



Automatic Transfer Switch Equipment

Reliable made affordable





About Himel

Himel is a multinational manufacturer and provider of electrical products successfully combining global expertise with local knowledge.

Founded by a Spanish entrepreneur in 1958, the company pioneered in exporting quality electrical enclosures, establishing Himel brand globally. Today, our global footprint and technology enable us to provide the best combination of affordable and reliable offers for Low Voltage Power distribution, Industry Automation and Home Electric to our long-term customers and partners in over 50 countries where we are present.

Himel. Reliable made affordable



HDQ3HB Automatic Transfer Switch

GB14048.11 / IEC60947-6-1

Range Presentation

HDQ3HB is Himel 3 series range of CB type Automatic Transfer Switch, automatic transder the power supply between the normal power & standby power.

Standby power supply can be net power or generator.

Integrated with HDM3 series MCCB to provide over current protection, integrated or split type controllor available.

Application standard: GB14048.11/ IEC60947-6-1

Ordering Code

<u>HDQ3HB</u>	<u>100</u>	<u>S</u>	<u>100</u>	<u>4</u>	<u>Z</u>
Product name	Frame size	Breaking capacity	Rated current	Poles	Controller
HDQ3HB	100: 100AF	S: 25kA	16/20/25/32/40/50/63/80/100 A	3: 3P 4: 4P	Default: Split Z: integrated
	250: 250AF 400: 400AF 630: 630AF	F: 50kA	100/125/140/160/180/200/225/250 A 200/225/250/315/350/400 A 400/500/630 A		

Order Information

Current shell frame	Conventional thermal current	Breaking capacity	HDQ3HB	
			3 poles	4 Poles
			Ordering code	Ordering code
100AF	16	S	HDQ3HB100S163Z	HDQ3HB100S164Z

	100		HDQ3HB100S1003Z	HDQ3HB100S1004Z
250AF	100	F	HDQ3HB250F1003Z	HDQ3HB250F1004Z

	225		HDQ3HB250F2253Z	HDQ3HB250F2254Z
	250		HDQ3HB250F2503Z	HDQ3HB250F2504Z
400AF	200	F	HDQ3HB400F2003Z	HDQ3HB400F2004Z

	400		HDQ3HB400F4003Z	HDQ3HB400F4004Z
630AF	400	F	HDQ3HB630F4003Z	HDQ3HB630F4004Z

	630		HDQ3HB630F6303Z	HDQ3HB630F6304Z

HDQ3HB Automatic Transfer Switch

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Technical Parameters				
Model & Spec	HDQ3HB-100	HDQ3HB-250	HDQ3HB-400	HDQ3HB-630
Executive circuit breaker	HDM3-100	HDM3-250	HDM3-400	HDM3-630
Number of poles	3、 4			
Available standard	GB14048.11 / IEC60947-6-1			
Electrical level	CB-level			
Use category	GB14048.11 AC-33iB / IEC60947-6-1 AC-32B			
Electrical performance	HDQ3HB-100	HDQ3HB-250	HDQ3HB-400	HDQ3HB-630
Rated insulation voltage Ui (V)	800			
Rated impulse withstand voltage Uimp (kV)	8			
Rated operating voltage Ue (V)	400			
Conventional thermal current Ie (A)	16/20/25/32/40 /50/63/80/1000	100/125/140/160/ 180/200/225/250	200/225/250 /315/350/400	400/500/630
Rated working frequency (Hz)	50			
Breaking capacity level	S	F	F	F
Rated short circuit breaking capacity Icn (kA)	25	50	50	50
Rated short circuit making capacity Icm (kA)	52.5	105	105	105
Mechanical life (cycles)	10000	5000	5000	5000
Electrical life (cycles)	1500	1000	1000	1000
Conversion time	≤3s			
EMC level	Environment B			
Sampling mode	Normal and standby three-phase sampling			
Control function				
Power grid (P) – Power grid (P)	■			
Power grid (P) – Generator (G)	■			
Auto operation mode – Auto power-on and auto reset	■			
Auto operation mode – Auto power-on but not auto reset	■			
Auto operation mode – Mutual backup	■			
Electric operation vis button	■			
Manual operation vis handle	■			
Remote transfer	■			
Normal and standby power state output	■ ²⁾			
Normal and standby power-on state output	■			
Normal and standby trip state output	■			
Fire dual-divided	■ (Alarm lamps flash simultaneously)			
Generator startup	■			

