



郑州众智科技股份有限公司
SMARTGEN(ZHENGZHOU) TECHNOLOGY CO., LTD.

ATS PRODUCT CATALOGUE 双电源产品选型样册



郑州众智科技股份有限公司

SMARTGEN(ZHENGZHOU) TECHNOLOGY CO., LTD.

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V 1.0



Chinese WeChat Service Account
官微中文服务号



English WeChat Service Account
官微英文服务号



SmartGen Products App
众智产品APP

www.smartgen.com.cn www.smartgen.cn

2017-2018



SMARTGEN TECHNOLOGY

About Us 关于我们

SMARTGEN(ZHENGZHOU) TECHNOLOGY CO., LTD. was established in 1998, a company which was listed on NEEQ. It specializes in design, development, manufacture, sale and service of engine/genset control, ATS and ATS control, engine heaters, battery chargers and related products. And it is one of the most influential equipment manufacturers in the genset industry around the world.

After 20 years of development, SmartGen has successively developed hundreds of control modules with independent intellectual property rights and obtained almost 300 patents, to provide the most valuable product solutions for global customers.

SmartGen has multiple firsts in China: it is one of the earliest enterprises in R&D and production of genset controller and ATS controller; it is the only enterprise whose genset controller through the German MTU certification; it is the earliest enterprise pioneered in the development and production of integrated genset parallel controller...

SmartGen, which owns more than 50 offices or agencies in domestic and overseas, is committed to providing satisfied products and services for customers. We will continue to innovate and self-transcend, strive to be the most trustworthy international brand!

Enterprise Spirit: Self-improvement and unity make perfect.

Enterprise Vision: Grow to be the most trusted brand in the industry and equip every piece of equipment of the world with a more intelligent brain!

郑州众智科技股份有限公司成立于1998年，是新三板上市企业。专业从事发动机/发电机组智能控制、双电源切换开关及智能控制、发动机机体加热器、蓄电池充电器等相关产品的设计、研发、制造、销售和服务，是全球发电机组行业最具影响力的设备制造商之一。

历经20年的发展，我们共研发出几百种具有自主知识产权的控制模块，获得了近300项专利，以确保持续为全球客户提供最具价值的产品解决方案。

众智科技拥有中国多个第一，中国最早从事发电机组控制器、双电源切换控制器研发和生产的企业之一，中国唯一一家发电机组控制器通过德国MTU认证的公司，中国最早研发出一体化发电机组并联控制器.....

众智科技在全球设立50多个办事处或代理机构，致力于向客户提供满意的产品和服务。我们将一如既往的不断创新与自我超越，争取成为全球发电机组行业最值得信赖的国际品牌！

企业精神：自强不息，众智成城。

企业愿景：成长为行业最值得信赖的品牌，为世界上每一台设备都装配一颗更加智能的心！



SmartGen Test Room 众智试验室



SmartGen Test Room / 众智试验室



Prototype Test Room / 发电机组真机试验室



Test System of Distributed Solar-diesel Hybrid Generation
分布式光油互补发电试验系统

SmartGen Test Room covers an area of nearly 1,000 square metres. With gradual improvements for years, it has become one of the handful of top-ranking test bases in the industry at present.

In order to meet requirements of various products, the continuous capital injection of testing center has totalled up to over 10 million yuan. Besides, we successively purchased multiple sets of advanced test equipment from well-known enterprises at home and abroad. At present, the main test types include EMC test, environmental tests and functional tests.

众智试验室占地面积近千平方米。历时多年的逐渐完善，目前已经成为了行业内屈指可数的一流试验基地。

为了适应各种产品要求，测试中心近年来持续注资一千多万，先后从国内外知名企业采购多套高精尖测试设备。

目前主要测试类型包括：EMC电磁兼容性测试、环境类测试、功能类测试。

Enterprise Honor 企业荣誉



ISO 9001
质量管理体系认证



ISO 14001
环境管理体系认证



OHSAS 18001
职业健康安全管理体系认证



Marine Certificate
of Type Approval
中国船社认证
发明专利证书



Certificate of
Invention Patent
发明专利证书



AAAA级
Good Standardizing
Practice Certificate
标准化良好行为证书



CE Certificate
CE证书



CCC Certificate
CCC证书



Software Copyright
软件著作权登记证书



UL Certificate
UL证书



Intellectual Property
Management System
Certificate
知识产权管理体系证书



High-tech Enterprise Certificate
高新技术企业证书

HAT160

ATS CONTROL MODULES 双电源控制模块



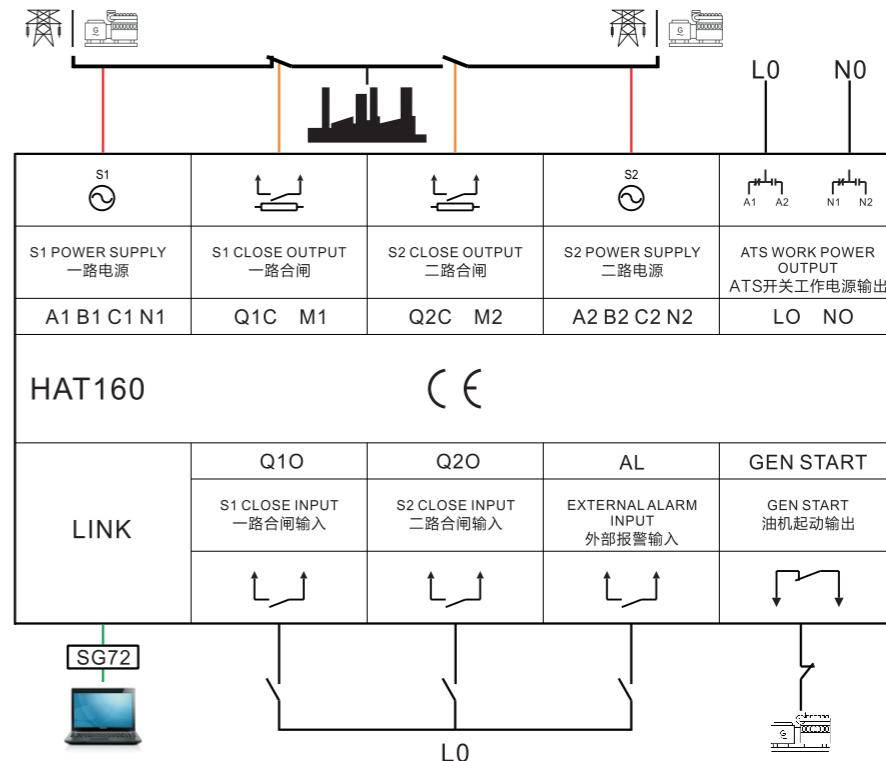
MAJOR FUNCTIONS/主要功能

- ▶ Suitable for CB ATS of single motor;
适用于控制各种容量的单电操作CB级ATS转换开关;
- ▶ Fire reset interface. When the input port is enabled, ATS will automatically transfer to Breaking (OFF) Position;
设有强制分断输入口(消防复位), 当输入口有效时, ATS 开关会自动切换到分断(中间)位;
- ▶ Automatic Re-closing;
设有断电再扣功能;
- ▶ Close delay, delay is 0.5s;
设有过合闸延时功能, 延时时间 0.5s;
- ▶ Can send signal to start the genset after abnormal of 1# power;
具有一路电源异常后发出起动发电机组信号的功能;
- ▶ Over/under voltage, over/under frequency and loss of phase protection;
具有过压、欠压、过频、欠频、缺相检测功能;
- ▶ Close/Open failure alarm;
具有合/分闸失败报警指示;
- ▶ LEDs mounted on front panel can clearly show ATS running status;
面板 LED 可清楚显示开关工作状态;
- ▶ Auto/Manual mode. In manual mode, ATS can be switched by pressing front panel button;
设有自动/手动模式切换, 在手动模式下, 通过前面板按键可实现手动ATS切换;
- ▶ 1# Priority, 2# Priority (auto change, auto recovery), No Priority (auto change, manually recovery) can be set via panel buttons;
通过面板按键可设置 ATS 供电优先级(1#电源优先/2#电源优先(自投自复)、无优先级(自投不自复));

