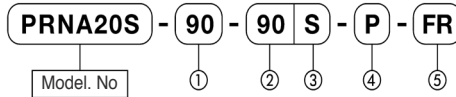


PRN Series

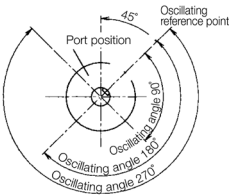
Miniature HI-ROTOR/Standard type
1S, 3S, 10S, 20S, 30S, 30D

Ordering Instructions

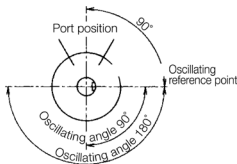


Oscillation Starting Point and Oscillation Angle

PRNA1S, PRNA3S, PRNA10S, PRNA20S, PRN30S/D
Oscillation reference point at 45°



PRNA1S, PRNA3S, PRNA10S, PRNA20S
Oscillation reference point at 90°



| | | |
|--|------------------------------|---|
| Single vane PRNA1S PRNA3S PRNA10S PRNA20S PRN30S | Double vane PRN30D | ④ Cushion No mark: No mounting hardware P : With flange plate L1 : With one foot plate L2 : With two foot plates |
|--|------------------------------|---|

| | |
|--|--|
| ① Oscillating angle 90 : 90° 180 : 180° 270 : 270° | ⑤ Type of switch units No mark: No switch FR : With CT-3 switch FU : With CT-3U switch |
|--|--|

| | |
|--|---|
| ② Oscillating reference point 90 : 90° 45 : 45° | (FR, FU : switch position adjustable) SR : With SR switch SU : With SU switch |
|--|---|

| | |
|---|---|
| ③ Port position No mark: Standard S : On the rear cover Note: S is not available for Models PRN30S and 30D. | (SR, SU: Switch position fixed) Note: Two switches are provided. Only FR and FU are available for PRNA1. |
|---|---|

- Switch units and mounts with two foot plate are not supplied to "S" (Ports on the rear cover) model.
- Switch units cannot be used on HI-ROTORs with two foot plates (L2).
- Mounting hardware comes being not fabricated.

Model Nos. of mounting hardware

| Applicable HI-ROTOR | Flange plate | Foot plate |
|---------------------|--------------|------------|
| PRNA1S | PRN1-P | PRN1-L |
| PRNA3S | PRN3-P | PRN3-L |
| PRNA10S | PRN10-P | PRN10-L |
| PRNA20S | PRN20-P | PRN20-L |
| PRN30S/D | PRN30-P | PRN30-L |

Note: Set screws are available.

Specifications

| Model No. | Unit | PRNA1S | | | PRNA3S | | | PRNA10S | | | PRNA20S | | | PRN30S | | | PRN30D | |
|-----------------------------|-----------------|-------------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|--------------------------------|-------------------------------|--|
| Vane | | Single vane | | | | | | | | | | | | Double vane | | | | |
| Fluid | | Non-lubricated air (Lubricated air) | | | | | | | | | | | | | | | | |
| Oscillating angle | degree | 90 ⁺⁴ ₀ | 180 ⁺⁴ ₀ | 270 ⁺⁴ ₀ | 90 ⁺⁴ ₀ | 180 ⁺⁴ ₀ | 270 ⁺⁴ ₀ | 90 ⁺⁴ ₀ | 180 ⁺⁴ ₀ | 270 ⁺⁴ ₀ | 90 ⁺⁴ ₀ | 180 ⁺⁴ ₀ | 270 ⁺⁴ ₀ | 90 ⁺³ ₀ | 180 ⁺³ ₀ | 270 ⁺³ ₀ | 90 ⁺³ ₀ | |
| Oscillating reference point | degree | 45, 90 | | 45 | 45, 90 | | 45 | 90 | | 45 | 45, 90 | | 45 | 45 | | | 45 | |
| Port size | | M5 | | | | | | | | | | | | Rc% | Rc% | | | |
| Minimum working pressure | MPa | 0.1 | | | | | | 0.08 | | | 0.1 | | | 0.08 | | | | |
| Operation pressure range | MPa | 0.2~0.7 | | | | | | 0.2~1 | | | | | | | | | | |
| Proof withstanding pressure | MPa | 1.05 | | | | | | 1.5 | | | | | | | | | | |
| Temperature range | °C | -5~80 | | | | | | | | | | | | -5~60 | | | | |
| Maximum frequency of use | Hz | 5 | 3 | 1.6 | 4 | 2.5 | 1 | 4 | 2.5 | 1.5 | 3.5 | 2 | 1 | 3 | 1.5 | 1 | 3 | |
| Internal volume | cm ³ | 1.4 | 1.4 | 1.5 | 3.4 | 3.4 | 4 | 9.8 | 9.8 | 12 | 17 | 17 | 21 | 37 | 37 | 43 | 34 | |
| Allowable radial load | N | 30 | | | 40 | | | 50 | | | 300 | | | 400 | | | | |
| Allowable thrust load | N | 3 | | | 4 | | | 4 | | | 25 | | | 30 | | | | |
| Allowable energy | mJ | 0.6 | | | 1.5 | | | 3 | | | 15 | | | 25 | | | | |
| Mass | kg | 0.036 | | | 0.07 | | | 0.14 | | | 0.25 | | | 0.47 | 0.46 | 0.48 | | |



