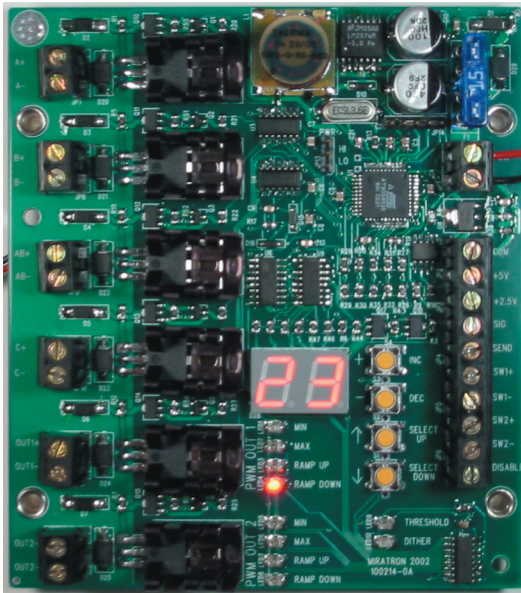
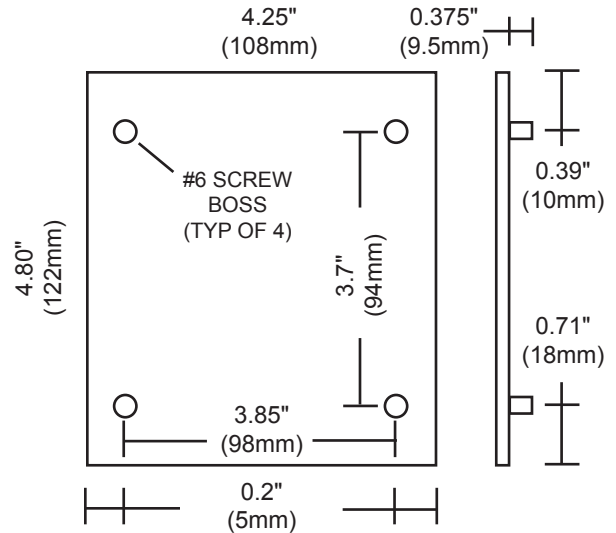


# Installation and Setup Instructions

## PC200 Dual Output Ramping Proportional Controller



### DIMENSIONS



### SPECIFICATIONS

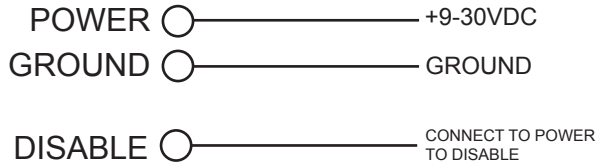
General:	Power requirement Fuse	9-30Vdc, 250mA nominal + power to external loads 15-Amp Fuse; total load must not exceed 15-amps
Digital Outputs:	Type Output	Sourcing Same as supply voltage, 5 Amps max. each
PWM Outputs:	Frequency Dither Output Adjustments	1000Hz 100Hz, 0-10% of maximum current Same as supply voltage, 0-5Amps max. Minimum/Maximum: 0-5A (Can be adjusted for min>max) Ramp Up/Dn: 0.1-5 Seconds
Joystick Input:	+5V OUT +2.5V OUT SIGNAL IN Adjustments	Joystick power; 50mA max (1k ohm pot recommended) Tap reference; 50mA max (1k ohm pot recommended) 0-5Vdc or 0.5 to 4.5Vdc jumper selectable; 2.5Vdc center Threshold: 0 to +/-2Vdc
Switch Input:	FWD REV DISABLE	Dry contact Dry contact Connect to system power to disable control*
Mounting:		(4) #6 x 3/4" self-tapping screws (included)
Environmental:	Storage Operating	-40degC to 85degC -10degC to 60degC

\* DO NOT USE THIS INPUT FOR SAFETY CONTROL. When using 2 controllers with 2-axis joystick, AB(+) terminal of one controller can be connected to DISABLE terminal of a second controller to prevent simultaneous operation of X and Y axis.

