

Suge cut transformer

SIT

[Surge Isolation Transformer]

LCC Series



Cut the surge attack!!



Instant drop of voltage level to 1/1000 for lightning protection

Provides a higher level of protection characteristics

- Attenuates common mode lightning surge voltages entering from the input side to 1/1000 (-60dB) or less.
 - Attenuates normal mode (unbalanced) surge voltages to -30dB or less. (10kV impulse voltage)
- This function is standard for models with single-phase 3kVA or less.
Other models can be equipped with this function as an option. Please consult us.

Realized high performance

- Pursued high level of safety performance.
- Lightning impulse withstand voltage
30kV <1.2/50μs> Between input - output /earth)
10kV <1.2/50μs> Between output - input /earth)

■ Specification

Number of phase	Single-phase		Three-phase		
	B	H	B	H	
Frequency (Hz)	50/60				
Insulation Class	B		H		
Primary voltage(V)	200(100)	200	200(Δ connection)		
Secondary voltage(V)	200(100)	100	200(Δ connection)		
Insulation strength	Between input - output / earth : AC 10kV(1min.)				
Lightning impulse withstand voltage	Between output - input / earth : AC 3kV(1min.)				
Surge transfer rate	Common mode : -60dB or less				
	Normal mode : -30dB ~ -20dB or less (※1)(※2)				
Voltage fluctuation	0.5kVA : 5% or less 1kVA, 2kVA : 4% or less ≥ 3kVA : 3% or less		≤ 7.5kVA : 3% or less > 7.5kVA : 2% or less		
Efficiency	0.5kVA : 93% or more 1kVA, 2kVA : 95% or more ≥ 3kVA : 96% or more		≤ 7.5kVA : 95% or more > 7.5kVA : 97% or more		
Capacity(kVA)	0.5	—	—	—	
	1	—	—	—	
	2	—	—	—	
	3	—	—	—	
	5	—	—	—	
	7.5	—	—	—	
	—	10	10	—	10
	—	15	15	—	15
	—	20	20	—	20
	—	30	30	—	30
—	50	50	—	50	

(※1) Varies with input normal mode (unbalanced) surge voltage.

(※2) Standard specifications for single-phase 3kVA or less, optional for others.

■ Standard parts

- Lightning arrester
- Normal mode surge attenuation element (For Single-phase 3kVA or less)

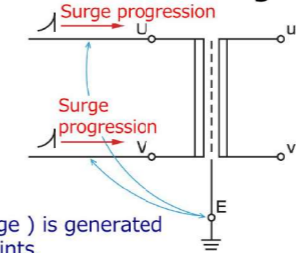
- Normal mode surge attenuation element (Standard equipment for single-phase 3kVA or less)
- Indoor case (Color : Munsell 5Y7/1 semi-gloss coating)
- Outdoor case (Outdoor case is designed and manufactured through separate arrangement.)

Characteristic example

About Common Mode (Balanced) Surges and Normal Mode (Unbalanced) Surges

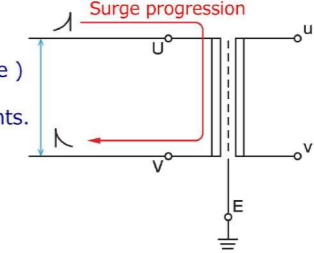
Common mode (balanced) surges are overvoltages (surges) that occur between the power line and ground. In contrast, normal mode (unbalanced) surges are surges (overvoltages) that occur on the power line side. The surge flows from the higher potential power line to the lower potential power line.

● Common mode surge



Overvoltage (surge) is generated between these points.

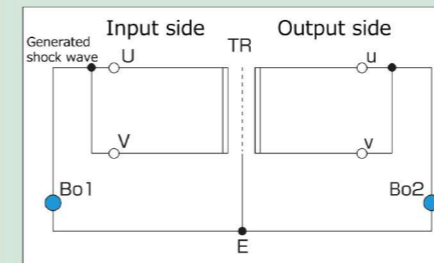
● Normal mode surge



Overvoltage (surge) is generated between these points.

