



上海康比利仪表有限公司

SHANGHAI COMPLEE INSTRUMENT CO.,LTD.

©Installation of Point Meter 安装式指针仪表 ©Tautband Movement 张丝仪表机芯



Several 3D-rendered shapes in blue, purple, and orange, resembling stylized letters or abstract forms, scattered around the title.

Complee *profile*

Shanghai Complee Instrument Co., Ltd. (short for Complee), is a member of National Standardization Committee for Electrical Meters & Instruments, is a leading manufacturer specializing in various kinds of electrical measuring instruments and current transformers and Hall Effect sensors.

In 1995, Complee was established in Zhejiang Province, and transferred its headquarter to Songjiang Technology Zone in Shanghai in 2004, with new factory area of 18000 m² and workshop area of 10000m². Complee has the excellent engineers and mould-making technicians team, which make a strong research and development ability. Complee own sound quality management system, manufacturing and quality control ability.

Complee has owned the ISO9001:2008, CE, CB and KEMA-KEUR certificates. Complee's marine meters are conferred by Det Norske Veritas (DNV), Germanischer Lloyd (GL) and China Classification Society (CCS), and its explosion-proof meters has gained National PCEC Anti-explosion Certificate.

Complee has established a cooperative R&D and Sales relationship with companies from Germany, U.S.A. etc. Complee's products have been enjoying the lead both at home and abroad. Complee's panel meters conform to IEC60051, IEC61010, and Digital Parameter Meters conform to GB/T22264-2008, and the current transformers comply with IEC61869 and GB20840.KLY series which export to Germany are made according to DIN43700 and DIN61010.

Complee's products are widely used in military, aviation, high-speed railway, subway, shipping, oil, chemical industry, welding, architecture, industrial equipment, transmission and distribution, etc. and gain high reputations and trust. Moreover, We are honored to be chosen by GMW, ABB and SIEMENS to be their supplier.

By adhering to "quality first, customer foremost", Complee cordially serves its domestic and oversea markets to cast a well-known international brand "Complee" based on its consistent efforts for exploitation and innovation.





>>> 公司简介

上海康比利仪表有限公司（以下简称康比利公司）是全国电工仪器仪表标准化技术委员会的成员之一，专业生产各种安装式电测量仪表、互感器及传感器等产品。

康比利公司于1995年在浙江创立，2004年公司总部迁移上海松江科技园区。公司占地18000 m²，厂房面积10000 m²。康比利拥有优秀的工程技术团队和优秀的模具制造团队，具有强大的研发能力。康比利公司拥有完善的质量管理体系，强大的生产能力和质量控制能力。

康比利公司通过了ISO9001-2008认证，仪表产品已通过Intertek公司的CE和CB认证，并获得KEMA-KEUR认证证书。船用仪表获得了中国船级社CCS型式认可证书、挪威船级社DNV.GL认证证书和德国劳氏船级社GL认证证书。防爆产品获得了中国PCEC防爆合格证书。

康比利公司和德国、美国等国家的仪表同行建立了生产、销售和共同研发的良好关系，使康比利产品的质量和技术在国内同行中始终处于领先水平，在国际同行业中处于一流水平。康比利公司产品严格按照IEC60051、IEC61010国际标准和GB/T7676-1998国家标准生产，数字表产品按照GB/T22264-2008标准生产，互感器产品严格按照IEC61869国际标准和GB20840国家标准生产。

康比利产品被广泛应用在国际和国内的航天航空，高速铁路，地铁，船舶，石油，化工，焊接，建筑，工业装备，输配电等各个领域的设备上，并获得了高度好评。是ABB、SIEMENS、德国GMW等国际著名公司的长期配套供应商。

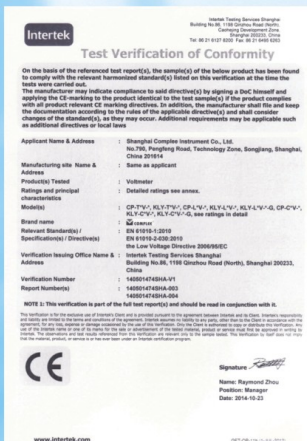
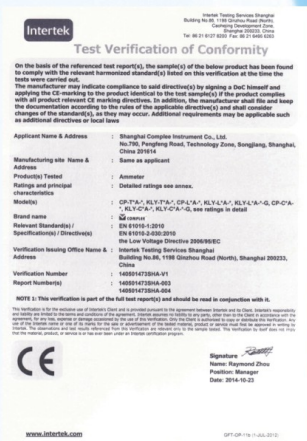
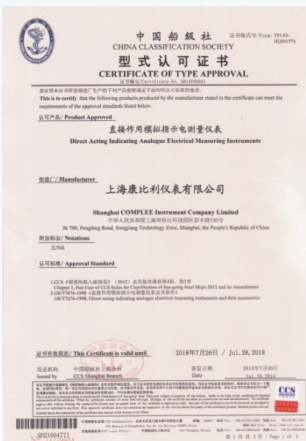
康比利公司始终以“质量第一，顾客至上”为方针，诚心服务于国内外市场的各个领域，以创立国际知名品牌为战略目标，不断开拓创新，发展前进。

Certificate Qualification

资质证书

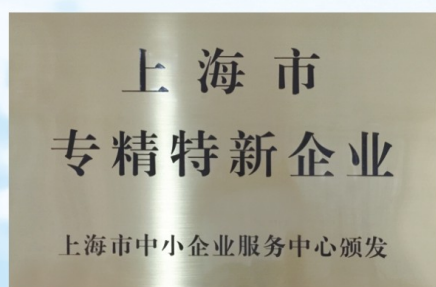
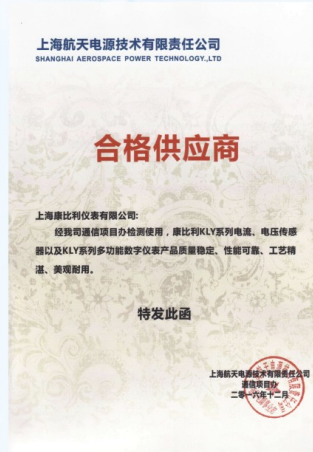
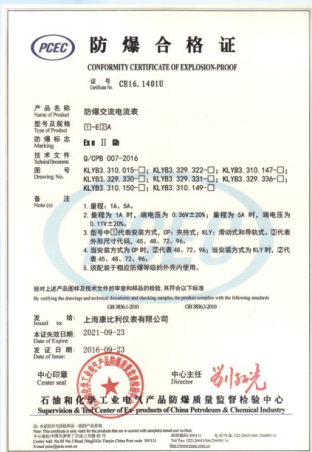
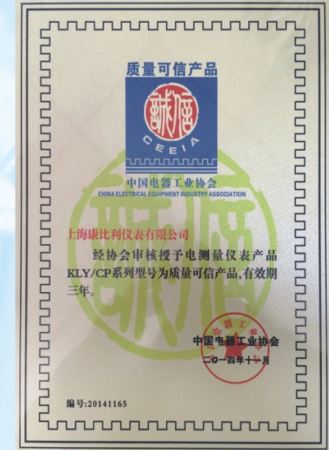
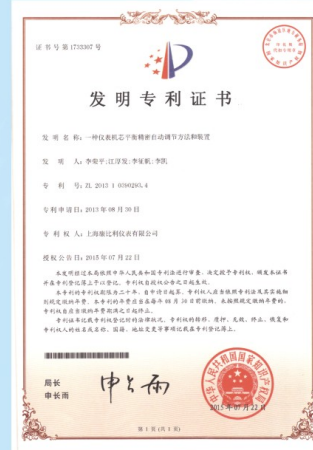
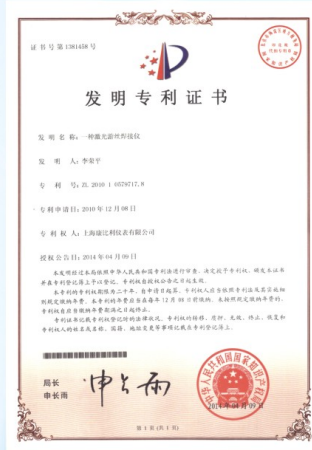


荣誉只表明昨天，立足今天，我们奋力铸造优良品质.....



Science and Technology High Quality.

Famous Brand, Faithfull Service 科技成果，优质产品，知名品牌，真诚服务.....



Installation of Point Meter 安装式指针仪表	01-03
Square Panel Meter 方型仪表	05
AC Ammeter and Voltmeter/AC Ammeter with Rectifier/0V Voltmeter 交流电流表和电压表/整流型交流电流表/0V电压表	05
AC Voltmeter with Rectifier/Rated Value Voltmeter/AC Ammeter and Voltmeter with Rectifier (Scale:250°)	
整流型交流电压表/额定电压表/整流型交流电流表和电压表(广角度显示)	08
DC Ammeter and Voltmeter/Non-electric Units Indicator 直流电流表和直流电压表/非电量测量仪表	08
Double Meter/Four Meter 双机构仪表/四机构仪表	09
Thermometer 温度表	10
Transducing Output Meter 变送输出表	12
Meter with LED Alarm 报警表(光柱式)	14
Meter with Alarm(Simple Type)/Explosion-proof Meter 报警表(简易式)/防爆仪表	16
AC Ammeter and Voltmeter with Selector Switch /Pointer Frequency Meter 带转换开关的交流电流表和电压表/指针式频率表	18
Maximum Demand Indicator 最大需量表	20
Power Factor Meter 功率因数表	22
Power Meter 功率表	24
Power & Energy Meter 功率电能表	29
Synchroscope 同步表	31
Net Insulation Monitor 电网绝缘监测仪	33
Hours Run Meter/Phase Sequence Indicator 累计时间表/相序表	35
X-COIL Meter (Stepping Motor Meter) 仪表(步进电机仪表)	37
Illuminated Meter/Rudder Angle Meter/Tachometer 夜光表/舵角表/转速表	39
Panorama Rudder Angle Indicator 全视窗舵角指示器	41
Angular Position Transmitter 舵角传感器	43
Mounting Introduction and Dimension 安装方式介绍和尺寸	44
Square Panel Round Barrel Meter/Rectangular Panel Round Barrel Meter 方圆型仪表/矩圆型仪表	45
Rectangular Panel Meter 矩型仪表	48
DIN Rail Mounted Meter 导轨型仪表	49
Switch Position Indicator 开关位置指示器	50
Connection Diagram 接线图	52-56
Introduction on Tautband Movement 张丝仪表机芯介绍	57

Models and Shapes (Square Panel: Page 44, Square Panel Round Barrel, Rectangular Panel Round Barrel: Page 47, Rectangular Panel :Page 48, Mounting with DIN Rail: Page 49)

Square Panel: KLY-48, KLY-72, KLY-96, KLY-120, KLY-144, KLY-192, CP-48, CP-72, CP-80, CP-96

Square Panel Round Barrel: KLY-50, KLY-60, KLY-80, KLY-01, KLY-02, KLY-03, KLY-04

Square Panel for Marine: KLY-801, KLY-1101

Rectangular Panel Round Barrel: KLY-560, KLY-670, KLY-780, KLY-8100, KLY-1020

Rectangular Panel: KLY-9681, KLY-9682, KLY-D3, KLY-4124

Mounting with DIN Rail: KLY-45, KLY-365, KLY-725

Explosion-proof with DIN rail mounting: KLY-E45, KLY-E72-III

Application

- > Complee's KLY and CP series meters are direct acting indicating analogue electrical measuring instruments. Measuring DC/AC current, voltage; frequency, power, power factor, phase sequence, synchroscope, position indication, network insulation monitoring, hour runs meter and other non-electric measurement.
- > KLY series meter mainly use on various AC/DC Transmission and distribution system, power control panel and electrical equipment for various industries such as, marine, rail, aviation, chemical and explosive-proof, nuclear power, high/mid voltage equipment, power generator set and control engineering. It is high end meter, and suitable for complicated environment to measure electric/non-electric energy.
- > CP series meter mainly use on low voltage equipment, construction/mechanical equipment, various AC/DC power distribution system, electrical control panel and equipment. It is mid/low end meter, and suitable for universal environment to measure electric/non-electric energy.
- > The digital meters measure and display the current, voltage, frequency, power and power factor in power system and automation control system.

Standard

- > Complee's KLY and CP series are manufactured according to GB/T7676-1998 and IEC60051. And also meet the safety standard GB4793 and IEC61010. KLY Square series meets the requirements of double insulation of IEC61010, and conform to ROHS directive. The design of scale and pointer fits the standard of Germany DIN43790 and DIN43802. Dimensions and panel cutouts conform to GB/T1242 and IEC61554.
- > Digital meters comply with the National Standard GB/T22264-2008.

Certificate

- > Complee's products have passed, the CE and CB certificate of Intertek And have acquired the KEMA-KEUR certificate. Its marine products were conferred CCS and DNV.GL certificate. Its explosion-proof products have attained Chinese PCEC explosion-proof qualified certificate.

Case

- > The external case and the foundation of KLY /CP series is made of non-combustible PC plastics whose Vicat temperature is 130°C.

Ingress Protection Ratings

- > The KLY series is regular IP40 and can be customized with IP52, IP54, IP56, and IP65. The CP series is regular IP40 and can be customized with IP52. Note: The Ingress Protection Ratings is not for the whole meter, only for the front part of the meter including the frame, glass and scale plate.

Operating Temperature

- > KLY series: -25°C~+55°C; CP series: -20°C~+40°C.

Storage Temperature

- > -40°C~+70°C.

Insulation Test

- > KLY series (KLY-72, 96, 144, 801 and 1101) is tested under AC 5300V and 50Hz for 1 minute. Its creepage distance is 12.5mm. KLY series (KLY-48, 50, 560, 60, 670, 780, 80 and 8100) is tested under AC 2500V and 50Hz for 1 minute. Its creepage distance is 6.3mm. CP series is tested under AC 2500V and 50Hz for 1 minute. Its creepage distance is 6.3mm. All requirements conform to IEC61010-1.

产品型号及外形方式(方型见第44页, 方圆形, 矩圆形见第47页, 矩型见第48页, 导轨式安装见第49页)

方型: KLY-48, KLY-72, KLY-96, KLY-120, KLY-144, KLY-192; CP-48, CP-72, CP-80, CP-96

方圆形: KLY-50, KLY-60, KLY-80,

KLY-01, KLY-02, KLY-03, KLY-04

船用方圆形: KLY-801, KLY-1101

矩圆形: KLY-560, KLY-670, KLY-780, KLY-8100, KLY-1020

矩型: KLY-9681, KLY-9682, KLY-D3, KLY-4124

导轨型: KLY-45, KLY-365, KLY-725

防爆配导轨式安装: KLY-E45, KLY-E72-III

用途

- > 康比利公司KLY系列和CP系列仪表是直接作用模拟显示电测量指示仪表, 测量直流电流, 直流电压, 交流电流, 交流电压, 频率, 功率, 功率因数, 相序, 同步指示, 位置指示, 电网绝缘监测, 时间累计及其它的非电量测量。
- > KLY系列仪表被广泛应用于海事船舶, 轨道交通, 航天航空, 化工防爆, 核能发电, 高中压成套装备, 发电机组, 工程测控等行业的各种交直流输电系统、电力控制屏及用电设备上。作用于电测量和非电量测量, 是适用于环境条件较为复杂要求严格的高档仪表。
- > CP系列仪表大量应用于低压成套装备, 建筑设备, 机械设备等行业的各种交直流输电系统、电力控制屏及用电设备上。作用于电测量和非电量测量, 是适用于环境条件要求较为通用的中高档仪表。
- > 康比利公司数字仪表适用于电力系统和自动化控制系统, 作用于对电流, 电压, 频率, 功率, 功率因数等电参量进行测量和显示。

标准

- > 康比利公司KLY系列和CP系列仪表按照GB/T7676-1998和IEC60051标准生产, 其安全性能按照GB4793和IEC61010标准生产。KLY系列方型仪表符合IEC61010的双重绝缘要求; 符合环保ROHS指令。标度盘的刻度线与指针设计符合德国DIN43790和DIN43802标准。
- > 仪表的外形和开孔尺寸按照GB/T1242和IEC61554标准生产。
- > 数字表参照国家GB/T22264-2008标准生产。

认证

- > 康比利公司产品已通过 Intertek公司的CE和CB认证, 并获得KEMA-KEUR认证证书。康比利公司防爆产品获得中国PCEC防爆合格证书, 船用产品获得中国船级社 CCS 型式认可证书及挪威船级社DNV.GL认证证书。

外壳

- > KLY/CP系列外壳和底座均由阻燃PC塑料制成, 维卡温度130°C。

防护等级

- > KLY系列方形仪表前面板部分防护等级常规IP40, 以上可以定制防护等级IP52、IP54、IP56、IP65; CP系列仪表前面板部分防护等级常规IP40, 以上可以定制防护等级IP52。

工作温度

- > KLY系列仪表可在-25°C~+55°C的温度下无故障工作; CP系列仪表可在-20°C~+40°C的温度下无故障工作。

储存温度范围

- > -40°C~+70°C。

电压试验

- > KLY-72、KLY-96、KLY-144、KLY-801、KLY-1101的爬电距离为12.5mm, 绝缘耐压试验的频率为50Hz, 电压为AC 5300V, 持续时间为1分钟。KLY-48、KLY-50、KLY-560、KLY-60、KLY-670、KLY-780、KLY-80、KLY-8100的爬电距离为6.3mm, 绝缘耐压试验频率为50Hz, 电压为AC 2500V, 持续时间为1分钟。CP系列爬电距离为6.3mm, 绝缘耐压试验频率为50Hz, 电压为AC 2500V, 持续时间为1分钟。所有要求均按照IEC61010-1规定。

Temperature Influence

- > The reference temperature is $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$.
- > Within the range of $13^{\circ}\text{C} \sim 23^{\circ}\text{C}$ and $23^{\circ}\text{C} \sim 33^{\circ}\text{C}$, the accuracy class that are affected by temperature are within $-100\% \sim +100\%$ of the meter's standard accuracy class.

Installation Angle

- > Generally, meters are installed in the vertical position. Other installation positions such as: horizontal installation, tilt installation can be made according to clients' requirements. The accuracy class is just valid for the corresponding installation mode.

Mounting

- > Various designs of the mounting method are available on request.
- > KLY series Square Panel Meter, Standard: Pushing tight type (IV)
Optional: Flush mounting with bolt (iron) (IX), Mosaic board type (II), DIN rail type (III);
KLY series Square-round and the Rectangular-round Meter
Standard: Surface mounting (V);
Optional: Bezel mounting (VI), Pushing tight type (IV);
KLY series Rectangular Meter Standard: Pushing tight type (IV);
Optional: Flush mounting with bolt (iron) (IX).
- > DIN Rail Meters are with DIN rail type (III).
- > CP series Square Meters are with Pushing tight type (IV).

Vibration and Shock

- > Anti-vibration meets the standard of IEC60068-2-6.
Sweep frequency range: 10-55-10Hz; Wave amplitude: $\pm 0.15\text{mm}$, $\pm 0.3\text{mm}$;
Sweep frequency cyclic index: 5 times Sweep frequency rate: 10ct/min;
Peak acceleration: 147m/s^2 ($\approx 15\text{g}$), 490m/s^2 ($\approx 50\text{g}$).
Special instrument customization: random vibration;
sweep range: 20-2000Hz; acceleration RMS: 6.06g; time of vibration: 15min.
Mechanical shock resistance meets the standard of IEC60068-2-27.

Safety Precautions

- > Instruments with damaged bezels or glass face plates must be disconnected from the mains. Dials, front frames and windows may only be replaced under voltage-free conditions.
The meter should be kept clean, if the meter is used in a manner not specified by the manufacturer, the protective function may be impaired.

Accuracy Class

- > Analogue panel meter: AC/DC Voltmeter or Ammeter is class 1.5 or class 2.5; Power Meter is class 1.5; Frequency Meter is class 0.5 or 1.0; Maximum Demand Indicator is class 3.0; Power Factor Meter is class 2.5.
- > Digital meter: Digital Frequency Meter is $\pm (0.1\% \text{reading} + 2\text{digit})$; the others are $\pm (0.5\% \text{reading} + 2\text{digit})$.

Damping and Overshoot

- > The overshoot is less than 15% when the pointer is at the 2/3 of the scale. Damping and overshoot can be customized according to user's requirements.

Overload Ammeter

- > The regular overload is 1 time (without overload) or 2 times. It can be customized to 1.2, 3, 5 or 6 times. This overload functions is indicating the rough value as an instant overload current is occurred, for instance, when the motor starts.

Voltage Drop (By External Shunt)

- > The voltage drop to 150mV, 100mV, 75mV, 60mV and 50mV by externally attached shunt for DC ammeters are available.
The resistance for the connection wire (between meter and shunt) should be within the scope of 15~25mΩ to ensure the accuracy of the meter.

Internal Resistance of DC meter

- > For the internal resistance of the DC Voltmeter, normally we do 1000Ω/V. It can be customized to 2000Ω/V or 5000Ω/V.
- > DC ammeter with high internal resistance (60~180Ω) is available.

Glass

- > We use full line of glass, such as high clear glass, anti-glaring glass, explosion-proof glass, and transparent plastic material etc.

温度引起的改变量

- > 参比温度为 $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 。
- > $13^{\circ}\text{C} \sim 23^{\circ}\text{C}$ 以及 $23^{\circ}\text{C} \sim 33^{\circ}\text{C}$ 温度范围内，温度影响允许改变量不大于等级指数的 $\pm 100\%$ 。

安装位置

- > 除非另有规定，通常仪表是在垂直位置安装。其它安装位置如：水平安装、倾斜安装可根据客户要求制作。相应的准确度等级仅对规定的安装位置有效。

安装方式

- > 设计有多种安装方式可供选择。所有安装方式简单，牢固，可靠。
- > KLY系列方型仪表安装方式提供推紧式(IV)，可定制提供铁件夹持式(IX)、马赛克式(II)、导轨式(III)；CP系列方型仪表安装方式提供推紧式(IV)；
KLY系列方圆型和矩圆型仪表安装方式提供螺栓紧固式(V)，可定制提供卡式面框(VI)，推紧式(IV)；KLY系列矩型仪表安装方式提供推紧式(IV)；可定制提供铁件夹持式(IX)；
> 导轨式系列仪表安装方式提供导轨式(III)。
- > 除常规安装方式外，订货时需注明定制的安装方式。

抗振动和冲击的影响

- > 抗振动，符合IEC60068-2-6标准；扫频范围：10-55-10Hz，位移振幅： $\pm 0.15\text{mm}$ ， $\pm 0.3\text{mm}$ ；扫频循环次数：5次；扫频速率：10ct/min；最大加速度： 147m/s^2 (15g)， 490m/s^2 (50g)。特殊仪表定制：随机振动；扫频范围：20-2000Hz；加速度有效值：6.06g；振动时间：15min。
抗机械冲击，符合IEC60068-2-27标准。

安全注意

- > 在安装接线或拆卸仪表时务必切断电源。标度盘、盖框和玻璃务必在断电情况下才能更换。仪表应保持清洁，按制造商的要求使用，否则可能会降低仪表安全防护作用。

准确度等级

- > 指针式仪表：交直流电压表和电流表为1.5级或2.5级，功率表为1.5级，频率表为0.5级或1.0级，最大需量表为3.0级，功率因数表为2.5级。
- > 数字式仪表：数字式频率表为 $\pm (0.1\% \text{读数} + 2\text{个字})$ ，其余均为 $\pm (0.5\% \text{读数} + 2\text{个字})$ 。

阻尼与过冲

- > 阻尼和过冲，可按客户要求定制。通常，当指针设定在满刻度2/3的位置时，过冲不超过15%。

过载电流表

- > 过载倍数常规为1倍和2倍过载倍数，可由用户要求定制为1.2倍、1.5倍、3倍、5倍、6倍等。其作用为指示瞬时过载电流的大概值，如电动机启动时的启动电流等。

外附分流器电压降规格

- > 直流电流表外附分流器电压降规格有150mV、100mV、75mV、60mV和50mV等。
仪表与分流器连接的导线电阻要求在15~25mΩ之内，以确保仪表准确度。

直流电压表和电流表内阻

- > 直流电压表内阻，常规为1000Ω/V，可按客户要求定制各种内阻：2000Ω/V，5000Ω/V。
- > 直流电流表可特殊定制高内阻60~180Ω。

玻璃表面

- > 可采用高清玻璃、防眩目玻璃、防爆玻璃、透明PC表面等。

Dial

- > Standard Dial: utilize the white printed alloy-aluminum materials with black scale, values, units and technique symbols, etc. Dials with special requirements are available upon request, such as color, scale with lighting functions and epoxide woven glass fabric laminates.

Pointer and Alarm Indicators

- > Normally, the pointer is made of alloy-aluminium materials, it is black. Red, white, and blue are available upon request. Supplementary pointer can be added to indicate a defaulted value.

Terminal Protection

- > Insulated protective cover with different shapes can be customized to provide a better safety level.

Appearance

- > Square-round and Rectangular-round Type meters are categorized into double-color cover and transparent cover.
The standard appearance for KLY series Square Meter is with movement cover (F); for CP series Square Meter is without movement cover (C).
Front frame of various colors can be selected.

Indicating Angles

- > KLY series square meter: 90° or 250° .
CP series square meter: 90° .

Zero Adjustment

- > Except for the instruments with no zero reading, all instruments have zero adjustment from the front.

Aging Test

- > All components have been passed the aging test; ensure the instrument to operate stable under long term energized, minimizing the effect from external environment.

Anti-static

- > Surfaces of meters have been processed the anti-static treatment, minimize its effect to.

Advantages of Our Products

- > User can change the dial of meter easily: please open the seal on housing, then insert or pull the dial out.
For AC ammeter, under the same secondary current, the dial can be changed, no loss of accuracy.
For DC ammeter, under the same input signal, the dial can be changed without loss of accuracy.

