



MCA Interface Options

Installation Manual (Section 5949), Revision H

Specification Number: 514240, 514241, 514266, 524806 (534404, 534405, 534406), 528631

For use in Spec. Nos. 581125000, 582125000, 582125100, 582125200, 582126000 Power Systems

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ADMONISHMENTS USED IN THIS DOCUMENT



DANGER! Warns of a hazard the reader *will* be exposed to that will *likely* result in death or serious injury if not avoided. (ANSI, OSHA)



WARNING! Warns of a potential hazard the reader *may* be exposed to that *could* result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)



CAUTION! Warns of a potential hazard the reader *may* be exposed to that *could* result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)



ALERT! Alerts the reader to an action that *must be avoided* in order to protect equipment, software, data, or service. (ISO)



ALERT! Alerts the reader to an action that *must be performed* in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)



FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)



SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

IMPORTANT SAFETY INSTRUCTIONS

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page 4.

General Safety



DANGER! YOU MUST FOLLOW APPROVED SAFETY PROCEDURES.

Performing the following procedures may expose you to hazards. These procedures should be performed by qualified technicians familiar with the hazards associated with this type of equipment. These hazards may include shock, energy, and/or burns. To avoid these hazards:

- a) The tasks should be performed in the order indicated.
- b) Remove watches, rings, and other metal objects.
- c) Prior to contacting any uninsulated surface or termination, use a voltmeter to verify that no voltage or the expected voltage is present. Check for voltage with both AC and DC voltmeters prior to making contact.
- d) Wear eye protection.
- e) Use certified and well maintained insulated tools. Use double insulated tools appropriately rated for the work to be performed.

Personal Protective Equipment (PPE)



DANGER! ARC FLASH AND SHOCK HAZARD.

Appropriate PPE and tools required when working on this equipment. An appropriate flash protection boundary analysis should be done determine the “hazard/risk” category, and to select proper PPE.



Only authorized and properly trained personnel should be allowed to install, inspect, operate, or maintain the equipment.

Do not work on LIVE parts. If required to work or operate live parts, obtain appropriate Energized Work Permits as required by the local authority, per NFPA 70E “Standard for Electrical Safety in the Workplace”.

Handling Equipment Containing Static Sensitive Components



ALERT! Installation or removal of equipment containing static sensitive components requires careful handling. Before handling any equipment containing static sensitive components, read and follow the instructions contained on the Static Warning Page.

STATIC WARNING



This equipment contains static sensitive components. The warnings listed below must be observed to prevent damage to these components. Disregarding any of these warnings may result in personal injury or damage to the equipment.

1. Strictly adhere to the procedures provided in this document.
2. Before touching any equipment containing static sensitive components, discharge all static electricity from yourself by wearing a wrist strap grounded through a one megohm resistor. Some wrist straps have a built-in one megohm resistor; no external resistor is necessary. Read and follow wrist strap manufacturer's instructions outlining use of a specific wrist strap.
3. Do not touch traces or components on equipment containing static sensitive components. Handle equipment containing static sensitive components only by the edges that do not have connector pads.
4. After removing equipment containing static sensitive components, place the equipment only on conductive or anti-static material such as conductive foam, conductive plastic, or aluminum foil. Do not use ordinary Styrofoam™ or ordinary plastic.
5. Store and ship equipment containing static sensitive components only in static shielding containers.
6. If necessary to repair equipment containing static sensitive components, wear an appropriately grounded wrist strap, work on a conductive surface, use a grounded soldering iron, and use grounded test equipment.

DESCRIPTION

These instructions provide step-by-step procedures to field install one of the following MCA Interface Options onto the MCA of a Lorain® Power System.

- MCA Modem Interface Option Kit (P/N 514240)
- MCA RS 485 Interface Option Kit (P/N 514266)
- MCA RS 232/Modem Interface Option Kit (P/N 514241 or 528631)
- MCA Ethernet Interface Option Kit (P/N 524806) (Modbus® TCP and Web-Browser Interface)



NOTE! The following kits contain P/N 524806.

P/N 534404 (P/N 524806 + SNMP Software)

P/N 534405 (P/N 524806 + Battery Monitoring Software)

P/N 534406 (P/N 524806 + SNMP + Battery Monitoring Software)



NOTE! The Ethernet option requires an MCA firmware version 5.2.0 or newer.



NOTE! Only one interface option (Modem, RS 485, RS 232/Modem, or Ethernet) can be installed on the MCA.

This procedure consists of...

- Setting any Associated Jumper Option
- Installing the Option
- Cable Connection to the Option
- Accessing the MCA via the Option

Installation of this kit on other equipment should not be attempted. These instructions should be read through completely before installing the kit.

Tools Required

A cross-blade screwdriver is required to install the option.

Kit Contents

The following items are furnished as a part of this kit. Before starting the procedure, check the items furnished against those listed to ensure that there are no shortages.

MCA Modem Interface Option P/N 514240

- (1) Modem Circuit Card (Part No. 486781300) pre-assembled on a mounting bracket (Part No. 513683).

MCA RS 485 Interface Option P/N 514266

- (1) RS 485 Circuit Card (Part No. 486781400) pre-assembled on a mounting bracket (Part No. 513683).

MCA RS 232/Modem Interface Option P/N 514241 or 528631

- (1) RS-232/Modem Assembly (Part No. 513992) pre-assembled on a mounting bracket (Part No. 513683).
- (1) RS-232 Ribbon Cable Assembly.
- (1) Label (RS-232).

MCA Ethernet Interface Option P/N 524806 (Modbus[®] TCP and Web-Browser Interface), P/N 534404 (P/N 524806 + SNMP Software), P/N 534405 (P/N 524806 + Battery Monitoring Software), P/N 534406 (P/N 524806 + SNMP + Battery Monitoring Software)

- (1) Ethernet Circuit Card (Part No. 524541) pre-assembled on a mounting bracket (Part No. 524910).
- Optional P/N 525110 Front Access Ethernet Connector Kit may also be furnished, as ordered.

INSTALLATION PROCEDURES

The following are step-by-step procedures to install the kit. These procedures have been written for ease of use and to minimize the possibility of contact with potentially hazardous energy. These procedures should be performed in the sequence given, and each step should be completely read and fully understood before performing that step. All DANGERS, CAUTIONS, and WARNINGS encountered during these procedures must be carefully read and observed. As each step of the procedures are completed, the block adjacent to the respective step should be checked. This will minimize the possibility of inadvertently skipping any steps. If the step is not required to be performed for your site, also check the box to indicate that it was read.

 **NOTE!** When performing any step in these procedures which requires removal of existing hardware, retain all hardware for use in subsequent steps, unless otherwise stated.

Setting Jumper Options

MCA Local and Remote Access Lockout Switches (Main Bay Only)

These switches are located on the MCA circuit card. Refer to **Figure 1** or **Figure 2**.

The following procedure enables/disables changing adjustment/configuration/calibration settings via the MCA's Local Interface Pad (locally) or via the MCA's remote interface port(s) (remotely).

Set the switches per site requirements.

Procedure

- [] 1. Open the front door of the Distribution Cabinet by turning and holding the captive fastener in the counterclockwise position.
- [] 2. Remove the clear plastic panel that covers the circuit cards at the bottom of the cabinet. To do so, loosen but do not remove the two screws that secure the cover. Slide the cover to the front until the screw heads clear the keyhole slots in the cover. Then lift the cover out of the cabinet.



WARNING! Damage to a circuit card may result if the next step is not followed.

- [] 3. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
- [] 4. Locate the metal shield that covers the top of the MCA Main Controller circuit card. Loosen but do not remove the five Phillips screws that secure the metal shield. Remove the shield by sliding toward the rear until the screw heads clear the slots in the shield. Lift the shield from the assembly.

or

Spec. No. 582126000 only: Locate the metal bracket that is under the Rectifier Shelf Interface circuit card. Loosen but do not remove the four Phillips screws that secure the metal bracket. Remove the metal bracket with the Rectifier Shelf Interface circuit card by sliding toward the rear of the MCA assembly until the screw heads clear the slots in the bracket. Lift the bracket and circuit card to gain access to switch S1 on the MCA Main Controller circuit card that is beneath the bracket.

- [] 5. Refer to **Figure 1** or **Figure 2**, and locate switch S1 on the MCA Main Controller circuit card.
 - To disable changing MCA settings locally, place switch 2 of S1 in the ON position.

To enable changing MCA settings locally, place switch 2 of S1 in the OFF position.

- To disable changing MCA settings remotely, place switch 3 of S1 in the ON position.

To enable changing MCA settings remotely, place switch 3 of S1 in the OFF position.

- [] 6. Reinstall the previously removed metal shield that covers the top of the MCA Main Controller circuit card. Secure by tightening the five Phillip screws.

or

Spec. No. 582126000 only: Reinstall the previously removed metal bracket and Rectifier Shelf Interface circuit card. To do so, place the bracket on its four mounting posts so that the mounting screw heads pass through the slots in the bracket. Slide the bracket toward the front of the MCA assembly. Tighten the four screws.

