

# Robotic Hand Changer

**New**

**Compact Waterproof Electrode (Noncontact Waterproof)**



**Drastically Downsized**  
Suitable for Light and Compact Robots  
with Small Payload

**IP67-Compatible** Compact Noncontact Waterproof Electrode  
For Condition Where Standard Electrode Cannot Be Used

Compact Waterproof Electrode has been added to the line-up!  
 Every Robotic Hand Changer (model SWR) can now be equipped with  
 Noncontact Waterproof Electrode.

## Current Model

Available for Payload of 25kg or more

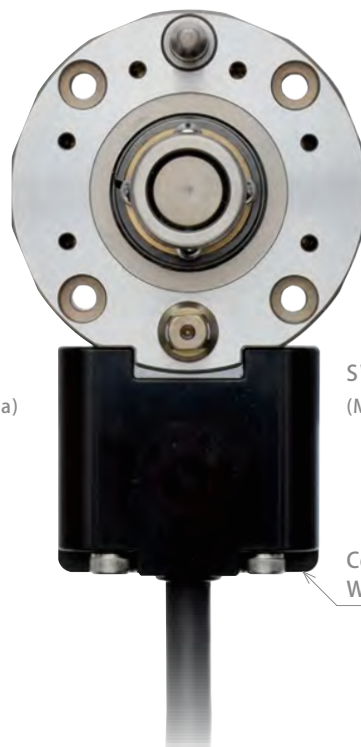
## **NEW** Compact Waterproof Electrode

Available for All Sizes



SWR0500-M-□-V  
 (Max. Payload : 50kg at 0.5MPa)

Waterproof Electrode





SWR0070-M-□-W  
 (Max. Payload : 7kg at 0.5MPa)

