IO-Link Compatible 2 in 1 Auto Switch/ Setup Tool



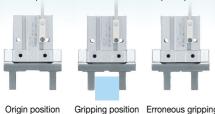




Looking for a more convenient way to adjust the position of auto switches?

Reduced setting labour No need to fine-tune the switch mounting position

Improved productivity It's possible to discriminate between up to 3 points.



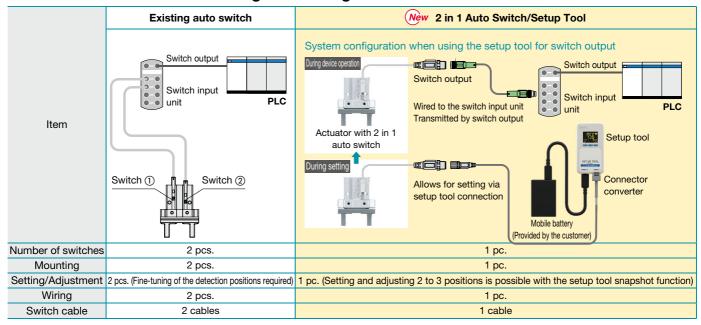
Gripping position Erroneous gripping

Easy adjustment even in narrow places and on moving parts The detection position can be set remotely with the switch secured in place.





Reduced auto switch mounting and setting labour

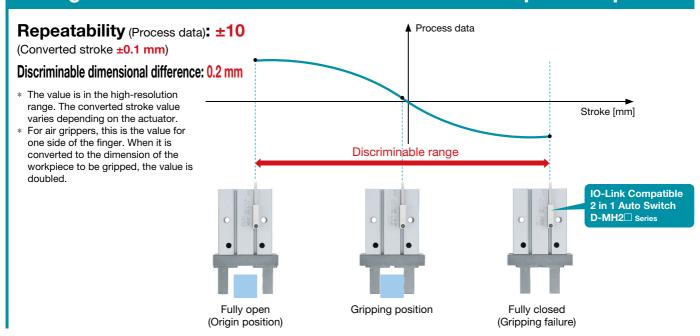




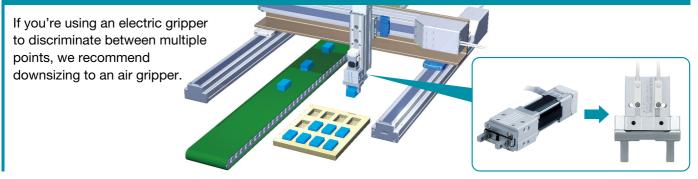


Outputs process data according to the actuator stroke position

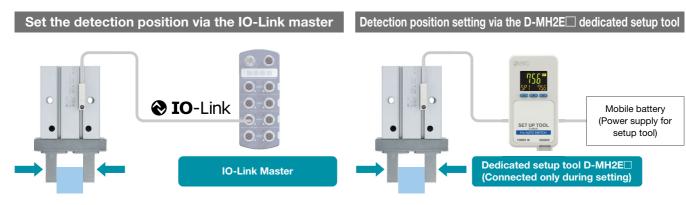
A single switch can discriminate between max. 3 position points



By using 2 switches, it's possible to discriminate between up to 6 points



Detection position setting can be done away from the actuator



Can also be used with the 2 in 1 auto switch single unit if there is an IO-Link master $\,$

When there is no IO-Link master, the D-MH2E□ dedicated setup tool can be used to set the detection position. As the tool is powered by a mobile battery, setting can be performed from any location.

* Does not include the mobile battery or USB-C cable



How to use D-MH2 and D-MH1 depending the application

- Are you checking the numerical values during daily inspections, etc.?
- Are you using the display sensor monitor/numerical values outside of setting and replacement?
- Are you checking the numerical values on the sensor monitor for constant monitoring?

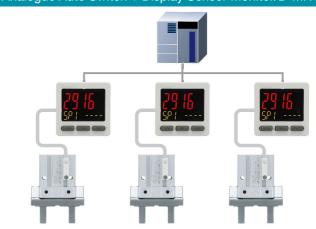
Display/numerical values are only checked during setting and replacement.

Numerical values are checked during daily inspections, etc.

Space saving Display sensor monitors are not required. Setup tool

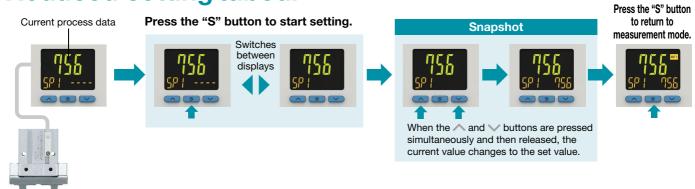
- → The setup tool is only used during setting to set the switch output.
- When using with IO-Link, setting and numerical value confirmation can be done via the host system.

Analogue Auto Switch + Display Sensor Monitor/D-MH1



- → Switch output is done through the display sensor monitor.
- The display sensor monitors can be used to check the numerical values on site.
- →When analogue signals are used instead of the display sensor monitors, numerical value confirmation can be done via the host system.

