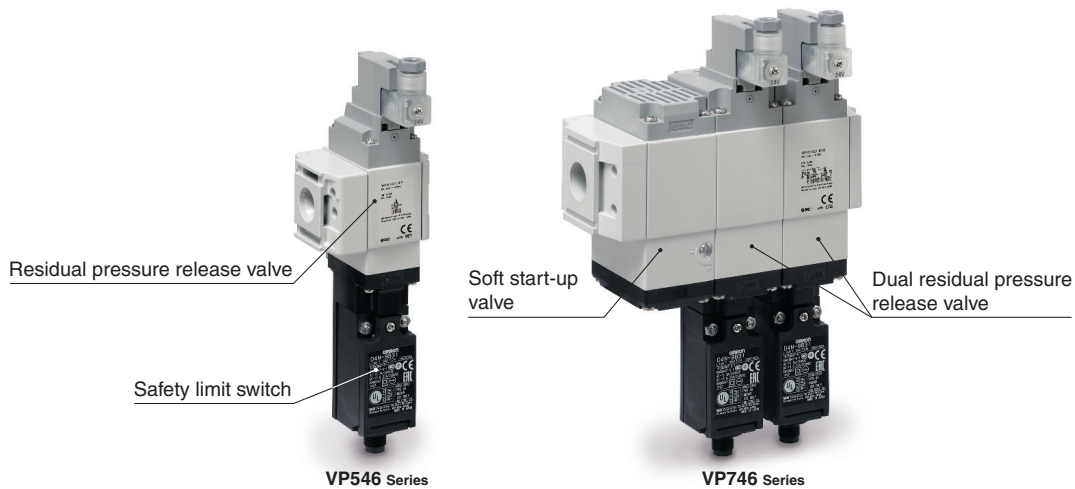
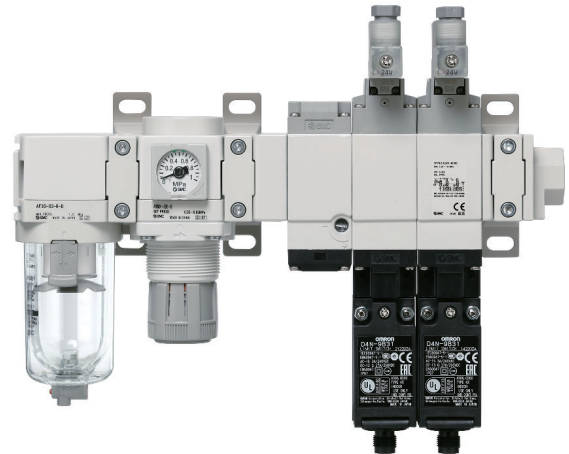


3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position



- Can be connected to modular type F.R.L. units (AC-D series)
- With main valve position detection function
The main valve position detection function is used to detect inconsistencies between input signals and valve operations.
- A model with a soft start-up function is also available.



• Variations

Residual Pressure Release Valve		Dual Residual Pressure Release Valve If one of the valves fails to operate, the other one releases the residual pressure.	
	With soft start-up function		With soft start-up function
			

- A variety of safety limit switches (Made by OMRON or Rockwell Automation) are available.
- Features a check valve built into the pilot flow path (Supports pilot pressure drops caused by pressure fluctuations on the inlet side)

VP546/746 Series

VP546/746 Series

How to Order

Modular Type **VP 5 46 R - 5 DZ 1 - M R - S S F**

Series

5	VP500
7	VP700

Pilot

—	Internal pilot
R	External pilot

Rated voltage

5	24 VDC
---	--------

Electrical entry

DZ	DIN terminal (With connector), With light/surge voltage suppressor
YZ	DIN (EN 175301-803C) terminal (With connector), With light/surge voltage suppressor

Thread (External pilot only)

—	Rc
F	G
N	NPT

* Thread type of the external pilot port

Soft start-up function

—	None
S	With soft start-up function

No. of residual pressure exhaust valves

S	Single
D	Dual

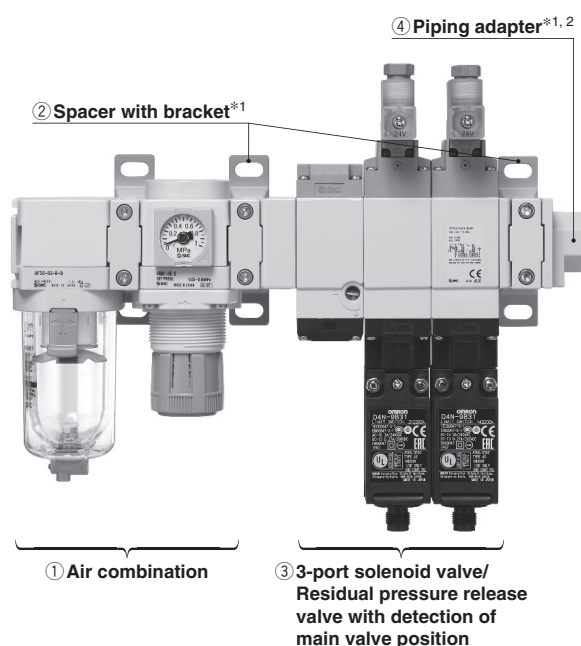
Flow direction

—	Left to right
R	Right to left

Safety limit switch/Wiring

—	G1/2 (Made by OMRON)
M	M12 connector (Made by OMRON)
S1	M12 connector (Made by Rockwell Automation)

Assembly Example



Products do not come assembled. They should be ordered separately and assembled by the customer.

Please contact your local sales representative for more details.

Assembly Example

- ① Air combination AC30B-03E-D 1 pc.
- ② Spacer with bracket Y300T-D 2 pcs.
- ③ 3-port solenoid valve/Residual pressure release valve
with detection of main valve position VP546-5DZ1-DS 1 pc.
- ④ Piping adapter E300-03-D 1 pc.

Applicable Combinations/Attachment Part Nos.

Residual pressure relief 3-port solenoid valve	Air combination	Spacer with bracket	Piping adapter	Silencer
VP546	AC30□-D	Y300T-D	E300-□03-D	AN30-03
VP746	AC40□-D	Y400T-D	E400-□04-D	AN30-03

* Refer to the next page for details on the spacer with bracket.

*1 Connection threads are not available for the 3-port solenoid valve/
residual pressure release valve with detection of main valve position.
Order a piping adapter separately.

*2 Refer to the next page for details on the spacer with bracket and
piping adapter.

3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Valve Specifications

Valve specifications	Fluid		Air	
	Type of actuation		N.C. (Spring return)	
	Pressure specifications		Standard	
	Internal pilot operating pressure range		0.25 to 0.7 MPa	
	External pilot operating pressure range	Operating pressure range	Without soft start-up function	0.05 to 0.7 MPa
			With soft start-up function	0.25 to 0.7 MPa
		Pilot pressure range		Same as the operating pressure (Min. 0.25 MPa)
	Max. operating frequency		30 cycles/min	
	Min. operating frequency		1 cycle/week	
	Operating and ambient temperatures		-10 to 50 °C (No freezing)	
	Ambient humidity		20 to 90%RH (No condensation)	
	Manual override		None	
	Pilot exhaust		Individual exhaust	
	Lubrication		Not required	
	Mounting orientation		Unrestricted	
Coil specifications	Impact/Vibration resistance		150/30 m/s	
	Enclosure		IP65	
	Operating environment		Indoors	
	Coil rated voltage		24 VDC	
	Allowable voltage fluctuation		±10% of the rated voltage	
Safety limit switch specifications	Power consumption		0.45 W	
	Surge voltage suppressor		Varistor	
	Indicator light		LED	
	Manufacturer		Made by OMRON	Made by Rockwell Automation
	Electrical entry		G1/2, M12 connector	M12 connector
	Contact resistance		25 mΩ or less	50 mΩ or less
	Min. applicable load (Load resistance)		5 VDC, 1 mA	5 VDC, 5 mA
	Max. voltage		24 VDC	
	Max. load current		50 mA	
	Max. load inductance		0.5 H	
	Insulation voltage		300 V	600 V
	Protection against electric shock		Class II (EN60947-5-1:2004)	

* This valve is a large flow rate pilot-operated solenoid valve. If the operating pressure falls below 0.25 MPa due to a pressure drop caused by insufficient air supply, it may not be able to switch properly.

Flow Rate Characteristics/Weight

Model	Flow rate characteristics								Weight [g]		
	1 → 2 (P → A)				2 → 3 (A → R)				Safety limit switch specifications		
	C [dm ³ /(s·bar)]	b	Cv	Q [l/min (ANR)] *1	C [dm ³ /(s·bar)]	b	Cv	Q [l/min (ANR)] *1	—: G1/2 (OMRON)	M: M12 connector (OMRON)	S1: M12 connector (Rockwell Automation)
VP546-S	8.8	0.18	2.1	2084	8.3	0.18	2.0	1966	459	466	485
VP546-SS	6.6	0.13	1.5	1522					671	678	697
VP546-D	6.6	0.13	1.5	1522					803	817	855
VP546-DS	5.6	0.06	1.3	1246					1,015	1,030	1,067
VP746-S	14.2	0.22	3.4	3440	12.3	0.25	3.0	3033	808	815	834
VP746-SS	10.6	0.11	2.4	2419					1,274	1,281	1,300
VP746-D	10.8	0.13	2.5	2490					1,395	1,409	1,447
VP746-DS	8.9	0.08	2.0	2001					1,861	1,876	1,914

*1 These values have been calculated according to ISO 6358 and indicate the flow rate under standard conditions with an inlet pressure of 0.6 MPa (relative pressure) and a pressure drop of 0.1 MPa.