Compact Waterproof Electrode

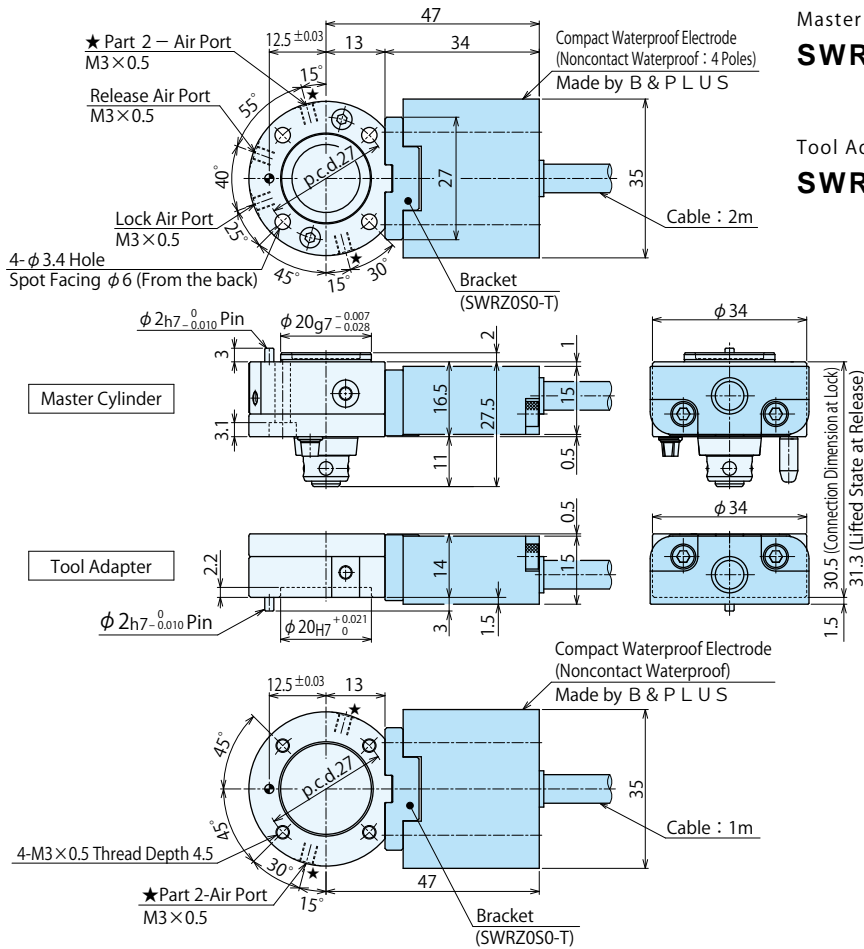
### External Option Compatibility

● = Available Option

	Electrode Protection Grade	Number of Poles	External Option Symbol	3kg	7kg	12kg	25kg	50kg	75kg	120kg	
				SWR 0030	SWR 0070	SWR 0120	SWR 0250	SWR 0500	SWR 0750	SWR 1200	
<b>NEW</b> Compact Waterproof Electrode 	<b>Compatible with IP67</b>	Number of Signals <b>4</b>	NPN	<b>W</b>	●	●	●	●	●	●	
			PNP	<b>WX</b>	●	●	●	●	●	●	
Waterproof Electrode 		Number of Signals <b>12</b>	NPN	<b>V</b>				●	●	●	●
			PNP	<b>VX</b>				●	●	●	●

● Specifications • External Dimensions ※ Please refer to our website (<http://www.kosmek.co.jp/>) for detailed specifications.

Payload : 3kg



Model No. Indication

Master Cylinder (Robot Side)

SWR0030 - M - W

External Option Symbol  
W : Compact Waterproof Electrode NPN  
WX : Compact Waterproof Electrode PNP

Tool Adapter (Tool Side)

SWR0030 - T - W

External Option Symbol  
W : Compact Waterproof Electrode NPN/PNP

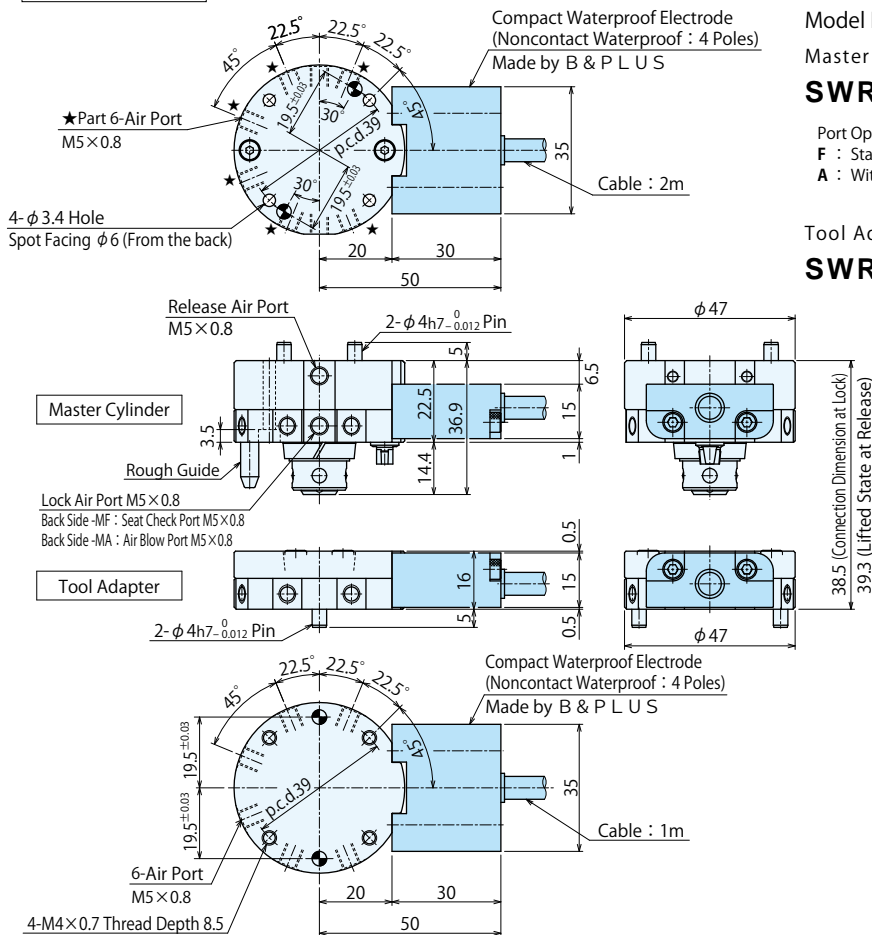
Specifications

Payload (at 0.5MPa)	kg	3
Locating Repeatability	mm	0.003
Lift Stroke (Detaching Stroke)	mm	0.8
Operating Pressure	MPa	0.35 ~ 1.0
Operating Temperature	°C	0 ~ 70
Pressurizing Agent		Dry Air
Weight	Master Side (Including Electrode)	g 100 + Cable 60g/m×2m
	Tool Side (Including Electrode)	g 75 + Cable 60g/m×1m

※ Please refer to our website for detailed specifications of master cylinder/tool adapter.

