Released

PCI6000

User's Manual

Complete Technical Reference for the PCI6000 - a series of industrial Computers offered by InnoScan Computing A/S

INNOSCAN COMPUTING

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FCC Warning

Computing devices and peripherals generate, use, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions advised by InnoScan Computing A/S, may cause interference to radio communications.

The PCI6000 equipment, manufactured by InnoScan Computing A/S, is designed to comply with the emerging generic EEC standards, that cover applications in **Industry and process control**.

Copyright

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Version 3.0, 10.01.2000

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Table of Contents

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Chapter 1 Introduction

This document describes the PCI6000, which is the name of a series of Industrial Computers ranging from open level 1 versions to IP65-enclosed level 4 versions offered by InnoScan Computing A/S.

Structure of This Manual

This manual is organized as a structured, hierarchical decomposition - from the outside to the inside.

In preparing this manual we decided not to write one long, monolithic document, which must be read from beginning to end.

An important reason is that a user cannot easily find the information needed without searching the entire document.
Another reason for this decision is, that long narrative documents tend to be so boring, that nobody wants to read them and certainly nobody enjoys to write them.

Instead we have decided to base this manual on diagrams, sketches, tables, and key words, which is also in correspondence with our increasingly video-oriented society.

The manual is divided into six major parts - PCI6000 Features, PCI6000 Maintenance, PCI6000 Mechanical Details, PCI6000 Software Details, PCI6000 Electrical Details, and PCI6000 Accessories.

PCI6000 Features

The first part lists the PCI6000 models available and describes the common features and options of all models.

PCI6000 Maintenance

This part describes how to service and clean a PCI6000.
Furthermore this part also provides a form for you to report any problem you might have with your PCI6000 and describes the spare parts.

PCI6000 Mechanical Details

The fourth part presents the detailed specifications and characteristics of each model.

Each model is decomposed in separate chapters, starting with an outside mechanical and electrical examination followed by removing the cover of the model and looking at the organization of the main inside parts.

PCI6000 Software Details

Describes the installation of drivers and hardware monitor.

PCI6000 Electrical Details

Describes the connectors, jumper settings, PSU, and a detailed walk-through of the mother-board.

PCI6000 Accessories

This final part describes the optional useful devices working and sold together with PCI6000.

Using This Manual

This manual assumes that you are familiar with the PC-architecture and experienced with PC hardware and software.

As the manual is organized as a mirror of the physical hardware, you could find information about a given part by identifying its position in the hardware.
If for example you need information about the keyboard connector, then you would look in the Connectors Level 1 chapter, because the all the connectors are placed in level 1.

Designing the manual in this way, we hope that it may serve as a structured map that will guide you through the specifications and settings.

Technical Support

Technical questions may be adressed directly to our technical support center via the ISC Internet homepage www.innoscan-isc.dk.

Part 1

PCI6000 Features

Defines the Different Models and Describes the Common Data for All Models

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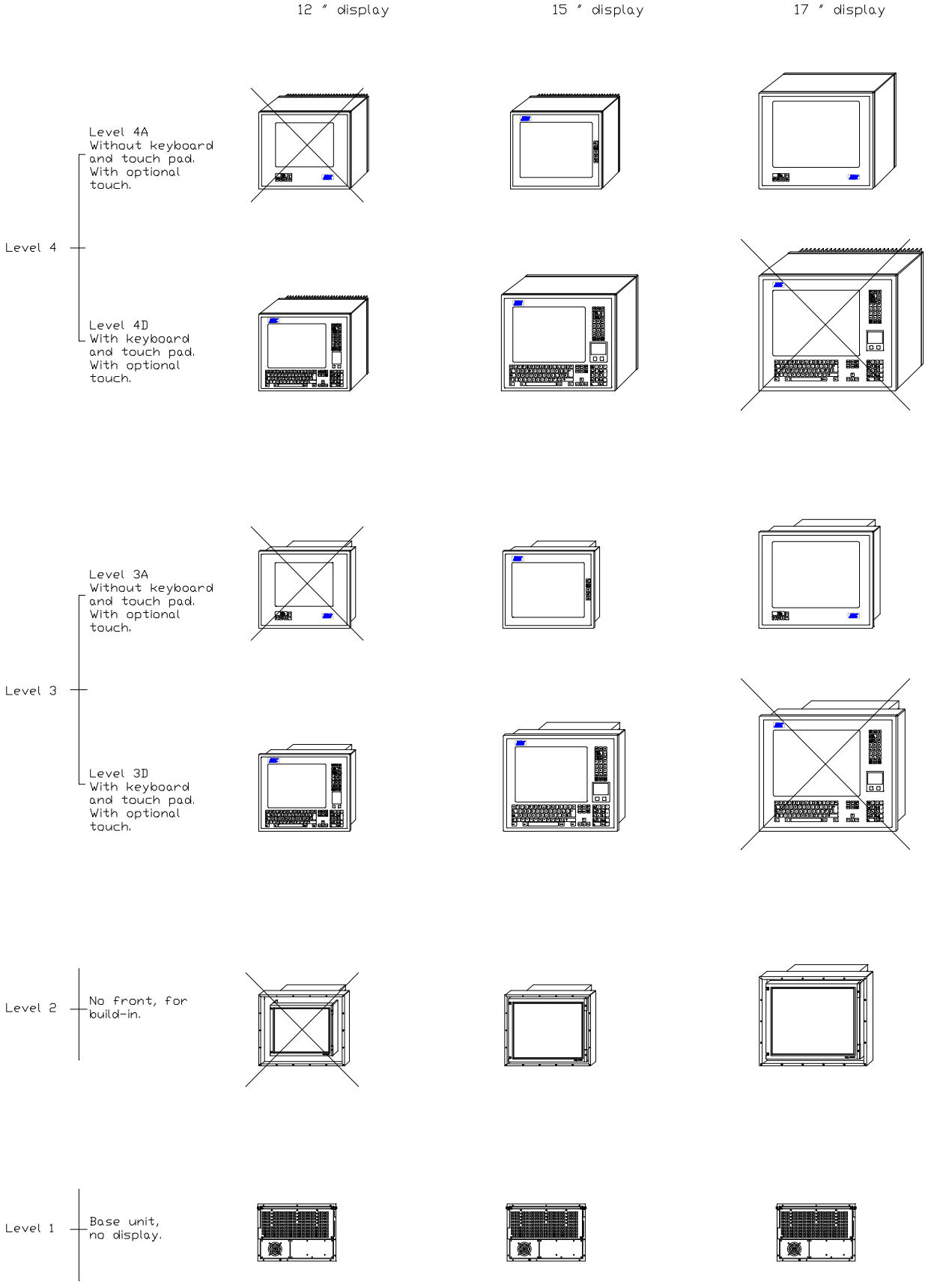
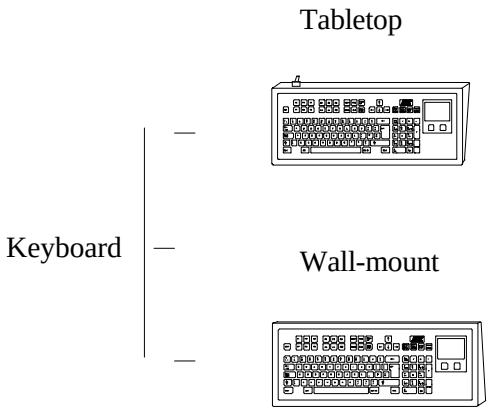
Chapter 2 PCI6000 Overview

2.1 PCI6000 Versions



2.2 External PCI6000 keyboards



2.3 PCI6000 Features

Processor	:	Intel P-II Mobile Module 2, 266MHz - 400MHz Intel Celeron Mobile Module 2, 400MHz
Memory	:	32 - 256 Mb SDRAM DIMM168 2 Mb BIOS flash EEPROM
Video Controller	:	Flat panel support for SVGA, XGA, and SXGA Video RAM: 2 Mb Intel 69000 controller.
Display	:	LCD TFT Colour, 12.1” (SVGA), 15.1” (XGA), and 17.1” (SXGA)
I/O Ports	:	2 serial RS232 ports with FIFO buffer (16550) (optional with individual galvanic isolation configurable to RS232/RS485/RS422) Parallel printer port Port for external PS/2 keyboard Port for external PS/2 mouse Port for external PCI6000 IP65 keyboard/mouse (DIN8) 2 universal serial bus (USB) ports RJ45 10/100 Mbit Ethernet port Port for external floppy drive IDE port for CD-ROM incl. power connector
IrDa	:	Infrared tranceive diode integrated in foil keyboard front for wireless data transfer via onboard COM4
Status LED’s	:	LED indicators for system fault, standby mode and power on
Disk Drive	:	2½” hard disk IDE ultra DMA-33, 3.2 GB+ Optional: Solid state disk from 20 MB +
Open Slots	:	Expansion box with slots for 3/4 length ISA cards. 1 ISA slot and 1 shared ISA/PCI slot. Optional 1 ISA and 3 shared ISA/PCI slots
Pad Mouse	:	Integrated in front IP65 (NEMA 4/12) of level 3D or 4D
Touch Screen (Optional)	:	Infrared 12” and 15” or resistive 12”, 15”, and 17”) via onboard COM3 Material: Glass with hard-coated surface
Floppy Drive	:	3 1/2” (Portable pocket type)
Power Supply	:	Voltage 115/230V AC, 50-60Hz Ipeak (115V AC) < 2Arms Ipeak (230V AC) < 1Arms Power consumption, typical: Level 1 : 30W

		with 12” LCD: 40W with 15” LCD: 45W with 17” LCD: 70W
Keyboard	:	Full qwerty foil keyboard integrated in IP65 front of level 3D or 4D
Hardware Monitor	:	Build-in hardware monitor of system fan speed, temperature and voltages.
Outer Materials	:	Level 4: Stainless steel ASI 316 Acrylic safety glass, anti-glare coated Polyester, reverse printed Heat sink, extruded anodized aluminium Level 3: Stainless steel ASI 316 (front) Acrylic safety glass, anti-glare coated Polyester, reverse printed Chassis anodized steel Level 2: Flat screen on front (partly uncovered) Chassis anodized steel
Keyboard	:	Stainless steel ASI 316 Polyester, reverse printed
Environmental Performance	:	PCI6000 is designed to meet the specification table on the following page. Specification is validated by testing the PCI6000 15” D version without touch. For other models go to PCI6000 environmental test report to check complience as vibration and shock limits may be different due to other kind of display. For detailed environmental data and tests please request the PCI6000 environmental test rapport. Those tests fulfil the CE mark requirements for industrial use.

Test	Specification	Description
Cold	IEC 68-2-1, Test Ad	0°C in 16h
Dry Heat	IEC 68-2-2, Test Bd	45°C in 16h
Vibration, random *)	IEC 68-2-64, Test Fh	10-20 Hz: 0.02 g^2/Hz 20-150 Hz: -3 dB/octave (1G) 90 min. per axis
Bump (transport) *)	IEC 68-2-29, Test Eb	25G, 6 msec, 6 directions 1000 bump per direction, class B
Water protection	IEC 529, IPX5	Rinse 12.5 l/min. 3 m. for 3 min.
Dust	IEC 529, IP6X	2 kg talkum per m^3 air. 2 kPa negative preasure in 8h.
Voltage variation	EN 50082-2: 1995	VDC: Un ±20% VAC: Un ±10%
Voltage dip	EN 50082-2: 1995 EN 61000-4-11	-100% in 50 msec. -60% in 100 msec.
Surge transients	EN 50082-2: 1995 IEC 1000-4-5	4 kV on AC power
Burst transients	EN 50082-2: 1995 IEC 1000-4-4	2 kV all ports
Immunity to conducted disturbances	EN 50082-2: 1995	0.15-80 MHz, 10 V_{nns}, 80% AM @ 1 kHz
Immunity RFI	EN 50082-2: 1995 IEC 1000-4-3	80-1000 MHz, 10 V/m 80% AM @ 1 kHz
ESD	EN 50082-2: 1995 IEC 1000-4-2	8 kV air 4 kV contact
Conducted emission	EN 50081-1: 1992 EN 50022 Class B	0.15-0.5 MHz: 66-56 dBµV 0.5-5 MHz: 56 dBµV 5-30 MHz: 60 dBµV
Radiated emission	EN 50081-1: 1992 EN 50022 Class B	30-230 MHz: 30 dBµV/m 230-1000 MHz: 37 dbµV/m

*) Not valid for 17” display.

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Part 2

PCI6000 Maintenance

Defines the Different Models and Describes the Common Data for All Models

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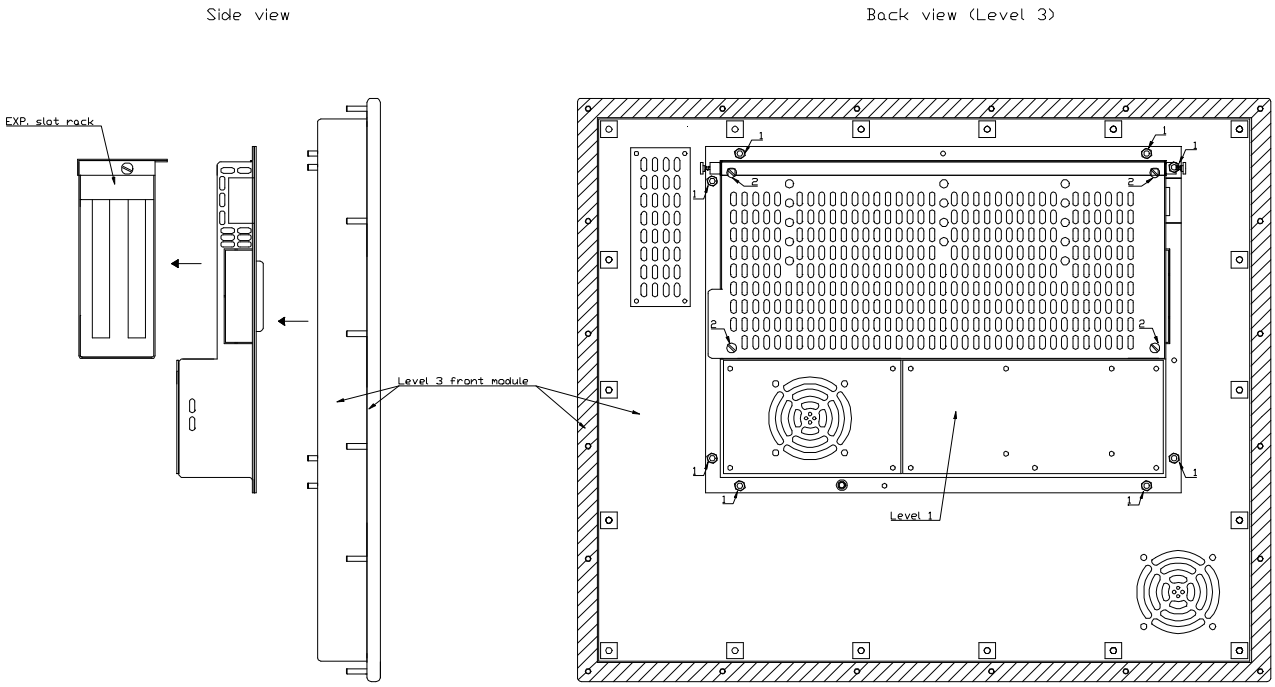
Chapter 3 Servicing

3.1 Removing the Level 1 from the Front Module

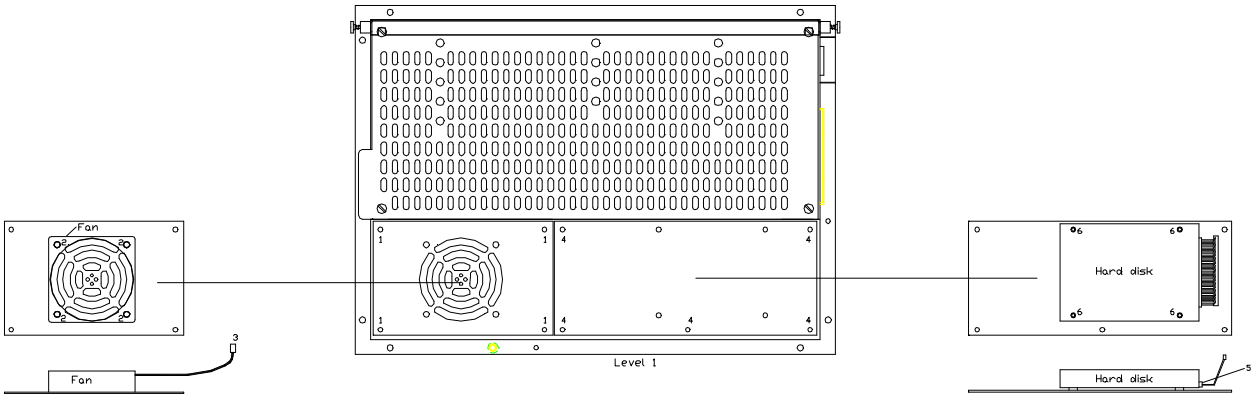


Remove the 8 nuts (marked 1) and then pull the Level 1 away from the front module.

The expansion slot rack can be removed from the Level 1 by loosening the 4 screws (marked 2). See also side view.

Please note that if you remove the Level 1 from a 3D front you must change the Level 1 jumpersetting in the service zone to archive external mouse and keyboard function. See chapter 28.

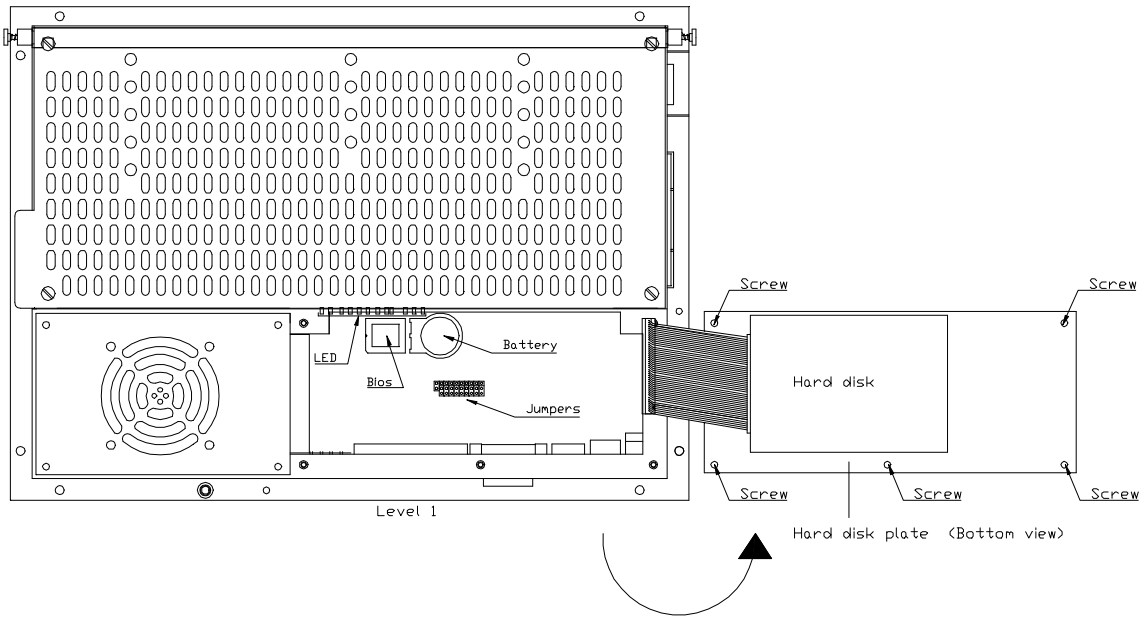
3.2 Exchange of Hard Disk and Fan



Hard disk : - Remove the 5 screws (4) and turn the sheet 90 degrees to the righ. You have now access to the PCI6000 service zone.
- Disconnect the hard disk connector in HDD end (5)
- The hard disk can now be replaced by removing the 4 screws (6)

Fan : - Remove the 5 screws (4) and turn the sheet 90 degrees to the right. You have now access to the PCI6000 service zone.
- Remove the 4 screws (1)
- Lift the sheet until the fan-connector (3) becomes visible
- Dismount the fan-connector (3) from the motherboard
- The fan can now be replaced by removing the 4 screws (2)

3.3 Exchange of Battery and BIOS



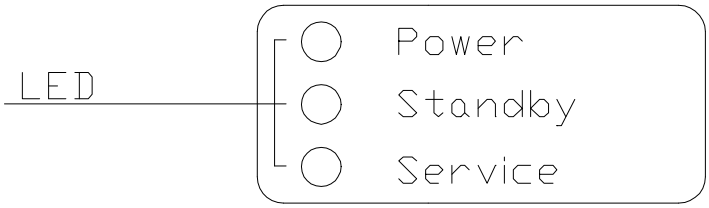
Battery : - Remove the 5 screws (4) and turn the sheet 90 degrees to the right
- Exchange the battery in the socket

BIOS : BIOS may be updated via software utility or by hardware replacement:
- Remove the 5 screws (4) and turn the sheet 90 degrees to the right. You have now access to the PCI6000 service zone.
- Notice pin 1 position.
- Carefully wriggle out the EEPROM device using a fine object to lift the corners.
- Carefully place new device in socket. Notice pin orientation and do not use force.

! Destroyed socket will not be repaired on warranty.
Check www or your dealer for newest BIOS and upgrade tool.
Also check Part 4 PCI6000 software details for software upgrade

3.4 Front Service Indicator

If the service utility is installed in the PCI6000 BIOS (D version and newer) the service indicator in the front foil will light up the red LED when ever temperature, fans speed, or voltages exceed its maximum violation values. If the violation disappear the LED will still be turned on until reset.



To inspect the system parameters start the ISC hardware monitor program and check parameters. This program may also turn the LED off if the violation is removed. System reset will also reset the LED.

Please go to part 4 to install the Hardware monitor diagnostic software. Please be aware that the service LED placed in the front will operate independent of the software utility.

Fixed system parameters are shown below:

CPU die temperature	:	max. 100°C
CPU module temperature	:	max. 75°C
System zone temperature	:	max. 75°C
Service zone temperature	:	max. 60°C
Front zone temperature	:	max. 60°C
Level 1 Fan speed	:	min. 1000 RPM
Front Fan speed	:	min. 1000 RPM
Voltage 5V, 3.3V	:	max. ± 5% (rel. +5V)
Voltage -5V, ±12V	:	±10%

Chapter 4 Cleaning

4.1 Outside

Cooling System on Level 4

To ensure maximum cooling capacity the heat sink must be kept clean.

Cleaning

Level 3 and 4 including our industrial keyboards are all resistant to most chemicals on their outside surfaces. You can even use solvents for cleaning if necessary.

4.2 Inside

Filter for Level 3

Level 3 versions are equipped with a fan placed on the lower part of the back and an air grid on the upper part (see page 51 level 3 back).
The fan brings air out which is coming in at the air grid. This let the air into the display compartment. The air grid is covered by a filter. It is recommendable to clean the filter so the dust doesn't build up. The filter can easily be removed by unscrewing the 4 nuts at the grid. Use soap water for cleaning. How often this should be done depends on the environmental factor and for how long periods the PC is switched on. The premaintenance indicator on the front or the premaintenance software package will indicate if fan speed becomes too low.

4.3 Resistance to Chemicals

Chemical Resistance Testing using DIN 42 115 Part 2-24 hours.

Chemical Substance	Front foil	Front Glass	Gasket	Stainless steel ASI 316	Heat Sink (Level 4)
Melhyl ethyul kelone	✓	✓	✓	✓	✓
Cyclohexanone	✓	✓	✓	✓	✓
Acetone	✓	✓	✓	✓	✓
Acetaldehyde	✓	✓	✓	✓	✓
Ether	✓	✓	✓	✓	✓
Dioxan	✓	✓	✓	✓	✓
Ethyl acelate	✓	✓	✓	✓	✓
Isopropanol	✓	✓	✓	✓	✓
Cyclohexanol	✓	✓	✓	✓	✓
Petrol	✓	✓	✓	✓	✓
Benzene	✓	✓	✓	✓	✓
Toluene	✓	✓	✓	✓	✓
Xylene	✓	✓	✓	✓	✓
Fluorochlorohydrocarbons (Dupont Feon TF)	✓	✓	✓	✓	✓
Perchloroethylene (Perklone)	✓	✓	✓	✓	✓
1.1.1 - Trichlorethane (Genklene	✓	✓	✓	✓	✓
Trichloroethylene	✓	✓	✓	✓	✓
Methylene chloride	x	x	✓	✓	✓
Mineral acid < 10%	✓	✓	✓	✓	☒
Caustic soda < 10%	✓	✓	✓	✓	☒
Turpantine	✓	✓	✓	✓	✓
50% Formic acid	✓	✓	✓	✓	☒

✓ = Pass
x = Fail
☒ = Fail but can be exposed in app. ½ hours under the folling conditions $8{,}5 \geq Ph \geq 4{,}5$. After exposure rinse with clean water.

Chapter 5 Reporting Problems

Hardware Incident Report.

Machine Type: _____

S/N: _____

Problem Description: _____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Error occurs: ☐ always ☐ most cases ☐ seldom

Expansion Card, if any: _____

_____

Software: _____

-Type/Vers.: _____

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Chapter 6 Spare Parts

Some parts of the PCI6000 may even during normal operation eventually be worn out because of the mechanical devices integrated in the part. The time at which the part must be replaced is depending on the environmental conditions, ambient temperature in particular.

Fan

This part consists of fan and cable with connector.

Manufacturer	:	Micronel F62MQ-012GK-0
Expected life time (MTTF):		6 years @ 25°C; 4 years @ 45°C
ISC part number	:	34800013

Battery

The battery is supplying energy to the real time clock and CMOS RAM when the primary power is off. As long as the primary power is on, the battery will self-discharge less than 1% of its capacity per year.

Manufacturer	:	None prefered
Type	:	CR2032, UL approved
Expected life time	:	6 years @ 25°C; 4 years @ 45°C
ISC part number	:	14030001

Display

Exchanging backlight on the LCD is not recommendable to the non-experienced user. The instructions for doing this is vendor specific. Often it will be preferable to exchange the whole display. Please contact your sales representative before beginning this job.

12.1"

Manufacturer	Sharp
Type	TFT, LQ12S41
Resolution	SVGA (800 x 600 pixels)
Backlight	CCFL, typical 50.000 hours (note 1), typ. 250cd/m^2
Backlight exchange	Simpel
ISC partnumber	40000024

15.1"

Manufacturer	LG Electronics Inc.
Type	TFT, LM151X1
Resolution	XGA (1024 x 768 pixels)
Backlight	CCFL, typ. 25.000 hours (note 1), typ. 200 cd/m^2
Backlight exchange	Complex
ISC partnumber	40000022

17.1"

Manufacturer	Samsung Electronics
Type	TFT, LT170E2-131
Resolution	SXGA (1280 x 1024 pixels)
Backlight	CCFL, min 25.000 hours (note 1), typ. 170cd/m^2
Backlight exchange	Complex
ISC partnumber	40000025

note 1: Degrading to 50% brightness of initial value at operating temperature 25°C

Processor

Type	Intel P-II or Celeron Mobile Module 2		
CPU Speed	266 MHz - 400 MHz		
ISC partnumber	32000200		
	266 MHz P-II	:	32000200
	333 MHz P-II	:	32000201
	400 MHz Celeron	:	32000210

Memory

Type	DIMM 168-pin SDRAM PC100 3.3V		
Configurations	32 MB	:	50100230
	64 MB	:	50100231
	128 MB	:	50100232
	256 MB	:	50100233

Expansion Box

PCI v2.1	32-bit, 33 MHz, 5V
ISA	16-bit, 8 MHz (Default), 5V
Slots	1 dedicated ISA and 1 ISA shared with one PCI
ISC partnumber	U063302

Touch Screen

Technology	Infrared (12" and 15")
Manufacturer	Citron
Material	Glass with hard-coated surface

Technology	Resistive (12", 15" and 17")
Manufacturer	Elo
Base material	Glass
Touch surface	Hard-coated polyester foil

Please note that glass can not be exchanged.

Power Supply

Type	115/230 V AC (selectable by switch)
ISC partnumber	E000011

Type	24 V DC
ISC partnumber	E000012

Hard Disk

This part consists of HD Assembly

Manufacturer	:	IBM	
ISC part number	:	3.2 GB:	U063100
		4.8 GB:	U063101
		6.4 GB:	U063102

Solid State Disk

This item is listed for reference only since it contains no wearing parts.

Manufacturer	:	SanDisk	
MTBF	:	1,000,000 hours	
Endurance	:	300,000 write/erase cycles	
ISC part number	:	20 MB:	U063150
		40 MB:	U063151
		60 MB:	U063152
		80 MB:	U063153
		100 MB:	U063154
		220 MB:	U063155

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Part 3

PCI6000 Mechanical Details

Detailed Mechanical Specification of Level 1, Level 2, Level 3, and Level 4

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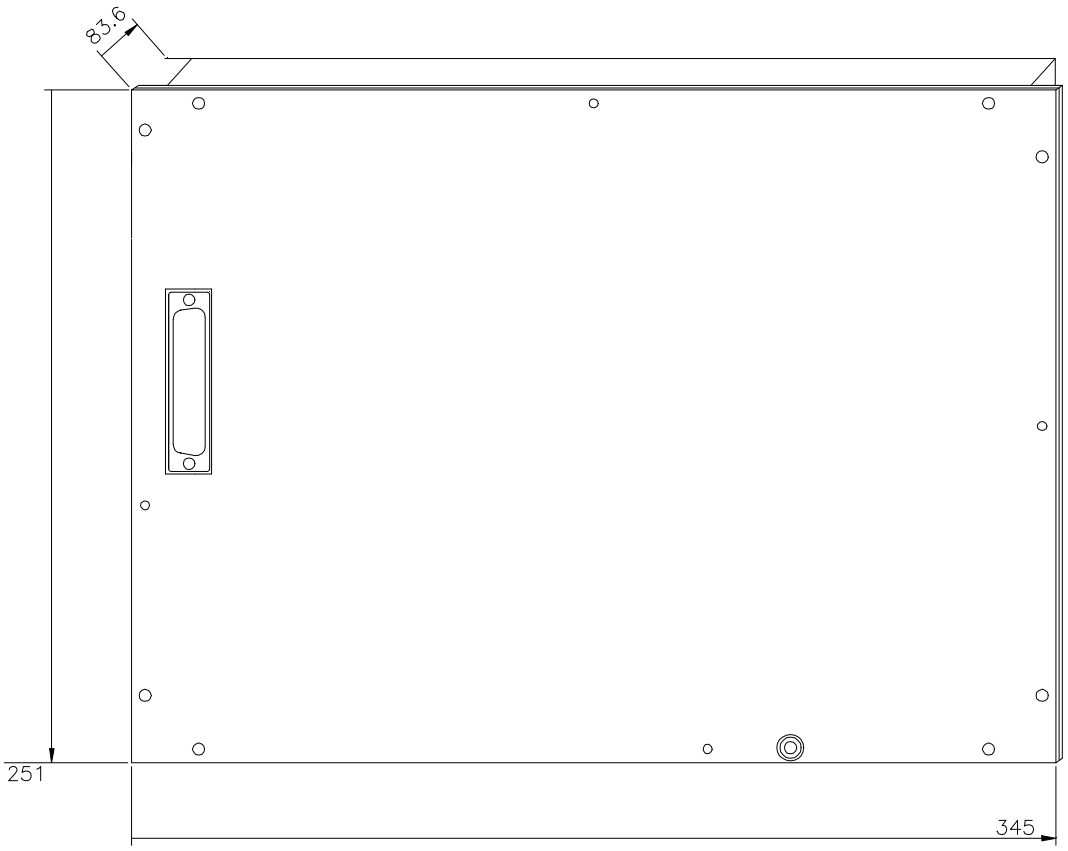
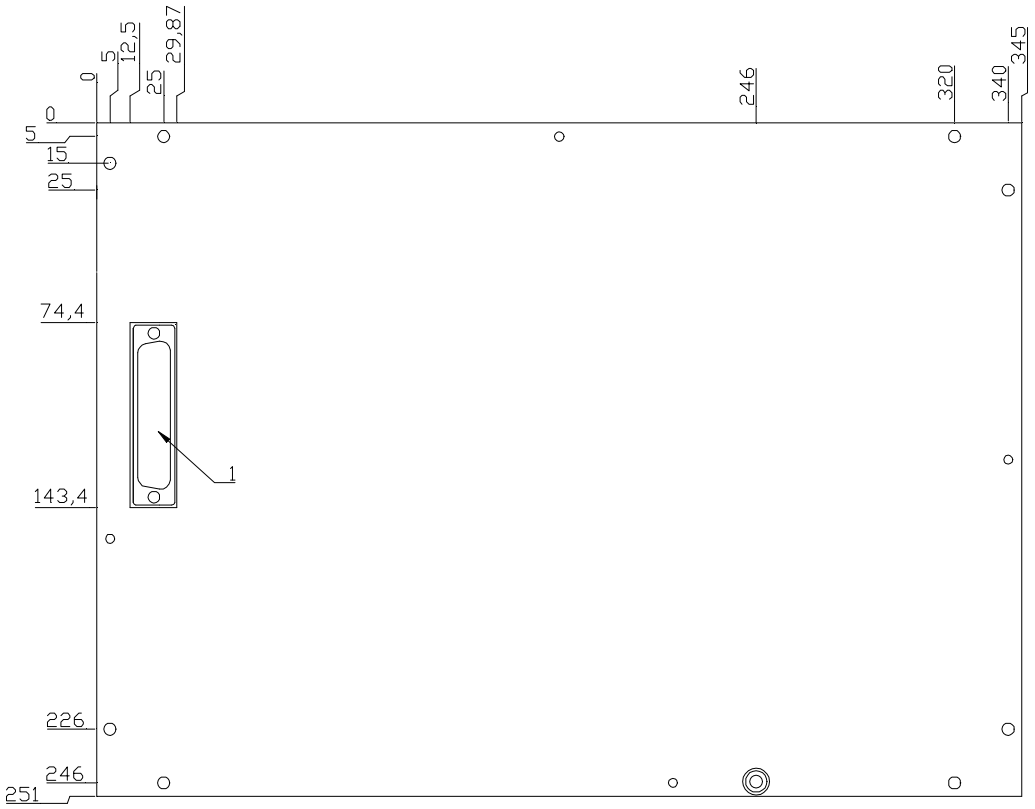
Chapter 7 Level 1



Outer Materials	:	Anodized steel
Internal Cooling	:	Forced convection supported by 1 internal fan
Expansion Slots	:	1 PCI/ISA and 1 ISA
Weight	:	5 kg.

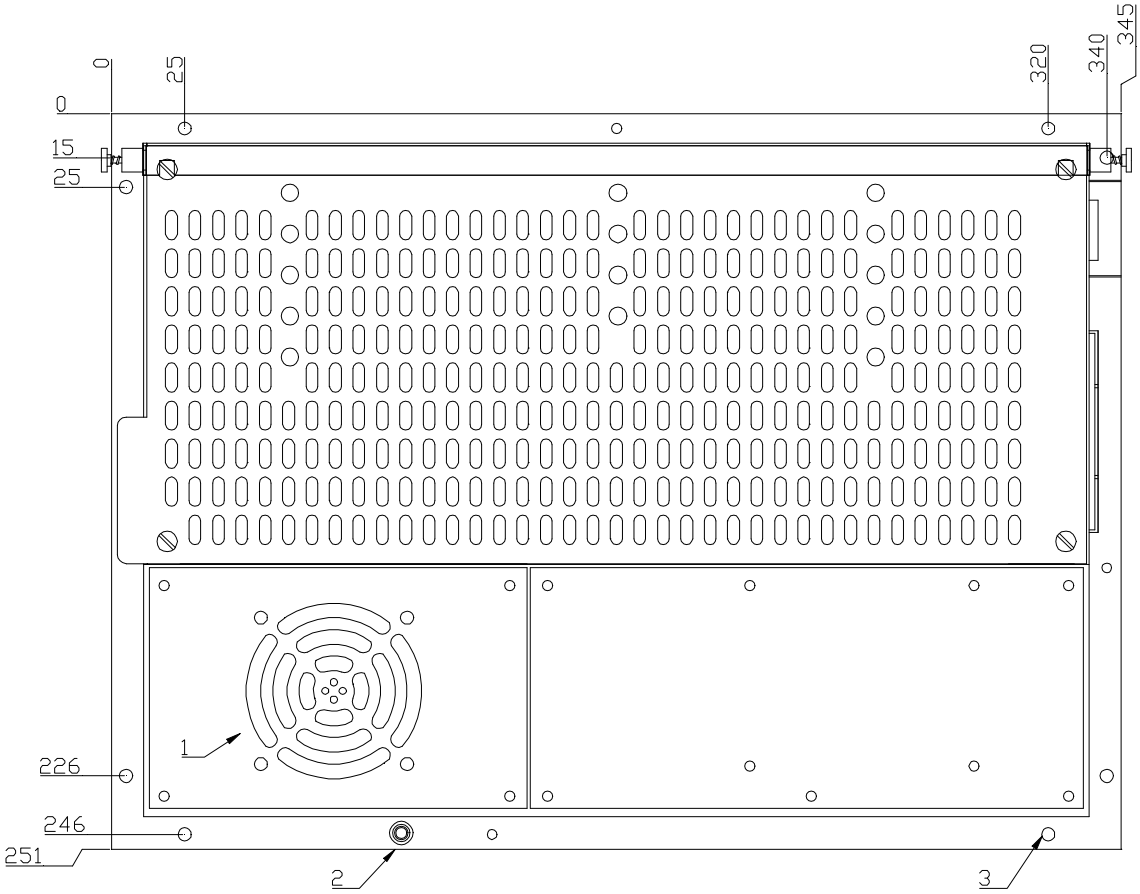
7.1 Outside View

Front



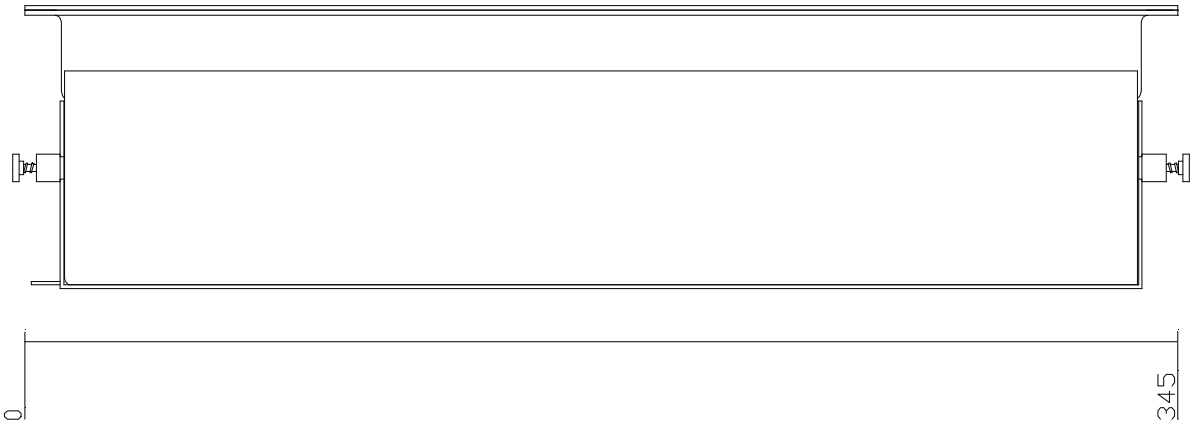
1 : Front connector FH 96

Back

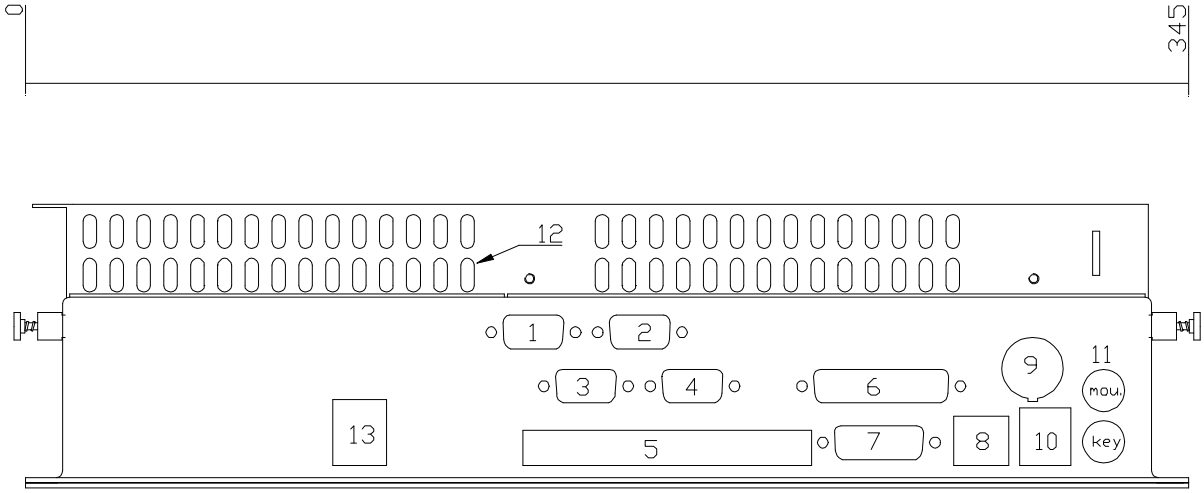


1	:	Fan grid (air output)
2	:	Mains cable strain relief
3	:	Mounting holes 8 pcs. dia. 4.5mm.

