

User manual

EPC LX EPC LX nautic

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LAUER
A Beijer Electronics Group Company

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Operating instructions: EPC LX & EPC LX nautic
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- We can not guarantee the accuracy and correctness of the programmes and data stored on the CD-ROM.
- Helpful suggestions, improvements as well as references to errors are welcome at any time.
- The stipulations are also valid for any special annexes to this manual.

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User tips

	Please read the manual prior to using for the first time and keep it in a safe place for future use.	
Target group	<p>The documented information in this manual refers to the appliance, place of use, transport, storage, assembly, use and maintenance.</p> <p>This manual is directed to the following target groups:</p> <ul style="list-style-type: none">• User• Service technicians/maintenance technicians <p>Especially observe the chapter „safety instructions and general instructions“.</p> <p>Knowledge of PC and Microsoft-operating systems are assumed. General knowledge in the area of automation technology is recommended.</p>	
Diagram convention	[Key]	Key entries by the user are shown in squared brackets, for example [CTRL] or [DEL]
	<i>italic</i>	Names of push buttons to be used, menus or other screen elements as well as brand names are shown in italic letters.
Necessary basic knowledge	A solid Knowledge of the personal computer and Microsoft-operating systems is assumed and a general knowledge in the area of automation technology is recommended.	
Approbation's & standards	You will find information in the annex, chapter „certificate and guide lines“.	
Safety instructions	<p>Anywhere in the automation equipment, where dangerous errors may occur, i.e. that an occurring error may cause major material or personal damage, additional external precautions or facilities have to be made (for example by means of independent limit switches, mechanical interlocks etc.), which in case of an error guarantee or enforce a secure operating condition.</p> <p>The test and aptitude of the intended usage by the user res. the usage under operational conditions is the responsibility of the user. Therefore Elektronik-Systeme LAUER does not assume liability.</p>	

User tips

Icons

The following icons are used in the manual to mark certain paragraphs:



Danger
Means that death or severe injury will occur when the relevant precautionary measures are not taken



Caution
Means that death or severe injury may occur when the relevant precautionary measures are not taken.



Warning
With warning triangle means that a light injury may occur when the relevant precautionary measures are not taken

Precaution
Without warning triangle means that material damage may occur when the relevant precautionary measures are not taken

Attention
Means that an undesirable effect or situation may occur if the respective advise is ignored.

The warning advise for the highest level is used if various danger levels occur. When a warning advise with a warning triangle warns about personal damage then an additional warning for material damage can be added.

Qualified personnel

The described appliance may only be installed and operated in accordance with this documentation. Only qualified personnel may put it into operation and operate this appliance. Qualified personnel are persons, who in accordance with the safety regulations contained in this documentation, are authorised to put into operation, earth and stamp appliances, systems and circuits.

Intended use

The appliance can only be used for the designated purposes as described in the catalogue and the technical write up and only in conjunction with external devises i.e. components recommended and authorised by Elektronik-Systeme LAUER GmbH & Co. KG. The efficient and safe operation of the appliance presupposes appropriate transport, storage, assembly and installation as well as accurate handling and maintenance.

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Preamble

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Our philosophy

Elektronik-Systeme Lauer is one of the leading suppliers in the area of industrial automation. For more than 30 years, Lauer has developed and marketed innovative HMI solutions for operating and monitoring machinery and equipment. The portfolio stretches from text displays through modern operating terminals all the way to powerful panel PCs. These innovative products find thousands of applications in many various industry sectors such as Packaging, Automotive, Pharma & Food and Marine.

Since May 2007 Lauer belongs to the Beijer Electronics Group which is listed on the Stockholm stock exchange, and has its headquarter in Malmö, Sweden. Beijer Electronics has other subsidiaries in Europe, Asia and North America. Beijer Electronics enjoys close relationships with OEMs, brand-label-partners and distribution partners worldwide.

Support contact

Telephone: +49 (0) 7022 / 9660 -209
eMail: Support@lauer-hmi.de

For support inquiries always have the serial number of your appliance at hand!

Up to date driver units, software, driver units, manuals ...and innovations can be found in our download-area:
www.lauer-hmi.de

Sales contact

Telephone: +49 (0) 7022 / 9660 -0
eMail: sales@lauer-hmi.de

Additionally on offer ...

... courses and technical training in our modern equipped training centre or alternatively at your place of business. Please ask your distribution agent for the latest training course schedule.
... not only demo-appliances but also specialists who will personally assist you when you first take your appliance into operation.

1 Product description

The EPC LX line is a compact, mechanically robust, fanless industrial panel PC. This embedded PC system comes in two variants, either as just a CPU box or together with a high-contrast industrial color TFT display. It is available in the following display sizes: 6.4" 8.4", 10.4", 12" and 15". The analog resistive touch screen is the basis of communication between human and machine. The combination of a standardized CPU unit and the different front units allows customers to best meet their requirements. Another advantage is its compact installation dimensions.

By using special processors and cooling elements, tempermental fan systems are no longer necessary.

Also, compact flash cards have replaced hard drives. This means that the failure quota is very low despite the often harsh industrial environment. The LAUER EPC series comes with the Windows®XP operating system embedded, Windows® CE and VxWorks. This allows you to visualize and control your systems reliably in a harsh environment.

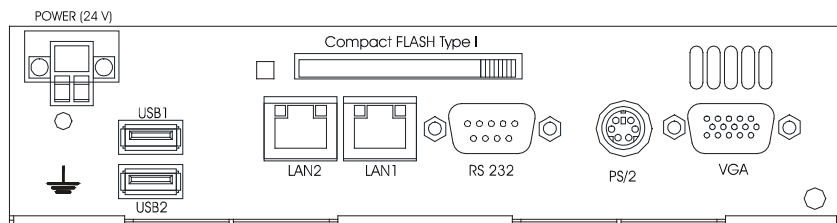
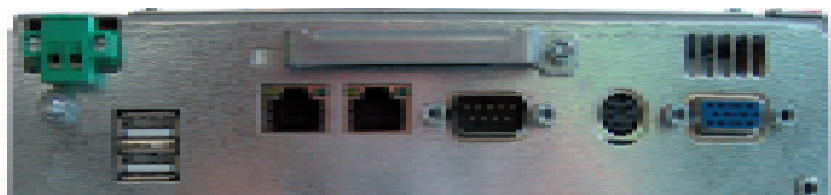
CPU Unit	CPU:	On Board AMD Geode™LX 800/700 (533MHz) CPU
	System Memory:	200-pin DDR SDRAM 1GB for DDR333 and 512MB for DDR400
	Chipset:	AMD LX series + CS5536
	I/O chipset:	IT8712/FKX + IT8888G
	BIOS:	Award 512KB FLASH ROM
	Battery:	CR 2032 lithium battery
	SSD:	internal Type II Compact Flash™
Ports	Display chipset:	AMD LX series + TI SN75LVDS83
	Serial:	1x RS232
	Ethernet:	2x Realtek RTL8139DL, 10/100Base-TX RJ45 connector
	USB	2x USB2.0
	External memory card:	Type II Compact Flash
	Mouse and keyboard:	via Mini DIN PS/2 Y cable

1.1 Operating panel

- ① Color TFT resistive touch display
6.4", 8.4", 10.4", 12" or 15"



1.2 Slot panel



1.3 Ports

1.3.1 Compact FLASH Slot

The EPC industrial PC is standardly equipped with a Compact FLASH slot according to CFA standards (Type 1).

Position of the Compact FLASH slot

① Captive screw



①

Warning!

In connection with the EPC, only Compact FLASH cards from the company SANDISK may be used.

Do not replace the Compact FLASH card unless the PC is switched off!

1.3.2 VGA-/COM1-/PS/2 port

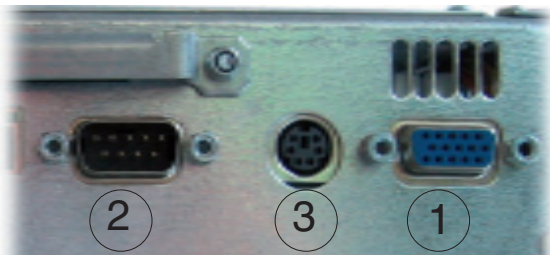
① VGA port

② COM 1

③ PS/2 mouse/keyboard



PS2 adapter cable for mouse and keyboard



The debug port is designed as a serial port for all standard embedded PCs.

This port can be configured as a debug port to support program development.

Warning!

The COM 1 port is only available if it is activated by software.

The serial port is standardly assigned according to the PC XT/AT!

Warning!

Do not remove the PS/2 mouse and PS/2 keyboard unless the PC is switched off.

