P/N 905190
CAN-NET
Analog Input Node Kit

Overview

CAN-NET Analog Input Node Kit (PN 905190) converts network data to analog inputs.
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 Input Board with:
  - Microchip MCP3201 12 Bit AD Converter
  - 10k Thermistor or optional customer installed 14.5-PSI Pressure Transducer
  - EEPROM Memory

The CAN–NET Analog Input 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 is connected to Pin5 of TB1.

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:

- **Thermistor or Pressure Transducer (Optional):** The Thermistor or Pressure Transducer is assigned Base Transmit ID as an ID. It is measured using a Microchip MCP3201 12 Bit AD Converter using the SPI port and transmitted with that ID every 393 ms as a two-byte integer with a value in the range 0 to 4095.
- **2.5 Volt Reference:** The 2.5 Volt reference is connect to 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.

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.