WIPCOOL®

IDEAL PRODUCTS FOR HVAC

APC1000

非接触式检相仪/Inverter Phase Checker

使用说明书/User Manual

P/N:110401112771X

Preface

Thank you for purchasing this brand new product. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

WIPCOOL guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of WIPCOOL. If you need warranty service within the warranty period, please contact your seller directly.

WIPCOOL will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

Content

⚠ Warning

Thank you for purchasing our APC1000 non-contact inverter phase checker, for better use of this product, be sure to:
——To read this manual carefully.
——Comply strictly with safety rules and precautions set out in this manual.

- Pay special attention to safety under any circumstances while using the instrument.
- Take note of the label text and symbols on the panel and back of the instrument.
- Check the instrument, lead wire and clamps, make sure no damage, no exposed and no break.
- Please don't touch an exposed wire in measurement.
- Please don't place and store the instrument at the place with high temperature, humidity, moisture condensation and straight sunlight for a long time.
- Remove the battery if the instrument is not in use for a long time.
- Take not of the polarity when replacing the battery, don't replace batteries before moving away the clamps from wires.
- The operation, disassembly and maintenance of the instrument must be carried out by qualified personnel authorized to do so.
- The instrument should be stopped from being used immediately and sealed if danger is brought up in case of continued use; only a competent body can be authorized to deal with it.

- If use the detector without following up the operating instructions, the protection provided by the detector may be impaired or lost.
- This product can not be used in an environment containing dangerous uninsulation conductors or conductors with damaged insulation
- "⚠" on the instrument is the warning sign, the contents of this manual must be followed for safe operation.
- "⚠" in the manual is the danger sign, the contents of this manual must be followed for safe operation.

Introduction

APC1000 Non-contact inverter phase checker breaks through the traditional methods of phase detection. The traditional method is to connect three exposed clips or probes to three bared live wires, so it needs to disconnect the three wires. While APC1000 Non-contact inverter phase checker adopts non-contact measurement, no need to disconnect wires, no need to touch high voltage bared live wires. With the three clamps clipped on the insulation layer of three phase live wires, then the phase can be detected, meanwhile sound and light indicates positive and negative states.

APC1000 Non-contact inverter phase checker also has the functions of live wire examination, power inspection, phase deficiency judgement, breakpoints finding, breakpoints positioning.

APC1000 Non-contact inverter phase checker is a convenient and fast tool for phase detection, with clear display . It improves the safety of field testing, ensures the safety of operators, increases productivity.

Electrical Symbols

⚠	Extremely dangerous! The operator must strictly abide by the safety rules, otherwise there is a risk of electric shock, resulting bodily injury or fatalities.
⚠	Warning! Safety rules must be abided by, otherwise personal injury or equipment damage may be caused.
~	Alternate Current (AC)
⎓	Direct Current (DC)
CAT III	It is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage MAINS installation.
CAT IV	It is applicable to test and measuring circuits connected at the source of the building's low-voltage MAINS installation.

Technical Specification

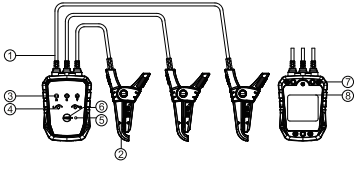
Function	Phase detection (positive/negative), power inspection, phase deficiency judgement, breakpoints finding, breakpoints positioning, wire examination.
Battery	2*1.5V AA (R6P)
Measurement Range	70-1000VAC (Three phase), 45Hz~66Hz (sine wave, continuously)
Diameter of wires to be clamped	Outer diameter: ø2mm~ø40mm (insulated wire)
LED Display	Positive phase sequence: R-S-T lamps light up, synchronized R lamp lights up green, the buzzer sounds intermittently and slowly.
	Negative phase sequence: R-S-T lamps light up, synchronized L lamp lights up red, the buzzer sounds intermittently and fast.
	Line-voltage indication: R-S-T lamps light up
	Default phase: R-S-T lamps light off
	Open circuit: R-S-T lamps light off
Power-on Indication	Power indicator lamp lights up blue
Auto Power Off	The power will be turned off automatically if the instrument remains idle for 5 minutes after the power is turned on.

