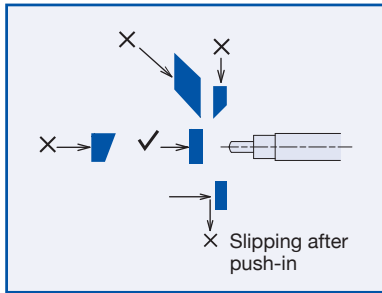


CS-TOUCH SWITCH

Selection by how to touch the objects

Straight touch



- Size: M5 / M6 / M8
- It is easy to adjust the set position thanks to fine thread.

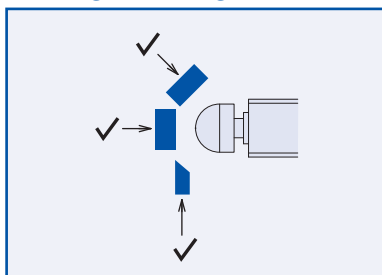


- Size: $\phi 5$ / $\phi 6$ / $\phi 8$
- With split clamp, position adjustment can be accurately done.



- Mini switch (M10×15)

Sliding and angled touch



- Size : M8
- Ball bearing type
- IP67 Waterproof



- Size : M12
- Ball bearing type
- IP65 Waterproof

Merits of CS-Touch Switch

■ Slim design allows side by side installation, wide range of variations.

From M5 size

■ High performance at reasonable price

Repetitive accuracy of 5 μm

■ No movement differential

Minute displacement can be continuously detected.



■ No temperature drift

No signal point drift due to the voltage of the power supply or self-generation.


■ Low current, low voltage switch that has a long life (10 million) when used within the rated range.

■ Product list

unit:mm

| | Standard product name | Output mode | Protective structure | Size | Page |
|--|-----------------------|---|----------------------|---------|-------|
| Metal bearing Threaded type/ Non-threaded type  | CSJ055A | A : Normally open | IP65 | M5×0.5 | P4-3 |
| | CSJS50A | | | φ5 | |
| | CS065A | | | M6×0.5 | |
| | CSS60A / CSS60B | A : Normally open B : Normally close | | φ6 | |
| | CS067A / CS067B | A : Normally open | | M6×0.75 | |
| | CSS80A | | | φ8 | |
| | CS087A | A : Normally open B : Normally close | | M8×0.75 | |
| | CSK087A / CSK087B | | M8×0.75 | | |
| Ball bearing type Threaded type  | CSP087A / CSP087B | A : Normally open B : Normally close | IP67 | M8×0.75 | P4-9 |
| | CSHP085A / CSHP085B | | IP65 | M12×1 | P4-11 |
| | CSH121A / CSH121B | | | | |

Mini type

| | | | | | |
|---|-----------|-------------------|------|---------|-------|
| Metal bearing  | CSM105WA | A : Normally open | IP65 | M10×0.5 | P4-13 |
| | CSM105CA | | IP65 | | |
| | CSMP105CA | | IP67 | | |

CS-Touch Switch

High-precision positioning switch series
www.metrol.co.jp/en

CS / CSJ / CSS / CSK / CSP

1-signal plunger type
Straight touch type (Metal bearing)



Features

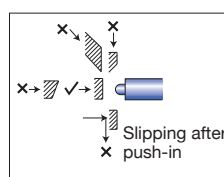
■ **Slim design allows side by side installation, wide range of variations.**

From M5 / Long stroke / Water-resistant

■ **High performance at reasonable price**

5 micron in repetitive accuracy

《Application》



Standard specification

unit:mm

| | Product name | Output mode | Stroke | Size | Contacting part | Protective structure | with LED |
|--|----------------|-------------|--------|---------|--|-------------------------|---------------|
| Cylinder type (Threaded / Non-threaded) | CSJ055A | A : NO | 2.8 | M5×0.5 | φ2 plunger, SR1.5 SUS, Hardened HRC50 | IP65 | CSJ055A-L |
| | CSJS50A | | | φ5 | | | CSJS50A-L |
| | CS065A | A : NO | | M6×0.5 | | | CS065A-L |
| | CSS60 A / B | A : NO | | φ6 | | | CSS60A / B -L |
| | CS067 A / B | B : NC | | M6×0.75 | | | CS067A / B -L |
| | CSS80A | A : NO | | φ8 | | | CSS80A-L |
| | CS087A | | | M8×0.75 | CS087A-L | | |
| Long stroke | CSK087 A / B | A : NO | 5 | M8×0.75 | φ3.5 plunger, SR3 SUS, Hardened HRC50 | CSK087A / B -L | |
| Waterproof | CSP087 A / B-A | B : NC | 2.8 | | | Sφ2 SUS, Hardened HRC50 | IP67 |

-A : Contacting part φ2 ball, SUS, Hardened HRC50

-L : LED indicator (120mm from the switch)

Common specification

unit:mm

| | |
|-----------------------|---|
| Switch structure | Dry contact |
| Output mode | A : Normally open / B : Normally close |
| Pretravel | 0.3 |
| Repeatability | Both On→Off, Off→On/ 0.005 (range) (At operating speed 50-200mm/min) * |
| Movement differential | 0 |
| Contact life time | 10million (If no specified bungle caused by vibration and used under voltage and current rating) |
| Contact force | 1N |
| Case material | SUS HRC50 |
| Standard accessory | Two fixing nuts for threaded type |

