

invt GD800-91 Goodrive Series Active Rectifier Component



inv GD800-91 Goodrive Series Active Rectifier Component Instruction Manual

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inv GD800-91 Goodrive Series Active Rectifier Component



Product Information

Specifications

- **Function description:** THDI < 5% (at the rated current), THDU < 5%
- **Overload capacity:** Light overload with 110% current lasting 1 minute every 5 minutes, heavy overload with 150% current lasting 1 minute every 5 minutes
- **Working efficiency:** 97%
- **Power factor:** > 0.99 (of the rated current)
- **Relative humidity:** Below 1000m altitude (Derating required above 1000m)
- **Anti-vibration performance:** Compliant with 3 M4 vibration level in GB/T4798.3
- **IP rating:** For the module: IP00
- **Safety performance:** Compliant with EN 61800-5-1
- **Cooling method:** Forced air cooling
- **Protection function:** Short circuit, overcurrent, overload, overvoltage, undervoltage, overtemperature, phase loss

Product Usage Instructions

1. Installation

Ensure installation is below 1000m altitude. Derate by 1% for every increase of 100m above this altitude.

2. Power Connection

Connect AC input of 3PH 380V~480V 94A and output $V_{in} \times 1.5 \sim 720V_{dc}$ as per the product nameplate.

3. Operation

Operate within the specified overload capacities and efficiency to ensure optimal performance.

4. Maintenance

Regularly check for any signs of short circuits, overcurrents, or other protection function alerts. Keep the unit clean and ensure proper ventilation for cooling.

Frequently Asked Questions (FAQ)

• **Q: What should I do if the unit overheats?**

A: Ensure proper ventilation around the unit and check for any obstructions blocking airflow. If the issue persists, contact customer support for further assistance.

• **Q: Can I operate the unit above 1000m altitude without derating?**

A: It is not recommended to operate the unit above 1000m altitude without derating as it may affect the performance and efficiency of the product.

No.	Change description	Version	Release date
1	First release.	V1.0	October 2023

Preface

Thank you for choosing the INVT Goodrive880 series engineering variable-frequency drive (VFD). GD800-91 series are Goodrive880 series active rectifier products, which mainly consist of rectifier units, LCL filtering components, buffer components, lightning protection components, EMI components and voltage detection modules. You can purchase the components for system integration by yourselves.

This manual is the Goodrive880 series active rectifier component hardware manual, presenting safety precautions, product overview, configuration list, electrical principle and wiring, and product dimensions. Read through this manual carefully before installation to ensure the product is installed and operated properly to give full play to its excellent performance and powerful functions. If you have any questions about the function and performance of the product, please consult our technical support.

Product specifications

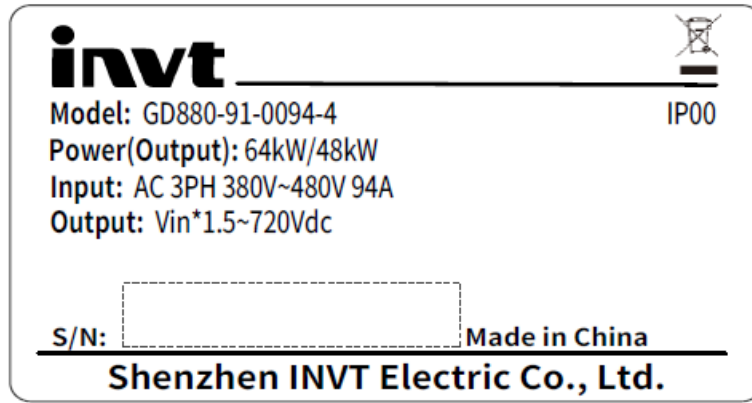
Table 1-1 Product specifications

Function description		Specifications
Basic performance	AC input voltage	400V, 3PH 380–440V AC $\pm$ 10% (-15% < 1min)
	Input frequency	50Hz or 60Hz; Allowed range: 47–63Hz
	Unbalance	Less than $\pm$ 3% of the rated interphase voltage
	THE	THDI < 5% (at the rated current) THDU < 5%
	Overload capacity	Light overload: Overload with a current of 110% can last for 1 minute every 5 minutes, and overload with a current of 150% can last for 10 seconds every 5 minutes Heavy overload: Overload with a current of 150% can last for 1 minute every 5 minutes, and overload with a current of 180% can last for 10 seconds every 5 minutes
Working efficiency	$\geq$ 97%	
Power factor	$\geq$ 0.99 (of the rated current)	
Environment condition	Working temperature	-10°C – +50°C; Derating is required when the ambient temperature exceeds 40°C.
	Relative humidity	5%–95%, no condensation
	Installation altitude	Below 1000m (Derating is required when the altitude exceeds 1000m. Derate by 1% for every increase of 100m.)
Mechanical data	Anti-vibration performance	Compliant with 3 M4 vibration level in GB/T4798.3
	IP rating	For the module: IP00
	Safety performance	Compliant with EN 61800-5-1
	Cooling method	Forced air cooling
Protection function	Protection function	Including functions of protection against short circuits, overcurrent, overload, overvoltage, under voltage, overtemperature, and phase loss

Product nameplate

Figure 1-1 Product nameplate

Figure 1-1 Product nameplate



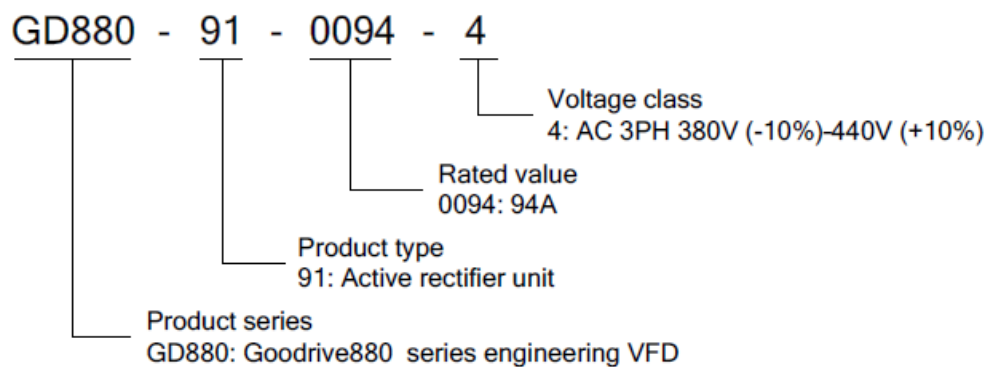
Note:

- Figure 1-1 is a product nameplate example. The specification markings are subject to the machine nameplate.
- The model designation code contains basic product information such as rated current and rated voltage.

Product model

The model designation code contains product information. You can find the model designation code on the product nameplate.

Figure 1-2 Product model code description



Product ratings

Table 1-2 Product ratings

Model	Rated value					Light overl oad applica tion		Heavy overl oad applica tion		Outlin e dime nsions	Heat dissip ation (kW)	Air vol ume (m3/h)
	IN	IN	I _{max}	SN	PN	ILD	PLD	IHD	PHD			
	A (AC)	A (DC)	A (DC)	kV A	kW (DC)	A (D C)	kW (DC)	A (D C)	kW (DC)			
GD880-91-0094-4	94	107	140	65	64	103	62	81	48	A3	1.92	179
GD880-91-0116-4	116	132	172	80	78	127	76	99	59	A4	2.34	255
GD880-91-0149-4	149	170	221	103	102	164	98	128	77	A4	3.06	255
GD880-91-0183-4	183	209	272	127	126	201	120	157	94	A4	3.78	255
GD880-91-0220-4	220	251	326	153	151	241	145	188	113	A6	4.53	1000

