
Operators Manual

X20 Console

W106 1.1



IMPORTANT

READ and make sure you understand the X20 Operators Manual before installing or starting this system.

WHEN STARTING vehicle please make sure X20 is SWITCHED OFF.

SHUTDOWN the X20 console as per the X20 Operators Manual.

WARNING

KEE Technologies advises that the X20 is a powerful computer system designed for in-vehicle use and designed to operate at temperatures

of up to 50°C or 122°F.

The temperature inside some vehicles may at times exceed this temperature, especially during summer when the vehicle or air-conditioning is not operating.

It is recommended that if the vehicle is to be left unattended for any time without air-conditioning that the X20 is turned off. In case of extreme temperatures the X20 may shut down – should this occur - allow the terminal to cool down to a normal operating temperature and then restart.

KEE Technologies is not responsible for damage caused by exceeding the temperature operating range.

KEE Technologies recommends that the X20 is mounted as far from the window as possible to allow sufficient air-flow over the heat sink and out of direct sunlight.

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X20 Console Features

- Windows® XP PRO SP2 is the X20's operating system.
- Built in protection against vehicles start up.
- Intelligent Power Management supply. Status LED'S displays status of the External Supply and Internal Battery. *See Page 6.*
- ATX power ON/OFF – Power Button needs to be pressed for 2-3 seconds to power up. When shutting down the console, the console automatically powers down and switches the console OFF.
- Processor speed 1Ghz.
- 2GB Industrial Flashcard
- 512 MB RAM
- Faster performance when running multiple applications. (Improved SVGA)
- The X20 Console Logo activates the X20 Manager to allow the operator to adjust the screen brightness, adjust the audio volume, displays the Internal battery and External Supply status.

Screen

The X20 console has a new feature, the X20 Logo which is positioned on the front of the X20 console, on the bottom left-hand side. When the X20 console is running, and the X20 logo is pressed for 5 seconds the 'X20 Manager' window is displayed. This allows the operator to adjust the brightness of the screen, adjust the volume control and check the battery status.

8.4" LCD high contrast TFT, Backlit, 800x600 resolution. This screen has a very high contrast allowing clear visibility outdoors. Yet can be dimmed for night work.

This display has a touch panel fitted with a glass backing. This backing will break if impacted heavily. The touch panel is very durable and should be wiped clean regularly when the X20 console is switched off.

The calibration of the touch panel should never change, in normal operating temperatures. However if the X20 console is operated in extreme temperatures, this calibration may change. Adjust using Calibration Software and Stylus. *See Page 22.*

Audio

X20 console has a speaker built in for Audible and Voice alarms. The operating volume of X20 is adjusted using a volume control; The volume control is activated by pressing the X20 logo which activates the X20 Manager program, then simply slide your finger to set the desirable volume level, then close.

An audio plug is supplied at the rear of the console for the fitment of an external speaker which is supplied with the X20 Console kit.

Keyboard & Mouse

The PS2 Keyboard is supplied. The keyboard has a PS2 connection. Connections on the rear of the X20 console are labeled. A USB Mouse is supplied, which plugs into one of four USB ports on the X20 console. A USB Keyboard can also be used.

Pen Stylus

A Pen Stylus is supplied to select objects and areas on the Touch screen, instead of using the finger. The Pen Stylus comes with a holder with double sided tape to mount in the vehicle or on the housing of the X20 console.

CONSOLE OVERVIEW- FRONT

Touch Screen- Is an 8.4" TFT Active Matrix colour screen. The screen is Super Bright SVGA LCD display with brightness control. The software allows full range of digital dimming to suit all light conditions. The Touch Screen display is a resistive touch screen.

Operating System- The Operating System running on the X20 console is Microsoft Windows® XP PRO SP2 (Service Pack 2). This allows for full software compatibility.

Status LED's- The Status LED's displays the status of the Internal Battery and External Power supply. By displaying red, orange or green coloured LED's.

Left Status LED- Indicates the status of the External Power supply.

Right Status LED- Indicates the status of the Internal Battery.

X20 Logo- When the Logo is pressed for 5 seconds, while the X20 console is running, the X20 Manager window will be displayed. Your X20 logo may be different. This will allow the operator to:

- 1- Adjust the screen brightness.
- 2- Adjust the volume control of internal or external speakers.
- 3- Check the status of the External Power supply.
- 4- Check the status of the Internal Battery.
- 5- Change the Auto Shutdown delay and Enable Auto Shutdown.
- 6- Check the status of KEE Logo and test the Audio volume.
- 7- Allow the X20 console to be Shutdown from this window.

CONSOLE OVERVIEW- SIDE

X20 Console housing- is made of exceptional impact strength and with high heat resistance.

The X20 console is splash proof.

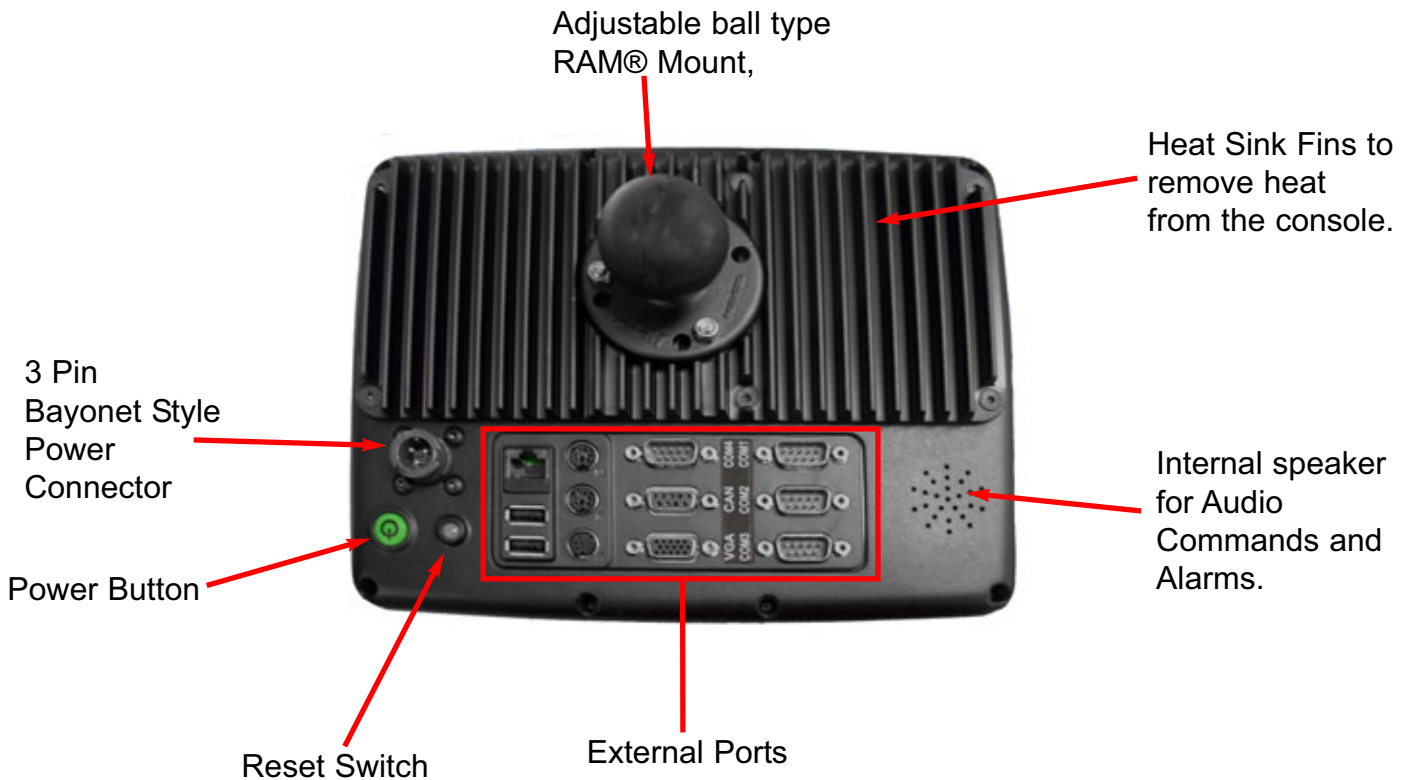
The X20 Console uses a powerful yet low power consumption processor for fanless operation.

