

Goodrive880 Series Inverter Unit

Hardware Manual



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

Preface

Thank you for choosing INVT Goodrive880 series engineering variable-frequency drive (VFD).

For ease of use, read the manual carefully before using the product.

As an upgrade product of Goodrive800 series engineering VFD, Goodrive880 series engineering VFD inherits the high reliability feature of Goodrive800 platform but optimizes the upgrade, structure, and components, achieving unit modularization, flexible cabinet configuration, more compact structure, easier installation and maintenance, and optimum protection.

- Excellent speed and torque control performance
- Modular design, as flexible as building blocks, which makes the project integration simple and efficient
- Long-life component selection and fast fault recovery design to ensure efficient process control
- Ergonomic design to make installation and maintenance easier
- Enriched expansion capability to support various protection options
- CCS-compliant

Goodrive880 series engineering VFD can be widely used in:

Metallurgy: Such as high-speed wire rod and hot strip rolling equipment, wide and thick plate equipment, cold rolling equipment, pickling lines, annealing lines, galvanizing line, color coating lines, non-ferrous metal alloy manufacturing equipment, and non-ferrous metal rolling equipment

Petroleum: All-electric oil drilling rigs, large well repair machines, large oil machinery and equipment electric-drive power transformation, oilfield water injection equipment and other heavy oil equipment

Paper making: Paper making joint equipment, including flow box, net section, press section, drying section, sizing, hard calendering, coating, supercalender, rewinder and other continuous production lines.

Port and other large lifting equipment: Such as shore-side container overhead cranes, tire-type (orbital) container gantry cranes, grab unloaders, grab gantry cranes, large shipbuilding gantry cranes, and large metallurgical casting cranes

Others: Such as unit test benches, military equipment, oil and gas transmission, and mining transmission equipment

Goodrive880-51 series is the inverter unit of Goodrive880 series. If not otherwise specified, the inverter unit in this manual refers to the inverter unit of Goodrive800 series, that is, Goodrive880-51 series product. The rated power of a single inverter unit is 3.7kW-720kW, and the max. parallel power can be 6500kW. The inverter unit consists of bus capacitor and IGBT, and some models carry built-in reactors. It is compact in structure and easy to integrate and maintain.

This manual is Goodrive880 series inverter unit hardware manual, presenting safety precautions, product information, mechanical and electrical installation, and precautions related to daily maintenance. Read through this manual carefully before installation to ensure the product is installed and operated in a proper manner to give full play to its excellent performance and powerful functions. If you have any question about the function and performance of the product, please consult our technical support.

If the product is ultimately used for military affairs or weapon manufacture, comply with the export control regulations in the Foreign Trade Law of the People's Republic of China and complete related formalities.

To continuously improve the performance of the product to meet higher application requirements, we reserve the right to continuously improve the product and accordingly the product manual, which may be made without prior notice. We have the final interpretation of the manual content.

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1 Safety precautions

1.1 Safety declaration

Read this manual carefully and follow all safety precautions before moving, installing, operating and servicing the product. Otherwise, equipment damage or physical injury or death may be caused.

We shall not be liable or responsible for any equipment damage or physical injury or death caused due to your or your customers' failure to follow the safety precautions.

1.2 Safety definition

Danger: Severe personal injury or even death can result if related requirements are not followed.

Warning: Personal injury or equipment damage can result if related requirements are not followed.

Note: Actions taken to ensure proper running.

Trained and qualified professionals: People operating the equipment must have received professional electrical and safety training and obtained the certificates, and must be familiar with all steps and requirements of equipment installing, commissioning, running and maintaining and capable to prevent any emergencies.

1.3 Warning symbols

Warnings caution you about conditions that can result in severe injury or death and/or equipment damage and advice on how to prevent dangers. The following table lists the warning symbols in this manual.

Symbol	Name	Description
4	Danger	Severe personal injury or even death can result if related requirements are not followed.
Warning Electrostatic discharge		Personal injury or equipment damage can result if related requirements are not followed.
		The PCBA may be damaged if related requirements are not followed.
	Hot sides	Do not touch. The inverter unit base may become hot.
▲ ② 25 min	Electric shock	As high voltage still presents in the bus capacitor after power off, wait for at least 25 minutes (depending on the warning symbols on the machine) after power off to prevent electric shock.
Note Note		Actions taken to ensure proper running.

1.4 Safety guidelines



- Only trained and qualified professionals are allowed to carry out related operations.
- Do not perform wiring, inspection or component replacement when power supply is applied. Ensure all the input power supplies have been disconnected before wiring or inspection, and wait for at least the time designated on the inverter unit or until the DC bus voltage is less than 36V. The minimum waiting time is listed in

the follow	wing.		
		Inverter unit model	Minimum waiting time
		3.7-90kW	5 minutes
3	380V	110-200kW	15 minutes
		Higher than 355kW	25 minutes
	COOV	55-315kW	15 minutes
,	690V	Higher than 400kW	25 minutes



• Do not refit the inverter unit unless authorized; otherwise fire, electric shock or other injury may result.



• The base may become hot when the inverter unit is running. Do not touch. Otherwise, you may get burnt.



• The electrical parts and components inside the inverter unit are electrostatic sensitive. Take measurements to prevent electrostatic discharge when performing related operations.

1.4.1 Delivery and installation



- Do not install the inverter unit on inflammables. In addition, prevent the inverter unit from contacting or adhering to inflammables.
- Do not run the inverter unit if it is damaged or incomplete.
- Do not contact the inverter unit with damp objects or body parts. Otherwise, electric shock may result.
- Select appropriate tools for inverter unit delivery and installation to ensure the safe and proper running and avoid physical injury or death. The installation personnel must take mechanical protective measures like wearing safety shoes and working uniforms to protect personal safety.
- Protect the inverter unit against physical shock or vibration during the delivery and installation.
- Do not carry the product only by its front cover as the cover may fall off.
- The installation site must be away from children and other public places.
- Prevent the screws, cables and other conductive parts from falling into the inverter unit.

Note

• As inverter unit leakage current caused during running may exceed 3.5mA, ground properly and ensure the grounding resistance is less than 10Ω . The conductivity of PE grounding conductor must meet the following requirements:

Power cable conductor cross-sectional area S (mm²)	Grounding conductor cross-sectional area (mm²)
S≤16	S
16 <s≤35< td=""><td>16</td></s≤35<>	16
35 <s< td=""><td>S/2</td></s<>	S/2

• (+) and (-) are the DC bus input terminals, while U, V, and W are the output terminals. Connect the input power and motor cables properly; otherwise, the inverter unit may be damaged.

1.4.2 Commissioning and running



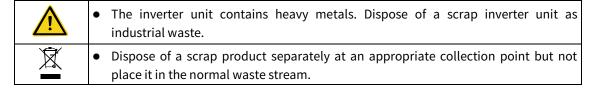
 Cut off all power supplies connected to the inverter unit before terminal wiring, and wait for at least the time designated on the inverter unit after disconnecting the power supplies.

	High voltage presents inside the inverter unit during running. Do not carry out any operation on the inverter unit during running except for keypad setup. The control terminals of the product form extra-low voltage (ELV) circuits. Therefore, you need to prevent the control terminals from connecting to accessible terminals of other devices.
	 Before turning on the power supply, check the cable connection status. Prevent anyone from directly touching the energized part of the cabinet door. Pay special attention to safety when handling shields that are made of metal sheets. Do not do any withstand voltage testing during unit connection. Disconnect the motor cable before performing any insulation and voltage withstand tests for the motor or motor cable. Do not open the cabinet door since high voltage presents inside the inverter unit during running.
Note	 Do not switch on or switch off the input power supplies of the inverter unit frequently. If the inverter unit has been stored for a long time without use, perform checking and carry out pilot run for the inverter unit before using it again. Close the inverter unit front cover before running; otherwise, electric shock may occur.

1.4.3 Maintenance and component replacement

A	 Only trained and qualified professionals are allowed to perform maintenance, inspection, and component replacement for the inverter unit. Cut off all power supplies connected to the inverter unit before terminal wiring, and wait for at least the time designated on the inverter unit after disconnecting the power supplies. During maintenance and component replacement, take measures to prevent screws, cables and other conductive matters from falling into the internal of the
	inverter unit.
Note	 Use proper torque to tighten screws. During maintenance and component replacement, keep the inverter unit and its parts and components away from combustible materials and ensure they have no combustible materials adhered. Do not carry out insulation voltage-endurance test on the inverter unit, or measure the control circuits of the inverter unit with a megohmmeter. During maintenance and component replacement, take proper anti-static measures on the inverter unit and its internal parts.

1.4.4 Disposal



2 Product overview

For Goodrive880-51 series inverter units, the rated power of a single unit is 3.7kW-710kW, while that of parallel units can be up to 6500kW. The inverter unit consists of bus capacitor and IGBT, and some models carry built-in reactors. It is compact in structure and easy to integrate and maintain.

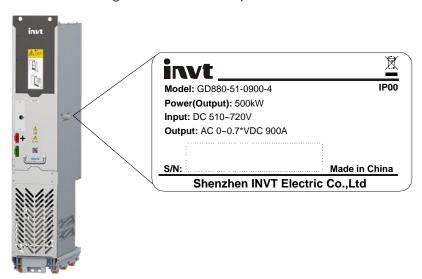
2.1 Product specifications

Table 2-1 Product specifications

Fund	ction description	Specifications					
Power input	Input voltage (V)	510–720VDC, corresponding to AC 380–440VAC \pm 10%, -15%<1min 700–1035VDC, corresponding to AC 520–690VAC \pm 10%, -15%<1min					
	Input current (A)	See section 2.3 Product ratings					
	Output voltage (V)	0-0.7*Vin					
	Output current (A)	See section 2.3 Product ratings					
Power	Output power (kW)	See section 2.3 Product ratings					
output	Output frequency (Hz)	0–400					
	Working efficiency	≥98.5% (at the rated current)					
	Control mode	Space voltage vector control, sensorless vector control (SVC), and feedback vector control (FVC) mode					
	Motor type	Asynchronous motor (AM) and synchronous motor (SM)					
	Speed ratio	For AM, 1:200 (SVC); for SM, 1:20 (SVC), 1:1000 (FVC)					
Control	Starting torque	For AMs: 0.25Hz/150% (SVC) For SMs: 2.5Hz/150% (SVC); 0Hz/200% (FVC)					
performance	Stable speed accuracy	$\pm 0.2\%$ (SVC); $\pm 0.02\%$ (FVC)					
	Dynamic speed drop	0.4–0.5%s (SVC); 0.2–0.3%s (FVC) (100% torque step)					
	Torque accuracy	±5% (SVC, >5Hz); ±3% (FVC)					
	Torque response	<10ms (SVC); <5ms (FVC)					
	Working temperature	-10°C – +50°C; Derating is required when the ambient temperature exceeds 40°C.					
Environment	Relative humidity	5%–95%, no condensation					
condition	Installation altitude	Below 1000m (Derating is required when the altitude exceeds 1000m. Derate by 1% for every increase of 100m.)					
	Anti-vibration performance	Compliant with 3M4 vibration level in GB/T4798.3					
Mechanical	IP rating	For the module: IP00 For the cabinet: IP20 (Optional: IP23 and IP42)					
data	Safety performance	Compliant with EN 61800-5-1					
	Cooling method	Forced air cooling					
Protec	tion function	Including functions of protection against short circuit, overcurrent, overload, overvoltage, undervoltage, overtemperature, and phase loss					

2.2 Product nameplate and model

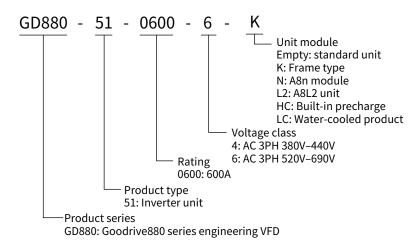
Figure 2-1 Product nameplate



∠Note: The preceding nameplate is a standard product nameplate example. The marking varies slightly depending on the model.

The model designation code contains basic product information such as rated current and rated voltage. You can find the model designation code on the product nameplate.

Figure 2-2 Product model



2.3 Product ratings

Table 2-2 Product ratings of AC 3PH 380V-440V

510-720VDC (Rectifier incoming voltage: 3PH 380-440VAC)											
	Ratings			Light overload application		Heavy overload application			Heat	Air	
Model	I _N	I _{max}	P _N	I _{Ld}	P_{Ld}	I _{Hd}	P _{Hd}	Structure	dissipation	volume	
	A (AC)	A (AC)	kW	A (AC)	kW	A (AC)	kW		kW	m³/h	
GD880-51-0009-4	9	11	3.7	9	3.7	5.1	2.2	A1i	0.1	17	
GD880-51-0013-4	13	15.6	5.5	13	5.5	9	3.7	A1i	0.14	17	
GD880-51-0017-4	17	21	7.5	17	7.5	13	5.5	A1i	0.17	17	

	510–720VDC (Rectifier incoming voltage: 3PH 380–440VAC)									
Model	Ratings			Light overload application			overload cation	Structure	Heat dissipation	Air volume
Model	I _N	I _{max}	P _N	I _{Ld}	P _{Ld}	I _{Hd}	P _{Hd}	Structure	dissipation	votume
	A (AC)	A (AC)	kW	A (AC)	kW	A (AC)	kW		kW	m³/h
GD880-51-0023-4	23	27	11	22	11	17	7.5	A1i	0.19	17
GD880-51-0033-4	33	40	15	32	15	25	11	A2i	0.29	68
GD880-51-0038-4	38	51	18.5	37	18.5	32	15	A2i	0.31	68
GD880-51-0048-4	48	59	22	45	22	37	18.5	A2i	0.41	94
GD880-51-0060-4	60	72	30	58	30	45	22	A3i	0.51	110
GD880-51-0078-4	78	96	37	75	37	60	30	A3i	0.61	128
GD880-51-0094-4	94	120	45	91	45	75	37	A3i	0.75	179
GD880-51-0116-4	116	146	55	112	55	91	45	A4i	0.78	255
GD880-51-0149-4	149	179	75	143	75	112	55	A4i	1.2	255
GD880-51-0183-4	183	240	90	176	90	150	75	A4i	1.5	255
GD880-51-0245-4-XX	245	294	110	236	110	184	90	A6i	1.8	1000
GD880-51-0299-4-XX	299	358	132	287	132	224	110	A6i	2.2	1000
GD880-51-0349-4-XX	349	419	160	335	160	262	132	A7i	2.6	1000
GD880-51-0395-4-XX	395	486	200	380	200	296	160	A7i	3.2	1000
GD880-51-0516-4	516	619	250	495	250	387	200	A7i	5.2	1000
GD880-51-0639-4-XX	639	766	355	613	315	479	250	A8i/A8n/A8L2	6.8	1500
GD880-51-0757-4-XX	757	909	400	727	400	568	315	A8i/A8n/A8L2	8	1500
GD880-51-0900-4-XX	900	1080	500	864	450	675	355	A8i/A8n/A8L2	10	1500
GD880-51-0975-4-XX	975	1170	560	945	500	731	400	A8i/A8n/A8L2	10.1	1500
GD880-51-1213-4-XX	1213	1456	630	1165	630	910	500	2*A8i/A8n/A8L2	13.6	3000
GD880-51-1439-4-XX	1439	1727	800	1381	800	1079	630	2*A8i/A8n/A8L2	16	3000
GD880-51-1710-4-XX	1710	2052	1000	1642	900	1283	710	2*A8i/A8n/A8L2	20	3000
GD880-51-1852-4-XX	1852	2222	1100	1795	1000	1388	800	2*A8i/A8n/A8L2	21.2	3000
GD880-51-2158-4-XX	2158	2590	1200	2072	1200	1619	900	3*A8i/A8n/A8L2	24	4500
GD880-51-2565-4-XX	2565	3078	1400	2463	1400	1924	1000	3*A8i/A8n/A8L2	30	4500
GD880-51-2778-4-XX	2778	3333	1500	2693	1500	2083	1100	3*A8i/A8n/A8L2	31.8	4500
GD880-51-3420-4-XX	3420	4104	1800	3283	1800	2565	1400	4*A8i/A8n/A8L2	40	6000
GD880-51-3704-4-XX	3704	4444	2000	3590	2000	2776	1500	4*A8i/A8n/A8L2	42.4	6000
GD880-51-4275-4-XX	4275	5130	2400	4104	2200	3206	1800	5*A8i/A8n/A8L2	50	7500
GD880-51-4630-4-XX	4630	5556	2500	4488	2500	3471	1900	5*A8i/A8n/A8L2	53	7500
GD880-51-5130-4-XX	5130	6156	2800	4925	2800	3848	2000	6*A8i/A8n/A8L2	60	9000
GD880-51-5556-4-XX	5556	6666	3000	5386	3000	4166	2300	6*A8i/A8n/A8L2	63.6	9000

✓ Note:

- It is recommended to use the heavy overload mode for A1i–A4i.
- Models (-HC) with a built-in precharge are available for A6i–A7i structures, but GD880-51-0516-4 does not have models with a built-in precharge.
- The A8 structure offers A8i, A8n, A8L2, and K structures (A8i is a fast-connector structure with built-in output reactors and rear outlets, supporting frame supply; A8n is a direct connection structure without output reactors, with front outlets; A8L2 is a direct connection structure with built-in output reactors and front outlets; K is a frame structure).
- The model with structure A8i needs to add fast connector components V-SK03A4-3Z.1 according to the number of units.

Table 2-3 Product ratings of AC 3PH 520V-690V

700–1035VDC (Rectifier incoming voltage: 3PH 520–690VAC)										
		Rating	•	Light overload Heavy overload application application			Heat	Air		
		nating.	•			application			dissipation	volume
Model	I _N	I _{max}	P _N	ILd	P _{Ld}	I _{Hd}	P _{Hd}	Structure	uissipation	votanie
	Α	Α	kW	A (AC)	kW	A (AC)	kW		kW	m³/h
	(AC)	(AC)	K	A (AC)	RVV	A (AC)	N.V.		K##	,
GD880-51-0062-6-XX	62	74	55	60	55	46	45	A6i	0.9	1000
GD880-51-0082-6-XX	82	98	75	79	75	61	55	A6i	1.2	1000
GD880-51-0099-6-XX	99	118	90	95	90	74	75	A6i	1.4	1000
GD880-51-0125-6-XX	125	150	110	120	110	94	90	A6i	1.8	1000
GD880-51-0144-6-XX	144	173	132	138	132	108	110	A6i	2.1	1000
GD880-51-0192-6-XX	192	230	160	184	160	144	132	A6i	2.8	1000
GD880-51-0217-6-XX	217	259	200	215	200	162	160	A7i	3.2	1000
GD880-51-0270-6-XX	270	323	250	260	250	202	200	A7i	4	1000
GD880-51-0340-6-XX	340	408	315	326	315	255	250	A7i	5.1	1000
GD880-51-0410-6-XX	410	492	400	394	355	308	315	A8i/A8n/A8L2	6.2	1500
GD880-51-0530-6-XX	530	636	500	509	450	398	355	A8i/A8n/A8L2	8	1500
GD880-51-0600-6-XX	600	720	560	576	560	450	400	A8i/A8n/A8L2	9.1	1500
GD880-51-0650-6-XX	650	780	630	624	560	488	450	A8i/A8n/A8L2	10.3	1500
GD880-51-0720-6-XX	720	864	710	690	630	540	500	A8i/A8n/A8L2	11.7	1500
GD880-51-0779-6-XX	779	935	800	748	710	584	560	2* A8i/A8n/A8L2	12.4	3000
GD880-51-1007-6-XX	1007	1208	1000	967	900	755	710	2* A8i/A8n/A8L2	16	3000
GD880-51-1140-6-XX	1140	1368	1100	1094	1000	855	800	2* A8i/A8n/A8L2	18.2	3000
GD880-51-1235-6-XX	1235	1482	1200	1186	1000	927	900	2* A8i/A8n/A8L2	20.6	3000
GD880-51-1368-6-XX	1368	1642	1300	1311	1200	1026	1000	2* A8i/A8n/A8L2	22.5	3000
GD880-51-1510-6-XX	1510	1813	1400	1450	1400	1133	1100	3* A8i/A8n/A8L2	24	4500
GD880-51-1710-6-XX	1710	2052	1600	1642	1600	1283	1200	3*A8i/A8n/A8L2	27.3	4500
GD880-51-1853-6-XX	1853	2223	1800	1778	1600	1390	1300	3*A8i/A8n/A8L2	30.9	4500
GD880-51-2052-6-XX	2052	2462	2000	1967	1800	1539	1500	3*A8i/A8n/A8L2	32.3	4500
GD880-51-2280-6-XX	2280	2736	2000	2189	2000	1710	1600	4*A8i/A8n/A8L2	36.4	6000
GD880-51-2470-6-XX	2470	2964	2400	2371	2000	1854	1800	4*A8i/A8n/A8L2	41.2	6000
GD880-51-2736-6-XX	2736	3283	2600	2622	2400	2052	2000	4*A8i/A8n/A8L2	45	6000
GD880-51-3088-6-XX	2850	3420	2800	2736	2400	2138	2000	5*A8i/A8n/A8L2	51.5	7500
GD880-51-3420-6-XX	3420	4104	3200	3278	3200	2565	2400	5*A8i/A8n/A8L2	54.8	7500
GD880-51-3705-6-XX	3705	4446	3600	3557	3200	2782	2600	6*A8i/A8n/A8L2	61.8	9000
GD880-51-4104-6-XX	4104	4925	4000	3934	3600	3078	3000	6*A8i/A8n/A8L2	61.8	9000
GD880-51-4940-6-XX	2736	5928	4800	4744	4000	3708	3600	8*A8i/A8n/A8L2	82.4	12000
GD880-51-5472-6-XX	5472	6566	5200	5244	4800	4104	4000	8*A8i/A8n/A8L2	82.4	12000
GD880-51-6175-6-XX	6175	7410	6000	5930	5000	4635	4500	10*A8i/A8n/A8L2	103	15000
GD880-51-6840-6-XX	6840	8208	6500	6555	6000	5130	5000	10*A8i/A8n/A8L2	103	15000

∠Note:

- Models (-HC) with a built-in precharge are available for A7i structures.
- The A8 structure offers A8i, A8n, A8L2, and K structures (A8i is a fast-connector structure with built-in output reactors and rear outlets, supporting frame supply; A8n is a direct connection structure without output reactors, with front outlets; A8L2 is a direct connection structure with built-in output reactors and front outlets; K is a frame structure).

• The model with structure A8i needs to add fast connector components V-SK03A4-3Z.1 according to the number of units.

2.4 Unit outline dimensions and weight

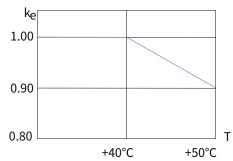
Outline dimensions	Height (mm)	Width (mm)	Depth (mm)	Net weight (kg)
A1i/A2i/A3i	439	100	436	6.5/11.5/11.5
A4i	439	200	436	19.5
A6i	850	200	415	45
A7i	980	200	415	55
A8i	1275	230	584	165
A8n	933	230	584	98
A8L2	1275	230	588	170

2.5 Derated application

2.5.1 Derating due to temperature

If the inverter unit works at the temperature of $+40^{\circ}\text{C}$ – $+50^{\circ}\text{C}$, the rated output current of inverter unit must be derated by 1% for every 1°C increase. The current reference value multiplied by the derating coefficient (k_e) is the output current at the temperature higher than 40°C.

Figure 2-3 Derating due to ambient temperature



2.5.2 Derating due to altitude

The inverter unit needs to be derated by 1% for each increase of 100m when the altitude exceeds 1000m. Contact our local technical support for model selection when the altitude exceeds 2000m.

0.70 0.60 T

Figure 2-4 Derating due to altitude

2.5.3 Derating due to carrier frequency

	Rated		Carrie	r frequenc	y (kHz)		
Model	power P (kW)	1.2	1.5	2	2.5	3.2	4
GD880-51-0009-4	3.7	100%	100%	100%	100%	100%	100%
GD880-51-0013-4	5.5	100%	100%	100%	100%	100%	100%
GD880-51-0017-4	7.5	100%	100%	100%	100%	100%	100%
GD880-51-0023-4	11	100%	100%	100%	100%	100%	100%
GD880-51-0033-4	15	100%	100%	100%	100%	100%	100%
GD880-51-0038-4	18.5	100%	100%	100%	100%	100%	100%
GD880-51-0048-4	22	100%	100%	100%	100%	100%	100%
GD880-51-0060-4	30	100%	100%	100%	100%	100%	100%
GD880-51-0078-4	37	100%	100%	100%	100%	100%	100%
GD880-51-0094-4	45	100%	100%	100%	100%	100%	100%
GD880-51-0116-4	55	100%	100%	100%	100%	100%	100%
GD880-51-0149-4	75	100%	100%	100%	94%	87%	80%
GD880-51-0183-4	90	100%	100%	100%	95%	89%	83%
GD880-51-0245-4-XX	110	100%	100%	100%	98%	95%	88%
GD880-51-0299-4-XX	132	100%	100%	100%	96%	94%	84%
GD880-51-0349-4-XX	160	100%	100%	100%	98%	95%	88%
GD880-51-0395-4-XX	200	100%	100%	100%	96%	94%	84%
GD880-51-0516-4	250	100%	100%	100%	92%	90%	80%
GD880-51-0639-4-XX	355	100%	100%	100%	92%	90%	80%
GD880-51-0757-4-XX	400	100%	100%	100%	92%	90%	80%
GD880-51-0900-4-XX	500	100%	100%	100%	92%	90%	80%
GD880-51-0975-4-XX	560	100%	100%	95%	90%	84%	72%
GD880-51-0062-6-XX	55	100%	100%	100%	100%	100%	100%
GD880-51-0082-6-XX	75	100%	100%	100%	100%	100%	100%
GD880-51-0099-6-XX	90	100%	100%	100%	100%	100%	92%
GD880-51-0125-6-XX	110	100%	100%	100%	92%	82%	66%
GD880-51-0144-6-XX	132	100%	100%	90%	81%	73%	59%
GD880-51-0192-6-XX	160	100%	100%	90%	79%	71%	58%
GD880-51-0217-6-XX	200	100%	100%	88%	77%	69%	55%
GD880-51-0270-6-XX	250	100%	100%	87%	76%	68%	54%
GD880-51-0340-6-XX	315	100%	100%	85%	74%	65%	52%
GD880-51-0410-6-XX	400	100%	100%	87%	76%	67%	56%
GD880-51-0530-6-XX	500	100%	100%	85%	75%	66%	54%
GD880-51-0600-6-XX	560	100%	100%	85%	75%	66%	56%
GD880-51-0650-6-XX	630	100%	100%	85%	75%	66%	56%
GD880-51-0720-6-XX	710	100%	100%	85%	72%	62%	53%

2.6 Overload capability

Based on the light overload continuous run current (I_{Ld}), the inverter unit can keep running for 60s at 110% of the rated current. See Figure 2-5.

