CU8870-0000
Compact-Flash card adapter for USB

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BECKHOFF

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1 Foreword

1.1 Notes on the documentation

This description is only intended for the use of trained specialists in control and automation engineering who are familiar with the applicable national standards. It is essential that the following notes and explanations are followed when installing and commissioning these components.

1.1.1 Liability Conditions

The responsible staff must ensure that the application or use of the products described satisfy all the requirements for safety, including all the relevant laws, regulations, guidelines and standards.

The documentation has been prepared with care. The products described are, however, constantly under development. For that reason the documentation is not in every case checked for consistency with performance data, standards or other characteristics. None of the statements of this manual represents a guarantee (Garantie) in the meaning of § 443 BGB of the German Civil Code or a statement about the contractually expected fitness for a particular purpose in the meaning of § 434 par. 1 sentence 1 BGB. In the event that it contains technical or editorial errors, we retain the right to make alterations at any time and without warning. No claims for the modification of products that have already been supplied may be made on the basis of the data, diagrams and descriptions in this documentation.

1.1.2 Conditions of delivery

Furthermore the general conditions of delivery of company Beckhoff Automation GmbH apply.

1.1.3 Copyright

1.2   Safety Instructions

1.2.1   State at Delivery

All the components are supplied in particular hardware and software configurations appropriate for the application. Modifications to hardware or software configurations other than those described in the documentation are not permitted, and nullify the liability of Beckhoff Automation GmbH.

1.2.2   Description of safety symbols

The following safety symbols are used in this operating manual. They are intended to alert the reader to the associated safety instructions.

Danger	
	This symbol is intended to highlight risks for the life or health of personnel.

Warning	
	This symbol is intended to highlight risks for equipment, materials or the environment.

Note	
	This symbol indicates information that contributes to better understanding.

2 Product Overview

2.1 Introduction

CU8870 is the Beckhoff CF card adapter for USB for DIN rail.The CF card can be used in industrial environment as process and control data storage. Any control with a USB port can be supplied with a CF storage. The device can be easiely mounted on the DIN rail.Other outstanding features are:

- User-friendly installation via integrated DIN rail adapter

- No power supply needed – the box is supplied by USB (5V DC)

- 12 Mbit, and 480 Mbit support for compatibility to USB1.1 and USB 2.0 standard

- Standard USB cable for data exchange

- compact industrial design

2.2 Technical Data

Product name	CU8870-0000
Number of USB type B ports (upstream)	1
Number of CF cards slots	1
Supported standard	USB 1.1, USB 2.0
Supported baud rates	12 Mbit/s, 480 Mbit/s
Status display	3 LEDs
USB wiring length	maximum 5 meters
Current consumption from 5 V USB	maximum 500mA @ 5V DC (for details see chapter power supply)
Dimensions (w x h x d)	app. 34mm x 100mm x 76mm (with lug for mounting rail release)
Weight	app. 95 g
Permissible ambient temperature	0°C to +55°C (operation) -25°C to +70°C (transport/storage)
Permissible relative humidity	5% to 95%, no condensation
EMC resistance burst / ESD	EN 60000-6-2 / EN 60000-6-4
Vibration / Shock resistance	EN 60068-2-6 / EN 60068-2-27, EN 60068-2-29
Assembly	on 35 mm mounting rail conforms to EN 50022
Installation position	Any
Protection class	IP20
Approvals	CE UL (see chapter UL requirements)

