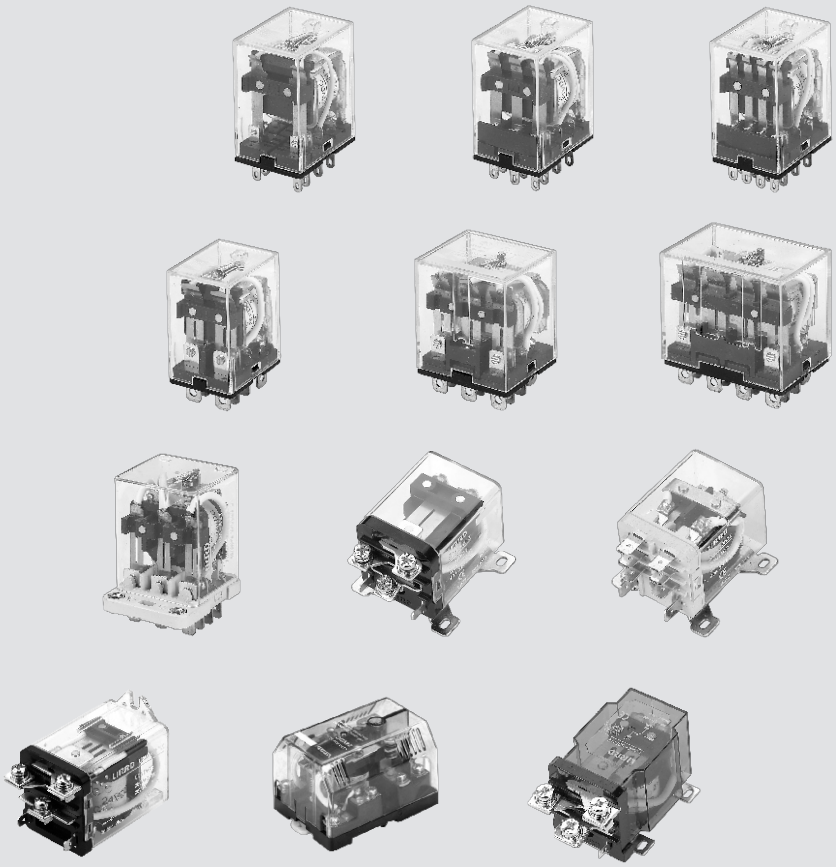
A

电磁继电器系列

ELECTROMAGNETISM RELAY SERIES



继电器认购及使用导则
Relay purchasing and operating guide

1 关于继电器 About relay

1.1 继电器是一种自动电气开关，当给予一个输入量，如：电、磁、光或热等信号时，它就能自动切换被控制电路，使之产生一个跃变。当输入量降至一定程度时，它又恢复到初始状态，使被控电路也跳跃到原来状态。
1.2 继电器可根据不同的方法或特征分类，按其作用原理或结构特征分类可分为：电磁继电器、时间继电器、固体继电器、热继电器、极化继电器、舌簧继电器等等。
1.3 继电器用途广泛，大致可归结为：输入与输出电路之间的隔离、信号转换、增加输出电路、重复信号、切换不同电压或电流、保留输出信号、闭锁电路、提供遥控等等。
1.4 电磁继电器：简称EMR，它是由控制电流通过线圈所产生的电磁吸力驱动磁路中的可动部分，而实现触点开、闭或转换功能的继电器，其工作特性如图1所示。无论电磁继电器的结构形式如何，它们都是由感应机构（接受输入信号）、比较机构（提供比较量）和执行机构（输出电路）组成，其动作原理方框图如图2所示。
1.1 Relay is a kind of automatic electric switch, when supply with an input value, like electric, magnetic, light or thermal signal, it will transfer the controlled circuit automatically and make an abrupt change. When the input value decreased to a certain degree, it will resume to the former state, and make the controlled circuit back to the former state.
1.2 Relay can be classified according to different methods or characteristics, when divide according to its working theory and structure characteristics, it has the following sorts: electromagnetic relay, time relay, solid-state relay, thermal relay, polarity relay, reed relay, etc.
1.3 Relay is widely applied, mainly applied for: isolation between input and output circuit, signal transfer, the output circuit increasing, signal repeating, different voltage or current transferring, output signal keeping, circuit locking, remote control offering, etc.
1.4 Electromagnetic relay: referred to as EMR for short. This kind of relay works according to the following principle, the electromagnetic suction force that produce by control current passing the coil drives the movable part in the magnetic circuit to realize contact connecting or disconnecting and transfer function, please refer to diagram 1 for its working characteristic. No matter what the structure of electromagnetic relays are, they are all combined with inductive organ (to receive input signal), comparative organ (to proceed comparison) and Executive organ (output circuit), please refer to diagram 2 for its working principle.

图1 继电特性Working characteristic of relay

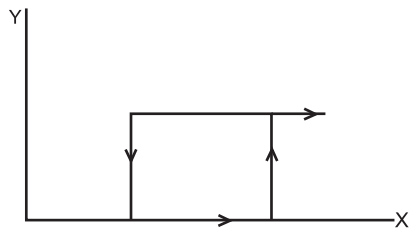


图2 动作原理方框图Working theory

2 继电器认购需知 Notice for relay purchasing

2.1 继电器的标识典型如下：Model meaning of relay For example:：

L JQX-13 F 2Z 10A 220VAC 1.2VA-□

- N :带灯With lamp；P线路板式PCB type; B:倒板装式Inverse plate installation type;
- D:线圈突波吸收用于DC coil surge absorbing for DC；CR:线圈突波吸收用于AC Coil surge absorbing for AC
- 线圈功率，交流为VA、直流为W Coil power, alternating current is VA, and direct current is W
- 线圈电压，AC为交流、DC为直流Coil voltage, AC means alternating current and DC means direct current
- 触点额定电流Rated current of contact
- 2组转换2 groups transfer
- F-封闭式closed type、M-密封式sealed type、无字母为敞开式No letter means open type
- 产品序号Product No.
- 小型大功率继电器Miniature relay of high-power
- 利尔德 LIERD

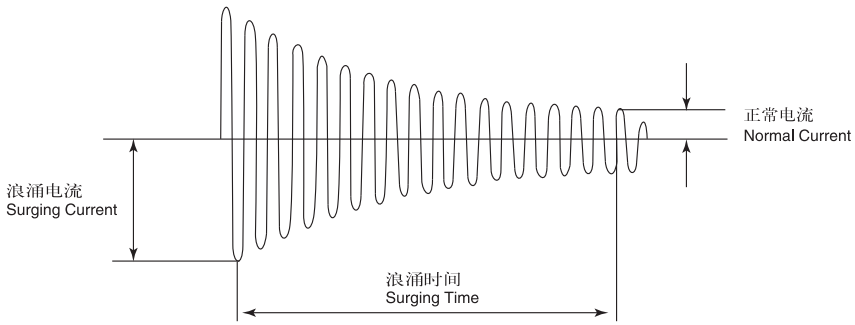
2.2 常用触点组合形式Combination form of common contact ：

名　称 Name	定义 Definition	结构形式 Structure form	符号 Symbol	代号Code	
				USA	CHN
动合触点Normally open contact	继电器动作后，使被控电路闭合的触点组。After relay runs, the contact group that make controlled circuit close.			H	A
动断触Normally closed contact	继电器动作后，使被控电路闭合的触点组。After relay runs, the contact group that make controlled circuit close.			D	B
转换触点 Transfer contact	继电器动作时，先使一个被控电路断开，然后再使另一个被控电路闭合的触点组。When the relay runs, the contact group that make a controlled circuit break first, and then close another controlled circuit.			Z	C

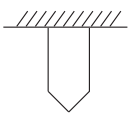
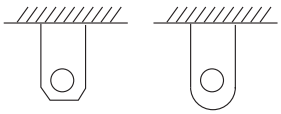
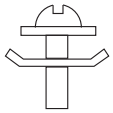
2.3 负载性质及其浪涌电流Load character and its surge current ：

性质Character	浪涌电流Surge current	浪涌时间 Surge time(S)	备注Remark
阻性Resistant character	稳态电流Steady state current	/	L≤10-4H或COSF=1
感性Inductive character	3~5倍稳态电流3~5 times of steady state current	1~50	/
电机 Electromotor	5~10倍稳态电流 5~10 times of steady state current	0.2~0.5	可用5~6倍电流的阻性负载来代替试验 Can make use of resistant load of 5~6 times current to instead of test
灯性Lamp character	10~15倍稳态电流10~15 times of steady state current	1	/
容性 Capacitive character	20~40倍稳态电流 20~40times of steady state current	1~50	长输送线、滤波器、电源类应看作容性负载 Long transmit wire, filter and power supply should be considered as capacitive load

波形：
Waves



2.4 安装方式Installation mode

安装方式 Installation mode	结构形式 Structure form	产品型号 Product model	备注 Remark
焊接式 Welding type		继电器尖头引出端式 Tip output terminal type of relay	含线路板式 With PCB type
插入式 Socket type		HH系列、13F系列、LR系列、MK、JTX-10F、JQX-38F、JQX40 2Z	含插座式 With socket type
螺钉式 Screw type			

3 继电器的选择及使用 Relay choosing and operation

继电器是重要的电子基础元件，它有自己的性能和工艺特点。在使用中，这些性能和特点都直接影响着控制系统的工作质量和技术经济指标。因此对用户来讲，首先是根据整机线路要求正确选用合适的继电器，其次是正确使用继电器。否则，一是不能充分发挥继电器性能的作用和维持固有可靠性，甚至造成浪费；二是不能保证控制系统的正常工作，从而危及设备、系统的可靠性。

3.1正确选用继电器的原则

3.1.1继电器的技术性能，如触点负荷、动作时间及电气参数、机械和电气寿命等，应完全满足整机系统所提出的要求。

3.1.2继电器的结构型式（包括安装方式）与外形尺寸应能适合使用条件要求。

3.1.3根据工作环境条件合理选用继电器，如：环境温度及湿度、振动与冲击、辐照及电磁干扰等，应不影响继电器的使用要求。

3.1.4经济合理性。

Relay is an important electronic element, its performance and technical characteristics will directly affect the working quality and technical and economic indicator of the control system. Therefore, to the users, the first thing is to choose the most suitable relay according to the whole circuit need, and then is to operate it correctly. Otherwise, the relay may not fully exert its performance or keep its reliability, and even cause waste, in addition, it may not guarantee the normal working of control system and even may affect the reliability of equipments and system.

3.1The principle of right way to select relays.

3.1.1Technical performance of relay, such as contact load, operating time, electric parameter, mechanical and electric service life should fully satisfy the whole system’s need.