Top

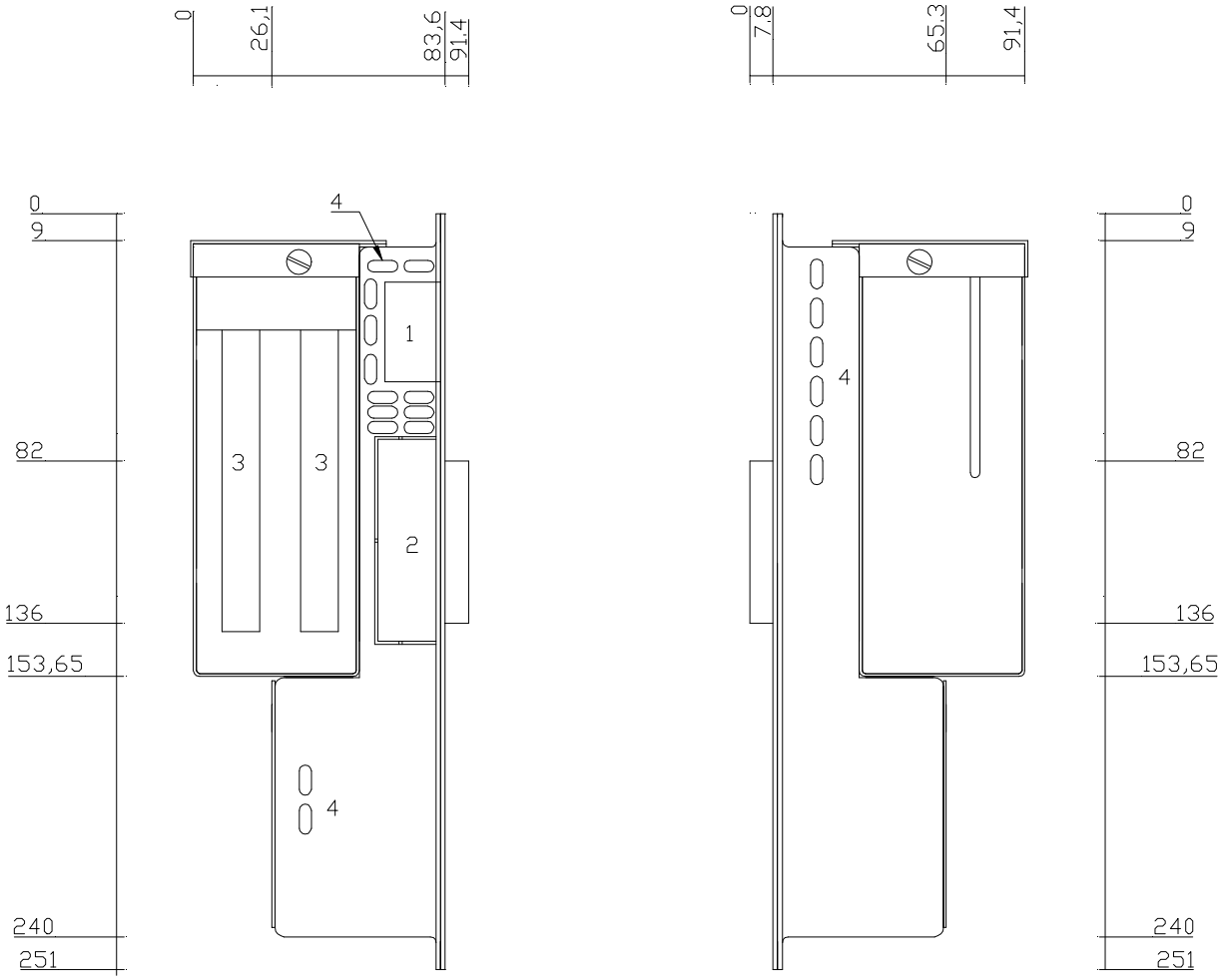


Bottom



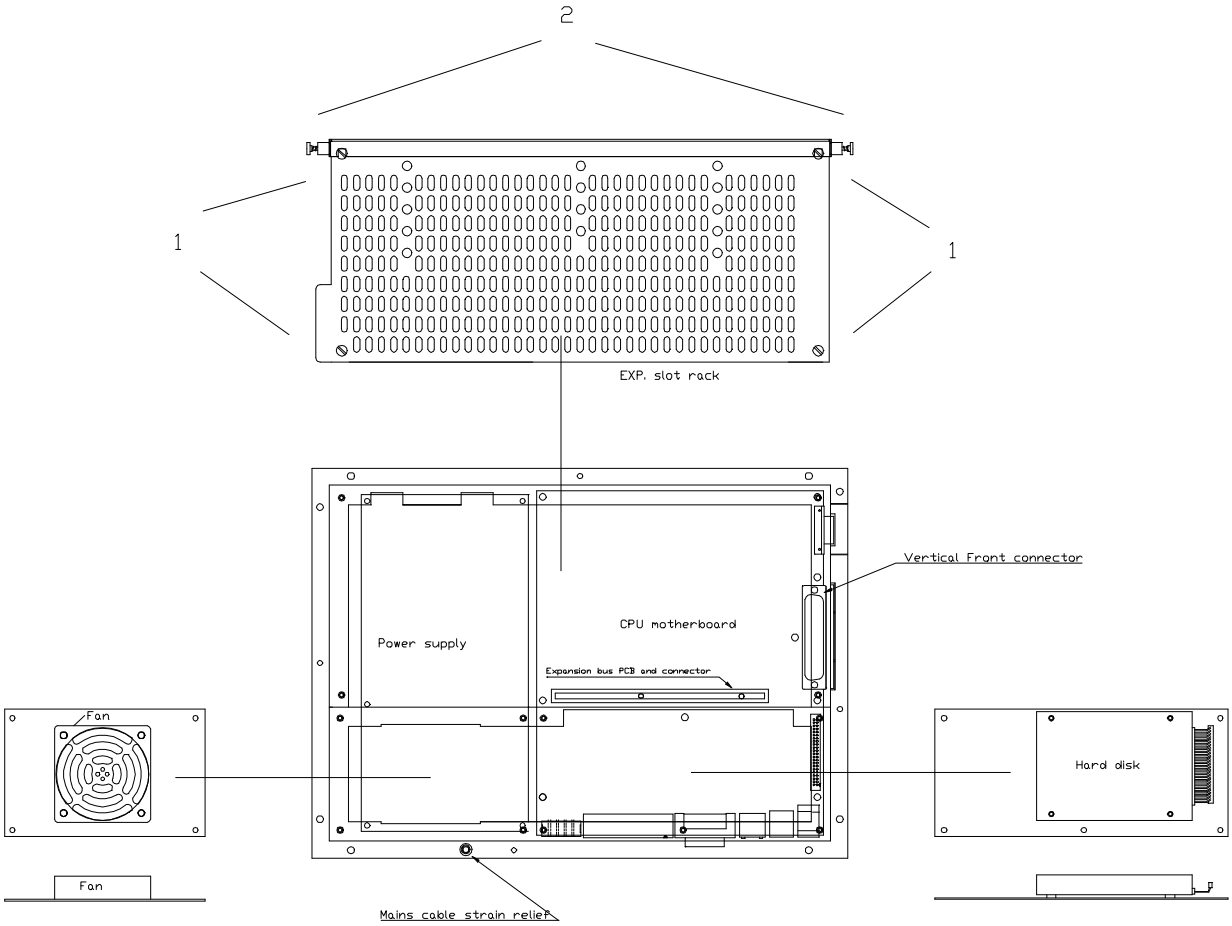
1	:	RS485/RS422 - port 1	D-Sub 9p female (optional)
2	:	RS232 - port 1	D-Sub 9p male
3	:	RS485/RS422 - port 2	D-Sub 9p female (optional)
4	:	RS232 - port 2	D-Sub 9p male
5	:	CD power/CD Rom	4 pol power / IDC40
6	:	Printer port	D-Sub 25p female
7	:	Floppy port	HD-Sub 26p male
8	:	Ethernet port	RJ45
9	:	PCI6000 Keyboard port	8 pin threaded DIN female
10	:	USB port	USB std. connector
11	:	PS/2 KBD/Mouse port	6p mini DIN
12	:	Ventilation holes	
13	:	Mains terminal block	3p screw terminal

Left and Right



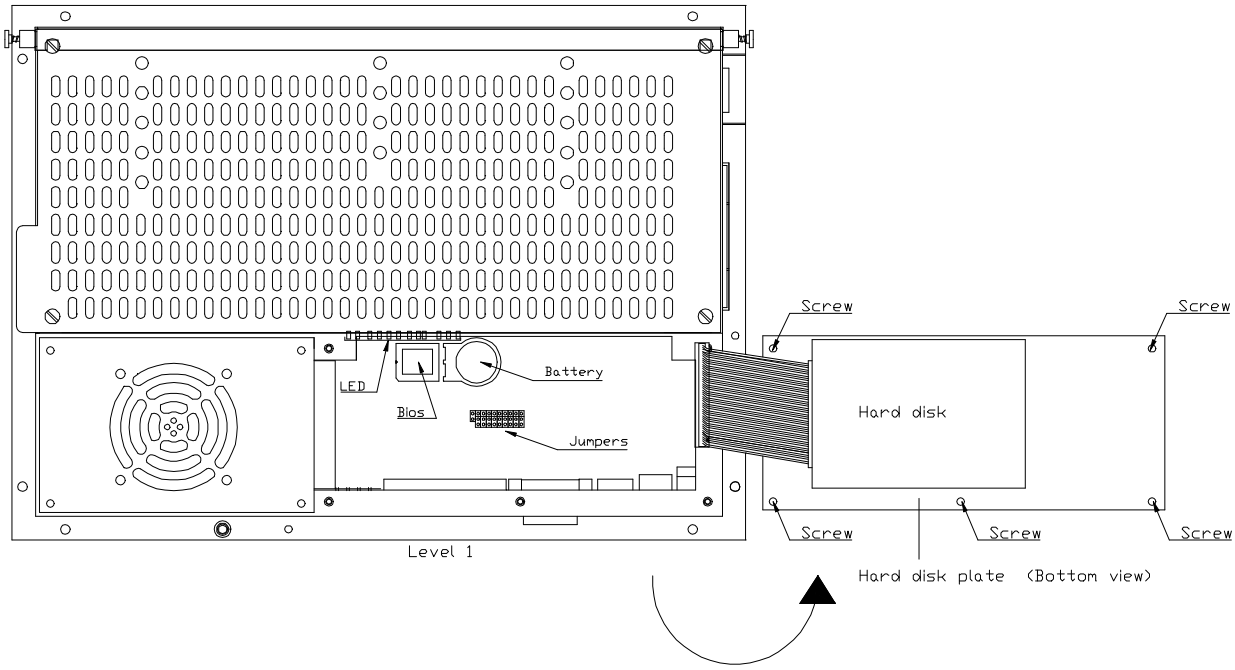
1	:	CRT connector, HD Sub 15 female
2	:	Right angle front connector knock out
3	:	Holes for PCI/ISA card brackets
4	:	Ventilation holes (air input)

7.2 Inside X-ray View



1 : Panel screws for removal of backplane
2 : Panel screws for backplane access

Service Zone



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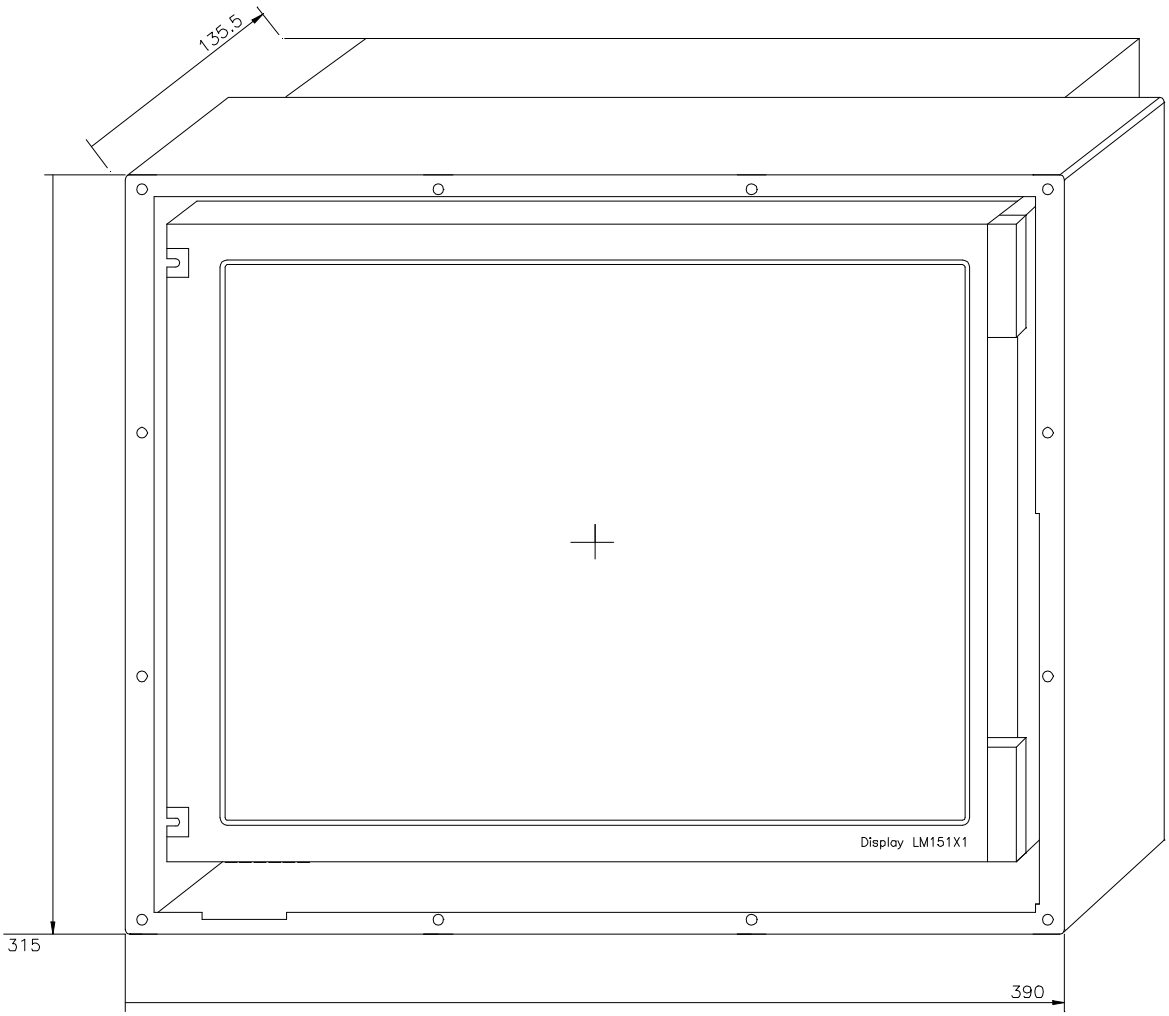
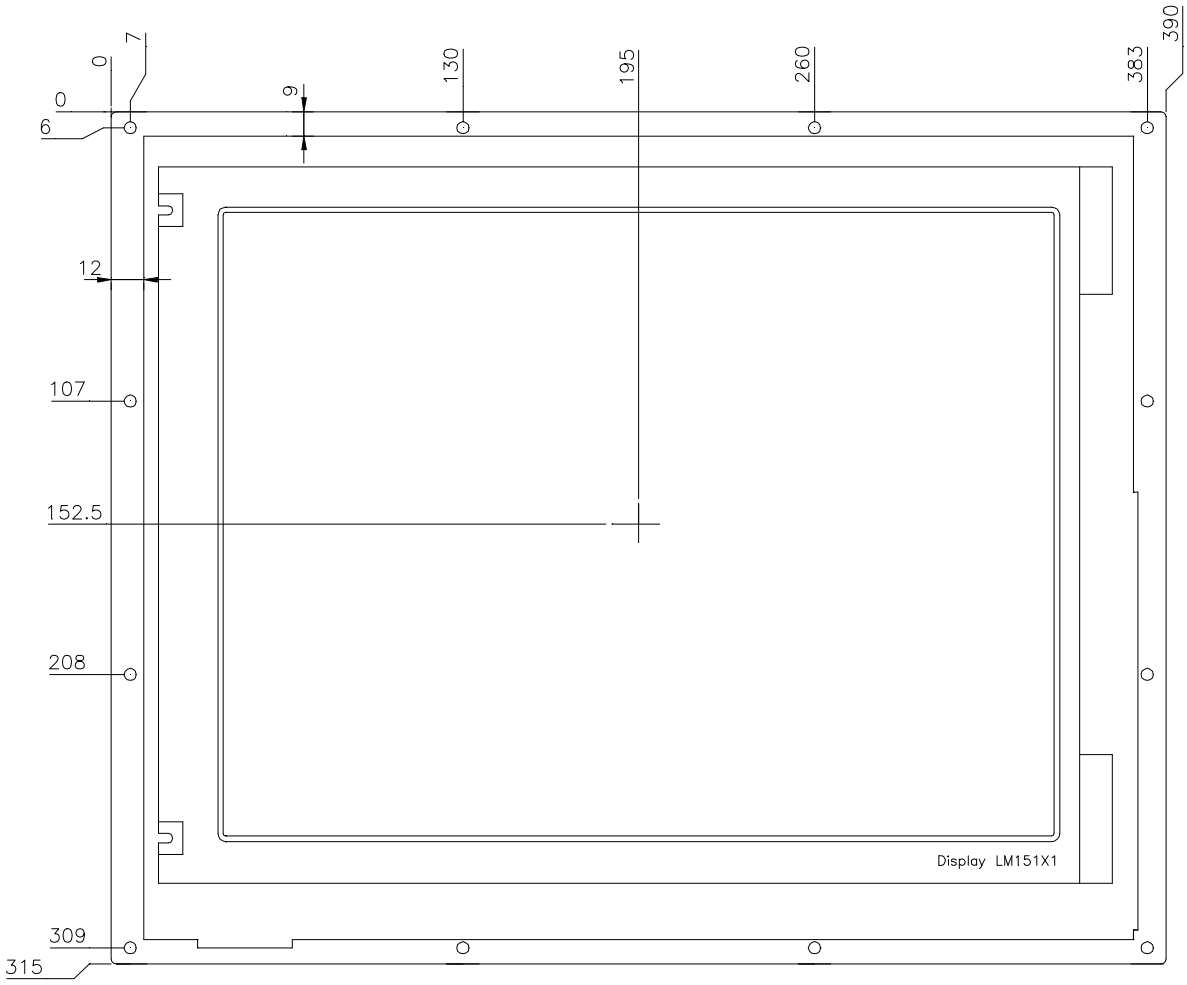
Chapter 8 Level 2 15”



Outer Materials	:	Flat screen on front (uncovered) EMC shield on the back, anodized steel
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
EMC Note	:	To achieve conformance with EMC standards installation should be done according to our instructions
Options	:	Touch screen Connector module assembly
Weight	:	10 kg.

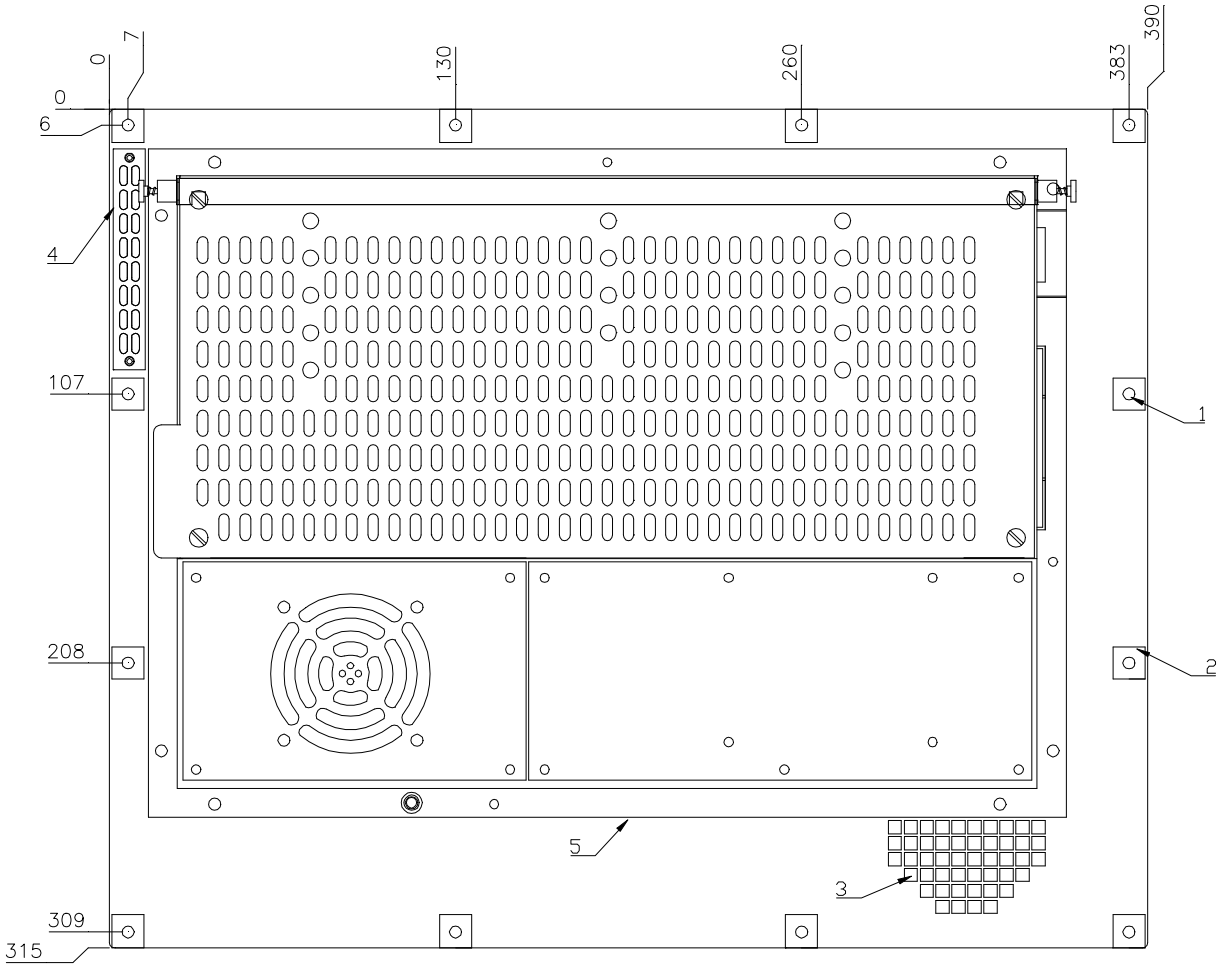
8.1 Outside View

Front



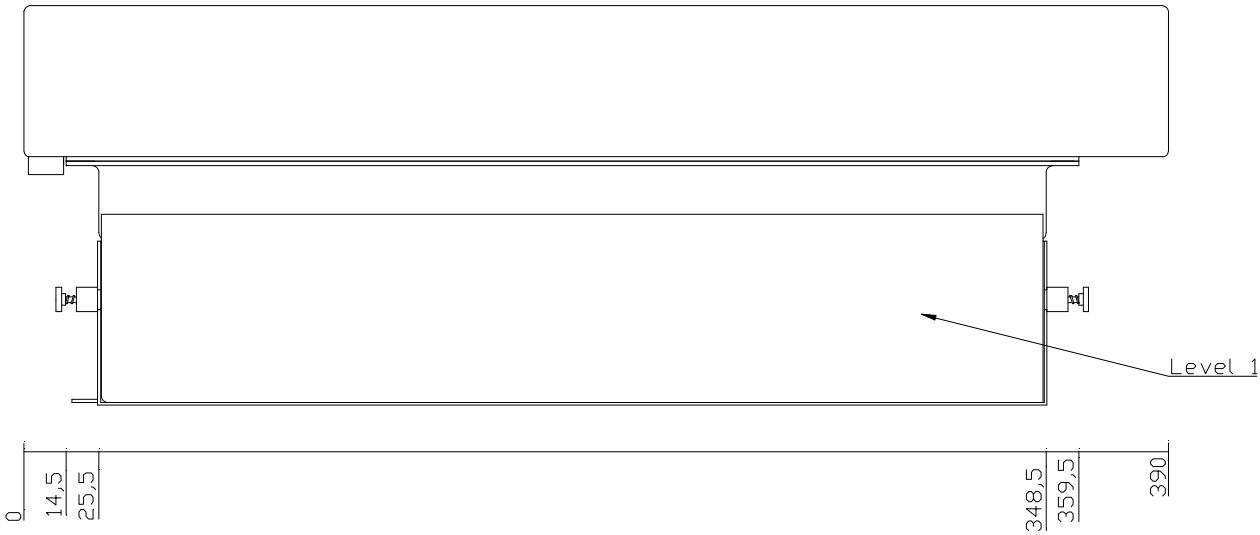
Screen : Actual position and dimensions may vary

Back

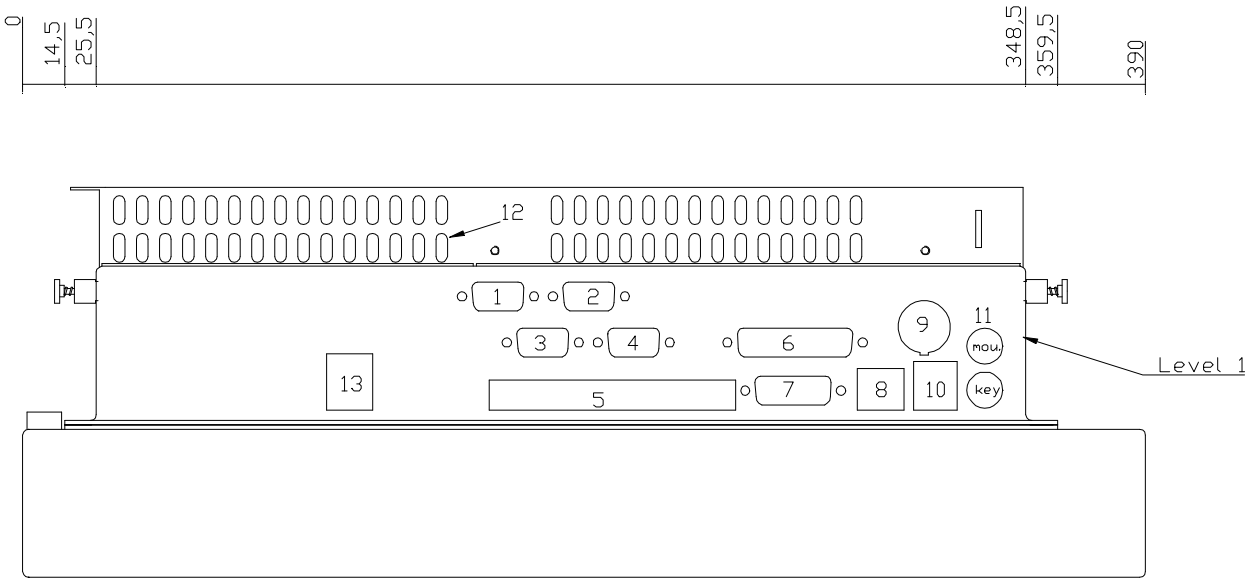


1	:	Mounting holes dia. 4.5mm
2	:	Holes 12x12mm (for tools)
3	:	Fan (air output)
4	:	Grid (air input)
5	:	Level 1 (see chapter 7)

Top



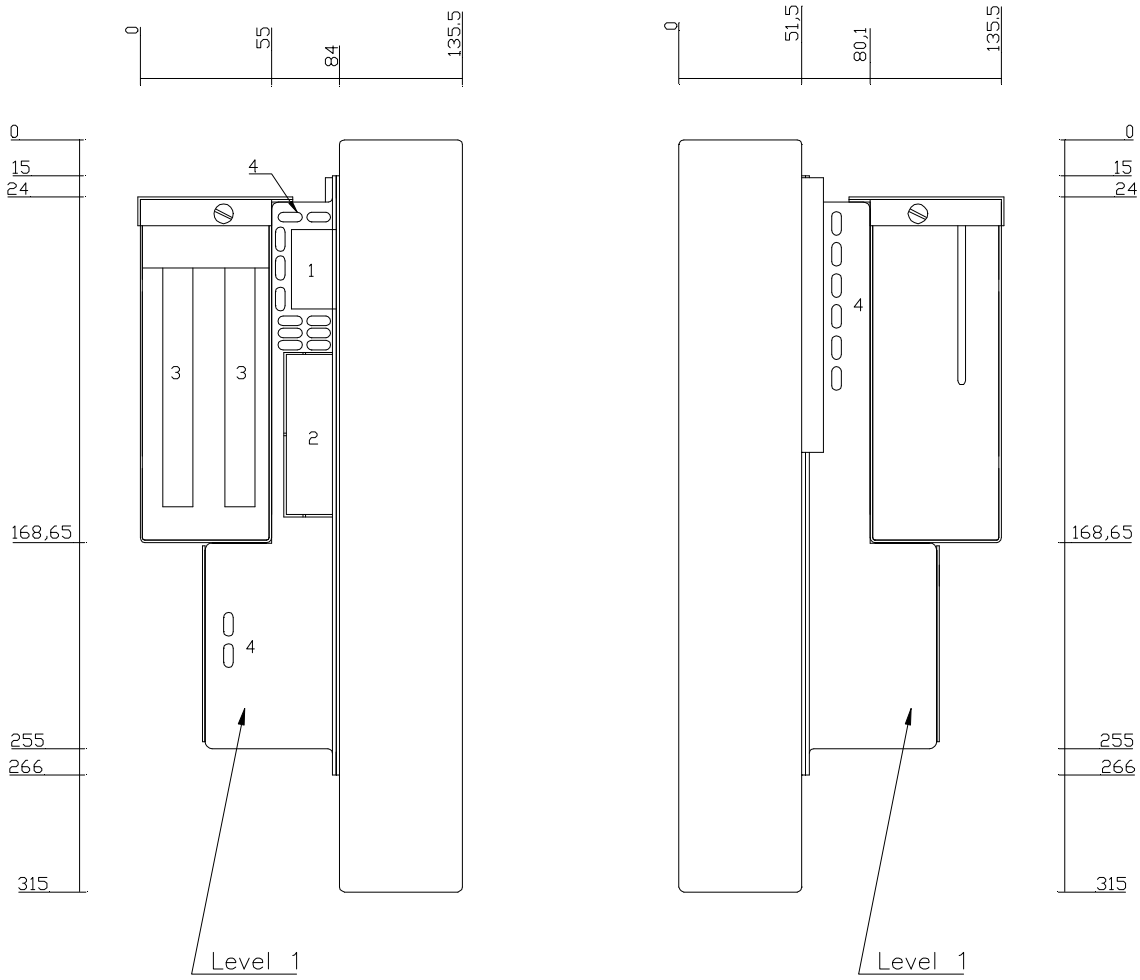
Bottom



1	:	RS485/RS422 - port 1	D-Sub 9p female (optional)
2	:	RS232 - port 1	D-Sub 9p male
3	:	RS485/RS422 - port 2	D-Sub 9p female (optional)
4	:	RS232 - port 2	D-Sub 9p male
5	:	CD power / CD Rom	4 pol power / IDC40
6	:	Printer port	D-Sub 25p female
7	:	Floppy port	HD-Sub 26p male
8	:	Ethernet port	RJ45
9	:	PCI6000 Keyboard port	8 pin threaded DIN female
10	:	USB port	USB std. connector
11	:	PS/2 KBD/Mouse port	6p mini DIN
12	:	Ventilation holes	
13	:	Mains terminal block	3p screw terminal

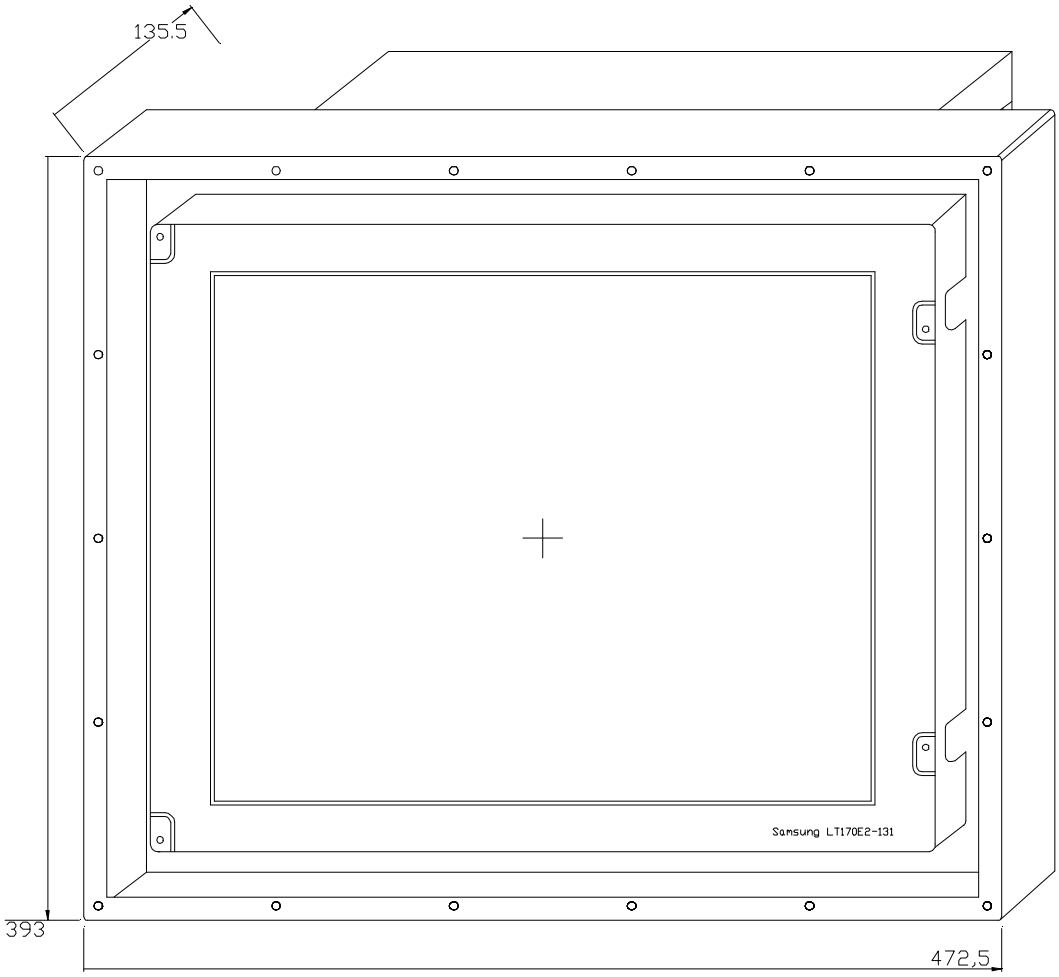
Detailed pin-out in chapter 27.

