



Cortex VEX Spike Wiring Information – Marc Center October 25, 2012

Thread Tools ▼

09-20-2006, 06:10 AM

#1

Spike relay support

Can the IFI Spike relays (<http://www.ifirobotics.com/spike.shtml>) be used with the Vex Controller?

Yes, the Vex Controller is compatible with the IFI Spike Relay Module. The Spike control signals (PWM cable) must be connected to the Vex Controller Analog / Digital Outputs. The 3 wire PWM cable going to the Spike Relay Module must be modified because the Spike needs 2 control lines (inner and center) and 1 ground (outer) pin. The Analog / Digital Output 3-wire connection consists of 1 control (inner), 1 power (center), and 1 ground (outer) in a single row strip. Since the Spike expects a control signal on the outer white wire and the center red wire, the center red wire must be move to a digital output pin (wire colors based on our PWM cables). A direct connection without modification would connect the red center control wire to power and the Spike would not function properly. Also the sex of the PWM connector must be swapped from female to male which can be done using a 3 pin header. Call us if you are ordering a Spike relay and need a 3 pin M-M header.



09-20-2006, 06:16 AM

#2

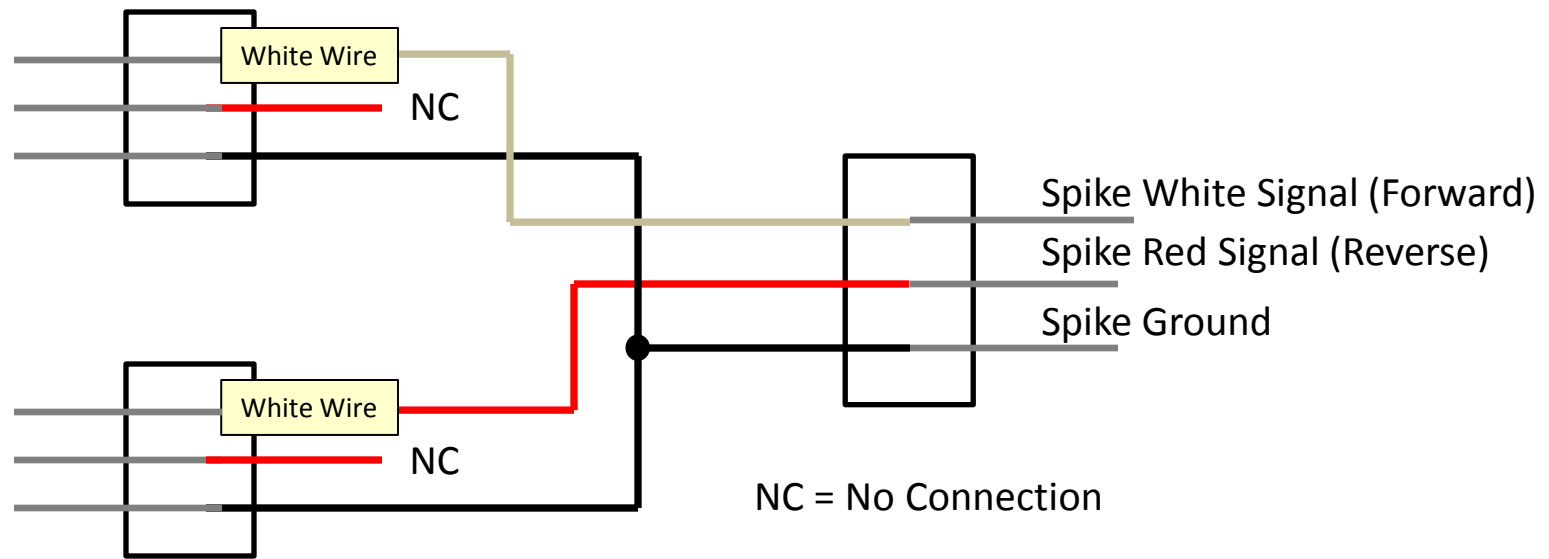
Re: Spike relay support

I understand why the Spike can not be directly connected to a motor port. But could you explain how to connect to a digital output pin and how you would program that to control two solenoids.

See above post for connecting a Spike to the Vex Controller. For programming, you can program it just like you would any digital output. An "On" signal on one of the control lines and an "OFF" on the other control line would cause the Spike to actuate in one direction, while reversing both control signals would cause it to actuate in the other direction. You can use the MPLAB IDE or easyC software to change your program, but the User must know how to program.



2-male PWM (3 pin) cables to 1-male PWM (3 pin) cable Spike Connection



Note: Only 1 of the 2 black wire connections from the left 2 PWM cables is required. Since the wires are small, for reliability reasons, both are recommended .

Motor and Solenoid Wiring

The two motor connections can be wired to either of the relay outputs. M+, and M- are only labeled to indicate the polarity of the output versus the control signal and Spike's indicator. If your motor turns opposite of the direction desired, swap the wires connected to M+ and M-. The 3 wire Control(PWM) cable contains a black wire for ground, a red wire for reverse, and a white wire for forward. The table below shows the corresponding output versus the control signal and the indicator.

Table 1: Spike Blue P-BASIC software control, Spike output, Motor function

INPUTS		OUTPUTS		Indicator	Motor Function
Fwd(Wht)	Rev(Red)	M+	M-		
0	0	GND	GND	Orange	OFF / Brake Condition (default)
1	0	+12v	GND	Green	Motor rotates in one direction
0	1	GND	+12v	Red	Motor rotates in opposite direction
1	1	+12v	+12v	Off	OFF / Brake Condition

Notes:

1. 'Brake' refers to the dynamic stopping of the motor due to the shorting of the motor inputs. This condition is not optional when going to an off state.
2. The INPUT Fwd and Rev are defined as follows: 0 (Off) and 1 (On).

