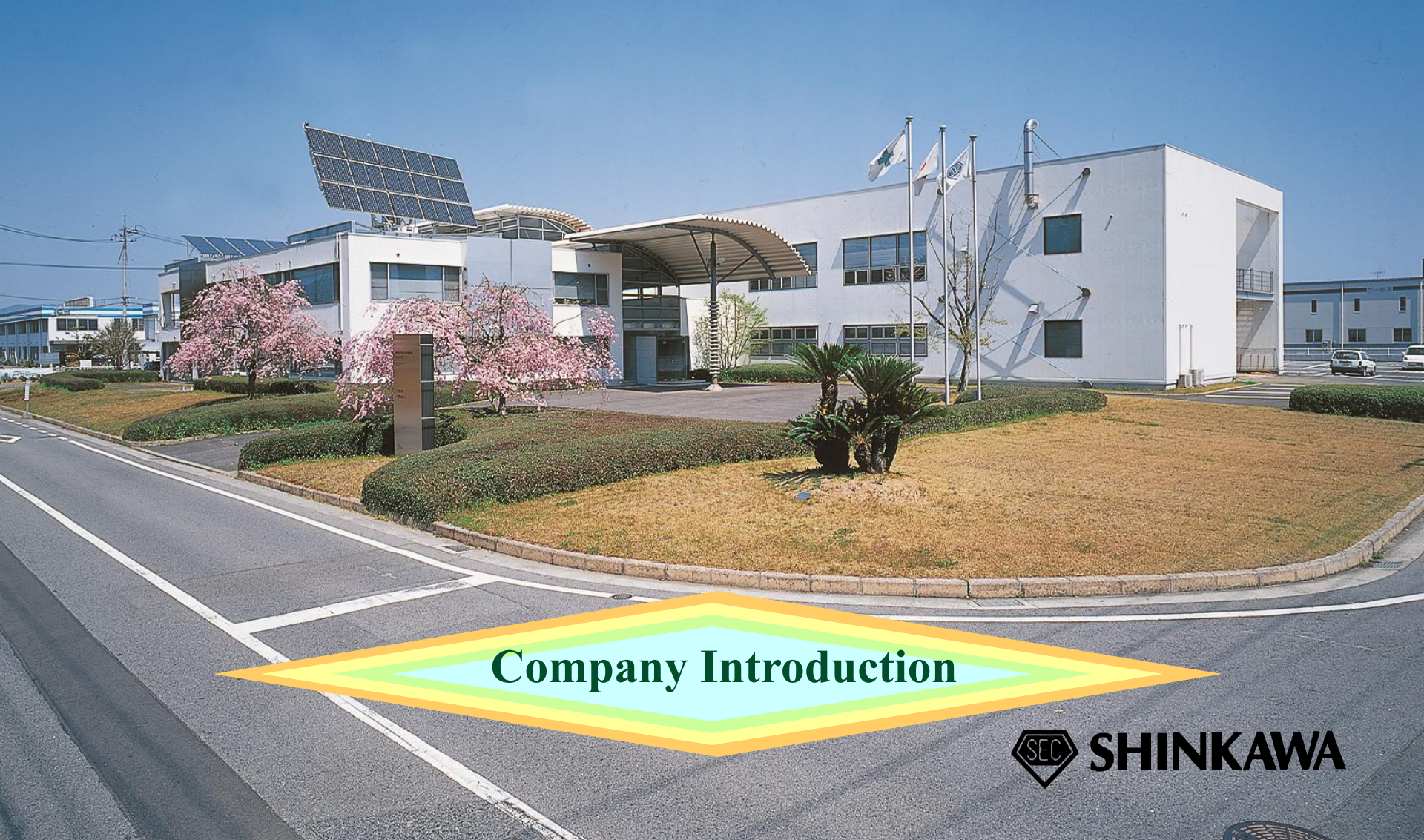


# **SHINKAWA Electric Co.,Ltd (SEC)**

## **SHINKAWA Sensor Technology, Inc. (SST)**



**Company Introduction**



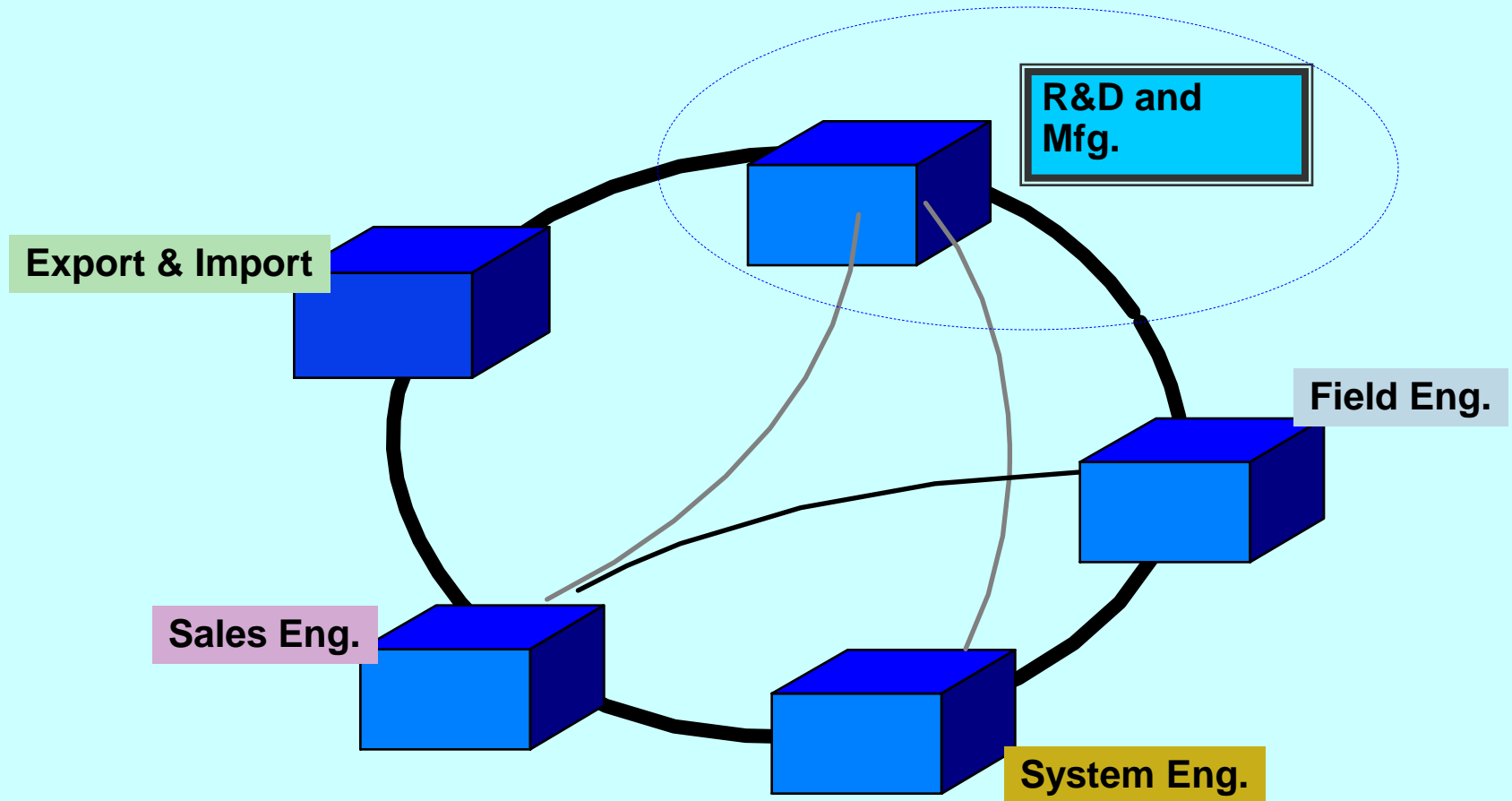
# SHINKAWA Electric Co.,Ltd

## Company History

- **1927** Started business under the name “SHINKAWA Namito Shoten”.
- **1951** Reorganized into SHINKAWA Electric Co., Ltd.(SEC)
- **1977** Started manufacturing the displacement and vibration transducers.
- **1987** Hiroshima Factory was built.
- **1994** Separated from SHINKAWA Electric Co., Ltd. and SHINKAWA Sensor Technology, Inc. was established.
- **1994** Hiroshima factory was certified as conforming to the international quality assurance standard ISO 9001.