TECHNICAL PARAMETERS/技术参数

Model/型号	HAT160
Application Scenario/应用场合	Works for single operation switch of CB class 适用于CB级单电操作开关
AC System/交流制式	1P2W/3P4W
Alternator Voltage/交流电压范围	(170~277)V(ph-N)
Alternator Frequency/交流频率	50/60Hz
Protect Function/保护功能	With over/under voltage,over/under frequency and loss of phase 过压、欠压、过频、欠频、缺相
Working Voltage/工作电源	AC240V
Applicable Switch Type/适合开关类型	One Motor Operation/单电操
Operating Temp./工作温度(°C)	-25~+70
Cass Dimensions/外形尺寸(mm)	86.9*158*119.5 (L*W*H)
Panel Cutout/安装尺寸(mm)	73.5*144
Product's QR code/产品二维码	

FUNCTIONS DESCRIPTION/功能描述



HAT310

ATS CONTROL MODULES 双电源控制模块



MAJOR FUNCTIONS/主要功能

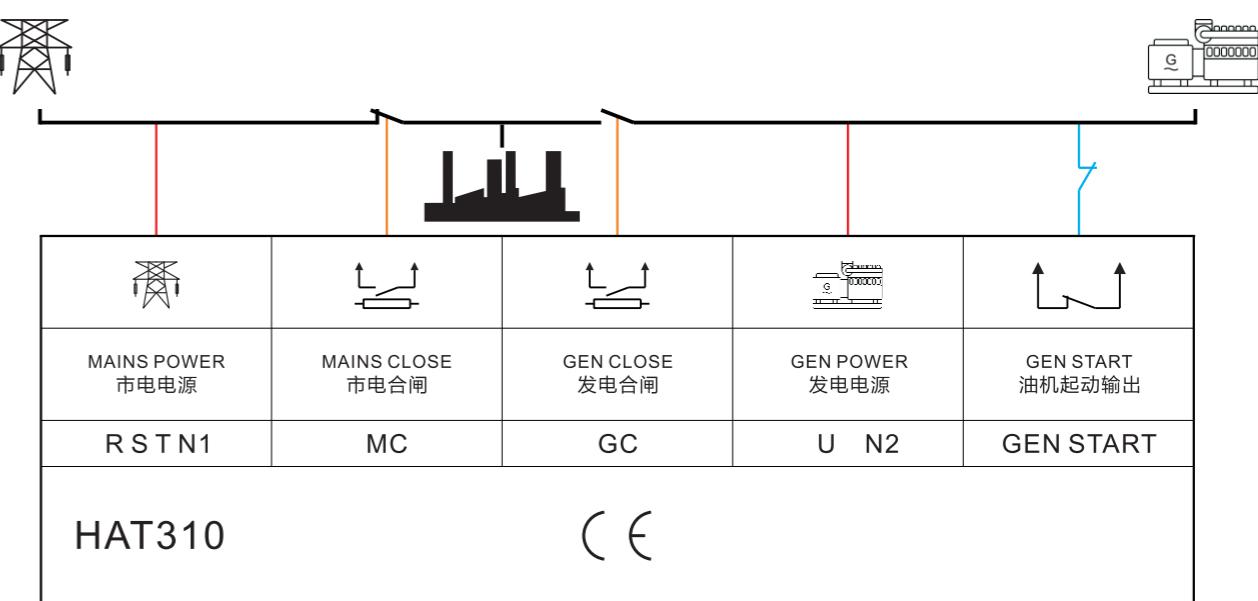
- ▶ Can detect mains 3-phase 4-wire voltage/generation single-phase voltage, control ATS switch when mains under voltage and loss of phase. Applicable to PC two-stage, CC ATS switch (close signal for continuous output);
可检测市电三相四线电压/发电单相电压，当市电出现欠压和缺相时经延时后控制ATS切换。适用于PC两段式、CC级ATS转换开关（合闸信号为持续输出）；
- ▶ With auto change, auto recovery function;
具有自投自复功能；
- ▶ Mains without electricity, can send signal to start the genset when any phase voltage is lower than the minimum operating voltage or loss of phase;
市电无电，任一相电压低于最小工作电压或缺相时发出起动发电机组信号；
- ▶ With under voltage, loss of phase protection;
具有欠压和缺相检测功能；
- ▶ LEDs mounted on front panel can clearly show ATS running status;
面板LED指示灯可清楚显示开关工作状态；

- ▶ Two ways of N-line separation design;
两路N线分离设计；
- ▶ The normal delay of mains and generation can be set via potentiometer;
市电和发电正常延时可通过电位器设置；

TECHNICAL PARAMETERS/技术参数

Model/型号	HAT310
Application Scenario/应用场合	Works for one mains and one generator, three-phase mains and single phase power switching 适用于一市一机，市电三相发电单相切换系统
AC System/交流制式	Gens 1P2W&Mains 3P4W / 发电1P2W&市电3P4W
Alternator Voltage/交流电压范围	(160~280)V(ph-N)
Alternator Frequency/交流频率	50/60Hz
Protect Function/保护功能	With under voltage and loss of phase/欠压、缺相
Working Voltage/工作电源	AC240V
Applicable Switch Type/适合开关类型	PC Two-stage and CC/PC两段式、CC级
Operating Temp./工作温度(°C)	-25~+70
Cass Dimensions/外形尺寸(mm)	110*77.5*55 (L*W*H)
Panel Cutout/安装尺寸(mm):	65*65.1
Product's QR code/产品二维码	

