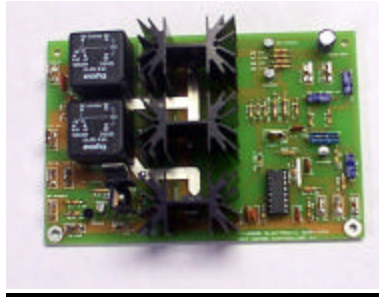


MC7 Motor Controller

A motor controller with a **WIDE** operating voltage (12 to 36 volts) and 35 amp capability that can be controlled manually or directly from the microprocessor or PC of your choice.



MC7 Motor Controller Specifications

- **Model MC7: ONE controller for 12 volt to 36 volt applications. No need to make a choice now then have to purchase a new controller if your system changes.**
- **35 amps continuous (Fan cooling (about 5 -10 cfm) required when operating at 36 volts)**
- **PWM output, continuously variable speed from stop to full forward or reverse.**
- **Compact circuit board approx. 3.75" X 5.75" w/ 4 mounting holes.**
- **Utilizes 3 IRLZ48 power hexfets for motor control with massive individual heatsinks**
- **Control it manually with only 2 components needed- a standard 5K linear potentiometer for speed and a SPDT toggle w/ center off for direction.**
- **Control it from your microprocessor by applying a PWM control signal between the "pot wiper" (PW) terminal and ground to control speed, and a +5V signal on either the forward or reverse connectors to control direction. Enable it with +5V on the enable terminal.**
- **No standby current drain. Leave power connected to the B+ and ground terminals permanently. No current is drawn until +5V is applied to the enable lead.**
- **Ramped forward and reverse speed acceleration. This means that if you suddenly apply a full forward or reverse control signal your robot, or other project, it will not attempt to do a "wheely" or otherwise start suddenly. The acceleration, forward or reverse will always be smooth, yet still rapid. This feature may be disabled for instant control.**
- **.250 terminals used for all connections. No special plugs or cables needed. Universally connect to any outside circuitry.**
- **Controllable by a DC control voltage (1 to 3 volts) or by a BS1, BS2, PIC or other micro via the PWMOUT command or from the parallel port of a PC without any additional hardware.**
- **On-board EMI suppression eliminates interference from most noisy motors. FREE components provided for installation, if needed, on extra noisy motors to suppress stubborn EMI emissions.**
- **PLEASE NOTE: This motor controller is meant for hobby robots or small to medium professional robots and light industrial applications. It is NOT meant to be used with electric scooters or wheelchairs because it has not undergone expensive FCC & FDA testing for EMI (radiated & susceptibility) and ESD required for use in these services. The MC7 is NOT WARRANTED as a fail safe device. As such, it should not be used in life support systems or in other devices where it's failure or possible erratic operation could cause bodily injury or loss of life.**

