

## AEM Performance Electronics Forum

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Author

Topic: Defining Input Channels ( Read 2438 times)

JR

 Administrator  
 Dr. of Posting  
 ★★★★★  
 Posts: 595


## Defining Input Channels

&lt; on: June 06, 2002, 01:29:03 AM &gt;

Quote

The AEM EMS allows for configuring the analog input channels to several functions/tables throughout the software for a completely custom setup. The following chart will display the analog pin selection to be used for the desired channel selection.

## ANALOGUE INPUT

Pin # - Name  
 1 - ADCR1 (TPS Raw)  
 2 - ADCR2 (MAP Raw)  
 3 - ADCR3 (MAF Raw)  
 4 - ADCR4 (Knock#1 Raw)  
 5 - ADCR5 (Knock#2 Raw)  
 6 - ADCR6 (AIT Raw)  
 7 - ADCR7 (Cool Raw)  
 8 - ADCR8 (Battery)  
 9 - ADCR9 (Oxygen Raw#1)  
 10 - ADCR10 (Oxygen Raw#2)  
 11 - ADCR11 (PR Press Raw)  
 12 - ADCR12 (Baro Raw)  
 13 - ADCR13 (Gear Raw)  
 14 - ADCR14 (Ftemp)  
 15 - ADCR15 (EGT 3 Raw)  
 16 - ADCR16 (EGT 4 Raw)  
 17 - ADCR17 (EGT 1 Raw)  
 18 - ADCR18 (EGT 2 Raw)  
 19 - Vehicle speed  
 20 - Engine Speed  
 21 - Engine Load  
 22 - MAP as Load  
 23 - Throttle  
 24 - MAF as Load  
 25 - Injector Duty

There are several functions that can accept an analog channel as an input for configuration.

EGT # 1-4 Analog in pin  $\hat{A}$  - Typically these are assigned an EGT sensor, however they can be used for any input that you may wish to monitor or correct with fuel compensation. An Example would be the following:

Dash mounted fuel trim switch - Setup a rotary switch do allow the driver to trim the fuel, +/-50 is available but a more prudent setting would be +/-10%

Fuel Pressure  $\hat{A}$  - Calibrate the EGT sensor table to be fuel pressure against voltage, and you can put a compensation in an EGT channel to add fuel if fuel pressure starts to drop.

Nitrous bottle Pressure  $\hat{A}$  - Calibrate the EGT sensor table to read your Nitrous bottle pressure, and fuel can be compensated with an EGT channel to subtract fuel as Nitrous bottle pressure goes down. [/list:u]

User #1 Analog in  $\hat{A}$  - By selecting an analog channel input, you can assign a duty output to a specified output channel against any analog input.

User #2 Analog in  $\hat{A}$  - By selecting an analog channel input, you can trim fuel +/- 50% against any analog input. This may be used for any fuel trim purpose against a 0 to 5volt input like the EGT analog input.

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I want to give a shout out t'all my peeps. . .  
 Who am I kidding? I aint got no peeps.

AnArKey

 Dr. of Posting  
 ★★★★★  
 Posts: 528


## Defining Input Channels

&lt; Reply #1 on: June 17, 2002, 04:47:38 AM &gt;

Quote

You are REALLY confusing me John!

4 - ADCR4 (Knock#1)  
 5 - ADCR5 (Knock#2)

Knock#1 or Knock Raw#1? 😊😊 BIG difference!

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Derek O'Banion

 derek@torquefreaks.com  
 Torquefreaks,503-546-9900  
 ECU Tuning  
 Methanol/Water Injection

JR

 Administrator  
 Dr. of Posting  
 ★★★★★  
 Posts: 595


## Defining Input Channels

&lt; Reply #2 on: June 17, 2002, 05:56:17 PM &gt;

Quote

Quote from: AnArKey

You are REALLY confusing me John!

4 - ADCR4 (Knock#1)  
5 - ADCR5 (Knock#2)

Knock#1 or Knock Raw#1? 🤔 BIG difference!

Raw.

BTW, the ADCR stands for **A**nalog to **D**igital **C**onverter **R**aw. Not that you would/could have known that. I edited the earlier post to clear it up.

Thanks.

JR

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I want to give a shout out t'all my peeps. . .  
Who am I kidding? I aint got no peeps.**Kurt**  
Grade School Poster  
★★  
Posts: 26**Re: Defining Input Channels**

◀ Reply #3 on: March 06, 2008, 02:51:49 PM ▶

Quote

Quote from: JR on June 06, 2002, 01:29:03 AM

The AEM EMS allows for configuring the analog input channels to several functions/tables throughout the software for a completely custom setup. The following chart will display the analog pin selection to be used for the desired channel selection.

