Introduction

Cradles are optional devices which can be used for charging the terminal’s battery and for communicating with the host or with other cradle chains (Series 3000, 4100).

The PPT 4600 offers several cradle configurations: a standard cradle that can be tabletop- or wall-mounted, and a cradle for vehicle use.

About This Guide

This guide provides the operator and system administrator instructions for mounting and connecting the standard cradles. Information on the vehicle mounted cradle can be found in Vehicle Mount Cradle Quick Reference Guide, p/n 70-17024-0X.
Parts of the Cradle (Front View)

- Infrared Optics
- Terminal Insertion Slot
- Power LED
- Spare Battery Charging Slot
- Cradle Interlocking Groove
- Spare Battery Charging LED
Parts of the Cradle (Back View)

- **Master**:
  - Locking Mechanism
  - Power In
  - Connection to Next Cradle
  - Line to Modem
  - Switch (Host/3000, 4100, IPL)

- **Slave**:
  - Locking Mechanism
  - Power In
  - Connection to Previous or Master Cradle
  - Connection to Next Cradle

**Quick Reference**
Desk Mounting
The PPT 4600 cradle can be placed on a desk or mounted on a wall.

For desk mounting, first secure the cradle to the mounting base:

1. Verify that you have the following items:
   • Cradle body
   • mounting base
   • two phillips head screws
2. Slide the base onto the bottom of the cradle, aligning the rectangular notches on the base to the prongs on the cradle.
3. Fasten the base to the cradle with two screws.

The base can be freestanding or used to secure the cradle to a hard, stable surface. The base also can be used to lock several cradles together.

To mount one cradle:
   1. Position the cradle on a flat, stable surface, clear of debris.
   2. Position the cylindrical spacer under the mounting hole on the notched side of the base (to provide support).
   3. Insert a phillips-head screw in each of the mounting holes and secure the cradle to the desktop.

To mount and lock several cradles together:
   1. Position the notches on the side of one cradle base over the groove in the next cradle base, align the holes, and fasten together with the #8 phillips-head screw provided.
2. Position the cylindrical spacer under the mounting hole of the base with a free notched side.

3. Secure the cradles to the flat surface, if desired, using the appropriate hardware.

To mount standard cradles for use with full-VGA terminals, use the plastic, oval spacer between the cradle bases to ensure that there is enough room for the terminals when seated side by side in the cradles. Position and secure the spacer as you would a regular cradle base.
Wall Mounting

An optional metal bracket is available from Symbol as part of a kit for mounting the cradle to a wall. Contact a Symbol sales representative to order.

To wall mount the cradle:

1. Verify that you have the following items in the mounting kit.
   - mounting bracket
   - 3 screws for fastening the bracket to the cradle
2. Place the mounting bracket to the selected position on the wall, as shown below.
   
   **Note:** To wall-mount more than one cradle, position the mounting brackets side by side. The brackets can be touching for half VGA terminals, or spaced accordingly for full-VGA terminals (9.5 inches from bracket center to bracket center).

3. Insert four mounting screws and fasten for position. Do not tighten down yet.
4. Remove the bracket from the wall (leaving the screws) and attach it to the cradle.
   a. Slide the bracket on the bottom of the cradle, aligning the rectangular notches on the bracket to the prongs on the cradle base (see below).
   b. Secure the bottom of the bracket to the bottom of the cradle with two screws.
   c. Secure the top of the bracket to the back of the cradle with one screw.

5. Place the mounting bracket with the cradle attached on the wall, over the screws installed in Step 3.
6. Slide the bracket down into place, and tighten the four screws.

