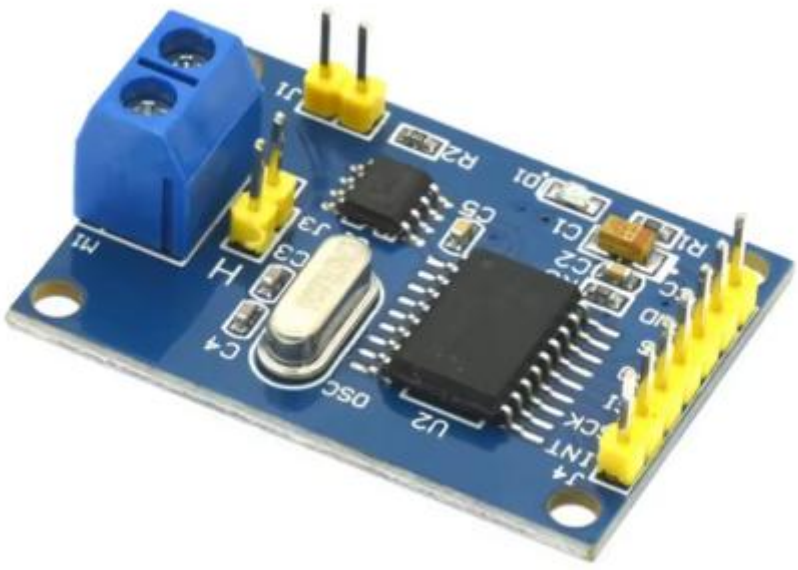
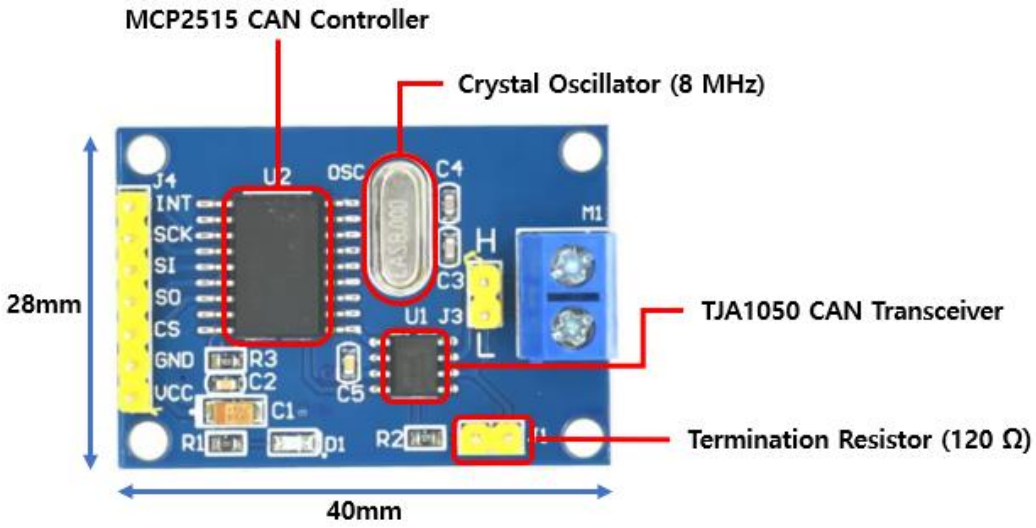
SPI2CAN Module (SPI to CAN for Arduino/MCU)

SPI2CAN Module은 MCP2515 CAN 컨트롤러와 TJA1050 CAN 트랜시버를 내장한 SPI 인터페이스 CAN 통신 모듈로, Arduino 및 다양한 마이크로컨트롤러(MCU)와 호환되어 손쉽게 CAN 네트워크를 구축할 수 있습니다.