Snapshot function for easy switch output setting Reduced setting labour

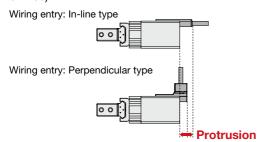


No protrusion from the body end surface

Existing auto switch

With protrusion from the air gripper

(For both the in-line type and the perpendicular type wiring entries)

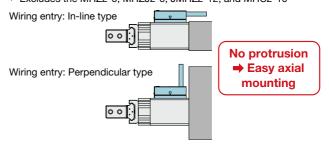


New IO-Link Compatible 2 in 1 Auto Switch

No protrusion from the air gripper

(Easy axial mounting for the perpendicular type wiring entry)

* Excludes the MHZ2-6, MHZJ2-6, JMHZ2-12, and MHC2-10



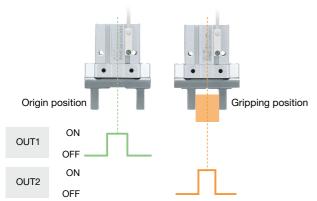


Improved productivity: A wide range of uses are possible according to the number of set points.

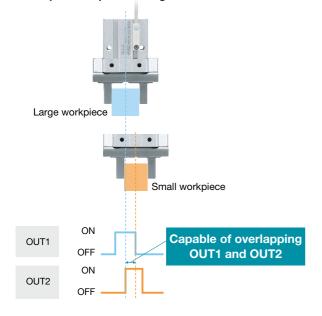
Different usages are possible with the 3-set point type and the 2-set point type.

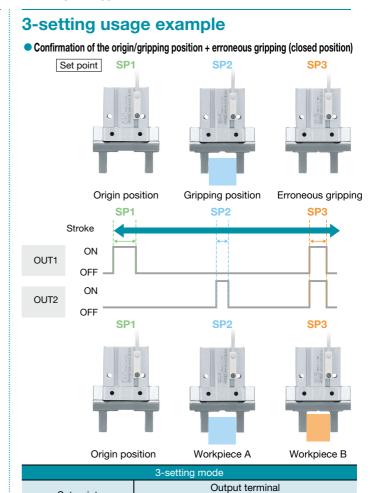
2-setting usage example

Origin/Gripping position



Simple workpiece recognition





- Set point
 OUT1
 OUT2

 SP1
 ON
 OFF

 SP2
 OFF
 ON

 SP3
 ON
 ON
- * SP3 is set to OUT1 + OUT2 simultaneous output.
- * In 3-setting, it is not possible to set the output range to overlap.
- * The part numbers of the 3-set point type and the 2-set point type are different. The number of set points cannot be changed.

Improved productivity: Easy resetting due to position shifting

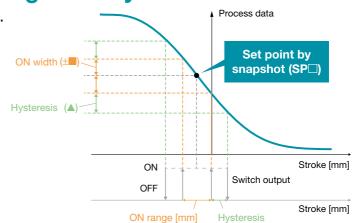
The switch output's output range and hysteresis can be set.

The ON width and hysteresis can be changed via the setup tool. (It is possible to set SP1 to 3 individually.)
The ON width can be used to change the switch output's ON range. Chattering of the switch output can be prevented by

Relationship between the set point and the output terminal (For 3-setting)

setting a hysteresis.

Set point	Output terminal				
Set point	OUT1	OUT2			
SP1	ON	OFF			
SP2	OFF	ON			
SP3	ON	ON			



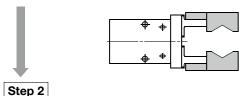


Difference in mounting method between the 2-in-1 auto switch and the existing product

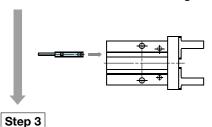
Existing Product (Example)

Step 1

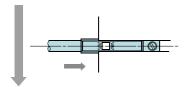
Fully open the fingers.



Insert the auto switch into the switch installation groove in the direction shown in the following drawing.

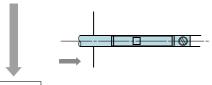


Slide the auto switch in the direction of the arrow until the indicator light illuminates.



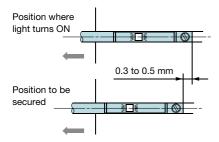
Step 4

Slide the auto switch further in the direction of the arrow until the indicator light goes out.



Step 5

Move the auto switch in the opposite direction and fasten it at a position 0.3 to 0.5 mm beyond the position where the indicator light illuminates.

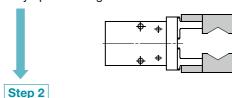


To set the detection point of the second point (and subsequent points), you will be required to prepare a new switch and set it from step 1.

2 in 1 Auto Switch (Example)

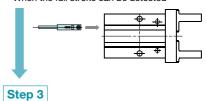
Step 1

Fully open the fingers.

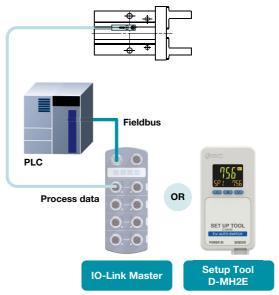


Insert the auto switch into the switch installation groove in the direction shown in the following drawing. Secure the auto switch at recommended mounting dimension B.