Left and Right



1	:	CRT connector	HD Sub 15 female
2	:	Front connector	FH 96
3	:	Holes for PCI/ISA card brackets	
4	:	Ventilation holes (air input)	

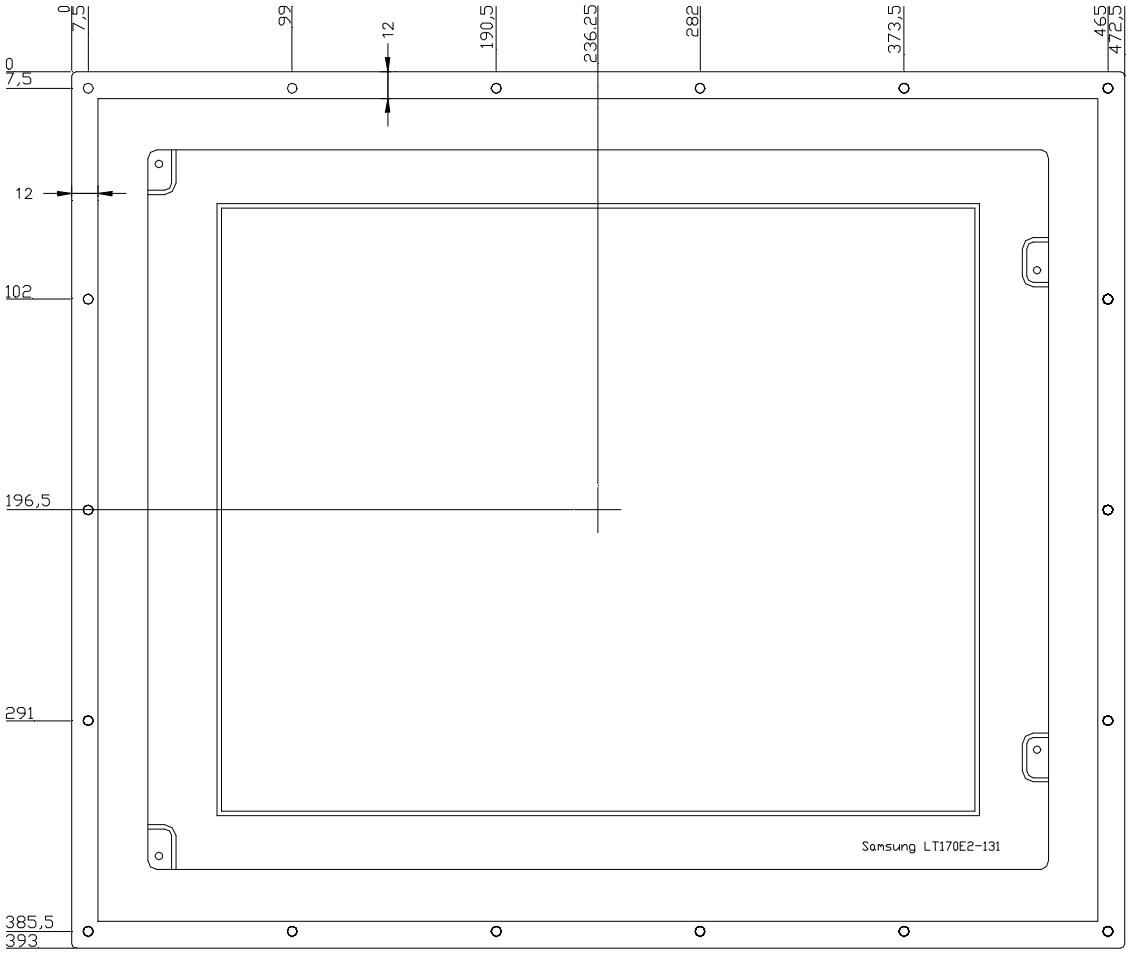
Chapter 9 Level 2 17”



Outer Materials	:	Flat screen on front (uncovered) EMC shield on the back, anodized steel
Internal Cooling	:	Forced convection supported by 1 internal fan
Expansion Slots	:	1 PCI/ISA and 1 ISA
EMC Note	:	Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufactures.
Options	:	Resistive touch screen Connector module assembly
Weight	:	11 kg.

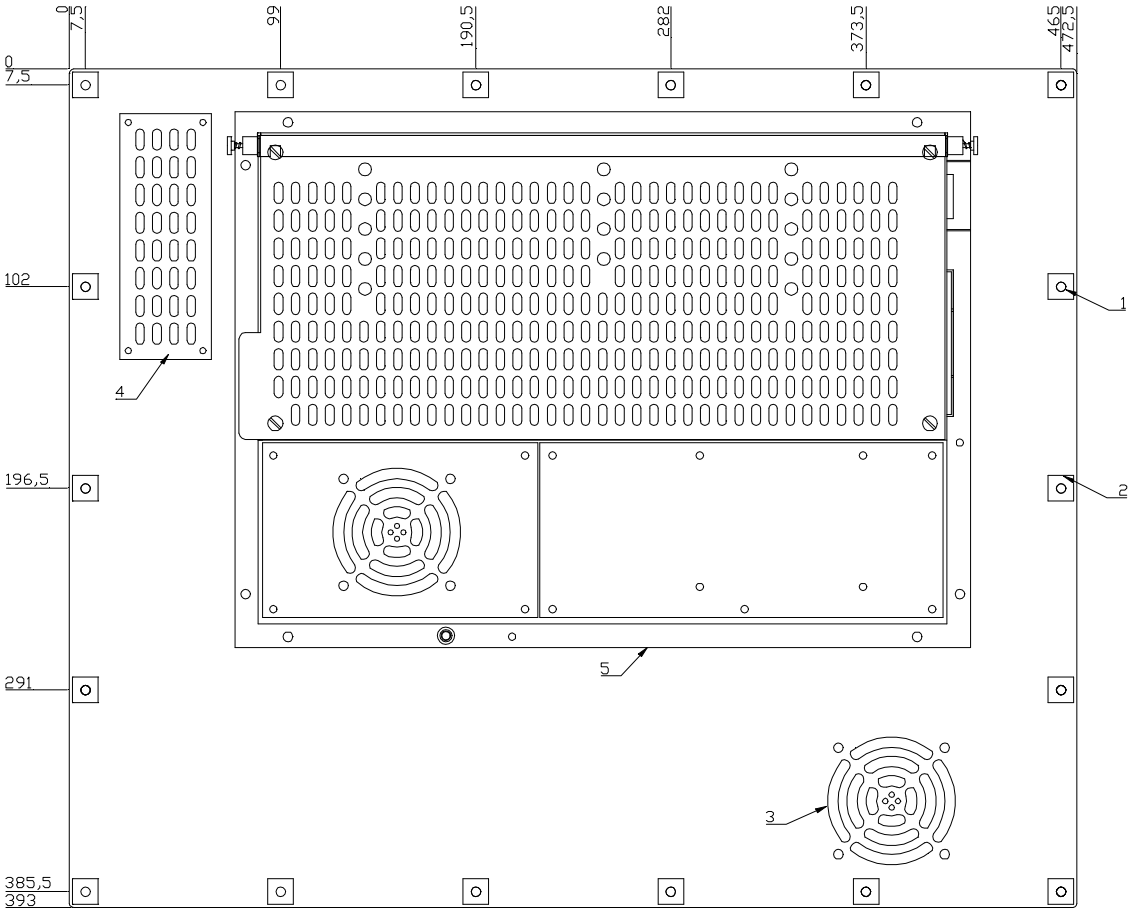
9.1 Outside View

Front



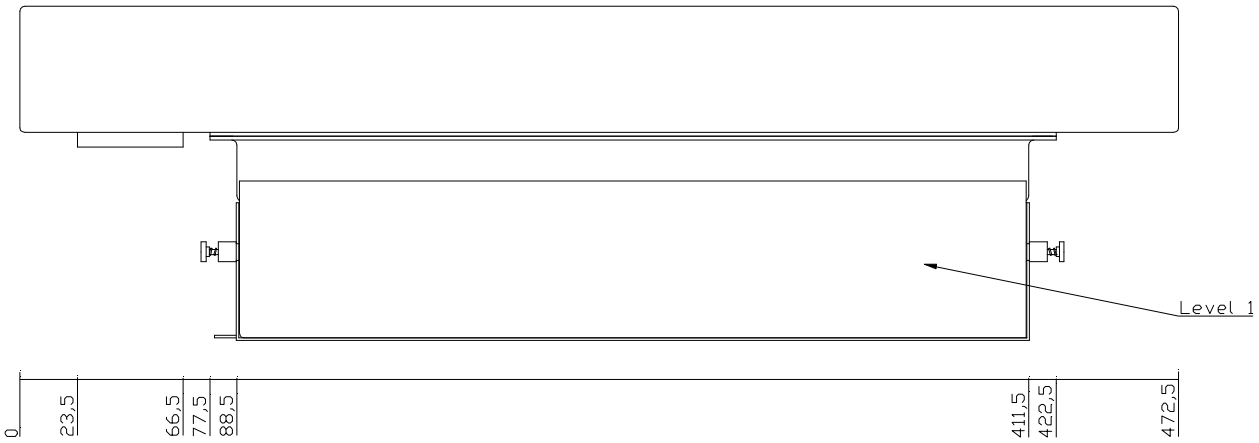
Screen : Actual positions and dimensions may vary

Back

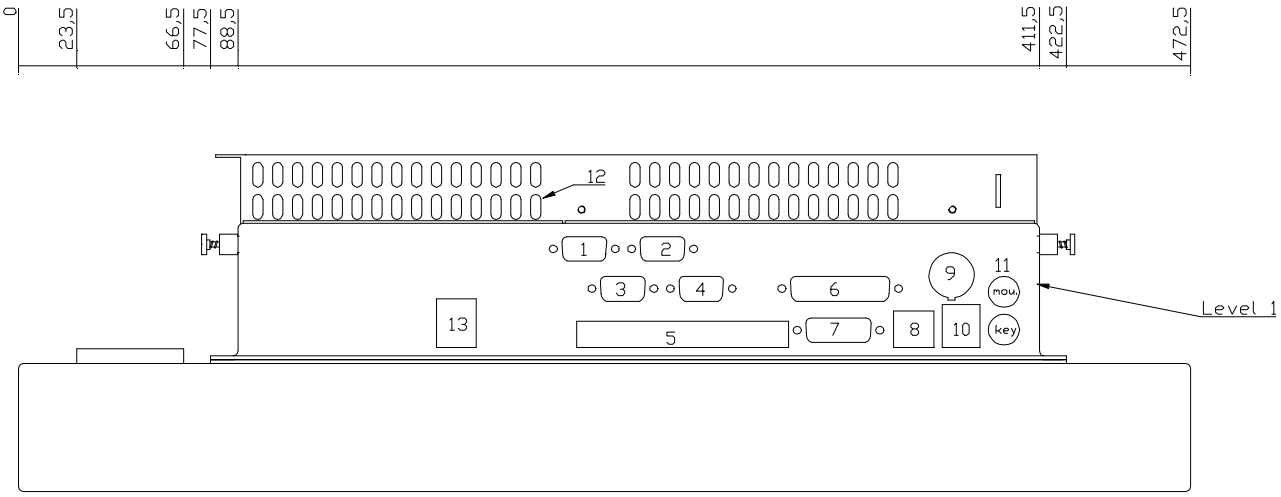


1	:	Mounting holes dia. 4.5mm
2	:	Holes 12x12mm (for tools)
3	:	Fan (air output)
4	:	Grid (air input)
5	:	Level 1 (see chapter 7)

Top



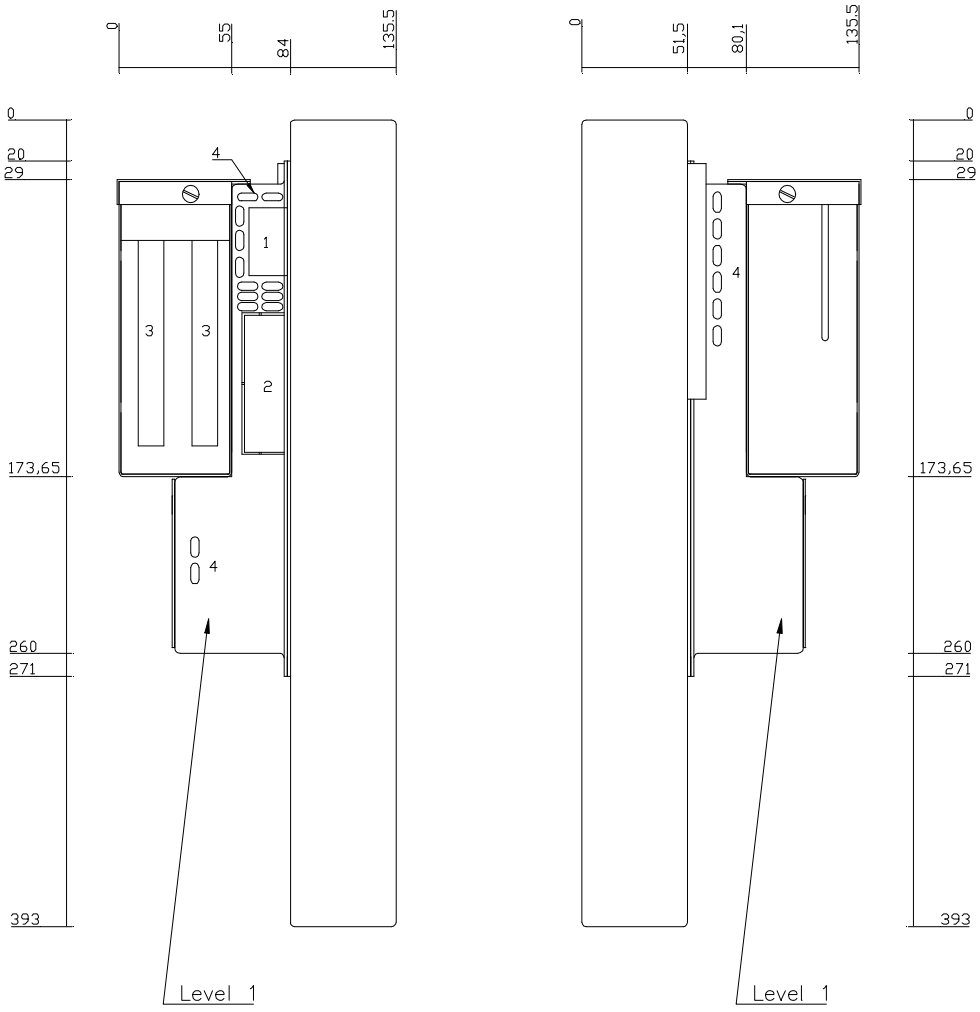
Bottom



1	:	RS485/RS422 - port 1	D-Sub 9p female (optional)
2	:	RS232 - port 1	D-Sub 9p male
3	:	RS485/RS422 - port 2	D-Sub 9p female (optional)
4	:	RS232 - port 2	D-Sub 9p male
5	:	CD power / CD Rom	4 pol power / IDC40
6	:	Printer port	D-Sub 25p female
7	:	Floppy port	HD-Sub 26p male
8	:	Ethernet port	RJ45
9	:	PCI6000 Keyboard port	8 pin threaded DIN female
10	:	USB port	USB std. connector
11	:	PS/2 KBD/Mouse port	6p mini DIN
12	:	Ventilation holes	
13	:	Mains terminal block	3p screw terminal

Detailed pin-out in chapter 27.

Left and Right



1	:	CRT connector
2	:	Front connector
3	:	Holes for PCI/ISA card brackets
4	:	Ventilation holes (air input)

Chapter 10 Mounting of a Level 2

By choosing a level 2 you decided to deal with details yourselves such as: frame, casing, etc.

When mounting a level 2 into a panel, a rack or your own enclosure please observe the following:

Space Behind the Computer

A complete description of all the different positions and ways a level 2 could be mounted into a panel, is of cause not possible. By mounting in general it is very important that the back of the PC is given a minimum amount of space as the PC produces heat. From the technical specifications you will know that the level 2 ambient temperature is specified. This temperature must not be exceeded.

If you have a chance of providing a natural airflow through the inside area of the panel, it will help you to keep the internal temperature down. If you want an even better airflow you may consider to mount a fan improving the natural airflow.

If you install additional equipment that also generates heat inside the panel please observe the total accumulation of heat as it may then demand additional space to keep internal temperature down. It is always worth while to care about the temperature even if it is not near the critical point as electronics in general will live longer if not stressed by high temperatures.

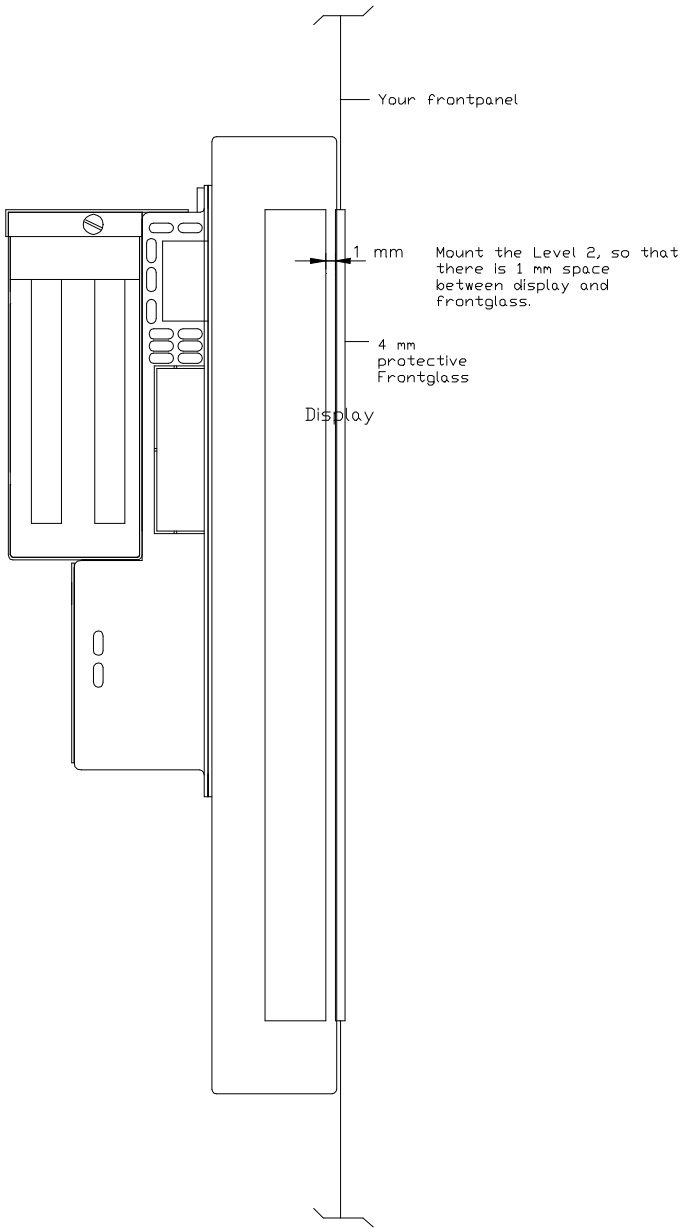
Electromagnetic Compatibility (EMC)

From our technical specifications you will know that our PC's complies with EMC directive for industry. The level 2 PC isn't equipped with a protective front when you receive it, therefore it follows naturally that you will decide how the framework of the front should be carried out.

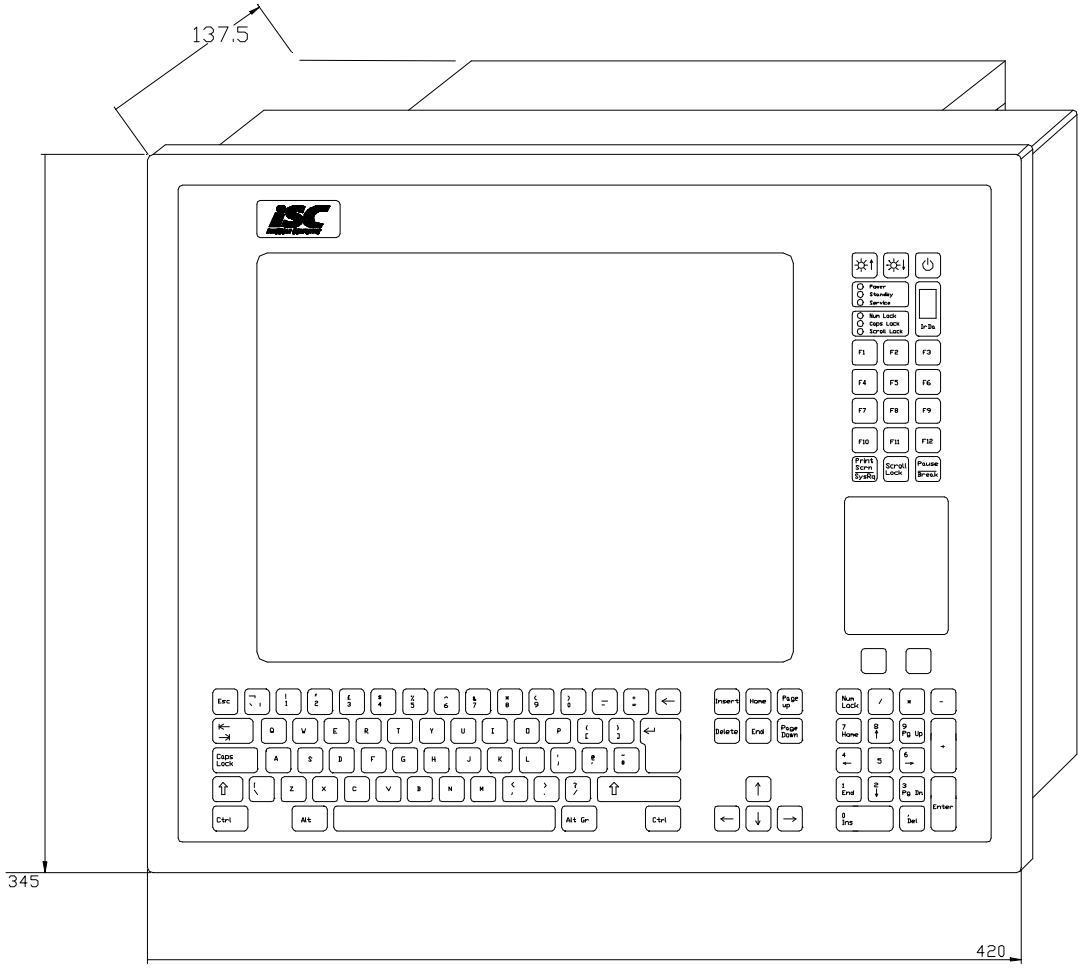
If you decide that your technical construction must comply with the EMC Directive you may use normal glass as protection in front of the display [1)]. To reduce electromagnetic Immunity and Emission of your system further, the protective window may be coated on the inner side with Indium Tin Oxide (ITO) and a surface resistivity of 20 Ohms/square. It is important to ensure a good connection between the ITO coating and protective ground. The connection can be made by using adhesive tape made of copper. This implies of course, that your front panel is made of a material providing a good protective ground.

[1)] This is due to the fact that PCI6000 is designed to have a very low emmision due to LVDS signal levels to the LCD. Anyway mounting a level 2 for an EMC unexperienced user may cause problems.

Mounting Instructions



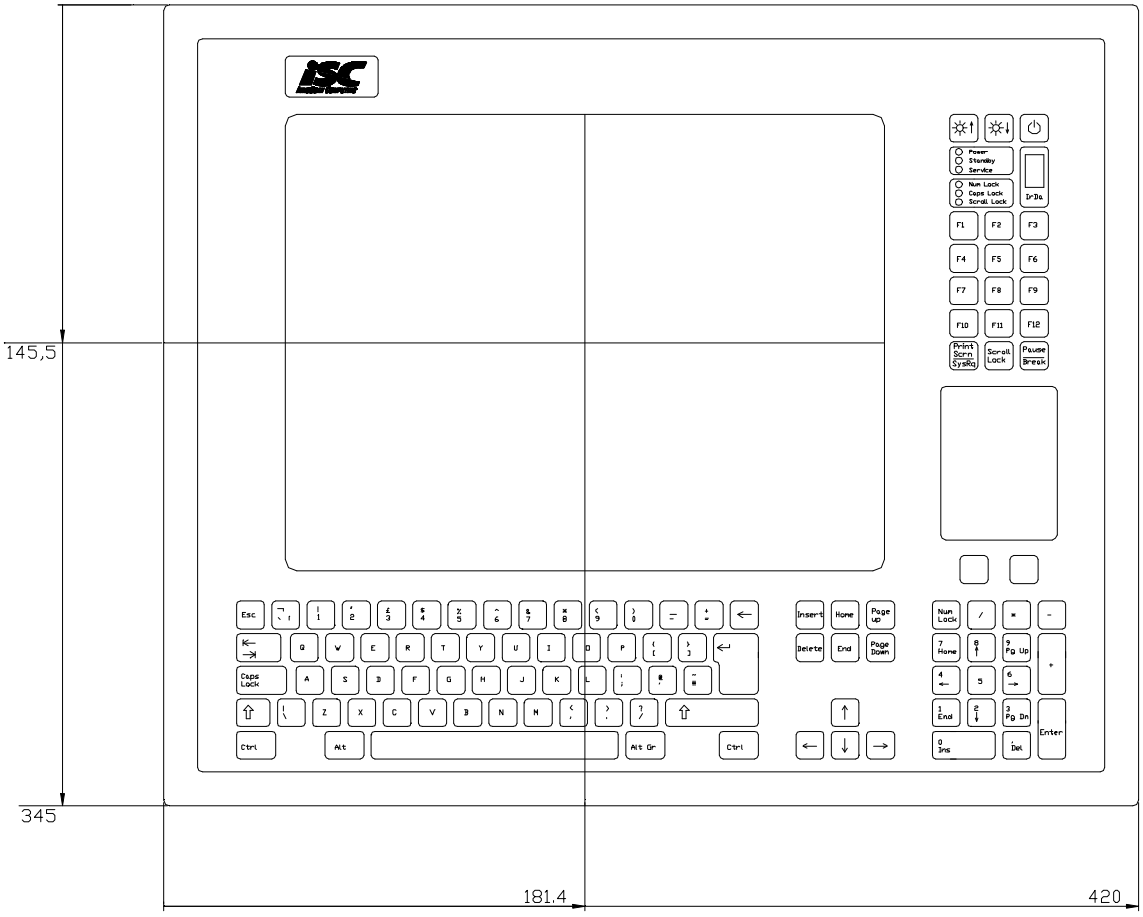
Chapter 11 Level 3D 12”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed EMC shield on the back, anodized steel
Protection	:	IP65, NEMA 4/12 (front)
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Keyboard	:	Integrated sealed/membrane keyboard
Mouse	:	Integrated sealed pad mouse
Options	:	Touch screen
Weight	:	10 kg.

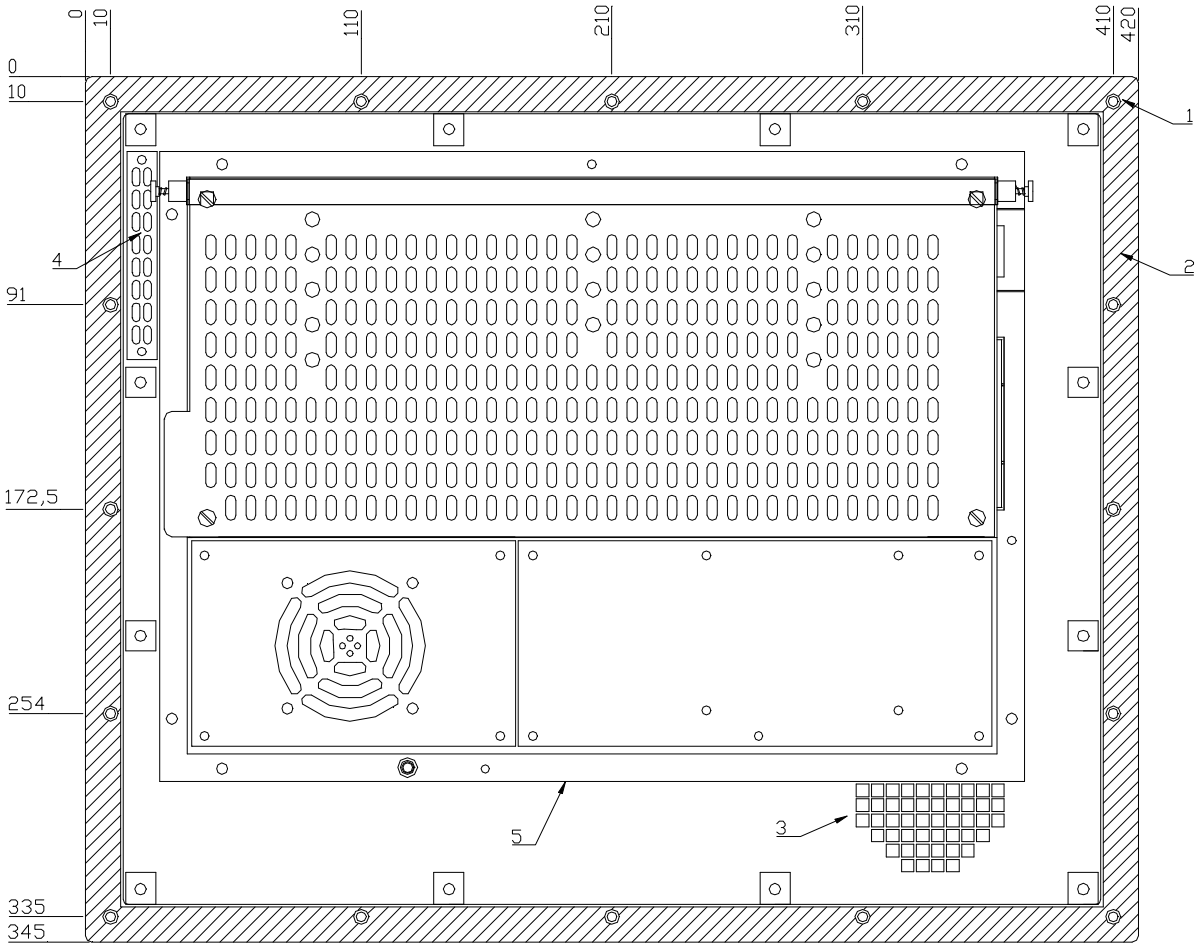
11.1 Outside View

Front



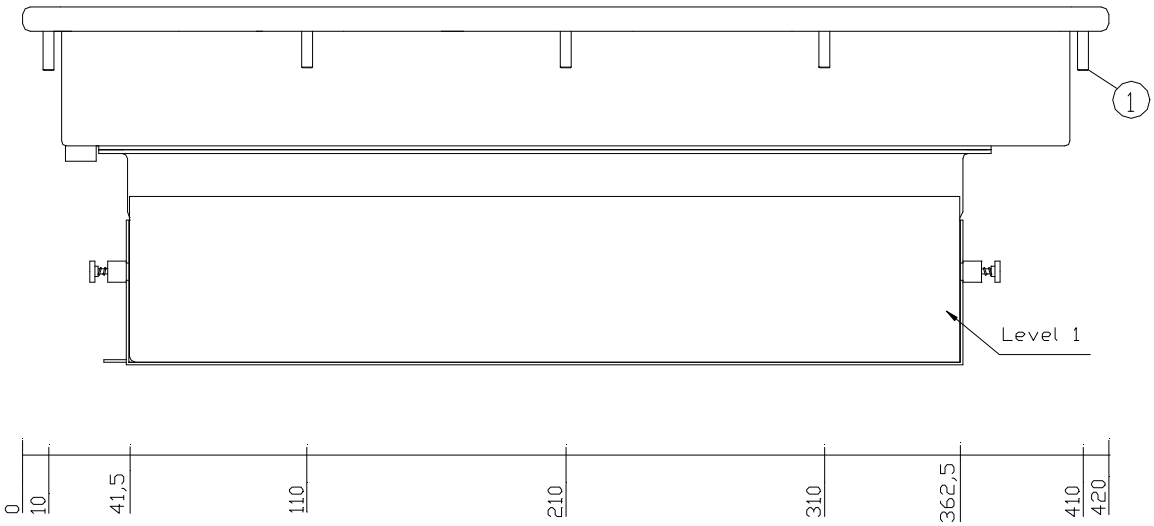
Display	:	4 mm protective safety glass
Keyboard	:	Active tactile feed-back (metal domes) Membrane recessed into stainless steel front
Pad Mouse	:	Pressure sensitive

Back



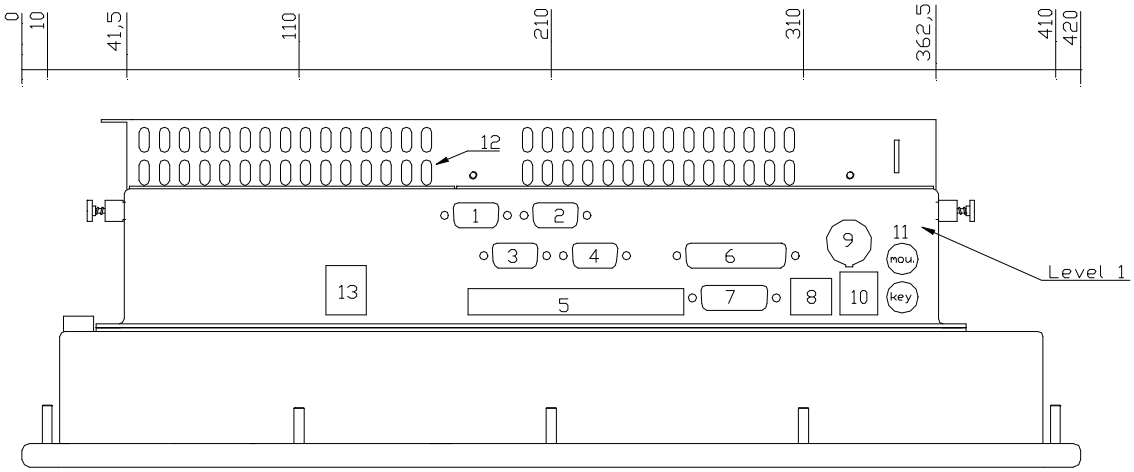
1	:	M4 x 16 mm threaded studs
2	:	Gasket
3	:	Fan (air output)
4	:	Grid (air input)
5	:	Level 1

Top



1 : M4 x 16 mm threaded studs

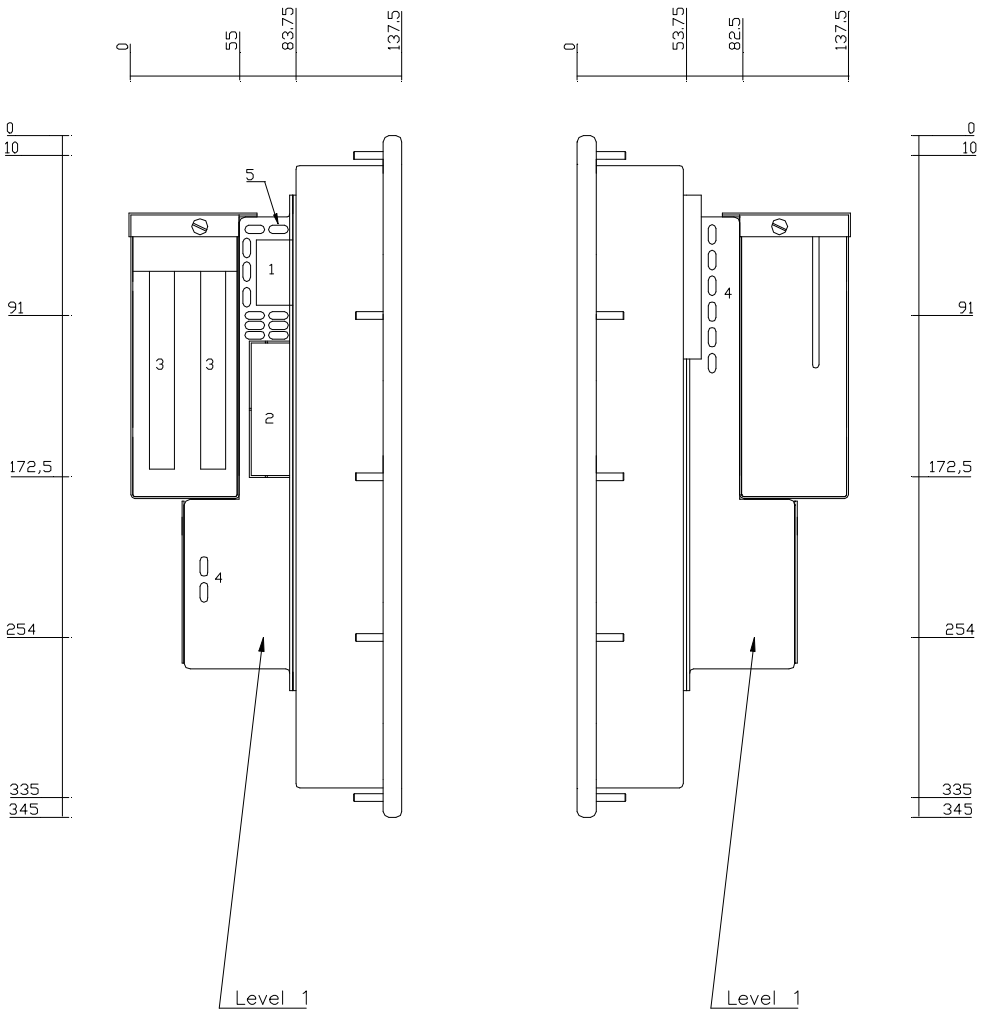
Bottom



1	:	RS485/RS422 - port 1	D-Sub 9p female (optional)
2	:	RS232 - port 1	D-Sub 9p male
3	:	RS485/RS422 - port 2	D-Sub 9p female (optional)
4	:	RS232 - port 2	D-Sub 9p male
5	:	CD power / CD Rom	4 pol power / IDC40
6	:	Printer port	D-Sub 25p female
7	:	Floppy port	HD-Sub 26p male
8	:	Ethernet port	RJ45
9	:	PCI6000 Keyboard port	8pin threaded DIN female
10	:	USB port	USB std. connector
11	:	PS/2 KBD/Mouse port	6p mini DIN
12	:	Ventilation holes	
13	:	Mains terminal block	3p screw terminal

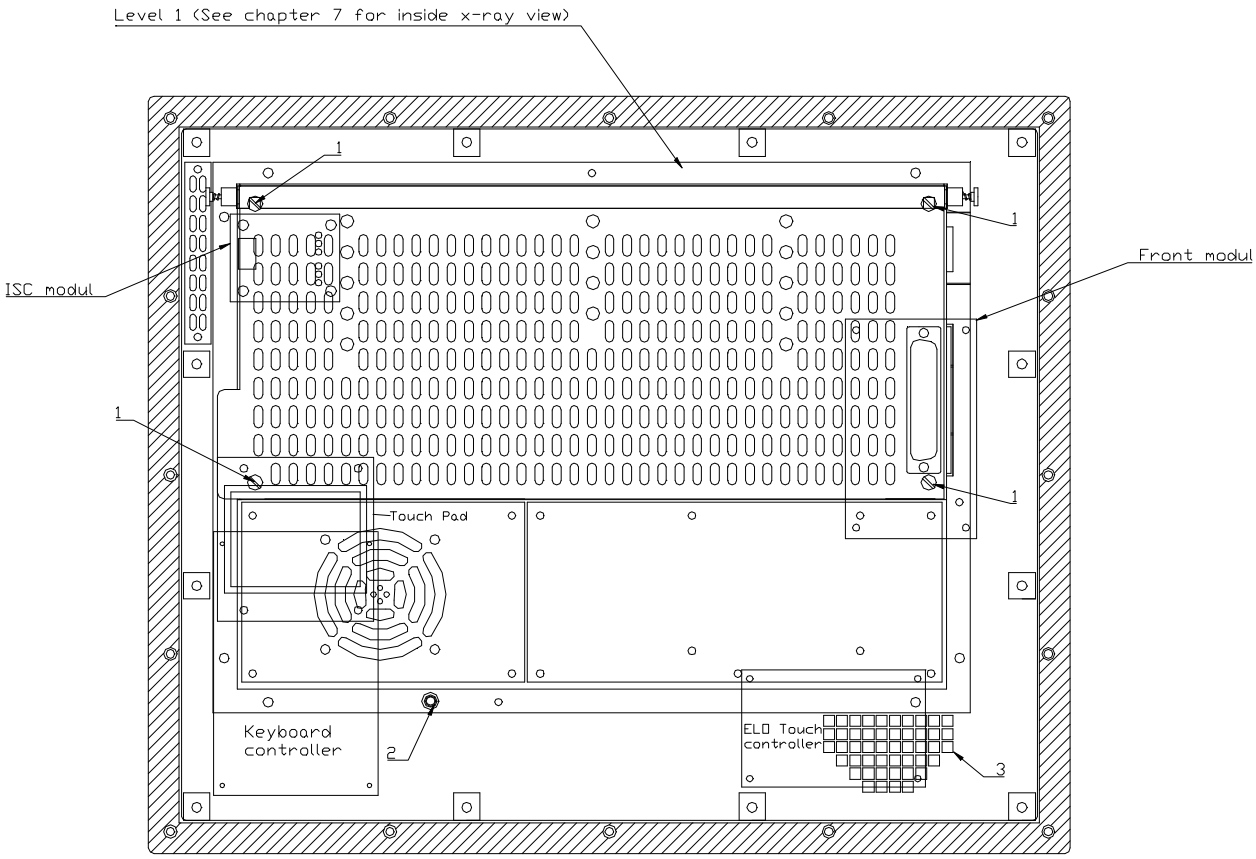
Detailed pin-out in chapter 27.

