

MX3 Cradle Reference Guide

IMPORTANT NOTICE – This user guide is obsolete. The cradle is still in use. Please refer to the [device specific] cradle reference guide.



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E-EQ-MX3DKRG-J-ARC

LANGUAGE : ENGLISH

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

Revision Notice

Power Supplies	Added “DC to DC Power Supply Installation”.
Entire Manual	Updated Accessories. Moved obsolete equipment and instruction to “Appendix B Obsolete Equipment”. Moved “Revision History” to Appendix B.

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MX3 Cradles

Introduction

There are two types of cradles for LXE's MX3 family of mobile devices: a desk top cradle for tabletop charging / communication applications and a vehicle mount cradle for vehicle mounted charging / communication applications.

The cradles give the MX3 family of mobile devices the ability to communicate with a host computer and other equipment. In addition, using wall AC adapters or DC/DC converters, the cradle transfers power to the internal charging circuitry of the mobile device and the device, in turn, recharges the Main Battery. The mobile device can be either on or off while in the cradle.

Cables are available from LXE for connecting the cradle to a printer, a desktop PC or laptop, or a barcode printer. Tethered scanners (for RS-232 serial port connection) are also available from LXE.

The vehicle cradle should be mounted in an area in the vehicle where it:

- Does not obstruct the driver's vision or safe vehicle operation.
- Will be protected from rain or inclement weather.
- Will be protected from extremely high concentrations of dust or wind-blown debris.
- Can be easily accessed by a user seated in the driver's seat.

Identify Your MX3 Device

The mobile device must have a main battery (MX3A378BATT) installed when it is docked in a cradle.



MX3X

Windows CE .NET 4.2
Windows CE 5



MX3Plus

Windows CE 5

Device	Battery	Cradle
MX3X	MX3A378BATT	MX3002DSKCRDL 9000005VMCRADLE
MX3Plus	MX3A378BATT	MX3002DSKCRDL 9000005VMCRADLE

Figure 1 Identify Your MX3 Mobile Device and Compatible Cradles

Note: Obsolete MX3 devices and compatible cradle information is located in Appendix B "Obsolete Devices".

Quick Start Installation

Desk Top Cradle

1. If required, attach the table bracket to the desktop cradle housing.
2. Place the cradle on a stable surface, close to an uninterrupted AC power source, if a connection to AC power is required.
3. The desktop cradle can be mounted to a flat surface, using the mounting holes in the desktop cradle bracket. LXE does not supply the mounting hardware.
4. If required, connect the AC/DC power supply to the cradle. The LED indicator on the front of the powered cradle will illuminate orange.
5. The Desk Top cradle is ready for use.

See following section titled “Desk Top Cradle” for full instruction.

Powered Vehicle Mount Cradle

U-Bracket

1. Attach the Bottom Mounting Bracket to the vehicle, making sure it does not impede safe operation of the vehicle.
2. Assemble the Vehicle Mount Cradle to the Bottom Mounting Bracket.
3. If required, connect vehicle power supply to the cradle. The LED indicator on the front of the powered cradle will illuminate orange.
4. The Vehicle Mount cradle is ready for use.

See section titled “Attach U-bracket to Vehicle” for full instruction.

RAM Ball Assembly

1. Attach the lower RAM ball to the vehicle, making sure it does not impede safe operation of the vehicle.
2. Fasten the upper RAM ball assembly to the U-bracket on the vehicle cradle.
3. Connect the arm socket to the RAM ball on the vehicle.
4. Tighten the arm turnscrew until the vehicle cradle is secured to the arm socket and the vehicle.

See section titled “Attach RAM Ball Assembly to Vehicle and Mobile Device” for full instruction.

Desk Top Cradle

Note: The mobile device must have a battery installed before placing it in a powered cradle.



Figure 2 Desk Top Cradle

You will need a torque wrench capable of torquing at 6 ± 1 IN/LB when assembling the cradle components. LXE does not supply the tools (torque wrench, screwdrivers) required for assembly.

How To

Attach the bracket to the back of the Desk Top cradle, torquing both screws to 6 in/lbs.

Place the Desk Top cradle on a stable surface, away from the flow of traffic and protected from inclement weather. If the cradle is to be secured to a flat surface, make sure there is enough room at the back of the cradle (approximately 2") to allow cables to be connected/disconnected easily.

Lower the mobile device straight into the cradle, tilt it forwards and then let it rest backwards into the cradle. Ensure that the mobile device is properly seated on the charging contacts. The CHGR LED on the mobile device will illuminate green when the device is correctly seated in the cradle.

To remove the mobile device, tilt it forward and lift it straight up out of the cradle.

Note: Do not "slam" or slide the mobile device sideways into the cradle. Damage may result.

Desk Top Cradle Footprint

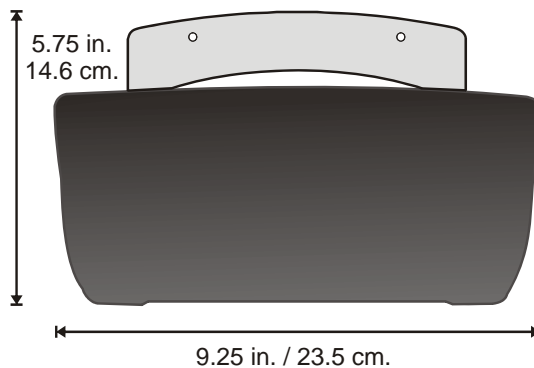


Figure 3 Desk Top Cradle Footprint

Status LED

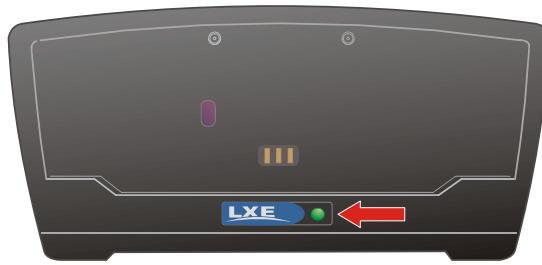


Figure 4 Desk Top Cradle Status Indicator

An LED indicator shows the power and communication status of the cradle. When the indicator is not illuminated, there is no power applied to the cradle.

Cradle Power	Orange	Power applied to the cradle.
Docked	Green	Power applied to the cradle and connection made with the mobile device.
IR Active	Red	IR communication active.

Power Connector



Figure 5 Desk Top Cradle Power Connector

The Power connector is located on the back of the cradle. The cradle can be powered, if required, by an LXE US AC Adapter or an LXE International AC Adapter. When powered, the cradle transfers power to the internal charging circuitry of the mobile device allowing it to recharge the Main Battery. A powered cradle supports RS-232 and IR communications.

