

VX5 User's Guide



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E-EQ-VX50GWW-A

LANGUAGE: ENGLISH

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The user is strongly cautioned to read Appendix B, “Regulatory Notices and Safety Information”. Important safety cautions, warnings and regulatory information is contained in Appendix B.

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The VX5 Vehicle Mount Computer

Introduction

The VX5 Vehicle Mount Computer (VMC) is a rugged, vehicle-mounted, PC (Personal Computer) equipped with a Microsoft® Windows®Microsoft Windows operating system. The VX5 is capable of wireless data communications from a fork-lift truck or any properly configured vehicle. The unit uses a PCMCIA radio (spread spectrum 2.4GHz) for wireless data communications.

The VX5 is a tablet-style computer and features a SVGA color TFT display. The touch-screen display supports graphic features and Microsoft Windows icons that the Windows 2000 or Windows XP operating system supports. An illuminated keyboard is available to facilitate use in dimly lit areas.

The VX5 provides the power and functionality of a desktop computer in a vehicle mounted unit, with a wide range of options:








- 933MHz Intel® Pentium III CPU
- 256 or 512MB of SDRAM
- Wireless LAN radios with single or dual antenna option
- Ethernet port
- USB port
- Choice of storage media, including a removable hard drive
- Choice of indoor or outdoor display
- Available touch screen protective film
- Available Uninterruptible Power Supply (UPS) Battery Pack
- Extended temperature version ¹

Note: The “VX5 Reference Guide” contains VX5 technical information and advanced functions.

¹ Extended temperature versions are available with 512MB SDRAM only.

Document Conventions

This reference guide uses the following document conventions:

ALL CAPS	All caps are used to represent disk directories, file names, and application names.
Menu Choice	Rather than use the phrase "choose the Save command from the File menu", this manual uses the convention "choose File Save ".
"Quotes"	Indicates the title of a book, chapter or a section within a chapter (for example, "Document Conventions").
< >	Indicates a key on the keyboard (for example, <Enter>).
	Indicates a reference to other documentation.
	Differences in operation or commands due to radio type.
ATTENTION	Keyword that indicates vital or pivotal information to follow.
	Attention symbol that indicates vital or pivotal information to follow. Also, when marked on product, means to refer to the manual or operator's guide.
	International fuse replacement symbol. When marked on the product, the label includes fuse ratings in volts (v) and amperes (a) for the product.
<i>Note:</i>	Keyword that indicates immediately relevant information.
Caution 	Keyword that indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.
WARNING 	Keyword that indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
DANGER 	Keyword that indicates an imminent hazardous situation, which, if not avoided, will result in death or serious injury.

Environmental Specifications

Feature	Specification
Operating Temperature	
Standard version	32°F to 122°F (0°C to 50°C) [non-condensing]
Extended Temperature version	
Startup	-4°F to 122°F (-20°C to 50°C) [non-condensing]
Operation	-22° to 122° F (-30°C to 50°C [non-condensing]
Storage Temperature	
Standard version	-22°F to 140°F (-30°C to 60°C) [non-condensing]
Extended Temperature version	-40°F to 140°F (-40°C to 60°C) [non-condensing]
Water, Sand Dust	IP66 per IEC60529
Operating Humidity	Up to 90% non-condensing at 104°F (40°C)
Vibration	Based on MIL Std 810F
ESD	15 kV

Quick Start

This section's instructions are based on the assumption that your new system is pre-configured and requires only accessory installation (e.g. antenna, external keyboard and/or barcode scanner) and a power source.

Use this guide as you would any other source book -- reading portions to learn about the VX5, and then referring to it when you need more information about a particular subject. This guide takes you through installation and operation of the LXE VX5.

In general, the sequence of events is:

1. Install Vehicle Mounting Bracket (and keyboard mounting bracket) on vehicle.
2. Secure VX5 in Mounting Bracket Assembly.
3. Connect vehicle power source to VX5 power cable.
4. Connect power cable to the VX5. The power cable can also be connected to a UPS battery pack, which is then connected to the VX5.
5. Connect accessories to VX5, e.g. scanner, antenna, keyboard.
6. Secure all cables to the VX5 with the Strain Relief Cable Clamps.
7. Turn the VX5 on.

The VX5 and its keyboard should be mounted in an area in the vehicle where it:

- Does not obstruct the vehicle driver's vision or safe vehicle operation.
- Can be easily accessed by anyone seated in the driver's seat.

Components

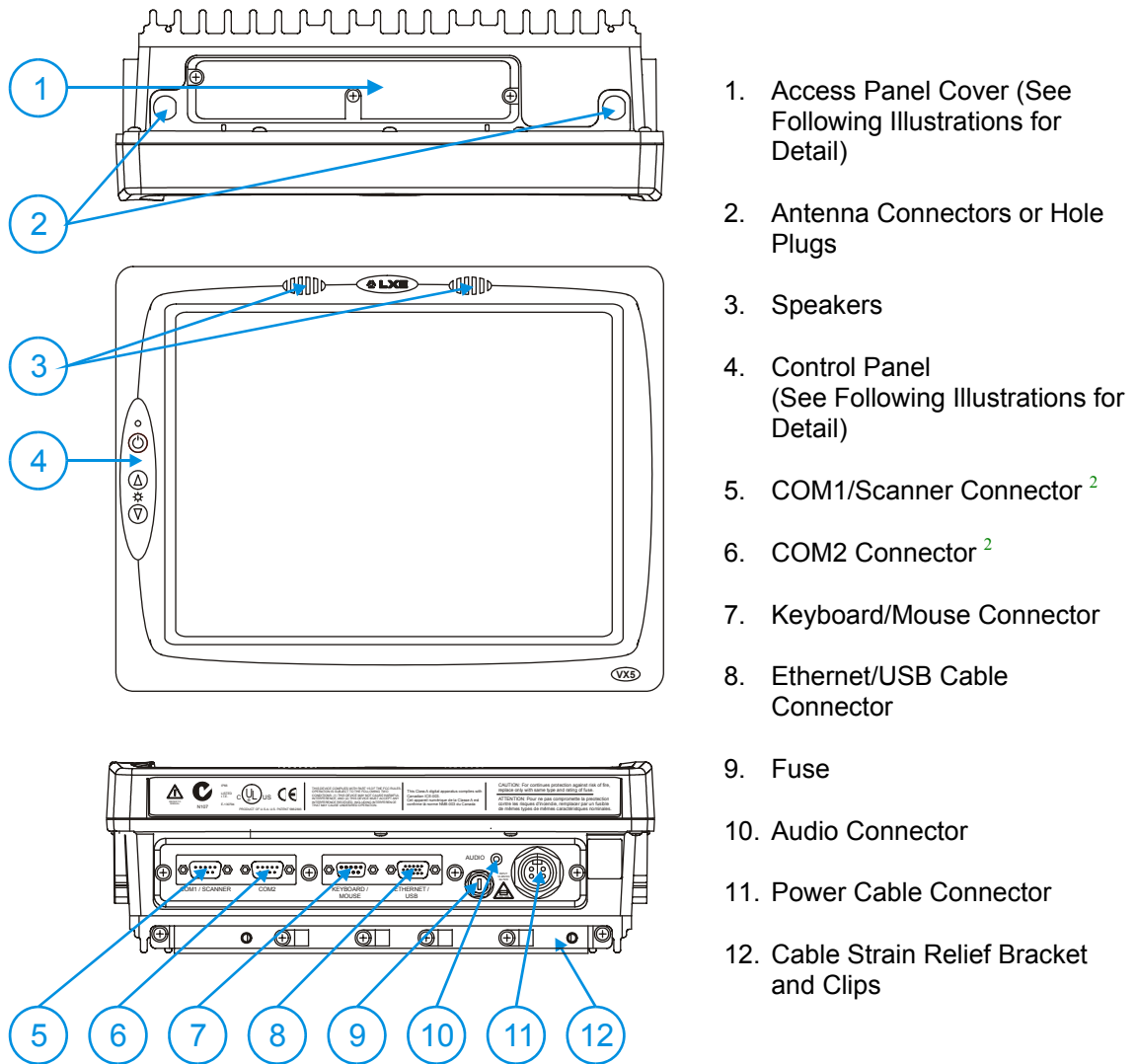


Figure 1 VX5 Components

² COM1 is configured with Pin 9 +5V. COM2 is configured with Pin 9 RI. Refer to the VX5 Reference Guide, Chapter 4, “System Configuration” for more information.

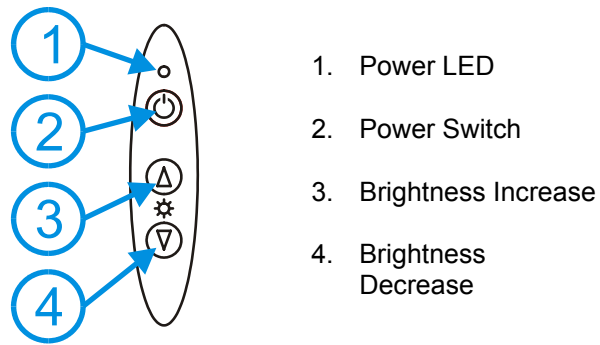


Figure 2 VX5 Control Panel

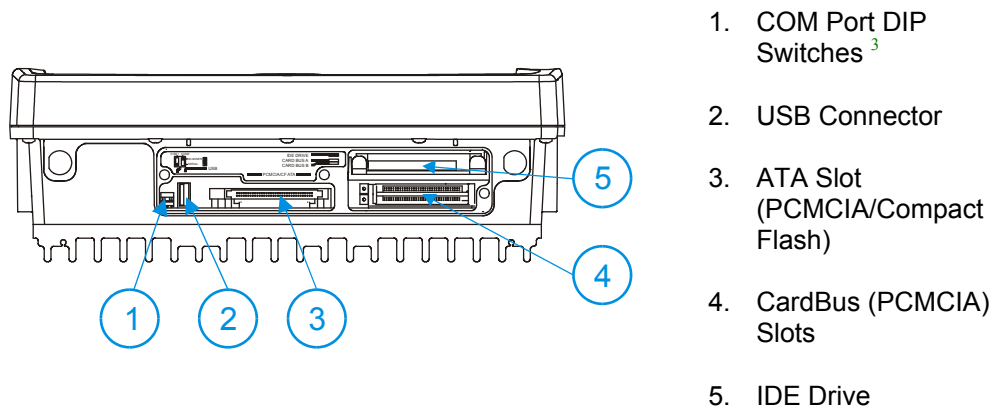


Figure 3 VX5 Access Panel

Note: The tethered access panel cover is not shown in the illustration above.

³ DIP switches allow the COM port PIN 9 to be switched between +5V (default for COM1) and RI (default for COM2).

The Full-Screen Display

The VX5 Display is a TFT color unit capable of supporting VGA and SVGA graphics modes. The maximum resolution is 800 x 600 pixels.

VX5 Control Panel

The VX5 control panel contains the status LED, power button and display brightness adjustment buttons. When the VX5 is on, the status LED is illuminated according to the power supply:

- **Green** – VX5 is operating from vehicle power or AC power.
- **Solid Yellow** – VX5 is operating from the UPS, UPS battery is good.
- **Flashing Yellow** – VX5 is operating from the UPS, UPS battery is critically low.

Microsoft Windows Control Panel

The Microsoft Windows Control Panel and System Tray icons panel provide standard Windows options for configuring the VX5, such as:

- Sound volume
- Display configuration
- Power management
- PCMCIA card management

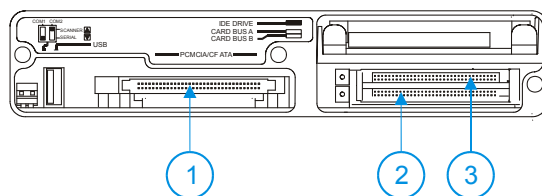


Please consult your System Administrator or refer to commercially available Microsoft Windows user guides or the Windows on-line Help application for these standard Windows configuration options.

CardBus (PCMCIA) and ATA Slots

The VX5 has two CardBus slots which support either CardBus or PCMCIA formats. These slots are intended for use with Type I, II or III cards, such as LXE's 2.4GHz Spread Spectrum radios. These slots are hot swappable per PCMCIA and CardBus specifications. Please see the "VX5 Reference Guide" for more details.

One ATA PCMCIA slot is also provided for ATA compatible memory devices, such as PCMCIA flash cards or Compact Flash via an adapter card. This slot IS NOT hot swappable. The VX5 must be powered down to insert or remove a card in this slot.



1. ATA PCMCIA Slot (Left)
2. Slot 1 (Lower Right)
3. Slot 0 (Upper Right, Used for Radio if Installed)

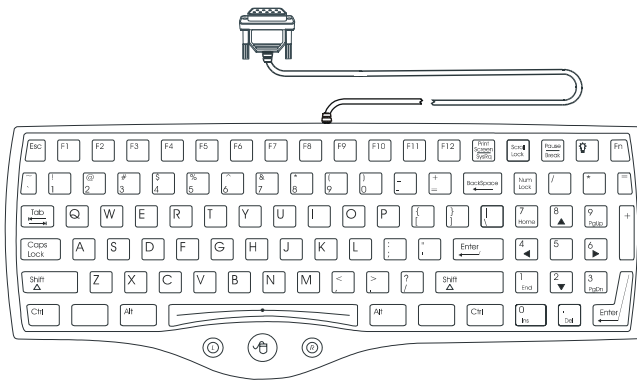
Figure 4 The VX5 PCMCIA and ATA Slots

The Keyboards

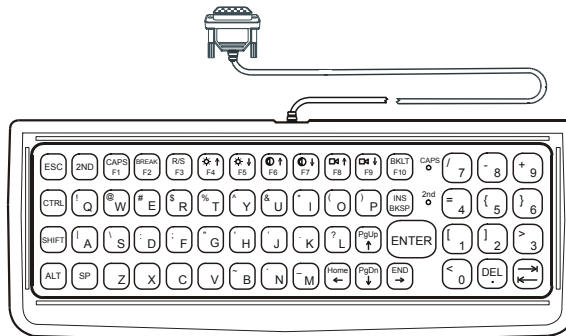
The following keyboard options are available for the VX5:

- LXE VMT 95-key QWERTY keyboard with integrated pointing device – a customized rugged keyboard connected to the VX5 via a watertight connector.
- LXE VMT 60-key QWERTY keyboard – a customized rugged keyboard connected to the VX5 via a watertight connector
- A standard PS/2 keyboard via an adapter cable attached to the “Keyboard/MOUSE” port on the VX5. The adapter cable also provides a connector for a PS/2 mouse.
- A software keyboard, or virtual keyboard, can be displayed on the touch screen. The virtual keyboard can be used in place of, or in addition to, a physical keyboard.

For more details on each keyboard type, please refer to the appropriate section later in this chapter.



95 key with Integrated Pointing Device



60 key

Figure 5 The LXE VMT Keyboards with Cable

The 95-key QWERTY Keyboard with Pointing Device

Designed for ease of use with Windows operating systems, the 95-key keyboard with pointing device connects via a cable to the keyboard port on the VX5. Additional Windows keys (the Windows log key and the Application key) and an integrated pointing device are provided for ease of use with Windows operating systems.

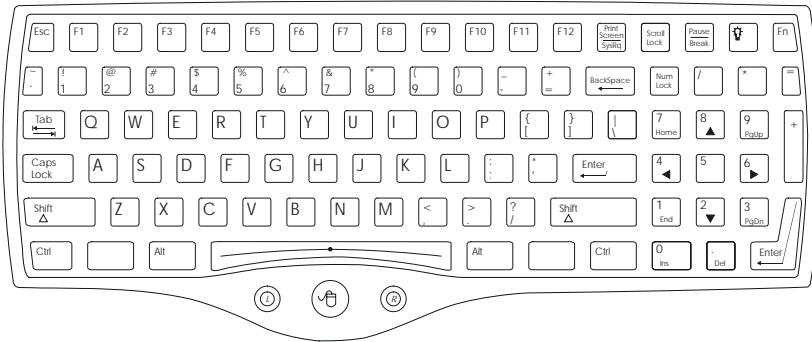


Figure 6 The 95-key QWERTY Keyboard

Key Maps

The 95-key keyboard supports all 104 keyboard functions (101 keyboard standard plus Windows keys) and includes an integrated pointing device and left and right mouse buttons. However, because the keyboard only has 95 keys, all functions are not visible (or printed on the keyboard). Therefore the VX5 keyboard supports what is called hidden keys -- keys that are accessible but not visible on the keyboard.

As with a standard keyboard, many keys are found in the Alphanumeric section as well as on the Numeric keypad (i.e. the 1 key is found on the numeric keypad and above the alpha characters on standard keyboards). However these keys send distinctly different scan codes when the keys are pressed.

The hidden keys supported by the VX5 are listed in Appendix A, "Key Maps".

NumLock and the VX5

For the 95-key keyboard, the NumLock key and the numeric keys are backlit **green** when NumLock is off. When NumLock is on, the backlight for the NumLock key and the numeric keys are **amber**.

Please refer to the "VX5 Reference Guide" for more information on NumLock.

CapsLock, Scroll Lock and the VX5

For the 95-key keyboard, the CapsLock key is backlit **green** when CapsLock is off. When CapsLock is on, the backlight for the CapsLock key is **amber**.

The Scroll Lock key is backlit **green** when Scroll Lock is off. When Scroll Lock is on, the backlight for the Scroll Lock key is **amber**.

The default values for CapsLock and Scroll Lock are Off.

Keyboard Backlight



The 95-key keyboard backlights each key with an LED. The keyboard backlight is manually controlled using the “backlight” key in the upper right hand corner of the keyboard. Pressing the backlight key cycles the keyboard backlight through the levels of backlight intensity:

- Off
- Maximum intensity
- Medium intensity
- Low intensity.

Note: The 2nd key function is available on the 60-key keyboard only.

The 60-key QWERTY Keyboard

The 60-key keyboard has 101 keyboard functions, including a numeric keyboard pad. Please refer to Appendix A, "Key Maps", for keypress combinations.

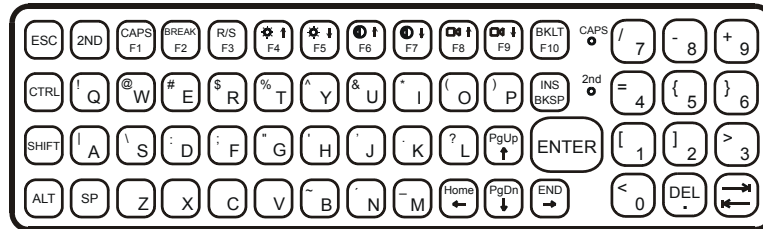


Figure 7 The 60-key QWERTY Keyboard

Note: When the 60-key keyboard is used, the touchscreen MUST BE configured to recognize holding the <Ctrl> key then touching the screen as a right click. Please refer to “Configuring Right Click on the Touchscreen” in the “VX5 Reference Guide” for more details.

Key Maps

The 60-key keyboard supports all 101 keyboard functions. However, because the keyboard only has 60 keys, all functions are not visible (or printed on the keyboard). Therefore the VX5 keyboard supports what is called hidden keys -- keys that are accessible but not visible on the keyboard.

On standard keyboards many keys are found in the Alphanumeric section as well as on the Numeric keypad (i.e. the 1 key is found on the numeric keypad and above the alpha characters on standard keyboards). However these keys send distinctly different scan codes when the keys are pressed. The default codes for the VX5 number keys correspond to the numeric keypad on standard keyboards. In order to duplicate the codes sent when the alphanumeric key is pressed, the hidden keystroke must be used.

The hidden keys supported by the VX5 are listed in Appendix A, "Key Maps".

Unused Key Functions

There are several key functions on the 60-key keyboard that are not used on the VX5. These include:

- <2nd> <F3> – The Resume/Suspend function is not used as Microsoft Windows controls all power management modes.
- <2nd> <F4> and <2nd> <F5> – The Display Brightness functions are not used as the display brightness is adjusted by the buttons on the VX5 control panel.
- <2nd> <F6> and <2nd> <F7> – The Contrast functions are not used as the contrast is not adjustable on the TFT display on the VX5.
- <2nd> <F8> and <2nd> <F9> – The Volume control keys are not used as volume is adjusted via the Microsoft Windows Volume icon in the System Tray.
- <2nd> <F10> – Please see “Keyboard Backlight” later in this section for details on toggling the keyboard backlight.

