HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

Range Presentation

The HDQ3S is a member of the Himel 3 series, designed as a PC-class Automatic Transfer Switch (ATS) equipment. It is primarily utilized in AC 50/60 Hz power systems with a rated operating voltage of 230/400 V and a rated operating current ranging from 16 to 250 A. This device facilitates the automatic or manual switching between the normal and alternative sources.
Application standard: GB/T14048.11/ IEC60947-6-1

Features

Current: 16-250A
Number of Poles: 2P/3P/4P
Control type: P / G / R / M
Equipment Class: PC
Position: I-O-II
Category: AC-32B / AC-33B / AC-33iB
Standard: GB/T 14048.11 / IEC 60947-6-1
Certificate: CCC/CE/CB

Highlights

Multiple functions

- Automatic / Manual / Remote Control
- Power-Power / Power (Solar)-Generator (Solar)
- Auto Transfer and Recover

Advance performance

- Double contact structure system achieve AC-33B@ 140A / AC- 33iB@250A suit for full motor load application
- Energy storage mechanism, ensure transfer time ≤2s, reduce power short down time

Easy Installation

- 2 line in and 1 line out, save additional wire consumption
- Auto and Manual button integrated, easy to maintain
- Test button, easy to on site debug

Operating conditions

HDQ3S series Class PC transfer switch can operate in an ambient temperature of -25°C ~ +70°C
When the highest temperature is +55 °C, the relative humidity in air shall not exceed 95%
Storage temperature: -35°C ~ +85°C
The altitude of the installation site shall not exceed 2000 m

Pollution degree

HDQ3S series Class PC transfer switch can operate in an environment with the pollution degree 3

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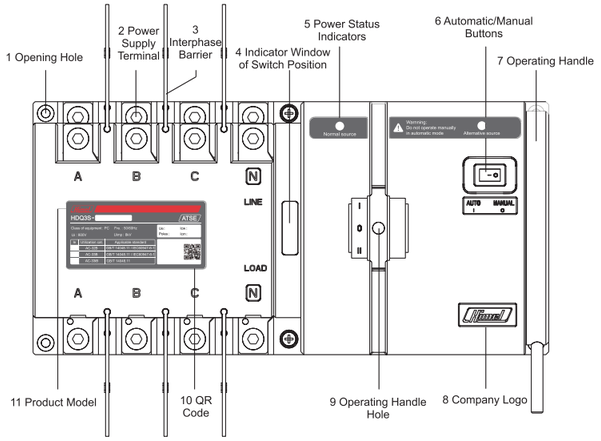
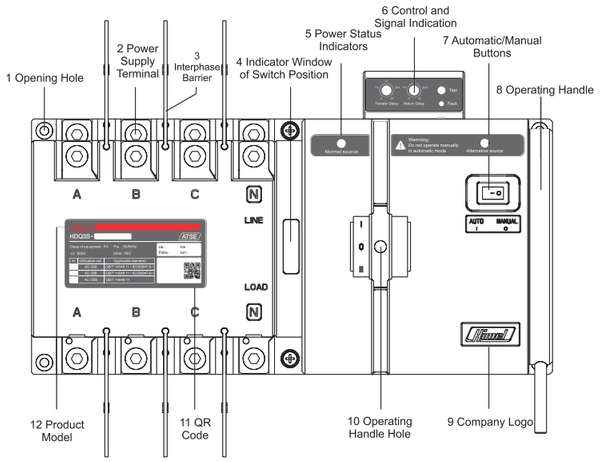
Structure and Function



ATSE-P

P: ATSE (Power-Power)

Auto. transfer and recover
Normal source phase A B C monitor
Alternative source phase A monitor
OFF, Normal, Alternative ON status indicate
Normal source loss phase protection
Normal & Alternative source No-voltage protection
Transfer time(s): 1.5±10%
Auto and Manual switch button
Direct operate handle



