

## Multi-Input Board (MIB) Installation

The Multi-Input Board is an input/output board mounted on the inside surface of the FMU upper cabinet door. It is mounted on four standoffs over either the 4x4 (16 character) or 4x11 (43 character) keypad. The MIB receives inputs from the FMU Plus mainboard through a single cable to provide outputs to the keypad, mag-stripe card reader, and smart card reader. The only 4x4 keypad the MIB is compatible with is the magnetic keypad, Syntech part number 941B0235. If an older 4x4 keypad is installed, it will need to be upgraded to a 941B0235 magnetic keypad before an MIB may be installed. This does not apply to 4x11 (43 character, alpha numeric) keypads.

At the time of this writing, the MIB is in transition. A chip that is necessary for the FMU mainboard to communicate with the 16-character (4x4) keypad is no longer available. A new mainboard will not have the chip. A new MIB will incorporate a chip to perform the same function. The easiest way to determine which mainboard you have is to look at position U22 (see Figure 1). The new mainboard has no chip in position U22. Instead, it has a small resistor soldered across pins 13 and 14 of position U22.

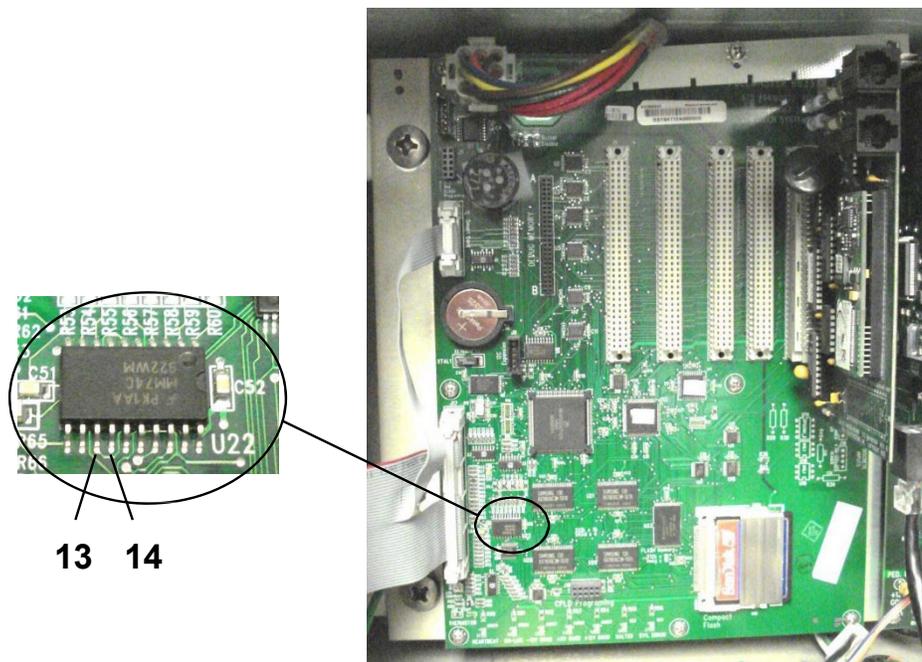


Figure 1. Locating U22 Chip on FMU Mainboard

***The new MIB is only necessary if the new mainboard is installed, and a 4x4 keypad is installed.*** If a 4x4 keypad is not installed, either MIB may be installed and used with either FMU Plus mainboard. The older MIB has Syntech part number 941F0205B. The new MIB has Syntech part number 941F0207. They are installed differently. Revision K or older 941F0205 MIBs should not be installed in FMUs with smartcard readers.

If a mainboard with the chip in position U22 has to be replaced with a mainboard without the chip in U22, and a 4x4 keypad and 941F0205B MIB is installed, a 941F0207 MIB must also be installed. A chip to decode inputs from a 4x4 keypad must be present, either on the mainboard, or on the MIB. If a 4x4 keypad and 941F0207 MIB are installed, regardless of which mainboard is installed, firmware v3.70 or later must also be installed.

Installation of the MIB was previously addressed in Product Bulletin 106, Ferrite Installation for Static Problems. PB-106 has been divided into two product bulletins separately addressing the ferrite installation and the MIB installation. PB-106 continues to provide instructions for ferrite installation for static problems.

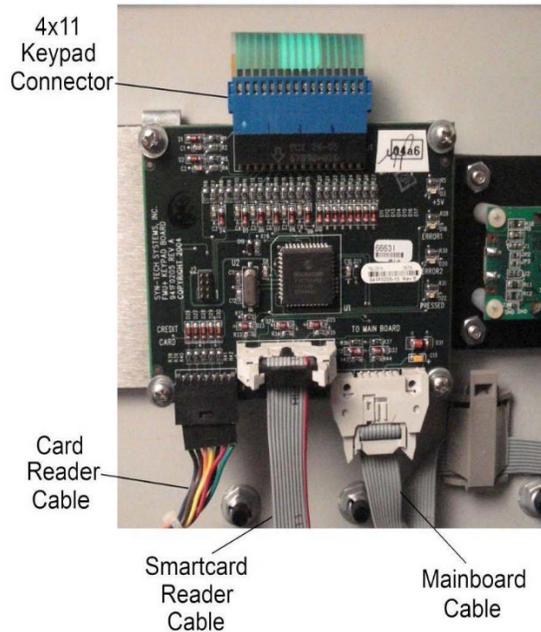


Figure 2. 941F0205B Multi-Input Board (MIB)

