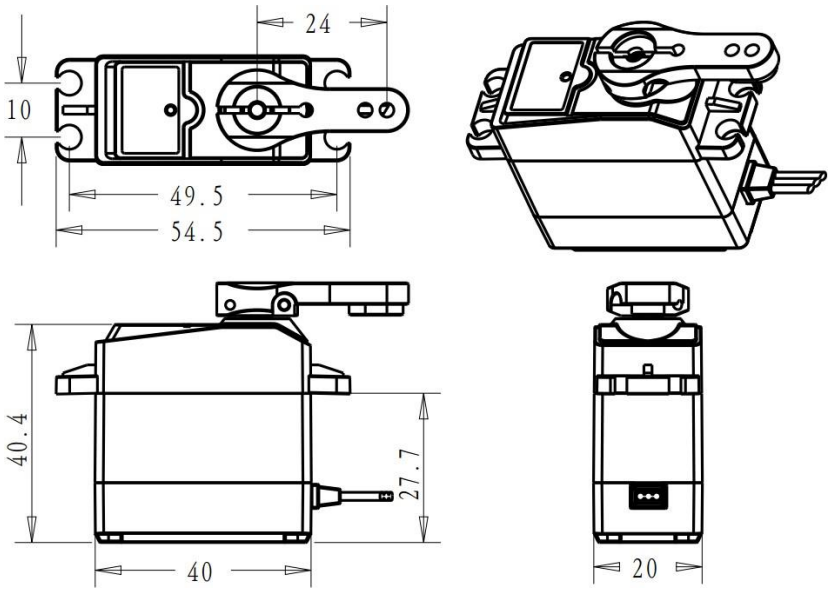
LAMPIRAN

Datasheet Servo DS 3235

Dimensions



Specification

No.	Item	Specification
1-1	Storage Temperature Range	-30℃～80℃
1-2	Operating Temperature Range	-15℃～70℃
1-3	Operating Voltage Range	5-7.4V

Mechanical specification

No.	Item	Specification
2-1	Size	40*20*38.5mm
2-2	Weight	60g
2-3	Gear ratio	373
2-4	Bearing	Double bearing
2-5	Connector wire	300±5mm
2-6	Motor	Coreless motor
2-7	Waterproof performance	IP66

Electrical specification

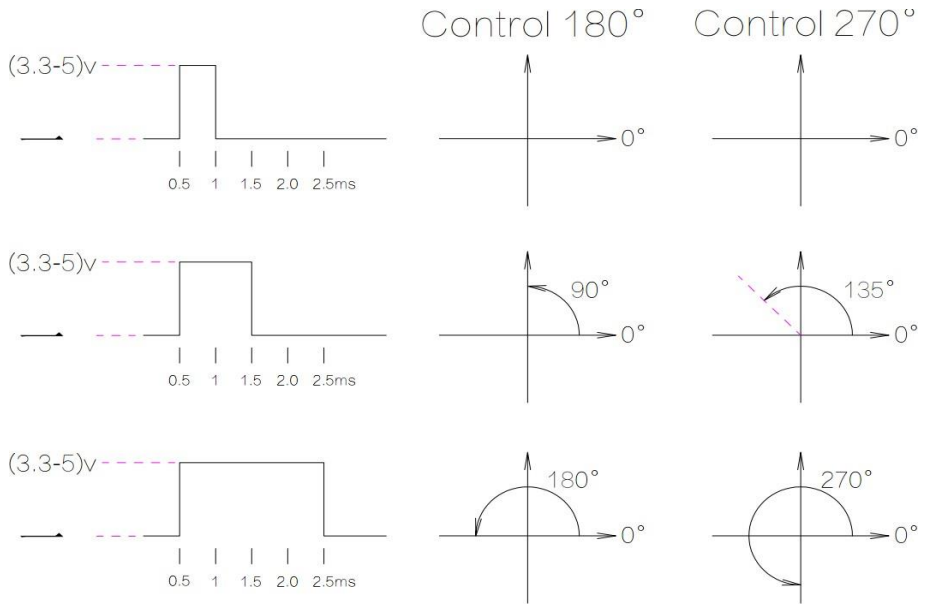
No.	Operating Voltage	5V	6V	7.4V
3-1	Idle current (at stopped)	5mA	5mA	5mA
3-2	Operating speed (at no load)	0.13 sec/60°	0.12 sec/60°	0.11sec/60°
3-3	Stall torque (at locked)	29 kg-cm	32 kg-cm	35 kg-cm
3-4	Stall current (at locked)	1.9A	2.1 A	2.3A