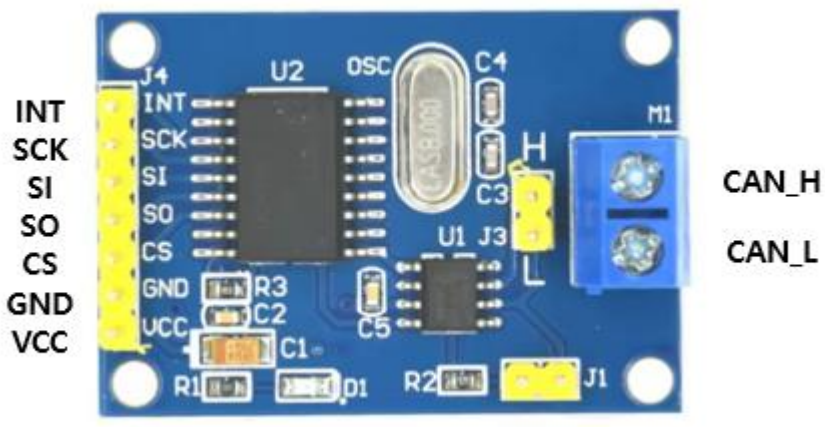
주요기능

- CAN Controller: MCP2515
- CAN Transceiver: TJA1050
- Communication Interface: SPI
- Operating Voltage: 3.3V to 5.0V
- CAN Bus Speed: Up to 1Mbps
- Crystal Oscillator: 8 MHz
- CAN Bus Connector: 2-pin terminal (CAN_H, CAN_L)
- SPI Port Pins: CS, SO, SI, SCK, INT
- Built-in Termination Register 120Ω (Removable via jumper)



SPI2CAN Module 제품 사진

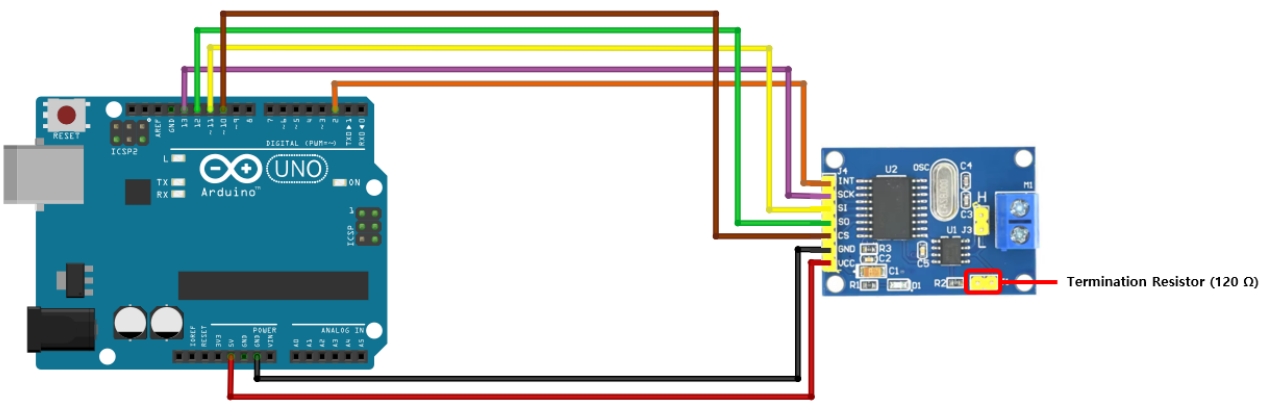
핀맵



SPI2CAN Module 핀맵

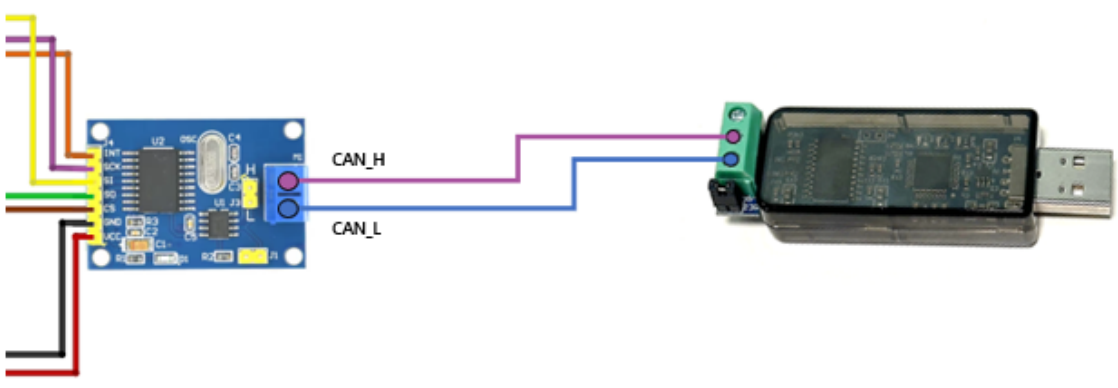
Signal	Function	필수(M)/선택(O)
VCC	Power supply	M
GND	Ground	M
CS	SPI Chip Select	M
SO	SPI MISO (Master In Slave Out)	M
SI	SPI MOSI (Master Out Slave In)	M
SCK	SPI Clock	M
INT	MCP2515 Interrupt	O
H	CAN_H	M
L	CAN_L	M

구성도



* 이 모듈에는 120Ω 종단 저항이 기본 탑재되어 있으며, 점퍼를 통해 연결 여부를 선택할 수 있습니다. (이미 네트워크 내 다른 장치에서 종단 저항이 적용되어 있는 경우, 점퍼를 제거하여 병렬 저항에 의한 신호 왜곡을 방지해야 합니다.)

