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

**With Detection of Main Valve Position**

**Category 2**

The detecting function of the main valve position detects a mismatch between the input signal and valve operation.

**Redundant system can be constructed easily.**

**Category 3, 4**

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

- **Dual Residual Pressure Release Valve**
  - VP544-X538/VP744-X538

- **With Soft Start-up Function**
  - VP544-X555/VP744-X555 (0.7 MPa)
  - VP544-X585/VP744-X585 (1.0 MPa)

- **Dual Residual Pressure Release Valve**
  - VG342-X87

**Redundant System**

A system in which even if one part fails, the whole system will fulfill its required function. This is usually achieved by having dual channels of operation, such as dual valves, dual wiring, dual guard switches etc.

**Series VP/VG**

*Safety Standard ISO 13849-1 Certified*  
(Corresponding to Category 2 to 4)

*New*

*RoHS*

*1. Refer to page 2 for compliant products.*

*2. Refer to page 2 for certified products.*
**With Detection of Main Valve Position (Category 2)**

Category 2: Safety function can be accomplished by single channel and is automatically checked.

**Redundant system can be constructed easily. (Category 3, 4)**

Category 3: It has redundancy so there is no loss of safety function with a single failure. The safety function must be checked before each use. An accumulation of undetected faults can cause loss of safety function.

Category 4: It has redundancy so there is no loss of safety function with a single failure. The safety function must be checked before each use. An accumulation of undetected faults does not affect the safety function. (Higher DC and MTTFd than Category 3.)

The detecting function of the main valve position detects a mismatch between the input signal and valve operation.

**With soft start-up function (-X555/X585)**

- 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 a throttle for adjusting the pressure increase. (Ø 1, Ø 1.5, Ø 2)

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

- Conduit (VP series only) and M12 connector with 6 pins is available.

**Safety limit switch can be selected.**

Made by OMRON

Made by Rockwell Automation

Safety Standard ISO 13849-1 Certified

3 Port Solenoid Valve/Residual Pressure Release Valve with Detection of Main Valve Position Series VP/VG

**Highly reliable construction**

1. The main valve position is detected by transferring the main valve movement directly to the reed safety limit switch with the rod.

2. Long service life: B10d: 10 million times*

3. The return spring releases the residual pressure securely regardless of pressure level.

* For VP□/X536/X538/X555, safety limit switch made by OMRON

**Output Pressure (P2) vs Time Graph**

Start supplying flow adjusted air with the throttle by energising 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

Time

P1

P2

1/2P1

Output Pressure (P2) vs Time Graph

Output signal

Monitoring

Input signal

Output signal

Monitoring

Input signal

Output signal

Monitoring

Input signal

Output signal

Monitoring

Residual pressure release valve

Residual pressure release valve

Residual pressure release valve

Safety limit switch

Safety limit switch

Safety limit switch

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: VP542/742-X536

Recommended valve: VP544/744-X538, VG342-X87

Made by Rockwell Automation

Made by OMRON

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

Conduit (VP series only) and M12 connector with 6 pins is available.

With soft start-up function (-X555/X585)

- A function to gradually increase the initial pressure of the pneumatic system has been added to the dual residual pressure release valve.

With Detection of Main Valve Position

Safety limit switch can be selected.

Highly reliable construction

Made by OMRON

Made by Rockwell Automation

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Made by Rockwell Automation

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Made by OMRON

Made by Rockwell Automation

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Made by OMRON

Made by Rockwell Automation

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With Detection of Main Valve Position

Safety limit switch can be selected.

Highly reliable construction

Made by OMRON

Made by Rockwell Automation

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

Conduit (VP series only) and M12 connector with 6 pins is available.

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Highly reliable construction

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Made by Rockwell Automation

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Highly reliable construction

Made by OMRON

Made by Rockwell Automation

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Conduit (VP series only) and M12 connector with 6 pins is available.

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- A function to gradually increase the initial pressure of the pneumatic system has been added to the dual residual pressure release valve.

With Detection of Main Valve Position

Safety limit switch can be selected.

