5 Phase Stepping Motor Driver
# MC-7514PCL/7514PCL-3

UL standard recognition
CE marking
SEMI-F47

FEATURE

- It is 5 Phase-stepping motor driver of the AC200-230V input.
- Maximum resolution is 1/250 (125,000 pulse per rotation).
- Low vibration drive(Full or Half step). (Except MC-7514PCL-3)
- Applies to a wide motor to 0.5A/phase-1.4A/phase.
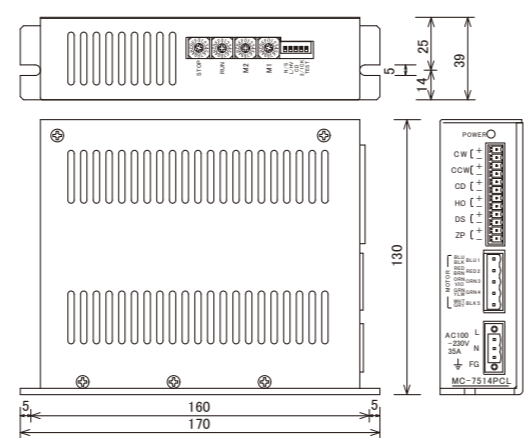- I/O uses the connector.

SPECIFICATION

| Name	5 phase stepping motor driver	
Model	MC−7514PCL , MC−7514PCL−3	
Driving method	Micro step	
Input power	AC100〜230V ±10% 50/60Hz 3.5A Max.	
Drive current	0.5A〜1.4A/phase	
Division	MC-7514PCL	1, 2, 4, 5, 8, 10, 16, 20, 25, 40, 50, 80, 100, 125, 200, 250
	MC-7514PCL-3	1, 2, 3, 6, 12, 18, 24, 32, 36, 48, 60, 72, 120, 160, 180, 240
Maximum frequency	500 kpps	
Input signal	Optical−isolator input [1]:4〜8V , [O]:−8〜0.5V Input resistance CW, CCW:300Ω C.D, H.O, D.S:390Ω	
Output signal (Z.P)	Optical−isolator open corrector output Condition ; DC30V or less, 50mA or less	
Function	Pulse input mode selector , Automatic current reduction , Micro step angle select , Driving voltage select , Initial sysytem check	
Insulation resistance	The value is 50MΩ or more,that measured by DC500V Megger Between the AC input and the case.	
Withstand voltage	It is not abobe even if AC1500V is impressed between the AC input and the case for one minute.	
Operating temperature range	0〜40℃	
Operating humidity range	0〜85%	
Weight	750g	

SAMPLE WIRING DIAGRAM
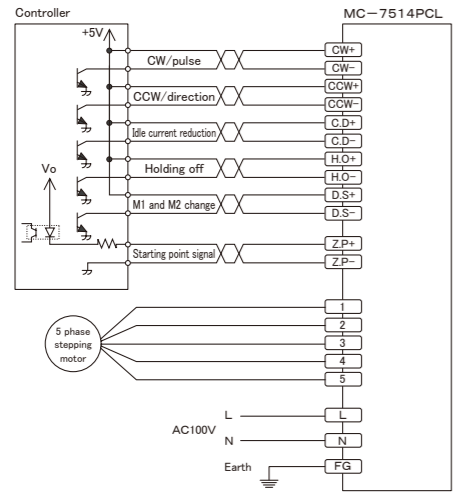
DIMENSIONS (unit:mm)

The size does not contain the projection thing such as the screws.

MOTOR

- 5/10 lead 5−Phase stepping motors such as Tamagawa−seiki or Oriental−motor.