2.3 Dimensions

The product is characterized by small overall installed size. With a height of 100 mm, the module dimensions exactly match those of the Beckhoff Bus Terminals. Together with the lowered connector surfaces, this means that it can be used in a standard terminal box with a height of 120 mm.
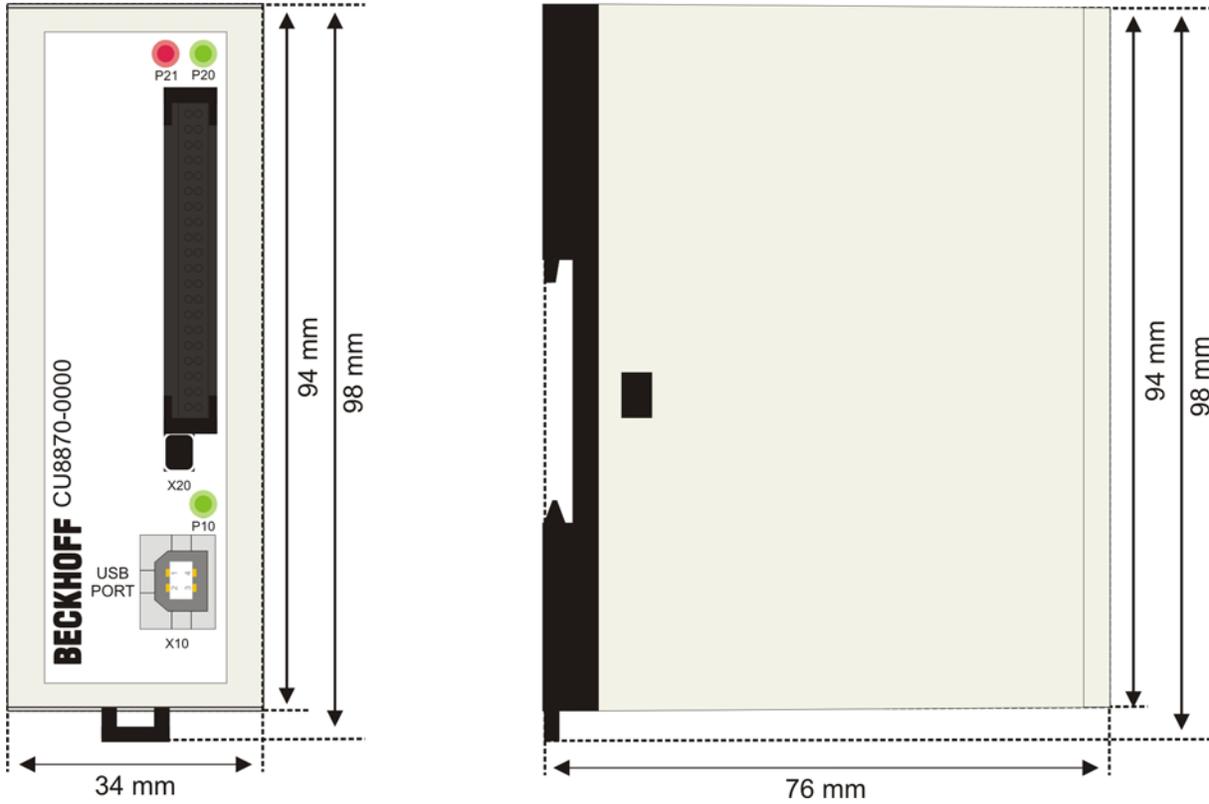
3 Installation

3.1 Mounting / Unmounting

The USB-Extender-Tx CU8870-0000 can be snapped onto a 35 mm mounting rail conforms to EN 50022.
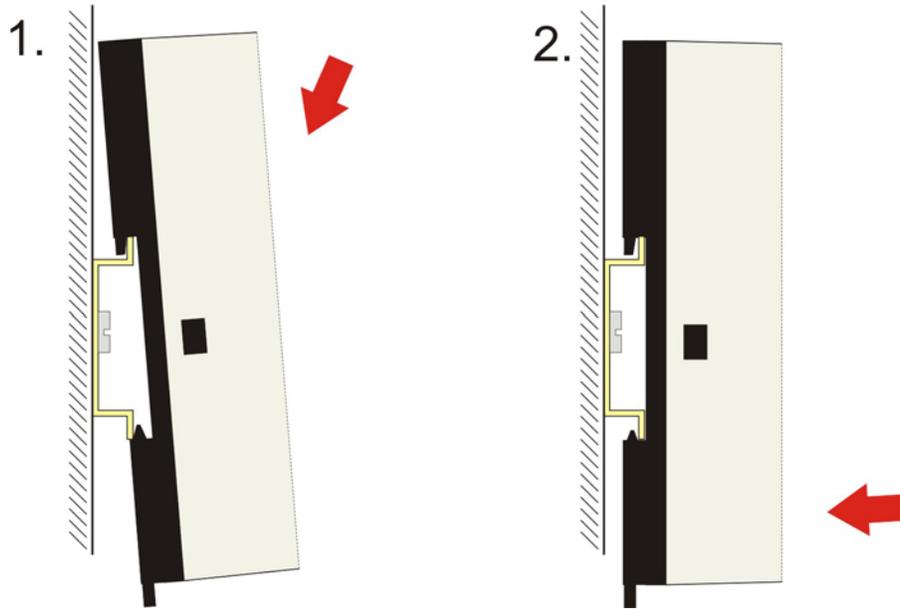
To release the CU8870-0000 from the mounting rail

- first pull the lug at the bottom of the hub downwards by using a screw driver (1.)