- [] 7. Reinstall the clear plastic cover in the bottom of the cabinet. To do so, place the cover on its two mounting posts so that the mounting screw heads pass through the keyhole slots in the cover. Slide the cover towards the back. Tighten the two screws.
- [] 8. Remove the grounding wrist strap.
- [] 9. Close the Distribution Cabinet's front door. The door can be shut without turning the captive fastener.

Figure 1: Location of MCA Remote and Local Access Lockout Switch S1 on MCA Main Controller Circuit Card (all Spec. Nos. except 582126000)

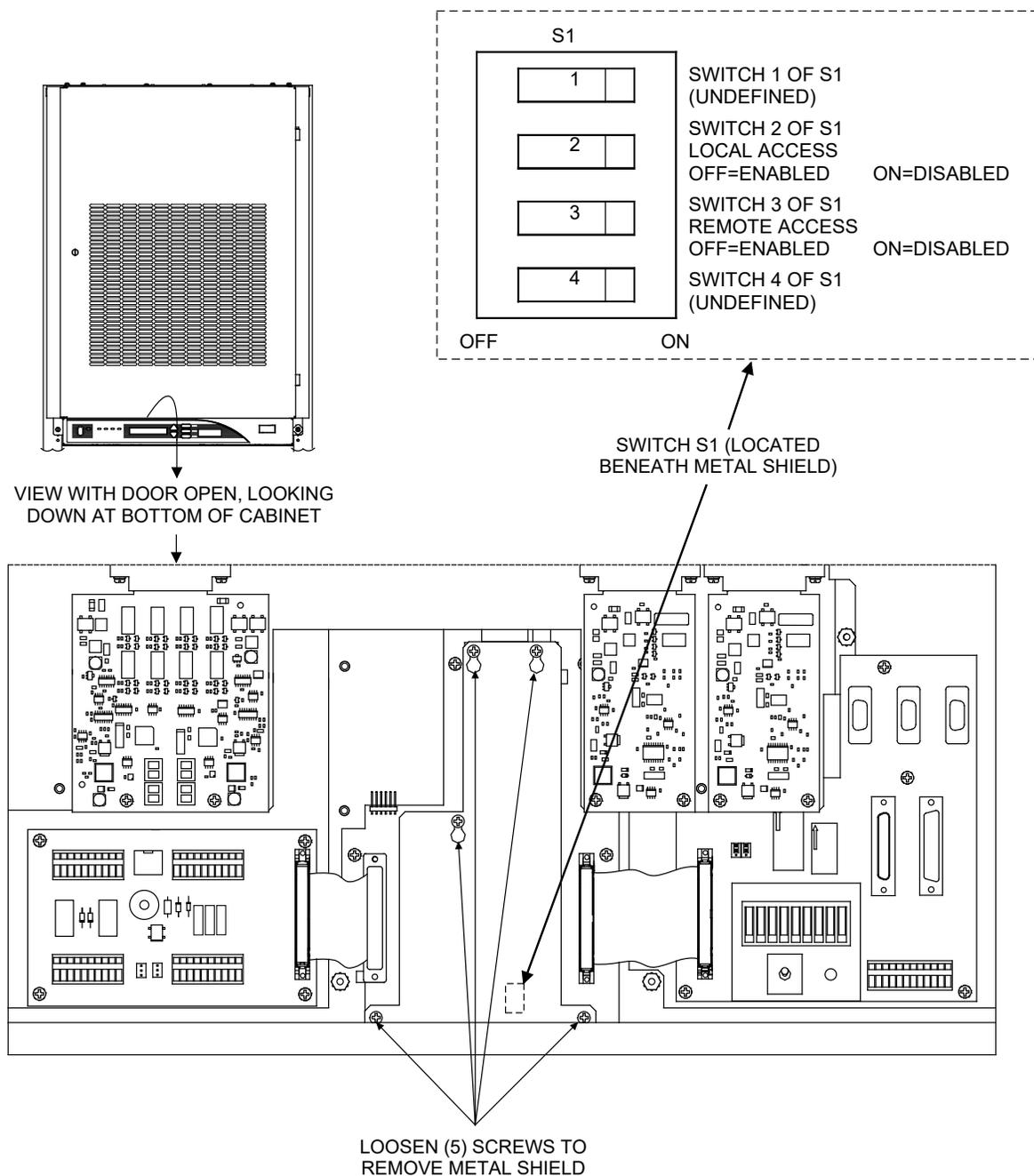
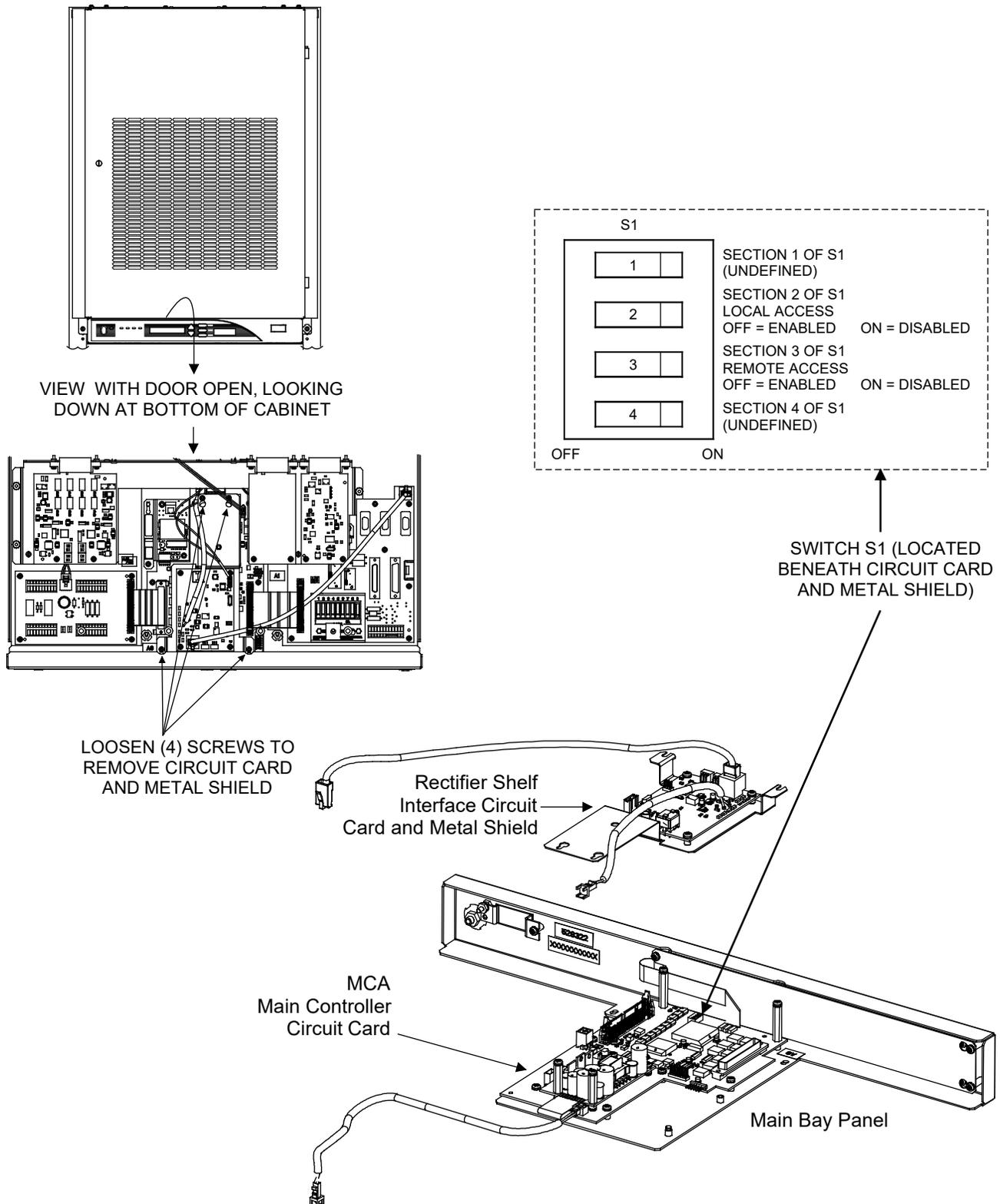


Figure 2: Location of MCA Remote and Local Access Lockout Switch S1 on MCA Main Controller Circuit Card (582126000 only)



MCA Modem Interface Option "Number of Rings Before Answering" Jumper (if installing Modem option)

This jumper is located on the Modem circuit card (if furnished). Refer to **Figure 3** for jumper location.

The placement of this jumper determines the number of rings before the modem answers an incoming telephone call

Set this jumper per site requirements.

Procedure



WARNING! Damage to the MCA Interface Option circuit card may result if the next step is not followed.