NumLock and the VX5

The 60-key keyboard does not have a NumLock indicator or key. NumLock can be toggled On or Off using the <2nd> <SHIFT> <F10> keypress sequence.

Please refer to the “VX5 Reference Guide” for more information on NumLock.

Keyboard Backlight

The LXE keyboard keys are backlit with LEDs. The backlight is manually controlled using the <2nd> + <CTRL> + <F10> keypress sequence.

Keyboard LEDs

The VX5 keyboard has two (2) LED indicators.

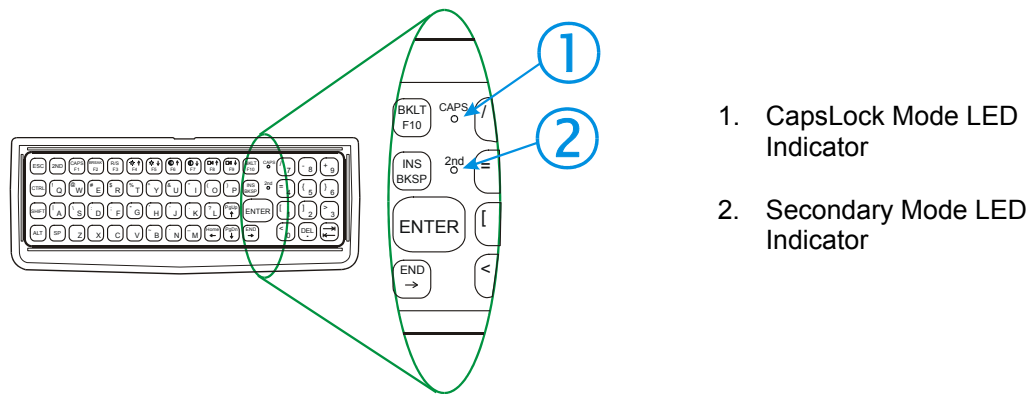


Figure 8 Keyboard LEDs

CAPS LED

This LED indicates the state of the keyboard CapsLock mode. If CapsLock is enabled this LED is illuminated green. When CapsLock is off, the LED is dark.

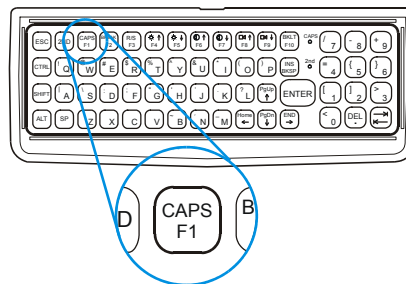


Figure 9 The CapsLock Key

Press <2nd> then <F1> to toggle CapsLock On and Off.

The default value of CapsLock is “Off”.

Secondary Keys LED

The VMT keyboard is equipped with several secondary keys. These keys are identified by the superscripted text found on the keyboard keys. The secondary keys are accessible by using two (2) keystrokes: the <2nd> key followed by the superscripted key.

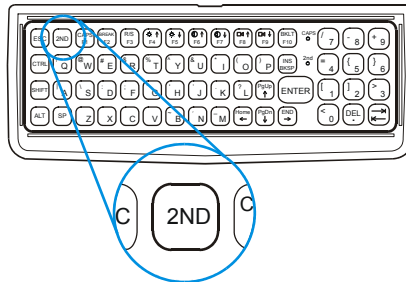


Figure 10 The Secondary Key

Once the <2nd> state is enabled (by pressing the <2nd> key) the Secondary Mode LED is illuminated and the <2nd> state is enabled until another key is pressed. The <2nd> key is toggled on with a <2nd> keypress and then immediately off with another <2nd> keypress.

For example:

Press <2nd> and <F1> to turn CapsLock on and off.

Press <2nd> and <↑> to initiate the PgUp command.

Press <2nd> and <Q> to type the “!” key.

Press <2nd> and <BkSp> to enter the Insert (Ins) mode.

Control Keys

The VMT keyboard has several control keys. Because of the construction of the VX5 and the Microsoft Windows operating system, many of the Control Keys are not used on the VX5.

Note: The 2nd functions of the <F4> and <F5> keys are not used as the display brightness is adjusted via the buttons on the control panel.

The 2nd functions of the <F6>, and <F7> keys are not used as the VX5 has TFT LCD screen with no provision for contrast adjustments.

The 2nd functions of the <F8> and <F9> keys are not used as the sound volume on the VX5 is controlled with the Sound icon in the Microsoft Windows System Tray.

The <F10> key is used to toggle the backlight as part of the keypress sequence <2nd> + <CTRL> + <F10>. This key sequence immediately toggles the status of the keyboard backlight. Pressing <2nd> + <F10> has no effect on the keyboard backlight.

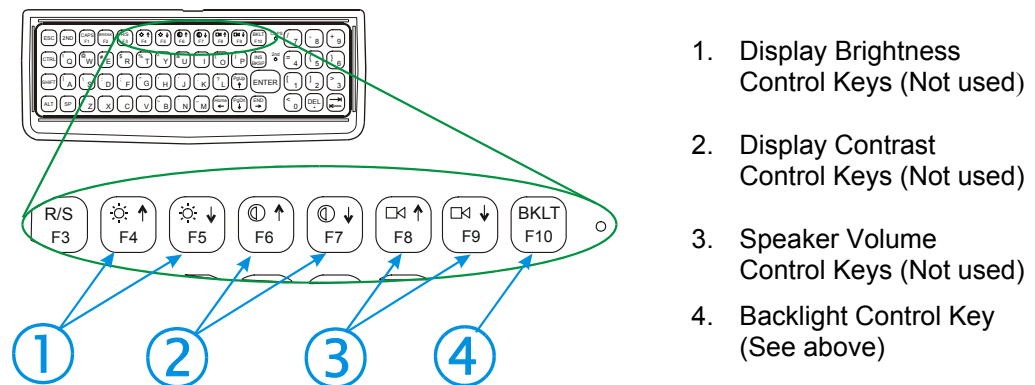


Figure 11 The VMT Keyboard Display Controls

General Windows Keyboard Shortcuts

Use the keyboard shortcuts in the chart below to navigate with any VX5 keyboard. These are standard keyboard shortcuts for Windows applications.

Press these keys ...	To ...
CTRL + C	Copy
CTRL + X	Cut
CTRL + V	Paste
CTRL + Z	Undo
DELETE	Delete
SHIFT with any of the arrow keys	Select more than one item in a window or on the desktop, or select text within a document.
CTRL+A	Select all.
ALT+ESC	Cycle through items in the order they were opened.
CTRL+ESC	Display the Start menu.
ALT+Underlined letter in a menu name	Display the corresponding menu.
Underlined letter in a command name on an open menu	Carry out the corresponding command.
ESC	Cancel the current task.

PS/2 Keyboard/Mouse

A standard PS/2 keyboard and mouse can be attached to the VX5 using the appropriate dongle cable. The dongle cable attaches to the VX5 and provides two PS/2 connectors, one labeled “Keyboard” and one labeled “Mouse”. Please refer to documentation provided with the PS/2 keyboard and mouse for more information on their operation.

Virtual Keyboard

The optional My-T-Soft software provides a virtual keyboard on the touchscreen. To start the virtual keyboard, click on the My-T-Soft icon on the desktop or select **Start|Programs|My-T-Soft|My-T-Soft**.

The virtual keyboard provides several configuration options, including:

- Keyboard size
- QWERTY vs. ABCD
- Standard 101 key format vs. Windows 104 key format

For more information on configuring the virtual keyboard, click on **Start|Programs|My-T-Soft|My-T-Soft Setup**.



Figure 12 Virtual Keyboard, Typical Configuration

Virtual keyboards display the actual character the keypress outputs. For example, pressing the <Shift> key on the virtual keyboard toggles the characters displayed on the keys between upper and lower case.

Note: When the virtual keyboard is displayed, the physical keyboard is still active, if attached. Therefore it is possible to input data from both keyboards.

Power Supply

Vehicle power input for the VX5 is 12V to 80V DC and is accepted without the need to perform any manual adjustments within the VX5. See the section titled “Installation”, sub-section titled “Vehicle 12-80V DC Direct Connection.” An optional Uninterruptible Power Supply (UPS) battery pack is available for the vehicle power supply connection.

If 12V to 80V DC power is not available – for example, in an office environment – an optional external Input Power Supply can be used to convert AC wall power to an appropriate DC level. See the section titled “Installation”, sub-section titled “External Power Supply.”

Power input is fused for protection and the fuse is externally accessible. See section titled “Installation”, sub-section titled “Fuse Replacement for the VX5.”

Uninterruptible Power Supply Battery Pack

An optional Uninterruptible Power Supply (UPS) battery pack is designed to provide power to the VX5 for short periods of time when vehicle power is unavailable (such as when vehicle batteries are swapped). Fully charged, the UPS battery powers the VX5 for a minimum of 15 minutes at 25° C (77° F) ambient temperature.

The Power Status LED on the VX5 indicates the UPS battery status:

Green – Running on 12V – 80V power input

Solid Yellow – Running on UPS battery, battery is not low on power

Flashing Yellow – Running on UPS battery, battery is critically low.

Backup Battery

The internal 190 mAh Lithium backup (coin cell) battery provides power to maintain the real time clock when the VX5 is not powered from an external source. The backup battery requires no user intervention. Replacement must be performed by LXE.

Caution



Danger of explosion if battery is incorrectly replaced.

Replace only with the same type or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer’s instructions.

Getting Help

All LXE manuals are now available on one CD and they can also be viewed/downloaded from the LXE website. Contact your LXE representative to obtain the LXE Manuals CD.

You can also get help from LXE by calling the telephone numbers listed on the LXE Manuals CD, in the file titled "Contacting LXE". This information is also available on the LXE website www.lxe.com.

Explanations of terms and acronyms used in this guide are located in the file titled "Glossary" on the LXE Manuals CD.

Manuals and Accessories

Manuals

The following manuals are available on the LXE Manuals CD:

- [VX5 Reference Guide](#)
- [Contacting LXE](#)
- [LXE Technical Glossary](#)

Accessories

VX5 Brackets

Bracket, U Style, VX5	VX5A001UBRACKET
Bracket, U Style w/ Integrated Keyboard Mount, VX5	VX5A001UBRKTWKBDMNT
Kit, VXX U-Bracket to VX5 Adapter	VX5A002BRKTADPTKIT
Kit, VXX U-Bracket to VX5 Adapter w/ Keyboard Mount	VX5A002BRKTADPKBDMNT
Bracket, RAM Mount VX5	VX5A003BRKTRAMMOUNT
Bracket, Combo RAM VMT Mount w/ Keyboard Mount, VX5	VX5A003BRKTRAMWKBDMNT

Keyboard Brackets

Bracket, Keyboard, Integrated U Style, VX5	VX5A004BRKTKBDUMOUNT
Bracket, Keyboard, RAM Mount, VX5 VX7	9000A017BRKTKBDRAM
Bracket, Remote, Keyboard, LXE	9000A012BRKTRMTLXE
Bracket, Remote, Mouse Keyboard	9000A018BRKTMKBDRMT

Keyboards

Keyboard, LXE Standard, D9, ANSI/PC Overlay, QWERTY	9000A157KBDSTDD9ANSI
Keyboard, LXE Standard, D9, 5250 Overlay, QWERTY	9000A158KBDSTDD95250
Keyboard, LXE Standard, D9, 3270 Overlay, QWERTY	9000A159KBDSTDD93270
Keyboard, Rugged PC Style w/Mouse, PS2 D9	9000A160MOUSEKBDD9

Data Cables

Cable Assembly, 6FT Remote, Antenna Mount, Non-Cond.	9000A278ANTREMOTE6
Cable Assembly, 8FT Remote, Antenna Mount, Non-Cond.	9000A279ANTREMOTE8
Cable, Combo D15 to USB and Ethernet Adapter 1 Ft	9000A071CBLD15USBETH
Cable, Keyboard/Mouse Dual PS2 Adapter 1 Ft	9000A072CBLD9DUALPS2
Cable, Printer/PC, D9 to D25	9000A053CBL6D9D25
Cable, PC, D9 to D9	9000A054CBL6D9D9
Cable, Zebra QL420 Printer	9000A062CBLD9COMTEC

Power Cables

Cable, Input Power, 12 FT, VX5 VX6 VX7	9000A073CBLPWR12FT
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Power Supplies

Power Supply, External, AC, W/US Power Cord VX5 VX6 VX7	9000A317PSACUS
Power Supply, External, AC, No Power Cord VX5 VX6 VX7	9000A318PSACWW

UPS Battery and Cables

Battery, UPS Lead Acid, VX5 VX6 VX7	9000A378UPSBATTPACK
Cable, UPS Battery, Remote Mount Extender, 6 Ft	9000A074CBLUPSEXTNDR

Miscellaneous

Stylus, with Tethers and Sleeves, 5 Pack	9000A510STYLUS
Media BC-WEDGE DOS/Windows Taltech Floppy	9000A485BCWEDGEMEDIA
On-Screen Software Keyboard Windows 95 Through XP	11201 MY-T-SOFT
Protective Film, 12 in Display, 10 Pack, VX5 VX7	9000A511PROTFILM12IN
PCMCIA Compact Flash adapter	9000A106PCCCFADAPTR
Software, Drivers, VX5	VX5A477DRIVERS

Printers

Zebra, PA400, 240VAC, EC	PA400-050-12100
Zebra, PA400, 120VAC, US	PA400-050-11100
Zebra, PA400, 20-80VDC	PA400-050-99100
Zebra, PT400, 240VAC, EC	PT400-050-12100
Zebra, PT400, 120VAC, US	PT400-050-11100
Zebra, PT400, 20-80VDC	PT400-050-99100

Scanners

Scanner, LS3203, Ext. Range, 8' Cbl, US	8011LS3203ERC08DUS
Scanner, LS3203, Ext. Range, 8' Cbl, EC	8011LS3203ERC08DEC
Scanner, LS3203, Ext. Range, 20' Cbl, US	8011LS3203ERC20DUS
Scanner, LS3203, Ext. Range, 20' Cbl, PS/2, US	8011LS3203ERC08PUS
Scanner, LS3203, Ext. Range, 8' Cbl, PS/2 EC	8011LS3203ERC08PEC
Scanner, 530092IP, 7' Cbl, WW	8110IP530092C07DWW
Scanner, 530092IP, 15' Cbl, US	8110IP530092C15DUS
Scanner, Phase 302 Fuzzy Logic, 8' Cbl, WW	8200A326SCNRP3028DA9F
Scanner, Phase 302 Fuzzy Logic, 20' Cbl, US	8200A327SCNRP30220DA9F
Scanner, Phase 302 Fuzzy Logic, 8' Cbl, PS/2, WW	8200A331SCNRP3028PS2
Scanner, P304PRO, 8' Cbl, WW	8210A326SCNRP3048DA9F
Scanner, P304PRO, 20' Cbl, US	8210A327PRO20D9F
Scanner, P304PRO, 20' Cbl, US	8210A327SCNRP30420DA9F
Scanner, Powerscan, SR, 8' Cbl, WW	8300A326SCNRPWRSR8DA9F
Scanner, Powerscan, SR, 12' Cbl, US	8300A327SCNRPWRSR12DA9F
Scanner, Powerscan SR, 11' Cbl, PS/2, US	8300A330SCNRPWRSR11PS2
Scanner, Powerscan, LR, 8' Cbl, WW	8310A326SCNRPWRLR8DA9F
Scanner, Powerscan LR 12' Cbl, US	8310A327SCNRPWRLR12DA9F
Scanner, Powerscan, LR, 12' Cbl, PS/2, US	8310A330SCNRPWRLR11PS2
Scanner, Powerscan, XLR, 8' Cbl, WW	8320A326SCNRPWRXLR8DA9F
Scanner, Powerscan XLR, 12' Cbl, US	8320A327SCNRPWRXLR12DA9F
Scanner, Powerscan XLR, 12' Cbl, PS/2, US	8320A330SCNRPWRXLR11PS2

Installation

Install Mounting Brackets

Caution:



This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.

Equipment Needed: Phillips No. 1 screwdriver and a Torque wrench capable of measuring to 50 inch pounds (5.64±.56 N/m).

Note: *Torquing tool is not supplied by LXE. Bolts, washers, and wrench needed when attaching the bottom mounting bracket to the vehicle are not supplied by LXE.*

Several types of mounting systems are provided for the VX5:

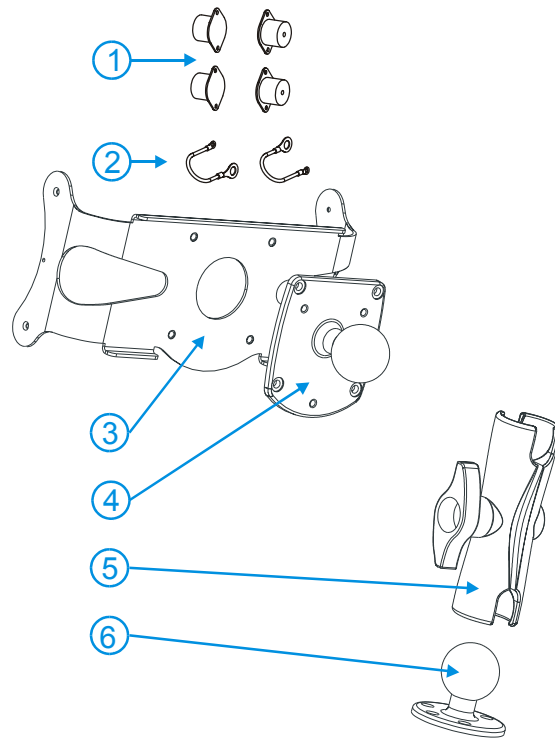
- RAM mount system:
 - Optional integrated keyboard bracket
- U-Bracket system:
 - Optional integrated keyboard mounting bracket
 - Provision for integrated UPS battery mount
 - Available without U-Bracket for vehicles previously equipped with an LXE vehicle mounted computer
- Remote mount for keyboard
- Remote mount for UPS battery pack

Before installation begins, verify you have the applicable vehicle mounting bracket assembly components necessary for your mount type, as shown in the following figures.

RAM Mount System

Components

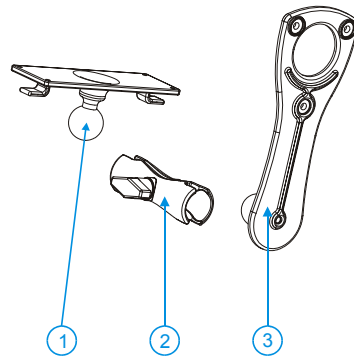
RAM Mounting Assembly



The RAM mounting assembly consists of the following parts:

1. Isolators (4 each)
2. Fail safe cables (2 each)
3. VX5 isolator bracket
4. VX5 RAM ball bracket
5. RAM arm, size D
6. Vehicle RAM ball base
7. Hardware (not shown):
 - Screws, 8-32x3/8 (4 each)
 - Screws, 6-32x5/16 (8 each)
 - Bolts, 1/4-20x5/8 (4 each)
 - Washers, 1/4 locking (4 each)
 - Washers, 1/4 flat (4 each)
 - RAM wrench

RAM Integrated Keyboard Mount



The optional RAM integrated keyboard mount consists of the following parts:

- 1 Keyboard mounting plate.
- 2 RAM arm, size C
- 3 Keyboard mounting bracket
4. Hardware (not shown):
 - Screws, 8-32x5/8 (4 each) for use with the 95 key keyboard
 - Screws, 10-32x5/8 (4 each) for use with the 60 key keyboard
 - Bolts, 1/4-20x5/8 (3 each)
 - Washers, 1/4 locking (3 each)
 - Washers, 1/4 flat (3 each)

Torque Measurements

You will need a torquing tool capable of torquing to 50 inch pounds (5.64±.56 N/m).

