With main valve position detection function

**Category 2**

The main valve position detection function is used to detect inconsistencies between input signals and valve operations.

With easy-to-construct redundant system

**Categories 3 and 4**

When the dual residual pressure release valve is used, if one of the valves fails to operate, the other one releases the residual pressure.

Redundant System

A system in which even if one part fails, the system as a whole will still fulfill its required function. This is usually achieved through the incorporation of dual channels of operation such as dual valves, dual wiring, dual guard switches, etc.
### Highly reliable construction

1. The main valve position is detected by relaying the main valve's movements directly to the reed safety limit switch via the rod.

2. Long service life: B10D: 10 million cycles*1
3. The return spring ensures the release of residual pressure regardless of the pressure level.

*1 For the VP500/700, the safety limit switch made by OMRON

### A variety of safety limit switches can be selected.

Conduit (VP series only) and M12 connector (4 pin) types are available.

An M12 connector type with 6 pins is available.

### With soft start-up function (-X555)

- A function to gradually increase the initial pressure of the pneumatic system has been added to the dual residual pressure release valve.
- Fixed orifice and variable throttle are available as throttle options for adjusting the pressure increase. (ø1, ø1.5, ø2)

### Output Pressure (P2) vs Time Graph

When P1 reaches half of P2, the main valve of the soft start-up valve turns on.

Soft start-up valve: ON
Valve 1, Valve 2: ON

Start supplying flow-adjusted air with the throttle by energizing valve 1 and valve 2.

Soft start-up valve: OFF
Valve 1, Valve 2: ON
### Standards and Enclosure

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>Safety limit switch manufacturer</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Pressure Release Valve</td>
<td>2</td>
<td>OMRON Corporation</td>
<td>CE, RoHS, cUL</td>
</tr>
<tr>
<td>VP54/744-X536</td>
<td></td>
<td>Rockwell Automation, Inc.</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
</tr>
<tr>
<td>VP54/744-X538</td>
<td></td>
<td>Rockwell Automation, Inc.</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
</tr>
<tr>
<td>VP54/744-X555</td>
<td></td>
<td>Rockwell Automation, Inc.</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
</tr>
<tr>
<td>VG342-X87</td>
<td></td>
<td>Rockwell Automation, Inc.</td>
<td></td>
</tr>
</tbody>
</table>

### Series Variations

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>Port size</th>
<th>Thread</th>
<th>Flow-rate characteristics $C_2$ [dm³/(s·bar)] 1→2 (P→A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Pressure Release Valve</td>
<td>2</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>8.9*1</td>
</tr>
<tr>
<td>VP54/744-X536</td>
<td></td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>15.1*1</td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>6.5</td>
</tr>
<tr>
<td>VP744-X538</td>
<td></td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>10.3</td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>5.2</td>
</tr>
<tr>
<td>VP544-X555</td>
<td></td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>9.8</td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve</td>
<td>3/4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>26.6</td>
</tr>
<tr>
<td>VG342-X87</td>
<td></td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td></td>
</tr>
</tbody>
</table>

*1 Only available for port size 3/4"

---

Can be connected to modular type F.R.L. units Page 20

Applicable models*1
- VP544/744-X536
- VP544/744-X538
- VP544/744-X555

*1 Please contact SMC for the VP542/742-X536.
Safety Standard ISO 13849-1 Certified

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

**VP500/700-X536, X538, X555**

**How to Order**

### Residual Pressure Release Valve

<table>
<thead>
<tr>
<th>Series</th>
<th>Pilot</th>
<th>Voltage</th>
<th>Electrical entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 VP500</td>
<td>Nil</td>
<td>24 VDC</td>
<td>DZ DIN terminal, With light/surge voltage suppressor</td>
</tr>
<tr>
<td>7 VP700</td>
<td>R Internal pilot</td>
<td>YZ DIN (EN 175301-803) terminal, With light/surge voltage suppressor</td>
<td></td>
</tr>
</tbody>
</table>

### Port size

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Port size</th>
<th>VP500</th>
<th>VP700</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>3/8</td>
<td>⬗</td>
<td>⬗</td>
</tr>
<tr>
<td>04</td>
<td>1/2</td>
<td>⬗</td>
<td>⬗</td>
</tr>
</tbody>
</table>

### Thread

<table>
<thead>
<tr>
<th>Nil</th>
<th>Rc</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>G</td>
</tr>
<tr>
<td>N</td>
<td>NPT</td>
</tr>
</tbody>
</table>

### Bracket for modular connection

<table>
<thead>
<tr>
<th>(Modular adapter)</th>
<th>VP544</th>
<th>VP744</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1 Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Safety limit switch/Wiring

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil G1/2 (Made by OMRON)</td>
<td></td>
</tr>
<tr>
<td>M M12 connector (Made by OMRON)</td>
<td></td>
</tr>
<tr>
<td>S1 M12 connector (Made by Rockwell Automation)</td>
<td></td>
</tr>
</tbody>
</table>

### With check valve (Only external pilot)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Check valve</th>
<th>Applicable tube O.D.</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil None</td>
<td>⬗</td>
<td>⬗</td>
<td></td>
</tr>
<tr>
<td>M Yes</td>
<td>ø6</td>
<td>⬗</td>
<td></td>
</tr>
<tr>
<td>A ø1/4*</td>
<td>⬗</td>
<td>⬗</td>
<td></td>
</tr>
</tbody>
</table>

### Part Nos./With Modular Adapter

<table>
<thead>
<tr>
<th>Applicable model</th>
<th>Ordering symbol</th>
<th>Combinable modular adapter part no.</th>
<th>Applicable spacer</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP544-3-5C1-03</td>
<td>M</td>
<td>E310-U03</td>
<td>Y300-A, Y300T-A</td>
</tr>
<tr>
<td>VP544-3-5C1-03</td>
<td>M1</td>
<td>E410-U03</td>
<td>Y400-A, Y400T-A</td>
</tr>
<tr>
<td>VP744-3-5C1-04</td>
<td>M</td>
<td>E410-U04</td>
<td>Y400-A, Y400T-A</td>
</tr>
</tbody>
</table>