- Maximum frequency of use at the supply pressure of 0.5 MPa (Unloaded).
- Please make sure to use the HI-ROTOR within allowable energy.
- HI-ROTORs with keyways are provided with keys.
- For HI-ROTORs other than standard, please contact FONTAL.

Output (Effective torque)

(Unit : N·cm)

| Model No. | | Supply pressure(MPa) | | | | | | | | |
|-------------|---------|----------------------|-----|------|------|------|------|------|------|------|
| | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 |
| Single vane | PRNA1S | 4.9 | 7.6 | 10.1 | 12.9 | 15.6 | 18.5 | — | — | — |
| | PRNA3S | 10 | 17 | 24 | 31 | 38 | 45 | — | — | — |
| | PRNA10S | 35 | 56 | 75 | 98 | 120 | 139 | — | — | — |
| | PRNA20S | 59 | 95 | 133 | 170 | 210 | 249 | 287 | 326 | 368 |
| | PRN30S | 110 | 180 | 250 | 319 | 410 | 480 | 580 | 650 | 720 |
| Double vane | PRN30D | 270 | 440 | 600 | 770 | 950 | 1120 | 1299 | 1480 | 1660 |

Oscillating time range

(Unit : s)

| Model No. | Oscillating angle | | |
|-----------|-------------------|------------|-------------|
| | 90° | 180° | 270° |
| PRNA1S | 0.03 ~ 0.6 | 0.06 ~ 1.2 | 0.09 ~ 1.8 |
| PRNA3S | 0.04 ~ 0.8 | 0.08 ~ 1.6 | 0.12 ~ 2.4 |
| PRNA10S | 0.045 ~ 0.9 | 0.09 ~ 1.8 | 0.135 ~ 2.7 |
| PRNA20S | 0.05 ~ 1.0 | 0.1 ~ 2.0 | 0.15 ~ 3.0 |
| PRN30S/D | 0.07 ~ 0.7 | 0.14 ~ 1.4 | 0.21 ~ 2.1 |



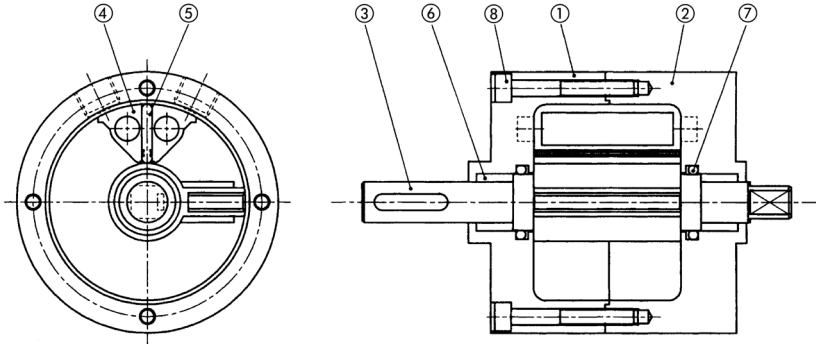
- Use HI-ROTORS within the range of the oscillating time range. Otherwise, the HI-ROTOR will tend to occur in a stick-slip motion.