- **1996** Hiroshima factory obtained ISO 14001 certification for the Environment Management System.
- **2000** Established Shinkawa Electric Company of America, Inc.(SECA)
- **2001** Opened offices in Singapore
- **2004** Opened offices in China

# Linked 5 segments in SHINKAWA

SHINKAWA Sensor Technology, Inc( SST)



SHINKAWA Electric Co.,Ltd (SEC)



# How large **SHINKAWA Electric Co.,Ltd** is?

- Established in 1927
- Capital: 200 Million Yen
- Annual Sales: 25 Billion Yen
- 655 employees
- 35 Sales Offices through out Japan



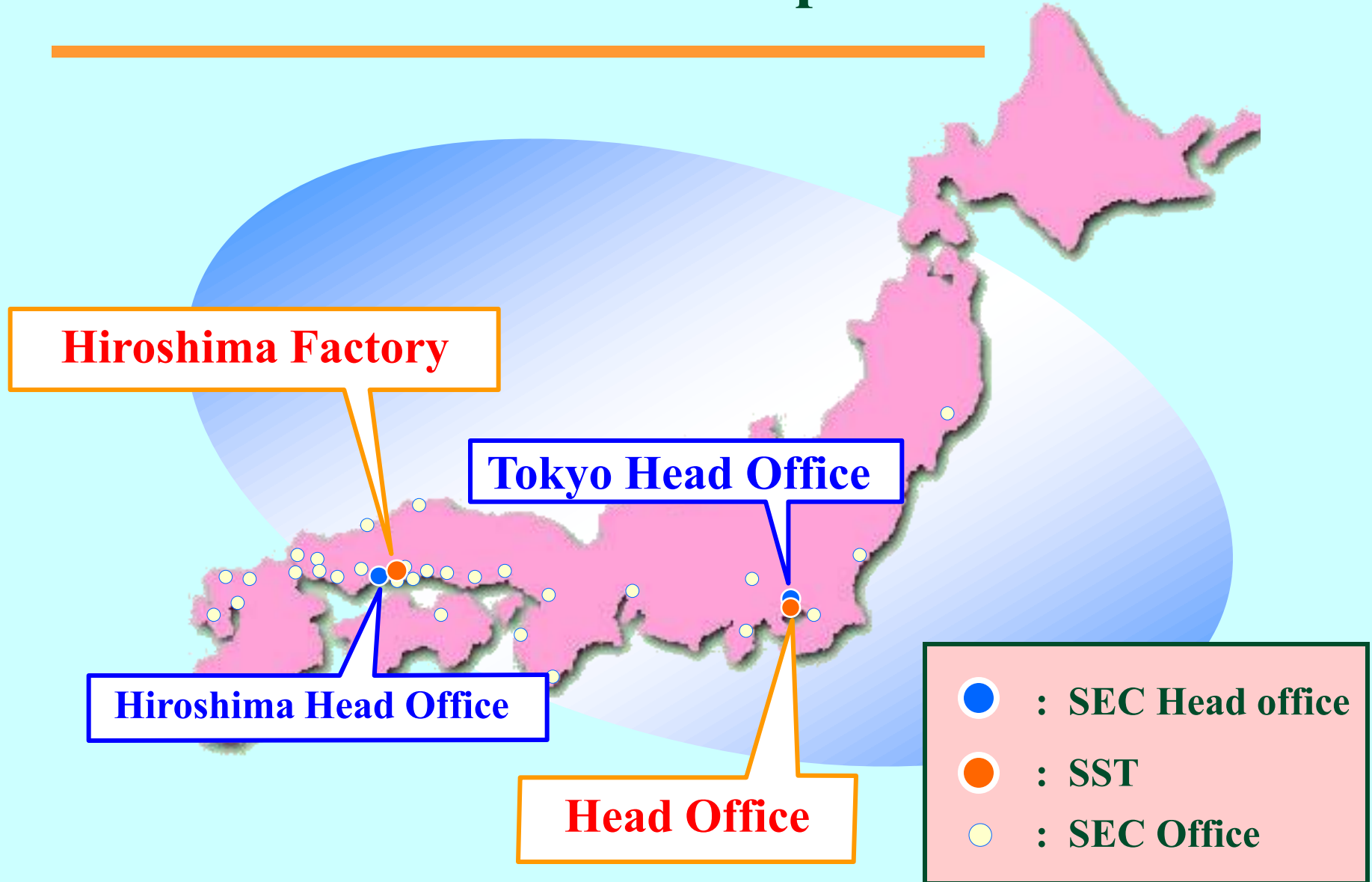


# How large **SHINKAWA Sensor Technology is?**

- Established in 1994
- Capital: 50 Million Yen
- Annual Sales: 1,900 Million Yen
- 135 employees
- Factory in Hiroshima