Highly reliable construction

Made by OMRON

Made by Rockwell Automation

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

Conduit (VP series only) and M12 connector with 6 pins is available.
# Safety Standard ISO 13849-1 Certified

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

**VP-X536, X538, X555, X585**

### How to Order

<table>
<thead>
<tr>
<th>Residual pressure release valve</th>
<th>VP</th>
<th>5</th>
<th>4</th>
<th>2</th>
<th>R</th>
<th>-5</th>
<th>D</th>
<th>Z</th>
<th>1</th>
<th>-03</th>
<th>F</th>
<th>M</th>
<th>-X536</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual residual pressure release valve</td>
<td>VP</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>R</td>
<td>-5</td>
<td>D</td>
<td>Z</td>
<td>1</td>
<td>-03</td>
<td>F</td>
<td>M</td>
<td>-X538</td>
</tr>
<tr>
<td>Dual residual pressure release valve with soft start-up function</td>
<td>VP</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>D</td>
<td>-5</td>
<td>D</td>
<td>Z</td>
<td>1</td>
<td>-03</td>
<td>F</td>
<td>M</td>
<td>-X555</td>
</tr>
</tbody>
</table>

- **Series**: 5 (VP500), 7 (VP700)
- **Body**: 2 (Body ported), 4 (Base mounted)
- **Pilot**: — (Internal pilot), R (External pilot)
- **Voltage**: 5 (24 V DC)
- **Thread**: Rc
- **Electrical entry**: D (DIN terminal), Y (DIN EN 175301-803 terminal)
- **Light/surge voltage suppressor**: Z (With light/surge voltage suppressor)

### Made to Order

**1 Series Compatible with Secondary Batteries**

For details about 25A-, please consult SMC.

**How to Order**

| 25A–VP | 4 | 5DZ1 | X536 |
| 25A–VP | 4 | 5DZ1 | X538 |
| 25A–VP | 4 | 5DZ1 | X555 |

- **Port size**: 03 (3/8”), 04 (1/2”)
- **Check valve**: None, Yes
- **Check valve O.D.**: Ø 6, Ø 1/4”
- **Thread**: Rc, G, NPT

- **Thread**: Rp 1/2 (Made by OMRON)
- **M12 connector (Made by OMROM)**
- **S1 (Made by Rockwell Automation)**

### Notes

- Electrical entry can be selected only for D type.
- Check valve type is available only when the thread type is Rc.
- Refer to page 2 for compliant products.
Valve Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>VP-42-X536</th>
<th>VP-44R-X536</th>
<th>VP-44-X536</th>
<th>VP-44R-X538</th>
<th>VP-44-X538</th>
<th>VP-44R-X585</th>
<th>VP-44-X585</th>
<th>VP-44R-X585</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of actuation</td>
<td>N.C. (Spring return)</td>
<td>Internal pilot</td>
<td>External pilot</td>
<td>Internal pilot</td>
<td>External pilot</td>
<td>Internal pilot</td>
<td>External pilot</td>
<td>External pilot</td>
</tr>
<tr>
<td>Operating pressure range</td>
<td>0.25 to 0.7 MPa</td>
<td>0.25 to 1.0 MPa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>External pilot pressure</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum operating frequency</td>
<td>30 times/minute</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum operating frequency</td>
<td>1 time/week</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating and ambient temperature</td>
<td>-10 to 50 °C (No freezing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient humidity</td>
<td>20 to 90 %RH (No condensation)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manual override</td>
<td>None</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pilot exhaust</td>
<td>Individual exhaust</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lubrication</td>
<td>Not required</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mounting orientation</td>
<td>unrestricted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impact/Vibration resistance</td>
<td>1500 m/s²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating environment</td>
<td>Indoors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B10d (MTTFd calculation)</td>
<td>10000000 times (for the safety limit switch made by OMRON)</td>
<td>10000000 times (for the safety limit switch made by Rockwell Automation)</td>
<td>10000000 times</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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>Series</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></td>
<td>Cv [l/min (ANR)]</td>
<td>B</td>
</tr>
<tr>
<td>VP542-X536</td>
<td>8.9</td>
<td>0.16</td>
</tr>
<tr>
<td>VP742-X536</td>
<td>15.1</td>
<td>0.21</td>
</tr>
<tr>
<td>VP544-X538</td>
<td>6.5</td>
<td>0.08</td>
</tr>
<tr>
<td>VP744-X538</td>
<td>10.3</td>
<td>0.08</td>
</tr>
<tr>
<td>VP44-X555</td>
<td>5.2</td>
<td>0.06</td>
</tr>
<tr>
<td>VP744-X555 VP744-X585</td>
<td>9.8</td>
<td>0.08</td>
</tr>
</tbody>
</table>

