

# Instruction Manual



## Infinity Supported Application Ford Coyote 5.0L With Ford Racing Controls Pack



### STOP!

**THIS PRODUCT HAS LEGAL RESTRICTIONS.**  
**READ THIS BEFORE INSTALLING/USING!**

THIS PRODUCT MAY BE USED SOLELY ON VEHICLES USED IN SANCTIONED COMPETITION WHICH MAY NEVER BE USED UPON A PUBLIC ROAD OR HIGHWAY, UNLESS PERMITTED BY SPECIFIC REGULATORY EXEMPTION. (VISIT THE "EMISSIONS" PAGE AT [HTTP://WWW.SEMASAN.COM/EMISSIONS](http://www.semasan.com/EMISSIONS) FOR STATE BY STATE DETAILS.)

IT IS THE RESPONSIBILITY OF THE INSTALLER AND/OR USER OF THIS PRODUCT TO ENSURE THAT IT IS USED IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IF THIS PRODUCT WAS PURCHASED IN ERROR, DO NOT INSTALL AND/OR USE IT. THE PURCHASER MUST ARRANGE TO RETURN THE PRODUCT FOR A FULL REFUND.

THIS POLICY ONLY APPLIES TO INSTALLERS AND/OR USERS WHO ARE LOCATED IN THE UNITED STATES; HOWEVER CUSTOMERS WHO RESIDE IN OTHER COUNTRIES SHOULD ACT IN ACCORDANCE WITH THEIR LOCAL LAWS AND REGULATIONS.

**WARNING:** This installation is not for the tuning novice! Use this system with **EXTREME** caution! The AEM Infinity Programmable EMS allows for total flexibility in engine tuning. Misuse or improper tuning of this product can destroy your engine! If you are not well versed in engine dynamics and the tuning of engine management systems **DO NOT** attempt the installation. Refer the installation to an AEM-trained tuning shop or call 800-423-0046 for technical assistance.

**NOTE:** All supplied AEM calibrations, Wizards and other tuning information are offered as potential starting points only. **IT IS THE RESPONSIBILITY OF THE ENGINE TUNER TO ULTIMATELY CONFIRM IF THE CALIBRATION IS SAFE FOR ITS INTENDED USE.** AEM holds no responsibility for any engine damage that results from the misuse or mistuning of this product!

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## OVERVIEW

This document is intended to serve as a guide to help with the installation and setup of an AEM Infinity EMS onto a Ford Coyote 5.0L Crate Engine interfaced through the Ford Racing Controls Pack – 5.0L 4V TI-VCT Manual Transmission. These sessions and configuration files are starting points only and will need to be tuned for your specific application. This manual lists the files available and suggested changes for your engine. This manual also includes a pinout with suggestions for adapting the Infinity ECU to your Ford Racing Controls Pack. It is the responsibility of the installer to verify this information before starting the engine. **Please read this document in its entirety before attempting to start or run an engine.**

## MODELS

Ford Racing 5.0L 4V TI-VCT Mustang Crate Engine Ford Racing P/N M-6007-M50  
Ford Racing Controls Pack – 5.0L 4V TI-VCT Manual Transmission Ford Racing P/N M-6017-A504V

## DOWNLOADABLE FILES

Files can be downloaded from [www.aeminfinity.com](http://www.aeminfinity.com). An experienced tuner must be available to configure and manipulate the data before driving can commence. The Quick Start Guide and Full Manual describe the steps for logging in and registering at [www.aeminfinity.com](http://www.aeminfinity.com). These documents are available for download in the Support section of the AEM Electronics website: <http://www.aemelectronics.com/products/support/instructions>.

## ADAPTER HARNESS OPTIONS

### **30-3701 Plug & Pin Kit**

This kit includes mating connectors and terminals for the Infinity. It also includes a main relay kit which is necessary for proper power distribution. This kit is best suited for experienced installers who want to build their own harness.

### **30-3702 Harness with Flying Leads**

This harness includes a fused power distribution center with main relay. Pre-terminated connectors are available for the internal UEGO sensors and AEMNet. A bag of multi-color flying leads is included to simplify custom harness builds.

### **30-3703 Mini Harness with Pins**

This harness includes a fused power distribution center with main relay. Pre-terminated connectors are available for the internal UEGO sensors and AEMNet. 100 pins and 30 sealing plugs are included.

### **30-2001 UEGO Wideband O2 Sensor**

Bosch LSU4.2 Wideband O2 Sensor that connects to AEM 30-3600 UEGO Wideband O2 Sensor Extension Harness

### **30-3600 UEGO Wideband O2 Sensor Extension Harness**

Extension harness to connect AEM UEGO Wideband O2 sensor to 6-pin Deutsch

### **30-3601 IP67 Comms Cable**

USB Mini-B comms cable; 39" long with right angled connector and bayonet style lock.

### **30-3602 IP67 Logging Cable**

USB A-to-A extension cable: 39" long with right angled connector and bayonet style lock.

## IMPORTANT APPLICATION NOTES

The coils used for testing were factory two-wire ignition coils (Motorcraft P/N BR3Z-12029-A). For compatibility with the Infinity EMS the use of an igniter that accepts a Falling edge fire signal is necessary. For application development two AEM 4 Channel Coil Drivers (AEM P/N 30-2840) were used.

The Ford Racing Controls Pack wiring harness includes connectors for factory LSU4.9 Wideband Oxygen sensors (Motorcraft P/N XXXX), which the Infinity EMS does not currently support. During application development the factory LSU4.9 sensor connectors were removed and AEM Wideband UEGO sensor connectors were added to the Ford Racing wiring harness. These UEGO sensor connectors are included in the AEM Universal EMS Wideband UEGO Sensor Kit (P/N 30-2002) and information regarding how to wire the connector is provided under [UEGO Connectors](#) in this document. Using the existing wiring harness comes with the benefit of utilizing the existing 12V supply to the sensor through a 5 amp fuse. Another option available to the installer is the use of AEM Infinity O2 Sensor Extension Harnesses (AEM P/N 30-3600). This option involves wiring a 6-pin Deutsch connector to the Infinity EMS to interface with the AEM O2 sensor through the extension harness without any modification to the Ford Racing wiring harness.

The Ford Racing Controls Pack includes a Power Distribution Box containing relays for A/C, PCM, Intercooler, Fuel Pump, Start, and Fan. With a few modifications to the harness, the Infinity will utilize all of these relays with the exception of the A/C relay due to Ford Racing's lack of wiring to the A/C relay.

The base session provided was created with the use of the Ford Racing Mustang Boss 302 Alternator Kit (P/N M-8600-M50BALT). The session has Lowside 0 Duty and frequency tables setup to charge at ~14.7 volts. See [Alternator Control](#) in this document for more information on controlling the charging system.

The base session provided was created without the use of the Ford Racing Controls Pack air box, inlet tube, or MAF sensor. The Factory MAF sensor is not currently supported by the Infinity EMS for airflow calculations; however the Air Temperature sensor within the MAF has been characterized.

The base session requires a MAP sensor for airflow calculations. A custom inlet was fabricated to replace the PCV inlet pipe into the passenger side of the throttle body assembly. A vacuum line from this inlet to a MAP sensor was utilized.

The Ford Racing Control Pack powers the fuel pump relay any time 12V is supplied to the 'Ignition Switch Position' wire. A modification can be made to the Ford Racing wiring harness to allow the Infinity EMS to control the fuel pump and is provided under [Ford Racing Control Pack Harness Modifications](#) in this document.

The base session utilizes the Clutch Position (Neutral Switch) flying lead on the Ford Racing wiring harness as an input into the Infinity. Once triggered, the Infinity's Lowside provides the ground for the Starter Relay control circuit. If the user wishes not to provide a ground to this flying lead follow the steps provided under [Clutch Position Switch](#) in this document to modify the Lowside.

