CAN Transmitter User Guide

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# Overview

The purpose of this CAN transmitter is to send cyclic CAN messages required by DECUs undergoing testing. The user can configure the following parameters:

* Baud rate
* CAN ID type (11/29 bit)
* Number of CAN messages
  + CAN message IDs
  + CAN message DLCs
  + CAN message data
  + CAN message period

This CAN transmitter is intended to be easy to create, easy to program, and easy to configure.

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# Required Files and BOM

## BOM

The CAN transmitter is based off the *Arduino Uno* development board and the *Seeed Technology CAN BUS shield*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Description** | **Manufacturer Part #** | **Qty** | **Price (USD)** | **Extended Price (USD)** |
| ARDUINO UNO SMD R3 ATMEGA328 | A000073 | 1 | 20.90 | 20.90 |
| CANBUS SHIELD V2 | 103030215 | 1 | 24.99 | 24.99 |
| CONN RCPT HSG 3POS | DT04-3P-L012 | 1 | 4.35 | 4.35 |
| LED 5MM BLUE CLR PANEL MOUNT | 5596001007F | 1 | 9.12 | 9.12 |
| LED 5MM GREEN CLR PANEL MOUNT | 5596201007F | 1 | 9.12 | 9.12 |
| RES 56 OHM 1/2W 5% CF MINI | CFM12JT56R0 | 2 | 0.10 | 0.20 |
| MACHINE SCREW PAN PHILLIPS 4-40 | R4-40X1/4 2701 | 2 | 0.63 | 1.26 |
| AC/DC WALL MOUNT ADAPTER 9V 5W | VEL05US090-US-JA | 1 | 6.50 | 6.50 |
| BUMPER SQU 0.812"L X 0.812"W BLK | SJ-5523 (BLACK) | 1 | 1.50 | 1.50 |
| USB CABLE TYPE A TO B 30CM BLACK | Seeed Technology Co., Ltd | 1 | 1.99 | 1.99 |
|  | | | **Total** | **79.93** |

Minor and optional materials, such as solder, heat shrink tubing, and grommets are not included.

## Enclosure Models

The CAN transmitter requires a custom enclosure, consisting of a box and lid. These two *.stl* files are to be 3D printed.

## Arduino Sketch

The CAN transmitter uses the Arduino sketch *CAN\_Transmitter.ino*, which requires the *mcp\_can.h* library.

# Construction

A

# Environment Setup

## Install Arduino IDE

Download and run the *Windows Installer* from the link below.

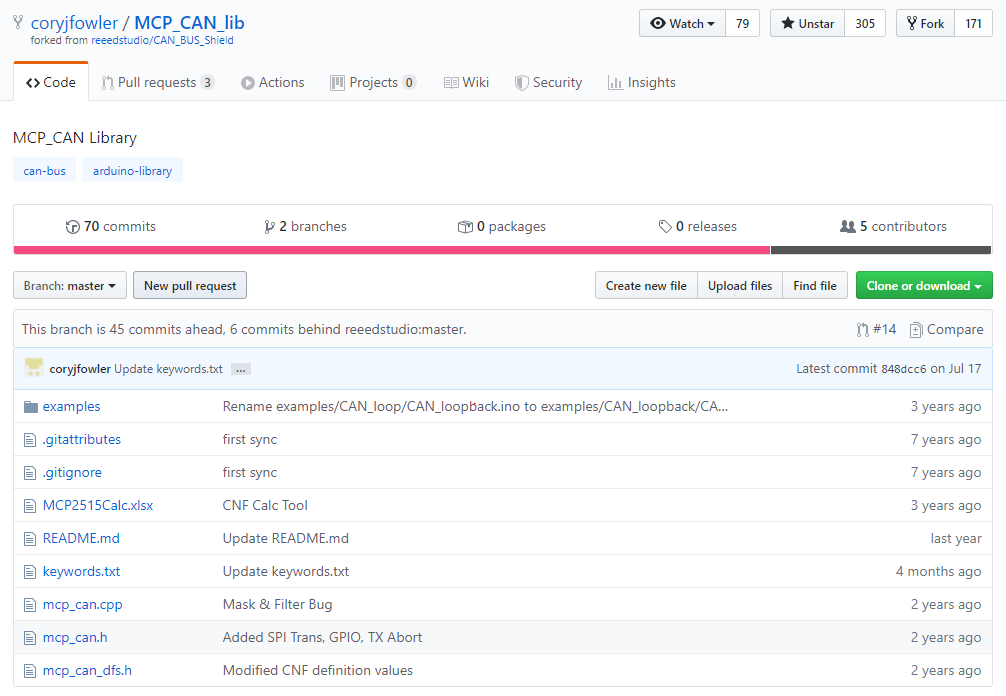
<https://www.arduino.cc/en/Main/Software>