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

**Needle Valve / Flow Rate Characteristics (VP544/744-X555)**

![Graph showing flow rate characteristics](image)

**Solenoid Specifications**

- **Electrical entry**: DIN terminal
- **Rated voltage**: 24 V DC
- **Ambient temperature**: -10 °C to 50 °C
- **Power consumption**: 0.45 W
- **Surge voltage suppressor**: Varistor
- **Indicator**: LED

**Safety Limit Switch Specifications**

- **Manufacturer**: OMRON, Rockwell Automation
- **Electrical wiring**: 8.1 mm², M12 connector
- **Contact resistance**: 25 mΩ or less
- **Max. voltage**: 24 V DC
- **Max. load current**: 50 mA
- **Max. load inductance**: 0.5 H
- **Insulation voltage**: 600 V
- **Protection against electric shock**: Class II (IEC60947-5-1: 2004)
VP-X536, X538, X555, X585

Symbols

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Terminal/Pin Numbers (Built-in switch 2N.C.)</th>
<th>M12 connector pin number</th>
<th>Wiring specification</th>
<th>G 1/2 terminal number</th>
<th>Wiring specification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>①</td>
<td>②</td>
<td>(11)</td>
<td>(11)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>③</td>
<td>④</td>
<td>(12)</td>
<td>(12)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⑤</td>
<td></td>
<td>(31)</td>
<td>(31)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>⑥</td>
<td></td>
<td>(32)</td>
<td>(32)</td>
</tr>
</tbody>
</table>

VP542(R)/742(R)-X536

Internal pilot

M12 connector pin number

G 1/2 terminal number

Wiring specification

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

VP544(R)/744(R)-X585

Internal pilot

External pilot

External pilot/With check valve

VP-X536, X538, X555, X585
**Symbols**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Pin Numbers (Built-in switch 3N.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M12 connector pin number Wiring specification</td>
</tr>
<tr>
<td></td>
<td>1 5 2 4 3 6 1 2 3</td>
</tr>
</tbody>
</table>

**VP542(R)/742(R)-X536**

- **Internal pilot**
  - 2(A) 3(R) 1(P)
  - Safety limit switch terminal [N.C.]
  - M12 connector pin number

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

- **Internal pilot**
  - 2(A) 3(R) 1(P)
  - 3(R) 2(A)

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

- **Internal pilot**
  - 2(A) 3(R) 1(P)
  - 3(R) 2(A)

**VP544(R)/744(R)-X585**

- **Internal pilot**
  - 2(A) 3(R) 1(P)
  - 3(R) 2(A)

---

**VP-X536, X538, X555, X585**

Safety limit switch
Made by Rockwell Automation
VP-X536

Dimensions

Residual Pressure Release Valve (-X536)

VP542(R)-5\(^2\)Z1-03\(\square\)-\(\square\)-X536
VP542(R)-5\(^2\)Z1-03\(\square\)-M\(\square\)-X536

Safety limit switch
Made by
OMRON

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

3/8"
[1(P), 3(R) port]

G 1/2

(M12 connector)

VP542(R)-5\(^2\)Z1-03\(\square\)-S1\(\square\)-X536

Safety limit switch
Made by
Rockwell Automation

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

3/8"
[2(A) port]

