

megawin

BLDC Demo Board Manual

List of Contents

1. Introduction	2
PCB Version	2
Features	2
2. PCB Information	3
Control_V11	3
Drive_V11	4
MCU Board	4
3. MG32F02A032	5
TM36 module:	5
TM16 module:	5
CSC (Clock Source Control):	5
4. BLDC motor information	5
5. C1602A-V1.2-5V-Blue LCM Display	6
LCD Display Modes/Patterns	6
Motor Speed	6
PWM duty cycle	6
ADC sample value	6
6. Revision History	7

1. Introduction

PCB Version

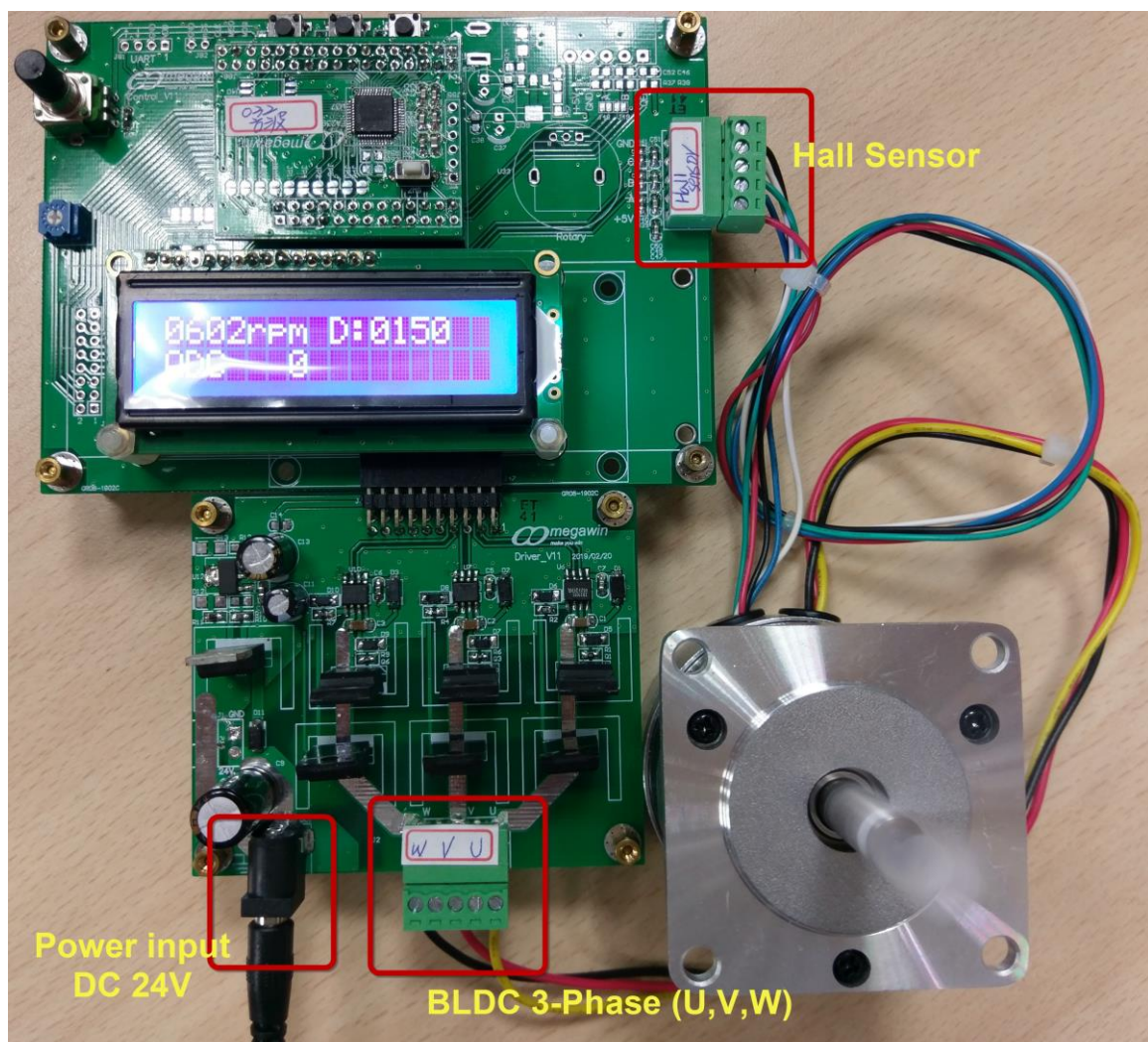
Control_V11

FA239_Q48_MCU_BLDC_Demo_V12

Driver_V11

Features

- 1 C1602A-V1.2-5V-Blue LCM Display : Display character on 16x2 LCM.
- 2 Three Keys Input Control : Detect key input then drives BLDC motor.
- 3 Hall sensor connector
- 4 BLDC Motor U/V/W connector.
- 5 Power DC 24V input