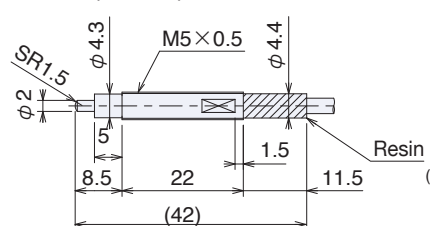
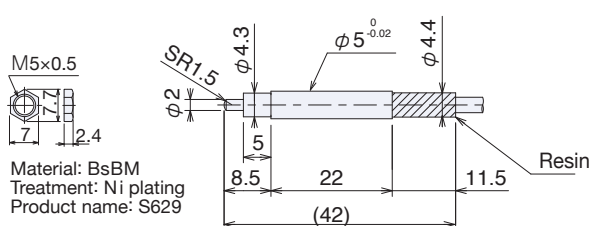
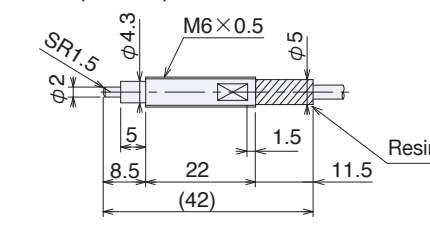
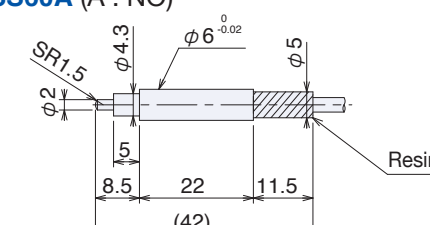
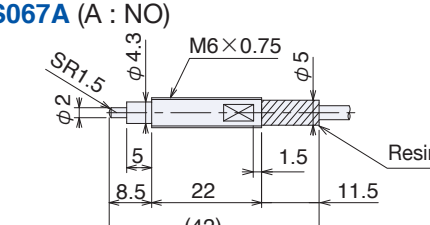
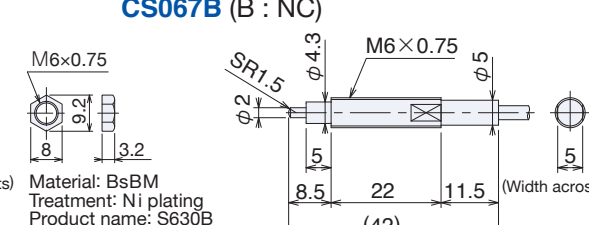
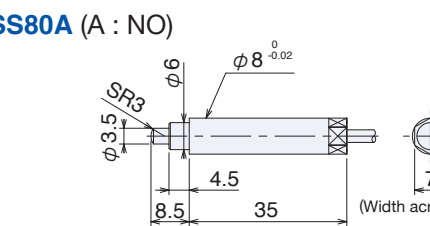
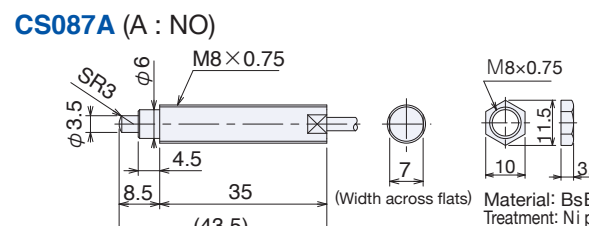
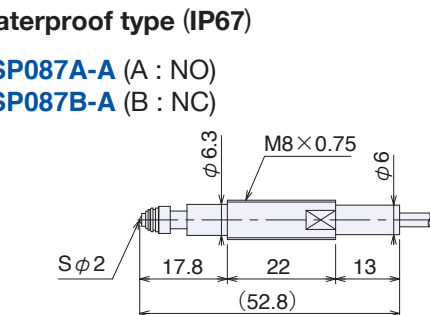
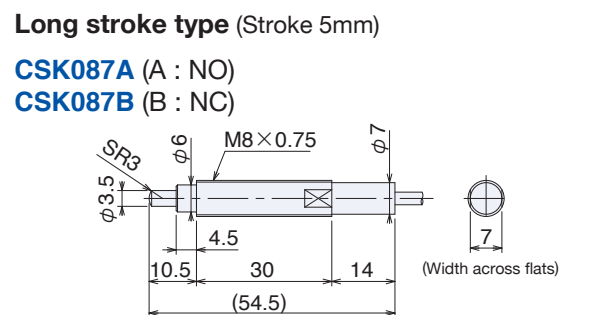
* Operating speed slower than 10mm/min is not recommended.

| | |
|------------------------------------|--|
| Cable (Refer to P7-5) | Standard length 3m Oil resistant φ2.8 / 2 cores, Tensile strength 30N, minimum bending R7 |
| Operating temperature range | 0°C-80°C (Ice-free) |
| Temperature drift | 0 (because of no amplifier) |
| Oscillation | 10-55Hz total amplitude 1.5 for X,Y,Z each direction |
| Impact | 300m/s ² for X,Y,Z each direction |
| Contact rating (Refer to P14-3) | DC5V-DC24V Steady current: 10 mA or less (rush current: 20 mA or less) When using the switch with LED, limit the current below 10mA. |

◎The following options are available.

- Transistor output (Refer to P7-3)
 - Reverse connect protection.
 - Level conversion.
 - Output current is increased to 100mA.
- Shape of contacting part
- Protective cover
- LED indicator
- Contact force
- Cable direction
- Heat-resistance (P6-4)

Outer dimension

| | | |
|---------------|---|---|
| M5 / $\phi 5$ | <p>CSJ055A (A : NO)</p>  | <p>CSJS50A (A : NO)</p>  |
| | <p>CS065A (A : NO)</p>  | <p>CSS60A (A : NO)</p>  |
| M6 / $\phi 6$ | <p>CS067A (A : NO)</p>  | <p>CS067B (B : NC)</p>  |
| | <p>CSS80A (A : NO)</p>  | <p>CS087A (A : NO)</p>  |
| M8 / $\phi 8$ | <p>Waterproof type (IP67)</p> <p>CSP087A-A (A : NO) CSP087B-A (B : NC)</p>  | <p>Long stroke type (Stroke 5mm)</p> <p>CSK087A (A : NO) CSK087B (B : NC)</p>  |

Cable direction 90°(Option)

Features

- **Slim design allows side by side installation, wide range of variations.**

From M5 / long stroke / water-resistant

- **High performance at reasonable price**

5 micron in repetitive accuracy without an amplifier



■ Representative specification (Cable direction 90°)

unit:mm

| | Product name | Output mode | Stroke | Size | Contacting part | Protective structure | with LED |
|--|-----------------|------------------|--------|-----------|--|----------------------|------------------|
| Cylinder type (Threaded/ Non-threaded) | CSJ055A-R | A : NO | 2.8 | M5×0.5 | φ2 plunger, SR1.5 SUS, Hardened HRC50 | IP65 | CSJ055A-LR |
| | CSJS50A-R | | | φ5 | | | CSJS50A-LR |
| | CS065A-R | A : NO | 2.8 | M6×0.5 | φ2 plunger, SR1.5 SUS, Hardened HRC50 | IP65 | CS065A-LR |
| | CSS60A-R | | | φ6 | | | CSS60A-LR |
| | CS067A-R | | | M6×0.75 | | | CS067A-LR |
| | CS087A-R | A : NO | 2.8 | φ8 | φ3.5 plunger, SR3 SUS, Hardened HRC50 | IP65 | CSS80A-LR |
| CSS80A-R | M8×0.75 | | | CS087A-LR | | | |
| Long stroke | CSK087 A / B -R | A : NO B : NC | 5 | M8×0.75 | | | CSK087 A / B -LR |

-R: Cable direction 90°

-L: LED indicator (120mm from the switch)

Caution: If the shape of contact is larger than the screw or case diameter,

it cannot be inserted through the installation hole. In such case, please use either a split bush or by a bracket U-cut, etc.

