USER
GUIDE

IMPACT 400

Not the actual front page

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IMPACT 400

TABLE OF CONTENTS

This publication is printed on recycled paper.

The information contained in this user guide is preliminary, and the products described herein are subject to change without prior notice.

The symbols ⚠ and ☞ are used in this publication to indicate Warning and Note respectively.

1   INTRODUCTION

The LCD panel is a state of the art projection device that can be connected to most computers and display true 800 x 600 resolution.

The ability to display a multitude of colors as well as high resolution makes it the ideal choice for presenting computer generated text and graphics.

Applications include presentations, software training, educational use, advertising, information boards and other situations where a small or large audience shares information.

2   MAIN FEATURES

- **True SVGA (800x600) TFT-panel**
- **16.7 million colors**
- **Supports image resolutions from 640x480 up to 1024x768, including Power Mac 1152x870**
- **BatMouse™, infrared remote mouse**
- **User settings memorized**
- **Individual settings for all modes**
- **Housing footprint fits OHP glass exactly**
- **Low weight**
- **Intelligent Safecool system**
- **False light blocking**
- **4 meter cable**
- **Built-in Scan Converter**

3   SUPPLIED MATERIAL

A complete set includes the following components :
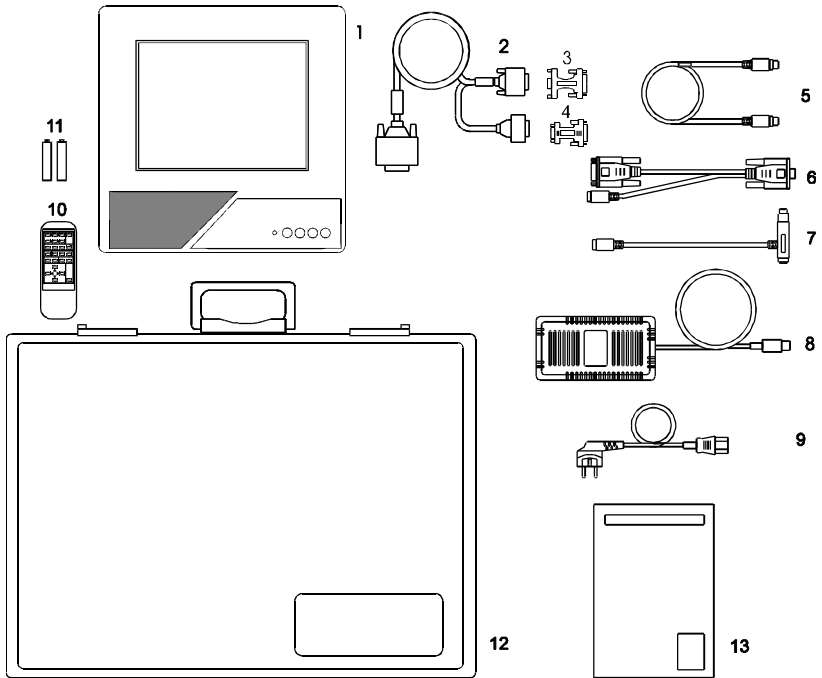
1. LCD Panel
2. VGA-Cable
3. Cable-Adapt. MAC mon.
4. Cable-Adapt. MAC comp.
5. Mouse Cable
6. Mouse Adapter PC
7. Mouse Adapter Mac

8. Power -5, 12, 5 V
9. Power Cord
10. BatMouse Remote Control
11. Batteries
12. Attaché Case
13. User Guide

4   OPTIONAL MATERIAL

Optional cables and adapters are available for special computer sources.

5   SETTING UP THE LCD PANEL

Switch off all equipment before connecting the components. Be aware of static electricity that may build up, especially in the dry season and when operating on synthetic carpets. Discharge any static electricity by touching a metallic surface before you start.

