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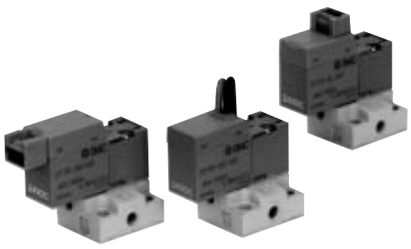
For details about certified products conforming to international standards, visit us at www.smcworld.com.

3 Port Direct Operated Solenoid Valve Rubber Seal

Series SY100



Body ported



Base mounted

Specifications

Fluid	Air
Ambient and fluid temperature (°C)	–10 to 50°C (No freezing. Refer to page 4-18-4.)
Response time (ms) (1)	10 or less
Max. operating frequency (Hz)	20
Manual override	Non-locking push type, Locking slotted type Push-turn locking slotted type Push-turn locking lever type {SY1$\frac{1}{2}$4, SY1$\frac{1}{2}$4A only}
Lubrication	Not required
Mounting position	Unrestricted
Impact/Vibration resistance (m/s^2) (2)	150/30
Enclosure	Dustproof

Note 1) Based on dynamic performance test, JIS B 8374-1981. (Coil temperature: 20°C, at rated voltage, without surge suppressor.)

Note 2) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

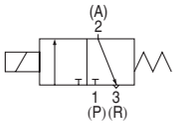
Solenoid Specifications

Series			SY1$^{13}_{24}$	SY1$^{13}_{24}$A
Electrical entry			Grommet (G)/(H), L plug connector (L) M plug connector (M)	
Coil rated voltage (V)	DC		24, 12, 6, 5, 3	
	AC 50/60 Hz		100, 110, 200, 220	—
Allowable voltage fluctuation			–10 to +10%	
Power consumption (W)	DC		0.5 (With indicator light: 0.55)	0.75 W (With indicator light: 0.8 W)
Apparent power (VA)	AC	100 V	0.9 (With indicator light: 1.0)	—
		110 V [115 V]	1.0 (With indicator light: 1.1) [1.1 (With indicator light: 1.2)]	
		200 V	1.8 (With indicator light: 1.9)	
		220 V [230 V]	1.9 (With indicator light: 2.0) [2.2 (With indicator light: 2.3)]	
Surge voltage suppressor			Diode	
Indicator light			LED	

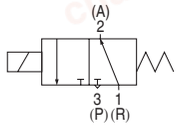
* It is in common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC. [Low wattage [0.45 W] is available, too. For details, refer to catalog on page 4-18-4.]

JIS Symbol

SY11$^3_4$ (A)



SY12$^3_4$ (A)



Made to Order Specifications (For details, refer to page 4-3-17.)

Model

Function	Valve model	Type	Operating pressure range (MPa)	Vacuum specifications (MPa)		Port size		Effective area (mm^2)	Weight (g) (2)	
				1(P) port	3(R) port	1(P), 3(R) port	2(A) port		Grommet	L plug connector, M plug connector
N.C.	SY11$^3_4$	Standard	0 to 0.7	–100 kPA to 0.6	–100 kPA to 0	M3 x 0.5	M3 x 0.5	0.14	SY1□3(A): 13 SY1□4(A): 24 (12)	SY1□3(A): 15 SY1□4(A): 26 (14)
N.C.	SY11$^3_4$A	Large flow	0 to 0.7	–100 kPA to 0.6	–100 kPA to 0	M3 x 0.5	M3 x 0.5	0.22		
N.O.	SY12$^3_4$ (1)	Standard	0 to 0.7	–100 kPA to 0	–100 kPA to 0.6	M3 x 0.5	M3 x 0.5	0.14		
N.O.	SY12$^3_4$A (1)	Large flow	0 to 0.7	–100 kPA to 0	–100 kPA to 0.6	M3 x 0.5	M3 x 0.5	0.22		

Note 1) SY123/SY124$^3_4$ and SY123/SY124$^3_4$A: Supply pressure to 1(R) port and exhaust air from 3(P) port.

