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# User Manual

# DE4-KEY-2
# Keypad

**02/00 AWB8250-1344GB**

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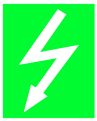

## Caution!

## Dangerous electrical voltage!

### Before commencing the installation

- Disconnect the power supply of the device.
- Ensure that the device cannot be accidentally restarted.
- Verify isolation from the supply.
- Earth and short circuit.
- Cover or enclose neighbouring units that are live.
- Follow the engineering instructions (AWA) of the device concerned.
- Only suitably qualified personnel may work on this device/system.
- Before installation and before touching the device ensure that you are free of electrostatic charge.
- Connecting cables and signal lines should be installed so that inductive or capacitive interference do not impair the automation functions.
- Install automation devices and related operating elements in such a way that they are well protected against unintentional operation.
- Suitable safety hardware and software measures should be implemented for the I/O interface so that a line or wire breakage on the signal side does not result in undefined states in the automation devices.
- Ensure a reliable electrical isolation of the low voltage for the 24 volt supply. Only use power supply units complying with IEC 60 364-4-41 or HD 384.4.41 S2.
- Deviations of the mains voltage from the rated value must not exceed the tolerance limits given in the specifications, otherwise this may cause malfunction and dangerous operation.
- Emergency stop devices complying with IEC/EN 60 204-1 must be effective in all operating modes of the automation devices. Unlatching the emergency-stop devices must not cause uncontrolled operation or restart.
- Devices that are designed for mounting in housings or control cabinets must only be operated and controlled after they have been installed with the housing closed. Desktop or portable units must only be operated and controlled in enclosed housings.
- Measures should be taken to ensure the proper restart of programs interrupted after a voltage dip or failure. This should not cause dangerous operating states even for a short time. If necessary, emergency-stop devices should be implemented.

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## About This Manual

This manual contains the information you need to connect and use the LCD keypad correctly.

The information in this manual applies only to the specified hardware and software versions.

The following abbreviations and symbols are used in this manual:

PNU: Parameter number
Drive controller: Soft starter, Frequency inverter, Servo controller

▶ Indicates actions to be taken

Indicates useful tips and additional information.

**Attention!**
Warns of the possibility of damage to products, adjacent equipment or data.

**Warning!**
Warns of the possibility of serious damage to products, adjacent equipment or data and risk of serious or fatal personal injury.

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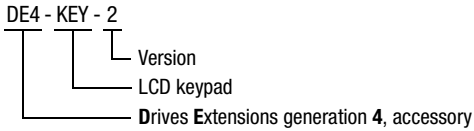
# 1 About the LCD Keypad

**System overview**

The DE 4-KEY-2 LCD keypad has the following type code:




The optional LCD keypad DE4 4-KEY-2 can be used to configure drive controllers to your specific requirements.

With the function keys, you enter the desired parameters to control the drive. The actual values and status messages are shown on the display.

The set parameters can be saved in the LCD keypad, from where they can be copied to other drive controllers. To copy parameters, specific codes must be executed. These are described in the drive controller manuals.

The keypad is hot-pluggable, i.e. it can be connected and disconnected while the keypad and drive controller are switched on.

The drive controller can also be started and stopped using the keypad.

**Features of DE 4-KEY-2**

The key features of the DE 4-KEY-2 LCD keypad are:

| | |
|---|---|
| Simple installation | can be connected and disconnected during operation |
| Power supply | from the drive controller |
| Display | plain text LCD; additional status indicators |
| Function keys | 8 |
| Degree of protection | IP 20 |

**Maintenance**

**Warning!**
Ingress of liquid into the LCD keypad can cause irreparable damage to the unit and can cause malfunction of the drive controller. Use only a damp cloth to clean the LCD keypad.

The display panel is protected by a transparent plastic cover.

When cleaning the LCD keypad, observe the folowing notes:

Us a cleaning cloth that is suitable for soft plastics.

Use only a lightly soapy solution for cleaning.

Other cleaning solutions can scratch or corrode the display.



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## 2 Installation

Plug in and remove the LCD keypad without using force.

