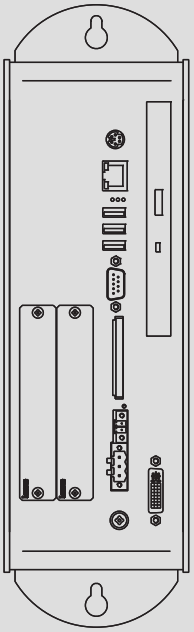
BA_CPCx8xx
13504952

L-force *Controls*

Operating Instructions

Industrial PC



CPC 2800

Control cabinet PC (CPC)

Lenze

Please read these instructions before you start working!
Follow the enclosed safety instructions.

1 About this documentation

Contents

This documentation provides you with information about the intended use of the Industrial PC.

The present manual is part of the ”PC-based automation” manual collection which you can find on the DVDs of the same name.

Target group

This documentation is directed at qualified skilled personnel according to IEC 60364.

Qualified skilled personnel are persons who have the required qualifications to carry out all activities involved in installing, mounting, commissioning, and operating the product.

Tip!

Information and auxiliary devices related to the Lenze products can be found in the download area at

http://www.Lenze.com

Validity

These instructions are valid for

► CPC 2800 control cabinet PC

1.1 Document history

Material number	Version			Description
13504952	4.0	12/2015	TD09	Intel®Atom™E3845 processor supplemented
13453526	3.0	12/2013	TD06	UL note (French language)
13370127	2.0	03/2013	TD29	General revision
13391190	1.3	10/2011	TD29	Revision of sections ”Changing the battery” and ”Changing the fuse”
13370127	1.2	07/2011	TD29	Pin assignment of SUB-D plug corrected
13370127	1.1	02/2011	TD29	First edition

1.2 Conventions used

This documentation uses the following conventions to distinguish between different types of information:

Type of information	Identification	Examples/notes
Spelling of numbers		
Decimal separator	Point	In general, the decimal point is used. For instance: 1234.56
Warnings		
UL warnings		Given in English and French
UR warnings		
Text		
Program name	» «	PC software For example: »Engineer«, »Global Drive Control« (GDC)
Icons		
Page reference	🕮	Reference to another page with additional information For instance: 🕮 16 = see page 16
Documentation reference		Reference to another documentation with additional information For example: EDKxxx = see documentation EDKxxx

1.3 Notes used

The following pictographs and signal words are used in this documentation to indicate dangers and important information:

Safety instructions

Structure of safety instructions:

Danger!
(characterises the type and severity of danger)
Note
(describes the danger and gives information about how to prevent dangerous situations)

Pictograph and signal word	Meaning
 **Danger!**	**Danger of personal injury through dangerous electrical voltage.** Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 **Danger!**	**Danger of personal injury through a general source of danger.** Reference to an imminent danger that may result in death or serious personal injury if the corresponding measures are not taken.
 **Stop!**	**Danger of property damage.** Reference to a possible danger that may result in property damage if the corresponding measures are not taken.

Application notes

Pictograph and signal word	Meaning
 **Note!**	Important note to ensure troublefree operation
 **Tip!**	Useful tip for simple handling
	Reference to another documentation

Special safety instructions and application notes

Pictograph and signal word	Meaning
 **Warnings!**	**Safety note or application note for the operation according to UL or CSA requirements.** The measures are required to meet the requirements according to UL or CSA.
 **Warnings!**	

2 Safety instructions

2.1 General safety information

Scope

The following general safety instructions apply to all Lenze drive and automation components.

The product-specific safety and application notes given in this documentation must be observed!

For your own safety

Danger!

Disregarding the following basic safety measures may lead to severe personal injury and damage to material assets!

- Lenze drive and automation components ...
  - ... must only be used for the intended purpose.
  - ... must never be operated if damaged.
  - ... must never be subjected to technical modifications.
  - ... must never be operated unless completely assembled.
  - ... must never be operated without the covers/guards.
  - ... can - depending on their degree of protection - have live, movable or rotating parts during or after operation. Surfaces can be hot.
- For Lenze drive and automation components ...
  - ... only use approved accessories.
  - ... only use original manufacturer spare parts.
- All specifications of the corresponding enclosed documentation must be observed.
  - This is vital for safe and trouble-free operation and for achieving the specified product features.
  - The procedural notes and circuit details provided in this document are proposals which the user must check for suitability for his application. The manufacturer does not accept any liability for the suitability of the specified procedures and circuit proposals.
- Only qualified skilled personnel are permitted to work with or on Lenze drive and automation components.
  - According to IEC 60364 or CENELEC HD 384, these are persons ...
  - ... who are familiar with the installation, assembly, commissioning and operation of the product,
  - ... possess the appropriate qualifications for their work,
  - ... and are acquainted with and can apply all the accident prevent regulations, directives and laws applicable at the place of use.

Transport, storage

- Transport and storage in a dry, low-vibration environment without aggressive atmosphere; preferably in the packaging provided by the manufacturer.
  – Protect against dust and shocks.
  – Comply with climatic conditions according to the technical data.

Mechanical installation

- Install the product according to the regulations of the corresponding documentation. In particular observe the section ”Operating conditions” in the chapter ”Technical data”.
- Provide for careful handling and avoid mechanical overload. During handling neither bend components, nor change the insulation distances.
- The product contains electrostatic sensitive devices which can easily be damaged by short circuit or static discharge (ESD). Thus, electronic components and contacts must not be touched unless ESD measures are taken beforehand.

Electrical installation

- Carry out the electrical installation according to the relevant regulations (e. g. cable cross-sections, fusing, connection to the PE conductor). Additional notes are included in the documentation.
- When working on live products, observe the applicable national regulations for the prevention of accidents (e.g. BGV 3).
- The documentation contains notes for the EMC-compliant installation (shielding, earthing, arrangement of filters and installation of the cables). The manufacturer of the system or machine is responsible for the compliance with the limit values required in connection with EMC legislation.
- For compliance with the limit values for radio interference emission at the site of installation, the components - if specified in the technical data - have to be mounted in housings (e. g. control cabinets). The housings have to enable an EMC-compliant installation. In particular observe that for example control cabinet doors preferably have a circumferential metallic connection to the housing. Reduce openings or cutouts through the housing to a minimum.
- Only plug in or remove pluggable terminals in the deenergised state!