RS-232 Connector

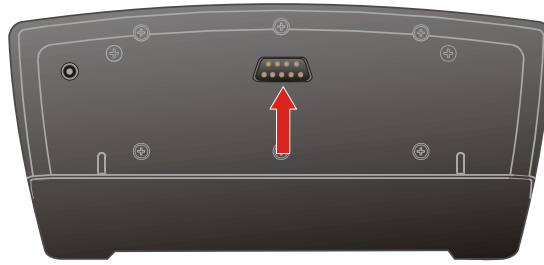


Figure 6 Desk Top Cradle RS-232 Connector

The RS-232 connector is located on the back of the cradle. When the mobile device is properly docked, the bi-directional half-duplex transceivers in the mobile device and cradle are aligned through their IR windows. The half-duplex IR signals from the mobile device are converted to RS-232 signals in the cradle and available at this connector.

The cradle supports only the Transmit, Receive and Ground signals on this port.

The connector is an industry-standard RS-232. The connector includes a PC/AT standard 9-pin “D” male connector.



Figure 7 RS-232 Connector

PIN	SIGNAL	DESCRIPTION
1	DCD	Not Connected
2	RXD	Receive Data - Input
3	TXD	Transmit Data - Output
4	DTR	Not Connected
5	GND	Signal/Power Ground
6	DSR	Not Connected
7	RTS	Not Connected
8	CTS	Not Connected
9	+5VDC	+5VDC at 200mA continuous (see note below)

Figure 8 RS-232 Pinout

Note: Pin 9 of this port is connected to +5VDC and only approved LXE cables are to be used for communication between the cradle and external devices.

Desktop Cradle Power Supply

The mobile device must have a main battery (MX3A378BATT) installed when it is docked in a cradle.



Figure 9 Desktop Cradle AC Power Supply

1. Plug the AC Power Supply into an uninterrupted power source, e.g. wall outlet.
2. Insert the single pin connector into the power port on the back of the desktop cradle. The cradle LED turns orange when power is received.
3. Put the MX3X / MX3Plus in the cradle. The MX3X / MX3Plus CHGR LED illuminates when the cradle is fully seated in the desktop cradle.
4. The cradle LED illuminates green when power is received, a mobile device is seated in the docking bay, and the mobile device is receiving AC power through the cradle/device connector.

Powered Vehicle Mount Cradle

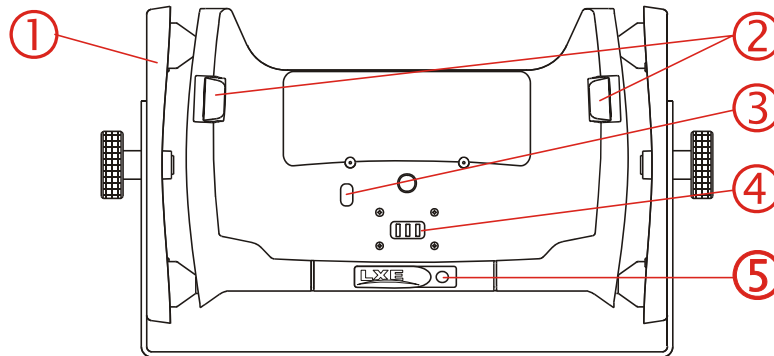


Figure 10 Vehicle Mount Cradle – Front

1. Vehicle Mount Bracket Assembly
2. MX3 Release Mechanism
3. IR Port
4. Battery Power Connection
5. Vehicle Cradle Status LED

This cradle is specifically designed for vehicle mount applications. The cradle restrains the mobile device and isolates it from shock and vibration. The mobile device is inserted into the cradle by placing the base of the device in the charging pocket and then firmly pressing the mobile device backwards until the release mechanisms latch and secure the mobile device in the cradle. The mobile device is removed from the cradle by pressing the release mechanisms and pulling the device up and away from the cradle.

Status LED

An indicator on the cradle shows the status of the docked mobile device. When the indicator is not illuminated, there is no external power source connected to the cradle.

Cradle Power	Orange	Power applied to the cradle.
Docked	Green	Power applied to the cradle and connection made with the mobile device.
IR Active	Red	IR communication active.

Power Connector

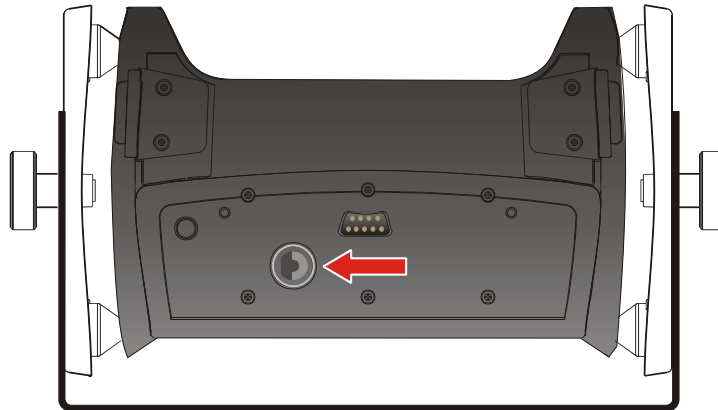


Figure 11 Vehicle Cradle Power Connector

The Power connector is located on the back of the cradle. The cradle is powered by either a vehicle's 12V battery or from an approved accessory for vehicles with higher voltage (24 to 60 VDC) batteries. When powered, the cradle transfers external power to the mobile device, which in turn, recharges the main battery. A powered cradle allows RS-232 and IR communication.

RS-232 Connector

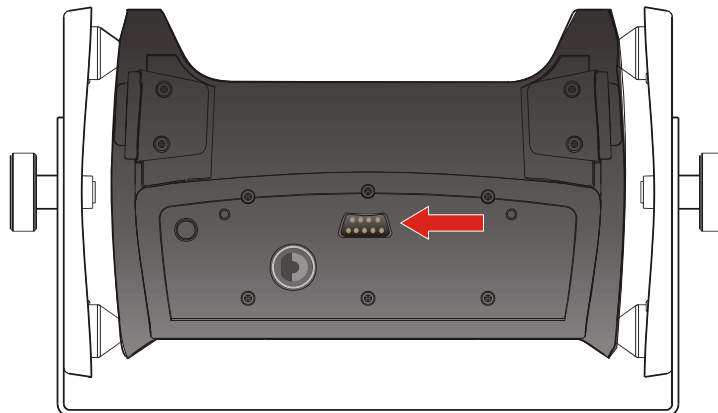


Figure 12 Vehicle Cradle RS-232 Connector

The RS-232 connector is located on the back of the cradle. When the mobile device is properly docked, the bi-directional half-duplex transceivers in the device and cradle are aligned through their IR windows. The half-duplex IR signals from the mobile device are converted to RS-232 signals in the cradle and available at this connector.

The cradle supports only the Transmit, Receive and Ground signals on this port.

The connector is an industry-standard RS-232. The connector includes a PC/AT standard 9-pin "D" male connector.