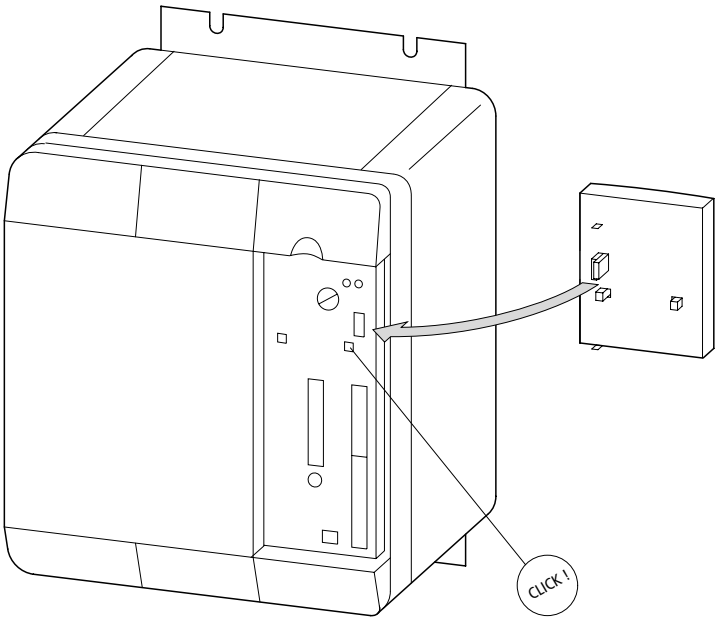


*Figure 1: Mounting the DE4-KEY-2*

The dimensions of the LCD keypad are specified in the Appendix on Page 19.

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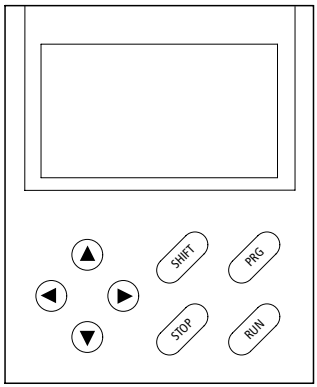
# 3 Function and Display

## Key functions

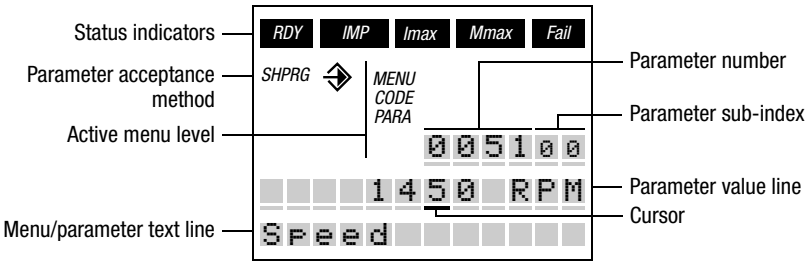



| Key | Function in | | |
|---|---|---|---|
| | **Menu mode** | **Parameter mode** | **Programming/operation mode** |
| PRG | – | Change between parameter, programming, and operation mode | |
| SHIFT +[1)]PRG | – | – | Accept parameter; depends o parameter and menu |
| ▲ | Next menu item | Next parameter | Increase displayed value |
| SHIFT +[1)]▲ | Scroll down through menu items | Scroll down through parameters | Fast increase of displayed value |
| ▼ | Previous menu item | Previous parameter | Decrease displayed value |
| SHIFT +[1)]▼ | Scroll up through menu items | Scroll up through parameters | Fast decrease of displayed value |
| ◄ | Next higher menu level | Back to parent menu level | Move cursor to left |
| ► | Next lower menu level | – | Move cursor to right |
| RUN | Start drive controller | | |
| STOP | Disable drive controller; depending on device configuration, disable with quickstop or disconnect controlle<br>LED on: STOP key pressed LED off: RUN key pressed | | |

1) "Shift +" means press and hold the Shift key while at the same time pressing another button.

The LED is only lit when the STOP key has been pressed, but not after initialization of the keypad, even if the device status is “Stop”.

