



## 15 Operation

### 15.1 Operating Displays

#### 15.1.1 7-segment display

The 7-segment display shows the operating condition of MOVIDRIVE® and, in the event of an error, an error or warning code.

7-segment display	Unit status (high byte in status word 1)	Meaning
0	0	24 V operation (inverter not ready)
1	1	Controller inhibit active
2	2	No enable
3	3	Standstill current
4	4	Enable
5	5	n-control
6	6	M-control
7	7	Hold control
8	8	Factory setting
9	9	Limit switch contacted
A	10	Technology option
c	12	IPOS <sup>plus</sup> ® reference travel
d	13	Flying start
E	14	Calibrate encoder
F	<b>Error number</b>	Error indicator (flashing)
H	<b>Status display</b>	Manual mode
t	16	Inverter is waiting for data
U	17	"STO" active
<sup>2</sup> (blinking dot)	-	IPOS <sup>plus</sup> ® program is running
Flashing display	-	STOP via DBG60B
71 ... 79	-	RAM defective



#### **! WARNING**

Incorrect interpretation of display U = "STO" active.

Severe or fatal injuries.

**The display U = "STO" is not safety-related and must not be used as a safety function.**



#### 15.1.2 DC link voltage display of size 7

	<b>INFORMATION</b>
	The DC link voltage display goes out about 20 seconds after the power off.

#### 15.1.3 DBG60B keypad

##### Basic displays:

0.00rpm
0.000Amp
CONTROLLER INHIBIT

Display when X13:1 (DIØØ "/CONTROL.INHIBIT") = "0".

0.00rpm
0.000Amp
NO ENABLE

Display when X13:1 (DIØØ "/CONTROL.INHIBIT") = "1" and inverter is not enabled ("ENABLE/STOP" = "0").

950.00rpm
0.990Amp
ENABLE (VFC)

Display for enabled inverter.

NOTE 6:
VALUE TOO HIGH

Information message

(DEL)=Quit
ERROR 9
STARTUP

Error display

## 15.2 Information messages

Information messages on the DBG60B (ca. 2 s in duration) or in MOVITOOLS® Motion-Studio/SHELL (message that can be acknowledged):

No.	Text DBG60B/SHELL	Description
1	ILLEGAL INDEX	Index addressed via interface not available.
2	NOT IMPLEMENT.	<ul style="list-style-type: none"> <li>Attempt to execute a non-implemented function.</li> <li>An incorrect communication service has been selected.</li> <li>Manual operation selected via invalid interface (e.g. fieldbus).</li> </ul>
3	READ ONLY VALUE	Attempt to edit a read-only value.
4	PARAM. INHIBITED	Parameter lock P 803 = "ON", parameter cannot be altered.
5	SETUP ACTIVE	You tried to change parameters during setup.
6	VALUE TOO HIGH	You tried to enter a value that is too high.
7	VALUE TOO LOW	You tried to enter a value that is too low.
8	REQ. CARD MISSING	The option card required for the selected function is missing.
10	ONLY VIA ST1	Manual mode must be completed using X13:ST11/ST12 (RS 485).
11	ONLY TERMINAL	Manual mode must be exited via TERMINAL (DBG60B or UWS21B).
12	NO ACCESS	Access to selected parameter denied.
13	CTRL. INHIBIT MISSING	Set terminal DIØØ "/Controller inhibit" = "0" for the selected function.
14	INVALID VALUE	You tried to enter an invalid value.

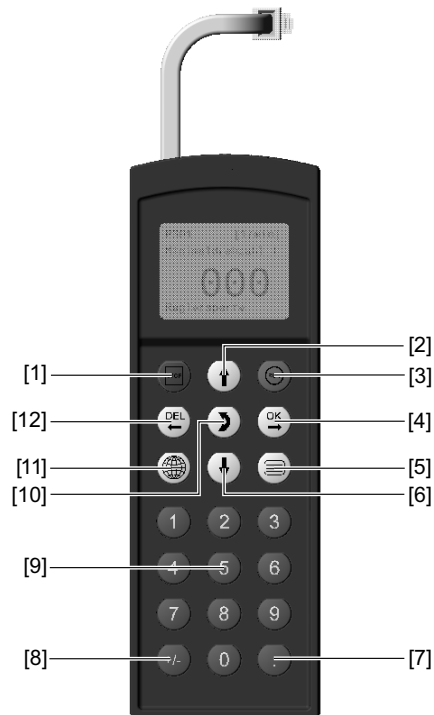


No.	Text DBG60B/SHELL	Description
16	PARAM. NOT SAVED	Overflow of EEPROM buffer, e.g., due to cyclic write access. Parameter not stored in non-volatile EEPROM.
17	INVERTER ENABLED	<ul style="list-style-type: none"><li>Parameter to be changed can only be set in the state "CONTROLLER INHIBIT".</li><li>Attempt to change to manual mode during enabled operation.</li></ul>