HI-ROTOR with switch CT and SR type proximity switch

| Type of switch | Mounting | Load voltage (V) | Load current (mA) | Indicating lamp (Lights up at ON) | Applications |
|----------------|----------------------------|------------------|-------------------|-----------------------------------|----------------------------|
| CT-3 CT-3U | Switch position adjustable | DC5 ~ 30 | 5 ~ 200 | ○ | Relay PLC IC circuit |
| SR SU | Switch position fixed | | | | |

Construction

PRNA1S, PRNA3S, PRNA10S, PRNA20S, PRN30S



Main Components

| No. | Description | Material | |
|-----|--------------|---------------------|----------------------------------|
| | | PRN30S | PRNA1S, PRNA3S, PRNA10S, PRNA20S |
| 1 | Body A | Aluminum alloy | |
| 2 | Body B | Aluminum alloy | |
| 3 | Vane shaft | Steel + Resin + NBR | Steel + Resin + HNBR |
| 4 | Shoe | Resin | |
| 5 | Shoe seal | NBR | HNBR |
| 6 | Bearing bush | — | |
| 7 | O-ring | NBR | HNBR |
| 8 | Screws group | Steel | |

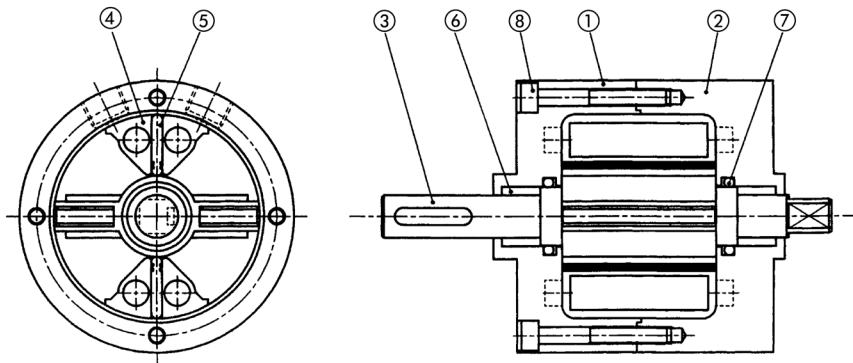
Model No. of Packing Kit

| Applicable HI-ROTOR | Model No. |
|---------------------|------------|
| PRNA1S | PRNA1S-PS |
| PRNA3S, PROA3S | PRNA3S-PS |
| PRNA10S, PROA10S | PRNA10S-PS |
| PRNA20S, PROA20S | PRNA20S-PS |
| PRNA30S, PRO30S | PRN30S-PS |

Note : A set of packings consists of part No. 3, 5 and 7.

Construction

PRNA1S, PRNA3S, PRNA10S, PRNA20S, PRN30S



Main Components

| No. | Description | Material |
|-----|--------------|---------------------|
| | | PRN30D |
| 1 | Body A | Aluminum alloy |
| 2 | Body B | Aluminum alloy |
| 3 | Vane shaft | Steel + Resin + NBR |
| 4 | Shoe | Resin |
| 5 | Shoe seal | NBR |
| 6 | Bearing bush | — |
| 7 | O-ring | NBR |
| 8 | Screws group | Steel |

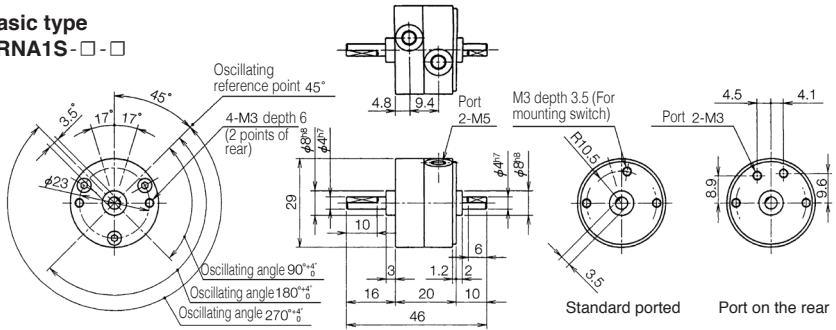
Model No. of Packing Kit

| Applicable HI- ROTOR | Model No. |
|----------------------|-----------|
| PRN30D , PRO30D | PRN30D-PS |

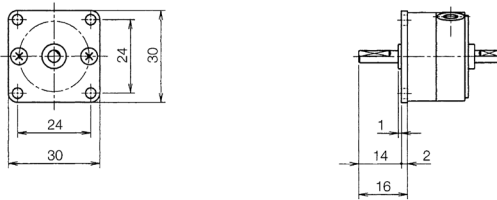
Note : A set of packings consists of part No.3, 5 and 7.