See table below for the pin no. of the connector and color of motor leads.
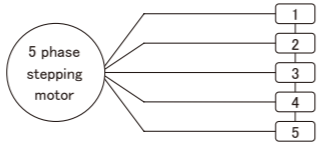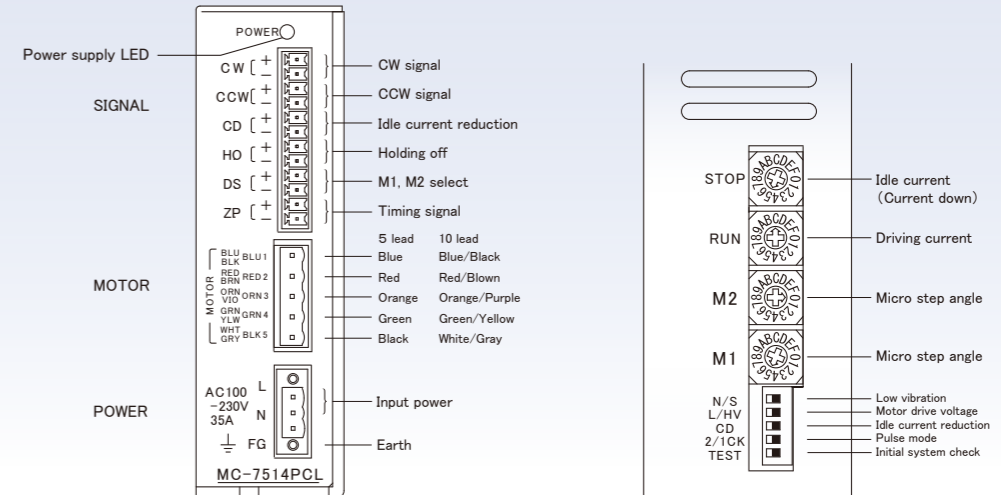
Connector No.	5 lead	10 lead
1	Blue	Blue/Black
2	Red	Red/Blown
3	Orange	Orange/Purple
4	Green	Green/Yellow
5	Black	White/Gray

Note : Please use the wire rod of AWG20(0.5mmsq) or more for connecting the motor.
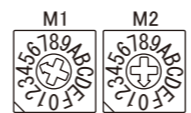
INPUT/OUTPUT CIRCUIT

300Ω (CW, CCW)
390Ω (C.D, H.O, D.S)
10Ω
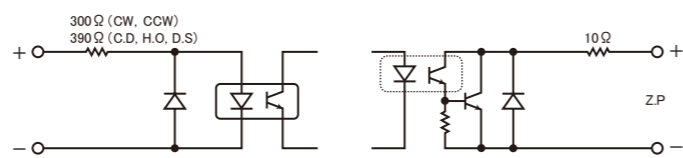
NAME AND FUNCTION

SETTING MICROSTEP RESOLUTION

MC-7514PCL

SW No.	0	1	2	3	4	5	6	7	8	9
Division	1	2	4	5	8	10	20	40	80	16

	A	B	C	D	E	F
	25	50	100	125	200	250

MC-7514PCL-3

SW No.	0	1	2	3	4	5	6	7	8	9
Division	1※	2※	3	6	12	18	24	32	36	48

	A	B	C	D	E	F
	60	72	120	160	180	240

$$\text{Micro Step Angle} = \frac{\text{Base Step Angle}}{\text{Division}}$$

72 divided steps → 0.01 degree
※Does not drive at the low vibration in this case.

① When only one microstep angle is used, use M1 rotary switch to set the division. input terminal D.S shall not be connected or signal must be ZERO(0) state if it is connected.
② Input signal at D.S Terminal. Zero(0) = M1 division, One(1) = M2 divison. Speed of Forward & Backward speed can be changed by this function.

SETTING DRIVE CURRENT

The desired drive current is obtained by setting RUN SW as follows.

Drive Current (RUN : Rotary Switch)

SW No.	0	1	2	3	4	5	6	7	8	9
Current (A)	0.5	0.58	0.66	0.75	0.81	0.88	0.96	1.03	1.1	1.15

	A	B	C	D	E	F
	1.25	1.32	1.4	1.47	1.53	1.6

Example ; Drive current = 1.4A/phase.
RUN SW = C

SETTING IDLE CURRENT (CURRENT DOWN)

Idle current is established by setting STOP SW as follows.

Idle Current (STOP : Rotary Switch)

SW No.	0	1	2	3	4	5	6	7	8	9
Current (%)	27	31	36	40	45	50	54	58	62	66

	A	B	C	D	E	F
	70	74	78	82	86	90

Example ; When the drive current is set at 1.4A/Phase, idol current will be 0.7A/Phase at the switch position no. 5 (50%).

DIP SW FUNCTIONS

No.	Indication	Mode	ON	OFF
1	TEST	Initial system check	Rotating (60pps).	Always set to off
2	2/1CK	Pulse mode	One pulse	Two pulse
3	C.D	Idle current reduction	Not active	Actived
4	L/HV	Motor drive voltage	※High speed and high torque	Standard
5	N/S	Low viblation	Low viblatino drive	Standard drive

※Please note heat of the motor when driving by high speed and a high torque.