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

**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.

**Dual Residual Pressure Release Valve**

*VP544-X538*

*VP544-X555*

*VG342-X87*

---

**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.

**VP/VG Series**
With main valve position detection function (Category 2)

Category 2: The safety function only requires the use of a single channel and is automatically checked.

Input equipment (I): Detection equipment (sensor) of starting event
Logical operation equipment (L): Relay sequence circuit, PLC control program
Output equipment (O): Solenoid valve, Electromagnetic switch, Output relay

Recommended valve: VP54-X74-X536

Residual pressure release valve

VP542-X536

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

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

With easy-to-construct redundant system (Categories 3 and 4)

Category 3: The redundancy prevents the loss of the safety function when a single failure occurs. The safety function must be checked before each use. An accumulation of undetected faults can cause the loss of the safety function.

Category 4: The redundancy prevents the loss of the safety function when a single failure occurs. The safety function must be checked before each use. An accumulation of undetected faults does not affect the safety function. (Features a higher DC and MTTFd than Category 3)

Input equipment (I1, I2): Detection equipment (sensor) of starting event
Logical operation equipment (L1, L2): Relay sequence circuit, PLC control program
Output equipment (O1, O2): Solenoid valve, Electromagnetic switch, Output relay

Recommended valve: VP544-X538, VG342-X87

Residual pressure release valve

VP544-X538

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.

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

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

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

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>
<th>Flow-rate characteristics</th>
<th>cUL</th>
<th>RoHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Pressure Release Valve VP544/744-X536</td>
<td>2</td>
<td>OMRON Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VP544/744-X538</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve with Soft Start-up Function VP544/744-X555</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VG342-X87</td>
<td>3, 4</td>
<td>OMRON Corporation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>Port size</th>
<th>Thread</th>
<th>Flow-rate characteristics C (\text{dm}^3/(\text{s} \cdot \text{bar}))</th>
<th>1→2 (P→A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Pressure Release Valve VP544/744-X536</td>
<td>2</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>8.9&lt;sup&gt;*&lt;/sup&gt;</td>
<td>26.6</td>
</tr>
<tr>
<td>Residual Pressure Release Valve VP744-X536</td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>15.1&lt;sup&gt;*&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VP544/744-X538</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>6.5</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve with Soft Start-up Function VP544/744-X555</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>5.2</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve with Soft Start-up Function VP744-X555</td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>9.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VG342-X87</td>
<td>3/4</td>
<td>Rc, G, NPT</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>*</sup> Only available for port size 3/4"

### Series Variations

<table>
<thead>
<tr>
<th>Model</th>
<th>Category</th>
<th>Port size</th>
<th>Flow-rate characteristics</th>
<th>1→2 (P→A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residual Pressure Release Valve VP544/744-X536</td>
<td>2</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>8.9&lt;sup&gt;*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Residual Pressure Release Valve VP744-X536</td>
<td>1/2</td>
<td>Rc, G, NPT</td>
<td>15.1&lt;sup&gt;*&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VP544/744-X538</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>6.5</td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve with Soft Start-up Function VP544/744-X555</td>
<td>3, 4</td>
<td>3/8</td>
<td>Rc, G, NPT</td>
<td>5.2</td>
</tr>
<tr>
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<td>1/2</td>
<td>Rc, G, NPT</td>
<td>9.8</td>
<td></td>
</tr>
<tr>
<td>Dual Residual Pressure Release Valve VG342-X87</td>
<td>3/4</td>
<td>Rc, G, NPT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>*</sup> For the body-ported type

For details on Safety Standard ISO 13849-1, refer to Guide to Products Conforming to International Standards on the SMC website.
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

| Body ported | VP | 5 | 42 | R | 5 | DZ | 1 | 03 | X536 |
| Base mounted | VP | 5 | 44 | R | 5 | DZ | 1 | 03 | X536 |

**1 Series**
- 5: VP500
- 7: VP700

**2 Pilot**
- Nil: Internal pilot
- R: External 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

### 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 | 5 | 44 | R | 5 | DZ | 1 | 03 | MA | X538**

**1 Series**
- 5: VP500
- 7: VP700

**2 Pilot**
- Nil: Internal pilot
- R: External 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

**Part Nos./With Modular Adapter**

<table>
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<th>Applicable model</th>
<th>Ordering symbol</th>
<th>Combinable modular adapter part no.</th>
<th>Applicable spacer</th>
</tr>
</thead>
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<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>

**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</td>
<td>None</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>M</td>
<td>M12 connector (Made by OMRON)</td>
<td>ø6</td>
<td>—</td>
</tr>
<tr>
<td>S1</td>
<td>M12 connector (Made by Rockwell Automation)</td>
<td>ø1/4&quot;</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 Internal pilot
   R External pilot
   * Refer to Installation on page 22 before selecting the internal pilot type.

