PRODUCT DATASHEET

# ES-SM-L01-040S-V48-T0P16NM-50W-003

Low-Voltage Servo Motors

Low-Voltage Servo Motors | ES-SM-L01-040S 48V 40 mm Low-Voltage Servo Motor Series

## Product Overview

Low-Voltage Servo Motors with rated Torque 0.16 N·m, rated Speed 3000 rpm and continuous Rated Output Power 50 W.

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

## Key Specifications

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Rated Torque | 0.16 | N·m |
| Rated Speed | 3000 | rpm |
| Continuous Rated Output Power | 50 | W |
| Rated Voltage | 48 | VDC |
| Rated Line Voltage | 48 | V |
| Continuous Rated Current | 1.5 | A |
| Instantaneous Maximum Current | 5.5 | A |
| Flange Size | 40 | mm |
| Allowable Axial Force | 60 | N |

# Technical Specifications

| PARAMETER | SPECIFICATION | UNIT |
|---|---|---|
| **PERFORMANCE** | | |
| Rated Torque | 0.16 | N·m |
| Rated Speed | 3000 | rpm |
| Continuous Rated Output Power | 50 | W |
| **ELECTRICAL** | | |
| Rated Voltage | 48 | VDC |
| Rated Line Voltage | 48 | V |
| Continuous Rated Current | 1.5 | A |
| Instantaneous Maximum Current | 5.5 | A |
| Pole Pairs | 5 | |
| Rotational Back-EMF Constant | 7 | V/krpm |
| Electrical Time Constant | 1.1 | ms |
| Insulation Class | F | |
| Motor Outlet Mode | Communication encoder connector | |
| **MECHANICAL** | | |
| Flange Size | 40 | mm |

# Technical Specifications

| PARAMETER | SPECIFICATION | UNIT | NOTES |
|---|---|---|---|
| **MECHANICAL** | | | |
| Inertia Level | Low inertia | | |
| Allowable Radial Force | 120 | N | |
| Mechanical Time Constant | 1 | ms | Brake Configuration: without_brake / Brake Configuration: with_brake |
| Rotor Inertia | 0.018 | Kg·cm 2 | Brake Configuration: without_brake / Brake Configuration: with_brake |
| Allowable Axial Force | 60 | 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 | -20 to 40 | °C | |
| Protection Grade | Body IP65; shaft end IP54 without oil seal, IP65 with oil seal | | |
| **CONFIGURATION** | | | |
| Output Shaft Type | Keyed shaft | | |
| **ADDITIONAL SPECIFICATIONS** | | | |
| Cooling Method | Fully enclosed, self-cooled | | |

# Dimensional & Integration Overview

## Mechanical Overview

| PARAMETER | VALUE | UNIT |
|---|---|---|
| Flange Size | 40 | mm |
| Inertia Level | Low inertia | |
| Allowable Radial Force | 120 | N |
| Mechanical Time Constant | 1 | ms |
| Rotor Inertia | 0.018 | Kg·cm2 |
| Allowable Axial Force | 60 | N |

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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.