P/N 905189
CAN-NET
Analog Output Node Kit

Overview

CAN-NET Analog Output Node Kit (PN 905189) converts network data to analog outputs. The kit includes:

- 1 CAN-NET Node Board (PN 905186). Comes complete with a pre-programmed Microchip microcontroller (PIC 16F876) allowing for easy interconnection of multiple boards into a single network.
- 1 CAN-NET Wiring Harness
- 1 CAN-NET Analog Output Board with:
  - PWM Output converted to
    - 0-5 Volt Output
    - Incandescent Lamp
    - PWM Output at 200ma
    - 10 position Bar Graph
  - CDS Photocell Analog Input
  - PWM Feedback Analog Input

The CAN–NET Analog Output Node Kit can connect to the Diversified Engineering CAN-NET Education Board to act as a monitor or controller for the CAN network. Several CAN-NET Node and Option Boards are available to meet your needs.

Operation

General ID Structure
The ID structure used by the Node boards is determined by the DIP switch (S4) settings on power-up or after a board reset. Changing the DIP settings while running will have no effect.

Receive ID Structure
The Node board uses these settings for receiving:

RxMask0	0xFFF	RxFilter0	0xFFF	RxFilter1	0xFFF
RxMask1	0xFFE	RxFilter2	0xn00	RxFilter3	0xn10
		RxFilter4	0xFFF	RxFilter5	0xFFF

Where 0xn00 is the Base Receive ID for receiving and is derived from the DIP Swt #1 and DIP Swt #2 as follows:

#1	#2	ID
0	0	0x000
0	1	0x100
1	0	0x200
1	1	0x300

A message received for RxFilter2, the Base Receive ID, is assumed to be a two-byte integer that contains a 12-bit value, that is, a value between 0 and 4095. The 12-bit data is used to generate a PWM output where a value of 0 gives a zero duty cycle, and 0xFFF generates a 100% duty cycle. The PWM output drives an Incandescent Lamp, 200ma Output, 0-5 Volt Output and 10 position Bar Graph whose output is proportional to the duty cycle.

Transmit ID Structure

The Node board transmits a CAN message every 131 mSec. A message contains two data bytes that represent a 12-bit value with the least significant byte sent first. The Node board cycles between three different sources for the data to be transmitted. Each data source has its own unique ID obtained from the Base Transmit ID that comes from DIP Swt #3 and DIP Swt #4 as follows:

#3	#4	ID
0	0	all transmissions are disabled
0	1	0x100
1	0	0x200
1	1	0x300

The sources of data for transmission are:

- **CDS detector** The CDS light detector is assigned Base Transmit ID as an ID. It is measured and transmitted with that ID every 393 ms as a two-byte integer with a value in the range 0 to 4095 where the value decreases as the light intensity increases.
- **PWM Feedback** The PWM feedback is assigned the Base Transmit ID + 0x010 and is measured and transmitted with that ID every 393 ms as a two-byte integer in the range 0 to 4095. This if the feedback for both the 200ma output and the Incandescent Lamp.

Note that the A/D measurement is 8 bits which are then left-shifted by four bits before transmission. As a result, the actual range is 0x0000 to 0x0FF0.

Any questions about the CAN ID are answered in section IV of the CAN Network Development/Training Modules Instruction Manual.