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
   * Refer to page 22 for details on Y type.

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

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 — ø1/4" — —
   * For the internal pilot, the symbol is nil.
   * Refer to Piping for External Pilot Type on page 5 for selection of the check valve.

9. Throttle
   Nil Variable throttle
   10 ø1 fixed orifice
   15 ø1.5 fixed orifice
   20 ø2 fixed orifice
   * 1 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 5 DZ1 – X536
X538
X555

* 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.

Secondary battery compatible
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>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>Model number</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>
<td>M</td>
</tr>
<tr>
<td></td>
<td>C [dm³/(s·bar)]</td>
<td>b</td>
<td>Cv</td>
</tr>
<tr>
<td>VP542-X536</td>
<td>8.9</td>
<td>0.16</td>
<td>2.2</td>
</tr>
<tr>
<td>VP544-X536</td>
<td>8.8</td>
<td>0.07</td>
<td>2.0</td>
</tr>
<tr>
<td>VP742-X536</td>
<td>15.1</td>
<td>0.21</td>
<td>3.6</td>
</tr>
<tr>
<td>VP744-X536</td>
<td>14.7</td>
<td>0.05</td>
<td>3.3</td>
</tr>
<tr>
<td>VP544-X538</td>
<td>6.5</td>
<td>0.08</td>
<td>1.3</td>
</tr>
<tr>
<td>VP744-X538</td>
<td>10.3</td>
<td>0.08</td>
<td>2.3</td>
</tr>
<tr>
<td>VP544-X555</td>
<td>5.2</td>
<td>0.06</td>
<td>1.1</td>
</tr>
<tr>
<td>VP744-X555</td>
<td>9.8</td>
<td>0.08</td>
<td>2.1</td>
</tr>
</tbody>
</table>

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

![Flow-rate Characteristics Graph]

Solenoid Specifications

| Electrical entry | DIN terminal |
| Rated voltage | 24 VDC |
| Allowable voltage fluctuation | ±10% |
| Power consumption | 0.45 W |
| Surge voltage suppressor | Varistor |
| Indicator | LED |

Safety Limit Switch Specifications

| Manufacturer | OMRON Rockwell Automation |
| Electrical wiring | G1/2, M12 connector, M12 connector |
| Contact resistance | 25 mΩ or less, 50 mΩ or less |
| Min. applicable load | 100 % (Load resistance) 85 % (Load resistance) |
| 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 (EN 60947-5-1:2004) |
Symbols

Safety limit switch

Made by
OMRON

Symbol

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Terminal/Pin Numbers</th>
<th>Wiring specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP54(R)/74(R)-X536</td>
<td>Internal pilot</td>
<td>M12 connector pin number</td>
</tr>
<tr>
<td></td>
<td></td>
<td>G1/2 terminal number</td>
</tr>
<tr>
<td></td>
<td>2(A)</td>
<td>1(P) 3(R)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>4</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</td>
<td>AWG20</td>
</tr>
<tr>
<td></td>
<td>V0.5-3.7</td>
<td>(0.5 mm²)</td>
</tr>
</tbody>
</table>

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

Safety limit switch terminal [N.C.]

M12 connector pin number

G1/2 terminal number

Symbols

Internal pilot

External pilot

External pilot/With check valve

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

VP500/700-X536, X538, X555

Safety Standard ISO 13849-1 Certified

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

Specific Product
Precautions
Symbols
Optional Accessories

VP500/700

X536

X538

X555

X87

VG342

J.S.T. Mfg. Co., Ltd. is a Japanese manufacturer.
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></td>
<td>M12 connector pin number Wiring specification</td>
</tr>
<tr>
<td></td>
<td>① ② ③ ④ ⑤ ⑥ ⑦</td>
</tr>
</tbody>
</table>

- VP54□(R)/74□(R)-X536
- VP544(R)/744(R)-X538
- VP544(R)/744(R)-X555

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

Made by Rockwell Automation
**Dimensions**

**VP542(R)-5Z1-03□-□-X536**

**VP542(R)-5Z1-03□-M-□-X536**

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

- **Safety limit switch:** Made by OMRON

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

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

**VP544(R)-5Z1-03□-□-□-X536**

- **Port size:** 3/8 (With check valve)