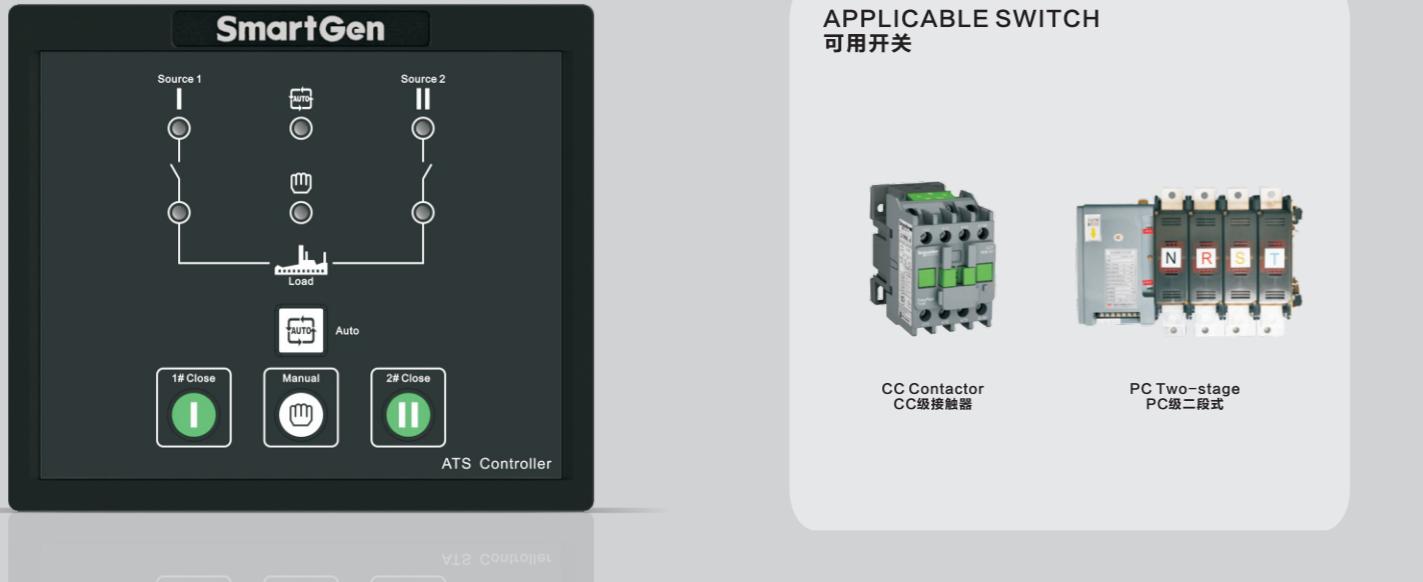
FUNCTIONS DESCRIPTION/功能描述



ATS CONTROL MODULES / 双电源控制模块

HAT520N

ATS CONTROL MODULES 双电源控制模块



MAJOR FUNCTIONS/主要功能

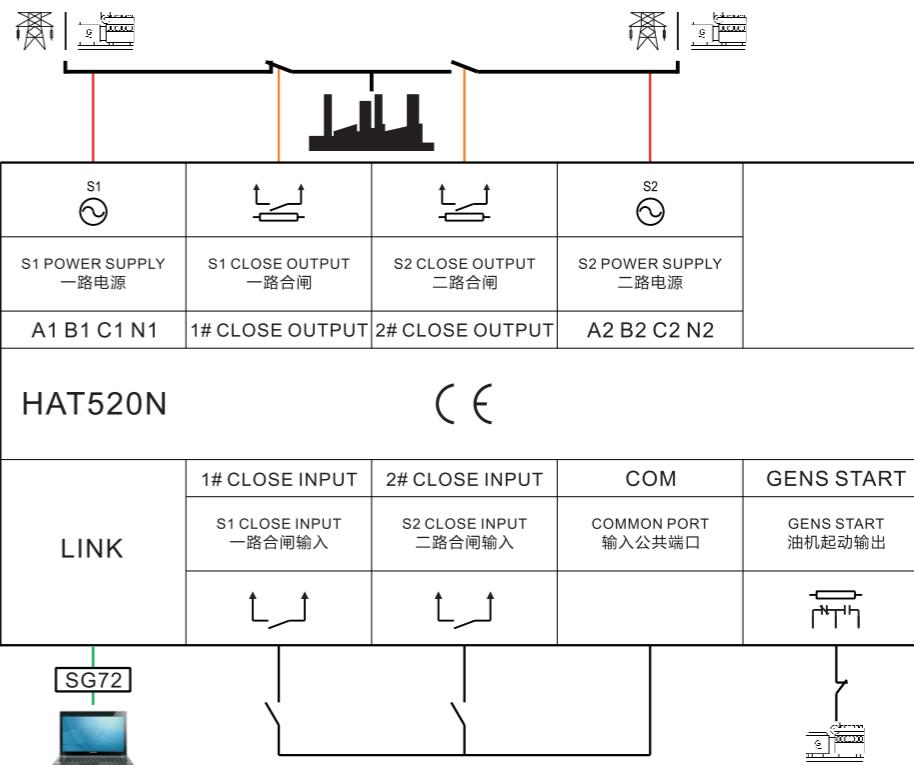
- ▶ Can monitor 2-way 3-phase 4-wire voltage, 2-way 2-phase 3-wire and single-phase 2-wire voltage and control ATS.
控制器可对两路三相四线电压、两路二相三线电压、单相二线电压进行检测及ATS控制。适用于控制一个无分断位ATS开关;
- ▶ Over/under voltage, loss of phase, phase sequence wrong, over/under frequency protection function;
具有过压、欠压、缺相、逆相序、过频、欠频检测功能;
- ▶ Closing output signal can be set as on intervals or as continuous output;
合闸输出可设为脉冲或持续输出;
- ▶ Can send signal to start the genset after abnormal of 1# power;
具有一路电源异常延时后发出起动发电机组信号的功能;
- ▶ The Genset start delay and stop delay can be set;
发电机组起动延时和停机延时可设置;
- ▶ Parameters can be set via PC software;
通过上位机测试软件可设置控制器运行参数;
- ▶ The voltage normal delay of 1# or 2# can be set;
1#电源或2#电源正常延时和异常延时可设置;
- ▶ "1# power priority", "2# power priority", "No priority" and "Auto/Manual" can be set via controller front panel;
通过面板按键可进行“1#电源切换优先”、“2#电源切换优先”、“无优先”、“自动/手动”等参数设置;
- ▶ LEDs mounted on front panel can clearly show ATS running status;
面板LED可清楚显示开关工作状态;

ATS CONTROL MODULES / 双电源控制模块

TECHNICAL PARAMETERS/技术参数

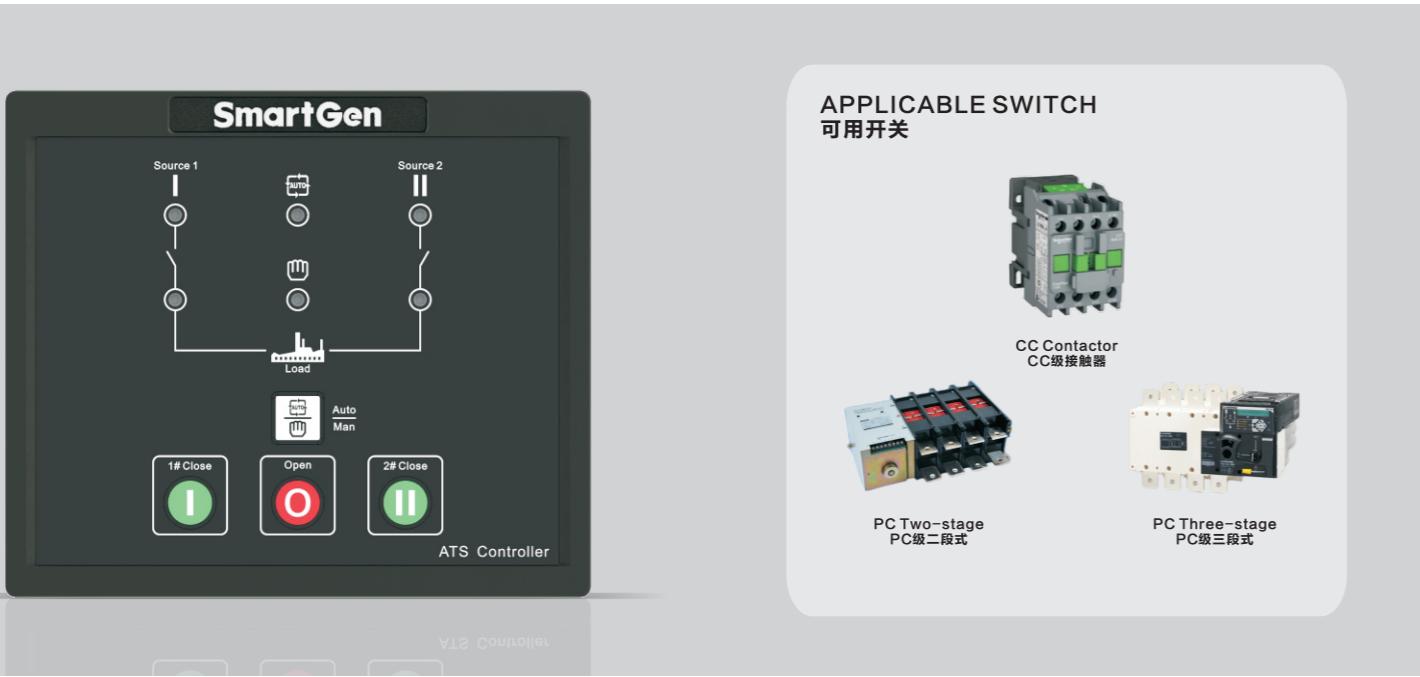
Model/型号	HAT520N
Application Scenario/应用场景	Works for two-stage switch without middle position of PC class 适用于PC级两段式无中间位开关
AC System/交流制式	1P2W/2P3W/3P4W
Alternator Voltage/交流电压范围	(170~277)V(ph-N)
Alternator Frequency/交流频率	50/60Hz
Protect Function/保护功能	With over/under voltage, loss of phase, reverse phase sequence and over/under frequency 过压、欠压、缺相、逆相序、过频、欠频
Working Voltage/工作电源	AC(170~277)V
Applicable Switch Type/适合开关类型	PC Two-stage and CC/PC两段式、CC级
Operating Temp./工作温度(°C)	-25~+70
Cass Dimensions/外形尺寸(mm)	139*120*50 (L*W*H)
Panel Cutout/安装尺寸(mm):	130*111
Product's QR code/产品二维码:	