- [] 1. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
- [] 2. Locate the kit supplied Modem Assembly (if furnished). Refer to **Figure 3**, and locate J3 on the Modem circuit card. Remove the Modem circuit card from its mounting bracket (if required).
 - a) To set the modem to answer on 1 ring, remove the jumper from the two pins of J3. The jumper may be stored on one of the pins.

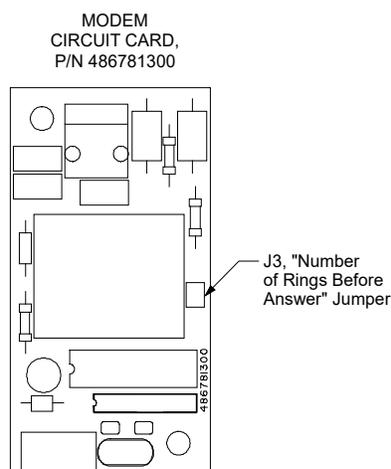
To set the modem to answer on 5 rings, place the jumper provided on the two pins of J3.



NOTE! When the MCA modem is set to answer on 5 rings, add the following to the end of the modem initialization string set in Vortex WinLink: S7=60.

- [] 3. Resecure the Modem circuit card to its mounting bracket (if removed in step 2).
- [] 4. Remove the grounding wrist strap.

Figure 3: Modem Circuit Card "Number of Rings before Answering" Jumper Location



MCA RS-232/Modem Interface Option "Number of Rings Before Answering" Jumper (if installing RS-232/Modem option)

This jumper is located on the RS 232/Modem circuit card (if furnished). Refer to **Figure 4** for jumper location.

The placement of this jumper determines the number of rings before the modem answers an incoming telephone call.

Set this jumper per site requirements.

Procedure



WARNING! Damage to the MCA Interface Option circuit card may result if the next step is not followed.

- [] 1. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
- [] 2. Locate the kit supplied RS 232/Modem Assembly (if furnished). Refer to **Figure 4**, and locate J3 on the RS 232/Modem circuit card. Remove the RS 232/Modem circuit card from its mounting bracket (if required).
 - a) To set the modem to answer on 1 ring, remove the jumper from the pins 1 and 2 of J3. The jumper may be stored on one of the pins.

To set the modem to answer on 5 rings, place the jumper provided between pins 1 and 2 of J3.



NOTE! When the MCA modem is set to answer on 5 rings, add the following to the end of the modem initialization string set in Vortex WinLink: S7=60.

- [] 3. Resecure the RS 232/Modem circuit card to its mounting bracket (if removed in step 2).
- [] 4. Remove the grounding wrist strap.

MCA RS-232/Modem Interface Option "RS-232 Port Hardware Handshake" Jumper (if installing RS-232/Modem option)

This jumper is located on the RS 232/Modem circuit card (if furnished). Refer to **Figure 4** for jumper location.

The placement of this jumper determines if the RS 232 Port Hardware Handshaking is enabled or disabled.

Set this jumper per site requirements. Note that for use with Vortex WinLink, Hardware Handshaking is not required.

Procedure



WARNING! Damage to the MCA Interface Option circuit card may result if the next step is not followed.

- [] 1. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.
- [] 2. Locate the kit supplied RS 232/Modem Assembly (if furnished). Refer to **Figure 4**, and locate J3 on the RS 232/Modem circuit card. Remove the RS 232/Modem circuit card from its mounting bracket (if required).
 - a) To enable Hardware Handshaking, remove the jumper from pins 3 and 4 of J3. The jumper may be stored on one of the pins.

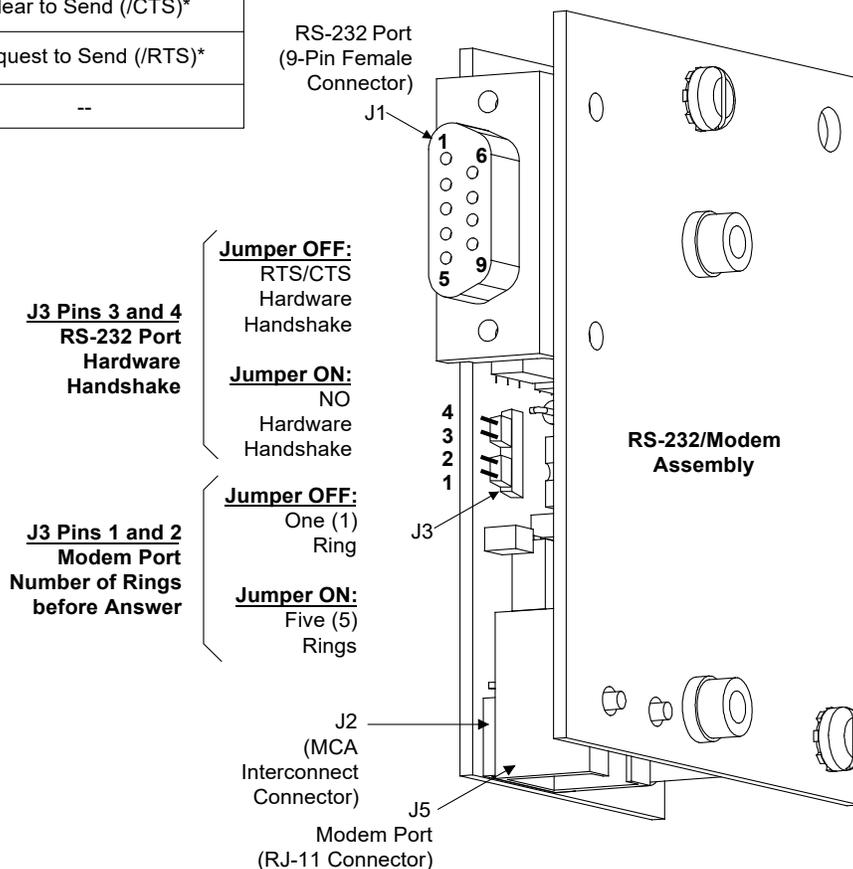
To disable Hardware Handshaking, place the jumper provided between pins 3 and 4 of J3.

- [] 3. Resecure the RS 232/Modem circuit card to its mounting bracket (if removed in step 2).
- [] 4. Remove the grounding wrist strap.

Figure 4: RS-232/Modem Assembly "Modem Number of Rings before Answering" and "RS-232 Port Hardware Handshake" Jumper Locations

RS-232 Port Pin	Application
1	--
2	Transmitted Data (TxD)
3	Received Data (RxD)
4	Data Set Ready (/DSR)
5	Signal Ground (GND)
6	Data Terminal Ready (/DTR)
7	Clear to Send (/CTS)*
8	Request to Send (/RTS)*
9	--

* Hardware Handshake Signal
(when RTS/CTS Hardware Handshake Enabled)



Installing the Option

Installing the MCA Modem, RS-232/Modem, RS-485, or Ethernet Interface Option



WARNING! Before handling the MCA Interface Option circuit card, read and follow the instructions contained on the Static Warning page located at the beginning of this document.



NOTE! When performing any step in this procedure that requires removal of existing hardware, retain all hardware for use in subsequent steps.

Procedure

- [] 1. Performing this procedure may activate external alarms. Do one of the following. If possible, disable these alarms. If these alarms cannot be easily disabled, notify the appropriate personnel to disregard any future alarms associated with this system.
- [] 2. Open the Distribution Cabinet's front door by turning and holding the captive fastener in the counterclockwise position.



DANGER! Performing the next steps may expose service personnel to battery potential. Exercise extreme caution not to inadvertently contact or have any tool inadvertently contact any energized electrical termination.

- [] 3. Remove the clear plastic panel that covers the circuit cards at the bottom of the cabinet. To do so, loosen **but do not remove** the two screws that secure the cover. Slide the cover to the front until the screw heads clear the keyhole slots in the cover. Then lift the cover out of the cabinet.



WARNING! Damage to the MCA Interface Option circuit card may result if the next step is not followed.

- [] 4. Connect an approved grounding strap to your wrist. Attach the other end to a suitable ground.



NOTE! If distribution Row A (bottom row) in the Distribution Cabinet is equipped with a GJ/218 type circuit breaker in the bottom mounting position, it may be necessary to turn off and remove the circuit breaker to access connector J15 in the next step. If so, reinstall and turn on the circuit breaker after completing this procedure.

- [] 5. Disconnect the locking-type plug from connector J15 at the rear of the MCA Main Controller circuit card. **This removes input power to the MCA.**
- [] 6. With an external voltmeter, verify plant voltage is correct (MCA is powered down at this point).
- [] 7. **Modem Circuit Card Only:** Before installing the Modem circuit card, set the modem for 1 ring or 5 rings as described under "Setting Jumper Options".
- [] 8. **RS-232/Modem Circuit Card Only:** Before installing the RS-232/Modem Assembly, set the modem for 1 ring or 5 rings as described under "Setting Jumper Options".
- [] 9. **RS-232/Modem Circuit Card Only:** Before installing the RS-232/Modem Assembly, set the RS-232 Handshaking as required as described under "Setting Jumper Options".