Torque all screws and bolts according to the following table:

For these screws and bolts...	Torque to
#6 screws	8.0±1 in/lb (0.9±.11 N/m)
#8 screws	16.0±1 in/lb (1.8±.11 N/m)
1/4 bolts	50.0±5 in/lb (5.64±.56 N/m)

Procedure

Step 1 – Mount Vehicle RAM Mount Bracket

1. Determine the position for mounting the RAM ball base. Be sure to position the RAM bracket to allow access to the switches and ports on the bottom of the VX5.
2. Attach the RAM ball base to the vehicle mounting surface using four 1/4 bolts (or equivalent) fasteners.

Note: 1/4 Bolts not included.

IMPORTANT: Mount to the most rigid surface available.

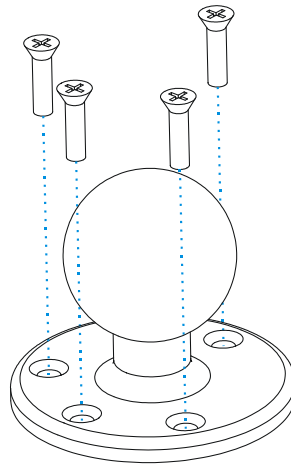


Figure 13 Connect Vehicle RAM Mount Bracket to Vehicle

Mounting Dimensions

Note: Drill and tap holes for 1/4 bolts.

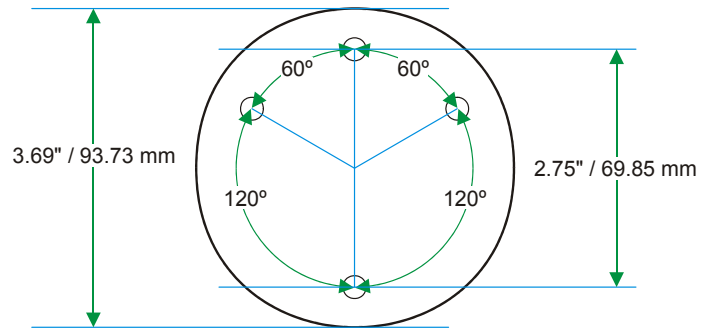


Figure 14 VX5 RAM Bracket - Mounting Dimensions (Not To Scale)

Step 2 – Prepare VX5 and Keyboard

1. Turn the VX5 off before attaching isolators and brackets.
2. Place the VX5 face down on a stable surface.
3. Align an isolator with one of the upper isolator mounting plates on the VX5. Attach the isolator to the VX5 with two 6-32x5/16 screws. Capture the smaller end of the fail safe cable between the isolator plate and the screw head. Repeat for the remaining upper isolator. Install the lower isolators in the same way, except no fail safe cables are used.

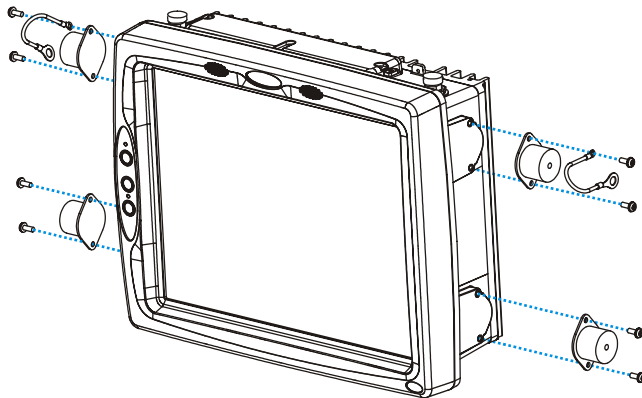


Figure 15 Attach Isolators to VX5

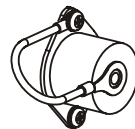


Figure 16 Fail Safe Cable Detail

4. If using the optional integrated keyboard mount, attach the keyboard to keyboard mounting plate, using the appropriate screws:
 - For the 95 key keyboard, use four 8-32x5/8 screws
 - For the 60 key keyboard, use four 10-32x5/8 screws

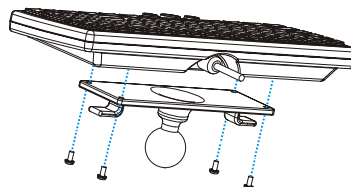


Figure 17 Attach Keyboard to Plate

Step 3 – Assemble Isolator, RAM Mount and Optional Keyboard Brackets

1. Position the RAM ball bracket on the rear of the isolator bracket, aligning the curved edge on the RAM mount bracket with the curved edge of the isolator bracket. Attach with four 1/4-20x5/8 bolts, using one flat washer and one locking washer per bolt. Place the locking washer on the bolt before the flat washer.

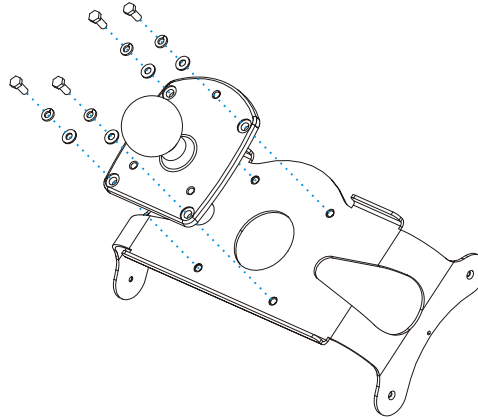


Figure 18 Assemble Isolator and RAM Mount Brackets

3. If using the optional integrated keyboard mount, attach the keyboard mounting bracket to the RAM mounting bracket with three 1/4-20x5/8 bolts, using one flat washer and one locking washer per bolt. Place the locking washer on the bolt before the flat washer.

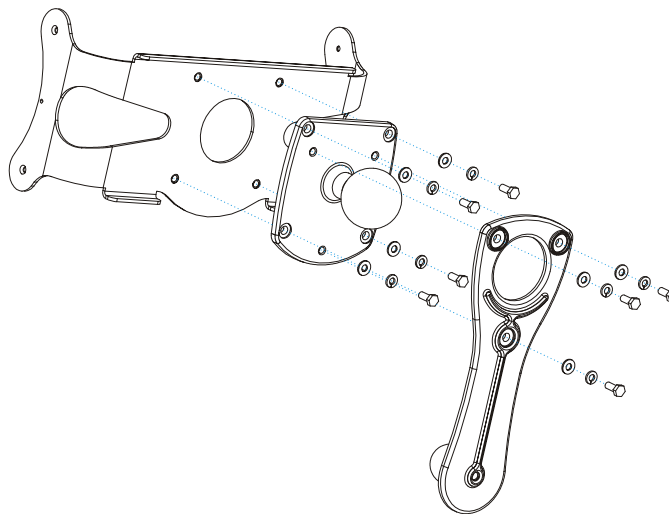


Figure 19 Attach Keyboard Mounting Bracket

Step 4 – Attach VX5 and Bracket Assembly to RAM Mount

1. Attach the completed bracket assembly to the VX5 using four 8-32x3/8 screws. Make sure the top screws go through the free end of the fail safe cables. The fail safe cables must be captured between the isolator and the mounting bracket.

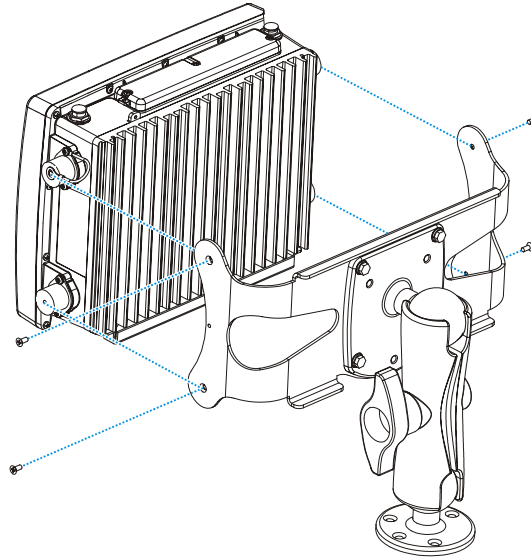


Figure 20 Attach Bracket Assembly to VX5

2. If the optional integrated keyboard bracket is not used, slip the RAM arm over the ball on the vehicle RAM ball bracket. Insert the ball of the RAM mount bracket into the RAM arm. Adjust the VX5 to the desired position and tighten the knob on the RAM arm using the supplied RAM wrench.

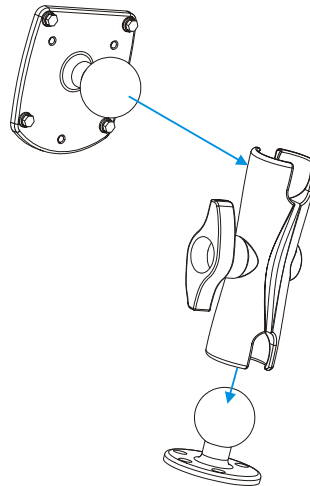


Figure 21 RAM Assembly without Keyboard

3. If using the optional integrated keyboard bracket, there are two arms included. Slip the larger RAM arm over the ball on the vehicle RAM mount bracket. Insert the ball of the RAM mount bracket into the RAM arm. Adjust the VX5 to the desired position and tighten the knob on the RAM arm using the supplied RAM wrench.

Slip the smaller arm over the RAM ball on the keyboard mounting bracket. Insert the RAM ball on the keyboard mounting plate into the RAM arm. Adjust the keyboard to the desired position and tighten the knob on the RAM arm using the supplied RAM wrench.

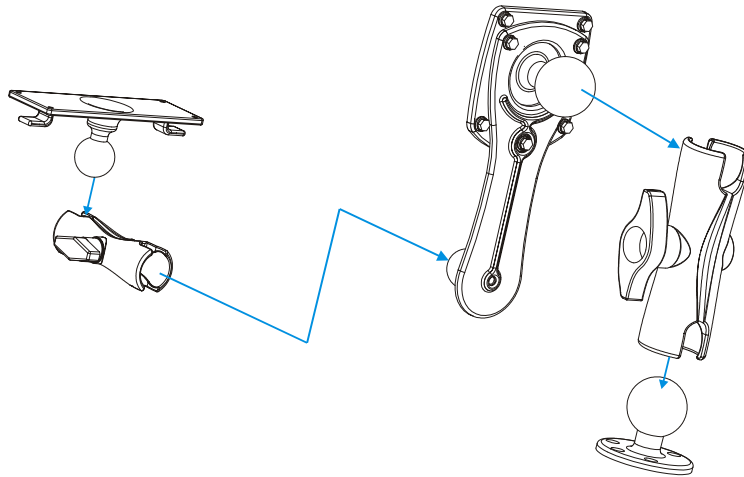
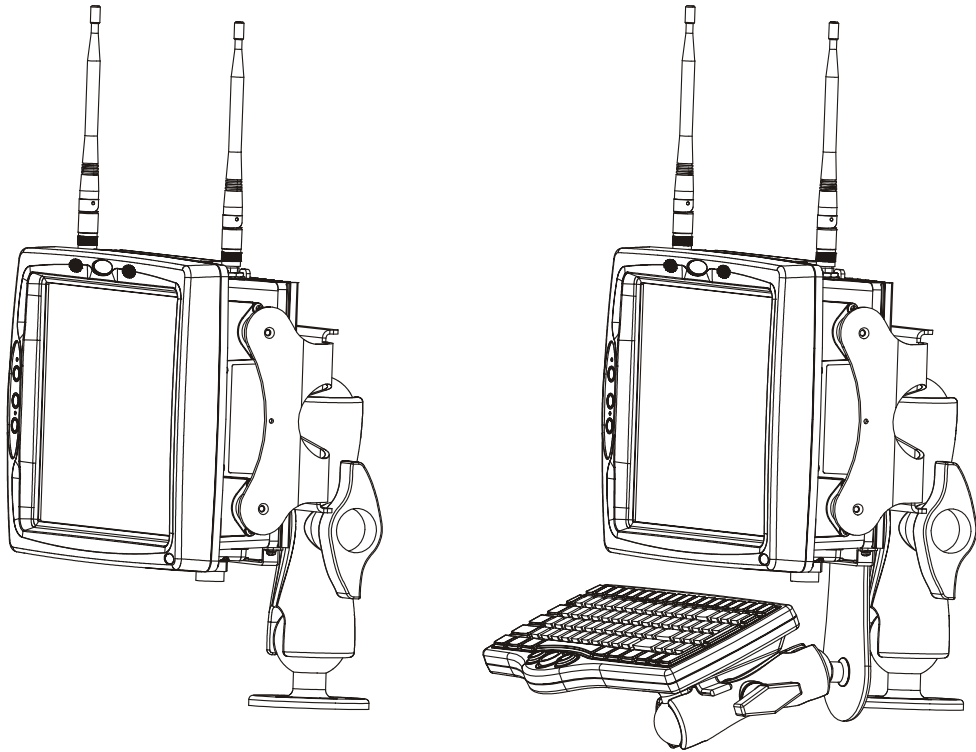


Figure 22 RAM Assembly with Keyboard

Note Excess keyboard cable length can be looped around the hooks on the bottom of the keyboard mounting plate.

Make sure there is a minimum 1" (25.4 mm) clearance between the VX5 and the keyboard.

Completed Assembly



RAM Mount

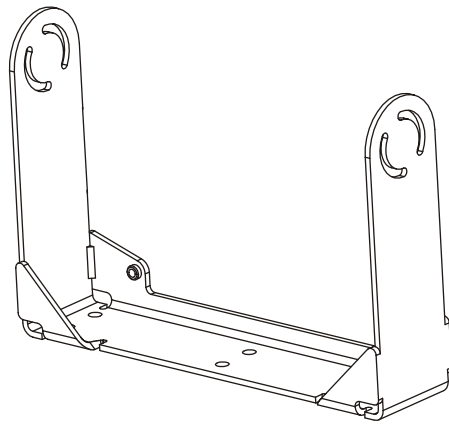
RAM Mount with Integrated Keyboard Mount

Figure 23 Completed RAM Mount Assembly

U-Bracket Mount System

Components

Bottom Mounting Bracket



This bracket is mounted to the vehicle. The VX5 can be mounted to the bottom mounting bracket with or without an integrated keyboard mounting bracket. Additionally, the UPS battery pack may be mounted to the bottom mounting bracket.

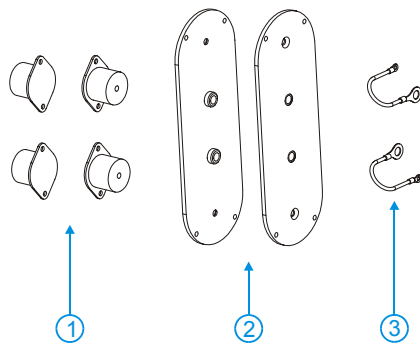
The following hardware is included (not shown) to assemble the VX5 to the bracket bottom mounting bracket:

- 1/4 flat washer (4 each)
- 1/4 locking washer (4 each)
- screw, hex, 1/4-20x5/8

If the optional UPS battery pack is to be mounted to the bottom bracket, use the following parts included with the UPS battery pack (not shown):

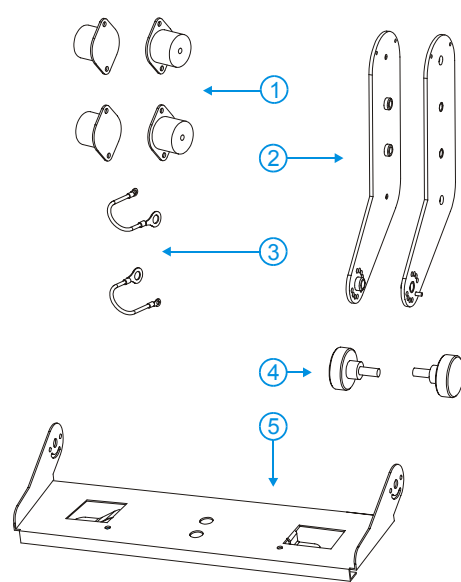
- 1" long aluminum spacer w/through hole (2 each)
- 1/4 flat washer (2 each)
- 1/4 locking washer (2 each)
- screw, pan head, 1/4-20x2 (2 each)

Isolator Bracket Assembly (without Keyboard Bracket)



1. Isolators (4 each).
2. Side mounting brackets (2 each).
3. Fail safe cables (2 each)
4. Hardware (not shown):
 - Screws, 6-32x5/16 (8 each)
 - Screws, 8-32x3/8 (4 each)

Isolator Bracket Assembly with Keyboard Bracket



1. Isolators (4 each).
2. Side mounting brackets with keyboard mounts (left side and right side)
3. Fail safe cables (2 each)
4. Adjustment knob (2 each)
5. Keyboard mounting plate
6. Hardware (not shown):
 - Screws, 6-32x5/16 (8 each)
 - Screws, 8-32x3/8 (4 each)
 - Screws, 8-32x5/8 (4 each) for use with the 95 key keyboard
 - Screws, 10-32x5/8 (4 each) for use with the 60 key keyboard

Mounting Positions

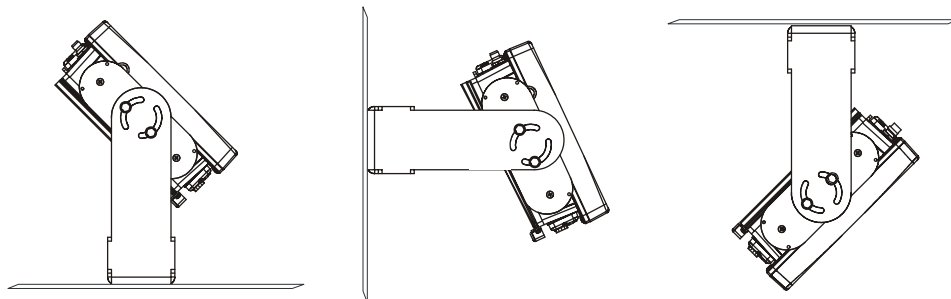


Figure 24 Suggested Mounting Positions

The viewing angle can be adjusted through a wide range to provide the best viewing angle.

Torque Measurements

You will need a torquing tool capable of torquing to 50 inch pounds (5.64±.56 N/m).

Torque all screws and bolts according to the following table:

For these screws and bolts...	Torque to
#6 screws	8.0±.5 in/lb (0.9±.05 N/m)
#8 screws	16.0±1 in/lb (1.8±.11 N/m)
1/4 bolts	50.0±5 in/lb (5.64±.56 N/m)

Procedure

Step 1 - Mount Bottom Mounting Bracket To Vehicle.

1. Position the bracket to allow access to the switches and ports on the bottom of the VX5.
2. Attach the bottom mounting bracket to the vehicle mounting surface using a minimum of four 1/4 bolts (or equivalent) fasteners.

Note: 1/4 Bolts and washers not included. It is recommended to use lock washers and flat washers on the fasteners.

IMPORTANT: Mount to the most rigid surface available.

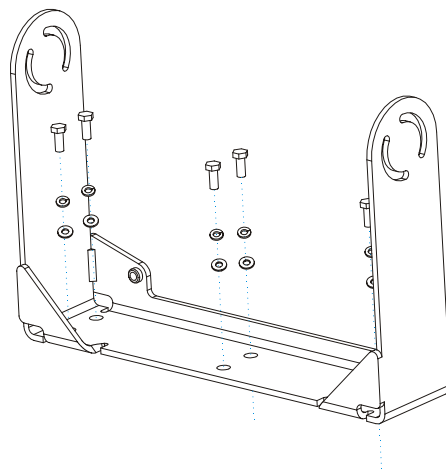


Figure 25 Connect Bottom Bracket to Vehicle

After the bottom bracket has been attached to a rigid surface, you are ready to assemble the VX5 bracket configuration.