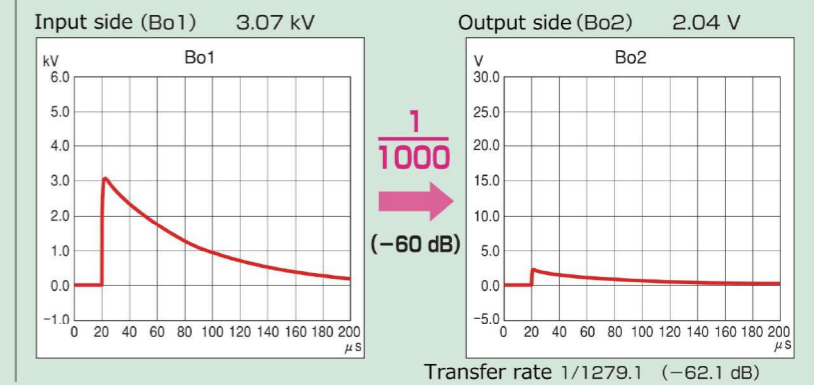
Surge transfer voltage test

Common mode single phase Measurement circuit diagram

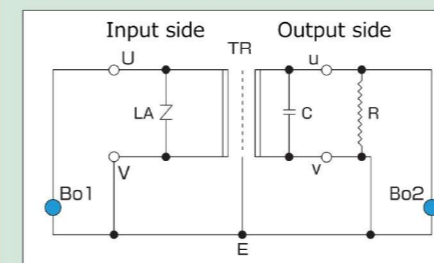


UV : Input terminal
uv : Output terminal
E : Earth terminal
TR : Surge Isolation transformer
LA : Lightning arrester
Bo1 : Oscilloscope
Bo2 : Oscilloscope

Data example

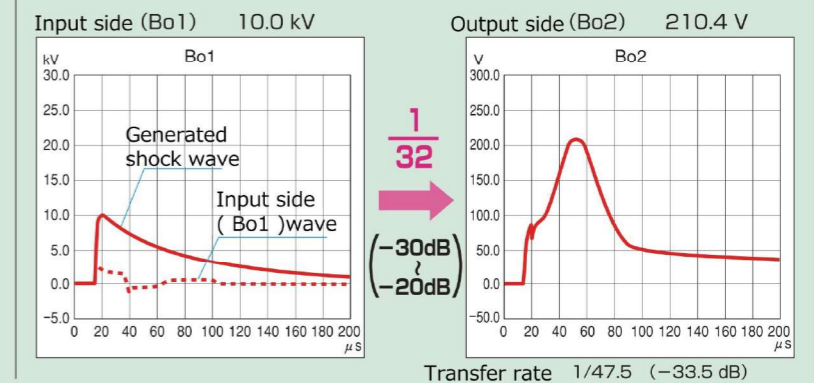


Normal mode single phase Measurement circuit diagram



UV : Input terminal
uv : Output terminal
E : Earth terminal
TR : Surge Isolation transformer
LA : Lightning arrester
C : Capacitor
R : Load resistance (100 Ω)
Bo1 : Oscilloscope
Bo2 : Oscilloscope

Data example



Select List

Single-phase 0.5kVA~2kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-A-0050N	0.5	189	170	160	100	110	φ8slit
LCC-A-0100N	1	201	185	160	110	135	φ10slit
LCC-A-0200N	2	233	195	185	130	140	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-A-0050N	M4	M4	M5	10	Fig. A
LCC-A-0100N	M4	M4	M5	14	
LCC-A-0200N	M4	M4	M5	23	

Single-phase 3kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-A-0300N	3	255	230	265	150	170	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-A-0300N	M5	M5	M5	36	Fig. A

Single-phase 5kVA~7.5kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-A-0500	5	300	245	390	160	140	φ10slit
LCC-A-0750	7.5	360	250	430	200	145	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-A-0500	M5	M5	M5	46	Fig. B
LCC-A-0750	M6	M6	M6	62	

