

# CN-A110 SERIES

Optimum DC-DC Power Module for  
Railway Related Instruments

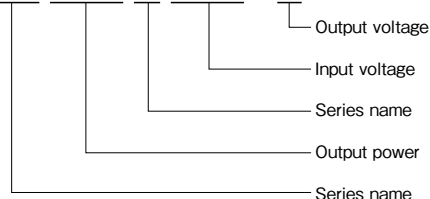


## ■ Features

- Optimum wide input voltage range for Railway Related Instruments, input voltage: 60 to 160 VDC
- Anti-vibration and shock resistance characteristics conforming to IEC61373
- 5 years free warranty
- Brick shaped utilized (1/4 brick for 30W-50W-100W, 1/2 brick for 200W)

## ■ Model naming method

**CN 100 A 110 - 5**



## ■ Applications



OTHERS

## ■ Conformity to RoHS Directive

This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

## ■ Product Line up

Output Voltage	30W		50W		100W		200W	
	Output Current	Model	Output Current	Model	Output Current	Model	Output Current	Model
5	6	CN30A110-5	10	CN50A110-5	20	CN100A110-5	40	CN200A110-5
12	2.5	CN30A110-12	4.2	CN50A110-12	8.4	CN100A110-12	16.7	CN200A110-12
15	2	CN30A110-15	3.4	CN50A110-15	6.7	CN100A110-15	13.4	CN200A110-15
24	1.3	CN30A110-24	2.1	CN50A110-24	4.2	CN100A110-24	8.4	CN200A110-24

## CN30A110 Specifications

ITEMS/UNITS		MODEL	CN30A110-5	CN30A110-12	CN30A110-15	CN30A110-24
Input	Voltage Range	V	60 - 160			
	Efficiency(typ) (*1)	%	83	84		
	Current (*1)	A	0.34			
Output	Nominal Voltage	VDC	5	12	15	24
	Maximum Current	A	6	2.5	2	1.3
	Maximum Power	W	30			31.2
	Voltage Setting Accuracy (*1)	%	-/+ 1			
	Maximum Line Regulation(*2)	mV	20	48	60	96
	Maximum Load Regulation(*3)	mV	40	96	120	192
	Temperature Coefficient		0.02%/°C			
	Maximum Ripple & Noise (*8)	mVp-p	100	150		240
	Voltage Adjustable Range (*8)	VDC	-10 / +20	-/+ 10		
Function	Over Current Protection (*4)	A	105 - 140			
	Over Voltage Protection(*5)(*7)	VDC	125 - 145 (Inverter shutdown method)			
	Remote Sensing (*7)		Possible			
	Remote ON/OFF Control (*7)		Possible (SHORT : ON OPEN : OFF)			
	Parallel Operation		-			
	Series Operation (*7)		Possible			
Environment	Operating Temperature (*6)	℃	-40 - +100 (Baseplate) Ambient Temperature min=-40℃			
	Storage Temperature	℃	-40 - +100			
	Operating Humidity	% RH	5 - 95 (No Dewdrop)			
	Storage Humidity	% RH	5 - 95 (No Dewdrop)			
	Vibration		At No Operating, 10-55Hz (Sweep for 1min.) Amplitude 0.825mm Constant (Maximum 49.0m/s²) X,Y,Z 1 hour each IEC61373 - Categoly 1 - Grade B			
	Shock		196.1m/s²			
	Cooling		Conduction Cooled			
	Isolation		Input-Baseplate : 1.5kVAC, Input-Output : 3.0kVAC for 1min. Output-Baseplate : 500VAC for 1min.			
	Isolation Resistance		More than 100MΩ at 25℃ and 70%RH Output-Baseplate...500VDC			
Standards	Safety Standards		Approved by UL60950-1, CSA60950-1, EN60950-1			
Mechanical	Weight(typ)	g	100			
	Size (W×H×D)	mm	36.8 x 12.7 x 57.9 (Refer to Outline Drawing)			

\*1. At 110VDC and maximum output current.  
(Baseplate Temperature = +25°C)

\*2. 60 - 160VDC, Constant load.