### Status indicators




| Segment | Description | |
|---|---|---|
| | **On** | **Off** |
| **Status indicators** | | |
| RDY | Inverter ready to operate | Initialization or fault |
| IMP | Power output terminal disabled | Power output terminal enabled |
| Imax | Current limit reached | Current limit not reached |
| Mmax | Torque limit reached, drive controller i torque control mode | Torque limit not reached, drive controller in speed control mode |
| Fail | Fault | No fault |
| **Parameter acceptanc** | | |
| SH PRG | Parameter is accepted only with the Shift + PRG keys (offline) | |
| SH PRG | Parameter is accepted only during controller disable with the Shift + PRG keys (offline) | |
| | Parameter is accepted immediately by the device (online) | |
| Empty field | Parameter cannot be changed | |



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| Segment | Description | |
|---|---|---|
| | **On** | **Off** |
| **Menu mode** | | |
| Subindex | Some parameters only have subindex “0” | |
| Parameter value line | Current parameter with units (if available) or main menu item | |
| Cursor | Indicates, at which position a parameter value will be changed | |
| Menu/parameter text line | Display (max. 13 characters) of status information, submenu text, parameter name, parameter text for selection | |
| Menu | Menu mode | If the display is blank, the drive controller is in operation mode |
| Code | Parameter mode | |
| Para | Programming mode | |

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# 4 Operation/Displays

The illustrations below are examples of the display screens and parameters of the soft starter DM 4. Names, parameter numbers and values may differ for other devices.

**Example for the DM soft starter**

- ▶ Connect the LCD keypad to the DM 4 soft starter
- ▶ Switch on the controlled device.

The LCD keypad now performs a self test. When the test is completed, the display changes from "Init" to the first parameter in the first menu.

The LCD keypad is now in operation mode, which is indicated by the blank "active menu mode" (see diagram on page 10) field. On the menu/parameter text line, a default display parameter now appears, which depends on the connected device. Only a value is displayed here; the parameter name and number do not appear. Refer to the documentation for the controlled device to determine whether the displayed value is adjustable or fixed, and which parameter is being displayed.

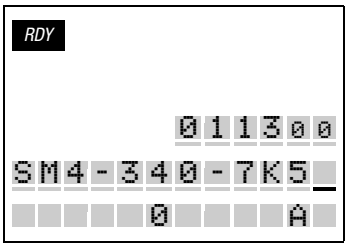


*Figure 2: Operation mode*

To change or view parameters, change to Programming mode.

▶ Press the PRG key once, to change from operation mode to menu mode.

If the current menu does not contain any submenus, the LCD keypad changes directly from menu mode to parameter mode.

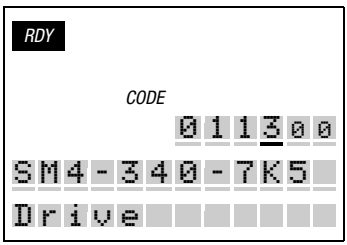


*Figure 3: Parameter mode*



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▶ Use the cursor keys (▲, ▼, ◀, ▶) to navigate within the menu and parameter modes and to find the required parameter.

In menu mode, the main menu items appear on the parameter value line, which may also contain submenus. The parameters are displayed in the main menu item or, if submenus are shown, only in the submenu. The names of submenus and parameters are shown on the menu/parameter text line.

In parameter mode, the parameter is shown in the display's two bottom lines; the text content depends on the parameter type. For simple parameters, the menu/parameter text line contains the parameter name, while the parameter value line shows the associated value.

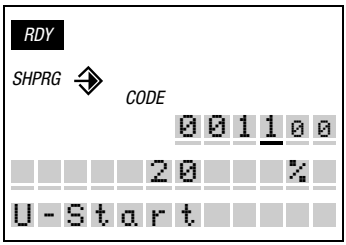


*Figure 4: Parameter name with value*

Parameters of type "Text" contain a text string (e.g. device type, se eFig .3). Parameters with predefined text strings for selection can also show text strings assigned to a parameter value.

When the correct parameter appears on the display,

▶ press the PRG key to change from parameter mode to programming mode.

The cursor now appears on the display's parameter value line.

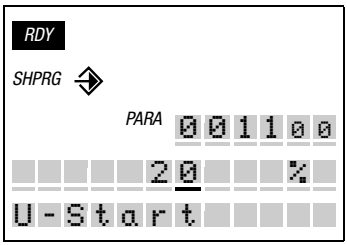


*Figure 5: Programming mode*

The values of all parameters allowing write access can be edited with the cursor keys.

▶ To increase the value, press (▲), to reduce it, press (▼), and to change the cursor position, press ◀/▶.

