GD600A Series

High-Performance Multi-drive VFD

CONTE

NTS


INVT 英威腾

Company Introduction

INVT (Shenzhen INVT Electric Co., Ltd) has been concentrating on industry automation and energy power since its foundation in 2002 and is committed to "Providing the best product and service to allow customers more competitiveness". INVT goes public in 2010 and is the first A-share listed company (002334) in Shenzhen Stock Exchange in the industry. At present, INVT owns 15 subsidiaries and more than 4500 employees, over 40 branches, forming a sales network covering more than 100 overseas countries and regions.

INVT has been awarded as the Key High-tech Enterprise of National Torch Plan based on mastering of key technologies in power electronics, auto control and IT. With business covering industry automation, electric vehicle, network power and rail transit, INVT has established 10 R&D centers nationwide, boasts more than 1400 patents and owns the first lab in the industry awarded ACT qualification from TÜV SÜD, UL-WTDP and CNAS National Lab. The industrial parks in Shenzhen and Suzhou aim to provide customers with advanced integrated product development design management, comprehensive product R&D test and auto informational production. The worldwide INVT branches and warranty service centers are ready to offer customers all-around back-ups including professional solutions, technical trainings and service support.

In the next decade, INVT will continue to take " Sincere Virtuous, Professional Aspiring" as our business philosophy, enhance core business sectors including industrial automation, electric vehicle, network power and rail transit based on the three major technologies in industry automation and energy power fields, and strive to become a leading, responsible and harmonic international professional group armed with proper product structure, leading technologies, efficient management, robust profitability and superior competitiveness.


INVT Guangming Technology Building

INVT Shenzhen Production Industry Park


INVT Suzhou Industry Park


INVT Zhongshan New Energy Industry Base

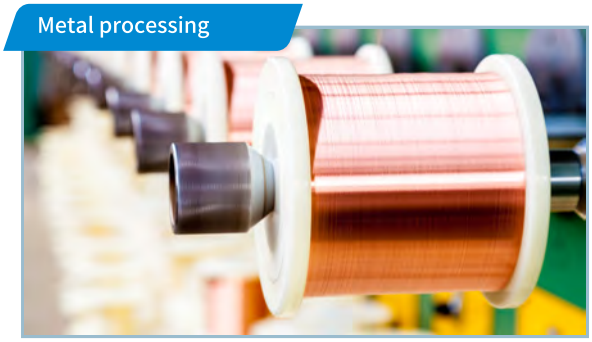
Product introduction

GD600A series high-performance multi-drive VFD is a common DC bus multi-drive system composed of rectifier unit(s) and inverter unit(s). It adopts a book-style unit structure and an integrated bus control mechanism, featuring high power density, flexible communication networking, and strong scalability, with unparalleled advantages.

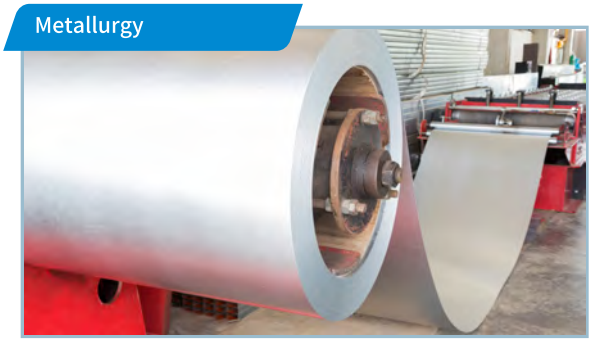
- Integrated STO function
- Compatible with mainstream fieldbuses from 1MB to 100MB
- Integrated with torque, speed, and position control
- Capable of driving asynchronous induction motors, permanent magnet synchronous motors, and servo motors
- Outstanding dynamic response and control accuracy

GD600A can be widely applied to continuous production lines consisting of single or multiple machines with multi-motor drive configurations, typically used in metal processing, logistics machinery, printing and packaging, textile machinery, tissue machinery, and small-scale papermaking equipment.