FUNCTIONS DESCRIPTION/功能描述



HAT530N

ATS CONTROL MODULES 双电源控制模块



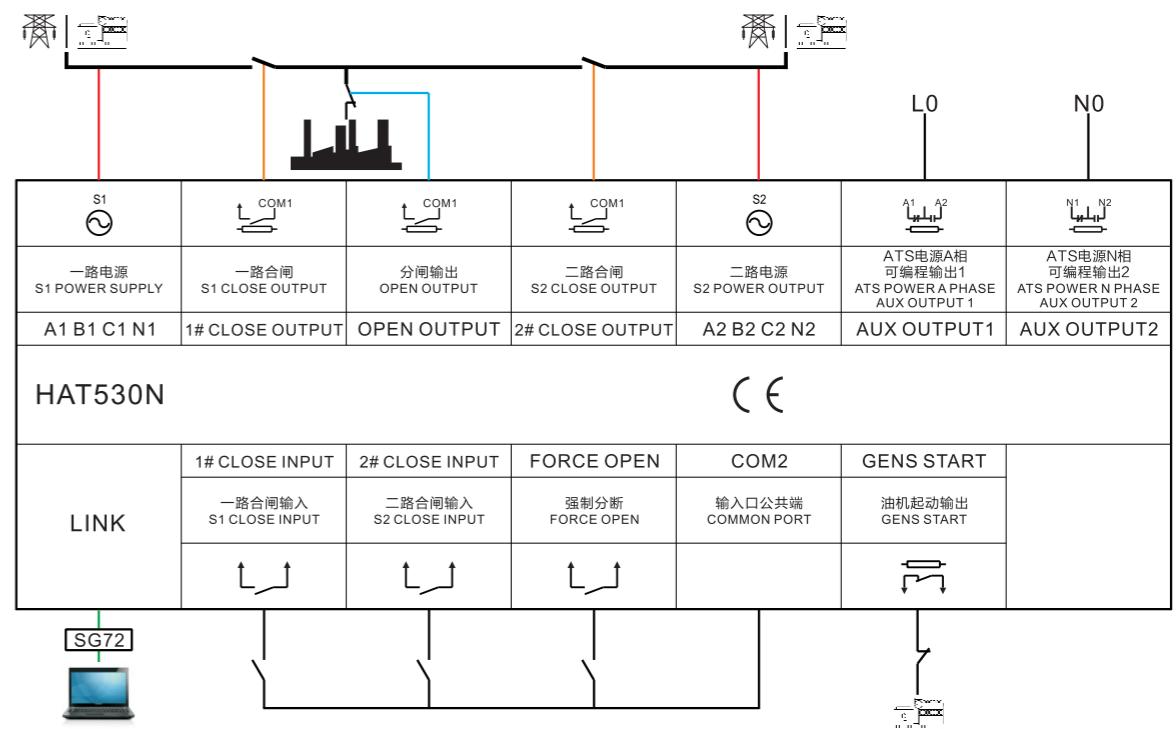
MAJOR FUNCTIONS/主要功能

- ▶ Can detect 2-way 3-phase, 2-way single phase voltage and make accurate judgment on abnormal voltage and control ATS to transfer after the delay has expired; 检测两路三相电压、两路单相电压，对出现的电压异常做出准确的判断，经延时后控制ATS切换。
- ▶ Suitable for NO Breaking ATS and ONE Breaking ATS; 适用于控制一个分断位、无分断位ATS开关；
- ▶ Over/under voltage, loss of phase, phase sequence wrong, over/under frequency protection function; 具有过压、欠压、缺相、逆相序、过频、欠频检测功能；
- ▶ Forced Open input port been designed; When the input port is active, the switch will be Breaking position forcedly (works for the ATS with Breaking Position); 设计有消防强制分断输入口，当输入口有效时，强制开关到分断位(只对有分断位的ATS开关有效)；
- ▶ Can send signal to start the genset after abnormal of 1# power; 具有一路电源异常延时后发出起动发电机组信号的功能；
- ▶ The Genset start delay and stop delay can be set; 发电机组起动延时和停机延时可设置；
- ▶ Parameters can be set via PC software; 通过上位机测试软件可设置控制器运行参数；
- ▶ The voltage normal delay and abnormal delay of 1# or 2# can be set; 1#电源或2#电源正常延时和异常延时可设置；
- ▶ “1# power priority”, “2#power priority”, “No priority” and “Auto/Manual” can be set via controller front panel; 通过面板按键可进行“1#电源切换优先”、“2#电源切换优先”、“无优先”、“自动/手动”等参数设置；
- ▶ LEDs mounted on front panel can clearly show ATS running status; 面板LED可清楚显示开关工作状态；

TECHNICAL PARAMETERS/技术参数

Model/型号	HAT530N
Application Scenario/应用场合	Works for three-stage switch with middle position of PC class 适用于PC级三段式有中间位开关
AC System/交流制式	1P2W/2P3W/3P4W
Alternator Voltage/交流电压范围	(170~277)V(ph-N)
Alternator Frequency/交流频率	50/60Hz
Protect Function/保护功能	With over/under voltage, loss of phase, reverse phase sequence and over/under frequency 过压、欠压、缺相、逆相序、过频、欠频
Working Voltage/工作电源	AC(170~277)V
Applicable Switch Type/适合开关类型	CC and PC/CC级、PC级
Programmable Output/可编程输出口	2
Operating Temp./工作温度(°C):	-25~+70
Cass Dimensions/外形尺寸(mm):	139*120*50 (L*W*H)
Panel Cutout/安装尺寸(mm):	130*111
Product's QR code/产品二维码	

FUNCTIONS DESCRIPTION/功能描述



ATS CONTROL MODULES / 双电源控制模块

HAT560N(NC/NB/NBC)

