INTRODUCTION
Thank you for selecting the Edelbrock Pro-Flo XT Plus EFI System. Engine control in spark ignited engines means regulating fuel and air intake as well as spark timing to achieve desired performance and economy. Until recently, fully programmable engine management systems were not available to the typical enthusiast and the ones that were available, based primarily on OEM systems, were complex and cost prohibitive. Edelbrock’s Pro Flo XT Plus systems are designed for competition and ultra high performance street vehicles. The systems provide the experienced installer/tuner with a starting point for any custom application. Pro Flo XT Plus systems are compatible with high impedance injectors only or low impedance injectors when used in conjunction with a stand alone peak and hold injector driver box (not included).

If you have any questions, do not hesitate to call our 
EFI Technical Hotline at (800) 416-8628, 7am-5pm PST, Monday-Friday

Edelbrock EFI system customers can now join others at
http://Forums.Edelbrock.com/Forums/
The forum offers support from current experienced users as well as Edelbrock Tech Reps.
NOTICE

PLEASE REFER TO THE COMPLETE MANUAL LOCATED ON THE INSTALLATION CD FOR A MORE IN DEPTH EXPLANATION OF TUNING, INSTALLATION AND FUNCTIONS OF THE EDELBROCK PRO FLO XT PLUS EFI SYSTEMS.
PURPOSE

The purpose of this document is to provide a brief description of wiring requirements and initial system setup. More detailed information can be found on the Pro-Flo XT Plus and XTR manual found on the included CD and available for download from the Edelbrock website (http://www.Edelbrock.com).

SYSTEM FEATURES

Software
• Live Tuning
• 3D fuel and spark maps
• All maps with adjustable breakpoints
• Programmable sensor calibrations
• Closed loop lambda control
• Unique self-mapping software
• Fuel and spark trims for each cylinder
• 3D injection phase map
• Sensor correction tables
• Closed loop boost control
• ECU loadable with 2 maps
• Adjustable internal logging sample rates
• Programmable engine protection functions

Switch Inputs
• Engine kill
• Beacon (or clutch switch)
• Pitt switch (or master nitrous enable)
• Map select (2 unique map positions switchable on the fly)
• Boost switch (or gear position)

Analog Inputs
• Throttle, Battery, Airbox Pressure, Air Temp, Water Temp, Oil Temp, Fuel Press, Oil Press, Lambda 1, Lambda 2, ECU Temp (Internal)

Diagnostics
• Error codes for all sensors and pickups
• Programmable error thresholds
• Sensor Min and Max values recorded
• Non-volatile logger memory (1 meg)

SOFTWARE REQUIREMENTS
• Pentium personal computer or laptop with 1GHz or higher processor
• Microsoft Windows 98 or higher operating system. Not compatible with 64 bit systems.
• 256 MB of RAM (512 MB recommended) for Windows XP
• Hard disk space required: 50MB typical, 94MB maximum

Additional System Requirements
• CD-ROM drive
• VGA or higher resolution monitor (Super VGA recommended)
• Microsoft mouse or compatible pointing device
• Serial communications port
• Universal Serial Bus (USB port)
• High speed internet access (for iLink users)
PRO FLO XT PLUS WIRING INSTALLATION
The Pro-Flo XT Plus kits are available in four different configurations depending on the application firing order.

WIRING INSTALLATION (KITS 3660, 3662, 3663)
The wiring harnesses are made up of two main pieces, an engine side and a chassis side. The engine side is meant to be installed in the engine side of the vehicle. The chassis side is meant to be installed in the cabin side of the vehicle. A round firewall bulkhead connector is provided to mate the two halves. The engine side harnesses are identical for each kit in Table 1. The chassis side harnesses are unique and include the appropriate injector wiring for each firing order. Connect all other sensors/actuators according to each connector description. See the EFI Basics – EFI Sensors section of the Pro Flo XT plus manual (available on CD) for more information on sensor installation. Each connector and flying lead wire in the harness is labeled to aid installation. Following is a description of each labeled termination:

**ECU1**
34 pin main ECU connector. Connect to corresponding ECU receptacle. The two connectors are unique. They can’t be connected to the wrong location.

**ECU2**
26 pin main ECU connector. Connect to corresponding ECU receptacle. The two connectors are unique. They can’t be connected to the wrong location.

