

深达威®手持式测振仪

HANDHELD VIBRATION METER

用户手册

User Manual



SW-65A

中 文	-----	01~17
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English	-----	18~34
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产品执行标准：GB/T 13824-2015

用户须知

- ◆ 本手册详细介绍了产品的使用方法、注意事项以及相关事项，在使用产品之前，请仔细阅读手册，以便发挥产品的最佳效能。
- ◆ 不要在易燃、易爆的环境中使用仪器。
- ◆ 报废的仪器不可与生活垃圾一同处理，请按国家或者当地的相关法律规定处理。
- ◆ 仪器出现任何的质量问题，或对使用仪器有任何疑问时，请及时联系当地经销商或深达威厂家，我们将第一时间为您解决。

感谢您购买  **SNOWWAY**
深达威® 仪器 测振仪系列产品！

专业铸造品质 品质成就品牌

一、使用之前

装箱清单

请按下列清单认真检查仪器所有附件是否完整。如不完整，请及时联系经销商或深达威厂家。

序号	名称	单位	数量	备注
1	手持式测振仪	台	1	
2	1.5V AAA电池	节	2	
3	说明书	本	1	
4	保修卡	张	1	
5	短探针	支	1	
6	长探针	支	1	
7	吊绳	条	1	

简介

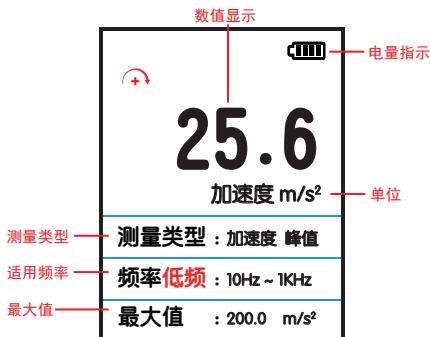
振动测试是实现设备状态与故障诊断的重要手段，手持式测振仪的使用提高了生产安全、生产质量和生产效率。

本仪器采用压电式加速度传感器，把振动信号转换成电信号，通过对输入信号的处理分析，显示出振动的加速度、速度、位移值，它广泛地被应用于机械制造、电力、冶金车辆等领域。

各部分部件名称



1. 传感器
2. 显示屏
3. 按键
4. LED照明灯
5. 电池门



按键	名称	说明
	电源键/测量键	短按开机，开机后，按住此键，开启测量
	设置键/存储键	短按进入设置，长按存储
	返回键/关机键	短按返回，长按关机
	上键/LED灯键	测量时，短按控制LED灯开关，设置时，选择选项
	下键/旋转键	测量时，短按顺时针旋转屏幕，设置时，选择选项
	底部测量键	按住此键，开启测量

技术参数

项目	SW-65A
传感器	压电式加速度传感器
加速度测量范围	0.1~199.9m/s ² (峰值)
速度测量范围	0.1~199.9mm/s (真有效值)
位移测量范围	0.001~1.999mm (峰-峰值)
测量误差	± (5%+2dgt/s)
低频加速度测量频率范围	10Hz~1KHz
高频加速度测量频率范围	1KHz~10KHz
速度测量频率范围	10Hz~1KHz
位移测量频率范围	10Hz~500Hz
存储笔数	200笔
数据刷新时间	500ms
供电	2x1.5V AAA电池
电池寿命	连续使用4个小时以上
工作温度	0°C~50°C
工作湿度	20%RH~80%RH
存储温度	-20°C~60°C
存储湿度	20%RH~80%RH
尺寸	176x54x25mm
净重	121g
海拔高度	<2000m

注意事项

- ◆ 不要在高温，高湿度的环境下使用。
- ◆ 不要在带有腐蚀性物质附近使用。

- ◆ 不要在可能被水溅湿的环境下使用。
- ◆ 不要在带有化学气体的环境中使用。

二、测量准备

安装电池

打开仪器电池门，按照电池仓里的极性指示，正确放入电池，仪器使用2x1.5V AAA电池。

安装探针

根据不同测量要求，用户可以选择不同探针（注：不同探针测量，对测量结果应有不同的评估）



- 1) 短探针为常用探针，可进行通常测量，测量结果可以信赖的。
- 2) 长探针用于测量短探针无法触及的测量点的测量，可满足通常测量要求。（但在用加速度高频档测量时，因高频衰减较快，故建议不使用长探针。）
- 3) 不使用探针，但要求探头和测量点之间有良好的接触面。这样可得到最佳的频响效果，频率可覆盖10Hz~10KHz。