Note 2) Value for DC. Add 1 g for AC. ( ): Without sub-plate.

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How to Order

Standard type (Cv0.008)

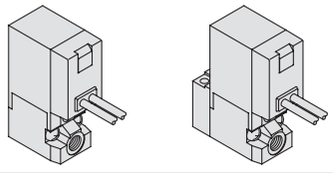
Light/Surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

∗ For AC voltage valves there is no "S" option. It is already built into the rectifier circuit.
∗ For "R" and "U", DC voltage is only available.

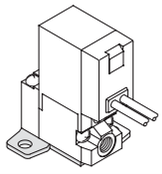
Porting specifications

Nil: For manifold
P: For body ported type to P, R, A port



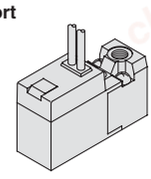
Bracket

Nil: Without bracket
F: With bracket



"P" piping specifications only.

3 port



For manifold type 30, 31

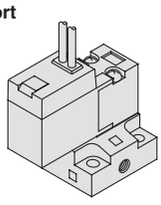
Type of actuation

1	Normally closed
2	Normally open

Standard type (Cv: 0.008): Body ported **SY1 1 3 — 5 L — M3 —**

Standard type (Cv: 0.008): Base mounted **SY1 1 4 — 5 M —**

3 port



Sub-plate style
For manifold type S41

Rated voltage

For DC

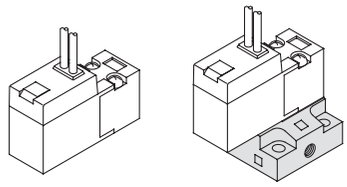
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

For AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC [115 VAC]
4	220 VAC [230 VAC]

Port size

Nil: Without sub-plate
M3: With sub-plate

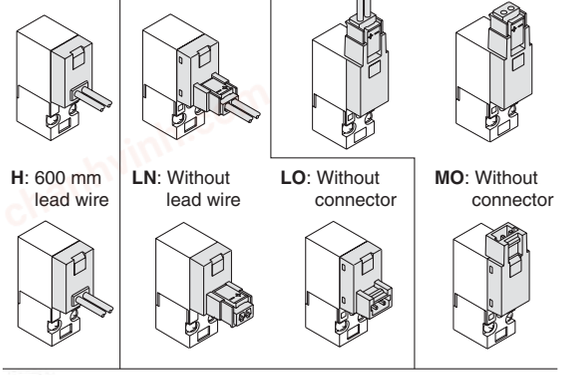


(With gasket and screws)

Electrical entry

24 V, 12 V, 6 V, 5 V, 3 VDC/100 V, 110 V, 200 V, 220 VAC

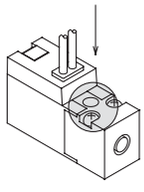
Grommet	L plug connector	M plug connector	
G: 300 mm lead wire	**L**: With lead wire (Length 300 mm)	**M**: With lead wire (Length 300 mm)	**MN**: Without lead wire
H: 600 mm lead wire	**LN**: Without lead wire	**LO**: Without connector	**MO**: Without connector



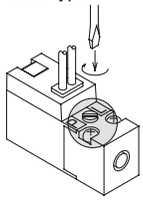
∗ "LN" and "MN" types are with 2 sockets.

Manual override

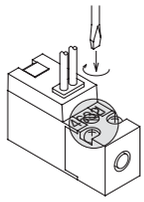
Nil: Non-locking push type



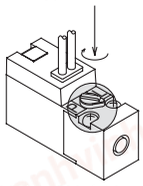
D: Push-turn locking slotted type



B: Locking slotted type



E: Push-turn locking lever type



SY1$\frac{1}{2}$4, SY1$\frac{1}{2}$4A only

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Series SY100

How to Order

Large flow type (Cv: 0.012)