M12 connector

View A
For M12 connector

Pin number

Applicable cable O.D.
Ø 3.5 to Ø 7

View A
M12 connector

Pin number

Made by
SMC

Made by
OMRON

Made by
Rockwell Automation

Safety limit switch

Part number: D4N-2B31 (G 1/2)
Part number: D4N-9B31 (M12 connector)
Part number: 440P-CDPB03R6
Part number: D4N-9B31 (M12 connector)

Port (Ø 6.2)

Vent port

(31.5)
(Distance between ports)

3/8"
[1(P), 3(R) port]

(31.5)
(Distance between ports)

3/8"
[2(A) port]

(31.5)
(Distance between ports)

3/8"
[1(P), 3(R) port]

(31.5)
(Distance between ports)

3/8"
[2(A) port]

(31.5)
(Distance between ports)

3/8"
[2(A) port]
Dimensions

Residual Pressure Release Valve (-X536)

VP742(R)-5\(\frac{G}{2}\)Z1-04□-□-X536
VP742(R)-5\(\frac{G}{2}\)Z1-04□-M□-X536

Safety limit switch
Made by OMRON

M12 connector

Port size: 1/8” (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4” (With check valve)
(External pilot port)

Applicable cable O.D.
Ø 3.5 to Ø 7

Pin number

Residual Pressure Release Valve (-X536)

VP742(R)-5\(\frac{G}{2}\)Z1-04□-S1□-X536

Safety limit switch
Made by Rockwell Automation

M12 connector

Port size: 1/8” (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4” (With check valve)
(External pilot port)

Applicable cable O.D.
Ø 3.5 to Ø 7

Pin number

Made by OMRON

Made by Rockwell Automation

Pin number

View A
For M12 connector

(pin number)

View A
For M12 connector

(pin number)
VP-X538

Dimensions

Dual Residual Pressure Release Valve (-X538)

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

Safety limit switch
Made by OMRON

View A
For M12 connector

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Applicable cable O.D.: Ø 3.5 to Ø 7

Safety limit switch (made by OMRON)

Part number: D4N-2B31 (G 1/2)
: D4N-9B31 (M12 connector)
Dimensions

VP544(R)-5ØZ1-03□-S1□-X538

Safety limit switch
Made by Rockwell Automation

M12 connector
2 x 3/8"
[3(R) port]

2 x Ø 5.2
(For mounting)

Channel 2
Channel 1
(Max. 10)

Vent port
(Ø 6.2)
(22.9)
(With check valve)

104.7
3/8"

Applicable cable O.D.
Ø 3.5 to Ø 7

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

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

Pin number

View A

Made by Rockwell Automation

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

Specific Product
Precautions
Symbols
Accessories
Optional
VP500/700
X536
X538
X555
VG342
X87

Symbols
Specific Precautions
Optional Accessories
VP500/700
X536
X538
X555
VG342
X87

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Safety limit switch (made by Rockwell Automation)
Part number: 440P-CDPB03R6
VP-X538

Dimensions

Dual Residual Pressure Release Valve (-X538)

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

Safety limit switch
Made by
OMRON

View A
For M12 connector

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Applicable cable O.D.
Ø 3.5 to Ø 7

Channel 2
Channel 1

Channel 1

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Pin number

Made by
OMRON

Safety limit switch
Part number: D4N-2S31 (G 1/2)
: D4N-9B31 (M12 connector)
Dual Residual Pressure Release Valve (-X538)

VP744(R)-5/Z1-04-S1-X538

Safety limit switch
Made by Rockwell Automation

Applicable cable O.D.
Ø 3.5 to Ø 7

Channel 2
Channel 1

M12 connector
2 x 1/2" (R port)
(For mounting)

Vent port
(Ø 6.2) (22.9)
(With check valve)

1/2" [1(P) port]

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

(External port)

Applicable cable O.D.
Ø 3.5 to Ø 7

Safety limit switch (made by Rockwell Automation)
Part number: 440P-CDPB03R6
VP-X555, X585