一般规则

使用短探针和长探针可测量频率在10Hz~1KHz范围内的位移，速度，加速度，在加速度高频模式下，建议使用短探针而不使用长探针。使用时传感器应均匀用力，不得冲击，以免电晶体破裂。

三、仪器使用

开机与关机

短按  键开机，开机状态下，长按  键关机。

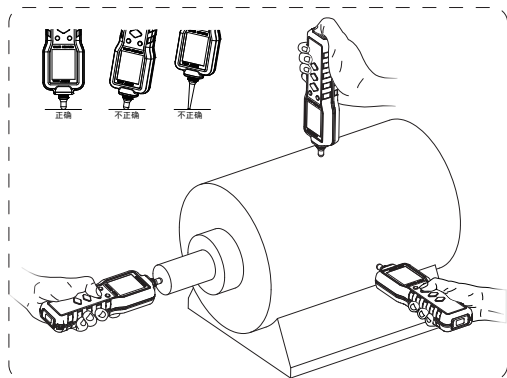
测量与数据保持

按住  键，仪器开始测量，松开  键，仪器保持数据不变。

注：

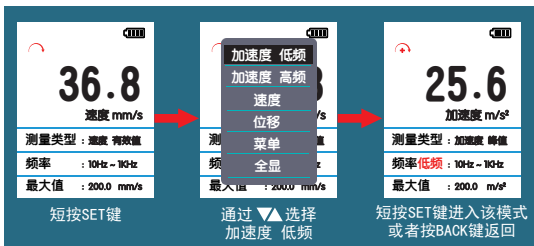
- 1) 测量时，顶住被测物体的力应在0.5~1.0kg
- 2) 探头与被测量物体表面应垂直，否则测量值不准确

测量示意图如下:



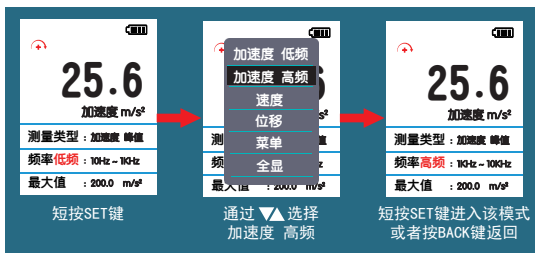
加速度低频测量

加速度低频测量适用10Hz~1KHz频率范围。操作如下:



