

Positioner Controller, Simultaneous

AL-4164 • AL-4166

AL-4164 and AL-4166 programmable positioner controllers offer real-time control of positioning subsystems used in near-field and far-field antenna measurement systems. They may be configured to drive planar scanners and general purpose far-field positioners that are encoder-based or involve simultaneous motion.



Applications

- Near-Field & Far-Field Antenna Measurements
- Encoder-Based Positioners & Scanners
- Light, Medium & Heavy Duty Positioning Subsystems

Product Highlights

- Simultaneous Control Up to 4 Axes
- 4 Independent PWM Channels
- Factory-Configurable Armature Output Voltage (24, 48 or 90 VDC)
- Built-In Power Control Unit (PCU)
- Absolute & Incremental Encoder Support
- Brush & Brushless Motor Support
- 8 TTL I/O Lines for Auxiliary Component Control
- User-Friendly Axis Configuration Software
- Dynamic Density Control (DDC)
- Communication to Host PC Supported by LAN, RS-232 & CAN Bus

Series Overview

Model	AL-4162	AL-4164	AL-4166
Horsepower	Up to 1/3	Up to 1.25	Up to 1.6
Number of Axes	2	4	4

Front Panel

Controls

- AC Power On/Off
 - Axis Select
 - Direction/Speed
 - Coarse & Fine
 - Remote/Local Control (BUS/PANEL)
 - Emergency Stop (E-Stop)
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Displays & Indicators

- Axis Position
 - Limit Indicators
 - Homing Status
 - Homing Completed
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Position Sensors

Axis-Independent Position Sensor Selection

- Incremental Encoder & Absolute Encoder (EnDat[®])
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Velocity Sensors

Axis-Independent Velocity Sensor Selection

- Incremental Encoder & Tachometer
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Closed Loop Motion Control Algorithms

- User Selectable PID or PIV Motion Control Filters
 - Dynamic Braking
 - Comprehensive Motion Profiles – Velocity, Parabolic Ramping, S-Curve & Acceleration/Deceleration
 - Single or Dual Feedback Encoders
 - 3 Sets of Control Filter Scheduling
 - In-Motion
 - In-Settling
 - In-Position
 - BEMF Feedback Circuits
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Data Recording

- Data Recording Buffer Up to 100,000 Points
 - Simultaneous Recording Up to 10 Vectors
 - Record Up to 100,000 Vectors
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Trigger Functions

- Supports Discrete Position Trigger Tables
 - User Selectable Pulse Polarity
 - User Selectable Pulse Width
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Position Correction

- On-the-Fly Calculation Using Linear Interpolation
 - Up to 40,000 Points (Can Be Divided – 10,000 Points Per Axis)
 - Mapping in User Selectable Units
 - Inverse/Transpose Table
 - Set Table Data – Constant/Linear
 - Load Table from File
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Onboard Programming

- Run Up to 10 Programs in Parallel
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Supplied Accessories

Digital Documentation Set

- User Manual (Installation, Setup, Operation)
 - Programming Reference Manual
 - Software Setup Utility
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Cables

- Cable, CAN, DB9 to RJ45
 - Cable, RS-232, DB9 to RJ45
 - AC Power Cord, IEC-320 (F) to Plug
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Options

- Opt. 001 - PC-Based CAN-PCI Communication Card
 - Opt. 002 - USB to CAN Adaptor
 - Opt. 101 - Additional Manual Set
 - Opt. 102 - International Localization (Specify Country & Voltage)
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- Standard Optional

Specifications - AL-4160 Series Simultaneous Controllers

PARAMETER	POSITIONER MODEL		
	AL-4162	AL-4164	AL-4166

OPERATIONAL

Front Panel Controls & Indicators	<ul style="list-style-type: none"> • AC Power On/Off • Axis Select • Coarse/Fine Speed • Speed/Direction Control • Local/Remote (Panel/Bus) • Emergency Stop (Latching Panic Button) • Digital Display w/ Limit Indicators
Correction Table Support (Geometrical Error)	Optional (Opt. 009)

