B-Fortis CC-Lite series

Disclaimer

The content of this document has been checked for conformity with the hardware and software described. It is, however, impossible to rule out all discrepancies. As a result, we cannot be held responsible if the content is not fully compliant. The information in this document is checked regularly and any necessary corrections are included in subsequent editions. Suggestions for improvement are always welcome. Subject to technical modifications.

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Notes about this handbook

This equipment handbook contains information which is specific to the product and valid at the time of printing.

This equipment handbook is only complete in conjunction with the product-related hardware and software manuals required for the specific application.

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Revision log

Version	Date	Description
0.1	19/09/2018	Preliminary version derived from ECC2100 Slim
0.2	15/10/2018	New name, corrections to technical data, further modifications
0.3	19/10/2018	New graphics, corrections
0.4	13/11/2018	Corrections and additions
0.5	03/12/2018	Review
0.6	04/12/2018	Initial version
0.7	07/05/2020	Conversion to S-number system
1.0	18/06/2020	Formatting revised in the document
1.2	19/09/2022	Cyber security added

Table of contents

1 General information

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

1.1 Notes about this handbook

This user handbook is a component of the product and applies to the following devices:
→   B-Fortis CC-Lite

→   It contains information on the following topics:
→   Areas of application
→   Safety
→   Mechanical design
→   Electrical design
→   Connections
→   Start-up
→   Servicing and maintenance
→   Decommissioning
→   Disposal

►   Keep this user handbook available alongside the product at all times.

1.2 Symbols and visual depictions

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

Symbol		Meaning
→	…	List entry
►	…	Individual instruction or list of instructions which can be carried out in any order.
1.	…	List of instructions which must be carried out in the order given.
2.	…	
i		Additional product information

1.3 Structure of the warnings:

⚠ WARNING

Optional:	Type and source of the danger
More	Brief description and consequences
symbols	► Preventive measures

Hazard categories and indications

The following indications are used for warning messages that must be observed to ensure your personal safety and avoid any damage to property.

The indications have the following meanings:

⚠ DANGER

Serious injury or death

Failure to observe the safety measures will result in death or serious injury.

► Take preventive measures.

⚠ WARNING

Possible serious injury or death

Failure to observe the safety measures may result in death or serious injury.

► Take preventive measures.

⚠ CAUTION

Possible minor injuries

Failure to observe the safety measures may result in minor injuries.

► Take preventive measures.

NOTICE

Possible damage to property

Failure to observe the safety measures may result in damage to property.

► Take preventive measures.

1.4 Qualified personnel

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

→ The device must only be used in a perfect, fully functional condition.

→ The user handbook must always be kept legible and fully available.

→ Only sufficiently qualified and authorized personnel carry out assembly, installation, start-up and maintenance of the device.

→ These authorized personnel must receive regular training in all relevant questions of occupational health and safety and environmental protection and must be familiar with the contents of this user handbook, particularly the sections containing safety instructions.

→ 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 operation of machinery and installations where the device is being used must be observed.

→ The user must always be kept abreast of any current relevant information regarding the device and its use or operation.

→ The user is responsible for coordinating the use of the safety-related control components with the responsible authority and for adhering to its specifications.

1.6 Intended use

The device is a component of the B FORTIS Compact Control family for industrial control applications from the medium performance range. It enables communication via EtherCAT, Profinet, etc. with I/O or other peripheral modules. The devices are intended for control cabinet installation.

The automation system is designed for use in overvoltage category I (IEC 364-4-443) for the control and regulation of machinery and industrial processes in low-voltage installations in accordance with the following basic conditions:
Maximum rated supply voltage of 1,000 V AC (50/60 Hz) or 1,500 V DC
For use in an environment with max. category 2 level of pollution (EN 61010-1).
For use in a maximum altitude of 2,000 m a.s.l.
For indoor use only
Max. ambient temperature inside and outside the control cabinet according to the technical specifications (see "Technical data").

Correct and safe operation of the automation system requires qualified project planning, proper transport, storage, installation and use as well as careful maintenance.
The automation system may only be used within the scope of the information and applications specified in this documentation and associated user handbooks.

The automation system must only be used as follows:
→   As intended
→   In technically perfect condition
→   Without unauthorised modifications
→   By qualified users only

►   Observe the rules of the employers' liability insurance association, the German Technical Inspection Association (TÜV), the Association of German Electrical Engineers (VDE) or relevant national regulations.

The device is intended for installation in a suitable installation cut-out in industrial machines and systems in indoor areas.
►   During installation, make sure that the existing seal profiles are undamaged.
        For operation, refer to the applicable ambient conditions (see "Technical data").

1.7 Transport and storage

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

1.7.1.1 Transport and storage
► Protect the device from heavy mechanical stresses during transport.
► Always transport the device in its original packaging.
► For storage, refer to the applicable ambient conditions (see "Addresses").
► Protect the device from condensation and moisture.

1.7.1.2 Operation
► If the device has been stored or transported in cold weather or under conditions of large fluctuations in temperature, do not start to operate it until it has acclimatized to room temperature for the place in which it is used.
► Wait at least 12 hours after it has reached room temperature before operating the device.

