# H8S Series Automatic Transfer Switch



### Application range

TheautomatictransferswitchisappliedtotheduplicatepowersupplysystemofAC50/60Hz,rated voltagesinglephase230Vorthreephasefourwire400V,ratedcurrentupto800A.Itcanalsobeusedintheunattendeddistribution room to realize the automatic transfer between two power supplies. When there is any fault with one line of power supply, the device the supervised of the supervised states and the supervised states and the supervised states are supervised as twill automatically transfer to the other line within several seconds, which ensures the timely power supply of important locations (residentialarea.hospital.shoppingmoll.etc.).

TheproductaccordswithGB/T14048.11、IEC60947-6-1.

## Model and meaning



Н	8 S -	- 🗌 /
Company code		
Design code		
automatic transfer swit	ch	
Frame size rated curre	nt of the circuit breake	r
Number of poles : 3-3	P, 4-4P	

Note: The N pole of the four-pole circuit breaker is combined with the other three poles.

## **Normal Working Conditions**

1.Ambienttemperature:-5°C~+40°C.Theaveragetemperaturein24hoursdoesnotexceed+35°C 2.Altitude:notexceed2000m

3. Humidity: The air relative humidity under the highest temperature +40°C cannot surpass 50%; Under the lowest temperature has a higher relative humidity, the wettest month's average lowest temperature cannot surpass +25°C, and the average relative

humiditycannotexceed90%.

4.Classofpollution:3

No conductive dust and corrosive gas which may destroy metal and insulation.5.Mountingcategory:III

6. The two power lines connect to the upper end of the conversion device, with the load end connects to the lower end. Reverse connectionisnotallowed.

7.Noobviousimpactinmountingposition.

## Structure characteristic

The device consists of the body and controller. The body consists of two circuit breakers with electric operating mechanism, accessoriessuchasmechanicalinterlockmechanism, fuses, terminalblocksandetc. The controller consists of electronic circuits such assingle-chip and soon, which is installed in a plastic casing. And the LCD display and operation keys are on the panel of the plasticcasing

The specified plug and cable are used for connecting the device body and controller to achieve automatic conversion function.

●Ratedcurrent: In=16A~800A

Reliableelectrical interlockandmechanical interlock

Automaticshiftintheeventofpoweroutage, over-voltage, under-voltageorlossofphase

Automaticchargeandautomaticrecoverybetweenpowergridandmotor (F)

Liquidcrystaldisplay

- Switchstatusdisplayand indication, faultalarmorshutdown
- Polenumber: 3Pole, 4Pole

Manualcontrolorautomaticcontrol

- Powernetworktopowernetwork
- DC24VfireLinkage

Two-waypowerthree-phasevoltageshownonthescreeninrealtime

RS-485Communication interfaceandModBuscommunicationprotocol

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## Main technical parameter

#### 1.ATSClass:ClassCB.

2.Usingcategory:AC-33iB.

Typicaluseforinfrequentoperationofmotorloadormixedloadincludingmotor, resistanceloadandincandescentlightload30%.

3.Ratedfrequency:50/60Hz

Otherparameters:	
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Model	Rated current of over-current release le A	Rated operation voltage Ue V	lcm/lcn (KA)	Changeover time between two power supplies	Electrical life
H8S-100/3P	16 25 22 40 50 62 80 100				
H8S-100/4P	10, 23, 32, 40, 30, 03, 80, 100		45/20	15+51+(00,00) 0	4000
H8S-250/3P	100 125 150 175 200 225 250		43/20	4≪L≪4+ (0° °99) S	0000
H8S-250/4P	100, 123, 130, 173, 200, 223, 230	Single phase Three phase four wire			
H8S-400/3P	250 200 250 400		65/30	5≪t≪5+(0~99) s	4000
H8S-400/4P	230, 300, 330, 400				4000
H8S-800/3P	400 500 420 700 800				2000
H8S-800/4P	400, 300, 030, 700, 800				3000

## **Function**

1.Self-changeoverandself-reset:

Iffindingtheabnormalconditionsofthenormalsource, the device will change over to back uppower, when recovered, change over back. 2.Self-changeoverwithoutreset

Iffinding the abnormal conditions of the normal source, the device change over to back uppower, when recovered, it will not automatically change over back. Only when the error of backuppowerisfound, it will shift back to the normal source.

