

VCX-5000 Series

2-point Detection Explosion-proof Switches

FEATURES

Vertical, Compact Explosion-proof 2-point Detection Limit Switch for Outdoor Use

- Case and covers are made of aluminum alloy die-cast to ensure a light and robust structure.
- Die-cast surfaces have been treated against rust and bake-finished for outstanding corrosion resistance and weatherproofing.
- Switches are available in two cord lead-in types, conduit pipe joined type or pressure-resistant packing lead-in type that facilitates wiring of the cord.
- For external screws, stainless steel screws are used for outstanding corrosion resistance.
- The center-neutral type has two different built-in switches that move in accordance with the direction of actuator rotation. This enables a single limit switch to detect the upper and lower valve limits.



CLICK

ORDER GUIDE

1. Switches

| Operation | Catalog listing | Actuator shape | O.F. (N max.) (operating force) | P.T. (° max.) (pretravel) | M.D. (° max.) (movement differential) |
|-----------------------------|-----------------|----------------|------------------------------------|------------------------------|--|
| Center-neutral type | VCX-5001 | | 15.7 | 10 | 3 |
| | VCX-5001-R | | | | |
| | VCX-5003 | | 15.7 | 10 | 3 |
| | VCX-5003-R | | | | |
| Simultaneous operation type | VCX-5101 | | 15.7 | 12 | 3 |
| | VCX-5101-R | | | | |
| | VCX-5103 | | 15.7 | 12 | 3 |
| | VCX-5103-R | | | | |

2. Pressure-resistant Packing Connector (used in combination with VCX5 0 -R)

| Shape | Catalog listing | Protecting pipe dimensions | Applicable cord diameter | Catalog listing | Protecting pipe dimensions | Applicable cord diameter |
|-------|-----------------|----------------------------|--------------------------|-----------------|----------------------------|--------------------------|
| | 2PA-JEX108 | G $\frac{1}{2}$ | 7.5 to 8.5mm dia. | 2PA-JEX208 | G $\frac{3}{4}$ | 7.5 to 8.5mm dia. |
| | 2PA-JEX109 | | 8.5 to 9.5mm dia. | 2PA-JEX209 | | 8.5 to 9.5mm dia. |
| | 2PA-JEX110 | | 9.5 to 10.5mm dia. | 2PA-JEX210 | | 9.5 to 10.5mm dia. |
| | 2PA-JEX111 | | 10.5 to 11.5mm dia. | 2PA-JEX211 | | 10.5 to 11.5mm dia. |
| | 2PA-JEX112 | | 11.5 to 12.5mm dia. | 2PA-JEX212 | | 11.5 to 12.5mm dia. |
| | 2PA-JEX113 | | 12.5 to 13.5mm dia. | 2PA-JEX213 | | 12.5 to 13.5mm dia. |

3. Auxiliary Actuators

| Type | Shape | Catalog listing | Roller material | Lever tightening method |
|-------------------------|-------|-----------------|--------------------|--------------------------|
| Roller lever | | 6PA-J63 | Black nylon roller | Hexagon socket head bolt |
| | | 6PA-J105 | | |
| Adjustable roller lever | | 6PA-J79 | Black nylon roller | Hexagon socket head bolt |
| | | 6PA-J119 | Brass roller | |

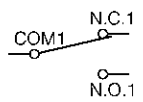
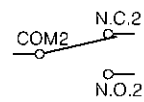
Note: When combining actuators, use combinations made of non-ignitable materials.

PERFORMANCE

| Catalog listing | | Details |
|--------------------------------|--|---|
| External standards | Conformed standards | JIS C 4508, JIS C 0903 and the Factory Electrical Facilities Explosion-proofing Guidelines |
| Structure | Contact type | Single-Pole Double-Throw SPDT × 2 |
| | Contact shape | Pure silver rivet |
| | Terminal shape | Screw (M4 binding head machine screw with toothed washer) |
| | Protective structure | Oil-resistant/immersion-proof type (JIS), IP67 (IEC 529), pressure-resistant explosion-proof type (d2G4) |
| | Pressure-resistant explosion-proof structure | d2G4 |
| Electrical performance | Electrical rating | See Table 1. |
| | Dielectric strength | Between non-continuous terminals: 600V, 50/60Hz for 1 minute Between each terminal and non-conducting metal part: 2,000V, 50/60Hz for 1 minute Between each terminal and ground: 2,000V, 50/60Hz for 1 minute |
| | Insulation resistance | Min. 100MΩ (by 500Vdc megger) |
| | Initial contact resistance | Max. 50mΩ (6 to 8Vdc, energizing current 1A, measured by voltage drop method) |
| | Recommended min. contact operating voltage/current | 24Vac/dc-10mA, 12Vac/dc-20mA |
| Mechanical performance | Actuator strength | Withstand load 5 times O.F. (operating direction for 1 minute) |
| | Terminal strength | Withstand tightening torque of 1.2N-m for 1 minute |
| | Impact resistance* | 200m/s ² |
| | | Contact release of 1ms max. at free position and operating limit positions |
| | Vibration resistance* (2 continuous hours) | 1.5mm peak-to-peak amplitude, frequency 10 to 55Hz |
| | | Contact release of 1ms max. at free position and operating limit positions |
| | Allowable operating speed* | 0.32mm/s to 0.5m/s Min. speed: Unstable state of contacts 0.1s max. Max. speed: Actuator damage not allowed |
| Mechanical operating frequency | Max. 120 operations/minute | |
| Life | Mechanical life | Min. 2 million operations. Overtravel is 70 to 100% of standard value. |
| | Electrical life | Min. 500,000 operations, 250Vac-1A resistive load |
| Environmental conditions | Operating temperature range | - 10 to +70°C |
| | Operating humidity range | Max. 100%RH |
| Recommended tightening torque | Body | 5 to 6N-m (M5 hexagon socket head bolt) |
| | Cover | 5 to 6N-m (M5 hexagon socket head bolt) |
| | Actuator | 4 to 5.2N-m (M5 hexagon socket head bolt) |