Mounting Dimensions

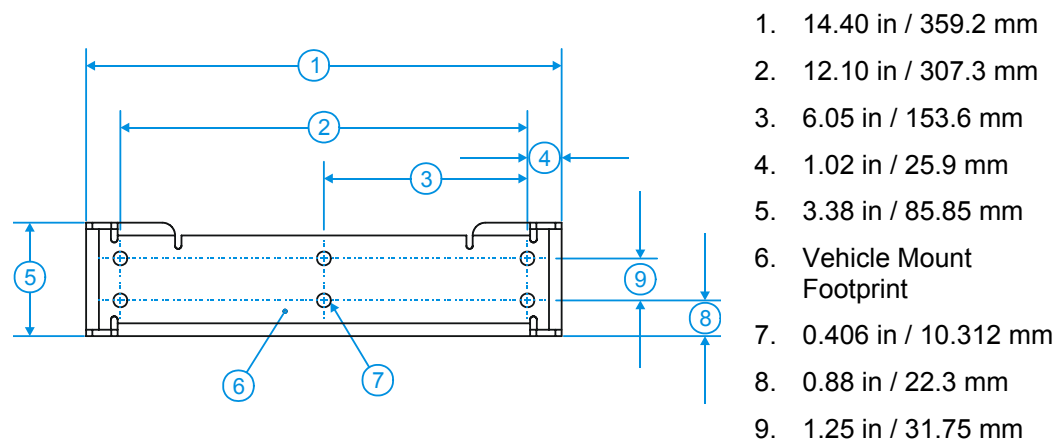


Figure 26 VX5 Bracket - Mounting Dimensions (Not To Scale)

Step 2 - Connect Isolators and Side Mounting Brackets to VX5

1. Turn the VX5 off before attaching isolators and brackets.
2. Place the VX5 face down on a stable surface.
3. Align an isolator with one of the upper isolator mounting plates on the VX5. Attach the isolator to the VX5 with two 6-32x5/16 screws. Capture the smaller end of the fail safe cable between the isolator plate and the screw head. Repeat for the remaining upper isolator. Install the lower isolators in the same way, except no fail safe cables are used.

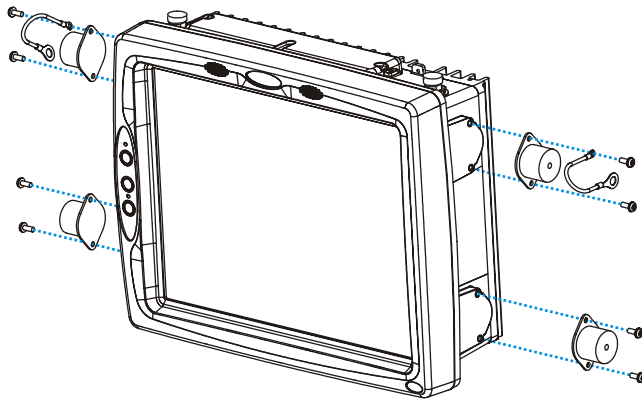


Figure 27 Attach Isolators to VX5

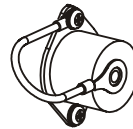


Figure 28 Fail Safe Cable Detail

4. “No keyboard” mounting option

Note: Also use this option if the keyboard is to be mounted remotely.

Align the side mounting brackets with the isolators on the VX5. Attach each side bracket using two 8-32x3/8 screws per side bracket. Be sure the top screws go through the free end of the fail safe cables, capturing the free end of the fail safe cable between the isolator bracket and the side bracket.

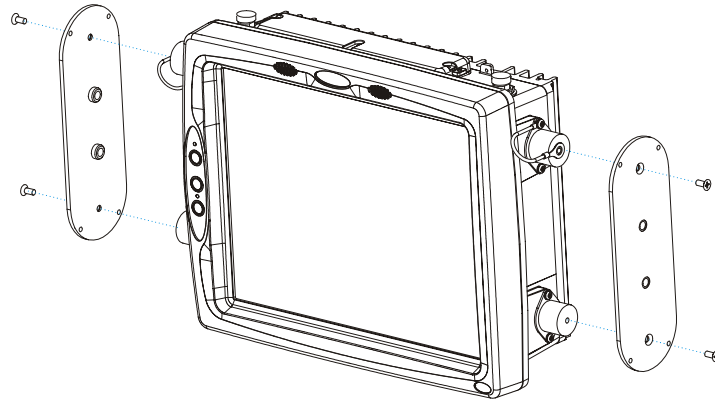


Figure 29 Attach Side Mounting Brackets to VX5

5. Integrated keyboard mounting option
 - a. Align the side mounting brackets with keyboard mounts with the isolators on the VX5. Attach each side bracket using two 8-32x3/8 screws per side bracket. Be sure the top screws on each side go through the free end of the fail safe cables, capturing the free end of the fail safe cable between the isolator bracket and the side bracket.
 - b. Attach the keyboard mounting plate to the side mount brackets using the two adjusting knobs.
 - c. Fasten the keyboard to the keyboard mounting plate. Use four 8-32x5/8 screws to attach the 95-key keyboard. Use four 10-32x5/8 screws to attach the 60-key keyboard.

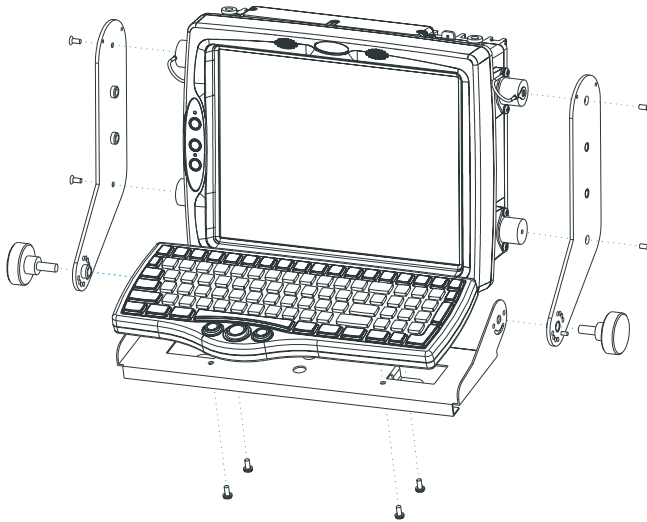


Figure 30 Attach Side Mounting Brackets and Keyboard to VX5

Note Excess keyboard cable length can be looped around the hooks on the bottom of the keyboard mounting plate.

Step 3 - Attach VX5 Assembly To Bottom Mounting Bracket.

1. Place lock washer first, then flat washer on 1/4-20x5/8 bolt. Next insert mounting bolts through the curved apertures in the bottom mounting bracket and into the screw holes in the side bracket.

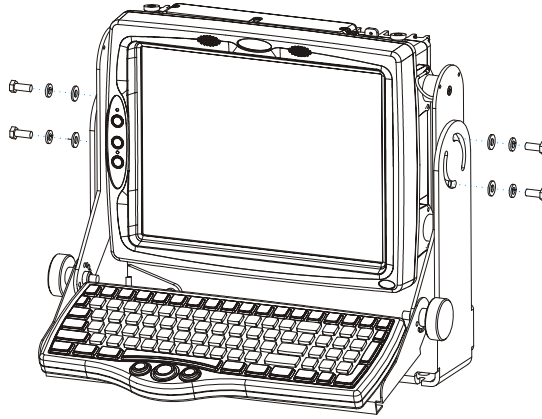


Figure 31 Attach VX5 Assembly to Bottom Bracket

2. Loosely tighten each bolt as it is inserted.

Important: Do not torque bolts until all bolts are in place and viewing angle is adjusted.

3. Loosen the hex bolts on both sides to adjust the viewing angle of the mounted VX5.
4. Torque the hex bolts to 50 ± 5 in/lb ($5.64 \pm .56$ N/m).

Note: Test the torque on the bolts frequently during operation and re-tighten if necessary to 50 ± 5 in/lb ($5.64 \pm .56$ N/m).

5. Adjust the angle of the keyboard (if the integrated keyboard mounting bracket is used) by loosening the two adjusting knobs, adjusting the keyboard angle and then tightening the adjusting knobs,

6. If using a UPS battery pack, the battery pack can be mounted to the bottom mounting bracket. Place a locking washer and then a flat washer on a 1/4-20x2 bolt. Thread the bolt through the UPS Battery Pack, then through the 1" aluminum spacer and into the mounting bracket.

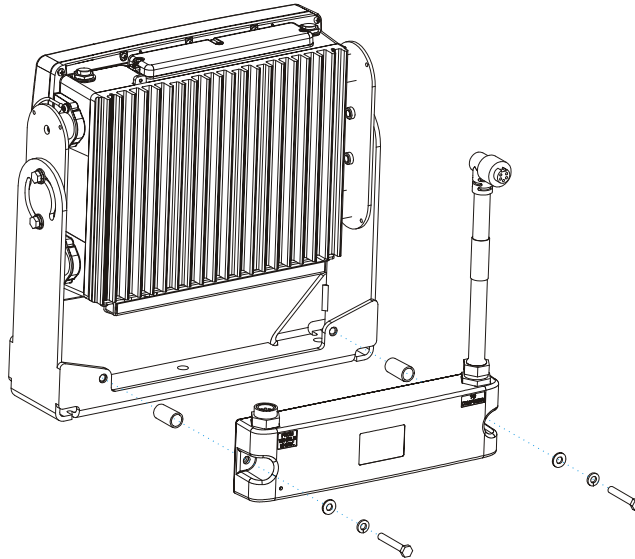
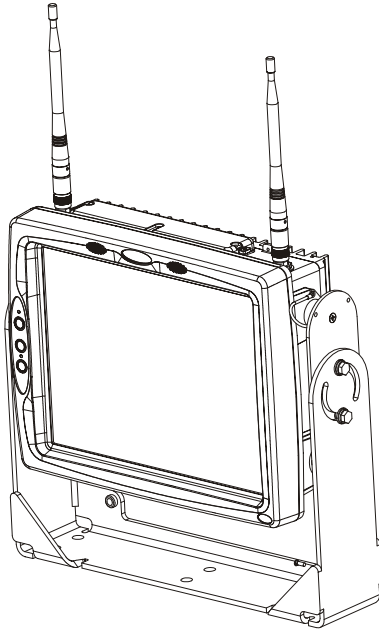
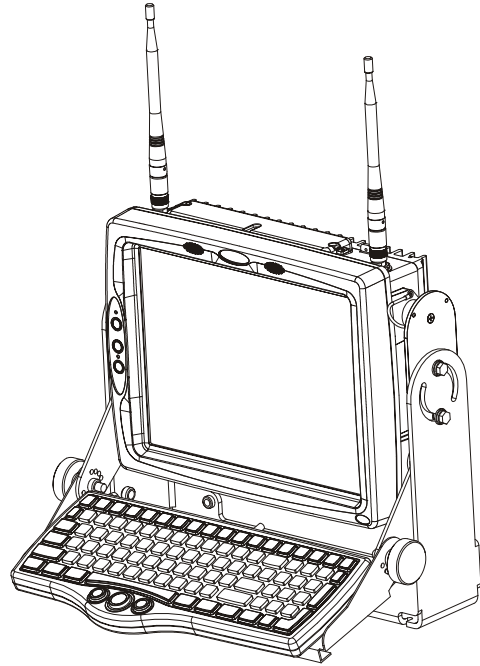


Figure 32 Integrated UPS Battery Pack Mount

7. Connect all cables to the VX5. Secure the cables with the strain relief cable clamps, ensuring a slack loop remains between the cable clamp and the accessory connector.
8. The vehicle mounted bracket and the VX5 are now ready to use.

Completed Assembly

Vehicle Mount Bracket



Bracket with Integrated Keyboard Mount

Figure 33 VX5 in Vehicle Bracket

Install Stylus Tether and Sleeve

The LXE stylus kit includes the stylus, tether and sleeves. The tether allows the stylus to be mounted to the VX5 and the sleeve provides storage for the stylus when not in use.

How To Install Stylus Tether and Sleeves

1. Locate the tether hole in the VX5 mounting bracket (see below):

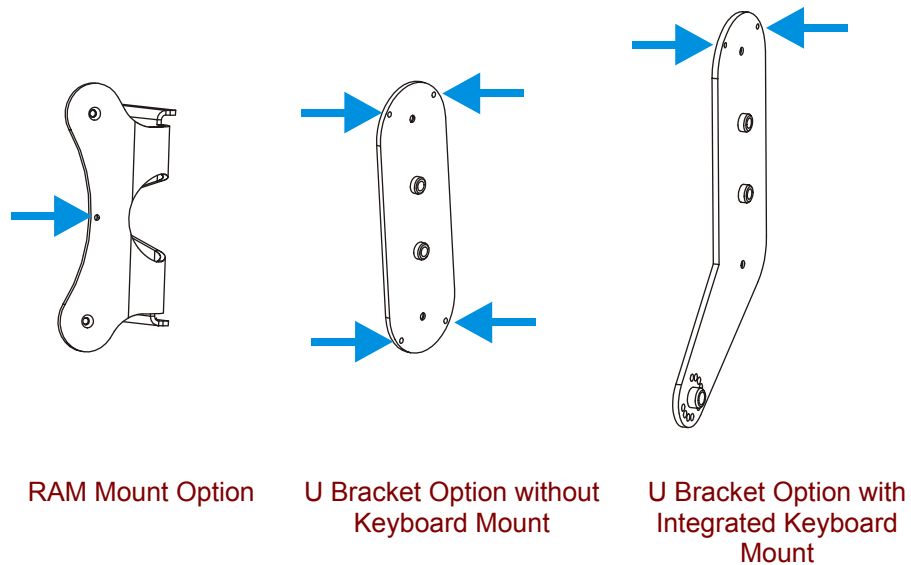


Figure 34 Stylus Tether Mounting Holes

2. Select the mounting hole most convenient for the particular VX5 installation.
3. Slide the clip end of the stylus tether into the tether mounting hole.
4. Determine a convenient location for the stylus sleeve. Apply the adhesive baked Velcro[®] loop strip to the VX5 or mounting bracket. Attach the Velcro[®] hook strip on the elastic stylus sleeve to the loop strip.

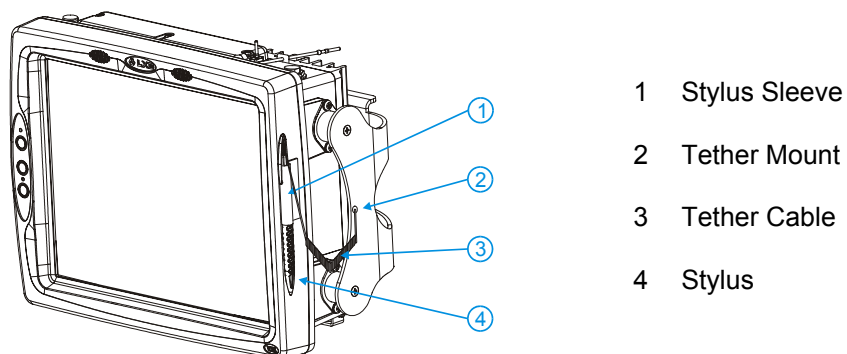


Figure 35 Tethered Stylus, Typical Installation

Install/Remove Touchscreen Protective Film

LXE offers a replaceable touchscreen protective film to protect the touchscreen when the VX5 is used in an abrasive environment.

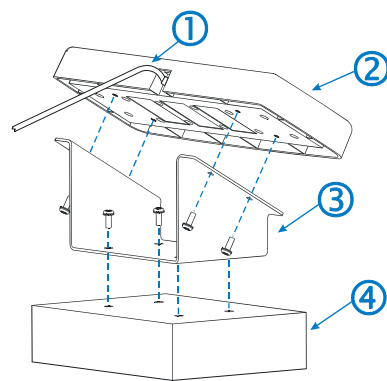
How To Install Touchscreen Protective Film

1. Make sure both the touchscreen and protective film are clean and dry before installation. Please review “Cleaning the Display”, later in this guide, for instructions on suitable cleaning agents.
2. Align the protective film with the touchscreen.
3. The protective film has a “wing” on the top, bottom and each side. These wings fit between the touchscreen and the display housing to hold the film in place.
4. Slide the touchscreen film in one direction (up, down, right or left), then slide the film back making sure the wing slides between the touchscreen and the VX5 display housing.
5. Repeat the procedure for each wing.

How to Remove Touchscreen Protective Film

1. To remove the protective film, slide the protective film in one direction until the wing is exposed. Lift up on the wing when sliding the film in the opposite direction, to ensure the wing is no longer between the touchscreen and the VX5 display housing.
2. Repeat the procedure for each wing.
3. Lift the film off the touchscreen.

VMT Remote Keyboard Bracket Assembly



1. Keyboard Cable
2. VMT Keyboard
3. Bracket
4. Mounting Surface
5. Mounting Hardware (not shown):
Screws, 8-32x5/8 (4 each) for use
with the 95-key keyboard
Screws, 10-32x5/8 (4 each) for
use with the 60-key keyboard

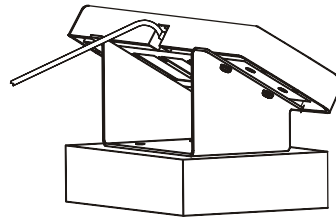


Figure 36 VMT Remote Keyboard Bracket Assembly

Equipment Needed: Phillips screwdriver, torque wrench.

1. Place the keyboard face down on a flat, stable surface.
2. Position the bracket on the keyboard base, aligning the four screw holes in the keyboard with the four mounting holes in the bracket flanges. When positioned correctly, the bracket should overlap at the top of the keyboard.
3. Attach the keyboard to the bracket with four screws (included). Tighten to 9 +/- 1 in/lb (1.02 N/m).
4. Attach the keyboard-bracket assembly to the vehicle's mounting surface using four 1/4 bolts, lock washers and flat washers or equivalent.

Note: Bolts, washers, and wrench needed when attaching the bracket to the vehicle are not supplied by LXE.

IMPORTANT: Mount to the most rigid surface available.

VMT Remote Keyboard Mounting Dimensions

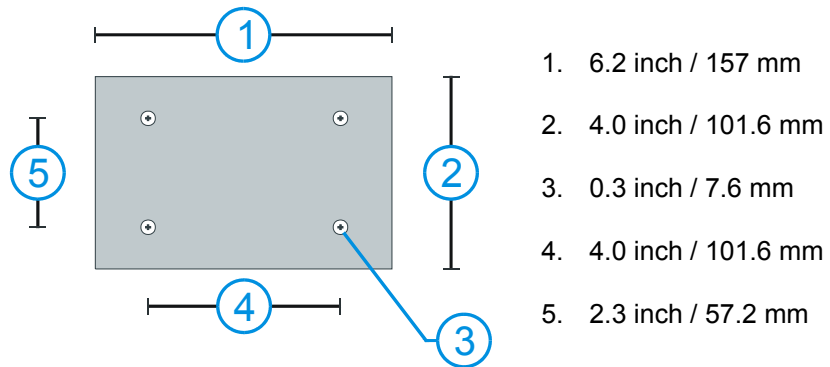


Figure 37 VMT Remote Keyboard - Mounting Dimensions

The overall space required for the keyboards are:

- LXE 95-key keyboard: 5.75" (146.05mm) x 13.40" (340.40mm)
- LXE 60-key keyboard: 4.40" (111.50mm) x 11.90" (302.00mm)

UPS Battery Pack Remote Mount

The optional UPS battery pack must be mounted remotely when using the RAM mount system or a U-bracket designed for a previous model LXE computer. The remote mount can also be used with the VX5 U-bracket assembly if it is not convenient to mount the UPS battery pack to the U-bracket.

A six foot extension cable is available to connect the UPS battery pack to the VX5.

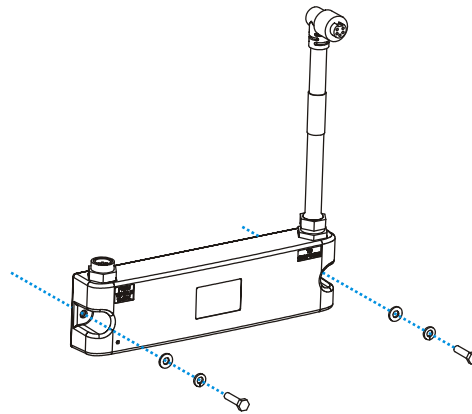


Figure 38 VMT Remote UPS Battery Pack Mount

1. Position the UPS battery pack to allow cables to reach the vehicle battery and the VX5.
2. Attach the UPS battery pack to the vehicle mounting surface using two 1/4 bolts, lock washers and flat washers (or equivalent) fasteners.