\*3. No Load - Full Load, Constant input voltage.

\*4. 5V automatically shutdown when left in OCP condition, with the output voltage less than the LVP level.  
12V, 15V and 24V constant current limiting with automatic recovery.

LVP reset : Line off or Control off.

\*5. OVP reset : Line off or Control off.

\*6. Rating - Refer to Derating Curve on the right.

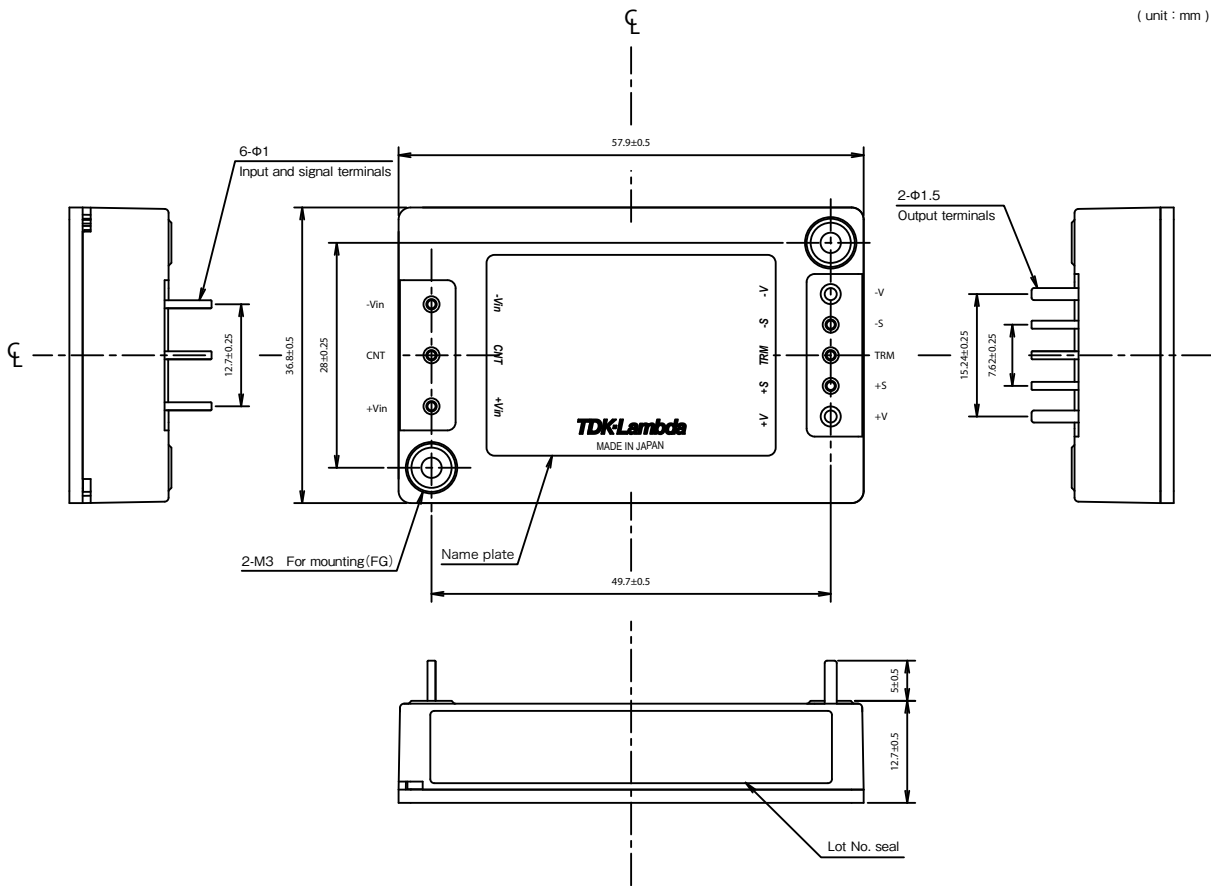
- Load(%) is percent of maximum output current.