Commissioning

- If required, you have to equip the system with additional monitoring and protective devices in accordance with the respective valid safety regulations (e. g. law on technical equipment, regulations for the prevention of accidents).

Maintenance and servicing

- The components are maintenance-free if the required operating conditions are observed.
- If the cooling air is polluted, the cooling surfaces may be contaminated or the air vents may be blocked. Under these operating conditions, the cooling surfaces and air vents must be cleaned at regular intervals. Never use sharp objects for this purpose!
- After the system has been disconnected from the supply voltage, live components and power connections must not be touched immediately because capacitors may be charged. Please observe the corresponding notes on the device.

Disposal

- Recycle or dispose of the product according to the applicable regulations.
- This device contains a battery. According to European legislation you are obliged to dispose of batteries separately via the take-back systems specified.

2.2 Product-specific safety instructions

- The device is classified as a class A device and can cause radio interference in residential areas. In this case, the operator may have to take special measures. Any costs arising from these measures have to be paid by the operator.
- In the event of a fault, unplug the power connector immediately and send back the device to the manufacturer. The address can be found on the self-addressed envelope included in this documentation. Please use the original packaging to return the device!
- Printed circuit boards which might be damaged by short circuit or electrostatic discharge (ESD) must be handled appropriately.
- The BIOS of the mainboard is configured by the factory. After the BIOS has been updated, malfunctions are possible. Please address to our service.
- If the optionally ACU UPS power supply is used:
  - Before commissioning the basic device, establish the connection between the power supply unit and the capacitor/battery pack.
  - Observe that the basic device is only deenergised if the mains cable **and** the supply cable of the capacitor/battery pack have been disconnected.
  - If the basic device is disconnected from the mains for a longer time, the supply cable of a battery pack has to be disconnected, so that the rechargeable batteries are not damaged by a possible exhaustive discharge.
  - If stored, the rechargeable batteries lose energy in the course of time. Thus the rechargeable batteries have to be charged completely by the basic device at the latest after half a year of storage.
  - The rechargeable batteries of the battery pack may not be charged with external battery chargers, but only with the ACU UPS power supply of the basic device!

2.3 Safety instructions for the installation according to UL

Original - English

Approval

Underwriter Laboratories (UL), UL508 and CSA C22.2 No. 142-M1987, (UL File Number E236341)

Ratings

- Input 18 ... 30 V DC , max. 4 A
- ACCU-Pack and CAPS-Pack: max 0.6 A
- Max. ambient temperature 50 °C.
- Optional communication ratings:
  - RS232-Connection: max. 3 A
  - USB-Connection: max. 1 A
  - PS/2-Connection: max. 1 A
  - LAN-Connection: Standard ISDN or RJ45
  - DVI-Connection: max. 1 A

Warnings!

Field Wiring Markings

Wiring Terminal MSTB 2,5/3-STF-5,08:

- Use copper wire only.
- AWG 18 ... AWG 12 (0.82 mm^2... 3.3 mm^2)
- Torque 5...7 lb-in (0.5 ... 0.6 Nm)

Battery

- Replace battery with any from the list below, Part No. CR 2450 only. Use of another battery may present a risk of fire or explosion.

  Recommended CR2450 (R/C, BBVC2) types:

  Renata Part.no. CR2450N, Sony Corp. part no. CR2450B, Toshiba part no. CR2450, Varta part no. CR2450, Matsushita part no. CR2450
- Battery may explode if mistreated. Do not recharge, disassemble, dispose of in fire or heat above 100 °C (212 °F).
- Dispose of used battery according to the regulation of recycling or waste.

Original - French

Homologation

Underwriter Laboratories (UL), UL508 et CSA C22.2 n° 142-M1987, (n° de dossier UL E236341)

Caractéristiques assignées

- ► Alimentation 18 ... 30 V CC , 4 A max.
- ► Pack ACCU et CAPS : maximum 0,6 A
- ► Température ambiante maximale : 50 °C.
- ► Caractéristiques de communication assignées (option) :
  - – Port RS232 : maximum 3 A
  - – Port USB : maximum 1 A
  - – Port PS/2 : maximum 1 A
  - – Port LAN : RNIS standard ou RJ45
  - – Port DVI : maximum 1 A

Warnings!

Marquage du câblage à pied d'oeuvre

Bornier de câblage MSTB 2,5/3-STF-5,08 :

- ► Utiliser exclusivement des conducteurs en cuivre.
- ► AWG 18 ... AWG 12 (0.82 mm^2... 3.3 mm^2)
- ► Couple de 5 à 7 lb-in (0,5 ... 0,6 Nm)

Batterie

- ► Remplacer la batterie par l'un des types répertoriés dans la liste ci-dessous, n° de référence CR 2450 uniquement. L'utilisation d'une autre batterie présente un risque d'incendie ou d'explosion.

  Types CR2450 recommandés (R/C, BBVC2) :

  Renata référence CR2450N, Sony Corp. référence CR2450B, Toshiba référence CR2450, Varta référence CR2450, Matsushita référence CR2450
- ► Toute utilisation non conforme de la batterie entraîne un risque d'explosion. Ne pas recharger, démonter, jeter au feu ni exposer la batterie à une chaleur supérieure à 100 °C (212 °F).
- ► Eliminer la batterie conformément à la réglementation en vigueur en matière de recyclage ou de traitement des déchets.

3 Product description

3.1 Scope of supply

Quantity	Name
1	Control cabinet PC
1	Connection plug for voltage supply
1	DVD ”PC based Automation”
1	Test report
1	Device pass card

Note!

After receipt of the delivery, check immediately whether the items match the accompanying papers. We do not accept any liability for deficiencies claimed subsequently.

Claim

- ► visible transport damage immediately to the forwarder
- ► visible deficiencies/incompleteness immediately to your Lenze representative.

3.2 Application as directed

The industrial PC is used as directed if it is solely used for implementing control and operating concepts or for presenting information in usual industrial and commercial fields. A different use, or one beyond these purposes, is not permissible.

A **use that is not intended** also includes a use harbouring fatal risks or dangers which, without the provision of exceptionally high safety measures, may result in death, injury or damage to material assets.