1.8 Unpacking

Upon receipt of the device, make sure that it is undamaged and complete.

► 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 delivery documentation for future reference. The delivery documentation contains important information about the device and is part of the product.
► If you notice any damage in transport or the contents do not match the order: inform the suppliers immediately.

2 Safety

2.1.1.1 Safety-related systems

The use of PLC controls in safety-related systems requires specific measures. If a PLC controller is to be used in a safety-related system, the user must be given comprehensive advice by the PLC manufacturer in addition to any available standards or guidelines regarding safety installations.

► Before starting work on the devices, switch off all power supplies, including those of connected peripherals.
► Keep all ventilation openings unobstructed.

The failure of certain components in an electronic control system may result in uncontrolled and/or unpredictable operational behavior.

► 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.

2.2 Safety instructions

The device may only be operated in a flawless condition. Exposed sharp edges pose a risk of injury.

2.2.1.1 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 state.
► Switch the system and the device off.
► Secure the system against being switched on again.
► Disconnect the device from the system.

2.2.1.2 Do not open the device housing.

► If it is necessary to work on internal parts of the device, contact the manufacturer (see "1").

2.2.1.3 Password configuration

The passwords assigned by Berghof must be changed by you during the initial commissioning. You can make this change via the web menu, where you will also find the users created by Berghof (see chapter 7.1).

2.2.1.4 Cybersecurity

These controllers must not be connected directly to the Internet without external protection through suitable firewalls. In addition, we recommend a VPN connection for security.
Services that are not required should be deactivated (FTP/SSH,...).

Contact person for cybersecurity of Berghof products:
Berghof Automation Product Security Incident Response Team
psirt.automation@berghof.com

3 Product description

The devices from the B-Fortis CC-Lite series are compact COESYS high performance controllers combining the functions of several individual components in one device.

This enables high functional reliability, fast data communication and simple project planning and programming. The devices can be combined with other control components such as with the standardised Berghof MC or ET system.

The CC-Lite is the smallest module in the B-Fortis CC series and is a mid-range controller based on the iMX6.

The development environment CODESYS 3.5 (IEC 61131-3) from 3S-Smart Software Solutions is used for programming. The CC-Lite controller can be connected to other peripheral modules via Ethernet. The controller also has a USB interface.

The connections are located on the front of the CC-Lite compact controller. This device is intended for installation on a mounting rail in the control cabinet.

All the connections are of the plug-in type.

3.1 Overview

3.1.1 Overview of B-Fortis CC-Lite

i The CC-Lite is installed on a mounting rail.

Fig. 2: Overview of CC-Lite

No.	Designation	No.	Designation
X2	Power supply, digital inputs/outputs	X4	Ethernet (ETH0)
X3	USB 2.0	X40	(reserved)

3.2 Scope of delivery and accessories

3.2.1.1 Scope of delivery
B-Fortis CC-Lite S0x: Order number: S-01020101-0x00 (x=1;2;3), device in the respective version
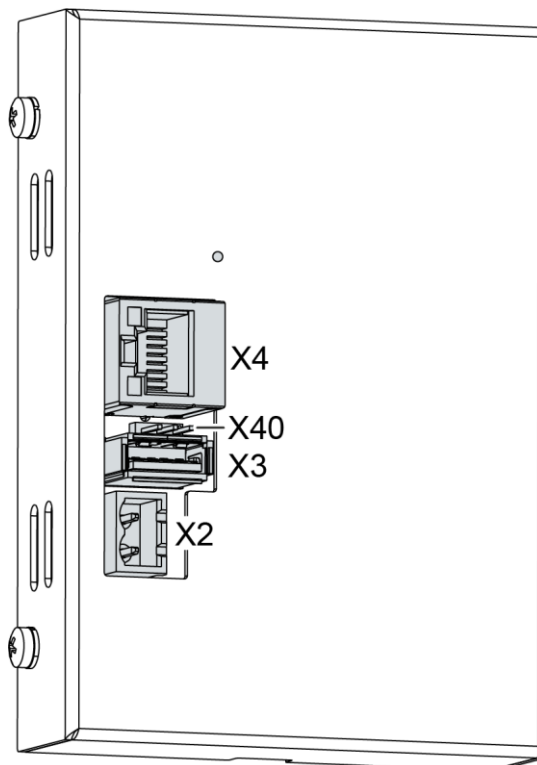
3.2.1.2 Accessories
The following accessories can be ordered directly as an option or separately via your own order number:

3.2.1.3 CC-Lite plug kit:
2-pin Plug-in connector for power supply (Phoenix FKC 2.5/2-ST-5.08)

3.2.1.4 Order option: – H001
Note: the appropriate plug kit for the respective device is supplied
Order number: S-02020202-0100

3.2.1.5 Extensions for tooling and debugging
USB-to-Ethernet adapter   order number: S-02040101-0000
USB to WLAN adapter   EasyConnect   order number: S-02040102-0000

3.3 Product features

3.3.1.1 Assembly
The device is designed for installation in a control cabinet on a DIN mounting rail (35 mm) in pollution degree 2 industrial environments.

