1 Function

1.1 Input voltage range

■The range is from 85VAC to 264VAC.
In cases that conform with safety standard, input voltage range is 100VAC to 240VAC (50/60Hz).
When using with DC input, please use our optional product "-DC" or attach a DC fuse externally to protect against power failure. Please contact us.

■If input value doesn't fall within above range, a unit may not operate in accordance with specifications and/or start hunting or fail.
If you need to apply a square waveform input voltage, which is commonly used in UPS and inverters, please contact us.

■When the input voltage changes suddenly, the output voltage accuracy might exceed the specification. Please contact us.
If the restart time of the short interruption power failure is less than 3 seconds, perform a thorough evaluation.

■A unit can operate under the input voltage dip with derating.
Table 1.1 shows the load factors that can be output.

Table 1.1 Load factor

Model	Input Voltage	
	100VAC→50VAC	200VAC→100VAC
LHP150F	No available	100%
LHP300F		

1.2 Inrush current limiting

■An inrush current limiting circuit is built-in.

■If you need to use a switch on the input side, please select one that can withstand an input inrush current.

■Thermistor is used in the inrush current limiting circuit. When you turn the power ON/OFF repeatedly within a short period of time, please have enough intervals so that a power supply cools down before being turned on.

1.3 Overcurrent protection

■An overcurrent protection circuit is built-in and activated over 101% of the peak current. A unit automatically recovers when a fault condition is removed.
Please do not use a unit in short circuit and/or under an overcurrent condition.

■Hiccup Operation Mode
When the output voltage drops at overcurrent, the average output current is reduced by hiccup operation of power supply.
Please contact us for details.

1.4 Peak current protectionnt

■The unit has the peak current protection. When the peak current protection activates, the output stops. After a few seconds, the output will recover automatically. However,it will stop again if the overcurrent condition was not resolved.

✻The recovery time depends on the input voltage and the load condition.

1.5 Overvoltage protection

■An overvoltage protection circuit is built-in. If the overvoltage protection circuit is activated, shut down the input voltage, wait more than 3 minutes and turn on the AC input again to recover the output voltage. Recovery time varies depending on such factors as input voltage value at the time of the operation.

■In option -R□, overvoltage protection is removed by toggling ON/OFF signal of remote control.

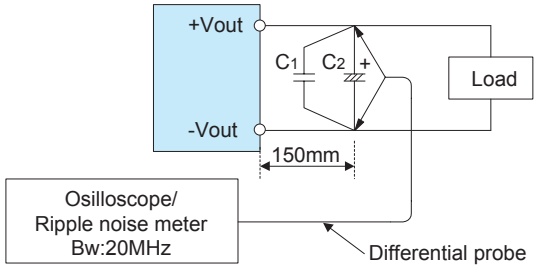
Remarks :
Please avoid applying a voltage exceeding the rated voltage to an output terminal. Doing so may cause a power supply to malfunction or fail. If you cannot avoid doing so, for example, if you need to operate a motor, etc., please install an external diode on the output terminal to protect the unit.

1.6 Output voltage adjustment range

■To increase an output voltage, turn a built-in potentiometer clockwise.
To decrease the output voltage, turn it counterclockwise.

1.7 Output ripple and ripple noise

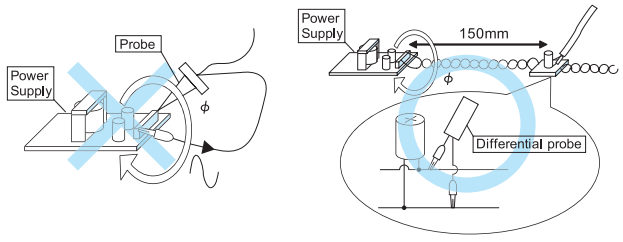
■Output ripple noise may be influenced by measurement environment, measuring method fig.1.1 is recommended.



C1 : Ceramic capacitor 0.1 μF
C2 : Aluminum electrolytic capacitor 22μF

Fig.1.1 Measuring method of Ripple and Ripple Noise

Remarks :
When GND cable of probe with flux of magnetic force from power supply are crossing, ripple and ripple noise might not measure correctly.
Please note the measuring environment.



