

Electronic Linear Actuator

ALR SERIES



The ALR Series Electronic Linear Integral Actuators are designed to mount directly to the engine's fuel pump in place of the electronic stop solenoids. The ALR Series Electronic Linear Actuator exhibits high quality construction and are designed for high temperature operation. GAC's unique linear electromechanical technology provides proportional actuator movement, based on actuator coil current. GAC utilizes precision linear ball bearings, instead of bushings, and a minimum number of moving parts to improve response, precision, and reliability.

FEATURES

- Simple to Install
- Spring Return to Minimum Fuel
- Maintenance Free / Cost Effective Linear Ball Bearings
- High Temperature Design
- Compact Design
- Fast Response
- Precise Governing Control

APPLICATIONS

ENGINE MAKE	ENGINE MODEL	ACTUATOR MODEL	ENGINE MAKE	ENGINE MODEL	ACTUATOR MODEL	ENGINE MAKE	ENGINE MODEL	ACTUATOR MODEL	
KUBOTA			ISUZU			YANMAR			
Super 5 Series	D905		C-Series	2CA	ALR190-I03-12 or -24 ALR190-I04-12 or -24	TNV-Series	2TNV70		
	D1005	ALR190-K04-12 or -24		3CA			3TNV70]	
	D1105			3CB			3TNV76	ALR190-Y03-12 or -24	
	D1105-T			3CD			3TNV82A		
	V1305			3CDT			3TNV84		
	V1505		L-Series	3LB1			3TNV84T		
	V1505-T			3LD1			3TNV88		
3300 Series	3800			3LD2			4TNV84	ALR190-Y04-12	
MITSUBISHI				4LE1			4TNV94L	or -24	
L-Series	L2E			4LE2]		4TNV88]	
	L3E		SHIBAURA				4TNV98		
S3L-Series	S3L	ALR190-M04-12		N842-C	ALR160-S03-12		4TNV98T		
	S3L2	or -24	Shibaura	N844L-C		V-Series	2V78	ALR190-Y14-12	
	S4L			N844LT-C	or -24		2V75	or -24	
	S4L2		_			<	PERKINS		
						Perkins	404	ALR190-P04-12 or -24	

NOMENCLATURE

ALRddd - azz - vv

Use the following tables to help determine which GAC ALR Series actuator is right for you.

ALR Nomenclature Example: ALR190 - K04 - 12

- DIAMETER	a - E
1.60 in.	1 -
1.90 in.	К -
and the second se	

Υ -

ddd

a - ENGINE MAKER	X						
l - Isuzu	X	01					
K - Kubota	X	02					
M - Mitsubishi	Š	03					
P - Perkins		04					
		_					

Yanmar

zz - CONNECTOR STYLE	vv - V
No Connector, 10" Leads	12
Molex	24
Spade	
Packard	
No Connector, 72" Leads	

vv - VOLTAGE
12 Volts
24 Volts
24 VOILS

SPECIFICATIONS

05 -

Electrical:	190-I, 190-K, 190-M, 190-P, 190-Y, 190-Y1				160-S Environmental					
Operating Voltage	12 or 24 VDC			12 or 24 VDC Operating Temperature Ra		lange -40°F to +200°F (-40°C to 95°C				
Normal Operating Current		3.2 Ar	nps @ 12 VDC	4.8 A	.8 Amps @ 12 VDC Relative Humidity		lative Humidity	up to 100%		
		1.6 Ar	nps @ 24 VDC	2.4 A	mps @ 24 VDC	Vi	bration		\pm 4 G, 25 to 100 Hz	
Maximum Current-Continuou	sly Rated	5.0 Amps @ 12 VDC		7.5 A	7.5 Amps @ 12 VDC		lock		20 G Peak, 11msec	
		2.5 Ar	nps @ 24 VDC	3.8 A	mps @ 24 VDC	AI	l Surface Finishes	Fungus Proof a	nd Corrosion Resistant	
Coil Resistance (12VDC)		1.8 ± 0.2 ohms		1	1.6 ± 0.2 ohms S		Sealing Oil, Wa		ter, and Dust Resistant	
(24VDC)		7.	2 ± 0.2 ohms	6	6.4 ± 0.2 ohms					
Connection 16 AWG		(0.8	3 mm ²) leads	(0	.8 mm ²) leads					
Performance	160-S	190-I	1	90-K	190	D-M	190-P	190-Y	190-Y1	
Operating Stroke	0.51 in (13.0 mm)	0.55 in (14.0 mm)	0.49 in (12.	5 mm)	0.54 in (13.9	mm)	0.42 in (10.4 mm)	0.34 in (9.0 mm)	0.42 in (10.8 mm)	
Response Time (10 - 90%)	(1-12mm) 35 msec	(2-18mm) 35 msec	(1-12mm) 3	5 msec	(1-13mm) 35 ı	msec	(1-9mm) 35 msec	(1-8mm) 35 msec	(1-10mm) 35 msec	
Physical	160-S	190-l	1	90-K	190	D-M	190-P	190-Y	190-Y1	
Length (Energized)	4.58 in (116.4 mm)	3.53 in (89.6 mm)	3.56 in (90.	5 mm)	4.01 in (101.7	mm)	3.44 in (87.4 mm)	4.00 in (101.6 mm)	5.05 in (128.1mm)	
Length (De-Energized)	4.65 in (118.1 mm)	4.08 in (103.6 mm)	4.05 in (10	3 mm)	4.55 in (115.6	mm)	3.86 in (97.8 mm)	4.34 in (110.4 mm)	5.47 in (138.9 mm)	
Diameter	1.6 in	1.9 in		1.9 in	1	1.9 in	1.9 in	1.9 in	1.9 in	
Mounting Hole Diameter			0.29 in (7.	2 mm)				0.28 in (7.1 mm)	0.28 in (7.1 mm)	
Thread	M16 x 1.5	M25 x 1.5			M30	x 1.5	M16 x 1.5			
Weight	1.3 lb (0.59 kg)	1.3 lb (0.59 kg)	1.3 lb (0	.59 kg)	1.3 lb (0.5	9 kg)	1.3 lb (0.59 kg)	1.3 lb (0.59 kg)	1.3 lb (0.59 kg)	

OPTIONS

ESD5120 Light Force Governor



ESD5120

- EFC Forward ActingIdle Speed Circuit
- Auxiliary Accessory Input
- Adjustable PID Functions
- 10 VDC Supply for Accessories

The ESD5120 Series (with Light Force) electronic speed device is designed to control engine speed with fast and precise response to transient load changes. This closed loop control, when connected to a proportional electric actuator and supplied with a magnetic speed sensor signal, will control a wide variety of engines in an isochronous or droop mode. It is designed for high reliability and built ruggedly to withstand the engine environment.

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