inserted. The digit can be changed with "UP" and "Down". ⓘ Only the first comma is respected!	Adds a digit at the end. The digit can be changed with "UP" and "Down".
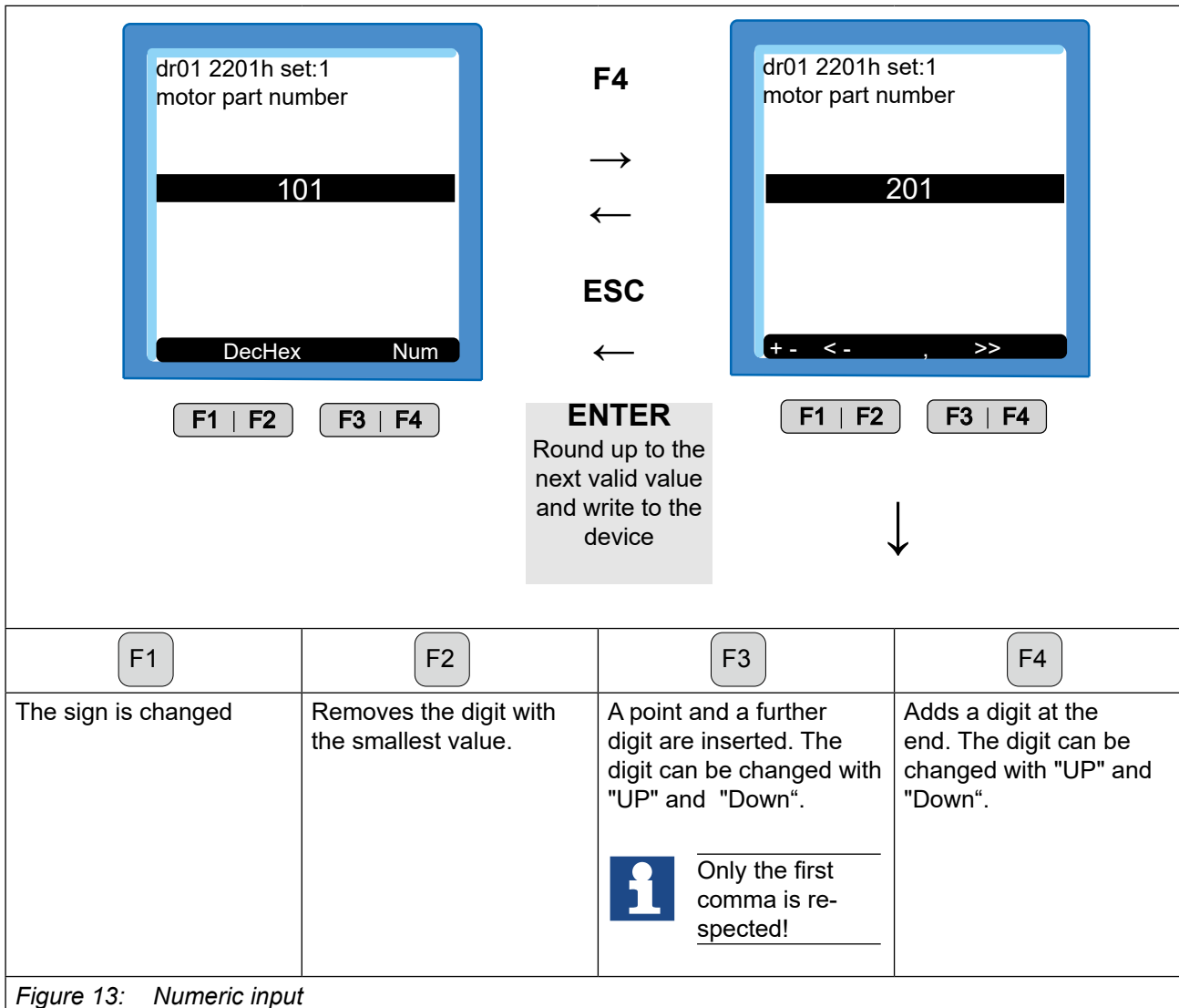
Figure 13:   Numeric input