- **Applicable tube O.D.:** ø3.5 to ø7

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

**View A**

*For M12 connector*

- **Pin number**

**Optional Accessories**

- **Residual Pressure Release Valve (-X536) Made by OMRON**

- **Safety Standard ISO 13849-1 Certified**

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

Dimensions

Residual Pressure Release Valve (-X536)

VP542(R)-5\(\varnothing\)Z1-03\(\varnothing\)-S1\(\varnothing\)-X536

Safety limit switch
Made by Rockwell Automation

Applicable cable O.D.
\(\varnothing\)3.5 to \(\varnothing\)7

Port size: 3/8
Port: [1(P), 3(R) port]
Vent port: (\(\varnothing\)6.2)

VP544(R)-5\(\varnothing\)Z1-03\(\varnothing\)-S1\(\varnothing\)-X536

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

Applicable cable O.D.
\(\varnothing\)3.5 to \(\varnothing\)7

M5 x 0.8
(External pilot port)
<For the external pilot type>
Dimensions

Residual Pressure Release Valve (-X536)

**VP742(R)-5□Z1-□□□-□□-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)

**VP744(R)-5□Z1-□□□-□□-X536**

- Applicable cable O.D.: ø3.5 to ø7

- Port size: 1/8 (With check valve)
- Applicable tube O.D.: ø6, ø1/4" (With check valve)
- External pilot port

- 2 x ø6.2 (For mounting)

- M12 connector

- View A
  - M12 connector
  - Pin number

- Made by Rockwell Automation

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

- Vent port (ø6.2)

- M5 x 0.8 (External pilot port)
  - For the external pilot type
**Applicable cable O.D.**
ø3.5 to ø7

**Port size:**
1/8 (Without check valve)
2 x ø5.2 (For mounting)

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

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

**Safety limit switch (Made by OMRON)**

**Dimensions**

**Dual Residual Pressure Release Valve (-X538)**

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

**Made by OMRON**

**View A**
For M12 connector

**Pin number**
VP500/700-X538

Dimensions Dual Residual Pressure Release Valve (-X538)

VP544(R)-5□Z1-03□-S1□-X538

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

Channel 2
[2(A) port]

Channel 1
(Max. 10)

2 x ø5.2
(For mounting)

Vent port
(ø6.2)

(With check valve)

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

Pin number

View A
M12 connector

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

Channel 2
[2(A) port]

Channel 1
(Max. 10)

2 x ø5.2
(For mounting)

Vent port
(ø6.2)

(With check valve)
Dual Residual Pressure Release Valve (-X538)

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

Applicable cable O.D.: ø3.5 to ø7

Vent port (ø6.2)
(22.9)

(With check valve)

2 x ø6.2
(For mounting)

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

1/2
[2(A) port]

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

Pin number

Made by
OMRON

Port: Y Z1-04

M12 connector

VP500/700-X538

Specific Product
Precautions Symbols
Specific Product
Precautions
Optional
Accessories

VP744(R)-5Z1-04□-□-X538
VP744(R)-5Z1-04□-□-M-□-X538

Dimensions

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

VP500/700-X538

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

VP500/700-X538

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

Applicable cable O.D.: ø3.5 to ø7

2 x ø6.2
(For mounting)

1/2
[2(A) port]

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

Pin number

Made by
OMRON

Port: Y Z1-04
**Dimensions**

**VP744(R)-5[Z1-04-S1-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)
- **Pin number**
  - [1](#)
  - [2](#)
  - [3](#)
  - [4](#)
  - [5](#)
  - [6](#)
- **M12 connector**
- **View A M12 connector**
- **Made by Rockwell Automation**
- **Vent port**: ø6.2 (22.9) (With check valve)
- **Safety limit switch**: Made by Rockwell Automation (Part number: 440P-CDPB03R6)

**Dual Residual Pressure Release Valve (-X538)**
Dimensions

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

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

Applicable cable O.D.: (ø3.5 to ø7)

(With check valve)

(Variable throttle type)

(Low pressure)

(M12 connector)

(Without check valve)

(View A for M12 connector)

Pin number

16

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

VP500/700-X555

Pin
number

Specific Product
Precautions

Symbols

Optical
Accessories

VG342

X87

X538

X536

X555
VP500/700-X555

Dimensions

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

VP544(R)-5Z1-03-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)
(External pilot port)

Applicable cable O.D.
(ø3.5 to ø7)

2 x ø5.2
(For mounting)

M12 connector

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

Vent port
(ø6.2)