VP546/746 Series

Spacer with Bracket

Y **300** **□** - D

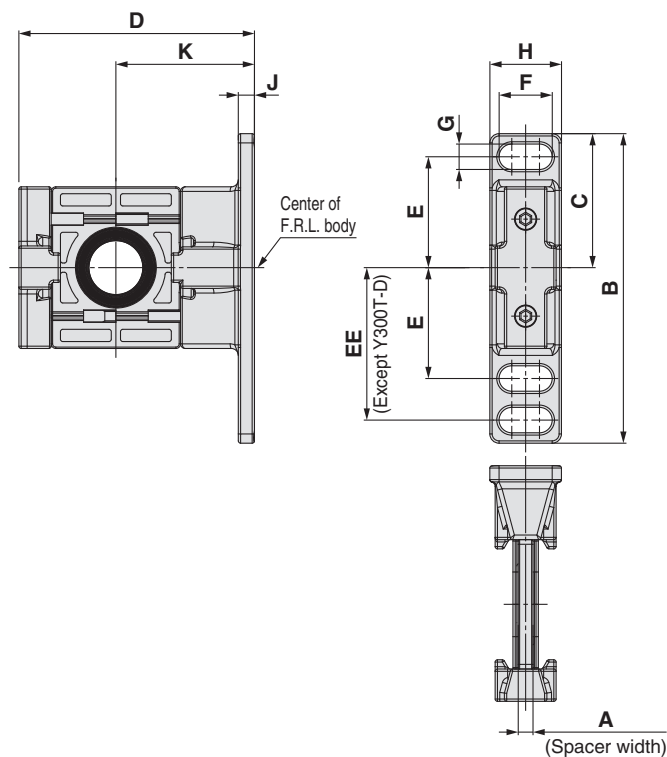
1 2

Spacer with bracket
(Y□T-D)



	Symbol	Description	①	
			Body size [Applicable AC size]	
			300 [AC30]	400 [AC40]
②	Bracket	T	Spacer with bracket	

Dimensions



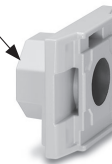
Part no.	A	B	C	D	E	EE	F	G	H	J	K	Applicable size
Y300T-D	4.2	85	42.5	67.5	35	—	14	7	20	6	41	AC30-D
Y400T-D	5.2	115	50	85.5	40	55	18	9	26	7	50	AC40-D

Piping Adapter: 3/8, 1/2

E **300** - **□** **03** - D

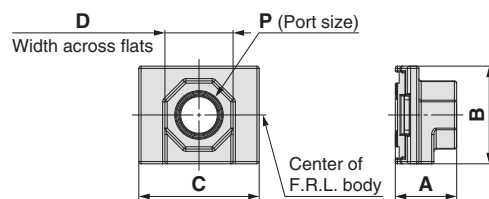
1 2 3

Port size



	Symbol	Description	①	
			Body size [Applicable AC size]	
			300 [AC30]	400 [AC40]
②	Pipe thread type	—	Rc	●
		N	NPT	●
		F	G	●
③	Port size	+		
		02	1/4	●
		03	3/8	●
		04	1/2	●
		06	3/4	●

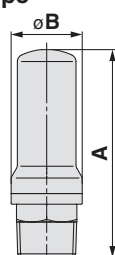
Dimensions



Model	P	A	B	C	D	Applicable AC size
E300-D	1/4, 3/8, 1/2	27	43	53	30	AC30-D
E400-D	1/4, 3/8, 1/2, 3/4	30	51	71	36	AC40-D

Silencer

Compact resin type



Model	Port size R	A	B
AN30-03	3/8	58.5	20

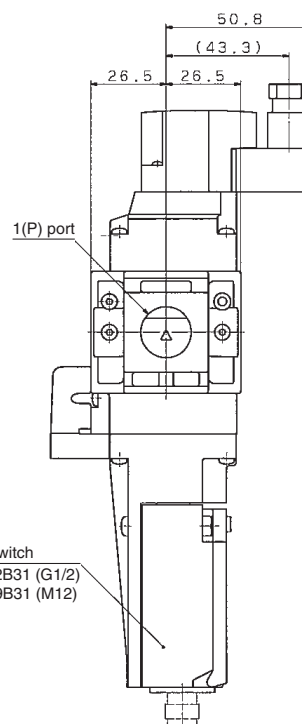
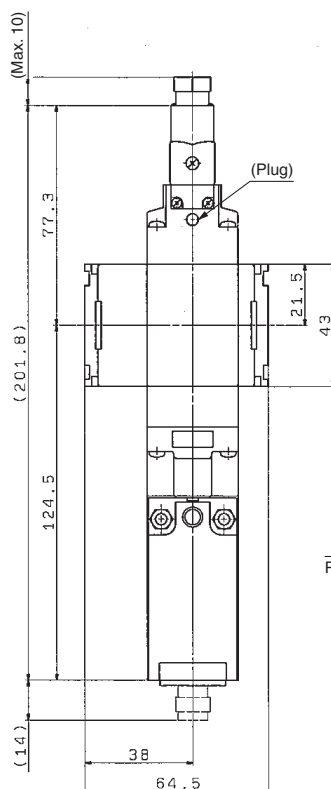
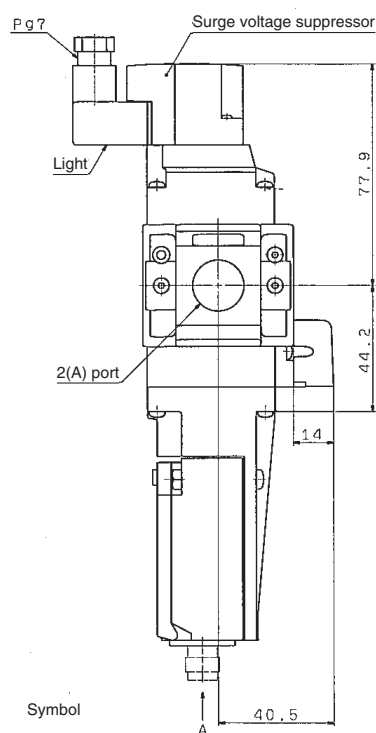
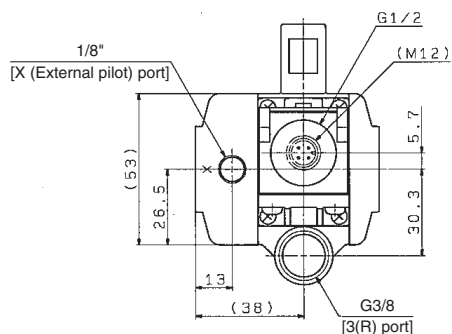
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

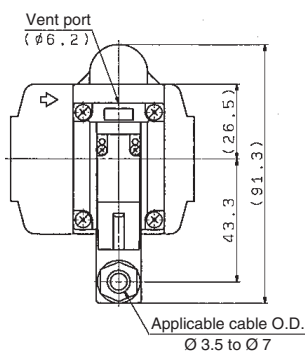
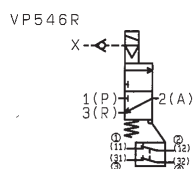
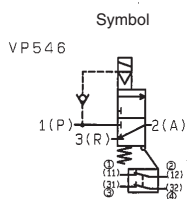
VP546□-5□1-□□-S□

Safety limit switch

Made by OMRON



Safety limit switch
Part number: D4N-2B31 (G1/2)
D4N-9B31 (M12)



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification
①	
②	
③	
④	

G1/2 terminal number	Wiring specification
(11)	
(12)	
(31)	
(32)	

Crimped Terminals

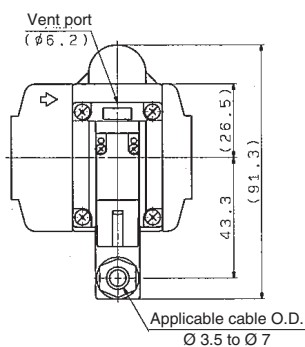
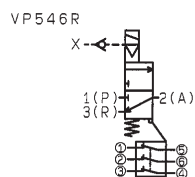
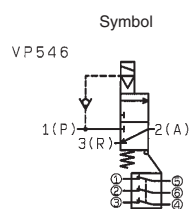
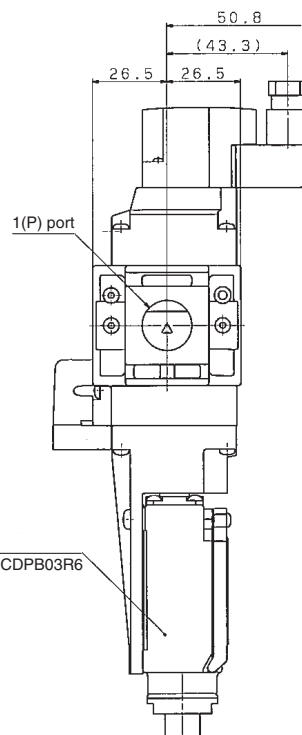
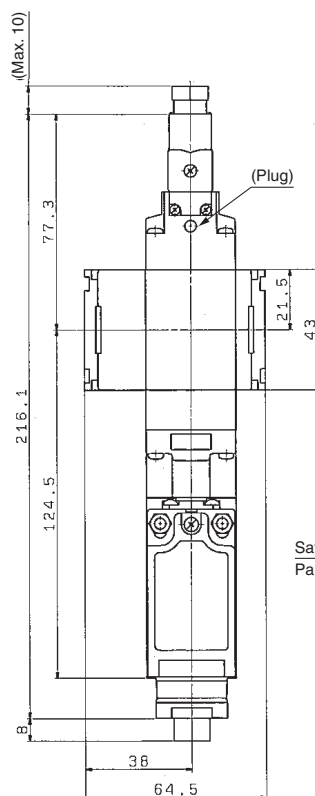
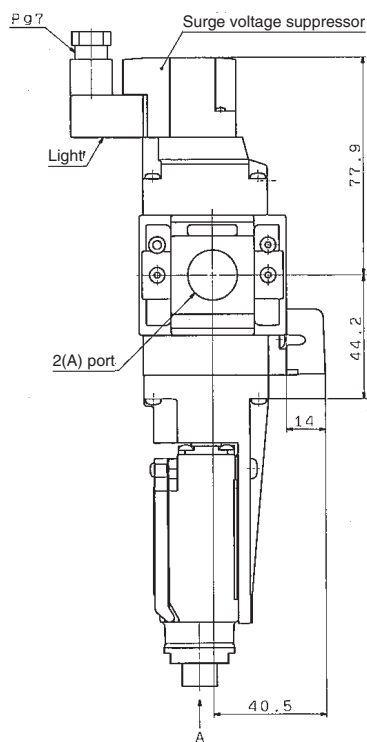
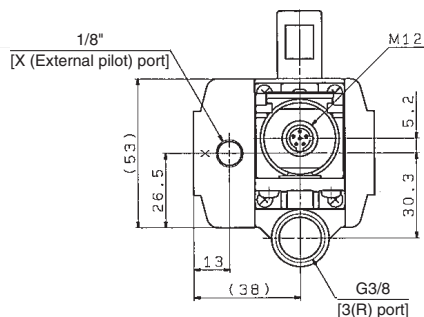
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP546□-5□1-S1□-S□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	

