VXM *Stepping Motor Controller*

Application Note # AN105

<u>Edge Following Using Analog Jog Input</u>

The VXM's analog input can be used for position control when interfaced to an analog sensor. The analog voltage input range is 0 to +5V; 2.5 volts is stop, greater than 2.6V is move positive, and less than 2.4V is move negative.
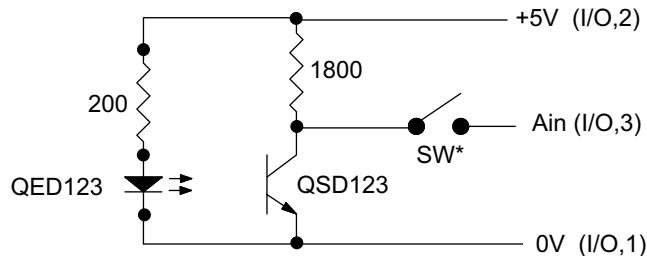
By utilizing the analog jog mode feature a very precise and automatic method to track an edge of a part or material can be achieved.
Repeatability to one motor step is achievable approaching from either direction to a common edge.

This Application Note demonstrates a method of using the analog signal from a phototransistor to control motor position.

Materials Needed:

1. Auxiliary I/O Breakout Module or DB15HD (VGA) cable
2. QED123 Infrared Light Emitting Diode
3. QSD123 Infrared Phototransistor
4. 200 and 1800 ohm 1/4 watt resistors
5. Toggle Switch

Wiring:

CAUTION: Switch SW must be open (as shown) at power-up. The VXM reads the analog value at power-up and assigns this value as the no motion setting. If the optical beam is not at the edge (partially blocked to produce 2.5V) motor motion relative to optical sensing voltage will be unpredictable.

*SW could be an analog switch or relay powered by a VXM output.
If a relay, optical isolation is required from the VXM output to the relay coil (power the relay coil from an isolated power supply.)
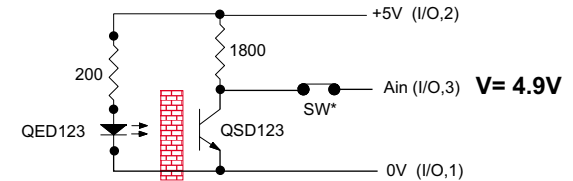
VXM Settings:

The **setjA**mM*x* command is used to enable the analog jog input. The example below scales the sensor input voltage to a speed range of 2 to 500 steps/second. Refer to Appendix J in the VXM User's Manual for more information about the **setjA**mM*x* command, and the **setDA**x command for setting deadband value.

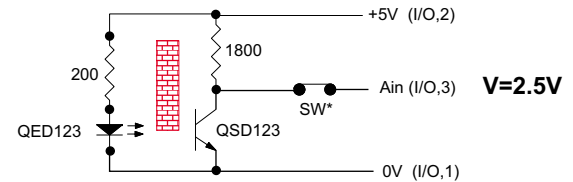| Example	Motors run	RAM used	Function
Enable Analog Jog on Motor 1	-	-	Set Motor 1 Jog Range 2 to 500 sps

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  E
  setjA1M2    ;Set Analog Jog on Motor 1 to 2-500
  rsm
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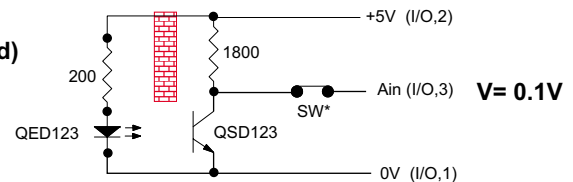**NOTE:** The VXM must be in the Local/Jog mode (On-Line off) to respond to the analog input.

Move Positive (Beam Blocked)

V= 4.9V

Stop (Beam at Edge)

V=2.5V

Move Negative (Beam Unobstructed)

V= 0.1V