# SHINKAWA Offices in Japan



# Certification List - Certified by Customers

- **mitsubishi electric corporation** / Energy & Industrial systems center
- **HITACHI, Ltd.** / Hitachi works
- **mitsubishi heavy industries, Ltd.** / TAKASAGO machinery works
- **TOSHIBA CORPORATION** / Power systems & Services company (Keihin)
- **BABCOCK • HITACHI** / Kure works
- **TOSHIBA CORPORATION** / Power systems & Services company (Fuchuu)
- **ISHIKAWAJIMA • HARIMA HEAVY INDUSTRIES Co., Ltd.**  
/ Aero • Engine & Space operations
- **HITACHI, Ltd.** / Instrument division
- **HITACHI, Ltd.** / Tsuchiura works
- **HITACHI, Ltd.** / Omika works
- **ISHIKAWAJIMA MASS-PRODUCED MACHINERY Co., Ltd**
- **mitsubishi heavy industries, Ltd.** / HIROSHIMA machinery works
- **KOBE STEEL, Ltd.** Industrial machinery plant
- **mitsubishi heavy industries, Ltd.**  
/ YOKOHAMA dockyard & Machinery works
- **GENERAL ELECTRIC** / Power systems (U.S.A.)
- **COOPER TURBOMACHINERY**
- **ATLAS COPCO**