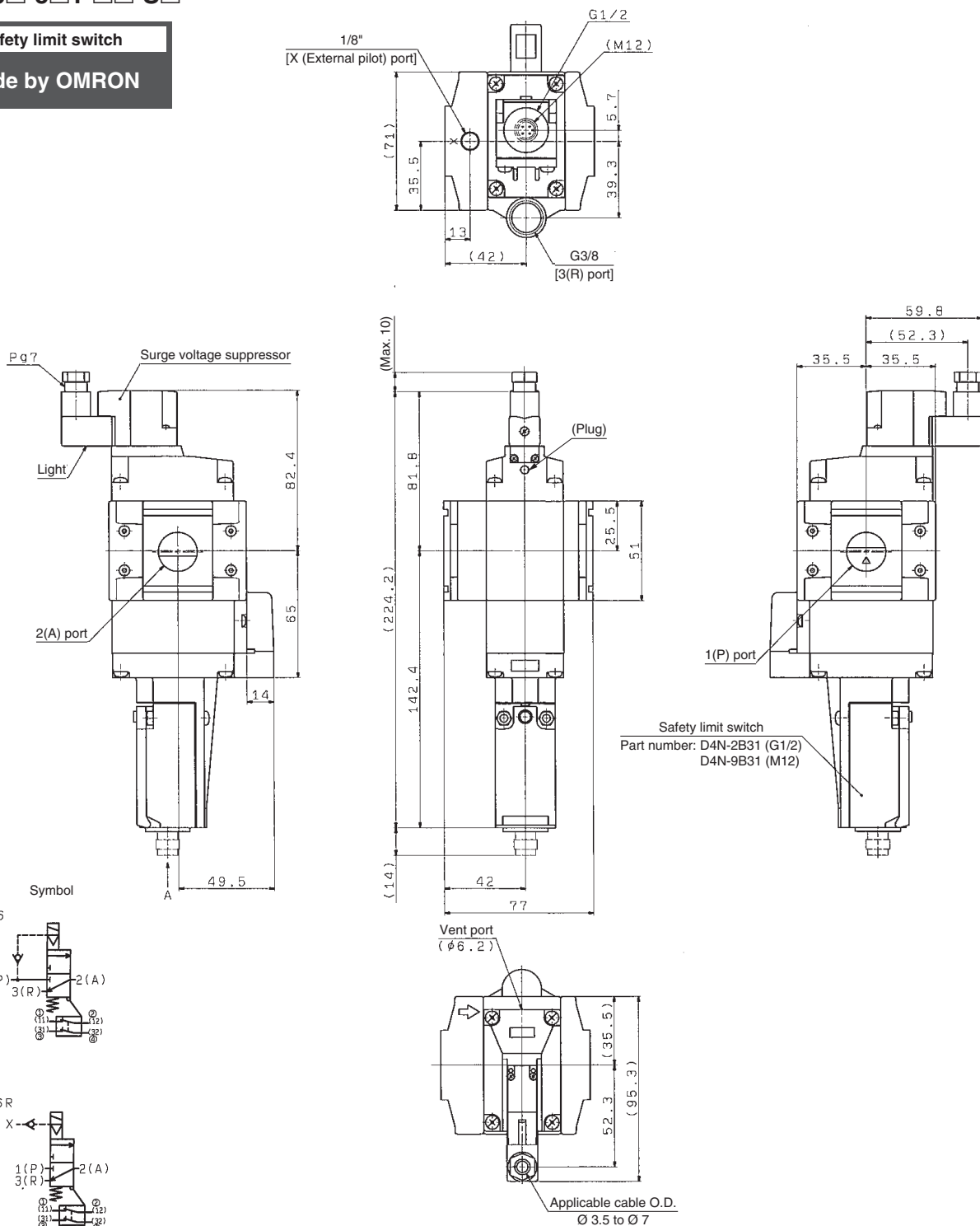
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP746□-5□1-□□-S□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification
①	
②	
③	
④	

G1/2 terminal number	Wiring specification
(11)	
(12)	
(31)	
(32)	

Crimped Terminals

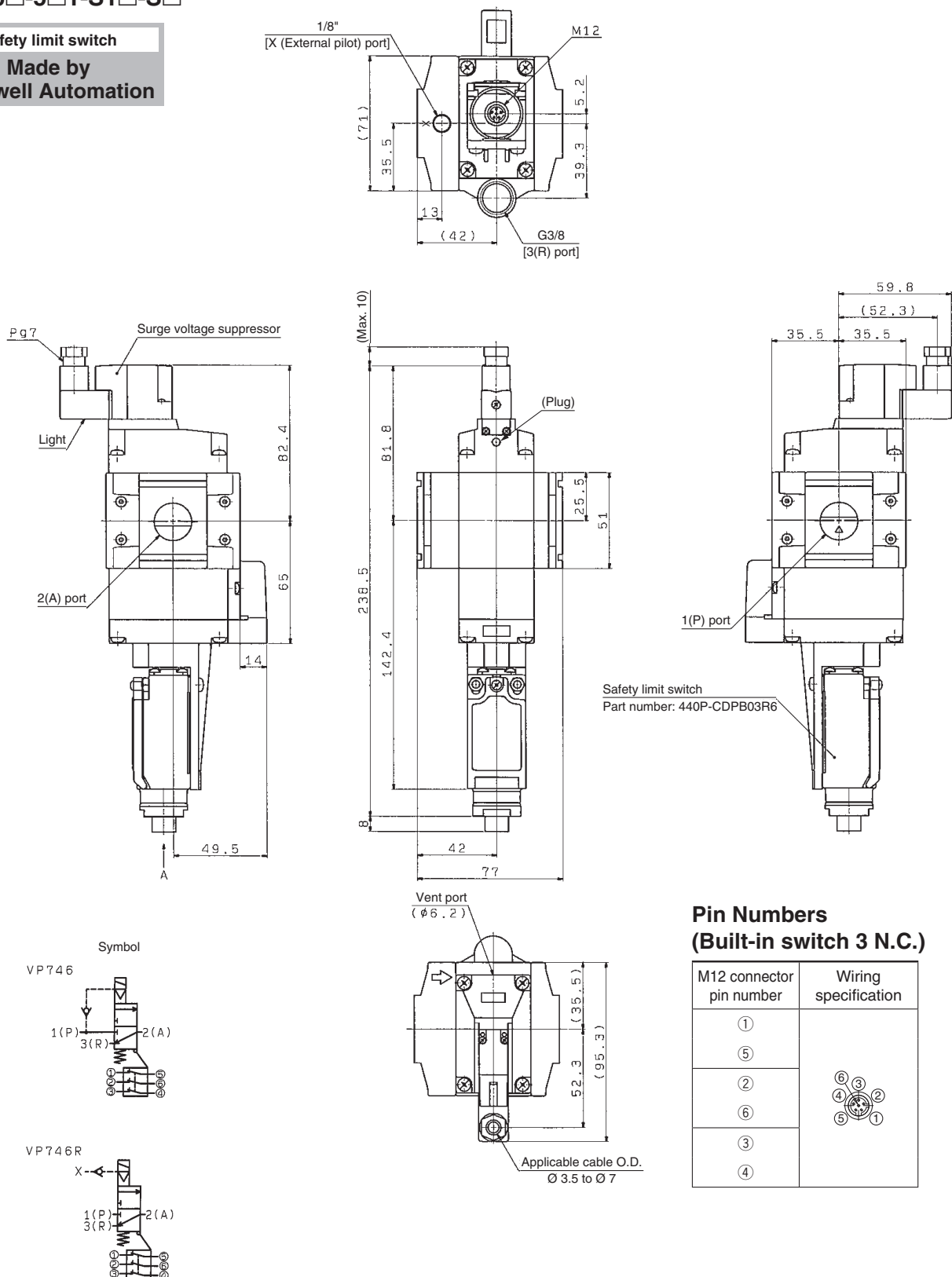
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP746□-5□1-S1□-S□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	

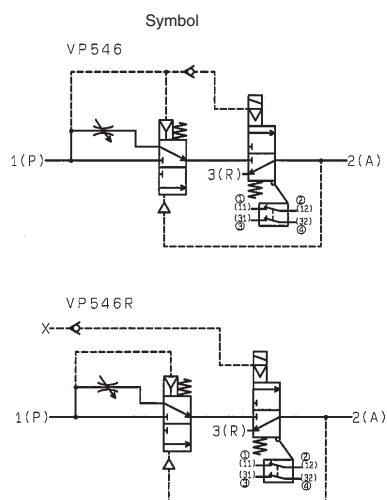
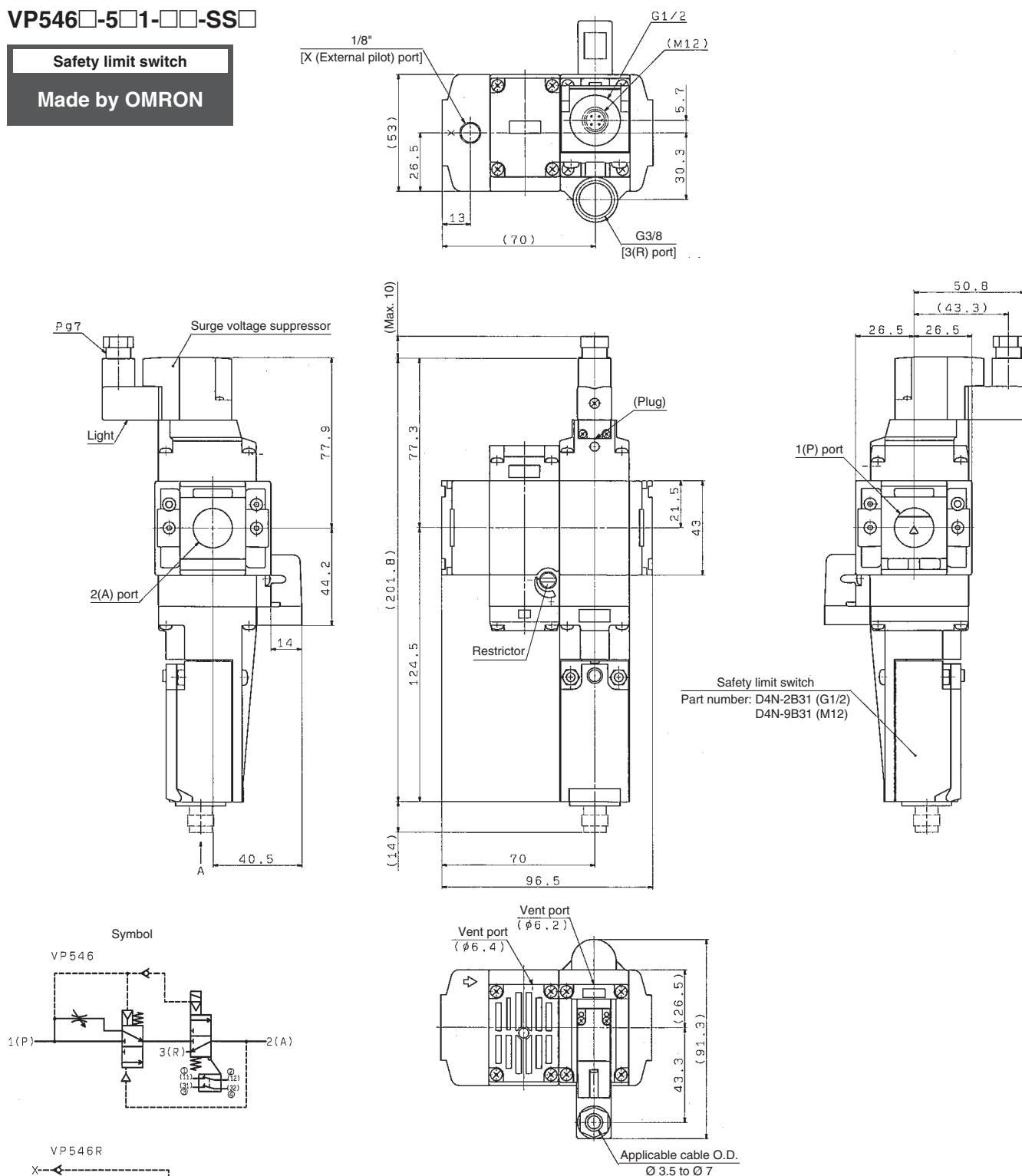
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP546□-5□1-□□-SS□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification	G1/2 terminal number	Wiring specification
①		(11)	
②		(12)	
③		(31)	
④		(32)	

