# Nu-Step DA Series Stepper Drivers

## 2-Phase Stepper Drivers Based on EtherCAT Field Bus



## Key Features

- Supports Standard EtherCAT fieldbus; complies with CIA402 specification; compatible with generic EtherCAT master
- Built-in single-axis comparison trigger function with a frequency up to 1 KHz achieves high performance & low cast request for EMS AOI
- Supports standard EtherCAT fieldbus control mode up to 250 µs cycles
- Supports hardware/software node ID configuration to modalize and align with domain applications
- Operation modes include CSP, PP, PV and HM
- Configurable digital output, set to generic DO, alarm, in-position and comparison trigger
- Configurable digital input, set to generic DO, EMG, limitation, and ORG
- Eliminate vibration, step loss and provide high scalability and other capabilities through closed loop control
- Lightweight and small size make it ideal for semiconductor and LED workshops
- Offers high reliability and compatibility solutions for processes after upgrading to EtherCAT fieldbus

## Product Introduction

The ADLINK Nu-Step DA Series is a stepper driver based on the EtherCAT bus featuring a 32-bit ARM processor and advanced variable current and frequency conversion technology. The driver generates less heat and motor vibration for more stable operation. It not only supports the standard EtherCAT specification, but also supports table comparison triggers for automated optical inspection (AOI) and linear comparison triggers for line scanning.

According to the standard EtherCAT specification, various EtherCAT masters can be supported. Compared with traditional communication protocols, EtherCAT offers improved reliability, reduces the influence of noise on instructions and greatly extends communication distance with improved frame error detection and processing.

The Nu-Step DA Series stepper drivers exchange data with a master through an EtherCAT fieldbus that includes motion control commands, feedback, and parameters. With the built-in comparison trigger function, the system meets a variety of process control requirements, including area scanning, line scanning and EMG functions commonly used in AOI.

Through the use of an EtherCAT fieldbus the complexity and difficulty of cable installation between the host controller and the slave can be greatly reduced, saving on cabling and equipment development costs.

In order to meet the diversified process requirements of automation equipment, the Nu-Step DA Series supports the standard EtherCAT fieldbus control mode up to 250 µs cycles. Operation modes include CSP, PP, PV and HM, with programmable positive and negative limits, home and digital input and digital output, which can make more effective use of digital input and output channels on the driver to achieve more accuracy, safety, and faster process procedures.



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## Ordering Information

- DA2D530EO
  2 phase open loop stepper, output current 0.2~3.0 A
- DA2D530EC
  2 phase closed loop stepper, output current 0.2~3.0 A
- DA2D542EO
  2 phase open loop stepper, output current 1.0~4.2 A
- DA2D542EC
  2 phase closed loop stepper, output current 1.0~4.2 A
- DA2D580EO
  2 phase open loop stepper, output current 2.4~8.0 A
- DA2D580EC
  2 phase closed loop stepper, output current 2.4~8.0 A

## Specifications

| Model Name | DA2D530EO | DA2D530EC | DA2D542EO | DA2D542EC | DA2D580EO | DA2D580EC |
|---|---|---|---|---|---|---|
| Output Current | 0.2~3.0 A | | 1.0~4.2 A | | 2.4~8.0 A | |
| Input Voltage | DC 15~50 V | | | | | |
| Weight | 0.2 kg | | | | | |
| Size | 116 x 69.2 x 26.5 mm | | | | | |
| Interface Type | Single End | | | | | |
| Control Type | EtherCAT | | | | | |
| Operation Mode | CSP / PP / PV / HM | | | | | |
| Encoder Support | No | Yes | No | Yes | No | Yes |
| Comparison Trigger | Yes | | | | | |
| EtherCAT Bus Cycle | 250 µs/ 500µs/ 1ms/ 2ms/ 4ms | | | | | |
| Digital Input Channel | 4 | | | | | |
| Digital Output Channel | 2 | | | | | |
| Software Slave ID | Yes | | | | | |
| Input Signal | Home, positive limit, negative limit, emergency stop, active level (normal open/normal closed) | | | | | |
| Output Signal | Alarm, in-position, comparison trigger, master control, active configuration (normal open/normal closed) | | | | | |
| Alarm Function | Overcurrent, overvoltage, out-of-tolerance and OP damage | | | | | |
| Environment | Location | Cannot be placed next to other heating equipment, dust, oil mist, corrosive gas; avoid high humidity and strong vibration places. Combustible gas and conductive dust are prohibited. | | | | |
| | Temperature | -10°C to 50°C | | | | |
| | Storage Temperature | 20°C to 60°C | | | | |
| | Humidity | 40% to 90% RH | | | | |
| | Vibration | 10 Hz to 55 Hz / 0.15 mm | | | | |
| | Orientation | Horizontal or vertical | | | | |

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