



## XLe Modem COM Module (HE-XMC)

**Want More Information?**  
To download the XLe User Manual (MAN0805), refer to *Technical Support* in this document.

### 1 INTRODUCTION

The XLe Modem COM Module (XMC) adds remote programming and/or ladder controlled dial-up modem communications to the XLe series.

The HE-XMC supports the standard AT command set and can connect to a dial-up network at speeds of up to 14.4 KBaud. Connection speed is auto-negotiated and data is buffered such that a corresponding Open Function Block Baud can remain constant. The HE-XMC module connects to the dial-up network (phone line) via a cable with a standard RJ11 modular plug. The HE-XMC also provides status LEDs which provide indications of Enabled, Carrier Detect and Receive/Transmit Data.

The HE-XMC utilizes the same internal communications channel (UART) as the MJ1 serial port; thus, enabling the modem deactivates the MJ1 serial port. However, support is provided to select which device (or port) is currently active. When the modem is selected to be active for the programming port, the modem is automatically initialized for Auto-Answer mode and to answer on the 3<sup>rd</sup> ring.

The HE-XMC internally uses the MultiTech SocketModem MT5600SMI core. For additional technical information, certifications or extended AT command set information, see [www.multitech.com](http://www.multitech.com)

### 2 INSTALLATION PROCEDURE

#### 2.1 Installation Procedure

1. Disconnect all power from the XLe unit including I/O power.
2. Remove the four screws on the back of the XLe unit and remove the back cover. The back cover can be discarded or saved, but it will be replaced with the extended back cover that ships with the communication add-on. Screws are re-used (Figure 1).

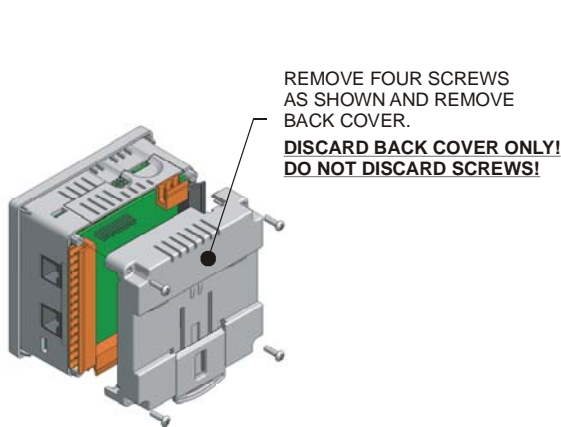


Figure 1 - Removing Back Cover of the XLE

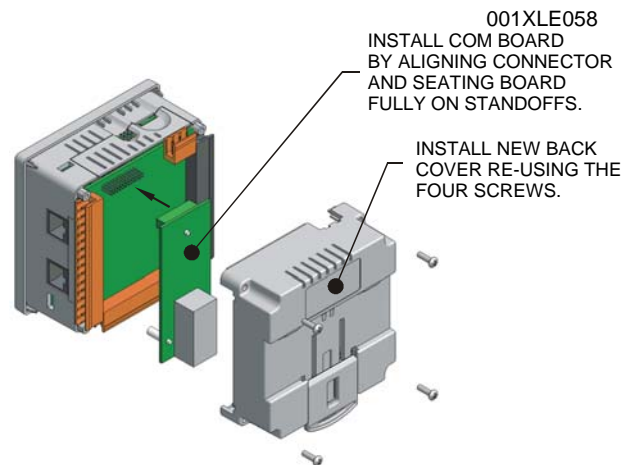


Figure 2 - Installing the COM Board in the XLE

3. Plug the communication board onto the 24-pin connector. Make sure all the pins are properly aligned (Figure 2).
4. Place the extended back cover onto the unit. It can be helpful to tip it at an angle so the connector on the COM board passes through the opening on the back cover.
5. Place the screw back into the hole and turn the screw slowly counter clockwise until it clicks into the threads. This prevents the screw from being cross-threaded. Now, turn the screw clock-wise until the cover is firmly secured. Repeat this process for all four (4) screws.

### 3 REMOTE PROGRAMMING:

The HE-XMC may be configured such that it used as the remote programming port. This allows a user with the CSCAPE editor to dial-up from a remote location and download, upload, verify or modify registers on the XLE.