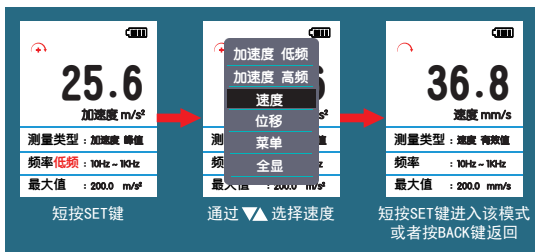
加速度高频测量

加速度高频测量适用1KHz~10KHz频率范围。操作如下：



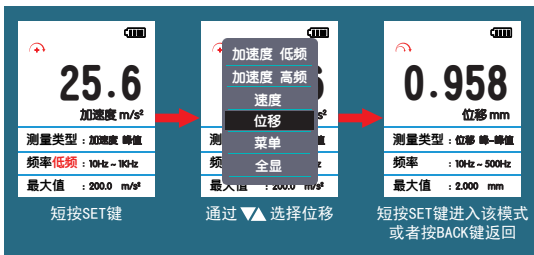
速度测量

速度测量适用10Hz~1KHz频率范围。操作如下：



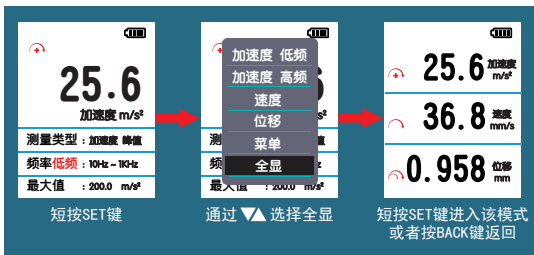
位移测量

位移测量适用10Hz~500Hz频率范围。操作如下：



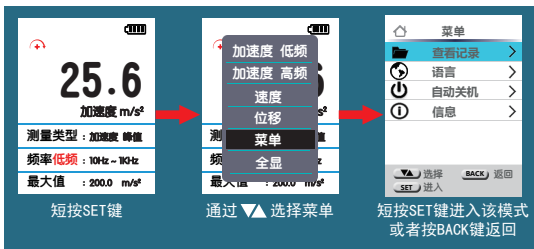
全显

全显包括加速度低频，速度，位移三个参数同时显示。操作如下：



菜单

菜单提供了查看记录、语言、自动关机、信息四个选项。操作如下：



查看记录

用户可以通过查看记录，查找历史数据。操作如下：



查看记录 1/5			
001	3.0 mm/s	速度	
002	0.041 mm	位移	
003	3.2 mm/s ²	全显	
004	3.0 mm/s ²	加速度	
005	3.1 mm/s	速度	
006	0.040 mm	位移	
▼▲ 选择 BACK 返回 SET 进入			

进入查看记录后，
短按SET键进入该页

查看记录 1/5			
001	3.0 mm/s	速度	
002	0.041 mm	位移	
003	3.2 mm/s ²	全显	
004	3.0 mm/s ²	加速度	
005	3.1 mm/s	速度	
006	0.040 mm	位移	
▼▲ 选择 BACK 返回 SET 进入			

通过 ▼▲ 选择记录号

查看记录 1/5			
001	3.0 mm/s	速度	
002			
003			
004			
005			
006	0.040 mm	位移	
▼▲ 选择 BACK 返回 SET 进入			

长按OFF键删除
当前记录号

查看记录 1/5			
001	3.0 mm/s	速度	
002	0.041 mm	位移	
003	3.2 mm/s ²	全显	
004	3.0 mm/s ²	加速度	
005	3.1 mm/s	速度	
006	0.040 mm	位移	
▼▲ 选择 BACK 返回 SET 进入			

进入查看记录后，
短按SET键进入该页

查看记录 1/5			
001	3.0 mm/s	速度	
002	0.041 mm	位移	
003	3.2 mm/s ²	全显	
004	3.0 mm/s ²	加速度	
005	3.1 mm/s	速度	
006	0.040 mm	位移	
▼▲ 选择 BACK 返回 SET 进入			

通过 ▼▲ 选择记录号

001		
		
36.8		
速度 mm/s		
测量类型：速度 有效值		
频率	: 10Hz ~ 1KHz	
最大值	: 200.0 mm/s	

短按SET键查看该条记录
明细或者按BACK键返回

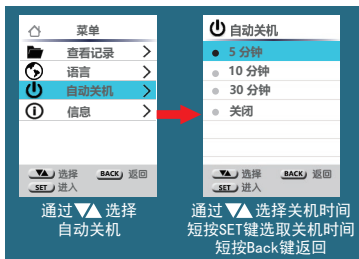
选择语言

用户可以选择中文或者英文，仪器会显示全中文或全英文界面。



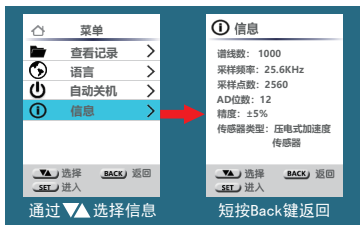
选择自动关机时间

自动关机提供5分钟、10分钟、30分钟、关闭四个选择。
操作如下：



信息

信息提供了仪器的基本参数。操作如下：



辅助功能

1. LED照明灯控制：LED照明灯开启时，短按  键，关闭照明灯；LED照明灯关闭时，短按  键，开启照明灯。用户只有在加速度、速度、位移和全显测量界面才可以控制LED照明灯。
2. 旋转屏幕：每短按一次  键，仪器会顺时针旋转屏幕，方便用户在不同方向查看。用户只有在加速度、速度、位移和全显测量界面才可以旋转屏幕。
3. 存储数据：长按  键，存储当前屏幕数据，屏幕右上方显示存储图标  及记录号。用户只有在锁定数据时才可以存储。

四、其它

常见问题

1. 开不了机：电池电量不足。
2. 加速度测量没有数据：更换不同频率的测量模式，例如从加速度低频更换到加速度高频。
3. 测量时加速度显示值不稳定：检查传感器和探针是否松动，如有松动，拧紧后再测。

