

RSD-SUNMAX-LT — Stepping Motor Driver DIP Switch Settings

RSD-SUNMAX Series
SUNMAX LASER

About this document: This is an English translation of the Japanese original prepared by SUNMAX LASER for reference purposes. In case of any discrepancy, the Japanese original shall prevail. Specifications are subject to change without notice.

RSD-SUNMAX-LT — Stepping Motor Driver DIP Switch Settings

This technical document describes the DIP switch settings of the stepping motor drivers used in the RSD-SUNMAX-LT5030 and LT6040 series.

This document applies to the following models:

- RSD-SUNMAX-LT5030-40W
- RSD-SUNMAX-LT6040-40W
- RSD-SUNMAX-LT5030 MPC-40W
- RSD-SUNMAX-LT6040 MPC-40W
- RSD-SUNMAX-LT6040 MPC15-40W
- RSD-SUNMAX-LT6040 ST908-40W

Note: For the RSD-SUNMAX-LT1390-80W, refer to the separate technical document for the LT1390.

Under normal circumstances there is no need to change the DIP switch settings. However, the switch positions may change as a result of relocating the laser machine, vibration during shipping, or a strong impact.

If the DIP switches are set incorrectly, the following symptoms may occur:

- A. The travel distance differs from the data (the X and Y scale does not match the data).
- B. The stepping motor torque becomes weak and the motor quickly loses synchronization (stalls).
- C. The stepping motor overheats.

If any of the above problems occur, check the DIP switch settings of the stepping motor drivers as described below.

Location

Open the lower door on the right side of the machine as viewed from the front.

Two black boxes are located near the center of the right side of the machine. These are the stepping motor drivers for the X and Y axes, respectively.

Internal Layout



The internal layout, the parts used, and the name and shape of the stepping motor drivers vary depending on the model and production lot.

About the Stepping Motor Drivers

The stepping motor drivers used in the RSD-SUNMAX-LT5030/6040 series come in four types, depending on the model and production lot. Since the DIP switch settings differ for each type, you must check the machine to identify which type of stepping motor driver is installed before checking the DIP switches.

The model number is printed on the side of the stepping motor driver housing.

1. DM320C

"DM320C" is printed on the side of the stepping motor driver housing. For the DIP switch settings, refer to the "DM320C" section.

2. 2M420

"2M420" is printed on the side of the stepping motor driver housing. For the DIP switch settings, refer to the "2M420" section.

3. DMA860H or M860C

The DMA860H and M860C are compatible units. They can be interchanged without any changes to settings or wiring. "DMA860H" or "M860C" is printed on the side of the stepping motor driver housing. For the DIP switch settings, refer to the "DMA860H/M860C" section.

4. 2DM420

"2DM420" is printed on the side of the stepping motor driver housing. For the DIP switch settings, refer to the "2DM420" section.

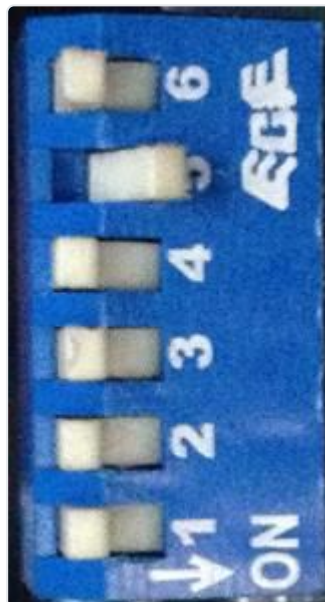
5. M332C

"M332C" is printed on the side of the stepping motor driver housing. For the DIP switch settings, refer to the "M332C" section.

DM320C

DIP Switches

The DIP switches are shaped as shown in the figure below.



The DIP switch block on the stepping motor driver is a 6-bit switch. Flipping a white switch toward the side marked with the numbers 1–6 turns it ON.