Dimension	88mm(L)x66mm(W)x30mm(H)
Lead Wire Length	0.6m
Weight	238g (including batteries)
Operating Temperature and Humidity	0°C~50°C; below 85% RH, non-condensing
Storage temperature and Humidity	-20°C~60°C; below 90% RH, non-condensing
Maximum Measurement Voltage	AC 1000V
Dielectric Strength	5.4kVrms
Safety Specifications	CE, UKCA, IP52, EN61010-1: 2010+A1: 2019, EN 61010-2-030:2021+A11:2021, pollution class 2, CAT III 1000V, CAT IV 600V, transient over voltage 8000v, Indoor use

Corresponding Relation

A	B	C
L1	L2	L3
R	S	T
U	V	W

Structure

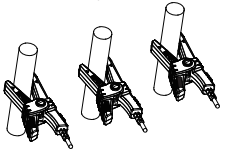


1. Lead wire
2. Clamps
3. R, S, T indicator lamp
4. Phase sequence indicator lamp
5. Power on indicator lamp
6. Power on/off button
7. Magnet
8. Battery compartment

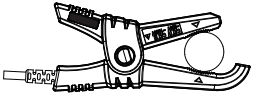
Operating Method

1. Phase sequence detection
   Danger! High voltage! Please pay attention to safety!

(1). Clamp three phase wires with the three clamps respectively and arbitrarily.



(2). Put the wires at the position marked with "▲" "▼"



(3). Press "POWER" button, the power indicator lamp lights up blue and the buzzer sounds once. If the lamp cannot light up, maybe the battery is in low power or check the instrument, in that case, please replace the battery or repair the instrument.

(4). If the three phase sequence indicator lamps lights up and R indicator lamp lights up green, and the buzzer sounds intermittently and slowly, so it is positive phase sequence. If the three phase sequence indicator lamps lights up and L indicator lamp lights up red, and the buzzer sounds intermittently and fast, so it is negative phase sequence

(5). Press "POWER" button in power-on state, the power indicator lamp turns off and the buzzer sounds once. The power will be turned off automatically if the instrument remains idle for 5 minutes after the power is turned on, to reduce power consumption.

2. Live wire examination, power inspection, phase deficiency judgement, breakpoints finding
Danger! High voltage! Please pay attention to safety!

(1). Clamp one wire with any one of clamps, if it is an electrified wire (AC 70-1000V), R, S, T lamps light up. In this way to check whether the wire is electrified.

(2). Clamp one wire with any one of clamps, if there is phase deficiency, R, S, T lamps won't light up.

(3). Clamp one wire with any one of clamps and move the clamp along the wire, if R, S, T lamps light off, it means the section wire before this point has a break. Breakpoints can be found out accurately by shortening the range of detection. It is a convenient and safe method for non-contact detection.
Note: This function is very suitable for detecting the circuit fault in the wire, safe and fast!

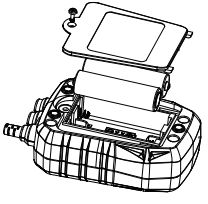
(4). Clamps and lamps corresponding table:

Test state	Power-on indication	LED indicator state						Buzzer
		R	S	T	Positive phase R	Negative phase L		
Positive phase	●	●	●	●	●	○	Constant on	Intermittent and slow sound
Negative phase	●	●	●	●	○	●	Constant on	Intermittent and fast sound
No phase deficiency (Clip two clamps on the same electrified wire)	●	●	●	●	○	○	Flicker	No sound
A phase deficiency	●	○	●	●	○	○	Constant on	No sound
B phase deficiency	●	●	○	●	○	○	Constant on	No sound
C phase deficiency	●	●	●	○	○	○	Constant on	No sound

Battery Replacement

Pay attention to the battery polarity!

1. Make sure the clamps have moved away from wires, don't replace the batteries during measurement.
2. Press "POWER" to turn off the instrument.
3. Loosen the screw, and then remove the battery cover.
4. Replace the batteries with new ones, notice the polarity.
5. Put the battery cover back in place, and tighten the screw.
6. Press "POWER" to check whether the instrument can be turned on normally, if it cannot be turned on, please check if the battery power is sufficient or repeat step 3.



Trouble Shooting

Symptoms	Possible Causes	Remedies
Can't power on (LED power indicator lamp is off, without any display)	No batteries	Set the batteries
	Wrong battery type	Replace with right type
	Insufficient capacity of battery	Replace the batteries
	Faulty battery polarity	Install batteries in correct polarity
	Poor contact of battery contacts	Replace the battery contacts
	Battery cover not completely covered	Cover it again
	Defect of circuit component	Repair or replace the PCB
LED dim display	Insufficient capacity of battery	Replace the batteries
Incapable of measurement	The three phase wires are not electrified	Not belong to instrument faults
	Failed to clamp the fine wire	Wind the fine wire around the clamp
	Failed to clamp the wire	Refer the manual to clamp again
	Lead wire break	Change the lead wire
	Defect of circuit component	Repair or replace the PCB

Packing List

Instrument ---------- 1 pc
Cloth bag ---------- 1 pc
Battery ---------- 2 pcs
User manual ---------- 1 pc
Certificate ---------- 1 pc