Compact waterproof electrode is available for SWRY0010-M/T (Payload:3kg, Number of Air Port: 6). Please contact us for further information.

Payload : 7kg



Model No. Indication

Master Cylinder (Robot Side)

SWR0070 - MF - W

Port Option  
F : Standard (With Seat Check Port)  
A : With Air Blow Port  
External Option Symbol  
W : Compact Waterproof Electrode NPN  
WX : Compact Waterproof Electrode PNP

Tool Adapter (Tool Side)

SWR0070 - T - W

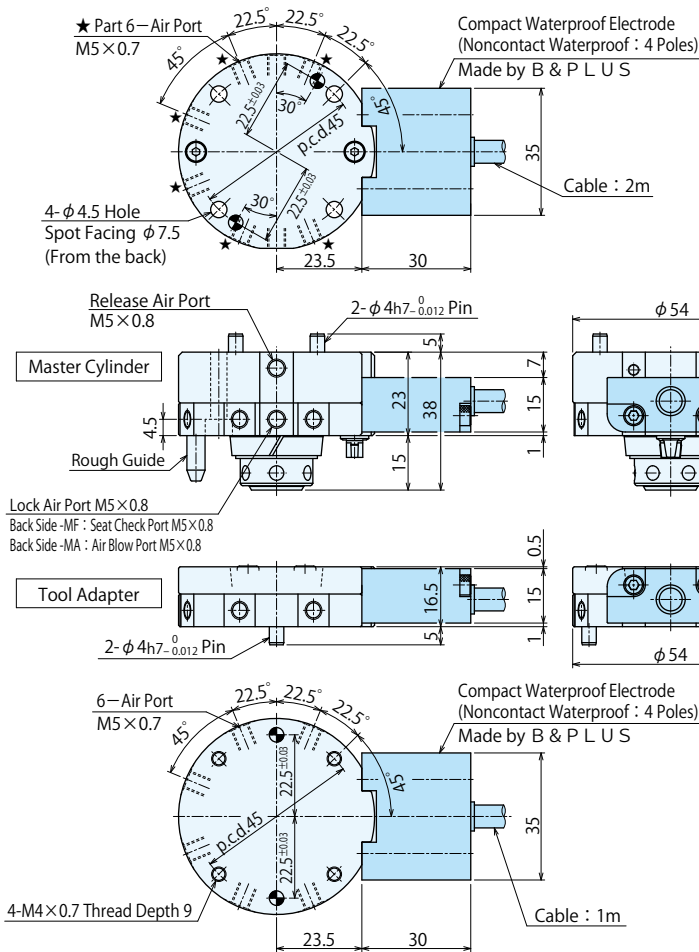
External Option Symbol  
W : Compact Waterproof Electrode NPN/PNP

Specifications

Payload (at 0.5MPa)	kg	7
Locating Repeatability	mm	0.003
Lift Stroke (Detaching Stroke)	mm	0.8
Operating Pressure	MPa	0.35 ~ 1.0
Operating Temperature	°C	0 ~ 70
Pressurizing Agent		Dry Air
Weight	Master Side (Including Electrode)	g 205 + Cable 60g/m×2m
	Tool Side (Including Electrode)	g 145 + Cable 60g/m×1m

※ Please refer to our website for detailed specifications of master cylinder/tool adapter.

