# Company & Product Introduction



#### **NVH Measurement & Evaluation**



















#### **Quality Test**













#### **Machine Condition Monitoring & Diagnosis**

















Samsung Electronic, Rotem, Dadong, DensoPS, LG Inoteck, Motonic, Hyosung, Nexolon, W&W Archery, etc.

Hyundai Motors, Kia Motors, Wia, Dymos, Mando, GMDawoo, GMIndia, Samsung Techwin, Daeduck, etc.

**Samsung Electronics, Korea Nuclear** Power, KITECK, Korea Transportation Safety, LOT, Beijing Mobis, etc.



## Background of Signallink's Sound & Vibration Turnkey Solution

#### Background

- Customer's growing need and high standard for Sound & Vibration quality
- High and Strict Quality Control needed from R&D to production

#### Situation

 Good NVH quality of products required



 Worse production condition for better NVH quality due to more machines and more productions in the plant

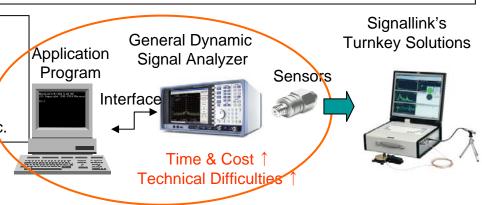
Various problems occurs when the traditional subject testing method by human continues.

- ∵Test limit changes by different workers, No data available even at the time of the critical quality problems
- -> Waste of time, energy, chance, finally money

#### **Difficulties**

Technical difficulties if the customers try to solve the problem using the general FFT analyzers such as;

- 1) Development of own testing program,
- 2) External interface,
- 3) Proving and evaluation the test result, etc.





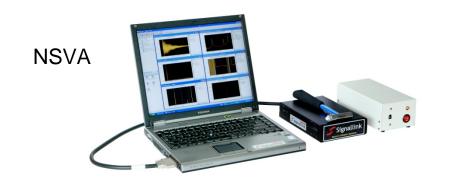
Solution

Signallink's Engineering based NVH Turnkey Solutions

from Sensors to Measurement System, Testing Applications



## **Signallink Products (Analyzers)**











## Signallink Applications

#### 1. NVH Measurement & Evaluation

- Target, test conditions fixed -> Performance, Reliability Test
- Product Performance, Quality Assurance, Certification, Trouble Shooting, etc. in the development stage
- Function, performance, durability test

## 2. Quality Test & Monitoring

- Target change, test conditions fixed -> Quality level and its deviation of the production goods (machining, assembly quality using NVH signal)
  - EOL(End of Line) test, test cell condition sample test, etc.

## 3. Machine Condition Monitoring & Diagnosis

- Target fixed, time (or condition) changes -> State change
- Fault monitoring and prediction,
- CMS, durability test, etc.