Bad example Good example

Fig.1.2. Example of measuring output ripple and ripple noise

1.8 Isolation

■For a receiving inspection, such as Hi-Pot test, gradually increase (decrease) the voltage for the start (shut down). Avoid using Hi-Pot tester with the timer because it may generate voltage a few times higher than the applied voltage, at ON/OFF of a timer.

■When you test units for isolation between the input and output, or between output and terminal FG, short-circuit between output and remote ON/OFF connector.

1.9 Reducing standby power

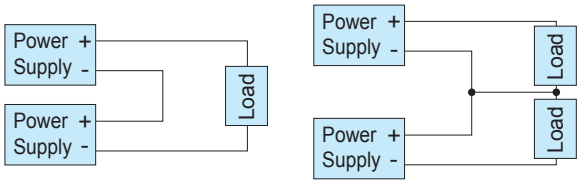
■Burst operation at light loading, the internal switch element is intermittent operated, and the switching loss is decreased.
The specification of the Ripple/Ripple Noise changes by this intermittent operation. The value of the Ripple / Ripple Noise when intermittent operates changes in the input voltage and the output current.

■In option -R2, -R5 standby power with remote OFF is lower than the one with no load.
Please refer to instruction manual 7.1.

2 Series Operation and Parallel Operation

2.1 Series Operation

■You can use a power supply in series operation. The output current in series operation should be lower than the rated current of a power supply with the lowest rated current among power supplies that are serially connected. Please make sure that no current exceeding the rated current flows into a power supply.



(a) (b)

Fig.2.1 Examples of connecting in series operation

2.2 Parallel Operation

■Parallel operation is not possible.

■Redundancy operation is available by wiring as shown below.

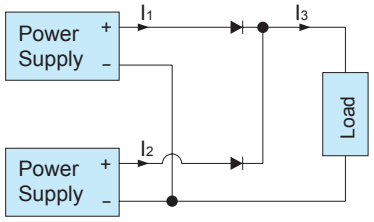


Fig.2.2 Example of redundancy operation

■Even a slight difference in output voltage can affect the balance between the values of I_1 and I_2.
Please make sure that the value of I_3 does not exceed the rated current of a power supply.

$I_3 \leqq$ the rated current value

3 Temperature Measurement Point

■Installation environment
When using it,it is necessary to radiate heat by the heat of the power supply.
Table 3.1 and 3.2 shows the relation between the upper limit temperature (Point ① and Point ②) and load factors.
Please consider the ventilation so that the convection which is enough for the whole power supply is provided.
Temperature of Point ① and Point ② become lower than upper limit temperature.
The life expectancy in the upper bound temperature (Point ① and Point ②) is three years or more.
Please refer to External View for the position of Point ① and Point ②.

Remarks:

✻Please be careful of electric shock or earth leakage in case of temperature measurement, because Point ① and Point ② is live potential.

✻Please contact us for details.

■Maximum temperature of measurement points

Table 3.1 Maximum temperature of mesurement points (LHP150F-□-Y)

Voltage	Cooling Method	Mounting Method	Load factor	Maximum temperature [℃]	
				①:Capacitor	②:Capacitor
24V, 30V, 36V, 42V, 48V	Convection	A	75%<Io≦100%	82	76
			0%<Io≦75%	86	84
		B	75%<Io≦100%	74	74
			0%<Io≦75%	82	82
		C	75%<Io≦100%	90	74
			0%<Io≦75%	90	82
		D	75%<Io≦100%	78	68
			0%<Io≦75%	88	78
		E	75%<Io≦100%	70	80
			0%<Io≦75%	82	88
		F	75%<Io≦100%	78	70
			0%<Io≦75%	84	82
	Forced air	A,B,C, D,E,F	0%<Io≦100%	75	75

Table 3.2 Maximum temperature of mesurement points (LHP300F-□-Y)

Voltage	Cooling Method	Mounting Method	Load factor	Maximum temperature [℃]	
				①:Capacitor	②:Capacitor
24V, 30V, 36V, 42V, 48V	Convection	A	75%<Io≦100%	76	76
			0%<Io≦75%	86	84
		B	75%<Io≦100%	72	72
			0%<Io≦75%	84	82
		C	75%<Io≦100%	88	72
			0%<Io≦75%	92	80
		D	75%<Io≦100%	80	66
			0%<Io≦75%	90	80
		E	75%<Io≦100%	70	78
			0%<Io≦75%	82	88
		F	75%<Io≦100%	72	66
			0%<Io≦75%	86	82
	Forced air	A,B,C, D,E,F	0%<Io≦100%	75	75