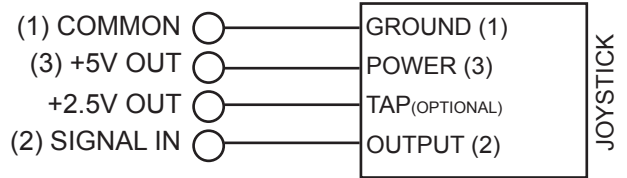
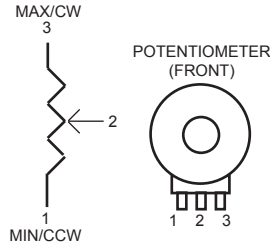
# WIRING

## INPUT WIRING

POWER INPUT IS REVERSE POLARITY PROTECTED AND FUSED TO 15-AMPS. FOR NORMAL OPERATION, LEAVE DISABLE TERMINAL OPEN. DISABLE TERMINAL NOT FOR SAFETY CONTROL APPLICATIONS.

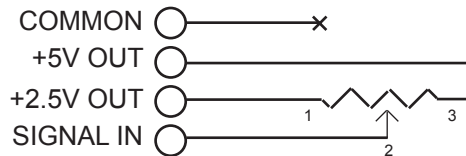
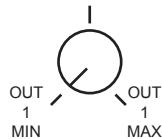


### JOYSTICK or POTENTIOMETER:



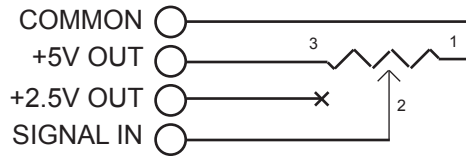
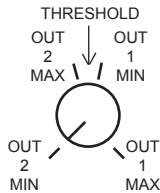
### SINGLE COIL CONTROL - POTENTIOMETER:

Full range of potentiometer rotation controls only OUT 1.



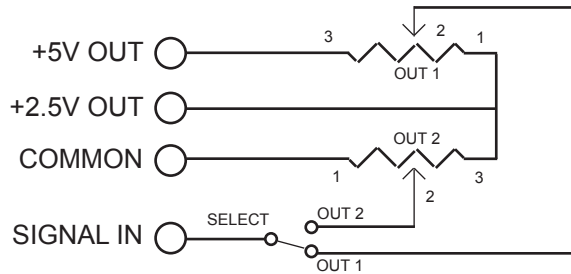
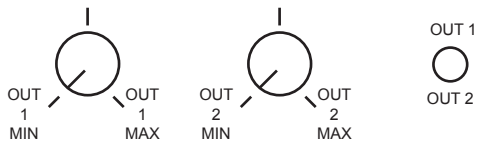
### DUAL COIL CONTROL - POTENTIOMETER:

Full range of potentiometer rotation controls OUT 1 and OUT2.



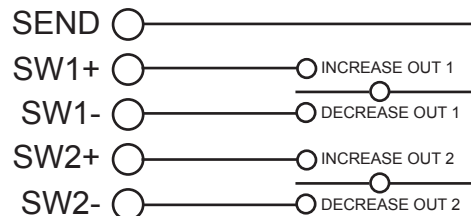
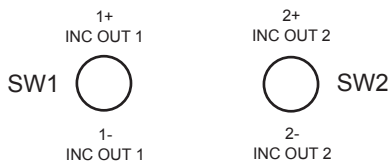
### DUAL COIL CONTROL-INDEPENDENT ADJUSTMENT:

Independent potentiometers for OUT 1 and OUT2.



### SWITCH CONTROL - OUT 1 and/or OUT2:

Independent switch inputs for OUT 1 and OUT2.