ATSE-G

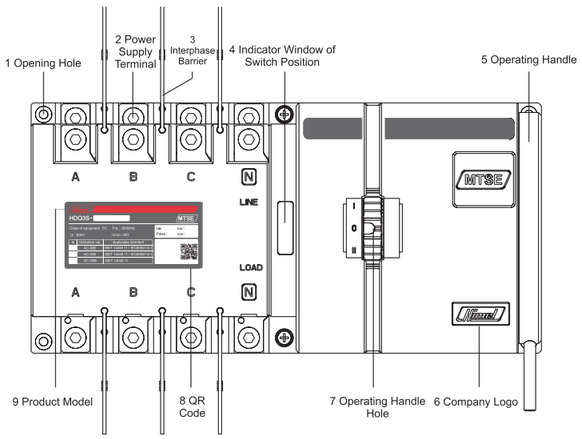
G: ATSE (Power/Solar-Generator/Solar)

Auto. transfer and recover
Normal source phase A B C monitor
Alternative source phase A monitor
OFF, Normal, Alternative ON status indicate
Normal source loss phase protection
Normal & Alternative source No-voltage protection
Over-Voltage Protection
Under-Voltage Protection
Transfer Delay: 0-30s
Return Delay: 0-30s
Test button
Auto and Manual switch button
Direct operate handle

HDQ3S Automatic Transfer Switch Equipment

Standard:

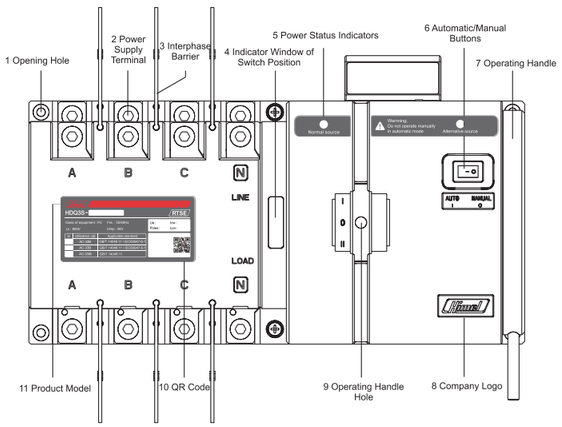
CE



MTSE

M: MTSE (Without Controller)

Direct operate handle
Extended Rotary Handle as accessary
OFF, Normal, Alternative ON status indicate



RTSE

R: RTSE (Remote Control)

Remote control (with Auto. transfer and recover logic)
OFF, Normal, Alternative ON status indicate
Auto and Manual switch
Direct operate handle

HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

Utilization category

Ambient temperature +40℃		Ith	16A	20A	25A	32A	40A	50A	63A	80A	100A	125A	140A	160A	200A	250A
HDQ3S-80	AC-32B AC-33iB	Ie	16A	20A	25A	32A	40A	50A	63A	80A						
	AC-33B		16A	20A	25A	32A	40A	40A	40A	40A						
HDQ3S-125	AC-32B AC-33iB	Ie					40A	50A	63A	80A	100A	125A				
	AC-33B						40A	50A	63A	80A	80A	80A				
HDQ3S-250	AC-32B AC-33iB	Ie								80A	100A	125A	140A	160A	200A	250A
	AC-33B									80A	100A	125A	140A	140A	140A	140A

Selection Code

Product name	Frame size	Poles	Rated Current	Controller
HDQ3S	**0080**	**4**	**0080**	**G**
HDQ3S	**0080:**80AF **0125:**125AF **0250:**250AF	**2:**2P **3:**3P **4:**4P	0016/0020/0025/0032/0040/0050/0063/0080 0040/0050/0063/0080/0100/0125 0080/0100/0125/0140/0160/0200/0250	**P:**ATSE (Power-Power) **G:**ATSE (Power-Generator) **M:**MTSE (wo. Controller) **R:**Remote Control

Product name	Frame size	Interphase barrier	Pcs	Acc. SKU name
HDQ3S	**0080**	**4**	**2**	
HDQ3S	0080	IB	2	HDQ3S0080IB2
	0125	IB	2	HDQ3S0125IB2
	0250	IB	2	HDQ3S0250IB2