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Technical Parameters				
Controller	HDQ3HB-100	HDQ3HB-250	HDQ3HB-400	HDQ3HB-630
Overload protection	■			
Instantaneous protection	■			
Over-voltage protection	■ (Factory set: 264V)			
Under-voltage protection	■ (Factory set: 184V)			
No-voltage protection	■			
Lost phase protection	■			
Motor load phase sequence identification protection	■ ¹⁾			
Special lost phase protection for motor load	■ ¹⁾			
Switch fusion welding protection	■ (ERROR02)			
Switch movement protection	■ (ERROR02)			
Power failure alarm	■ (Power indicator at the failure side flashes)			
Trip failure alarm	■ (Trip indicator at the failure side flashes)			
Trip failure button electrically reclosed	■			
Setting functions				
Over-voltage valve value adjustable	■ 253V~276V			
Under-voltage valve value adjustable	■ 253V~276V			
Conversion delayT1 time adjustable	■ 0~99.9s (Factory setting: 3s)			
Return delayT2 time adjustable	■ 0~99.9s (Factory setting: 3s)			
Generator starting delayT3 time adjustable ⁴⁾	■ 0~99.9s (Factory setting: 15s)			
Generator stop delayT4 time adjustable	■ 0~99.9s (Factory setting: 15s)			
Dimensions (mm)	HDQ3HB-100	HDQ3HB-250	HDQ3HB-400	HDQ3HB-630
Breaking capacity level	S	F	F	F
Integral 3P dimensions (W x H x D)	415x220x148	465x220x148	610x330x185	610x402x185
Integral 4P dimensions (W x H x D)				(Expansion row)
Split 3P dimensions (W x H x D)	375x220x148	425x220x148	575x330x185	575x402x185
Split 4P dimensions (W x H x D)				(Expansion row)
Split controller dimensions (W x H x D)	85x166x92			
Split lead wire length	Standard length: 1.6m (customized wire length: 2m, 2.5m, 3m, 3.5m, 4m, 4.5m, 5m)			
Integral 3P installation hole sizes (W x H)	365x200	420x200	510x300	
Integral 4P installation hole sizes (W x H)				
Split 3P installation hole sizes (W x H)	325x200	380x200	478x300	
Split 4P installation hole sizes (W x H)				
Split controller installation hole sizes (W x H)	81x162			
Product phase spacing	30	35	48	
Phase spacing after expansion	-	-	-	68

- No this option

■ Standard

□ Optional

¹⁾ OFF by default, with ON set by the controller menu

²⁾ External power connected by customer

³⁾ Only 3P product is provided

⁴⁾ This delay function will be automatically off when the common terminal is completely turned off.

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Product Features

Convenient

Installed without sampling wires

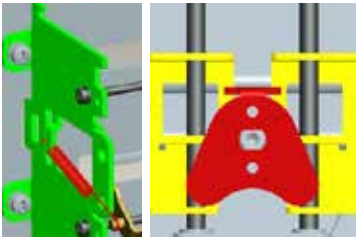
With sampling wires built in for convenient installation



Reliable

With patented mechanism, the mechanical life increases to 15,000 cycles

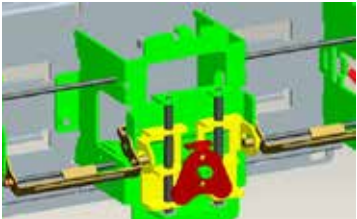
Dual-rail patented interlock mechanism and auxiliary ON-OFF mechanism are configured to provide reliable operation.



Safety

Small body and large function

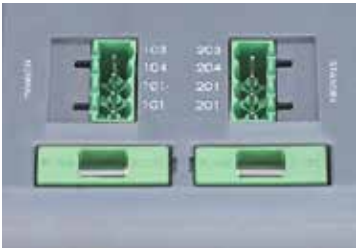
With full steel frame structure and accurate locating features, an insulation cover and three-protection paining layers are provided outside the line board for guaranteeing multiple protections for safety.



Excellent

Powerful function and more selection

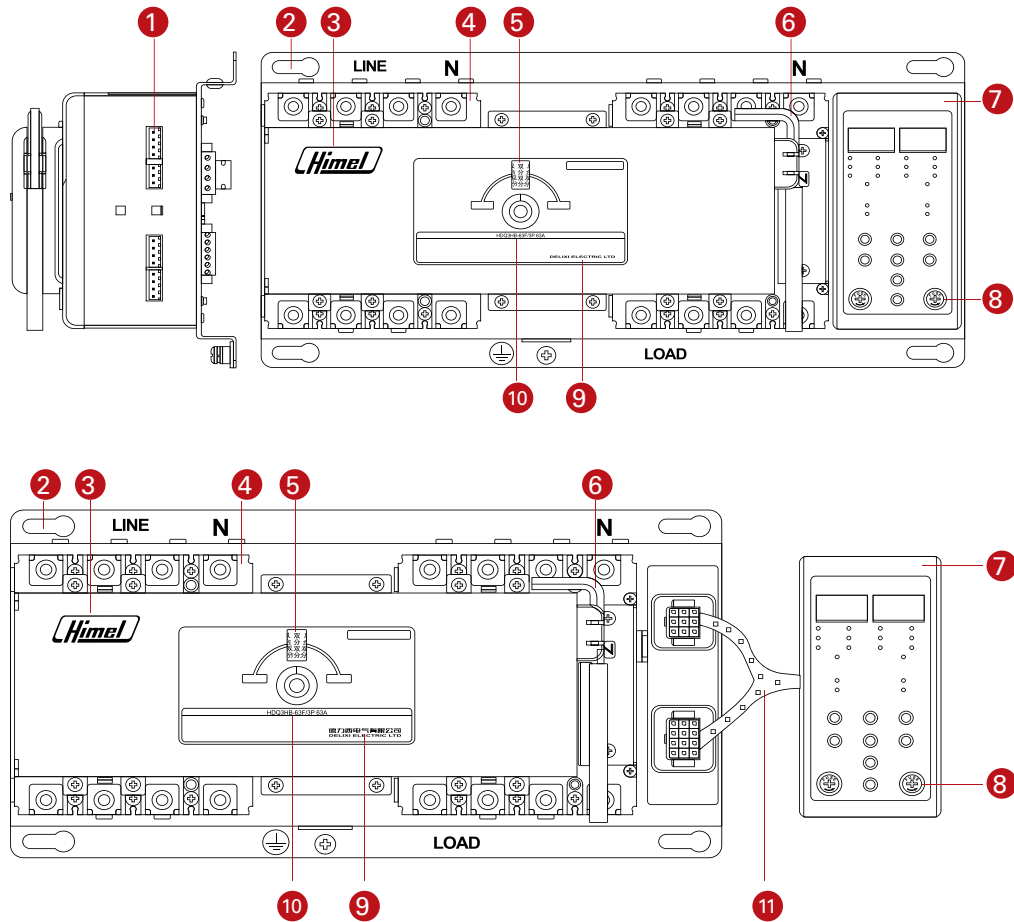
A type standard configuration provides auto-switch and self-reset for economical operation
B type standard configuration provides auto-switch and self-reset, auto-switch and not-self-reset and fire dual-division functions and powerful function