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**Quick Reference**
Cradle Connections

The PPT 4600 uses two types of cradles, a “master” and a “slave” cradle for performing communications. The master cradle can connect up to 59 slave cradles to a PC, Series 3000 cradle chain, or PPT 4100 cradle chain, at baud rates ranging up to 38,400 bps. The configuration is shown below:
Cradle Interconnect Cables

<table>
<thead>
<tr>
<th>Type of Connection</th>
<th>Interconnect Cable Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>4600 Cradle to PC/Printer,</td>
<td>RS-232 Null Modem DB25 Male to</td>
</tr>
<tr>
<td>Series 3000 Cradle Chain,</td>
<td>DB25 Female: 25-15749-01</td>
</tr>
<tr>
<td>or Series 4100 Cradle Chain</td>
<td>Straight-through DB25 Male to</td>
</tr>
<tr>
<td></td>
<td>DB25 Female: 25-15750-01</td>
</tr>
<tr>
<td>Modem</td>
<td>Straight-through DB25 Male to</td>
</tr>
<tr>
<td></td>
<td>DB25 Female: 25-15750-01</td>
</tr>
<tr>
<td>Between Master and Slave Cradles</td>
<td>25-14051-02</td>
</tr>
<tr>
<td>Between 2 Slave Cradles</td>
<td>25-14051-02</td>
</tr>
</tbody>
</table>

Connect Master Cradle to Host

The master cradle includes the communications port required for communicating with the host PC or other cradle chain.

**To connect a master cradle to the host:**

1. Insert one end of the RS-232 or null modem cable into the host’s COM port.
2. Plug the other cable connector in the master cradle’s ESD DTE port.

3. Set the switch on the back of the master cradle as follows:
   - Set to Host/3000 for standard communications
   - Set to 4100 for communicating via a 4100 cradle chain
   - Set to IPL for an IPL download.

4. Plug the power supply jack in the Power In port on the back of the cradle.

5. Connect the power plug to a standard electrical outlet.

Quick Reference
Connecting Master Cradle to Other Cradle Chains

To connect the PPT 4600 master cradle to a Series 3000 cradle chain or a PPT 4100 cradle chain:

1. Power off the master cradle (pull the power supply jack out of the Power In connection).
2. Connect the master cradle to the 4100 cradle OR Series 3000 cradle using the appropriate Series 3000 or 4100 interconnect cable. (See the table on page 12.)
3. Set the switch on the back of the master cradle as follows:
   • Set to Host/3000 for Series 3000 connection.
   • Set to 4100 for PPT 4100 connection.
4. Plug the power supply jack in the Power In port.

Note: If you change the master cradle’s switch setting, you must power the master cradle down and back up for the change to take effect.
Connect Slave Cradle to Master Cradle

Slave cradles can be distinguished from master cradles by the connectors on the back of the cradle. Master cradles include a DB25 connector for communicating with the host; slave cradles do not have the DB25 connector.

Back of Slave Cradle

To connect a slave cradle to a master cradle:

1. Place the cradles side-by-side so that their bases interlock.
2. Plug one end of the appropriate cradle interconnection cable in the master cradle’s port to next cradle.
3. Plug the other end of the cradle interconnect cable in the slave cradle’s I/O port.

4. Plug the power supply jack in the Power In port on the slave cradle.

5. Connect the power supply plug to a standard electrical outlet.

Note: Each cradle must have its own power supply. Any other power hookup does not supply adequate power for reliable operation.
Connecting Slave Cradle to Slave Cradle

Up to 59 slave cradles can be chained together via a single master cradle. To connect the slave cradles together:

1. Place the cradles side-by-side so the bases interlock.
2. Plug one end of the appropriate cradle interconnection cable in one slave cradle’s port to the next cradle.
3. Plug the other end of the cradle interconnect cable to the next slave cradle’s I/O port.
4. Verify that each cradle has its own power supply to ensure reliable operation.

Cradle Self Test

On power up, the master cradle runs a self test which checks the RAM, ROM, and UART. The LED flashes during the self test. The master cradle’s POWER LED reveals the status as follows:

<table>
<thead>
<tr>
<th>LED Condition</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power up/Self-Test (5 flashes/second -&gt; solid on)</td>
<td>No error in RAM, ROM, or UART</td>
</tr>
<tr>
<td>LED flashing slowly (7 flashes/second)</td>
<td>RAM test failure</td>
</tr>
<tr>
<td>LED flashing moderately (10 flashes/second)</td>
<td>ROM (CRC on flash) failure</td>
</tr>
<tr>
<td>LED flashing rapidly</td>
<td>UART failure</td>
</tr>
</tbody>
</table>

Quick Reference
If the cradle fails self test (RAM, ROM or UART failure), power the terminal down and back up. If the self test fails again, call the Symbol Support Center for assistance.

