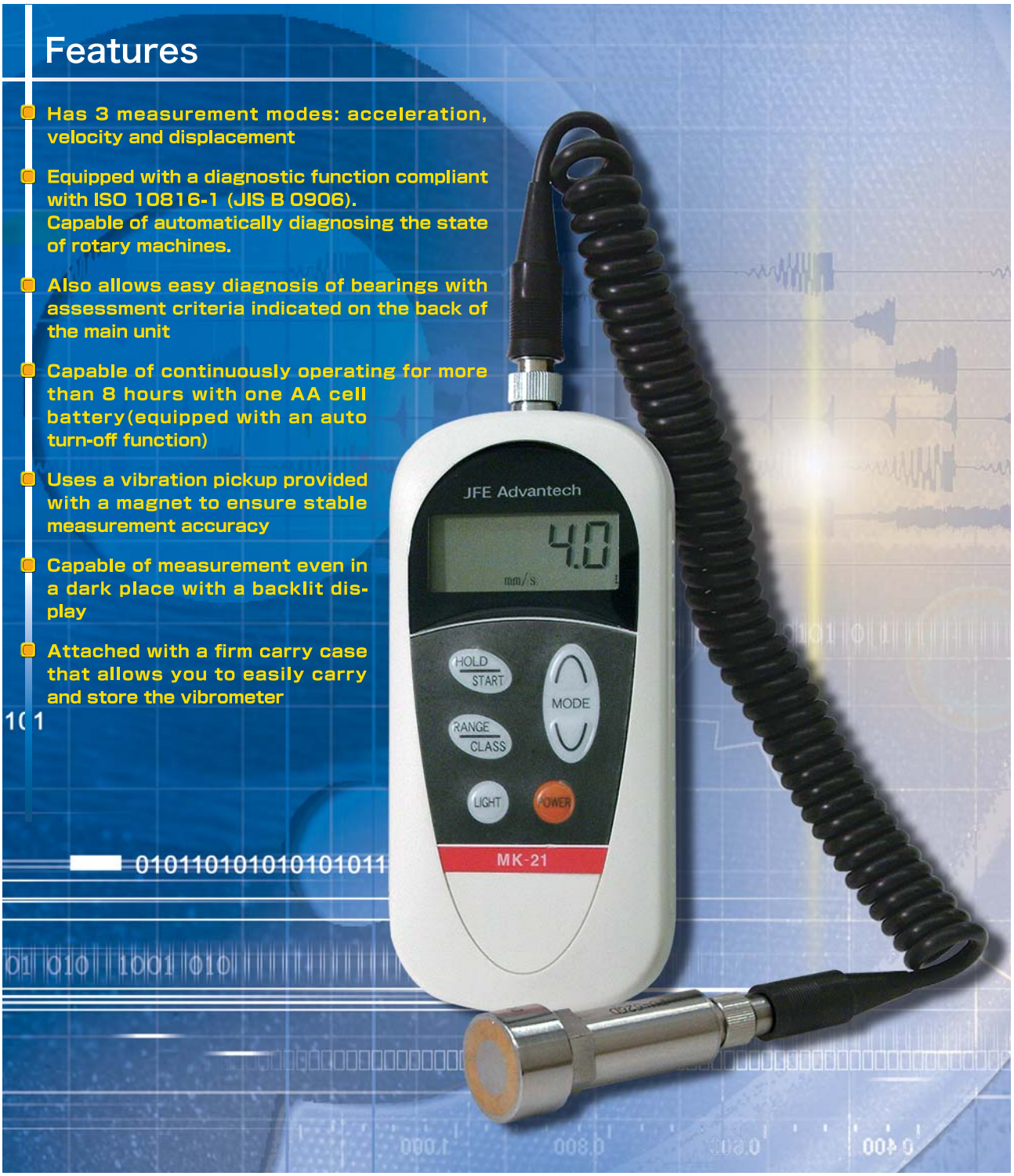
Vibrometer for Simple Diagnosis Use

MK-21

ISO9001
JQA0950

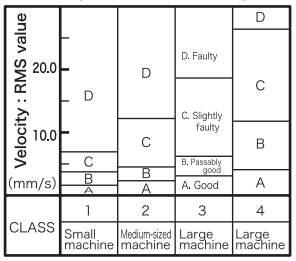
An Easy to Operate, Portable Vibrometer with Diagnostic Function



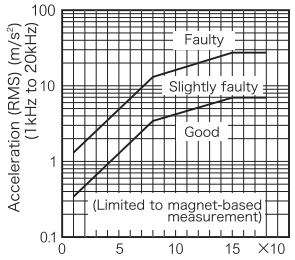
JFE Advantech Co., Ltd.
(Former name : Kawatetsu Advantech Co., Ltd.)