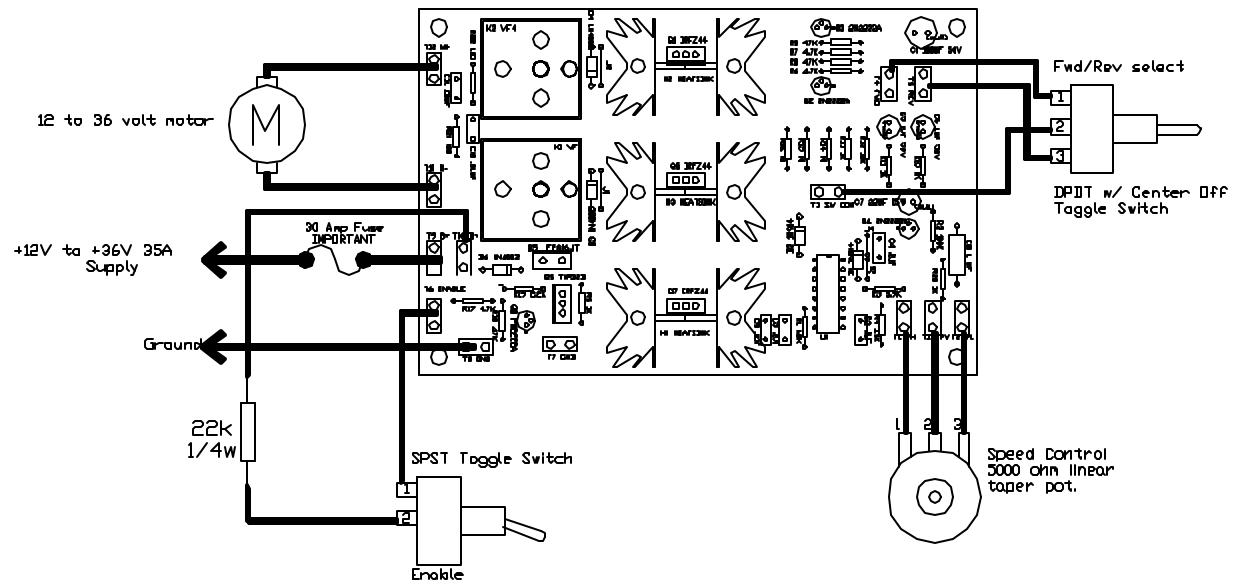
Table 1

MC7 Motor Control Board Pinout Description

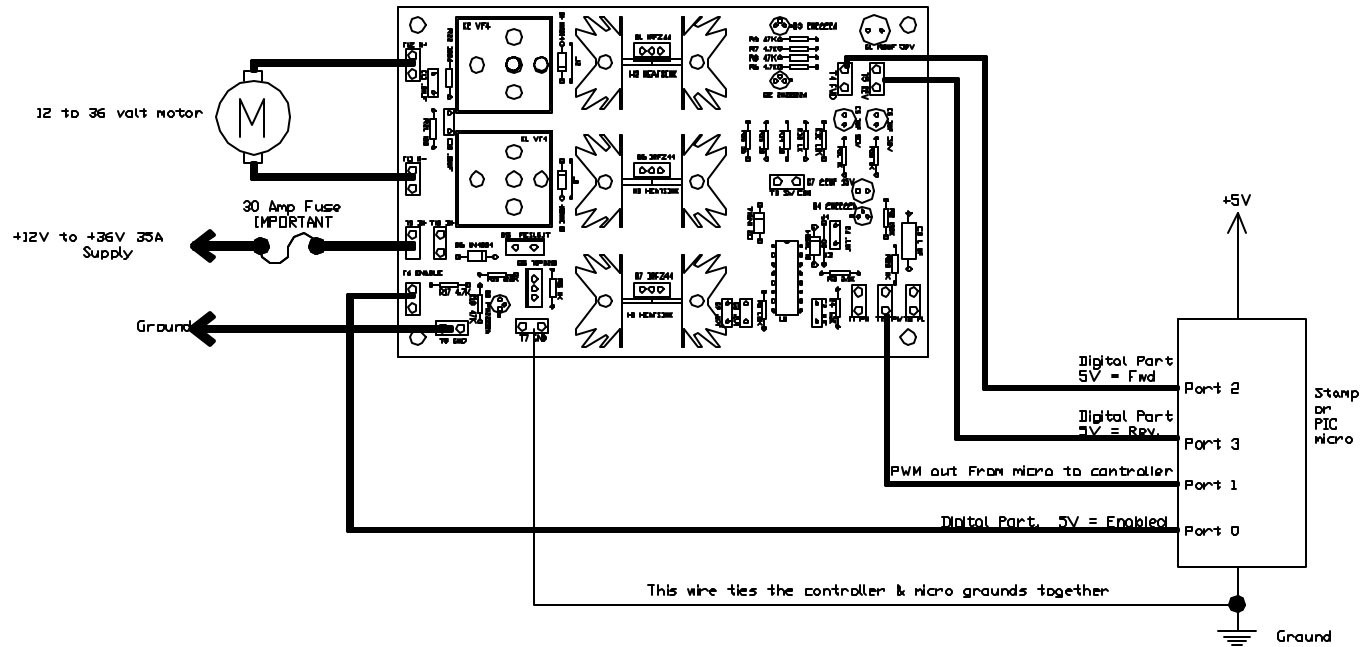
| Port Name | Description | Function in the Analog Mode | Function in the Digital Mode |
|------------|---|---|--|
| T1/ PH | Pot High | Connected to pin #1 of the throttle pot. * | No Connection |
| T2/ PL | Pot Low | Connected to pin #3 of the throttle pot. * | No Connection |
| T3/ SW COM | Forward/Reverse Switch Common | Connected to pin #2 on a DPDT center- off toggle switch used as a forward/ reverse switch. * | No Connection |
| T4/ FWD | Forward Direction Command Port | Connected to pin #1 on a DPDT center- off toggle switch used as a forward/ reverse switch. * | Connected to a uP port which supplies a high (+5V) when commanding the forward direction. |
| T5/ REV | Reverse Direction Command Port | Connected to pin #3 on a DPDT center- off toggle switch used as a forward/ reverse switch. * | Connected to a uP port which supplies a high (+5V) when commanding the reverse direction. |
| T6/ ENABLE | Enable Command Port | Connected to pin #1 of a SPST toggle switch used as an enable switch. Pin #2 of this switch is connected through a 22k 1/4w resistor to T10 * | Connected to a uP port which supplies a high (+5V) to enable the controller |
| T7/ Ground | Ground Port #1 | Used as a connection to other system grounds. This terminal is internally wired to T8 | Used as a connection to other system grounds. This terminal is internally wired to T8 |
| T8/ Ground | Ground Port #2 | Connected to controller voltage ground. This terminal is internally wired to T7 | Connected to controller voltage ground. This terminal is internally wired to T7 |
| T9/ B+ | System Operating Voltage Port #1 (+12V or +24V) | Connected to controller voltage B+. This terminal is internally wired to T10 | Connected to controller voltage B+. This terminal is internally wired to T10 |
| T10/ B+ | System Operating Voltage Port #2 (+12V or +24V) | Used as a connection to supply 12 or 24 volts to other circuitry. This terminal is internally wired to T9 | Used as a connection to supply voltage to other circuitry. This terminal is internally wired to T9 |
| T11/ M- | Motor Negative | Connect to neg. motor terminal | Connect to neg. motor terminal |
| T12/ M+ | Motor Positive | Connect to pos. motor terminal | Connect to pos. motor terminal |
| T13/ PW | Pot Wiper | Connected to pin #2 of the throttle pot. * | Connected to a uP port which supplies PWM to control speed |