Model	Rated value					Light overl oad applica tion		Heavy overl oad applica tion		Outlin e dime nsions	Heat dissip ation (kW)	Air vol ume (m3/h)
	IN	IN	I _{max}	SN	PN	ILD	PLD	IHD	PHD			
	A (AC)	A (DC)	A (DC)	kV A	kW (DC)	A (D C)	kW (DC)	A (D C)	kW (DC)			
GD880-91-0260-4	260	296	385	179	178	284	171	222	133	A6	5.34	1000
GD880-91-0312-4	312	355	462	216	214	341	205	266	161	A7	6.42	1000
GD880-91-0395-4	395	452	587	274	271	433	260	339	203	A7	8.13	1000
GD880-91-0516-4	516	590	767	357	354	565	339	442	265	A7	10.62	1000

Unit outline dimensions and weight

Outline dimensions	Height (mm)	Width (mm)	Depth (mm)	Net weight (kg)
A3	440	100	435	8.7
A4	440	200	435	19.5
A6	850	200	415	45
A7	980	200	415	55

Configuration list

The configuration list of GD800-91 active rectifier products of different power is as follows:

Rated/heavy-load power	No.	Name	Model	Order No.	Qty
64kW/48kW	1	Rectifier unit	GD880-91-0094-4	—	1
	2	LCL filtering component	LCL-0116-0.4SA-4149-RO	—	1
	3	Buffer component	HC-0110-4-Z	19005—00360	1
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001—03990	1
	6	Optical fiber expansion module	EC-TX821	11023—00157	1
	7	AC voltage detection module	IVDM-10	11023—00162	1
	8	1m optical fiber	HFBR-1M	—	1
	1	Rectifier unit	GD880-91-0116-4	—	1
	2	LCL filtering component	LCL-0116-0.4SA-4149-RO	—	1
	3	Buffer component	HC-0110-4-Z	19005—00360	1

78kW/59kW	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1
	6	Optical fiber expansion module	EC-TX821	11023-00157	1
	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
102kW/77kW	1	Rectifier unit	GD880-91-0149-4	—	1
	2	LCL filtering component	LCL-0180-0.4SA-4149-RO	91012-02219	1
	3	Buffer component	HC-0110-4-Z	19005-00360	1
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1

	6	Optical fiber expansion module	EC-TX821	11023-00157	1
	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
	1	Rectifier unit	GD880-91-0183-4	—	1
	2	LCL filtering component	LCL-0180-0.4SA-4149-RO	91012-02219	1

126kW/94kW	3	Buffer component	HC-0110-4-Z	19005-00360	1
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1
	6	Optical fiber expansion module	EC-TX821	11023-00157	1
	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
151kW/113kW	1	Rectifier unit	GD880-91-0220-4	—	1
	2	LCL filtering component	LCL-0220-0.4SA-4149-RO	91012-00885	1
	3	Buffer component	HC-0110-4-Z	19005-00360	1
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1
	6	Optical fiber expansion module	EC-TX821	11023-00157	1
	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
	9	LCD control panel	SOP-880	—	1

178kW/133kW	1	Rectifier unit	GD880-91-0260-4	—	1
	2	LCL filtering component	LCL-0335-0.4SA-4149-RO	91012-02222	1
	3	Buffer component	HC-200-4	19005-00361	1

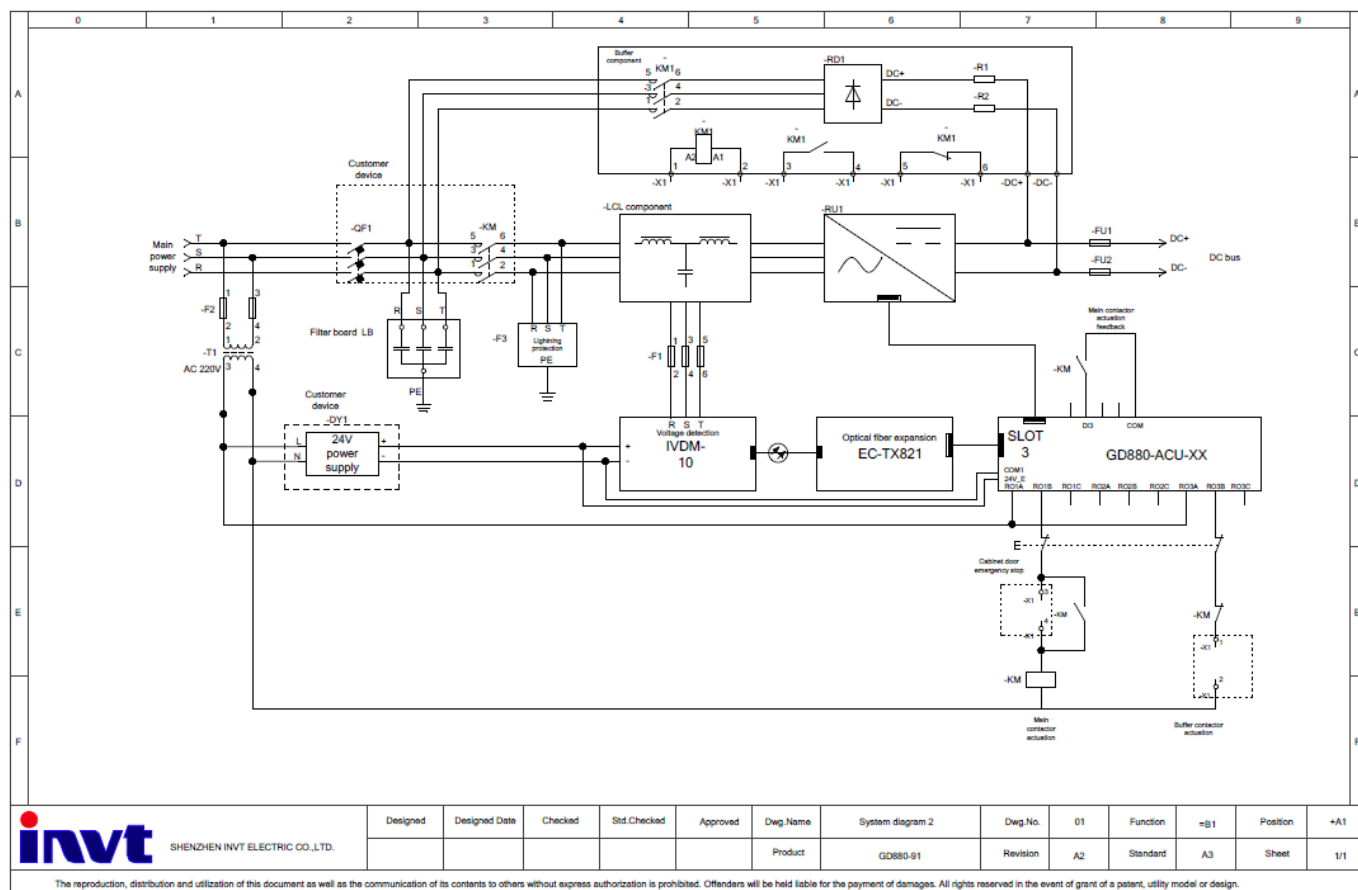
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1
	6	Optical fiber expansion module	EC-TX821	11023-00157	1
	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
	9	LCD control panel	SOP-880	—	1
214kW/161kW	1	Rectifier unit	GD880-91-0312-4	—	1
	2	LCL filtering component	LCL-0335-0.4SA-4149-RO	91012-02222	1
	3	Buffer component	HC-200-4	19005-00361	1
	4	Lightning protection component	RV-380V	12029-00014	1
	5	EMI component	GD800-LB	90001-03990	1
	6	Optical fiber expansion module	EC-TX821	11023-00157	1

	7	AC voltage detection module	IVDM-10	11023-00162	1
	8	1m optical fiber	HFBR-1M	—	1
	9	LCD control panel	SOP-880	—	1
271kW/203kW	1	Rectifier unit	GD880-91-0395-4	90001-02885	1
	2	LCL filtering	LCL-380A-00214-2	91012-02082	1
	3	component	CBU-C65-6-D	11029-00093	1
	4	Buffer component	HC-200-4	19005-00361	1
	5	Lightning protection component	RV-380V	12029-00014	1
	6	EMI component	GD800-LB	90001-03990	1
	7	Optical fiber expansion module	EC-TX821	11023-00157	1
	8	AC voltage detection module	IVDM-10	11023-00162	1
	9	1m optical fiber	HFBR-1M	—	1

	10	LCD control panel	SOP-880	—	1
354kW/265kW	1	Rectifier unit	GD880-91-0516-4	90001—02885	1
	2	LCL filtering component	LCL-380A-00214-2	91012—02082	1
	3		CBU-C65-6-D	11029—00093	1
	4	Buffer component	HC-200-4	19005—00361	1
	5	Lightning protection component	RV-380V	12029—00014	1
	6	EMI component	GD800-LB	90001—03990	1
	7	Optical fiber expansion module	EC-TX821	11023—00157	1
	8	AC voltage detection module	IVDM-10	11023—00162	1
	9	1m optical fiber	HFBR-1M	—	1
	10	LCD control panel	SOP-880	—	1

Electrical principle and wiring

The electrical principle and wiring diagram of GD880-91 active rectifier products are as follows:



Note:

Except for the components in the 2 Configuration list, other components in the above figure need to be purchased separately.