EasyC V4 for Cortex Controller Configuration Page – Set as Output (left arrow)

Controller Configuration

ANALOG & DIGITAL

Description

Front gatherer in (up) - output
Front gatherer out (down) - output

1 2 3 4 5 6 7 8 9 10 11 12 SP

ANALOG

DIGITAL

MOTORS

UART1 UART2 I2C

ROBOT
VEXNet
GAME

INTEGRATED MOTOR ENCODERS

I2C #	Motor Port #	Description
1	1	
2	2	
3	3	
4	4	
5	5	
6	6	
7	7	
8	8	
9	9	
10	10	

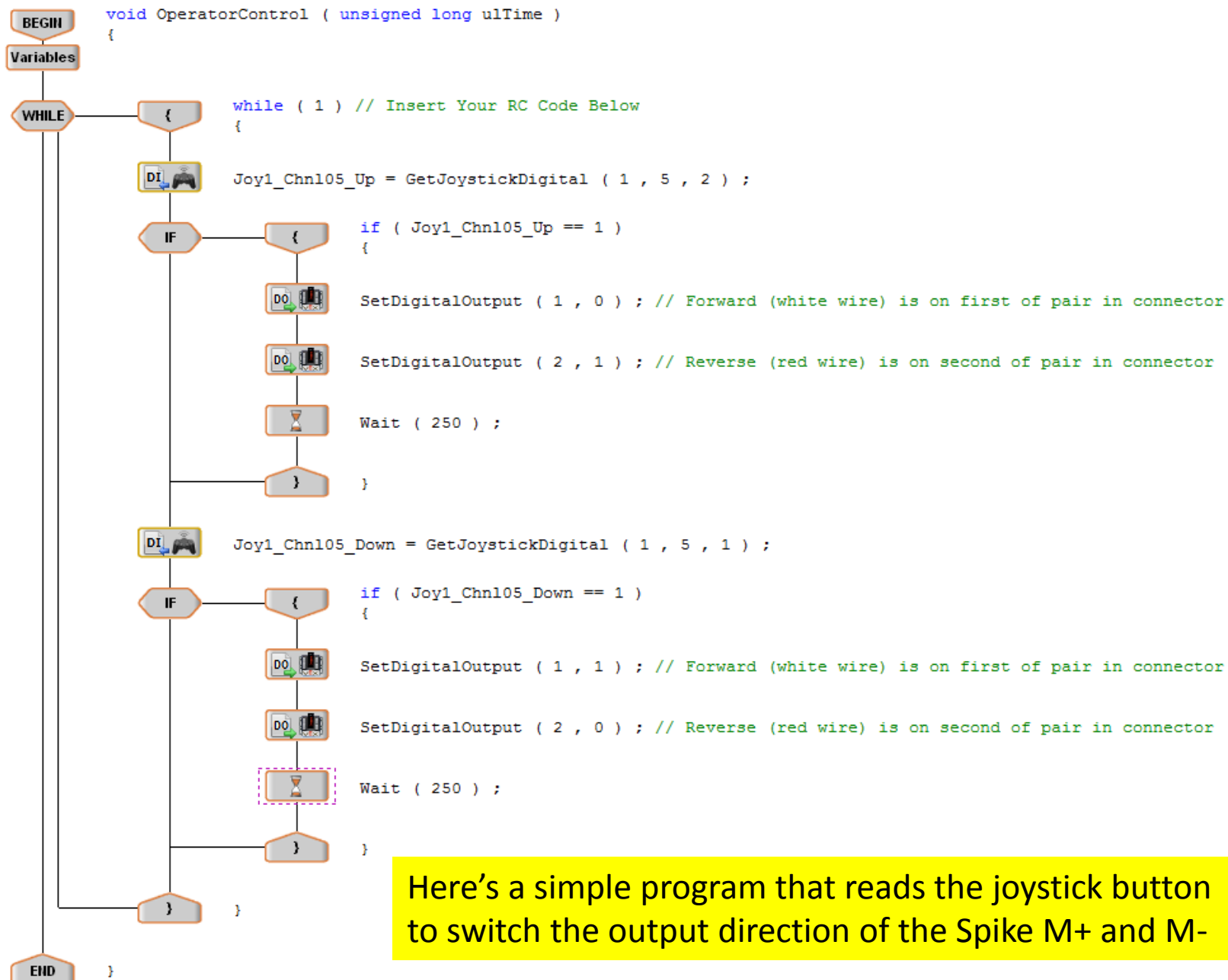
MOTORS

Motor Type	Description
1 n/a	
2 n/a	
3 n/a	
4 n/a	
5 n/a	
6 n/a	
7 n/a	
8 n/a	
9 n/a	
10 n/a	

Motor Type Information

n/a - Motor Type is not provided
Standard - Motor Module without Integrated Encoder
Small IME - 269 with Integrated Encoder
Big IME - 393 with Integrated Encoder
Big IME HS - 393 High Speed Gearing with Integrated Encoder

Left-Click to set Digital I/O Restore Defaults OK Cancel Help



Here's a simple program that reads the joystick button to switch the output direction of the Spike M+ and M-