










Model		HY-M902	HY-LM902	HY-M903	HY-LM903	HY-M904	HY-LM904	HY-M907	HY-LM907	HY-M908	HY-LM908	HY-M909	HY-LM909	HY-M908R	HY-M908L
Appearance															
Operation characteristics		Roller plunger type		Ball plunger type		Roller adjuster lever type		Rod lever type		Roller lever type		Coil spring type		Ø50 roller lever type	Fork roller lever type
Contact structure		M4 screw clamp terminal, 2-circuit double-throw type (1a1b)													
Terminal tightening torque		1.2 N·m or less													
Operation indicator		AC type: Neon lamp / DC type: LED (HY-LM series only)													
Rated voltage		250 V a.c. / 30 V d.c.													
Rated current		6 A 250 V a.c. (AC-15, DC-13)													
Actuator force		5 times the O.F. (Operating Force), applied in the operating direction for 1 minute													
Protective structure		IP67 (when using our connectors HYC-M1, M2 in piping sections)													
Allowable manipulation speed		0.1 - 1 m/s													
Switching frequency	Mechanical	120 times/minute													
	Electrical	20 times/minute													
Insulation resistance		100 MΩ or higher (500 V d.c.)													
Dielectric strength	Between terminals	1,500 V a.c. 1 minute at 50/60 Hz													
	Between each terminal and uncharged metal parts	2,000 V a.c. 1 minute at 50/60 Hz													
Contact resistance		25 mΩ or lower (initial value)													
Vibration resistance		10 - 55 Hz, double amplitude: 1.5 mm													
Shock resistance	Durability	1,000 m/s <sup>2</sup> or more (100 G or higher)													
	Malfunction	300 m/s <sup>2</sup> or more (30 G or higher)													
Life	Mechanical	More than 1 million operations													
	Electrical	More than 300,000 operations (at rated load)													
Ambient temperature		-10 to +80 °C (however, there should be no condensation or icing)													
Ambient humidity		45 to 85% RH or lower													
Weight		Approximately 350 g (including the box, for HY-M904)													
Storage temperature		-40 to 70 °C													

## External dimensions

### ■ HY-M902 / LM902

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 28 N (2857 gf)</li> <li>· RF Minimum : 8 N (816 gf)</li> <li>· PT : 2.0 mm</li> <li>· MD Maximum : 1.0 mm</li> <li>· OP : 44.0 ±1.0</li> </ul>

### ■ HY-M903 / LM903

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 28 N (2857 gf)</li> <li>· RF Minimum : 8 N (816 gf)</li> <li>· PT : 2.0 mm</li> <li>· MD Maximum : 1.0 mm</li> <li>· OP : 53.5 ±1.0</li> </ul>

### ■ HY-M904 / LM904

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 14 N (1,428 gf)</li> <li>· RF Minimum : 2.1 N (214 gf)</li> <li>· PT Maximum : 15° ±5°</li> <li>· MD Maximum : 12°</li> <li>· TT : 80° ±5°</li> </ul>

### ■ HY-M907 / LM907

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 1.5 N (153 gf)</li> <li>· RF Minimum : 0.25 N (25 gf)</li> <li>· PT : 15° ±5°</li> <li>· MD Maximum : 12°</li> <li>· TT : 80° ±5°</li> </ul>

### ■ HY-M908 / LM908

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 14 N (1,428 gf)</li> <li>· RF Minimum : 2.1 N (214 gf)</li> <li>· PT : 15° ±5°</li> <li>· MD Maximum : 12°</li> <li>· TT : 80° ±5°</li> </ul>

### ■ HY-M909 / LM909

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 1.5 N (153 gf)</li> <li>· PT : 20.0 ±10.0 mm</li> </ul> <p>* Can be used in the axial direction, with built-in micro switch protection.</p> <p>* The operating range of the manipulator is within 1/3 of the total length of the spring from the spring end.</p>

### ■ HY-M908R

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 14 N (1,428 gf)</li> <li>· RF Minimum : 2.1 N (214 gf)</li> <li>· PT : 15° ±5°</li> <li>· MD Maximum : 12°</li> <li>· TT : 40°</li> </ul>

