OUKEDA MOTOR

STEPPER MOTOR WITH ELECTROMAGNETIC BRAKE USER MANUAL

Model: OK28DL51-104A-YS

Product Type	2-Phase Hybrid Stepper Motor with Electromagnetic Power-Off Brake
Frame Size	28 × 28 mm (NEMA 11 class)
Step Angle	1.8° ±5%
Holding Torque	11.77 Ncm (1.67 oz.in)
Brake Rating	24 VDC, 0.07 A, 0.2 N·m

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1. Motor Specifications

Parameter	Specification
Manufacturer Part Number	OK28DL51-104A-YS
Motor Type	2-Phase Hybrid Stepper Motor with Electromagnetic Brake
Step Angle	1.8° ±5%
Number of Phases	2
Holding Torque	11.77 Ncm (1.67 oz.in)
Rated Current / Phase	1.0 A
Phase Voltage	4.1 VDC
Phase Resistance	4.1 Ω ±10% (at 20°C)
Phase Inductance	4.0 mH ±20%
Insulation Class	Class B
Insulation Resistance	100 MΩ min. (500 VDC)
Operating Temperature	-20°C to +50°C
Ambient Humidity	15% to 95%
Recommended Driver	OK2D4020A

2. Electromagnetic Brake Specifications

Parameter	Specification
Brake Type	Electromagnetic Power-Off Brake
Rated Voltage	24 VDC
Rated Current	0.07 A
Braking Torque	0.2 N·m
Power Consumption	2.0 W
Brake Polarity	RED (+), BLK (-)
Response Time	50 ms

3. Physical Specifications

Parameter	Specification
Frame Size	28 × 28 mm
Motor Length	52 ±1 mm
Brake Length	32 mm
Shaft Diameter	5 mm
Shaft Length	200 mm (as supplied; verify drawing discrepancy)
D-Shaft Length	15 mm
Cable Length	540 mm
Number of Motor Leads	4
Motor Weight	110 g (as supplied; verify drawing discrepancy)

4. Wiring Information

Motor phase lead identification follows the manufacturer wiring diagram:

Wire Color	Connection
Black	A+
Green	A-
Red	B+
Blue	B-
Brake Red	Brake positive (+)
Brake Black	Brake negative (-)

The manufacturer drawing shows a two-phase excitation sequence. Confirm lead identification and connector orientation on the delivered motor before wiring. Never connect or disconnect motor leads while the driver is energized.

5. Installation Guidelines

Before installation

• Confirm model number, shaft dimensions, mounting pattern and brake voltage.
• Inspect the motor, shaft, cables and brake leads for damage.
• Use a clean, flat and rigid mounting surface.
• Isolate power before making electrical connections.

Mechanical installation

• Align the motor shaft with the driven mechanism; avoid unapproved radial or axial loads.
• Do not apply impact force to the shaft or housing.
• The drawing identifies a 4 × M2.5 mounting pattern.
• Route cables away from moving parts, sharp edges and hot surfaces.

Electrical and brake installation

• Use a compatible two-phase stepper driver; the drawing recommends OK2D4020A.
• Set phase current according to the 1.0 A/phase rating and driver instructions.
• Supply the brake with 24 VDC and observe polarity: red positive, black negative.
• Verify brake release before commanding motor motion.

6. Operating Instructions

• The drawing states a 12–24 VDC use-voltage range. This is the system supply range, not the motor phase voltage.
• The listed phase voltage is 4.1 VDC; use a current-regulated stepper driver.
• Do not exceed the rated phase current of 1.0 A.
• The brake is specified for 24 VDC. Confirm its release and engagement behavior in the actual control circuit.
• Validate load holding and stopping behavior in the machine before normal operation.

7. Maintenance and Safety

• Disconnect and isolate all power sources before inspection, wiring changes or maintenance.
• Periodically inspect fasteners, cable insulation, connectors and shaft alignment.
• Keep the motor and brake free from contamination.
• Monitor for abnormal noise, vibration, temperature rise or unexpected movement.
• Do not disassemble the motor or brake without supplier authorization.
• Guard accessible rotating shafts and pinch points.

8. Troubleshooting

Symptom	Checks
Motor does not rotate	Check driver power, enable state, pulse/direction signals, phase wiring and current setting.
Motor vibrates or loses steps	Check phase pairing, current, acceleration, load and mechanical alignment.
Brake does not release	Verify 24 VDC supply, polarity, wiring and brake control circuit.
Load is not held	Check brake engagement and ensure load is within the brake rating.
Abnormal noise or heating	Stop and check load, alignment, current setting, mounting and cable condition.