**Placing the Terminal in Cradle**

The cradle enables communications between the PPT 4600 and a computer, printer, modem, or other peripheral device.

1. Slide the terminal into a master or slave cradle and push back to lock in place.
2. The terminal powers on automatically. The terminal’s Communications LED turns solid amber if the terminal is enabled, and flashes if the terminal also has control of the bus. The Communications LED does not light if the cradle is not enabled, or the terminal is not seated in the cradle properly.

3. Use a mini-combination or key lock to secure the terminal in the cradle. (Lock not included).

Removing the Terminal

1. If necessary, unsecure and remove the lock.
2. Press the release button on the top of the cradle.
3. Pull the terminal forward and lift out of the cradle.

Caution
Removing the terminal from the cradle when the COMMUNICATIONS LED is blinking may disrupt communications between the terminal and host.

Quick Reference
Recharging the Battery in the Terminal

The cradle automatically recharges the battery when the terminal is properly inserted in the cradle.

**Note:** Charge the battery fully before using the terminal.

**Note:** To avoid loss of data, ensure that a terminal placed in the cradle has a battery installed.

To charge a battery pack in the terminal:

1. Verify that the cradle has power.
   a. Connect the cradle’s power supply jack to the power connector on the back of the cradle.
   b. Connect the power supply plug to a standard electrical outlet.
      The Power LED appears green when the cradle has power.
2. Insert the terminal in the cradle and verify that it is properly seated. The terminal automatically powers on and the Battery Charging LED turns amber if the battery is not fully charged.
3. The terminal’s Battery Charging LED shows amber while charging. When the battery pack is close to being charged, the LED toggles between amber and green, and switches to solid green once the pack is fully charged.
4. Leave the terminal in the cradle for a minimum of 1 hour. The cradle requires up to 2 hours to recharge a fully discharged battery.

   To prevent overcharging, the cradle power shuts off once the battery is fully charged.

Quick Reference
Recharging the Spare Battery Pack

To recharge a spare battery pack out of the terminal:

1. Verify that the cradle has power.
   a. Connect the cradle’s power supply jack to the power connector on the back of the cradle.
   b. Connect the power supply plug to a standard electrical outlet. The cradle powers on, and the Power LED appears green.
2. Insert the battery pack in the charging slot until it is firmly seated.
3. The battery begins charging immediately.
4. Check the cradle LEDs to determine the spare pack’s charging status.
   • If the Spare Battery Charging LED is amber, the pack is still charging and should not be used.
   • The LED toggles between amber and green when the pack is close to being fully charged.
   • When the LED changes to green, the battery pack is fully charged.
5. When the pack is fully charged, you may remove the battery from the charging slot. Depress the battery pack release switch and lift the pack out of the charging slot.

To prevent overcharging, the cradle power shuts off once the battery is fully charged.

