

1227730 ECM

DIY usage of Unused U6 Analog Inputs with 5 Volt Pull-ups

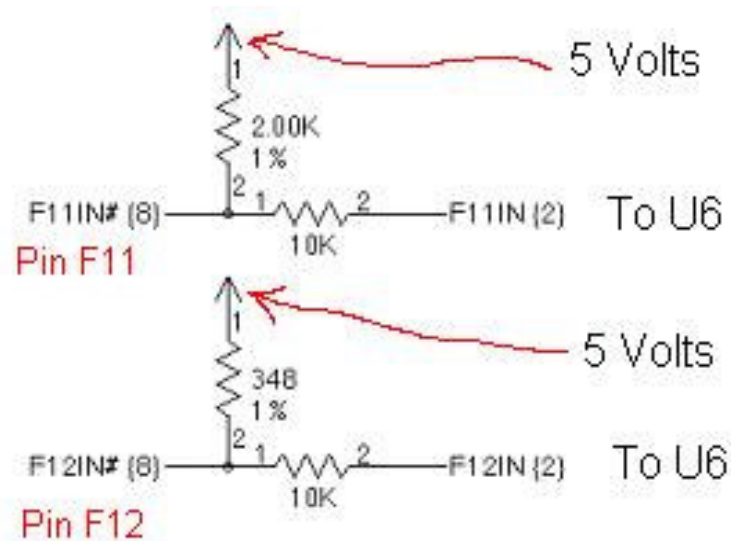
(Applies only to S_AUJP V4 1026 A & B bin usage)

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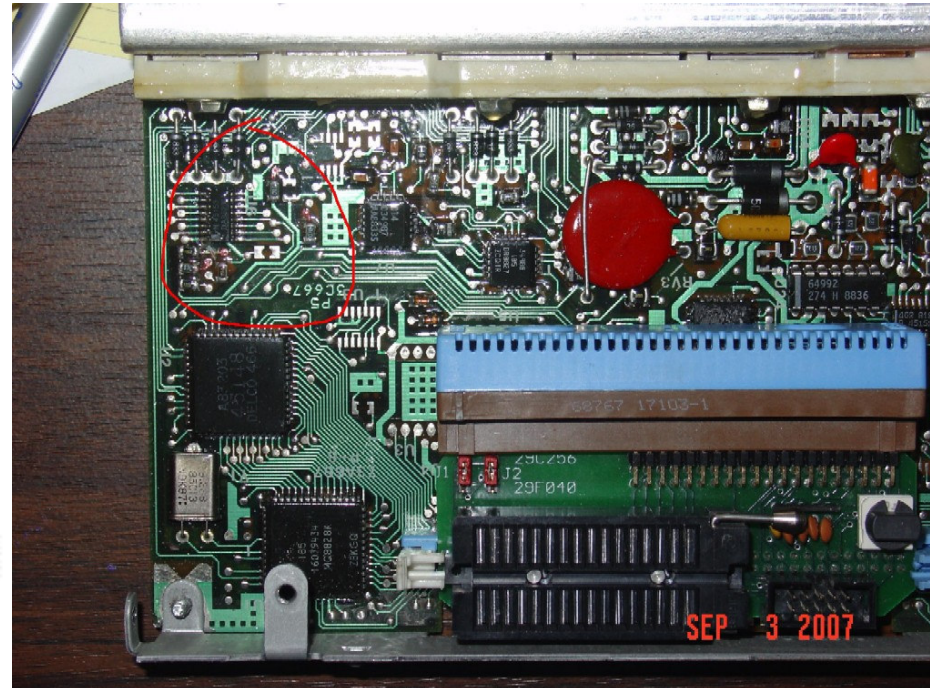
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I have found that these additional inputs can be reconfigured to add sensor data to the ALDL Datastream with only minor changes. The addition of EGT, Oil Temp, Trans pressure or temp, Wide Band o2 sensor #2 or Fuel pressure can be easily added by installing a 0-5 volt sensor and the appropriate wiring to the desired input pin.

Originally, these inputs have a 5 volt "pull-up" to provide power and noise immunity to the input channel. The 5 volts can adversely effect a sensors output when connected to the input pin. Look at the picture I attached for how to remove the 5 Volt influence on these inputs.