■ Common specification

unit:mm

| | |
|-----------------------|--|
| Switch structure | Dry contact |
| Output mode | A : Normally open / B : Normally close |
| Pretravel | 0.3 |
| Repeatability | Both On→Off, Off→On/ 0.005(range) (At operating speed 50~200mm/min)* |
| Movement differential | 0 |
| Contact life time | 10million (If no specified bungle caused by vibration and used under voltage and current rating) |
| Contact force | 1N |
| Case material | SUS HRC50 |
| Standard accessory | Two fixing nuts for threaded type |

| | |
|------------------------------------|---|
| Cable (Refer to P7-5) | Standard length 3m Oil resistant φ2.8 / 2 cores, Tensile strength 30N, minimum bending R7 Cable protector (Detachable) |
| Operating temperature range | 0°C~80°C (Ice-free) |
| Temperature drift | 0 |
| Vibration | 10-55Hz total amplitude 1.5 for X,Y,Z each direction |
| Shock | 300m/s ² for X,Y,Z each direction |
| Contact rating (Refer to P14-3) | DC5V-DC24V Steady current: 10 mA or less (rush current: 20 mA or less) When using the switch with LED, limit the current below 10mA. |

◎The following options are available.

• Transistor output (Refer to P7-3)

• Reverse connect protection.

• Level conversion.

• Output current is increased to 100mA.

• Shape of contacting part

• Protective cover

• LED indicator

• Contact force

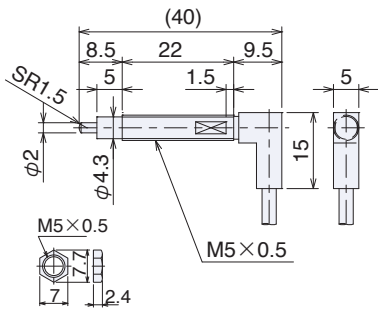
• Cable direction

• Heat-resistance (P6-4)

Outer dimension

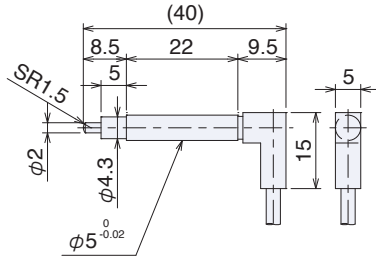
M5 / φ5 Threaded / Non-threaded Cable direction: -R (90°)

CSJ055A - R (A: NO)

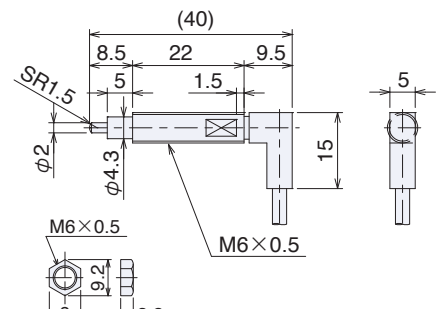


Material: BsBM
Treatment: Ni plating
Product name: S629

CSJS50A - R (A: NO)



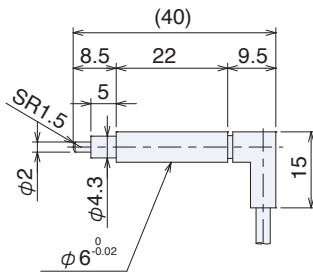
CS065A - R (A: NO)



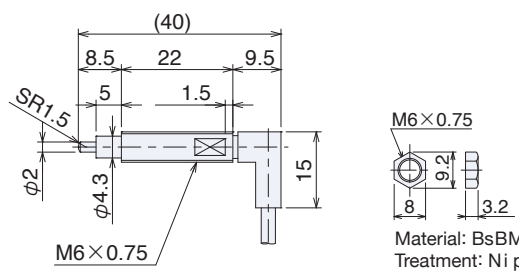
Material: BsBM
Treatment: Ni plating
Product name: S630

M6 / φ6 Threaded / Non-threaded Cable direction: -R (90°)

CSS60A - R (A: NO)



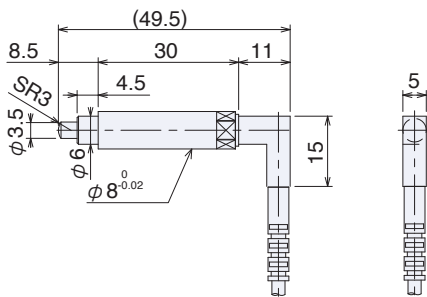
CS067A - R (A: NO)



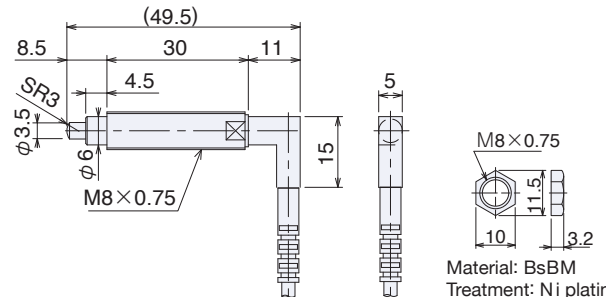
Material: BsBM
Treatment: Ni plating
Product name: S630B

M8 / φ8 Threaded / Non-threaded Cable direction: -R (90°)

CSS80A - R (A: NO)



CS087A - R (A: NO)



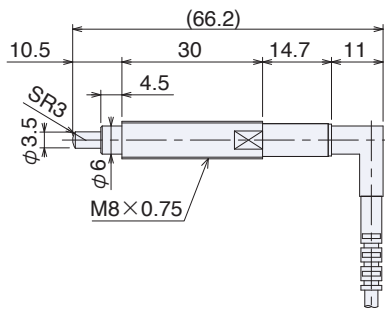
Material: BsBM
Treatment: Ni plating
Product name: S628B

Long stroke type Cable direction: -R (90°)

CSK087A - R (A: NO)

CSK087B - R (B: NC)

Stroke 5mm

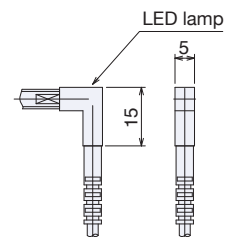
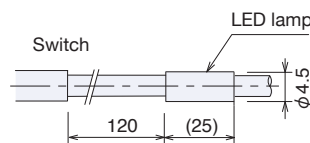


