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Notes on this handbook
This device handbook contains information which is specific to the product and which is valid at the time of printing.
This equipment manual is only complete in conjunction with the product-related hardware and software user manuals required for the individual application.

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Berghof Automation GmbH is certified to DIN EN ISO 9001:2015.
## Change log

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
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<td>0.8</td>
<td>19.09.2018</td>
<td>Preliminary version, derived from the ECC2100 Slim</td>
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<td>0.81</td>
<td>15/10/2018</td>
<td>New names, correction to the Technical Data, other changes</td>
</tr>
<tr>
<td>0.9</td>
<td>19/10/2018</td>
<td>New graphics, corrections</td>
</tr>
<tr>
<td>0.91</td>
<td>13/11/2018</td>
<td>Corrections, additions</td>
</tr>
<tr>
<td>0.92</td>
<td>03/12/2018</td>
<td>Review</td>
</tr>
<tr>
<td>1.0</td>
<td>04/12/2018</td>
<td>First version</td>
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Table of contents

1. GENERAL INFORMATION .................................................................6
   1.1. Notes on the handbook .............................................................6
   1.2. Symbols and visual depictions ....................................................6
   1.3. Hazard categories and indications ..............................................7
   1.4. Qualified personnel ....................................................................8
   1.5. Duty of care .............................................................................8
       1.5.1. General .............................................................................8
   1.6. Intended use ............................................................................9
   1.7. Transport and storage ...............................................................10
       Transport and storage ................................................................10
       Operation .................................................................................10
   1.8. Unpacking .............................................................................10

2. SAFETY .......................................................................................11
   Safety-related systems ..................................................................11
   2.1. Safety instructions ..................................................................11
       Working on the device .................................................................11

3. PRODUCT DESCRIPTION ............................................................12
   3.1. Overview .................................................................................12
       3.1.1. Overview CC-LITE ............................................................12
   3.2. Scope of delivery and accessories .............................................13
       Scope of delivery ........................................................................13
       Accessories ...............................................................................13
   3.3. Product features ......................................................................13

4. INSTALLATION ........................................................................15
   4.1. Installation CC-LITE ...............................................................15

5. CONNECTION ..........................................................................16
   5.1. Power supply ..........................................................................16
   5.2. Data connections ......................................................................17
       5.2.1. Block circuit diagram CC-LITE ........................................17
       5.2.2. Ethernet .........................................................................18
       5.2.3. USB ...............................................................................19
       5.2.4. Earth ..............................................................................20

6. OPERATION .............................................................................21
   6.1. Switching on and off ...............................................................21
   6.2. Commissioning the network ....................................................22
       6.2.1. CC-LITE .........................................................................22
   6.3. Operation ..............................................................................24
6.4. Troubleshooting .......................................................................................................................... 24
6.4.1. No network connection ................................................................................................. 24
6.4.2. In error stop mode ........................................................................................................... 24
6.4.3. Unknown IP address ........................................................................................................ 24

7. MAINTENANCE/UPKEEP .......................................................................................................... 28
7.1. Maintenance .......................................................................................................................... 28

8. UNINSTALLATION .................................................................................................................. 29

9. DISPOSAL ............................................................................................................................... 30

10. TECHNICAL DATA ................................................................................................................ 31
10.1. Compact Controller CC-LITE ....................................................................................... 31
10.2. Identification plate ............................................................................................................. 32

11. STANDARDS AND CERTIFICATES .................................................................................. 33
11.1. Standards .......................................................................................................................... 33
11.2. Declaration of conformity ............................................................................................... 33

12. CUSTOMER SERVICES / ADDRESSES ............................................................................. 34
12.1. Customer service .............................................................................................................. 34
12.2. Addresses .......................................................................................................................... 34

13. APPENDIX ............................................................................................................................... 35
13.1. Information on copyright and software licence ............................................................ 35
13.2. List of figures ..................................................................................................................... 35
1. General information

This user handbook is intended for use by qualified professionals and contains information on the assembly, installation, start-up and maintenance of the device.

1.1. Notes on the handbook

This user handbook is a component of the product and applies to the following devices:

→ CC-LITE

It contains information on the following topics:

→ Applications
→ Safety
→ Mechanical design
→ Electrical design
→ Connections
→ Start-up
→ Upkeep and maintenance
→ Decommissioning
→ Disposal

→ Always keep this user handbook available alongside the product.