USB Ports- On the left hand side of the X20 console there are 2 USB 2.0 ports. These may be used to connect USB devices such as USB Thumbdrives, USB Mouse, USB Keyboard or USB Printers.



CONSOLE OVERVIEW- REAR

The X20 Console has a number of Ports on the back available for connection to different equipment.



Power Button- The Power Button has to be pressed for 3 seconds to start the X20 console up. The X20 will not start unless there is a satisfactory External power supply and the Internal Battery has sufficient charge.

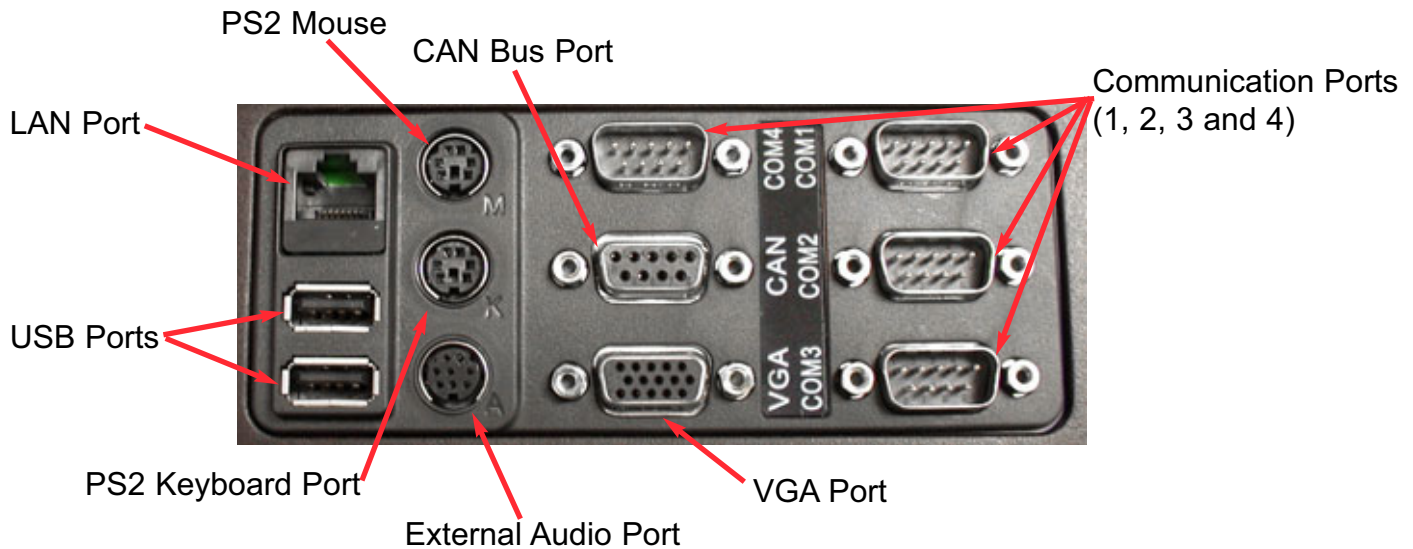
Reset Button- The Reset button allows the X20 to be reset in the event the X20 console could not be 'Shutdown' normally. This **should** be avoided, as no data is saved and Windows® **DOES NOT** do an orderly shutdown when a 'Reset' is performed.

Power Connector- The Bayonet Power Connector is where the X20 Power Loom connects to the X20 console providing 10.8-18.0 volt supply.

RAM® Mount- The RAM® Mount provides an adjustable ball type, which allows for optimum positioning.

Heat Sink Fins-The External Fins exchange the heat from inside the console to the outside environment, therefore keeping the console within operating temperature without the use of fans.

Internal Speaker- The X20 console has an internal speaker built for Audible and Voice alarms.



EXTERNAL PORTS

Communications Ports (Com Port)- There are 4 Com Ports (COM1, COM2, COM3 and COM4). These are used to connect various serial devices to the X20 console such as DGPS receivers. The COM (1 to 4) ports are configured for RS232 communications; COM 2 can be configured for either for RS232 or RS485 communications. To be configured for RS485 the X20 console would have to be returned to KEE.

USB Ports- There are 2 USB 2.0 ports on the back of the X20 console. They may be used to connect to USB devices, like, an USB Mouse or USB Thumbdrive. The USB Thumbdrive allows data transfer and software upgrades for the X20 console.

CAN Bus Port- CAN Bus is a communications protocol similar to RS232 and RS485. CAN Bus is rapidly becoming a world standard in the automotive and agricultural industries.

PS2 Mouse Port- allows a PS2 style Mouse to be connected to this port. The PS2 Mouse should be connected to the X20 console before starting.

PS2 Keyboard- allows a PS2 style Keyboard to be connected to this port. The PS2 Keyboard should be connected to the X20 console before starting. A PS2 Keyboard is supplied with the X20 console kit.

Audio Port- The Audio Port allows the connection of an external speaker (supplied) to this port. This allows the external speaker to be located near the operator when the X20 console is placed in noisy environments. The Audio volume for the external speaker can be controlled, using the X20 Manager software.

LAN Port- 100 MBS for external communication lines.

VGA Port- Connects to an optional external monitor or screen for any external screen requirements.

UNPACKING the X20 BOX,

KEE Technologies supplies all of the basic equipment to mount the X20 console into most vehicles and to operate the system. The contents of the X20 console kit consists of:

Contents of the X20 Kit

- 1- X20 console preloaded with Windows® XP PRO SP2 operating system
- 1- 128 MB USB Thumbdrive
- 1- Pen Stylus with holder
- 1- 12 Volt Power Loom with 3 Pin Bayonet Connector.
- 1- X20 Serial cable for GPS hookup
- 1- External Speaker with adapter plug.
- 1- PS2 Keyboard
- 1- USB Mouse
- 1- X20 Operators Manual

The equipment supplied to mount the X20 console consists of:

Mounting kit supplied for X20 console:

1- Large RAM® Mount (approx. 14 cm in length)



1- Small RAM® Mount (approx. 9 cm in length)



2- 1.5" RAM® Base. *Note: One 1.5" RAM® Base is already fitted to the X20 console.*



1- 1.5" RAM® Double Ball



1- RAM® Rail Mount Kit (to suit 3/4" to 1" rail). *The picture illustrates the RAM® Rail Mount Kit fitted to the 1.5" RAM® Base.*

Note: You will use a combination of this equipment to best suit your vehicle.