Product dimensions

Rectifier unit dimensions

Figure 4-1 0094-0116 rectifier unit dimensions (unit: mm)

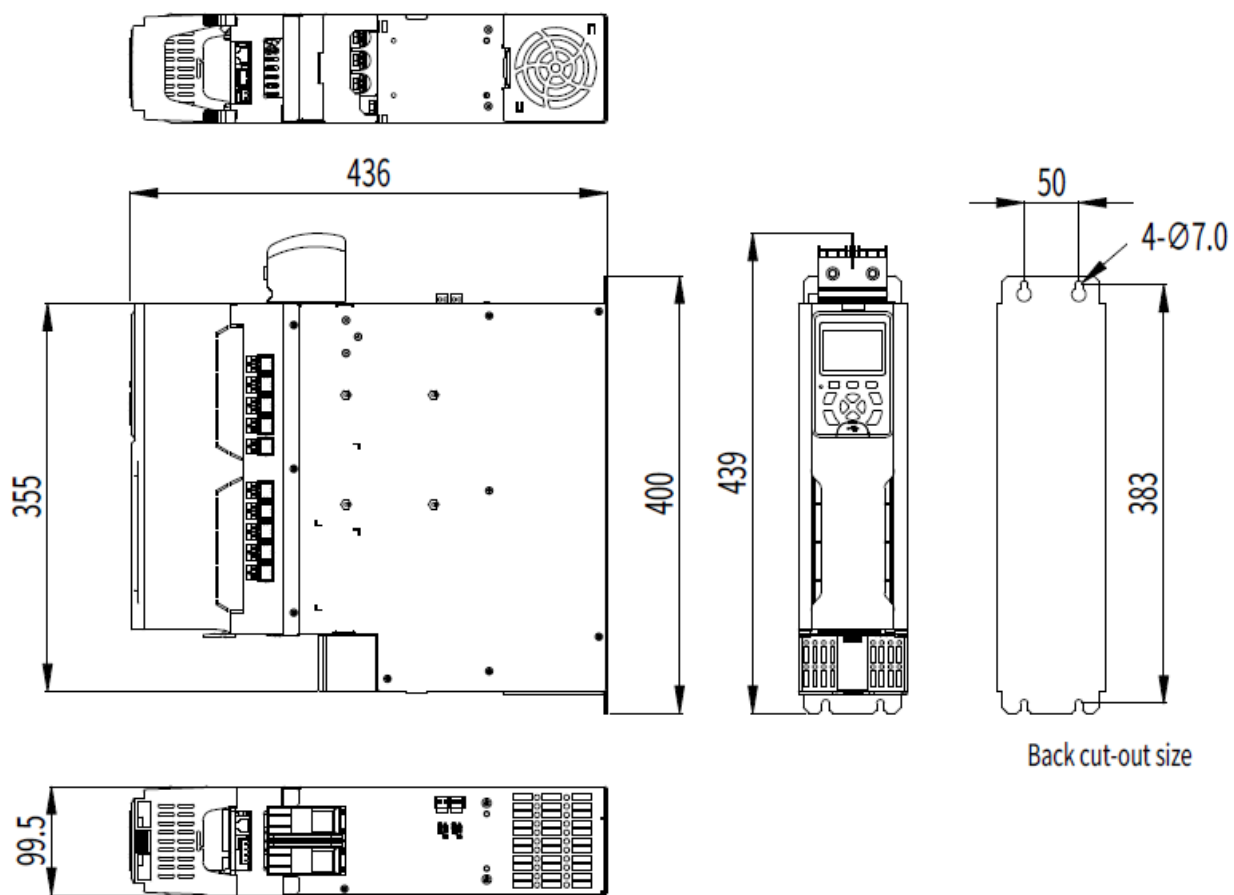


Figure 4-2 0149–0183 rectifier unit dimensions (unit: mm)

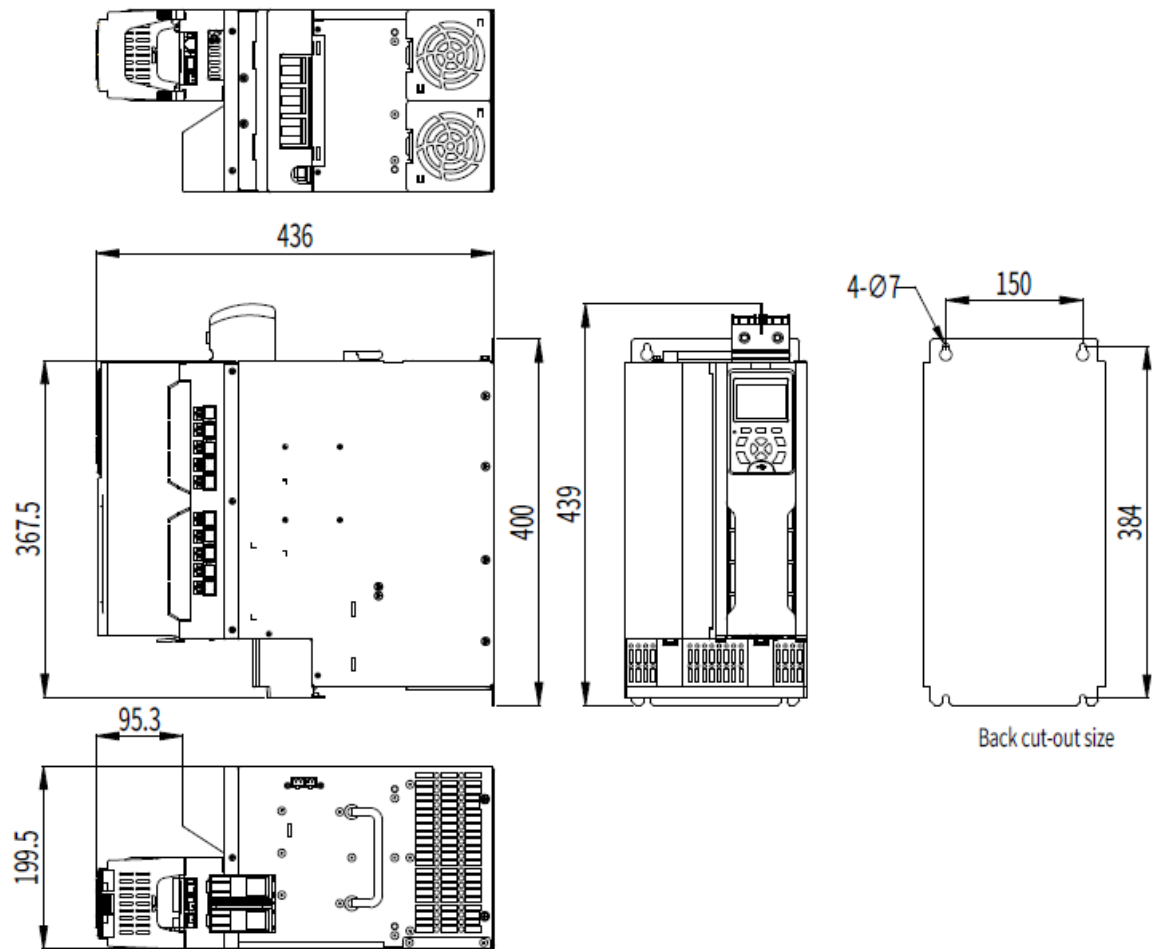


Figure 4-3 0220–0260 rectifier unit dimensions (unit: mm)

