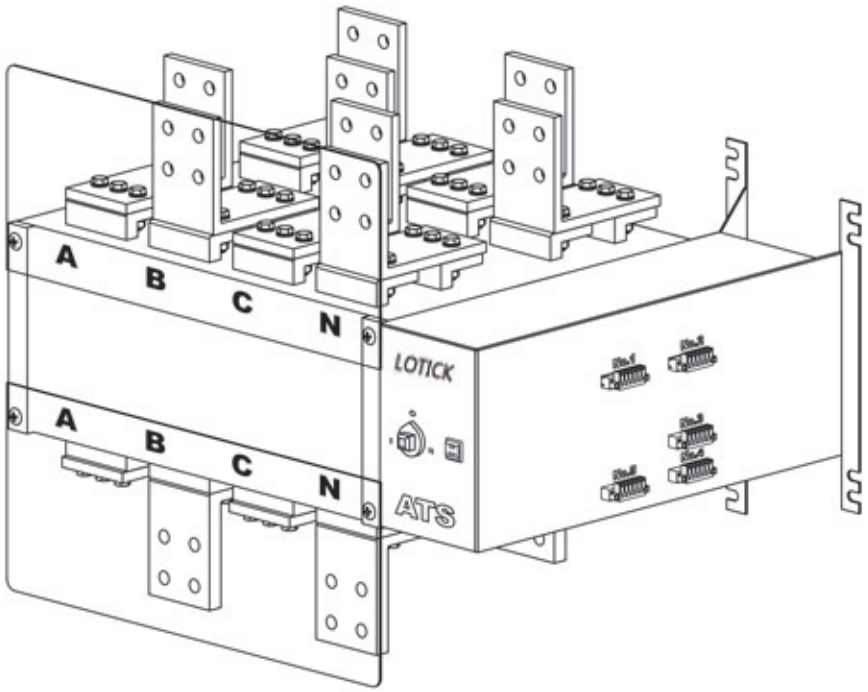
LOTICK®
ELECTRIC

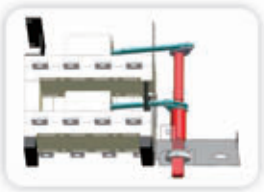
AUTOMATIC TRANSFER SWITCHES

LECTOTYPE MANUAL



SHANG WET ELECTRIC CO.,LTD

CLASS PC AUTOMATIC SWITCH ATS
LSK SERIES



Mechanical interlock

Structural design

- Double-row composite contacts

  A double-row composite design is adopted for the dynamic contacts, the conductive area of which is twice as much as that of the single-sided contact switches.

- Transverse-pull moving mechanism

  The dynamic contact makes reciprocating motion in the transverse direction, which has the advantages of zero arc and high safety factor as compared with the longitudinal separation type switches.

- Double interlocking mechanically and electrically

  The precise mechanical design ensures complete separation between the two power supplies and the logical management of the master control circuit board achieves the electrical interlocking.

- Safety zero position

  All the products of this series are equipped with a safety zero position, which is used to cut off both the two power supplies simultaneously, thus making them better than the two-section switches in the safety performance.

Double-row composite contacts

FUNCTIONAL ADVANTAGES

- Prevention of early failure and damage to equipment

  In each piece of the dynamic contact, a high strength spring leaf made of the silicon manganese steel is fixed reliably in the base and the pressure between the dynamic and the static contacts is kept constant during the transfer process and after the closing of the switch, which can prevent effectively the equipment breakdown generated from the high voltage pulse caused by the contact bounce or fibrillation (common in the contactor switches). It is designed to be installed for use in such equipment as the diesel generators of frequent vibrations.

- Load isolation function

  The precise safe distance can isolate effectively the power supply from the load and meet the creepage requirements, is provided with the obvious on–off position display and can be operated under a load.

- Zero line overlapping switching

  This patented function is used to prevent the equipment from being damaged caused by the zero line potential drift, when the switch is switching (optional function).

Ultra-thin Design

PERFORMANCE ADVANTAGES

- High breaking capacity

  8 times rated current breaking capacity, 10 times rated current making capacity, 12kV rated withstand impulse voltage, 120kA Rated limit short-circuit current.

- High-grade use category

  AC-33A use category;Frequently operable, which has a wider scope of application than AC-33B that is not frequently operable in its scope of application in the use category.

- Meeting Grade I and II power distribution requirements

  The good electrical properties can meet the technical requirements of the Grade I and II power distribution systems and have a higher impact resistance than that of the circuit breaker type ATS to avoid the master switch from tripping caused by the short-circuit of a single load.