3.1.2 The structure mode of relay (include installation mode) and outline size should be suitable for the operating condition.

3.1.3 Choose reasonable relay according to working environment, like the ambient temperature and humidity, vibration and impact, radiation and electromagnetic interference, these conditions should not as strong as to affect relay’s operation.

3.1.4 Economic reasonableness。

3.2线圈的正确使用Correct using of coil

众所周知，继电器线圈断电时会产生反电动势，其大小与线圈贮存的能量及增加的电压有关，峰值一般为线圈施加电压的10倍左右，高的可达14倍，电压可达千伏，故用户给线圈施加激励电压时，务必加以注意。

3.2.1使用的线圈电压低于线圈额定电压时，将会损害继电器的正常工作及其工作可靠性。

3.2.2继电器使用时，应根据线圈的极性施加电压（如果有的情况下）。

3.2.3继电器工作时，线圈应施加额定电压。然而由于某些调节装置本身的限制，以及这些装置的参数在试验期间或使用过程中会发生不希望的漂移和难以避免的参数变化，以及仪表的准确度等因素，给线圈施加的工作电压应有一个容差或范围。但是由于使用的线圈电压低于其额定电压时会损害继电器工作。所以这个范围是额定电压至最大允许电压。另一个原因是电源调整率。因此线圈最大允许电压一般为110%的额定电压，当产品的热阻比较小或线圈功耗为0.1W左右甚至更小时，最大允许电压可以稍稍提高点。

注：吸合（动作）保持和释放电压仅供检测时用，而不是设计的使用指标。

It is known that when the relay coil is power off, it will produce counter electromotive force, its magnitude relates to the energy that coil stored and the increased voltage, the peak value usually is 10 times of the coil voltage, also can reach to 14 times, the voltage can reach to 1kv, so please pay more attention to it when add energizing voltage to the coil.

3.2.1 It will affect relay’s normal work when the applied coil voltage is lower than the rated coil voltage.

3.2.2When use the relay, please impose voltage according to coil’s polarity (if has).

3.2.3 When the relay working, the coil should be given the rated voltage. And the working voltage applied for coil should has an allowance to adapt to the situations like, device adjusting, parameters of device has unexpected deviation or change during test or operation, the Instrument is not accurate. Because it will affect relay’s normal working if the applied coil voltage is lower than its rated voltage. The allowance range should within the rated voltage and max permissible voltage. Besides, the regulation rate of power supply will also affects, hence, the max permissible voltage of coil usually is 100% of rated voltage. When the product’s thermal resistance is rather low, or when the coil power is about 0.1W or lower, the max permissible voltage can be a littler higher.

Notice: The closing (action) keeping and voltage discharge are only applied in checking, but not the operating target of design.

3.3 触点的正确使用Accurate operation of contact

与被控电路直接连接的触点是继电器的接触系统。国内外长期实践证明：继电器在使用时约70%的故障是发生在触点上的。这除了与继电器本身结构和制造因素密切相关之外，未能正确选用和使用继电器也是相当重要的因素。

3.3.1负载性质

在没有说明时，继电器规定的负载额定值均是阻性负载。实际使用中不能将同样大小的感性、容性、灯性及电机负载加在继电器的触点上，否则会因强大的浪涌电流使触点严重超载。有关技术标准中规定，当时间常数 t =8ms时，在额定切换电压下，电感负载的允许电流不应超过额定阻性负载电流的30%、电机负载为20%、灯性负载为10%、容性负载为5%。

3.3.2减额特性

是指合理地选择触点负载量，根据产品实际使用可靠性的要求，在选择额定值时应留有适当的保险量，宜将实际负载取作继电器额定负载的50~70%。这并不是说只要在比额定值低的负载下使用都会提高触点接触可靠性。如当电流减小到100mA以下时，接触可靠性反而会降低。

3.3.3负载变换

继电器的负载由交流负载改用于直流负载时应注意这两种条件下电弧的特点不能盲目转变。这是因为触点承受交流负载的能力远比直流负载时强，交流电弧能自行熄灭，对触点的腐蚀较轻。因此，在由切换交流负载改变为切换直流负载时，一定要减小切换功率值。一般认为直流28V、2A相当于交流115V、1A，即：直流功率值取交流功率值的50%左右。

3.3.4并联触点

为了延长寿命提高接触可靠性，当负载电流等于或低于额定负载时（不可忽略的前提），可以将同一只继电器两组及以上同类触点并联使用。

The contact directly connect with controlled circuit is the contacting system of relay. It has been approved that 70% fault happened during the relay's operation is caused by the contact. It's not only caused by relay's structure and manufacturing factors, but also caused by incorrect choosing or using relay.

Character of load

3.3.1If without specification, the rated value of load that relay requires is resistant load. In real using, please do not add inductive character, capacitive character, lamp character and electromotor on the relay's contact, otherwise, the strong surge current will make contact overloaded. Relative technical standard stipulates, when time constant t=8ms, the permissible current of inductive load should not exceed 30% of rated resistant load current, 20% of motor load, or 10% of lamp character, and 5% of capacitive character.

3.3.2Deducting characteristics

Deducting characteristics means to choose the contact quantity reasonably, and make a certain allowance according to real-service using situation when choosing the rated value, you can consider the real load as 50~70% of rated load of relay. It not means the contacting reliability of contact will be improved under the load that is lower than rated load. Contrary, when the current is decreased to 100mA, the contacting reliability will be reduced.

3.3.3Load change

When the AC load of relay is used in DC load, please pay attention to the different characteristics of electric arc. Because the withstand capability of contact under AC load is much stronger than capability that under DC load, the AC electric arc can self-extinguish, and has lower corrosive to contact. Therefore, when change the AC load transfer into DC load transfer, please decrease power value of DC transfer. Generally speaking, DC 28V 2A corresponding to AC115V 1A, i.e. DC power is about 50%of AC power.

3.3.4Parallel contact

In order to prolong service life and improve contacting reliability, when load current is equal to or lower than rated load (the precondition that can not be ignored), you can parallel connect two groups or more similar contacts by using a relay.

3.4继电器的安装Installation of relay

3.4.1 继电器安装时除满足规定的使用条件外，应尽量避免形成悬臂形式，即其主要振动方向不应与衔铁运动方向平行。在衔铁较重且重心与转轴不重合的继电器，（如：大的拍合式继电器。）安装时应尽量使整机转动时产生的离心力不与衔铁运动方向平行外还应避免形成共振现象，可加防振措施。

3.4.2继电器应尽量避免在大变压器、大螺线管或热源附近安装。因为磁场和热源对继电器的工作会产生不利的影响，必要时应加适当的磁屏蔽或散热片、隔热措施。

3.4.3 继电器的引出端虽然具有一定的强度，但都很有限，在安装时切勿弯扭和敲打。因为弯扭和敲打会引起引出端的松动，严重影响继电器的性能。如果是密封继电器，会严重影响其密封性。如果引出端过长影响安装时，用户可以要求继电器生产厂缩短，切不要自行剪断。

3.4.4 对于焊接式引出端，一般都镀锡、银或金以便于焊接，而且继电器标准中都有可焊性试验这一条，所以用户焊接时应用中性焊剂，不应使用酸性焊剂，以防腐蚀；另外不能用纯锡焊接，在使用锡－铅合金时，铅的含量应≥5%，且焊接时的温度不宜过高、时间不宜过长。一般手工焊接时，烙铁应选用30~60W之间，烙铁头温度在300~350℃之间，焊接时间应≤3s。在清洗焊剂时，应防止清洗液或焊剂流入继电器内部，以免造成继电器绝缘不可靠或接触不良等问题。

3.4.1 When install relay, please fix it near the armature iron, never to make a cantilever form, its main vibration direction should not be the same as the running direction of armature iron. When the armature iron is heavier and the gravity center does not coincide with rotating axis of relay, for example: big flap closing type relay, when installation, you shall try to make centrifugal force during machine is running. Besides, try to avoid resonance phenomenon when installation, if need, please make use of anti-vibration measures.

3.4.2 It is better to install the relay far away from big transformer, big solenoid or heat source. Because the magnetic field and heat source has bad effect to relay's normal working, if need, please make use of a suitable magnetic screen or air-cooling fin.

3.4.3 The strength of relay's output terminal is very limit, never to bend or beat it during installation. As bend or beat will cause the output terminal loose and consequently affect relay's performance. When it is hermetically sealed relay, it will largely affect its tightness. But if the output is too long and baffled the normal installation, then users can ask manufacturer to shorten it, and never to cut it by yourselves.

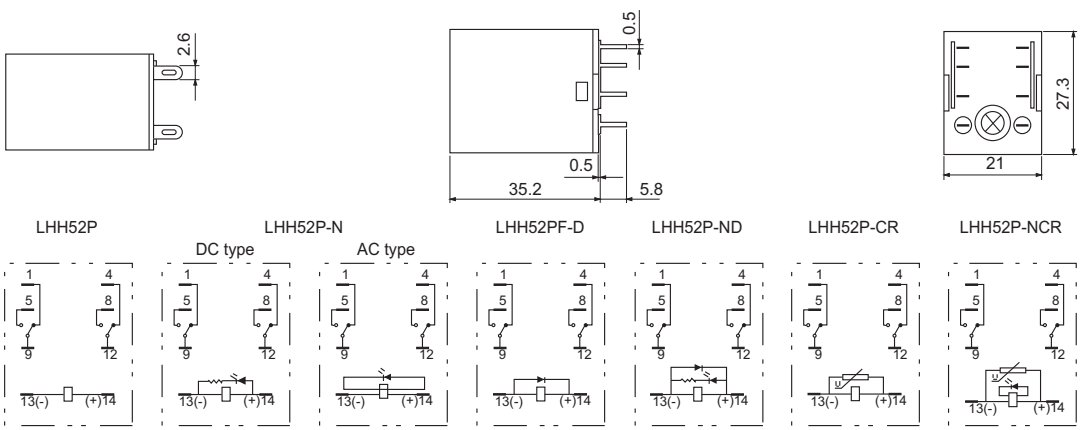
3.4.4The welding type output terminals usually are tin, silver or gold plated to facilitate welding, and every relay standard has the clause of weldability test, so you'd better use neutral flux but not acid flux to avoid unexpected corrosive; Besides, never use pure tin to weld. When use tinsel, the lead content should≥5%, and the temperature should not be too high and the time should not be too long. When manual welding, the soldering iron should within 30~60W, the temperature of welding head should within 300~350℃, and the welding time should≤3s. When cleaning the flux, be careful, never let the cleaning liquid or welding flux come into the relay, so as not to cause problems like non-reliable insulation or loose contact.

