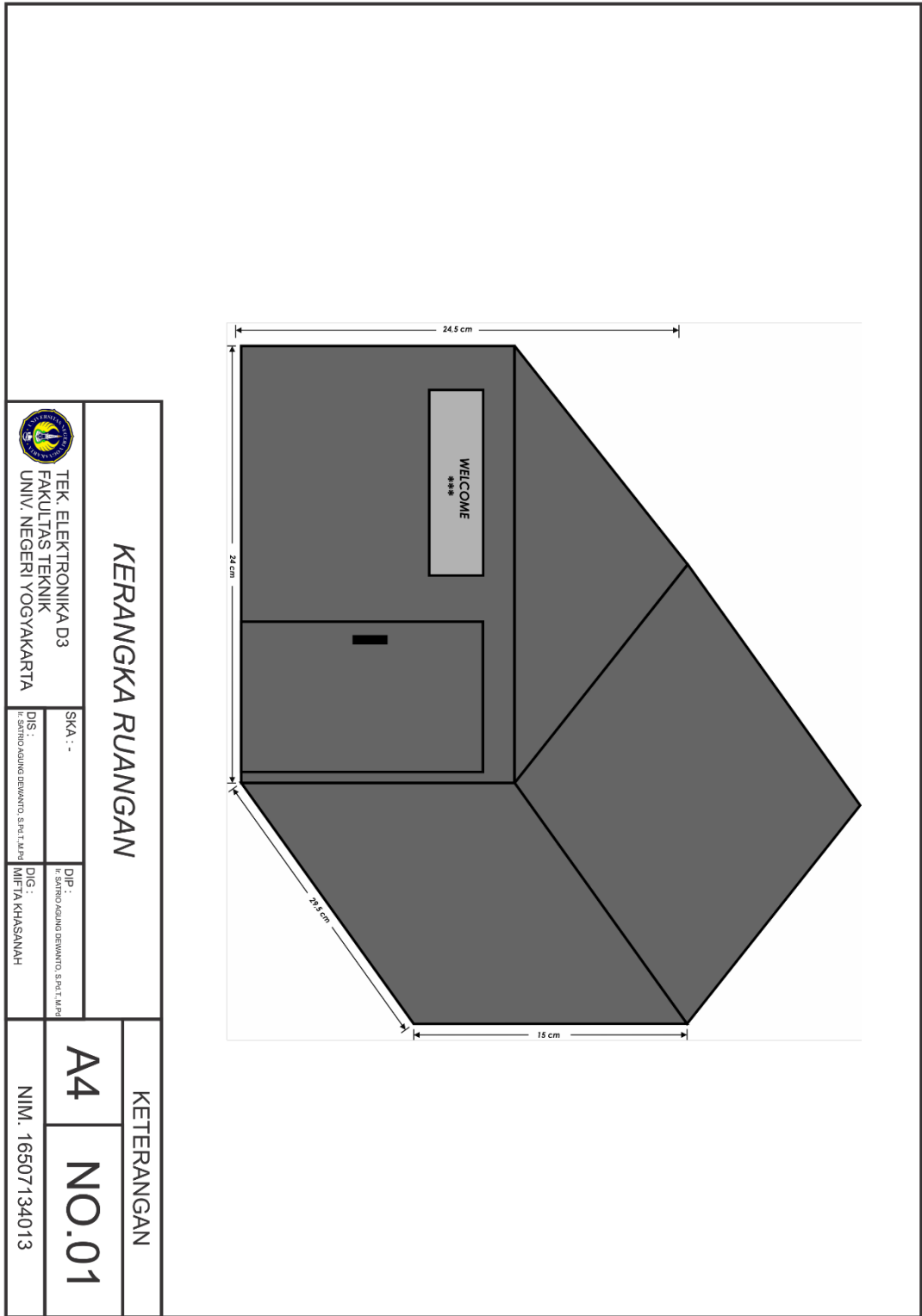