- then pull the hub from the mounting rail (2.)
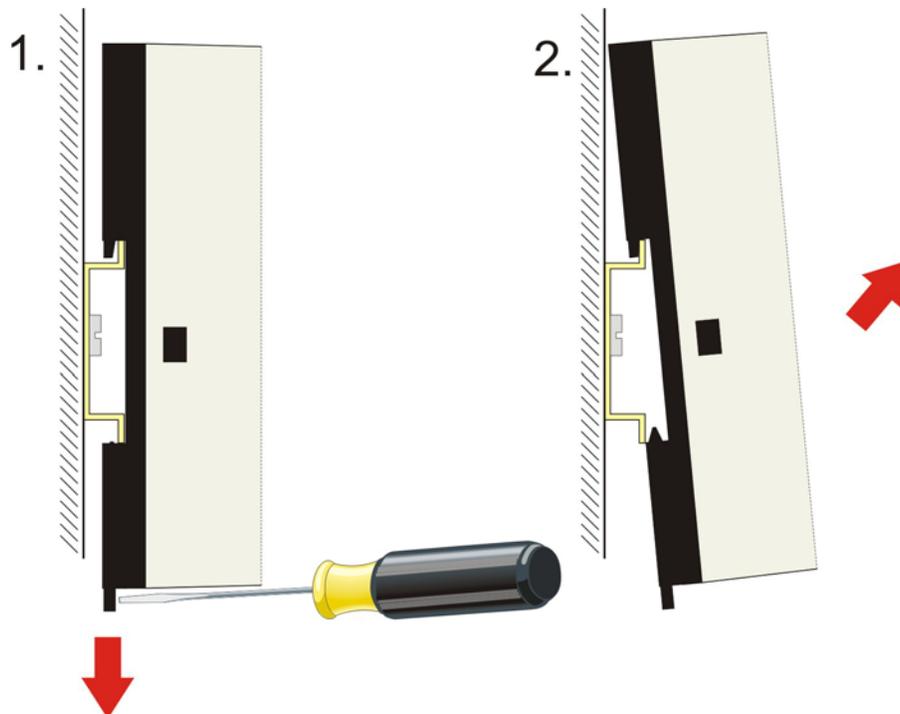
3.2 Power Supply
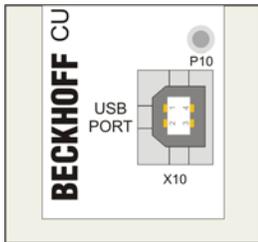
The CF card reader does not need any additional power supply. The power supply (5 V DC) is realized by the USB connector. The LED P10 lights green when power supply is connected.

3.2.1 Power consumption

The power consumption of the device depends on the CF media plugged in the reader. The table shows the values.

media	state	current consumption	power consumption
None	Standby	2 mA	10 mW
CF card	Idle	1 mA	5 mW
CF card	Access	20 mA	100 mW

3.2.2 UL requirements

Danger	
⚠	To meet the UL requirements, the USB hub CU8800-0000 must not be connected to unlimited power sources!

3.3 Compact-Flash card

The Compact Flash card (CF card) is a non-volatile memory media. Data to be retained in the event of a power failure should be saved on the CF card. The CF card operates similar to a hard disk.

Note	
ℹ️	It is recommended only use CF cards that are made for industrial use. (The cards can be ordered via Beckhoff Automation GmbH.) They possess a higher number of read / write cycles and an enhance temperature range (up to + 85°C). A proper operation of the device can only be guaranteed with the use of CF cards from Beckhoff Automation GmbH!

