

# CP20 Pressure Switch

## Overview

This small pressure switch for limited space installation is suitable for use with hydraulic equipment, injection molding machine, extraction molding apparatus, turbine, hydraulic unit, boiler, hydraulic process line control for construction machinery and other monitoring for those long life and robustness are essential.

## Features

- Small pressure switch suitable for hydraulic related monitoring
- Consists of lever and axis which is simple and good repeatability
- Pressure receiving part utilizing sealed piston without drain pipe. High durability with 200 million cycles (Operating range: 30 to 70%max.P. Pressure cycle: 200cycles/min.)

\*To maximize performance, select full scale pressure range to indicate normal operating pressure which comes to conditions below.

For constant pressure : The maximum operating pressure should not exceed three-quarters of the full-scale range.

For fluctuating pressure: The maximum operating pressure should not exceed two-thirds of the full-scale range.

Select appropriate wetted parts compatible with process fluid (gas and liquid) which the gauge will be subjected.

Please refer to JIS B 7505-1 for details.

## Specifications 1

### Media:

Hydraulic oil

### Operating environment:

Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition

### Type:

Without terminal box (Standard), With terminal box, With reversed terminal box, With LED, With LED + reversed terminal box, With neon lamp, With neon lamp + reversed terminal box, With cable, Din terminal

### Connection:

Rc1/8, Rc1/4, Rc3/8

Orifice restriction for reducing pulsation

※Consult us for nonstandard connection.

### Wetted parts:

O-ring NBR or Fluororubber  
 ※Fluororubber is recommended for Phosphoric acid ester process media.

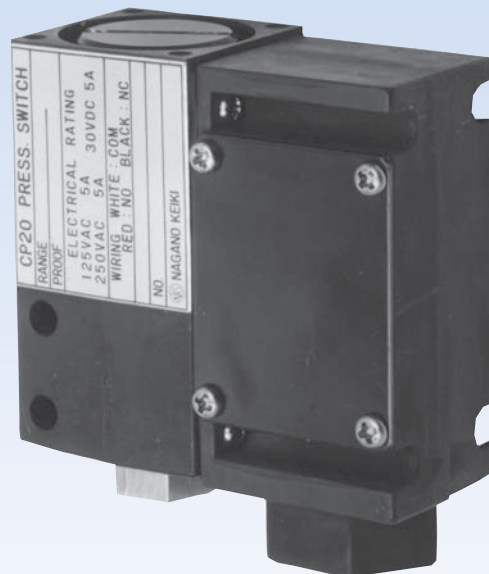
Piston SUJ2  
 Cylinder SUS316

### Pressure range:

1.4 to 7→4.2 to 21MPa

### Proof pressure:

21MPa, 35MPa (Depending on pressure ranges)



### Operating temperature:

-20 to 60°C (Non-freezing)

### Accuracy:

±2%max.P.

### Temperature coefficient:

0.1%max.P./°C

### Deadband:

Fixed 1.4 to 4.2MPa  
 (Varies depending on pressure ranges)

### Switch type:

Micro switch

### Number of contacts:

One contact

### Setting method:

Externally adjustable

### Wire:

With 500mm (Without terminal box)

### Case material · finish:

ADC12 · Alumite treatment

### Enclosure:

IP22

### Weight:

Approx.230g to 320g

# CP20

## Pressure Switch

### Specifications 2

#### Pressure range and deadband • Proof pressure:

| Pressure range MPa | Deadband MPa | Proof pressure MPa |
|--------------------|--------------|--------------------|
| 1.4 to 7           | 1.4          | 21                 |
| 2.8 to 14          | 2.8          | 35                 |
| 4.2 to 21          | 4.2          | 35                 |