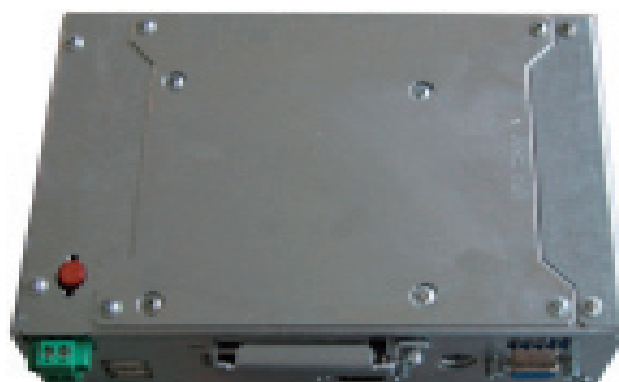
Otherwise, the operating system will not detect these input devices!

1.3.3 Ethernet, USB

- ① Ethernet 1 (RJ45)
- ② Ethernet 2 (RJ45)
- ③ USB 1/2



1.4 Back side



2 Start-up

2.1 Power supply



Warning!

Only operate the embedded PC using protective extra-low voltage according to EN60950!

The transformer must meet the EN60742 standard!

Check the power supply to ensure it corresponds to the type plate.

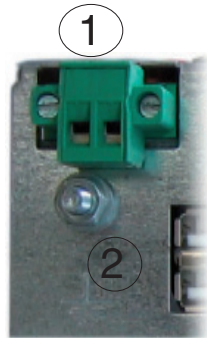
Prior to system start-up, check all cable connections.

Make sure that all voltages and signals meet the relevant specifications.

The 0V supply voltage connection to the housing (earth) is a low-impedance connection.

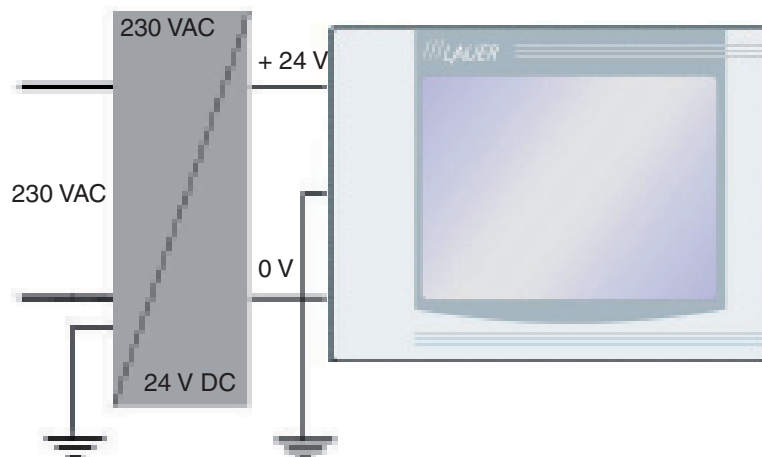
① 24V voltage supply

② Earth screw



The power supply is provided by means of a two-pronged plug-in connector (Phoenix MST BT 2,5/2).

Power supply arrangement



2.2 Grounding diagram

In order to reliably prevent electrical disruptions, please note the following points:

- Connect the PC and control cabinet as close to a central grounding point as possible.
- Make sure inductive connection between the computer and the control cabinet is as low as possible.
- All data cables connected to the computer have to be shielded cables.
- The shields have to be grounded on both ends. There must be a low-impedance connection between the connected systems. Rule out high equalizing currents through the shielding resulting from potential differences.
- The grounding connection with a green-yellow cable must be designed with at least a 4 mm² cross-section.

2.3 Installation

Installation

The industrial PC has to be installed in an HF- impermeable housing or metal control cabinet.

In order to dissipate the heat emanating from the PC, 100 mm on three sides of the PC must be kept clear so air can freely circulate.

The PC is assembled by screwing in eight hexagon nuts.



Caution!

Damage to the PC possible!

Front-end IP65 degree of protection is only guaranteed if the sealing sits correctly on the front plate.

Once installed, 100 mm on three sides of the PC must be kept clear so air can freely circulate



Caution!

The use of Compact Flash Card's from different manufacturers can lead to errors.

When using an internal and external Compact Flash card, only use cards from the same manufacturer (same type and same size)

2.4 Switch on the PC

Start-up procedure

The EPC boots up and loads the operating system.

3 Service

Tools

All you need to assemble the PC is a 2.0 hexagon socket as well as a 5.5 socket wrench. A small screwdriver and pliers are also helpful (see illustrations).

Preparation



Disconnect the PC from the power supply!

Danger!

Make sure that your electro-static underlay is not able to damage the front of the EPC.

Open PC

Only authorized personnel may perform work on the open PC. Within the warranty period, the hardware may only be updated with memory and plug-in cards.

Caution!

The PC contains electronic components that can be disrupted by electro-static charges.

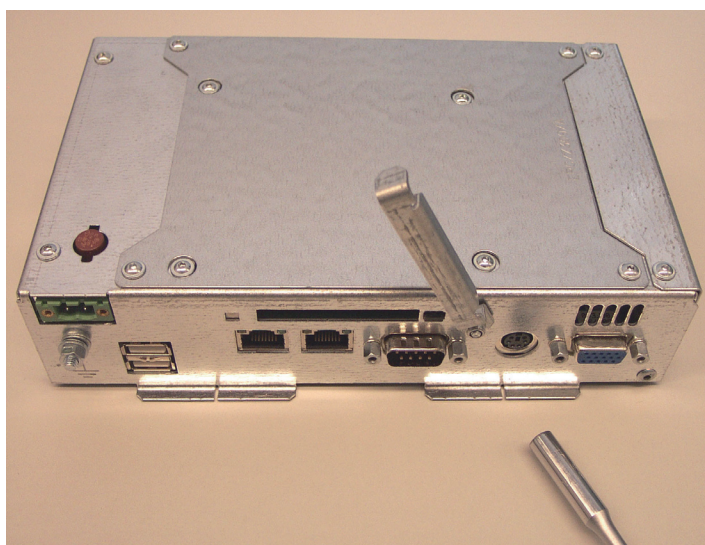
Therefore, you have to take precautionary measures when opening the PC. You can find these in the guidelines for electro-statically discharge sensitive devices (EDSD guidelines).

3.1 Replacing the external CFC

To replace the external CFC, loosen the locking system using a socket wrench.

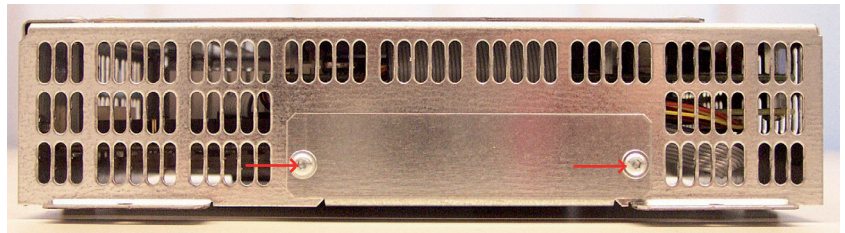


Then turn the locking bracket upward to replace the CFC.

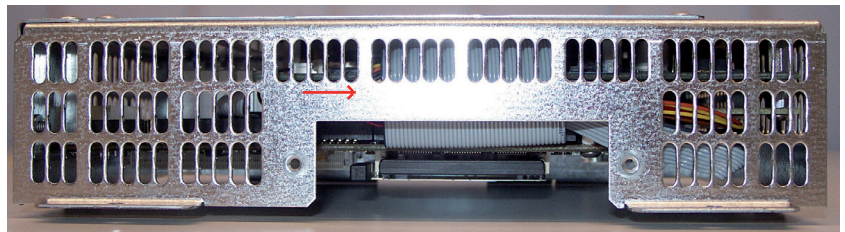


3.2 Replacing the internal CFC

To replace the internal CFC, remove the cover.
Loosen the screws indicated in the illustration and remove the cover plate.



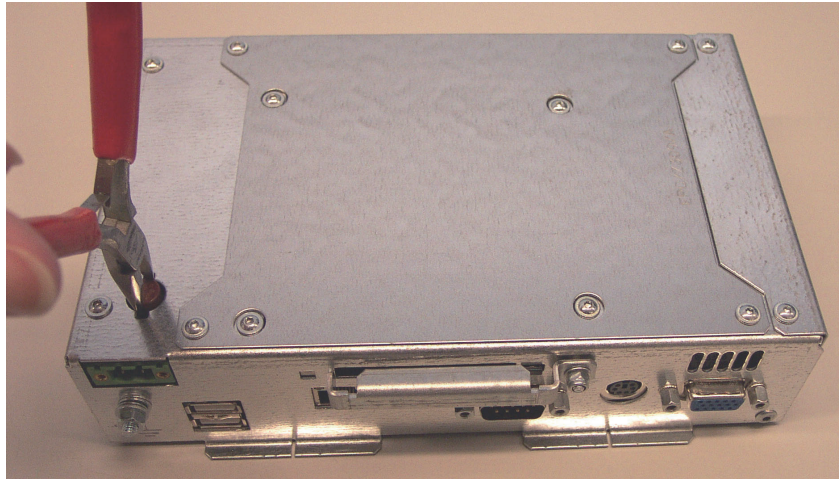
The internal CFC slot is then visible.
Press on the release levers (see arrows) and replace the CFC.