Patent

- > Design patent of appearance: ZL02315346.6, ZL02315347.4, ZL023736639.9, ZL200930099575.3, ZL200930099576.8;
Utility patent (safety prevention, installation structure, measurement mechanism, and the scale plate printer): ZL200620106010.4, ZL200420022516.8, ZL200820059541.1, ZL200820155220.1, ZL201020105054.7, ZL201310390293.4, ZL201010103618.2, ZL201210189043.X, ZL201010579717.8, ZL201010579720.X, ZL201510900747.7, ZL201510902398.2

标度盘

- > 标准标度盘: 采用铝合金材料, 白色漆底, 黑色油墨印刷或激光打印印刷。可根据客户来样定制标度盘(可定制多种颜色套印)。夜光表标度盘采用环氧玻璃布层压板。

指针与警示指示器

- > 标准仪表指针为铝合金材料制成, 颜色为黑色。可根据客户要求定制蓝色、白色、黄色等指针, 或定制增加警示指示器, 颜色为红色, 指示设定代表符号为RP型。

接线端子防护

- > 可选配接线端子防护罩, 以提高安全性能。

表面外观

- > 方圆型和矩圆型仪表的表盖分双色盖和单色透明盖。
KLY系列方型仪表的标准外观特征为封闭式(F); CP系列方型仪表的外观特征为敞开式(C)。
可选择各种颜色的盖框。

指示角度

- > KLY系列方型仪表分直角90° 和广角250° , 两种指示角度。
CP系列方型仪表仅有直角90° , 一种指示角度。

零位调节器

- > 除无机械零位读数仪表, 其余所有仪表均有前置零位调节器, 用于调整仪表机械零位。

时效老化

- > 所有的零部件均通过老化测试, 确保仪表在长时间通电下仍可稳定工作, 以降低外部环境对仪表的影响。

抗静电处理

- > 所有的仪表均经过抗静电处理, 以减少静电对仪表准确度的影响。

产品的优点(可更换标度盘)

- > 打开封口条, 插入或抽出标度盘。
交流电流表只要互感器次级电流相同, 就可以更换标度盘, 更换后, 准确度不变;
直流电流表只要分流器输出端电信号相同或仪表输入端电信号相同, 不同的规格可以更换标度盘, 更换后, 准确度不变。

专利内容

- > 外观设计专利, 专利号: ZL02315346.6, ZL02315347.4, ZL023736639.9, ZL200930099575.3, ZL200930099576.8;
实用新型专利(安全防护, 安装结构, 测量机构, 标度盘打印机、自制设备), 专利号: ZL200620106010.4, ZL200420022516.8, ZL200820059541.1, ZL200820155220.1, ZL201020105054.7, ZL201310390293.4, ZL201010103618.2, ZL201210189043.X, ZL201010579717.8, ZL201010579720.X, ZL201510900747.7, ZL201510902398.2。





中国船级社

Product 产品	Indicating Angle 指示角度	Type 型号	Specification 规格
AC Ammeter 交流电流表	90°	KLY-T72A,KLY-T96A,KLY-T80A	Direct 直接: 100mA~60A Connecting to CT: X/1A,X/5A
AC Ammeter with Rectifier 整流型交流电流表	250°	KLY-L72A-G,KLY-L96A-G,KLY-L801A,KLY-L1101A	Direct 直接: 100mA~20A 配电流互感器: X/1A,X/5A
DC Ammeter 直流电流表	90°	KLY-C72A,KLY-C96A,KLY-C80A	Direct:100uA~60A, With external shunt:X/75mV,X/60mV
	250°	KLY-C72A-G,KLY-C96A-G,KLY-C801A,KLY-C1101A	直接: 100uA~60A 配外附分流器: X/75mV,X/60mV
AC Voltmeter 交流电压表	90°	KLY-T72V,KLY-T96V,KLY-T80V	Direct:10V~600V, Connecting to PT: X/100V,X/110V
AC Voltmeter with Rectifier 整流型交流电压表	250°	KLY-L72V-G,KLY-L96V-G,KLY-L801V,KLY-L1101V	直接: 10V~600V 配电压互感器: X/100V,X/110V
DC Voltmeter 直流电压表	90°	KLY-C72V,KLY-C96V,KLY-C80V	Direct 直接: 1V~600V
	250°	KLY-C72V-G,KLY-C96V-G,KLY-C801V,KLY-C1101V	
Frequency Meter 频率表	90°	KLY-F72,KLY-F96, KLY-F80	45~55HZ 55~65HZ 350~450HZ
	250°	KLY-F72-G,KLY-F96-G,KLY-F801,KLY-F1101	
Power Factor Meter 功率因数表	90°	KLY-PF72,KLY-PF96,KLY-PF80	0.5CAP~1.0~0.5IND 0.4CAP~1.0~0.4IND
	250°	KLY-PF72-G,KLY-PF96-G,KLY-PF801,KLY-PF1101	
Power Meter - Wattmeter 有功功率表	90°	KLY-W72,KLY-W96,KLY-W80	10~3000KW
	250°	KLY-W72-G,KLY-W96-G,KLY-W801,KLY-W1101	
Power Meter - Varmeter 无功功率表	90°	KLY-Var72,KLY-Var96,KLY-Var80	10~3000KVar
	250°	KLY-Var72-G,KLY-Var96-G,KLY-Var801,KLY-Var1101	
Phase Sequence Indicator 相序表	/	KLY-SI72, KLY-SI96	AC 110~250V,250~450V
Synchroscope 同步表	/	KLY-S72, KLY-S96, KLY-S144	AC 100V,220V,380V,415V,500V
Net Insulation Monitor 电网绝缘监测仪	/	KLY-NI72, KLY-NI96, KLY-NI144, KLY-2NI96, KLY-2NI144	DC24V,AC220/380V,AC240/415V,AC440/450V

Product 产品	Indicating Angle 指示角度	Type 型号	Specification 规格
AC Ammeter 交流电流表	90°	KLY-T48A,KLY-T72A,KLY-T96A,KLY-T144A	Direct 直接: 100mA~60A 配电流互感器: X/1A,X/5A
AC Ammeter with Rectifier 整流型交流电流表	250°	KLY-L48A-G,KLY-L72A-G,KLY-L96A-G,KLY-L144A-G,	Direct 直接: 100mA~20A 配电流互感器: X/1A,X/5A
DC Ammeter 直流电流表	90°	KLY-C48A,KLY-C72A,KLY-C96A,KLY-C144A	Direct 直接: 100uA~60A 配外附分流器: X/75mV,X/60mV
	250°	KLY-C48A-G,KLY-C72A-G,KLY-C96A-G,KLY-C144A-G,	Direct 直接: 100uA~60A 配外附分流器: X/75mV,X/60mV
AC Voltmeter 交流电压表	90°	KLY-T48V,KLY-T72V,KLY-T96V, KLY-T144V	Direct 直接: 10V~600V 配电压互感器: X/100V,X/110V
AC Voltmeter with Rectifier 整流型交流电压表	250°	KLY-L48V-G,KLY-L72V-G,KLY-L96V-G, KLY-L144V-G	Direct 直接: 10V~600V 配电压互感器: X/100V,X/110V
DC Voltmeter 直流电压表	90°	KLY-C48V,KLY-C72V,KLY-C96V,KLY-C144V	Direct 直接: 1V~600V
	250°	KLY-C48V-G,KLY-C72V-G,KLY-C96V-G,KLY-C144V, KLY-C801V,KLY-C1101V	
Frequency Meter 频率表	90°	KLY-F48,KLY-F72,KLY-F96, KLY-F144,KLY-F80	45~55HZ 55~65HZ 350~450HZ
	250°	KLY-F48-G,KLY-F72-G,KLY-F96-G,KLY-F144-G, KLY-F801,KLY-F1101	
Power Factor Meter 功率因数表	90°	KLY-PF48,KLY-PF72,KLY-PF96,KLY-PF144,KLY-PF80	0.5CAP~1.0~0.5IND 0.4CAP~1.0~0.4IND
	250°	KLY-PF48-G,KLY-PF72-G,KLY-PF96-G,KLY-PF144-G, KLY-PF801,KLY-PF1101	
Power Meter - Wattmeter 有功功率表	90°	KLY-W48,KLY-W72,KLY-W96,KLY-W144,KLY-W80	10~3000kW
	250°	KLY-W48-G,KLY-W72-G,KLY-W96-G,KLY-W144-G, KLY-W801,KLY-W1101	
Power Meter - Varmeter 无功功率表	90°	KLY-Var48,KLY-Var72,KLY-Var96,KLY-Var144,KLY-Var80	10~3000kVar
	250°	KLY-Var48-G,KLY-Var72-G,KLY-Var96-G, KLY-Var144-G, KLY-Var801,KLY-Var1101	
Net Insulation Monitor 电网绝缘检测仪	/	KLY-NI96I,KLY-NI+KLY-C	0~10MΩ
Synchroscope 同步表	/	KLY-S96,KLY-S72	100V,220V,380V,415V,500V
Hours Run Meter 累计时间表	/	KLY-H48, KLY-H72, KLY-H96	AC/DC 12V,24V,60V,100V,220V,380V
Phase Sequence Indicator 相序表	/	KLY-SI72, KLY-SI96	AC 110~250V,250~450V

DNV-GL
DNV · GL船级社

Ammeter, Voltmeter 电流表、电压表



e.g. 例: KLY-C 96-400A(0/4-20mA)-G-YG(DC24V)-SC-RPR:320AIP54

1. Enterprise Code 企业识别码: KLY

2. Structure Type Code 结构型式代码: T: Moving Iron 动铁式(AC Effective value 交流, 有效值测量);
C: Moving Iron 动铁式(DC Signal measure 直流信号测量);
L: Rectification 整流系(AC, Average value 交流, 平均值测量)

3. Outline Dimension Code 外形尺寸代码: 48: Square Type 方形 48×48; 72: Square Type 方形 72×72; 96: Square Type 方形 96×96;
120: Square Type 方形 120×120; 144: Square Type 方形 144×144

4. Specification 规格:

Structural Type T/L Ammeter 结构型式 T/L 电流表:

1. Via transformer access: Such as 200/5A. 2: 200/5A is CT ratio, .2 is the overload.

经互感器接入: 如 200/5A. 2. 200/5A 为 CT 变比, .2 为过载倍数。

2. Direct access: Such as 20A. 5: 20A is the measurement range, .5 is the overload.

直接接入: 如 20A. 5. 20A 为测量范围, .5 为过载倍数。

注: 过载倍数可选: 1.2; 1.5; 2; 3; 4; 5; 6.

Note: Overload can be optional: 1.2; 1.5; 2; 3; 4; 5; 6.

Structural Type T/L Voltmeter 结构型式 T/L 电压表:

1. via transformer access: Such as 12kV (10k/100V): 12kV is the measurement range, 10k/100V is the PT.

经互感器接入: 如 12kV(10k/100V)。12kV 为测量范围, 10k/100V 为 PT 变比。

3. Direct access: Such as 500V: 500V is the measurement range.

直接接入: 如 500V。500V 为测量范围。

Structural Type C Ammeter: 结构型式 C 电流表:

1. via shunt access: Such as 400A/75mV: means the shunt specification.

经分流器接入: 如 400A/75mV。即分流器规格。

2. Direct access: Such as 10A: 10A is the measurement range. 直接接入: 如 10A。10A 为测量范围。

Structural Type C Voltmeter: 结构型式 C 电压表:

Such as 600V: 600V is the measurement range.

如 600V。600V 为测量范围。

Structural Type C Non-Electricity Measurement 结构型式 C 非电量测量:

Such as 100°C(10V): 100°C is the measurement range, 10V is the actual input signal.

如 100°C(10V)。100°C 为测量范围, 10V 为实际输入信号。

5. Pointer deflection angle feature or 90° , 250° feature 指针偏转角度特征或 90° 转角外观特征:

1. Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征: 250° : G; 90度: 省略。

2. 90° and 250° feature: with front cover: F; without front cover: omit.






90° 转角外观特征: 封闭式: F; 敞开式: 省略。





6. Marine Environment Code 船用环境代码: SC; Aviation Code 航空代码: HT





7. Glass with Warning Red Pointer Code: RP. When it's required, please write it. If no, please omit. 玻璃带警示红针代码: RP。有需求时书写, 如无省略。

8. Scale Plate with Red Line: R; **. When it's required, please write it. If no, please omit. 标度盘画红线位置: R; **. 有需求时书写, 如无省略。

9. Housing Protection Class: IP.** When it's required, please write it. If no, please omit. 外壳防护等级要求: IP**. 有需求时书写, 如无省略。

Picture 图片	Product Description Technical Symbol 产品描述技术符号	Type 产品型号		Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
 	AC Ammeter 交流电流表 Moving Iron Movement 动铁式结构 (电磁系) Model T T型 $\pm \sim 1.5 \downarrow$	KLY-T48A	CP-T48A	0-50mA...0-20A	1x or 2x; 3x, 5x and 6x on request	1.5	直角90°	Operating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)
				0-30A...0-60A		2.5		
		KLY-T72A KLY-T96A KLY-T120A KLY-T144A	CP-T72A CP-T80A CP-T96A	0-50mA...0-50A		1.5		
				0-60A		2.5		
				Connection on CT 配电流互感器 X/1A, X/5A	1.5			
	AC Ammeter with Rectifier 整流型交流电流表 Moving Coil Movement 动圈式结构 (磁电系) Model L L型 $\sim 1.5 \downarrow$	KLY-L48A	CP-L48A	0-50mA...0-5A	1x or 2x; 3x, 5x and 6x on request	1.5	直角90°	Operating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)
				KLY-L72A KLY-L96A KLY-L120A KLY-L144A		CP-L72A CP-L80A CP-L96A		
	AC Voltmeter 交流电压表 Moving Iron Movement 动铁式结构 (电磁系) Model T T型 $\pm \sim 1.5 \downarrow$	KLY-T48V KLY-T72V KLY-T96V KLY-T120V KLY-T144V	CP-T48V CP-T72V CP-T80V CP-T96V	0-10V...0-600V	/	1.5	直角90°	Operating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC With Red Pointer 带红针: RP
				Connection on PT 配电压互感器 X/100V, X/110V				
	0V Voltmeter 0V电压表 Moving Iron Movement 动铁式结构 (电磁系) $\pm \sim 1.5 \downarrow$	KLY-T96-0V	/	0-100/200V 0-220/440V 0-400/800V	/	1.5	直角90°	KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)

Picture 图片	Product Description Technical Symbol 产品描述技术符号	Type 产品型号		Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
	AC Voltmeter with Rectifier 整流型 交流电压表 Moving Coil Movement 动圈式结构 (磁电系) Model L L 型 ~1.5级上	KLY-L48V KLY-L72V KLY-L96V KLY-L120V KLY-L144V	CP-L48V CP-L72V CP-L80V CP-L96V	0-10V...0-500V Connection on PT 配电电压互感器 X/100V, X/110V	/	1.5	直角90°	Operating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC
	Rated Value Voltmeter 额定电压表 Moving Coil Movement 动圈式结构 (磁电系) Model L L 型 ~1.5级上	KLY-L48V KLY-L72V KLY-L96V KLY-L120V KLY-L144V	/	0/80-150V 0/90-130V 0/100-120V 0/180-240V 0/200-240V 0/340-420V	/	1.5	直角90°	With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)
	AC Ammeter with Rectifier 整流型 交流电流表 Moving Coil Movement 动圈式结构 (磁电系) Model L L 型 ~1.5级上	KLY-L48A-G	/	0-50mA...0-5A	1x or 2x; 3x, 5x and 6x on request	1.5	广角250° G	Perating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC With Red Pointer 带红针: RP
		KLY-L72A-G KLY-L96A-G KLY-L120A-G KLY-L144A-G	/	0-50mA...0-20A	1倍, 2倍; 定制: 3, 5, 6倍	1.5		
				Connection on CT 配电流互感器 X/1A, X/5A		1.5		
	AC Voltmeter with Rectifier 整流型 交流电压表 Moving Coil Movement 动圈式结构 (磁电系) Model L L 型 ~1.5级上	KLY-L48V-G KLY-L72V-G KLY-L96V-G KLY-L120V-G KLY-L144V-G	/	0-10V...0-600V Connection on PT 配电电压互感器 X/100V, X/110V	/	1.5	广角250° G	Perating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC With Red Pointer 带红针: RP


Picture 图片	Product Description Technical Symbol 产品描述技术符号	Type 产品型号		Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Others 其它								
	DC Ammeter 直流电流表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≡1.5Ω⊥	KLY-C48A	CP-C48A	0-50 μA	/	2.5	直角90°	Marine Type 船用: SC								
				0-100 μA...0-20A		1.5										
		KLY-C72A KLY-C96A KLY-C120A KLY-C144A	CP-C72A CP-C80A CP-C96A	0-25A...0-60A		2.5										
				0-50 μA		2.5										
				0-100 μA...0-50A		1.5										
				0-60A...0-100A		2.5										
				With external shunt 配外加分流器 X/60mV,X/75mV	1.5		With Red Pointer 带红针: RP									
	DC Voltmeter 直流电压表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≡1.5Ω⊥	KLY-C48V KLY-C72V KLY-C96V KLY-C120V KLY-C144V	CP-C48V CP-C72V CP-C80V CP-C96V	0-50mV...0-600V	/	1.5	直角90°	KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)								
									With external fixed resistor >450V (Rated Current 5mA)							
									配外附 定值电阻器 450V以上 (额定电流5mA)							
									DC Ammeter 直流电流表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≡1.5Ω⊥	KLY-C48A-G	/	0-150 μA...0-5A	/	1.5	广角250° G	Marine Type 船用: SC
												KLY-C72A-G KLY-C96A-G KLY-C120A-G KLY-C144A-G				
					With external fixed resistor >450V (Rated Current 5mA)											
				配外附 定值电阻器 450V以上 (额定电流5mA)												
	DC Voltmeter 直流电压表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≡1.5Ω⊥	KLY-C48V-G KLY-C72V-G KLY-C96V-G KLY-C120V-G KLY-C144V-G	/	0-50mV...0-600V	/	1.5	广角250° G	Marine Type 船用: SC								
									With external fixed resistor >450V (Rated Current 5mA)							
									配外附 定值电阻器 450V以上 (额定电流5mA)							
									With external fixed resistor >450V (Rated Current 5mA)							
									配外附 定值电阻器 450V以上 (额定电流5mA)							
									配外附 定值电阻器 450V以上 (额定电流5mA)							

Non-electric Units Indicator

> Non-electric Units Indicators are indicating instruments, receiving electronic signals from transducers or control instruments to operate and indicate value. The indicating parameters are the physical quantities, designated by the user, like number or speed of rotation, flux, pressure, weight, temperature and so on... Any specifications can be customized, please state when ordering.

非电量测量仪表

> 非电量测量仪表是指从传感器或控制仪表输出端接受电信号而工作的指示仪表。指示参数为用户所指定的物理量, 如: 转速、转数、速度、流量、压力、重量、PH值、温度等。任何规格可定制并在订单上注明。

Picture 图片	Product Description Technical Symbol 产品描述技术符号	Type 产品型号		Measurement Parameters 测量参数	Measurement Range 测量范围	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
	Non-electric Units Indicator 非电量测量仪表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≡1.5Ω⊥	KLY-C48 KLY-C72 KLY-C96 KLY-C120 KLY-C144	CP-C48 CP-C72 CP-C80 CP-C96	rpm, r/min, °, Pa, °C, %, m/min ...	DC 0-1mA 0/4-20mA 0-10mA 0-1V 0-10V	1.5	直角90° 广角250° G	Marine Type 船用: SC
				转速, 转数, 舵角, 压力, 温度, 开度, 速度...				
								With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)

Double Meter

> Double meter can be used to measuring two independent parameters; saving space and installation time; ideal partner for power generator or equipment.
 > Note: Measurement on Voltage and frequency or Voltage and Current can be customized on request.

双机构仪表

> 双机构仪表被用来测量两个独立的电参数，能节省空间和安装时间，适用于发电机等设备理想的产品。

Dimension drawing see figure 1 on page 44 尺寸图见第44页图1

Picture 图片	Product Description 产品结构 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Other 其它
	Double AC Ammeter 双机构交流电流表 Model 2T 2T型	KLY-2T72A KLY-2T96A KLY-2T144A	CP-2T72A CP-2T96A	0-100mA...0-5A Connection on CT 配电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制: 3, 5, 6倍	1.5	直角90° Operating Frequency 工作频率: 50Hz, 60Hz, 400Hz
	Double AC Voltmeter 双机构交流电压表 Model 2T 2T型	KLY-2T72V KLY-2T96V KLY-2T144V	CP-2T72V CP-2T96V	0-10V...0-600V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	直角90° Marine Type 船用: SC With Red Pointer 带红针: RP
	Double AC Voltmeter with Rectifier 双机构整流型 交流电压表 Model 2L 2L型	KLY-2L72V KLY-2L96V KLY-2L144V	CP-2L72V CP-2L96V	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	直角90° Two Pointers Perpendicular 两指针垂直
	Double DC Ammeter 双机构直流电流表 Model 2C 2C型	KLY-2C72A KLY-2C96A KLY-2C144A	CP-2C72A CP-2C96A	0-100uA...0-5A With external shunt 配外附分流器 X/60mV, X/75mV	/	1.5	直角90° Marine Type 船用: SC With Red Pointer 带红针: RP
	Double DC Voltmeter 双机构直流电压表 Model 2C 2C型	KLY-2C72V KLY-2C96V KLY-2C144V	CP-2C72V CP-2C96V	0-50mV...0-600V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器450V以上 (额定电流5mA)	/	1.5	直角90° Two Pointers Perpendicular 两指针垂直





Quad Meter

> The Quadra range of 96 style 3-in-1 and 4-in-1 meters offer reduced stock holding and savings on space, installation and commissioning. Ideally suited for generator set applications, the range offers measurement of AC and DC, current and voltage, frequency or elapsed time.

四机构仪表

> 四机构仪表被用来测量四个独立的电参数，96 (4象限) 三合一和四合一仪表让库存减少和节省空间，安装与调试。完美地适合发电机组应用，提供交、直流的电流与电压、频率或时间的测量。

Dimension drawing see figure 1 on page 44 尺寸图见第44页图1

Picture 图片	Product Description 产品结构 Technical Symbol 技术符号	Measurement Range 测量范围	Power Consumption 功耗 (VA)	Type	Measurement Parameters (Multiple choice for combined display of Measurement parameters) 测量参数(可以选择测量参数组合显示)
				产品型号	
	AC Ammeter 交流电流表 (ACA)	0-100mA...0-10A Connection on CT 配电流互感器 X/1A, X/5A	≤1VA	KLY-T96A-3	3 × ACA
	AC Voltmeter 交流电压表 (ACV)	0-10V...0-600V Connection on PT 配电压互感器 X/100V, X/110V	≤3VA	KLY-T96V-3	3 × ACV
	DC Ammeter 直流电流表 (DCA)	0-50 μA...0-10A With external shunt 配外附分流器 X/60mV, X/75mV	/	KLY-C96A-3	3 × DCA
	DC Voltmeter 直流电压表 (DCV)	0-50mV...0-600V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器 450V以上 (额定电流5mA)	/	KLY-C96V-3	3 × DCV
	Frequency Meter 频率表 (F)	45-55HZ 55-65HZ 45-65HZ 350-450HZ 450-650HZ	100V, 220V, 380V, 415V, 440V	KLY-96-3	ACV+F+H
	Square Hours Run Meters 累计时间表 (H)	AC/DC 24V, 48V, 60V, 100V, 200~250V, 380V, 440V	≤3VA	KLY-96-3	ACA+F+H
				KLY-T96A-4	4 × ACA
				KLY-T96V-4	4 × ACV
				KLY-C96A-4	4 × DCA
				KLY-C96V-4	4 × DCV
				KLY-96-4	ACA+ACV+DCA+DCV
				KLY-96-4	ACA+ACV+F+H

Thermometer温度表



e.g. 例: KLY-C96-VR-RT-1A-0 ~ 100°C(Pt100)-24VDC-SC

1. **Enterprise Code**企业识别码: “KLY” ;
2. **Structure Type Code**结构型式代码: Model is “C” 固定为 “C” ;
3. **Outline Dimension Code**外形尺寸代码: 96: 96×96 72: 72×72;
4. **Alarm value adjustment mode**报警值调节方式: VR: Adjustable potentiometer adjustment; LED display alarm value: omitted t
可调电位器调节; 光柱显示报警值: 省略
5. **Measurement Signal Type**测量信号类型:

Code代号	Content内容
RT	PT100 热电阻 PT100 Thermal Resistance

6. **Alarm Output Type**,: without alarm output function, this bit is omitted报警输出类型, 不带报警输出功能的仪表此位省略:

The LED shows the alarm value光柱显示报警值(KLY-C96-RT-A): 1. Upper/Lower Limit第一路下限, 第二路上限;

2. Dual Upper Limits双上限;
3. Dual Lower Limits双下限

Adjustable potentiometer adjustment可调电位器调节(KLY-C96/72-VR-RT-A): 1. Upper/Lower Limit第一路上限, 第二路下限;

2. Only Upper Limit单上限;
3. Only Lower Limit单下限;

7. **Other Function**附带功能:

A with alarm output, This bit is omitted without alarm output function带报警输出, 不带报警输出功能的仪表此位省略

TR/20: With transducing output/transducing output type code带变送输出/变送输出信号类型代码

Transducing Output Type Code Table 参见《变送输出类型表》

8. **Measuring Temperature Range** 测量温度范围

9. **Auxiliary Power**辅助电源种类: Normmaly常规为DC24V

10. **Others**其他:

1. Appearance or structural features, e.g.: with front cover: F; 250° : G外观或结构形式的特点, 例: 封闭式: F、广角度: G。
2. Other requirements: such as SC…其他特别要求: 如SC等。

Thermometer

- > This meter can be used to indicate and monitor temperature by externally wiring PT100 sensor, has thermometer (KLY-C96/72-RT), thermometer with alarm (KLY-72-VR-RT-A, KLY-C96-RT-A), and thermometer with transmission (KLY-C96-RT-TR).
- > a) Thermometer with alarm (KLY-C96-RT-A) has two relay outputs, each channel via the front buttons to set the alarm point, but also set the alarm mode through the front built-in dial switch for each channel, and set the alarm delay time through the bottom rotary encode switch for each channel. Thermometer with alarm type beam of light from the LED lighting section to display the alarm area. When the pointer falls in the alarm area, the alarm switch signal generated, the alarm action achieved, and the LED in the corresponding alarm area lights. When the pointer leaves the alarm area, the meter alarm condition lifts.
- > b) Thermometer with alarm (KLY-C96-RT-A) has three ways of relay output, set the alarm point for each channel via adjustable potentiometer on the bottom.
- > c) Thermometer with transmission (KLY-C96-RT-TR) has one channel analog transmission output, the measured values can be transmission output, and the output signal is voltage or current.

温度表


- 本仪表可通过外接PT100传感器对温度进行指示和监控,有测温仪表(KLY-C96/72-RT)和带报警型测温仪表(KLY-72-VR-RT-A、KLY-C96-RT-A)及带变送型测温仪表(KLY-C96-RT-TR)。
- a)带报警型测温仪表KLY-C96-RT-A有两路继电器输出,通过前置按钮设置每路的报警点,还可通过前面的内置拨档开关设置每路报警的方式,通过底部的旋转编码开关设置每一路报警延迟时间;带报警型测温仪表KLY-C96-RT-A由LED光柱的点亮部分来显示报警区域,当指针指向报警区域时,产生报警开关信号,实现相应报警动作,对应的报警区域LED闪烁;当指针离开报警区域时,仪表报警状态自行解除。
 - b)带报警型测温仪表KLY-C96-RT-A有三种继电器输出方式,通过底部的可调电位器设置每路的报警点。
 - c)带变送型测温仪表KLY-C96-RT-TR带有一路模拟变送输出,可将测量值进行变送输出,输出信号为电压或电流。

Technical Specification

- > Error: The error of indication value: $\pm 1.5\%$ FS
- > The error of alarm output setting value: $\pm 2.5\%$ In
- > The error of transmission output value: $\pm 1.0\%$ FS

技术规格

- 误差: 指示值的误差: $\pm 1.5\%$ FS
- 报警输出设定值的误差: $\pm 2.5\%$ In
- 变送输出值误差: $\pm 1.0\%$ FS

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Output Type 变送输出类型	Alarm Output Type 报警输出类型	Measurement Range 测量范围	Auxiliary Power 辅助电源	Scale 指示角度	Others 其它
	Thermometer 温度表	KLY-C72-RT KLY-C96-RT	/	/	0-100°C(PT100) 0-500°C(PT100)	AC/DC 100V~415V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 50HZ 60HZ
	Thermometer With (LEDs) Alarm 温度表 带(光柱型)报警	KLY-C96-RT-A	/	Upper/Lower Limit 上下限 Code 代号 1 Dual Upper Limits 双上限 Code 代号 2 Dual Lower Limits 双下限 Code 代号 3				
	Thermometer With (Simple) Alarm 温度表 带(简易型)报警	KLY-C96-VR-RT-A	/	Upper/Lower Limit 上下限 Code 代号 1 Upper Limit 单上限 Code 代号 2 Lower Limit 单下限 Code 代号 3				
	Thermometer with transducing output 温度表 带变送输出	KLY-C96-RT-TR	Transducing Output Type Code Table 参见《变送输出类型表》	/				

Transducing Output Type Code Table 变送输出类型表

Code 代号	Range 范围	Code 代号	Range 范围	Code 代号	Range 范围
01	0...1mA	09	0.1...1mA	17	0.2...1mA
02	0...5mA	10	0.5...5mA	18	1...5mA
03	0...10mA	11	1...10mA	19	2...10mA
04	0...20mA	12	2...20mA	20	4...20mA
05	0...1V	13	0.1...1V	21	0.2...1V
06	0...5V	14	0.5...5V	22	1...5V
07	0...10V	15	1...10V	23	2...10V
08	Reserve 备用	16	Reserve 备用	24	Reserve 备用

Transducing Output Meter带变送输出仪表



e.g.例：KLY-TR 96 P-20/3u-150~0~1500kW(415/100V,2500/5A)-F-SC R:200 kW IP54

1. Enterprise Code企业识别码：KLY

2. Structure Type Code结构型式代码：TR

3. Outline Dimension Code外形尺寸代码：96；Square Type方形96×96；

4.Measurement Type测量类型：A；Current电流；V；Voltage电压；F；Frequency频率；P；Active Power有功功率；Q；Reactive Power无功功率。

5.Transducing Output Type Code变送输出类型代码：Transducing Output Type Code Table 参见《变送输出类型表》

6.Wiring Method接线方式：

Only the measurement type is P, Q to write, and other measurement types are omitted 仅测量类型为P, Q时书写，其它测量类型时省略。

- 1b: Single phase单相；
- 3b: 3P3W balanced system三相三线平衡系统
- 3u: 3P3W unbalanced system三相三线不平衡系统
- 4b: 3P4W balanced system三相四线平衡系统
- 4u: 3P4W unbalanced system三相四线不平衡系统

7.Input Signal Specification输入信号具体规格

8. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征：

- 1.Pointer deflection angle: 250° : G; 90° : Omit
指针偏转角度特征：250° : G; 90度：省略。
- 2.90° and 250° feature: with front cover: F; without front cover: omit.
90° 转角外观特征：封闭式：F；敞开式：省略。

9. Marine Environment Code船用环境代码：SC

10. Scale Plate with Red Line: R: **. When it's required, please write it. If no, please omit.

标度盘画红线位置：R: **. 有需求时书写，如无省略。

11. Housing Protection Class: IP**. When it's required, please write it. If no, please omit.

外壳防护等级要求：IP**. 有需求时书写，如无省略。

Transducing Output Meter


> Measuring and indicating voltage, current, frequency, power and other electrical parameters in the power system. The meter has one analogue transducer output; the measured value can be transformed into Voltage (V) or Current (mA) output. Model prefix is TR.