ELECTRICAL

AC Input Power	<ul style="list-style-type: none"> • 115/230 VAC +/- 10%, 47-63 Hz, single phase • 10A rms @ 115 VAC • 5A rms @ 230 VAC 		
Power Dissipation	0.7 KVA max	1.3 KVA max	
Controlled Axes	2 simultaneous control	4 simultaneous control	
EMI Filtering	MIL-STD-461/2, VDE 0871/3.68		
VDE Tests	<ul style="list-style-type: none"> • Leakage: 1,500 VAC • Insulation: 500 VDC • Bonding: 25 ADC 		
Speed Control Range (User-selectable)	<ul style="list-style-type: none"> • Coarse: 0-100% • Fine: 0-18% 		
Supported Position Sensors	Incremental Encoder	<ul style="list-style-type: none"> • Selectable for each axis via setup utility • Incremental Encoder • EnDat® Absolute Encoder 	
Communication Links	<ul style="list-style-type: none"> • RS-232 (115,200 Baud Rate) • CAN Bus 	<ul style="list-style-type: none"> • RS-232 (115,200 Baud Rate) • CAN Bus • LAN 	
Trigger Functions	Trigger In/Out		
Data Take-Off Accuracy	Up to 29 bit resolution		
Supported Motion Control Filters	User Selectable PID/PIV		
Control Filter Scheduling	In-Motion & In-Settling	In-Motion, In-Settling, In-Position	
Linked Axes	Axes 1 & 2 Only		
Load Inductance	No output choke required		
Maximum Motor Size	1/3 HP	3/4 HP	1.5 HP
Motor Armature Supply (By Current)	<ul style="list-style-type: none"> • Axis 1: 4 Amps (avg.) • Axis 2: 4 Amps (avg.) 	<ul style="list-style-type: none"> • Axis 1: 10 Amps (avg.) • Axis 2: 10 Amps (avg.) • Axis 3: 6 Amps (avg.) • Axis 4: 6 Amps (avg.) 	<ul style="list-style-type: none"> • Axis 1: 12 Amps (avg.) • Axis 2: 12 Amps (avg.) • Axis 3: 6 Amps (avg.) • Axis 4: 6 Amps (avg.)

PARAMETER	POSITIONER MODEL		
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ELECTRICAL

Motor Armature Supply (By Voltage)	0 to ± 90 VDC	Factory-Configurable Armature Output Voltage <ul style="list-style-type: none"> • 0 to ± 90 VDC • 0 to ± 48 VDC • 0 to ± 24 VDC
Motor Armature Current Limiting	<ul style="list-style-type: none"> • 1 to 5 amps • Each Axis Selectable Via Internal Dip Switch 	<ul style="list-style-type: none"> • 1 to 15 amps • Each Axis Selectable Via Internal Dip Switch or Setup Utility
Motor Field Supply	110 VDC, 2 Amps Max Continuous	
Motor Driver Method	<ul style="list-style-type: none"> • Filtered Pulse Width Modulated (PWM) • 32 kHz Nominal Switching Rate (above audible range) 	
Motor Direction	Bi-directional	
Dynamic Braking Supply	24 VDC, 2 Amps Max	
Compatible Local Control Units (LCU)	–	<ul style="list-style-type: none"> • AL-4146-2L Series • AL-4188 Series

PHYSICAL

Dimensions	<ul style="list-style-type: none"> • 19.0 in (48.3 cm) Width • 3.5 in (8.9 cm) Height • 15.0 in (38.0cm) Depth 	<ul style="list-style-type: none"> • 19.0 in (48.3 cm) Width • 7.0 in (17.8 cm) Height • 19.5 in (49.4 cm) Depth
Weight	33 lbs (15 kg)	70.4 lbs (31.9 kg)

ENVIRONMENTAL

Operating Temperature	32° to 122° F (0° to 50° C)
Storage Temperature	- 4° to 167° F (- 20° to 75° C)
Relative Humidity	90%



Contact your local sales representative for more information
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