- [] 10. All interface options attach to the MCA Main Controller circuit card via a connector that plugs into a mating plug containing a set of pins on the MCA Main Controller circuit card. Locate these mating connectors on the Modem, RS-485, RS-232/Modem, or Ethernet option and the MCA circuit card. Refer to **Figure 5** for location.
- [] 11. Position the interface option over the MCA assembly so that the slotted mounting post on the MCA assembly passes through the keyhole in the interface option mounting bracket.
- [] 12. Slide the interface option toward the front of the MCA assembly until the connector and plug mate. Ensure that the slotted mounting post engages the keyhole slot in the mounting bracket.
- [] 13. Install the 6-32 Phillips head screw that secures the interface option mounting bracket.
- [] 14. **RS-232/Modem Assembly Only:** A front access RS-232 connector must be mounted on the MCA assembly front panel. The ribbon cable attached to this connector must then be routed to the connector on the RS-232/Modem Interface Assembly. Refer to **Figure 6** as the following steps are performed.
 - a) Remove the hardware that secures a cover plate at the mounting location of the RS-232 connector. Remove and discard the cover plate.
 - b) Install the RS-232 connector assembly, and secure with the hardware previously removed.
 - c) Route the ribbon cable to the connector on the RS-232/Modem Interface Assembly, as shown in **Figure 6**.
 - d) Connect the ribbon cable to the mating connector on the assembly.
 - e) Affix the furnished RS-232 label to the front panel adjacent to the RS-232 connector.
- [] 15. **Front Access Ethernet Kit P/N 525110 Only:** If Kit P/N 525110 was ordered with the Ethernet option, a front access Ethernet connector must be mounted on the MCA assembly front panel. A furnished Ethernet cable must then be routed from this connector to the connector on the Ethernet Interface Assembly. Refer to **Figure 6** as the following steps are performed.
 - a) Remove the hardware that secures a cover plate at the mounting location of the Ethernet connector. Remove and discard the cover plate.
 - b) Assemble the Ethernet connector to the bracket as shown in **Figure 6**. Install the bracket, and secure with the hardware previously removed.
 - c) Plug one end of the Ethernet cable into the back of the front panel Ethernet connector. Route the Ethernet cable to the connector on the Ethernet Interface Assembly. Plug the remaining end into the connector on the Ethernet Interface Assembly.
- [] 16. Connect the power input plug to connector J15 on the MCA Main Controller circuit card.
- [] 17. Reinstall the clear plastic cover in the bottom of the cabinet. To do so, place the cover on its two mounting posts so that the mounting screw heads pass through the keyhole slots in the cover. Slide the cover to the rear. Tighten the two screws.
- [] 18. Remove the grounding wrist strap.
- [] 19. Close the Distribution Cabinet's front door. The door can be shut without turning the captive fastener.

- [] 20. Enable the external alarms, or notify appropriate personnel that this procedure is finished.
- [] 21. Ensure that there are no local or remote alarms active on the system.

Figure 5: Installing the MCA Modem, RS-485, RS-232/Modem, or Ethernet Interface Option

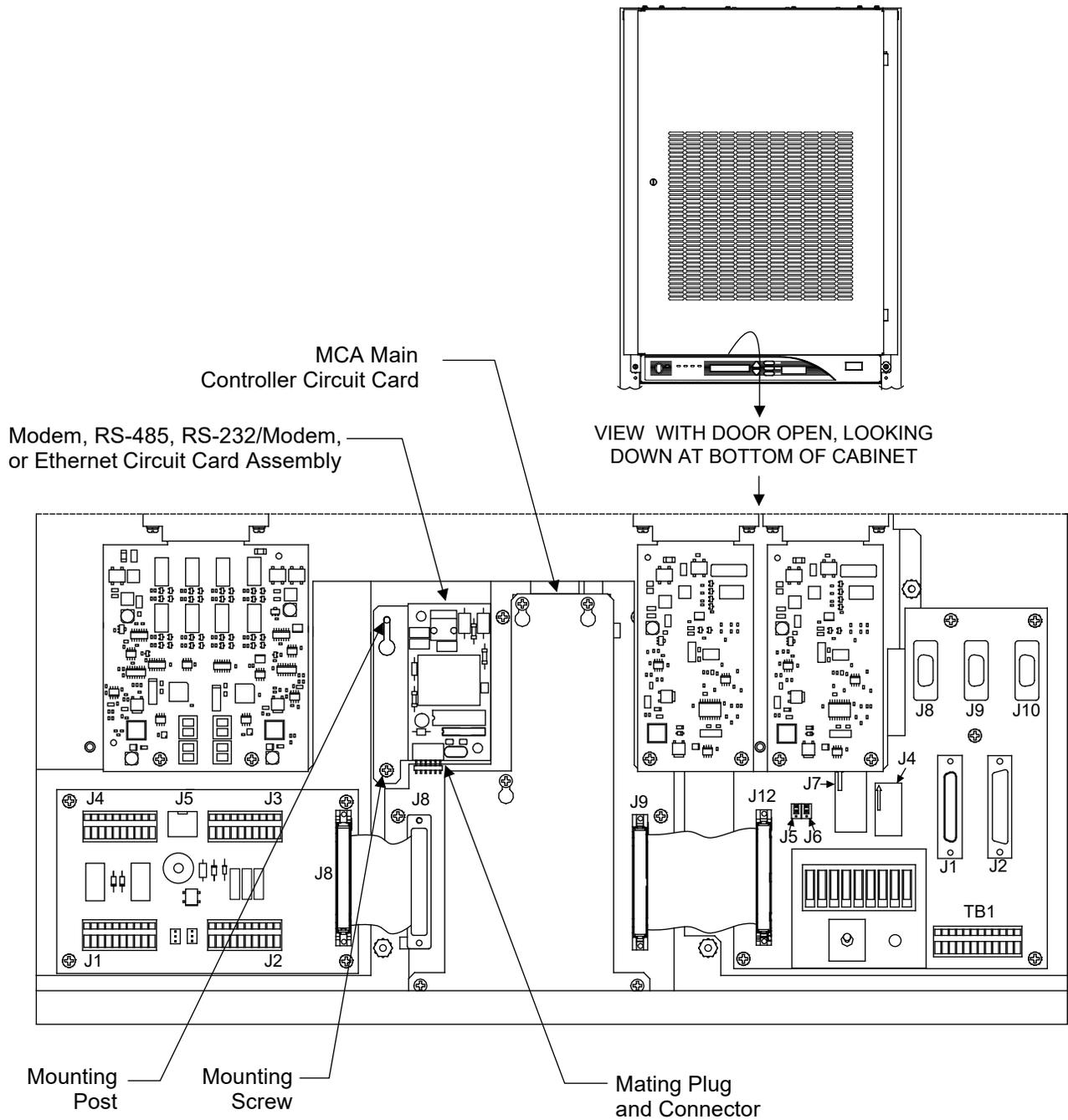
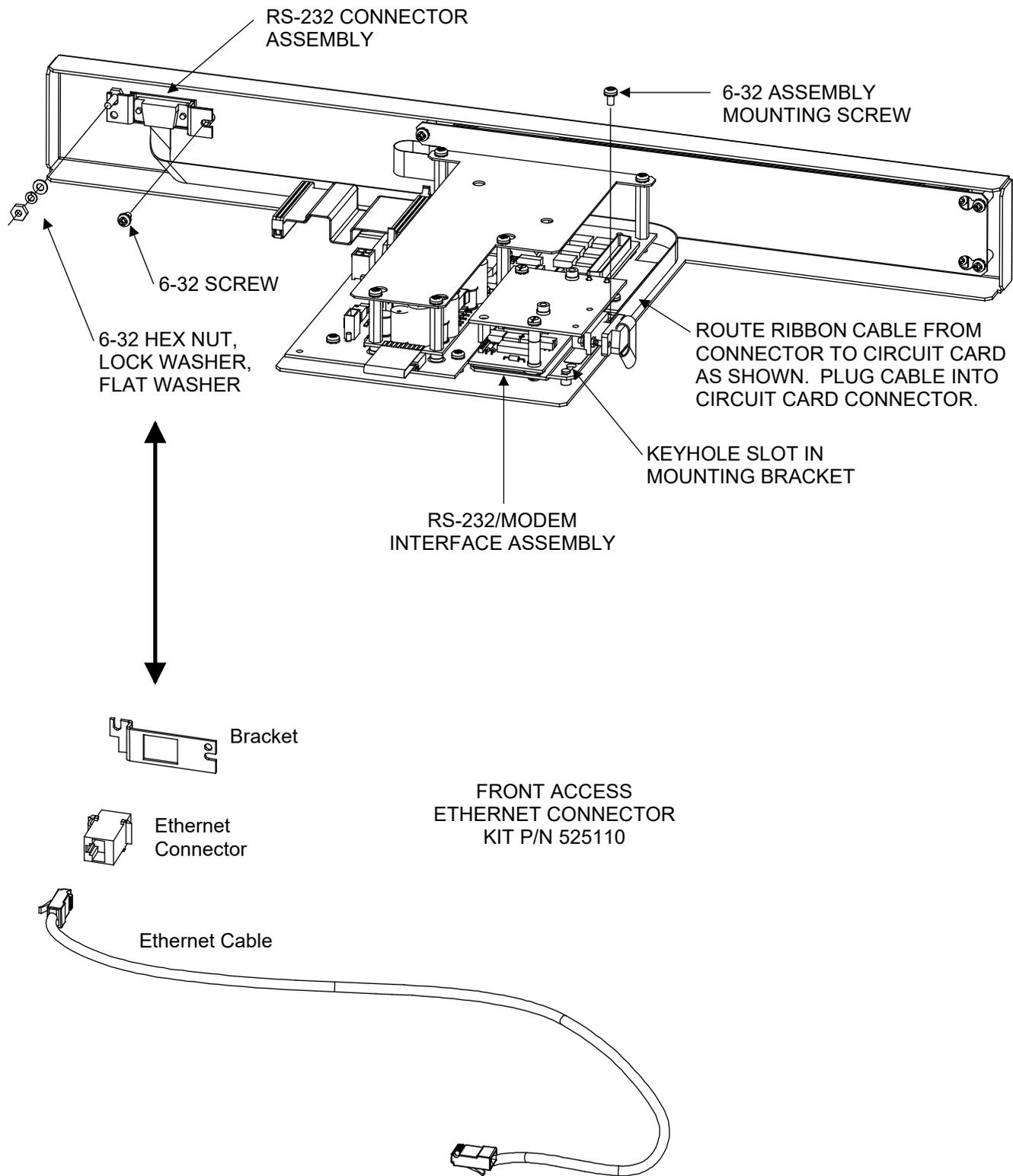