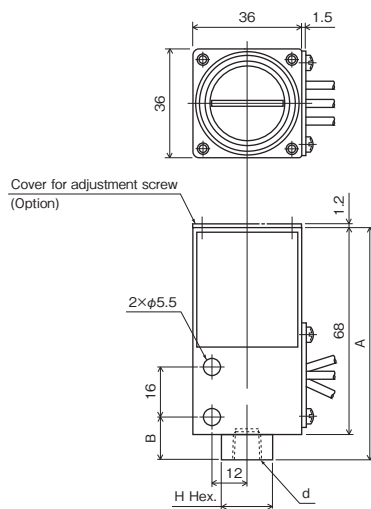
#### Electrical characteristic:

|  | Rating          |                | Withstand voltage  |
|--|-----------------|----------------|--|
|  | Resistance load | Inductive load |  |
| 125V AC  | 5 A             | 3 A            | 1500V AC<br>Between terminal and case 1 minute                 |
| 250V AC  | 5 A             | 3 A            |  |
| 30V DC   | 5 A             | 3 A            |  |
| • Inductive load is power factor 0.4A and below (AC)<br>Time constant 7ms and below (DC) |                 |                | <b>[Attention]</b><br>100V AC x 1 minute<br>for Neon lamp type |
| Micro load type clad micro switch<br>Electrical rating    125V AC  0.1A<br>30V DC  0.1A  |                 |                |  |

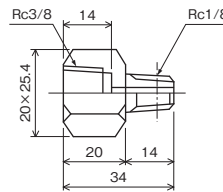
### Dimensions 1

Unit: mm

#### Without terminal box (Standard)

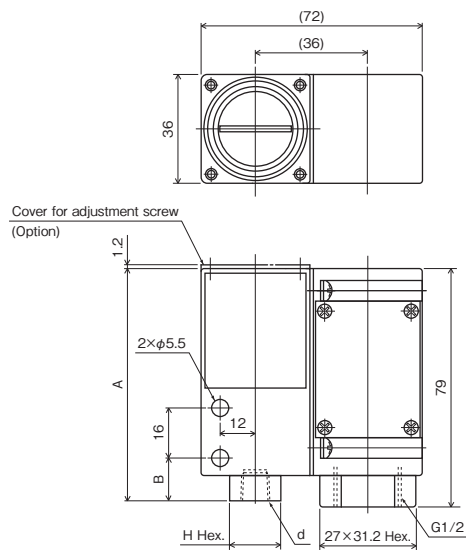


#### For all types Rc3/8 conversion joint

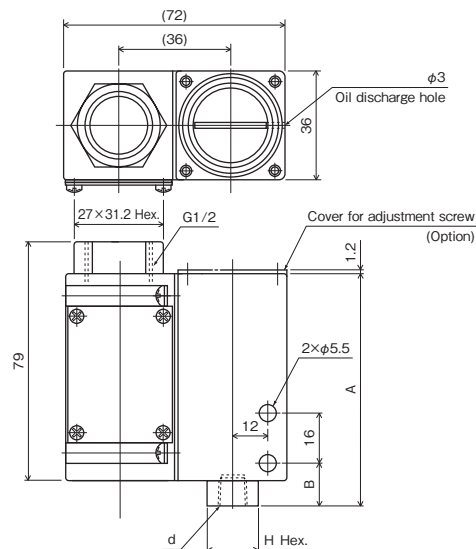


|              | d  | A  | B  | H Hex.  |
|--------------|----|----|----|---------|
| Rc1/8, Rc3/8 | 76 | 14 | 17 | 17×19.6 |
| Rc1/4        | 79 | 17 | 19 | 19×21.9 |

