

System Overview

Kenjin system is a transportable vibration analysis system designed for large rotating equipment with journal bearings and for small rotating equipment with roller-element bearings. Kenjin is typically used for temporary monitoring. It provides a variety of plotting and analysis functions required by ISO18436-2 certified engineers.

This system is made up of a portable data acquisition unit which converts vibration waveform, detected by transducers, to digital signals and Portable View Station which acquires/saves provided vibration analysis data and displays analysis results.

The components of this system are as follows.

Kenjin SYSTEM SOFTWARE PRODUCT

Product Name	Specifications No.
XJ-2000 Analysis Software	311201E1.x
XJ-2100 Analysis Software	6H15-010

Kenjin SYSTEM HARDWARE PRODUCT

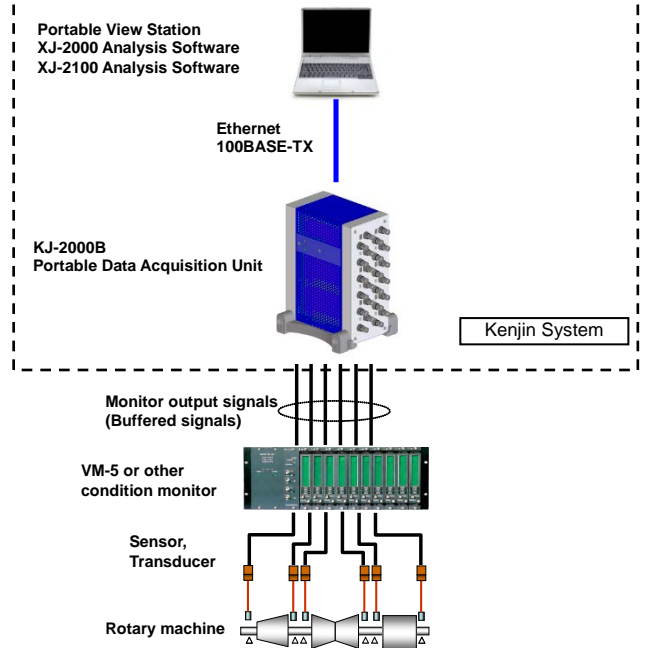
Product Name	Specifications No.
KJ-2000B Portable Data Acquisition Unit	6H15-008

Kenjin SYSTEM TERMINAL NAME

In this system, the combination of the software and the PC in which the software is installed is called as follows.

Combination	Name
XJ-2000 + PC	Kenjin Portable View Station
XJ-2100 + PC	

Kenjin SYSTEM CONFIGURATION



System Specifications

CONFIGURATION

Device connected : 1 unit  
 Measurement point : Up to 20 points<sup>\*1</sup>

<sup>\*1</sup> Actual number of points measurable may be limited due to system configuration.  
 For the sizes of data used for this system, refer to "DATA SIZES OF Kenjin SYSTEM (FOR REFERENCE ONLY)" in the following page.

ANALYSIS DATA

	Data Provided by Analysis Software
Trend Data <sup>*2</sup> (Static Data)	GAP
	Overall
	Rotation Speed
	1X Amplitude, 2X Amplitude, 0.5X Amplitude, Not-1X Amplitude
	1X Phase, 2X Phase, 0.5X Phase
	S(p-p)max
	nX1 Amplitude, nX2 Amplitude, nX3 Amplitude, nX4 Amplitude, f1 Amplitude, f2 Amplitude
	nX1 Phase, nX2 Phase, nX3 Phase, nX4 Phase
Waveform Data (Dynamic Data)	Synchronous Waveform
	Asynchronous Waveform

<sup>\*2</sup> Vibration data of trend data is calculated based on synchronous waveform.  
<sup>\*3</sup> Phase is only available during displacement vibration measurement.

Number of frequency analysis lines: 400/800/1,600/3,200

DATA SAVING FEATURES

SAVING INTERVAL

Trend data : 0.1 sec / 0.2 sec / 0.5 sec / 1 sec<sup>\*4</sup>  
 Waveform data : 0.1 sec / 0.2 sec / 0.5 sec / 1 sec / 2 sec / 5 sec / 10 sec<sup>\*4</sup>

<sup>\*7</sup> May vary depending on the acquisition conditions, number of channels and system configuration.

TRANSIENT DATA SAVING FEATURE

Start and end times of the transient is recorded, history of transient period (startup, shutdown) will be saved.

Determination conditions of transient period

Startup period :  
 Time when reached the starting speed – m min to  
 Time when reached the end speed + n min  
 (m:0 to 60 min, n:0 to 180 min)  
 (E.g : 100 rpm to 2,950rpm + for 20 min)  
 Shutdown period :  
 Time when reached the starting speed – m min to  
 Time when reached the end speed + m min  
 (E.g: 2,950rpm to 100rpm)

OTHERS

※ Items in this document are subject to change without notice.  
 ※ The company and product names herein may be the trademarks or registered trademarks of their respective companies.