(With check valve)

(22.9)

3/8
[1(P) port]

28.5

90.4

216.7

216.1

90.4

893.8

15

90.4

28.5

28.5

216.7

90.4

216.1

90.4

893.8

15

90.4

28.5

28.5

216.7

90.4

216.1

90.4

Pin
number

Made by
Rockwell Automation

Part number: 440P-CDPB03R6

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

View A
M12 connector

Pin
number

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 ø5.2
(For mounting)

M12 connector

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

Vent port
(ø6.4)

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 ø5.2
(For mounting)

M12 connector

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

Vent port
(ø6.4)
Dimensions

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

VP744(R)-Z1-04□-□-X555
VP744(R)-Z1-04□-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)

Applicable cable O.D.: ø3.5 to ø7

(External pilot port)

2 x ø6.2
(For mounting)

67
6.5

(M12 connector)

2 x 1/2
(S/R port)

77.5
9.5

(Variable throttle type)

224.2
(88.9)

(Max. 10)

224.8
88.9

Vent port
(ø6.4)

1/2

For M12 connector

View A

Pin number

Made by OMRON

Part number: D4N-2B31 (Conduit G1/2)
D4N-9B31 (M12 connector)
VP500/700-X555

Dimensions

VP744(R)-5\(^{\circ}\)Z1-04-S1\(\square\)-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)

Applicable cable O.D.: ø3.5 to ø7

2 x ø6.2 (For mounting)

M12 connector

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

Variable throttle type

Vent port (ø6.4)

1/2 [1(P) port]

View A

M12 connector

Made by Rockwell Automation

Part number: 440P-CDPB03R6
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 (in.)</th>
<th>B (in.)</th>
<th>D (in.)</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.

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.

* 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.

* 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)

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

<table>
<thead>
<tr>
<th>Model</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP544R-5DZ1-03-X536</td>
<td>33.9</td>
<td>57.2</td>
<td>74.2</td>
<td>199.2</td>
<td>AW30-03G-A Y300T-A E300-03-A</td>
</tr>
<tr>
<td>VP744R-5DZ1-03-X536</td>
<td>34.4</td>
<td>75.2</td>
<td>89.2</td>
<td>233.2</td>
<td>AW40-04G-A Y400T-A E400-04-A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP544R-5DZ1-03-X538</td>
<td>33.9</td>
<td>57.2</td>
<td>95.7</td>
<td>220.7</td>
<td>AW30-03G-A Y300T-A E300-03-A</td>
</tr>
<tr>
<td>VP744R-5DZ1-04-X538</td>
<td>34.4</td>
<td>75.2</td>
<td>118.7</td>
<td>262.7</td>
<td>AW40-04G-A Y400T-A E400-04-A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model</th>
<th>a</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP544-5DZ1-03-X555</td>
<td>33.9</td>
<td>57.2</td>
<td>129.2</td>
<td>254.2</td>
<td>AW30-03G-A Y300T-A E300-03-A</td>
</tr>
<tr>
<td>VP744-5DZ1-04-X555</td>
<td>34.4</td>
<td>75.2</td>
<td>160.2</td>
<td>304.2</td>
<td>AW40-04G-A Y400T-A E400-04-A</td>
</tr>
</tbody>
</table>
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

Varistor
LED
Coil

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

<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 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.

“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.
**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**

<table>
<thead>
<tr>
<th><strong>1</strong> Pilot</th>
<th><strong>2</strong> Voltage</th>
<th><strong>3</strong> Electrical entry</th>
<th><strong>4</strong> Port size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>5 VDC</td>
<td>DZ DIN terminal, With light/surge voltage suppressor</td>
<td>06 3/4</td>
</tr>
<tr>
<td>R</td>
<td></td>
<td></td>
<td>10 1</td>
</tr>
</tbody>
</table>

- **5** Thread
  - N: 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)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Check valve</th>
<th>Applicable tube O.D.</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nnil</td>
<td>None</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Yes</td>
<td>Ø8</td>
<td>Rc G NPT</td>
</tr>
<tr>
<td>B</td>
<td></td>
<td>Ø5/16&quot;</td>
<td></td>
</tr>
</tbody>
</table>

- 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-VG342-5DZ-□-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</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>0.25 to 0.7 MPa</td>
</tr>
<tr>
<td>External pilot pressure</td>
<td>—</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&quot; type: 3.2 kg)</td>
</tr>
<tr>
<td>B100 (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</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

| Electrical entry | DIN terminal |
| Rated voltage | 24 VDC |
| Allowable voltage fluctuation | –15% to +10% of the rated voltage |
| Power consumption | 2.2 W |
| Suppressor | Diode |
| Indicator | LED |

