SECTION

10

Signal Indicators

- Signal Gauges
- Signal Checker
- Signal Box
- Signal Gauge Set-Up
- Signal Gauge Connections Diaglam

Signal Gauges/Signal Checker

0.001mm, 0.01mm and 0.05mm Type

S-5
- With its high resolution of 0.001mm scale, it is most suitable for judgement of the values measured on finished parts with high accuracy.

S-7
- With its resolution of 0.01mm scale, it is generally used. Its pointer is in an anti-shock structure so as to give stable discriminating signals.

S-9
- With its most gross scale of 0.05mm, it is applicable to select grossly worked parts and as cast parts at the low-est costs.

SC-2A
- Once its tolerance is set, a dial gauge is dismounted before using it so that its endurance is really improved. With its large tolerance setting range of 3mm, it is most suitable for judgement of the measured values in a wide tolerance range.

S-5

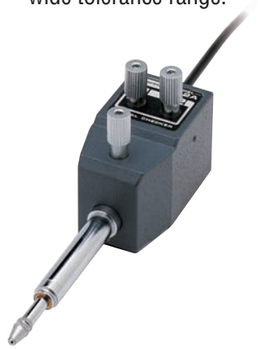
Graduation: 0.001mm
Measurement range: 0.1(±0.05)mm

S-7

Graduation: 0.01mm
Measurement range: 1.0(±0.5)mm

S-9

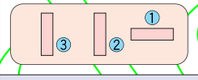
Graduation: 0.05mm
Measurement range: 3.0(±1.5)mm