LED indicator

-L□R: Specify the position >120mm

LED indicator

-LD□R: Switch



Options

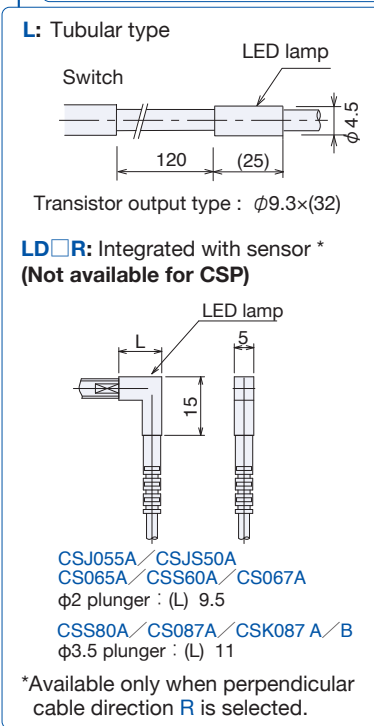
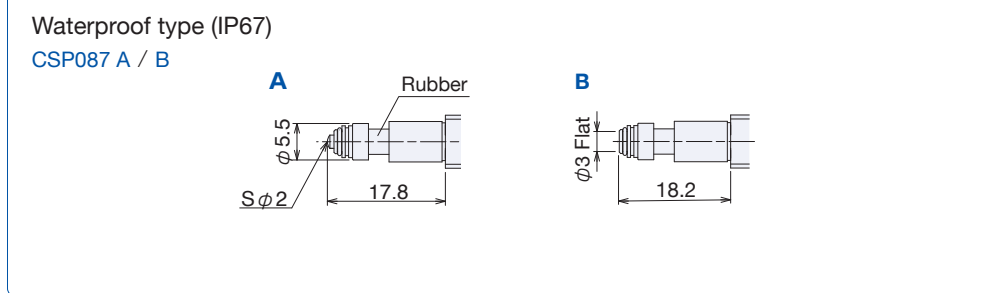
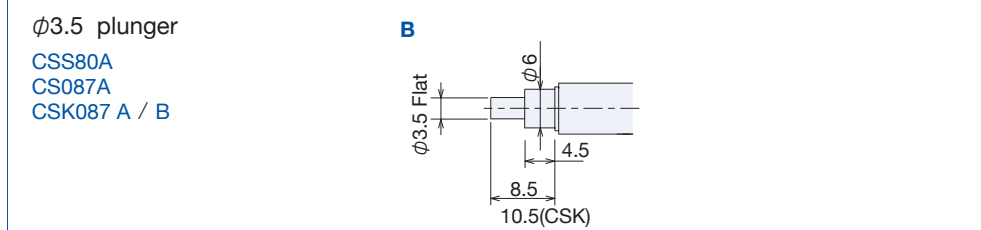
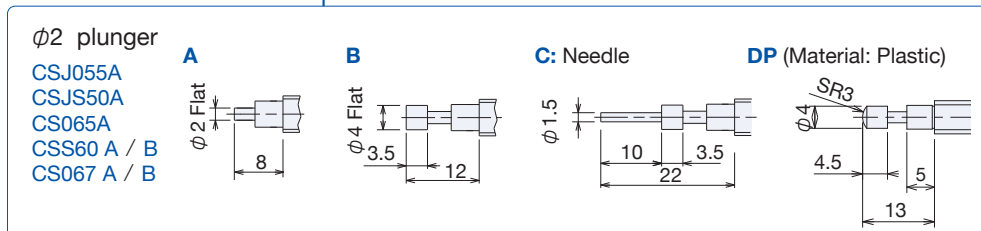
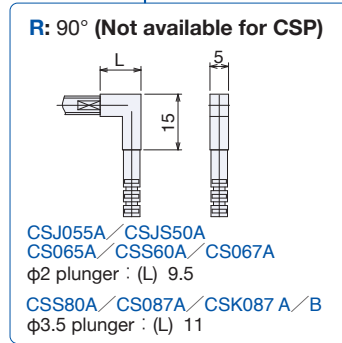
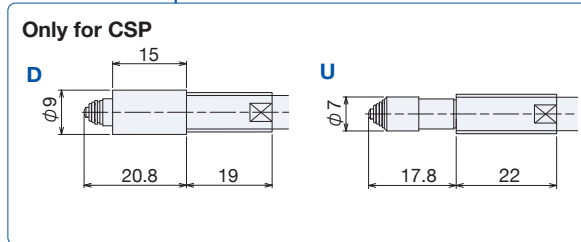
| Product name | Shape of contacting part | Protective cover | LED indicator | Contact force | Cable direction |
|---|--|--|---|--|---|
| φ2 plunger CSJ055A CSJS50A CS065A CSS60 A / B CS067 A / B | Blank: φ2 plunger SR1.5 A: φ2 flat B: φ4 flat C: Needle DP: Plastic | Blank: Not required | Blank: No LED L: 120mm from the switch LD *: Attached to the switch *Available only when perpendicular cable direction R is selected. | Blank: 1N S: 0.3N G: 0.5N H: 1.5N (The rubber scraper is not provided for "S". IP40) (Normally close type not acceptable for S and G) | Blank: Straight R: 90° (Normally close type not acceptable for R) |
| φ3.5 plunger CSS80A CS087A CSK087 A / B | Blank: φ3.5 plunger SR3 B: φ3.5 flat | Blank: No protective D: Downward U: Upward | Blank: No LED L: 120mm from the switch | Blank: 1N S: 0.3N G: 0.5N H: 1.5N (The rubber scraper is not provided for S,G. IP40) (Normally close type not acceptable for S and G) | Blank: Straight R: 90° |
| Water resistant type CSP087 A / B | A(Standard): Sφ2 ball SUS, Hardened steel B: φ3 flat | Blank: No protective D: Downward U: Upward | Blank: No LED L: 120mm from the switch | Blank: 1N | Blank: Straight |

Transistor output

TNA Added to standard product name
TNB
TPA
TPB

(Refer to P7-3)

- ▶ e.g.) CSJ055A-ALSR
- ▶ Transistor output e.g.) CSJ055ATNA



Options

Shape of contacting part

| Product name | Mark: Shape | Shape of detected objects |
|--|---|---|
| ϕ 2 plunger CSJ055A CSJS50A CS065A CSS60 A/B CS067 A/B | Blank: ϕ 2 plunger SR1.5 A: ϕ 2 flat B: ϕ 4 flat C: Needle DP: ϕ 3.5, SR3 | Flat Convex, ball (Cutters, drills) The bottom of the deep hole, Small detected surface Flat |
| ϕ 3.5 plunger CSS80A CS087A CSK087 A/B | Blank: ϕ 3.5 plunger SR3 B: ϕ 3.5 flat | Flat Convex, ball (Cutters, drills) |

| Product name | Mark: Shape | Shape of detected objects |
|---------------------------------|--|--|
| Waterproof (IP67) CSP087 A/B | A: S ϕ 2 ball carbide B: ϕ 3 flat | Flat Convex, ball (Cutters, drills) |

