

CAN 통신

유튜브 주소 : <https://youtu.be/MXnWsre3xDU>

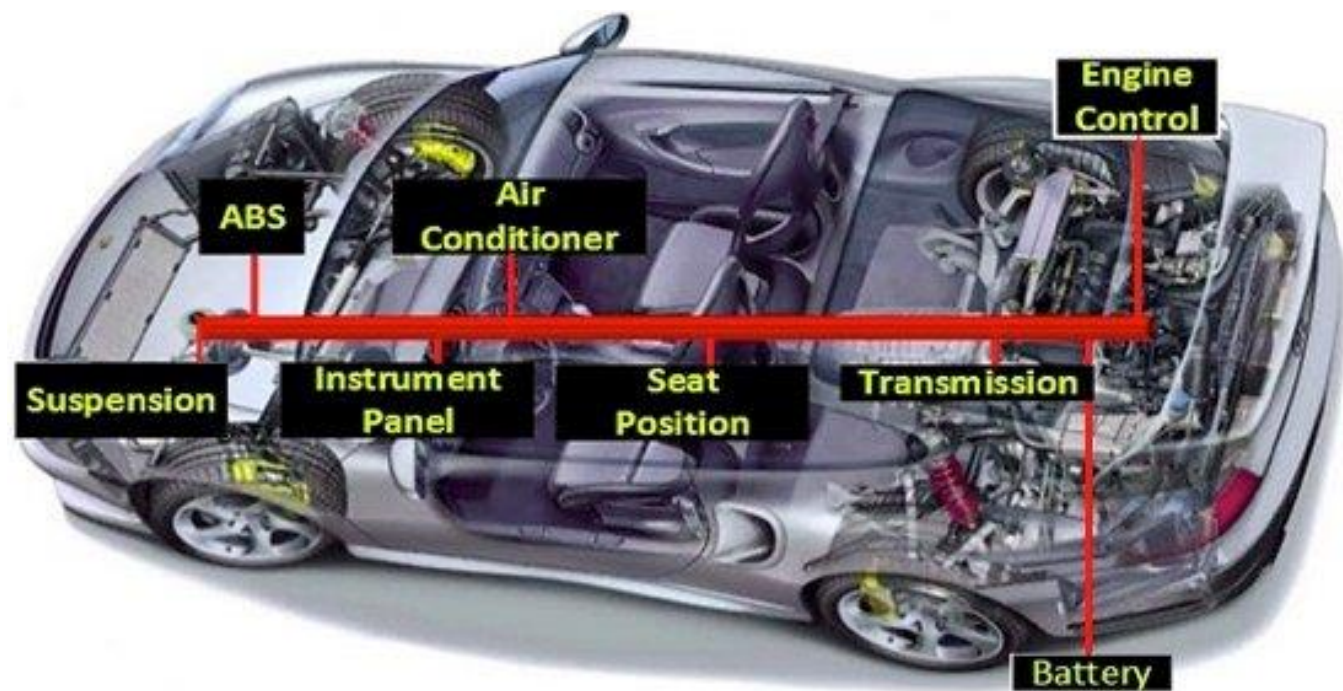
CAN 통신 개요

CAN 메시지 프레임

CAN 통신 코드 예시

CAN 통신 개요