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

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

When using field bus, programming via an ETHERNET to USB adapter is recommended.

3.3.1.4   USB

The USB host interface allows a wide range of peripherals to be connected to the device. This allows a USB thumb drive to be used for updating the application or for downloading data directly. Programming is also possible via an ETHERNET to USB adapter.

> USB thumb drives with FAT/FAT32 formatting are supported.
> If you require support for other USB formats, please contact our Technical Support team.

3.3.1.5   Summary of features

→ ARM® CPU with CortexTM-A9 single-core (800 MHz)
→ Program and data memory (RAM) 256 MB onboard
→ Program memory (flash): up to 2 GB onboard
→ 1 USB host interface (USB 2.0)
→ 1 Ethernet 10/100 Base T interface

4 Assembly

4.1 Installation CC-Lite

The CC-Lite is intended for installation on mounting rails according to DIN EN 60715:2001, 35 x 7.5 mm.

⚠ **CAUTION**

Danger of burns!

The surface of the device can get hot.
- ►   Ensure that there is sufficient convectional cooling.
- ►   There must be at least 20 mm clearance above and below the device.

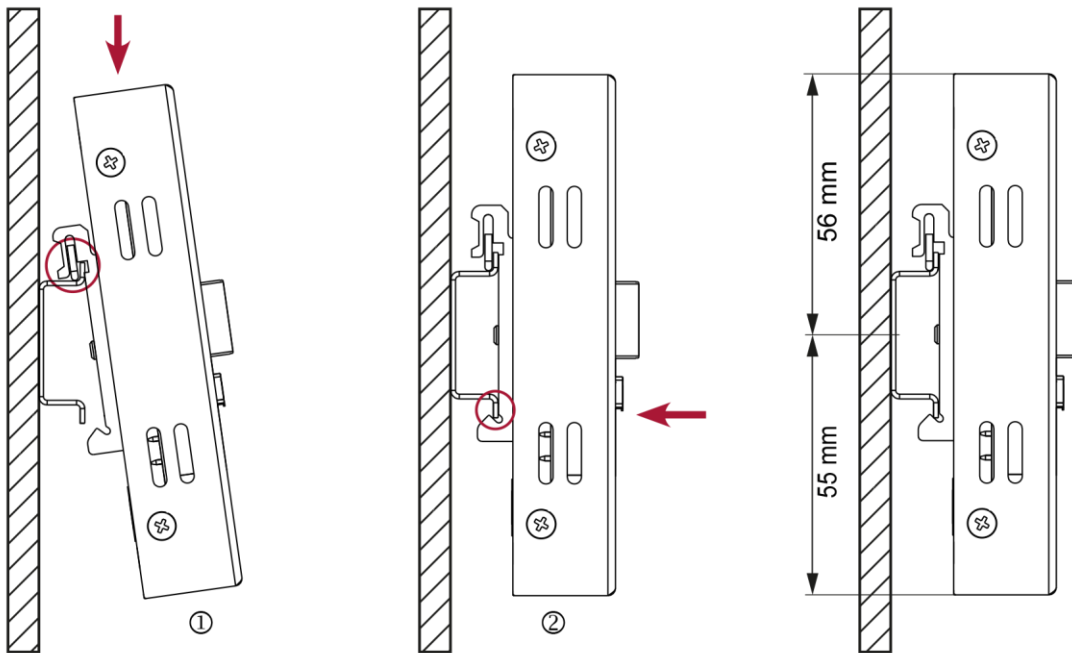Fig. 2: Installing the device and distance dimensions at top/bottom

Prerequisites:
→   There must be at least 10 mm clearance between the device and the next adjacent module.

1.   Guide the device from above towards the mounting rail and gently hold the spring pressed in.
2.   Push the device at the bottom towards the mounting wall and snap into place.

The device is clamped on the mounting rail.

5 Connection

> ⚠ **WARNING**
>
> Uncontrolled and unpredictable operational behaviour!
> The failure of certain components in electronic control systems may result in uncontrolled and unpredictable operational behaviour.
> ► All types of failure and the associated fuse systems are to be taken into account at system level.
> ► Follow the automation system manufacturer's instructions.

5.1 Power supply

The device is powered by an external 24 V DC power supply.

► Before plugging in the device, make sure that the external power supply meets the required specifications (type K to DIN EN 61131-2).
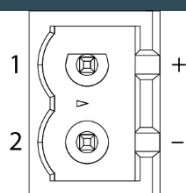
External power supply (24 V DC)	
Supply voltage	+24 V DC SELV (-15% / +20%)
AC voltage component	Max. 5% The DC voltage level must not fall below 20.4 V.
Power consumption	Total typ. 0.1 A, max. 0.2 A at +24 V DC
Power buffering	10 ms (in the initial state – note the ageing of the capacitors)

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 unit has built-in reverse polarity protection and a Polyfuse 1.1 A for protection.
X2 pin assignment

X2 power supply		
 Phoenix MSTB 2.5/2-G-5.08	1	External power supply 24 V DC (-15% / +20%)
	2	External power supply GND

5.1.1.1 Installation
► All connections and cables should be set up in a way that prevents interference and capacitive interference to the device.
► Make sure that the current and voltage resistance of the supply cables are sufficient.