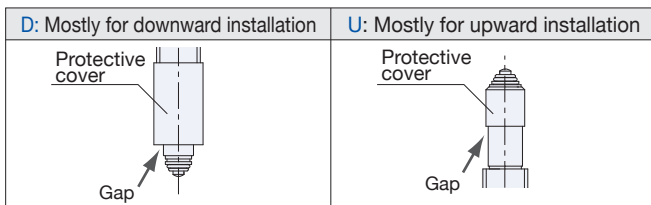
Contact force (Not available for CSP)

| Mark: Shape | Operating condition |
|-------------|---|
| S: 0.3N | No chattering caused by vibration or impact |
| G: 0.5N | (No rubber boot is provided for "S", IP40) |
| H: 1.5N | Intense vibration or impact |

Refer to P6-2 for low contact force type (0.1N)

Protective covers (CSP only)

Choose the suitable cover according to switch mounting direction so that the metal cuttings and coolant can't enter from the gaps. (Refer to P14-5)



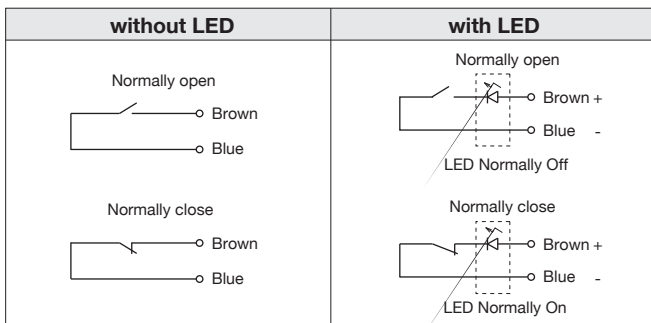
Note when installing on brackets, etc. :

When the diameter is large or a D shaped protection boot or special contact is used, pass the switch from the front side of the installation hole (remove the relay connector before installation).

Tightening torque for case screws and nuts

| | Screw / Nut | Tightening torque | Applicable models |
|-----------------|-------------|-------------------|-------------------|
| CS-Touch Switch | M5x0.5 | 2N · m | CSJ055 |
| | M6x0.5 | 4N · m | CS065 |
| | M6x0.75 | 4N · m | CS067 |
| | M8x0.75 | 7N · m | CSP087 |

Circuit diagram

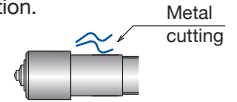


Electrical specification / circuit diagram. (Refer to P7-2)

When using the switches with LED option, limit the current below 10mA. (Refer to P14-3 "Confirmation of switch operation")

For metal cuttings and coolant (CSP only)

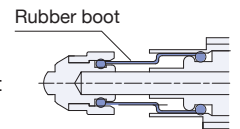
- Protective cover is strongly recommended to avoid damage from cuttings and coolant when the switch is used in machining environment. In addition, an extra cover is recommended to avoid direct hit by high-pressure coolant or heavy cuttings.
- For horizontal mounting, an extra cover prevents coolant or cuttings from entering inside and getting piled up on the body.
- Fabricate and place an extra cover to avoid metal chips adhering to the rubber boots during the grinding operation.



Protective structure

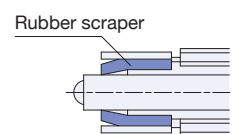
CSP type (IP67)

A rubber boot is applied to the plunger. As it has no rotation stopper, please do not twist the rubber boot by rotating the shaft.



Product other than CSP (IP65)

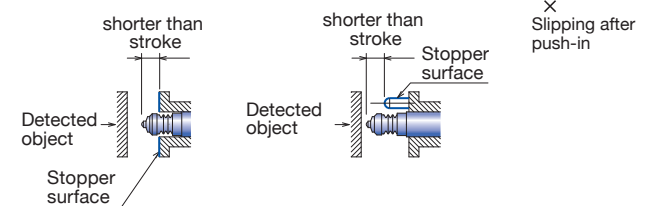
Rubber scraper is applied to the plunger. When the lip of the scraper is damaged by cuttings, the water resistance becomes impaired.



How to use

Make contact with detected objects at right angle (within deflection angle $\pm 3^\circ$)

If there is a possibility to press the plunger to the stroke end, install a stopper separately to prevent the malfunction.



CSHP

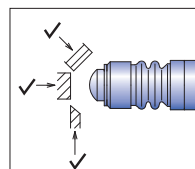
1 signal plunger type (Linear bushing bearing)
Sliding and angled touch, Waterproof type



Features

- A linear bushing bearing makes it optimum for slide and deflection angle contacts.
- IP67 protective structure, can be used in harsh environment.

《Application》



Standard specification

unit: mm

| Product name | Output mode | Contacting part | With LED |
|-----------------|---------------|--|-------------------|
| CSHP085A | A : NO | φ4.7 plunger SR3 SUS, Hardened HRC45-50 | CSHP085A-L |
| CSHP085B | B : NC | | CSHP085B-L |

-L : LED indicator (120mm from the switch)

Common specification

unit: mm

| | |
|-----------------------|--|
| Switch structure | Dry contact |
| Output mode | A : Normally open / B : Normally close |
| Pretravel | 0.3 |
| Stroke | 2.8 (axial direction) |
| Repeatability | Both On→Off, Off→On/ 0.005 (axial direction) (At operating speed 50-200mm/min)* |
| Movement differential | 0 |
| Contact life time | 10 million (If no specified bungle caused by vibration and used under voltage and current rating) |
| Protective structure | IP67 |
| Contact force | 1N (axial direction) |
| Plunger shaft | No rotation stopper |
| Case material | SUS303 |