仪器保养

1. 使用环境: SW-65A测振仪属精密仪器，故应严格避免碰撞、重击、潮湿、强电、磁场、油污及灰尘保养维护。
2. 更换电池及保养
 - a. 仪器工作中，当LCD屏幕出现“”符号时，用户应及时更换电池。
 - b. 长时间不使用本仪器时，请取出电池，以防电池漏液，这样将严重损坏测试仪器寿命。
3. 不要拆卸此机或试图将内部改变。
4. 机壳的清洁：酒精、稀释液对机壳尤其是对LCD屏幕有腐蚀作用，故清洗时，用少量清水轻轻擦拭即可。

a. 机器振动分级表 (ISO2372)

振动强度			适用机器类别			
振动速度Vrms (mm/s)			I	II	III	IV
0.28			A	A	A	A
0.45						
0.71						
1.12			B	B	B	B
1.8						
2.8			C	C	B	B
4.5			D	C	C	C
7.1						
11.2						
18						
28						
45				D	D	D

注:

- (1) I 类为小型电机 (小于15kW的电机等) ; II 类为中型电机 (15kW~75kW的电动机等) ; III类为大型原电机 (硬基础) ; IV类为大型原动机 (弹性基础) 。
- (2) A、B、C、D为振动级别。A级好, B级满意, C级不满意, D级不允许。测量速度RMS值应在轴承壳的三个正交方向上。

b. 大于1马力电机最大允许振动 (NEMA MG1-12.05)

转速 (r/min)	峰-峰位移幅值 (μm)
3000~4000	25.4
1500~2999	38.1
1000~1499	50.8
≤ 999	63.6

注: 对于交流电机, 使用最高同步转速; 对于直流电机, 使用最大功率转速; 对于串联和多用途电机, 使用工作转速。

c. 大型感应电机最大允许振动 (NEMA MG1-20.52)

转速 (r/min)	峰-峰位移幅值 (μm)
≥ 3000	25.4
1500~2999	50.8
1000~1499	63.6
≤ 999	76.2

以上两标准由美国电器制造商协会 (NEMA) 制订

d. 成型绕组鼠笼式感应电机

同步转速 (r/min)	峰-峰位移幅值 (μm)	
	弹性支座	刚性支座
720~1499	50.8	63.6
1500~2999	38.1	50.8
≥ 3000	25.4	25.4

本标准由美国石油学会 (API) 制订

e. ISO/IS2373 以振动速度幅值为根据的电机质量标准

质量级别	转速 (r/min)	轴高H(mm) 最大速度振幅rms (mm/s)		
		80<H<132	132<H<225	225<H<400
N(正常级)	600~3600	1.8	2.8	4.5
R(优良级)	600~1800	0.71	1.12	1.8
	1800~3600	1.12	1.8	2.8
S(特殊级)	600~1800	0.45	0.71	1.12
	1800~3600	0.71	1.12	1.8

表中所推荐的“N”级的界限值适用于一般电机。

User Instructions

- ◆ This manual introduces application method, attentions and other items about the product in detail. Please read it intently to operate the meter efficiently.
- ◆ Do not use it inflammable, explosive circumstance.
- ◆ Do not throw away the electrical waste with normal household waste, please dispose it by national or local related law and regulations.
- ◆ If there are any quality problems or any doubts about how to operate, please contact the retailer or us, we will solve it as soon as possible.

1. Before Operation

Packing Details

Please check your accessories according to the below list. If there is anything missing, please contact the local agent or stores immediately.

NO.	DESCRIPTION	UNIT	QUANTITY	REMARK
1	The Meter	pc	1	
2	1.5v/aaa Battery	pc	2	
3	Manual	pc	1	
4	Short Probe	pc	1	
5	Long Probe	pc	1	
6	Lifting Rope	pc	1	

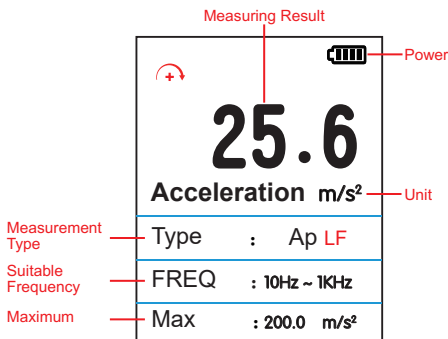
Brief Introduction

Vibration test is a crucial method of monitoring device condition and diagnosing malfunction. The utilization of handheld vibration meter improves the production safety, product quality and production efficiency. The application gets piezoelectric accelerated sensor which turns vibration signal into electrical signal, the device works by processing and analysing the input signal, and shows vibration acceleration, velocity, displacement value on screen. It is used widely in machine manufacturing, electric power, metallurgy and vehicle manufacturing fields.