Appendix 1

Kenjin SYSTEM HARD DISK SPACE REQUIRED FOR DATA

STORAGE (FOR REFERENCE ONLY)

Data Type	Single Data Size
Trend data <sup>*1</sup>	148 [byte]
Waveform data <sup>*2</sup>	400 lines : 8,244 [byte], 800 lines : 16,436 [byte] 1,600 lines : 32,820 [byte], 3,200 lines : 65,588 [byte]

\*1 Including overall, 1X amplitude/Phase, etc.  
 \*2 Data size may vary depending on the number of sampling (lines).

Data Type	Calculation
Trend data	1 Trend data x (60 [sec] x 60 [min] / Saving interval) x Number of channels x Saving period [yr]
Waveform data	1 Waveform data x (60 [sec] x 60 [min] / Saving interval) x Number of channels x Saving period [hour]

\*3 The above data size, and it does not include the size of such management data and log data.

EXAMPLE

Conditions	
Number of channels	: 20ch
Spectral lines	: 800 lines
Saving interval (trend)	: 1 [sec]
Saving interval (waveform)	: 10 [sec]
Saving period	: 3 [hour]

Data	
Trend data	$148 \text{ [byte]} \times 60 \text{ [sec]} \times 60 \text{ [min]} / 1 \text{ [sec]} \times 20\text{ch} \times 3 \text{ [hour]} = 30.5\text{M [byte]}$
Waveform data	$16,436 \text{ [byte]} \times 60 \text{ [sec]} \times 60 \text{ [min]} / 10 \text{ [sec]} \times 20\text{ch} \times 3 \text{ [hour]} = 338.6\text{M [byte]}$

Total 369.1M [byte]

Others

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Appendix 2

DATA SAVING LIMIT UNDER HIGH SPEED ACQUISITION MODE (FOR REFERENCE ONLY)

Under the following system environment, the data acquisition capability is as shown below.

Laptop PC for evaluation (OS : Microsoft® Windows7 professional®, CPU : Intel® Core™ i5 CPU M560 2.67GHz, Hard Disk Size : 250GB, Memory Size : 4.00GB )

\* This data below is for reference only. Results may vary depending on the system or other conditions.

**Table 1 Kenjin System limitation of data acquisition (simultaneous acquisition of asynchronous and synchronous data)**

Trend data acquisition

Trend Acquisition		Trend Data Acquisition Interval [sec]			
		0.1		0.5	
		Waveform Data Acquisition Interval [sec]		Waveform Data Acquisition Interval [sec]	
		0.1	0.5	0.1	0.5
Number of lines	Number of channels				
400	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○
800	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○
1,600	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○

Waveform data acquisition

Waveform Acquisition		Waveform Data Acquisition Interval [sec]					
		0.1		0.5		1.0	
		Trend Data Acquisition Interval [sec]		Trend Data Acquisition Interval [sec]		Trend Data Acquisition Interval [sec]	
		0.1	0.5	0.1	0.5	0.1	0.5
Number of lines	Number of channels						
400	4	△	△	○	○	○	○
	8	-	-	○	○	○	○
	12	-	-	△	△	○	○
	16	-	-	△	△	○	○
	20	-	-	-	△	△	○
800	4	-	-	○	○	○	○
	8	-	-	△	△	○	○
	12	-	-	-	△	△	○
	16	-	-	-	-	△	△
	20	-	-	-	-	-	△
1,600	4	-	-	△	△	○	○
	8	-	-	-	△	△	△
	12	-	-	-	-	△	△
	16	-	-	-	-	-	-
	20	-	-	-	-	-	-

○ : Collectable. (No data loss.)      △ : Collectable. (Risk of data loss.)      - : Collectable. (Data loss occurs.)

**Table 2 Kenjin System limitation of data acquisition (acquisition of synchronous data)**

Trend data acquisition

Trend Acquisition		Trend Data Acquisition Interval [sec]			
		0.1		0.5	
		Waveform Data Acquisition Interval [sec]		Waveform Data Acquisition Interval [sec]	
		0.1	0.5	0.1	0.5
Number of lines	Number of channels				
400	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○
800	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○
1,600	4	○	○	○	○
	8	○	○	○	○
	12	○	○	○	○
	16	○	○	○	○
	20	○	○	○	○

Waveform data acquisition

Waveform Acquisition		Waveform Data Acquisition Interval [sec]					
		0.1		0.5		1.0	
		Trend Data Acquisition Interval [sec]		Trend Data Acquisition Interval [sec]		Trend Data Acquisition Interval [sec]	
		0.1	0.5	0.1	0.5	0.1	0.5
Number of lines	Number of channels						
400	4	△	△	○	○	○	○
	8	-	-	○	○	○	○
	12	-	-	○	○	○	○
	16	-	-	○	○	○	○
	20	-	-	△	○	○	○
800	4	-	-	○	○	○	○
	8	-	-	○	○	○	○
	12	-	-	△	△	○	○
	16	-	-	△	△	○	○
	20	-	-	-	△	△	○
1,600	4	-	-	○	○	○	○
	8	-	-	△	△	○	○
	12	-	-	△	△	○	○
	16	-	-	-	-	△	△
	20	-	-	-	-	△	△

○ : Collectable. (No data loss.)      △ : Collectable. (Risk of data loss.)      - : Collectable. (Data loss occurs.)