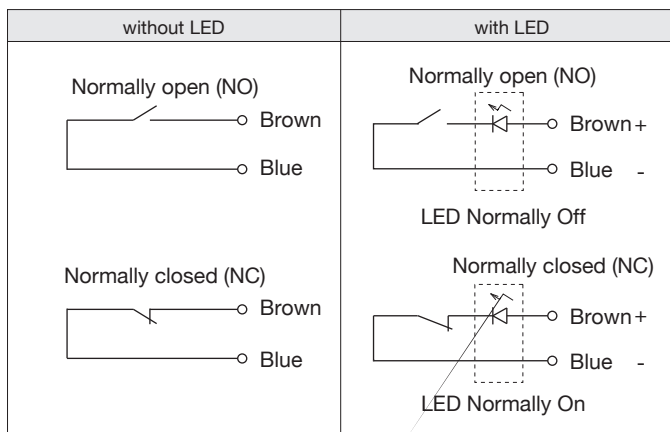
* Operating speed slower than 10mm/min is not recommended

| | |
|---------------------------------|--|
| Cable (refer to P7-5) | Standard length 2m Oil resistant φ2.8/2 cores, Tensile strength 30N, Minimum bending R7 |
| Operating temperature range | 0°C-80°C (ice-free) |
| Temperature drift | 0 (because of no amplifier) |
| Oscillation | 10-55Hz total amplitude 1.5 for X,Y,Z each direction |
| Impact | 300m/s ² for X,Y,Z each direction |
| Contact rating (Refer to P14-3) | DC5V-DC24V Steady current: 10 mA or less (rush current: 20 mA or less) When using the switches with LED option, limit the current below 10mA. |
| Standard accessory | Two fixing nuts |

◎The following options are available.

- Transistor output (Refer to P7-3)
 - Reverse connect protection
 - Level conversion
 - Output current is increased to 100mA.
- LED indicator

■Circuit diagram



Electrical specification / circuit diagram. (Refer to P7-2)

When using the switches with LED option, limit the current below 10mA.
 (Refer to P14-3 "Confirmation of switch operation")

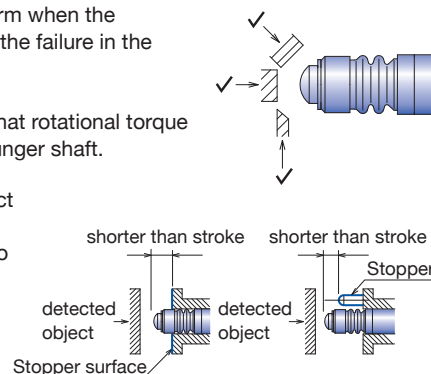
■How to use

Suitable for sliding and angled objects.

Action is limited between the tip end and the edge of the internal bearing.
 The end face may deform when the detector is hit, causing the failure in the return.

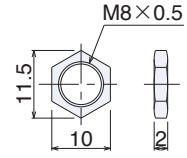
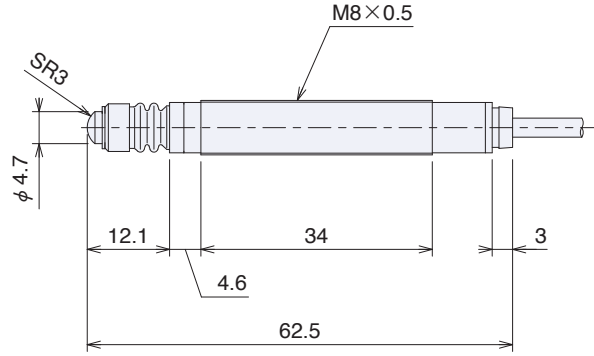
When sliding, be sure that rotational torque is not applied to the plunger shaft.

Do not press the contact to the stroke end.
 If there is a possibility to press it to the stroke end, install a stopper separately to prevent malfunction.



■ Outer dimension

CSHP085A (A : NO)
CSHP085B (B : NC)



Material : SUS303
 Product name : S641

■ Options

| Product name | LED indicator |
|------------------------------------|---|
| CSHP085A CSHP085B | Blank : No LED L : 120mm from the switch |

| Transistor output | L : Tubular type |
|--|---|
| TNA Added to standard product name TNB TPA TPB (Refer to P7-3) | <p>Transistor output type : $\phi 9.3 \times (32)$</p> |

▶ e.g.) **CSHP085A-L**

▶ Transistor output e.g.) **CSHP085ATNA**

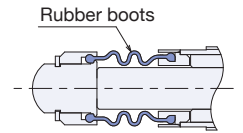
■ Tightening torque for case screws and nuts

| | Screw/Nut | Tightening torque | Applicable model |
|------------------------|-----------|-------------------|------------------|
| CS-Touch Switch | M8x0.5 | 4N·m | CSHP |

■ Protective structure

Rubber boots are used.

As it has no rotation stopper, please do not twist the rubber boot by rotating the shaft.

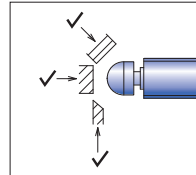




Features

- A linear bushing bearing makes it optimum for slide and deflection angle contacts.

《Application》



Standard specification

| Product name | Output mode | with LED |
|--------------|-------------|------------|
| CSH121A-A | A : NO | CSH121A-AL |
| CSH121B-A | B : NC | CSH121B-AL |

-A: S ϕ 10 hemisphere SUS, Hardened HRC 45-50

-L: LED indicator (120mm from the switch)

Common specification

| | |
|-----------------------|---|
| Switch structure | Dry contact |
| Output mode | A : Normally open / B : Normally close |
| Pretravel | 0.3 |
| Stroke | 2.8 (axial direction) |
| Repeatability | Both On→Off, Off→On/ 0.005 (axial direction) (At operating speed 50-200mm/min)*1 |
| Movement differential | 0 |
| Contact life time | 10million (If no specified bungle caused by vibration and used under voltage and current rating) |
| Protective structure | IP65 |
| Contact force | 1.5N (axial direction) |
| Plunger shaft | No rotation stopper |
| Case material | SUS 303 |

*1 Operating speed slower than 10mm/min is not recommended.

unit:mm

| | |
|------------------------------------|---|
| Cable (Refer to P7-5) | Standard length 2m Oil resistant ϕ 4 / 2 cores, Tensile strength 30N, minimum bending R7 |
| Operating temperature range | 0°C-80°C (Ice-free) |
| Temperature drift | 0 (because of no amplifier) |
| Oscillation | 10-55Hz total amplitude 1.5 for X,Y,Z each direction |
| Impact | 300m/s ² for X,Y,Z each direction |
| Contact rating (Refer to P14-3) | DC5V-DC24V Steady current: 10 mA or less (rush current: 20 mA or less) When using the switch with LED, limit the current below 10mA. |
| Standard accessory | Two fixing nuts |

◎The following options are available.