> Accuracy class: 1.5 Error of transducing output value: $\pm 1.0\% F_s$.

变送输出表

> 用于电力系统中的电压、电流、频率和功率等电参量的测量及指示。本仪表带一路模拟变送输出，可将测量值转化为电压(V)或电流(mA)输出。代表符号为TR型。

> 准确度等级: 1.5, 变送输出值误差: $\pm 1.0\% F_s$ 。

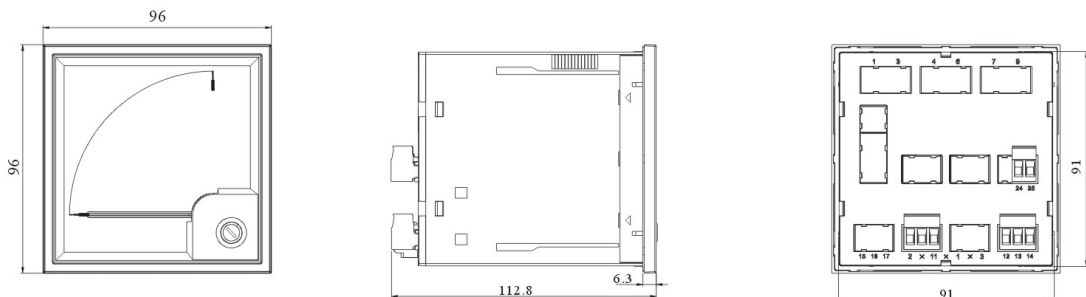
Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Transducing Output Type 变送输出类型	Connecting Way 接线方式	Measurement Range 测量范围	Auxiliary Power 辅助电源	Scale 指示角度	Others 其它			
	Transducing Output Ammeter 变送输出电流表	KLY-TR96A	Transducing Output Type Code Table 参见《变送输出类型代号表》	/	AC Current 交流电流 0-100mA...0-10A DC Current 直流电流 0-50uA...0-10A	AC/DC 100V-415V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 50Hz,60Hz With Red Pointer 带红针: RP			
	Transducing Output Voltmeter 变送输出电压表	KLY-TR96V		/	AC Voltage 交流电压 0-10V...0-500V DC Voltage 直流电压 0-50mV...0-500V						
	Transducing Output Frequency Meter 变送输出频率表	KLY-TR96F		/	Frequency 频率: 40~70Hz						
	Transducing Output Active Power Meter 变送输出有功功率表	KLY-TR96P		Single Phase (1b) 单相(1b) 3b3W balanced Load(3b) 三相三线平衡式负载(3b) 3b3W Unbalanced Load (3u) 三相三线不平衡式负载(3u)	-600...0-0...6000MW 0-0.8kVar...0-5000MVar Connection on CT 配电流互感器 X/1A, X/5A				AC/DC 100V-415V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 50Hz,60Hz With Red Pointer 带红针: RP
	Transducing Output Reactive Power Meter 变送输出无功功率表	KLY-TR96Q		3b4W Balanced Load(4b) 三相四线平衡式负载(4b) 3b4W Unbalanced Load(4u) 三相四线不平衡式负载(4u)	Voltage电压 (L-N) 57V-400V						

Transducing Output Type Code Table 变送输出类型表

Code 代号	Range 范围	Code 代号	Range 范围	Code 代号	Range 范围
01	0...1mA	09	0.1...1mA	17	0.2...1mA
02	0...5mA	10	0.5...5mA	18	1...5mA
03	0...10mA	11	1...10mA	19	2...10mA
04	0...20mA	12	2...20mA	20	4...20mA
05	0...1V	13	0.1...1V	21	0.2...1V
06	0...5V	14	0.5...5V	22	1...5V
07	0...10V	15	1...10V	23	2...10V
08	Reserve 备用	16	Reserve 备用	24	Reserve 备用

Dimension 尺寸图

Unit 单位: mm



Meter with Alarm带报警仪表



e.g.例：KLY-A 96 P-1/3u-150~0~1500kW(415/100V,2500/5A)-F-SC IP54

1. Enterprise Code企业识别码：KLY

2. Structure Type Code结构型式代码：A

3. Outline Dimension Code外形尺寸代码：96；Square Type方形96×96；

4.Measurement Type测量类型：A；Current电流；V；Voltage电压；F；Frequency频率；P；Active Power有功功率；Q；Reactive Power无功功率。

5.Alarm Output Type报警输出类型：1：Upper/Lower Limit上下限；2：Dual Upper Limits双上限；3：Dual Lower Limits双下限。

6.Wiring Method接线方式：

Only the measurement type is P, Q to write, and other measurement types are omitted 仅测量类型为P, Q时书写，其它测量类型时省略。

1b: Single phase单相；

3b: 3P3W balanced system三相三线平衡系统

3u: 3P3W unbalanced system三相三线不平衡系统 4b: 3P4W balanced system三相四线平衡系统

4u: 3P4W unbalanced system三相四线不平衡系统

7. Input Signal Specification输入信号具体规格

8. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征：

1. Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征：250° : G; 90度：省略。

2. 90° and 250° feature: with front cover: F; without front cover: omit

90° 转角外观特征：封闭式：F；敞开式：省略。

9. Marine Environment Code船用环境代码：SC

10. Housing Protection Class: IP.** When it's required, please write it. If no, please omit.

外壳防护等级要求：IP**。有需求时书写，如无省略。

Meter with LEDs Alarm

> Measuring and indicating voltage, current, frequency, power and other electrical parameters in power system, the meter has two relay outputs, and each output can be set up their own alarm point, method and delay time. Alarm area is presented by LEDs. When pointer is fall in the alarm range, alarm operation:

> 1: (Upper/Lower Limit) Value falls in the range of upper limit or lower limit, LED in the corresponding area will be blinking.

2: (Dual Upper Limits) Value falls in the range in between first and second upper limits; LED in this range will be blinking. Exceeded the second limits, LED in both ranges will be blinking.

3: (Dual Lower Limits) Value falls in the range in between first and second lower limits; LED in this range will be blinking. Exceeded the second limits, LED in both ranges will be blinking.

> When pointer left from the alarm area, alarm reset. Model prefix is A.

报警表（光柱式）

> 用于电力系统中的电压、电流、频率、功率等电参量的测量及指示。仪表带二路继电器输出，可设定每路的报警点、报警方式、报警延时时间。本仪表由LED光柱的点亮部分来显示报警区域，当指针指向报警区域时，报警动作：

> 1: (上下限)数值在上报警点以上或下报警点以下，对应范围的LED会闪烁。

2: (双上限)数值在第一与第二上限点之间，此范围LED会闪烁，超出第二上限点时，两段范围的LED同时闪烁。

3: (双下限)数值在第一与第二下限点之间，此范围LED会闪烁，超出第二下限点时，两段范围的LED同时闪烁。


> 当指针离开报警点范围，警报解除。代表符号为A型。

Technical Specification

技术规格

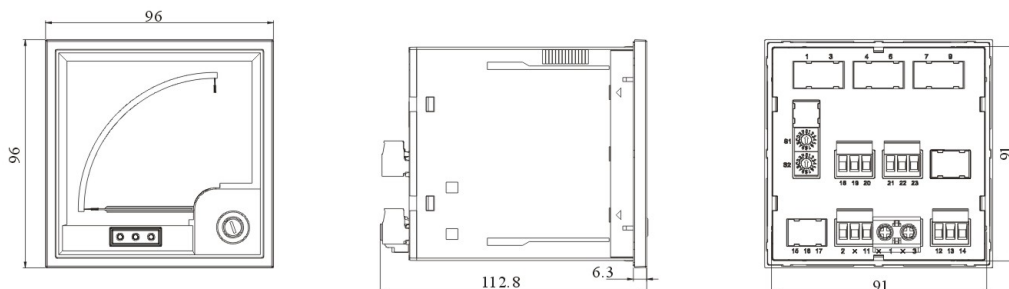
- > 1) Accuracy Class: 1.5, Alarm output value error: $\pm 2.5\%$ In, Alarm output hysteresis value: $\pm 2.5\%$ FS.
- 2) Relay output: Dual relay outputs, each output can have converting contact, capacity AC 250V/5A, DC 30V/5A.

- > 1) 准确度等级: 1.5; 报警输出设定值的误差: $\pm 2.5\%$ In. 报警输出的回差值: $\pm 2.5\%$ FS。
- 2) 继电器输出: 二路继电器输出, 每路带一组转换触点, 触点容量AC 250V/5A、DC 30V/5A。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Alarm Output Type 报警输出类型	Connecting Way 接线方式	Measurement Range 测量范围	Auxiliary Power 辅助电源	Scale 指示角度	Others 其它
	AC/DC Ammeter with Alarm 交直流报警电流表	KLY-A96A	Upper/ Lower Limit 上下限 Code 代号 1	/	AC Current 交流电流 0-100mA...0-10A DC Current 直流电流 0-50uA...0-10A	AC/DC 100V~415V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 45~65Hz
	AC/DC Voltmeter with Alarm 交直流报警电压表	KLY-A96V	Dual Upper Limits 双上限 Code 代号 2	/	AC Voltage 交流电压 0-10V...0-500V DC Voltage 直流电压 0-50mV...0-500V			
	Frequency Meter with LEDs Alarm 报警频率表	KLY-A96F	Dual Lower Limits 双下限 Code 代号 3	/	Frequency 频率: 40~70Hz			
	Active Power with Alarm 报警有功功率表	KLY-A96P	Upper/ Lower Limit 上下限 Code 代号 1	Single Phase (1b) 单相(1b)	-600...0- 0...6000MW 0-0.8kVar... 0-5000MVar	AC/DC 100V~415V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 45~65Hz
Reactive Power with Alarm 报警无功功率表	KLY-A96Q	Dual Upper Limits 双上限 Code 代号 2	3b3W balanced Load(3b) 三相三线平衡式负载(3b)	Connection on CT 配电流互感器 X/1A, X/5A				
			Dual Lower Limits 双下限 Code 代号 3	3b3W Unbalanced Load(3u) 三相三线不平衡式负载(3u)	Voltage电压 (L-N) 57V-400V			

Dimension 尺寸图

Unit 单位: mm



Meter with Alarm报警表



e.g. 例: KLY - E 72 V - 500V DC-III

- Enterprise Code**企业识别码: KLY, CP
- Structure Type Code**结构型式代码: E Explosion-proof Meter防爆仪表
- Outline Dimension Code**外形尺寸代码: 45(KLY): Square type方型45×45
48(KLY/CP): Square type方型48×48
72(KLY/CP): Square type方型72×72
96(KLY/CP): Square type方型96×96
- Measurement Type**测量类型: A、V
- Specification**具体规格: 500V
- Input Type**输入类型: DC, AC (Default is not to fill默认不填)
- Mounting Method**安装方式: IV (Pushing tight type, default is not to fill 推紧式, 默认不填), III(Guide Rail Type导轨式, Only仅45、72)

Meter with Alarm (Simple Type)

>It applies for measuring and indicating voltage, current, frequency other electrical parameters in power system. With two relay outputs, the alarm point of upper/lower limit can be set by the rear knob. Alarm upper/lower limit is presented by LEDs. When the pointer falls in the alarm area, the alarm switch signal generated, the alarm action achieved, and the LED in the corresponding alarm area lights. If the pointer leaves the alarm area, the alarm clear, and the LED lights off. Model prefix is A-VR.

报警表 (简易式)


>用于电力系统中的电压、电流、频率等电参量的测量及指示。仪表带二路继电器输出, 通过后置旋钮设置上/下限的报警点。本仪表由LED灯的点亮部分来显示报警上/下限, 当指针指向报警区域时, 产生报警开关信号, 实现相应报警动作, 对应的报警区域LED灯点亮; 当指针离开报警区域时, 警报解除, LED灯熄灭。代表符号为A-VR型。

Technical Specification

- 1) Accuracy Class: 1.5, Alarm output value error: $\pm 2.5\%I_n$, Alarm output hysteresis value: $\pm 2.5\%FS$.
- 2) Relay output: Dual relay outputs, each output can have converting contact, capacity AC 250V/5A、DC 30V/5A.

技术规格

- 1) 准确度等级: 1.5; 报警输出设定值的误差: $\pm 5\%I_n$. 报警输出的回差值: $\pm 5\%FS$ 。
- 2) 继电器输出: 二路继电器输出, 每路带一组转换触点, 触点容量AC250V/5A、DC 30V/5A。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Alarm Output Type 报警输出类型	Connecting Way 接线方式	Measurement Range 测量范围	Auxiliary Power 辅助电源	Scale 指示角度	Others 其它
	AC/DC Ammeter with Alarm 交直流报警电流表	KLY-A72A-VR KLY-A96A-VR	Upper/ Lower Limit 上下限 Code 代号 1	/	AC Current 交流电流 0-100mA...0-10A DC Current 直流电流 0-50mA...0-10A	AC220V DC 24V	直角90° 广角250° G	Operating Frequency 工作频率: 45~65Hz
	AC/DC Voltmeter with Alarm 交直流报警电压表	KLY-A72V-VR KLY-A96V-VR	Single Upper Limit 单上限 Code 代号 2	/	AC Voltage 交流电压 0-10V...0-500V DC Voltage 直流电压 0-50mV...0-500V			
	Frequency Meter with Alarm 报警频率表	KLY-A72F-VR KLY-A96F-VR	Single Lower Limit 单下限 Code 代号 3	/	Frequency 频率: 40~70Hz Work Voltage 工作电压: AC 100V~440V			

Explosion-proof Ammeter & Voltmeter 防爆电流、电压表



e.g. 例: KLY - E 72 V - 500V DC-III



- Enterprise Code** 企业识别码: KLY, CP
- Structure Type Code** 结构型式代码: E Explosion-proof Meter 防爆仪表
- Outline Dimension Code** 外形尺寸代码: 45(KLY): Square type 方形 45 × 45
48(KLY/CP): Square type 方形 48 × 48
72(KLY/CP): Square type 方形 72 × 72
96(KLY/CP): Square type 方形 96 × 96
- Measurement Type** 测量类型: A、V
- Specification** 具体规格: 500V
- Input Type** 输入类型: DC, AC (Default is not to fill 默认不填)
- Mounting Method** 安装方式: IV (Pushing tight type, default is not to fill 推紧式, 默认不填), III (Guide Rail Type 导轨式)

Explosion-proof Meter

> The explosion-proof meters can be applied to petroleum and chemical industry. Its performance meets with explosion-proof standard, IEC60079.0:1998, IEC60079-7.1990, IEC 60079-18:2004, GB3836.1-2000, GB3836.3-2000, GB3836.9-2006. The meters are approved and certified by PCEC China. The explosion-proof marking: Ammeter: Exe II, Voltmeter: Exemb II. Model prefix is E.

防爆仪表

> 防爆仪表广泛应用于石化行业。防爆仪表性能符合IEC60079.0:1998, IEC60079-7.1990, IEC 60079-18:2004, GB3836.1-2000, GB3836.3-2000, GB3836.9-2006标准。防爆仪表已获得中国PCEC防爆合格证。防爆标志: 电流表: Exe II Gb 电压表: Exemb II Gb。代表符号为E型。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Other 其它
	Explosion-proof Ammeter 防爆电流表 Model E E 型	KLY-E45A KLY-E48A KLY-E72A KLY-E96A	CP-E48A CP-E72A CP-E96A	Connection on CT 配电电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制: 3, 5, 6倍	1.5	直角90°
	Explosion-proof Voltmeter 防爆电压表 Model E E 型	KLY-E45V KLY-E48V KLY-E72V KLY-E96V	CP-E48V CP-E72V CP-E96V	0-10V...0-500V Connection on PT 配电电压互感器 X/100V, X/110V	/	1.5	直角90°

Operating Frequency
工作频率:
45~65Hz, 400Hz

Pushing Tight Type
推紧式 IV

DIN Rail Type
导轨式 III

AC Ammeter and Voltmeter with Selector Switch 带转换开关交流电流电压表



e.g.例: KLY-Z 96 V (3P3W) - 500V -3 D+OFF - F - SC

- 1. Enterprise Code**企业识别码: KLY、CP
- 2. Structure Type Code**结构型式代码: Z AC Ammeter and Voltmeter with Selector Switch多档表
- 3. Outline Dimension Code**外形尺寸代码: 72: Square type方形72×72
96: Square type方形96×96
120: Square type方形120×120
144: Square type方形144×144
- 4. Measurement Type**测量类型: A、V
- 5. Wiring Type**接线方式: 3P3W 3Phase 3Wire三相三线
3P4W 3Phase 4Wire三相四线
- 6. Specification**具体规格: 500V
- 7. Position**档位数: 3D, 3D+OFF, 6D, 6D+OFF
- 8. External Characteristic**外部特征: With front cover封闭式F, None is defaulted without front cover无此项为默认为敞开式
- 9. Others**其他: Marine type mark with "SC" 船用标志 "SC"

AC Ammeter and Voltmeter with Selector Switch

> The meter with a selector switches can measure AC current or voltage on 3-phase 3-wire or 3-phase 4-wire system. DC ammeter or voltmeter with selector switches can be produced on request. Model prefix is Z.

AC Voltmeter with Selector Switch

- > 3- Position (3P3W): L1-L2 L1-L3 L2-L3 (Additional "OFF" position is available on request)
- > 6- Position (3P4W): L1-L2 L1-L3 L2-L3 L1-N L2-N L3-N (Additional "OFF" position is available on request)

AC Ammeter with Selector Switch

> AC Ammeter with 3-Position selector switch can be used for the measurement of AC current in three phase system. "OFF" position is available on request.

带转换开关的交流电流表和交流电压表

> 仪表通过一个安装在表面上的波段开关来转换选择测量三相三线或三相四线电网上的交流电流或电压。可定制带转换开关的直流电流表和直流电压表，代表符号为Z型。



带转换开关的交流电压表

- > 三档位(三相三线): L1-L2 L1-L3 L2-L3(可加OFF为4档位)
- > 六档位(三相四线): L1-L2 L1-L3 L2-L3 L1-N L2-N L3-N(可加OFF为7档位)

带转换开关的交流电流表

> 采用三档位电流表均可测量三相三线和三相四线的电流,可加OFF为四档位

Dimension drawing see figure 3 on page 34 尺寸图见第44页图3

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Other 其它
	AC Ammeter with selector switches 带转换开关交流电流表 3-position 三档位 Model Z Z 型	KLY-Z72A-3d KLY-Z96A-3d KLY-Z120A-3d KLY-Z144A-3d	CP-Z72A-3d CP-Z96A-3d	Connection on CT 配电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制: 3, 5, 6倍	1.5	直角90° Operating Frequency 工作频率: 45~65Hz, 400Hz With Red Pointer 带红针: RP
	AC Voltmeter with selector switches 带转换开关交流电压表 3-position 三档位 Model Z Z 型	KLY-Z72V-3d KLY-Z96V-3d KLY-Z120V-3d KLY-Z144V-3d	CP-Z72V-3d CP-Z96V-3d	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	直角90° KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)
	AC Voltmeter with selector switches 带转换开关交流电压表 6-position 六档位 Model Z Z 型	KLY-Z72V-6d KLY-Z96V-6d KLY-Z120V-6d KLY-Z144V-6d	CP-Z72V-6d CP-Z96V-6d	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	直角90°

Frequency Meter 频率表



e.g.例: KLY-F96-45-55Hz(100V)-G-SC-RPR:50 Hz IP54

1. Enterprise Code企业识别码: KLY

2. Structure Type Code结构型式代码: F: Frequency频率

3. Outline Dimension Code外形尺寸代码: 48; Square Type方形48×48; 72; Square Type方形72×72; 96; Square Type方形96×96; 120; Square Type方形120×120; 144; Square Type方形144×144

4. Specification规格: 45-55Hz(100V): 45-55Hz is the frequency measurement range; 100V is the rated value of input voltage. 45-55Hz(100V). 45-55Hz为频率测量范围。100V为输入电压额定值。

5. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征:

1. Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征: 250° : G; 90度: 省略。

2. 90° and 250° feature: with front cover: F; without front cover: omit.

90° 转角外观特征: 封闭式: F; 敞开式: 省略。

6. Marine Environment Code船用环境代码: SC

7. Glass with Warning Red Pointer Code: RP. When it's required, please write it. If no, please omit. 玻璃带警示红针代码: RP。有需求时书写, 如无省略。

8. Scale Plate with Red Line: R; **. When it's required, please write it. If no, please omit. 标度盘画红线位置: R; **. 有需求时书写, 如无省略。

9. Housing Protection Class: IP**. When it's required, please write it. If no, please omit. 外壳防护等级要求: IP**. 有需求时书写, 如无省略。

Pointer Frequency Meter

指针式频率表

> Measuring frequency: 45~65 Hz or 350~650 Hz. Moving Coil movement. Model prefix is F.

> Voltage Fluctuation Allowance: ± 20%.

> The accuracy for Square Panel (KLY/CP-F48), Square Panel Round Barrel (KLY-F50,60,80), Rectangular Panel Round Barrel (KLY-F560, 670,780, 8100), Rectangular Panel (KLY-9681, 9682) is class 1.0 and the other types are class 0.5.

> 测量范围45~65Hz和350~650Hz之间的频率。动圈式结构。代表符号F型。

> 电压允许波动±20%。

> 方型KLY/CP-F48,方圆型(KLY-F50, 60, 80)、矩圆型(KLY-F560,670,780,8100)、矩型(KLY-9681,9682)仪表准确度等级为1.0级,其它型号准确度等级为0.5级。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Accuracy Class 准确度等级	Scale 指示角度	Other 其它
	Frequency Meter 指针式频率表 Moving Coil Movement 动圈式结构 (磁电系) Model F F型 ~0.5级	KLY-F48 CP-F48	45-55Hz 45-65Hz 47-63Hz 55-65Hz 57-63Hz	100V 220V 380V 400V 440V	1.0	直角90°	Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)
		KLY-F72 CP-F72 KLY-F96 CP-F80 KLY-F120 CP-F96 KLY-F144	350-450Hz 450-550Hz 450-650Hz 550-650Hz	Connection on PT 配电压互感器 X/100V, X/110V	0.5		
	Frequency Meter 指针式频率表 Moving Coil Movement 动圈式结构 (磁电系) Model F F型 ~0.5级	KLY-F48-G /	45-55Hz 45-65Hz 47-63Hz 55-65Hz 57-63Hz	100V 220V 380V 400V 440V	1.0	广角 250° G	Marine Type 船用: SC With Red Pointer 带红针: RP
		KLY-F72-G CP-F72 KLY-F96-G CP-F80 KLY-F120-G CP-F96 KLY-F144-G	350-450Hz 450-550Hz 450-650Hz 550-650Hz	Connection on PT 配电压互感器 X/100V, X/110V	0.5		
	Double Frequency Meter 双机构指针式频率表 Moving Coil Movement 动圈式结构 (磁电系) Model 2F 2F型 ~0.5级	KLY-2F72 CP-2F72 KLY-2F96 CP-2F96 KLY-2F144	45-55Hz 45-65Hz 47-63Hz 55-65Hz 57-63Hz 350-450Hz 450-550Hz 450-650Hz 550-650Hz	100V 220V 380V 400V 440V	1.0	直角90°	Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列封闭式 (F) CP Series Without Front Corner Cover CP系列敞开式 (C)

Maximum Demand Indicator 最大需量表



e.g. 例: KLY SaM 96 (15min) 400/1A

1. Enterprise Code 企业识别码: KLY

2. Maximum Demand Indicator Identifier Word 最大需量表标识字:

Direct-heat Single Structure 直热式单结构: M

Direct-heat Double Structure 直热式双结构: 2M

Indirect-heat Single Structure 间热式单结构: SaM

Indirect-heat Double Structure 间热式双结构: 2SaM

3. Outline Dimension Code 外形尺寸代码: 48: Square Type 方形 48×48

72: Square Type 方形 72×72

96: Square Type 方形 96×96

4. Input Form 输入形式: 8min, 15min

5. Specification 规格: e.g. 例 100/1A

Maximum Demand Indicator

- > Maximum Demand Indicator (MDI) is panel mount meter. The thermal/time characteristics of MDI meters can monitor the most economic use of cable, protective device and transformers. Indicating mean RMS current in the circuit within a given period of time, also record the maximum RMS current. Combining moving-iron measuring system can measure the instantaneous value.
- > MDI can be divided into 3 categories, with bimetallic movement, with moving-iron ammeter or with alarm relay.
- > The demand value is indicated by black moving pointer. The maximum demand value is indicated by red slave pointer, which can be resumed by reset knob. It can be lead-sealed for prevention of unauthorized reset.

Technical Specification:

- > Thermal time delay: 8 or 15 minutes.
- Accuracy class: 3.0 (Precise reading start from 25% of full scale).
- Overload: Continuously: 1.2 times rated current,
Short duration: 10 times rated current for 1 second.
With Saturating CT: 20 times rated current for 1 second.
- Power consumption: ≤3VA.

A) Maximum Demand Indicator with Bimetallic Movement

- > Measuring the maximum load average value (indicated by black pointer). Please specify the thermal time delay. Model prefix is M.

B) Combined Maximum Demand Indicator with Moving-Iron Ammeter

- > Combined Maximum Demand Indicator and Moving-iron ammeter, measuring maximum average load value (indicated by black horizontal pointer); Transient value (indicated by black vertical pointer), accuracy class is 1.5. Model prefix is 2M.

C) Maximum Demand Indicator with Alarm Relay

- > Combined Maximum Demand Indicator, with built-in electronic circuit and a 5A relay. Maximum demand alarm preset point indicated by blue pointer, Red alarm LED, attach external buzzer alarm. Applying on monitoring maximum demand and overload in power distribution. Model prefix is AM.

最大需量表

- > 最大需量表为安装式仪表, 利用仪表的热/时间特性, 以平均电流测量体现电路中在一定时间内其最大功率平均值, 并记录在一定时间内平均电流的最大值, 结合电磁系测量机构可测量输入瞬间值。
- > 用于监测电缆、保险装置和变压器等设备, 以达到最经济使用的目的。
- > 分单结构需量表、双结构需量表和报警需量表三种。由黑指针指示需量值, 红指针指示最大需量值, 红指针可通过复零钮复零。复零钮可铅封, 防止非授权复零。

技术规格:

- > 需量作用时间: 需量部分作用时间分8分钟和15分钟。
- 准确度等级: 精确读数从满刻度的25%起, 需量值的准确度等级为3.0级。
- 过载: 连续过载1.2倍; 1秒短时过载10倍;
1秒短时过载20倍(带饱和式互感器)。
- 功耗: ≤3VA。

A) 单结构最大需量表







- > 可测量最大平均负载值(由黑色指针指示)。下单需注明需量时间。代表符号为M型。

B) 双结构最大需量表

- > 由单结构最大需量表结合动铁式测量机构组成, 可测量最大平均负载值(由水平黑色指针指示)和瞬时电流值(由垂直黑色指针指示), 瞬时值的准确度等级为1.5级。代表符号为2M型。

C) 报警最大需量表

- > 由单结构最大需量表内置电子电路与5A继电器构成。最大需量报警点由蓝色指针指示设定, 红灯报警, 可外接蜂鸣器报警, 在配电系统中用于最大需量控制和过载控制。代表符号为AM型。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号		Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Scale 指示角度	Other 其他	
								Response Time 作用时间	Operating Method 工作方式
	Maximum Demand Indicator with Bimetallic Movement 单结构最大需量表 Model M M 型 	KLY-M48 KLY-M72 KLY-M96 KLY-M144	CP-M48 CP-M72 CP-M96	Connection on CT 配电流互感器 X/1A, X/5A	1.2x 1.2倍	3.0	直角90°	8min	Direct-heat 直热型
				Connection on CT 配电流互感器 X/5A				15min	Indirect-heat 间热型
	Combined Maximum Demand Indicator with Moving-Iron Ammeter 双结构最大需量表 Model 2M 2M 型 	KLY-2M72 KLY-2M96	CP-2M72 CP-2M96	Connection on CT 配电流互感器 X/1A, X/5A	1.2x 1.2倍	3.0	直角90°	8min 15min	Direct-heat 直热型
				Connection on CT 配电流互感器 X/5A				15min	Indirect-heat 间热型
	Maximum Demand Indicator with Alarm Relay 报警最大需量表 Model AM AM 型 	KLY-AM72 KLY-AM96	CP-AM72 CP-AM96	Connection on CT 配电流互感器 X/1A, X/5A	1.2x 1.2倍	3.0	直角90°	8min 15min	Direct-heat 直热型
				Connection on CT 配电流互感器 X/5A				15min	Indirect-heat 间热型

Power Factor Meter功率因数表



e.g. 例：KLY-PF 96 (3b)- 0.5C-1.0-0.5L(100V/5A)-G-SC-RP R:0.8L IP54

1. Enterprise Code企业识别码：KLY

2. Structure Type Code结构型式代码：PF:Power Factor功率因数

3. Outline Dimension Code外形尺寸代码：48：Square Type方形48×48；72：Square Type方形72×72；96：Square Type方形96×96；
120：Square Type方形120×120；144：Square Type方形144×144

4. Wiring Method接线方式：

1b：Single phase单相；

3b：3P balanced system三相平衡系统

3u：3P3W unbalanced system三相三线不平衡系统 4u：3P4W unbalanced system三相四线不平衡系统

5. Specification规格：

0.5C-1.0-0.5L(100V/5A): 0.5C-1.0-0.5L is measurement range, 100V/5A is input rated value.