Equipped with an automatic diagnostic function compliant with vibration severity standards

Velocity - assessment diagram



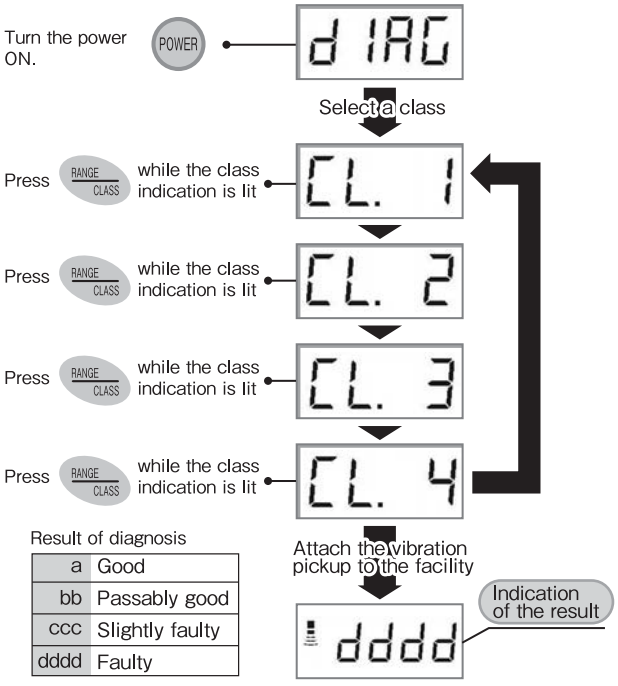
Acceleration - rotary bearing assessment diagram



Vibrometer for simple diagnosis use model MK-21 is equipped with an automatic diagnostic function compliant with vibration severity standards (ISO-10816, JIS B 0906), allowing even those operators who have never used a vibrometer to diagnose the status of their facilities.
MK-21 also enables the user to assess whether a rotary bearing is a conforming article by referring to the assessment diagram provided on the back of the main unit.

※The rotary bearing assessment diagram is an original standard of JFE Advantech Co., Ltd

Flow of diagnostic operation



Specifications

Sensor	Piezoelectric vibration pickup (with magnet)		
Measurement mode	Acceleration (ACC) Acceleration peak (ACC PEAK) Velocity (VEL) Displacement (DISP)		
Measurement range		Low range	High range
	Acceleration	0.0～20.0m/s^2	0～200m/s^2
	Acceleration peak	0.0～20.0m/s^2	0～200m/s^2
	Velocity	0.0～20.0mm/s	0～200mm/s
	Displacement	0～200μm	0～1990μm
Measurement frequency range	Acceleration : 1kHz～20kHz Acceleration peak : 1kHz～20kHz Velocity : 10Hz～1kHz Displacement : 10Hz～1kHz		
Arithmetic processing	Acceleration : RMS value Acceleration peak : PEAK value Velocity : RMS value Displacement : P-P value		
Display type	LCD 4.5 digits with backlighting		
Low-battery indication	Low-battery mark appears on LCD		
Service temperature range	0 to 50-C (90% RH, no condensation)		
Storage temperature range	-10 to 60-C (90% RH, no condensation)		
Power source	AA alkali dry battery (x1), continuously operable for over 8 hours		
Outer dimensions	69W×154H×30D		
Mass	Approximately 140 g (including battery)		

Standard configuration

Main unit	MK-21	×1
Piezoelectric vibration pickup	PU-626D	×1
Magnet	MK-9002	×1
Curl cord	CD-C1-3N	×1
AA dry battery	LR-6	×1
Carry case		×1
Instruction manual		×1

Option

Vibration pickup (hand-held)	PU-601R-A

※ Bearing diagnosis with the assessment table is not available if the hand-held vibration pickup is used.

※ The catalog is subject to change without notice for improvement.

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Kawatetsu Advantech Co., Ltd. has been renamed to JFE Advantech Co., Ltd. since April 1, 2004.