* When the full stroke can be detected



Set the ON point using the IO-Link master or the D-MH2E dedicated setup tool. (Refer to page 1.)



(Connected only during setting)

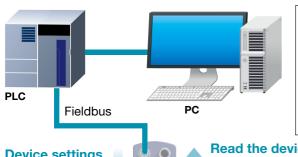
Setting the second point (and subsequent points) can be done by setting the finger to the desired state and then performing step 3. The ON point can be set without adding a switch or making fine adjustments to the mounting position.

Allows for a reduction in the number of switches and makes switch mounting and adjustment easier



IO-Link compatible

Visualisation of operation/equipment status/Remote monitoring and control by communication



Configuration File (IODD File*1)

- Manufacturer Product part no.
- Set value

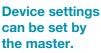
*1 IODD File:

IODD is an abbreviation of IO Device Description. This file is necessary for setting the device and connecting it to a master. Save the IODD file on the PC to be used to set the device prior to use.



IO-Link is an open communication interface technology between the sensor/ actuator and the I/O terminal that is an international standard: IEC 61131-9.

2 in 1 Auto Switch



- · Threshold value
- · Operation mode, etc.



Read the device data.

- \cdot Switch ON/OFF signal and position measurement value
- · Device information:
- Manufacturer, Product part number, Serial number, etc.
- · Normal or abnormal device status
- · Cable breakage



IO-Link Master

2 in 1 auto switch IO-Link specifications

IO-Link version: V1.1

Communication speed: 38.4 [kbps] (COM2) Shortest data update cycle: 3.2 ms

Process Data

Bit offset	Item	Note
0	SW1 output	0: SW*-OFF
1	SW2 output	1: SW*-ON
2	SW3 output	1.300 -010
3 to 7	ı	0
8	Measurement diagnosis	0: Within range 1: Out of range
9	SW1 output allowed/not allowed	0: SW output allowed
10	SW2 output allowed/not allowed	1: SW output not allowed
11	SW3 output allowed/not allowed	1. Svv output not allowed

Bit offset	Item	Note
12 to 13	_	0
14	Error	0: When no errors occur
15	System error	1: When an error occurs
16 to 31	Position measurement value	16-bit signed integer

Process data is the data which is exchanged periodically between the master and device. This product process data consists of the switch output status and the position measurement value.

*1 For the 2-point setting, SW3 is 0.

Bit offset	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Item		Position measurement value														
Bit offset	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Item	System error	Error	0	0	SW3 output allowed/not allowed	SW2 output allowed/not allowed	SW1 output allowed/not allowed	Measurement diagnosis	0	0	0	0	0	SW3 output*1	SW2 output	SW1 output

Diagnostics/ **Status Monitoring Function**

Internal error Abnormal internal temperature	
Abnormal internal temperature	

List of Functions Settable With the Setup Tool or IO-Link

Function	Description
SW* output point setting (Snapshot function)	The point at which the switch output SW* turns ON or OFF can be set.
SW* output width setting	The switch output SW* output range can be set.
SW* hysteresis setting	The switch output SW* hysteresis can be set.
Delay time setting	It is possible to set the time between when the 2-in-1 auto switch process data set value has been reached and when the ON/OFF output is actually performed.
Digital filter setting	A digital filter can be added to combat 2-in-1 auto switch process data fluctuations.
Changing between N.O. and N.C. switch output	The switch output can be changed between N.O. and N.C.
Switch output PNP/NPN output switching	The switch output can be changed between PNP and NPN.
PD measurement value normal/ reversed output switching	The displayed process data can be changed between normal output and reversed output, centreing around "0."
Locator function	By turning the function ON, it is possible to make the green LED of the connected 2-in-1 auto switch flash.
DS upload/download	Set values other than the output points, output width, and hysteresis can be uploaded. These uploaded set values can even be downloaded by other 2 -in- 1 auto switches.
Factory reset mode	If you are unsure of the state of the product, it is possible to return it to its factory settings.



CONTENTS

IO-Link Compatible 2 in 1 Auto Switch D-MH2 Series





Setup tool **D-MH2E**□

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IO-Link Compatible 2 in 1 Auto Switch Setup Tool D-MH2E□ Series	
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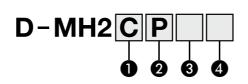
^{*} Similar PSE Sensor Set Up Tool PSE-ST is not available for these sensors.

IO-Link Compatible 2 in 1 Auto Switch D-MH2 Series





How to Order





Number of set points

Humber of set points			
С	2 points		
D	3 points		

2 Output type

• • • • • • • • • • • • • • • • • • •				
N	NPN output			
Р	PNP output			

Electrical entry

<u> </u>				
_	In-line			
٧	Perpendicular			

M8 4-pin

M12 4-pin

4 Lead wire specification

_	0.5 m, Separate line	SBPC	0.5 m, M8 4-pin
М	1 m, Separate line	MBPC	1 m, M8 4-pin
L	3 m, Separate line	SDPC	0.5 m, M12 4-pin
Z	5 m, Separate line	MDPC	1 m, M12 4-pin

- * The D-MH2□ cannot be ordered with the cylinder or actuator. It must be ordered separately.
- M8 and M12 connector specifications are available as made to order.