0.5C-1.0-0.5L(100V/5A): 0.5C-1.0-0.5L为测量范围。100V/5A为输入额定值。

6. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征：

1. Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征：250° : G; 90度：省略。

2. 90° and 250° feature: with front cover: F; without front cover: omit.

90° 转角外观特征：封闭式：F；敞开式：省略。

7. Marine Environment Code船用环境代码：SC

8. Glass with Warning Red Pointer Code: RP. When it's required, please write it. If no, please omit.玻璃带警示红针代码：RP。有需求时书写，如无省略。

9. Scale Plate with Red Line: R: **. When it's required, please write it. If no, please omit.标度盘画红线位置：R: **. 有需求时书写，如无省略。

10. Housing Protection Class: IP**. When it's required, please write it. If no, please omit.外壳防护等级要求：IP**. 有需求时书写，如无省略。

Power Factor Meter

功率因数表

> Using on single-phase or 3-phase circuit, measuring the $\cos\Phi$, 3b3W balanced Load(3b), 3b3W Unbalanced Load(3u) or 3b4W Unbalanced Load(4u) system. Model prefix is PF.


> 用于单相或三相电路，测定电流与相关电压之间的相位差(Φ)的余弦($\cos\Phi$)。动圈式结构。订单时需注明用于单相(1b)，三相平衡(3b)，三相三线不平衡(3u)或三相四线不平衡(4u)系统。代表符号为PF型。

> If meter can attach KLY-365 power factor converter DIN rail (Compulsory for KLY-PF48). The dimension of convertor is 87.2mm Length, 36mm Width, 65.5mm Height (see page 49).

> 若仪表外附功率因数转换器时(KLY-PF48型号功率因数表必须外附)，采用KLY-365导轨式功率因数转换器，转换器的外形尺寸(单位：mm，尺寸图见第49页)：长87×宽35.5×高65.5，表格中标注带①的型号外附功率因数转换器。

> Power consumption: Voltage: Each phase \leq 1VA; Current: Each phase \leq 1VA.

> 功耗：电压：每相 \leq 1VA；电流：每相 \leq 1VA。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它			
	Power Factor Meter (single phase 1b) 功率因数表 (单相 1b) Model PF PF 型 ~2.5 ①	KLY-PF48(1b) ① KLY-PF72(1b) KLY-PF96(1b) KLY-PF120(1b) KLY-PF144(1b)	CP-PF48(1b) ① CP-PF72(1b) CP-PF80(1b) CP-PF96(1b)	0.5CAP-1-0.5IND 0.4CAP-1-0.4IND 0.7CAP-1-0.2IND 0.2CAP-1-0.7IND	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A Connection on PT 配电压互感器 X/100V, X/110V	2.5 直角90° 广角 250° G (KLY series) (KLY 系列)	Operating Frequency 工作频率: 50Hz, 60Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列 封闭式 (F) CP Series Without Front Corner Cover CP系列 敞开式 (C)			
	Power Factor Meter (three-phase system with balanced load 3b) 功率因数表 (三相平衡负载系统 3b) Model PF PF 型 ~2.5 ①	KLY-PF48(3b) ① KLY-PF72(3b) KLY-PF96(3b) KLY-PF120(3b) KLY-PF144(3b)	CP-PF48(3b) ① CP-PF72(3b) CP-PF80(3b) CP-PF96(3b)								
	Power Factor Meter (3b3W unbalanced load 3u) 功率因数表 (三相三线不平衡负载系统 3u) Model PF PF 型 ~2.5 ①	KLY-PF72(3u) KLY-PF96(3u) KLY-PF120(3u) KLY-PF144(3u)	/	0.5CAP-1-0.5IND 0.4CAP-1-0.4IND 0.7CAP-1-0.2IND 0.2CAP-1-0.7IND	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V				Connection on CT 配电流互感器 X/1A, X/5A Connection on PT 配电压互感器 X/100V, X/110V	1.5 直角90° 广角 250° G	Operating Frequency 工作频率: 45 ~ 65Hz Marine Type 船用: SC With Red Pointer 带红针: RP
	Power Factor Meter (3b4W unbalanced load 4u) 功率因数表 (三相四线不平衡负载系统 4u) Model PF PF 型 ~2.5 ①	KLY-PF72(4u) KLY-PF96(4u) KLY-PF120(4u) KLY-PF144(4u)	/								

Active Power Meter/Reactive Power Meter 有功功率表/无功功率表



e.g. 例: KLY-W 96 (4u) -50-0-350kW(230(400)V,600/5A)-G-SC-RP R:200 kW IP54

1. Enterprise Code企业识别码: KLY

2. Structure Type Code结构型式代码: W: Active Power有功功率; var: Reactive Power无功功率

3. Outline Dimension Code外形尺寸代码: 48: Square Type方形48×48; 72: Square Type方形72×72; 96: Square Type方形96×96; 120: Square Type方形120×120; 144: Square Type方形144×144

4. Wiring Method接线方式:

- 1b: Single phase单相;
- 3b: 3P3W balanced system三相三线平衡系统
- 3u: 3P3W unbalanced system三相三线不平衡系统
- 4b: 3P4W balanced system三相四线平衡系统
- 4u: 3P4W unbalanced system三相四线不平衡系统

5. Specification规格:

-50-0-350kW(230(400)V,600/5A): -50-0-350kW is the measurement range, 230(400)V,600/5A is the input PT, CT value.

-50-0-350kW(230(400)V,600/5A). -50-0-350kW为测量范围。230(400)V,600/5A为输入PT, CT值。

Note: PT: Single phase: Voltage value, or Phase voltage PT; 3P3W: Line voltage or Line voltage PT;

3P4W: Phase voltage(line voltage) or line voltage PT.

注: PT值: 单相: 电压值, 或相电压PT; 三相三线: 线电压或线电压PT;

三线四线: 相电压(线电压) 或线电压PT。

6. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征:

- 1. Pointer deflection angle: 250° : G; 90° : Omit
指针偏转角度特征: 250° : G; 90度: 省略。
- 2. 90° and 250° feature: with front cover: F; without front cover: omit.
90° 转角外观特征: 封闭式: F; 敞开式: 省略。

7. Marine Environment Code船用环境代码: SC

8. Glass with Warning Red Pointer Code: RP. When it's required, please write it. If no, please omit.玻璃带警示红针代码: RP. 有需求时书写, 如无省略。

9. Scale Plate with Red Line: R; **. When it's required, please write it. If no, please omit.标度盘画红线位置: R; **. 有需求时书写, 如无省略。

10. Housing Protection Class: IP**. When it's required, please write it. If no, please omit.外壳防护等级要求: IP**. 有需求时书写, 如无省略。

Power Meter

> Using on balanced or unbalanced load circuit, measuring active power (Model prefix is W) or reactive power (Model prefix is Var) on single phase or 3-phase circuit. With moving coil structure.

> Please specify wiring method, operating voltage and operating current. Using on 3-phase 4-wire system, connect with potential transformer, and must specify the wire voltage or phase voltage when ordering.

> Wiring method: a) Single Phase (1b)

- b) 3P3W balanced Load(3b)
- c) 3P3W Unbalanced Load (3u)
- d) 3P4W Balanced Load(4b)
- e) 3P4W Unbalanced Load(4u)

> Power consumption: Voltage: Each phase≤1VA Current: Each phase≤1VA

> Power meter can be integrated or separated style. Like KLY-48/CP-80, must use external power converter (KLY-759EX, which dimension is 90.8mm Length × 75mm Width × 105.7mm Height. See page 27.

功率表

> 用于平衡负载或不平衡负载的电路中, 测量单相或三相电路的有功功率(代表符号为W型)和无功功率(代表符号为Var型)。动圈式结构。

> 订单时需注明接线方式, 工作电压及工作电流。应用于三相四线系统, 配接电压互感器(PT), 订单上必须要标明【线】电压或【相】电压。

> 接线方式: a) 单相(1b)


- b) 三相三线平衡式负载(3b)
- c) 三相三线不平衡式负载(3u)
- d) 三相四线平衡式负载(4b)
- e) 三相四线不平衡式负载(4u)

> 功耗: 电压: 每相≤1VA; 电流: 每相≤1VA


> 若仪表外附功率转换器时(KLY-48/CP-80型号功率表必须外附功率转换器), 采用KLY-759EX功率转换器, 转换器的外形尺寸(单位: mm, 尺寸图见第39页):长90.8×宽75×高105.7。表格中标注带①的型号外附功率转换器。

Active Power Meter 有功功率表


Dimension drawing see figure 2 on page 44 尺寸图见第44页图2

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
	Active Power Meter (single phase 1b) 有功功率表 (单相 1b) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(1b) ① KLY-W72(1b) KLY-W96(1b) KLY-W120(1b) KLY-W144(1b)	CP-W48(1b) ① CP-W72(1b) CP-W80(1b) ① CP-W96(1b)	-600...0-0 ...6000MW	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V Connection on CT 配电流互感器 X/1A, X/5A Connection on PT 配电压互感器 X/100V, X/110V	1.5	直角90°	Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列 封闭式 (F)
	Active Power Meter (3b3W balanced Load 3b) 有功功率表 (三相三线平衡式负载 3b) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(3b) ① KLY-W72(3b) KLY-W96(3b) KLY-W120(3b) KLY-W144(3b)	CP-W48(3b) ① CP-W72(3b) CP-W80(3b) CP-W96(3b)					
	Active Power Meter (3b3W Unbalanced Load 3u) 有功功率表 (三相三线不平衡式负载 3u) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(3u) ① KLY-W72(3u) KLY-W96(3u) KLY-W120(3u) KLY-W144(3u)	CP-W48(3u) ① CP-W72(3u) CP-W80(3u) CP-W96(3u)					
	Active Power Meter (3b4W balanced Load 4b) 有功功率表 (三相四线平衡式负载 4b) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(4b) ① KLY-W72(4b) KLY-W96(4b) KLY-W120(4b) KLY-W144(4b)	CP-W48(4b) ① CP-W72(4b) CP-W80(4b) CP-W96(4b)					
	Active Power Meter (3b4W Unbalanced Load 4u) 有功功率表 (三相四线不平衡式负载 4u) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(4u) ① KLY-W72(4u) KLY-W96(4u) KLY-W120(4u) KLY-W144(4u)	CP-W48(4u) ① CP-W72(4u) CP-W80(4u) CP-W96(4u)					
	Active Power Meter (single phase 1b) 有功功率表 (单相 1b) Model W W 型 $\sim \text{Q} \text{---} \text{Q} \perp$	KLY-W48(1b)-G ① KLY-W72(1b)-G KLY-W96(1b)-G KLY-W120(1b)-G KLY-W144(1b)-G	/					



Active Power Meter 有功功率表

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它	
	Active Power Meter (3b3W balanced Load 3b) 有功功率表 (三相三线平衡式负载 3b) Model W W型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-W48(3b)-G ① KLY-W72(3b)-G KLY-W96(3b)-G KLY-W120(3b)-G KLY-W144(3b)-G	-600...0-0 ...6000MW	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A	1.5	广角 250° G	Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V	
	Active Power Meter (3b3W Unbalanced Load 3u) 有功功率表 (三相三线不平衡式负载 3u) Model W W型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-W48(3u)-G ① KLY-W72(3u)-G KLY-W96(3u)-G KLY-W120(3u)-G KLY-W144(3u)-G	/		Connection on PT 配电压互感器 X/100V, X/110V				
	Active Power Meter (3b4W balanced Load 4b) 有功功率表 (三相四线平衡式负载 4b) Model W W型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-W48(4b)-G ① KLY-W72(4b)-G KLY-W96(4b)-G KLY-W120(4b)-G KLY-W144(4b)-G	/		57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A	1.5	广角 250° G	Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V
	Active Power Meter (3b4W Unbalanced Load 4u) 有功功率表 (三相四线不平衡式负载 4u) Model W W型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-W48(4u)-G ① KLY-W72(4u)-G KLY-W96(4u)-G KLY-W120(4u)-G KLY-W144(4u)-G	/		Connection on PT 配电压互感器 X/100V, X/110V				

Reactive Power Meter 无功功率表

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它	
	Reactive Power Meter (single phase 1b) 无功功率表 (单相 1b) Model Var Var型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-Var48(1b) ① KLY-Var72(1b) KLY-Var96(1b) KLY-Var120(1b) KLY-Var144(1b)		57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V				Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列 封闭式 (F) CP Series Without Front Corner Cover CP系列 敞开式 (C) The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V	
	Reactive Power Meter (3b3W balanced Load 3b) 无功功率表 (三相三线平衡式负载 3b) Model Var Var型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-Var48(3b) ① KLY-Var72(3b) KLY-Var96(3b) KLY-Var120(3b) KLY-Var144(3b)	CP-Var48(3b) ① CP-Var72(3b) CP-Var80(3b) ① CP-Var96(3b)	0-0.8kVar... 0-5000MVar	Connection on CT 配电流互感器 X/1A, X/5A		1.5	直角90°	
	Reactive Power Meter (3b3W Unbalanced Load 3u) 无功功率表 (三相三线不平衡式负载 3u) Model Var Var型 $\sim \text{D} \text{S} \text{C} \perp$	KLY-Var48(3u) ① KLY-Var72(3u) KLY-Var96(3u) KLY-Var120(3u) KLY-Var144(3u)	CP-Var48(3u) ① CP-Var72(3u) CP-Var80(3u) ① CP-Var96(3u)		Connection on PT 配电压互感器 X/100V, X/110V				

Reactive Power Meter 无功功率表

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
	Reactive Power Meter (3b4W balanced Load 4b) 无功功率表 (三相四线平衡式负载 4b) Model Var Var 型 ~□□□□	KLY-Var48(4b) ① KLY-Var72(4b) KLY-Var96(4b) KLY-Var120(4b) KLY-Var144(4b)	CP-Var48(4b) ① CP-Var72(4b) CP-Var80(4b) ① CP-Var96(4b)	0-0.8kVar... 0-5000MVar	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A	1.5	直角90° Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP KLY Series With Front Corner Cover KLY系列 封闭式 (F)
	Reactive Power Meter (3b4W Unbalanced Load 4u) 无功功率表 (三相四线不平衡式负载 4u) Model Var Var 型 ~□□□□	KLY-Var48(4u) ① KLY-Var72(4u) KLY-Var96(4u) KLY-Var120(4u) KLY-Var144(4u)	CP-Var48(4u) ① CP-Var72(4u) CP-Var80(4u) ① CP-Var96(4u)		Connection on PT 配电压互感器 X/100V, X/110V			CP Series Without Front Corner Cover CP系列 敞开式 (C) The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V
	Reactive Power Meter (single phase 1b) 无功功率表 (单相 1b) Model Var Var 型 ~□□□□	KLY-Var48(1b)-G ① KLY-Var72(1b)-G KLY-Var96(1b)-G KLY-Var120(1b)-G KLY-Var144(1b)-G	/	0-0.8kVar... 0-5000MVar	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A	1.5	广角 250° G CP Series Without Front Corner Cover CP系列 敞开式 (C) The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V
	Reactive Power Meter (3b3W balanced Load 3b) 无功功率表 (三相三线平衡式负载 3b) Model Var Var 型 ~□□□□	KLY-Var48(3b)-G ① KLY-Var72(3b)-G KLY-Var96(3b)-G KLY-Var120(3b)-G KLY-Var144(3b)-G	/		Connection on PT 配电压互感器 X/100V, X/110V			
	Reactive Power Meter (3b3W Unbalanced Load 3u) 无功功率表 (三相三线不平衡式负载 3u) Model Var Var 型 ~□□□□	KLY-Var48(3u)-G ① KLY-Var72(3u)-G KLY-Var96(3u)-G KLY-Var120(3u)-G KLY-Var144(3u)-G	/		57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V	Connection on CT 配电流互感器 X/1A, X/5A	1.5	广角 250° G Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC With Red Pointer 带红针: RP The Reverse Power With Alarm Output 逆功率带报警输出: NA Auxiliary Power 辅助电源: AC/DC100V~415V DC24V
	Reactive Power Meter (3b4W balanced Load 4b) 无功功率表 (三相四线平衡式负载 4b) Model Var Var 型 ~□□□□	KLY-Var48(4b)-G ① KLY-Var72(4b)-G KLY-Var96(4b)-G KLY-Var120(4b)-G KLY-Var144(4b)-G	/	0-0.8kVar... 0-5000MVar	Connection on PT 配电压互感器 X/100V, X/110V			
	Reactive Power Meter (3b4W Unbalanced Load 4u) 无功功率表 (三相四线不平衡式负载 4u) Model Var Var 型 ~□□□□	KLY-Var48(4u)-G ① KLY-Var72(4u)-G KLY-Var96(4u)-G KLY-Var120(4u)-G KLY-Var144(4u)-G	/					

Look up table for measuring range on active power in 3P3W 三相三线有功功率测量范围对照表格

Current 电流	Measurement Range 测量范围	Voltage 电压												
		100V	220V	380V	380/100V	500/100V	3K/100V	6K/100V	10K/100V	15K/100V	35K/100V	110K/100V	220K/100V	380K/100V
5A	KW	1	2	3	3	4	25	50	80	120	300	1	2	3
7.5/5A		1.5	3	5	5	6	40	80	120	200	500	1.5	3	5
10/5A		2	4	6	6	8	50	100	150	250	600	2	4	6
15/5A		3	6	10	10	12	80	150	250	400	1	3	6	10
20/5A		4	8	15	15	15	100	200	300	500	1.5	4	8	15
30/5A		6	12	20	20	25	150	300	500	800	2	6	12	20
40/5A		8	15	25	25	30	200	400	600	1	2.5	8	15	25
50/5A		10	20	30	30	40	250	500	800	1.2	3	10	20	30
75/5A		15	30	50	50	60	400	800	1.2	2	5	15	30	50
100/5A		20	40	60	60	80	500	1	1.5	2.5	6	20	40	60
150/5A		30	60	100	100	120	800	1.5	2.5	4	10	30	60	100
200/5A		40	80	120	120	150	1	2	3	5	12	40	80	120
300/5A		60	120	200	200	250	1.5	3	5	8	20	60	120	200
400/5A		80	150	250	250	300	2	4	6	10	25	80	150	250
500/5A		100	200	300	300	400	2.5	5	8	12	30	100	200	300
600/5A		120	250	400	400	500	3	6	10	15	40	120	250	400
750/5A		150	300	500	500	600	4	8	12	20	50	150	300	500
1K/5A		200	400	600	600	800	5	10	15	25	60	200	400	600
1.5K/5A		300	600	1	1	1.2	8	15	25	40	100	300	600	1000
2K/5A		400	800	1.2	1.2	1.5	10	20	30	50	120	400	800	1200
3K/5A	600	1.2	2	2	2.5	15	30	50	80	200	600	1200	2000	
4K/5A	800	1.5	2.5	2.5	3	20	40	60	100	250	800	1500	2500	
5K/5A	MW	1	2	3	3	4	25	50	80	120	300	1000	2000	3000
6K/5A		1.2	2.5	4	4	5	30	60	100	150	400	1200	2500	4000
7.5K/5A		1.5	3	5	5	6	40	80	120	200	500	1500	3000	5000
10K/5A		2	4	6	6	8	50	100	150	250	600	2000	4000	6000

Look up table for measuring range on reactive power in 3P3W 三相三线无功功率测量范围对照表格

Current 电流	Measurement Range 测量范围	Voltage 电压												
		100V	220V	380V	380/100V	500/100V	3K/100V	6K/100V	10K/100V	15K/100V	35K/100V	110K/100V	220K/100V	380K/100V
5A	kVar	0.8	1.5	2.5	2.5	3	20	40	80	100	250	800	1.5	2.5
7.5/5A		1.2	2.5	4	4	5	30	60	100	150	400	1.2	2.5	4
10/5A		2	3	5	5	6	40	80	150	200	500	1.5	3	5
15/5A		2.5	5	8	8	10	60	120	200	300	800	2.5	5	8
20/5A		4	6	10	10	15	80	150	300	400	1	3	6	10
30/5A		5	10	15	15	20	120	250	400	600	1.5	5	10	15
40/5A		8	12	20	20	30	150	300	600	800	2	6	12	20
50/5A		10	15	25	25	40	200	400	800	1	2.5	8	15	25
75/5A		12	25	40	40	50	300	600	1	1.5	4	12	25	40
100/5A		20	30	50	50	60	400	800	1.5	2	5	15	30	50
150/5A		25	50	80	80	100	600	1.2	2	3	8	25	50	80
200/5A		40	60	100	100	150	800	1.5	3	4	10	30	60	100
300/5A		50	100	150	150	200	1.2	2.5	4	6	15	50	100	150
400/5A		80	120	200	200	300	1.5	3	6	8	20	60	120	200
500/5A		100	150	250	250	400	2	4	8	10	25	80	150	250
600/5A		100	200	300	300	400	2.5	5	8	12	30	100	200	300
750/5A		120	250	400	400	500	3	6	10	15	40	120	250	400
1K/5A		200	300	500	500	600	4	8	15	20	50	150	300	500
1.5K/5A		250	500	800	800	1	6	12	20	30	80	250	500	800
2K/5A		400	600	1	1	1.5	8	15	30	40	100	300	600	1000
3K/5A	500	1	1.5	1.5	2	12	25	40	60	150	500	1000	1500	
4K/5A	600	1.2	2	2	2.5	15	30	60	80	200	600	1200	2000	
5K/5A	800	1.5	2.5	2.5	3	20	40	80	100	250	800	1500	2500	
6K/5A	Mvar	1	2	3	3	4	25	50	80	120	300	1000	2000	3000
7.5K/5A		1.2	2.5	4	4	5	30	60	100	150	400	1200	2500	4000
10K/5A		2	3	5	5	6	40	80	150	200	500	1500	3000	5000

KWH Meter千瓦时表



例: KLY-WH96-2-3u-400kW(440V,500/5A)-F-SC IP54

1. **Enterprise Code**企业识别码: KLY

2. **Structure Type Code**结构型式代码:

WH96: Single row nixie tube indicates active electrical energy单排数码管指示有功电能;

2WH96: Double-row nixie tube: the nixie tube of upper row indicates active electrical energy; the nixie tube of lower row indicates reactive electrical energy.

双排数码管, 上排数码管指示有功电能, 下排数码管指示无功电能。

WH96-2: Pointer & nixie tube instructions: nixie tube indicates active electrical energy, the pointer indicates active power.指针加数码管指示, 数码管指示有功电能, 指针指示有功功率。

3. **Wiring Method**接线方式:

1b: Single phase单相;

3b: 3P3W balanced system三相三线平衡系统

3u: 3P3W unbalanced system三相三线不平衡系统

4b: 3P4W balanced system三相四线平衡系统

4u: 3P4W unbalanced system三相四线不平衡系统

4. **Specification**规格:

400kW is the measurement range. 440V,500/5A is put PT and CT value.

400kW为测量范围。440V,500/5A为输入PT, CT值。

Note: PT value: Single phase: Voltage value, or phase voltage PT; 3P3W: line voltage or line voltage PT.

3P4W: phase voltage(line voltage) or line voltage PT.

注: PT值: 单相: 电压值, 或相电压PT; 三相三线: 线电压或线电压PT;

三线四线: 相电压(线电压) 或线电压PT。

5. **Pointer deflection angle feature or 90° , 250° feature**指针偏转角度特征或90° 转角外观特征:

1. Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征: 250° : G; 90度: 省略。

2. 90° and 250° feature: with front cover: F; without front cover: omit

90° 转角外观特征: 封闭式: F; 敞开式: 省略。

6. **Marine Environment Code**船用环境代码: SC

7. **Housing Protection Class:** IP**. When it's required, please write it. If no, please omit.

外壳防护等级要求: IP**. 有需求时书写, 如无省略。

Power & Energy Meter

> Measuring power and energy in power network, display the power and energy through analogue and seven segment display module, respectively. Maximum display value: 9999999.9. Using single chip with WATCHDOG circuit, adjusting zero and full scale by software, the meter has strong anti-interference ability.

Model prefix is WH.

> Please specify wiring method, operating voltage and operating current.

> Wiring method: a) Single Phase (1b)

b) 3b3W balanced Load (3b)

c) 3b3W Unbalanced Load (3u)

d) 3b4W Balanced Load (4b)

e) 3b4W Unbalanced Load (4u)

> Power consumption: Voltage: Each phase $\leq 1VA$ Current: Each phase $\leq 1VA$

功率电能表

> 测量电网中功率、电能。通过指针指示功率值, 数码管显示电能值, 采用单片机集成配以WATCHDOG电路, 软件调零调满刻度, 整机具有很强的抗干扰能力。电能值最大显示: 9999999.9。电能准确度等级: 1.0级, 功率准确度等级: 1.5级。代表符号为WH型。

> 订单时需注明接线方式, 工作电压及工作电流。

> 接线方式: a)单相(1b)

b)三相三线平衡式负载(3b)




c)三相三线不平衡式负载(3u)

d)三相四线平衡式负载(4b)

e)三相四线不平衡式负载(4u)

> 功耗: 电压: 每相 $\leq 1VA$; 电流: 每相 $\leq 1VA$

Dimension drawing see figure 2 on page 44 尺寸图见第44页图2

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Wiring Method 接线方式	Measurement Range 测量范围	Operating Voltage 工作电压	Operating Current 工作电流	Accuracy Class 准确度等级	Scale 指示角度	Others 其它
	Power & Energy Meter Single 7 segment LED display 功率电能表 单排数码管 Model WH WH 型	KLY-WH96	Single Phase (1b) 3b 3W balanced Load(3b) 3b 3W Unbalanced Load (3u) 3b 4W Balanced Load(4b) 3b 4W Unbalanced Load(4u) 单相(1b) 三相三线平衡式负载(3b) 三相三线不平衡式负载(3u) 三相四线平衡式负载(4b) 三相四线不平衡式负载(4u)	0~ 9999999.9 kWh	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V Connection on CT 配电流 互感器 X/1A, X/5A	Connection on CT 配电流 互感器 X/1A, X/5A	Energy 电能 1.0	/	Operating Frequency 工作频率: 45~65Hz
	Power & Energy Meter Double 7 segment LED display 功率电能表 双排数码管 Model 2WH 2WH 型	KLY-2WH96	Single Phase (1b) 3b 3W balanced Load(3b) 3b 3W Unbalanced Load (3u) 3b 4W Balanced Load(4b) 3b 4W Unbalanced Load(4u) 单相(1b) 三相三线平衡式负载(3b) 三相三线不平衡式负载(3u) 三相四线平衡式负载(4b) 三相四线不平衡式负载(4u)	0~ 9999999.9 kWh 0- 9999999.9 kVarh	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V Connection on CT 配电流 互感器 X/1A, X/5A	Connection on CT 配电流 互感器 X/1A, X/5A	Energy 电能 1.0	/	Marine Type 船用: SC
	Power & Energy Meter Pointer & Single 7 segment LED display 功率电能表 指针加单排数码管 Model WH-2 WH-2 型	KLY-WH96-2	Single Phase (1b) 3b 3W balanced Load(3b) 3b 3W Unbalanced Load (3u) 3b 4W Balanced Load(4b) 3b 4W Unbalanced Load(4u) 单相(1b) 三相三线平衡式负载(3b) 三相三线不平衡式负载(3u) 三相四线平衡式负载(4b) 三相四线不平衡式负载(4u)	0~ 9999999.9 kWh -600...0-0 ...6000MW	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V Connection on CT 配电流 互感器 X/1A, X/5A	Connection on CT 配电流 互感器 X/1A, X/5A	Energy 电能 1.0 Power 功率 1.5	直角90°	Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC
	Power & Energy Meter Pointer & Single 7 segment LED display 功率电能表 指针加单排数码管 Model WH-2-G WH-2-G 型	KLY-WH96-2-G	Single Phase (1b) 3b 3W balanced Load(3b) 3b 3W Unbalanced Load (3u) 3b 4W Balanced Load(4b) 3b 4W Unbalanced Load(4u) 单相(1b) 三相三线平衡式负载(3b) 三相三线不平衡式负载(3u) 三相四线平衡式负载(4b) 三相四线不平衡式负载(4u)	0~ 9999999.9 kWh -600...0-0 ...6000MW	57.7V 63.5V 100V 110V 120V 220V 230V 240V 380V 400V 415V 440V Connection on CT 配电流 互感器 X/1A, X/5A	Connection on CT 配电流 互感器 X/1A, X/5A	Energy 电能 1.0 Power 功率 1.5	广角 250° G	With Red Pointer 带红针: RP KLY Series With Front Cover KLY系列 封闭式 (F)

Synchroscope 同步表



e.g.例：KLY-S 96-DR-A-400V-SC IP54

1. Enterprise Code企业识别码：KLY

2. Structure Type Code结构型式代码：S: synchroscope同步表

3. Outline Dimension Code外形尺寸代码：72: Square Type方形72×72；96: Square Type方形96×96；

4. Function Type功能类型：

D: Closing by hand手动合闸型；

X: Pointer synchroscope with X-Coil movement 带X-Coil机芯的指针式同步表

DR-A: With relay output, control the voltage difference, the frequency difference, the advance time parameter带继电器输出型，控制压差、频率差、提前时间参数。

DR-B: With relay output, control the voltage difference, the frequency difference, the delay time parameter带继电器输出型，控制压差、相位差、延迟时间参数。

5. Specification规格：

400V, that is system rated voltage.