Figure 13 Vehicle RS-232 Connector

PIN	SIGNAL	DESCRIPTION
1	DCD	Not Connected
2	RXD	Receive Data - Input
3	TXD	Transmit Data - Output
4	DTR	Not Connected
5	GND	Signal/Power Ground
6	DSR	Not Connected
7	RTS	Not Connected
8	CTS	Not Connected
9	+5VDC	+5VDC at 200mA continuous (see note below)

Figure 14 Vehicle RS-232 Pinout

Note: Pin 9 of this port is connected to +5VDC and only approved LXE cables are to be used for communication between the cradle and external devices. See "Accessories".

Attach U-Bracket to Vehicle



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

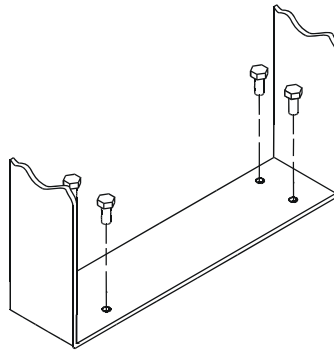
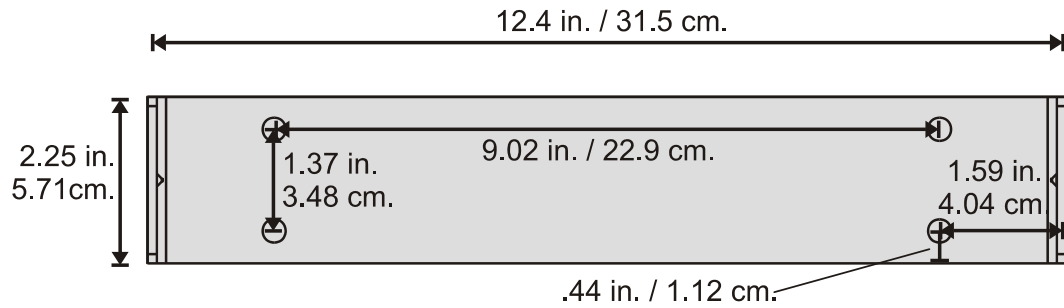


Figure 15 Attach Bracket to Vehicle

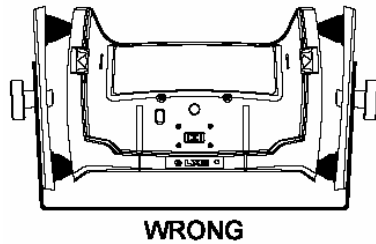
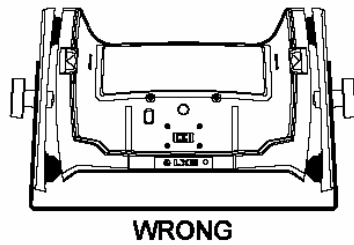
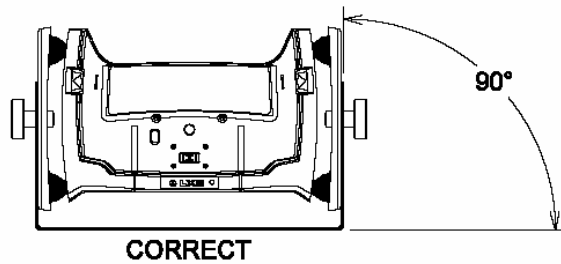
1. There must be at least 2” clearance at the back of the bracket for the cables. Position the bracket to allow access to the ports on the back of the Vehicle Mount Cradle.
2. Using the mounting dimensions on the following diagram mount the bottom mounting bracket *to the vehicle*, using 1/4” bolts (not supplied by LXE).

Vehicle Cradle Mounting Bracket Dimensions



Measurements are not to scale.

Figure 16 Mounting Footprint



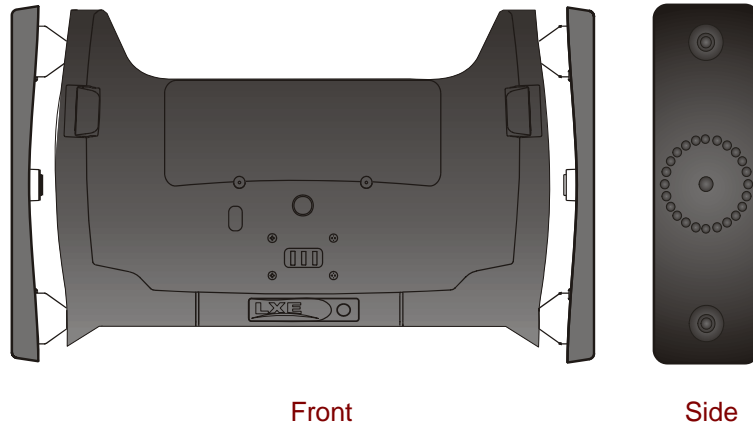
Care must be taken to avoid bending or warping the bottom “U” shaped bracket when attaching the cradle to a lift truck or other vehicle.

A bent “U” bracket can over-compress or over-extend the rubber isolators leading to failure of the isolators.

Figure 17 Correct Vehicle Cradle U-Bracket Installation

Assemble Vehicle Cradle

Before installation begins, make sure you have the following Vehicle Mount Cradle assembly components:



Front

Side

Figure 18 Vehicle Mount Cradle

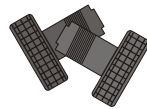
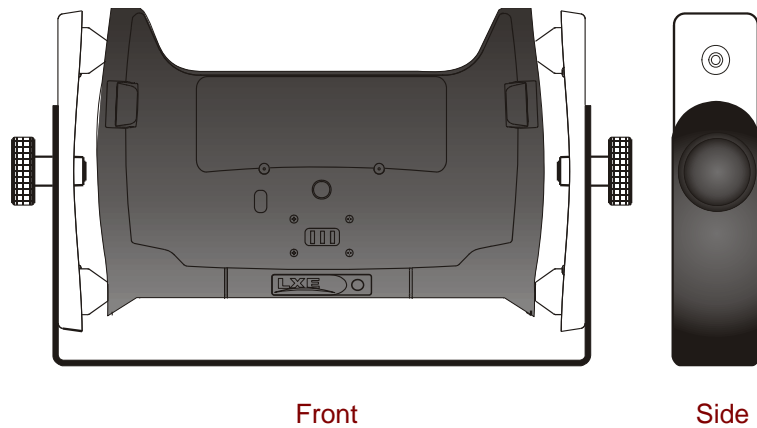


Figure 19 Adjusting Knobs

Attach the Bottom Mounting Bracket (currently secured to the vehicle) to the Vehicle Mount Cradle with the Adjusting Knobs. Insert one Adjusting Knob in each side of the mounting assembly.

Adjust the cradle as desired by loosening the Adjusting Knobs, angling the cradle, then retightening the Adjusting Knobs.



Front

Side

Figure 20 Assembled Vehicle Mount Cradle

Periodically test the connection of the vehicle mounted bolts and the Adjusting Knobs and retighten if necessary.

Attach RAM Ball Assembly to Vehicle and Mobile Device

RAM Ball and Arm Cylinder



Figure 21 RAM Bracket Kit Components



Mount the RAM ball to the bottom of the cradle with the bolts, washers and nuts supplied by LXE.