Figure 6: Installing the MCA RS 232/Modem Interface Option



Cable Connection(s) to the MCA Interface Option

MCA Modem Interface Option Connection (if Modem or RS-232/Modem Interface Option furnished)

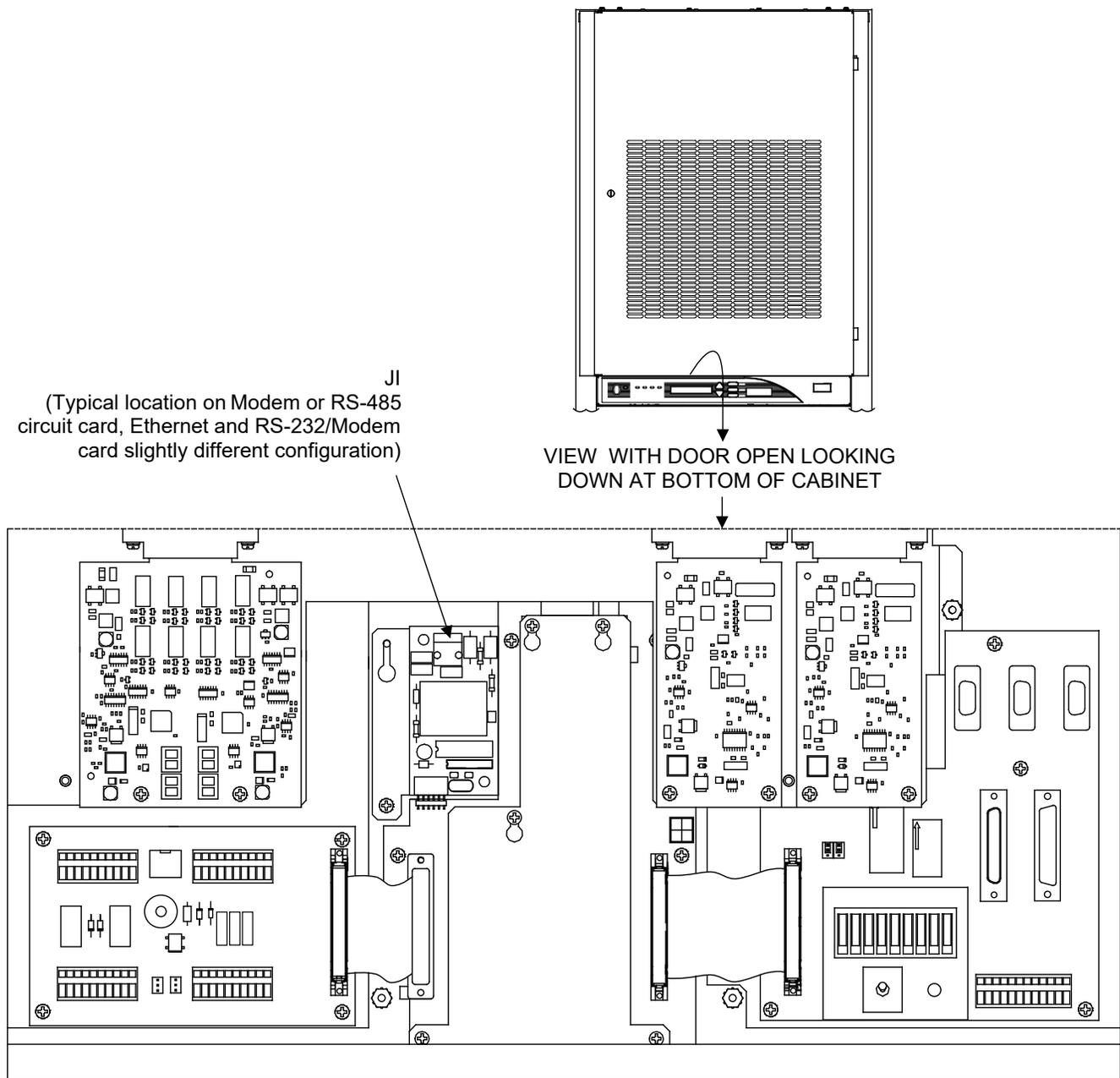
When the MCA Modem or RS 232/Modem Interface option is installed, the remote access phone line is connected to the RJ 11 jack located on the Modem or RS 232/Modem circuit card in the Main Bay Distribution Cabinet. Refer to **Figure 7** for location.

The MCA can be accessed using Vortex WinLink installed on a remote PC.

Procedure

- [] 1. Open the front door of the Distribution Cabinet by turning and holding the captive fastener in the counterclockwise position.
- [] 2. Remove the clear plastic panel that covers the circuit cards at the bottom of the cabinet. To do so, loosen but do not remove the two screws that secure the cover. Slide the cover to the front until the screw heads clear the keyhole slots in the cover. Then lift the cover out of the cabinet.
- [] 3. Connect a cable from the RJ 11 connector (J1, Modem), located on the modem circuit card in the Main Bay Distribution Cabinet, to a phone line dedicated to this MCA.
- [] 4. Reinstall the clear plastic cover in the bottom of the cabinet. To do so, place the cover on its two mounting posts so that the mounting screw heads pass through the keyhole slots in the cover. Slide the cover towards the back. Tighten the two screws.
- [] 5. Close the Distribution Cabinet's front door. The door can be shut without turning the captive fastener.

Figure 7: MCA Interface Option Connector Locations and Identification



MCA RS-485 Interface Option Connection (if RS-485 Interface Option furnished)