The factory Cylinder Head Temperature sensor, Intake Air Temperature sensor, and fuel injector have been fully characterized and their calibrations are utilized in the base session.

## GETTING STARTED

Refer to the **10-7100 for EMS 30-7100 Infinity Quick Start Guide** for additional information on getting the engine started with the Infinity EMS.

### LOADING BASE SESSION

1. Connect USB comms cable between ECU and PC.
2. Turn ignition switch on.
3. Open InfinityTuner; connection status should be green and indicate ECU type.



4. Import base session: File>Import Calibration Data. Base sessions are located in C:\Documents \AEM\Infinity Tuner\Sessions\Base Sessions.
5. After comms have been reestablished, review Setup Wizard: Wizards>Setup Wizard.

## INFINITY CONNECTORS

The AEM Infinity EMS uses the MX123 Sealed Connection System from Molex. AEM strongly recommends that users become familiar with the proper tools and procedures for working with these high density connectors before attempting any modifications. The entire Molex MX123 User Manual can be downloaded direct from Molex at:

[http://www.molex.com/mx\\_upload/family//MX123UserManual.pdf](http://www.molex.com/mx_upload/family//MX123UserManual.pdf)

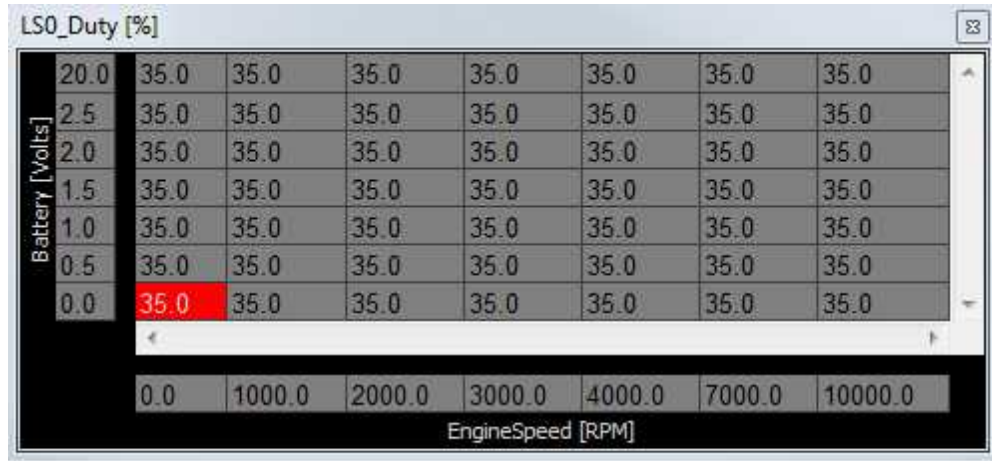


## IMPORTANT APPLICATION SPECIFIC SETTINGS

### Infinity Tuner Wizard Setup

#### Alternator Control

The Ford Mustang Boss 302 Alternator is controlled by a fixed frequency and a duty percentage that controls the charge set point.



The base session sets LS0\_Duty to 35 % which correlates to ~14.7V charge. Decreasing the LS0\_Duty percentage will increase the battery set point (higher voltage), and increasing the duty percentage will decrease the battery set point (lower voltage).

## Clutch Position Switch

The base session will not provide a ground for the Starter Relay control circuit unless a ground is provided to the Clutch Position (Neutral Switch) flying lead on the Ford Racing wiring harness. This requirement can be modified through setting the LS8\_Duty [%] table to 100% at all ClutchSwitch positions. See example below:

ClutchSwitch	0.0	500.0	1000.0	1500.0	1501.0	4000.0	15000.0
3.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
2.5	100.0	100.0	100.0	100.0	0.0	0.0	0.0
2.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
1.5	100.0	100.0	100.0	100.0	0.0	0.0	0.0
1.0	100.0	100.0	100.0	100.0	0.0	0.0	0.0
0.5	100.0	100.0	100.0	100.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

The base session sets the input for the 'ClutchSwitch' 1D table channel to Analog20, which is pulled up to 5 volts. The pinout provided in this manual suggests wiring the Clutch Position flying lead to Analog20. When a ground is provided this drops Analog20's voltage from 5 volts to 0 volts, this transition in voltage sets the ClutchSwitch channel to 0 (5 volts) or 1 (0 volts).

Note: It has been observed that EngineSpeed [RPM] will jump to ~1450 rpm at first crank of the engine. Setting the point at which Lowside 8 will no longer provide a ground (0% duty) to the Starter Relay control circuit below 1500 rpm may result in a no-start condition.

## Drive-By-Wire

The base calibration will set most of the Drive-By-Wire (DBW) channels for the stock 5.0L Coyote throttle body. If a different throttle body is used, Supra Cobra or Cobra Jet, then further adjustments to the DBW channels may be required. To complete the DBW setup the Drive By Wire Wizard must be ran.

Select Calibrate sensor data only and follow the DBW Setup steps.

Note: There are a few integrated DBW fail safes incorporated into the Infinity system. For instance, if the accelerator pedal and throttle position sensors do not track each other, or if the maximum DBW current is exceeded, there will be a fatal error which will kill the engine for safety purposes. This error will reset when the ignition key is cycled or if the problem is fixed.

## Variable Valve Control (VVC)

The AEM Infinity system supports Ford's Coyote's Variable Valve Control. The base calibration is configured with base VVC settings that may need adjustment.

For proper VVC function, the user must sync the cam timing by following the instructions listed in Setup Wizard: Wizards>Setup Wizard>VVC>VVC Cam Sync.

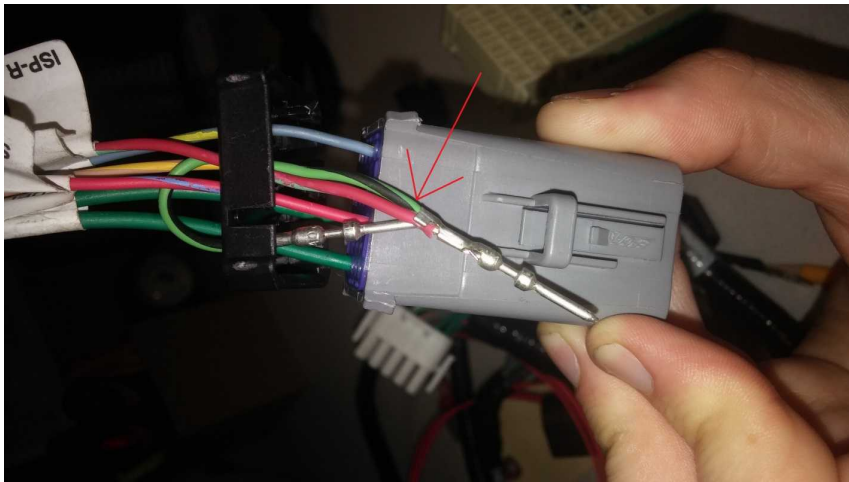
VVC to Cam correlation is as follows:

Cam 0 = VVC2A – CMP 12  
Cam 1 = VVC2B – CMP 22  
Cam 2 = VVC1A – CMP 11  
Cam 3 = VVC1B – CMP 21

## FORD RACING CONTROL PACK HARNESS MODIFICATIONS (OPTIONAL)

### Fuel Pump Flying Lead

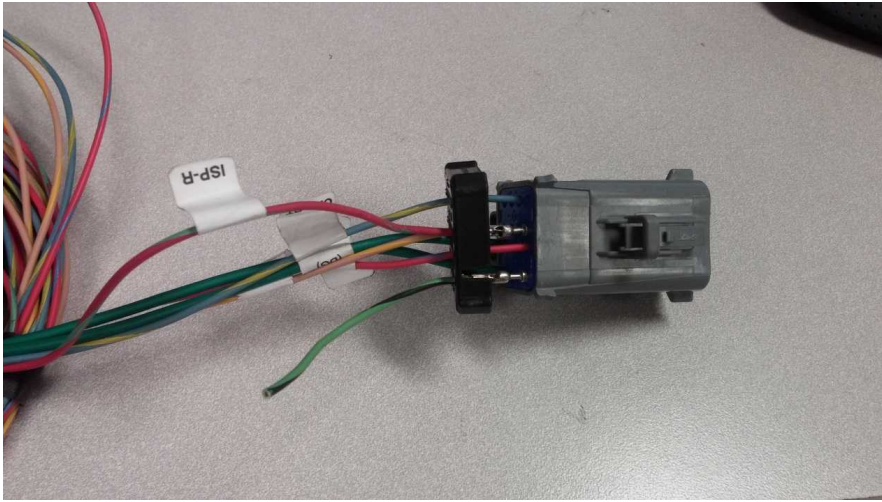
To allow the Infinity to control the fuel pump a modification must be made to the C47 flying lead connector.