Specifications

IO-Link Compatible 2 in 1 Auto Switch

IO-Link Compatible 2 in 1 Auto Switch					
Model		D-MH2□			
Power supply voltage		18 to 30 VDC			
Current consumption		25 mA or less (at no load)			
Internal voltage drop		0.5 V or less			
Leakage	current	0.5 mA or less			
Max. loa	d current	40 mA (For SW1 and SW2 individually)			
Output s	specifications	NPN or PNP 2 outputs			
	peatability (Process data) temperature: 25°C)	±10*1			
	emperature eristics (Process data)	±40*2			
Operatir	ng time	5 ms or less			
Indicato	r light	OUT1: Green, OUT2: Red			
Electrica	al entry	Grommet			
Impact resistance		1000 m/s ²			
Insulatio	on resistance	$50~\text{M}\Omega$ or more (500 VDC measured via megohmmeter) (Between the lead wire and case			
Withstar	nd voltage	1000 VAC for 1 min (Between the lead wire and case)			
Ambient	temperature	−10 to 60 °C			
Enclosu	re	IP67			
Standar	ds	CE/UKCA marking			
	Version	V1.1			
	Communication speed	COM2 (38.4 kbps)			
IO-Link	Process data size	Input: 4 bytes, Output: 0 bytes			
IO-LIIK	Min. cycle time	3.2 ms			
	Device ID	675 (D-MH2C), 676 (MH2D)			
	Vendor ID	131			

- *1 Single switch unit characteristics. When the mounting orientation is uniform and there is no magnetic body or magnetic field disturbance in the surroundings. Excluding a deformation of the workpiece or wobbling of the actuator
- *2 Single switch unit characteristics. The effect of fluctuations in the magnetic force of the magnet itself is excluded.
- \cdot Do not apply a strong magnetic field exceeding 200 [mT] to the sensor. Doing so may result in malfunction or accuracy degradation of the 2 in 1 auto switch. Doing so may also cause abnormal operation.

Weight

	[(
Model	D-MH2□
0.5 m (—)	7
1 m (M)	11
3 m (L)	29
5 m (Z)	46

Connector Weight

Connector type	Weight
M8 4-pin (BPC)	4 g
M12 4-pin (DPC)	Approx. 11 g

When a connector is selected, add the above weight.

Flexible Heavy-duty Lead Wire Specifications

Model		D-MH2□
Sheath	Outside diameter [mm]	Ø 2.6
Insulator	Number of cores	4 (Brown, Black, White, Blue)
Irisulator	Outside diameter [mm]	Ø 0.6
Conductor	Effective area [mm ²]	0.06
Conductor	Strand diameter [mm]	0.04
Min. bending radius (Reference value)		17



How to Order IO-Link Compatible 2-in-1 Auto Switch Setup Tool



Connector converter

_	Without connector converter
Α	M8 4-pin socket connector
В	M12 4-pin socket connector
С	Connector for separate line

As a connector converter is required to connect the setup tool to the sensor part, order using the part number that includes a connector converter if you do not already possess one.





Specifications

2-in-1 Setting Device

	Model	D-MH2E□	
Applicab	pplicable sensor D-MH2□ (2 in 1 auto switch)		
Power supply rating		5 VDC mobile battery with output current of 2 A or more	
Current consumption		2 A or less	
Process data display range		-1050 to 1050	
Process data set range		-1050 to 1050	
Connection		Sensor input: Connector Power supply: USB type-C connector	
Operating	Operating temperature range	0 to 45 °C (Stored: -10 to 60 °C) (No freezing or condensation)	
	Operating humidity range	Operating humidity range: 35 to 85 %RH (No condensation)	
resistance	Enclosure	When connected with connectors of sensor and power supply: IP40	
	Withstand voltage	1000 VAC for 1 min between threaded part and housing	
	Insulation resistance	$50~\text{M}\Omega$ or more (500 VDC measured via megohmmeter)	
	Display type	LCD	
Display	Number of screens	3-screen display (Main screen, Sub screen x 2)	
	Display colour	Main screen: Red/Green Sub screen: Orange	
Standard	s	CE/UKCA marking, WEEE directive	

- Connect this product to a 5 VDC mobile battery with an output current of 2 A or more.
 Be sure to confirm the mobile battery specifications.
 - When used at a high temperature (above the operating temperature range), malfunction, fire, or burns may result.
- Be sure to follow the mobile battery usage instructions and precautions.
- * Do not connect the product to any power supply other than a mobile battery.

 Doing so may prevent the product from operating or result in a power supply malfunction.
- * This product may not operate if connected to a mobile battery with a function that automatically turns the power supply OFF according to the mobile battery's current consumption.

We recommend using a mobile battery that allows you to turn this function ON/OFF.

