

RTUELEC

瓦恩默电气集团

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12 - 1500Vdc
10 - 1000A

Professional manufacturer of HVDC contactor
高压直流接触器专业制造商

选型 指南



瓦恩默电气股份有限公司

NO. 2021 A 版

RTU ELECTRIC INTRODUCE

RTU Electric group and GR international have jointly invested in China's member company Rtu electric, which has opened R & D centers and production bases in Shanghai, Zhejiang and Shenzhen. Rtu electric undertakes global customer service, and is a leading technology-based enterprise integrating R & D, manufacturing, sales and after-sales. Its core team comes from te, gigavac and Bosch, The company has experienced management and R & D team, which is widely recognized for its continuous innovation, outstanding quality and reliable reliability. It is committed to high-quality electrical components and lithium nano material foreign matter analysis solutions, new energy vehicles and key components in the field of battery materials. The products are widely used in photovoltaic, wind power and new energy Automobile, charging and discharging facilities, intelligent equipment, building equipment, port machinery energy saving, artificial intelligence, remote control, safety monitoring, communication power supply, smart meter, smart home, 5g base station, lithium salt and nano materials. Product line coverage:

Automobile relay, magnetic latching relay, contactor relay, mutual inductor, magnetic material components, vehicle pre charging module, vehicle high voltage distribution unit PDU BDU, and SCM electronic control system development and integration.

We are not only a manufacturer of electrical components, we also help our customers plan strong solutions. The company adheres to the belief of "ensuring customer competitiveness", continuously develops and improves core technology, improves and innovates its own products, enriches product series, and ensures the extension and promotion of core competitiveness.

RTU Electric is committed to providing customers with key products, services and solutions wherever they are to promote business growth and customer satisfaction.

瓦恩默电气集团与GR International在华联合投资成员企业瓦恩默电子、绿继电气，在华现已开设上海、浙江、深圳等分支机构研发中心及生产基地。瓦恩默电气承担全球客户服务集研发、制造、销售和售后为一体的领先技术型企业，核心团队来自TE,GIGAVAC,博世,等世界五百强企业，公司拥有经验丰富的管理和研发团队，以不断的创新、出众的品质和令人信赖的可靠性得到广泛认可，致力于高品质电气部件及锂盐纳米材料异物分析解决方案、新能源车辆及电池材料领域保护类关键部件，产品广泛应用于光伏、风电、新能源汽车、充放电设施、智能装备、建筑设备、港机节能、人工智能、远程控制、安全监控、通讯电源、智能电表、智能家居、5G基站、锂盐及纳米材料等领域。产品线覆盖：

汽车继电器、磁保持继电器、接触器式继电器、互感器、磁性材料组件、车载预充模块、车载高压配电单元PDU BDU、及单机电控系统开发集成。

我们不仅仅是电气元件生产商，我们还协助客户策划强劲的方案。为您量身定做出电路及源头系统解决方案，高效而且低费，公司秉持“确保客户竞争力”的信念，不断研发提高核心技术，完善、创新自身产品，丰富产品系列，保证核心竞争力的延展及提升。