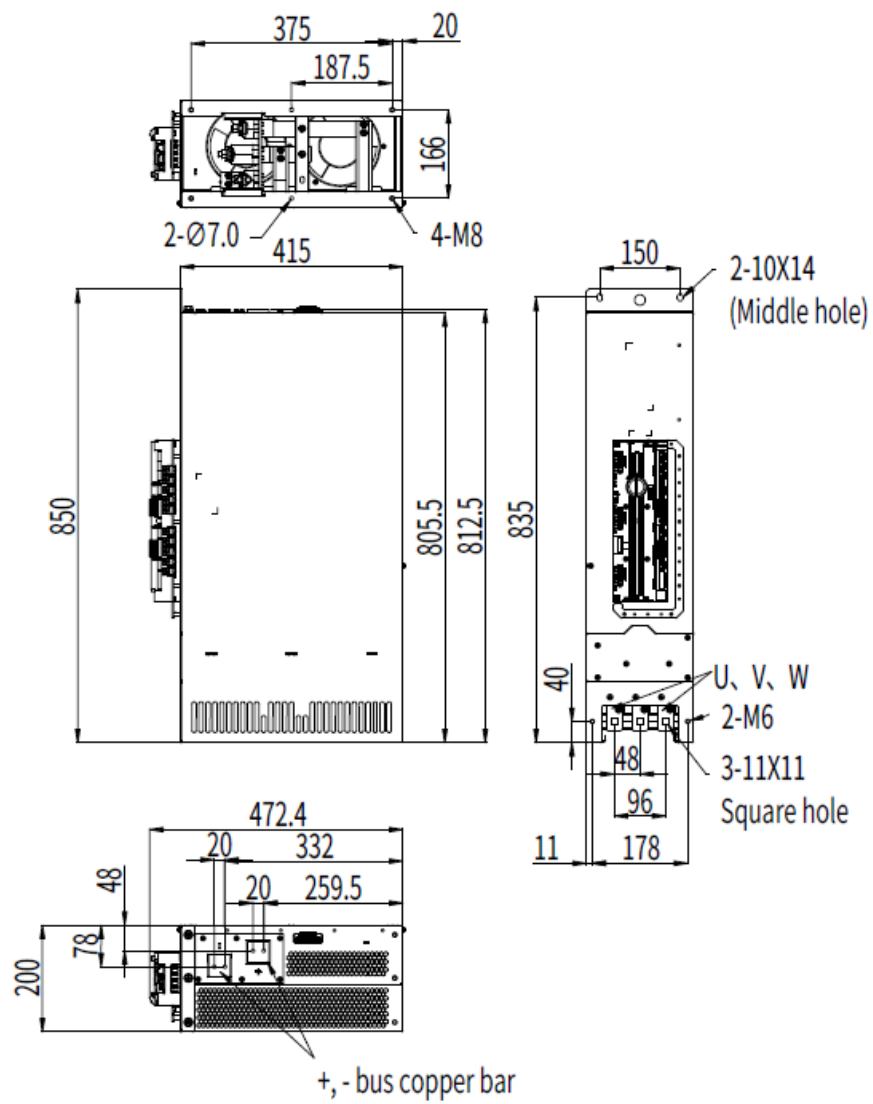
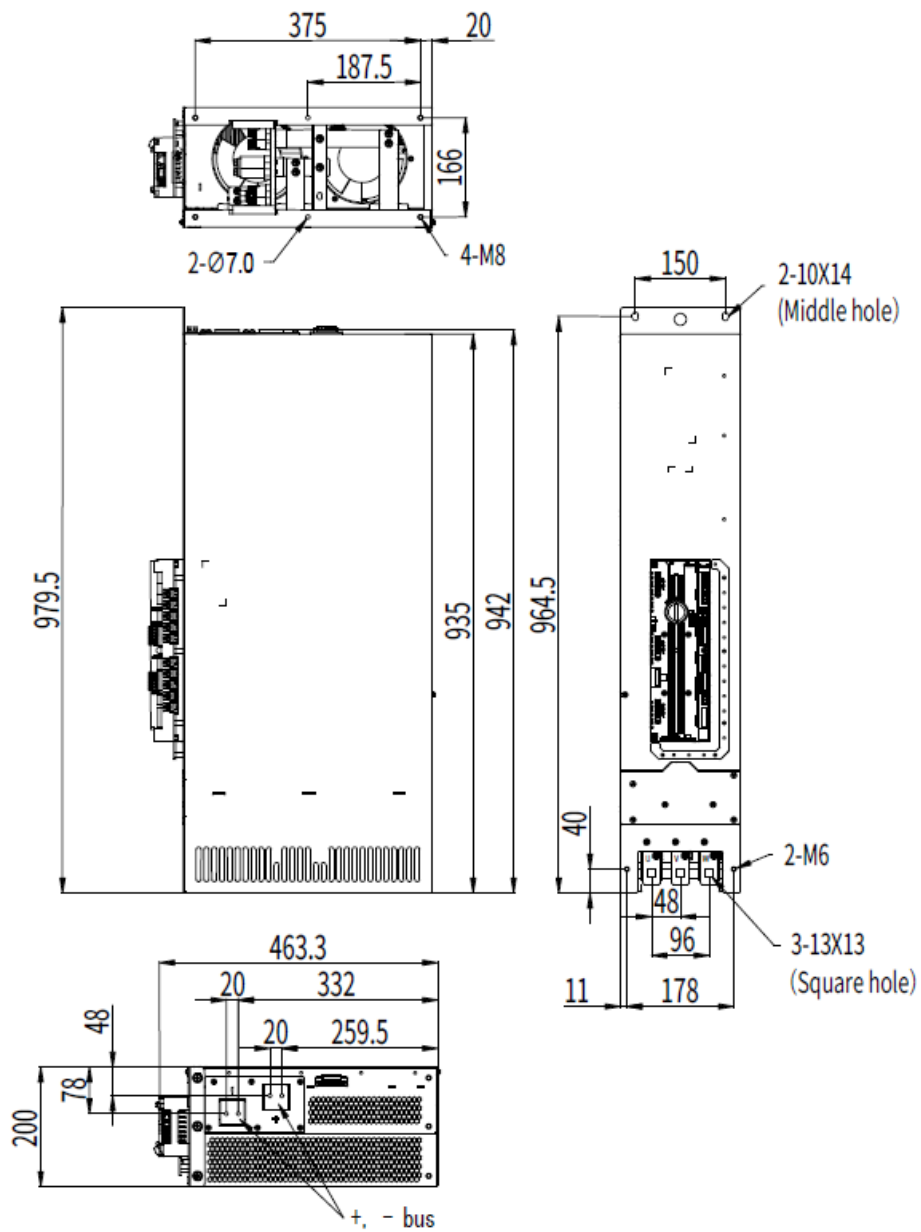
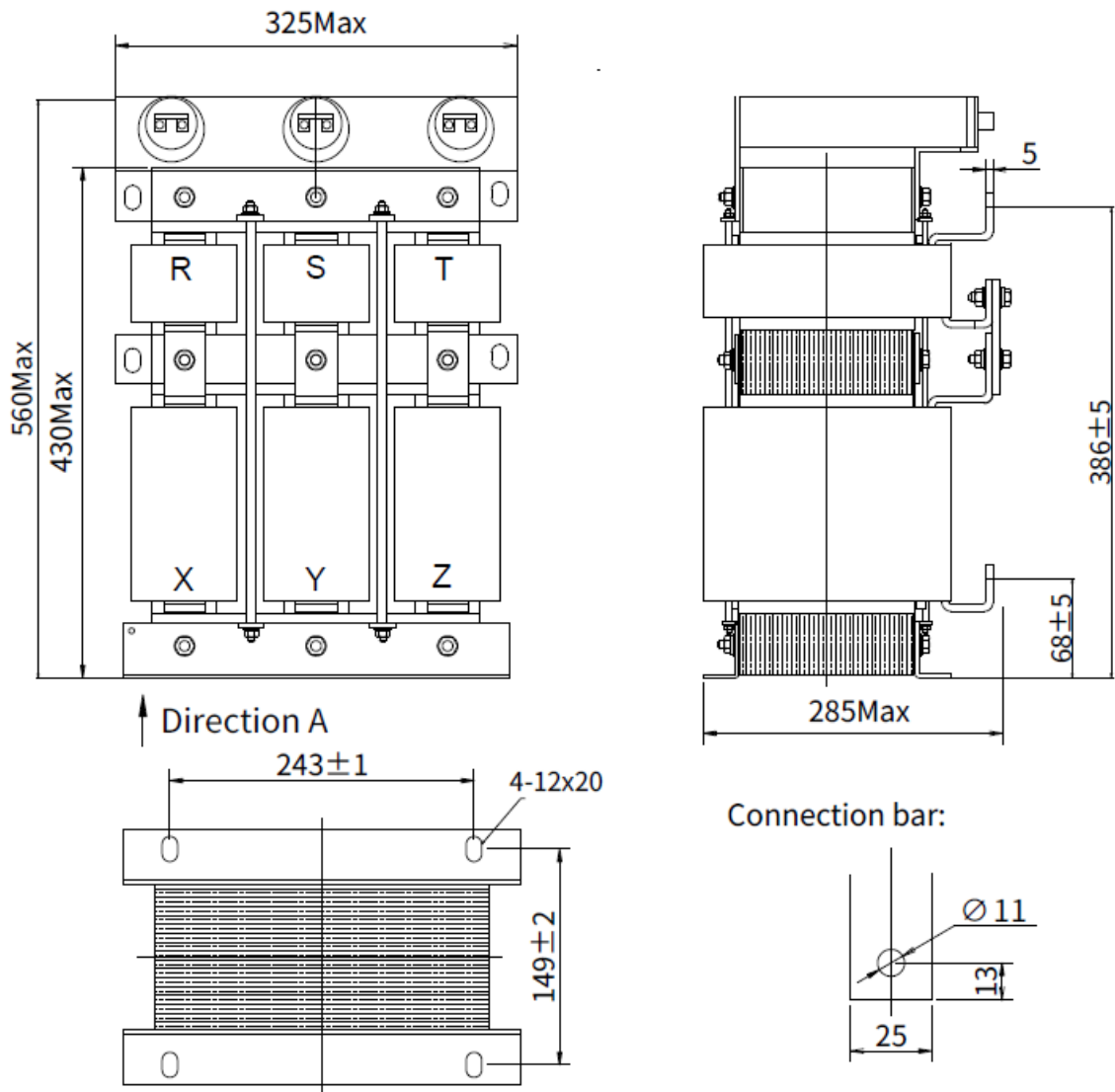


