

Universal Multipoint Driver



Applications

Large engine upgrades to electronic fuel injection (either diesel direct injection or gaseous port injection) require a device to control one fuel injection valve per cylinder. With the Woodward Universal Multipoint Driver, an existing engine control system can be easily upgraded to EFI. This driver unit is particularly well suited for engine upgrade to EUI/EUP and multipoint dual-fuel applications. In that perspective, the driver will replace the current fuel control actuator and will adjust the duration and timing of the electronic fuel injection according to the set point of the existing engine control system.

Benefits

Woodward's Universal Multipoint Driver is built to replace the fuel control actuator. It accepts the setpoint signal from an existing engine control system like the Woodward 723PLUS or 733.

With individual cylinder temperature balancing, the time-intensive adjusting of each cylinder is replaced by an automatic algorithm to bring all cylinders to the mean value. Usually exhaust port temperature sensors are used for this purpose; however, any individual cylinder parameter can be sent to the UMD using either CAN J1939 or Modbus®* interface.

With 24 outputs for the ECM3 and 18 outputs for the InPulse™ II, most engine designs can be covered with these drivers.

The internal high voltage boost power supply in the ECM3 provides 110 V (dc) suitable for SOGAV™ gaseous port injection valves. The InPulse II provides the ability to drive either 110 V (dc) or 24 V (dc) SOGAV gaseous port injection valves.

*—Modbus is a trademark of Schneider Automation Inc.

- Fully configurable through PC based ToolKit user interface
- Analog, CAN J1939 and Modbus interfaces
- Up to 24 valve outputs
- Individual cylinder bias through CAN J1939, Modbus or ToolKit
- Replace a (4–20) mA actuator like UG8 for multipoint applications
- Internal high voltage power supply
- Closure Point Detection algorithm
- Redundant speed and camshaft inputs

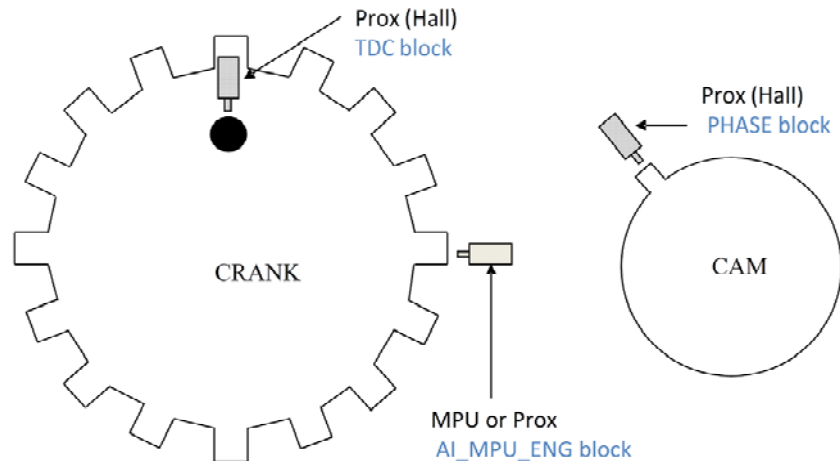
Main Features

- Fully configurable & adjustable from graphical user-interface ToolKit
- Offline test mode (Click Test) and Online test mode, which allow changing duration and timing per injector output
- Individual injector output duration and timing offsets from ToolKit user interface, Modbus, and CAN J1939
- Cylinder temperature balancing can bias each injector output duration, with adjustable bias rate and range
- Duration input can be hardwired (4 mA to 20 mA), come from Modbus, CAN J1939 or can come from a speed based curve
- Timing input can be hardwired (4 mA to 20 mA), come from Modbus, CAN J1939, a speed based curve, or from a duration-based curve
- Closure Point Detection (CPD) allows automatic current profile optimizations and injector/valve wear diagnostics
- Several Injector output current profiles: full manual, semi automatic, and fully automatic
- Optional pre-injection for double injection events per cylinder
- Programmable current profile up to 11 A pull-in (ECM3) or 20 A (InPulse II)

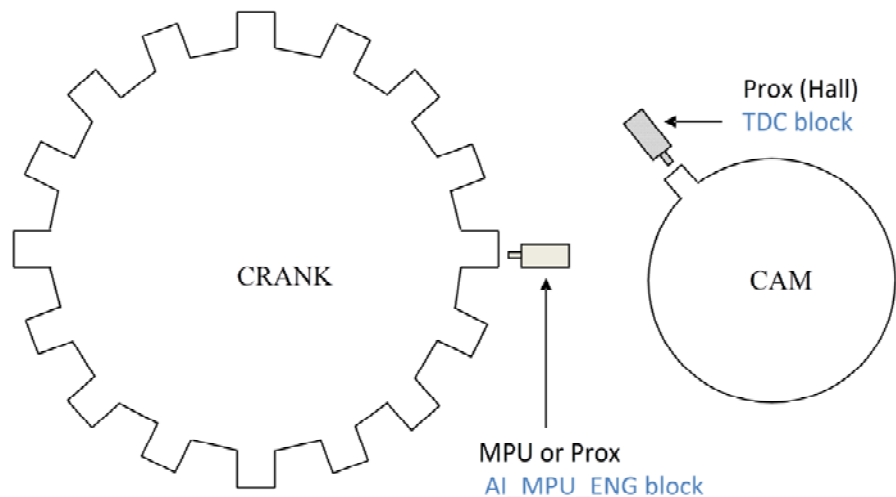
Speed Pattern

The fuel injection controller InPulse II and ECM3 supports many different speed patterns. The speed pattern definition can't be customized and should be defined at the time of order of the controller. The standard Universal Multipoint Driver is available in a three-sensor pattern or in a two-sensor pattern. On the two-sensor pattern, redundancy can be achieved by using four sensors.