1.2. Symbols and visual depictions

The following symbols and visual depictions are used in this handbook:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>…</td>
<td>List entry</td>
</tr>
<tr>
<td>▶ …</td>
<td>Individual instruction or list of instructions which can be carried out in any order.</td>
</tr>
<tr>
<td>1. …</td>
<td>List of instructions which must be carried out in the order given.</td>
</tr>
<tr>
<td>2. …</td>
<td></td>
</tr>
<tr>
<td>📘</td>
<td>Additional product information</td>
</tr>
</tbody>
</table>
Design of warnings:

**WARNING**

Optional: Hazard type and source
Other symbols: Short description and consequences

1.3. Hazard categories and indications

The following indications are used in the case of warning messages so as to ensure your personal safety and avoid any damage to property.

The indications have the following meanings:

**DANGER**

Serious injury or death
Non-compliance with the safety features will result in death or serious injury.

- Take preventive measures.

**WARNING**

Possible serious injury or death
Non-compliance with the safety features may result in death or serious injury.

- Take preventive measures.

**CAUTION**

Possible minor injuries
Non-compliance with the safety features may result in minor injuries.

- Take preventive measures.

**NOTE**

Possible damage to property
Non-compliance with the safety features may result in damage to property.

- Take preventive measures.
1.4. Qualified personnel

The installation, start-up and maintenance of the device must be carried out by qualified personnel. For the purposes of this documentation and the safety instructions contained therein, “qualified personnel” means trained staff who are familiar with safety concepts in automation engineering and who are authorised to assemble, install, start up, earth and identify devices, systems and electrical circuits in accordance with standards set in safety engineering.

1.5. Duty of care

1.5.1. General

The user or processor (OEM) must ensure the following:

→ The device must only be used according to regulations.
→ The device must only be used in good working order.
→ The user handbook must always be kept legible and fully available.
→ Only sufficiently qualified and authorised personnel may carry out the assembly, installation, start-up and maintenance of the device.
→ These authorised personnel must receive regular training on all relevant occupational health and safety and environmental protection issues and must be fully familiar with the contents of this user handbook, particularly the sections regarding safety features.
→ Any markings or identification labels and safety and warning signs on the device must not be removed and must be kept legible at all times.
→ The national and international regulations regarding the operating of machinery and facilities where the device is being used must be observed at all times.
→ The user must always be kept abreast of any current relevant information regarding the device and its use or operation.
→ The user takes direct responsibility for agreeing with the competent authorities the use of safety-related control components, and for compliance with their instructions.
1.6. Intended use

The device is a member of the B FORTIS Compact Control family of controllers for industrial control applications within the medium to high performance range. It permits communication via EtherCAT, Profinet, etc. using I/O modules or other peripheral modules. The devices are intended to be mounted within control cabinets.

The automation system is designed for use within overvoltage category I (IEC 364 4 443) systems for controlling and regulating machinery and industrial processes in low-voltage installations in accordance with the following general parameters:

- Maximum rated supply voltage of 1,000 V AC (50/60 Hz) or 1,500 V DC
- Environment with maximum category 2 pollution (EN 61010-1)
- For use up to a maximum altitude of 2,000 m above msn.
- For indoor use only
- Max. ambient temperature inside and outside the control cabinet in accordance with the technical data (see "Technical data")

Qualified project planning and design, proper transport, storage, installation, use and careful maintenance are essential to the flawless and safe operation of the automation system.

The automation system may only be used within the scope of the data and applications specified in this documentation and associated user manuals.

The automation system must only be used:

- As intended
- In a technically perfect condition
- Without any unauthorised modifications
- By qualified users

- Observe the rules of the employer’s liability insurance association, the technical inspectorate, and the VDE (Association of German Electrical Engineers) or corresponding country regulations.

The device is intended for installation into a suitable cut-out on industrial machines and systems in indoor areas.

- When installing the device, check that the seal profiles are undamaged.
- For operation, refer to the applicable statement of ambient conditions (see "Technical data").
1.7. Transport and storage

The device is susceptible to impacts, heavy vibration, moisture and extreme temperatures.