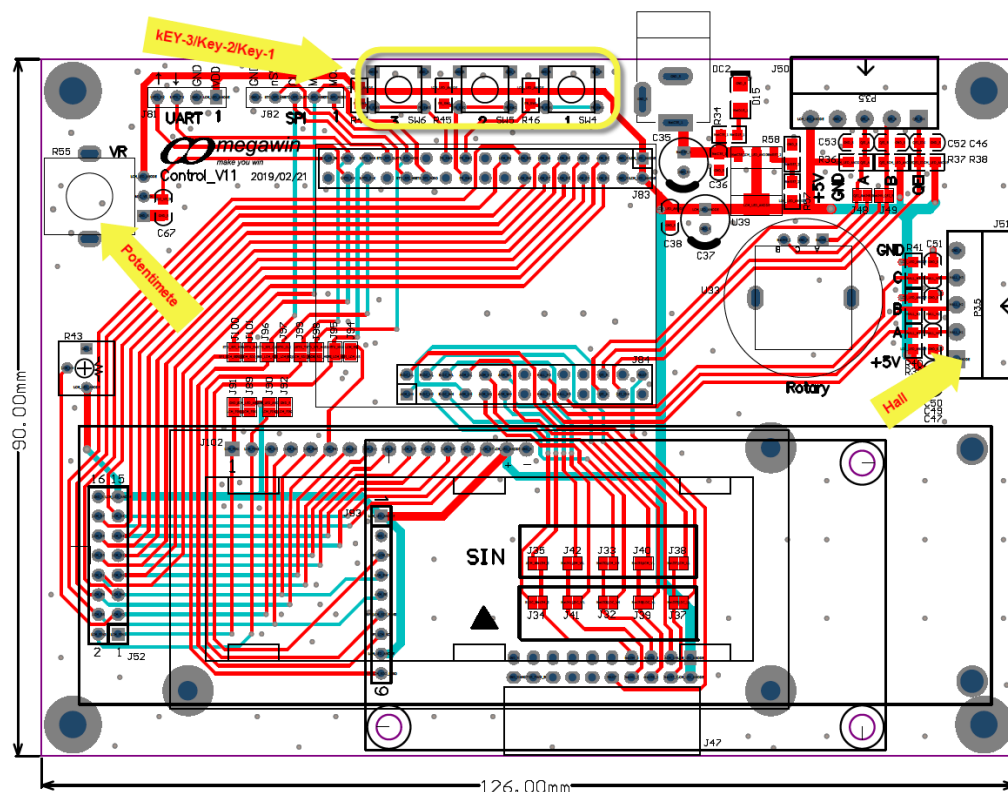


2. PCB Information

Control_V11

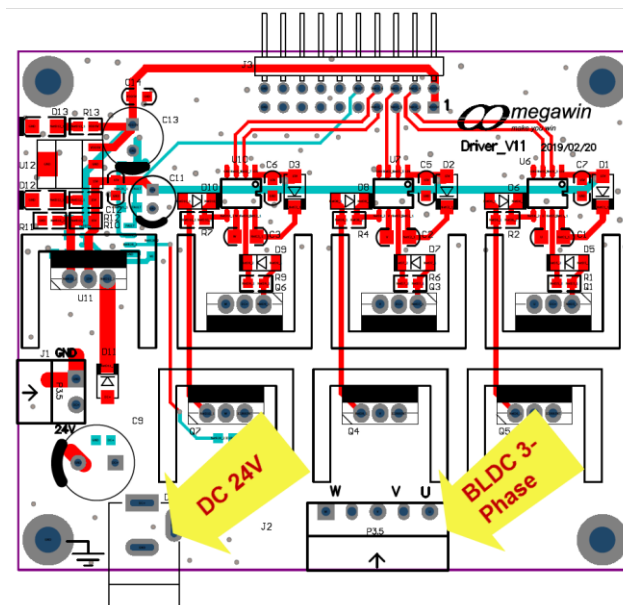
There are Hall/LCM socket, Buttons, Potentiometer.

- Please select one for the driving mode:
 - For sinewave driver : Please short J38, J42, J33, J40, J38.
 - For square driver : Please short J34, J41, J32, J39, J37.
- Buttons:
 - Key-1 : Start button for rotating motor.
 - Key-2 : Stop button for stop motor.
 - Key-3 : Change motor direction (Forward/Reverse).
- Potentiometer (rotary): Control Motor speed.
- LCM display connector.