瓦恩默电气集团秉承无论客户在哪里，都致力于为他们提供关键的产品、服务和解决方案，以促进业务增长和客户满意度。

Product line 产品系列	EV10	EV30	EV50	EV100	EV135
Picture 图片					
contact form 触点形式	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开
load current 负载电流	10 A	30 A	50 A	100 A	135 A
Load voltage 负载电压	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc
Dielectric Strength介质耐压 Between contacts触点间	2500Vac 60sec.10ma	2500Vac 60sec.10ma	2500Vac 60sec.10ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma
Dielectric Strength介质耐压 Contact to coil触点与线圈间	2500Vac 60sec.10ma	2500Vac 60sec.10ma	2500Vac 60sec.10ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma
pull-in voltage 吸合电压	75% Max.	75% Max.	75% Max.	75% Max.	75% Max.
Release the voltage 释放电压	8% Min.	8% Min.	8% Min.	8% Min.	8% Min.
Pull in time 吸合时间	25 ms	25 ms	25 ms	25 ms	25 ms
Release time 释放时间	10 ms	10 ms	10 ms	10 ms	10 ms
Coil power 线圈功率	3.5w	3.5w	3.5w	5.5-6w	5.5-6w
Auxiliary contact 辅助触点	No	No	No	Yes	Yes
Electrical durability 电耐久性	50,000	20,000	15,000	10,000	10,000
Mechanical durability 机械耐久性	300,000	300,000	300,000	300,000	200,000
Contact internal resistance 触点内阻	Max.10	Max.5	Max.5	Max.1	Max.1
Vibration 振动	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz
humidity 湿度	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%
Ambient temperature 环境温度	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃
Weight 重量	130g	135g	135g	190g	190g
Dimensions 外形尺寸	52x34x52mm	52x34x52mm	52x34x52mm	55.3x39.8x58mm	55.3x39.8x58mm

Product line 产品系列	EV150	EV200	EV250	EV300	EV350
Picture 图片					
contact form 触点形式	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开
load current 负载电流	150 A	200 A	250 A	300 A	350 A
Load voltage 负载电压	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc
Dielectric Strength介质耐压 Between contacts触点间	3500Vac 60sec.10ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma	4500Vac 60sec.
Dielectric Strength介质耐压 Contact to coil触点与线圈间	3500Vac 60sec.10ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma	3500Vac 60sec.5ma	4500Vac 60sec.
pull-in voltage 吸合电压	75% Max.	75% Max.	75% Max.	75% Max.	75% Max.
Release the voltage 释放电压	10% Min.	10% Min.	10% Min.	10% Min.	10% Min.
Pull in time 吸合时间	30 ms	30 ms	30 ms	30 ms	50 ms
Release time 释放时间	10 ms	10 ms	10 ms	10 ms	10 ms
Coil power 线圈功率	5.5-6w	3-3.5w	3-3.5w	3-3.5w	4w
Auxiliary contact 辅助触点	Yes	Yes	Yes	Yes	Yes
Electrical durability 电耐久性	10,000	10,000	10,000	2,000	8,000
Mechanical durability 机械耐久性	200,000	200,000	200,000	200,000	200,000
Contact internal resistance 触点内阻	Max.1	Max.0.5	Max.0.5	Max.0.5	Max.0.4
Vibration 振动	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz
humidity 湿度	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%
Ambient temperature 环境温度	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃
Weight 重量	310g	400g	400g	400g	1090g
Dimensions 外形尺寸	69x47x63mm	80.3x65.5x73.4mm	80.3x65.5x73.4mm	80.3x65.5x73.4mm	88x80x97.2mm

Product line 产品系列	EV400	EV500	EV600	HEV10	HEV20
Picture 图片					
contact form 触点形式	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开
load current 负载电流	400 A	500 A	600 A	10 A	20 A
Load voltage 负载电压	12-1000Vdc 12-1500Vdc	12-1000Vdc 12-1500Vdc	12-1000Vdc	12-750Vdc	12-750Vdc
Dielectric Strength介质耐压 Between contacts触点间	4500Vac 60sec.	4500Vac 60sec.	4500Vac 60sec.	2500Vac 60sec.10ma	2500Vac 60sec.10ma
Dielectric Strength介质耐压 Contact to coil触点与线圈间	4500Vac 60sec.	4500Vac 60sec.	4500Vac 60sec.	2500Vac 60sec.10ma	2500Vac 60sec.10ma
pull-in voltage 吸合电压	75% Max.	75% Max.	75% Max.	75% Max.	75% Max.
Release the voltage 释放电压	10% Min.	10% Min.	10% Min.	8% Min.	8% Min.
Pull in time 吸合时间	50 ms	50 ms	50 ms	25 ms	25 ms
Release time 释放时间	10 ms	10 ms	10 ms	10 ms	10 ms
Coil power 线圈功率	4w	4w	4w	1.6 w	1.6w
Auxiliary contact 辅助触点	Yes	Yes	Yes	No	No
Electrical durability 电耐久性	6,000	6,000	3,000	10,000	10,000
Mechanical durability 机械耐久性	200,000	200,000	200,000	1,000,000	1,000,000
Contact internal resistance 触点内阻	Max.0.4	Max.0.4	Max.0.4	Max.5	Max.5
Vibration 振动	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz
humidity 湿度	5% to 95%	5% to 95%	5% to 95%	5% to 95%	5% to 95%
Ambient temperature 环境温度	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Weight 重量	1090g	1100g	1100g	60g	60g
Dimensions 外形尺寸	88x80x97.2mm	88x80x97.2mm	88x80x97.2mm	61.8x30x42.7mm	61.8x30x42.7mm

