

JOY STICK CONTROLLER

JS-301

User's Manual

HOURS
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For Your Safety

- Before using this product, read this manual and all warnings or cautions in the documentation provided.
- Only Factory Authorized Personnel should be changes and/or adjust the parts of controller.

The Symbols Used in This Manual


 WARNING	 CAUTION
This symbol marks warnings that should be read and used to prevent serious injury or death.	This symbol indicates where caution should be used to avoid possible injury to yourself or others, or damage to property.

The above indications are used together with the following symbols to indicate the exact nature of the warning or caution.

Examples of Symbols Accompanying Warnings and Cautions	
	△Symbols enclosed in a triangle indicate warnings and cautions. The exact nature of the warning or caution is indicated by the symbol inside (the symbol at left indicates risk of electrocution).
	○Symbols enclosed in a circle mark indicate prohibitions(actions that must not be performed).The exact nature of the prohibition is indicates by the symbol inside or next to the circle mark (the symbol at left indicates that the product must not be disassembled).
	●Symbols inside a black circle mark actions that must be performed to ensure safety. The exact nature of the action that must be performed is indicated by the symbol inside (the symbol at left is used in cases in which the AC adapter must be unplugged to ensure safety).

Symbols on the product

The symbol mark on the product calls your attention. Please refer to the manual, in the case that you operate the part of the symbol mark on the product.

	This symbol labeled on the portion calls your attention.
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Disclaimer of Liability

- ① SIGMAKOKI CO., LTD. does not accept liability for damages resulting from the use of this product or the inability to use this product.
- ② SIGMAKOKI CO., LTD. does not accept liability for damages resulting from the use of this product that deviates from that described in the manual.
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- ④ If the equipment is used in a manner not specified by the SIGMAKOKI CO., LTD. the protection provided by the equipment may be impaired.



- Do not use this product in the presence of flammable gas, explosives, or corrosive substances, in areas exposed to high levels of moisture or humidity, in poorly ventilated areas, or near flammable materials.
- Do not connect or check the product while the power is on.
- Installation and connection should be performed only by a qualified technician.
- Do not bend, pull, damage, or modify the power or connecting cables.
- Do not touch the products internal parts.
- Connect the earth terminal to ground.
- Should the product overheat, or should you notice an unusual smell, heat, or unusual noises coming from the product, turn off the power immediately.
- Do not turn on the power in the event that it has received a strong physical shock as the result of a fall or other accident.
- Do not touch the stage while operation.
- Use dry clothes only for cleaning the equipment.

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Chapter 1: Before You Begin

1-1. Overview

This product have joystick type UI. It's have display.

It can be connected to our stage controller, SHOT-30* series and SHOT-702/SHOT-702H/PGC-04-U/HSC-103/SHRC-203.

The operation box, connected to the controller via a cable, provides remote operation. This means that the joystick allows you to work near the motorized stage while checking its behavior even if the controller and the motorized stage are away from each other.

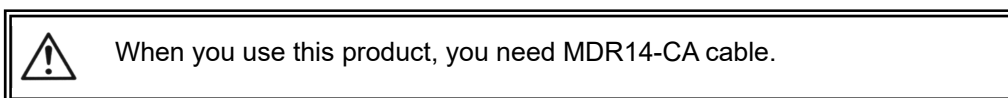
When you use JS-301, you can use when Table1-1 controller version.

Table1-1 Controller version

SHOT-302GS/304GS	Ver.1.20~
SHOT-702	Ver.1.05~
SHOT-702H	Ver.1.00~
PGC-04-U	Ver.1.02~
HSC-103	Ver.1.01~
SHRC-203	Ver.1.00~

This product This contains items such as the following.

- JS-301 1
- User's manual (This document) 1



1-2. Connecting method

This product is connected to the controller with MDR14-CA cable.

- ① Connect a standard cable (MDR14-CA-*) to the connector on the rear panel of the JS-301.
- ② Connect the cable from the JS-301 to the “JOYSTICK” or “OPTION” of the connector on the front panel of the SHOT-30X series, PGC-04-U and SHRC-203 controller.
(In the case of SHOT-702/SHOT-702H/HSC-103, it becomes the rear panel part.)
- ③ Turn power switch of the controller on.