EC-MK21-01A

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MK-220

Specifications of MK-220 hardware

Vibration measuring part

Input signal	Vibration pickup signal 1channel		
Measurement mode Measuring frequency range Measuring range	Measuring mode	Measuring frequency range	Measuring range
	Acceleration (TH,OA)	5 to 20kHz	500 m/s^2_{0-P}*1 ($1m/s^2 \fallingdotseq 0.1G$)
	Acceleration (OA)	1k to 20kHz	
	Acceleration (PEAK)	1k to 20kHz	
	Acceleration (ENV)	1k to 20kHz	
	Velocity	5 to 1kHz	500 mm/s_{0-P}*1
	Displacement	5 to 1kHz	5000 μm_{P-P}
Frequency filter	Measuring mode	HPF	LPF
	Acceleration (TH,OA)	5, 10, 15, 20, 100, 200, 500, 1k, 2k, 5k, 10k,15k, 20kHz	1k, 2k, 5k, 10k, 15k, 20kHz
	Acceleration (OA)		
	Acceleration (PEAK)		
	Acceleration (ENV)		
	Velocity	5, 10, 15, 20, 100, 200, 500, 1kHz	100, 200, 250, 500, 1k, 2kHz
	Displacement		100, 200, 250, 500, 1kHz
Dynamic range	88dB and over		
Analyzing frequency range	10, 20, 50, 100, 200, 500, 1k, 2k, 5k, 10k, 20kHz (F.S.)		
Window function	Rectangular, Hamming, Hanning, Flat top		
Resolution	1/100, 1/200, 1/400, 1/800, 1/1600, 1/3200, 1/6400, 1/12800 of analyzing frequency range		

*Indication in G or cm/s available

Specifications of installed software

Measurement	Full automatic diagnosis, Simple diagnosis, Precision diagnosis, Vibration level measurement, Vibration analysis measurement, Designated route measurement, Unmanned measurement
Display	Vibration level, Relative value,/Absolute value judgment result, Trend graph, Absolute value judgment graph, Vibration time waveform, Frequency spectrum, Vibration measurement master, Bearing register

General specifications

Display	TFT color LCD with backlight
External memory	1GB SD card
Main power supply	Lithium ion rechargeable battery
Continuous working time	2 hours or more with 1 battery, 5 hours or more with 2 batteries
Recharging time	Within 15 hours *3 hours with genuine fast charger
Protection structure of main unit	Water/dust proofness IP67
Operating temperature	0 to 50℃ (With maximum moisture amount at 85RH in 40℃ circumstance, No condensation)
Storage temperature	-10 to 60℃ (With maximum moisture amount at 85RH in 40℃ circumstance, No condensation)
Dimensions	85 (W) × 30 (D) × 155 (H) (mm)
Mass	Approx. 380g (with 2 rechargeable batteries)

Specifications MK-220 data management software

Number of management data

Facility management	Maximum of 10,000 records
Vibration level data	Maximum of 10,000,000 records
Vibration waveform data	Maximum of 30,000 records
Vibration waveform initial data	Maximum of 10,000 records × 5 modes
MEMO data	Maximum of 10,000,000 records

Data transferring

USB	USB cable
Memory card	SD card (1GB)

Data display/output

Vibration data	Relative management graph, Relative comparison graph, Vibration time axial waveform, Vibration frequency analysis result
	Vibration frequency analysis result 3 dimensions display, Simple/Precise diagnosis report
	Diagnosis report/Vibration DC data Excel® output
MEMO data	Relative management graph, Relative comparison graph
Checking information	Checking schedule management
Data registration management	ID code, Machine specifications, Diagnosis condition, Measurement route, schedule, Machine maintenance record, Bearing resister

System requirements

PC	IBM PC/AT compatibles, CPU, RAM: OS recommended specification or above, with USB port or SD card reader/writer
OS	Windows® 7 Windows® 8.1 Windows® 10
Printer	Printers which support Windows®
Network	Applicable to Client-Server archtecture

Standard configuration

Vibration diagnoser MK-220-E			MK-220 Data management software MK-9805-E	
Main unit	MK-220-E	1	Software CD	1
Vibration pickup	PU-626E-C1-ND	1		
Magnet brock	MK-9002	1		
Rechargeable lithium ion battery	MK-9502	1		
1GB SD card	NSD6-001GH	1	MK-220 Data Management Application User's Manual	1
USB cable	KU-SLAMB510BK	1		
Carrying case	MK-9701A	1		
Instruction manual		1		

Options

Vibration pickup	PU-616E-C1-ND
Vibration pickup	PU-601R-D
Rechargeable lithium ion battery	MK-9502
Fast charger	MK-9503
AC adapter with USB outlet	SMI10-5-V-I38
1GB SD card	NSD6-001GH
MK-220 client software	MK-9805-E
Carrying case	MK-9701A
12 channel switching box	MK-8310C
Connecting cable for switching box	CJ-01-9

 Specifications may be changed with or without notice.

