

# Product Specification

Product Name

MDH-70◇◇-21B

Type

MD-70 Series

Product No.

S52500, S52510, S52520

Specification No.

LAC17E04-3

Technical No.

LC-17E06

Date Of Issue

2017 / 05 / 25

Last Revision Date ( Revision No. )

2019 / 04 / 09 ( Rev. 3 )

Product Summary

- Body diameter  $\phi$  70mm
- Absolute encoder (RS422 serial communication compliant (BiSS-C format) )
- Cable length 0.3m (With connector for driver (MC-110) connection)

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# 1. Specification

## 1-1. Motor Specifications (1)

Motor Model	MDH-70◇◇-21B		
	MDH-7006-21B	MDH-7012-21B	MDH-7018-21B
Motor Type	Three-phase AC servomotor, Permanent magnet		
Rotor Poles	20 P		
Input Power (Driver Input)	DC48V		
Peak Armature Current	13 Arms	16 Arms	19 Arms
Rated Armature Current (※)	2.8 Arms	3.0 Arms	3.5 Arms
Voltage Constant	13 V/(kr/min)	23 V/(kr/min)	31 V/(kr/min)
Peak Power	30 W	60 W	90 W
Peak Power Rate	24 kW/sec	83 kW/sec	147 kW/sec
Line Armature Resistance (at 25°C)	2.1 Ω	1.9 Ω	1.8 Ω
Line Amature Inductance	$2.6 \times 10^{-3}$ H	$3.1 \times 10^{-3}$ H	$3.3 \times 10^{-3}$ H
Armature Insulation Resistance	100MΩ or more ※DC500V		
Armature Insulation Withstand Voltage	AC500V 1 minute		
Motor Height (◇◇)	[06] 31.5 mm	[12] 37.5 mm	[18] 43.5 mm
Moment Of Inertia ※ J=GD <sup>2</sup> /4	$6.55 \times 10^{-5}$ kg · m <sup>2</sup>	$8.24 \times 10^{-5}$ kg · m <sup>2</sup>	$9.92 \times 10^{-5}$ kg · m <sup>2</sup>
Maximum Speed	200 r/min		
Rated Speed	200 r/min		
Peak Stall Torque	1.0 N·m	2.2 N·m	3.1 N·m
Rated Stall Torque	0.36 N·m	0.66 N·m	1.0 N·m
Continuous Rated Torque	0.36 N·m	0.66 N·m	1.0 N·m
Torque Constant (at 25°C)	0.13 N·m/Arms	0.22 N·m/Arms	0.30 N·m/Arms
Maximum Shaft Loads	Radial load Fr : 500N 、 Axial load Fa : 250N		
Load Reference Point Distance La	27.0 mm	33.0 mm	38.9 mm

※ Rated armature current is the value measured with the standard heat sink attached to the motor at an ambient temperature of 40°C

# 1. Specification

## 1-1. Motor Specifications (2)

Motor Model	MDH-70◇◇-21B		
	MDH-7006-21B	MDH-7012-21B	MDH-7018-21B
Operating Environment	Temperature : 0°C~+40°C、Humidity : 10%~85%RH (However、without condensation)		
Storage Environment	Temperature : -20°C~+60°C		
Vibration Resistance	Endurance 25 m/s <sup>2</sup> (About 2.5G) 10Hz~400Hz		
Shock Resistance	Endurance 300 m/s <sup>2</sup> (About 30G) 3 times each in the XYZ direction (Except for the impact on the shaft)		
Thermal Class	B type		
Standard Heat Sink Size	225×225×8 Aluminum		
Cable	Motor cable : Outer diameter φ 4.2(3 cores)fluorine wire、 bent insulated shield cable(300mm) Encoder cable : Outer diameter φ 4.2(14 cores)fluorine wire、 bent insulated shield cable (300mm)		
Mass	530 g (Cable included)	650 g (Cable included)	770 g (Cable included)
Outline Drawing	See attachment		
Accessories	None		
Notices	None		