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Product Diagram



Product Nameplate

HDQ3HB Automatic transfer switching equipment		
Rated voltage:400V	Rated short-circuit making capacity:	Standard: IEC60947-6-1
Rated current:	Rated short-circuit breaking capacity:	
rated frequency:50Hz	Rated impulse withstand voltage:6kA	
Class:CB class	Number of poles:	
Use category:AC-32B	Production date	

1	Wiring termina	6	Operating handle	11	Split controller connecting cable
2	Mounting hole	7	Controller	12	Nameplate parameters
3	Company logo	8	Fuse tube		
4	Power terminal	9	Company name		
5	Transfer position indication window	10	Product mode		

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Installation of HDQ3HB

Split controller

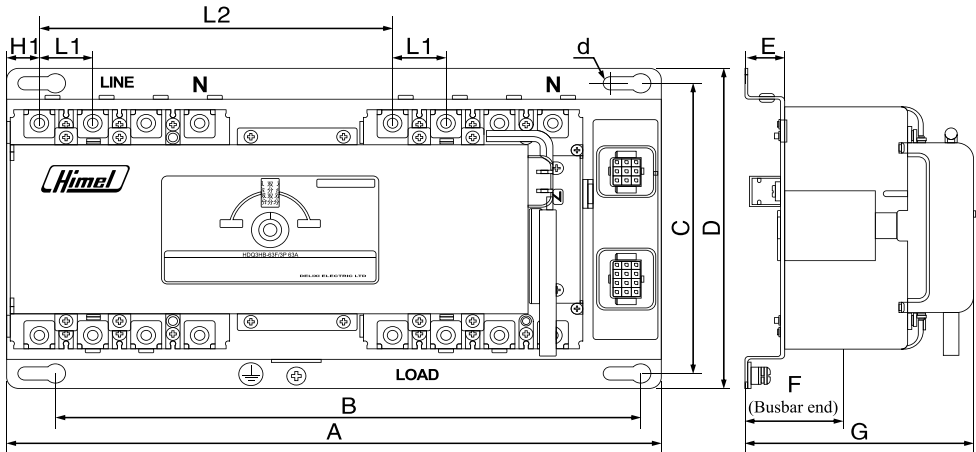


Figure1:Split HDQ3HB-100~400/ 3P and 4P

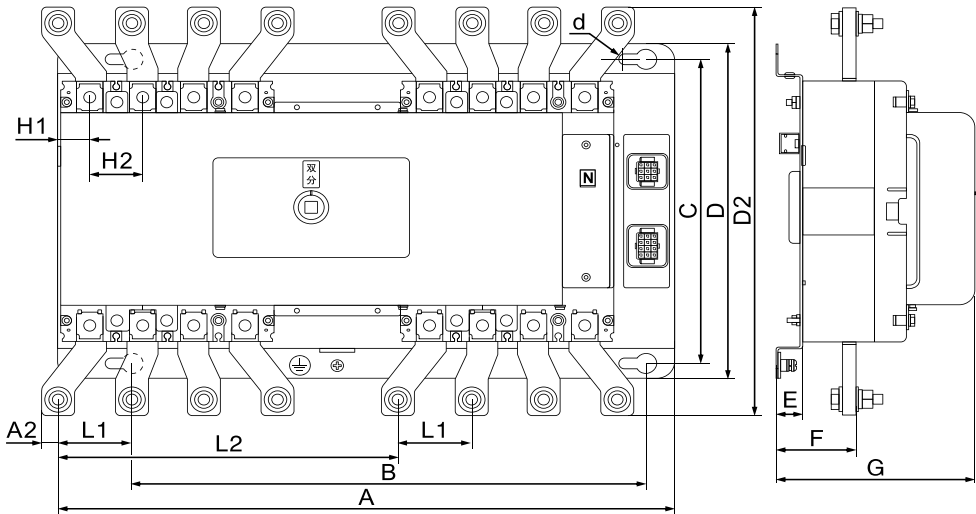


Figure2:Split HDQ3HB-630/ 3P and 4P

Spec.	Size	A	A2	B	C	D	D2	E	F	G	L1	L2	H1	H2	d
HDQ3HB-100S		335	-	282	200	220	-	25	49	121	25	180	15.5	-	9
HDQ3HB-250F		425	-	380	200	220	-	25	48	148	35	230	21.5	-	9
HDQ3HB-400F		575	-	478	200	330	-	25	62	185	48	316	30.5	-	10
HDQ3HB-630F		575	14.5	478	300	330	402	25	77	185	68	316	30.5	48	10