**Transport and storage**
- Protect the device against major mechanical stresses during transport.
- Always pack the device in its original packaging for transport.
- For storage, refer to the applicable statement of ambient conditions (see “Technical data”).
- Protect the device against condensation and damp.

**Operation**
- If the device has been stored or transported in cold weather or under conditions or large fluctuations in temperature, do not start to operate it until it has acclimatised to room temperature for the place it is used.
- If condensation is present, wait at least 12 hours before starting to operate the device.

1.8. Unpacking

On receipt of the device, a check must be made that it is complete and undamaged.

- Check the packaging for external damage.
- If the packaging is seriously damaged or if damage to the contents is evident: Do not proceed further with opening the packaging, instead immediately inform the transport company and your supplier.
- Remove the packaging and keep it safe for subsequent transport.
- Check the contents for evidence of damage in transport.
- Check the contents for completeness against the order documentation and keep all the delivery documentation for future reference. The delivery documentation contains important information about the device and is part of the product.
- If you discover damage in transport, or if the equipment delivered does not match the order: Inform the supplier immediately.
2. Safety

Safety-related systems
The use of PLCs in safety-related systems requires specific measures. Wherever a PLC is to be used in a safety-related system, the user must be given comprehensive advice by the PLC manufacturer in addition to information on any available standards or regulations regarding safety installations.

- Before starting any work on devices, switch off all power feeds, including to peripherals.
- Keep all ventilation holes unobstructed.

Failure in certain components in an electronic control system may result in uncontrolled and/or unpredictable operational behaviour.

- All types of failure must be considered at the system level and the associated preventative measures identified.
- If necessary, request information from your automation system provider.

2.1. Safety instructions

The device may be operated only when it is in good working order. Exposed sharp edges pose an injury risk.

Working on the device
Do not start work on the device until all necessary safety precautions have been taken. Take precautions to avoid unforeseeable functional events and movements of the system.

- Bring the system into a safe condition.
- Switch the system and the device off.
- Secure the system against being switched on again.
- Disconnect the device from the system.

The casing of the device must not be opened.

- If work on the internal parts of the device is necessary, contact the manufacturer (see "Addresses").
3. Product description

Devices in the B FORTIS CC range are high-performance compact CODESYS controllers which combine in a single device the functions of several individual components. They permit high functional reliability, quick data communication and ease of configuration and programming. The devices can be combined with other controller components such as those of the modular Berghof MC system or ET system.

The CC-LITE Compact Controller is the smallest controller in the B FORTIS range and is one of the medium-performance class devices based on the iMX6 controller. The CODESYS 3.5 (IEC 61131-3) development environment from 3S-Smart Software Solutions is used for programming the device. The CC-LITE controller can be connected by Ethernet to other peripheral modules. In addition the controller also has a USB interface.

The connections to the CC-LITE Compact Controller are located on the front. This device is intended for installation on a mounting rail in the control panel. All connections are of the plug-in type.

3.1. Overview

3.1.1. Overview CC-LITE

The CC-LITE does not have a display of its own and is installed on a mounting rail.

Fig. 1: Overview CC-LITE
### 3.2. Scope of delivery and accessories

**Scope of delivery**
Compact Controller CC-LITE: Order no.: S-01020101-0200
- Device
- 2-pin plug connector for power supply Phoenix FKC 2.5/2-ST-5.08 (1873058)

**Accessories**
- USB-to-Ethernet adapter (such as Lindy model 43176) order no.: S-02040101-0000

### 3.3. Product features

**Installation**
The device is designed for installation on a DIN mounting rail (35 mm) in a control cabinet in an industrial environment with a category 2 level of pollution.

**Processor**
In its basic configuration the device is equipped with an 800 MHz ARM® CPU with a Cortex™-A9 core.

**Ethernet**
1 Ethernet interface with 10/100 Mbit/s
The Ethernet interface is used for standard Ethernet connections. TCP/IP and UDP/IP protocols permit flexible connections to visualisation software, higher-level control units and to the IT infrastructure. Optional field buses (Ethercat; Modbus-TCP/IP etc.) can also be used.

If a field bus is used, we recommend the programming is performed using an ETHERNET USB adapter.

**USB**
The USB host interface allows a wide range of peripherals to be connected to the device. This allows a USB stick to be used for updating the application or for downloading data directly. Programming can also be performed via an ETHERNET USB adapter.