To enable remote programming through the HE-XMC, the XLE system menu item: SET SERIAL PORTS\Dflt Pgm Port must be modified. Setting Dflt Pgm Port to MODEM activates the internal modem and allows remote dial-in programming with CSCAPE. Setting Dflt Pgm Port to RS232 disables the modem and restores the MJ1 serial port for local programming.

If the Dflt Pgm Port is set to MODEM at power-up: the internal port is initialized to 9.6k, 8, n, 1; the modem is initialized to auto answer and the EN light is activated on back of modem. If the Dflt Pgm Port is NOT set to modem at power-up, the MJ1 port is initialized to 9.6k, 8, n, 1 and is established as the programming port; however, NO initialization string is sent to the modem and it is kept disabled (EN light is deactivated).

**The initialization string sent to modem is "ATE0Q1&C1&D2&K0S0=1\r"**

The XLE system menu SET SERIAL PORTS\Dflt Pgm Port value may be changed on the fly; however, if change is made while the XLE is in RUN mode and the ladder program has 'opened' the MJ1/Com Option port, the changes will not be recognized until ladder closes the port or the unit is placed in DO I/O or STOP mode.

**Note that if MODEM is selected as the Dflt Pgm Port, ladder may override the modem programming through the Modem function block. If ladder modifies the modem action and is thereafter placed in DO I/O or STOP mode, the modem may not properly respond (may no longer be in auto-answer mode) if initially set as the Dflt Pgm Port.**

### 4 LADDER CONTROL OF INTERNAL MODEM:

The opened state of the MJ1/Option port on startup of a ladder program is dependent on the Dflt Pgm Port selection. If the Dflt Pgm Port is set to RS232 ( MJ1 serial connection) and modem operation is desired during ladder operation, the Open function block may be used with the port parameter set to MODEM. The Modem function block should then be used to place the modem in the appropriate mode (Auto Answer) or initiate a connection (ATDT....).

**Refer to the CSCAPE help file for information on the Modem function blocks.**

Note that the modem's internal port baud rate will be established at the baud specified in the corresponding Open function block. The Open function block Baud rate should be set to the maximum expected connection rate of the Modem.

**Note that if MODEM is set as the Dflt Pgm Port and ladder changes the baud or frame protocol from that of 9600, 8, N, 1, the Modem may no longer properly communicate with the internal serial port when placed in DoIO or STOP mode.**

## 5 SAFETY

When found on the product, the following symbols specify:



**Warning:** Consult user documentation.



**Warning:** Electrical Shock Hazard.

**WARNING:** To avoid the risk of electric shock or burns, always connect the safety (or earth) ground before making any other connections.

**WARNING:** To reduce the risk of fire, electrical shock, or physical injury it is strongly recommended to fuse the voltage measurement inputs. Be sure to locate fuses as close to the source as possible.

**WARNING:** Replace fuse with the same type and rating to provide protection against risk of fire and shock hazards.

**WARNING:** In the event of repeated failure, do not replace the fuse again as a repeated failure indicates a defective condition that will not clear by replacing the fuse.

**WARNING:** Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

- All applicable codes and standards need to be followed in the installation of this product.
- For I/O wiring (discrete), use the following wire type or equivalent: Belden 9918, 18 AWG or larger.

Adhere to the following safety precautions whenever any type of connection is made to the module.

- Connect the green safety (earth) ground first before making any other connections.
- When connecting to electric circuits or pulse-initiating equipment, open their related breakers. Do not make connections to live power lines.
- Make connections to the module first; then connect to the circuit to be monitored.
- Route power wires in a safe manner in accordance with good practice and local codes.
- Wear proper personal protective equipment including safety glasses and insulated gloves when making connections to power circuits.
- Ensure hands, shoes, and floor are dry before making any connection to a power line.
- Make sure the unit is turned OFF before making connection to terminals. Make sure all circuits are de-energized before making connections.
- Before each use, inspect all cables for breaks or cracks in the insulation. Replace immediately if defective.

## 6 TECHNICAL SUPPORT

For assistance and manual updates, contact Technical Support at the following locations:

**North America:**  
(317) 916-4274  
[www.heapg.com](http://www.heapg.com)  
email: [techsppt@heapg.com](mailto:techsppt@heapg.com)

**Europe:**  
(+) 353-21-4321-266  
[www.horner-apg.com](http://www.horner-apg.com)  
email: [techsupport@hornerirl.ie](mailto:techsupport@hornerirl.ie)

**NOTES**