5.2 Data connections

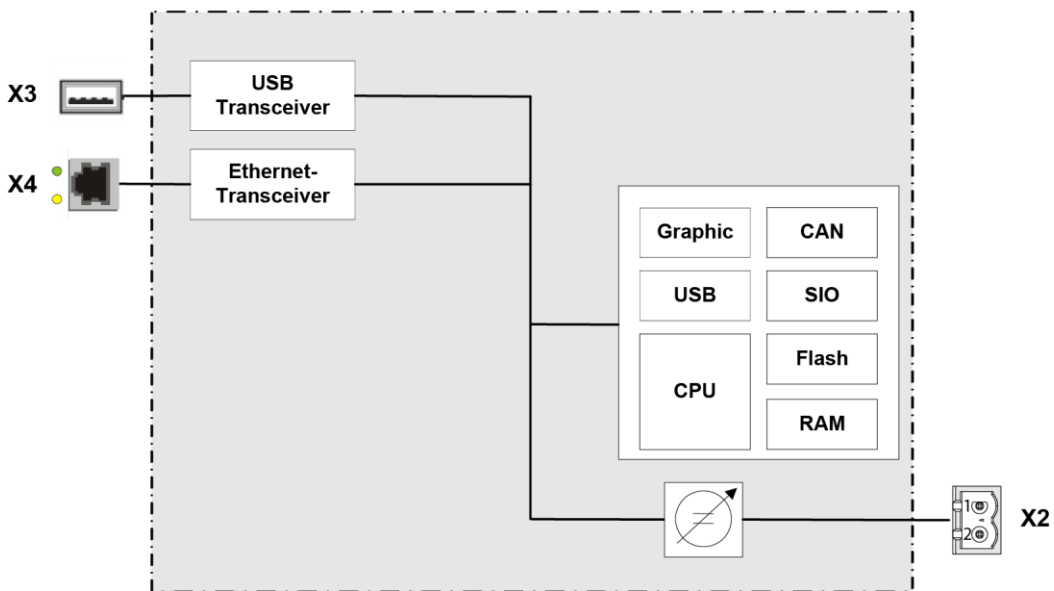### 5.2.1 Block diagram of CC-Lite

Fig. 3: Block diagram of CC-Lite

5.2.2 Ethernet interface

The onboard Ethernet adapter has one 10/100 Base-T interface with RJ-45 connection for networking. The interface (X4) can be used as a standard Ethernet interface or as a field bus (Ethercat, Modbus-TCP/IP, etc.). Additional licences are required for the field
buses.
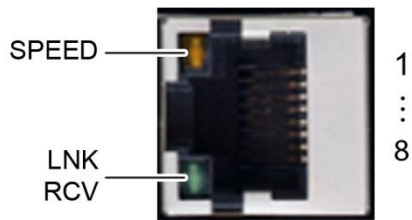
Fig. 4: Ethernet interface X4

Assignment of the Ethernet interface plug X4			
Pin	Assignment	Pin	Assignment
1	TX+	5	NC
2	TX–	6	RX–
3	RX+	7	NC
4	NC	8	NC

LEDs		
LED	Colour	Meaning according to IEEE 802.3 clause 25
LNK/RCV	Green	Link, Data Receive Flashing: connection active; data transfer in progress Off: no connection established
SPEED	Yellow	On = 100 Mbit/s Off = 10 Mbit/s

5.2.3 USB interface

Devices with a USB interface can be connected to the USB host port (Rev. 2.0). Suitable USB device classes are:

CODESYS user: USB thumb drive, keyboard

Linux level: USB thumb drive, mouse

Fig. 5: USB interface X3

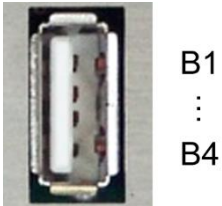| Assignment of the USB interface plug X3			
Pin	**Assignment**	**Pin**	**Assignment**
B1	VCC	B3	D+
B2	D–	B4	GND

NOTICE

Damage to the USB thumb drive and malfunctions due to data loss!

Removing a USB thumb drive while it is still in use and data is being transferred can render the USB thumb drive unusable. Open files which cannot be accessed due to removal of the USB thumb drive can block the device.

► Therefore, ensure that all data operations are complete before removing the USB thumb drive.

NOTICE

Property damage and malfunctions due to data loss!

The USB interface is protected against overload (> 0.5 A). In the event of a short-circuit during operation, the controller can trigger a system reset.

This can result in considerable damage to property and damage to the USB device.

► Before using a USB device, check its power consumption.

