

Teensy 4.0 NMEA2000 Simulator USER GUIDE V1.0



Product name	Teensy 4.0 NMEA 2000 Simulator with Enclosure
Model number	TEENSY4.0-N2K-SIM-EN
Manufacturer	SK Pang Electronics Ltd

Contents

Table of Contents

- 1. Introduction 3
 - 1.1. Features 3
- 2. Usage 4
 - 1.2. Power supply..... 4
 - 1.3. CAN Terminator 4
 - 1.4. Connect Up 4
 - 1.5. Parameter Adjust..... 4
 - 1.6. Indicator D1 4
 - 1.7. User Button 4
- 3. Modifying the firmware..... 5

1. Introduction

This is a NMEA 2000 using the Teensy 4.0 module (included). Useful for testing NMEA 2000 devices on the bench. Six PGN are adjustable via potentiometers.

1.1. Features

- Teensy 4.0 module (installed)
- Teensy pre-programmed with simulator firmware
- 250kb/s CAN speed
- Open source firmware
- Micro-C connector
- 6x potentiometers for PGN adjustment
- Two LED indicators
- Two user push buttons
- Firmware Features :
 - Adjustable PGN parameters via potentiometers
 - PGN 130310 Water temperature
 - PGN 130306 Wind speed and direction
 - PGN 127488 Engine RPM
 - PGN 129026 COG and SOG

Open source firmware, other PGNs can be added.





2. Usage

1.2. Power supply

The simulator can be powered from the NMEA2000 connector or external 12v.

The external 12v input (6) is a 2.1mm DC power socket with center pin +.

1.3. CAN Terminator

If the NMEA2000 network does not have two terminators this switch (8) can be set to 1 to enable one terminator. Default is off.

1.4. Connect Up

Using a NMEA2000 cable, connect it to the NMEA2000 port (7). The other end to your network.

1.5. Parameter Adjust

Use the PGN adjustment potentiometers (1) to adjust the parameter value. You should see the ACT indicator (2) flashes when there is activities.

1.6. Indicator D1

This indicator is user programmable and it is connected to D8 of the Teensy.

1.7. User Button

SW1(4) and SW2 (5) can be used for your own function. They are connected to D6 and D7 of the Teensy.

3. Modifying the firmware

You can modify the firmware to suit your own needs.

The Arduino IDE would need to be installed first:

<https://www.arduino.cc/en/software>

Then the Teensyduino add-on:

<https://www.pjrc.com/teensy/teensyduino.html>

The Teensy sketch:

https://github.com/skpang/Teensy40_NMEA2000_simulator