3.Fireprotection

When the fire center is sued acut-off order, the load and two-way power will be cutoff. Automode requires manual setup after order release. We have the setup of the setup o4. Power-network to power generation: The two power supplies of the switching device come from the grid and the motor. And the motor is turned on through dependent interface. When the mains fails (under voltage, phaseloss, loss of power), the generators tart port provides a passive closed signal form ot or to turn on. When the mains supply is restored, the generatorstartportprovidesapassivesignaltoturnoffthemotor.

4. Operating transfer time : The time from the instant when the error of main power supply is found to the time when the backup power source is closed by another main contact, excludingthemanuallysetdelaytime

5. According to the voltage value of each phase of the double source supply, the device can control the automatic change over between two circuit breakers. If the voltage is lower than 80% of the rated voltage (set value), the circuit will be considered as undervoltage. And when the voltage is higher than 120% of the rated voltage (set point), it will be considered as over voltage.Afterthesettingdelaytime,thetwocircuitbreakerswillbechangedover.

7.Displayfunction

The lefts idec ircuit breaker (Q2) connects to normal power supply (N), and the rights idec ircuit breaker (Q2) connects to reserve pow-ersupply (R), if each phase voltage of two lines of the result of the resupowersupplyisnormal, the controller will display NA, NB, NC, RA, RB and RC. If any phase voltage is lower than 80% of rated voltage, this phase will flash and then the user can find out thepowersupplyfaulteasily.

8.Settingfunction

Usercansetthedelaytimeofautomatictransferoftwolinesofpowersupplyaccordingtotheirownneeds, and the timerange is from0sto99s.ControlfunctioncanbechosenbetweenTypeRandTypeS.

9.Alarmingfunction

A.lfonelineofpowersupplyisabnormal, during the transfer period between the two circuit breakers, the controller will alarm. After transfer, the alarm will stop. B.Undernormalrunning, when the circuit breaker Q1 or Q2 trips due to overload short-circuit, the controller will alarm. Push the CO-BREAKINGbuttononthecontroller, the alarm will stop, and then the tripped circuit breaker will trip again.

C.Thealarmcanbeturnoffinthesettingmenu.

10. Two circuit breakers have reliable electrical and mechanical interlocking features to ensure that both powers upplies will not close at the same time.

## controller setting

1.Function of the key:4 keys

device state	key name and function							
	S1	S2	S3	S4				
During normal work	manual/automatic	common closing	standby closing	opening (both opening)				
User setting	cancel	parameter+	parameter-	confirm (ENT)				
Voltage display	cancel	cursor+	cursor-	unused				

If the LCD backlight is off, the first button (any button) only lights up the backlight

Itisequippedwithover-currentrelease(excludeNpoleof4PolesMCCB),andmaincontactcanmakeandbreakshortcircuitcurrent.

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2.LCD backlight : LCD backlight on and off: press any button; Action, alarm etc. if there is any of the above events, the backlight is on and lasts for 30s. Within 30s, no operation (keyboard),noaction(voltageconversion),nofault,LCDbacklightisoff.

3.Workinginterface:Thisinterfaceisthedisplayinterfacewhenthedeviceisworkingnormally.

Inthemanualstate, pressthe "commonly closed" button which is switches commonly closed, pressthe "stand by closing" button which is switches stand by closing, pressthe "double minute"buttonwhichisswitchesopeningandpressthe"Manual/Auto"buttontoconvertthemanualorautomaticstatus."NA""NB""NC""OA""RB""RC"respectivelyindicates the voltage of the Aphase, the common Bphase, the common Cphase, the stand by Aphase, the stand by Bphase, and the stand by Cphase on the power supply side. The status, such the common Bphase is the stand by Aphase is the standasblinking, indicates that the voltage of the road is abnormal. "Common N" means that the device is currently in the usual closed state. "Automatic" "Donot repeat" indicates how the current device works. "03s" and "03s" refer to the delay time set by the software extension during power conversion. When the word "N-R" "R-N" flashes, the device is in the remote controlstate.