ATS CONTROL MODULES
双电源控制模块

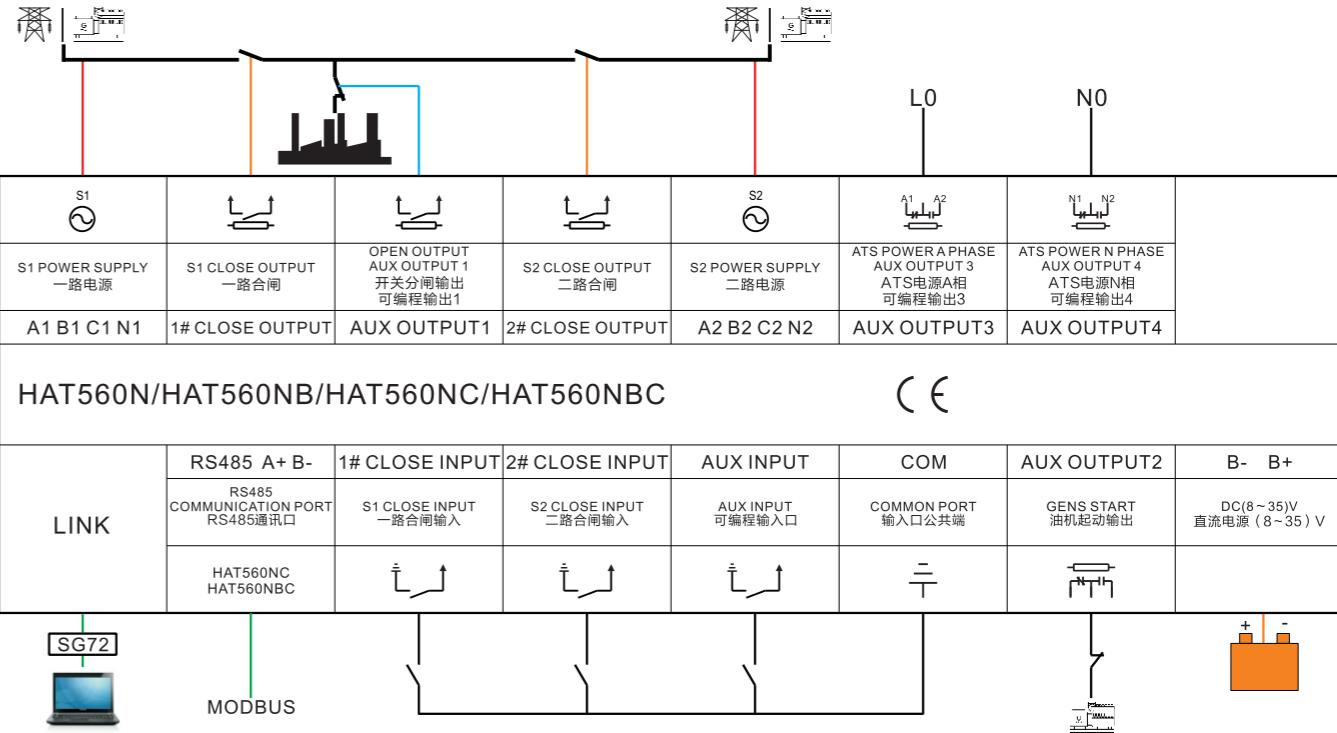
MAJOR FUNCTIONS/主要功能

- ▶ Suitable for CC, CB, PC, ATS of one neutral position, two neutral position and non-position; 适用于CC、CB、PC级，一个分断位、两个分断位和无分段位开关；
- ▶ Fire reset interface. When the input port is enabled, ATS will automatically transfer to Breaking (OFF) Position; 设有强制分断输入口(消防复位)，当输入口有效时，ATS开关会自动切换到分断(中间)位；
- ▶ Event log can record 50 items circularly; 具有历史记录功能，可循环50条记录；
- ▶ Scheduled start & stop generator (can be set as start gensest once a day/week/month whether with load or not); 具有定时开停发电机组功能，可设定单次运行、每月一次或者每周一次，且均可设定是否带载运行；
- ▶ Can control two generators to work in a cycle, even the gensest running time and crank rest time can be set; 可控制两台发电机组循环运行，且发电机组运行时间及间隔停机时间均可设置；
- ▶ During commissioning, the gensest can be set either on On-load or Off-load mode; 现场可设定为带载／不带载模式进行发电机组的试机操作；
- ▶ ATS Controller has function of automatic Re-closing; 具有开关重合闸及断电再扣功能；
- ▶ Closing output signal can be set as on intervals or as continuous output; 合闸输出可设为脉冲或持续输出；
- ▶ HAT560NC/NBC have RS485 isolated communication interface. With "remote controlling, remote measuring, remote communication" function by the ModBus communication protocol; HAT560NC / NBC设有RS-485隔离型通讯接口，应用ModBus通讯规约，具有“三遥”功能；
- ▶ LCD display, optional Chinese and English; LCD液晶显示，两种语言(简体中文、英文)；
- ▶ Collect and display two-way three-phase voltage, frequency, Real-time clock display; 采集并显示两路三相电压、频率、实时时钟显示；
- ▶ Over/under voltage, loss of phase, reverse phase sequence, over/under frequency protection; 具有过压、欠压、缺相、逆相序、过频、欠频功能；
- ▶ Optional AC system or DC system; 可直流供电，或交流供电；
- ▶ All parameters can be set on site. With two different passwords which ensures authorized staff operation only; 所有参数现场可编程，采用二级口令，防止非专业人员误操作；

ATS CONTROL MODULES / 双电源控制模块

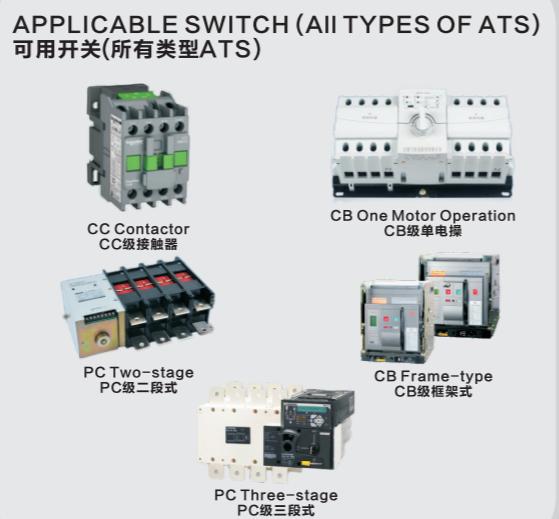
TECHNICAL PARAMETERS/技术参数

Model/型号	HAT560N	HAT560NC	HAT560NB	HAT560NBC
Application Scenario 应用场景	DC power supply, works for the battery of Genset starter 直流供电，可用机组起动电池供电 RS485接口，适用于有监控需求的场合	RS485 interface, works for demand of monitoring requirements RS485接口，适用于有监控需求的场合	AC power supply, works for no DC power supply 交流供电，适用无直流电源场合	Works for monitoring requirements and no DC power supply 适用于有监控需求和无直流供电场合
AC System/交流制式	1P2W/2P3W/3P3W/3P4W		1P2W/2P3W/3P4W	
Alternator Voltage 交流电压范围	(30~360)V(ph-N)		(170~277)V(ph-N)	
Alternator Frequency 交流频率		50/60Hz		
Working Voltage 工作电源	DC(8~35)V		DC(8~35)V/AC(170~277)V	
Volt Freq Protection 电压频率保护		●		
Applicable Switch Type 适合开关类型		CC, CB and PC Switch/CC级、CB级和PC级开关		
RTC(Real Time Clock) 实时时钟及历史记录		●		
Scheduled Start Genset 定时试机		●		
Circulate Start Genset 循环开机		●		
Programmable Input 可编程输入口		2		
Programmable Output 可编程输出口	4	3	4	3
Operating Temp. 工作温度(°C)		-25~+70		
Cass Dimensions 外形尺寸(mm)		139*120*50 (L*W*H)		
Panel Cutout 安装尺寸(mm)		130*111		
Product's QR code 产品二维码				