Connection terminal

Pri. terminal	Terminal	Connection
Used with 100V	1U, 2V	1U-2U 1V-2V
Used with 200V	1U, 2V	2U-1V

Sec. terminal	Terminal	Connection
Used with 100V	1u, 2v	1u-2u 1v-2v
Used with 200V	1u, 2v	2u-1v

When connecting cables to the primary and secondary terminals, use the shorting bar and perform series-parallel switching

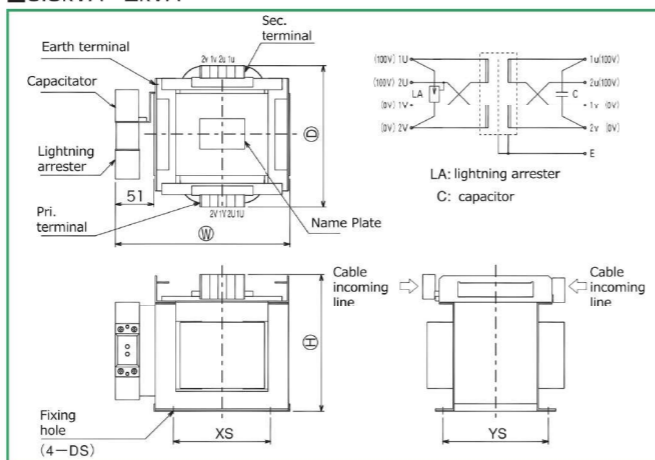
Discharge withstand capacity of lightning arresting element (Applied waveform 8/20μs)

LA	Number of applied times
	Once
LA	10kA

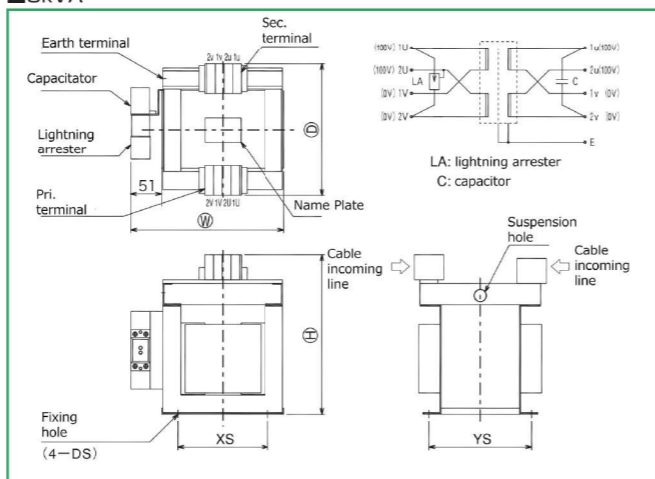
※ Can be used as 200/100V (Single-phase three-wire system).
[Neutral current is 2U, 1V terminal.]

