PRODUCT DATASHEET

# ES-SM-L02-080D-V48-T2P39NM-750W-001

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L02-080D Compact 80 mm Low-Voltage Servo Motor Series

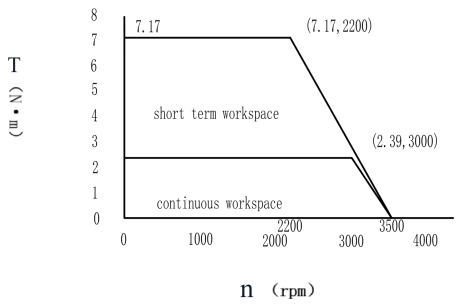
## Product Overview

Low-Voltage Servo Motors with rated Torque 2.39 N·m, rated Speed 3000 rpm and continuous Rated Output Power 750 W.

| | |
|---|---|
| **Configuration Context** | Feedback device: Multi-turn communication magnetic absolute encoder |

## Key Specifications

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Rated Torque | 2.39 | N·m |
| Rated Speed | 3000 | rpm |
| Continuous Rated Output Power | 750 | W |
| Rated Voltage | 48 | VDC |
| Rated Line Voltage | 48 | V |
| Continuous Rated Current | 18.1 | A |
| Instantaneous Maximum Current | 56 | A |
| Flange Size | 80 | mm |
| Allowable Axial Force | 90 | N |




Torque-Speed Curve

# Technical Specifications

| PARAMETER | SPECIFICATION | UNIT |
|---|---|---|
| **PERFORMANCE** | | |
| Rated Torque | 2.39 | N·m |
| Rated Speed | 3000 | rpm |
| Continuous Rated Output Power | 750 | W |
| **ELECTRICAL** | | |
| Rated Voltage | 48 | VDC |
| Rated Line Voltage | 48 | V |
| Continuous Rated Current | 18.1 | A |
| Instantaneous Maximum Current | 56 | A |
| Pole Pairs | 5 | |
| Rotational Back-EMF Constant | 8.9 | V/krpm |
| Electrical Time Constant | 2.84 | ms |
| Insulation Class | F | |
| Motor Outlet Mode | Dedicated motor socket | |
| **MECHANICAL** | | |
| Flange Size | 80 | mm |
| Inertia Level | Medium inertia | |

# Technical Specifications

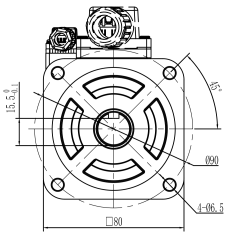
| PARAMETER | SPECIFICATION | UNIT | NOTES |
|---|---|---|---|
| **MECHANICAL** | | | |
| Allowable Radial Force | 270 | N | |
| Mechanical Time Constant | 1.02 | ms | Brake Configuration: with_brake / Brake Configuration: without_brake |
| Rotor Inertia | 1.45 | Kg·cm 2 | Brake Configuration: with_brake / Brake Configuration: without_brake |
| Allowable Axial Force | 90 | N | |
| **INTEGRATION** | | | |
| Feedback Device | Multi-turn communication magnetic absolute encoder | | |
| **ENVIRONMENTAL** | | | |
| Operating Environment | Free from corrosive or flammable gases, oil droplets, and dust | | |
| Operating Humidity | ≤90% RH, non-condensing | %RH | |
| Altitude and Derating Rule | Maximum 2,000 m; derate power 1.5% per 100 m above 1,000 | m | |
| Operating Temperature | -5 to 40 | °C | |
| Protection Grade | IP65 | | |
| **CONFIGURATION** | | | |
| Output Shaft Type | Keyed shaft | | |
| Motor Version | Ultra-short version | | |
| **ADDITIONAL SPECIFICATIONS** | | | |
| Cooling Method | Fully enclosed, self-cooled | | |

# Dimensional & Integration Overview

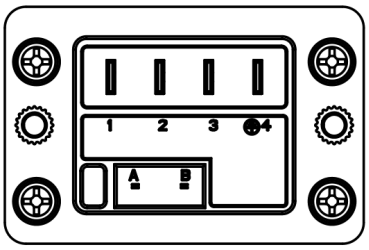
## Mechanical Overview

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Flange Size | 80 | mm |
| Inertia Level | Medium inertia | |
| Allowable Radial Force | 270 | N |
| Mechanical Time Constant | 1.02 | ms |
| Rotor Inertia | 1.45 | Kg·cm2 |
| Allowable Axial Force | 90 | N |

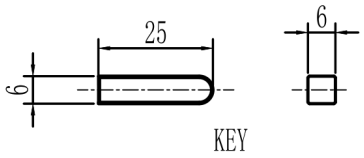
## Dimensional Drawings



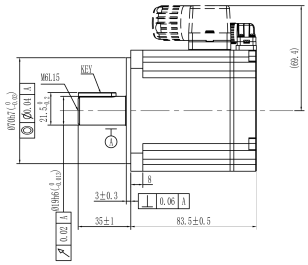
Mechanical View 1



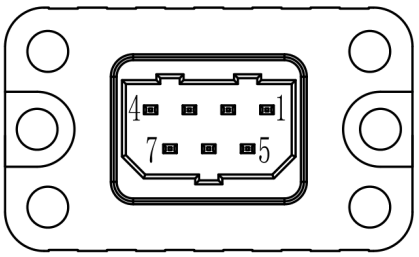

Power Connector Pinout




Mechanical View 3




Mechanical View 4




Feedback Connector Pinout

## 2D Drawing Dimensions & Callouts

| VIEW | FIELD | VALUE |
|---|---|---|
| Mechanical View 1 | Keyway identifier | Keyway present |
| | Flange mounting face height tolerance | 15.5±0.1 mm |
| | Angular dimension | 15° |
| | Flange outer circle diameter | Ø90 mm |
| | Mounting hole diameter and quantity | 4 holes × Ø6.5 mm |
| | Flange square dimension | □80 mm |
| Mechanical View 3 | Keyway length | 25 mm |
| | Keyway width | 6 mm |
| | Keyway depth | |

## 2D Drawing Dimensions & Callouts

| VIEW | FIELD | VALUE |
|---|---|---|
| Mechanical View 4 | Reference dimension | (69.4) |
| | Key designation | KEY |
| | Mounting thread specification | M6×15 |
| | Datum A | |
| | Circularity tolerance | ⌀0.04 |
| | Shaft section length | 21.5±0.2 |
| | Shaft diameter with tolerance | Ø70h7 (0/-0.03) |
| | Shaft section length | 8 |
| | Shaft diameter with tolerance | Ø19h6 (0/-0.013) |
| | Shaft section length | 3±0.3 |
| | Perpendicularity tolerance | ⊥ 0.06 A |
| | Overall length segment | 35±1 |
| | Overall length | 83.5±0.5 |
| | Perpendicularity tolerance | ⊥ 0.02 A |

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01 Specifications are subject to change without notice. Verify the current product configuration before final design release.

02 2D drawings, CAD files and integration documentation are controlled documents and are supplied separately on request.