

MBDV Series

mini Low voltage DC Servo System

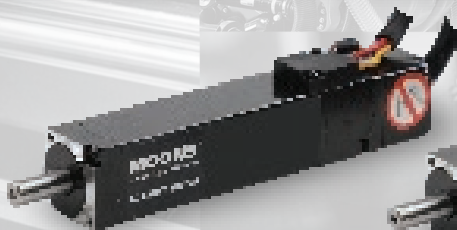
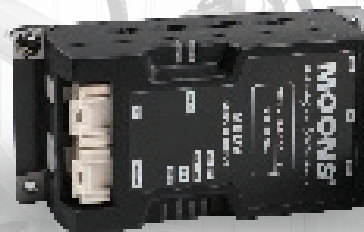
Widely used in placement machines, photovoltaics, semiconductor manufacturing, and mini-robots



EtherCAT[®]

CANopen

Modbus

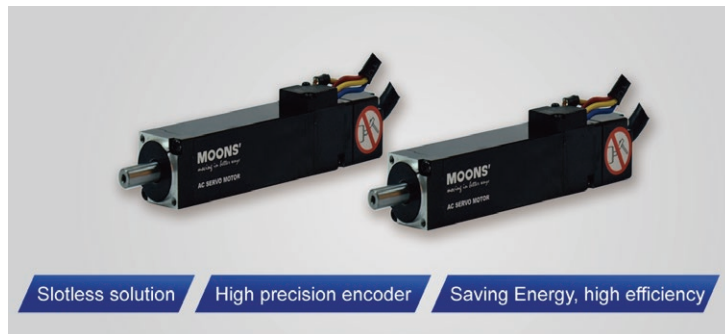


□ Frame Size 20mm Motor-Description

High-density, ultra-compact servo motor with features such as fast response and low cogging torque. Widely used in semiconductor manufacturing , placement, chip inspection , medical equipment, robotics and other applications.

□ Frame Size 20mm Motor-Features

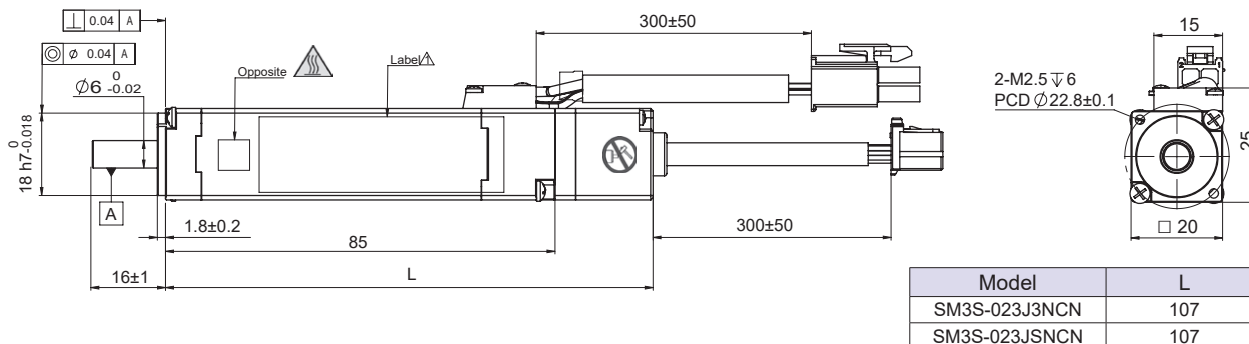
- MOONS' patented slotless solution
 - Fast response (low inductance, low electrical constants)
 - Low positioning torque
 - Less torque fluctuation
- High accuracy 16-bit incremental magnetic encoder
 - Resolution up to 65,536 pulses/turn
 - Resistant to dust, oil and condensation
 - High vibration resistance