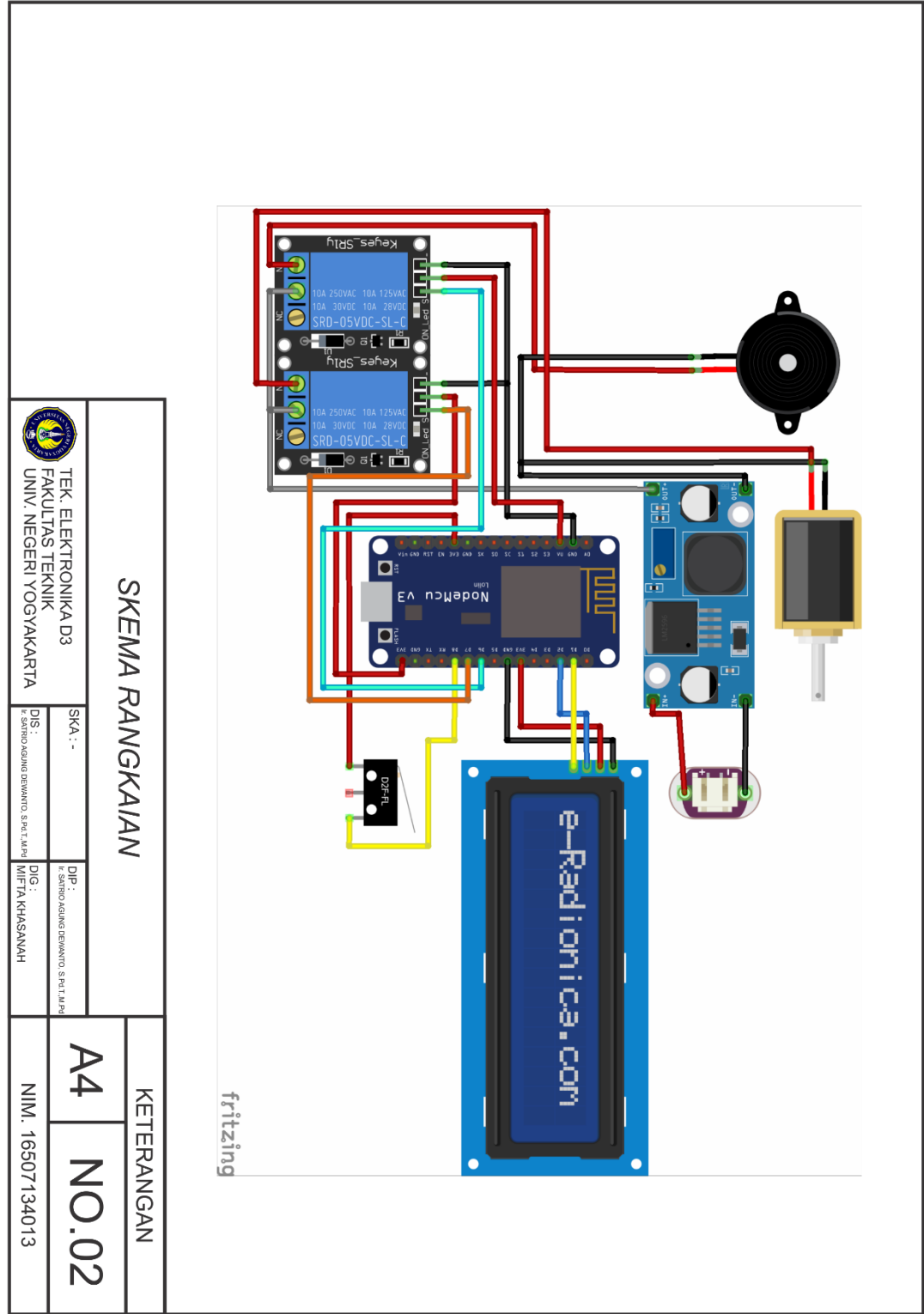