Qty 4 - Hex Cap 1/4-20 x 3/4 bolts

Qty 4 - 1/4 flat washer

Qty 4 - 1/4-20 nylon insert lock nuts

RAM Mount Assembly

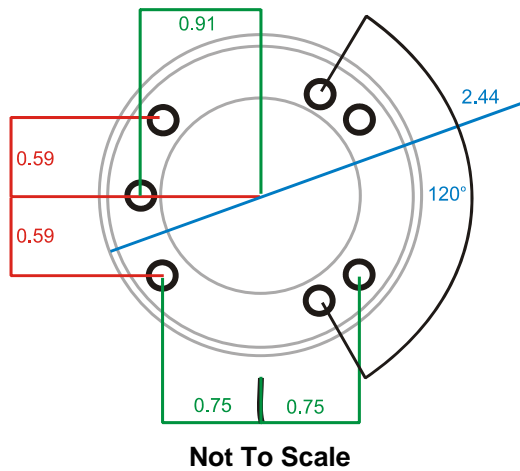
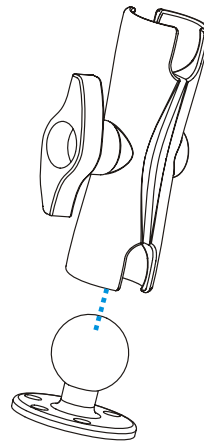


Figure 22 RAM Assembly Footprint

Note: LXE does not supply the bolts or washers needed when mounting the RAM ball to the vehicle chassis. LXE recommends using bolts with a maximum 10/32" (0.3125) diameter.

1. Attach the RAM ball to the vehicle, making sure it does not impede safe operation of the vehicle.
2. If desired, fasten the upper RAM ball assembly to the base of the U-bracket connected to the vehicle cradle using the supplied bolts, washers and screws.
3. Loosen the turn screw on the RAM arm, place the lower socket over the vehicle mounted RAM ball, then the other arm socket over the RAM ball mounted to the vehicle cradle u-bracket.



4. Tighten the arm turn screw until the cradle is secured to the RAM arm and the vehicle.

Power Supplies

Note: When an external power supply is used to power these products, the external power supply should be UL Listed, with LPS or Class 2 outputs rated 12V, minimum 1Amp.

Desk Top/Mobile Device Power Supply, External, AC

LXE offers two types of external power supplies for the desk top cradle:

- Power Supply, External, AC, US
- Power Supply, External AC, International

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 cord set.

In both cases, connect the external AC supply to a properly grounded source of supply provided with maximum 15 Amp over current protection (10 Amp for 230V circuits).

1. Insert the barrel connector into the desk top cradle power jack and push in firmly.
2. When the mobile device is receiving power from a cradle, the cradle Status LED is green and the CHGR LED on the mobile device are illuminated.

US AC to DC Adapter Specifications

Part Number: 9000A301PSACUS



Feature	Specification
Input Power Switch	None
Power "ON" Indicator	None
Input Fusing	Thermal Fuse
Input Voltage	108VAC min - 132VAC max
Input Frequency	47 - 63 Hz
Input Connector	North American wall plug, no ground
Output Connector	Barrel connector, female, 5.5 x 2.5 x 11.5mm, Center Positive
Output Voltage	+12VDC, unregulated
Output Current	0 Amps min, 1.5 Amps max
Operating Temperature	32° F to 104° F 0° C to 40° C
Storage Temperature	-13° F to 158° F -25° C to 70° C
Humidity	Operates in a relative humidity of: 5 – 95% (non-condensing)

Figure 23 US AC Power Supply

Worldwide AC to DC Adapter Specifications


Figure 24 Worldwide AC Power Supply

Part Number: 9000A322PSACWW

Feature	Specification
Operating Temperature	32°F to 104°F (-0°C to 40°C)
Storage Temperature	-13°F to 158°F (-25°C to 70°C)
Operating Humidity	Up to 90% non-condensing at 104°F (40°C)
Input Power Switch	None
Power "ON" Indicator	None
Input Voltage	108VAC min - 264VAC max
Input Frequency	47 - 63 Hz
Input Connector	Customer supplied
Output Connector	Barrel connector, female, 5.5 x 2.5 x 11mm, Center Positive
Output Voltage	+12VDC, regulated
Output Voltage Regulation	+/- 5%
Output Current	0 Amps min, 1.00 Amps max

Vehicle Cradle 10.8-16 VDC Direct Connection

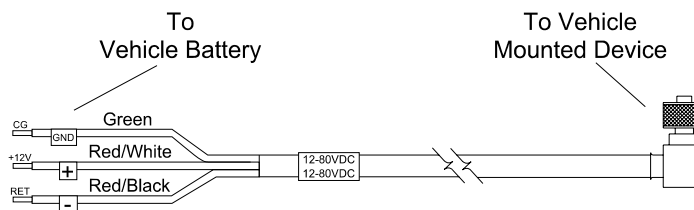


Figure 25 Direct Vehicle Power Connection Cable (12 Ft.)

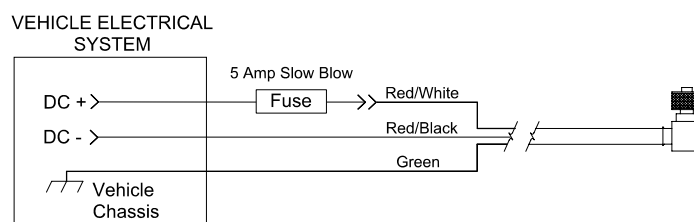


Figure 26 Connecting the Power Cable to the Vehicle

Note: Correct electrical polarity is required for safe and proper installation. Connecting the cable to the vehicle cradle with the polarity reversed will cause the vehicle cradle fuse to be blown. See the following table for wire color-coding specifics.

Wiring color codes for LXE supplied DC input power cabling:

Vehicle Supply		Wire Color
+10.8 - 16VDC	(DC +)	Red with White Stripe
Return	(DC -)	Red with Black Stripe
Vehicle Chassis	(GND)	Green

Figure 27 Vehicle Connection Wiring Color Codes

Input Power Specifications

LXE Part Number: 1300A053CBL12ML3

Feature	Specification
DC Input Voltage	10.8 - 16 VDC
Input Current	1.25 Amps
Input Fuse	5A Time Delay

Vehicle Cradle 24/72 Maximum VDC Input Cable Connection

Caution



For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a 5 Amp maximum time delay (slow blow) 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.

Recommended for vehicle electrical systems that use between 2 and 5 twelve volt batteries in series.



LXE Part Number: 9000A316PS24V72MX13 (Replaces 1300A301PS24WW).



