The Xyber®View Head-mounted Display (HMD)

Several Head-mounted Display options are available. Each HMD is comprised of a Headset, Display Unit and Display Optics for viewing. Using the HMD, images appear to your eye as if viewed on a 15 inch monitor. Refer to the documentation that accompanied your HMD for more information.

Never use the HMD when operating a motor vehicle or machinery. Refer to "Health and Safety" on page ix for more information.

The HMD and FPD are sold separately in bundled configurations. The HMD is available with a hardhat option, allowing it to be worn with protective headgear.

Refer to documentation that accompanied your HMD for more information.

The Xyber®Key wrist-worn keyboard

The lightweight, 60-key, wrist-worn keyboard is a fully functional keyboard, but in a compact design. It connects to the USB port on the CPU or Holster and may be used with the HMD to aid in navigation and data input.

Refer to "Navigating without a mouse" on page 29 for navigation tips.

Ear piece/microphone

If you purchased a HMD, a microphone and speaker are integrated into the unit and can be used for speech activated computing and voice communication applications such as voice-over IP or cellular.

You can also use any industry-standard, USB connected ear piece/microphone with the FPD.

Other input devices

The ports on the CPU or Holster can also be used for other peripheral devices such as a mouse, video camera or wireless LAN. The following table lists just a few third-party devices you can connect to the MA V.

Port	Typical Peripheral Device
USB	Mouse, keyboard, printer, modem, external storage, CD-ROM, floppy disk, digital camera, digital audio, microphone, global positioning system, touch pad
FireWire® or iLINK®	Digital audio/video, digital camera, hard disk
VGA	Desktop monitor/VGA projector
Compact Flash	Wireless communications, storage
PCMCIA	Wireless LAN, wired LAN, modem, CD-ROM interface, storage

MA V configurations

The MA V can be configured to handle most work situations.
While there are numerous configurations in terms of
peripheral options, the MA V has five core configurations.
The following table highlights these configurations.

Configuration	Operating Mode Description	Typical peripherals
MA V connected to FPD	Wearable computing	The simplest MA V configuration, using the FPD as an input/output device, no other peripherals are needed
MA V and Holster connected to FPD	Wearable computing	Holster, secondary battery, and FPD
MA V connected to HMD	Wearable computing	HMD and Xyber®Key Wrist-worn keyboard and/or ear piece/microphone for voice activated computing
MA V and Holster connected to HMD	Wearable computing	Holster, secondary battery, HMD, and Xyber®Key Wrist-worn keyboard or ear piece/ microphone for voice activated computing
MA V in desktop configuration	Desktop computing	Holster, Monitor, USB mouse, USB full-size keyboard, PCMCIA network card, AC power
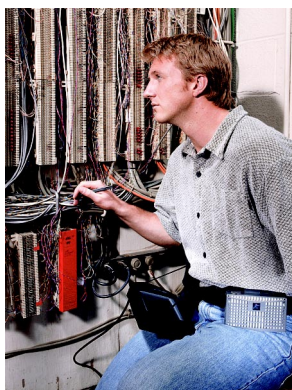
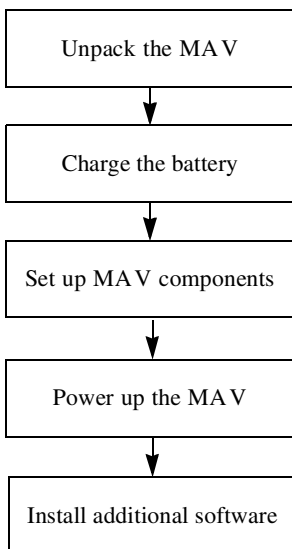MA V with FPD   MA V in desktop configuration

Preparing the Xybernaut MA® V

2

PREPARING THE MA V

So how do you get your new MA V up and running? Follow the steps below to take the MA V from the box and put it to work.