### Dual Residual Pressure Release Valve

**VP 544 R - 5 DZ 1 - 03 - MA - X538**

**Series**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 VP500</td>
<td>Nil</td>
<td>Internal pilot</td>
<td></td>
</tr>
<tr>
<td>7 VP700</td>
<td>R External pilot</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Port size**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Port size</th>
<th>VP500</th>
<th>VP700</th>
</tr>
</thead>
<tbody>
<tr>
<td>03</td>
<td>3/8</td>
<td>⬗</td>
<td>⬗</td>
</tr>
<tr>
<td>04</td>
<td>1/2</td>
<td>⬗</td>
<td>⬗</td>
</tr>
</tbody>
</table>

**Thread**

<table>
<thead>
<tr>
<th>Nil</th>
<th>Rc</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>G</td>
</tr>
<tr>
<td>N</td>
<td>NPT</td>
</tr>
</tbody>
</table>

**Safety limit switch/Wiring**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil G1/2 (Made by OMRON)</td>
<td></td>
</tr>
<tr>
<td>M M12 connector (Made by OMRON)</td>
<td></td>
</tr>
<tr>
<td>S1 M12 connector (Made by Rockwell Automation)</td>
<td></td>
</tr>
</tbody>
</table>

**With check valve (Only external pilot)**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Check valve</th>
<th>Applicable tube O.D.</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil None</td>
<td>⬗</td>
<td>⬗</td>
<td></td>
</tr>
<tr>
<td>M ø6</td>
<td>⬗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A ø1/4*</td>
<td>⬗</td>
<td>⬗</td>
<td></td>
</tr>
</tbody>
</table>

* For the internal pilot, the symbol is nil.
* Refer to Piping for External Pilot Type on page 5 for selection of the check valve.
Dual Residual Pressure Release Valve with Soft Start-up Function

VP 5 44 -5 DZ 1 -03 -M X555

1 Series
5 VP500
7 VP700

2 Pilot
Nil External pilot
R Internal pilot

3 Voltage
5 24 VDC

4 Electrical entry
DZ DIN terminal, With light/surge voltage suppressor
YZ DIN (EN 175301-803) terminal, With light/surge voltage suppressor

5 Port size
Symbol Port size VP500 VP700
03 3/8 — —
04 1/2 — —

6 Thread
Nil Rc
F G
N NPT

7 Safety limit switch/Wiring
Nil G1/2 (Made by OMRON)
M M12 connector (Made by OMRON)
S1 M12 connector (Made by Rockwell Automation)

8 With check valve (Only external pilot)
Symbol Check valve Applicable tube O.D. Thread
Nil None — —
A Yes ø6 — —
B — — —

8 With check valve (Only external pilot)

9 Throttle
Nil Variable throttle
10 ø1 fixed orifice
15 ø1.5 fixed orifice
20* ø2 fixed orifice
* VP700 only

Made to Order

1 Series Compatible with Secondary Batteries
For details on 25A-, refer to the Web Catalog “Series Compatible with Secondary Batteries/25A- Series.”

How to Order
25A-VP 4 5DZ1 X536 X538 X555

* Secondary battery compatible
* Electrical entry can be selected only for D type. Check valve type is available only when the thread type is Rc.
* There are no settings for the bracket for modular connection for the 25A-VP500/700-X536.
Valve Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of actuation</td>
<td>N.C. (Spring return)</td>
</tr>
<tr>
<td>Operation</td>
<td>Internal pilot</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>0.25 to 0.7 MPa</td>
</tr>
<tr>
<td>External pilot pressure</td>
<td>— to 0.7 MPa</td>
</tr>
<tr>
<td>Maximum operating frequency</td>
<td>30 cycles/minute</td>
</tr>
<tr>
<td>Minimum operating frequency</td>
<td>1 cycle/week</td>
</tr>
<tr>
<td>Operating and ambient temperatures</td>
<td>–10 to 50°C (No freezing)</td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>20 to 90% RH (No condensation)</td>
</tr>
<tr>
<td>Manual override</td>
<td>None</td>
</tr>
<tr>
<td>Pilot exhaust</td>
<td>Individual exhaust</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Impact/Vibration resistance</td>
<td>150/30 m/s²</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65</td>
</tr>
<tr>
<td>Operating environment</td>
<td>Indoors</td>
</tr>
<tr>
<td>B10D (MTTFd calculation)</td>
<td>10,000,000 cycles</td>
</tr>
</tbody>
</table>

Internal Pilot Type

**Caution**

Even when the inlet pressure is within the operating pressure range, restricted piping, etc., may cause reduced flow on the inlet side, leading to the valve not operating properly. Refer to Installation in the Specific Product Precautions for details.

Piping for External Pilot Type

**Caution**

The product may not operate when the external pilot pressure is insufficient due to simultaneous operation or restricted air piping. In this case, use the check valve (AKH series) with the external pilot port, change the piping size or adjust the set pressure to provide a constant pressure of 0.25 MPa or more.

