COMBICOM

C6

GB **Instruction Manual**

ECON IPC's

8.4"…17"

Mat.No.	Rev.
00C6NEB-AA00	1A

KEB

The information in this manual is subject to change and is in no way binding upon KEB (Karl E. Brinkmann GmbH).
KEB is not responsible for technical errors or other omissions in the manual, and shall not accept any responsibility deriving from its use.
All brands and product names mentioned in this manual are trade-marks of their respective owners.

The products of the familiy C6 ECON are compliant with European Directive 2004/108/EC concerning electromagnetic compatibility and Directive 2006/95/EC concerning the safety of electrical products, and subsequent variations.

CE

Instructions on disposal

Summary

Chapter 1 Preliminary operations 5
List of material provided 6
Prior to installation 6
Notes on the guarantee 6
Chapter 2 General description 7
Presentation 8
General technical specifications 8
Composition and configuration of the systems. 11
C6 ECON 8.4” 11
C6 ECON 10.4” 11
C6 ECON 12.1” 11
C6 ECON 15.0” 12
C6 ECON 17.0” 12
C6 ECON 12
Front panel 13
Customization of the function keys 14
Removal/insertion of the membranes of the function keys 15
Display 18
Display quality TFT-LCD 18
8.4” display features 19
10.4” LVDS display features 20
12.1” Display features 21
15.0”Display features 22
17.0”Display features 23
Rear panel connectors 24
Expandability configurations 25
UPS (optional) 26
Technical data 28
Installation and connection of UPS module 29
Software installation 33
Driver Linx module installation 33
Installation of Driver UPS in Windows environment 36
Calibration 38
Summary of operating phases 39
Deactivation and removal of UPS module 41
Battery replacement 43
Cooling 48
Procedure for cleaning fan filter 50
System grounding 52
Power supply 54

Mass memory unit....55
Compact Flash....55
Hard disk....56
Touchscreen....56
Setup of Touchscreen controller....56
Installation of software in various Windows environments....57
Installation of software in MS-DOS environment....57
Chapter 3 Installation....59
How to start the system....60
Start-up....60
Shutdown....60
Panel assembly....61
C6 ECON wall mounting....62
Access to internal parts....63
Removal of the rear cover (upper part)....63
Removal of the rear cover (lower part)....65
Riser card removal....66
Removal of hard disk....68
Ram installation/removal....71
Adding an add-on card....72
Addition / replacement of Compact Flash modules....74
Chapter 4 Dimensions and drilling templates....77
Dimensions of system C6 ECON 8.4”....78
Dimensions of system C6 ECON 10.4“....81
Dimensions of system C6 ECON 12.1“....84
Dimensions of system C6 ECON 15.0”....87
Dimensions of system C6 ECON 17.0”....90
Dimensions of system C6 ECON....93
Chapter 5 Connectors pin-out....95
Connector for keyboard/mouse PS/2....96
Serial interface connector DB9 RS232....96
Serial interface connector DB15 multistandard....97
USB connector type A....97
VGA connector....98
RJ45 ETHERNET connector....98

Chapter 1
Preliminary operations

This chapter contains the list of material included in the packing box.

- List of material provided
- Prior to installation
- Notes on the guarantee

List of material provided

The following is a list of the material included in the packaging:

- System (as ordered configuration)
- Adaptor wire for keyboard / mouse (Y-shaped).
- Label kit for personalization of front panel keys.
- User's Guide
- Support CD Rom.
- Document with "Conditions of Guarantee" (keep for any future repair work).
- Hooks for panel fastening.

On request:

- Operating system kit (pre-loaded software, license for use, manual and magnetic supports).

Prior to installation

After you have checked the contents of the package, you should keep the packing materials as they may be needed for transporting the system in the future.

After unpacking the system, place all of the material on a work surface and carefully follow the instructions set forth in the following chapters.

Notes on the guarantee

The guarantee is regulated by the document "Conditions of Guarantee" which is provided with the system.

Chapter 2
General description

This chapter describes the general features of the systems.

- Presentation
- General technical specifications
- Composition and configuration of the systems.
- Front panel.
- Display
- Rear panel connectors
- Expandability configurations.
- Cooling.
- System earth
- Power supply.
- Mass memory unit
- Touchscreen

Presentation

The new C6 ECON family was designed to provide the widest possible scalability in performance and functionality. It based on the CPU "all in one" ASEM 951 for processors of the TRANSMETA families of processors, designed according to a modular structure that always provides the right solution of all automation needs.

General technical specifications

Front panel specifications			
Protection	IP65		
Input devices	Touch Screen 4 function buttons		
Display LCD 8.4"	Colore TFT VGA 8.4" 350 cd/mq tipico - 2 x CCFL		
Display LCD 10.4"	Color TFT VGA 10.4" 400 cd/mq tipico - 2 x CCFL		
Display LCD 12.1"	Color TFT VGA 12.1" 350 cd/mq tipico - 2 x CCFL		
Display LCD 15.0"	Color TFT VGA 15.0" 450 cd/mq tipico - 4 x CCFL		
Display LCD 17.0"	Color TFT VGA 17.0" 300 cd/mq tipico - 4 x CCFL		
USB	1 port (2.0)		
Technical specifications			
Assembly	Panel (C6 ECON wall mounted)		
Motherboard	ASEM CPU 951		
Chipset	Intel 915GM Express + ICH6		
Processor	Intel Celeron M ULV up to 1 GHz		
RAM (min.- max.)	256MB ÷ 1GB DDR2-533 (1 x 200 pin SODIMM socket)		
Video interface	32 bit VGA/SVGA/XGA/SXGA, external connector DB15 - graphic controller Intel GMA 900		
Video RAM	64/128 MB of memory selectable from system setup		
Colour resolution	C6 ECON – 8.4" C6 ECON – 10.4" C6 ECON – 12.4" C6 ECON – 15.0" C6 ECON – 17.0"	800 x 600 800 x 600 800 x 600 1024 x 768 1280 x 1024	256K 256K 16.2M 16.2M 16.2M

Serial interface	1 x RS-232 (DB9)
Ethernet	2 x 10/100 Mbps (RJ45)
Keyboard/mouse interface	1 x Minidin PS/2 with uncoupler
Interface USB (2.0)	1 on front panel 1 internal available on motherboard 4 connectors located on back of machine
Expansion slots	1 internal PCI slot (optional) 1 module PC/104 Plus internal* (see paragraph on expandability configuration in the chapter on general description)
Mass memory interfaces	1 x SATA/150, 1 x PATA/100 (used by Compact Flash), 1 slot Compact Flash type II with external access
Power supply	18-36 VDC (3.00A @ 18V – 1.50A @ 36V) at maximum load (**)
Consumption	C6 ECON 54W C6 ECON (Box) 34W
Relative humidity	maximum 80% without condensation
Storage temperature	-20°C ÷ +60°C
Operative temperature for C6 ECON without hard disk with LCD 8.4”, 10.4”, 12.1”, 15.0” and C6 ECON	0°C ÷ 50°C
Operative temperature for C6 ECON without hard disk with LCD 17.0”	0°C ÷ 45°C (estimated increased power 5W)
Operative temperature for C6 ECON with hard disk with LCD 8.4”, 10.4”, 12.1”, 15.0”, 17.0”	0°C ÷ 45°C (estimated increased power 8W)

(*) Use of the internal PCI slot precludes the use of add-on such as PC/104Plus.

(**) with LCD 15.0”, without hard disk, add-on 3W.

Weight and dimensions (see chapter 4 on dimensions and drilling template)	
C6 ECON - 8.4”	Frontal panel: 250 x 210 mm. Weight 3.1 Kg
C6 ECON - 10.4”	Frontal panel: 300 x 245 mm. Weight 4.0 Kg.
C6 ECON - 12.1”	Frontal panel: 335 x 270 mm. Weight 4.6 Kg.
C6 ECON - 15.0”	Frontal panel: 390 x 315 mm. Weight 5.3 Kg.
C6 ECON - 17.0”	Frontal panel: 455 x 355 mm. Weight 6.7 Kg.
C6 ECON - Box	Weight 2.0 Kg.
Options	
Display LCD 15.0” HL (High Luminance)	Colour TFT VGA 15.0" 600 cd/m2 typical - 4 x CCFL
Expansion bus	PC/104 Plus or PCI internal (one overrides the other)
Hard Disk	1 x 2.5” SATA
Serial ports	1 x RS-232/422/485 (2^) (DB15) 1 x RS-232/422/485 (2^) (DB15), RS-422/485 optically insulated
Parallel port	1 x SPP, EPP, ECP bi-directional (DB25)
UPS	Fastened on the back of the PC□cell, minimum backup time 15 minutes
External power supplier	On DIN rail, 220V/AC → 24 V/DC, 60W
WLAN	Kit Wireless LAN 802.11b, complete with antenna

Composition and configuration of the systems.

The C6 ECON systems can be provided with displays of: 8.4”, 10.4”, 12.1”, 15.0” e 17.0”.The C6 ECON systems do not have any display (used in panel or on wall).

C6 ECON 8.4”

This system is composed of the base module and the display of 8.4”.

C6 ECON 8.4”

C6 ECON 10.4”

This system is composed of the base module and the display of 10.4”.

C6 ECON 10.4”

C6 ECON 12.1”

This system is composed of the base module and the display of 12.1”.

C6 ECON 12.1”

C6 ECON 15.0”

This system is composed of the base module and the display of 15.0”.

C6 ECON 15.0”

C6 ECON 17.0”

This system is composed of the base module and the display of 17.0”.

C6 ECON 17.0”

C6 ECON

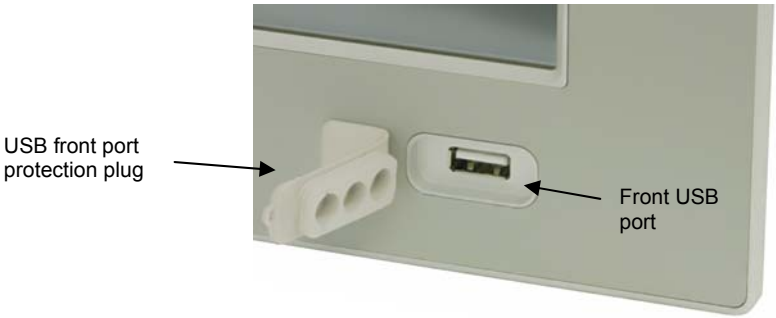
System composed of base module with flange for installation rear panel installation.

C6 ECON

Front panel

The front is made of a support anodized aluminium with a polyester film that is resistant to impact and chemicals. The rear body is made of nickel plated steel sheet metal to ensure electromagnetic shielding in order to resolve issues of EMI and RFI.

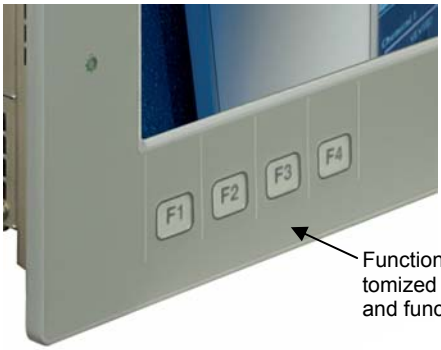
Detail of front panel



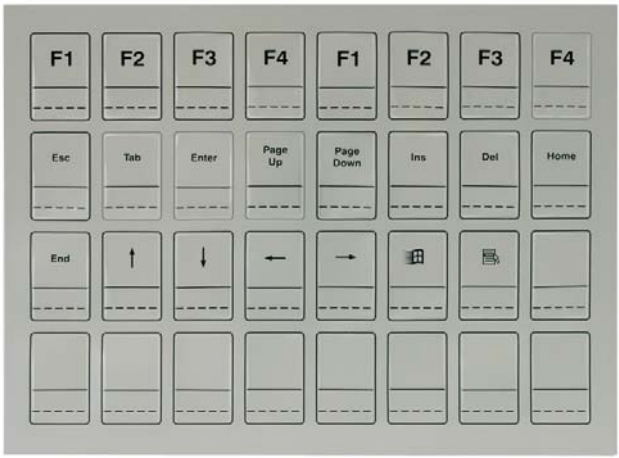
USB port detail

Customization of the function keys

On the front panel there are 4 function keys that the user can customize, in terms of both appearance and function. The default settings for the 4 keys are those of the keys F1, F2, F3, and F4 of a standard keyboard.



The system is provided with a set of pre-printed labels with the standard functions of Windows and with blank labels for the user to customize.

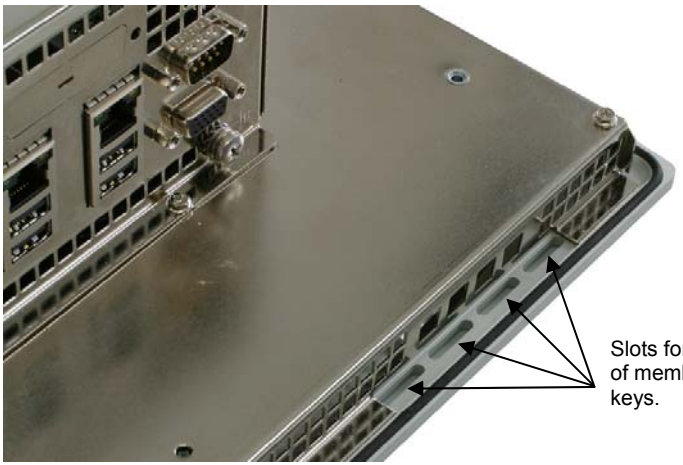


Special function keys kit

Detail of labels installed standard on the systems

Removal/insertion of the membranes of the function keys

On the rear of the system there are 4 slots where you can either insert or remove the desired label.