Current (A) Short-time overload current

150%|LD

10s

Short-time overload
current 110%|LD

Light overload rated
current LD

60s

300s

Time (s)

Figure 2-5 Light overload application

Based on the heavy overload continuous run current (I_{Hd}), the inverter unit can keep running for 60s at 150% of the rated current. See Figure 2-6.

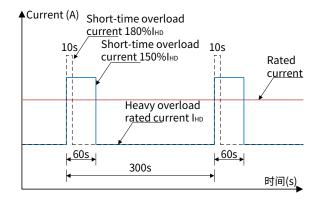


Figure 2-6 Heavy overload application

2.7 Hardware principles

2.7.1 Basic principles

The inverter unit converts DC voltage into AC frequency-variable voltage and supports driving asynchronous and synchronous motors. The inverter unit models are classified into the 400V voltage class and 690V voltage class. The A1i–A4i inverter unit consists of energy storage capacitor, IGBT, and other components. Figure 2-7 shows the simplified main circuit.

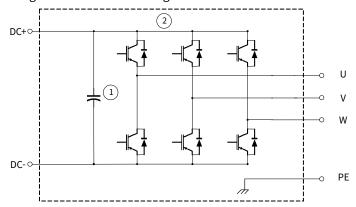


Figure 2-7 Main circuit diagram of the A1i-A4i inverter unit

No.	Name	Description
1	Bus capacitor	To make the voltage stable by filtering out the AC part from the bus voltage.
2	Inverter module	To convert DC current to AC current.

An A6i/A7i inverter unit consists of DC precharge component, bus capacitor, IGBT, and other components. Figure 2-8 shows the simplified main circuit.

DC+0 Kl 3 OU OV V

Figure 2-8 Main circuit diagram of the A6i and A7i inverter units

No.	Name	Description	
1	DC precharge	Optional accessory to precharge the bus capacitor.	
	component	Optional accessory to precharge the bus capacitor.	
2	Duc canacitor	To make the voltage stable by filtering out the AC part from the bus	
2 Bus capacitor		voltage.	
3	Inverter module	To convert DC current to AC current.	

The A8i inverter unit consists of DC fuse, bus capacitor, IGBT, output reactor, and other components. Figure 2-9 shows the simplified main circuit.

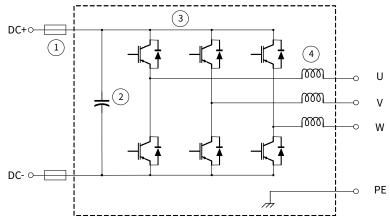
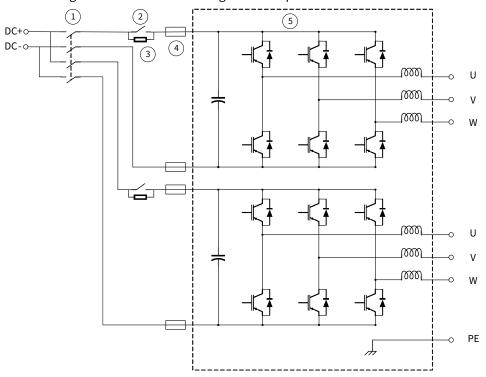


Figure 2-9 Main circuit diagram of the A8i inverter unit

No.	Name	Description
1	DC fuse	To prevent backend device short circuit from causing machine burndown. This protective device is located in the cabinet but not included in the unit.
2	Bus capacitor	To make the voltage stable by filtering out the AC part from the bus voltage.
3	Inverter module	To convert DC current to AC current.
4	Output reactor	To suppress peak voltage to protect the motor and inverter unit.

2.7.2 Paralleling principle of A8i

Figure 2-10 Main circuit diagram of the parallel A8i inverter unit



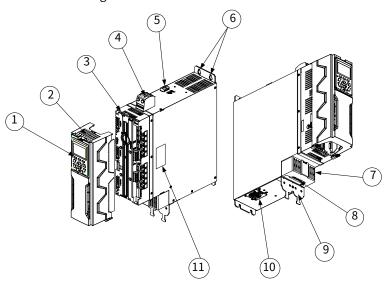
No.	Name
1	(Optional) Isolation switch
2	(Optional) DC contactor
3	(Optional) Precharge resistor
4	DC fuse
5	Inverter unit

∠Note: In general, the paralleling is only applicable to the units corresponding to A8i, A8n, and A8L2.

2.8 Product structure

• A1i–A3i inverter units

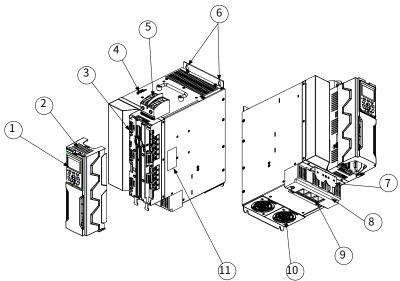
Figure 2-11 Structure of A1i–A3i units



No.	Description
1	LCD keypad
2	Keypad plastic case bracket
3	GD880 main control box
4	(+) and (-) bus input terminals
5	24V auxiliary power terminal
6	Fixing holes on the back of the unit (four holes)
7	Output terminal cover (plastic case)
8	UVW AC output terminals
9	Control cable grounding plate
10	Fan and fan cover plate
11	Nameplate

A4i inverter unit

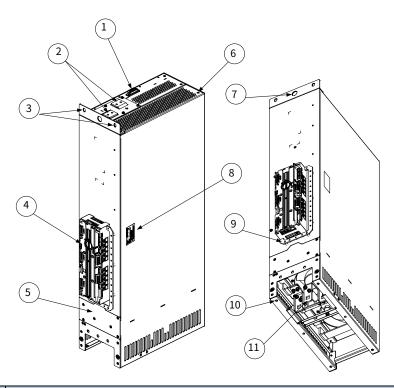
Figure 2-12 Structure of A4i unit



No.	Description	
1	LCD keypad	
2	Keypad plastic case bracket	
3	GD880 main control box	
4	24V auxiliary power terminal	
5	(+) and (-) bus input terminals	
6	Fixing holes on the back of the unit (4 in total)	
7	Control cable grounding plate	
8	Output terminal cover (plastic case)	
9	UVW AC output terminals	
10	Fan and fan cover plate	
11	Nameplate	

• A6i and A7i inverter units

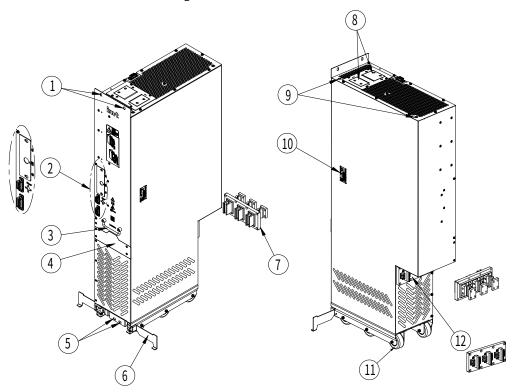
Figure 2-13 Structure of A6i and A7i units



No.	Description
1	User terminals on the and control boards
2	(+) and (-) bus input copper bar
3	Unit top fixing hole
4	GD880 main control box
5	Fan cover plate
C	Fixing hole at the rear end of the unit (for wall mounting or lifting-ring mounting,
6	three M8 threaded holes)
7	Lifting hole
8	Nameplate
9	Control cable grounding (PE) copper bar
10	Fixing hole at the bottom of the unit (for wall mounting or floor mounting, four M8
10	threaded holes)
11	UVW AC output terminals

• A8i inverter unit

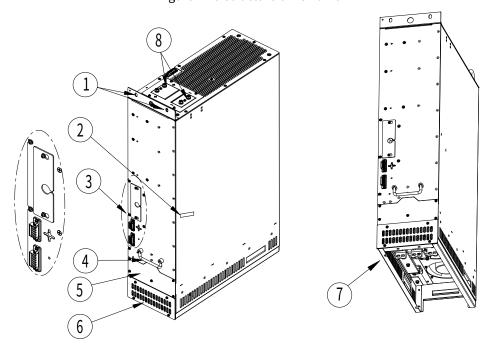
Figure 2-14 Structure of A8i unit



No.	Description
1	Module top fixing hole
2	User terminals on the fiber optic and control boards
3	Handle
4	Fan cover plate
5	Module bottom fixing hole
6	Anti-tipping stand
7	Female connector, mounted and fixed to the cabinet
8	(+) and (-) bus input copper bar
9	Lifting-ring mounting holes (two M12 threaded holes)
10	Nameplate
11	Pulley
12	UVW AC output terminals

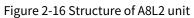
• A8n inverter unit

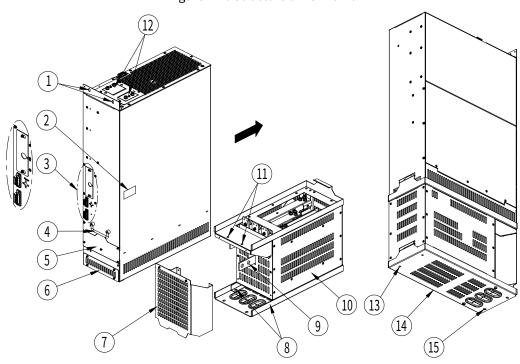
Figure 2-15 Structure of A8n unit



No.	Description
1	Module top fixing hole
2	Nameplate
3	User terminals on the fiber optic and control boards
4	Handle
5	Fan cover plate
6	PC protective plate 1
7	UVW AC output copper bar
8	(+) and (-) bus input copper bar

A8L2 inverter unit

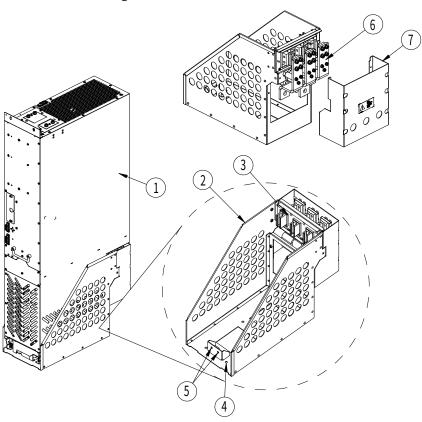




No.	Description		
1	Module top fixing hole		
2	Nameplate		
3	User terminals on the fiber optic and control boards		
4	Handle		
5	Fan cover plate		
6	PC protective plate 1		
7	PC protective plate 2		
8	Output reactor base fixing holes (two holes)		
9	UVW AC output copper bar		
10	Output reactor base		
11	Inverter module fixing holes (two M8 threaded holes)		
12	(+) and (-) bus input copper bar		
13	Fixing holes behind the unit support plate (two holes)		
14	Unit support plate		
15	Fixing holes in front of the unit support plate (two holes)		

• 1*A8i frame

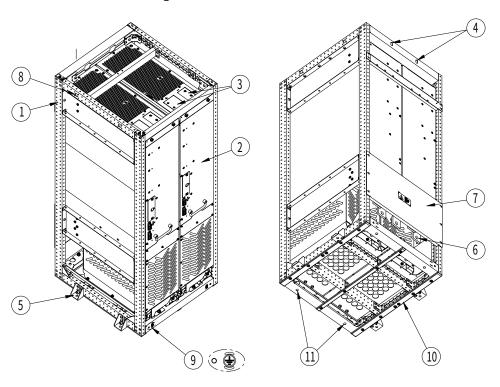
Figure 2-17 Structure of 1*A8i frame



No.	Description	
1	A8i inverter unit	
2	Unit base component	
3	Female connector, mounted and fixed to the unit base component	
4	Unit base component fixing hole	
5	Inverter unit fixing holes (two M8 threaded holes)	
6	3PH input and output copper bar	
7	PC protective cover	

• 2*A8i frame

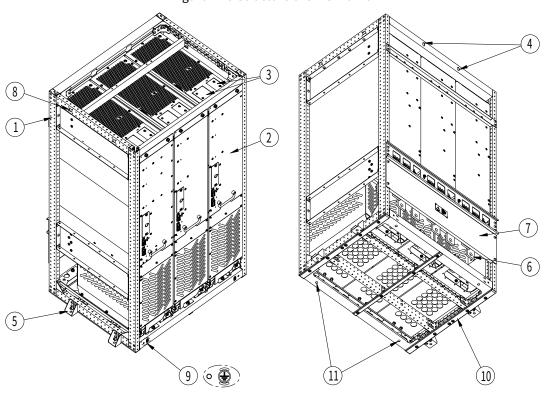
Figure 2-18 Structure of 2*A8i frame



No.	Description			
1	Frame			
2	A8i inverter unit			
3	Inverter unit (+) and (-) bus input copper bar			
4	Fixing holes on the back of the frame			
5	Anchor bolt (for transportation fixing)			
6	UVW AC output terminals			
7	nsulation protective plate			
8	Lifting hole			
9	Ground (PE) terminal			
10	Bottom slide rail			
11	rame bottom mounting holes			

• 3*A8i frame

Figure 2-19 Structure of 3*A8i frame

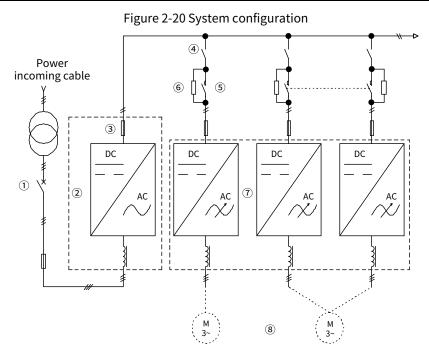


No.	Description		
1	Frame		
2	A8i inverter unit		
3	Inverter unit (+) and (-) bus input copper bar		
4	Fixing holes on the back of the frame		
5	Anchor bolt (for transportation fixing)		
6	UVW AC output terminals		
7	Insulation protective plate		
8	Lifting hole		
9	Ground (PE) terminal		
10	Bottom slide rail		
11	Frame bottom mounting holes		

2.9 System configuration

Figure 2-20 shows a typical common DC bus drive system.

The rectifier module converts AC voltage to DC voltage, and the DC voltage is distributed to all inverter modules through the DC bus, then the inverter modules convert the DC voltage to AC voltage to drive the motor to rotate. An external DC fuse is required for the connection between each inverter module and DC bus.



No.	Description	
1	AC main circuit breaker	
2	Rectifier unit	
3	DC fuse	
4	(Optional) Isolation switch	
5	(Optional) DC contactor	
6	(Optional) Precharge resistor	
7	Inverter unit (each consisting of two modules)	
8	Motor	

2.10 Electrical model selection

2.10.1 DC fuse

A fuse protects the rectifier unit and DC bus in case of short circuit, avoiding thermal overload. The same brand replacement principle should be followed. See the following table for selection.

Unit model	Frame size	Voltage (V)	Current (A)	Qty
GD880-51-0009-4	A1i	690	16	2
GD880-51-0013-4	A1i	690	25	2
GD880-51-0017-4	A1i	690	32	2
GD880-51-0023-4	A1i	690	40	2
GD880-51-0033-4	A2i	690	63	2
GD880-51-0038-4	A2i	690	80	2
GD880-51-0048-4	A2i	690	100	2
GD880-51-0060-4	A3i	690	125	2
GD880-51-0078-4	A3i	690	160	2
GD880-51-0094-4	A3i	690	160	2
GD880-51-0116-4	A4i	690	200	2
GD880-51-0149-4	A4i	690	250	2
GD880-51-0183-4	A4i	690	315	2

Unit model	Frame size	Voltage (V)	Current (A)	Qty
GD880-51-0245-4-XX	A6i	690	450	2
GD880-51-0299-4-XX	A6i	690	500	2
GD880-51-0349-4-XX	A7i	690	630	2
GD880-51-0395-4-XX	A7i	690	630	2
GD880-51-0516-4	A7i	690	900	2
GD880-51-0639-4-XX	A8i/A8n/A8L2	690	1000	2
GD880-51-0757-4-XX	A8i/A8n/A8L2	690	1250	2
GD880-51-0900-4-XX	A8i/A8n/A8L2	690	1600	2
GD880-51-0975-4-XX	A8i/A8n/A8L2	690	1600	2
GD880-51-0062-6-XX	A6i	1250	160	2
GD880-51-0082-6-XX	A6i	1250	160	2
GD880-51-0099-6-XX	A6i	1250	200	2
GD880-51-0125-6-XX	A6i	1250	250	2
GD880-51-0144-6-XX	A6i	1250	315	2
GD880-51-0192-6-XX	A6i	1250	350	2
GD880-51-0217-6-XX	A7i	1250	400	2
GD880-51-0270-6-XX	A7i	1250	500	2
GD880-51-0340-6-XX	A7i	1250	630	2
GD880-51-0410-6-XX	A8i/A8n/A8L2	1250	800	2
GD880-51-0530-6-XX	A8i/A8n/A8L2	1250	900	2
GD880-51-0600-6-XX	A8i/A8n/A8L2	1250	1000	2
GD880-51-0650-6-XX	A8i/A8n/A8L2	1250	1100	2
GD880-51-0720-6-XX	A8i/A8n/A8L2	1250	1100	2

2.10.2 Isolation switch

An isolation switch acts as an isolator for the circuit, causing an obvious break in the circuit and ensuring work safety during inspection or maintenance. The same brand replacement principle should be followed. See the following table for selection.

Unit model	Frame size	Voltage (V)	Current (A)	Qty
GD880-51-0245-4-XX	A6i	1000	400	1
GD880-51-0299-4-XX	A6i	1000	400	1
GD880-51-0349-4-XX	A7i	1000	630	1
GD880-51-0395-4-XX	A7i	1000	630	1
GD880-51-0516-4	A7i	1000	800	1
GD880-51-0639-4-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0757-4-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0900-4-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0975-4-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0062-6-XX	A6i	1000	400	1
GD880-51-0082-6-XX	A6i	1000	400	1
GD880-51-0099-6-XX	A6i	1000	400	1
GD880-51-0125-6-XX	A6i	1000	400	1
GD880-51-0144-6-XX	A6i	1000	400	1
GD880-51-0192-6-XX	A6i	1000	400	1
GD880-51-0217-6-XX	A7i	1000	630	1
GD880-51-0270-6-XX	A7i	1000	630	1

Unit model	Frame size	Voltage (V)	Current (A)	Qty
GD880-51-0340-6-XX	A7i	1000	630	1
GD880-51-0410-6-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0530-6-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0600-6-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0650-6-XX	A8i/A8n/A8L2	1000	1600	1
GD880-51-0720-6-XX	A8i/A8n/A8L2	1000	1600	1

2.10.3 Contactor

A contactor connects and disconnects DC circuit and automatically switches between precharge circuit and bus main circuit. The same brand replacement principle should be followed. See the following table for selection.

Unit model	Frame size	Voltage (VDC)	Current (A)	Qty
GD880-51-0516-4	A7i	48	600	1
GD880-51-0639-4-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0757-4-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0900-4-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0410-6-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0530-6-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0600-6-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0650-6-XX	A8i/A8n/A8L2	48	600	2
GD880-51-0720-6-XX	A8i/A8n/A8L2	48	600	2

∠Note:

- A BUB precharge component is optional for A1i–A4i units. For details, see section 6.2 BUB precharge component.
- Selection is unnecessary for the A6i/A7i units which support built-in precharge component.
- GD880-51-0516-4 doesn't support built-in precharge component.

3 Mechanical installation

3.1 Safety notes

Equipment can tip over if transported incorrectly or with disallowed means of transport. Serious injury, property damage, or even death may result.

- Only trained and qualified professionals are allowed to carry out the operations
 mentioned in this chapter. Please carry out operations according to instructions
 presented in section 1.4.1 Delivery and installation. Ignoring these safety precautions
 may lead to physical injury or death, or device damage.
- Ensure the inverter unit power has been disconnected before installation. If the inverter unit has been powered on, disconnect the inverter unit power and wait for at least the time specified on the inverter unit, and ensure the POWER indicator is off. You are recommended to use a multimeter to check and ensure the inverter unit DC bus voltage is below 36V.
- The equipment installation must be designed and done according to applicable local laws and regulations. We do not assume any liability whatsoever for any equipment installation which breaches local laws or regulations. If recommendations given by us are not followed, the inverter unit may experience problems that the warranty does not cover.
- Only trained and qualified professionals are allowed to carry out related operations.
- Do not perform wiring, inspection or component replacement when power supply is applied. Ensure all the input power supplies have been disconnected before wiring or inspection, and wait for at least the time designated on the Goodrive880 series product or until the DC bus voltage is less than 36V.

3.2 Installation environment

Environment	Condition
Ambient temperature	 -10-+50°C When the ambient temperature exceeds 40°C, derate 1% for every increase of 1°C. Do not use the inverter unit when the ambient temperature exceeds 50°C. To improve reliability, do not use the inverter unit in the places where the temperature changes rapidly. When the VFD is used in a closed space, such as control cabinet, use a cooling fan or air conditioner for cooling, preventing the internal temperature from exceeding the temperature required. When the temperature is too low, if you want to use the VFD that has been idled for a long time, install an external heating device before the use to eliminate the freeze inside the VFD. Otherwise, the VFD may be damaged.
Relative humidity (RH)	 The relative humidity (RH) of the air is less than 90%, and there is no condensation. The max. RH cannot exceed 60% in the environment where there are corrosive gases.

Environment	Condition			
	Install the i	nverter unit in a place:		
	WE.	Without electromagnetic radiation sources and direct sunlight.		
		∠Note: The unit must be installed in a clean and well-ventilated		
Dunning	*///	environment based on the housing IP rating.		
Running environment		Without foreign objects such as oil mist, metal powder, conductive dust,		
environment		and water.		
		Without radioactive, corrosive, hazard, and combustible and explosive		
		substances.		
		✓ Note: Do not install the unit onto combustible objects.		
		Lower than 1000 meters		
	\wedge	• When the altitude exceeds 1000m, derate by 1% for every additional		
Altitude		100m.		
		• When the installation site altitude exceeds 3000m, consult the local		
		INVT dealer or office.		
Vibration	} . }	The max. ACC speed cannot exceed 5.8m/s² (0.6g).		

3.3 Installation procedure

The installation procedure is as follows:

- Step 1 Perform unpacking inspection. For details, see section 3.3.1 Unpacking inspection.
- Step 2 Transport before unpacking. For details, see section 3.3.2 Transportation.
- Step 3 Unpack. For details, see section 3.3.3 Unpacking.
- Step 4 Lift the modules. For details, see section 3.3.4 Lifting.
- Step 5 Install the modules. For details, see section 3.3.5 Installation.

3.3.1 Unpacking inspection

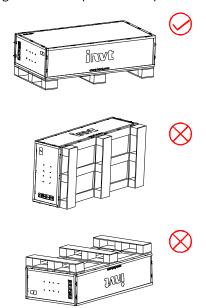
After receiving the product, perform the following steps to ensure the product use safety.

- 1. Before unpacking, check whether the product package is intact-whether the package is damaged, dampened, soaked, or deformed.
- 2. Check whether the nameplate and label on the product body are consistent with the model ordered.
- 3. After unpacking, check whether the interior surface of the packing box is abnormal, for example, in wet condition, and whether the equipment enclosure is damaged or cracked.
- 4. Check whether the parts (including the complete equipment of unit, keypad, and manual) inside the packing box are complete.

3.3.2 Transportation

The inverter unit is shipped in a wooden box with pallets, which are heavy as a whole and must be carried with a lifting tool, such as a forklift and crane. Operators must be professionally trained. The inverter unit must be transported in strict accordance with the allowed ways marked on the box, and not allowed to be transported upside down or on the sides.

Figure 3-1 Transportation requirements



When transported with a forklift, the inverter unit must be fixed to the pallets and transported together, which means you are not allowed to remove the pallets to transport the inverter unit. If the forklift's fork tines are too short, it may cause the unit/cabinet to tip over, resulting in serious injury, property damage or even death.

∠Note: When transported with a crane, the inverter unit must be fixed to the pallets and lifted together.