- Refer to Instruction Manual.

\*7. Refer to Instruction Manual.

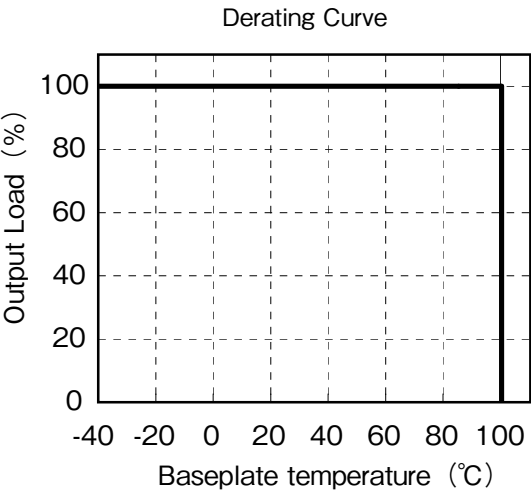
\*8. External components are needed for operation. (Refer to Basic Connection and Instruction Manual.)

CN30A110 Outline Drawing



\* Heatsink for 30,50,100W : HAQ-10T

Output Derating



## CN50A110 Specifications

ITEMS/UNITS		MODEL	CN50A110-5	CN50A110-12	CN50A110-15	CN50A110-24
Input	Voltage Range	V	60 - 160			
	Efficiency(typ) (*1)	%	84	86		
	Current (*1)	A	0.55			
Output	Nominal Voltage	VDC	5	12	15	24
	Maximum Current	A	10	4.2	3.4	2.1
	Maximum Power	W	50	50.4	51.0	50.4
	Voltage Setting Accuracy (*1)	%	-/+ 1			
	Maximum Line Regulation(*2)	mV	20	48	60	96
	Maximum Load Regulation(*3)	mV	40	96	120	192
	Temperature Coefficient		0.02%/°C			
	Maximum Ripple & Noise (*8)	mVp-p	100	150		240
	Voltage Adjustable Range (*8)	VDC	-10 / +20	-/+ 10		
Function	Over Current Protection (*4)	A	105 - 140			
	Over Voltage Protection(*5)(*7)	VDC	125 - 145 (Inverter shutdown method)			
	Remote Sensing (*7)		Possible			
	Remote ON/OFF Control (*7)		Possible (SHORT : ON OPEN : OFF)			
	Parallel Operation		-			
	Series Operation (*7)		Possible			
Environment	Operating Temperature (*6)	℃	-40 - +100 (Baseplate) Ambient Temperature min=-40℃			
	Storage Temperature	℃	-40 - +100			
	Operating Humidity	%RH	5 - 95 (No Dewdrop)			
	Storage Humidity	%RH	5 - 95 (No Dewdrop)			
	Vibration		At No Operating, 10-55Hz (Sweep for 1min.) Amplitude 0.825mm Constant (Maximum 49.0m/s²) X,Y,Z 1 hour each IEC61373 - Category 1 - Grade B			
	Shock		196.1m/s²			
	Cooling		Conduction Cooled			
	Isolation		Input-Baseplate : 1.5kVAC, Input-Output : 3.0kVAC for 1min. Output-Baseplate : 500VAC for 1min.			
	Isolation Resistance		More than 100MΩ at 25℃ and 70%RH Output-Baseplate...500VDC			
Standards	Safety Standards		Approved by UL60950-1, CSA60950-1, EN60950-1			
Mechanical	Weight(typ)	g	100			
	Size (W×H×D)	mm	36.8 x 12.7 x 57.9 (Refer to Outline Drawing)			

\*1. At 110VDC and maximum output current.  
(Baseplate Temperature = +25°C)

\*2. 60 - 160VDC, Constant load.

\*3. No Load - Full Load, Constant input voltage.