#### With terminal box



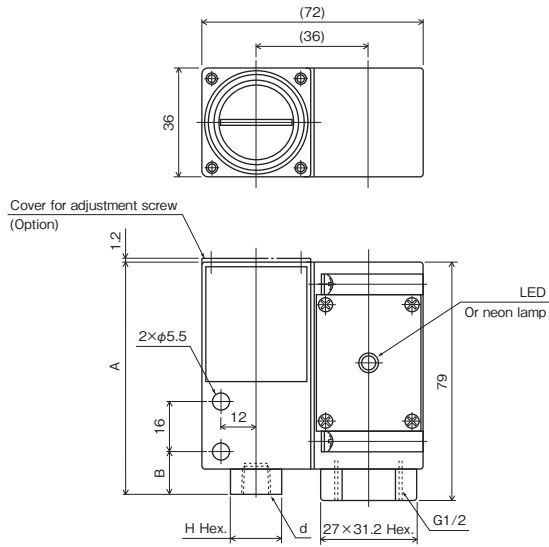
#### With reversed terminal box



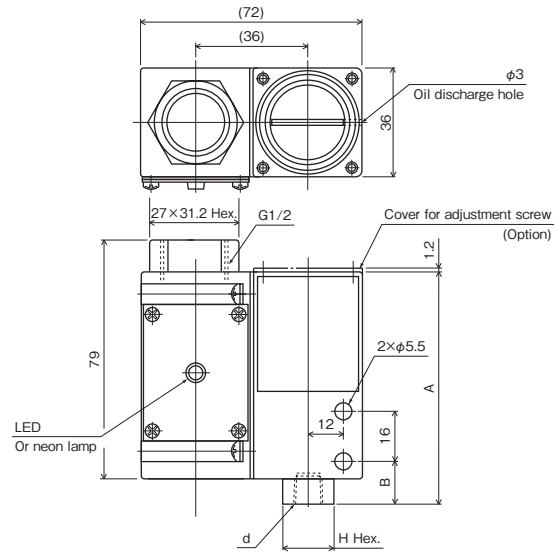
### Dimensions 2

Unit: mm

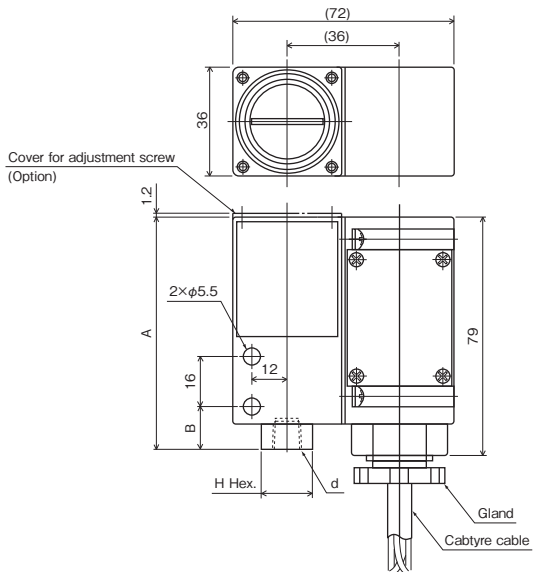
With LED/Neon lamp



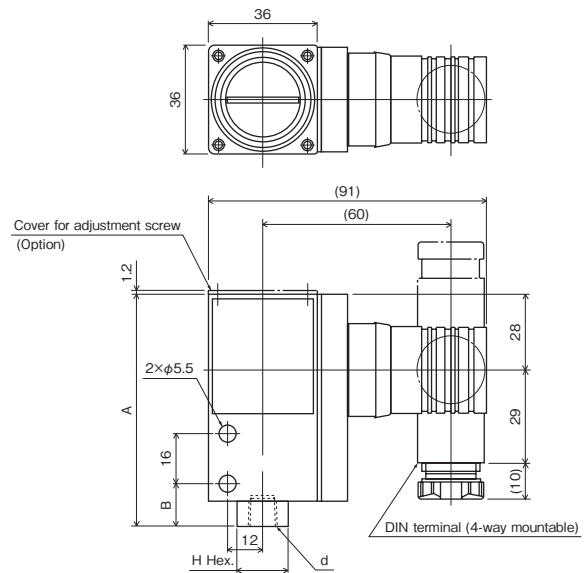
With LED + reversed terminal box/  
With neon lamp + reversed terminal box