Left and Right



1	:	CRT connector
2	:	Front connector
3	:	Holes for PCI/ISA card brackets
4	:	Ventilation holes (air input)

11.2 Inside X-ray View



1	:	Accessory card retainers
2	:	Mains cable strain relief
3	:	Fan

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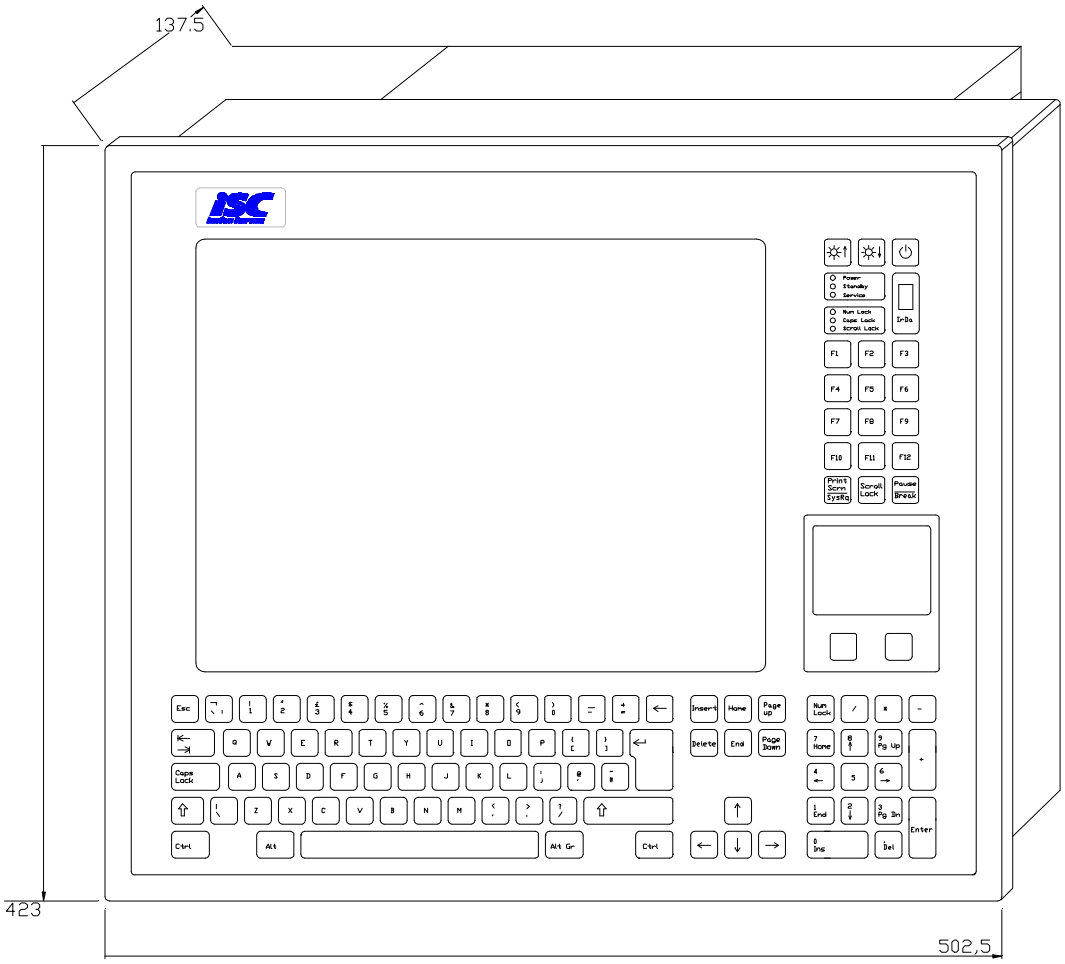
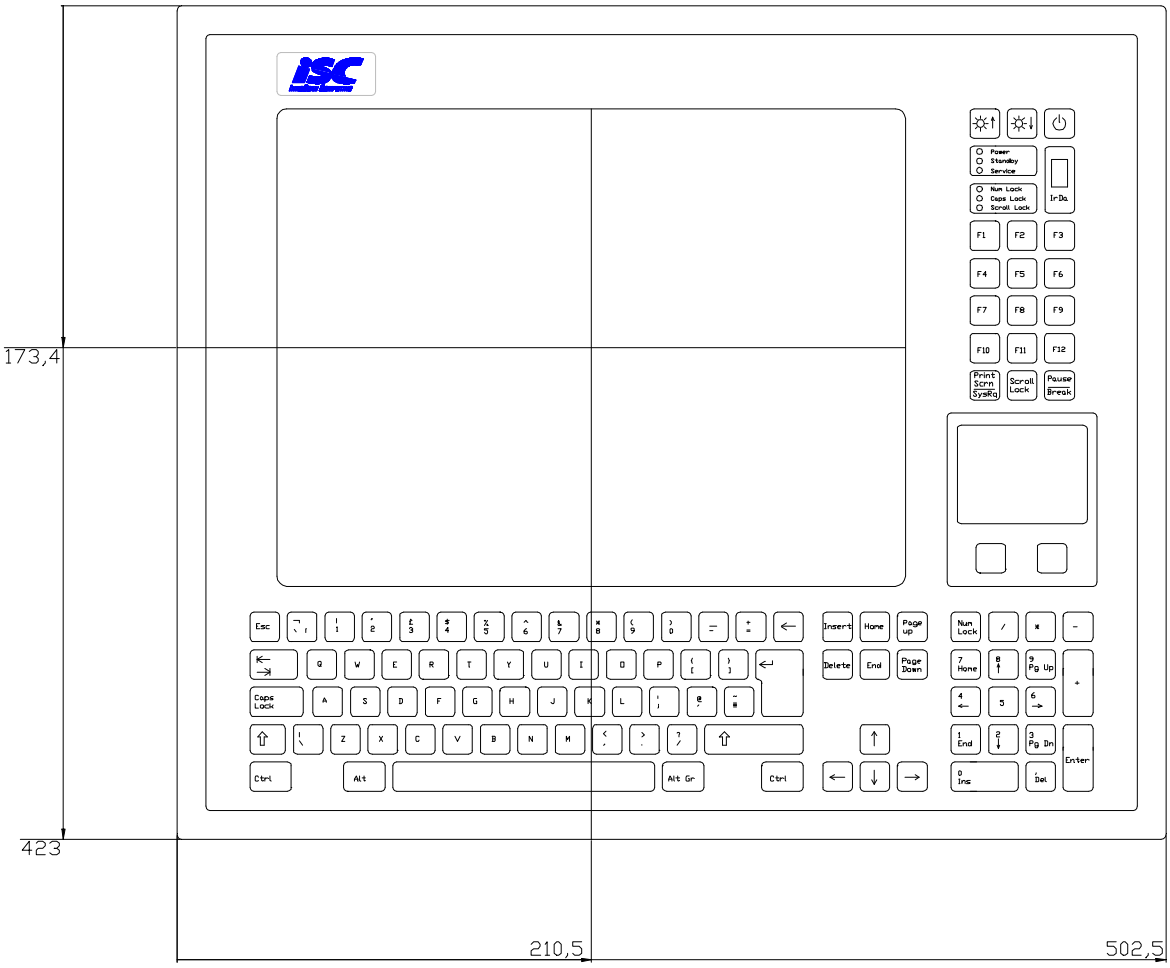
Chapter 12 Level 3D 15”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed EMC shield on the back, anodized steel
Protection	:	IP65, NEMA 4/12 (front)
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Keyboard	:	Integrated sealed/membrane keyboard
Mouse	:	Integrated sealed pad mouse
Options	:	Touch screen
Weight	:	12 kg.

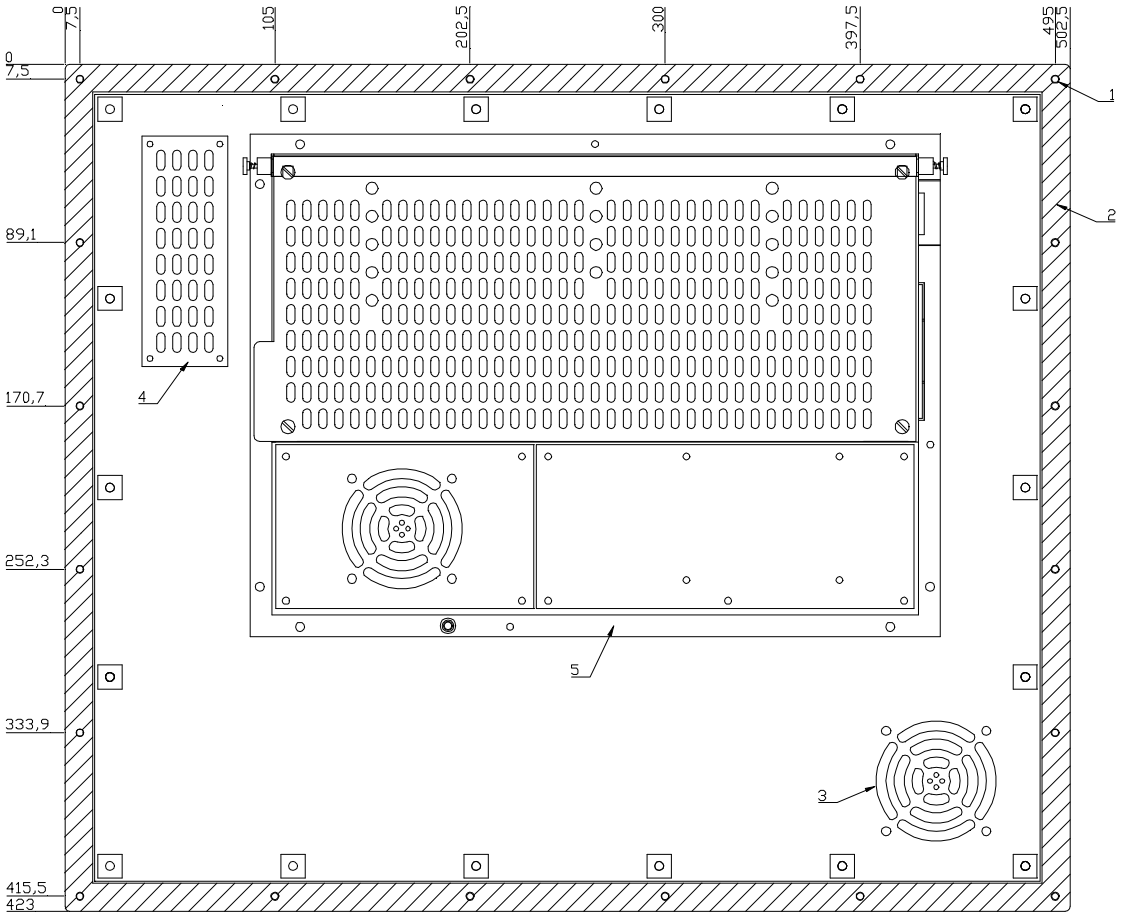
12.1 Outside View

Front



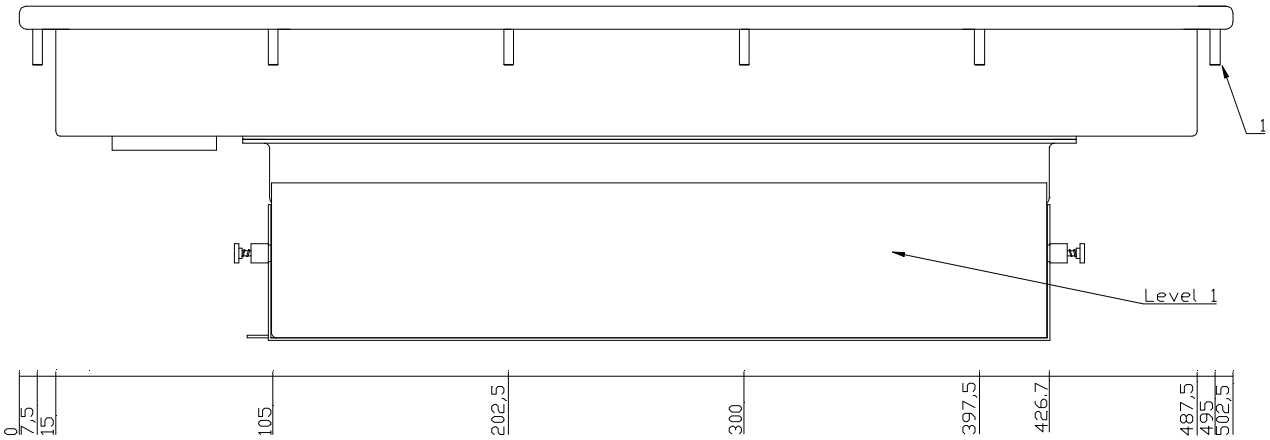
Display	:	4 mm protective safety glass
Keyboard	:	Active tactile feed-back (metal domes) Membrane recessed into stainless steel front
Pad Mouse	:	Pressure sensitive

Back



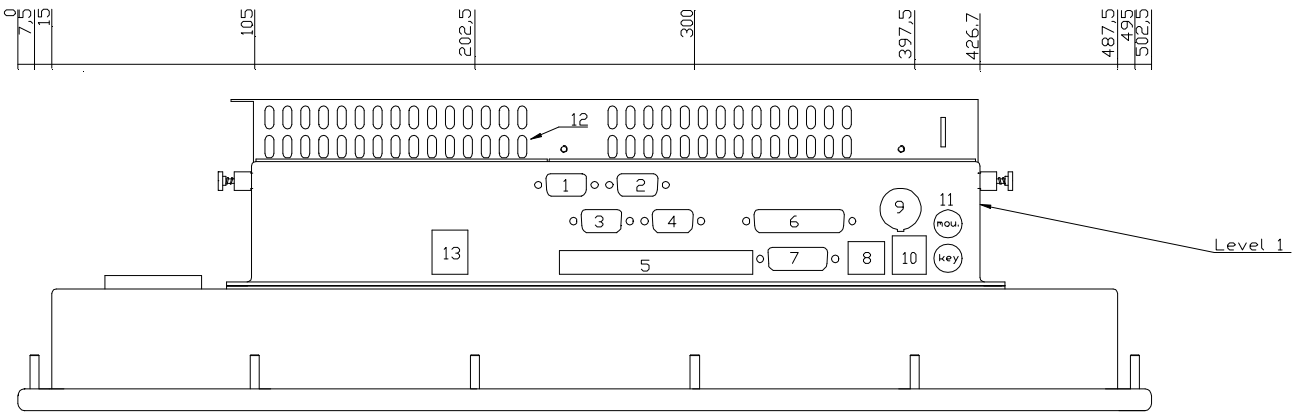
1	:	M4 x 16 mm threaded studs
2	:	Gasket
3	:	Fan (air output)
4	:	Fan Grid (air input)
5	:	Level 1

Top



1 : M4 x 16 mm threaded studs

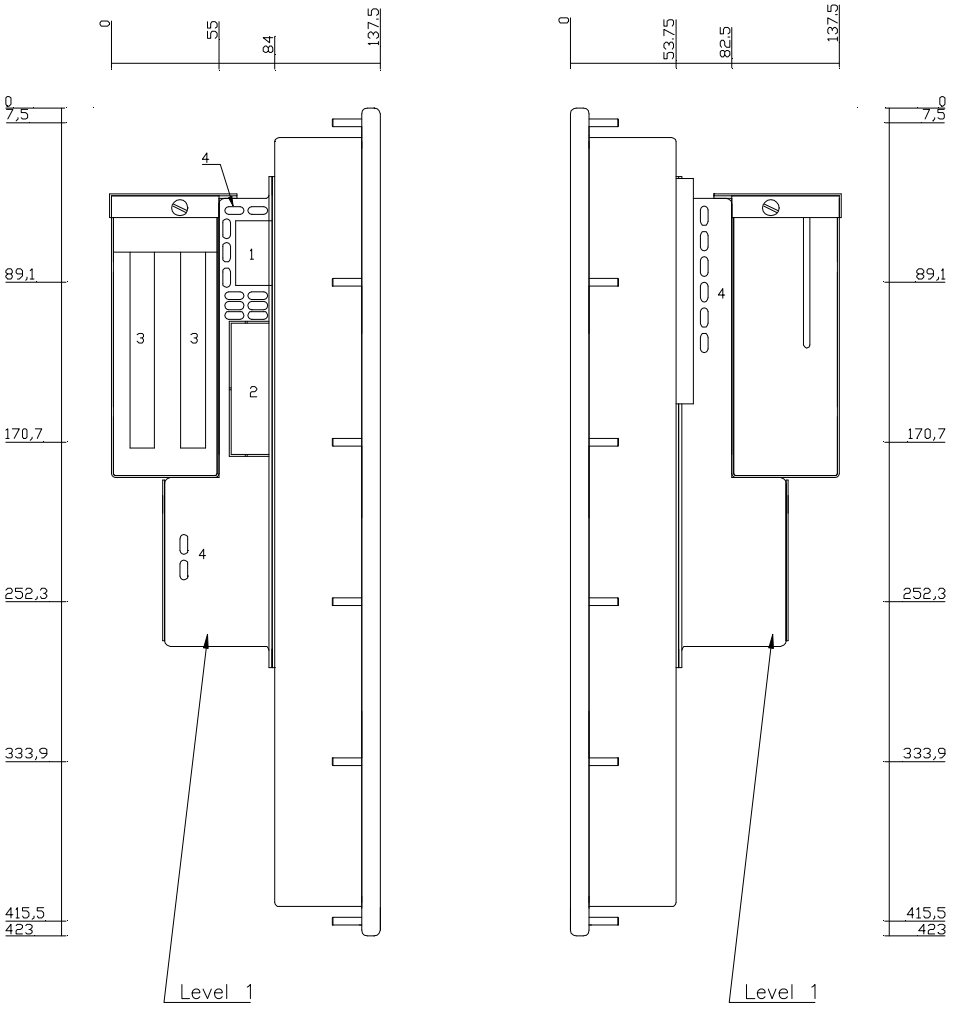
Bottom



1	:	RS485/RS422 - port 1	D-Sub 9p female (optional)
2	:	RS232 - port 1	D-Sub 9p male
3	:	RS485/RS422 - port 2	D-Sub 9p female (optional)
4	:	RS232 - port 2	D-Sub 9p male
5	:	CD power / CD Rom	4 pol power / IDC40
6	:	Printer port	D-Sub 25p female
7	:	Floppy port	HD-Sub 26p male
8	:	Ethernet port	RJ45
9	:	PCI6000 Keyboard port	8pin threaded DIN female
10	:	USB port	USB std. connector
11	:	PS/2 KBD/Mouse port	6p mini DIN
12	:	Ventilation holes	
13	:	Mains terminal block	3p screw terminal

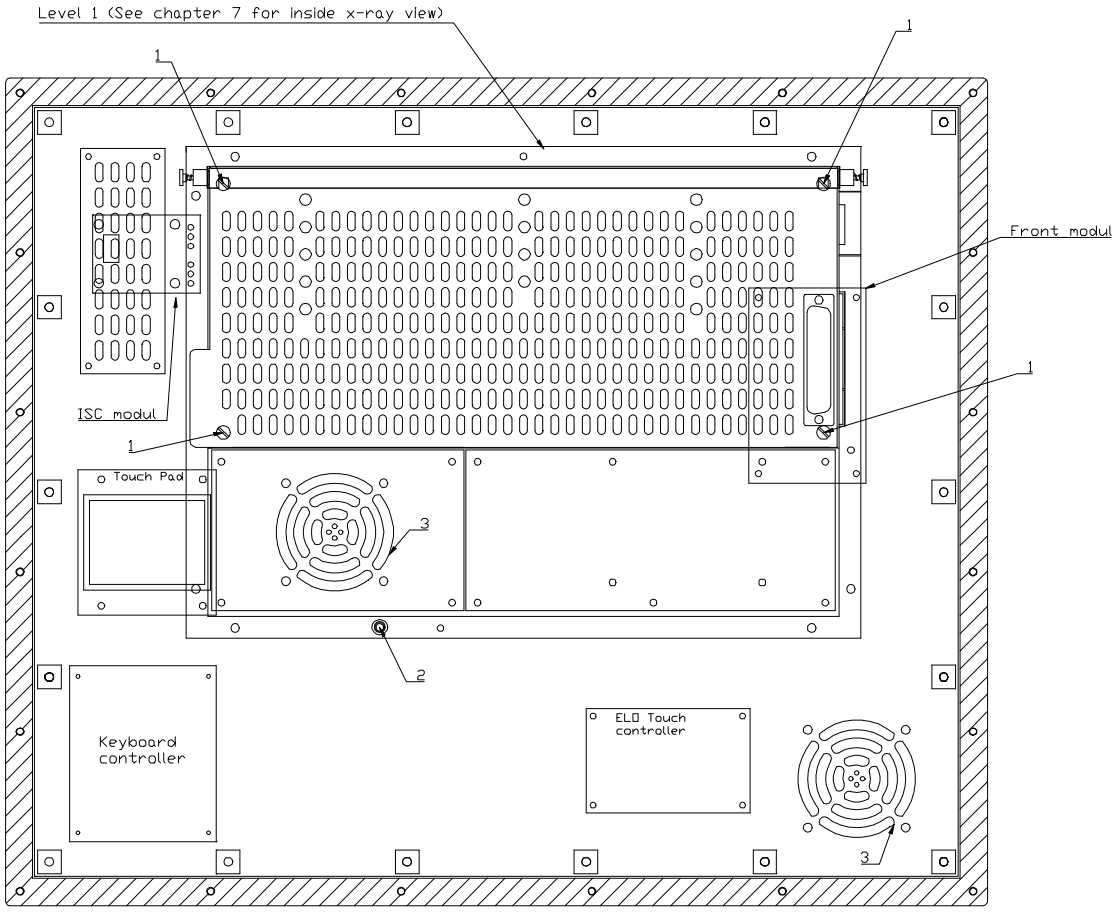
Detailed pin-out in chapter 27.

Left and Right



1	:	CRT connector
2	:	Front connector
3	:	Holes for PCI/ISA card brackets
4	:	Ventilation holes (air input)

12.2 Inside X-ray View



1	:	Accessory card retainers
2	:	Mains cable strain relief
3	:	Fan

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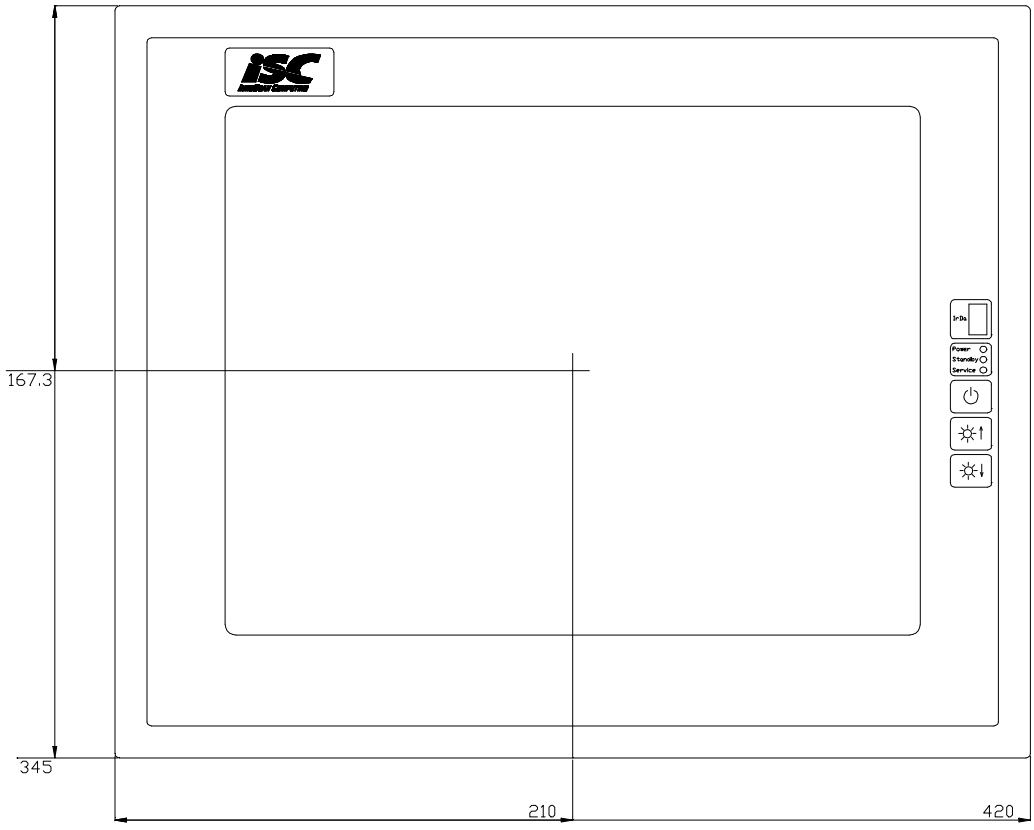
Chapter 13 Level 3A 15”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed EMC shield on the back, anodized steel
Protection	:	IP65, NEMA 4/12 (front)
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Options	:	Touch screen (resistive)
Weight	:	12 kg.

All other details according to chapter 11 Level 3D 12”.

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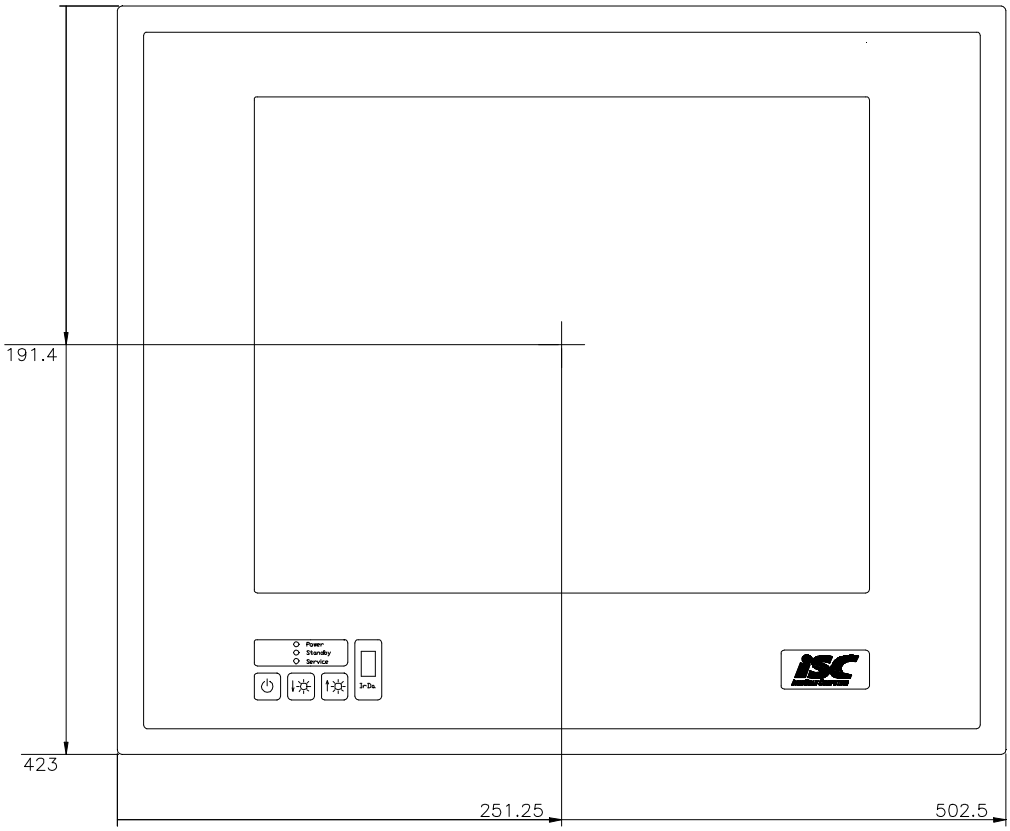
Chapter 14 Level 3A 17”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed EMC shield on the back, anodized steel
Protection	:	IP65, NEMA 4/12 (front)
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Options	:	Touch screen (resistive)
Weight	:	13 kg.

All other details according to chapter 12 Level 3D 15”.

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Chapter 15 Mounting of a Level 3

When mounting a level 3 into a panel or a rack please observe the following:

15.1 Space Behind the Computer

A complete description of all the different positions and ways a level 3 could be mounted into a panel, is of course not possible. By mounting in general it is very important that the back of the PC is given a minimum amount of space as the PC produces heat. From the technical specifications you will know that the level 3 ambient temperature is specified. This temperature may not be exceeded.

If you have a chance of providing a natural airflow through the inside area of the panel it will help you to keep the internal temperature down. If you want an even better airflow you may consider to mount a fan improving the natural airflow.

If you install additional equipment that generates heat inside the panel please observe the total accumulation of heat as it may then demand additional space to keep internal temperature down. It is always worth while to care about the temperature even if it is not near the critical point as electronics in general will live longer if not stressed by high temperatures.

When mounting please also observe the following:

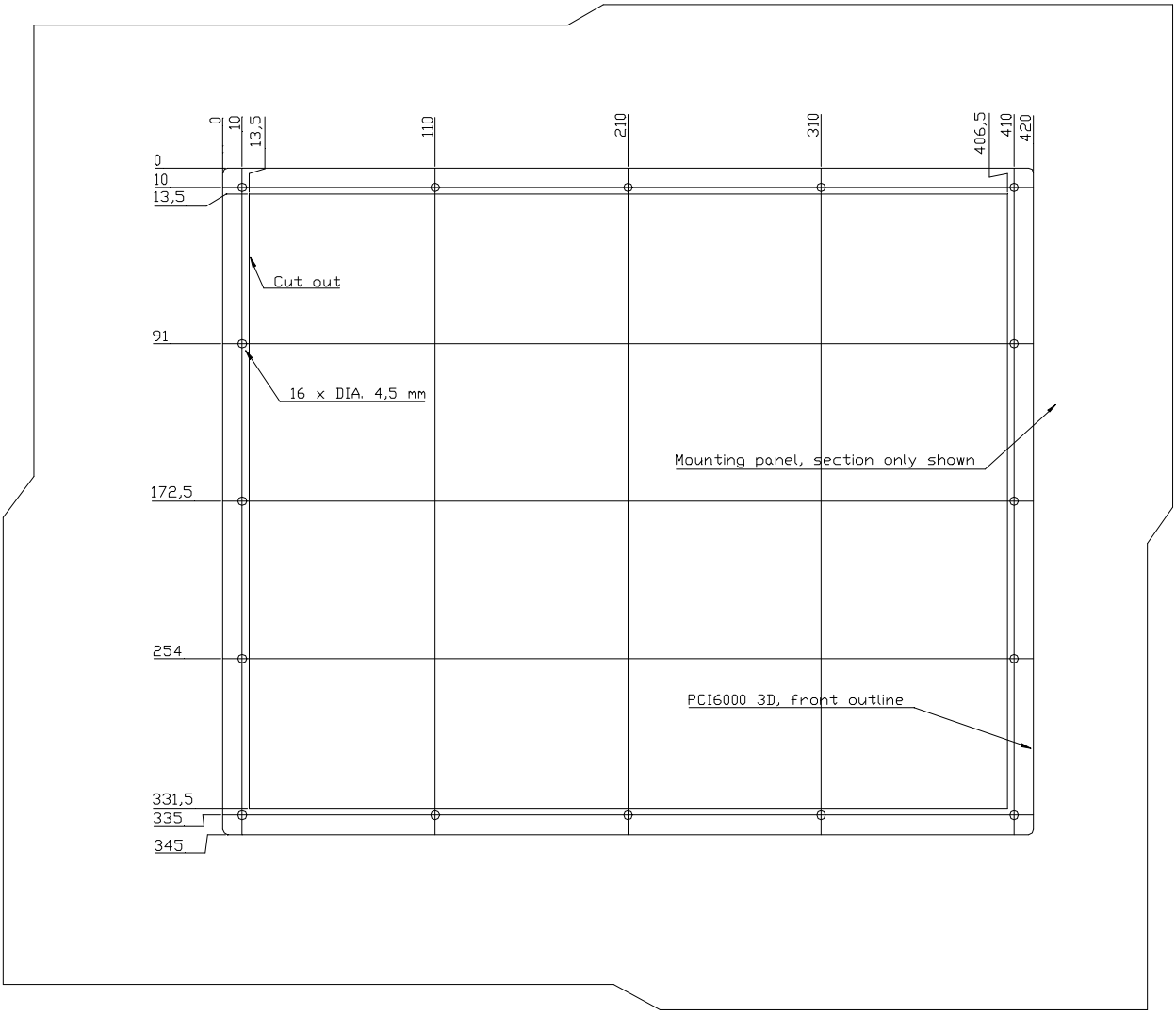
* Make sure that the surface of your panel is uniform and even

* Screw torque tightening: Max 0.08 kpm

* Make sure that there is electrical connection between all the screws in the PC front and your panel

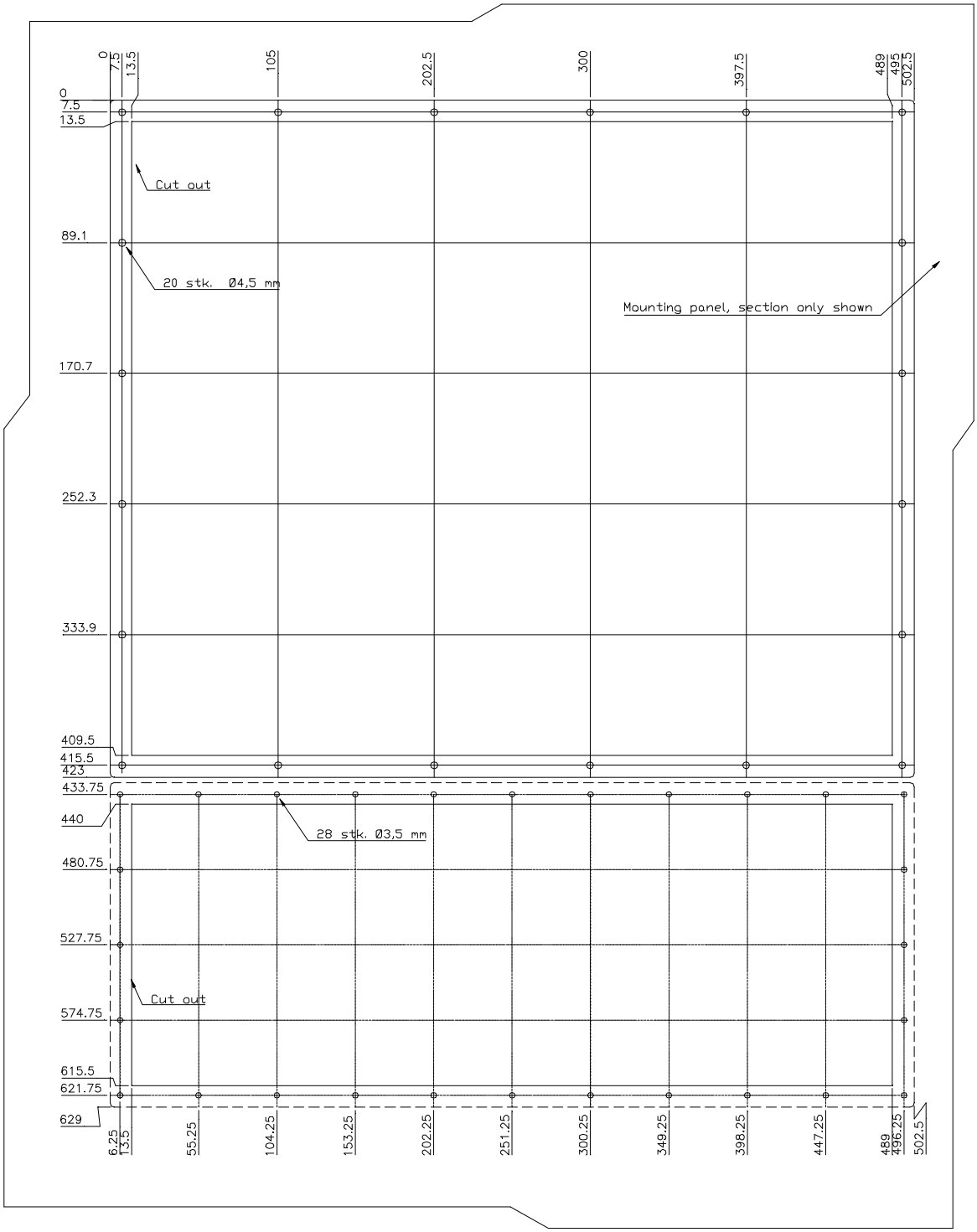
15.2 Cut-out for a Level 3 in a Panel

Fits : Level 3D 12”
Level 3A 15”



