

Positioner Controller, Sequential

This popular series of high performance, easy-to-operate, programmable six-axis positioner controllers provide manual front panel or remote control of rotary and linear positioners manufactured by MVG-Orbit/FR (or equivalent third party positioners that incorporate shunt-wound or permanent magnet brush DC motors, 50/60/400 Hz synchros, or encoders).

The digital servo loop of the AL-48060 provides advanced remote and local control with a user-friendly interface for manual operations. The position transducer and velocity can be individually configured for each axis. These units are capable of driving a total of six axes sequentially, one axis at a time. Optional interfaces are available for position transducers such as absolute encoders, Inductosyn®, and inclinometers.



Applications

- Antenna Test Automation
- Encoder or Synchro-Based Positioners
- Medium & Heavy Duty Positioning Subsystems

Product Highlights

- Sequential Control Up to 6 Axes
- Dynamic Density Control (DDC)
- Selectable PIV & PID Control Loop
- Motion Profiles
- Audible Limit Alarm
- Digital Synchro Alignment
- Programmable Trigger Pulse Width
- Setup Utility Software
- Self-Diagnostics

Series Overview

| Model | AL-48061 | AL-48062 |
|------------|---|----------|
| Horsepower | PCU-Dependent | 1.5 |
| PCU | Requires Separate PCU Compatible With: - AL-4146-2 - AL-4147-2 - AL-4106-2-6A - AL-4107-2-6A | Built-In |
| Notes | Requires purchase of 910074-01 control cable | - |

(-) N/A

Front Panel

Controls

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

- Axis Position
 - Operating Axis
 - Display Axis
 - Axis Number
 - Operating Axis
 - Display Axis
 - Limit Indicators
 - User-Selectable Scales: $\pm 180^\circ$, 0° - 360° , Linear
 - Remote/Local
 - Speed (Operating Axis)
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Technical Notes

- AL-48061 and AL-48062 are functionally compatible with previous generation models AL-4806-3A & AL-4806-3A Opt. 1, respectively, with limitations and enhancements (consult your local factory sales representative for specific compatibility needs)
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Position Sensors

Axis-Independent Position Sensor Selection

- Single-Speed, Dual-Speed Synchro & Incremental Encoder
 - Absolute Encoder (EnDat[®]), Inclinator & Inductosyn[®]
(Refer to Options List)
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Communication & I/O

- IEEE-488.2 Compatible
 - RS-232 (RJ45)
 - TTL Position Increment
 - BCD/Binary Position Output
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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 (for Setup Utility)
 - Cable, RS-232, DB9 to RJ45 (for Setup Utility)
 - AC Power Cord, IEC-320 (F) to Plug
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Options

- Opt. 003 - Inductosyn[®] Interface
 - Opt. 004 - Inclinator Interface
 - Opt. 005 - EnDat[®] Absolute Optical Encoder Interface
 - Opt. 007 - 400 Hz Synchro Support (Includes External 400 Hz Generator)
 - Opt. 008 - 11.8 Volt Synchro Input (Requires Opt. 007)
 - Opt. 009 - Correction Table Capability (On-site error mapping purchased separately)
 - Opt. 101 - Additional Manual Set
 - Opt. 102 - International Localization (Specify Country & Voltage)
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- Standard □ Optional

Specifications - AL-48060 Series Sequential Controllers

| PARAMETER | POSITIONER MODEL | |
|-----------|------------------|----------|
| | AL-48061 | AL-48062 |

OPERATIONAL

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|--|---|
| Front Panel Controls & Indicators | <ul style="list-style-type: none"> • AC Power On/Off • Local/Remote (Panel/Bus) • Axis Selection • Coarse/Fine Speed • Speed/Direction Control • Emergency Stop • Dual 7-Segment LED Position Display • Velocity Display • Limit, Scale & LCU/Remote Indicators • Position Offset Entry |
| Correction Table Support (Geometrical Error) | Optional (Opt. 009) |

ELECTRICAL

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|----------------------------|---|
| AC Input Power | <ul style="list-style-type: none"> • 115/230 VAC +/- 10%, 47-63 Hz, single phase • 7A rms @ 115 VAC • 3.5A rms @ 230 VAC |
| Power Dissipation | 1.5 KVA max |
| Controlled Axes | 6 sequential 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 | <ul style="list-style-type: none"> • User-Selectable • Coarse: 0-100% • Fine: 0-18% |
| Tachometer Input Voltage | 0 to +40 VDC |
| BCD/Binary Output | <ul style="list-style-type: none"> • BCD Update Rate: 24 Bit @ 61 μsec (\pm 10%) • BINARY Update Rate: 19 Bit @ 80 μsec (\pm 10%) • Software selectable output • Compatible with AL-4806-3A, AL-4906-3A, FR8502 • Connector: 50 Pin D-type |
| TTL Increment Output | <ul style="list-style-type: none"> • Pulse Width: Selectable from 1.96 μsec to 248 μsec • Pulse Logic (Polarity): Selectable • Interval Resolution: 0.0001$^\circ$ • Max Time Jitter: 10 μsec • Max Increment Rate: 4000 pulses per second • Connector: BNC (F) • Supported Motion Modes: Sector, Raster • Alternate Mode: TTL pulses at discrete positions |
| Supported Position Sensors | <ul style="list-style-type: none"> • Selectable for each axis via setup utility • Dual Speed Synchro (1:1 & 36:1) • Single Speed Synchro (1:1) • Incremental Encoder • EnDat[®] Absolute Optical Encoder (Opt.005) • 400 Hz Synchro Support (90 v or 11.8 v) (Opt. 007) • Inclinator (Opt.004) • Inductosyn[®] (Opt.003) |

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ELECTRICAL

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|--------------------------------------|--|---|
| DATA TAKE-OFF RESOLUTION | | |
| Dual Speed Synchro (1:1 & 36:1) | | 0.0025° (12 bit) 0.0006° (14 bit) |
| Single Speed Synchro (1:1) | | 0.087 (12 bit) 0.02 (14 bit) |
| Incremental Encoder | | Up to 29 bit resolution |
| EnDat® Absolute Encoder (Optional) | | Up to 29 bit resolution |
| Inductosyn® (Optional) | | 2.8 x 10 ⁻⁴ deg |
| Inclinometer (Optional) | | Selectable Range |
| Communication Links | | <ul style="list-style-type: none"> • IEEE-488.2 • RS-232 (RJ45) • CAN Bus (setup & configuration utility only) |
| Supported Motion Control Filters | | PID/PIV |
| Compatible Power Control Units (PCU) | <ul style="list-style-type: none"> • AL-4146-2 • AL-4147-2 • AL-4106-2-6A • AL-4107-2-6A | – |
| Load Inductance | – | No output choke required |
| Maximum Motor Size (Axes A-F) | – | 1 HP |
| Motor Armature Supply (Axes A-F) | – | 0 to ± 110 VDC, up to 10 Amps |
| Motor Armature Current Limiting | – | <ul style="list-style-type: none"> • 2.5 to 10 Amps • Each Axis Selectable Via Internal Dip Switch |
| 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

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|------------|------------------|---|
| Dimensions | | <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 | 40 lbs (18.2 kg) | 60 lbs (27.2 kg) |

ENVIRONMENTAL

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|-----------------------|--|---------------------------------|
| 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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www.mvg-world.com/positioners