- CAN (Controller Area Network)
- BUS 형태의 네트워크



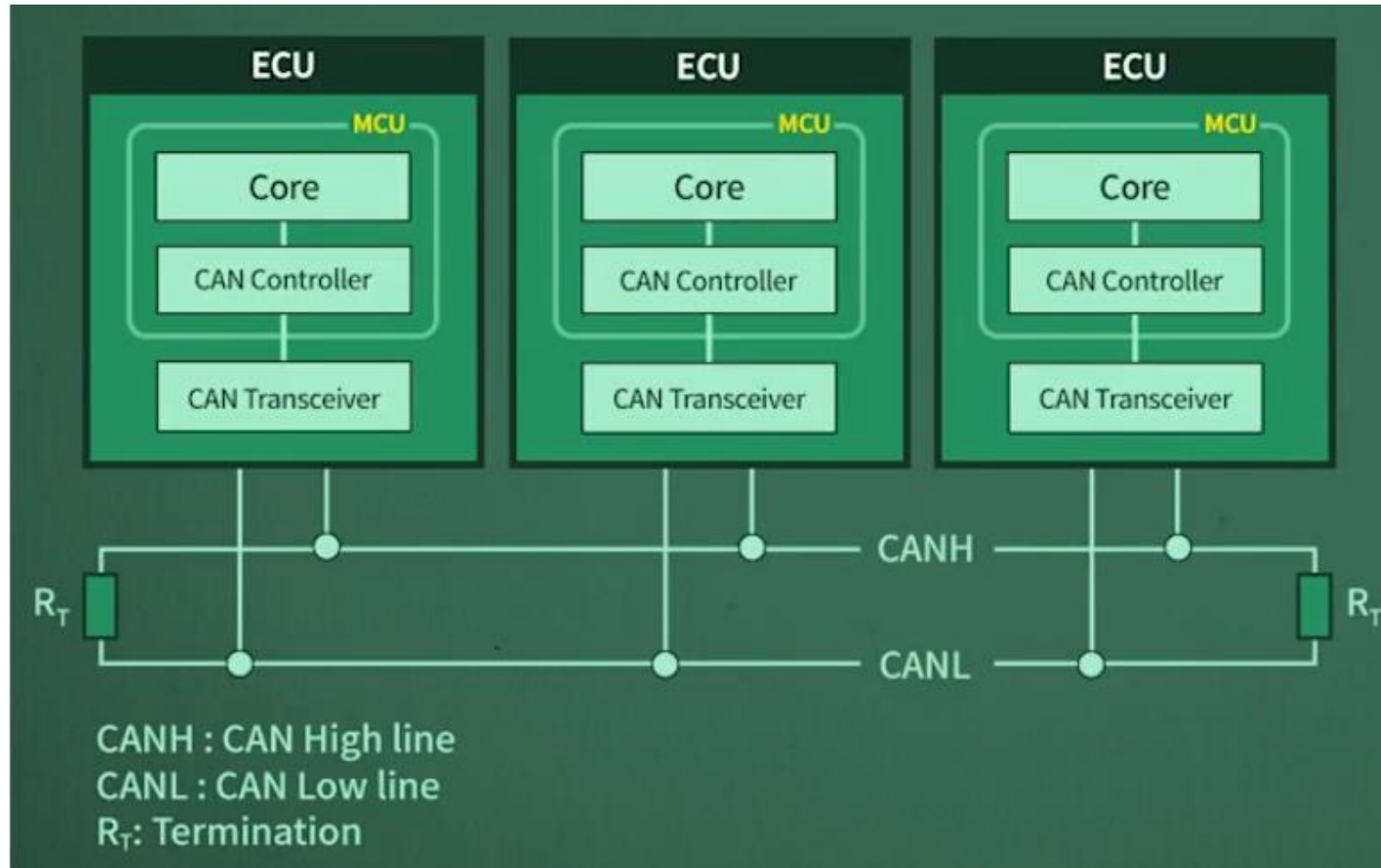
CAN 통신 개요

CAN BUS 특징

- Multi Master 통신
- 간단한 구조
- ID값을 이용한 우선순위 설정(ECU)