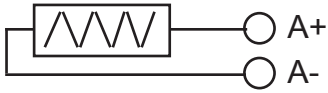


# WIRING

## OUTPUT WIRING

PROPORTIONAL and DIGITAL VALVE OUTPUTS:

2-WIRE SOLENOIDS



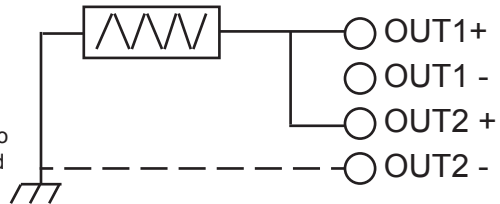
1-WIRE GROUNDING SOLENOIDS



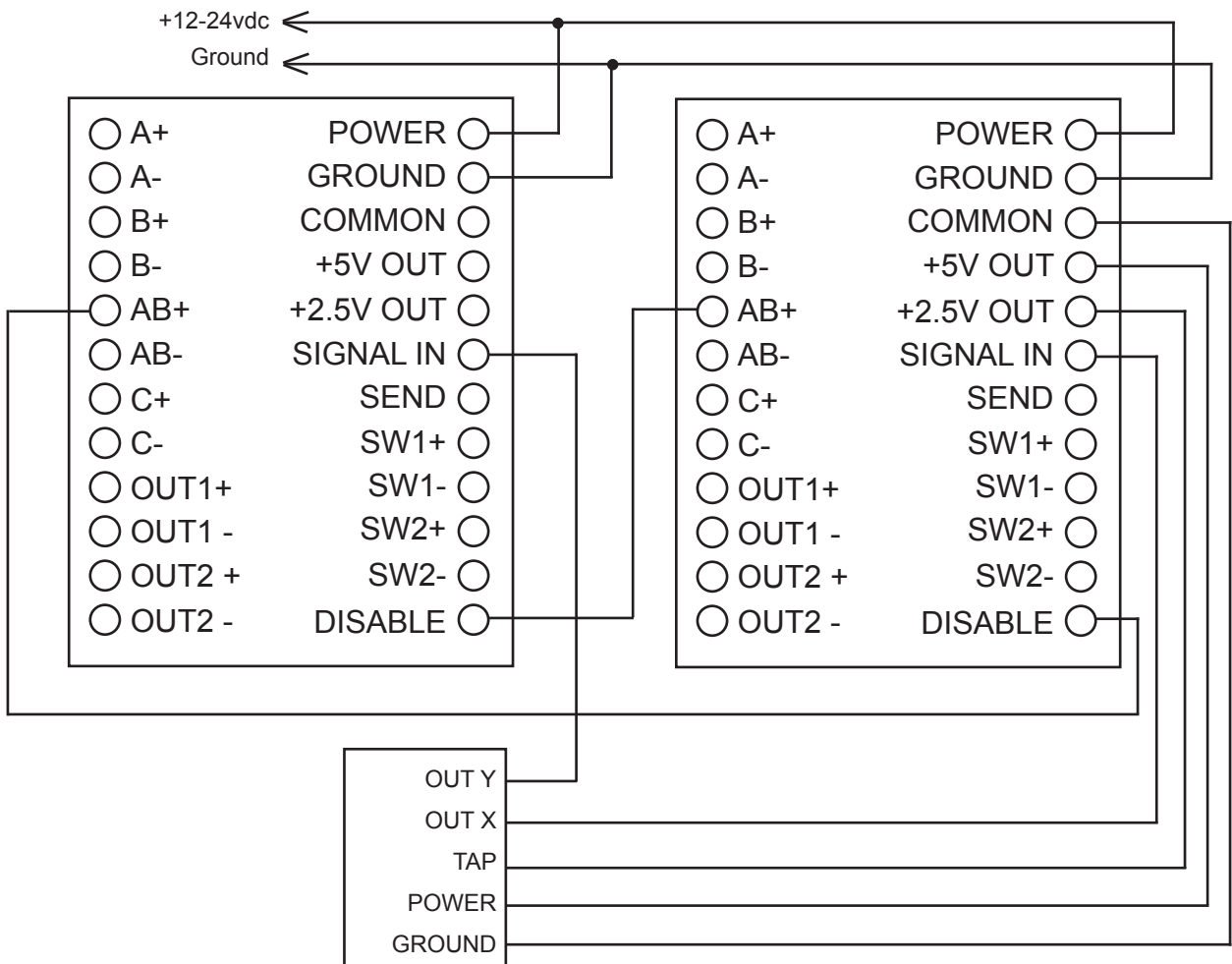
NOTE: Wiring diagram applies to all solenoid valve outputs.