Place the LCD panel on top of a transmissive overhead projector (OHP). Select a high intensity type projector, for instance 400W halogen or 575W metal-halide. Best results are obtained in a dimmed room with no direct sunlight.

The following are guidelines for first time set-up:

Connect the cables and power supply as illustrated on the rear foldout page (see *Connection Layout*).

Attach power to the LCD panel, then turn the overhead projector and computer on.

⚠   *Do not switch on the OHP unless the LCD panel is powered, as this may cause permanent damage.*

If you are going to use a mouse, make sure to power the LCD panel first. For more information on set-up see the following sections on *Computer/Mouse.*

5.1   COMPUTER

Connect the LCD panel, computer, monitor and power supply as shown in the rear foldout.

Connect cable (1) between the LCD panel and the computer.

The LCD Panel can be attached to computers and supports up to 1024x768 image resolutions in compressed/panning mode. With Macintosh (Power MAC), resolutions up to 1152x870 is supported. Refer to the *Compatibility* table on page 23 for further details.

If you have a Macintosh computer, insert applicable adapters (4) and (5) as shown. If you have a workstation, insert applicable adapter as described in the table below.

Connect the power supply to the LCD panel (3).

TO SET UP FROM THE BATMOUSE REMOTE CONTROL :
To assist you in setting up and fine tuning the panel, fill a large portion of your screen with a 50% grey pattern (alternating black and white pixels). Then make sure that the panel is set to direct (1:1) default mode before adjusting the frequency setting. This can be done by pressing the SCALE button on the remote control.

STEP	OPERATION
1	Press RESET for default settings
2	Adjust FREQUENCY if chequered image is not regular
3	Adjust TUNE for a stable image
4	Press POSITION, then use cursor keys to position the image
5	Adjust CONTRAST and BRIGHTNESS as desired

5.2   RGB VIDEO

The LCD panel can project video images from Video Cassette Recorder or Laser Disk source using direct RGB connection with composite sync on H. When using the VGA-to-BNC adapter (Part# 301.111), connect the Red-Green-Blue to the RGB source and connect composite sync to the black H connector. The yellow V connector remains unused.

This will give a projected video image resolution of 768x576 in PAL and 640x480 in NTSC. The image cannot be scaled by using the SCALE button or the remote control.

You may also use the video adapter (Part# 101.081) to drive scan doubled PAL/NTSC/SECAM from any standard composite Video (CV) source. This will allow video to be scaled to full 800x600 image size. With the video adapter II the image size is 768x576 (Part#101.082).

5.3   MOUSE

Connect the mouse to the LCD panel using the appropriate adapter (5) as described in the table below. Then connect the adapter (5) to the mouse cable at the computer end. Finally, connect the mouse cable to the LCD panel (2).

For the computer to recognise the mouse, connect the mouse before power is applied.

A Y-split is provided with the PC and MAC adapters that enables parallel use of the local computer mouse and the remote mouse. The local and remote mice should however not be operated simultaneously, as this may lead to unpredictable positioning of the mouse pointer.
If you have a Macintosh, make sure to connect your Mac mouse adapter via the keyboard.

The PS/2 adapter does not have a Y-split.

To use the mouse function with workstations requires workstation compatibility with one of the mice defined below.

APPLICABLE ADAPTERS:

MOUSE	*ADAPTER*	*DRIVER*
Microsoft 2 key compatible (9 pin serial port)	PC *)	Microsoft
PS/2 compatible mouse	PS/2 (option)	IBM PS/2
Macintosh ADB-bus mouse	MAC	Self detecting

*)   Please note that some computers using the Microsoft 2 key mouse may not allow the Y-split mouse adapter to work. A special straight PC adapter is available for this purpose.

USING THE BATMOUSE :

STEP	OPERATION
1	Control mouse pointer directly with the cursor keys
2	Press LEFT to activate (emulates the left mouse key)
3	Press DRAG to tag an object, move it using the cursor keys, then press DRAG again (or wait 5 seconds) to release the object.
4	Press RIGHT if your application requires emulation of the right mouse key.