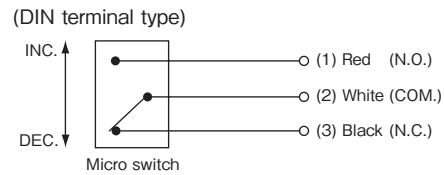
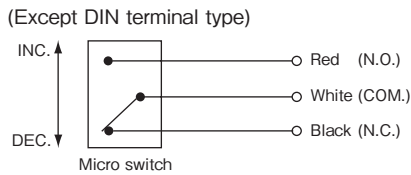
With cabtyre cable



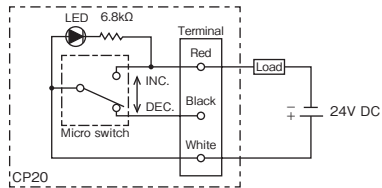
Din terminal



### Wiring

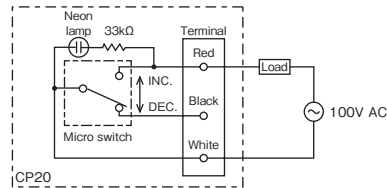


Switch action H with LED type



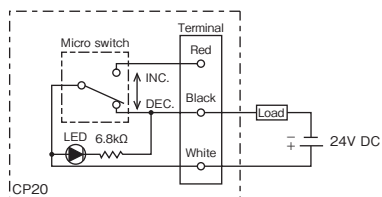
Operation status: LED turns on when micro switch turns off.  
On status turns off LED.

Switch action H with neon lamp type



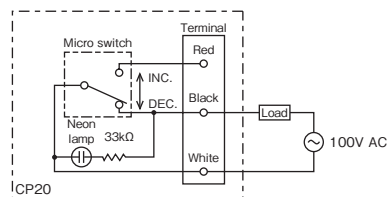
Operation status: Neon lamp turns on when micro switch turns off.  
On status turns off neon lamp.

Switch action L with LED type



Operation status: LED turns on when micro switch turns off.  
On status turns off LED.

Switch action L with neon lamp type

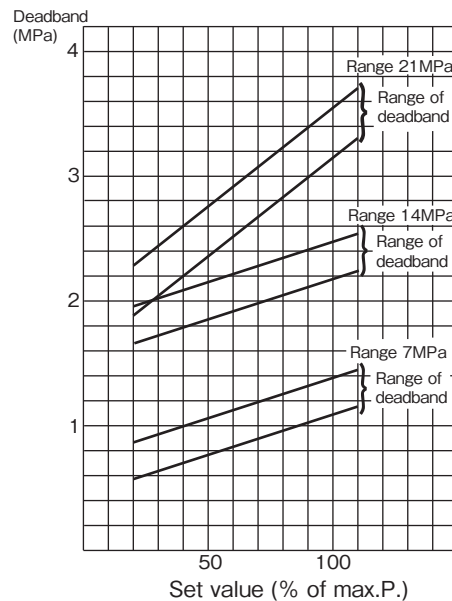


Operation status: Neon lamp turns on when micro switch turns off.  
On status turns off neon lamp.

Note) Let us know switch action when LED or Neon lamp are required.

### Characteristic of deadband

Piston type pressure switch varies width of deadband depending on switch operating position setting. The higher pressure setting point, the broader the deadband is as shown.



### Cautions

- (1) Piston and cylinder are fabricated precisely. O-ring is used too. Small dust (especially metal powders etc.) causes galling, clogging or scratch on O-ring. Ensure the use with clean hydraulic process media.
- (2) Piston is made of SUJ2 (High carbon chromium bearing steel) incompatible with corrosive media. It is not suitable for using process media other than hydraulic oil.
- (3) Ensure to select appropriate rated pressure range to prevent from shorting life caused by repeatable pressure measurement over rated pressure. Also ensure lower setting point.
- (4) Orifice restriction (Throttle) is installed for reducing pulsation. Use dampener or snubber when pulsation is sever.
- (5) When oil comes out of oil discharge hole, O-ring could be damaged in piston cylinder part. (Contact us for O-ring exchange.)
- (6) Avoid using silicon product (oil, rubber, grease or adhesive wire etc.) when Micro load gold clad type micro switch. It could lead to failure in contact.