ALTERNATE PROPORTIONAL OUTPUT WIRING:  
Combined \***OUT1+2** (See table)

NOTE: Connect one side of coil to  
OUT1-, OUT2-, or Ground

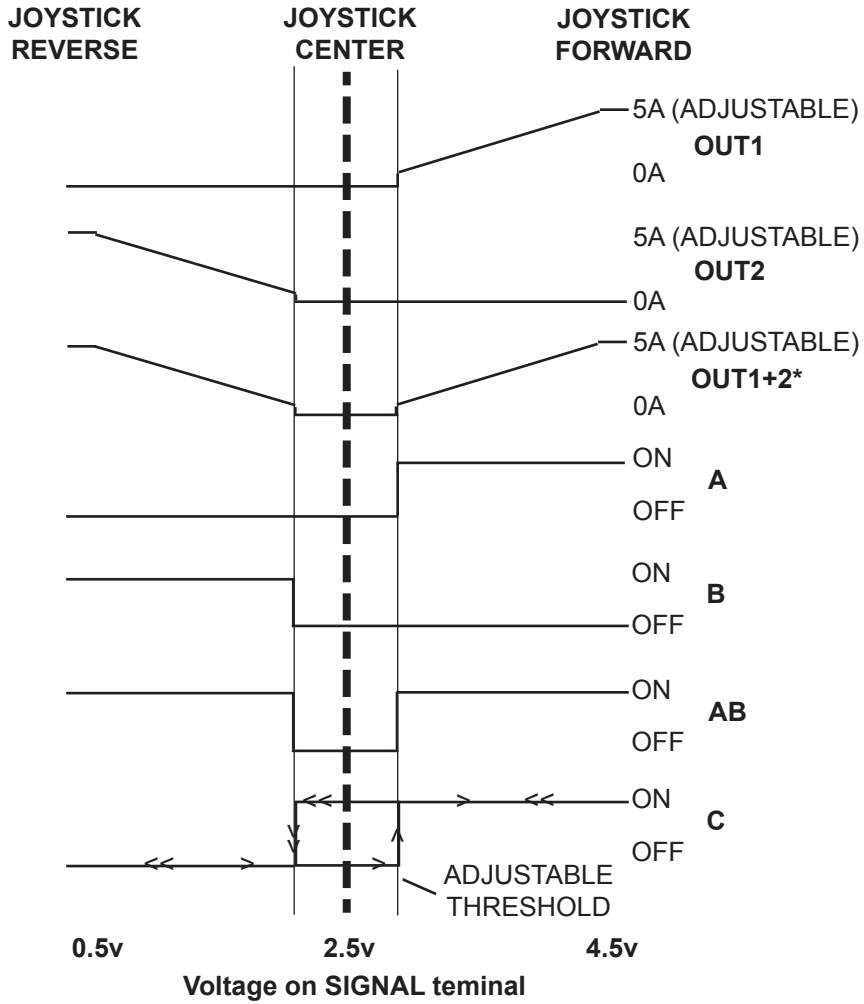


CASCADE CONNECTION FOR 2-AXIS JOYSTICK (4-OUTPUTS):