Flow-rate Characteristics / Weight

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow-rate characteristics</th>
<th>Weight [g]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1→2 (P→A)</td>
<td>2→3 (A→R)</td>
</tr>
<tr>
<td>VP542-X536</td>
<td>8.9 0.16 2.2</td>
<td>8.9 0.20 2.1</td>
</tr>
<tr>
<td>VP544-X536</td>
<td>8.8 0.07 2.0</td>
<td>8.8 0.13 2.0</td>
</tr>
<tr>
<td>VP742-X536</td>
<td>15.1 0.21 3.6</td>
<td>15.3 0.22 3.7</td>
</tr>
<tr>
<td>VP744-X536</td>
<td>14.7 0.05 3.3</td>
<td>15.0 0.17 3.4</td>
</tr>
<tr>
<td>VP544-X538</td>
<td>6.5 0.08 1.3</td>
<td>6.7 0.10 1.3</td>
</tr>
<tr>
<td>VP744-X538</td>
<td>10.3 0.08 2.3</td>
<td>9.7 0.08 2.1</td>
</tr>
<tr>
<td>VP544-X555</td>
<td>5.2 0.06 1.1</td>
<td>6.7 0.10 1.3</td>
</tr>
<tr>
<td>VP744-X555</td>
<td>9.8 0.08 2.1</td>
<td>9.7 0.08 2.1</td>
</tr>
</tbody>
</table>

Needle Valve / Flow-rate Characteristics (VP544/744-X555)

<table>
<thead>
<tr>
<th>Number of needle rotations (Turns)</th>
<th>Flow rate [L/min (ANR)]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25 MPa</td>
<td>0.7 MPa</td>
</tr>
<tr>
<td>0.5 MPa</td>
<td>0.7 MPa</td>
</tr>
<tr>
<td>0.7 MPa</td>
<td>0.7 MPa</td>
</tr>
</tbody>
</table>

Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>DIN terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Allowable voltage fluctuation</td>
<td>±10%</td>
</tr>
<tr>
<td>Power consumption</td>
<td>0.45 W</td>
</tr>
<tr>
<td>Surge voltage suppressor</td>
<td>Varistor</td>
</tr>
<tr>
<td>Indicator</td>
<td>LED</td>
</tr>
</tbody>
</table>

Safety Limit Switch Specifications

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>OMRON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockwell Automation</td>
<td></td>
</tr>
<tr>
<td>Electrical wiring</td>
<td>G1/2, M12 connector</td>
</tr>
<tr>
<td>Contact resistance</td>
<td>25 mA or less</td>
</tr>
<tr>
<td>Min. applicable load</td>
<td>100 mA (load resistance)</td>
</tr>
<tr>
<td>Max. voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Max. load current</td>
<td>50 mA</td>
</tr>
<tr>
<td>Max. load inductance</td>
<td>0.5 H</td>
</tr>
<tr>
<td>Insulation voltage</td>
<td>300 V, 600 V</td>
</tr>
<tr>
<td>Protection against electric shock</td>
<td>Class II (EN 60947-5-1:2004)</td>
</tr>
</tbody>
</table>
### Symbols

#### Safety limit switch
Made by OMRON

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Terminal/Pin Numbers (Built-in switch 2 N.C.)</th>
<th>Recommended Crimped Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M12 connector pin number</td>
<td>Wiring specification</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

#### Recommended Crimped Terminals

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Type</th>
<th>Wiring size</th>
</tr>
</thead>
<tbody>
<tr>
<td>J.S.T. Mfg. Co., Ltd.</td>
<td>FV0.5-3.7 (F type)</td>
<td>AWG20 (0.5 mm²)</td>
</tr>
</tbody>
</table>

J.S.T. Mfg. Co., Ltd. is a Japanese manufacturer.

---

#### VP54□(R)/74□(R)-X536

**Internal pilot**

**External pilot**

**External pilot/With check valve**

Safety limit switch terminal (N.C.)
M12 connector pin number
G1/2 terminal number

---

#### VP544(R)/744(R)-X538

**Internal pilot**

**External pilot**

**External pilot/With check valve**

---

#### VP544(R)/744(R)-X555

**Internal pilot**

**External pilot**

**External pilot/With check valve**

---

### Safety Standard ISO 13849-1 Certified

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

VP500/700-X536, X538, X555
VP500/700-X536, X538, X555

Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers (Built-in switch 3 N.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td><img src="image" alt="Pin Numbers" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>M12 connector pin number</th>
<th>Wiring specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

VP54□(R)/74□(R)-X536

Internal pilot

External pilot

External pilot/With check valve

Safety limit switch terminal [N.C.]
M12 connector pin number

VP544(R)/744(R)-X538

Internal pilot

External pilot

External pilot/With check valve

VP544(R)/744(R)-X555

Internal pilot

External pilot

External pilot/With check valve

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

M12 connector pin number

Made by Rockwell Automation

Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
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</tbody>
</table>

VP500/700-X536, X538, X555

Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
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</tr>
</tbody>
</table>

VP54□(R)/74□(R)-X536

Internal pilot

External pilot

External pilot/With check valve

Safety limit switch terminal [N.C.]
M12 connector pin number

VP544(R)/744(R)-X538

Internal pilot

External pilot

External pilot/With check valve

VP544(R)/744(R)-X555

Internal pilot

External pilot

External pilot/With check valve

Made by Rockwell Automation

Symbols

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<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td><img src="image" alt="Pin Numbers" /></td>
</tr>
</tbody>
</table>
Dimensions

VP542(R)-5□Z1-03□-□-X536
VP542(R)-5□Z1-03□-M-□-X536

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4” (With check valve)
(External pilot port)

Applicable cable O.D.:
ø3.5 to ø7

Safety limit switch
Made by
OMRON

Part number:
D4N-2B31 (Conduit G1/2)
D4N-9B31 (M12 connector)

3-Port Solenoid Valve/Residual Pressure Release Valve with Detection of Main Valve Position
VP500/700-X536

VP544(R)-5□Z1-03□-□-□-X536

Port size: 3/8 (With check valve)
Applicable tube O.D.: ø6.2
(External pilot port)

Applicable cable O.D.:
ø3.5 to ø7

Safety limit switch (Made by OMRON)
Part number: D4N-2B31 (Conduit G1/2)
D4N-9B31 (M12 connector)