Initial Settings

X-axis stepping motor driver

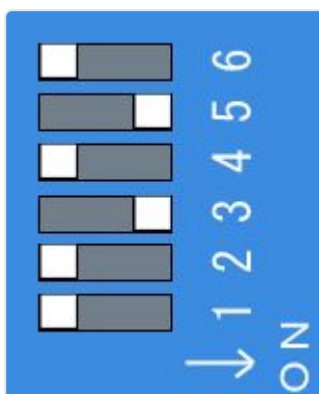
SW	1	2	3	4	5	6
Setting	OFF	OFF	ON	OFF	ON	OFF

SW4 is not used. It may be set to either ON or OFF.

Y-axis stepping motor driver

SW	1	2	3	4	5	6
Setting	OFF	OFF	ON	OFF	ON	OFF

SW4 is not used. It may be set to either ON or OFF.



Note: The settings may differ from the above depending on the model and production lot.

Configuration Reference

X-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Although the table includes a "Default" row, the initial setting is "Peak current: 1.0".

Peak current [A]	SW1	SW2	SW3
Default	ON	ON	ON
0.5	OFF	ON	ON
0.7	ON	OFF	ON
1.0	OFF	OFF	ON
1.2	ON	ON	OFF
1.5	OFF	ON	OFF
1.7	ON	OFF	OFF
2.0	OFF	OFF	OFF

SW5 to SW6 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Although the table includes a "Default" row, the initial setting is "Resolution: 3200".

Resolution (steps/rev)	SW5	SW6
Default	ON	ON
800	OFF	ON
3200	ON	OFF
12800	OFF	OFF

Y-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Although the table includes a "Default" row, the initial setting is "Peak current: 1.0".

Peak current [A]	SW1	SW2	SW3
Default	ON	ON	ON
0.5	OFF	ON	ON
0.7	ON	OFF	ON
1.0	OFF	OFF	ON
1.2	ON	ON	OFF
1.5	OFF	ON	OFF
1.7	ON	OFF	OFF
2.0	OFF	OFF	OFF

SW5 to SW6 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Although the table includes a "Default" row, the initial setting is "Resolution: 3200".

Resolution (steps/rev)	SW5	SW6
Default	ON	ON
800	OFF	ON
3200	ON	OFF
12800	OFF	OFF

2M420

DIP Switches

The DIP switches are shaped as shown in the figure below.

The DIP switch block on the stepping motor driver is an 8-bit switch. Flipping a white switch toward the side marked with the numbers 1–8 turns it ON.

Initial Settings

X-axis stepping motor driver

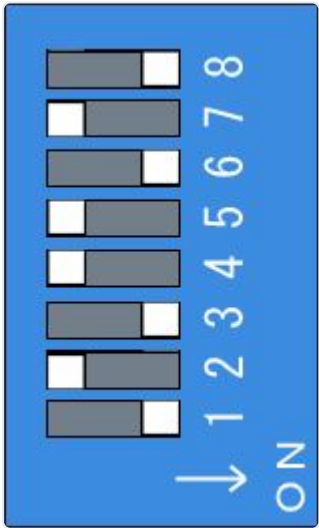
SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	OFF	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.

Y-axis stepping motor driver

SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	OFF	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.



Note: The settings may differ from the above depending on the model and production lot.

Configuration Reference

X-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
0.90	0.64	ON	ON	ON
1.20	0.85	OFF	ON	ON
1.50	2.10	ON	OFF	ON
1.80	2.30	OFF	OFF	ON
2.10	2.60	ON	ON	OFF
2.40	2.90	OFF	ON	OFF
2.70	3.20	ON	OFF	OFF
3.00	3.50	OFF	OFF	OFF

SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

Y-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
0.90	0.64	ON	ON	ON
1.20	0.85	OFF	ON	ON
1.50	2.10	ON	OFF	ON
1.80	2.30	OFF	OFF	ON
2.10	2.60	ON	ON	OFF
2.40	2.90	OFF	ON	OFF
2.70	3.20	ON	OFF	OFF
3.00	3.50	OFF	OFF	OFF

SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

DMA860H / M860C

DIP Switches

The DIP switches are shaped as shown in the figure below.

The DIP switch block on the stepping motor driver is an 8-bit switch. Flipping a white switch toward the side marked with the numbers 1–8 turns it ON.