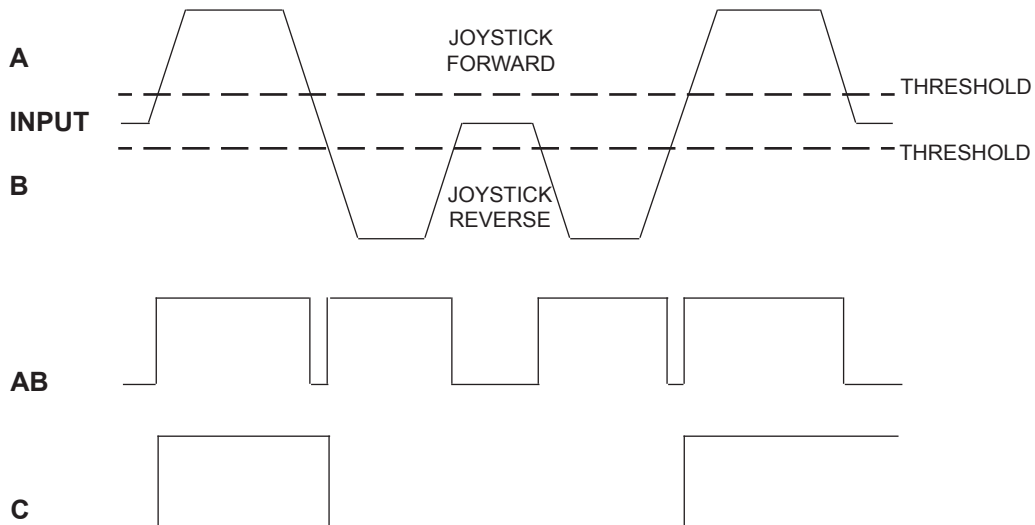


NOTE: When using 2 controllers with 2-axis joystick, AB(+) terminal of one controller can be connected to DISABLE terminal of a second controller to prevent simultaneous operation of X and Y axis.

# OPERATION

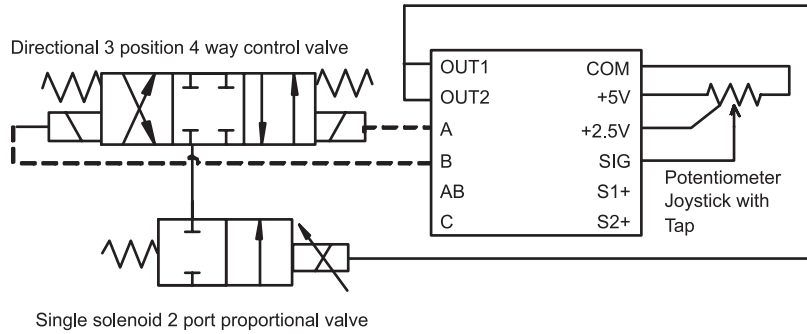


\*NOTE: OUT1+2 Created by connecting both OUT+ terminals to one side of solenoid and connecting one or both OUT- terminals to other side of solenoid. (See OUTPUT WIRING diagram.)

