

# Utilizing Pro Dash Inputs in TunerStudio

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## **TunerStudio CAN Parameters Setup & Configuration**

These instructions are necessary steps for setup and configuration in TunerStudio for usage of the ADC Inputs from your Pro Dash or Pro Expansion Module within Vehicle Project.

## **Sensor Input Configuration**

MS3 Steps:

- 1. Open CAN-bus/Testmodes tab at the top-right in TunerStudio
- 2. Go to CAN Parameters
- 3. Enable "Enable ADC Polling" (Highlighted in diagram below)
- 4. Setup "CAN ADC selection" (Highlighted in diagram below)
  - a. CAN id = 4
  - b. Table = 7
  - c. Offset

#### 🍓 CAN Parameters



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## **Digital Input Configuration**

## MS3 Steps:

- 1. Open CAN-bus/Testmodes tab at the top-right in TunerStudio
- 2. Go to CAN Parameters
- 3. Enable "Enable Input Port" (Highlighted in diagram below)
- 4. Setup "Digital ports"
  - a. Remote CAN Id = 4
  - b. Table = 7
  - c. Offset(bytes)
    - i. 47 = Dash's before 2/1/23
    - ii. 39 = Dash's after 2/1/23

6	CAN	Parameters
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<u>F</u> ile <u>V</u> iew <u>H</u> elp						
CAN Parameters						
CAN ID	0	•	Digital ports			
🔮 👔 Master Enable	On	-	CAN Id Remote CAN Id		4	-
🔮 👔 29bit Megasquirt CAN Enable	On	-	C 🕜 🕜 Table		7	÷
CAN baud rate (caution!)	500k	-	🖉 🕜 Enable Input Port	Enable		-
C Enable PWM Polling	Disable	-	🖉 🕜 Offset(bytes)		39	-
Remote CAN Id	5	A V	Inable Output Port	Disable		-
🛒 🕼 Remote Table Number For PWM Data	7	*	🥑 🚺 Offset(bytes)		75	- -
🛒 🗊 Remote Table Offset For PWM Data(byte	es) 58	* *				
Clock(MHz)	24	* *	🖉 🛿 Enable PWM Outputs	Disable		-
🛒 🚺 Remote Prescale	16	- 	CAN Id Remote CAN Id		5	*
🛒 🚺 Remote Divider		*	Cable Table		7	* *
			💓 🚺 Offset(bytes)		94	*
Carl Enable ADC Polling	Enable	-	C Porce Duty To 0-255	Disable		-

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## **PWM Inputs**

#### **ProDash PWM Input Settings Steps:**

- 1. Open Pro Dash Setup
- 2. Go to PWM Input settings
- 3. Set PWM Timer to "32 bit" (Highlighted in diagram below)
- 4. Set "Stall threshold" to give a zero value with low pulse count
  - a. Value of 30 suggested to start



### **ProDash Base I/O Settings Steps:**

- 1. Open Pro Dash Setup
- 2. Go to Base I/O settings
- 3. Set timer prescale to 1 and divider to 0



## MS3 Steps:

- Open CAN-bus/Testmodes tab at the top-right in TunerStudio
  - $\circ$  Go to CAN Parameters
  - Enable "Enable PWM Polling"
    - i. CAN id = 4
    - ii. Table for PWM Data = 7
    - iii. Remote Table Offset For PWM Data = 28
      - 1. PWM 1 Offset = 28
        - 2. PWM 2 Offset = 30 for 16 bit and 32 for 32 bit
    - iv. Remote Prescale = 1
    - v. Remote Divider = 0

Accel Enrich	Boost	/VVT		Table choices	Ac	lvanced Engine	3	D Tuning Maps	CAN-bus/
Accel Enrich     Accel Enrich     CAN Parameters     Eile View Help     CAN Parameters     Accel Enrich     Accel Enrich	AN Enable ( ttion!) 5 g 3 ber For PWM Da	0 Dn 000k 12bit 4 4 7		Table choices igital ports Remote 6 Table Cffset(by Cffset(by Offset(by	CAN Id nput Port rtes) Dutput Port rtes)	ivanced Engine 5 7 Disable 77 Disable 75		D Tuning Maps CAN Paran CAN Proace CAN Realt CAN Realt	CAN-bus/ Testmodes Testmodes Icasting Icast Testing me Data Broadcasting 2 me Data Broadcasting 3 me Data Broadcasting 4 ving Gear GPS Clock
Remote Table Offs     Remote Table Offs     Remote Clock(MHz     Remote Prescale     Remote Divider     Remote Divider     CAN ADC selection	et For PWM Data :) g	(bytes) 28 24 1 0 Disable	V V V V V	Penable P Remote Table Offset(by	WM Outputs CAN Id (tes) Ity To 0-255	Disable		<ul> <li>Dash Broa</li> <li>Check Eng</li> <li>Limp Mode</li> <li>Fallback M</li> <li>Output Te</li> <li>Output Te</li> </ul>	dcasting ine Light e AP Table st Mode - Inj/Spk st Mode - I/O
CAN ADC group on/off CAN ADC 1-4 CAN ADC 5-8 CAN ADC 9-12 CAN ADC 13-16 CAN ADC 13-16 CAN ADC 17-20 CAN ADC 21-24	Off Off Off Off Off Off		5 5 5 5 5 5 5 5 5	Table	7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 ×	Offset 2 10 10 10 18 26 34 42	4 4 4 4	Output Te     Output Te     Output Te     Output Te     Output Te     Injector Se     Inj/Spk Dis     Engine Co     Special Op	st Mode - I/O 2 st Mode - I/O 3 st Mode - CAN I/O st Mode - Idle Valve equential Testing abling Test Mode ntrol
			2	P	0	<u>B</u> urn (	lose	Long Term Long Term Throttle co Throttle Te	n Trim Settings n Trim Table <u>1</u> ontrol (DBW) est Mode

## **Action Management**

This feature is only available in <u>TunerStudio Ultra</u>, so if you are using the standard MS version you will need to upgrade your registration to take advantage of this ability.