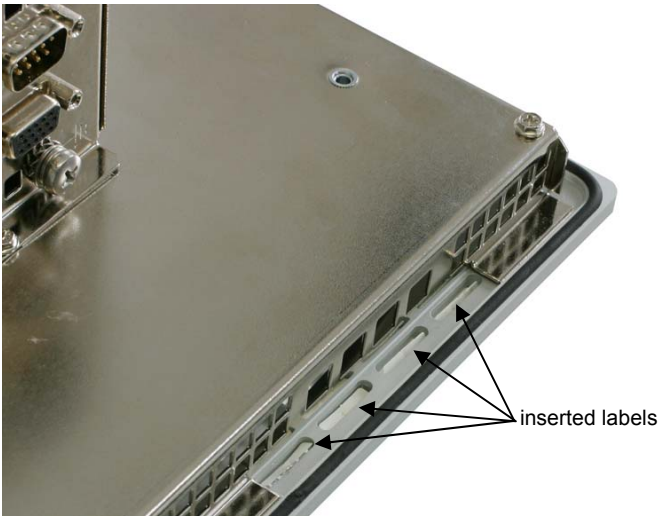
special slots on back of front panel

- Insert the label with the symbol to match to the key facing outwards after folding the lower edge of the label 90° in the opposite direction of the symbol so that when it is completely inserted in place it adheres to the panel.

(sequence 1 of 3)

- Insert the label all the way into the pocket.

(sequence 2 of 3)



Detail of fully inserted key customization labels

To remove the labels

- Grasp the label with a pincer and extract it.

Detail of label extraction

Display

The front panel of the C6 ECON systems includes a backlit LCD module.
The display may be:

- 8.4” TFT (2 lamps) with a resolution of 800 x 600 pixels, 262144 colours.
- 10.4” LVDS (2 lamps) with a resolution of 800 x 600 pixels, 262144 colours.
- 12.1” TFT (2 lamps) with a resolution of 800 x 600 pixels, 262144 colours.
- 15.0” TFT (4 lamps) with a resolution of 1024 x 768 pixels, 16194277 colours.
- 17.0” TFT (4 lampade) with a resolution of 1280 x 1024 pixel, 16194277 colori.

The display unit is contained in a mechanical cartridge.

Display quality TFT-LCD

The LCDs may have defective pixels (always on or always off). The unique manufacturing process of the LCD panels does however keep the defect rate very low, taking into account the high number of elements of the RGB triad on the panel. The maximum admissible number or defects is stated by the manufacturer and is shown in the following table.

LCD panel	Maximum admissible number of pixels on	Maximum admissible number of pixels off	Maximum admissible number of defective pixels (on+off)
8.4”	8	8	15
10.4”	8	8	15
12.1”	8	8	15
15.0”	6	7	10
17.0”	6	8	10

8.4” display features

The LCD 8.4” module has a maximum resolution of 800x600, active matrix backlit by two fluorescent lamps
Brightness is adjusted in the setup.

8.4” display features	
Dimensions	8.4”
Technology	LCD-TFT active matrix
Visible area	170.4 (A) x 127.8 (L) mm
Resolution	800 x 600
Colours	262144
Dot Pitch	0.213 mm
Brightness	350 cd / m² typical
Horizontal visual angle (left + right)	100° typical
Vertical visual angle (high + low)	90° typical
Contrast value on optimal angle	250:1 typical
Response (Rise)	50 ms maximum
Response (decay)	50 ms maximum
Power supply	3.3 V
Surface finish	Anti-glare
Backlit	Two CCFL (Cold Cathode Fluorescent Lamp)

10.4” LVDS display features

The LCD 10.4” LVDS module has a maximum resolution of 800x600, by two fluorescent lamps, brightness is adjusted in the setup.

10.4” display features	
Dimensions	10.4”
Technology	LVDSx
Visible area	211.2 (A) x 158.4 (L) mm
Resolution	800 x 600
Colours	262144
Dot Pitch	0.264 mm
Brightness	400 cd / m² typical
Horizontal visual angle (left + right)	120° typical
Vertical visual angle (high + low)	100° typical
Contrast value on optimal angle	450:1 typical
Response (Rise)	8 ms maximum
Response (decay)	17 ms maximum
Power supply	3.3 V
Surface finish	Anti-glare
Backlit	Two CCFL (Cold Cathode Fluorescent Lamp)

12.1” Display features

The LCD 12.1” module has a maximum resolution of 800x600, active matrix backlit by two fluorescent lamps
Brightness is adjusted in the setup.

Display features 12.1”	
Dimensions	12,1”
Technology	LCD-TFT active matrix
Visible area	246.0 (A) x 184.5 (L) mm
Resolution	800 x 600
Colours	16 million
Dot Pitch	0.3075 mm
Brightness	350 cd / m² typical
Horizontal visual angle (left + right)	140° typical
Vertical visual angle (high + low)	120° typical
Contrast value on optimal angle	500:1 typical
Response (Rise)	50 ms max
Response (decay)	50 ms max
Power supply	3.3 V
Surface finish	Anti-glare
Backlit	Two CCFL (Cold Cathode Fluorescent Lamp)

15.0”Display features

The LCD 15.0” module has a maximum resolution of 1024x768, active matrix backlit by four fluorescent lamps
Brightness is adjusted in the setup.

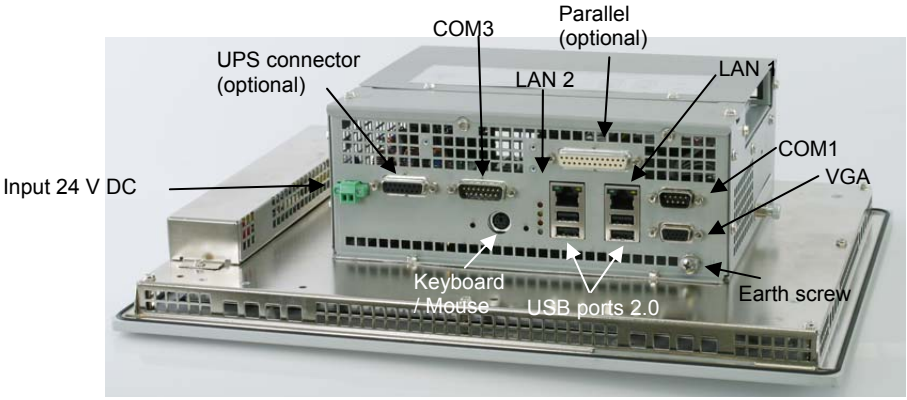
Display features 15.0”	
Dimensions	15,0”
Technology	LCD-TFT active matrix
Visible area	304.1 (A) x 228.1 (L) mm
Resolution	1024 x 768
Colours	16M
Dot Pitch	0.297 mm
Brightness	450 cd / m² typical
Horizontal visual angle (left + right)	170° typical
Vertical visual angle (high + low)	170° typical
Contrast value on optimal angle	400:1 typical
Response (Rise)	25 ms maximum
Power supply	3.3 V
Surface finish	Anti-glare
Backlit	Four CCFL (Cold Cathode Fluorescent Lamp)
Life cycle of lamps	50000 hours

17.0”Display features

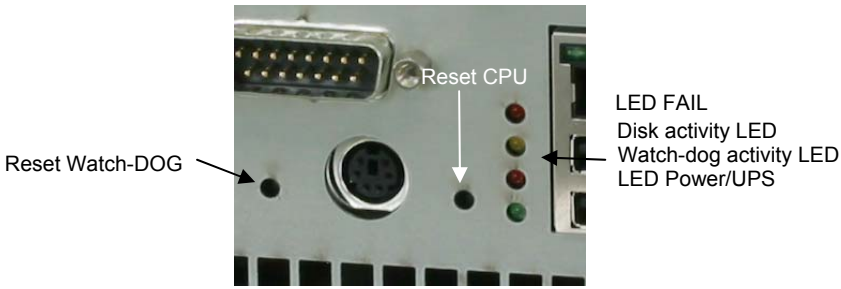
The LCD 17.0” module has a maximum resolution of 1280x1024, active matrix backlit by four fluorescent lamps
Brightness is adjusted in the setup.

Display features 17.0”	
Dimensions	17,0”
Technology	LCD-TFT active matrix
Visible area	337.92 (A) x 270.336 (L) mm
Resolution	1280 x 1024
Colours	16M
Dot Pitch	0.264 mm
Brightness	300 cd / m² typical
Horizontal visual angle (left + right)	160° typical
Vertical visual angle (high + low)	160° typical
Contrast value on optimal angle	1000:1 typical
Response (Rise)	3,7 ms maximum
Power supply	5 V
Surface finish	Anti-glare
Backlit	4 CCFL (Cold Cathod Fluorescent Lamp)
Life cycle of lamps	50000 hours

Rear panel connectors



detail of connectors of rear panel



detail of buttons and LED of rear panel

Expandability configurations

The C6 ECON systems are configured in the factory with two different types of expansion:

- without internal PCI slot

detail of inside of C6 ECON without PCI slot

- with internal PCI slot

detail of inside of C6 ECON with PCI slot
(the PC cell is equipped with a tachometric fan with filter)

When the system is configured to mount an internal PCI add-on card **the PCI connector of the standard PC/104Plus is no longer available**:

UPS (optional)

The UPS module provides power to the system for a maximum of 15 minutes* if there is no external power supply at $24V_{DC}$.

It can be placed remotely with a special extension cord up to 1 m from the central unit and it is equipped with configurable and automatic management of the controlled shutdown operations. It can be added in all versions of the C6 ECON systems

Detail of UPS module

*Backup time depends on machine configuration (type of display, add-on modules, etc.) with fully charged batteries.

When there is a power outage, the UPS starts working. The two green LED's on the front and rear panels of the system begin flashing.

Detail of front panel C6 ECON

detail of LED of rear panel

The activity of the UPS can be controlled via the module of the operating system(WindowsXP®) **backup energy source** -> **energy savings options** in the control panel. With this module, you can check the state of battery charge, enable/disable and programme the intervention time of the UPS.

If the UPS is removed or not used for a long period of time, you will need to charge it completely (this takes about 1.5 hours) by connecting the module to an C6 ECON operating system.

Technical data

Power supplies	
Nominal input voltage	24V
Input voltage range	18-36V
Max. current input	1.7 A
Nominal output voltage	12V
Nominal output current	2.5 A
Activation threshold	Approximately 16V
Protections on power supply	Welded internal fuse F4 A on input

Batteries	
Type	2 cells lead Cyclon D 5 Ah
Charge	Rapid: Constant current 3 A Backup: Constant voltage 5V
Duration at nominal charge	*15 min. at 25°C with fresh, charged batteries
Duration in backup	10 years at 25°C 4 years at 35°C 1 year at 50°C

*Backup time depends on machine configuration (type of display, add-on modules, etc.) with fully charged batteries.

Protections on batteries	
Type	Welded internal fuse F15 A
	Interruption of rapid charging at low (< 5 °C) and high (>65 °C) temperatures
	Automatic release of batteries at end of discharge

Mechanics	
Dimensions	235 x 65 x 50 mm (L x H x S)
Weight	1200 g. approx.
Assembly	On back of machine C6 ECON or immediately nearby using the extension cord (optional) of 1 m

Connections	
Connections	Shielded cable of approximately 20 cm with connector DB15 on the end

Ambient	
Operating temperature	+0° ÷ +50°C
Electromagnetic compatibility	Emissions: Standard EN 55022, Class: B Immunity: Standard EN 55082, Ambient: industrial

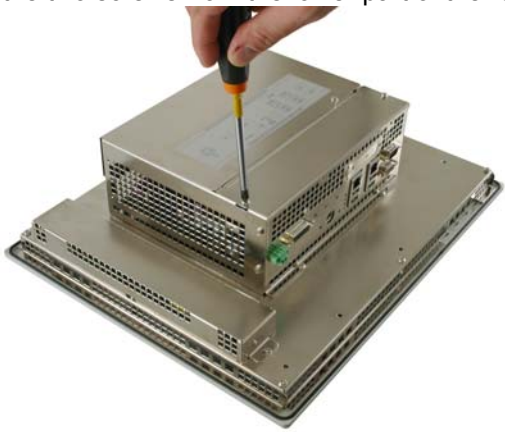
Pinout Connector DB15 male

Pinout Connector DB15 male	
PIN	**signal**
1 / 2 / 9	Mains power supply - power
7 / 8 / 15	Ground – power
6 / 13 / 14	Backup power supply – power
4	Smbus data line - signal
5	Smbus clock line - signal
10	Smbus – signal
12	Smbus power supply – signal
3	PSON line for UPS activation - signal
11	N.C.

Installation and connection of UPS module

To install the UPS module, the system must be equipped with the appropriate connector.

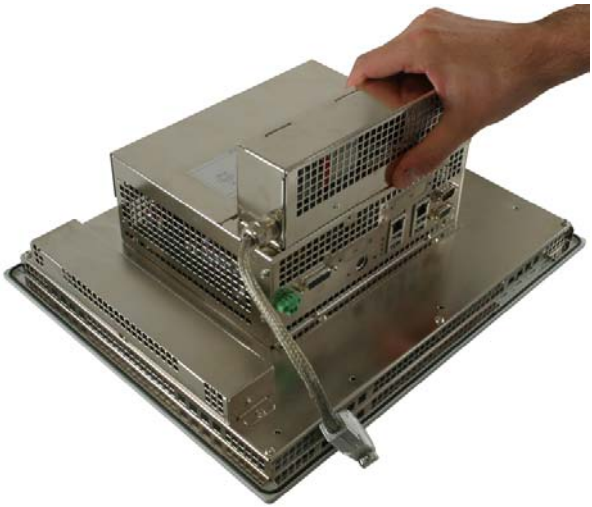
- Disconnect the system from the power supply (if connected).
- Remove the two screws from the lower part of the rear cover.



(sequence 1 of 7)

(sequence 2 of 7)

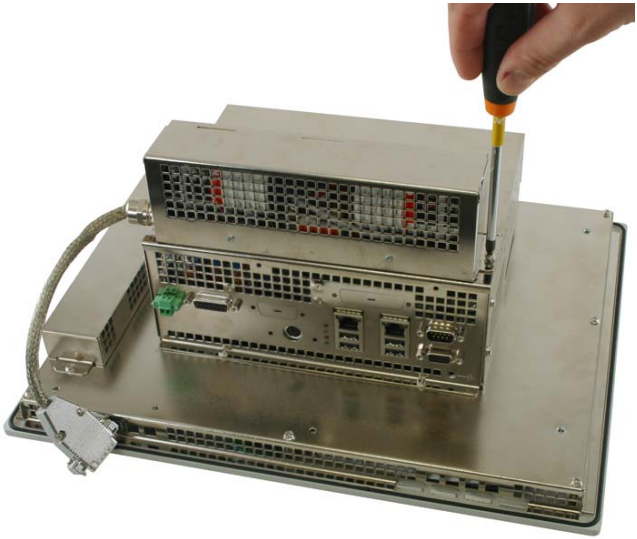
- Position the UPS module on the back of the system as shown in the figure and connect the cable of the UPS to connector DB15 located on the system just below the power supply connector.