**PC Comms**
DB9 style (9 pin) PC communication terminal. Connect to a PC using a serial extension cable (not included). This connection is required for communication to the ECU.

- Pin 2 - PC TXD (Red/Blue)
- Pin 3 - PC RXD (Wht/Brown)
- Pin 5 - Comms Ground (Black)

**AUX (optional)**
AMP CPC style round 9 pin connector. Provides
- Pin 1 - Nitrous Activation or Lap Beacon input (Red/Blk)
- Pin 2 - Nitrous Arm (Yel/Vio)
- Pin 3 - Injector Kill Switch (Red/Vio)
- Pin 4 - Map Switch (Blue/Wht)
- Pin 5 - Mixture Switch (Red/Yel)
- Pin 6 - Boost Switch (White/Orange)
- Pin 7 - Battery Ground (Black)
- Pin 8 - Not Used
- Pin 9 - Not Used

**Table 1**

<table>
<thead>
<tr>
<th>Edelbrock Part Number</th>
<th>Application</th>
<th>Firing Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>3660</td>
<td>GM (Non LS)</td>
<td>1-8-4-3-6-5-7-2</td>
</tr>
<tr>
<td>3661</td>
<td>GM LS Engine Series</td>
<td>1-8-7-2-6-5-4-3</td>
</tr>
<tr>
<td>3662</td>
<td>Ford (351W &amp; 5.0L)</td>
<td>1-5-4-2-6-3-7-8</td>
</tr>
<tr>
<td>3663</td>
<td>Ford (early 289/302)</td>
<td>1-3-7-2-6-5-4-8</td>
</tr>
</tbody>
</table>

**AUX (optional)**
For use with firewall forward auxiliary functions. A mating connector with terminated pigtailed is provided with the harness assembly.

- Pin 1 - Nitrous Stage 3 output. Switched ground. Connect to stage 3 nitrous solenoid relay (primary coil ground). **Do not connect directly to solenoid.**
- Pin 2 - Nitrous Stage 2 output. Switched ground. Connect to stage 2 nitrous solenoid relay (primary coil ground). **Do not connect directly to solenoid.**
- Pin 3 - Nitrous Stage 1 output. Switched ground. Connect to stage 1 nitrous solenoid relay (primary coil ground). **Do not connect directly to solenoid.**
- Pin 4 - Nitrous Stage 4 output. Switched ground. Connect to stage 4 nitrous solenoid relay (primary coil ground). **Do not connect directly to solenoid.**
- Pin 5 - 12V battery power. Can be used to power auxiliary devices such as relays. Installer responsible for adding appropriately sized fuses.
- Pin 6 - PWM Boost. Switched ground. Connect to boost control solenoid (coil ground).
- Pin 7 - Oil Pressure. 0 - 5V input to ECU. Connect to analog output signal from oil pressure transducer.
- Pin 8 - Battery Negative.
- Pin 9 - +12V Switched. Hot with ignition switch on. Can be used to power auxiliary devices such as relays. Installer responsible for adding appropriately sized fuses.
- Pin 10 - Sensor Ground. Low reference for use with 0 - 5V sensors. Connect to sensor ground.
- Pin 11 - VREF. +5V reference voltage for use with 0 - 5V sensors. Connect to sensor reference voltage.
- Pin 12 - Fuel Pressure. 0 - 5V input to ECU. Connect to analog output signal from fuel pressure transducer.
- Pin 13 - Not used
- Pin 14 - Not used

**Key Power**
Pink/Black flying lead – connect to a Key-On 12 volt source. It must be hot in both START and RUN positions.
Fuel Pump Relay (optional)
Tan/White flying lead – can be used to activate a fuel pump relay. This output is a switched ground. Connect to the ground side of the relay coil primary.

Lambda (optional)
Interface connector for use with customer supplied wideband UEGO systems.

Pin A - Signal Ground. Connect to UEGO controller low reference, signal ground or sensor ground output.
Pin B - Lambda Signal. Connect to UEGO controller signal output (0 - 5V)
Pin C - 12V Power. Connect to UEGO 12V power input
Pin D - Power Ground. Connect to UEGO power ground.

Firewall
Firewall bulkhead connector. Use as firewall pass through. Connect to mating engine side firewall connector.

Starter B+
12 volt main power supply. Edelbrock recommends installing a relay and fuse for the main power supply.