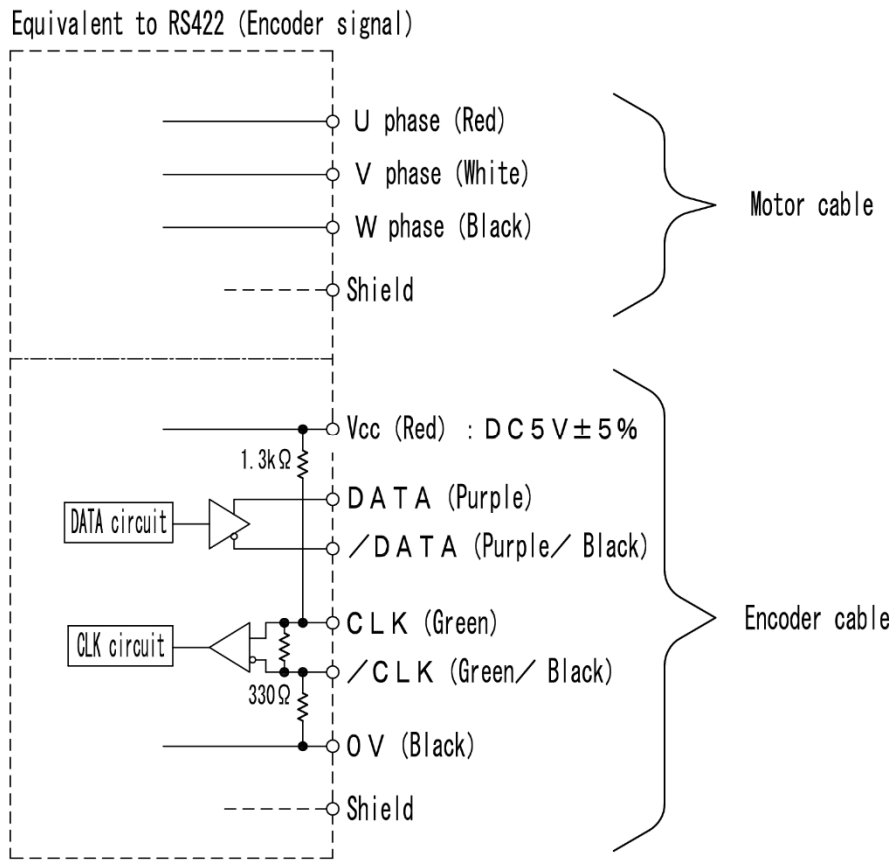


# 1. Specification

## 1-2. Encoder Specifications

Motor Model	MDH-70◇◇-21B
Encoder Model	MA-59-2097152N1
Detection Type	Absolute type / Batteryless specification
Code	Binary code
Resolution	2097152 (Single turn)
Communication Method	RS422 serial communication compliant (BiSS-C format)
Encoder Power Supply Voltage	DC5V±5%
Current Consumption	100 mA or less (at no load)
Output Capacity (DATA)	$V_{OH} = 2.5V$ or more, $V_{OL} = 0.5V$ or less, $I_O = \pm 20mA$ or less
Input Capacity (CLK)	$V_{OH} = 2.0V$ or more, $V_{OL} = 0.8V$ or less
Notices	None

## 2. Connection Diagram



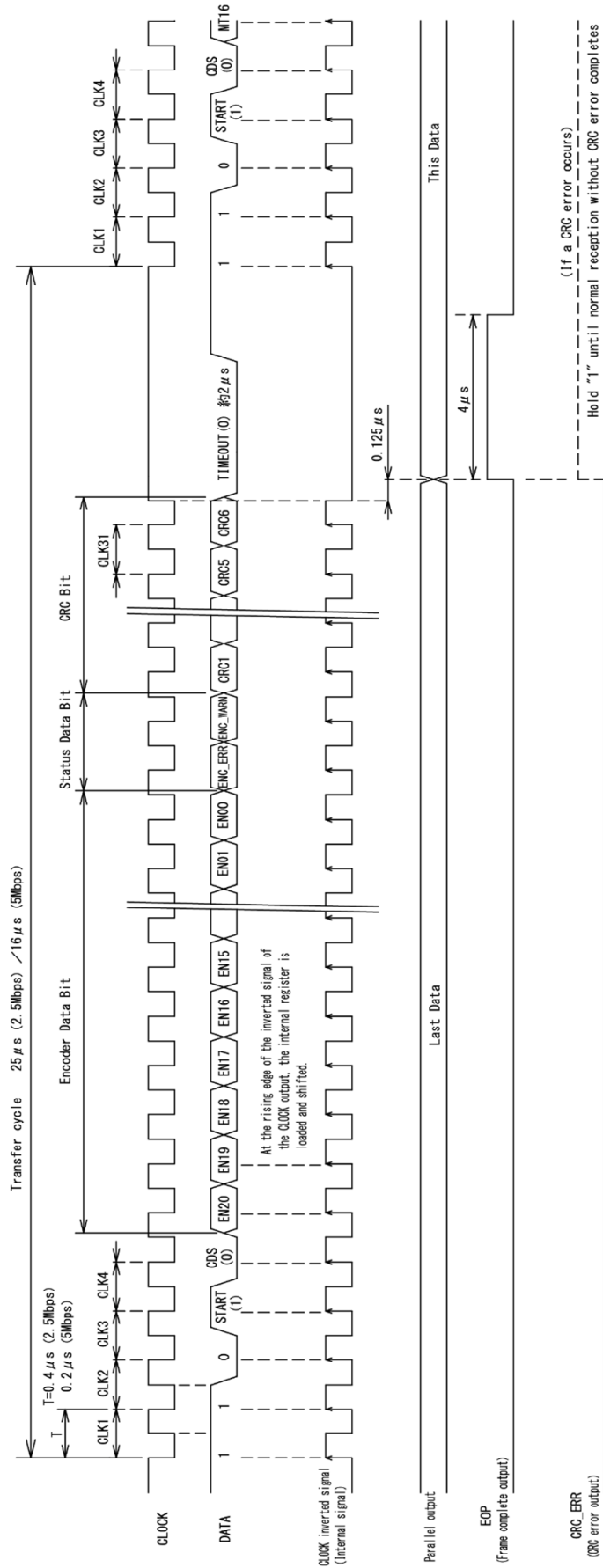
• Motor cable

Color	Red	White	Black	Shield
Signal	U phase	V phase	W phase	—

• Encoder cable (Absolute signal)

