The Application Note is pertinent to our Focus 1 DC Drive

**Achieving Isolation on Focus 1 Drives**

There are many applications for the Focus 1 DC drive where the speed reference is a signal generated by an external controller or where the drives speed potentiometer must be remotely mounted on the machine. Since the Focus 1 drive is not an isolated drive, these remote reference signals MUST be isolated from earth ground and it is a good idea to isolate the speed potentiometer for personnel safety as well as eliminating the possibility of drive damaged caused by a connection on the speed potentiometer coming into contact with ground (see CTAN215) [http://www.emersonct.com/pdProducts/downloads/appNotesPDF/CTAN215.pdf](http://www.emersonct.com/pdProducts/downloads/appNotesPDF/CTAN215.pdf).

The F3NSBD, Isolator option, was designed for the Focus 3 driveline for these very reasons. This option can be used with the Focus 1 also. This application note will show how to connect the Focus 3 Isolator option (F3NSBD) to the Focus 1 DC Drive.

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**Diagram:**

- **TB1** and **TB2**
  - Inputs to be Isolated
  - Isolated Outputs to drive
Focus 3 Isolator option
P/N F3NSBD

120vac or 24vdc

Start

Stop

TB1

Run Relay (R)

TB2

Input power 24Vdc @ ma

Isolator Board (2415-4050)

Output Signal (+) 10VDC max

120vac or 24vdc

Speed Potentiometer
5K ohms 2 watts

OR

Analog Reference
0 to +10vdc

* Not required if only speed reference needs to be isolated
(i.e. start is by isolated relay contact)

For other configurations of this side (isolated side) of the Isolator Option Card, see the 2415-3050 Instruction sheet

* Not required if only speed reference needs to be isolated
(i.e. start is by isolated relay contact)
## JUMPER PROGRAMMING TABLE (2415-4050 board)

<table>
<thead>
<tr>
<th>Input Source (TB1)</th>
<th>Terminal Strip</th>
<th>Connection</th>
<th>Input</th>
<th>JP1</th>
<th>JP2</th>
<th>JP3</th>
<th>JP4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage Inputs</strong></td>
<td>(+)</td>
<td>(-)</td>
<td>Impedance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Speed Pot*</td>
<td>TB1 – 7</td>
<td>TB1 - 8</td>
<td>40K Ohms</td>
<td>---</td>
<td>Pot</td>
<td>Voltage</td>
<td>Pot</td>
</tr>
<tr>
<td>B. 0 to (+) 10VDC</td>
<td>TB1 – 7</td>
<td>TB1 - 8</td>
<td>40K Ohms</td>
<td>---</td>
<td>Pot</td>
<td>Voltage</td>
<td>V/I</td>
</tr>
<tr>
<td>C. Voltage Reference Range</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 5vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>910 Ohms</td>
<td>5V</td>
<td>V/I</td>
<td>Voltage</td>
<td>V/I</td>
</tr>
<tr>
<td>0 to 12vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>2.21K Ohm</td>
<td>12V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 26vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>4.7K Ohms</td>
<td>26V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 52vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>9.45K Ohms</td>
<td>52V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 98vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>17.9K Ohms</td>
<td>98V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 to 208vdc</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>37.9K Ohms</td>
<td>208V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Current Inputs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. 0 to 5ma / 1 to 5 ma</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>910 Ohms</td>
<td>5V</td>
<td>V/I</td>
<td>Voltage</td>
<td>V/I</td>
</tr>
<tr>
<td>B. 0 to 20ma / 4 to 20ma</td>
<td>TB1 - 5</td>
<td>TB1 - 8</td>
<td>243 Ohms</td>
<td>5V</td>
<td>V/I</td>
<td>Current</td>
<td>V/I</td>
</tr>
</tbody>
</table>

* +10VDC Supply for speed pot is TB1-6, 2.5 milliamps maximum

There is a programming jumper located by terminal #1 of TB1 which selects either 120vac or 24vdc start logic.
Refer to Instruction sheet CTIS#104 for more detailed information
Additional Notes:

In some applications, an enclosed Focus 1 drive is utilized so that the drive can be mounted directly on the wall, or machine surface. In this case, the speed reference may still originate from some external controller and therefore the speed potentiometer on the front of the drive may not be needed. The isolator can be mounted in the front cover of the drive using the four stand-offs provided in the kit. The output to the drive (from the isolator) can be wired just as shown on page #2. The speed pot connections to the drive must then be disconnected. This can be done by clipping the three wires to the orange connector (J4) as shown below.

Questions: Ask the author ??
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