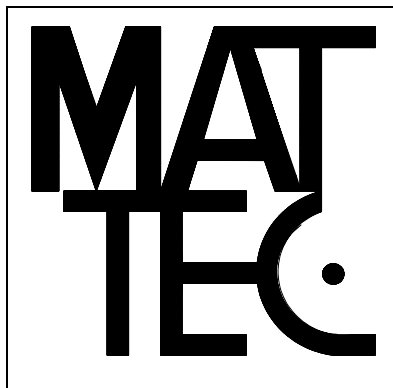


ProHelp Systems



MIU TEMPERATURE COMPENSATION INSTALLATION INSTRUCTIONS

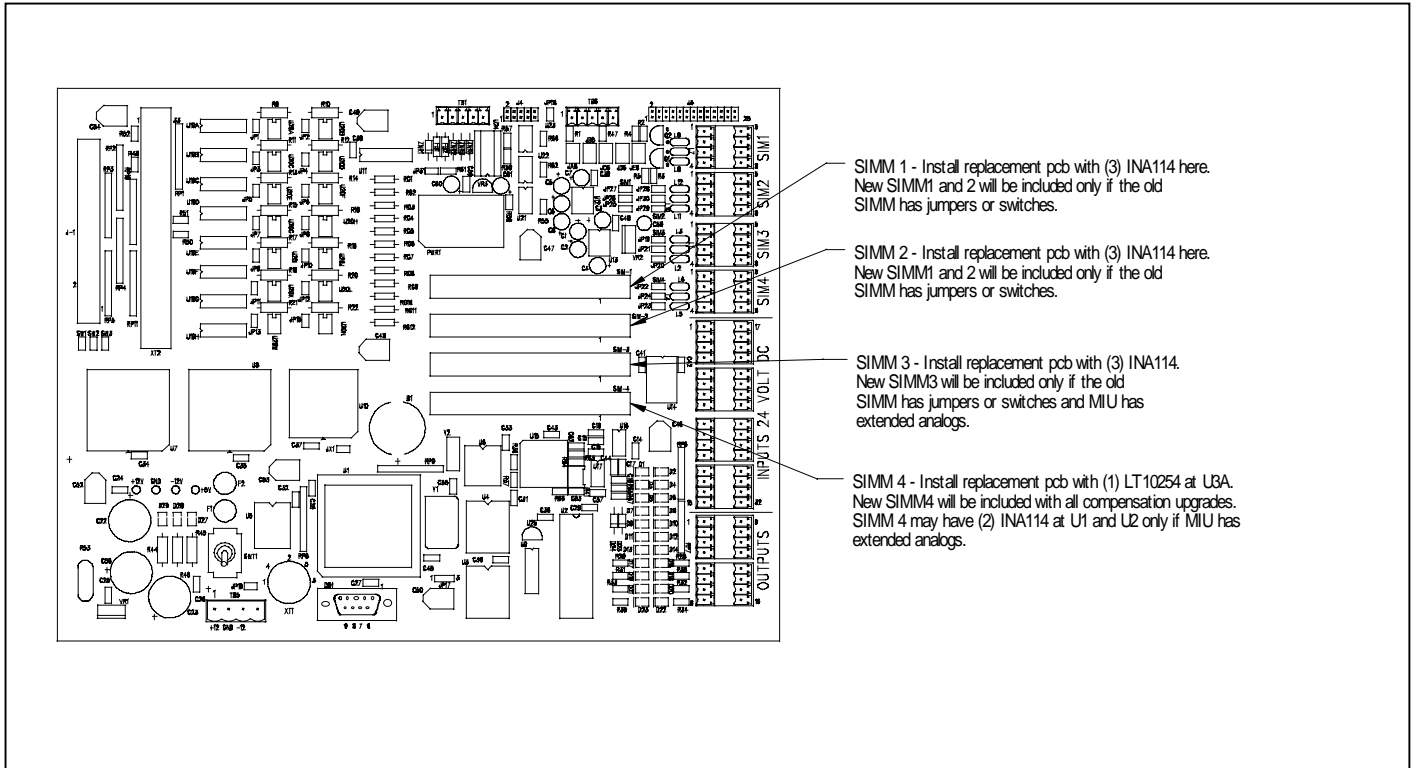
Application Note

MIU 8x / 10x Temperature Compensation

Installation and Calibration

720-0137 Rev A
May 26, 1999

MIU-10X



The circuit board installed in your MIU may not be exactly as shown but the SIMMs are in the same order top to bottom.

1. Replace EPROM with the included 750-7600 REV-J for Millennium 2.51 or greater or 750-7500 REV-I for Millennium 2.50 or less.
2. Install a shunt on the header SW1 located at the bottom of the door ribbon cable.
3. Replace original temperature gain resistors with included 182 Ω 1% resistors. **Replace only temperature gain resistors.** Gain resistors are located on the main circuit board to the left of the SIMMs. The gain resistors are marked RG1 through RG12, which correspond to input 1 through 12.
4. Once the SIMMs are installed the thermocouples channels must be re-calibrated. Only the thermocouple channels should need re-calibration. Use the procedure on the 4th page to re-calibrate.