The centre key of three-key mice is not emulated.

If double-click does not work properly, try to adjust the double-click rate within the computer application in use.

6   USING THE LCD PANEL

The LCD panel has a set of connectors and controls that you need to know in order to operate the device correctly.

6.1   REMOTE CONTROL

The infrared BatMouse remote control (RC) is the main user interface to the device. The RC is used to set the LCD panel correctly (to get the best possible viewing conditions) and to control the presentation.

The figure shows the different keys of the BatMouse.
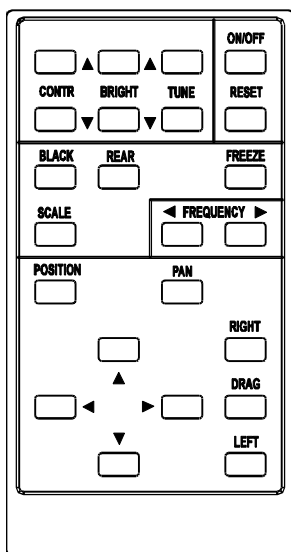
Set-up should be done once with the application(s) you are running most frequently. Allow some minutes for the equipment to warm up before adjusting. Most settings will automatically be memorized individually for each source for future use.

The 'MEM' column in the tables below indicates whether the setting is memorized for each source. For a detailed overview, see the *Features* section.

BATMOUSE KEYS :

CONTROL	*FUNCTION*	*MEM*
CONTR	Contrast (ratio between light and dark colors)	YES
BRIGHT	Brightness (whiteness)	YES
TUNE	Adjusts the stability of the image	YES
ON/OFF	Turns the panel on/off	-
RESET	Defaults to standard settings	-
BLACK	Blackens the screen	NO
REAR	Mirrors the image for rear projection	NO
FREEZE	Holds the image displayed	NO
FREQ	Adjusts the video frequency	YES
PAN	Allows panning within oversized images (resolution >800x600) using cursor keys.	NO
SCALE	Selects direct mapping (1:1) or scaling of image	NO
POSITION	Controls the image positioning with cursor keys	YES
CURSORS	The four cursor keys control the computer mouse	-
RIGHT	This key emulates the right mouse key	-
DRAG	This key emulates the drag function	-
LEFT	This key emulates the left mouse key and is also used to execute menu commands	-

6.2   FRONT PANEL

The front panel keyboard consists of a subset of the remote control keys.
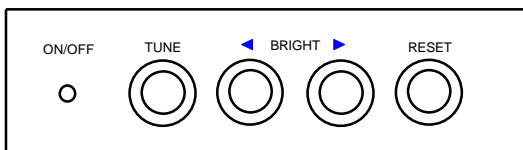
CONTROL	*FUNCTION*
TUNE	Adjusts the stability of the image
BRIGHT	Adjusts the brightness (whiteness) of the image
RESET	Defaults to factory settings
ON/OFF	LED activity indicator

6.3   CONNECTORS

All connectors are positioned on the right hand side of the LCD panel. See the technical data section for pinouts of the various connectors.
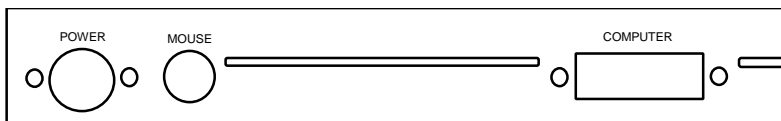
Do not connect any other devices with similar plugs to the connectors of the LCD panel, as this voids any warranty and may cause permanent damage to the device.

CONNECTOR	*FUNCTION*
POWER	Low voltage power supply
MOUSE	Universal mouse connector
COMPUTER	Analog RGB video input

7   FEATURES

The LCD panel has a variety of different features implemented. This chapter explains each feature in detail.

