



TECHMOR

AP-1

AERO PRESSURE SENSOR ARRAY

USER MANUAL

Rev. E 9/10/2017

Overview

The Techmor AP-1 is a 16 channel differential pressure sensor array with CAN bus output. Each of the 16 sensor measurements are calculated by measuring the difference between the (+) and (-) air ports. The CAN ID, CAN Bitrate, and sensor zero values can be updated via CAN messages.

Caution!

Do not apply more than +/- 12 psi to any air port.

Connections

All connections to the AP-1 are through a multi-conductor cable on the end of the enclosure.

Connection	Flying Leads	Autosport ASL606	DB9
Power +	Red	Pin 1	Pin 9
CAN High	Blue	Pin 2	Pin 7
CAN Low	White	Pin 4	Pin 2
Ground	Black	Pin 5	Pin 3

Note: Does not contain a CAN termination resistor inside

Air Input

The AP-1 can read +/- 1.4 psi, and is designed for 1/16" ID silicone hose.

Electrical

The AP-1 can be powered by 6-18V DC

Supply Voltage	6 - 18	V
Current	100	mA

CAN Bus Message Information

Communications	
CAN ID	0x021 to 0x026 (dec 33 to dec 38) (default)
CAN Bitrate	1Mbit/s (default)
Message Rate	20 Samples/s
Message Bits	(3) Unsigned 16-bit words per ID
Message(psi)	Pressure (psi) = (counts * 0.0001) – 3.2768 psi

Message Structure

CAN Mssg. ID	Bits 0-15	Bits 16-31	Bits 32-47	Bits 48-63
CAN ID	Channel 1	Channel 2	Channel 3	SN
CAN ID +1	Channel 4	Channel 5	Channel 6	SN
CAN ID +2	Channel 7	Channel 8	Channel 9	SN
CAN ID +3	Channel 10	Channel 11	Channel 12	SN
CAN ID +4	Channel 13	Channel 14	Channel 15	SN
CAN ID +5	Channel 16	N/A	N/A	SN

Changing Parameters via CAN Messages

CAN Bus IDs

The (6) CAN IDs can be changed as shown below. The IDs will follow an additive convention (ID, ID+1, ID+2, ID+3, ...). Highlighted yellow areas are user inputs. (NOTE: Serial Numbers are engraved on device in decimal format)

Change CAN IDs

Message ID	Bits 0-15	Bits 16-31	Bits 32-47	Bits 48-63
0x7FE	0x9269	0x0000	New ID (0x001 to 0x7F6)	Serial # of device to program

Zero (Tare) All Sensors

The sensors can be zeroed by sending a CAN command, re-setting all of the values to zero in the current conditions (I.E. vehicle stationary) as shown below.

Zero All Sensors

Message ID	Bits 0-15	Bits 16-31	Bits 32-47	Bits 48-63
0x7FE	0x9269	0x0014	0xFFFF	Serial # of device to program

CAN Bus Bitrate

(Programmable for AP-1 units with serial number xxx-0515 and higher)

The CAN Bus Bitrate of the device can be set by sending a special CAN programming message to the unit. The message format is as follows:

Change CAN Bus Bitrate

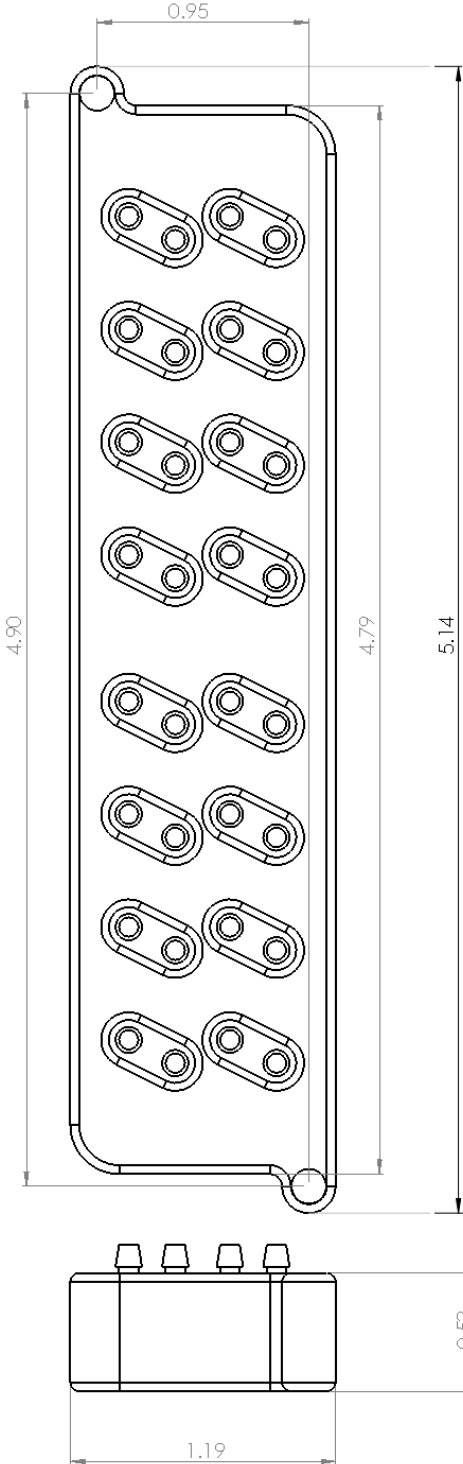
Message ID	Bits 0-15	Bits 16-31	Bits 32-47	Bits 48-63
0x7FE	0x9269	0x0001	CAN Bus Bitrate Code (see Table below)	Serial # of device to program (after the "-")

CAN Bus Bitrate	
Bus Bitrate	Code
1Mbit/s	0x0001
500kbit/s	0x0002
250kbit/s	0x0003

Note: After receiving the CAN Bus Bitrate change message, the device will immediately restart, using the new CAN Bus bitrate. The communication tool's CAN bitrate must be adjusted accordingly to view the new messages.

Mechanical Dimensions

DIMENSIONS ARE IN INCHES



Ordering and Contact Information

Ordering Information

AP-1

Company Information

Techmor, Inc. designs, markets, and sells advanced test and measurement equipment. Cornelius, North Carolina-based Techmor is the leader in innovation for aerospace, automotive and industrial systems.

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