Weight

Body (**D-MH2E**) (Does not include the cable to connector for sensor connector M8 4-pin socket connector M12 4-pin socket connector

	[g]	
ble with nnection)	50	
tor	10	

17

15

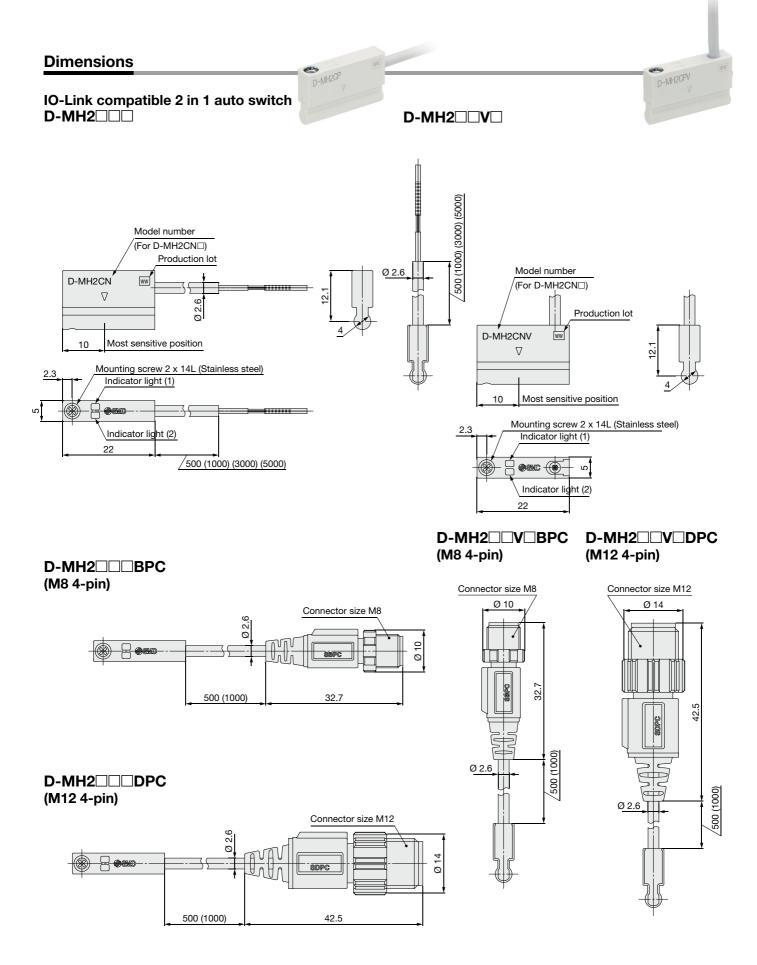
Connector Converter Part Nos.

Connector for separate line

M8 4-pin socket connector	D-LH03A
M12 4-pin socket connector	D-LH03B
Connector for separate line	D-I H03C



D-MH2 □ Series

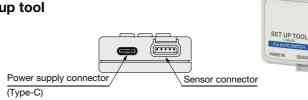


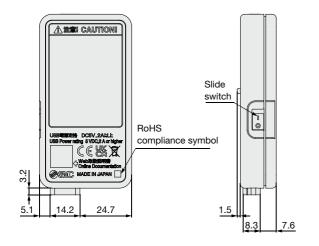
IO-Link Compatible 2 in 1 Auto Switch **D-MH2** Series

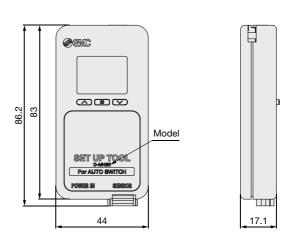
Dimensions

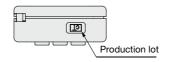
IO-Link compatible 2 in 1 auto switch setup tool

D-MH2E□



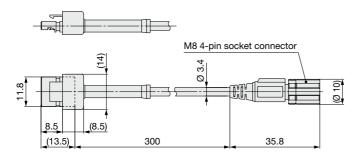


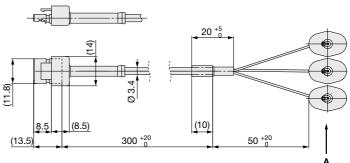




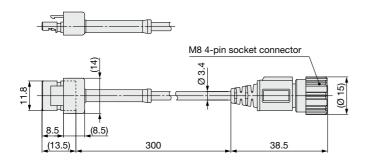
Connector converter D-LH03A

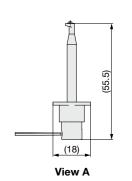
D-LH03C





D-LH03B



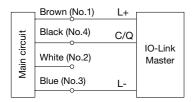




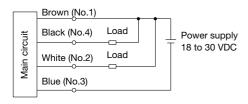
D-MH2□ Series

Internal Circuits and Wiring

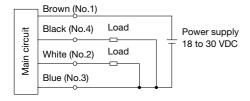
IO-Link compatible 2 in 1 auto switch IO-Link mode



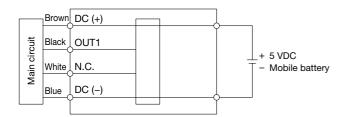
SIO mode NPN output



PNP output



Setup tool



2 in 1 Auto Switch M8/M12 Connector Specifications

Pin no.	Voltage input
1	DC (+) (Brown)
2	OUT2 (White)
3	DC (-) (Blue)
4	OUT1 (Black)

Connector type	M8 4-pin	M12 4-pin
Pin arrangement		② ① ③ ④



D-MH2□ Series

Applicable Actuators and 2 in 1 Auto Switch Mounting

1. Full-stroke detectable actuator

Position detection can be performed at the full stroke position by mounting the 2 in 1 auto switch at the

<Recommended mounting B dimension>

Position so that the middle position of the finger aligns with the centre of the sensor (0).