Note: Items marked by * are values for model No. **VCX-5001**. Unmarked items are values common to all models in the **VCX** series.

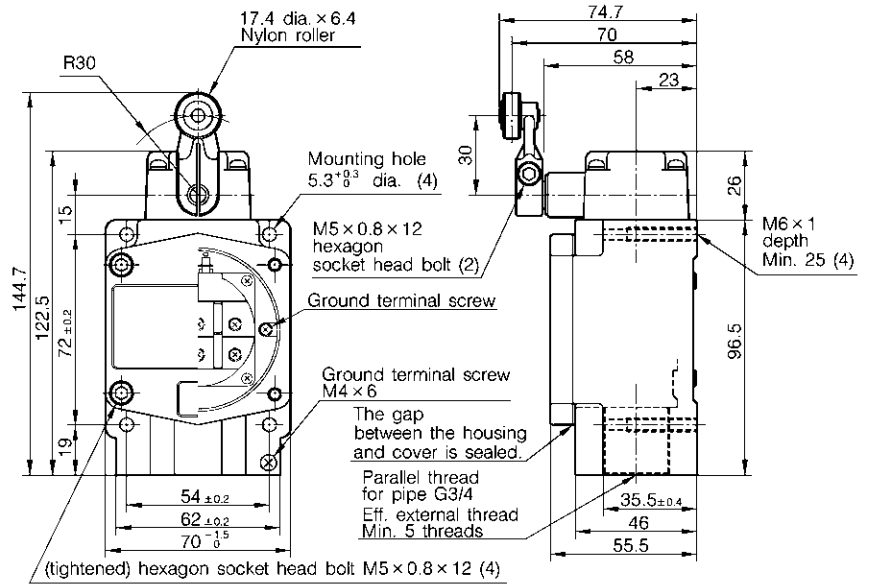
Table 1. Electrical rating and circuit configuration

| Item | Rating | |
|-----------------------|---|---|
| Circuit configuration | Switch 1 | Switch 2 |
| |  |  |
| Electrical rating | 250Vac-5A 125Vdc-0.4A 250Vdc-0.2A | |

APPEARANCE, OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

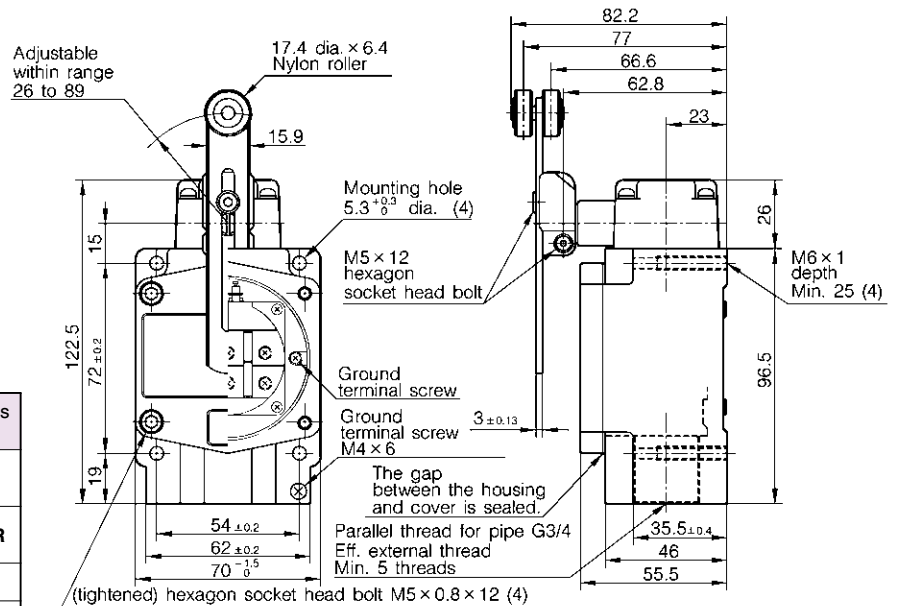
(unit: mm)