## ANALOGUE INPUT

Pin # - Name

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- 9 - ADCR9 (Oxygen Raw#1)
- 10 - ADCR10 (Oxygen Raw#2)
- 11 - ADCR11 (PR Press Raw)
- 12 - ADCR12 (Baro Raw)
- 13 - ADCR13 (Gear Raw)
- 14 - **ADCR14 (Ftemp)**
- 15 - ADCR15 (EGT 3 Raw)
- 16 - ADCR16 (EGT 4 Raw)
- 17 - ADCR17 (EGT 1 Raw)
- 18 - ADCR18 (EGT 2 Raw)
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- 23 - Throttle
- 24 - MAF as Load
- 25 - Injector Duty

There are several functions that can accept an analog channel as an input for configuration.

I'm trying to use "FTEMP" for my oil temp sensor. Is there any way to configure this in any of the tables? I see in the EGT options, you can choose which input you want, but this one isn't there. Is it the "Spare Temp Voltage"?

I tired using the egt#1 input of the sensor, but it doesn't seem to work. I've been reading about this and apparently a resistor needs to be changed inside the box? Can someone confirm/explain this?

Thanks

◀ Last Edit: March 06, 2008, 02:53:39 PM by Kurt ▶

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**SB**  
Administrator  
Dr. of Posting  
★★★★★  
Posts: 592**Re: Defining Input Channels**

◀ Reply #4 on: March 06, 2008, 07:07:53 PM ▶

Quote

Yes, use the Spare Temp Voltage input in AEMPro.  
ADCR14 = FTEMP = Spare Temp Voltage

By the way, your oil temp sensor acts like a temperature-dependent resistor, just like the coolant temp or air temp sensor. You can't just connect these types of sensors to power and ground like you would wire a MAP sensor. A pullup resistor (often 2.2k ohms) must be installed between +5V and the sensor. Pullup resistors are installed in the EMS for the air and coolant temperature sensors, and there are sometimes pull up resistors installed on the EGT lines as well. Which EMS are you using?

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**Kurt**  
Grade School Poster  
★★  
Posts: 26**Re: Defining Input Channels**

◀ Reply #5 on: March 06, 2008, 10:47:57 PM ▶

Quote

Thanks for the reply 😊

I'm using the 1101 box. Would I need the 2200 ohm resistor for ADCR14, pin 24b, on my box?  
This is the unit I have <http://store.summitracing.com/partdetail.asp?autofilter=1&part=NRD%2DS8013&N=700+0&autoview=sku>

I can't find any calibration sheet on it, so I'm going to have to make my own.

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**SB**  
Administrator  
Dr. of Posting  
★★★★★  
Posts: 592**Re: Defining Input Channels**

◀ Reply #6 on: March 07, 2008, 01:54:33 AM ▶

Quote

The 30-1101 has a 100k ohm pullup installed on the FTEMP channel, this won't be useful for your application. Call Tech Support if you'd like help changing it to a 2.2k resistor.

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**Kurt**  
Grade School Poster  
★ ★  
Posts: 26



**Re: Defining Input Channels**  
< Reply #7 on: March 07, 2008, 04:56:47 AM >

Quote

Crap. OK, thanks for your help!

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**Kurt**  
Grade School Poster  
★ ★  
Posts: 26



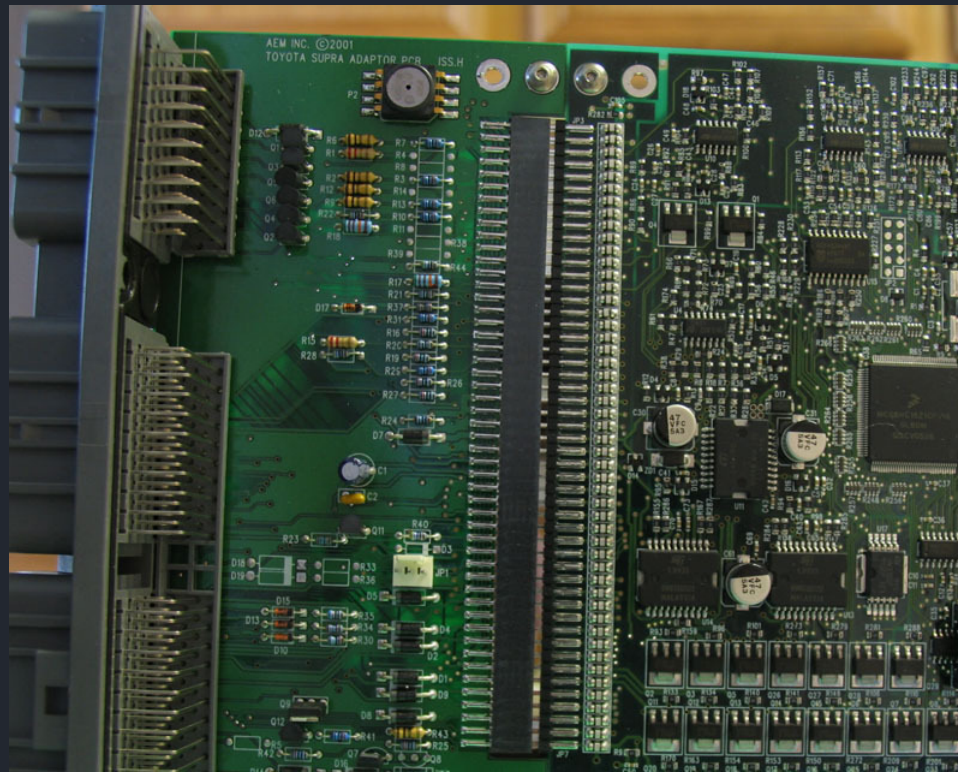
**Re: Defining Input Channels**  
< Reply #8 on: April 09, 2008, 04:17:55 AM >