4 Life expectancy and warranty

■Life Expectancy

Table 4.1 Life Expectancy (LHP150F-□-Y)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Life Expectancy	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,C	Ta=40℃ or less	10years or more	7years
			Ta=50℃	6years	3years
		D	Ta=35℃ or less	10years or more	10years or more
			Ta=45℃	10years or more	8years
		E	Ta=30℃ or less	10years or more	7years
			Ta=40℃	7years	3years
		F	Ta=30℃ or less	10years or more	10years or more
			Ta=40℃	9years	5years
	Forced air	A,B,C, D,E,F	Ta=50℃ or less	5years	5years
			Ta=60℃	5years	3years

Table 4.2 Life Expectancy (LHP300F-□-Y)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Life Expectancy	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,C	Ta=40℃ or less	10years or more	5years
			Ta=50℃	6years	3years
		D	Ta=35℃ or less	10years or more	10years or more
			Ta=45℃	10years or more	8years
		E	Ta=30℃ or less	10years or more	7years
			Ta=40℃	6years	3years
		F	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	7years
	Forced air	A,B,C, D,E,F	Ta=50℃ or less	5years	5years
			Ta=60℃	5years	3years

■Warranty

Table 4.3 Warranty (LHP150F-□-Y)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Warranty	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,C	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years
		D	Ta=35℃ or less	5years	5years
			Ta=45℃	5years	3years
		E,F	Ta=30℃ or less	5years	5years
			Ta=40℃	5years	3years
	Forced air	A,B,C, D,E,F	Ta=50℃ or less	5years	5years
			Ta=60℃	5years	3years

Table 4.4 Warranty (LHP300F-□-Y)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Warranty	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,C	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years
		D	Ta=35℃ or less	5years	5years
			Ta=45℃	5years	3years
		E	Ta=30℃ or less	5years	5years
			Ta=40℃	5years	3years
		F	Ta=25℃ or less	5years	5years
			Ta=35℃	5years	3years
	Forced air	A,B,C, D,E,F	Ta=50℃ or less	5years	5years
			Ta=60℃	5years	3years

5 Ground

■When installing the power supply with your unit, ensure that the input FG terminal of CN1 or mounting hole FG is connected to safety ground of the unit.

✻It is recommended to electrically connect terminal FG and mounting hole FG to metal chassis for reducing noise.

6 Peak loading

■Peak load is possible to draw as below.

- t_1≦10sec
- I_p≦Rated peak current
- I_{rms}≦Rated current
- Duty $= \frac{t_1}{t_1+t_2} \times 100[\%] \leqq 40\%$

・$I_{rms}^2 = \dfrac{I_P^2 \times t_1 + I_L^2 \times t_2}{t_1 + t_2}$

・Peak output power [W] = Peak current [A] × Output voltage [V]

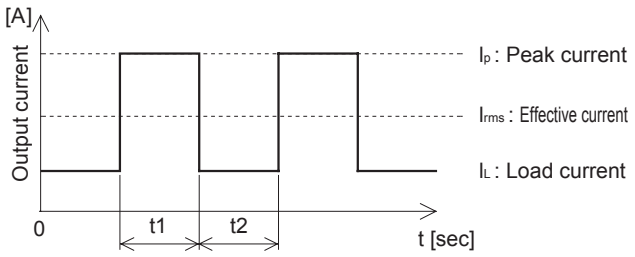


Fig 6.1 Description of peak current

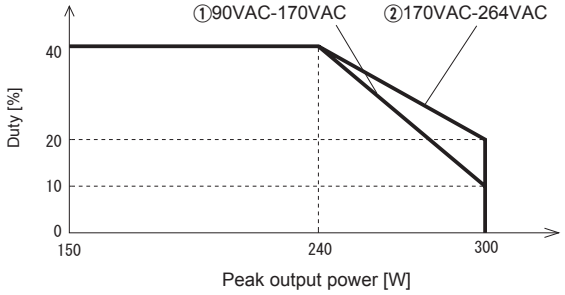


Fig. 6.2 Derating of peak loading (LHP150F-□-Y)