Dimensions Dual Residual Pressure Release Valve with Soft Start-up Function (-X555/X585)

VP544(R)-5ØZ1-03□-□-X555/X585  
VP544(R)-5ØZ1-03□-□-M□□-X555/X585

Safety limit switch
Made by OMRON

Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

1/8" (With check valve)

With check valve)

Variable throttle type

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port Ø 6.4 (Max. 10)

额 6.2 (22.9)

Vent port (Ø 6.2)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

28.5

Port 3/8" [1(P) port]

Vent port (Ø 6.2)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Variable throttle type

Port 3/8" [2(A) port]

Port 3/8" [3(R) port]

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)

Port 2 x Ø 5.2  (For mounting)  
Port size: 1/8" (Without check valve)  
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)

Vent port (Ø 6.4)
Dimensions

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555/X585)

VP544(R)-5\(\frac{\Omega}{6.2}\)Z1-03\(-S1\)\(-X555/X585/X585

- Safety limit switch
- Made by Rockwell Automation

- Vent port: 6.2 mm (Ø)
  - With check valve: 22.9 mm

- External pilot port: 3/8" [2(A) port]
- M12 connector

- Applicable cable O.D.: 3.5 to 7 mm

- Port size: 1/8" (Without check valve)
- Applicable tube O.D.: 6, 1/4" (With check valve)

- View A: M12 connector
- Pin number:
  1. 3/8" [2(A) port]
  2. 28.5
  3. 101.5
  4. 101.3
  5. 75.5
  6. 30.5
  7. 24.2
  8. 15

- Part number: 440P-CDPB03R6
VP-X555, X585

Dimensions

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555/X585)

VP744(R)-5Z1-04-□-□-X555/X585
VP744(R)-5Z1-04-□-□-X555/X585

Safety limit switch
Made by OMRON

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Applicable cable O.D.: Ø 3.5 to Ø 7

-VP-X555, X585

View A
For M12 connector

Pin number

Max. 10

1/2" [2(A) port]

1/2" [3(R) port]

1/6" (Without check valve)

[1(P) port]

[2(A) port]

Vent port (Ø 6.4)
(With check valve)

Vent port (Ø 6.2)
(22.9)

(Variable throttle type)

(With check valve)

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

[1(P) port]

G 1/2

D4N-2B31 (G 1/2)
D4N-9B31 (M12 connector)

2 x Ø 6.2
(For mounting)

2 x 1/2"
(With check valve)

(External pilot port)

Made by OMRON

Pin number

1/6"

1/8"

(88.9)

(14)

(10)

(88.9)

(M12 connector)

Vent port (Ø 6.4)

(Variable throttle type)
VP744(R)-5Z1-04-S1-X555/X585

Made by Rockwell Automation

Dimensions

Dual Residual Pressure Release Valve with Soft Start-up Function (-X555/X585)

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 6, Ø 1/4" (With check valve)
(External pilot port)

Port size: 1/2"

Made by Rockwell Automation

Safety limit switch

Part number: 440P-CDPB03R6

Vent port (Ø 6.2)
(With check valve)

Vent port (Ø 6.4)
(Max. 10)

Variable throttle type

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

2 x Ø 6.2
(For mounting)

2 x 1/2"
[2(A) port]

Safety limit switch (made by Rockwell Automation)

Part number: 440P-CDPB03R6

View A
M12 connector

Pin number

Made by Rockwell Automation

Safety limit switch

VP500/700

Symbols

X536

X538

X555

X585

VG342

X87

Symbols

Optional Accessories

Specific Product
Precautions

Optional Accessories

Specific Product
Precautions

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

VP-X555, X585
VP500/700-X538, X555, X585
Optional Accessories

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. (Note)</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>

Note) □ 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
VP544-5DZ1-03-X538 ...... 1 pc.
Filter regulator
AW30-03G-B ................. 1 pc.
Spacer with bracket
Y300T-A ..................... 3 pcs.
Piping adapter
E300-03-A .................. 2 pcs.

* Each product is not assembled.