The industrial PC in particular must **not** be used ...

- ► in private areas.
- ► in potentially explosive atmospheres.
- ► in areas with harmful gases, oils, acids, radiation, etc.
- ► in applications where vibration and impact loads occur, exceeding the requirements of EN 50178.
- ► for performing safety functions, for instance
  - – in air traffic control / in flight-control systems
  - – for the monitoring/control of nuclear reactions
  - – for the monitoring/control of means of mass transport
  - – for the monitoring/control of medical systems
  - – for the monitoring/control of weapon systems

  Higher-level safety systems must be used to guarantee the protection of persons and material assets!

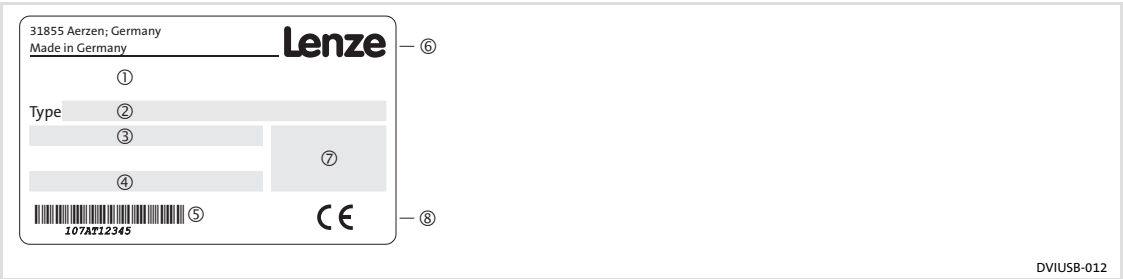
3.3 Device features

	CPC 2800
Design	● PC housing made of powder-coated sheet steel and aluminium
Mounting	● To be mounted in control cabinets
Electrical supply	● Voltage supply 24 V DC ● Lithium battery to buffer the real-time clock (RTC)
Computer unit	● ETX module with – Intel® Atom™ N270, 1.6 GHz, 512 kB L2 Cache – Chip set: Intel® 945GSE, Intel® ICH7M – Ethernet controller: Intel® 82562V, 10/100 MBit Ethernet – Integrated with Intel® Graphics Media Accelerator (GMA950, DirectX® 9, PS 2.0) or – Intel® Core™ Duo, 1.66 GHz, 512 kB L2 Cache – Chip set: Intel® 945GM, Intel® ICH7M – Ethernet controller: Intel® 82562VZ, 10/100 MBit Ethernet – Integrated with Intel® Graphics Media Accelerator (GMA950, DirectX® 9, PS 2.0) or – Intel® Core™ E3845 1.91 GHz 2M Cache – Chip set: integrated in SoC – Ethernet-Controller: Intel® i211 (MAC/PHY) 100 MBit-Ethernet – Integrated with Intel® HD Graphics
Interfaces	● 1 x DVI-I ● 1 x PS/2 ● 1 x LAN (Ethernet) ● 3 x USB type A (V 2.0) ● 1 x serial (RS232) ● 2 x MC card slot ● 1 x Compact Flash slot (type I)

Accessories

- ► MC card
- ► Battery pack (ACCU PACK)
- ► Capacitor pack (CAPS PACK)
- ► DVI/USB extender

3.4 Identification



① Type designation
② Type code (catalogue/order no.)
③ Technical data
④ Customised material number
⑤ Bar code with serial number
⑥ Manufacturer address
⑦ Certification
⑧ CE mark

Type code CPC 2800

	②																	
	EP8GAC	**00000**	**x**	**x**	**x**	**x**	**x**	**00-**	**x**	**x**	**xx**	**x**	**x**	**x**	**x**	**000**

Processor
C = Intel® Atom™ 1.6 GHz
P = Intel® Atom™ E3845 1.91 GHz
9 = Intel® Core™ Duo 1.66 GHz (smart cool)

RAM
4 = ≥1024 MB
5 = ≥2048 MB
6 = ≥4096 MB

Internal mass storage
0 = no mass storage
1 = hard disk, 6.4 cm (2.5”), ≥80 GB, for continuous operation
2 = hard disk, 6.4 cm (2.5”), ≥80 GB, ext. temp. range
3 = hard disk, 6.4 cm (2.5”), ≥160 GB
M = SSD, 6.4 cm (2.5”), ≥80 GB

MC card slot 1
0 = none
9 = MC-CAN2
B = MC-CAN2 (with Light API licence)
1 = MC-ETH
D = MC-ISI
C = MC-MPI
5 = MC-PBM
6 = MC-PBS
8 = MC-PND

	②														
Type code CPC 2800	**EP8GAC**	**00000**	**x**	**x**	**x**	**x**	**x**	**00-**	**x**	**x**	**xx**	**x**	**x**	**x**	**x**	**000**

MC card slot 2
0 = none
9 = MC-CAN2
B = MC-CAN2 (with Light API licence)
1 = MC-ETH
D = MC-ISI
C = MC-MPI
5 = MC-PBM
6 = MC-PBS
8 = MC-PND

DVD drive
0 = none
1 = DVD writer drive

UPS
0 = none
1 = ACU UPS control unit

External memory card
00 = none
C3 = Compact Flash ≥512 MB
C6 = Compact Flash ≥4 GB
C7 = Compact Flash ≥8 GB

Operating system
0 = none
4 = Windows® CE 6 Prof.
5 = Windows® Embedded Std. 2009 on Compact Flash
6 = Windows® Embedded Std. 2009 on hard disk
7 = Windows® XP on hard disk
9 = Windows Embedded Standard 7 P 64bit