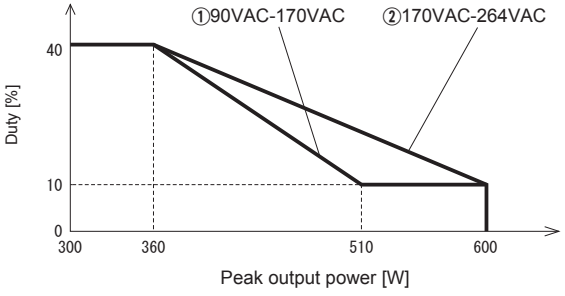


Fig.6.3 Derating of peak loading (LHP300F-□-Y)

7 Option and Others

7.1 Outline of options

● -C

・Option -C models have coated internal PCB for better moisture resistance.

● -G

・Option -G models are low leakage current type.
・Differences from standard model are summarized in Table 7.1.

Table 7.1 Low leakage current type

Leakage Current (AC 240V 60Hz)	0.15mA max
Conducted Noise	N/A
Output Ripple Noise	Please contact us for details about Ripple Noise

● -J4

・Option -J4 units come with EP connectors (Mfr. TE Connectivity) intead of VH conectors (Mfr. J.S.T.). Please contact us for details about external view.

● -J5 (LHP300F)

・Option -J5 units come with 8 pin connector instead of a 10 pin connector.
・Table7.2 shows the withdrawal current limit value by the terminal. Please refer to Table 7.2.
・Please contact us for details.

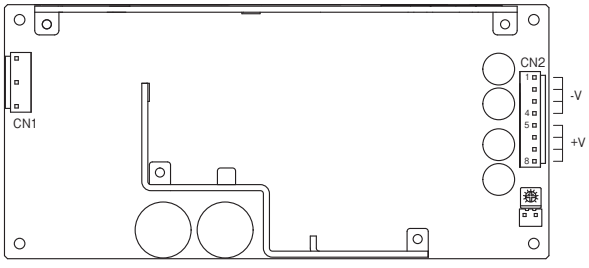


Fig. 7.1 Example of option -J5

Table 7.2 Pin assignments of CN2

＜Pin assignments＞

Pin No.	Output
1 to 4	-V
5 to 8	+V

＜Mating connector and terminal＞

Connector		Mating connector	Terminal		Current per pin	Mfr.
CN2	B8P-VH	VHR-8N	Chain	SVH-21T-P1.1	Keep the drawing current less than 5A per pin.	J.S.T.
			Loose	BVH-21T-P1.1		
			Chain	SVH-41T-P1.1	Keep the drawing current less than 7A per pin.	
			Loose	BVH-41T-P1.1		

● -R, -R2, -R4, -R5

・You can control output ON/OFF remotely in Option -R□ units. To do so, connect an external DC power supply and apply a voltage to a remote ON/OFF connector, which is available as option.

Table 7.3 Output on / off logic by remote control

Model	Option	Built-in Resistor Ri [Ω]	Voltage between RC (+) and RC (-) [V]		Input Current [mA]
			Output ON	Output OFF	
LHP150F, LHP300F	-R , -R2	1500	4.5 - 12.5	0 - 0.5	10max
	-R4, -R5		0 - 0.5	4.5 - 12.5	

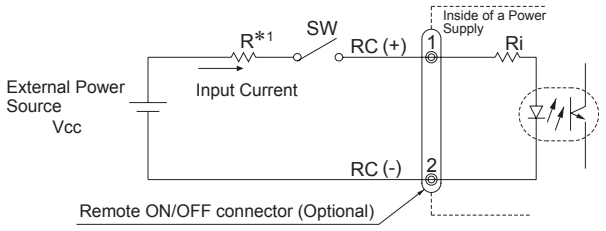


Fig. 7.2 Example of using a remote ON/OFF circuit

・Dedicated harnesses are available for purchase. Please see Optional Parts for details.

＊1 If the output of an external power source (Vcc) is within the range of 4.5 - 12.5V, you do not need a current limiting resistor R. If the output exceeds 12.5V, however, please connect the current limiting resistor R.