Product name	External handle	Length	Frame size	Acc. SKU name
HDQ3S	**ERH**	**15R**	**0080**	
HDQ3S	ERH	15R	0080	HDQ3SERH15R0080
HDQ3S	ERH	15R	0125	HDQ3SERH15R0125
HDQ3S	ERH	15R	0250	HDQ3SERH15R0250
HDQ3S	ERH	30R	0080	HDQ3SERH30R0080
HDQ3S	ERH	30R	0125	HDQ3SERH30R0125
HDQ3S	ERH	30R	0250	HDQ3SERH30R0250

HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

specification

General data	HDQ3S-80	HDQ3S-125	HDQ3S-250
Poles	2P/3P/4P		
Standard	IEC 60947-6-1 GB/T 14048.11		
Equipment Class	PC		
Rated insulation voltage Ui (V)	800		
Rated impulse withstands voltage Uimp (kV)	8 (2.5 for control circuit)		
Rated operation voltage Ue (V)	400±20% (230±20% for 2P)		
Frequency (Hz)	50/60		
Rated short-time withstand current Icw (kA)	5 @30ms	10 @30ms	10 @200ms
Rated short-circuit making capacity Icm (kA)	7.65	17	17
Mechanical life (I-O-II cycles)	8000	8000	8000
Electrical life (I-O-II cycles)	2000	2000	1500
EMC Level	Environment B		
IP Degree	IP30 (IP00 for Wiring terminal)		
Direct rotary handle	■		
Extended Rotary Handle	□ (MTSE only)		
Product Dimension (WxHxD)	245x120x100	265x130x106	340x170x137
Installation Dimesion (WxH)	232x97	252x118	325x155
Phase to phase dimension (mm)	25	30	40

General data	P	G	M	R
Auto. transfer and recover	■	■	-	-
Manual	■	■	■	■
Auto and Manual switch	■	■	-	■
Normal source 3 phases monitor	■	■	-	-
Alternative source phase A monitor	■	■	-	-
OFF, Normal, Alternative ON status indicate	■	■	■	■
Normal source loss phase protection	■	■	-	-
Normal & Alternative source No-voltage protection	■	■	-	-
Under-voltage Protection	-	■ (act 172V, rec 178V)	-	-
Over-Voltage Protection	-	■ (act 276V, rec 271V)	-	-
Transfer time(s)	1.5±20%	0-30s(adjustable)	-	1.5±20%(Auto)
Return time(s)	1.5±20%	0-30s(adjustable)	-	1.5±20%(Auto)
Test button	-	■	-	-

Notes: Test Button: When Normal & Alternative source wired, push the Test Button, ATSE will transfer to another source.

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HDQ3S Automatic Transfer Switch Equipment

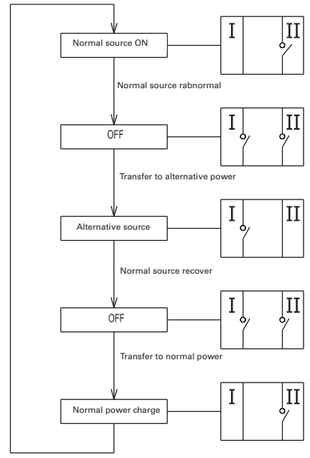
Standard:

CE

Operating Sequence

ATSE-P
Power-Power

Automatic operation: AUTO/MANUAL Button on AUTO position, and the controller of dual power supply equipment will detect the status of Normal and Alternative Source and automatically switch between the two Source.

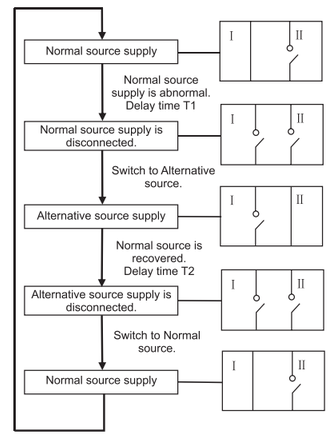


ATSE-G
Power/Solar-Power/Solar/Generator

Descriptions of over-voltage and under-voltage protection function:
If the undervoltage of G-type controller (phase voltage) is less than 172V under working status, the product will trigger undervoltage protection; only the voltage recover to 178V, controller will recognize undervoltage fault was eliminated.
If the undervoltage of G-type controller (phase voltage) is greater than 276V under working status, the product will trigger overvoltage protection; only the voltage recovers to 271V, controller will recognize overvoltage fault was eliminated.
Adjustable range of Transfer delay: 0s ~ 30s
Adjustable range of return delay: 0s ~ 30s
The delay knob is stepless adjustment. The indication scale is only for reference.