Control specification

No.	Item	Specification
4-1	Control System	PWM(Pulse width modification)
4-2	Pulse width range	500～2500μsec

4-3	Neutral position	1500μsec
4-4	Running degree	180° or 270° (when 500～2500 μsec)
4-5	Dead band width	2 μsec
4-6	Operating Frequency	50-330Hz
4-7	Rotating direction	Counterclockwise (when 500～2500 μsec)

PWM - About PWM Control



Datasheet Hc-SR04

The sensor chosen for the Firefighting Drone Project was the HC-SR04. This section contains the specifications and why they are important to the sensor module. The sensor modules requirements are as follows.

- Cost
- Weight
- Community of hobbyists and support
- Accuracy of object detection
- Probability of working in a smoky environment
- Ease of use

The HC-SR04 Specifications are listed below. These specifications are from the Cytron Technologies HC-SR04 User's Manual (source

- Power Supply: +5V DC
- Quiescent Current: <2mA
- Working current: 15mA
- Effectual Angle: <15º
- Ranging Distance: 2-400 cm
- Resolution: 0.3 cm
- Measuring Angle: 30º
- Trigger Input Pulse width: 10uS
- Dimension: 45mm x 20mm x 15mm
- Weight: approx. 10 g

Datasheet nema 17 stepper motor

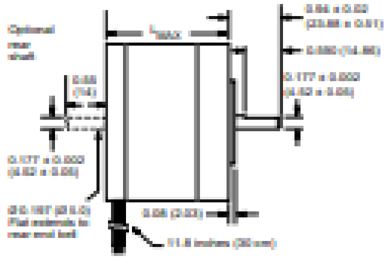
Quick Reference

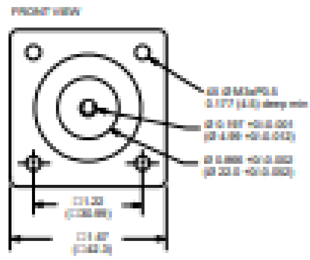
NEMA size 17 1.8° 2-phase stepper motor

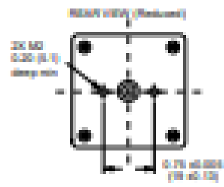
Schneider Electric

Mechanical Specifications

Dimensions in inches (mm)







Motor stack length inches (mm)	Single	Double	Triple
LMAX	1.34 (34.0)	1.57 (40)	1.89 (48)

Notes and Warnings

Installation, configuration and maintenance must be carried out by qualified technicians only. You must have detailed information to be able to carry out this work.

- Unexpected dangers may be encountered when working with this product!
- Incorrect use may destroy this product and connected components!