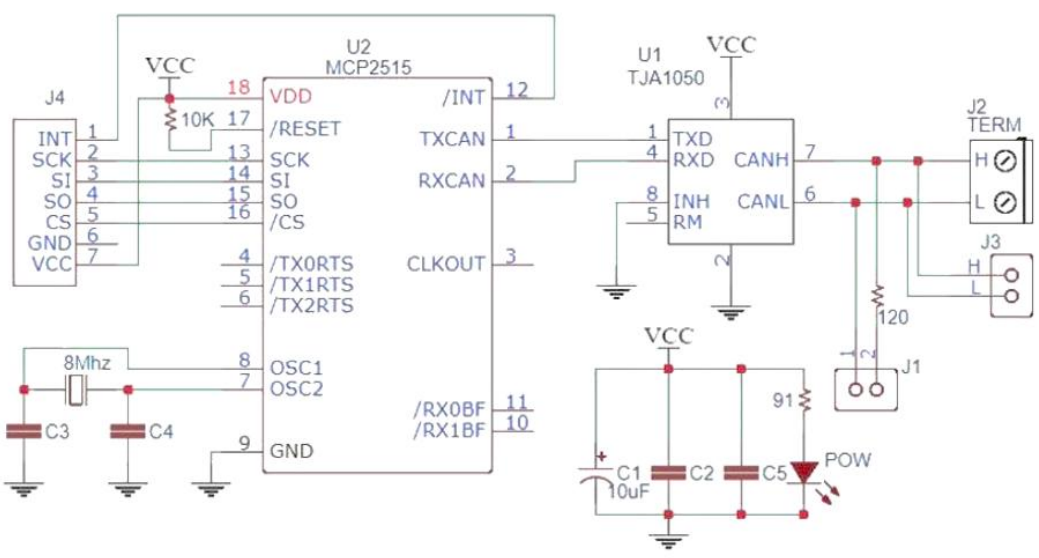
Arduino UNO와 SPI2CAN Module의 구성도 예시



SPI2CAN Module과 CANable Pro V1.1 USB to CAN의 구성도 예시

※ CANable Pro V1.1 USB to CAN의 자세한 사양 및 회로 구성은 EM Tech의 CANable Pro V1.1 USB to CAN (Isolated, SLCAN) 제품 설명서를 참조하십시오.

회로도

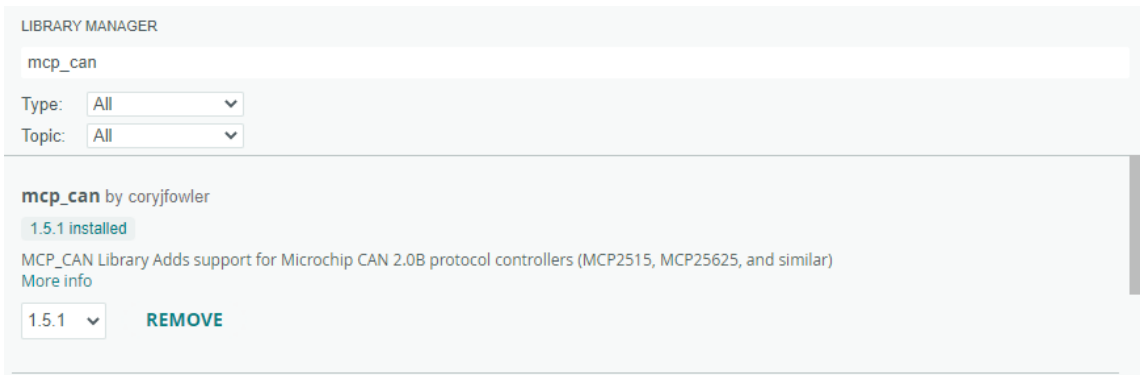


SPI2CAN Module 회로도

Arduino Sample Code

1) Install Library

Arduino > Sketch > Include Library > Manage Libraries에서 **mcp_can** by coryjfowler 라이브러리 설치