6.5 Abbreviations in the function toolbar

Abbreviation	Meaning
Menu	Jumps to the main menu.
CList	Generate a full backup with free selectable name.
Up	Scrolls up in the menu.
Down	Scrolls down in the menu.
DezHex	Conversion of numeric values from decimal to hexadecimal.
Num	Changes to the numerical input.
Sub	Displays additional subindices.
+ -	Changes the sign to + or -.
<-	The digit with the lowest value is removed.
,	Adds a comma and another digit.
>>	Adds another digit at the end.

Table 4:   Abbreviations in the function toolbar

6.6 Inverter parameters

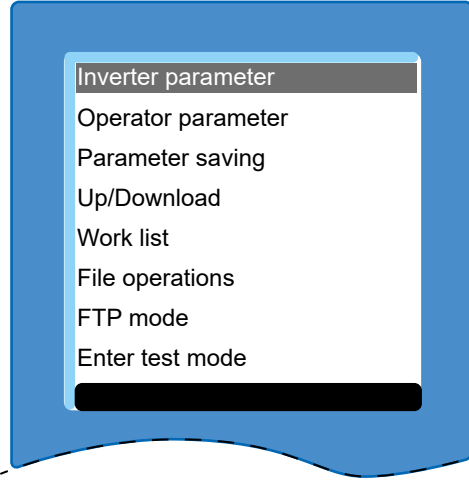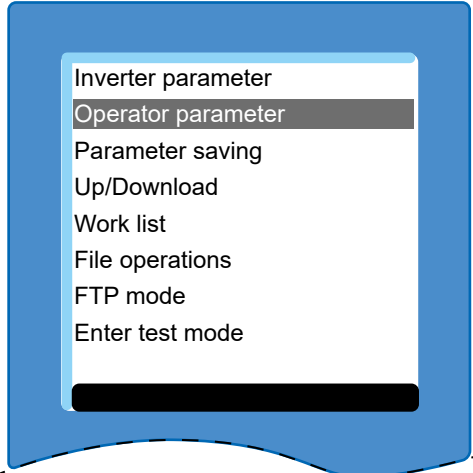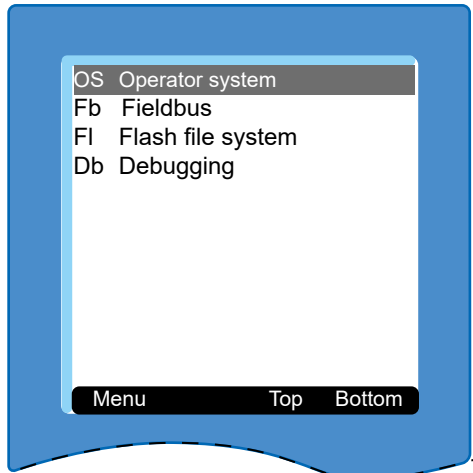|	
Inverter parameter Operator parameter Parameter saving Up/Download Work list File operations FTP mode Enter test mode	The menu item inverter parameter includes all available drive controller parameters on the control board. They are function-related divided into groups. They are displayed on the operator via the internal bus. The description of the drive controller parameters can be taken from the programming manual F6. For the display of the drive controller parameters, the operator requires the appropriate configuration file, which must be stored as *.blb file in the flash. Alternatively, a similar type can be manually selected from paras.blb.

Figure 14:   Inverter parameters

Is used when the result will be better, more economic or trouble-free by following these procedures. Further information in the download area of *www.keb.de* under the search term "*F6 Programming manual*".