Outline drawing / Connection diagram

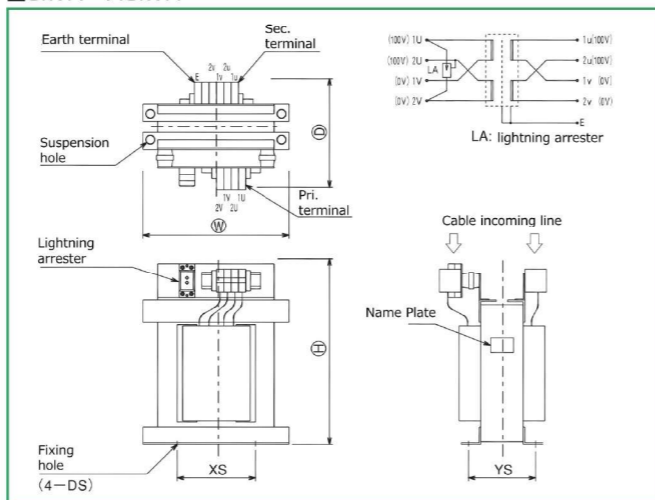
0.5kVA~2kVA



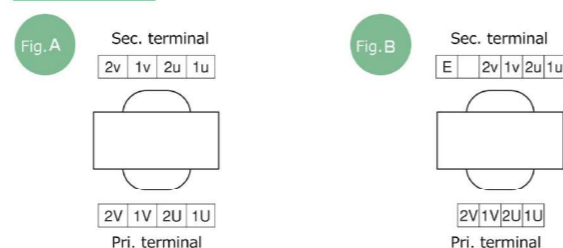
3kVA



5kVA~7.5kVA



Terminal block arrangement drawing



Select List

Single-phase two-wire system 10kVA~15kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-A-1000	10	360	255	430	200	155	φ10slit
LCC-A-1500	15	360	270	480	200	165	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-A-1000	M6	M8	M8	67	Fig. C
LCC-A-1500	M8	M10	M8	88	

Single-phase three-wire system 10kVA~15kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-B-1000	10	360	255	430	200	155	φ10slit
LCC-B-1500	15	360	270	480	200	165	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-B-1000	M6	M8	M8	67	Fig. D
LCC-B-1500	M8	M10	M8	88	

Single-phase two-wire system 20kVA~50kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-A-2000	20	360	310	540	250	205	φ12slit
LCC-A-3000	30	360	310	615	310	215	φ12
LCC-A-5000	50	400	390	670	330	265	φ12slit

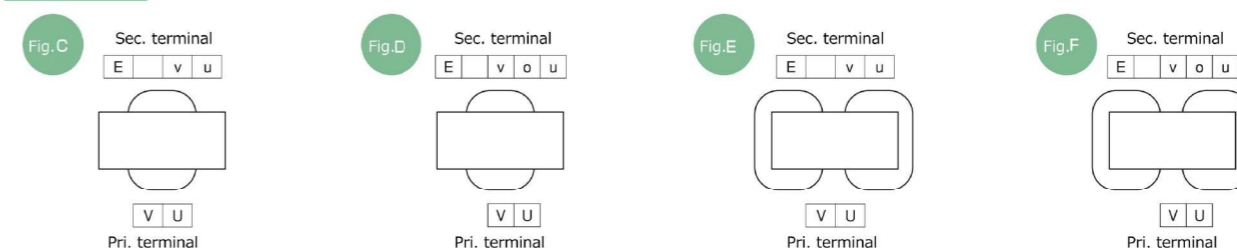
Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-A-2000	M8	M10	M8	110	Fig. E
LCC-A-3000	M10	M10	M8	145	
LCC-A-5000	M10	M16	M8	230	

Single-phase three-wire system 20kVA~50kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-B-2000	20	360	310	540	250	205	φ12slit
LCC-B-3000	30	360	310	615	310	215	φ12slit
LCC-B-5000	50	400	365	665	330	265	φ12slit

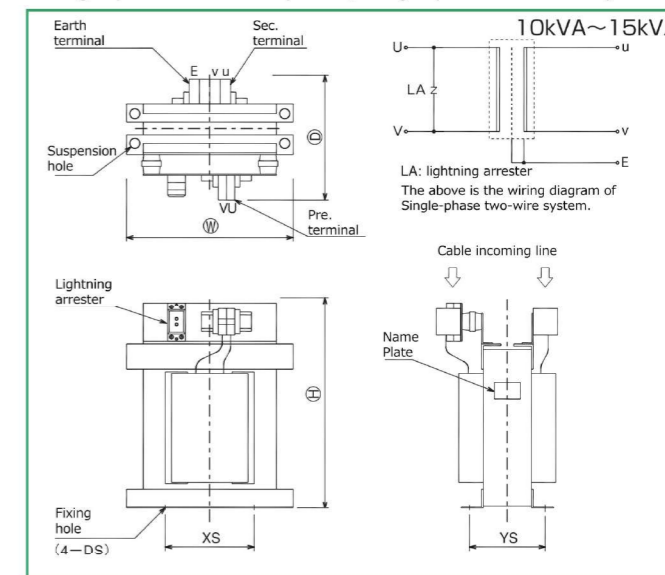
Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-B-2000	M8	M10	M8	110	Fig. F
LCC-B-3000	M10	M10	M8	145	
LCC-B-5000	M10	M12	M8	230	

