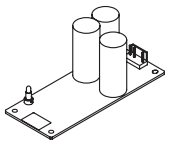
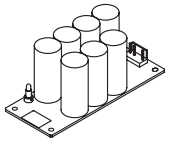
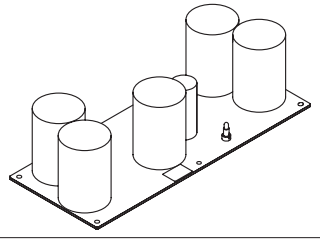
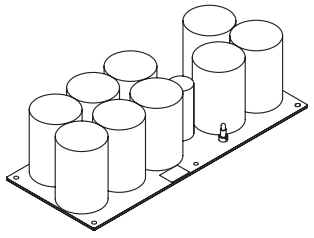
■External capacitor unit

LFP Series,LHA Series LHP Series,GHA Series

By connecting an external capacitor unit to the power supply, it is possible to extend the hold-up time.

External capacitor unit model	Approved power supply	Hold-up time ✻	Appearance
CR-HUT241-1 (Rated capacitance:240μF)	LFP240F LFP300F LHA150F LHA300F LHP150F LHP300F GHA700F <U1 type>	100 ms (Power supply output 180W)	
		55 ms (Power supply output 360W)	
CR-HUT721-1 (Rated capacitance:720μF)		220 ms (Power supply output 180W)	
		110 ms (Power supply output 360W)	
CR-HUT282-2 (Rated capacitance:2,800μF)		650 ms (Power supply output 180W)	
		300 ms (Power supply output 360W)	
CR-HUT502-2 (Rated capacitance:5,040μF)		1,100 ms (Power supply output 180W)	
		500 ms (Power supply output 360W)	

✻ It is reference data in the case of connecting LFP300F-□-TU1Y.
Hold-up time will vary depending on the environment (power supply, output power, etc).
Please refer to the Instruction Manual of approved power supply for more information.