3.3.1 Inserting the CF card
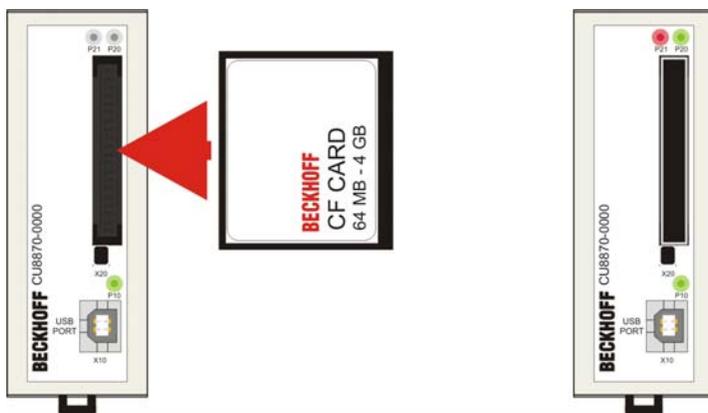
The CF card must be inserted carefully upright with the written side to the left. in the CF slot. The slot has a protection to ensure the right inserting direction. The card can only be inserted wrong direction with violence. As soon as the card is inserted, the LED (P20) lights up green. The red LED (P21) flashes up shortly, too.

3.3.2 Ejecting the CF card
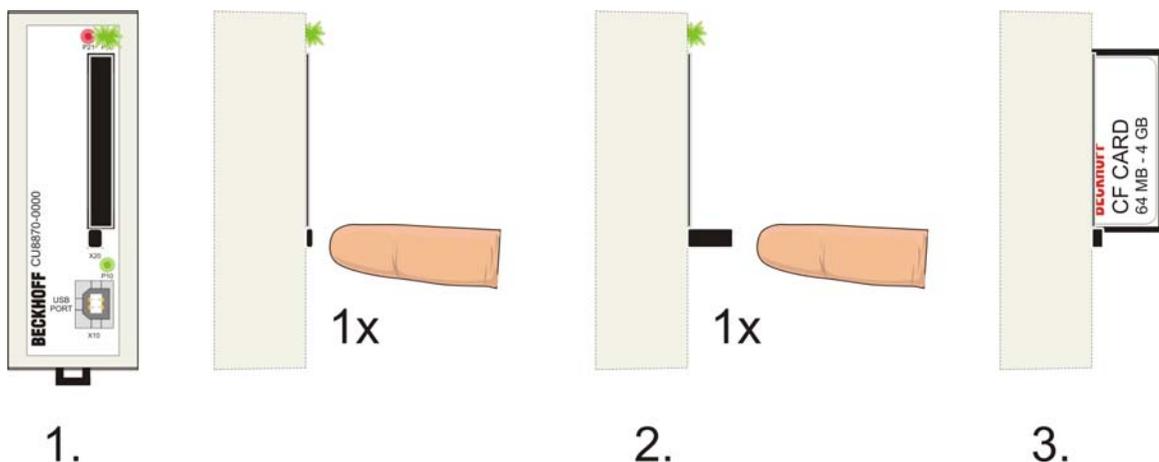
For ejecting the CF card press the small button below the CF slot. By pressing the button once the button expands. Pressing the button the second time the CF card ejects. The button engages again. The green LED (P20) extinguishes.

3.4 Connectors

The connectors are 1 USB port Type B connector and a cf card slot. The pins are described below:

USB type B Port (X10) (standard cable)
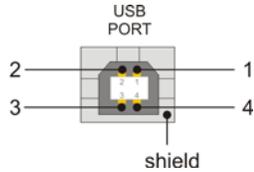
| Pin	Assignment
1	VCC
2	Data -
3	Data +
4	GND
Shell	Shield

CF card slot (X20) (standard CF interface)

Pin	Signal Function	Pin Type	In, Out Type	Pin	Signal Function	Pin Type	In, Out Type	Pin	Signal Function	Pin Type	In, Out Type
1	GND	-	Ground	18	A02	I	I1Z	35	-IOWR	I	I3U
2	D03	I/O	I1Z,0Z3	19	A01	I	I1Z	36	-WE	I	I3U
3	D04	I/O	I1Z,0Z3	20	A00	I	I1Z	37	Ready	O	OT1
4	D04	I/O	I1Z,0Z3	21	D00	I/O	I1Z,OZ3	38	Vcc	-	Power
5	D06	I/O	I1Z,0Z3	22	D01	I/O	I1Z,OZ3	39	-CSEL	I	I2Z
6	D07	I/O	I1Z,0Z3	23	D02	I/O	I1Z,OZ3	40	-VS2	O	Open
7	-CE1	I	I3U	24	WP	O	OT3	41	RESET	I	I2Z
8	A10	I	I1Z	25	-CD2	O	Ground	42	-WAIT	O	OT1
9	-OE	I	I3U	26	-CD1	O	Ground	43	-INPACK	O	OT1
10	A09	I	I1Z	27	D11	I/O	I1Z,OZ3	44	-REG	I	I3U
11	A08	I	I1Z	28	D12	I/O	I1Z,OZ3	45	BVD2	O	OT1
12	A07	I	I1Z	29	D13	I/O	I1Z,OZ3	46	BVD1	O	OT1
13	Vcc	-	Power	30	D14	I/O	I1Z,OZ3	47	DO8	I/O	I1Z,OZ3
14	A06	I	I1Z	31	D15	I/O	I1Z,OZ3	48	DO9	I/O	I1Z,OZ3
15	A05	I	I1Z	32	-CE2	I	I3U	49	D10	I/O	I1Z,OZ3
16	A04	I	I1Z	33	-VS1	O	Ground	50	GND	-	Ground
17	A03	I	I1Z	34	-IORD	I	I3U				