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Installation of HDQ3HB

Integrated controller

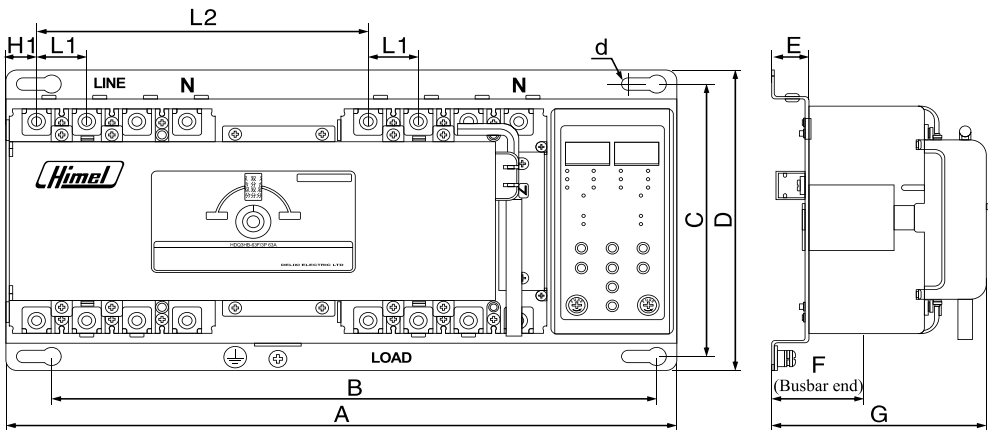


Figure3:Integrated HDQ3HB-100~400/ 3P and 4P

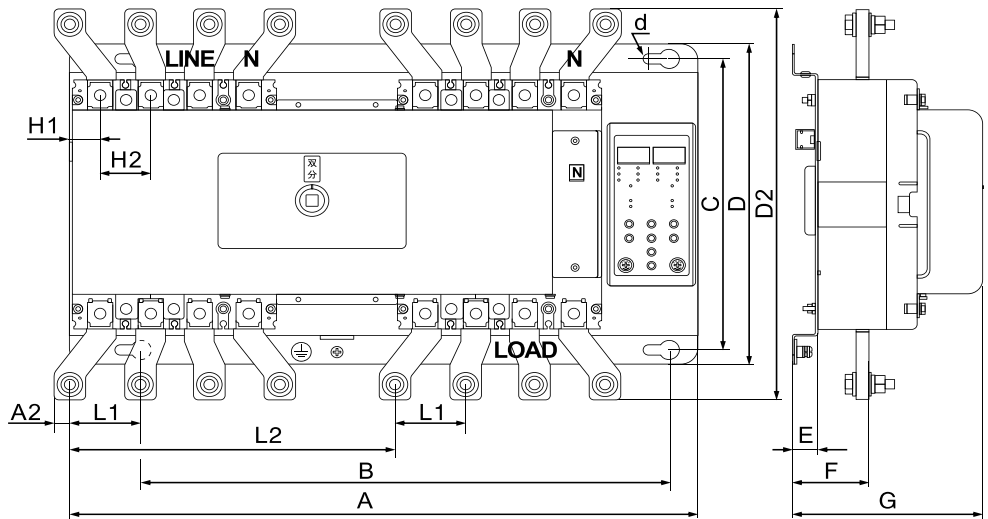


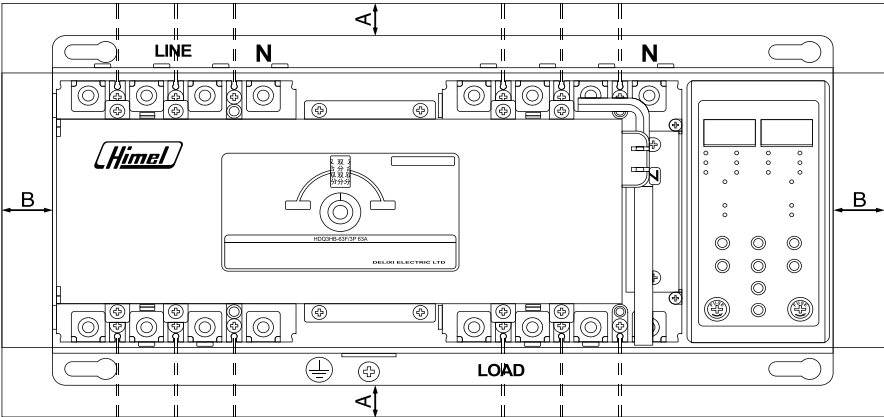
Figure4:Integrated HDQ3HB-630/ 3P and 4P

Spec.	Mode	A	A2	B	C	D	D2	E	F	G	L1	L2	H1	H2	d
HDQ3HB-100S		375	-	322	200	220	-	25	49	121	25	180	15.5	-	9
HDQ3HB-250F		465	-	420	200	220	-	25	48	148	35	230	21.5	-	9
HDQ3HB-400F		610	-	510	300	330	-	25	62	185	48	316	30.5	-	10
HDQ3HB-630F		610	14.5	510	300	330	402	25	77	185	68	316	30.5	48	10

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Safety Clearance



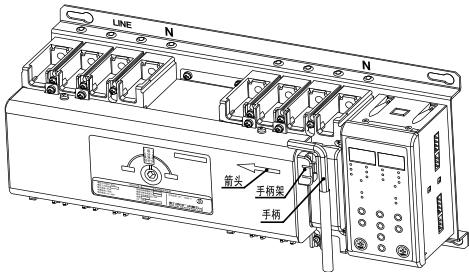
A:installation dimension to the upper and lower housings

B:installation dimension to the housing of the non-conductive part

	HDQ3HB-100S	HDQ3HB-250F	HDQ3HB-400F	HDQ3HB-630F
A	25	45	85	85
B	40	40	80	80

Manual Operation Handle

When the automatic transfer switching equipment is installed and commissioned,insert the handle into the handle housing in the arrow direction shown in the figure.