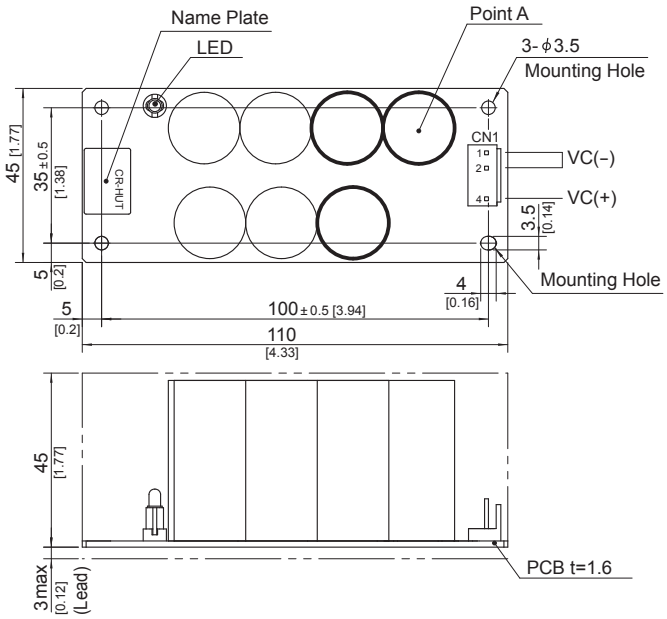
1 Specification

	ITEM	CR-HUT241-1	CR-HUT721-1	CR-HUT282-2	CR-HUT502-2
ELECTRICAL SPECIFICATIONS	INPUT VOLTAGE[V]	DC420max			
	RATED CAPACITANCE [μF]	240typ	720typ	2,800typ	5,040typ
	CHARGE COMPLETION TIME [s] ✻1	2yp	5typ	30typ	60typ
	LED LIGHTING VOLTAGE [V] ✻2	45typ			
	DISCHARGING TIME [s]	30typ	55typ	165typ	285yp
ENVIRONMENT	OPERATING TEMP.,HUMID. ✻3	-20 to +70℃, 20 - 90%RH (Non condensing)			
	STORAGE TEMP.,HUMID.	-20 to +75℃, 20 - 90%RH (Non condensing)			
	VIBRATION	10 - 55Hz, 19.6m/s² (2G), 3minutes period, 60minutes each along X, Y and Z axis			
	IMPACT	196.1m/s² (20G), 11ms, once each X, Y and Z axis			
AGENCY APPROVALS		Be certified by connecting to the correct power			
OTHERS	SIZE	45×48×110mm [1.77×1.89×4.33 inches] (W×H×D)		85×58×206mm [3.35×2.28×8.11 inches] (W×H×D)	
	WEIGHT	105g max	195g max	525g max	860g max
	COOLING METHOD	Convection			

✻1 Time to be charged to over 98% of the applied voltage.
✻2 Capacitor voltage which LED turns on.
✻3 LED turn off time after input voltage shut off from full charged condition.

2 External View

1.CR-HUT□-1



※4 Mounting holes are existing.
※The back side of P.C.B. of the power supply is assembled some SMDs. Be attention not to bump against the attached area by vibration.
※Do not use press-fitting bush.
※Point A is thermometry points. Please refer to Instruction Manual 3.

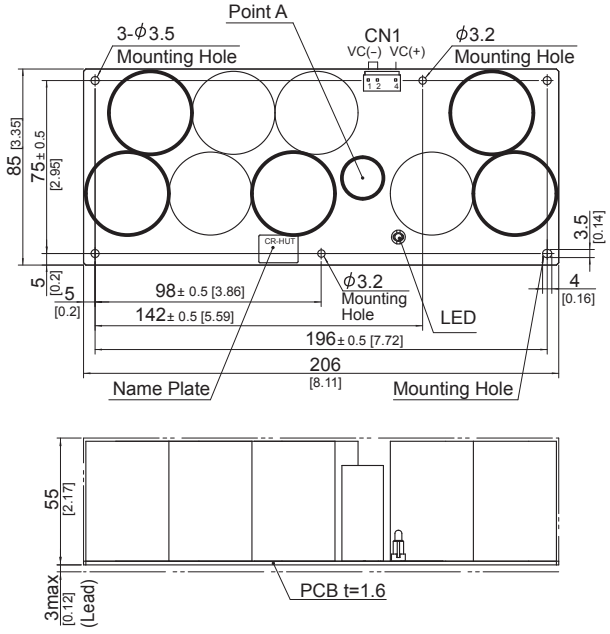
※Dimensions in mm, [ ]=inches
※Tolerance : ±1 [±0.04]
※Weight : 105g max (CR-HUT241-1)
195g max (CR-HUT721-1)
※PCB material : CEM3
※Thick line represents the capacitor mounted on CR-HUT241-1.
All capacitors are mounted on CR-HUT721-1.

CN1

Connector	B3P4-VH			
Mating Connector	VHR-4N			
Terminal	Chain : SVH-21T-P1.1			
	Loose : BVH-21T-P1.1			
Manufacturer	J.S.T.			
Pin No.	1	2	3	4
Function	VC(-)	VC(-)		VC(+)

※Pin 3 is removed

2.CR-HUT□-2



※4 Mounting holes are existing.
※The back side of P.C.B. of the power supply is assembled some SMDs. Be attention not to bump against the attached area by vibration.
※Do not use press-fitting bush.
※Point A is thermometry points. Please refer to Instruction Manual 3.

※Dimensions in mm, [ ]=inches
※Tolerance : ±1 [±0.04]
※Weight : 525g max (CR-HUT282-2)
860g max (CR-HUT502-2)
※PCB material : CEM3
※Thick line represents the capacitor mounted on CR-HUT282-2.
All capacitors are mounted on CR-HUT502-2.