# Application for SHINKAWA Sensor Technology

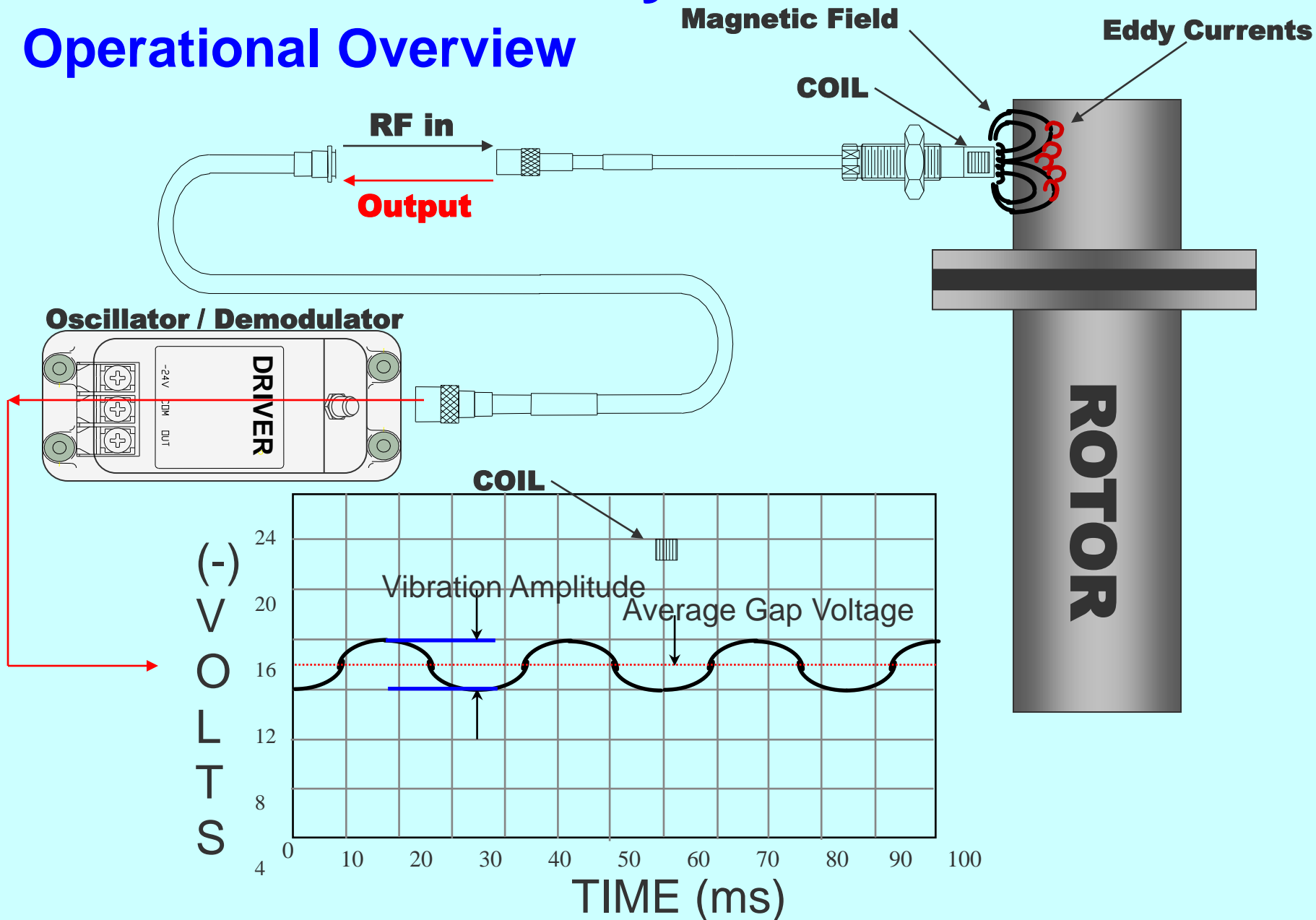


Vibration can tell us  
many different type of machine problems



# Proximity Probes

## Operational Overview



# Machine Protection & Analysis System



**Sensors**



**Pick Up  
Vibration Signal**



**Protection  
Monitors**



**Display &  
Machine Shut Down**



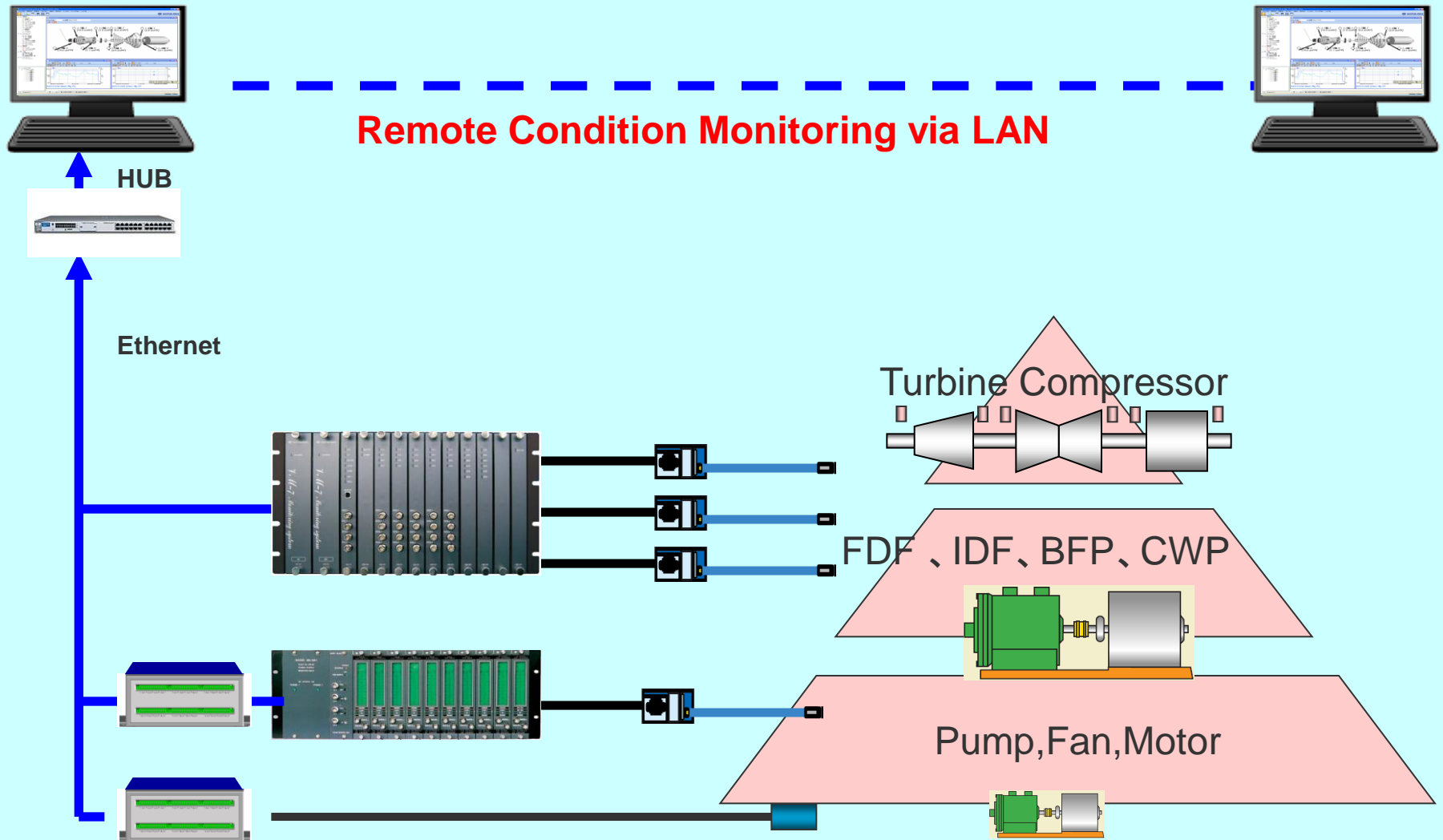
**Analysis  
Software**



**Machine Problems**

- Bearing Problems
- Unbalance
- Misalignment
- Oil Problems
- etc

# Remote Condition Monitoring

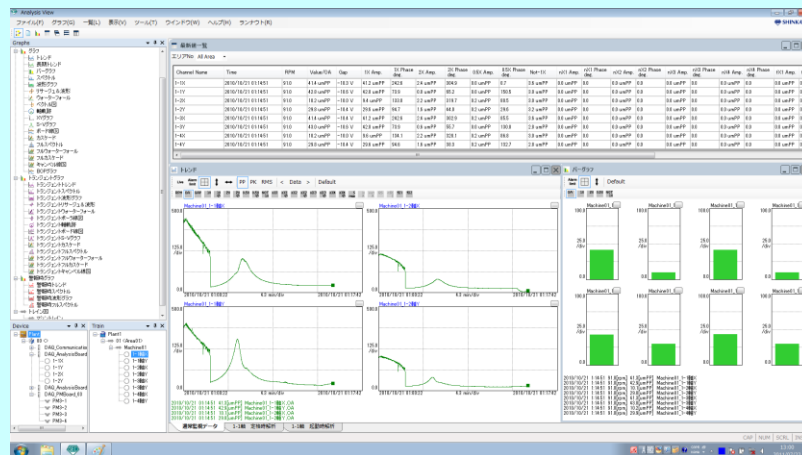




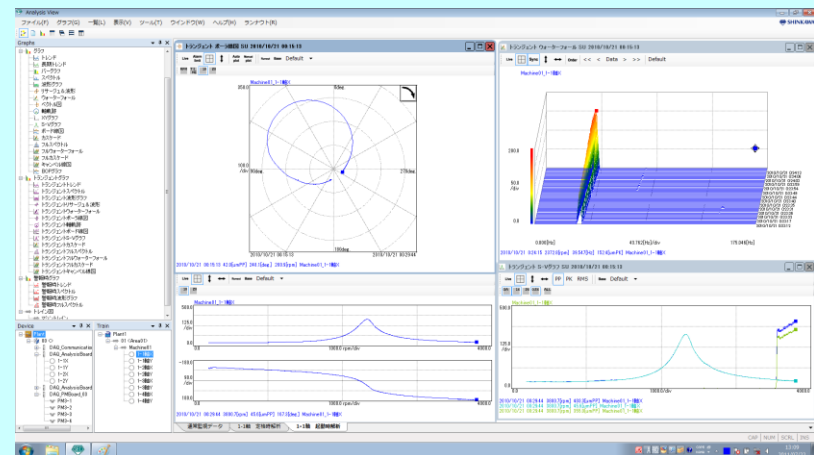
# infiSYS Vibration Analysis

## Machine Problems

- Bearing Problems
- Unbalance
- Misalignment
- Oil Problems etc



■ **Example①**  
Data List/Trend Data/Bar graph



■ **Example ②**  
Polar Plot/Water Fall/ Bode Plot/OA, 1X, 0.5XTrend

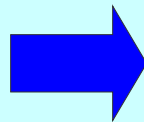
# Condition Based Monitoring

**Customer**

**SHINKAWA**



**Vibration  
Data**



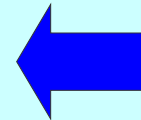
**LAN**



**Analysis &  
Diagnosis**