LAMPIRAN-LAMPIRAN

Lampiran 1. Kerangka Ruangan



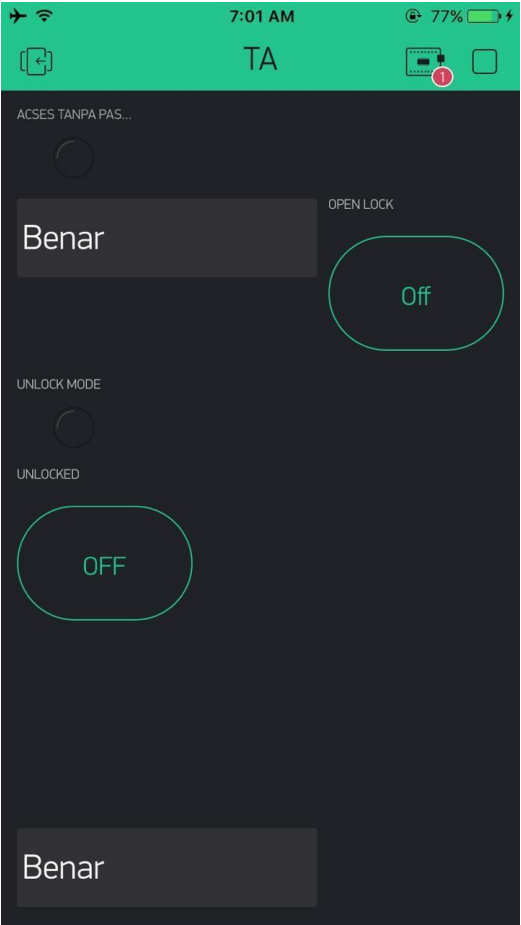
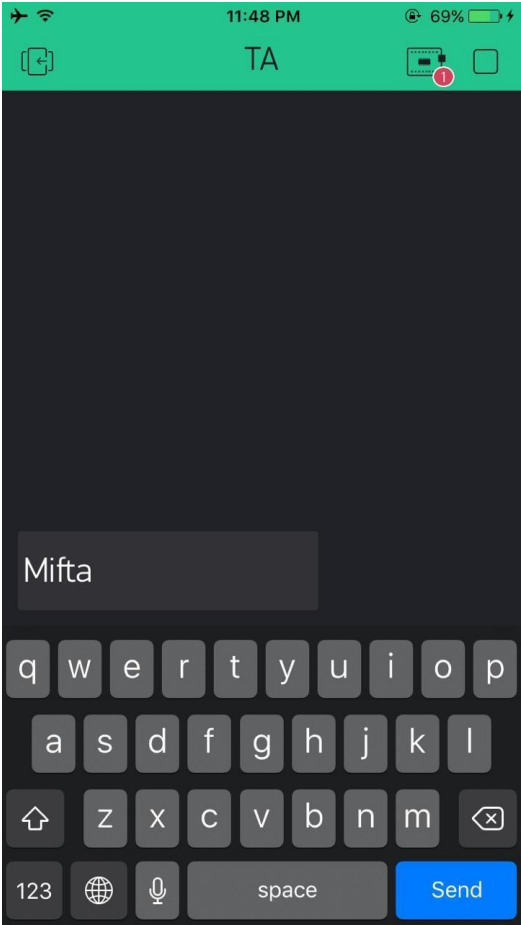
Lampiran 2. Skema Rangkaian