T1: Transfer delay, the time from source I abnormality to source I disconnection.
T2: Return delay, the time from source I recover to source II disconnection.
T3: Generators start delay, the time from source I abnormality to output generator start signal.
T4: Generators stop delay, the time from transfer to source I to stop output generator start signal.

I: Normal source.
II: Alternative source.
Note: T3 and T4 are 15s±1s.

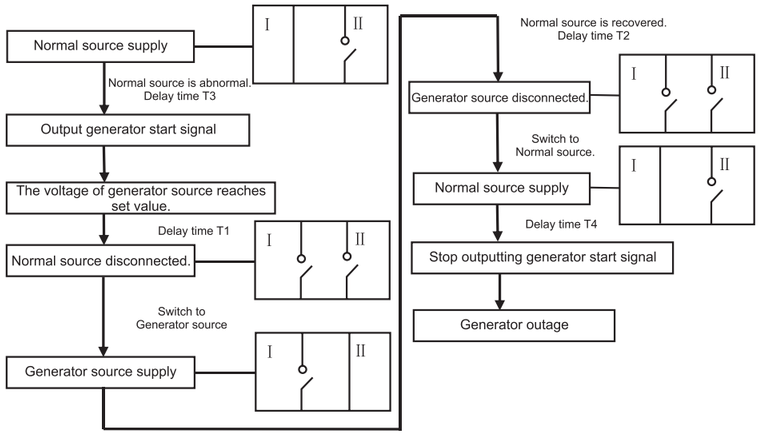


Power/Solar-Power/Solar

HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

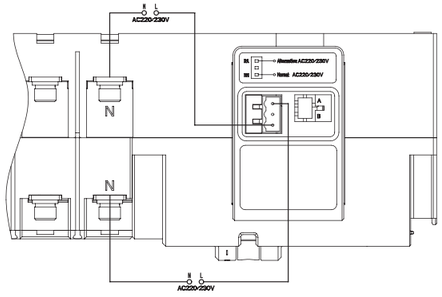


Power/Solar-Generator

RTSE

Remote control: AUTO/MANUAL Button on AUTO position, and the switching between Normal and Alternative Source is controlled by external power signal. The wiring of dual-power control signal is shown in the figure below

Signal Status		RTSE Position
Normal	Alternative	
ON	ON	Normal
ON	OFF	Normal
OFF	ON	Alternative
OFF	OFF	No move



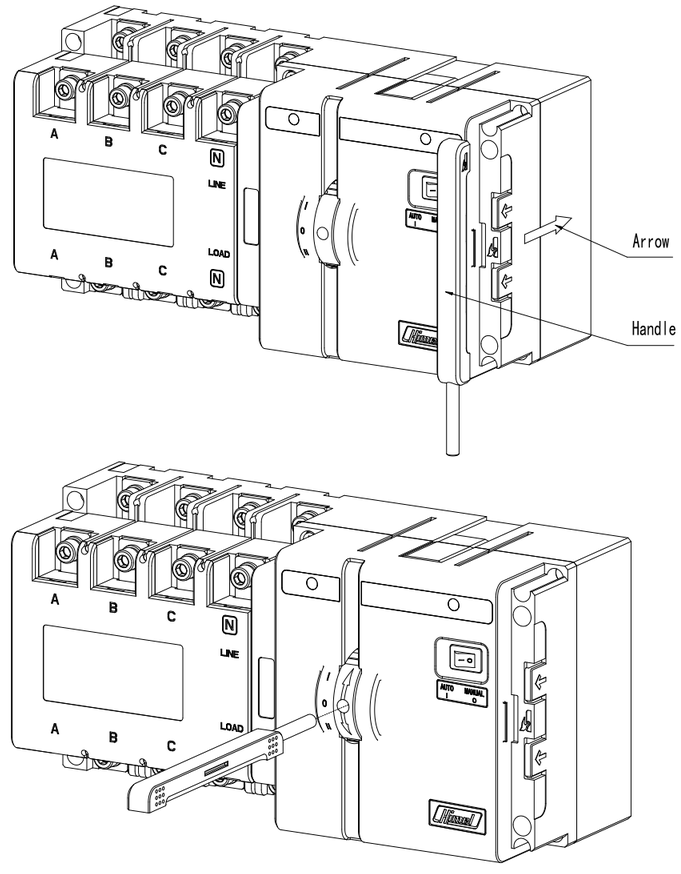
HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