Each of these steps is covered in this chapter.

```
┌─────────────────────────┐
│     Unpack the MA V      │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Charge the battery    │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│  Set up MA V components  │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Power up the MA V     │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│ Install additional software │
└─────────────────────────┘
```

UNPACKING THE MA V

You've unpacked your MA V box and these parts look different from any computer that you've ever seen. That's because the components are designed to give the MA V more capabilities than other computers.

Please check the Xybernaut MA V box to make sure that all the items you ordered are present and in good condition.

If any item is missing or damaged, contact your authorized dealer, or call Xybernaut Corporation toll free (U.S. and Canada only) at 1-877-877-0297.

CHARGING THE BATTERY

To use the MA V as a mobile unit, you will first want to test the charge of the battery. If necessary, charge the battery and any additional batteries before using the system.

> *Before using the batteries for the first time, make sure you read the "Lithium-Ion Battery Safety and Specifications" on page x.*

Unlike other batteries, you need not fully discharge the batteries before recharging; you can charge the batteries at any time without harm. Each battery can be recharged approximately 500 times (with 80% capacity) before replacing.

> *Shipping rules prohibit Xybernaut from shipping the unit with a fully charged battery. You will need to charge the battery prior to using the MA V.*

Testing the charge of batteries

The battery includes a LED indicator that allows you to determine the charge remaining on a battery.

To test the charge of a battery:

1. Press the **Power Check** button on the battery.

2. The LED display shows the battery's charge level in increments of 25%.

A red LED indicates a charge of 25% or less. You should recharge the battery when the LED is red.

Power Check button

Assembling and charging batteries

Charging the MA V requires the primary battery to be inserted into the CPU and optionally, the secondary battery into the Holster.

To charge the batteries:

1. Insert the primary battery into the CPU so that the battery and CPU's metal contacts connect.

   If not using the Holster, skip to step 4.

When configured with the Holster, the primary battery in the CPU will charge first, followed by the secondary battery in the Holster.

2. Insert the *secondary* battery into the base of the Holster so that the metal contacts connect.

3. Slide the CPU into the Holster so that the **PDP** port is fully engaged.

Holster

PDP port

Secondary battery
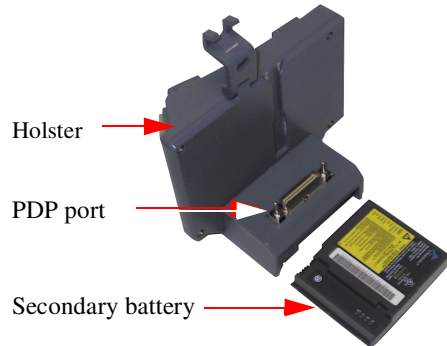
4. Plug one end of the power cord into the AC power adapter and the other end of the power cord into an electrical outlet.

Power cord

AC Power Adapter

Connects to DC-IN port on CPU
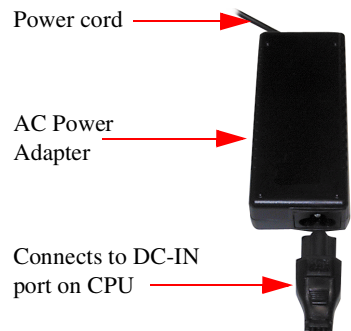
5. Connect the female plug of the AC power adapter to the **DC-IN** port on the bottom of the CPU.

DC-IN port
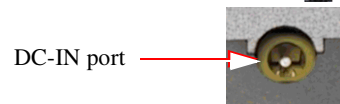
Each battery fully charges in approximately 1.5 hours.

SETTING UP THE MA V COMPONENTS

The MA V has optimal performance when configured for mobile use. But keep in mind that it is a fully functional PC that you can use as a desktop computer in the office or as a laptop on the road.

Setting up components for mobile use

The MA V has several configurations for mobile use. The following procedure describes setting up the MA V using the FPD.

*To use the HMD instead of the FPD, plug the HMD cable into the **UIP** port on the CPU.*

To set up the MA V for mobile use using the FPD:

1. Prepare the FPD.

    a. Plug the FPD's cable into the CPU's **UIP** port.