If the current parameter is a selection parameter, the last line of the display changes to show the function associated with the selected value.

Using as an example the "Operating mode" parameter of the DM 4, the display appears as shown below:

0 = Standard

1 = In-Delta

2 = Controller

3 = Phase controller



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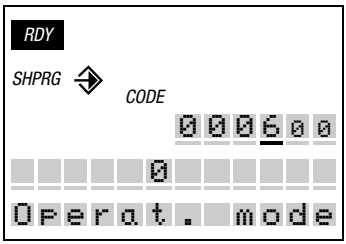



*Figure 6: Display of "Operating mode" in parameter mode*

In programming mode, the value (0 to 3) appears on the parameter value line, and the function (e.g. “In-Delta”) in place of the parameter name on the menu/ parameter text line. To change to programming mode, press PRG.

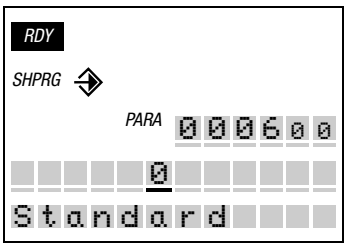



*Figure 7: Display of "Operating mode" with the value "0" in programming mode*

To set the value to “1”, press ▲. The display then looks like this:

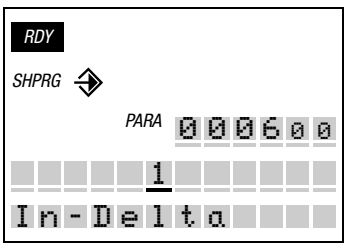
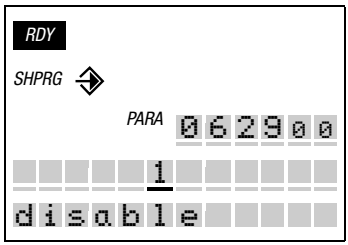



*Figure 8: Display of "Operating mode" with the value "1" in programming mode*

Selection parameters include the bit parameters (e.g. status information, functio non/off). For these parameters, the name and the current numeric value (0 o 1) are displayed.

▶ To view the associated bit status text in the menu/parameter text line (e.g. On/Off, Disable/ Continue), press PRG.




▶ Press SHIFT + PRG to save the entered parameter value.

or

▶ To cancel the change, press PRG.

When SHIFT + PRG or PRG is pressed, the display returns to operation mode and shows the first parameter in the first menu again.

Parameters that are accepted online (i.e. as soon as they are entered), do not need to be saved. To confirm the input, just press PRG. Instead of the first parameter in the first menu, the currently selected parameter will continue to be displayed. As for the other parameters, the default display parameter appears on the menu/parameter text line.



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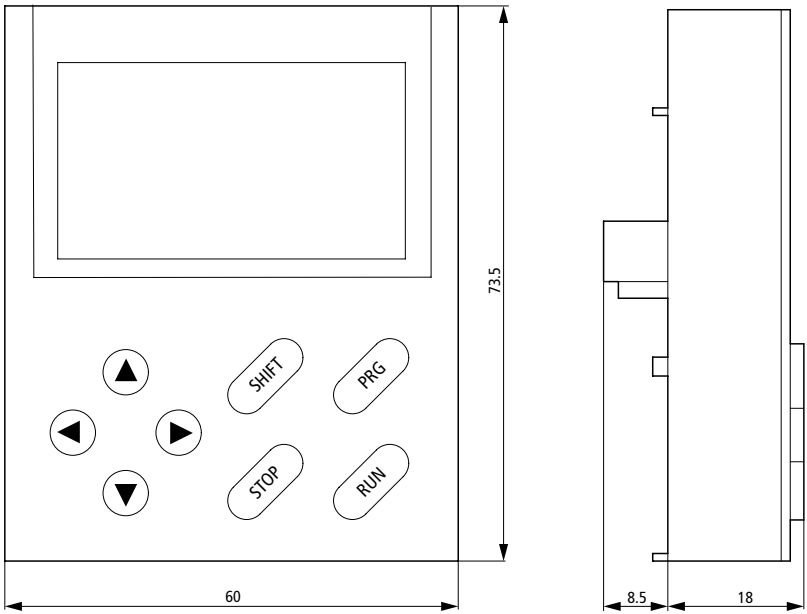
# Appendix

## Dimensions



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