Batt Ground
Battery Ground. Connect to battery negative terminal.

Crank
Crank position interface connector. Requires appropriate adapter harness. Several options are available.

Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.
Pin C - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
Pin D - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.
Pin E - Hall Crank. Hall Effect type crank sensor input.
Pin F - Hall Sync. Hall Effect type cam sensor input.
Pin G - Hall Return. Hall Effect sensor signal ground.
Pin H - + 12V Switched. From + 12V switched input.

IAC
Idle air control connector. Connect to GM style, 4 wire stepper motor IAC.

A - IAC Coil B Low Control, White/Blue
B - IAC Coil B High Control, White/Yellow
C - IAC Coil A Low Control, White/Red
D - IAC Coil A High Control, White/Violet

INJ A – F
Injector Outputs. Cylinder ID depends on application.
See diagrams below.

Pin A - +12V Power (Orange)
Pin B - Injector Control

Cool Temp
Engine Coolant Temperature. Connect to GM style ECT sensor.

Edelbrock P/N 3589
GM P/N 25036979

TPS
Throttle Position Sensor. Connect to GM style three wire TPS.

Edelbrock P/N 36018

Pin A - +5 Volt Reference (Grey)
Pin B - Signal (Dk Blue)
Pin C - Signal Ground (Blk/Wht/Yel)

MAP
Manifold Absolute Pressure Sensor. Connect to GM style 3 wire MAP sensor.

Edelbrock P/N 36019, 1 bar
Delphi P/N 12569240, 1 bar
Delphi P/N 16235939, 2.5 bar Delphi P/N 09373269, 3.3 bar

A - AIT signal. (Tan)
B - AIT signal ground (Blk/Wht/Yel)
The following diagram shows the basic wiring installation. The engine side harnesses are identical regardless of the application. The chassis harness determines the injector firing order. The injector connectors are labeled INJ A-F. To install your harness, find your application below and lay the harness on the engine with the injector connectors in the correct locations according to your engines cylinder ID and firing order.

**APPLICATIONS:**
- CHEVY SMALL/BIG BLOCK
- OLDSMOBILE
- PLYMOUTH
- CHRYSLER/DODGE
- BUICK

**FIRING ORDER**
1-8-4-3-6-5-7-2
APPLICATIONS:
FORD 260, 289, 302, 429, 460, 514
ALL FE

FIRING ORDER
1-5-4-2-6-3-7-8
APPLICATIONS:
FORD 351W, 351C, 351M, 400 LATE 5.0L

FIRING ORDER
1-3-7-2-6-5-4-8
APPLICATIONS:
PONTIAC 265-455

FIRING ORDER
1-8-4-3-6-5-7-2

©2009 Edelbrock Corporation
Brochure No. 63-3660
CRANK POSITION ADAPTER INSTALLATION

Not used on Pro Flo XT Plus applications for GM LS series engines.

The Pro Flo XT Plus system is compatible with several different crank and cam sensor input configurations. The main engine harness has a connector that mates with the included adapter harnesses. The adapter harnesses route the crank and cam inputs to the appropriate pins. The diagrams below list the connection requirements for each adapter harness:

37-3587 HALL CRANK POSITION
Adapts a 3 wire hall effect sensor output to the Pro Flo XT Plus ECU. For use with Edelbrock Pro Flo, Pro Flo XT and Pro Flo2 compatible distributors only. Pinouts and descriptions listed below.

CRANK POS
Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.
Pin C - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
Pin D - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.
Pin E - Hall Crank. Hall Effect type crank sensor input.
Pin F - Hall Sync. Hall Effect type cam sensor input.
Pin G - Hall Return. Hall Effect sensor signal ground.
Pin H - + 12V Switched. From + 12V switched input.

DISTRIBUTOR
3 pin Weather-Pack tower. Mates with Weather-Pack shroud Delphi P/N 12010717
Pin A - Hall Return. Hall Effect sensor signal ground.
Pin B - Hall Crank. Hall Effect type crank sensor input.
Pin C - + 12V Switched. From + 12V switched input.
**37-3589 HALL CRANK AND CAM POSITION**

Adapts a 3 wire hall effect crank and cam sensor output to the Pro Flo XT Plus ECU such as Accel DFI dual sync distributor model #77190 or equivalent. Confirm crank and cam sensor connector pinout before installing. De-pin and re-configure adapter harness as necessary. See Weather-Pack tools section for more info.

