

# Capacitance sensor Adjustment manual (Made by PRECITEC) EG311



## Importance

Operate, check, and maintain this machine after reading this instruction manual and the manual concerned with attached device and then understanding the contents.





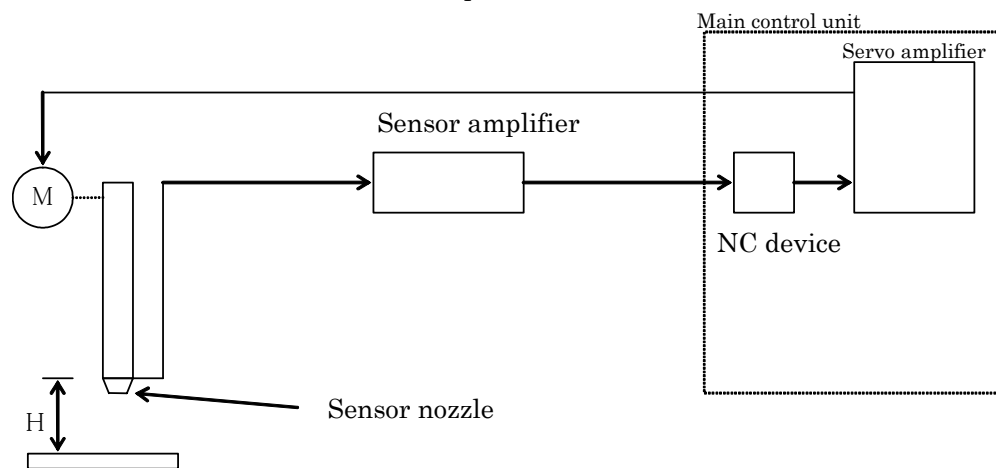
## PRECITEC ADJUSTMENT MANUAL

## Outline

The control by the capacitance sensor converts the electrostatic capacity (capacitance) caused between the sensor ring and the steel plate into the voltage signal, inputs to the servo amplifier, and outputs rise / descent signal from the servo amplifier to the servo motor.

## 1. Device composition

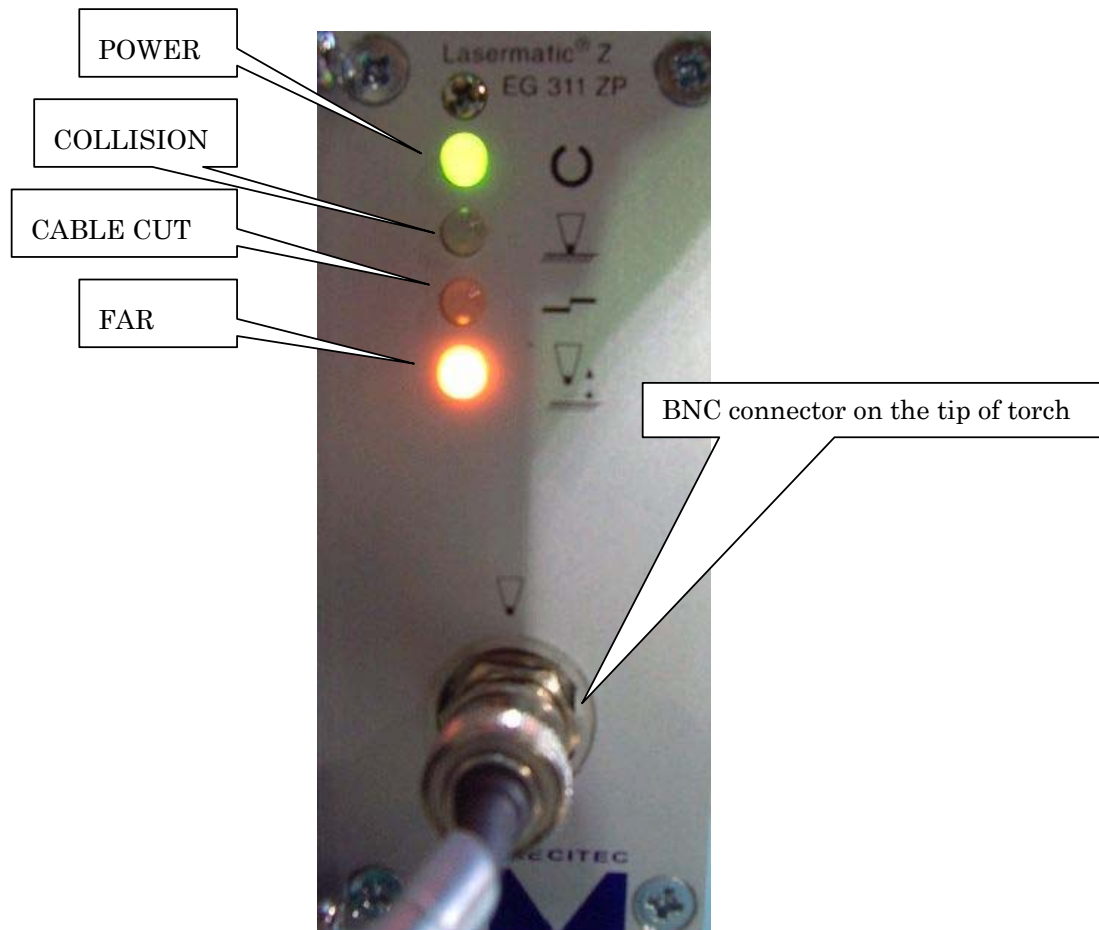
This device consists of the below composition.