Note: 1/4 Bolts and washers not included.

IMPORTANT: Mount to the most rigid surface available.

UPS Battery Pack Remote Mounting Dimensions

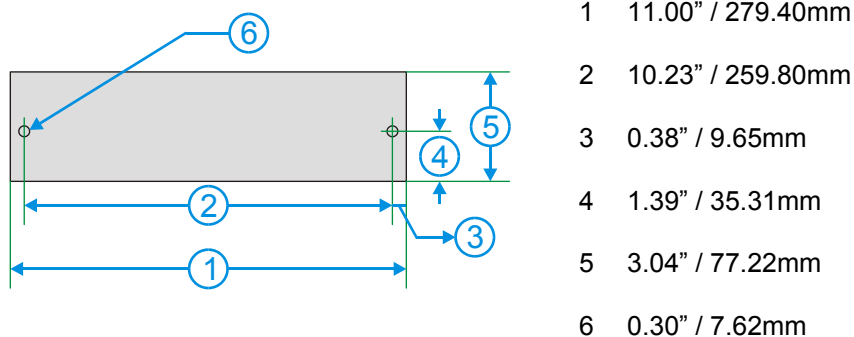


Figure 39 UPS Battery Pack Remote Mounting Dimensions

Connect Keyboard

LXE VMT Keyboard

The VX5 has an external 9-pin connector for the keyboard. All LXE VMT keyboards are connected in a similar fashion. The keyboard is attached to the connector marked "KEYBOARD". The keyboard receives power from the VX5.

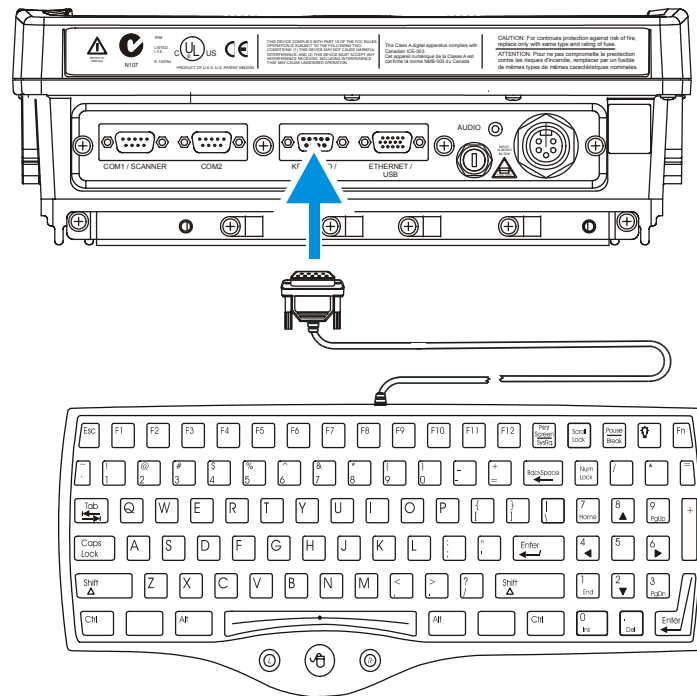


Figure 40 Keyboard Connection Location and Keyboard

1. Turn the VX5 off before attaching the keyboard cable.
2. Insert the keyboard cable into the VX5 keyboard connector.
3. Once the pins are firmly seated, tighten (turning clockwise) the thumbscrews.
4. Secure the cable with a strain relief cable clamp.
5. Turn the VX5 on.

PS/2 Keyboard and Mouse

By using the optional dongle cable, a standard PS/2 keyboard and mouse may be attached to the VX5.

1. Turn the VX5 off before attaching the keyboard dongle cable.
2. Insert the 9-pin connector end of the dongle cable into the VX5 keyboard connector.
3. Once the pins are firmly seated, tighten (turning clockwise) the thumbscrews.
4. Secure the cable with a strain relief cable clamp.
5. Attach a PS/2 keyboard and/or PS/2 mouse to the appropriately labeled PS/2 connector on the dongle cable.
6. Turn the VX5 on.

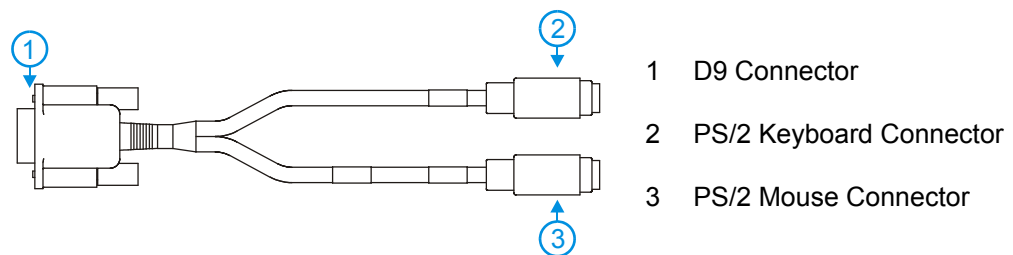


Figure 41 VX5 PS/2 Keyboard/Mouse Dongle Cable

Connect Antenna

Note: VX5's equipped with a radio require an external antenna. A VX5 without a radio does not use an antenna. Some VX5's may be equipped with a dual antenna option. For these VX5's, an external antenna must be connected to each antenna connector.

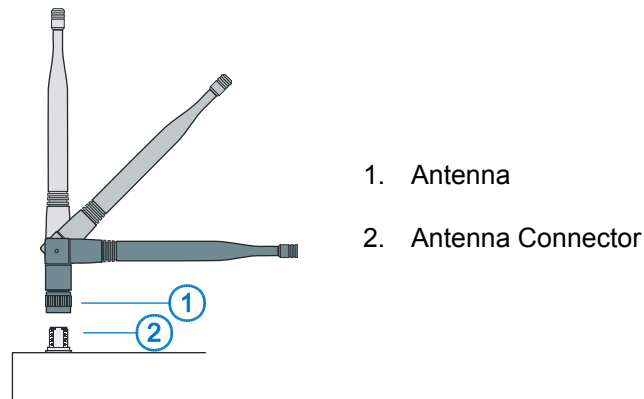


Figure 42 Connect 2.4GHz Antenna

Place the antenna over the antenna connector. Push down and twist clockwise until the antenna is secure. Repeat for second antenna connector, if present.

Adjust the antenna angle to improve RF communications with the computer network.

Note: Substitution of antennas is not permitted unless authorized by LXE. Use of unauthorized antennas will void the FCC emissions certification of the VX5.

Remote Vehicle Antenna Mount

The external antenna (or antennas) can be remotely mounted on the vehicle. Please refer to the “Vehicle Remote Mount Antenna Installation Sheet” for details.

Connect Serial Barcode Scanner



Refer to the documentation received with the barcode scanner for complete instructions. Read all warnings and caution labels.



Before using the scanner, read section titled “Operation”, sub-section titled “Laser Barcode Scanner Warnings.”

Pin 9 of COM1 is configured to provide +5V. Pin 9 of COM2 is configured to provide RI. To change Pin 9 of either port, please refer to Chapter 4, “System Configuration” in the “VX5 Reference Guide”.

The scanner cable is attached to the connector marked “COM1/SCANNER”. The scanner receives power from the VX5.

The cable requires a nine-pin D-shell female connector for the VX5.

Note: Use of a shielded cable is required to maintain FCC and CISPR22 emissions compliance.

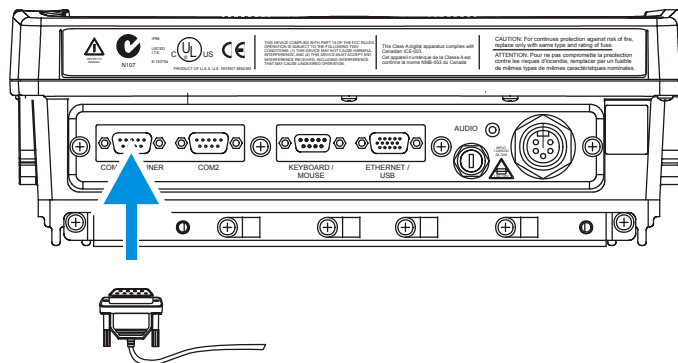


Figure 43 Connect Serial Scanner Cable

1. Seat the connector firmly over the pins and turn the thumbscrews in a clockwise direction. Do not overtighten.
2. Use a strain relief clamp to secure the cable.

When you have finished using the scanner, remove it from the VX5 and store the scanner in a closed container or bag.

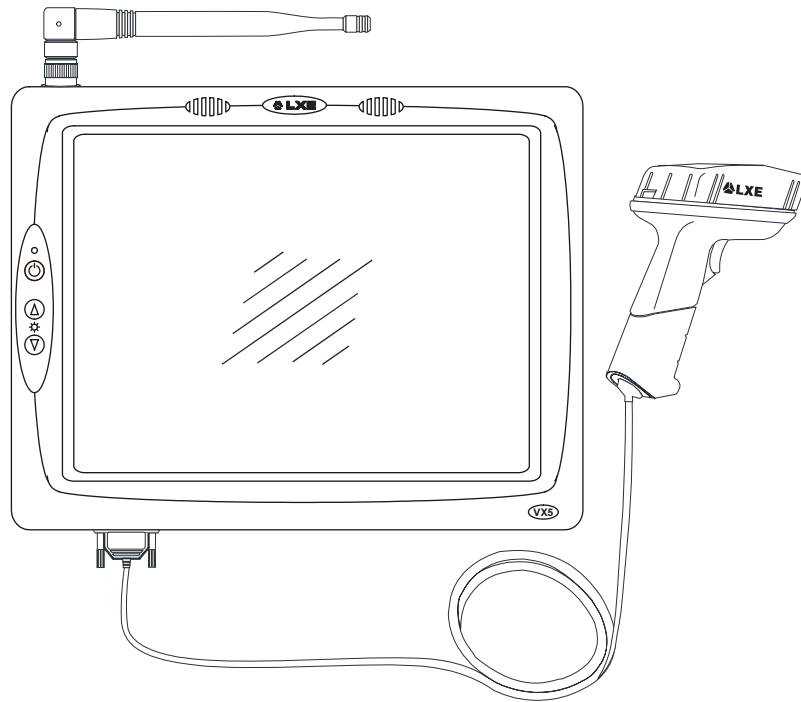
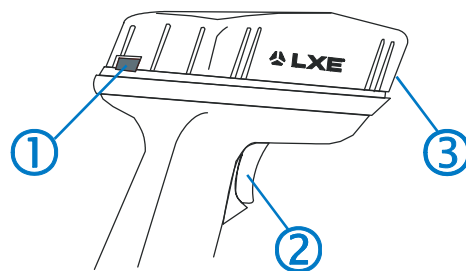


Figure 44 VX5 with Generic Barcode Scanner Attached



1. Good Scan LED (or equivalent)
2. Trigger
3. Laser Aperture at Front

Figure 45 Generic Barcode Scanner



Refer to the documentation received with the barcode scanner for complete instructions.

Connect Serial Printer or PC



Refer to the documentation received with the printer or PC for complete instructions.

Pin 9 of COM1 is configured to provide +5V. Pin 9 of COM2 is configured to provide RI. To change Pin 9 of either port, please refer to Chapter 4, “System Configuration” in the “VX5 Reference Guide”.

The printer or PC cable requires a nine-pin D-shell female connector for the VX5.

The printer or PC cable is attached to the connector marked “COM2”.

Note: Use of a shielded cable is required to maintain FCC and CISPR22 emissions compliance.

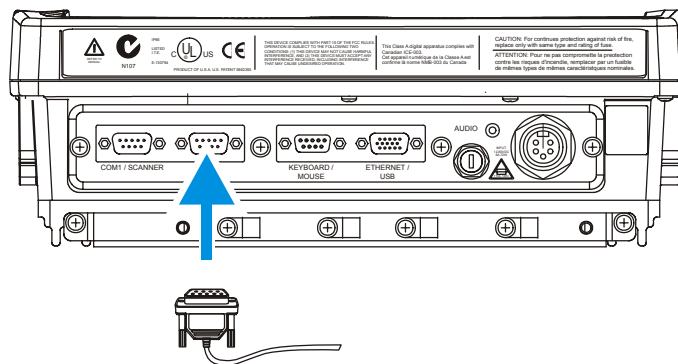


Figure 46 Connect Serial Cable to COM2

1. Seat the connector firmly over the pins and turn the thumbscrews in a clockwise direction. Do not over tighten.
2. Use a strain relief clamp to secure the cable.

Connect USB Devices

The VX5 provides an internal USB port and a provision for an external USB port via a dongle cable attached to the connector marked “ETHERNET/USB” .

Internal USB Port

An internal USB port is provided behind the user access panel on the top of the VX5.

1. Loosen the three (3) Phillips head screws securing the access panel cover so the cover can be removed. The screws are a captive part of the cover and cannot be removed.
2. Plug the desired device, such as a USB mouse or floppy drive, into the USB port. Refer to the documentation for your USB device for more details on installation. USB devices may be installed, removed or swapped without turning off the VX5.



While the access panel is open, the VX5 IS NOT environmentally sealed. The internal USB port should only be used when the VX5 is in a clean, dry, dust free environment. Use the external USB port if a USB device must be used in a harsh environment.

3. When finished with the USB device, unplug the device and reattach the user panel access cover. The three screws must be fastened to 9±1 inch pounds each. The screws require a Phillips size 1 driver head.

External USB Port

An external USB connector is available via a dongle cable attached to the port marked “ETHERNET/USB”, located on the bottom of the VX5.

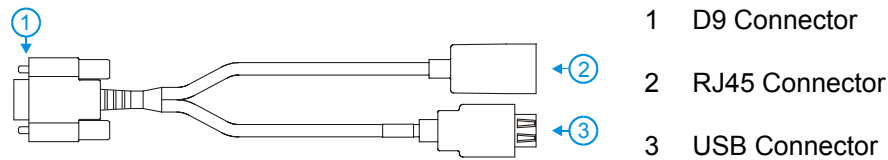


Figure 47 VX5 Ethernet/USB Dongle Cable

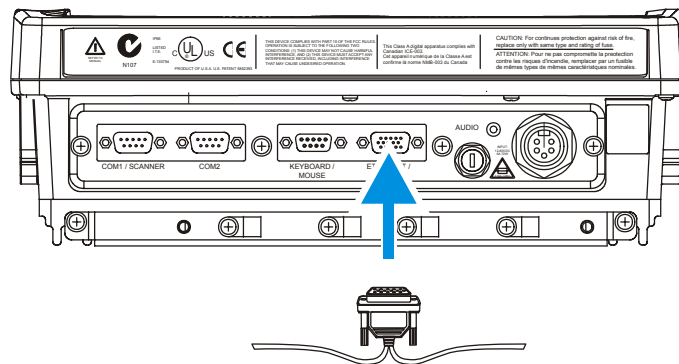


Figure 48 Connect Ethernet/USB Dongle Cable

1. Insert the watertight-connector end of the Ethernet/USB dongle cable into the VX5 USB connector. Seat the connector firmly over the pins and turn the thumbscrews in a clockwise direction. Do not over tighten.
2. Use a strain relief clamp to secure the cable.



Figure 49 Connect USB Device to Dongle Cable

3. Plug the desired device, such as a USB mouse or floppy drive, into the end of the dongle cable with the USB port. Refer to the documentation for your USB device for more details on installation. USB devices may be installed, removed or swapped without turning off the VX5.

Note: The USB Host Controller (or USB Port) must be enabled in the BIOS. Also, to use a USB floppy drive, USB BIOS Legacy Support must be enabled. For more information on these BIOS settings, please refer to Chapter 4, “System Configuration” in the “VX5 Reference Guide”.

Connect Ethernet Cable

An Ethernet connector is available via a dongle cable attached to the port marked “ETHERNET/USB”, located on the bottom of the VX5.

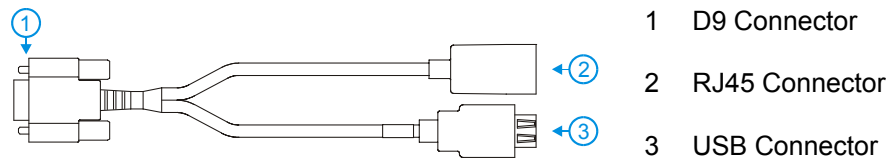


Figure 50 VX5 Ethernet/USB Dongle Cable

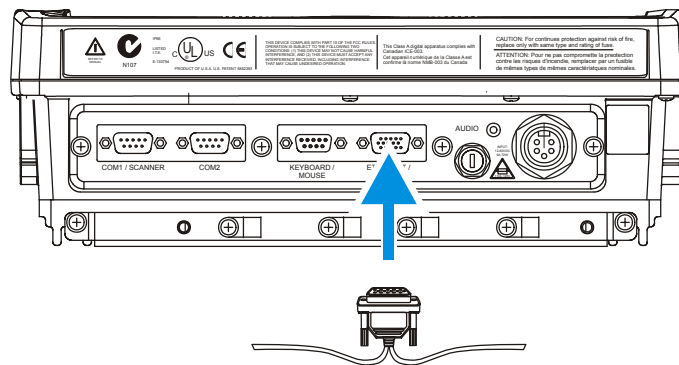


Figure 51 Connect Ethernet/USB Dongle Cable

1. Insert the watertight-connector end of the Ethernet/USB dongle cable into the VX5 USB connector. Seat the connector firmly over the pins and turn the thumbscrews in a clockwise direction. Do not over tighten.
2. Use a strain relief clamp to secure the cable.

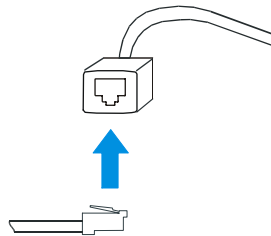


Figure 52 Connect Ethernet Cable to Adapter Cable

3. Insert the network cable and ensure it is firmly seated in the connector jack.
4. To remove the Ethernet cable, press the release tab on the cable end.

Connect External Headset

The VX5 provides an external headset connection via an audio jack connector marked “Audio”. The audio jack accepts a headset with a 2.5mm plug, such as a mono telephone headset with microphone.

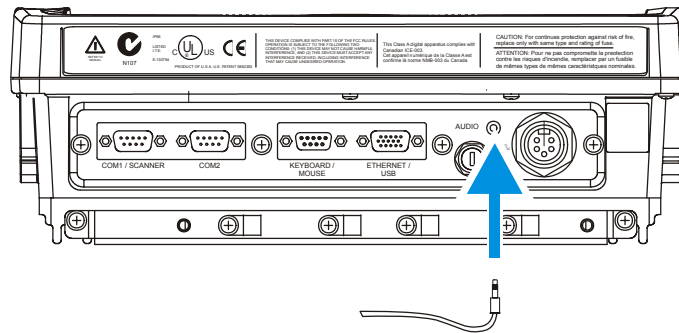


Figure 53 Connect External Headset

1. Insert the speaker or headphone plug into the audio connector; making sure the plug is firmly seated in the audio jack.
2. Replace the plug when the speaker or headset is removed from the audio jack.
3. Use a strain relief clamp to secure the cable.

Connect Power Cable and Optional UPS Battery Pack

1. Turn the VX5 off before attaching the power plug.
2. Connect the power cable to vehicle power (See the following section titled “Vehicle 12-80VDC Direct Connection.”)

- or -

to an AC adapter. (See the following section titled “External Power Supply.”).

3. Several possibilities are available for routing the vehicle power to the VX5. See the following section titled “Vehicle 12-80VDC Direct Connection” for details.
4. All plugs and receptacles are keyed and care must be used when connecting the cables. Tighten the nut of the plugs clockwise until tight.

Secure the cable with the strain relief cable clamps.