Initial Settings

X-axis stepping motor driver

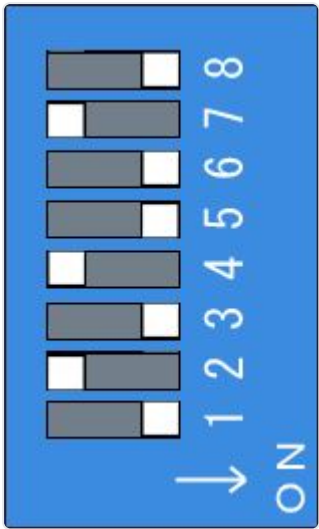
SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	ON	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.

Y-axis stepping motor driver

SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	ON	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.



Note: The settings may differ from the above depending on the model and production lot.

Configuration Reference

X-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
2.40	2.00	ON	ON	ON
3.08	2.57	OFF	ON	ON
3.77	3.14	ON	OFF	ON
4.45	3.71	OFF	OFF	ON
5.14	4.28	ON	ON	OFF
5.83	4.86	OFF	ON	OFF
6.52	5.43	ON	OFF	OFF
7.20	6.00	OFF	OFF	OFF

SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
51200	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
40000	OFF	OFF	OFF	OFF

Y-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
2.40	2.00	ON	ON	ON
3.08	2.57	OFF	ON	ON
3.77	3.14	ON	OFF	ON
4.45	3.71	OFF	OFF	ON
5.14	4.28	ON	ON	OFF
5.83	4.86	OFF	ON	OFF
6.52	5.43	ON	OFF	OFF
7.20	6.00	OFF	OFF	OFF

SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	ON	ON	ON	ON
800	OFF	ON	ON	ON
1600	ON	OFF	ON	ON
3200	OFF	OFF	ON	ON
6400	ON	ON	OFF	ON
12800	OFF	ON	OFF	ON
25600	ON	OFF	OFF	ON
51200	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
40000	OFF	OFF	OFF	OFF

2DM420

DIP Switches

The DIP switches are shaped as shown in the figure below.

The DIP switch block on the stepping motor driver is an 8-bit switch. Flipping a white switch toward the side marked with the numbers 1–8 turns it ON.

Initial Settings

X-axis stepping motor driver

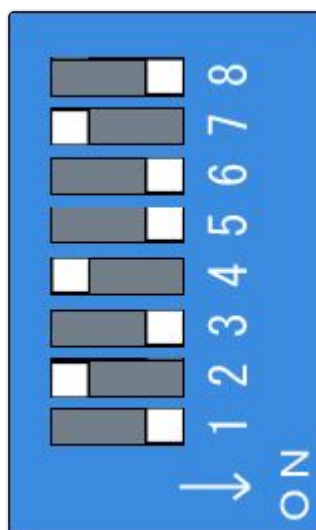
SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	ON	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.

Y-axis stepping motor driver

SW	1	2	3	4	5	6	7	8
Setting	ON	OFF	ON	-	ON	ON	OFF	ON

SW4 is not used. It may be set to either ON or OFF.



Note: The settings may differ from the above depending on the model and production lot.

Configuration Reference

X-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	SW1	SW2	SW3
0.9	ON	ON	ON
1.2	OFF	ON	ON
1.5	ON	OFF	ON
1.8	OFF	OFF	ON
2.1	ON	ON	OFF
2.4	OFF	ON	OFF
2.7	ON	OFF	OFF
3	OFF	OFF	OFF

SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

Y-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	SW1	SW2	SW3
0.9	ON	ON	ON
1.2	OFF	ON	ON
1.5	ON	OFF	ON
1.8	OFF	OFF	ON
2.1	ON	ON	OFF
2.4	OFF	ON	OFF
2.7	ON	OFF	OFF
3	OFF	OFF	OFF