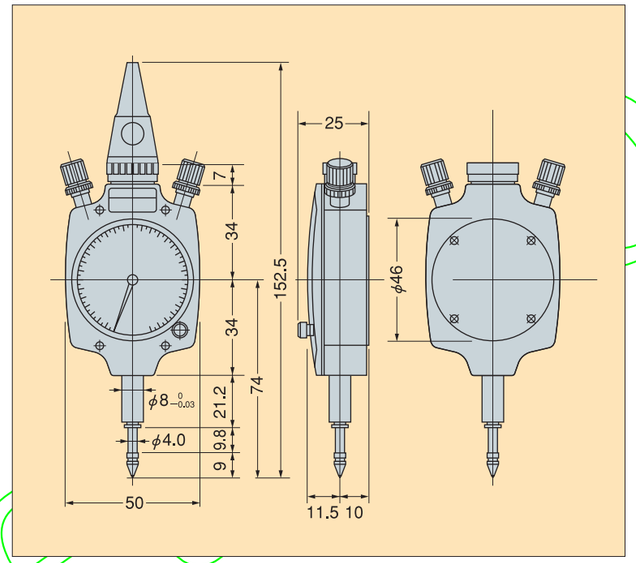
SC-2A

Measurement range: 3mm

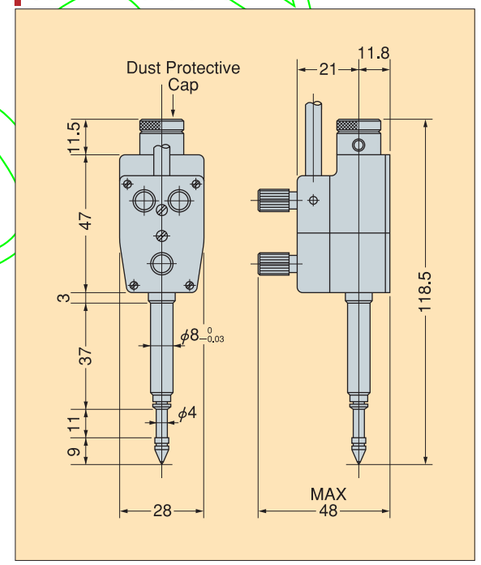
Specifications

Model	S-5	S-7	S-9	SC-2A
Spindle Movable Range	3mm	3mm	4mm	10mm
Graduation	0.001mm	0.01mm	0.05mm	※ In SC-2A type, the minimum readable value depends on a dial gauge to be attached.
Tolerance Setting Range	0.1 (±0.05) mm	1.0 (±0.5) mm	3.0 (±1.5) mm	3mm
Accuracy	±0.002mm	±0.005mm	±0.025mm	±0.005mm
Measuring Force	Less than 1.2N (120gf)			
Contact capacity	MAX DC24V 20mA			
Number of judgement Stages	Three stages of −NG, OK and +NG			
Cord length	2m			
Contact point	X-2A			
Stem diameter	$\phi 8\ ^{0}_{-0.03}$mm			
Operating temperature range	0~60°C			
Options	Code Length 5m 10m ／ Back cover with Lug (GB-1A)			Code Length 5m 10m
Dial indicator for setting	——			Model 107F, 5F
Weight	180g			150g
Cable signal table		**S-5, S-7, S-9** ① ···COM (blue) black — NG with ① and ② at ON ② ····−NG (red) + NG with ① and ③ at ON ③ ····+NG (white) OK with ①, ②,and ③ at OFF		**SC-2A** ① ···COM (blue) black — NG with ①, ②,and ③ at OFF ② ···OK (red) OK with ① and ② at ON ③ ····+NG (white) + NG with ①, ②,and ③ at ON
Caution	● When the current of 10 to 20 mA is used to drive a photocoupler,etc.,the contact may be worn a little earlier. ●In SC-2A type, the COM terminal is body-grounded (If leak current is found in other devices, put a gauge into floating status before mounting it). ● In SC-2A type, a spindle can be set in a range from its free status to 3mm. Although it may be movable in excess of this limit, you cannot set it in such an excessive level in order to protect the spindle. ● In SC-2A type, when a dial gauge is dismounted after setting the tolerance, never forget to mount a dust protective cap.			

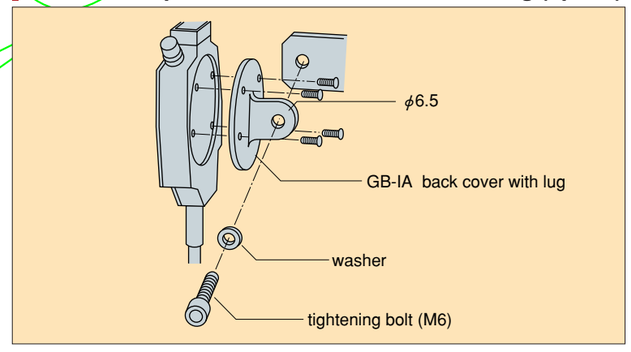
Outer Dimension S-5, S-7 & S-9



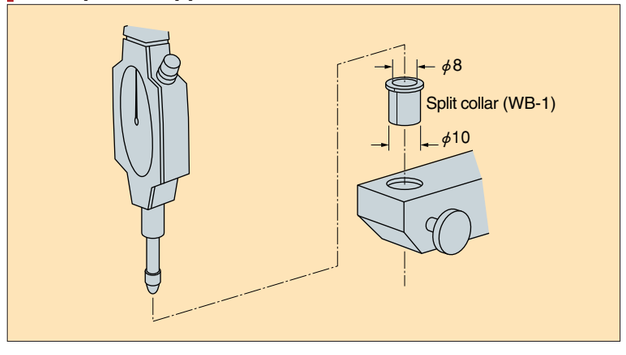
Outer Dimension SC-2A



GB-1A Example of mounted back cover with lug (option)



Example of supported stem

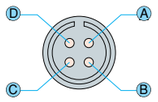


Signal Box

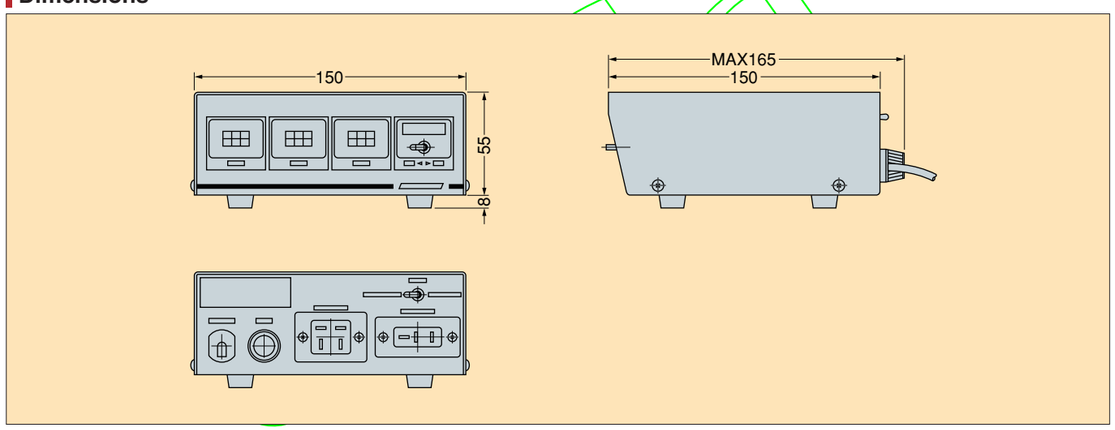
- Long life LED makes a replacement of lamp unnecessary.
- It is equipped with judgement output by relay contact.