6.7 Operator parameters

	The operator parameters display the parameter groups of the operator. Select the operator parameter with the keys ▲ and ▼ and confirm with ENTER.
Figure 15: Operator parameters	

	The operator parameters are divided into four groups: • OS - operator system parameters; Display and setting of the basic settings • Fb - Fieldbus parameters (only Ethernet); Display of the fieldbus parameters • Fl - Flash file system; Display of the flash-memory usage • Db - Debugging; Special debugging parameters for the manufacturer test Select the corresponding parameter group with the keys ▲ and ▼. ENTER switches to the selected submenu.
Figure 16: Operator parameter groups	

6.7.1 Operator system parameters (OS)

> ℹ️ Only the meanings of the parameter values are described in the following. Value range, data length and data type; Access mode and the default values can be taken from COMBIVIS.

OS00	Operator type	Parameter address	0x0180
Value	Meaning		
e.g. 12700	Display of the operator type (configuration number) • 12710 : F6 Ethernet • 12700 : F6 default + USB		

OS01	Password	Parameter address	0x2181
Value	Meaning		
-1…-9	Displays the actual password level of the operator, independent of the drive controller. Is used to enter the operator password level and is also the actual file level: • 550 = user read-only, file level = 5 • 660 = user read/write, file level = 6 • Supervisor, file level = 7		

OS02	FTP mode	Parameter address	0x2386
Value	Meaning		
0...1	Activation of the FTP mode. The FTP mode can also be started via the main menu. • 0: Inactive • 1: Active		

OS03	Startup mode	Parameter address	0x2387
Value	Meaning		
0…8	The startup mode determines the display during switch on. • 0: Main menu • 1: Inverter parameter • 2: Operator parameter • 3: Parameter saving • 4: Download mode • 5: Worklist mode • 6: File operations • 7: FTP mode • 8: Test mode		

OS04	Language	Parameter address	0x2384
Value	Meaning		
0…7	Use the keys ▲ and ▼ to choose one of the following languages: • 0: English • 1: German • 2: American • 3: Francais • 4: Italiano • 5: Russian • 6: Espanõl • 7: Custom ENTER selects the desired language and returns to the submenu.		

OS05	Contrast	Parameter address	0x2381
Value	Meaning		
-50…50	Sets the contrast of the LCD display. Press ENTER to change into the input mode in order to change the parameter value. Use the keys ▲ and ▼ to adjust the contrast in a range of -50…50.		

OS06	Define font size	Parameter address	0x2382
Value	Meaning		
0…4	The font size determines the complete menu view in the display. Press ENTER to change into the input mode in order to change the parameter value. Use the keys ▲ and ▼ to choose one of the following font sizes: • 8, 10, 13, 16, 24 pixel ENTER selects the desired font size.		

OS07	Define font size 2	Parameter address	0x2383
Value	Meaning		
0…4	Determines the font size of the parameter values.		

OS08	Backlight mode	Parameter address	0x2385
Value	Meaning		
0…2	The menu item determines the behavior of the backlight of the LC display. Press ENTER to change into the input mode in order to change the parameter value. Use the keys ▲ and ▼ to choose one of the following adjustments: • 0: off → generally off • 1: on → generally on • 2: Automatically → on when pressing a key; off after 30 seconds if no key is pressed		

OS09	Software date	Parameter address	0x2182
Value	Meaning		
0.0000… 9999.1231	Software date of the operator. Display of the year before the point, month and day behind. 2014.0513 means 13.05.2014.		

OS10	Software version	Parameter address	0x2184
Value	Meaning		
	Displays the software version of the operator.		

OS11	Serial number	Parameter address	0x2183
Value	Meaning		
	Displays the serial number of the operator.		

OS12	Parameter reset	Parameter address	0x2388
Value	Meaning		
1	• 1: Resets all operator parameter to factory setting.		

OS13	Node address	Parameter address	0x2380
Value	Meaning		
0…239	Displays the actual drive controller node address.		

6.7.2 Fieldbus parameters (Fb)

Fb00	MAC address	Parameter address	0x2280
Value	Meaning		
	The MAC address (Media Access Control) is formed of 6 byte. Only the lowest 4 bytes are displayed here "FAxxxxxx". This address is assigned by the manufacturer and cannot be changed.		