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EC-MK-220-01

17.10 Ⓚ

Vibration Diagnoser MAINTE PRO

MK-220

ISO9001 JQA0950

Maintenance support tool with【Full automatic Diagnosis】function

JFE Advantech Co., Ltd.

MK-220 analyze causes of vibration occurred at rotating machines and supports maintenance work by automatic diagnosis function!

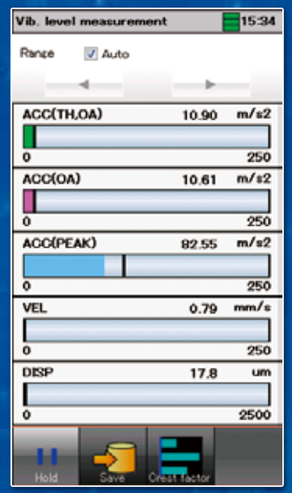
Features

- **Full automatic diagnosis**
  Even a beginner can operate by support of full automatic diagnosis function.
- **Dual operation system**
  Both touch panel operation and sheet key operation are also acceptable.
- **2 way indication**
  Easy graph readings by vertical / horizontal automatic switching indication
- **Automatic detection of rotation speed**
  Usable for machines of variable rotating speed
- **High resolution FFT**
  Resolution of 0.00078Hz (min.) enabled high level diagnosis of defect causes.
- **Trigger measurement**
  Best for measurement of natural frequencies etc.
- **Wide variations of frequency filters**
  Minimizing of frequency change at upgrading from other models
- **Fast measurement**
  Short measurement time by simultaneous measurements in all modes, supported by 24 bit AD converter
- **Downsized and lightened**
  Portable in your jacket pocket
- **Water/Dust proofness of IP67**
  Workable in rainy or dusty conditions
- **Unmanned monitoring**
  1 channel continuous measurement is available
- **Bearing register function**
  Bearing coefficient (coefficient based on the rolling frequencies) or bearing information (ball diameter, number of balls etc.) can be resistered.
- **Multifunctional data management software**
  Strong support functions for Alarm level setting, Scheduling, Report making, etc.
- **Advanced analysis functions**
  Advanced analysis of abnormality causes such as harmonic, side band, order etc. are available

※ ●:Functions of MK-220 hardware, ●:Functions of MK-220 data management software

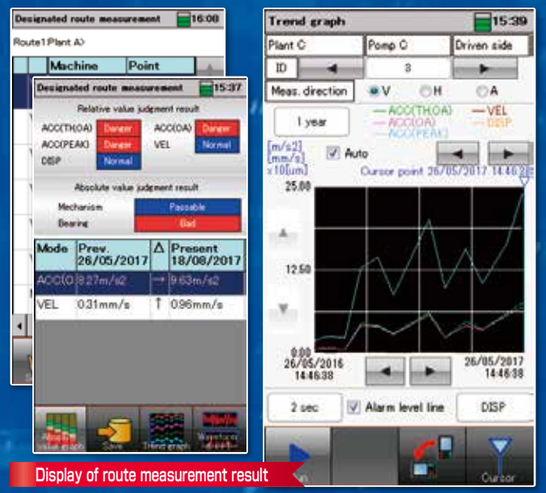
Measurement function

Vibration level measurement



Realtime color indication of all modes vibration values

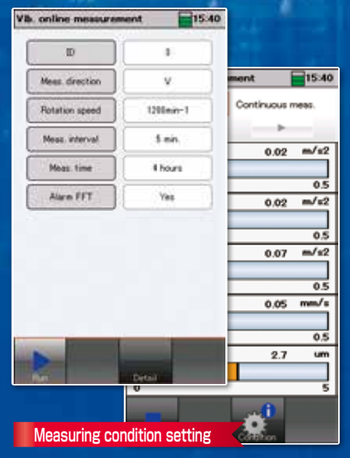
Route measurement



Display of route measurement result

Easy data acquisition based on your preset measurement route order.
Multiple measurement route orders can be stored.