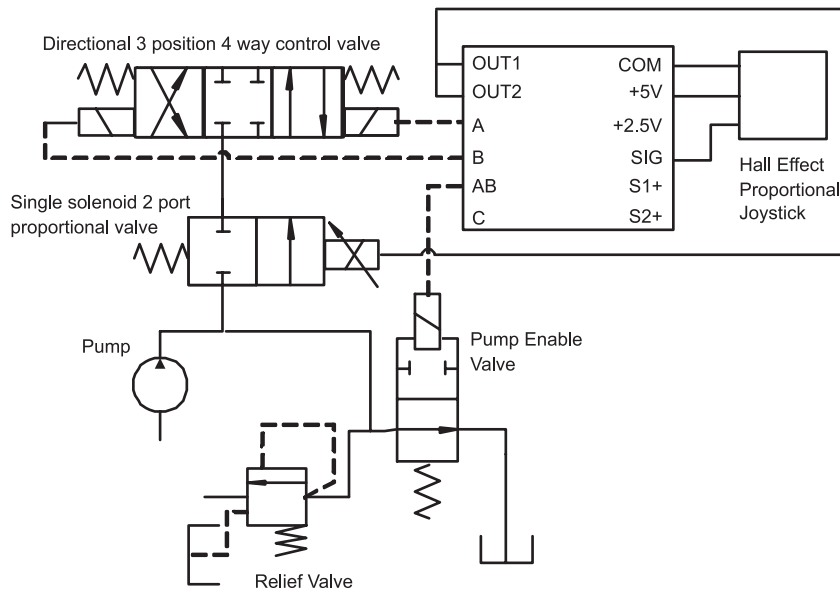


# APPLICATIONS

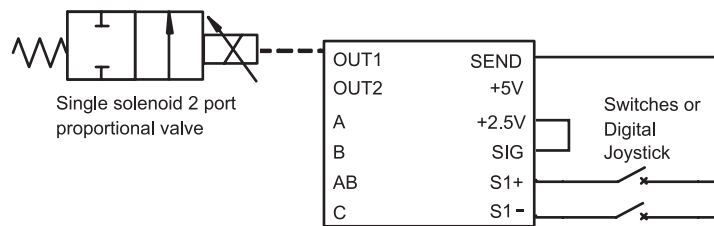
## #1: COMBINED PROPORTIONAL AND DIGITAL OUTPUTS WITH TAPPED POTENTIOMETER JOYSTICK



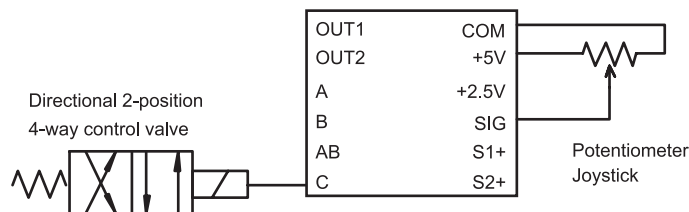
## #2: COMBINED PROPORTIONAL AND DIGITAL OUTPUTS WITH HALL-EFFECT JOYSTICK



## #3: PROPORTIONAL OUTPUT WITH SWITCHES OR DIGITAL JOYSTICK



## #4: DIGITAL LATCHING OUTPUT WITH POTENTIOMETER JOYSTICK



**NOTE:** APPLICATIONS SHOWN ARE EXAMPLES ONLY. MANY OTHER HYDRAULIC CIRCUITS AND CONTROL COMBINATIONS ARE POSSIBLE.

# SETUP

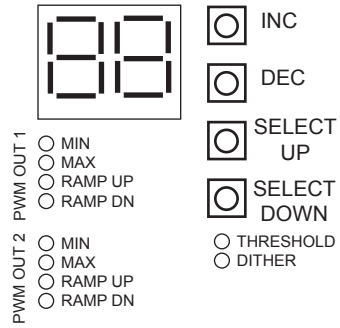
Step 1 Apply power to controller.

Step 2 Move JP13 to appropriate input signal range. Use 0.5 to 4.5v for hall-effect joystick applications. Use 0 to 5v for potentiometer applications.

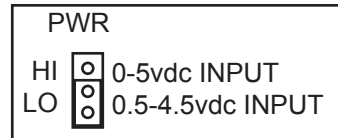
Step 3 Press SELECT UP or SELECT DOWN buttons to choose which parameter to adjust. LED's indicate selected parameter.

Step 4 Press INC or DEC buttons to adjust value of selected parameter. Display indicates value from 0-99% of adjustment range.

Step 5 Repeat steps 3 and 4 until all parameters have been adjusted to desired values.



**INPUT JUMPER SETTING:**



**DESCRIPTION OF PARAMETERS:**

**PWM OUT 1 and PWM OUT 2**

MIN:	Minimum value for proportional output	0 = Off; 99 = full power
MAX:	Maximum value for proportional output	0 = Off; 99 = full power
RAMP UP:	Time for output to reach maximum value	0 = 0.1 seconds; 99 = 5 seconds
RAMP DN:	Time for output to reach maximum value	0 = 0.1 seconds; 99 = 5 seconds
THRESHOLD:	Adjusts how far the joystick/potentiometer must be moved from center before output begins to change. Increase this value to make the joystick/potentiometer less "touchy."	0 = 0 volts (0%); 99 = +/-2 volt (25%)

DITHER:	Adjusts the amount of high-frequency signal applied to the proportional outputs. This enables fine control of the solenoid by preventing sticking.	0 = none; 99 = +/-10% of max output
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**SETUP NOTES:**