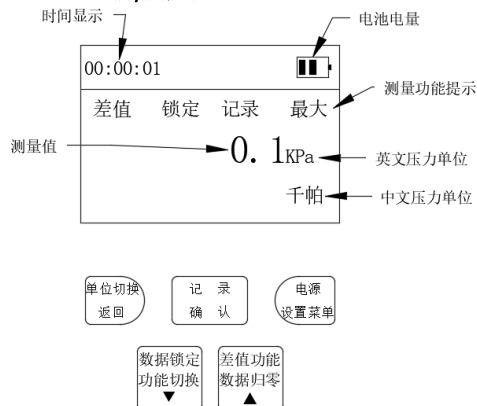


伊莱科数字式微压差计 EM520
(专业版)
使用说明书

1.产品特点:

- ◆本仪器采用先进的单片机芯片和点阵式 LCD 屏技术,实现了集多功能、高精度、中文/英文操作界面语言选择、压力上下限提示等多功能为一体的仪表。
- ◆仪表采用高精度微差压传感器,并可以测量封闭管道风速(须用户方自备皮托管)。
- ◆仪表内置 12 个常用压力单位,2 个风速测量单位,涵盖公制和英制,适合不同行业和国家的用户使用。
- ◆采用中文/英文操作系统,用户可自行设定系统语言。
- ◆具有压力值上下限制值设置功能,压力超设置限值,仪表屏幕闪烁提示。
- ◆测量风速时可根据不同环境设定空气密度值(Kg/m^3 或 lb/ft^3)
- ◆具有 50 笔数据存储功能。
- ◆具有自动关机和手动关机切换功能,满足用户不同的现场测量需求。

2.LCD 显示屏/按键功能



3.技术参数

- ◆分辨率: 1pa (帕斯卡) /0.01KPa (千帕) /0.01inH2O (英寸水柱)
- ◆精确度: $\leq \pm 3\%FS$
- ◆具有数据归零功能, HOLD 测量值锁定功能
- ◆限制量程: $\pm 5000Pa$ (超量程使用将损坏仪表)
- ◆重复性: $\pm 0.25\%FS$
- ◆测量反应时间 ≈ 0.5 秒($25^\circ\text{C} \pm 2^\circ\text{C}$)

- ◆压力连接: 一个 1/8" (3.18 毫米) 的快速接头
- ◆工作环境温度: $0^\circ\text{C} \sim 40^\circ\text{C}$
- ◆存储温度范围: $-10^\circ\text{C} \sim 60^\circ\text{C}$
- ◆超量程提示: HI (出现此提示请停止使用, 超量程使用将损坏仪表)
- ◆产品供电: 9V 6F22 电池 1 节供电 (不开背光约 30 小时连续使用时间)
- ◆产品净重: 163g (含保护套不含电池和配件)
- ◆产品尺寸: $155\text{mm} \times 80\text{mm} \times 32\text{mm}$ (含保护套)
- ◆测量封闭管道的风速风压需用户自备皮托管方可进行测试。
- 提示: 设计与规格如有更改, 恕不另行通知。
- 3.1 包装内容物
 - ◆主机 $\times 1$
 - ◆软管 $\times 2$
 - ◆6F22 9V 电池 $\times 1$ (取下保护套, 打开电池盖安装, 注意电池正负极)
 - ◆说明书 $\times 1$
 - ◆合格证 $\times 1$
 - ◆TPU 材质保护套 $\times 1$

3.2 压力、风速单位分辨率

压力单位	读法	分辨率
Pa	帕斯卡	1
KPa	千帕	0.01
Bar	巴	0.001
Ozin ²	盎司平方英寸	0.01
Psi	磅力/平方英寸	0.001
inHg	英寸汞柱	0.001
mbar	毫巴	0.1
mmHg	毫米汞柱	0.01
cmH ₂ O	厘米水柱	0.1
ftH ₂ O	英尺水柱	0.001
inH ₂ O	英寸水柱	0.01
Kgcm ²	千克力/平方厘米	0.001
m/s	米/秒	0.1
fpm	尺/分钟	1