Parts Name



1. Sensor
2. LCD
3. Keys
4. LED
5. Battery Cover



Keys	Names	Instructions
	Power on / Measure	Short press for power-on, then press it firmly to test
	Save / Set	Short press for setting, long press for storage
	Power off / Back	Short press to return, long press for power-off
	UP / LED Light on	Short press to switch on/off the LED light while measuring; Short press to scroll up the option while setting.
	DOWN / Rotation	Short press to rotate the screen while measuring; Short press to scroll up the option while setting.
	Bottom Measure	Press it firmly to test

Specifications

Items	SW-65A
sensor	piezoelectric accelerated sensor
acceleration measurement range	0.1~199.9m/s ² (peak value)
velocity measurement range	0.1~199.9mm/s(real-time valid value)
displacement measurement range	0.001~1.999mm(peak-peak value)
accuracy	±(5%+2dgt)
low frequency acceleration measuring frequency range	10Hz~1KHz
high frequency acceleration measuring frequency range	1KHz~10KHz
velocity measuring frequency range	10Hz~1KHz
displacement measuring frequency range	10Hz~500Hz
storage capacity	200 sets
data refresh time	500ms
power	2x1.5V AAA battery
battery working life	beyond four hours without breaks
working temperature	0°C~50°C
working humidity	20%RH~80%RH
storage temperature	-20°C~60°C
storage humidity	20%RH~80%RH
dimension	176x54x25mm
net weight	121g
height above sea level	<2000m

Attentions

- ◆ Do not use it in high temperature and humidity environment.
- ◆ Do not use it nearing corrosive materials.

- ◆ Do not use it if it could be splashed.
- ◆ Do not use it in chemical gas condition.

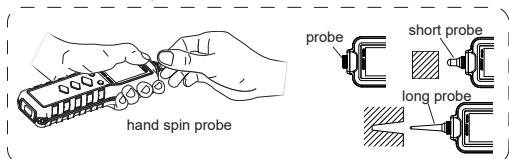
2. Preparation

Battery Installation

Open the cover, put 2*1.5V AAA batteries in according to right polarity.

Probe Installation

There are different probes for different purposes (tips: different probe corresponds with different purposes for different meets)



- 1) Short probe is utilized in common for regular testing, and the result is reliable.
- 2) Long probe is for some places where short probe can not reach, which is good for regular testing. (However, it is not suggested to use this longer probe for testing in high frequency acceleration testing, because of the quick decreasing of high frequency.)
- 3) No probes, it's crucial that the head is contacted well with the measuring point for the best frequency response result which is in range of 10Hz~10KHz.

General Regulation

In frequency range of 10Hz~1KHz, short and long probes are reliable for displacement, velocity and acceleration, but it is suggested to use short probe for high frequency acceleration testing. The bearing stress on sensor should be even, and do not impact the sensor to avoid split of transistor.

3. Operating Instructions

Power on/off

Short press  to turn it on, long press  to shut it down.

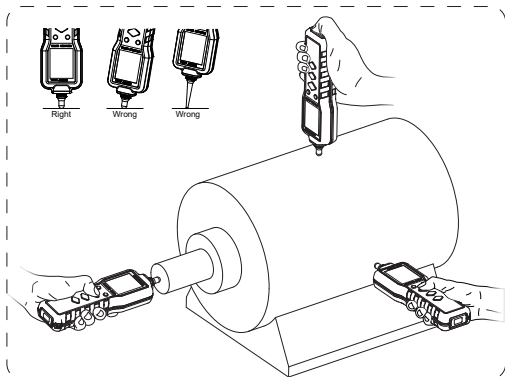
Measure and Data-locking

Press  firmly to test, loose it, the reading remains same.

Attention:

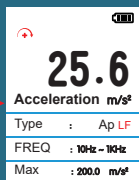
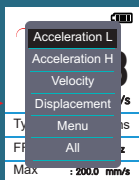
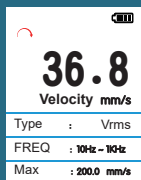
- 1) The stress acted on the tested object is 0.5~1.0kg
- 2) The probe should be vertical with the surface of tested object for accurate result.