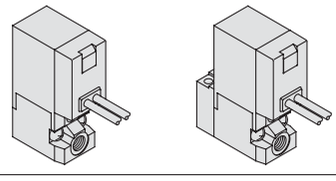
Light/Surge voltage suppressor

Nil	Without light/surge voltage suppressor
S	With surge voltage suppressor
Z	With light/surge voltage suppressor
R	With surge voltage suppressor (Non-polar type)
U	With light/surge voltage suppressor (Non-polar type)

Porting specifications

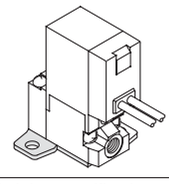
Nil: For manifold

P: For body ported type to P, R, A port



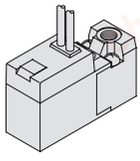
Bracket

Nil: Without bracket
F: With bracket



"P" piping specifications only.

3 port



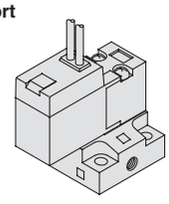
For manifold type 30, 31

Type of actuation

1	Normally closed
2	Normally open

Large flow type (Cv: 0.012): Body ported	SY1	1	3	A	–	5	L			–	M3	–	
Large flow type (Cv: 0.012): Base mounted	SY1	1	4	A	–	5	M			–			

3 port



Sub-plate type
For manifold type S41

Rated voltage

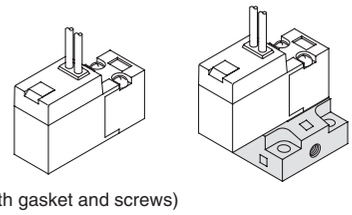
5	24 VDC
6	12 VDC
V	6 VDC
S	5 VDC
R	3 VDC

Large flow type

Port size

Nil: Without sub-plate

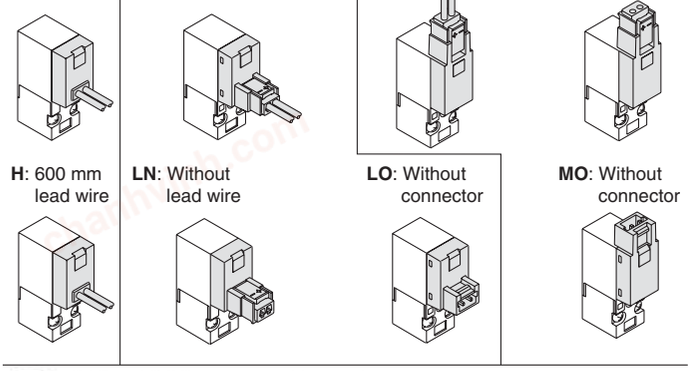
M3: With sub-plate



(With gasket and screws)

Electrical entry

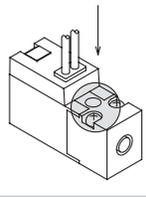
24 V, 12 V, 6 V, 5 V, 3 VDC		
Grommet	L plug connector	M plug connector
G: 300 mm lead wire	**L**: With lead wire (Length 300 mm)	**M**: With lead wire (Length 300 mm)
		MN: Without lead wire
H: 600 mm lead wire	**LN**: Without lead wire	**LO**: Without connector
		MO: Without connector



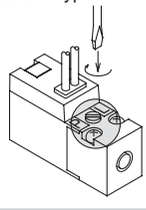
* "LN" and "MN" types are with 2 sockets.