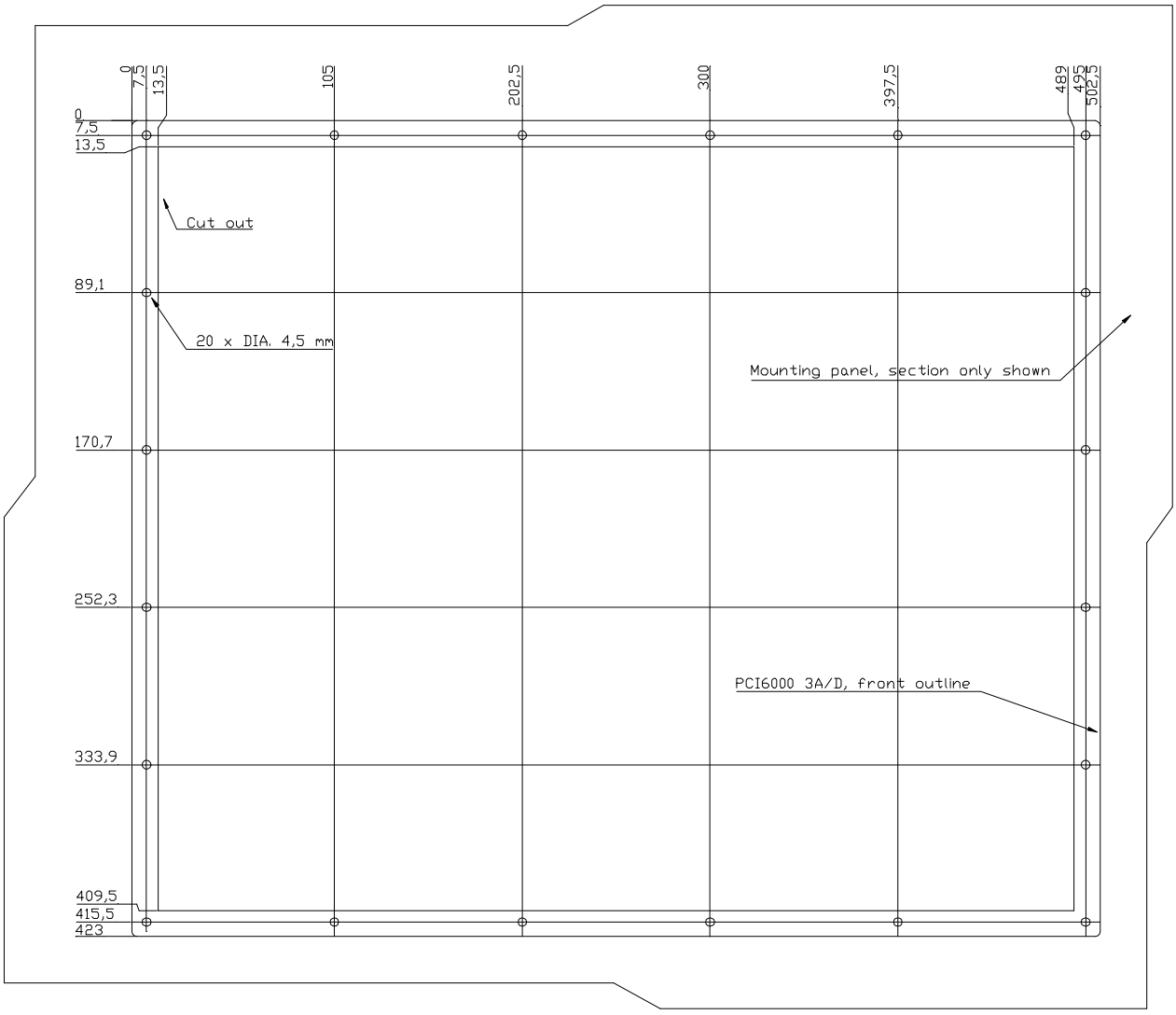
15.3 Cut-out for a Level 3 with Keyboard in a Panel

Fits : Level 3D 15” with external keyboard
Level 3A 17” with external keyboard



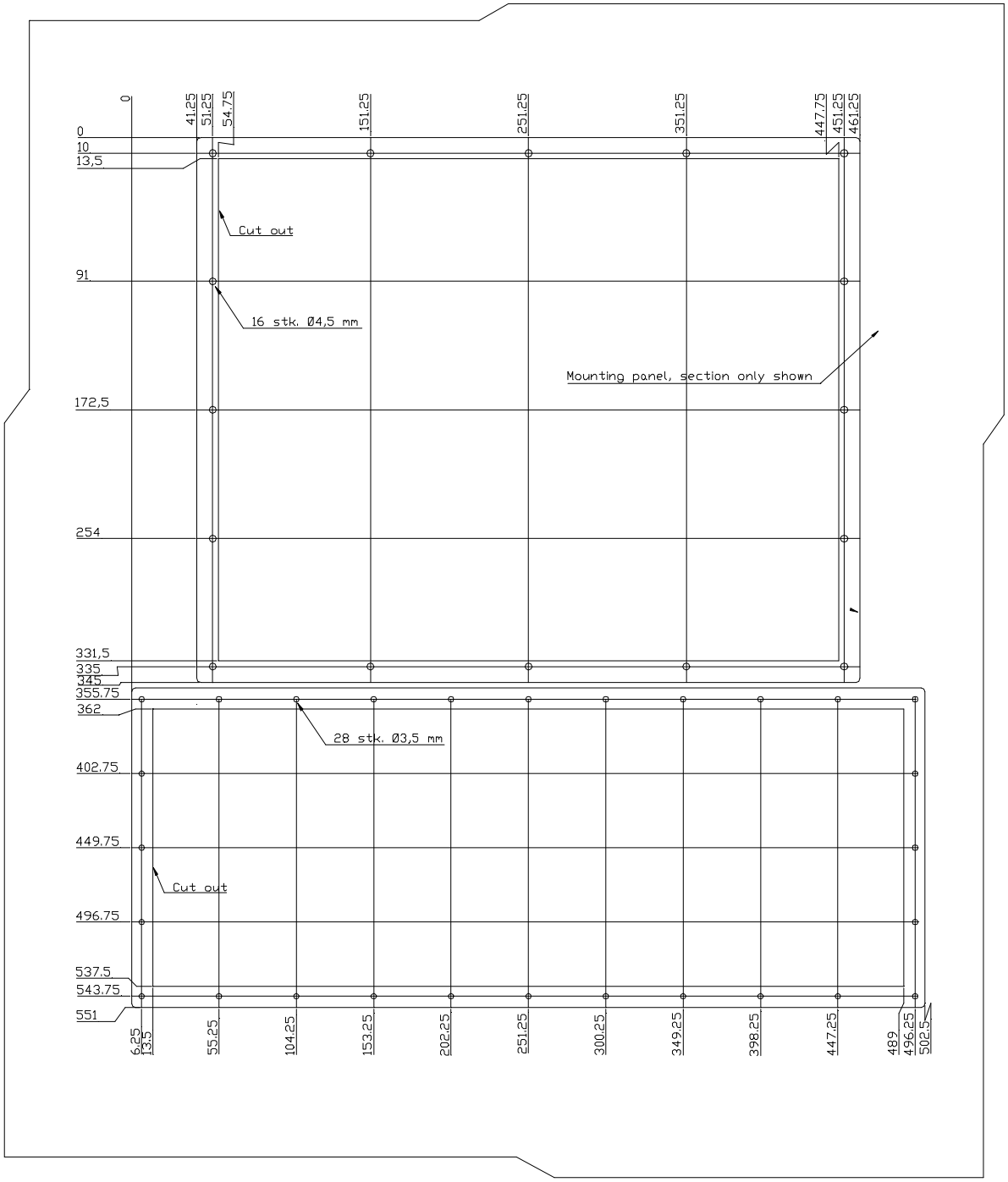
15.4 Cut-out for a Level 3 in a Panel

Fits : Level 3D 15”
Level 3A 17”



15.5 Cut-out for a Level 3 with Keyboard in a Panel

Fits : Level 3D 12” with external keyboard
Level 3A 15” with external keyboard



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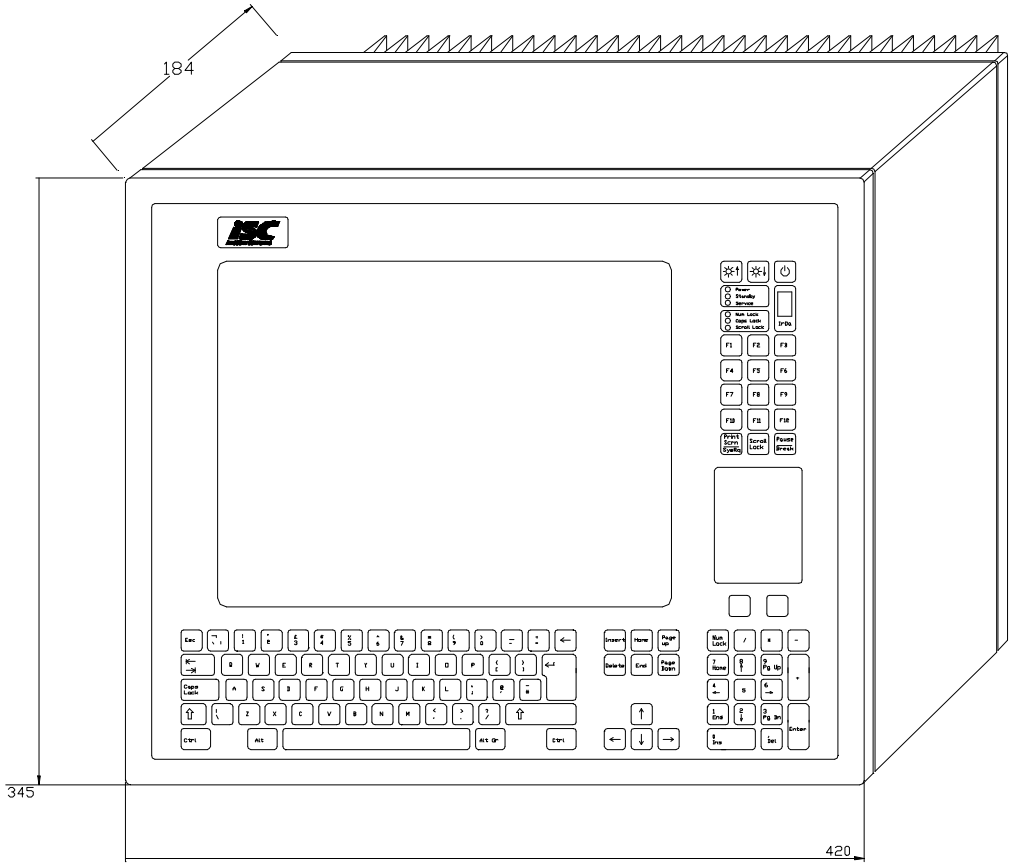
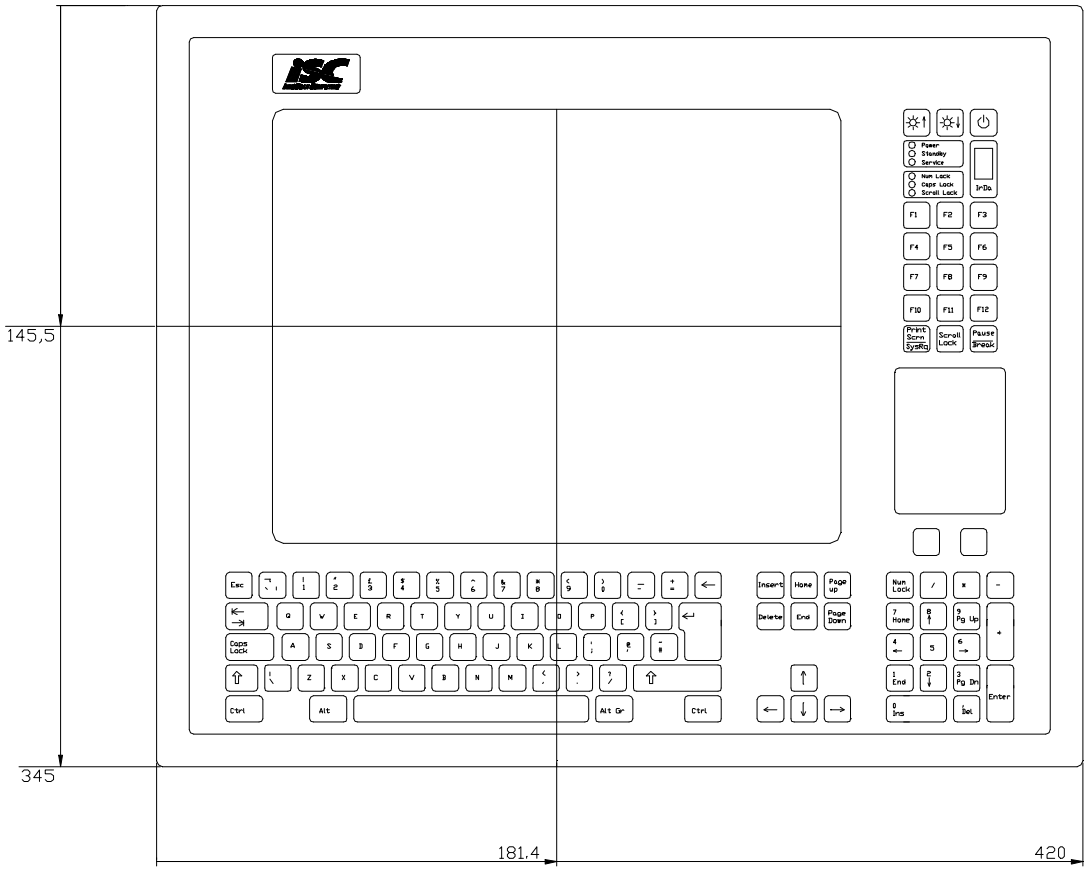
Chapter 16 Level 4D 12”



Outer Materials	:	Stainless steel ASI 304 Laminated safety glass, anti-glare etched Polyester, reverse printed Heat sink, extruded anodized aluminium
Protection	:	IP65 / NEMA 4/12
Internal Cooling	:	Forced convection supported by 2 internal fans and an integrated heat sink
Expansion Slots	:	1 PCI/ISA and 1 ISA
Keyboard	:	Integrated sealed/membrane keyboard
Mouse	:	Integrated sealed pad mouse
Options	:	Touch screen
Weight	:	18 kg.

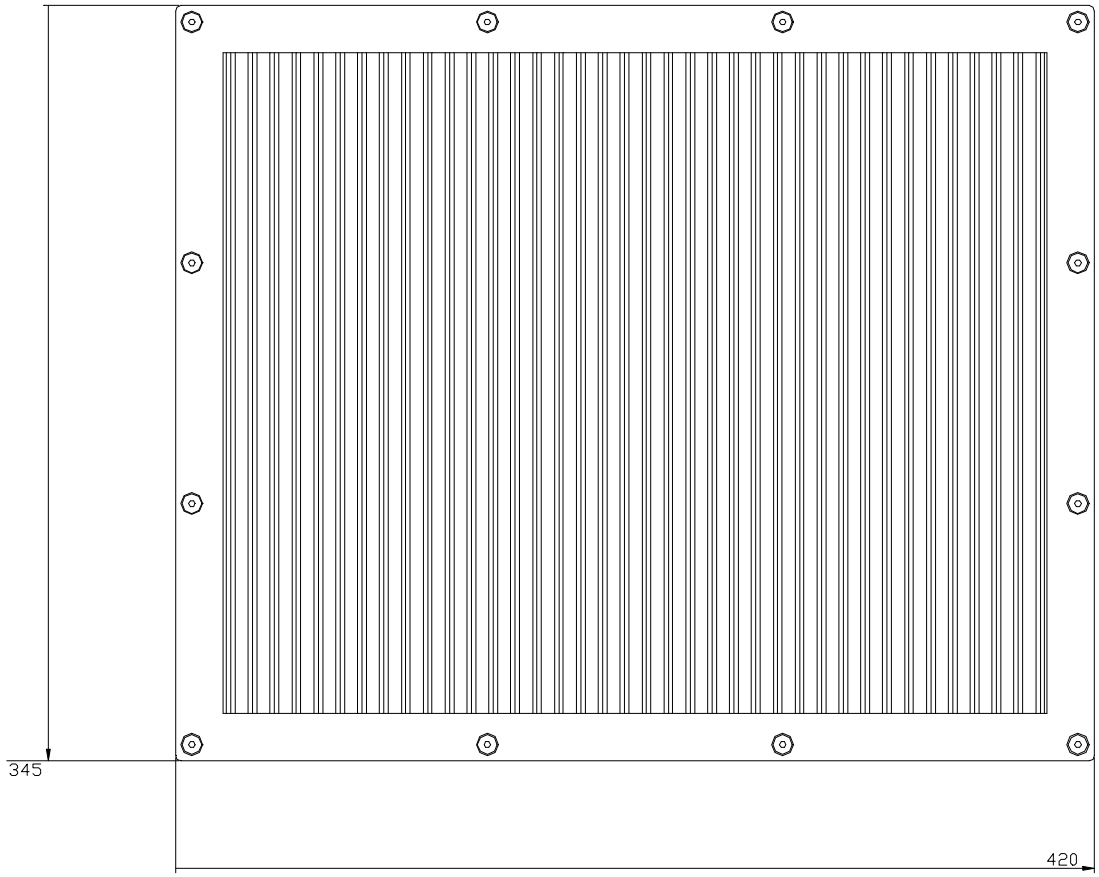
16.1 Outside View

Front



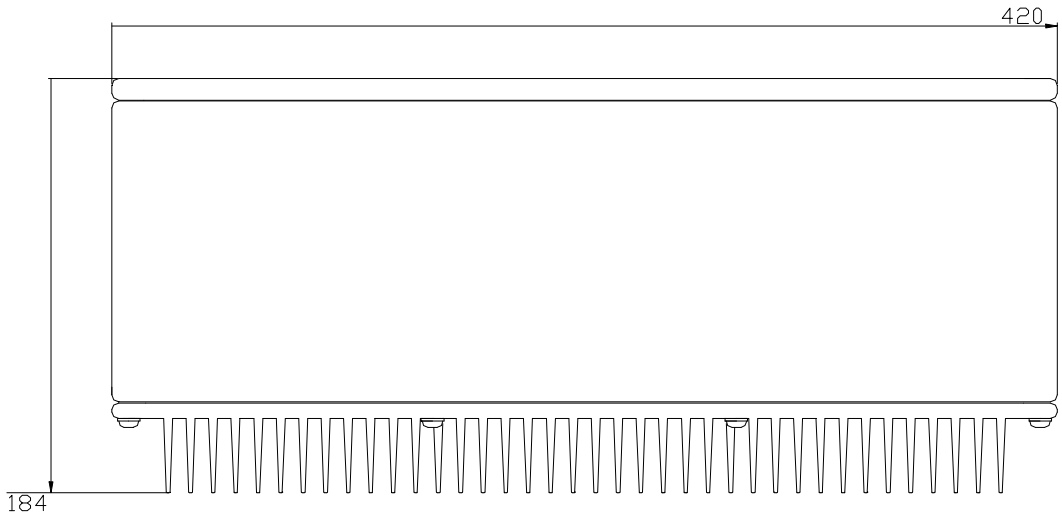
Display	:	4 mm protective front glass
Keyboard	:	Active tactile feed-back (metal domes) Membrane recessed into stainless steel front
Pad Mouse	:	Pressure sensitive

Back

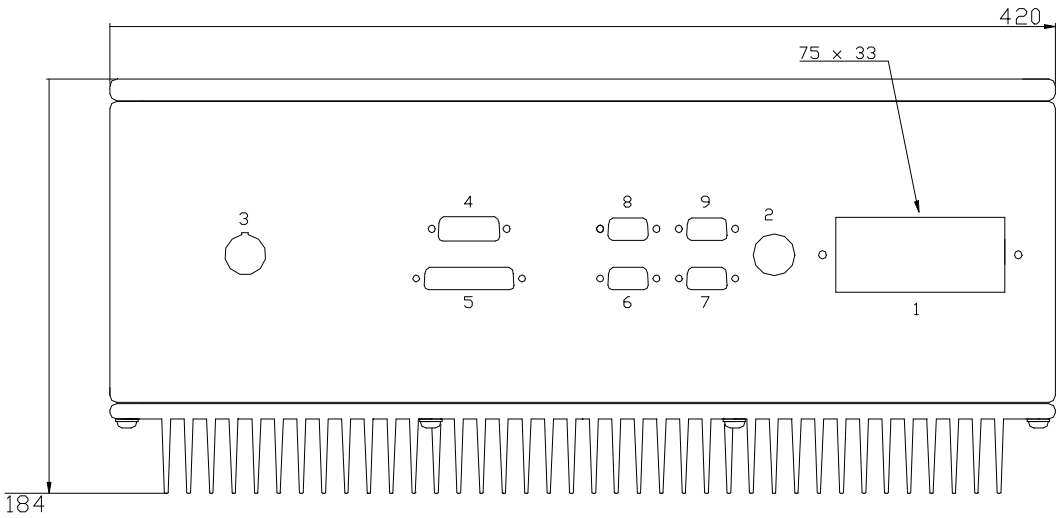


Heat Sink : Extruded anodized aluminium

Top



Bottom

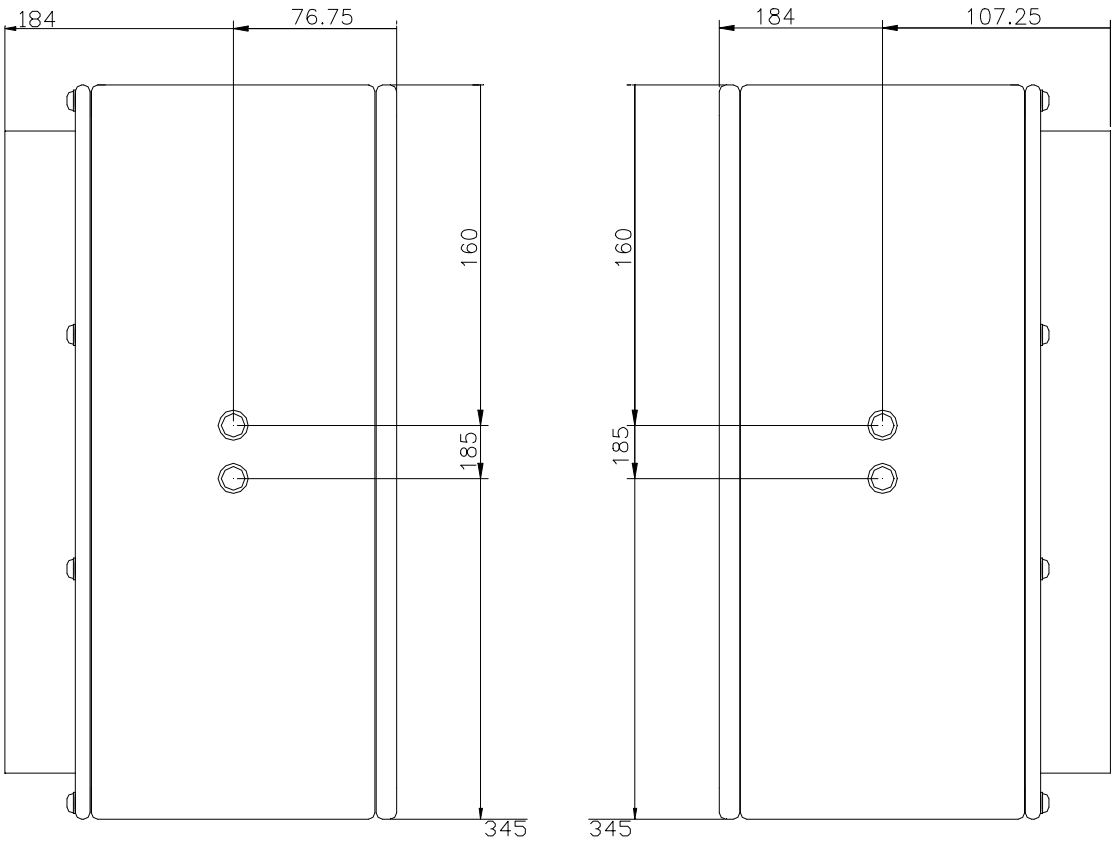


1	:	Cover for user defined connectors	
2	:	Mains input cable gland	IP65 PG11
3	:	Keyboard/Mouse port	IP65 8pin threaded DIN female
4	:	Floppy port	IP65 HD-Sub 26p female
5	:	Printer port	IP65 D-Sub 25p female
6	:	RS232 port 1	IP65 D-Sub 9p male
7	:	RS485 port 1	IP65 D-Sub 9p female (optional)
8	:	RS232 port 2	IP65 D-Sub 9p male
9	:	RS485 port 2	IP65 D-Sub 9p female (optional)

For other connectors or add-in cards the utility plate should be used for wall duct.

Detailed pin-out in chapter 27.

Left and Right



Mounting : M8 x 18 mm threaded bushings

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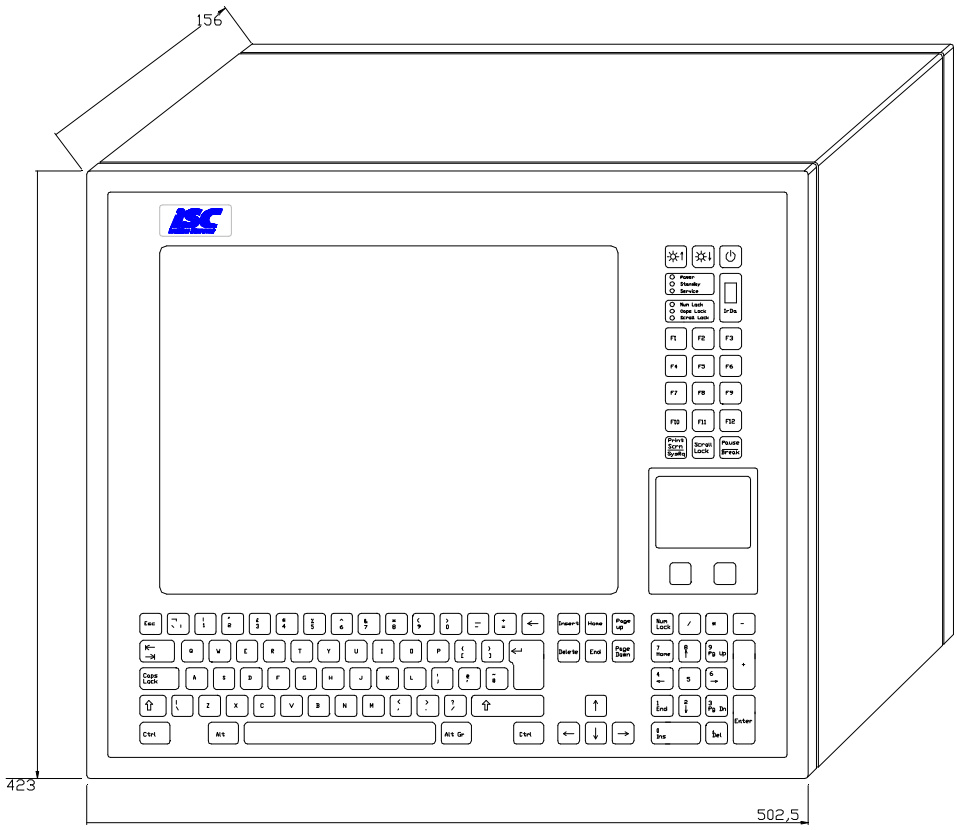
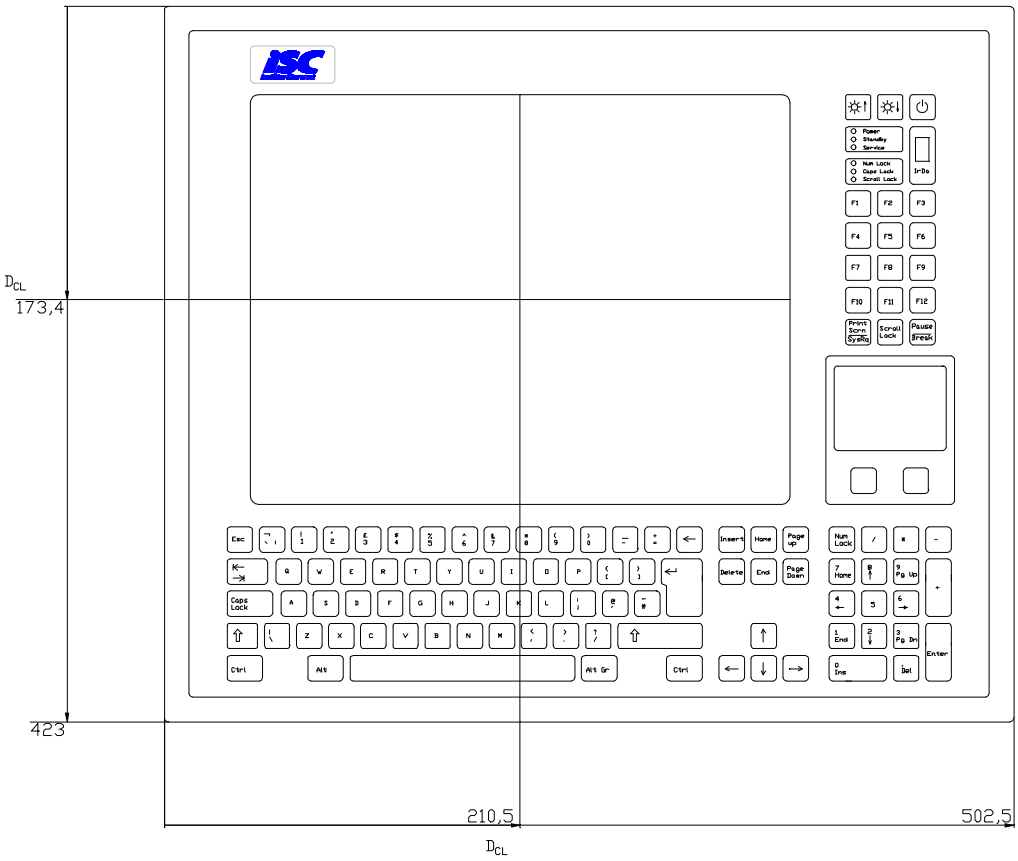
Chapter 17 Level 4D 15”



Outer Materials	:	Stainless steel ASI 304 Laminated safety glass, anti-glare etched Polyester, reverse printed Heat sink, extruded anodized aluminium
Protection	:	IP65 / NEMA 4/12
Internal Cooling	:	Forced convection supported by 2 internal fans and an integrated heat sink
Expansion Slots	:	1 PCI/ISA and 1 ISA
Keyboard	:	Integrated sealed/membrane keyboard
Mouse	:	Integrated sealed pad mouse
Options	:	Touch screen
Weight	:	24 kg.

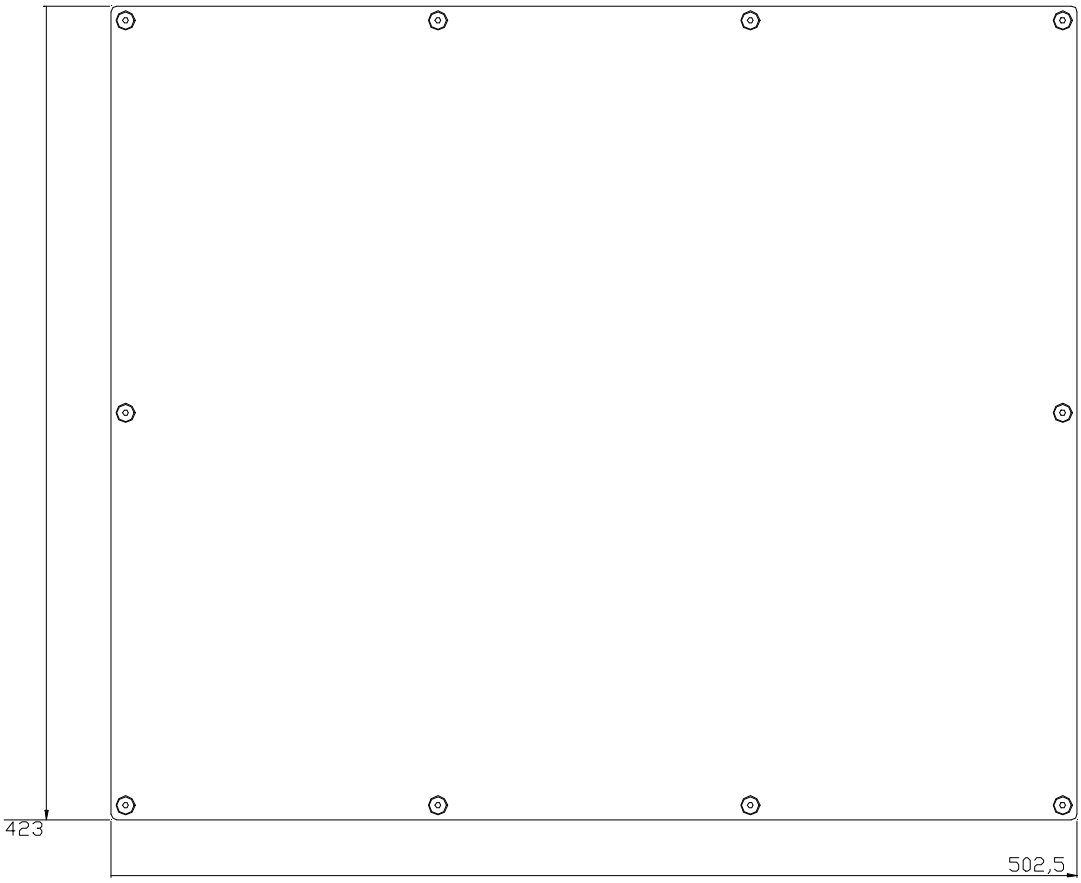
17.1 Outside View

Front



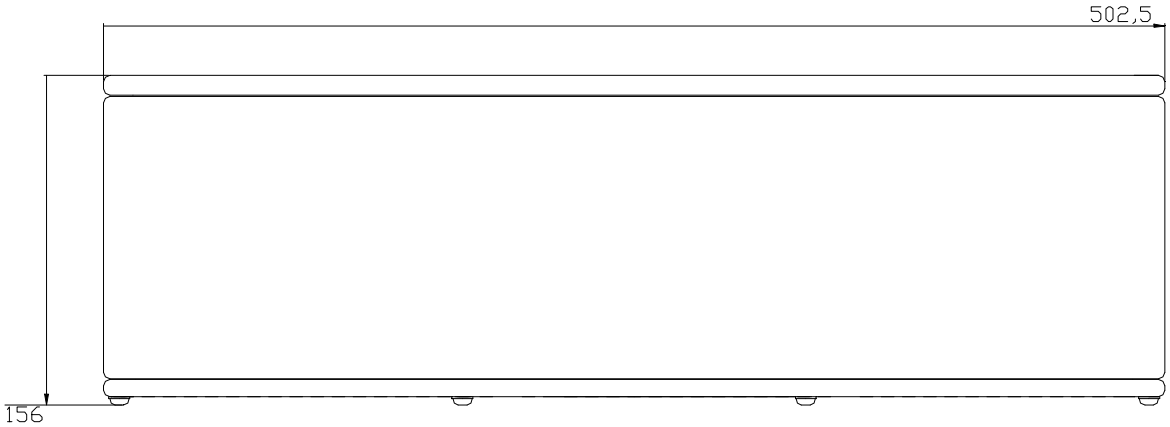
Display	:	4 mm protective front glass
Keyboard	:	Active tactile feed-back (metal domes) Membrane recessed into stainless steel front
Pad Mouse	:	Pressure sensitive

Back

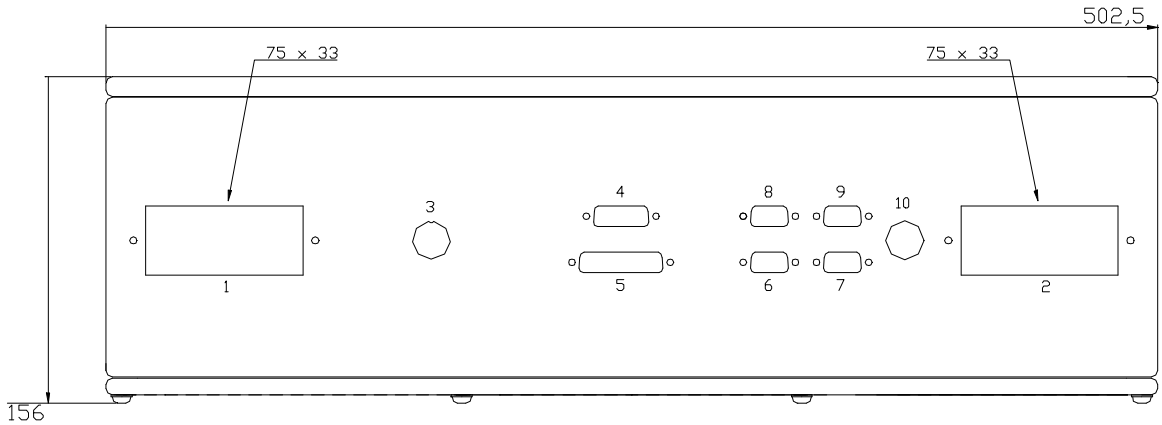


Heat Sink : Extruded anodized aluminium

Top



Bottom

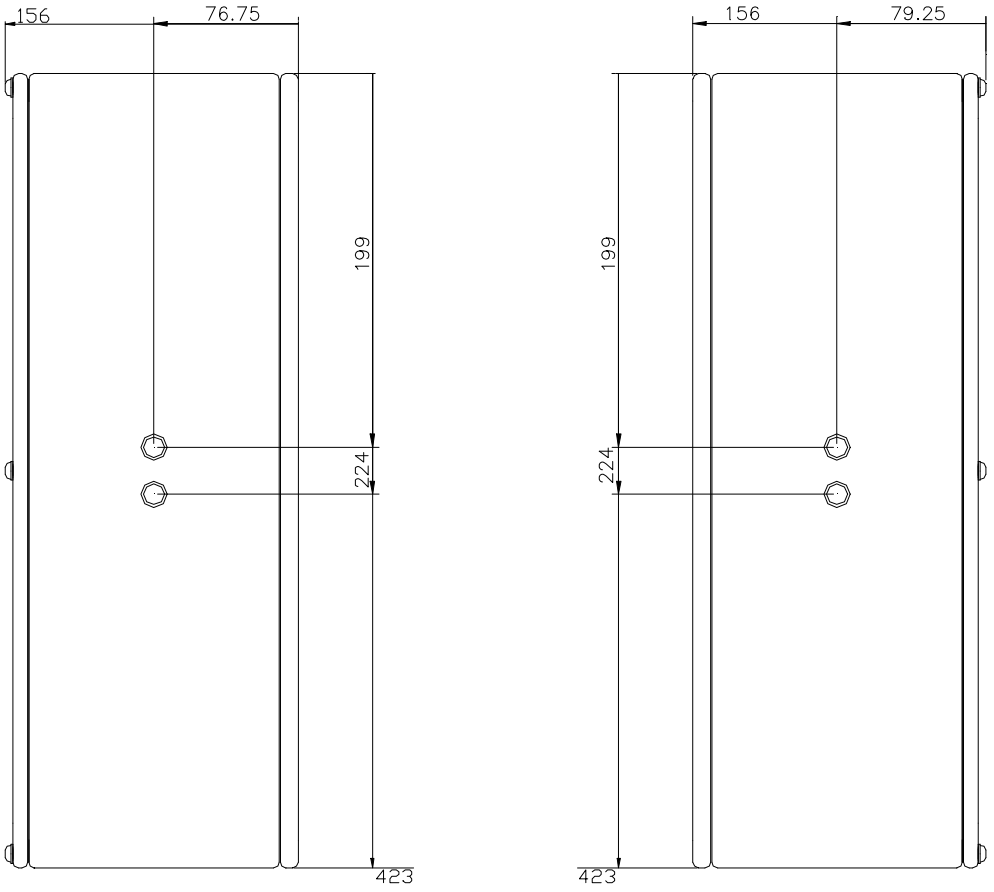


1,2	:	Cover for user defined connectors	
3	:	Keyboard/Mouse port	8-pin threaded DIN female
4	:	Floppy port	HD-Sub 26p female
5	:	Printer port	D-Sub 25p female
6	:	RS232 port 1	D-Sub 9p male
7	:	RS485/RS422 port 1	D-Sub 9p female (optional)
8	:	RS232 port 2	D-Sub 9p male
9	:	RS485/RS422 port 2	D-Sub 9p female (optional)
10	:	Mains input cable gland	

For other connectors or add-in cards the utility plate should be used for wall duct.

