

## Diesel Engine Rotation Sensor

# CP-044

## Instruction Manual

### 1. Outline

This device is a rotation sensor designed especially for diesel engines.

Vibrations made when the injection pump of a diesel engine injects fuel are sensed with a piezoelectric element and converted into electric signals.

By simply attaching a sensor element onto the fuel injection pipe of the first cylinder, the rotation speed of the engine can be measured accurately.

Since the sensor unit and its cable are heat-resistant, they can be used in engine rooms with no danger of malfunctions due to heat.

### 2. Precautions

For accurate measurement of engine rotation, observe the following points when fitting the sensor unit to the injection pipe.

- Be sure to fit the sensor unit to the fuel injection pipe.
- Wipe off any dust, oil, etc. from the fitting point.
- Provide slack to the sensor cable so that the sensor unit will not be pulled.
- Take care in handling the sensor cable, as it may become wound onto the engine if brought near rotating engine parts.
- Be certain to attach the sensor unit to a fuel injection pipe that is within the prescribed diameter range. Failure to do so may result in damage to the sensor unit or fuel injection pipe, or inaccurate engine rotation measurement.
- Once you have attached the sensor unit to the fuel injection pipe, position the pipe so that it does not interfere with other fuel injection pipes.
- Rotation of engines which have a distribution ( rotary ) fuel injection pipe may not be measured accurately.
- Take much care for the rotating and high temperature sections of the engine when installing.

### 3. Operating method

Referring to the external view diagram, install the sensor to the fuel injection pipe as follows.

1. Loosen the lock nut, then turn the fitting knob counterclockwise to make a space to pinch the injection pipe.
2. Pinch as straight a section as possible of the injection pipe, by turning the fitting knob clockwise.
3. Turn the lock nut in the direction of the arrow so that the fitting knob will not be loosened by vibrations.
4. The sensor is now ready.

### 4. Specifications

Type of engine used with	Diesel engine
Sensing method	Sensing of vibrations of fuel injection by piezoelectric element
Attachment point of sensor unit	Fuel injection pipe No.1
Outside diameter of fuel injection pipe attached to	4 to 8 mm $\phi$
Pressure resistance of sensor element	$1.96 \times 10^8$ Pa

### 5. General specifications

Operating temperature	0 to + 80°C
Storage temperature	- 30 to + 120°C
Weight	Approx. 120 g
Output cable	Approx. 4.9 m
External dimensions	See external view diagram
Indicator	GE-1200, GE-561

### 6. Outside Drawing