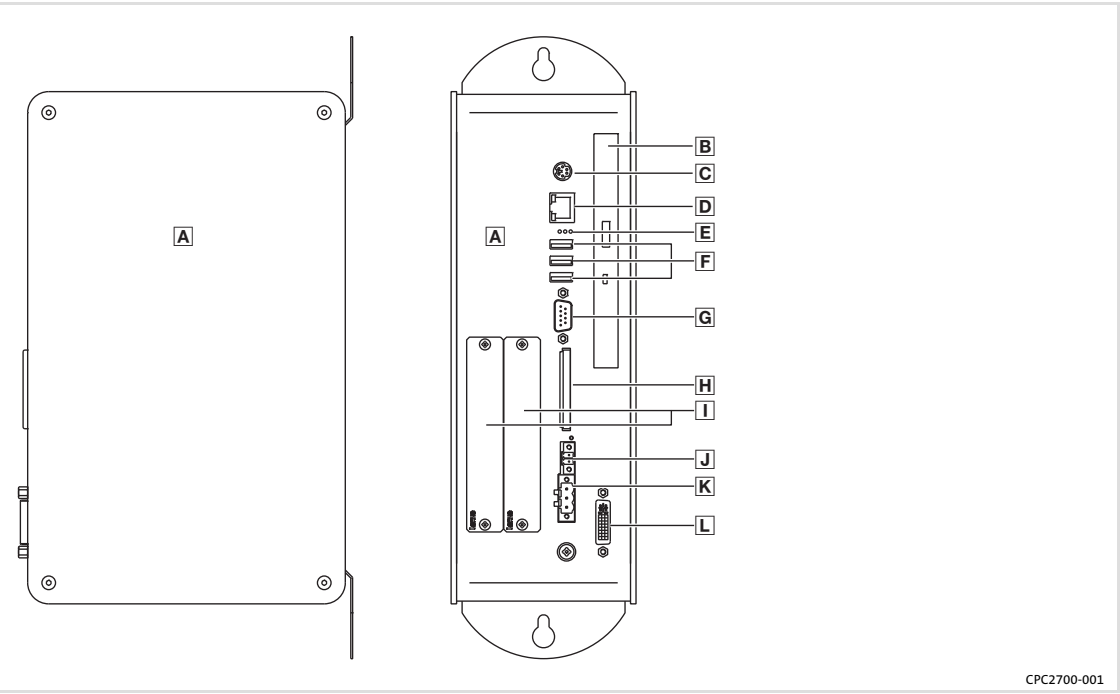
Control technology runtime software
0 = none
1 = LPC1000 (V2.x)
2 = MPC1200 (V2.x)

Visualisation runtime licence type
0 = none
1 = VisiWinNET® Compact
2 = VisiWinNET® Standard

Number of power tags for visualisation
0 = none
1 = 50 power tags
2 = 100 power tags
3 = 250 power tags
4 = 500 power tags
5 = 1000 power tags
6 = 2000 power tags
7 = 4000 power tags
8 = 64000 power tags

Customer version

3.5 Controls and displays



Pos.	Description
A	Control cabinet PC
B	DVD drive (optional)
C	PS/2
D	LAN (Ethernet)
E	Status LEDs **Error** (red): ● Is lit if a power supply failure has occurred; **HD** (yellow): ● Indicates access to a storage medium. **Power** (green): ● Is lit when the supply voltage is present. ● Flashes (___-___) in the case of a hardware error. ● Is blinking (¯¯-¯¯) when the ACU UPS (optional) is being charged. ● Is blinking (¯¯__¯¯__) when there is a supply voltage failure and the device is being supplied by the ACU UPS. ● Is blinking (¯_¯_) when the supply voltage of the ACU UPS is too low (e.g. rechargeable battery is empty or missing). ● Blinks 4 x per second if the ACCU-PACK causes a short circuit or if the CAPS-PACK is completely discharged.
F	USB
G	RS 232
H	CF Card
I	MC Card
J	ACU UPS
K	24 V DC
L	DVI

3.6 Options

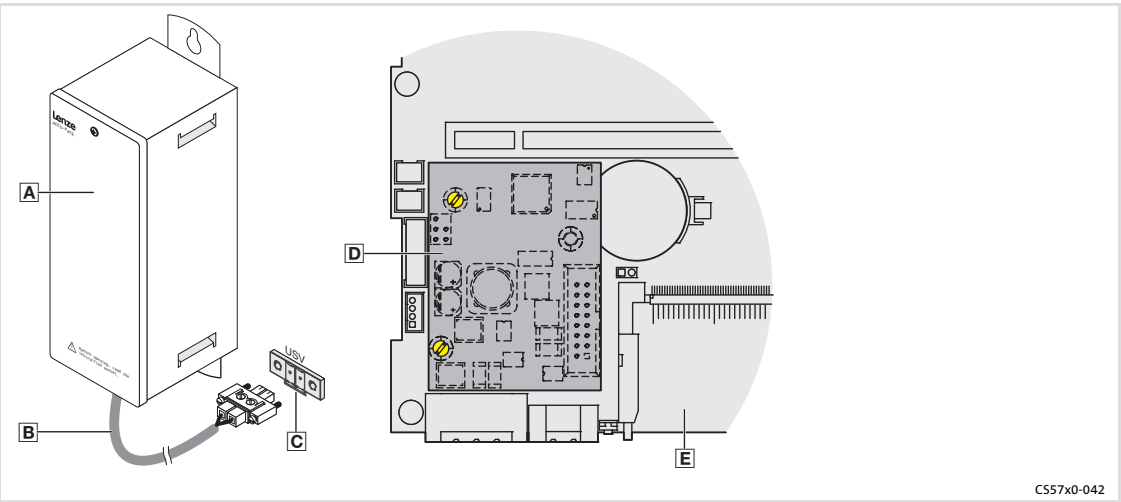
3.6.1 ACU UPS control unit

Description

The optional ACU UPS control unit in conjunction with a battery pack or capacitor pack extends the industrial PC of the EL 1800-9800, CS 5800-9800, CPC 2800 and 3241 C series by a UPS functionality.