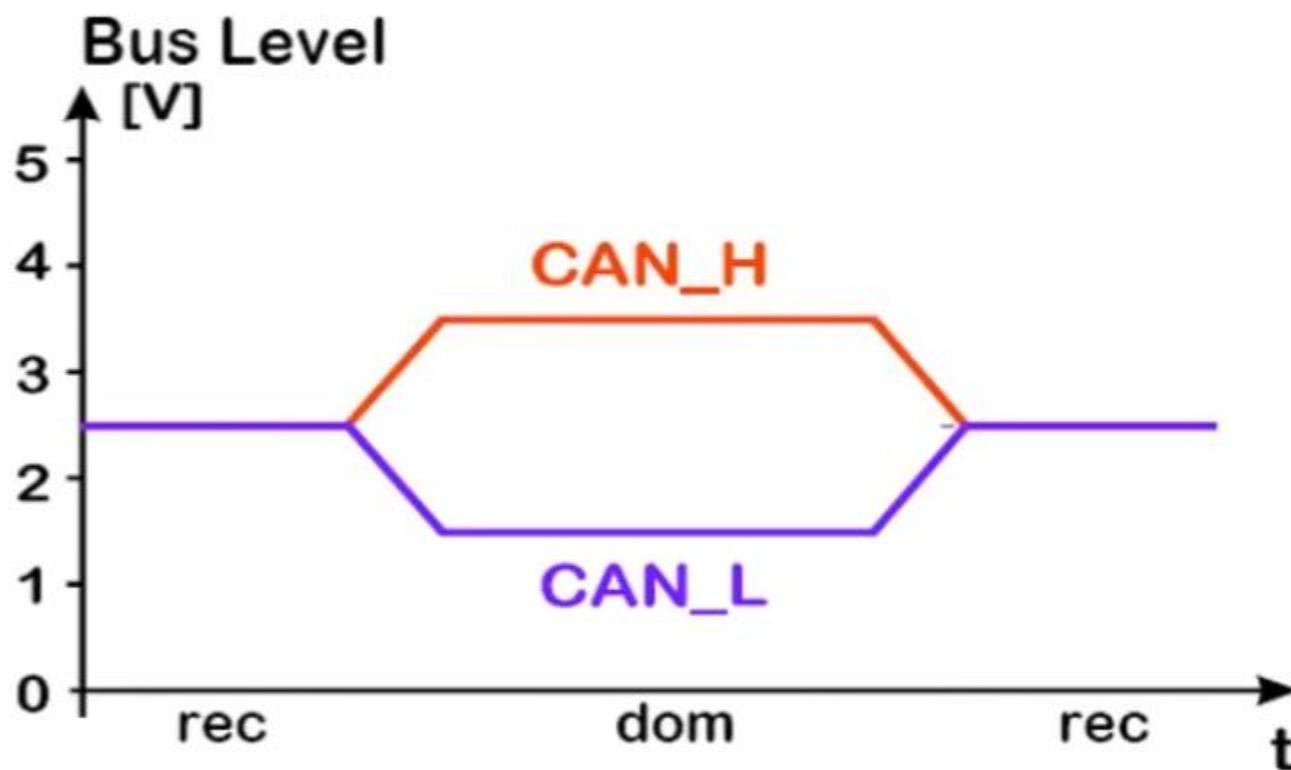
CAN 통신 개요

ECU 송신 수신



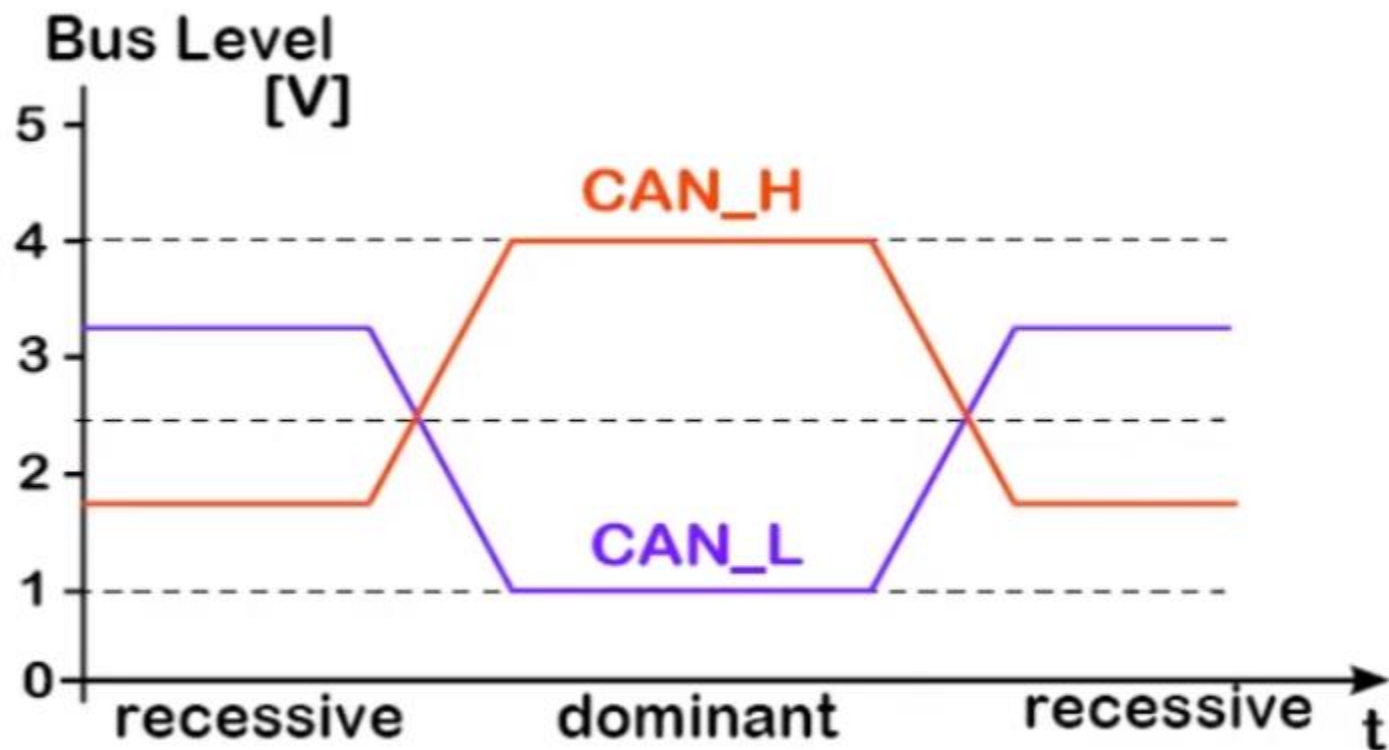
CAN 통신 개요

- CAN High Speed
- ISO11989-2
- 1Mbps 속도 지원



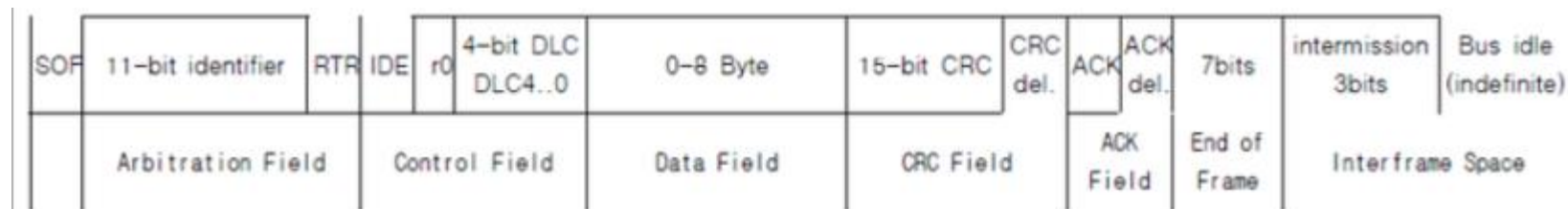
CAN 통신 개요

- CAN Low Speed
- ISO11989-3
- 125kbps 속도 지원

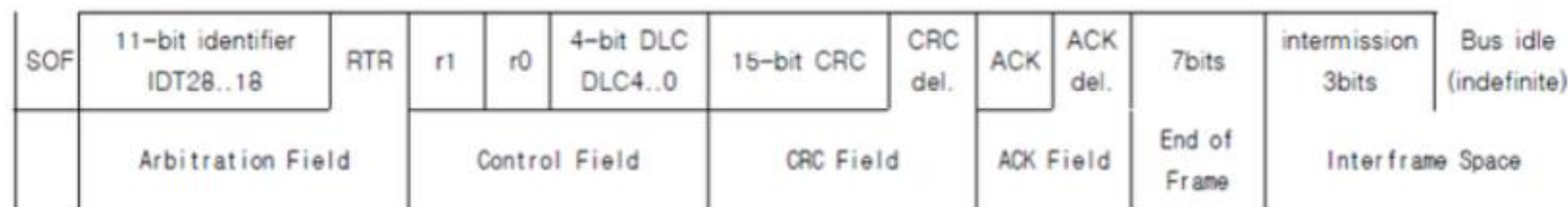


CAN 메시지 프레임

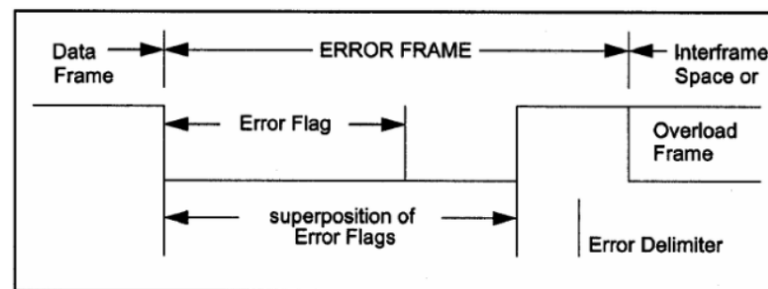
- 데이터 프레임



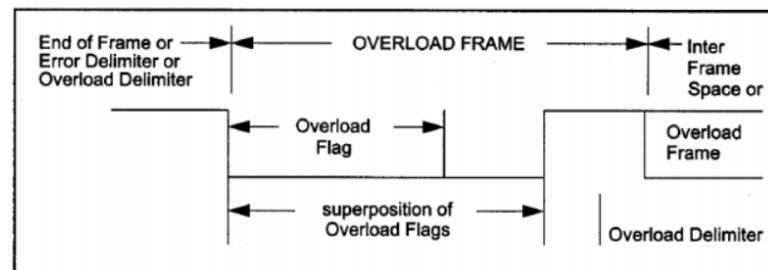
- 리모트 프레임



- 에러 프레임

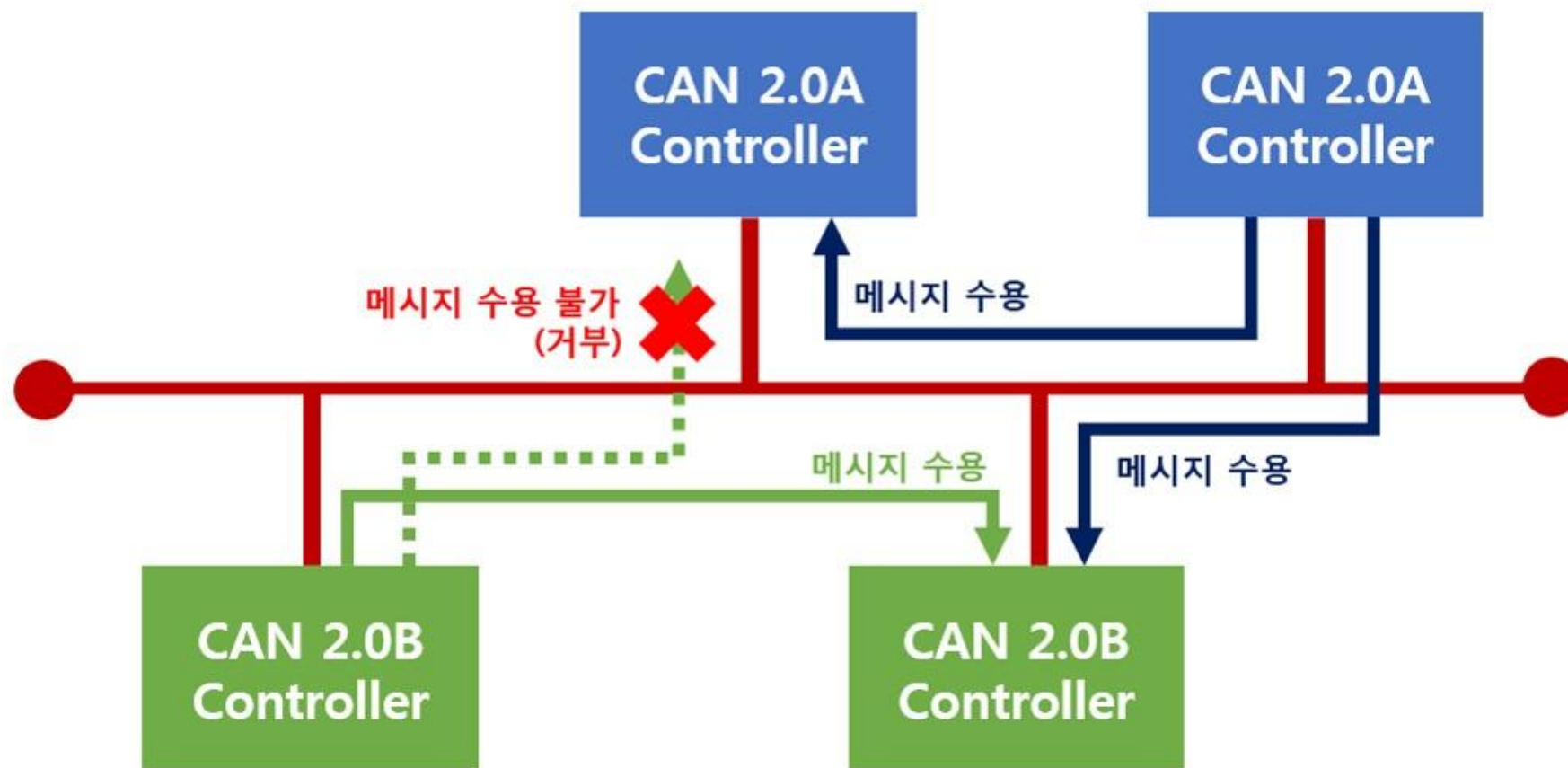


- 오버로드 프레임



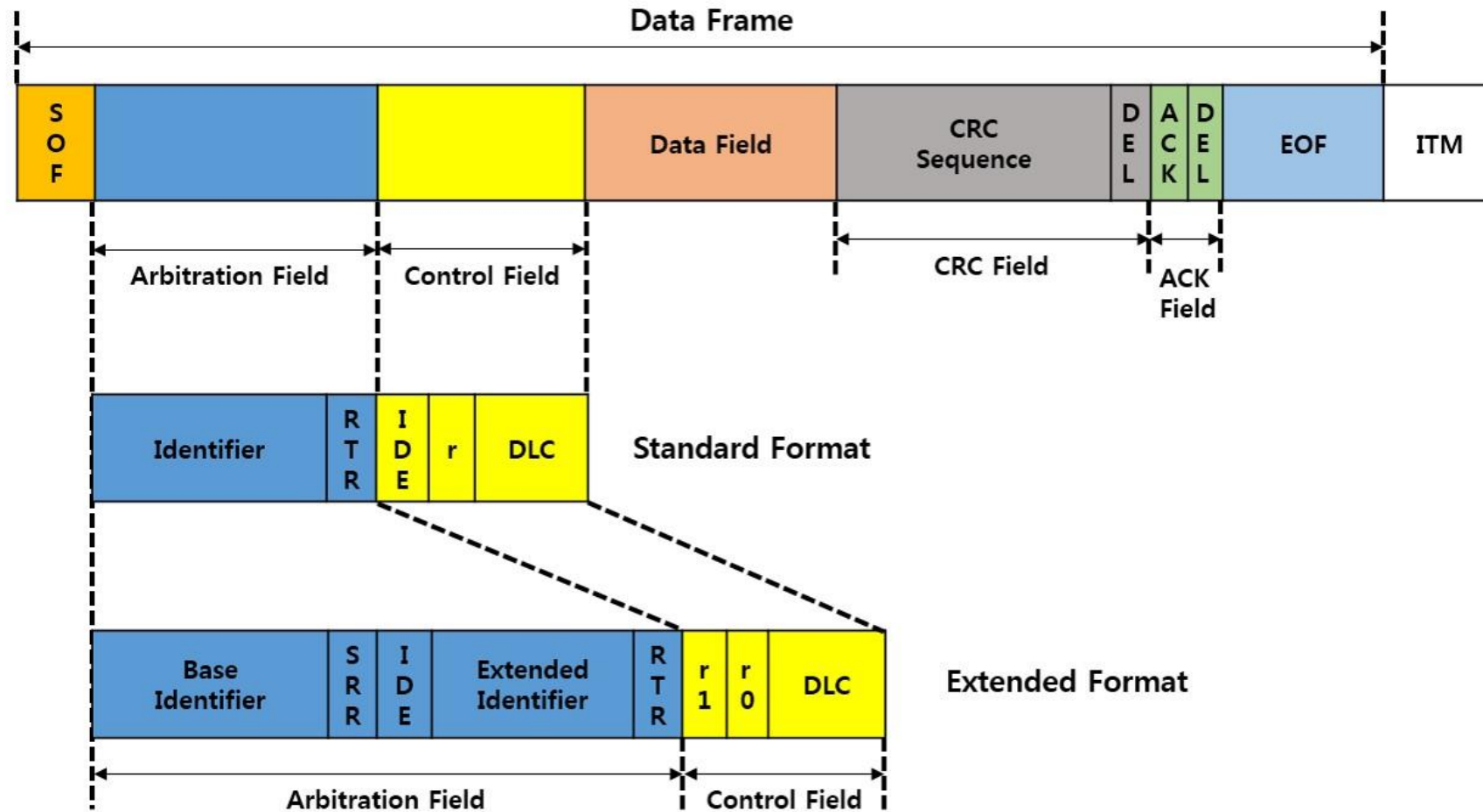
CAN 메시지 프레임