Manual operation: AUTO/MANUAL Button on MANUAL position, take out the handle on the right side of dual power supply equipment, insert it into the rotating position of the handle of the main body, manually rotate it to the required power position, and put the handle back to the original position after switching.

MTSE has no switch button and can only be operated manually



After finishing installing and debugging the ATSE, knock the handle into the product according to the direction shown in the figure above.
If manual opening and closing is required, insert the handle into the handle wheel according to the direction shown in the figure above, and open and close according to the direction shown in the arrow.

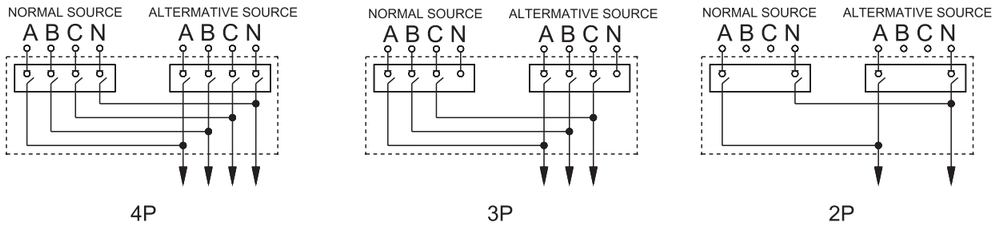
HDQ3S Automatic Transfer Switch Equipment

Standard:

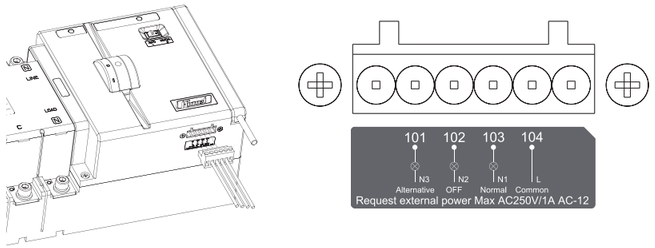
CE

Product Wiring Diagram

Main circuit wiring diagram

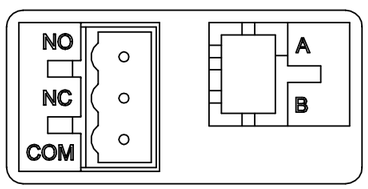


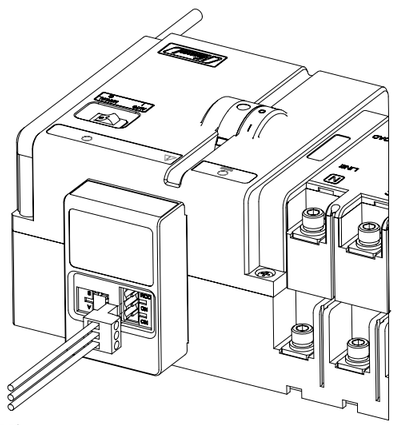
The position signal (Passive signal) output terminal of ATSE



The position signal (Passive signal) output terminal of ATSE

Terminal number	Description
101	Alternative source
102	OFF Position
103	Normal source
104	Common





COM, NO, NC terminal is designed to start generator:
Normal source energized for 15s: COM closes with NO contact
Normal source failure for 15s: COM closes with NC contact, NO contact opens, ATSE outputs generator start signal
Normal source restored for 15s: COM re-closes with NO contact, NC contact opens

Terminals A and B are reserved communication terminals.