Mounting the X20 Console in a Vehicle



Positioning the X20 console

- The X20 console should be mounted in a position where minimal direct sunlight is directed onto the screen, generally elevated in the cab and tilting down.
- The X20 console should be mounted so the heat sink is not exposed to direct sunlight.
- The X20 console should be mounted as far from the window as possible; the X20 console requires adequate ventilation around the console, this allows sufficient air-flow over the heat sink.
Allow a clearance of at least 25mm (1") around the X20 console.
- Fit the supplied RAM® mounting bracket securely to any metal base, preferably in your vision whilst the vehicle is moving.

Note: The X20 console comes supplied with the 1.5" RAM® Base already fitted to the the X20 console.

Mounting the X20 console using 1.5" RAM® Base (Option 1)

Securely screw the 1.5" RAM® Base to a flat metal surface.

Note: The screws to mount the RAM® Base are not provided in the kit.

Attaching the X20 console using the RAM® Rail Mount (Option 2)

The RAM® Rail Mount provided fits rails between 3/4" to 1" in diameter.

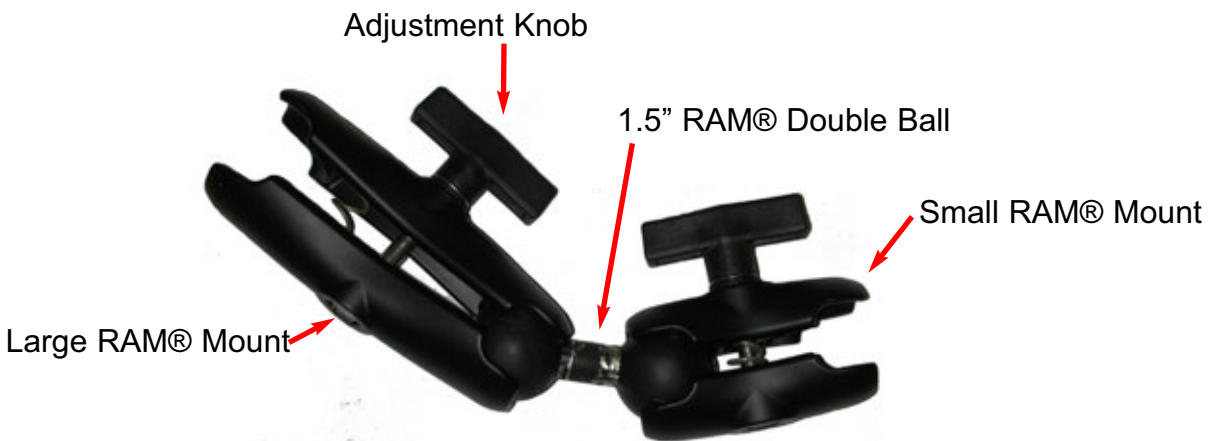
Wrap the correct length of rubber strip around the rail where the base will be attached. Assemble the 1.5" RAM® Base with the RAM® Rail Mount using the 3 screws and nuts provided.

Note: It maybe necessary to drill a 5/32" hole through the RAM® Rail Mount Kit and rail and using the screw provided in the kit. This will prevent the the RAM® Base from slipping.

Various RAM® Mount options

Once the 1.5" RAM® Base has been mounted directly onto a metal flat surface OR mounted onto a rail. One of the following options can be used:

- 1- The Large RAM® Mount can be used to attached the X20 console to the RAM® Base.
- 2- The Small RAM® mount can be used to attached the X20 console to the RAM® Base.
- 3- A combination of the Large and Small Mount Kits can be used in conjunction with the 1.5" RAM® Double Ball. This will give the operator a large range of angles to position the X20 console to suit the operator. *See diagram below.*

**How to use the RAM® Mounts**

The RAM® Mounts are loosened by unscrewing the knob in an anti clockwise direction. Then once loosened place the RAM® mount onto the RAM® Base on the X20 console, then place the other end of the RAM® Mount on the RAM® Base attached to the vehicle.

Once the RAM® Mount is on both RAM® Base's then loosely turn the knob in a clockwise direction. Tighten the knob just enough so the X20 console can be positioned and angled correctly to suit the operator.

Once the X20 console is in the desired position then tighten the knob up so the X20 console is held in position securely.

Schematic Layout of the X20 Power Loom



Fitting the X20 Power Loom

The X20 Power Loom (Part No. A2400) should be connected directly to the battery or the warranty will be void.

Cigarette Lighter connections are not recommended.

Check the voltage of the battery to which the X20 Power Loom is being connected to. The battery must be between 11- 18 Volts. If in doubt, check voltage with a multi-meter.

Note: The multi-meter required will need measure DC voltage between 1 and 24 volts.

Connect the 'red wire' of the X20 Power Loom to the Positive (+)12V terminal on the battery.

Connect the 'black wire' of the X20 Power Loom to the Negative (-)12V terminal on the battery.

Connect the 'Additional Earth' connection which is located near the Bayonet Plug; and connect to one of the screws holding the 1.5" RAM® Base to a metal base on the vehicle.

2 Pin Weatherpak Plug

The '2 Pin Weatherpak' plug on the X20 Power Loom, provides switched 12 Volt battery power as an additional power outlet. This may be used to power devices such as a DGPS system which are connected to the X20 console.

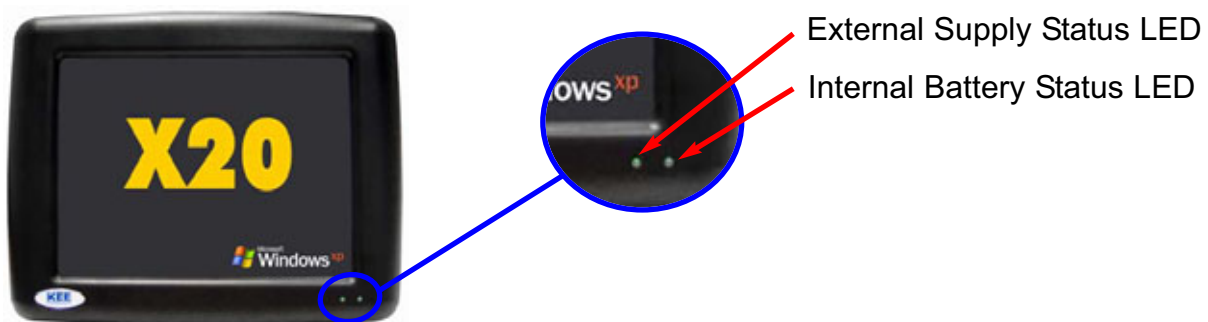
The maximum current the device can draw is 3 Amps when connected to the '2 Pin Weatherpak' plug.