LHH 系列 Series



产品型号 Model		LHH52P	LHH53P	LHH54P
外形尺寸(毫米) Dimension(mm)		27.3×21×35.2		
触点形式 Contact Form		2Z 2H 2D	3Z 3H 3D	4Z 4H 4D
触点材料 Contact Material		银合金 Silver alloy		
触点容量阻性 Resistance Performance Of Contactor Capacity		LHH52P/53P:5A/28VDC,5A/240VAC LHH54P:3A/28VDC,3A/240VAC		
线圈功率Coil Power at 23℃	DC(W)	≤0.9W		
	AC(VA)	≤1.2VA		
线圈电压Coil Voltage	DC(V)	6~220V		
	AC(V)	6~380V		
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%		
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%		
最大电压 Max Voltage at 23℃		110%		
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ		
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1000VAC 50Hz/1min 漏电流 Leakage current 1mA		
	触点组间 Contacts pieces	≥1000VAC 50Hz/1min 漏电流 Leakage current 1mA		
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥500MΩ		
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)		
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)		
环境温度 Ambient Temperature		-25℃~+55℃		
引出端形式 Terminal type		插入式Insert type, 焊接式Welding type		
配用插座 Suitable socket		PYF08A PYF08A-E	PYF11A PYF11A-E	PYF14A PYF14A-E
产品重量(g) Product Weight		30g	35g	40g
同类型参照 Same Reference		MY2	MY3	MY4

LHH52P 安装尺寸和接线图 Installation dimensions and connecting diagram



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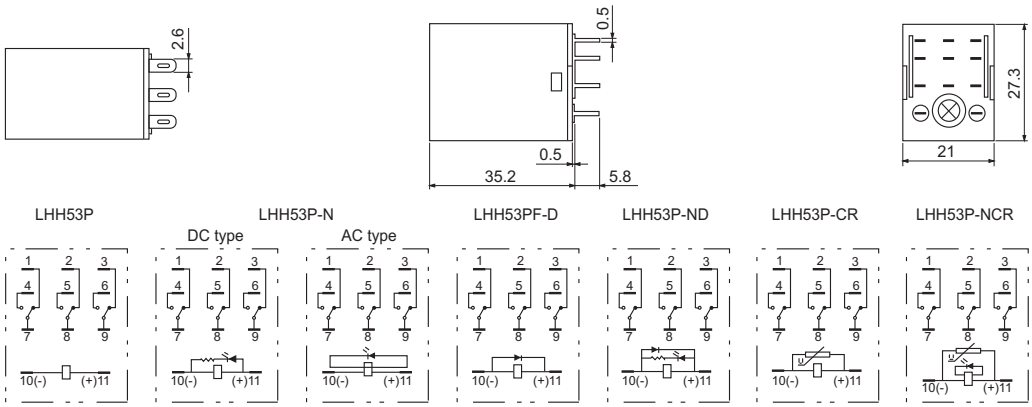
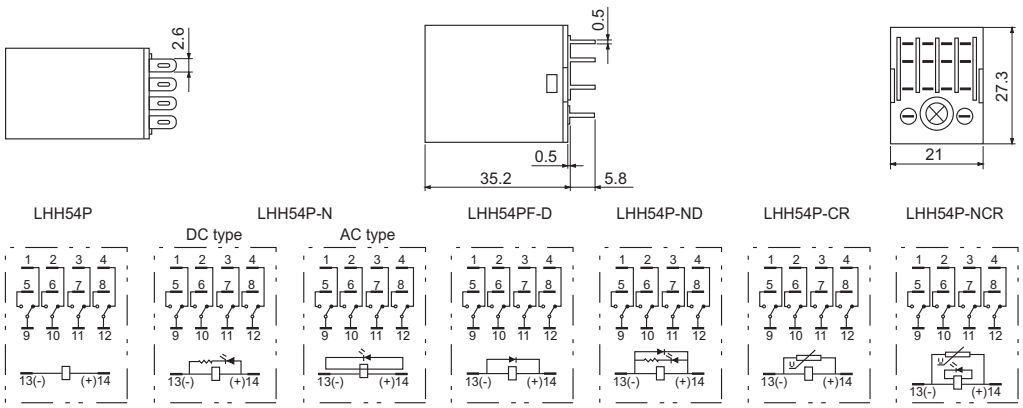
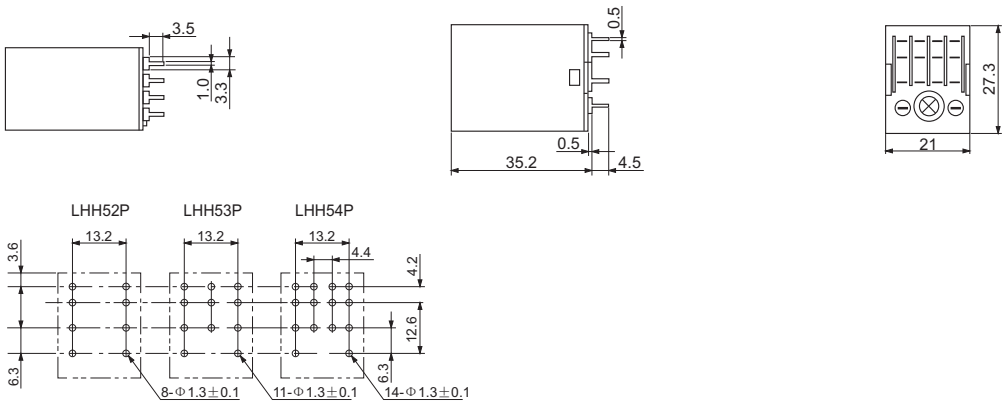


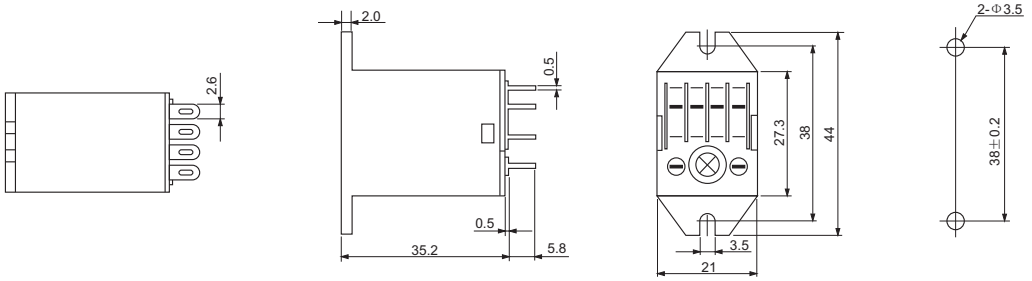
LHH54P 安装尺寸和接线图 Installation dimensions and connecting diagram



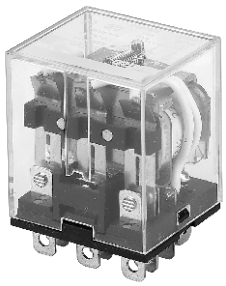
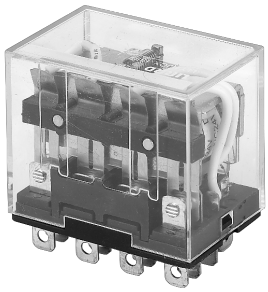
LHH52PP, LHH53PP, LHH54PP 安装尺寸和接线图 Installation dimensions and connecting diagram



LHH52PB, LHH53PB, LHH54PB 安装尺寸和接线图 Installation dimensions and connecting diagram

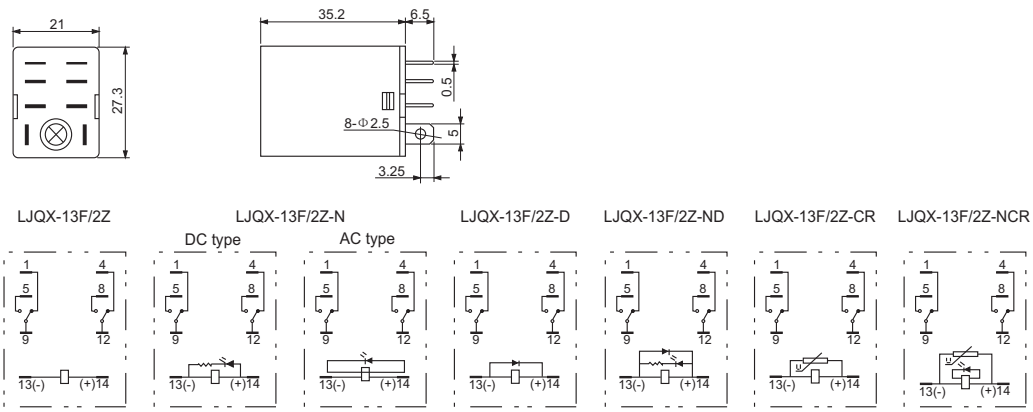


LJQX-13F 系列 Series

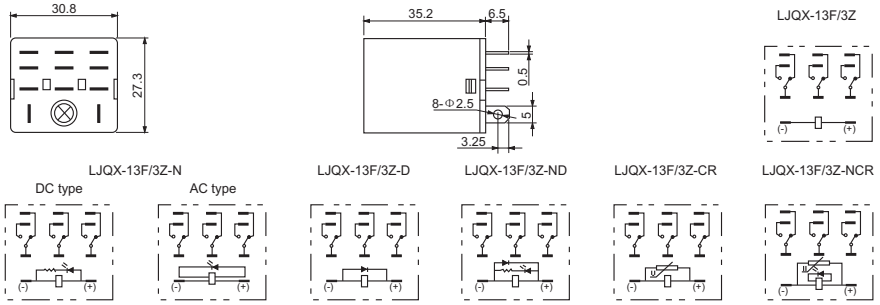




产品型号 Model		LJQX-13F-2Z	LJQX-13F-3Z	LJQX-13F-4Z
外形尺寸(毫米) Dimension(mm)		27.3×21×35.2	30.8×27.3×35.2	41×27.3×35.2
触点形式 Contact Form		2Z 2H 2D	3Z 3H 3D	4Z 4H 4D
触点材料 Contact Material		银合金 Silver alloy		
触点容量阻性 Resistance Performance Of Contactor Capacity		10A/28VDC 10A/240VAC		
线圈功率Coil Power at 23℃	DC(W)	1Z 2Z≤0.9W, 3Z≤1.5W, 4Z≤1.6W		
	AC(VA)	1Z 2Z≤1.2VA, 3Z≤2VA, 4Z≤2.5VA		
线圈电压Coil Voltage	DC(V)	6~220V		
	AC(V)	6~380V		
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%		
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%		
最大电压 Max Voltage at 23℃		110%		
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ		
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA		
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥500MΩ		
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)		
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)		
环境温度 Ambient Temperature		-25℃~+55℃		
引出端形式 Terminal type		插入式Insert type, 焊接式Welding type		
配用插座 Suitable socket		LPTF08A	LPTF11A	LPTF14A
产品重量(g) Product Weight		40g	50g	60g
同类型参照 Same Reference		HH62P、LY2	HH63P、LY3	HH64P、LY4