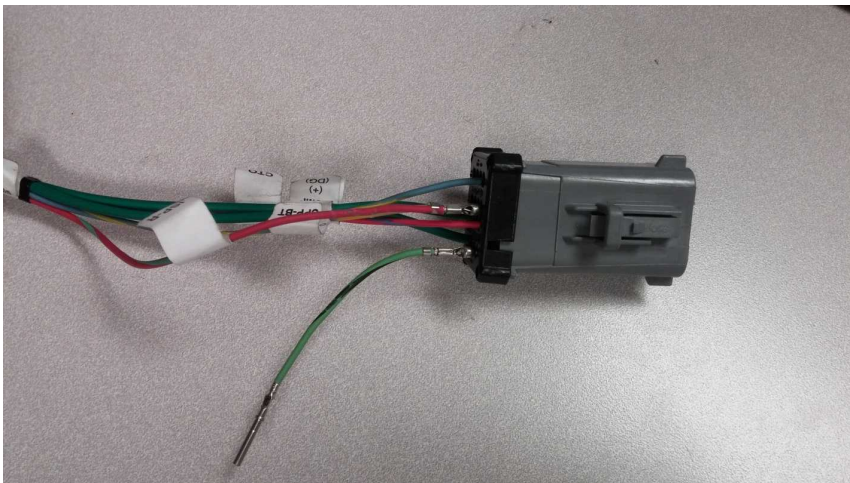
The Green w/ Black stripe wire is the Highside Fuel Pump relay control wire (C47-01). The Ford Racing harness double crimps 12V Start & Run (C47-03 ISP-R) to this fuel pump highside so that the fuel pump is running when the key is on.



The Green w/ Black stripe wire needs to be cut off of this double crimp.



Reinstall the Green w/ Black stripe wire's pre-existing pin back into the C47-01 socket. Route a wire that connects the Green w/ Black stripe wire to the Infinity's C2-55 pin.



## UEGO Connectors

Currently the Infinity does not support the stock Ford Coyote Bosch LSU4.9 UEGO sensors, and installation of LSU4.2 UEGO sensors is required.

During Infinity application development the existing LSU4.9 connectors on the Ford Racing wiring harness were removed and re-terminated into LSU4.2 connectors. Provided in the AEM 30-2002 Universal EMS Wideband UEGO Sensor kit is the necessary LSU4.2 connector and pins.

Below is the comparison of the Ford Racing wiring harness LSU4.9 connector and the AEM LSU4.2 connector according to the Ford Racing Control Pack Installation Manual (2011 and new 5.0L 4V). Note: "Ford Color" callouts listed in the Ford Racing Installation Manual may not align with actual wire colors. The "Ford Color" callouts below are representative of actual wire colors found on the Ford Racing harness at the time of Infinity application development:

### Bank 1

AEM LSU4.2 Extension Connector	AEM LSU4.2 Extension Color	AEM LSU4.2 UEGO Sensor Color	AEM Infinity Pin	AEM Description	Ford LSU4.9 Connector	Ford Color	Ford ECU Pin	Ford Description
1	Blk	Blk	C1-7	UN	6	BR/VT	PCM 50-4	UO2SN
2	Green	No wire	C1-5	IA	1	BR/YE	PCM 50-29	UO2SIA
3	Brown	Gray	Relay +12V	+12V	4	R/LG	S900	VREF
4	White	White	C1-4	UEGO1 Heat	3	R/WH	PCM 50-24	HTR
5	Orange	Yellow	C1-8	VM	2	GY/WH	PCM 50-15	UREF
6	Red	Red	C1-6	IP	5	LG	PCM 50-17	UO2SIP

Color Code	
G	Green
WH	White
VT	Violet
GY	Gray
R	Red
B	Black
LB	Light Blue
LG	Light Green
BR	Brown

### Bank 2

AEM LSU4.2 Extension Connector	AEM LSU4.2 Extension Color	AEM LSU4.2 UEGO Sensor Color	AEM Infinity Pin	AEM Description	Ford LSU4.9 Connector	Ford Color	Ford ECU Pin	Ford Description
1	Blk	Blk	C2-46	UN	6	G/WH	PCM 50-39	UO2SN
2	Green	No wire	C2-48	IA	1	WH	PCM 50-28	UO2SIA
3	Brown	Gray	Relay +12V	+12V	4	R/LG	S900	VREF
4	White	White	C2-49	UEGO2 Heat	3	R/B	PCM 50-35	HTR
5	Orange	Yellow	C2-45	VM	2	VT	PCM 50-40	UREF
6	Red	Red	C2-47	IP	5	BR/LB	PCM 50-16	UO2SIP

















# PINOOTS

## Ford Coyote 5.0L With Ford Racing Control Pack Pinout

Ford Engine Pin	Wire Color	Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-01	---	---	---	Not used	Not used	Not used
E-02	Violet	Variable Camshaft Timing 11 Solenoid (Passengerside Intake)	C1-18	LowsideSwitch_3	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS3_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
E-03	---	---	---	Not used	Not used	Not used
E-04	---	---	---	Not used	Not used	Not used
E-05	---	---	---	Not used	Not used	Not used
E-06*	White/Brown	Knock Sensor 1 & 2 Ground [KS1 - & KS2 -] - Shared with E-44	C2-31	AGND_2	Dedicated analog ground	Analog 0-5V sensor ground
E-07	Violet/Orange	Knock Sensor + [KS1+]	C1-27	Knock Sensor 1	Dedicated knock signal processor	See Setup Wizard page 'Knock Setup' for options.
E-08	Blue/Orange	DBW Ground (ETCRTN)	C2-30	AGND_2	Dedicated analog ground	Analog 0-5V sensor ground
E-09	Yellow	'Electronic Throttle Control (ETCREF)	C1-41	+5V_Out_1	Regulated, fused +5V supply for sensor power	Analog sensor power
E-10	Green/Violet	Throttle Position # Positive Slope (TP2)	C2-21	Analog_In_16	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
E-11	Black	Crankshaft Position Sensor Shield (SHDRTN)	C1-30	Power Ground	Power Ground	Connect directly to battery ground.
E-12	Green/Brown	Crankshaft Position Sensor (CKP-)	C1-46	Crankshaft Position Sensor VR-		