Metal processing



Metallurgy

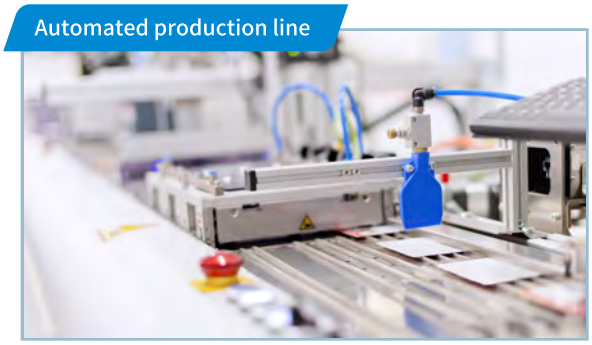


Printing and packaging

Textile

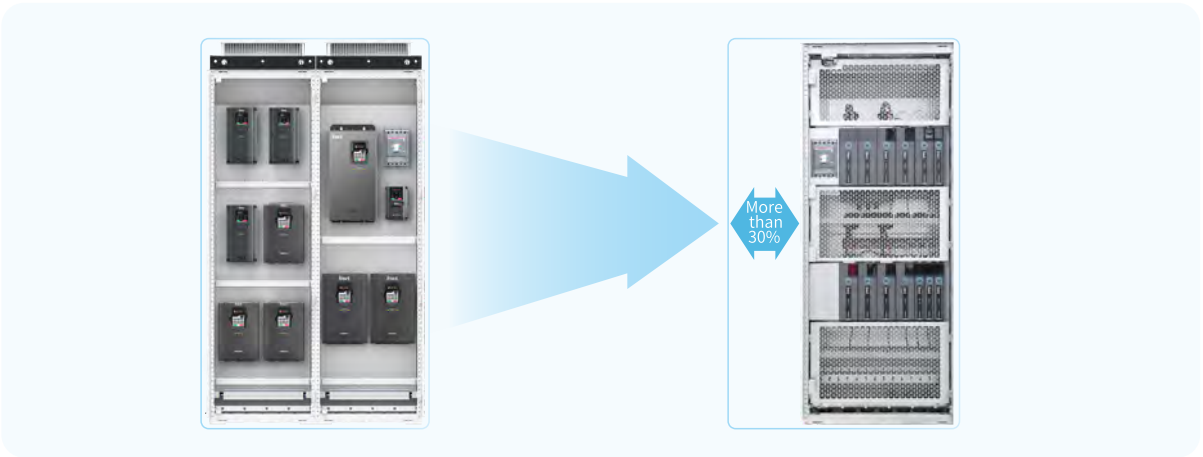
Papermaking

Automated production line

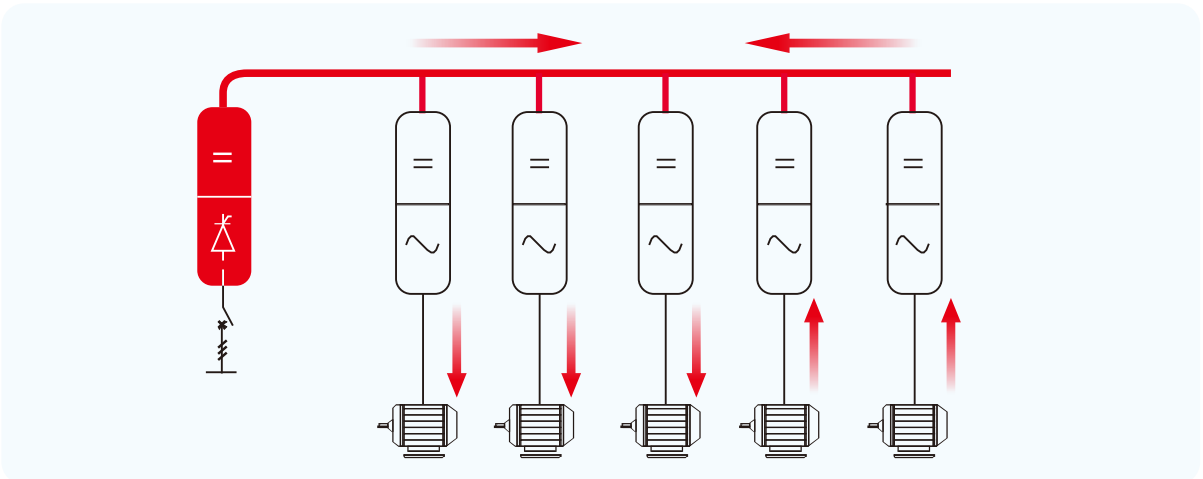


Multi-drive high-performance

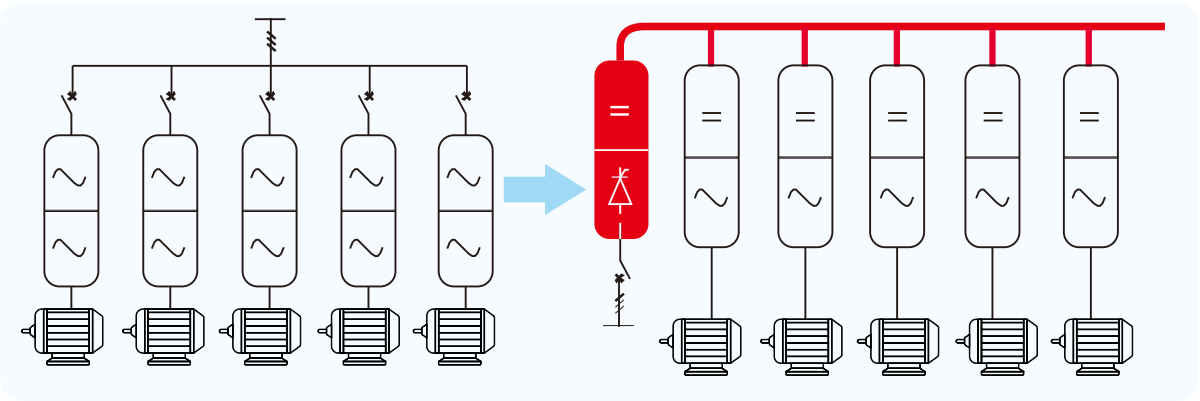
- The common DC bus solution enables internal energy flow, enhances overall system electrica efficiency, and achieves up to 30% energy savings



- Modular book-style design with uniform height and depth enables multiple units to be installed side by side compactly, saving more than 30% of cabinet space.