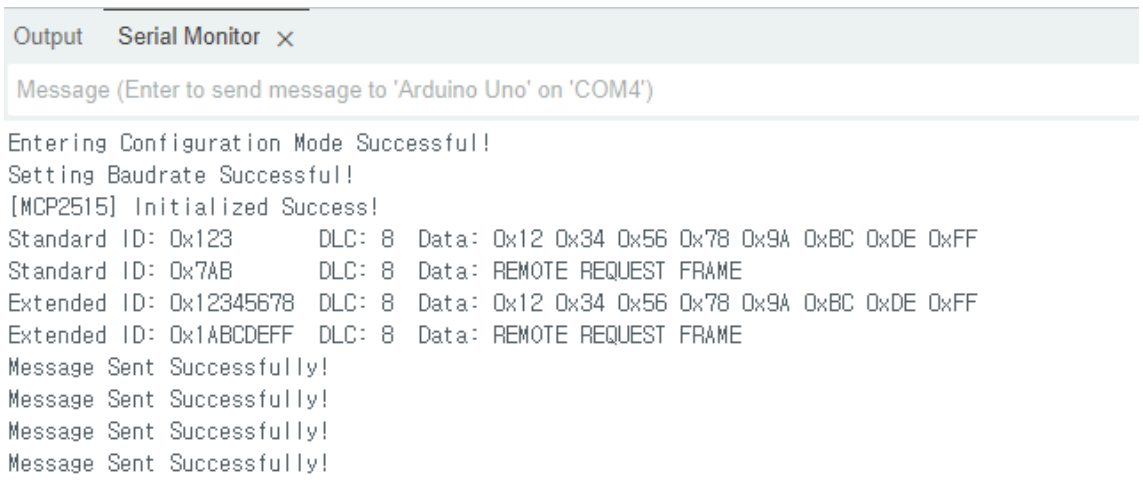
2) Sample Code for Arduino UNO

```
// CAN Receive & Send Example
#include <mcp_can.h>
#include <SPI.h>

#define MCP_CLOCK     MCP_8MHZ

#define CAN0_INT 2    // Set INT to pin 2
MCP_CAN CAN0(10);     // Set CS to pin 10

long unsigned int rxId;
unsigned char len = 0;
unsigned char rxBuf[8];
char msgString[128];     // Array to store serial string

#define set_extID(id)     (id | 0x80000000)
#define set_rtrID(id)     (id | 0x40000000)
#define set_extRtrID(id)  (set_rtrID(set_extID(id)))

void setup()
{
  Serial.begin(115200);

  // Initialize MCP2515
  if(CAN0.begin(MCP_ANY, CAN_500KBPS, MCP_CLOCK) == CAN_OK)
    Serial.println("[MCP2515] Initialized Success!");
  else
    Serial.println("[MCP2515] Initialized Fail...");

  // Change to normal mode to allow messages to be transmitted
  CAN0.setMode(MCP_NORMAL);
}

byte data[8] = {0x00, 0x01, 0x02, 0x03, 0x04, 0x05, 0x06, 0x07};

void loop()
{
  // Receive
  if(CAN0.readMsgBuf(&rxId, &len, rxBuf) != CAN_NOMSG){

    // Determine if ID is standard (11 bits) or extended (29 bits)
    if((rxId & 0x80000000) == 0x80000000)
      sprintf(msgString, "EXT ID: 0x%.8lX  DLC: %1d  Data:", (rxId &
0x1FFFFFFF), len);
    else
      sprintf(msgString, "STD ID: 0x%.3lX       DLC: %1d  Data:", (rxId &
0x1FFFFFFF), len);

    Serial.print(msgString);

    // Determine if message is a remote request frame.
    if((rxId & 0x40000000) == 0x40000000){
      sprintf(msgString, " REMOTE REQUEST FRAME");
      Serial.print(msgString);
    } else {
      for(byte i = 0; i<len; i++){
        sprintf(msgString, " 0x%.2X", rxBuf[i]);
        Serial.print(msgString);
      }
    }

    Serial.println();
  }
```