Manual override

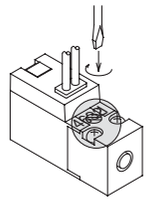
Nil: Non-locking push type



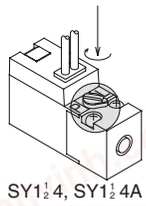
D: Push-turn locking slotted type



B: Locking slotted type



E: Push-turn locking lever type

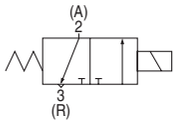


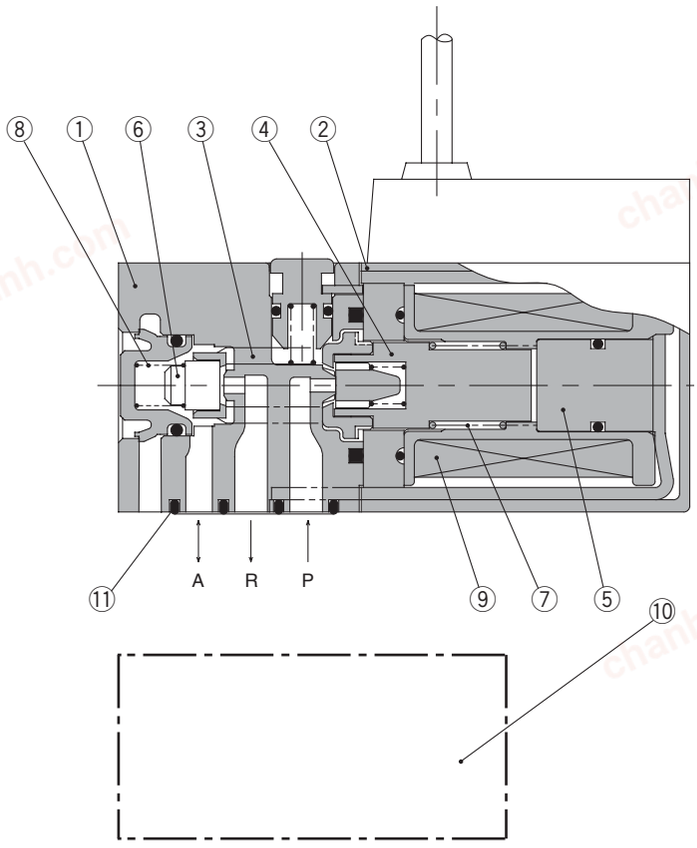
$SY1\frac{1}{2}4$, $SY1\frac{1}{2}4A$ only

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Construction

SY114, SY114A





Component Parts

No.	Description	Material	Note
①	Body	Resin	Gray
②	Cover	Resin	Gray
③	Push rod	Resin	—
④	Movable iron core assembly	HNBR/Stainless steel	—
⑤	Fixed iron core	Stainless steel	—
⑥	Exhaust poppet	HNBR	—
⑦	Return spring	Stainless steel	—
⑧	Poppet spring	Stainless steel	—
⑨	Coil assembly	—	—

Replacement Parts

No.	Description	Part no.	Material
⑩	Sub-plate	SY100-74-1	Zinc die-casted
⑪	Gasket	VJ100-6-8	HNBR

How to Order Connector Assembly

For DC: **SY100 – 30 – 4A** –□

For 100 VAC: **SY100 – 30 – 1A** –□

For 200 VAC: **SY100 – 30 – 2A** –□

For other voltages of AC: **SY100 – 30 – 3A** –□

Without lead wire: **SY100 – 30 – A**
(With connector and 2 pcs. of socket)

