High Temperature
H-bridge Motor Driver

Technical Manual Rev 1r0

The H-Bridge Motor driver is the all-new e-Gizmo industrial motor control kit. It is good for all industrial applications especially for carrying heavy loads and resistant to high temperature.

It is designed for DC motor control in a high temperature environment like mechatronic assemblies in hot engines like turbo chargers.

It has PWM and direction controllers that delivers the motor direction and controls the motor speed.

It includes battery overvoltage protection from below 8V and above 20V.

Features & Specifications:

- Watchdog control pin (30Hz)
- Current limitations: Approx. 6A
- Max. Temperature: up to 200C junction
- Ambient Temp: up to 150C
- With battery overvoltage protection.
- With forward/reverse direction control
- With short circuit protection
- With optional current sensing circuit (see Schematic Diagram)

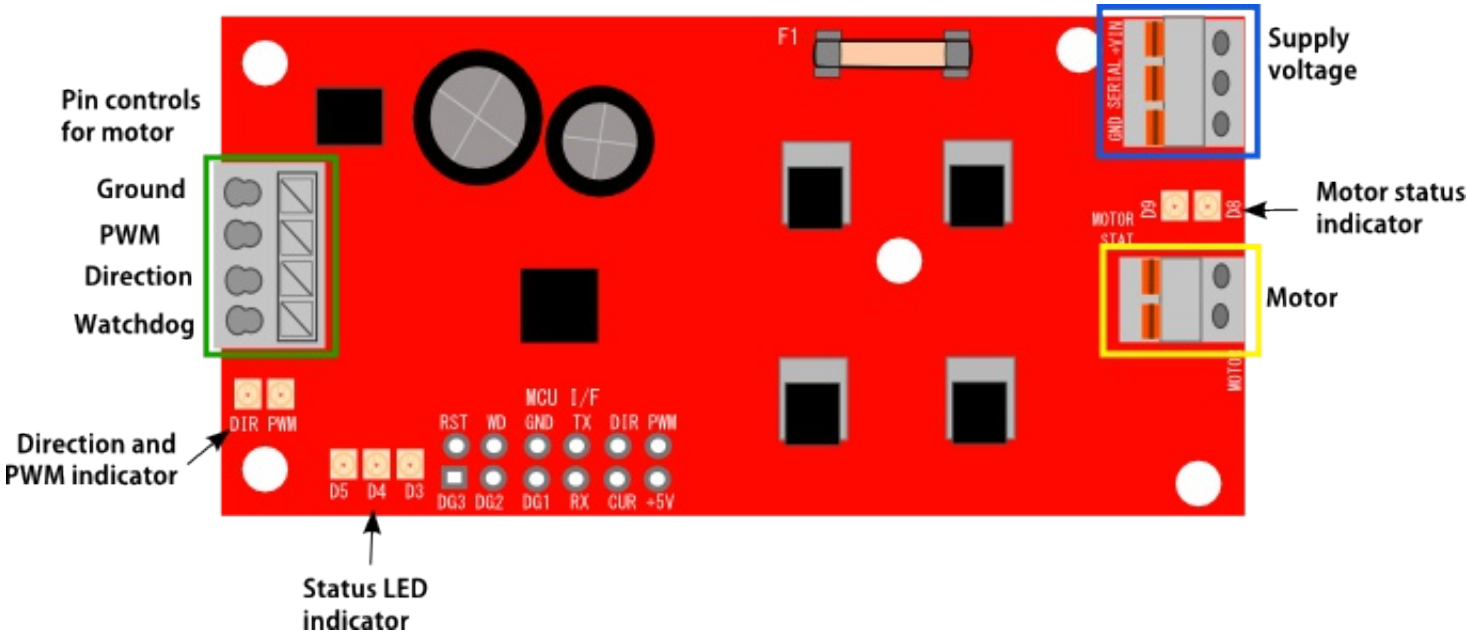

Figure 1. *High temperature H-Bridge Motor Driver major part presentation*

TABLE 1. LED indicators

I.D	LED	PIN	I/O	Description
MOTOR STAT 2	D9	17	I/O	High-side 1, source voltage
MOTOR STAT1	D8	19	I/O	High-side 2, source voltage
PWM	D7	11	Input	PWM controls motor speed
DIR	D6	10	Input	Rotation/Direction for motor
DG1	D5	16	Output	Diagnostic output 1
DG2	D4	15	Output	Diagnostic output 2
DG3	D3	14	Output	Diagnostic output 3

From table 1, MOTOR STAT1 & 2 indicates HIGH or LOW condition of the motor. The PWM indicator shows the motor speed and the DIR indicator shows the direction wherein HIGH output implies forward direction and LOW output indicated reverse direction. Diagnostic outputs DG1, DG2, and DG3, shows the MCU condition.