### 15.3 Functions of the DBG60B keypad

#### 15.3.1 Key assignment for DBG60B



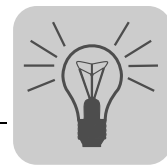
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[1]	Key		Stop
[2]	Key		Up arrow, moves up to the next menu item
[3]	Key		Start
[4]	Key		OK, confirms the entry
[5]	Key		Activate the context menu
[6]	Key		Down arrow, moves down to the next menu item
[7]	Key		Decimal point
[8]	Key		Sign reversal
[9]	Key	0 – 9	Digits 0... 9
[10]	Key		Change menu
[11]	Key		Select language
[12]	Key		Delete previous entry

#### 15.3.2 Copy function of the DBG60B

The DBG60B keypad can be used for copying complete parameter sets from one MOVIDRIVE® unit to other MOVIDRIVE® units. Proceed as follows:

- In the context menu, select the menu item "COPY TO DBG". Confirm the setting by pressing the key.
- After the copying process has finished, plug the keypad in the other inverter.
- In the context menu, select the menu item "COPY TO MDX". Confirm the setting by pressing the key.



### 15.3.3 Parameter mode

Proceed as follows to set the parameters in parameter mode:

- |                                                                                                                                                                                  |                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 1. Activate the context menu by pressing the  key.                                                                                                                               | BASIC VIEW<br><b>PARAMETER MODE</b><br>VARIABLE MODE<br>WAKE UP PARAMETER |
| 2. Press the  key to start the PARAMETER MODE. The first display parameter P000 "SPEED" appears. Press the  key or  key to select the main parameter groups 0 to 9.              | P 000 upm<br>SPEED<br>0.0<br>CONTROLLER INHIBIT                           |
| 3. Press the  key or  key to select the required main parameter group. The flashing cursor is positioned under the number of the main parameter group.                           | P 1. SETPOINTS/<br>RAMP GENERATORS<br><br>CONTROLLER INHIBIT              |
| 4. Activate parameter subgroup selection in the main parameter group by pressing the  key. The flashing cursor moves one position to the right.                                  | P 1. SETPOINTS/<br>RAMP GENERATORS<br><br>CONTROLLER INHIBIT              |
| 5. Press the  key or  key to select the required parameter subgroup. The flashing cursor is positioned under the number of the parameter subgroup.                               | \ 13. SPEED<br>RAMPS 1<br><br>CONTROLLER INHIBIT                          |
| 6. Activate parameter selection in the required parameter subgroup by pressing the  key. The flashing cursor moves one position to the right.                                    | \ 13. SPEED<br>RAMPS 1<br><br>CONTROLLER INHIBIT                          |
| 7. Press the  key or  key to select the desired parameter. The flashing cursor is positioned under the third digit of the parameter number.                                      | \ 132 s<br>T11 UP CCW<br>0.13<br>CONTROLLER INHIBIT                       |
| 8. Press the  key to activate the setting mode for the selected parameter. The cursor is positioned under the parameter value.                                                   | \ 132 s<br>T11 UP CCW<br>0.13_<br>CONTROLLER INHIBIT                      |
| 9. Press the  key or  key to select the desired parameter value.                                                                                                                 | \ 132 s<br>T11 UP CCW<br>0.20_<br>CONTROLLER INHIBIT                      |
| 10. Confirm the setting by pressing the  key. Exit the setting mode by pressing the  key. The flashing cursor is positioned under the third digit of the parameter number again. | \ 132 s<br>T11 UP CCW<br>0.20<br>CONTROLLER INHIBIT                       |



## Operation

### Functions of the DBG60B keypad

11. Press the key or key to select another parameter or go back to the parameter subgroup menu using the key.

```
\ 13_ SPEED
RAMPS 1
CONTROLLER INHIBIT
```

12. Press the key or key to select another parameter subgroup or go back to the main parameter group menu using the key.

```
P 1.. SETPOINTS/
RAMP GENERATORS
CONTROLLER INHIBIT
```

13. Press the key to return to the context menu.

```
BASIC VIEW
PARAMETER MODE
VARIABLE MODE
WAKE UP PARAMETER
```

#### 15.3.4 Variable mode

H... variables are displayed in the variable mode. To call up the variable mode, proceed as follows:

- Use the key to call up the context menu. Select the "VARIABLE MODE" menu item and confirm with the key. The variable mode display appears.
- You can use the key to edit the variables.