Lampiran 3. Tampilan Alat



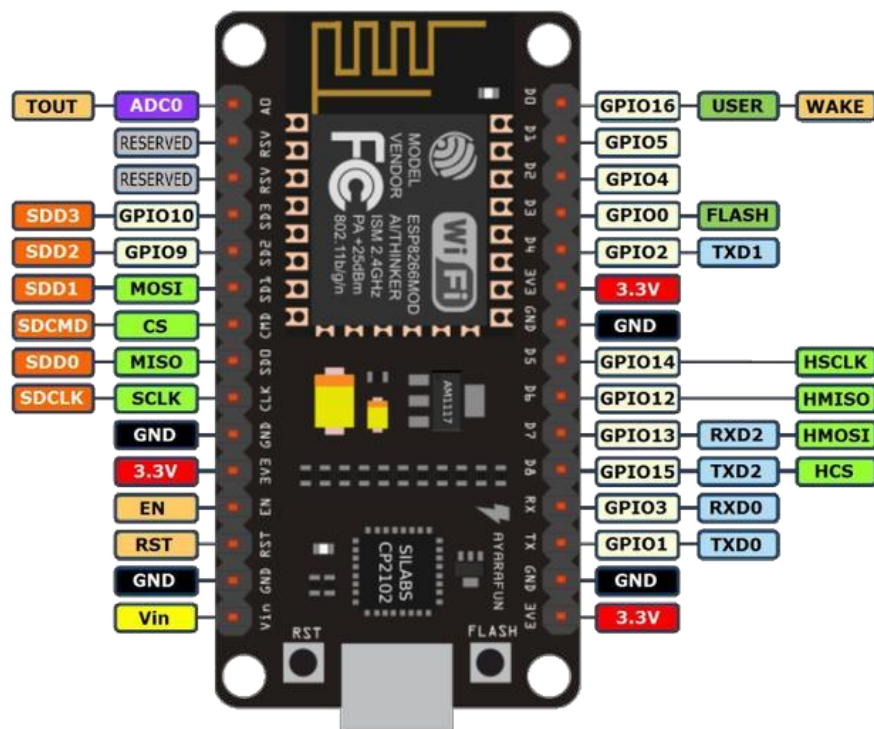
Lampiran 4. Tampilan Aplikasi



Lampiran 5. Data Sheet ESP8266 NodeMCU

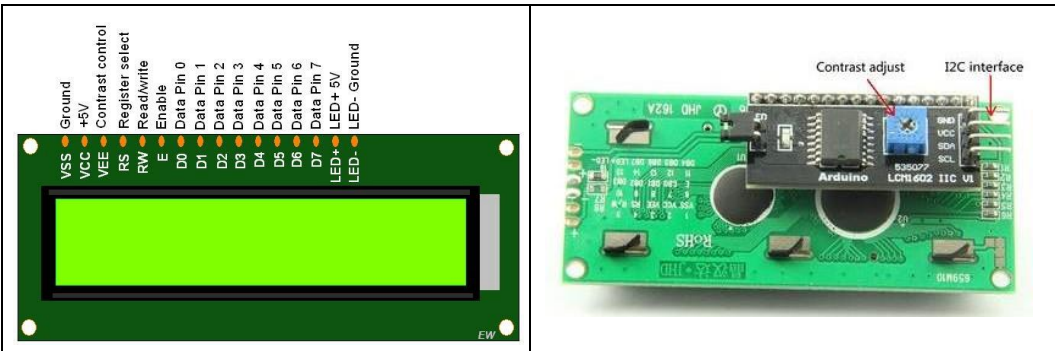
Specification:

- Voltage: 3.3V.
- Wi-Fi Direct (P2P), soft-AP.
- Current consumption: 10uA~170mA.
- Flash memory attachable: 16MB max (512K normal).
- Integrated TCP/IP protocol stack.
- Processor: Tensilica L106 32-bit.
- Processor speed: 80~160MHz.
- RAM: 32K + 80K.
- GPIOs: 17 (multiplexed with other functions).
- Analog to Digital: 1 input with 1024 step resolution.
- +19.5dBm output power in 802.11b mode
- 802.11 support: b/g/n.
- Maximum concurrent TCP connections: 5.



Lampiran 6. *Data Sheet* LCD 16x2

PIN NUMBER	SYMBOL	FUNCTION
1	Vss	GND
2	Vdd	+ 3V or + 5V
3	V ₀	Contrast Adjustment
4	RS	H/L Register Select Signal
5	RW [̄]	H/L Read/Write Signal
6	E	H → L Enable Signal
7	DB0	H/L Data Bus Line
8	DB1	H/L Data Bus Line
9	DB2	H/L Data Bus Line
10	DB3	H/L Data Bus Line
11	DB4	H/L Data Bus Line
12	DB5	H/L Data Bus Line
13	DB6	H/L Data Bus Line
14	DB7	H/L Data Bus Line
15	A/Vcc	+ 4.2V for LEDNegative Voltage Output
16	K	Power Supply for BL (0V)





ELECTRONICS

International Components Distributor
A ROBICON COMPANY

FAX : (011) 493-9319

sales@mantech.co.za

www.mantech.co.za

I2C interface for LCD



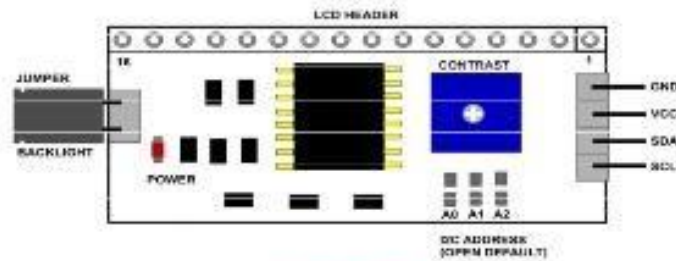
Description:

This LCD2004 is a great I2C interface for 2x16 and 4x20 LCD displays. With the limited pin resources, your project may be out of resources using normal LCD shield. With this I2C interface LCD module, you only need 2 lines (I2C) to display the information. If you already has I2C devices in your project, this LCD module actually cost no more resources at all. Fantastic for Arduino based projects.