Product line 产品系列	HEV80	HEV100	HEV120	HEV150	HEV175
Picture 图片					
contact form 触点形式	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开
load current 负载电流	80 A	100 A	120 A	150 A	175 A
Load voltage 负载电压	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc
Dielectric Strength介质耐压 Between contacts触点间	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma
Dielectric Strength介质耐压 Contact to coil触点与线圈间	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma
pull-in voltage 吸合电压	75% Max.	75% Max.	75% Max.	75% Max.	75% Max.
Release the voltage 释放电压	8% Min.	8% Min.	8% Min.	8% Min.	10% Min.
Pull in time 吸合时间	30 ms	30 ms	30 ms	30 ms	30 ms
Release time 释放时间	10 ms	10 ms	10 ms	10 ms	10 ms
Coil power 线圈功率	4.5w	4.5w	4.5w	6w	start-up: 34w keep: 3.9w
Auxiliary contact 辅助触点	No	No	No	No	No
Electrical durability 电耐久性	1,000	1,000	1,000	1,000	1,000
Mechanical durability 机械耐久性	200,000	200,000	200,000	200,000	200,000
Contact internal resistance 触点内阻	Max.1	Max.1	Max.1	Max.1	Max.0.5
Vibration 振动	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz
humidity 湿度	5% to 85%	5% to 85%	5% to 85%	5% to 85%	5% to 85%
Ambient temperature 环境温度	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃
Weight 重量	340g	340g	350g	350g	450g
Dimensions 外形尺寸	76.5x39x70mm	76.5x39x70mm	76.5x39x70mm	76.5x39x70mm	88.8x45x83.6mm

Product line 产品系列	HEV200	HEV250	HEV300	HEV350	HEV400
Picture 图片					
contact form 触点形式	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开	SPST-NO 单刀单掷,常开
load current 负载电流	200 A	250 A	300 A	350 A	400 A
Load voltage 负载电压	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc	12-1000Vdc
Dielectric Strength介质耐压 Between contacts触点间	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma	4000Vac 60sec.10ma
Dielectric Strength介质耐压 Contact to coil触点与线圈间	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma	3000Vac 60sec.10ma
pull-in voltage 吸合电压	75% Max.	75% Max.	75% Max.	75% Max.	75% Max.
Release the voltage 释放电压	10% Min.	10% Min.	10% Min.	10% Min.	10% Min.
Pull in time 吸合时间	30 ms	30 ms	30 ms	30 ms	30 ms
Release time 释放时间	10 ms	10 ms	10 ms	10 ms	10 ms
Coil power 线圈功率	start-up: 34w keep: 3.9w	start-up: 34w keep: 3.9w	start-up: 34w keep: 3.9w	start-up: 45w keep: 3.8w	start-up: 45w keep: 3.8w
Auxiliary contact 辅助触点	No	No	No	No	No
Electrical durability 电耐久性	1,000	1,000	1,000	1,000	1,000
Mechanical durability 机械耐久性	200,000	200,000	200,000	200,000	200,000
Contact internal resistance 触点内阻	Max.0.5	Max.0.5	Max.1	Max.1	Max.1
Vibration 振动	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz	5G 10-500Hz
humidity 湿度	5% to 85%	5% to 85%	5% to 85%	5% to 85%	5% to 85%
Ambient temperature 环境温度	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃	-40℃ to +85℃
Weight 重量	480g	480g	480g	810g	810g
Dimensions 外形尺寸	88.8x45x83.6mm	88.8x45x83.6mm	88.8x45x83.6mm	112.2x64.7x78.7mm	112.2x64.7x78.7mm