### ■ HY-M908L

External dimensions	Operation characteristics
	<ul style="list-style-type: none"> <li>· OF Maximum : 11.8 N (1,200 gf)</li> <li>· PT : 50° ±5°</li> <li>· OT Maximum : 12°</li> <li>· TT : 90° ±5°</li> </ul>

## Rating

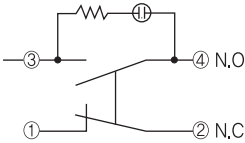
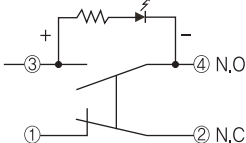
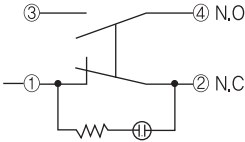
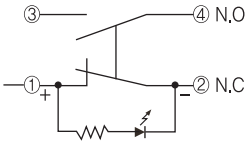
Rated voltage (V)		Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp		Inductive load		Motor load	
		N.C	N.O	N.C	N.O	N.C	N.O	N.C	N.O
AC	125	15		3	1.5	10		3	1.5
	250	10		2	1	6		2	1
	480	3		1.5	0.8	2		1.5	0.75
DC	8	15		6	3	10		-	
	14	15		6	3	10		-	
	30	6		4	3	5		-	
	125	0.4		0.2	0.2	0.05		-	
	250	0.2		0.1	0.1	0.03		-	

## Operation indicator types

Voltage	AC operation indicator (250 V a.c.)	DC operation indicator (24 V d.c.)
Model	HY-LM90□ A	HY-LM90□ B
Indicator type	Neon lamp	LED (light-emitting diode)
Leakage current	Approximately 1.2 mA (250 V a.c.)	Approximately 1.0 mA (24 V d.c.)

- The LM900 series limit switches are available in two configurations: models without an operation indicator and models with an operation indicator. They are further categorized into versions for AC and DC operation indicators.
- You can convert the limit switch into an operation indicator type by simply changing the cover, without the need for additional wiring.
- By rotating the indicator holder 180 degrees, you can turn the light on or off.

## Operation indicator covers

For AC	For DC
	
	

## h Upgrades

**01 Improved body structure**

Cover fixing screws  
2

Fixable protection cover  
No insulator required

Bigger wiring space  
6.65 mm

**02 Bigger wiring space**

Before the upgrade

After the upgrade

Expanded 2.5-fold

6.65 mm

Insufficient wiring space

2.5x bigger than the original

**03 Increased fixation strength and water resistance**

Before the upgrade

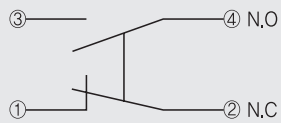
After the upgrade

Separate insulator and rubber band

Integrated protection cover eliminates the need for an insulator

## h Built-in micro switch

### ■ Connection diagram



# HY-M900/HY-LM900 series

Aluminum die cast case

- Solid die casting case and built in the 2 circuits double micro switch
- High mechanical intensity with the heat resistance, oil proof and dust protection structure
- Various actuators (8 types) provide wide application
- IP67 protective structure (when using the company product HYC-M1 in wire opening)
- Check the operation state on the outside by attaching the operation indicator.



## Terminology explanation

### + Micro switch

It has a small contact gap and snap action tool. Also the contact tools that open/close with the rated movement and rated force are covered with the case and have an actuator on the outside. This is a compact size switch.

### + Rating

Value that insures the characteristic and function of limit switch.

### + Inverting spring

Inverting spring is mechanical parts that switch the contact of limit switch. Sometimes called as running spring.

### + Actuator

Depending on the various usages, it forms electrical input/output circuit of contact. There are 2 types in the limit switch just like an image below.