□ Frame Size 20mm Motor-Specifications

| Model * | | SM3M-023J3NCN | SM3M-023JSNCN |
|-------------------------------------|-------------------|---|--|
| Rated Voltage | V (DC) | 24 | 24 |
| Bus Voltage | V (DC) | 24 | 24 |
| Rated Output Power | watts | 30 | 30 |
| Rated Speed | rpm | 3000 | 3000 |
| Max. Speed | rpm | 6000 | 6000 |
| Rated Torque | N·m | 0.096 | 0.096 |
| Stall Torque | N·m | 0.096 | 0.096 |
| Peak Torque | N·m | 0.288 | 0.288 |
| Rated Current | A (rms) | 4.2 | 4.2 |
| Stall Current | A (rms) | 4.2 | 4.2 |
| Peak Current | A (rms) | 12.5 | 12.5 |
| Counter-electromotive Constant ± 5% | V (rms) / K rpm | 1.48 | 1.48 |
| Torque Factor ± 5% | N·m / A (rms) | 0.0228 | 0.0228 |
| Resistance | Ohm @20°C | 0.63 | 0.63 |
| Inductor | mH (typ.) | 0.06 | 0.06 |
| Rotor Inertia | Kg·m ² | 0.0093 × 10 ⁻⁴ | 0.0093 × 10 ⁻⁴ |
| Heat Sink Size (Aluminum) | Kg·m ² | 100x100x5 | 100x100x5 |
| Shaft Load-Axial | N (max.) | 30 | 30 |
| Shaft Load-Radial (End of Shaft) | N (max.) | 30 | 30 |
| Weight | Kg | 0.23 | 0.23 |
| Length | mm | 107 | 107 |
| Encoder Feedback | | SPI communication, 16 bit incremental magnetic encoder | A/B/Z differential signals, 14 bit incremental magnetic encoder |

□ Frame Size 20mm Motor-Dimension (Unit: mm)



Servo Drive Numbering

MBDV - 2X - 5 6A0 EC - ***

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- ① MBDV Series
- ② Multi-axis in One
Blank: Single-axis
2X: Dual-axis
- ③ Supply Voltage
5: 24—48VDC

- ④ Current
6A0: Rated Current 6A(RMS)
Peak Current 18A(RMS)
10A: Rated Current 10A(RMS)
Peak Current 30A(RMS)

- ⑤ Function Type
EC—EtherCAT
RC—CANopen, RS485, Pulse
- ⑥ Custom Code

Servo Drive Specification

| Drive Model | Output Power (W) | Rated Voltage (VDC) | Control Mode | I/O | | | Encoder Feedback |
|--------------------|------------------|---------------------|---------------|----------------------|---------------|---|-------------------------------------|
| | | | | Digital Signal | Analog Signal | Pulse Signal | |
| MBDV-56A0RC-H01 | 100 | 24-48 | CANopen&RS485 | 3 Inputs / 2 Outputs | — | 2x 24V Pulse Input 2x 5V Pulse Input | 16-bit incremental magnetic encoder |
| MBDV-56A0EC-H01 | 100 | 24-48 | EtherCAT | 3 Inputs / 2 Outputs | — | — | 16-bit incremental magnetic encoder |
| MBDV-2X-510AEC-H01 | 100 | 24 | EtherCAT | 2 Inputs / 3 Outputs | 1x (0-5V) | — | 16-bit incremental magnetic encoder |

* Multi-axis all-in-one actuator is a description of a single axis

Servo Drive Features

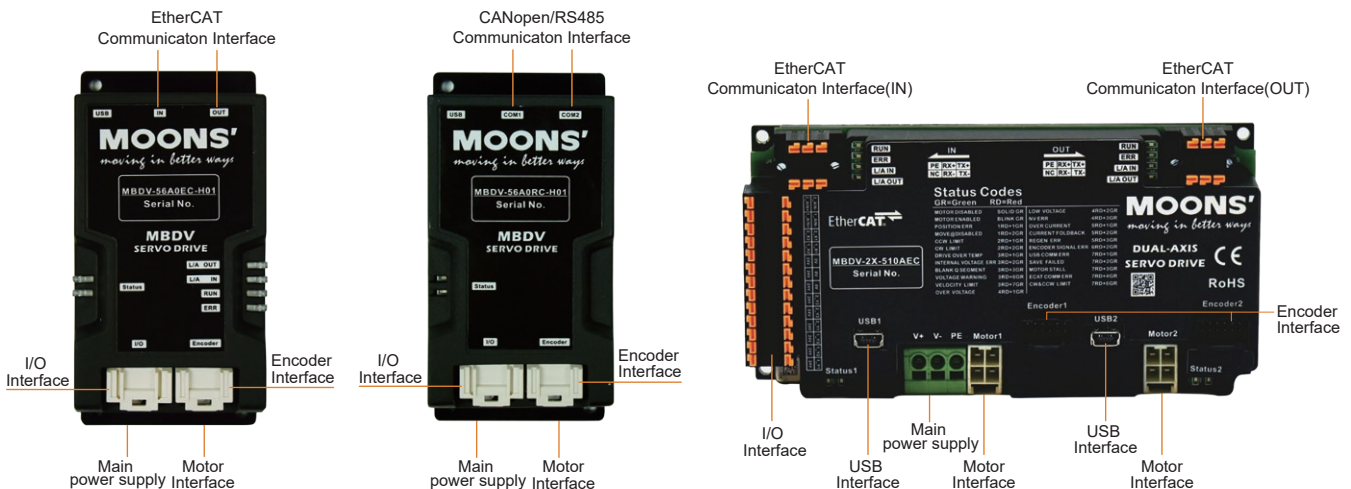
- Ultra-compact single-axis and 2-in-1 design
- PUSH-IN Connector, easy wiring
- Automatic adjustment, Easy Tuning
- Support EtherCAT、CANopen、RS485 bus control
- Over current, Over voltage, Over temperature Protection