RTU ELECTRIC EV RELAY NOTE

瓦恩默电气 EV继电器产品注意事项

Please refer to the general catalog for technical terms and specific cautions for use

请参阅技术规格书和具体注意事项

1.Pick-up and drop-out voltages should be adjusted to the ambient conditions and temperature for the application of your product.

吸合电压和释放电压可能会随着环境温度和使用条件而发生变化，因此在使用产品时敬请注意。

2.The repeated turn-off of the coil (during inrush time or in high coil current) when a Contactor is powered may cause damage to the Contactor (built-in electric circuit block).So the coil should not be turned off during the process of inrush.

当接触器带电时，线圈（在励磁涌流或高线圈电流）上的重复关闭，可能会造成接触器损坏（内置节能电路板产品）。所以线圈不应浪涌的过程中被关闭。

3.Lifetime is specified under the standard test conditions (temperature 15°C to 35°C , humidity 25 to 86%RH) and is determined according to load type, operation frequency,coil driving circuit, and ambient conditions.Also note that contact terminals have polarity.

关于开闭寿命在温度在15°C-35°C，湿温相对度在25%~86%下是确定的，还取决于它的负载类型和操作频率。线圈驱动电路和周围的环境条件。还要注意到终端有无极性。因此连接线圈和触点时应按接线图操作。带节能板的品种装有一个反向浪涌吸收电路，因此不必再使用浪涌保护器，我们建议不带节能板的品种安装压敏电阻作为浪涌保护器，应避免采用二极管，因为这会降低产品的切断能力。

4.The Contactor that hits a hard surface may be disabled.

当接触器撞到一个坚硬的表面后不得使用。

5.The slow escalation of the coil voltage may cause the relay unable to be turned on.

在进行动作电压测试或检验时，不能逐渐增加线圈电压方式加电，而应以阶跃信号加电，否则可能会导致继电器无法动作或参数超差情况。

6.Therefore allow coil the voltage quickly.After the product is connected, about 0.1 seconds, the coil starts automatically switch, do not repeat the shutdown in that position, which may damage the contact

避免它的交叉连接，可能导致故障或者过热。产品接通后，约0.1秒后，线圈开始自动切换，不要在那个位置重复关断，这样做可能会损坏接触器

7.Avoid the cross-connection for it may cause malfunctioning or overheating.When the screw and nut are tightened to the fixed Contactor housing or main circuit terminal, it should be used within the range of torque specified in the catalog; Also Use the bus bar or wire appropriate to the specific current.

为了避免交叉连接可能会引起故障或过热，当螺丝和螺母拧紧到固定接触器或主电路，应该参照目录中规定的扭矩范围内使用；此外，母线和特定的电流如下：

10A type: min. 2.0 mm²以上

30A type: min. 6.0 mm²以上

50A type: min. 15.0 mm²以上

100A type: min. 35 mm²以上

150A type: min. 50 mm²以上

200A type: min. 95 mm²以上

250A type: min. 120 mm²以上

350A type: min. 185mm²以上

400A type: min. 240mm²以上

各个部位的螺钉锁紧扭矩请控制在下述的规定范围内，在超过范围的情况下，可能会造成破损。

此外，安装方向不受限制。

继电器紧固件安装扭力

The locking torque of each part of the screw should be controlled within the following specified range. In case of exceeding the range, it may cause damage.