7.1.1   INTELLIGENT SAFECOOL SYSTEM

The fan operation is controlled by the overhead projector light (OHP). This safety feature ensures that the fan is always operating as long as the OHP is turned on. When the OHP is turned off, the fan automatically stops to minimize noise. The power supply must be attached to the panel for the fan to work properly.

7.1.2   SET-UP MEMORY

The user controlled set-up, that usually is done when the panel is connected to a new computer, is automatically memorized for future use. The set-up information is stored in a non-volatile memory approximately 5 seconds after the last key is pressed.

The memory can store 40 different sources/modes. Several sources are predefined, while the remaining are available for customer set-up of sources.
See the *Technical Data* section for compatibility.

Custom sources are stored only if their sync pattern differs from any of the previous selections. The panel automatically selects a new memory location.

Most settings are stored individually for each mode, including contrast, brightness, tune etc. See the remote control table above.

7.1.3   CONTRAST

The contrast of an image is defined as the relation between dark and light colors. An image of high contrast is often regarded as 'hard', as compared to the 'soft' feeling of a low contrast image. Low contrast is recommended for long term viewing, while high contrast is used to enhance details. Use the CONTR keys on the remote control (RC) to adjust the contrast. Also see *Brightness*. The contrast setting is stored individually for each mode.

7.1.4   BRIGHTNESS

The brightness is the amount of white in an image. The brightness is adjusted to the ambient lighting conditions. Usually, a bright, low contrast image is preferred. Use the BRIGHT keys to adjust brightness. See also *Contrast*. The brightness setting is stored individually for each source.

7.1.5   TUNE

This feature enables a stable image. An unstable image can be seen as sideways instability or 'swimming'. Press TUNE until a stable image is achieved. The setting is stored individually for each source.

7.1.6   ON/OFF

This switch controls the operation of the panel. When switched on, all functions are active. When switched off, the automatic fan control is still operating, but the image is turned white. The ON/OFF switch is a toggle key.

7.1.7   RESET

This feature enables standard settings of most controls. RESET will only reset the mode active.

A fundamental master reset may be performed by pressing all four front panel keys simultaneously for approx. 5 seconds. All settings will return to factory defaults, so do not perform a master reset unless it is really required. This operation will also erase all custom sources and modes that have been memorized.

7.1.8   BLACK

Use the BLACK key on the RC, if you temporarily want to suspend the display of images. The BLACK key is a toggle function, and the screen goes black when activated. Any key pressed will release BLACK.

7.1.9   REAR

The panel can be set to project a mirrored image for rear projection. Rear projection is used when only the actual image is displayed, without showing the projection equipment. A special transmissive screen is needed. A typical application is in exhibitions. REAR is a toggle function on the RC.

7.1.10   FREEZE

Press the FREEZE button on the RC to lock the image displayed. This feature is useful if you want to make changes locally on your computer that should not be presented to the audience. Press FREEZE once more to

resume on-line operation. Any other key pressed will also release
FREEZE.

7.1.11   FREQUENCY

This setting is provided for adaptation to computers and graphics adapters
that are not recognized automatically by the panel. An incorrect frequency
setting can be seen as an image to wide or too narrow, combined with
vertical, unstable bands. To better see this effect, fill a large portion of your
screen with a 50% grey pattern (alternating black and white pixels). Make
sure that scan conversion is deactivated i.e. your image is viewed in
default 1:1 mode. This is done by pressing the SCALE key on the remote
control. Press the FREQUENCY keys left or right to adjust the setting until
all vertical banding disappears. The final setting is stored individually for
each source.

7.1.12   PAN

Panning is applicable with oversized images (1024x768) when displayed in
1:1 (not compressed, see SCALE). Press PAN , then use cursor keys.