Payload : 12kg



Model No. Indication

Master Cylinder (Robot Side)

**SWR0120 - MF - W**

Port Option \_\_\_\_\_ External Option Symbol  
**F** : Standard (With Seat Check Port) **W** : Compact Waterproof Electrode NPN  
**A** : With Air Blow Port **WX** : Compact Waterproof Electrode PNP

Tool Adapter (Tool Side)

**SWR0120 - T - W**

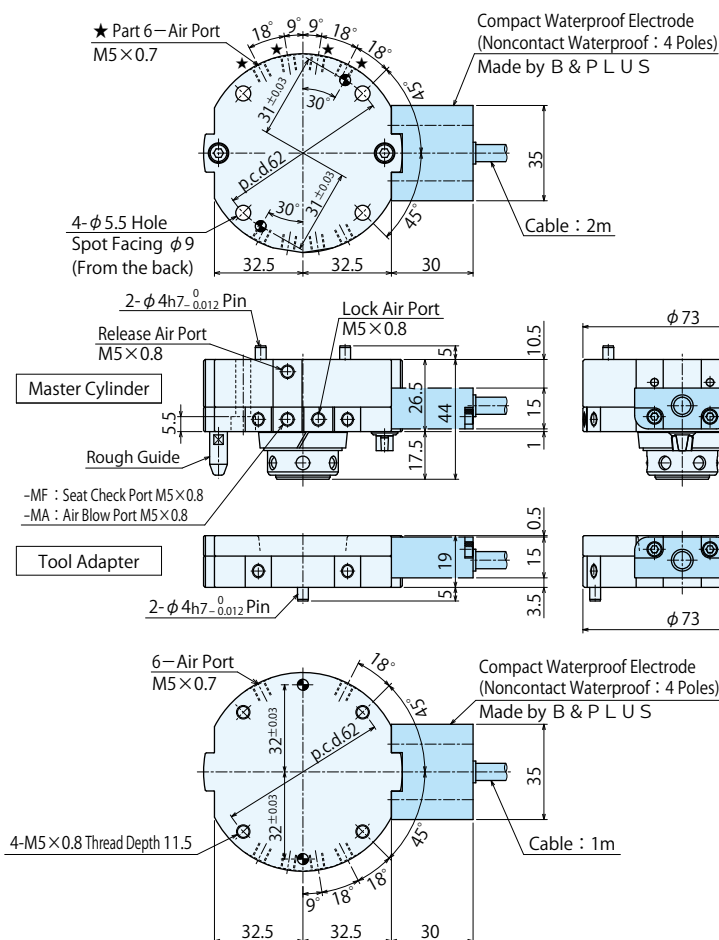
External Option Symbol  
**W** : Compact Waterproof Electrode NPN/PNP

Specifications

Payload (at 0.5MPa)	kg	12
Locating Repeatability	mm	0.003
Lift Stroke (Detaching Stroke)	mm	0.8
Operating Pressure	MPa	0.35 ~ 1.0
Operating Temperature	°C	0 ~ 70
Pressurizing Agent		Dry Air
Weight	Master Side (Including Electrode)	g 275 + Cable 60g/m×2m
	Tool Side (Including Electrode)	g 185 + Cable 60g/m×1m

※ Please refer to our website for detailed specifications of master cylinder/tool adapter.

Payload : 25kg



Model No. Indication

Master Cylinder (Robot Side)

**SWR0250 - MF - W**

Port Option \_\_\_\_\_ External Option Symbol  
**F** : Standard (With Seat Check Port) **W** : Compact Waterproof Electrode NPN  
**A** : With Air Blow Port **WX** : Compact Waterproof Electrode PNP

Tool Adapter (Tool Side)

**SWR0250 - T - W**

External Option Symbol  
**W** : Compact Waterproof Electrode NPN/PNP

Specifications

Payload (at 0.5MPa)	kg	25
Locating Repeatability	mm	0.003
Lift Stroke (Detaching Stroke)	mm	1.0
Operating Pressure	MPa	0.35 ~ 1.0
Operating Temperature	°C	0 ~ 70
Pressurizing Agent		Dry Air
Weight	Master Side (Including Electrode)	g 525 + Cable 60g/m×2m
	Tool Side (Including Electrode)	g 325 + Cable 60g/m×1m

※ Please refer to our website for detailed specifications of master cylinder/tool adapter.

※ Please contact us for specifications/external dimensions of SWR-W/WX with higher payload.

# Details and Notes on External Option : Noncontact Waterproof Electrode

## Attention for Installation

(Read this section thoroughly before installation.)