4.仪表功能介绍:

- 4.1、开关机说明: 按开/关机键开机, 开机后即进入正常测量模式, 长按开/关机键仪表关机。
- 4.2、清零操作: 仪表正常开机后即进入测量状态,

- 压力不一定会归零。请先选择好压力单位后, 长按“归零”键, 进行手动归零即可。
- 4.3、压力单位选择: 短按“单位切换”键, 可以进行压力单位的选择。
- 4.4、最大/最小/平均功能设置: 长按“功能切换”键, 可以开启切换最大最小/平均测量模式, 屏幕上也会显示出当前的功能模式字符。
- 4.5、差值(差压)测量: 按“差值功能”键, 屏幕出现“差值”字符开启, 差值模式是开启后的测量的压力值减去未开启“差值”模式前的压力值。
- 4.6、数据锁定: 测量过程中短按“数据锁定”键, 屏幕出现“锁定”字符, 可以保持当前的测量值, 再次按下“数据锁定”键关闭数据保持功能。
- 4.7、数据记录功能: 每按一次“记录”键, 仪表存储一次数据(屏幕会出现“记录”字符), 最多存储 50 笔数据, 并具有关机后数据存储功能!
- 4.8、数据记录清除功能: 长按“记录”键, 屏幕出现“清除”字符, 仪表内保存全部数据被清除!
- 4.9、为提高仪表电池续航和节能, 仪表背光为按键触发式, 在正常测量模式中按任意按键(除开/关机键)即可触发背光亮起, 背光延时亮起约为 15 秒。
- 4.10、本仪表默认为手动关机, 如需自动关机请在定时关机中进行设置。
- 5.仪表采用先进的单片机技术, 内置多功能系统菜单, 具体功能操作方法如下:
 - 5.1、短按“设置菜单”键进入系统菜单。
 - 5.2、查看数据: 按“确认”键进入, 按上下键可以查看测量过程中记录的数据, 按“返回”键退出。
 - 5.3、超限设置: 若使用本功能, 需要现在先在超限开关栏按中“确认”键进入, 然后设置为开, 屏幕出现“设置成功”后, 可以在数据上限或数据下限中按上下键设置超限数值, 设置完毕后按确认键退出, 在测量使用的过程中测量到的数据超出设置的超限数值, 仪表 LCD 屏将会闪烁提示。
 - 5.4、时间设定: 仪表每次开机默认起始时间为 00:00:00(小时:分钟:秒), “确认”键进入, 在时间设定中可设置为正常时间。
注: 本时间设定仅限开机后一次性设定, 不具有时钟保存功能, 再次开机时间将归零。
 - 5.5、语言切换: 按“确认”键进入, 可根据使用需求在中文和英文语言系统进行选择切换。
 - 5.6、定时关机: 按“确认”键进入, 可以根据使用需求在 5 分钟/10 分钟/不关机三个选择中进行设

- 置, 选择不关机即为手动关机或电池耗尽关机。
- 5.7、空气密度设定: 按“确认”键进入, 按上下键可调节设定参数, 长按返回键可以切换密度单位(Kg/m^3 or lb/ft^3), 设定好之后短按确认键退出即可。
- 5.8、恢复出厂值: 按“确认”键进入, 选择“是”, 仪表将进行一次初始化。
- 6.关于使用微差压计测量风速说明:
 - 6.1、必须使用皮托管进行测试(皮托管非标配件, 用户自行购买)。
 - 6.2、每一种皮托管都有它对应的空气密度, 仪表可以进行空气密度设定, 每个生产皮托管的厂家所生产的皮托管的空气密度系数不同, 空气密度系数需要咨询皮托管的生产厂家, 常用的皮托管系数设定如下:
 - L 型皮托管系数: 0.99~1.01
 - S 型皮托管系数: 0.81~0.86
 - 6.3、皮托管的全压出口通过软管接到仪表的“+”正压力检测口并确保接口紧配不泄漏, 皮托管的静压出口通过软管接到仪表的“-”负压压力检测口并确保接口紧配不泄漏。
 - 6.4、皮托管检测风速, 在没有风速流动的前提下, 显示有风速值是属于正常现象, 小于 3.0m/s 的风速值不作为正确的风速值参考, 有风速被检测到之后, 大于 3.0m/s 以上的风速值可以作为真实的风速数值。