USB sticks with FAT/FAT32 formatting are supported.
If you require support for other USB formats, please contact our Technical Support.
Summary of features

ARM® CPU with Cortex™-A9 single-core (800 MHz)
Program memory and data memory (RAM): 256 MB on-board
Program memory (flash): up to 2GB on-board
1 USB host interface (USB 2.0)
1 Ethernet 10/100 Base T interface
4. Installation

4.1. Installation CC-LITE

The CC-LITE is designed to be installed on a mounting rail to DIN EN 60715:2001, 35 x 7.5 mm.

⚠️ CAUTION

Danger of burns
The surface of the device can become hot.
- Ensure that there is sufficient convectional cooling for heat to dissipate.
- Ensure that there is also a minimum of 20 mm free space both above and below the device.

Fig. 2: Installation of the device with clearances above and below

Requirements:
- The next module must be spaced at least 10 mm away.

1st Insert the device on to the mounting rail from above as shown, and keep the springs slightly compressed.
2nd Push the device down against the mounting surface and click it home.

The device is now engaged on the mounting rail.
5. Connection

**WARNING**

Uncontrolled and unpredictable operational behaviour!

Failure of certain components in electronic control systems may result in uncontrolled and unpredictable operational behaviour.

- All types of failure and the associated protection systems must be taken into account at system level.
- Comply with all automation system manufacturer instructions.

5.1. Power supply

The device is powered by an external 24 V DC power supply. It is not designed to be connected to a DC mains supply.

- Before plugging in the device, ensure that the external power supply meets the required specifications (type K to 61131-2).

### External power supply (24 V DC)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage</td>
<td>+24 V DC SELV (−15% / +20%)</td>
</tr>
<tr>
<td>Ripple current proportion</td>
<td>Max. 5 %</td>
</tr>
<tr>
<td></td>
<td>The direct voltage level must not fall below 20.4 V.</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Typical total 0.1 A, max. 0.2 A at +24 V DC</td>
</tr>
<tr>
<td>Energy buffering</td>
<td>10 ms (as delivered – affected by the ageing of the electrolytic capacitor)</td>
</tr>
</tbody>
</table>

### Internal power supply

A power supply for the system electronics for an input voltage of 24 V DC (−15% / +20%) is integrated into the device. The power supply has integrated protection against reverse polarity and is fitted with a 1.1 A polyfuse.

### X2 plug pin assignment

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>External power supply 24 V DC (−15% / +20%)</td>
</tr>
<tr>
<td>2</td>
<td>External GND power supply</td>
</tr>
</tbody>
</table>

Phoenix MSTB 2.5/2-G-5.08
Installation

- All connections and cables must be laid so as to prevent inductive and capacitive interference causing any damage to the device.
- Ensure that the infeed lines provide adequate current and voltage carrying capacity.

5.2. Data connections

5.2.1. Block circuit diagram CC-LITE

![Block circuit diagram CC-LITE]

Fig. 3: Block circuit diagram CC-LITE
5.2.2. Ethernet

The on-board Ethernet adapter has one 10/100-Base-T RJ-45 port for connection to the network. The interface (X4) can be used as a standard Ethernet interface or as a field bus (Ethercat, Modbus-TCP/IP etc.). Additional licences are necessary for the field buses.

Fig. 4: Ethernet interface X4

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>5</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>TX–</td>
<td>6</td>
<td>RX–</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>7</td>
<td>NC</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>

LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Colour</th>
<th>Meaning to IEEE 802.3 clause 25</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNK/RCV</td>
<td>green</td>
<td>Link, Data Receive&lt;br&gt;Flashing: connection active; data transfer in progress&lt;br&gt;Off: no connection established</td>
</tr>
<tr>
<td>SPEED</td>
<td>yellow</td>
<td>On = 100 Mbit/s&lt;br&gt;Off = 10 Mbit/s</td>
</tr>
</tbody>
</table>
5.2.3. USB

Devices with a USB interface can be connected to the USB host port (Rev. 2.0). Suitable USB device classes are:
CODESYS users: USB stick, key pad
Linux level: USB stick, mouse

![USB Interface](image)

**Fig. 5: USB interface X3**

<table>
<thead>
<tr>
<th>Pin</th>
<th>Assignment</th>
<th>Pin</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>VCC</td>
<td>B3</td>
<td>D+</td>
</tr>
<tr>
<td>B2</td>
<td>D–</td>
<td>B4</td>
<td>GND</td>
</tr>
</tbody>
</table>

**NOTE**

**Damage to USB stick and malfunction due to data loss!**

Removing a USB stick while it is still in use and data are being transferred can render the USB stick unusable. Open files which can no longer be accessed because the USB stick has been removed can block the device.