Fb01	IP address	Parameter address	0x2280
Value	Meaning		
	The IP address consists of 4 bytes and is the clear identification of one Internet participant. In case of doubt the network administrator gives the address to be adjusted.		

Fb02	Active IP address	Parameter address	0x2282
Value	Meaning		
	Displays the value of the currently used IP address.		

Fb05	IP error counter	Parameter address	0x2285
Value	Meaning		
	Serves for the diagnosis of the IP protocol stack.		

Fb06	TCP connections	Parameter address	0x2286
Value	Meaning		
	This parameter displays the number of active TCP/IP connections.		

Fb07	UDP connections	Parameter address	0x2287
Value	Meaning		
	This parameter displays the number of active UDP connections.		

Fb09	Data port password	Parameter address	0x2289
Value	Meaning		
0…2147483647	This parameter defines the write protection password for the access via port 8000. If the password is active first this password must be entered again for a write access. Error message "operation not possible" is displayed in case of locked data port write access. Value 0 switches off the write protection password (only possible if the active password is correct entered). Read: • -1: Inactive • -2: Active Write: • 0: Delete password • > 0: Password set / enter ℹ️ If for 30 seconds there is no communication with the operator, the password must be entered again.		

Fb10	DHCP server		Parameter address	**0x228A**
Value	Meaning			
0…1	Serves for switching off and on of the DHCP server functionality. BootP- and DHCP requests are answered delayed in activated state. The following restrictions become valid because the operator has no information about available IP addresses in the network: The DHCP server is only provided for operation with cross/patch cable to a PC/notebook, in order to assign an IP address to the PC/notebook if neccessary. Thus an end-to-end operation without manual intervention and without knowledge of the IP protocol is possible. All requests are collected and if 3 equal requests are recognized, an appropriate response is transmitted. Thus in standard network operation the standard DHCP servers can assign a valid IP address first, before the operator assigns it. The IP address of the operator increased by 1 is preset as IP address. If the low byte of the IP address is higher than 254, the IP address of the operator decreased by 1 is preset. • 0: Inactive • 1: Active			

6.7.3 Debugging parameters (Db)

The Db parameters Db00 to Db11 will only be used for internal testing purposes.

6.7.4 Flash file system parameters (FI)

FI00	Max. bytes	Parameter address	0x2480
Value	Meaning		
	Displays the maximum number of possible bytes.		

FI01	Max. files	Parameter address	0x2481
Value	Meaning		
	Displays the maximum number of possible files.		

FI02	Used bytes	Parameter address	0x2482
Value	Meaning		
	Displays the number of the used bytes.		

FI03	Used files	Parameter address	0x2483
Value	Meaning		
	Displays the number of the used files.		

FI04	Deleted bytes	Parameter address	0x2484
Value	Meaning		
	Displays the number of the deleted bytes.		

FI05	Deleted files	Parameter address	0x2485
Value	Meaning		
	Displays the number of the deleted files.		

FI06	Free bytes	Parameter address	0x2486
Value	Meaning		
	Displays the number of free bytes.		

FI07	Flash function	Parameter address	0x2487
Value	Meaning		
0…256	Displays the state of the flash system and if necessary, is used to format the memory (value = 660 "user read/write" - password required). **NOTICE** **Loss of important system files!** Formatting is normally never required and leads to the loss of important system files, which must be transferred again.		