#### 4.Voltagereal-timedisplayinterface

Asshowninthefigure: When the common B-phase voltage is 218V main interface, press S1key+S3key at the same time to enter the voltage real-time display interface. (Keyboard operationfunction:S1key[Cancel];S2key[Cursor+];S3key[Cursor-];S4key[Confirm])Theinterfaceisusedtodisplaythereal-timevoltageofthecommonAphase,thecommonB phase, the common C phase, the standby Aphase, the standby B phase, and the standby C phase. The value is the phase voltage valid value. Press S2 or S3 to cycle through the voltagedisplayofeachphase,press"ESC"toexit.

5. Controller interface settings: In the main interface, press the S1 key+S2 key at the same time to enter the setting menu. After entering the setup menu, the words "Settings" are displayed below the LCD. (Keyboard operation function: S1key[Cancel]; S2key[Cursor+]; S3key[Cursor-]; S4key[Confirm]) The first screen of the setup menu is shown in the figure



#### Controller Settings Interface Settings Menu Description

Serial number	Display content (factory default)	meaning	Description	Operation
first screen	co dE	Password input	Enter user password or super password	Enter the 4-digit password in turn, press ENT to enter the next screen.
second screen	00 00	User password setting	The first screen needs to enter the super password, otherwise it will not enter this screen (initial password is 0000)	If you enter a super password, set the user password on this screen, press ENT to enter the next screen, otherwise go directly to the next screen.
third screen	03s 03s	Conversion delay	In the automatic state, the delay time of power conversion (0~99s adjustable)	Commonly used to switch to the standby and standby to use the software delay, after the setting is completed, press ENT to enter the next screen
fourth screen	L180	Undervoltage threshold (adjustable)	Any phase voltage below this value is considered abnormal	After the setting is completed, press ENT to enter the next screen.
fifth screen	H264	Overvoltage threshold (adjustable)	Any phase voltage above this value is considered abnormal	
sixth screen	cb 1	Automatic reset setting	0=Do not reset automatically, 1=Automatic reset	
seventh screen	LU 1	undervoltage protection	0 = undervoltage judgement exit, 1 = input. If you exit, any phase voltage is considered normal even if it is lower than the undervoltage threshold.	
eighth screen	HU 1	overvoltage protection	0 = undervoltage judgement exit, 1 = input. If you exit, any phase voltage is considered normal even if it is higher than the undervoltage threshold.	
ninth screen	Pd 20	Mechanical protection time	When the power is switched, the maximum time allowed for the mechanism to operate from the closing position to the opening position. If it is a switch between two closing positions, this time is automatically doubled. If the organization is not in place during the protection time, it is considered a malfunction.	
tenth screen	bU 1	Buzzer setting	Whether the buzzer sounds when the alarm is wrong, 0=No, 1=Yes	
eleventh screen	Ad 32	mailing address	Address of the device when RS485 is communicating	
twelfth screen	96 00	Communication baud rate	Baud rate of RS485 communication	
thirteen screen	SA VE	Whether to save	"SAVE" flashes to remind the user whether to save the previous setting data.	Press ESC to abandon and the device will return to the working interface. Press ENT to enter the next screen
fourteen screen	SA VE	maintain	Saving previous setup data	

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Note1:Afterenteringthesetupmenu, any position before the 13 ths creen, if you press the S1 key [Cancel], the device will return to the work interface (main interface). At this point, the changestothesettingsdatawillbediscarded.

Note2: In"Setting"interface, "VoltageRealTimeDisplay"interface, if there is no operation, it will automatically return to the main interface in 30s. Note3: "Settings" interface, "VoltageRealTimeDisplay" interface, does not respond to external communication. Note4: The address, baudrate and userpass word of the external communication (RS485) are only related to the display CPU. When the internal communication is normal, the other parametersofthedevicearesubjecttothecontrolCPU.

#### 6.Themeaningofthefaultcode

When the product appears as shown below, it is usually the product failure, reminding the user to over hault he product. If in the case of a fault, pressany key to reset, if the fault persists, the fault will continue to be reported. E001:Possiblecausesofmechanical failure: (1) Damagetothe positions witch (2) Mechanical fit is not inplace (3) The mechanism is stuck, the motor is blocked (4) The motor is damaged,andthecircuitisblocked.

