USER MANUAL

86 mm Stepper Motor with 1000 CPR Encoder

Manufacturer Part Number: OK86STH115EC-1000

Product Overview

The OK86STH115EC-1000 is a two-phase stepper motor with an integrated 1000 CPR encoder. This manual provides its electrical specifications, physical dimensions, encoder wiring, and basic installation and commissioning guidance.

Contents

1. Electrical specifications
2. Physical specifications
3. Encoder wiring
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5. Dimensional drawing



1. Electrical Specifications

Parameter	Specification
Manufacturer part number	OK86STH115EC-1000
Number of phases	2
Step angle	1.8°
Holding torque	8.5 N·m (1203.80 oz·in)
Rated current per phase	6.0 A
Phase resistance	0.5 Ω ±10%
Inductance	7 mH ±20% (1 kHz)
Rated voltage	3 V
Encoder resolution	1000 CPR
Ambient temperature	–10°C to +50°C
Insulation resistance	100 MΩ minimum at 500 V DC
Dielectric strength	500 V AC
Insulation class	Class B
Maximum temperature rise	80°C

Driver: Use a compatible current-regulating stepper motor driver and set the phase current to the motor's rated 6.0 A, following the driver's setup instructions. The motor winding voltage is listed as 3 V; do not connect the windings directly to a power supply.

2. Physical Specifications

Parameter	Specification
Frame size	86 × 86 mm
Body length	138 mm
Shaft diameter	14 mm
Shaft length	37 mm
Keyway shaft length	25 mm
Mounting holes	4 × Ø6.5 mm through holes
Mounting hole spacing	69.58 × 69.58 mm
Motor leads	4
Encoder wires	6
Motor cable length	500 mm
Encoder signal cable length	250 mm
Weight	4.1 kg

3. Encoder Wiring

Encoder wire color assignments:

Wire color	Description	Function
Red	+5 V DC	Power
Black	Ground	Ground
Yellow	Channel A+	Signal
Green	Channel A–	Signal
Blue	Channel B+	Signal
White	Channel B–	Signal

The motor has four motor leads and six encoder wires. Connect the motor phase leads to a compatible stepper driver and connect the encoder wires to a compatible +5 V encoder interface.

4. Installation and Commissioning

Mechanical Mounting

• Mount the motor using the four Ø6.5 mm through holes and 69.58 × 69.58 mm mounting-hole spacing.
• Check shaft, keyway, coupling, and clearance dimensions before installation.
• Align the motor shaft with the driven equipment and secure the mounting hardware.

Electrical Setup

• Disconnect power before making wiring connections.
• Connect the motor phase leads to a suitable current-regulating stepper driver.
• Supply the encoder with +5 V DC and connect ground and signal wires to a compatible controller or interface.
• Check supply polarity and wiring before powering on.

Initial Test

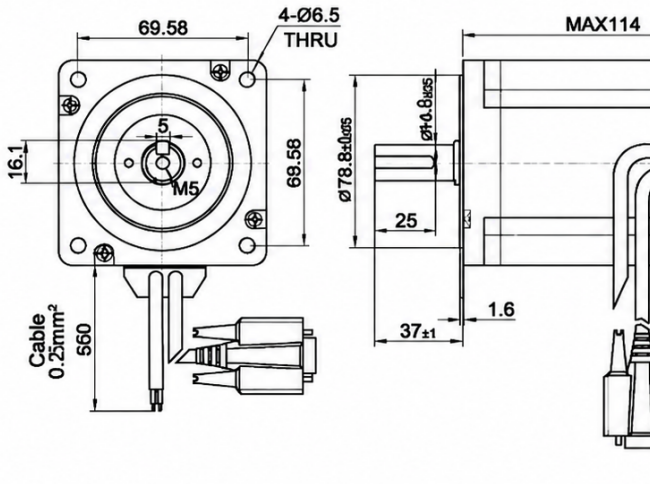
• Begin with low speed and acceleration, then increase gradually.
• Check motor direction, movement, vibration, noise, and temperature during operation.
• Provide adequate ventilation and operate within the specified ambient temperature range.

5. Dimensional Drawing

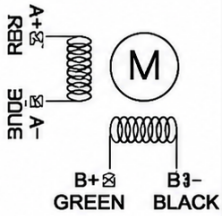
Product dimensions and wiring reference:

Technique Specification	Holding Torque (N.m)	Current (Amps DC)	Resistance (ohms)	Voltage (V)	Inductance (mH 1KHZ)	Remark
	8.5	6	0.5	3	7	

Dimension



Wiring Diagram



ENCODER		
COLOR	DESCRIPTION	FUNCTION
RED	+5V DC	Power
BLACK	GROUND	Ground
YELLOW	CHANNEL A+	Signal
GREEN	CHANNEL A-	Signal
BLUE	CHANNEL B+	Signal
WHITE	CHANNEL B-	Signal

Technique Parameter

Step angle	1.8°	Ambient Temperature	-10° ~ +50°
Step angle Accuracy	5%	Insulation Resistance	100MΩ Insulation. 500V DC
Resistance Accuracy	10%	Dielectric Strength	500V AC
Inductance Accuracy	20%	Insulation Class	B
Temperature Rise	80°C Max	Weight	4.1Kg

Type	OK86STH115EC-1000	

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