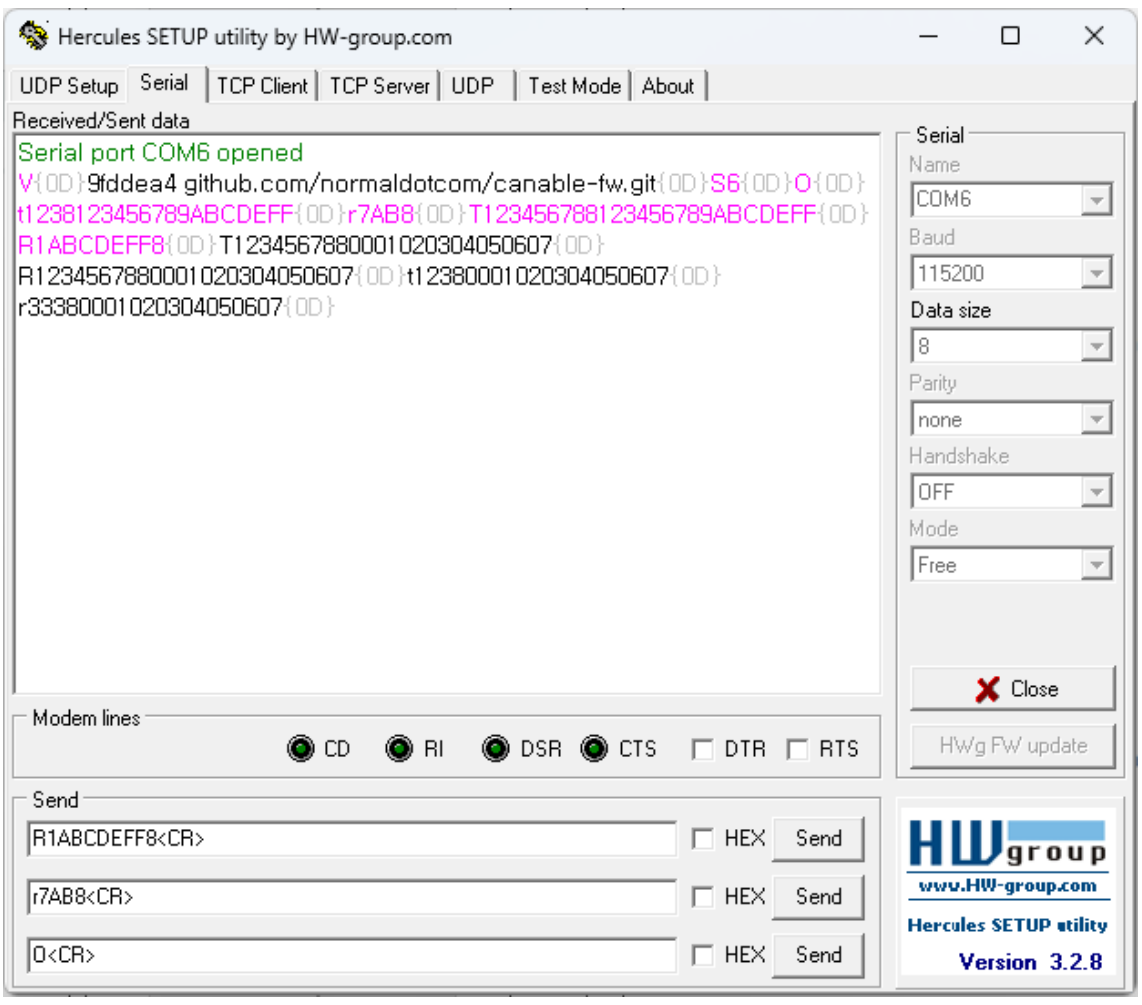
```
    // Send
    auto RxChar = Serial.read();

    if(RxChar != -1){
      byte sndStat;

      if(RxChar == 'E'){  // EXT DATA
        sndStat = CAN0.sendMsgBuf(set_extID(0x12345678), 8, data);
      } else if(RxChar == 'e'){  // EXT REMOTE
        sndStat = CAN0.sendMsgBuf(set_extRtrID(0x12345678), 8, data);
      } else if(RxChar == 'S'){  // STD DATA
        sndStat = CAN0.sendMsgBuf(0x123, 8, data);
      } else if(RxChar == 's'){  // STD REMOTE
        sndStat = CAN0.sendMsgBuf(set_rtrID(0x123), 8, data);
      }

      if(sndStat == CAN_OK){
        Serial.println("Message Sent Successfully!");
      } else {
        Serial.println("Error Sending Message...");
      }
    }
}
```

3) **Sample Code Result**

- **Arduino**



- **uCAN View**



※ CANable Pro V1.1 USB to CAN의 자세한 내용은 EM Tech의 CANable Pro V1.1 USB to CAN (Isolated, SLCAN) 제품 설명서를 참조하십시오.

제품 문의

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