E002:Possibleforofflinefault:(1)Switchtripping(2)LoadphaseAphaseandNphaselineareloose.  ${\tt E016:} Possible causes of internal communication failure: (1) interface damage (2) bad line contact (3) on-site interference is to oserious.$ 

## Use and maintenance

1, Operationalcheck-out

Theproducthasbeensetwhenleavingthefactory (see9. 5). If no additional requirement, reset is no the cessary and user can conduct the operational check-out. a. Checking the "Manual" key: The breaker wills witch to the corresponding mode when user press the corresponding function key with power Nor R connected.b. Checking the "Auto" key: when checking R, S, and Ftype conversion devices respectively, please ensure that the automatic control functions hould be consistent with the provisions.Afterthetestabove,ifitcanfunctionnormally,itcanbeputtedintouse.Itisrecommendedtosetthecontrollerat"Auto". 2, Commonfaultandeliminatingmethods

a. No display on screen after turning on the Nor Rpower supply And then after pressing the "Manual" key, the electric operating mechanism will not work. Solution: user should ensure the screen scrthat the voltage values of loads witch in coming lines hould be greater than 85% Ue or check whether the connection (air plugors ocket) between control lerand device body is connectedfixedlyandtheconnectionofpowersupplyNpoleisright.Meanwhile,FUfusetubeshouldbeintact. b.Two-waypowersupplyisnormal,butscreenshowslackingphase.Solution:usershouldinspecteveryfusetubeandchangefusetubeblown.

- c. Fusetubeburnouteasily. Solution: checkifelectricoperationmechanismoperateswellwithoutclampingstagnation.
- d. WhentheLCDshowsthefaultcode, pleaseaccordto9. 6formaintenance.

## Wiring diagram

Controller wiring terminal JX specification

JX-1 (internal wiring: for 3-pole product and user N line connection terminal )

NA	NB	NC	NN	RA	RB	RC	RN
1	2	3	4	5	6	7	8

JX-2 (user wiring: external indication window )

free state	(standby closing) BYH	common closing (CYH)	public (AA)	
1	2	3	4	free state

#### JX-3 (internal use)

DZ	DF	SF	СН	ВН	COM	ON	0 A
1	2	3	4	5	6	7	8

JX-4 (customer use: firt protection and motor start connection terminal)

24V+	24V-	发电	发电	
1	2	3	4	Expansion connection terminal

JX-5 (customer use: communication connection)

VCC	485+	485-	GND
1	2	3	4

free state

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Note 1.FU:250V,2Afusetube.Size 5\*20 2.HD:Normalpoweron/offindicator(AC230V,self-preparedbyuser) 3.TD:Backuppoweron/offindicator(AC230V,self-preparedbyuser) 4.SF:CO-BREAKINGindicator(AC230V,self-preparedbyuser)

5.JX-2,JX-4,JX-5:Userconnectionterminals.Usershallconnectthewireasdottedline.Fortheproductswiththefunctionoffireproof,generator

starting or communication, connect the wireto different connection terminal accordingly. 6. The diagram is for four poles MCCB. When use three poles MCCB, normal powernullline (NN) and back up powernullline (RN) shall separately connect to corresponding terminals

ofinternalJX-1terminal.

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Series Automatic Transfer Switch **Overall and mounting dimension** 





Overall and mounting dimension of integrated type (Separated type) changeover switch

Dimension (mm) Model	w	W1	L	L1	Н
H8SB-100/3P	464	434	160	135	126
H8SB-100/4P	494	464	160	135	126
H8SB-250/3P	499	469	170	145	126
H8SB-250/4P	534	504	170	145	126
H8SB-400/3P	584	530	310	285	185
H8SB-400/4P	624	285×2	310	285	185
H8SB-800/3P	735	340×2	330	305	185
H8SB-800/4P	795	370×2	330	305	185

# **Ordering information**

Example: If you or derandouble powersource automatic transfers witch, framesize rated current 250A, rated current 100A, integrated type, 4 poles, 10 pieces, you can write it as H8SFB-400-250A/4P10pcs.

Mounting panel of split type changeover switch mounting hole size: 96mm\*152mm Separated type controller is connected with the device body through network cable whose length is less than 2 meters.