Crimped Terminals

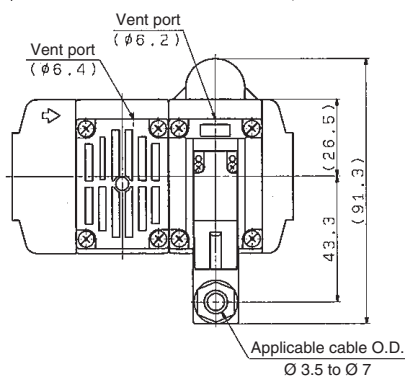
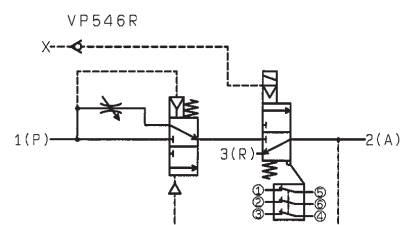
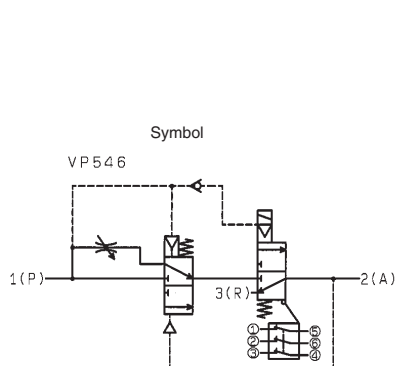
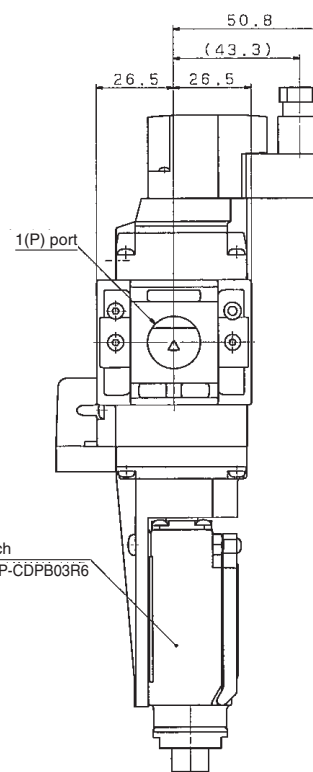
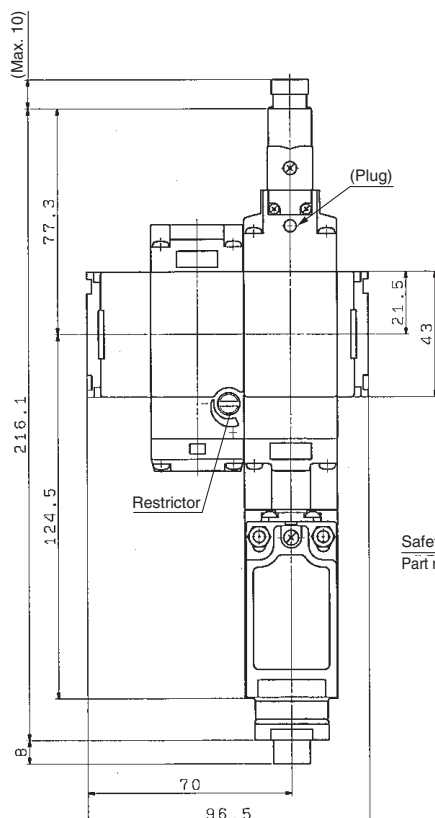
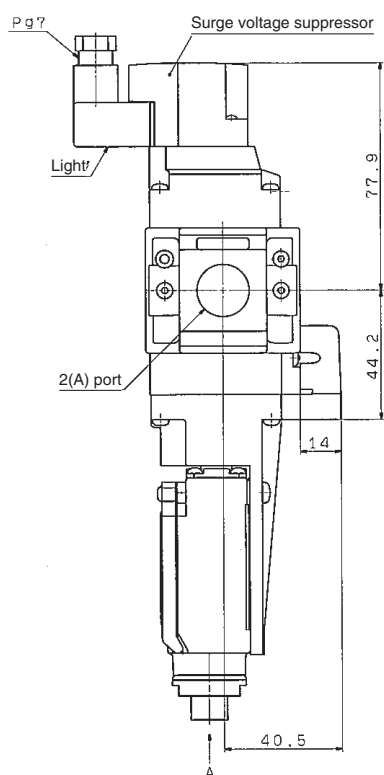
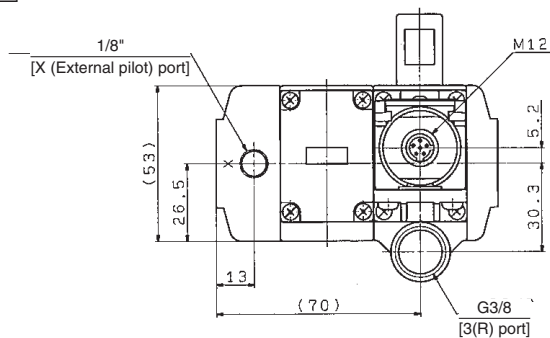
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP546□-5□1-S1□-SS□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	

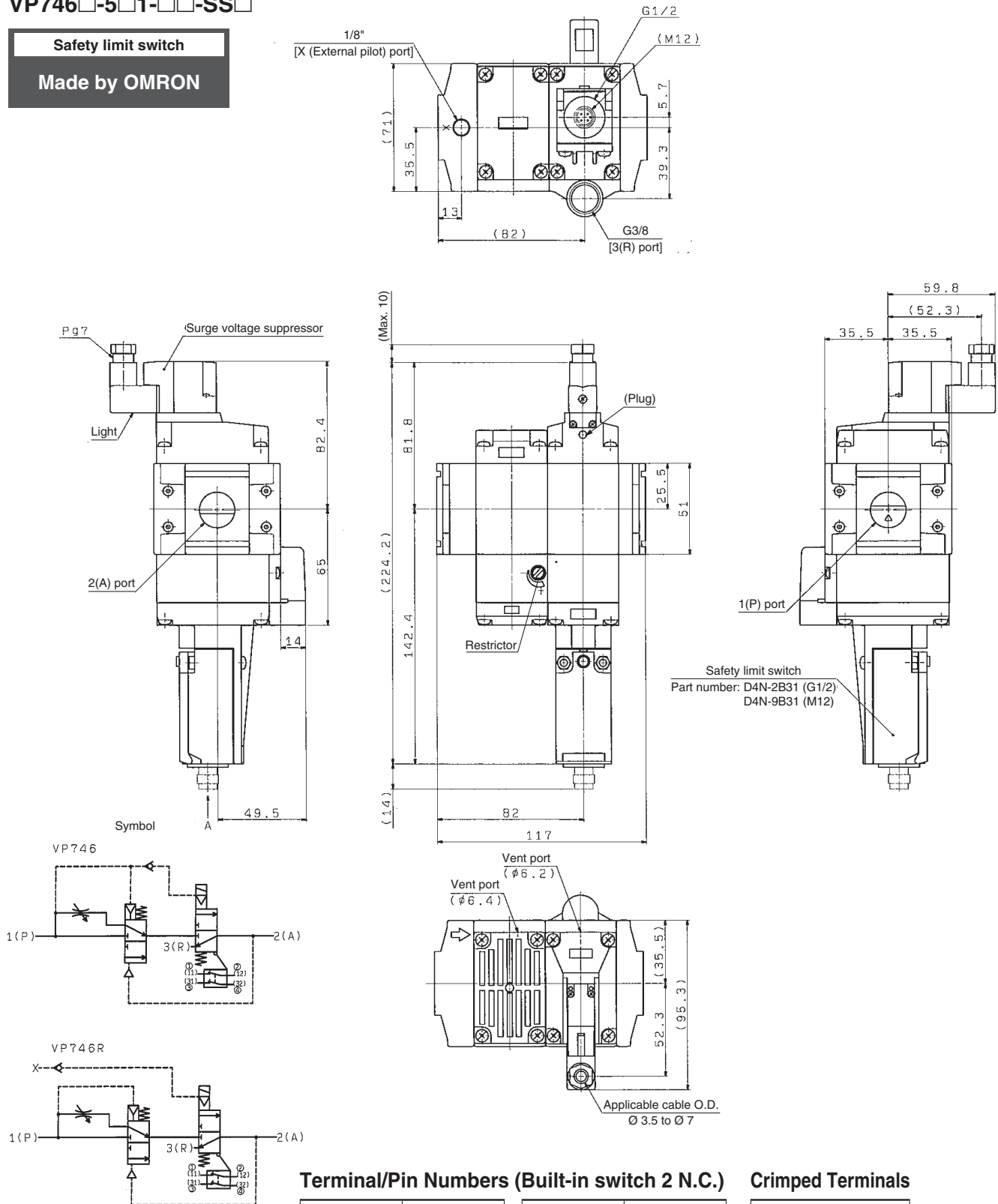
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP746□-5□1-□□-SS□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification	G1/2 terminal number	Wiring specification
①		(11)	
②		(12)	
③		(31)	
④		(32)	