- Ultra-thin volume (20A-100A)

  The precise mechanical design achieves an ultra-thin volume and the volume of an electrical box assembled is only 25% of a floor tile (60 × 60) in size.

CLASS PC AUTOMATIC SWITCH ATS
LSK SERIES

STRUCTURE INTRODUCTION

Transferring switch body: The standard type product shall be equipped with upper incoming lines and lower outgoing lines

Main power input copper bar:Used for fixing the main power cable or busbar

Standby power input copper bar:Used for fixing the standby power cable or busbar.

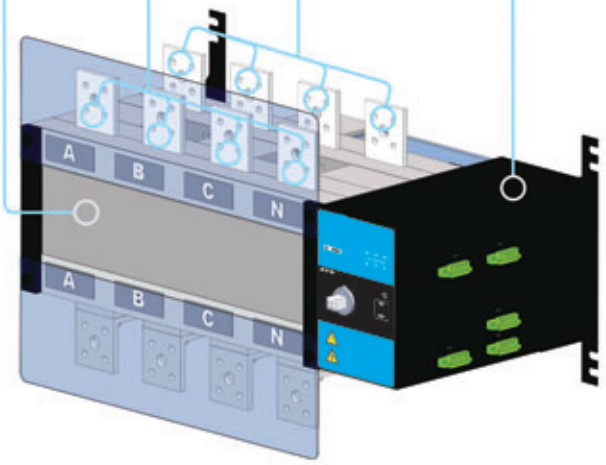
Electric control unit of transferring switch: Including main control circuit board and a driving motor Patent No.
ZL 2011 2 0161985.8
ZL 2012 2 0263204.1

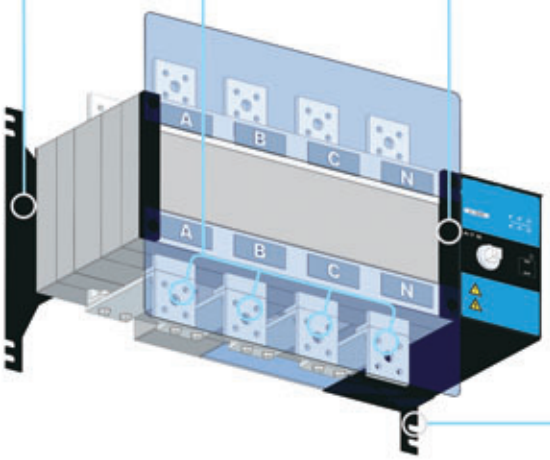
Left installation bracket: Matched with the right installation bracket and used for fixing switches.

Load power output integrated copper bar, used for fixing the load cables or busbars Patent No：
ZL 2010 3 0242257.0
ZL 2010 2 0664285-6

Safety guard plate installation hole, used for fixing the safety guard plate

Right installation bracket：Matched with the left installation bracket and used for fixing switches.





Manual emergency handle interface：Used to turn the switch manually to switchover the power supply at an emergency situation.

For LED indicators, see P.8 for details.

Electric/ emergency manual mode selection button

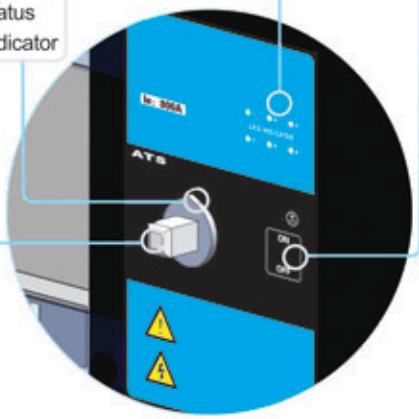
No.5 terminal:Expansion port, no signal output for standard products, may be selected to install self-startup signal output and locking-up indication and so on.

No.1 terminal：Electric control unit power supply input

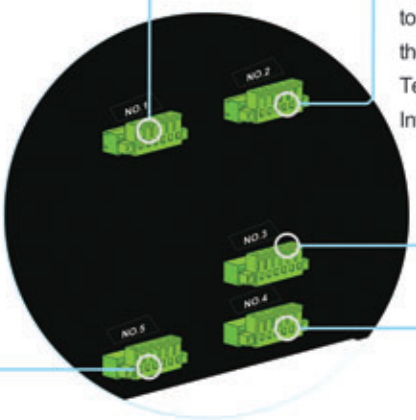
No.2 terminal：Transferring control signal input (passive control).