View A
For M12 connector

Pin number

VP500/700

Symbols

X536

X538

X555

Optional Accessories

Specific Product
Precautions
Symbols

Specific Product
Precautions

Optional
Accessories

VG342

X87

Symbols

Specific Product
Precautions

Specific Product
Precautions

Optional
Accessories
VP500/700-X536

Dimensions

VP742(R)-5Z1-04□-S1□-X536

- Safety limit switch
  - Made by Rockwell Automation

- Applicable cable O.D.
  - ø3.5 to ø7

- Port size: 1/8 (Without check valve)
  - Applicable tube O.D.: ø6, ø1/4" (With check valve)
  - (External pilot port)

- 2 x ø5.2 (For mounting)

- 1/2 [2(A) port]

- View A

VP744(R)-5Z1-04□-S1□-X536

- Safety limit switch (Made by Rockwell Automation)
  - Part number: 440P-CDPB03R6

- Applicable cable O.D.
  - ø3.5 to ø7

- 2 x ø6.2 (For mounting)

- 1/2 [2(A) port]

- View A

M12 connector

Pin number

Made by Rockwell Automation
Dimensions

VP544(R)-5□Z1-03□-□-X538
VP544(R)-5□Z1-03□-□-M□-X538

- Applicable cable O.D.: ø3.5 to ø7
- Applicable tube O.D.: ø6, ø1/4" (With check valve)
- Port size: 1/8 (Without check valve)
- Vent port: (ø6.2)

View A
For M12 connector

Pin number

Dual Residual Pressure Release Valve (-X538)

Safety limit switch (Made by OMRON)
Part number: D4N-2B31 (Conduit G1/2)
: D4N-9B31 (M12 connector)

Safety Standard ISO 13849-1 Certified
3-Port Solenoid Valve/Residual Pressure Release Valve with Detection of Main Valve Position
VP500/700-X538
VP500/700-X538

Dimensions

VP544(R)-5□Z1-03□-S1□-X538

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4" (With check valve)
(External pilot port)

Applicable cable O.D.:
ø3.5 to ø7

(With check valve)
(Safety limit switch)
Made by Rockwell Automation

Safety limit switch
Made by Rockwell Automation
Part number: 440P-CDPB03R6

Port: (22.9)
Vent port (ø6.2)

Pin number

View A
M12 connector

Pin number

Made by Rockwell Automation

Port: (With check valve)

Port: (Max. 10)

Channel 2
Channel 1

External pilot port

Applicable tube O.D.: ø6, ø1/4" (With check valve)

External pilot port

Applicable cable O.D.:
ø3.5 to ø7

(With check valve)
3-Port Solenoid Valve/Residual Pressure Release Valve with Detection of Main Valve Position

**VP500/700-X538**

**Dimensions**

**VP744(R)-5Z1-04-□-X538**

**VP744(R)-5Z1-04-□-M-□-X538**

**Safety limit switch**
Made by OMRON

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4” (With check valve)
(External pilot port)

Applicable cable O.D.: ø3.5 to ø7

2 x ø6.2 (For mounting)

Channel 2

Channel 1

1/2 (2(A) port)

Safety limit switch (Made by OMRON)
Part number: D4N-2B31 (Conduit G1/2)
D4N-9B31 (M12 connector)

2 x 1/2 [3(R) port]

117.3

118.2

118.2

41.5

36

21

67

6.5

113.5

94.5

18

80

1/2 [1(P) port]

Vent port (ø6.2)

(With check valve)

124.8

88.9

224.8

40

18

36

224.2

(88.9)

(14)

(70.7)

(22.9)

(29.6)

(22.9)

(29.6)

(22.9)

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(29.6)

(22.9)

(29.6)
Dimensions

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555)

VP544(R)-5□Z1-03□-□-X555
VP544(R)-5□Z1-03□-□-M□-X555

Safety limit switch
Made by OMRON

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4" (With check valve)
(External pilot port)

Applicable cable O.D.: ø3.5 to ø7

Safety limit switch (Made by OMRON)
Part number: D4N-2B31 (Conduit G1/2)
: D4N-9B31 (M12 connector)

Pin number

View A
For M12 connector

Safety Standard ISO 13849-1 Certified
3-Port Solenoid Valve/Residual Pressure Release Valve with Detection of Main Valve Position
VP500/700-X555

Specific Product
Precautions
Optional
Accessories
VP500/700-X555

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555)

VP544(R)-5□Z1-03□-S1□□-X555

Safety limit switch
Made by Rockwell Automation

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4” (With check valve)

推广应用轭道 O.D.: ø3.5 to ø7

Vent port (ø6.2)
(With check valve)

Safety limit switch (Made by Rockwell Automation)
Part number: 440P-CDPB03R6

Dimensions
VP544(R)-5□Z1-03□-S1□□-X555

Made by Rockwell Automation

Applicable cable O.D.
(ø3.5 to ø7)

3/8
[2(A) port]

2 x ø5.2
(For mounting)

M12 connector

2 x 3/8
[3(R) port]

Vent port
(ø6.4)

View A
M12 connector

Pin number
### Dimensions

**VP744(R)-5□Z1-04□-□□-X555**  
**VP744(R)-5□Z1-04□-M□□-X555**

**Safety limit switch**

**Made by OMRON**

- **Part number:** D4N-2B31 (Conduit G1/2)  
- **Part number:** D4N-9B31 (M12 connector)

**Applicable cable O.D.:** ø3.5 to ø7

**Port size:** 1/8 (Without check valve)

**Applicable tube O.D.:** ø6, ø1/4" (With check valve)

**Variable throttle type**

**Max. 10**

**Vent port (ø6.4)**

**2 x ø6.2**  
**For mounting**

**Port size:** 1/2

**Made by OMRON**

**Part number:** D4N-2B31 (Conduit G1/2)  
**Part number:** D4N-9B31 (M12 connector)

**View A**

**For M12 connector**

**Pin number**

**Port size:** 1/2

**Vent port (ø6.2)**

**For M12 connector**

**Pin number**

**Port size:** 1/2

**Vent port (ø6.2)**

**For M12 connector**

**Pin number**
VP500/700-X555

Dimensions

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555)

VP744(R)-5□Z1-04□-S1□□-X555

Safety limit switch
Made by Rockwell Automation

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø6, ø1/4" (With check valve)

(External pilot port)

Applicable cable O.D.: ø3.5 to ø7

2 x ø6.2
(For mounting)

M12 connector

2 x 1/2
[3(R) port]

Vent port
(ø6.4)

117.3
119

1/2
[2(A) port]

A

Safety limit switch (Made by Rockwell Automation)
Part number: 440P-CDPB03R6

Made by Rockwell Automation

Pin number

View A

M12 connector

VP500/700-X555
VP500/700-X536, X538, X555
Optional Accessories

For details on optional accessories, refer to the Web Catalog.