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6.8 Parameter saving

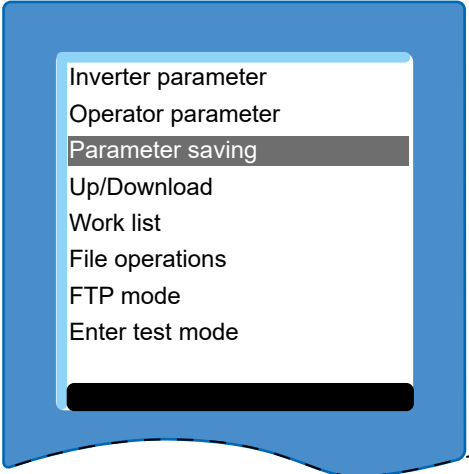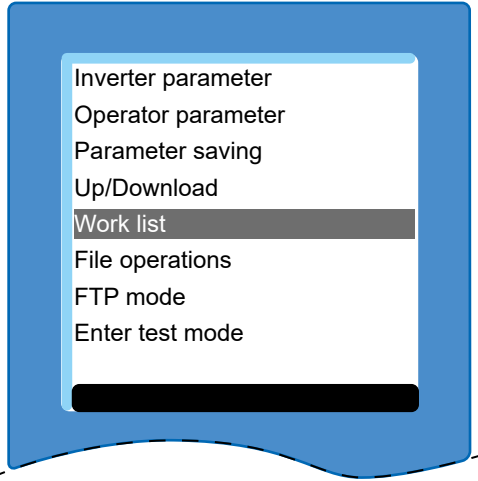|	
Inverter parameter Operator parameter **Parameter saving** Up/Download Work list File operations FTP mode Enter test mode	ENTER opens the submenu for parameter saving. Parameter saving (Upload) = F3 All inverter and operator parameters are read and saved in the flash memory. Every new upload process overwrites the pre-saved parameter lists. Write parameter (Download) = F4 A download is not possible without saved inverter parameters → error message!

Figure 17:   Parameter saving

6.9 Upload/download of parameters
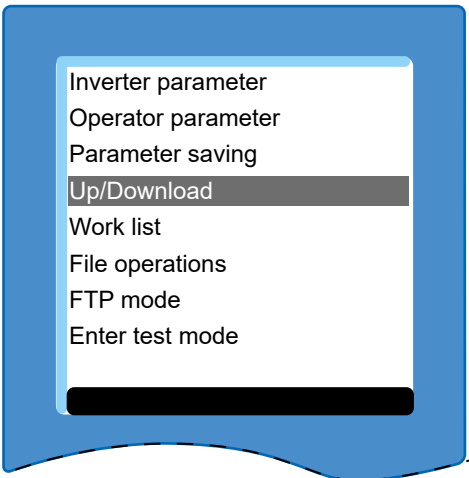
Inverter parameter Operator parameter Parameter saving **Up/Download** Work list File operations FTP mode Enter test mode	ENTER opens the submenu for uploading and downloading. Parameter saving (Upload) = F3 A download list is loaded from the current drive controller and stored under new name. Write parameter (Download) = F4 An existing download list is stored in the drive controller. Parameter lists, created with COMBIVIS in .dw5 format can be transmitted via ftp to the operator.

Figure 18:   Upload/download of parameters

6.10 Work list

	ENTER opens the submenu for the worklist.
Inverter parameter Operator parameter Parameter saving Up/Download **Work list** File operations FTP mode Enter test mode	The selection of a work list of the flash memory occurs in this menu item. Parameter lists, created with COMBIVIS in .wr5 format can be transmitted via ftp to the operator. ℹ️ • The compilation of the work list must be done with COMBIVIS. • Parameters from other Cfg IDs (for example, operator parameter in complete lists) are displayed as "invalid address FFFFh".
Figure 19: Work list	

6.11 File operations

	ENTER opens the submenu for the file operations.
Inverter parameter Operator parameter Parameter saving Up/Download Work list **File operations** FTP mode Enter test mode	F1 : Back to the main menu ENTER: Display of file name / size / date / time / access level. Since there is no real-time clock integrated in the operator, new created files have the date 2003-01-01. F4 : Delete the file ℹ️ To delete or to rename a file, the current access level must be higher or equal to the file level. The current level is determined via the operator password or specified when using KebFTP upon connection. From KebFTP 1.5.0.0, the current access level is displayed when selecting a drive and the file level when selecting a file. Deleted files are automatically cleared in the background.
Figure 20: File operations	