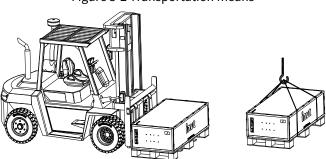


Figure 3-2 Transportation means

3.3.3 Unpacking

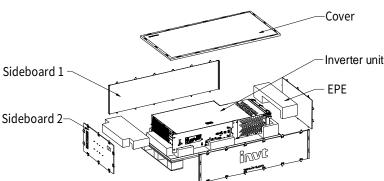
The unit is delivered in the wooden box padded with EPE.

To remove the packing, do as follows:

- Step 1 Place the well-packed unit in an empty and flat place.
- Step 2 Use tools such as a pry bar or large one-piece screwdriver to remove the wooden box cover and the steel tongue nails of the surrounding boards.
- Step 3 Remove the surrounding boards and EPE filling materials from the wooden box.
- Step 4 Cut off the plastic windings.
- Step 5 Take out of the unit.
- Step 6 Ensure that the unit is intact without any damage.

∠Note: Dispose of or recycle packaging in accordance with local regulations.

Figure 3-3 Unpacking

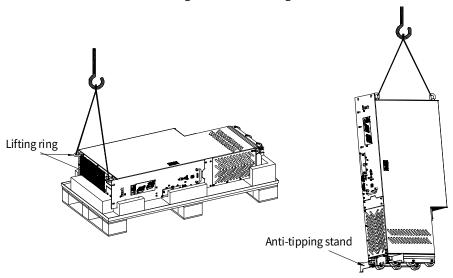


3.3.4 Lifting

• Inverter unit

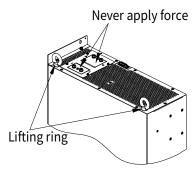
Attach the required lifting ring to the locations shown in the figure, use the sling to slowly lift the unit end, move the unit until it is completely lifted, place it vertically in the empty and flat place, and then unfold the anti-tipping stand at the lower front of the unit. Figure 3-4 shows the anti-tipping stand location.

Figure 3-4 Unit lifting



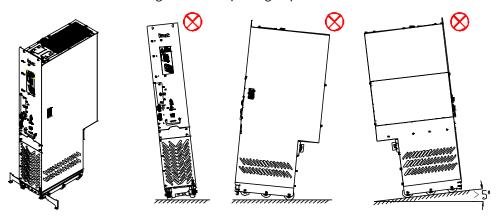
∠Note: Use the lifting ring on the top of inverter unit for lifting and moving. Never apply force to the positive or negative bus terminals.

Figure 3-5 Unit top structure



The inverter unit has a high center of gravity and must be placed on a flat and solid ground with sufficient support strength and a tilt angle of less than 5°. Failure to comply with this requirement will cause the inverter unit to tip over or topple over, which may result in serious injury or property damage.

Figure 3-6 Unit placing requirements



Note the following to fold or unfold the anti-tipping stand:

- Unfold the anti-tipping stand: pull down the anti-tipping stand to press the spring, wrap it around the restraining pin and rotate it 180° to snap into the slot as shown in Figure 3-8.
- Fold the anti-tipping stand: rotate the anti-tipping stand in the slot by 180° to restore the pressed spring back to its original state to clamp the anti-tipping stand, as shown in Figure 3-9. The restraint of the pin ensures that the anti-tipping stand will not unfold due to shaking, as shown in Figure 3-7.

Figure 3-7 Unit bottom structure

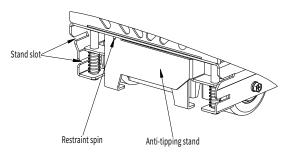


Figure 3-8 Unfolding the anti-tipping stand

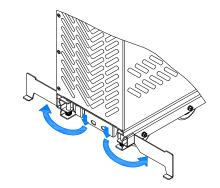
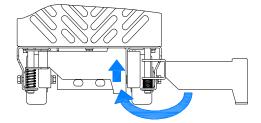


Figure 3-9 Folding the anti-tipping stand



Inverter frame

Remove the wooden box wrapped around the inverter frame, remove the 4 bolts fixed at the bottom anchor bolt of the frame, and then lift the frame through the 4 lifting holes at the frame top. See Figure 3-10.

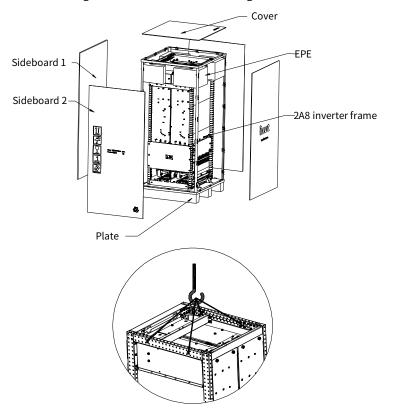


Figure 3-10 Inverter frame lifting schematic

3.3.5 Installation

3.3.5.1 Installation space and heat dissipation

1. Installation requirements for A1i-A4i inverter units

Note the following requirements to ensure reliable installation and excellent heat dissipation for inverter units using A1i–A4i frame:

- The inverter unit must be installed and used in a cabinet.
- A minimum ventilation clearance must be kept from the top and bottom of the inverter unit to ensure good heat dissipation. See Figure 3-11.
- Both sides of the inverter unit are designed with air baffle and sealing sponge for isolation to prevent the
 hot air at the inverter unit top outlet from circulating inside the cabinet and ensure that the heat of the
 inverter unit is discharged from the heat dissipation holes at the cabinet top outlet cover. See Figure
 3-11.

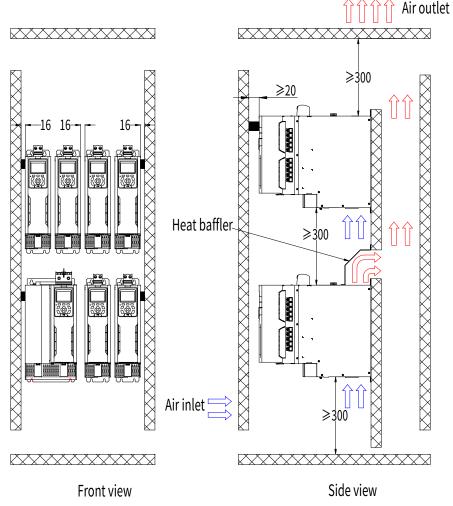


Figure 3-11 Installation space requirements for A1i-A4i inverter units

2. Installation requirements for A6i and A7i inverter units

Note the following requirements to ensure reliable installation and excellent heat dissipation for inverter units using A6i or A7i frame:

- The inverter unit must be installed and used in a cabinet.
- A minimum ventilation clearance must be kept from the top and bottom of each unit to ensure good heat dissipation. For details, see Figure 3-12.
- Both sides of the inverter unit are designed with air baffle and sealing sponge for isolation to prevent the
 hot air at the inverter unit top outlet from circulating inside the cabinet and ensure that the heat of the
 inverter unit is discharged from the heat dissipation holes at the cabinet top outlet cover. See Figure
 3-12.

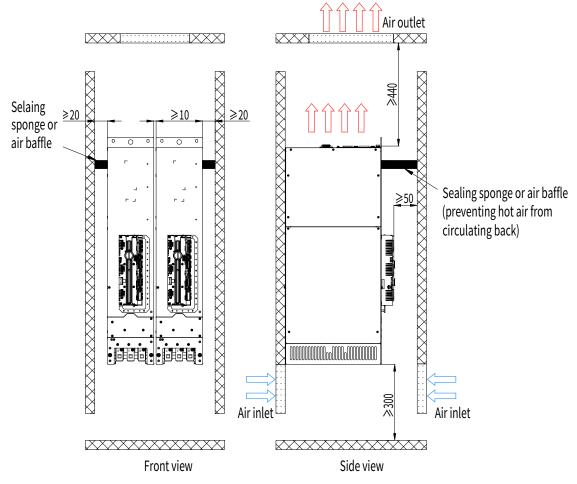


Figure 3-12 Installation space requirements for A6i and A7i inverter units

3. Installation requirements for A8i inverter units

To ensure that the invert unit is installed reliably and in good heat dissipation, pay attention to the following:

- The inverter unit must be installed and used in a cabinet.
- A minimum ventilation clearance must be kept from the top and bottom of each unit to ensure good heat dissipation. For details, see Figure 3-13.
- Both sides of the inverter unit are designed with air baffle and sealing sponge for isolation to prevent the
 hot air at the inverter unit top outlet from circulating inside the cabinet and ensure that the heat of the
 inverter unit is discharged from the heat dissipation holes at the cabinet top outlet cover. See Figure
 3-13.

Sealing sponge or air baffle

Front view

Sealing sponge
(preventing hot air from circulating back)

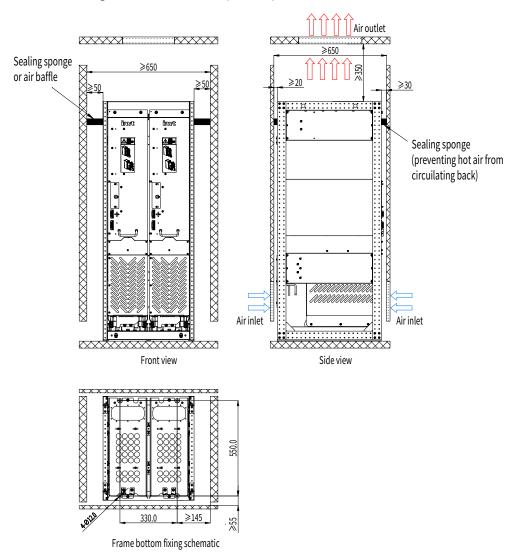
Front view

Side view

Figure 3-13 Installation space requirements for A8i inverter units

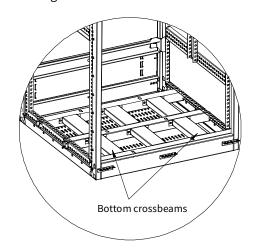
- 4. Installation space requirements for inverter frames
 - A. Installation space requirements for inverter frames

Figure 3-14 Installation space requirements for inverter frames



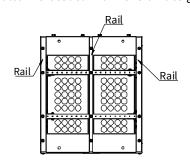
B. Three crossbeams at the cabinet bottom to push the frame easily

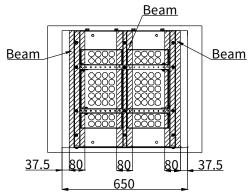
Figure 3-15 Bottom crossbeams



The crossbeam dimension design is shown as Figure 3-16.

Figure 3-16 Bottom crossbeam dimension design (unit: mm)





∠Note: The shaded part in Figure 3-16 is the bottom crossbeam location.

5. Cabinet inlet and outlet area

To ensure good heat dissipation of the inverter unit, design the air inlet and outlet as follows:

Air inlet area formula: Sin= (1.5-2.0) x (Smodule1 + Smodule2 + Smodule3 + ······ + Smodule N);

S: System ventilation area

S_{module}: Each module ventilation area (cm²)

Air outlet area formula: Sout= (1.2-1.5) x Sin

For details about the air volumes required by the A8i inverter units, see Table 3-1.

Table 3-1 Ventilation areas and actual air volumes of inverter units

No.	Frame size	Ventilation area S _{in} (cm²)	Actual air volume (CFM)
1	A1i	15	10
2	A2i	45	55
3	A3i	70	105
4	A4i	90	150
5	A6i	634	568
6	A7i	654	588
7	A8i	982	882
8	2*A8i	1964	1764
9	3*A8i	2946	2646



• Violation of the requirements in section 3.3.5.1 Installation space and heat dissipation will shorten the inverter unit life and may result in inverter unit failure or malfunction.

3.3.5.2 Cabinet requirements

It is recommended that the cabinet adopts the nine-fold profile cabinet (PS cabinet). Before mounting the

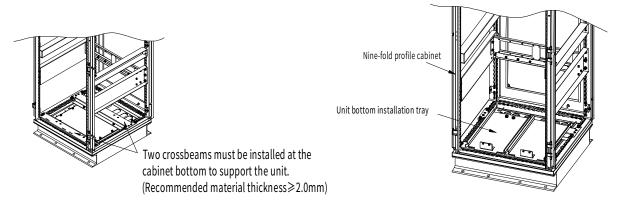
inverter unit, install two bottom support crossbeams, a mounting bracket, and a mounting rail in the cabinet, and design the mounting crossbeam for inverter unit fixing, and reserve fixing holes on the mounting crossbeam (see Appendix B Dimension drawings for the specific location and size).

Fix the bottom support crossbeams and mounting bracket, as shown in Figure 3-17.

- 1. Use eight M8 cage nuts to fix the two bottom support crossbeams to the base of the nine-fold profile cabinet frame. (For the support crossbeams, T≥2.0mm, firmly installed)
- 2. Fix the mounting bracket to the nine-fold profile cabinet frame base with six M5 self-tapping screws, as shown in the following figure.

∠Note: If you use another type of cabinet but not nine-fold profile cabinet, the fixing holes for the mounting bracket need to be drilled and assembled on site.

Figure 3-17 Bottom bracket mounting diagram



3.3.5.3 Layout and mounting for two A6i units and two A7i units

Figure 3-18 shows the cabinet layout for two A6i and two A7i inverter units.

Figure 3-18 600mm-wide cabinet layout for two A6i and two A7i inverter units

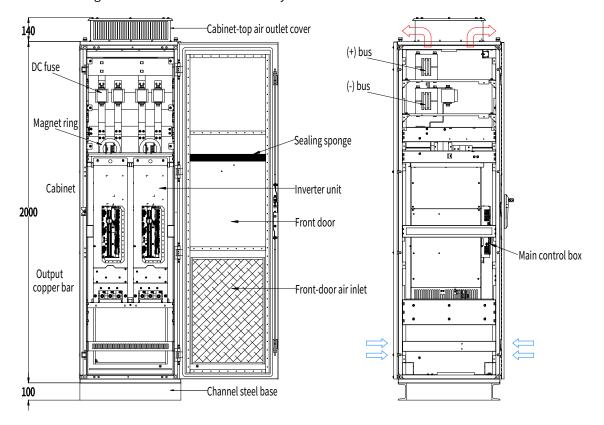
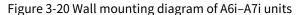
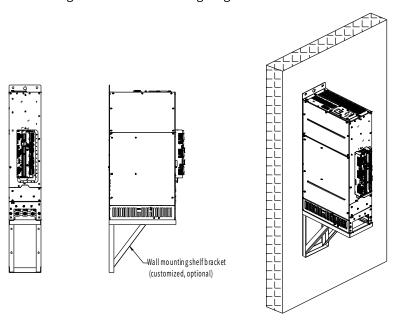


Figure 3-19 Installing two A6i and two A7i inverter units in a 600mm-wide cabinet

No.	Name
1	Input copper bar
2	DC fuse
3	Magnet ring assembly
4	Unit top limit position fixing assembly
5	Unit bottom fixed plate
6	(+) busbar and busbar clamp
7	(-) busbar and busbar clamp
8	Busbar clamp fixed support
9	Side air baffle assembly (with sealing sponge)
10	Bottom outgoing hole

In the case of limited space, A6i and A7i units support the wall mounting, as shown in Figure 3-20.





3.3.5.4 Layout and mounting for one A8i inverter unit

• With the precharge function

Figure 3-21 shows the cabinet layout for one A8i inverter unit with the precharge function.

Figure 3-21 400mm-wide cabinet layout for one A8i inverter unit with the precharge function

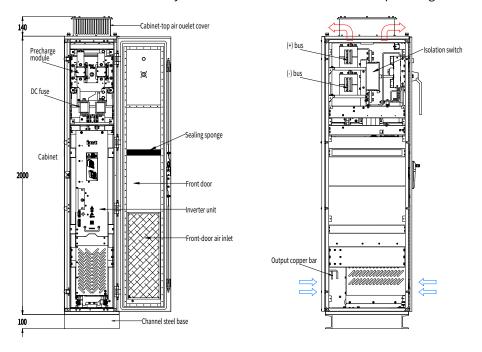
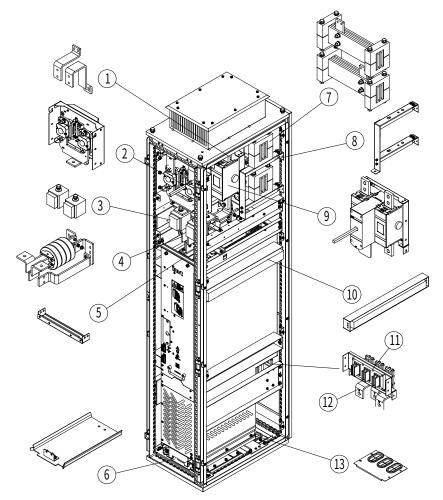


Figure 3-22 shows the installation of one A8i inverter unit with the precharge function in a cabinet.

Figure 3-22 Installing one A8i inverter unit with the precharge function in a 400mm-wide cabinet



No.	Name	
1	Input copper bar	
2	Precharge module	
3	DC fuse	
4	Magnet ring assembly	
5	Unit top fixed beam	
6	Unit bottom fixed plate	
7	(+) and (-) busbars and busbar clamps	
8	Busbar clamp fixed support	
9	Isolation switch	
10	Side air baffle assembly (with sealing sponge)	
11	Fast connector female end	
12	Output copper bar	
13	Bottom outgoing hole	

• Without the precharge function

Figure 3-23 shows the cabinet layout for one A8i inverter unit without the precharge function.

Figure 3-23 400mm-wide cabinet layout for one A8i inverter unit without the precharge function

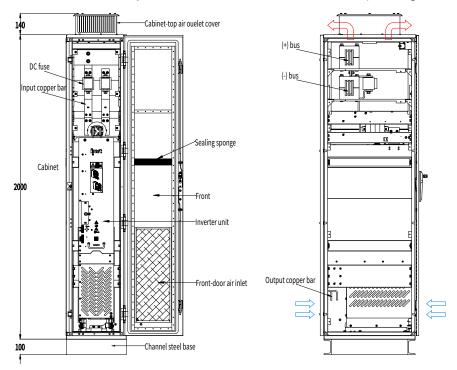
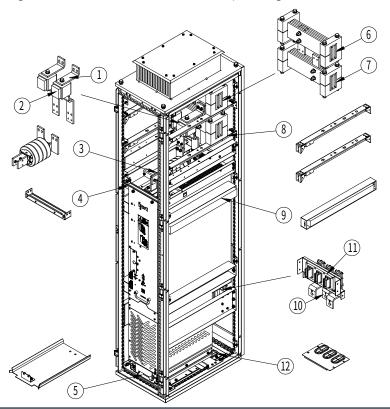


Figure 3-24 shows the installation of one A8i inverter unit without the precharge function in a cabinet. Figure 3-24 Installing one A8i inverter unit not without the precharge function in a 400mm-wide cabinet



No. Name

1 Input copper bar

No.	Name	
2	DC fuse	
3	Magnet ring assembly	
4	Unit top fixed beam	
5	Unit bottom fixed plate	
6	(+) busbar and busbar clamp	
7	(-) busbar and busbar clamp	
8	Busbar clamp fixed support	
9	Side air baffle assembly (with sealing sponge)	
10	Output copper bar	
11	Fast connector female end	
12	Bottom outgoing hole	

3.3.5.5 Layout and mounting for two A8i inverter units

• With the precharge function

Figure 3-25 shows the cabinet layout for two A8i inverter units with the precharge function.

Figure 3-25 600mm-wide cabinet layout for two A8i inverter unit with the precharge function

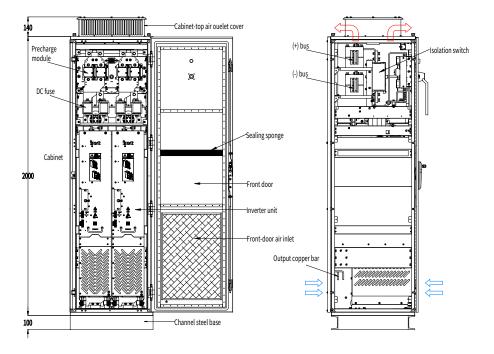
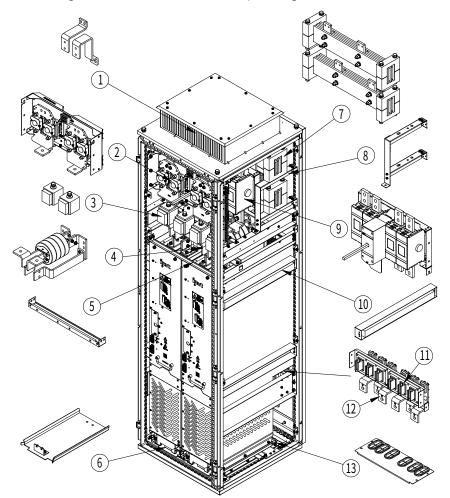


Figure 3-26 shows the installation of two A8i inverter units with the precharge function in a cabinet.

Figure 3-26 Installing two A8i inverter units with the precharge function in a 600mm-wide cabinet



No.	Name		
1	Input copper bar		
2	Precharge module		
3	DC fuse		
4	Magnet ring assembly		
5	Unit top fixed beam		
6	Unit bottom fixed plate		
7	(+) and (-) busbars and busbar clamps		
8	Busbar clamp fixed support		
9	Isolation switch		
10	Side air baffle assembly (with sealing sponge)		
11	Fast connector female end		
12	Output copper bar		
13	Bottom outgoing hole		

• Without the precharge function

Figure 3-27 shows the cabinet layout for two A8i inverter units without the precharge function.

Figure 3-27 600mm-wide cabinet layout for two A8i inverter unit without the precharge function

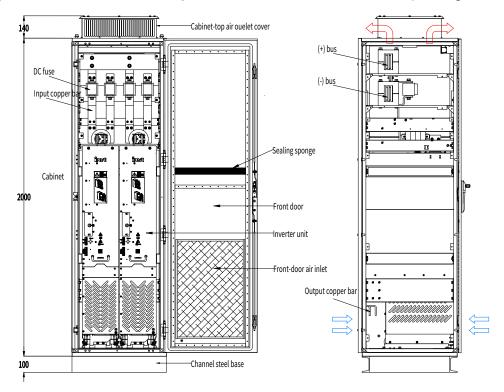
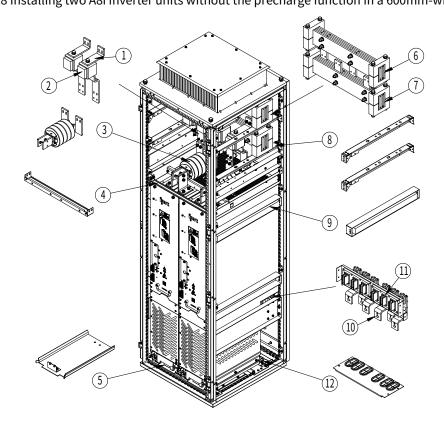


Figure 3-28 shows the installation of two A8i inverter units without the precharge function in a cabinet. Figure 3-28 Installing two A8i inverter units without the precharge function in a 600mm-wide cabinet



No.	Name		
1	Input copper bar		
2	DC fuse		
3	Magnet ring assembly		
4	Unit top fixed beam		
5	Unit bottom fixed plate		
6	(+) busbar and busbar clamp		
7	(-) busbar and busbar clamp		
8	Busbar clamp fixed support		
9	Side air baffle assembly (with sealing sponge)		
10	Output copper bar		
11	Fast connector female end		
12	Bottom outgoing hole		

Note: A 40X40 sealing sponge must be used at the position corresponding to the air baffle in the front/back door panel, which prevents air duct reflow.

3.3.5.6 Layout and mounting for three A8i units

Figure 3-29 shows the 800mm-wide cabinet layout for three A8i inverter units.

Cabinet Coper bar Cabinet Top air ouelet cover

(+) bus

Front door

Inverter unit

Output copper bar

Output copper bar

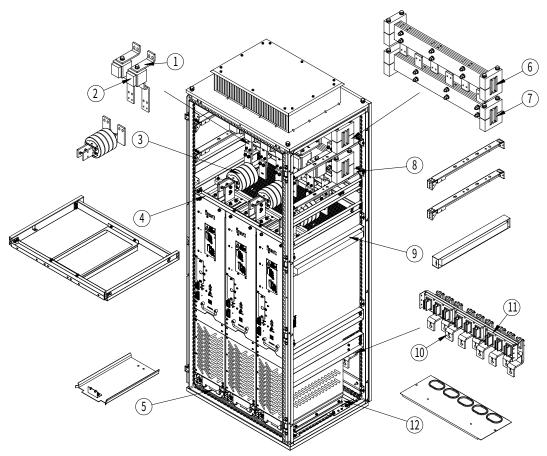
Output copper bar

Output copper bar

Figure 3-29 800mm-wide cabinet layout for three A8i inverter units

Figure 3-30 shows the installation of three A8i inverter units in an 800mm-wide cabinet.

Figure 3-30 Installing three A8i inverter units in a 800mm-wide cabinet



No.	Name	
1	Input copper bar	
2	DC fuse	
3	Magnet ring assembly	
4	Unit top fixed assembly (unit guide included)	
5	Unit bottom fixed plate	
6	(+) busbar and busbar clamp	
7	(-) busbar and busbar clamp	
8	Busbar clamp fixed support	
9	Side air baffle assembly (with sealing sponge)	
10	Output copper bar	
11	Fast connector female end	
12	Bottom outgoing hole	

Figure 3-31 shows the 400mm-wide cabinet layout for A8L2.