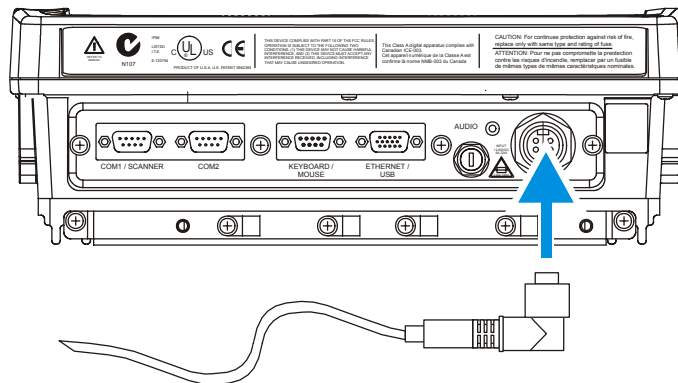


Figure 54 Connect Power Cable to VX5

5. Turn the VX5 on.

External Power Supply, Optional

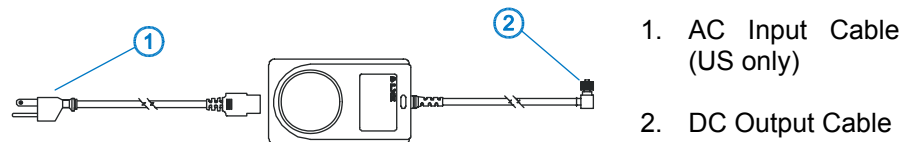


Figure 55 Optional Power Configuration




In North America, this unit is intended for use with a UL Listed ITE power supply with output rated 12 – 80 VDC, minimum 75W. Outside North America, this unit is intended for use with an IEC certified ITE power supply with output rated 12 – 80 VDC, minimum 75W.

The external power supply may be connected to either a 120V, 60Hz supply or, outside North America, to a 230V, 50Hz supply, using the appropriate detachable cordset. In all cases, connect to a properly grounded source of supply provided with maximum 15 Amp overcurrent protection (10 Amp for 230V circuits).

How To: Connect External Power Supply

1. Turn the VX5 off.
2. Connect the detachable cordset provided by LXE (US only, all others must provide their own cable) to the external power supply (IEC 320 connector).
3. Plug cordset into appropriate, grounded, electrical supply receptacle (AC mains).
4. Connect the watertight connector end to the VX5's Power Connector by aligning the connector pins to the power connector; push down on the watertight connector and twist it to fasten securely.
5. Turn the VX5 on.

Vehicle 12-80VDC Power Connection

<p>Caution:</p> 	<p>For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a 10 Amp maximum time delay (slow blow) high interrupting rating fuse. If the supply connection is made directly to the battery, the fuse should be installed in the positive lead within 5 inches of the battery positive (+) terminal.</p>
<p>Caution:</p> 	<p>For installation by trained service personnel only.</p>
<p>Warning:</p> 	<p>Risk of ignition or explosion. Explosive gas mixture may be vented from battery. Work only in well ventilated area. Avoid creating arcs and sparks at battery terminals.</p>

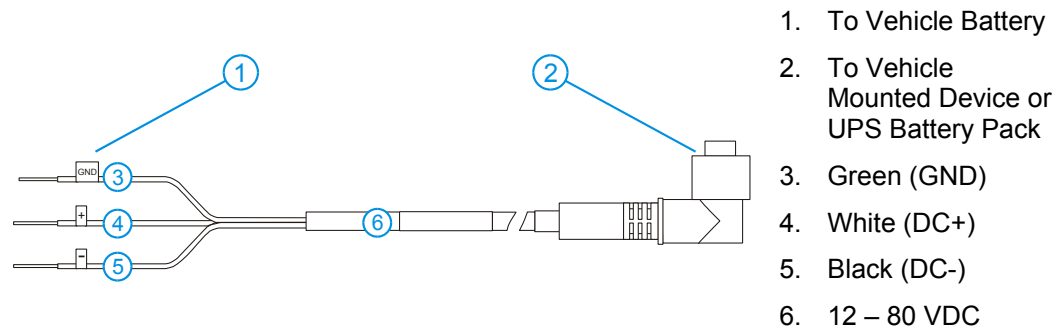


Figure 56 Vehicle Power Connection Cable (Fuse Not Shown)

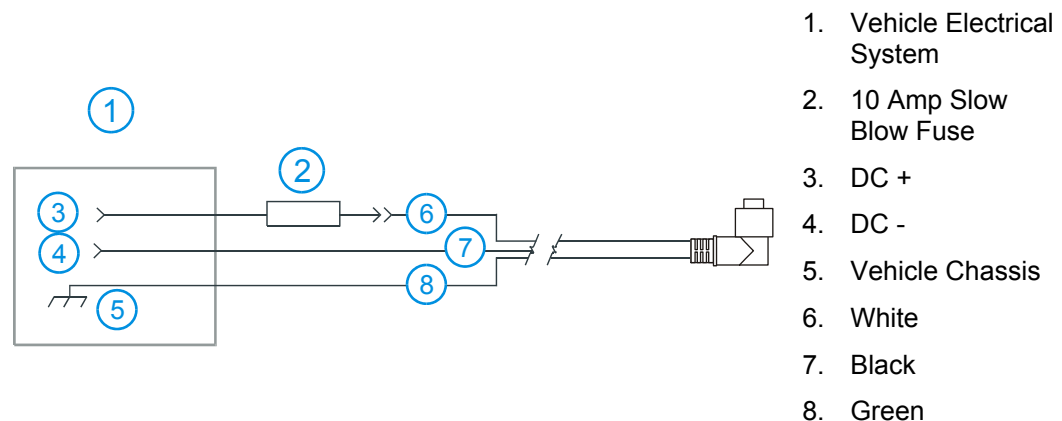


Figure 57 Connecting the Power Cable to the Vehicle

Note: Correct electrical polarity is required for safe and proper installation. Connecting the cable to the VX5 with the polarity reversed will cause the VX5's fuse to be blown. See the following figure titled "Vehicle Connection Wiring Color Codes" for additional wire color-coding specifics.

How To: Connect Vehicle 12-80VDC Connection

1. The VX5 must be turned off and the power cable must be UNPLUGGED from the VX5.
2. While observing the fuse requirements specified above, connect the power cable as close as possible to the actual battery terminals of the vehicle. When available, always connect to unswitched terminals in vehicle fuse panel, after providing proper fusing.

ATTENTION: *For uninterrupted power, electrical supply connections should not be made at any point after the ignition switch of the vehicle.*

3. Route the power cable the shortest way possible. The cable is rated for a maximum temperature of 105°C (221°F). When routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature.

Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate.

Note: If the vehicle is equipped with a panel containing Silicon Controller Rectifiers (SCR's), avoid routing the power cable in close proximity to these devices.

Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.

Use proper electrical and mechanical fastening means for terminating the cable. Properly sized "crimp" type electrical terminals are an accepted method of termination. Please select electrical connectors sized for use with 18AWG (1mm²) conductors.

Wiring color codes for LXE supplied DC input power cabling:

Vehicle Supply		Wire Color
+12 - 80VDC	(DC +)	White
Return	(DC -)	Black
Vehicle Chassis	GND	Green

Figure 58 Vehicle Connection Wiring Color Codes

4. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.

How To: Connect VX5 without a UPS Battery Pack

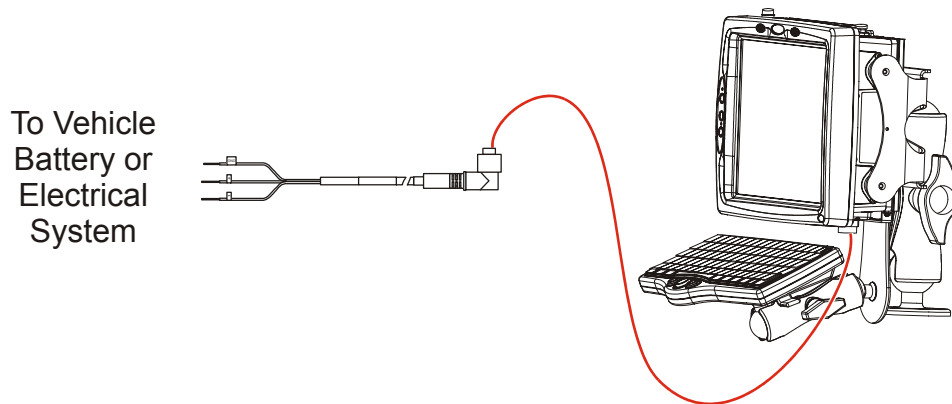


Figure 59 Direct Connection (No UPS Battery Pack)

1. Connect the power cable to the VX5 by aligning the water-tight connector pins to the power connector; push down on the water-tight connector and twist it to fasten securely.
2. Turn the VX5 on.

How To: Connect VX5 to a Integrated Mount UPS Battery Pack

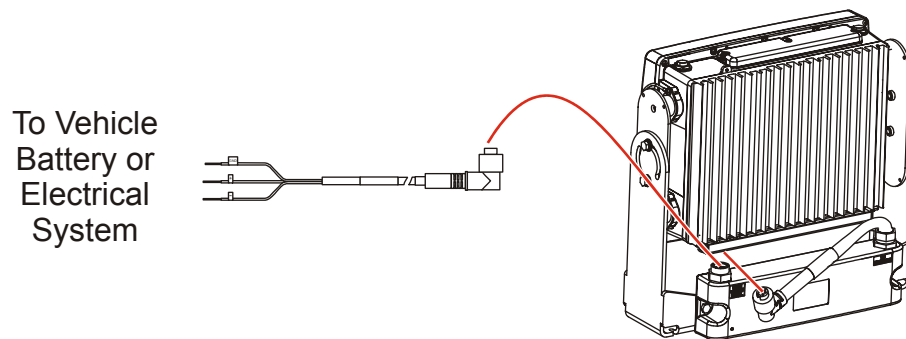


Figure 60 Integrated Mount UPS Battery Pack Connection

1. Connect the power cable to the UPS battery pack by aligning the water-tight connector pins to the input connector (marked “From Vehicle”); push down on the water-tight connector and twist it to fasten securely.
2. Connect the output cable (marked “To Computer”) from the UPS battery pack to the VX5 by aligning the water-tight connector to the power connector; push down on the water-tight connector and twist it to fasten securely.
3. Turn the VX5 on.

How To: Connect VX5 to a Remotely Mounted UPS Battery Pack

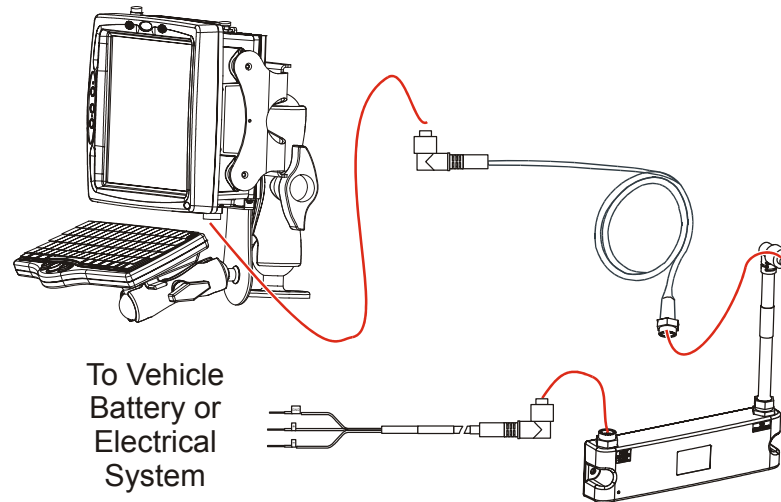


Figure 61 Remote Mount UPS Battery Pack Connection

1. Connect the power cable to the UPS battery pack by aligning the water-tight connector pins to the input connector (marked “From Vehicle”); push down on the water-tight connector and twist it to fasten securely.
2. Connect the output cable (marked “To Computer”) from the UPS battery pack to the extension cable by aligning the water-tight connector to the input end of the extension cable; push down on the water-tight connector and twist it to fasten securely.
3. Route the extension cable the shortest way possible. The cable is rated for a maximum temperature of 105°C (221°F). When routing this cable it should be protected from physical damage and from surfaces that might exceed this temperature.

Do not expose the cable to chemicals or oil that may cause the wiring insulation to deteriorate. Always route the cable so that it does not interfere with safe operation and maintenance of the vehicle.

Note: If the vehicle is equipped with a panel containing Silicon Controller Rectifiers (SCR's), avoid routing the power cable in close proximity to these devices.

4. Provide mechanical support for the cable by securing it to the vehicle structure at approximately one foot intervals, taking care not to over tighten and pinch conductors or penetrate outer cable jacket.
5. Connect the output end of the extension cable to the VX5 by aligning the water-tight connector to the power connector; push down on the water-tight connector and twist it to fasten securely.
6. Turn the VX5 on.

Fuse Replacement for the VX5

The VX5 uses a 100V, 10A time delay (slow blow), high current interrupting rating fuse that is externally accessible and user replaceable. Should it need replacement, replace with same size, rating and type of fuse – Littlefuse 0234010 or Optifuse MSC-10A (5x20mm).

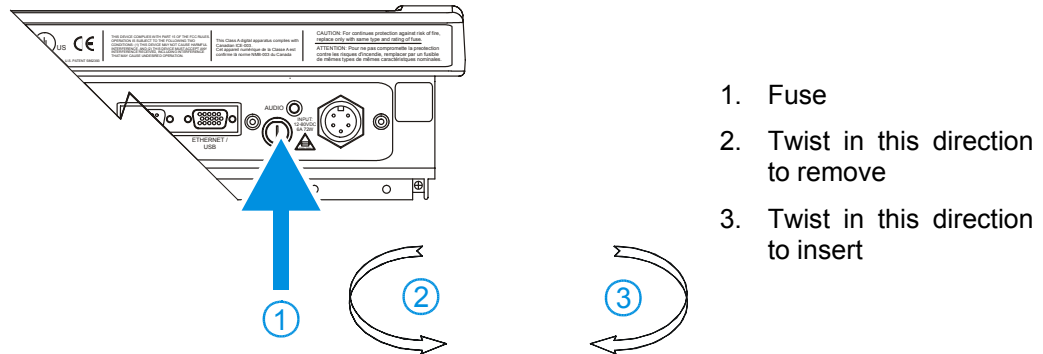


Figure 62 Fuse Replacement

1. Turn the VX5 off and disconnect the power cable from the VX5.

Caution: Fuse has voltage on it even when power is off. Always disconnect input power before changing fuse.



2. While holding the VX5 over a level surface, push the fuse cover in and twist it one quarter turn counterclockwise. A flat head screwdriver may be used to twist the fuse cover.
3. Remove the fuse.
4. Discard the fuse and place a new fuse in the holder.
5. Push the fuse in and twist it clockwise one quarter turn.
6. Reconnect the power cable to the VX5.

Operation

Powering On/Off

Connect the VX5 to a power source, either AC or Vehicle.

The power (on/off) switch is located on the front of the VX5. The switch is sealed by a rubber membrane. The Status LED on the LXE VX5 is illuminated when the power is on:

- **Green** – VX5 is operating from vehicle or AC
- **Solid Yellow** – VX5 is operating from the UPS
- **Flashing Yellow** – VX5 is operating from the UPS, but UPS battery is critically low.

Press the power switch to start the VX5. You are now ready to use the computer.

Enter data using the keyboard, touchscreen or a Serial Barcode Scanner.

Note: Always turn the computer off prior to connecting or disconnecting any power source.

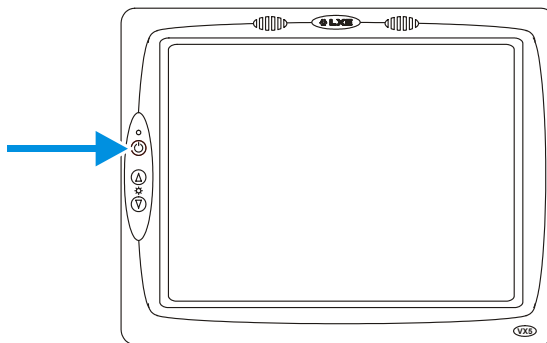


Figure 63 The VX5 Power Switch

The VX5 is designed for a controlled shutdown when using the power switch. A controlled shutdown first closes any open programs, and then shuts down the Windows operating system. DO NOT remove power from the VX5 without shutting down the VX5.

The VX5 shutdown may be initiated in any of the following ways:

- Selecting the “Shut Down” option from the Windows Start Menu.
- Selecting the “Shut Down” option from the Windows Task Manager. The Windows Task Manager is displayed by pressing Ctrl-Alt-Del.
- Momentarily pressing and releasing the power button. The VX5 behavior when the power button is pressed can be configured in the Windows Control Panel.
- Pressing and holding the power button for approximately five seconds. Any open programs and the Windows operating system are shut down before power off. Use this option to shut down the VX5 when the operating system is not responding.



For more information on the Windows shutdown process, please refer to the Windows help function or commercially available Windows help guides.

Reset Key Sequence (Reboot)

Note: The <CTRL> + <ALT> + function can be used to shut down a Microsoft Windows application or reboot the computer. The keypress brings up the “Task Manager” window (Windows XP).

To reboot the VX5 without turning the computer off, press

<CTRL> + <ALT> +

and select Shut Down from the Task Manager window.

When the system is rebooted, Windows performs a controlled shutdown, closing any open programs, before shutting down the Windows operating system. The current contents of RAM are lost when rebooting. It is recommended to save any needed data and exit in an orderly fashion from any running programs before rebooting.

When the VX5 is turned on or rebooted, the following settings are restored from flash memory and are configured using BIOS Setup.

Note: Options in the Microsoft Windows Control Panel make access to the BIOS unnecessary in many cases. Only those setting not controlled by Windows are listed below. For more information on Windows settings, please refer to commercially available Windows guides.

Factory Default Settings

Boot Sequence	Removable Devices (i.e. USB floppy drive), Hard Drive, CD-ROM drive, Network boot (i.e. PXE) in this order
Legacy Floppy (A and B)	Disabled
Primary and Secondary Master and Slave drives	Auto
Display POST Msgs	Disabled
Show Summary Screen	Disabled

Note: This is a partial listing. Please review the instructions and warnings on modifying the BIOS in the “VX5 Reference Guide” before changing the BIOS. Use caution when changing BIOS settings as unexpected results may occur if improper values are used.

Keyboard Backlight

LXE VMT keyboards feature LEDs that illuminate the individual keys.

95 Key Keyboard

The backlight is manually controlled using the “backlight” key in the upper right hand corner of the keyboard. Pressing the backlight key cycles the backlight through the levels of backlight intensity:

- Off
- Maximum intensity
- Medium intensity
- Low intensity.

60 Key Keyboard

The keyboard backlight may be toggled manually by pressing <2nd> + <CTRL> + <F10>. This key sequence immediately changes the state of the keyboard backlight as follows:

- Turns the backlight Off if it is currently On.
- Turns the backlight On if it is currently Off.

PS/2 Keyboard

Standard PS/2 keyboards generally do not feature keyboard backlighting.

Display and Touchscreen

The VX5 Display is a thin-film transistor display capable of supporting SVGA graphics modes. Display size is 800 x 600 pixels. The display covering is designed to resist stains. The touch screen allows signature capture and touch input.

The touch screen is a Resistive Panel with a scratch resistant finish that can detect touches by a stylus, and translate them into computer commands. In effect, it simulates a computer mouse. Only Delrin or plastic styluses should be used.

Note: Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp object to write on the touch screen.

An extra or replacement stylus may be ordered from LXE. See the "Accessories" section for the stylus part number.

Adjusting Screen Display

The color TFT display is an active source of light. The VX5 display brightness can be adjusted via the brightness control keys located on the VX5 control panel. Pressing the brightness up button increases the display brightness incrementally until maximum brightness is achieved. Likewise, pressing the brightness down button decreases the display brightness until minimum brightness is achieved. Because there are 64 incremental levels of brightness intensity, a single press of either brightness adjustment button may not be noticeable. The up or down button can be pressed and held to accelerate brightness adjustment.

Note: The 2nd functions <F4>, <F5>, <F6>, and <F7> keys on the 60-key VMT keyboard have no function on the VX5.

There are no provisions for adjusting the contrast of the display. The display remains on unless Microsoft Windows power management is configured to turn the display off after a certain period of inactivity.