**CRANK POS**

- Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
- Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.
- Pin C - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
- Pin D - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.
- Pin E - Hall Crank. Hall Effect type crank sensor input.
- Pin F - Hall Sync. Hall Effect type cam sensor input.
- Pin G - Hall Return. Hall Effect sensor signal ground.
- Pin H - + 12V Switched. From + 12V switched input.

**CRANK**

3 pin Weather-Pack tower. Mates with Weather-Pack shroud Delphi P/N 12010717

- Pin A - Hall Return. Hall Effect sensor signal ground.
- Pin B - Hall Crank. Hall Effect type crank sensor input.
- Pin C - + 12V Switched. From + 12V switched input.

**CAM**

3 pin Weather-Pack shroud. Mates with Weather-Pack tower Delphi P/N 12015793

- Pin A - Hall Return. Hall Effect sensor signal ground.
- Pin B - Hall Sync. Hall Effect type cam sensor input.
- Pin C - + 12V Switched. From + 12V switched input.
37-3588 VR CRANK AND CAM POSITION
Adapts a 2 wire VR crank and cam sensor output to the Pro Flo XT Plus ECU such as MSD Crank Trigger Kit:
MSD P/N 8600, Chevy Small Block 6” balancer
De-pin and re-configure adapter harness as necessary. See Weather-Pack tools section for more info.

CRANK POS
Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.
Pin C - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
Pin D - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.
Pin E - Hall Crank. Hall Effect type crank sensor input.
Pin F - Hall Sync. Hall Effect type cam sensor input.
Pin G - Hall Return. Hall Effect sensor signal ground.
Pin H - + 12V Switched. From + 12V switched input.

CRANK
2 pin Weather-Pack tower. Mates with Weather-Pack shroud Delphi P/N 12010973
Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.

CAM
2 pin Weather-Pack shroud. Mates with Weather-Pack tower Delphi P/N 12015792
Pin A - Hall Return. Hall Effect sensor signal ground.
Pin B - Hall Sync. Hall Effect type cam sensor input.
Pin C - + 12V Switched. From + 12V switched input.

SHIELD GROUND
Protective shield ground for VR type inputs. Connect to clean ground.
37-3600 VR CRANK AND HALL CAM POSITION
Adapts a 2 wire VR crank and 3 wire hall cam sensor output to the Pro Flo XT Plus ECU. Can be used with Edelbrock Pro Tuner compatible distributors:
Edelbrock P/N 3615 - Small and Big Block Chevy V8 Large Cap Edelbrock P/N 3617 - Small Block Ford V8 Edelbrock P/N 3616 - Pontiac 326 - 455 V8
De-pin and re-configure adapter harness as necessary. See Weather-Pack tools section for more info

CRANK POS
Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.
Pin C - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
Pin D - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.
Pin E - Hall Crank. Hall Effect type crank sensor input.
Pin F - Hall Sync. Hall Effect type cam sensor input.
Pin G - Hall Return. Hall Effect sensor signal ground.
Pin H - +12V Switched. From +12V switched input.

CRANK
2 pin Weather-Pack tower. Mates with Weather-Pack shroud Delphi P/N 12010973
Pin A - VR Crank + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Crank - input. (-) Signal from variable reluctance (mag) sensor.

CAM
3 pin Weather-Pack tower. Mates with Weather-Pack shroud Delphi P/N 12010717
Pin A - VR Cam + input. (+) Signal from variable reluctance (mag) sensor.
Pin B - VR Cam - input. (-) Signal from variable reluctance (mag) sensor.

SHIELD GROUND
Protective shield ground for VR type inputs. Connect to clean ground.
WIRING HARNESS INSTALLATION (KIT 3661)
The wire harnesses are made up of two main pieces, an engine side and a chassis side. The engine side is meant to be installed in the engine side of the firewall and the chassis side is meant to be installed in the cabin side of the vehicle. A round bulkhead connector is provided to mate the two halves. See the EFI Basics – EFI Sensors section of the Pro Flo XT plus manual (available on CD) for more information on sensor installation. Each connector and flying lead wire in the harness is labeled to aid installation. Following is a description of each labeled termination:

ECU1
34 pin main ECU connector. Connect to corresponding ECU receptacle. The two connectors are unique. They can’t be connected to the wrong location.