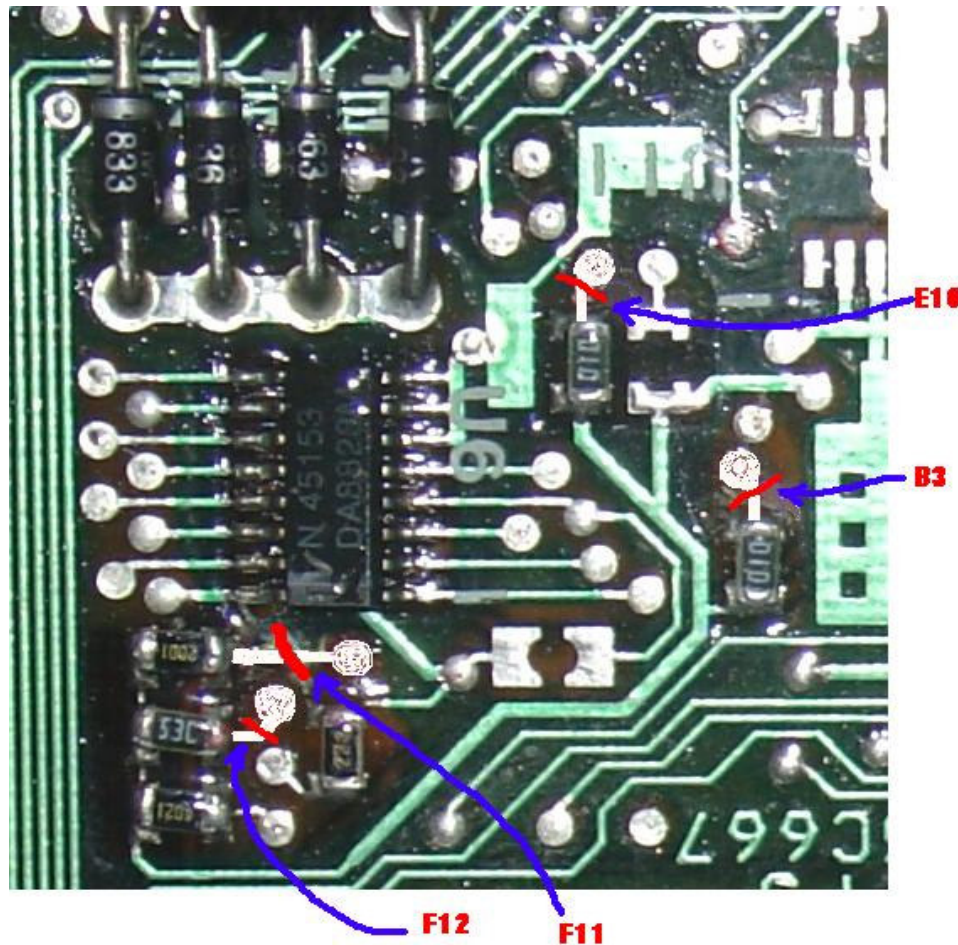


Typical arrangement of the "Pull-up" input circuits.



Location of the U6 chip and its input resistors

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This document provides for "F12", "B3" and "F11" inputs to be read and logged simultaneously. "E10" is selectable instead of "B3"

Just making a scratch to disconnect the trace is all that is needed. They can be restored easily if needed then too.

Do not cut the F12 trace if you plan to use that input for a temperature sensor, The circuit is already setup for Oil Temp measurement.

Just locate an oil temp sender from a Corvette and plug it in, the datastream already reports that item at word 38 too!

Removing the trace on F12 will allow the use of a 0-5 volt signal input and render the power supply to a temp sender inoperable.

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The item to add to your XDF (Applies to S_AUJP V4 1026 only)

The address box enter 5453, Make the selection = Hex digits etc as shown.
Categories don't matter, you can leave them as is or put them to one you want.

When you say OK, you can then edit it like any other item in the XDF.
Your item should show "04" currently to read pin B3 (because it is on channel 04).
Change the value to "02" to read E10 or "04" for B3 usage.

To verify in the hex editor that you have the correct address changed,
The items before the change should be B7 50 00 then 86 then channel number "04"
After it will be BD E3 8F
(you may not have seen this if your hex editor wasn't starting from the same value, Use D44D address)

That will now give you the ability to move the pin to B3 or E10 to try them out.

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Reading the data out

Now that you can read them into the ECM, we need to be able to get the info out to the DataStream so it will log in sequence with the other data.

Background: Additional code added to the "V4" bin to allow for more input reads.

The "B3 / E10" read of the U6 chip is being stored at location (address) \$01B9

We need to take something that is already displayed in the DataStream and change where its info comes from (substitute our \$01B9 address)

ALDL DataStream word #10 is in the V4 bin file at address \$88DF

The default info that is being displayed is stored at address \$0094 by default (TPS Volts/counts)

If you open up the item defined for this in the XDF you will see the value is \$0094.

We will substitute our info in place of that by making this value at \$88DF = 01B9 (where we stored the U6 read)

Here is the definition of the \$88DF address defining where the data for word #10 will come from.