Detailed pin-out in chapter 27.

Left and Right



Mounting : M8 x 18 mm threaded bushings

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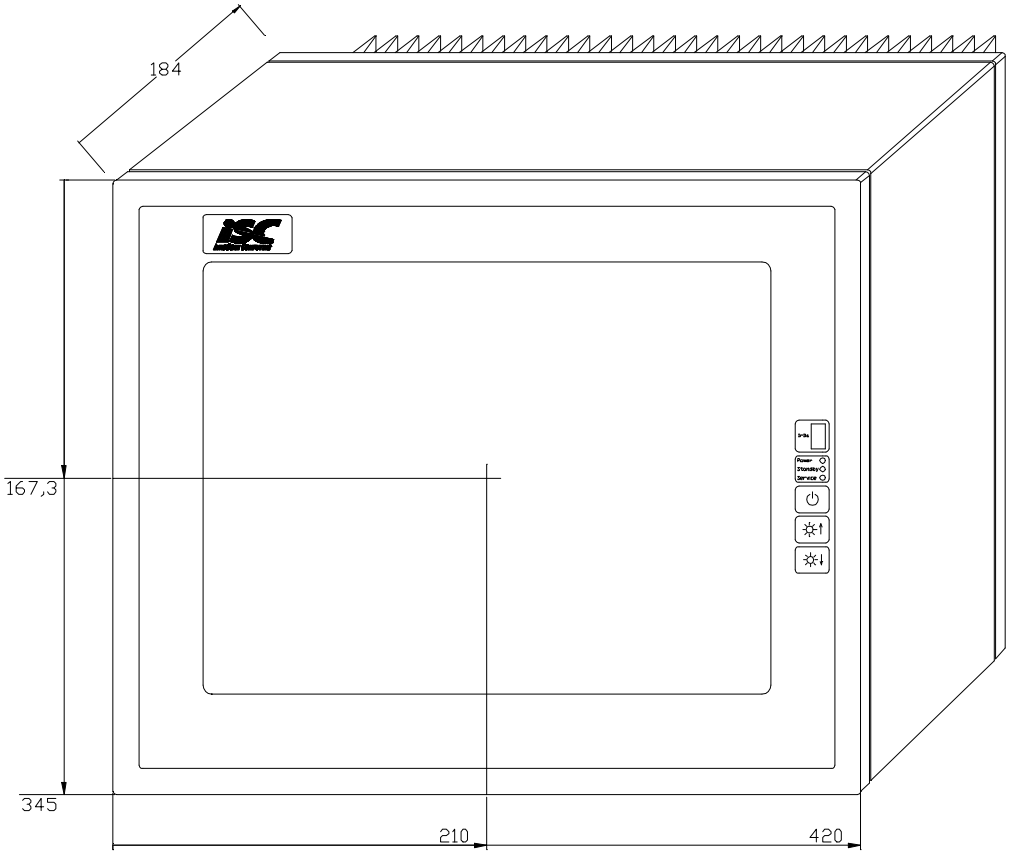
Chapter 18 Level 4A 15”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed Heat sink, extruded anodized aluminium
Protection	:	IP65, NEMA 4/12
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Options	:	Touch screen
Weight	:	24 kg.

All other details according to chapter 16 Level 4D 12”.

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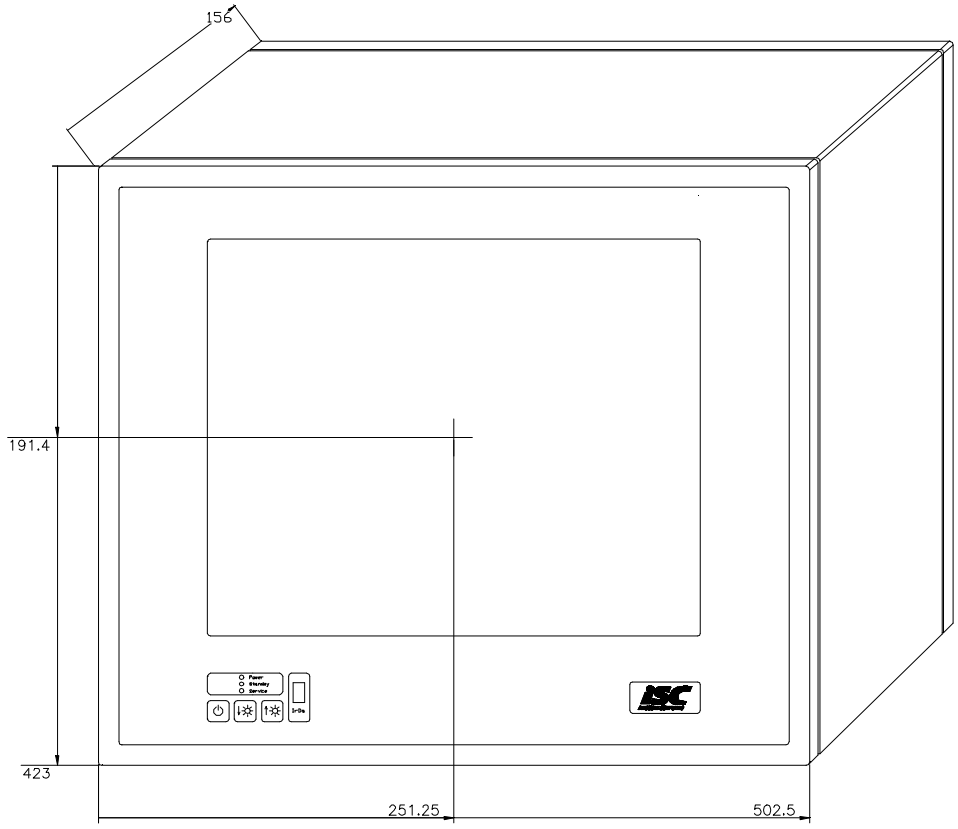
Chapter 19 Level 4A 17”



Outer Materials	:	Stainless steel ASI 316 (front) Laminated safety glass, anti-glare etched Polyester, reverse printed Heat sink, extruded anodized aluminium
Protection	:	IP65, NEMA 4/12
Internal Cooling	:	Forced convection supported by 2 internal fans
Expansion Slots	:	1 PCI/ISA and 1 ISA
Keyboard	:	Integrated sealed/membrane keyboard
Options	:	Resistive touch screen
Weight	:	25 kg.

All other details according to chapter 17 Level 4D 15”.

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Chapter 20 Mounting of a Level 4

The level 4 is prepared for mounting by two threaded bushings placed on the left and right side of the enclosure (more details on page 85). As an option you can get a stainless steel bracket for wall mounting or top mounting (see page 157 - 160).

Space Behind the Computer

The level 4 has an integrated heat sink. The heat sink on the back of the enclosure is an important part of the system. When mounting it is very important that the PC is given a minimum amount of free space to ensure the convection.

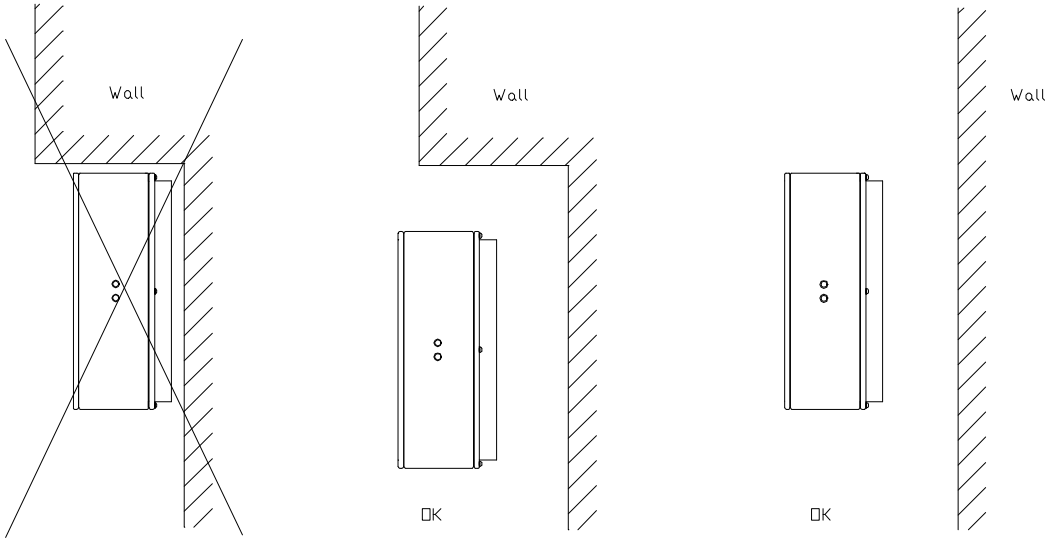

Figure 1

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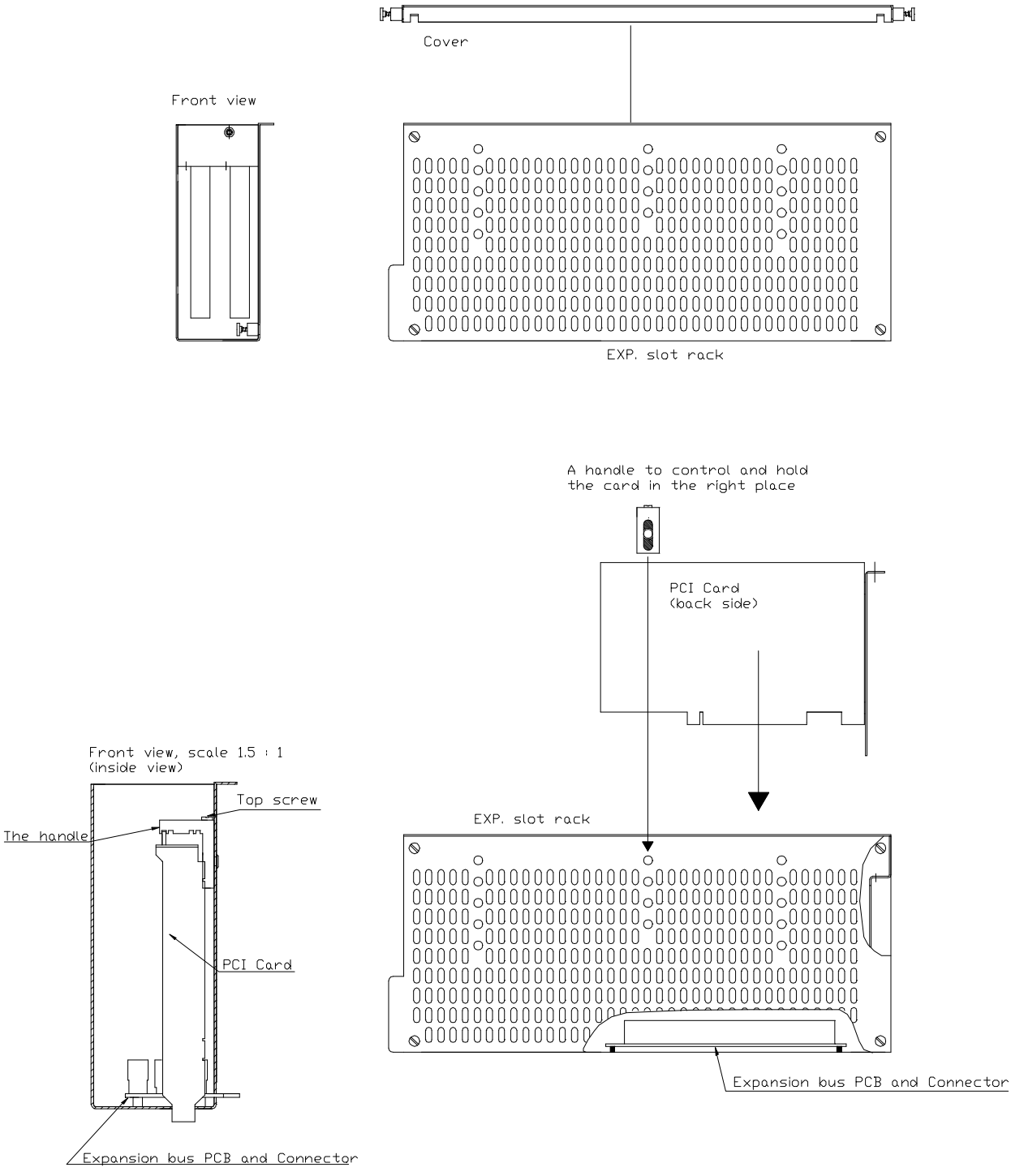
Chapter 21 Installing Add-on Cards

Installation Drawing



Specification

PCI v2.1	:	32-bit, 33 MHz, 5V
Slots	:	1 shared with ISA
ISA	:	16-bit, 8 MHz, 5V
Slots	:	1 dedicated and 1 shared with PCI
Power consumption	:	The total power disapation of add-in boards should be kept below 10 W. Add-in boards may change temperature, EMC, and vibration specifications.
Note	:	The handle can be placed in the top or bottom holes of the expansion slot rack. You fasten the handle against the card with the top screw. When not in use place it in the fixing slot in the leftside of the expansion box. Please secure the 4 screws fixing the expansion slot carefully.

Part 4

PCI6000 Software Details

Describes Software Details

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Chapter 22 Installation of Software

For full function and configuration of the PCI6000 the following software drivers may be necessary depended on the PCI6000 model you are using:

- Intel Ethernet adapter driver
- Intel video controller driver
- Pad mouse driver
- Touch driver
- Hardware monitor utility software

All software drivers can be found and downloaded free of charge from the ISC homepage www.innoscan-isc.dk. Here you will always find the newest version of the software driver.

If you do not have access to the internet please contact your dealer or the ISC technical support for CD Rom copy.

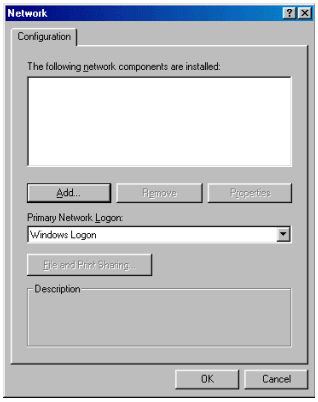
22.1 Network Driver Installation

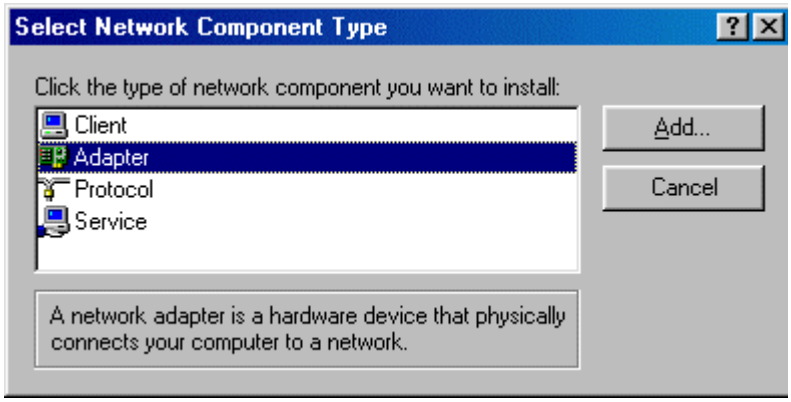
This is a description of how to install drivers for the embedded ethernet adapter.

How to Install Netcard Drivers under Windows 98 (quick steps)

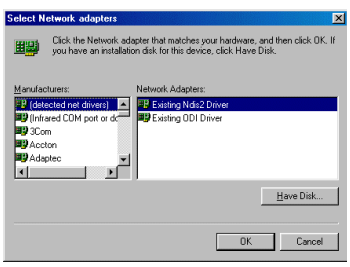
After each step you have to click on the *Next* button.

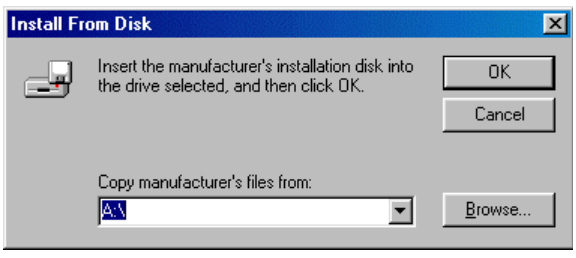
- Right click on *Network Neighborhood* and choose *properties*.
- Choose *Add* and then Adapter.



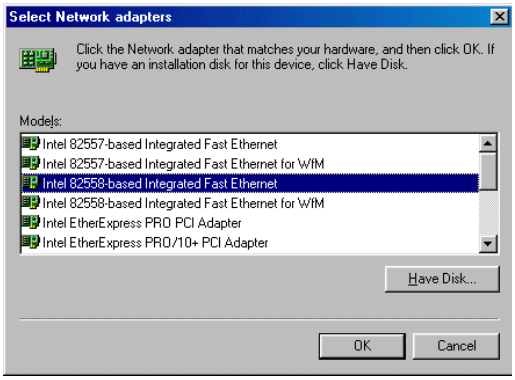


- Insert the PCI6000 Netcard driver diskette and choose *Have Disk* and click *ok*, or *Browse* to select the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).





- Select *Intel 82558-based Integrated Fast Ethernet* from the list of adapters.

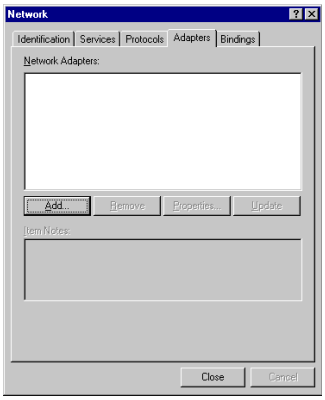


- Restart the computer.

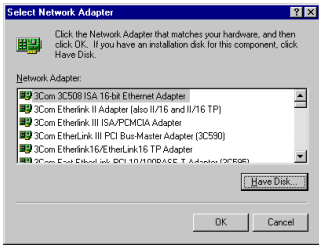
How to Install Netcard Drivers under Windows NT 4.0 (quick steps)

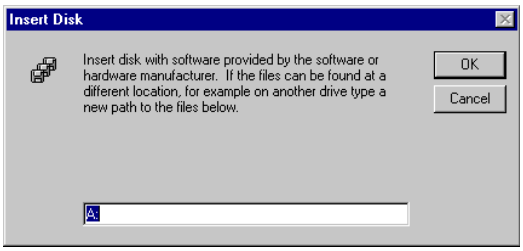
After each step you have to click on the *Next* button.

- Right click on *Network Neighborhood* and choose *properties*.
- Choose *Adapers* and *Add*.

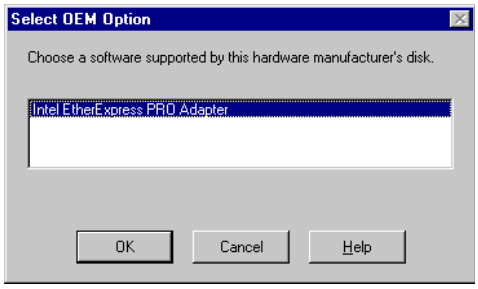


- Choose *Have Disk* and click *ok*, or *Browse* to select the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.com).

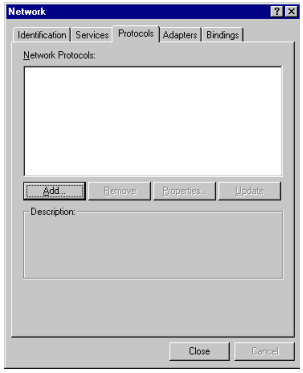


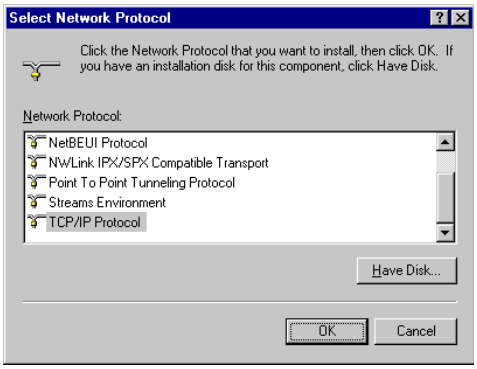


- Choose *Intel EtherExpress PRO Adapter*.



- Choose *Protocols* and choose the protocols you wants to use (normaly *TCP/IP Protocol* and *NWLink IPX/SPX Compatible Transport*.





- Retstart the computer.

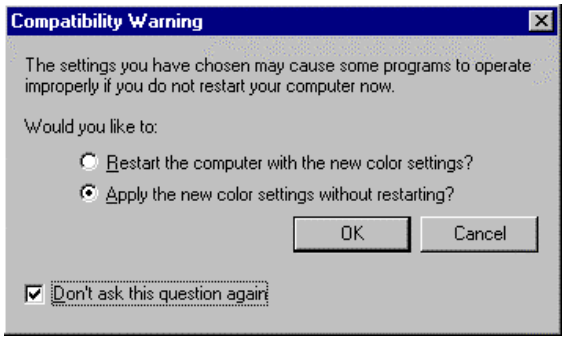
22.2 Video Driver Installation

This is a description of how to install video drivers on PCI6000.

How to Install Video Drivers under Windows 98 (quick steps)

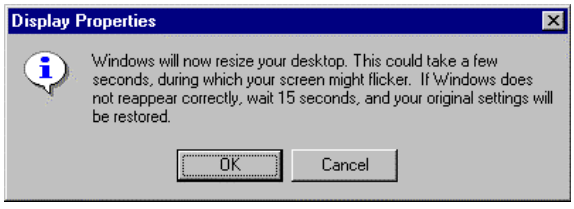
After each step you have to click on the *Next* button.

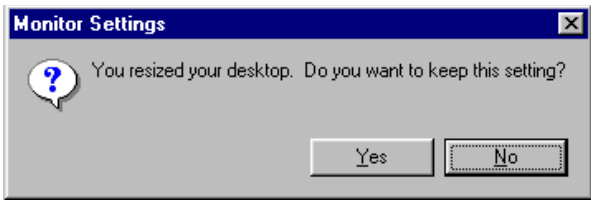
- Insert the PCI6000 Video driver diskette or point out the location of the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).
- Double click on the *win98_xxx.exe*, where xxx are the version number.
- After extracting the files, the Welcome screens appear.
- Read the Licence Agreement.
- After Setup have finished, click on *Yes, I want to restart my computer now*. Remove any floppy disk from the floppy drive.
- When the computer have finished rebooting, choose the size and the number of colours you want to use and click on *Ok*.
- If you get the following box :



Then choose *Apply the new color settings without restarting?* And mark *Don't ask this question again*.

- Then Windows will change to the new settings, and you have 15 seconds to Click on Yes. If you don't, the original settings will be restored.

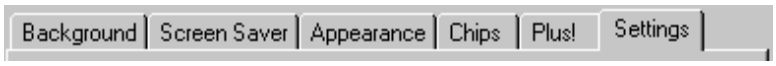




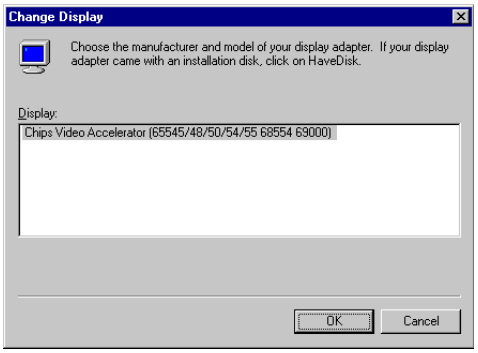
How to Install Video Drivers under Windows NT 4.0 (quick steps)

After each step you have to click on the *Next* button.

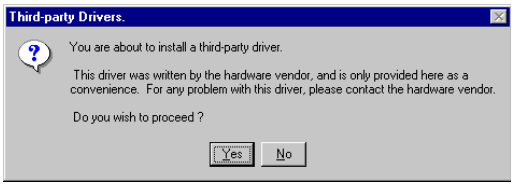
- Right Click on an empty place on the desktop and choose *Properties*.
- Choose *Settings* and *Display Type*.



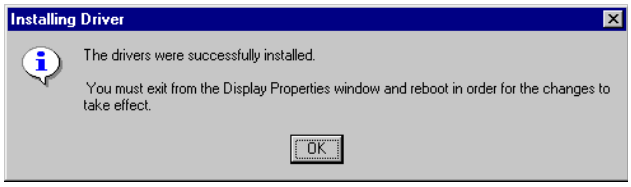
- Choose *Change*.
- Choose *Have Disk.*
- Insert the PCI6000 Video driver diskette or point out the location of the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).
- Choose the *Clips Video Accelerator* from the list.

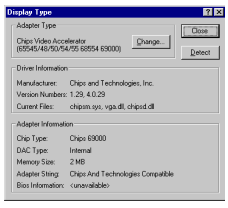


- When Windows NT ask if you are sure to install third-party drivers click *Yes* to continue

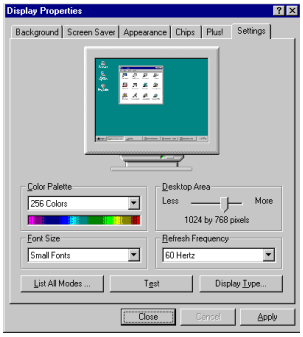


- Choose *Ok* and Close.

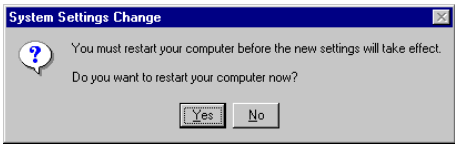




- Choose the size of the desktop and the color palette you want to use and choose *Close*.



- Restart the computer.



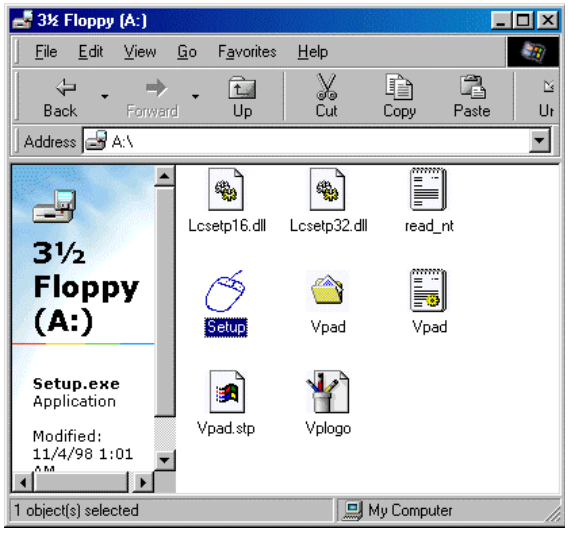
22.3 Padmouse Driver Installation

This is a description of how to install padmouse drivers on PCI6000.

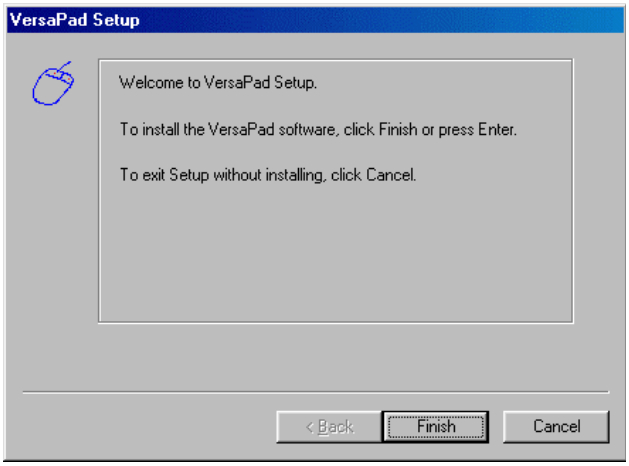
How to Install Padmouse Drivers under Windows 98 (quick steps)

After each step you have to click on the *Next* button.

- Insert the PCI6000 Padmouse driver diskette or point out the location of the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).
- Double click on *Setup.exe*.



- To install the VersaPad software, click *Finish* or *Enter*.

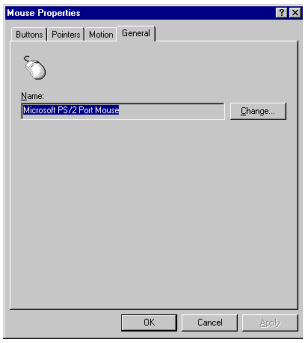


- Restart the computer.

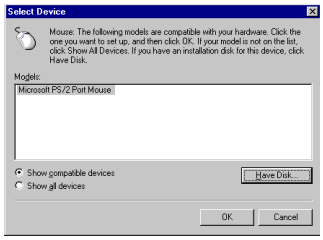
How to Install Padmouse Drivers under Windows NT 4.0 (quick steps)

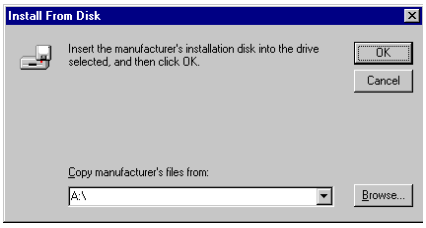
After each step you have to click on the *Next* button.

- First go to the *Control Panel* - Click on *Start* and choose *Settings* and then *Control Panel*.
- Click on *Mouse* and choose *Change*.

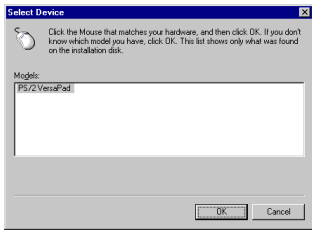


- Insert the PCI6000 Padmouse driver diskette and choose *Have Disk* and click *OK*, or *Browse* to select the location where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).

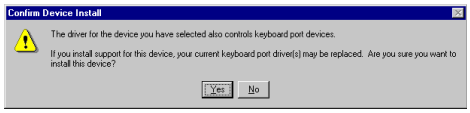




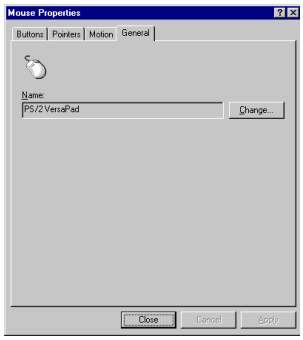
- Choose *PS/2 VersaPad*.

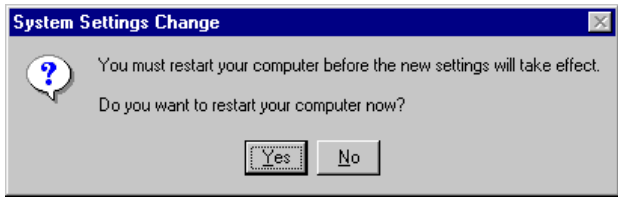


- Click *Yes* to accept the installing. You will be able to use the keyboard, but not another PS/2 mouse.



- Click *Close* and restart the computer.





22.4 Infrared Touch Driver Installation

This is a description of how to install infrared touch drivers on PCI6000.

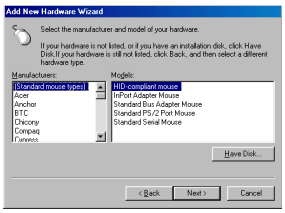
How to Install Infrared Touch Drivers under Windows 98 (quick steps)

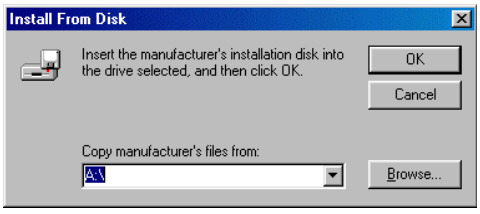
After each step you have to click on the *Next* button.

- First go to the *Control Panel* - Click on *Start* and choose *Settings* and then *Control Panel*.
- Choose *Add new hardware*.
- Choose *No, I want to select the hardware from a list.*

- Choose *Mouse*.

- Insert the PCI6000 Infrared Touch driver diskette and choose *Have Disk* and click *OK*,or *Browse* to select the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).





- Select *Win95 citron touch driver* and choose *Finish*.

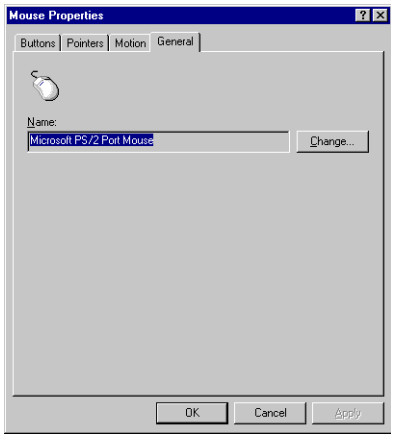
- Restart the computer.

NOTE: The touch driver will make some conflicts with the suspend function. If the suspend function shall functions correct, remove the COM3. Go to the *Control Panel* and choose *System*. Select the *Devices Manager* and choose *Ports*. Click on *COM3* and *remove*.

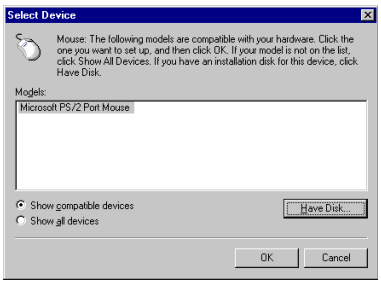
How to Install Infrared Touch Drivers under Windows NT 4.0 (quick steps)

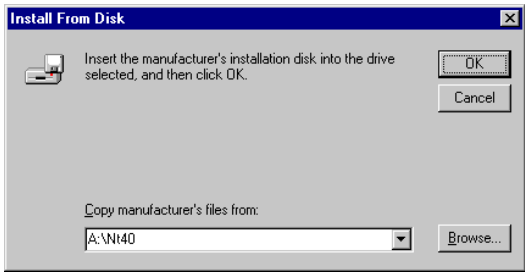
We recommend that you have Service Pack 4.0 or later installed before continue. After each step you have to click on the *Next* button.

- First go to the *Control Panel* - Click on *Start* and choose *Settings* and then *Control Panel*.
- Choose *Mouse*.
- Choose *General* and *Change*.

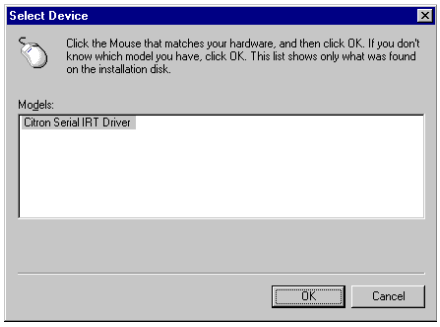


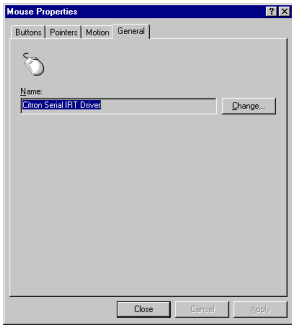
- Insert the PCI6000 Infrared Touch driver diskette and choose *Have Disk* and click *OK*, or *Browse* to select the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).