LOW VOLTAGE DISTRIBUTION

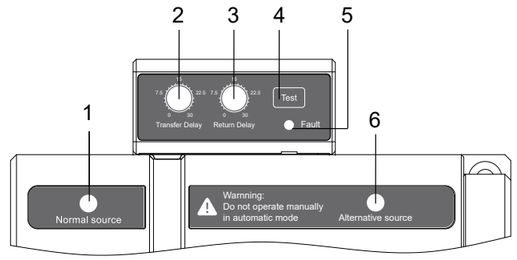
HDQ3S Automatic Transfer Switch Equipment

Standard:

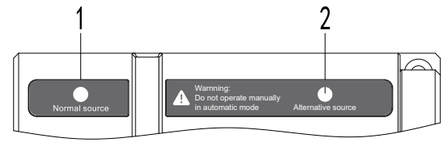
CE

Descriptions of Indicators (ATSE-G)

No.	Indication	Description
1	Normal source	ON: Normal source is normalOFF: Normal source A B C N is in voltage loss or lack of phase
2	Transfer Delay	0-30s adjustable
3	Return Delay	0-30s adjustable
4	Test button	After right connection, with correct power input, in both sources, push the Test Button, ATSE will transfer to another source
5	Power status indicator	Flashing: Abnormal status of Normal source or alternative source OFF: Normal power supply
6	Alternative source	ON: Alternative source is normalOFF: Alternative source A N is in voltage loss



No.	Indication	Description
1	Normal source	ON: Normal source is normal OFF: Normal source is in voltage loss
2	Alternative source	ON: Alternative source is normal OFF: Alternative source is in voltage loss

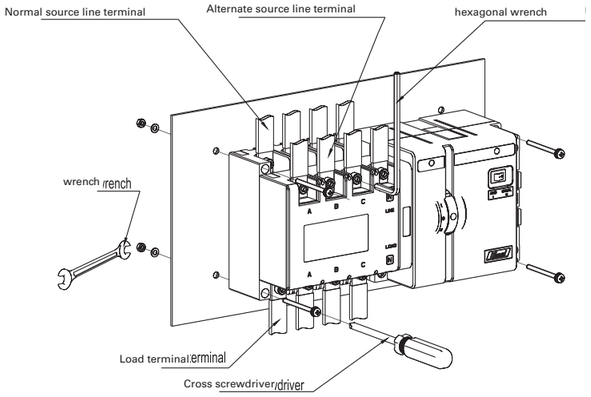


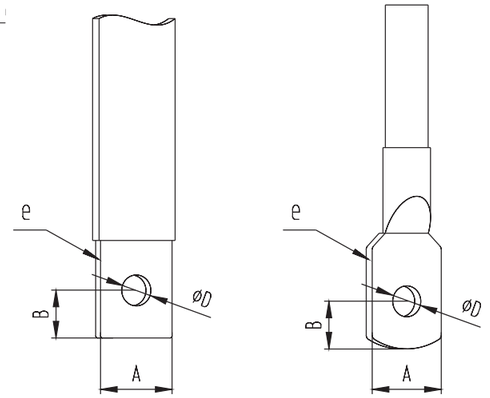
HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

Installation Instructions





Torque Table

Frame	Cross recessed mounting screw		Hexagon socket terminal screw	
	Specification	Torque N.m	Specification	Torque N.m
80	M4X40	1.2	M6X16	6~7
125				
250	M5X55	2	M8X20	9.5~10.5

Recommended Copper Bar and Wire Specification (mm)

Model / Specification	A	B	e	φD
HDQ3S-80	15	9	≥2	6.5
HDQ3S-125	20	11	≥2.5	6.5
HDQ3S-250	30	15	≥4	8.5

Cross-sectional Area of Connecting Conductor (mm^2)

Terminal number	10	16	25	25	32	40	50	63	80	100	125	140	160	200	225	250
Wire cross-sectional area mm^2	1.5	2.5	2.5	4	6	10	10	16	25	35	50	50	70	95	95	120