Cleaning the Display

Keep fingers and rough or sharp objects away from the display. If the glass becomes soiled or smudged, clean only with a standard household cleaner such as Windex® without vinegar or use Isopropyl Alcohol. Do not use paper towels or harsh-chemical-based cleaning fluids since they may result in damage to the glass surface. Use a clean, damp, lint-free cloth. Do not scrub optical surfaces. If possible, clean only those areas which are soiled. Lint/particulates can be removed with clean, filtered canned air.

Disabling the Touchscreen

The touchscreen can be disabled, if desired. For more information, please refer to "Disabling the Touchscreen" in the "VX5 Reference Guide".

Calibrating the Touchscreen

Although the touch screen is installed and calibrated at the factory, users may make adjustments to it by using the Fujitsu Touch Panel on the Microsoft Windows Programs menu. To calibrate the touchscreen, select **Start|Programs|Fujitsu Touch Panel (USB)|Touch Screen Calibration Utility**.

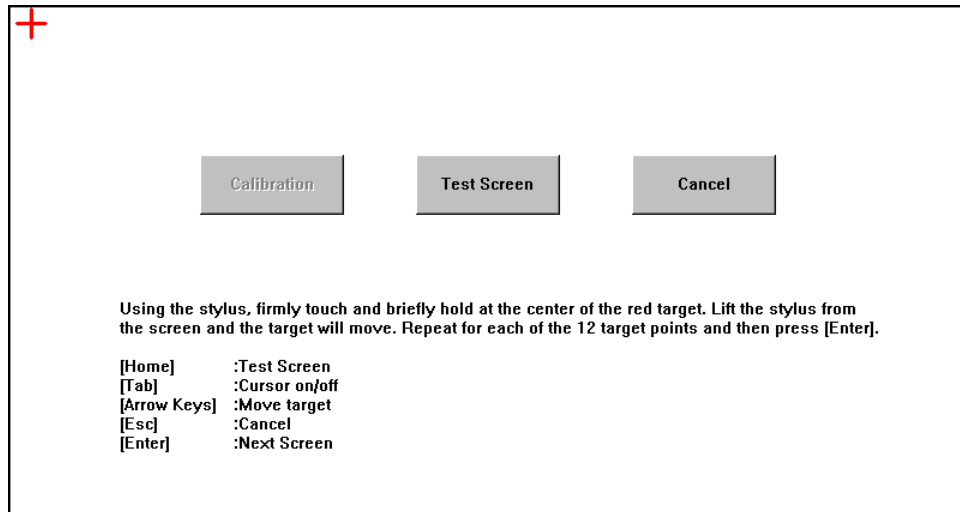


Figure 64 Touchscreen Calibration, Calibration Targets

The calibration utility displays a red cross on the screen. Touch the center of the cross with the stylus and hold for a few seconds. Release and repeat with the next cross. After all twelve locations have been touched, either press <Enter> or click the Calibration button.

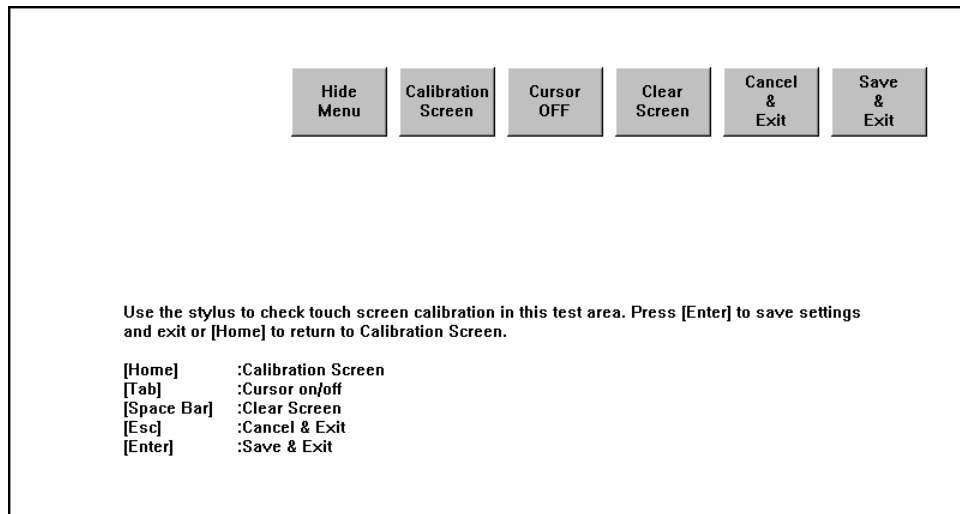


Figure 65 Touchscreen Calibration, Save Calibration

To save the new calibration settings, click on the Save & Exit button or press <Enter>.

To discard the new calibration settings, click Cancel & Exit or press <Esc>.

Touchscreen Protective Film

LXE offers a replaceable touchscreen protective film to protect the touchscreen when the VX5 is used in an abrasive environment. Installation and removal instructions can be found earlier in this guide.

Adjust Speaker Volume

Microsoft Windows provides volume adjustment by clicking the “volume” icon in the system tray. The volume control adjusts the built in speaker’s volume.

Note: The <F8> and <F9> keys on the 60-key VMT keyboard have no function as Windows controls the sound volume.

Microsoft Windows Event Sounds

The VX5 includes a customized sound scheme. The customized WAV files are preferable to the standard Microsoft Windows sounds when using the internal speakers.

When a VX5 is delivered with Windows preinstalled, the customized sound scheme is the default for Windows events. If a VX5 is ordered with no operating system installed, the customized sounds can be found on the VX5 CD. For more information on changing the sounds used in Windows, please refer to the Windows Help feature. Please refer to the “VX5 Reference Guide” for more details on the VX5 CD.

Power Management

All Power Management is handled through the Microsoft Windows Control Panel. System standby and turning the monitor and hard disk off are accessed from the Power Management icon.

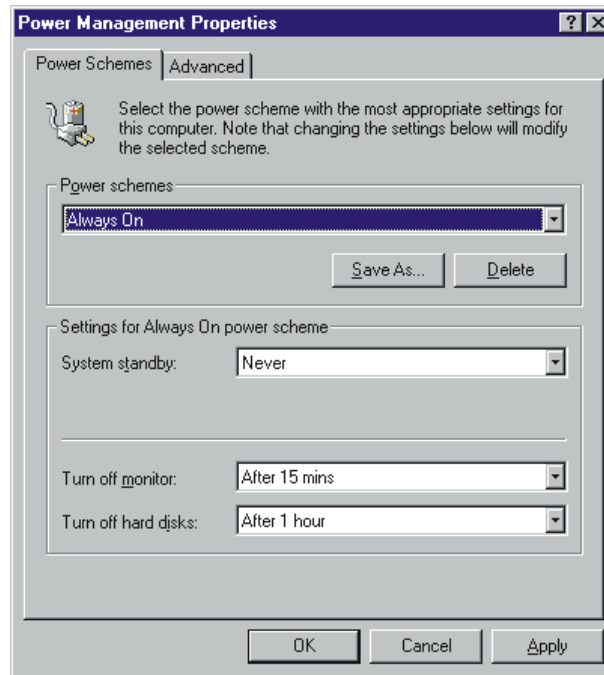


Figure 66 Microsoft Windows Power Management

For more information on configuring Microsoft Windows Power Management, please refer to the Windows Help feature.


The Power Management defaults for the VX5 are:

System standby	Never
Turn off monitor	After 15 minutes
Turn off hard disks	After 1 hour

Note: When configuring power management, consider that the VX5 continues to draw power from the vehicle battery when not in use. When power management is used, the drain on battery power during periods of inactivity is minimal.

Laser Barcode Scanner Warnings

- Do not look into the laser’s lens.
- Do not stare directly into the laser beam.
- Do not remove the laser caution labels from the scanner.
- Do not connect the laser barcode module to any other device.

<p>Caution:</p> 	<p><i>Please read the caution labels.</i></p> <p><i>Avoid exposure. Laser light is emitted from the scanner’s aperture.</i></p> <p><i>Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.</i></p> <p><i>The scanner uses laser light. The following labels are representations of caution and warning labels placed on laser scanners.</i></p>
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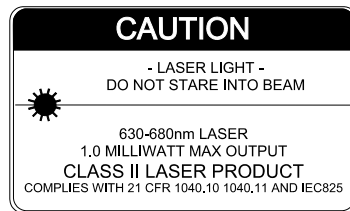
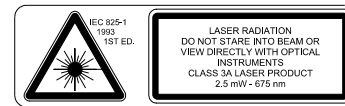
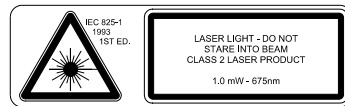


Figure 67 Caution Labels Class II Scanner

Figure 68 Caution Labels Class IIIA Scanner

Do not pour, spray, or spill any liquid on the scanner. The Barcode Scanner contains the circuitry, scanning motor and laser. Handle with appropriate care.

Enter Data

You can enter data into the VX5 through several different methods:

- The tethered scanner connected to the COM1 serial port provides barcode data entry
- The serial ports are used to input/output data
- The keyboards provide manual entry
- The touchscreen also provides manual entry

Keyboard Entry



Refer to “Appendix A Key Maps” for specific keypresses.

The keyboard is used to manually input data that is not collected otherwise. Almost any function that a full sized computer keyboard can provide is duplicated on the LXE VMT keyboard but it may take a few more keystrokes to accomplish a keyed task.

Almost every key has two or three different functions. The primary alpha or numeric character is printed on the key.

For example, when the <2nd> key is selected pressing the desired second-function key produces the <2nd> character i.e. <2nd> + F1 toggles the CAPS Lock function. The specific <2nd> character is printed above the corresponding key.

Please refer to “Appendix A Key Maps” for instruction on the specific keypresses to access all PC-compatible keyboard functions.

Touchscreen Entry

Note: This section is directed to the VX5 user. The assumption is that the unit has been configured and the touch panel calibrated by the System Administrator prior to releasing the VX5 for use.

Note: Always use the point of the stylus for tapping or making strokes on the display. Never use an actual pen, pencil or sharp object to write on the touch screen.

The touchscreen input performs the same function as the mouse that is used to point to and click elements on a desk top computer. The stylus is used in the same manner as a mouse – single tap or double tap to select menu options, drag the stylus across text to select, hold the stylus down to activate slider bars, etcetera. Holding the stylus down for ½ second performs the right mouse click function.

When using a stylus, hold the stylus as if it were a pen or pencil. Touch an element on the screen with the tip of the stylus then remove the stylus from the screen. The touch screen responds to an actuation force (touch) of up to 4 oz. of pressure.

The touch screen can be used in conjunction with the keyboard and an input/output device connected to one of the VX5's serial ports.

- Touch the stylus to the field of the data entry form to receive the next data feed.
- The cursor begins to flash in the field.
- The unit is ready to accept data from either the keyboard or a device connected to a serial port.

Scanner Entry

The following section is directed toward a generic tethered scanner connected to the COM1 serial port on the VX5.

Aiming the Barcode Scanner

Aim the scanner *away* from you, direct it at the barcode and press the trigger to scan.

The Scan On LED (or equivalent) turns red to indicate the scanner is on.

Adjust the aim so that the thin, red laser beam covers the entire length of the barcode.

Some scanners use a laser aiming beam which then spreads into a wide beam when the scanner's Aiming Beam Timer expires. Place the aiming beam in the center of the barcode and hold the scanner steady until the beam spreads and the barcode is decoded. Beeps may be heard as the barcode is decoded. Refer to the barcode scanner user's guide for information on the Aiming Beam Timer and beep sequences, and the TE reference guide for host generated beep sequences.

The scan beam must cross every bar and space on the barcode.



Figure 69 Scan Beam

Distance from Label

Large barcodes can be scanned at the maximum distance. Hold the scanner closer to small barcodes (or with bars that are very close together).

Note: Do not position the scanner exactly perpendicular to the barcode being scanned. In this position, light can bounce back into the scanner's exit window, and possibly prevent a successful decode.

Successful Scan

When the scan is successful, the scanner's good scan indicator illuminates, the scan on indicator is off, and the currently running application may produce a distinctive audible tone.

Unsuccessful Scan

When the scan is unsuccessful, the scan on indicator remains illuminated and the currently running application may produce distinctive audible tones. Check the following:

- Is the scanner programmed for the barcode being read?
- Check the barcode for marks or physical damage e.g. ripped label, missing section, etc.
- Try scanning test symbols of the same code type at different distances and angles.



Appendix A Key Maps

95-key Keypad with Pointing Device

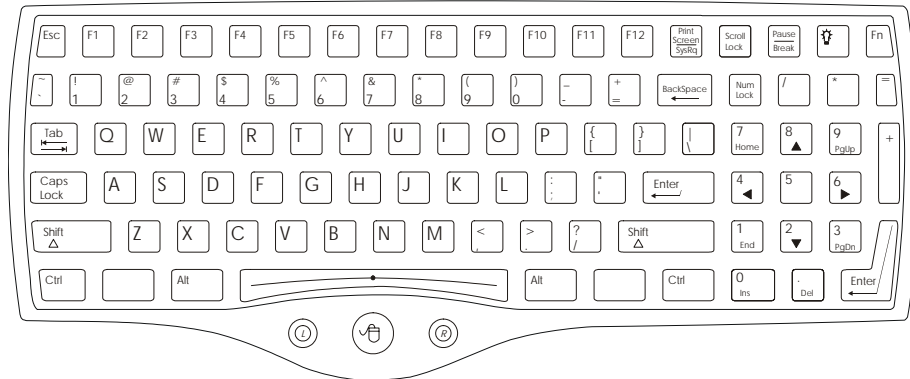


Figure 70 95-Key VMT QWERTY Keyboard

The key map table that follows lists the commands used for the VX5. Note that since the VX5 uses a Microsoft Windows operating system, no DOS Terminal Emulation keypress sequences are provided.

Key Map 101-Key Equivalencies

There are ten hidden keys on the 95-key keyboard. Each of these hidden keys is accessed by pressing the <Fn> key plus another key.

To get this key	Press These Keys and Then
Insert	Fn + 0 on the number pad
Home	Fn + 7 on the number pad
Page Up	Fn + 9 on the number pad
Delete	Fn + . on the number pad
End	Fn + 1 on the number pad
Page Down	Fn + 3 on the number pad
Up Arrow	Fn + 8 on the number pad
Left Arrow	Fn + 4 on the number pad
Down Arrow	Fn + 2 on the number pad
Right Arrow	Fn + 6 on the number pad

Note: The 2nd key function is available on the 60-key keyboard only.

60-key Standard Keypad

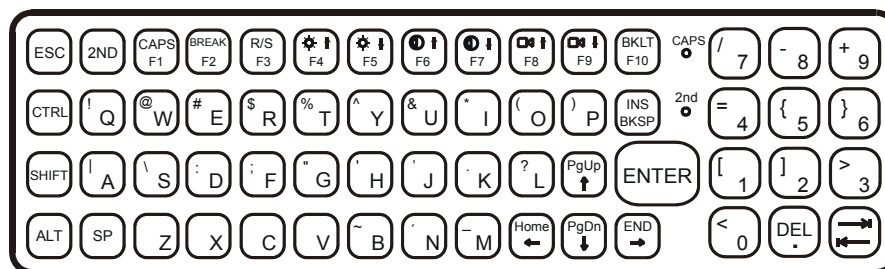


Figure 71 60-Key VMT QWERTY Keyboard

The key map table that follows lists the commands used for the VX5. Note that since the VX5 uses a Microsoft Windows operating system, no DOS Terminal Emulation keypress sequences are provided.

Key Map 101-Key Equivalencies

When using a sequence of keys that includes the <2nd> key, press the <2nd> key first then the rest of the key sequence.

Note: NumLock can be toggled On or Off with the <2nd> <SHIFT> <F10> key sequence. When the computer boots with a VMT keyboard, the default condition of Caps (or CapsLock) is Off. The Caps (or CapsLock) condition can be set using BIOS Setup or toggled with a <2nd>+<F1> key sequence. The CAPS LED on the VMT keyboard is illuminated when CapsLock is On.

To get this key	Press These Keys and Then					Press this key
	2 nd	Shift	Ctrl	Alt	CapsLock	
Keyboard Backlight	x		x			F10
Suspend/Resume ⁴	x					F3
2 nd						2 nd
Shift						Shift
Alt						Alt
Ctrl						Ctrl
Esc						Esc
Space						Sp
Enter						Enter
Enter (numeric)	x					Enter
CapsLock (Toggle)	x					F1
Back Space						Ins/BkSp
Tab						Tab

⁴ The Suspend/Resume key has no function as Windows Power Management controls the power management modes.

To get this key	Press These Keys and Then					Press this key
	2 nd	Shift	Ctrl	Alt	CapsLock	
BackTab	x					Tab
Ctrl-Break ⁵	x		x			F2
Pause	x	x				F3
Up Arrow						Up Arrow
Down Arrow						Down Arrow
Right Arrow						Right Arrow
Left Arrow						Left Arrow
Insert	x					Ins/BkSp
Delete (numeric)	x					DEL
Home	x					Left Arrow
End	x					Right Arrow
Page Up	x					Up Arrow
Page Down	x					Down Arrow
Right Shift	x	x				F7
Right Alt	x	x				F8
Right Ctrl	x	x				F9
ScrollLock	x	x				F4
NumLock	x	x				F10
F1						F1
F2						F2
F3						F3
F4						F4
F5						F5
F6						F6
F7						F7
F8						F8
F9						F9
F10						F10
F11	x	x				F1
F12	x	x				F2
a						A
b						B
c						C
d						D
e						E
f						F
g						G
h						H

⁵ Press <Ctrl> then <2nd> then <F2> to produce Ctrl-Break.

To get this key	Press These Keys and Then					Press this key
	2 nd	Shift	Ctrl	Alt	CapsLock	
i						I
j						J
k						K
l						L
m						M
n						N
o						O
p						P
q						Q
r						R
s						S
t						T
u						U
v						V
w						W
x						X
y						Y
z						Z
A					x	A
B					x	B
C					x	C
D					x	D
E					x	E
F					x	F
G					x	G
H					x	H
I					x	I
J					x	J
K					x	K
L					x	L
M					x	M
N					x	N
O					x	O
P					x	P
Q					x	Q
R					x	R
S					x	S
T					x	T
U					x	U
V					x	V

To get this key	Press These Keys and Then					Press this key
	2 nd	Shift	Ctrl	Alt	CapsLock	
W					x	W
X					x	X
Y					x	Y
Z					x	Z
1 (alpha)	x	x				1
2 (alpha)	x	x				2
3 (alpha)	x	x				3
4 (alpha)	x	x				4
5 (alpha)	x	x				5
6 (alpha)	x	x				6
7 (alpha)	x	x				7
8 (alpha)	x	x				8
9 (alpha)	x	x				9
0 (alpha)	x	x				0
DOT (alpha)	x					K
1 (numeric)						1
2 (numeric)						2
3 (numeric)						3
4 (numeric)						4
5 (numeric)						5
6 (numeric)						6
7 (numeric)						7
8 (numeric)						8
9 (numeric)						9
0 (numeric)						0
DOT (numeric)						DOT
<	x					0
[x					1
]	x					2
>	x					3
=	x					4
{	x					5
}	x					6
/ (numeric)	x		x			7
/ (alpha)	x					7
- (numeric)	x		x			8
- (alpha)	x					8
+ (numeric)	x		x			9
+ (alpha)	x					9
* (numeric)	x					l

To get this key	Press These Keys and Then					Press this key
	2 nd	Shift	Ctrl	Alt	CapsLock	
* (alpha)	x		x			I
: (colon)	x					D
; (semicolon)	x					F
?	x					L
`	x					N
_ (underscore)	x					M
, (comma)	x					J
' (apostrophe)	x					H
~ (tilde)	x					B
\	x					S
	x					A
"	x					G
!	x					Q
@	x					W
#	x					E
\$	x					R
%	x					T
^	x					Y
&	x					U
(x					O
)	x					P

Appendix B Regulatory Notices and Safety Information

FCC Information:

This device complies with FCC Rules, part 15. Operation is subject to the following conditions:

1. This device may not cause harmful interference and
2. This device must accept any interference that may be received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this device not expressly approved by LXE, Inc., could void the user's authority to operate this equipment.