ECU2
26 pin main ECU connector. Connect to corresponding ECU receptacle. The two connectors are unique. They can’t be connected to the wrong location.

IMU
Multi-Coil Driver. Used to control 8 individual coils on the GM LS engines.

PC Comms
DB9 style (9 pin) PC communication terminal. Connect to a PC using a serial extension cable (not included). This connection is required for communication to the ECU.

Pin 2 – PC TXD (Red/Blue)
Pin 3 – PC RXD (Wht/Brown)
Pin 5 – Comms Ground (Black)

+12V SW
Pink/Black flying lead – connect to a Key-On 12 volt source. It must be hot in both start and run positions.

20A FUSE
20 amp fuse. Protects power supplied through main relay to injectors, coils and auxiliary loads. Mount away from engine heat and moisture sources.

3A FUSE
3 amp fuse. Protects switched 12 volt power (PNK/BLK wire). Mount away from engine heat and moisture sources.

Firewall
Firewall bulkhead connector. Use as firewall pass through. Connect to mating engine side firewall connector.

AUX (optional)
AMP CPC style round 9 pin connector. Provides access to switch panel type interfaces. A mating connector with terminated pigtail is provided with the harness assembly.

Pin 1 - Nitrous Activation or Lap Beacon input (Red/Blk)
Pin 2 - Nitrous Arm (Yel/Vio)
Pin 3 - Injector Kill Switch (Red/Vio)
Pin 4 - Map Switch (Blue/Wht)
Pin 5 - Mixture Switch (Red/Yel)
Pin 6 - Boost Switch (White/Orange)
Pin 7 - Battery Ground (Black)
Pin 8 – Not used
Pin 9 – Not used

AUX (optional)
For use with firewall forward auxiliary functions. A mating connector with terminated pigtail is provided with the harness assembly.

Pin 1 – Nitrous Stage 3 output. Switched ground. Connect to stage 3 nitrous solenoid relay (primary coil ground). Do not connect directly to nitrous solenoid.
Pin 2 – Nitrous Stage 2 output. Switched ground. Connect to stage 3 nitrous solenoid relay (primary coil ground). Do not connect directly to nitrous solenoid.
Pin 3 – Nitrous Stage 2 output. Switched ground. Connect to stage 3 nitrous solenoid relay (primary coil ground). Do not connect directly to nitrous solenoid.
Pin 4 – Nitrous Stage 4 output. Switched ground. Connect to stage 4 nitrous solenoid relay (primary coil ground). Do not connect directly to nitrous solenoid.
Pin 5 – 12V battery power. Can be used to power auxiliary devices such as relays. Installer responsible for adding appropriate sized fuses.
Pin 6 – PWM Boost. Switched ground. Connect to boost control solenoid (coil ground).
Pin 7 – Oil Pressure. 0 – 5V input to ECU. Connect to analog output signal from oil pressure transducer.
Pin 8 – Battery Negative
Pin 9 – +12V Switched. Hot with ignition on. Can be used to power auxiliary devices such as relays. Installer responsible for adding appropriately sized fuses.
Pin 10 – Sensor Ground. Low reference for use with 0 – 5V sensors. Connect to sensor ground.
Pin 11 – VREF. +5V reference voltage for use with 0 – 5V sensors. Connect to sensor reference voltage.
Pin 12 – Fuel pressure. 0 – 5V input to ECU. Connect to analog output signal from fuel pressure transducer.
Pin 13 – Not used
Pin 14 – Not used
**TACH (optional)**
Tachometer driver output. 12 volt square wave signal.

**Relay**
Main Relay. Mount away from engine heat and moisture sources.

**Lambda (optional)**
Interface connector for use with customer supplied wideband UEGO systems.

Pin A - Signal Ground. Connect to UEGO controller low reference, signal ground or sensor ground output.
Pin B - Lambda Signal. Connect to UEGO controller signal output (0 - 5V)
Pin C - 12V Power. Connect to UEGO 12V power input
Pin D - Power Ground. Connect to UEGO power ground.

**Starter +12V**
12 volt main power supply. Typically connected to starter solenoid feed line (battery power).

**Batt GND**
Battery Ground. Connect to clean battery ground reference (typically back of cylinder head).

**Crank**
Crank position sensor connector. Compatible with OEM sensor. Connect to crank sensor located passenger side rear of engine near starter motor.