3.5 LED-Diagnosis
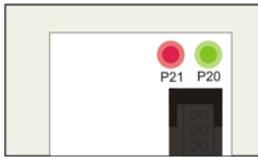
LED	Mapping	Status	Meaning
P10	Power supply	off	no power supply connected (see chapter power supply for details)
		lights green	Device is operational
P20	CF LOCK	off	no CF card inserted
		lights green	CF-card is inserted and electrical connected
P21	ACCESS	off	no access on the media
		flashes	Read / write access on the media

3.6   Connection to Host

USB Host   CU8870-Box
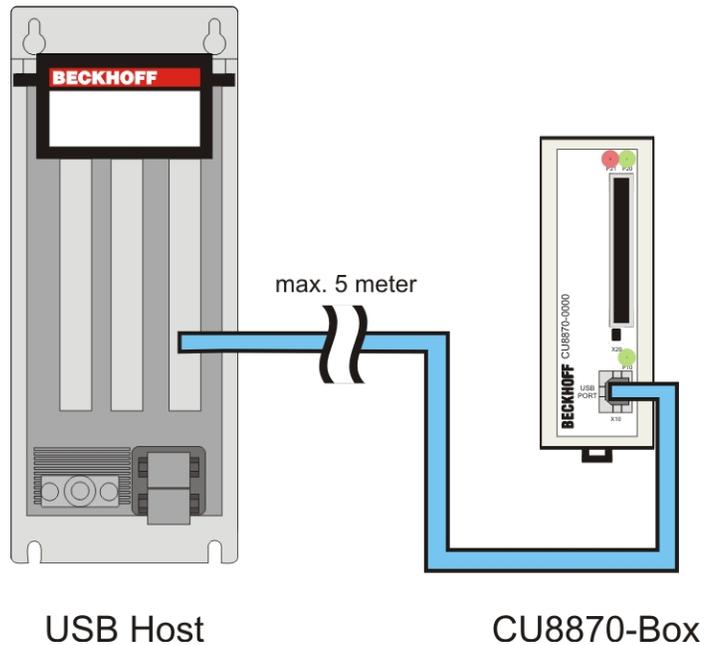
The CF card reader is connected to a USB host via a standard USB cable. The maximum length for the wire is 5 meters. For correct operation, use USB 2.0 suitable wire.

4 Approvals for USA and Canada

4.1 FCC Approval for USA

FCC: Federal Communications Commission Radio Frequency Interference Statement
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

4.2 FCC Approval for Canada

FCC: Canadian Notice
This equipment does not exceed the Class A limits for radiated emissions as described in the Radio Interference Regulations of the Canadian Department of Communications.

5 Appendix

5.1 Beckhoff support and service

Beckhoff and their partners around the world offer comprehensive support and service, making available fast and competent assistance with all questions related to BECKHOFF products and system solutions.

5.1.1 Beckhoff support

Support offers you comprehensive technical assistance, helping you no only with the application of individual Beckhoff products, but also with other, wide-ranging services:
- world-wide support
- design, programming and commissioning of complex automation systems
- and extensive training program for Beckhoff system components

Hotline: + 49 (0) 5246/963-157
Fax: + 49 (0) 5246/963-9157
e-mail: support@beckhoff.com

5.1.2 Beckhoff service

The Beckhoff Service Center supports you in all matters of after-sales service:
- on-site service
- repair service
- spare parts service
- hotline service

Hotline: + 49 (0) 5246/963-460
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