Ford Engine Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-13	Yellow/Violet	Yellow	Crankshaft Position (CKP+)	C1-45	Crankshaft Position Sensor VR+	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page 'Cam/Crank' for options.
E-14	---	---	Not used	---	Not used	Not used	Not used
E-15	---	---	Not used	---	Not used	Not used	Not used
E-16	Yellow/Grey	Yellow	Variable Camshaft Timing 21 Solenoid (Driverside Intake)	C1-2	LowsideSwitch_5	Lowside switch, 4A max with internal fly back diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS5_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
E-17	---	---	Not used	---	Not used	Not used	Not used
E-18	Blue/Orange	Blue	Coil on Plug Assembly 3 (COP3F)	C1-12	Coil 3	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-19	---	---	Not used	---	Not used	Not used	Not used
E-20	---	---	Not used	---	Not used	Not used	Not used
E-21	---	---	Not used	---	Not used	Not used	Not used
E-22	---	---	Not used	---	Not used	Not used	Not used
E-23	---	---	Not used	---	Not used	Not used	Not used
E-24	---	---	Not used	---	Not used	Not used	Not used
E-25	---	---	Not used	---	Not used	Not used	Not used
E-26	---	---	Not used	---	Not used	Not used	Not used
E-27	---	---	Not used	---	Not used	Not used	Not used
E-28	---	---	Not used	---	Not used	Not used	Not used
E-29	Grey/Orange	Grey	VR Reluctance Sensor (VRSRTN)	C1-47	Camshaft Position Sensor 1 VR-	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page 'Cam/Crank' for options.
E-30	Blue/Grey	Blue	Cylinder Head Temperature (CHT)	C1-66	Analog_In_Temp_1	12 bit A/D, 2.49K pullup to 5V	See 'Coolant Temperature' Setup Wizard for selection.
E-31	---	---	Not used	---	Not used	Not used	Not used

Ford Engine Pin	Wire Color	Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-32	Green/White	Digital Cams Ground (E-SIGRTN)	C1-20	AGND_1	Dedicated analog ground	Analog 0–5V sensor ground
E-33	Yellow/Grey	Coil on Plug Assembly 7 (COP7G)	C2-51	Coil 7	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-34	White/Brown	Coil on Plug Assembly 5 (COP5B)	C1-16	Coil 5	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-35	---	---	---	Not used	Not used	Not used
E-36*	Violet/Green	Injector and Digital Cam Sensor +12V Power – Shared with PCM70-21	C1-61	+12V	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
E-37	---	---	---	Not used	Not used	Not used
E-38	---	---	---	Not used	Not used	Not used
E-39	Brown	DBW Negative Slope (TP1)	C1-35	Analog_In_7	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Set Throttle Range page for automatic min/max calibration. Monitor the Throttle [%] channel. Also DB1_TPSA [%] for DBW applications.
E-40	---	---	---	Not used	Not used	Not used
E-41	White/Green	Camshaft Position Bank 1 (Passenger Intake) (CMP11)	C1-22	Camshaft Position Sensor 1 Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Cam/Crank' for options.

Ford Engine Pin	Wire Color	Ford Coyote with FR Control Pack Description		Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-42	Yellow/Blue			Camshaft Position Bank 2 (Driverside Intake) (CMP21)	C1-23	Digital_In_2	10K pullup to 12V. Will work with ground or floating switches. See Setup Wizard page 'Cam/Crank' for options.
E-43	---	---	---	Not used	---	Not used	Not used
E-44*	Brown/Green			Knock Sensor 1 & 2 Ground [KS1 - & KS2 -] - Shared with E-6	C2-31	AGND_2	Dedicated analog ground. Analog 0-5V sensor ground
E-45	Brown/Blue			Knock Sensor+ [KS2+]	C1-28	Knock Sensor 2	Dedicated knock signal processor. See Setup Wizard page 'Knock Setup' for options.
E-46	Brown/Blue			Camshaft Position Bank 1 In (Passengerside Exhaust) (CMP12)	C1-48	Camshaft Position Sensor 1 VR+	Differential Variable Reluctance Zero Cross Detection. See Setup Wizard page 'Cam/Crank' for options.
E-47	Green/Violet			Camshaft Position Bank 2 In (Driverside Exhaust) (CMP22)	C1-49	VR+_In_2	
E-48	Grey/Orange			Variable Reluctance Sensor (VRSRTN2)	C1-50	VR-_In_2	
E-49	---	---	---	Not used	---	Not used	Not used
E-50	Green/Violet			Coil on Plug Assembly 4 (COP4C)	C1-11	Coil 4	25 mA max source current. 0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-51	Blue/Brown			Coil on Plug Assembly 8 (COP8D)	C2-52	Coil 8	25 mA max source current. 0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.





Ford Engine Pin	Wire Color	Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-52	Yellow/Blue	Coil on Plug Assembly 2 (COP2H)	C1-13	Coil 2	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-53	Green/Blue	Fuel Injector Driver 1 (INJ1)	C1-63	Injector 1	Saturated or peak and hold, 3A max continuous	Injector 1
E-54	Grey/Yellow	Fuel Injector Driver 2 (INJ2)	C1-62	Injector 2	Saturated or peak and hold, 3A max continuous	Injector 2
E-55	Violet/Grey	Fuel Injector Driver 3 (INJ3)	C1-59	Injector 3	Saturated or peak and hold, 3A max continuous	Injector 3
E-56	White/Orange	Variable Camshaft Timing 12 Solenoid (Passengerside Exhaust)	C1-3	LowsideSwitch_6	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS6_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
E-57	Brown/Violet	Variable Camshaft Timing 22 Solenoid (Driverside Exhaust)	C2-44	LowsideSwitch_7	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS7_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
E-58	---	---	---	Not used	Not used	Not used
E-59	---	---	---	Not used	Not used	Not used
E-60	---	---	---	Not used	Not used	Not used
E-61	---	---	---	Not used	Not used	Not used
E-62	Yellow/Orange	Fuel Injector Driver 4 (INJ4)	C1-58	Injector 4	Saturated or peak and hold, 3A max continuous	Injector 4
E-63	Brown	Fuel Injector Driver 5 (INJ5)	C1-57	Injector 5	Saturated or peak and hold, 3A max continuous	Injector 5
E-64	Green/White	Fuel Injector Driver 6 (INJ6)	C1-56	Injector 6	Saturated or peak and hold, 3A max continuous	Injector 6






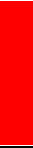

Ford Engine Pin	Wire Color	Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
E-65	Grey/Brown	Fuel Injector Driver 7 (INJ7)	C2-4	Injector 7	Saturated or peak and hold, 3A max continuous	Injector 7
E-66	Violet/Orange	Fuel Injector Driver 8 (INJ8)	C2-5	Injector 8	Saturated or peak and hold, 3A max continuous	Injector 8
E-67	Blue/Green	Throttle Actuator Control Motor (TACM-)	C1-53	DBW1 Motor -	5.0A max Throttle Control Hbridge Drive	+12V to close
E-68	Yellow/Violet	Throttle Actuator Control Motor(TACM+)	C1-54	DBW1 Motor +	5.0A max Throttle Control Hbridge Drive	+12V to open
E-69	Violet/Brown	Coil on Plug Assembly 6 (COP6E)	C1-15	Coil 6	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary . Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
E-70	White/Violet	Coil on Plug Assembly 1 (COP1A)	C1-14	Coil 1	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary . Must use an ignitor OR CDI that accepts a FALLING edge fire signal.