For Example:



Acceleration Measurement in Low Frequency

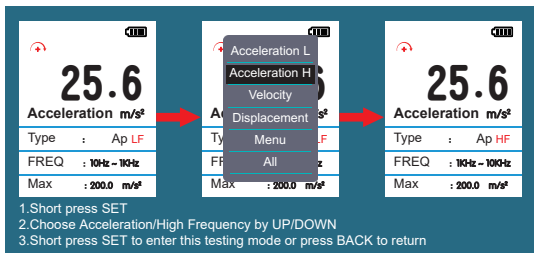
The applicable frequency range is 10Hz~1KHz.
Operations as follows:



1. Short press SET
2. Choose Acceleration/Low Frequency by UP/DOWN
3. Short press SET to enter this testing mode or press BACK to return

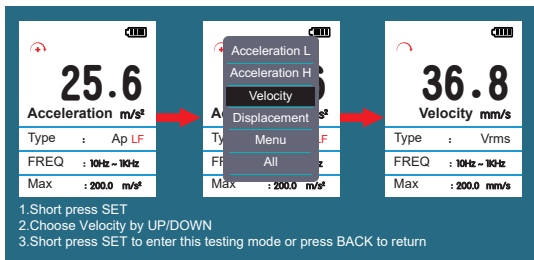
Acceleration Measurement in High Frequency

The applicable frequency range is 1KHz~10KHz.
Operations as follows:



Velocity Measuring

The applicable frequency range is 10Hz~1KHz.
Operations as follows:



Displacement Measuring

The applicable frequency range is 10Hz~500Hz.
Operations as follows:

The diagram illustrates the process of switching from Acceleration to Displacement measurement. It consists of three screens connected by red arrows. The first screen shows '25.6 Acceleration m/s²' with Type: Ap LF, FREQ: 10Hz ~ 1KHz, and Max: 200.0 m/s². The second screen is a menu with options: Acceleration L, Acceleration H, Velocity, Displacement (highlighted), Menu, and All. The third screen shows '0.958 Displacement mm' with Type: Dp-p, FREQ: 10Hz ~ 500Hz, and Max: 200.0 mm.

- 1.Short press SET
- 2.Choose Displacement by UP/DOWN
- 3.Short press SET to enter this testing mode or press BACK to return

Full Display

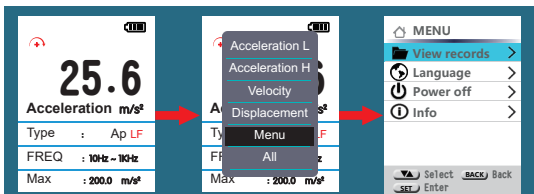
Full Display means there are three results, low frequency acceleration, velocity and displacement, show on the screen at the same time.. Operations as follows:

The diagram illustrates the process of switching to Full Display mode. It consists of three screens connected by red arrows. The first screen is the same as in the previous section: '25.6 Acceleration m/s²' with Type: Ap LF, FREQ: 10Hz ~ 1KHz, and Max: 200.0 m/s². The second screen is a menu with options: Acceleration L, Acceleration H, Velocity, Displacement, Menu, and Full Screen (highlighted). The third screen shows 'Full Display' with three results: '25.6 Ap m/s²', '36.8 Vrms mm/s', and '0.958 Dp-p mm'.

- 1.Short press SET
- 2.Choose Full Screen by UP/DOWN
- 3.Short press SET to enter this testing mode or press BACK to return

Menu

It is supported with four options: record, language, auto-off and information in the menu. Operations as below:

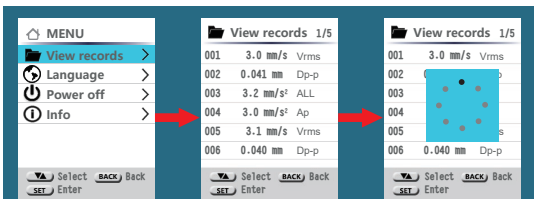


The diagram illustrates the process of entering the Menu screen. It begins with a main display showing a large value '25.6' and 'Acceleration m/s²'. Below this, it lists 'Type : Ap LF', 'FREQ : 10Hz ~ 1KHz', and 'Max : 200.0 m/s²'. A red arrow points to a selection menu where 'Menu' is highlighted among other options like 'Acceleration L', 'Acceleration H', 'Velocity', 'Displacement', and 'All'. Another red arrow points to the 'MENU' screen, which lists options: 'View records', 'Language', 'Power off', and 'Info'. At the bottom of the MENU screen are buttons for 'Select', 'Enter', 'BACK', and 'Back'.