Figure 4-4 0312-0516 rectifier unit dimensions (unit: mm)



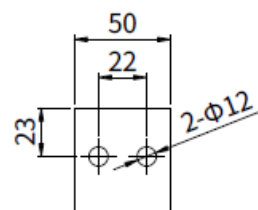
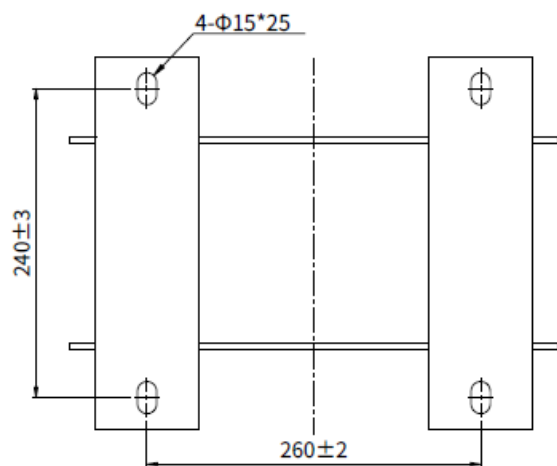
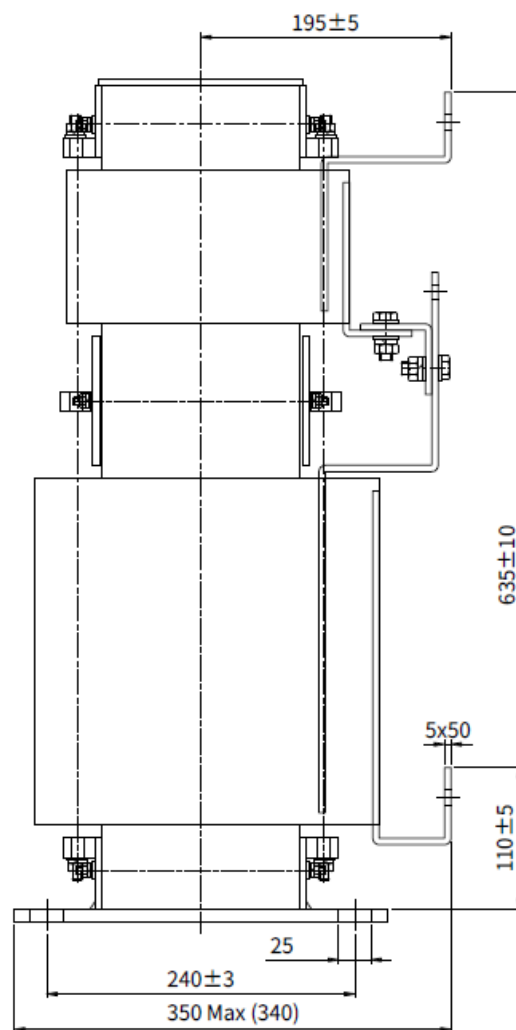
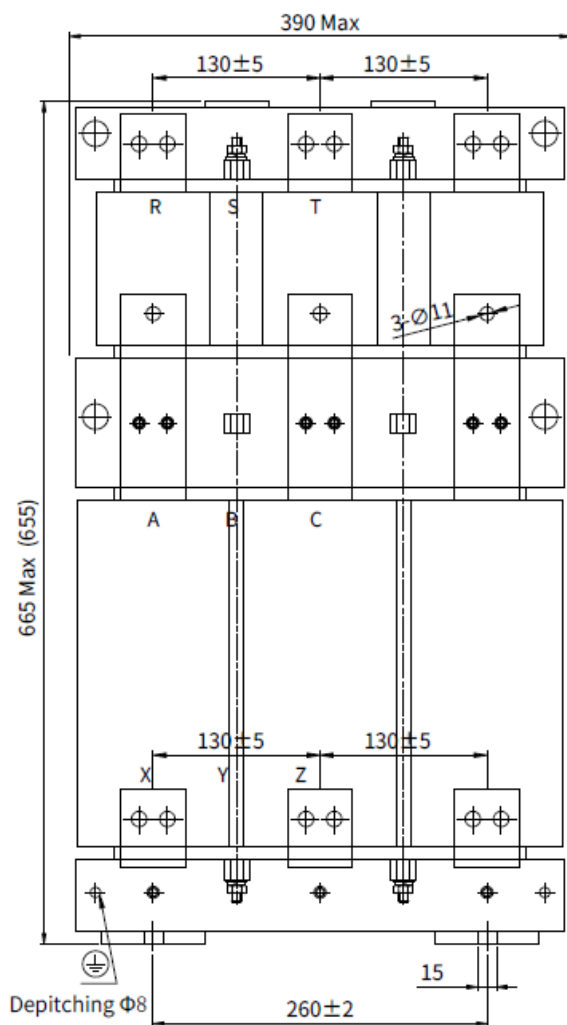
LCL filtering component dimensions