\* Denotes shared Infinity Pin Location

Ford Racing PCM70 Pin	Wire Color	Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM70-01	---	Not used	---	Not used	Not used	Not used
PCM70-02	Light Blue/Red	IAT Sensor Ground	C1-19	AGND_1	Dedicated analog ground	Analog 0-5V sensor ground
PCM70-03	---	Not used	---	Not used	Not used	Not used
PCM70-04	---	Not used	---	Not used	Not used	Not used
PCM70-05	---	Not used	---	Not used	Not used	Not used
PCM70-06	---	Not used	---	Not used	Not used	Not used



Ford Racing PCM70 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM70-07	Light Green/Yellow		Starter Motor Control (SMC)	C2-43	LowsideSwitch_8	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS8_Duty [%]' for activation settings.
PCM70-08	---	---	Not used	---	Not used	Not used	Not used
PCM70-09	---	---	Not used	---	Not used	Not used	Not used
PCM70-10	Tan/Yellow		Tacho (CTO) Blunt Lead	C2-29	LowsideSwitch_9	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.	See Setup Wizard page 'Tacho' for configuration options.
PCM70-11	---	---	Not used	---	Not used	Not used	Not used
PCM70-12	---	---	Not used	---	Not used	Not used	Not used
PCM70-13	---	---	Not used	---	Not used	Not used	Not used
PCM70-14	---	---	Not used	---	Not used	Not used	Not used
PCM70-15	---	---	Not used	---	Not used	Not used	Not used
PCM70-16	---	---	Not used	---	Not used	Not used	Not used
PCM70-17	---	---	Not used	---	Not used	Not used	Not used
PCM70-18	Tan/Red		Fan Relay Control	C1-17	LowsideSwitch_2	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS5_Duty [%]' for activation settings. See Setup Wizard page 'User GPOs' for default activation criteria.
PCM70-19	---	---	Not used	---	Not used	Not used	Not used
PCM70-20	---	---	Not used	---	Not used	Not used	Not used
PCM70-21*	Blue		Injector and Digital Cam Sensor +12V Power – Shared with E-36	C1-61	+12V	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
PCM70-22	---	---	Not used	---	Not used	Not used	Not used
PCM70-23	---	---	Not used	---	Not used	Not used	Not used
PCM70-24	---	---	Not used	---	Not used	Not used	Not used
PCM70-25	---	---	Not used	---	Not used	Not used	Not used

Ford Racing PCM70 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM70-26	---	---	---	---	Not used	Not used	Not used
PCM70-27	---	---	---	---	Not used	Not used	Not used
PCM70-28	Tan/Yellow	 	DBW_APP1 [%]	C2-13	Analog_In_18	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
PCM70-29	Light Blue/White		DBW_APP2 [%]	C2-14	Analog_In_19	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
PCM70-30	---	---	---	---	Not used	Not used	Not used
PCM70-31	---	---	---	---	Not used	Not used	Not used
PCM70-32	---	---	---	---	Not used	Not used	Not used
PCM70-33	---	---	---	---	Not used	Not used	Not used
PCM70-34	---	---	---	---	Not used	Not used	Not used
PCM70-35	---	---	---	---	Not used	Not used	Not used
PCM70-36	---	---	---	---	Not used	Not used	Not used
PCM70-37	---	---	---	---	Not used	Not used	Not used
PCM70-38	Brown/Pink	 	PCM Relay control	C1-29	+12V_Relay_Control	0.7A max ground sink for external relay control	Will activate at key on and at key off according to the configuration settings.
PCM70-39	---	---	---	---	Not used	Not used	Not used
PCM70-40	---	---	---	---	Not used	Not used	Not used
PCM70-41	---	---	---	---	Not used	Not used	Not used
PCM70-42	Red/Light Green	 	12V Start & Run (ISP-R) Blunt Lead	C1-65	+12V_SW	10K pulldown	Full time battery power must be available at C1-10 before this input is triggered.
PCM70-43	---	---	---	---	Not used	Not used	Not used













Ford Racing PCM70 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM70-44*	Grey/Red		APP Sensor 1 & 2 Ground APPVREF (1) & (2) – Shared with PCM70-60	C2-32	AGND_2	Dedicated analog ground	Analog 0–5V sensor ground
PCM70-45	Brown/White		APPVREF (1)	C2-22	+5V_Out_2	Regulated, fused +5V supply for sensor power	Analog sensor power
PCM70-46	---	---	Not used	---	Not used	Not used	Not used
PCM70-47	Grey		Intake Air Temperature	C1-67	Analog_In_Temp_2	12 bit A/D, 2.49K pullup to 5V	See 'Air Temperature' Setup Wizard for selection.
PCM70-48	---	---	Not used	---	Not used	Not used	Not used
PCM70-49	---	---	Not used	---	Not used	Not used	Not used
PCM70-50	Black		Case Ground	C2-8	Power Ground	Power Ground	Connect directly to battery ground.
PCM70-51	Blue/Yellow		Intercooler Pump Relay Control (SCICP PCM signal)	C1-1	LowsideSwitch_4	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS4_Duty [%]' for activation settings.
PCM70-52	---	---	Not used	---	Not used	Not used	Not used
PCM70-53	Yellow/Light Blue		GENRC	C1-34	LowsideSwitch_0	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page 'LowSide Assignment Tables' for output assignment and 2D table 'LS0_Duty [%]' for activation.
PCM70-54	---	---	Not used	---	Not used	Not used	Not used
PCM70-55	---	---	Not used	---	Not used	Not used	Not used
PCM70-56	---	---	Not used	---	Not used	Not used	Not used
PCM70-57	---	---	Not used	---	Not used	Not used	Not used
PCM70-58	Pink/Light Green		AEMNet CANL	C1-31	CANL_Aout	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
PCM70-59	White/Light Green		AEMNet CANH	C1-32	CANH_Aout	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.

Ford Racing PCM70 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM70-60*	Grey		APP Sensor 1 & 2 Ground APPVREF (1) & (2) – Shared with PCM70-44	C2-32	AGND_2	Dedicated analog ground	Analog 0–5V sensor ground
PCM70-61	Brown		APPVREF (2)	C2-23	+5V_Out_2	Regulated, fused +5V supply for sensor power	Analog sensor power
PCM70-62	Yellow		KAPWR / 12VHAAT	C1-10	+12V_R8C_CPU	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered. (See C1-65.)
PCM70-63	---	---	Not used	---	Not used	Not used	Not used
PCM70-64	---	---	Not used	---	Not used	Not used	Not used
PCM70-65	---	---	Not used	---	Not used	Not used	Not used
PCM70-66	---	---	Not used	---	Not used	Not used	Not used
PCM70-67	Grey/Orange		+12V In	C1-64	+12V	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal pin C1-29 above.
PCM70-68	Grey/Orange		VPWR	C2-9	+12V	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
PCM70-69	Black		PWR Ground	C1-60	Power Ground	Power Ground	Connect directly to battery ground.
PCM70-70	Black		PWR Ground	C1-73	Power Ground	Power Ground	Connect directly to battery ground.

\* Denotes shared Infinity Pin Location

Ford Racing PCM50 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM50-01	---	---	Not used	---	Not used	Not used	Not used
PCM50-02	---	---	Not used	---	Not used	Not used	Not used
PCM50-03	---	---	Not used	---	Not used	Not used	Not used
PCM50-04	Brown/Pink		U02SN Bank 1	C1-7	UEGO 1 UN	Bosch UEGO controller	Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.

Ford Racing PCM50 Pin	Wire Color		Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM50-05	---	---	Not used	---	Not used	Not used	Not used
PCM50-06	---	---	Not used	---	Not used	Not used	Not used
PCM50-07	---	---	Not used	---	Not used	Not used	Not used
PCM50-08	---	---	Not used	---	Not used	Not used	Not used
PCM50-09	---	---	Not used	---	Not used	Not used	Not used
PCM50-10	---	---	Not used	---	Not used	Not used	Not used
PCM50-11	---	---	Not used	---	Not used	Not used	Not used
PCM50-12	---	---	Not used	---	Not used	Not used	Not used
PCM50-13	---	---	Not used	---	Not used	Not used	Not used
PCM50-14	---	---	Not used	---	Not used	Not used	Not used
PCM50-15	Grey/White		UREF Bank 1	C1-8	UEGO 1 VM	Bosch UEGO controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
PCM50-16	Brown/Light Blue		UO2SIP Bank 2	C2-47	UEGO 2 IP	Bosch UEGO controller	Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
PCM50-17	Light Green		UO2SIP Bank 1	C1-6	UEGO 1 IP	Bosch UEGO controller	Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
PCM50-18	---	---	Not used	---	Not used	Not used	Not used
PCM50-19	Light Blue/Yellow		Clutch Position (Neutral Switch) Blunt Lead	C2-33	Analog_In_20	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See ClutchSwitch 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page 'Input Function Assignments' for input mapping options.
PCM50-20	---	---	Not used	---	Not used	Not used	Not used
PCM50-21	---	---	Not used	---	Not used	Not used	Not used
PCM50-22	---	---	Not used	---	Not used	Not used	Not used