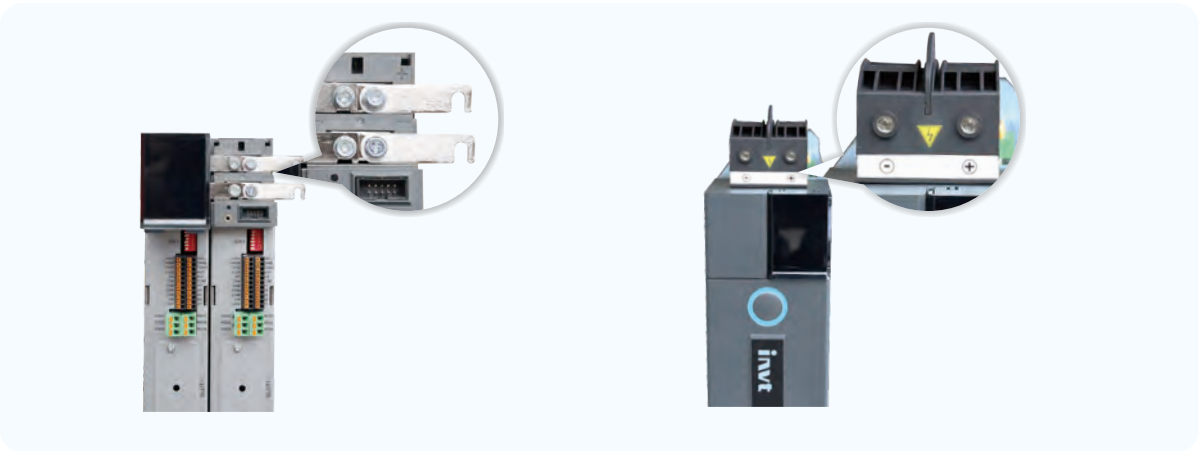
- The common DC bus solution utilizes a uniform power supply based on the rectifier unit, effectively reducing the number of main circuit switching devices, braking units, and redundant power cables, thereby lowering system costs.



- Quick installation

Quick connection design for DC bus enables fast parallel operation, saving wiring labor and costs.

Optional DC external terminals address challenges of layered installation, maximizing cabinet space utilization.



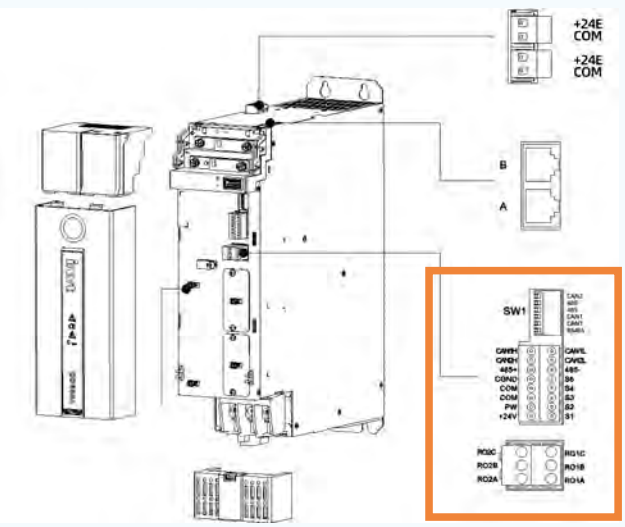
- Provides integrated drive support for synchronous, asynchronous, and servo motors, facilitating equipment upgrades.

Product features

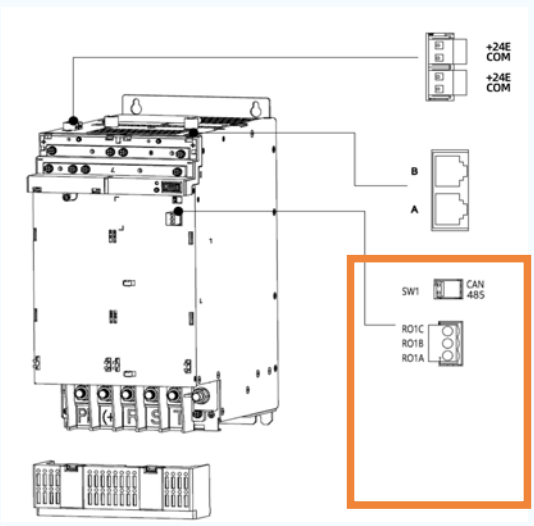
- Multiple types of rectifier units are available, meeting different requirements.
- Semi-controlled rectifier units come standard with network bridge functionality and support networking.
- Uncontrolled rectifier units are available in two versions—with or without network bridge.