(sequence 3 of 7)

- Attach the UPS module to the system with the two screws.

(sequence 4 of 7)



(sequence 5 of 7)

(sequence 6 of 7)

(sequence 7 of 7)

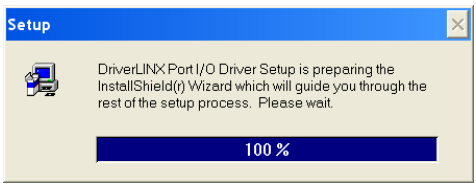
- Reconnect the power supply cables to the system and provide power.
- The system will now come on. After about 6 seconds the UPS device will become operational.

Software installation

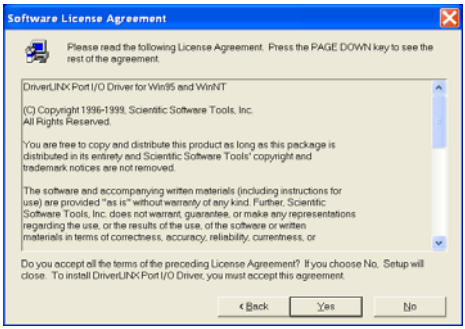
Driver Linx module installation

From the CD provided with the system, select the file **setup_dlportIO.exe** and run it.

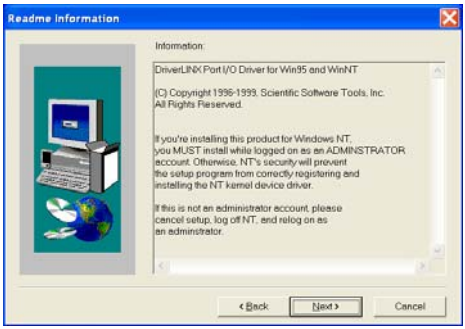
The following screens will appear



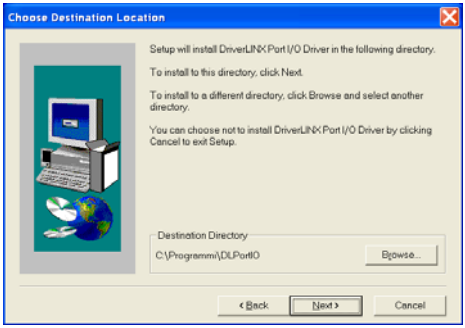
- Press Next to continue installation



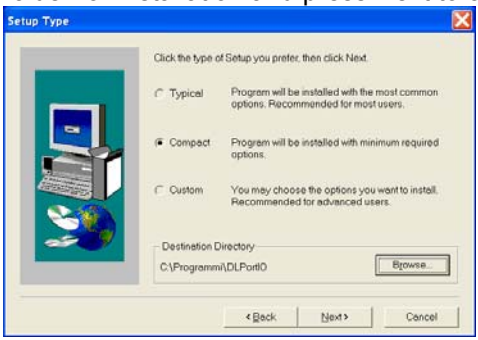
- Press Yes to continue installation



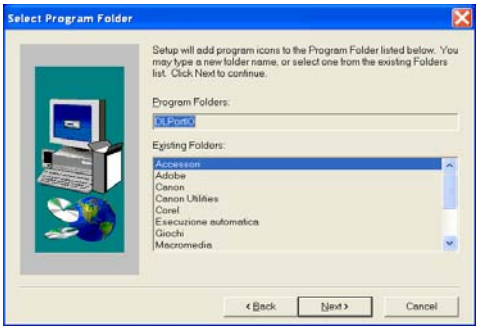
- Press Next to continue installation



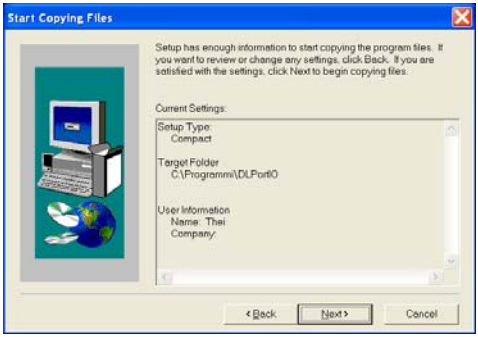
- Select the folder for installation and press Next to continue.



- Select minimal installation (compact) Press Next to continue installation

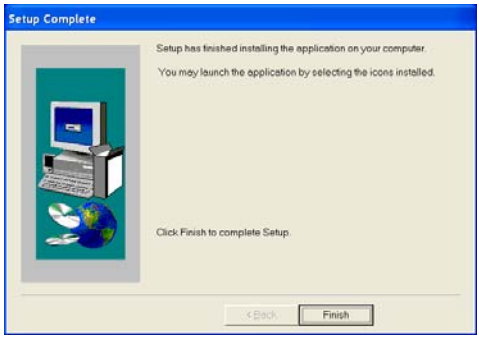


- Press Next to continue installation



- Press Next to continue installation

- Press Next to continue installation



- Press Finish to complete installation and restart the system.

Installation of Driver UPS in Windows environment

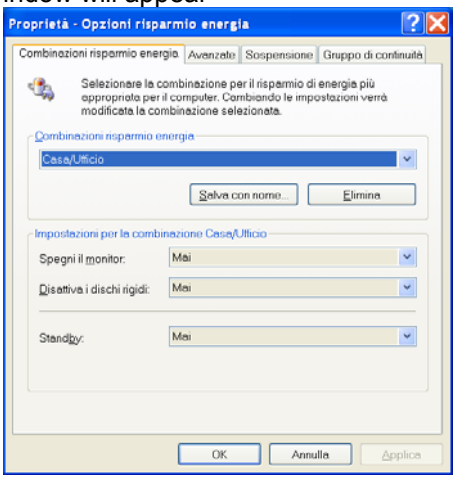
From the CD provided with the system:

- select the file **C6 ECONUPS.INF**
- click with the right mouse button
- select "install2 from the pop-up menu.

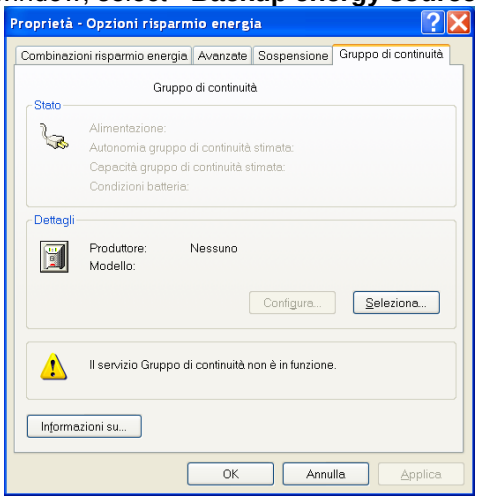
The driver is now installed in the system.

- In the Start menu of windows, select " **Settings**" "**Control Panel**" "**Energy savings options**"

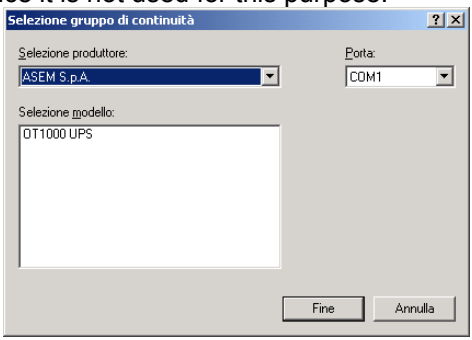
The following window will appear



- From the window, select “ **Backup energy source**”



- From the window, select “ **Select**”.
- From the list "Select manufacturer", select **ASEM S.p.A.**. From the list "Select Model" select the model **OT1200 UPS**. The item selected in the field “Port” (default COM1) does not make any difference since it is not used for this purpose.

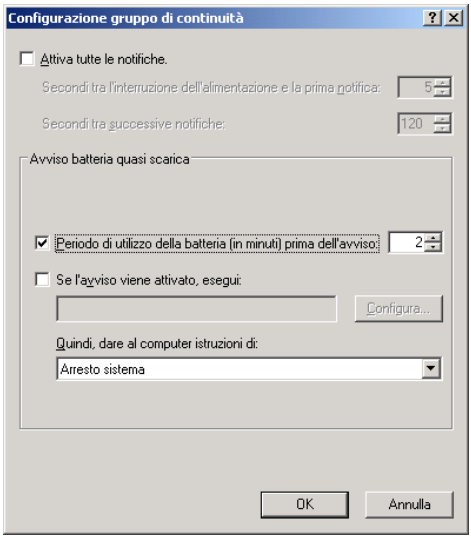


- Press the End button.

The system must now:

- Activate communications with the UPS.
- Signal presence of UPS active (details box).
- Provide estimated capacity of group. (status box)

In the configuration panel, it is possible to programme the intervention time of the UPS.

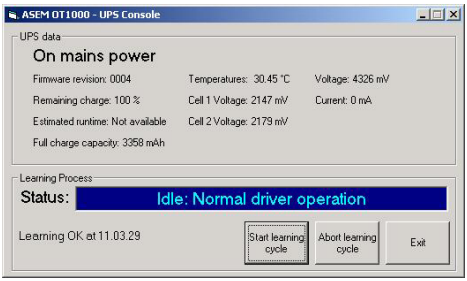


The minimum time that can be selected is 2 minutes. This means that if the line power supply is not restored within this time, the operating system will run the programme specified in the box below (if inserted) and will then proceed with system shutdown.

Calibration

It is advisable to calibrate the UPS yearly during scheduled machine maintenance, so that the system is updated to the actual battery status. This will increase reliability of the UPS system.
The entire operation is carried out automatically by means of special calibration software.

- select the file **UPS_Console.EXE** and copy it in a previously created folder on your CF or (HD) and run it



The software performs the following sequence:

- Check of battery charge.
- Discharge of batteries.
- Verification of reaching end of discharge and validation of same.
- Battery re-charging
- Updating of battery capacity status if discharge procedure was successful.
- Memorization in a log file of the result of the procedure.

The discharge phase varies in length from 15 minutes to 30-40 minutes depending on system configuration. The charging phase takes about 1.5 hours.
During the calibration period it is not advisable to have any other applications running on the machine.

Summary of operating phases

START phase
In this phase the machine is completely off.
As the line voltage increases, the system goes into the phase of activation and actual power on of the PC, and charging and/or maintaining of the UPS. Since the status of the UPS is controlled by the C6 ECON system, via the signal ATX PS_ON, its activation takes place when the C6 ECON system has powered on normally.

Activation phase (BOOT)
When the operating system is started, the UPS application will be activated, which will perform diagnostics of the UPS module. Specifically, the application verifies communication with the UPS module and the charge status of the batteries.

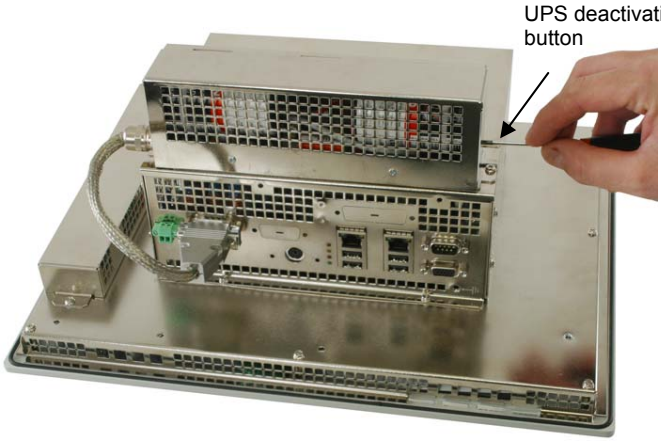
Monitoring phase of the status of the power line by the application dedicated to the UPS function.
The application accesses the information on the UPS unit via the Smbus system bus. Any power outage during this phase will cause the start of a countdown. If the countdown exceeds 2 minutes, the shutdown procedure is irreversibly started. Brief power outages will instead have no effect on continued PC operation.

Shutdown phase
This phase lasts a varying amount of time, not known in advance, which is contingent upon the number and type of active applications. When the line power supply comes back on during this phase, it does not in any way affect the correct execution of the shutdown procedure, which must in any case be completed. Upon completion of this phase, if the line power has not come back on, the system will shut off the power suppliers of the C6 ECON system, of the UPS module via the Mpson signal, and it will place the machine in standby status (return of line voltage)
The return of line voltage places the system back in START status.
Standby phase
Constant monitoring of the line voltage in which its return causes the machine to restart. There are two specific cases:

- Shutdown desired by the user, in which the machine must shut down even if there is mains power supply. In this case the machine can be turned back on by turning the line voltage off and then back on.
- Shutdown caused by line voltage failure in which the UPS powers the machine until the shutdown sequence is complete. At this point, both (C6 ECON and UPS) are de-activated. The machine restarts as soon as the line voltage is restored (START phase). If the line voltage is restored during the shutdown phase, the system will start the machine again upon conclusion of this phase.