Ford Racing PCM50 Pin	Wire Color			Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM50-23	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-24	Red/White			HTR Bank 1	C1-4	UEGO 1 Heat	Bosch UEGO controller	Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/switched 12V supply.
PCM50-25	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-26	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-27	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-28	White			UO2SIA Bank 2	C2-48	UEGO 2 IA	Bosch UEGO controller	Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
PCM50-29	Brown/yellow			UO2SIA Bank 1	C1-5	UEGO 1 IA	Bosch UEGO controller	Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
PCM50-30	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-31	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-32	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-33	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-34	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-35	Red/Black			HTR Bank 2	C2-49	UEGO 2 HEAT	Bosch UEGO controller	Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/switched 12V supply.
PCM50-36	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-37	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-38	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-39	Green/White			UO2SN Bank 2	C2-46	UEGO 2 UN	Bosch UEGO controller	Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.
PCM50-40	Violet			UREF Bank 2	C2-45	UEGO 2 VM	Bosch UEGO controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
PCM50-41	---	---	---	Not used	---	Not used	Not used	Not used

Ford Racing PCM50 Pin	Wire Color			Ford Coyote with FR Control Pack Description	Infinity Pin	Infinity Assignment	Infinity Hardware Specification	Notes
PCM50-42	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-43	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-44	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-45	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-46	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-47	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-48	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-49	---	---	---	Not used	---	Not used	Not used	Not used
PCM50-50	---	---	---	Not used	---	Not used	Not used	Not used

## Infinity Pinouts

Dedicated	Dedicated and not reconfigurable
Assigned	Assigned but reconfigurable
Available	Available for user setup
Not Applicable	Not used in this configuration
Required	Required for proper function

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-1	LowsideSwitch_4	Ford Racing PCM70-51	Intercooler Pump Relay Control (SCICP PCM signal)	Lowside switch, 4A max, NO internal flyback diode.	'See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS4_Duty [%]' for activation settings.
C1-2	LowsideSwitch_5	Engine E-16	Variable Camshaft Timing 21 Solenoid (Driverside Intake)	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	'See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS5_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
C1-3	LowsideSwitch_6	Engine E-56	Variable Camshaft Timing 12 Solenoid (Passengerside Exhaust)	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	'See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS6_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
C1-4	UEGO 1 Heat	---	UEGO 1 Heat	Bosch UEGO controller	Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/switched 12V supply.
C1-5	UEGO 1 IA	---	UEGO 1 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
C1-6	UEGO 1 IP	---	UEGO 1 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
C1-7	UEGO 1 UN	---	UEGO 1 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.
C1-8	UEGO 1 VM	---	UEGO 1 VM		Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C1-9	Flash_Enable	---	Flash Enable	10K pulldown	Not usually needed for automatic firmware updates through Infinity Tuner. If connection errors occur during update, connect 12 volts to this pin before proceeding with upgrade. Disconnect the 12 volts signal after the update.



Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-10	+12V_R8C_CPU	Ford Racing PCM70-62	KAPWR / 12VHAAT	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered. (See C1-65.)
C1-11	Coil 4	Engine E-50	Coil on Plug Assembly 4 (COP4C)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-12	Coil 3	Engine E-18	Coil on Plug Assembly 3 (COP3F)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-13	Coil 2	Engine E-52	Coil on Plug Assembly 2 (COP2H)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-14	Coil 1	Engine E-70	Coil on Plug Assembly 1 (COP1A)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-15	Coil 6	Engine E-69	Coil on Plug Assembly 6 (COP6E)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-16	Coil 5	Engine E-34	Coil on Plug Assembly 5 (COP5B)	25 mA max source current	0–5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-17	LowsideSwitch_2	Ford Racing PCM70-18	Fan Relay Control	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS5_Duty [%]' for activation settings. See Setup Wizard page 'User GPOs' for default activation criteria.
C1-18	LowsideSwitch_3	Engine E-02	Variable Camshaft Timing 11 Solenoid (Passengerside Intake)	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS3_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
C1-19	AGND_1	Ford Racing PCM70-02	IAT Sensor Ground	Dedicated analog ground	Analog 0–5V sensor ground
C1-20	AGND_1	Engine E-32	Digital Cams Ground (E-SIGRTN)	Dedicated analog ground	Analog 0–5V sensor ground