USB thumb drives can be inserted and removed during operation. The inserted USB thumb drive is detected automatically and appears in the Linux directory/media/usbX. When the USB thumb drive is removed, the directory /media/usbX is again removed from the directory structure.
Either the first partition on the USB thumb drive, or, if the memory is not partitioned, the entire memory will be connected, i.e., the respective directory appears automatically.
The X represents a number from 1 (first USB device) to 8 (last/max. USB device).

> **i** The mechanical design of the USB interface is designed to withstand 1,000 plugging and unplugging cycles.

5.2.4 Earthing

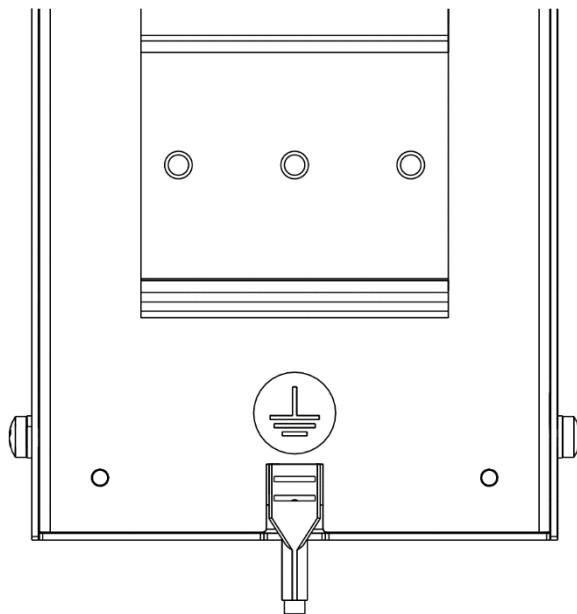The functional earth is connected via a cable with 6.3 x 0.8 blade receptacles on the rear of the unit.

Fig. 6: Connecting the earth via a cable with blade receptacles

6 Operation

6.1 Switching on and off

NOTICE

Damage or malfunction!
- ► Do not insert, connect, undo or touch any connections while the device is in operation.
- ► Before starting any work on the device, switch off all power supplies, including those to any connected peripherals (externally powered encoders, programming devices etc.).

NOTICE

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

6.1.1.1 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.

6.1.1.2 Switching off
The device is switched off when the system is switched off or the power supply is disconnected.

7 Commissioning the network

7.1 Initial start-up of the network

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

1.   Note down the IP address and network mask of the initial state:
►   IP address: 169.254.255.XX
        XX corresponds to the last 2 digits of the device serial number. Exception: 00 becomes 100.
►   Network mask: 255.255.255.0

NOTICE

Damage to property!

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

2.   Supply power to the device (24 V).
3.   Connect the device to a programming computer using a network cable (X4) and network switch.
4.   Open a web browser on the programming computer.
5.   Enter the IP address of the device into the web browser.
6.   The login window is displayed.

Fig. 7: Login window

7.   Log in with the following login information:
        Name: admin
        Password: admin
8.   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. 8: List of web interface settings

9.   Click on the "Network" link.
           The "Network Configuration" page will be displayed.

Network Configuration

COMMON

Hostname	BGH-IMX6
Default Gateway	0.0.0.0
DNS Server 1	0.0.0.0
DNS Server 2	0.0.0.0

ETH0

Mode:	static
IPAdress	169.254.255.100
NetMask	255.255.255.0

ETH1

Mode:	ethercat

Save

Fig. 9: "Network Configuration" page

10.   Check the network settings and make any changes in the text boxes, if required.
           CC-LITE configuration: ETH0 = X4, ETH1 = X3 (USB to Ethernet)
11.   Save the settings by clicking on "Save".
12.   Additional settings can also be viewed and/or modified on the web configuration page (e.g. "System
           time", display resolution, TargetVisu).
13.   In order to accept all of the modified settings, reboot the device:
           Briefly disconnect the device from the power supply.
           – or –
           Click on "Reboot" in the web interface and then confirm on the next page by clicking on "Reboot
           Module".
The device is configured and ready for use.

7.2 Operation

The device has RUN LED for displaying the operating statuses but no separate operating elements. The green RUN LED indicates system statuses. As long as the green RUN LED is flashing and the device is working, the device must not be switched off. Continuous illumination of the LED means that the controller is in RUN state. Settings are made via the web interface.
During the boot process, the device does not give any warnings via the LEDs.
Settings are made via the web interface.

Further information on operating and setting up the controller can be found in the Berghof IMX Control Platform SYSTEM MANUAL in CODESYS V3.

7.3 Troubleshooting

7.3.1 No network connection

- ► Check the wiring/switch.
- ► Check whether an IP address has been assigned twice.
- ► Check the network settings on the PC: The subnet and subnet mask must match the settings in the controller.
- ► Check firewall/anti-virus programs on the PC.
- ► Check the Lifeguard setting.
- ► Check for an unknown IP address (see 7.3.3).

7.3.2 In error stop mode

1. Log into device on web browser
2. Establish cause of fault (Diagnostics > PLC Log/System Log).
3. Correct the cause of the fault.
4. Restart the device (disconnect and re-establish the power supply)

Device is ready for use.