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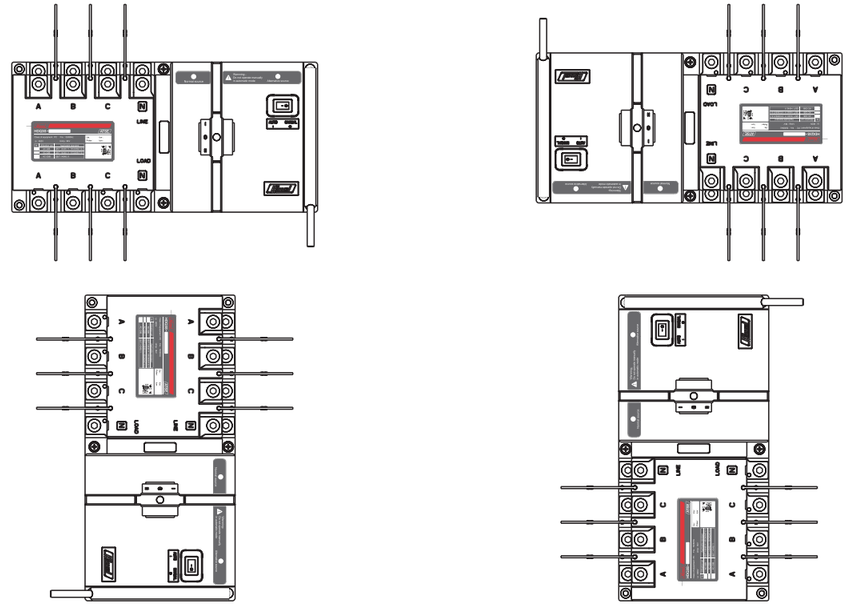
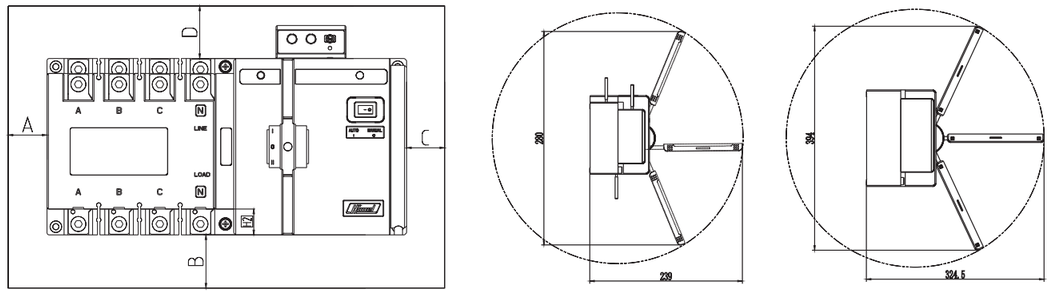
Installation Location



Safety Distance



Safe Distance

Safe distance (mm)	A	B	C	D
Insulation	0	50	0	50
Metal/charged conductor	0	60	0	60

Note: Barrier is forbidden within the operating range of the handle

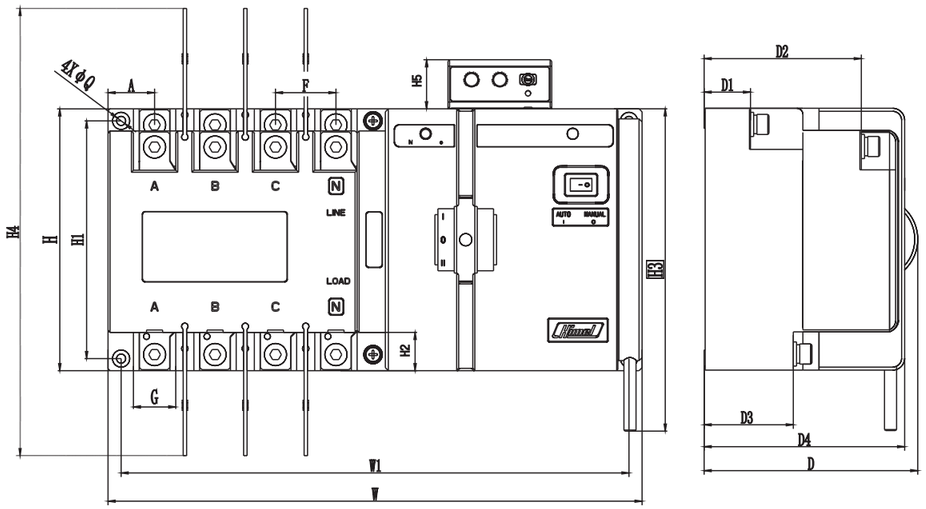
HDQ3S Automatic Transfer Switch Equipment