To calculate a current limiting resistance value, please use the following equation.

$$R[\Omega]=\frac{Vcc-(1.1+Ri\times 0.005)}{0.005}$$

＊Please wire carefully. If the wire incorrect, the internal components may be damaged.

・Remote ON/OFF circuits (RC(+) and RC(-)) are isolated from input , output and FG.
・Standby power with remote OFF is lower than the one with no load.

Table 7.4 Standby power when output is turned off by the remote control

Model	Option	Standby power [W]	
		ACIN 100V	ACIN 230V
LHP150F, LHP300F	-R , -R4	1.50 typ	1.50 typ
	-R2, -R5	0.30 typ	0.80 typ

・Start up time by ON signal in remote control is 650 ms (typ). (option -R2 , -R5)
・Overvoltage protection is reactivated by toggling ON/OFF signal of remote control.

● -S, -SN

・-S indicates a type with chassis, and -SN indicates a type with chassis and cover (Refer to external view).
・In optional -S case, “Derating”, “Maximum temperature of measurement points”, “Life Expectancy” and “Warranty” is same as standard model.
・In optional -SN case, please refer to “Derating”. Also “Maximum temperature of measurement points”, “Life expectancy” and “Warranty” is different from standard models. Please refer to Table 7.5 to Table 7.10.

■Maximum temperature of measurement points

Table 7.5 Maximum temperature of mesurement points (LHP150F-□-SNY)

Voltage	Cooling Method	Mounting Method	Load factor	Maximum temperature [℃]	
				①Capacitor	②Capacitor
24V, 30V, 36V, 42V, 48V	Convection	A	75%<Io≦100%	77	66
			Io≦75%	90	82
		B	75%<Io≦100%	66	64
			Io≦75%	82	80
		C	75%<Io≦100%	80	58
			Io≦75%	88	74
		D	75%<Io≦100%	74	60
			Io≦75%	88	78
		E	75%<Io≦100%	66	76
			Io≦75%	80	88
	Forced air	A,B,C, D,E,F	Io≦100%	75	75

Table 7.6 Maximum temperature of mesurement points (LHP300F-□-SNY)

Voltage	Cooling Method	Mounting Method	Load factor	Maximum temperature [℃]	
				①Capacitor	②Capacitor
24V, 30V, 36V, 42V, 48V	Convection	A	75%<Io≦100%	74	66
			Io≦75%	84	78
		B	75%<Io≦100%	66	62
			Io≦75%	78	76
		C	75%<Io≦100%	84	62
			Io≦75%	90	74
		D	75%<Io≦100%	74	56
			Io≦75%	82	68
		E	75%<Io≦100%	72	80
			Io≦75%	80	86
	Forced air	A,B,C, D,E,F	Io≦100%	75	75

■Life Expectancy

Table 7.7 Life Expectancy (LHP150F-□-SNY)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Life Expectancy	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	4years
		C	Ta=20℃ or less	10years or more	10years or more
			Ta=30℃	10years or more	4years
		D	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	8years
		E	Ta=20℃ or less	10years or more	7years
			Ta=30℃	7years	4years
	Forced air	A,B,C, D,E,F	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years

Table 7.8 Life Expectancy (LHP300F-□-SNY)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Life Expectancy	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	8years
		B	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	10years or more
		C	Ta=25℃ or less	10years or more	8years
			Ta=35℃	10years or more	4years
		D	Ta=25℃ or less	10years or more	10years or more
			Ta=35℃	10years or more	8years
		E	Ta=25℃ or less	10years or more	6years
			Ta=35℃	6years	3years
	Forced air	A,B,C, D,E,F	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years

■Warranty

Table 7.9 Warranty (LHP150F-□-SNY)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Warranty	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,D	Ta=25℃ or less	5years	5years
			Ta=35℃	5years	3years
		C,E	Ta=20℃ or less	5years	5years
			Ta=30℃	5years	3years
	Forced air	A,B,C, D,E,F	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years

Table 7.10 Warranty (LHP300F-□-SNY)

Voltage	Cooling Method	Mounting Method	Average ambient temperature (year)	Warranty	
				Io≦75%	75%<Io≦100%
24V, 30V, 36V, 42V, 48V	Convection	A,B,C, D,E	Ta=25℃ or less	5years	5years
			Ta=35℃	5years	3years
	Forced air	A,B,C, D,E,F	Ta=40℃ or less	5years	5years
			Ta=50℃	5years	3years

● -T

・Option -T units has changed the I/O interface from the connector to the terminal block (M3.5) Type.
・Refer to fig.7.3, fig.7.4 for terminal arrangement.
・The size specification is different from standard model. Please contact us for details.