Application Note

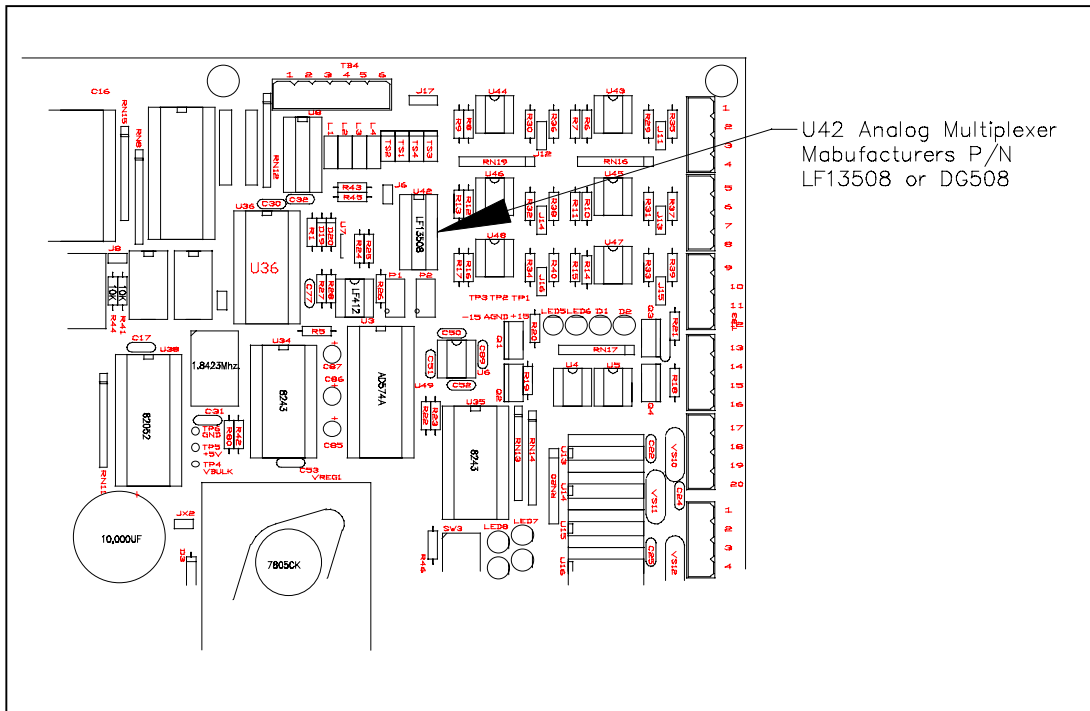
MIU 8x / 10x Temperature Compensation

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720-0137 Rev A
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MIU-8X

1. Replace EPROMs with the included 750-7400 REV-E (8X Door), 750-7300 REV-E (Motherboard) or 750-7900 REV-E (Motherboard with daughter card) for Millennium 2.51 or greater or 750-7200 REV-L (8X Door), 750-7100 REV-L (Motherboard) or 750-7000 REV-L (Motherboard with daughter card) for Millennium 2.50 or less. For MIUs with the daughter board it will have to be removed to replace the EPROM.
2. Remove U42 from the circuit board attached to the MIU box. The circuit board in the diagram below may not be exactly like the one in your MIU but U42 will be in the same general location. The manufacturers part number that you will be looking for will be either LF13508 or DG508. Re-install U42 in the compensation module. The notch on U42 should face away from the part soldered on the compensation board.
3. Replace original temperature gain resistors with included 182 Ω 1-% resistors. **Replace only temperature gain resistors.** Gain resistors are located next to the amplifiers (U43-U47) for each analog channel. The gain resistors are marked R29 through R34, which correspond to input 1 through 6. Typically thermocouples are on channels 1 – 4
4. If the compensation module is installed on a MIU with a daughter circuit board in the upper left corner of the box, set switch SW2 position #3 down or on. If the compensation module is installed on a MIU without daughter circuit board, set switch SW2 position #6 down or on.
5. Once the compensation module is installed the thermocouples channels must be re-calibrated. Only the thermocouple channel should need re-calibration. Use the procedure on the 4th page to re-calibrate.



MIU 10X/8X WITH ANALOG COMPENSATION CALIBRATION PROCEDURE

IMPORTANT! Prior to calibration allow at least one hour for internal temperature of MIU to stabilize.

It is very important to minimize the amount of time the door to the MIU is open while calibrating. The less time the door is open the better the calibration will be. Use of Altek model 322-1 thermocouple simulator or equivalent will be required to calibrate using the following procedure. Use leads on the calibrator that will allow the door to shut while taking readings.

Use MIU screen 22 (MIU information), 1 (calibrate analogs), calib. Function key.

1. Set gain on channels being calibrated to 1.000 and offset to 0.
2. Set simulator to a temperature that represents the lowest value you would expect to read. Note and record reading.
3. Set simulator to a temperature that represents the highest value you would expect to read. Note and record reading.
4. Note the error at both settings (e.g. Set for 1000° F. And reads 1004° F.) reduce or increase gain until error on the high setting is same as error on low setting. This may require a few passes to get completely correct. Gains will almost be 1 (e.g. .996 or 1.002)
5. Once the error is the same at the high and low setting use this error as the offset.
6. Record the gain and offset and enter them at the host computer using System Manager.

Example:

I plug simulator into the channel and set it for 32 degrees f. The MIU reads 33 as the current value. I note that and then set the simulator for 1000 degrees f. The MIU reads 1004 degrees in the current value screen. I then put in a gain of .996. The MIU now reads 1000 degrees f. I now set the simulator to 32 degrees and the MIU reads 30 degrees. I return to the 1000 degree setting and change the gain to .998. The current value is now 1002. I return to the 32 degree setting and the current value is now 34 degrees. I add an offset of -2 and the MIU now reads 32 degrees. I return the simulator to the 1000 degree setting and the MIU reads 1000 degrees. I now plug in the press to the MIU. The press reads the temperature as 540 degrees. The MIU reads the press as 544 degrees. I add an additional -4 degrees of offset to make the MIU read the same as the press. Due to dissimilarities between the various circuitry's and other hardware involved I would not expect identical readings between the simulator, press and MIU. These differences should not be large, but it is probably most useful to the operator for the MIU to report the same temperature as the press.