2.8

4.5

6.1

5.3

6.1

9.0

_೧ ន

1.3

3.2

MHS3 only

3.5

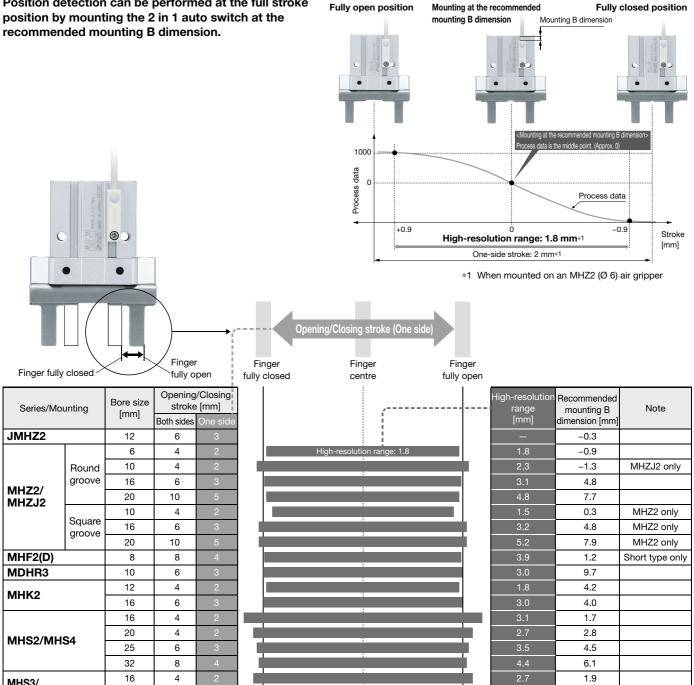
4.4

4.5

3.7

2.0

Angle open. close type



20

25

32

32

40

50

10

16

20

25

6

8

8

8

12

_

MHSJ3 Ø 16 to Ø 25/

MHSH3 Ø 16 to Ø 25/

MHSHJ3 Ø 16 to Ø 25

MHSJ3 MHSH3

MHSHJ3

MHC2

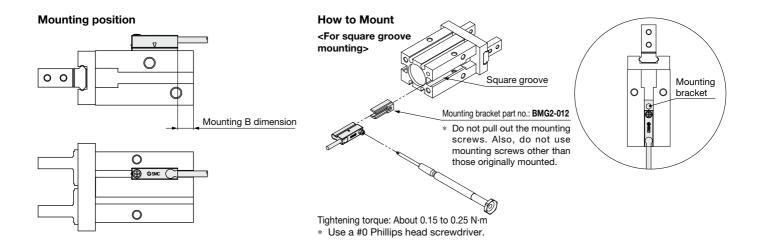
^{*} The displayable magnetic force range may be exceeded depending on the mounting position. For details, contact SMC.



All the above values are reference values.

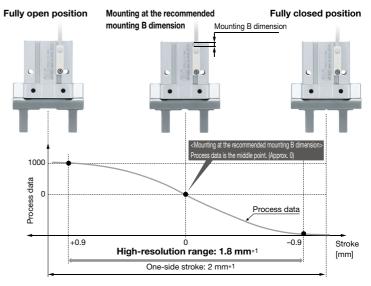
There is a possibility of the above values fluctuating significantly depending on the ambient environment. Be sure to conduct a test operation in the actual

Applicable Actuators and 2 in 1 Auto Switch Mounting **D-MH2** Series



[High-resolution range with a short stroke]

The high-resolution range is a guide for the range in which the product can discriminate between workpiece differentials of ± 0.1 mm. When the switch is mounted at the recommended mounting B dimension, the high-resolution range will be the range centreed around the approx. 0 point of the centre of the process data. (For grippers, this is the value for one side of the finger. When it is converted to the dimension of the workpiece to be gripped, the value is doubled.) Refer to the operation manual for a detailed explanation of resolution.