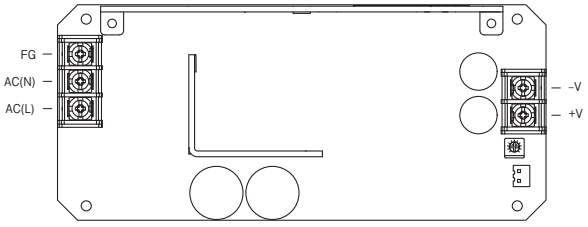


Fig. 7.3 Example of option -T (LHP150F)

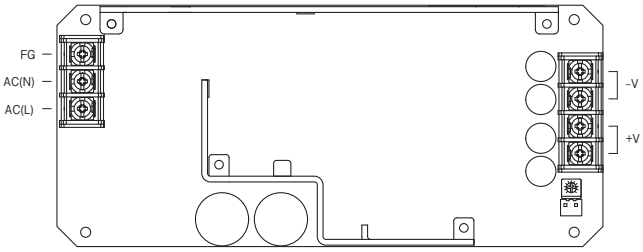


Fig. 7.4 Example of option -T (LHP300F)

● -T4

・Option -T4 units has changed the I/O interface from the connector to the Push-in Terminal Block Type.
・Refer to fig.7.5, fig.7.6 for terminal arrangement.
・The size specification is different from standard model. Please contact us for details.

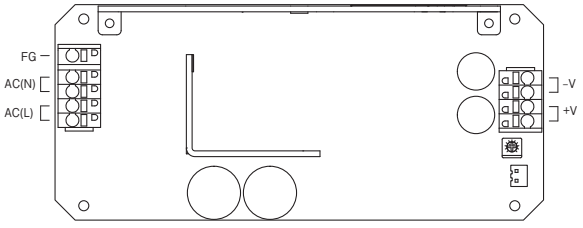


Fig. 7.5 Example of option -T4 (LHP150F)

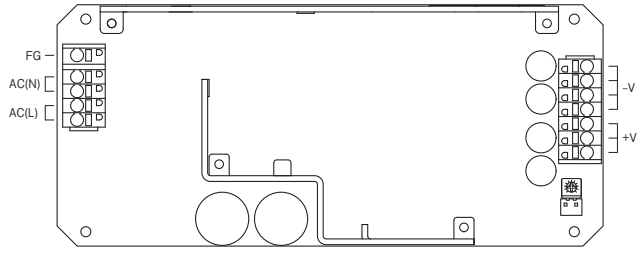


Fig. 7.6 Example of option -T4 (LHP300F)

Table 7.11 is the recommended Ferrule terminals.
Table 7.12 is the applicable wire size for the solid wire and the stranded wire.

Table 7.11 Recommended Ferrule terminals

Type	Manufacturer	Wire size	Model	Crimp tool
Square type	Phoenix Contact	AWG 16	AI1.5-10BK	CRIMPFOX UD6
		AWG 18	AI1-10RD	
		AWG 20	AI0.5-10WH	
		AWG 22	AI0.34-10TQ	
Round type	Nichifu	AWG 16 - 22	TC-1.25-11T	NH32

Table 7.12 Applicable wire size (Solid wire,Stranded wire)

Item	Contents
Wire size	AWG 12 - 24
Wire insulation strip length	9mm - 11mm

・Fig.7.7, fig.7.8 and fig.7.9 is the how to connect/release the wire.

■How to connect the terminal (Ferrule terminal and Solid wire)

Step1:Insert the wire until the electrode is not visible.
(Refer to the fig.7.7 (a).)
Inserting a flat-blade screwdriver into the release hole makes it easier to insert.
(Refer to the fig.7.7 (b).)