This feature can be used to take one of the Pro Dash Digital Inputs to trigger an action within TunerStudio. These are typically wired to a momentary push button and triggered on a short or long push of the button.

Examples:

- Change Dashboard
- Reset Trip Meter
- Start/Stop Datalog

Action Triggers = how you want the Action to be triggered

Users Actions = what you would like to happen in TunerStudio

<u>T</u> ools	<u>H</u> elp				
Pr	otocol Stats				
Up	date / Install Firmware				
Ad	d Custom Channel Wizard				
Cu	stom Channel Editor				
Ac	tion Management				
Ca	Calculators •				
Tu	TunerStudio Plug-ins				
Ca	librate TPS				
🍓 Ca	librate MAP/Baro (Miata)				
🍓 Ca	librate Battery Voltage (Miata)				
🍓 Un	/Lock Calibrations (Miata)				
🝓 Calibrate T <u>h</u> ermistor Tables (Miata)					
🍓 Calibrate AFR Table (Miata)					

## **Single Input Trigger**

#### A single input trigger is if you have only **ONE DIGITAL INPUT ACTIVE** at one time

The Digital Inputs status:

- Not active = 1
- Active = 0

#### **Digital Input Variable**

- Digital 1 = canin1\_8AND1\_OC
- Digital 2 = canin1\_8AND2\_OC
- Digital 3 = canin1\_8AND4\_OC
- Digital 4 = canin1\_8AND8\_OC
- Digital 5 = canin1\_8AND 16\_OC
- Digital 6 = canin1\_8AND 32\_OC
- Digital 7 = canin1\_8AND 64\_OC

Example:	You wire Digital Input 4 to a push button	

Trigger Name: CANT HAVE SPACES

Action Trigger E	Editor	
Enabled	Trigger Name: Change Dashboard (7) Target Action: Move to Dash On Right	-
Trigger Action	When	
Simple	canin1_8AND8_OC 🗸 <	1
Expression	1	H.7
Reset Conditio	n	
Simple	canin1_8AND8_OC	0
Expression		-
O Reset after	α μ	

#### **Trigger Action When**

• Use "Simple" and then choose the appropriate Digital Input Variable that it wired to the push button

#### **Reset Condition**

- Simple this is for momentary push button
- Reset After this is for a Press and HOLD option which you select the number of seconds to hold the button

## Multi Input Trigger

## A multi input trigger is if you have **MULTIPLE DIGITAL INPUTS ACTIVE** at the same time

Total Digital Input Not Active = 127

Digital Input Values

- Digital 1 = 1
- Digital 2 = 2
- Digital 3 = 4
- Digital 4 = 8
- Digital 5 = 16
- Digital 6 = 32
- Digital 7 = 64

Math Example: Digital 4 and Digital 5 Active for Trigger Action				

#### Trigger Name: CANT HAVE SPACES

Example:

Condition: Digital 4 & 5 Inputs Active to Trigger the Reset Trip Meter action

Reset: resets after time delay of 5 seconds

Action Trigger Editor			
Enabled Trigg	ger Name: ResetTrip	Target Action: Reset Trip Meter	-
Trigger Action When	1		
Simple	canin1_8	=	▼ 103
O Expression			
Reset Condition			
Simple		▼ >	•
© Expression			
Reset after:	0 100 200	300 400 500	600 <b>5 s</b> .

# **Custom Output Channel Examples**

	<u>T</u> ools	<u>H</u> elp	
	Pr	otocol Stats	
	Up	date / Install Firmware	
How to create a Custom Channel	Add Custom Channel Wizard		
	Cu	stom Channel Editor	
	Ac	tion Management	
	Ca	Iculators	•
	Tu	nerStudio Plug-ins	•

## Persistent Trip Meter

Persistent = saves the current value and doesn't reset the value after shutdown of TunerStudio

Simple  Advanced							
OutputChannel Expression Editor							
Channel Name: persistedtripmete	er 🕐 Units: mi						
Expression:		•					
persistentAccumulate( 0 + (tsInputS	SpeedMPH / 3600) * (deltatime) )						
+ - / * % &	> < != Not And Or	( )					
Channels	Cal Parameters	Functions					
accDecEnrich	ac_delay_since_last_on	abs()					
accDecEnrichPcnt	ac_idleup_adder_duty	accelHp()					
accelEnrich	ac_idleup_adder_steps	accumulate()					
accelx	ac_idleup_cl_lockout_mapa	acos()					
accely	ac_idleup_cl_targetadder	aerodynamicDragHp()					
accelz	ac_idleup_delay	arrayValue()					
accEnrichMS	ac_idleup_io_in	asin()					
		atan()					