Total Controller 2.0 User Manual

Controller Features:

- Independently control 4 motors (forwards and reverse)
- Inverse output polarity to fix backwards wired motors
- “Hold” any motor on (keep it going forwards or in reverse)
- Membrane switch keypad with integrated L.E.D output. Lifespan: millions of cycles
- Microcontroller driven, advanced H-bridge design with thermal overload protection (if overloaded, it will gradually reduce power to protect its circuitry)
- Variable pulse-width-modulation (allowing variable and independent motor speeds)
- Output: 4A at 7.5V

Included Components:

- Tether Cable
- Coupler
- Power Supply
**Controller Overview**

**Hold:**
Turns the motor on and keeps it on until pushed again.

**Inverse:**
Reverses motor direction for forward and reverse (fixes backward wired motors).

**Forward:**
Makes the motor turn forward while pushed.

**Reverse:**
Makes the motor turn backward while pushed.

**Speed Shift:**
Changes / resets the speed of all motors: high, medium, low, and off.

**Cable to Motors:**
- Cat5 cable for 1-4 motors
- 2 pair telephone cable for 1-2 motors

**Power Supply**
Only use the power supply provided with the controller.

**Individual Motor Speed While Hold is Activated:**
The forward and reverse buttons change the speed of an individual motor while “hold” is activated. The motor/channel will remain at the selected speed (even after hold is deactivated) until reset using the speed shift button.

**4 Channels:**
Each channel can independently control one motor.
- L = Left Motor
- A = Motor A
- R = Right Motor
- B = Motor B
Connecting 1-4 Motors Using CAT5 Wire

The wires can go to either motor terminal. Use the Inverse button on the Total Controller to make a motor turn in the proper direction.

Motor Harness
Short section (around 1.5' of CAT5 cable with a modular plug on one end and the housing stripped on the other end to allow individual wires to run to motors)

Tether Cable
Stranded CAT5 cable 5-35ft long

What if you don’t have 4 motors to connect?
Only wire the motors you have/need. Cut the unused tether wires off or leave them unconnected.
Creating a Quick-Connect Harness

Tip: Soldering alligator clips to a harness allows it to quickly and easily be transferred between projects and motors.
Connecting 1-2 Motors to 2Pair Telephone Cable

Motor Harness
2 pair cable with housing stripped to allow individual wires to run to motors

Tether Cable
Stranded 2 Pair Telephone cable 5-35ft long
Connecting The Motor Harness to Projects

- Modular Plug: Crimped on the end of the cable

- Cable Housing: Stripped
  Exposing wires that run to motors

- Wires to Motors: Solder wires to motors for proper connection
Attaching a Modular Plug to a CAT5 Cable to Create a Harness

Insert wires as shown in this top view:

- Hold modular plug so this side is up

The cable should be cut to 2ft. 1-2ft of cable housing must be stripped back from the motor end to reveal the wires.

This end goes to the motors.