TABLE 2. P3 Control terminal

PIN I.D	PIN NO.	I/O	Description
WD	6	Input	Watchdog trigger signal
DIR	10	Input	Rotation/direction for motor
PWM	11	Input	Input control PWM motor speed
GND	7	Input	Ground

TABLE 3. K1 Supply voltage terminal

PIN I.D	PIN NO.	I/O	Description
+VIN	30	Input	Supply voltage for IC core (after reverse protection)
SERIAL	8	I/O	High voltage (HV) Serial Interface
GND	7	Input	Ground

Operation requirements:

+VIN = 8-20V
WD = Pulse Width Modulation 30Hz
DIR = Logic "1" or "0"

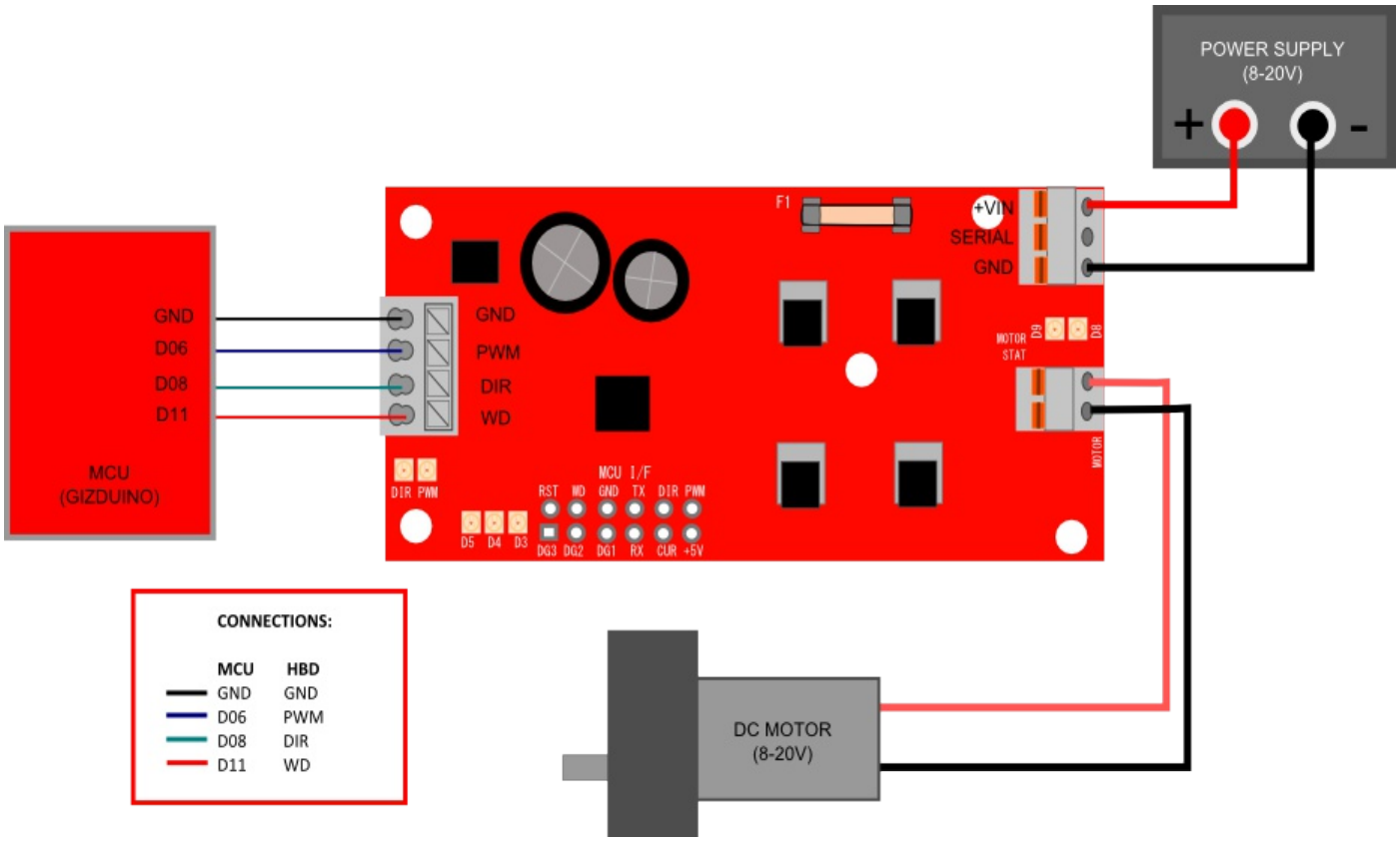

Figure 2. *Sample application using a Gizduino Microcontroller*

```
// Library by Dan, e-Gizmo Mechatronix Central
// The library is made to simplify HBridge control
// and pwm frequency setting

/*
Available commands:
 HBridge variable(wd_pin,pwm_pin,dir_pin);