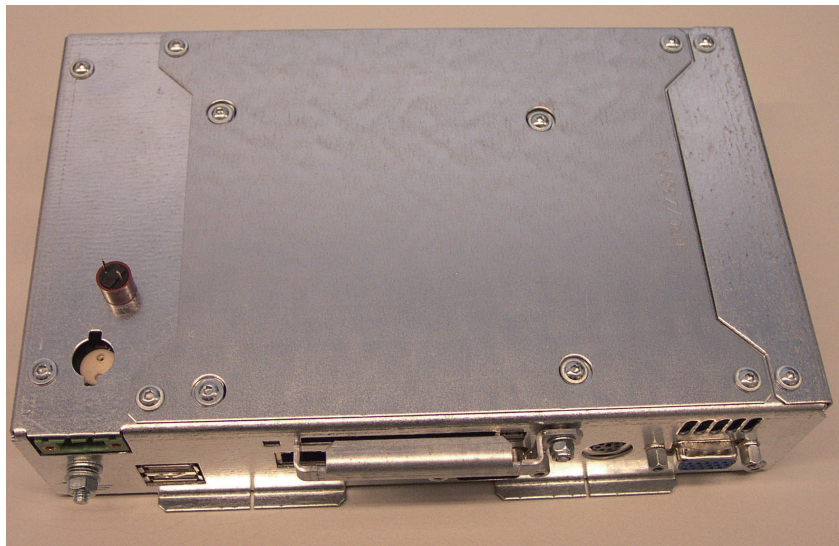
Afterwards, simply screw the cover plate back on.

3.3 Replacing the fuse

If the fuse has to be replaced, it can easily be removed using a pair of pliers.

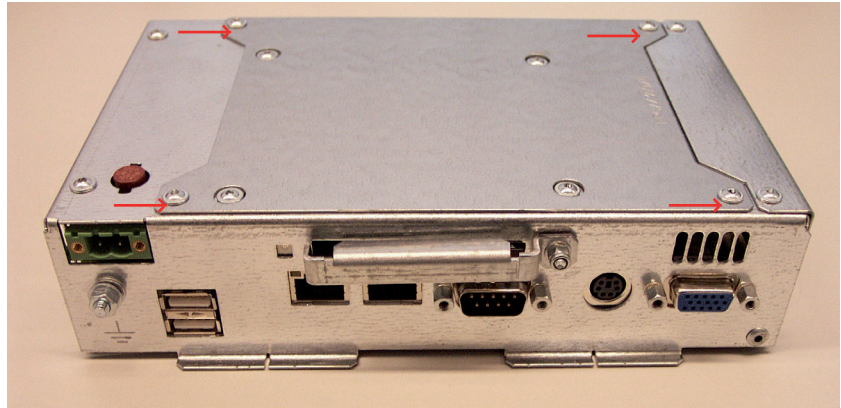


Replacing a new fuse T2,5A (item no.: 200.140.0110).

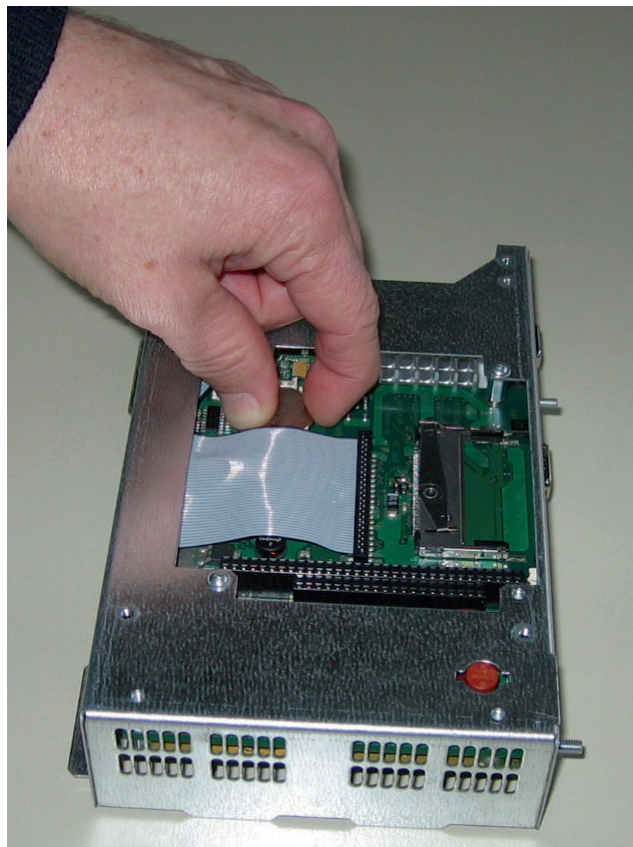


3.4 Changing the battery

If the battery needs to be replaced, you have to remove the back cover plate. To do so, loosen the screws as shown.

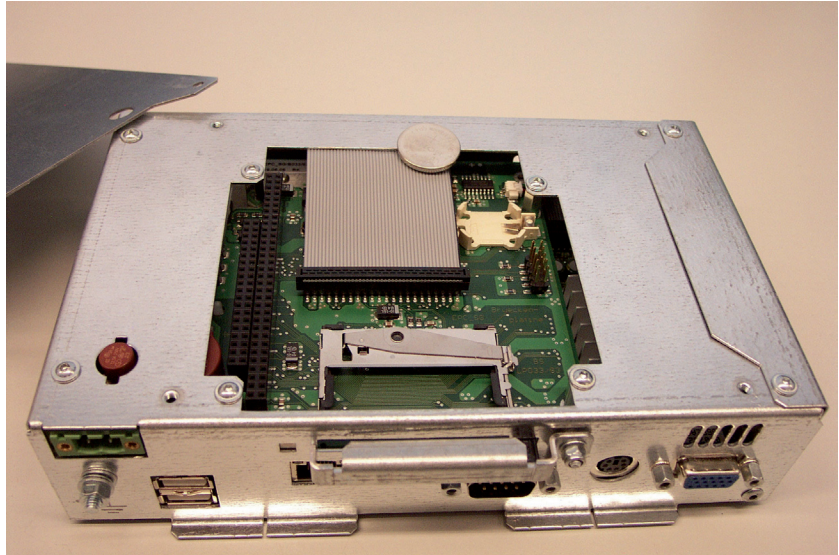


Remove the back cover plate.
The battery can be conveniently removed by hand.



Please note that the BIOS settings may disappear when changing the battery.

Insert the new lithium 3V battery (item no.: 200.300.0070) with lettering facing up and screw the back plate back on firmly.



T Technical data

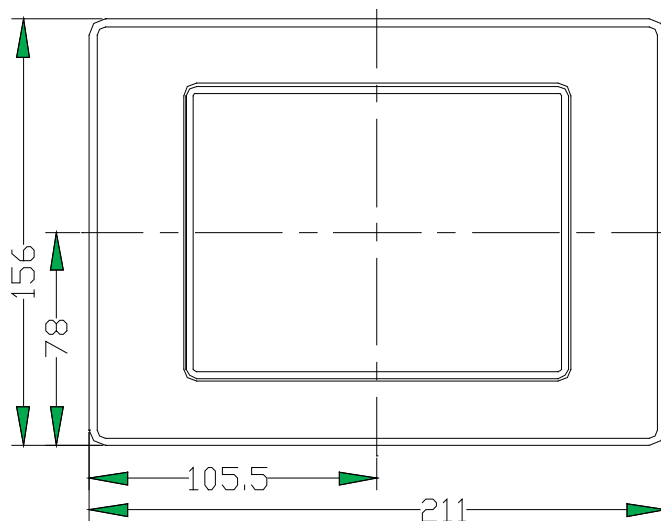
T1 Mechanical dimensions

Air circulation

To dissipate the heat emanating from the PC, 100 mm on three sides of the PC must be kept clear so air can freely circulate.