- Select *Citron Serial IRT Driver* and *close*.





- Restart the computer.

NOTE: If an error telling that there is a conflict between COM1 and COM3, the problem can solve by remove COM3. Go to the *Control Panel*. Choose *Ports* and remove *COM3*. The problem occurs because the touch controls the COM3 by itself.

22.5 Resistive Touch Driver Installation

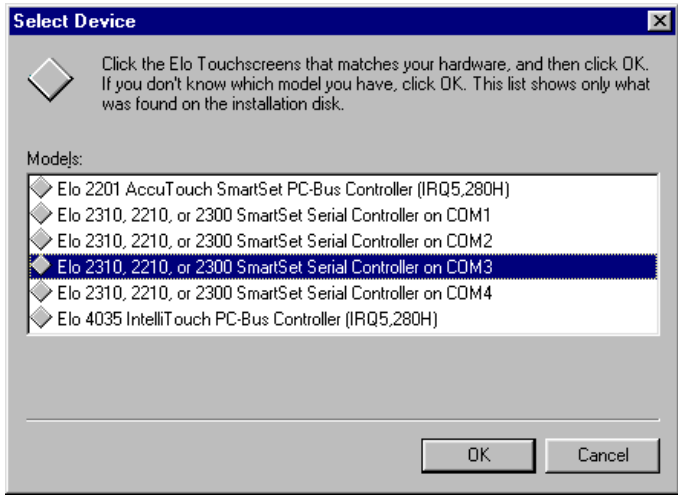
This is a description of how to install resistive touch drivers on PCI6000.

How to Install Resistive Touch Drivers under Windows 98 (quick steps)

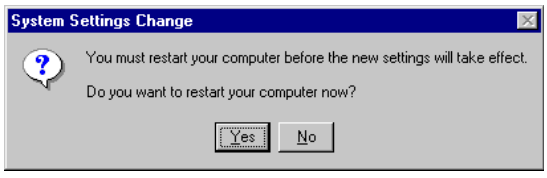
After each step you have to click on the *Next* button.

- Insert the PCI6000 Resistive Touch driver diskette or point out the location of the directory where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).
- Double click on *Setup.exe*.
- Read the Licence Agreement.

- Choose *Elo 2310, 2210* or *2300 SmartSet Serial Controller* on COM3.



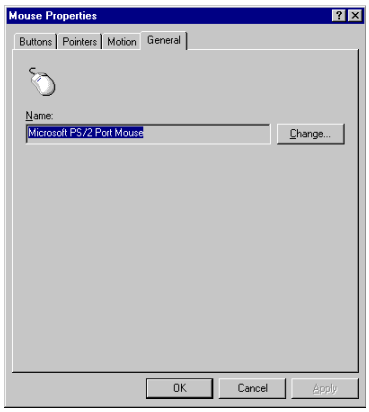
- Restart the computer.



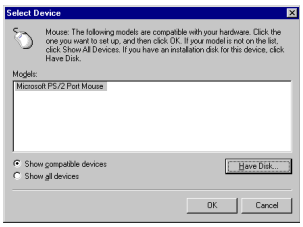
How to Install Resistive Touch Drivers under Windows NT 4.0 (quick steps)

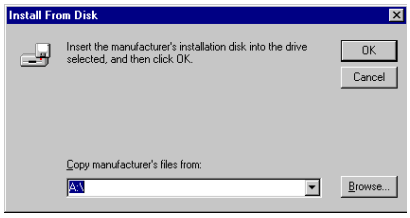
After each step you have to click on the *Next* button.

- First go to the *Control Panel* - Click on *Start* and choose *Settings* and then *Control Panel*.
- Click on *Mouse* and choose *Change*.

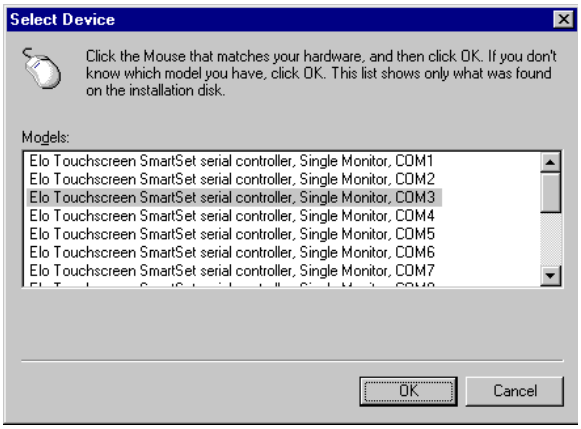


- Insert the PCI6000 Resistive Touch driver diskette and choose *Have Disk* and click *OK*, or *Browse* to select the location where you have the drivers. Always use the newest drivers from our homepage (http://www.innoscan-isc.dk).

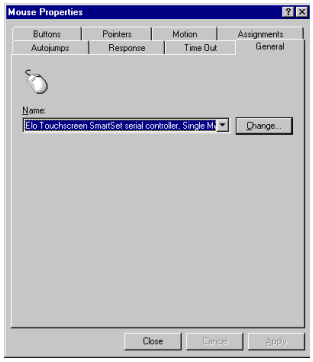


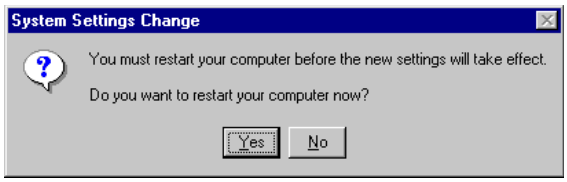


- Choose *Elo Touchscreen SmartSet serial controller, Single Monitor, COM3*.



- Choose *Close* and restart the computer.





22.6 Hardware Monitor Installation

General

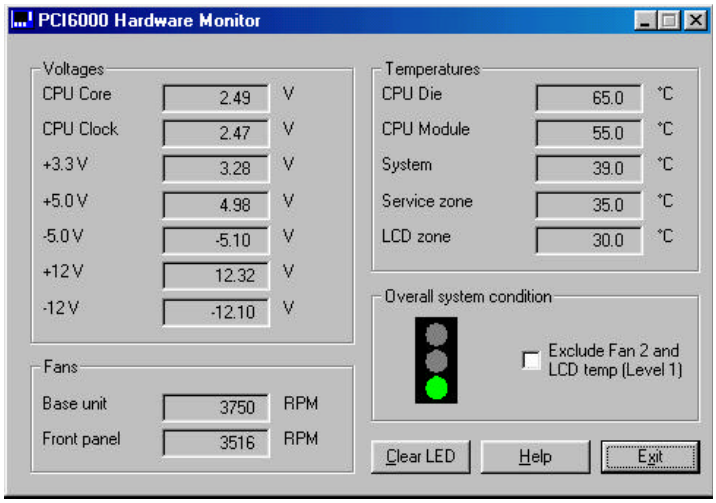
The PCI6000 Hardware Monitor is used to display the voltages, temperatures and fan speed values which can be monitored in the PCI6000. If some values are close to critical, an indicator illustrated as a traffic light will change from green to yellow. If a measured value violates a critical level, the colour will change to red.
The application runs with Window 95/98 or NT 4.0.

How to Install the PCI6000 Hardware Monitor

- Download the newest version from www.innoscan-isc.dk (Utilities)
- Unzip the compressed file. An unzip-utility can be downloaded from the home page as well.
- Double click on *Setup.exe*.
- Follow the instructions of the set-up procedure and a short-cut will be inserted in the programs group under the Start button.

How to Use the PCI6000 Hardware Monitor:

Run the PCI6000 Hardware Monitor by selecting Start | Programs | PCI6000 Hardware Monitor and all measured values are displayed.



The traffic light is duplicated in the “system tray” left to the clock, so a system overview can be maintained even if the application is minimised. In Windows NT 4.0 an upcomming violation will be logged in the applications event log. To get additional information, press the Help button.

How to Un-install the PCI6000 Hardware Monitor

- In the control panel double click the *Add/Remove Programs*
- Select the PCI6000 Hardware Monitor and the unInstallShield® will remove all components

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Part 5

PCI6000 Electrical Details

Describes Electrical Details for the Level 1 Base Unit

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Chapter 23 Interrupt, Memory and I/O Map

23.1 PCI6000 Interrupt Map

Interrupt	Function	PnP/PCI default Configuration	Remark
IRQ0	Internally Timer 0 output		
IRQ1	Keyboard		
IRQ2	Internally cascade for IRQ8 - IRQ15		
IRQ3	COM2 (shared with COM4)	PCI/ISA PnP	Free if COM2 not present
IRQ4	COM1	PCI/ISA PnP	Free if COM1 not present
IRQ5*	Standard assigned to USB controller by BIOS	PCI/ISA PnP	Free if not assigned to USB
IRQ6	Floppy disk		
IRQ7	Parallel port (may be moved to IRQ5 in BIOS)	PCI/ISA PnP	Free if LPT1 not present
IRQ8	Real-time clock		
IRQ9	-	PCI/ISA PnP	Free
IRQ10	COM3 - used if Touch Screen installed	Legacy ISA	Free if Touch not present
IRQ11*	Standard assigned to Ethernetcontroller by BIOS	PCI/ISA PnP	Free if not assigned to NET
IRQ12	PS/2 Mouse	PCI/ISA PnP	
IRQ13	Internally Co-processor support		
IRQ14	IDE port 1 - internal Harddisk drive	PCI/ISA PnP	
IRQ15	IDE port 2 - external CD ROM	PCI/ISA PnP	Free if not assigned to CD ROM

*) As USB and ethernetcontroller are assigned the Plug and Play (PnP) way by the BIOS, always check the assignment listed by the BIOS in the bootsequence to ensure that those IRQ do not conflict with the add-on card. To avoid the PnP system to make use of the IRQ the PCI/PnP configuration may be set to “Legacy ISA”.

IRQ9 is unassigned and may be used for external add-on cards. If more interrupts are needed it may be necessary to enter the BIOS setting to disable embedded devices IRQ which are not used in the system to free the number of IRQ required. If the PCI6000 is without touch screen interrupt 10 may be used additionally.

23.2 Memory Map

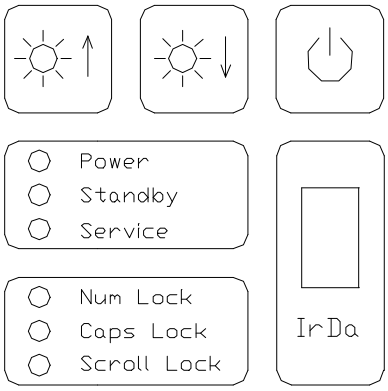
Address Range	Total (KB)	Usage	Device
000 0000 - 000 05FF	2	System RAM (BIOS, DOS)	DRAM
000 0600 - 009 FFFF	638	User RAM	DRAM
00A 0000 - 00B FFFF	128	Video buffer (VGA)	Video RAM
00C 0000 - 00C BFFF	48	Video BIOS extension	ISA ROM / write protected
00C C000 - 00C DFFF	8	USB BIOS extension	DRAM
00C E000 - 00C FFFF	8	Reserved	DRAM
00D 0000 - 00D 7FFF	*32*	*Add-on board ROM expansion area*	*ISA ROM*
00D 8000 - 00D FFFF	32	Optional TCP/IP Bootprom extension	ISA ROM
00E 0000 - 00E FFFF	64	Reserved ISC BIOS extension	ISA ROM
00F 0000 - 00F FFFF	64	Reserved BIOS	ISA ROM
010 0000 - xxF FFFF	xxx	Extended user RAM	DRAM

For installation of add-on card option ROM it is recommended to install in the D:0000-D:7FFF area. Default BIOS setting will cause the BIOS to be read as ISA ROM. By enabling of “Shadow” the ISA ROM will be copied into DRAM and executed from here. This may speed up the system.

23.3 IO Map

COM1	COM2	COM3 (Touch screen)	COM4 (IrDa)
3F8h	2F8h	3E8h	2E8h

Chapter 24 PCI6000 Front Buttons



Backlight Control

By using the 2 buttons light up and down the backlight may be adjusted. Typical range will be from 30 - 100%. This may be used to lower the backlight intensity and with that extending backlight lifetime or to synchronize light intensity of several PCI6000 placed in the same area.

Power ON/OFF

This button may be used to power up or down the PCI6000. A short push will force windows to try to go into suspend mode if this is supported. A long press more than app. 4 sec. will force the PCI6000 to power off. The 4 sec. period may be changed to 0 sec. in the BIOS setting. Find more information in chapter 25.

Indicators

Power	:	Indicates that system is powered on.
Standby	:	Indicates that system is powered off and may be powered on by pressing the “power” button. Main power should be disconnected before trying to access the system hardware.
Service	:	Indicates by red colour that system is not running within the required specifications. Please check chapter 22.
NumLock	:	Indicates that the NumLock is active.
CapsLock	:	Indicates that the CapsLock is active.
ScrollLock	:	Indicates that the ScrollLock is active.

IrDa

This is used for infrared Rx/Tx file transfer. The IrDa operates on COM4 and performs as a normal UART converting data signals to infrared data. Find more information in chapter 26.

Chapter 25 Power Mangement

25.1 Restart and Shutdown

This is a description of power management on PCI6000 and the mode of operation related to the power button and the shut down/restart of Windows.

The following terms are used:

Suspend:	The computer is running on low power with data still in memory.: Many devices will be turned off. The screen and backlight are turned off but the fans are still running. A quick push on the power button will get the computer up running again.
Standby:	The computer is turned off. All devices will be turned off except some of the power there can start the computer again. PCI6000 can be rebooted on a push on the power button. BE WARE: There will be no warning when the computer is going to standby. Remember to save all your work and be sure the computer is shut down or in DOS before you hold the button for more than 4 sec. The yellow light will indicate that the computer is in standby.

How the Power Button Works in DOS

In the early boot phase the button will act like the break key on the keyboard. When DOS are booted, following will happen when you hit the power button in:

< 4 sec.:	The computer will enter suspend mode.
> 4 sec.:	The computer will enter standby mode.

How the Power Button Works in Windows 98

In the early boot phase the button will act like the break key on the keyboard. When Windows 98 are booted or "logged in" following will happen when you hit the power button in:

< 4 sec.:	The computer will enter suspend mode. Attention: The computer will be operationally after about 30 seconds from you hits a key.
> 4 sec.:	The computer will enter standby mode.

Functions in the START menu:

"RESTART"	"SHUTDOWN"	"STANDBY"
PCI6000 reboot automatic	PCI6000 enters standby mode	PCI6000 enters suspend mode

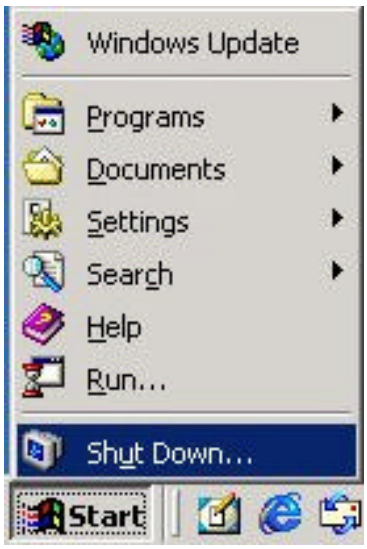
NOTE: If the computer dont go to suspend mode it may be that infrared touch drivers are installed. The touch driver will control COM3 so it has to be removed manually. Go to the *Control Panel* and choose System. Select the *Devices Manager* and choose *Ports*. Click on *COM3* and *remove*.

How the Power Button Works under Windows 2000 Beta 3 build 2000

In the early boot phase the button will act like the break key on the keyboard. When Windows 2000 are booted or "logged in" following will happen when you hit the power button in:

< 4 sec.:	The computer will enter suspend mode. Attention: The computer will be operationally after about 30 seconds from you hits a key.
> 4 sec.:	The computer will enter standby mode.

When Windows 2000 boots you can experience BSOD (Blue Screen Of Dead) after you hit the power button several times, or the computer frees. You can expect some problems getting the computer working after suspend. You have to hit a key on the right time. Watch the Num Lock, Caps Lock and scroll Lock. After all tree lights a short time and turned of, hit a key, and then the computer will be operational. If you dont do it right in about 2 minuts, they computer will enter suspend mode again. All this is related to Windows 2000 software.



Functions in the START menu:

"RESTART"	"SHUTDOWN"	"STANDBY"
PCI6000 reboot automatic	PCI6000 enters standby mode	PCI6000 enters suspend mode

How the Power Button Works under Windows NT

In the early boot phase the button will act like the break key on the keyboard. When Windows NT are booted or "logged in" following will happen when you hit the power button in:

< 4 sec.: The computer will enter suspend mode.
> 4 sec.: The computer will enter standby mode.

Functions in START menu:

"RESTART"	"SHUTDOWN"
PCI6000 reboot automatic	PCI6000 shutdown. You have to turn the power off manual.

How to Change the Power Button's Behaviour

"Instant Off" : PCI6000 will enter standby immediately if you hit the power button. Remember to save your work before you hit it.

Choose "Power Management Setup" in the BIOS. Change "Soft_off By PWR_BTTN" to "Instant_off".

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Chapter 26 Infrared File Transfer

26.1 PCI6000 IrDa - Infrared File Transfer

As infrared data communications, based on standards from the Infrared Data Association (IrDa), become widely available on computers and peripherals, a timely opportunity exists for effective EMC neutral and inexpensive short range wireless communications on embedded systems and devices of all types. The IrDa standards were developed rapidly (compared to most standards organizations), and information on the IrDA protocols has not yet reached every corner of the embedded systems universe. This paper gives an overview of the IrDA protocols with comments on their use in embedded environments performing file transfer between 2 PC's i.e. from PCI6000 to a laptop PC.

How to Install IrDa under Windows 98 (quick steps)

After each step you have to click on the *Next* button.

- First go to the *Control Panel* - Click on *Start* and choose *Settings* and choose *Control Panel*.
- Choose *Add new hardware*.
- Choose *No, I want to select the hardware from a list.*
- Choose *Infrared devices* from the list.
- Choose *Infrared COM port or dongle* in the left side and then *Generic Infrared serial port*.
- Choose *Generic infrared port*.
- Choose *Communication port (COM4)*.
- When Windows 98 ask about witch port it shall use to the infrared port, choose *Use defaults ports (recommended).*
- Click on *Finish* to complete the installation.

How to Install IrDa under Windows 2000 (quick steps)

After each step you have to click on the Next button.

- Be sure you are logged in as Administrator before you continue.
- Go to the *Control Panel* - Click on *Start* and choose *Settings* and choose *Control Panel*.
- Choose *Add/remove hardware*.
- Choose *Add/troubleshoot a device*.
- Choose *Add new device*.
- Choose *No, I want to select the hardware from a list.*
- Choose *Infrared devices* from the list.
- Choose *Serial cable using IrDA protocol*.
- Choose *COM4*.
- Click on *Finish* to complete the installation.

How to Install IrDa under Windows NT (quick steps)

Windows NT 4.0 or earlier does not provide IR support. Windows NT 5.0 does, but has been renamed to Windows 2000.

File Transfer

When there are 2 or more machines close enough to communicate, there will be a little icon in the taskbar next to the clock (fig. 1). To transfer files, right click on the file(s)/folder(s) you want to transfer. In the popup menu choose *Send To* and then *Infrared recipient* (fig. 2). You can watch how good the transfer is if you double click on the icon in the taskbar.
The range you can communicate depends on the conditions, the angle between the machines and how long they stand from each other. The maximal communications range is 15° in all directions and 4 meters in a angle of 0°. This is measured between two PCI6000 but a lot of IrDA devices will have pour specification.

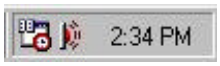


Fig. 1

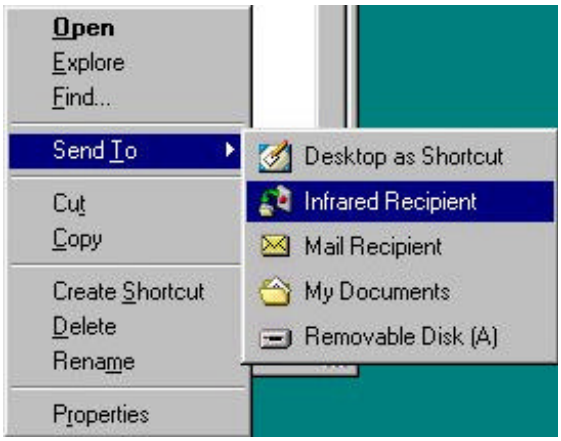
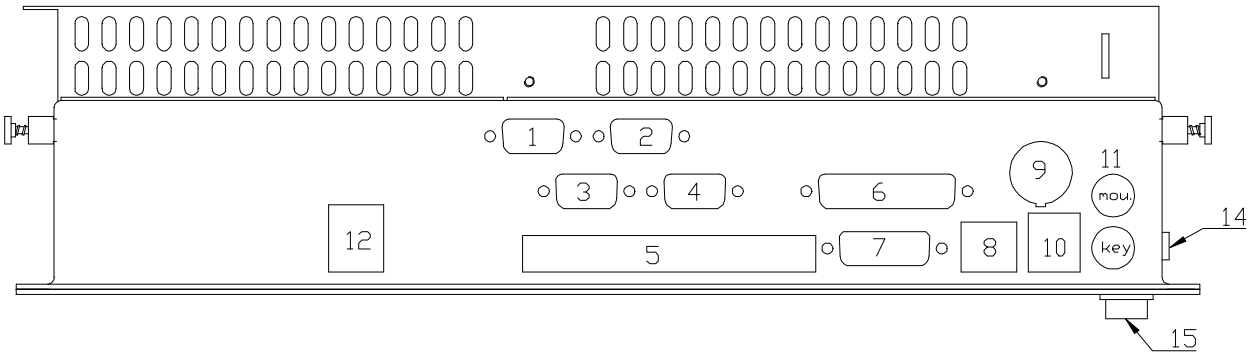


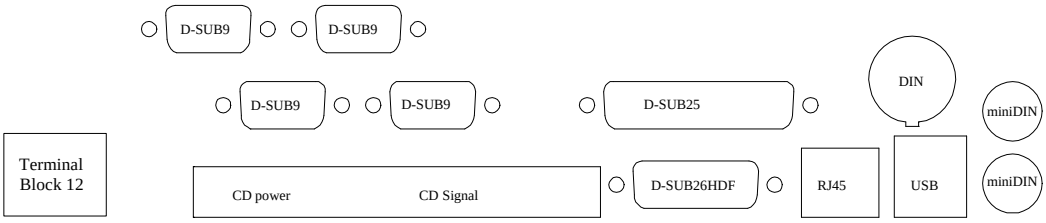
Fig. 2.

Port Setting

The IrDA hardware is installed on COM4, address 2E8 and utilises shared IRQ3. As Windows 2000 use IRQ for IrDa communication and can't handle shared interrupt, utilisation of IrDA will occupy COM2 as this uses the same interrupt.

Chapter 27 Connectors Level 1





COM1 and COM2 (1-4)

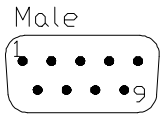
Serial ports D-Sub 9 connectors. The PCI6000 comes with two different configurations:

Non-galvanic isolated (standard), where 2 of the connectors are blinded and only the male connectors are available. In this version the ports are RS232 only.

Galvanic isolated (optional), where all 4 connectors are availabe: Two male connectors and two female connectors. In this version COM port 1 and 2 can be configured to be either RS232 (2, 4) or RS422/RS485 (1, 3).

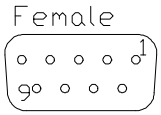
For galvanic isolated RS232/RS422/RS485 please check chapter 31.

D-Sub 9 male pin-out (RS232)



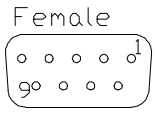
1	DCD	Data carrier detect
2	RxD	Receive data
3	TxD	Transmit data
4	DTR	Data terminal ready
5	GND	Ground
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Clear to send
9	RI	Ring indicator

D-Sub 9 female pin-out (RS422)



1	CHS	Chassis ground
2	NC	Not connected
3	TxD	Positive transmit
4	-TxD	Negative transmit
5	NC	
6	NC	
7	RxD	Positive receive
8	-RxD	Negative receive
9	GND	Signal ground

D-Sub 9 female pin-out (RS485)



1	CHS	Chassis ground
2	NC	
3	TxD/RxD	Positive transceive
4	-TxD/-RxD	Negative transceive
5	NC	
6	NC	
7	NC	
8	NC	
9	GND	Signal ground

For a detailed description of the galvanic serial port module, see chapter 31.

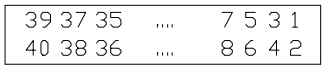
CD-ROM Drive Connectors (5)

The CD-ROM drive connectors consist of a power connector and a signal connector. Both connectors may be hidden be a metal plate. If so, please remove the plate be rewinding the screws. For ISC CD-Rom kit please check chapter 33.

The power connector is of type AMP 172294-1 and has the following pin-out:

1	12V
2	GND
3	GND
4	5V

The IDE signal connector is of type Molex 70247-4001 (or compatible) and has the following pin-out

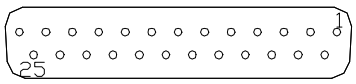


1	RESET#	21	IDRQ
2	GND	22	GND
3	IDE_D7	23	IDEIOW#
4	IDE_D8	24	GND
5	IDE_D6	25	IDEIOR#
6	IDE_D9	26	GND
7	IDE_D5	27	IDERDY
8	IDE_D10	28	NC
9	IDE_D4	29	IDAK#
10	IDE_D11	30	GND
11	IDE_D3	31	IRQx
12	IDE_D12	32	NC
13	IDE_D2	33	IDE_A1
14	IDE_D13	34	NC
15	IDE_D1	35	IDE_A0
16	IDE_D14	36	IDE_A2
17	IDE_D0	37	IDExCS1#
18	IDE_D15	38	IDExCS3#
19	GND	39	NC
20	NC	40	GND

Parallel Printer Port (6)

The female D-Sub 25 connector is used for a parallel printer or equipment using the same interface. The parallel port can be configured (BIOS Setup) to act as a standard PC-compatible printer port or for bi-directionally data transfer (ECP mode).

Pin-out

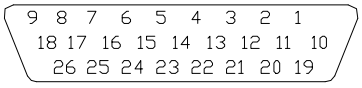


1	-Strobe	14	-AUTOFD
2	D0	15	-ERROR
3	D1	16	-INIT
4	D2	17	-SLCTIN
5	D3	18	GND
6	D4	19	GND
7	D5	20	GND
8	D6	21	GND
9	D7	22	GND
10	-ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		

Floppy Disk Drive Connector (7)

This male high density D-Sub 26 connector is for the ISC portable floppy disk drive which also comes with the suitable cable. The connector contains both the signal and the supplying power for the external drive. Please check chapter 33 for ISC Floppy disk kit.

Pin-out

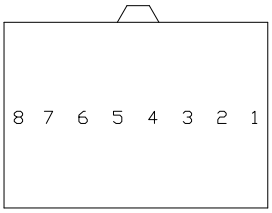


1	VCC (5V)	14	STEP#
2	INDEX#	15	GND
3	VCC (5V)	16	WDATA#
4	DS0#	17	GND
5	VCC (5V)	18	WGATE#
6	DSKCHG#	19	GND
7	VCC (5V)	20	TRK0#
8	NC	21	GND
9	NC	22	WRTPRT#
10	MTR0#	23	FD_DETECT
11	NC	24	RDATA#
12	DIR#	25	GND
13	GND	26	HDSEL#

Ethernet Connector, RJ-45 (8)

This connector is to be connected to a 10/100 Mbit Ethernet with a STP or UTP category 5 cable. Two LED's are located directly on the connector. The yellow LED (left-most) is on, when a link to an external hub is established. During link it is also flashing while transmission activity. The green LED (right-most) is on if the Ethernet controller links to a 100 Mbit net.

Pin-out

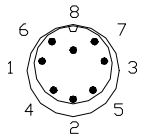


1	TX+	5	NC
2	TX-	6	RX-
3	RX+	7	NC
4	NC	8	NC

External PCI6000 Keyboard with Mouse (9)

The DIN8 connector is compatible with a standard DIN5 PC-AT keyboard connector. By using the enhanced DIN connector also the mouse signals are available. This is used to connect the ISC external IP65 keyboard. Please check chapter 32.

Pin-out (PC-AT style connector, enhanced)

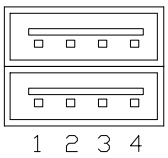


1	KBD_CLK	5	VCC (5V)
2	KBD-DAT	6	MS-CLK
3	CHS	7	MS-DAT
4	GND	8	NC

Universal Serial Port USB (10)

The root USB hub provides two independent ports, A and B. The ports are suitable for USB devices like eg. keyboard, mouse, scanner, sound, and camera. The pin-out is common for both ports. USB device mice and keyboards will work independent of front mouse and keyboard.

Pin-out

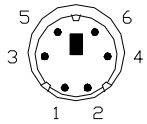


1	VCC (5V)	3	D+
2	D-	4	GND

PS/2 Keyboard and Mouse (11)

These connectors are for PS/2 compatible keyboard and mouse. The connectors share the same signals as the DIN8 connector, so it is not possible to use two keyboards or two mice at the same time. The pin-out is common for both PS/2 ports.

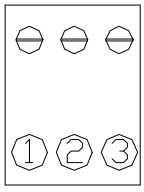
Pin-out (PS/2 style connector)



1	DAT	4	VCC (5V)
2	NC	5	CLK
3	GND	6	NC

Power Line (12)

For a 115V/230V AC power supply the pin-out is:
1 Line input (left terminal)
2 Neutral
3 Protective earth

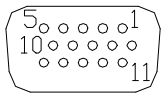


For a 24V DC power supply the pin-out is:
1 +24V (left terminal)
2 0V
3 Protective earth

CRT Monitor (14)

For analogue monitor

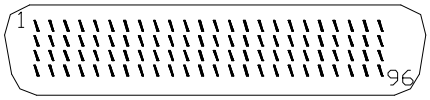
Pin-out:



1	Red	9	+5V DC
2	Green	10	0V (digital)
3	Blue	11	NC
4	NC	12	DDCDAT
5	0V (digital)	13	HSYNC
6	0V (analogue)	14	VSYNC
7	0V (analogue)	15	DDCCLK
8	0V (analogue)		

Front Connector (15)

For connection of front module.



For pinout please contact ISC technical support.

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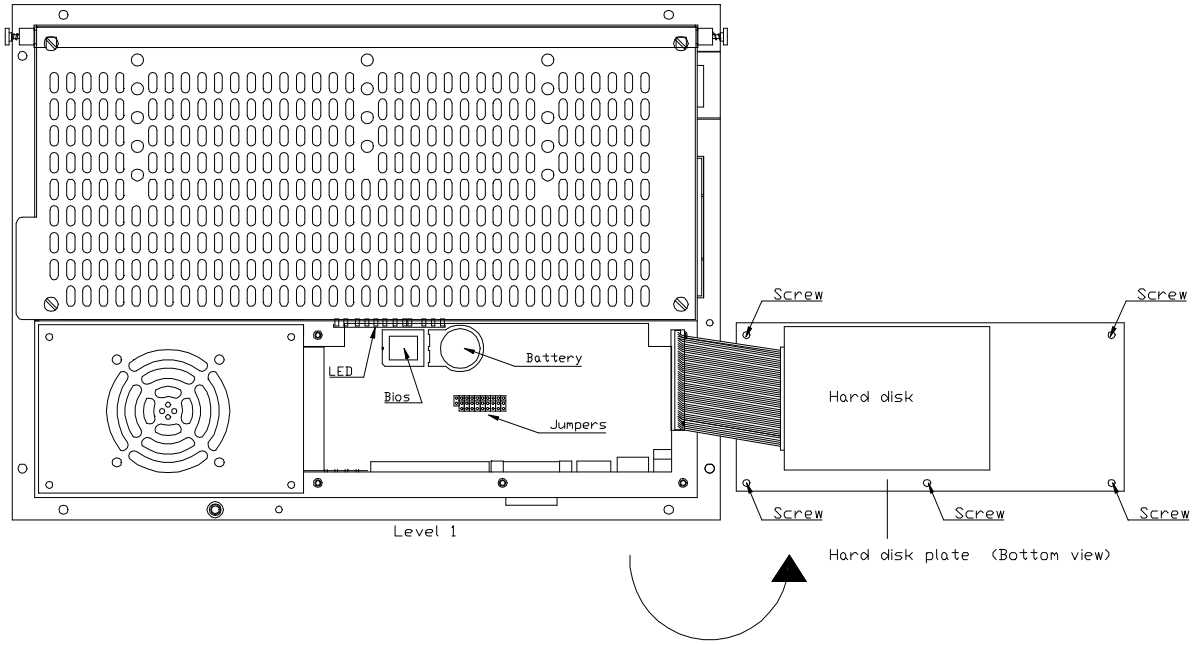
Chapter 28 Jumper Settings Level 1



By rewinding 5 screws, the service zone of the Level 1 unit can be accessed. It is not necessary to remove the cable from the hard disk.

Please note that if you use the external Level 1 mouse port you must change the jumper setting of MS1 and MS2 to support external mouse instead of the pad mouse located on D type front. Dual mice may be attached using the USB port to attach a secondary mouse.

Default Setting:

Model examples	COM1	COM2	5VSB	RST	PS1	PS2	CMOS	UPS	KBD1	KBD2	MS1	MS2	FAN1	FAN2	FAN3
L3D/L4D, RS232															
L1/L2/L3A/L4A, galvanic RS232/RS422/RS485															
L1/L2/L3A/L4A, RS232															
L3D/L4D, galvanic RS232/RS422/RS485															

Jumper	Open	Short
COM1	COM1 connector is selected	COM1 galvanic isolated module is selected (COM1_INT)
COM2	COM2 connector is selected	COM2 galvanic isolated module is selected (COM2_INT)
5VSB*	5V and 5VSB powers are separate	5V and 5VSB powers are shorten
RST*	Normal mode	Reset applied

Jumper	1-2 short	2-3short
PS1	PS ON signal controlled by chip-set	PS_ON always true
PS2*	Reserved	Reserved
CMOS*	Normal mode	Resetting CMOS RAM
UPS	Reserved	Reserved

KBD1	KBD2	Result
1-2	1-2	Foil keyboard + External keyboard
1-2	2-3	Illegal
2-3	1-2	Illegal
2-3	2-3	External keyboard only

MS1	MS2	Result
1-2	1-2	Internal D Front pad mouse selected
1-2	2-3	Illegal
2-3	2-3	PS/2 external mouse selected

Jumper	1-2 short	2-3 short
FAN1*	LM80 monitors base unit fan on tacho input 1	LM80 monitors front FAN1 on tacho input 1

FAN2*	FAN3*	Result
1-2	1-2	LM80 monitors FAN2 connector on tacho input 2
1-2	2-3	LM80 monitors FAN2 connector on tacho input 2
2-3	1-2	LM80 monitors front FAN2 on tacho input 2
2-3	2-3	LM80 monitors PSU fan on tacho input 2

Jumpers marked with * should never be changed from factory settings.

Chapter 29 PSU

29.1 AC Power Input, 115/230V AC Version

General Specifications

Start-up time	2 Sec.	
Safety	Designed to meet EN 60950	8 mm creepage
EMC	Designed to meet EN50081-2, EN50082-2. IEC801-2/4/5	PCI6000 installed
Switching frequency	80 KHz	

Input Specifications

Input voltage range	187 - 265 VAC or 95 - 132 VAC	Via internal switch
Input power	100 W max. load	
Input frequency	47 - 63 Hz	
Efficiency	85% typical	Full load; nominal Vin AC
Hold up time	20 mSec.	Full load; 198 VAC in
Fusing	2 A Slow blow	Internal

Output Specifications

	V1	V2	V3	V4	V5
Output voltage	+5V	-5V	+12V	-12V	+3.3V
Output current	6A	0,1A	2A	0,1A	6A
Ripple pp	50mV	50mV	200mV	200mV	50mV
Line & load regulation	2%	2%	2%	2%	2%
Setting accuracy	3%	5%	5%	5%	3%
Protection	Overcurrent				
Isolation	Common ground				
Monitoring	Yes				
Remote shut-down	Power ON signal				

The power supply have a +5V @ 0.8A suspend voltage for powerdown.

To switch between 115 and 230VAC the power supply has an internal switch placed in the area below the Level 1 fan. This may be changed using a screwdriver or similar. If switch setting is changed please pay attention to change the marking too.