# CP20

## Pressure Switch

### Model number configuration

Please specify the model number, each specs and the range for ordering.

Model

**C P 2 0** — [ ] [ ] [ ] — [ ] [ ] [ ] [X] [ ] [ ] [X] [X] [X] [X] [X] [ ]

Pressure Switch      ①   ②   ③      ④   ⑤   ⑥   ⑦   ⑧   ⑨   ⑩   ⑪   ⑫   ⑬   ⑭   ⑮

| Model number                |   | Product specifications  |  | Additional specifications (Optional) |  |  |
|-----------------------------|---|---|--|--------------------------------------|--|--|
| ①<br>Type                   | 1 | Without terminal box (Standard)   |  |                                      |  |  |
|                             | 2 | With terminal box   |  |                                      |  |  |
|                             | 3 | With reversed terminal box  |  |                                      |  |  |
|                             | 4 | With LED  |  |                                      |  |  |
|                             | 5 | With LED + reversed terminal box  |  |                                      |  |  |
|                             | 6 | With neon lamp  |  |                                      |  |  |
|                             | 7 | With neon lamp + reversed terminal box  |  |                                      |  |  |
|                             | 8 | With cabtyre cable  |  |                                      |  |  |
|                             | 9 | Din terminal  |  |                                      |  |  |
| ②<br>Connection             | 1 | Rc1/8   |  |                                      |  |  |
|                             | 2 | Rc1/4   |  |                                      |  |  |
|                             | 3 | Rc3/8 With conversion joint   |  |                                      |  |  |
|                             |   | Others  |  |                                      |  |  |
| ③<br>Wetted parts           | 3 | O-ring: NBR   |  |                                      |  |  |
|                             | 4 | O-ring: Fluororubber  |  |                                      |  |  |
| ④<br>Pressure range (MPa)   | 1 | 1.4 to 7  |  |                                      |  |  |
|                             | 2 | 2.8 to 14   |  |                                      |  |  |
|                             | 3 | 4.2 to 21   |  |                                      |  |  |
| ⑤<br>Switch action          | A | H : Upper limit with one contact  |  |                                      |  |  |
|                             | B | L : Lower limit with two contacts   |  |                                      |  |  |
| ⑥<br>Switch                 | 0 | Standard (Micro switch)   |  |                                      |  |  |
|                             | K | Gold clad type  |  |                                      |  |  |
| ⑧<br>Treatment              | 0 | Not required  |  |                                      |  |  |
|                             | 2 | Use no water  |  |                                      |  |  |
| ⑨<br>Other additional spec. | 0 | Not required  |  |                                      |  |  |
|                             | 1 | Required (Specify required additional spec.)<br>Cover for adjustment screw<br>nonstandard wire Cabtyre  |  |                                      |  |  |
| ⑮<br>Documents              | 0 | Not required  |  |                                      |  |  |
|                             | 1 | Required (Documents available upon request)<br>Datasheet (Drawing / Specifications)<br>Instruction manual<br>Inspection procedure Mill test report<br>Calibration test report (One-part one sheet)<br>Inspection / Traceability certificate<br>Attending inspection |  |                                      |  |  |

Please specify pressure range and unit of measure along with corresponding ordering code.

[Scope of manufacturing]

- Standard voltage for LED • Neon lamp  
LED: 24V DC  
Neon lamp: Contact us when 100V AC is in use before ordering.
- Withstand voltage for Neon lamp is 1000V AC (Between terminal and case for 1 minute).  
(1500V AC x 1 minute for standard)

\* Specify code "X" to refer N/A