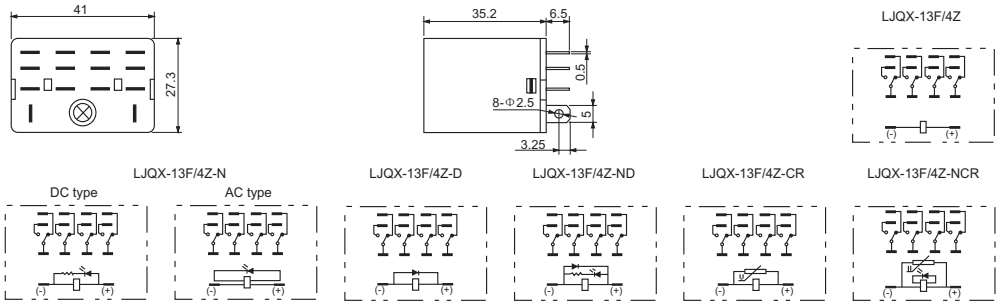
LJQX-13F-2Z 安装尺寸和接线图 Installation dimensions and connecting diagram



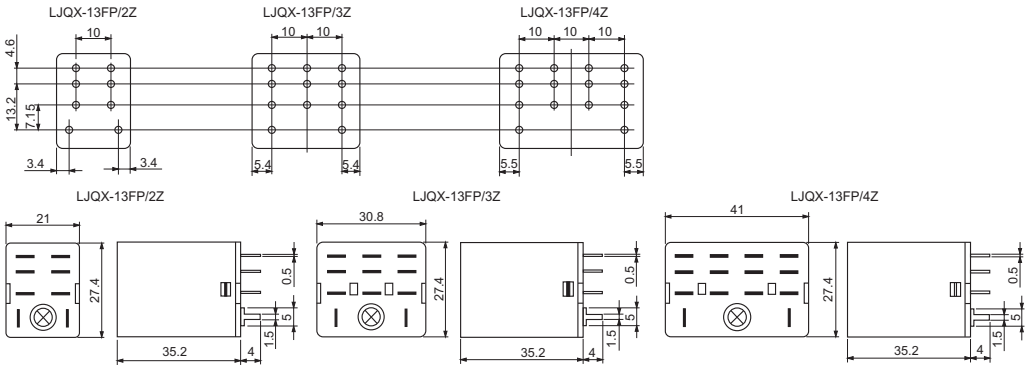
LJQX-13F-3Z 安装尺寸和接线图 Installation dimensions and connecting diagram



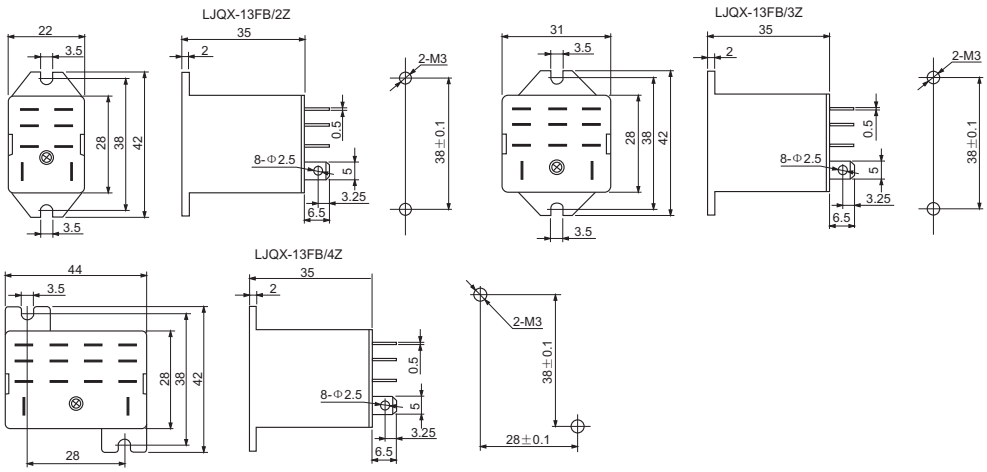
LJQX-13F-4Z 安装尺寸和接线图 Installation dimensions and connecting diagram



LJQX-13FP-2Z、LJQX-13FP-3Z、LJQX-13FP-4Z 安装尺寸和接线图
Installation dimensions and connecting diagram



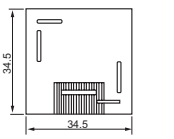
LJQX-13FB-2Z、LJQX-13FB-3Z、LJQX-13FB-4Z 安装尺寸和接线图
Installation dimensions and connecting diagram

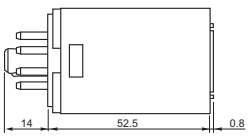


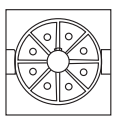
LMK 系列 Series

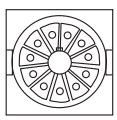
产品型号 Model		LMK-2P	LMK-3P
外形尺寸(毫米) Dimension(mm)		34.5×34.5×52.5	
触点形式 Contact Form		2Z 2H 2D	3Z 3H 3D
触点材料 Contact Material		银合金 Silver alloy	
触点容量阻性 Resistance Performance Of Contactor Capacity		10A/28VDC 10A/250VAC	
线圈功率Coil Power at 23℃	DC(W)	≤1.5W	
	AC(VA)	≤2.5VA	
线圈电压Coil Voltage	DC(V)	6~220V	
	AC(V)	6~380V	
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%	
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%	
最大电压Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ)at 500VDC		≥100MΩ	
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		插入式Insert type	
配用插座 Suitable socket		LPF083A LPF083A-E LPL08	LPF113A LPF113A-E LPL11
产品重量(g) Product Weight		76g	80g
同类型参照 Same Reference		JTX通用 Universal	

LMK 安装尺寸和接线图 Installation dimensions and connecting diagram

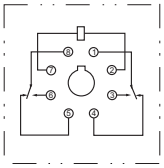




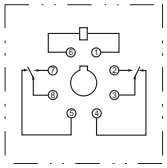




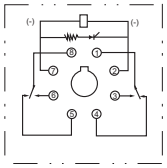
LMK-2P



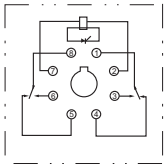
LMK -2PA



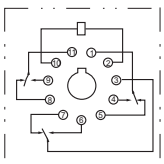
LMK-2P-N



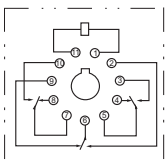
LMK-2P-NC



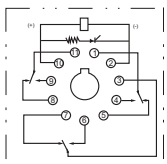
LMK-3LP



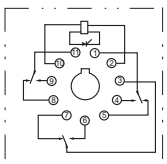
LMK-3LP-2



LMK-3LP-N



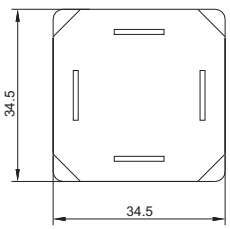
LMK-3LP-NC

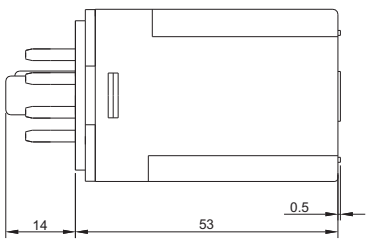


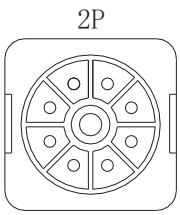
LJQX、LJTX 系列 Series

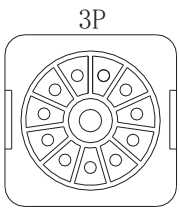
产品型号 Model		LJQX-10F	LJTX
外形尺寸(毫米) Dimension(mm)		34.5×34.5×53	
触点形式 Contact Form		2Z 2H 2D	3Z 3H 3D
触点材料 Contact Material		银合金 Silver alloy	
触点容量阻性 Resistance Performance Of Contactor Capacity		5A/28VDC 5A/250VAC	
线圈功率Coil Power at 23℃	DC(W)	≤2W	
	AC(VA)	≤3.5VA	
线圈电压Coil Voltage	DC(V)	6~220V	
	AC(V)	6~380V	
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%	
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%	
最大电压 Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ)at 500VDC		≥100MΩ	
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^7Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		插入式Insert type	
配用插座 Suitable socket		LPF083A LPF083A-E LPL08	LPF113A LPF113A-E LPL11
产品重量(g) Product Weight		76g	76g
同类型参照 Same Reference			

LJQX-10F、LJTX 安装尺寸和接线图 Installation dimensions and connecting diagram

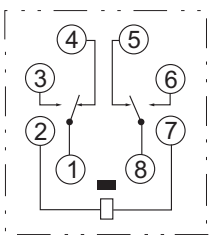




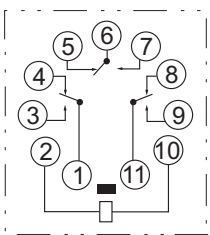




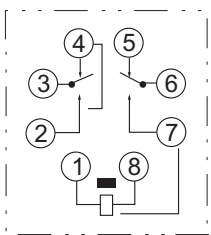
LJQX-10F/2Z



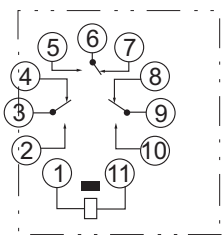
LJQX-10F/3Z



LJTX/2Z



LJTX/3Z



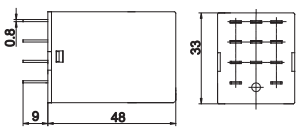
LR11、LR12、LR13 系列 Series

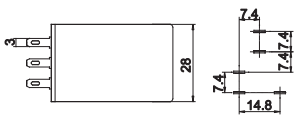


产品型号 Model		LR11P	LR12P	LR13P(PR41)
外形尺寸(毫米) Dimension(mm)		48.0×33.0×28.0		
触点形式 Contact Form		1Z 1H 1D	2Z 2H 2D	3Z 3H 3D
触点材料 Contact Material		银合金 Silver alloy		
触点容量阻性 Resistance Performance Of Contactor Capacity		10A/28VDC 10A/250VAC		
线圈功率Coil Power at 23℃	DC(W)	≤2W		
	AC(VA)	≤3.5VA		
线圈电压Coil Voltage	DC(V)	6~220V		
	AC(V)	6~380V		
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%		
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%		
最大电压 Max Voltage at 23℃		110%		
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ		
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA		
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥500MΩ		
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)		
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)		
环境温度 Ambient Temperature		-25℃~+55℃		
引出端形式 Terminal type		插入式Insert type, 焊接式Welding type		
配用插座 Suitable socket		PR11A		
产品重量(g) Product Weight		73g	80g	87g
同类型参照 Same Reference		LPR41 Series		