- ◆ Ensure the power is switched off during installation or maintenance operations.
- ◆ Use a regulated power supply, e.g. switch-model type.  
Simpler power supplies, such as a full-wave rectification type, will cause the permissible ripple rating to be exceeded and may cause malfunction.
- ◆ Ensure correct connections by referencing the wiring diagram.
- ◆ To avoid malfunction caused by induction noise, cable should be kept apart from motor or other power cable.

### Electrode Specifications (Tool Adapter Side)

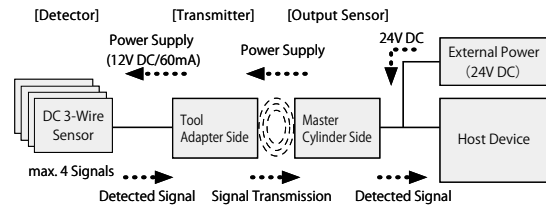
Model No.	SWR□0-T□-W
Applicable Sensor	DC 3-Wire Sensor
Drive Voltage	12V ±1.5V DC
No. of Input Signals	4
Drive Current	≤ 30mA ≤ 60mA
Operating Distance	0~3mm 0~2mm
Center Offset	± 2mm ± 1mm
Operating Temperature	0~+50°C
Protection Grade	IP67
Cable	PUR φ6.3 / 7x0.259mm <sup>2</sup> Hitachi Metals, Ltd. RBT-VUCTF
Material	ABS
Weight	Body 20g + Cable 60g/m

### Electrode Specifications (Master Cylinder Side)

Model No.	NPN	SWR□0-M□-W
	PNP	SWR□0-M□-WX
Supply Voltage	24V	DC ± 10% (Including Ripple)
Current Consumption	≤ 200mA	
No. of Output Signals	4 + 1 (Inzone)	
Load Current	≤ 50mA/1 Output	
LED Indication	Status (Green), Inzone (Orange)	
Circuit Protection	Short Circuit Protection, Converse Protection, Surge Suppression	
Operating Temperature	0~+50°C	
Protection Grade	IP67	
Cable	PUR φ6.3 / 7x0.259mm <sup>2</sup> Hitachi Metals, Ltd. RBT-VUCTF	
Material	ABS	
Weight	Body 20g + Cable 60g/m	

- Total current consumption of detectors must not exceed the rated drive current.
- Reduce the switches when the total current consumption exceeds the drive current.

## System Configuration



### (Function of Each Component)

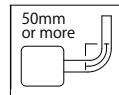
- Detector** : Connects Detector Sensor (max. 4) and transmits the detected signals to Transmitter.
- Transmitter** : Provides power for Detector, also passes detected signals from Detector to Output Sensor.
- Output Sensor** : Puts out detected signal to external controller, also sends power for operating of Detector and Transmitter.

### Applicable Sensor

Supply Voltage	12V DC
Total Current Consumption	≤ 60mA
Residual Voltage	≤ 3.5V
Load Current	—

### Bending Radius of Cable

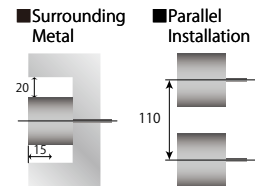
The minimum bending radius for the sensors are 50mm.



※ Do not pull the cable with excessive force when installing.

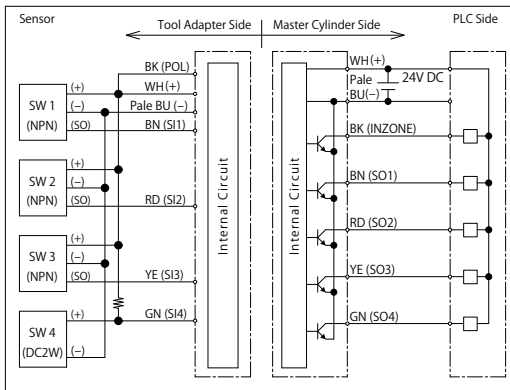
### Installation Notes

In order to avoid influence of surrounding metal, or to avoid mutual influence between parallel-mounted sensors, keep the minimum free zone as described on the right. (Tightening Torque : 0.63N · m)