Spacer with Bracket Mounting Position

Dual residual pressure release valve (-X538)

Dual residual pressure release valve with soft start-up function (-X555/X585)

<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-X538</td>
<td>33.9</td>
<td>57.2</td>
<td>95.7</td>
<td>220.7</td>
<td>AW30-03G-B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y300T-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E300-03-A</td>
</tr>
<tr>
<td>VP744-5DZ1-04-X538</td>
<td>34.4</td>
<td>75.2</td>
<td>118.7</td>
<td>262.7</td>
<td>AW40-04G-B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Y400T-A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>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-B</td>
</tr>
<tr>
<td>VP544-5DZ1-03-X585</td>
<td>33.9</td>
<td>57.2</td>
<td>160.2</td>
<td>304.2</td>
<td>AW40-04G-B</td>
</tr>
</tbody>
</table>

Ordering Example
VP544-5DZ1-03-X538 ...... 1 pc.
Filter regulator
AW30-03G-B ................. 1 pc.
Spacer with bracket
Y300T-A ..................... 3 pcs.
Piping adapter
E300-03-A .................. 2 pcs.

* Each product is not assembled.
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 screws (slotted screws) in the terminal block. Insert the lead core wires to the terminals according to the connection method, and secure the wires by re-tightening the terminal screw.
4. Secure the cord by fastening the ground nut.

Caution
When making connections, please note that using other than the supported size (Ø 3.5 to Ø 7) heavy-duty cord will not satisfy IP65 (enclosure) standards. Also, be sure to tighten the ground nut and holding screw within their specified torque ranges.

Changing the entry direction
After separating the terminal block and housing, the cord entry can be changed by attaching 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 to one side.

Compatible cable
Cord O.D.: Ø 3.5 to Ø 7
(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
(-)(+)
Coil
Varistor
(+)(-)
LED

There is no polarity.
Note) Surge voltage suppressor of varistor has residual voltage corresponding to the protective element and rated voltage; therefore, protect the controller side from the surge voltage.

Limit Switch Cable
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>

Installation

Use the external pilot type when using VP500/700-X536 or X538 with AV series. Install the AV series to the primary side.

Type “Y”
DIN connector type Y is a DIN connector that confirms to the DIN pitch 8-mm standard.
• D type DIN connector with 9.4 mm pitch between terminals is not interchangeable.
• To distinguish from the D type DIN connector, “N” is listed at the end of voltage symbol.
• Dimensions are completely the same as D type DIN connector.
How to Order

**Dual residual pressure release valve**

**VG342 R - 5 D Z - 06 F - M - X87**

- **Pilot**
  - Internal pilot
  - External pilot

- **Voltage**
  - 5 VDC

- **Electrical entry**
  - D: DIN terminal

- **Light/surge voltage suppressor**
  - Z: With light/surge voltage suppressor

- **Port size**
  - 06: 3/4"
  - 10: 1"

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

- **Thread**
  - —: Rc
  - F: G
  - N: NPT

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

<table>
<thead>
<tr>
<th>Check valve</th>
<th>Applicable tube O.D.</th>
<th>Thread</th>
</tr>
</thead>
<tbody>
<tr>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>A</td>
<td>Ø 8</td>
<td>—</td>
</tr>
<tr>
<td>B</td>
<td>Ø 5/16&quot;</td>
<td>—</td>
</tr>
</tbody>
</table>

* For internal pilot, the symbol is nil.
* Refer to “Piping for External Pilot Type” on page 20 for selection of the check valve.

Made to Order

**1 Series Compatible with Secondary Batteries**

For details about 25A-, please contact SMC.