Lead wire length

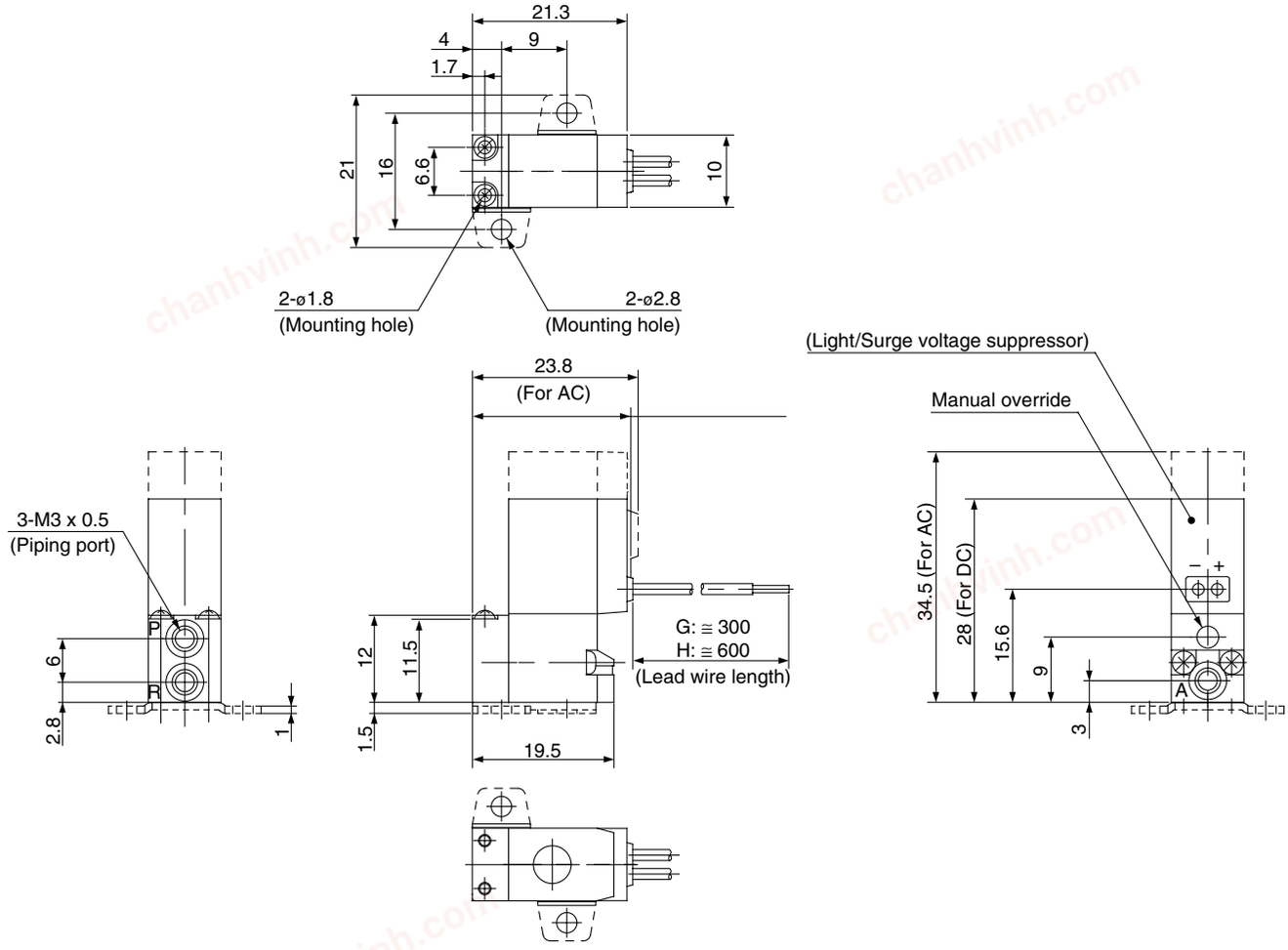
Nil	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
25	2500 mm
30	3000 mm
50	5000 mm

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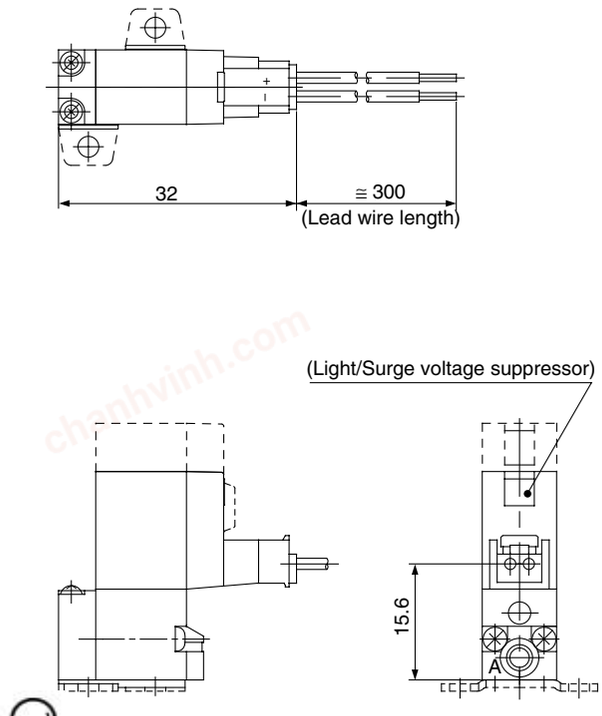
Series SY100