**Cam**
Cam position sensor connector. Compatible with OEM sensor. Connect to cam sensor located center rear of lifter valley cover area.

**Air Temp**
Air inlet temperature sensor connector. Connect to GM style AIT sensor:

Edelbrock P/N 3578 or 3588
GM P/N 25036751 or equivalent.

A - AIT signal. (Tan)
B - AIT signal ground
(Blk/Wht/Yel)

**Cool Temp**
Engine Coolant Temperature. Connect to GM style ECT sensor.
Edelbrock P/N 3589 or equivalent
Delphi P/N 15326388

**INJ# 1 - 8**
Injector Outputs.

Pin A - +12V Power (Orange)
Pin B - Injector Control

**TPS**
Throttle Position Sensor. Connect to GM style three wire TPS.

Edelbrock P/N 36018

Pin A - +5 Volt Reference (Grey)
Pin B - Signal (Dk Blue)
Pin C - Signal Ground (Blk/Wht/Yel)

**MAP**
Manifold Absolute Pressure Sensor. Connect to GM style 3 wire MAP sensor.

Edelbrock P/N 36019, 1 bar
Edelbrock P/N 91284, 2 bar
Delphi P/N 12569240, 1 bar
Delphi P/N 16235939, 2.5 bar
Delphi P/N 09373269, 3.3 bar

**B1 Coil**
Driver side ignition interface. Connect to GM factory coil harness.

**B2 Coil**
Passenger side ignition interface. Connect to GM factory coil harness.

**Fuel Pump (optional)**
Optional fuel pump output control.
Pin A - Pump negative (heavy black)
Pin B - Pump positive (heavy orange)
The following diagram shows the basic wiring installation. The injector connectors are labeled INJ# 1-8. To install your harness, lay the harness on the engine with the injector connectors in the correct locations according to the cylinder ID. Connect all other sensor/actuators according to each connectors description.
SELECTING THE FIRMWARE FILE:
Pro Flo XT Plus firmware files have an .FSX extension. Available firmware files will be included in your C:\Power to Win\Firmware\XT Plus folder. Choose the appropriate file based on your timing pattern setup. The 71R_01_8CYL.FSX file is to be used with all 7 x 1 short tooth style timing patterns. These include all Edelbrock Pro Flo compatible distributors and all 1995 and older Ford EEC-IV V8 distributors like those found on 87-95 Fox or SN-95 Body Mustangs. The 71RS_01_8CYL.FSX file is used with any 4 tooth crank trigger in combination with a single tooth sync (cam) pattern. The 71R_01_24T.FSX file is to be used with all GM LS series engine using the 24X crank pattern and 1X cam pattern.

PRO FLO XT PLUS BASE CALIBRATION FILES
4 base calibration files are available for the XT Plus systems. Preset configurations are shown in Table 2 below:

<table>
<thead>
<tr>
<th>File Name</th>
<th>Strategy</th>
<th>Injectors</th>
<th>Idle Control</th>
<th>Timing Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>3600</td>
<td>MAP-N, 1 Bar</td>
<td>Siemens 60 lb/hr</td>
<td>GM Stepper Motor</td>
<td>Edel Pro Flo Dist</td>
</tr>
<tr>
<td>3601</td>
<td>MAP-N, 2 Bar</td>
<td>Siemens 60 lb/hr</td>
<td>GM Stepper Motor</td>
<td>Edel Pro Flo Dist</td>
</tr>
<tr>
<td>3602</td>
<td>ALPHA-N, 1 Bar</td>
<td>Siemens 60 lb/hr</td>
<td>Disabled</td>
<td>Edel Pro Flo Dist</td>
</tr>
<tr>
<td>3603</td>
<td>ALPHA-N, 2 Bar</td>
<td>Siemens 60 lb/hr</td>
<td>Disabled</td>
<td>Edel Pro Flo Dist</td>
</tr>
</tbody>
</table>

Table 2

Base calibrations are located in the C:\Power to Win\Maps folder. THEY ARE NOT TUNED FILES. THEY MUST BE TUNED FOR YOUR ENGINE.

All base calibrations are configured for use with 7 x 1 short tooth style timing patterns. These include all Edelbrock Pro Flo compatible distributors. To set up the calibration for use with a 4 tooth crank trigger and signal cam sync pulse, go to the System Constants window and select the ECU Configuration setting. Uncheck the “Invert Sync Pickup Input” selection.