Controller Cut Out Dimension for Front Door

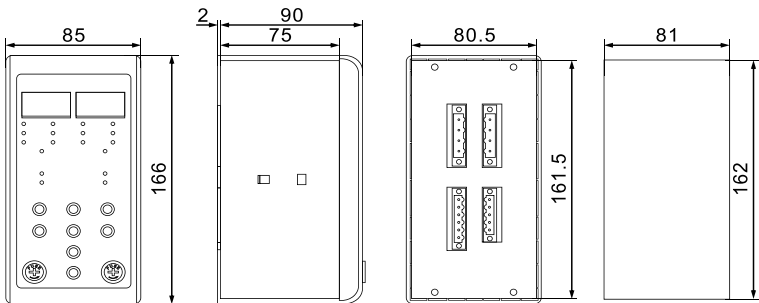


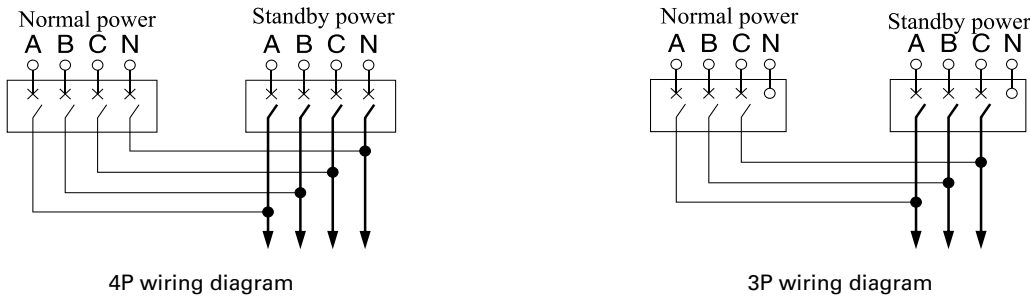
Figure6:Controller dimensions and cutout

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Products Connection

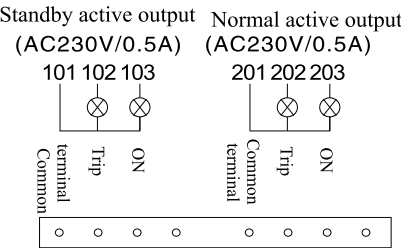
Main circuit diagram



ATS Status Indicator

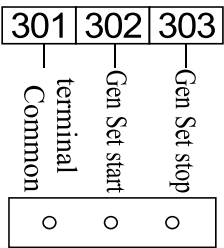
- 103 standby power ON
- 102 standby MCCB trip
- 203 normal power ON
- 202 normal MCCB trip

If need to be lighted the LED , Access the power from normal & standby main circuit



Gen Set control

- 302 Gen Set start
- 303 Gen Set stop



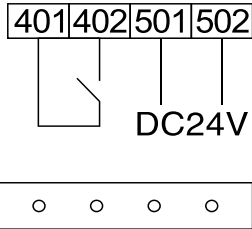
Remote Control

401 402 remote transfer to standby power

- Active with Auto model only
- 401 402 "On" ATS will transfer to standby power, whatever normal power is available or not.
- 401 402 "OFF" ATS will return to Auto control according to transfer setting.
- If standby power is abnormal , ATS will not to be transferred

501 502 dual switch off by fire control signal

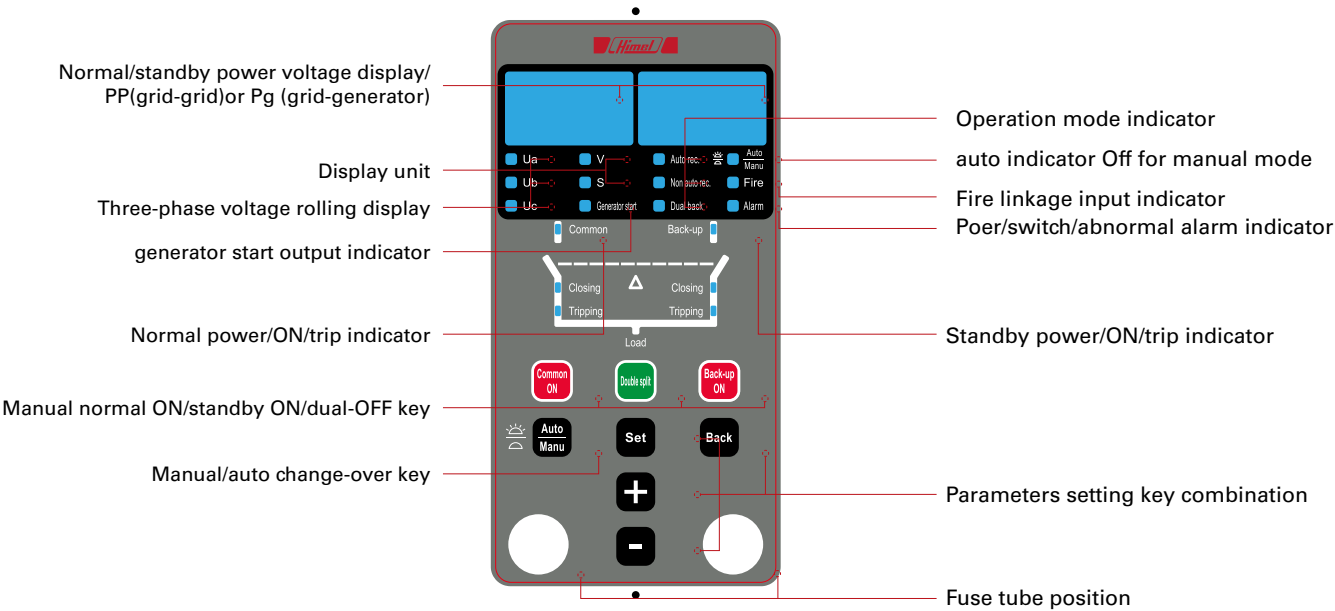
- Active by 24VDC input from fire control signal whatever Auto/Manu model (+ - polarity free)
- 24VDC "ON" , switch off both normal/standby power immediately.
- 24VDC "ON turn to OFF",ATS will return to normal power at Auto model.