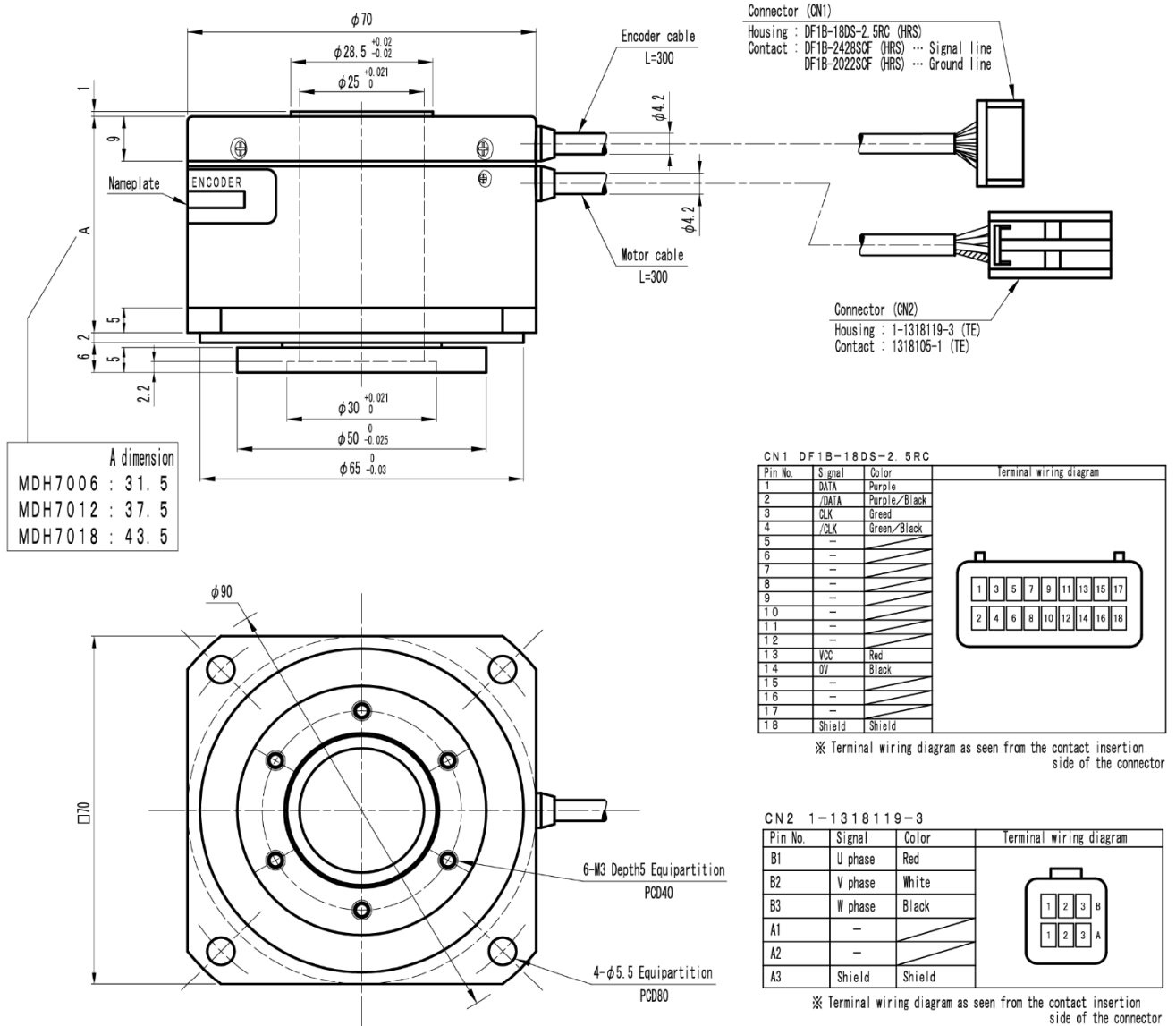
Color	Red	Purple	Green	Shield
Signal	Vcc	DATA	CLK	—
Color	Black	Purple/Black	Green/Black	
Signal	0V	/DATA	/CLK	

### 3. Signal Timing Chart (Encoder)



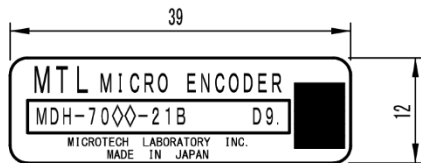


# 4. Outline Drawing



A dimension  
MDH7006 : 31.5  
MDH7012 : 37.5  
MDH7018 : 43.5

### Nameplate display



※ No. represents the lot number

- 1) Alphabet (A~L) ..... Production month  
A: January  
B: February
- 2) Number (0~9) ..... Production year  
9: 2019  
0: 2020

Ex. D9. .... Manufactured in April 2019

↑  
RoHS directive mark " . "