**Report**

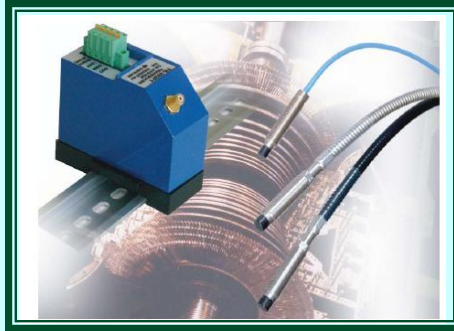




# Vibration & Displacement Transducer Line up



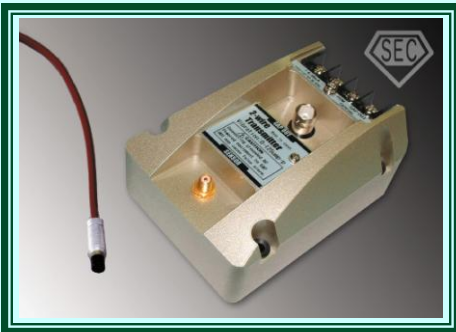
**VK Series**  
Vibration Transducer



**FK Series**  
Vibration Transducer



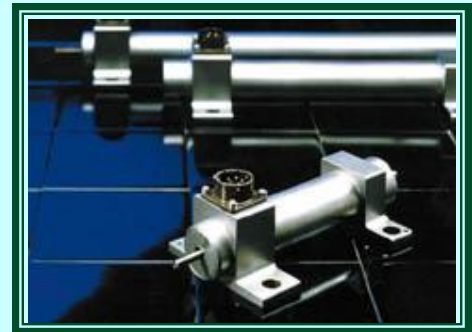
**CV Series**  
Accelerometers Velometers



**WK Series**  
2-Wire Transmitter

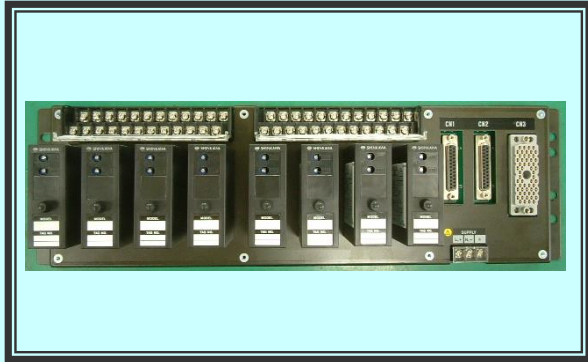


**MS Series**  
Magnetic Pickup



**LVDT Series**  
Differential Transformer

# Monitor Lineup



**VM-21**  
**Signal Conditioner**



**VM-15**  
**4-Channel Monitor**



**VM-16**  
**4,8,12-Channel**  
**Monitor**



**VM-5**  
**TSI Monitor**



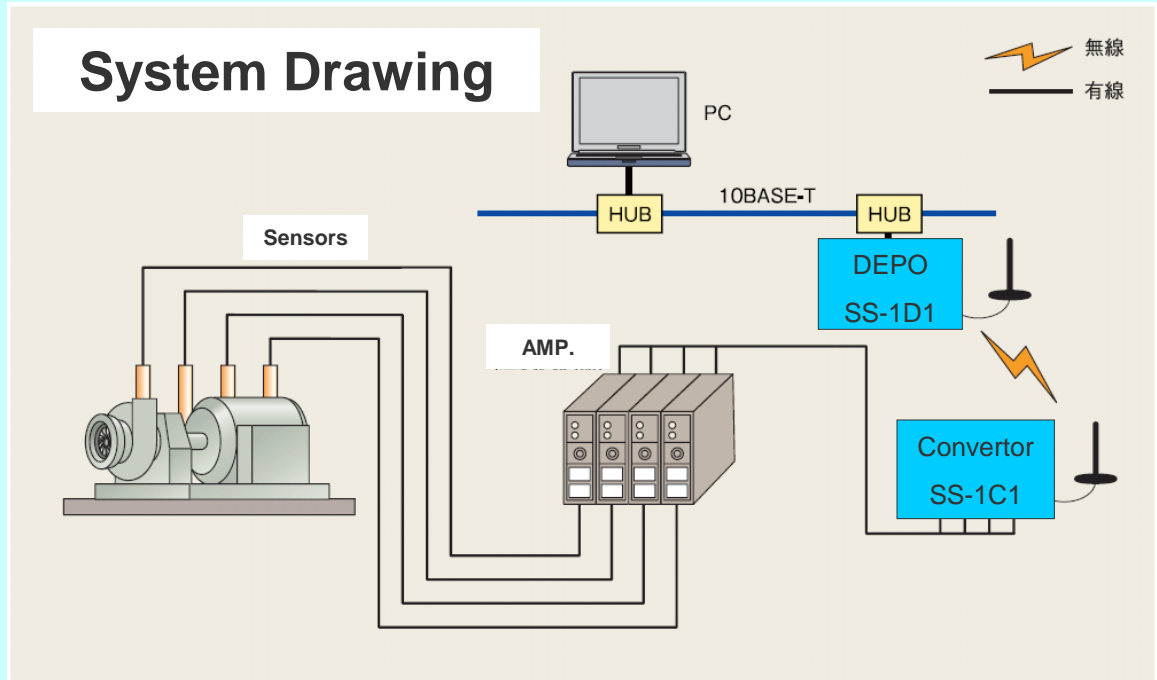
**VM-7 New TSI**  
**Monitor**



**MP-2 Machine**  
**Protection Monitor**

# SWiNS Smart Wireless Network System

- Wireless Communication of Vibration and Static Data  
SS series for static data, SD for Dynamic data
- Any signal +/-20V
- Convertor(8pcs max) and Depo(16pcs max)
- 100m transmission distance (Outside)



# KC Series

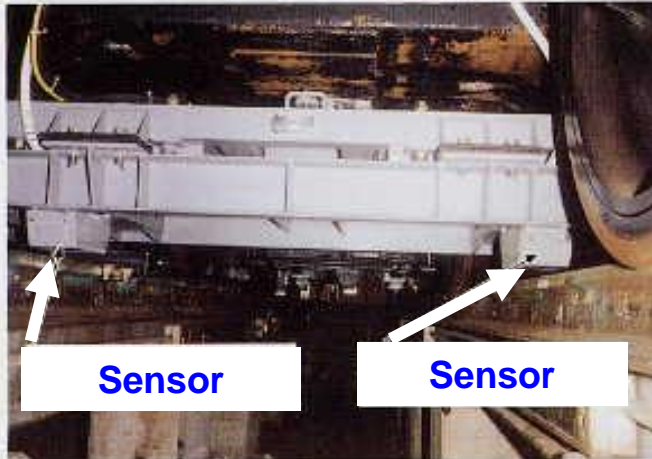
## Electromagnetic Rail Displacement Sensor