CN1

Connector	B3P4-VH			
Mating Connector	VHR-4N			
Terminal	Chain : SVH-21T-P1.1			
	Loose : BVH-21T-P1.1			
Manufacturer	J.S.T.			
Pin No.	1	2	3	4
Function	VC(-)	VC(-)		VC(+)

※Pin 3 is removed

3 Assembling and Installation Method

3.1 Installation method

■This external capacitor unit is manufactured by SMD technology. The stress to P.C.B like twisting or bending causes the defect of the unit, so handle the unit with care.

■In case of metal chassis, keep the distance between d_1 & d_2 for to insulate between lead of component and metal chassis. If it is less than d_1 & d_2, insert the insulation sheet between external capacitor unit and metal chassis.

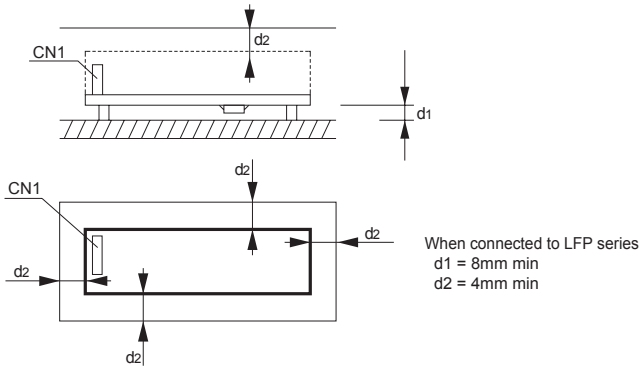


Fig.3.1 Installation method

■There is a possibility that it is not possible to cool enough when the external capacitor unit is used by the sealing up space as showing in Figure 3.2.
Please use it after confirming the temperature of point A of Instruction Manual 3.2.

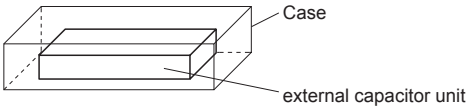
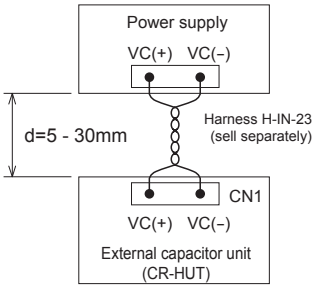


Fig.3.2 Installation example

■Connection method



When connected to LFP series

Fig.3.3 Connection method

●Caution

(1) Distance between the external capacitor unit and power supply unit must be secured more than 5mm. The required distance and harness will vary depending on the power supply connected. Please refer to the Instruction Manual of approved power supply for more information.

(2) It must be 30mm or less, since the noise is generated from the wire which is connecting the external capacitor unit and power supply. And, it is necessary to twist the wire as short as possible.

(3) It is necessary to use wires which rated voltage is 600V or more.

■Mounting method

● CR-HUT□-1

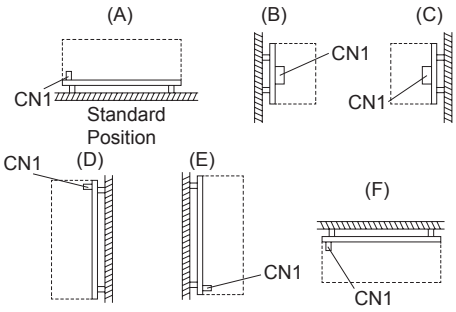


Fig.3.4 CR-HUT□-1 Mounting method

● CR-HUT□-2

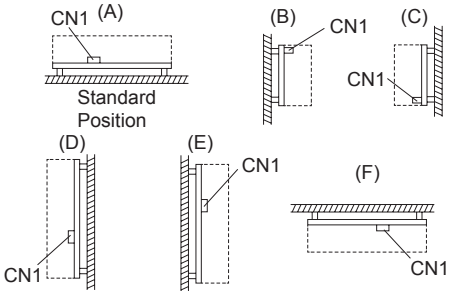


Fig.3.5 CR-HUT□-2 Mounting method

3.2 Environment to use the Unit and Installation environment

■When using the unit,it is necessary to dissipate heat of the external capacitor unit. Table 3.1 shows the relation between the maximum temperature Point A and Installation environment.
Please consider the ventilation to keep sufficient convection for whole external capacitor unit. And temperature of Point A must be kept under maximum temperature shown table 3.1. The expectancy life at maximum temperature of Point A is three years or more.
Please refer to External View for the position of Point A.
Please contact us for details.

