## **Compact Micro-Driver SG-514MSC**

### A. Features

• The motor step angle can be set to 16 different divisions from 1 to 250 divisions by external signal.

 $\cdot$  Applicable motor is a 5-phase stepping motor with 0.3 to 1.4A/phase.  $\cdot$  Drive current and stop time current can be set with the RUN and STOP knobs.



## **B.** Specifications

Driving Motor	Five phase stepping motor					
Driving Method	micro-step 1 ~ 250 divisions					
Driving Current	0.3 ~ 1.4 A/phase (Current setting by RUN knob)					
Input Signals	2pulse input method Max pulse rate 500kHz Pulse voltage [H]:4~5V, [L]: 0~0.6V Pulse width 1 μS or higher Rise/fall time 2μS or lower					
Excitation timeing output	Open collector output DC30V 15mA					
Input voltage	motor drive	logic				
input voltage	DC24~36V ±10%	DC5V ±5%				
Operating temperature range	0 to 40 degrees Celsius					
weight	200g					

## C. Connection and Signal

Connector	Pin No.	Signal	Functions					
CN1	1		DC24V~36V ±10%					
	2	Input Voltage	GND					
	3		-					
	1		Motor lead Bule					
CN2	2	Motor Wirina	Motor lead Red					
	3	3	Motor lead Orange					
	4		Motor lead Green					
	5		Motor lead Black					
	1	Input Voltage for legio	GND					
	2		DC5V ±5%					
	3		D0	Changes motor step angle by a 4-bit signal input. (See How to Set the Step				
	4	The Step Angle	D1					
CN3	5	Setting Input	D2					
	6		D3	Angle)				
	7	Input CW pulses	Rotates the moto	r CW by pulse input				
	8	Input CCW pulses	Rotates the motor CCW by pulse input					
	9	Hold-off	I: Hold-off, L:Normal operation					
	10	Excitation timeing output	Step [0] : output					



# Input Signal Circuitry Input CW Pulse/CCW Pulse

(b) Input Hold-off/Step Angle

(c) Excitation timeing output



#### 2) How to Set the Step Angle

The motor step angle can be changed in 16 different ways by the combination of step angle setting inputs D0 to D3. Use this feature to change the motor speed or feed rate without changing the input pulse speed.

Div	/ide	1	2	2.5	4	5	8	10	20	25	40	50	80	
C N 3	D3	L	L	L	L	L	L	L	L	Н	Н	Н	Н	
	D2	L	L	L	L	Н	Н	Н	Н	L	L	L	L	
	D1	L	L	Н	Н	L	L	Н	Н	L	L	Н	Н	
	D0	L	Н	L	Н	L	Н	L	Н	L	Н	L	Н	
Divide 100 125 200 250										-				
C N 3	D3	Н	Η	Н	Н	Note) · If you wish to change the step angle setting inputs, do so when								
	D2	Н	Н	Н	Н	the pulse signal is halted. Changing the setting inputs while								
	D1	L	∟	Н	Н	receiving the pulse input may result in motor position discrepancy.								
5	D0	L	Н	L	Н	·Changing the step angle while the motor is halted will not cause								
motor position discrepancy														

#### **Timing Chart**



Note1) Varies depending on load inertia, load torque and other factors. Do not input a motor hold off signal before stopping the motor. Note2) To avoid impact on the motor startup characteristic, do not input a pulse signal immediately after pulling the hold off input signal to "H" level. This period should normally be roughly 100msec. Note3) The motor may not function properly if you input a pulse when either of the CW and CCW pulse inputs is at "L" level.



## **D. Adjustment Procedure**

Setting the Drive Current (RUN) ·Switch ON the current check switch. · Connect a DC ammeter between the blue motor lead · Connect a DC ammeter between the blue motor and Pin 1 of CN2 and turn ON the driver. ·Set the drive current with the RUN knob.

Setting the Stop Time Current (STOP) · Switch OFF the current check switch. lead and Pin 1 of CN2 and turn ON the driver. ·Set the drive current with the STOP knob.



### E. Dimension (Outlook)