No.3 terminal：Position feedback signal output 1 (active output for M type and passive output for other types.)

Switch position status indicator



No.1-5 wiring terminals are equipped according to the different types of the switches. See the Terminal Functions Introduction for details.



No.4 terminal：Position feedback signal output 2 passive output).

CLASS PC AUTOMATIC SWITCH ATS
LSK SERIES

FUNCTION CODE TABLE

Application type	Terminal type	Fire-fighting type	Intelligent type	
Function Code	M	X	W (External controller type)	N (Built-in controller type)
Structure				
Electrical two-section type	Y			
Electrical three-section type		Y	Y	Y
Manual three-section type	Y	Y	Y	Y
Control mode				
Controller manual / automatic control			Y	Y
Remote electric control (external control)		Y		
Emergency manual	Y	Y	Y	Y
Fully automatic switching	Y	External control	Y	Y
Locking mode	Optional	Optional	Optional	Optional
Fire-fighting signal (forced to zero)		Passive closed signal	See the controllers	Active DC24V signal
Locked up				
Commonly used / standby power monitoring and protection				
Overvoltage protection	Single-phase (optional)	Single-phase (optional)	Three-phase (range adjustable)	Three-phase (range adjustable)
Undervoltage protection	Single-phase (optional)	Single-phase (optional)	Three-phase (range adjustable)	Three-phase (range adjustable)
Lost phase protection			Y	Y
Frequency protection			See the controllers	Y
Phase angle detection				Y
N-phase fault alarm				Y
Phase sequence inconsistency alarm				Y
Application function				
Automatically throw-into and automatic recovery	M1(Standard products)	External control	Y	Y
Automatically throw-into but not automatic recovery	M2(Tailor-made)	External control	See the controllers	Settable
The commonly used power supply takes priority to supply the electric current.	Y	External control	Y	Y
The standby power supply takes priority to supply the electric current.		External control	Settable	Settable
Generator self-start signal (passive)	Optional	Optional	Y	Y
Transfer delay	0s or 2s (Optional undervoltage)	External control	Adjustable	Adjustable
Power failure delay setting			Y	Y
Power restoration delay setting			Y	Y
Alarm records storage				Y
Communication			See the controllers	Y
Feedback signal	Active AC220V (Ⅰ, Ⅱ)	Passive closed signal (Ⅰ, Ⅱ, 0)		
Display function				
Switch position status display			Y	Y
Voltage display			See the controllers	Y
Frequency display			See the controllers	Y
Current display			See the controllers	Y

Note：The W-type is composed of a controller of corresponding functions and an X-type switch:

Type meaning: SKT-250A-4P-M2

A Class PC motor-driven type switch (Q5) ATS is selected and adopted, its electric current is 250A, the number of poles is 4, it is provided with the function of automatic self throw-in but not automatic self recovery and is used at the terminal site for automatic switching.

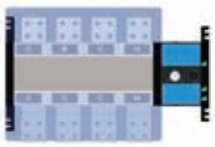
CLASS PC AUTOMATIC SWITCH ATS
LSK SERIES

MAIN TECHNICAL PARAMETERS

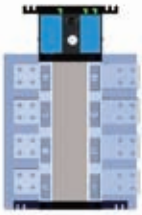
LSK SERIES				
Conventional thermal current ith	125A	250A	400A	630A
Rated insulation voltage of copper bar Ui	750V		1000V	
Rated impulse withstand voltage Uimp	8KV		12KV	
Rated operating voltage of copper bar Ue	AC440V			
Use category	AC-33A			
Rated operating current of copper bar Ie	125	250	400	630
Rated making capacity	10Ie(10 times the rated current)			
Rated breaking capacity	8Ie(8 times the rated current)			
Rated limit short-circuit current	100KA		70KA	
Rated short time withstand current	13KA		26KA	
Transferring time Ⅰ-Ⅱ or Ⅱ-Ⅰ	0.45S		0.6S	
Rated operating voltage of the control power supply Vs	Standard product:AC220V, Optional:DC24V, AC110V, AC280V, Correct working range:85% Vs ~ 115% Vs.			
Start	300W		325W	
Normal	55W		62W	
Net weight (kg) 4-pole	5.3	7	17	17.5

Note: The 20A-100A standard product is a ultra-thin product and a tailor-made thickened style is optional (with the same volume as 125A).