- Therefore ensure that all operations are complete before removing the USB stick.

**NOTE**

**Damage to property and malfunctions due to data loss!**

The USB interface is protected against overloading (> 0.5 A). In the event of a short circuit during operation, the control unit may trigger a reset of the system. Substantial property damage and damage to the USB device may ensue.

- Before using a USB device, check carefully its power requirements.
USB sticks can be inserted and withdrawn whilst the system is in operation. The USB stick is detected automatically and incorporated into the Linux directory /media/usbX. When the USB stick is withdrawn the directory /media/usbX will be deleted from the directory structure. Either the first partition on the USB stick, or, if the memory is not partitioned, the entire memory will be connected, i.e. the respective directory appears automatically. The X stands for a number from 1 (the first USB device) to 8 (the last/max. USB device).

- The USB interface plug is designed to withstand 1,000 plugging and unplugging cycles.

### 5.2.4. Earth

The connection to the functional earth is achieved by inserting the earth cable lug into the spade lug socket 6.3 x 0.8 at the rear of the device.

![Fig. 6: Inserting the earth cable lug into the spade lug socket](image-url)
6. Operation

6.1. Switching on and off

**NOTE**

**Damage or malfunction!**
- Do not insert, connect, undo or touch any connections whilst the device is in operation.
- Before starting any work on the device, switch off all power feeds, including those to any connected peripherals (sensors and programmable devices etc. with independent power supplies).

**NOTE**

**Damage to property!**
- Before connecting the power supply, ensure that all cabling and the polarity of all the connections are correct.

**Switching on**
The device does not have an on/off switch. The device starts automatically when the system is switched on or the power is connected.

**Switching off**
The device is switched off when the system is switched off or the power supply is disconnected.
6.2. Commissioning the network

6.2.1. CC-LITE

The device must be connected to the network with the correct settings before it can be used.

Fig. 7: identification plate with device serial number 00001 (example)

1st  Note down the IP address and subnet mask:

   ▶  IP address: 169.254.255.XX
      XX corresponds to the last 2 digits of the device serial number. Exception: 00 becomes 100.
   ▶  Subnet mask: 255.255.255.0

NOTE

Damage to property!

   ▶  Before connecting the power supply, ensure that all cabling and the polarity of all the connections are correct.

2nd  Supply the device with power (24 V).
3rd  Connect the device to a programming computer using a network cable (X4) and network switch.
4th  Open a web browser on the programming computer.
5th  Enter the IP address of the device into the web browser.
6th  The login screen will appear.

Fig. 8: login window
7th Use the following user name and password to log into the device:
   Name: admin
   Password: admin

8th The web configuration page will be displayed.

**Configuration**
- Network
- Real-Time-Clock
- Display
- FTP-Server
- Users

**System**
- Info
- Update
- Reboot
- Format Filesys

**PLC-Manager**
- Control
- Application Info
- Application Files
- Font Files

Fig. 9: List of web interface settings

9th Click on the "Network" link.
   The "Network Configuration" page is displayed.

**Network Configuration**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hostname</td>
<td>BGH-HMI6</td>
</tr>
<tr>
<td>Default Gateway</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>DNS Server 1</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>DNS Server 2</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>ETH0</td>
<td></td>
</tr>
<tr>
<td>ETH1</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 10: "Network Configuration" page

10th Check the network settings and make any necessary changes in the respective text boxes.
   Configuration CC-LITE: ETH0 = X4, ETH1 = X3 (USB to Ethernet)

11th Save the settings by clicking on "Save".

12th Additional settings can also be viewed and/or modified on the web configuration page (for example. "System Time", Display Resolution, Targetvisu).
In order to load all the modified settings, reboot the device:

- Disconnect the device temporarily from the power supply.
- or –
- Click on "Reboot" in the web interface and then confirm it on the next screen by clicking on "Reboot Module".

The device is now configured and ready for use.