- Transistor output (Refer to P7-3)
- Shape of contacting part
- Reverse connect protection.
- LED indicator
- Level conversion.
- Contact force
- Output current is increased to 100mA.
- Cable

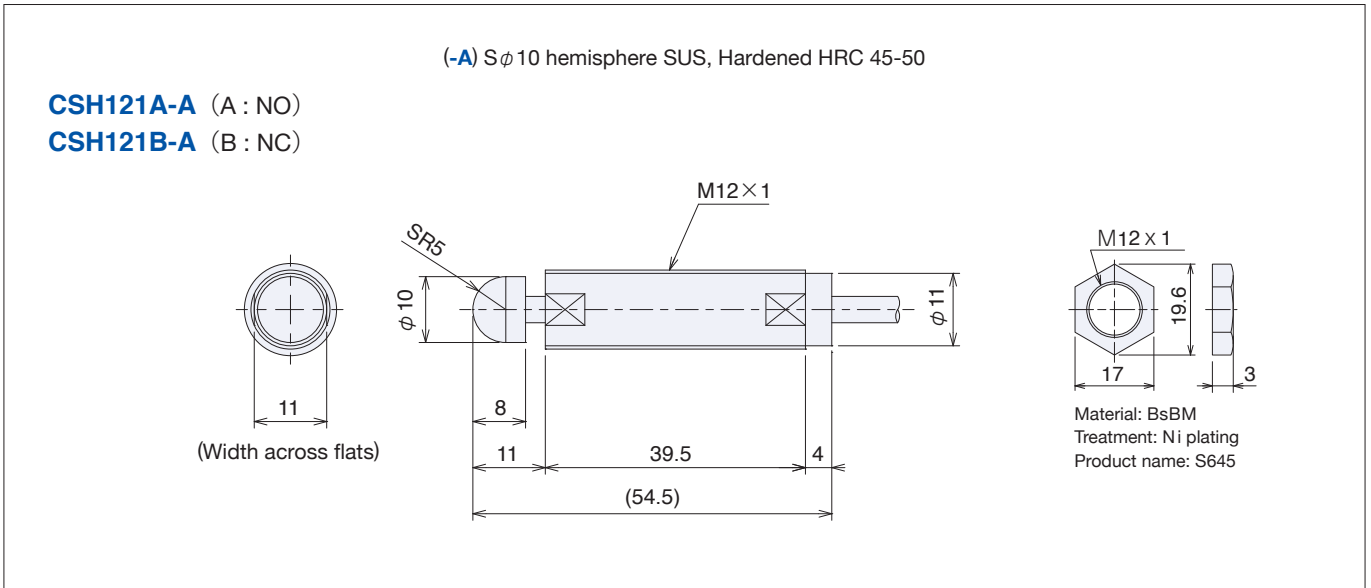
■Circuit diagram

| without LED | with LED |
|----------------------------|----------------------------|
| <p>Normally open (NO)</p> | <p>Normally open (NO)</p> |
| <p>Normally close (NC)</p> | <p>Normally close (NC)</p> |

Electrical specification / circuit diagram. (Refer to P7-2)

When using the switches with LED option, limit the current below 10mA. (Refer to P14-3 "Confirmation of switch operation")

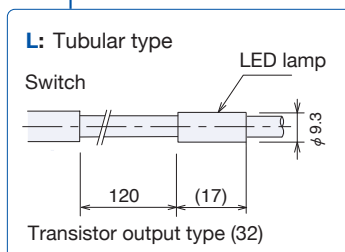
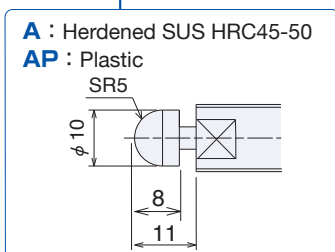
Outer dimension



Options

| Product name | Shape of contacting part | LED indicator | Contact force |
|--------------------|--|---|--|
| CSH121A CSH121B | A(Standard): Sφ10 hemisphere SUS, Hardened HRC45-50 AP: Sφ10 hemisphere plastic | Blank: No LED L: 120mm from the switch | Blank: 1.5N J: 0.8N (The rubber scraper is not provided for "J", IP40) |

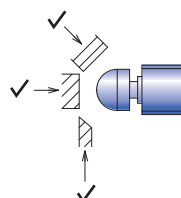
| Transistor output |
|--|
| TNA Added to TNB standard TPA product TPB name (Refer to P7-3) |



- ▶ e.g.) CSH121A-AL
- ▶ Transistor output
e.g.) CSH121BTNA-A

How to use

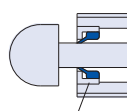
Suitable for sliding and angled objects.
Action is limited between the tip end and the edge of the internal bearing.
The end face may deform when the detector is hit, causing the failure in the return.



When sliding, be sure that rotational torque is not applied to the plunger shaft.

Protective structure

Rubber scraper is applied to the plunger.
When the lip of the scraper is damaged by cuttings, the water resistance becomes impaired.



Rubber scraper

Shape of contacting part

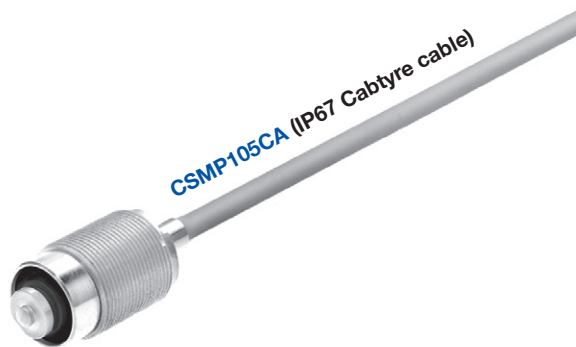
| Mark: Shape | Operating condition |
|------------------------------------|----------------------------------|
| A: Sφ10 hemisphere | Flat (sliding, rotating objects) |
| AP: Sφ10 hemisphere plastic | |

Contact force

| Mark: Shape | Operating condition |
|----------------|--|
| J: 0.8N | The rubber scraper is not provided for "J". (IP40) |

Tightening torque for case screws and nuts

| | Screw / Nut | Tightening torque | Applicable model |
|-----------------|-------------|-------------------|------------------|
| CS-Touch Switch | M12x1 | 12N · m | CSH |

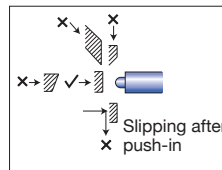


Features

■ Mini size

Suitable for machines required to be small and for narrow installation space.