Crimped Terminals

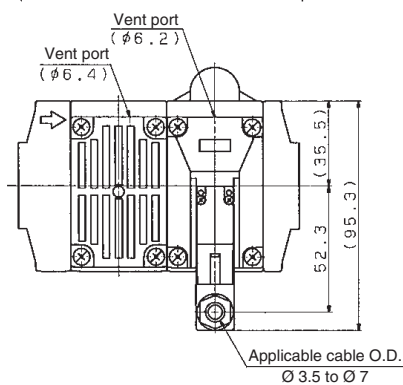
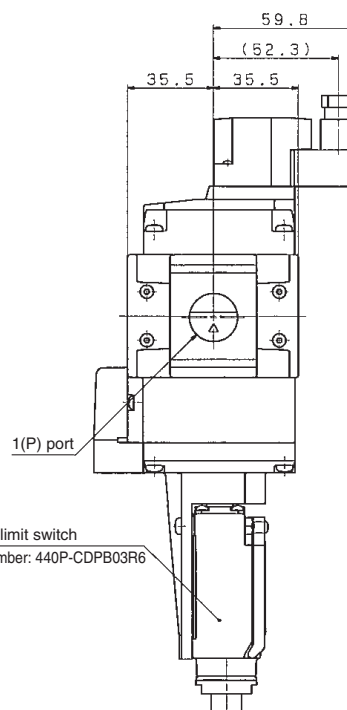
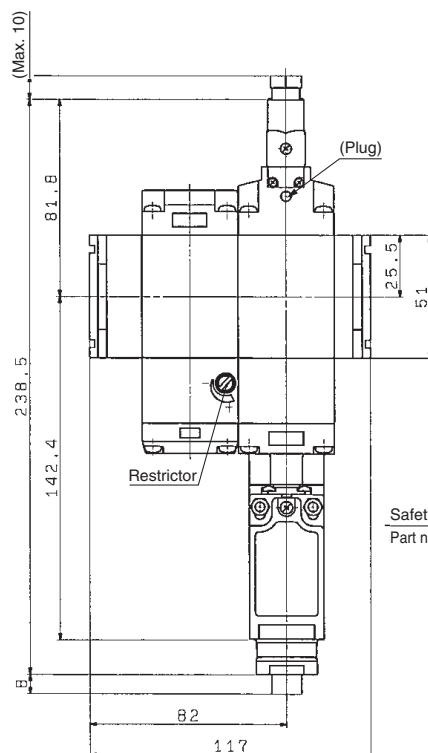
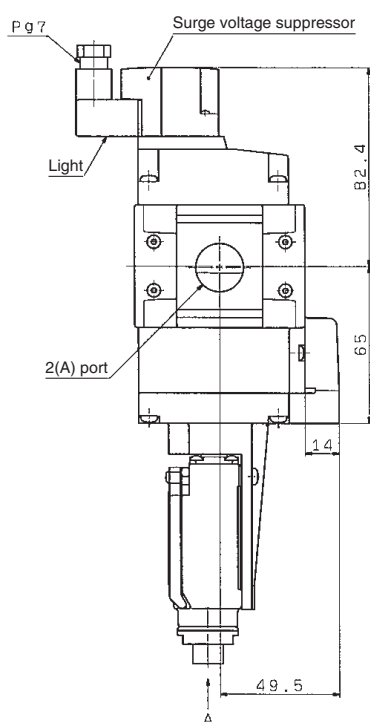
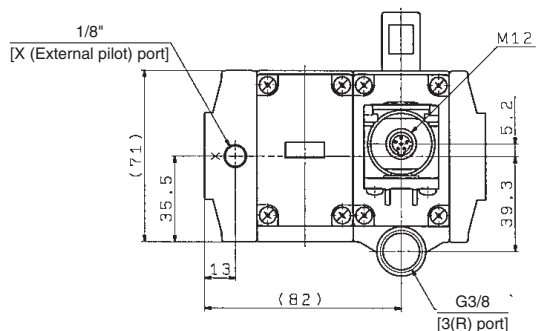
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

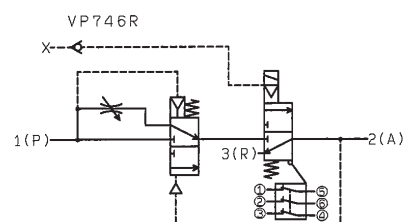
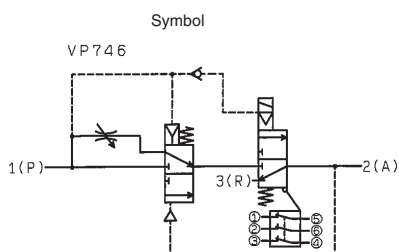
VP746□-5□1-S1□-SS□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	



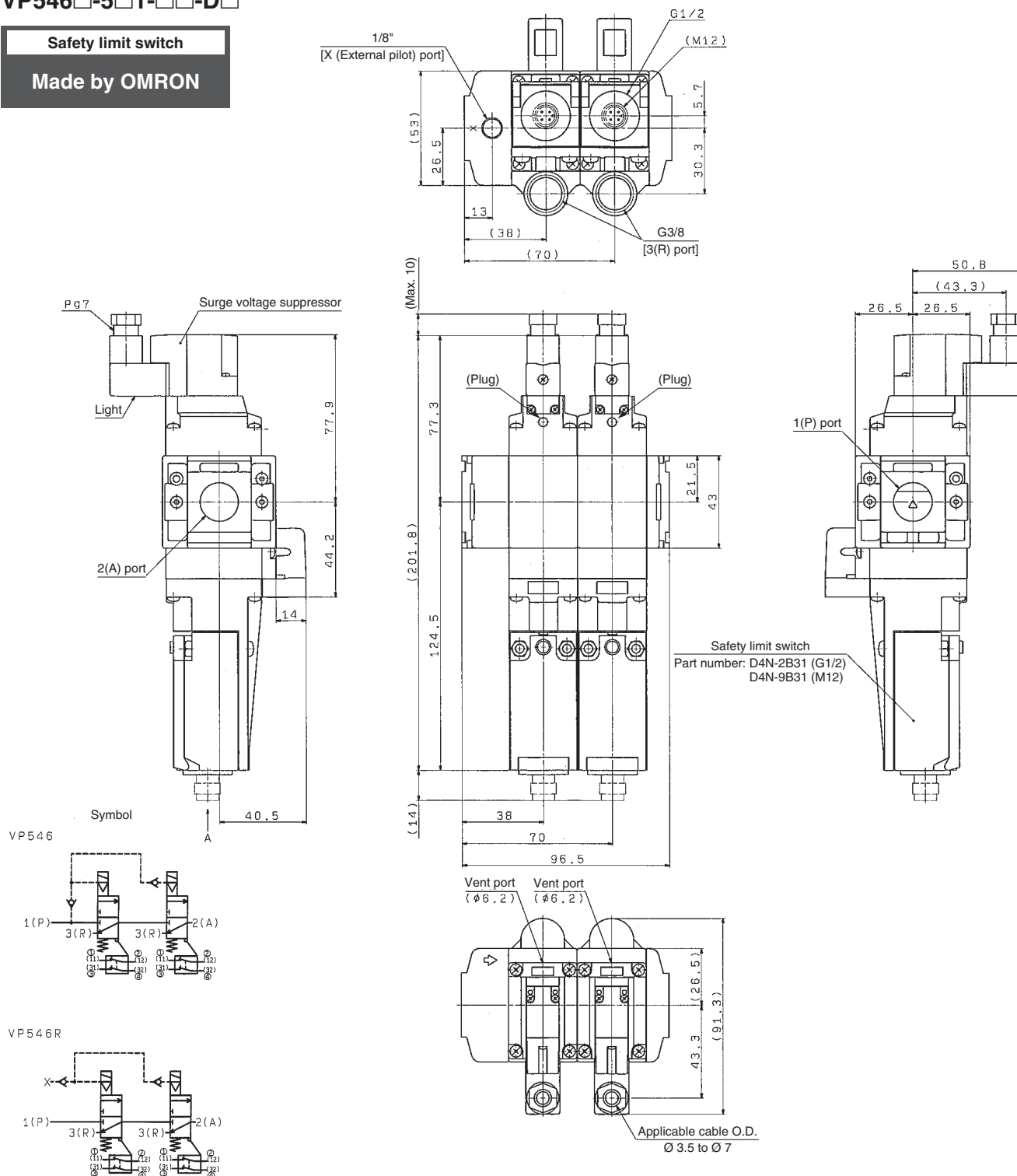
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP546□-5□1-□□-D□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification
①	
②	
③	
④	

G1/2 terminal number	Wiring specification
(11)	
(12)	
(31)	
(32)	