APC1000 User Manual

序 言

尊敬的用户：

您好！感谢您选购全新的维朋仪表，为了正确使用本仪表，请您在本仪表使用之前仔细阅读本说明书全文，特别有关“安全注意事项”的部分。

如果您已经阅读完本说明书全文，建议您将此说明书进行妥善的保管，与仪器一同放置或者放在您随时可以查阅的地方，以便在将来的使用过程中进行查阅。

有限担保和有限责任

维朋公司担保本产品自购买之日起一年内，在材料和工艺上均无任何缺陷。本担保不适用于保险丝，一次性电池，或由于意外、疏忽、误用、改装、污染及非正常操作或处理引起的损坏。经销商无权以维朋的名义给予其它任何担保。如在保修期内需要保修服务，请与您就近的维朋授权服务中心联系，获得产品退还授权信息；然后将产品寄至该服务中心，并附上产品问题描述。

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目　录

⚠警 告

感谢您购买了本公司的APC1000非接触式检相仪，为了更好地使用本产品，请一定：

--------详细阅读本用户手册。

--------严格遵守本手册所列出的安全规则及注意事项。

- 任何情况下，使用本仪表应特别注意安全。
- 注意本仪表面板及背板的标贴文字及符号。
- 使用前应确认仪表、引线、钳夹的绝缘层无破损、裸露及断线才能使用。
- 测试过程中，绝对禁止触摸裸露的被检导线。
- 请勿于高温潮湿，有结露的场所及日光直射下长时间放置和存放仪表。
- 长时间不用本仪表，请取出电池。
- 更换电池，请注意电池极性，严禁在钳夹没有移离被测导线时更换电池。
- 使用、拆卸、维修本仪表，必须由有授权资格的人员操作。
- 由于本仪器原因，继续使用会带来危险时，应立即停止使用，并马上封存，由有授权资格的机构处理。
- 仪器上的“ ⚠ ”警告标志，使用者必须严格依照指示进行安全操作。
- 手册中的“ ⚠ ”危险标志，使用者必须严格依照指示进行安全操作。

一、简介

APC1000 非接触式检相仪是传统相序检测方法的重大突破，传统的相序检测是必须将三相电线的接线柱拨开，将相序表的三个裸露夹子或测试针连接到裸露的3条火线上，而APC1000采用钳形非接触感应式测量，不用拨开电线，无需接触高压裸露火线，直接将三个超感应高绝缘钳夹分别夹住三相火线的绝缘外皮即可检测相序，同时声光指示三相电源相序的正相或逆相状态。

APC1000非接触式检相仪还具有线路断点查找、简易检电、活电检查、线路检修等功能。

APC1000非接触式检相仪检测快捷、方便，显示一目了然，大大提高了现场测试的安全性，切实保护了操作人员的人身安全，增长了生产力！是三相电源相序、电机检测、线路检修的安规仪表！

二、电气符号

⚠	极其危险！操作者必须严格遵守安全规则，否则有电击危险，造成人身伤害或伤亡事故。
⚠	警告！操作者必须严格遵守安全规则，否则造成人身伤害或设备损坏。
~	交流（AC）
⎓	直流（DC）

三、技术规格

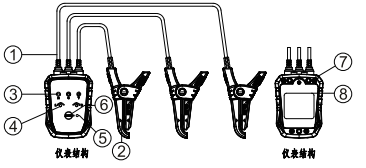
功能	检相（正相，逆相）、简易检电、缺相判断、断路查找、断点定位、线路检修
电池	2*1.5V AA （R6P）
测量电压范围	三相电70-1000VAC 45Hz~66Hz（正弦波连续输入）
可钳导线尺寸	外径ϕ2mm～ϕ40mm绝缘线
LED显示	**正相**：R、S、T三个检相指示灯亮，同时R（绿色）指示灯亮，间歇蜂鸣慢响；
	逆相：R、S、T三个检相指示灯亮，同时L（红色）指示灯亮，间歇蜂鸣快响；
	活电：电压设定范围内，夹钳对应的R、S、T检相指示灯亮
	缺相：电压设定范围内，夹钳对应的R、S、T检相指示灯不亮
	断路：电压设定范围内，夹钳对应的R、S、T检相指示灯不亮
开机指示	开机后，开机指示灯蓝灯亮
自动关机	开机约5分钟后，仪表自动关机
仪表尺寸	长x宽x高：88mmx66mmx30mm

夹钳引线长	0. 6m
仪表重量	238g（含电池）
工作温湿度	0°C～50°C；85% RH以下，无冷凝
存储温湿度	-20°C～60°C；90% RH以下，无冷凝
测量最高电压	AC 1000V
绝缘强度	5. 4kVrms
安规标准	CE，UKCA，IP52，EN61010， 污染等级2，CAT III 1000V， CAT IV 600V，瞬间过电压8000V