Specification:

Compatible with 16x2 and 20x4 LCD's
Default I2C Address = 0X27
Address selectable - Range 0x20 to 0x27

Board Layout:



I2C Address Setup:



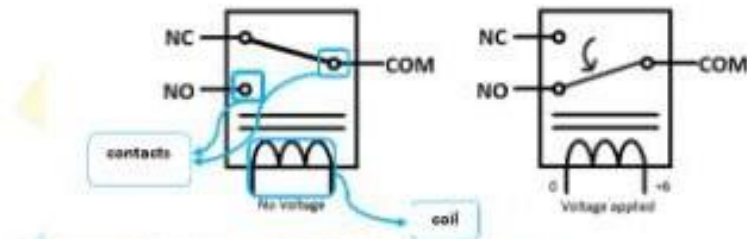
Lampiran 7. Data Sheet Modul Relay



RELAY MODULES

RELAY WORKING IDEA

Relays consist of three pins normally open pin, normally closed pin, common pin and coil. When coil powered on magnetic field is generated the contacts connected to each other.

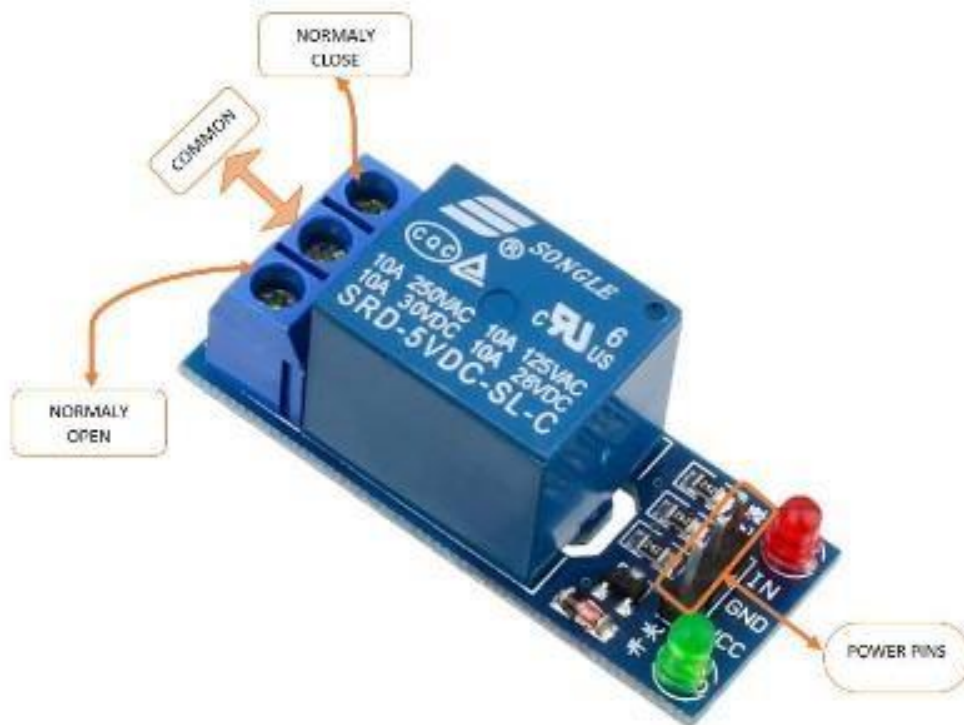


Relay modules 1-channel features

- Contact current 10A and 250V AC or 30V DC.
- Each channel has indication LED.
- Coil voltage 12V per channel.
- Kit operating voltage 5-12 V
- Input signal 3-5 V for each channel.
- Three pins for normally open and closed for each channel.

How to connect relay module with Arduino

As shown in relay working idea it depends on magnetic field generated from the coil so there is power isolation between the coil and the switching pins so coils can be easily powered from Arduino by connecting VCC and GND pins from Arduino kit to the relay module kit after that we choose Arduino output pins depending on the number of relays needed in project designed and set these pins to output and make it out high (5 V) to control the coil that allow controlling of switching process.



