

Part Number: AI-030

Applicability: V7, V74X, V7N

Introduction: The Auxiliary Analog Input Connector Assembly allows for a second analog input (0-10VDC or 4-20mA) to be used with the V7 series drive. The kit includes a 3-foot cable with the mini-connector needed to interface the analog input on the back of the drive's keypad.

Receiving: All equipment is tested against defect at the factory. Report any damages or shortages evident when the equipment is received to the commercial carrier who transported the equipment.

Warning: Hazardous voltage can cause severe injury or death. Lock all power sources feeding the drive in the "OFF" position.

Important: Before installing this option, a technically qualified individual, who is familiar with this type of equipment and the hazards involved, should read this entire installation guide.

Installation and Wiring:

1. Disconnect all electrical power to drive.
2. Verify that power has been disconnected by using a voltmeter to check for voltage at incoming power terminals (L1, L2, and L3).
3. Remove the digital operator from the drive. First, loosen the screw on the front cover of the drive, and then pull off the bottom front cover. After this has been completed, remove the digital operator from the drive.
4. Locate the 2CN connector on the bottom of the back -side of the digital operator. Plug the Auxiliary Analog Input Connector into the 2CN connector as shown in Figure 1.
5. Re-install the digital operator, and verify that the Auxiliary Analog Input wires are properly routed through the wire channel provided. Then re-attach the bottom front drive cover and tighten the screws down.

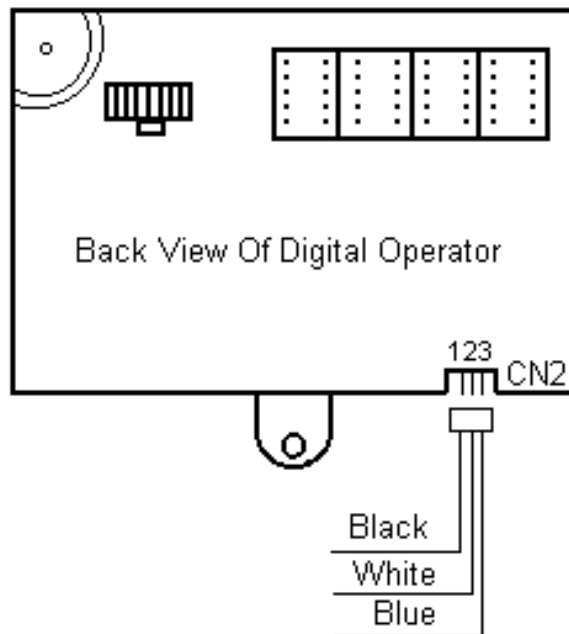


Figure 1: Keypad Auxiliary Analog Input

Table 1: Auxiliary Analog Input Specifications

Wire Color	Terminal	Description	Signal Level
Black	CN2-1	Auxiliary Voltage Input	0-10VDC (20kOhm)
White	CN2-2	Auxiliary Current Input	4-20mA (250Ohm)
Blue	CN2-3	Common (same as Terminal FC)	Common

Note: Terminals CN2-1 and CN2-2 cannot be used at the same time.

Adjustment:

1. Re-apply power to the drive. Set parameter n004 (Reference Selection) for the desired primary frequency reference input. Program the auxiliary analog input function using parameter n077 (Multi-function Analog Input Selection) See the following table and diagrams for function details.

Setting	Description
0	Multi-function Analog Input is Disabled (Factory Default)
1	Auxiliary Frequency Reference (FREF2)
2	Frequency Reference Gain (FGAIN)
3	Frequency Reference Bias (FBIAS)
4	Output Voltage Bias (VBIAS)

2. Set the signal level of the auxiliary analog input using parameter n078 (Multi-function Analog Input Signal Selection).