Standard:

CE

Dimensions

Dimension of TSE



	W	W1	H	H5	H1	A	F	G	H2	H3	H4	D	D1	D2	D3	D4	Q
HDQ3S-80(P/M)	245	232	120	-	97	21	25	17	15.5	155	132	100	24.5	63.5	40	91	4.5
HDQ3S-125(P/M)	265	252	130	-	118	23	30	21.5	19	160	158	106	23	78	44.5	99.5	4.5
HDQ3S-250(P/M)	340	325	170	-	155	31.5	40	30.5	25	210	219	137	27	97	54.5	122.5	5.5
HDQ3S-80(G/R)	245	232	120	25	97	21	25	17	15.5	155	132	100	24.5	63.5	40	91	4.5
HDQ3S-125(G/R)	265	252	130	25	118	23	30	21.5	19	160	158	106	23	78	44.5	99.5	4.5
HDQ3S-250(G/R)	340	325	170	25	155	31.5	40	30.5	25	210	219	137	27	97	54.5	122.5	5.5

HDQ3S Automatic Transfer Switch Equipment

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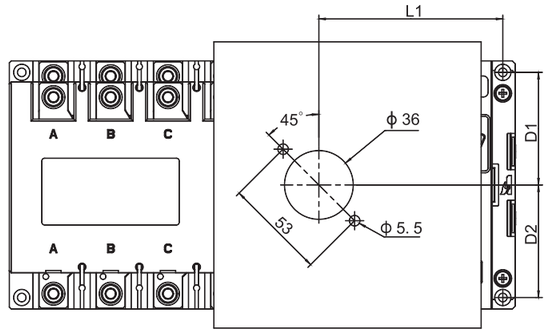
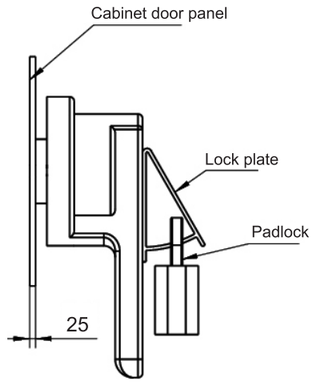
Dimension of extended rotary handle

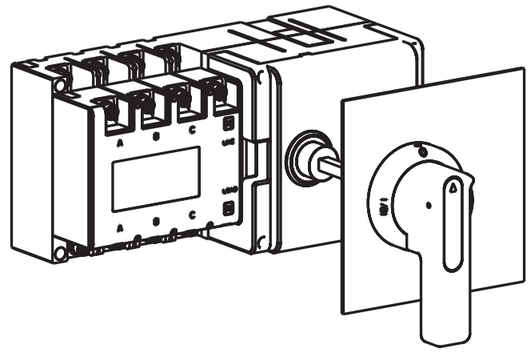


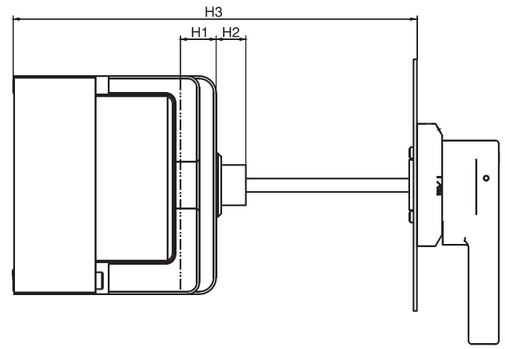


Extended rotary handle installation position and dimensions
Door can be open only OFF position
Extended rotary handle safety padlock

Dimensions(mm)

Frame	HDQ3S-80	HDQ3S-125	HDQ3S-250
L1	97	96.4	121.8
D1	48.5	59	77.5
D2	48.5	59	77.5





Dimensions(mm)

Frame		HDQ3S-80	HDQ3S-125	HDQ3S-250
H1		24	22	28.5
H2		18	18	18
H3	Min	140	150	170
	Max	390	400	420