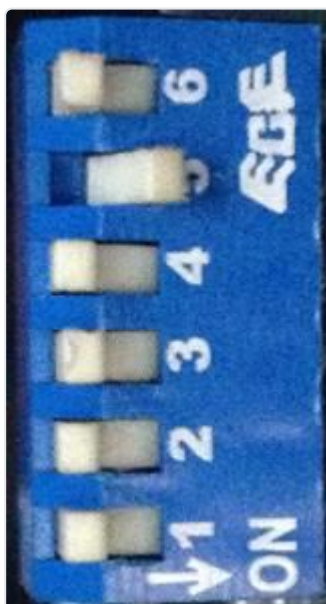
SW5 to SW8 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW5	SW6	SW7	SW8
400	OFF	ON	ON	ON
800	ON	OFF	ON	ON
1600	OFF	OFF	ON	ON
3200	ON	ON	OFF	ON
6400	OFF	ON	OFF	ON
12800	ON	OFF	OFF	ON
25600	OFF	OFF	OFF	ON
1000	ON	ON	ON	OFF
2000	OFF	ON	ON	OFF
4000	ON	OFF	ON	OFF
5000	OFF	OFF	ON	OFF
8000	ON	ON	OFF	OFF
10000	OFF	ON	OFF	OFF
20000	ON	OFF	OFF	OFF
25000	OFF	OFF	OFF	OFF

M332C

DIP Switches

The DIP switches are shaped as shown in the figure below.



The DIP switch block on the stepping motor driver is a 6-bit switch. Flipping a white switch toward the side marked with the numbers 1–6 turns it ON.

Initial Settings

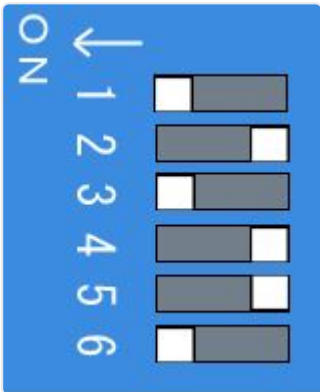
X-axis stepping motor driver

SW	1	2	3	4	5	6
Setting	ON	OFF	ON	OFF	OFF	ON

Y-axis stepping motor driver

SW	1	2	3	4	5	6
Setting	ON	OFF	ON	OFF	OFF	ON

SW4 is not used. It may be set to either ON or OFF.



Note: The settings may differ from the above depending on the model and production lot.

Configuration Reference

X-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
1.00	0.71	ON	ON	ON
1.31	0.94	OFF	ON	ON
1.63	1.16	ON	OFF	ON
1.94	1.39	OFF	OFF	ON
2.24	1.60	ON	ON	OFF
2.55	1.82	OFF	ON	OFF
2.87	2.05	ON	OFF	OFF
3.20	2.29	OFF	OFF	OFF

SW4 to SW6 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW4	SW5	SW6
400	ON	ON	ON
800	OFF	ON	ON
1600	ON	OFF	ON
3200	OFF	OFF	ON
6400	ON	ON	OFF
12800	OFF	ON	OFF
4000	ON	OFF	OFF
8000	OFF	OFF	OFF

Y-Axis Settings

SW1 to SW3 set the current applied to the stepping motor. In general, a higher current value produces greater torque, but it also increases vibration during acceleration and deceleration, which may degrade the finish quality of the work.

Peak current [A]	RMS current [A]	SW1	SW2	SW3
1.00	0.71	ON	ON	ON
1.31	0.94	OFF	ON	ON
1.63	1.16	ON	OFF	ON
1.94	1.39	OFF	OFF	ON
2.24	1.60	ON	ON	OFF
2.55	1.82	OFF	ON	OFF
2.87	2.05	ON	OFF	OFF
3.20	2.29	OFF	OFF	OFF

SW4 to SW6 set the resolution of the stepping motor (the number of pulses required for one full revolution of the motor shaft). If this value is not set correctly, the laser machine cannot plot data accurately.

Resolution (steps/rev)	SW4	SW5	SW6
400	ON	ON	ON
800	OFF	ON	ON
1600	ON	OFF	ON
3200	OFF	OFF	ON
6400	ON	ON	OFF
12800	OFF	ON	OFF
4000	ON	OFF	OFF
8000	OFF	OFF	OFF