



Application Note 36735
(Revision B, 1/2024)
Original Instructions



Small Engine Controller Compatibility Guide

Small engine speed control is precise and innovative with Woodward engine control systems.

When it comes to stabilizing your engine rpm, Woodward's engine control systems are considered among the best in the world by OEMs worldwide. Our controllers and actuators adapt to a variety of applications and provide some of the most flexible solutions on the market today.

This broad product line balances performance with economy, providing:

- CAN / J1939 bus interface
- Reliable load sharing systems
- Multiple speed signal input options
- Software or manual configuration
- Isochronous or droop speed control
- Engine protection

Actuators

Woodward's linear and rotary actuators meet the needs of a variety of applications. Paired with our controllers and accessory components they create motion control system solutions that save you time and money.

- Linear actuators from net force ranges of 17.8 N (4.0 lbf) to 66.7 N (15.0 lbf)
- Rotary actuators with torque ranges from 0.066 N-m (0.05 lb-ft) to 7.3 N-m (5.4 lb-ft)
- Integrated Throttle Body actuators for speed control, position control, and air/fuel control
- Stanadyne actuators integrated onto pump

Electronic Speed Controls

Woodward's worldwide reputation as a leading manufacturer of governor systems is enhanced by this full line of controllers for small industrial engines . . .

- APECS (Advanced Proportional Engine Control System) digital controller family
- DPG (Digital Programmable Governor) digital controller family with adjustment buttons.
- EPG (Electrically Powered Governor) analog controller family
- L-Series integral digital speed-control / actuator systems

Table 1. Actuator Models

ACTUATOR MODEL	DIRECTION		NET FORCE		TORQUE			WORK		TRAVEL	CONTROLLER
	Linear	Rotary	N	lbf	N-m	Lb-ft	Oz-in	J	Ft-lbf		
0175	✓		15.6	3.5				0.41	0.30	0.8" 20.3mm	APECS & DPG
0225	✓		28.9	6.5				0.73	0.54	1.025" 26.03mm	APECS & DPG
0275	✓		57.8	13.0				1.47	1.08	1.025" 26.03mm	APECS & DPG
GBA		✓			0.066	0.05	9.35			65°	APECS & DPG
Dyna 7000		✓			0.169	0.12				70°	APECS & DPG
L-Series Position Controller		✓			0.34	0.25				60°	▲
L-Series Speed Controller		✓			0.34	0.25				60°	❖
EPG 512/524		✓						0.7/1.0	0.51/0.74	30°	
EPG 1712/1724		✓						2.0/2.3	1.48/1.70	35°	
Dyna 8000		✓			1.4	1.0		1.2	0.89	35°	DPG
Dyna 8200		✓			4.07	3.0		2.85	2.10	45°	DPG
Dyna 8400		✓			7.3	5.4		5.8	4.28	45°	DPG
F-Series Position Controller		✓			1.4	1.0				70°	▲
Dyna 70025	Rotary actuator specifically designed for Stanadyne "D" Series injection pumps										DPG
Stanadyne L-Series	L-Series rotary actuator specifically designed for Stanadyne injection pumps. Actuator on Iveco version is rotated to fit on Iveco engine.										❖
Stanadyne-Iveco L-Series											

(❖) The L-Series speed controller combines an L-Series electronic actuator with integrated speed control software to control the engine speed. The L-Series speed controller incorporates a microprocessor-based control into the actuator, creating a single, integrated package. This eliminates the need for an additional driver box and speed control box.

(▲) Both the L-Series and F-Series position controllers require an additional controller to provide a PWM command for output position.

Table 2. Controller Models

	APECS 500	APECS DPG-21xx- 00xx	APECS DPG- 2200	APECS DPG- 2300	APECS 4500	APECS 4800	L-SERIES SPEED CONTROL
SPEED SELECT OR ADJUSTMENT OPTIONS							
Discrete Speed (via Switch)	1	2 or 3	2 or 3	2	4	4	3
Digital Raise/ Lower Switch					✓	✓	✓
Speed Bias Input *			✓ (2.3-2.7V)		✓	✓	✓
Set Speed Potentiometer					✓	✓	✓
Drive By Wire (foot pedal)				✓	✓	✓	✓
CAN					✓	✓	✓
FUEL LIMITING OPTIONS							
Start Fuel (smoke limiting)			✓	✓		✓	✓
Black Smoke Control						✓	✓
Torque Limit Control			✓	✓		✓	✓
CONTROLLER OUTPUT							
Low-side PWM 6A Continuous	✓					✓	
PWM, 7A Continuous 14A surge		✓	✓	✓			
High-side PWM 6A Continuous					✓		
Integral with Actuator							✓

(*) as needed for synchronizing and load sharing

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