## Install mcp\_can Library

Download the *mcp\_can* library by clicking *Clone or Download*, and *Download ZIP* from the link below.

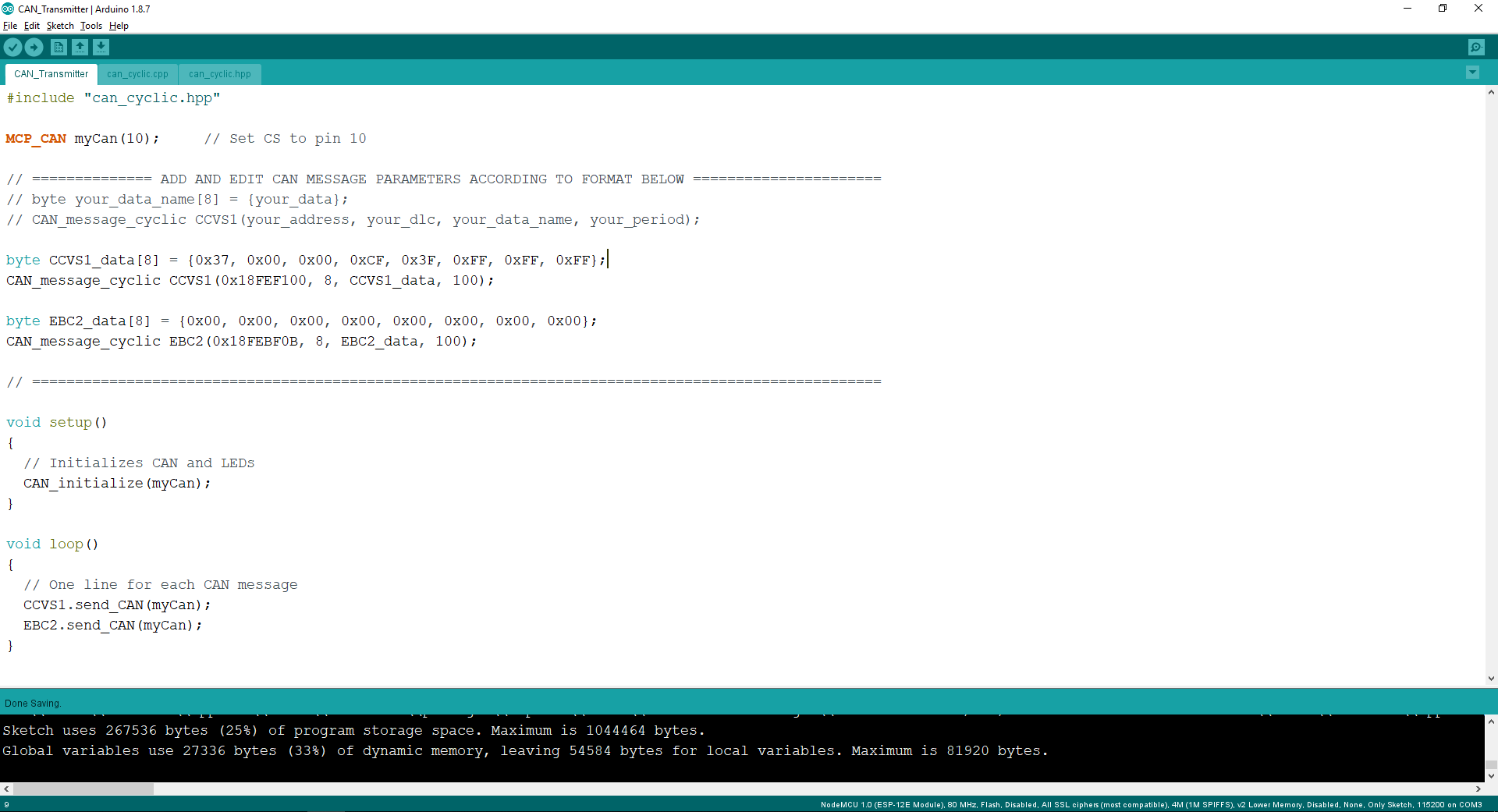
<https://github.com/coryjfowler/MCP_CAN_lib>