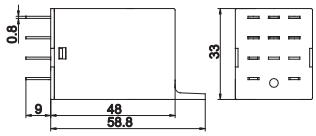
LR11 安装尺寸 Installation dimensions

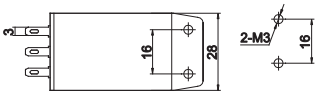
LR11P



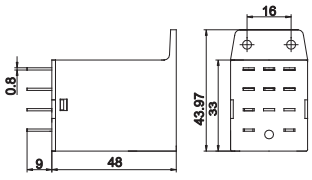


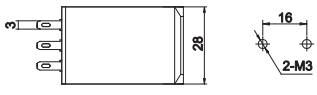
LR11A





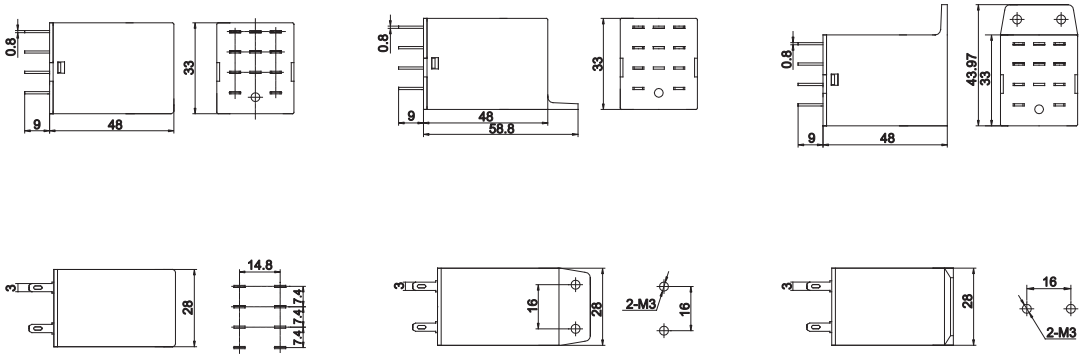
LR11B





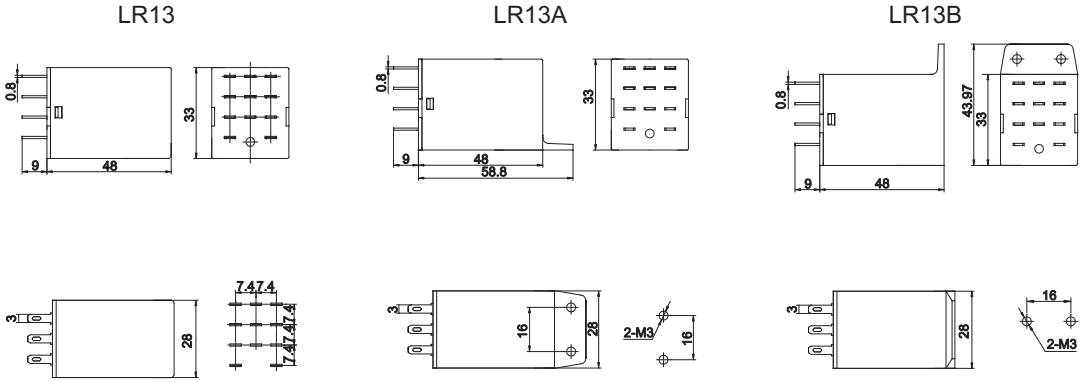
LR12 安装尺寸 Installation dimensions

LR12P LR12A LR12B

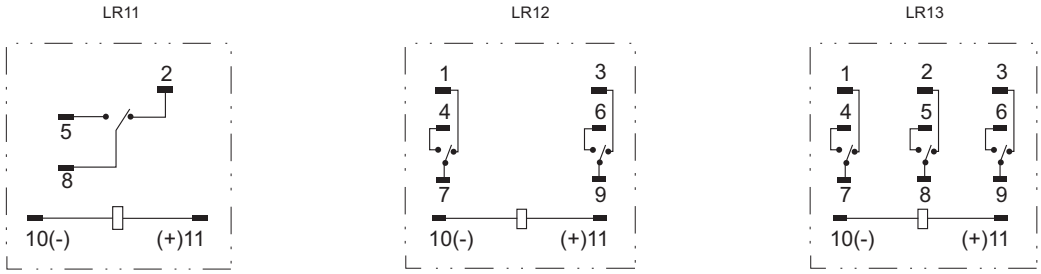


LR13 安装尺寸 Installation dimensions

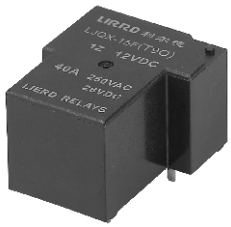
LR13 LR13A LR13B



LR11、LR12、LR13 系列接线图 Connecting diagram Series

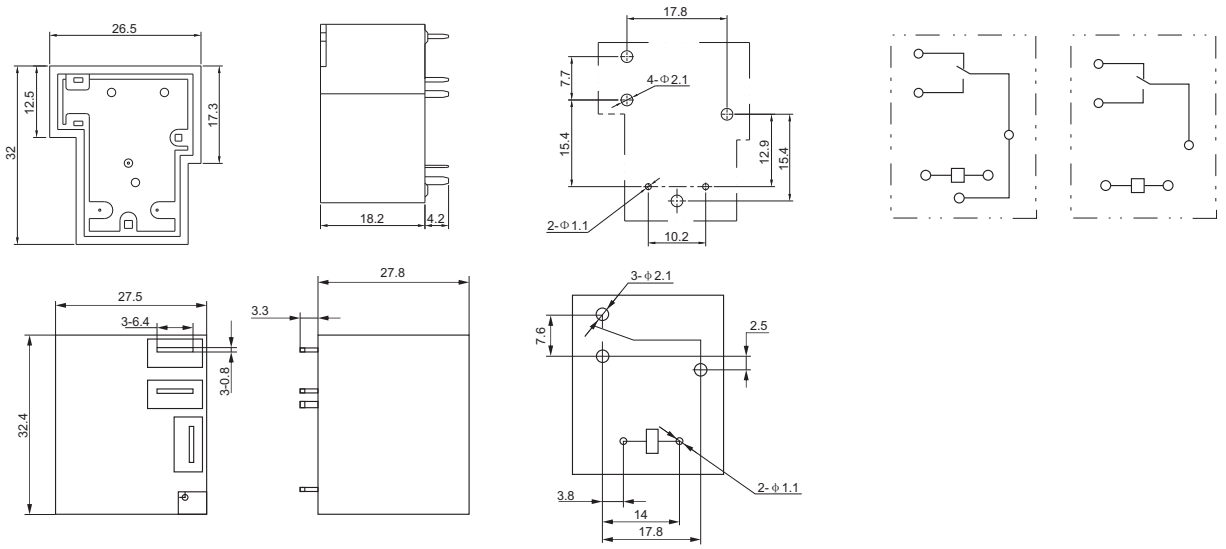


LJQX-15F 系列 Series

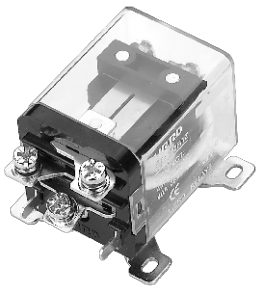


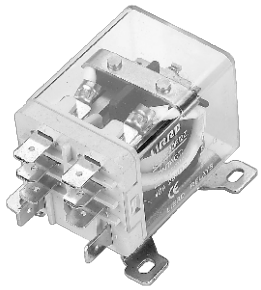
产品型号 Model		LJQX-15F(T90)	LJQX-16F(T91)
外形尺寸(毫米) Dimension(mm)		32×26.5×18.7	32×26.5×27.9
触点形式 Contact Form		1Z 1H 1D	
触点材料 Contact Material		银合金 Silver alloy	
触点容量阻性 Resistance Performance Of Contactor Capacity		30A/40A/28VDC 30A/40A/250VAC	
线圈功率Coil Power at 23℃	DC(W)	≤0.9W	
	AC(VA)	/	
线圈电压Coil Voltage	DC(V)	6~48V	
	AC(V)	/	
吸合电压 Pick-up Voltage at 23℃		DC≤75%	
释放电压 Drop-out Voltage at 23℃		DC≥10%	
最大电压 Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	/	
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ)at 500VDC		≥100MΩ	≥100MΩ
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^5Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		焊接式Welding type	
配用插座 Suitable socket		/	
产品重量(g) Product Weight		25g	30g
同类型参照 Same Reference		T90	T91

LJQX-15F(T90) 、LJQX-16F(T91) 安装尺寸和接线图 Installation dimensions and connecting diagram



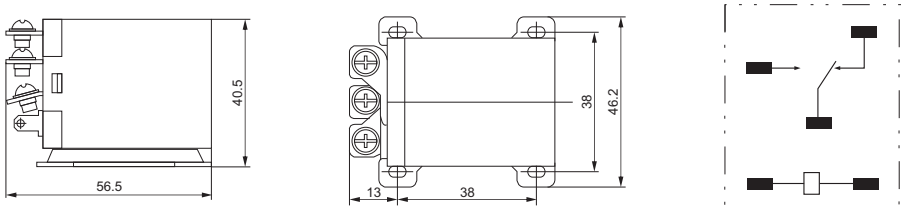
LJQX-30F 系列 Series



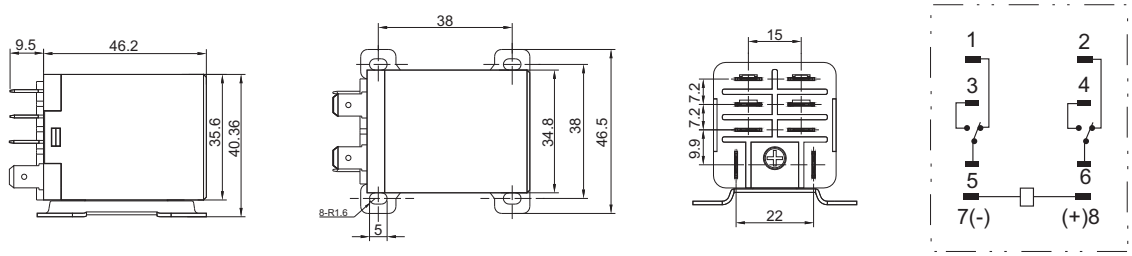


产品型号 Model		LJQX-30F/1Z	LJQX-30F/2Z
外形尺寸(毫米) Dimension(mm)		55.7×46.5×40.4	55.7×46.5×40.4
触点形式 Contact Form		1Z 1H 1D	2Z 2H 2D
触点材料 Contact Material		银合金 Silver alloy	
触点容量阻性 Resistance Performance Of Contactor Capacity		40A/28VDC 40A/250VAC	
线圈功率Coil Power at 23℃	DC(W)	＜2.5W	
	AC(VA)	＜5.5VA	
线圈电压Coil Voltage	DC(V)	6~220V	
	AC(V)	6~380V	
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%	
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%	
最大电压 Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1000VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ)at 500VDC		≥1000MΩ	
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		螺丝端子式 Screw Mounting	焊接式Welding type
配用插座 Suitable socket		/	
产品重量(g) Product Weight		100g	105g
同类型参照 Same Reference			