- 1. Power Switch
- 2. Power On Indicator
- 3. Output to Vehicle Cradle
- 4. Input from Vehicle Battery

Figure 28 Vehicle Power Supply, 24 – 72 Maximum VDC (Fuse Not Shown)

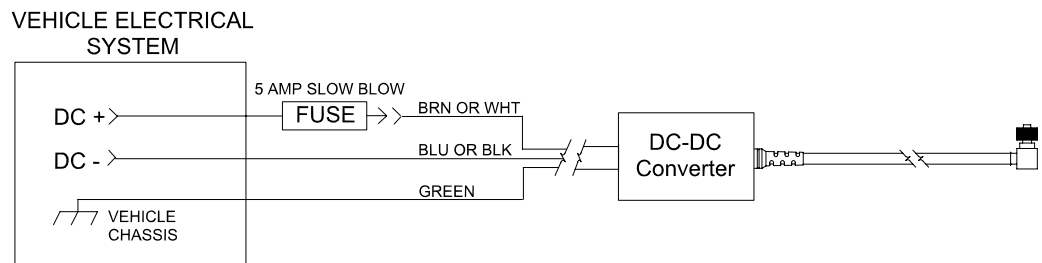


Figure 29 Connecting the Power Supply to the Vehicle

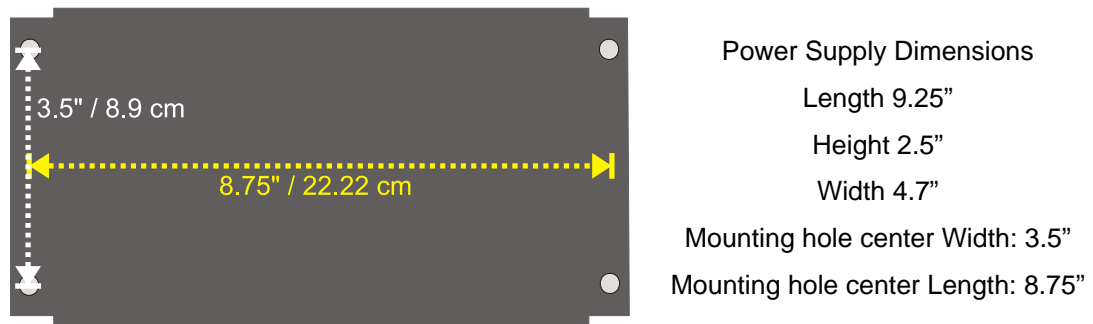


DIAGRAM IS NOT TO SCALE

Figure 30 Vehicle Power Supply Footprint

1. If the mobile device is in the cradle, it can be either On or Off during this process.
2. Turn the Power Supply toggle switch to the Off position.
3. 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 the vehicle fuse panel, after providing proper fusing.

IMPORTANT:

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

4. Route the cable the shortest way possible. The input cable from the connection to the battery is rated for a maximum temperature of 60°C (140°F). When routing this cable it should be protected from physical damage and from surfaces which might exceed this temperature.

Additionally 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 Controlled 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 the operator's 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.

Wiring color codes for LXE supplied DC input power cabling:

Vehicle Supply		Wire Color
+24-72 Max VDC	(DC +)	Brown or White
Return	(DC -)	Blue or Black
Vehicle Chassis	(GND)	Green

Figure 31 Vehicle Connection Wiring Color Codes

Note: The input power cord for the DC-DC Power Supply uses white, black and green wires. Some LXE products have DC input power cords with brown, blue and green wires. The previous table shows the correct electrical connection for either type of cable.

5. 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.
6. Connect the Power Supply to the cradle by aligning the keyed water tight connector pins to the power connector; push down on the keyed water tight connector and twist it to fasten securely.
7. Turn the Power Supply on. The ON LED on the Power Supply illuminates when it is receiving power from the vehicle.
8. The Cradle Status LED illuminates green.
9. The mobile device CHGR LED illuminates.

DC to DC Power Supply Installation

For use with

9000301PWRSPPLY – Power Supply, 18-60VDC with cable

9000302PWRSPPLY – Power Supply, 60-110VDC with cable

Connecting Electrical Cables To Power Sources




The DC to DC power supply is used to provide vehicle power to certain hand held devices when placed in a DC powered vehicle dock.

Note: The hand held devices have cradles that are designed specifically for the hand held device and none other.

Specifications for electrical supply

Input Voltage	Always observe input voltage range specified on the DC to DC power supply.
Output Voltage	12 VDC \pm 10%
Power	50 W
Fuse	5 A (slow blow fuse) Fuses are USER SUPPLIED

Please refer to the wiring schematic on the following page for wiring colors and connections:

Caution: 	<i>For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a user supplied 5 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.</i>
Caution: 	<i>For installation by trained service personnel only.</i>
Caution: 	<i>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.</i>

How To: Connect Vehicle Electrical Connection

1. Please review the wiring illustration in the following figure titled “Wiring Diagram” before beginning the DC to DC Power Supply power cable installation.

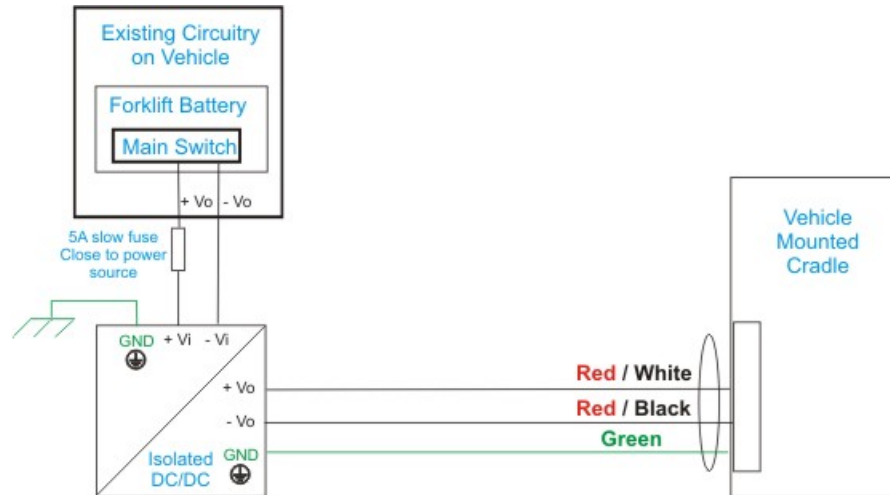


Figure 32 Wiring Diagram – DC to DC Power Supply

2. If connecting a hand-held device cradle, the cradle must be empty.
3. Begin by connecting the power cable to the hand held device cradle. Work from this connection with the last connection being to the vehicle’s power source.
4. Route the cable from the hand held device cradle to the DC to DC converter. Cut the cable to length and strip the wire ends.

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.

5. Remove the lid from the DC to DC converter. Attach the stripped wire ends to the output side of the DC to DC converter. Attach stripped wire ends to the input side of the DC to DC converter.