Product model	Rated power (kW)	Rectifier type	Network bridge function
GD600A-71-045-4-B	45	Semi-controlled	Standard
GD600A-71-160-4	160	Semi-controlled	Standard
GD600A-71-355-4	355	Semi-controlled	Standard
GD600A-61-022-4-B	22	Uncontrolled	Standard
GD600A-61-022-4-B-S	22	Uncontrolled	None
GD600A-61-110-4-B	110	Uncontrolled	Standard
GD600A-61-110-4-B-S	110	Uncontrolled	None

- The 110kW rectifier unit and lower are embedded with the built-in braking unit, saving the cost.
- Supports short-circuit protection for braking resistor cables (up to 10 meters).



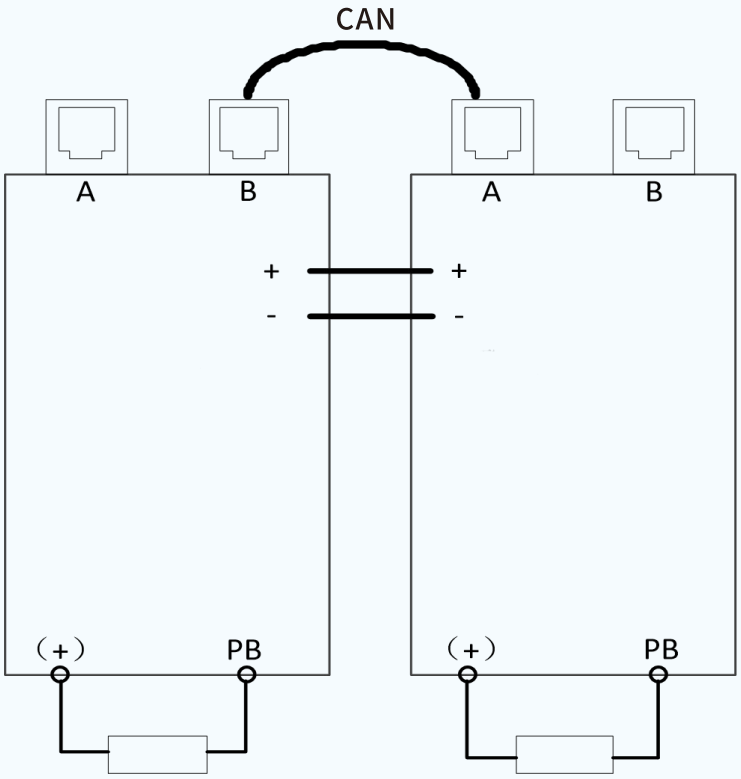
Version with network bridge

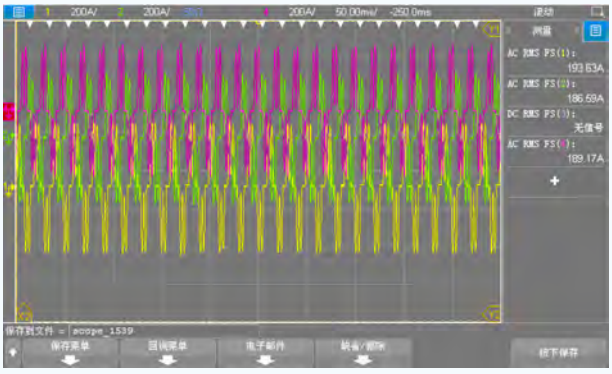


Version without network bridge

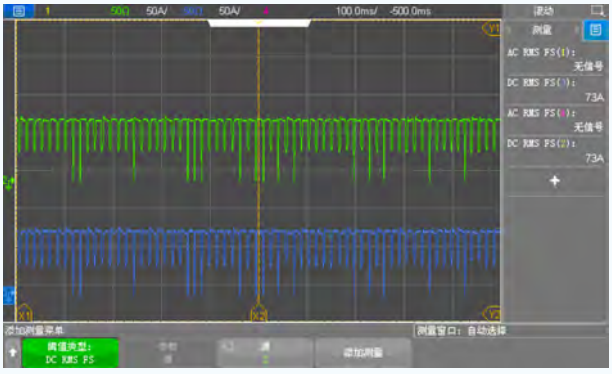
Note: The non-controlled rectifier unit must use its own configured network cable to connect to the inverter unit's RJ45 port for uploading fault information.

- Supports parallel connection of rectifier units without requiring input reactors, input current imbalance less than 10%.
- Built-in braking units support synchronous control, allowing two units to be connected in parallel with a current imbalance under 5%.