400V, 即系统额定电压。

6. Marine Environment Code船用环境代码：SC

7. Housing Protection Class: IP**. When it's required, please write it. If no, please omit.

外壳防护等级要求：IP**. 有需求时书写，如无省略。

Synchroscope

> Synchroscope indicate the phase difference and frequency difference between two power systems or power system and generator; also give indication when both are synchronized. Consumption: ≤5VA. It can be divided into following categories:

A) Digital Synchroscope

> Indicating the status if power generator and network are synchronized. When the voltage and frequencies in between power generator and network is consistency, rotation of LED Roulette will be slowed down until the SYNC LED is on. Both system can be synchronized and connect the generator to the power network. Model prefix is S-D. With relay output, Model prefix is S-DR.

Relay Output (Please specify on ordering):

- A: 1. Voltage difference between UBB and UGEN is less than pre-set value, $S1 (\Delta U \times UN)$;
2. Frequency difference between FGEM and FBUS is less than pre-set value, $S2 (\Delta F)$;
3. Pre-set time difference before phase difference is 0° , $S3$ (Time);

When above 3 conditions are satisfied, synchronized signal will be released.

B: Voltage difference between UBB and UGEN is less than pre-set value. $S1 (\Delta U \times UN)$; phase difference between UBB and UGEN is satisfied with pre-set value $S2 (\Delta \phi)$, and within the pre-set delay time (Delay), phase difference between UBB and UGEN is still satisfied with pre-set value $S2 (\Delta \phi)$, synchronized signal will be released.

B) Pointer Synchroscope

> In two single-phase or three-phase power network systems, indicating the status when power generator and network are synchronized. Rotation of indication disc will slow down until the pointer stop at (inverted triangle) sign. Both system can be synchronized and connect the generator to the power network. Maximum working time: 15 minutes. With micro-controller and X-coil movement can be customized, Model prefix is S-X.

同步表

> 同步表显示两个电网系统或电网系统与发电机之间的相位差、频率差，并当两者同步时给予指示。功耗：≤5VA。按作用原理及显示方式可分为：

A) 数字式同步表

> 用于发电机投入电网运行时的合闸指示。在待投发电机（或电网）的电压、频率与电网的电压、频率接近一致时，仪表的LED显示将缓慢地旋转，当SYNC指示区内LED灯发亮时，合闸并网，并网后发电机即可投入电网运行。代表符号为S-D型；可定制带继电器输出功能，代表符号为S-DR型。继电器输出条件（订单时需注明）：



- A: 1. UBB与UGEN之间电压差小于预设值 $S1 (\Delta U \times UN)$;
2. FGEM与FBUS之间频率差小于预设值 $S2 (\Delta F)$;
3. 预计相位差为 0° 之前的时差为 $S3$ (Time);
- 以上三个条件同时满足时，同步合闸脉冲输出。

B: UBB与UGEN之间电压差小于预设值 $S1 (\Delta U \times UN)$ ；UBB与UGEN之间相位差先符合了预设值 $S2 (\Delta \phi)$ ，并在预设延时(Delay)内，UBB与UGEN之间相位差仍能保持符合预设值 $S2 (\Delta \phi)$ ，同步合闸脉冲输出。

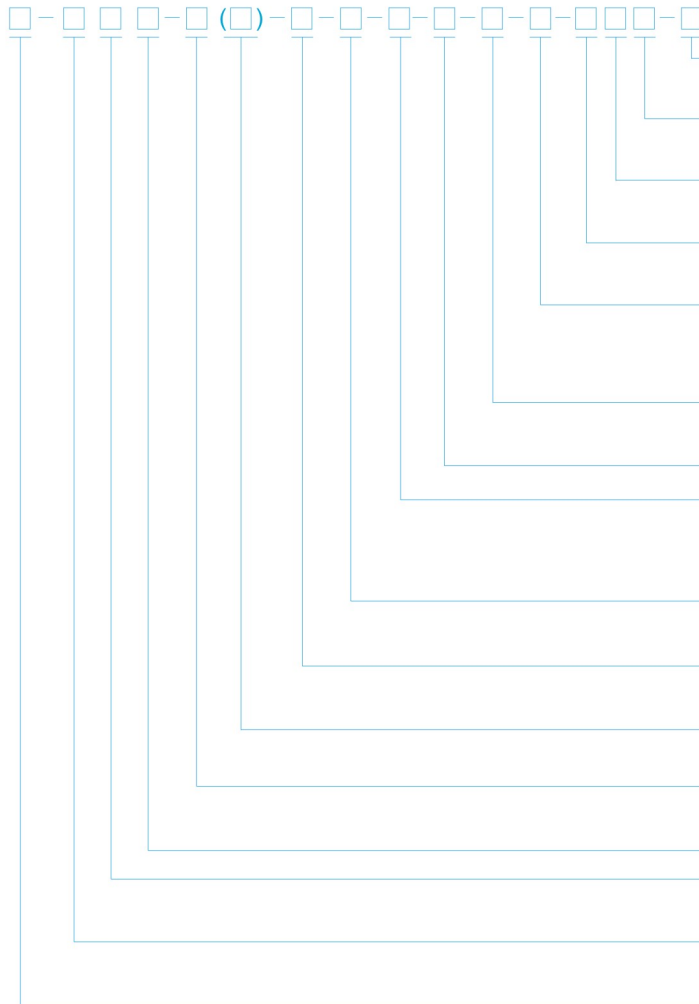
B) 指针式同步表

> 用于两个单相或三相电网系统，发电机投入电网运行时的合闸指示。在待投发电机（或电网）的电压、频率与电网的电压、频率接近一致时，仪表的指针缓慢旋转并指向标度盘顶部正中（倒三角形）位置，合闸并网，并网后发电机即可投入电网运行。工作时间：最大15分钟。可定制内置微控制器的X-COIL机芯的同步表，代表符号为S-X型。

Dimension drawing see figure 2 on page 44 尺寸图见第44页图2

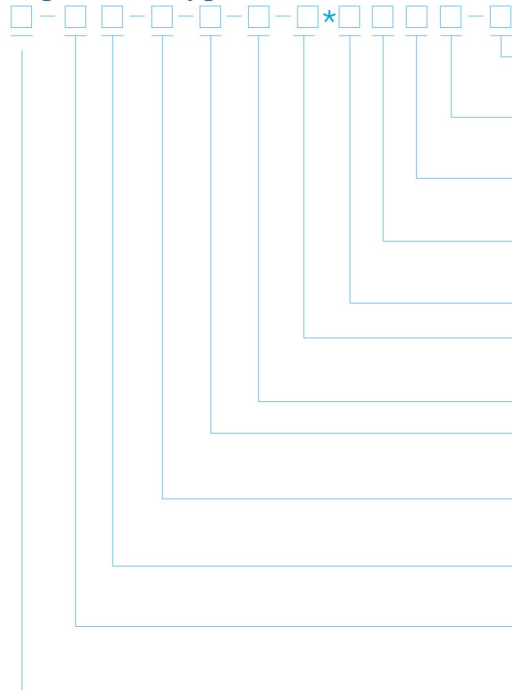
Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号		Operating Voltage 工作电压	Accuracy Class 准确度等级	Other 其他
	Digital Synchroscope 数字式同步表 Model S-D S-D 型	KLY-S72-D KLY-S96-D KLY-S144-D	/	57V 100V 220V 380V 415V 440V Connection on PT 配电电压互感器 X/100V, X/110V	15° (Electrical angle 电角度 15° ~345°) 3° (Electrical angle 电角度 345° ~15°)	Operating Frequency 工作频率: 40~70Hz Marine Type 船用: SC
	Digital Synchroscope (with relay output) 数字式同步表 (带继电器输出) Model S-DR S-DR 型	KLY-S72-DR KLY-S96-DR	/	57V 100V 220V 380V 415V 440V Connection on PT 配电电压互感器 X/100V, X/110V	15° (Electrical angle 电角度 15° ~345°) 3° (Electrical angle 电角度 345° ~15°)	Operating Frequency 工作频率: 40~70Hz Marine Type 船用: SC Relay Output; A or B 继电器输出条件: A或B
	Pointer Synchroscope 指针式同步表 Model S-X S-X 型	KLY-S1101-X KLY-S144-X	CP-S72-X CP-S96-X	100V 220V 380V 415V 440V Connection on PT 配电电压互感器 X/100V, X/110V	2.5	Operating Frequency 工作频率: 45~65Hz Marine Type 船用: SC

Integrated Net Insulation Monitor 一体式绝缘电阻检测仪



- 通讯功能: CAN: 带CAN通讯
省略不写为常规功能
- 外壳防护等级: IP**
无要求则省略不写
- 标度盘画红线位置: R: **
无要求则省略不写
- 其他要求: SC: 船用环境代码
HT: 航天环境代码
- 外观特征: G: 指针偏转角度为250°
F: 封闭式, 仅限指针偏转角度为90°
C: 敞开式, 仅限指针偏转角度为90°, 省略不写
- 继电器输出类型: A: ND动作方式(常闭)
B: NE动作方式(常闭)
- 辅助电源规格: AC220V/380V、AC110V/60V、AC440V、DC24V
- 功能版本说明: 00: 默认功能, 报警值以实物为准, 省略不写;
01: 直流500kΩ 量程报警点可选范围为3~350kΩ;
02: 直流100MΩ 量程报警点可选范围为0.1~5MΩ;
- 测量范围: 交流系统可选: 100MΩ、5MΩ、1MΩ;
直流系统可选: 1MΩ、500kΩ、250kΩ、50kΩ;
- 功能检测: T: 带自检功能;
不带自检功能则省略不写;
- 测量线路电压最大值及分布电容规格: AC690V、AC500V、DC36V、
AC690V/50μF、AC690V/500μF
- 类型代码: 1: 第1型直流绝缘监测仪;
2: 第2型直流绝缘监测仪;
- 一体式代码: I
- 外形尺寸代码: 72: 72mm×72mm;
96: 96mm×96mm;
- 结构型式代码: NI: 单路绝缘电阻监测仪;
2NI: 双路绝缘电阻监测仪;
- 企业识别码: KLY

Separated Type Net Insulation Monitor 分体式绝缘电阻检测仪



- 通讯功能: RS485: 带485通讯
省略不写为常规功能
- 外壳防护等级: IP**
无要求则省略不写
- 标度盘画红线位置: R: **
无要求则省略不写
- 其他要求: SC: 船用环境代码
HT: 航天环境代码
- 指针仪表型号: 全部外形测量表头(例: KLY-50、KLY-48、KLY-144等)
- 继电器输出类型: A: ND动作方式(常闭)
B: NE动作方式(常闭)
- 辅助电源规格: AC220V/380V、AC110V/60V、AC440V、DC24V
- 测量范围: 交流系统可选: 100MΩ、5MΩ、1MΩ;
直流系统可选: 1MΩ、500kΩ、250kΩ、50kΩ;
- 功能检测: T: 带自检功能;
不带自检功能则省略不写;
- 测量线路电压最大值及分布电容规格: AC690V、AC500V、DC36V、
AC690V/50μF、AC690V/500μF
- 结构型式代码: NI: 单路绝缘电阻监测仪;
2NI: 双路绝缘电阻监测仪;
- 企业识别码: KLY

Net Insulation Monitor

- > Monitoring the insulation resistance of ungrounded power network. When insulation resistance is lower than the preset value, its relay release alarm. Based on principle method, the Net Insulation Monitor can be divided into following categories:
 - The monitor with measuring system, called Integrated Net Insulation Monitor. Model prefix is NI-I. Network Insulation Monitor can be customized with self-detection. Model prefix is NI-I-T. Explanation as follows:
 - "Monitor" mode: Ordinary Monitoring. Monitor works as normal.
 - "Suspend" mode: Invalid. Monitor does not check with the insulation resistance of circuit, and pointer points at ∞.
 - "Test" mode: Self-detection. Monitor does not check with the insulation resistance of circuit, and pointer points at 0, alarm LED lit, relay activated.
 - Monitor and measuring system are separated, called Separated Net Insulation Monitor. Model prefix is NI.
 - Monitoring the insulation resistance of two ungrounded power networks at the same time, using Integrated double circuits Net Insulation Monitor. Model prefix is 2NI-I.

Technical Specification:

- > 1) Relay (Load resistance): DC 30V, 5A , AC 250V, 5A .
 - A: NO (Normally Open): When the value is less than alarm limit, relay operate, normally open change from break to closed.
 - B: NC (Normally Close): When the value is greater than alarm limit, relay operate, until the value is less than alarm limit or cut off the meter power, relay release, normally close contact break connection and close.
- 2) In the same power network, more than one Net Insulation Monitor or other instrument is not allowed to use.
- 3) Before changing the preset value, please ensure there is no voltage applied.
- 4) Communication function optional, CAN or RS485.






电网绝缘监测仪

- > 用于监测非接地电力线路在带电状态下其接地绝缘电阻。当电网接地绝缘电阻低于设定值时继电器报警输出。按结构分为:
 - 仪表中内置电子测量部分称为一体式绝缘监测仪, 代表符号为NI-I型。电网绝缘检测仪可定制带自检功能, 代表型号为NI-I-T. 功能如下:
 - "Monitoring" 档: 正常监测, 此时仪表正常工作。
 - "Suspend" 档: 失效, 此时仪表不检测回路中绝缘电阻, 且指针指示∞刻度线。
 - "Test" 档: 自检, 此时仪表不检测回路中绝缘电阻, 且指针指示0刻度线, 报警指示灯亮, 继电器动作。
 - 仪表和电子测量部件分开安装称为分体式绝缘监测仪, 代表符号为NI型。
 - 若同时监测两个不接地交流系统的绝缘电阻时, 选用一体式双回路电网绝缘监测仪, 代表符号为2NI-I型。

技术规格:

- > 1) 继电器规格(阻性负载): DC 30V, 5A , AC 250V, 5A. 继电器输出方式:
 - A: NO (常开触点方式), 仪表通电状态下, 当测量值小于报警设定值时, 继电器动作, 常开触点由断开状态切换到闭合状态。
 - B: NC (常闭触点方式), 仪表通电状态下, 测量值大于报警设定值时, 继电器动作。当测量值小于报警值或仪表断电时, 继电器释放, 常闭触点由断开状态切换到闭合状态。
- 2) 在同一电网中, 不能同时使用两台监测仪或其他仪器测量同一网络的绝缘电阻。
- 3) 在变更设定值前, 请确保无施加电压。
- 4) 通讯功能可选, CAN或RS485。

Dimension drawing see figure 2 on page 44 尺寸图见第44页图2

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Maximum Voltage Of Measuring Circuit 测量线路最大电压	Measurement Range 测量范围	Auxiliary Power 辅助电源	Accuracy Class 准确度等级	Special Symbols 特殊标号	Scale 指示角度	Others 其它
	AC Net Insulation Monitor (Integrated) 交流电网绝缘监测仪 (一体式) Model NI-I NI-I 型	KLY-NI72I	AC 500V 690V	0-1MΩ	AC 57.7V/100V 220V/380V 230/400V 240/415V 450V	1.5	A:NO B:NC	直角90°	Operating Frequency 工作频率: 50Hz, 60Hz, 400Hz Marine Type 船用: SC The Monitor With Self-detection 带自检功能: T
		KLY-NI96I		0-5MΩ 0-10MΩ				直角90° 广角 250° G	
	DC Net Insulation Monitor (Integrated) 直流电网绝缘监测仪 (一体式) Model NI-I NI-I 型	KLY-NI72I	DC 24V 36V 110V	0-50kΩ	DC 24V 110V 220V	5.0	A:NO B:NC	直角90°	Marine Type 船用: SC The Monitor With self-detection 带自检功能: T
		KLY-NI96I		0-250kΩ 0-500kΩ				直角90° 广角 250° G	
 Dimension drawing see figure 4 on page 22 尺寸图见第22页图4	AC Net Insulation Monitor (Separated) 交流电网绝缘监测仪 (分体式) Model NI NI 型	KLY-NI	AC 500V 690V	0-1MΩ	AC 57.7V/100V 220V/380V 230/400V 240/415V 450V	1.5	A:NO B:NC	直角90°	Operating Frequency 工作频率: 50Hz, 60Hz, 400Hz Marine Type 船用: SC The Monitor With Self-detection 带自检功能: T
				0-5MΩ 0-10MΩ				广角 250° G	
	DC Net Insulation Monitor (Separated) 直流电网绝缘监测仪 (分体式) Model NI NI 型	KLY-NI	DC 24V 36V 110V	0-50kΩ	DC 24V 110V 220V	5.0	A:NO B:NC	直角90°	Marine Type 船用: SC The Monitor With Self-detection 带自检功能: T
				0-250kΩ 0-500kΩ				广角 250° G	
	Integrated double circuits Net Insulation Monitor 一体式双回路电网绝缘监测仪 Model 2NI-I 2NI-I 型	KLY-2NI96I	AC 500V 690V	0-1MΩ 0-5MΩ 0-10MΩ	AC 57.7V/100V 220V/380V 230/400V 240/415V 450V	1.5	/	/	Operating Frequency 工作频率: 50Hz, 60Hz, 400Hz Marine Type 船用: SC The Monitor With Self-detection 带自检功能: T

Hours Run Meter 累计时间表



例：KLY-H 48-24V-SC IP54

1. **Enterprise Code** 企业识别码：KLY
 2. **Structure Type Code** 结构型式代码：H
 3. **Outline Dimension Code** 外形尺寸代码：48；Square Type 方形 48 × 48；72；Square Type 方形 72 × 72；96；Square Type 方形 96 × 96；36 × 24；Rectangle Type 矩形 36 × 24；
 4. **Input Voltage Specification** 输入电压规格
 5. **Marine Environment Code** 船用环境代码：SC
 6. **Housing Protection Class: IP**.** When it's required, please write it. If no, please omit.
- 外壳防护等级要求：IP**。有需求时书写，如无省略。

Hours Run Meter


> Hours Run Meter with built-in synchronous motor, features six-digit readout with no reset function, making them virtually tamper proof. All hour meters are connected in parallel with the equipment being monitored. Providing accurate time indication. Model prefix is H.
Display: 99999.99

> Note: KLY-H48 is joint installation with pack, the mounting depth is 75mm.
KLY-H48/72/96 resolution 0.1h.
KLY-H3624 with 7 digits readout, resolution 0.01h.

累计时间表

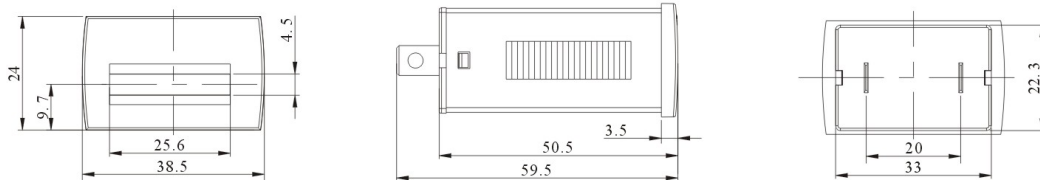
> 累计时间表内置同步电机，带6位读数器；无复位机构，可防止非授权设置。时间与设备并联连接，提供准确的时间记录。代表符号为H型。
最大量程显示:99999.99

> 注:KLY-H48型号累计时间表带背包联体安装，安装深度为75mm。
KLY-H48/72/96分辨率0.1h。
KLY-H3624带7位读数器，分辨率0.01h。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Operating Voltage 工作电压	Accuracy Class 准确度等级	Other 其他
	Hours Run Meter 累计时间表 Model H H 型	KLY-H48 KLY-H72 KLY-H96	AC (50/60Hz) /DC 24V 48V 60V 100V 200-250V 380V 440V	0.5	Marine Type 船用：SC
		KLY-H3624	AC/DC 24V 100V 220V		

KLY-H3624

Unit 单位：mm



Phase Sequence Indicator相序表



e.g.例：KLY-SI96-D R-100-250V-SC IP54

1. **Enterprise Code**企业识别码：KLY
2. **Structure Type Code**结构型式代码：SI: Phase Sequence Indicator相序表代码
3. **Outline Dimension Code**外形尺寸代码：72: square type方形72×72；96: square type方形96×96；
4. **Display Type**显示类型：D: LED display显示；Mechanical default does not fill机械式默认不填
5. **Function Type**功能类型：R: With relay output; when it's required, please write. If no, please omit.带继电器输出；有需求时书写，如无省略。
6. **Input Signal Range**输入信号范围：100-250V；250-450V。
7. **Marine Environment Code**船用环境代码：SC when it's required, please write. If no, please omit.有需求时书写，如无省略。
8. **Housing Protection Class**: IP**. When it's required, please write it. If no, please omit.
外壳防护等级要求：IP**. 有需求时书写，如无省略。

Phase Sequence Indicator

> Monitoring phase sequence in three-phase power network system.

Mechanic Phase Sequence Meter

> Applicable on 100 ~ 150V or 150 ~ 500V three-phase power network. When the rotation of disc with arrow sign is clockwise, the phase sequence is correct. Anti-clockwise rotation means wrong sequence. Exchanging any two of the three "hot" wires, obtain the correct phase sequence. Each test should not be longer than 5 minutes. Model prefix is SI.

LED Phase Sequence Indicator

> Measuring status of phase sequence: Correct phase, Incorrect phase or Lack of phase.
 a) "CORRECT" LED lit: Phase sequence is correct;
 b) "WRONG" LED lit: Phase sequence is incorrect;
 c) Both CORRECT and WRONG LEDs lit: Lack of phase. When the wire is lack of phase and its LED will goes off Model prefix is SI-D. With relay output can be customized. Model prefix is SI-DR.

相序表


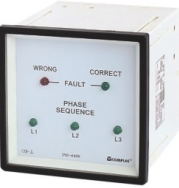
> 用于检测三相电网系统的相序。

机械式相序表

> 用于检测100 ~ 150V 或150 ~ 500V 的三相电网系统的相序。当三相系统的电压顺序与相序表标志一致，相序表转盘按顺时针方向旋转，此时相序正确；如相序表转盘反向旋转，则相序错误，需将三相系统两接线交换，即获得正确相序，一次试验时间不超过5分钟。代表符号为SI型。

指示灯式相序表

> 用于检测三相电网系统的相序:正相、逆相、缺相。L1、L2、L3指示灯分别为三相电压指示。
 a) CORRECT指示灯:正相序;
 b) WRONG指示灯:逆相序;
 c) 当CORRECT灯、WRONG灯同时亮时，表示缺相，同时由L1、L2、L3三灯中不亮的指示灯指示所缺的相。代表符号为SI-D型。可按用户要求定制继电器输出功能，代表符号为SI-DR型。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Operating Voltage 工作电压	Other 其他
	Mechanic Phase Sequence Meter 机械式相序表 Model SI SI 型	KLY-SI72 KLY-SI96	AC 100~150V 150~500V	Operating Frequency 工作频率：50Hz,60Hz Marine Type 船用：SC
	LED Phase Sequence Indicator (with relay output) 指示灯式相序表 (带继电器输出) Model SI-DR SI-DR 型	KLY-SI72-DR KLY-SI96-DR	AC 100~250V 250~450V	Operating Frequency 工作频率：50Hz,60Hz Marine Type 船用：SC

X-Coil Meter X-Coil仪表



e.g.例：KLY-C96-X- ±180(4-20mA) - DC24V

1. **Enterprise Code**企业识别号：Model is固定为“KLY”；
2. **Structure Type Code**结构型式代码：Model is固定为“C”；
3. **Outline Dimension Code**外形尺寸代码：

72: 77×77
 96: 101×101
 144: 148×148
 192: 196×196

4. The meter is built in with X-coil movement, "X" for embedded installation, "BW" for bridge wing installation

本机都用X-coil机芯，“X”为嵌入式安装，“W”为壁挂式安装

5.Scale Display Specification面板指示规格

6.Input Signal Specification输入信号规格

7.Auxiliary Power辅助电源规格: DC24V



X-COIL Meter

> Using on controlling cab in vessels, indicating rotational speed and rudder angle. The meter has self-developed X-Coil movement with built-in micro controller; pointer can do 360° clockwise or anti-clockwise rotation, providing illumination on display with auxiliary power (DC 7-30V). Before the meter is energized, pointer can stop on any position.

The analogue signal can be input from single channel. For example, the standard signal is 0-10V, 4-20mA and so on. It also can be input from dual channels. For special SIN/COS, dual channels can share the same terminal. The meter has the error warning indication, the alarm LED is on the upper of the front case. If the meter is mal-function or failure, the LED will be blinking.

Feature:

- a) Waterproof, Salt-mist resistance, Suitable for marine environment;
- b) After energized and switched on supplementary light, the light beam fill out the transparent pointer, easy to get reading;
- c) Good mechanic performance, Shock resistance.

> Specification:

- 1) Accuracy class: 0.5;
- 2) Ingress Protection: front panel IP66, rear part IP20;
- 3) Auxiliary power for supplementary light: DC7~30V.

X-COIL 仪表

> 用于船舶驾控台上，指示转速和舵角等。采用公司自主研发的内置微控制器的X-coil机芯，指针可作360°顺时针或逆时针旋转，配辅助电源（DC 7~30V），可提供夜光照明带有夜光功能。当仪表未上电时，指针会指在一个随机的位置。

模拟量信号可单通道输入，如标准的模拟信号0-10V,4-20mA等；也可双通道输入，如特殊的SIN/COS，双通道时其共用一个公共端。仪表带有出错报警指示功能，报警灯位于仪表上方，当仪表内部失效或出现故障失去控制时灯会闪烁。

特色:

- a) 防水，防盐雾，适用于海洋环境；
- b) 通电时，背光光源开启，指针导光，便于读数；
- c) 具有优良的机械性能，抗震性能强。

技术规格:

- 1) 准确度等级：0.5；
- 2) 前面板部分防护等级IP66，后端部分防护等级IP20；
- 3) 指示灯供电辅助电源：DC7~30V。

Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Installation Method 安装方式	Measurement Parameters 测量参数	Measurement Range 测量范围	Auxiliary Power 辅助电源	Accuracy Class 准确度等级	Scale 指示角度
X-Coil meter X-Coil仪表	KLY-C72-X	Panel Mount 面板内嵌式	rpm, r/min, °, Pa, ... 转速, 转数, 舵角, 压力等	DC Current 直流电流 -25mA...0-0...25mA	DC 24 V	0.5	250° or 360°
	KLY-C96-X						
	KLY-C144-X						
	KLY-C192-X						
	KLY-C144-BW	Bridge Wing 壁挂式					
	KLY-C192-BW						

Dimension 尺寸图

Unit 单位: mm

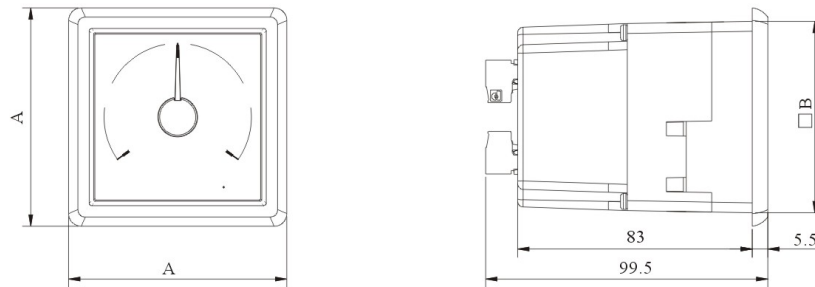


Figure 1 Dimension(Panel Mount) 图1 面板内嵌式尺寸

Type 产品型号	Unit 单位	A	B	Cut-Out Size 开口尺寸
KLY-C72-X	mm	77	67.5	68 × 68
KLY-C96-X	mm	101	91.5	92 × 92
KLY-C144-X	mm	148	137	138 × 138
KLY-C192-X	mm	196	185.5	186 × 186

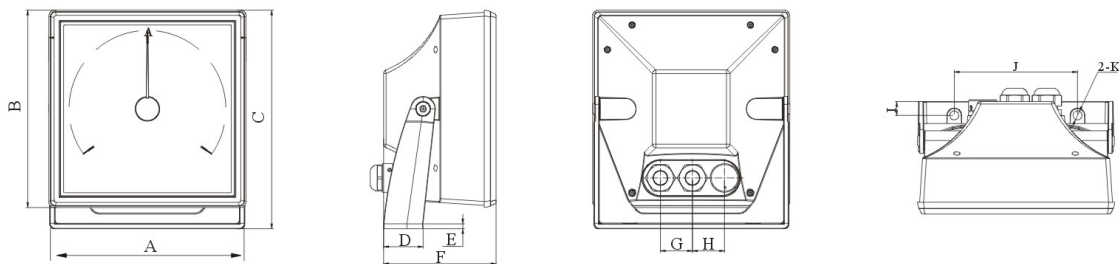


Figure 2 Dimension(Bridge Wing) 图2 壁挂式尺寸

Type 产品型号	Unit 单位	A	B	C	D	E	F	G	H	I	J	K
KLY-C144-BW	mm	152	152	172	40	5	114	22.5	26.5	14	125	φ 9
KLY-C192-BW	mm	200	200	221.5	40	5	114	32.5	32.5	14	125	φ 9

Illuminated Meter夜光表



e.g.例：KLY-C 96-400A(0/4-20mA)-G-YG(DC24V)-SC-RPR:320A IP54

1. Enterprise Code企业识别码：KLY

2. Structure Type Code结构型式代码：

T: Moving Iron Type(AC, Effective value measure)动铁式(交流, 有效值测量);

C: Moving Coil Type(DC signal measure)动圈式(直流信号测量);

L: Rectification Type(AC, average value)整流系(交流, 平均值测量)。

3. Outline Dimension Code外形尺寸代码：

48: square type方形48×48;

72: square type方形72×72;

96: square type方形96×96;

120: square type方形120×120;

144: square type方形144×144

1101: Square panel round barrel meter方圆形110×110

9681: rectangle type矩形96×48

9682: rectangle type矩形48×96

4124: rectangle type矩形239.4×414

96R: round barrel type圆形Φ96

4. Specification规格：

Structural Type T/L Ammeter 结构型式 T/L 电流表：

① Via transformer access: Such as 200/5A.2: 200/5A is CT ratio, .2 is the overload. 经互感器接入：如200/5A.2。200/5A为CT变比，.2为过载倍数。

② Direct access: Such as 20A.5: 20A is the measurement range, .5 is the overload. 直接接入：如20A.5。20A为测量范围，.5为过载倍数。

Note: Overload can be optional: 1.2; 1.5; 2; 3; 4; 5; 6.