Piping Adapter: 3/8, 1/2

A piping adapter allows installation/removal of the component without removing the piping and thus makes maintenance easier.

<table>
<thead>
<tr>
<th>Part no.</th>
<th>Port size</th>
<th>A</th>
<th>B</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>E300-03-A</td>
<td>3/8</td>
<td>31.8</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>E400-04-A</td>
<td>1/2</td>
<td>31.8</td>
<td>36</td>
<td>36</td>
</tr>
</tbody>
</table>

*1 □ in part numbers indicates a pipe thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.

Separate interfaces are required for modular unit.

Spacer with Bracket

Part no. | A | B | C | D | E | F | G | H | J | K |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Y300T-A</td>
<td>4.2</td>
<td>82</td>
<td>41</td>
<td>71.5</td>
<td>35</td>
<td>14</td>
<td>7</td>
<td>19</td>
<td>4</td>
<td>41</td>
</tr>
<tr>
<td>Y400T-A</td>
<td>5.2</td>
<td>96</td>
<td>48</td>
<td>86.1</td>
<td>40</td>
<td>18</td>
<td>9</td>
<td>26</td>
<td>5</td>
<td>50</td>
</tr>
</tbody>
</table>

Dual residual pressure release valve with soft start-up function

- Ordering Example 1

Dual residual pressure release valve VP544-5DZ1-03-X555 1 pc.
Filter regulator AW30-03G-A 1 pc.
Spacer with bracket Y300T-A 3 pcs.
Piping adapter E300-03-A 2 pcs.

*1 Products do not come assembled.

- Ordering Example 2

Residual pressure release valve/ Base mounted VP544R-5DZ1-03M-X536 1 pc.
Filter regulator AW30-03G-A 1 pc.
Spacer with bracket Y300T-A 3 pcs.
Piping adapter E300-03-A 2 pcs.

*1 Products do not come assembled.
**VP500/700-X536, X538, X555**

**Spacer with Bracket Mounting Position**

Residual Pressure Release Valve (VP544/744-X536)

Dual Residual Pressure Release Valve (-X538)

**Model** | **a** | **b** | **c** | **d** | **Note**
---|---|---|---|---|---
VP544R-5DZ1-03M-X536 | 33.9 | 57.2 | 74.2 | 199.2 | AW30-03G-A Y300T-A E300-03-A
VP744R-5DZ1-03M-X536 | 34.4 | 75.2 | 89.2 | 233.2 | AW40-04G-A Y400T-A E400-04-A

**Model** | **a** | **b** | **c** | **d** | **Note**
---|---|---|---|---|---
VP544R-5DZ1-03-X538 | 33.9 | 57.2 | 95.7 | 220.7 | AW30-03G-A Y300T-A E300-03-A
VP744R-5DZ1-04-X538 | 34.4 | 75.2 | 118.7 | 262.7 | AW40-04G-A Y400T-A E400-04-A

**Dual Residual Pressure Release Valve with Soft Start-up Function (-X555)**

**Model** | **a** | **b** | **c** | **d** | **Note**
---|---|---|---|---|---
VP544-5DZ1-03-X555 | 33.9 | 57.2 | 129.2 | 254.2 | AW30-03G-A Y300T-A E300-03-A
VP744-5DZ1-04-X555 | 34.4 | 75.2 | 160.2 | 304.2 | AW40-04G-A Y400T-A E400-04-A
VP500/700-X536, X538, X555
Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: http://www.smcworld.com

How to Use DIN Terminal Connector

Caution

Connection
1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat blade screwdriver, etc., into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws (slotted screws) in the terminal block. Insert the lead core wires into the terminals according to the connection method, and secure the wires by re-tightening the terminal screws.
4. Secure the cord by fastening the gland nut.

Caution

When making connections, please note that using a heavy-duty cord of a size outside of the range of supported sizes (ø3.5 to ø7) will not satisfy IP65 (enclosure) standards. Also, be sure to tighten the gland nut and holding screw within their specified torque ranges.

Changing the entry direction

After separating the terminal block and housing, the cord entry direction can be changed by rotating the housing in the desired direction (4 directions at 90° intervals).
* When equipped with a light, be careful not to damage the light with the cord’s lead wires.

Precautions

Plug in and pull out the connector vertically without tilting it to one side.

Compatible cable

Cord O.D.: ø3.5 to ø7
(Reference) 0.5 mm², 2-core or 3-core, equivalent to JIS C 3306

Light/Surge Voltage Suppressor

DIN Terminal

With light (DZ)
(YZ)

No. 1
(-)(+)

No. 2
(+)(–)

There is no polarity.

* The varistor surge voltage suppressor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge voltage.

Limit Switch Cable

An OMRON or Rockwell Automation M12 connector limit switch cable is available.

M12 Connector Cable (4 Pins) Made by OMRON

Part number | Cable length [mm]
--- | ---
ZS-37-L | 300
ZS-37-M | 500
ZS-37-N | 1000
ZS-37-P | 2000
ZS-37-C | 5000

M12 Connector Cable (6 Pins) Made by Rockwell Automation

Part number | Cable length [mm]
--- | ---
VP500-231-1 | 2000
Rockwell Automation part number: 889R-F6ECA-2

* We recommend using one of the straight type M12 connector cables shown above. If the L type is used, the cable entry direction will not be fixed.