Deactivation and removal of UPS module

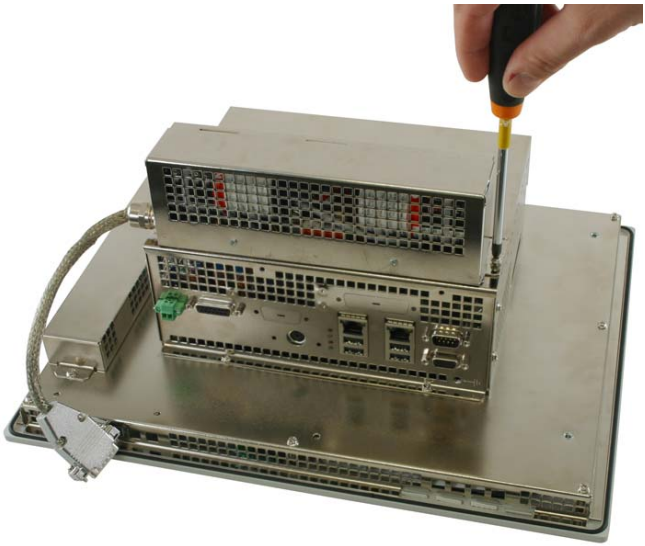
If the machine undergoes normal shutdown via the operating system, there are no special procedures for the de-activation of the UPS since it is shut off by the machine to which it is connected. If you want to shut down the machine by means of its power supply, once the UPS has intervened, you will need to deactivate it manually by pressing the button on its side



Detail of UPS deactivation button

(sequence 1 of 4)

- Remove the two screws of the UPS.



(sequence 3 of 4)

(sequence 4 of 4)

Battery replacement

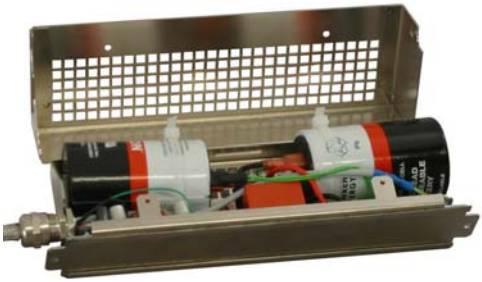
How long the batteries last depends on a number of factor, but it is mostly due to high temperatures that their life cycles are reduced. During the life cycle of the machine, even if they are quite resistant, they may need to be replaced.

To replace the batteries:

- Remove the two screws of the UPS cover.

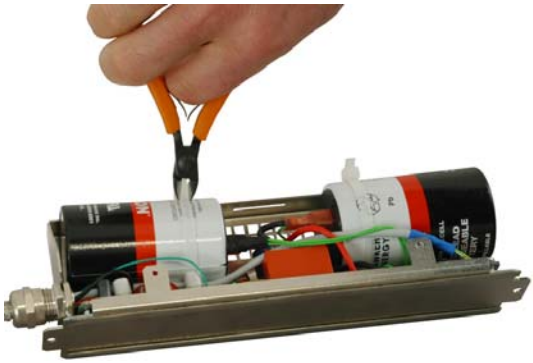
(sequence 1 of 3)

- Lift and remove the cover.



(sequence 2 of 3)

- Cut the nylon clamps that hold the batteries in place.



(sequence 2 of 3)

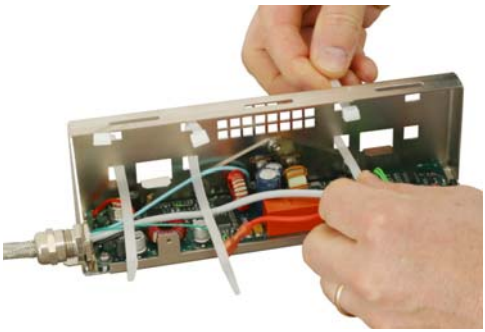
Detail of removed clamps

- Disconnect the terminal wires. Be very careful not to cause short circuits, which might damage the unit.

(sequence 2 of 3)

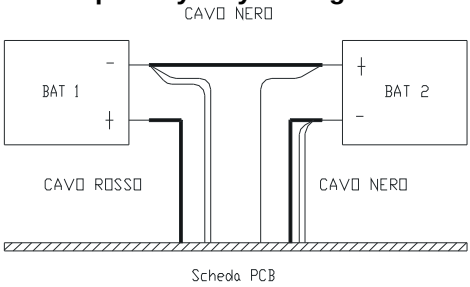
Detail of removed batteries

- Place a new set of clamps in the slots of the UPS to hold the new batteries.



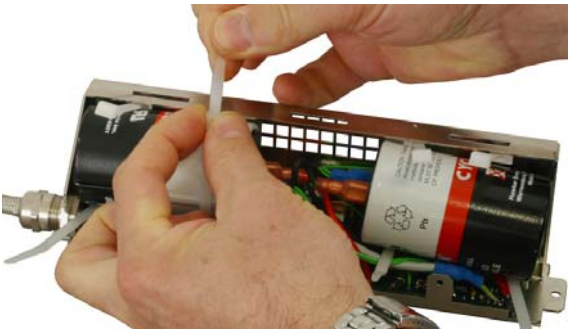
(sequence 2 of 3)

- Reconnect the batteries to the terminal wires. **Carefully note the polarity**. **Inverted polarity may damage the unit.**



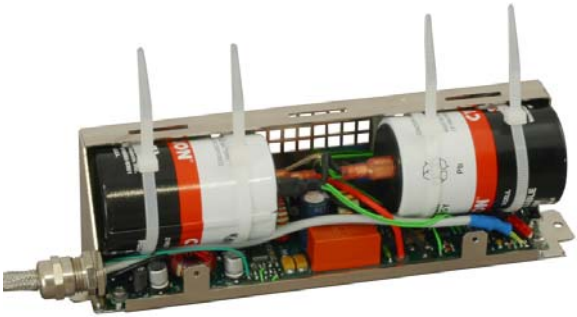
(sequence 2 of 3)

NB: Replace the batteries with the same cells (Cyclon type D 5Ah)



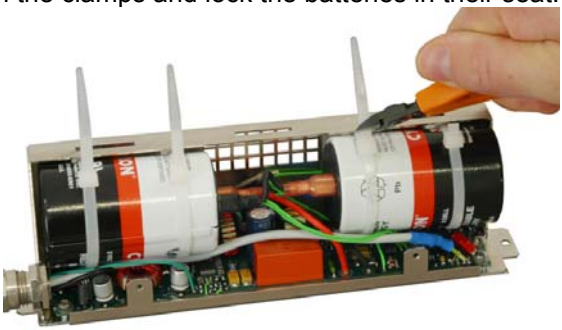
(sequence 2 of 3)

- Tighten the clamps and lock the batteries in their seat.



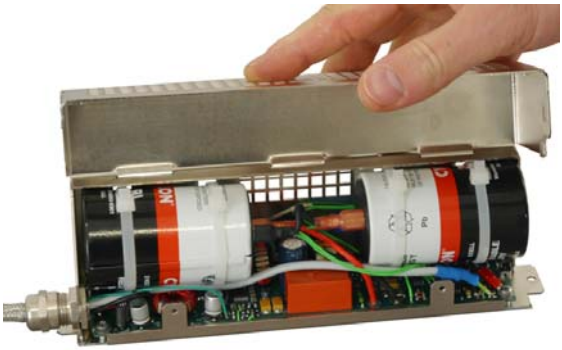
(sequence 2 of 3)

- Tighten the clamps and lock the batteries in their seat.



(sequence 2 of 3)

- Put the cover back on and screw it down.



(sequence 2 of 3)

(sequence 2 of 3)

- Run a calibration cycle of the batteries (see the paragraph on calibration).

Cooling

On the rear compartment and on the body of the display, there are holes that allow air circulation through natural convection inside the system. The unit is designed to be installed vertically.

NB: Be sure not to obstruct the ventilation openings. Periodically clean the filters as explained below for the version with forced ventilation.

detail of C6 ECON ventilation holes with internal PCI slot

detail of C6 ECON ventilation holes with internal PCI slot

detail of C6 ECON ventilation holes without internal PCI slot

Procedure for cleaning fan filter

- Remove the anchoring screws of the filter bracket.

(sequence 1 of 3)

(sequence 1 of 3)

- Remove the filter bracket.

(sequence 2 of 6)

- Remove the filter.

(sequence 3 of 3)

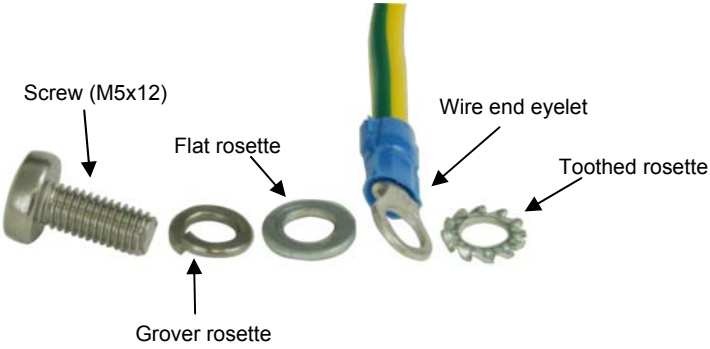
System grounding

It is absolutely necessary to connect the machine to the ground wire by means of suitable wiring connected to the ground screw.

- Remove the ground screw

(sequence 1 of 2)

- Insert the wire end eyelet between the rosettes in the following sequence:
  1. Screw (M5x12)
  2. Grover rosette
  3. Flat rosette
  4. Eyelet faston
  5. Toothed rosette



(sequence 2 of 6)

- Re-tighten the system ground screw.

(sequence 2 of 2)

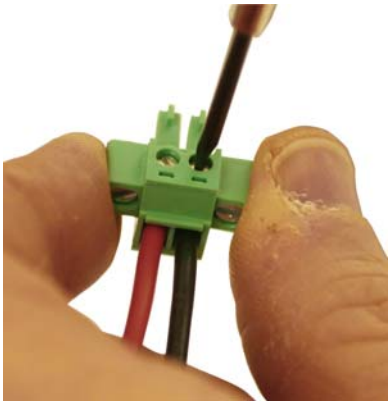
Power supply

The system must be powered with at $24V_{DC}$ nominal (+18V÷36V), with external cut-off (there is no main switch for the system).

- Remove the two-pole connector from the system

(sequence 1 of 3)

- Connect the positive pole and the negative one for power supply (also see the label on the back of the machine) to the respective terminals of the two pole connector with wires with a suitable cross section.



(sequence 2 of 3)

(sequence 3 of 3)

Mass memory unit

In its various versions, the system can **optionally** be equipped with the following mass memory units:

Compact Flash

The system can house an externally accessible Compact Flash module.

Detail of Compact Flash module

Detail of positioning of Compact Flash

Hard disk

The system may optionally house an internal 2.5" hard disk.

Detail of positioning of hard disk

The hard disk is to be connected by a 44-pole flat cable, which must be inserted in the J8 connector of the CPU 951, which can be accessed by removing the rear cover.

Touchscreen

Setup of Touchscreen controller

The 5-wire resistive touchscreen is managed by a dedicated controller that the system sees as a fourth serial port.
The enabling/disabling of the port, the I/O address and its IRQ must be selected in the screen **Special OEM Features** of the **Setup**.
These parameters are read automatically by the Plug & Play operating systems (Windows 95, 98, Mw, 2000, XP) which will create a COM port associated with the device.
It is advisable to set the touchscreen to the address **I/O 2E8h**, with **IRQ 5**. You will obtain a port with the address of the COM 4 standard and a non-shared interrupt with other standard serial ports.
Using Windows NT4.0 (which is not a Plug & Play operating system), the COM port must be created manually. From the control panel, add a new port, assigning the I/O addresses and the IRQ previously established in the Setup.

Installation of software in various Windows environments

- Insert the KEB CD-ROM KEB provided and select the directory \Touschscreen ELO.
- Select the sub-directory for the operating system being used.
- Run the file **Setup.exe**.
- Select the port COMx to which the operating system has associated the controller.
- Run the bootstrap as requested.
- The Touchscreen is now configured. In the control panel, there is a new object called **EloTouchscreen.** It allows calibration of the device, configuration of the "touch", of the acoustic feedback, and diagnostic functions.

NB: if the type of controller being is used is requested, select **ELO SMARTSet Serial controller**.

Installation of software in MS-DOS environment

- Insert the ASEM CD-ROM KEB provided and select the directory **\Touschscreen ELO.**
- Select the sub-directory for the MS-DOS operating system.
- Run the file **Install**.
- Select the language and the directory that is to be created.
- Select **DOS Express Installation**.
- When the type of interface of the controller is requested, select **Serial**.
- Select the port **COM4**.
- When the type of controller is requested, select **E281-2310 Intellitouch**.

Install will update the file **autoexec.bat** to allow the selected drivers to be run (the file **autoexec.old** will contain a copy of the previous version of the file). The file **go.bat** created by the installation loads the driver of the Touchscreen and runs the calibration programme **elocalib**. if you want to change the interrupt for the driver, you must edit the last parameter that is passed to the driver:
ELODEV 2310, 9600, 5 In this example, a controller of type 2310 is activated on COM4, at 9600 baud and with IRQ 5.

Chapter 3
Installation

- How to start the system
- Panel assembly
- C6 ECON wall mounting
- Access to internal parts

How to start the system

Before you power on the system, make sure that all the connections have been properly made.

Start-up

The system is started by providing 24V DC power.

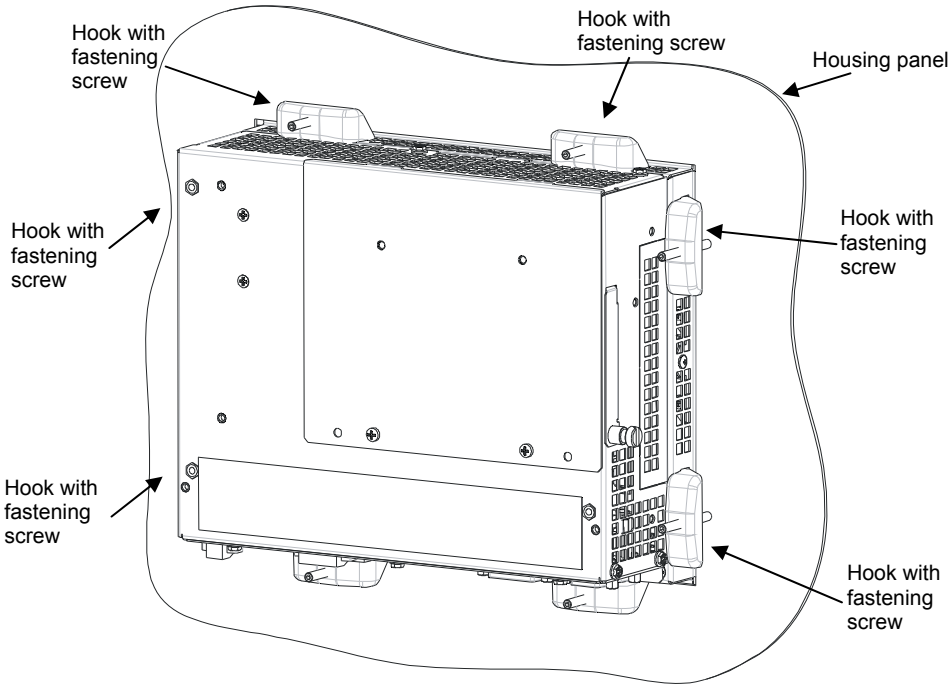
Shutdown

To shut down the system normally, you will need to follow the shut-down procedure for the operating system being used (configured so as to support the mode APM – Advanced Power Management). At the end of this procedure, the system will go to standby status. Only in this status can the power supply be disconnected.