Switched Power means there is only battery volts at the '2 Pin Weatherpak' when the X20 console is switched ON.

Explaining the X20 Power Management System

The X20 console has an intelligent power management system. The purpose of the system is to protect the integrity of the Compact Flash carrying the Windows® XP operating system, application programs loaded, and to protect customer data. This is done by using the Power Management System to monitor the External Supply voltage and also the Internal battery voltage, and then making decisions about startup and shutdown of the X20 console.

There are two LED's embedded in the lower right front of the case which indicate the status of the power management system. These LED's are multi-coloured and indicate a range of conditions.



The left LED is for External (Vehicle) Supply information

- RED indicates less than 10.8 Volts
- ORANGE indicates 10.8V - 11.9 Volts
- GREEN indicates above 12.0 Volts

The right LED is for Internal battery information.

- RED indicates less than 9.0 Volts
- ORANGE indicates 9.0V - 10.0 Volts
- GREEN indicates above 10.1 Volts

Conditions in which the X20 Console, WILL Start

The X20 console will 'Start Up' with two ORANGE or two GREEN LED's, or a combinations of these (i.e. one GREEN and one ORANGE LED). The X20 console is 'Started' by pressing the Power Button (the green Power Button at the back of the X20 console) for 3 seconds.

Conditions in which the X20 Console, WILL NOT Start

When the X20 Power Button is pressed for 3 seconds, and the X20 console will NOT 'Start Up'. In this situation the two Status LED's will flash for 10 seconds if either one of the Status LED's are displaying a RED colour; the X20 Power Management System will NOT allow the X20 console to 'Start Up'. If one of the Status LED's is displaying a RED colour, the two LED's will flash for ten seconds.

If the External Supply Status is displaying a RED coloured LED, this indicates:

- 1- The X20 console is not connected to a good power source.
 - a) Check the Power Connector at back of X20 console, is connected securely.
 - b) Check X20 Power loom is correctly and securely connected to the battery terminals.
 - c) Check the Fuse on the X20 Power Loom for blown or missing fuse.
- 2- The vehicle battery supplying power to the X20 voltage is below 10.8 Volts.
Rectify the problem so the External Supply is above 10.8 Volts.

If the Internal Battery Status is displaying a RED coloured LED, this indicates:

- 1- The Internal Battery inside the X20 console is below 9.0 Volts, and needs charging from an External Supply Source. *Note: The External Supply LED **MUST** be displaying an ORANGE or GREEN colour before the Internal Battery will start charging.*
 - a) If connected to an External Supply source and the X20 console's ambient temperature is between 0°Celsius (C) and 50°C (32°F and 122°F) then the X20's Power Management System will allow Fast Charging of the X20's Internal Battery; when in 'Fast Charging' mode it will take approximately 15 minutes to charge the Internal Battery sufficiently to allow 'Start Up' of the X20, and therefore change the Internal Battery Status LED from RED to ORANGE.
The Power Button on the X20 console can now be pressed and the X20 will 'Start Up'.
 - b) If connected to an External Supply source and the X20 console's ambient temperature is below 0°C (32°F) OR above 50°C (122°F) then the X20's Power Management System will NOT allow 'Fast Charging' of the X20's Internal Battery. Instead the X20's Power Management will only allow 'Trickle Charge' to the Internal Battery. While in 'Trickle Charge' mode it can take approximately 3 hours to charge the Internal battery sufficiently, to allow 'Start Up' of the X20, and change the Internal Status LED's from RED to ORANGE.
If at any time during the charging process the X20 console's ambient temperature falls between 0°Celsius (C) and 50°C (32°F and 122°F) then the X20's Power Management System will automatically change to 'Fast Charging' of the X20's Internal Battery, thus reducing the charging time dramatically.

- While the X20 console is charging (either in 'Fast Charge' or 'Trickle Charge') mode then the Internal Battery Status (Right- hand LED) will flash once every 5 seconds.
- Once the Internal Battery status LED changes from RED to ORANGE (and the External Supply status LED is still ORANGE or GREEN) then the X20 Power Button can be pressed for 3 seconds and the X20 console will 'Start Up'.
- While the X20 console is in 'Charge Mode' the Internal Battery Status LED will still flash every 5 seconds. The LED will flash either ORANGE or GREEN depending on the voltage of the Internal Battery.

X20 Power Management Status LED's

Below is showing the various states of the Status LED's, as displayed on the bottom right hand-side of the X20 console. The Status LED's will be displayed after the 'Start' button is pressed for 3 seconds or while the X20 console is running. If the 'Start' button is pressed and does not switch ON, then the Status LED's will flash for 10 seconds, the reasons are explained below. 'EXT' means External Supply and 'BAT' means Internal Battery.

EXT BAT



Power Status is normal. External Supply is equal to or above 12.0 Volts. Internal Battery is equal to or above 10.8 volts.

The X20 console **will** start.



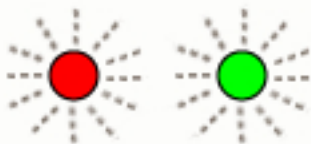
External Supply is low but acceptable. The External Supply voltage is between 10.8 and 12.0 Volts.

The X20 console **will** start.

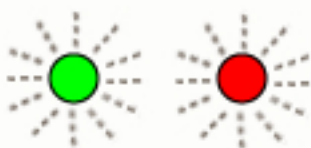


Internal Battery is low but acceptable. The Internal Battery voltage is between 9.0 and 10.8 Volts.

The X20 console **will** start.



External supply is below 10.8 Volts. The X20 console **will not** start and the LED's will 'flash' for 10 seconds before turning OFF.



The Internal Battery is below 9.0 volts. The unit **will not** start and the LED's will flash for 10 seconds before turning OFF. The Internal Battery LED will 'flash' every 5 seconds to show charging is in progress.



If the LED's remain blank after pressing the 'Start' button (for 3 seconds), then the Power Management System is not operating. Return to base for repair.

The 'Start' button is not a power switch and only requires light contact to instruct the Power Management computer to start the X20 console. It needs to be held for 3 seconds to enable the start sequence. A Shutdown (with data saved) can be enabled by repeating this action. Both LED's will continue to 'flash' once a shutdown sequence has been started. Holding down the start button for 10 seconds will cause an **immediate shutdown, with no data saved. Not Recommended.**

Internal Battery Charging

Fast charge is allowed between 0°C and 50°C (32°F and 122°F). Trickle charging is allowed below 0°C (32°F) and above 50°C (122°F). This is a restriction and requirement of the Nickel Metal Hydride (NiMH) battery chemistry technology.

Shutting Down the X20 Console

The X20 console can be 'Shut Down' through Windows® XP in the normal manner; or the Power Button can be 'Pressed' for 3 seconds, which the X20's Power Management will use full ATX Shutdown in the same manner.

The ATX Shutdown process is:

- 1) All Programs running will be closed and any data will be saved. The Operator may be prompted to save any data if the program running is ATX compliant.
- 2) Then Windows® will start shutting down and save all settings.
- 3) The X20 console will automatically switch OFF.