SB-3

Specifications

Model	SB-3
Display Colors	−NG (red), OK (green), +NG (yellow)
Relay contact capacity	AC200V (5VA) MAX (resistance load)
Outer Dimensions	(L)150mm×(H)63mm×(D)160mm
Cord length	2m (with plug)
Power supply	AC100V, AC200V 50 ／ 60Hz
Usable Gauges	S-5, S-7, S-9, SC-2A
Relay contact output	Three stages of −NG, OK, and +NG
Weight	1300g
Output of Relay Contacts	 Ⓐ.....+NG Ⓑ..... COM Ⓒ.....OK Ⓓ.....−NG

Dimensions



Signal Controller

- This is incorporated in a control panel. All its output and input terminals are connected to the terminal board.
- The large relay contact capacity eliminates previous contact troubles.

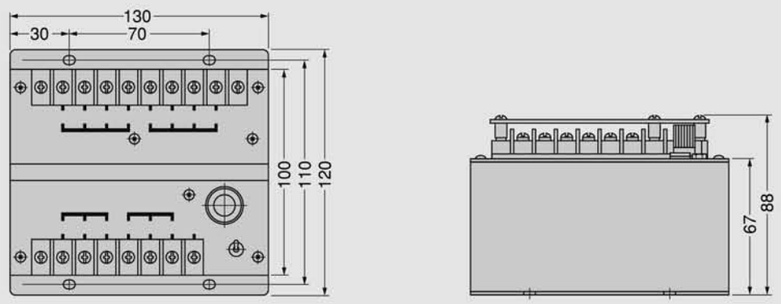
SCP

Discontinued

Specifications

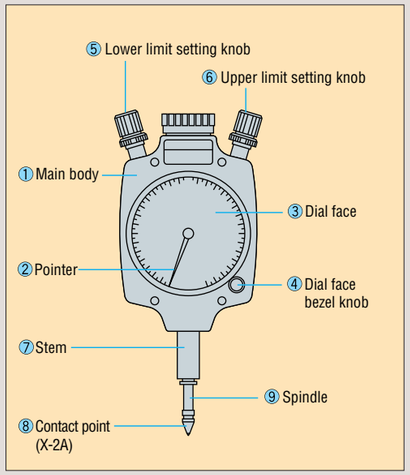
Model	SCP-3
Lamp display output	12V to 18V (max.110mA)
Relay contact capacity	AC200V (5VA) MAX (resistance load)
Outer Dimensions	(L)130mm×(H)88mm×(D)120mm
Setting hole diameter	70mm × 110mm
Power supply	AC100V, AC200V 50 ／ 60Hz
Usable Gauges	S-5, S-7, S-9, SC-2A
Relay contact output	Three stages of −NG, +NG, and OK
Weight	1300g
Precautions	(1) Disconnect the DC12V line when using the lamp display output to power the relay contact. (Leaving it connected will make for a two-circuit control.) (2) When connecting signal gauges or signal checker, remove the original connector and use crimp-style fork terminals.

Dimensions



How to Use

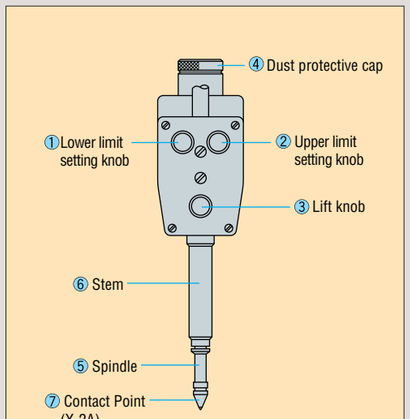
Signal Gauge (S-5, S-7, S-9)