Quick Reference
# Indicator Lights

<table>
<thead>
<tr>
<th>LED</th>
<th>LED Color</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cradle: Power LED</td>
<td>Green</td>
<td>Power on.</td>
</tr>
<tr>
<td>Cradle: Battery Charging LED</td>
<td>Green</td>
<td>Spare battery in cradle slot is fully charged OR No spare battery in cradle.</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Spare battery charging.</td>
</tr>
<tr>
<td></td>
<td>Amber &lt;&gt; Green</td>
<td>Spare battery is ALMOST fully charged.</td>
</tr>
<tr>
<td>Terminal: Battery Charging LED</td>
<td>Amber</td>
<td>Battery pack in terminal is charging.</td>
</tr>
<tr>
<td></td>
<td>Amber &lt;&gt; Green</td>
<td>Spare battery is ALMOST fully charged.</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Battery pack in terminal is fully charged.</td>
</tr>
<tr>
<td>Terminal: COMM LED</td>
<td>Off</td>
<td>Cradle mode disabled and/or terminal not in cradle.</td>
</tr>
<tr>
<td></td>
<td>Solid Amber</td>
<td>Cradle mode enabled and terminal in cradle. Terminal not controlling the bus.</td>
</tr>
<tr>
<td></td>
<td>Flashing Amber</td>
<td>Cradle mode enabled and terminal in cradle. Terminal is controlling the bus.</td>
</tr>
</tbody>
</table>
## Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Probable Cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No communication between terminal and cradle</td>
<td>Cradle driver not loaded.</td>
<td>Ensure that the cradle driver is loaded.</td>
</tr>
<tr>
<td></td>
<td>Cradle mode not enabled.</td>
<td>Enable cradle mode via the appropriate API.</td>
</tr>
<tr>
<td></td>
<td>Terminal improperly installed in cradle.</td>
<td>Remove terminal from cradle and re-insert.</td>
</tr>
<tr>
<td>Rechargeable battery in terminal or spare battery did not charge</td>
<td>Battery failed.</td>
<td>Replace battery.</td>
</tr>
<tr>
<td></td>
<td>Terminal or battery was removed from cradle too soon OR Battery or terminal improperly installed in cradle.</td>
<td>Replace terminal and/or spare battery in cradle and begin charging over. Battery requires 2 hours to recharge fully.</td>
</tr>
</tbody>
</table>
Regulatory Information

Radio Frequency Interference Requirements
This device has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the Federal Communications Commissions Rules and Regulation. 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.

However, there is no guarantee that interference will not occur in a particular installation. If the equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Quick Reference
Radio Frequency Interference Requirements - Canada
This Class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations. Cet appareil numérique de la Classe A respecte toutes les exigences du Reglement sur le Materiel Brouilleur du Canada.

CE Marking and European Union Compliance

Products intended for sale within the European Union are marked with the CE Mark which indicates compliance to applicable Directives and European Normes (EN), as follows. Amendments to these Directives or ENs are included:

Applicable Directives
Electromagnetic Compatibility Directive 89/336/EEC
Low Voltage Directive 73/23/EEC

Applicable Standards
EN 55 022 - Limits and Methods of Measurement of Radio Interference Characteristics of Information technology Equipment
IEC 1000-4-2(1995-01) - Electromagnetic compatibility (EMC) - Part 4: Testing and measurement techniques - Section 2: Electrostatic discharge immunity test.
IEC 1000-4-3(1995-03) - Electromagnetic compatibility (EMC) -
Part 4: Testing and measurement techniques - Section 3:
Radiated, radio-frequency, electromagnetic field immunity test.

EN 60 950 + Amd 1 + Amd 2 - Safety of Information Technology
Equipment Including Electrical Business Equipment

The Load Number (LN) assigned to each terminal device
denotes the percentage of the total load to be connected to the
telephone loop which is used by the device, to prevent
overloading. The termination of a loop may consist of any
combination of devices, subject only to the requirement that the
total of the Load Numbers of all devices not exceed 100.

The Load Number is located on a label on the product.

Contact your local Symbol Technologies, Inc., representative for
service and support;

Symbol Technologies, Inc.,
Canadian Sales and Service
2540 Matheson Boulevard East
Mississauga, Ontario
Canada L4W 4Z2
Phone - 905 629 7226

L’étiquette d’Industrie Canada indentifie le matériel
homologué. Cette étiquette certifie que le matériel est conforme
certaines normes de protection, d’exploitation et de sécurité
des réseaux de télécommunications. Toutefois, le Ministère
n’assure pas que le matériel fonctionnera a la satisfaction de
l’utilisateur.

Avant d’installer ce matériel, l’utilisateur doit assurer qu’il soit
permis de la raccorder aux installations de l’entreprise locale de

Quick Reference
télécommunications. Le matériel doit également être installé en suivant une méthode de acceptée raccordement. Dans certains cas, les fils intérieurs de l’entreprise utilisés pour un service individuel à ligne unique peuvent être prolongés au moyen d’un dispositif de raccordement homologué (cordon rallonge téléphonique interne). L’abonné ne doit pas oublier qu’il est possible que la conformité aux conditions énoncées ci-dessus n’empêchent pas la dégradation du service dans certaines situations. Actuellement, les entreprises de télécommunication ne permettent pas que l’on raccorde leur matériel à des jacks d’abonné, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d’entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunication peut demander à l’utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectuées par l’utilisateur, ou à cause de mauvais fonctionnement.