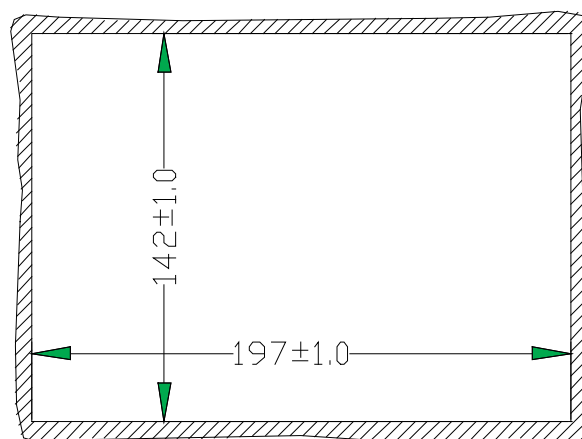
T1.1 EPC LX 640 exterior/installation dimensions

Front plate	Width	211 mm
	Height	156 mm
Cut out dimensions	Width	197 mm
	Height	142 mm
Installation depth		70 mm
Weight		approx. 1 kg



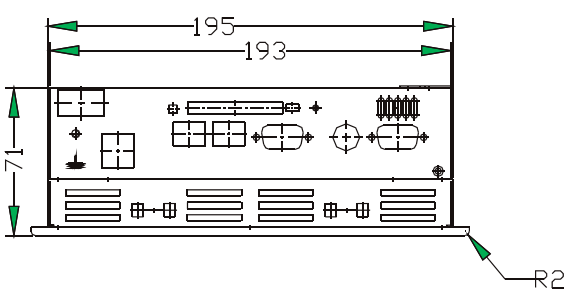
Front panel cut-out for installation
W x H cut-out
197.0 mm x 142.0 mm

1. Type of attachment: with 6 pieces.
Holding blocks made of aluminum or
plastic with threaded pins
M5x30, DIN 914, with nib and
hexagon socket, galvanized

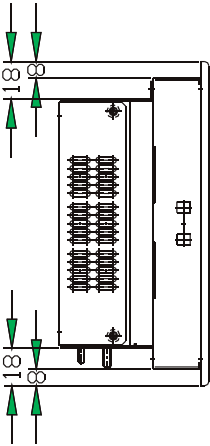


T1.2 EPC LX 640 Unit dimensions

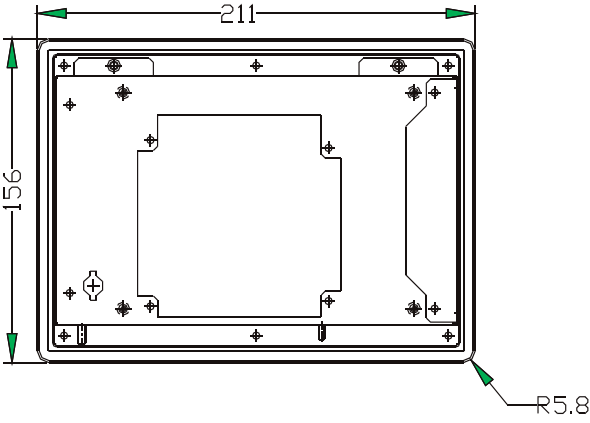
view of the unit underneath



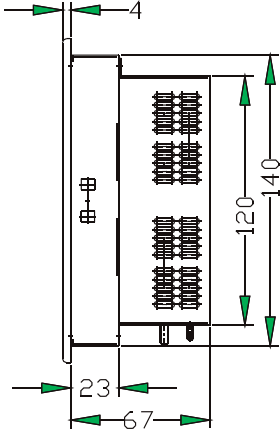
lateral view



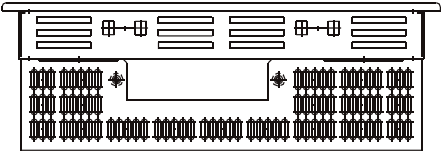
unit rear view



lateral view

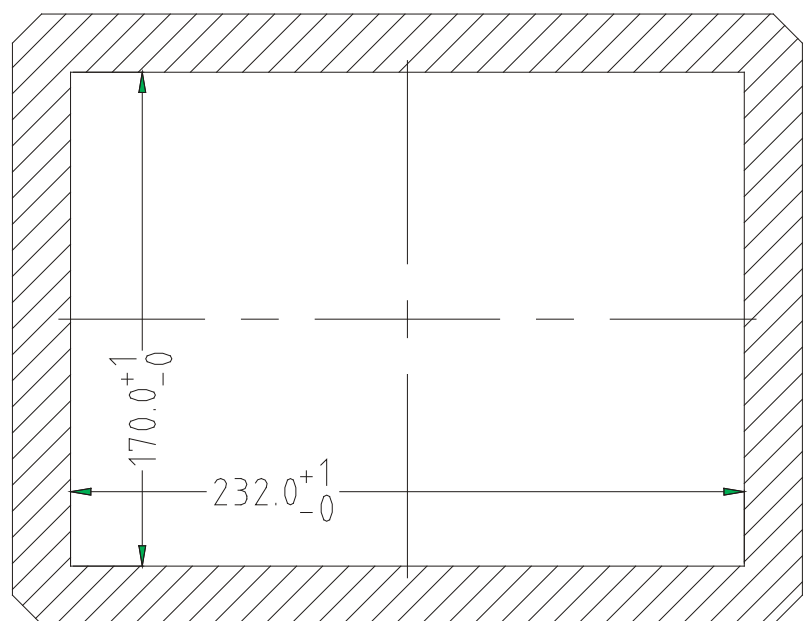
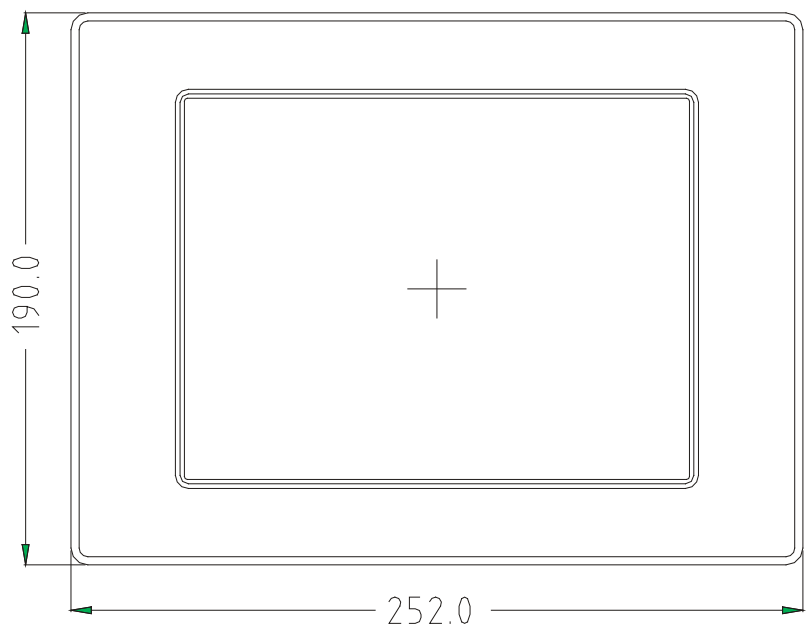


view of the equipment top side



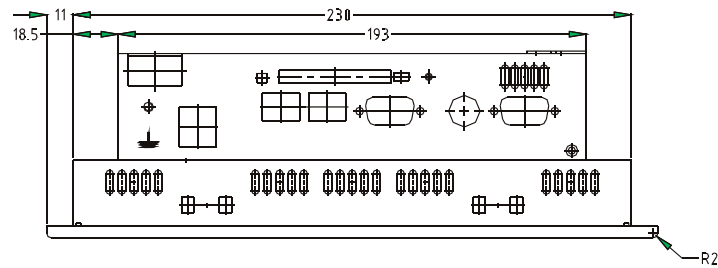
T1.3 EPC LX 840 Exterior/installation dimensions

Front plate	Width	252 mm
	Height	190 mm
Cut out dimensions	Width	232 mm
	Height	170 mm
Installation depth	61 mm	
Weight	approx. 1.9 kg	