## Signallink Applications (Applications)

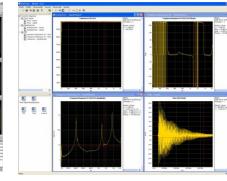
**Test & Measurement** 

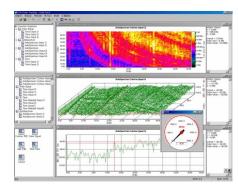
Calibration

**Modal Test** 

**Order Tracking Test** 





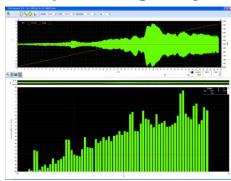


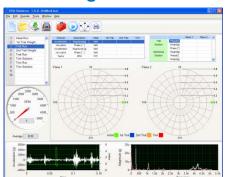
**Post-processing Analysis** 

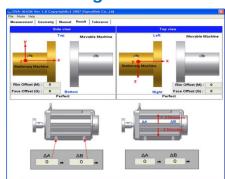
Balancing

**Shaft Alignment** 

**Data Recording** 







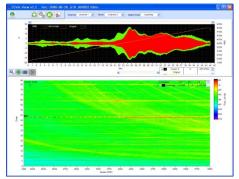


**Order Tracking Analysis** 

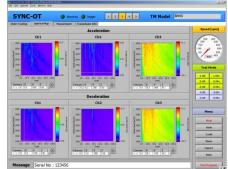
**Gearbox Fault Diagnosis** 

**Order Tracking Test** 

**Valve Leakage Test** 









## Signallink's Technologies

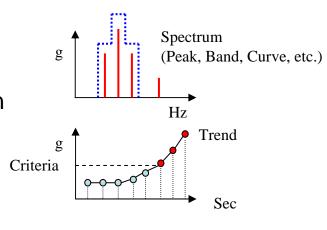
- 1. Test & Measurement Solutions
  - Hardware, Application Software, Interface, Database, A/S, etc.
- 2. Sensor Module Design & Application
  - Sensor Spec. ,Module Design, Measurement Repeatability & Vibration Isolation, etc.
- 3. Sound & Vibration Engineering
  - Setup, Test Criteria, Technical Support & User Training, etc.

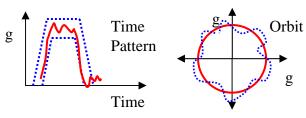


#### **General NVH Products**



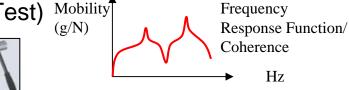
- Dynamic Signal Analyzer
- •NVH Quality Test & Evaluation
- Durability Test & Vibration Monitoring
- Digital Oscilloscope for Low Freq. Mechanical Signal







- General Dynamic Signal Analyzer
- •Structural Testing (Modal Test) Mobility
- •Resonance Test

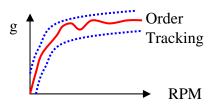




**SVA-OT** 



•Transient Response Test of **Rotating Machines** 



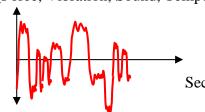
Time Signal

(Force, Vibration, Sound, Temperature, etc.)



SVA-Rec Long Time Signal Data Recording

•FFT and Post Processing



**SVA-Bal** 



Balancing Application

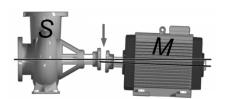
- -, 4-run method
- -. One plane and Dynamic (two planes) balancing

SVA-Align



Shaft Alignment Application

- -. Two shaft alignment using two dial gauges
- -. Analog interface
- -. Calculation function for the manual input





## **Specific NVH Products**

MDS



Motor or Turbo Charger Diagnosis System

**UBT** 



•HDD Balancing System

Sync Series



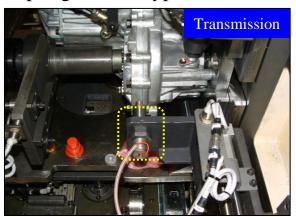
- Noise Test of Mated Gear Systems
- •Sync-M,A for Transmission, Axles, and Transfer, etc.
- Sync-WebDB for Web Database Application
- •Sync-OT for Order Tracking Noise Test
- Sync-G for Gear Noise Test
- Sync-Geo for Gear Geometry Test
- •Sync-SF for Gearbox Shifting Force Test
- •Tachless OT for Abstracting Special Order Components from Wave File Format NVH Time Signal

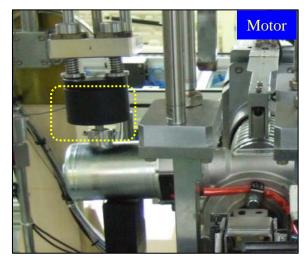




## Design & Application of the Sensor Modules

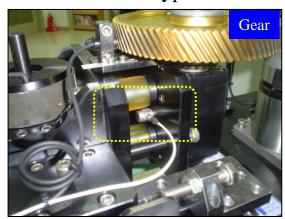
Spring loaded Type

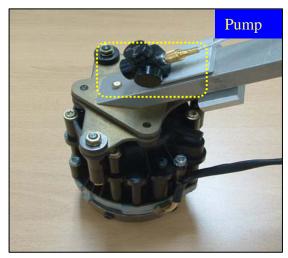




Magnetic Type

#### Rubber loaded Type





Clamping Type