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-21	Crankshaft Position Sensor Hall	---	Crankshaft Position Sensor Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Cam/Crank' for options.
C1-22	Camshaft Position Sensor 1 Hall	Engine E-41	Camshaft Position Bank 1 (Passenger Intake) (CMP11)	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Cam/Crank' for options.
C1-23	Digital_In_2	Engine E-42	Camshaft Position Bank 2 (Driverside Intake) (CMP21)	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Cam/Crank' for options.
C1-24	Digital_In_3	---	Turbo Speed Hz	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Input Function Assignment' for calibration constant. TurboSpeed [RPM] = Turbo [Hz] * Turbo Speed Calibration.
C1-25	Digital_In_4	---	Vehicle Speed Sensor	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page 'Input Function Assignment' for calibration constant.
C1-26	Digital_In_5	---	Flex Fuel	10K pullup to 12V. Will work with ground or floating switches.	See channel FlexDigitalIn [Hz] for raw frequency input data.
C1-27	Knock Sensor 1	Engine E-07	Knock Sensor + [KS1+]	Dedicated knock signal processor	See Setup Wizard page 'Knock Setup' for options.
C1-28	Knock Sensor 2	Engine E-45	Knock Sensor+ [KS2+]	Dedicated knock signal processor	See Setup Wizard page 'Knock Setup' for options.
C1-29	+12V_Relay_Control	Ford Racing PCM70-38	PCM Relay control	0.7A max ground sink for external relay control	Will activate at key on and at key off according to the configuration settings.
C1-30	Power Ground	Engine E-11	Crankshaft Position Sensor Shield (SHDRTN)	Power Ground	Connect directly to battery ground.
C1-31	CANL_Aout	Ford Racing PCM70-58	AEMNet CANL	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	CANH_Aout	Ford Racing PCM70-59	AEMNet CANH	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	LowsideSwitch_1	---	Boost Control	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS1_Duty [%]' for activation settings. See Setup Wizard page 'Boost Control' for options. Monitor BoostControl [%] channel for output state.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-34	LowsideSwitch_0	Ford Racing PCM70-53	GENRC	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Page 'LowSide Assignment Tables' for output assignment and 2D table 'LSO_Duty [%]' for activation.
C1-35	Analog_In_7	Engine E-39	DBW Negative Slope (TP1)	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Set Throttle Range page for automatic min/max calibration. Monitor the Throttle [%] channel. Also DB1_TPSA [%] for DBW applications.
C1-36	Analog_In_8	---	MAP Sensor	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Set Manifold Pressure page for setup and calibration. Monitor the MAP [kPa] channel.
C1-37	Analog_In_9	---	Fuel Pressure	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Fuel Pressure page for setup and calibration. Monitor the FuelPressure [psig] channel.
C1-38	Analog_In_10	---	Baro Sensor	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Barometric Pressure page for setup and calibration. Monitor the BaroPress [kPa] channel.
C1-39	Analog_In_11	---	Shift Switch Input	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the 1D lookup table 'ShiftSwitch' for setup. Also assignable to multiple functions. See Setup Wizard for details.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-40	Analog_In_12	---	Mode Switch	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the 1D lookup table 'ModeSwitch' for input state. A multi-position rotary switch such as AEM P/N 30-2056 is recommended. Also assignable to multiple functions. See Setup Wizard for details.
C1-41	+5V_Out_1	Engine E-09	'Electronic Throttle Control (ETCREF)	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-42	+5V_Out_1	---	+5V Out	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-43	HighsideSwitch_1	---	HS1 (switched 12V)	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assignment Tables' for configuration options. See 2D lookup table 'HS1_Table' for activation settings.
C1-44	HighsideSwitch_0	---	VTEC	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assignment Tables' for configuration options. See 2D lookup table 'HS0_Table' for activation settings. See Setup Wizard page 'Honda VTEC' for default activation criteria.
C1-45	Crankshaft Position Sensor VR+	Engine E-13	Crankshaft Position (CKP+)	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page 'Cam/Crank' for options.
C1-46	Crankshaft Position Sensor VR-	Engine E-12	Crankshaft Position Sensor (CKP-)		
C1-47	Camshaft Position Sensor 1 VR-	Engine E-29	VR Reluctance Sensor (VRSRTN)	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page 'Cam/Crank' for options.
C1-48	Camshaft Position Sensor 1 VR+	Engine E-46	Camshaft Position Bank 1 In (Passengerside Exhaust) (CMP12)		
C1-49	VR+_In_2	Engine E-47	Camshaft Position Bank 2 In (Driverside Exhaust) (CMP22)	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page 'Cam/Crank' for options.
C1-50	VR-_In_2	Engine E-48	Variable Reluctance Sensor (VRSRTN2)		
C1-51	VR-_In_3	---	Driven Left Wheel Speed Sensor -	Differential Variable Reluctance Zero Cross Detection	See 'Driven Wheel Speed Calibration' in the Setup Wizard 'Input Function Assignment' page.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-52	VR+_In_3	---	Driven Left Wheel Speed Sensor +		
C1-53	DBW1 Motor -	Engine E-67	Throttle Actuator Control Motor (TACM-)	5.0A max Throttle Control Hbridge Drive	+12V to close
C1-54	DBW1 Motor +	Engine E-68	Throttle Actuator Control Motor(TACM+)	5.0A max Throttle Control Hbridge Drive	+12V to open
C1-55	Power Ground	---	Ground	Power Ground	Connect directly to battery ground.
C1-56	Injector 6	Engine E-64	Fuel Injector Driver 6 (INJ6)	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	Injector 5	Engine E-63	Fuel Injector Driver 5 (INJ5)	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	Injector 4	Engine E-62	Fuel Injector Driver 4 (INJ4)	Saturated or peak and hold, 3A max continuous	Injector 4
C1-59	Injector 3	Engine E-55	Fuel Injector Driver 3 (INJ3)	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	Power Ground	Ford Racing PCM70-69	PWR Ground	Power Ground	Connect directly to battery ground.
C1-61	+12V	Ford Racing PCM70-21 & Engine E-36	Injector and Digital Cam Sensor +12V Power	12 volt power from relay	12 volt power from relay . Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C1-62	Injector 2	Engine E-54	Fuel Injector Driver 2 (INJ2)	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	Injector 1	Engine E-53	Fuel Injector Driver 1 (INJ1)	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	+12V	Ford Racing PCM70-67	+12V In	12 volt power from relay	12 volt power from relay . Relay must be controlled by +12V Relay Control signal pin C1-29 above.
C1-65	+12V_SW	Ford Racing PCM70-42	12V Start & Run (ISP-R) Blunt Lead	10K pulldown	Full time battery power must be available at C1-10 before this input is triggered.
C1-66	Analog_In_Temp_1	Engine E-30	Cylinder Head Temperature (CHT)	12 bit A/D, 2.49K pullup to 5V	See 'Coolant Temperature' Setup Wizard for selection.
C1-67	Analog_In_Temp_2	Ford Racing PCM70-47	Intake Air Temperature	12 bit A/D, 2.49K pullup to 5V	See 'Air Temperature' Setup Wizard for selection.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C1-68	Analog_In_Temp_3	---	Oil Temperature Sensor	12 bit A/D, 2.49K pullup to 5V	See 'Oil Temperature' Setup Wizard for selection.
C1-69	Stepper_2A	---	Stepper 2A	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only. See Setup Wizard page 'Idle – Show Advanced Setup' for options.
C1-70	Stepper_1A	---	Stepper 1A	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only. See Setup Wizard page 'Idle – Show Advanced Setup' for options.
C1-71	Stepper_2B	---	Stepper 2B	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only. See Setup Wizard page 'Idle – Show Advanced Setup' for options.
C1-72	Stepper_1B	---	Stepper 1B	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only. See Setup Wizard page 'Idle – Show Advanced Setup' for options.
C1-73	Power Ground	Ford Racing PCM70-70	PWR Ground	Power Ground	Connect directly to battery ground.
C2-1	DBW2 Motor +	--	DBW Motor Control Open	5.0A max Throttle Control Hbridge Drive	+12V to open
C2-2	DBW2 Motor -	--	DBW Motor Control Close	5.0A max Throttle Control Hbridge Drive	+12V to close
C2-3	Power Ground	--	Ground	Power Ground	Connect directly to battery ground.
C2-4	Injector 7	Engine E-65	Fuel Injector Driver 7 (INJ7)	Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	Injector 8	Engine E-66	Fuel Injector Driver 8 (INJ8)	Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	Injector 9	---	Injector 9	Saturated or peak and hold, 3A max continuous	Injector 9

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C2-7	Injector 10	---	Injector 10	Saturated or peak and hold, 3A max continuous	Injector 10
C2-8	Power Ground	Ford Racing PCM70-50	Case Ground	Power Ground	Connect directly to battery ground.
C2-9	+12V	Ford Racing PCM70-68	VPWR	12 volt power f from relay	12 volt power f from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C2-10	Injector 11	---	Injector 11	Saturated or peak and hold, 3A max continuous	Not used
C2-11	Injector 12	---	Injector 12	Saturated or peak and hold, 3A max continuous	Not used
C2-12	Analog_In_17	---	A/C Analog Request	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See Setup Wizard 'Input Functions' page f or input selection. See AC_Request_In 1-axis table f or activation logic.
C2-13	Analog_In_18	Ford Racing PCM70-28	DBW_APP1 [%]	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-14	Analog_In_19	Ford Racing PCM70-29	DBW_APP2 [%]	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-15	Analog_In_Temp_4	---	Charge Out Temperature	12 bit A/D, 2.49K pullup to 5V	See ChargeOutTemp [C] table f or calibration data and ChargeOutTemp [C] f or channel data.
C2-16	Analog_In_Temp_5	---	Airbox Temperature	12 bit A/D, 2.49K pullup to 5V	See AirboxTemp [C] table f or calibration data and AirboxTemp [C] f or channel data.
C2-17	Analog_In_Temp_6	---	Fuel Temperature	12 bit A/D, 2.49K pullup to 5V	See FuelTemp [C] table f or calibration data and FuelTemp [C] f or channel data.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C2-18	Analog_In_13	---	Oil Pressure	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See Setup Wizard 'Oil Pressure' page for setup options. See OilPressure [psig] for channel data.
C2-19	Analog_In_14	---	Traction Control Mode / Sensitivity	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the TC_SlipTrgtTrim [MPH] 1-axis table. A multi-position rotary switch such as AEM P/N 30-2056 is recommended.
C2-20	Analog_In_15	---	Exhaust Back Pressure	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See Setup Wizard 'Exhaust Pressure' page for setup options. See EBPress [kPa] for channel data.
C2-21	Analog_In_16	Engine E-10	Throttle Position # Positive Slope (TP2)	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-22	+5V_Out_2	Ford Racing PCM70-45	APPVREF (1)	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-23	+5V_Out_2	Ford Racing PCM70-61	APPVREF (2)	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-24	+5V_Out_2	---	+5V Out	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-25	VR+_In_5	---	Driven Right Wheel Speed Sensor +	Differential Variable Reluctance Zero Cross Detection	See Driven Wheel Speed Calibration in the Setup Wizard 'Input Function Assignment' page.
C2-26	VR-_In_5	---	Driven Right Wheel Speed Sensor -		
C2-27	VR-_In_4	---	Non Driven Right Wheel Speed Sensor -	Differential Variable Reluctance Zero Cross Detection	See Non Driven Wheel Speed Calibration in the Setup Wizard 'Input Function Assignment' page.
C2-28	VR+_In_4	---	Non Driven Right Wheel Speed Sensor +		