- 1.Short press SET
- 2.Choose Menu by UP/DOWN
- 3.Short press SET to enter this testing mode or press BACK to return

View Records

User can check the historical data by view records. Operations as below:



The diagram illustrates the process of viewing records. It starts with the 'MENU' screen where 'View records' is selected. A red arrow points to a list of records titled 'View records 1/5'. The list contains six entries with various data points and units. Another red arrow points to a detailed view of a record, also titled 'View records 1/5', which shows a scatter plot of data points and the corresponding numerical values for each entry.

- 1.Select RECORD by UP/DOWN, press SET to go into the record page
- 2.Turn page by UP/DOWN
- 3.Long press OFF to delete all records in current page

View records 1/5		
001	3.0 mm/s	Vrms
002	0.041 mm	Dp-p
003	3.2 mm/s ²	ALL
004	3.0 mm/s ²	Ap
005	3.1 mm/s	Vrms
006	0.040 mm	Dp-p
[UP] Select [BACK] Back [SET] Enter		

View records 1/5		
001	3.0 mm/s	Vrms
002	0.041 mm	Dp-p
003	3.2 mm/s ²	ALL
004	3.0 mm/s ²	Ap
005	3.1 mm/s	Vrms
006	0.040 mm	Dp-p
[UP] Select [BACK] Back [SET] Enter		

View records 1/5		
001	3.0 mm/s	Vrms
002	0.041 mm	Dp-p
003	3.2 mm/s ²	ALL
004	3.0 mm/s ²	Ap
005	3.1 mm/s	Vrms
006	0.040 mm	Dp-p
[UP] Select [BACK] Back [SET] Enter		

- 1.Short press SET to enter the record page
- 2.Choose record number by UP/DOWN
- 3.Long press OFF to delete the current record number

View records 1/5		
001	3.0 mm/s	Vrms
002	0.041 mm	Dp-p
003	3.2 mm/s ²	ALL
004	3.0 mm/s ²	Ap
005	3.1 mm/s	Vrms
006	0.040 mm	Dp-p
[UP] Select [BACK] Back [SET] Enter		

View records 1/5		
001	3.0 mm/s	Vrms
002	0.041 mm	Dp-p
003	3.2 mm/s ²	ALL
004	3.0 mm/s ²	Ap
005	3.1 mm/s	Vrms
006	0.040 mm	Dp-p
[UP] Select [BACK] Back [SET] Enter		

 001 		
36.8 Velocity mm/s		
Type	:	Vrms
FREQ	:	10Hz ~ 1KHz
Max	:	200.0 mm/s

- 1.Short press SET to enter the record page
- 2.Choose record number by UP/DOWN
- 3.Short press SET to check the record details or press BACK to return

Language

The device is supported in Chinese and English. To select language as below:

The diagram illustrates the process of selecting the language. It consists of three panels connected by red arrows. The first panel shows the 'MENU' screen with options: 'View records', 'Language', 'Power off', and 'Info'. The 'Language' option is highlighted. The second panel shows the 'Language' selection screen with two options: '中文' (Chinese) and 'English'. The '中文' option is highlighted. The third panel shows the 'Acceleration' measurement screen with a large display of '25.6' and various settings like 'Type', 'FREQ', and 'Max'.

1. Choose Language by UP/DOWN.
2. Choose Language by press UP/DOWN, short press SET to save the setting. Then short press BACK to return.

Auto Power off Time

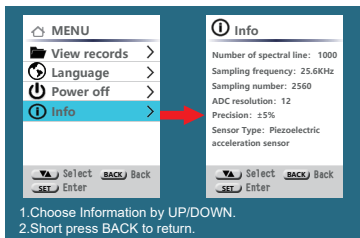
There are four options for auto power off time.
Operation as follows:

The diagram illustrates the process of selecting the auto power off time. It consists of three panels connected by red arrows. The first panel shows the 'MENU' screen with options: 'View records', 'Language', 'Power off', and 'Info'. The 'Power off' option is highlighted. The second panel shows the 'Power off' selection screen with four options: '5 minutes', '10 minutes', '30 minutes', and 'Off'. The '5 minutes' option is highlighted.