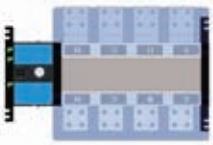
SCHEMATIC DIAGRAM OF CORRECT INSTALLATION METHOD



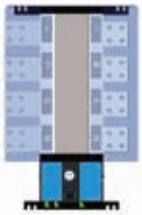
Best
(front installation)



Right
(vertical installation)



Right
(back installation)



Wrong
(inverted installation)

CLASS PC AUTOMATIC SWITCH ATS
LSK SERIES

	800A	1000A	1250A	1600A	2000A	2500A
	1000V					
	12KV					
	800	1000	1250	1600	2000	2500
	70KA	100KA		120KA		80KA
	26KA	50KA		55KA		
	0.6S	1.2S				2.4S
	355W		400W	440W		600W
	74W		90W	98W		120W
	43	43.5	44	51	118	119

Schematic diagram of paper packaging stacked.

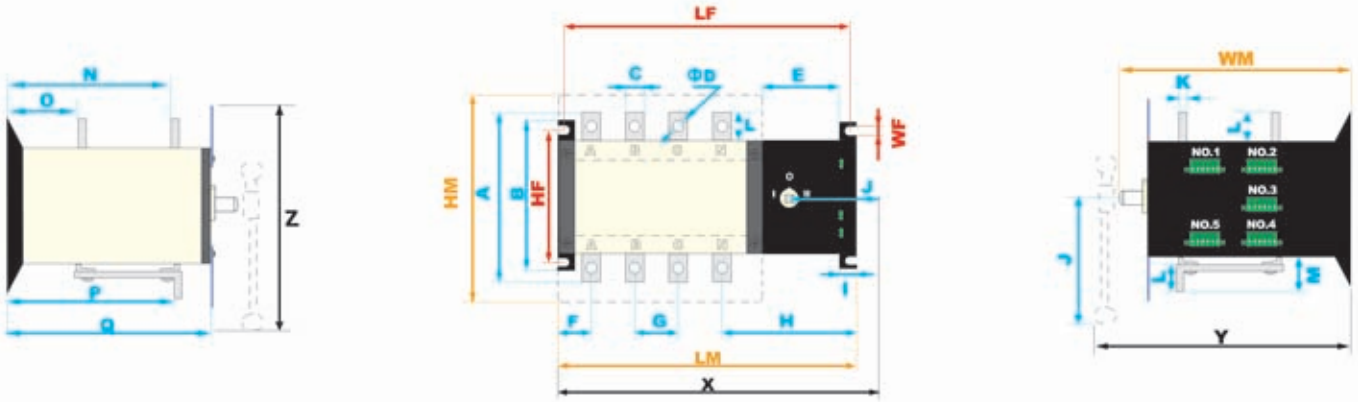
Schematic diagram of wooden box packaging stacked.

ENVIRONMENTAL REQUIREMENTS FOR USE

LSK SERIES	
Name	Requirements
Operating temperature	-20 To +45°C, the average value for 24 hours shall not exceed +35°C;
Operating humidity	The average humidity under the +40°C conditions shall not exceed 50% without condensation;
Altitude	Lower than 2000 meters and, if higher than 2000 meters, reduce its rated value for use;
Vibration and gas	There shall be no strong vibration or shock and no harmful gases to corrode the metals and to damage the insulation within the environment of its use;
Surrounding material	There shall be no serious dust, conductive particles or explosive hazardous substances ;
Class of pollution	Class III;
IP rating	IP20 ;
Storage requirements	To be stored under -30 To 70°C and in a dry, non-corrosive and saline environment and the longest period of storage shall be 1 year
Packing	630 A and below packed in carton boxes; 800 A and above packed in wooden boxes
Stack	630 A and below stacked no more than 5 layers; 800 A and above stacked no more than 3 layers

OUTLINE DRAWING 1

20A-3200A outline dimensions



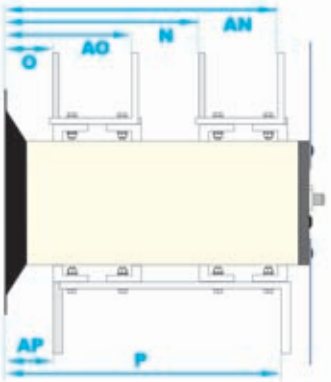
20A-3200A outline and installation dimensions table