 variable.begin();                  // Sets wd pin
 variable.Forward(speed);           // Forward
 variable.Backward(speed);          // Backward
 variable.Stop();                   // Stop
                                                */

#include <HBridge.h>

HBridge motors(11,6,8);


void setup()
{
  motors.begin();
}

void loop()
{
  motors.Forward(255);
  delay(1000);
  motors.Backward(255);
  delay(1000);
  motors.Stop();
  delay(1000);
}
```

NOTE:

Import library "HBridge.h" to your Arduino IDE by going to your Arduino's libraries folder. Simply copy and paste the HBridge folder located on the same folder as this hardware manual to the libraries folder.

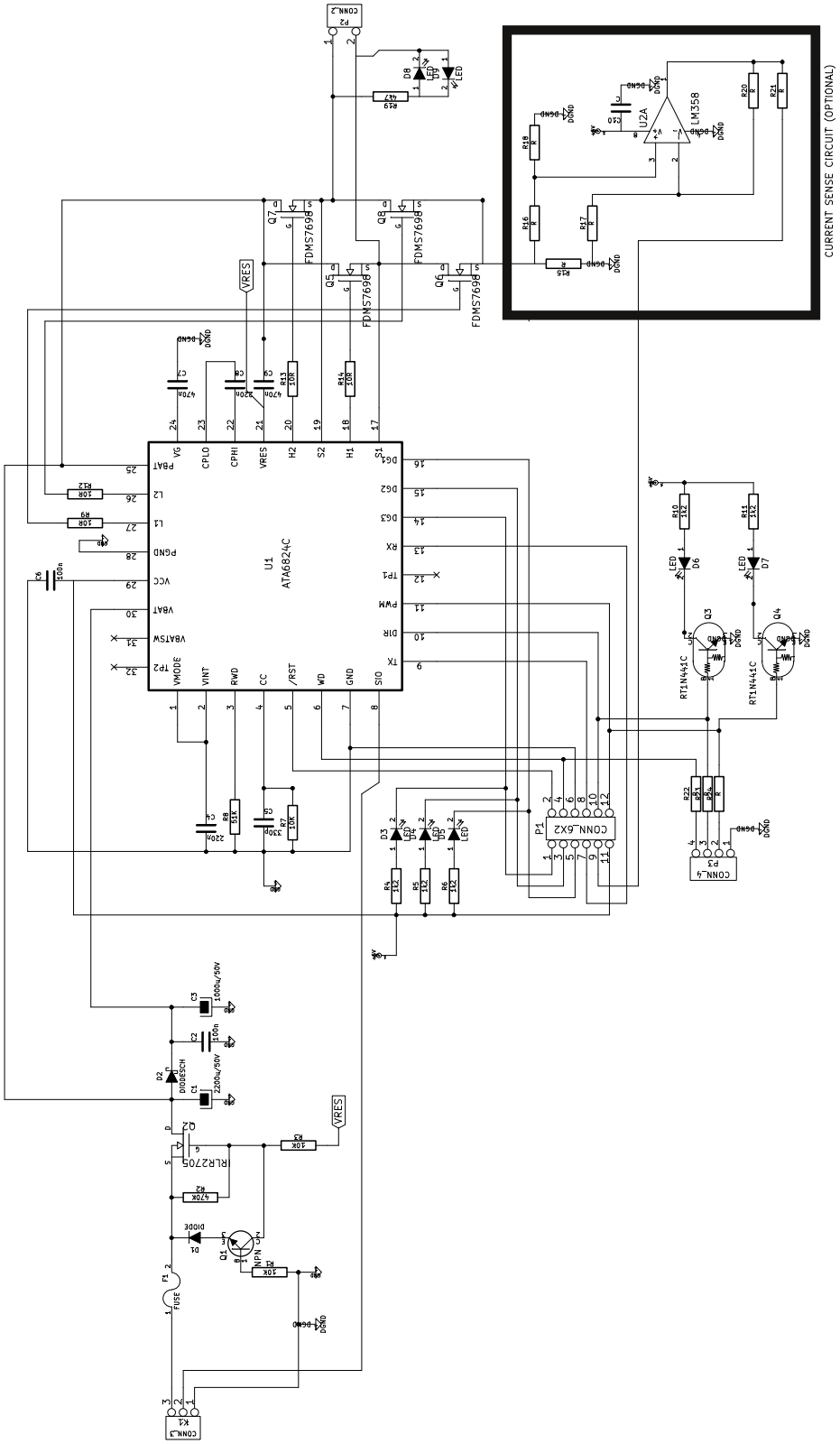

Figure 3. *Schematic diagram of High temperature H-Bridge Motor Driver ATA6824C board.*