Panel assembly

The systems may be panel mounted as follows:

- Pre-work the housing panel (maximum thickness 4 mm). Comply with the measurements shown in the chapter on **dimensions and drilling template**.



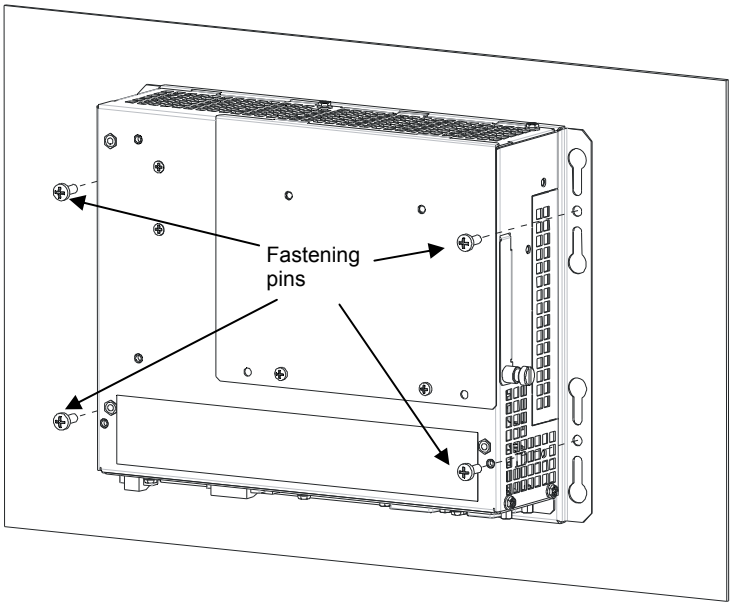
- Insert the system (with no external connection) in the opening.
- Insert the fastening hooks provided in the proper places provided on the body of the machine.
- Carefully tighten the screws of the fastening hooks so that the front panel of the monitor is secured against the fastening panel.

C6 ECON wall mounting

The systems may be panel mounted as follows:

- Pre-work the housing panel. Comply with the measurements shown in chapter on dimensions and drilling template.

There are 8 fastening points. Fastening may be means of pins, M4x20 (minimum), welded to the enclosure door, or with stainless steel screws, M4x20 (minimum) and nut, M4 also in stainless steel, and possible rosette and locking nut.



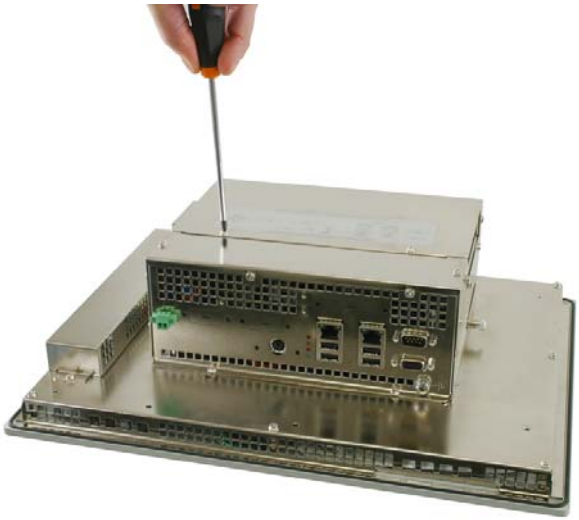
Access to internal parts

The operations described below must only be performed by qualified personnel.

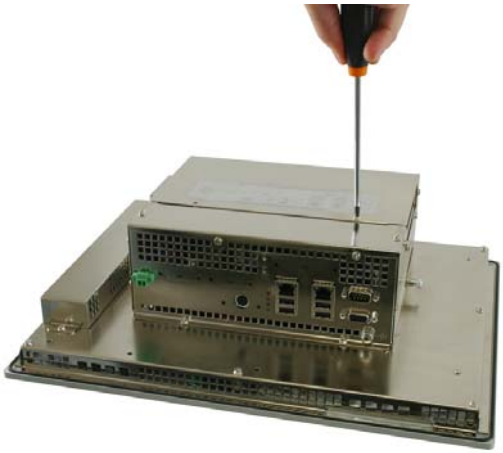
- Shut down the system.
- Disconnect the power supply cable from the terminal.
- Set the system on a surface. Use care not to damage the front panel.

Removal of the rear cover (upper part)

- Remove the two screws of the rear cover.

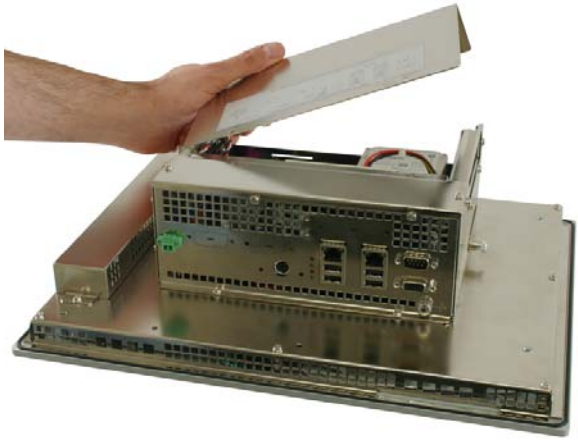


(sequence 1 of 3)



(sequence 2 of 3)

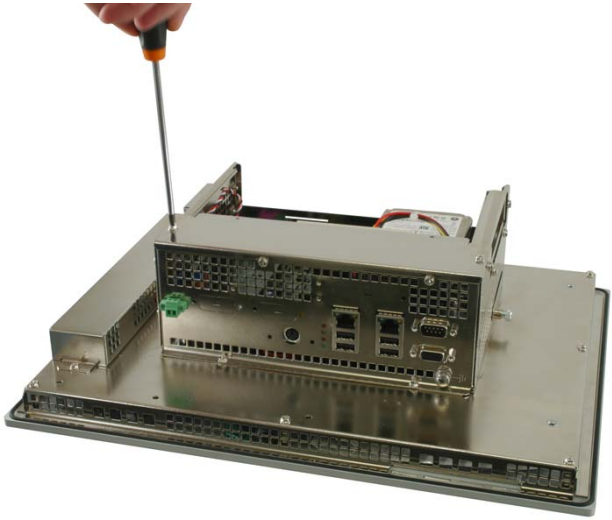
- Remove the rear cover by pushing it in the opposite direction of the connectors panel as shown in the figure.



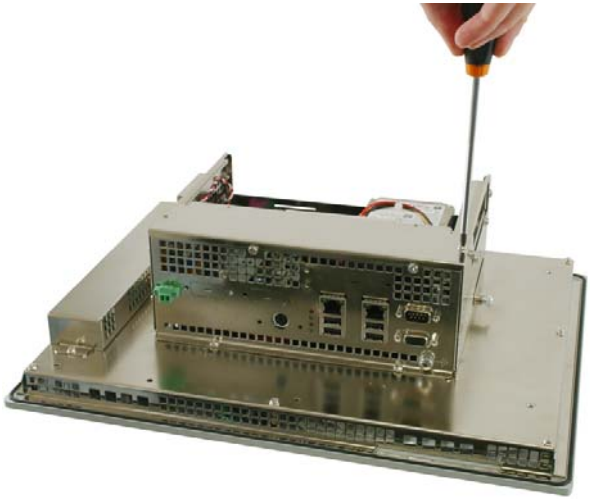
(sequence 3 of 3)

Removal of the rear cover (lower part)

- Remove the two screws of the rear cover.



(sequence 1 of 2)



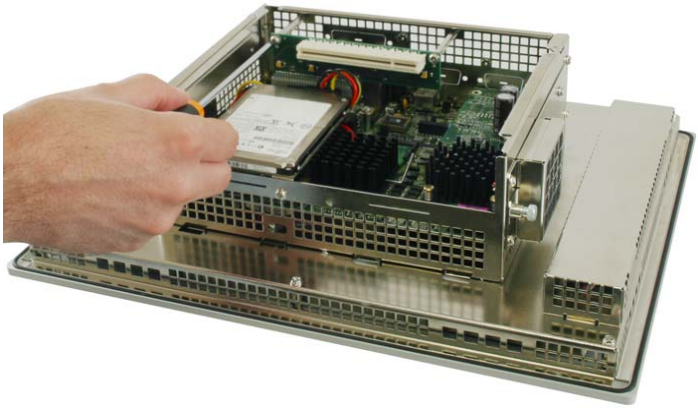
(sequence 2 of 3)

- Remove the cover.

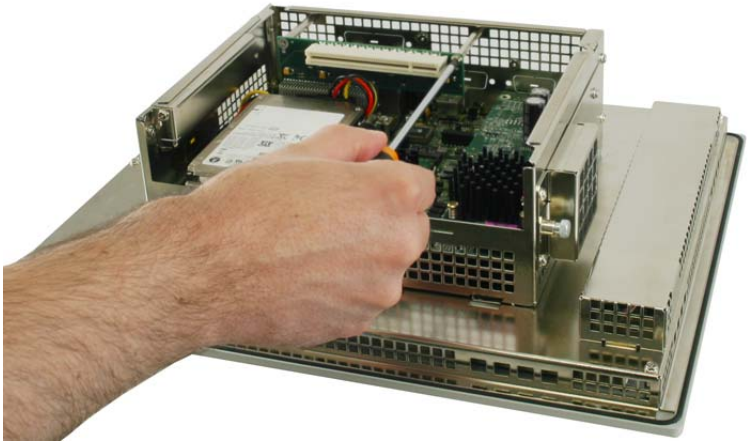
(sequence 3 of 3)

Riser card removal

- Remove the two screws that hold the riser cards to the turrets.

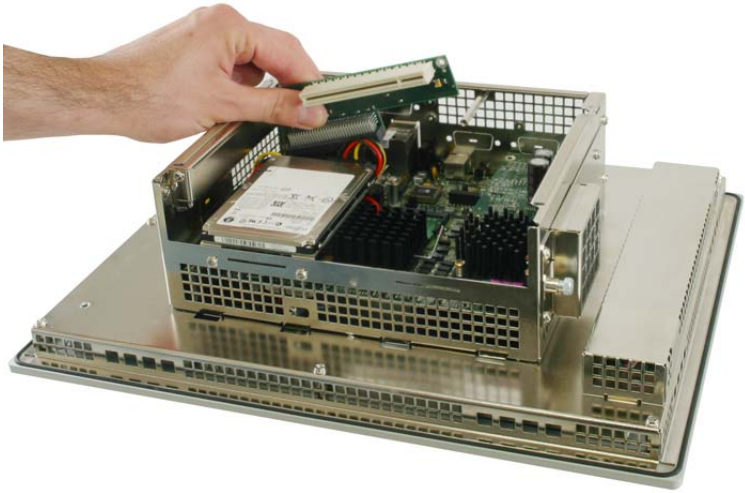


(sequence 1 of 3)



(sequence 2 of 3)

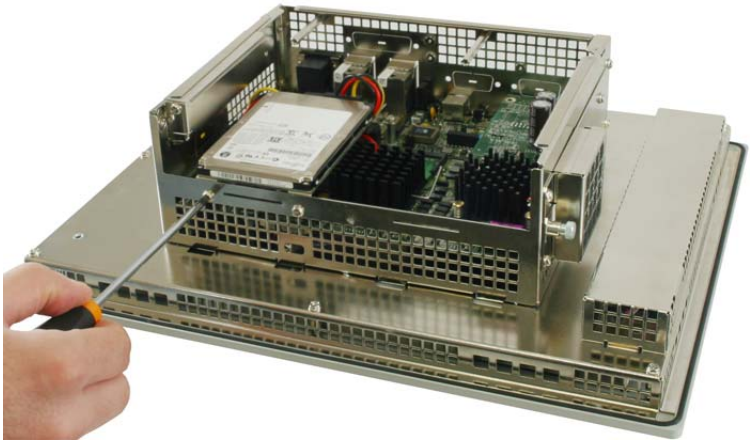
- Extract the riser card.



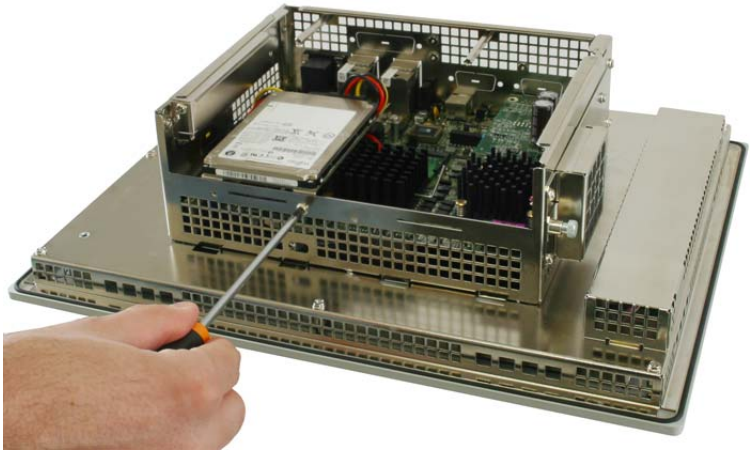
(sequence 3 of 3)

Removal of hard disk

Remove the two screws that hold the hard drive to the cabinet.