Remarks:

＊Please be careful of electric shock or earth leakage in case of temperature measurement, because Point A is live potential.

＊Please refer to 3.4 if you want to extend the longevity of the expectancy life.

Table 3.1 Temperatures of Point A

Mounting Method	Cooling Method	Max temperature[℃]
A,B,C,D,E	Convection	86
F	Convection	81
A,B,C,D,E,F	Forced air	75

3.3 Mounting screw

■The mounting screw should be M3. The hatched area shows the allowance of metal parts for mounting.

● CR-HUT□-1

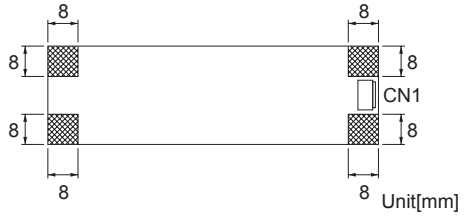


Fig.3.6 CR-HUT□-1 Allowance of metal for mounting

● CR-HUT□-2

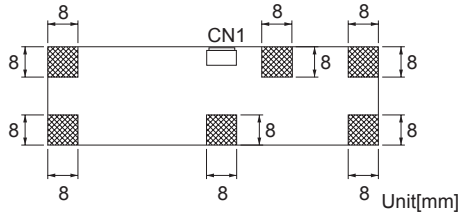


Fig.3.7 CR-HUT□-2 Allowance of metal for mounting

3.4 Expectancy life and warranty

■Expectancy Life.

Mounting Method	Cooling Method	Average ambient temperature (year)	Expectancy Life
A,B,C,D,E,F	Convection	Ta = 60℃ or less	10years
		Ta = 70℃	6years

■Warranty

Warranty 5 years.

4 Others

■This external capacitor unit is the rugged PCB type. Do not drop conductive objects in the external capacitor unit.

■Do not touch absolutely during operation.

There is a risk of electric shock.

■High voltage remains inside the external capacitor unit after voltage shut off.

There is a risk of electric shock, do not touch until the LED turns off.

■There is possibility that electric charge is remained inside the capacitor.

Do not short-circuit the CN1 terminals.

■This external capacitor unit is manufactured by SMD technology.

The stress to PCB like twisting or bending causes the defect of the unit, so handle the unit with care.

・Tighten all the screws in the screw hole.
CR-HUT□-1 (4 places)
CR-HUT□-2 (6 places)

CR-HUT-2 may be a mounting method of the following. (Refer Fig.4.1)
Screw should be used to hole A (4 places).
Screw or resin spacer should be used to hole B (2 places).
Recommendation resin spacer: MPS series
(KITAGAWA INDUSTRIES CO.,LTD.)

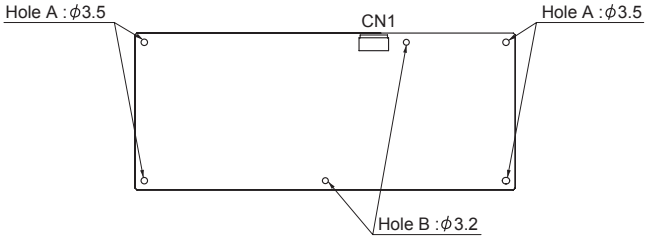


Fig.4.1 CR-HUT□-2 Resin spacer mounting method

・Install the PCB of the external capacitor unit horizontally to the surface of mounting.
・Avoid the impact such as drops.