6.3. Operation

The device has a RUN LED to indicate the readiness status, but has no specific control elements. The green RUN LED shows the system statuses. Do not switch the device off whilst the RUN LED is flashing green and the device is working. If the LED is lit continuously this means that the controller is in the RUN status. Settings are made via the web interface. During the boot process the device does not output any warnings via the LED. Settings are made via the web interface.

Further information on the operation and configuration of the controller can be found in the SYSTEM HANDBOOK for the Berghof IMX controller platform in CODESYS V3.

6.4. Troubleshooting

6.4.1. No network connection

- Check the cabling / switch.
- Check whether an IP address has been duplicated.
- Check the network settings on the PC: The subnet and the subnet mask settings must be the same as those for the controller.
- Check the firewall / anti-virus programs on the PC.
- Check the Lifeguard settings.
- Check for unknown IP addresses (see 6.4.3).

6.4.2. In error stop mode

1st Log in to the device via a web browser.
2nd Determine the cause of the fault (Diagnostics > PLC Log/System Log).
3rd Correct the fault.
4th Restart the device (switch the power off and on again).

The device is now ready for use.

6.4.3. Unknown IP address

If the IP address of the device is unknown, the device can be reconfigured by means of a USB update. The USB update script necessary for this is part of the target package and is supplied with the target. The USB update script can be manually downloaded from the closed download area or requested from Technical Support via the mail address support-controls@berghof.com.
Further information and troubleshooting for the USB update can be found in the IMX system handbook and in the online FAQ under: https://www.berghof-automation.com/service/faq/#usbupdate

Requirements:
- The file system of the USB stick to be used is FAT32
- A text editor that supports the Linux text format (such as Notepad++, Ultraedit) is available

1st Insert the USB stick into the PC and use Explorer to open it.
2nd Make sure that the directory “usbupdate-mx6” has been unpacked (the contents of the ZIP file have previously been extracted) and copy the directory as the root directory of the USB stick.

![Fig. 11: USB update in the root directory](image)

3rd Make sure that the USB update file structure is located on the USB stick directly in the top directory “usbupdate-mx6” and is not located in a lower sub-directory “usbupdate-mx6”.
4th If the file “usbupdate.ini” is not available, copy the file “usbupdate TEMPLATE-PLC.ini” and rename the copy as “usbupdate.ini”.

![Fig. 12: “Network Configuration” page](image)

5th Use a text editor that supports the Linux file format (such as Notepad++ or Ultraedit) to open the file “usbupdate.ini” (or the configuration file entered above).
6th Find the [sysconfig] section.

![Fig. 13: Sector [sysconfig]](image)
7th  Under [sysconfig], set the entry "do_sysconfig_from_file" to "yes".

```plaintext
;## Default value: no

do_sysconfig_from_file = yes
;## If set the system configurat
;## given settings file determin
;## all files in the sub directo
```

Fig. 14: Set to "load from file"

8th  Under [sysconfig], set the name of the configuration file in the entry "sysconfig_ini_name". Default: "configuration.ini"

```plaintext
;## Default value: no

sysconfig_ini_name = configuration.ini
;## The settings of this file will be m
```

Fig. 15: Name of the configuration file

9th  Make sure that all other entries in the file "usbupdate.ini" are set to "no", so that no other actions are performed.

10th  Save the file "usbupdate.ini" and close the text editor.

11th  Open the sub-directory "sysconfig" in the "usbupdate-mx6" directory.

12th  Use a text editor that supports the Linux file format to open the file "configuration.ini" (or the configuration file entered above).

13th  Find the [network] section.

14th  Under [network] enter the new IP address of the controller, e.g.:

```
eth0.mode="static"
eth0.ip="10.1.101.175"
Eth0.netmask="255.255.0.0"
default_gateway="0.0.0.0"
```
Fig. 17: Network settings in the configuration file

15th If any “comments” characters such as “;” or “#” are present at the start of the lines that were changed, remove them.

16th Save the file and close the text editor.

The USB stick is now ready to perform the USB update of an MX6 controller.

17th Switch off the controller that is to be updated.

18th Insert the USB stick into the controller and restore power to the controller.

The Run/Stop status LED will flash until the update is finished.

19th Wait until the LED stops flashing, then withdraw the USB stick.

20th Restart the device (switch the power off and on again).