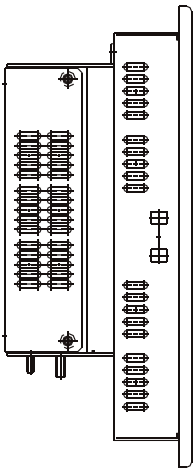


T1.4.1 EPC LX 840 Unit dimensions

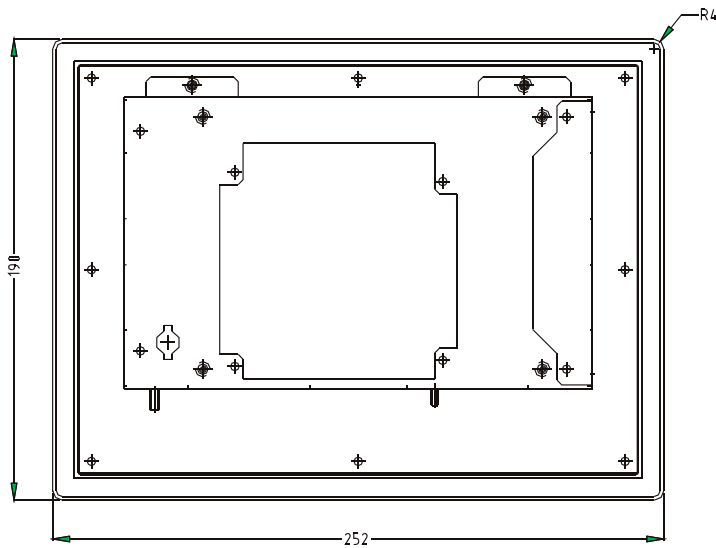
view of the unit underneath



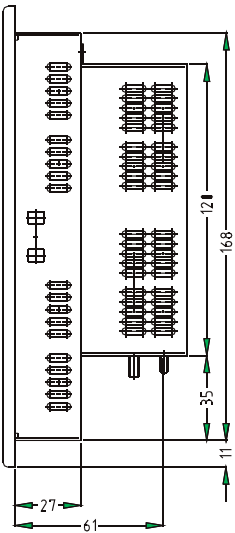
lateral view



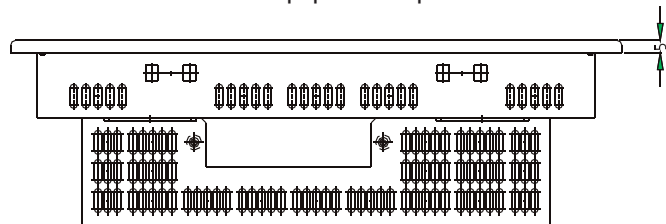
unit rear view



lateral view



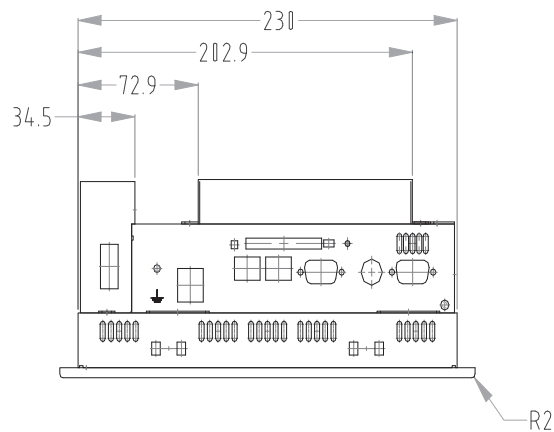
view of the equipment top side



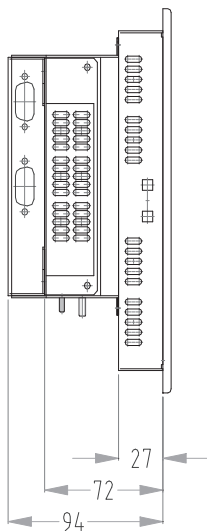
T1.4.2 EPC LX 840 nautic Unit dimensions with Dual CAN IXXAT

with Dual CAN IXXAT (optional)