7.1.13   SCALE

Scaling is applicable to images that have a lower or higher resolution than
the 800x600 panel active area. Pressing SCALE toggles between direct
mapping (1:1) or scan conversion of oversized images (1024x768), or scan
conversion of undersized images (640x480). Default is direct mapping.

7.1.14   POSITION

Due to minor variations in graphics adapters, the horizontal and vertical
position may need adjustment. Press POSITION, then use the cursor keys
to position the image. The position is stored.

7.1.15   MOUSE

The remote control (RC) employs a unique mouse functionality that
enables full mouse control of your PC, PS/2 or Macintosh computer. By
default, the cursor keys of the remote control emulate the mouse.

The LEFT and RIGHT keys emulate the left and right keys on a standard
two-key mouse (for Macintosh, only the left key is used).

The DRAG key is used to emulate the click-and-hold action. To move an
object, position the mouse cursor, press DRAG to tag the object, position
the object as desired using the cursor keys, then press DRAG again to
release the object. DRAG is automatically released 5 seconds after the last
key is pressed.

8   PRACTICAL HINTS AND TIPS

This is a list of what to do when things go wrong. Check the symptoms carefully if you experience any problem. The cure may be at your hands!

Always press the RESET key and observe that the LED on the LCD panel is flashing. This indicates that the LCD panel receives signals from the remote control..

The LCD image is completely black
- *Check the BLACK switch*
- *Check the CONTRAST and BRIGHTNESS settings*
- *Check if the cables are connected and that power is on (LED on front panel)*
- *Check the ON/OFF key on the remote control*

The LCD image is too dark or too light
- *Check the CONTRAST and BRIGHTNESS settings*
- *Try the RESET key*

Some colors are unstable or flickering
- *Try to adjust the CONTRAST, BRIGHTNESS or possibly TUNE*

The whole LCD image appears unstable or misplaced
- *Try to adjust the FREQUENCY, TUNE or POSITION*
- *Check that you run a resolution/refresh rate within specifications*
- *Alternatively, you are most probably connected to a non-standard computer or video card. See the Features section for frequency adjustment and positioning*

The cooling fan is not working
- *The fan operation is controlled by the overhead projector light Is the OHP turned on?*
- *Is the panel positioned so that the housing footprint fits the OHP glass exactly?*
- *Check that the panel power supply is attached*
- *Try to unplug the power cord and replug it again*
- *Do not use the LCD if the fan appears defective, as overheating may occur*

The remote control is not working
- Check if the batteries need replacement (observe LED on panel)
- Be sure to point at the projection screen or directly at the IR eye in the front of the LCD panel
- You may be too far away from the panel (max. distance 7 m/ 23 feet)

The mouse is not working
- Make sure that the LCD panel is switched on first
- Remember to connect the mouse cables before the computer is switched on
- Check if the mouse cable and adapter are properly connected
- Please check the mouse driver settings on the computer (see Mouse section)

9   MAINTENANCE

From time to time, the housing and protection glasses may be cleaned with a damped, non abrasive cloth, possibly using a mild detergent to remove spots.

The upper protection glass is not removable, as it only needs cleaning from the outside (the inside is sealed to the LCD module).

The lower protection glass can be removed for cleaning. Place the unit upside-down on a soft cloth to avoid scratches. Unscrew the four screws holding the bottom glass in place. Remove the glass for cleaning and replace.
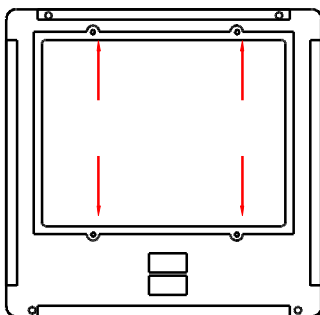
10 SERVICE

This product contains no user serviceable parts. Attempts to modify mechanics or electronics inside the housing will violate any warranties, and may be hazardous.

If for any reason the product fails to work properly, first check the previous chapter on hints and tips. If things still do not work, please contact your dealer for technical support. Prepare a list of the symptoms you observe to make the diagnosing easier for your dealer. Remember to include all cables and power supply when returning the goods.