2. Prepare the battery.

    a. When using the MA V as a standalone unit:
      – Insert the primary battery into the CPU.

    b. When using the MA V with the Holster:
      – Insert the secondary battery into the Holster.
      – Connect the CPU to the Holster's **Power Docking Port** (PDP).
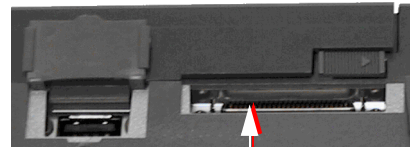
UIP port
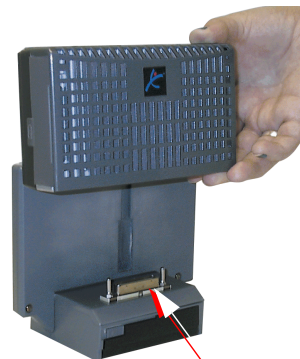
Power Docking Port

3. Prepare any optional devices. You can use the Xyber®Key wrist-worn keyboard, ear piece/microphone, external hard disk drive (HDD), or any other industry-standard device that connects to ports on the CPU module or Holster. The following table specifies the ports required for displays and optional Xybernaut peripheral devices.

Xybernaut Device	Port
Flat Panel Display or Head-mounted Display	UIP
Wrist-worn keyboard	USB
Mouse/pointing device	USB
Ear piece/microphone	USB or integrated in HMD

4. Connect all the peripheral devices including the FPD to the belt or optional suspenders, vest, shoulder bag, or backpack.

Setting up components for desktop use

The MA V Holster doubles as a desktop docking station.

To set up the MA V for desktop use:

1. Attach the CPU to the Holster.

2. Attach a desktop monitor.

   – Plug the desktop monitor into the **VGA** port.

3. Plug a USB-compatible keyboard into the **USB** port on the CPU or Holster.

4. Plug a mouse into the **USB** port on the CPU or Holster.

5. Plug the female connector of AC power adapter into the **DC-IN** port on the CPU.

6. Plug one end of the power cord into the AC power adapter and the other end into a standard AC wall socket.

You can plug the AC power adapter into an ordinary wall socket, but it is best to use a surge-protector power strip.

POWERING UP THE MA V

Like any other PC running Microsoft Windows, there is a proper sequence for powering the MA V on/off.

To power the MA V on/off using LINUX, refer to the operating system user manual.

Powering up the CPU

Powering on the MA V requires you to press the MA V's power switch for approximately two seconds. This prevents you from accidentally cycling the power.

To power up the CPU:

1. Make sure you have set up the MA V for either mobile or desktop use.

2. Press and hold the power switch for approximately two seconds. The boot process begins.

Powering down the CPU

To shut down Windows and power down the CPU (if another operating system is in use, refer to user manual):

1. Save all of your work and close all applications.
2. Click the **Start** button in the Windows taskbar.
3. Click **Shut Down** in the Start menu.
   The **Shut Down Windows** popup window appears.
4. Select **Shut down** and click **OK**.
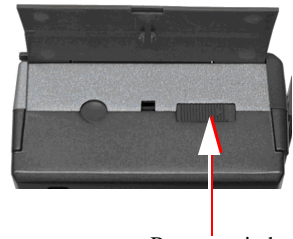
Power switch

CPU LED indicator status

AC/DC Status	
Continuous green LED	System is powered by AC or is operating under battery power and remaining battery charge is greater than 10% of its capacity.
Continuous amber LED	Battery is charging.
Blinking amber LED	System is operating under battery power and the remaining battery charge is less than 10% of its capacity.
Power Management Status	
Rapid blinking green LED	CPU is either going into or coming out of standby mode.
Slow blinking green LED (approx. every 5 seconds)	CPU is in standby mode.