7.3.3 Unknown IP address

If the IP address of the device is unknown, a USB update can be carried out to reconfigure it. The USB update script required for this forms part of the target package and is supplied with the target. The USB update scripts can be manually downloaded from the download area or requested from Technical Support via the email address **support-controls@berghof.com**.

For more information and troubleshooting of the USB update, refer to the IMX System Manual and the online FAQ at: https://www.berghof-automation.com/service/faq/#usbupdate

7.3.3.1 Prerequisites:

→   The file system of the USB thumb drive used is FAT32.

→   Text editor available which supports the Linux text format (e.g. Notepad++, Ultraedit)

1.   Insert the USB thumb drive into the PC and open with Explorer.

2.   Make sure that the "usbupdate-mx6" folder is unpacked (extract the ZIP file first) and copy the folder into the main directory of the USB thumb drive.
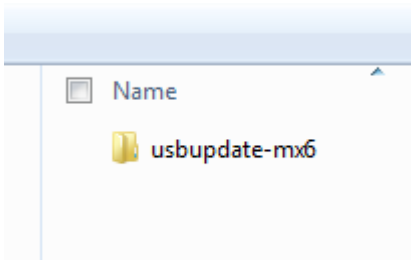

Fig. 10: USB update in the main directory

3.   Make sure that the USB update file structure on the USB thumb drive is located directly in the uppermost directory "usbupdate-mx6" and not only in another "usbupdate-mx6" subdirectory.

4.   If "usbupdate.ini" is missing, copy the file "usbupdate_TEMPLATE-PLC.ini" and rename the copy to "usbupdate.ini".
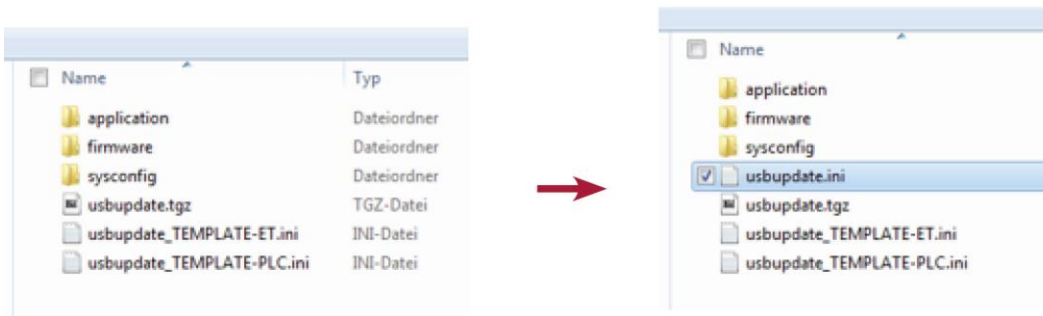

Fig. 11: "Network Configuration" page

5.   Open file "usbupdate.ini" with a text editor that supports the Linux text format (e.g. Notepad++ or Ultraedit).

6.   Search for section [sysconfig].

Fig. 12: Sector [sysconfig]

7.   Under [sysconfig], set "do_sysconfig_from_file" to "yes".

```
;## Default value: no

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

Fig. 13: Set file loading

8.   In [sysconfig], enter the name of the configuration file in "sysconfig_ini_name".
        Standard: "configuration.ini"

```
8   ;## Default value: no
9
0   sysconfig_ini_name = configuration.ini
1   ;## The settings of this file will be m
```

Fig. 14: Name of configuration file

9.   Make sure that all other entries in the "usbupdate.ini" file are set to "no" so that no other actions are
        performed.
10.   Save the file "usbupdate.ini" and close the text editor.
11.   Open the "sysconfig" subdirectory in the "usbupdate-mx6" folder.

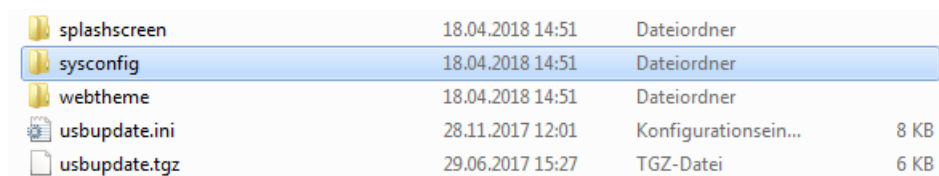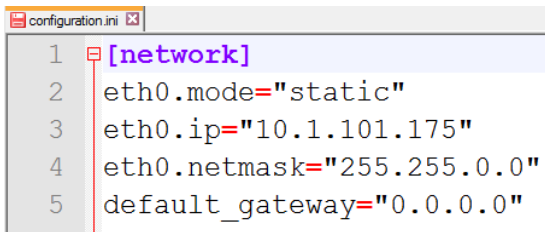|				
📁 splashscreen	18.04.2018 14:51	Dateiordner		
📁 sysconfig	18.04.2018 14:51	Dateiordner		
📁 webtheme	18.04.2018 14:51	Dateiordner		
⚙ usbupdate.ini	28.11.2017 12:01	Konfigurationsein…	8 KB	
📄 usbupdate.tgz	29.06.2017 15:27	TGZ-Datei	6 KB	

Fig. 15: Subdirectory with configuration file

12.   Open "configuration.ini" file (or the configuration file entered above) with a text editor that supports
        the Linux text format.
13.   Search for section [network].
14.   In [network], enter the new IP address of the controller, for example:
        eth0.mode="static"
        eth0.ip="10.1.101.175"
      Eth0.netmask="255.255.0.0"
      default_gateway="0.0.0.0"