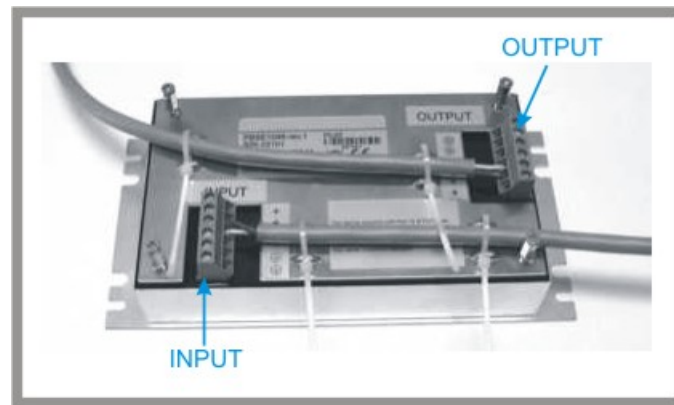


Figure 33 Input/Output – DC to DC Power Supply

6. The input and output blocks each have two + plus and two – minus connectors. Either connector in the block can be used to connect the matching polarity wire. The input and output blocks also each have two chassis ground connections. Use one chassis ground connector in each block.

Note: Wire colors depend on the type of device attached. Please refer to the illustration in Step 1 for wire colors.

Use the looms and wire ties to secure all wiring as shown then reattach the cover with the screws.

7. Connect the DC to DC converter to the vehicle's electrical system.
8. 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 the 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.*

9. 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.
10. 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.

Maintenance

Cradle

The cradle is replaced at no charge during a Preventive Maintenance Inspection (does not apply to the MX3-RFID passive cradle).

Check the cradle regularly for excessive wear at pressure points. If the cradle becomes cracked or broken at any time, it must be taken out of service and replaced. Contact LXE Customer Service for a replacement cradle (see "Contacting LXE").

Vehicle Mount

Check the vehicle bottom bracket fasteners and re-tighten if necessary. If the vehicle bracket and cradle connections become broken, loose or cracked, it must be taken out of service and replaced. Contact LXE Customer Service (see "Getting Help").

Pay particular attention to the condition of the rubber vibration isolators. If the rubber isolators become damaged in any way, the vehicle bracket must be taken out of service and the isolators replaced. Contact LXE Customer Service.

Getting Help

LXE user guides are available on CD and they can also be viewed/downloaded from the LXE ServicePass website. Contact your LXE representative to obtain the LXE Manuals CD. You can also check the LXE ServicePass website for the latest manual releases.

Note: Obsolete/archived manuals are not available on the LXE Manuals CD. They are available for download from the ServicePass website only.

You can 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.

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

Manuals and Accessories

Manuals

MX3X User Guide / MX3X Reference Guide / MX3Plus Multicharger User Guide
MX3Plus User Guide / MX3Plus Reference Guide

Accessories

Note: Because cradle and cradle accessories continue to evolve and improve, please contact your LXE representative for current releases and availability.

MX3002DSKCRDL	Desk Top Cradle with Serial RS-232 ActiveSync Support
MX3RA003VMCRADLE	Vehicle Mount Cradle with Serial RS-232 Interface to scanners and printers
9000005VMCRADLE	Vehicle Mount Cradle, 19.2K Baud Rate
MX3A378BATT	Main Battery, Lithium Ion
9000A079CBL12ML3	Power Adapter, Bare Wire 12 VDC
9000A301PSACUS	AC Power Supply, US, trickle charger
9000A322PSACWW	AC Power Supply, Worldwide, trickle charger
9000090CABLE	AC Power Cable, C14 type, Schuko (EUROPEAN)
9000091CABLE	AC Power Cable, C14 type, Denmark 3-pin
9000092CABLE	AC Power Cable, C14 type, Italy 3-pin
9000093CABLE	AC Power Cable, C14 type, Switzerland 3-pin
9000094CABLE	AC Power Cable, C14 type, British 3-Blade
9000303PWRSPPLY	Power Supply, Cigarette Lighter Adapter, Not RoHS
9000A066CBLPWAC	AC Power Cable, US
9000053CABLE	Cable, Null Modem, Printer/PC, D9F to D25F, 6ft, Not RoHS
9000A054CBL6D9D9	Cable, Serial Null Modem, PC, D9F to D9F, 6ft, ActiveSync from endcap
MX3068CABLE	Cable, USB Host D9F to USB Type A Host Receptacle (female), 6 ft
MX3069CABLE	Cable, USB Client D9F to USB Client Type A Plug (male), 6 ft, USB ActiveSync from endcap
MX3070CABLE	Serial Active Sync Cable, RS232 D9F to D9F, 6 ft, for Desktop Cradle connection only
MX3071CABLE	Cable, USB Host to USB Host, D9F to USB Type B Host Plug, 6 ft, Not RoHS
MX3072CABLE	Cable, USB Host to USB Host, D9F to USB Type B Host Plug, 6 ft
9000076CABLE	MX3X Headset coiled adapter cable, includes quick disconnect headset connector to a 2.5 mm audio jack. A headset is still required.

Note: When using the 8500 Series tethered scanners (LS3408), the tethered scanner Power Mode must be set to “Reduced Power Mode” to conserve the device’s main battery life. The reduced power mode setting will not impact performance of the 8500 series scanner. The default mode is “Continuous On”. Please refer to the tethered scanner manufacturer’s user guide for instruction.

Appendix A Regulatory Notices and Safety Information

Notice:

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

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.

Cradle Approvals

Product	EMI / EMC Standards	Safety Standards
SC/VC-2381	FCC Part 15 Subpart B, Class A EN 55022:1998, (CISPR 22:1997) Class A EN 55024:1998 Industry Canada Class A	UL 1950; CSA C22.2 No. 950 CDRH: 21 CFR 1040.10 and 1040.11 EN 60825-1 EN 60950 IEC 825-1 IEC 950



Important: This symbol is placed on the product to remind users to dispose of Waste Electrical and Electronic Equipment (WEEE) appropriately, per Directive 2002-96-EC. In most areas, this product can be recycled, reclaimed and re-used when properly discarded. Do not discard labeled units with trash. For information about proper disposal, contact LXE through your local sales representative, or visit www.lxe.com.



A/C Power Supply Safety Statement – MX3 Output Rated 12 VDC, 1 A.



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-tehonsyöttölaiteen 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 kullanılmak 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 5A 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 5A 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 5 ampere. (DK)

Kytchentä ajoneuvon virtalähteeseen

Jos virtaa otetaan suoraan akusta, 5 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 5A-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 5Α 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 5 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 5 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 5A 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 5 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 5A-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 5A'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 10/01/2001

Appendix B Obsolete Equipment

Obsolete Devices

Manuals for obsolete devices can be downloaded from the LXE ServicePass website. Contact your LXE representative for replacement or availability of cradles and cables for obsolete devices.

The mobile device must have a main battery installed when it is docked in a cradle.