- JR East Test Train for Shinkansen
- Measure at same speed as Commercial Shinkansen
- Measure Rail straightness and Location
- Track inspection for Railway (Part of maintenance)
- All weather, Outstanding environmental Resistance

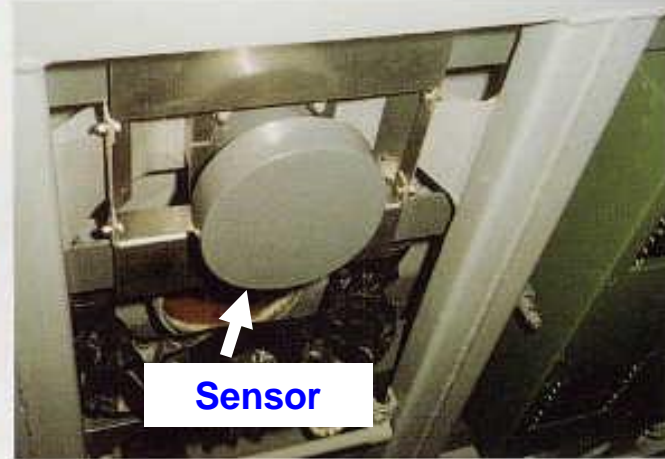




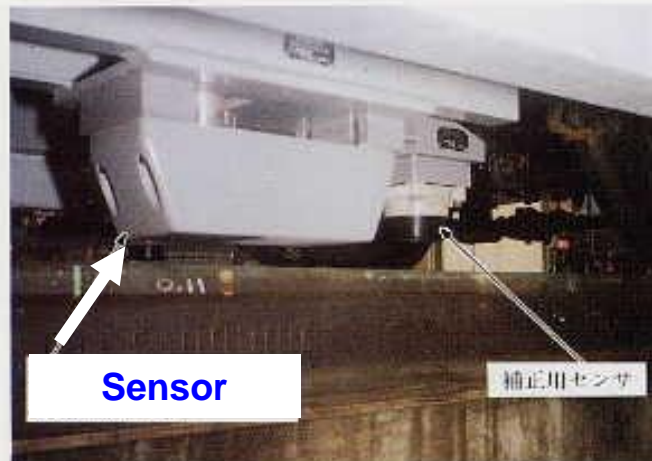
# Rail Displacement Sensors



**KC Sensor For Straight Line**



**KP-100A Sensor For Location**



**JR East Test Train**

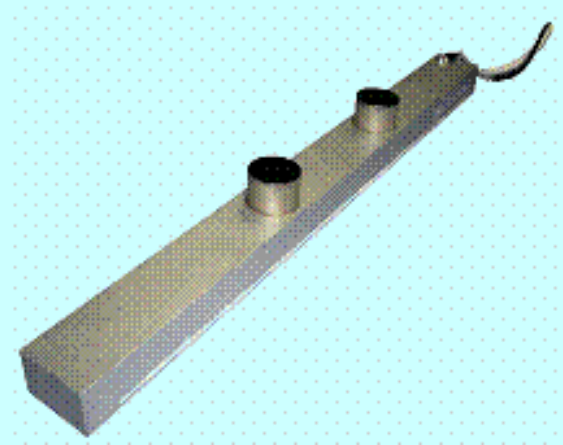


**Target for Location**



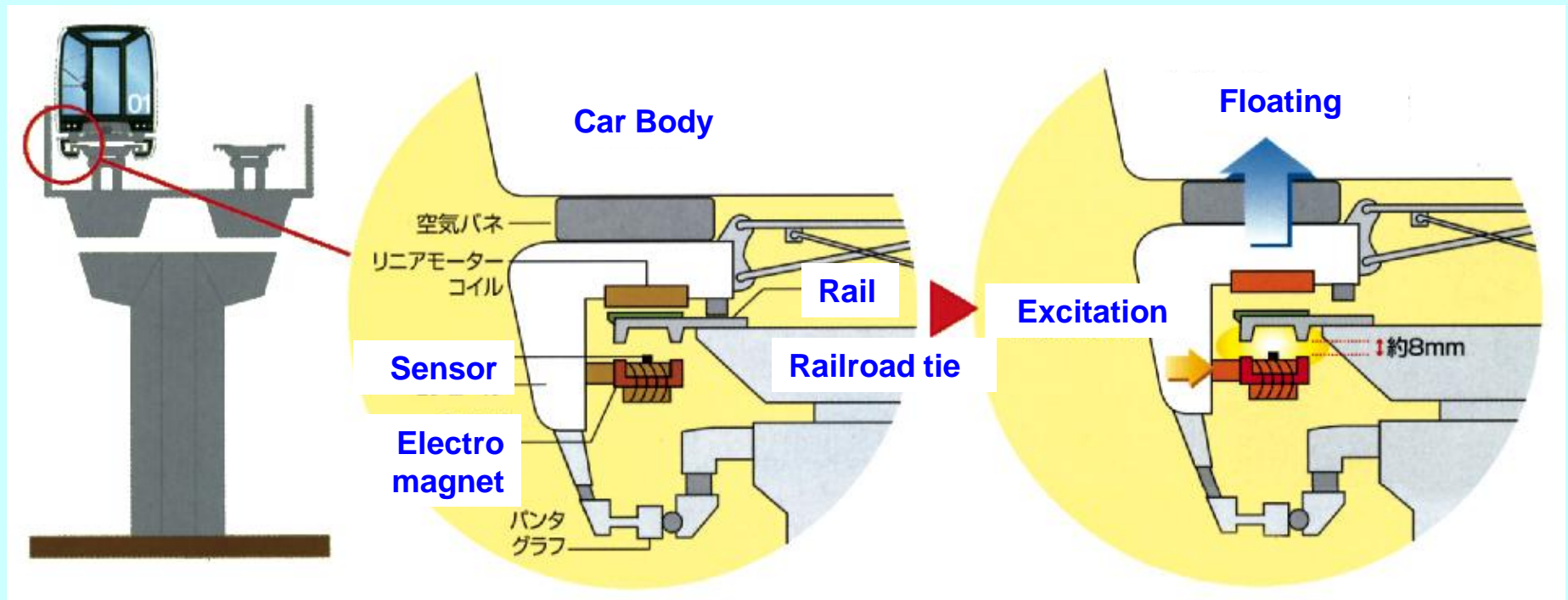
# Liner Motor Car Levitation Control Sensor

- Designed for Japanese first linear motor car operated at 2005 World Expo in Nagoya Japan.
- Principle is eddy current.
- Two sensors are installed in long aluminum case and measure the distance between sensor top and target rail without any contact. (non-contact)



# Liner Motor Car Levitation Control Sensor

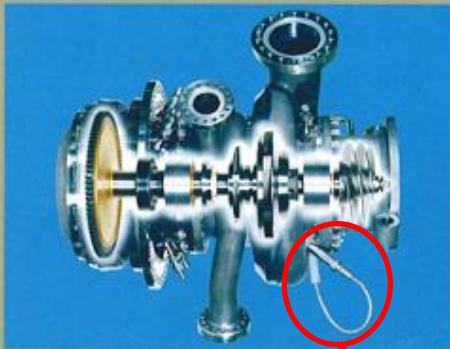
- The reason for 2 sensors is to prevent the signal deterioration at rail joint.  
The system select the right sensor automatically.
- Send the distance information to control circuit in order to control the car floating.