29.2 DC Power Input, 24V Version

General Specifications

Start-up time	2 Sec.	
Safety	Designed to meet EN 60950	5 mm creepage
EMC	Designed to meet EN50081-2, EN50082-2. IEC801-2/4/5	PCI6000 installed
Switching frequency	80 KHz	

Input Specifications

Input voltage range	16 - 36 VDC	
Input power	100 W max.	
Efficiency	80% typical	Full load; nominal Vin
Hold up time	20 mSec.	Full load; 16 VDC in
Fusing	10 A Slow blow	Internal

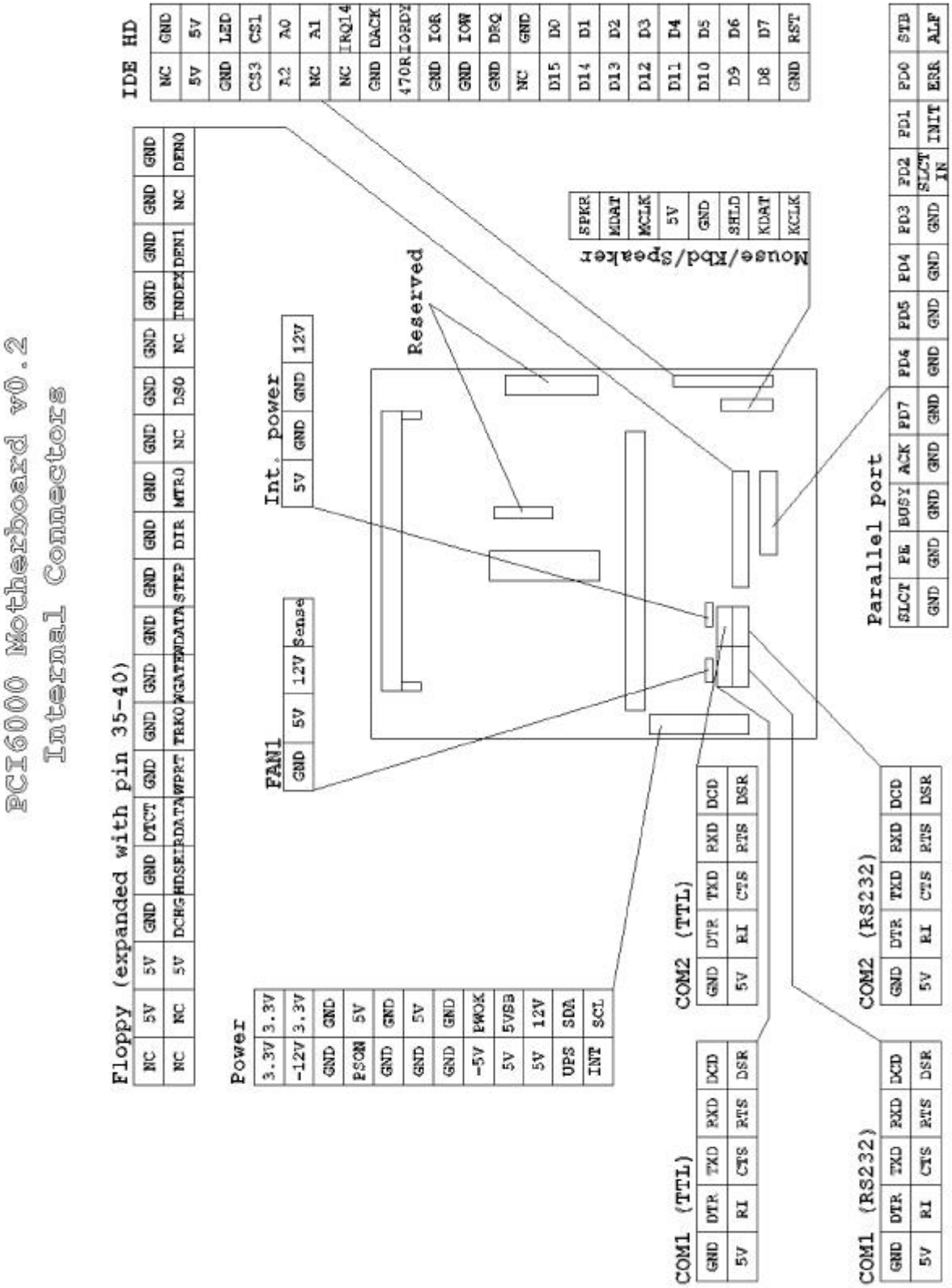
Output Specifications

	V1	V2	V3	V4	V5
Output voltage	+5V	-5V	+12V	-12V	+3.3V
Output current	6A	0,1A	2A	0,1A	6A
Ripple pp	50mV	50mV	200mV	200mV	50mV
Line & load regulation	2%	2%	2%	2%	2%
Setting accuracy	3%	5%	5%	5%	3%
Protection	Overcurrent				
Isolation	Common ground				
Monitoring	Yes				
Remote shut-down	Power ON signal				

The power supply have a +5V @ 0.8A suspend voltage for powerdown.

Chapter 30 Motherboard Level 1

30.1 Motherboard Connector Overview



BAT	Socket for CR2032 3V battery
BIOS1	BIOS flash EEPROM socket
DIMM0	168-pin DIMM socket for SDRAM, PC66/PC100 3.3V compatible
JCOM1, JCOM2	Serial port connectors for non-galvanic RS232
JCOM1_ISO, JCOM2_ISO	Connectors to galvanic isolated RS232/422/485 modules
JCRT	CRT output for analogue monitor
JFAN1	Fan power including tacho signal
JFLP	Floppy connector in male DB-26HD
JIDE_P	IDE interface for 2½" hard disk or solid state disk
JIDE_S	IDE interface for CD-ROM
JKBDMS	PS/2 keyboard and mouse and speaker output
JLPT1	Parallel printer port
JPCIISABUS1	PCI/ISA connector to expansion box
JPOWER1	Power connector for PSU
JPS/2	PS/2 keyboard and PS/2 mouse port
JSDPWR	Power for CD-ROM driver
JUSB	2-port root USB hub
MMC2	Socket for CPU module
RJ45	RJ45 for 10-BaseT/100baseTX Ethernet
JINTPWR	5V and 12V power connector

BAT

Battery socket for mounting a standard CR2032 3V battery (220 mAh). Mount with positive side upwards.

BIOS1

Socket for 2/4 Mbit flash EEPROM containing Award BIOS and Chips & Technology video BIOS.

DIMM0

Socket for 168-pin PC100 SDRAM. Supported DIMM's are 32 MB, 64 MB, 128 MB, and 256 MB.

JCOM1, JCOM2

2x5-pin connectors for serial ports. JCOM1 and JCOM2 signals are driven by RS232 drivers to meet EIA/TIA-232E and CCITT V.28 specifications. Use a pin-row to Dsub-9M cable. Also refer to the jumper settings section.

JCOM1_ISO, JCOM2_ISO

JCOM1_INT and JCOM2_INT are TTL level signal intended for connection internally only to serial port modules.

JCRT

CRT output for an analogue monitor.

JFAN1

Power output connector for a tacho fan.

JFLOPPY

Floppy interface connector which includes power supply for an external floppy drive. The connector consist of the standard 34-pin signal part and an additional 6-pin part containing power supply. The signals are the same as those wired to JFLP. Please note, that the twisting which is normally done in the signal cable to the A: drive is done in PCB routing and the floppy controller supports only one drive. The pin-out is described in the Internal Connectors page.

JFLP

Floppy interface connector in parallel to JFLOPPY. For pin-out see Base Unit Connectors section.

JIDE_P

The IDE interface connector from the primary IDE controller. The connector can be used with a 1-to-1 44-pin (2mm) flat cable to the interface connector of an IDE 2½" hard disk or solid state disk.

JIDE_S

The IDE interface connector from the secondary IDE controller. The connector is intended primarily for an external ATAPI CD-ROM drive, but can be used for an external IDE hard disk as well. The power for the external drive is supplied by the JDSPWR connector. For a complete pin-out description see the section of Base Unit Connectors.

JKBDMS

Internal keyboard connector. This connector is a mutual exclusive alternative to the JPS/2 connector (keyboard and mouse) because it shares the same signals as the JPS/2 connector. The connector is wired with a single pin-row to DIN8 connector cable.

JPCIISABUS1

Expansion box connector. All 16-bit ISA bus signals and 32-bit PCI bus signals are available in this connector. In the expansion box the signals are splitted into standard ISA and PCI slots.

JPOWER1

Power connector input from a power supply. The connector is an expanded version of the standard ATX format.
Pin-out can be found in the Internal Connectors drawing.

JPS/2

PS/2 mouse and keyboard connector. This connector is a mutual exclusive alternative to the JKBDMS connector because it shares the same signals. For a complete pin-out description see the section of Base Unit Connectors.

JSDPWR

Power supply for external CD-ROM or hard disk. For pin-out description see the section of Base Unit Connectors.

JUSB

Universal serial bus ports. For pin-out description see the section of Base Unit Connectors.

MMC2

Socket for CPU of the type Intel P-II Mobile Module 2. For a list of available modules and part numbers contact your local ISC sales representative.

RJ45

Interface for 10/100 Mbit Ethernet. For pin-out description see the section of Base Unit Connectors.

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Part 6

PCI6000 Accessories

Describes Functionallity and Data for Accessories

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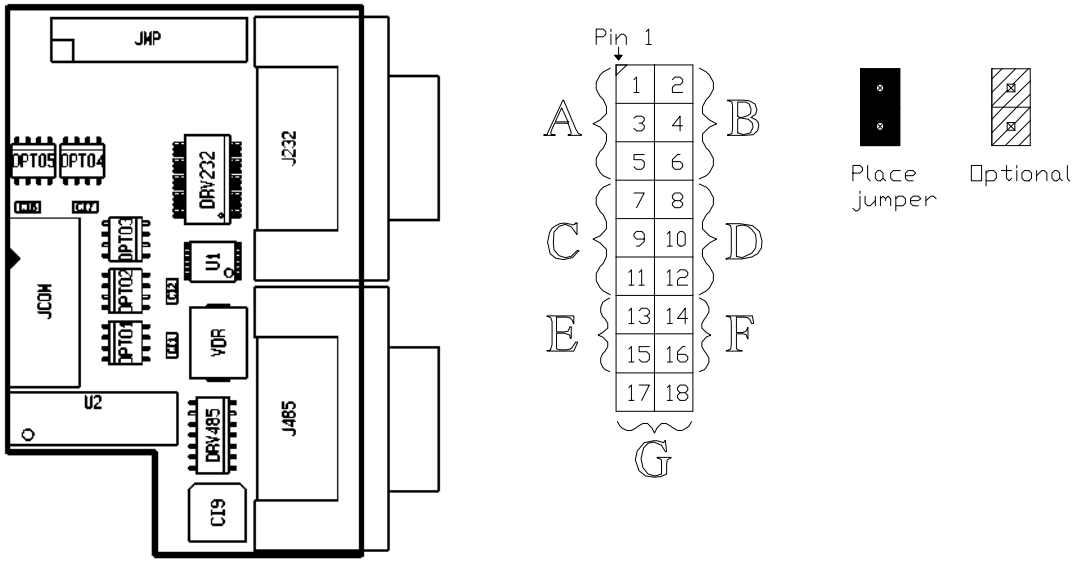
Chapter 31 Serial Port Modules

Optionally, the PCI6000 can be equipped with galvanic isolated serial ports as an alternative to the standard RS232 ports. The isolated serial port, called a serial port module, can be configured in various ways. It supports three different interface standards for serial communication: Full duplex RS232, full duplex RS422 and half duplex RS485. The configuration of the module is done by placing jumpers in the jumper field. In the following the three interface modes are described in detail.

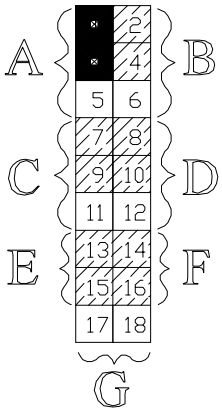


The location of the connectors depends on the PCI6000 model. Each serial port module provides two Dsub-9 connectors: One male and one female. They are not electrically mutual exclusive, as they are only intended to be used one at a time. Please note that the module must be factory mounted.

Please refer to manual Part 3 to find the placement of the respective COM ports on different PCI6000 models.

31.1 Setup for RS232 - Galvanic Isolated

The RS232 interface is wired to the Dsub-9 male connector. To configure the serial port module to RS232 communication, jumpers must be set like illustrated below.

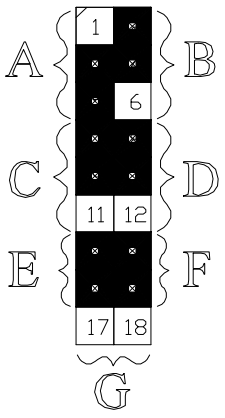


Dsub-9 male pin-out

1 DCD	Data carrier detect
2 RxD	Receive data
3 TxD	Transmit data
4 DTR	Data terminal ready
5 GND	Ground
6 DSR	Data set ready
7 RTS	Request to send
8 CTS	Clear to send
9 RI	Ring indicator

31.2 Setup for RS485 - Galvanic Isolated

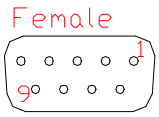
The RS485 interface is wired to the Dsub-9 female connector. RS485 has more configuration possibilities. The basic configuration is illustrated with the following jumper settings. In this case the transmitter and the receiver is controlled by the RTS signal, ie. during transmission the receiver is disabled.



If the controlling signal of the transmitter should be DTR instead of RTS, move the 3-pin jumper, B, to the opposite position (4 + 6).

If the receiver should echo locally the transmitter, then move the 3-pin jumper, C , to the opposite position (9 + 11).

If an 120W termination between TxD/RxD and TxD/RxD is required, then short jumper G as well (17 + 18). Please note, that jumper G is 90° rotated.



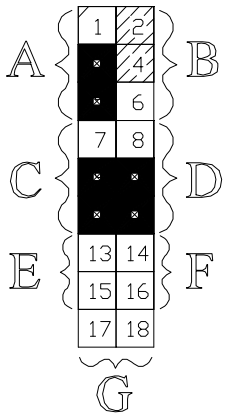
Dsub-9 female pin-out (RS485)

1CHS	Chassis ground
2 NC	Not connected
3 TxD/RxD	Positive transceive
4 -TxD/-RxD	Negative transceive
5 NC	No connect
6 NC	No connect
7 TxD/RxD	Positive transceive
8 -TxD/-RxD	Negative transceive
9 GND	Signal ground

Please note, that eventhough the tranceive signals are duplicated (pin 3 and 7, pin 4 and 8), you would normally only want to use one of each, eg. pin 3 and pin 4.

31.3 Setup for RS422 - Galvanic Isolated

The RS422 interface is wired to the Dsub-9 female connector. RS422 have two configuration possibilities. The basic configuration is illustrated with the following jumper settings.



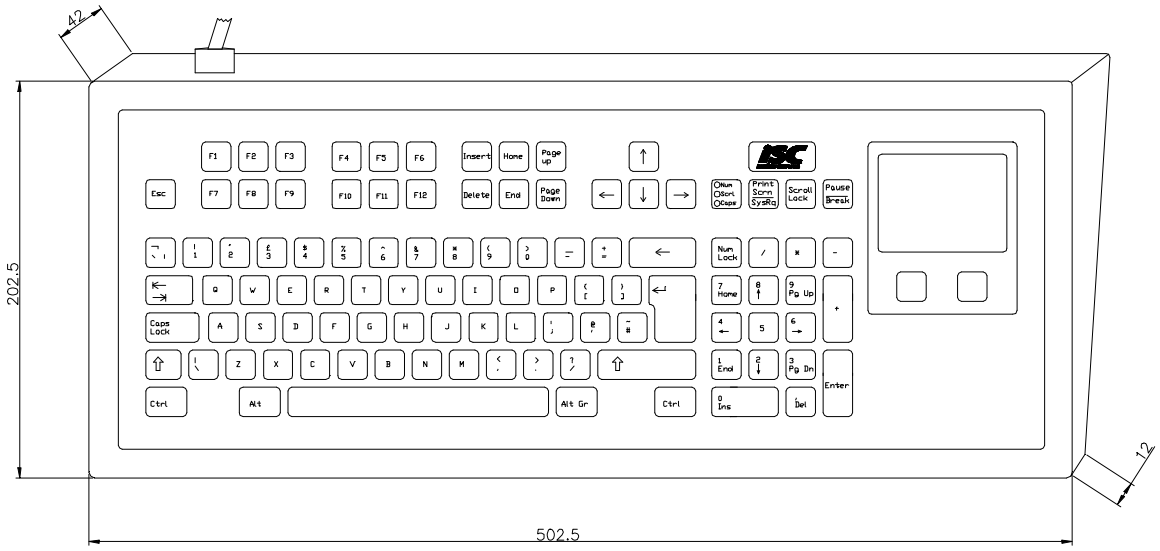
If an 120W termination between RxD and RxD- is required, then short jumper G (17 + 18) as well. Please note, that jumper G is 90° rotated.

Dsub-9 female pin-out (RS422)

1 CHS	Chassis ground
2 NC	Not connected
3 TxD	Positive transmit
4 -TxD	Negative transmit
5 NC	No connect
6 NC	No connect
7 RxD	Positive receive
8 -RxD	Negative receive
9 GND	Signal ground

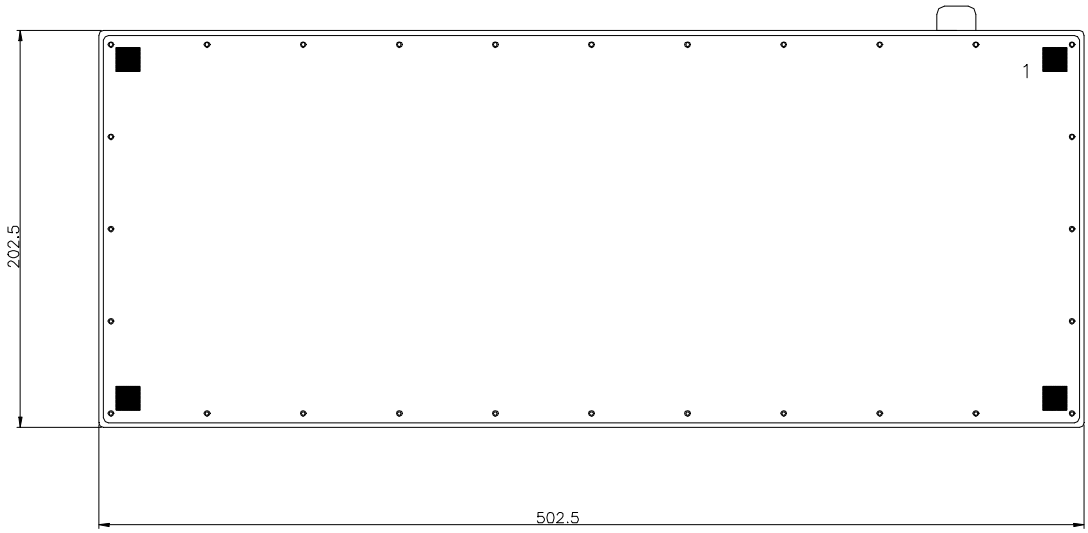
Chapter 32 Full External AT Keyboard

32.1 Tabletop Version



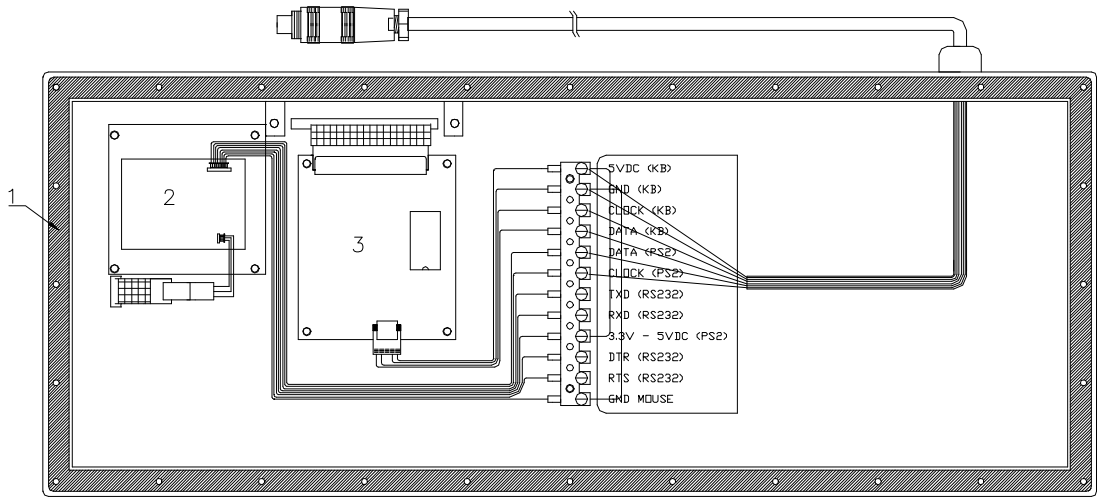
Outer Materials	:	Stainless steel ASI 316, polyester, reverse printed with tactile feedback
Protection	:	IP65, NEMA 4/12
Language	:	Danish, English, or German keyboard
Depth	:	Including non-skid rubber feet (5 mm)
Cable Material	:	Polyurethane, length 1600mm
Connector	:	DIN 8 pin IP65/NEMA 4/12
Layout	:	Qwerty, 102-key and mouse
Contact Technology	:	Tinplated beryllium copper
Power Consumption	:	+5V DC, max. 120mA
Operative Temperature	:	0°C to 55°C
Interface	:	PS/2

Back



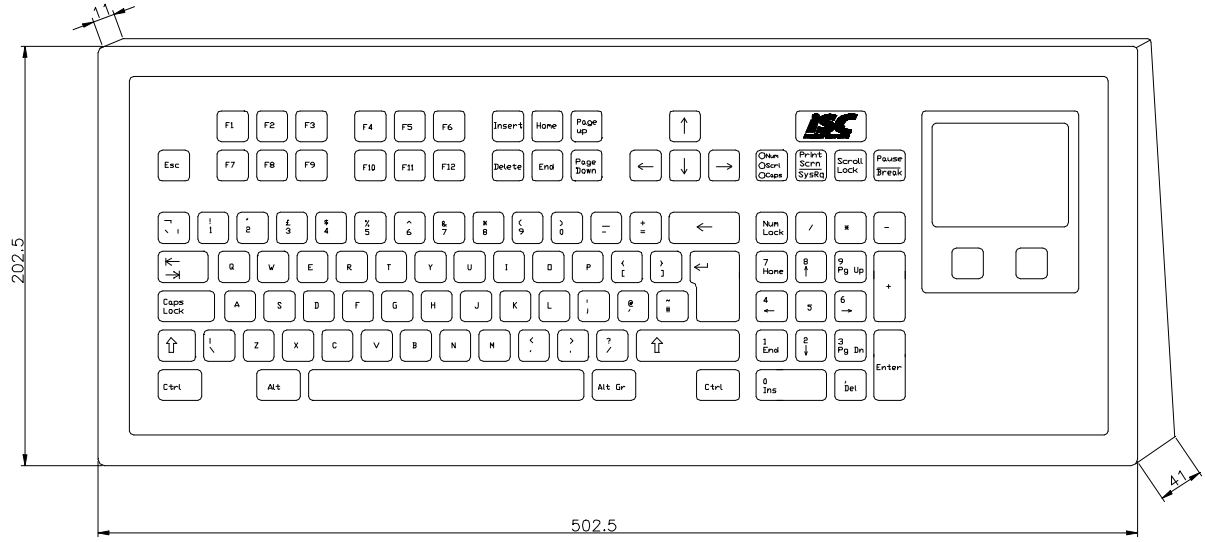
1 : Non-skid rubber foot (5 mm)

Inside X-ray View



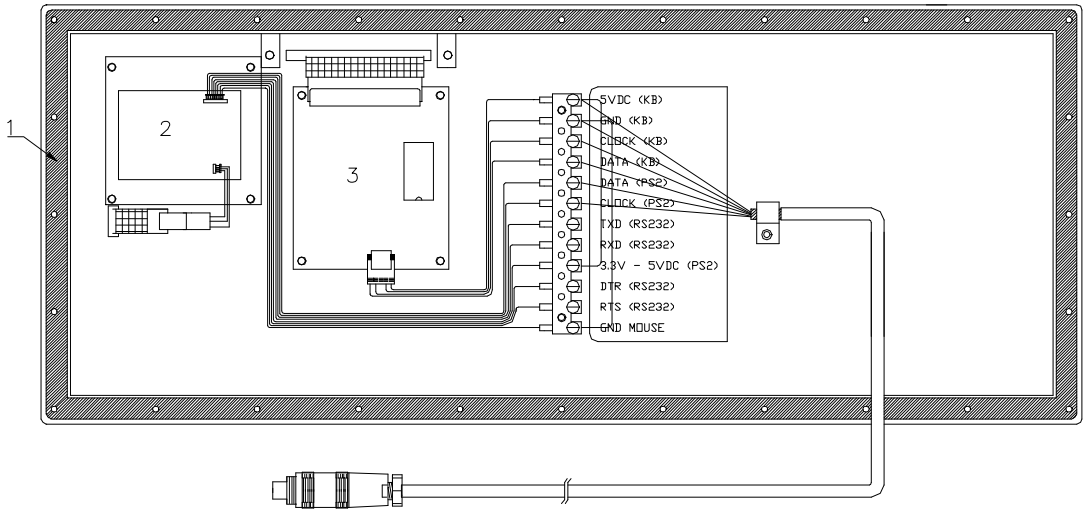
1 : Gasket
2 : Mouse device
3 : Keyboard controller

32.2 Wall-Mounted Version



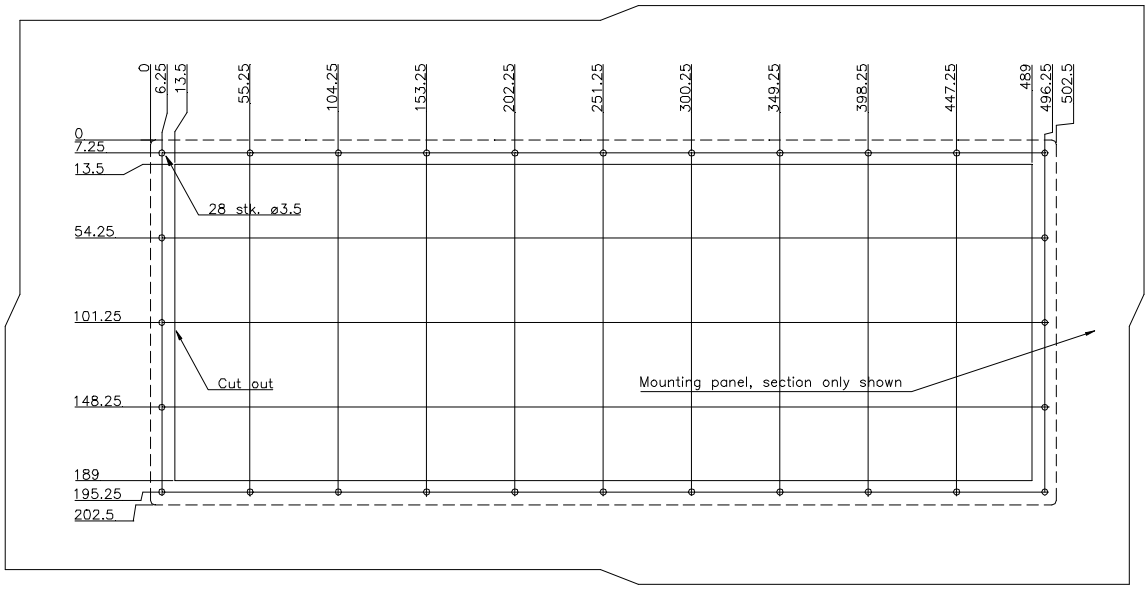
Outer Materials	:	Stainless steel ASI 316, polyester, reverse printed with tactile feedback
Protection	:	IP65, NEMA 4/12
Language	:	Danish, English, or German keyboard
Cable Material	:	Polyurethane, length 1600mm
Connector	:	DIN 8 pin IP65/NEMA 4/12
Layout	:	Qwerty, 102-key and mouse
Contact Technology	:	Tinplated beryllium copper
Power Consumption	:	+5V DC, max. 120mA
Interface	:	PS/2

Inside X-ray View



1	:	Gasket
2	:	Versa Pad
3	:	Keyboard controller

Cut Out



Chapter 33 Disk Drives

33.1 CD Rom Kit

For easy access to CD Rom drive we recommend to purchase the ISC CD Rom kit. The kit consists of:

- CD Rom drive
- Data cable
- Power cable

P/N: U036050

33.2 Floppy Disk Kit

For easy access to Floppy Disk drive we recommend to purchase the ISC Floppy Disk kit. The kit consists of:

- Floppy Disk drive in metal housing, white
- Combined data/power cable, 1 m.

P/N: U023206

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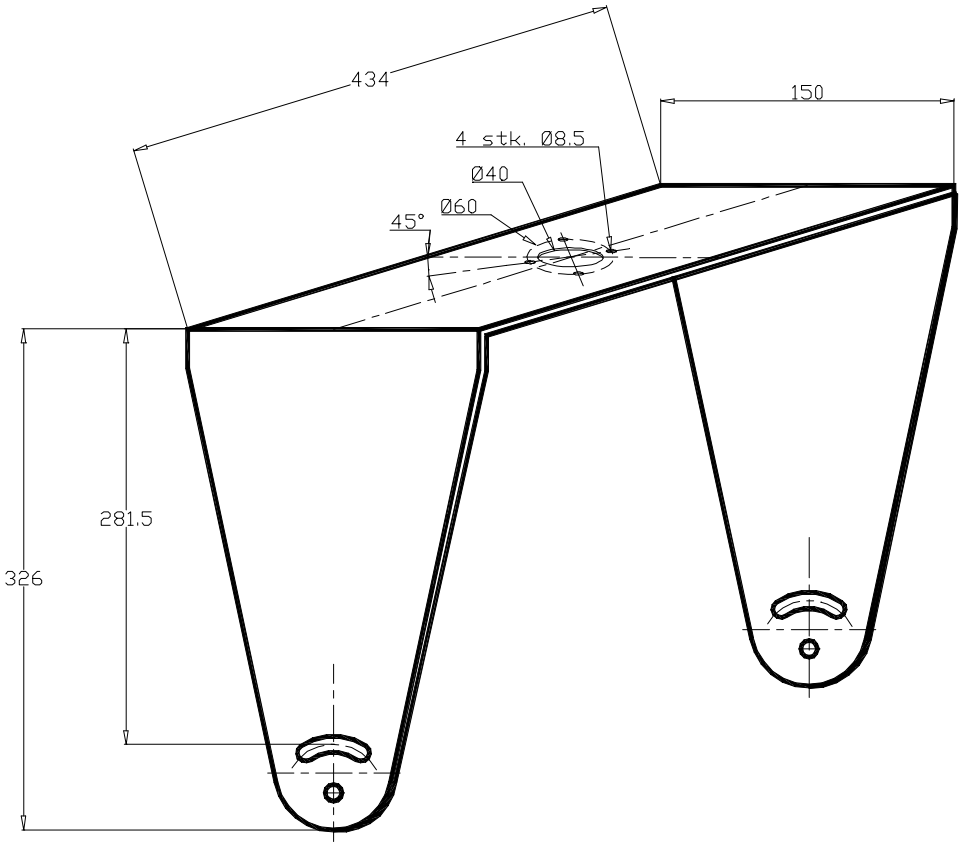
Chapter 34 Level 4 Mounting Brackets

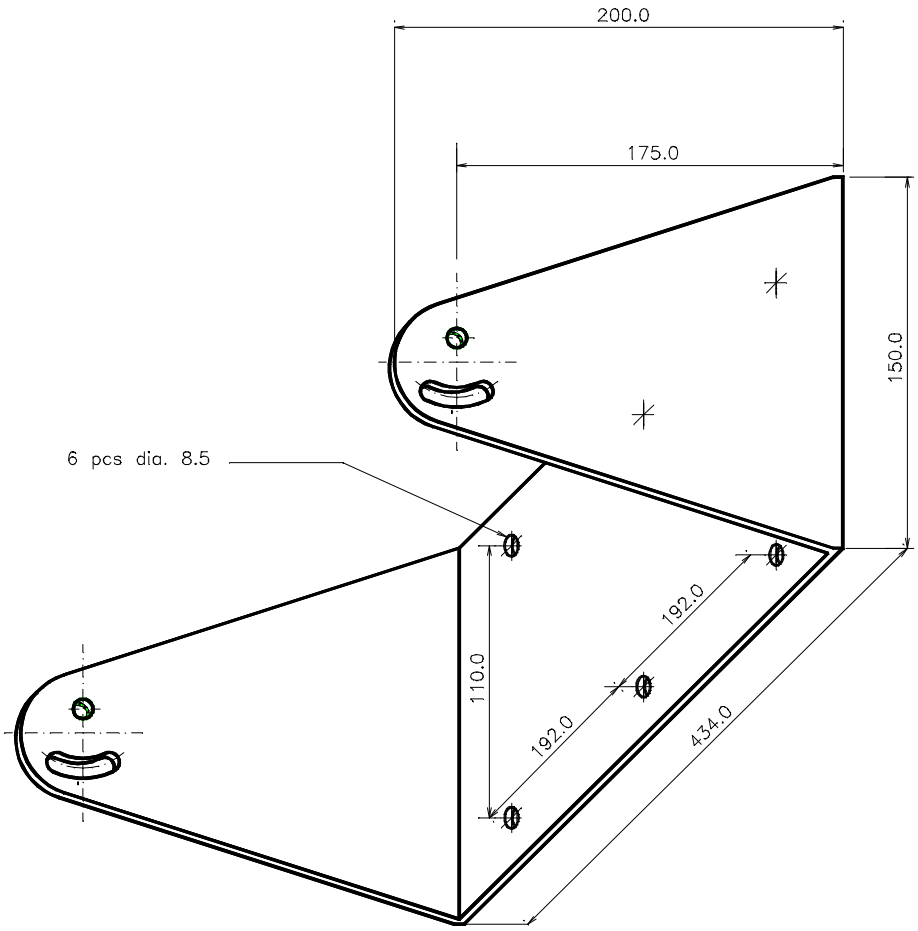
Level 4 Top Mounting Bracket, L=434 mm

TOP mounting : P/N U017201



Level 4 Wall Mounting Bracket, L=434 mm

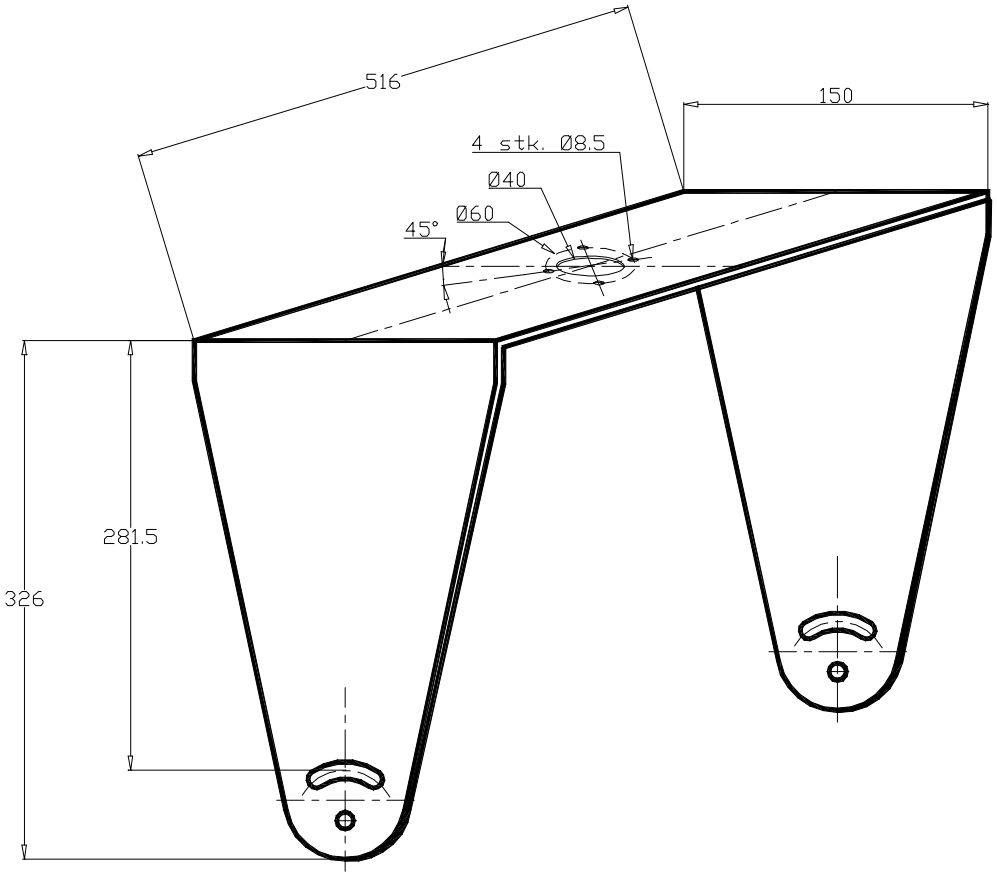
WALL mounting : P/N U017200
Fits : Level 4A 15”
Level 4D 12”



Materials : Stainless steel ASI304

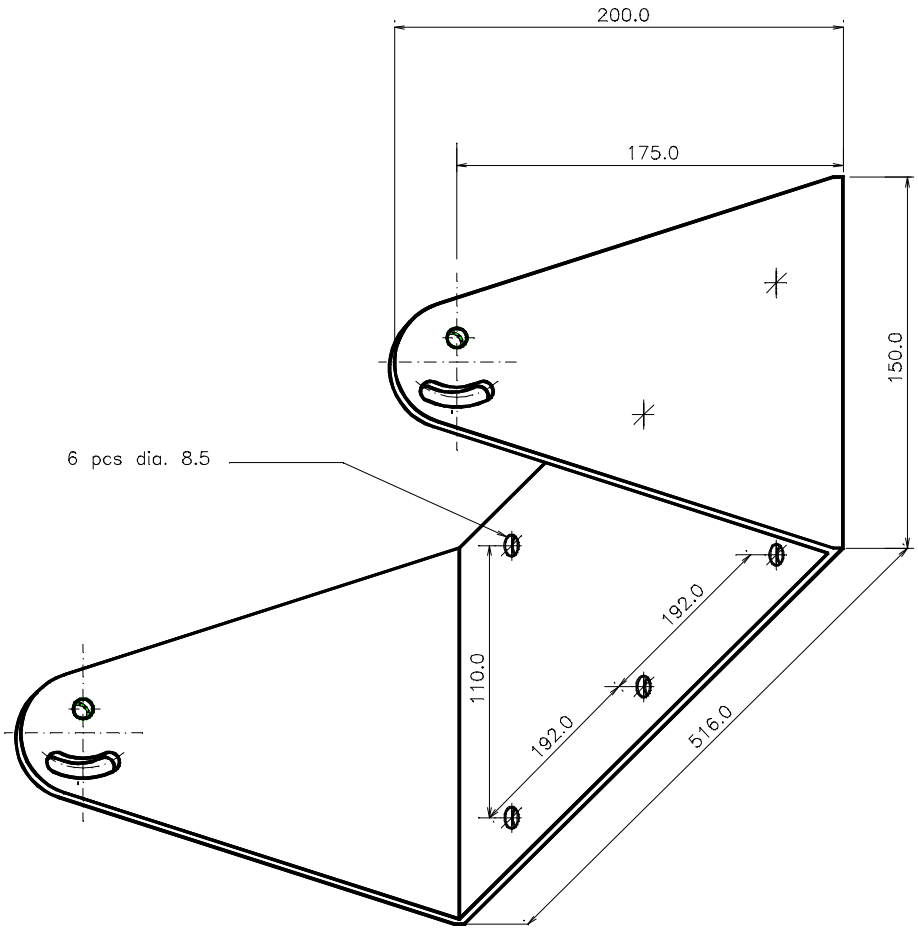
Level 4 Top Mounting Bracket, L=516 mm

TOP mounting : P/N U017207



Level 4 Wall-Mounting Bracket, L=516 mm

WALL mounting : P/N U017206
Fits : Level 4A 17”
Level 4D 15”



Materials : Stainless steel ASI304