*See schematic

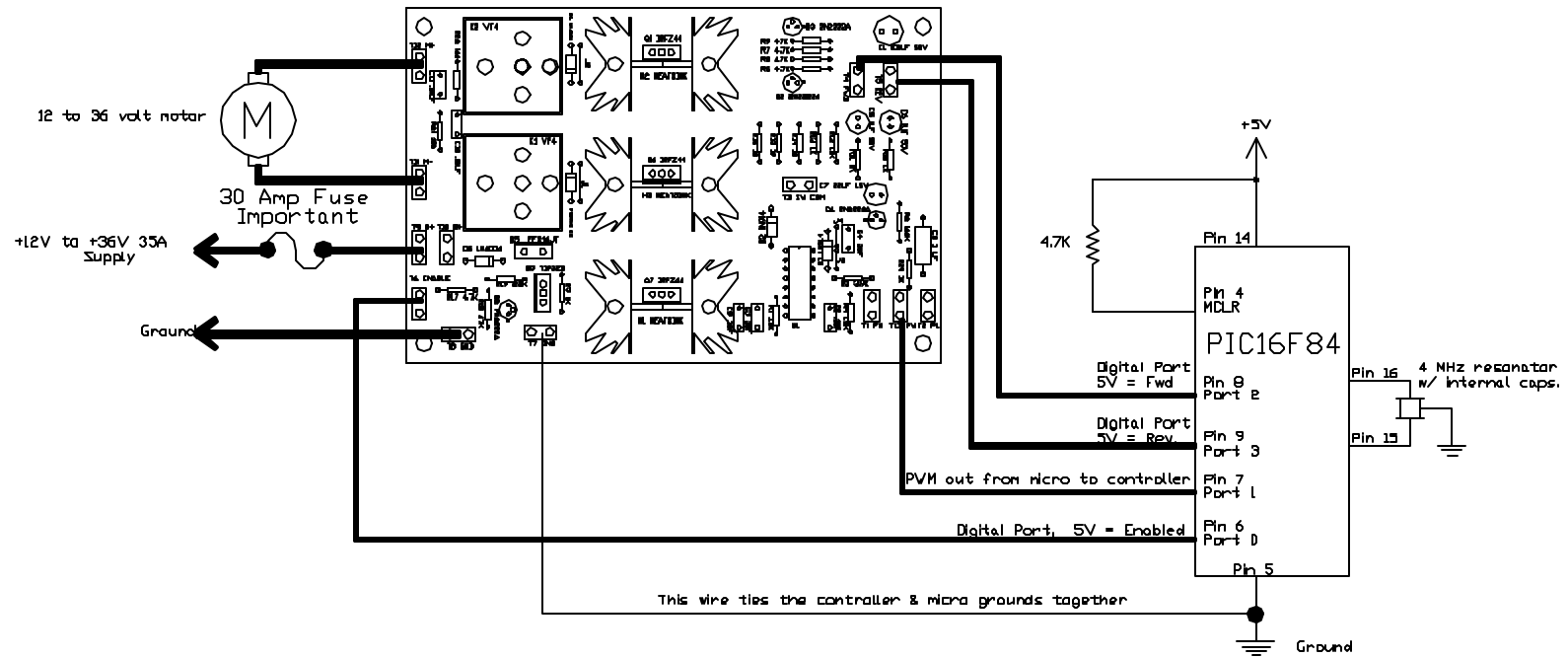
Notes: (a) If T4 & T5 have 5V supplied at the same time, this is a dis-allowed state.
The controller will not function and no damage is done.