Figure 4-5 0094-0312 LCL filtering component dimensions (unit: mm)

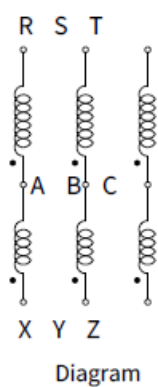


LCL model	Outline dimension (mm)			Installation dimension (mm)				Net weight (kg)	Heat dissipation (kW)
	W	H	D	W1	D1	d1	d2		
LCL-0116-0.4SA-4149-RO	325	560	285	243±1	149±2	4-M12	Ø11	75	0.43
LCL-0180-0.4SA-4149-RO	390	590	330	260±1	174±2	4-M15	Ø13	136	0.51
LCL-0220-0.4SA-4149-RO	630	390	340	260±1	184±2	4-M15	Ø13	146	0.67
LCL-0335-0.4SA-4149-RO	430	725	350	350±1	196±2	4-M15	Ø13	180	1.45

Figure 4-6 0395-0516 reactor component dimensions (unit: mm)

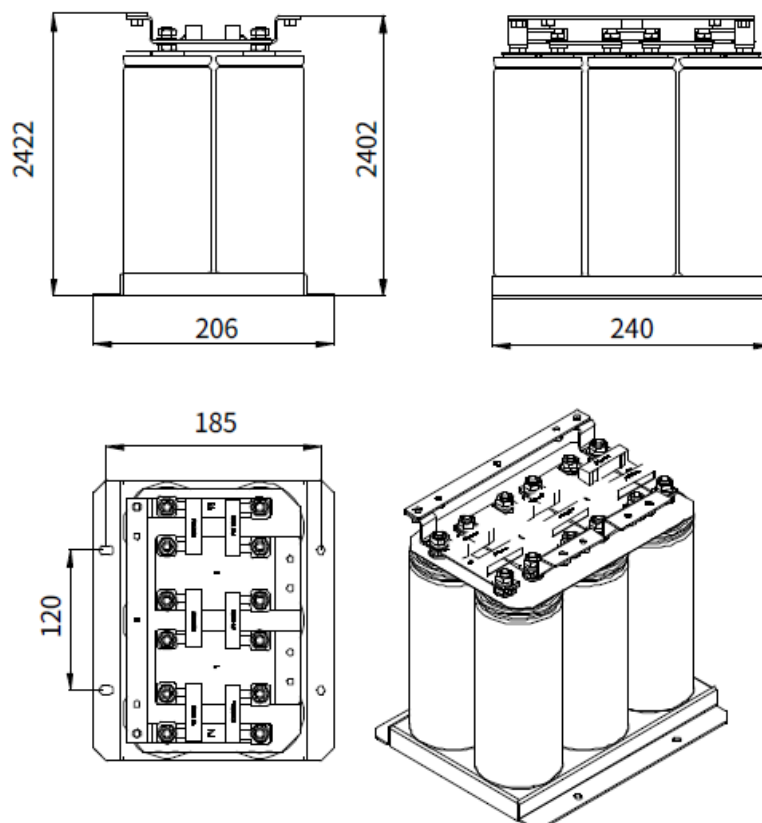


External connection 5*50
RST ABC XYZ
Double-sided polishing and dust removal
Apply passivation solution twice
Wrapped with waterproof paper



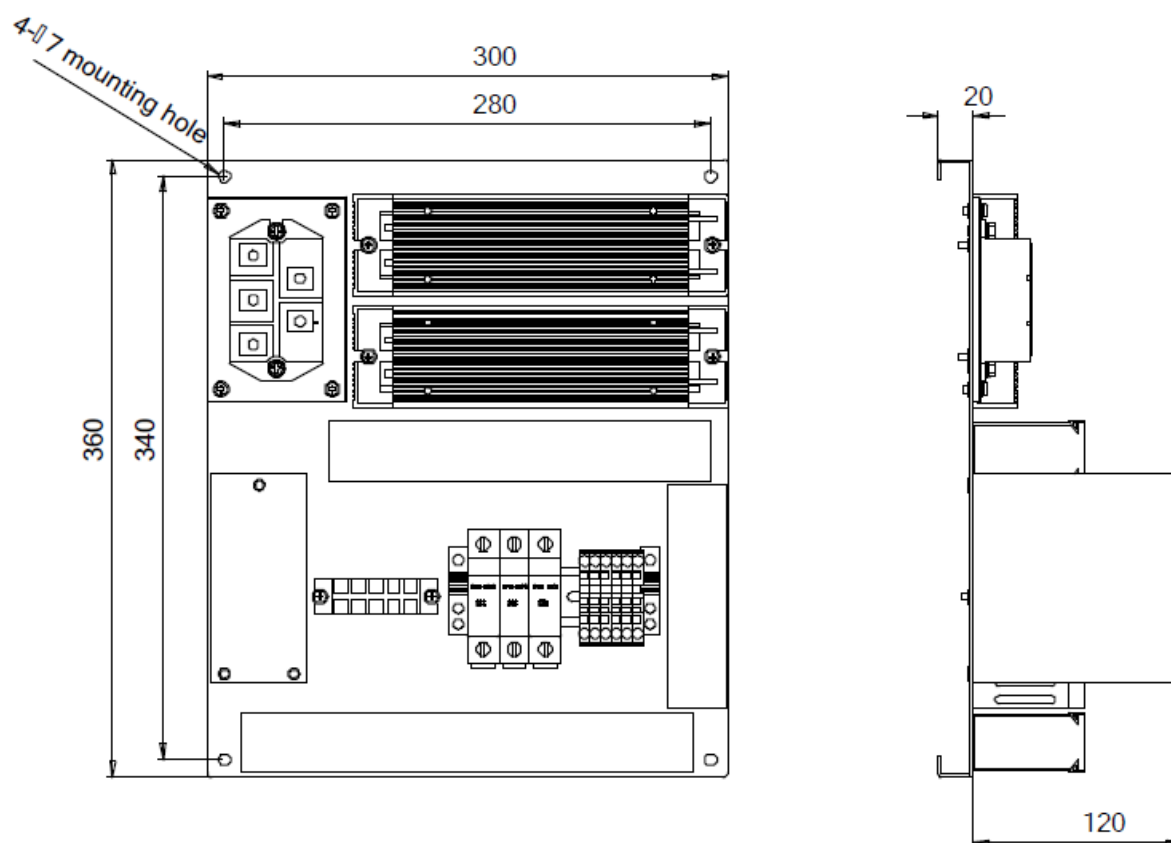
Model of reactor with double L	Outline dimension (mm)			Installation dimension (mm)				Net weight (kg)	Heat dissipation (kW)
	W	H	D	W1	D1	d1	d2		
LCL-380A-00214-2	390	630	340	260±2	184±3	4-M15	Ø13	190	1.62
LCL-516A-01504-2	390	665	350	260±1	240±2	4-M15	2* Ø12	220	1.1

Figure 4-7 0395-0516 capacitor component dimensions (unit: mm)