In addition, the installation direction is not limited.

Installation torque of relay fastener

M4螺钉screw : 1.8Nm~2.7Nm

M5螺钉screw : 3Nm~4Nm

M5螺母screw : 3Nm~4Nm

M6螺母screw : 6Nm~8Nm

M8螺母screw : 10Nm~12Nm

8. If relays are closely mounted or placed close to a heat-generating object, carefully check the abnormal temperature rise and the distance of insulation between the terminals outside the relay, and keep the distance between relays to the minimum of 10mm.

如果继电器紧密安装或者放置接近发热物体时，请仔细检查异常升温 and 绝缘之间的距离。
如果是外置终端继电器，继电器之间的距离至少要有10毫米。

9. Be careful in handling the relay when using or storing it in a high temperature environment since the relay contacts are encapsulated in an inert atmosphere.

因为继电器触点被封装在一种惰性气体环境中，所以在高温条件下使用或者保管继电器应该小心放置。

10. If the nominal voltage and current are continuously applied to the coil and a relay is switched off and then on immediately, the coil temperature will rise, leading to the improvement of the relay coil resistance. This will make the pull-in voltage soar to surpass the nominal value. To avoid such situation, it is recommended to take precautions such as increasing load current, restricting time to apply voltage, applying high coil voltage and then nominal voltage, etc.

如果接触器的线圈和触点连续通以额定电压（或电流），电源被切断后又马上接通，此时由于线圈的温度增加，线圈的电阻会增大，从而使得产品的吸合电压升高，有可能导致超出额定吸合电压，在这种情况下，应采取以下措施：如降低负载电流，限制持续通电时间或采用比额定吸合电压高的线圈电压。为避免这种情况，要求采取预防措施，比如增加负载电流、约束电压使用时间、使用高电压线圈、额定电压等等。

11. In case of using a capacitive load (C-load), take precautions such as pre-charging to the capacitive load in order to prevent the inrush current from exceeding the rated current

万一使用容性负载，提前采取措施，比如对容性负载进行预充电以防止电流涌入超过额定电流。

12. In case of using an inductive load of $L/R \geq 1\text{ms}$, take precautions such as putting surge absorbers in parallel in order to avoid the shortening of electrical life or mis-contact-related problem

在使用 $L/R \geq 1$ 感性负载的情况下，应采取预防措施，如将浪涌吸收器和继电器并联以避免缩短电器寿命或MIS接触相关的问题

13. Avoid placing the product in a strong magnetic field (near the transformer or magnet), or near the object with heat radiation.

避免把产品安装在强磁场的地方（靠近变压器或磁铁处），或靠近有热辐射的物体。

14. The diffusion life of the internal gas is sealed by the sealing chamber. The diffusion life of the gas is determined by the temperature of the contact chamber (i.e., the ambient temperature and the contact point). Therefore, the ambient temperature is -40 to $+85$.

内部气体的扩散寿命 本接触器采用密封仓触点，仓内充有气体，气体的扩散寿命由触点仓内的温度（即环境温度 + 触点通电产生的温升）所决定，因此应确保环境温度为 -40 至 $+85^\circ\text{C}$ 。

15. RTU Electric is Committed to Providing Defect-free Products, GR Elec International will request the purchaser information about the product such as specification, final destination, application environment of final product, installation method, etc.

瓦恩默电气致力于提供最好的产品，它将会收集购买者的产品信息，比如：规格、使用目的、产品的使用环境、安装方法等等。

16. If the purchaser is concerned about the risks of personal injury, death or property damage in the process of installing and using the product, RTU Electric will suggest the purchaser to be fully aware of the conditions and requirements stated in the specification and to take safety measures - for instance, double-circuit.

如果客户觉得安装和使用产品时会有受伤和死亡的危险，瓦恩默电气建议买家阅读说明书，仔细了解产品规格书要求的使用条件，适当地采取安全措施，比如：双回路电流切换



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