Oriental motor

α*STEP*-One

All-in-one motor/driver/controller
Easy to install - Easy to operate

α STEP-One

α STEP-One is an all-in-one α STEP motor which integrates the controller features required for positioning operation. Compared to our existing products, the installation requires less space thanks to the simpler configuration and less time thanks to fewer cables. In addition, new features are added to achieve high speed positioning operation and user convenience.

■ Features

1. Inherits all features of α STEP

- α STEP-One never miss steps because controller mode switches to closed loop control when the motor is about to miss steps due to overload or sudden acceleration.
- α STEP-One is excellent for low rigidity mechanics without gain tuning.

2. All-in-one (Motor + Driver + Controller)

- With unique heat separation technology, α STEP-One achieves the same performance as our component type products.
- α STEP-One does not require cables to connect each component. Not only is the installation easy, but also the troubles caused by noise can be eliminated.
- The space required is 40% of that of the existing product.

3. Various system structures

- PC/PLC control (RS-232C)
- Pulse input
- Parallel I/O control (Program operation)

4. New features

- Generates the best operation pattern (Fastest positioning operation)
- Adaptive user unit operation (mm, Inch, Rev. ...)
- Auto-current control (low heat generation)
- Graphical User Interface (Immediate Motion Creator)

Circuit

Sensor

Motor

Heat separation structure (Patented)

High temperature

Low temperature

Heat Reflective Surface and Air
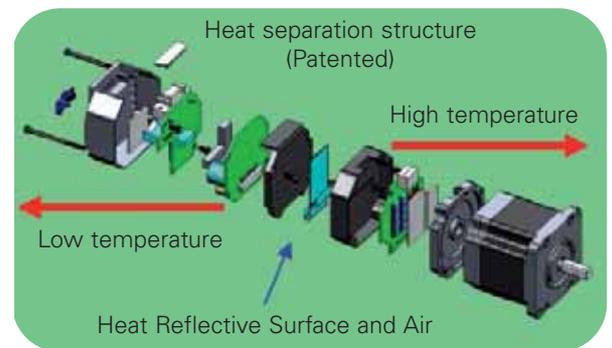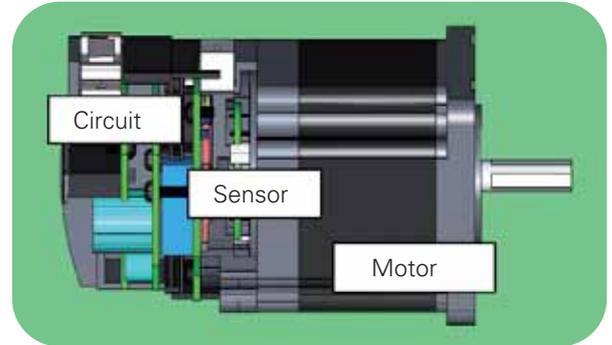
Easy to install

■ One-touch lock connector

All connectors have one-touch lock so that it can easily be installed in narrow locations.

■ System configurations

1. PC control
α STEP-One operates by commands from PC. This is the simplest configuration.

RS-232C

DC power supply

PC or PLC
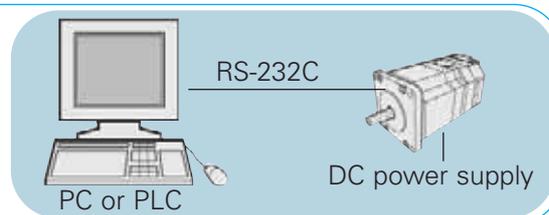
2. Pulse input

Like the existing α STEP, α STEP-One can operate with pulse input.

Pulse generator or Encoder

DC power supply
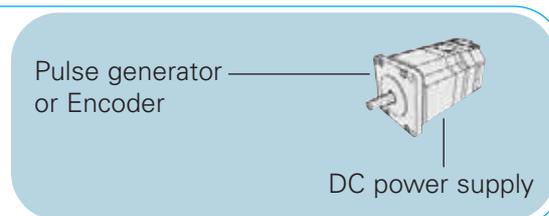
3. Parallel I/O control

Based on the saved program, operation can be controlled with I/O.

Home sensor

Limit sensor

Other Actuators

Switches

Alarm

Solenoid Valve

DC power supply
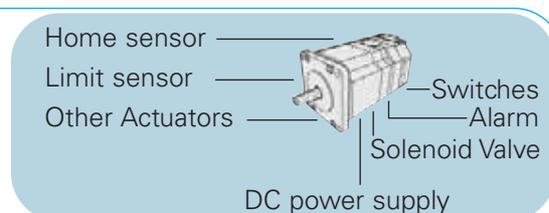
Easy to operate

αSTEP-One can generate the best operation pattern with position data input. With this feature, the fastest positioning operation can be achieved anytime. α STEP-One can be controlled easily with our exclusive software (Immediate Motion Creator).

■ Generation of the best operation pattern

● Existing products need user calculation, and acceleration/deceleration rate is based on the torque available at the maximum required rotational speed.

However, α STEP-One calculates the best operation pattern automatically, and the acceleration/deceleration rate is based on the torque available at each rotational speed. With this method, the motor makes use of the most torque available. Thus the calculated operation pattern becomes the fastest.

*) To generate the best operation pattern, the information of load such as inertia and friction should be provided. In case of unknown load, the load estimation feature can be used.