FUNCTIONS DESCRIPTION/功能描述


ATS CONTROL MODULES / 双电源控制模块

HAT600N(NI/NB/NBI)

ATS CONTROL MODULES
双电源控制模块

MAJOR FUNCTIONS/主要功能

- ▶ Fire reset interface. When the input port is enabled, ATS will automatically transfer to Breaking (OFF) Position; 设有强制分断输入口(消防复位), 当输入口有效时, ATS 开关会自动切换到分断(中间)位;
- ▶ Event log can record 99 items circularly; 具有历史记录功能, 可循环99条记录;
- ▶ Scheduled start & stop generator (can be set as start genset once a day/week/month whether with load or not); 具有定时开停发电机组功能, 可设定单次运行、每月一次或者每周一次, 且均可设定是否带载运行;
- ▶ Can control two generators to work in a cycle, even the genset running time and crank rest time can be set; 可控制两台发电机组循环运行, 且发电机组运行时间及间隔停机时间均可设置;
- ▶ During genset testing ATS controller can be set either on On-load or Off-load mode; 现场可设定为带载/不带载模式进行发电机组的试机操作;
- ▶ ATS Controller has function of automatic Re-closing; 具有开关重合闸及断电再扣功能;
- ▶ Closing output signal can be set as on intervals or as continuous output; 合闸输出可设为脉冲或持续输出;
- ▶ With over current alarm function; 具有过流报警功能;
- ▶ LCD display, optional Chinese and English; LCD液晶显示, 两种语言(简体中文、英文);

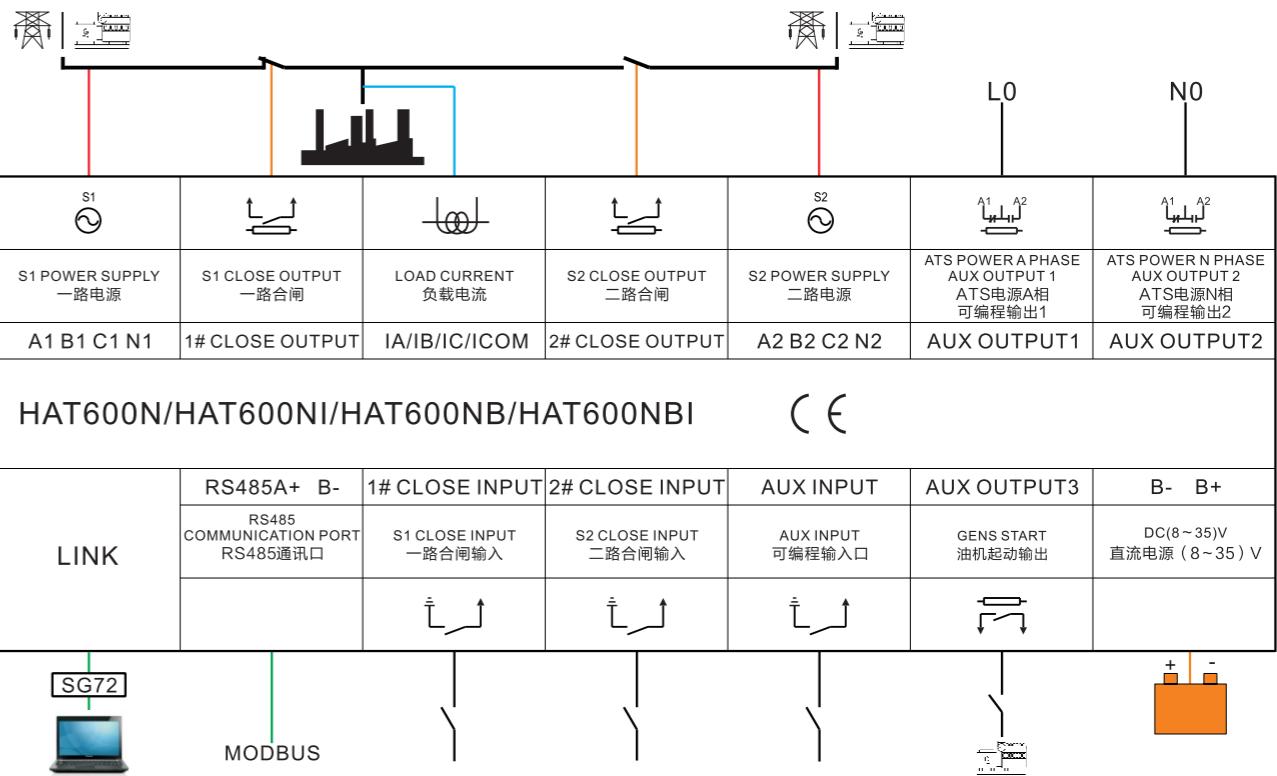
- ▶ HAT600I/BI can collect and display the load of active power, apparent power, power factor and three phase current; HAT600I/BI可采集并显示负载有功功率、视在功率、功率因数及三相电流;
- ▶ With RS-485 isolated communication interface. With "remote controlling, remote measuring, remote communication" function by the ModBus communication protocol; 设有RS-485隔离型通讯接口, 应用ModBus通讯规约, 具有“三遥”功能;
- ▶ Collect and display two-way three-phase voltage, frequency, Real-time clock display; 采集并显示两路三相电压、频率; 实时时钟显示;
- ▶ Over/under voltage, loss of phase, reverse phase sequence, over/under frequency protection; 具有过压、欠压、缺相、逆相序、过频、欠频功能;
- ▶ Automatic/Manual mode. In manual mode, can force switch to close or open; 设有自动/手动状态切换, 在手动方式下, 可强制开关合分闸;
- ▶ All parameters can be set on site. With two different passwords which ensures authorized staff operation only; 所有参数现场可编程, 采用二级口令, 防止非专业人员误操作;
- ▶ Can check the current status of controller (including switch digital input, over voltage, and under voltage etc.); 可查询当前控制器状态(包括输入口、过压、欠压等内部开关量);

ATS CONTROL MODULES / 双电源控制模块

TECHNICAL PARAMETERS/技术参数

Model/型号	HAT600N	HAT600NI	HAT600NB	HAT600NBI
Application Scenario 应用场合	DC power supply, works for the battery of Genset starter 直流供电, 可用机组起动电池供电	Works for demand of current detection 适用于有电流检测需求的场合	AC power supply, works for no DC power supply 交流供电, 适用无直流电源场合	AC power supply, works for no DC power supply and current detection 交流供电, 适用无直流电源和电流检测场合
AC System 交流制式	1P2W/2P3W/3P3W/3P4W			1P2W/2P3W/3P4W
Alternator Voltage 交流电压范围	(50~360)V(ph-N)			(50~280)V(ph-N)
Alternator Frequency 交流频率		50/60Hz		
Working Voltage 工作电源	DC(8~35)V		DC(8~35)V/AC (160~280V)	
Current and Power Display 电流及功率显示		●		●
Over Current Warn 过流警告		●		●
Volt Freq Protection 电压频率保护		●		
Applicable Switch Type 适合开关类型	CC,CB and PC Switch/CC级、CB级和PC级开关			
RTC(Real Time Clock) 实时时钟及历史记录		●		
Scheduled Start Genset 定时试机		●		
Circulate Start Genset 循环开机		●		
Programmable Input 可编程输入口		4		
Programmable Output 可编程输出口		5		
Operating Temp. 工作温度(°C)		-25~+70		
Cass Dimensions 外形尺寸(mm)		209*153*55 (L*W*H)		
Panel Cutout 安装尺寸(mm)		186*141		
Product's QR code 产品二维码				

