

# Flange I/O



A0509 | A0509S | A0912 | A0912S

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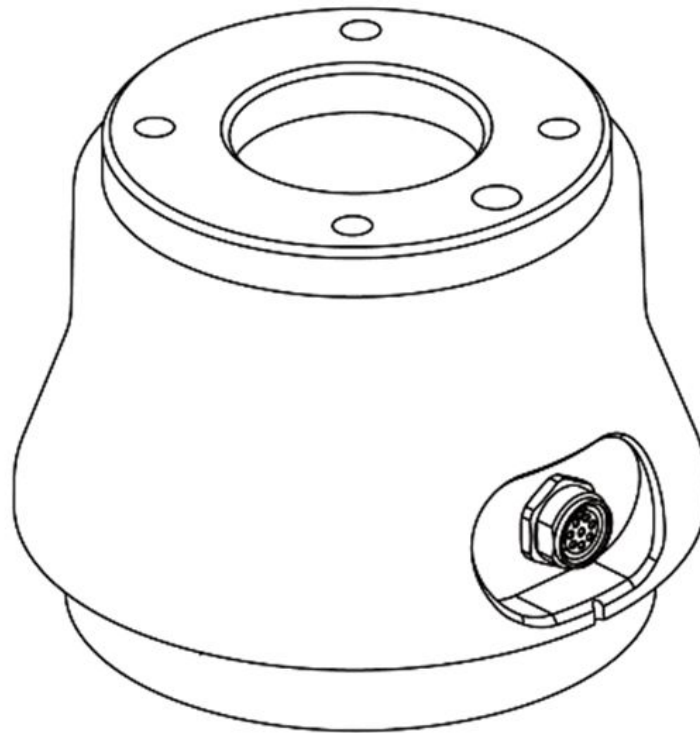
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The end flange cover of the robot has one M8 spec 8-pin connector, and refer to the figure below for the location and shape.

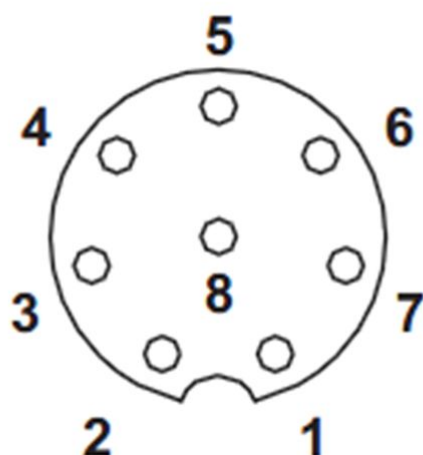


The connector supplies power and control signals necessary to operate the gripper or sensors embedded within specific robot tools. The following are sample industrial cables (equivalent cables can be used):

- Phoenix contact 1404178, male (Straight)
- Phoenix contact 1404182, male (Right Angle)

The pin map of each connector is as follows:

## 1 Schematic Diagram



The I/O functions provided through X1 connector are different from each other, and refer to the table below for detailed I/O settings.

### 1.1 X1 Setting (Digital I/O, RS 485)

No	Signal	Note
1	RS485 A	Mfg date 2020.07.06 ~ 2021.01.21
2	RS485 B	
3	Digital Output 1	
4	Digital Output 2	
5	+24V	
6	Digital Input 2	
7	Digital Input 1	
8	GND	

## 1.2 X1 Setting (Digital I/O, RS 485)

The setting has been changed as follows since January 21, 2021

No	Signal	Note
1	Digital Input 1	Mfg date Before July 6, 2020
2	Digital Output 1	
3	Digital Output 2	Mfg date After January 21, 2021
4	RS485 A	
5	+24V	Other serial numbers applied VMA6F5-A0509S WAA6H7-A0912 WAA6H8-A0912
6	RS485 B	
7	Digital Input 2	
8	GND	

### Caution

- Configure tools and grippers after checking I/O configuration based on production date (robot label mfg date).
- You can find it on Doosan Robotlab.(<https://robotlab.doosanrobotics.com><sup>1</sup>)
- If you run robot tools ignoring I/O configuration, the product can be damaged permanently.

Internal power of the flange I/O is set to 24V, and refer to the table below for detailed power specifications during I/O connection.

Parameter	Min	Typ	Max	Unit
Supply voltage	-	24	-	V
Supply current	-	2	3	A
Digital output	-	2	-	EA

<sup>1</sup> <http://doosanrobotics.com>

Parameter	Min	Typ	Max	Unit
Digital input	-	2	-	EA

**⚠ Warning**

- Set up the tool and gripper so that they do not cause any hazards when power is cut off.  
(e.g., workpiece falling from the tool)
- The No. 5 terminal of each connector outputs 24V at all times while power is supplied to the robot, so make sure to cut the power supply to the robot when setting up the tool and gripper.