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Instruction for Controller Setting

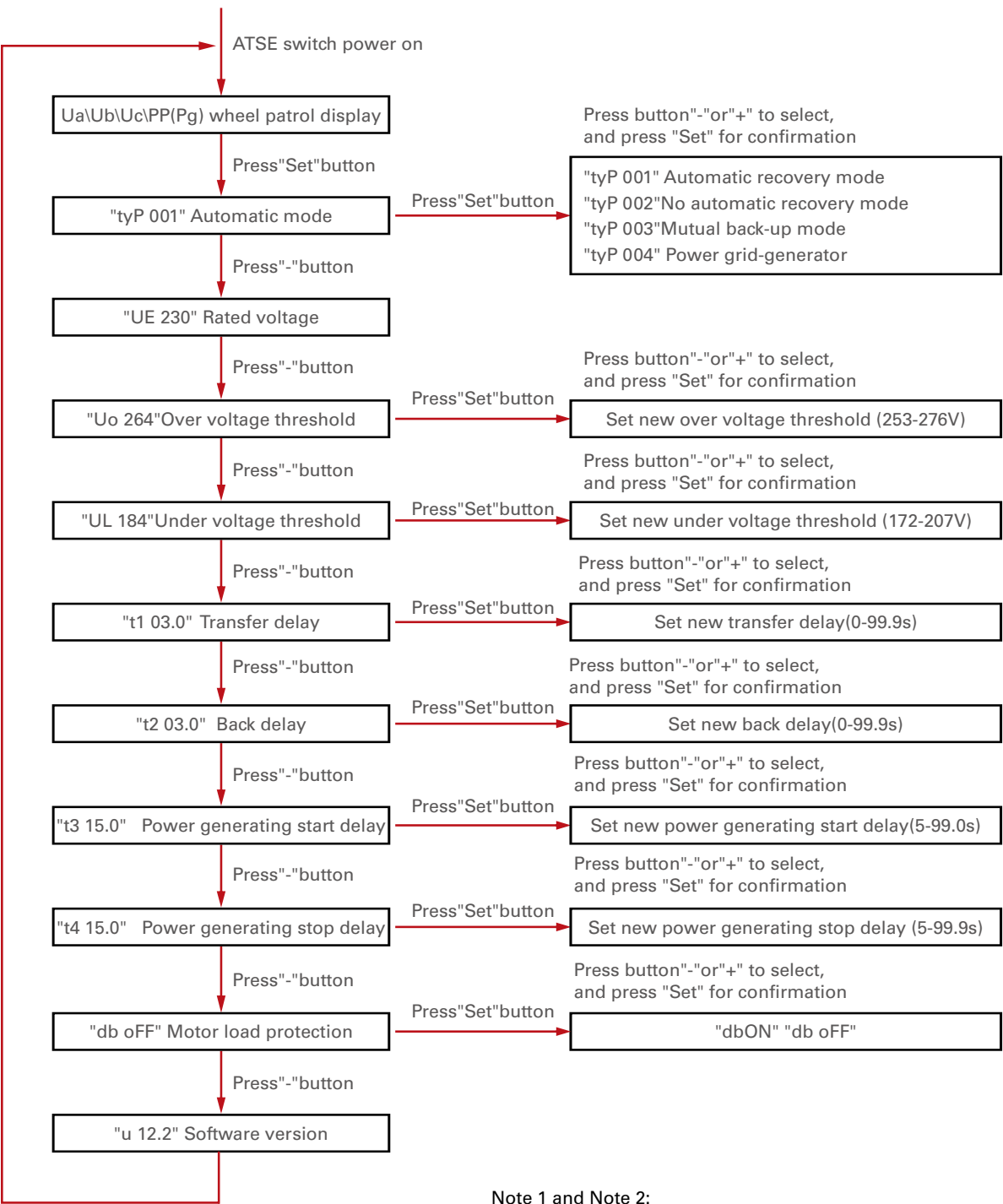


Indicator display description			
Indicator	Function description	Indicator	Function description
Ua	ON:The displayed value is a phase-A voltage value of the power supply. OFF: No.	Auto-reset	ON: Auto-switch and auto-reset mode OFF: NO
Ub	ON:The displayed value is a phase-B voltage value of the power supply. OFF: No.		ON: Auto-switch and not-auto-reset mode OFF: NO
Uc	ON:The displayed value is a phase-C voltage value of the power supply. OFF: No.		ON: Mutual standby mode OFF: No
V	ON: Voltage unit OFF: No.		ON: Auto mode OFF: Manual mode
s	ON:Time unit OFF: No.	Fire control	Flash: Fire signal input OFF: No
Generator starts	ON: Output the generator starting signal OFF: No.	Alarm	Flash: System works abnormally (power supply or switch) OFF: No abnormal phenomenon
Normal	ON: Normal power works normally Flash: Normal power works abnormally OFF: loss voltage of normal power (no power)	Standby	ON: Standby power works normally Flash: Standby power works abnormally OFF: loss voltage of standby power (no power)
ON (normal)	ON: Normal switch ON OFF: Normal switch OFF	ON (standby)	ON: Standby switch ON OFF: Standby switch OFF
Trip (normal)	Flash : Normal switch trips OFF:	Trip (standby)	Flash : Standby switch trips OFF:

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Flowchart for Controller parameters setting

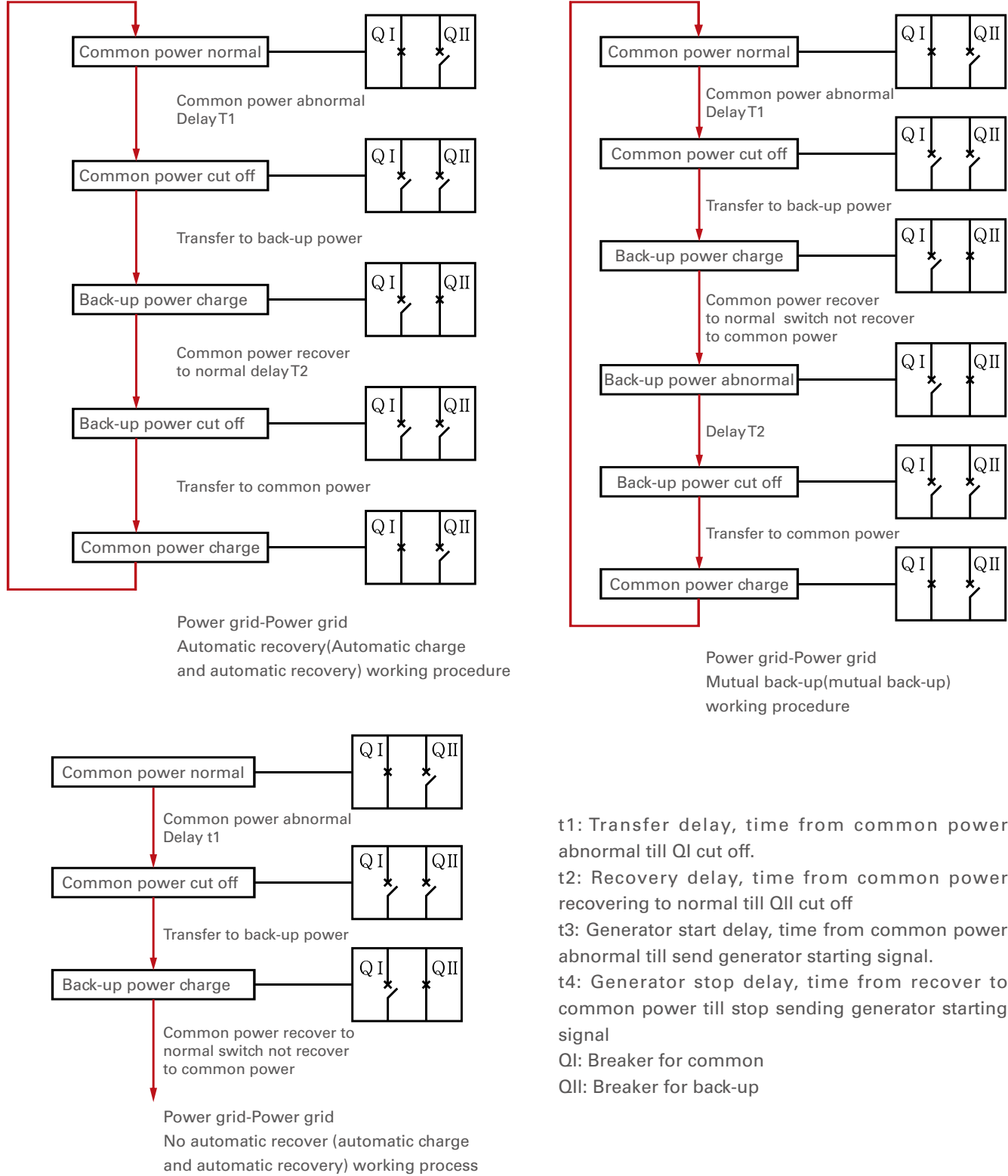


Note 1 and Note 2:
Inquiry and set are only available when controller is under power grid-generator mode.
Note 3:
Motor load protection function: incl. phase sequence identification and open-phase detection.