The device is now configured with the values specified in the USB update, and is ready for operation.
7. Maintenance/upkeep

Repairs and corrective maintenance may be carried out only by the manufacturer or authorised customer service centres.

7.1. Maintenance

⚠️ WARNING

Uncontrolled and unpredictable operational behaviour!

Failures or malfunctions may result in uncontrolled and unpredictable operational behaviour.

- Do not insert, connect, undo or touch any connections whilst the device is in operation.
- Before starting any work on the device, switch off all power feeds, including those to any connected peripherals (sensors and programmable devices etc. with independent power supplies).

If the device is used correctly it should not require maintenance.

- Make sure all the ventilation holes are kept free of obstructions.
- Do not open the device. If work is required on the device, contact customer service.
8. Uninstallation

⚠️ CAUTION

Danger of burns
The surface of the device can become hot.

- If necessary, allow the device to cool down before uninstalling it.

Fig. 18: Uninstalling the device

1st  Use the slotted screwdriver to pull the retaining spring down fully and free the device below the mounting rail.

2nd  Pull the device downwards off the mounting rail.

3rd  Push the device upwards and remove it from the mounting rail.
9. Disposal

The device contains the following components which need to be disposed of separately:

→ Metals
→ Electronic components
→ Battery

The following options are available for disposal of the device:

**Disposal by the manufacturer**

➤ Unless agreed otherwise, you can return the devices to us for disposal.

**Disposal in accordance with regional regulations**

➤ Dismantle the device and disassemble it completely into its component parts.
➤ Send the metal parts for metal recycling.
➤ Sort the electronic parts (circuit boards, drives etc.).
➤ Dispose of the electronic scrap in accordance with the national laws and regulations.
10. Technical data

10.1. Compact Controller CC-LITE

<table>
<thead>
<tr>
<th>Ethernet controller</th>
<th>CC-LITE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU, user memory</td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td>800 MHz ARM® CPU</td>
</tr>
<tr>
<td>Program memory (flash)</td>
<td>up to 2 GB</td>
</tr>
<tr>
<td>Program memory and data memory (RAM)</td>
<td>up to 512 MB</td>
</tr>
</tbody>
</table>

Dimensions and weight

| Dimensions (WxHxD) | 80 x 111 x 37 mm |
| Weight             | approx. 250 g |

Operating conditions

| Operating temperature | 0 °C to 55 °C (in compliance with installation requirements) |
| Relative humidity     | Max. 85%, non-condensing |

Transport and storage

| Operating temperature | –20 °C to +70 °C |
| Relative humidity     | Max. 85%, non-condensing |

Operation

| Installation          | on a mounting rail to DIN EN 60715:2001, 35 x 7.5 mm |
| Certification         | to product standards DIN EN 61010-2-201, DIN EN 61131-2 |
| Development environment | CODESYS V3 (IEC 61131-3) |

Shock resistance

| Vibration | sinusoidal (EN 60068-2-6) test: Fc 10…150 Hz, 10 m/s² |
| Shock     | 15 G (approx. 150 m/s²), 11 ms duration, sinusoidal half-wave (EN 60068-2-27), Test: Ea |

EMC, protection rating

| Emitted interference    | EN 61131-2; EN 61000-6-3, residential areas |
| Resistance to interference | EN 61131-2; EN 61000-6-2, industrial areas |
| Protection class        | III |
| Protection rating       | IP20 |

Power supply (24 V power)

| Supply voltage | +24 V DC (–15 % / +20 %) SELV max. ripple component 5% |
### Ethernet controller

<table>
<thead>
<tr>
<th>Item</th>
<th>Designation</th>
<th>Item</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power consumption</td>
<td>typ. 0.1 A, max. 0.2 A at +24 V DC</td>
<td>Voltage failure disregard</td>
<td>10 ms at &lt; 20.4 V DC (factory setting)</td>
</tr>
<tr>
<td>Protection against reverse polarity</td>
<td>yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Ethernet interfaces

- No. / type of interface: 1x 10/100 Base T
- Connection system: RJ45
- Protocols: TCP/IP, Modbus TCP, BACnet, Profinet, EtherCAT (optional)

### USB interfaces

- No. / type of interface: 1x host USB 2.0 / USB plug port A
- No. plugging/unplugging cycles: Max. 1,000