- Input current sharing waveform



- Braking current sharing waveform

Performance enhancement

Strong adaptability to synchronous motors

- Self-adaptive loop parameters, no debugging required
- One-click auto-tuning for parameters

Ultra-low-speed control technology

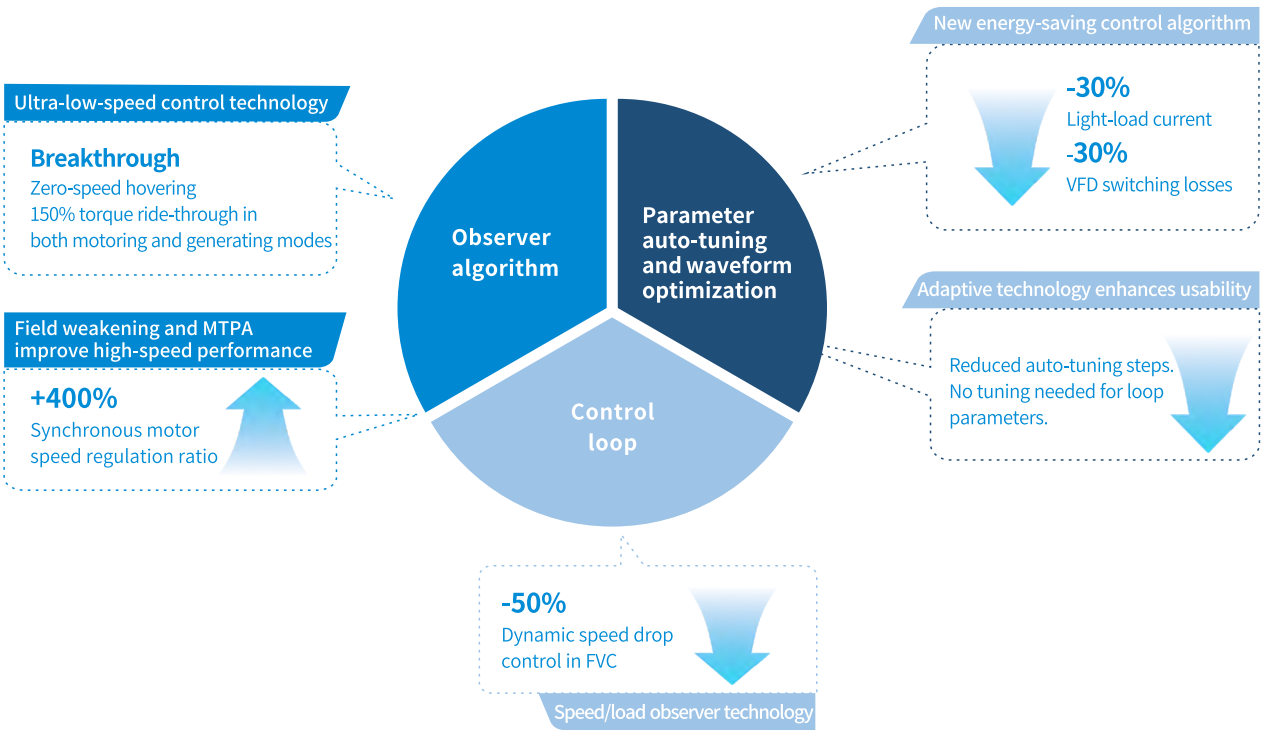
- Speed control ratio of permanent magnet synchronous motors exceeds 1:200
- Supports 150% torque ride-through for both asynchronous and synchronous motors in both motoring and generating modes.
- Supports 150% torque zero-speed hovering (short duration) for both asynchronous and synchronous motors