SYNCING THE IGNITION TIMING:
Typical values for the crank pickup position are 10 to 15 deg BTDC. To ensure the most accurate ignition timing during engine start the ignition fires asynchronously with the static crank pickup position. This prevents spark scatter during the cranking phase when the engine rpm is very low and erratic. Typical value for the sync pickup position is 45 deg. BTDC on the compression stroke. This pickup is used to identify the location of the number one cylinder and occurs once every 2 engine revolutions. Its exact location is

Uncheck for 8 x 1 pattern.
not critical but must be set to trigger at least 10 deg. before the crank pickup position. The sync position calculated by the ECU can be monitored by the comms program. (Note: This feature is unavailable for 60-2 and 36-1 trigger wheel configurations).

Notes
  • The static crank pickup position must be correctly set in the map or will result in ignition timing errors.
  • You cannot run the engine at an ignition timing value of less than the static crank pickup position.
  • Positioning the sync (cam position) pickup too close to the crank pickup can result in sequence errors and engine misfire.
  • Some versions of firmware require the pickup position to be set in an advanced position i.e. 60 deg BTDC.
  • Inductive pickups when wired backwards will trigger late and cause a retard of the ignition timing.
  • Magnetic (VR type) sensors must be configured for falling edge trigger

Pickup Delay
All pickups have an inherent delay that varies with each manufactures design. Hall effect sensors have smaller delays, typically 50uS whereas inductive sensors have higher values such as 150uS. The ECU software has a provision to eliminate ignition timing errors caused by pickup delay as described below.

Check the ignition timing at a low speed such as 2000 rpm.

1. Adjust the pickup position constant so that the timing value matches that in the map.
2. Run the engine up to higher rpm such as 5000 rpm and note any error in timing.
3. Change the pickup delay constant. Increase the value if the timing is retarding.
4. Repeat step 3 and check again for errors.

See the section on Spark Constants for further information on setting and tuning these variables.

Distributed Applications
On distributed applications, the commanded ignition timing is only as accurate as the relative position of the crank position pattern to the actual crank position. Since the distributor’s rotational position is adjustable, it must be synched to the engine. The following basic procedure is used:

1. Use timing light to measure actual ignition advance
2. Compare observed timing to the displayed value in System Editor
3. If they do not match, rotate the distributor until they match

Often normal fluctuations in commanded ignition timing make it difficult to sync the timing. One trick to make this task easier is to "zero out" the ignition trim tables and "flatten" the main spark map to command a "fixed" timing. See below.

TIP: Zero out all spark trims and set a flat spark map to simplify the timing synch procedure.

To highlight the whole table, left click on the top left cell of the table and select fill range. Be sure the whole table is highlighted blue and select a fixed value. 30 degrees works well for most engines.
To zero out the ignition trims, the following tables are affected:

Spark
f(Airbox)
Spark
f(Water)
Spark f(Air)
Spark
f(Fuel P)

Ensure each of these tables contains zeros as shown to the right:

Once this is done, the commanded ignition timing will be 30 degrees. Check the actual ignition timing with a timing light and verify 30 degrees advance. Adjust the distributor as necessary. Increase the RPM to 1500-2500 RPM and make sure the timing does not drift.
**WEATHER-PACK MATING CONNECTORS AND TOOLING:**
Below is a list of each mating Delphi Weather-Pack connector.

- Delphi 12010973
- Delphi 12010717
- Delphi 12015792
- Delphi 12015793

**WEATHER-PACK TERMINALS:**
Below is a list of each mating Delphi Weather-Pack connector.

- **Male Terminals**
  - Delphi 12089040 (20 – 18 AWG)
  - Delphi 12089307 (22 – 24 AWG)

- **Female Terminals**
  - Delphi 12089188 (20 – 18 AWG)
  - Delphi 12020801 (24 – 22 AWG)

**WEATHER-PACK SEALS:**
Below is a list of compatible Delphi Weather-Pack seals:

- Delphi 12015323 Green (20 – 16 AWG)
- Delphi 12089679 Purple (20 AWG)
- Delphi 15324983 Red (22 AWG)

**WEATHER-PACK PIN REMOVAL TOOL:**
Below is a list of compatible pin removal tools:

- Delphi Packard 12014012
- SPX Kent Moore J-38125-10A