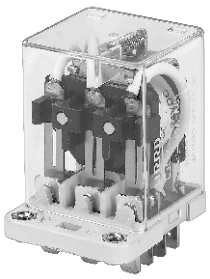
LJQX-30F/1Z 安装尺寸和接线图 Installation dimensions and connecting diagram



LJQX-30F 安装尺寸和接线图 Installation dimensions and connecting diagram

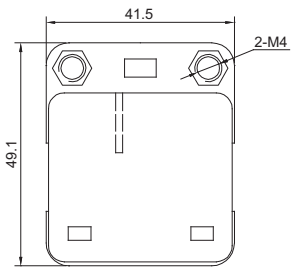


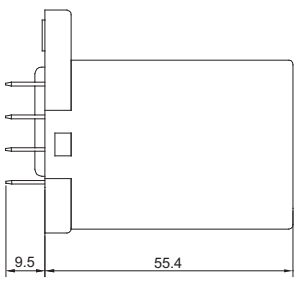
LJQX-38F 系列 Series

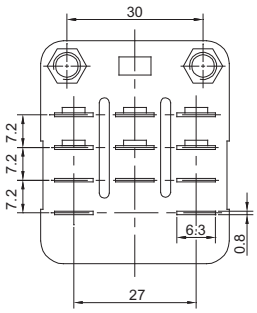


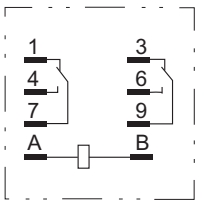
产品型号 Model		LJQX-38F	LJQX-38F/T
外形尺寸(毫米) Dimension(mm)		55.4×41.5×49.1	67.6×37.4×57.3
触点形式 Contact Form		3Z 3H 3D	3Z 3H 3D
触点材料 Contact Material		银合金 Silver alloy	
触点容量阻性 Resistance Performance Of Contactor Capacity		30A/40A/28VDC 30A/40A/250VAC	
线圈功率Coil Power at 23℃	DC(W)	＜1.5W	
	AC(VA)	＜2.5VA	
线圈电压Coil Voltage	DC(V)	6~220V	
	AC(V)	6~380V	
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%	
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%	
最大电压 Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1200VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
	线圈触点间 Between Coil & Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥1000MΩ	
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		插入式Insert type	焊接式Welding type
配用插座 Suitable socket		38F11A	
产品重量(g) Product Weight		130g	135g
同类型参照 Same Reference			

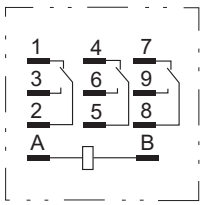
LJQX-38F 安装尺寸和接线图 Installation dimensions and connecting diagram



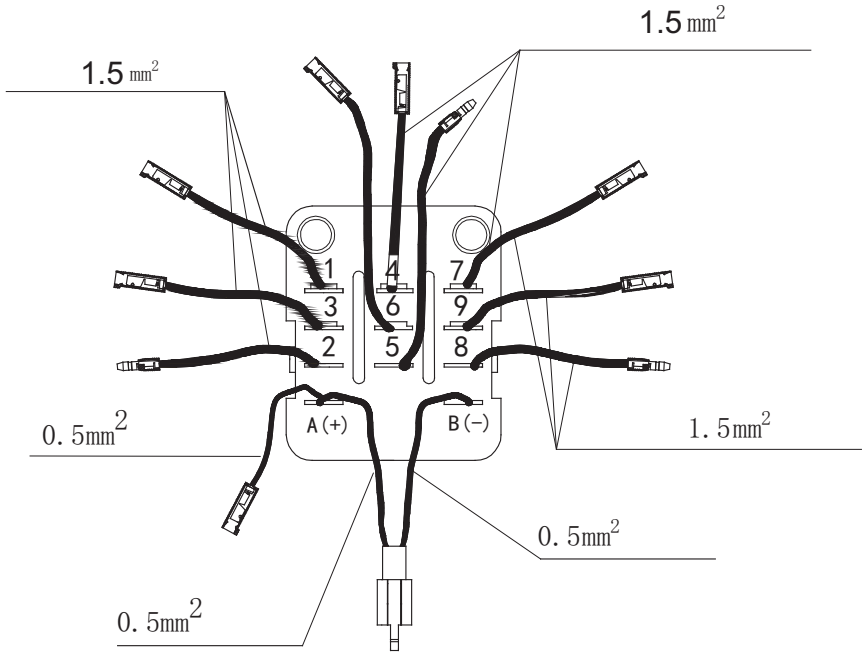




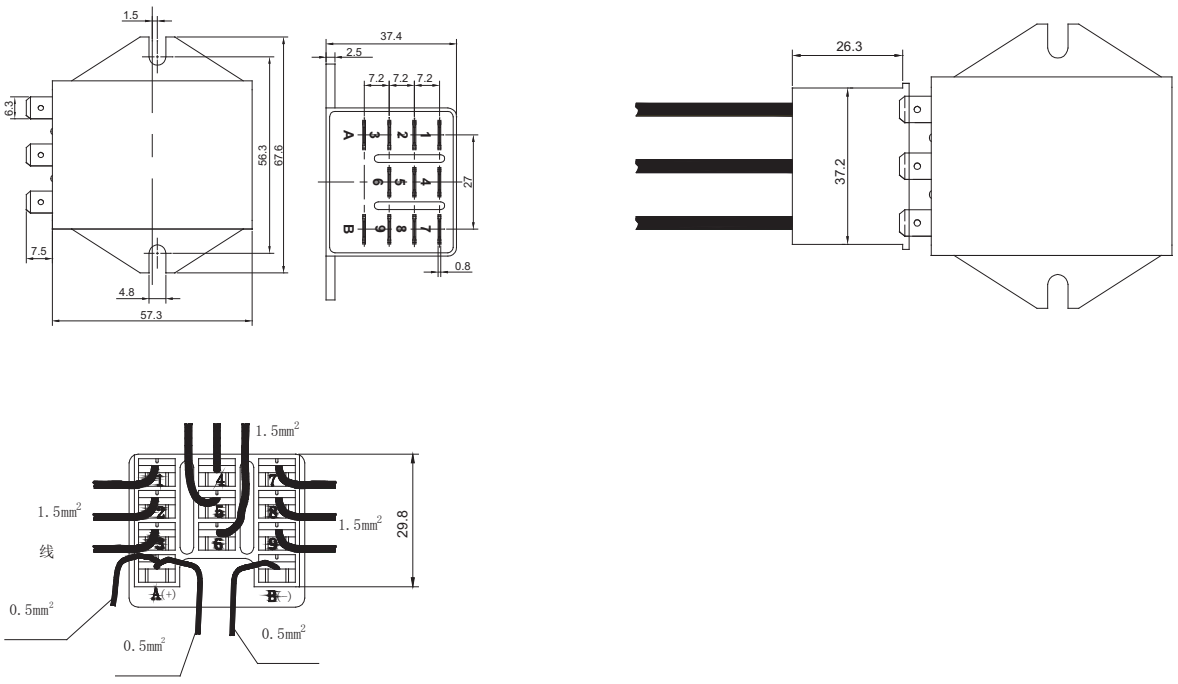




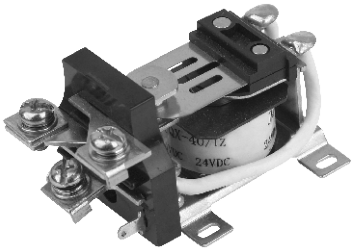
LJQX-38F 接引线式 Connecting lead wire type

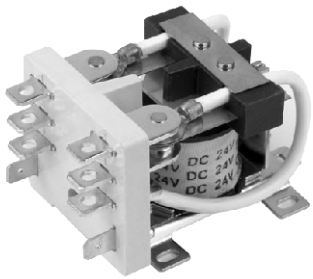


LJQX-38FT 安装尺寸和接线图 Installation dimensions and connecting diagram



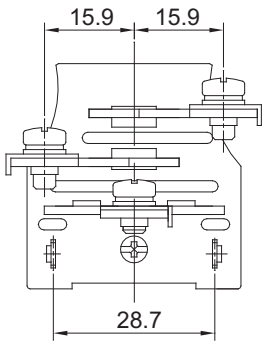
LJQX-40 系列 Series

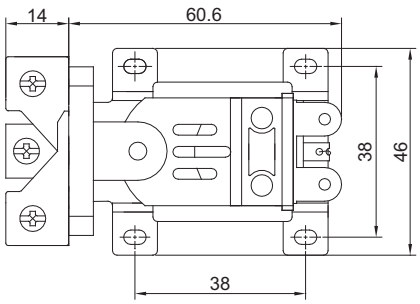


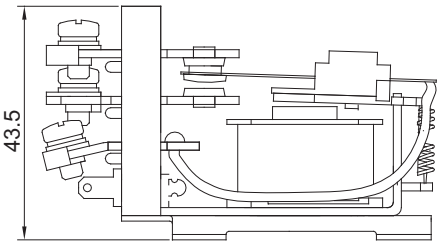


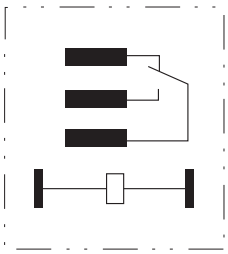
产品型号 Model		LJQX-40	
外形尺寸(毫米) Dimension(mm)		74.6×46.0×43.5	73.7×46.0×46.5
触点形式 Contact Form		1Z 1H 1D	2Z 2H 2D
触点材料 Contact Material		银合金 Silver alloy	银合金 Silver alloy
触点容量阻性 Resistance Performance Of Contactor Capacity		50A/28VDC 50A/250VAC	40A/28VDC 40A/250VAC
线圈功率Coil Power at 23℃	DC(W)	≤2W	≤3.5W
	AC(VA)	≤4VA	≤5.5VA
线圈电压Coil Voltage	DC(V)	6~220V	6~220V
	AC(V)	6~380V	6~380V
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%	
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%	
最大电压 Max Voltage at 23℃		110%	
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ	
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA	
	触点组间 Contacts pieces	≥2000VAC 50Hz/1min 漏电流 Leakage current 1mA	
	线圈触点间 Between Coil & Contacts	≥2500VAC 50Hz/1min 漏电流 Leakage current 1mA	
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥1000MΩ	
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)	
	机械(次) Mechanical	10^5Times(频率Frequency：300次Time/1min)	
环境温度 Ambient Temperature		-25℃~+55℃	
引出端形式 Terminal type		螺丝端子式 Screw Mounting	焊接式Welding type
配用插座 Suitable socket		/	/
产品重量(g) Product Weight		130g	180g
同类型参照 Same Reference			
防护形式 Protection Type		敞开式 Open	敞开式 Open