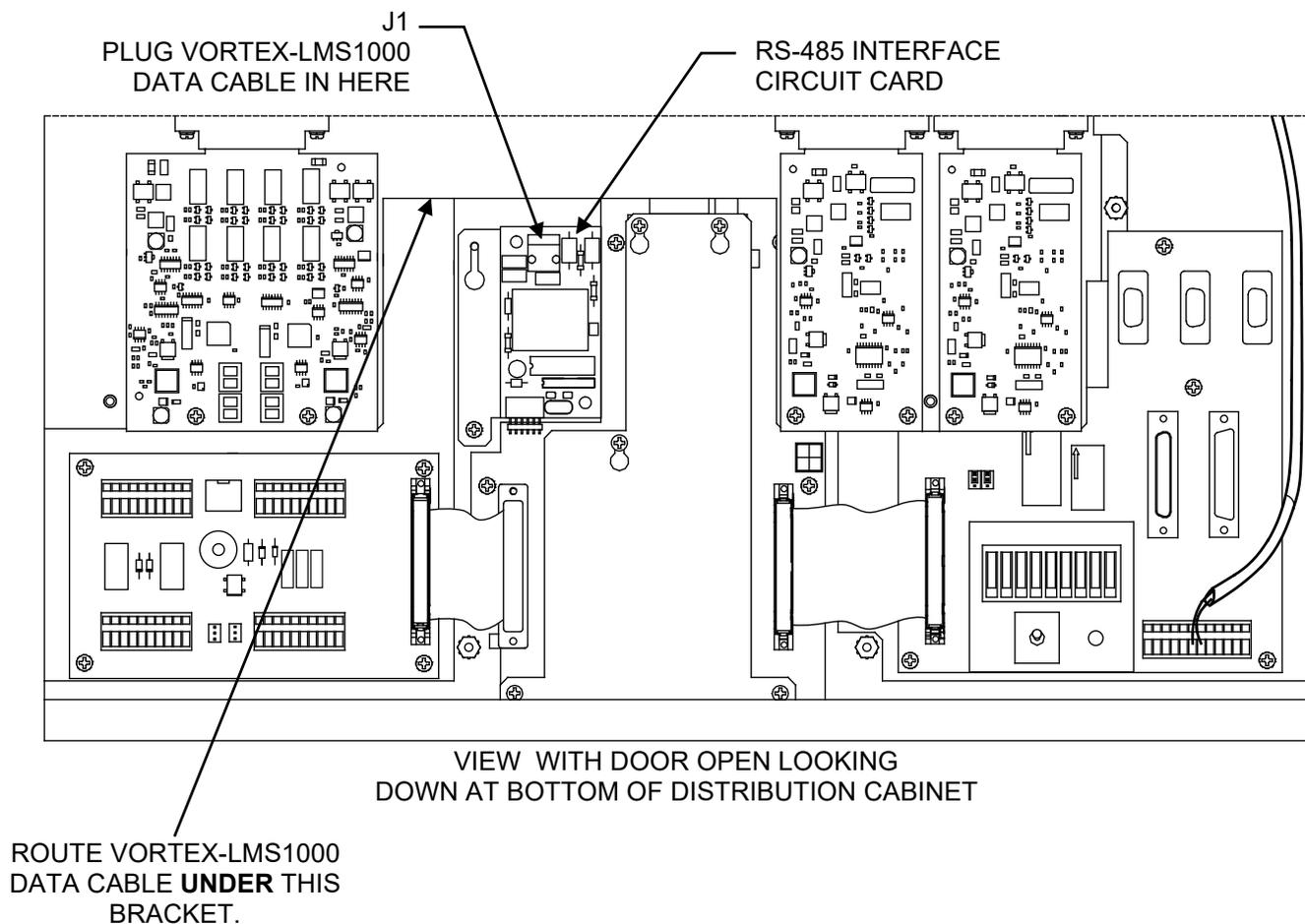
When the MCA RS-485 Interface option is installed, a SMART Monitoring System is connected to the RJ-45 connector located on the RS-485 circuit card in the Main Bay Distribution Cabinet. Refer to **Figure 7** and **Figure 8** for location.

With the RS-485 Interface Assembly installed, maximum cable length is 4000 feet.

Procedure

- [] 1. Open the front door of the Distribution Cabinet by turning and holding the captive fastener in the counterclockwise position.
- [] 2. Remove the clear plastic panel that covers the circuit cards at the bottom of the cabinet. To do so, loosen but do not remove the two screws that secure the cover. Slide the cover to the front until the screw heads clear the keyhole slots in the cover. Then lift the cover out of the cabinet.
- [] 3. Locate the furnished LMS-Vortex data cable, Part No. 500819. Connect one end of the furnished Vortex-LMS1000 data cable to the connector labeled VORTEX RS-485, located on the rear of the LMS1000.
- [] 4. Route the data cable from the previous step up into the Distribution Cabinet. Route the cable UNDER the bracket shown in **Figure 8** to the vicinity of the RS-485 Interface circuit card.
- [] 5. Connect the data cable from the previous step to connector J1 on the RS-485 Interface circuit card.
- [] 6. Form all harness wires for best fit, bundling and securing as required with furnished plastic cable ties.
- [] 7. Reinstall the clear plastic cover in the bottom of the cabinet. To do so, place the cover on its two mounting posts so that the mounting screw heads pass through the keyhole slots in the cover. Slide the cover towards the back. Tighten the two screws.
- [] 8. Close the Distribution Cabinet's front door. The door can be shut without turning the captive fastener.

Figure 8: LMS1000 Connections to Distribution Cabinet



MCA RS-232 Interface Option Connection (if RS-232/Modem Interface Option furnished)

When the MCA RS-232/Modem Interface option is installed, a remote access PC can be connected to the 9-pin female D-Type connector located on the front of the Main Distribution Cabinet. Refer to **Figure 6** for connector location. Refer to **Figure 9** and **Table 1** for connector pin-outs.

With the RS-232/Modem Interface Assembly installed, maximum recommended cable length is 100 feet.

The MCA can be accessed using Vortex WinLink installed on the remote PC.

Procedure

- [] 1. Connect a cable from the 9-pin female D-Type connector located on the Main Distribution Cabinet to a PC running Vortex WinLink. The MCA can be accessed using Vortex WinLink installed on the remote PC.

Figure 9: Front Panel RS-232 Port (if furnished)

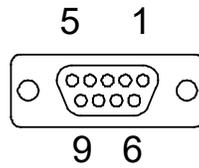


Table 1: Front Panel RS-232 Port Pinouts (if furnished)

RS-232 Port	Application
1	--
2	Transmitted Data (TxD)
3	Received Data (RxD)
4	Data Set Ready (/DSR)
5	Signal Ground (GND)
6	Data Terminal Ready (/DTR)
7	Clear to Send (/CTS)*
8	Request to Send (/RTS)*
9	--

*Hardware Handshake Signal
(when RTS/CTS Hardware Handshake Enabled)

MCA Ethernet Interface Option Connection (if Ethernet Interface Option furnished)

Perform the procedure in Appendix A to program the IP parameters into the MCA Ethernet card. If you installed an MCA Ethernet card that supports SNMP, you will also set the SNMP parameters when you perform the procedure.

The MCA is connected to the customer's network running TCP/IP via the RJ-45 10BaseT jack located on the Ethernet circuit card installed in the Main Distribution Cabinet, labeled "J1, Ethernet". Refer to **Figure 7** for location. Jack pin configuration is a standard Ethernet scheme, twisted pair.

 **NOTE!** Use shielded Ethernet cable (grounded at both ends). Note that the MCA RJ-45 jack is connected to chassis ground.

Note that a Front Access Ethernet Connector Kit P/N 525110 may be installed, allowing you to make the Ethernet cable connection at the front of the MCA Panel.

The MCA can be accessed via a Web-Browser on a remote PC or via Modbus® TCP. Ethernet Interface options are also available that adds SNMP support and Battery Monitoring.

Procedure

- [] 1. Open the front door of the Distribution Cabinet by turning and holding the captive fastener in the counterclockwise position.
- [] 2. Remove the clear plastic panel that covers the circuit cards at the bottom of the cabinet. To do so, loosen but do not remove the two screws that secure the cover. Slide the cover to the front until the screw heads clear the keyhole slots in the cover. Then lift the cover out of the cabinet.
- [] 3. Connect a network cable to the Ethernet connector (J1, Ethernet) located on the Ethernet circuit card in the Main Bay Distribution Cabinet.
- [] 4. Reinstall the clear plastic cover in the bottom of the cabinet. To do so, place the cover on its two mounting posts so that the mounting screw heads pass through the keyhole slots in the cover. Slide the cover towards the back. Tighten the two screws.
- [] 5. Close the Distribution Cabinet's front door. The door can be shut without turning the captive fastener.

ACCESSING THE MCA VIA THE INTERFACE OPTION

Accessing the MCA Remotely via a SMART Remote Equipment Interface Link (if RS-485 Interface Option furnished)

Refer to the documentation supplied with the SMART equipment.

Accessing the MCA Remotely via Vortex® WinLink Software (if Modem or RS-232/Modem Interface Option furnished)

Refer to the documentation supplied with Vortex WinLink.

When accessing the MCA using the modem port of the RS 232/Modem assembly, it is suggested to use the 19200 bits/s setting in Vortex WinLink for the MCA's modem port.

When using the RS 232/Modem MCA Interface Option, the modem port has precedence over the RS 232 port. If someone is using the local port and the modem detects a ring, the local user is automatically logged off. When the call is terminated, the RS 232 port becomes active again and the RS 232 device will have to log back on.

Accessing the MCA Remotely via a Web-Browser or via Modbus® TCP (if Ethernet Interface Option furnished)

See the separate Ethernet Card Web Interface User instructions, Section 5982.

Perform the procedure in Appendix A to program the IP parameters into the MCA Ethernet card. A PC equipped with a Web browser (Microsoft® Internet Explorer 5.0) or newer is required.

Accessing the MCA Remotely via SNMP (if Ethernet Interface Option w/ SNMP furnished)

If you installed an MCA Ethernet card that supports SNMP, you will also set the SNMP parameters when you perform the procedure in Appendix A.

The MCA Ethernet Interface option w/ SNMP provides...

- An Ethernet port for MCA connection into a TCP/IP network and support for SNMP V2 (Simple Network Management Protocol). Communications to and from the MCA is accomplished via a MIB (Management Information Browser).
- SNMP Traps for alarms listed on the MCA Menu Tree under the "Alarms Menu". SNMP Traps for MCA Alarm Relay status changes.