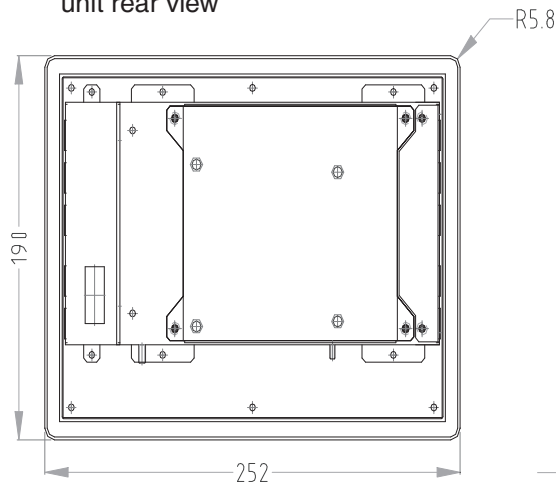
view of the unit underneath



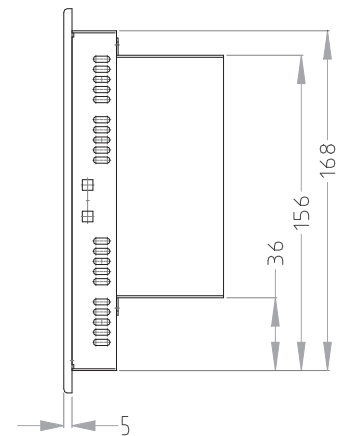
lateral view



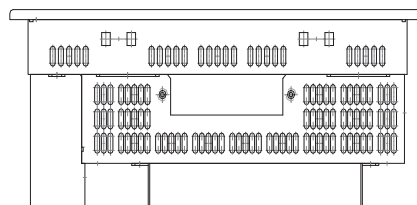
unit rear view



lateral view

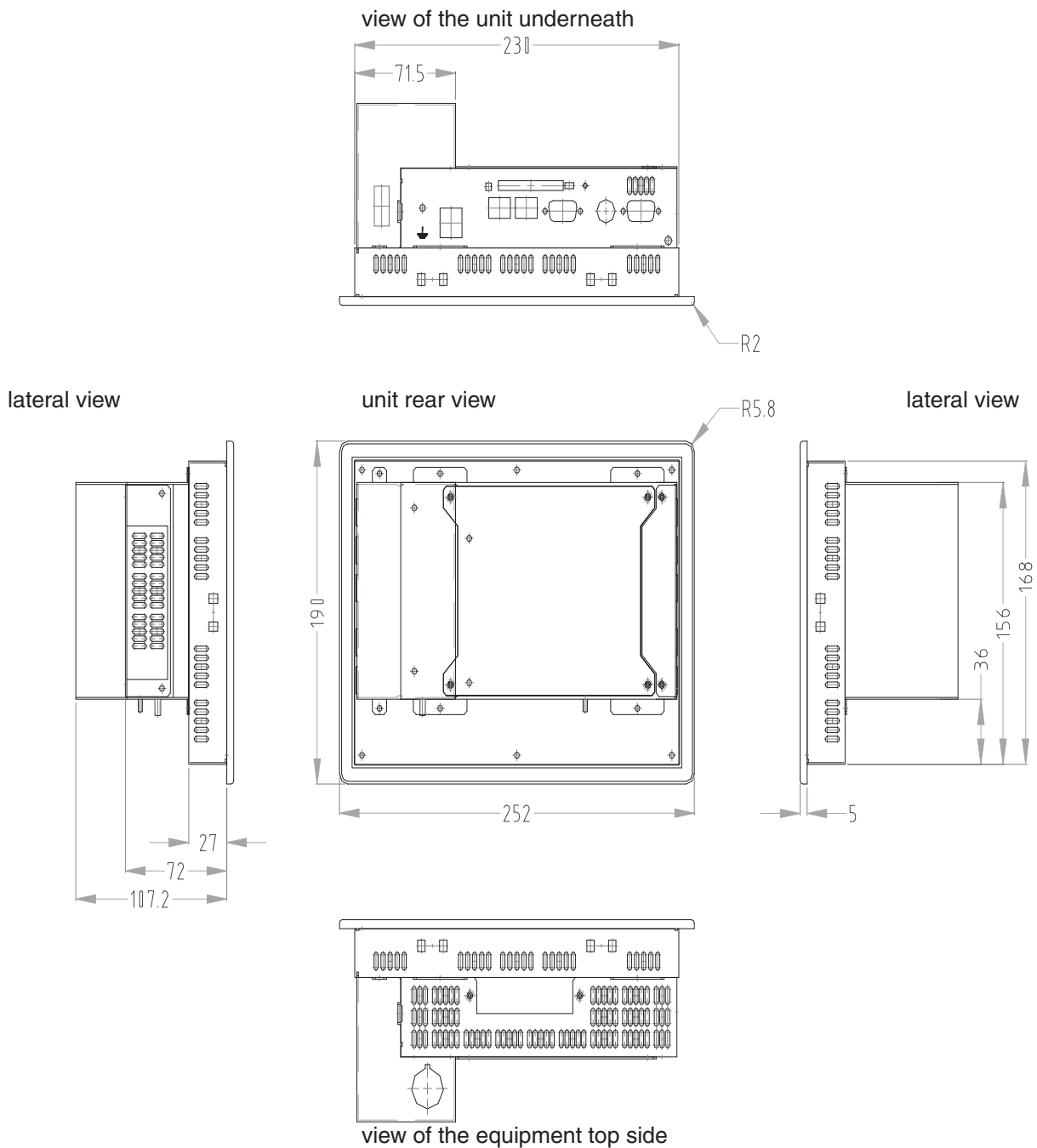


view of the equipment top side



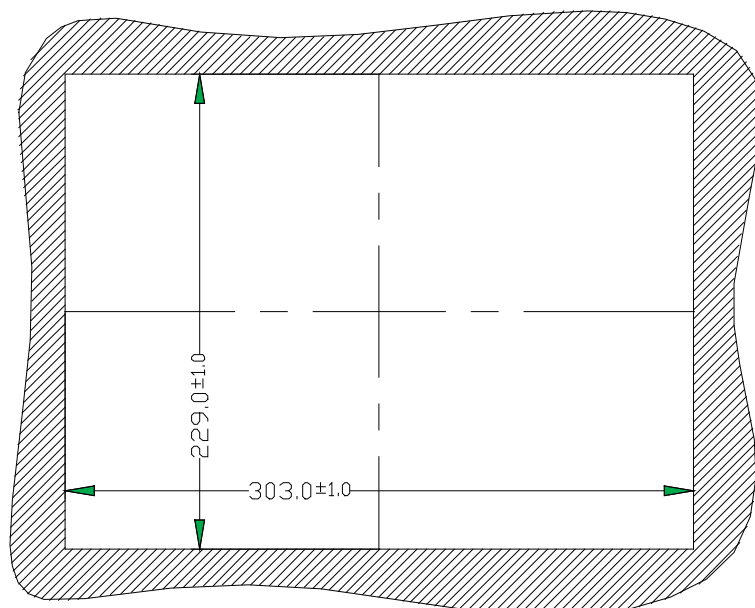
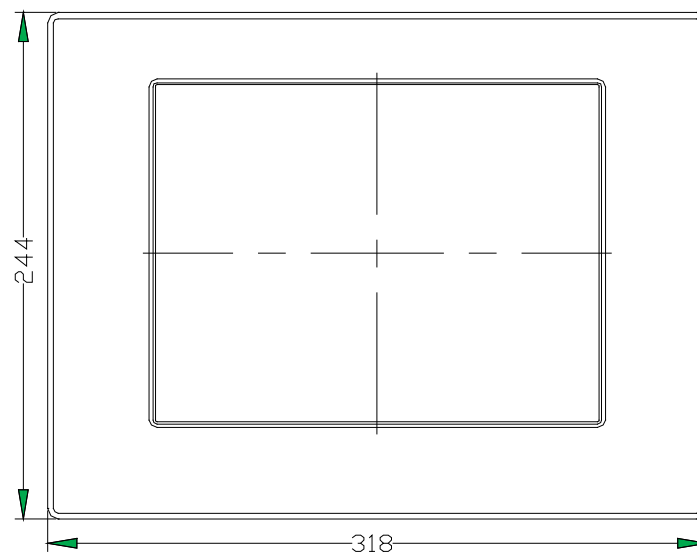
T1.4.3 EPC LX 840 nautic Unit dimensions with integrated Buzzer

with integrated buzzer (optional)



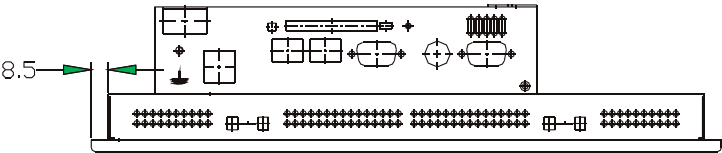
T1.5 EPC LX 1000 Exterior/installation dimensions

Front plate	Width	318 mm
	Height	244 mm
Cut out dimensions	Width	303 mm
	Height	228 mm
Installation depth		77 mm
Weight		approx. 2.8 kg



T1.6.1 EPC LX 1000 Unit dimensions

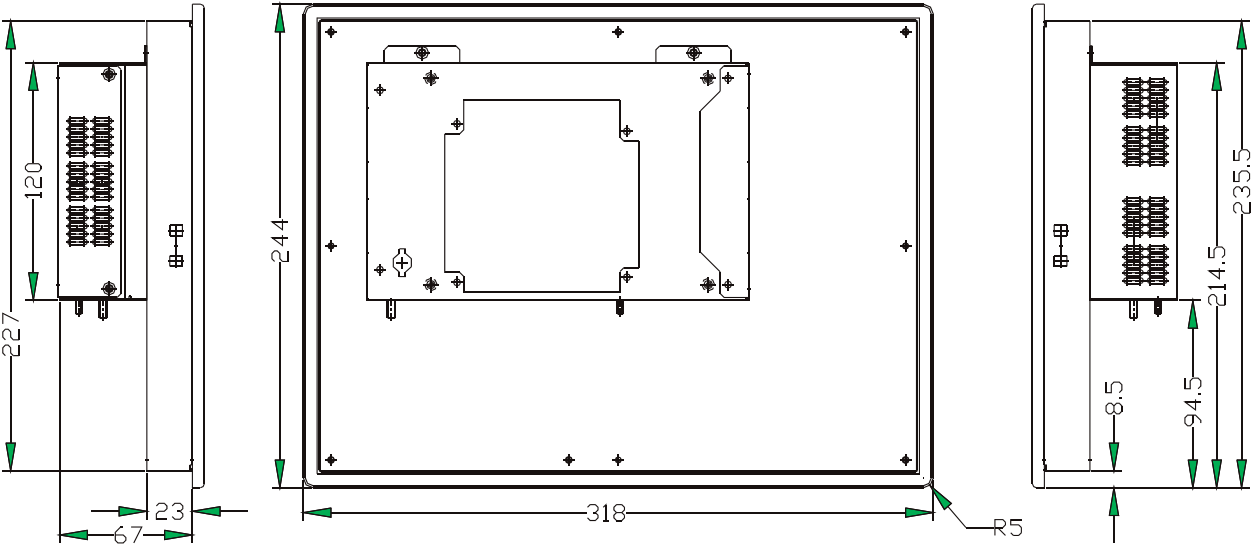
view of the unit underneath



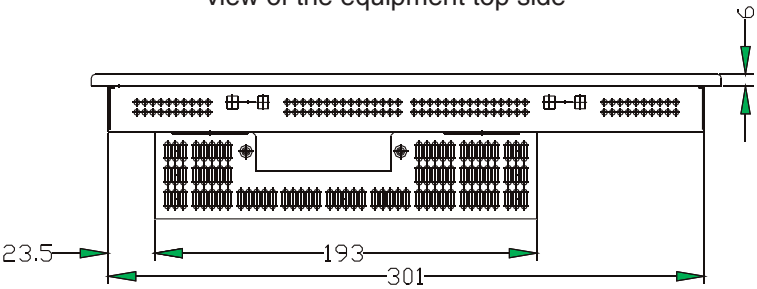
lateral view

unit rear view

lateral view

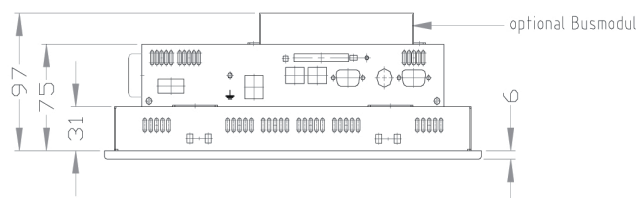


view of the equipment top side



T1.6.2 EPC LX 1000 nautic Unit dimensions

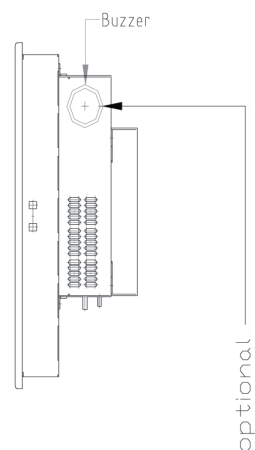
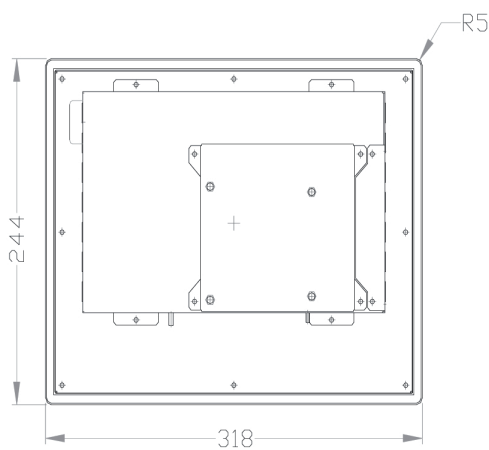
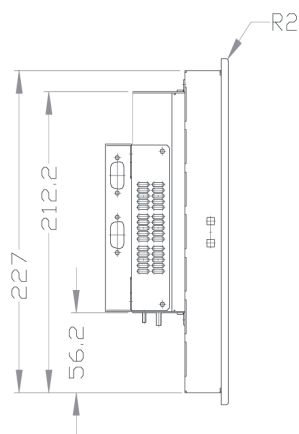
view of the unit underneath