(Unit : mm)

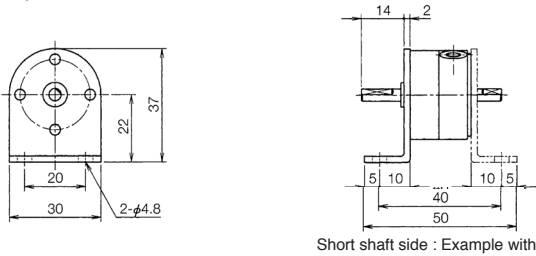
Basic type
PRNA1S-□-□



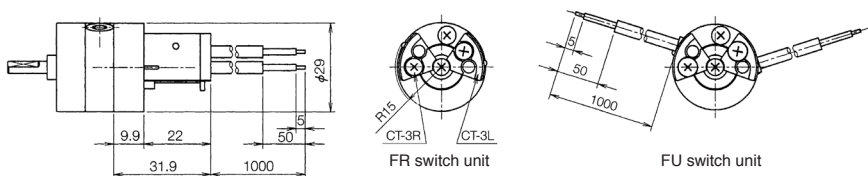
With flange plate
PRNA1S-□-□-P



With foot plate
PRNA1S-□-□-L1(L2)

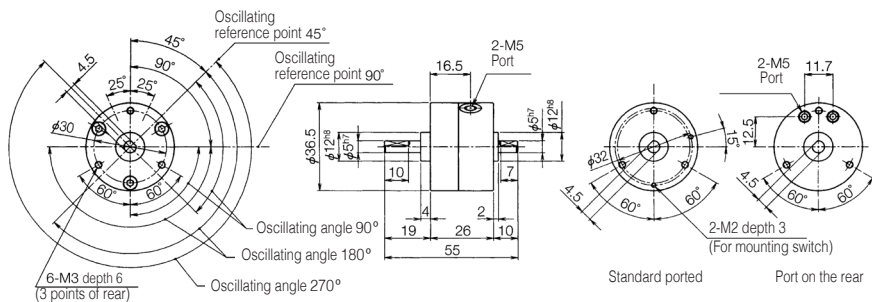


With switch unit
(Switch position adjustable type)
PRNA1S-□-□-□-FR(FU)



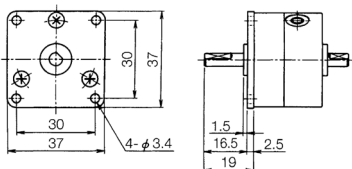
Basic type

PRNA3S-□-□□



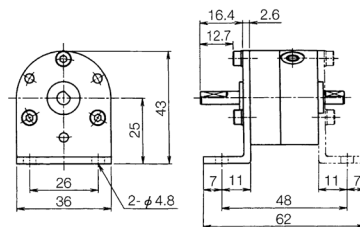
With flange plate

PRNA3S-□-□□-P



With foot plate

PRNA3S-□-□□-L1(L2)

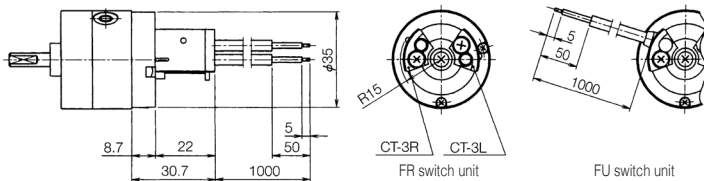


Short shaft side : Example with L2

With switch unit

(Switch position adjustable type)

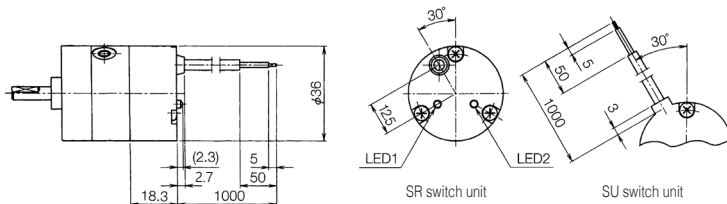
PRNA3S-□-□□-FR(FU)



With switch unit

(Switch position fixed type)

PRNA3S-□-□□-SR(SU)

