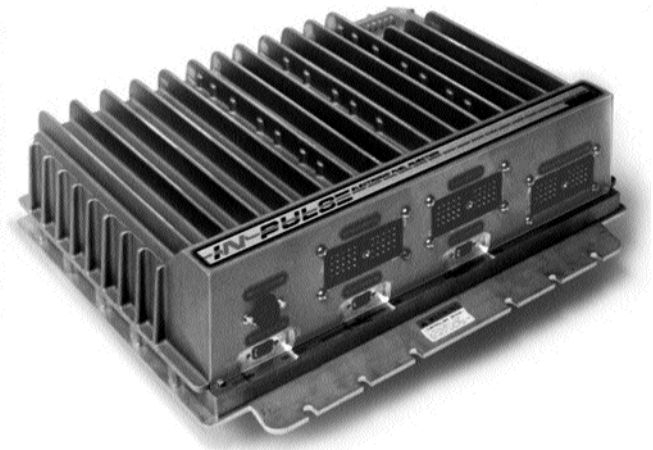
WOODWARD

Product Specification
03543



In-Pulse™ Electronic Fuel Injection Control

Designed to control a wide range of Woodward electrical low-pressure gas admission valves and electric-hydraulic high-pressure rail valves.

- Controls up to 20 outputs
- Individual injection timing/duration adjustment
- Precise speed control
- Communication via RS-232/-422 and Local Operating Network (LON)
- ABLS/GAP programming flexibility
- CE Compliant

INTRODUCTION

The In-Pulse™ system has been developed to control a range of Woodward electrical low pressure gas admission valves and electric-hydraulic high-pressure rail valves. These valves provide a means of injecting fuel or other fluids into engines operating within a speed range of 1 to 2100 rpm (range depends on the valve being driven). Plate-type solenoid operated gas admission valves (SOGAVs) are suitable for in-manifold injection only, whereas the rail valve provides actuation of both in-cylinder and in-manifold type injection devices.

APPLICATION

The primary purpose of the Woodward In-Pulse control is to control the timing and duration of injection events for up to 20 injection outputs.

The In-Pulse control is a stand-alone unit that receives speed and angular position information from the engine via the speed, top dead center (TDC), and phase signals. The In-Pulse control then uses this information to calculate the injection timing and duration for all cylinders and then individually drives each valve accordingly.

The In-Pulse control is designed for engine skid mounting, provided the environmental specification is not exceeded, thus allowing installation during engine production. This considerably reduces the on-site wiring required during engine installation.

PROGRAMMING

The In-Pulse control system is programmed using Woodward's proven Graphical Application Programmer (GAP). GAP is a high level, block oriented programming language specifically designed for simple and quick implementation of difficult control strategies. GAP functions are easily modified and expanded, allowing ready expansion to meet your individual application needs.

This flexibility allows for complex tasks such as closed-loop injection control, or injection can be controlled externally by most Woodward controls, including the 500 series, 700 series, and MicroNet™ controls.

OPTIONS/ACCESSORIES

The In-Pulse control requires MPUs (magnetic pickups) to detect engine speed and TDC (top dead center). For four-cycle engines, an additional MPU is required to detect engine phase. Alternatively, a camshaft-driven encoder can be used in place of all the sensors. A selection of electric and electric-hydraulic valves are available on request.

For programming and configuration of the application, a user interface connection port is included. A hand-held terminal or PC can be used to communicate with this output port.

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SPECIFICATIONS

Power Supply

Power Rating	
(high voltage version)	90–140 Vdc (110 Vdc nominal)
(low voltage version)	18–32 Vdc (24 Vdc nominal)
Power Consumption	
(high voltage version)	300 W nominal. The voltage source must be capable of providing 7 A for 2 ms without dropping below 90 Vdc.
(low voltage version)	300 W nominal. The voltage source must be capable of providing 14 A for 2 ms without dropping below 18 Vdc.

Analog Input Channels

Number of Channels	2
Input Signal Range	4–20 mA @ 250 W or 1–5 Vdc @ 10 kW

Analog Output Channel

Number of Channels	1
Output Signal Range	4 to 20 mA @ 600 W max. or 20 to 160 mA @ 50 kW max.

Serial Communication Ports

Number of Ports	2
Configuration	RS-232 or RS-422

Other Communication Ports

Number of Ports	1
Type	LON Network

Discrete Inputs

Number of Inputs	2
Ratings	21 Vdc nominal @ 3 mA 75 Vdc nominal @ 3 mA 110 Vdc nominal @ 3 mA

Discrete Outputs

Number of Outputs	2
Ratings	0.6 A @ 115 Vac breaking 4 A @ 28 Vdc breaking

Temperature/EMI/RFI

Ambient Operating Temperature	–40 to +70 °C (–40 to +158 °F)
Storage Temperature	–40 to +85 °C (–40 to +185 °F)
EMI/RFI Specification	EN50082-2

Classifications

UL, cUL, Class I, Division 2, Groups A, B, C, and D
LRS Test Specification 1
Declaration of Incorporation for CE approval

For more information contact:

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