INSTALLING SOFTWARE ON THE MA V

Every MA V system comes preloaded with the following software:

- Operating System Software (Windows 98®, Windows 2000®, or LINUX)
- Flat Panel Display (FPD) drivers
- CIC Jot tutorial

The operating system software allows you to boot the MA V. The FPD drivers are required to use the touch panel display and the Jot tutorial provides instructions on using the passive stylus with FPD.

Depending on the optional hardware you purchased, you may have additional software loaded.

To install additional software on the MA V, you may have to connect an external CD-ROM or external hard drive to the CPU via a **USB** port.

You can also install software on the MA V across a network. To do so, you must first set up network communications.

For information on loading additional software onto the MA V, refer to the documentation that accompanies the software you want to load.

Installing Flat Panel Display drivers

The Flat Panel Display drivers are loaded on the MA V but
are not installed.

To install the drivers:

1. Using Windows Explorer, navigate to
   `C:\MAV\Drivers\Gunze`

2. Double-click **Setup.exe**.
   The GUNZE installation wizard appears.

3. Accept the default installation directory.

4. On the *Install Systems Tray Icons* installation wizard
   screen, select the option **Place icons in system tray** and
   click **Next**.

5. On the *Desktop segment installation* wizard screen,
   select the **Whole Desktop** option and accept the default
   name of the device (i.e., Device 1) or type in a unique
   name and click **Next**.

6. On the *Select Controller installation* wizard screen,
   select the **Gunze, AHL, Serial** option from the list of
   controllers and click **Next**.
   An installation progress bar shows the progress of the
   installation.

7. On the *Complete installation* wizard screen, select
   Finish.

8. Reboot your MA V.

9. Follow the on-screen calibration routine to calibrate the
   touchscreen display.

*Refer to page 22 for instruction on calibrating the
touch screen display.*

Using the Xybernaut MA® V

3

After you have prepared the MA V and its components, it's time to put the MA V to work. This chapter describes how to use the various components that make up the MA V system.

## USING THE XYBER®PANEL DIGITAL FLAT PANEL DISPLAY

The Flat Panel Display (FPD) is a unique MA V peripheral; it is, at the same time, both an input and output device. On one hand, the FPD is an all-light readable monitor that can be viewed in all ambient light conditions.

On the other hand, you can input data using the touch screen interface and your finger or passive stylus. Voice activation can also be used with the FPD by using an external microphone.

Connecting the FPD to the CPU

To connect the FPD to the CPU:

1. Plug the **FPD cable** into the **UIP port** on the CPU.
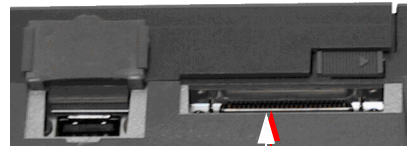
UIP port

Powering the FPD on/off

To power the FPD on/off:

1. A single button powers the FPD on and off. Simply press the power button to turn on the FPD.

2. Repeat the step to turn off the FPD.

> ***Calypso FPD****: Power on the CPU (the FPD LED indicator is blank). Then press the FPD power switch (the FPD LED indicator illuminates red and when fully powered up, illuminates green).*
> ***Janus FPD****: Power on the CPU (the FPD LED indicator blinks red). Press the FPD power switch (the FPD LED indicator illuminates amber, then quickly goes to green).*

Adjusting the brightness

The FPD provides brightness controls to adjust the display for different ambient light conditions.

To adjust the brightness of the FPD:

1. Press the up arrow button to increase the brightness.

2. Press the down arrow button to decrease the brightness.

Brightness controls

Power button
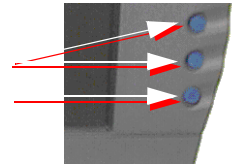
Calibrating the touch screen display

You should calibrate the touch screen before using the MA V and thereafter as needed. The calibration routine is quick and easy, and helps to minimize entry errors.

To calibrate the touch screen display:

1. From the Windows Start menu, launch the **Programs\Gunze\ U-tp\Calibrate** program.

2. Follow the calibration routine instructions presented.

NAVIGATION USING THE FPD

Using the FPD, there are several options to execute commands and navigate.