6.12 FTP mode
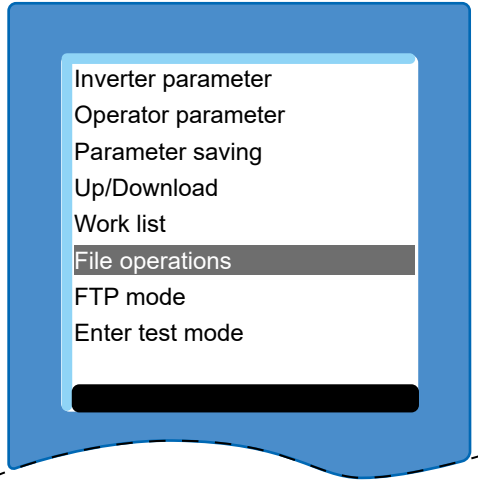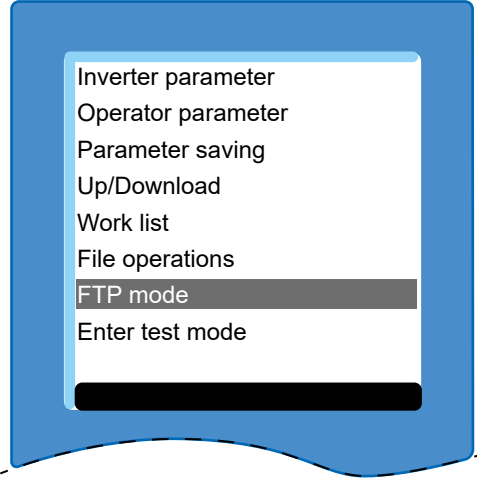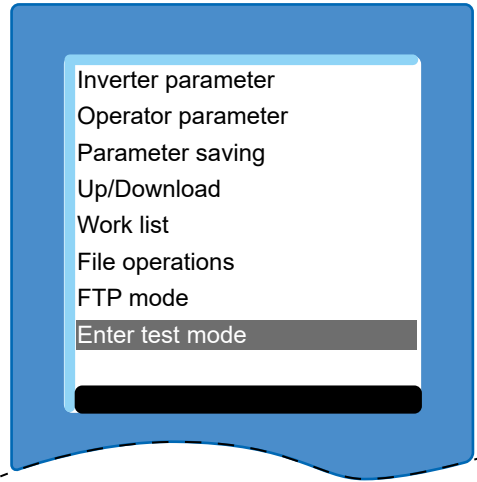
Inverter parameter Operator parameter Parameter saving Up/Download Work list File operations FTP mode Enter test mode	ENTER opens the submenu for the FTP mode. The FTP mode is used to transfer files from/in the flash file system via the KebFTP protocol. For the Ethernet operator the FTP mode is always available via UDP port 8002. For the USB operator the USB interface is changed in this mode for KebFTP operation and does not longer respond to DIN66019II requests. The used baud rate is freely selectable for USB.

Figure 21:   FTP mode

One of the PC programs "KEB FTP" (=> *KEB FTP)* or "COMBIVIS" (=> *COMBIVIS)* is required to install missing files. Each file can be protected with an access level (=> *File operations*).

6.13 Function test of keyboard and display

Inverter parameter Operator parameter Parameter saving Up/Download Work list File operations FTP mode Enter test mode	ENTER starts a test mode, to check the function of the single keys and the LC-display. Follow the instructions on the display during the test run.