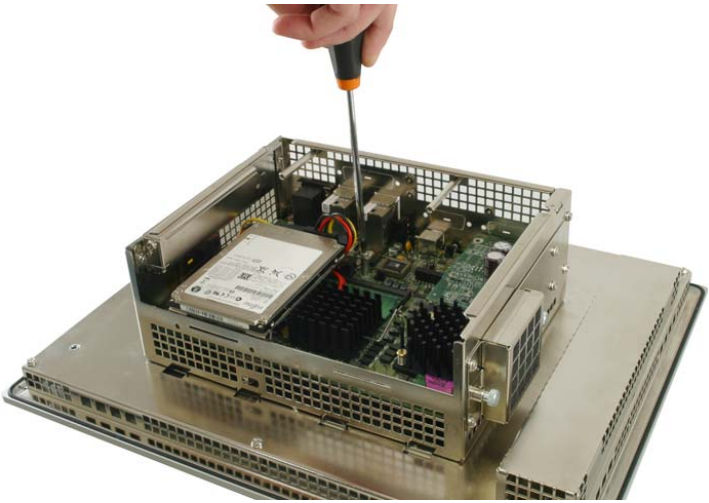
(sequence 1 of 4)



(sequence 2 of 4)

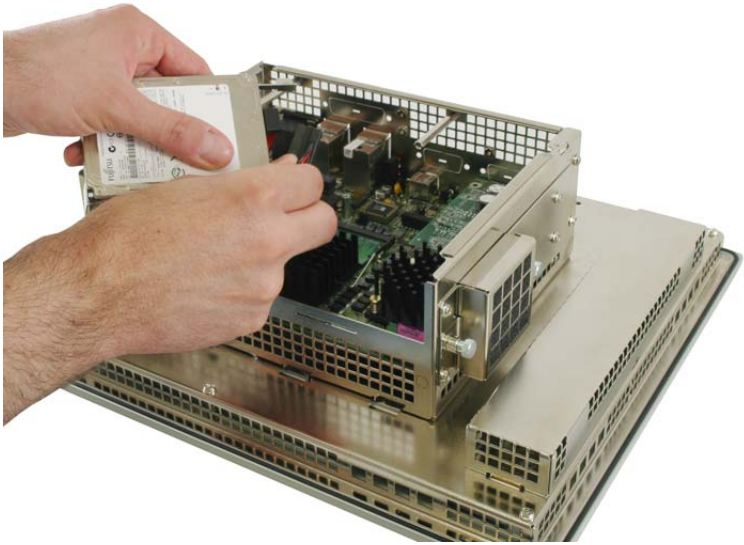
- Remove the two screws that hold the hard disk to the mother-board.

(sequence 3 of 4)

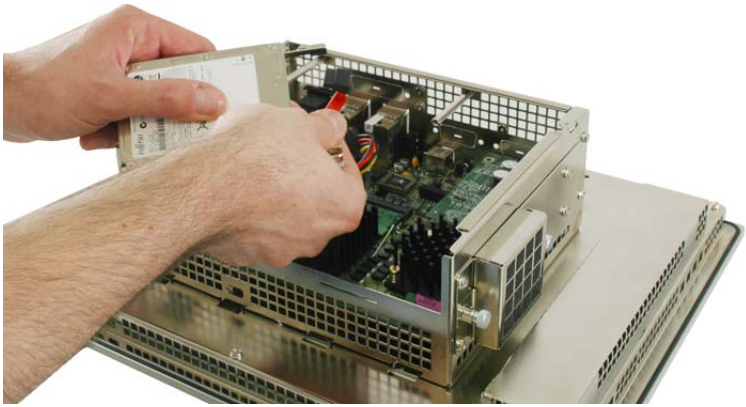


(sequence 4 of 4)

- Disconnect the data flat connector.



- Disconnect the power cable.



(sequence 3 of 3)

Ram installation/removal

To remove the SODIMM DDR module, you will need to open the system as previously described.

- Expel the SODIMM module by opening the side fastening tabs of the plinth.

(sequence 1 of 2)

(sequence 2 of 2)

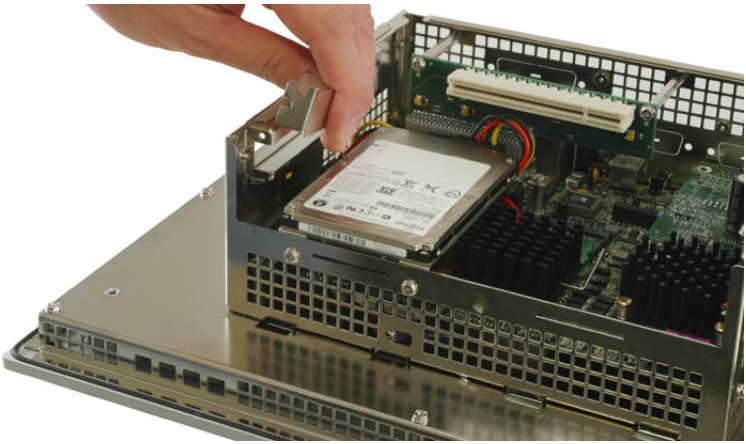
For re-insertion, check the correct polarity of the SODIMM module. When insertion is complete, check for proper closure of the side fastening tabs.

Adding an add-on card

- Remove the screw that holds the covering bracket.

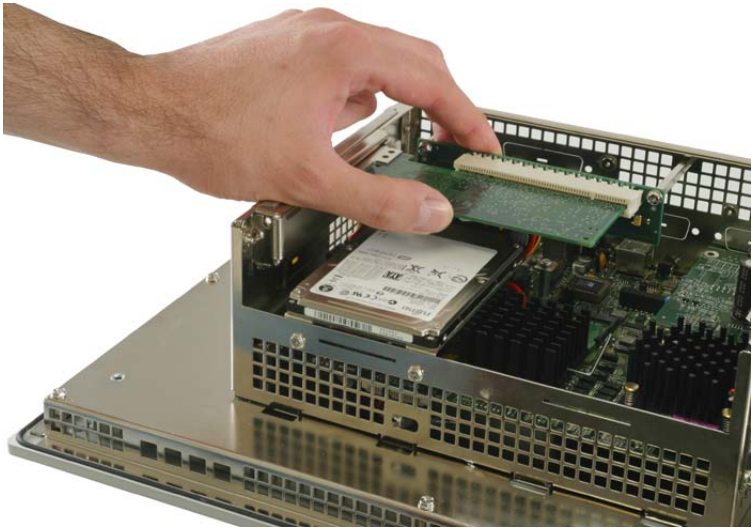
(sequence 1 of 4)

- Remove the cover bracket.



(sequence 2 of 4)

- Completely insert the comb connector in the slot.



(sequence 3 of 4)

- Secure the card to the cabinet.

(sequence 4 of 4)

Addition / replacement of Compact Flash modules

The system can house an Compact Flash module accessible from the side.

- Remove the protection of the compartment that houses the Compact Flash.

(sequence 1 of 5)

(sequence 2 of 5)

- Insert the Compact Flash module in its housing; check for correct polarity.

(sequence 3 of 5)

- To remove the Compact Flash module, press on the ejector until it comes out.

(sequence 4 of 5)

- Press the expeller again until the Compact Flash is expelled outwards.

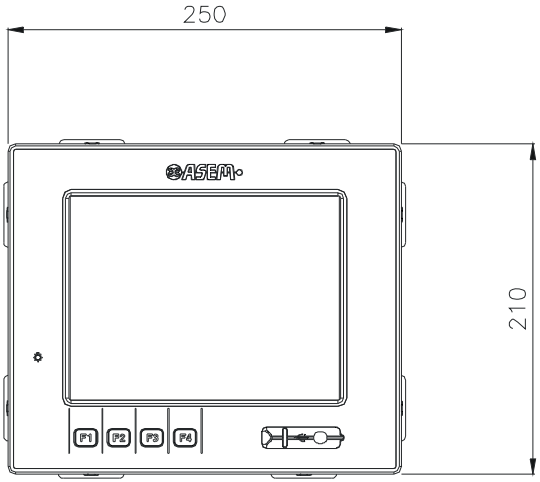
- Extract the Compact Flash module

(sequence 5 of 5)

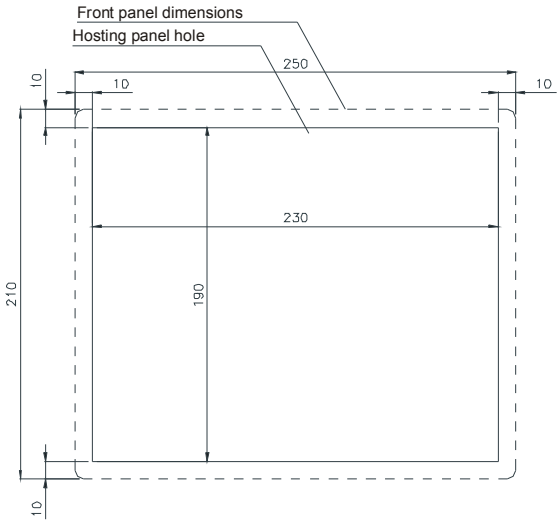
Chapter 4
Dimensions and drilling templates

This chapter describes the dimensions and drilling templates of the systems.

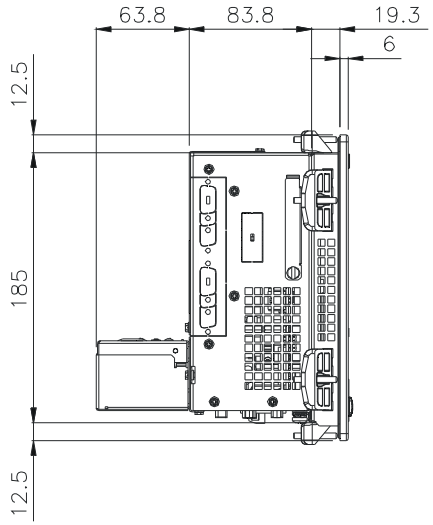
Dimensions of system C6 ECON 8.4”