1. Choose Power off by UP/DOWN.
2. Select off time by press UP/DOWN, short press SET to save the setting. Then short press BACK to return.

Information

It shows Basic parameters in this page.
Operations as follows:



Auxiliary Functions

1. LED Light: Short press  to turn it on/off. This operation can only be done in full display measuring page.
2. Screen Rotation: Short press  to rotate the screen in clockwise. This operation can only be done in full display measuring page.
3. Data storage: Long press  to save the current result. The storage icon  and record number shows on the right top of the screen. This operation can only be done when the result is locked.

4. Others

General Problems

1. Cannot be power on: Out of battery.
2. No result for acceleration testing: switch different frequency testing mode, for instance, switch low frequency acceleration into high frequency.
3. The acceleration reading is unstable: check if the sensor and probe are loose. Tighten it, then test again if it is.

Maintenance

1. Working environment: the vibration meter is a precise device, so keep it strictly from crash, impact, humid, strong current, magnetic field, greasy and dust environments.
2. Changing batteries and maintenance
 - a. Please change batteries when on LCD screen shows low-power icon .
 - b. Please take batteries out if no operations for a long while, in case the leakage of batteries which can severely damage the device.
3. Do not disassemble or reform inner construction of this device.
4. Surface cleaning: Ethyl alcohol、diluent have corrosive effect on the body surface of the device, especially the LCD window, so please just scrub it gently with a bit of pure water.

Appendix

a. Machine vibration grading form(ISO2372)

vibration intensity			applicable machine types			
vibration velocity $V_{rms}(mm/s)$			I	II	III	IV
	0.28		A	A	A	A
	0.45					
	0.71					
	1.12		B	B	B	B
	1.8					
	2.8		C	C	C	C
	4.5					
	7.1		D	D	D	D
	11.2					
	18					
	28					
	45					

Attention:

- (1) I type is small-sized motor that its power is below 15kw; II type is medium-sized that its power is from 15kw to 75kw; III type is large-scale original motor(based on hardness connection); IV type is based on resilient connection.
- (2) Vibration grades:A,B,C,D grade. A for good, B for satisfaction, C for unsatisfaction, D for unallowed. Measure velocity RMS value should be in three orthogonal directions of the bearing cap.

b. The max limited vibration value for motors that its power is beyond 1 horsepower(NEMA MG1-12.05)

REV(r/min)	peak-to-peak displacement amplitude(μm)
3000~4000	25.4
1500~2999	38.1
1000~1499	50.8
≤ 999	63.6

For AC motor, the rev is the top synchronous speed; For DC motor or multi-purpose motor, it is working rev.

c. The Max limited vibration value of lager-scale inductive motor(NEMA MG1-20.52)

REV(r/min)	peak-to-peak displacement amplitude(μm)
≥ 3000	25.4
1500~2999	50.8
1000~1499	63.6
≤ 999	76.2

Both standards above are made by National Electrical Manufactures Association in America(NEMA).

d. Performed winding squirrel-cage inductive motor

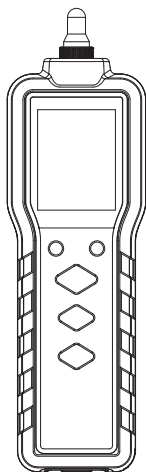
synchronous speed(r/min)	peak-to-peak displacement amplitude(μm)	
	elastic support	steel support
720~1499	50.8	63.6
1500~2999	38.1	50.8
≥ 3000	25.4	25.4

This standard is made by American petroleum institute(API)

e. ISO/IS2373 The quality standard based on vibration velocity amplitude

grade of quality	REV(r/min)	shaft heightH(mm), max velocity amplituderms(mm/s)		
		$80 < H < 132$	$132 < H < 225$	$225 < H < 400$
N(normal level)	600~3600	1.8	2.8	4.5
R(good level)	600~1800	0.71	1.12	1.8
	1800~3600	1.12	1.8	2.8
S(special level)	600~1800	0.45	0.71	1.12
	1800~3600	0.71	1.12	1.8

This threshold value of "N" in the table applies to normal motor.



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