Figure 3-31 400mm-wide cabinet layout for an A8L2 inverter unit

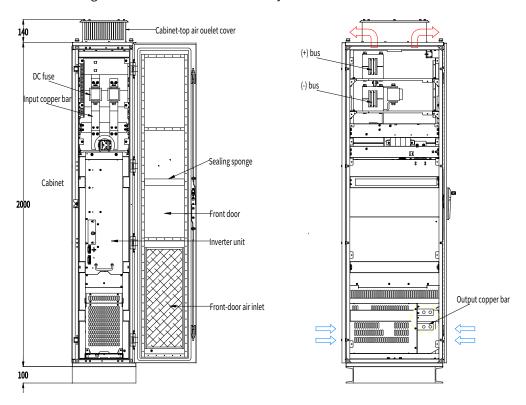
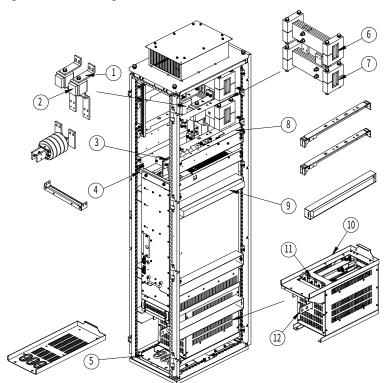


Figure 3-32 shows the installation of the A8L2i inverter unit in an 800mm-wide cabinet.

Figure 3-32 Installing one A8L2 inverter unit in a 400mm-wide cabinet



No.	Name
1	Input copper bar
2	DC fuse

No.	Name		
3	Magnet ring assembly		
4	Unit top fixed beam		
5	Unit bottom fixed plate		
6	(+) busbar and busbar clamp		
7	(-) busbar and busbar clamp		
8	Busbar clamp fixed support		
9	Side air baffle assembly (with sealing sponge)		
10	Output reactor base		
11	Copper bar between unit and reactor		
12	Output to motor side copper bar		

3.3.5.7 Layout and mounting for 2*A8i inverter frame

Figure 3-33 shows the layout for 2*A8i inverter frame.

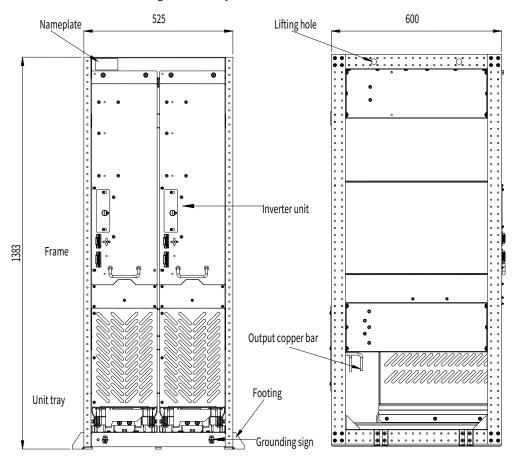
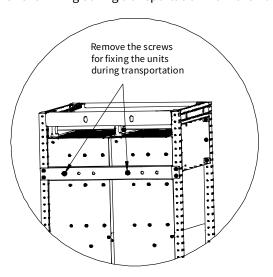


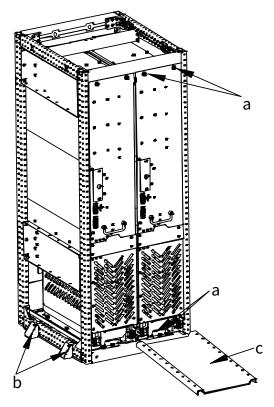
Figure 3-33 Layout of 2*A8i inverter frame

To install the 2*A8i inverter frame in a wide cabinet, do as follows:

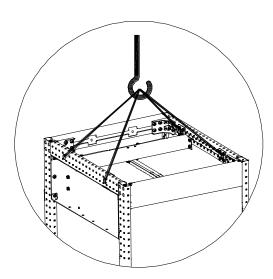
Step 1 Remove the two screws for fixing during transportation from the frame back.



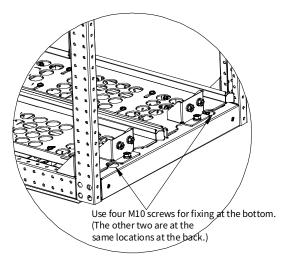
Step 2 Remove the four frame-fixing assemblies (b), and lift the entire frame to a level ground. Remove the eight M8 screws from the two A8i modules, place the installation rail (c), and pull the sideward two A8i modules out of the frame (to decrease the weight of putting the frame assembly into the cabinet).



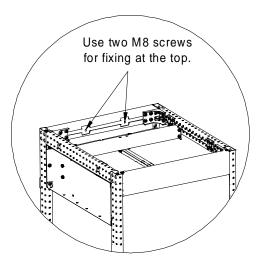
Step 3 Lift the frame.



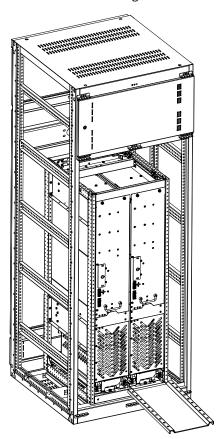
Step 4 When the bottom of the frame is in contact with the bottom of the cabinet, manually push the frame to the specified position and lock the bottom of the frame with four M10 screws.



Step 5 Tighten the two M8 screws at the frame top.



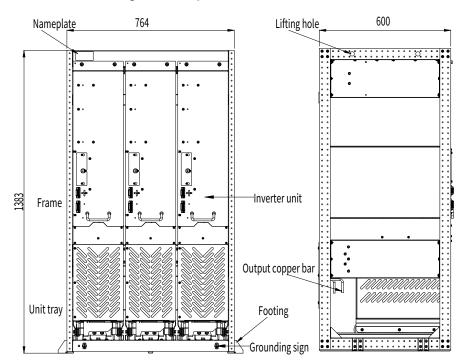
Step 6 Place the rail and push the A8i modules through the rail.



3.3.5.8 Layout and mounting for 3*A8i inverter frame

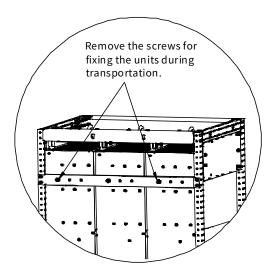
Figure 3-34 shows the layout for 3*A8i inverter frame.

Figure 3-34 Layout of 3*A8i inverter frame

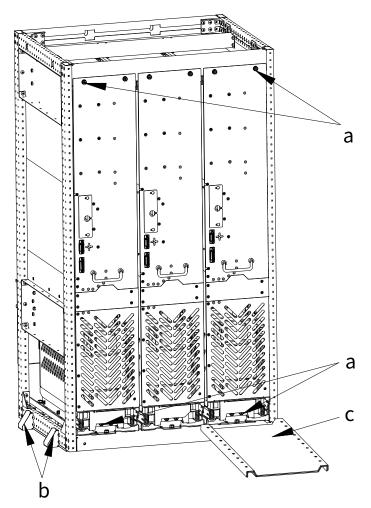


The mounting procedure is as follows:

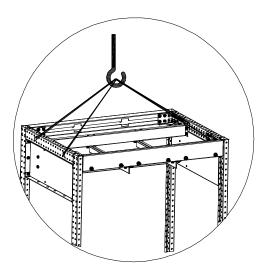
Step 1 Remove the screws for fixing during transportation from the frame back.



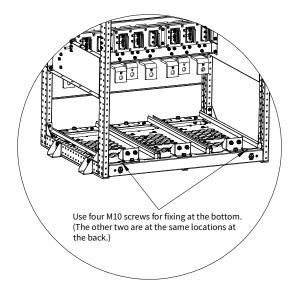
Step 2 Remove the four frame-fixing assemblies (b), and lift the entire frame to a level ground. Remove the eight M8 screws from the two A8i modules, place the installation rail (c), and pull the sideward two A8i modules out of the frame (to decrease the weight of putting the frame assembly into the cabinet).



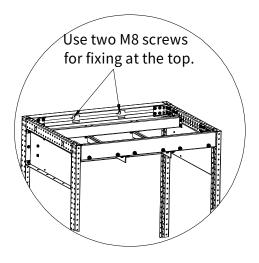
Step 3 Lift the frame.



Step 4 When the bottom of the frame is in contact with the bottom of the cabinet, manually push the frame to the specified position and lock the bottom of the frame with four M10 screws.



Step 5 Tighten the two M8 screws at the frame top.

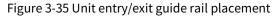


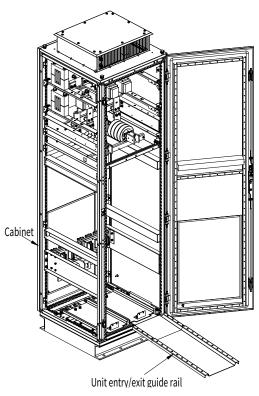
Step 6 Place the rail and push the A8i modules through the rail.

3.3.5.9 Unit installation and replacement

The mounting procedure is as follows:

Step 1 Insert the unit entry/exit guide rail into the slot of the cabinet front bottom beam. See Figure 3-35.





Step 2 Push the unit into the cabinet.

(1) Align the unit casters to the rail. See Figure 3-36.

Align the unit caster to the rail.

Figure 3-36 Unit placement

(2) Push the unit into the cabinet.

✓Note:

- Since the inverter unit barycenter is too high, use the auxiliary rope for mounting to prevent the inverter unit from rollover during the push-in or push-out.
- When pushing in/out the inverter unit, use one foot to apply force to the bottom of the unit while holding the handle to prevent the unit from tipping over, falling over, hitting or injury. See Figure 3-37.
- When installing or replacing the unit, wear gloves and safety shoes to prevent against scratching or smashing.

Fingers should not be out of this plane to avoid pressure injuries. Grip the handle firmly. When pushing in/out the unit, use one foot to apply force to the unit bottom while holding the handle to prevent the unit from tipping over.

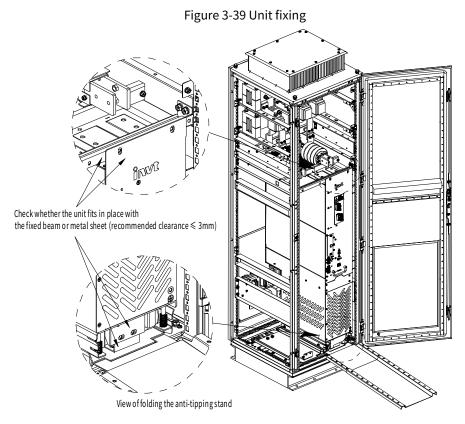
Figure 3-37 Unit entry to the cabinet

(3) Ensure that the unit is pushed into place. See Figure 3-38.

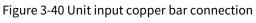
Check whether the unit fits in place with the fixed beam or metal sheet (recommended clearance ≤ 3mm) $\label{thm:continuous} View of folding the anti-tipping stand$

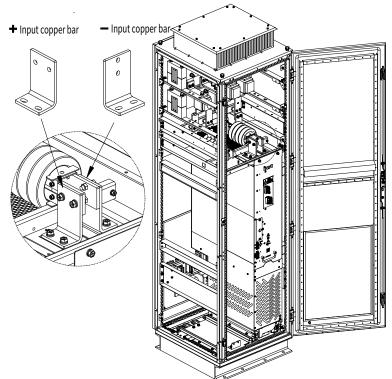
Figure 3-38 Checking whether the unit is pushed into place

Step 3 After confirming that the unit is pushed into place, install the unit fixing screws and remove the unit entry/exit guide rail.



Step 4 Install the (+) and (-) input copper bars of the inverter unit.





3.3.5.10 Keypad installation

The GD880-51 inverter unit is equipped with an externally mounted keypad (as shown in Figure 3-41), which is used with a keypad bracket that can be fixed to the cabinet door or external support sheet metal, and the keypad bracket mounting structure is shown in Figure 3-42.

Figure 3-41 LCD keypad structure (unit: mm)

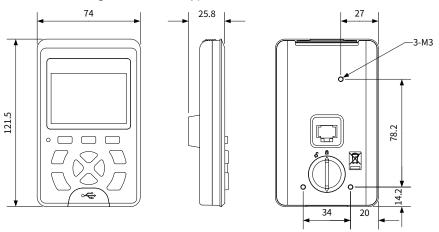


Figure 3-42 Mounting the keypad bracket

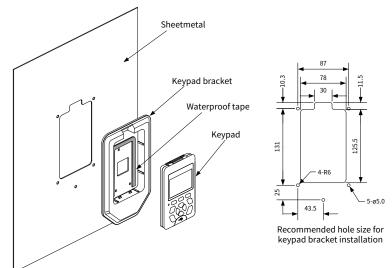
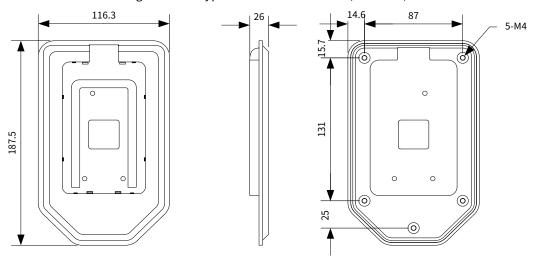


Figure 3-43 Keypad bracket dimensions (unit: mm)



3.3.6 Fastening torque

You need the following tools to install the inverter unit:

- Standard toolbox, including screwdrivers, nut wrenches, socket wrenches.
- Torque wrenches with torques from 1.5 N m to 100 N m.
- Socket wrench extension bars, 400mm long.

The inverter unit installation involves conductive components (AC input connectors, DC bus connectors, and cable terminals) and other component connections (grounding terminals, protective ground terminals, and fixing screws), and the screw tightening torques must meet the requirements in the following table.

Table 3-2 Recommended values of screw thread tightening torque			
Screw/Bolt Strength grade		Recommended torque (N • m)	
M4	4.8	1.5	
M5	5.8	3	
M6	5.8	5	
M8	5.8	11	
M10	4.8	22	
M12	4.0	20	

3.3.7 Checklist

No.	Operation	Compliant	Completed
1	Mounted the beam for inverter unit fixing in the nine-fold profile cabinet.		
2	Mounted the bottom tray for inverter unit fixing in the nine-fold profile cabinet.		
3	Installed the copper bars of the inverter unit in the cabinet.		
4	Assembled the installation guide rail (optional part) and installed it in the cabinet.		
5	In the cooperation of two people, aligned the inverter unit casters with the mounting guide rail and pushed the inverter unit to the cabinet. (See Figure 3-38, Figure 3-36, and Figure 3-37. The auxiliary rope for mounting has been used to prevent the unit from side tipping during the push-in or push-out.)		
6	Removed the auxiliary rope for mounting, and ensured that the unit was pushed into place.		
7	Inserted screws into the fixing holes at the unit front top and bottom to fix the unit to the cabinet. (See Figure 3-39.)		
8	Installed the (+) and (-) bus copper bars.		
9	Removed the mounting rail when you ensure the mounting is secure.		
10	Checked the screw tightening state.		

4 Electrical installation

4.1 Safety notes

- All safety precautions in this manual must be read and followed. Only trained and qualified professionals are allowed to carry out the operations mentioned in this chapter.
- All work on electrical equipment must comply with the following:
 - ♦ The power is off.
 - ♦ Re-power on must not occur.
 - ♦ Wait for at least the time designated on the inverter unit, and ensure the voltage between (+) and (-) is lower than 36V through measurement.
 - ♦ The equipment is well grounded.
 - Live parts have been shielded or isolated.



- All installation work can be performed only in power-off (no voltage) state since high voltage is present in the inverter unit internal during the running.
- Do not perform wiring, inspection or component replacement when power supply is applied. Before wiring or inspection, ensure all the input power supplies have been disconnected, and wait for at least 15 minutes or until the DC bus voltage is lower than 36V.
- If the auxiliary control power of the inverter unit is supplied externally, the
 disconnecting the circuit break device cannot disconnect the entire power supply.
 The inverter unit control system may be live even if not started. Please refer to the
 electrical schematic diagram for inspection to avoid personal injury caused by
 contacting the live part of the inverter unit.
- If the safety device on a current branch trips, check the inverter unit for the fault cause, rectify the fault, and replace the damaged parts.

4.2 Insulation inspection

Inverter unit

Before delivery, each inverter unit has been tested for insulation of the main circuit to the housing. Moreover, there is voltage limiting circuit inside the unit, and the circuit will automatically cut off the test voltage of the withstand voltage test. Do not carry out insulation withstand test on the unit, or measure the control circuit of the unit with a megohmmeter.

Input power cable

Check the insulation conditions of the input power cable of the inverter unit according to the local regulations before connecting it.

• Motor and motor cable

Insulation inspection procedure is as follows:

- Step 1 Ensure that the motor cable has been connected to the motor.
- Step 2 Remove the motor cable from the U, V, and W output terminals of the inverter unit.
- Step 3 Measure the insulation resistance between the motor cable and each phase of the motor and the protective ground with a 1kV DC megohmmeter. Insulation resistance must be greater than $1M\Omega$.

4.3 EMC requirements

General knowledge of electromagnetic compatibility

EMC is short for electromagnetic compatibility, which refers to the ability of a device or system to function properly in its electromagnetic environment and not constitute an unbearable electromagnetic disturbance to anything in that environment. EMC includes two aspects: electromagnetic interference and electromagnetic immunity.

Electromagnetic interference can be divided into two categories according to the transmission paths: conducted interference and radiation interference.

Conducted interference propagates along any conductor. Therefore, any conductor, such as wire, transmission line, inductor, and capacitor, is a transmission channel for conducted interference.

Radiated interference is in the form of electromagnetic waves that propagate with energy that is inversely proportional to the square of the distance.

Electromagnetic interference must have three conditions or three elements at the same time: interference source, transmission channel, and sensitive receiver, each of which is indispensable. The solution of EMC problem mainly focuses the three elements. For users, the solution of EMC problem is mainly in transmission channels because the equipment as interference source or receiver cannot be changed.

Different electric and electronic devices have different EMC capacities because of adopting different EMC standards or classes.

General EMC guidelines on variable-frequency regulation system wiring

The following introduces general EMC guidelines on variable-frequency regulation system wiring in several aspects including noise control, site wiring and grounding for reference in site installation, with consideration of ECM characteristics of VFDs where the input current and output voltage harmonics are relatively small but the voltage is high and the current is large.

1. Noise control

All the connections to the VFD control terminals must use shielded wires. The shield layer of wire must be grounded near the VFD entrance. The ground mode is 360-degree loop connection formed by cable clips. It is not allowed to connect the twisted shield layer to the ground of the VFD, which greatly decreases or loses the shield effect.

2. Site wiring

Power supply wiring: The shield layer of power supply incoming cables of the VFD shall be grounded reliably. It is not allowed to route the power cables and control cables in parallel.

Device categorization: There are different electric devices in the same distribution system, which have different ability of emitting and withstanding electromagnetic noise. Therefore, it needs to categorize these devices into strong noise device and noise sensitive device. The same kind of devices needs to be placed in the same area, and the distance between devices in different categories needs to be more than 20cm.

Wiring in the control cabinet: During wiring, signal cables and power cables need to be arranged in different areas. It is not allowed to arrange them in parallel or in interlaced state at a close distance (less than 20cm) or tie them together. If the signal cables have to cross the power cables, they need to be arranged in 90 degree angle.

3. Grounding

The VFD must be grounded safely and reliably in operation. Grounding has the priority in all EMC methods because it does not only ensure the safety of equipment and persons, but also it is the simplest, most effective and lowest-cost solution for EMC problems.

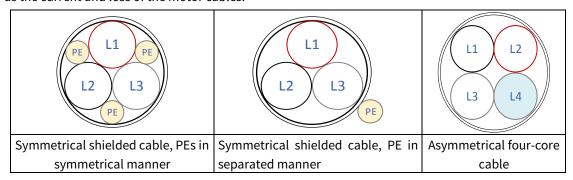
Three categories of grounding: special pole grounding, common pole grounding and series-wound

grounding. Different control system needs to use special pole grounding, different devices in the same control system needs to use common pole grounding, and different devices connected by the same power cables needs to use series-wound grounding.

4.3.1 Power cable

To meet the EMC requirements stipulated in the CE standards, you must use symmetrical shielded cables as motor cables.

Four-core cables can be used as input cables, but symmetrical shielded cables are recommended. Compared with four-core cables, symmetrical shielded cables can reduce electromagnetic radiation as well as the current and loss of the motor cables.

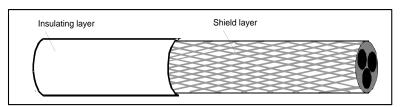


Power cables must meet the following requirements:

- The sizes of the input power cables and motor cables must comply with local regulations.
- The input power cables and motor cables must be able to carry the corresponding load currents.
- The maximum temperature margin of the motor cables in continuous operation cannot be lower than 70°C.
- PE grounding conductor conductivity must be as good as possible to reduce the grounding resistance to achieve better impedance continuity. If the electrical conductivity of the motor cable shield layer does not meet the requirements, a separate PE conductor must be used.

To effectively restrict the emission and conduction of radio frequency (RF) interference, the conductivity of the shielded cable must at least be 1/10 of the conductivity of the phase conductor. This requirement can be well met by a copper or aluminum shield layer. Figure 4-1 shows the minimum requirement on motor cables of an inverter unit. The cable must consist of a layer of spiral-shaped copper strips. The denser the shield layer is, the more effectively the electromagnetic interference is restricted.

Figure 4-1 Cable cross section



Note: Check the insulation conditions of the input power cable of inverter according to the local regulations before connecting it.

4.3.2 Control cable

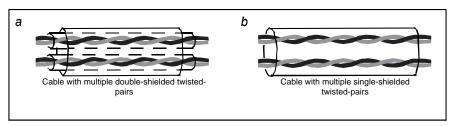
All analog signal cables, communication cables, and encoder cables must be shielded cables.

Analog signal cables need to be double-shielded twisted-pair cables (as shown in figure a). Use one separate shielded twisted pair for each signal. Do not use the same ground wire for different analog signals.

Communication cables and encoder cables need to be single-shielded twisted-pair cables (as shown in figure b). The shield layer of cable is connected to the system PE by means of a 360-degree connection or twisting into a single bundle, and the exposed shield layer is wrapped with insulating tape to prevent interference introduced by the shield layer in contact with other equipment and structural components.

The keypad needs to be connected by using a network cable. In complicated electromagnetic environments, a shielded network cable is recommended.

Figure 4-2 Control cable



∠Note: Analog signals and digital signals cannot share a same cable, and their cables must be routed separately.

4.3.3 Wiring suggestions

Motor cables and input cables in a drive system are interference cables, while communication cables, encoder cables, analog signals, and high-speed signal cables are sensitive cables. It is recommended that you arrange the motor cables, input power cables, and control cables separately in different trays, reducing electromagnetic interference caused by the du/dt of the inverter output to other cables. The general cable arrangement rules are shown in Figure 4-3. The recommended values for the spacing between sensitive and interference cables are shown in the following table.

Figure 4-3 General cable arrangement rules

Table 4-1 Recommended values for the spacing between sensitive and interference cables

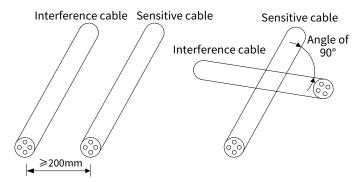
D1	D2	D3
≥200mm	≥300mm	≥500mm

✓ Note:

- The motor cables of different VFDs/inverters can be arranged in parallel, but motor cables must be arranged far away from sensitive cables.
- Analog signals and digital signals cannot share a same cable, and their cables must be routed separately.

• If a control cable and power cable must cross each other, ensure that the angle between them is 90°.

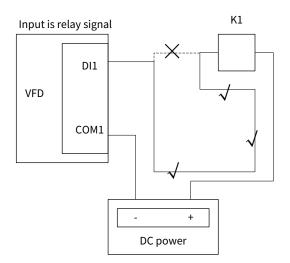
Table 4-4 Routing sensitive and interference cables



The cable trays must be connected properly and well grounded. Aluminum trays can implement local equipotential.

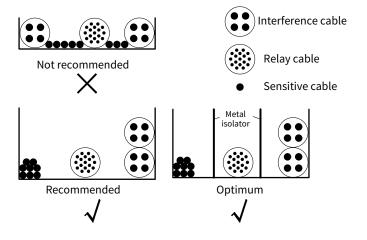
For inputs of such as relay signals and other non-differential signals, non-twisted pair cables can be used, and the wiring should minimize the loop area and a pair of signal lines should be routed as close as possible.

Figure 4-5 Non-differential signal wiring loop



When laying multiple types of cables, the cables should always be routed along the alignment grooves or metal pipes in equipotential connection, with different types of cables separated as much as possible. You can better improve electromagnetic compatibility by using metal spacers to isolate different types of cables in the same metal groove or metal pipe.

Figure 4-6 Routing multiple types of cable



4.3.4 Shielded cable connection

The shield layer of signal cable is grounded at both ends, of which the grounding points must be the same. That is, if the shield layer at the upper computer side is connected to PE, the shield layer at the drive side is also connected to PE; if the shield layer at the upper computer side is connected to GND, the shield layer at the drive side is also connected to GND. It is recommended to connect the both ends of the shield layer to PE, which is the housing.

The unshielded part of the control cable that is shielded should be as short as possible, and the shield layer is connected to the nearest PE end. If the cable is stripped too long, the core is susceptible to interference of signals, especially analog, communication, and encoder signals.