Figure 22:   Function test of keyboard and display

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7 Revision history

Version	Date	Description
00	2016-03	Pre-series
01	2016-09	Series
02	2017-04	Optical change to new corporate identity
03	2018-03	Error correction, new improved photos
04	2020-04	Editorial changes
05	2020-11	Extension of the operating conditions
06	2023-12	Text adapted for remote control, editorial adjustments

KEB

Austria | KEB Automation GmbH
Ritzstraße 8   4614 Marchtrenk   Austria
Tel: +43 7243 53586-0   Fax: +43 7243 53586-21
E-Mail: info@keb.at   Internet: www.keb.at

Benelux | KEB Automation KG
Bd Paapsemlaan 20   1070 Anderlecht   Belgium
Tel: +32 2 447 8580
E-Mail: info.benelux@keb.de   Internet: www.keb.de

Brazil | KEB South America - Regional Manager
Rua Dr. Omar Pacheco Souza Riberio, 70
CEP 13569-430 Portal do Sol, São Carlos   Brazil
Tel: +55 16 31161294   E-Mail: roberto.arias@keb.de

Czech Republic | KEB Automation GmbH
Videnska 188/119d   61900 Brno   Czech Republic
Tel: +420 544 212 008
E-Mail: info@keb.cz   Internet: www.keb.cz

France | Société Française KEB SASU
Z.I. de la Croix St. Nicolas   14, rue Gustave Eiffel
94510 La Queue en Brie   France
Tel: +33 149620101   Fax: +33 145767495
E-Mail: info@keb.fr   Internet: www.keb.fr

Germany | **Geared Motors**
KEB Antriebstechnik GmbH
Wildbacher Straße 5   08289 Schneeberg   Germany
Telefon +49 3772 67-0   Telefax +49 3772 67-281
Internet: www.keb-drive.de   E-Mail: info@keb-drive.de

Italy | KEB Italia S.r.l. Unipersonale
Via Newton, 2   20019 Settimo Milanese (Milano)   Italia
Tel: +39 02 3353531   Fax: +39 02 33500790
E-Mail: info@keb.it   Internet: www.keb.it

Japan | KEB Japan Ltd.
15 - 16, 2 - Chome, Takanawa Minato-ku   Tokyo 108 - 0074   Japan
Tel: +81 33 445-8515   Fax: +81 33 445-8215
E-Mail: info@keb.jp   Internet: www.keb.jp

P. R. China | KEB Power Transmission Technology (Shanghai) Co. Ltd.
No. 435 QianPu Road   Chedun Town   Songjiang District
201611 Shanghai   P.R. China
Tel: +86 21 37746688   Fax: +86 21 37746600
E-Mail: info@keb.cn   Internet: www.keb.cn

Poland | KEB Automation KG
Tel: +48 60407727
E-Mail: roman.trinczek@keb.de   Internet: www.keb.de

Republic of Korea | KEB Automation KG
Deoksan-Besttel 1132 ho   Sangnam-ro 37
Seongsan-gu   Changwon-si   Gyeongsangnam-do   Republic of Korea
Tel: +82 55 601 5505   Fax: +82 55 601 5506
E-Mail: jaeok.kim@keb.de   Internet: www.keb.de

Spain | KEB Automation KG
c / Mitjer, Nave 8 - Pol. Ind. LA MASIA
08798 Sant Cugat Sesgarrigues (Barcelona)   Spain
Tel: +34 93 8970268   Fax: +34 93 8992035   E-Mail: vb.espana@keb.de

Switzerland | KEB Automation AG
Witzbergstrasse 24   8330 Pfaeffikon/ZH   Switzerland
Tel: +41 43 2886060   Fax: +41 43 2886088
E-Mail: info@keb.ch   Internet: www.keb.ch

United Kingdom | KEB (UK) Ltd.
5 Morris Close   Park Farm Indusrial Estate
Wellingborough, Northants, NN8 6 XF   United Kingdom
Tel: +44 1933 402220   Fax: +44 1933 400724
E-Mail: info@keb.co.uk   Internet: www.keb.co.uk

United States | KEB America, Inc
5100 Valley Industrial Blvd. South
Shakopee, MN 55379   United States
Tel: +1 952 2241400   Fax: +1 952 2241499
E-Mail: info@kebamerica.com   Internet: www.kebamerica.com

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