# H- II A Rocket Sensors

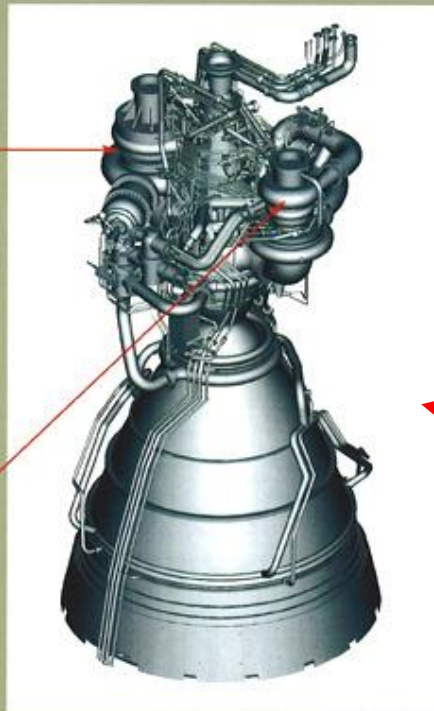


Liquid hydrogen Turbo Pump



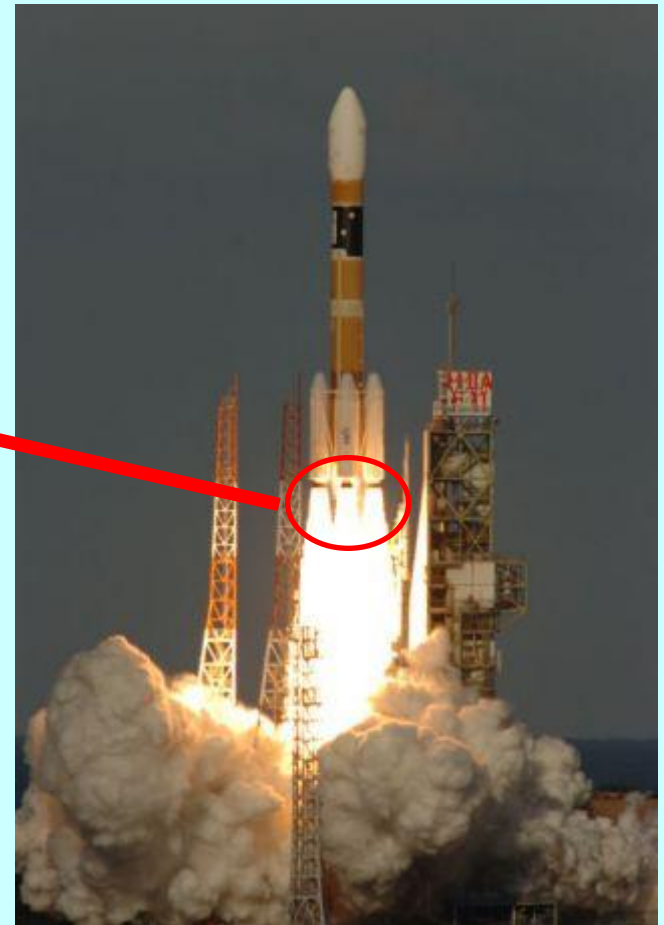
Liquid Oxygen Turbo Pump

Sensor  
& Cable



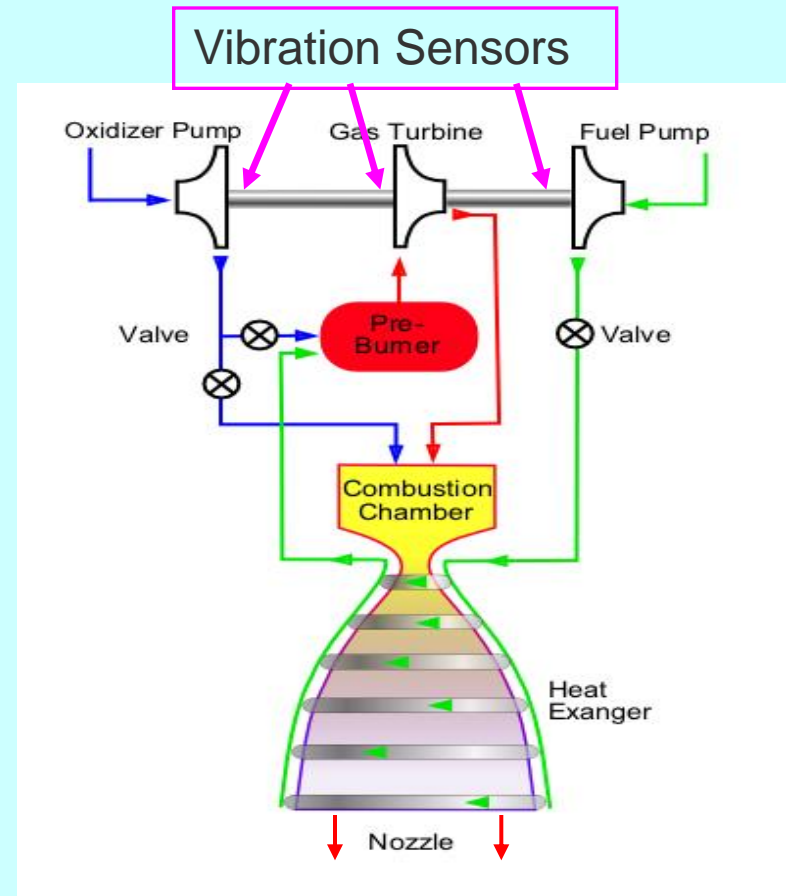
LE-7Aエンジン

LE-7A Engine



# H- II A Rocket Sensors

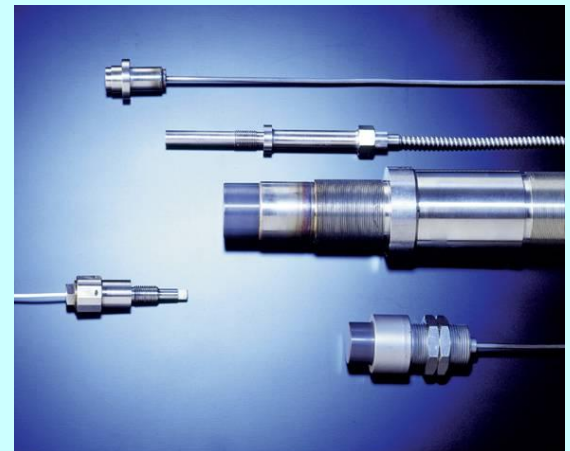
- Vibration sensors for H- II A rocket.
- Turbo pump is used for sending liquid oxygen and liquid hydrogen to the jet orifice with high pressure.
- The sensor needs to be used at  $-253^{\circ}\text{C}$  and 25MPa atmosphere.