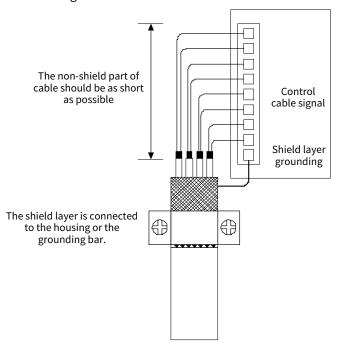


Figure 4-7 Control cable shield connection

The shield layers of the input power and output motor cables should have large contact with the shield board inside the installation cabinet to achieve good EMC shield effect. The specific installation and fixing method can be referred to the following diagram.

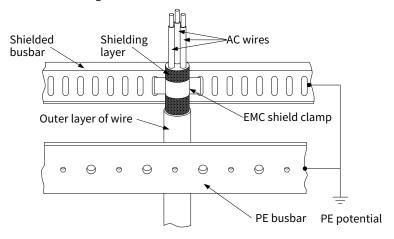
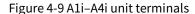


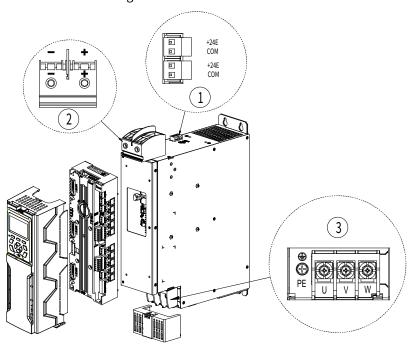
Figure 4-8 Power cable shield connection

4.4 Electrical wiring

4.4.1 A1i-A4i unit wiring

1. Ali-A4i unit terminals





No.	Terminal name	Description
1	+24E	24V auxiliary power terminal (The auxiliary power supply
	СОМ	must be isolated 24V.)
		For commissioning, specification: 24Vdc±10% 1A
2	(+)	Positive or negative busbar DC input
		Voltage: 510–720VDC;
	(-)	Connection: A1i: cable terminal of M6/6N • m
		A2i–A4i: cable terminal of M8/12N • m
3	U	AC output:
		Voltage: 0–0.7VDC
	V	Connection:
		A1i: cable terminal of M5/3N • m
	14/	A2i–A3i: cable terminal of M6/5N • m
		A4i: cable terminal of M10/29N • m

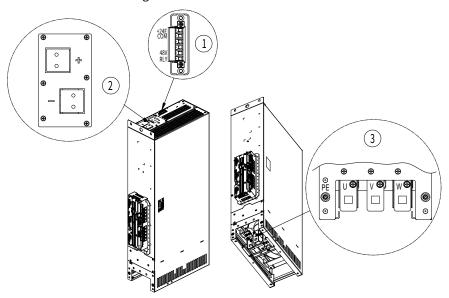
✓ Note: For the terminal introduction and wiring method of the main control unit, see chapter 5 ICU control unit.

- 2. Wiring procedure for A1i–A4i units is as follow:
- Step 1 Remove the plastic case protective cover from the cable terminal area.
- Step 2 Connect the cable to the output terminal in the correct wire connection sequence: U, V, W or (+), (-).
- Step 3 Fix the power cable on the cable holder to avoid stress on the terminal.
- Step 4 When using shielded power cables, the shielding layer must be fixed to the shielding board according to EMC requirements.

4.4.2 A6i-A7i unit wiring

1. A6i-A7i unit terminals

Figure 4-10 A6i-A7i unit terminals



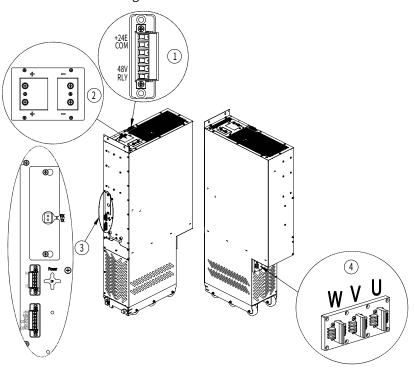
No.	Terminal name	Description
1	+24E	24V auxiliary power terminal (The auxiliary power supply
	СОМ	must be isolated 24V.)
		For commissioning, specification: 24Vdc±10% 1A
	48V	Precharge contactor signal
	RLY	∠Note: If there is no internal precharge, the control
		external precharge contactor must be a DC48V coil
		contactor.
2	(+)	Positive or negative busbar DC input
		Voltage: 510–720VDC (corresponding to 400V product),
	(-)	700–1035VDC (corresponding to 690V product)
		Connection: copper bar terminal of M6/9N • m
3	U	UVW AC output:
	V	Voltage: 0-0.7VDC
	W	Connection: copper bar terminal of M10/32N • m

- 2. Wiring procedure for A6i–A7i units is as follow:
- Step 1 Connect the cable to the output terminal in the correct wire connection sequence: U, V, W or (+), (-).
- Step 2 Please ensure that all input and output are correctly connected.
- Step 3 Fix the power cable on the cable holder to avoid stress on the terminal.
- Step 4 When using shielded power cables, the shielding layer must be fixed to the shielding board according to EMC requirements.

4.4.3 A8i unit wiring

1. A8i unit terminals

Figure 4-11 A8i unit terminals



No.	Terminal name	Description				
	+24E	24V auxiliary power terminal (The auxiliary power supply must be				
	СОМ	solated 24V.) For commissioning, specification: 24Vdc±10% 1A				
1	48V	Precharge contactor signal.				
	RLY	Note: If there is no internal precharge, the control external precharge ontactor must be a DC48V coil contactor				
	(+)	Positive or negative busbar DC input				
2	(-)	Voltage: 510–720VDC (corresponding to 400V product), 700–1035VDC (corresponding to 690V product)				
		Connection: copper bar terminal of M8/11N • m				
	+5V					
	FAN	LEV and EAN for control signal output (as an inverter unit this function is				
	DI1	+5V and FAN fan control signal output (as an inverter unit, this functio not available) DI1, COM1 and DI2, COM2 are digital outputs.				
3	COM1					
	DI2	Dit, Comi and Diz, Comz are digital outputs.				
	COM2					
	DC+	DC+ and DC- bus voltage output (as an inverter unit, this function is not				
	DC-	available)				
	U	UVW AC output:				
4	V	Voltage: 0-0.7VDC				
	W	Connection: fast connector				

2. Wiring procedure for A8i units is as follow:

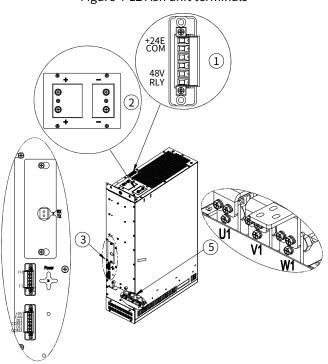
- Step 1 Please ensure that all input and output are correctly connected.
- Step 2 Fix the power cable on the cable holder to avoid stress on the terminal.

Step 3 When using shielded power cables, the shielding layer must be fixed to the shielding board according to EMC requirements.

4.4.4 A8n unit wiring

1. A8n unit terminals

Figure 4-12 A8n unit terminals



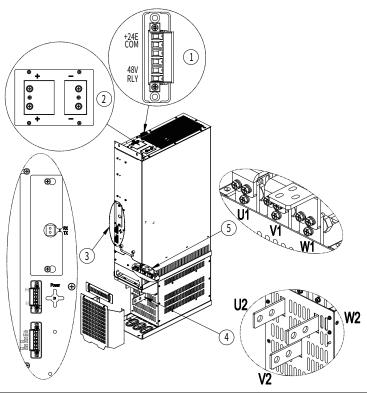
No.	Terminal name	Description			
	+24E	24V auxiliary power terminal (The auxiliary power supply must be			
	СОМ	isolated 24V.)			
1	COM	For commissioning, specification: 24Vdc±10% 1A			
1	48V	Precharge contactor signal.			
	RLY	∠Note: If there is no internal precharge, the control external precharge			
	IVET	contactor must be a DC48V coil contactor			
	(+)	Positive or negative busbar DC input			
2		Voltage: 510-720VDC (corresponding to 400V product), 700-1035VDC			
	(-)	(corresponding to 690V product)			
		Connection: copper bar terminal of M8/11N • m			
	+5V				
	FAN	+5V and EAN fan control cignal output (as an invertor unit, this funct			
	DI1	+5V and FAN fan control signal output (as an inverter unit, this function is not available)			
3	COM1	DI1, COM1 and DI2, COM2 are digital outputs.			
3	DI2				
	COM2				
	DC+	DC+ and DC- bus voltage output (as an inverter unit, this function is not			
	DC-	available)			
	U1	UVW AC output:			
4	V1	Voltage: 0-0.7VDC			
	W1	Connection: copper bar or cable connection			

- 2. Wiring procedure for A8n units is as follow:
- Step 1 Remove the plastic case protective cover from the cable terminal area.
- Step 2 Connect the cable to the output terminal in the correct wire connection sequence: U1, V1, W1 or (+), (-).
- Step 3 Fix the power cable on the cable holder to avoid stress on the terminal.
- Step 4 When using shielded power cables, the shielding layer must be fixed to the shielding board according to EMC requirements.

4.4.5 A8L2 unit wiring

1. A8L2 unit terminals

Figure 4-13 A8L2 unit terminals



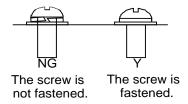
No.	Terminal name	Description	
	+24E	24V auxiliary power terminal (The auxiliary power supply	
	СОМ	must be isolated 24V.) For commissioning, specification: 24Vdc±10% 1A	
1	48V	Precharge contactor signal.	
	DLV	Note: If there is no internal precharge, the control	
	RLY	external precharge contactor must be a DC48V coil contactor	
	(+)	Positive or negative busbar DC input	
2	(·)	Voltage: 510–720VDC, 700–1035VDC	
	(-)	Connection: copper bar terminal of M8/11N • m	
	+5V		
	FAN		
	DI1	+5V and FAN fan control signal output (as an inverter unit,	
3	COM1	this function is not available)	
	DI2	DI1, COM1 and DI2, COM2 are digital outputs.	
	COM2		

No.	Terminal name	Description
	DC+	DC+ and DC- bus voltage output (as an inverter unit, this
	DC-	function is not available)
	U2	UVW AC output:
4	V2	Voltage: 0–0.7VDC
	W2	Connection: copper bar or cable connection

- 2. Wiring procedure for A8L2 units is as follow:
- Step 1 Remove the plastic case protective cover from the cable terminal area.
- Step 2 Connect the cable to the output terminal in the correct wire connection sequence: U, V, W or (+), (-).
- Step 3 Fix the power cable on the cable holder to avoid stress on the terminal.
- **∠Note:** When using shielded power cables, the shielding layer must be fixed to the shielding board according to EMC requirements.

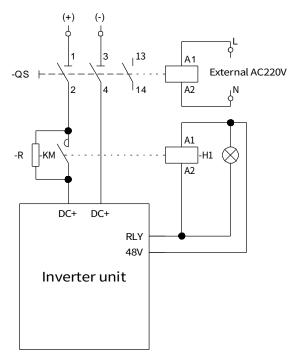
4.4.6 Screw tightening

Figure 4-14 Screw installation requirements



4.4.7 A8i&A8n&A8L2 inverter units isolation switch connection

4.4.7.1 Electrical connection



✓Note:

 QS indicates the isolation switch, KM indicates the DC contactor, while R indicates the precharge resistor; QS and KM form the main circuit, while QS and R form the precharge circuit connected in parallel to the main circuit.

- 13–14 indicate QS feedback signals.
- H1 indicates the indicator.

4.4.7.2 Status

Initial state

QS is opened, KM is not closed, 13 and 14 are in N.O. state, while H1 is in a state of no indication.

Precharge state

QS is closed, KM is not closed, the precharge circuit is started through the loop between QS and R to precharge the inverter unit, 13 and 14 are in N.C. state, while H1 is in a state of no indication.

Working state

QS is closed, the inverter unit finishes charging, the bus voltage has been established with output of DC 48V voltage, KM is closed, while the main circuit is switched on. At the same time, the H1 indicator is on and the charging is complete.

Note: It is recommended to add the QS electrical interlock coil, which is powered by external power supply of AC 220V, so that QS can be operated only when the interlock coil is powered on.

4.4.8 Cable specifications and recommendations

Table 4-1 Inverter output cable recommendation

Model	Number of cables per phase*cable diameter (mm²)	Connection terminal
GD880-51-0009-4	1*2.5	OT/2.5-5
GD880-51-0013-4	1*4	OT/4-5
GD880-51-0017-4	1*6	OT/6-6
GD880-51-0023-4	1*6	OT/6-6
GD880-51-0033-4	1*10	OT/0-6
GD880-51-0038-4	1*10	OT/10-6
GD880-51-0048-4	1*16	OT/16-6
GD880-51-0060-4	1*16	OT/16-6
GD880-51-0078-4	1*25	OT/25-6
GD880-51-0094-4	1*35	OT/35-6
GD880-51-0116-4	1*50	OT/50-8
GD880-51-0149-4	1*70	OT/70-8
GD880-51-0183-4	1*95	OT/95-12
GD880-51-0245-4-XX	1*120	OT/120-12
GD880-51-0299-4-XX	1*150	OT/150-12
GD880-51-0349-4-XX	1*185	OT/185-12
GD880-51-0395-4-XX	2*120	OT/120-12
GD880-51-0516-4	2*150	OT/150-12
GD880-51-0639-4-XX	2*185	OT/185-12
GD880-51-0757-4-XX	2*240	OT/240-16
GD880-51-0900-4-XX	2*300	OT/300-16
GD880-51-0975-4-XX	2*300	OT/300-16
GD880-51-0062-6-XX	1*16	OT/16-6
GD880-51-0082-6-XX	1*25	OT/25-6
GD880-51-0099-6-XX	1*35	OT/35-6
GD880-51-0125-6-XX	1*50	OT/70-8

Model	Number of cables per phase*cable diameter (mm²)	Connection terminal
GD880-51-0144-6-XX	1*70	OT/70-8
GD880-51-0192-6-XX	1*120	OT/120-12
GD880-51-0217-6-XX	1*120	OT/120-12
GD880-51-0270-6-XX	1*150	OT/150-12
GD880-51-0340-6-XX	1*185	OT/185-12
GD880-51-0410-6-XX	2*120	OT/120-12
GD880-51-0530-6-XX	2*150	OT/150-12
GD880-51-0600-6-XX	2*185	OT/185-12
GD880-51-0650-6-XX	2*185	OT/185-12
GD880-51-0720-6-XX	2*240	OT/240-16

Note: In the Connection terminal column, OT/185-12 indicates that the cable is connected to a OT-type terminal, the matching cable diameter is 185mm², and the screw hole size is M12.

4.4.9 Electrical installation checklist

No.	Operation	Compliant	Completed
1	Checked the input and output power wiring and ensured the wiring positions and voltages were correct.		
2	Ensured that the input and output power wiring was correct and fastened.		
3	Ensured that the input and output power cable carrying capacity selection was correct.		
4	Ensured that routing the input and output power cables that were shielded complied with EMC regulations.		
5	Checked the external auxiliary power wiring and ensured the wiring positions and voltages are correct.		
6	The date of manufacture can be known from the inverter unit nameplate. If the interval to the first commissioning time or the power module downtime is less than 2 years, precharge for the DC bus capacitors is not needed; if the downtime is more than 2 years, precharge for the DC bus capacitors is needed. For details about precharge, see section 7.2.1 Capacitor.		
7	Routed the control power cables and power cables separately, complying with EMC regulations.		

5 Inverter Control Unit (ICU)

5.1 ICU composition

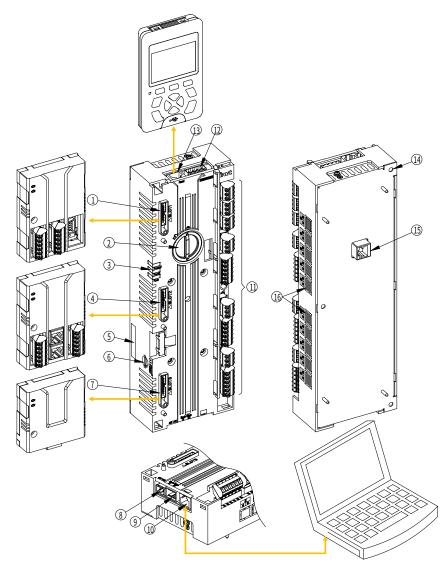


Table 5-1 Components

No.	Component	Function description			
1	Slot 1	Applied to 73.5×103×23.5(mm) function expansion modules and			
1	5101 1	communication expansion card			
2	Battery cover	Button battery replacement cover. The internal button battery is a non			
	plate	rechargeable lithium battery that needs to be replaced regularly.			
3	Indicator	Power supply, fault, running indicator			
	Slot 2	Applied to 73.5×103×23.5(mm) function expansion modules,			
4	5101.2	communication expansion card, and optical fiber expansion card			
5	Nameplate	Nameplate information			
6	SD card	Standard microSD memory card, flexible to plug and unplug, capacity:			
0	SD card	32GB			

No.	Component	Function description		
7	Clot 3	Applied to 73.5×74×23.5(mm) function expansion modules,		
1	Slot 3	communication expansion card, and optical fiber expansion card		
8	Power interface	24V power input terminal		
9	Fiber optic	Master/slave fiber enticiptorface		
9	interface	Master/slave fiber optic interface		
10	RJ45 terminal	Upper computer interface, connecting to a PC for status monitoring		
11	User terminal	Standard input and output terminals for users		
12	STO terminal	Safe Torque Off input		
13	RJ45 terminal	HMI, connecting to the SOP-880 keypad		
14	Fixed hole	ICU fixing holes (three holes)		
15	RJ45 terminal	Communication interface with power unit (inverter A1–A4, A6, A7 units)		
16	Fiber optic	[:h		
16	interface	Fiber optic communication interface with power unit (inverter A8 unit)		

5.2 LED indicator

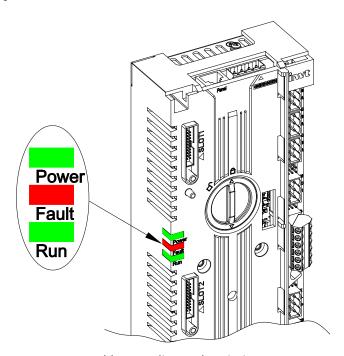


Table 5-2 Indicator description

No.	Name	State	Description	
1 POWER	DOWED ON		The ICU is properly powered.	
	OFF	OFF	The ICU is not powered or power failure occurs.	
2	Fault	E. J.	ON	The system is faulty.
		OFF	The system is normal.	
2	3 RUN	ON	The power module is running.	
3		OFF	The power module is stopped.	

5.3 ICU size and installation

5.3.1 Preparing

- Before installation, ensure the cabinet has been powered off (excluding external power) for at least 25 minutes.
- Prevent the ICU from falling or shock to avoid damage.
- Do not disassemble the ICU to avoid damage.
- Do not fasten with excessive torque; otherwise, terminals may be damaged.

5.3.1.1 Required tools

1# Phillips screwdriver may be required during installation.

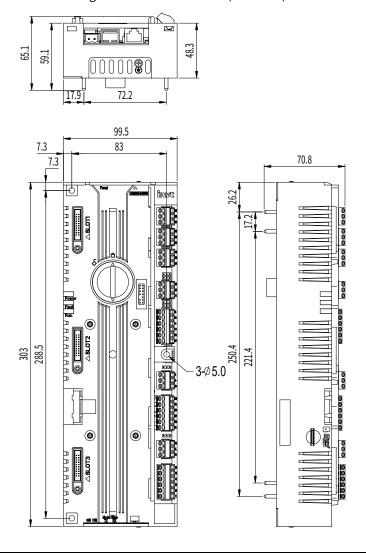
5.3.1.2 Fastening torque

Screws are used to install the ICU with fastening torque.

Screw	Fastening torque
M4	1.5N.m

5.3.2 ICU size

Figure 5-1 ICU dimensions (unit: mm)



5.3.3 ICU installation space

To make the ICU installation smooth, the distance between the upper and lower parts of the ICU and the building and its components should be left as shown in the following figure, and the ICU must be installed on a conductive metal plate, the entire conductive bottom of the ICU must properly work with the installation surface.

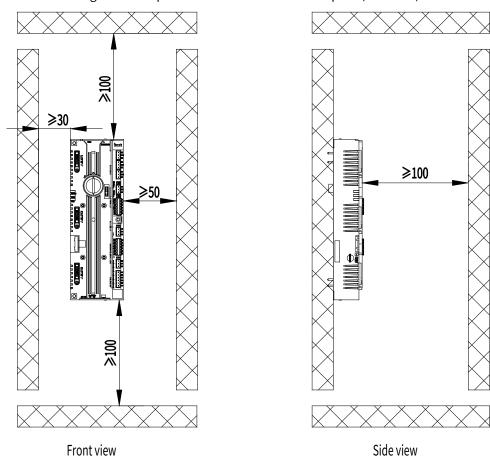
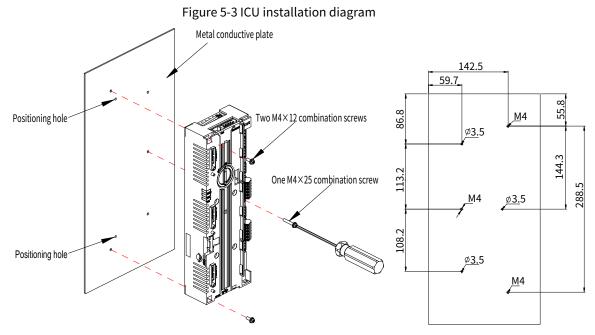


Figure 5-2 Requirements on ICU installation space (unit: mm)

5.3.4 ICU installation procedure

- Step 1 Place the ICU as shown in the figure.
- Step 2 Use 1# Phillips screwdriver to tighten the four M4 screws to fix the ICU to the metal plate as shown in Figure 5-3.



✓ Note:

- The ICU assembly plate must be a exposed metal plate and ensure that the metal plate can be reliably grounded.
- The ICU housing will be connected to the cabinet housing via a grounding plate.

5.4 ICU interface

+24V STO1 RJ45 Keypad RO3C RO3B Relay 3 output RO3A RO2C RO2B Relay 2 output RO2A SLOT1 RO1C RO1B Relay 1 output RO1A AO2 J7 AO1 J6 AO2 Analog output 0-10V/0-20mA GND AI2 J5 Al1 J4 AI2-Al2+ Analog input AI1--10V-10V/-20mA-20mA Al1+ +10V -10V 485 terminal OFF ON resistor J8 SLOT2 PE 485-RS485 485+ communication HDO2 -(iii) High-speed pulse output HDO1 СОМ HDI2 (11) High-speed pulse input HDI1 +24V SD card J10 COM PW +24V СОМ PW Digital input DIL D₹¥Ā DIL SLOT3 ======= Digital input 6 DI6 **⊅**₹₹ Digital input 5 DI5 **⊅**₹₹ Digital input 4 DI4 Digital input 3 DI3 **→** Digital input 2 DI2 **○**₹₹ Digital input 1 Master/ slave RJ45 Power fiber optic +24E CM TX RX

Figure 5-4 ICU circuit wiring

5.4.1 External standard interfaces

Terminal name	Terminal symbol	Description
Input power	24E, CM	Power supply for the control box
Digital input	DI1-DI6,DIL	Input type: relay contact, NPN or PNP
Digital power output	+24V, COM	Digital power, isolated from power input 24V
High-speed digital input	HDI1, HDI2	Input type: NPN or PNP
High-speed digital output	HDO1, HDO2	Output type: Open collector
Analog input	AI1, AI2	Input type: current or voltage, selected through the jumper
Analog output	AO1, AO2	Output type: current or voltage, selected through the jumper
Relay output	RO1, RO2, RO3	Contacts: NO, NC, common point
RS485 communication	485+, 485-	RS485 communication. The terminal resistor is selected through the jumper.
RJ45 terminal	RJ45 keypad	Communication interface with keypad
RJ45 terminal	RJ45 Ethernet	Ethernet communication with a PC

5.4.2 Detailed introduction to external interfaces

Two-core twisted-pair cable is recommended.
recommended.
0 1 1 0 5 0 5 2
Cross-sectional area: 0.5–2.5mm ²
Single-core wire
Cross-sectional area: 0.5–2.5mm²
Two same twinted main achie is
Two-core twisted-pair cable is
recommended. Cross-sectional area: 0.5–2.5mm ²
Cross-sectional area: 0.5–2.5111111

Jumper J10: power supply selection

When pin 1 and pin 2 are short-circuited, i.e. the PW and internal COM are connected, DI uses the internal power ground. If the external power supply is used, the shorting cap should be removed.