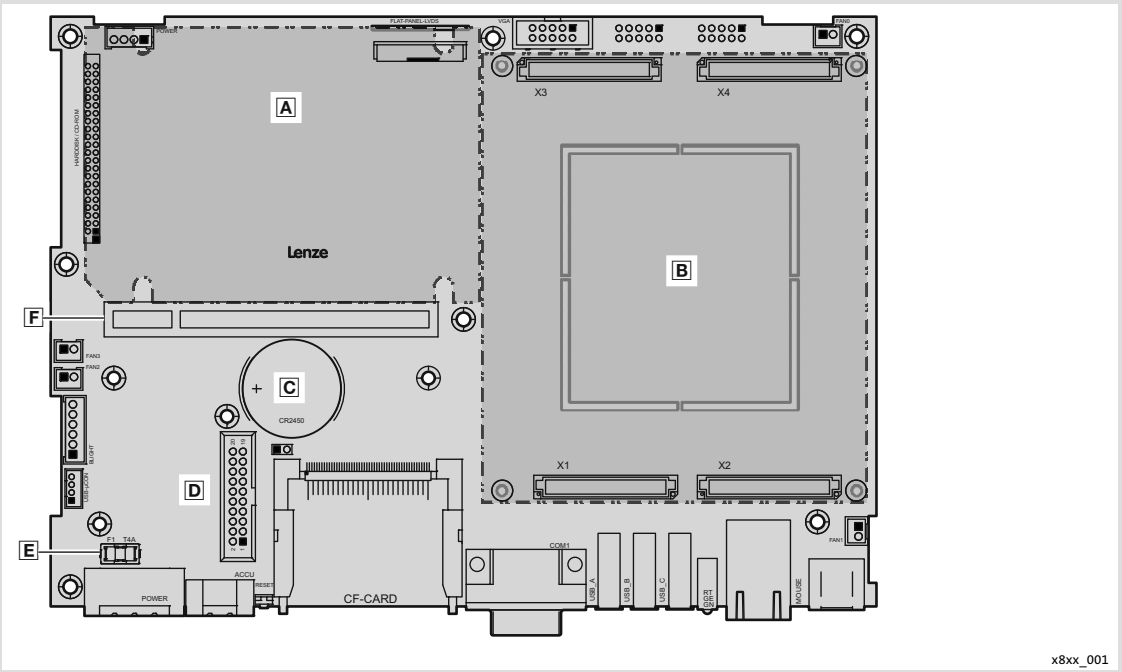
The ACU UPS control unit is either pre-equipped at delivery or can subsequently be added by Lenze service staff.

Features of the ACU UPS control unit	
with battery pack (ACCU-PACK)	with capacitor pack (CAPS-PACK)
• Bridges a short mains failure or mains fluctuations and shuts down the PC. • Software-based configuration • 🕮 Documentation for the battery pack	• Provides the possibility of data backup in the event of mains failure. • Only suitable in conjunction with Windows CE / Windows Embedded Compact. • Software-based configuration • 🕮 Documentation for the capacitor pack



A 2700 battery pack or 2701 capacitor pack (accessories)
B Connection cable (included in delivery of battery pack/capacitor pack)
C Port on industrial PC
D ACU UPS control unit
E Baseboard

3.7 Baseboard



- A Hard disk
- B CPU module
- C Battery (📖 33)
- D ACU UPS control unit (📖 19)
- E Fuse (📖 34)
- F Socket connector for MC card

4 Technical data

4.1 General data and operating conditions

General data

Conformity and approval		
Conformity		
CE	EN 61000-6-4 EN 61000-6-2	EMC Directive Class A, industrial premises
Approbation		
UL	UL 508 CSA C22.2	Programmable Controllers (File-No. E236341)
Other		
RoHS	-	Products lead-free in accordance with CE Directive 2011/65/EU

Protection of persons and equipment		
Safety	VDE0805 (EN60950), VDE0870, UL	
Enclosure	EN 60529	IP20
	UL 508 (NEMA 250)	Type 1 enclosure
Class of protection		3

EMC			
Noise emission	EN 61000-6-4	Class A (industrial premises)	
Noise immunity Zone B	EN 61000-6-2	Industrial premises	
		EN 61000-4-2	ESD; severity: 3, i.e. 8 kV in the case of air discharge, 4 kV in the case of contact discharge
		EN 61000-4-3	RF interference (housing) 80 MHz ... 1000 MHz, 10 V/m 80 % AM (1 kHz)
		EN 61000-4-4	Burst, severity: 3
		EN 61000-4-5	Surge, severity 3 *
		EN 61000-4-6	RF conducted 150 kHz ... 80 MHz, 10 V/m 80 % AM (1 kHz)

* Due to the high-energy single current pulses, a surge requires a suitable external connection with lightning protection elements like for instance lightning conductors and overvoltage arresters.

Operating conditions

Mounting conditions		
Place of installation		Control cabinet
Mounting position		Vertically with the ventilation slots at the top/bottom

Ambient conditions		
Climatic		
Storage		-10 ... +60 °C
Transport		-10 ... +60 °C
Operation		Equipment-dependent (📖 22)
Relative humidity		10 ... 90 %, no condensation
Site altitude		
StoragetTransport		< 12000 m amsl
Operation		< 3000 m amsl

Note!

The failure probability of an electronic component increases with the ambient temperature to which the component is subjected. Regarding the serviceability and reliability, particular attention should be paid to the cooling of the device. For every application, you should take care to keep the heating of the device as low as possible.

► We recommend to use forced-ventilated systems with ”Smart Cool” fan control to ensure sufficient heat dissipation.

The fan control monitors the internal temperature of the device and the functioning of the fan. When a preset maximum temperature is exceeded, the control system switches on the fan. When the fan speed falls below a minimum speed, the control system signals a fault.

► Systems with passive cooling via heatsinks should only be used if it is guaranteed that there is always sufficient convection (e.g. by means of external fan modules in the control cabinets or the installation of the device in air-conditioned areas).

.Permissible ambient temperatures for fanless systems				
Basic device	• with standard hard disk	• with hard disk for continuous operation (24/7) [1]	• with hard disk for extended temperature range • up to 1 GB RAM • with CF card	• with DVD writer drive
Processor	[°C]			
Intel® Atom™ N270, 1.6 GHz	5 ... 40	5 ... 45	0 ... 45	5 ... 40
Intel® Atom™ E3845, 1.91 GHz				

Permissible ambient temperatures for systems with "Smart Cool" cooling				
Basic device	• with standard hard disk	• with hard disk for continuous operation (24/7) [1]	• with hard disk for extended temperature range • up to 1 GB RAM • with CF card	• with DVD writer drive
Processor	[°C]			
Intel® Core™ Duo 1.66 GHz with max. 50 % CPU load [2]	5 ... 45	5 ... 45	0 ... 45	5 ... 40
Intel® Core™ Duo 1.66 GHz with max. 100 % CPU load [2]	5 ... 40	5 ... 40	0 ... 40	5 ... 40