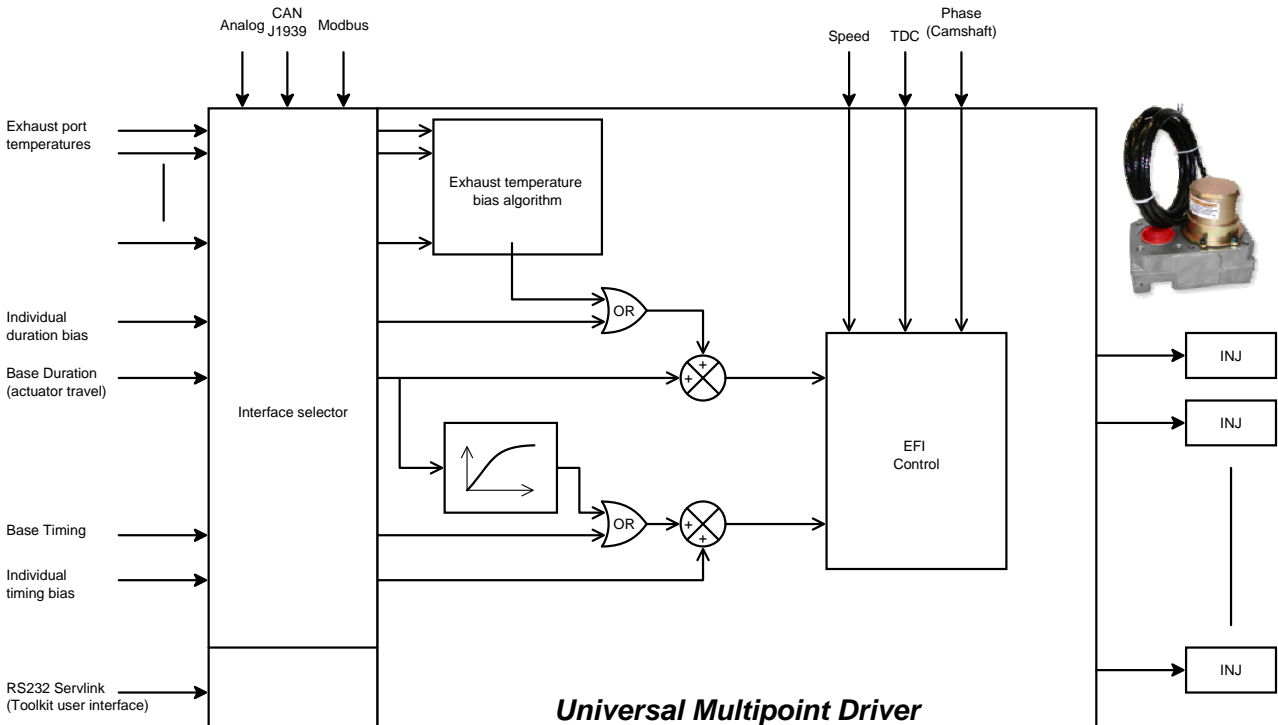
The three-sensor pattern (pattern 2) uses one speed sensor (either magnetic pickup or proximeter) for the speed, one proximeter (Hall Effect) for the TDC event on the crankshaft, and one proximeter for the phase on the camshaft. The sensing wheel for the speed signal hosts minimum 60 teeth.



The two-sensor pattern (pattern 3) uses one speed sensor (either magnetic pickup or proximeter) for the speed and one proximeter (Hall Effect) for the TDC event on the camshaft. The sensing wheel for the speed signal hosts minimum 60 teeth.



Driver Layout



Features Overview

Part No	8280-1119	8280-1120	8280-1121	8280-1122
Platform	ECM3	ECM3	In-Pulse II	In-Pulse II
Main features				
Internal power supply	Y	Y	N	N
Injection outputs	24	24	18	18
Injection operating voltage	110 V (dc)	110 V (dc)	110 V (dc) ¹	110 V (dc) ¹
Max current	2x 11 A	2x 11 A	2x 20 A	2x 20 A
Speed pattern				
Speed pattern 2	Y		Y	
Redundant Speed pattern 3		Y		Y
Accessories				
Recommended connector kit	8928-7138	8928-7138	8928-7112 & 8928-7113	8928-7112 & 8928-7113
Crimp Tool	8992-557	8992-557	899-2067	8996-2067
Removal Tool	8996-2084	8996-2084	8996-2069	8996-2069
Vibration Mount kit	8923-1185	8923-1185	8928-7064	8928-7064
Compatibles gas fuel injection valves				
SOGAV 43	Y	Y	Y	Y
SOGAV 105 TLUB ²	Y	Y	Y	Y
SOGAV 105 TLPB ³	Y	Y	Y	Y
SOGAV 200 TLPB ³	⁴	⁴	Y	Y
SOGAV 250 TLUB ²	⁴	⁴	Y	Y
SOGAV 250 TLPB ³	⁴	⁴	Y	Y
Compatibles Diesel injection valves				
EDIS	Y	Y	Y	Y
ERV	Y	Y	Y	Y
Bosch CR	⁴	⁴	Low voltage	Low voltage

¹—24 V(dc) version available upon request.

²—TLUB Top Loaded Unbalanced.

³—TLPB Top Loaded Pressure Balanced.

⁴—For these configurations please consult our sales departments.

For other configurations, please contact our sales departments.



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