Management Information Base (MIB) User Interface

The SNMP Interface allows for the control of elements in the system via a user supplied SNMP Manager.

Users must be familiar with their MIB browser and know how to access the information in the MCA SNMP Interface using their browser. They must also be able to obtain a TCP/IP address for the interface and obtain at least one TCP/IP address to which SNMP traps are sent.

The system operates using standard IP SNMPv2 protocols.

APPENDIX A

Three settings are required to allow the MCA to communicate on your TCP/IP network. These are...

IP Address (_____) record here

IP Netmask (_____) record here

IP Gateway (_____) record here

These parameters are typically assigned by your Information Technology (IT) department. It is advisable to request this information at the beginning of the installation to give your IT department time to fill your request. Once the above IP addresses are received, record them on this document and perform the appropriate procedure below.

MCA TCP/IP Network Address (IP Address)

In the format of nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

An IP address is a unique identifying number that your computer uses during its time on the Internet. Traffic coming from you or going to you is routed based on your IP address, which identifies the unique machine you are on and its place in the Internet. For instance, 198.147.241.20 is the IP address of host whitehouse.gov. All packets on the internet destined for whitehouse.gov are sent to this IP address by the Domain Name Service. All traffic coming from this host is identified as such because the packets contain the originating IP address in the packet headers. All routing and traffic on the internet ultimately depends on IP addresses.

MCA TCP/IP Netmask Address (IP Netmask)

In the format of nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

A netmask is a series of bits designed to 'mask' certain portions of an IP address. The standard netmask for a Class C network such as FlashNet is 255.255.255.0—basically the last octet, .0, says 'look here for the machine number, the rest (255) is network number'. The primary use for netmasks is in subnetting.

MCA TCP/IP Gateway Address (IP Gateway)

In the format of nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

A gateway is a computer that lies at the intersection of two networks and routes traffic correctly between them, while keeping traffic internal to the two networks separated. A gateway, such as a Cisco router, lies at the border between network1.net and network2.net. It correctly routes traffic bound for the Internet out to its destination, while keeping traffic meant for within network1 on the network1.net side of the router and traffic for network2 on the network2.net side.

Additional parameters are set per site requirements for SNMP support.

"Community String"

String of alpha/numeric characters.

An SNMP community is a relationship between an SNMP agent and a set of SNMP managers that defines authentication, access control, and proxy characteristics. The community concept is a local one, defined at the managed system. The managed system establishes one community for each desired combination of authentication, access control, and proxy characteristics. Each community is given a community name, and the management stations.

The GET community name to authenticate GET, GETNEXT, and GETBULK requests.

The SET community name to authenticate SET requests.



NOTE! In this application, only the GET community name can be set.

"Trap Addresses"

In the format of nnn.nnn.nnn.nnn, where $0 \leq nnn \leq 255$.

A list of IP addresses to which SNMP Traps will be sent. The machine with this IP address must have appropriate SNMP browser running. SNMP Traps V2 are sent.

Setting Up the MCA Ethernet Option TCP/IP and SNMP Parameters, Kit P/N 524806 which also includes P/Ns 534404, 534405, and 534406

This procedure is for setting the MCA Ethernet card's IP parameters via the Web Interface. If your Ethernet card was ordered with the SNMP option, steps for setting SNMP parameters are included. It requires that you temporarily change the IP setup on your computer (PC).



NOTE! Windows 98 or later required to setup network connection.

This procedure requires a Permission Level of 8. The factory default user name and password provide Level 8 access. (For information about Permission Levels, see the separate Ethernet Card Web Interface User instructions, Section 5982).

Procedure

Step 1: Record your PC's Network Settings

Record your current network settings for the computer you will be using to set the MCA Ethernet card's IP parameters. You will use these values in step 4.

Step 2: Change your PC's Network Settings

Change your computer's IP parameters to talk to the MCA Ethernet Card using the card's default parameters.

- a) 192.168.1.1, set your computer to 192.168.1.2 (IP Address).
- b) 255.255.255.0, set your computer to the same (Subnet Mask).
- c) 192.168.1.1, set your computer to the same (Gateway).

Step 3: Change the MCA Ethernet Card's Network Settings

Connect the MCA Ethernet card into your company's network. Use Internet Explorer to change the MCA Ethernet card's default IP parameters to the parameters issued by your IT department.

If your PC cannot access the MCA Ethernet card, it may be necessary to bypass your company network by using a "crossover" cable connected directly between your PC and the MCA Ethernet Card.

Step 4: Reset your PC's Network Settings

Reset your computer's IP parameters back to their original values noted in step 1. If using a crossover cable, first reconnect your computer to your company's network and connect the MCA Ethernet card to your company's network.

Step 5: Change the MCA Ethernet Card's SNMP Settings (if equipped with SNMP option)

Log onto the MCA Ethernet card. Open the SNMP settings page. Change SNMP settings and trap settings as required.

Step 6: Access the Vortex Power Plant over the Company Network

Via Web Browser: Open your Web browser. Type in the unit's IP address. Enter user name and password in the logon window, and logon.

Step 1: Record your PC's Network Settings

- [] 1. Open the **Control Panel** on your computer.
- [] 2. Select **Network Connections**.
- [] 3. Select **Local Area Connection**.
- [] 4. Select **Properties**.
- [] 5. Highlight **Internet Protocol (TCP/IP)**.
- [] 6. Select **Properties**.
- [] 7. Record the current settings, these may be specific parameters or your computer may be set to automatically obtain these parameters from your company's network.

Obtained IP Address Automatically _____

or

Use the following...

IP Address: _____

Subnet Mask: _____

Default Gateway: _____

- [] 8. Select **Cancel**.

Step 2: Change your PC's Network Settings

- [] 1. Open the **Control Panel** on your computer.
- [] 2. Select **Network Connections**.
- [] 3. Select **Local Area Connection**.
- [] 4. Select **Properties**.
- [] 5. Highlight **Internet Protocol (TCP/IP)**.
- [] 6. Select **Properties**.

- [] 7. Select **"Use the following IP Address"**.
- [] 8. Enter the following.
 - a) 192.168.1.2, as the IP Address.
 - b) 255.255.255.0, as the Subnet Mask.
 - c) 192.168.1.1, as the default Gateway.
- [] 9. Select **OK**. Note that you may have to reboot your computer for the settings to take effect. Follow any instructions you see on the screen.

Step 3: Change the MCA Ethernet Card's Network Settings

- [] 1. Connect the MCA Ethernet card's port to your company's network.
- [] 2. Power up the MCA, if not already powered.
- [] 3. Open your Web Browser. Type **192.168.1.1** in the Address box. Press **Enter**. The logon window opens.

You may have to change Internet Explorer options to do this. Go to Tools/Internet Options/LAN Settings, then temporarily disable the proxy server. Another option is to select Bypass Proxy Server for local addresses and add 192.168.* under Advanced.

If your PC cannot access the Logon window, it may be necessary to bypass your company network by using a "cross-over" cable connected directly between your PC and the MCA Ethernet card. Repeat this step if necessary.



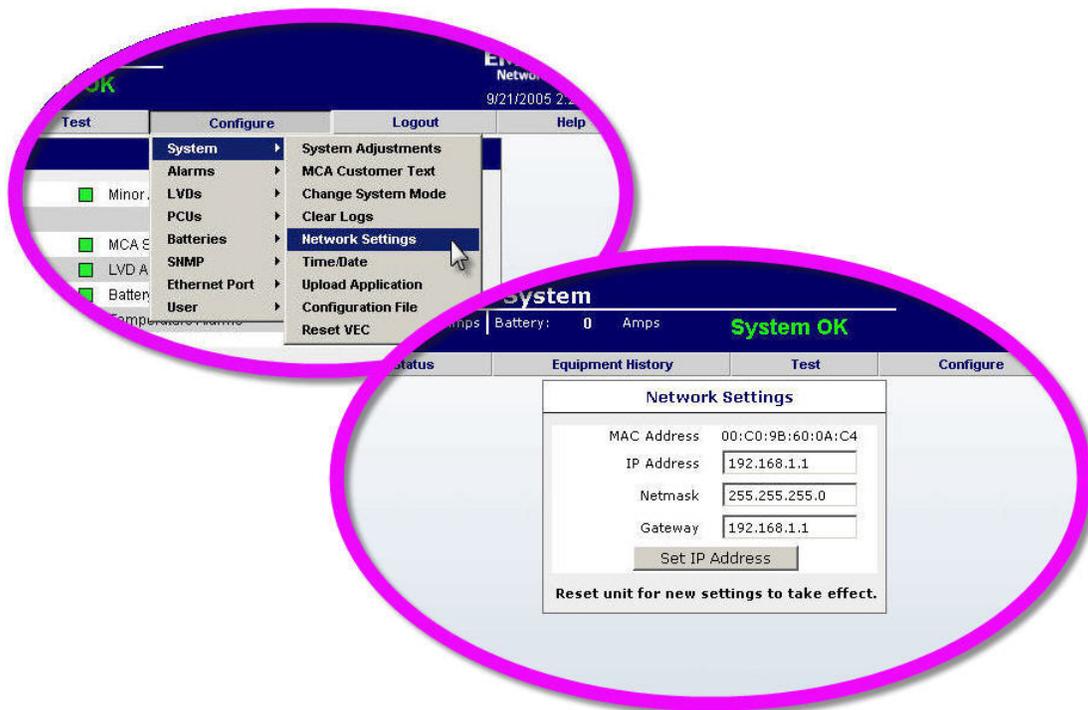
- [] 4. Type the default user name and password, then press **Enter**.