1) We recommend to exchange the hard disk after 30 000 hours of operation or after 5 years.
2) The CPU load can be determined via the Windows Task Manager ("System performance" tab)

4.2 Electrical data

Standard device

Supply					
Voltage	Current at 24 V [1]		Fuse	Buffer battery	
	Intel® Core Duo™	Intel® Atom™	Type	Type	Service life
[DC V]	[A]	[A]			[years]
24 (+18 ... 30) [2]	1.4	0.9	📖 34	📖 33	> 6 (25 °C)

1) without ACU UPS control unit, DVD drive, MC card and USB load
2) with ACU UPS control unit DC +20 ... 30 V

ACU UPS control unit (option)

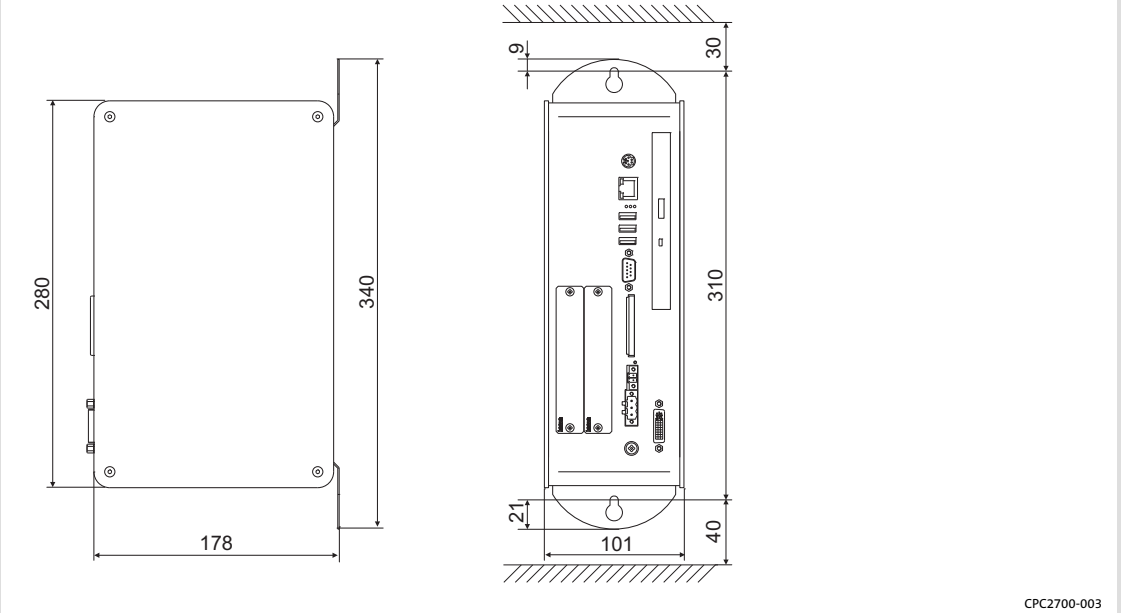
Type	Operating voltage	Max. current		Charging current in operating range
	[V DC]	[mA]		[mA]
		At 5 V	At 12 V	
ACU UPS	12 / 5	10	10 ... 600 [1]	Approx. 250

1) Subject to charging

4.3 Mechanical data

Versions and weights			
	Device housing	Side cover	Mass *) [kg]
CPC 2800	Powder-coated sheet steel	Powder-coated aluminium	3.5

*) Without optional accessories (hard disk, DVD drive, etc.)



All dimensions in millimetres.

5 Mechanical installation

5.1 Important notes

The installation must be carried out by qualified, skilled personnel familiar with the applicable national standards.

Proceed as follows for the mounting:

1. Check that the installation location meets the operating conditions specified in the technical data.
2. Prepare the control cabinet mounting plate.
   – Observe the dimensions and mounting clearances (📖 24).
   – There must be sufficient space for inserting disks into or ejecting them from the DVD drive.
   – The ventilation slots must not be covered.
3. Screw the device onto the mounting plate.
   – The mounting location and the installation material must guarantee a permanent mechanical connection.

5.2 Mounting steps

Proceed as follows for the mounting:

1. Check that the installation location meets the operating conditions specified in the technical data (📖 21).
2. Prepare the control cabinet mounting plate.
   – Observe the dimensions and mounting clearances (📖 24).
   – There must be sufficient space for inserting disks into or ejecting them from the DVD drive.
   – The ventilation slots must not be covered.
3. Screw the device onto the mounting plate.
   – The mounting location and the installation material must guarantee a permanent mechanical connection.

6 Electrical installation

6.1 Important notes

The installation must be carried out by qualified, skilled personnel familiar with the applicable national standards.

Stop!

Short circuit and static discharge

The device contains components which are endangered in the case of short circuit or static discharge.

Possible consequences:

► The device or parts of it will be destroyed.

Protective measures:

► Always switch off the voltage supply when working on the device. This particularly applies:
  – Before connecting / disconnecting connectors.
  – Before plugging in / plugging out modules.

► All persons handling printed circuit boards have to take account of ESD measures.

► Contacts of plug connectors must not be touched.

► Printed circuit boards may be touched only at places free from electrical contacts and may be placed only on appropriate materials (e.g. on ESD packaging or conductive foam material).