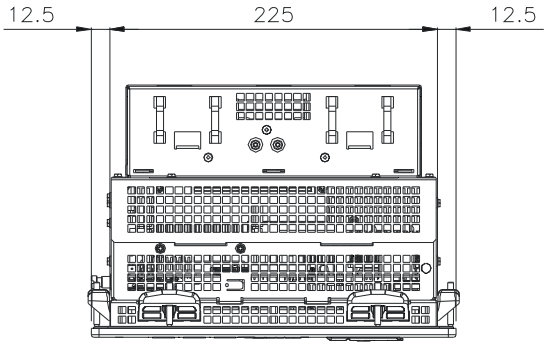
front view



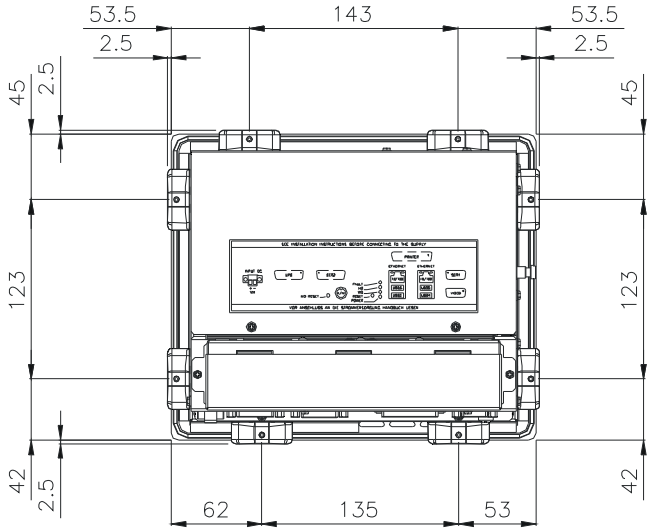
drilling template



Side view

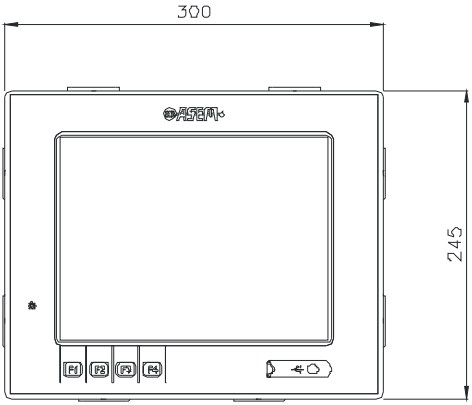


View from above

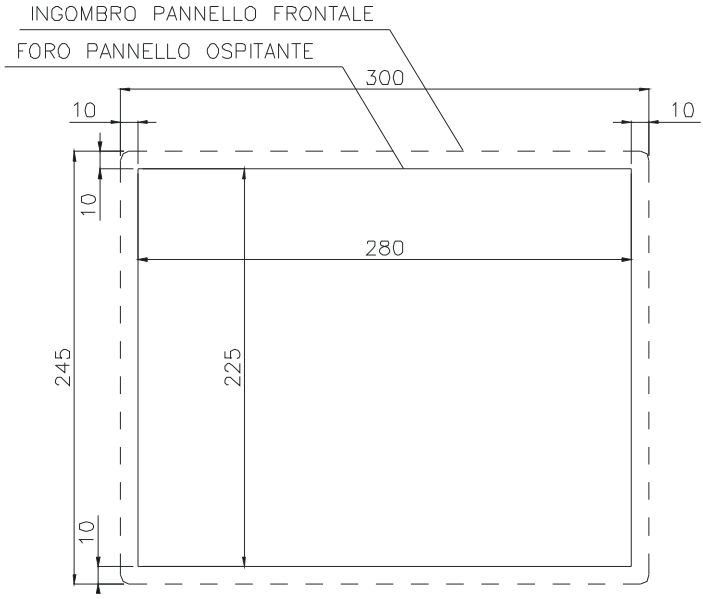


Rear view

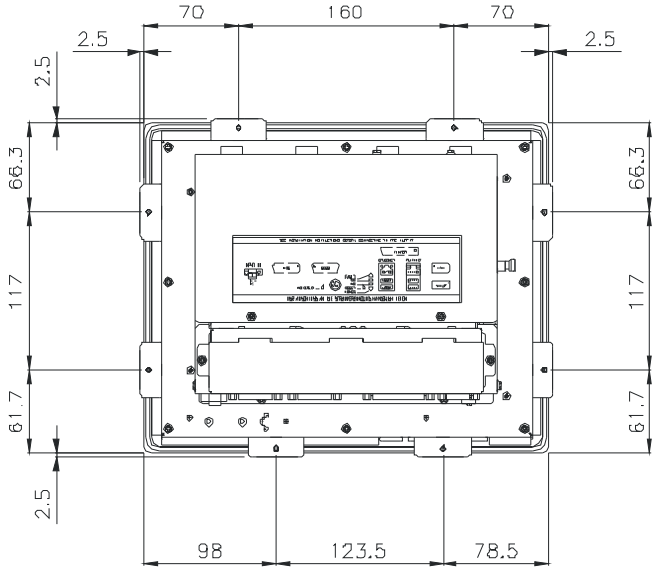
Dimensions of system C6 ECON 10.4“



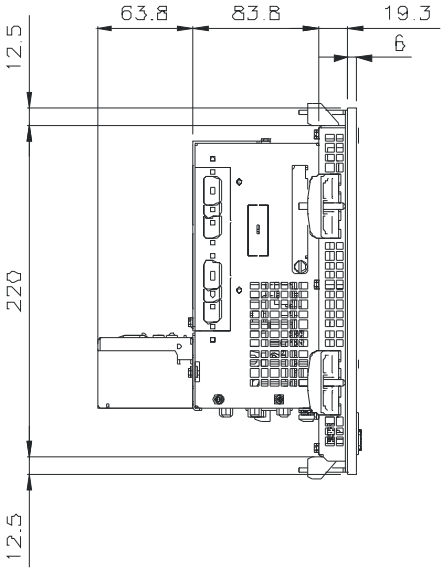
front view



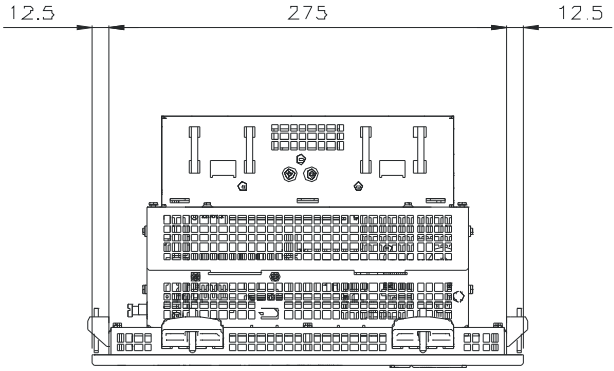
drilling template



Rear view

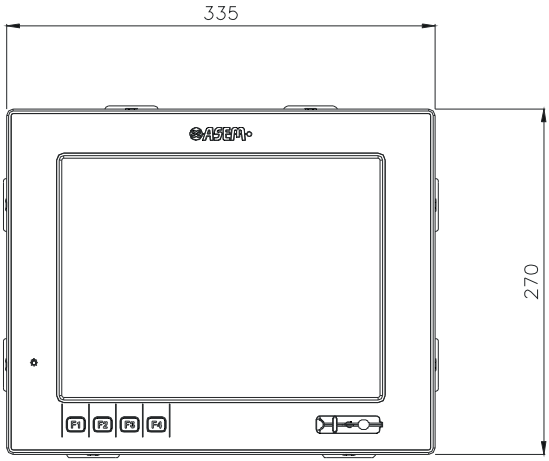


View from above

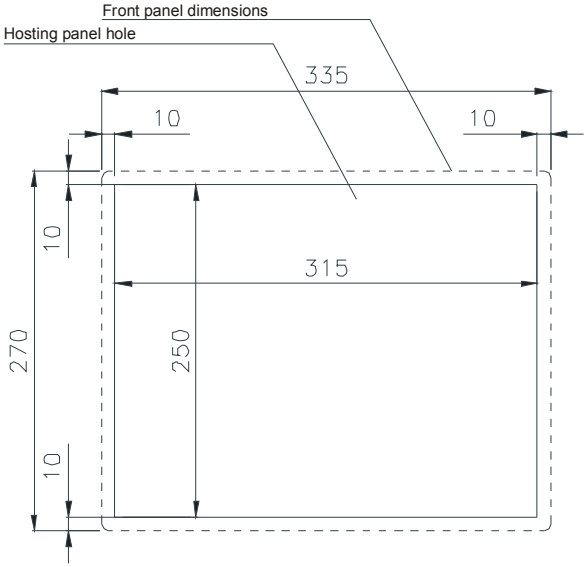


Side view

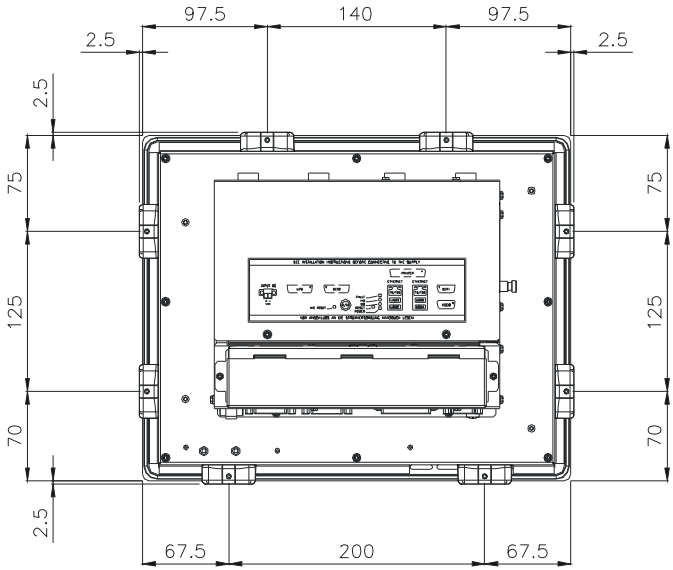
Dimensions of system C6 ECON 12.1“



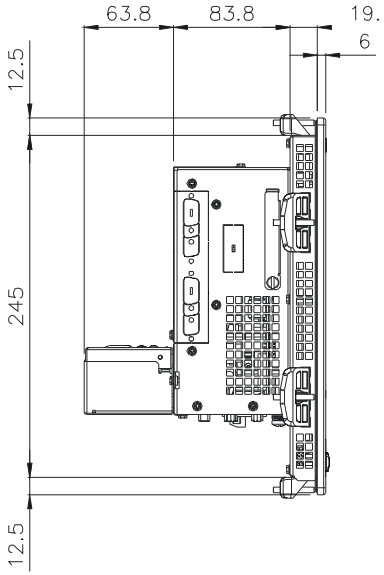
front view



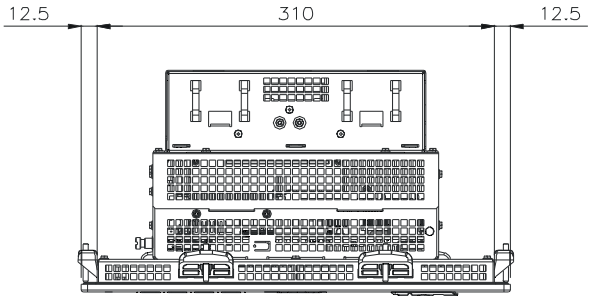
drilling template



Rear view

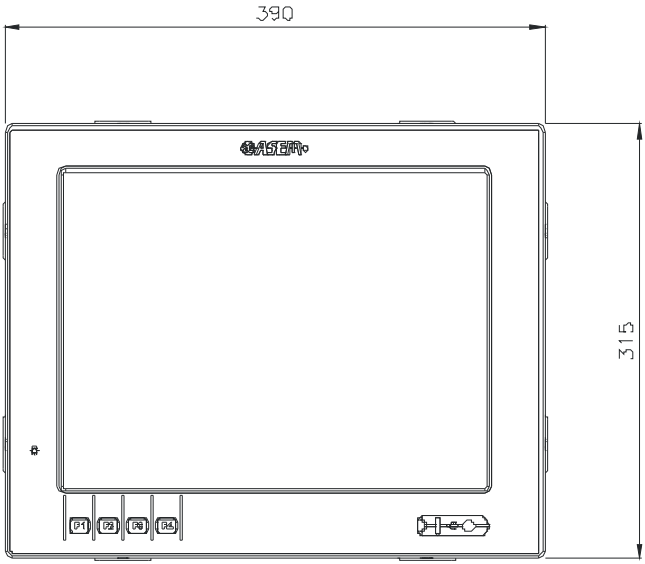


Side view

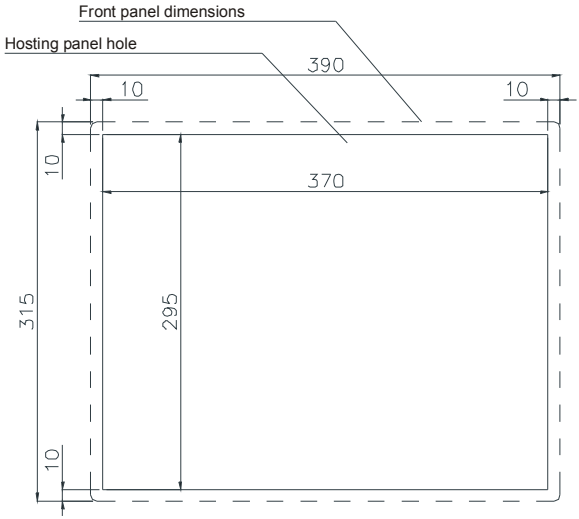


View from above

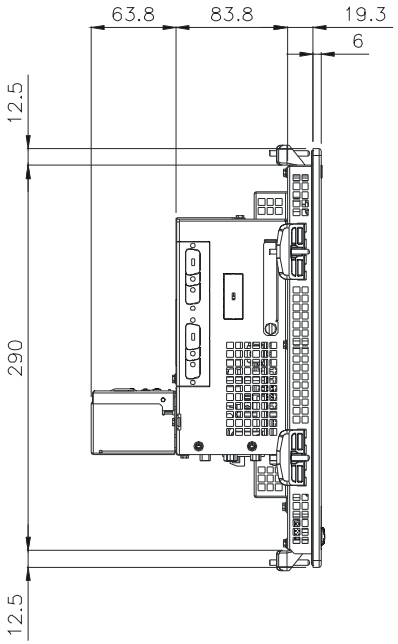
Dimensions of system C6 ECON 15.0”



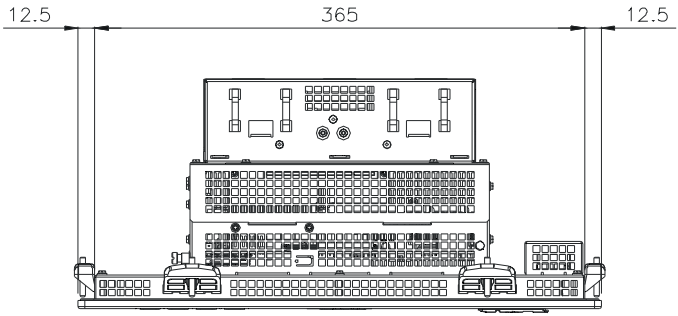
front view



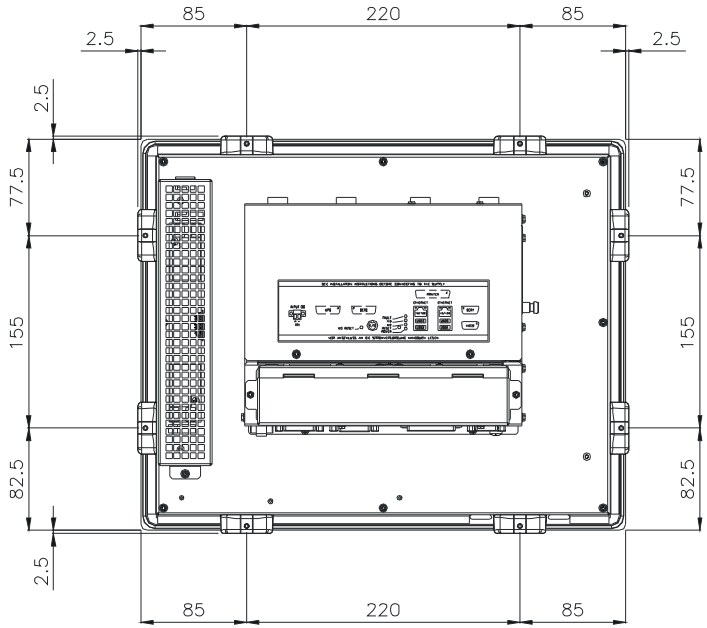
drilling template



side view

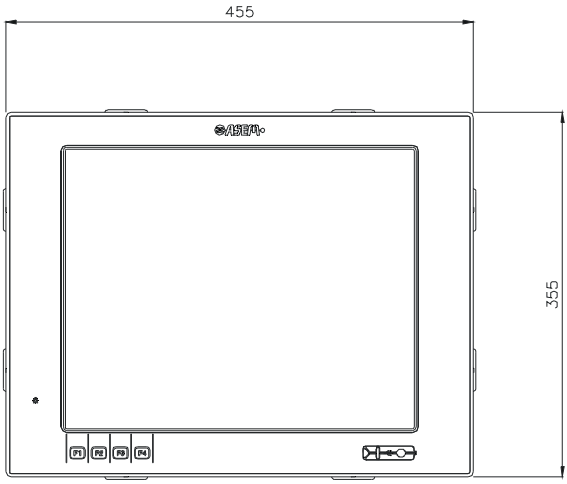


View from above

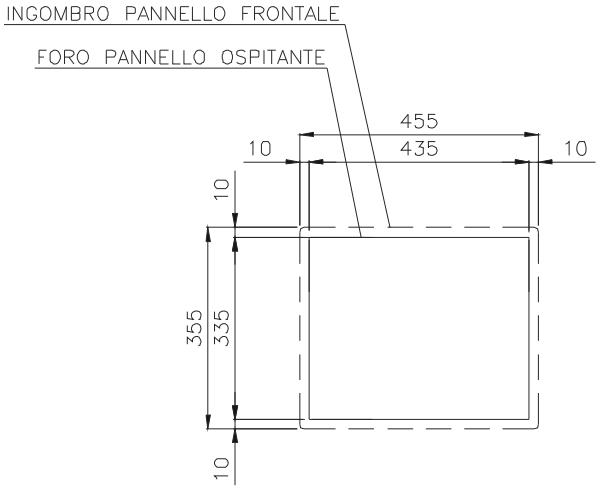


Rear view

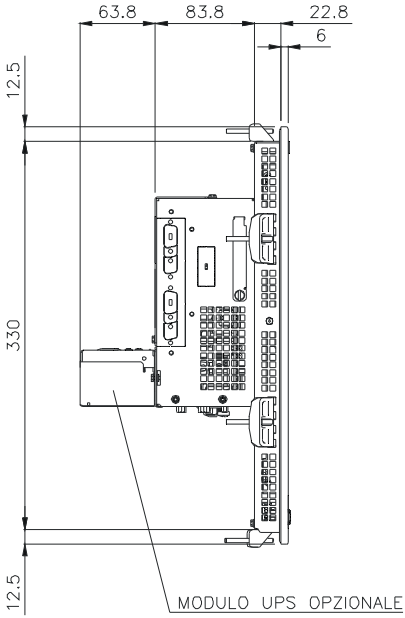
Dimensions of system C6 ECON 17.0”