To install, open *CAN\_Transmitter.ino*, navigate to *Sketch » Include Library » Add .ZIP Library…*, and add the downloaded *.zip* files.

# Configuration and Programming

Open *CAN\_Transmitter.ino*.

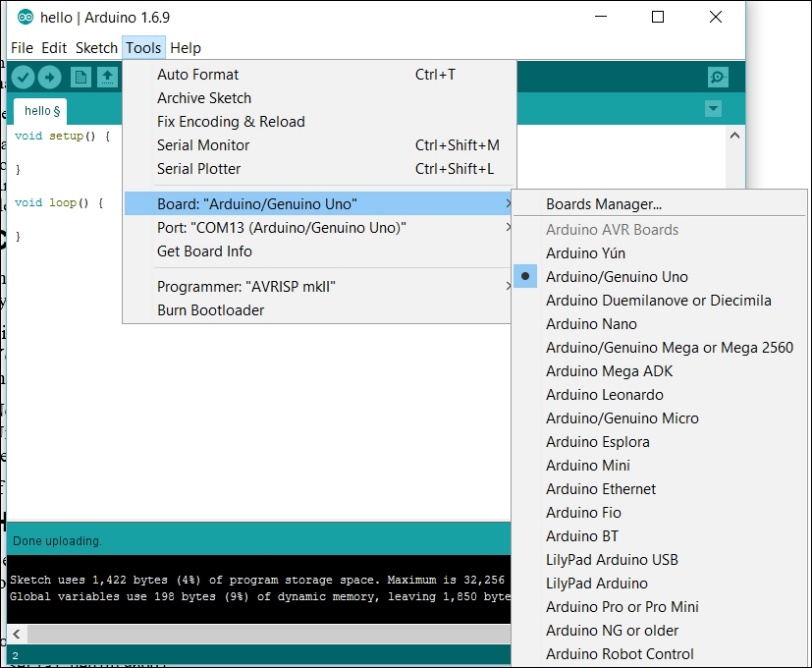


The example above sends CCVS1 and EBC2 messages with a period of 100ms each. To add a new cyclic CAN message, follow the same format with a new data name.

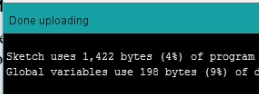
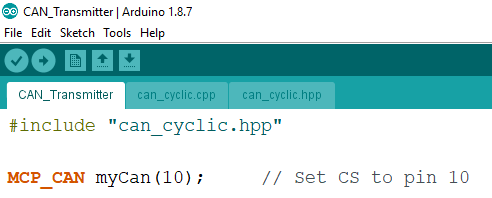
To program, connect your PC to the Arduino with a USB A Male to USB B Male connector.



Under *Tools*, ensure *Board* is selected as *“Arduino/Genuino Uno”*, and *Port* is selected as *“(Arduino/Genuino Uno)”*.



In the top left corner, click the *“Upload”* button, and wait for the *“Done Uploading”* message to appear.



# Use

Plug in the wall adapter, and the *Power* LED should light. After a short time, the *Transmit* LED should begin to flash, and will flash once per message transmitted.

# Licensing and Disclaimer

## CAN Transmitter

The MIT License (MIT)

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## mcp\_can Library

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