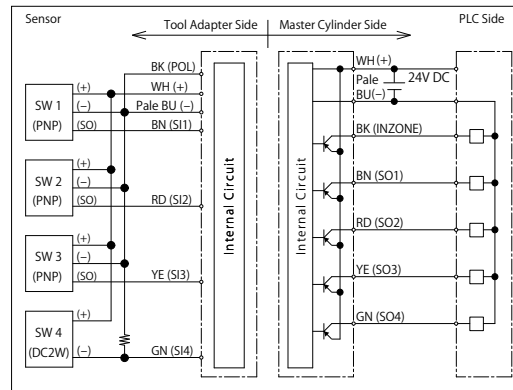


## Wiring Diagram

### SWR□0-M□-W : NPN



### SWR□0-M□-WX : PNP

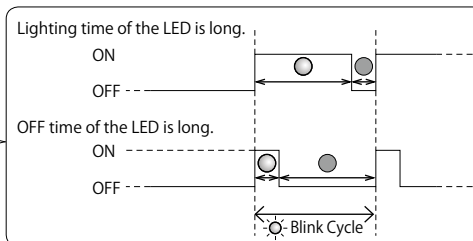


■ SW4 of the wiring diagram is an example of the DC-2 wire sensor wiring (Recommend resistance is 1~2KΩ). DC-3 wire sensor can also be used.

## LED Indication

### ■ Status LED (Green)

LED	Blinking	Pattern	Meaning
ON	—	—	The power supply is supplied.
OFF	—	—	The power supply is not supplied.
Blink	Slow (1.5 sec.)	OFF time of the LED is long.	Anomalous Temperature
Blink	Mid. Speed (0.6 sec.)	OFF time of the LED is long. Lighting time of the LED is long.	Supply voltage is high. Supply voltage is low.
Blink	High Speed (0.2 sec.)	The LED flashes at the same interval.	Short Circuit Protection

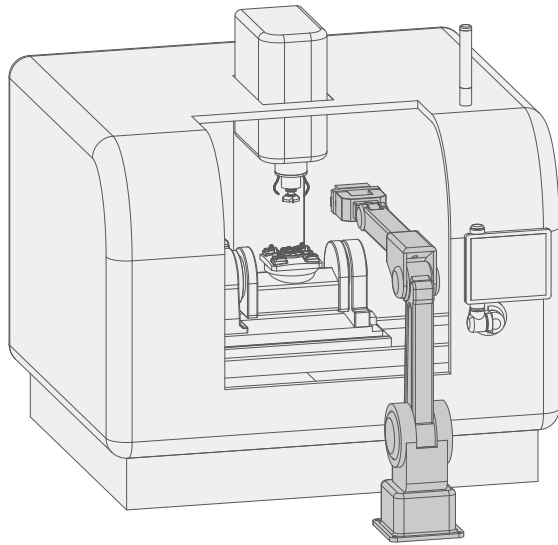


■ INZONE LED (Orange) LED is lit when the master cylinder and tool adapter are facing each other, within about 3.0mm, and able to communicate.

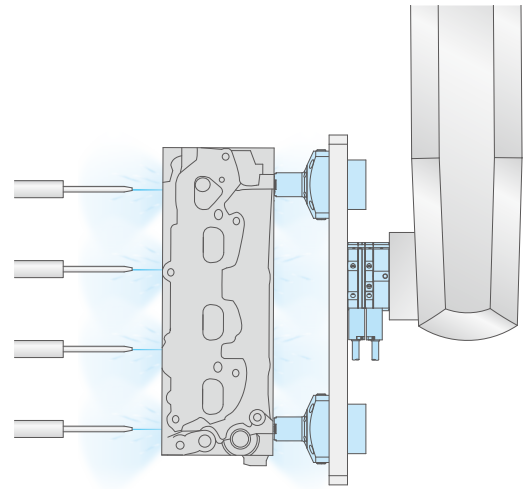
The information above is quoted from B & Plus K.K. Remote System User's Guide (No.T315201B).

Please contact B & Plus K.K. (TEL 81(0)-493-65-5771) for further information about electrodes (Model No. SWRZ0W0-M-\_\_ / SWRZ0W0-T-\_\_).

# Waterproof Electrode Application Examples



For Unloading Workpiece from Machine Tool  
(Condition Under Coolant Mist)



For Washing Machine

## Protection Grade

Protection grade is based on JIS (Japan Industrial Standards).

I P 6 7

- No Infiltration of Water Even When Putting Under Water with Prescribed Pressure and Time
- No Infiltration of Dust

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