And confirm that the open message is displayed correctly. If it can not be displayed, reconfirm if connection of cable is done correctly.



Be sure the controller is off when you connect this product. You may not be able to use the buttons and so on on this product if you connect or disconnect either device while the controller is on.

Chapter 2: Notes on Use

2-1. Name of each part

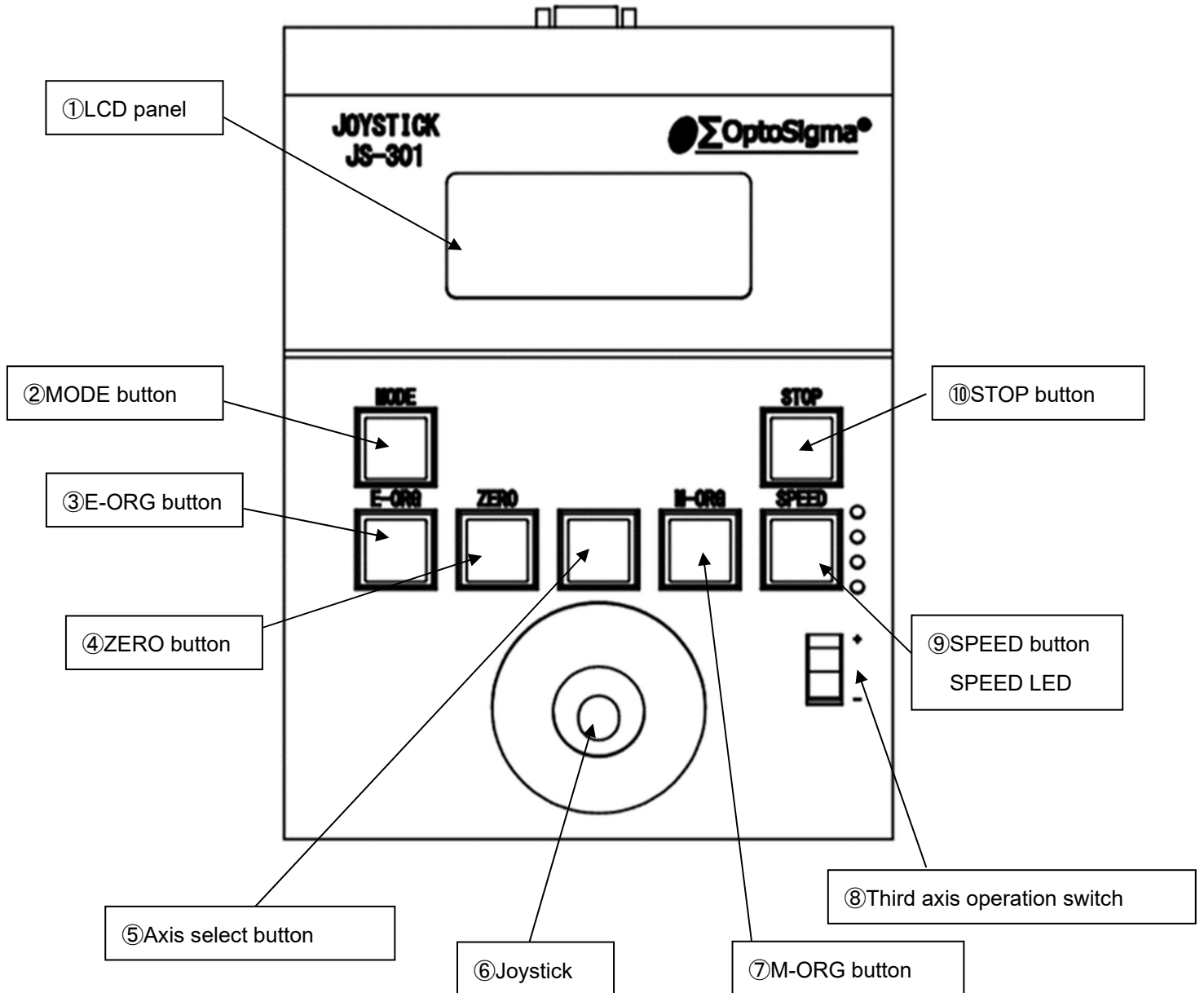
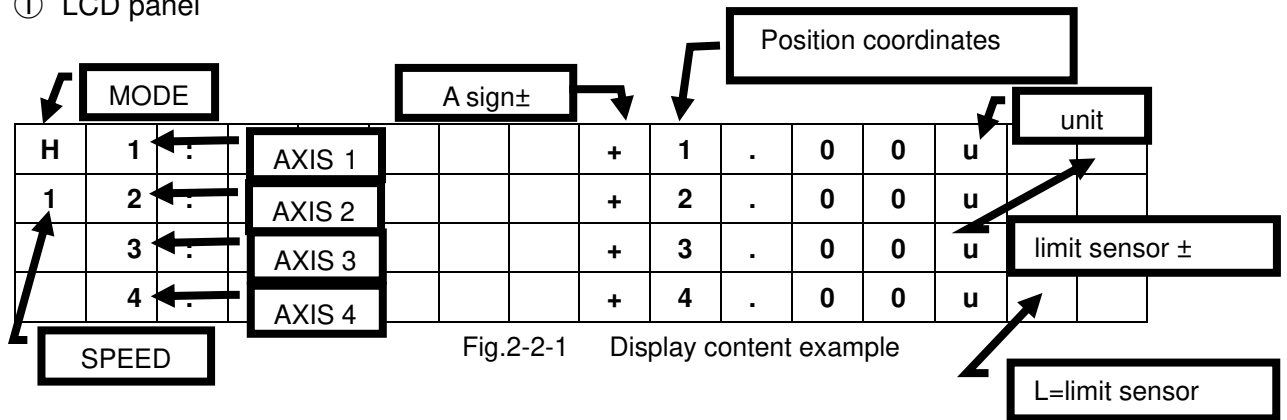