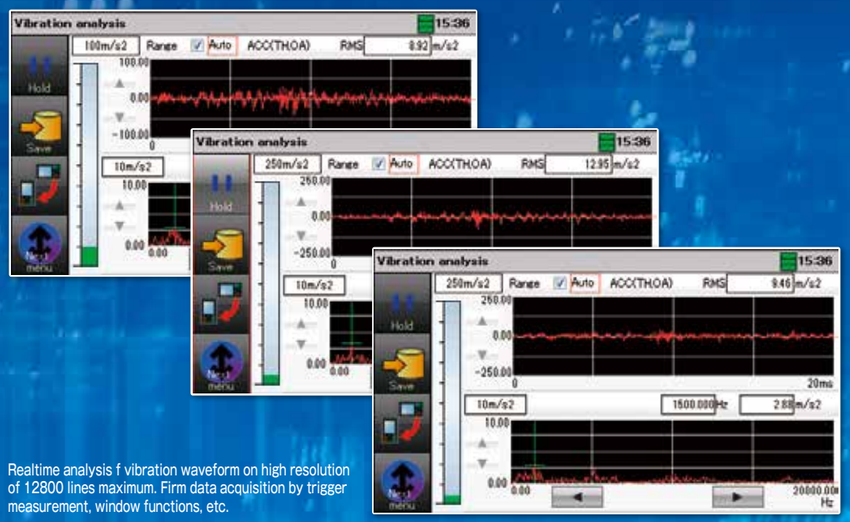
Unmanned measurement



Measuring condition setting

MK-220 can automatically and periodically acquire data, and also can be used for 1channel continuous monitoring.
* with USB AC adapter (option)

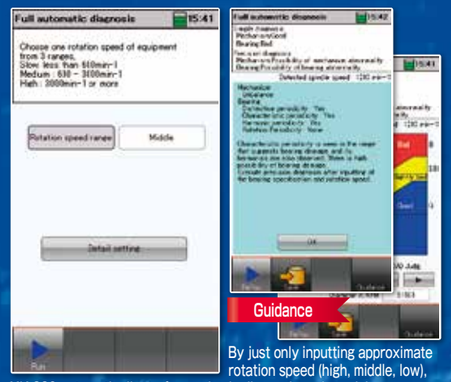
Vibration analysis measurement



Realtime analysis f vibration waveform on high resolution of 12800 lines maximum. Firm data acquisition by trigger measurement, window functions, etc.

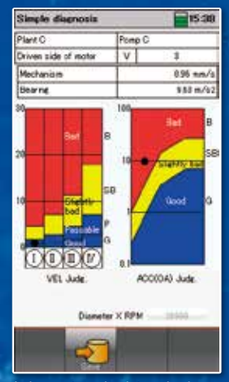
Diagnosis function

Full automatic diagnosis



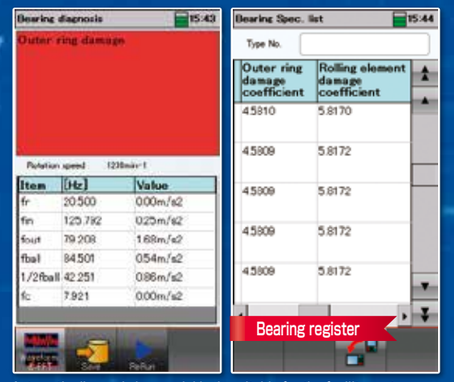
MK-220 automatically performs simple diagnosis and precision diagnosis. At detection of abnormality possibility, MK-220 automatically indicates a guidance of recommendable action.

Simple diagnosis



Judgement on absolute value by criteria based on ISO standard and our original standard.

Precision diagnosis



Automatic diagnosis by special logic suitable for the facility part.
・Bearing diagnosis ・Gear diagnosis
・Mechanism diagnosis ・Pump, Fan/Blower diagnosis ・Motor diagnosis

Precision diagnosis function

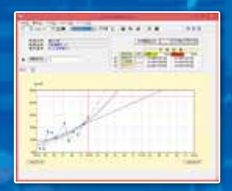
■Bearing diagnosis
Inner ring damage, Outer ring damage, Rolling elements damage, Retainer damage

■Gear diagnosis
Chipped teeth, Axial center deviation, Teeth wear, Tooth profile form error, Local deffect

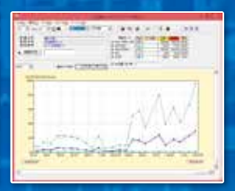
■Mechanism diagnosis
Unbalance, Misalignment, Shaft bending, Insufficient frame stiffness, Looseness, Wear of shaft, Inappropriate installation

■Pump, Fan/Blower diagnosis
Pressure pulsation, Equable wear, Uneven wear, Local defect of the impeller

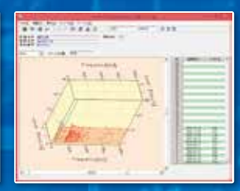
■Motor diagnosis
High Frequency Vibration, Unbalanced power supply



Deterioration prediction graph



Trend management graph



FFT 3 dimensions graph

FFT graph

Diagnosis report