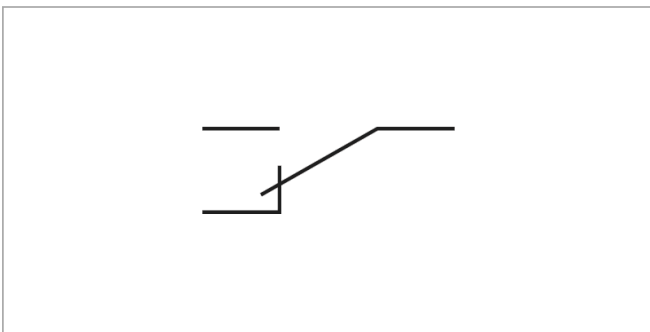
### + Electrical life expectancy

Opening/closing life in the rated load (resistive load) (After setting the rated value with the operation time)

### + Contact composition

Depending on the various usages, it forms electrical input/output circuit of contact. There are 2 types in the limit switch just like an image below.

#### - SPDT (C contact)



### + Limit switch

Limit Switch is enclosed in a case to protect a built-in basic switch from the external force, water, oil, gas, and dust.

### + Operation part

Mechanical device part that operates the actuator of limit switch.

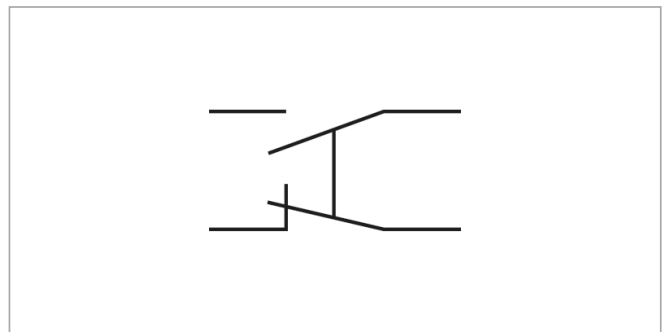
### + Detecting object

The object, product, part and etc that operate the limit switch other than mechanical device.

### + Mechanical life expectancy

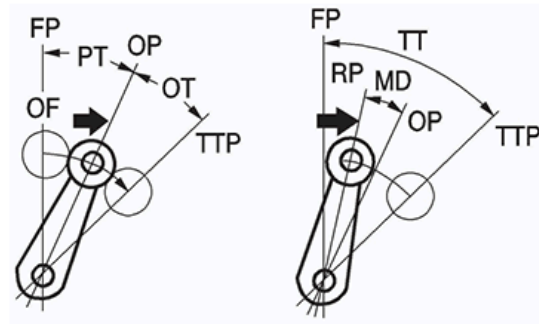
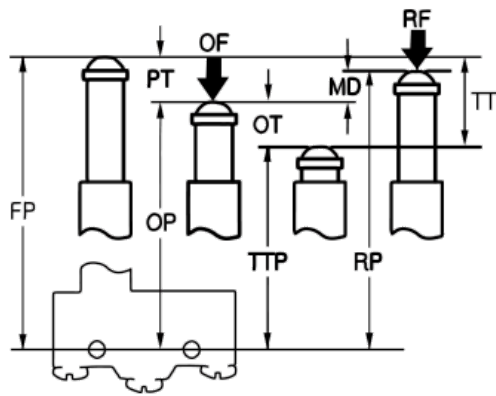
Opening/closing life in the non electro state (After setting the rated value with the operation time)

#### - 2 circuit double positions (1a1b)



### + Operation characteristic

#### - Definition of operation characteristic



Categories	Terminology	Symbol	Definition
Force	Operating Force	O.F	Force that applied to the actuator in order to move from free position to the operation switch.
	Release Force	R.F	Force that applied to the actuator in order to move from operation limit position to the returning position
	Total travel Force	T.F	Force that applied to the actuator in order to move from operation position to the operation limit position.
Movement	Pretravel	P.T	Travel distance or travel angle from free position of actuator to the operation position.
	Over travel	O.T	Travel distance or travel angle from operation position of actuator to the operation limit position.
	Movement Differential	M.D	Travel distance or travel angle from operation position of actuator to the returning position.
	Total travel	T.T	Travel distance or travel angle from free position of actuator to the operation limit position.
Position	Free Position	F.P	the position of actuator before applying force to the actuator from the outside.
	Operating Position	O.P	the position of actuator when running contact is accurately reversed in the free position state once external force is applied to the actuator.
	Release Position	R.P	the position of actuator when running contact is accurately reversed from operation position state to the free position state by decreasing force applied to the actuator.
	Total travel Position	T.T.P	the position of actuator when actuator reaches the actuator stopper.