Fig.2-1 Name of each part

2-2. Operating method

① LCD panel



※When you disconnected stage, displayed "+ -".

- unit : p = [pulse]
- u = [μm]
- d = [°]
- s = [μm]

Display the position coordinates for each axis and the operating mode.

Display Digit : 16 digit × 4 lines

② 【MODE】 button

Change an operation mode of the controller.

HOST→MANUAL . . .

Refer to a User’s Manual of SHOT-302GS/SHOT-304GS/SHRC-203 for various modes.

NOTE) IN SHOT-702/SHOT-702H/PGC-04-U/HSC-103, the MODE change is invalid.

③ 【E-ORG】 button

Position stage at logical origin “0” for all axes.

The button’s LED indicator lights up when the stage is moving and lights off when the stage is at logical position.

④ 【ZERO】 button

Reset position coordinates for all axes to zero.

⑤ 【Axis select】 button

Selects the axis operated by joystick as “ 1 and 2 axis” or “3 and 4 axis”.

The LED indicator lights up when “3 and 4 axis” can be operated by joystick.


NOTE) This button is usable with SHOT-304GS/PGC-04-U/HSC-103/SHRC-203.

⑥ Joystick

Enables operation of “1 and 2 axis” or “3 and 4 axis”.

A move of the joystick continuously moves the stage continuously.

Releasing the stick stops the stage.

	Move the joystick again after putting the joystick in neutral for over a second when inverting moving direction of each axis. It may not work without the required operation.
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⑦ 【M-ORG】 button

Moves the stage to its mechanical origin.

The button’s LED indicator lights up when the stage is moving and lights off when the stage is at mechanical origin position.

⑧ Third axis operation switch

Use the switch to operate third axis.

Push the switch to Top : + direction

Push the switch to Bottom : - direction

NOTE) This button is usable with SHOT-304GS/PGC-04-U/HSC-103/SHRC-203.

⑨ 【SPEED】 button and SPEED LED

Cycle through “SPEED 1/2/3/4” settings stored in controller’s memory switches (1→2→3→4→1 . . .).

Change the number of lightning of LED indicator by the SPEED button every time pushing the button. Its number of lightning of LED indicator enables you to check current moving speed.

When "●" position means lightning LED. Number of lightning LED means speed value.


SPEED	1	2	3	4
	○	○	○	●
	○	○	●	●
	○	●	●	●
	●	●	●	●

Fig.2-2-2 Number of Shining LED means speed value

⑩ 【STOP】 button

If you were push this button, all operating motorized stages stop.