Instructions

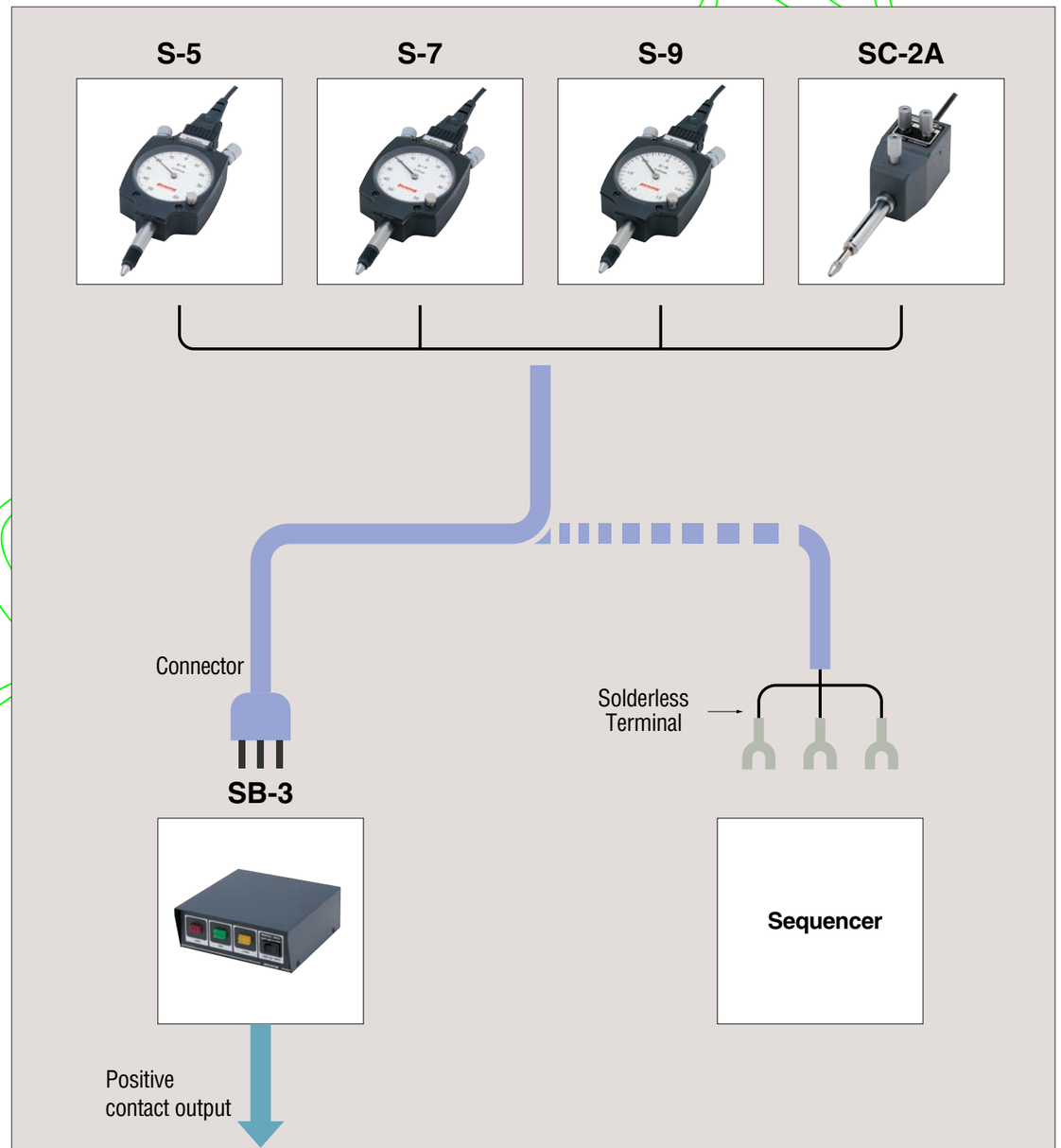
a. Prepare a judgement master (standard sample) and hold a signal gauge on a stand, etc.
b. Adjust and fix the position of judgement master so that a gauge pointer indicates zero, and move the contact point ⑧ up and down several times so as to confirm the pointer's stable position.
c. When setting a lower limit of tolerance value, remove the master and turn the lower limit setting knob ⑤ so as to adjust a pointer at a certain graduation.
d. When setting an upper limit of tolerance value, turn the upper limit setting knob ⑥ so as to adjust a pointer at a certain graduation while fully pushing up the contact point ⑧.
e. After setting the upper and lower limit, move the spindle ⑨ up and down serveral times to confirm that a pointer's indication is within the tolerance value.
※ Stem or back cover with lug is used to support the gauge.