- **How to Order**

  **25A–VG342 ☐–5DZ–☐–☐–M☐–X87**

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

  Note) 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 Internal pilot</td>
<td>External 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 times/minute</td>
</tr>
<tr>
<td>Minimum operating frequency</td>
<td>1 time/week</td>
</tr>
<tr>
<td>Operating and ambient temperature</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 Individual exhaust</td>
<td></td>
</tr>
<tr>
<td>Lubrication Not required</td>
<td></td>
</tr>
<tr>
<td>Mounting orientation Unrestricted</td>
<td></td>
</tr>
<tr>
<td>Impact/Vibration resistance</td>
<td>150/50 m/s²</td>
</tr>
<tr>
<td>Enclosure IP40</td>
<td></td>
</tr>
<tr>
<td>Operating environment Indoors</td>
<td></td>
</tr>
<tr>
<td>Weight 2.8 kg</td>
<td>2.9 kg</td>
</tr>
<tr>
<td>B10d (MTTFd calculation) 900000 times</td>
<td></td>
</tr>
</tbody>
</table>

Internal Pilot Type

⚠️ Caution
Valve may not operate properly when air supply to P port is not adequate and the supply pressure to the valve is lower than 0.25 MPa, the minimum operating pressure. Be careful with insufficient supply pressure.

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>Series</th>
<th>Flow rate characteristics</th>
<th>1→2 (P→A)</th>
<th>2→3 (A→R)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VG342-X87</td>
<td>C [dm³/(s·bar)] b Cv Q [l/min (ANR)]</td>
<td>26.6 0.04 5.5 5864</td>
<td>28.6 0.03 5.6 6278</td>
</tr>
</tbody>
</table>

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

Solenoid Specifications

- Electrical entry: DIN terminal
- Rated voltage: 24 V DC
- Allowable voltage fluctuation: −15 % to +10 % of rated voltage
- Power consumption: 2.2 W
- Suppressor: Diode
- Indicator: LED

Safety Limit Switch Specifications

- Manufacturer: OMRON
- Manufacturer: Rockwell Automation
- Electrical wiring: M12 connector
- Contact resistance: 25 mΩ or less
- Max. voltage: 24 V DC
- Maximum load current: 50 mA
- Max. load inductance: 0.5 H
- Insulation voltage: 300 V
- Protection against electric shock: Class II (EN 60947-5-1: 2004)
VG342-X87

Symbols

Made by OMRON

Made by Rockwell Automation

Safety limit switch terminal [N.C.]

M12 connector pin number

Wiring specification

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Internal pilot</th>
<th>External pilot</th>
<th>External pilot/With check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>2(A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3(R)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1(P)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Internal pilot</th>
<th>External pilot</th>
<th>External pilot/With check valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>2(A)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3(R)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1(P)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dimensions

VG342(R)-5DZ-06□-M□-X87

Safety limit switch
Made by OMRON

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 8, Ø 5/16" (With check valve)
(External pilot port)

Safety limit switch (made by OMRON)
Part number: D4N-9B31
Applicable cable O.D.
Ø 4.5 to Ø 7

Channel 2

M12 x 1
Pg9

2 x 3/4" [3(R) port]
Should be normally open.

Channel 1

3 x Ø 8.5
(Mounting hole)

Vent port
Should be normally open.

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 8, Ø 5/16" (With check valve)
(External pilot port)

Safety limit switch (made by OMRON)
Part number: D4N-9B31
Applicable cable O.D.
Ø 4.5 to Ø 7

View A
M12 connector

Pin number
VG342-X87

Dimensions

VG342(R)-5DZ-10□-M□-X87

<table>
<thead>
<tr>
<th>Safety limit switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made by OMRON</td>
</tr>
</tbody>
</table>

Port size: 1/8” (Without check valve)
Applicable tube O.D.: Ø 8, Ø 5/16” (With check valve)
(External pilot port)

Safety limit switch (made by OMRON)
Part number: D4N-9B31
Applicable cable O.D.
Ø 4.5 to Ø 7

Applicable cable O.D.
Ø 4.5 to Ø 7

Port size: 1/8” (Without check valve)

Made by OMRON

Adapter

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

3 x Ø 8.5
(Mounting hole)

Vent port
Should be normally open.