Analog output terminal

No.	Terminal symbol	Function description	Cable specifications		
1 2					
are con	nected, DI us	es the internal power. If the externa	l power supply is used, the		
shortin	g cap should	be removed.			
HDIO ter	minal				
1	+24V	1. Input type: PNP, NPN			
2	HDI1	2. Input frequency range: 0–50kHz	Two-core twisted-pair cable is		
3	HDI2	3. Input voltage range: 12–30V 4. Duty ratio: 30%–70%	recommended.		
4	СОМ	1. Output type: OC	Cross-sectional area: 0.5–2.5mm ² HDI and COM, HDO and COM use		
5	HDO1	2. Output frequency range: 0–50kHz	twisted-pair cables.		
6	HDO2	3. Max. output load: 20mA/30V 4. Duty ratio: 50%	timateu puir custesi		
RS485 cc	ommunication t	erminals			
1	485+	RS485 bus, standard 5V electrical level			
2	485-	Terminal resistor: 120Ω	Two-core twisted-pair cable is		
		Max. baud rate: 115200	recommended.		
3	PE	Max. number of nodes: 32 (without relay)	Cross-sectional area: 0.5–2.5mm ²		
Jumper .	J8: terminal res	istor selection			
1 2	When 1	and 2 are short-circuited, the termin	nal resistor is disconnected.		
		and 3 are short-circuited, the termir	nal resistor is connected.		
Analog ir	nput terminal				
1	-10V	Positive and negative 10V power supply	Cross-sectional area: 0.5–2.5mm ²		
2	+10V	Max. output current: 10mA	When two Als are used, use two		
3	AI1+	Current input: -20mA–20mA, Rin: 500Ω	two-core shielded twisted-pair		
4	AI1-	Voltage input: -10V–10V, Rin: 30kΩ	cables.		
5	Al2+	Differential input range: ±30V	When reference voltage is used,		
6	AI2-	Sampling interval: 0.1ms Resolution: 11 bit+signbit	use one four-core shielded twisted-pair cable for one AI.		
Jumper .	J4: Selection be	tween Al1 voltage and current signal inpu	uts		
1 2					
1 2					
Jumper .	J5: Selection be	tween AI2 voltage and current signal inpu	ıts		
1 2	1 2 3				
1 2	When 2 and 3 are short-circuited, Al2 voltage input is used.				

	Terminal				
No.	symbol	Function description	Cable specifications		
	AO1	AO output range:	Two-core twisted-pair cable is		
Analog	GND	0–20mA, Rload≤500Ω 0–10V, Rload≥10kΩ	recommended. Cross-sectional area: 0.5–2.5mm ²		
output	AO2	Resolution: 11 bit+signbit Accuracy: 2% of full scale range	AO1 and GND, AO2 and GND use twisted-pair cables.		
Jumper .	J6: Selection be	tween AO1 voltage and current signal out	puts		
1 2	When	1 and 2 are short-circuited, AO1 cur	rent output is used.		
1 2	When	2 and 3 are short-circuited, AO1 vol	tage output is used.		
Jumper .	J7: Selection be	tween AO2 voltage and current signal inp	uts		
1 2	When	1 and 2 are short-circuited, AO2 cur	rent output is used.		
1 2	When	2 and 3 are short-circuited, AO2 vol	tage output is used.		
Relay 1 c	utput terminal				
1	RO1A	Output type: passive NO and NC	Cinale sens wine		
2	RO1B	contacts	Single-core wire Cross-sectional area: 0.5–2.5mm ²		
3	RO1C	Contact parameters: 250Vac/30Vdc, 3A	Cross-sectional area: 0.5–2.5mm		
Relay 2 o	output terminal				
1	RO2A	Output type: passive NO and NC	C'arla array in		
2	RO2B	contacts	Single-core wire Cross-sectional area: 0.5–2.5mm ²		
3	RO2C	Contact parameters: 250Vac/30Vdc, 3A	Cross-sectional area. 0.3-2.5IIIII		
Relay 3 c	utput terminal				
1	RO3A	Output type: passive NO and NC	Single-core wire		
2	RO3B	contacts	Cross-sectional area: 0.5–2.5mm ²		
3	RO3C	Contact parameters: 250Vac/30Vdc, 3A	Cross-sectional area. 0.3-2.3mm		
Master/s	lave fiber optic				
1	TX	Transmitting optical fiber communication	Dedicated fiber optic cable		
2	RX	Receiving optical fiber communication			
Safe torque off terminal					
1	STO1	Inverter module STO input	Four care shielded twisted as:		
2	+24V	They has been short connected before	Four-core shielded twisted-pair cable		
3	STO2	delivery by default.	Cross-sectional area: 0.5–2.5mm ²		
4	+24V	Cross-sectional area: 0.5–2.5			
RJ45 keypad					
1	RJ45	Connected to SOP-880-01 keypad	Standard shielded network cable		
RJ45 Eth	ernet				
1	RJ45	Ethernet communication with a PC	Standard shielded network cable		

5.5 ICU function application

5.5.1 Function module

ICU can be used with other function modules to achieve corresponding functions, as shown in the following table.

No.	Name	Model	Function	Connect with ICU through	Dimensions (W×H×D) (unit: mm)
	Facedon	EC-PG805-05	TTL incremental encoder signal detection	SLOT	73.5×103×23.5
1	Encoder detection module	EC-PG805-24	HTL incremental encoder signal detection	SLOT	73.5×103×23.5
	module	EC-PG804	Resolver encoders signal detection	SLOT	73.5×103×23.5
2	Input/output module	EC-IO801	Two Als Two AOs Three DIs 1 relay outputs	SLOT	73.5×103×23.5
3	PROFINET IO module	EC-TX809	PROFINET IO industrial Ethernet	SLOT	73.5×74×23.5
4	PROFIBUSDP module	EC-TX803	PROFIBUS-DP bus adapter	SLOT	73.5×74×23.5
5	CAN bus module	EC-TX805	CANopen bus adapter	SLOT	73.5×74×23.5
	Optical fiber	EC-TX821	One 50M expansion optical fiber	SLOT	73.5×74×23.5
6	expansion module	EC-TX823	Three 50M expansion optical fibers	SLOT	73.5×74×23.5
7	SLOT expansion module	I-ESM-30	SLOT expansion module	Fiber optic	99.5×303×65
8	Voltage	I-VDM-10	AC voltage detection module	Fiber optic	37.4×180×113
8	detection module	I-VDM-20	DC voltage detection module	Fiber optic	37.4×180×113
9	Intelligent operation keypad	SOP-880-01	Human-machine interface keypad	RS422	74×121.5×26

Note:

- EC-TX823 and EC-TX821 can only be inserted in SLOT2 or SLOT3.
- It is recommended to install the EC-PG805 card in SLOT1.
- It is recommended to install the EC-TX803 card in SLOT3.

5.5.2 SLOT expansion application

The ICU can cooperate with different functional modules, which are directly installed on the SLOT card slot of the ICU, as shown in the following figure.

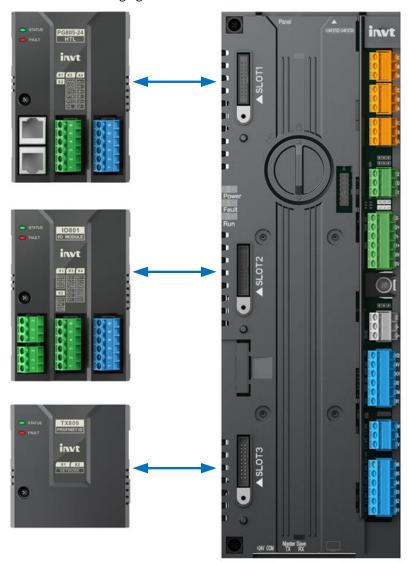


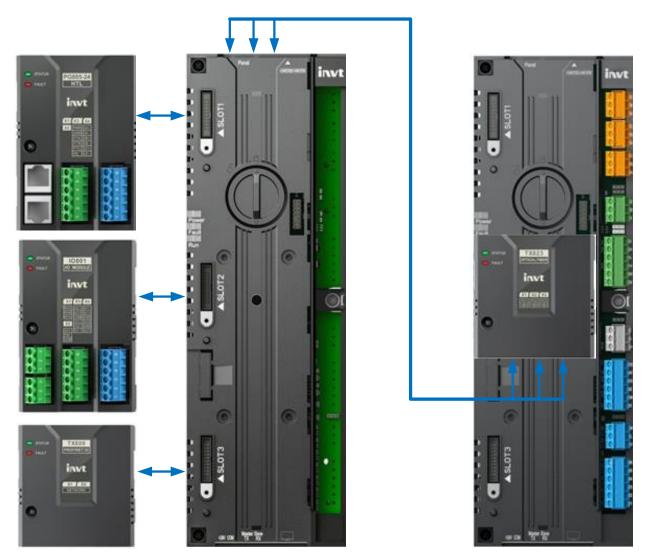
Table 5-3 Expansion card installation description

Expansion card	SLOT1	SLOT2	SLOT3	Expansion card type	
EC-TX803			√	PROFIBUS-DP	
EC-TX805	√	>	√	CANopen	
EC-TX809			√	PROFINET IO	
EC-TX821			✓	Expansion module with one optical fiber interface	
EC-TX823			√	Expansion module with three optical fiber interfaces	
EC-PG805-05	√	>		TTL PG card	
EC-PG805-24	√	>		HTL PG card	
EC-PG804	√	√		Resolver PG card	
EC-IO801	√	√		IO expansion card	

✓Note:

- When SLOT2 is empty, EC-TX803 and EC-TX809 can be installed in SLOT1.
- EC-TX821 and EC-TX823 can only be inserted in SLOT2 or SLOT3.

The ICU has three SLOT card slots. When more modules are needed, install the fiber optic expansion module EC-TX823 and SLOT expansion module I-ESM-30. Each SLOT expansion module can expand three functional modules, as shown in the following figure.



∠Note:

- SLOT1, SLOT2, and SLOT3 card slots can hold function modules, with addresses for expansion card slots 1, 2, and 3, respectively.
- SLOT2 and SLOT3 card slots can be extended to up to 6 expansion modules through the cooperation of fiber optic expansion module EC-TX823 and SLOT expansion module I-ESM-30. The addresses are SLOT2-1, SLOT2-2, SLOT2-3, and SLOT3-1, SLOT3-2, and SLOT3-3, respectively.
- The SLOT1 card slot has no expansion function, which means it does not support the EC-TX823 module.
- The SLOT expansion module I-ESM-30 does not support the installation of the EC-TX823 fiber expansion module.

6 Accessories

6.1 Function expansion module

For details about function expansion module, see section 5.5.1 Function expansion module.

6.2 BUB precharge module

The BUB precharge module is an optional accessory for GD880-51 inverter products to realize the power-on precharge function. The module is equipped with a built-in switch power supply for auxiliary power supply, input DC voltage detection, and precharge relay on-off control.

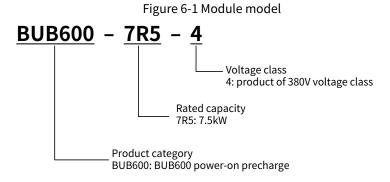


Table 6-1 Precharge product model and ratings

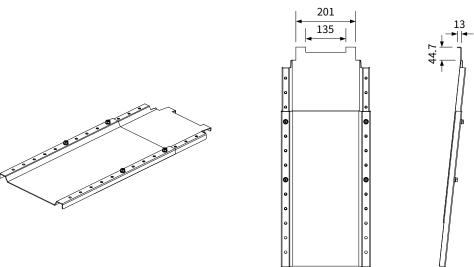
Frame	Model	Rated capacity (kW)	Rated DC input/output current (A)	Applicable inverter
A1i	BUB600-7R5-4	7.5	19	GD880-51-0009~0023-4
A2i-A3i	BUB600-037-4	37	79	GD880-51-0033~0094-4
A4i	BUB600-075-4	75	160	GD880-51-0116~0183-4
A8	BUB800-0900-4	250-560	632-1194	GD880-51-0516~0975-4
2*A8	BUB800-1770-4	630-1100	1486-2269	GD880-51-1213~1852-4
A8	BUB800-0900-6	400-710	502-882	GD880-51-0410~0720-6
2*A8	BUB800-1770-6	800-1300	954–1676	GD880-51-0779~1368-6

For details, see the manual of BUB series precharge unit.

6.3 A8i installation guide rail and A8n, A8L2 installation and maintenance bracket

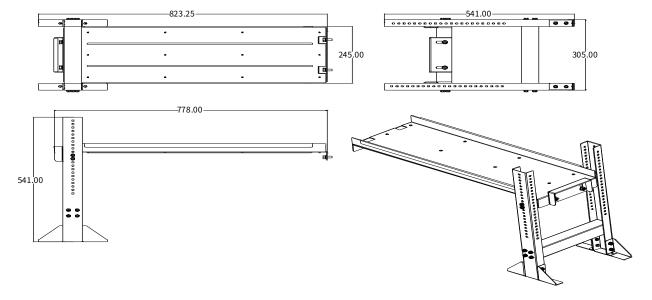
When installing or maintaining the A8i inverter unit in a cabinet, to make it convenient for the inverter module to enter or exit the cabinet, it is necessary to use the inverter unit installation guide rail. The operation method is shown in section 3.3.5 Installation.

Figure 6-2 Installation rail dimensions (unit: mm)



When installing or maintaining the A8n and A8L2 inverter units in a cabinet, to make it convenient for the inverter module to enter or exit the cabinet, it is necessary to use the inverter unit installation maintenance bracket. The installation and maintenance bracket is shown in the following figure, and the operation method is shown in section 7.2.4 Inverter unit.

Figure 6-3 Installation and maintenance bracket dimensions (unit: mm)



7 Maintenance and inspection

7.1 Periodical inspection

7.1.1 Overview

Only trained and qualified professionals are allowed to maintain the equipment.

Before operating the interior of the equipment:

- Disconnect the power to the equipment.
- Wait 25 minutes for the DC circuit capacitor to discharge.
- Ensure that the DC bus voltage is lower than 36V.

✓ Note: No switch/breaker installed in the cabinet can disconnect the power to the equipment.

7.1.2 Required tools

These tools are used to remove and install devices, screws, and other components during maintenance and repair.

- A set of torque wrench or sleeve
- A set of open end wrench or sleeve
- A set of hexagonal wrench
- A medium-sized straight screwdriver and a small-sized straight screwdriver
- A medium-sized cross screwdriver
- Cart

Table 7-1 Screw thread tightening torque (Fastener grade: 4.8; unit: N • m)

Screw thread specification	Copper bar connection	Metal sheet connection
M5	3	2
M6	4.5	3
M8	11	8.5
M10	22	16.4
M12	39	28.5
M16	98	71

7.1.3 Maintenance cycle

Little maintenance is required when the inverter unit is installed in an environment that meets requirements. The following table describes the routine maintenance periods recommended by us.

Maintenance cycle	Maintenance work description
Once per 6–12 months (based on the site	Charles according to the fall assign table
installation environment)	Check according to the following table
Once per 6–12 months (based on the site	Heat sink increation and alconing
installation environment)	Heat sink inspection and cleaning
Once per year (stored without use)	Capacitor aging
Once per year	Air filter check. Replace it when necessary.
Every 6 years	Replace the fans for the filter and power units.
Every 10 years	Capacitor replacement

Little maintenance is required when the inverter unit is installed in an environment that meets requirements. The following table describes the routine maintenance periods recommended by INVT.

Chec	k scope	Item	Method	Criterion
Ambient environment		Check the temperature, and humidity, and whether there is vibration, dust, gas, oil spray, and water droplets in the environment.	and use instruments	· ·
		Check whether there are foreign matters, such as tools, or dangerous substances placed nearby.	Visual inspection	There are no tools or dangerous substances placed nearby.
Vo	oltage	Check the voltage of the main circuit and control circuit.	Use multimeters or other instruments for measurement.	Comply with the requirements stated in this manual. (Do not use a multimeter to measure the bus voltage.)
		Check the display of information.	Visual inspection	The characters are displayed properly.
K€	eypad	Check whether characters are not completely displayed.	Visual inspection	The requirements stated in this manual are met.
		Check whether the bolts loose or come off.	Screw them up.	No exception occurs.
	Common	Check whether the machine is deformed, cracked, or damaged, or their color changes due to overheating and aging.	Visual inspection	No exception occurs.
Main		Check whether there are stains and dust attached.	Visual inspection	No exception occurs. Note: Discoloration of copper bars does not mean that they cannot work properly.
circuit	Conductor	Check whether conductors are deformed or color change for overheat.	Visual inspection	No exception occurs.
	and wire	Check whether the wire sheaths are cracked or their color changes.	Visual inspection	No exception occurs.
	Terminal block	Check whether there is damage.	Visual inspection	No exception occurs.
	Reactor	Check whether there is unusual vibration sounds or smells.	Auditory, olfactory, and visual inspection	No exception occurs.
Control	Control PCB and	Check whether the screws and connectors loose.	Screw them up.	No exception occurs.
circuit	connector	Check whether there is unusual smell or discoloration.	Olfactory and visual inspection	No exception occurs.

Check scope		Item	Method	Criterion
		Check whether there are cracks, damage, deformation, or rust.	Visual inspection	No exception occurs.
		Check whether there is electrolyte leakage or deformation.	Visual inspection, and determine the service life based on the maintenance information.	No exception occurs.
		Check whether there are unusual sounds or vibration.	Auditory and visual inspection, and turn the fan blades with your hand.	
Cooling system	1	Check whether the bolts loose. Check whether there is decoloration caused due to overheat. Check whether there is dust.	Screw them up. Visual inspection, and determine the service life based on the maintenance information.	No exception occurs. No exception occurs.
	Ventilation duct	Check whether there are foreign matters blocking or attached to the cooling fan, air inlets, or air outlets. Check whether there are foreign objects attached.	Visual inspection	No exception occurs.

For more details about maintenance, contact the local INVT office, or visit our website www.invt.com, and choose **Support** > **Services**.

7.2 Replacement of wearing parts

7.2.1 Capacitor

7.2.1.1 Capacitor reforming

If the inverter unit has been left unused for a long time, you need to follow the instructions to reform the DC bus capacitor before using it. The storage time is calculated from the date the VFD is delivered.

Storage time	Operation principle		
Less than 1 year	No charging operation is required.		
1 to 2 years	The inverter unit needs to be powered on for 1 hour before the first running		
1 to 2 years	command.		
	Use a voltage controlled power supply to charge the inverter unit:		
	Charge the VFD at 25% of the rated voltage for 30 minutes,		
2 to 3 years	• and then charge it at 50% of the rated voltage for 30 minutes,		
	• at 75% for another 30 minutes,		
	● and finally charge it at 100% of the rated voltage for 30 minutes.		
	Use a voltage controlled power supply to charge the inverter unit:		
More than 3	● Charge the VFD at 25% of the rated voltage for 2 hours,		
	● and then charge it at 50% of the rated voltage for 2 hours,		
years	• at 75% for another 2 hours,		
	● and finally charge it at 100% of the rated voltage for 2 hours.		

The method for using a voltage controlled power supply to charge the inverter unit is described as follows:

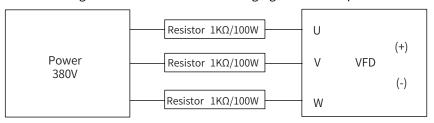
For inverter units of a high voltage class, ensure that the voltage requirement (for example, 380 V) is met during charging. Capacitor changing requires little current, and therefore you can use a small-capacity power supply (2 A is sufficient).

The method for using a resistor (incandescent lamp) to charge the inverter unit is described as follows:

If you directly connect the drive device to a power supply to charge the DC bus capacitor, it needs to be charged for a minimum of 60 minutes. The charging operation must be performed at a normal indoor temperature without load, and you must connect a resistor in series mode in the 3PH circuit of the power supply.

For a 380V drive device, use a resistor of 1 $k\Omega/100W$. If the voltage of the power supply is no higher than 380 V, you can also use an incandescent lamp of 100W. If an incandescent lamp is used, it may go off or the light may become very weak.

Figure 7-1 380V drive device charging circuit example



7.2.1.2 Electrolytic capacitor replacement

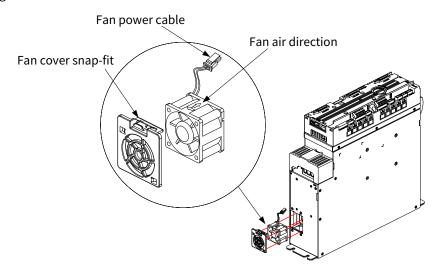


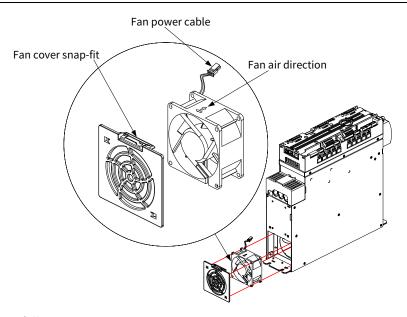
 Read chapter 1 Safety precautions carefully and follow the instructions to perform operations. Ignoring these safety precautions may lead to physical injury or death, or device damage.

When the electrolytic capacitor in the inverter unit is used for more than 70000 hours (8 years) at an ambient temperature of 30°C and a load rate of less than 70%, it must be replaced. The actual service life is related to the load rate and the ambient temperature. For details about the replacement, contact the local INVT office.

7.2.2 Cooling fan

1. Replacing the fan for A1i-A3i

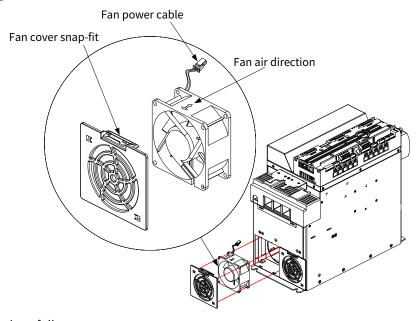




The procedure is as follows:

- Step 1 Disconnect the DC power supply of the drive system and check to ensure there is no voltage in the equipment.
- Step 2 Press and hold the snap-fits of the fan cover, and remove the fan cover.
- Step 3 Pull the fan out slowly and unplug the fan power cord plug to complete the fan disassembly.
- Step 4 Install the new fan in the reverse order of the disassembly steps.

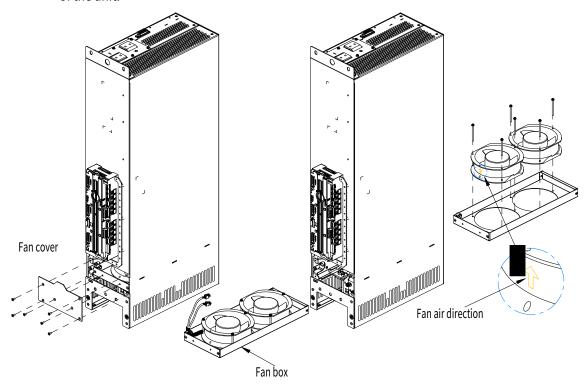
2. Replacing the fan for A4i



The procedure is as follows:

- Step 1 Disconnect the DC power supply of the drive system and check to ensure there is no voltage in the equipment.
- Step 2 Press and hold the snap-fits of the fan cover, and remove the fan cover.
- Step 3 Pull the fan out slowly and unplug the fan power cord plug to complete the fan disassembly.
- Step 4 Install the new fan in the reverse order of the disassembly steps.
- 3. Replacing the fan for A6i&A7i

- Step 1 Stop the unit, disconnect the AC power supply, and wait for a time no shorter than the waiting time designated on the unit.
- Step 2 Remove the fan module front cover from the unit housing.
- Step 3 Remove the fan module connection cable.
- Step 4 Pull out the fan box and remove the fan with a screwdriver.
- Step 5 Install a new fan in the fan box. Insert the fan module connection cable to the connector in reverse sequence. Install the front cover plate. Ensure that the air direction of the fan is consistent with that of the unit.



Step 6 Connect to the power.

4. Replacing the fan for A8i/A8n

The service life of the cooling fan of the inverter unit is more than 45000 hours (5 years). The actual service life of the cooling fan is related to the use of the unit and the temperature in the working environment.

You can view the running duration of the inverter unit through P07.14 (Accumulated running time).

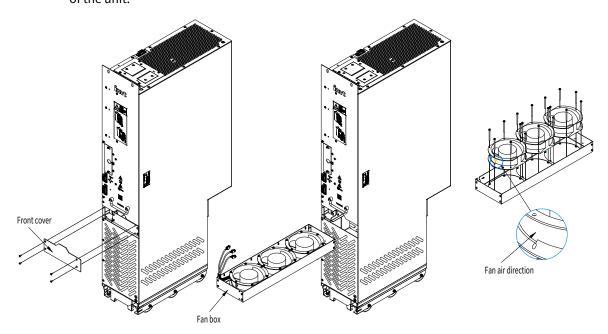
The increase of the bearing noise indicates a fan fault. If the unit is applied in a key position, replace the fan once the fan starts to generate unusual noise. We offer spares of fans.

Cooling fan replacement:



- Read chapter 1 Safety precautions carefully and follow the instructions to perform operations. Ignoring these safety precautions may lead to physical injury or death, or device damage.
- Step 1 Stop the unit, disconnect the AC power supply, and wait for a time no shorter than the waiting time designated on the unit.
- Step 2 Remove the fan module front cover from the unit housing.
- Step 3 Remove the fan module connection cable.
- Step 4 Pull out the fan box and remove the fan with a screwdriver.

Step 5 Install a new fan in the fan box. Insert the fan module connection cable to the connector in reverse sequence. Install the front cover plate. Ensure that the air direction of the fan is consistent with that of the unit.



Step 6 Connect to the power.

7.2.3 DC fuse



Only qualified electricians can perform this task. Read all the safety precautions.
 Ignoring these safety precautions may lead to physical injury or death, or device damage.