FUNCTIONS DESCRIPTION/功能描述



ATS CONTROL MODULES / 双电源控制模块

HAT700(B/I/BI/S)

ATS CONTROL MODULES 双电源控制模块



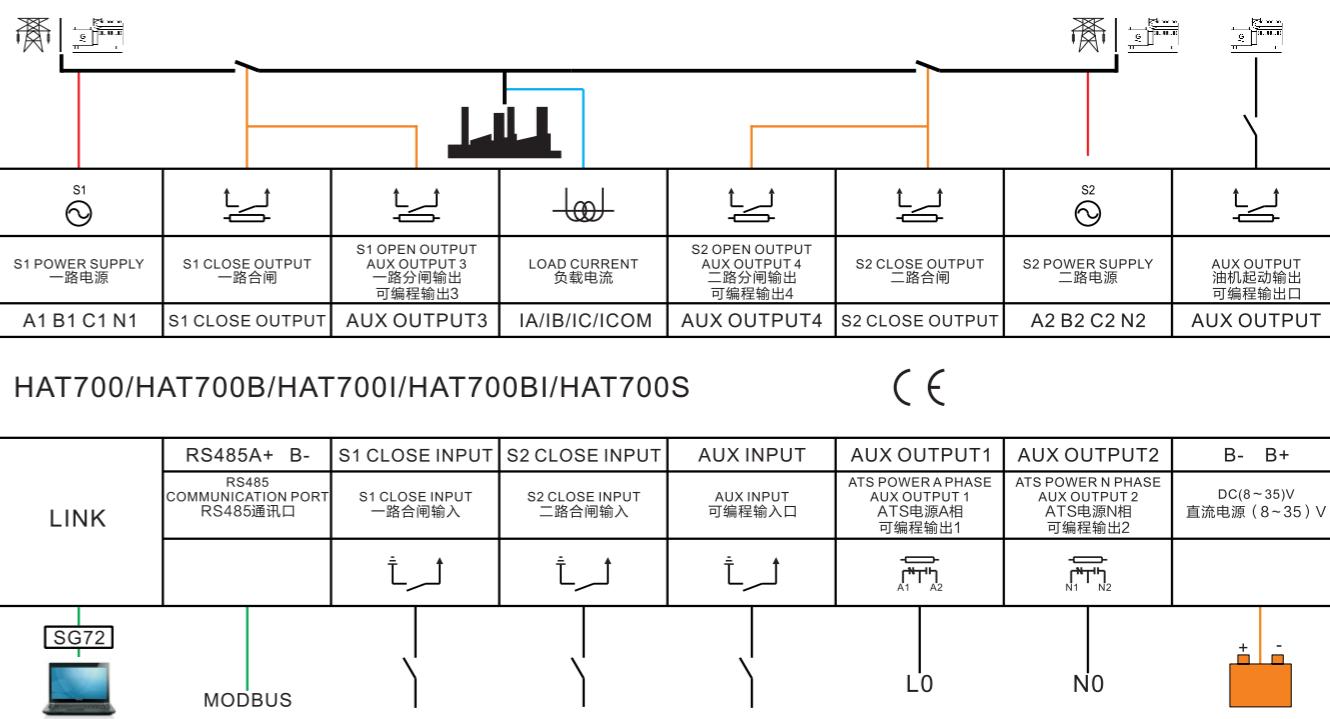
MAJOR FUNCTIONS/主要功能

- ▶ Real-time clock (RTC); Event log Function (Event log can record 99 items circularly);
实时时钟显示，具有历史记录功能，可循环记录99条数据；
 - ▶ Fire reset interface. When the input port is enabled, ATS will automatically transfer to Breaking (OFF) Position;
设有强制分断输入口(消防复位)，当输入口有效时，ATS开关会自动切换到分断(中间)位；
 - ▶ Scheduled Run & Scheduled Not Run (can be set as start genset once a day/week/month whether with load or not);
具有对发电机组的定时开机/定时不开机功能，可设定单次运行、每月或者每周运行，且均可设定是否带载运行；
 - ▶ Can control two generators to work as Cycle Run mode, Master-Slave Run mode and Balance Run mode;
可控制两台发电机组，实现循环运行、主备运行、均衡时间运行；
 - ▶ Can be Manual Test on site to achieve start/stop operation;
现场可手动试机，进行发电机组的开停机操作；
 - ▶ ATS Controller has function of automatic Reclosing;
具有开关重合闸及断电再扣功能；
 - ▶ Closing output signal can be set as on intervals or as continuous output;
合闸输出可设为脉冲或持续输出；
 - ▶ HAT700I/S/B1 can collect and display Active Power, Reactive Power, Apparent Power, Power Factor and Current;
HAT700I/S/B1可采集并显示负载有功功率、无功功率、视在功率、功率因数及电流；
 - ▶ S1/S2 separated over current warning/trip alarm;
具有两路电独立过流警告或跳闸报警功能；
 - ▶ NEL (Non-essential Load) trip function;
具有非重要负载 NEL 跳闸功能；
 - ▶ Can support DC power supply with the battery of genset starter;
可用发电机组启动电池池直流供电；
 - ▶ Phase Sequence Transfer function;
具备同相序转换功能；
 - ▶ Display S1/S2 Total kW Energy, Total kvar Energy, Total Close Times;
具有两路电累计有功电能、累计无功电能、累计合闸次数显示；
 - ▶ Display continuous power supply time and S1/S2 total power supply time;
具有当前持续供电时间及两路电累计供电时间显示；
 - ▶ HAT700S can achieve sync Transfer function; in addition, Voltage Difference, Frequency Difference and Phase Difference can be displayed;
HAT700S可实现同步切换功能，并显示两路供电的电压差、频率差、相位差；
 - ▶ For Stored-Energy type ATS, its close relay will active after the PF Input is active;
对于储能式开关，可等待开关 PF（合闸准备就绪）信号有效后再合闸；
 - ▶ Can control elevator. Before outage on load or switch transferring, can control the running elevator to stop at the nearest floor, until the closure of the transferring;
具有电梯控制功能，负载断电前或开关转换前，控制正在运行的电梯停在最近的一层，直到开关切换结束；
 - ▶ With RS485 isolated communication interface. With "remote controlling, remote measuring, remote communication, remote regulating" function by the ModBus communication protocol;
设有RS485隔离型通讯接口，应用ModBus通讯规约，具有“遥控、遥信、遥测、遥调”功能；
 - ▶ LCD display,multilingual interface (including English, Chinese or other languages);
LCD 液晶显示，多种语言(简体中文、英文、其它)；
 - ▶ Collect and display 2-way 3-phase Voltage, Frequency and Phase;
采集并显示两路三相电压、频率、相位；
 - ▶ Over/under voltage, loss of phase, reverse phase sequence, over/under frequency protection;
具有过压、欠压、缺相、逆相序、过频、欠频功能；