## Replace 941F0205B MIB

The most common use of the 941F0205B MIB is to provide an input for the 4x11 (43 character) keypad. The only configuration which pairs the 941F0205B MIB and 4x4 keypad is one in which ferrites have been installed to eliminate static problems. The 941F0205B MIB does not connect to the 4x4 keypad. Perform the following to replace the 941F0205B MIB:

1. Open the FMU pedestal door and turn off the FMU power switch.
2. Open the FMU upper cabinet door. The MIB is on the inside back of the FMU upper cabinet door.
3. (4x11 keypad only) At the top of the MIB, disconnect the 4x11 keypad cable.
4. At the bottom of the MIB, as required, disconnect the card reader cable, the smartcard reader cable, and the mainboard cable.
5. The MIB is attached to the keypad with a screw, split washer, and flat washer at each corner. Remove the four screws and washers, then remove the MIB.
6. Install the replacement MIB with the same four screws and washers.
7. Reconnect the cables. The MIB is labeled near the connectors. The two ribbon cables have the same type connector. Be sure they are connected properly. Be sure all the keypad connector pins are inside the MIB receptacle.

8. Turn on the FMU power switch and observe the display. As the FMU initializes, a prompt MULTI INPUT BOARD DETECTED! should be observed, and a green +5V LED should be illuminated in the upper right corner of the MIB. There should be no ERROR1 or ERROR2 lights illuminated, and the PRESSED LED should illuminate when any key on the keypad is pressed.
9. Close and lock the FMU upper cabinet door.
10. Close and lock the FMU pedestal door.

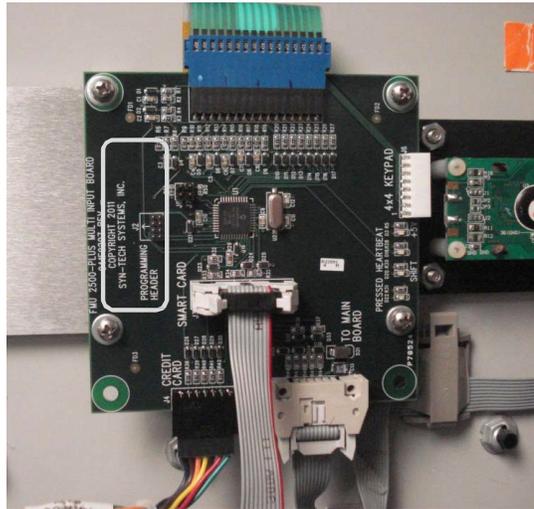


Figure 3. 941F0207 over 4x11 Keypad (silkscreen header to left)

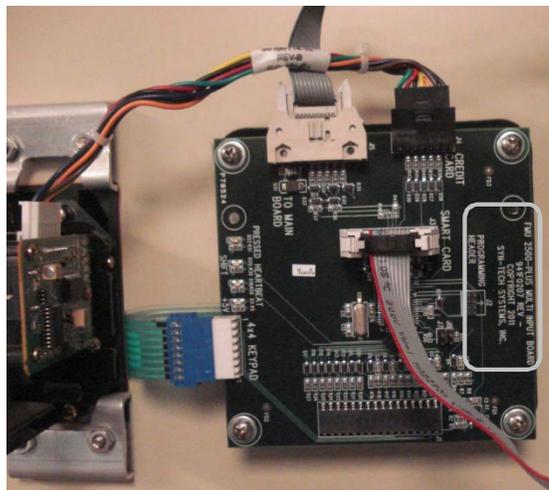


Figure 4. 941F0207 over 4x4 Keypad (silkscreen header to right)

## Replace 941F0207 MIB

This MIB will eventually replace the 941F0205B MIB. Until such time as it becomes standard equipment, it will only be required to support the 4x4 keypad when the FMU mainboard does not have the chip in position U22. The FMU must be using firmware version 3.70 or later, and have CPLD (Complex Programmable Logic Device) version 4 or later, to be compatible with

this MIB. Figure 3 shows an FMU with a 4x11 keypad. The silkscreen header on the MIB is circled, and to the left. Figure 4 shows an FMU with a 4x4 keypad. The silkscreen header on the MIB is circled, and to the right. Perform the following to replace the 941F0207 MIB:

1. Open the FMU pedestal door and turn off the FMU power switch.
2. Open the FMU upper cabinet door. The MIB is on the inside back of the FMU upper cabinet door.
3. Perform the following for an FMU with a 4x11 (43 character) keypad (see Figure 3):
  - a. At the top of the MIB, disconnect the 4x11 keypad cable.
  - b. At the bottom of the MIB, as required, disconnect the card reader cable, the smartcard reader cable, and the mainboard cable. The receptacles are labeled.
  - c. The MIB is attached to standoffs on the keypad with a screw, split washer, and flat washer at four locations. The two holes in the lower corners are for 4x4 keypad installations. Remove the four screws and washers, then remove the MIB.
  - d. Install the replacement MIB with the same four screws and washers.
  - e. Reconnect the cables. The receptacles are labeled. The two ribbon cables have the same type connector. Be sure they are connected properly. Be sure all the keypad connector pins are inside the MIB receptacle.
4. Perform the following for an FMU with a 4x4 keypad (see Figure 4):
  - a. On the left side of the MIB, disconnect the 4x4 keypad cable.
  - b. At the top of the MIB, as required, disconnect the card reader cable, the smartcard reader cable, and the mainboard cable. The receptacles are labeled.
  - c. The MIB is attached to standoffs on the keypad with a screw, split washer, and flat washer at each corner. Remove the four screws and washers, then remove the MIB.
  - d. Install the replacement MIB with the same four screws and washers.
  - e. Reconnect the cables. The MIB is labeled near the receptacles. The two ribbon cables have the same type connector. Be sure they are connected properly. Be sure all the keypad connector pins are inside the 4x4 KEYPAD receptacle.
5. Turn on the FMU power switch and observe the display. As the FMU initializes, a prompt MULTI INPUT BOARD DETECTED! should be observed, and a green +5V LED should be illuminated on the MIB. A HEARTBEAT LED should begin flashing when the FMU finishes initializing. The PRESSED LED should illuminate when any key on the keypad is pressed, and when a mag stripe card is swiped in the card reader, if installed.
6. Close and lock the FMU upper cabinet door.
7. Close and lock the FMU pedestal door.

## Remove 941F0205B MIB and replace with 941F0207 MIB

At some point the 941F0207 MIB will replace the 941F0205B MIB. Replacement on FMUs with 4x11 keypads is easy. Remove the 941F0205B as described above in steps 1 through 5 under Replace 941F0205B MIB. Install the 941F0207 as described above in steps 3d, 3e, 5, 6, and 7 under Replace 941F0207 MIB. If a 941F0207 MIB is the only MIB available, and the FMU has a mainboard with a chip in position U22, the 4x4 keypad connector must be connected to the 941F0207 MIB keypad connector.

FMUs with 4x4 keypads had the 941F0205B MIB installed in accordance with Product Bulletin 106, Ferrite Installation for Static Problems, and as shown in Figure 5. The MIB is installed on standoffs under the bottom two holes of the MIB, and over the top two keypad attach studs. The 941F0207 is attached differently. Perform the following:



Figure 5. 941F0205B over 4x4 Keypad

1. Open the FMU pedestal door and turn off the FMU power switch.
2. Open the FMU upper cabinet door. The MIB is on the inside back of the FMU upper cabinet door.
3. As required, disconnect the card reader cable, smartcard reader cable, and mainboard cable.
4. Remove the two attach screws and washers and remove the MIB.
5. Disconnect the keypad connector from the 941B0110 mainboard ribbon cable.
6. Unlatch the two cable retainers which secure the keypad cable and mainboard cable to the keypad.

7. Many FMUs which have a 4x4 keypad and a 941F0205B MIB have a 941B0110 mainboard ribbon cable with a 16-pin keypad connector. The 941F0207 MIB requires a 10-pin connector on the input from the FMU mainboard. If the FMU has a 941B0110 mainboard ribbon cable, it must be replaced with a 941F0206A mainboard ribbon cable. This cable is shipped with the new MIB.
8. The replacement 941F0207 MIB was also shipped with two standoffs and two additional sets of attach screws. The standoffs have #8 screw holes in one end, and #6 screw holes in the other end. Remove the two attach nuts from the bottom two keypad attach studs and install the standoffs on the studs. The larger #8 screw holes are used to attach the standoffs to the keypad studs.
9. Position the 941F0207 MIB over the four standoffs as shown in Figure 4 and attach with 4 screws and washers.
10. Reconnect the cables. The MIB is labeled near the receptacles. The two ribbon cables have the same type connector. Be sure they are connected properly. Be sure all the keypad connector pins are inside the 4x4 KEYPAD receptacle.
11. Turn on the FMU power switch and observe the display. As the FMU initializes, a prompt MULTI INPUT BOARD DETECTED! should be observed, and a green +5V LED should be illuminated on the MIB. A HEARTBEAT LED should begin flashing when the FMU finishes initializing. The PRESSED LED should illuminate when any key on the keypad is pressed, and when a mag stripe card is swiped in the card reader, if installed.
12. Close and lock the FMU upper cabinet door.
13. Close and lock the FMU pedestal door.

**TIP**

If any questions arise, contact Syntech Systems, Inc.'s Customer Satisfaction Center (CSC) at 1-800-888-9136, ext. 2, or email [support@myfuelmaster.com](mailto:support@myfuelmaster.com).