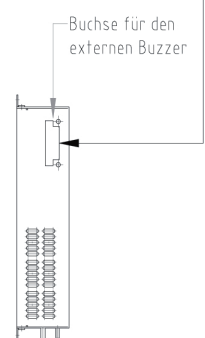
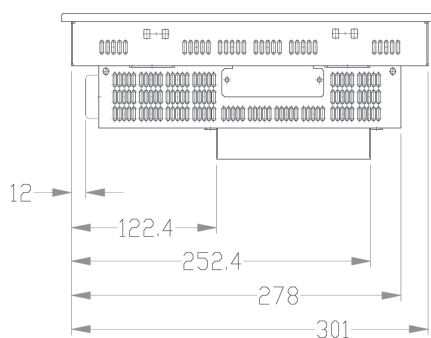
lateral view

unit rear view

lateral view

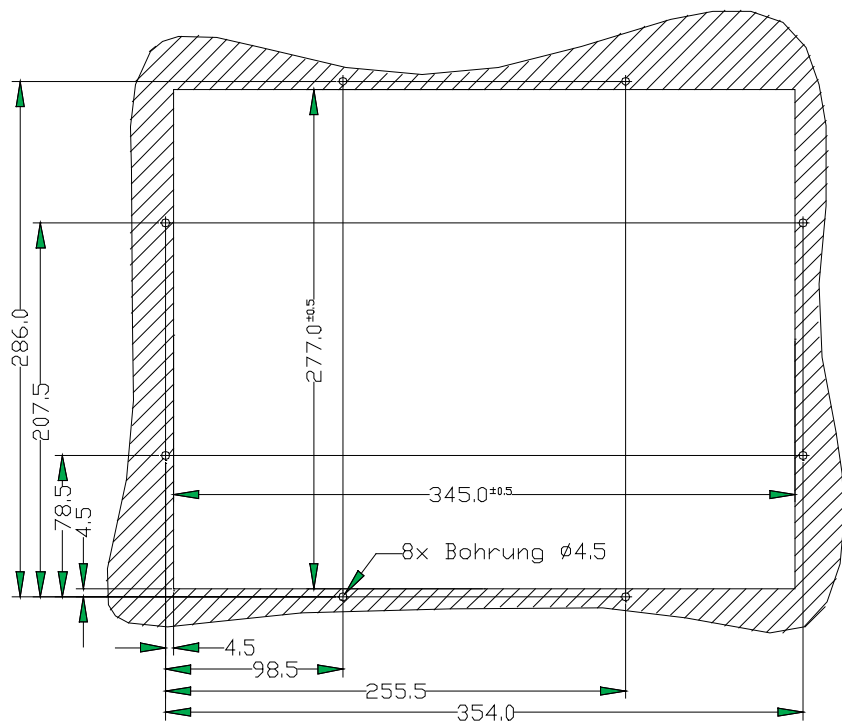
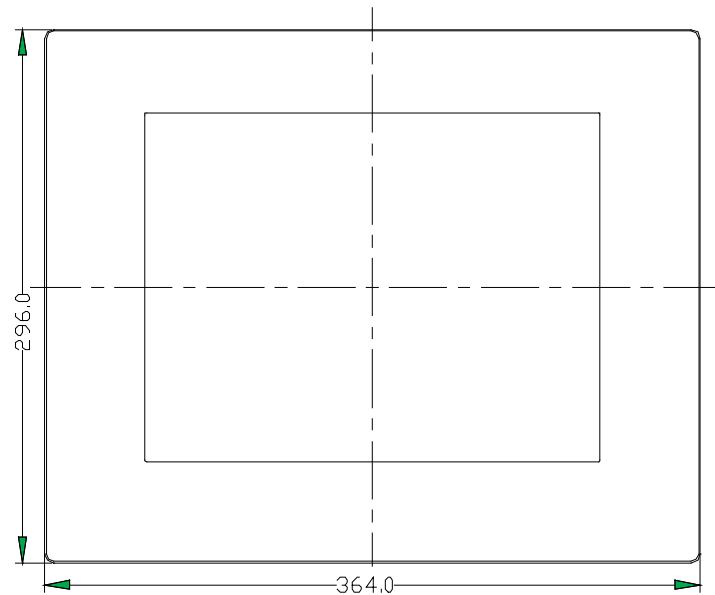


view of the equipment top side



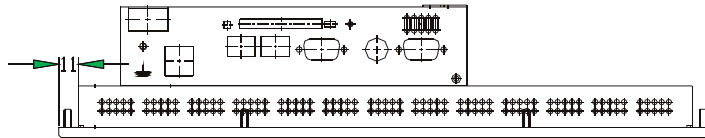
T1.7 EPC LX 1200 Exterior/installation dimensions

Front plate	Width	364 mm
	Height	296 mm
Cut out dimensions	Width	345 mm
	Height	277 mm
Installation depth		77 mm
Weight		approx. 2.8 kg

