

Number: C0007 Date: 7/17/00
Title: DC Volt Analog Inputs, PIC-II Controls
Category: *GENERAL*
Author: Steve Bayes
Reviewed by: Alan M. Johnson
Dept: CSS Service Engineering

Supersedes: Date:

Termination Date:

Models: CAC: 19XR, 23XL Series chillers
Affected: BDP:

Purpose:

This bulletin informs the field regarding how to set up a PIC-II control system to use a 1 to 5 dc volt analog input in place of a 4 to 20 mA analog input (used in the Auto Demand Limit, Auto Chilled Water Reset, or Refrigerant Alarm options). All of these inputs are connected to the J5 terminal block of the CCM module in the PIC-II Control Panel.

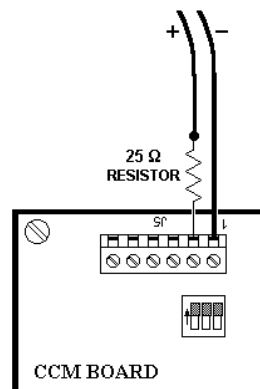
Information:

19XR and 23XL chillers with PIC-II controls are provided with optional 4 to 20 mA analog inputs for Auto Demand Limit, Auto Chilled Water Reset, and Refrigerant Alarm. Carrier literature has indicated that a 1 to 5 dc volt source can be used as a substitute for the current source for any of these, as long as the associated DIP switch (located on the CCM beneath the J5 inputs) is changed to the OFF (0) position.

Experience has shown that this substitution does not work "as advertised". When connected in the above fashion, the CCM reading of the input, converted to mA in the CVC tables, is 10% high.

Options for adapting a 1 to 5 dc volt input to have the intended result (i.e., 5.0 dc volts = 20 mA) are:

- (1) Install a 25 ohm resistor in series with the + voltage lead(s) into terminal block J5. (The even numbered terminals are + here. As the CCM block is mounted in the control panel, the numbering is upside down with terminal 1 on the right side.) The DIP switches should remain in the ON (up) position. See the example in the sketch below.



(2) Modify the input voltage via external controller software, if available, to compensate for the 10% high interpreted value. Without compensation 5.0 volts (100% of range) is read as 22.0 mA, and 1.0 volts (0% of range) is read as 4.4 mA. Instead, for example, program the controller to provide 4.54 volts at 100% and 0.91 volts at 0%.