Body Ported

Grommet (G), (H): SY1$^{1}_{2}$3 (A)-□$^{G}_{H}$□□-PM3(-F)

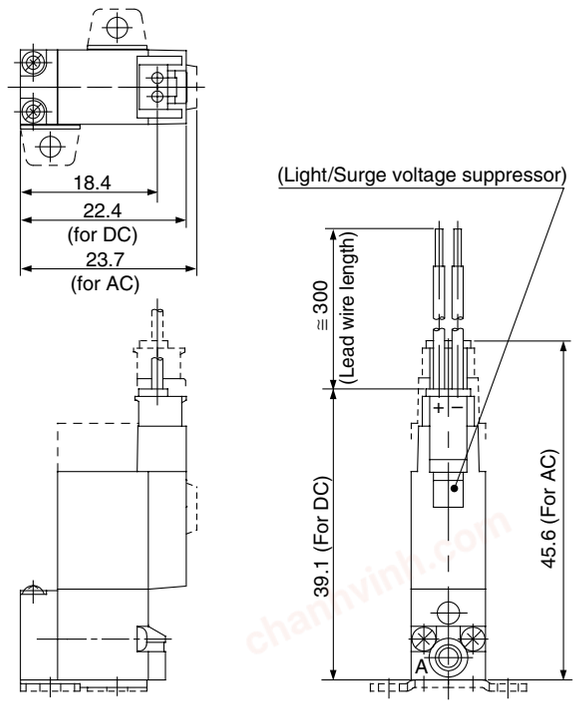


L plug connector (L): SY1$^{1}_{2}$3(A)-□L□□-PM3(F)



∗ Other dimensions are same as grommet type.

M plug connector (M): SY1$^{1}_{2}$3(A)-□M□□-PM3(-F)



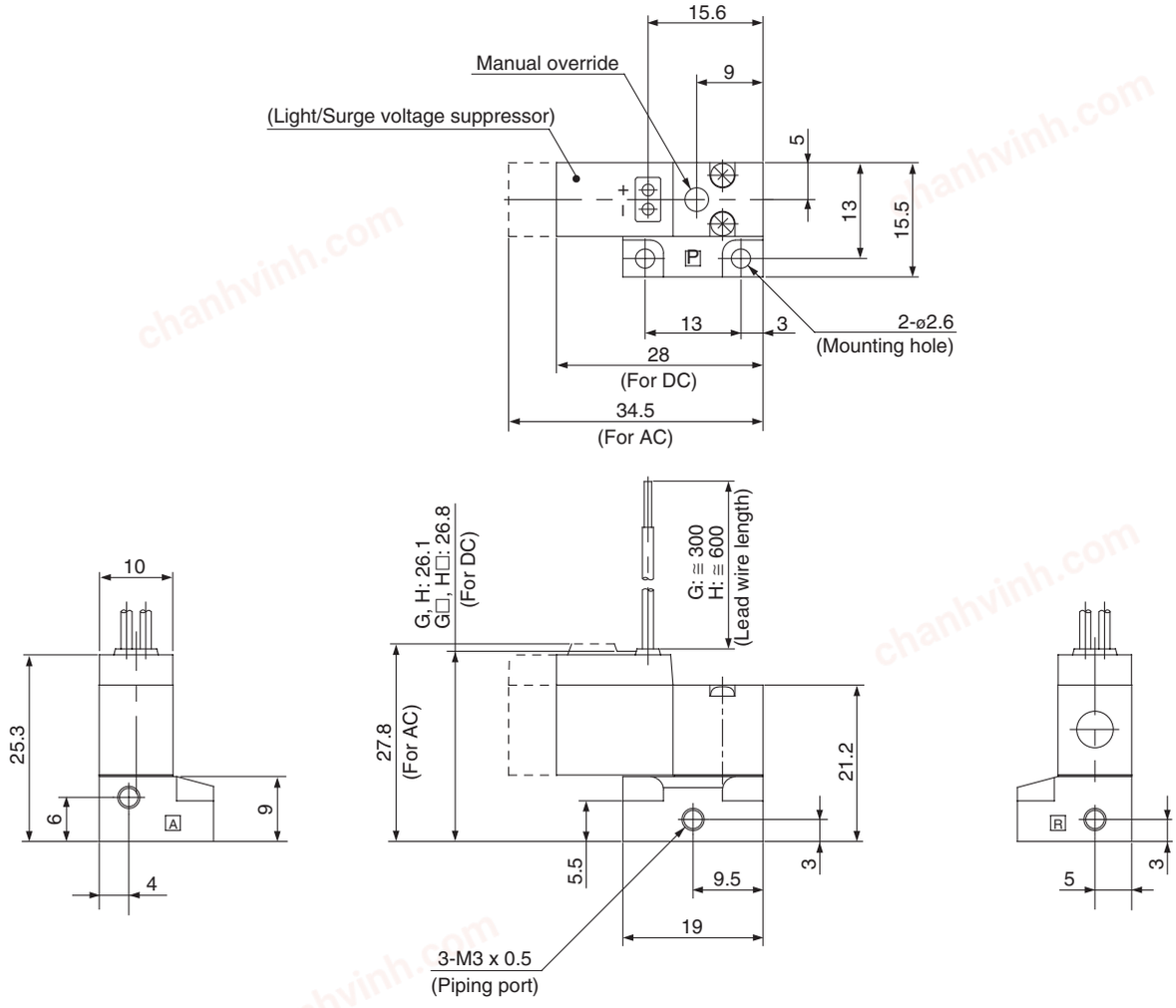
∗ Other dimensions are same as grommet type.

