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Application Information

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Introduction:

The P201 Enhanced Servo Daughter Board provides a high speed (6M edge rate) encoder input, a 16 bit $\pm 10V$ DAC output and 2 independent high speed registration inputs. This board is intended as an upgrade to the existing P200 Servo Daughter Board and can be used as a drop in replacement for a P200 with only minor wiring changes and possible minor software changes.

System Requirements:

The P201 is supported in the following Motion Coordinator products:

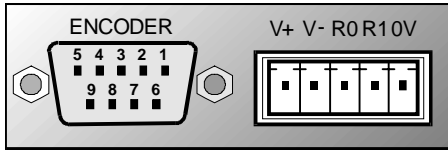
- Euro205x
- MC206
- MC224
- MC Axis Expander (with an MC224).

The master module must be running system software v1.6308 or higher.

Wiring Configuration:

The encoder input is connected via a 9 way "D" connector and is pin compatible with the P200. The DAC output and registration inputs are available on a 5 way terminal in a similar way to the P200 but a 5 way connector is used to allow for the extra registration input. The P201 has an isolation barrier between all of the external connections and rest of the Motion Coordinator. However on Motion Coordinators without an isolated external power supply, such as the

EURO205X and the MC206 the isolators will only isolate the DAC output and not provide full isolation for the encoder port and registration inputs.



P201 Enhanced Servo Daughter Board Front Panel

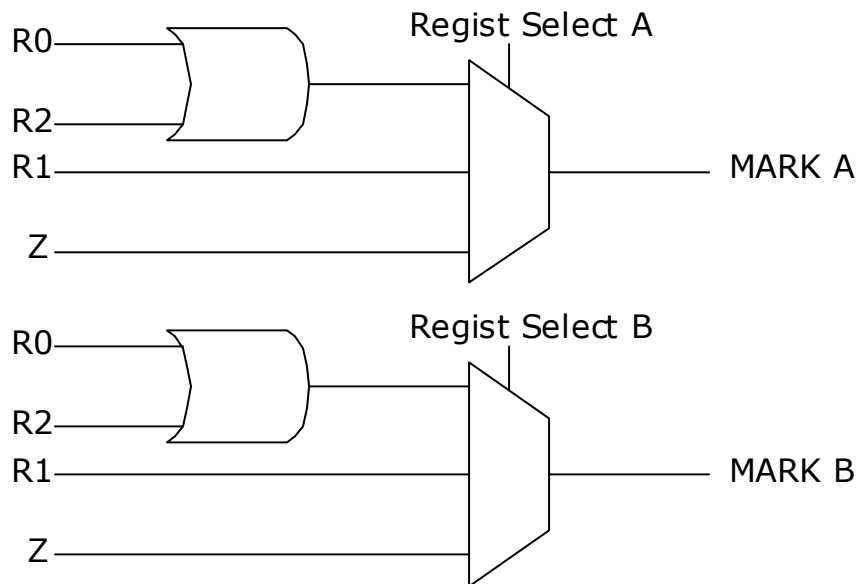
Encoder Connections:

| Signal | D Connector Pin |
|----------------------------|-----------------|
| A | 1 |
| /A | 2 |
| B | 3 |
| /B | 4 |
| 0V | 5 |
| Z | 6 |
| /Z | 7 |
| +5V (150mA max) output | 8 |
| 5V Registration Input (R2) | 9 |
| Screen | Shell |

Other Connections:

| Signal | Terminal Pin |
|--------------------------|--------------|
| ±10V DAC output | V+ |
| ±10V DAC output | V- |
| 24V Registration Input | R0 |
| 24V Registration Input | R1 |
| 0V (Registration Inputs) | 0V |

Selection of Registration Source



Configuring the Motion Coordinator:

Motion Coordinators with system software version 1.6308 or higher will automatically detect Enhanced Servo Daughter Boards. The boards are detected as axis daughter boards with **atype=12**.

Relevant BASIC Commands:

ATYPE

The ATYPE of a P201 is 12.

DAC

If the DAC axis parameter is set by the application program then the values set will need to be scaled by a factor of -16 to allow for the increase from 12 bits to 16 bits and an inversion in the output compared with the P200.

The DAC parameter has the range 32767 (10V) to -32768 (-10V).

Note: DAC_SCALE does not have any effect on the magnitude of the DAC output when set in open loop mode, it will only effect the polarity if DAC_SCALE is set to -1 or -16.

DAC_SCALE

The DAC_SCALE axis parameter should be set to -16 when replacing a P200 with a P201. This will scale the gain parameters to compensate for the increase in DAC resolution, therefore it should not be necessary to change the gains set in the program.

OUTLIMIT

The OUTLIMIT axis parameter has a default value of 32767 with a P201. If the application program was written for a P200 and the OUTLIMIT parameter is set in the program it will most likely have a value of 2047. This will limit the DAC output to 0.62V unless the value is changed to 32767.

REGIST

The REGIST command currently supports capture of one or two events. The possible combinations of registration sources are given in the Motion Coordinator Technical Reference Manual. The P201 will support all the modes as per an MC206. Future upgrades to the system software will allow more of the possible combinations available on the P201.