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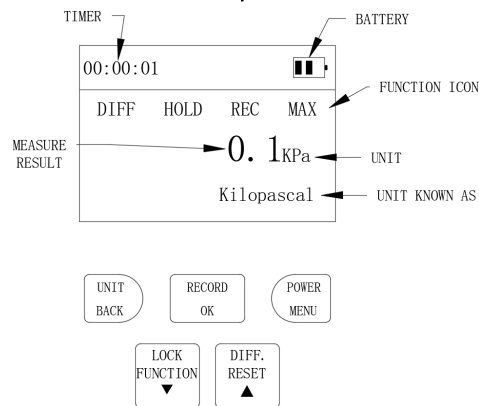
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ELECALL Digital Micro-Pressure Meter EM520
(Professional)
User Manual

1.PRODUCT FEATURE:

- This instrument combined cutting-edge MCU technology and dot-matrix display.
- Multi-function, high-precision, Simp. Chinese/English operation language selection, and pressure min./max. tips, all-in-one instrument.
- Equipped high-precision micro-pressure sensor, flow speed in closed-tunnel can also to be tested(Pitot tube sold separately).
- Based on Metric and Imperial, 12 pressure units and 2 flow speed units are ready for different technical regions and foreigner mankind to use.
- Select the language displayed on screen between Simp. Chinese and English.
- Pressure upper and lower limitation could prompt when pressure exceed the limit which set by user.
- Based on different environment, air-density could be set during the flow speed measuring(Kg/m^3 or lb/ft^3).
- A maximum of 50 records can be stored.
- Easily for measuring work with shutdown the device automatically or manually.

2.LCD DISPLAY SCREEN/KEY BUTTON



3.technical specification

- Resolution: 1 Pascal / 0.01 kilo Pascal / 0.01inH₂O
- Accuracy: $\leq \pm 3\% \text{FS}$
- Reset to zero and HOLD to lock value function.
- Limitation: $\pm 5000 \text{Pa}$ (Damage could occurred if using beyond this range)
- Repeatability: $\pm 0.25\% \text{FS}$

- Measuring reaction time: $\approx 0.5 \text{s} (25^\circ \text{C} \pm 2^\circ \text{C})$
- Pressure connection: By 1/8"(3.18 mm) Rapid Connector
- Working Environment Temperature: $0^\circ \text{C} \sim 40^\circ \text{C}$
- Storing Environment Temperature: $-10^\circ \text{C} \sim 60^\circ \text{C}$
- Prompt when over range: HI(STOP USING IMMEDIATELY IF DISPLAYED OR THE INSTRUMENT COULD BE CRUSHED)
- Power Supply: By 9V 6F22 Battery(Provide 30 hrs. battery life continuously without backlight)
- Net weight: 163g(With protective case, no battery and accessories)
- Size: 155mm $\times$ 80mm $\times$ 32mm(With protective case)
- Pitot tube used in flow speed measuring sold separately.

Tips: Design and specifications are subject to change without notice.