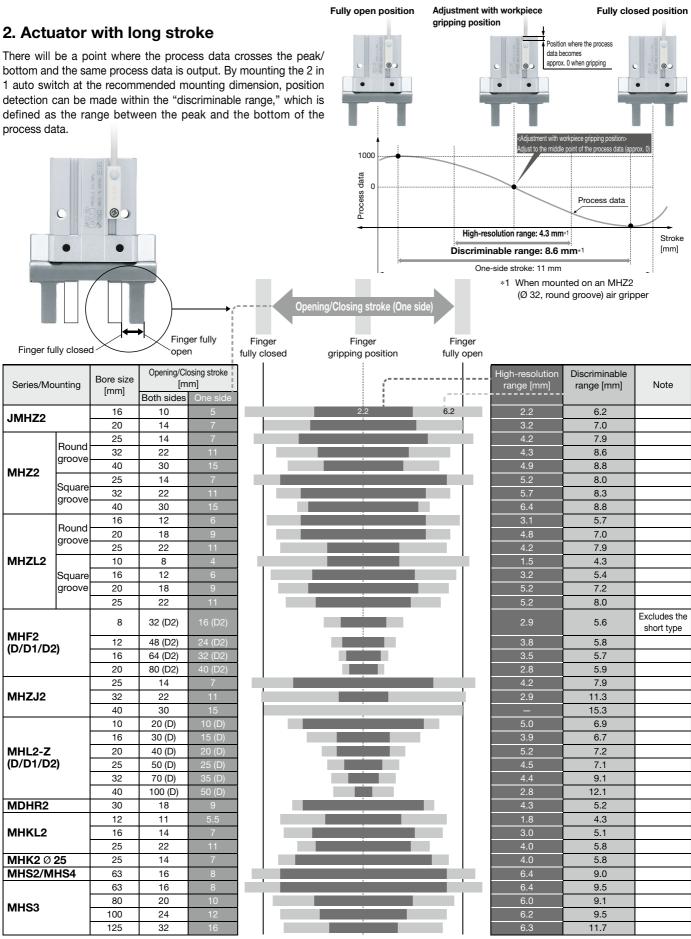


*1 When mounted on an MHZ2 (Ø 6) air gripper

•If the workpiece dimension is changed, the process data will also change. However, if it is mounted at the recommended mounting B dimension, an actuator that can detect full strokes can detect the full stroke position, and the position can be detected at high resolution within the range centreed around the recommended mounting B dimension.



D-MH2□ Series



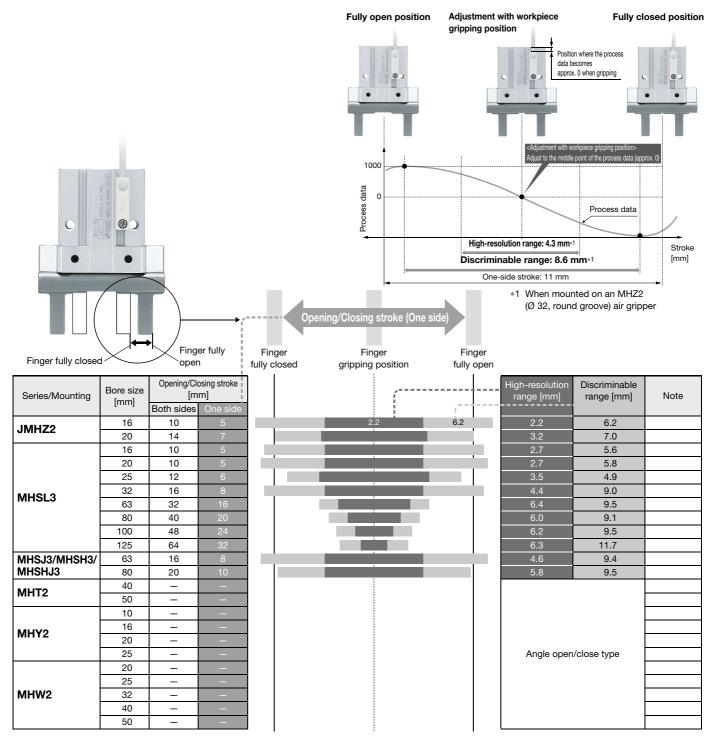
^{*} All the above values are reference values.

^{*} The discriminable range is the range between the peak and the bottom of the process data. (One side of the gripper) For details, refer to the operation manual of the product.

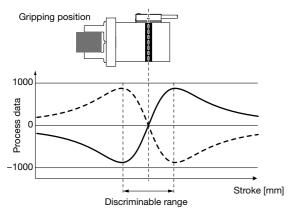
^{*} There is a possibility of the above values fluctuating significantly depending on the ambient environment. Be sure to conduct a test operation in the actual operating environment.

^{*} Refer to the operation manual for details on how to determine the mounting position of other switches.

Applicable Actuators and 2 in 1 Auto Switch Mounting **D-MH2** Series



Relationship between the stroke, the switch mounting position, and the process data



st Refer to page 14 for details on the mounting method.





D-MH2 □ Series

IO-Link Compatible 2 in 1 Auto Switch/Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smc.eu

Design / Selection

⚠ Caution

1. The product cannot be used for length measurement.

A 2 in 1 auto switch outputs a magnetic field from the cylinder magnet as process data, and therefore the output is not linear to the cylinder stroke.

In addition, there are individual differences in the magnetic force of magnets. As such, the output values from magnets are different even if they are mounted to the same position on the same type actuator.

2. The resolution and repeatability vary depending on the position relationship between the magnet and the sensor.

The resolution and repeatability decrease near the maximum or minimum peak of process data. Use them by mounting them to the recommended positions. If precision in repeatability is required, configure settings so that the process data at the output position will be close to 0 (in between peaks).