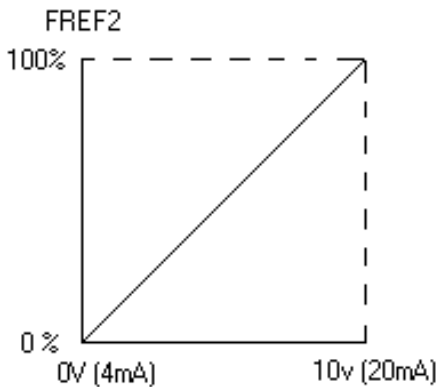
Setting	Description
0	2CN-1 Input Terminal (0-10VDC) (Factory Default)
1	2CN-2 Input Terminal (4-20mA)

3. Set the bias level of the auxiliary analog input using parameter n079 (Multi-function Analog Input Bias Setting).

Setting Range	Factory Default
0 – 50%	10%

4. Place this instruction sheet with the drive's technical manual.

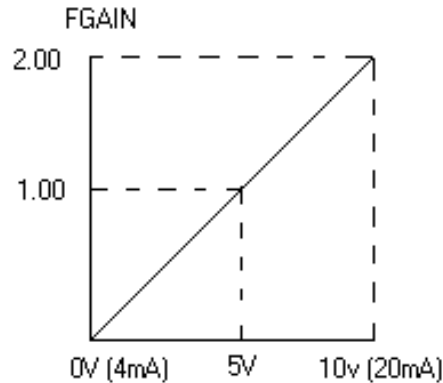
Auxiliary Frequency Reference (n077 = 1)



When multi-function analog input is selected in parameter n004 (settings 7 or 8), 2CN on the digital operator becomes the speed reference input.

When n004 is set to any other data value, the 2CN input is the speed reference when the multi-function digital input function "Multi-Step Speed Reference Command A" (setting 6) is programmed and the input is closed.

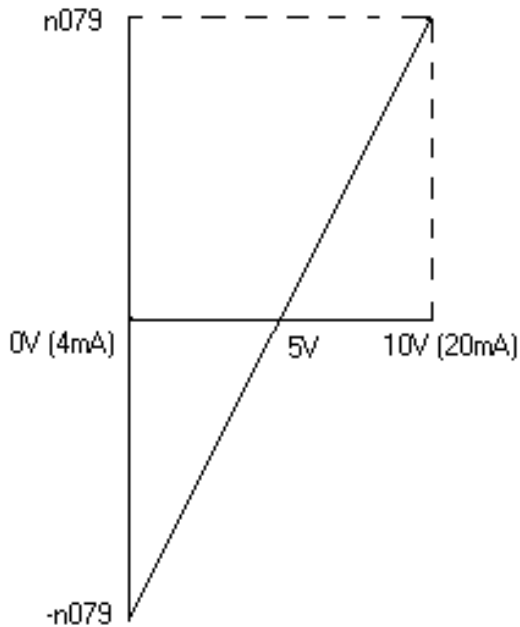
Frequency Reference Gain (n077 = 2)



The frequency reference is multiplied by the frequency reference gain (FGAIN).

The reference is also manipulated by the internal frequency reference gain (n060 for terminal FR or n074 for terminal RP) and internal frequency reference bias (n061 for terminal FR or n075 for terminal RP). All 3 functions are used to calculate the final speed reference from terminals FR and RP.

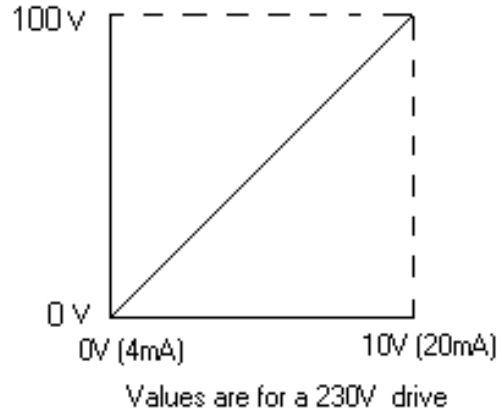
Frequency Reference Bias (n077 = 3)



The frequency reference bias (FBIAS) is added to the frequency reference.

The reference is also manipulated by the internal frequency reference gain (n060 for terminal FR or n074 for terminal RP) and frequency reference bias (n061 for terminal FR or n075 for terminal RP). All 3 functions are used to calculate the final speed reference from terminals FR and RP.

Output Voltage Bias (n077 = 4)



The output voltage bias (VBIAS) is added to voltage reference after the V/f pattern. This function should be used with caution as increasing or decreasing the motor voltage can cause excessive current draw, motor over-heating, motor stalling, etc.