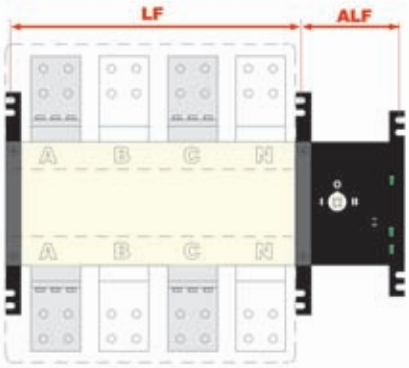
LSK SERIES													
Series	Current range	Installation data			Maximum size of the body			Other detailed dimensions of switch					
		LF	WF	HF	LM	WM	HM	A	B	C	D	E	F
	125A	271	7	110	292	188	163	142	130	20	9	101.5	34
	250A	334.5	7	110	351	194	200	170	130	25	11	102.5	38
	400A	416	9	175	437.5	260	324	268	200	40	13	121.5	46
	630A	416	9	175	437.5	260	324	268	200	40	13	121.5	46
	800A	608	11	221	633	321	451	350	250	63	15	111	61
	1000A	608	11	221	633	321	451	350	250	63	15	111	61
	1250A	608	11	221	633	320.5	451	350	250	63	13	111	49
	1600A	608	11	221	633	320.5	451	392	250	80	13	111	41
	2000A	464	11	361	633	492.5	451	466	400	80	13	111	38.5
	2500A	464	11	361	633	492.5	451	466	400	80	13	111	38.5
	Current range	Auxiliary dimensions											
	2000A–3200A Auxiliary dimensions	ALF	AL	AN	AO	AP							
		140	130.5	423.5	193	92.5							

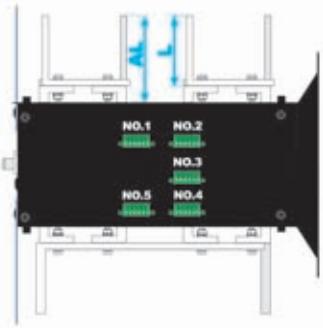
Note: X, Y and Z are the maximum width, depth and height of the switch assembled with a manual emergency handle. Depending on the angle of the handle when installing or the difference of positions of the slider moving, the corresponding dimensions will be smaller than the data listed in the table above, which are listed for reference only.

OUTLINE DIMENSIONS 2 (AUXILIARY DIMENSIONS)

2000A–3200A Auxiliary outline dimensions

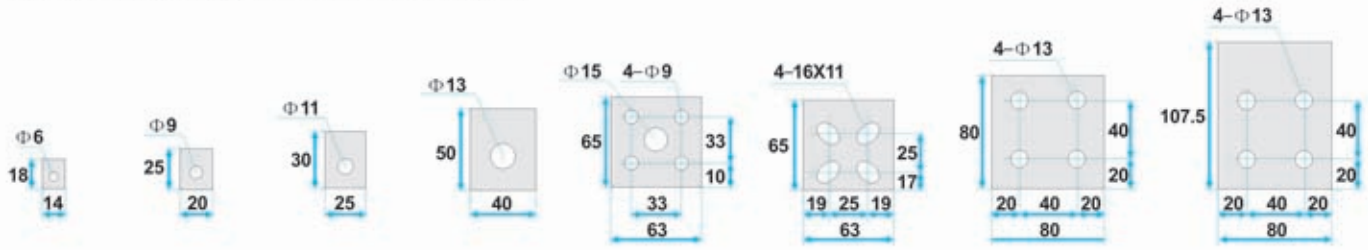






Other detailed dimensions of switch											Reference dimensions		
G	H	I	J	K	L	M	N	O	P	Q	X	Y	Z
36	150	18	188	3. 5	25	31	133	56	133.5	167.5	392.5	220	269
50	163.5	20	188	3. 5	30	36	138	59	138	171	451.5	222.5	288
65	195.5	25	188	5	50	56	187	78	205	237	522	293	354.5
65	195.5	25	188	5	50	56	187	78	205	237	522	293	354.5
120	212	27	473	7	67	81	245.5	102	254	298.5	1008	381	704
120	212	27	473	7	67	81	245.5	102	254	298.5	1008	381	704
120	224.5	27	473	7	67	81	245.5	102	254	298.5	1008	381	704
120	232	27	473	10	80	110	245.5	102	251.5	298.5	1008	381	704
120	232	27	473	15	107.5	131	317	86.5	418.5	470.5	1008	553.5	711.5
120	232	27	473	15	107.5	131	317	86.5	418.5	470.5	1008	553.5	711.5

Input and output copper bar dimensions chart



20A–100A 125A–160A 250A 400A–630A 800A–100A 1250A 1600A 2000A–3200A