NOTE : whatever was the relay channels number the pinconfiguration is the same for every channel except the power pins (VCC and GND) are for the board itself. The input signal (IN) pin for every relay.

Lampiran 8. Data Sheet Buzzer

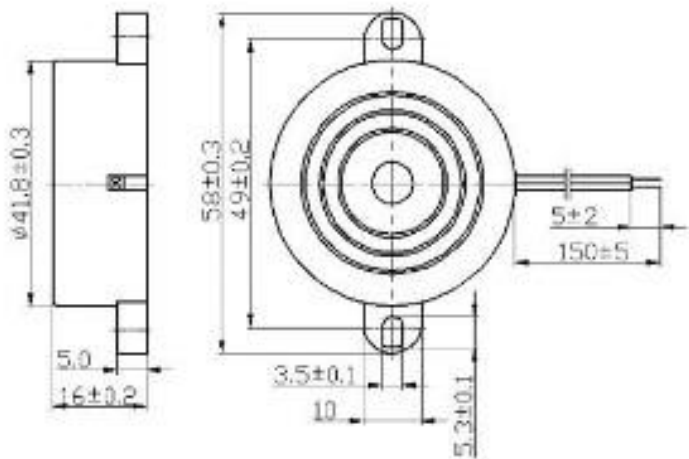


HP4216BXW SERIES:

Type	UNIT	HP4216BXW09	HP4216BXW12
*Min. Sound Output at 10cm	dB	100	85/30cm
Rated Voltage	VDC	9	12
Operating Voltage	VDC	6~12	8~15
Resonant Frequency	Hz	2900±500	3100±500
*Max. Current Consumption	mA	150	150
Tone Nature		Siren	Siren
Operating Temperature	℃	-20~+70	
Storage Temperature	℃	-30~+80	
Weight	g	18	

Value applying at rated voltage

DIMENSIONS Unit:mm Tolerance:±0.5



Lampiran 9. Data Sheet Modul Stepdown LM2596



LM2596

SNVS124D –NOVEMBER 1999–REVISED MAY 2016

LM2596 SIMPLE SWITCHER® Power Converter 150-kHz 3-A Step-Down Voltage Regulator

1 Features

- 3.3-V, 5-V, 12-V, and Adjustable Output Versions
- Adjustable Version Output Voltage Range: 1.2-V to 37-V $\pm$ 4% Maximum Over Line and Load Conditions
- Available in TO-220 and TO-263 Packages
- 3-A Output Load Current
- Input Voltage Range Up to 40 V
- Requires Only 4 External Components
- Excellent Line and Load Regulation Specifications
- 150-kHz Fixed-Frequency Internal Oscillator
- TTL Shutdown Capability
- Low Power Standby Mode, I_Q , Typically 80 μ A
- High Efficiency
- Uses Readily Available Standard Inductors
- Thermal Shutdown and Current-Limit Protection
- Create a Custom Design Using the LM2596 with the [WEBENCH Power Designer](#)

2 Applications

- Simple High-Efficiency Step-Down (Buck) Regulator
- On-Card Switching Regulators
- Positive to Negative Converter

3 Description

The LM2596 series of regulators are monolithic integrated circuits that provide all the active functions for a step-down (buck) switching regulator, capable of driving a 3-A load with excellent line and load regulation. These devices are available in fixed output voltages of 3.3 V, 5 V, 12 V, and an adjustable output version.

Requiring a minimum number of external components, these regulators are simple to use and include internal frequency compensation, and a fixed-frequency oscillator.

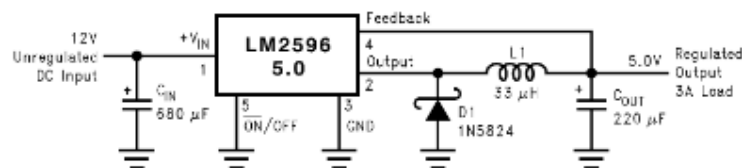
The LM2596 series operates at a switching frequency of 150 kHz, thus allowing smaller sized filter components than what would be required with lower frequency switching regulators. Available in a standard 7-pin TO-220 package with several different lead bend options, and a 7-pin TO-263 surface mount package.