Terminal block arrangement drawing

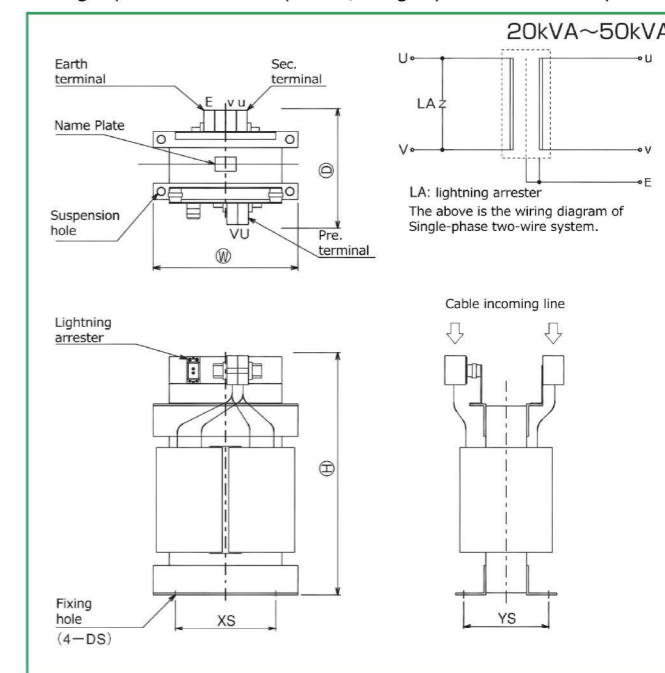


Outline drawing / Connection diagram

Single-phase two-wire system / Single-phase two-wire system



Single-phase two-wire system / Single-phase two-wire system



Select List

■ Three-phase 1kVA~7.5kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-C-0100	1	310	215	395	240	105	φ10slit
LCC-C-0200	2	310	225	395	240	115	φ10slit
LCC-C-0300	3	360	230	390	280	125	φ10slit
LCC-C-0500	5	360	235	450	280	130	φ10slit
LCC-C-0750	7.5	360	250	450	280	145	φ10slit

Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-C-0100	M5	M5	M5	35	Fig. G
LCC-C-0200	M5	M5	M5	39	
LCC-C-0300	M5	M5	M5	44	
LCC-C-0500	M5	M5	M5	57	
LCC-C-0750	M5	M5	M5	72	

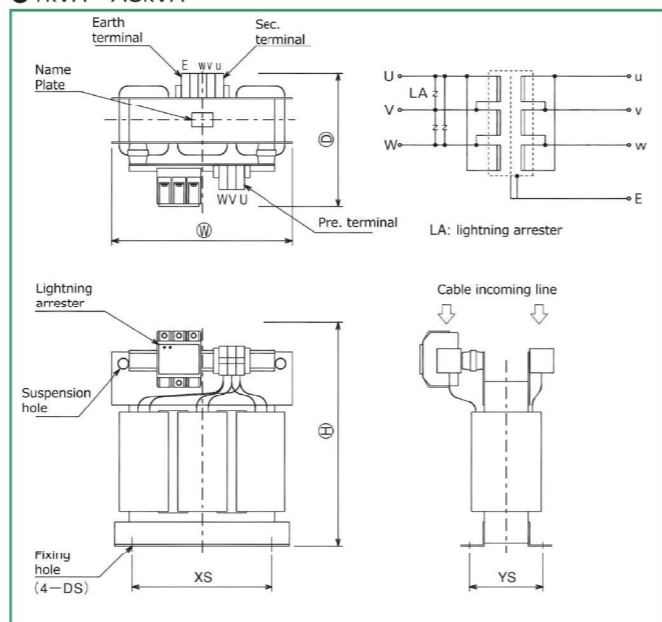
■ Three-phase 10kVA~50kVA

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)		
		W	D	H	XS	YS	DS
LCC-C-1000	10	480	280	500	360	170	φ12slit
LCC-C-1500	15	480	295	500	360	180	φ12slit
LCC-C-2000	20	480	305	530	360	185	φ12slit
LCC-C-3000	30	480	330	530	360	215	φ12slit
LCC-C-5000	50	540	330	625	400	225	φ12slit