3.1. What's In Package

- Digital Micro-Pressure Meter EM520 $\times$ 1
- Tube $\times$ 2
- 6F22 9V Battery $\times$ 1(Remove protective case then battery cover to install. Make sure "+", "-" matched)
- User Manual $\times$ 1
- Certificate $\times$ 1
- TPU Protective Case $\times$ 1

3.2 Pressure/Flow Speed Unit Resolution

Unit	Known As...	Resolution
Pa	Pascal	1
KPa	Kilo Pascal	0.01
Bar	Bar	0.001
Ozin ²	Ounces Square Inch	0.01
Psi	Pounds Per Square Inch	0.001
inHg	Inch of Mercury	0.001
mbar	Millibar	0.1
mmHg	Millimeter of Mercury	0.01
cmH ₂ O	Centimetre of Water	0.1
ftH ₂ O	Feet Water Column	0.001
inH ₂ O	Inch of Watch	0.01
Kgcm ²	Kg Per sq. cm	0.001
m/s	Meter Per Second	0.1
fpm	Feet Per Minute	1

4. INSTRUMENT FUNCTION INTRODUCTION

- 4.1. Startup: Hit POWER button to boot in measuring mode. Hold POWER button until power off.
- 4.2. Reset to Zero: Pressure value may not reset to zero after boot normally. Hold the RESET button to reset it manually after the unit has been set done.
- 4.3. Pressure Unit Select: Hit UNIT button to switch in different pressure units.
- 4.4. Max./Min./Avg. Setting: Hold FUNCTION button to select mode as below and will shown on screen: Maximum, minimize, and average.
- 4.5. Differential Measuring: Hit DIFF. button then starting differential measuring with DIFF icon on screen. After that, current measuring result is subtracted from the pressure value before DIFF. mode is turned on.
- 4.6. Result Lock: Hit LOCK button to hold current result displayed on screen and hit it again to release.
- 4.7. Data Saving: Hold RECORD button to save value to storage(and REC icon will display). A maximum of 50 records can be stored even power off.
- 4.8. Data Clear: Hold RECORD button until DEL icon display and ALL DATA STORED WOULD BE ERASED IMMEDIATELY.
- 4.9. To keep battery lifetime healthy and saving power energy, backlight would only light up between 2 times of button hitting if less than 15 sec, and shutdown without any operation.
- 4.10. Auto shutdown function could be switched on menu to replace operate manually.

5.SYSTEM MENU

- 5.1. Hit MENU button to gain access into menu.
- 5.2. View Data: Hit OK button to view data manually stored data when measuring, and navigate by using UP and DOWN button. Hit BACK button to escape.
- 5.3. Overrun: To activate notification when overrun, configure upper and lower limit after switch this function in menu ("Success" icon would display), then hit BACK button to escape. Backlight would flash rapidly if the measuring result is far from setting value.
- 5.4. Time Adjust: Time would be returned into 00:00:00(HH:MM:SS) when startup every time. Adjust current time in this menu and would lost after shutdown.
- 5.5. Language: Using this menu to change

system language between Simp. Chinese and English.

5.6. Shutdown: Using this menu to change auto shutdown countdown as below: 5 min, 10 min and never off. Never off options would not shutdown instrument automatically until hold POWER button or battery is empty.

5.7. Air Density: Using UP and DOWN button to configure this value and press OK to confirm adjustment. Remember switch the unit by holding UNIT button.

5.8. Restore: Using this menu by select Yes, then restoration of factory setting would in progress.

6. Flow Speed Measuring Introduction

6.1. This operation must be performed by pitot tube(sold separately).

6.2. Every pitot tube has a unique air density ratio and should be matched by setting value. Contact the manufactor to confirm. Normally, it could be:

L-type pitot ratio: 0.99~ 1.01

S-type pitot ratio: 0.81~ 0.86

6.3. Connect the pitot tube's total pressure nozzle to "+" terminal on instrument, and static side to "-". Make sure it's matched currently and connected tightly.

6.4. When measure flow speed in a static area, the value under 3.0m/s could be ignored but treated it as normal. If the flow detected, value beyond 3.0m/s is valuable to read.

ELECALL®REGISTERED BRAND

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