Step2:Pull the wire lightly in order to make sure it is fixed.

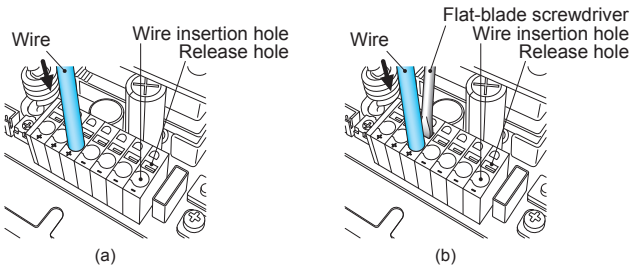


Fig.7.7 Connecting method of Ferrule terminal and Solid wire

■How to connect the terminal (Stranded wire)

Step1:Insert a flat-blade screwdriver into the release hole.
(Refer to the fig.7.8 (a).)

Step2:Insert the wire until the electrode is not visible with the flatblade screwdriver inserted in the release hole.
(Refer to the fig.7.8 (b).)

Step3:Remove the flat-blade screwdriver from the release hole.
(Refer to the fig.7.8 (c).)

Step4:Pull the wire lightly in order to make sure it is fixed.

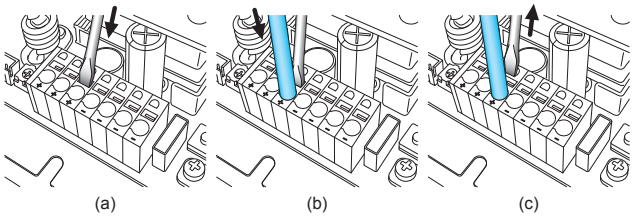


Fig.7.8 Connecting method of Stranded wire

■How to release the terminal
(Ferrule terminal, Solid wire and Stranded wire)

Step1:Insert a flat-blade screwdriver into the release hole.
(Refer to the fig.7.9 (a).)

Step2:Remove the wire with the flat-blade screwdriver inserted in the release hole. (Refer to the fig.7.9 (b).)

Step3:Remove the flat-blade screwdriver from the release hole.
(Refer to the fig.7.9 (c).)

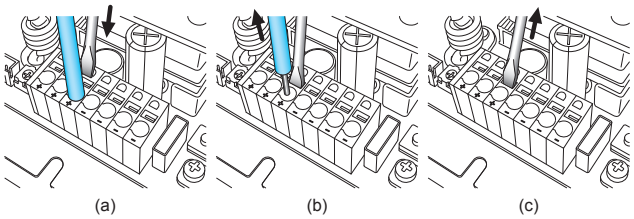


Fig.7.9 Releasing method of Ferrule terminal, Solid wire and Stranded wire

● -U1

・By connecting the external capacitor unit CR-HUT (optional parts) to CN4, Hold-up time is extendable.

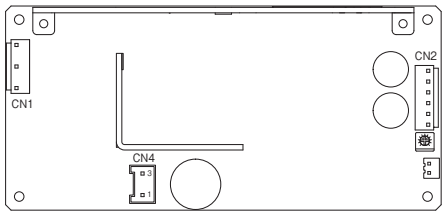


Fig. 7.10 CN4 location (LHP150F-□-U1Y)

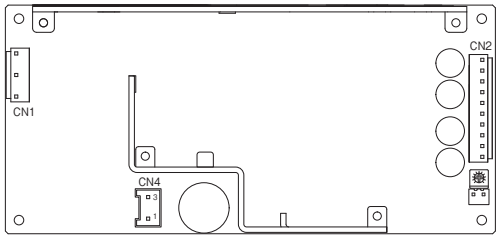


Fig. 7.11 CN4 location (LHP300F-□-U1Y)

Table 7.13 Pin assignments of CN4 (LHP150F-□-U1Y,LHP300F-□-U1Y)

＜Pin assignments＞

Pin No.	Function
1	VC(-)
2	
3	VC(+)

＜Mating connector and terminal＞

Connector		Mating connector	Terminal		Mfr.
CN4	BH2P3-VH-1	VHR-3N	Chain	SVH-21T-P1.1	J.S.T.
			Loose	BVH-21T-P1.1	