LE Rocket Engine

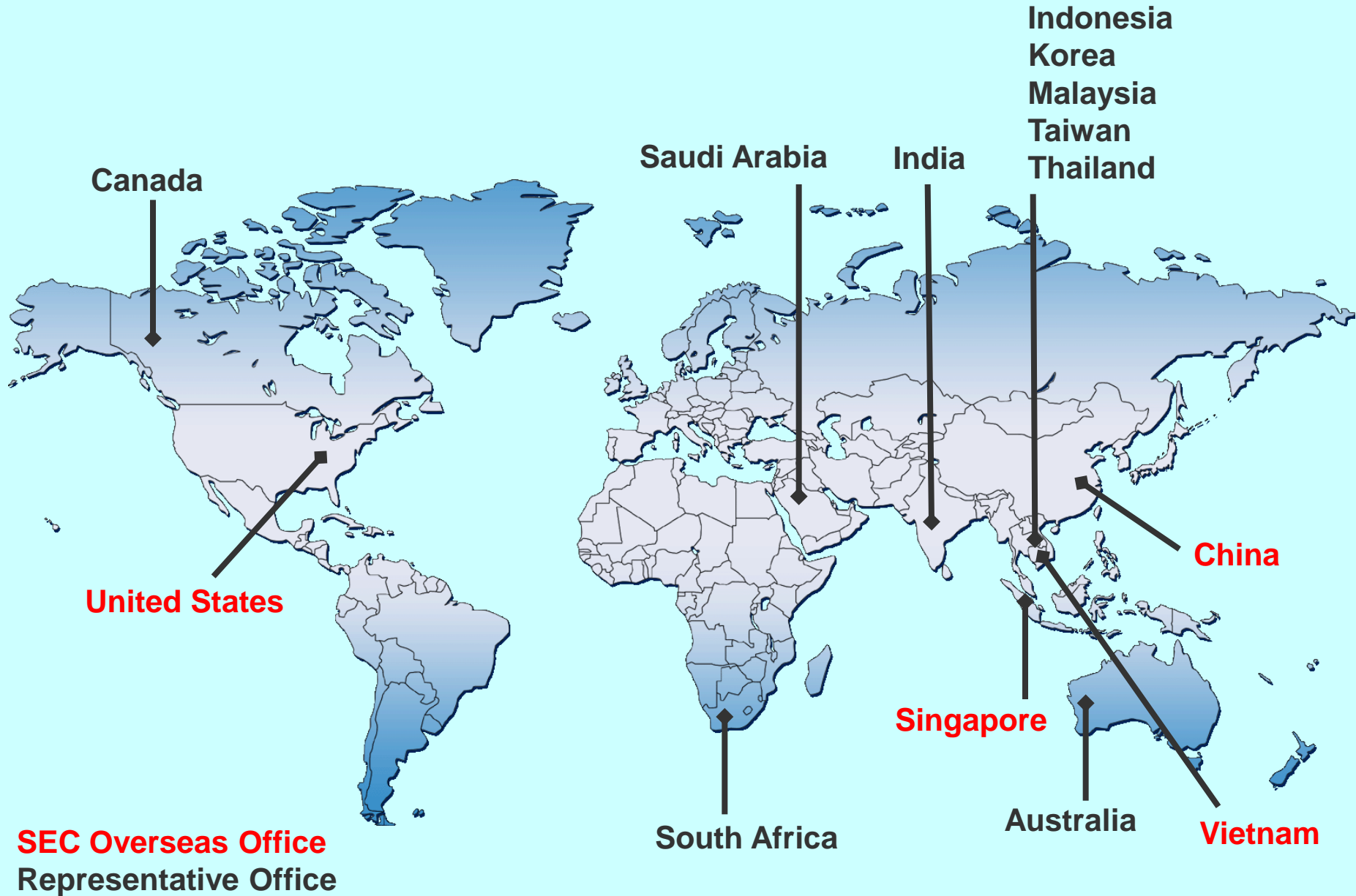
# Special Displacement Sensors

- Super Low Temperature Sensor: Up to  $-253^{\circ}\text{C}$
- High Pressure Sensor: Up to 25MPa
- High Temperature Sensor: Up to  $600^{\circ}\text{C}$
- Metal Top Sensor: 13MPa, 10Mrad  
Covered with metal in order to withstand high pressure and high radiation.





# World Wide Sales and Service

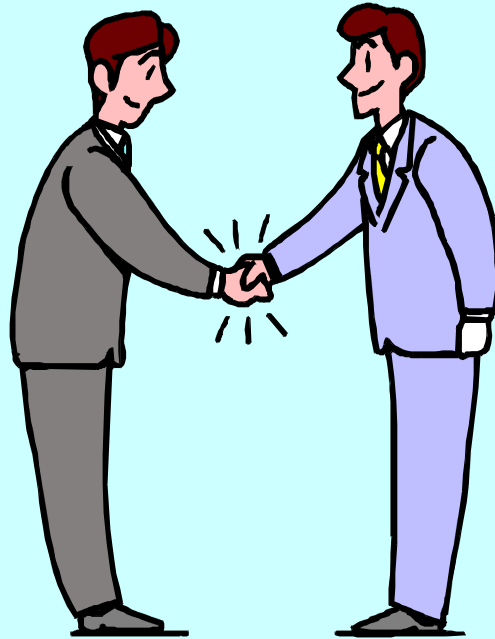


# World Wide Sales and Service





# SHINKAWA



# THE END