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## 2. Sensor amplifier outline drawing

## a) Front



## i) POWER (I210.1)

It is displayed that the power of this device is turned on.

## ii) COLLISION (I210.3)

It is displayed that the sensor ring touched.

## iii) CABLE CUT (I210.0)

It is displayed that the sensor cable between the sensor nozzle and sensor amplifier was disconnected.

## iv) FAR (I210.2)

It is displayed when the height between the sensor nozzle and material is further than the setting distance for it.

Moreover, while the FAR is lit, the MAX voltage (from 9.5V to 10.2V) is output. (to the control side)

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## b) Rear face



Adjusting voltage volume for FAR  
(Not used)

Control unit side connector

## c) Side face



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## 3. Adjustment method

The below adjustment is performed on material.

## a) Bevel setting of output voltage - sensor nozzle height

Set the bevel (height control area) of [Output voltage of capacitance sensor] and [Sensor nozzle height] (the range of height control). And also set from which distance to output the FAR signal (Hold signal).

- i) Put the torch close to material as much as possible in JOG mode. (Though the bevel can be set even when the torch is far from material, the closer the torch is put to the material, the shorter time the work is treated for.)
- ii) Call up the program TEST\_PRECI\_SET.SPF and then execute it.

G291

G91

M24

Touch alarm disabled

WHILE \$A\_IN[5]==0

Touch the torch with the material

G01Z-0.1F10

ENDWHILE

G0Z15.0

①15mm height from material

G04X0.1

M194

Height control setting 1

(FAR signal, Calibration range setting)

G04X0.6

G0Z-14.0

②1mm height from material

G04X0.1

M195

Height control setting 2

(Characteristic selection)

G04X0.6

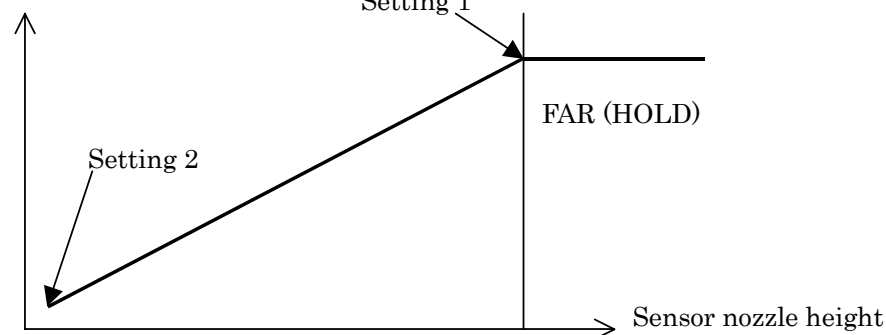
M107

Touch alarm enabled

M17

M30

Output voltage



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## 4. Notes

- a) Confirm the below items in the case that the touch signal (COLLISION signal) is output despite that the sensor nozzle is not touched with material.
  - i) Wire the sensor cable (orange) without looping.  
Set it to more than R50mm in the case of turning around.
  - ii) Wire the sensor cable so that it separates from the source of noise such as the servo motor and the servo amplifier etc as far as possible.
- b) Confirm the below items in the case that the sensor nozzle is touched with material.
  - i) Confirm whether the sensor nozzle is not broken.
  - ii) Confirm whether the signal cable connected with the sensor nozzle is not disconnected.
- c) **Correct it with following the item 4-a) and 4-b) at replacing the nozzle and at occurring the defective height control.**

## 5. Sensor type

- a) Sensor amplifier :P0311-600-00001 (PRECITEC) S/N40012583
- b) Sensor cable :P0360-200-05000 (PRECITEC) S/N40012584