注：过载倍数可选：1.2; 1.5; 2; 3; 4; 5; 6。

Structural Type T/L Voltmeter 结构型式 T/L 电压表：

① via transformer access: Such as 12kV (10k/100V): 12kV is the measurement range, 10k/100V is the Pt经互感器接入：

如12kV(10k/100V)。12kV为测量范围，10k/100V为PT变比。

② Direct access: Such as 500V: 500V is the measurement range 直接接入：如500V。500V为测量范围。

Structural Type C Ammeter 结构型式 C 电流表：

① via shunt access: Such as 400A/75mV: means the shunt specification. 经分流器接入：如400A/75mV。即分流器规格。

② Direct access: Such as 10A: 10A is the measurement range 直接接入：如10A。10A为测量范围。

Structural Type C Voltmeter 结构型式 C 电压表：

Such as 600V: 600V is the measurement range. 如600V。600V为测量范围。

Structural Type C Non-Electricity Measurement 结构型式 C 非电量测量：

Such as 100℃(10V): 100℃ is the measurement range, 10V is the actual input signal. 如100℃(10V)。100℃为测量范围，10V为实际输入信号。

5. Pointer deflection angle feature or 90° , 250° feature指针偏转角度特征或90° 转角外观特征：

① Pointer deflection angle: 250° : G; 90° : Omit

指针偏转角度特征：250° 用“G”表示；90度：省略。

② 90° and 250° feature: with front cover: F; without front cover: omit.

90° 转角外观特征：封闭式用“F”；敞开式用“C”表示一般默认不写。

6. Lighting and voltage: if the lighting is required, please writing. If no, please omit. With back guiding light: YG(**V); with diffraction light: CG(**V)

照明方式及电压：如有照明需求时书写，无则省略。背景光源：YG(**V)；衍射光源：CG(**V)。

7. Marine Environment Code船用环境代码：SC

8. Glass with Warning Red Pointer Code: RP. When it's required, please write it. If no, please omit.

玻璃带警示红针代码：RP。有需求时书写，如无省略。

9. Scale Plate with Red Line: R: **. When it's required, please write it. If no, please omit.

标度盘画红线位置：R: **. 有需求时书写，如无省略。

10. Housing Protection Class: IP**. When it's required, please write it. If no, please omit.

外壳防护等级要求：IP**. 有需求时书写，如无省略。

Illuminated meter

> Satisfying user requirement in no light condition, providing auxiliary lighting to obtain the meter reading.

The meter can be divided into the following categories:




- Case and dial in white, Fonts in black or color, Pointer in red. Model prefix is YG-B;
- Case and dial in black, Fonts in white or color, Pointer in red. Model prefix is YG-H;
- Black case and scale, Fonts in white or color, transparent yellow pointer, providing diffracting light and illuminated pointer. Model prefix is CG.

夜光表

为满足客户在无光照条件下，能读取仪表的指示值，提供带照明的模拟指示仪表。

按显示方式及结构原理分：

- 白色壳体，白色标度盘，黑色或彩色字体，红色指针，提供背光光源。代表型号为YG-B型；
- 黑色壳体，黑色标度盘，白色或彩色字体，红色指针，提供背光光源。代表型号为YG-H型；
- 黑色壳体，黑色标度盘，白色或彩色字体，黄色透明指针，提供衍射光源，指针发亮。代表型号为CG型。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Scale 指示角度	Code 代号	Auxiliary Power 辅助电源	Dimension 外形尺寸(mm)	Cut-Out Size 开口尺寸(mm)	Other 其他
	Illuminated Meter With Back Guiding Light 背景光源夜光表	KLY-48	直角90° 广角250° G	YG	AC/DC 12V 24V 110V	48×48	44.5×44.5	
		KLY-72				72×72	68×68	
		KLY-96				96×96	92×92	
		KLY-144	144×144			138×138		
		KLY-1101	110×110			φ102		
		KLY-9681	48×96			44.5×92		
		KLY-9682	48×96			44.5×92		
	Illuminated Meter With Diffraction Light 衍射光源夜光表	KLY-72-G	广角250° G	CG	AC/DC 12V 24V 110V	72×72	68×68	Marine Type 船用: SC
		KLY-96-G				96×96	92×92	
		KLY-144-G	144×144			138×138		
		KLY-2C96	96×96			92×92		
		KLY-2C144	144×144			138×138		
	Dual DC Meter With Backlight 双路直流表带背光 Dredger Output Meter 挖泥船产量表	KLY-C96-2PD	/	CG	DC 12V 24V	96×96	92×92	
		KLY-C144-2PD				144×144	138×138	

Ordering note: Specify illuminated type code (YG or CG), and auxiliary power. e.g. KLY-T96-600/5A.2-F-YG(DC 24V)

订货须知：注明光源代号(YG或CG)及辅助电源。
如：KLY-T96-600/5A.2-F-YG(DC 24V)。

Rudder Angle Meter /Tachometer

舵角表/转速表



Using on bridge wing in controlling cab, indicating rotational speed or rudder angle. With 250° moving-coil movement. Model: KLY-C4124.

- Waterproof, Salt-mist resistance, Suitable for marine environment.
- LED illumination with dimming control.
- Big scale, easy reading.

Technical Specification:

- Measurement Range:
DC Voltage: 0~1V...0~100V;
DC Current: 0~1mA/100mA, 4-20mA;
- Auxiliary power for illumination:
AC 110V/220V ± 20%, DC 24V ± 25%
Power consumption ≤ 5VA;
- Accuracy class: 1.5;
- Ingress Protection: IP66.

用于船舶驾驶室翼桥，指示转速和舵角等。采用250°动圈式机芯。型号为KLY-C4124型。

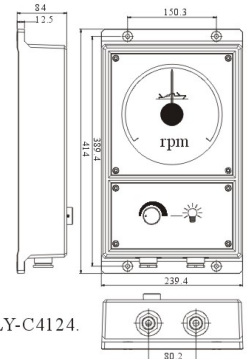
- 防水，防盐雾，适用于海洋环境；
- 采用长寿命LED照明，亮度可调；
- 大刻度尺，易读数。

技术规格:

- 测量范围
直流电压：0~1V...0~100V；
直流电流：0~1mA...100mA，4-20mA；
- 照明电源 AC 110V/220V ± 20%，DC 24V ± 25%，
功率 ≤ 5VA；
- 准确度等级：1.5级；
- 外壳防护等级：IP66。

Dimension 尺寸图

Unit 单位: mm



KLY-C4124.

Rudder Angle Meter

舵角表



Continuously monitoring and indicate the position of rudder. Models are KLY-96-R.

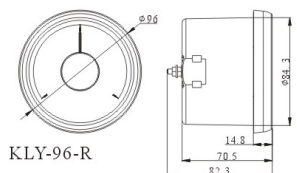
Technical Specification:

- Measurement Range:
DC Voltage: 0~1V...0~100V;
DC Current: 0~1mA...100mA, 4-20mA;
- Auxiliary power for illumination:
AC 110V/220V ± 20%, DC 24V ± 25%
Power consumption ≤ 5VA;
- Accuracy class: 1.5.

用于持续地监控和指示船舵的位置。代表型号为KLY-96-R型。

技术规格:

- 测量范围
直流电压：0~1V...0~100V；
直流电流：0~1mA...100mA，4-20mA；
- 照明电源 AC 110V/220V ± 20%，DC 24V ± 25%，
功率 ≤ 5VA；
- 准确度等级：1.5级。



KLY-96-R

Panorama Rudder Angle Indicator三视窗舵角指示器



E.g. 例: KLY-RA200TW- $\pm 45^\circ$ (4-20mA) - DC24V

1. Enterprise Code企业识别码: KLY

2. Structure Type Code结构型式代码: RA200TW

3.Measurement Range测量范围

4.Input Signal输入信号: 4-20mA, 10V, $\pm 10V$ 等

5.Auxiliary Power辅助电源规格: DC24V



Panorama Rudder Angle Indicator

With illuminated function, built-in long-life LED, can ensure to get reading normally in dimmer condition.

This series of indicator is water-proof, anti-salt mist, suitable for marine environment.

Model prefix is KLY-RA200TW.

Indicator offers two styles on scale plate

It Indicates vessel' s rudder angle position, adopting traditional moving-coil movement, ensure quick response time; This indicator, has 3 big windows with large fonts and scale, and visible areas, let user can quickly and easily to get the indicator' s reading from any angle up to 250° and from a distance of up to 5m.

Notice

- Please DO the connection properly according to the wiring diagram
- Please cut off the power before any connection.
- DO NOT apply voltage over than the range of the suggested voltage; otherwise the instrument will malfunction.
- DO NOT use the instrument under the condensation environment.
- DO NOT touches any part of the applied voltage when you use the instrument near the area of the exposed live parts, wearing the insulated hand gloves is recommended.

全视窗舵角指示器

具有夜光功能，内部配有长寿命LED灯，可保证在较昏暗的环境下正常的读取数据。

本系列仪表防水，防盐雾，适用于海洋环境。

代表型号为KLY-RA200TW

指示器有两种显示风格供选择

用于指示船舰的舵角位置，采用传统的动圈式机芯，保证了极短的响应时间；该指示器有三个比较大的刻度及可视区域，保证用户能从 250° 范围内的任意角度和5m的距离内可快速地、轻松地读取舵角指示器的指示位置；

注意事项

- 请按照接线图正确接线。
- 在接线连接前，请务必切断测量物的电源。
- 请勿施加超过指示值以上的测量值，这会引起本仪表发生故障。
- 请勿在结露状态下使用。
- 当在裸露、带电部分的周围使用仪器时，请勿碰触到施加电压的部分，此时，推荐使用橡胶手套等保护工具。

No. 编号	Scale plate 刻度盘	Scale Division 刻度线	Scale Numbers 刻度数字	Pointer 指针
1	White白色	Black黑色	Black黑色	Blac黑色
2	Black黑色	Yellow黄色	Yellow黄色	Yellow黄色

Technical Specification 技术参数

Parameters 参数		KLY-RA200TW		
Accuracy精度		1.5		
Dimmer power supply调光电源 V		24V AC/DC -25/+30%		
Consumption功耗 W		≤4W		
Analog output 模拟量输入可选量程	mA	DC 0-1mA	0-20mA	DC 0-100mA
		DC -1-0-1mA	4-20mA	DC -100-0-100mA
	V	DC 0-1V	0-10V	DC 0-100V
DC -1-0-1V		-10-0-10V	DC -100-0-100V	
Input load输入负载 -		Voltage电压: 1KΩ/V Current电流: 4V		
Wire capacity接线容量		Soft wire柔性导线: 0.2-2.5mm ² Hard wire刚性导线: 0.2-2.5mm ² Gauge线规: 24-12AWG		
Meter mounting hole仪表固定孔 mm		Φ5.5 x 6		
		Minimum最小值	Standard标准值	Maximum最大值
Operating temperature工作环境温度 °C		-10	-	55
Storage temperature 保存环境温度 °C		-20	-	70
Relative Humidity (No condensation)相对湿度(无结露) %		25	-	93
Temperature Affect温度影响		etween -15 and 55°C Max. ± 1.5%在-15...55°C时最多 ± 1.5%		
Ingress Progress防护等级		Front panel面板: IP54		
Safety Standard安规		Safety Class安全等级: CAT.III. -300V		
Material材料		Pollution degree污染等级: 2		
Size外形尺寸 mm		LG LUPOY GP-1006-F		
Weight重量 Kg		-	-	1.5

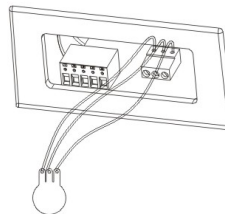
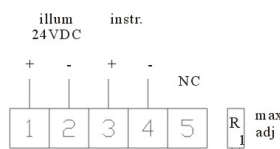
Wiring Diagram 接线图

After removal of back panel cover, you can see internal terminals immediately.

当拆除指示器的后面板后, 即可看到内部的连接端子。

Pin no.脚序	Function功能	Illustration说明	Remark备注
1	Illuminated power supply 照明调光电源	Positive正极	DC24V
2		Negative负极	
3	Analog input 模拟量输入	Signal + ' ve信号正	
4		Signal - ' ve信号负	
5	Empty空脚		
6	Potentiometer (Dimmer) 调光电位器	Middle Lead 中心头	1kΩ /2w Potentiometer 电位器
7			
8			

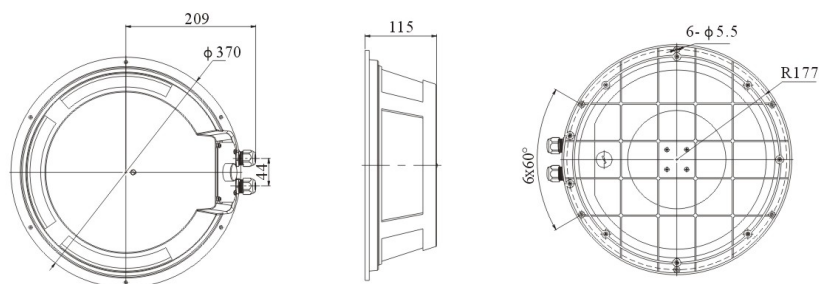
For general current/voltage:

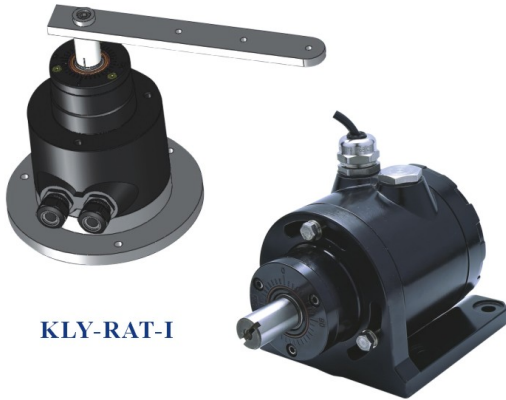


Caution: If middle lead of potentiometer (dimmer) is wrongly wired, internal circuits of this indicator will be damaged!

注意: 当将调光电位器的中心脚接错位置时会损坏此舵角指示器的内部电路!

Dimension 尺寸图





KLY-RAT-I

KLY-RAT-II

Setting on measuring range 设定测量范围

The coarse adjustment of the beginning of the measuring range consists in aligning the zero of the measured device with the external zero mark on the transmitter.

Afterwards, perform the fine adjustment and include the beginning of the range (Zero) and the end of the scale (Full scale).

First, energize the auxiliary power of the transmitter, place the measured device at its zero position, the transmitter should produce 4mA or 0V on cable 3(white) or cable 2(black), respectively, if not equal, please refer to following part "Calibration on Transmitter" and re-do the calibration on zero position.

Then, rotate the knob of the measured device to its opposite limit position(Full scale), at this time, transmitter should produce 20mA or 10V on cable 3(white) or cable 2(black), respectively, if not equal, please refer to following part "Calibration on Transmitter" and re-do the calibration on full scale position.

Re-checking the zero point and full-scale value again, please repeat both above steps if necessary.

本变送器的测量范围校准时可通过变送器的外部零位标记对测量设备的零位进行粗调。

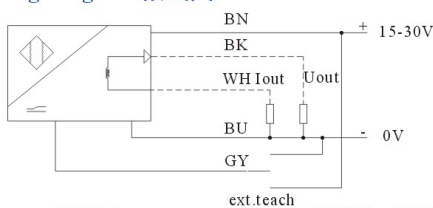
粗调过后对设备进行细调，包括测量范围的起始(零位)和刻度的末端(满度)。

首先接通变送器的辅助电源，将测量设备旋转至其起始位置(零位)，此时变送器的3号导线(白色线)应输出4mA直流电流，2号导线(黑色线)应输出0V直流电压，如不相符，请参阅本节校准方法对变送器的零位输出进行重新校准。

然后将测量设备旋转到其相对的极限位置(满度)，此时变送器的3号导线(白色线)应输出20mA直流电流，2号导线(黑色线)应输出10V直流电压，如不相符，请参阅本节校准方法对变送器的满度输出进行重新校准。

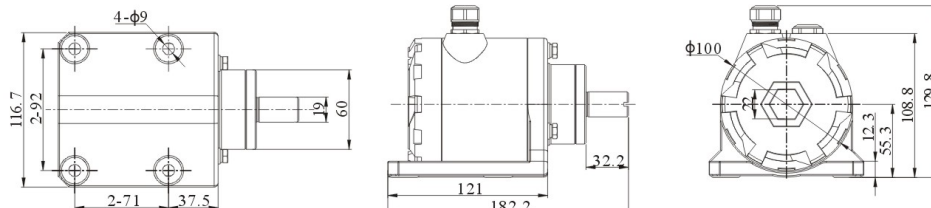
再次重新检查零位和满刻度值，如有必要可重复这两个步骤。

Wiring Diagram 接线图



- ① Brown: VCC(+)
- ② Black: Voltage Output(Vo)
- ③ Blue: GND(-)
- ④ White: Current Output(Io)
- ⑤ Gray: Learning function Input(Th)
- BN棕色: VCC供电电源(+)
- BK黑色: Vo电压输出端
- BU蓝色: GND供电电源(-)
- WH白色: Io电流输出端
- GY灰色: Th学习功能输入

Dimension 尺寸图



Angular position transmitter (KLY-RAT) is suitable for marine application on some angle measurement, like high accuracy rudder, azimuth or pitch angle measurement. It may also be suitable for other applications.

Angular position transmitter is based on a "no touch" measuring principle, ensuring a long life without degradation of performance or accuracy due to wear and tear of electro-mechanical components such as potentiometers.

KLY-RAT offer two transmitting output signals simultaneously, which are 4...20mA and 0...10V. Those signals and angle position of shaft are in linear proportional relationship.

Whereby the robust housing, this product can be installed directly and measure the mechanical position of rudder angle on vessel.

角度位置变送器KLY-RAT适用于船舶上一些角度的测量，如高精度舵角、方位或螺旋桨角度测量；同时它也适用于其他领域上。

角度位置传感器基于“非接触”的测量原理，不会因为机械元件(如电位器)的损耗而使其精度或性能下降，以确保产品长时间的使用寿命。

KLY-RAT同时可以有两种变送信号输出，分别为4...20mA和0...10V，此信号与转轴的角度位置成线性比例关系。

坚固的外壳使本产品能直接安装于测量船舶舵角的机械部位。

Technical Specification 技术参数

Items 项目	Min最小	Std标准	Max最大
Auxiliary voltage辅助电源 VDC	15	24	30
Rated current额定电流 mA	-	-	100
Measure scope测量范围 °	0	-	360
Zero point零点 °	Freely programmable within 360 deg. 360度内可自由地编程		
Resolution解析度 位Bit	-	12	-
Accuracy准确度 °	0.3°		
Temperature Coefficient温度系数 PPM	-	-	100
Output Short-Circuit protection输出短路保护	Yes有		
Reverse Auxiliary Voltage Protection逆向辅助电源保护	Yes有		
Study Mode学习模式	Yes有		
Voltage Output电压输出 V	0...10V		
Current Output电流输出 mA	4...20mA		
Output Load输出负载	Voltage: ≥4.7kΩ Current: ≤0.4kΩ		
Sample Rate采样率	800Hz		
Shaft Load(Radial/Axial)轴负载 (径向/轴向) N	-	1000/500	-
Cable 导线	5 × 0.34 mm ²		
Mounting Hole安装孔 mm	Φ9 × 4		
Operating Temperature工作温度 °C	-10	-	55
Storage Temperature储存温度 °C	-25	-	70
Ingress Protection防护等级	IP66		
Material物料	外壳Housing: ADC12 转轴 Shaft: 40Cr		
Cable Length导线长度 cm	200		

Calibration on Transmitter 变送器校准方法

Short time between Cable 5 (Gray) 与导线5(灰色)短接时间	Cable 4(Blue): 0V 导线4(蓝色): 0V	Cable 1(Brown): Positive Supply 导线1(棕色): 电源正极
2s	Set zero position 设零位	Set full-scale position 设满刻度位
10s	Counter-clockwise(CCW) rotate 逆时针转	Clockwise(CW) rotate 顺时针转
15s	—	Manufacturer Default set (360°,CW) 厂方默认(360°,顺时针)

Mounting Introduction 仪表安装方式介绍

> CP Series 系列 (CP-48, 72, 80, 96)

> KLY Series 系列 (KLY-48, 72, 96, 120, 144)



Pushing Tight Type(IV)
推紧式(IV)



Figure 1 Pushing Tight Type(IV)
图1 推紧式(IV)



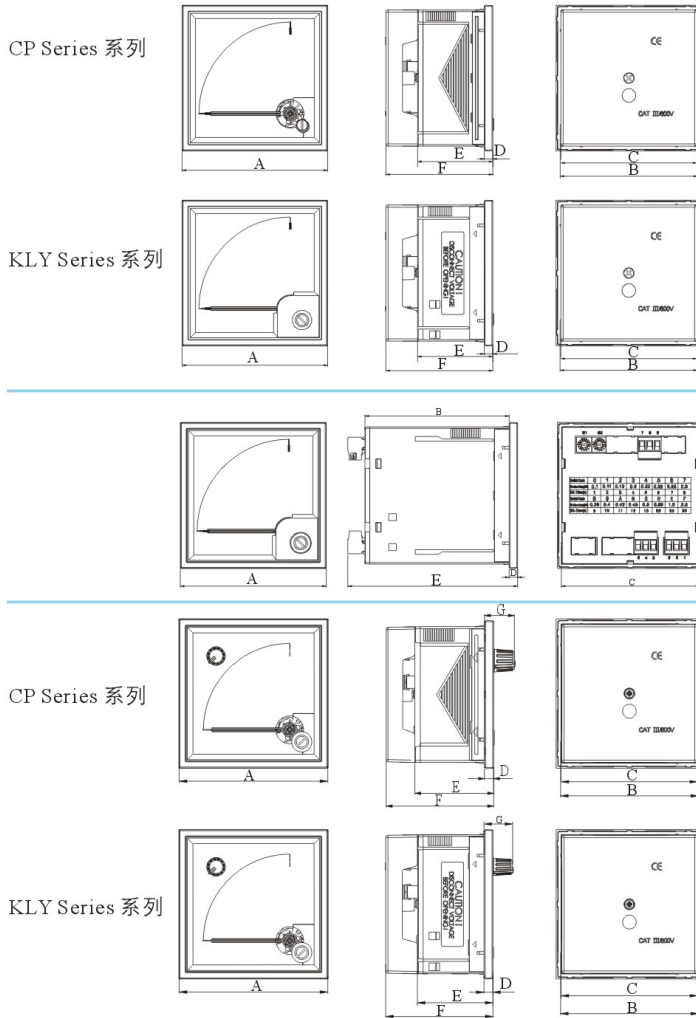
Figure 2 Flush Mounting with Bolt(IX)
图2 铁件夹持式(IX)



Figure 3 Mosaic Board type(II)
图3 马赛克式(II)

Note: When meter installs with seal ring, size of cutout should increase 1mm more.
注: 所有仪表安装若配置密封圈安装, 开孔尺寸相应加大1mm

Dimension of Square Type Meter 方型仪表尺寸



Unit 单位: mm Figure 图 1

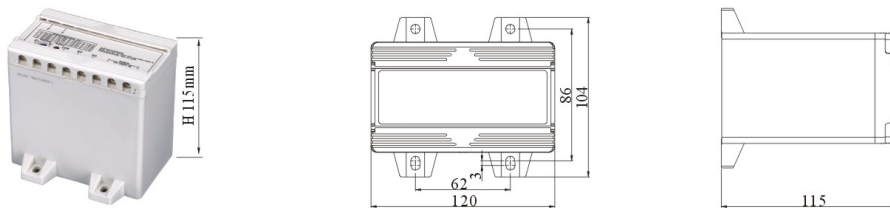
Type 型号	A	B	C	D	E	F	Cutout Size 开孔尺寸
KLY-48 CP-48	48	44.2	44	6.3	50.4	62.6	44.5×44.5
KLY-72 CP-72	72	67	66	6.3	50.4	71.4	68×68
CP-80	80	75.4	74	6.3	50.4	71.4	76×76
KLY-96 CP-96	96	91	90	6.3	50.1	71.1	92×92
KLY-120	120	111.7	111.5	6	58.5	79.5	113×113
KLY-144	144	136	134	6.5	58.5	79.5	138×138

Unit 单位: mm Figure 图 2

Type 型号	A	B	C	D	E	Cutout Size 开孔尺寸
KLY-S72	72	95.5	67	6.3	112.8	68×68
KLY-W72	72	95.2	67	6.3	112.8	68×68
KLY-NI72	72	95.2	67	6.3	112.8	68×68
KLY-S96	96	95.5	91	6.3	112.8	92×92
KLY-W96	96	95.2	91	6.3	112.8	92×92
KLY-NI96	96	95.5	91	6.3	112.8	92×92

Unit 单位: mm Figure 图 3

Type 型号	A	B	C	D	E	F	G	Cutout Size 开孔尺寸
KLY-Z72 CP-Z72	72	67	66	6.3	50.4	71.4	18.7	68×68
KLY-Z96 CP-Z96	96	91	90	6.3	50.1	71.1	18.7	92×92
KLY-Z120	120	111.7	111.5	6	58.5	79.5	19.1	113×113
KLY-Z144	144	136	134	6.5	58.5	79.5	18.5	138×138



AC/DC Net Insulation Monitor(Separated) 交/直流电网绝缘监测仪 (分体式)






Figure 图 4
Unit 单位: mm

Product Details

The model marked with ① is externally connected with KLY-365 Din-rail converter (Unit:mm, Dimension drawing see figure 1 on page 49):length 87×width 35.5×height 65.5.
The model marked with ② is externally connected with KLY-W759E Din-rail converter(Unit:mm, Dimension drawing see figure 1 on page 49):length 90.8×width 75×height 105.7.