Both status LED's will flash to indicate that 'Shut Down' is in progress.

Note: Holding down the Power Button for more than 10 seconds will shut the X20 console down immediately and will not attempt to save data first, and should be used only if absolutely necessary. This IS NOT recommended!

Monitoring the X20 console, when Switched OFF

The X20's Power Management System also continuously monitors Internal battery voltage while the X20 console is switched OFF, and will switch to 'Charge Mode' if the Internal Battery voltage drops below 9.0 Volts and the External Supply voltage is above 10.8 Volts.

While the X20 console is in 'Charge Mode' the Internal Battery status LED will flash once every 5 seconds.

Monitoring the X20 console, when Switched ON

If the X20 console is switched ON and the External Supply drops below 10.8 Volts for more than 60 seconds (Default) an ATX shutdown will be initiated. Although a software shutdown can be started before this, by the 'X20 Manager software' (which can be cancelled). By default the 'X20 Manager Software' 'Shutdown' is set at 15 seconds. Therefore as long as the 'X20 Manager' software is running in the background and the External Supply drops below 10.8 Volts then after 15 seconds the X20 Power Management will perform an ATX shutdown and Windows® will be Shut Down properly and all data will be saved.

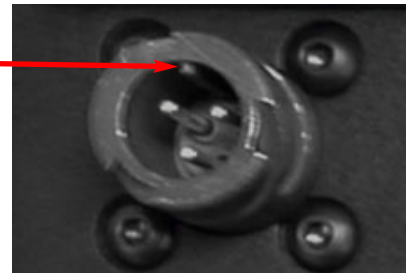
If the operator overrides the 'X20 Manager' software 'Shut Down' OR the 'X20 Manager' isn't running, then after 60 seconds if the External Supply voltage is still below 10.8 Volts then the X20's Power Management will commence a hardware ATX Shut Down; the hardware ATX shutdown CAN NOT be cancelled and is designed to protect customers data from unstable supply conditions; this is indicated by the both Status LED's flashing.

Switching the X20 Console ON

- Once the X20 Console has been installed in the vehicle and the X20 Power Loom has been fitted to the battery terminals.
- Connect the Power Connector to the Bayonet power plug on the back of the X20 console.
- Line the 'notch' (see diagram below) on the Power Connector (on the X20 Power Loom) with the notch which is situated at twelve o'clock on the Bayonet Power plug (see diagram below) on the X20 console. Once the 'notches' are lined up, push the Power Connector ON holding the 'Outer Sleeve', once fully home, turn the 'Outer Sleeve' Clockwise until a 'click' is felt. The Power Connector is now connected.



Power Connector
on A2400 'X20 Power Loom'

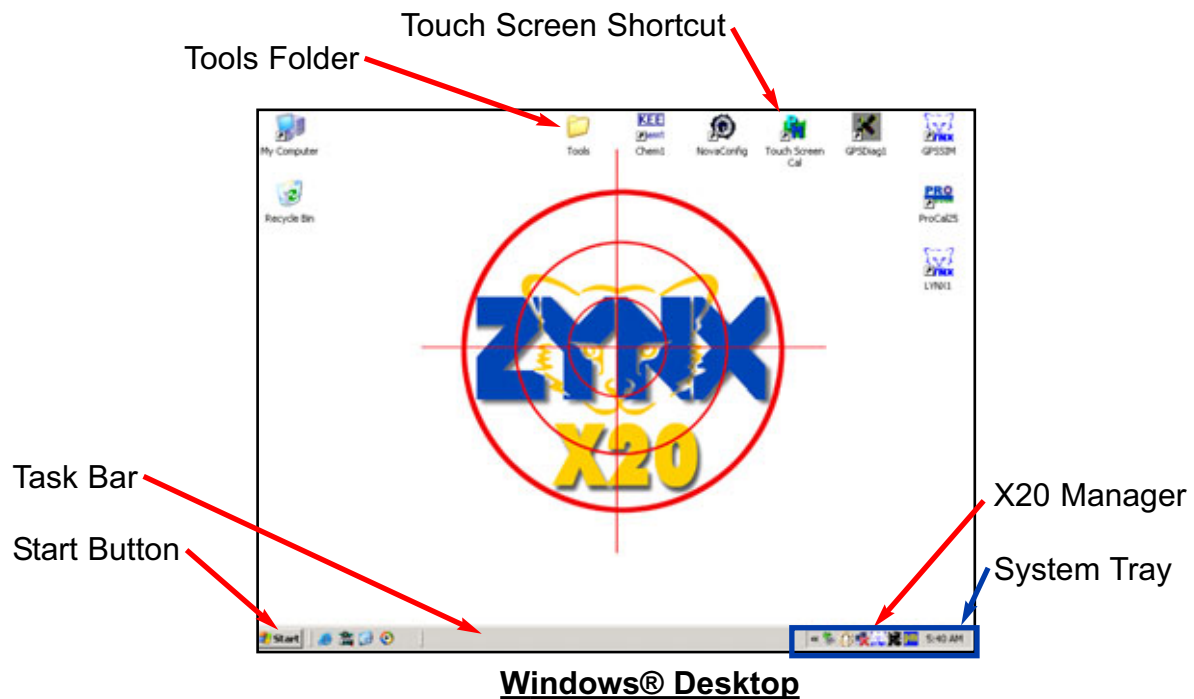


Bayonet Connector
on back of X20 Console

- The X20 Console is a powerful computer system designed for in-vehicle use and is designed to operate at temperatures between 0°C- 50°C (32°F - 122°F). The X20 console **SHOULD NOT** be switched ON until the console is within these temperatures ranges. I.e. Switch the air conditioning of the vehicle ON, to bring the X20 console within the operating temperature ranges.
- Press and hold the 'Power Button' (Green Button) located on the back of the X20 console; for 3 seconds. The X20 console will now 'Start Up' and start loading Windows® XP Operating System. Then:
 - 1-The Windows® desktop will now be displayed.
 - OR 2- If Zynx software has been preloaded from the KEE factory then the Zynx software will be automatically loaded and displayed. For further information on the Zynx Software, read the relevant manuals which come with the Zynx software.

If the X20 Console, WILL NOT Start

- If the X20 console **DID NOT** 'Start Up', then one or both of the Status LED's are RED; the 2 Status LED's will flash for 10 seconds, indicating whether the External Supply (Left Hand LED) or the Internal Battery (Right Hand LED) is causing the X20 console not to 'Start Up'. Refer to the Section on 'Explaining the Power management System' to rectify the problem. The X20 Power Management System will not allow the X20 console to 'Start Up' while one or both Status LED's is showing a RED colour.



- This is the Windows® Desktop screen after the X20 has started up.

Task Bar

To display the 'Task Bar' 'touch' the screen down the bottom of the screen using your finger, Pen Stylus (provided in the kit) or USB Mouse (provided in the kit), then the 'Task Bar' will be displayed.

Start Button

The 'Start Button' is displayed when the 'Task Bar' is displayed.

The 'Start Button' allows access to Windows® programs and other programs loaded on the X20 console.

System Tray

Displays programs which are running in the background and are started when the Windows® Operating System is running. The System Tray is displayed when the Task Bar is displayed.