Device	Operating System	Main Battery	Cradle
MX3	ROM-DOS	2381A376BATT1600	2381A001DESKCRADLE
MX3-CE	Windows CE 3.0	2381A376BATT1600 (MX3A378BATT)	2381A001DESKCRADLE MX3RA003VMCRADLE
MX3-RFID	Windows CE .NET 4.2	MX3A380RFIDBATT	MX3XA001RFIDCRADLE
MX3P	Windows CE .NET 4.2	(MX3A378BATT)	MX3XA001RFIDCRADLE

MX3-RFID Device, MX3P Device and the Passive Vehicle Cradle

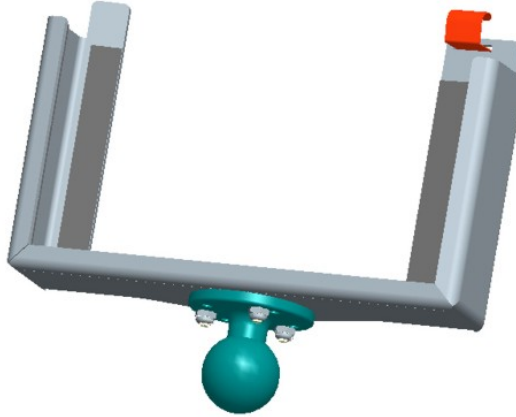
The MX3-RFID and the MX3P device do not fit in the standard MX3 powered cradles. A passive vehicle cradle is available for these device that secures the device to the cradle only. See section titled “Accessories”.

Main battery charging and host communication is not available directly through the passive vehicle cradle. The passive vehicle cradle does not have LEDs or indicators. It does not accept DC power connection. These mobile devices can be directly connected to external power through the power jack located on the endcap. Host communication is available wirelessly while the mobile device is secured in the passive vehicle cradle.

Passive Vehicle Mount Cradle

The passive vehicle mount cradle is designed for the MX3-RFID and MX3P devices ONLY. The cradle restrains the mobile device. The cradle is designed to be securely mounted to a vehicle. The

passive cradle does not have external device connectors e.g. power/serial cable. Power can be applied to the mobile device through the power jack in the endcap only. Wireless client interaction is available as long as the mobile device has sufficient energy in the main battery pack and a clear signal path.



MX3-RFID Passive Cradle with Attached RAM Ball

The cradle is lined with strips of hook-and-loop fabric to ensure a snug fit between the mobile device and the inside of the cradle.

A thumb-spring at the top of the cradle secures the mobile device in the cradle.

Hold the thumb spring up and slide the device into the cradle, release the thumb spring and it will click in place.

The mobile device is removed from the cradle by pressing the thumb spring up and then grasping the mobile device and pulling it straight up and away from the cradle.

The vehicle cradle should be mounted in an area in the vehicle where it:

- Does not obstruct the driver's vision or safe vehicle operation.
- Will be protected from rain or inclement weather.
- Will be protected from extremely high concentrations of dust or wind-blown debris.
- Can be easily accessed by a user seated in the driver's seat.

A RAM ball cylinder mounting option is used to secure the cradle to the vehicle. A RAM ball may be pre-installed to the cradle by LXE.

Check the cradle regularly for excessive wear at pressure points. If the cradle becomes cracked or broken at any time, it must be taken out of service and replaced. Contact LXE Customer Service for a replacement MX3-RFID passive cradle.

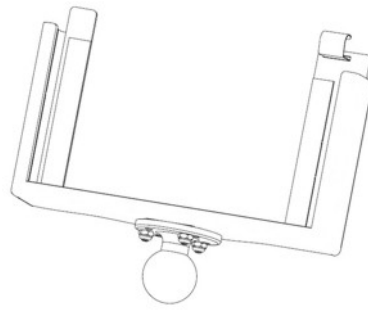
Before installation begins, verify you have the applicable vehicle mounting RAM ball assembly components necessary for your mount type, as shown in the section titled "Passive Cradle Assembly Components".

Do not slide the mobile device into the passive cradle until the cradle is securely fastened to the vehicle.

Passive Cradle Assembly Components

Note: LXE does not supply the bolts or washers needed when mounting the RAM ball to the vehicle chassis. LXE recommends using bolts with a maximum 10/32" (0.3125) diameter.

Passive Cradle



RAM Ball and Arm Cylinder



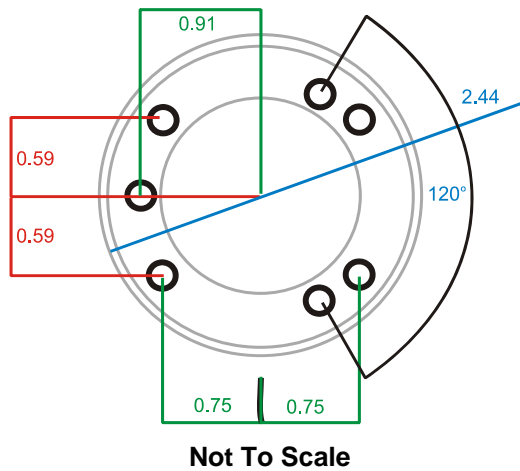
RAM Bracket Kit Components



Mount the RAM ball to the bottom of the cradle with the bolts, washers and nuts supplied by LXE.

- Qty 4 - Hex Cap 1/4-20 x 3/4 bolts
- Qty 4 - 1/4 flat washer
- Qty 4 - 1/4-20 nylon insert lock nuts

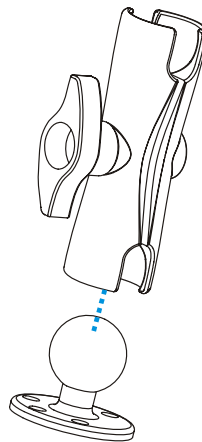
RAM Mount Assembly



RAM Assembly Footprint

Note: LXE does not supply the bolts or washers needed when mounting the RAM ball to the vehicle chassis. LXE recommends using bolts with a maximum 10/32" (0.3125) diameter.

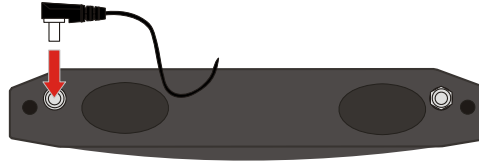
1. Attach the RAM ball to the vehicle, making sure it does not impede safe operation of the vehicle.
2. If necessary, fasten the upper RAM ball assembly to the base of the passive cradle using the supplied bolts, washers and screws.
3. Loosen the turn screw on the RAM arm, place the lower socket over the vehicle mounted RAM ball, then the other arm socket over the RAM ball mounted to the cradle.



4. Tighten the arm turn screw until the cradle is secured to the RAM arm and the vehicle.
5. The MX3-RFID passive vehicle mounted cradle is ready for use.

Connect External Power Supply to the MX3-RFID and MX3P

The DC power jack is located on the endcap. The passive cradle does not have a power jack.



Connect External Power Supply

1. Insert the barrel connector into the power jack on the mobile device endcap and push in firmly.
2. The CHGR LED above the keypad illuminates when the mobile device is receiving external power through the power jack.

See section titled “LED Functions” in the “MX3X User Guide” for explanations of the LEDs for the BATT B and BATT M illuminations.