产品明细

表格中标注带①的型号外附KLY-365导轨式背包。背包外形尺寸(单位: mm, 尺寸图见第49页图1):长87×宽35.5×高65.5。
表格中标注带②的型号外附KLY-W759E导轨式背包。背包外形尺寸(单位: mm, 尺寸图见第49页):长90.8×宽75×高105.7。

Picture 图片	Product Description Technical Symbol 产品描述技术符号	Type 产品型号	Wiring Method 接线方式	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Other 其他
 With red pointer 带红针: RP	AC Ammeter 交流电流表 Moving Iron Movement 动铁式结构(电磁系) Model T T型 ~1.5①	KL-T50A KLY-T560A KLY-T60A KLY-T670A KLY-T780A KLY-T80A KLY-T8100A	KLY-T01A KLY-T02A KLY-T03A KLY-T04A KLY-T1012A	/	0-100mA...0-20A 0-30A...0-60A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制; 3.5, 6倍	1.5 2.5
		AC Ammeter with Rectifier 整流型交流电流表 Moving Coil Movement 动圈式结构(磁电系) Model L L型 ~1.5①	KL-L50A ① KLY-L560A ① KLY-L60A ① KLY-L670A ① KLY-L780A ① KLY-L80A ① KLY-L8100A ① KLY-L801A	KLY-L01A ① KLY-L02A ① KLY-L03A ① KLY-L04A ① KLY-L1012A KLY-L1101A	/	0-100mA...0-5A Connection on CT 配电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制; 3.5, 6倍
 Square Panel Round Barrel 方圆型 KLY-50、60、80	AC Voltmeter 交流电压表 Moving Iron Movement 动铁式结构(电磁系) Model T T型 ~1.5①	KL-T50V KLY-T560V KLY-T60V KLY-T670V KLY-T780V KLY-T80V KLY-T8100V	KLY-T01V KLY-T02V KLY-T03V KLY-T04V KLY-T1012V	/	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5 Operating Frequency 工作频率: 50Hz, 60Hz, 400Hz
		AC Voltmeter with Rectifier 整流型交流电压表 Moving Coil Movement 动圈式结构(磁电系) Model L L型 ~1.5①	KL-L50V KLY-L560V KLY-L60V KLY-L670V KLY-L780V KLY-L80V KLY-L8100V	KLY-L01V KLY-L02V KLY-L03V KLY-L04V KLY-L801V KLY-L1101V KLY-L1012V	/	0-10V...0-300V Connection on PT 配电压互感器 X/100V, X/110V	/
 Rectangular Panel Round Barrel 矩圆型 KLY-560、670、780、8100、1012	DC Ammeter 直流电流表 Moving Coil Movement 动圈式结构(磁电系) Model C C型 ~1.5①	KL-C50A KLY-C560A KLY-C60A KLY-C670A KLY-C780A KLY-C80A KLY-C8100A	KLY-C01A KLY-C02A KLY-C03A KLY-C04A KLY-C801A KLY-C1101A KLY-C1012A	/	0-100uA...0-10A 0-50uA 0-100uA...0-20A With external shunt 配外附分流器 X/60mV, X/75mV	/	1.5 2.5 1.5 Transparent Cover: Single Color(T) 单色透明盖(T) Double Color(S) 双色透明盖(S)
		DC Voltmeter 直流电压表 Moving Coil Movement 动圈式结构(磁电系) Model C C型 ~1.5①	KL-C50V KLY-C560V KLY-C60V KLY-C670V KLY-C780V KLY-C80V KLY-C8100V	KLY-C01V KLY-C02V KLY-C03V KLY-C04V KLY-C801V KLY-C1101V KLY-C1012V	/	0-50mV...0-300V 0-50mV...0-500V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器 450V以上(额定电流5mA)	/
 Square Panel Round Barrel 方圆型 KLY-01、02、03、04	Frequency Meter 指针式频率表 Moving Coil Movement 动圈式结构(磁电系) Model F F型 ~0.5①	KL-F50 KLY-F560 KLY-F60 KLY-F670 KLY-F780 KLY-F80 KLY-F8100	KLY-F02 KLY-F03 KLY-F04 KLY-F801 KLY-F1101 KLY-F1012	/	45...650Hz Work Voltage 工作电压 AC 100V-440V	/	1.0 Mounting Screw: Two Mounting Screws 二角安装螺钉 Four Mounting Screws 四角安装螺钉
		Power Factor Meter 功率因数表 Model PF PF型 ~2.5①	KL-PF50 ① KLY-PF560 ① KLY-PF60 ① KLY-PF670 ① KLY-PF780 ① KLY-PF80 ① KLY-PF8100 ①	KLY-PF01 ① KLY-PF02 ① KLY-PF03 ① KLY-PF04 ① KLY-PF801 KLY-PF1101 KLY-PF1012	single phase (1P) 单相 (1P) three-phase system with balanced load (3P) 三相平衡负载系统 (3P)	0.5CAP-1 -0.5IND Work Voltage 工作电压 AC 57.7V-440V Connection on CT 配电流互感器 X/1A, X/5A	/
 Marine Type Square Panel Round Barrel 船用方圆型 KLY-801、1101	Active Power Meter 有功功率数表 Model W W型 ~0.5①	KL-W50 ② KLY-W560 ② KLY-W60 ② KLY-W670 ② KLY-W780 ② KLY-W80 ② KLY-W8100 ②	KLY-W01 ② KLY-W02 ② KLY-W03 ② KLY-W04 ② KLY-W801 ② KLY-W1101 KLY-W1012 ②	Single Phase (1b) 单相 (1b) 3P3W balanced Load 三相三线平衡负载(3b) 3P3W Unbalanced Load (3u) 三相三线不平衡负载(3u) 3P4W balanced Load (4b) 三相四线平衡负载(4b) 3P4W Unbalanced Load (4u) 三相四线不平衡负载(4u)	-600...0-0 ...6000MW Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/	1.5
		Reactive Power Meter 无功功率数表 Model Var Var型 ~0.5①	KL-Var50 ② KLY-Var560 ② KLY-Var60 ② KLY-Var670 ② KLY-Var780 ② KLY-Var80 ② KLY-Var8100 ②	KLY-Var01 ② KLY-Var02 ② KLY-Var03 ② KLY-Var04 ② KLY-Var801 ② KLY-Var1101 KLY-Var1012 ②	Single Phase (1b) 单相 (1b) 3P3W balanced Load 三相三线平衡负载(3b) 3P3W Unbalanced Load (3u) 三相三线不平衡负载(3u) 3P4W Balanced Load (4b) 三相四线平衡负载(4b) 3P4W Unbalanced Load (4u) 三相四线不平衡负载(4u)	0-0.8kVar... 0-5000MVar Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/



Specialized Meter for Welding Machine

> Rectangular or Square panel meter with round barrel has merit on shock resistance, anti-vibration, suitable for welding machine. Meter can be customized with properly damped to prevent overshoot. It can stabilize the pointer, providing steady readings when welding machine is in operation. Preventing the error caused by conducting wire, DC Ammeter with a high internal resistance can be customized. Panel cover: Dual colors (black and transparent) and Mono color (transparent). Please specify the above requirements when ordering.

电焊机专用仪表


> 矩圆型和方圆型仪表，具有抗冲击，抗振动等特点，适用于电焊机行业。可定制过阻尼无过冲仪表，当电焊机在焊接工作时，仪表指针能稳定指示读数。为避免导线引起的误差，外加分流器式直流电流表可定制高内阻仪表。仪表表盖有二种：双色盖(黑色和透明)或单色透明盖，订单时需注明。

Analogue meter with digital display

> Adding the seven-segment display module on the scale plate of analogue meter, pointer and display operate simultaneously. User can get both readings. Accuracy class: Pointer part 1.5; Digital display part $\pm (0.5\% \text{ reading} + 2 \text{ letters})$.

带数显的指针式仪表

> 在指针仪表面板加入数码管模块，指针与数显同步工作，方便用户同期读取数值。准确度等级：指针部分1.5；数显部分 $\pm (0.5\% \text{ 读数} + 2 \text{ 个字})$ 。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Measurement Range 测量范围	Auxiliary Power 辅助电源	Other 其他
	AC Ammeter with Rectifier 整流型交流电流表	KLY-L(D)1101A	0-100mA...0-20A Connection on CT 配电流互感器 X/1A, X/5	AC/DC 85-260V DC 24V	Operating Frequency 工作频率： 45~65Hz
	AC Voltmeter with Rectifier 整流型交流电压表	KLY-L(D)1101V	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V		
	DC Ammeter 直流电流表	KLY-C(D)1101A	0-100uA...0-10A With external shunt 配外加分流器 X/60mV, X/75mV		
	DC Voltmeter 直流电压表	KLY-C(D)1101V	0-50mV...0-500V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器 450V 以上 (额定电流 5mA)		

Mounting introduction on Square or Rectangular Panel Round Barrel Meter

方圆型和矩圆型仪表安装方式介绍

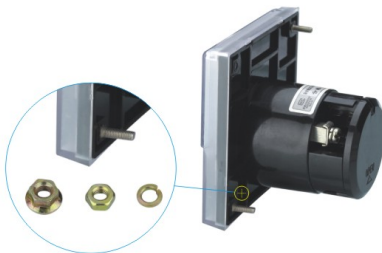


Figure 1 Surface Mount (V)
图1 螺栓紧固式(V)
(KLY-50, 560, 60, 670, 780, 80, 8100, 1012, 801, 1101)

Can choose two or four mounting bolts
安装角可选择两角安装或四角安装

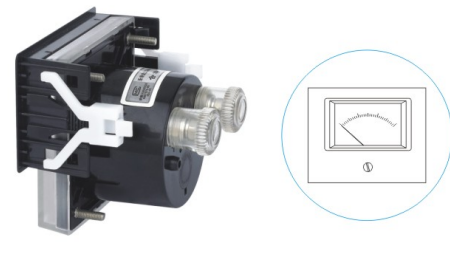


Figure 2 Bezel Mount (VI)
图2 卡式面框(VI)
(KLY-50, 60, 670, 80, 8100, 1012)

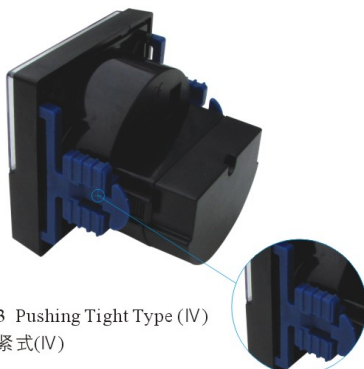


Figure 3 Pushing Tight Type (IV)
图3 推紧式(IV)

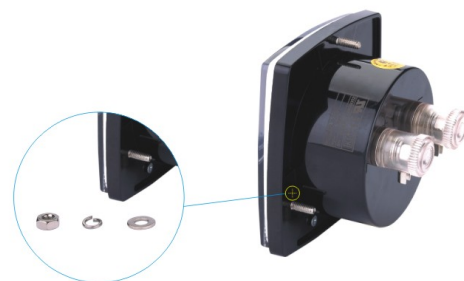
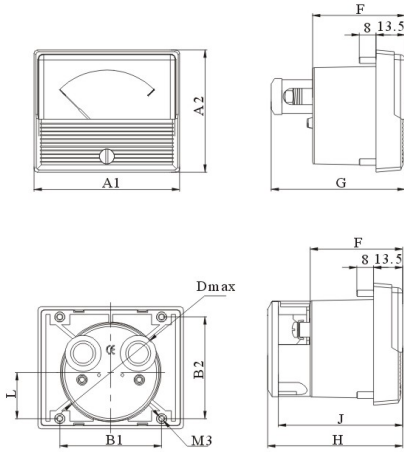


Figure 4 Surface Mount (V)
图4 螺栓紧固式(V)
(KLY-01, 02, 03, 04)

Dimension of Square/Rectangular Panel Round Barrel Meter 方圆型和矩圆型仪表尺寸

Unit 单位: mm

Figure 图 1



Type 类型	A1	A2	B1	B2	Dmas	L	F	G		H	J	Cutout 开孔尺寸
								High Current 大电流	Low Current 小电流			
KLY-50	51.2	51.2	36	36	φ43.3	18	45.1	64.6	61.9	65.1	60.1	φ44
KLY-560	58	47.5	36	36	φ42.9	18	43.5	63	60.3	63.5	58.5	φ44
KLY-60	61	61	48	48	φ46.3	21.45	43.5	63	60.3	63.5	58.5	φ47
KLY-670	68.6	57.6	48	48	φ46.5	21.8	43.5	63	60.3	63.5	58.5	φ48
KLY-780	80.6	68.1	64	48	φ47.2	16.2	43.5	63	60.3	63.5	58.5	φ48
KLY-80	80.1	80.1	64	64	φ47.6	24.65	43.5	63	60.3	63.5	58.5	φ49
KLY-8100	100.4	83.2	80	64	φ47.9	21.4	43.5	63	60.3	63.5	58.5	φ49
KLY-1012	122	102	100	80	φ47.9	20	43.5	63	60.3	63.5	58.5	φ49

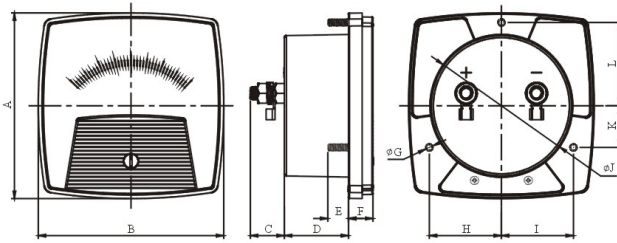
Note: 1. B1 and B2 is the length of the mounting bolts; 1 is the length from centre of meter to the centre of mounting hole.

2. The torque for m3 is 0.6~0.8Nm.
注: 1. B1、B2为两安装螺钉中心距离, L为仪表中心点与安装螺钉中心的距离。
2. M3螺钉的安装扭矩为0.6~0.8Nm。

KLY-0 Panel Meter (US System) KLY-0 仪表 (美制)

Unit 单位: mm

Figure 图 2

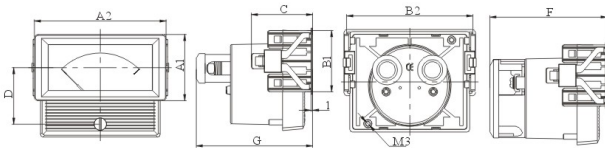


Type 类型	Unit 单位	A	B	C	D	E	F	G	H	I	J	K	L
KLY-01 (1½)	mm	42.2	42.2	15.9	31	10	11.8	2-NO.4-40UNC	16.7	16.7	38	16.7	16.7
	in	1.661	1.661	0.626	1.22	0.394	0.465	2-NO.4-40UNC	0.657	0.657	1.496	0.657	0.657
KLY-02 (2½)	mm	68.8	68.8	15.9	31	10	11.8	3-NO.4-40UNC	26.9	26.9	54.5	15.5	31
	in	2.709	2.709	0.626	1.22	0.394	0.465	3-NO.4-40UNC	1.059	1.059	2.146	0.61	1.22
KLY-03 (3½)	mm	89.6	89.6	16.4	31	10	11.8	3-NO.6-32UNC	34.8	34.8	68.8	20.1	40.2
	in	3.528	3.528	0.646	1.22	0.394	0.465	3-NO.6-32UNC	1.37	1.37	2.709	0.791	1.583
KLY-04 (4½)	mm	123.2	123.2	16.4	34.5	10	11.8	4-NO.6-32UNC	50.8	50.8	68.5	38.9	51.6
	in	4.85	4.85	0.646	1.36	0.394	0.465	4-NO.6-32UNC	2	2	2.7	1.531	2.031

Dimension of Square/Rectangular Panel Round Barrel Meter (Bezel Mount) 方(矩)圆形仪表卡式面框尺寸

Unit 单位: mm

Figure 图 3

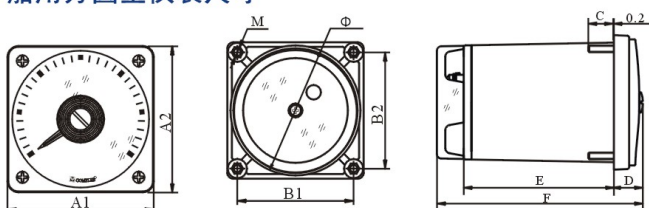


Type 类型	A1	A2	B1	B2	C	D	F	G		Cutout 开孔尺寸
								High Current 大电流	Low Current 小电流	
KLY-50	34.6	57.6	31.5	55	35.4	21.7	68.6	68.1	65.4	32×55.5
KLY-60	41	67.6	37.7	64.7	35.4	32.9	67	66.5	63.8	38.5×65
KLY-670	38	75.5	35	72.3	35.2	32.9	67	66.5	63.8	36×74
KLY-80	51.6	87.6	48.6	84.3	36.4	41.7	67	66.5	63.8	49×85
KLY-1012	71	128.9	67.7	126	35.9	55.1	67.5	67	64.3	68.5×126.5

Dimension of Square Panel Round Barrel Meter (Marine application) 船用方圆型仪表尺寸

Unit 单位: mm



Figure 图 4



Type 类型	Unit 单位	A1×A2	E	F	C	D	M	B1×B2	Φ	Cutout 开孔尺寸
KLY-1101	mm	110×110	84.7	122.7	15.6	22	M5	90×90	φ101	φ103
KLY-1101 Short/短型	mm	110×110	66.7	104.7	15.6	22	M5	90×90	φ100	φ102
KLY-801	mm	81.3×81.3	89.7	122.3	15	16.3	M4	64×64	φ71.5	φ73
KLY-801 Short/短型	mm	81.3×81.3	71.7	104.3	15	16.3	M4	64×64	φ71.5	φ73

Note: All kinds of KLY-801/1101 panel meter use standard barrel, except for its rectified AC voltmeter, DC voltmeter/ammeter, and frequency meter are using short barrel.
注: KLY-801/1101系列仪表, 除电流表、电压表和频率表采用短型外壳, 其他种类仪表均采用常规外壳。

Product Details 产品明细

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Wiring Method 接线方式	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Other 其他
	AC Ammeter with Rectifier 整流型交流电流表 Moving Coil Movement 动圈式结构(磁电系) Model L L型 ~1.5 \square \perp	KLY-L9681A KLY-L9682A	/	0-100mA...0-20A 25A Connection on CT 配电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制: 3, 5, 6倍	1.5 2.5 1.5	Operating Frequency 工作频率: 45~65Hz, 400Hz
	AC Voltmeter with Rectifier 整流型交流电压表 Moving Coil Movement 动圈式结构(磁电系) Model L L型 ~1.5 \square \perp	KLY-L9681V KLY-L9682V	/	0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	
	DC Ammeter 直流电流表 Moving Coil Movement 动圈式结构(磁电系) Model C C型 ==1.5 \square \perp	KLY-C9681A KLY-C9682A	/	0-100uA...0-20A 25A With external shunt 配外附分流器 X/60mV, X/75mV	/	1.5 2.5 1.5	
	DC Voltmeter 直流电压表 Moving Coil Movement 动圈式结构(磁电系) Model C C型 ==1.5 \square \perp	KLY-C9681V KLY-C9682V	/	0-50mV...0-500V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器 450V以上(额定 电流5mA)	/	1.0	
	Frequency Meter 指针式频率表 Moving Coil Movement 动圈式结构(磁电系) Model F F型 ~0.5 \square \perp	KLY-F9681 KLY-F9682	/	45~650Hz Work Voltage 工作电压 AC 100V-440V	/	2.5	Marine Type 船用: SC
	Power Factor Meter 功率因数表 Model PF PF型 ~2.5 \square \perp	KLY-PF9681 KLY-PF9682	single phase(1P) 单相(1P) three-phase system with balanced load(3P) 三相平衡负载系统(3P)	0.5 CAP-1-0.5 IND Work Voltage 工作电压 AC 57.7V-440V Connection on CT 配电流互感器 X/1A, X/5A	/	1.5	
	Active Power Meter 有功功率表 Model W W型 ~0.5 \square \perp	KLY-W9681② KLY-W9682②	Single Phase(1b) 单相(1b) 3P3W balanced Load 三相三线平衡式负载(3b) 3P3W Unbalanced Load(3u) 三相三线不平衡式负载(3u) 3P4W Balanced Load(4b) 三相四线平衡式负载(4b) 3P4W Unbalanced Load(4u) 三相四线不平衡式负载(4u)	-600...0-0...6000MW Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/	1.5	
Reactive Power Meter 无功功率表 Model Var Var型 ~0.5 \square \perp	KLY-Var9681 KLY-Var9682	Single Phase(1b) 单相(1b) 3P3W balanced Load 三相三线平衡式负载(3b) 3P3W Unbalanced Load(3u) 三相三线不平衡式负载(3u) 3P4W Balanced Load(4b) 三相四线平衡式负载(4b) 3P4W Unbalanced Load(4u) 三相四线不平衡式负载(4u)	0-0.8k Var... 0-5000MVar Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/	1.5		

表格中标注带②的型号外附KLY-W759EX导轨式背包, 背包外形尺寸(单位: mm, 尺寸图见第49页):长90.8×宽75×高105.7。

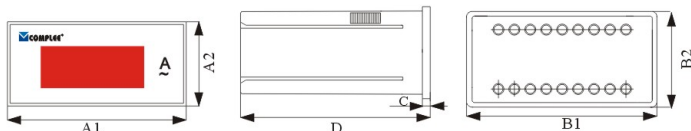
The model marked with ② is externally connected with KLY-W759EX Din-rail converter(Unit:mm, Dimension drawing see figure 1 on page 49):length 90.8×width 75×height 105.7.

Installation for Rectangular Panel Meter 矩型仪表安装方式介绍 (KLY-9681,9682)



Pushing Tight Type 推紧式(IV)

Dimension of Rectangular Panel Meter 矩型表尺寸




Unit 单位: mm

Figure 图 1

Type 类型	Unit 单位	A1×A2	B1×B2	C	D	Cutout 开孔尺寸
KLY-9681	mm	96×48	91.5×43.5	5.5	153	92×44.5
KLY-9682	mm	96×48	91.5×43.5	5.5	153	92×44.5

KLY-9681 Horizontal display; KLY-9682 Vertical display.
KLY-9681横排显示; KLY-9682竖排显示。

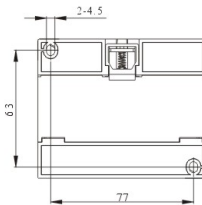
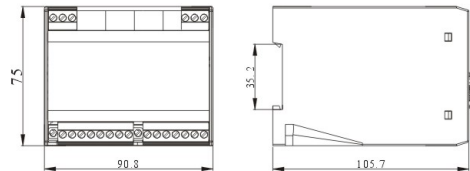
Product Details 产品明细

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号	Type 产品型号	Wiring Method 接线方式	Measurement Range 测量范围	Overload 过载倍数	Accuracy Class 准确度等级	Other 其他
	AC Ammeter 交流电流表 Moving Iron Movement 动铁式结构 (电磁系) Model T T型 ≈1.5Ω	KLY-T45A KLY-T72A-III		0-100mA...0-10A Connection on CT 配电流互感器 X/1A, X/5A	1x or 2x; 3x, 5x and 6x on request 1倍, 2倍; 定制: 3, 5, 6倍	1.5	Operating Frequency 工作频率: 45~65Hz, 400Hz Marine Type 船用: SC UL Certified 认证: UL With Red Pointer 带红针: RP
	AC Voltmeter 交流电压表 Moving Iron Movement 动铁式结构 (电磁系) Model T T型 ≈1.5Ω	KLY-T45V KLY-T72V-III		0-10V...0-500V Connection on PT 配电压互感器 X/100V, X/110V	/	1.5	
	DC Ammeter 直流电流表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≈1.5Ω	KLY-C45A KLY-C72A-III		0-100mA...0-20A 25A With external shunt 配外附分流器 X/60mV, X/75mV	/	1.5 2.5	
	DC Voltmeter 直流电压表 Moving Coil Movement 动圈式结构 (磁电系) Model C C型 ≈1.5Ω	KLY-C45V KLY-C72V-III		0-50mV...0-500V With external fixed resistor >450V (Rated Current 5mA) 配外附定值电阻器 450V以上(额定 电流5mA)	/	1.5	
	Frequency Meter 指针式频率表 Moving Coil Movement 动圈式结构 (磁电系) Model F F型 ≈0.5Ω	KLY-F45 KLY-F72-III		45...650Hz Work Voltage 工作电压 AC 100V-440V	/	1.0 0.5	
	Power Factor Meter 功率因数表 功率因数表 Model PF PF型 ≈2.5Ω	KLY-PF45 KLY-PF72-III	single phase(1P) 单相(1P) three-phase system with balanced load(3P) 三相平衡负载系统(3P)	0.5CAP-1-0.5IND Work Voltage 工作电压 AC 57.7V-440V Connection on CT 配电流互感器 X/1A, X/5A	/	2.5	
	Active Power Meter 有功功率数表 有功功率数表 Model W W型 ≈0.5Ω	KLY-W45 KLY-W72-III	Single Phase (1b) 单相(1b) 3P3W balanced Load 三相三线平衡式负载(3b) 3P3W Unbalanced Load(3u) 三相三线不平衡式负载(3u) 3P4W Balanced Load(4b) 三相四线平衡式负载(4b) 3P4W Unbalanced Load(4u) 三相四线不平衡式负载(4u)	-600...0...6000MW Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/	1.5	
Reactive Power Meter 无功功率数表 无功功率数表 Model Var Var型 ≈0.5Ω	KLY-Var45 KLY-Var72-III	Single Phase (1b) 单相(1b) 3P3W balanced Load 三相三线平衡式负载(3b) 3P3W Unbalanced Load(3u) 三相三线不平衡式负载(3u) 3P4W Balanced Load(4b) 三相四线平衡式负载(4b) 3P4W Unbalanced Load(4u) 三相四线不平衡式负载(4u)	0-0.8kVar... 0-5000MVar Connection on CT 配电流互感器 X/1A, X/5A Voltage 电压(L-N) 57V-400V	/	1.5		

Installation for DIN-Rail Mount Meter 导轨型仪表安装方式

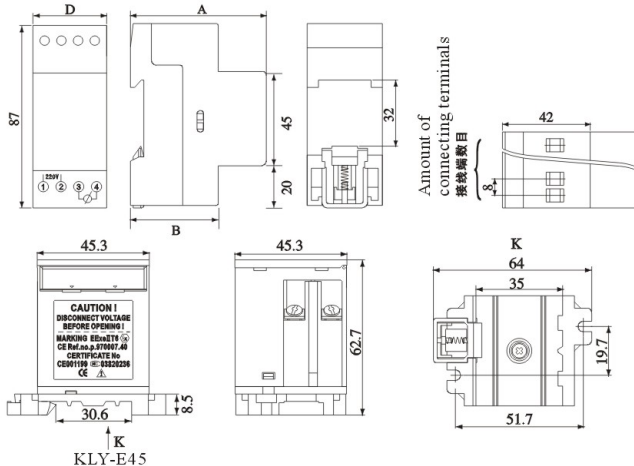
- > KLY-E72 DIN-rail base for vertical or horizontal mounting.
- > KLY-E72 导轨板底座可全方位安装

DIN Rail type (III)
导轨式(III)
(KLY-365, 45, 72, 725)



KLY-W759EX
尺寸图
Dimension on

Dimension on DIN-Rail Mount Meter 导轨型仪表尺寸



Unit 单位: mm

Figure 图 1

Type 类型	Unit 单位	A	B	D	No. of Terminals 接线端数目	Size of DIN Rail 导轨尺寸
KLY-365	mm	65.5	42.5	35.5	4	35
KLY-45	mm	65	45	45	6	35
KLY-725	mm	68.5	45.7	72	12	35

Switch Position Indicator Encoding Rule 开关位置指示器型号编写规则



e.g.例: KLY SP 25R II LS01DC100127V

1. Enterprise Code企业识别码: KLY

2. Structure Type Code结构型式代码: SP Switch Position Indicator开关位置指示器

3. Outline Dimension Code外形尺寸代码: 25S: Square Type方形25×25
 25R: Round Type圆形Φ25
 32R: Round Type圆形Φ32
 36S: Square Type方形36×36

4. External Wiring Method外部接线方式: I : Common Type, Cannot link up other load in parallel常规型, 外部不可并联负载
 II : Can link up other load in parallel外部可并联负载(如指示灯)

5. Faceplate Description, with Letters: Mechanical default does not fill, LED light type with "L"面板说明, 用字母表示: 机械式默认不填, LED灯式“L”表示

6. Switch position indicator length description, with letters: long shell default does not fill, short shell describe with "S"开关位置指示器长短说明, 用字母表示:
 长壳默认不填, 短壳“S”表示

7. Indicator status description, with numbers指示灯状态说明, 用数字表示:

00(Default is not to fill默认不填): When terminals 1 and 3 have rated voltage input, two green LED lights
 当1、3号接线端有额定电压输入, 2个绿色LED灯亮
 When terminals 1 and 2 have rated voltage input, two red LED lights
 当1、2号接线端有额定电压输入, 2个红色LED灯亮
 When the terminals 1 and 3 have rated voltage input, two red LED lights
 当1、3号接线端有额定电压输入, 2个红色LED灯亮
 When terminals 1 and 2 have rated voltage input, two green LED lights
 当1、2号接线端有额定电压输入, 2个绿色LED灯亮

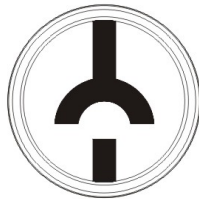
“备注”: Remat:mechanical type,this information can be omitted. 机械式此位可省略。

8. Auxiliary Power辅助电源规格: AC 24~36V; AC 48~60V; AC 100~127V; AC 220~240V;

DC 24~36V; DC 48~60V; DC 100~127V; DC 220~240V;

“备注”: Remat:mechanical type,this information can be omitted. 机械式此位可省略。

9. Other Feature Code其他特征代号: 1: Front faceplate前面板为



None, Default: front faceplate无, 缺省: 前面板为



Switch Position Indicator

Switch Position Indicator (Disc Indication)

Using on mimic diagram of control panel to display the status of remote switches in power plants or electric substations, three contact positions are "Off", "On", "Error/Disabled". Model prefix is SP.