To check and replace the DC fuse of an A8i inverter unit, do as follows:

- Step 1 Stop the unit, disconnect the AC power supply, and wait for a time no shorter than the waiting time designated on the unit.
- Step 2 Remove the screws of the protective cover plate of the unit DC fuse and remove the cover plate.
- Step 3 Remove the copper bar fixing screws of the DC fuse assembly and remove the DC fuse assembly.
- Step 4 Check the condition of the fuse and replace it as needed. When replacing it, install the new fuse and copper bar as an assembly and tighten the screws according to the tightening torque table.
- Step 5 Install the protective cover and close the cabinet door.
- Step 6 Connect to the power.

7.2.4 Inverter unit

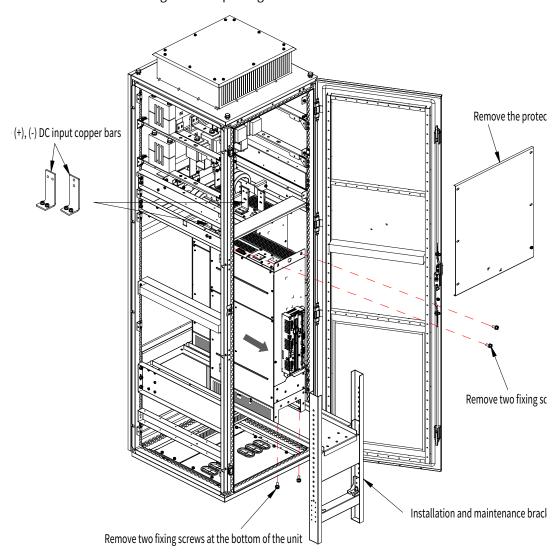
1. Replacing the A6i&A7i inverter units

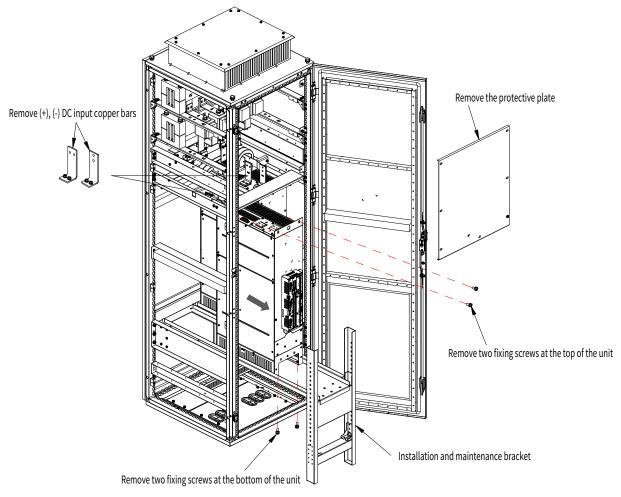
To replace the inverter unit, do as follows:

- Step 1 Stop the machine and disconnect the AC power.
- Step 2 Open the cabinet door and check to ensure there is no voltage in the equipment.
- Step 3 Remove the protective plate and disconnect the external connection cables of the inverter unit.
- Step 4 Disconnect the (+) and (-) DC output copper bars.
- Step 5 Mount the unit maintenance bracket.
- Step 6 Remove the (four M8) fixing screws from the top and bottom of the inverter unit.

- Step 7 Pull the inverter unit to the maintenance bracket until it can be lifted or removed.
- Step 8 Install the new inverter unit.

Figure 7-2 Replacing the A6i&A7i inverter units



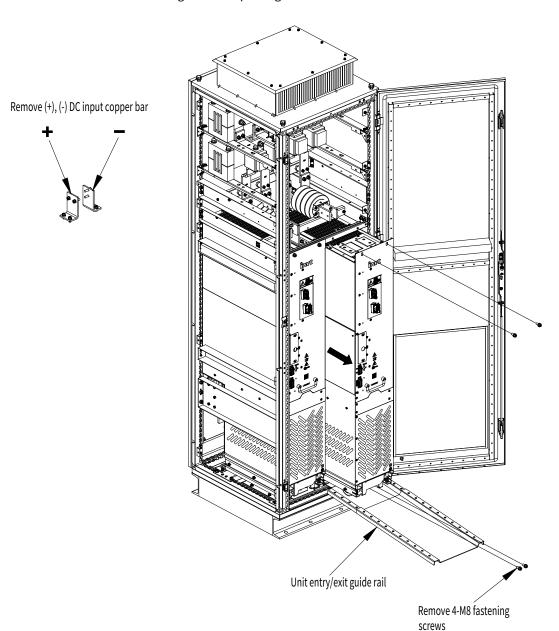


2. Replacing A8i inverter unit

To replace the inverter unit, do as follows:

- Step 1 Stop the machine and disconnect the AC power.
- Step 2 Open the cabinet door and check to ensure there is no voltage in the equipment.
- Step 3 Disconnect the external connection cables of the inverter unit.
- Step 4 Disconnect the (+) and (-) DC output copper bars.
- Step 5 Install the unit entry/exit guide rail.
- Step 6 Remove the (four M8) fixing screws from the top and bottom of the inverter unit.
- Step 7 Pull the inverter unit and unfold the anti-tipping stand.
- Step 8 Install the new inverter unit according to the steps in section 3.3.5.9 Unit installation and replacement.

Figure 7-3 Replacing the A8i inverter unit



3. Replacing A8n inverter unit

- Step 1 Stop the machine and disconnect the AC power.
- Step 2 Open the cabinet door and check to ensure there is no voltage in the equipment.
- Step 3 Remove the protective plate in the cabinet.
- Step 4 Disconnect the external connection cables of the inverter unit.
- Step 5 Disconnect the (+) and (-) DC input copper bars.
- Step 6 Remove the screws connecting the copper bar between the reactor base and the unit (six M6*25 screws in total).
- Step 7 Mount the maintenance bracket.
- Step 8 Pull the inverter unit to the maintenance bracket until it can be lifted or removed.
- Step 9 Install the new inverter unit.

Remove (+), (-) DC input copper bar

Remove two fixing screws at the top of the unit

Remove two fixing screws at the top of the unit

Remove two six M6*25 screws connecting the copper bar between the reactor base and the unit.

Figure 7-4 Replacing the A8n inverter unit

Installation and maintenance bracket

Figure 7-5 Installation and maintenance bracket diagram

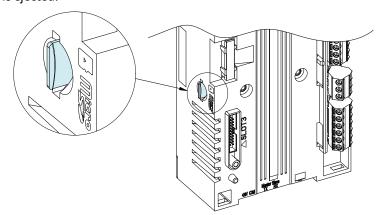
7.2.5 ICU

1. Replace the storage card.

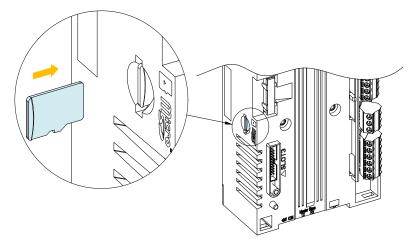
After the ICU control module is replaced, the existing parameter settings can be preserved by transferring the storage card from the faulty module to a new module.

The procedure is as follows:

Step 1 Press the SD storage card once, and pull the SD storage card out from the faulty module after the SD card is ejected.



Step 2 Insert and push the SD card into the card holder of the new module in the direction shown in the figure.

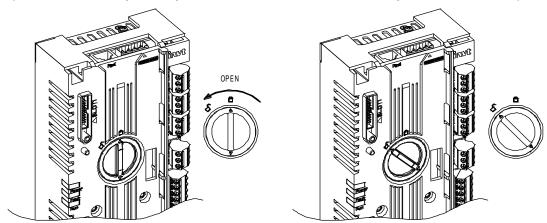


Step 3 Ensure that the SD storage card is pushed into place. Otherwise, abnormalities may occur due to poor contact.

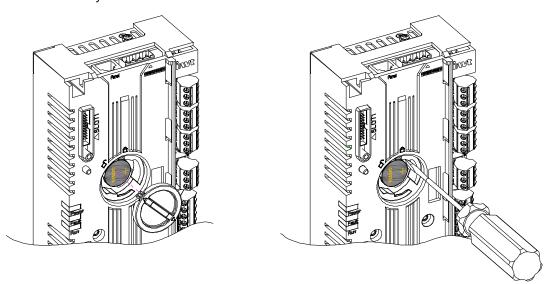
2. Replace the ICU battery.

The procedure is as follows:

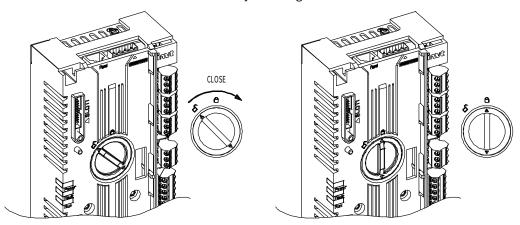
Step 1 Hold the battery cover by hand and rotate it counterclockwise by 45° until the cover opens.



Step 2 Remove the cover, press one side of the battery with a screwdriver, remove and replace the ICU module battery with a new one.



Step 3 Close the cover and rotate it clockwise by 45° to tighten it.

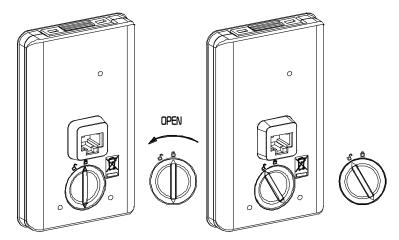


Step 4 Dispose of waste batteries in accordance with local disposal rules or applicable laws.

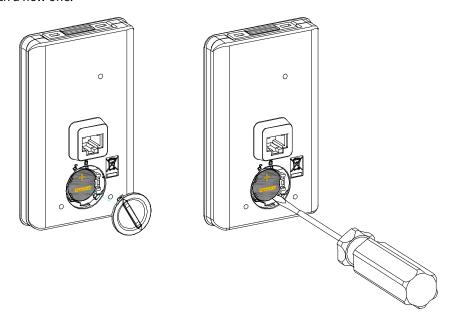
3. Replace the SOP battery.

The procedure is as follows:

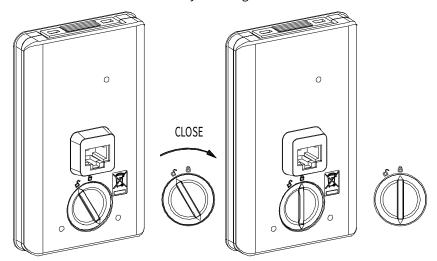
Step 1 Rotate the battery cover counterclockwise by 30° by hand until the cover opens.



Step 2 Remove the cover, press one side of the battery with a screwdriver, remove and replace the battery with a new one.



Step 3 Close the cover and rotate it clockwise by 30° to tighten it.



Step 4 Dispose of waste batteries in accordance with local disposal rules or applicable laws.

7.3 Warranty description

Goodrive880 series is warranted for 24 months from the date of shipment from INVT.

Repair or replacement of parts during the warranty period does not affect the warranty period of the original product as a whole. If the warranty period of the original product is less than 3 months, the repaired or replaced parts will still enjoy the 3-month warranty period.

- 1. Product faults caused by the following reasons are not covered by the manufacturer's 24-month free warranty service commitment.
- 1) Failure to follow the correct procedures listed in the manual
- 2) Product faults caused by unauthorized repair or modification on the product without communication with the manufacturer
- 3) Product faults caused by the application out of the standard application scope
- 4) Abnormal product component aging or faults caused by improper application environments
- 5) Product damage due to force majeure causes such as earthquake, fire, wind and water disaster, lightning strike, abnormal voltage or other natural disasters
- 6) Product wear and tear due to product falling or external force application caused by improper transport method (the transport method is customer selected; the manufacturer assists in the consignment procedures).
- 2. The manufacturer has the right not to provide warranty service in the following cases:
- 1) The brand, trademark, serial number, nameplate and other identification marked by the manufacturer in the product is destroyed or illegible.
- 2) The customer does not pay for the goods in accordance with the Purchase and Sales Contract signed by both parties.
- 3) The customer intentionally conceals the improper product use in installation, wiring, operation, maintenance or other processes from the manufacturer's after-sales service provider.

See the Product Warranty Card for detailed warranty instructions.

Appendix A Technical data

A.1 Capacity

Choose a inverter model based on the rated current and power of the motor. To endure the rated power of the motor, the rated output current of the inverter must be larger or equal to the rated current of the motor. The rated power of the inverter must be higher or equal to that of the motor.

✓ Note:

- The maximum allowable shaft power of the motor is limited to 1.5 times the rated power of the motor. If the limit is exceeded, the inverter unit automatically restricts the torque and current of the motor. This function effectively protects the input shaft against overload.
- The rated capacity is the capacity at the ambient temperature of 40°C.
- You need to check and ensure that the power flowing through the common DC connection in the common DC system does not exceed the rated power of the motor.

A.2 Grid specifications

Crid voltage	AC 3PH 380V(-10%)-440V(+10%), -15%<1min
Grid voltage	AC 3PH 520V(-10%)-690V(+10%), -15%<1min
	According to the definition in IEC61439-1, the maximum allowable short-circuit
Short-circuit	current at the incoming end is 100kA.
capacity	Therefore, the inverter is applicable to scenarios where the transmitted current in the
	circuit is no larger than 100kA when the inverter runs at the maximum rated voltage.
Frequency	50/60 Hz±5%, with a maximum change rate of 20%/s

A.3 Application standards

The following table describes the standards that our inverters comply with.

EN/ISO 13849-1	Safety of machinery—Safety-related parts of control systems—Part 1: General
	principles for design
IEC/EN 60204-1	Safety of machinery. Electrical equipment of machines. Part 1: General
	requirements
IEC/EN 62061	Safety of machinery—Safety-related functional safety of electrical, electronic,
	and programmable electronic control systems
IEC/EN 61800-3	Adjustable speed electrical power drive systems. Part 3: EMC requirements and
	specific test methods
IEC/EN 61800-5-1	Adjustable speed electrical power drive systems—Part 5-1: Safety
	requirements—Electrical, thermal and energy
IEC/EN 61800-5-2	Adjustable speed electrical power drive systems—Part 5-2: Safety
	requirements—Function
GB/T 30844.1-2014	General-purpose variable-frequency adjustable-speed equipment of 1 kV and
	lower—Part 1: Technical conditions
GB/T 30844.2-2014	General-purpose variable-frequency adjustable-speed equipment of 1 kV and
	lower—Part 2: Test methods
GB/T 30844.3-2017	General-purpose variable-frequency adjustable-speed equipment of 1 kV and
	lower—Part 3: Safety requirements

A.3.1 CE marking

The CE marking on the product nameplate indicates that the inverter is CE-compliant, meeting the regulations of the European low-voltage directive (2014/35/EU) and EMC directive (2014/30/EU).

A.3.2 EMC compliance declaration

European union (EU) stipulates that the electric and electrical devices sold in Europe cannot generate electromagnetic disturbance that exceeds the limits stipulated in related standards, and can work properly in environments with certain electromagnetic interference. The EMC product standard (EN 61800-3) describes the EMC standards and specific test methods for adjustable speed electrical power drive systems. Our products have been compliant with these regulations.

A.4 EMC regulations

The EMC product standard (EN 61800-3) describes the EMC requirements on inverter products.

Application environment categories:

First environment: Civilian environment, including application scenarios where VFDs are directly connected to the civil power supply low-voltage grids without intermediate transformers.

Second environment: All locations outside a residential area.

Inverter unit categories:

Category C1: Inverter of rated voltage lower than 1000V, applied to the first environment.

Category C2: Rated voltage lower than 1000V, non-plug, socket, or mobile devices; power drive systems that must be installed and operated by specialized personnel when applied to the first environment.

Note: The EMC standard IEC/EN 61800-3 no longer restricts the power distribution of inverter units, but it specifies their use, installation, and commissioning. Specialized personnel or organizations must have the necessary skills (including the EMC-related knowledge) for installing and/or performing commissioning on the electrical drive systems.

Category C3: Inverter of rated voltage lower than 1000 V, applied to the second environment. They cannot be applied to the first environment.

Category C4: Inverter of rated voltage higher than 1000V, or rated current higher or equal to 400A, applied to complex systems in the second environment.

A.4.1 VFD category of C2

The induction disturbance limit meets the following stipulations:

- 1. Select the motor and control cables according to the description in the manual.
- 2. Install the inverter unit according to the description in the manual.



The product may generate radio interference, you need to take measures to reduce the interference.

A.4.2 VFD category of C3

The anti-interference performance of the inverter unit meets the requirements of the second environment in the IEC/EN 61800-3 standard.

The induction disturbance limit meets the following stipulations:

- 1. Select the motor and control cables according to the description in the manual.
- 2. Install the inverter unit according to the description in the manual.



Inverters of category C3 cannot be applied to civilian low-voltage common grids. When applied to such grids, the inverter may generate radio frequency electromagnetic interference.

Appendix B Dimension drawings

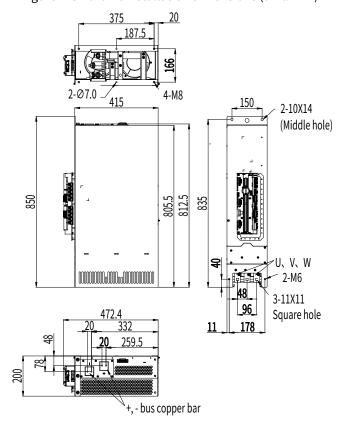
Hole positions at the back

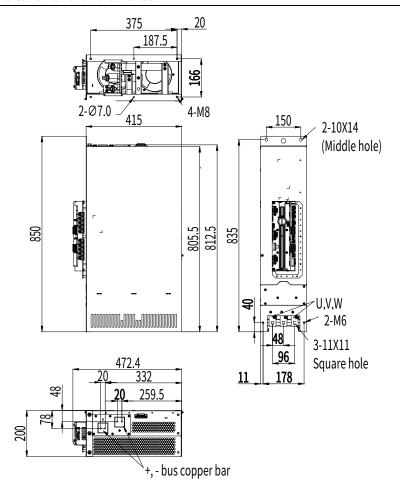
Figure B-1 A1i-A3i structure dimensions (unit: mm)

436
436
407
150
Hole positions at the back

Figure B-2 A4i structure dimensions (unit: mm)



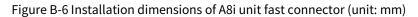


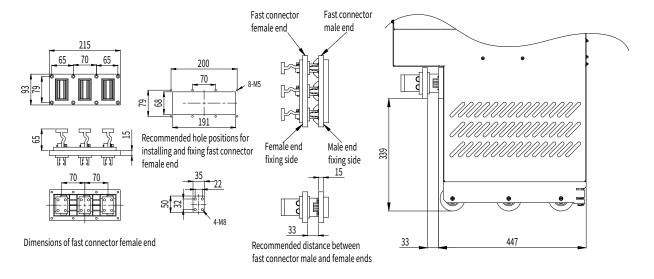


375 20 187.5 4-M8 150 2-10X14 (Middle hole) 935 942 964.5 8 2-M6 96_ 3-13X13 463.3 Square hole 332 <u>11</u> 178 259.5 √+, - bus

Figure B-4 A7i unit installation dimensions (unit: mm)

Figure B-5 A8i unit installation dimensions (unit: mm)





4-M6 461 70 (Side fixing hole) 8 3-017 437 000000000 352 228.5 34.5 2-M8 586.5 248 197 6-09.0 200 41 110 210

Figure B-7 Layout of 1*A8i frame bottom support

4-012 (anchor bolt fixing hole during transportation) 550 570 4-Ø20 525 600 (Lifting hole) ~2-OB12X22 1383 605 (Effective overlap area of copper bars) 4-M8 ⊕ 8 **(P)** 12.5 18.5 84.5±2 _323.5±2

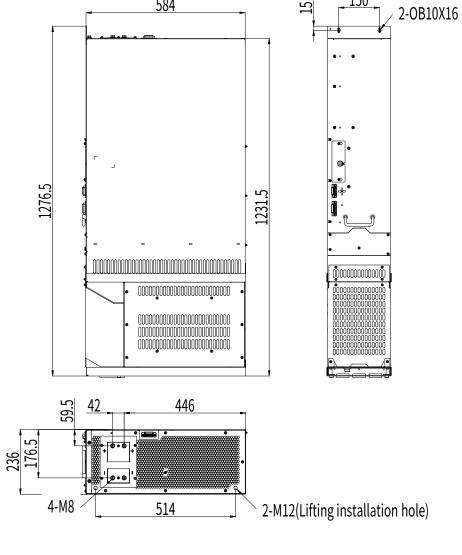
Figure B-8 2*A8i frame installation dimensions (unit: mm)

569 550 4-011 (Anchor bolt fixing hole during transportation) 4-Ø12 (Frame bottom fixing hole)
4-Ø20 764 -2-OB12X22 (Lifting hole) 1383 1358 Δ 844 627 (Effective overlap area of copper bars) (Effective overlap area of copper bars) 4-M8 ☻ **④ (** 84.5±2 323.5±2 562.5±2

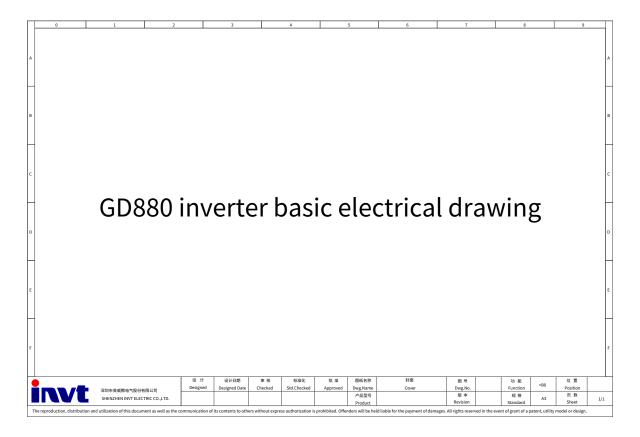
Figure B-9 3*A8i frame installation dimensions (unit: mm)

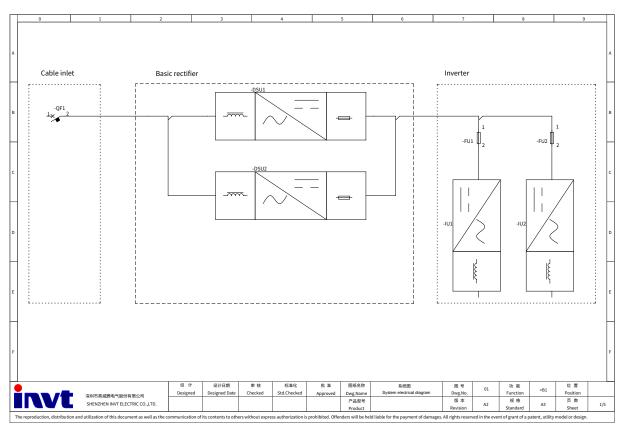
540.5 4-OB9X14 -2-Ø9 0000000 0000000 0000000 0000000 584

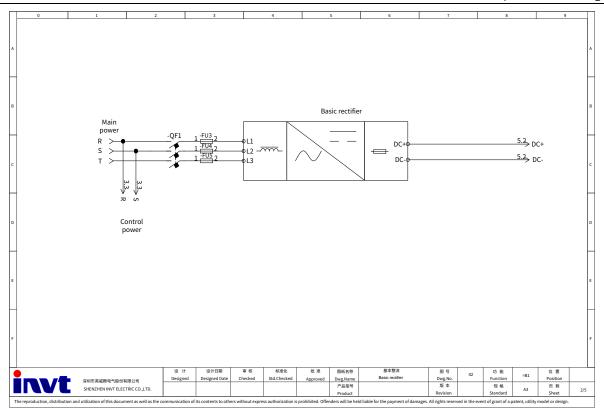
Figure B-10 A8n installation dimensions (unit: mm)