《Application》



■ Standard specification

| Output mode | Pretravel | Product name | Cable | Protective structure | Size | unit:mm with LED |
|-------------------|-----------|--------------|-----------------|----------------------|---------|---------------------|
| A : Normally open | 0.3 | CSM105WA | Core-wire cable | IP65 | M10×0.5 | |
| | | CSM105CA | Cabtyre cable | | | CSM105CA -L |
| | | CSMP105CA | | IP67 | | CSMP105CA -L |

-L: LED indicator
(120mm from the switch)

■ Common specification

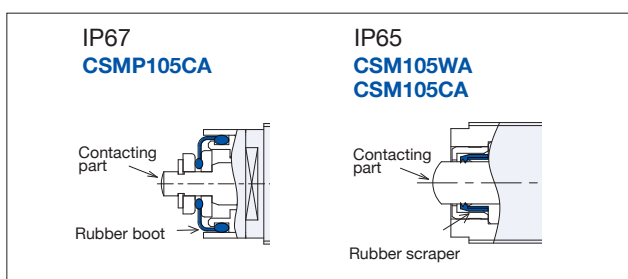
| | |
|--------------------------|---|
| Switch structure | Dry contact |
| Output mode | A : Normally open |
| Stroke | 1.5 |
| Repeatability | Both On→Off, Off→On/ 0.003 (range) (At operating speed 50-200mm/min)*1 |
| Movement differential | 0 |
| Contact life time | 10million (If no specified bungle caused by vibration and used under voltage and current rating) |
| Contact force | 1N |
| Case material | SUS303 |
| Contacting part material | SUS HRC50 |

*1 Operating speed slower than 10mm/min is not recommended.

◎ The following options are available.

- Transistor output (Refer to P7-3)
- LED indicator
- Reverse connect protection.
- Level conversion.
- Output current is increased to 100mA.

■ Protective structure



■ For metal cuttings and coolant

The products in this series are not suitable for operating in a harsh machining environment (even IP67 type) where coolant contains metal cuttings.

■ Tightening torque for case screws and nuts

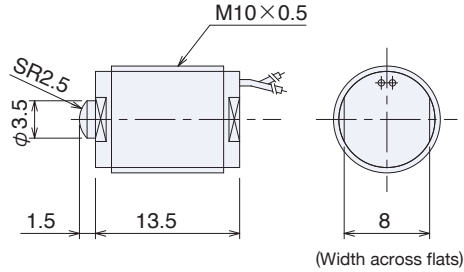
| | Screw / Nut | Tightening torque | Applicable model |
|-----------------|-------------|-------------------|------------------|
| CS-Touch Switch | M10x0.5 | 8N · m | CSM |

Outer dimension

Output mode A : NO

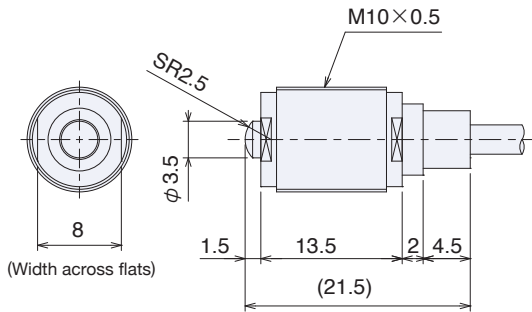
Core-wire cable (IP65)

CSM105WA (A: NO)



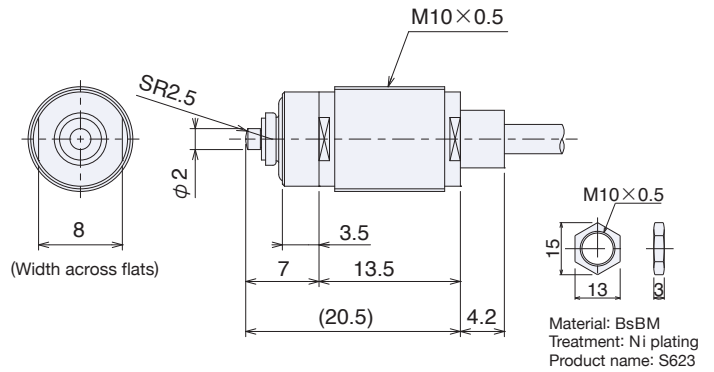
Cabtyre cable (IP65)

CSM105CA (A: NO)



Cabtyre cable Waterproof (IP67)

CSMP105CA (A: NO)

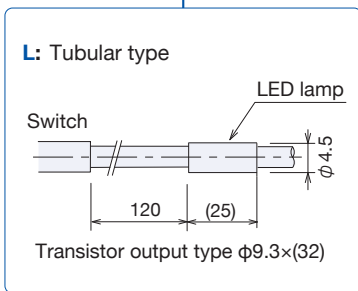


Material: BsBM
Treatment: Ni plating
Product name: S623

Options

| Standard product | LED indicator |
|--|--|
| Core-wire cable CSM105WA | Blank: No LED |
| Cabtyre cable CSM105CA CSMP105CA | L: 120mm from the switch *Only for cabtyre cable |

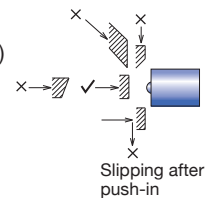
| Transistor output | |
|------------------------|--------------------------------|
| Only for cabtyre cable | |
| TNA | Added to standard product name |
| TNB | |
| TPA | |
| TPB | |
| (Refer to P7-3) | |



- ▶ e.g.) **CSM105CA-L**
- ▶ Transistor output e.g.) **CSM105CATNA**

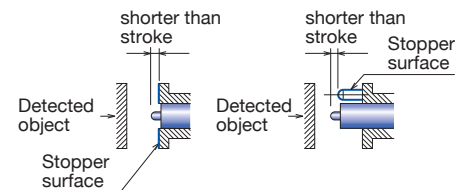
How to use

Make contact with detected objects at right angle (within deflection angle $\pm 3^\circ$)

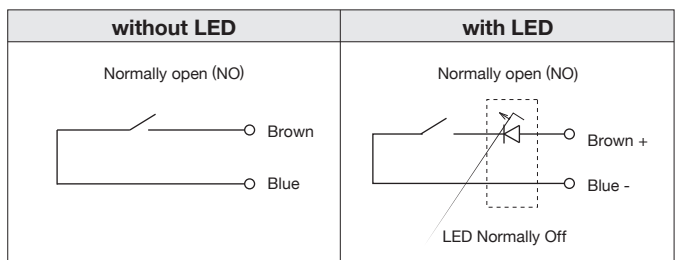


Do not press the plunger to the stroke end. It may cause malfunction due to the impact.

If there is a possibility to press the plunger to the stroke end, install a stopper separately to prevent the malfunction.



Circuit diagram



Electrical specification / circuit diagram. (Refer to P7-2)

When using the switches with LED option, limit the current below 10mA.(Refer to P14-3 "Confirmation of switch operation")