Installation

1. Use the external pilot type when using the VP500/700-X536 or X538 with the AV series. Install the AV series on the primary side.
2. For the VP500/700-X536 and X538 internal pilot type, even when the inlet pressure is within the operating pressure range, restricted piping, etc., may cause reduced flow on the inlet side, leading to the valve not operating properly.
* The recommended piping size is 3/8” for the VP500 and 1/2” for the VP700. Also, use piping with an I.D. of 10 mm or larger for the VP500, and 13 mm or larger for the VP700.
* When selecting a regulator or a filter regulator, use piping larger than the recommended size with sufficient flow rate characteristics.
* For extended piping between the regulator and the valve (inlet piping), keep piping as short as possible (1 m or less).
* For use under conditions other than those listed above, please use the external pilot type.
3. When using an external pilot for the VP500/700-X536 or X538, supply pressure to the external pilot via piping from a separate, stable line. Also, if the external pilot pressure is to be branched off from the same piping, in order to prevent the negative effects a pressure drop in the main piping can have on the pilot air piping, be sure to take measures such as installing a check valve on the pilot air piping after branching off, etc.

“Y” type

The Y type DIN connector is in compliance with the DIN standard of a 8 mm pitch between terminals.
* It is not interchangeable with the D type DIN connector with a 9.4 mm pitch between terminals.
* To distinguish it from the D type DIN connector, “N” is listed at the end of voltage symbol.
* The dimensions are the same as those of the D type DIN connector.

Connections:
- Gland nut:
  - Tightening torque: 1.65 to 2.5 N·m
- Washer:
  - Tightening torque: 0.4 N·m
- Grommet (Rubber):
  - Tightening torque: 0.2 to 0.25 N·m
- Housing
  - Notch
- Terminal block
  - 3 locations
  - Tightening torque: 0.2 to 0.25 N·m

Symbols

- Rockwell Automation part number: 889R-F6ECA-2

Part number | Cable length [mm]
--- | ---
ZS-37-L | 300
ZS-37-M | 500
ZS-37-N | 1000
ZS-37-P | 2000
ZS-37-C | 5000

VP500-231-1 | 2000
Rockwell Automation part number: 889R-F6ECA-2

* We recommend using one of the straight type M12 connector cables shown above. If the L type is used, the cable entry direction will not be fixed.
Safety Standard ISO 13849-1 Certified

3-Port Solenoid Valve/ Residual Pressure Release Valve with Detection of Main Valve Position
VG342-X87

How to Order

Dual Residual Pressure Release Valve

VG342 R-5DZ-06-M-X87

1. Pilot
   - Nl: Internal pilot
   - R: External pilot

2. Voltage
   - S: 24 VDC

3. Electrical entry
   - DZ: DIN terminal, With light/surge voltage suppressor

4. Port size
   - 06: 3/4
   - 10: 1

5. Thread
   - Nl: Rc
   - F: G
   - N: NPT

6. Safety limit switch/Wiring
   - M: M12 connector (Made by OMRON)
   - S1: M12 connector (Made by Rockwell Automation)

7. With check valve (Only external pilot)
   - Symbol | Check valve | Applicable tube O.D. | Thread
   - Nl: None
   - A: Yes
     - Yes: ø8
     - No: ø5/16"–

   * For the internal pilot, the symbol is nil.
   * Refer to Piping for External Pilot Type on page 24 for selection of the check valve.

Made to Order

1. Series Compatible with Secondary Batteries

For details on 25A-, refer to the Web Catalog “Series Compatible with Secondary Batteries/25A- Series.”

How to Order

25A-VG342 R-5DZ-□-□-M-X87

- Fill in according to How to Order above.
- Secondary battery compatible

* Electrical entry can be selected only for D type. Check valve type is available only when the thread type is Rc.
Valve Specifications

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of actuation</td>
<td>N.C. (Spring return)</td>
</tr>
<tr>
<td>Operation</td>
<td>Internal pilot External pilot</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>0.25 to 0.7 MPa 0.25 to 0.7 MPa</td>
</tr>
<tr>
<td>External pilot pressure</td>
<td>— 0.25 to 0.7 MPa (Same as operating pressure)</td>
</tr>
<tr>
<td>Maximum operating frequency</td>
<td>30 cycles/minute</td>
</tr>
<tr>
<td>Minimum operating frequency</td>
<td>1 cycle/week</td>
</tr>
<tr>
<td>Operating and ambient temperatures</td>
<td>–10 to 50°C (No freezing)</td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>95% RH or less (No condensation)</td>
</tr>
<tr>
<td>Manual override</td>
<td>None</td>
</tr>
<tr>
<td>Pilot exhaust</td>
<td>Individual exhaust</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>Unrestricted</td>
</tr>
<tr>
<td>Impact/Vibration resistance</td>
<td>150/50 m/s²</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP40</td>
</tr>
<tr>
<td>Operating environment</td>
<td>Indoors</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg (1” type: 3.2 kg) 2.9 kg (1” type: 3.3 kg)</td>
</tr>
<tr>
<td>B10D (MTTFd calculation)</td>
<td>1,000,000 cycles</td>
</tr>
</tbody>
</table>

**Internal Pilot Type**

⚠️ Caution

Even when the inlet pressure is within the operating pressure range, restricted piping, etc., may cause reduced flow on the inlet side, leading to the valve not operating properly. Refer to Installation in the Specific Product Precautions for details.

**Piping for External Pilot Type**

⚠️ Caution

The product may not operate when the external pilot pressure is insufficient due to simultaneous operation or restricted air piping. In this case, use the check valve (AKH series) with the external pilot port, change the piping size or adjust the set pressure to provide a constant pressure of 0.25 MPa or more.