Signal Checker (SC-2A)



Instructions

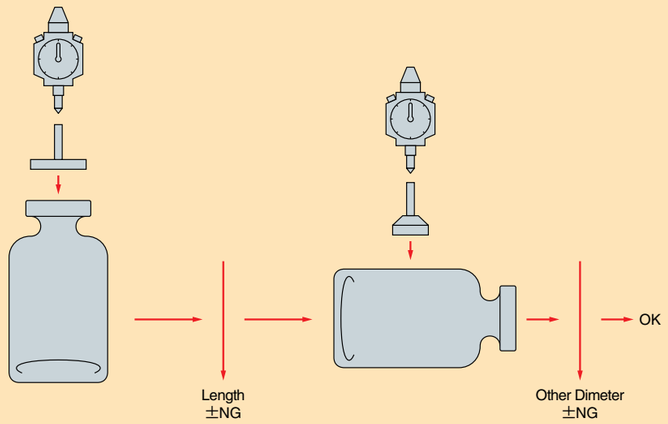
a. Prepare a judgement master (standard sample) and hold a signal gauge on a stand, etc.
b. Prepara a dial gauge for setting tolerance value No.107 (0.01mm to 10mm) and remove the dust protective cap ④ by a hexagon wrench attached to the gauge.
c. Turning the lift knob ③ allows the spindle ⑤ to move up and down. The pointer of dial gauge moves according to its movement.
d. Connect this checker with a signal box or a controller.
e. Prepare a judgement master (standard sample),on which push this checker to the position where the lower limit of tolerance value can be set, and fix it by a supporting device.
f. Set the indicator of dial gauge at zero of a dial and turn the lower limit setting knob ① fully in the clockwise direction.
g. Set the upper limit of tolerance value at a certain position while turning the lift knob ③ in the clockwise direction.
h. Turn the upper limit setting knob ② in order to adjust the indications (signals) of signal box or controller to the switching position of OK and ┼NG at the upper limit of tolerance value.
i. Remove the master and turn the lift knob ③ in the counter clockwise direction to set the lower limit of tolerance value.
j. Turn the lower limit setting knob ① to adjust the indications (signals) of signal box or controller to the switching position of OK and —NG at the lower limit of tolerance value.
k. Move the spindle ⑤ up and down several times by the lift knob ③ to check the right adjustment.
l. After your setting, turn the lift knob ③ in the counter clockwise direction until the spindle ⑤ is fully pushed down.
m. When you use this checker without dial gauge, never forget to mount the dust protective cap ④ on it.
※ Stem is used to support this checker.



※ Signal Gauges can be connected to a signal box by attached connectors.
When connecting with a signal controller or a sequencer, remove the connectors and use solderless terminals.

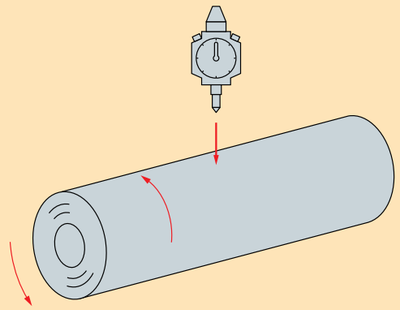
10 Example of Use

● Measurements of Length and Outer Diameter (glass bottles, etc.)



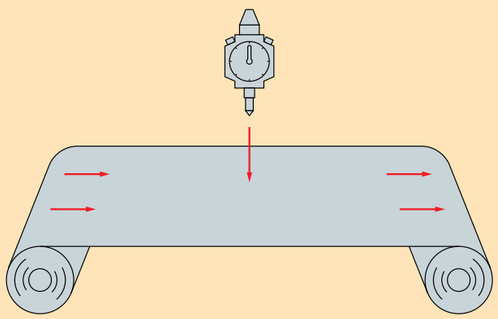
※ After measuring by two signal gauges and two signal boxes,selection (OK, ±NG) is automatically controlled.

● Measurement of Deviation (Wheels, etc.)



※ Selection (OK, ±NG) is performed while turning an object and measuring its deviation.

● Measurement of Thickness (paper rolls, etc.)



※ Multiple points are measured using a lot of signal gauges and selection (OK, ±NG) is performed by a signal box, or controller.