X20 Manager

The X20 Manager starts automatically when the X20 console starts up. When the X20 Manager is displayed in the System Tray, this means the X20 Manager program is running in the background.

Access X20 Manager from System Tray

The X20 Manager can only be accessed from the System Tray using a mouse. Display the Task Bar using the Mouse. Place the Mouse pointer over the X20 Manager Icon. Then using a Right- mouse click, click the X20 Manager icon. A Menu is displayed:

- 1- Show X20 Manager- Displays the X20 Manager window.
- 2- Hide X20 Manager- Hides the X20 Manager
- 3- Close X20 Monitor- Closes the X20 Manager program and stops the program running in the background.

If the X20 Manager icon is closed then it will not be displayed in the System Tray.

Access the X20 Manager using the X20 Logo

Press and hold the X20 logo for 5 seconds until the X20 Manager window is displayed. Your X20 logo may look different.

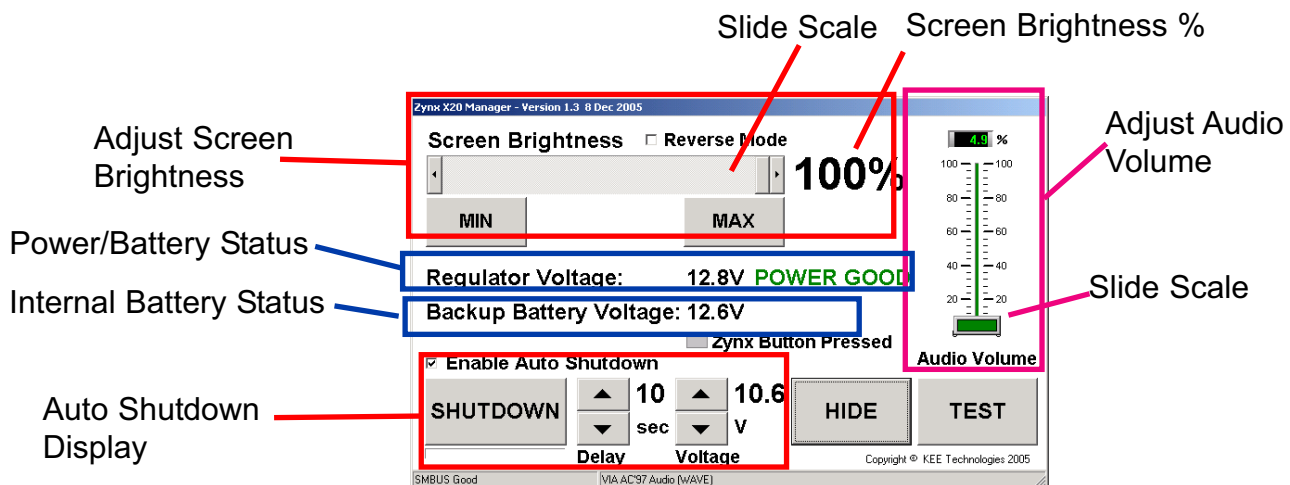
The X20 Manager window can be displayed anytime once the Windows® Operating has started, and will displayed over the top of any programs running at the time.



X20 Manager Window

The X20 Manager Window will allow the operator to:

- 1- Adjust the screen brightness.
- 2- Adjust the volume control of internal or external speakers.
- 3- Check the status of the External Power supply.
- 4- Check the status of the Internal Battery.
- 5- Change the Auto Shutdown 'Delay' and enable Auto-shutdown.
- 6- Check the status of KEE Logo and test the Audio volume.
- 7- Allow the X20 console to be Shutdown from this window.
- 8- Adjust Internal Battery trip point 'Voltage'



X20 Manager Window

Adjust Screen Brightness

Selecting the 'MAX' button adjusts the screen brightness to the Maximum, then 100% is displayed.

Selecting the 'MIN' button adjusts the screen brightness to the Minimum, then 0% is displayed.

Select the 'Slide Scale' button using your finger or Pen Stylus, slide the button backwards and forwards to adjust the screen brightness to your needs. The screen brightness is displayed as a (%) between (0% to 100%).

Note: By default there should be no 'tick' next to the 'Reverse Mode'. If when the MAX button is selected and screen brightness goes dull, then select the 'Reverse Mode' using the finger or Pen Stylus.

Adjust Audio Volume

The Audio Volume adjusts the audio volume for the X20's internal speaker or external speaker if fitted.

Adjust the Audio Volume by selecting the Audio Slide Scale button using the finger or Pen Stylus and sliding the button up and down, as the button is moved the audio volume is displayed as a (%) between 0% and 100%.

Where 100% represents maximum audio volume and 0% switches the audio volume OFF.

The current audio volume can be tested by selecting the 'TEST' button and a beep will be sounded through the X20 internal speaker or external speaker. So the audio volume can be adjusted, within the X20 Manager window, to suit the operators needs.

Power/Battery Status

The Power/Battery Status displays the Regulator Voltage and the Internal Battery Voltage.

Regulator Voltage- displays the External Supply voltage; and informs the operator whether the Regulator Battery voltage is:

- 1- POWER GOOD (greater than 10.6 Volts)
- OR 2- FAILED (10.6 Volts or less)

Backup Battery Voltage- displays the 'actual' voltage of Internal battery in the X20 console.

Auto Shutdown Delay

By default the 'Enable Auto Shutdown' is selected, (a 'tick' in the box). This allows the X20 console to perform an ATX shutdown when the Regulator Voltage (External Supply voltage) drops below 10.6 Volts, the X20 Manager Window will be displayed when the Regulator Voltage falls below 10.6 Volts. The time displayed in seconds (by default 10 seconds) determines how long the X20 Manager will wait before the X20 console starts an ATX shutdown.

The Regulator Voltage (External Supply voltage) has to stay below the 10.6 Volt threshold for the time delay period (default of 10seconds) before the ATX shutdown is started. If the voltage is restored above the 10.6 Volt threshold, then the Auto Shutdown is stopped.

The 'Delay' can be set between (1 and 10 seconds), the 'Delay' can be set using the 'up and down' arrows. A value higher than 10 seconds will be overridden by the firmware which will automatically start the ATX shutdown at 10 seconds.

The 'Voltage' for 'Regulator Voltage' is set at 10.6 Volts and should not be changed unless instructed by a KEE Representative. The 'Voltage' can be set using the 'up and down' arrows.

Procedure of Auto Shutdown

When the Regulator Battery voltage drops below 10.6 Volts.

- 1- The Status LED for External Supply (front of X20 console) will turn RED.
- 2- The X20 Manager window will be displayed. No matter what programs are running.
- 3- The Regulator Voltage displayed will be below 10.6 Volts and 'POWER FAILED' will be displayed in RED, in the X20 Manager window.
- 4- An audio beep will be sounded (if audio volume turned ON)
- 5- At the end of the Auto Shutdown Delay period (default 10 seconds); both Status LED's will start flashing indicating the X20 console is shutting down, both LED's will continue to flash while the shutdown is being performed.
- 6- Windows® will start shutting down all ATX compliant programs and save data, then Windows® operating system will start shutting down and will save all data and then the X20 console will turn OFF.