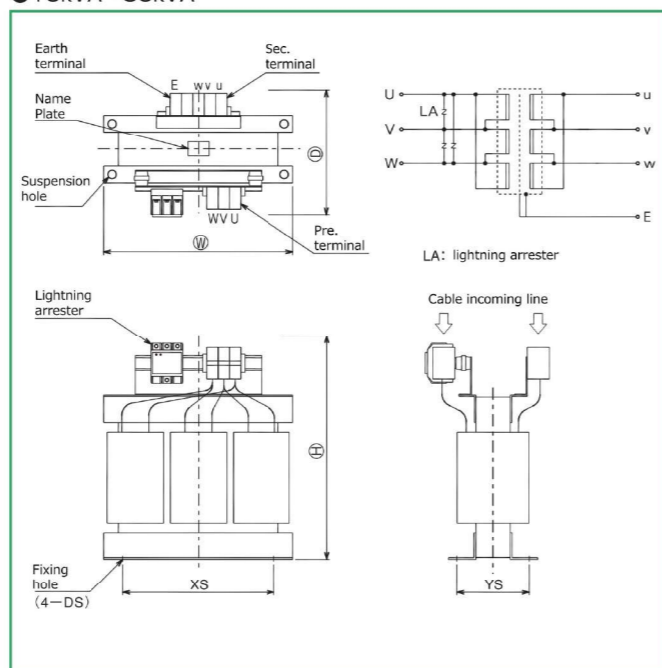
Model	Terminal size			Total mass (kg)	Terminal block arrangement drawing
	Pre.	Sec.	Earth		
LCC-C-1000	M6	M6	M6	100	Fig. G
LCC-C-1500	M8	M8	M8	110	
LCC-C-2000	M8	M8	M8	130	
LCC-C-3000	M8	M8	M8	170	
LCC-C-5000	M10	M10	M8	240	

Outline drawing / Connection diagram

● 1kVA~7.5kVA



● 10kVA~50kVA



Indoor case select list (option)

■ Single-phase 200(100)V~200(100)V Series-parallel switching

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)			Total mass (kg)*
		W	D	H	XS	YS	DS	
LCC-A-0050CN	0.5	275	245	295	200	200	φ10hole	16
LCC-A-0100CN	1	295	295	315	220	250	φ10hole	21
LCC-A-0200CN	2	335	315	350	260	270	φ10hole	32
LCC-A-0300CN	3	365	365	435	290	320	φ10hole	48

* The total mass includes the transformer and the case.

■ Single-phase 200(100)V~200(100)V Series-parallel switching

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)			Total mass (kg)*
		W	D	H	XS	YS	DS	
LCC-A-0500C	5	470	420	745	300	360	φ15hole	70
LCC-A-0750C	7.5	520	470	845	300	410	φ15hole	94

■ Single-phase 200V~100V Single-phase two-wire system

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)			Total mass (kg)*
		W	D	H	XS	YS	DS	
LCC-A-1000C	10	520	470	845	300	410	φ15hole	99
LCC-A-1500C	15	520	470	845	300	410	φ15hole	120
LCC-A-2000C	20	520	570	900	300	510	φ15hole	145
LCC-A-3000C	30	520	610	1000	300	510	φ15hole	185
LCC-A-5000C	50	570	610	1050	350	510	φ15hole	280

■ Single-phase 200V/200~100V Single-phase three-wire system

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)			Total mass (kg)*
		W	D	H	XS	YS	DS	
LCC-B-1000C	10	520	470	845	300	410	φ15hole	99
LCC-B-1500C	15	520	470	845	300	410	φ15hole	120
LCC-B-2000C	20	520	570	900	300	510	φ15hole	145
LCC-B-3000C	30	520	610	1000	300	510	φ15hole	185
LCC-B-5000C	50	570	610	1050	350	510	φ15hole	280