Control performance

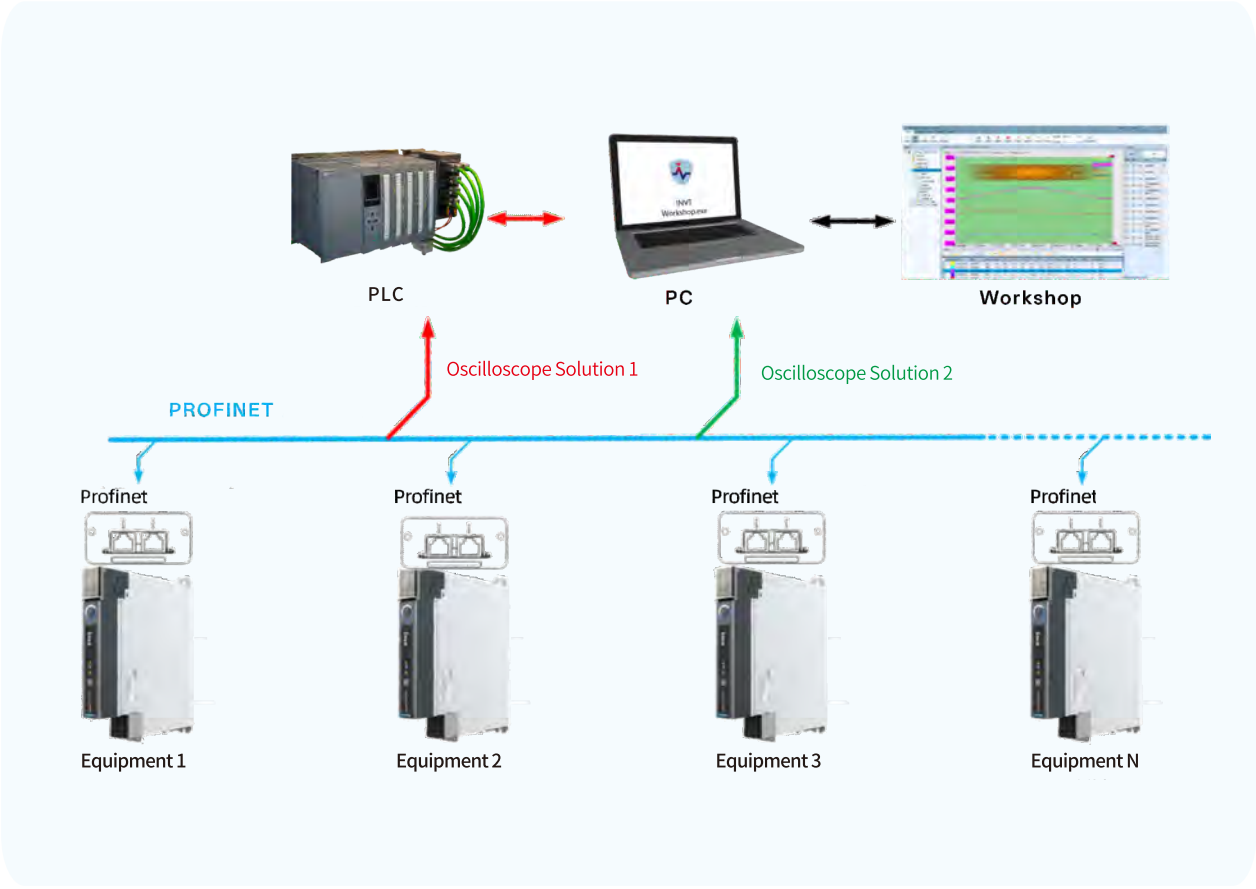
- Closed-loop vector control: dynamic speed drop < 0.25%
- Speed overshoot < 5%, torque response time < 5ms

Green and low carbon

- Supports energy-saving control (MTPA), further reducing motor losses.
- Both VF and vector control support new energy-saving algorithms, reducing light load current by 30%.
- Lower current harmonics (< 7%), resulting in less motor heating.
- Reduced noise levels.

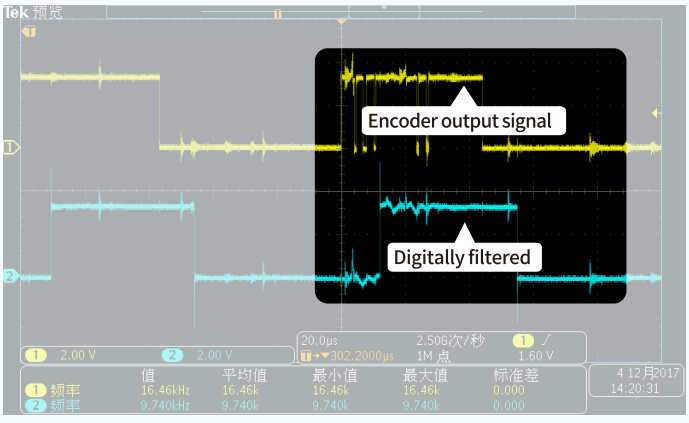


- The PROFINET card supports waveform monitoring only with just one network cable.

