

## Using the controller as an Arduino board :

The DAGU mini driver is software compatible with an Arduino NG. It has been designed specifically for robotics so it has a few extra features.

Up to 8 servos can be connected directly to the PCB by changing the +V selector from 5V to Bat. This allows the servos to be powered directly from the battery as the 5V regulator is only capable of powering 1 miniature servo under a light load.

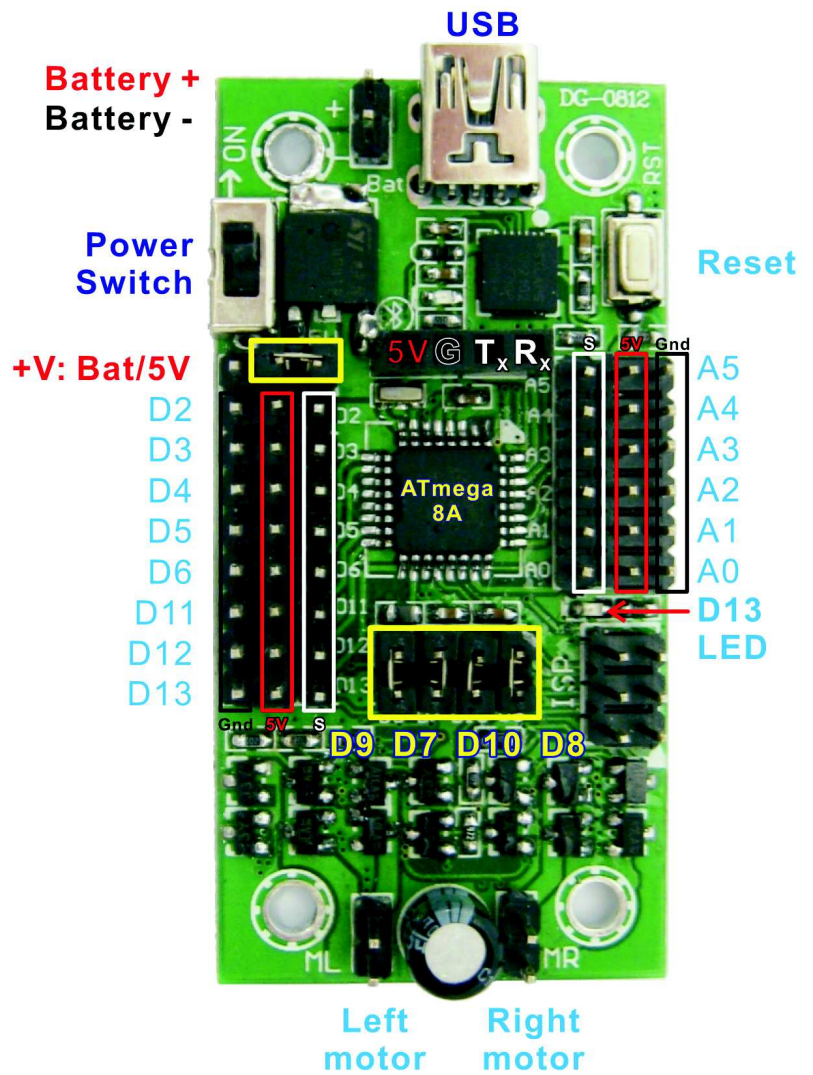
Analog pins A0-A5 have 5V and Gnd pins available for powering 5V sensors. As the SMD chip has extra pins there are 2 extra analog inputs. A6 is not used although it can be accessed by a solder pad under the PCB. A7 is configured to monitor battery voltage. The maximum allowable battery voltage is 9V.

The dual "H" bridge is capable of driving 2 motors, each with a stall current of 2A or 1 stepper motor with a maximum of 2A per winding.

If you do not wish to use the motor driver then you can remove the jumpers on D7, D8, D9 and D10. You can then use these pins for alternate purposes.

There is a 4 pin female header on the PCB that is intended for use with a wireless transceiver such as an Xbee or Bluetooth module. You can access D0 and D1 (Rx and Tx) directly from this header.

The ISP socket is the same as a standard Arduino board and can be used to re-burn the bootloader. Newer versions of the Arduino IDE will allow you to program the board directly from this socket. Note that there is a small white arrowhead next to pin 1.



## Specifications :

Controller:	
Processor:	ATmega8A
Clock speed:	16MHz
FLASH:	8K
SRAM:	1K
EEPROM:	512 bytes
USB interface:	CP2102
Supply voltage:	5V - 9V
Regulator:	1A max.
Dual "H" bridge:	2A per motor

Output devices:	
Servo voltage:	4V - 6V
Servo torque:	2Kg/cm 6V
Servo speed:	0.08 sec/60° 6V
Servo weight:	12g
Motor voltage:	6V
Gearbox torque:	2Kg/cm max.
Speed:	125RPM ±10% 6V
Weight:	9g

## FAQ:

- *My board is not recognized by my computer or the COM port does not show up in the Arduino IDE*  
You need to install the CP2102 USB drivers first. These can be downloaded from the [Silicon Labs website](#). Disconnect the Arduino board, install the drivers (and reboot if required). Re connect the board. After re-connecting the board a new COM port should be visible in Device Manager and the Arduino IDE. You may need to restart the Arduino IDE to recognize the new port.

- *I can't load the program onto my board - or- I'm getting `stk500: Not in sync errors`*  
In the Arduino IDE, go to the Board Menu, and select "Arduino NG or older with ATMEGA8".

- *How to drive the DC Motors*

To drive the DC motors make sure the jumpers are correctly inserted in pins D7-D10. The pins control the Direction and Speed of each motor:

- D9 is left motor speed
- D7 is left motor direction
- D10 is right motor speed
- D8 is right motor direction

To make a motor move, first set the direction by doing a `digitalWrite` of HIGH or LOW (for Forward/Reverse) to the direction pin. Next set the motor speed by doing an `analogWrite` of 0~255 to the speed pin. 0 is stopped and 255 is full throttle.

- *How to use Servos*

Up to 8 Servos can be connected to Digital pins D2-D6 and D11-D13. You must set the "+V" jumper (located under the power switch) to Vbat in order to power the servos. Each servo must be connected so that the Black wire connects to the GND pin.

For programming information, please refer to the Arduino Servo library here

<http://www.arduino.cc/en/Reference/Servo>

- *How to turn the LED on and Off*

The LED is connected to Digital Pin 13. To use it perform a `digitalWrite(13, HIGH)` to turn it on or `digitalWrite(13, LOW)` to turn it off.

For more information and an example see the Arduino documentation here

<http://www.arduino.cc/en/Reference/digitalWrite>

- *How to read the Battery level*

The battery level can be monitored by reading Analog pin A7. In the code, simply perform an `analogRead(7)`.

A reading of 512 corresponds to approximately 5V. To prevent damage to the boot loader and the board, you must stop using it once the battery level drops to 5V.

- *How to Install and use the optional DAGU Bluetooth Module*

The Board is compatible with the DAGU Bluetooth Module. The module is inserted on the board respecting the position of the Vcc and Gnd pins.

The BT board connects to the default RX and TX pins of the Arduino (Digital pins 0 and 1). You can use the [Arduino Serial library](#) to send and receive data over Bluetooth.

By default the Bluetooth module comes Pre programmed for 9600bps 8N1 but please refer to the module's documentation for additional information.