EMC Directive Requirements:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Industry Canada:

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouiller du Canada. Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édictés par le ministère des Communications du Canada.

Notice:

The long term characteristics or the possible physiological effects of radio frequency electromagnetic fields have not been investigated by UL.

RF Safety Notice:

Caution: *This device is intended to transmit RF energy. For protection against RF exposure to humans and in accordance with FCC rules and Industry Canada rules, this transmitter should be installed such that a minimum separation distance of at least 20 cm (7.8 in.) is maintained between the antenna and the general population. This device is not to be co-located with other transmitters.*



R&TTE Directive Requirements (Applies only to Equipment operated within the EU/EFTA)



Information to User

A label on the exterior of the device should resemble one of the labels shown below (the label contains the LXE part number of the installed radio card). The labels shown below and affixed to the device, identify where the device may be used and where its use is restricted. Use of a device is prohibited in countries not listed below or otherwise identified by the label. (May or may not include the 0560 Notified Body No.)



Permitted for use in: Austria, Belgium, Denmark, Finland, Germany, Greece, Iceland, Italy, Ireland, Liechtenstein, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom



Permitted for use in France.


Approvals:

Product	EMI / EMC Standards	Safety Standards
VX5	EMI / EMC Standards: FCC Part 15 Subpart B, Class A EN 55022 : 1998 Class A EN 55024 : 1998	EN 60950:2000 3 rd Ed. UL 60950:2000 3 rd Ed. CSA C22.2 No. 60950 IEC60950:1999 3 rd Ed.

Transceiver	RF Standards	Notes
6726 (LXE Model No.) LXE 6700 System 2.4GHz Type II PCMCIA Card	FCC Part 15, Subpart C FCC Part 2 EN 300 328 EN 300 826 IC-RSS 139 IC-RSS 102	Unlicensed Operation Unlicensed Operation Requires License for Outdoor Use
6816 (LXE Model No.) LXE 2.4GHz Type II PCMCIA Card	FCC Part 15, Subpart C FCC Part 2 EN 300 328 EN 300 826 IC-RSS 139 IC-RSS 102	Unlicensed Operation Unlicensed Operation Requires License for Outdoor Use

LXE Transceiver LXE 6726 Declaration of Conformity



DECLARATION OF CONFORMITY	
according to Directives:	
1999/5/EC	Radio Equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity
93/68/EEC	CE Marking Directive
Type of Equipment:	Direct Sequence 2.4 GHz Wireless LAN Card
Brand Name or Trademark:	LXE
Type Designation:	LXE 6726
Manufacturer:	LXE Inc.
Address:	125 Technology Parkway Norcross, GA 30092-2993 USA
Year of Manufacturer:	2001
The following harmonized European Standards, technical specifications, or other normative documents have been applied:	
EMC:	
EN 300 826 : 1997	Electromagnetic compatibility and radio spectrum matters (ERM); Electromagnetic compatibility (EMC) standard for 2,4 GHz wideband transmission systems and high performance radio local area network (Hiperlan) equipment
Radio:	
EN 300 328-1 and -2: 2000-7	Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques
Safety:	
EN 60950-2: 1992 + A1..A4	Safety of information technology equipment, including electrical business equipment
We, LXE Inc., declare that the equipment specified above complies with all Essential Health and Safety Requirements of the above Directives and Standards, as amended.	
Place	LXE Inc., Norcross GA USA
Date of issue	20 November, 2001
	 D. C. Massey Lead Regulatory Engineer

LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA
ph. 770/447-4224 fax 770/447-6928

Annex to DoC for LXE 6726

With regard to the use of external antennas

The LXE 6726 can be equipped with external antennas. The antennas listed have been evaluated with the LXE 6726 pursuant to ETSI EN 300 328, and therefore meet the definition of 'dedicated antenna' per ERC/REC 70-03 Appendix 1 Table 3; thus the requirement set forth in ERC/REC 70-03 , Annex 3 are met by the LXE model 6726 transceiver.

Dedicated Antennas for use with LXE 6726

<u>LXE P/N</u>	<u>Antenna Gain</u>	<u>Radio Power Level</u>	<u>Antenna Description</u>
153180-0001	0 dBi	17 dBm	Omni, for LXE VX-series computers
155522-0001	0 dBi	17 dBm	Omni, for LXE MX1-series computers
155814-0001	0 dBi	17 dBm	Patch, for LXE MX1-series computers
157368-0001	0 dBi	17 dBm	Patch, for LXE MX3-series computers
99004-0027	1.8 dBi	17 dBm	3 dB Omni, for LXE model 2325 computer
DAC2450CT1 (Toko P/N)	2.15 dBi	17 dBm	Omni, for LXE MX2-series computers
153179-0001	0 dBi	17 dBm	Omni, Access Point Antenna
153325-0001	0 dBi	17 dBm	Omni, Access Point Antenna
480424-0400	0 dBi	17 dBm	Omni, Access Point Antenna
153599-0001	3 dBi	17 dBm	Omni, Access Point Antenna
153600-0001	3 dBi	17 dBm	Omni, Access Point Antenna
480424-3404	3 dBi	17 dBm	Omni, Access Point Antenna
155846-0001	3 dBi	17 dBm	Spire® Access Point Antenna
155845-0001	6 dBi	13 dBm	Spire® Access Point Antenna
155311-0001	6 dBi	13 dBm	Patch, Access Point Antenna
480424-3411	6 dBi	13 dBm	Patch, Access Point Antenna
480424-3402	6 dBi	13 dBm	Patch, Access Point Antenna
481246-2400	6 dBi	13 dBm	Patch, Access Point Antenna
480424-1702	6 dBi	13 dBm	180° Directional, Access Point Antenna
480424-0411	9 dBi	7 dBm	Omni, Access Point Antenna
480429-2703	12 dBi	7 dBm	90° Directional, Access Point Antenna
480429-0411	12 dBi	7 dBm	Omni, Access Point Antenna
460601-3020	15 dBi	3 dBm	YAGI, Access Point Antenna
460602-3020	15 dBi	3 dBm	YAGI, Access Point Antenna
480429-0415	15 dBi	3 dBm	Omni, Access Point Antenna




D. C. Massey
Lead Regulatory Engineer

20 November 2001

LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA
ph. 770/447-4224 fax 770/447-6928

LXE Transceiver LXE 6816 Declaration of Conformity



DECLARATION OF CONFORMITY	
according to:	
the R&TTE Directive;	99/5/EEC
The EMC Directive;	89/336/EEC
The Low Voltage Directive;	73/23/EEC
and the Marking Directive;	93/68/EEC
Type of Equipment:	DSSS 2.4GHz WLAN Radio Card
Brand Name or Trademark:	LXE
Type Designation:	6816
Manufacturer:	LXE Inc.
Address:	125 Technology Parkway Norcross, GA 30092 USA
The following harmonized European Norms have been applied:	
EMC Standards:	
EN 301 489-1: 07-2000	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
EN 301 489-17:07-2000	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Wideband data and HIPERLAN equipment
EN 55022: 1998	Limits and methods of measurement of radio disturbance characteristics of information technology equipment
Radio Standards:	
EN 300 328-1 and -2: 2000-7	Radio Equipment and Systems (RES); Wideband transmission systems; Technical characteristics and test conditions for data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques
Safety Standard:	
EN60950-1: 2001	Safety of information technology equipment, including electrical business equipment
The product carries the CE Mark:	
	
We, LXE Inc., declare that the equipment specified above complies with all Essential Health and Safety Requirements of the above Directives and Standards, as amended.	
Date of issue: June 18, 2003	 Cyril A. Binnom Jr. Regulatory Engineer

LXE Inc. 125 Technology Parkway Norcross, GA 30092-2993 USA
ph. 770/447-4224 fax 770/447-6928

Annex to DoC for LXE 6816

With regard to the use of external antennas

The LXE 6816 can be equipped with external antennas. The antennas listed have been assessed with the LXE 6816 pursuant to EN 300 328, and therefore meet the definition of 'dedicated antenna'. The table below lists the maximum output power setting for the radio module in order to result in a total EIRP of 100mW or less. Any combination of output power and a specific type of antenna resulting in an EIRP greater than 100mW is illegal for use throughout the Community and is outside the scope of this DoC. Antennas not listed below are also outside the scope of this DoC.

Dedicated Antennas for use with LXE 6816

LXE Antenna Part Number	LXE Model Number	Antenna Gain	Max Radio Power Level	Antenna Description
153180-0001	N/A	2.2 dBi	17 dBm	Cushcraft Omni Antenna
155846-0001	6000A279ANT3SPIREL 6000A280ANT3SPIRER 6000A283ANT3INDSPR	3 dBi	17 dBm	Spire® Omni Antenna
155845-0001	6000A277ANT6SPIREL 6000A278ANT6SPIRER 6000A282ANT3INDSPR	6 dBi	13 dBm	Spire® Omni Antenna
480424-0411	N/A	9 dBi	11 dbm	Mobile Mark Omni Antenna
155104-0001	N/A	0 dbi	20 dbm	LXE Omni
154591-0001	N/A	0 dbi	20 dbm	LXE Patch
Toko DAC2450CT1	N/A	0 dbi	20 dbm	LXE Omni
157368-0001	N/A	0 dbi	20 dbm	LXE Omni
158586-0001	N/A	0 dbi	20 dbm	LXE Omni
158399-0001	N/A	0 dbi	20 dbm	LXE Omni



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18 June 2003

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Lithium Battery Safety Statement



Caution:

Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by battery manufacturer. (US)

Attention:

Contient une pile de lithium. Risque d'explosion dans le cas où la pile ne serait pas correctement remplacée. Remplacer uniquement avec une pile semblable ou équivalente au type de pile recommandé par le fabricant. (FR)

Forsigtig:

Indeholder lithiumbatterier. Risiko for eksplosion, hvis batteriet udskiftes forkert. Må kun udskiftes med samme eller tilsvarende type, som anbefalet af fabrikanten. (DK)

Varoitus:

Tämä tuote käyttää laservaloa. Skannerissa on jokin seuraavista tarroista. Lue Huomio-kohta. (FI)

Vorsicht:

Enthält Lithium-Batterie. Bei unsachgemäßem Ersatz besteht Explosionsgefahr. Nur durch gleichen oder vom Hersteller empfohlenen Typ ersetzen. (DE)

Attenzione:

Batteria al litio. Pericolo di esplosione qualora la batteria venga sostituita in maniera scorretta. Sostituire solo con lo stesso tipo o equivalente consigliato per il fabbricante. (IT)

Atenção:

Contém pilha de lítio. Há perigo de explosão no caso de uma substituição incorreta. Substitua somente pelo mesmo tipo, ou equivalente, recomendado pelo fabricante. (PT)

Varning:

Innehåller litiumbatteri. Fara för explosion om batteriet är felaktigt placerat eller av fel typ. Använd endast samma eller motsvarande typ batterier rekommenderade av tillverkaren. (SE)

Advarsel:

Innmontert Lithium batteri. Eksplosjonsfare ved feil montering av batteri. Benytt kun batteri anbefalt av produsent. (NO)

Cuidado:

Pila de litio adentro. Peligro de explosión si la pila se reemplaza incorrectamente. Reemplace solamente con el mismo tipo o equivalente recomendado por el fabricante. (ES)

Oppassen:

Bevat Lithium-batterij. Incorrrecte plaatsing van batterij kan leiden tot explosiegevaar. Alleen vervangen door hetzelfde of door fabrikant aanbevolen gelijkwaardig type. (NL)



Lithium Battery Safety Statement



<p>Προσοχή: Υπάρχει μπαταρία από λίθιο εσωτερικά. Υπάρχει κίνδυνος έκρηξης εάν η μπαταρία αντικατασταθεί με λανθασμένο τρόπο. Αντικαταστήστε μόνο με τον ίδιο ή ισοδύναμο τύπο που συνιστάται από τον κατασκευαστή. (GR)</p>	<p>주의: 리튬 배터리 내부. 배터리가 잘못 설치되었을 경우 폭발의 위험이 있습니다. 동일한 배터리, 또는 배터리 제조업체가 권장하는 배터리로 교체하십시오. (KR)</p>
<p>注意: リチウム電池が入っています。間違った種類の電池を使用すると、破裂する恐れがあります。同じ電池、または電池製造元が推奨する同等の電池を使用してください。 (JP)</p>	<p>小心: 内装锂电池。如电池更换不当，则有发生爆炸的危险。只能用电池制造商推荐的相同或同等电池进行更换。 (CN)</p>
<p>Dikkat: İçinde lityum bataryası bulunur. Bataryanın yanlış değiştirilmesi patlama tehlikesi yaratır. Aynısıyla veya üreticinin önerdiği eşdeğer tipte değiştirin. (TR)</p>	

Legend:

Chinese	CN	Italian	IT
Danish	DK	Japanese	JP
Dutch	NL	Korean	KR
English	US	Norwegian	NO
Finnish	FI	Portuguese	PT
French	FR	Spanish	ES
German	DE	Swedish	SE
Greek	GR	Turkish	TR



A/C Power Supply Safety Statement – VX5 Output Rated 12 – 80 VDC, Minimum 75W.



Optional A/C Power Supply:

Outside North America, this unit is intended for use with an IEC certified ITE power supply with output rated as stated at the top of this page. (US)

Alimentation c.a. optionnelle:

Hors de l'Amérique du Nord, cette unité est conçue pour être utilisée avec une alimentation ITE certifiée CEI de sortie nominale indiquée au haut de cette page. (FR)

Valgfrit vekselstrømforsyning

Udenfor Nord Amerika er denne enhed udstattet med en IEC (international elektronisk Kommission) udfærdiget med en ITE strømfor syning med strømudgang som fastslået på denne sides begyndelse. (DK)

Vaihtohtoinen vaihtovirran syöttölaite:

Pohjois-Amerikan ulkopuolella tämä laite on tarkoitettu käytettäväksi sellaisen IEC:n sertifioiman ITE-tehonsyöttölaitteen kanssa, jonka antoteho on tämän sivun yläosassa esitetyn mukainen. (FI)

Optionales Netzteil (Wechselstrom)

Außerhalb Nordamerikas sollte diese Einheit über ein der IEC-Norm entsprechendes ITE-Netzteil gespeist werden, und zwar mit einer wie oben auf dieser Seite genannten Ausspeisung. (DE)

Προαιρετική Τροφοδοσία Συνεχούς Ρεύματος

Εκτός Β. Αμερικής, η μονάδα αυτή προορίζεται για χρήση με ένα τροφοδοτικό ITE πιστοποιημένο κατά IEC με ονομαστική ισχύ όπως δηλώνεται στην αρχή της σελίδας. (GR)

Alimentazione opzionale a corrente alternata:

Al di fuori dei paesi dell'America del nord, l'unità deve essere impiegata con un dispositivo d'alimentazione per attrezzature informatiche approvato dalla IEC la cui potenza nominale sia pari a quella indicata all'inizio della pagina. (IT)

Vekselstrømforsyning (ekstraustyr):

Utenfor Nord-Amerika skal dette produktet brukes med en IEC-sertifisert ITE-strømforsyning med klassifisert effekt som angitt øverst på denne siden. (NO)

Fornecimento opcional de CA:

Fora dos EUA, esta unidade destina-se a ser usada com dispositivos de fornecimento de corrente ITE com certificação IEC, com a capacidade indicada no topo desta página. (PT)

Suministro optativo de corriente alterna

Fuera de América del Norte, esta unidad se debe utilizar con un alimentador ITE homologado por la IEC (comisión electrotécnica internacional) con una salida que tenga la calificación que figura en la parte superior de esta página. (ES)

Valfri A/C Strömförsörjning

Utanför Nordamerika är det meningen att denna enheten används med en IEC-certifierad ITE-strömförsörjare med den uteffekt som anges längst uppe på den här sidan. (SE)

İsteğe Bağlı A/C Güç Kaynağı:

Kuzey Amerika dışında, bu ünite, çıkış sınıflandırması bu sayfanın başında belirtilen IEC sertifikalı bir ITE güç kaynağı ile birlikte kullanılacak üzere tasarlanmıştır. (TR)

Updated 10/01/2001

Legend: Danish – DK; English – US; Finnish – FI; French – FR; German – DE; Greek – GR; Italian – IT; Norwegian – NO; Portuguese – PT; Spanish – ES; Swedish – SE; Turkish – TR.



Vehicle Power Supply Connection Safety Statement



Vehicle Power Supply Connection:

If the supply connection is made directly to the battery, a 10A slow-blow fuse should be installed in the positive lead within 5 inches (12.7 cm.) of the battery positive (+) terminal. (US)

Raccordement de l'alimentation du véhicule

Si l'alimentation est raccordée directement à la batterie, un fusible à action retardée de 10A doit être installé sur le câble positif à moins de 12,7 cm de la borne positive (+) de la batterie. (FR)

EL forsyning af køretøjet.

Er forsyningsforbindelsen direkte tilknyttet til batteriet og og tilsluttet til den positive part indenfor 12,7 cm (+ delen). vil der være en langsom tændelse af 10 ampere. (DK)

KytKentä ajoneuvon virtalähteeseen

Jos virtaa otetaan suoraan akusta, 10 ampeerin hidas sulake on asennettava positiiviseen johtoon enintään 12 cm:n etäisyydelle akun positiivisesta (+) navasta. (FI)

Anschluss an Fahrzeugbatterie

Bei direktem Anschluss an die Fahrzeugbatterie sollte eine träge 10A-Sicherung in die positive Leitung zwischengeschaltet werden, und zwar nicht weiter als ca. 13 cm von der positiven (+) Batterieklemme entfernt. (DE)

Σύνδεση Τροφοδοτικού Ισχύος Οχήματος

Αν η σύνδεση του τροφοδοτικού γίνει κατευθείαν στη μπαταρία, μια ασφάλεια βραδείας τήξης των 10Α θα πρέπει να τοποθετηθεί στο θετικό καλώδιο εντός 5 ιντσών (12,7 εκ.) του θετικού (+) ακροδέκτη της μπαταρίας. (GR)

Collegamento dell'alimentazione del veicolo

Se il collegamento dell'alimentazione viene stabilito direttamente con la batteria, è necessario installare un fusibile ad azione lenta da 10 A nel conduttore positivo a meno di 5 in. (12,7 cm) dal terminale positivo (+) della batteria. (IT)

Tilkople strømforsyningen til kjøretøyet

Hvis strømforsyningen koples direkte til batteriet, skal det installeres en 10 A treg sikring i den positive ledningen innen 12,7 cm fra plusspolen (+) på batteriet. (NO)

Ligação do fornecimento de corrente do veículo

Se a ligação de fornecimento de corrente for ligada directamente à bateria, deve instalar-se um fusível de 10A no terminal positivo, a 12,7 cm. do terminal positivo (+) da bateria. (PT)

Conexión de suministro eléctrico para el vehículo

Si el suministro eléctrico se proporciona directamente a la batería, se debe instalar un fusible de retardo de 10 A en el conductor positivo, como máximo a 12,7 cm (5 pulgadas) del terminal positivo (+). (ES)

Fordonets strömförsörjningskoppling

Om strömkopplingen görs direkt till batteriet, måste en 10A-säkring installeras i den positivt laddade ledningen inom 12.7 cm från batteriets pluspol (+). (SE)

Taşıt Güç Kaynağı Bağlantısı

Kaynak bağlantısı doğrudan aküye yapılırsa, pozitif bağlantı kablosu üzerinde akünün pozitif (+) kutbuna 12.7 cm mesafede 10A'lık yavaş atan bir sigorta monte edilmelidir. (TR)

Legend: Danish – DK; English – US; Finnish – FI; French- - FR; German – DE; Greek – GR; Italian – IT; Norwegian – NO; Portuguese – PT; Spanish – ES; Swedish – SE; Turkish – TR.

Updated 02/10/2004

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