Roller lever type



| Operation | | Center-neutral | Simultaneous operation |
|-----------------|----------------------------|-------------------|------------------------|
| Catalog listing | Conduit pipe | VCX-5001 | VCX-5101 |
| | Pressure-resistant packing | VCX-5001-R | VCX-5101-R |
| O.F. | (N max.) | 15.7 | |
| R.F. | (N min.) | 2.2 | |
| P.T. | (° max.) | 10 | 12 |
| M.D. | (° max.) | 3 | |
| O.T. | (° min.) | 35 | |

Adjustable roller lever type

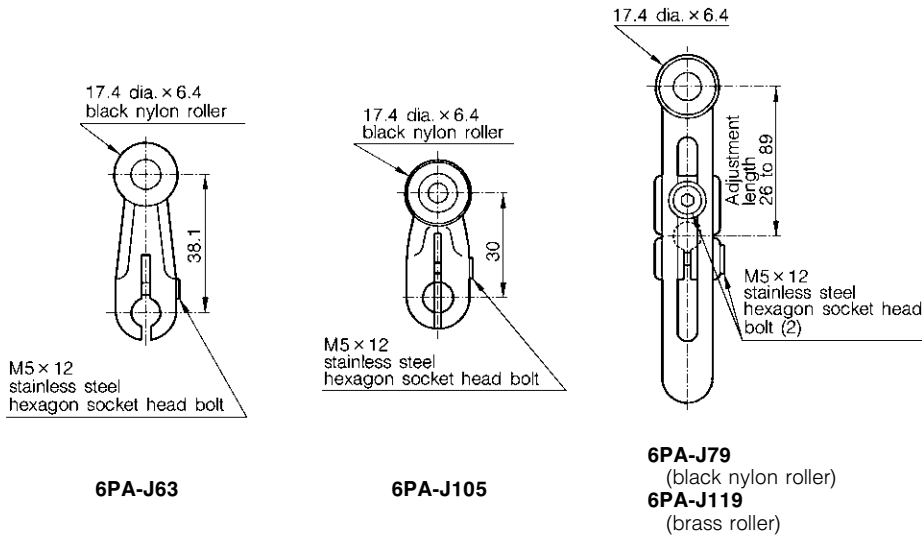


| Operation | | Center-neutral | Simultaneous operation |
|-----------------|----------------------------|-------------------|------------------------|
| Catalog listing | Conduit pipe | VCX-5003 | VCX-5103 |
| | Pressure-resistant packing | VCX-5003-R | VCX-5103-R |
| O.F. | (N max.) | 15.7 | |
| R.F. | (N min.) | 2.2 | |
| P.T. | (° max.) | 10 | 12 |
| M.D. | (° max.) | 3 | |
| O.T. | (° min.) | 35 | |

Note: These are the values when the lever length is adjusted to 38.1mm.

Auxiliary actuator for VCX explosion-proof switches

(unit: mm)



Note: About conduit sections in dimension drawings
 On conduit pipe joined type switches, a G $\frac{1}{2}$ screw is threaded into the conduit section, and a blind stopper is assembled to ensure sealability up till wiring.
 On pressure-resistant packing lead-in type switches, a screw for pipes is not threaded as an exclusive connector (sold separately) is assembled for use. Remove the blind stopper before assembling the exclusive connector.

PRESSURE-RESISTANT PACKING CONNECTOR

The pressure-resistant packing connector is an exclusive connector that is used in combination with pressure-resistant lead-in system explosion-proof switch **VCX5 0 -R**.

| Shape | Catalog listing | Protecting pipe dimensions | Applicable cord diameter |
|-------|-------------------|----------------------------|--------------------------|
| | 2PA-JEX108 | G $\frac{1}{2}$ | 7.5 to 8.5mm dia. |
| | 2PA-JEX109 | | 8.5 to 9.5mm dia. |
| | 2PA-JEX110 | | 9.5 to 10.5mm dia. |
| | 2PA-JEX111 | | 10.5 to 11.5mm dia. |
| | 2PA-JEX112 | | 11.5 to 12.5mm dia. |
| | 2PA-JEX113 | | 12.5 to 13.5mm dia. |
| | 2PA-JEX208 | G $\frac{3}{4}$ | 7.5 to 8.5mm dia. |
| | 2PA-JEX209 | | 8.5 to 9.5mm dia. |
| | 2PA-JEX210 | | 9.5 to 10.5mm dia. |
| | 2PA-JEX211 | | 10.5 to 11.5mm dia. |
| | 2PA-JEX212 | | 11.5 to 12.5mm dia. |
| | 2PA-JEX213 | | 12.5 to 13.5mm dia. |

Exploded view of pressure-resistant packing connector