Procedure of Auto Shutdown when 'disabled'

If the 'Enabled Auto Shutdown' is unselected (no 'tick') OR the X20 Manager program is not running in the background then the X20 Manager **will not** be activated, when the External Supply Voltage drops below the 10.8 Voltage threshold.

- 1- In this situation the X20 console's Power Management ATX Hardware takes over.
- 2- The Status LED for the External Supply will turn RED.
- 3- The default time delay for the ATX Hardware is 60 seconds.
- 4- Therefore if the External Supply voltage stays below the 10.8 Volt threshold for more than 60 seconds then an ATX Shutdown will be started.
- 5- Once the 60 seconds has been reached then both Status LED's will flash indicating the X20 console is shutting down.
- 6- Windows® will start shutting down all ATX compliant programs and save data, then Windows® operating system will start shutting down and will save all data and then the X20 console will turn OFF.

SHUT DOWN Button

When the X20 Manager window is displayed the operator can choose to Shutdown Windows® from this screen.

To Shut Down Windows®:

- 1- Select the SHUTDOWN button. *A screen will appear asking the operator, 'Are you sure you want to shutdown'.*
- 2- Select 'YES' to continue Shut Down OR 'NO' to cancel Shut Down.
- 3- If 'YES' is selected then Windows® will start shutting down.
- 4- The X20 console will automatically turn OFF.

Zynx Button Pressed

When the X20 logo is pressed for 5 seconds, while the X20 Manager window is displayed, a GREEN button will be displayed next to 'Zynx Button Pressed'. This test determines whether the X20 Logo is working or not.

If the X20 Logo is working correctly the button will turn GREEN.

If the X20 Logo is **not** working correctly the button will stay GREY.

Note: When the X20 Logo is pressed the operator will notice the 'Backup Battery Voltage' voltage will drop, this is normal.

HIDE Button

The HIDE button when selected hides the X20 Manager window, the HIDE button is used when the operator has finished making adjustments and wants to hide the window. *Note: The X20 Manager is still running in the background and can be still accessed by pressing the X20 Logo.*

The X20 Manager window can be displayed at anytime by pressing the X20 Logo for 5 seconds, while Windows® is running.

Touch Screen Calibration

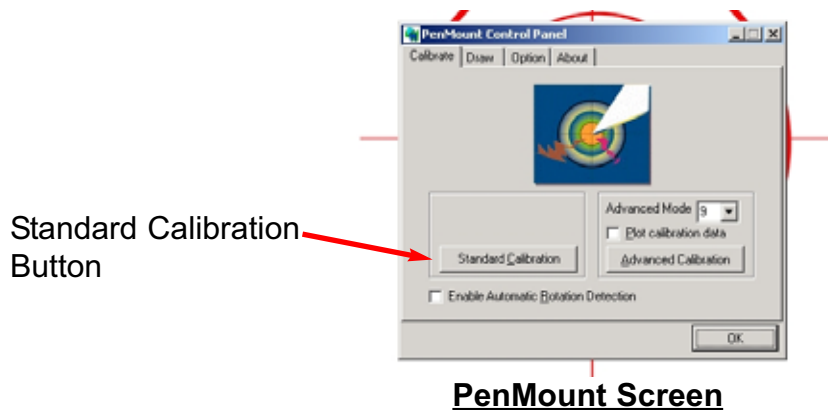
The X20 console Touch Screen is calibrated from the KEE factory and under normal conditions there should be no need to re-calibrate the Touch screen.

If it becomes necessary to re-calibrate the screen, because when the screen is being touched using your finger or Pen Stylus, the area of the screen being touched isn't been activated, but another part of the screen is being activated.

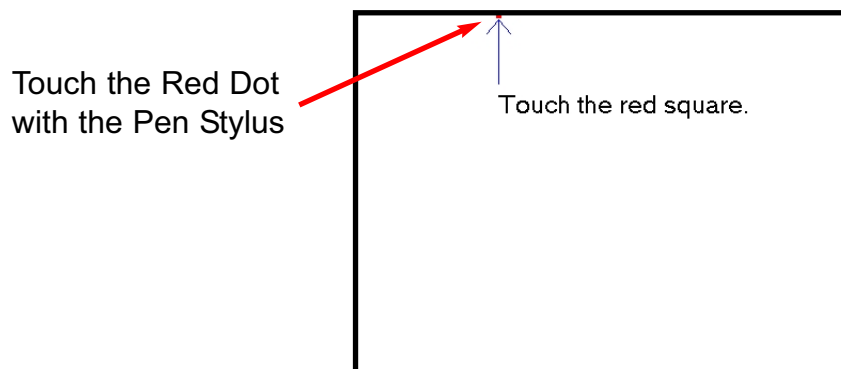
Calibrating the Touch Screen

Note: It is best to use the Pen Stylus supplied with the X20 console, to do the calibration.

- 1- Double -click the 'Touch Screen Cal', on the Windows® desktop.
- 2- The PenMount screen will appear. *Shown below.*



- 3- Select the 'Standard Calibration' button.
- 4- A screen will be displayed. *Shown below.*



Touch Screen Calibration

- 5- Using the Pen Stylus, Press and hold the Red Dot. While holding the Pen on the Red Dot, the screen will display 'HOLD', when the screen changes to display 'Lift Off to Display'; then lift the Pen from the screen.
- 6- The above procedure needs to be repeated as the Red Dot progresses around the screen in a clockwise direction, one for each side of the screen (top, right, bottom, left and centre) and the last Red Dot in the centre of the screen. So in total you will have to 'Touch, Hold and Lift' the screen 5 times.
- 7- If there is a delay of more than 10 seconds between 'Lifting' from the screen and Touching the screen again, the previous PenMount Screen will be displayed and no settings will be saved.
- 8- Once the screen has been touched 5 times the new calibration settings will be saved automatically and the screen will go back to the PenMount Screen.
- 9- Select 'OK' to close the PenMount screen and go back to the Windows® Desktop.

Shutting the Windows® Operating System Down

Shutting Down Windows® from the Desktop

Note: This is the preferred way of shutting the X20 console down.

- Save any data. Close any programs that are open.
- Display the 'Task Bar', by placing your finger or Pen Stylus towards the bottom of the screen area.
- Select the 'START' button.
- Select 'Turn OFF Computer'. A 'Turn OFF computer' screen appears.
- Select the 'Turn Off' button. Windows® will now save all settings and start performing a shut down.
- The X20 console will automatically switch OFF.

Shutting Down Windows® using the X20 Power Button (Performing an ATX shutdown)

- Press and hold the Power Button for 3 seconds (*this is Green button at the back of the X20 console*). *Note: If the Power Button is pressed and held for 10 seconds then the X20 console WILL NOT do an orderly shutdown and WILL NOT save any data. This is **not** recommended.*
- Both Status LED's will start flashing, on the front of the X20 console, indicating the ATX Shutdown has commenced.
- Windows® will close any programs that are running and give the operator an opportunity to save any data. Then Windows® will start shutting the operating system down and saving any settings.
- The X20 console will automatically power OFF.