Using the FPD you can navigate with:

- Mouse or other pointing device
- Voice command
- Passive stylus
- On-screen "softkey" keyboard

You can use any industry-standard USB-connected pointing device to navigate and execute commands. If you purchased the voice command feature on the MA V, the appropriate voice recognition software and hardware will be included. Refer to the instructions that accompany these pieces.

Using the passive stylus

The passive stylus is a navigation tool that allows you to perform functions similar to that of using a mouse. The following are tips for using the passive stylus:

- Click by tapping the passive stylus or your finger on the screen.
- Drag and drop by highlighting the area and dragging it to the desired location.
- Double-click by tapping the screen twice, in rapid succession, using the passive stylus or your fingertip.
- Right or left click by touching the event selector icon in the system tray menu.

If you are having trouble accurately clicking icons and menus, perform the FPD calibration routine.
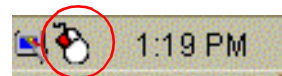
Event Selector

Writing text using the passive stylus

You can also write text directly on the FPD using the stylus.
To write text using the passive stylus:

1. Click on the **CIC penX ink** icon in the system tray menu.
   When the CIC penX ink is enabled, you will see a pencil
   in the system menu tray.

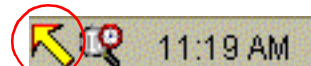2. Use the stylus as you would a pencil on paper.

CIC pen X ink enabled

*If you are having trouble writing, run the **Jot Tutorial** to learn writing techniques.
If you are left-handed, go to the Windows start menu and navigate to **Programs\CIC Jot 1.0\Recognition Tuner** to accommodate left-handed writing styles.*

CIC pen X ink disabled

Activating the on-screen keyboard

You can also navigate and enter text using an on-screen keyboard.

To activate the on-screen keyboard:

1. Select the CIC On-Screen Keyboard icon from
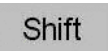   the Windows desktop or system tray menu.

The following screen displays:

Using the on-screen keyboard

The on-screen keyboard is a fully functional keyboard and many keys serve the same purpose as those on a standard computer keyboard. The following table describes the functions of several keys.

Key(s)	Function
Esc, Ctrl, Alt, Enter	These keys perform the same functions as the respective keys on a computer keyboard.
Shift	Press **Shift** to alternate between lower case letters and numbers, and upper case letters and numbers. This feature is active for one key stroke.
CpLk	Press **CpLk** to lock the keyboard into upper case letters and symbols. Press **CpLk** again to release the caps lock.
Win	Press **Win** to display the Windows start menu.
(menu icon)	Press the **Right-click pop-up menu** key for cut and paste options, as well as the ability to change font styles.
(number lock icon)	Press the **Number lock** key to display a number key pad with mathematical symbols. Press the key again to display navigation and editing options, such as **Hm** (home), **PU** (page up), **Ins** (insert), and arrow up, down, left, and right.
F1 F2 F3 F4	The function keys are dependant on the software that is active.
Int'l	Pressing the **International ASCI character** key displays the ASCII character set.

USING THE XYBER®VIEW HEAD-MOUNTED DISPLAY (HMD)

The HMD houses the display unit which, when properly used, appears to your eye like a 15 inch computer monitor.

You can adjust the display unit's position and brightness for the most comfortable viewing.

Before using the HMD, read the health and safety section called "Health and Safety" on page ix. Never use the HMD while operating a vehicle or other machinery.

Navigation using the HMD

Using the HMD, there are several options to execute commands and navigate.

Using the HMD you can navigate with:

- Mouse or other pointing device
- Voice command
- Xyber®Key wrist-worn keyboard

You can use any industry-standard USB-connected mouse to navigate and execute commands.

If you have purchased the voice command feature on the MA V, the appropriate voice recognition software and hardware will be included. Refer to the instructions that accompany these pieces.

Refer to "Using the Xyber®Key Wrist-worn Keyboard" on page 27 for more information.