- CAN 프로토콜

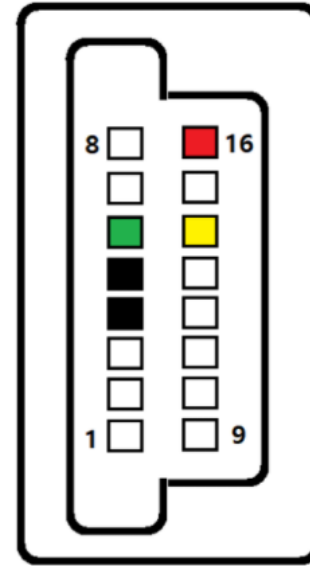


CAN 메시지 프레임

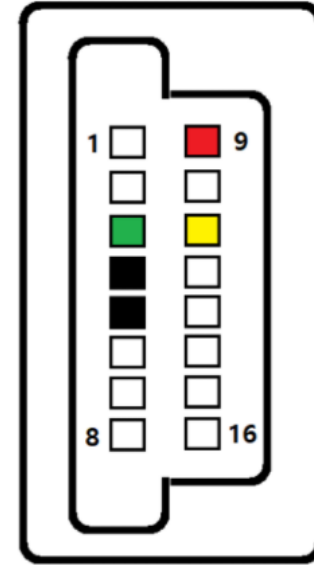
- CAN 메시지 포맷



CAN 통신 코드 예시



OBD 기준

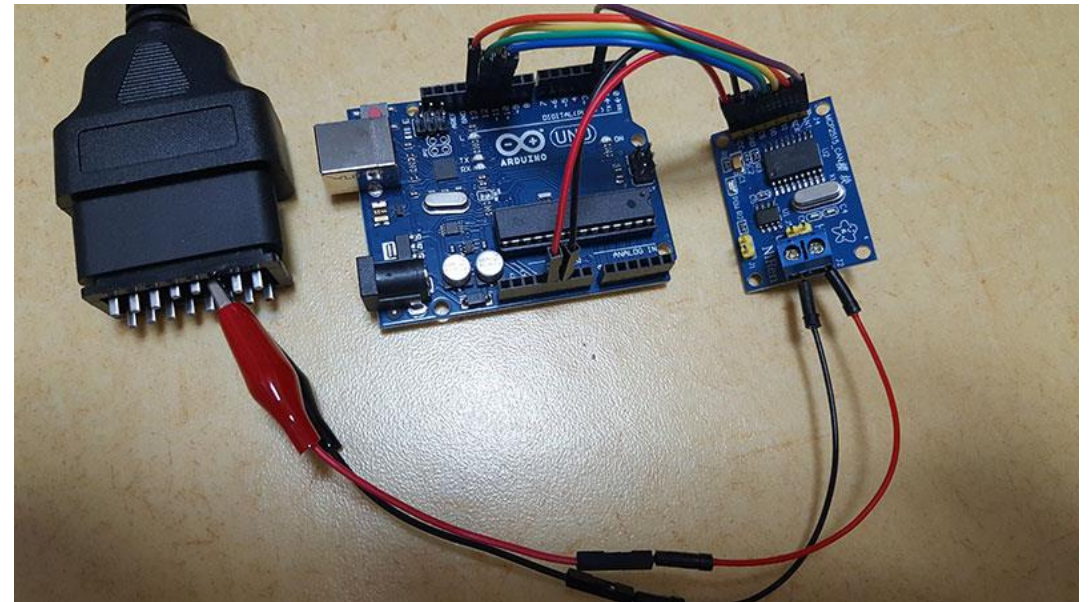
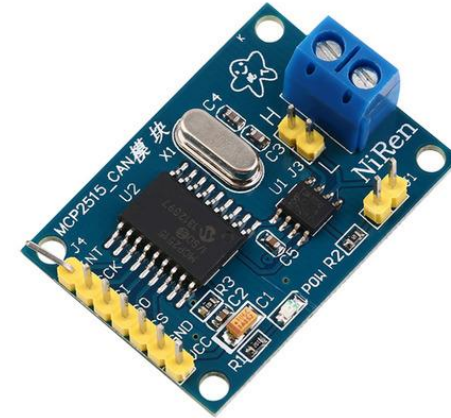


현대/기아 기준

PIN 번호 비교		
OBD 기준	현대/기아 기준	역할
4	5	GND
5	4	GND
6	3	CANH
14	11	CANL
16	9	전원

CAN 통신 코드 예시

- CAN 통신 장치



CAN 통신 코드 예시

CAN_Read_Demo

Distributed as-is; no warranty is given.

*****/

```
#include <Canbus.h>
#include <defaults.h>
#include <global.h>
#include <mcp2515.h>
#include <mcp2515_defs.h>