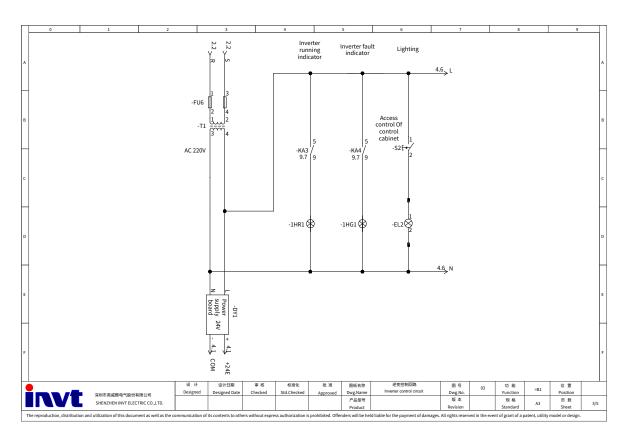


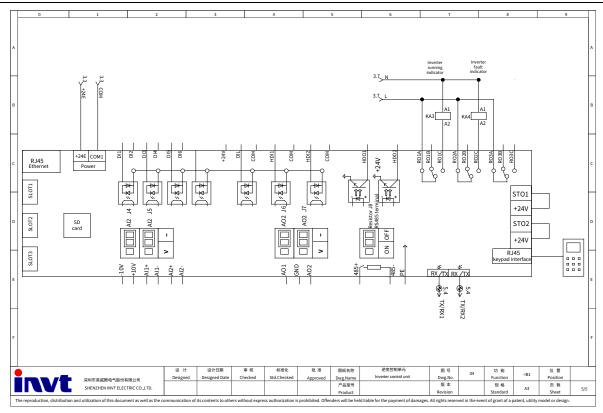
Appendix C Example electrical diagram

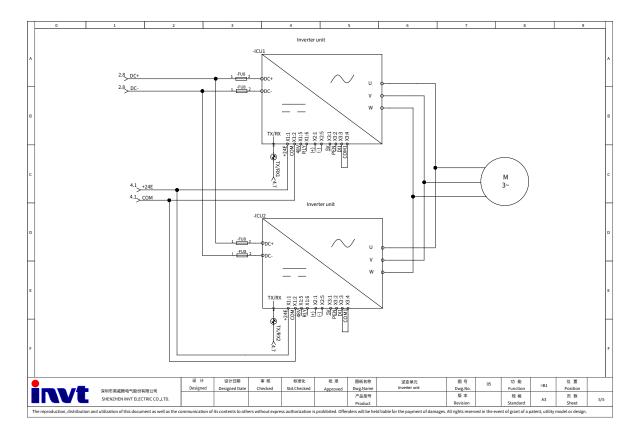












Appendix D Order No. list

Product model	Structure	Order No.	Qty	Remarks
GD880-51-0009-4	A1i	GD880-51-0009-4	1	Inverter module
GD880-51-0013-4	A1i	GD880-51-0013-4	1	Inverter module
GD880-51-0017-4	A1i	GD880-51-0017-4	1	Inverter module
GD880-51-0023-4	A1i	GD880-51-0023-4	1	Inverter module
GD880-51-0033-4	A2i	GD880-51-0033-4	1	Inverter module
GD880-51-0038-4	A2i	GD880-51-0038-4	1	Inverter module
GD880-51-0048-4	A2i	GD880-51-0048-4	1	Inverter module
GD880-51-0060-4	A3i	GD880-51-0060-4	1	Inverter module
GD880-51-0078-4	A3i	GD880-51-0078-4	1	Inverter module
GD880-51-0094-4	A3i	GD880-51-0094-4	1	Inverter module
GD880-51-0116-4	A4i	GD880-51-0116-4	1	Inverter module
GD880-51-0149-4	A4i	GD880-51-0149-4	1	Inverter module
GD880-51-0183-4	A4i	GD880-51-0183-4	1	Inverter module
02000 02 0200 .	7111	GD880-51-0245-4	1	Inverter module (standard unit)
		GD880-51-0245-4(HC)	1	Inverter module (-HC is optional)
GD880-51-0245-4-XX	A6i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0299-4	1	Inverter module (standard unit)
		GD880-51-0299-4(HC)	1	Inverter module (-HC is optional)
GD880-51-0299-4-XX	A6i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0349-4	1	Inverter module (standard unit)
		GD880-51-0349-4(HC)	1	Inverter module (-HC is optional)
GD880-51-0349-4-XX	A7i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0395-4	1	Inverter module (standard unit)
		GD880-51-0395-4(HC)	1	Inverter module (-HC is optional)
GD880-51-0395-4-XX	A7i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0516-4	1	Inverter module
GD880-51-0516-4	A7i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-ICU-11	1	Control module
		GD880-51-0639-4	1	Power module
GD880-51-0639-4-XX	A8i/K	HFBR-3M	1	3M fiber optic
GD000-31-0033-4-AA	AOI/ N	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-A8-K	1	Fast connector kit (-K is optional)
		GD880-ICU-11	1	Control module
		GD880-51-0757-4	1	Power module
GD880-51-0757-4-XX	A8i/K	HFBR-3M	1	3M fiber optic
35303 31 0131-4-W	, 101/11	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-A8-K	1	Fast connector kit (-K is optional)

Product model	Structure	Order No.	Qty	Remarks
1 Todact modet	Structure	GD880-ICU-11	1	Control module
		GD880-51-0900-4	1	Power module
		HFBR-3M	1	3M fiber optic
GD880-51-0900-4-XX	A8i/K	SOP-880-01	1	·
				Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
		GD800-A8-K	1	Fast connector kit (-K is optional)
	-	GD880-ICU-11	1	Control module
		GD880-51-0975-4	1	Power module
GD880-51-0975-4-XX	A8i/K	HFBR-3M	1	3M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-A8-K	1	Fast connector kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0639-4	2	Power module
GD880-51-1213-4-XX	A8i/K	HFBR-3M	2	3M fiber optic
GD000-31-1213-4-XX	Aoi/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0757-4	2	Power module
CD000 51 1400 4 VV	10:44	HFBR-3M	2	3M fiber optic
GD880-51-1439-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0900-4	2	Power module
		HFBR-3M	2	3M fiber optic
GD880-51-1710-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0975-4	2	Power module
	-	HFBR-3M	2	3M fiber optic
GD880-51-1852-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0757-4	3	Power module
CD000 51 2150 4 VV	1 A 9; /k/	HFBR-3M	3	3M fiber optic
GD880-51-2158-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0900-4	3	Power module
CD000 E1 2ECE 4 VV	A 0: ///	HFBR-3M	3	3M fiber optic
GD880-51-2565-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)

Product model	Structure	Order No.	Qty	Remarks
		GD880-ICU-13	1	Control module
		GD880-51-0975-4	3	Power module
00000 54 0550 4 104	40:44	HFBR-3M	3	3M fiber optic
GD880-51-2778-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0900-4	4	Power module
		HFBR-5M	4	5M fiber optic
GD880-51-3420-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0975-4	4	Power module
		HFBR-5M	4	5M fiber optic
GD880-51-3704-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0900-4	5	Power module
	A8i/K	HFBR-5M	5	5M fiber optic
GD880-51-4275-4-XX		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0975-4	5	Power module
		HFBR-5M	5	5M fiber optic
GD880-51-4630-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0900-4	6	Power module
CD000 E1 E120 4 VV	A 9; /I/	HFBR-5M	6	5M fiber optic
GD880-51-5130-4-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0975-4	6	Power module
GD880-51-5566-4-XX	V 0: /IN	HFBR-5M	6	5M fiber optic
	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-11	1	Control module
GD880-51-0639-4-XX	A8n/A8L2	GD880-51-0639-4-N	1	Power module
		HFBR-3M	1	3M fiber optic

Product model	Structure	Order No.	Qty	Remarks
Troudet modet	- Ceruscure	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-640A	1	Reactor module (- A8L2 is optional)
		GD880-ICU-11	1	Control module
	 	GD880-51-0757-4-N	1	Power module
	-	HFBR-3M	1	3M fiber optic
GD880-51-0757-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
	 	L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	1	Reactor module (- A8L2 is optional)
		GD880-ICU-11	+	Control module
	-		1	Power module
	-	GD880-51-0900-4-N	1	
GD880-51-0900-4-XX	A8n/A8L2	HFBR-3M	1	3M fiber optic
	-	SOP-880-01	1	Inverter keypad
	<u> </u>	L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	1	Reactor module (- A8L2 is optional)
		GD880-ICU-11	1	Control module
		GD880-51-0975-4-N	1	Power module
GD880-51-0975-4-XX	A8n/A8L2	HFBR-3M	1	3M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	1	Reactor module (- A8L2 is optional)
	A8n/A8L2	GD880-ICU-13	1	Control module
		GD880-51-0639-4-N	2	Power module
GD880-51-1213-4-XX		HFBR-3M	2	3M fiber optic
GD000-31-1213-4-XX		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-640A	2	Reactor module (- A8L2 is optional)
		A8-L2-900A	1	Control module
		GD880-51-0757-4-N	2	Power module
CD000 F1 1420 4 VV	AO:- /AOI 3	HFBR-3M	2	3M fiber optic
GD880-51-1439-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	2	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0900-4-N	2	Power module
		HFBR-3M	2	3M fiber optic
GD880-51-1710-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	2	Reactor module (- A8L2 is optional)
GD880-51-1852-4-XX		A8-L2-900A	1	Control module
		GD880-51-0975-4-N	2	Power module
		HFBR-3M	2	3M fiber optic
	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	2	Reactor module (- A8L2 is optional)
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GD880-51-2158-4-XX	A8n/A8L2	GD880-ICU-13	1 2	Control module
		GD880-51-0757-4-N	3	Power module

Product model	Structure	Order No.	Qty	Remarks
		HFBR-3M	3	3M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0900-4-N	3	Power module
CD000 F1 2FCF 4 VV	A O / A O I O	HFBR-3M	3	3M fiber optic
GD880-51-2565-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	3	2M keypad cable
		A8-L2-900A	1	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0975-4-N	3	Power module
GD880-51-2778-4-XX	A8n/A8L2	HFBR-3M	3	3M fiber optic
GD000-31-2770-4-AA	AOII/AOLZ	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0900-4-N	4	Power module
GD880-51-3420-4-XX	A8n/A8L2	HFBR-5M	4	5M fiber optic
GD000-31-3420-4-AA	AOII/AOLZ	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	3	Reactor module (- A8L2 is optional)
	A8n/A8L2	GD880-ICU-16	1	Control module
		GD880-51-0975-4-N	4	Power module
GD880-51-3704-4-XX		HFBR-5M	4	5M fiber optic
GD000-31-3704-4-XX	AOII/AOLZ	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	4	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0900-4-N	5	Power module
CD000 F1 427F 4 VV	A O / A O I O	HFBR-5M	5	5M fiber optic
GD880-51-4275-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	5	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0975-4-N	5	Power module
		HFBR-5M	5	5M fiber optic
GD880-51-4630-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	5	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-1C0-16 GD880-51-0900-4-N	6	Power module
		HFBR-5M	6	5M fiber optic
GD880-51-5130-4-XX	A8n/A8L2			·
	 	SOP-880-01	1	Inverter keypad 2M keypad cable
		L=2M (CHV-SE)	1	, ,
		A8-L2-900A	6	Reactor module (- A8L2 is optional)

Product model	Structure	Order No.	Qty	Remarks
	otractare	GD880-ICU-16	1	Control module
	-	GD880-51-0975-4-N	6	Power module
	-	HFBR-5M	6	5M fiber optic
GD880-51-5566-4-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
	-	A8-L2-900A	6	Reactor module (- A8L2 is optional)
				'
	-	GD880-51-0062-6	1	Inverter module (standard unit)
GD880-51-0062-6-XX	A6i	GD880-51-0062-6(HC)	1	Inverter module (-HC is optional)
	-	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
	-	GD880-51-0082-6	1	Inverter module (standard unit)
GD880-51-0082-6-XX	A6i	GD880-51-0082-6(HC)	1	Inverter module (-HC is optional)
	-	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0099-6	1	Inverter module (standard unit)
GD880-51-0099-6-XX	A6i	GD880-51-0099-6(HC)	1	Inverter module (-HC is optional)
GD000 31 0033 0 AA	7.01	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0125-6	1	Inverter module (standard unit)
GD880-51-0125-6-XX	۸6:	GD880-51-0125-6(HC)	1	Inverter module (-HC is optional)
GD000-31-0123-0-XX	A6i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0144-6	1	Inverter module (standard unit)
00000 54 0444 0 104		GD880-51-0144-6(HC)	1	Inverter module (-HC is optional)
GD880-51-0144-6-XX	A6i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0192-6	1	Inverter module (standard unit)
		GD880-51-0192-6(HC)	1	Inverter module (-HC is optional)
GD880-51-0192-6-XX	A6i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0217-6	1	Inverter module (standard unit)
		GD880-51-0217-6(HC)	1	Inverter module (-HC is optional)
GD880-51-0217-6-XX	A7i	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0270-6	1	Inverter module (standard unit)
	-	GD880-51-0270-6(HC)	1	Inverter module (-HC is optional)
GD880-51-0270-6-XX	A7i	SOP-880-01	1	Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
		GD880-51-0340-6	1	Inverter module (standard unit)
CD000 51 0015 515		GD880-51-0340-6(HC)	1	Inverter module (-HC is optional)
GD880-51-0340-6-XX	A7i	SOP-880-01	1	Inverter keypad
	<u> </u>	L=2M (CHV-SE)	1	2M keypad cable
		GD880-ICU-11	1	Control module
		GD880-51-0410-6	1	Power module
CD000 F1 0410 C VV	AO: ///	HFBR-3M	1	3M fiber optic
GD880-51-0410-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-A8-K	1	Fast connector kit (-K is optional)

Product model	Structure	Order No.	Qty	Remarks
1 Todact modet	Structure	GD880-ICU-11	1	Control module
	 	GD880-51-0530-6	1	Power module
	 	HFBR-3M	1	3M fiber optic
GD880-51-0530-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
	 		1	2M keypad cable
	 	L=2M (CHV-SE)	1	Fast connector kit (-K is optional)
	+	GD800-A8-K		
	 	GD880-ICU-11	1	Control module
	 	GD880-51-0600-6	1	Power module
GD880-51-0600-6-XX	A8i/K	HFBR-3M	1	3M fiber optic
		SOP-880-01	1	Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
		GD880-A8-K	1	Fast connector kit (-K is optional)
		GD880-ICU-11	1	Control module
		GD880-51-0650-6	1	Power module
GD880-51-0650-6-XX	A8i/K	HFBR-3M	1	3M fiber optic
02000 02 0000 0 7.0.		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-A8-K	1	Fast connector kit (-K is optional)
		GD880-ICU-11	1	Control module
		GD880-51-0720-6	2	Power module
GD880-51-0720-6-XX	A8i/K	HFBR-3M	1	3M fiber optic
GD000-31-0720-0-XX		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD880-A8-K	1	Fast connector kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0410-6	2	Power module
CD000 F1 0770 C VV	A O: /I/	HFBR-3M	2	3M fiber optic
GD880-51-0779-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0530-6	2	Power module
		HFBR-3M	2	3M fiber optic
GD880-51-1007-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0600-6	2	Power module
CD000 F1 1140 C V//	A 0: ///	HFBR-3M	2	3M fiber optic
GD880-51-1140-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0650-6	2	Power module
GD880-51-1235-6-XX	A8i/K	HFBR-3M	2	3M fiber optic
2D000-31-1233-0-VV	/,0//	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)

Product model	Structure	Order No.	Qty	Remarks
1 Toduct modet	Structure	GD880-ICU-13	1	Control module
		GD880-51-0720-6	2	Power module
		HFBR-3M	2	3M fiber optic
GD880-51-1368-6-XX	A8i/K	SOP-880-01	1	<u>'</u>
	-		+	Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0530-6	3	Power module
GD880-51-1510-6-XX	A8i/K	HFBR-3M	3	3M fiber optic
	<u> </u>	SOP-880-01	1	Inverter keypad
	_	L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0600-6	3	Power module
GD880-51-1710-6-XX	A8i/K	HFBR-3M	3	3M fiber optic
0D000-31-1710-0-XX	AOI/IX	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0650-6	3	Power module
CD000 F1 10F2 C VV	A O: /I/	HFBR-3M	3	3M fiber optic
GD880-51-1853-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0720-6	3	Power module
		HFBR-3M	3	3M fiber optic
GD880-51-2052-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0600-6	4	Power module
		HFBR-5M	4	5M fiber optic
GD880-51-2280-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0650-6	4	Power module
GD880-51-2470-6-XX	A8i/K	HFBR-5M	4	5M fiber optic
0D000-31-2+10-0-77	AOI/IX	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0720-6	4	Power module
GD880-51-2736-6-XX	A8i/K	HFBR-5M	4	5M fiber optic
3D000-31-2130-0-AA	AOI/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	2	Frame kit (-K is optional)

Product model	Structure	Order No.	Qty	Remarks
		GD880-ICU-16	1	Control module
		GD880-51-0650-6	5	Power module
		HFBR-5M	5	5M fiber optic
GD880-51-3088-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	1	Frame kit (-K is optional)
		GD800-3*A8-K	1	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0600-6	6	Power module
		HFBR-5M	6	5M fiber optic
GD880-51-3420-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0650-6	6	Power module
00000 54 0505 6 104	10:44	HFBR-5M	6	5M fiber optic
GD880-51-3705-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-16	1	Control module
	A8i/K	GD880-51-0720-6	6	Power module
CD000 F1 4104 C VV		HFBR-5M	6	5M fiber optic
GD880-51-4104-6-XX		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-3*A8-K	2	Frame kit (-K is optional)
		GD880-ICU-1A	1	Control module
		GD880-51-0650-6	8	Power module
CD000 F1 4040 C VV	A O: /I/	HFBR-5M	8	5M fiber optic
GD880-51-4940-6-XX	A8i/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	4	Frame kit (-K is optional)
		GD880-ICU-1A	1	Control module
		GD880-51-0720-6	8	Power module
GD880-51-5472-6-XX	A8i/K	HFBR-5M	8	5M fiber optic
GD000-31-3472-0-XX	Aoi/K	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	4	Frame kit (-K is optional)
		GD880-ICU-1A	1	Control module
GD880-51-6175-6-XX		GD880-51-0650-6	10	Power module
	A8i/K	HFBR-5M	10	5M fiber optic
	YOI/ I/	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		GD800-2*A8-K	5	Frame kit (-K is optional)
		GD880-ICU-1A	1	Control module
GD880-51-6840-6-XX	Λ Q; /L⁄	GD880-51-0720-6	10	Power module
GD000-31-0040-0-XX	A8i/K	HFBR-5M	10	5M fiber optic
		SOP-880-01	1	Inverter keypad

L=2M (CHV-SE)	Product model	Structure	Order No.	Qty	Remarks
GD880-51-0410-6-XX			L=2M (CHV-SE)		2M keypad cable
GD880-51-0410-6-XX			GD800-2*A8-K	5	Frame kit (-K is optional)
ABN/ABL2			GD880-ICU-11	1	
ABN/ABL2			GD880-51-0410-6	1	Power module
SOP-880-01					3M fiber optic
L=2M (CHV-SE)	GD880-51-0410-6-XX	A8n/A8L2			,
A8-L2-640A					
GD880-51-0530-6-XX			·		
GD880-51-0530-6-XX				+	· · · · · · · · · · · · · · · · · · ·
ABn/ABL2			GD880-51-0530-6	_	
SOP-880-01					
L=2M (CHV-SE) 1 2M keypad cable	GD880-51-0530-6-XX	A8n/A8L2			
A8-L2-640A				_	
GD880-51-0600-6-XX			·	_	
GD880-51-0600-6-XX					· · · · · · · · · · · · · · · · · · ·
A8n/A8L2			GD880-51-0600-6	1	
SOP-880-01					
L=2M (CHV-SE) 1 2M keypad cable	GD880-51-0600-6-XX	A8n/A8L2			<u> </u>
A8-L2-640A				_	, ,
GD880-51-0650-6-XX					, ,
GD880-51-0650-6-XX				_	•
A8n/A8L2				_	
ABn/ABL2 SOP-880-01 1 Inverter keypad					
L=2M (CHV-SE) 1 2M keypad cable	GD880-51-0650-6-XX	A8n/A8L2			·
A8-L2-900A					
GD880-51-0720-6-XX				_	, ,
A8n/A8L2 A8n/A8L2					<u> </u>
A8n/A8L2				+	
SOP-880-01					
L=2M (CHV-SE) 1 2M keypad cable	GD880-51-0720-6-XX	A8n/A8L2			·
A8-L2-900A					* '
GD880-51-0779-6-XX					• •
ABn/ABL2					•
A8n/A8L2				_	
SOP-880-01 1 Inverter keypad				+	
L=2M (CHV-SE) 1 2M keypad cable	GD880-51-0779-6-XX	A8n/A8L2		+	'
A8-L2-640A 2 Reactor module (- A8L2 is optional) GD880-ICU-13 1 Control module GD880-51-0530-6 2 Power module HFBR-3M 2 3M fiber optic SOP-880-01 1 Inverter keypad L=2M (CHV-SE) 1 2M keypad cable A8-L2-640A 2 Reactor module (- A8L2 is optional) GD880-ICU-13 1 Control module GD880-ICU-13 1 Power module			L=2M (CHV-SE)		
GD880-ICU-13 1 Control module GD880-51-0530-6 2 Power module HFBR-3M 2 3M fiber optic SOP-880-01 1 Inverter keypad L=2M (CHV-SE) 1 2M keypad cable A8-L2-640A 2 Reactor module (- A8L2 is optional) GD880-51-1140-6-XX A8n/A8L2 GD880-51-0600-6 2 Power module				+	
GD880-51-1007-6-XX A8n/A8L2 A8n/A8L2 A8n/A8L2 GD880-51-0530-6 BFBR-3M COntrol module A8-L2-640A GD880-51-1140-6-XX A8n/A8L2 A8n/A8L2 GD880-51-0600-6 A8-L2-640A COntrol module A8n/A8L2 A8n/A8L2 A8n/A8L2					•
A8n/A8L2					
A8n/A8L2 SOP-880-01 1 Inverter keypad	GD880-51-1007-6-XX				
L=2M (CHV-SE) 1 2M keypad cable A8-L2-640A 2 Reactor module (- A8L2 is optional) GD880-ICU-13 1 Control module GD880-51-1140-6-XX A8n/A8L2 GD880-51-0600-6 2 Power module		A8n/A8L2			'
A8-L2-640A 2 Reactor module (- A8L2 is optional)					• • • • • • • • • • • • • • • • • • • •
GD880-ICU-13 1 Control module GD880-51-1140-6-XX A8n/A8L2 GD880-51-0600-6 2 Power module			· · · · · · · · · · · · · · · · · · ·		
GD880-51-1140-6-XX A8n/A8L2 GD880-51-0600-6 2 Power module				_	•
	GD880-51-1140-6-XX	A8n/A8L2		_	
HFBR-3M 2 3M fiber optic		,	HFBR-3M	2	3M fiber optic

Product model	Structure	Order No.	Qty	Remarks
Troudet model	ou detaile	SOP-880-01	1	Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
	-	A8-L2-640A	2	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
	_	GD880-51-0650-6	2	Power module
		HFBR-3M	2	3M fiber optic
GD880-51-1235-6-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
	-	A8-L2-900A	2	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
	-	GD880-1C0-13 GD880-51-0720-6	2	Power module
	-		2	
GD880-51-1368-6-XX	A8n/A8L2	HFBR-3M		3M fiber optic
	_	SOP-880-01	1	Inverter keypad
	_	L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	2	Reactor module (- A8L2 is optional)
	_	GD880-ICU-13	1	Control module
	_	GD880-51-0530-6	3	Power module
GD880-51-1510-6-XX	A8n/A8L2	HFBR-3M	3	3M fiber optic
		SOP-880-01	1	Inverter keypad
	_	L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-640A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
	_	GD880-51-0600-6	3	Power module
GD880-51-1710-6-XX	A8n/A8L2	HFBR-5M	3	5M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-640A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0650-6	3	Power module
GD880-51-1853-6-XX	A8n/A8L2	HFBR-5M	3	5M fiber optic
GD000 31 1033 0 AX	7.011/7.022	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-13	1	Control module
		GD880-51-0720-6	3	Power module
GD880-51-2052-6-XX	A8n/A8L2	HFBR-5M	3	5M fiber optic
GD000-31-2032-0-AA	AOII/AOL2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	3	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0600-6	4	Power module
GD880-51-2280-6-XX	A0 = /A010	HFBR-5M	4	5M fiber optic
	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-640A	4	Reactor module (- A8L2 is optional)
CD000 51 0453 5 101	40 /40:5	GD880-ICU-16	1	Control module
GD880-51-2470-6-XX	A8n/A8L2	GD880-51-0650-6	4	Power module

Product model	Structure	Order No.	Qty	Remarks
1 Todact modet	Structure	HFBR-5M	4	5M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	4	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0720-6	4	Power module
		HFBR-5M	4	5M fiber optic
GD880-51-2736-6-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	4	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0650-6	5	Power module
		HFBR-5M	5	5M fiber optic
GD880-51-3088-6-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	5	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0600-6	6	Power module
	ļ . †	HFBR-5M	6	5M fiber optic
GD880-51-3420-6-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
	Ī	A8-L2-640A	6	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
		GD880-51-0650-6	6	Power module
		HFBR-5M	6	5M fiber optic
GD880-51-3705-6-XX	A8n/A8L2	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	6	Reactor module (- A8L2 is optional)
		GD880-ICU-16	1	Control module
	-	GD880-51-0720-6		
	-		6	Power module
GD880-51-4104-6-XX	A8n/A8L2	HFBR-5M	6	5M fiber optic
		SOP-880-01	1	Inverter keypad
	-	L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	6	Reactor module (- A8L2 is optional)
		GD880-ICU-1A	1	Control module
		GD880-51-0650-6	8	Power module
GD880-51-4940-6-XX	A8n/A8L2	HFBR-5M	8	5M fiber optic
	7.0.1,71022	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	8	Reactor module (- A8L2 is optional)
		GD880-ICU-1A	1	Control module
		GD880-51-0720-6	8	Power module
GD880-51-5472-6-XX	A8n/A8L2	HFBR-5M	8	5M fiber optic
3D300-31-3-12-0-//	AUTI/AULZ	SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	8	Reactor module (- A8L2 is optional)

Product model	Structure	Order No.	Qty	Remarks
GD880-51-6175-6-XX	A8n/A8L2	GD880-ICU-1A	1	Control module
		GD880-51-0650-6	10	Power module
		HFBR-5M	10	5M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	10	Reactor module (- A8L2 is optional)
GD880-51-6840-6-XX	A8n/A8L2	GD880-ICU-1A	1	Control module
		GD880-51-0720-6	10	Power module
		HFBR-5M	10	5M fiber optic
		SOP-880-01	1	Inverter keypad
		L=2M (CHV-SE)	1	2M keypad cable
		A8-L2-900A	10	Reactor module (- A8L2 is optional)

∠Note: The model with structure A8i needs to add fast connector components V-SK03A4-3Z.1 according to the number of units.

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