Must set to 4 digits and only enter 3 when actually adding the value. Conversion = "X" only

Changing this to "1B9" will now show the U6 channel read at location 10 of the DataStream (previously TPS Volts)

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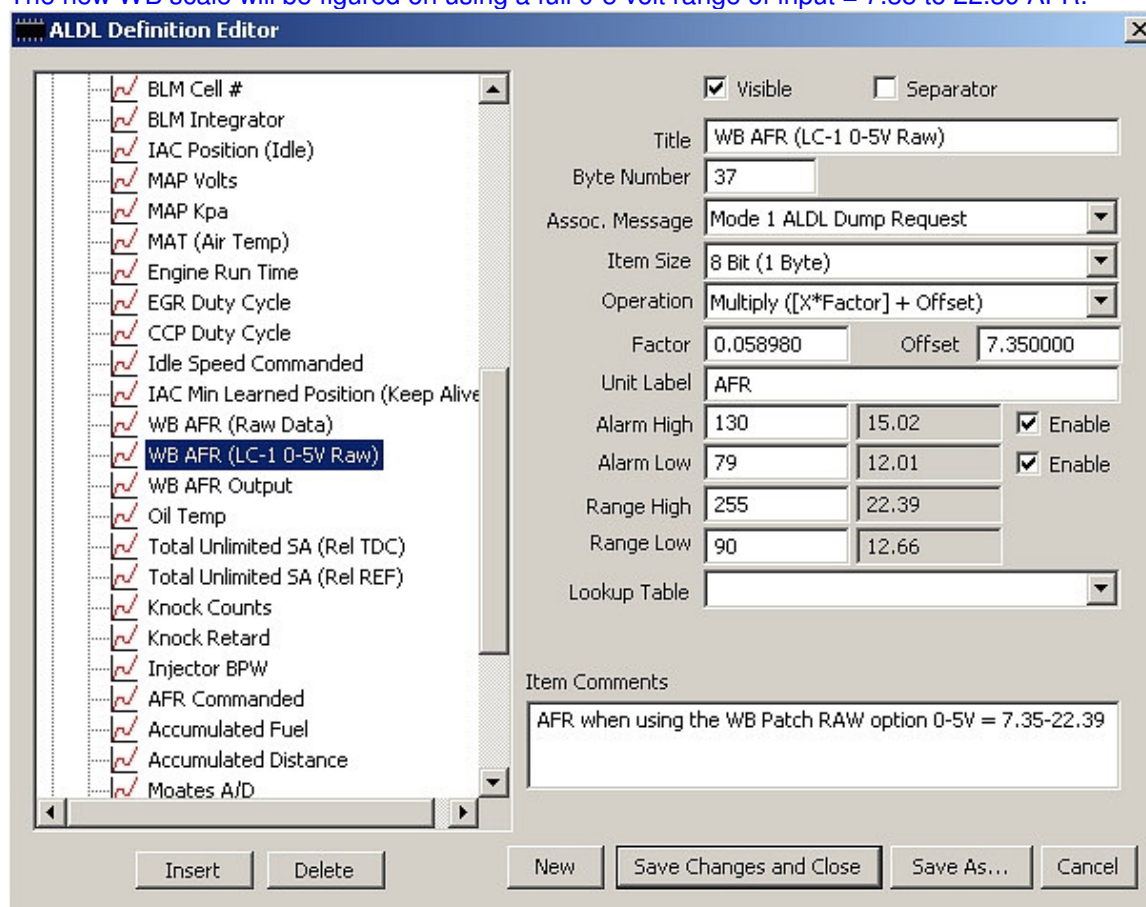
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Display in desired units

Now that we have data, it will need to be scaled by the scanner to display correctly.

This example depicts the use of an Innovate LC-1 Wide Band oxygen sensor on pin "B3"

The new WB scale will be figured on using a full 0-5 volt range of input = 7.35 to 22.39 AFR.



This picture shows the "standard" WB definition as used on "Word 37" with the S_AUJP V4. You will need to create another definition item using "Word 10" (Byte Number) with the same parameters and scaling values. I put the alarms and range numbers that suit the way I like to see the display. You can have 0-255 range and 7.35 to 22.39 displayed range if desired.

You are allowed to have duplicates in the definitions, so just create another one directly below the TPS Volts entry.

*I keep them bunched together so I remember that TPS Volts is now a **WRONG** value to look at when using the WB display in its place. You may remove TPS volts altogether if you desire.*

Adding the Fuel Pressure, Exhaust Temp, Trans Temp or other type of sensor should be the same things as above, Just need to know what the scale of the sensor is to the 5 Volts = what pressure or units it is to be displayed in. Divide by 255 and add the base offset value.

It's good that I did this for my own sanity as well.

John (JP86SS) Pell
09-03-2007
Super AUJP V4 Doc

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Quick reference

Additional Input usage:

B3 or E10	Channel select at \$5453	"02" to read pin E10 or "04" for pin B3 usage
B3 or E10	value stored at \$01B9	Display at Word 10, Address # \$88DF (Is A/D TPS Counts 0x0094 by default)
F11	value stored at \$012A	Display at Word 9, Address # \$88DD. (Is \$0060 Startup Coolant Temp by default)

To Display the data in engineering Units

5 Volts = what pressure or units it is to be displayed in.
Divide by 255 and add the base offset value (If needed).

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