Flow-rate Characteristics

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow-rate characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1→2 (P→A)</td>
</tr>
<tr>
<td></td>
<td>C [dm³/(s·bar)]</td>
</tr>
<tr>
<td>VG342-06-X87</td>
<td>26.6</td>
</tr>
<tr>
<td>VG342-10-X87</td>
<td>25.5</td>
</tr>
</tbody>
</table>

Solenoid Specifications

<table>
<thead>
<tr>
<th>Electrical entry</th>
<th>DIN terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Allowable voltage fluctuation</td>
<td>–15% to +10% of the rated voltage</td>
</tr>
<tr>
<td>Power consumption</td>
<td>2.2 W</td>
</tr>
<tr>
<td>Suppressor</td>
<td>Diode</td>
</tr>
<tr>
<td>indicator</td>
<td>LED</td>
</tr>
</tbody>
</table>

Safety Limit Switch Specifications

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>OMRON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical wiring</td>
<td>M12 connector</td>
</tr>
<tr>
<td>Contact resistance</td>
<td>25 mΩ or less 50 mΩ or less</td>
</tr>
<tr>
<td>Min. applicable load</td>
<td>10C, 10mA (load resistance: 10C, 10mA (load resistance)</td>
</tr>
<tr>
<td>Max. voltage</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Max. load current</td>
<td>50 mA</td>
</tr>
<tr>
<td>Max. load inductance</td>
<td>0.5 H</td>
</tr>
<tr>
<td>Insulation voltage</td>
<td>300 V</td>
</tr>
<tr>
<td>Protection against electric shock</td>
<td>Class II (EN 60947-5-1:2004)</td>
</tr>
</tbody>
</table>
Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers (Built-in switch  2 N.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M12 connector pin number  Wiring specification</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

VG342(R)-X87

<table>
<thead>
<tr>
<th>Internal pilot</th>
<th>External pilot</th>
<th>External pilot/With check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="" /></td>
<td><img src="image" alt="" /></td>
<td><img src="image" alt="" /></td>
</tr>
<tr>
<td>2(A) 3(R) 1(P)</td>
<td>2(A) 3(R) X</td>
<td>2(A) 3(R) X</td>
</tr>
<tr>
<td>2(A) 3(R) 1(P)</td>
<td>2(A) 3(R) X</td>
<td>2(A) 3(R) X</td>
</tr>
</tbody>
</table>

Safety limit switch terminal [N.C.]
Made by OMRON

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers (Built-in switch  3 N.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M12 connector pin number  Wiring specification</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

VG342(R)-X87

<table>
<thead>
<tr>
<th>Internal pilot</th>
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<tr>
<td>2(A) 3(R) 1(P)</td>
<td>2(A) 3(R) X</td>
<td>2(A) 3(R) X</td>
</tr>
<tr>
<td>2(A) 3(R) 1(P)</td>
<td>2(A) 3(R) X</td>
<td>2(A) 3(R) X</td>
</tr>
</tbody>
</table>

Safety limit switch terminal [N.C.]
Made by Rockwell Automation

25
**Dimensions**

**VG342(R)-5DZ-06□-M□-X87**

<table>
<thead>
<tr>
<th>Port size: 1/8 (Without check valve)</th>
<th>Applicable tube O.D.: ø8, ø5/16&quot; (With check valve)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(External pilot port)</td>
<td></td>
</tr>
</tbody>
</table>

### Channel 1
- **M12 x 1**
- **Pg9**
- **Vent port:** Should be normally open.
- **3 x ø8.5**
- **Mounting hole**

### Channel 2
- **2 x 3/4 [3(R) port]:** Should be normally open.
- **1 x 3/4 [3(P) port]:**

**Safety limit switch (Made by OMRON)**
- **Part number:** D4N-9B31

**Applicable cable O.D.:** ø4.5 to ø7

**Port size:** 1/8 (Without check valve)

**Applicable tube O.D.:** ø8, ø5/16" (With check valve)

**(External pilot port)**

**View A**
- **M12 connector**
- **Pin number**

**Dimensions**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>View A</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG342(R)-5DZ-06□-M□-X87</td>
<td>![View A Diagram]</td>
</tr>
</tbody>
</table>

**VP500/700**

**Symbols**

**X536**

**X538**

**X555**

**Optional Accessories**

**VG342**

**X87**

**Port size: 1/8 (Without check valve) | Applicable tube O.D.: ø8, ø5/16" (With check valve) | (External pilot port)**
**VG342-X87**

**Dimensions**

**VG342(R)-5DZ-10□-M□-X87**

- **Port size:** 1/8 (Without check valve)
- **Applicable tube O.D.: ø8, ø5/16” (With check valve)
- **(External pilot port)**

- **Safety limit switch**

  Made by OMRON

- **Applicable cable O.D.: ø4.5 to ø7**

**View A**

- **M12 connector**
- **adapter**
- **vent port**
  - Should be normally open.
- **3 x ø8.5**
  - (Mounting hole)
- **(Max. 3)**
- **View B**
  - **Pin number**

**Adapted version of the text from the image:**

- **Port size:** 1/8 (Without check valve)
- **Applicable tube O.D.: ø8, ø5/16” (With check valve)
- **(External pilot port)**

- **Safety limit switch**

  Made by OMRON

- **Applicable cable O.D.: ø4.5 to ø7**

**View A**

- **M12 connector**
- **adapter**
- **vent port**
  - Should be normally open.
- **3 x ø8.5**
  - (Mounting hole)
- **(Max. 3)**
- **View B**
  - **Pin number**
Dimensions

VG342(R)-5DZ-06□-S1□-X87

Made by Rockwell Automation

Port size: 1/8 (Without check valve)
Applicable tube O.D.: ø8, ø5/16" (With check valve)
(External pilot port)

Channel 1

Channel 2

M12 x 1

Pg9

Applicable cable O.D.: ø4.5 to ø7

[2(A) port]

[1(P) port]