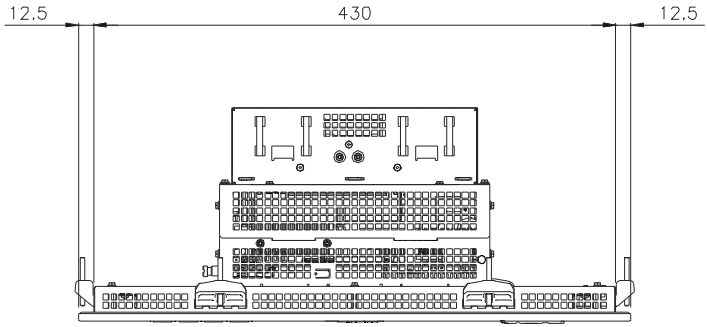
front view



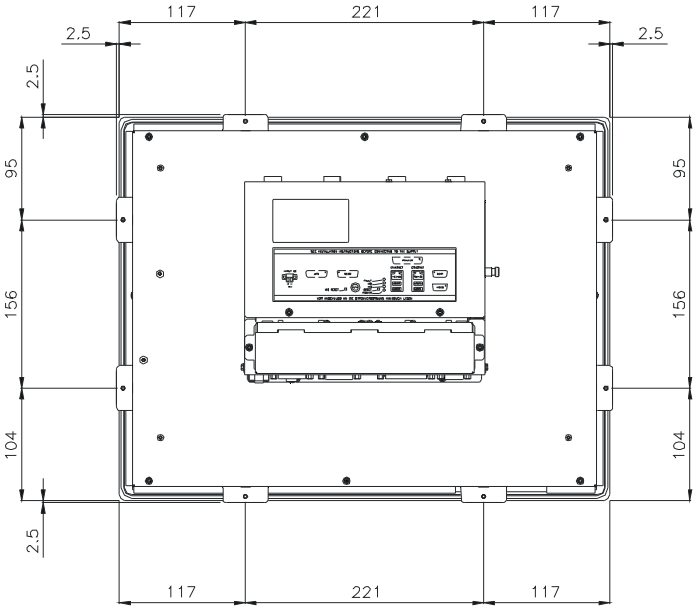
drilling template



side view

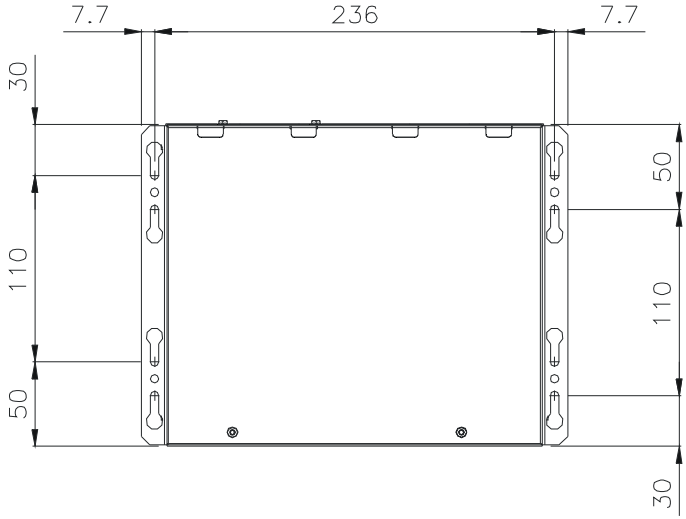


View from above

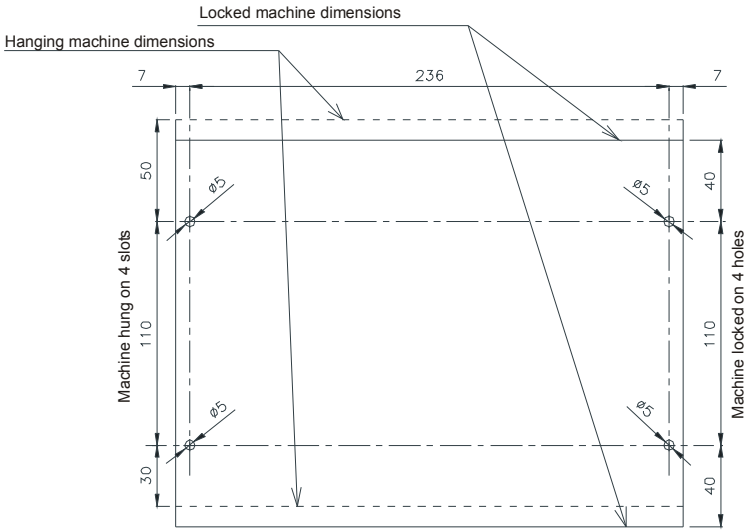


Rear view

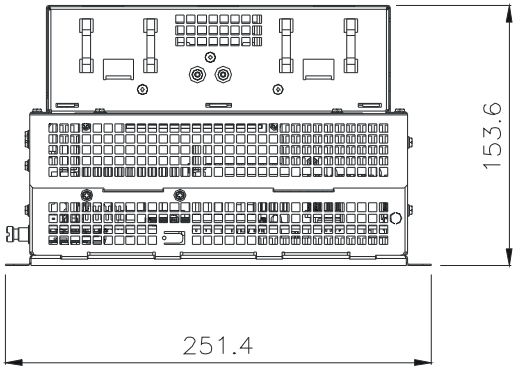
Dimensions of system C6 ECON



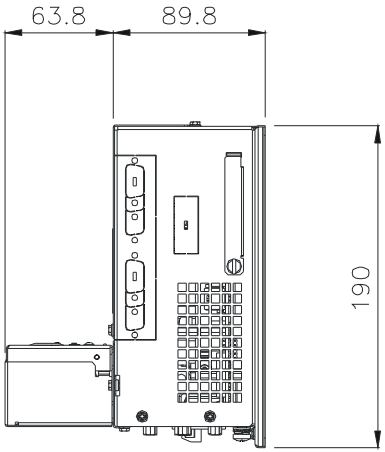
front view



Rear view



View from above



Side view

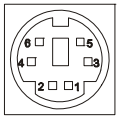
Chapter 5
Connectors pin-out

This attachment describes the pin-out of the KEB standard connectors included on the external panel of the systems.

- Parallel port connector (DB25F).
- Serial port connectors (DB9M, DB15M).
- Mouse connector PS/2 (mini-Din).
- Keyboard connector PS/2 (mini-Din).
- USB connector type A (USBF).
- VGA connector (DB15F HD).

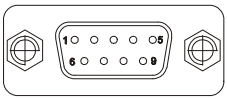
Connector for keyboard/mouse PS/2

The PS/2 keyboard / mouse connector is a female mini-din connector.



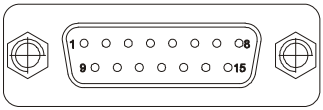
PIN	SIGNAL
1	Keyboard Data
2	Mouse data
3	Ground
4	Power Supply (+ 5 V)
5	Keyboard Clock
6	Mouse Clock

Serial interface connector DB9 RS232



PIN	SIGNAL	I/O
1	Carrier Detect	INPUT
2	Receive Data	INPUT
3	Transmit Data	OUTPUT
4	Data Terminal Ready	OUTPUT
5	Gnd (Mass)	——
6	Data Set Ready	INPUT
7	Request To Send	OUTPUT
8	Clear To Send	INPUT
9	Ring Indicator	INPUT

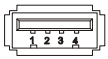
Serial interface connector DB15 multistandard



PIN	SIGNAL	I/O
1	5V	OUT
2	Transmit Data (RS-232)	OUT
3	Receive Data (RS-232)	IN
4	Request To Send (RS-232)	OUT
5	Clear To Send (RS-232)	IN
6	Data Set Ready (RS-232)	IN
7	Ground	—
8	Data Terminal Ready (RS-232)	IN
9	Carrier Detect (RS-232)	IN
10	Transmit Data +/Receive Data + (RS-485/RS-422)	I/O
11	Transmit Data -/Receive Data - (RS-485/RS-422)	I/O
12	Ring Indication (RS-232)	IN
13	Receive Data + (RS-422)	IN
14	Receive Data - (RS-422)	IN
15	N.C.	N.C.

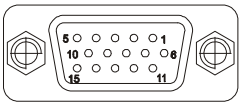
USB connector type A

The following is the pin-out of the USB connector type A.



PIN	SIGNAL
1	+ 5 V
2	USB Data -
3	USB Data +
4	Ground

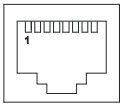
VGA connector



The VGA connector is a 15 pin high-density female connector.

PIN	FUNCTION
1	Red
2	Green
3	Blue
4	N.C.
5	GND (Synchronisms)
6	GND (Red)
7	GND (Green)
8	GND (Blue)
9	5V
10	GND (Synchronisms)
11	Reserved
12	SDA
13	Horizontal synchronism
14	Vertical synchronism
15	SCL

RJ45 ETHERNET connector



PIN	Signal	PIN	Signal
1	TX+	5	Shield
2	TX-	6	RX-
3	RX+	7	Shield
4	Shield	8	Shield

Karl E. Brinkmann GmbH
Försterweg 36-38 • D-32683 Barntrup
fon: +49 5263 401-0 • fax: +49 5263 401-116
net: www.keb.de • mail: info@keb.de

KEB worldwide…

KEB Antriebstechnik Austria GmbH
Ritzstraße 8 • **A**-4614 Marchtrenk
fon: +43 7243 53586-0 • fax: +43 7243 53586-21
net: www.keb.at • mail: info@keb.at

KEB Antriebstechnik
Herenveld 2 • **B**-9500 Geraadsbergen
fon: +32 5443 7860 • fax: +32 5443 7898
mail: vb.belgien@keb.de

KEB Power Transmission Technology (Shanghai) Co.,Ltd.
No. 435 QianPu Road, Songjiang East Industrial Zone,
CHN-201611 Shanghai, P.R. China
fon: +86 21 37746688 • fax: +86 21 37746600
net: www.keb.cn • mail: info@keb.cn

KEB Antriebstechnik Austria GmbH
Organizační složka
K. Weise 1675/5 • **CZ**-370 04 České Budějovice
fon: +420 387 699 111 • fax: +420 387 699 119
net: www.keb.cz • mail: info.keb@seznam.cz

KEB Antriebstechnik GmbH
Wildbacher Str. 5 • **D**–08289 Schneeberg
fon: +49 3772 67-0 • fax: +49 3772 67-281
mail: info@keb-combidrive.de

KEB España
C/ Mitjer, Nave 8 - Pol. Ind. LA MASIA
E-08798 Sant Cugat Sesgarrigues (Barcelona)
fon: +34 93 897 0268 • fax: +34 93 899 2035
mail: vb.espana@keb.de

Société Française KEB
Z.I. de la Croix St. Nicolas • 14, rue Gustave Eiffel
F-94510 LA QUEUE EN BRIE
fon: +33 1 49620101 • fax: +33 1 45767495
net: www.keb.fr • mail: info@keb.fr

KEB (UK) Ltd.
6 Chieftain Buisiness Park, Morris Close
Park Farm, Wellingborough **GB**-Northants, NN8 6 XF
fon: +44 1933 402220 • fax: +44 1933 400724
net: www.keb-uk.co.uk • mail: info@keb-uk.co.uk

KEB Italia S.r.l.
Via Newton, 2 • **I**-20019 Settimo Milanese (Milano)
fon: +39 02 33535311 • fax: +39 02 33500790
net: www.keb.it • mail: kebitalia@keb.it

KEB Japan Ltd.
15–16, 2–Chome, Takanawa Minato-ku
J–Tokyo 108-0074
fon: +81 33 445-8515 • fax: +81 33 445-8215
mail: info@keb.jp

KEB Korea Seoul
Room 1709, 415 Missy 2000
725 Su Seo Dong, Gang Nam Gu
ROK-135-757 Seoul/South Korea
fon: +82 2 6253 6771 • fax: +82 2 6253 6770
mail: vb.korea@keb.de

KEB RUS Ltd.
Lesnaya Str. House 30, Dzerzhinsky (MO)
RUS-140091 Moscow region
fon: +7 495 550 8367 • fax: +7 495 632 0217
net: www.keb.ru • mail: info@keb.ru

KEB Sverige
Box 265 (Bergavägen 19)
S-43093 Hälsö
fon: +46 31 961520 • fax: +46 31 961124
mail: vb.schweden@keb.de

KEB America, Inc.
5100 Valley Industrial Blvd. South
USA-Shakopee, MN 55379
fon: +1 952 224-1400 • fax: +1 952 224-1499
net: www.kebamerica.com • mail: info@kebamerica.com

More and newest addresses at http://www.keb.de

© KEB	
Mat.No.	00C6NEB-AA00
Rev.	1A
Date	03/2010