Connecting the External Speaker

- In the X20 console kit a External Speaker is provided.
- With the X20 console kit an audio adapter cable is provided. See Below.
- Mount the External Speaker in a suitable location in the vehicle.
- Connect the plug marked 'LINE-OUT' on the Audio Adapter Cable to the External Speakers jack.
- Connect the 8 Pin plug on the Audio Adapter Cable to plug marked 'A' on the back of the X20 console.

The '8 Pin' plug connects to the back of X20 console; plug marked 'A'.



The Plug marked 'LINE-OUT' connects to the External Speaker's jack.

Audio Adapter Cable

GPS Hook-up Cable (Part No. A1901)

The GPS Hook-up Cable allows connection to a DGPS serial cable, which enables the GPS strings to be output to 2 Communications Ports (COM Port). This enables 2 applications to be running simultaneously on the X20 console at the same time, and using the same GPS strings.

Connect the Male '9 Pin Serial' (DB9) plug of the A1901 cable, to the DGPS Receiver's serial cable. Then connect 2 Female (DB9) plugs into the COM Ports on the back of the X20 console.

240 Volt Adapter (Optional)

The X20 console can be powered using an optional 240/12 Volt power pack when the X20 console is not being used in a vehicle. The 240/12 Volt power pack still connects to the same Bayonet Power connector on the back of the X20 console.

The Part Number for the 240/12 Volt Power Pack is- A1098.

Transferring data using USB Thumbdrives

USB ports

There are 4 USB ports on the X20 console (2 at the rear of the console and 2 at left side of the console).

There is a 128 Mb USB Thumbdrive supplied with the X20 Console kit.

The USB Thumbdrive can be plugged into any one of the 4 USB ports on the X20 console.

The USB Thumbdrive is used for software upgrades for the X20 console, and for transferring data to between the X20 console and other PC's.

USB Thumbdrives are very rugged and do not have multiple fine pins as with PCMCIA or Compact Flash Cards.

USB Thumbdrives are also HOT plugable which means they can be carefully plugged in and removed at any time whilst the X20 console console is running.

Please Note: Software supplied on the CD for the ThumbDrive must be loaded on any other PC before the ThumbDrive will operate on that PC.

If the PC is running Windows® XP then there is no need to load drivers as Windows® XP automatically detects and loads the USB Thumbdrive drivers.

LOOKING AFTER THE X20 CONSOLE

Operating the X20 Console

Never 'start' the vehicle while the X20 console is switched ON. Switch the X20 console OFF, then start the vehicle; then switch the X20 console ON.

Note: It is recommended that if the vehicle is left unattended for any time without the vehicle's air conditioning running, the X20 console should be switched OFF.

Cleaning the X20 Touch Screen

Cleaning Instructions

To prevent damage to the X20 console use only a soft cotton or microfibre cloth to remove dust and grime. The touch screen can easily be cleaned by using a cotton or microfibre cloth dampened with water.

Never use petroleum based products, acetone or other organic based solutions as this will damage both the X20 Touch Screen and housing.

Touch Screen Use

Only touch the X20's Touch Screen with clean fingers (not greasy or oily) or use the Pen Stylus supplied

NEVER use Ballpoint pens, Screwdrivers or similar objects on the Touch Screen.

Storing The X20 Console

The X20 console should never be left in a vehicle if the temperature is likely to fall below -20°C (-4°F).

The X20 console should never be left in a vehicle if the temperature is likely to go above 60°C (140°F).

If any of these conditions are likely to occur then the X20 console should be removed from that environment.

The X20 console should never be left so direct sunlight is exposed to the heatsink fins on the back of the X20 console.

SYSTEM SOFTWARE

- Windows® XP PRO SP2

PROCESSING

- Low-power 1GHz CPU; 0°C to 60°C (32°F - 142°F) Fanless Operation
- SDRAM SODIMM 512Mb
- 2GB Industrial Flashcard

DISPLAY and TOUCH SCREEN

- 8.4" TFT Active Matric Colour
- Indoor/Outdoor display with Resistive touch screen
- SVGA 800 X 600 pixels
- 32 bit Colour
- Contrast Ratio 400:1
- Brightness 400 cd/m²
- Brightness Control via 'X20 Manager' software
- External XGA monitor support 1024 X 768

INTERFACES

- 4 X RS232 Serial Ports
- COM 2 configurable to RS232 or RS485
- 4 X USB 2.0 Ports (2 at Rear, 2 at side)
- 1 X CANBUS Port (ISO11783)
- 1 X PS2 Mouse port
- 1 X PS2 Keyboard port
- 1 X 8 Pin Audio DIN port
- 1 X VGA Port (1280 X 1024 at 60Hz), (1024 X 760 at 85Hz)
- 1 X 10/100 Base T Ethernet Port (RJ45)
- 100 Mbs LAN

POWER

- Input Voltage 10.8- 18.0 Volts DC
- Built in protection against vehicles start up.
- Full ATX safe Shut Down
- 3 Pin MIL-C-5015 Bayonet connector

AUDIO

- 1.5 Watt Stereo audio amplifier
- Internal speaker
- External stereo line inputs / outputs and microphone (8 pin DIN socket)

DIMENSIONS

- Size: 248mm x 188mm x 70mm (7.4 " x 9.8" x 2.7")
- Weight: 2.35kg (5.2 pounds)
- International Standard Mounting System (RAM® Type)

ENVIRONMENTAL

- Operating Temp: 0°C - 50°C (32°F - 122°F)
- Storage: -20°C to 60°C (-4°F to 140°F)
- Humidity: (0% - 90% RH, NC)

WARRANTY

The warranty provided by KEE Technologies Pty Ltd covers faulty manufacture, defective components and installation of components, but not installation to the machine.

For the warranty to be recognised by KEE Technologies Pty Ltd the end user of the equipment must in the first instance of a problem developing, contact the local Dealer from where the unit was purchased.

The Control Unit Micro Processor is covered for 12 months under this warranty.

Accessories such as cables, sensors and hydraulic kits are covered for 1 year under this warranty.

This warranty will become void if any attempt is made to repair or modify the Control Unit Micro Processor.

This warranty will become void for all components if they are misused, accidentally damaged, if any attempt is made to repair or modify them or operate them on other the recommended or specified voltage.

This warranty is in addition to and not in substitution for any warranty or condition implied by the provisions of the Trade Practices Act.

OPERATION OF WARRANTY

In the event of warranty claim being made KEE Technologies Pty Ltd, will endeavour via its authorised dealer/installer to rectify the problem at the earliest opportunity. KEE Technologies Pty Ltd will arrange for the problem to be fixed and if necessary supply an exchange unit and or components. The method of repair shall be determined by KEE Technologies Pty Ltd at its sole discretion.

Any warranty claim shall at the first instance be reported to KEE Technologies Pty Ltd.

KEE Technologies Pty Ltd shall not in any event be liable for any direct or consequential injury, loss or damage arising out of any matter giving rise to a warranty claim.

Warranty registration must be filled in and Posted to KEE within 7 days of fitment to avoid warranty confusion at a later date if the unit fails during the warranty period



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