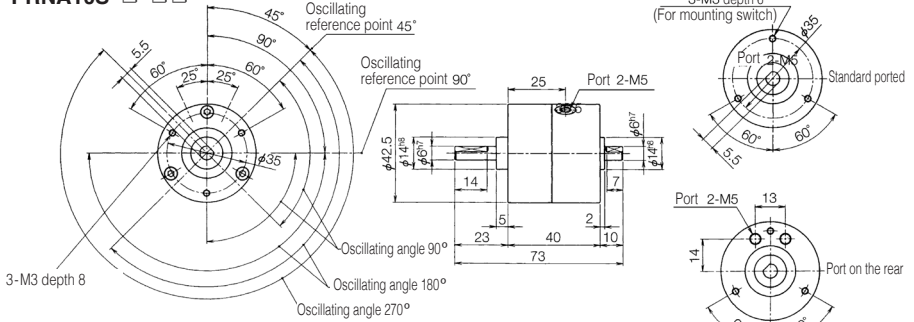


Note: LED1 comes on at the oscillating reference point and LED2 at the end of oscillation.

(Unit: mm)

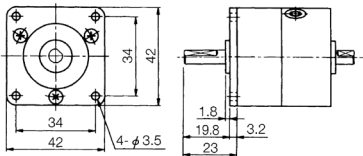
Basic type

PRNA10S-□-□□



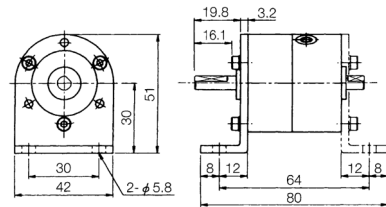
With flange plate

PRNA10S-□-□□-P



With foot plate

PRNA10S-□-□□-L1(L2)

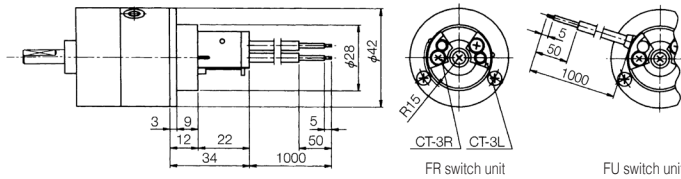


Short shaft side : Example with L2

With switch unit

(Switch position adjustable type)

PRNA10S-□-□□-FR(FU)

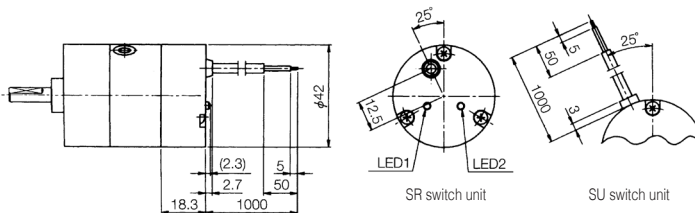


FU switch unit

With switch unit

(Switch position fixed type)

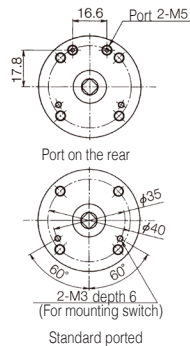
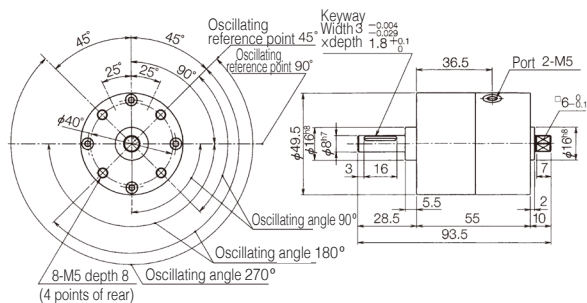
PRNA10S-□-□□-SR(SU)



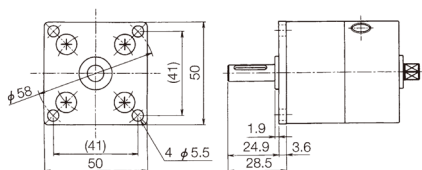
Note: LED1 comes on at the oscillating reference point and LED2 at the end of oscillation.