### 10.2. Identification plate

![Identification plate example](image)

Fig. 19: Identification plate (example)

<table>
<thead>
<tr>
<th>Item</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>QR code (Identification no.)</td>
</tr>
<tr>
<td>2</td>
<td>Version (delivery version; as-delivered condition)</td>
</tr>
<tr>
<td>3</td>
<td>CE mark</td>
</tr>
<tr>
<td>4</td>
<td>Date of manufacture (year/calendar week)</td>
</tr>
<tr>
<td>5</td>
<td>Supply voltage</td>
</tr>
<tr>
<td>6</td>
<td>Identification no. (article no. and serial no.)</td>
</tr>
<tr>
<td>7</td>
<td>Device type description</td>
</tr>
</tbody>
</table>

The 'Version' field (delivered version) specifies the ex works condition of the module.
11. Standards and certificates

11.1. Standards

Applicable directives

- EMC directive 2014/30/EU
- RoHS directive 2011/65/EU

Applicable standards

- PLC standard
  EN 61131-2:2008-4
- Emission standards
  EN 61000-6-3:2012-11
- Safety provisions
  DIN EN 61010-2-201
- Technical documentation for assessing electrical and electronic equipment in respect of restriction of hazardous substances
  EN 50581:2012

11.2. Declaration of conformity

The declarations of conformity can be found on our website
www.berghof-automation.com/
and are available for downloading in respect of each product.

Example of a path:

Products ➔ Controllers / SPS ➔ Compact PLC ➔ CC-LITE ➔ Product

On each product page there is a link for downloading the declaration of conformity:

Downloads:

- Technische Daten
- Handbuch
- Anschlussbelegung
- Konformitätserklärung
- Broschüre

Fig. 20: Download menu
12. Customer services / addresses

Repairs and corrective maintenance may be carried out only by the manufacturer or authorised customer service centres.

12.1. Customer service

Berghof Automation GmbH
Harretstr. 1
72800 Eningen
Germany
T +49.7121.894-183
F +49.7121.894-100
e-mail: support-controls@berghof.com
www.berghof-automation.com

12.2. Addresses

EtherCAT Technology Group
ETG Headquarters
Ostendstraße 196
90482 Nuremberg
info@ethercat.org
www.ethercat.org

Beuth Verlag GmbH, 10772 Berlin or
VDE-Verlag GmbH, 10625 Berlin

VDE Verlag GmbH, 10625 Berlin or
Internet research: www.iec.ch
13. Appendix

13.1. Information on copyright and software licence

The firmware of the devices contains free software. Parts of this software are available under the following OpenSource licences, amongst others:

- GNU General Public License (GPL)
- GNU Lesser General Public License (LGPL)
- Mozilla Public License (MPL)
- FreeType License (FTL)

The source code of the free software may be requested from Berghof Customer Service within three years of delivery of the device, at cost price.

13.2. List of figures

Fig. 1: Overview CC-LITE .................................................................................................................. 12
Fig. 2: Installation of the device with clearances above and below .................................................. 15
Fig. 3: Block circuit diagram CC-LITE .............................................................................................. 17
Fig. 4: Ethernet interface X4 ......................................................................................................... 18
Fig. 5: USB interface X3 .................................................................................................................. 19
Fig. 6: Inserting the earth cable lug into the spade lug socket .......................................................... 20
Fig. 7: Identification plate with device serial number 00001 (example) ......................................... 22
Fig. 8: Login window ....................................................................................................................... 22
Fig. 9: List of web interface settings ............................................................................................... 23
Fig. 10: "Network Configuration" page .......................................................................................... 23
Fig. 11: USB update in the root directory ....................................................................................... 25
Fig. 12: "Network Configuration" page .......................................................................................... 25
Fig. 13: Sector [sysconfig] .............................................................................................................. 25
Fig. 14: Set to "load from file" ........................................................................................................ 26
Fig. 15: Name of the configuration file ............................................................................................. 26
Fig. 16: Sub-directory with the configuration file ............................................................................ 26
Fig. 17: Network settings in the configuration file .......................................................................... 27
Fig. 18: Uninstalling the device ....................................................................................................... 29
Fig. 19: Identification plate (example) ............................................................................................. 32
Fig. 20: Download menu ............................................................................................................... 33