Please specify the wiring method on ordering:

I: Do not connect with other burden in parallel.

II: Switch position indicator and load are used in parallel.

Switch Position Indicator (LED Indication)

Applicable to power system, automatic control system, and indicating energized or de-energized status

Two conditions: Green for energized, Red for de-energized. Model prefix is SP-L.

开关位置指示器

机械式位置开关指示器

>用于发电厂和变换站中，远距离动态指示开关的接触状态，在场站模拟控制板中作为目标指示器被大量使用。有开关的三种接触状态显示：“关”，“开”和“错误”。代表符号为SP型。

有二种接线方式，订单时需注明：

I: 不可并联其他负载；

II: 可并联其他负载，如指示灯等。

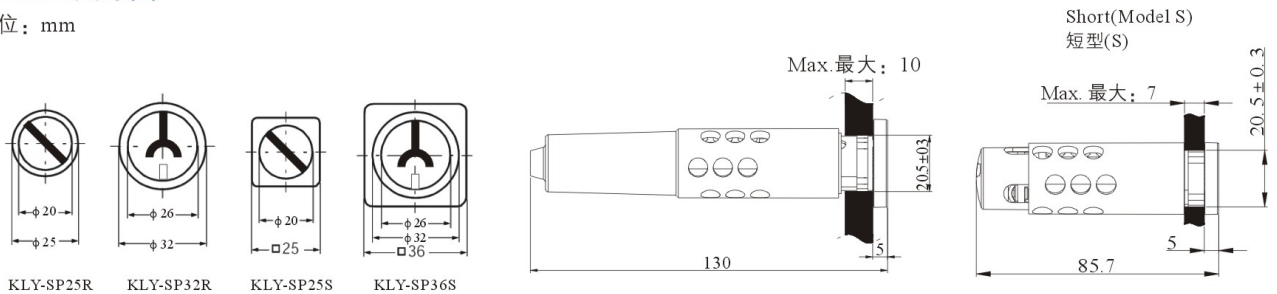
指示灯式位置开关指示器

>适用于电力系统、自动化控制系统中对电量的通断检测指示。由LED灯显示红色或绿色来指示状态。有二种状态显示：绿色：通电；红色：断电。代表符号为SP-L型。

Picture 图片	Product Description 产品描述 Technical Symbol 技术符号			Type 产品型号	Wiring Method 接线方式	Operating Voltage 工作电压	Bezel Shape 面壳外形	Bezel Dimension 面壳尺寸(mm)	Others 其它
	Off 关	On 开	Error 错误						
				KLY-SP25R	Cannot link up other load in parallel 不可并联其他负载	Can link up other load in parallel 可并联其他负载	Round 圆形	φ 25	
				KLY-SP25S					
				KLY-SP32R					
				KLY-SP36S					
				KLY-SP25R-1	I 不可并联其他负载	II 可并联其他负载	Round 圆形	φ 25	Short(Model S) 短型(S)
				KLY-SP25S-1					
				KLY-SP32R-1					
				KLY-SP36S-1					
				KLY-SP25R-L			Round 圆形	φ 25	
				KLY-SP25S-L					

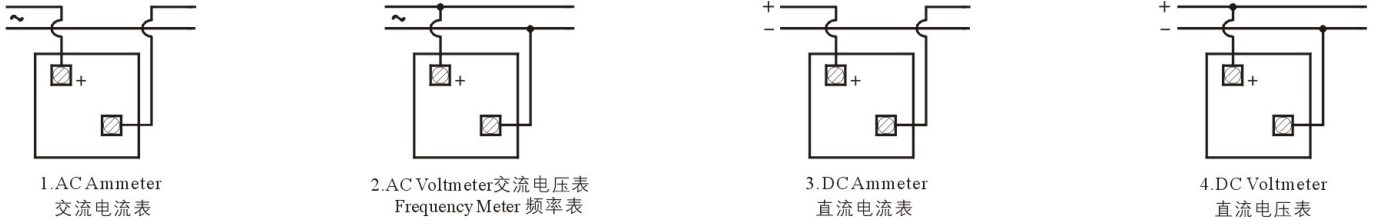
Dimension 尺寸图

Unit 单位: mm

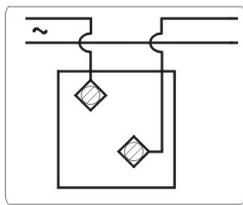


> This label connection diagram is suitable for meters of different type but with same structure. When connecting, please make sure the connecting terminal in the connection diagram is corresponding to the actual terminal on the meter. The actual connection diagram supplied with products may differ from the catalogue diagram.

> 线路图通用性说明：本线路图标签适用于各种不同型号而结构相同的仪表。使用时必须根据线路图标签中的接线端号与实际仪表的接线端号相对应，方可接线。

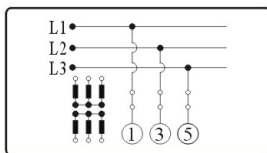


Maximum Demand Indicator 最大需量表

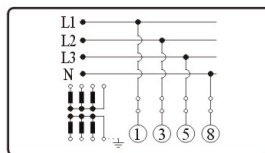


5. Maximum demand indicator
MDI with moving iron
单结构最大需量表和双结构最大需量表
CP-M48/72/96 CP-2M72/96
KLY-M48/72/96/144 KLY-2M72/96/144

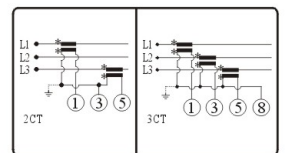
Ammeters and Voltmeters with Selector Switch 带转换开关电压、电流表



6. 3P3W voltmeter with selector switch
三相三线带转换开关电压表
CP-Z72/96-3D
KLY-Z72/96/120/144-3D

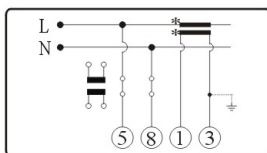


7. 3P4W voltmeter with selector switch
三相四线带转换开关电压表
CP-Z72/96-6D
KLY-Z72/96/120/144-6D

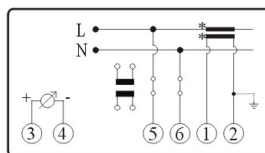


8. 3P4W Ammeter with selector switch
三相四线带转换开关电流表
CP-Z72/96A-3D
KLY-Z72/96/120/144-3D

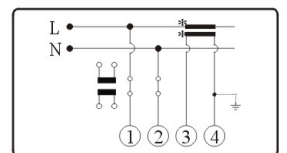
Single Phase Power Factor Meters 单相功率因数表



9. Single phase power factor meters
单相功率因数表
CP-PF72/80/96
KLY-PF72/96/120/144
KLY-PF72/96/120/144-G
KLY-PF801/1101

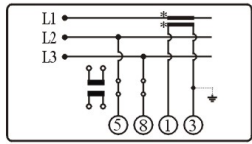


10. Single phase power factor meters accessory
单相功率因数表附件
KLY/CP-PF48, KLY-PF48-G
KLY-PF50/560/60/665/670/780/80/8100/1012
KLY-01/02/03/04

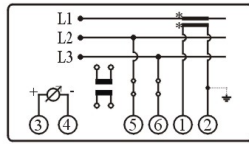


11. Single phase power factor meters
单相功率因数表
KLY-PF45
KLY-PF9681/9682

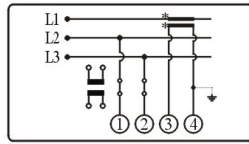
Three Phase Power Factor Meters 三相功率因数表



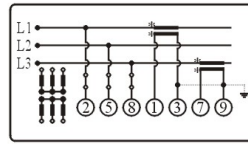
12. Three phase system with balanced load
power factor meters
三相平衡负载功率因数表
CP-PF72/80/96
KLY-PF72/96/120/144
KLY-PF72/96/120/144-G.
KLY-PF801/1101



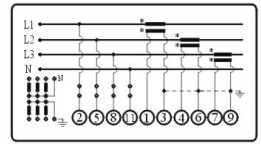
13. Three phase system with balanced load
power factor meters accessory
三相平衡负载功率因数表附件
KLY/CP-PF48, KLY-PF48-G
KLY-PF50/560/60/665/670/
780/80/8100/1012
KLY-01/02/03/04



14. Three phase system with balanced load power factor meters
三相平衡负载功率因数表
KLY-PF45
KLY-PF.9681/9682

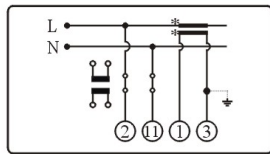


15. Three phase system with unbalanced load
power factor meters(3u)
不平衡式负载
三相三线功率因数表
CP-PF72/96
KLY-PF72/96/120/144
KLY-PF72/96/120/144-G
KLY-PF1101

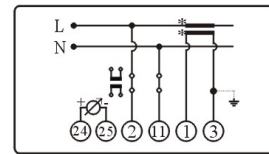


16. Three phase system with unbalanced load
power factor meters(4u)
不平衡式负载
三相四线功率因数表
CP-PF72/96
KLY-PF72/96/120/144
KLY-PF72/96/120/144-G
KLY-PF1101

Single Phase (Active or Reactive) Power Meter 单相(有功/无功)功率表

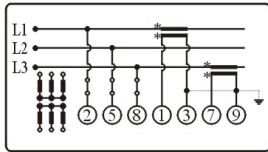


17. Single phase (Active / Reactive) Power Meter (1b)
单相(有功/无功)功率表
CP-W72/96
KLY-W72/96/120/144
KLY-W72/96/120/144-G
KLY-W801/1101

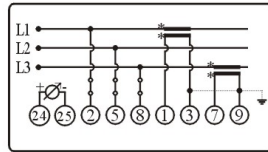


18. Single phase system power meters(1b)
单相(有功/无功)功率表
CP-W48/80
KLY-W50/560/60/665/670/780/80/8100/1012
KLY-W48/45, KLY-W48-G
KLY-W01/02/03/04

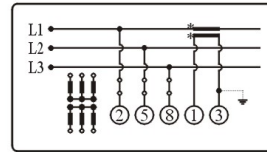
Three Phase Three Wire (Active or Reactive) Power Meter 三相三线(有功/无功)功率表 Three Phase Three Wire (Active or Reactive) Power & Energy Meter 三相三线功率电能表



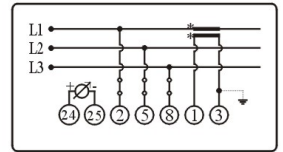
19. Three phase three wire system with unbalanced load power meters(3u)
不平衡式负载
三相三线(有功/无功)功率表
CP-W/var72/96
KLY-W/var72/96/120/144
KLY-W/var72/96/120/144-G
KLY-W/var801/1101
KLY-WH96/WH96-2



20. Three phase three wire system with unbalanced load power meters(3u)
不平衡式负载
三相三线(有功/无功)功率表
CP-W/var48/80
KLY-W/var50/560/60/665/670
/780/80/8100/1012
KLY-W/var48/45, KLY-W48-G
KLY-W/var01/02/03/04

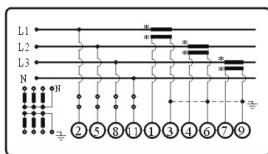


21. Three phase three wire system with balanced load power meters(3b)
平衡式负载
三相三线(有功/无功)功率表
CP-W/var72/96
KLY-W/var72/96/120/144
KLY-W/var72/96/120/144-G
KLY-W/var801/1101
KLY-WH96/WH96-2

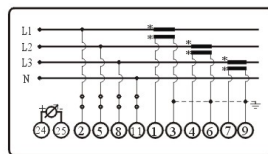


22. Three phase three wire system with balanced load power meters(3b)
平衡式负载
三相三线(有功/无功)功率表
CP-W/var48/80
KLY-W/var50/560/60/665/670
/780/80/8100/1012
KLY-W/var48/45, KLY-W48-G
KLY-W/var01/02/03/04

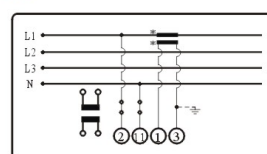
Three Phase Four Wire (Active or Reactive) Power Meter 三相四线有功/无功功率表 Three Phase Four Wire (Active or Reactive) Power & Energy Meter 三相四线功率电能表



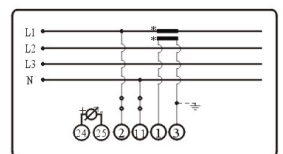
23. Three phase four wire system with unbalanced load power meters(4u)
不平衡式负载
三相四线有功/无功功率表
CP-W/var72/96
KLY-W/Var72/96/120/144
KLY-W/Var72/96/120/144-G
KLY-W/var801/1101
KLY-WH96/WH96-2



24. Three phase four wire system with unbalanced load power meters(4u)
不平衡式负载
三相四线有功/无功功率表
CP-W/Var48/80
KLY-W/Var50/560/60/665/670
/780/80/8100/1012
KLY-W/Vvar48/45, KLY-W48-G
KLY-W/Var01/02/03/04

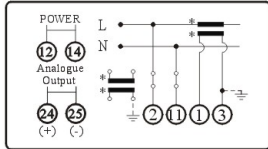


25. Three phase four wire system with balanced load power meters(4b)
平衡式负载
三相四线有功/无功功率表
CP-W/Var72/96
KLY-W/Var72/96/120/144
KLY-W/Var72/96/120/144-G
KLY-W/Var801/1101
KLY-WH96,WH96-2

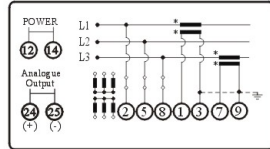


26. Three phase four wire system with balanced load power meters(4b)
平衡式负载
三相四线有功/无功功率表
CP-W/Var48/80
KLY-W/Var50/560/60/665/670
/780/80/8100/1012
KLY-W/Var48/45, KLY-W48-G
KLY-W/Var01/02/03/04

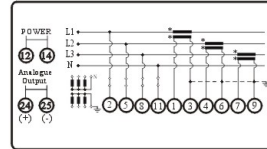
Transducer 变送器/Transducing output meter 变送输出的仪表



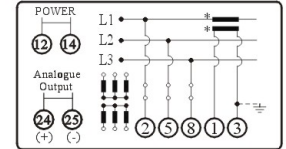
27. Transducing output active or reactive power meter
Active or reactive power transducer (Single phase)
变送输出有功/无功功率表有功/无功变送器(单相)
KLY-TR96P/Q-1b



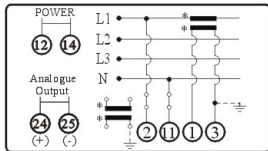
28. Transducing output active or reactive power meter
Active or reactive power transducer (3P3W unbalanced load)
变送输出有功/无功功率表有功/无功变送器(三相三线不平衡负载)
KLY-TR96P/Q-3u



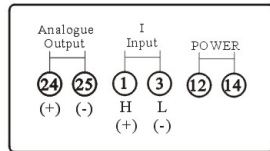
29. Transducing output active or reactive power meter
Active or reactive power transducer (3P4W unbalanced load)
变送输出有功/无功功率表有功/无功变送器(三相四线不平衡负载)
KLY-TR96P/Q-4u



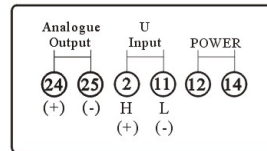
30. Transducing output active or reactive power meter
Active or reactive power transducer (3P3W balanced load)
变送输出有功/无功功率表有功/无功变送器(三相三线平衡负载)
KLY-TR96P/Q-3b



31. Transducing output active or reactive power meter
Active or reactive power transducer (3P4W balanced load)
变送输出有功/无功功率表有功/无功变送器(三相四线平衡负载)
KLY-TR96P/Q-4b

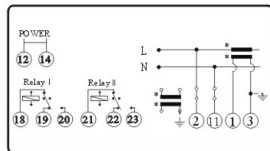


32. Transducing output ammeter
Current transducer
变送输出电流表
电流变送器
KLY-TR96A

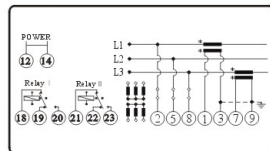


33. Transducing output voltmeter
Transducing output Frequency Voltage transducer
Frequency transducer
变送输出电压、频率表
电压、频率变送器
KLY-TR96V/F

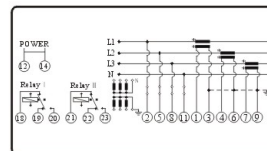
Meter with alarm 报警表



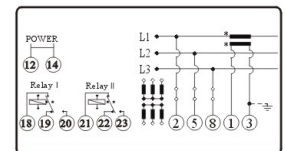
34. Active or reactive power with alarm (Single phase)
报警有功/无功功率表(单相)
KLY-A96P/Q-1b



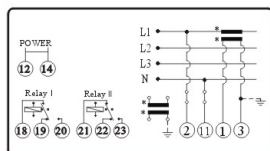
35. Active or reactive power with alarm (3P3W unbalanced load)
报警有功/无功功率表
KLY-A96P/Q-3u



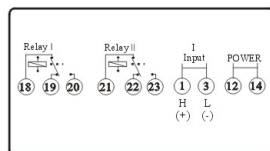
36. Active or reactive power with alarm (3P4W unbalanced load)
报警有功/无功功率表(三相四线不平衡负载)
KLY-A96P/Q-4u



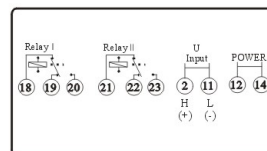
37. Active or reactive power with alarm (3P3W balanced load)
报警有功/无功功率表(三相三线平衡负载)
KLY-A96P/Q-3b



38. Active or reactive power with alarm (3P4W balanced load)
报警有功/无功功率表(三相四线平衡负载)
KLY-A96P/Q-4b

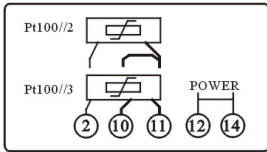


39. Ammeter with alarm
电流报警表
KLY-A96A

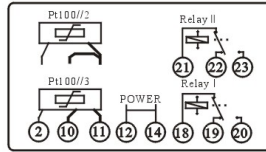


40. Voltmeter with alarm
电压报警表
KLY-A96V

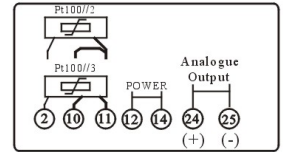
Thermometer 温度表 (PT100)



41. Thermometer
温度表(PT100)
KLY-C96-RT

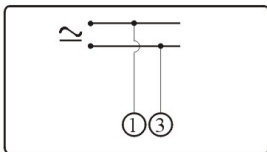


42. Thermometer
with alarm and PT100 sensor
报警的PT100温度表
KLY-C96-RT-A

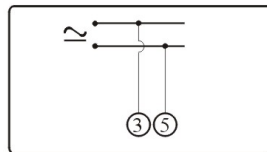


43. Thermometer
with transducing output
变送输出的PT100温度表
KLY-C96-RT-TR

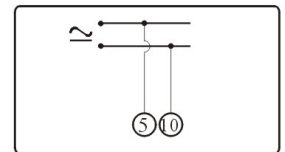
Hours Run Meter 累计时间表



44. KLY-H48

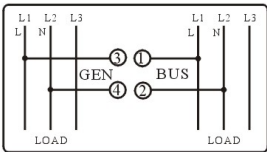


45. KLY-H72

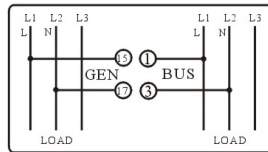


46. KLY-H96

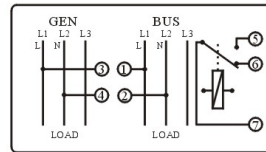
Synchroscope 同步表



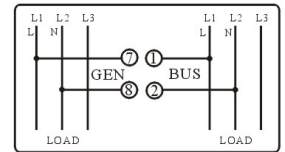
47. Digital synchroscope
数字式同步表
KLY-S72-D/KLY-S96-D
Pointer synchroscope
指针式同步表
CP-S72/96-X, KLY-S72/96-X



48. Digital type
数字式同步表
KLY-S144-D

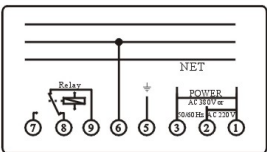


49. Digital type
数字式同步表
KLY-S72/96/144-DR-A
KLY-S72/96-DR-B

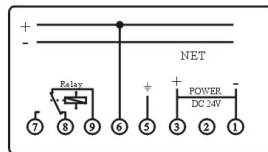


50. Pointer synchroscope
指针式同步表
KLY-S1101-X

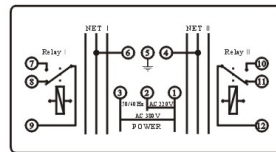
Net insulation Monitor 电网绝缘电阻检测仪



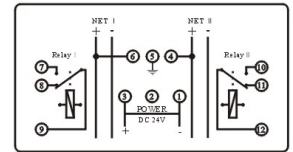
51. Net insulation monitor
电网绝缘电阻检测仪
KLY-NI72/96I
KLY-NI72/96I-G
Auxiliary power
辅助电源 AC220V/380V



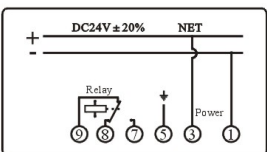
52. Net insulation monitor
电网绝缘电阻检测仪
KLY-NI72/96I
KLY-NI72/96I-G
Auxiliary power
辅助电源 DC24V



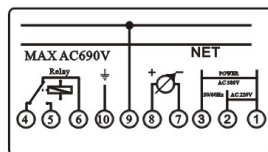
53. Net insulation monitor
电网绝缘电阻检测仪
KLY-2NI96I
Auxiliary power
辅助电源 AC220V/380V



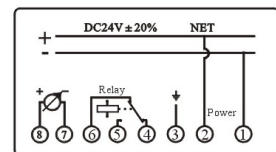
54. Net insulation monitor
电网绝缘电阻检测仪
KLY-2NI96I
Auxiliary power
辅助电源 DC24V



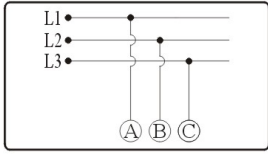
55. DC Net insulation monitor
直流电网绝缘电阻检测仪
KLY-NI72/96I-2
KLY-NI72/96I-2-G



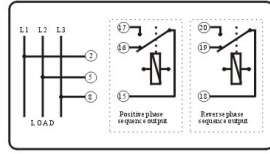
56. Net insulation monitor (separated)
电网绝缘电阻检测仪(分体式)
KLY-NI
Auxiliary power
辅助电源 AC220V/380V



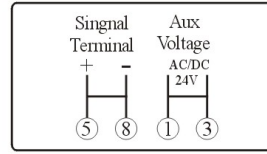
57. DC Net insulation monitor (separated)
分体式直流电网绝缘电阻检测仪
KLY-NI-2
Auxiliary power
辅助电源 DC24V



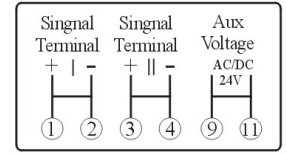
58. Mechanic phase sequence meter
机械式相序表
KLY-S172/96



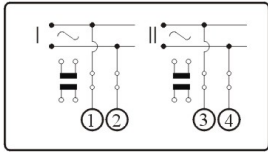
59. LED phase sequence indicator
相序表
KLY-S172/96-DR



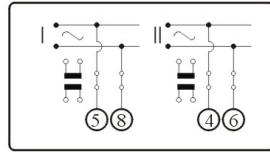
60. Illuminated meter
带照明的电流、电压表



61. Illuminated meter
带照明的
双机构电流、电压表

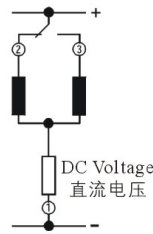
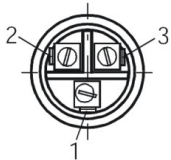


62. Double voltmeter ,
Double fequencymeter
双机构电压表、频率表
CP-2T72/96,KLY-2T72/96
CP-2F72/96,KLY-2F72/96

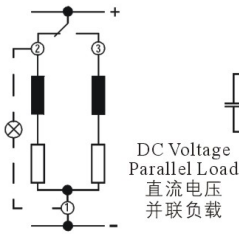


63. Double voltmeter ,
Double fequencymeter
双机构电压表、频率表
KLY-2T144
KLY-2F144

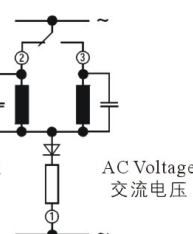
Switch Position Indicator/开关位置指示器



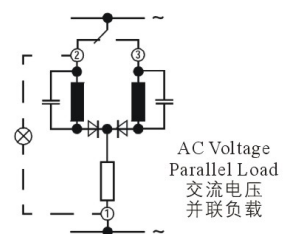
64. DC I type
DC 直流 I 型



65. DC II type
DC 直流 II 型



66. AC I type
AC 交流 I 型



67. AC II type
AC 交流 II 型



Tautband suspension structure, to eliminate the impact of friction
 紧带式悬挂结构，消除摩擦影响

Small affect by the temperature, time changes, high precision indicating
 受温度、时间变化影响小，指示精度高

Good impact resistance, well stability
 良好的抗冲击性能，稳定性好

High-precision structural design, good repeatability
 高精度的结构设计，重复性好



Pointer swing softly, lifting error is nearly zero
 指针摆动柔和，升降误差近为零

Technical Parameters 技术参数

Item 项目	Technical Requirements 技术要求	Reference Standard 参照标准
Application Range应用范围	KLY/48、KLY-50、KLY-560、KLY-60、KLY-670、KLY-780、KLY-80、KLY-8100、KLY-1012	
Basic Error基本误差	1.5	IEC60051.2-1997
Response Time响应时间	0.6 ~ 1.0S	
Overshoot过冲	≤10%Scale length标度尺长度	
Reference Temperature参比温度	(23±2)°C； Humidity湿度:(40~60)%RH	IEC60051.1-1997
Operating Temperature工作温度	-10°C ~ +55°C； Humidity湿度: <95%RH(Must Be No Condensation必须无结露)	
Storage Temperature 贮存温度	-25°C ~ +70°C； Humidity湿度: <95%RH(Must Be No Condensation必须无结露)	
Shock冲击	15g;11ms	IEC60051.1-1997
Vibration振动	2Hz ~ 13.2Hz: Displacement Amplitude位移幅值 ± 1mm; 13.2Hz ~ 100Hz: Acceleration Amplitude加速幅值 ± 7m/s ²	

Remark: Special models for tautband movement meter, can be customized according to customer requirements (minimum 10,000 pieces to order)
 注：特殊型号张丝机芯仪表，可根据客户要求订做(10000只起订)

Schematic of Movment Structure 机芯结构示意图

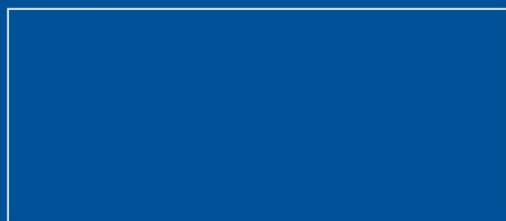
Tautband Movement 张丝结构机芯	Technical Introduction 技术说明	Hairspring Movement 游丝结构机芯
 <p>Tautband 张丝</p> <p>Tautband 张丝</p>	<p>Tautband movement use reed, tautband structure instead of hairspring, pivot, bearing structure, eliminating the impact of friction and pointer lift error, higher indicating accuracy; 张丝机芯以簧片、张丝式结构代替游丝、轴尖、轴承式结构，消除了摩擦影响和指针升降误差，指示精度更高；</p> <p>Curved reed design provides long-term elasticity for tautband, at the same time, having good shock absorption function. 弧形簧片设计为张丝提供长久弹力的同时，起到了良好的减震作用。</p>	 <p>Hairspring 游丝</p> <p>Hairspring 游丝</p>



上海康比利仪表有限公司
SHANGHAI COMPLEE INSTRUMENT CO.,LTD.

公司地址：上海市松江科技园区彭丰路790号
COMPANY ADD: No.790 Pengfeng Road, Technology Zone,
Songjiang, Shanghai
电话(TEL): 0086-21-57858333 57858087 (Domestic 国内)
0086-21-57858383 (International 国际)
传真(FAX): 0086-21-57858097 57858112
邮编(P.C): 201614
网址(Http): //www.complee.com
邮箱(E-mail): sales@complee.com mk@complee.com

代理商：



Follow Complee Micro-letters,
Learn More Industry Information.
关注康比利微信，获悉更多行业信息。