LJQX-40-1 安装尺寸和接线图 Installation dimensions and connecting diagram

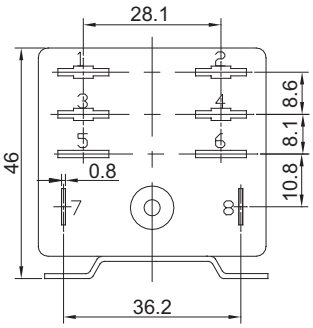


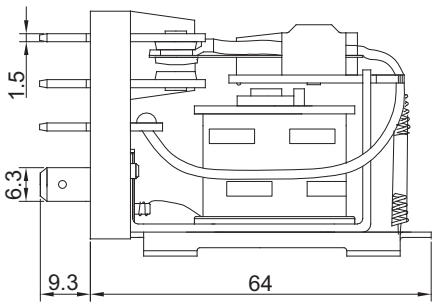


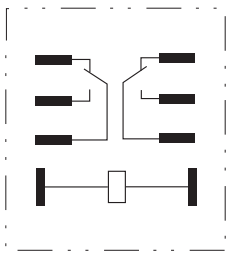


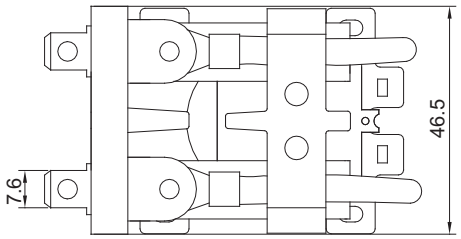


LJQX-40-2 安装尺寸和接线图 Installation dimensions and connecting diagram

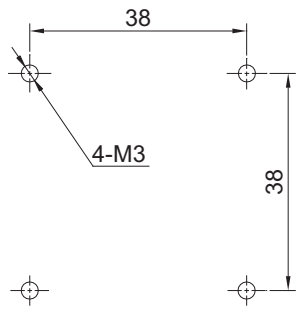




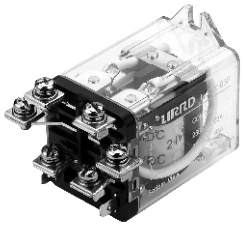
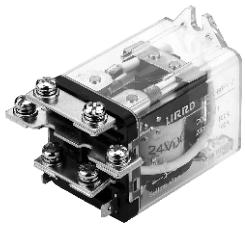




LJQX-40 产品安装尺寸 Installation dimensions



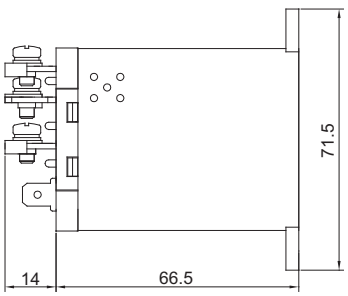
LJQX-59F、LJQX-59FD、LJQX-63F、LJQX-80F 系列 Series

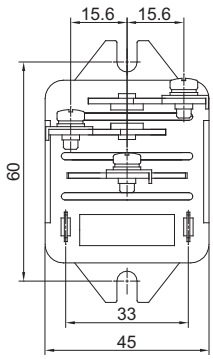




产品型号 Model		LJQX-59F	LJQX-59FD	LJQX-63F	LJQX-80F
外形尺寸(毫米) Dimension(mm)		80.5×45.0×71.5	80.5×45.0×71.5	80.5×62.0×71.5	80.5×62.0×71.5
触点形式 Contact Form		1Z 1H 1D	1Z 1H 1D	2Z 2H 2D	1Z 1H 1D
触点材料 Contact Material		银合金 Silver alloy			
触点容量阻性 Resistance Performance Of Contactor Capacity		80A/28VDC/250AC	120A/28VDC/250AC	60A/28VDC/250AC	100A/28VDC/250AC
线圈功率Coil Power at 23℃	DC(W)	≤4.8W			
	AC(VA)	≤7.5VA			
线圈电压Coil Voltage	DC(V)	6~220V			
	AC(V)	6~380V			
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%			
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%			
最大电压 Max Voltage at 23℃		110%			
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ			
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA			
	触点组间 Contacts pieces	≥2000VAC 50Hz/1min 漏电流 Leakage current 1mA			
	线圈触点间 Between Coil & Contacts	≥2500VAC 50Hz/1min 漏电流 Leakage current 1mA			
绝缘电阻 Insulation Resistance(MΩ)at 500VDC		≥1000MΩ			
工作寿命 Service life	电气(次) Electrical	10⁵Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)			
	机械(次) Mechanical	10⁶Times(频率Frequency：300次Time/1min)			
环境温度 Ambient Temperature		-25℃~+55℃			
引出端形式 Terminal type		螺丝端子式 Screw Mounting			
配用插座 Suitable socket		/			
产品重量(g) Product Weight		235g	270g	230g	275g
同类型参照 Same Reference					

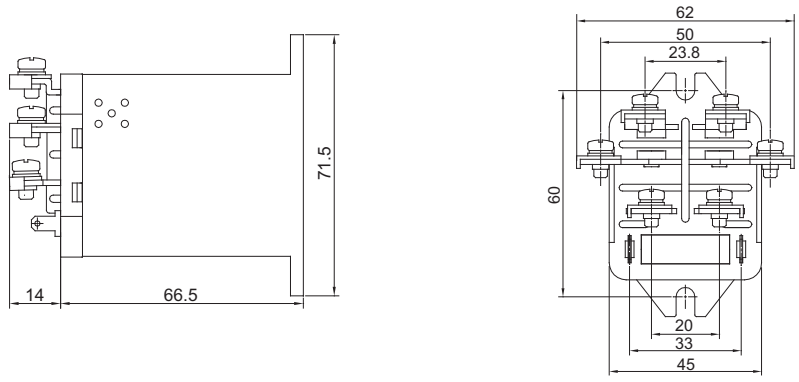
备注：安装时请不要把产品接线面向上，以免灰尘进入，影响继电器正常工作。
Remark: Do not make the connection face of product upward when installing to avoid dust entering into it and affecting relay' normal working.