\*4. 5V automatically shutdown when left in OCP condition, with the output voltage less than the LVP level.  
12V, 15V and 24V constant current limiting with automatic recovery.  
LVP reset : Line off or Control off.

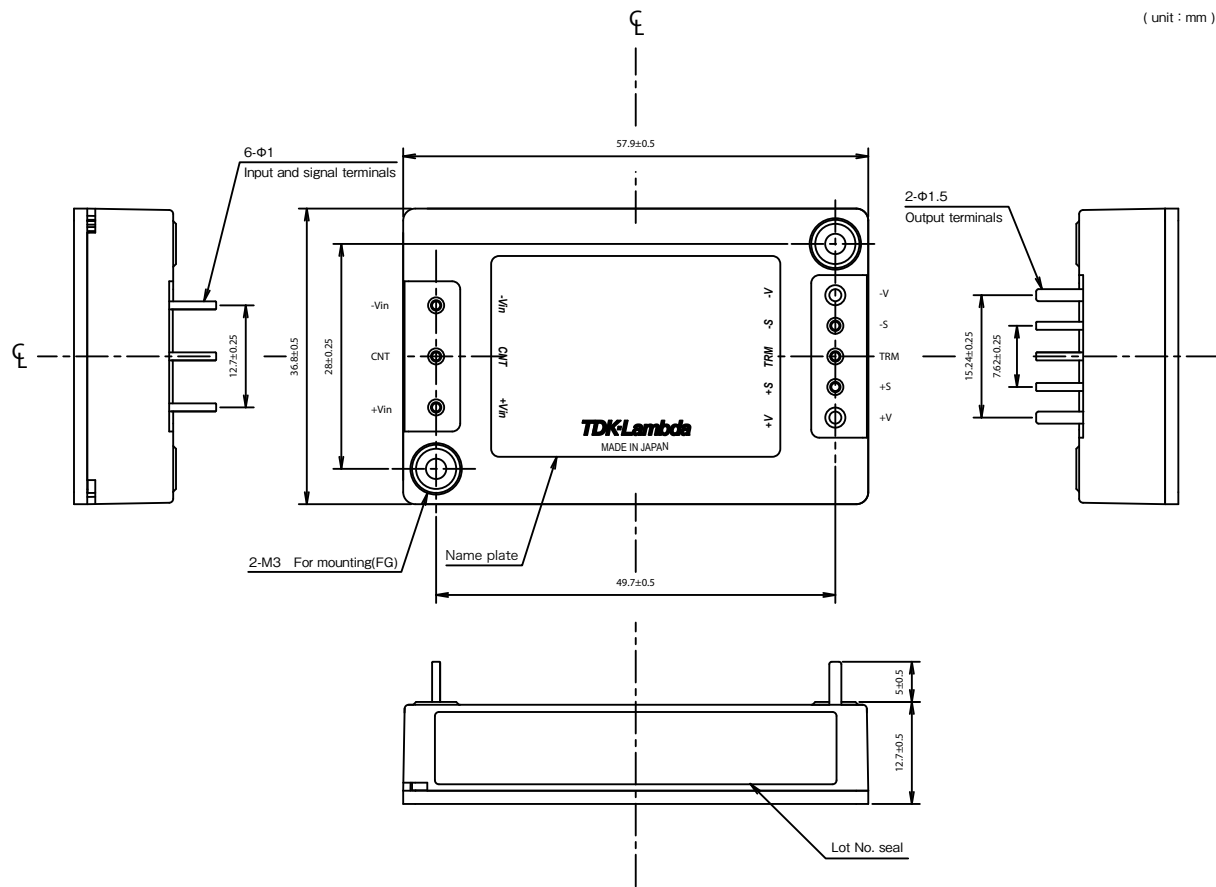
\*5. OVP reset : Line off or Control off.

\*6. Rating - Refer to Derating Curve on the right.  
- Load(%) is percent of maximum output current.  
- Refer to Instruction Manual.