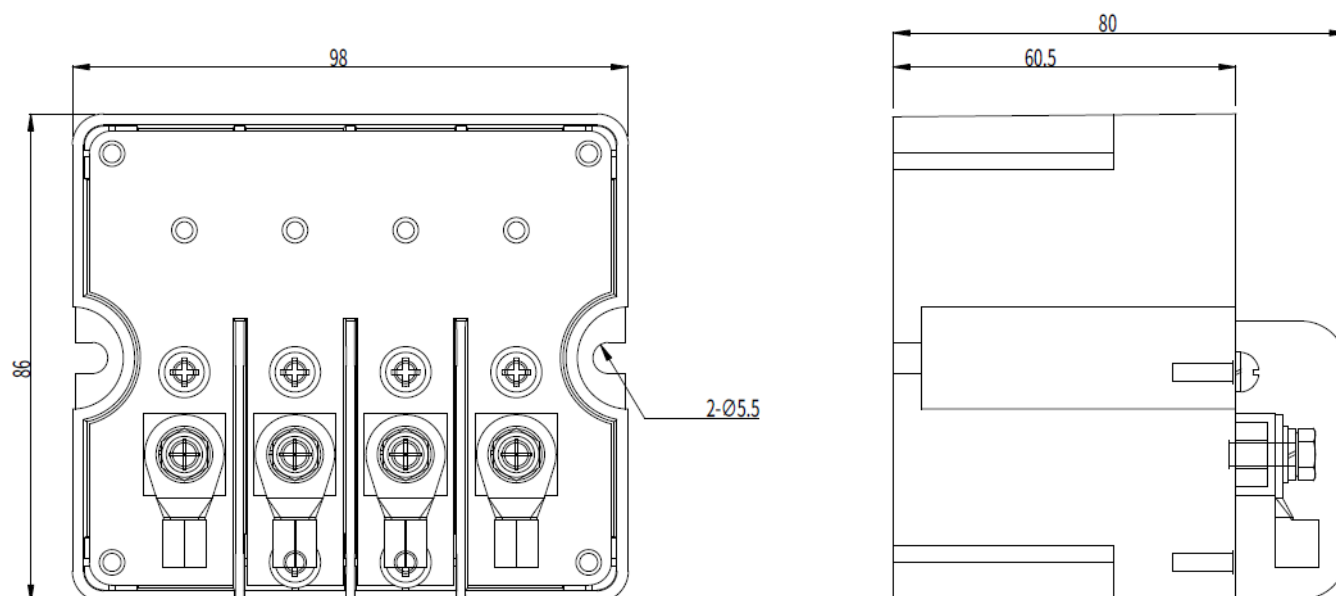
Buffer component dimensions

Figure 4-8 0094-0516 filtering component dimensions (unit: mm)



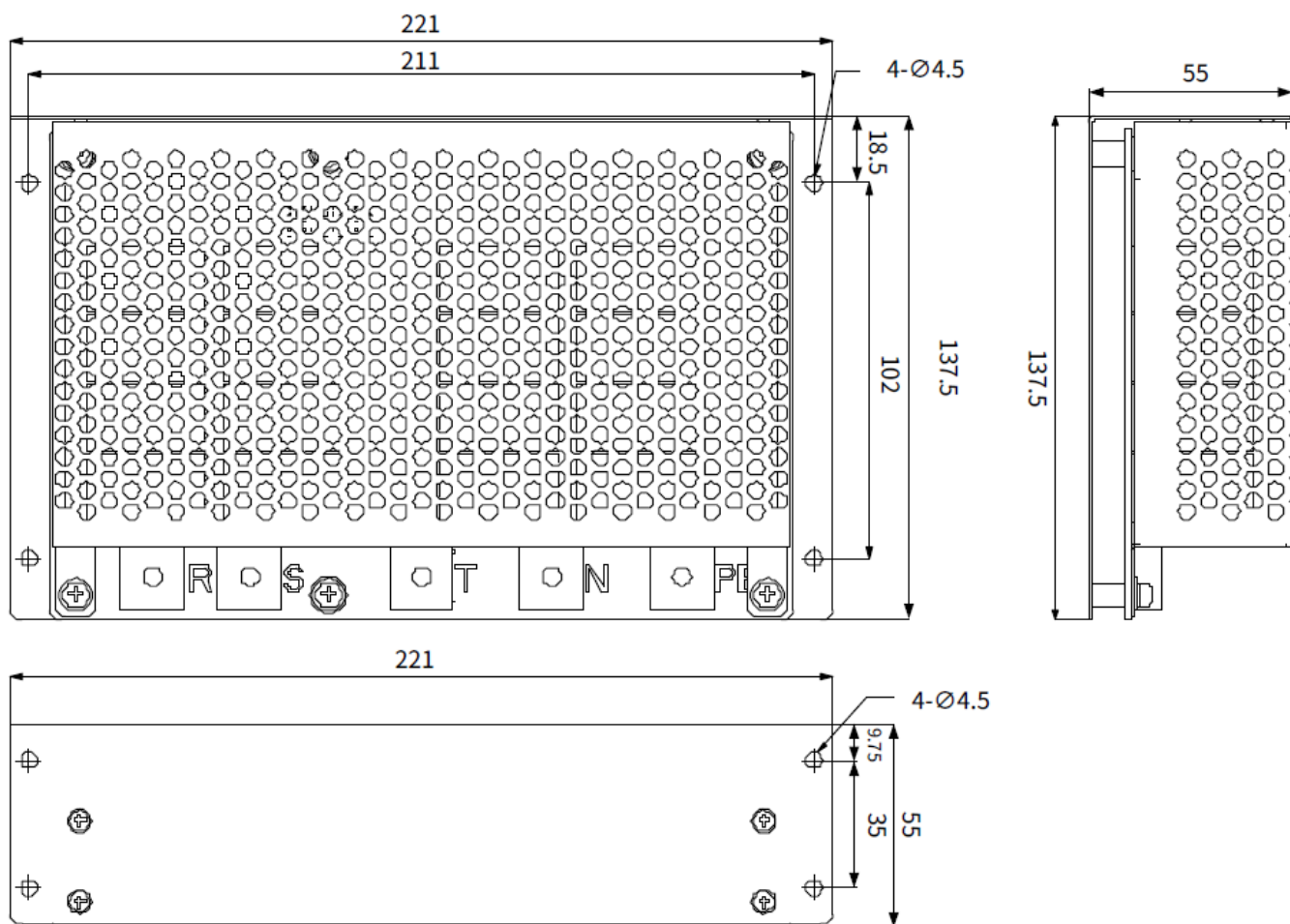
Lightning protection component dimensions

Figure 4-9 0094-0516 lightning protection component dimensions (unit: mm)