Servo Drive Interface Description

□ MBDV-56A0EC-H01

□ MBDV-56A0RC-H01

□ MBDV-2X-510AEC-H01

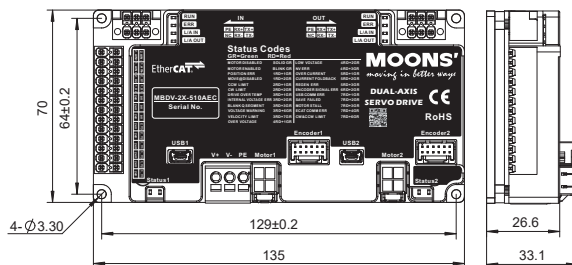
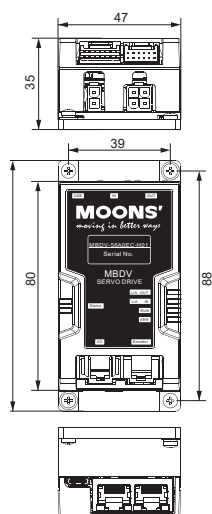


MBDV Drive Dimensions (Unit: mm)

□ MBDV-56A0EC-H01

□ MBDV-56A0RC-H01

□ MBDV-2X-510AEC-H01



Accessory

Drive Power Cable (For MBDV-56A0EC-H01, MBDV-56A0RC-H01) Standard Accessories 1675-0200

| Model | Length (m) | Description | Outline |
|-----------|------------|-------------------|---------|
| 1675-0200 | 2m | Drive Power Cable | |
| 1675-0500 | 5m | | |

I/O Signal Cable (For MBDV-56A0EC-H01, MBDV-56A0RC-H01)

| Model | Length (m) | Description | Outline |
|----------|------------|------------------------|---------|
| 1108-100 | 1m | 14Pin I/O Signal Cable | |
| 1108-200 | 2m | | |

Motor Power Extension Cable (MBDV-2X-510AEC-H01)

| Model | Length (m) | Description | Outline |
|---------------|------------|--------------------------------------|---------|
| 2656-0050-C10 | 0.5m | Motor Power Extension Cable Flexible | |
| 2656-0100-C10 | 1m | | |
| 2656-0300-C10 | 3m | | |
| 2656-0500-C10 | 5m | | |

Motor Power Extension Cable (For MBDV-56A0EC-H01, MBDV-56A0RC-H01)

| Model | Length (m) | Description | Outline |
|---------------|------------|--------------------------------------|---------|
| 2666-0100-C10 | 1m | Motor Power Extension Cable Flexible | |
| 2666-0300-C10 | 3m | | |
| 2666-0500-C10 | 5m | | |

Motor Encoder Extension Cable (For MBDV-56A0EC-H01, MBDV-56A0RC-H01, MBDV-2X-510AEC-H01)

| Model | Length (m) | Description | Outline |
|---------------|------------|--|---------|
| 2657-0050-C10 | 0.5m | Motor Encoder Extension Cable Flexible | |
| 2657-0100-C10 | 1m | | |
| 2657-0300-C10 | 3m | | |
| 2657-0500-C10 | 5m | | |

Note: Flexible -C10 10 million times.

Test Conditions: Bend Radius 50mm, Frequency 60 times/min, Distance 500mm.



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