Safety Limit Switch Specifications

| Manufacturer | OMRON  | Rockwell Automation |
| Electrical wiring | M12 connector |
| Contact resistance | 25 mΩ or less  | 50 mΩ or less |
| Min. applicable load | 10 VDC, 1 mA (Load resistance)  | 10 VDC, 1 mA (Load resistance) |
| 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 (EN 60947-5-1:2004) |
VG342-X87

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</td>
</tr>
<tr>
<td></td>
<td>Wiring specification</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

VG342(R)-X87

Internal pilot

External pilot

External pilot/With check valve

Made by
OMRON

Made by
Rockwell Automation

<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</td>
</tr>
<tr>
<td></td>
<td>Wiring specification</td>
</tr>
<tr>
<td><img src="image" alt="Symbol" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

VG342(R)-X87

Internal pilot

External pilot

External pilot/With check valve

Made by
OMRON

Made by
Rockwell Automation
Dimensions

**VG342(R)-5DZ-06□-M□-X87**

**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**

**Safety limit switch (Made by OMRON)**
- Part number: D4N-9B31
- (11.4)
- (106.8: For the external pilot type)
- (48.2)
- (75)
- (37.5)
- (21)
- (57.6)
- (27.7)

**3/4**
- [2(A) port]

**2 x 3/4 [3(R) port]**
- Should be normally open

**175.9**

**View A**
- M12 connector

**Pin number**

**Safety Standard ISO 13849-1 Certified**

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

**VG342-X87**
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)

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

Channel 1
Channel 2

Safety limit switch (Made by OMRON)
Part number: D4N-9B31
Applicable cable O.D.
ø4.5 to ø7

Adapte
2 x 1 [3(R) port]
Should be normally open.

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

Safety limit switch
Made by
OMRON

2 x 1 [3(R) port]
Should be normally open.

View A
M12 connector

Pin number

VG342-X87

Dual Residual Pressure Release Valve (-X87)
Applicable cable O.D.
ø4.5 to ø7

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

Channel 1
3 x ø8.5
(Mounting hole)

Vent port
Should be normally open.

Channel 2
A
M12 x 1
Pg9

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 Rockwell Automation)
Part number: 440P-CDPB03R6
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)

Vent port
Should be normally open.

2 x 3/4 [Z(A) port]
Should be normally open.

View A
M12 connector
Pin number

Dimensions
Dual Residual Pressure Release Valve (-X87)
VG342(R)-5DZ-06□-S1□-X87

Made by Rockwell Automation
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

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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 in the terminal block. Insert the lead core wires into the terminals, and secure the wires by tightening the terminal screws.

As the product has polarity, be sure to wire the product correctly in accordance with the terminal number symbols of the terminal block while referring to the electric circuit diagram.
4. Secure the cord by fastening the gland nut.
   - 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 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

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Light/Surge Voltage Suppressor

Terminal number 1 (+)
Terminal number 2 (−)

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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.

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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.
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) 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

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

2. Only personnel with appropriate training should operate machinery and equipment. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent failing or runaway of the driven objects have been confirmed.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

   a. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   b. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications of all relevant products carefully.
   c. An application which could have negative effects on people, property, or equipment failure when configuring the equipment.

5. Use in an interlock circuit, which requires the provision of double interlock and experienced.

6. Use in an interlock circuit, which requires the provision of double interlock and experienced.

Caution

1. The product is provided for use in manufacturing industries. The product herein described is basically provided for peaceful use in manufacturing industries. If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Limited warranty and Disclaimer/Compliance Requirements

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

Limited warranty andDisclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first. Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.

2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.

3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

2. The exports of SMC products or technology from one country to another are qualified by type approval tests relevant to the metrology (measurement) laws or regulations. Therefore, SMC products cannot be used for business or certification by the metrology (measurement) laws of each country.

Caution

SMC products are not intended for use as instruments for legal metrology. Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification by the metrology (measurement) laws of each country.

Revision History

Edition B

- Base-mounted type (VP544-X536, VP744-X536) residual pressure release valves have been added.
- The service life of the safety limit switch made by Rockwell Automation has been changed.
- The VG-X87 with a safety limit switch made by Rockwell Automation has been added to safety certified products.
- A precaution regarding installation has been added to the specific product precautions.
- Number of pages has been increased from 28 to 32.

Safety Instructions

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