\*7. Refer to Instruction Manual.

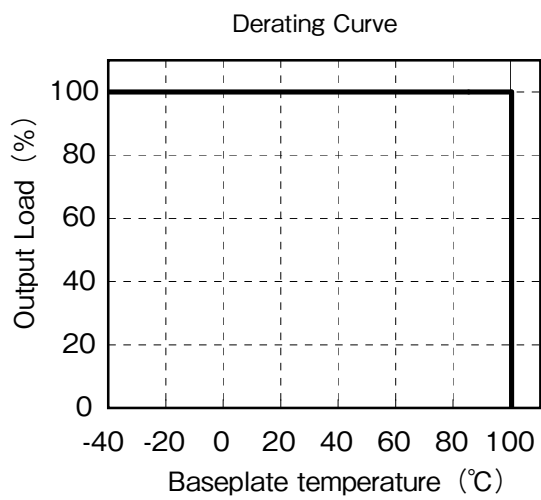
\*8. External components are needed for operation. (Refer to Basic Connection and Instruction Manual.)

CN50A110 Outline Drawing



\* Heatsink for 30,50,100W : HAQ-10T

Output Derating



## CN100A110 Specifications

ITEMS/UNITS		MODEL	CN100A110-5	CN100A110-12	CN100A110-15	CN100A110-24
Input	Voltage Range	V	60 - 160			
	Efficiency(typ) (*1)	%	85	88		
	Current (*1)	A	1.08	1.05		
Output	Nominal Voltage	VDC	5	12	15	24
	Maximum Current	A	20	8.4	6.7	4.2
	Maximum Power	W	100	100.8	100.5	100.8
	Voltage Setting Accuracy (*1)	%	-/+ 1			
	Maximum Line Regulation(*2)	mV	20	48	60	96
	Maximum Load Regulation(*3)	mV	40	96	120	192
	Temperature Coefficient		0.02%/°C			
	Maximum Ripple & Noise (*8)	mVp-p	100	150		240
	Voltage Adjustable Range (*8)	VDC	-10 / +20	-/+ 10		
Function	Over Current Protection (*4)	A	105 - 140			
	Over Voltage Protection(*5)(*7)	VDC	125 - 145 (Inverter shutdown method)			
	Remote Sensing (*7)		Possible			
	Remote ON/OFF Control (*7)		Possible (SHORT : ON OPEN : OFF)			
	Parallel Operation		-			
	Series Operation (*7)		Possible			
Environment	Operating Temperature (*6)	℃	Possible	-40 - +100 (Baseplate) Ambient Temperature min=-40℃		
	Storage Temperature	℃	-40 - +100			
	Operating Humidity	%RH	5 - 95 (No Dewdrop)			
	Storage Humidity	%RH	5 - 95 (No Dewdrop)			
	Vibration		At No Operating, 10-55Hz (Sweep for 1min.) Amplitude 0.825mm Constant (Maximum 49.0m/s²) X,Y,Z 1 hour each IEC61373 - Category 1 - Grade B			
	Shock		196.1m/s²			
	Cooling		Conduction Cooled			
	Isolation		Input-Baseplate : 1.5kVAC (20mA), Input-Output : 3.0kVAC for 1min. Output-Baseplate : 500VAC for 1min (20mA).			
	Isolation Resistance		More than 100MΩ at 25℃ and 70%RH Output-Baseplate...500VDC			
Standards	Safety Standards		Approved by UL60950-1, CSA60950-1, EN60950-1			
Mechanical	Weight(typ)	g	70			
	Size (W×H×D)	mm	36.8 x 12.7 x 57.9 (Refer to Outline Drawing)			

\*1. At 110VDC and maximum output current.

(Baseplate Temperature = +25°C)

\*2. 60 - 160VDC, Constant load.

\*3. No Load - Full Load, Constant input voltage.

\*4. 5V delay shutdown when left in OCP condition, with the output voltage less than the LVP level.

12V, 15V and 24V constant current limiting with automatic recovery.