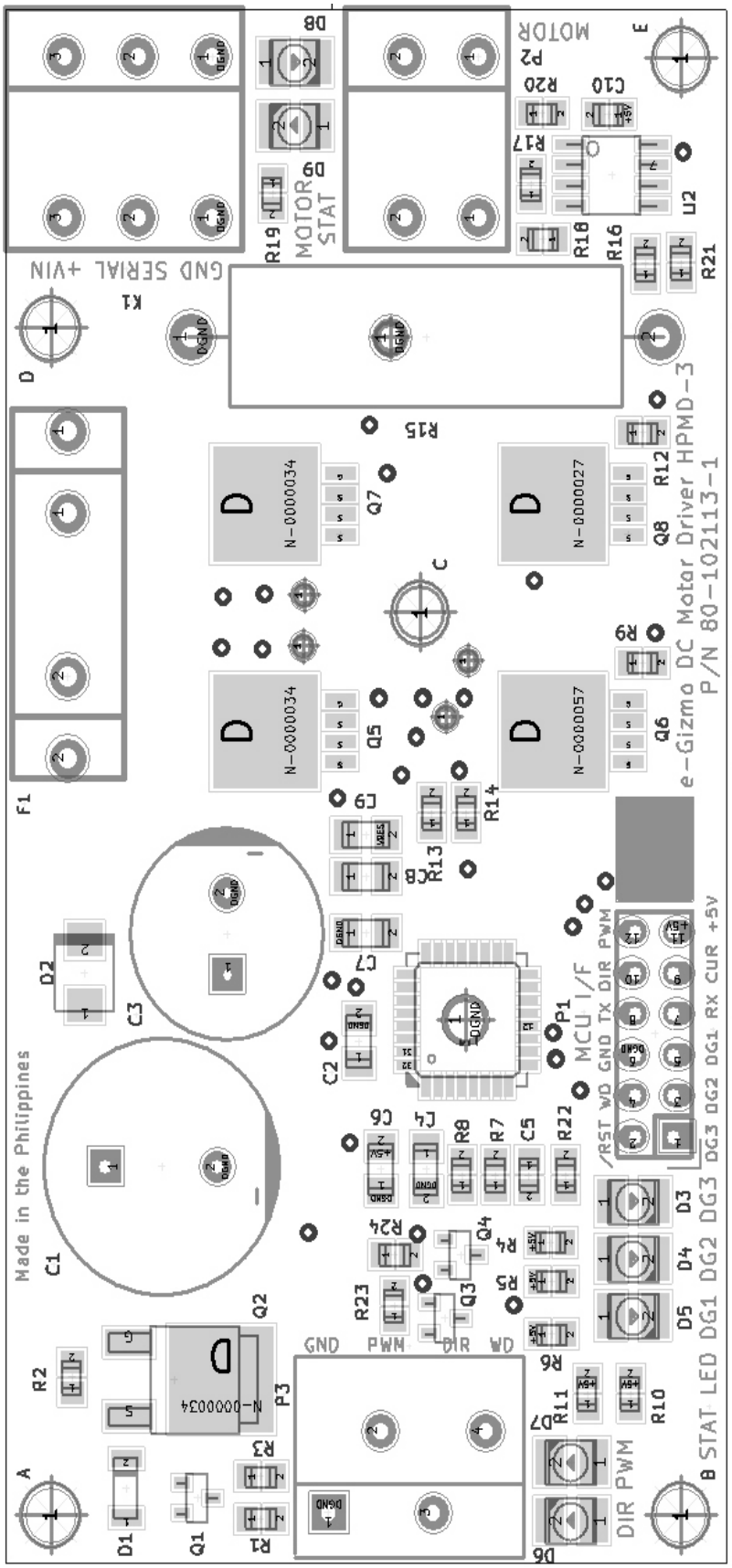

Figure 4. H-Brdige Motor Driver Parts Placement