3. Process data fluctuates due to the following factors.

Process data fluctuates in an environment which is affected by the ambient temperature, mounting orientation (terrestrial magnetism), wobbling (mechanical factor, supply pressure fluctuation, etc.), electrical noise disturbance, magnetic body (iron screw, iron powder, etc.), or a magnetic force. It is recommended to use non-magnetic materials for magnetic bodies, bolts, and so on in the surroundings.

When using the product for an application where the ambient temperature or mounting orientation changes greatly, it is recommended to set the ON point under conditions that are close to the actual operating environment and set a wider ON width or hysteresis.

4. Take precautions when multiple cylinders or actuators are used close together.

When using two or more cylinders or actuators with a built-in magnet in close proximity to each other arranged in parallel, design so that they will maintain a separation distance of at least 40 mm.

(If the separation distance is specified for each of cylinder/ actuator series, use that value.)

The accuracy of the 2 in 1 auto switch may be reduced and it may malfunction due to the magnetic field interference between them.

5 . The setup tool may not operate depending on the mobile battery it is connected to.

Connect this product to a 5 VDC mobile battery with an output current of 2 A or more. Depending on the mobile battery type, the setup tool may not operate. Be sure to confirm the mobile battery specifications. When used at a high temperature (above the operating temperature range), malfunction, fire, or burns may result. Therefore, be sure to follow the mobile battery usage instructions and precautions. In addition, do not connect the product to any power supply other than a mobile battery. Doing so may prevent the product from operating or result in a power supply malfunction.

This product may not operate if connected to a mobile battery with a function that automatically turns the power supply OFF according to the mobile battery's current consumption. We recommend using a mobile battery that allows you to turn this function ON/OFF.

Design / Selection

⚠ Caution

6 . Use a mobile battery that complies with the laws and regulations of each region and country.

We do not accept any responsibility for damages caused to our products or for losses caused due to the malfunction of our products from the use of an illegal mobile battery.

Mounting / Adjustment

∧ Caution

1. Adjust the mounting position of the 2 in 1 auto switch after checking the actual operating conditions.

The full stroke may not be detected even for cylinders and actuators that can detect full strokes depending on the setting environment (magnetic bodies in the surroundings, temperature, etc.). In addition, the repeatability may deteriorate.

Confirm the operating conditions in the actual environment before use.

2. Change setting of the 2 in1 auto switch when power supply voltage is stable.

If setting is changed while power supply voltage is unstable, incorrect data may be written or setting may not be performed correctly.

Maintenance

⚠ Warning

 The 2 in 1 auto switch may malfunction unexpectedly, making it impossible to confirm safety. Therefore, perform maintenance or inspection regularly.

WEEE Directive

 This product is classified as a waste electrical or electronic equipment according to WEEE Directive 2 0 1 2 / 1 9 /EU. Therefore, in order to reduce the impact on human health and the environment, it should not be disposed of as municipal waste.



These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC) 1), and other safety regulations.

♠ Danger:

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious

Marning:

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate 1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components.

ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components.

IEC 60204-1: Safety of machinery - Electrical equipment of machines. (Part 1: General requirements)

ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

- 3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
 - 1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
 - 2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
 - 3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- 4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.
 - 1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
 - 2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
 - 3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.

Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and **Disclaimer/Compliance** Requirements

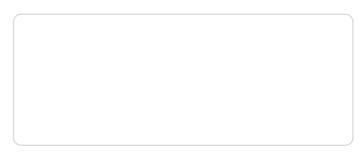
The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements". Read and accept them before using the product.

Limited warranty and Disclaimer

- 1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. 2) Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales
- 2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
- 3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty. A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited

Compliance Requirements

- 1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- 2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed



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SMC Corporation (Europe)

Austria Belgium +32 (0)33551464 Bulgaria +359 (0)2807670 Croatia **Czech Republic** +420 541424611 Denmark +45 70252900 Estonia +372 651 0370 Finland +358 207513513 France Germany +49 (0)61034020 Greece +30 210 2717265 +36 23513000 Hungary Ireland +353 (0)14039000 +39 03990691 Italy Latvia +371 67817700

+43 (0)2262622800 www.smc.at www.smc.be www.smc.bg +385 (0)13707288 www.smc.hr www.smc.cz www.smcdk.com www.smcee.ee www.smc.fi +33 (0)164761000 www.smc-france.fr www.smc.de www.smchellas.gr www.smc.hu www.smcautomation.ie www.smcitalia.it www.smc.lv

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Lithuania +370 5 2308118 Netherlands +31 (0)205318888 Norway +47 67129020 +48 22 344 40 00 Poland Portugal +351 214724500 Romania +40 213205111 Russia +7 (812)3036600 Slovakia +421 (0)413213212 Slovenia +386 (0)73885412 Spain +34 945184100 Sweden +46 (0)86031240 +41 (0)523963131 Switzerland +90 212 489 0 440 Turkey UK +44 (0)845 121 5122 www.smc.uk

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info.lt@smc.com

South Africa +27 10 900 1233 www.smcza.co.za

Sales.za@smc.com