LVP reset : Line off or Control off.

\*5. OVP reset : Line off or Control off.

\*6. Rating - Refer to Derating Curve on the right.

- Load(%) is percent of maximum output current.

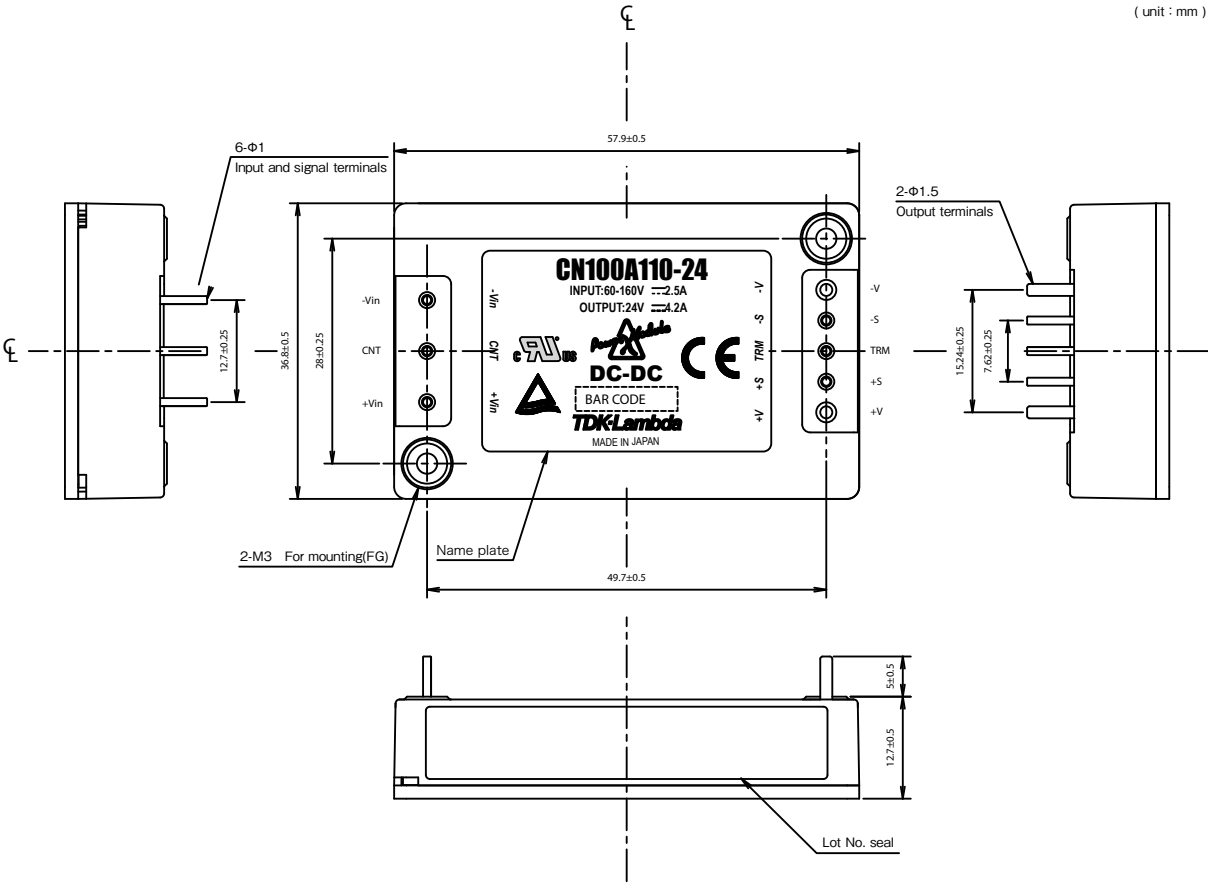
- Refer to Instruction Manual.

\*7. Refer to Instruction Manual.

\*8. External components are necessary for operation. (Refer to Basic Connection and Instruction Manual.)