Crimped Terminals

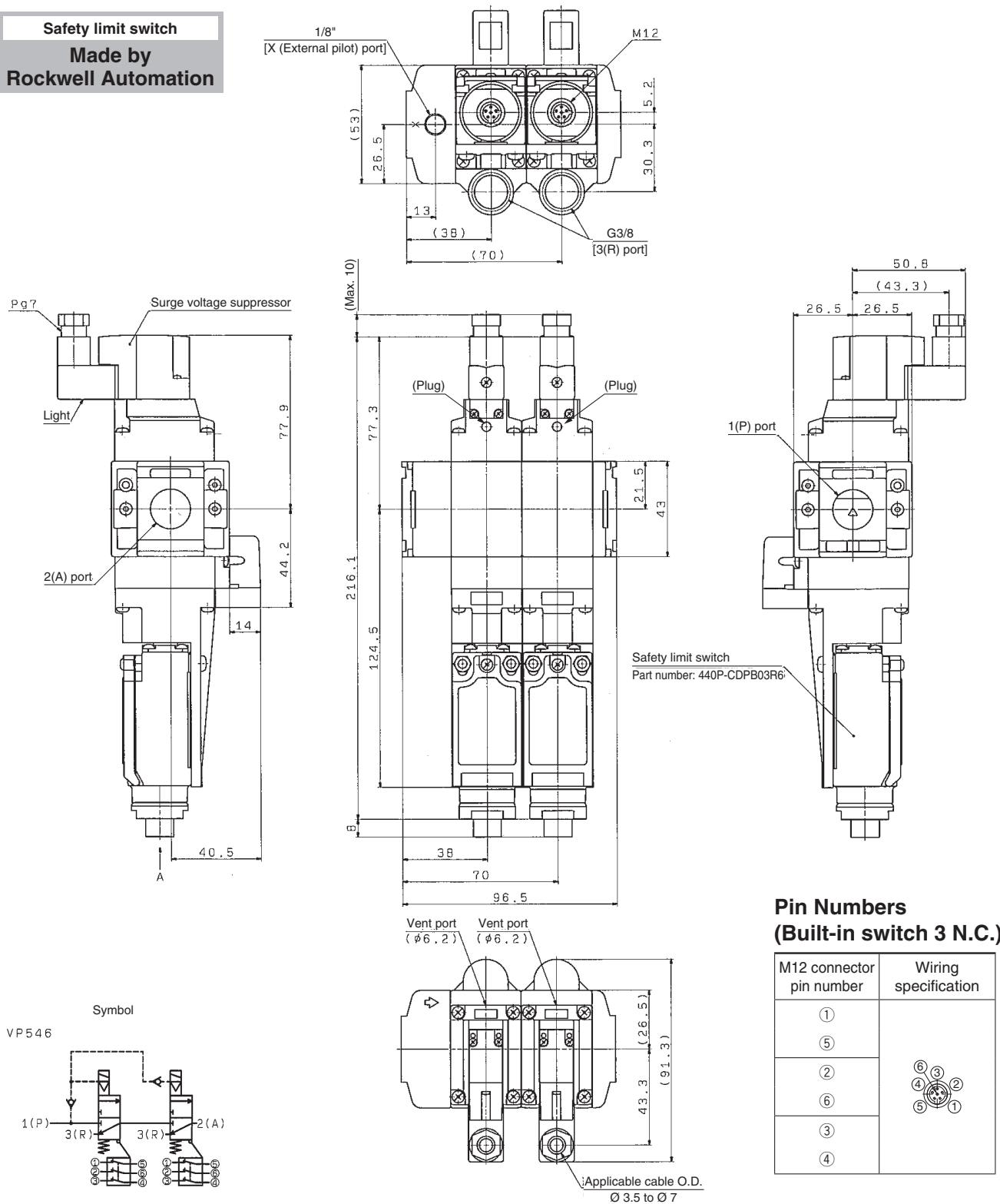
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP546□-5□1-S1□-D□

Safety limit switch
Made by
Rockwell Automation



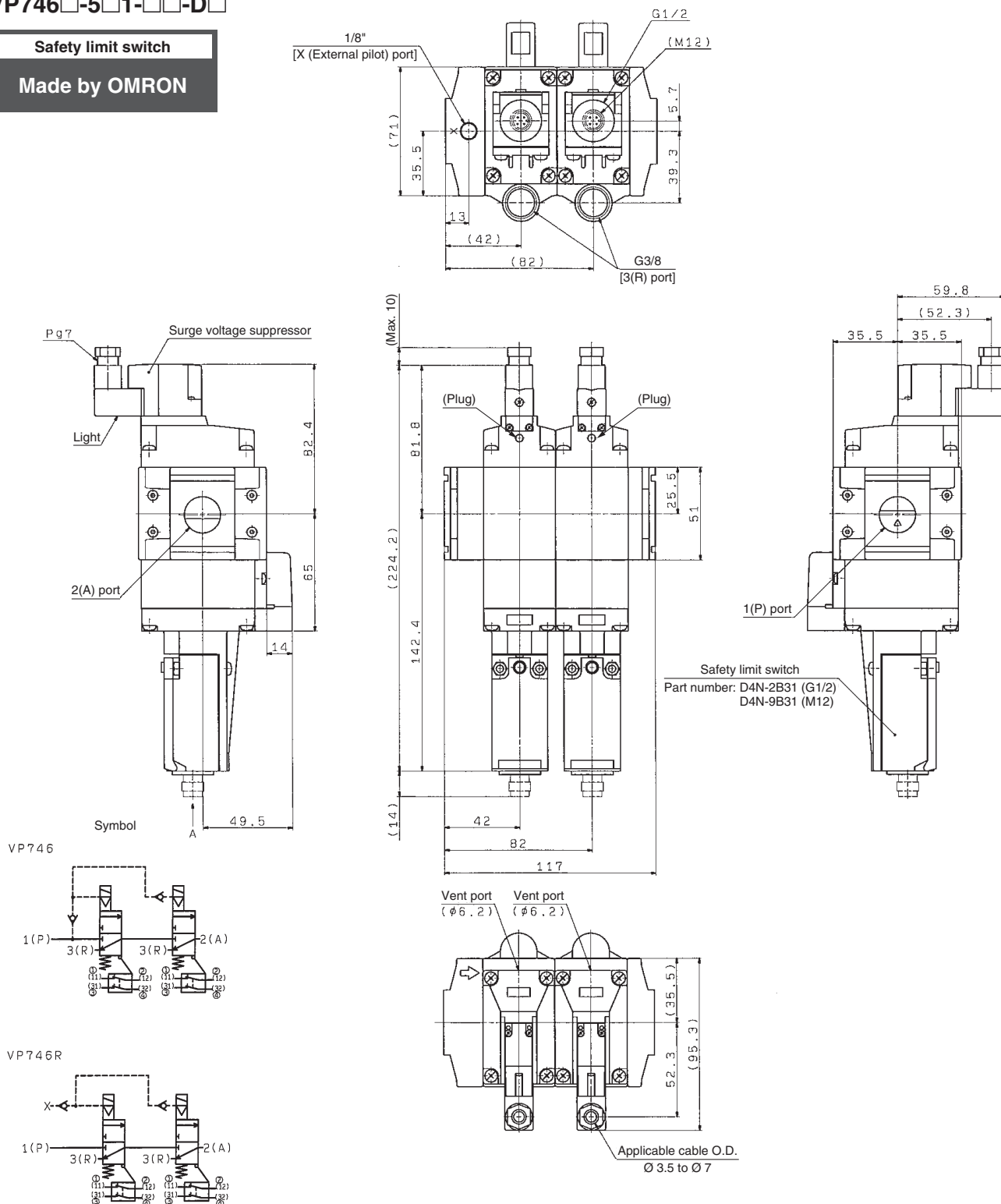
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP746□-5□1-□□-D□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification	G1/2 terminal number	Wiring specification
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②		(12)	
③		(31)	
④		(32)	

Crimped Terminals

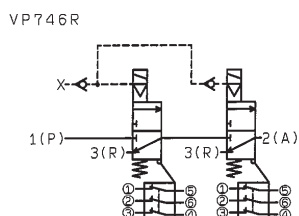
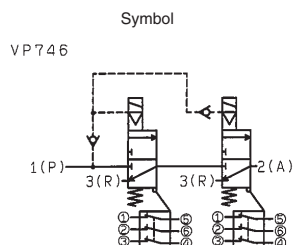
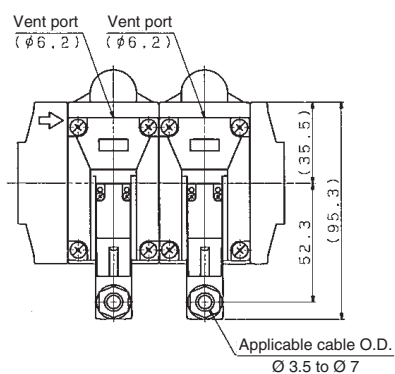
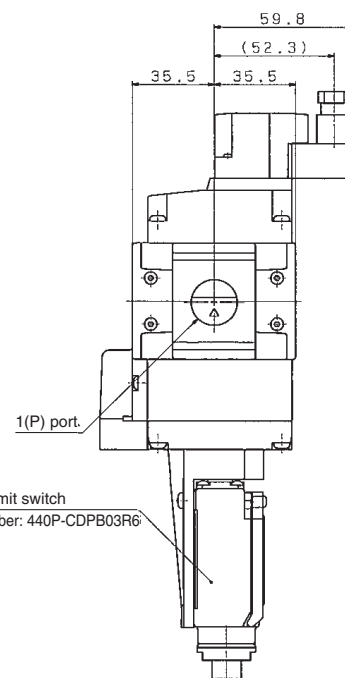
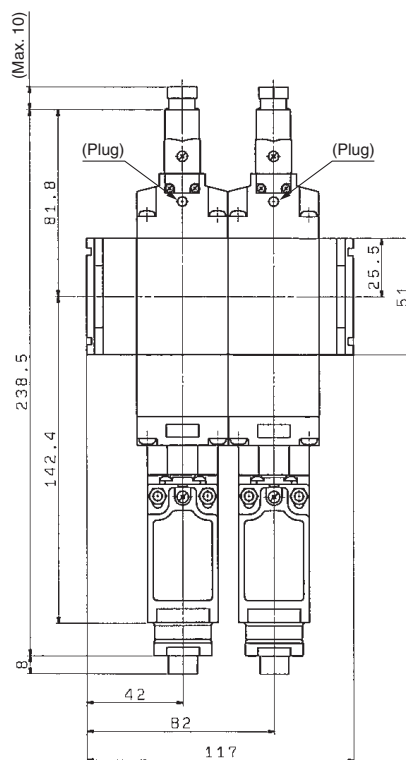
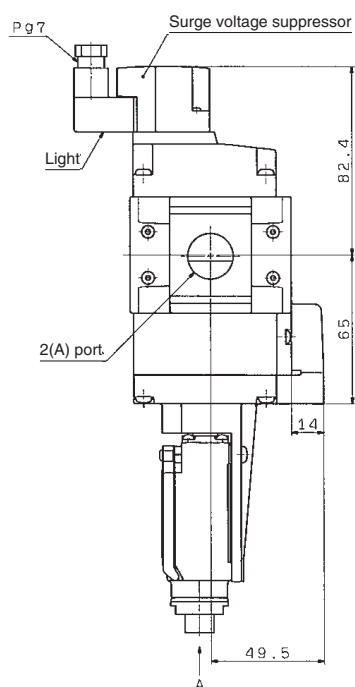
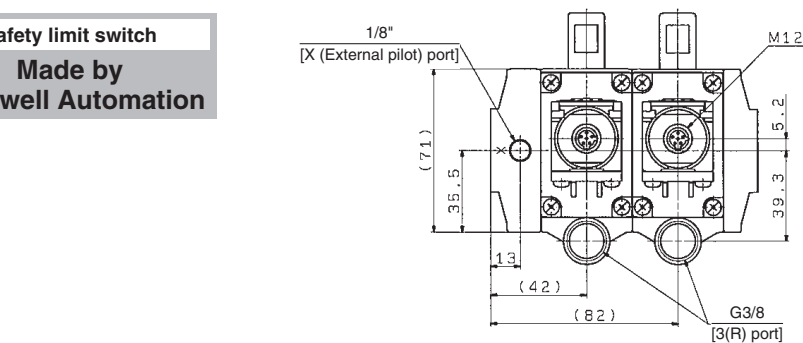
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP746□-5□1-S1□-D□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	