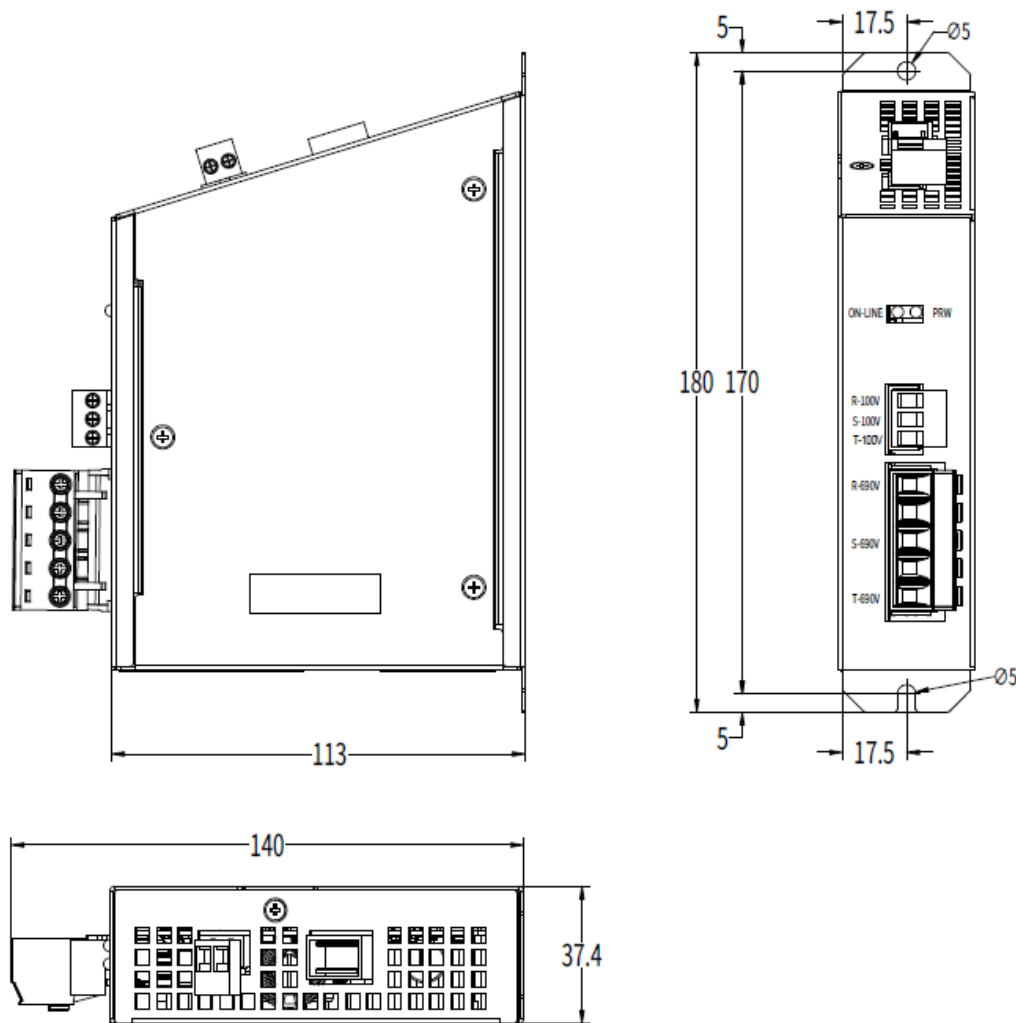
EMI component dimensions

Figure 4-10 0094–0516 lightning protection component dimensions (unit: mm)



Voltage detection module

Figure 4-11 Installation dimensions of 0094-0516 AC voltage detection module (unit: mm)



Installation of the control panel

Figure 4-12 Installation dimensions of 0094-0183 control panel (unit: mm)

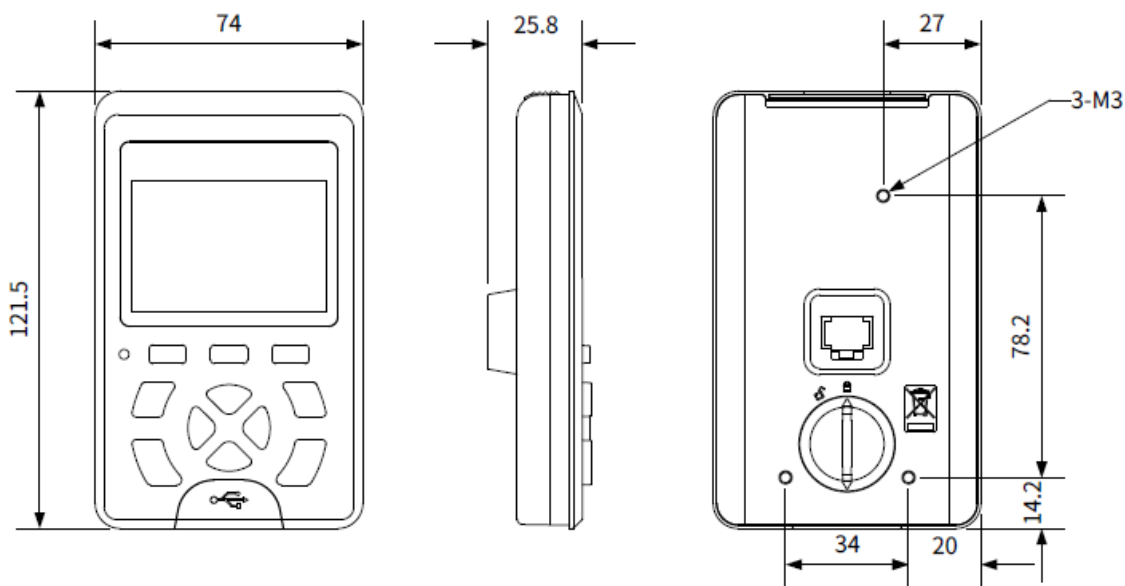
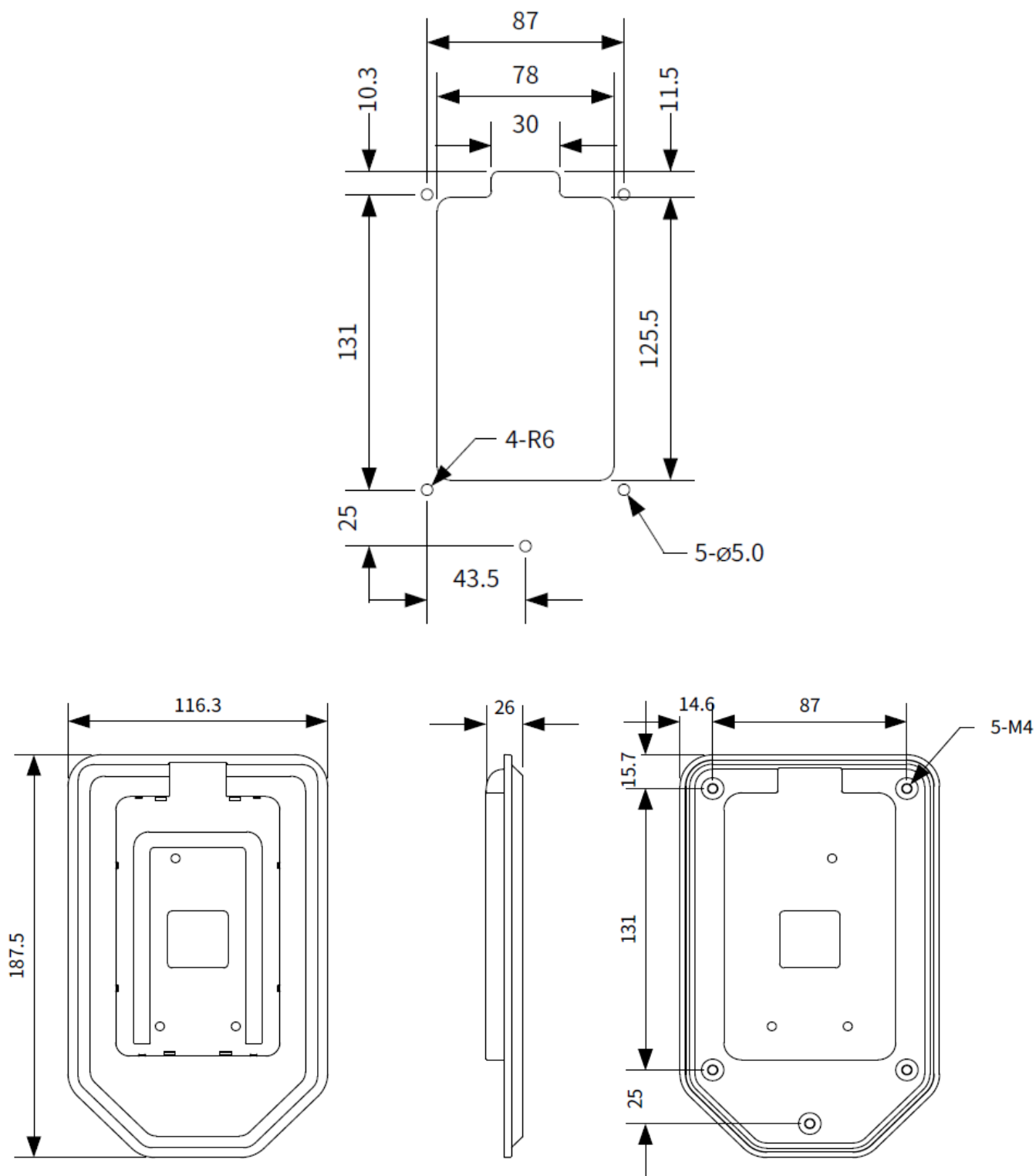


Figure 4-13 External installation dimensions of 0220-0516 control panel (unit: mm)



Contact Information

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INVT Power Electronics (Suzhou) Co., Ltd.

- **Address:** No. 1 Kunlun Mountain Road, Science & Technology Town, Gaoxin District, Suzhou, Jiangsu, China
- **Website:** www.invt.com.



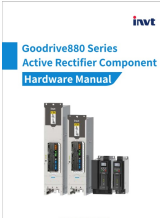
INVT mobile website



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Documents / Resources

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References

- [User Manual](#)

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