If the problem cannot be solved by the dealer, please see the service information printed on the last page.

11 TECHNICAL DATA

The technical data may change without prior notice in order to improve the product performance.

The apparatus is designed for indoor use and should not be operated outside the general environmental limits, as this may lead to permanent damage and violation of any warranties.

GENERAL ENVIRONMENTAL LIMITS

STORAGE TEMPERATURE	-20 ~ 60 C (-4 ~ 140 F)
STORAGE HUMIDITY	10 ~ 90 percent relative humidity, non condensing
OPERATING TEMPERATURE	10 ~ 35 C (50 to 95 F)
OPERATING HUMIDITY	20 ~ 80 percent relative humidity

Allow for a slow acclimatization, after storing at extreme temperatures and humidities, to avoid condensation. Should condensation appear, operate for some time on an OHP, as the heat generated will vaporize the water.

DISPLAY UNIT

Full color (RGB) unit connecting directly to external video sources.

SIZE	310 x 310 x 42 mm 12.2 x 12.2 x 1.65 inch
WEIGHT	2150 grams 4.7 pounds
LCD CELL	Active matrix TFT
COLOR RESOLUTION	16.7 million
RESPONSE TIME	30 ms
CONTRAST RATIO	100:1
PIXEL RESOLUTION	800 x 600 x 3 (RGB)
SCREEN DIAGONAL	10.4 "
MOUSE COMPATIBILITY	Microsoft two key compatible serial (9 pin) PS/2 compatible two key Macintosh ADB compatible one key
VIDEO FREQUENCY	125 MHz (max) *)
HORIZONTAL FREQ.	100 kHz (max) *)
VERTICAL FREQ.	100 Hz (max) *)
COMPUTER INPUT	0 ~ 1.0 Vpp
DEFECTIVE PIXELS	Maximum 25 (black, red, green or blue)
APPROVALS	CE, FCC, Class A, Subpart J, Part 15

*) See compatibility list for applicable combinations

POWER SUPPLY

Primary switched universal type AC to DC converter.

INPUT VOLTAGE	100 to 250 VAC
OUTPUT VOLTAGES	+5VDC, +12VDC, -5VDC
CONNECTOR	5 pin DIN male
APPROVALS	CE, TÜV, UL, CSA, N, S, D, FI

REMOTE CONTROL

Infrared wireless remote control.

BATTERIES	2 pcs LR03/AAA 1.5V penlight
RANGE	7 m 23 feet

COMPATIBILITY

The unit is predefined for the following interfaces. In addition, the user can configure the panel for other interfaces with a total maximum of 40 definitions altogether (predefined and user defined).

MODE	*RESOLUTION*	*MAX VERTICAL FREQUENCY*
GENERIC	640x350 640x400 640x480 720x480 800x600 1024x768	85 Hz 85 Hz 85 Hz 85 Hz 100 Hz 100 Hz
VGA, MCGA	640 x 350 640 x 400 640 x 480 720 x 400	85 Hz 85 Hz 85 Hz 85 Hz
SVGA	800 x 600	100 Hz
XGA	1024 x 768	100 Hz
MAC	640 x 480 1024 x 768 1152 x 870	85 Hz 100 Hz 80 Hz

12 CONNECTORS

The pinouts of all external connectors are described.

**POWER**
This connector feeds regulated DC power to the panel.

1	GND
2	GND
3	+5VDC
4	-5VDC
5	+12VDC

5 PIN DIN FEMALE (FRONT VIEW)

MOUSE
This connector is used for mouse control.