TECHNICAL PARAMETERS/技术参数

Model/型号	HAT700	HAT700I	HAT700B	HAT700BI	HAT700S
Application Scenario 应用场景	DC power supply, works for the battery of Genset starter 直流供电，可用机组起动电池供电	Works for demand of current detection 适用于有电流检测需求的场合	AC power supply, works for no DC power supply 交流供电，适用无直流电源场合	AC power supply, works for no DC power supply and current detection 交流供电，适用无直流电源和电流检测场合	Synchronous switch, apply for non-stop switching 同步切换，适用于不间断切换场合
AC System 交流制式			1P2W/2P3W/3P3W/3P4W		
Alternator Voltage 交流电压范围	(50~360)V(ph-N)			(50~280)V(ph-N)	
Alternator Frequency 交流频率			50/60Hz		
Working Voltage 工作电源	DC(8~35)V			DC(8~35)V/AC(90~280V)	
Current and Power Display 电流及功率显示		●		●	●
Over Current Warn 过流警告		●		●	●
Volt Freq Protection 电压频率保护			●		
Applicable Switch Type 适合开关类型			CC,CB and PC Switch/CC级、CB级和PC级开关		
RTC(Real Time Clock) 实时时钟及历史记录			●		
Scheduled Start Genset 定时试机			●		
Circulate Start Genset 循环开机			●		
Synchronization swithcing 同步切换					●
Programmable Input 可编程输入口			4		
Programmable Output 可编程输出口			6		
Operating Temp. 工作温度(°C)			-25~+70		
Cass Dimensions 外形尺寸(mm)			197*152*47 (L*W*H)		
Panel Cutout 安装尺寸(mm)			186*141		
Product's QR code 产品二维码					

FUNCTIONS DESCRIPTION/功能描述



HVD300

AC VOLTAGE DETECTION RELAY

交流电压检测继电器

HVD300 AC voltage detection relay detects over voltage, under voltage, loss of phase, reverse phase sequence and other abnormal conditions accurately and the corresponding relay will act when abnormal conditions occur.

HVD300交流电压检测继电器，对交流电压的过压、欠压、缺相、逆相序等异常现象做出准确判断，并且相应无源继电器输出。

Product's QR code
产品二维码

- ▶ Detect 3-phase voltage and phase sequence accurately; 精确测量三相电压，相序；
- ▶ With over voltage, under voltage, loss of phase and reverse phase sequence protection function; 具有过压、欠压、缺相、逆相序保护功能；
- ▶ Under/over voltage 2 relay output; 具有欠压和过压2个继电器输出；
- ▶ Suitable for 3-phase 4-wire, 3-phase 3-wire, 2-phase 3-wire, and single phase 2-wire systems; 适合于三相四线、三相三线、两相三线、单相二线电源系统；
- ▶ 35mm guide rail mounting; 继电器采用35mm导轨安装方式；
- ▶ Adjustable potentiometer allows for set value adjusting and delay value setting; 具有可调电位器，对阈值，延时值进行设置；
- ▶ One test button, test the over/under frequency relay and indicator; 具有一个测试按键，测试过压、欠压继电器及其指示灯；

Model/型号	HVD300
Working Voltage/工作电源	DC(8~35)V
AC Voltage Range/交流电压范围	AC(30~620) V (ph-ph)
Alternator Frequency/交流频率	50Hz/60Hz/400Hz
Over Voltage Relay Output/过压继电器输出口	5A AC250V (Volts free output/无源输出)
Under Voltage Relay Output/欠压继电器输出口	5A AC250V (Volts free output/无源输出)
Case Dimensions/外形尺寸(mm)	89.7*71.6*60.7
Working Temp./工作温度(°C)	-25~+70

HOC300

OVER CURRENT PROTECTION RELAY

过流保护继电器

HOC300 over current protection relay detects load current accurately. Over current trip or pre-trip relay outputs and alarm protection activates when the load current has exceeded the set value.

HOC300过流保护继电器精确检测负载电流，当负载电流超过设定点时，过流跳闸或预跳闸继电器输出动作进行报警保护。

Product's QR code
产品二维码

- ▶ Detects load current accurately; 精确检测负载电流；
- ▶ Suitable for 3-phase 4-wire, 3-phase 3-wire, 2-phase 3-wire, and single phase 2-wire systems with frequency 50/60/400Hz; 适合于三相四线、三相三线、两相三线、单相二线电源50Hz、60Hz、400Hz系统；
- ▶ Adjustable potentiometer allows for set value adjusting and delay value setting; 具有可调电位器，对阈值，延时值进行设置；
- ▶ 2 relay output; 具有2个继电器输出；
- ▶ One test button, test the over current trip/pre-trip relay and indicator; 具有一个测试按键，测试过流跳闸、预跳闸继电器和指示灯；
- ▶ 35mm guide rail mounting; 继电器采用35mm导轨安装方式；

Model/型号	HOC300
Working Voltage/工作电源	DC(8~35)V
Pre-Trip Relay Output/预跳闸继电器输出口	5A AC250V (Volts free output/无源输出)
Trip Relay Output/过流跳闸继电器输出口	5A AC250V (Volts free output/无源输出)
CT Secondary Current/电流互感器次级电流	Rated/额定:5A
Case Dimensions/外形尺寸(mm)	89.7*71.6*60.7
Working Temp./工作温度(°C)	-25~+70

HFT300

FREQUENCY DETECTION RELAY

频率检测继电器

HFT300 frequency detection relay, the corresponding over/under frequency relay outputs and alarm protection activates when the frequency has exceeded/fallen below the set value.

HFT300频率检测继电器，当频率高于或低于设定值时，相应的过、欠频继电器输出动作进行报警保护。

Product's QR code
产品二维码

- ▶ Over/under frequency protection function; 具有过频、欠频保护功能；
- ▶ Under/over frequency 2 relay output; 具有欠频和过频2个继电器输出；
- ▶ Suitable for 3-phase 4-wire, 3-phase 3-wire, 2-phase 3-wire, and single phase 2-wire systems; 适合于三相四线、三相三线、两相三线、单相二线电源系统；
- ▶ 35mm guide rail mounting; 继电器采用35mm导轨安装方式；
- ▶ Adjustable potentiometer allows for set value adjusting and delay value setting; 具有可调电位器，对阈值，延时值进行设置；

Model/型号	HFT300
Working Voltage/工作电源	DC(8~35)V
AC Voltage Range/交流电压范围	AC(50~620) V (ph-ph)
Alternator Frequency/交流频率	50Hz/60Hz/400Hz
Over Frequency Relay Output/过频继电器输出口	5A AC250V (Volts free output/无源输出)
Under Frequency Relay Output/欠频继电器输出口	5A AC250V (Volts free output/无源输出)
Case Dimensions/外形尺寸(mm)	89.7*71.6*60.7
Working Temp./工作温度(°C)	-25~+70

HPD300

REVERSE POWER PROTECTION RELAY

逆功率保护继电器

HPD300 reverse power protection relay is in order to avoid the above situation and provide protection when over power situation occurs.

HPD300逆功率保护继电器，是为避免发电机运行于电动机状态，同时避免系统其它发电机出现过功率跳闸进行相应的报警保护。

Product's QR code
产品二维码

- ▶ Collects 3-phase voltage, 3-phase current, frequency and power parameters; 采集三相电压、三相电流、频率、功率参数；
- ▶ 2 relay output; 具有2个继电器输出；
- ▶ One test button, test reverse power, over current relay and indicator; 具有一个测试按键，测试逆功率和过流继电器及指示灯；
- ▶ 35mm guide rail mounting; 继电器采用35mm导轨安装方式；
- ▶ Adjustable potentiometer allows for set value adjusting and delay value setting; 具有可调电位器，对阈值，延时值进行设置；

Model/型号	HPD300
Working Voltage/工作电源	DC(8~35)V
Reverse Power Relay Output/逆功继电器输出口	5A AC250V (Volts free output/无源输出)
Over Current Relay Output/过流继电器输出口	5A AC250V (Volts free output/无源输出)
CT Secondary Current/电流互感器次级电流	Rated/额定:5A
Case Dimensions/外形尺寸(mm)	89.7*71.6*60.7
Working Temp./工作温度(°C)	-25~+70