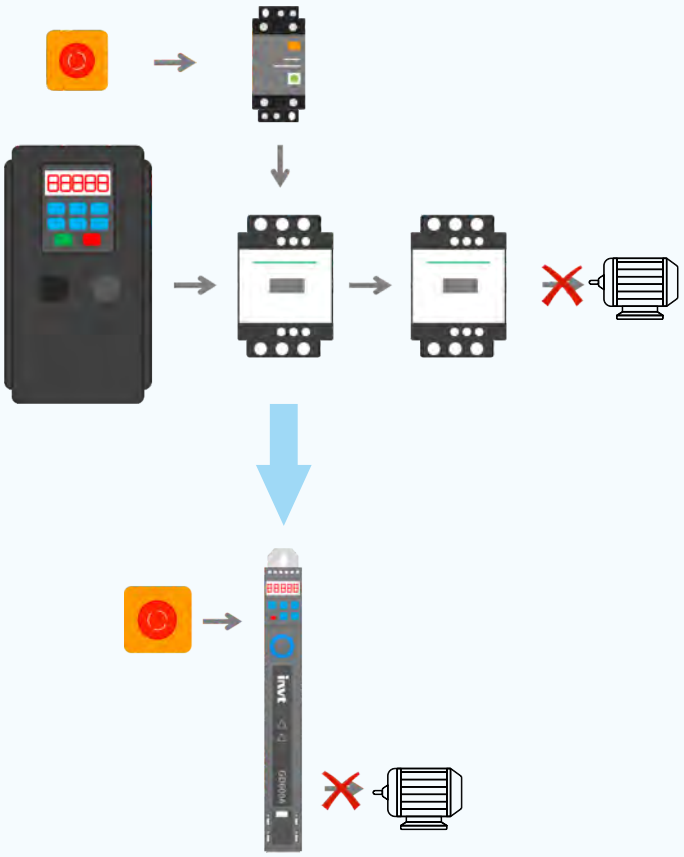


Safe and reliable

- The PG card adopts digital filtering technology, doubling anti-interference capability while ensuring stable reception of encoder signals over long distances.



- Comes standard with STO (Safe Torque Off) functionality. When the motor stops, torque output is cut off to prevent unintended startup, enhancing safety and reliability.

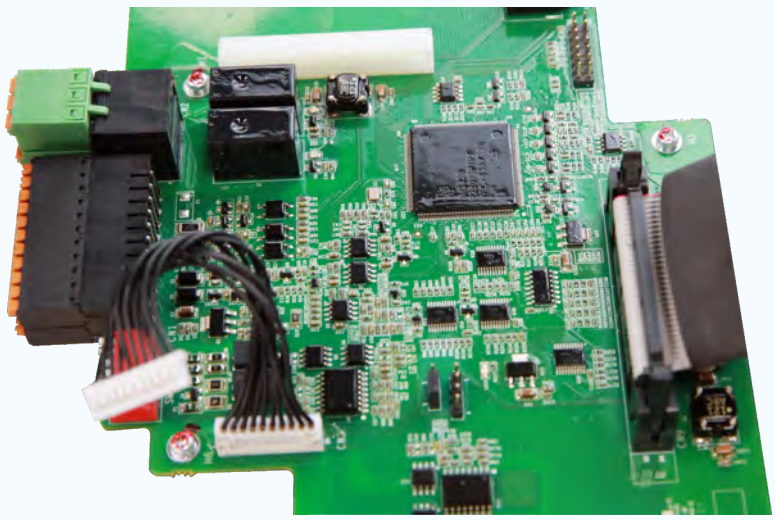


Note: Compliant with SIL2 level

- The inverter unit is equipped with a built-in DC fuse, effectively preventing fault propagation to the system and significantly improving system stability.

- Independent air duct design effectively prevents dust, particles, and other contaminants from entering the inverter, avoiding arcing and short circuits. This enhances product reliability and extends service life.

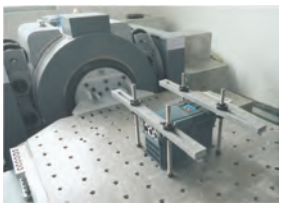
- Fully automated conformal coating process ensures more consistent and uniform coverage, significantly enhancing PCB protection.



● A comprehensive reliability testing system ensures product performance in the most demanding and complex application environments.

Test category	Test name	Detailed categories
Mechanical reliability testing	Packaging test	Packaging compression test
		Packaging resonance scanning and dwell test
		Packaging random vibration test
		Packaging drop test
		Packaging rolling test
		Packaging tilt drop test
		Packaging inclined impact test
	Shock test	Half-sine wave shock test (under operating/non-operating state)
		Trapezoidal wave shock test (under non-operating state)
	Vibration test	Sinusoidal vibration test (under operating state)
		Random vibration test (under operating/non-operating state)
Climatic environmental reliability test	Temperature test	Low temperature storage test
		High temperature storage test
		Low temperature operating test
		High temperature operating test
		Temperature gradient test
		Temperature shock test
	Damp heat test	Constant damp heat test
		Cyclic damp heat test
	Salt spray test	Continuous salt spray test
		Cyclic salt spray test
	Low pressure test	Combined low-temperature and low-pressure test
		Combined high-temperature and low-pressure test

Remarks:
INVT is the first industrial control manufacturer in China to be awarded the ACT (Acceptance of Client's Testing) certification by TÜV SÜD. This certification signifies that TÜV SÜD officially recognizes the technical proficiency of INVT's laboratory, accepts the test data produced by this laboratory, and acknowledges the validity of the test reports issued.