```

*****Setup Loop*****//

```
void setup() {
    Serial.begin(9600); // For debug use
    Serial.println("CAN Read - Testing receival of CAN Bus message");
    delay(1000);

    if(Canbus.init(CANSPEED_500)) //Initialise MCP2515 CAN controller at the specified speed
        Serial.println("CAN Init ok");
    else
        Serial.println("Can't init CAN");

    delay(1000);
}
```

*****Main Loop*****//

```
void loop(){

    tCAN message;
    if (mcp2515_check_message())
    {
        if (mcp2515_get_message(&message))
        {
            //if(message.id == 0x620 and message.data[2] == 0xFF) //uncomment when you want to filter
            //{

                Serial.print("ID: ");
                Serial.print(message.id,HEX);
                Serial.print(", ");
                Serial.print("Data: ");
                Serial.print(message.header.length,DEC);
                for(int i=0;i<message.header.length;i++)
                {
                    Serial.print(message.data[i],HEX);
                    Serial.print(" ");
                }
                Serial.println("");
            //}
        }
    }
}
```


CAN 통신 코드 예시

```
tCAN message;  
if (mcp2515_check_message())  
{  
    if (mcp2515_get_message(&message))  
    {  
        if(message.id == 0x316)  
        {  
            Serial.print("ID: ");  
            Serial.print(message.id);  
            Serial.print(", ");  
            Serial.print("RPM: ");  
            rpm = message.data[3]*64 + message.data[4]*4;  
            if(rpm<=1000){  
                lcd.setCursor(0,1);  
                lcd.print("Good      ");  
            }  
  
            else if(rpm<=1500){  
                lcd.setCursor(0,1);  
                lcd.print("Warning   ");  
            }  
  
            else if(rpm>1500){  
                lcd.setCursor(0,1);  
                lcd.print("TOO HIGH! ");  
            }  
            lcd.setCursor(0,0);  
            lcd.print("RPM: ");  
            lcd.setCursor(5,0);  
            lcd.print(rpm);  
            lcd.print("      ");  
            Serial.print(rpm);  
            Serial.println("");  
        }  
    }  
}
```



Q & A