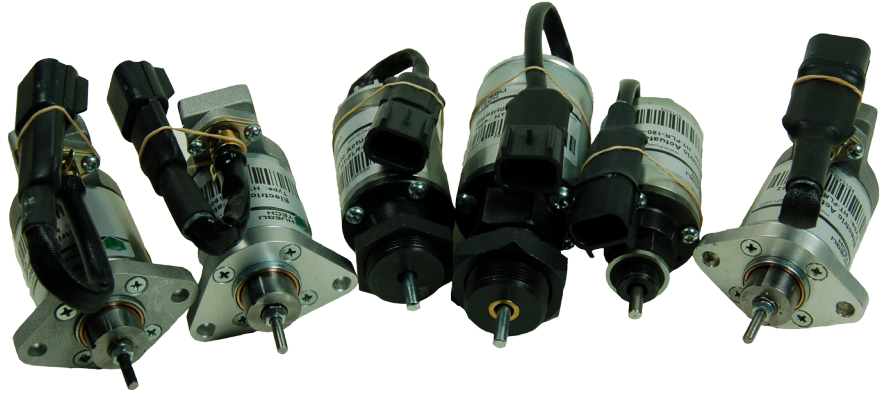


## HT-FLR-190 Series

### Features and Benefits

- A Low Cost Integral Actuator
- Proven Electromechanical Design with High Reliability
- Easy Installation with Minimal Setup Time
- Fast Response
- Environmentally Sealed, All Metal Design
- Increased Operational Integrity and Security



## HT-FLR-190-Series Integral Actuator

### Introduction

The HT-FLR-190 Series Integral Actuator is designed to mount integral to various injection Pumps of small engines. No external linkage or brackets are required to install this actuator. Also, when de-energized the HT-FLR-190 Series electric actuator provides the function of fuel shutoff solenoid. This is accomplished by internally moving spring-loaded the fuel-rack to the no fuel position.

Installing the HT-FLR-190 Series actuator does not defeat the engine's mechanical governor operation. During the installation process, the mechanical governor is set 200-300 rpm higher than the electric governor's operating speed. In this configuration the mechanical governor acts as an over speed protection and engine-power limiter, within engine manufacturers specifications.

The electromechanical design used in the HT-FLR-190 Series is field proven and provides a proportional actuator movement based on the actuator coil current.

### System Description

This actuator is an electromagnetic servo device which, when installed becomes an integrated, closed loop fuel control system. This system can be described as follows: Electrical pulses, generated by the magnetic speed sensor, are directly proportional to the engine speed. These pulses are transmitted to the control, which will compare the real-time pulses to the preset engine speed setting. If the real-time pulses differ from the preset engine setting, the control will deviate the current to the electric actuator proportional to the difference. This deviation in current will cause the actuator shaft to move thus adjusting engine speed to the preset engine speed setting.

Since there are no sliding parts in the HT-FLR-190 Series electric actuator, outstanding performance, reliability and no maintenance are the resulting qualities.

### Wiring

The HT-FLR-190 Series actuator is designed to have a dedicated 12 or 24 volt coil. These actuator models are identified in Table A. You must be sure that the actuator voltage matches the battery supply voltage when ordering.

An actuator cable harness is used to link the HT-FLR-190 Series actuator to the selected HT-SG-XXX speed control unit. There are no polarity connections from the speed control unit to the actuator which need to be observed. For more information on additional wiring, see literature specific to the control being used.

## Available Actuators

HT-FLR-190 Series

### Mitsubishi



Engine Make	Engine Model	Actuator Type		Recommended Speed Sensor
		12 VDC	24 VDC	
MITSUBISHI	L2E	HT-FLR-190-SL4-12	HT-FLR-190-SL4-24	MSP-6730
	L3E			
	S3L			
	S3L2			
	S4L			
S4L2				

### Perkins



Engine Make	Engine Model	Actuator Type		Recommended Speed Sensor
		12 VDC	24 VDC	
PERKINS	404	HT-FLR-190-P404-12	HT-FLR-190-P404-24	MSP-6730 + adapter HW-EG-1366

### Kubota



Engine Make	Engine Model	Actuator Type		Recommended Speed Sensor
		12 VDC	24 VDC	
KUBOTA Super 03M series	D1503M	HT-FLR-190-K24-12	HT-FLR-190-K24-24	MSP-6729
	D1703M			
	D1803M			
	V2003M			
	V2403M			

## Available Actuators

### Kubota



Engine Make	Engine Model	Actuator Type 12 VDC	Actuator Type 24 VDC	Recommended Speed Sensor
KUBOTA Super 05 series	D905	HT-FLR-190-K04-12	HT-FLR-190-K04-24	MSP-6729
	D1005			
	D1105 / D1105- T			
	V1305			
KUBOTA V3 series	V1505 / V1505- T	HT-FLR-190-K04-12	HT-FLR-190-K04-24	MSP-6729
	V3300 V3800			

### Yanmar TNV



Engine Make	Engine Model	Actuator Type 12 VDC	Actuator Type 24 VDC	Recommended Speed Sensor
YANMAR TNV Series	2TNV70	HT-FLR-190-Y04-12	HT-FLR-190-Y04-24	MSP-6729
	3TNV70			
	3TNV76			
	3TNV82A			
	3TNV84 /			
	3TNV84T			
	3TNV88			
	4TNV84 /			
	4TNV84T			
	4TNV88			
	4TNV94L			
	4TNV98 /			
	4TNV98T			

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### Mating Cable Harness for HT-FLR Actuator Series



All HT-FLR series have the same connector, therefore the order code for the mating cable is CH-1220-L4.

If different length than 4 meter is desired, please specify and ask for quote.

## Recommended Speed Control

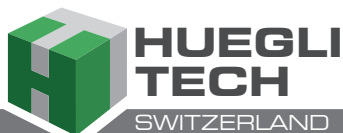


Features	HT-SG-50	HT-SG-200	HT-SG-300
Supply	12/24V	12/24V	12/24V
Speed Range	300 -8000Hz	300 -8000Hz	300 -8000Hz
Droop	x	x	x
Idle	x	x	x
Overspeed		x	Relay
Speed Ramp		x	x
Fuel Ramp		x	x
USB connector	x	x	x
Start Fuel Position		x	x
Fuel Limit			x
CAN Bus	x	x	x
Free PC software	x	x	x
Speed 2 / Trim	x	x	x
Speed 3			x
Variable Speed			x

Crossreference	HT-SG-50	HT-SG-200	HT-SG-300
Replaces	ESD-5111 ESD-5131 ESD-2210	ESD-5500 ESD-5522	ESD-5221 ESD-5550 ESD-5330 ESD-5335 EDG-5500

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