MX3P Specific Power Accessories

Part Number	Description
9000A060CBL12V	POWER CABLE, BARE WIRE, 12 FT, 12V, DC JACK
9000A316PS24V72VMX3P	PS, 24V-72V, BARE WIRE INPUT, MX3P OUTPUT

**24/72 Maximum VDC Power Supply
Input/Output Cable Connection (MX3P)**

Caution



For proper and safe installation, the input power cable must be connected to a fused circuit on the vehicle. This fused circuit requires a 5 Amp maximum time delay (slow blow) 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.

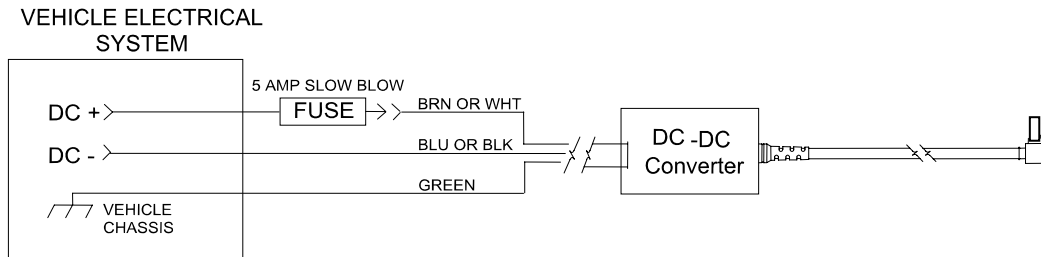
Recommended for vehicle electrical systems that use between 2 and 5 twelve volt batteries in series.



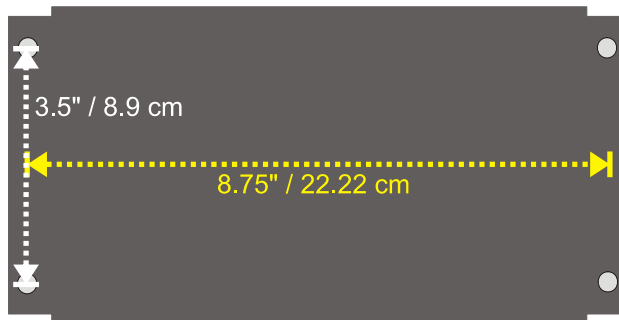
LXE Part Number: 9000A316PS24V72VMX3P

- 5. Power Switch
- 6. Power On Indicator
- 7. Output to MX3P
- 8. Input from Vehicle Battery

Vehicle Power Supply, 24 – 72 Maximum VDC (Fuse Not Shown)



Connecting the Power Supply to the MX3P Endcap Power Jack



- Power Supply Dimensions
- Length 9.25"
 - Height 2.5"
 - Width 4.7"
 - Mounting hole center Width: 3.5"
 - Mounting hole center Length: 8.75"

DIAGRAM IS NOT TO SCALE

Vehicle Power Supply Footprint

1. If the mobile device is in the cradle, it can be either On or in Suspend Mode during this process.
2. Turn the Power Supply toggle switch to the Off position.
3. 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 the vehicle fuse panel, after providing proper fusing.

IMPORTANT:

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

4. Route the cable the shortest way possible. The input cable from the connection to the battery is rated for a maximum temperature of 60°C (140°F). When routing this cable it should be protected from physical damage and from surfaces which might exceed this temperature.

Additionally 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 Controlled 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 the operator's 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.

Wiring color codes for LXE supplied DC input power cabling:

Vehicle Supply		Wire Color
+24-72 Max VDC	(DC +)	Brown or White
Return	(DC -)	Blue or Black
Vehicle Chassis	(GND)	Green

Vehicle Connection Wiring Color Codes

Note: The input power cord for the DC-DC Power Supply uses white, black and green wires. Some LXE products have DC input power cords with brown, blue and green wires. The previous table shows the correct electrical connection for either type of cable.

5. 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.
6. Connect the Power Supply to the MX3P by plugging the computer end into the Power Jack on the endcap.
7. Turn the Power Supply on. The ON LED on the Power Supply illuminates when it is receiving power from the vehicle.
8. The mobile device CHGR LED illuminates.

12V VDC Power Cable Connection (MX3P)

9000A060CBL12V	POWER CABLE, BARE WIRE, 12 FT, 12V, DC JACK
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If the mobile device is in the cradle, it can be either On or in Suspend Mode during this process.

Connect the two-wire end of the power cable to the 12V power source battery terminals.

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.

Connect the 12V power source to the MX3P by plugging the computer end into the Power Jack on the endcap.

The mobile device CHGR LED illuminates.

Revision History

Revision G – July 2006

Power Supplies	Updated “Vehicle Cradle 24/72 Maximum VDC Input Cable Connection”.
Passive Vehicle Mount Cradle	Added installation information “Connect External Power Supply for the MX3P” for the unique MX3P power cabling options.
Accessories	Updated “Cradle Power Supplies”. Updated cradle part numbers to ROHS (e.g. 2381A002 is now MX3RA002)
Entire Manual	Added MX3P data where applicable. E.g. “Identify Your MX3 Device”, etc.

Revision F – March 2006

MX3 Cradles	Added “MX3-RFID Device and LXE Cradles”. Added installation instruction for passive MX3-RFID vehicle cradle, “Passive Vehicle Mount Cradle”. Renamed “Vehicle Mount Cradle” to “Powered Vehicle Mount Cradle”. Removed “Important MX3 Battery Charger Version Information”. Added “Revision History”.
Entire Manual	Upgraded equipment Figures displaying the new LXE logo.

Revision E – Sept 2005

Cover Page	Updated document presentation to reflect LXE’s 2005 documentation standards. Added new LXE logo.
Entire Manual	Added WEEE statement to “Notices”. Updated Current/Obsolete MX3 listings. Updated “Accessories”. Added WEEE statement to Appendix A “Regulatory Notices and Safety Information”. Added Figure Caption to “Correct Vehicle Cradle U-Bracket Installation.”

Revision D – June 2004

Entire Manual	Added information relating to the types of MX3 family of mobile devices that are compatible with the MX3 Cradle. Removed LXE order number for the LXE Manuals CD. Added updated photographs. Added correct Vehicle Cradle U-Bracket Installation figure and explanatory text.
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Revision C – June 2002

Entire Manual	Removed Revision indicator from footer. Added new document ID number to footer. Removed all instances of “LXtrEme”. Replaced “Molex connector” with “keyed water tight connector”.
Regulatory Notices Manuals and Accessories Appendix A	Moved Regulatory Notices to Appendix A. Added “Getting Help” section. New appendix “Regulatory Notices and Safety Statements”.

Revision B – Nov 2001

Regulatory Notices	Added copyright information for Adobe Acrobat. Added Vehicle Power Supply Connection Safety Sheet. Added Optional A/C Power Supply Safety Sheet.
Manuals and Accessories	Removed "Contacting LXE" section. The information is available on the LXE Manuals CD, in the file titled "Contacting LXE". Added LXE order number for the LXE Manuals CD to the section titled "Manuals".

Revision A – Oct 2000, Initial Release

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