1”
[1(P) port]

1”
[1(P) port]

View A
M12 connector

Pin number

Pin number

Dimensions

VG342-X87

Dual Residual Pressure Release Valve (-X87)
Dimensions

**VG342(R)-5DZ-06□-S1□-X87**

**Made by Rockwell Automation**

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 8, Ø 5/16" (With check valve)
(External pilot port)

Safety limit switch
(made by Rockwell Automation)
Part number: 4407-CDPBR03R6

Channel 1

3 x Ø 8.5
(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.: Ø 8, Ø 5/16" (With check valve)
(External pilot port)

Vent port
Should be normally open.

2 x 3/4" [3(R) port]
Should be normally open.

Pin number

View A
M12 connector

Dimensions

VG342(R)-5DZ-06□-S1□-X87

Safety Standard ISO 13849-1 Certified

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

VG342-X87

Dual Residual Pressure Release Valve (-X87)

Made by Rockwell Automation

Optional Accessories X555

Specific Product Precautions Symbols

Symbols

VP500/700

X536

X538

X555

X585

X87

VG342

24
VG342-X87

Dual Residual Pressure Release Valve (-X87)

VG342(R)-5DZ-10□-S1□-X87

Safety limit switch
Made by Rockwell Automation

Applicable cable O.D.: Ø 4.5 to Ø 7

Port size: 1/8" (Without check valve)
Applicable tube O.D.: Ø 8, Ø 5/16" (With check valve)

External pilot port

Channel 1 Channel 2

M12 x 1

Pin number

View A

M12 connector

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

Should be normally open.

Port: 1" [1(P) port]

Mounting hole:
3 x Ø 8.5

Vent port:
Should be normally open.

3 x Ø 8.5

(Applicable tube O.D.: Ø 8, Ø 5/16"

(External pilot port)

(With check valve)

(Without check valve)

[1(P) port]

[3(R) port]
VG342-X87

Specific Product Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions. For 3/4/5 Port Solenoid Valve Precautions, refer to the Operation Manual on the SMC website, http://www.smc.eu

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 screw in the terminal block. Insert the lead core wires to the terminals, and secure the wires by re-tightening the terminal screw.
4. Secure the cord by fastening the ground nut.
   Tighten the ground nut and holding screw within the specified range of torque.

Changing the entry direction
After separating the terminal block and housing, the cord entry can be changed by attaching the housing in the opposite direction 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 to one side.

Compatible cable
Cord O.D.: Ø 4.5 to Ø 7 (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

![Image of terminal connector]

<table>
<thead>
<tr>
<th>Ground nut</th>
<th>Tightening torque</th>
<th>2.5 to 3.75 N·m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washer</td>
<td>Holding screw</td>
<td>Tightening torque</td>
</tr>
<tr>
<td>Grommet</td>
<td>Housing</td>
<td></td>
</tr>
<tr>
<td>Terminal block</td>
<td>Terminal number</td>
<td>3 locations</td>
</tr>
<tr>
<td>Terminal screw</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Light/Surge Voltage Suppressor

Terminal number 1 (+)
Terminal number 2 (-)

Limit Switch Cable

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>

Symbols

![Symbols Image]
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:**

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 catalogue 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 product specified here may become unsafe if handled incorrectly. 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.

   1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
   2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
   3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

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

   1. Conditions and environments outside of the given specifications, or use outdoors or in conditions.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, metrology (measurement) laws of each country.
   3. Therefore, SMC products cannot be used for business or certification ordained by the measurement instruments that SMC manufactures or sells have not been qualified by
   4. SMC products are not intended for use as instruments for legal

**Warning:**

5. Before machinery/equipment is restarted, take measures to prevent unexpected failure by using a mechanical protective function, and periodical checks to confirm proper operation.

6. Installation on equipment in conjunction with atomic energy, railways, air navigation, metrology (measurement) laws of each country.

7. The exports of SMC products or technology from one country to another are involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

8. SM products are not intended for use as instruments for legal.

9. 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 ordained by the metrology (measurement) laws of each country.

**Danger:**

10. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

   If 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 catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

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.

Limited warranty and Disclaimer/Compliance Requirements

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

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.-2) 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 catalogue 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.

2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions | Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

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