Device Information⁽¹⁾

PART NUMBER	PACKAGE	BODY SIZE (NOM)
LM2596	TO-220 (7)	14.986 mm $\times$ 10.16 mm
	TO-263 (7)	10.10 mm $\times$ 8.89 mm

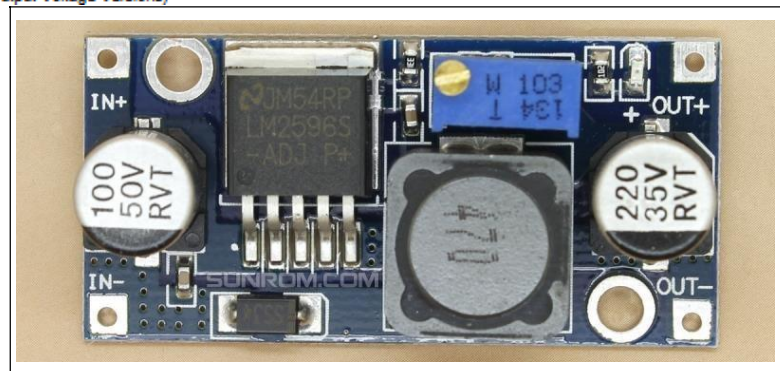
(1) For all available packages, see the orderable addendum at the end of the data sheet.

Typical Application



Copyright © 2016, Texas Instruments Incorporated

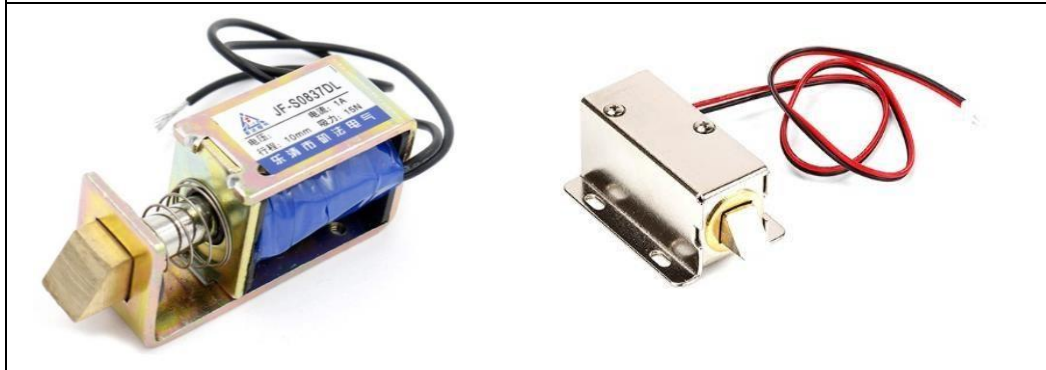
(Fixed Output Voltage Versions)