HDQ3HB Automatic Transfer Switch

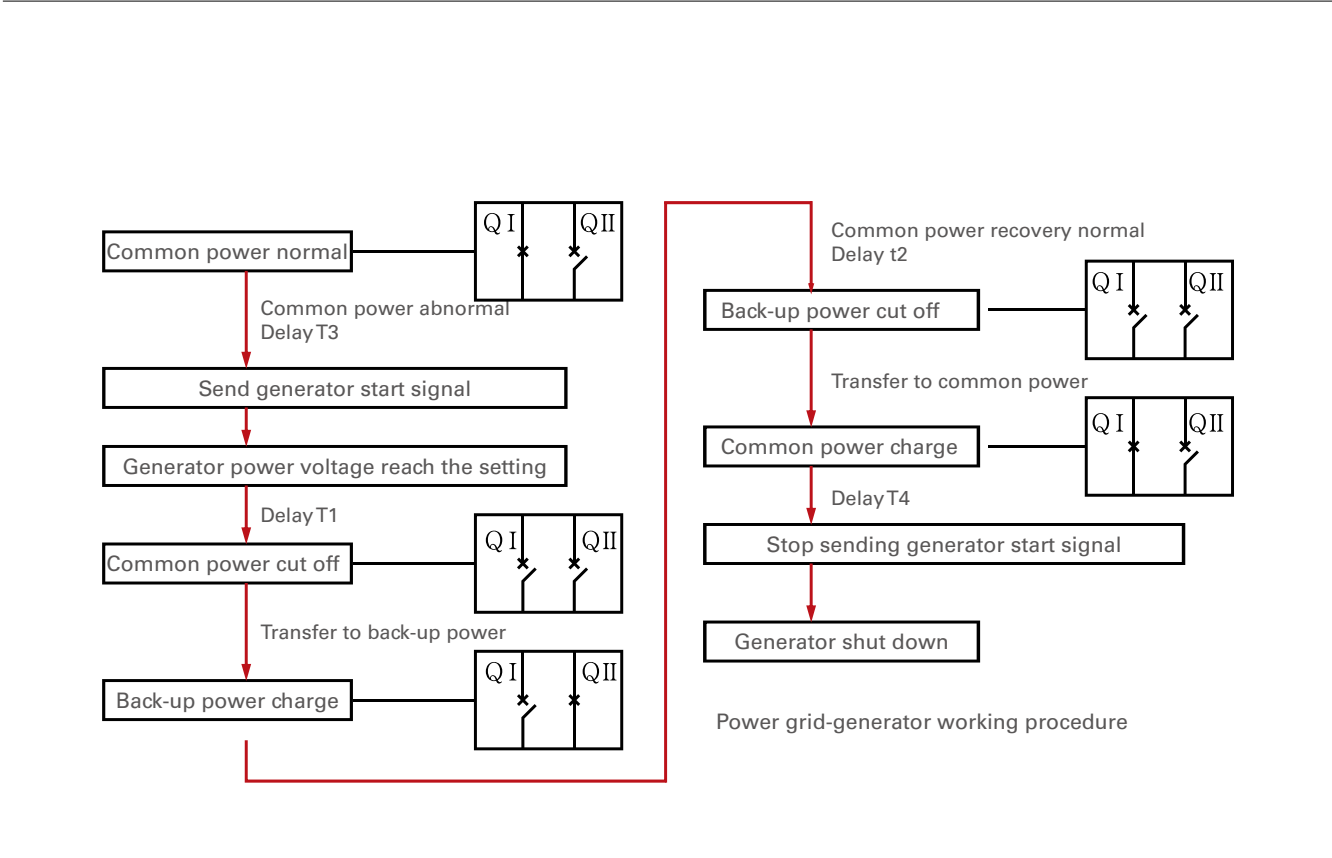
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Flowchart for Auto switching action



HDQ3HB Automatic Transfer Switch

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Maintenance and service

- ◆ Maintenance and service must be performed by the qualified professional.
- ◆ Do not maintain and repair the product, when it is in use.
- ◆ This product can work reliably at the rated voltage (85%~110%) Ue.To connect the product wires, the incoming terminal, the outgoing terminal, and N phase shall be distinguished strictly. Also, the neutral line shall not be shared.
- ◆ Do not use this product in the conditions out of the normal use condition range.
For example: no preventive measures shall be taken when there is continuous water vapor or condensation, flammable or corrosive powder, the expected short-circuit current is out of the range, the voltage is very high or low, the current exceeds the rated value, and the altitude is very high.
- ◆ To transfer manually, please use the special handle provided on this product.
- ◆ If the protective device is disconnected due to line or load failure, eliminate the failure and then power on the load.
- ◆ The product shall be checked generally during operation at regular interval (such as once in every three months).
- ◆ To check whether the product works normally, transfer the switch manually or automatically.

HDQ3HB Automatic Transfer Switch

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Fault analysis and troubleshooting

The common faults and their solutions are listed below. If error happens while using the product check the following table.

Fault	Cause	Solution
No display on the controller panel	The power supplied to the controller by main circuit is abnormal	Check whether the fuse tube on the controller panel is installed or burnt out. Then re-install or replace it, if necessary. Check the line connection between main circuit to the controller is loose and insert it firmly, if necessary.
The voltage is abnormal, but the auto transfer power switch does not work	The connection between the controller and the switch body failed.	Check whether the connecting plug from the controller to the switch is loose, and whether the connector fastening screw is installed firmly.
The voltage is normal, but the panel displays abnormally	The connection between the power line and the circuit breaker power supply failed	Ensure the connection between the power line and the circuit breaker power supply is in good state. Check whether there is a lack of voltage during construction.
The alarm lamp flashes; the automatic transfer switch is switched to another circuit of power supply	One circuit of power supply failed (over-voltage, under-voltage, lack of voltage, phase loss)	Check the failed power supply for troubleshooting.
The alarm lamp flashes and the automatic transfer switch does not work	Two circuits of power supply failed The product is in the standby power and auto-switch & not-auto-reset state	Check the failed power supply for troubleshooting. Set the product working mode by the user according to the actual demands (auto-switch & auto-reset, auto-switch & not-auto-reset, mutual standby)
Controller displays ERROR1	Phase sequence error	Voltage at the user incoming terminal is disconnected; check the phase sequence at the normal and standby circuit incoming terminal.
Controller displays ERROR2	Mechanism blocked Switch trips Switch handle cracked Switch contact fusion welding Switch action time is too long	Manual dual-division of product; take out the normal and standby fuses from the controller and re-install them. so the controller will restart automatically. If the ERROR2 is still there , please contact the manufacturer after-sales department.
Product display trip alarm	Lower load failure Auxiliary alarm inside the plastic housing damaged	Set the controller to the Manual state, operate the product manually to the normal dual division, or standby dual division. When the load failure is eliminated, set the controller to the user required state. For damaged auxiliary alarm, contact the manufacturer after-sales department.