#### 15.3.5 User menu





The DBG60B keypad has a standard user menu containing the parameters that are used most often. The parameters in the user menu are displayed with a "\" before the parameter number (→ Sec. "Complete parameter list"). You can add or delete parameters. You can save a maximum of 50 parameter entries. The parameters are displayed in the order in which they are stored in the inverter. The parameters are not sorted automatically.

- Use the key to call up the context menu. Select the menu item "USER MENU" and press the OK key to confirm. The user menu with the most frequently used parameters appears.







*Adding parameters to the user menu*

Proceed in this order to add parameters to the user menu:

- Use the  key to call up the context menu. Select the "PARAMETER MODE" menu item.
- Choose the parameter you require and confirm your entry using the  key.
- Press the  key to return to the context menu. In the context menu, select the menu item "ADD Pxxx". "xxx" is the parameter you selected previously. Confirm the setting by pressing the  key. The selected parameter is stored in the user menu.

*Deleting parameters from the user menu*

Proceed in this order to delete parameters from the user menu:


- Use the  key to call up the context menu. Select the menu item "USER MENU".
- Select the parameter that is to be deleted. Confirm the setting by pressing the  key.
- Press the  key to return to the context menu. In the context menu, select the menu item "DELETE Pxxx". "xxx" is the parameter you selected previously. Confirm the setting by pressing the  key. The selected parameter is deleted from the user menu.

**15.3.6 Wake-up parameter**

The wake-up parameter is the parameter that is displayed when the DBG60B is switched on. The factory setting for the wake up parameter is the basic display. You can select which parameter should be the wake-up parameter. The following options can be used as the wake-up parameter:

- Parameter (→ parameter mode)
- Parameter from the user menu (→ user menu)
- H variable (→ variable mode)
- Basic display

Proceed as follows to save a wake-up parameter:

- First select the required parameter in parameter mode.
- In the context menu, select the menu item "XXXX INITIAL PARAM.". "XXXX" is the selected initial parameter. Confirm the setting by pressing the  key.



### 15.3.7 IPOS<sup>plus</sup>®

MOVITOOLS<sup>®</sup> MotionStudio is required for programming IPOS<sup>plus</sup>®. You can only use the DBG60B keypad to edit or change IPOS<sup>plus</sup>® variables (H\_\_).

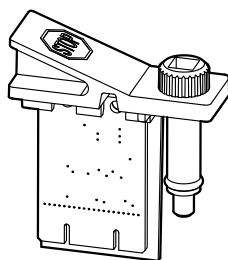
The IPOS<sup>plus</sup>® program is also stored in the DBG60B keypad when it is saved and is consequently also transferred when the parameter set is copied to another MOVIDRIVE<sup>®</sup> unit.

Parameter P931 can be used for starting and stopping the IPOS<sup>plus</sup>® program from the DBG60B keypad.

## 15.4 Memory card

The pluggable memory card is installed in the basic unit. The basic data is stored on the memory card and is always up-to-date. If a unit has to be replaced, the plant can be started up again quickly without PC and data backup by simply re-plugging the memory card. You can install as many option cards as required.

The following figure shows the MDX60B/61B memory card.



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### 15.4.1 Notes for replacing the memory card

- Only plug in the memory card when the MOVIDRIVE® B unit is switched off.
- You can install the memory card from the original unit in a new inverter. The following combinations are permitted:

Original unit MOVIDRIVE® MDX60B/61B...	New inverter MOVIDRIVE® MDX60B/61B...
00	00 or 0T
0T	0T

- The same options that were available in the original unit must be installed in the new inverter.

If this is not the case, the error message "79 HW configuration" (hardware configuration) is displayed. You can remedy the error by calling up the "DELIVERY CONDITION" menu item from the context menu (P802 factory setting). This resets the unit to its initial delivery condition. You must then restart the unit.

- The counter status of the DRS11B option and the data of the DH..1B and DCS..B options are not stored on the memory card. When you replace the memory card, you have to install the DRS11B, DH..1B and DCS..B option cards from the original unit in the new inverter.

If the original unit was a MOVIDRIVE® B size 0 unit with the option DHP11, you have to use a new DHP11B option card with the configuration data set (file name.sew-copy) that you saved previously.

- If an absolute encoder is used as a motor or synchronous encoder, you must reference the encoder after you have replaced the unit.
- When replacing an absolute encoder, you have to reference it again.