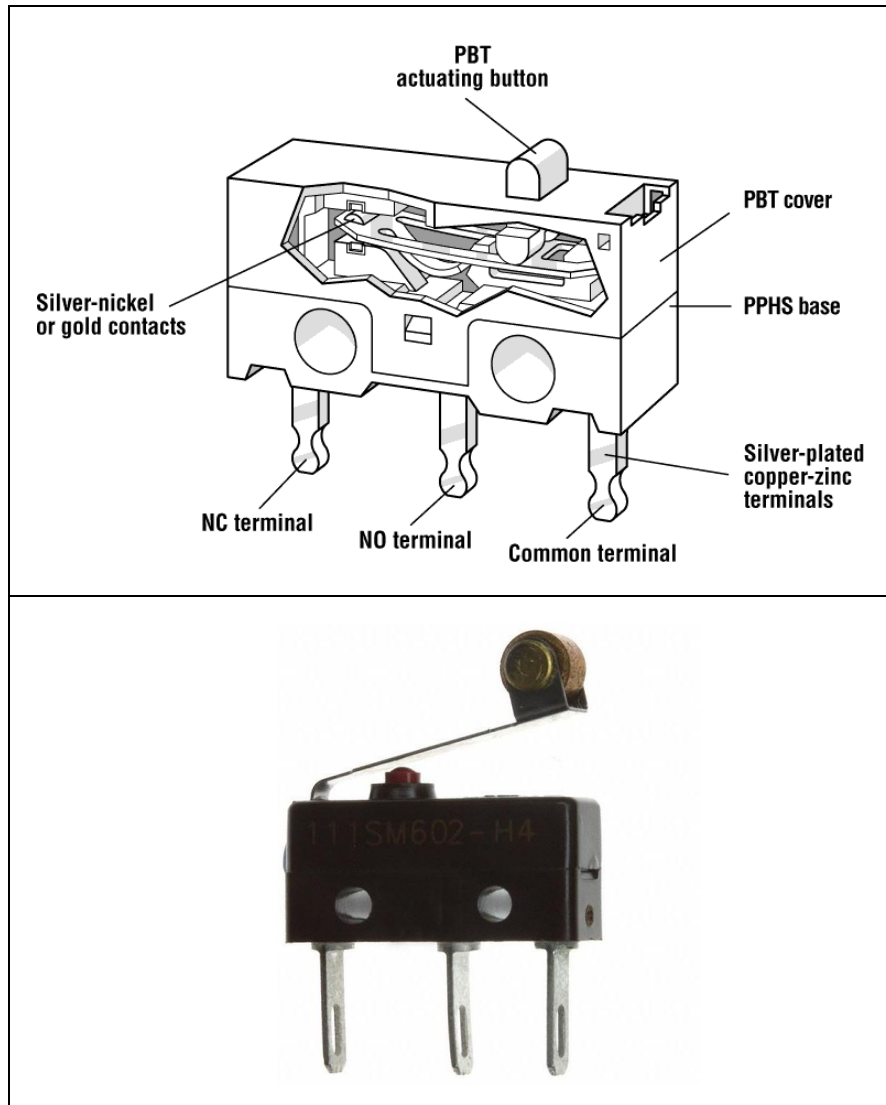
Lampiran 10. Datasheet Solenoid Door Lock

Specifications of 12V solenoid lock:

- Operating voltage : 12VDC
- Draws 650mA at 12V, 500 mA at 9V when activated
- Designed for 1-10 seconds long activation time
- Wire length: 222.25mm



Lampiran 11. Datasheet Limit Switch



Lampiran 12. Program

```
#include <Wire.h>
#include <LiquidCrystal_I2C.h>
#include <ESP8266WiFi.h>
#include <BlynkSimpleEsp8266.h>
#include <EEPROM.h>

#define BLYNK_PRINT Serial
int relay =13;
int buzzer =12;
int LS =15;
int i=0;
int ab;
int z;
String UserName,Password;
WidgetLED led1 (V1);
WidgetLED led2 (V2);

BlynkTimer timer;
LiquidCrystal_I2C lcd(0x27,16,1); //set the LCD address to
0x27 for a 16 chars and 2 line display

char auth[] = "93fc130fe33d4039ac709295ce6cc7fa";
char ssid[] = "iPhone";
char pass[] = "BUANGKUOTA";

String receivedwords;
String receivedwords1;
String words;

void writestringwords(char addr,String words);
String readstringwords(char addr);

void setup() {
  pinMode(relay, OUTPUT);
  pinMode(buzzer, OUTPUT);
  pinMode(LS, INPUT);
  Serial.begin(9600);
  EEPROM.begin(512);
  //readSSID();
  lcd.init();
  lcd.backlight();
  lcd.setCursor(4,0);
  lcd.print("Welcome");
```

```
lcd.setCursor(6,1);  
lcd.print("*");  
delay(1000);  
Blynk.begin(auth, ssid, pass);  
digitalWrite(2,1);  
digitalWrite(13,1);  
//timer.setInterval(1000L, dataRec);  
}
```


Lampiran 13. Daftar Harga Komponen yang Digunakan

No	Nama Barang	Banyak Barang	Harga
1.	Modul ESP 8266	1	Rp.32.000
2.	Limit switch	1	Rp.11.000
3.	Solenoid <i>door lock</i> 12V	1	Rp.48.000
4.	Modul stepdown LM2596	1	Rp.9000
5.	Buzzer	1	Rp.5000
6.	Modul relay 1 channel	2	Rp.30.000
7.	LCD 16x2	1	Rp.15.000
8.	I2C	1	Rp.11.000
Total			Rp.161.000