User Name: **llp_admin**

Password: **llp_admin**

 **NOTE!** The user name and password are case-sensitive. For security, the password is not displayed on the computer's screen. You have three attempts to enter a valid user name and password. If both are not entered correctly after three attempts, the browser is redirected to a "Protected Object" message page. A link is provided on that page that will return you to the logon window.

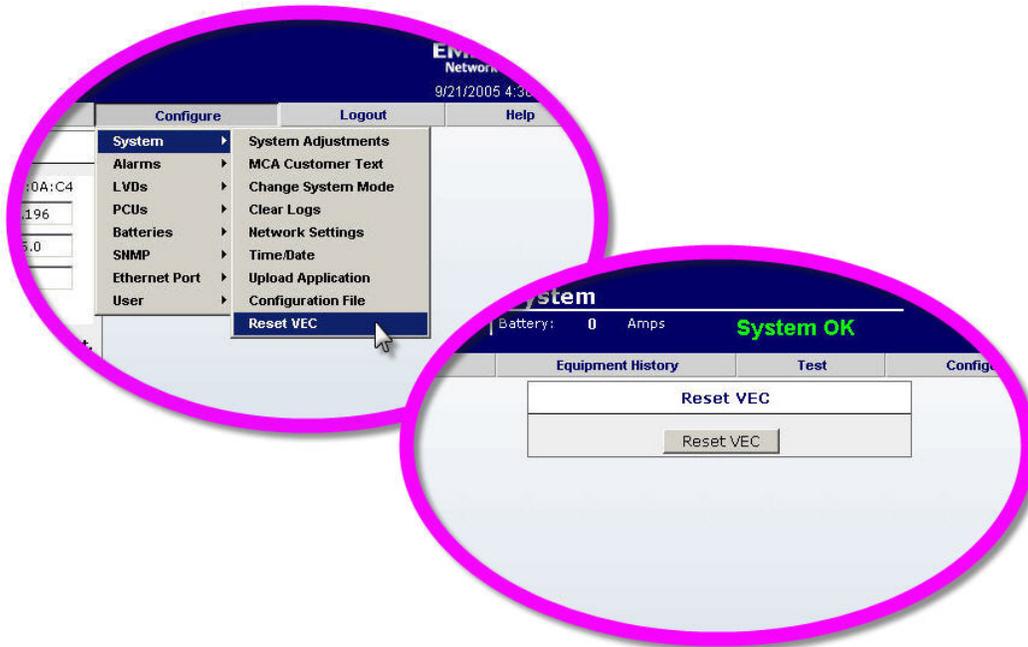
- [] 5. If a valid user name and password are entered, the System Status page opens.
- [] 6. On the toolbar near the top of the System Status web page, select **Configure, System, Network Settings**. The **Network Settings** page opens.



- [] 7. Enter the parameters issued by your IT department. When the required IP Address, Subnet Mask, and Gateway have been entered, click the **Set IP Address** button. **VERIFY WHAT YOU HAVE TYPED. IF IT IS ENTERED INCORRECTLY YOU MAY NOT BE ABLE TO COMMUNICATED WITH THE MCA ETHERNET CARD.**

 **NOTE!** If a new value is unacceptable, an "Invalid Entry" message is displayed.

- [] 8. On the toolbar, select **Configure, System, Reset VEC**. The **Reset VEC** page opens.
- [] 9. Click the **Reset VEC** button. Close your Web Browser.



Step 4: Reset your PC's Network Settings

- [] 1. If you were using a crossover cable, reconnect your computer to your company's network and connect the MCA Ethernet card's port to your company's network.
- [] 2. Open the **Control Panel** on your computer.
- [] 3. Select **Network Connections**.
- [] 4. Select **Local Area Connection**.
- [] 5. Select **Properties**.
- [] 6. Highlight **Internet Protocol (TCP/IP)**.
- [] 7. Select **Properties**.
- [] 8. Set the IP parameters to the original settings recorded at the beginning of this procedure.
- [] 9. Check the new address settings by opening your Web Browser and entering the new IP address.

Step 5: Change the MCA Ethernet Card's SNMP Settings (if equipped with SNMP option)

- [] 1. Open your Web Browser. Type the unit's IP address in the Address box. Press Enter. The logon window opens.
- [] 2. Type the default user name and password, then press Enter.

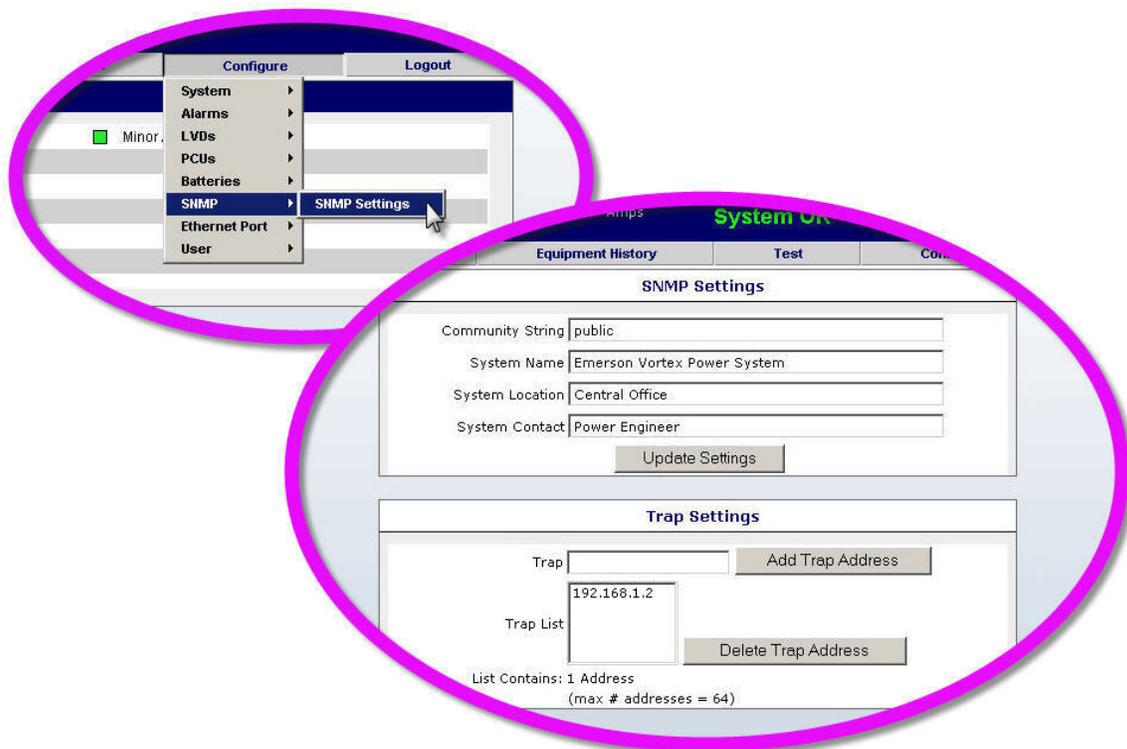
User Name: `llp_admin`

Password: `llp_admin`



NOTE! The user name and password are case-sensitive. For security, the password is not displayed on the computer's screen. You have three attempts to enter a valid user name and password. If both are not entered correctly after three attempts, the browser is redirected to a "Protected Object" message page. A link is provided on that page that will return you to the logon window.

- [] 3. If a valid user name and password are entered, the System Status page opens.
- [] 4. On the toolbar near the top of the System Status web page, select **Configure, SNMP, SNMP Settings**. The **SNMP Settings** page opens.



- [] 5. Enter the **SNMP Settings** and click the **Update Settings** button. The screen refreshes and the new settings take effect.
- [] 6. Add and/or delete traps as necessary. To add, type the **Trap Address** in **Trap** box and then press **Add Trap Address**. To delete, select the Trap Address from the Trap List and then press **Delete Trap Address**.

Step 6: Access the Vortex Power Plant over the Company Network

Via Web Browser:

- [] 1. With your Web browser open, type in the unit's IP address.
- [] 2. Enter a valid user name and password in the logon window, and logon.
- [] 3. You can now communicate with the power system over you company's network.

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