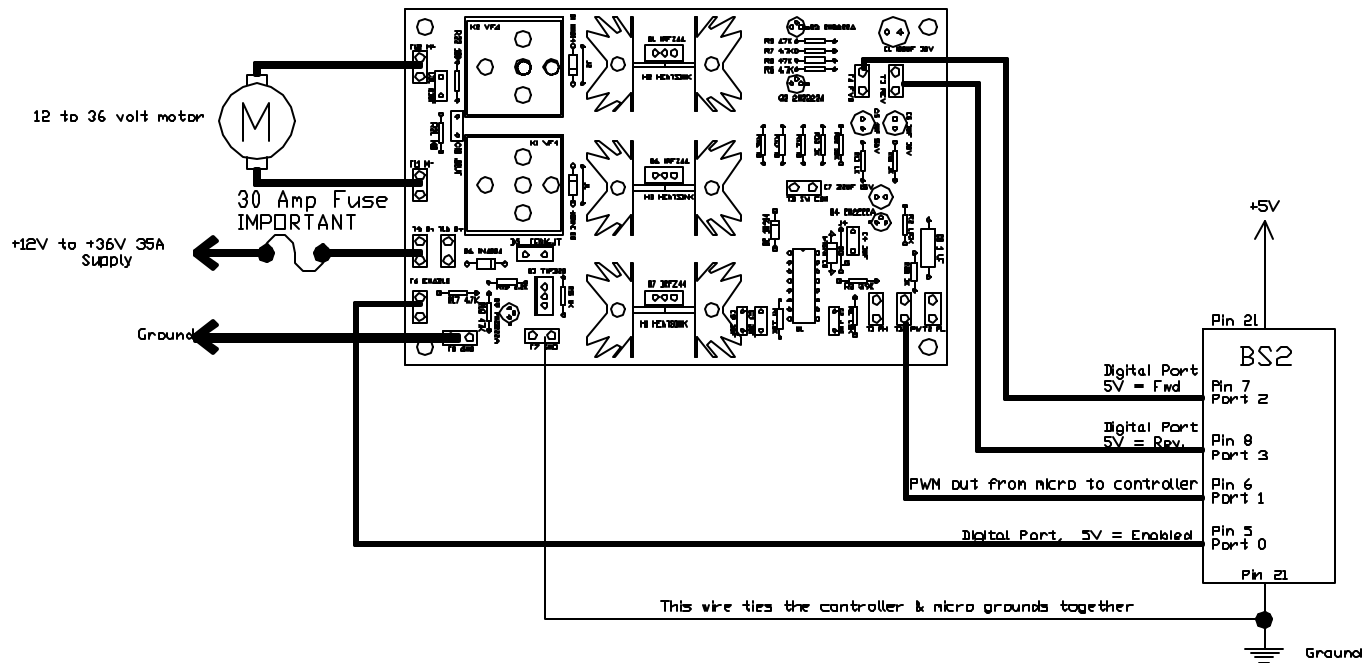
Analog Control of the MC7 12 to 36 volt Motor Controller
 (For testing or local control)



Digital Control of the MC7 12 to 36 volt Motor Controller
 (For direct micro processor control)



Digital Control of the MC7 12 to 36 volt Motor Controller
 (For direct PIC16F84 micro processor control)



Digital Control of the MC7 12 to 36 volt Motor Controller
 (For direct BS2 micro processor control)