Quote

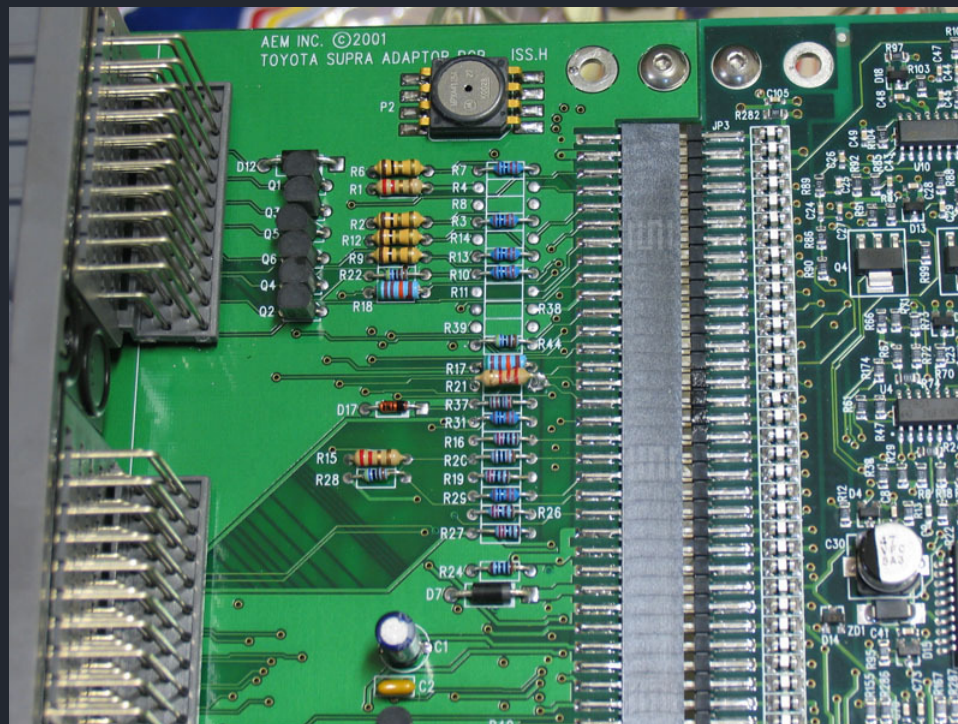


Called tech support today and the guy was really helpful! This is for the Supra Box! The pullup resistor for ADCR14 is marked "R21" on the pc board. I changed this to a 2.2k ohm. They look like 1/8 watt resistors, but I could only find 1/4 watt at Radio Shack.

Before



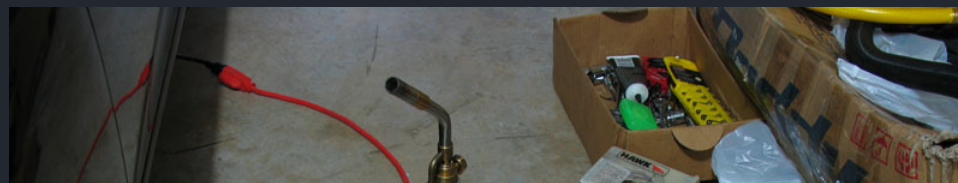
After



The pin is 24b which is for the auto transmission temp sensor. I don't think the AEM uses this even if you are running an auto. In the AEM software, it's labeled "Spare Temp Voltage" and this is what you will want to log. It's also called "Ttemp" on the instruction sheet.

I've found that the Calibration table for the EGT can't really be set up very well to display temps, and you'd screw up your EGT output temps trying to this. Just keep a list in the glove box to compare to. 😊



Here's the setup I used to build the calibration table. Not fancy, but it worked well. I had a battery charger hooked up and voltage was at 13.02 during the test. The temp sensor is a Nordskog NRD-S8013. Got it from Summit for \$16. It comes with the 1/2" NPT adaptor so it's easy to screw into the oil filter bracket.



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**Vitor**  
Junior High Poster  
★ ★  
Posts: 87



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**Re: Defining Input Channels**  
« Reply #9 on: June 04, 2008, 07:38:17 PM » [Quote](#)

On the 30-1900 box, what parameters do Sensor input #1 through #7 equal to

ONLY need to know:

Pin	Description	Type	Function
85	Spare 0-5V Sensor #1	Input	Oil press sensor 30-2130-100
86	Spare 0-5V Sensor #2	Input	
87	Spare 0-5V Sensor #3	Input	Oil temp sensor 30-2011
88	Spare 0-5V Sensor #4	Input	EGT sensor 30-2050

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2.1L DOHC - Individual throttle bodies, coil on plug - neongoodies.com 12 tooth wheel

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