SMC

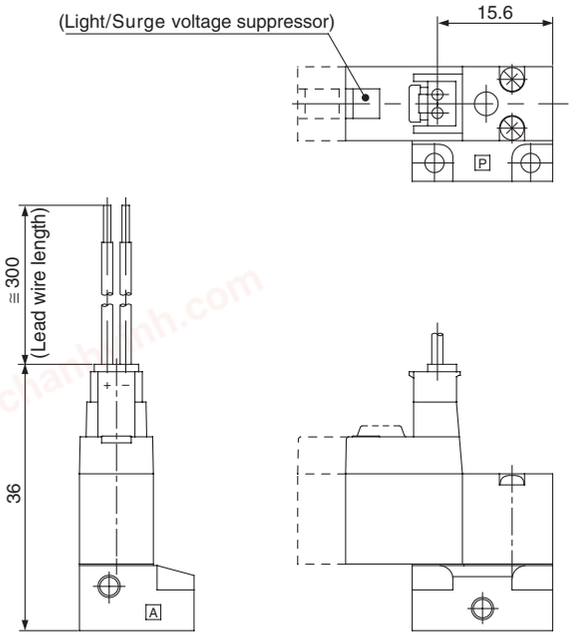
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Base Mounted (With sub-plate)

Grommet (G), (H): SY1$^{1}_{2}$4(A)-□$^{G}_{H}$□□-M3

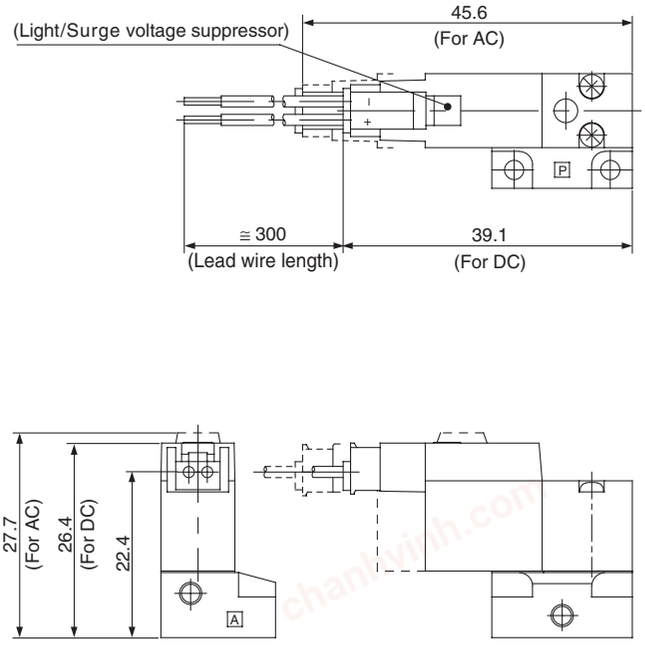


L plug connector (L): SY1$^{1}_{2}$4(A)-□L□□-M3



∗ Other dimensions are same as grommet type.

M plug connector (M): SY1$^{1}_{2}$4(A)-□M□□-M3



∗ Other dimensions are same as grommet type.

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Series SY
Made to Order Specifications:

Please contact SMC for detailed specifications, delivery and pricing.

Energy-saving Type

Power consumption is decreased by 1/3 by reducing the wattage required to hold the valve in an energized state. (Effective energizing time is over 62 ms at 24 VDC.)

Specifications

Series		SY1$^{1}_{2}{}^{3}_{4}$T	SY1$^{1}_{2}{}^{3}_{4}$AT
Coil rated voltage (V)		24 DC, 12 DC	
Power consumption (W)	Inrush	0.55	0.8
	Holding	0.22	0.3

Specifications other than above are the same as standard models.