TQ1: Torque used in conventional calculation
TQ2: Torque used in α STEP-One calculation
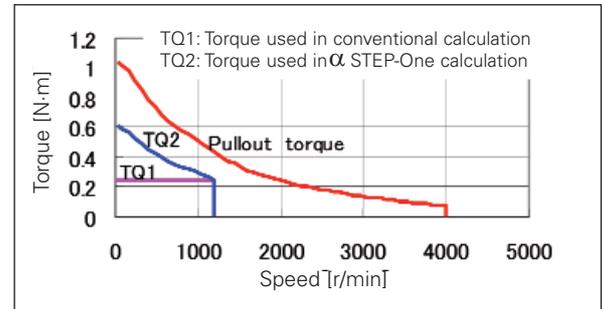
■ Main features of Immediate Motion Creator (IMC)

1. Sending commands
One click on the START button starts the motor based on the position and the speed provided. Writing/Reading of the program can be done with just a single button.

2. Programming editor
Programs can be made by drag and drop in addition to the common typing methods.

3. Wave monitor
Generated operation pattern and operation status can be monitored.
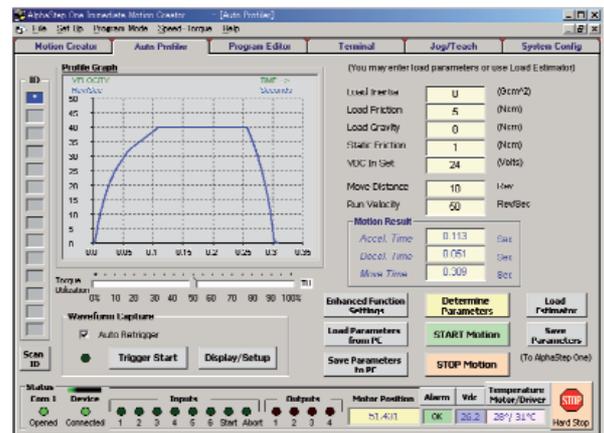
Characteristics / Features

Equivalent capability as existing models, can be substituted with existing models.

Power source: 24 VDC

α STEP-One
ASC66A-K
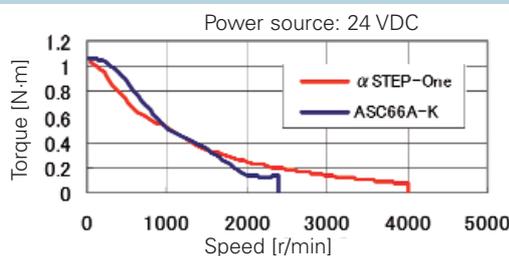
Auto-current setting
(low heat generation and low vibration)

Pre-adjustment of the current at constant speed reduces heat accompanied with losses and vibration.

Acceleration   Constant speed   Deceleration

Current wave

Speed wave
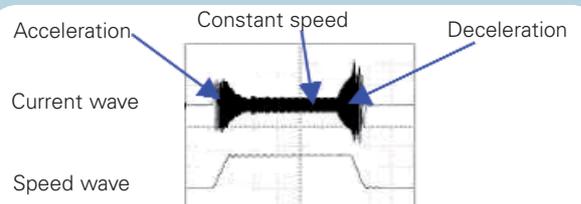
Multi-axis(Daisy chain)
Can be connected up to 36 axes via RS-232C cable.

RS-232C

PC or PLC   DC power supply
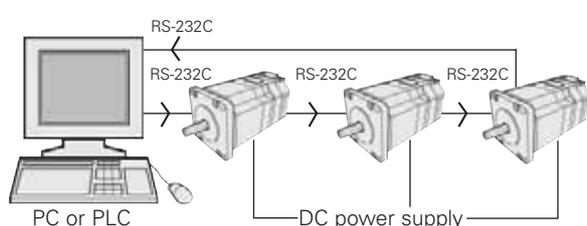
Jerk regulation (Low vibration)

Reduce vibration and audible noise by regulating sudden change in acceleration and deceleration.

Linear Control

Jerk control

Lower vibration
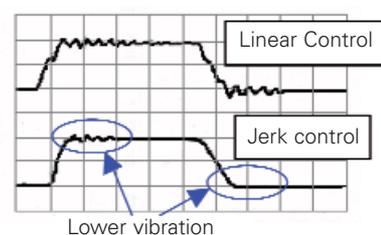
Specifications

Model		ASX66A-1/ASX66A-2
Maximum Holding torque	N·m	1.0
Rotor Inertia J	kg·m²	405 x 10⁻⁷
Static angle error	minutes	± 5
Resolution		1 ~ 51200
Power Source		DC12 ~ 48V 4A Maximum
Insulation Resistance		100MΩ minimum when measured by a 500 VDC megger between the following places: - Heat Sink-Power Supply Terminal
Dielectric Strength		Sufficient to withstand the following for one minute - Heat Sink-Power Supply Terminal 830 VDC
Operating Environment	Ambient temperature	0C°~+40C° (nonfreezing)
	Ambient Humidity	85% or less (noncondensing)
	Atmosphere	No corrosive gases, dust, water and oil.

* Basic package, ASX66A-1 includes motor, power connector, wire insert tool and communication connector. Developer`s package, ASX66A-2 includes communciation cable, I/O cable, GUI CD and operating manual in addition to contents of basic package.

Speed-Torque Characteristics

Dimensions

Orientalmotor

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