```
configuration.ini
1  [network]
2  eth0.mode="static"
3  eth0.ip="10.1.101.175"
4  eth0.netmask="255.255.0.0"
5  default_gateway="0.0.0.0"
```

Fig. 16: Network settings in configuration file

15. Remove any comment characters such as ";" or "#" at the start of the modified lines, if these exist.

16. Save the file and close the text editor.
The USB is prepared for the USB update of an MX6 controller.

17. Switch off the controller to be updated.

18. Insert the USB thumb drive in the controller and restore power to the controller.
The Run/Stop status LED flashes until the update is finished.

19. Wait until the LED has stopped flashing and remove the USB thumb drive.

20. Restart the device (disconnect and re-establish the power supply).

The device is configured with the values entered in the USB update and ready for use.

8 Servicing / Maintenance

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

8.1 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 while the device is in operation.
> - ► Before starting any work on the device, switch off all power supplies, including those to any connected peripherals (externally powered encoders, programming devices etc.).

If the device is used correctly it should not require maintenance.
- ► Make sure all the ventilation openings are kept free of obstructions
- ► Do not open the device. If it is necessary to work in the device, contact the Service department.

9 Disassembly

⚠ **CAUTION**

Danger of burns!
The surface of the device can get hot.
►   If necessary, allow the device to cool down before disassembling it.
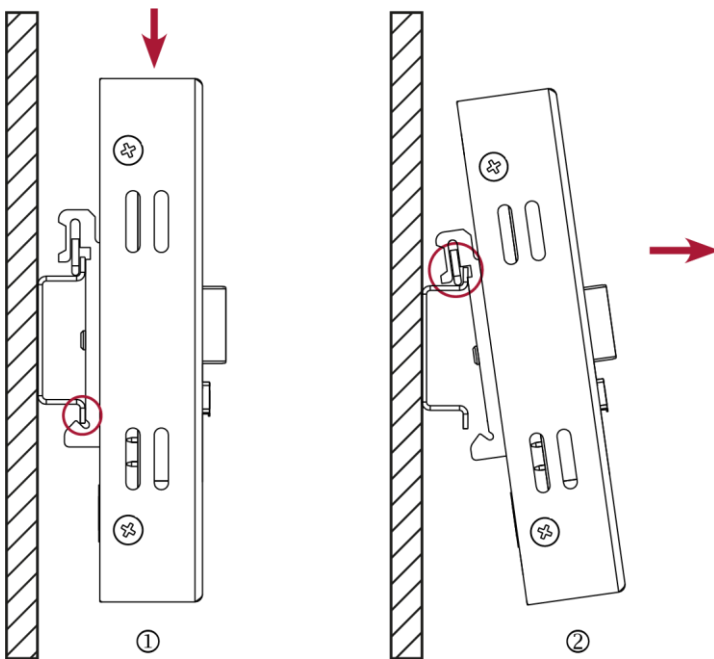

Fig. 17: Dissembling the device

1.   Use a slotted screwdriver to pull the retaining spring all the way down and remove the unit from the mounting rail at the bottom.
2.   Pull the device at the bottom away from the mounting rail.
3.   Push the device upwards and remove from the mounting rail.

10 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:

10.1.1.1 Disposal by the manufacturer
►   Unless otherwise agreed, you may return the equipment for disposal.

10.1.1.2 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 electronic scrap in accordance with the national laws and regulations.

11 Technical data

B-Fortis	CC-Lite S01 – S03
Order numbers	S-01020101-0100 (S01) S-01020101-0200 (S02) S-01020101-0300 (S03)
CPU, user memory	
CPU	800 MHz ARM® CPU
Program memory (flash)	up to 2 GB
Program and data memory (RAM)	up to 512 GB
Dimensions and weights	
Dimensions (WxHxD)	80 x 111 x 37 mm
Weight	approx. 250 g
Operating conditions	
Ambient temperature	0°C to 55°C (in compliance with installation requirements)
Relative humidity	Max. 85, non-condensing
Transport and storage	
Ambient temperature	-20°C to +70°C
Relative humidity	Max. 85, non-condensing
Operation	
Assembly	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, half-sine (EN 60068-2-27) Test: Ea
EMC, protection rating	
Emission standard	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 unit)	
Supply voltage	+24 V DC (-15% / +20%) SELV max. AC voltage component 5%

| B-Fortis	CC-Lite S01 – S03
Power consumption	typ. 0.1 A, max. 0.2 A at +24 V DC
Protection against reverse polarity	Yes
Bridging in case of power failure	10 ms at < 20.4 V DC (ex works)
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

12 Type plate
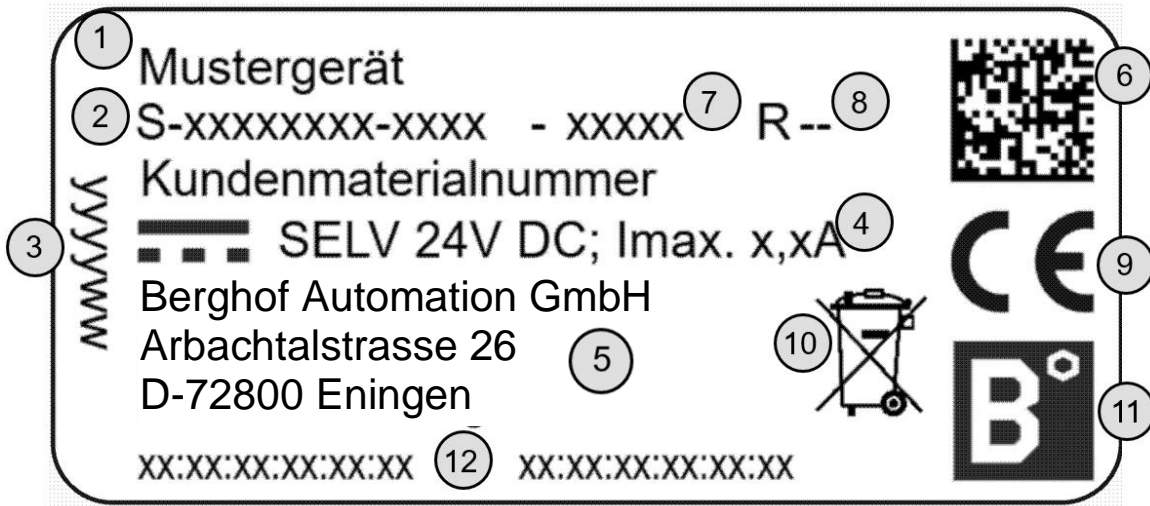
Fig. 18: Type plate