LJQX-59F、LJQX-59FD 安装尺寸 Installation dimensions

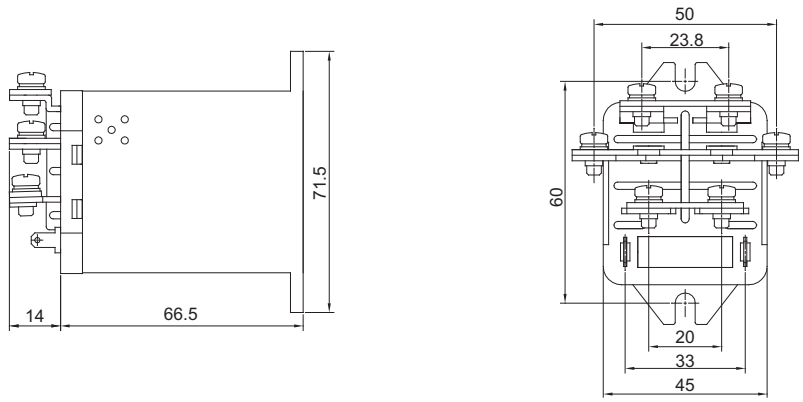




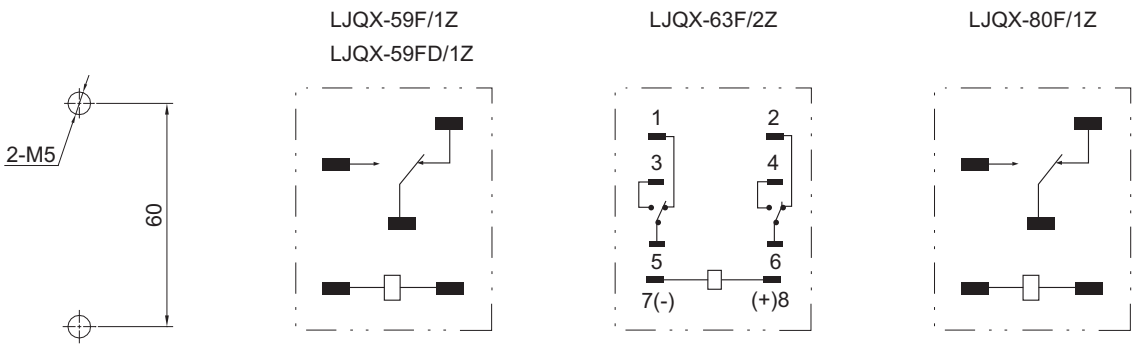
LJQX-63F 安装尺寸 Installation dimensions



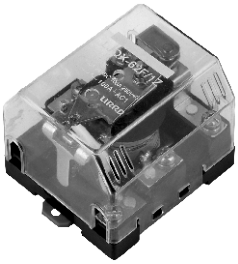
LJQX-80F 安装尺寸 Installation dimensions



产品安装尺寸和接线图 Installation dimensions and connecting diagram

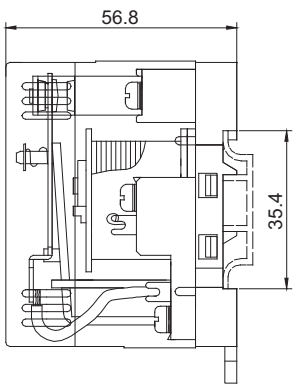


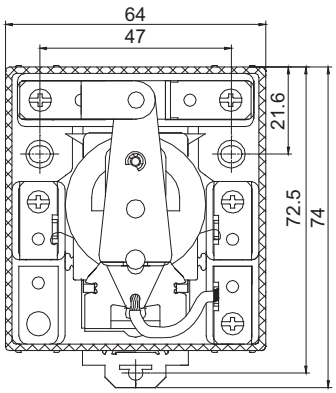
LJQX-62F 系列 Series



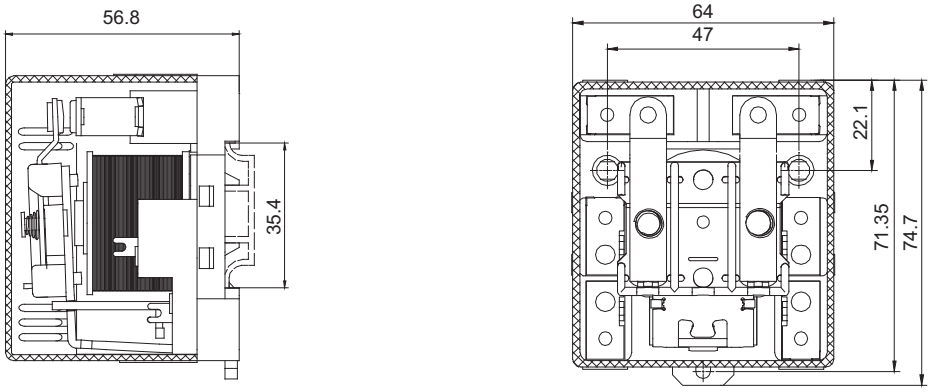
产品型号 Model		LJQX-62F-1Z	LJQX-62F-2H	LJQX-62F-2Z
外形尺寸(毫米) Dimension(mm)		74.0×64.0×56.8	74.0×64.0×54.5	92.7×64.0×54.5
触点形式 Contact Form		1Z 1H 1D	2H	2Z 2D
触点材料 Contact Material		银合金 Silver alloy		
触点容量阻性 Resistance Performance Of Contactor Capacity		100A/28VDC 100A/250VAC		
线圈功率Coil Power at 23℃	DC(W)	≤3W		
	AC(VA)	≤10VA		
线圈电压Coil Voltage	DC(V)	6~220V		
	AC(V)	6~380V		
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%		
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%		
最大电压 Max Voltage at 23℃		110%		
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ		
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA		
	触点组间 Contacts pieces	≥2500VAC 50Hz/1min 漏电流 Leakage current 1mA		
	线圈触点间 Between Coil & Contacts	≥2500VAC 50Hz/1min 漏电流 Leakage current 1mA		
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥1000MΩ		
工作寿命 Service life	电气(次) Electrical	10^5Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)		
	机械(次) Mechanical	10^6Times(频率Frequency：300次Time/1min)		
环境温度 Ambient Temperature		-25℃~+55℃		
引出端形式 Terminal type		螺丝端子式 Screw Mounting		
配用插座 Suitable socket		/		
产品重量(g) Product Weight		240g	245g	300g
同类型参照 Same Reference		JQX-62F		
防护形式 Protection Type		封闭式 Close type		

LJQX-62F-1Z 安装尺寸 Installation dimensions

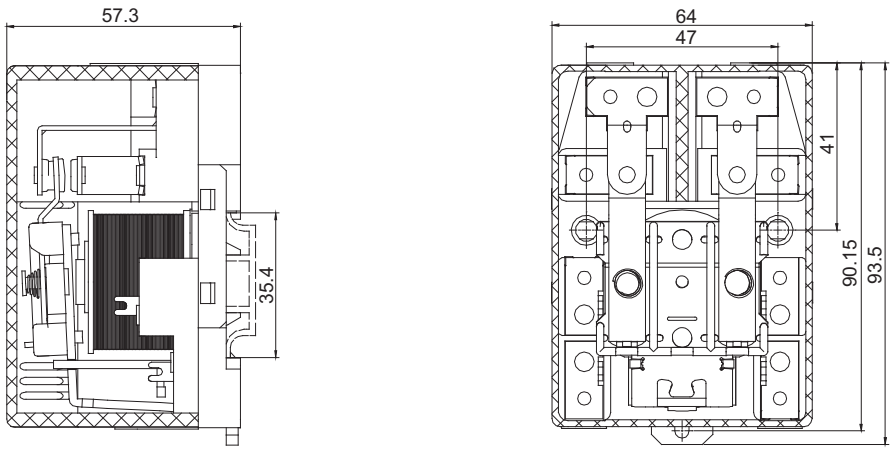




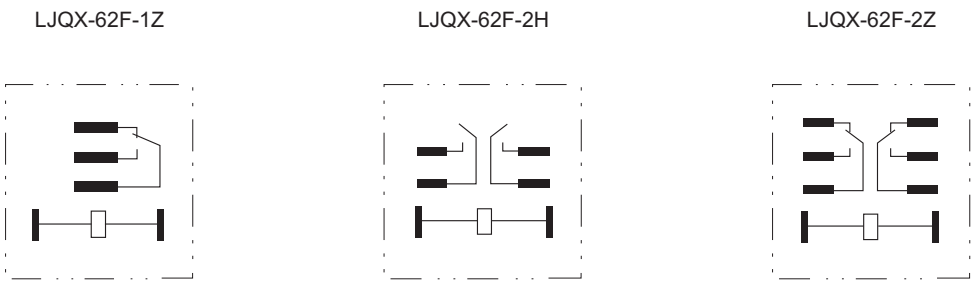
LJQX-62F-2H 安装尺寸 Installation dimensions



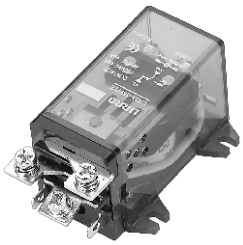
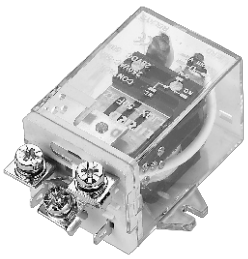
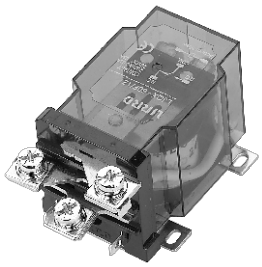
LJQX-62F-2Z 安装尺寸 Installation dimensions



LJQX-62F 接线图 Connecting diagram

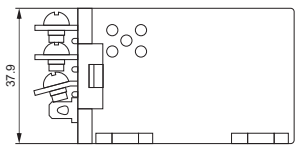


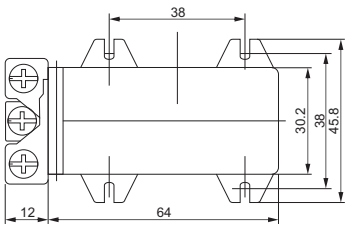
LJQX-60F 系列 Series

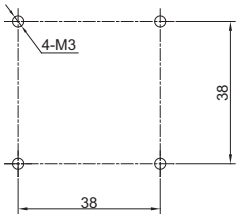




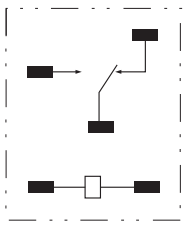
产品型号 Model		LJQX-45F	LJQX-50F	LJQX-60F	LJQX-68F
外形尺寸(毫米) Dimension(mm)		76×46×38	72×40×37.9	78×46×46.5	78×46×46.5
触点形式 Contact Form		1Z 1H 1D	1Z 1H 1D	1Z 1H 1D	1Z 1H 1D
触点材料 Contact Material		银合金 Silver alloy	银合金 Silver alloy	银合金 Silver alloy	银合金 Silver alloy
触点容量阻性 Resistance Performance Of Contactor Capacity		40A/28VDC/250VAC	50A/28VDC/250VAC	60A/28VDC/250VAC	80A/28VDC/250VAC
线圈功率Coil Power at 23℃	DC(W)	≤1.5W	≤1.5W	≤1.8W	≤1.8W
	AC(VA)	≤2.5VA	≤2.5VA	≤4VA	≤4VA
线圈电压Coil Voltage	DC(V)	6~220V			
	AC(V)	6~380V			
吸合电压 Pick-up Voltage at 23℃		DC≤75% AC≤80%			
释放电压 Drop-out Voltage at 23℃		DC≥10% AC≥30%			
最大电压 Max Voltage at 23℃		110%			
接触电阻 Contact Resistance(at 6VDC 1A)		≤100mΩ			
介质耐压 Dielectric Strength	开路触点间 Between Open Contacts	≥1500VAC 50Hz/1min 漏电流 Leakage current 1mA			
	触点组间 Contacts pieces				
	线圈触点间 Between Coil & Contacts	≥2500VAC 50Hz/1min 漏电流 Leakage current 1mA			
绝缘电阻 Insulation Resistance(MΩ) at 500VDC		≥1000MΩ			
工作寿命 Service life	电气(次) Electrical	10⁵Times(频率Frequency：通On1次Time/1S，断Off1次Time/1S)			
	机械(次) Mechanical	10⁶Times(频率Frequency：300次Time/1min)			
环境温度 Ambient Temperature		-25℃~+55℃			
引出端形式 Terminal type		螺丝端子式 Screw Mounting			
配用插座 Suitable socket		/			
产品重量(g) Product Weight		100g	120g	130g	130g
同类型参照 Same Reference					
防护形式 Protection Type		封闭式 Close type			

LJQX-45F 安装尺寸 Installation dimensions

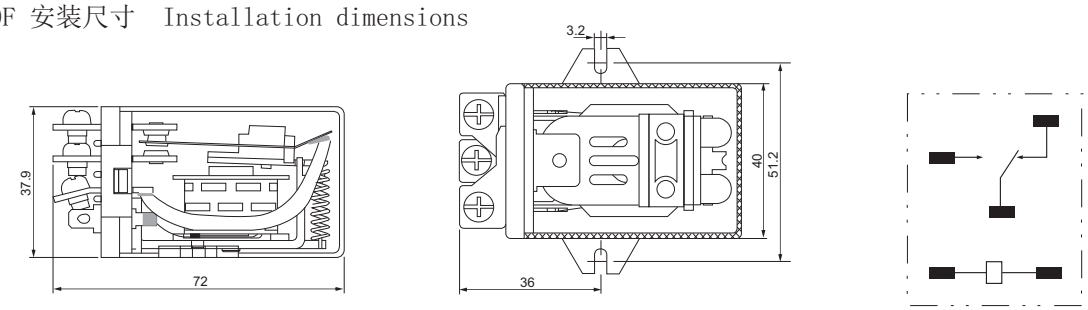








LJQX-50F 安装尺寸 Installation dimensions



LJQX-60F、LJQX-68F 安装尺寸 Installation dimensions