For more information, go to www.imshome.com

Specifications

1.5 Amp motors		Single length	Double length	Triple length
Part number		M-1713-1.5 • (1)	M-1715-1.5• (1)	M-1719-1.5• (1)
Holding torque	oz-in	32	60	75
	N-cm	23	42	53
Detent torque	oz-in	1.7	2.1	3.5
	N-cm	1.2	1.5	2.5
Rotor inertia	oz-in-sec²	0.000538	0.0008037	0.001182
	kg-cm²	0.038	0.057	0.082
Weight	oz	7.4	8.1	12.7
	grams	210	230	360
Phase current	amps	1.5	1.5	1.5
Phase resistance	ohms	1.3	2.1	2.0
Phase inductance	mH	2.1	5.0	3.85

(1) Indicate S for single shaft or D for double shaft. Example M-1713-1.5S

Wiring and Connections

Signals and wire colors	
Phase A	Red
Phase A̅	Blue
Phase B	Green
Phase B̅	Black

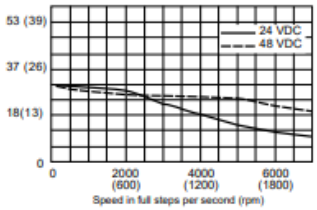
Part Numbers

Example:	M - 1 7 1 3 - 1 . 5 S
Stepper motor frame size M -17 = NEMA 17 (1.7"/42 mm)	M - 1 7 1 3 - 1 . 5 S
Motor length 13 = single stack 15 = double stack 19 = triple stack	M - 1 7 1 3 - 1 . 5 S
Phase current 1.5 = 1.5 Amps	M - 1 7 1 3 - 1 . 5 S
Shaft S = single, front shaft only D = double, front and rear shafts	M - 1 7 1 3 - 1 . 5 S
Optional optical encoder (1) ES = Single end ED = Differential **Line count** 100, 200, 250, 400, 500 or 1000 (2)	M - 1 7 1 3 - 1 . 5 E S 1 0 0

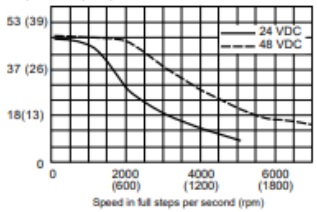
(1) An encoder replaces the shaft designator in the part number.
(2) All encoders have an index mark, except the 1000 line count version.

Torque-speed performance
Measured at 1.5 Amps RMS

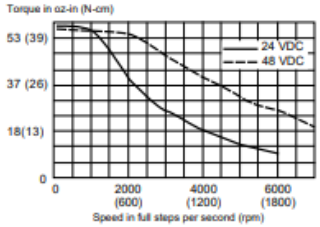
M-1713-1.5
Torque in oz-in (N-cm)



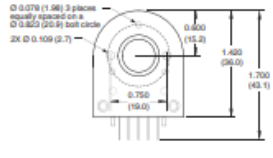
M-1715-1.5
Torque in oz-in (N-cm)



M-1719-1.5
Torque in oz-in (N-cm)



Optical Encoder Option
Dimensions in inches (mm)



Connectivity

single-end encoder

	wire	function
1	Brown	Ground
2	Violet	Index
3	Blue	Channel A
4	Orange	+5 VDC input
5	Yellow	Channel B

optional interface cable available: ES-CABLE-2

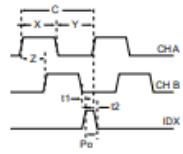
differential encoder

pin	function	pin	function
1	no connect	6	Channel A+
2	+5 VDC input	7	Channel B –
3	Ground	8	Channel B+
4	no connect	9	Index –
5	Channel A –	10	Index +

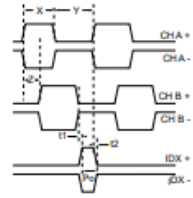
interface cable included

Timing

single-end encoder



differential encoder



Parameter	Symbol	Min	Typ	Max	Units
Cycle error			3	5.5	°e
Symmetry		130	180	230	°e
Quadrature		40	90	140	°e
Index pulse width	Po	60	90	120	°e
Index rise (after Ch A or B rise)	t1	-300	100	250	ns
Index fall (after Ch A or B fall)	t2	70	150	1000	ns

C One cycle: 360 electrical degrees (°e).
X/Y Symmetry: the measure of the relationship between X and Y, nominally 180°e.
Z Quadrature: the phase lead or lag between channels A and B, nominally 90°e.
Po Index pulse width, nominally 90 °e.
NOTE: Rotation is as viewed from the cover side of the encoder.