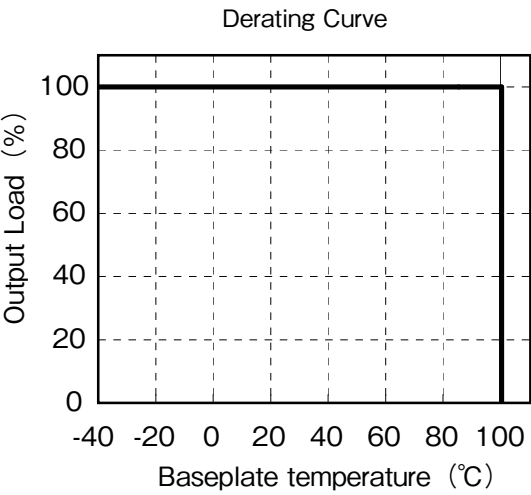
\*9. This specification applies to power supply module as stand-alone.

CN100A110 Outline Drawing



\* Heatsink for 30,50,100W : HAQ-10T

Output Derating



## CN200A110 Specifications

ITEMS/UNITS		MODEL	CN200A110-5	CN200A110-12	CN200A110-15	CN200A110-24
Input	Voltage Range	V	60 - 160			
	Efficiency(typ) (*1)	%	85	88		
	Current (*1)	A	2.16	2.09	2.10	2.11
Output	Nominal Voltage	VDC	5	12	15	24
	Maximum Current	A	40	16.7	13.4	8.4
	Maximum Power	W	200	200.4	201.0	201.6
	Voltage Setting Accuracy (*1)	%	-/+ 1			
	Maximum Line Regulation(*2)	mV	20	48	60	96
	Maximum Load Regulation(*3)	mV	40	96	120	192
	Temperature Coefficient		0.02%/°C			
	Maximum Ripple & Noise (*8)	mVp-p	100	150		240
	Voltage Adjustable Range (*8)	VDC	-10 / +20	-/+ 10		
Function	Over Current Protection (*4)	A	105 - 140			
	Over Voltage Protection(*5)(*7)	VDC	125 - 145 (Inverter shutdown method)			
	Remote Sensing (*7)		Possible			
	Remote ON/OFF Control (*7)		Possible (SHORT : ON OPEN : OFF)			
	Parallel Operation (*7)		Possible			
	Series Operation (*7)		Possible			
Environment	Operating Temperature (*6)	℃	-40 - +100 (Baseplate) Ambient Temperature min=-40℃			
	Storage Temperature	℃	-40 - +100			
	Operating Humidity	%RH	5 - 95 (No Dewdrop)			
	Storage Humidity	%RH	5 - 95 (No Dewdrop)			
	Vibration		At No Operating, 10-55Hz (Sweep for 1min.) Amplitude 0.825mm Constant (Maximum 49.0m/s²) X,Y,Z 1 hour each IEC61373 - Category 1 - Grade B			
	Shock		196.1m/s²			
	Cooling		Conduction Cooled			
	Isolation		Input-Baseplate : 1.5kVAC, Input-Output : 3.0kVAC for 1min. Output-Baseplate : 500VAC for 1min.			
	Isolation Resistance		More than 100MΩ at 25℃ and 70%RH Output-Baseplate...500VDC			
Standards	Safety Standards		Designed to meet UL60950-1, CSA60950-1, EN60950-1			
Mechanical	Weight(typ)	g	150			
	Size (W×H×D)	mm	61.0 x 12.7 x 57.9 (Refer to Outline Drawing)			

\*1. At 110VDC and maximum output current.  
(Baseplate Temperature = +25°C)

\*2. 60 - 160VDC, Constant load.

\*3. No Load - Full Load, Constant input voltage.

\*4. 5V delay shutdown when left in OCP condition, with the output voltage less than the LVP level.

12V, 15V and 24V constant current limiting with automatic recovery.

LVP reset : Line off or Control off.

\*5. OVP reset : Line off or Control off.