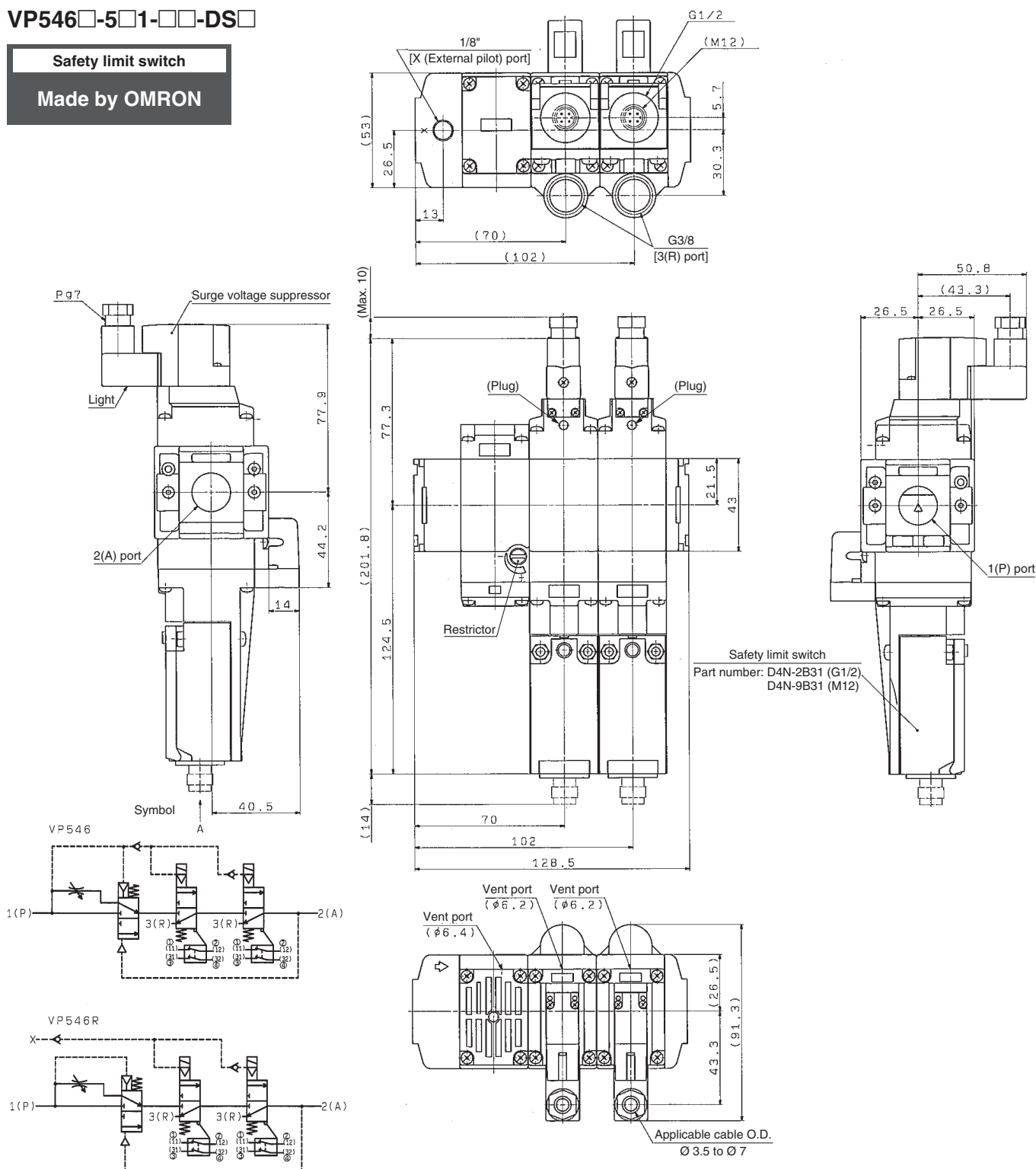
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP546□-5□1-□□-DS□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification
①	
②	
③	
④	

G1/2 terminal number	Wiring specification
(11)	
(12)	
(31)	
(32)	

Crimped Terminals

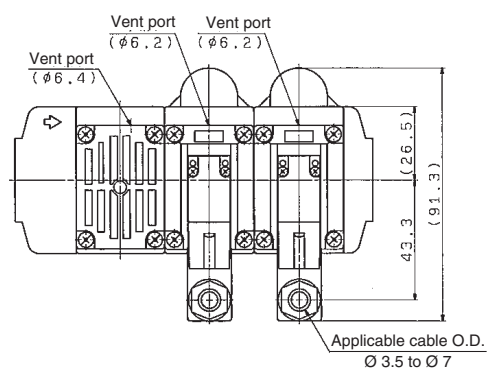
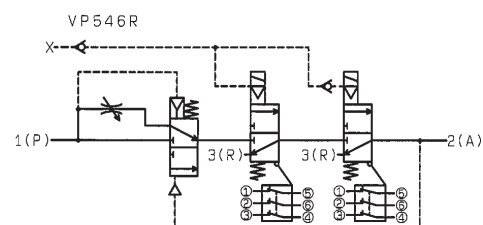
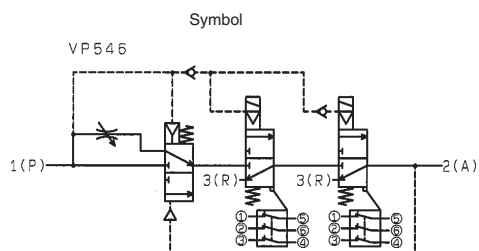
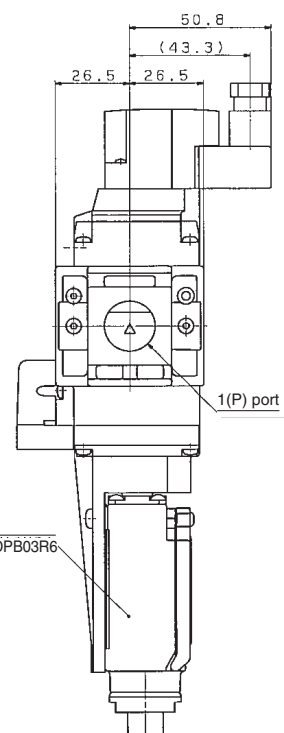
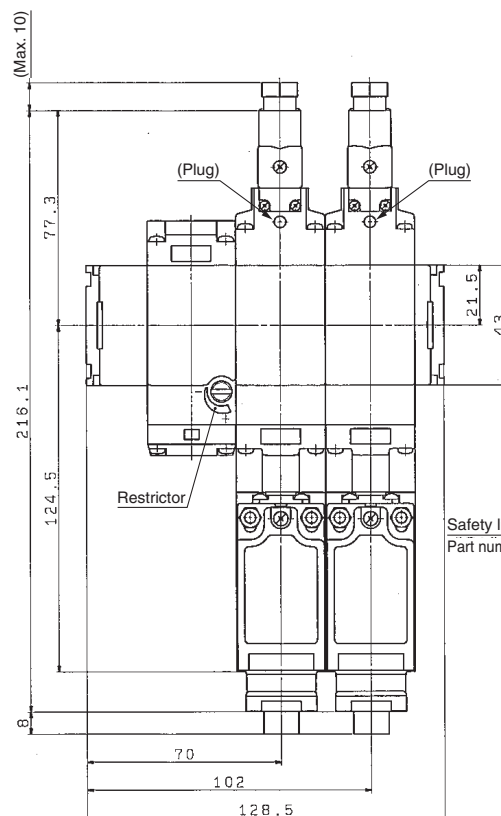
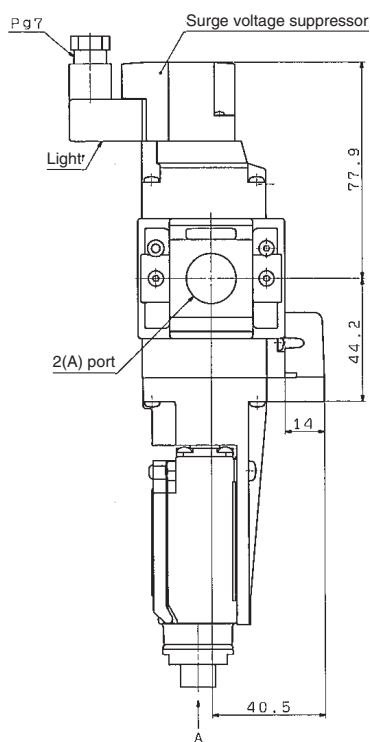
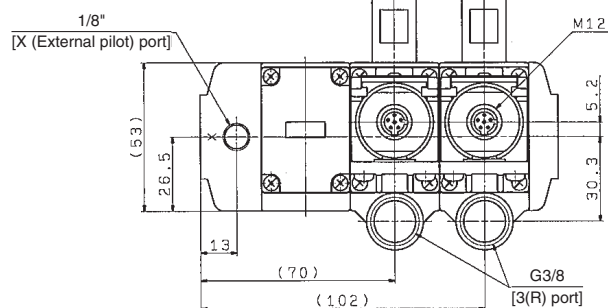
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