四、三相电不同地方对应关系

A	B	C
L1	L2	L3
R	S	T
U	V	W

五、仪器结构



1	夹钳引线	5	开机指示灯
2	探测夹钳	6	开/关机按键
3	R、S、T状态指示灯	7	磁铁
4	L、R相序指示灯	8	电池仓

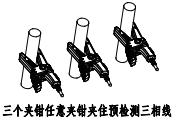
六、操作方法

1> 相序检测

危险！有高压！请特别注意安全！

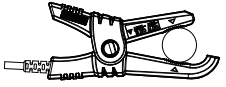
(1). 检测连接

用三个夹钳任意钳夹住预检测的三相线（见下图）



三个夹钳任意夹钳夹住预检测三相线

(2). 被测量导线处于钳口标识位置"▲""▼"之间(见下图)



被测导线处于钳口位置

(3). 按"POWER"开机键，其右边的蓝色电源指示灯亮，同时蜂鸣器短响一声。若开机电源指示灯不亮，可能电池缺电或检查仪器，请按手册指示更换电池或送修。

(4). 开机后，若三个相序指示灯R、S、T指示灯亮，同时R（绿色）指示灯亮，仪表发现间歇"滴滴"慢响声，则所钳夹相线为正相序；
若三个相序指示灯R、S、T指示灯亮，同时L（红色）指示灯亮，仪表发现间歇"滴滴滴"快响声，则所钳夹相线为逆相序；

(5). 在开机的状态下按住"POWER"键，蓝色指示灯灭，同时蜂鸣器鸣响一声后关机。仪器开机约5分钟后会自动关机，以降低电池消耗。

2> 活线检查、简易检电、缺相判断、断路查找危险！有高压！请特别注意安全！

(1). 用任一夹钳钳夹住被测导线，导线若有电（在电压设定范围以内AC70-1000V），夹钳对应的R、S、T的指示灯会亮，可以检测导线是否带电，相当于感应测电笔。

(2). 用任一夹钳钳夹住被测导线，若有缺相，夹钳对应的R、S、T指示灯不会点亮；

(3). 用任一夹钳沿所检修的线路钳夹测该导线不同位置，若钳夹测点R、S、T的指示灯不亮，则该点前有疑似线路断开。通过缩短夹测点的位置，能查找出线路的断线精确位置；非接触式检测非常方便安全。注：此功能非常适合检测线路中的断路故障，安全快速！

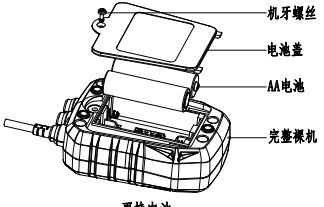
(4). 夹钳与指示灯状态对应表

测试状态	开机指示	LED灯指示状态						蜂鸣器
		R	S	T	正相R	逆相L		
正相	●	●	●	●	●	○	常亮	间歇蜂鸣慢响
逆相	●	●	●	●	○	●	常亮	间歇蜂鸣快响
不缺相(两个夹在同一条带电的线上)	●	●	●	●	○	○	闪烁	不响
缺A相	●	○	●	●	○	○	常亮	不响
缺B相	●	●	○	●	○	○	常亮	不响
缺C相	●	●	●	○	○	○	常亮	不响

七、电池更换：

请注意电池极性！

1. 更换电池前，必须将夹钳移离被检导线，禁止在测试过程中更换电池。
2. 按“POWER”键关机。
3. 拧开仪表电池后盖上的一枚螺丝，打开电池后盖。
4. 换上全新合格的电池，请注意电池极性及规格。
5. 合上电池后盖，拧紧螺丝。
6. 按“POWER”键，检查仪表能否正常开机，若不能开机，请检查电池电量是否足够或按第３步重新操作。



更换电池

八、常见问题解答

故障现象	可能原因	处理办法
无法开机（LED电源指示灯不亮，无任何显示）	没有装电池	装上合格的电池
	电池规格不符	更换符合规格的电池
	电池电量不足	更换全新合格的电池
	电池装反	按电池正确极性重装
	电池接触不良	调整电池位置重装
	电池后盖没有盖好	盖好电池后盖
	电路板元件坏	维修或更换电路板
LED显示较暗	电池电量不足	更换全新合格的电池
能正常开机，但无法检测	被检三相线无电	不属于仪器问题
	被测导线太细，钳不住	将被测试线绕几圈在钳夹上
	钳夹没有夹住被检相线	按手册要求重新钳夹
	钳夹引线断线	更换钳夹引线
	电路板元件坏	维修或更换电路板

九、装箱清单

仪表	1台
布包	1个
5号碱性电池	2节
用户手册	1份
合格证	1份

本说明书内容如有变更，恕不另行通知！

APC1000说明书