Note: SR and SU switch cannot be mouted on PRNA10S-270-45

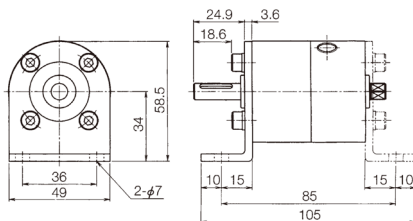
Basic type
PRNA20S-□-□□



With flange plate
PRNA20S-□-□□-P

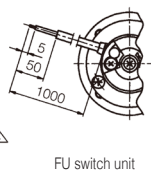
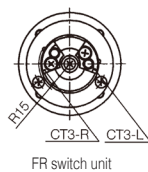
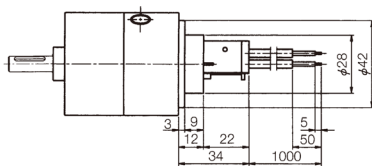


With foot plate
PRNA20S-□-□□-L1 (L2)

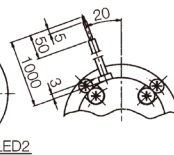
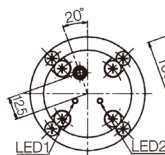
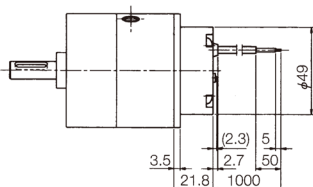


Short shaft side: Example with L2

With switch unit
(Switch position adjustable type)
PRNA20S-□-□□-FR (FU)



With switch unit
(Switch position fixed type)
PRNA20S-□-□□-SR (SU)

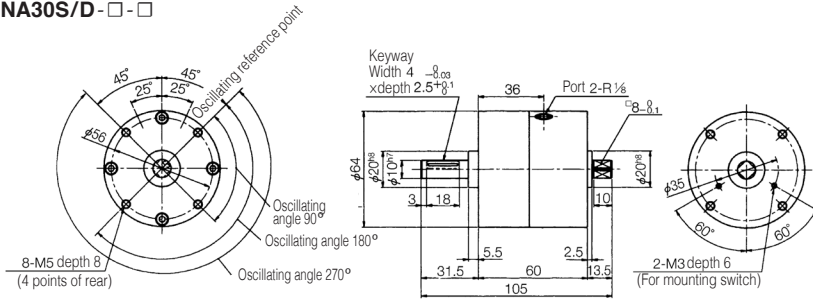


Note: LED1 comes on at the oscillating reference point and LED2 at the end of oscillation.

(Unit: mm)

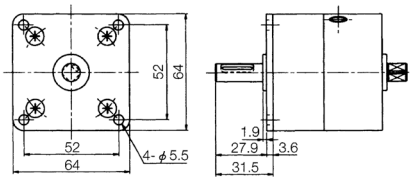
Basic type

PRNA30S/D-□-□-□



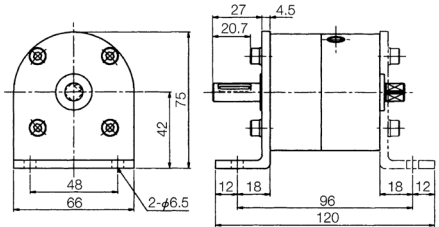
With flange plate

PRNA30S/D-□-□-□- P



With foot plate

PRNA30S/D-□-□-□- L1 (L2)

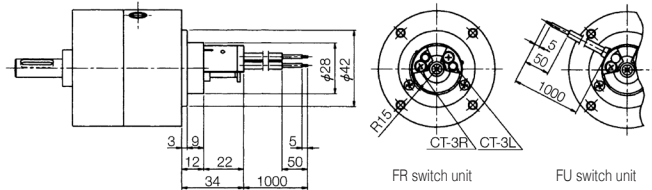


Short shaft side: Example with L2

With switch unit

(Switch position adjustable type)

PRNA30S/D-□-□-□- FR (FU)



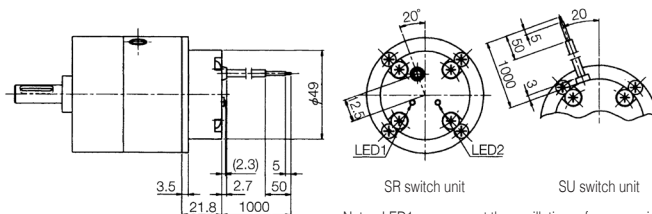
FR switch unit

FU switch unit

With switch unit

(Switch position fixed type)

PRNA30S/D-□-□-□- SR (SU)



SR switch unit

SU switch unit

Note: LED1 comes on at the oscillating reference point and LED2 at the end of oscillation.