VP546□-5□1-S1□-DS□

Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	

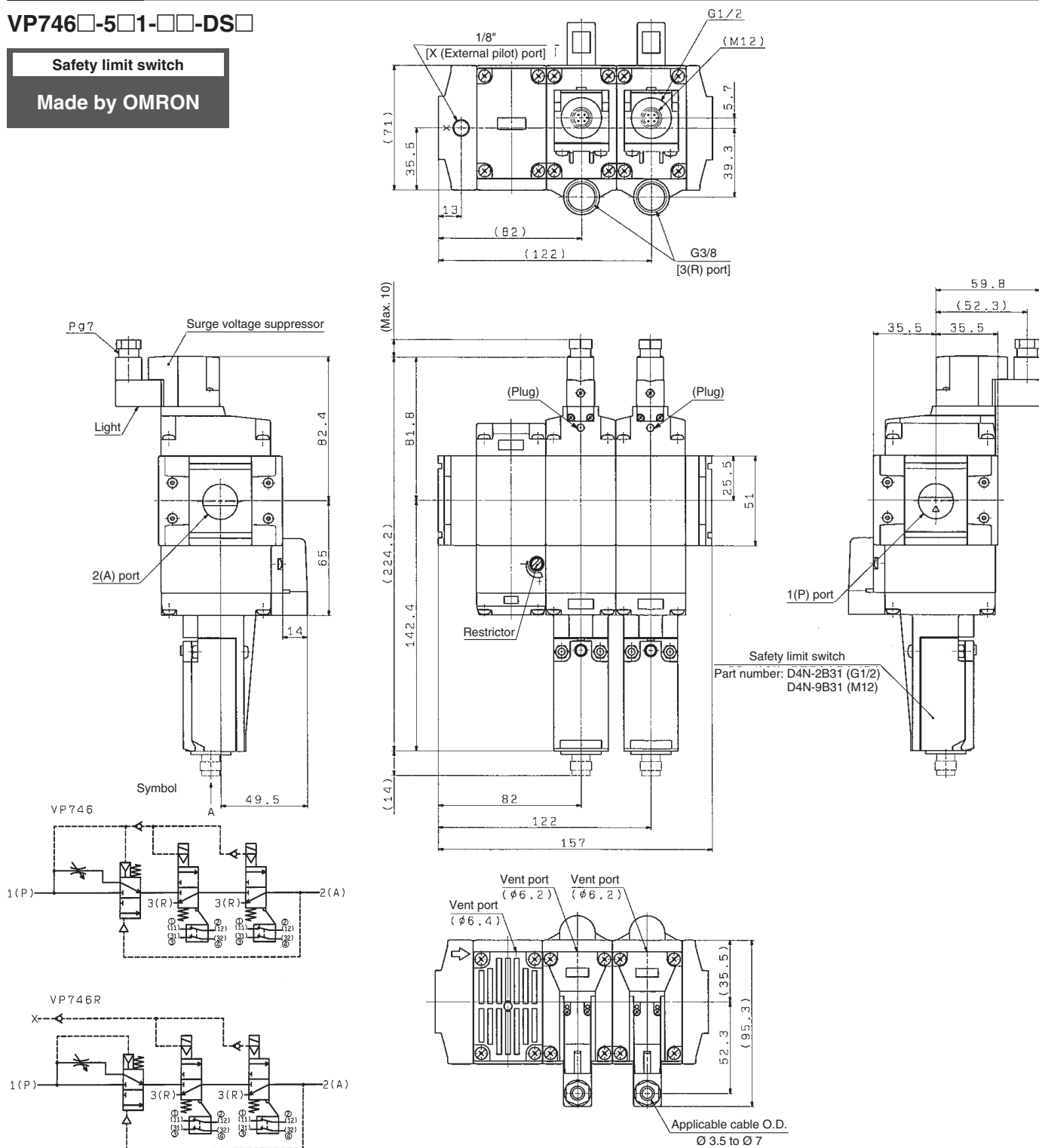
3-Port Solenoid Valve Modular Type/ Residual Pressure Release Valve with Detection of Main Valve Position **VP546/746 Series**

Dimensions

VP746□-5□1-□□-DS□

Safety limit switch

Made by OMRON



Terminal/Pin Numbers (Built-in switch 2 N.C.)

M12 connector pin number	Wiring specification
①	
②	
③	
④	

G1/2 terminal number	Wiring specification
(11)	
(12)	
(31)	
(32)	

Crimped Terminals

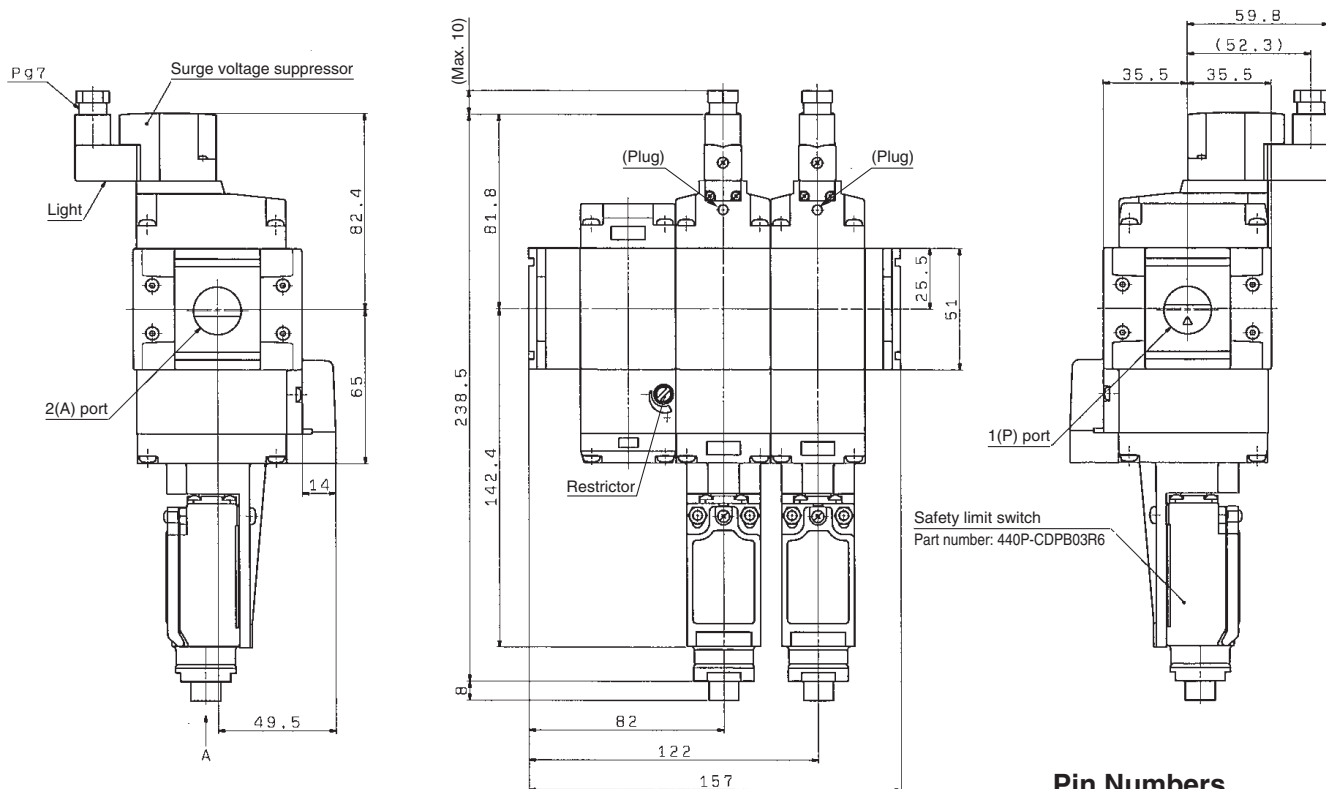
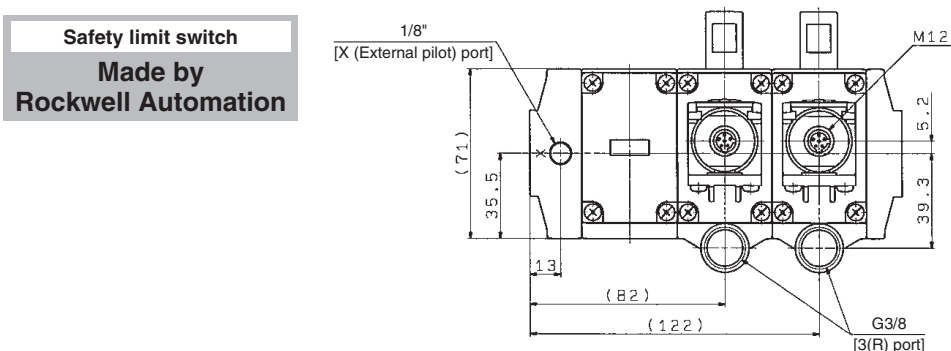
Wiring size
AWG20 (0.5 mm ²)

VP546/746 Series

Dimensions

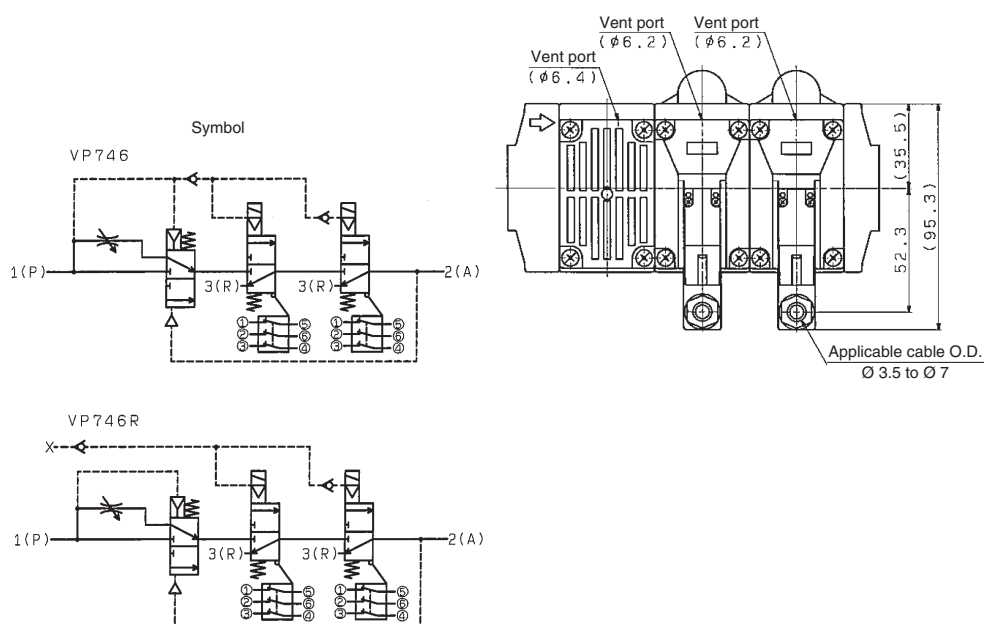
VP746□-5□1-S1□-DS□

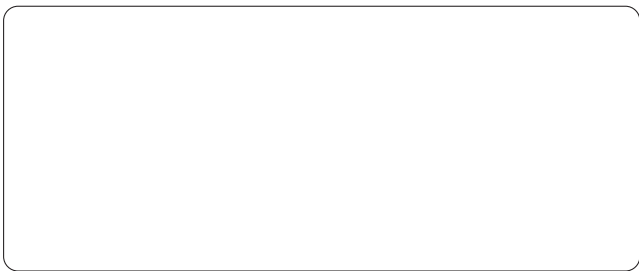
Safety limit switch
Made by
Rockwell Automation



Pin Numbers (Built-in switch 3 N.C.)

M12 connector pin number	Wiring specification
①	
⑤	
②	
⑥	
③	
④	





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