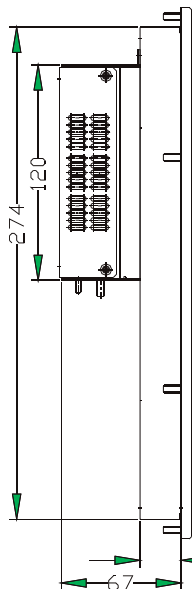


T1.8 EPC LX 1200 Unit dimensions

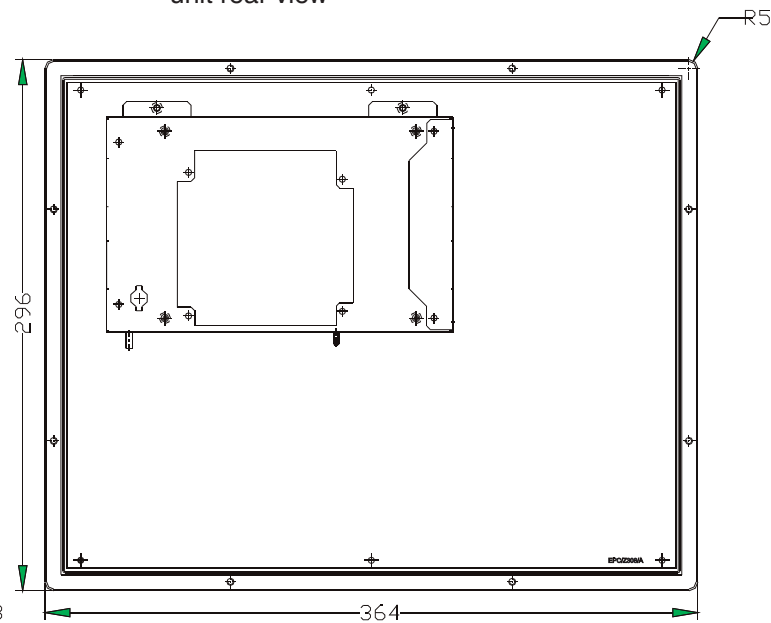
view of the unit underneath



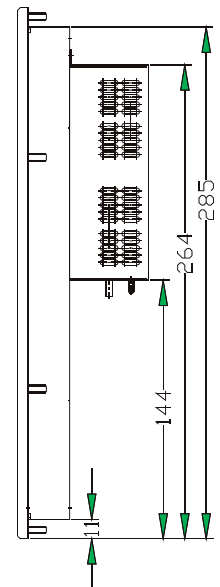
lateral view



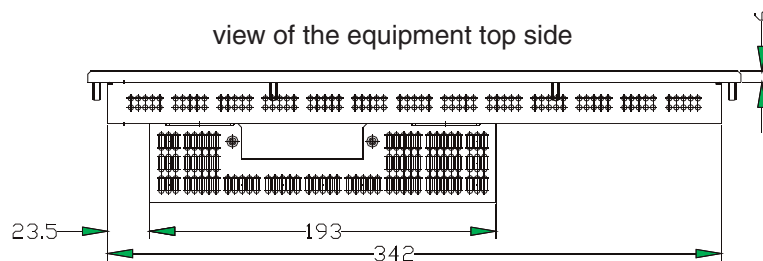
unit rear view



lateral view



view of the equipment top side

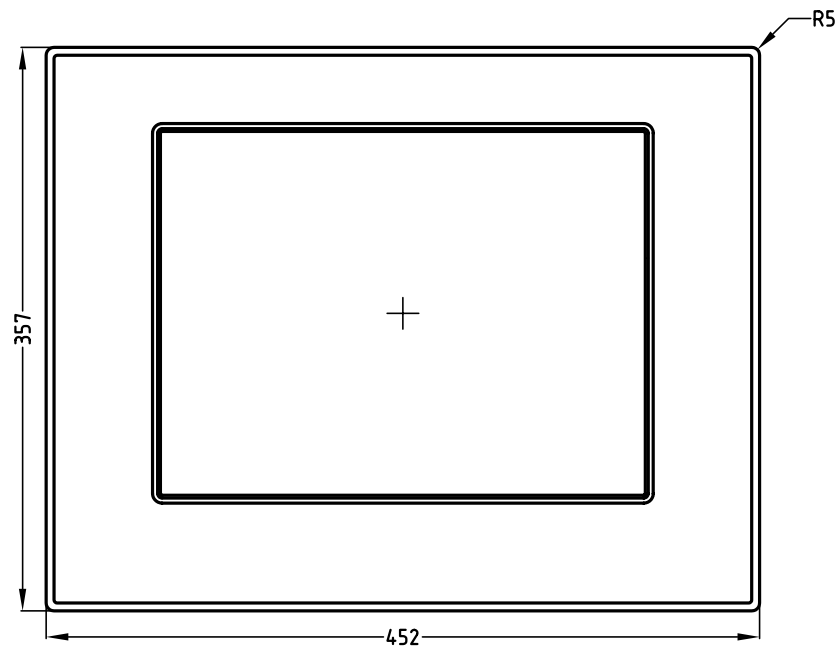


T1.9 EPC LX 1500 Exterior/installation dimensions

Front plate	Width	452 mm
	Height	357 mm
Cut out dimensions	Width	429 mm
	Height	334 mm
Installation depth	77 mm	
Weight	approx. 5.0 kg	

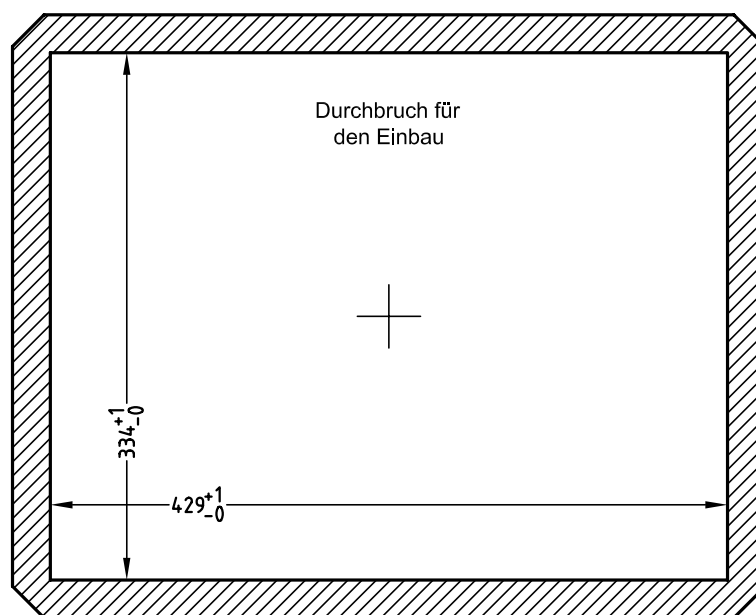
Front view

Front dimensions W x H
452.0 x 357.0 mm
Tolerance 0,2 mm



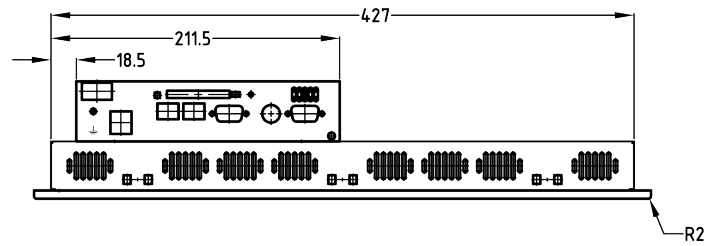
Front panel cut-out for installation

W x H cut-out
429.0 mm x 334.0 mm
Space for holding blocks
around 15 mm
Space total W x H
459.0 mm x 364.0 mm

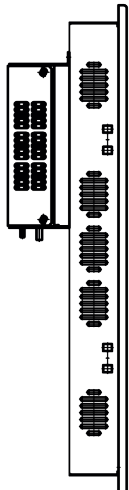


T1.10 EPC LX 1500 Unit dimensions

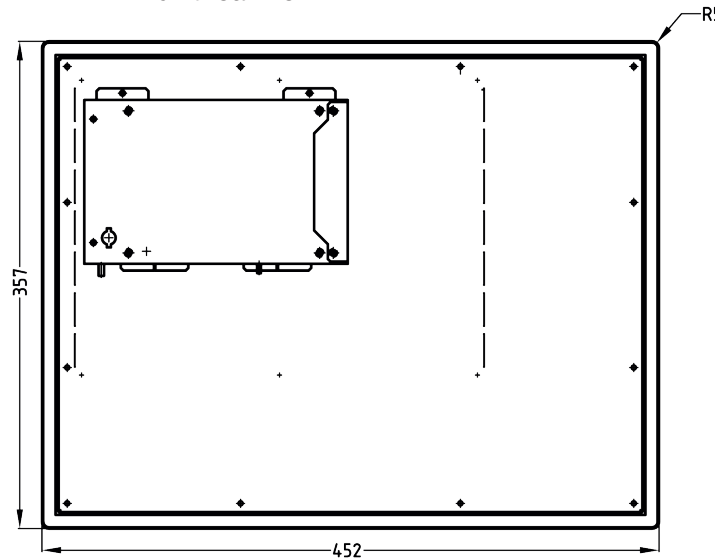
view of the unit underneath



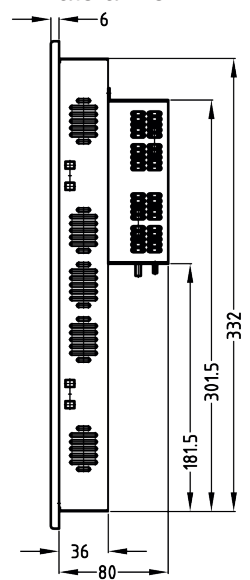
lateral view



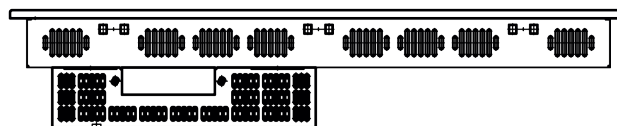
unit rear view



lateral view



view of the equipment top side



T2 Electrical data

Power supply DC	Operating voltage		24 V ± 20%, reverse polarity protected			
	Fuse		2,5 A delay			
	Power failure buffering time		1 ms bei 19,2 V (Ub-20%)			
Display	Display	640	840	1000	1200	1500
	Resolution	640x480	640x480	800x600	800x600	1024x768
Charging rate	EPC LX Box	0,55 A				
	EPC LX 640	0,75 A				
	EPC LX 840 / nautic	0,85 A				
	EPC LX 1000 / nautic	0,90 A				
	EPC LX 1200	1,10 A				
	EPC LX 1500	1,20 A				
Touch	resistive					
CPU unit	CPU:	On Board AMD Geode™ LX 800/700(533MHz) CPU				
	System Memory:	200-pin DDR SDRAM				
		1GB for DDR333 and 512MB for DDR400				
	Chipset:	AMD LX series + CS5536				
	I/O Chipset:	IT8712/FKX + IT8888G				
	BIOS:	Award 512KB FLASH ROM				
	Battery:	Lithium battery CR 2032				
	SSD:	internal Type II Compact Flash™				
Interfaces	Display Chipset:	AMD LX series + TI SN75LVDS83				
	Serial:	1x RS232				
	Ethernet:	2x Realtek RTL8139DL, 10/100Base-TX RJ45 connector				
	USB:	2x USB2.0				
	Memory card					
	external:	Type II Compact Flash				
	Mouse and					
	keyboard:	over Mini DIN PS/2 Y- cabel				
	Hardware options on PC104 base RS232/TTY RS485/422 MPI					
	Profibus DP and Profibus-Master					
	Can Open and Can Open-Master					
	PC104 Codesys PLC / Can Open-Master					

T3 Environmental conditions

Surrounding temperature	Operating	0 ... 50° C
	Operating storage	0 ... 55° C for nautic Versions -20 ... 60° C
Humidity	Operating	10 ... 75%, non-condensing
	storage	10 ... 95%, non-condensing
Resistance to vibration and shock	Sinus	2g, 10-500 Hz
	Shock	15g, 11 ms
	Continuous shock	10g, 16 ms
	free fall	from 1m height (in packaging), 1 x each axle
Protection	front	IP 65
	back	IP 20
EMV/CE	Interference resistance	EN 61000-6-2
	Interference radiation	EN 61000-6-4