View A

M12 connector

Pin number

Safety limit switch

Made by Rockwell Automation
VG342-(R)-5DZ-10□-S1□-X87

Dimensions

VG342(R)-5DZ-10□-S1□-X87

[Image of the valve diagram]

- **Port size:** 1/8 (Without check valve)
- **Applicable tube O.D.:** ø8, ø5/16" (With check valve)
  - (External pilot port)

- **Vent port:** Should be normally open.
- **3 x ø8.5 (Mounting hole):**

- **Applicable cable O.D.:** ø4.5 to ø7

- **M12 x 1**

- **Pin number:**
  - M12 connector

- **View A**

- **Made by Rockwell Automation**
  - Safety limit switch
  - Part number: 440F-CDPB53R6

- **Applicable cable O.D.:** ø4.5 to ø7

- **External pilot port**

- **M12 connector**

- **Part number:**

- **Safety limit switch**

- **Made by Rockwell Automation**

- **Applicable cable O.D.:** ø4.5 to ø7

- **External pilot port**

- **M12 connector**

- **Part number:**
VG342-X87 Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For 3/4/5-port solenoid valve precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: http://www.smcworld.com

Caution

Connection
1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat blade screwdriver, etc., into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws in the terminal block. Insert the lead core wires into the terminals, and secure the wires by re-tightening the terminal screws.
4. Secure the cord by fastening the gland nut.

Changing the entry direction
After separating the terminal block and housing, the cord entry direction can be changed by rotating the housing in the opposite direction by 180°.

* Be careful not to damage the element, etc., with the cord's lead wires.

Precautions
Plug in and pull out the connector vertically without tilting it to one side.

Compatible cable
Cord O.D.: ø4.5 to ø7
(Reference) 0.5 to 1.5 mm², 2-core or 3-core, equivalent to JIS C 3306

Applicable crimped terminals
O-terminals: Equivalent to R1.25-4M defined in the JIS C 2805
Rod-terminals: Up to size 1.5

Gland nut

Tightening torque 2.5 to 3.75 N·m

Washer

Grommet (Rubber)

How to Use DIN Terminal Connector

1. Loosen the holding screw and pull the connector out of the solenoid valve terminal block.
2. After removing the holding screw, insert a flat blade screwdriver, etc., into the notch on the bottom of the terminal block and pry it open, separating the terminal block and the housing.
3. Loosen the terminal screws in the terminal block. Insert the lead core wires into the terminals, and secure the wires by re-tightening the terminal screws.
4. Secure the cord by fastening the gland nut.

Caution: Be careful not to damage the element, etc., with the cord's lead wires.

Precautions
Plug in and pull out the connector vertically without tilting it to one side.

Compatible cable
Cord O.D.: ø4.5 to ø7
(Reference) 0.5 to 1.5 mm², 2-core or 3-core, equivalent to JIS C 3306

Applicable crimped terminals
O-terminals: Equivalent to R1.25-4M defined in the JIS C 2805
Rod-terminals: Up to size 1.5

Installation
For the VG342-X87 internal pilot type, even when the inlet pressure is within the operating pressure range, restricted piping, etc., may cause reduced flow on the inlet side, leading to the valve not operating properly.

* The recommended piping size is 3/4” or larger. Also, use piping with an I.D. of 19 mm or larger.
* When selecting a regulator or a filter regulator, use piping larger than the recommended size with sufficient flow rate characteristics.
* For extended piping between the regulator and the valve (inlet piping), keep piping as short as possible (2 m or less).
* For use under conditions other than those listed above, please use the external pilot type.

Light/Surge Voltage Suppressor

Terminal number 1 (+)

Terminal number 2 (-)

Limit Switch Cable

An OMRON or Rockwell Automation M12 connector limit switch cable is available.

M12 Connector Cable (4 Pins) Made by OMRON

<table>
<thead>
<tr>
<th>Part number</th>
<th>Cable length [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZS-37-L</td>
<td>300</td>
</tr>
<tr>
<td>ZS-37-M</td>
<td>500</td>
</tr>
<tr>
<td>ZS-37-N</td>
<td>1000</td>
</tr>
<tr>
<td>ZS-37-P</td>
<td>2000</td>
</tr>
<tr>
<td>ZS-37-C</td>
<td>5000</td>
</tr>
</tbody>
</table>

M12 Connector Cable (6 Pins) Made by Rockwell Automation

<table>
<thead>
<tr>
<th>Part number</th>
<th>Cable length [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP500-231-1</td>
<td>2000</td>
</tr>
</tbody>
</table>

Rockwell Automation part number: 889R-F6ECA-2

* We recommend using one of the straight type M12 connector cables shown above. If the L type is used, the cable entry direction will not be fixed.

Part number Cable length [mm]

ZS-37-L 300
ZS-37-M 500
ZS-37-N 1000
ZS-37-P 2000
ZS-37-C 5000
VP500-231-1 2000

* Be careful not to damage the element, etc., with the cord's lead wires.

Precautions
Plug in and pull out the connector horizontally without tilting it to one side.

Compatible cable
Cord O.D.: ø4.5 to ø7
(Reference) 0.5 to 1.5 mm², 2-core or 3-core, equivalent to JIS C 3306

Applicable crimped terminals
O-terminals: Equivalent to R1.25-4M defined in the JIS C 2805
Rod-terminals: Up to size 1.5

Gland nut

Tightening torque 3.0 to 5.0 N·m

Washer

Grommet (Rubber)
Safety Instructions

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.

- **Caution**: Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
- **Warning**: Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
- **Danger**: Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

**Caution**: This product is intended for use in manufacturing industries. The inspection and maintenance of machinery/equipment should only be performed by an operator who is appropriately trained and experienced.

**Warning**: Conditions and environments outside of the given specifications, or use of objects have been confirmed.

**Danger**: Use in an interlock circuit, which requires the provision of double interlock and experienced.

**Caution**: If anything is unclear, contact your nearest sales branch.

Edition B

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**Safety Instructions**

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.