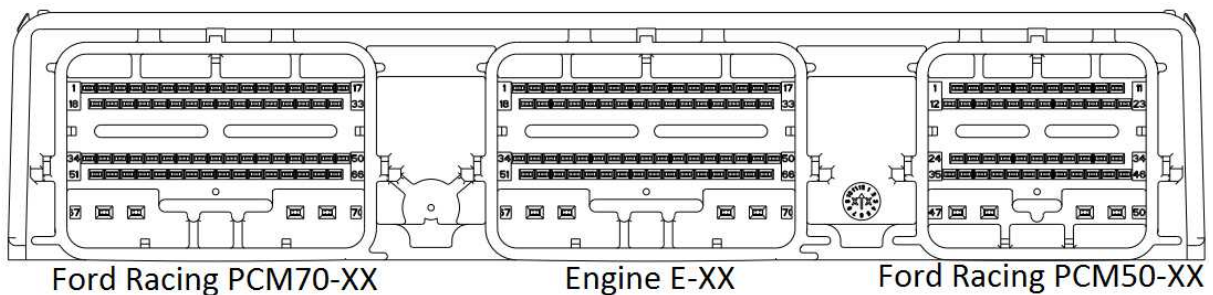


Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C2-29	LowsideSwitch_9	Ford Racing PCM70-10	Tacho (CTO) Blunt Lead	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.	See Setup Wizard page 'Tacho' for configuration options.
C2-30	AGND_2	Engine E-08	DBW Ground (ETCRTN)	Dedicated analog ground	Analog 0-5V sensor ground
C2-31	AGND_2	Engine E-06 & Engine E-44	Knock Sensor 1 & 2 Ground [KS1 - & KS2 -]	Dedicated analog ground	Analog 0-5V sensor ground
C2-32	AGND_2	Ford Racing PCM70-44 & PCM70-60	APP Sensor 1 & 2 Ground APPVREF (1) & (2)	Dedicated analog ground	Analog 0-5V sensor ground
C2-33	Analog_In_20	Ford Racing PCM50-19	Clutch Position (Neutral Switch) Blunt Lead	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See ClutchSwitch 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page 'Input Function Assignments' for input mapping options.
C2-34	Analog_In_21	---	3 Step Enable Switch / TPS2A	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See 3StepSwitch 1-axis table for setup.
C2-35	Analog_In_22	---	USB Logging Activate	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See USBLoggingRequestIn channel for input state. See Setup Wizard page 'USB Logging' for configuration options.
C2-36	Analog_In_23	---	Charge Out Pressure / TPS2B	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See ChargeOutPress [kPa] channel for input state. See Setup Wizard page 'Charge Out Pressure' for calibration options.

Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C2-37	Digital_In_6	---	Spare Digital Input	No pullup. Will work with TTL signals.	Input can be assigned to different pins. See Setup Wizard page Input Function Assignments for input mapping options.
C2-38	Digital_In_7	---	Brake Switch	No pullup. Will work with TTL signals.	See BrakeSwitch 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page 'Input Function Assignments' for input mapping options.
C2-39	Power Ground	---	Ground	Power Ground	Connect directly to battery ground.
C2-40	Power Ground	---	Ground	Power Ground	Connect directly to battery ground.
C2-41	CanH_Bout	---	CANH	Dedicated High Speed CAN Transceiver	Not used
C2-42	CanL_Bout	---	CANL	Dedicated High Speed CAN Transceiver	Not used
C2-43	LowsideSwitch_8	Ford Racing PCM70-07	Starter Motor Control (SMC)	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS8_Duty [%]' for activation settings.
C2-44	LowsideSwitch_7	Engine E-57	Variable Camshaft Timing 22 Solenoid (Driverside Exhaust)	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page 'LowSide Assignment Tables' for configuration options. See 2D table 'LS7_Duty [%]' for activation settings. See Setup Wizard page 'VVC' for options.
C2-45	UEGO 2 VM	---	UEGO 2 VM	Bosch UEGO Controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C2-46	UEGO 2 UN	---	UEGO 2 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.
C2-47	UEGO 2 IP	---	UEGO 2 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
C2-48	UEGO 2 IA	---	UEGO 2 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
C2-49	UEGO 2 HEAT	---	UEGO 2 HEAT		Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be power by a fused/switched 12V supply.

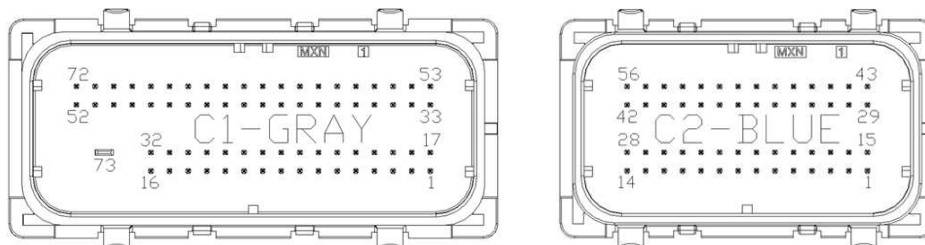
Infinity Pin	Infinity Assignment	Pin Destination	Ford Coyote with FR Control Pack Description	Infinity Hardware Specification	Notes
C2-50	+12V_R8C_CPU	---	Battery Perm Power	Dedicated power management CPU	Optional full time battery power. MUST be powered before the ignition switch input is triggered. (See C1-65.)
C2-51	Coil 7	Engine E-33	Coil on Plug Assembly 7 (COP7G)	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-52	Coil 8	Engine E-51	Coil on Plug Assembly 8 (COP8D)	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-53	Coil 9	---	Coil 9	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-54	Coil 10	---	Coil 10	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-55	HighsideSwitch_2	User Mod. Fuel Pump Control (C47-01 Green w/ Black Stripe wire); See Page 5-6.	Fuel Pump	Multi-function pin depending on hardware configuration	See Setup Wizard page 'HighSide Assignment Tables' for configuration options. See 2D lookup table 'HS1_Table' for activation settings. See Setup Wizard page 'User GPOs' for default activation criteria.
C2-56	Not used		Not used	Not used	Not used

### Ford Pin Numbering



Ford Coyote PCM Connectors Viewed from Wire Side

## Infinity Pin Numbering



AEM Infinity Connectors Viewed from Wire Side

## 12 MONTH LIMITED WARRANTY

Advanced Engine Management Inc. warrants to the consumer that all AEM High Performance products will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12-month warranty period will be repaired or replaced at AEM's option, when determined by AEM that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of the AEM part. In no event shall this warranty exceed the original purchase price of the AEM part nor shall AEM be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product. Warranty claims to AEM must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12-month warranty period. Improper use or installation, accident, abuse, unauthorized repairs or alterations voids this warranty. AEM disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM. Warranty returns will only be accepted by AEM when accompanied by a valid Return Merchandise Authorization (RMA) number. Product must be received by AEM within 30 days of the date the RMA is issued.

Please note that before AEM can issue an RMA for any electronic product, it is first necessary for the installer or end user to contact the EMS tech line at 1-800-423-0046 to discuss the problem. Most issues can be resolved over the phone. Under no circumstances should a system be returned or a RMA requested before the above process transpires.

AEM will not be responsible for electronic products that are installed incorrectly, installed in a non-approved application, misused, or tampered with.

Any AEM electronics product can be returned for repair if it is out of the warranty period. There is a minimum charge of \$50.00 for inspection and diagnosis of AEM electronic parts. Parts used in the repair of AEM electronic components will be extra. AEM will provide an estimate of repairs and receive written or electronic authorization before repairs are made to the product.