Refer to the manual of each controller for stopped condition.

	Don't use other cable that MDR14-CA cable.
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2-3. Checking and Setting Memory Switches

This product able to change memory switch of SHOT-302GS/SHOT-304GS/SHOT-702H controller of the memory switch controller.

NOTE) This function is only usable with SHOT-302GS/SHOT-304GS and SHOT-702H.

(*) For more information about memory switch, refer to User's manual of SHOT-302GS/SHOT-304GS and SHOT-702H.

NOTE) IN SHOT-702/PGC-04-U/HSC-103/SHRC-203, the Memory switch mode is invalid.

Changing Memory switch settings

To display the memory switch setting screen when using the SHOT-302GS/SHOT-304GS, set to manual mode (M).

Press the 【MODE】 and 【E-ORG】 buttons simultaneously press, Memory switch settings can be changed.

Table2-3-1 Checking and Setting Memory Switches

Button	Function
Joystick UP side	Cycle through items in descending order (No.2⇒1⇒86⇒85) (* In case of SHOT-702H (No.45⇒46⇒1⇒2))
Joystick down side	Cycle through items in ascending (No.85⇒86⇒1⇒2)order (* In case of SHOT-702H (No.2⇒1⇒46⇒45))
Joystick right side	For numeric options, move cursor to right digit
Joystick left side	For numeric options, move cursor to left digit
【MODE】 and 【ZERO】	①Cycle through options for the current item (or increase the value of numeric options)
	② After changes to settings have been completed, save changes to settings and exit
【SPEED】	①Cycle through options for the current item (or decrease the value of numeric options)
	② After changes to settings have been completed, cancel changes to settings and exit
【MODE】	①Press to end changes to settings (a confirmation screen will be displayed)
【MODE】 and 【ZERO】 OR 【SPEED】 OR 【MODE】	②When setting is completed ※ 1
	YES
	NO, CANCEL
【MODE】and【M-ORG】	Restore memory switch settings to factory defaults

Chapter 3: Specifications

3-1. Specifications

Display function	LCD 16 digit × 4 lines
Power supply	Supplied from the controller via connection cable
Operating temperature	5~40°C
Storage temperature	-20~60°C
Altitude	up to 2000m
Indoor use only	
Installation category	II
Pollution degree	2
Ambient humidity	20~80%RH (no condensation)
External dimensions	120W×160D×53H [mm](excluding projections)
Weight	About 0.7 [kg]
Electrostatic discharge	EN61000-4-2(2009) Level 2

3-2. Connector pin number and signal

Table3-2 Connector pin assignment

Pin number	Signal name	Pin number	Signal name
1	SG	8	SG
2	+5V	9	+5V
3	TXD+	10	TXD-
4	RXD+	11	RXD-
5	STOP	12	CONNECT-
6	-	13	-
7	-	14	-

3-3. External dimensions

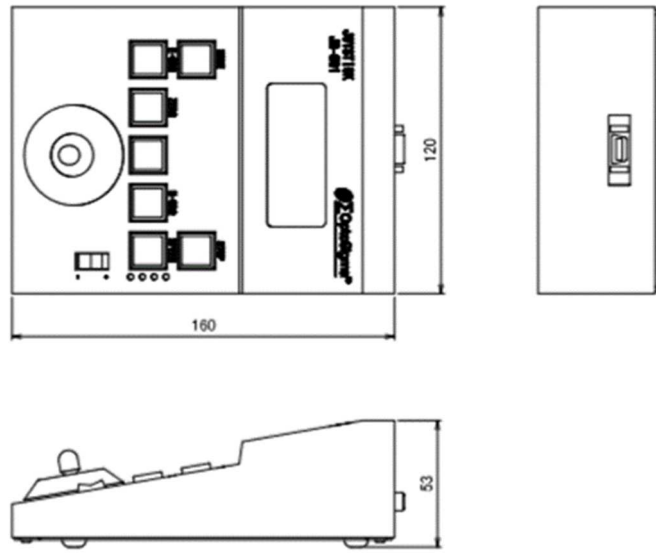


Fig.3-3 Exterior Dimensions