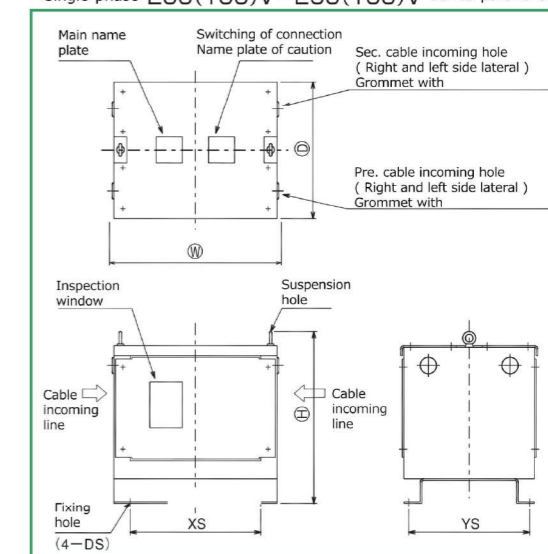
■ Three-phase 200V~200V Δ-Δ connection

Model	Capacity (kVA)	External dimension (mm)			Panel dimension (mm)			Total mass (kg)*
		W	D	H	XS	YS	DS	
LCC-C-0100C	1	420	370	695	250	310	φ10hole	59
LCC-C-0200C	2	420	370	695	250	310	φ10hole	63
LCC-C-0300C	3	520	420	795	300	360	φ10hole	73
LCC-C-0500C	5	520	420	795	300	360	φ10hole	86
LCC-C-0750C	7.5	520	420	795	300	360	φ10hole	101
LCC-C-1000C	10	620	470	850	400	410	φ15hole	140
LCC-C-1500C	15	620	470	850	400	410	φ15hole	150
LCC-C-2000C	20	620	520	900	400	460	φ15hole	175
LCC-C-3000C	30	620	520	900	400	460	φ15hole	215
LCC-C-5000C	50	670	560	1000	450	460	φ15hole	290

* The total mass includes the transformer and the case.

Outline drawing

■ Single-phase 200(100)V~200(100)V Series-parallel switching

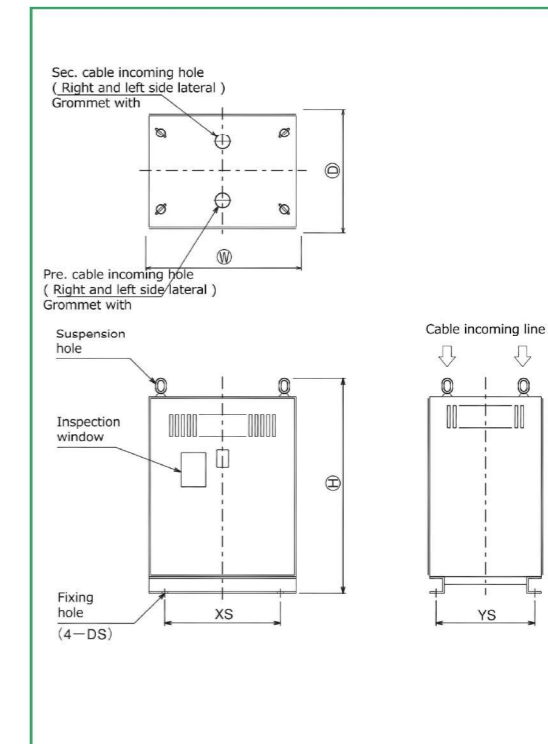


■ Single-phase 200(100)V~200(100)V Series-parallel switching

■ Single-phase 200V~100V Single-phase two-wire system

■ Single-phase 200V/200~100V Single-phase three-wire system

■ Three-phase 200V~200V Δ-Δ connection



■ Maximum discharge current of lightning arresting element (Applied waveform 8/20μs)

LA	10kA
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■ Terminal block arrangement drawing