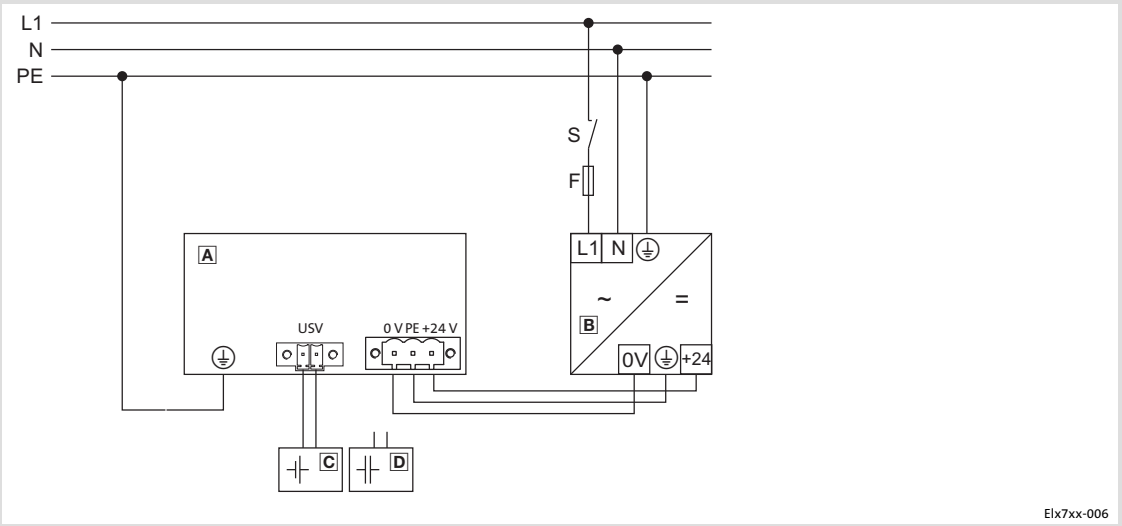
► Printed circuit boards may only be transported and stored in ESD packaging.

6.2 Wiring according to EMC

General notes	● The electromagnetic compatibility of the system depends on the type and accuracy of the installation. Please especially note the following: – Structure – Shielding – Earthing ● In the case of a differing installation it is required for evaluating the conformity to the EMC Directive to check the system with regard to compliance with the EMC limit values. This for instance applies to: – The use of unshielded cables ● **The end user is responsible for compliance with the EMC Directive.** – If you observe the following measures, you can be sure that no EMC problems will occur during operation and that the EMC Directive or the EMC law is met. – If devices which do not meet the CE requirement with regard to noise immunity EN 61000-4-2 are actuated near the system, these devices can be affected electromagnetically by the system.
Structure	● Connect device to the earthed mounting plate: – Mounting plates with an electroconductive surface (zinc-coated or stainless steel) allow for continuous contacting. – Coated plates are not suitable for an EMC-compliant installation. ● If you use several mounting plates: – Connect mounting plates to each other on a large surface and in a conductive manner (e.g. by means of copper strips). ● When installing the cables, observe a spatial separation of signal and mains cables. ● Route the cables as near to the reference potential as possible. Freely suspended cables act like aerials.
Shielding	● Preferably only use cables with a braid. ● The coverage of the shield should be more than 80%. ● In the case of data lines for a serial coupling, always use metallic or metallised plugs. Connect the shield of the data line on the connector shell.
Earthing	● Earth all metallically conductive components by the use of corresponding cables from a central earthing point (PE rail). ● Comply with the minimum cross-sections defined in the safety instructions: – With regard to EMC, however, not the cable cross-section, but the surface of the cable and of the extensive contacting is decisive.

6.3 Connecting the supply and peripheral devices

6.3.1 Terminal diagram supply



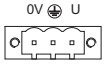
A IPC
B Power supply unit
C Battery pack (Option)
D Capacitor pack (Option)

Note!

► Observe the max. permissible input voltage.
Professionally fuse the device on the input side against voltage fluctuations and voltage peaks.

► The IPC boots up as soon as the supply voltage is applied.
After the operating system has been shut down, the IPC switches off automatically. For restarting, the supply voltage has to be disconnected for a short time.

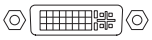
6.3.2 24 V connection (X101)

	Description	Connection type	Cable type
 IPC001	DC 24 V connection	3-pole Phoenix Combicon socket	Cable (conductor cross-section max. 2.5 mm²) with Phoenix Combicon plug, MSTB 2.5 / 3-STF-5.08
 IPC001	PE connection	M4 Recessed head screw	Separate earthing conductor (min. 2.5 mm²) with ring cable lug

6.3.3 UPS-PACK connection (X102)

	Description	Connection type	Cable type
 IPC001	Terminal for Battery pack / Capacitor pack	2-pin socket	In the scope of supply of the pack; length 2.5 m; extension available

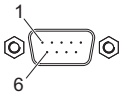
6.3.4 Monitor interface (X109)

	Description	Connection type	Cable type
 IPC001	Monitor connection with DVI interface or with VGA interface and adapter	DVI-I socket	DVI-I single link (18+5) DVI-I double link (24+5) DVI-D single link (18+1) DVI-D double link (24+1) DVI-A no link (12+5) VGA cable with DVI-I plug-to-VGA socket adapter

6.3.5 PS/2 interface (X108)

	Description	Connection type	Cable type
 IPC001	PS/2 connection	6-pin, mini DIN	PS/2 mouse (a keyboard and a mouse can be connected via a PS/2 Y cable)

6.3.6 Serial interface (X103)

	Description	Connection type	Cable type
 IPC001	RS232 connection Pin 1: DCD Pin 2: RxD Pin 3: TxD Pin 4: DTR Pin 5: GND Pin 6: DSR Pin 7: RTS Pin 8: CTS Pin 9: RI	9-pin Sub-D plug	Control cable, shielded, with 9-pin Sub-D socket

6.3.7 Ethernet interface (X107)

	Description	Connection type	Cable type
 IPC001	Ethernet connection 10/100 Mbps Green LED (SPEED): on = 100 MBPS off = 10 Mbps Yellow LED (LINK/ACTIVITY): on or blinking = LINK /ACTIVITY off = no LINK	RJ45 socket	Network cable CAT5 S/UTP or CAT5e S/FTP (recommended), cable length: max. 100 m

Note!

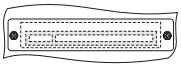
If the RJ45 plug connection is exposed to oscillating or vibrating stress:

- ► Use a strain relief in the immediate vicinity of the RJ45 socket.
- ► Select the contact surface on which the device is mounted as fixing point of the strain relief.
- ► Comply with the related minimum bending radius of the cable used.

6.3.8 USB interface (X104, X105, X106)

	Description	Connection type	Cable type
 IPC001	USB 2.0 host connection Max. load: 5 V/500 mA	USB-A socket	USB cable with USB-A plug

6.3.9 Communication interface (MC card)

	Description	Connection type	Cable type
 EL100-013	Interface for MC card	Socket connector	-

7 Maintenance

Stop!

Short circuit and static discharge

The device contains components which are endangered in the case of short circuit or static discharge.