No.	Designation	No.	Designation
1	Product description	7	Device serial number
2	Order number/item number	8	Version identification
3	Date of manufacture (year/week)	9	CE mark
4	Supply voltage and maximum current rating	10	Disposal information
5	Manufacturer (manufacturer's address)	11	Manufacturer's logo
6	QR code (identification no.)	12	MAC addresses of device

13 Device variants and identification

Designation	Order number	Features
B-Fortis CC-Lite S01	S-01020101-0100	256 MB RAM / 256 MB Flash
B-Fortis CC-Lite S02	S-01020101-0200	256 MB RAM / 512 MB Flash
B-Fortis CC-Lite S03	S-01020101-0300	256 MB RAM / 2 GB Flash

Options and extensions
Options are ordered via the combination
"Order number option1 option2…"

e.g.: **S-01010104-0204 S001 S002 H001**

In addition to the order number, additional extensions in the form of hardware, software and customised options are indicated as follows:

Option code	Option type
S000-S999	Software options e.g. field buses
H000-H999	Hardware options e.g. plug kit, certifications
C000-C999	Customised options e.g. customised firmware, customised front membrane display

For more information about the options available for this device, please refer to our product catalogue or website.

The additional features included or installed in each device are listed on the options label. This label can be found on the device and/or on the packaging.

Fig. 19: Options label

Extensions for tooling and debugging
USB-to-Ethernet adapter   order number: S-02040101-0000
USB to WLAN adapter   EasyConnect   order number: S-02040102-0000

14 Standards and certificates

14.1 Standards

14.1.1.1 Applicable directives
→   EMC Directive 2014/30/EU
→   RoHS Directive 2011/65/EU

14.1.1.2 Applicable standards
→   PLC standard
      EN 61131-2:2008-4
→   Emission standard
      EN 61000-6-3:2012-11
→   Safety provisions
      DIN EN 61010-2-201
→   Technical documentation for the assessment of electrical and electronic products with respect to the
      restriction of hazardous substances
      EN 50581:2012

14.2 Declaration of conformity

The declaration of conformity is available on our website
www.berghof-automation.com/
next to the respective product for download.

Example path:

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

A link to download the declaration of conformity can be found on the product page:

Downloads:

› Technische Daten
› Handbuch
› Anschlussbelegung
› Konformitätserklärung
› Broschüre

Fig. 20: Download menu

15 Customer services / addresses

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

15.1 Customer services

Berghof Automation GmbH
Arbachtalstrasse 26
72800 Eningen
Germany
T +49.7121.894-183
F +49.7121.894-100
email: support-controls@berghof.com
www.berghof-automation.com

15.2 Addresses

EtherCAT Technology Group
ETG Headquarters
Ostendstraße 196
90482 Nürnberg, Germany
info@ethercat.org
www.ethercat.org

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

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

16 Appendix

16.1 Notes on copyright and the software licence

The device's firmware contains free software. Parts of this software are available under the following and other open source licences:

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

The source code for the free software can be requested from Berghof Customer Services at cost price within three years of delivery of the device.

16.2 List of figures