Pour sa propre protection, l’utilisateur doit assurer que tous les fils de mise à la terre de la source d’énergie électrique, des lignes téléphoniques et des canalisations d’eau métalliques, s’il y en a, soient raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement: L’utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours aux services d’un électricien.

L’indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut
être constituée de n’importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l’ensemble des dispositifs ne dépasse pas 100.

L’indice de charge se trouve sur le produit.

RF Devices
Symbol’s RF products are designed to be compliant with the rules and regulations in the locations into which they are sold and will be labeled as required. The majority of Symbol’s RF devices are type approved and do not require the user to obtain license or authorization before using the equipment. Any changes or modifications to Symbol Technologies equipment not expressly approved by Symbol Technologies could void the user’s authority to operate the equipment.

Service Information
Before you use a terminal, it must be configured to operate in your facility’s network and run your applications. If you have a problem with running your terminal or using your equipment, contact your facility’s Technical or Systems Support. If there is a problem with the equipment, they will contact the Symbol Support Center:

1-800-653-5350
Outside North America, contact your local Symbol representative.

Warranty
Symbol Technologies, Inc. (“Symbol”) manufactures its hardware products in accordance with industry-standard practices. Symbol warrants that for a period of twelve (12)
months from date of shipment, products will be free from
defects in materials and workmanship.

This warranty is provided to the original owner only and is not
transferable to any third party. It shall not apply to any product
(i) which has been repaired or altered unless done or approved
by Symbol, (ii) which has not been maintained in accordance
with any operating or handling instructions supplied by
Symbol, (iii) which has been subjected to unusual physical or
electrical stress, misuse, abuse, power shortage, negligence or
accident or (iv) which has been used other than in accordance
with the product operating and handling instructions.
Preventive maintenance is the responsibility of customer and is
not covered under this warranty.

Wear items and accessories having a Symbol serial number, will
carry a 90-day limited warranty. Non-serialized items will carry
a 30-day limited warranty.

**Warranty Coverage and Procedure**

During the warranty period, Symbol will repair or replace
defective products returned to Symbol’s manufacturing plant in
the US. For warranty service in North America, call the Symbol
Support Center at 1-800-653-5350. International customers
should contact the local Symbol office or support center. If
warranty service is required, Symbol will issue a Return
Material Authorization Number. Products must be shipped in
the original or comparable packaging, shipping and insurance
charges prepaid. Symbol will ship the repaired or replacement
product freight and insurance prepaid in North America.
Shipments from the US or other locations will be made F.O.B.
Symbol’s manufacturing plant.

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**Quick Reference**
Symbol will use new or refurbished parts at its discretion and will own all parts removed from repaired products. Customer will pay for the replacement product in case it does not return the replaced product to Symbol within 3 days of receipt of the replacement product. The process for return and customer’s charges will be in accordance with Symbol’s Exchange Policy in effect at the time of the exchange.
Customer accepts full responsibility for its software and data including the appropriate backup thereof.
Repair or replacement of a product during warranty will not extend the original warranty term.
Symbol’s Customer Service organization offers an array of service plans, such as on-site, depot, or phone support, that can be implemented to meet customer’s special operational requirements and are available at a substantial discount during warranty period.

**General**

Except for the warranties stated above, Symbol disclaims all warranties, express or implied, on products furnished hereunder, including without limitation implied warranties of merchantability and fitness for a particular purpose. The stated express warranties are in lieu of all obligations or liabilities on part of Symbol for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product.
Seller’s liability for damages to buyer or others resulting from the use of any product, shall in no way exceed the purchase price of said product, except in instances of injury to persons or property.
Some states (or jurisdictions) do not allow the exclusion or limitation of incidental or consequential damages, so the proceeding exclusion or limitation may not apply to you.