Possible consequences:

► The device or parts of it will be destroyed.

Protective measures:

► Always switch off the voltage supply when working on the device. This particularly applies:
  – Before connecting / disconnecting connectors.
  – Before plugging in / plugging out modules.
► All persons handling printed circuit boards have to take account of ESD measures.
► Contacts of plug connectors must not be touched.
► Printed circuit boards may be touched only at places free from electrical contacts and may be placed only on appropriate materials (e.g. on ESD packaging or conductive foam material).
► Printed circuit boards may only be transported and stored in ESD packaging.

7.1 Regular checks

The device is free of maintenance. Nevertheless, visual inspections should be carried out at regular intervals which must not be too long, depending on the ambient conditions.

Please check the following:

► Does the environment of the device meet the operating conditions specified in the Technical data?
► Is the heat dissipation of the device not impeded by dust or dirt?
► Are the mechanical and electrical connections o.k.?

7.2 Cleaning

Stop!

Sensitive surfaces and components

The device can be damaged if it is not appropriately cleaned.

Possible consequences:

► The housing gets scratched or dull if you use alcoholic, solvent-containing or scouring cleaning agents.

► Electrical components can be damaged ...
  – by a short circuit caused by humidity.
  – by static discharge.

Protective measures:

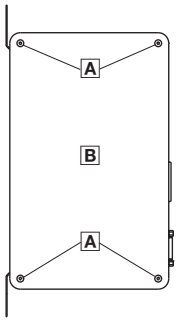
► Observe the following notes.

► Before cleaning, disconnect the device from the power supply.

► Clean the device with a clean, lint-free and soft cloth. Do not use liquid or foaming detergent since it may enter the housing or terminals.

7.3 Repair

7.3.1 Remove the PC housing



cpc2700-005

1. Remove the mains cable (📖 28).
2. Loosen the four screws A on the left side of the housing.
3. Remove the cover B.

7.3.2 Mount the PC housing

1. Place the cover B on the left side of the housing.
2. Attach the cover with the four screws A.
3. Plug on the mains cable (📖 28).

7.3.3 Battery change

Danger!

Danger of fire and explosion

On the baseboard there is a battery for buffering the clock (RTC) when the device has been switched off.

Possible consequences:

► The use of other batteries than the approved ones or improper handling can result in a fire, explosion, or environmental damage.

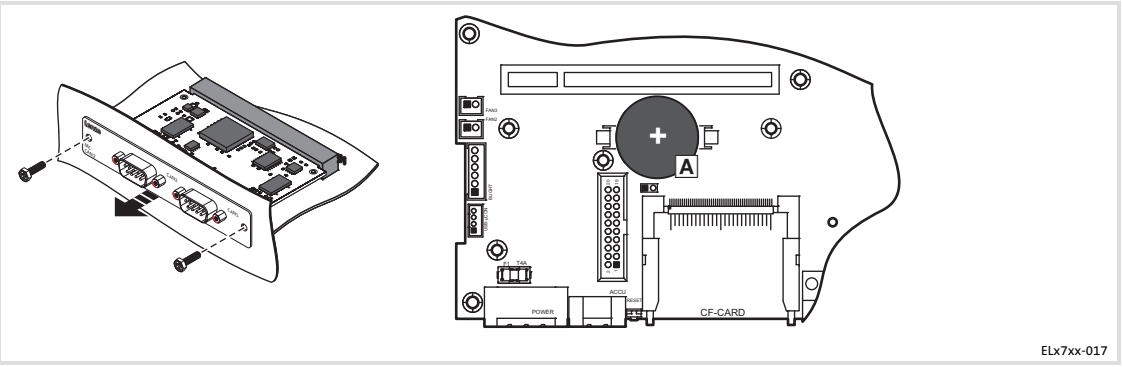
Protective measures:

► The battery may only be replaced by an approved battery type according to the following list.

► The battery may not be recharged or opened. Furthermore it may not be thrown into a fire or be heated above 100 °C (212 °F).

Approved types:

► Matsushita CR2450, Renata CR2450N, Sony Corp. CR2450B, Toshiba CR2450, Varta CR2450



How to proceed:

1. Remove the MC Card, if inserted.
2. Remove the old battery [A] from the support.
3. Insert a new approved battery [A] into the support so that the positive pole is at the top.

According to European legislation you are obliged to dispose of batteries separately, using the take-back systems specified.

7.3.4 Fuse change

Stop!

Damage of the device by non-permissible fuse possible

The baseboard in the device is protected by a fuse which will be damaged if the supply voltage applied is too high.

Possible consequences:

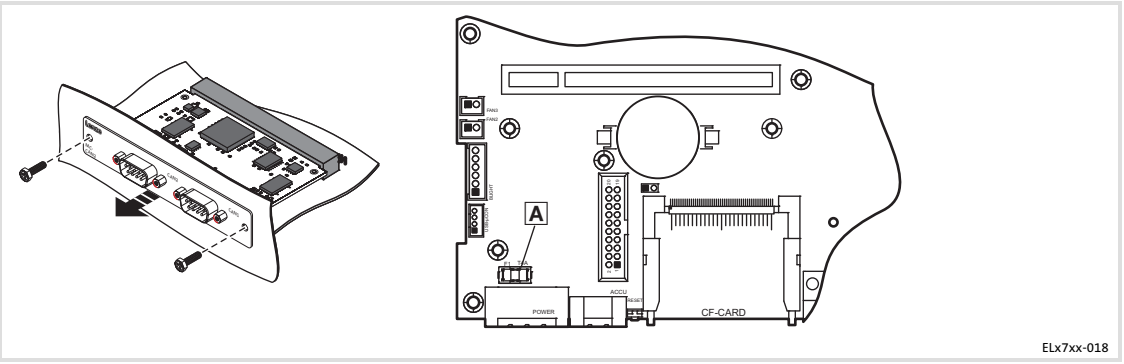
► The device can be damaged if a non-approved fuse is installed.

Protective measures:

► The fuse may only be replaced by an approved type.

Approved types:

► Littelfuse 0454 004



How to proceed:

1. Remove the MC Card, if inserted.
2. Remove the old fuse [A] from the support.
3. Insert a new approved fuse [A] into the support.

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