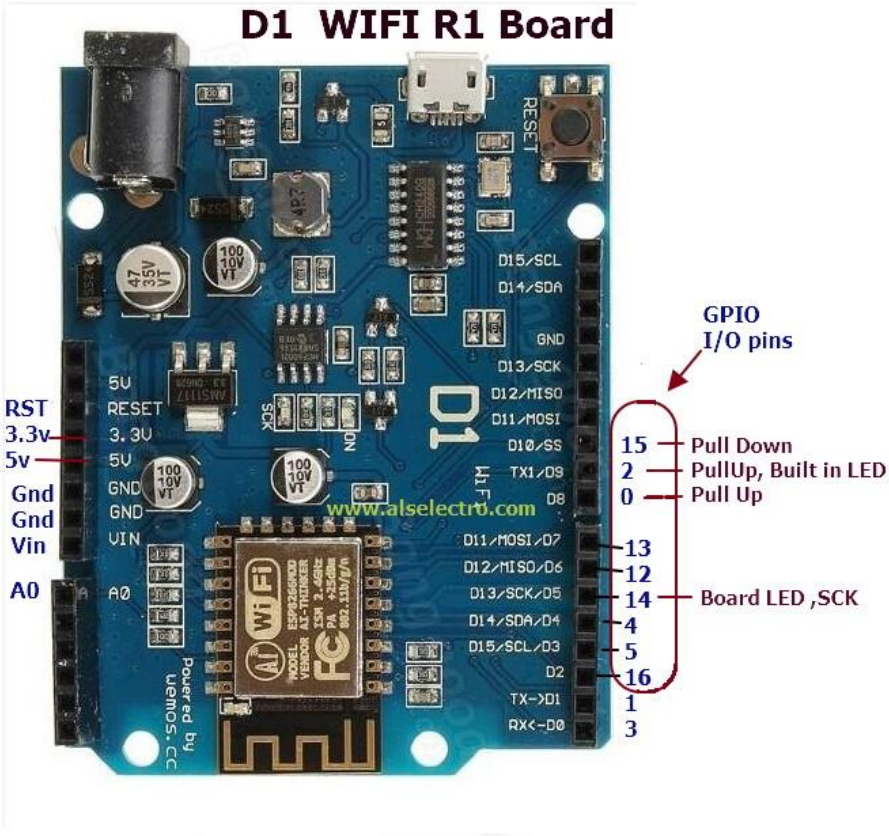
Datasheet wemos d1

Features of Wemos D1 R2 Wifi -Esp8266 Development Board:

- The D1 R2 is a mini wifi board based on ESP-8266EX
- 11 digital input/output pins, all pins have interrupt/pwm/I2C/one-wire supported (except D0)
- 1 analog input (3.3V max input)
- A Micro USB connection
- A power jack, 9-24V power input
- Compatible withArduino
- Compatible with nodemcu

Microcontroller	**ESP-8266EX**

Operating Voltage	3.3V
Digital I/O Pins	11
Analog Input Pins	1
Clock Speed	80MHz/160MHz
FLash	4M bytes
Length	68.6mm
Width	53.4mm
Weight	25g


D1 WIFI R1 Board
RESET
D15/SCL
D14/SDA
GND
D13/SCK
D12/MISO
D11/MOSI
D10/SS
TX1/D9
D8
D11/MOSI/D7
D12/MISO/D6
D13/SCK/D5
D14/SDA/D4
D15/SCL/D3
D2
TX->D1
RX<-D0
5V
RESET
3.3V
5V
GND
GND
VIN
A0
RST
3.3v
5v
Gnd
Gnd
Vin
A0
GPIO
I/O pins
15 Pull Down
2 PullUp, Built in LED
0 Pull Up
13
12
14 Board LED ,SCK
4
5
16
1
3
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