\*6. Rating - Refer to Derating Curve on the right.

- Load(%) is percent of maximum output current.

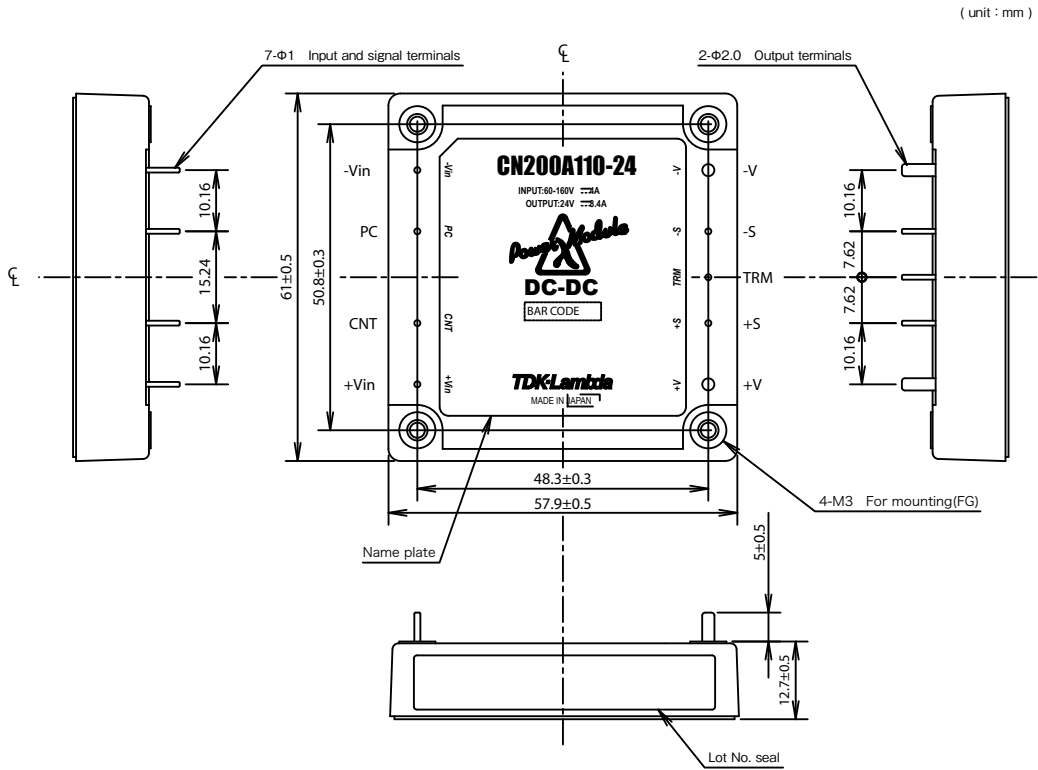
- Refer to Instruction Manual.

\*7. Refer to Instruction Manual.

\*8. External components are needed for operation. (Refer to Basic Connection and Instruction Manual.)

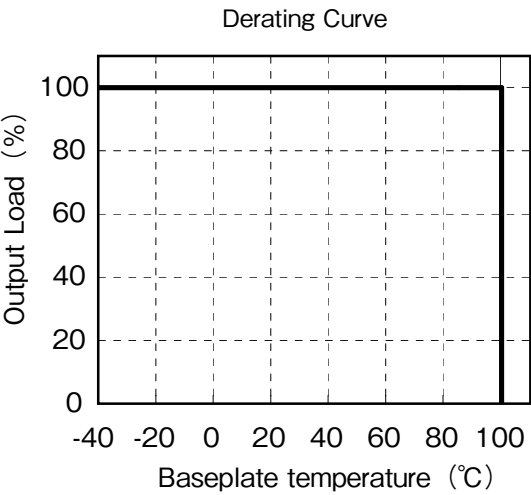


CN200A110 Outline Drawing



\* Heatsink for 200W: HAH-10T, HAH-10L, HAH-15L

Output Derating



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