

# CS-touch Sensors 2-Class Discrimination of $\pm$ NG and OK

## Features

- These sensors contain two built-in touch sensors without using a logic circuit (sequencer) for discriminating between -NG, OK, +NG, and enable the signal to be output directly with a two-wire cable for extremely low cost.
- Adjustable OK range.  
Failsafe operation since the output is on.

## Application

When discriminating dimensions or position, the three classes of -NG, OK, and +NG are classified into two classes of OK and NG by collectively treating -NG and +NG as NG.



PAT.

## Mechanical specifications

unit : mm

Type	CSCS	CSCSP
Bearing type	Metal bearing	
Mode	Signal-1 A : NO (normally open) Signal-2 B : NC (normally closed)	
Protective structure	I P65 (drip-proof)	I P67 (water-resistant)
Stroke	3	
Signal-1 pretravel	0.3	
Signal-2 setting range	Adjustable 2.7 (recommend 0.03 for minimum range)	
Repeatability	0.01	
Contact life	10 million times	
Contact force	1N	
Working temperature range	0~80°C (with the exception of freeze)	
Contact material	SUS HRC45~50	
Cable	3m Oil-resistant 2-core $\phi$ 4	

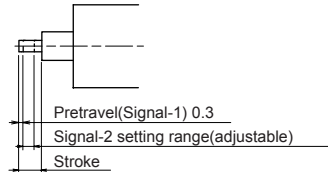
※ The signal interval is set to the default setting of 1mm when shipped.

Orders for heat-resistant (ambient temperature: 200 °C) and sensors provided with vacuum, non-magnetic and other special specifications are also accepted. Please consult your dealer.

## Setting of Signal Operating Point

### 1) When Using at the default signal interval of 1mm

- ① Install the sensor in the equipment (bracket) and install a single master corresponding to the Signal-1 point or Signal-2 point.
- ② Slightly move the stem or bracket and fix in position at the location where the LED switches between OFF and ON.



### 2) When changing the signal interval from the default setting

—External sensors replacement method—

- ① Preset the dimension between the two signal points of the sensor with Signal-2 adjustment screw from outside using a block gauge, microhead or other instrument.
- ② Slightly move the stem or bracket and fix in position at the location where the LED switches between OFF and ON.

※ This can be performed easily by using an external changing tool or signal checker (refer to the diagram at right).

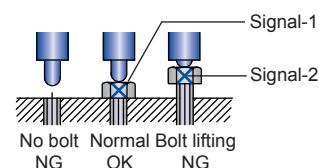
### 3) Signal setting inside equipment

When signals can be set easily on the equipment using the signal adjustment screw and when the signal ratio is not compatible with 1:1 when mediated by a lever and so forth.

- ① Attach the sensor to the bracket and install a master corresponding to Signal-1 point.
- ② Slightly move the stem or bracket and fix in position at the location where the LED switches between OFF and ON.
- ③ Next, install a master corresponding to Signal-2 point, turn the adjustment screw on top and fix in position with the locking clamp nut at the location where the LED switches from ON to OFF.

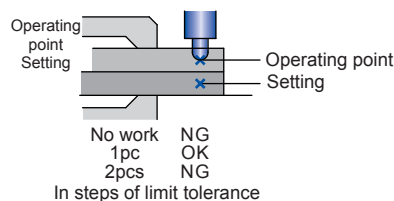
## Example

### Bolt tightness check



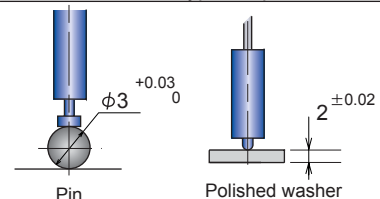
Facilitates checking of bolt tightness during automated assembly

### Overlap check



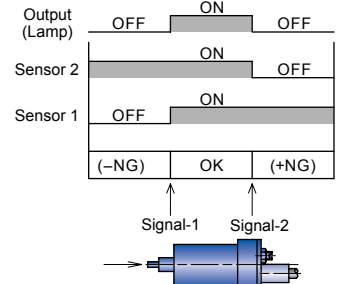
In steps of limit tolerance  
Overlap check is performed during loading work during robot transport

### Classification of 2 types of pass-fail dimensions

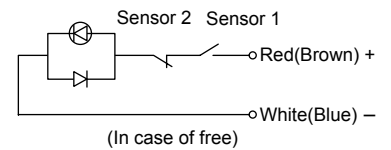


Three classes of +NG, OK and -NG can be classified into two classes of OK and NG without a sequencer.

## Logic diagram



## Circuit diagram



## Electrical specifications

☞ P5

### External changing tool



※ Supply microhead by customers

### Signal Checker



- When using an external changing tool, the signal operating point can be confirmed locally (by using a battery, equipped with an LED display).
- The cable ends are connected with a clip.
- This is also convenient for adjusting and testing when not using an external changing tool.