How to Order

Body ported SY1 [1] 3 [ ] T — [5] [L] Z [ ] — [ ] M3 — [ ]

Base mounted SY1 [1] 4 [ ] T — [5] [M] Z [ ] — [ ]

Type of actuation

1	Normally closed
2	Normally open

Body option

Nil	Standard
A	Large flow capacity

Rated voltage

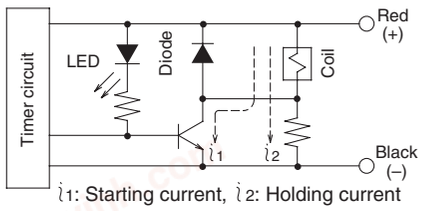
5	24 VDC
6	12 VDC

Entry is the same as standard products.

Working Principle

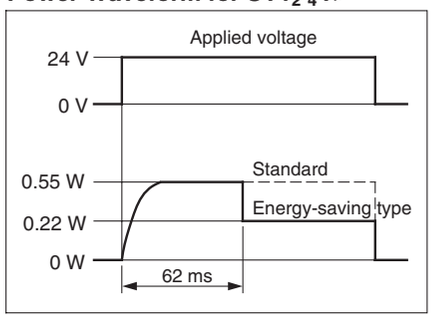
The circuit shown below reduces current consumption at holding which reduces the overall power consumption.
Refer to electrical power waveform as shown below.

Electrical circuit (With energy-saving circuit)

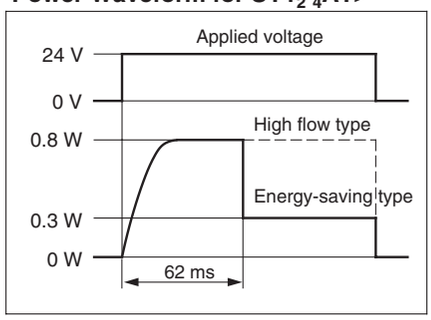


I_1: Starting current, I_2: Holding current

<Energy-saving Type, Electrical Power Waveform for SY1$^{1}_{2}{}^{3}_{4}$T>



<Energy-saving Type, Electrical Power Waveform for SY1$^{1}_{2}{}^{3}_{4}$AT>



Low Wattage Specifications (0.45 W)

How to Order

SY1 [ ] [ ] — [ ] [ ] [ ] [ ] — X200

Entry is the same as standard products.