■Connection method

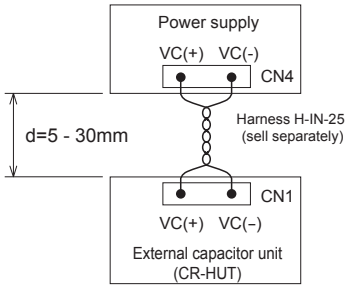


Fig. 7.12 Connection method

■Hold-up time

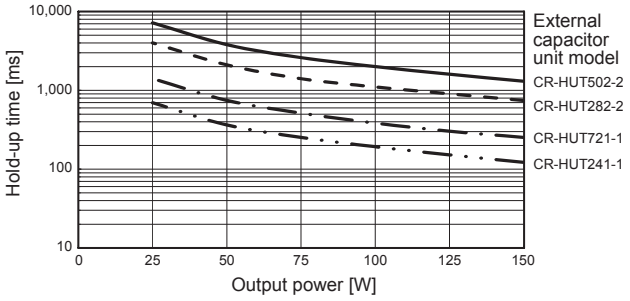


Fig. 7.13 Hold-up time by LHP150F-□-U1Y (Reference data)

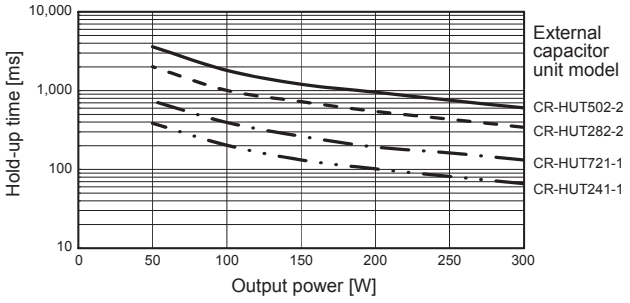


Fig. 7.14 Hold-up time by LHP300F-□-U1Y (Reference data)

●Caution

- Distance between the external capacitor unit and power supply unit must be secured more than 5mm.
- It must be 30mm or less, since the noise is generated from the wire which connects the external capacitor unit and power supply. It is necessary to twist the wire as short as possible.
- It is necessary to use wires which are rated for voltage of 600V or more.
- It must be used with the external capacitor unit (CR-HUT).
- For more information about the external capacitor unit and harness (H-IN-25), please refer to the optional parts page.

● -DC

- Option -DC units come with built-in DC fuse intead of built-in AC fuse.You can use the DC input.
- Safety standard certification is not applicable.
- Table 7.14 shows Fuse rating and input voltage range. Please refer to Table 7.14.

Table 7.14 Fuse rating and input voltage range

Model	Fuse rating	Input voltage range
LHP150F	500VAC/400VDC 8A	ACINPUT 85 - 264VAC 1φ or DCINPUT 120 - 350VDC
LHP300F	500VAC/400VDC 10A	

7.2 Output side attaching external capacitor

■Depending on the capacitance of the external capacitor, resonance may occur due to ESR, ESL, and wiring inductance, so please be careful of ripple increase.

■If the external capacitor is too large, the power supply might not start up.

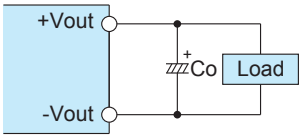


Fig. 7.15 Output side external capacitor connection method

Table 7.15 Connectable External capacitor on the output side [μF]

Output voltage	Model	
	LHP150F	LHP300F
24V	0 to 3,300	0 to 6,600
30V	0 to 2,200	0 to 4,400
36V	0 to 1,650	0 to 3,300
42V	0 to 1,400	0 to 2,200
48V	0 to 1,000	0 to 1,400

7.3 Others

■This power supply is the rugged PCB type. Do not drop conductive objects in the power supply.

■At light load, there remains high voltage inside the power supply for a few minutes after power OFF.
Be careful of electric shock during maintenance.

■This power supply 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.

・Please tighten screws in all mounting holes.

Table 7.16 Mounting holes

Model	Mounting holes
LHP150F	4 positions
LHP300F	

・Install it so that PCB may become parallel to the clamp face.
・Avoid dropping unit.

■While turning on the electricity, and for a while after turning off, please don't touch the inside of power supply because some components could be hot.