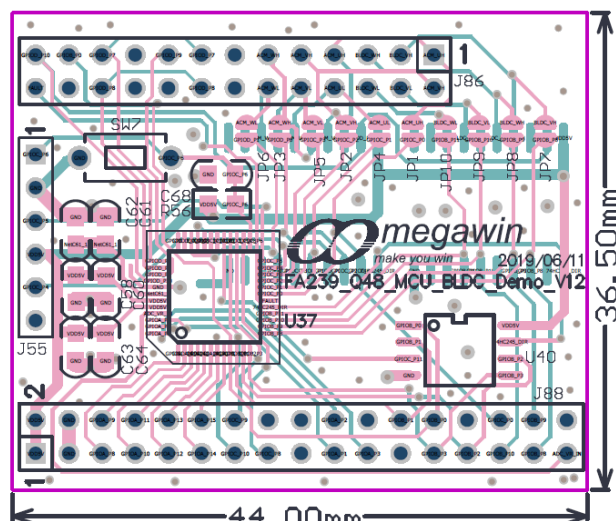
Drive_V11

DC Power input (DC 24V). And BLDC drive output.



MCU Board

megawin's MG32F02A032 Cortex M0 MCU.



3. MG32F02A032

TM36 module:

- PWM output with edge align, dead time control, preload function.
- PWM control with 10bit resolution of PWM.
- Hall sensor input for input capture.
- Square or sinewave drive .
- Break function with Cycle-by-cycle mode

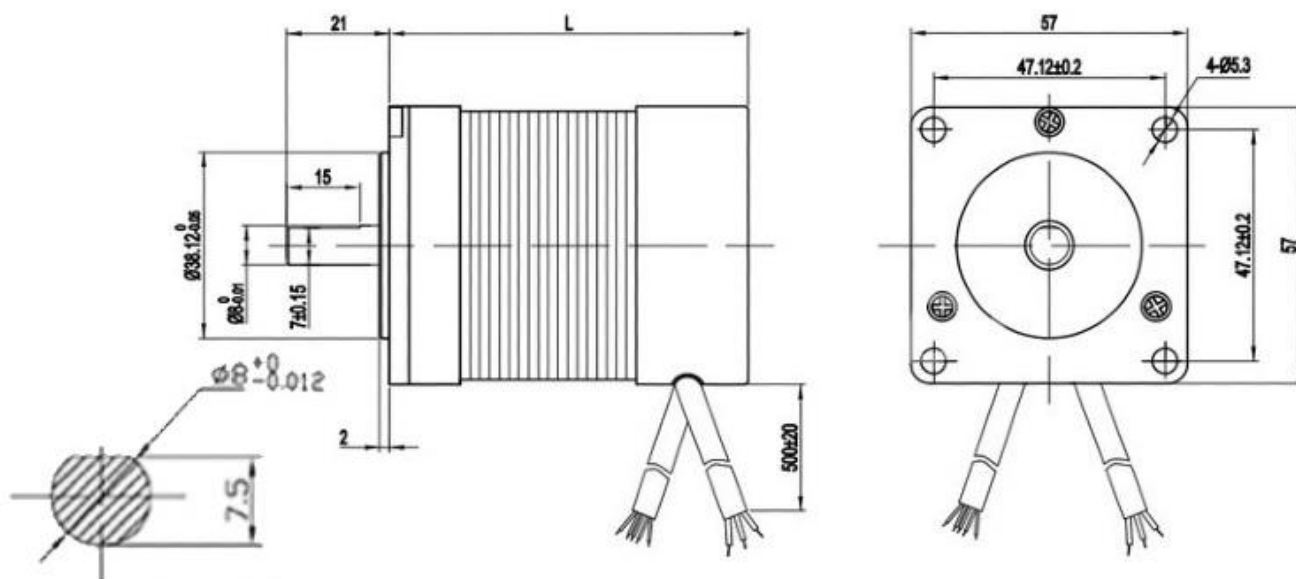
TM16 module:

- Count time of commutate time.

CSC (Clock Source Control):

- AHB=APB=48MHz

4. BLDC motor information



MANUFACTURE MODEL	57BL01
PHASE	3
PH-PH RESISTANCE	3.0±10% OHMS
NOMINAL VOLTAGE	24V
NO LOAD SPEED	3000 RPM
RATED TORQUE	0.11 N.m
RATED CURRENT	2.3A
RATED OUTPUT POWER	34W
TORQUE CONSTANT	0.062 N.m/A

5. C1602A-V1.2-5V-Blue LCM Display



LCD Display Modes/Patterns

Display information:

First line: Motor speed & PWM duty cycle (for PI controller)

Second Line: ADC sample value

Motor Speed

Show motor speed (unit: rpm).

PWM duty cycle

Show MG32x02z M0 output PWM duty cycle. It will trace ADC sample value with PI controller.

ADC sample value

ADC sample variable register with 10 bit.

6. Revision History

Revision V1.1 (2019_0627)		Chapter
1.0	Initial version	
1.1	1. Add MG32F02A032 MCU Device. 2. Support square driver with hall sensor 3. Cancel QEI encoder support	
1.2	1. Support sinewave driver with hall sensor (for MG32F02A032 chip)	