8 PIN MINIDIN FEMALE (FRONT VIEW)

1	MAC ADB	5	RS232 RTS
2	PS/2 CLOCK	6	RS232 RXD
3	PS/2 DATA	7	RS232 CTS
4	RS232 TXD	8	GND
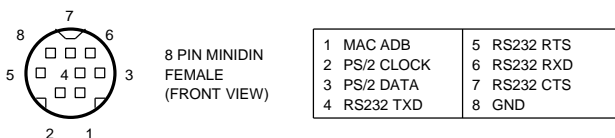
COMPUTER
This connector relays all sync and data signals from the computer to the panel and back again to the CRT monitor.

26 PIN HIGH DENSITY DSUB FEMALE (FRONT VIEW)
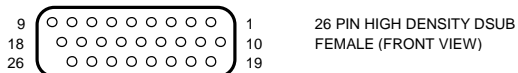
1	ANALOG R IN	10	ANALOG R GND IN	19	HSYNC IN
2	ANALOG G IN	11	ANALOG G GND IN	20	C/VSYNC IN
3	ANALOG B IN	12	ANALOG B GND IN	21	DIGITAL GND
4	NOT USED	13	NOT USED	22	PCID0
5	NOT USED	14	NOT USED	23	PCID1
6	NOT USED	15	NOT USED	24	DIGITAL GND
7	ANALOG R OUT	16	ANALOG R GND OUT	25	HSYNC OUT
8	ANALOG G OUT	17	ANALOG G GND OUT	26	VSYNC OUT
9	ANALOG B OUT	18	ANALOG B GND OUT		

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13 FCC STATEMENT

This equipment has been certified to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC rules. Only peripherals (computer input/output devices, terminals, printers, etc.) certified to comply with the Class A limits may be attached to a computer that complies with Class A limits. When connecting to a peripheral device, a shielded input/output cable is required to ensure compliance with FCC rules. The shielded cable that must be used is supplied with the equipment. Operation with non-certified peripherals or non-shielded cables is likely to result in interference to radio and TV reception.

INSTRUCTIONS TO USER

This equipment generates and uses radio-frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures :

> ***Reorient the receiving antenna.***
>
> ***Relocate the computer with respect to the receiver.***
>
> ***Plug the equipment to a different outlet so that equipment and receiver are on different branch circuits.***
>
> ***Fasten cables using mounting screws to ensure adequate EMI control.***

You may require the following booklet from the Federal Communications Commission (FCC) : "How to identify and resolve radio and TV interference problems", available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

14 ENVIRONMENTAL STATEMENT

This product is manufactured to minimize the stress and pollution of the surroundings. Where possible, recyclable materials are used.

ITEM	RECYCLING / HANDLING
PACKAGING	Only recyclable materials are used
MECHANICS	Only recyclable plastics and metal is used. Recycling codes are moulded in the plastic. Metal parts are painted aluminium and steel.
ELECTRONICS	No CFC is used during manufacture. No components that require special handling are used.
LCD MODULE	The liquid does not contain toxic or cancer causing materials. No special ventilation is needed when handling a broken cell. Use gloves and wash your hands afterwards to avoid any irritation to skin. The module is largely made up of glass, so handle broken units carefully to avoid wounds.

15 SERVICE INFORMATION

In cases where a problem cannot be solved by the assistance of your dealer, please call the following number to get an **RMA** (Return Authorization Number) :

+47 69 34 01 55 (Norway)

To return the defective unit, package well (preferably using the original packaging material), enclose a copy of your sales receipt and a description of the problem you experience, and ship **prepaid** to :

ASK AS
Customer Service Department
RMA ....
N-1602 FREDRIKSTAD
NORWAY

Be sure to include your RMA number on the outside of the shipping box, as units without this number will be returned to sender without processing.

16 CONNECTION LAYOUT

The foldout shows how to connect the LCD panel to the computer.

1. VGA Cable
2. Mouse Cable
3. Power Supply
4. Cable-Adapter MAC-mon.
5. Cable-Adapter MAC-comp.
* or other applicable comp./mon. adapters
6. Applicable Mouse Adapters