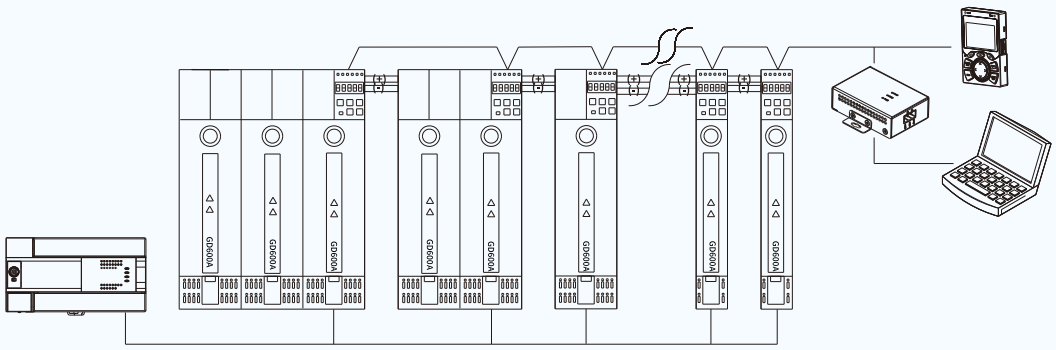
Electric vibratory system

Low pressure test box (Left)
Constant temperature and humidity test box (Right)

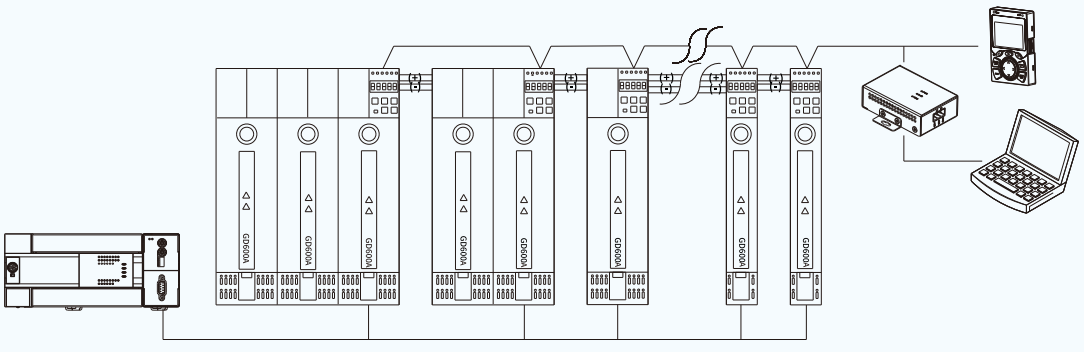
Natural convection test box (Left)
Hot and cold impact test box (Right)

Seamless integration with automatic control system

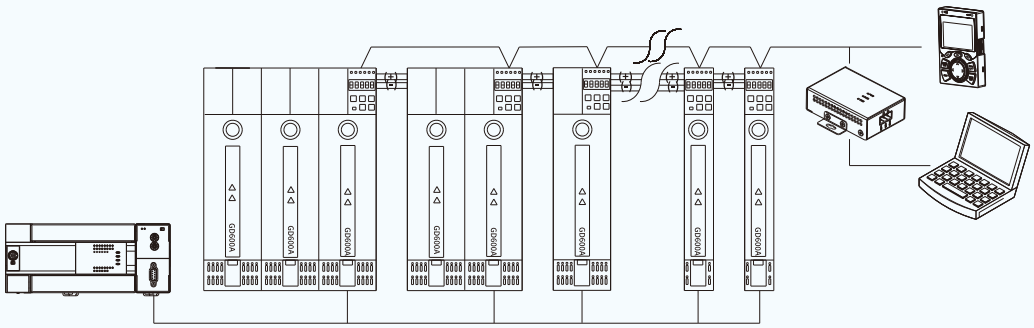
PLC + Standard Modbus fieldbus networking



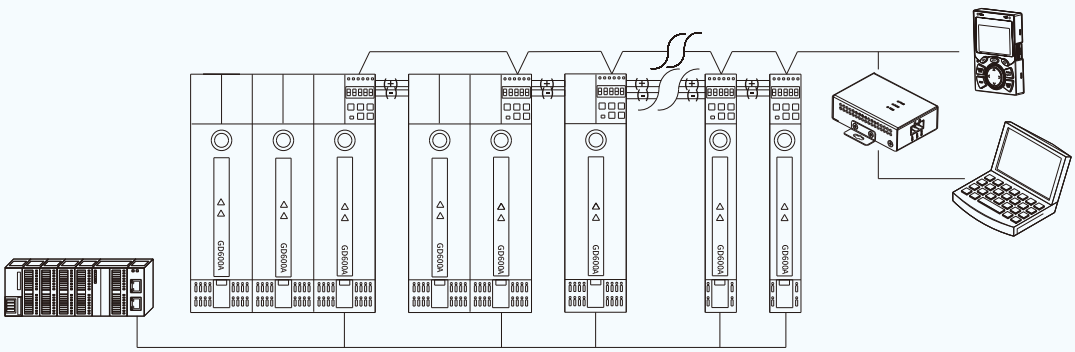
PLC + Standard CANopen fieldbus networking



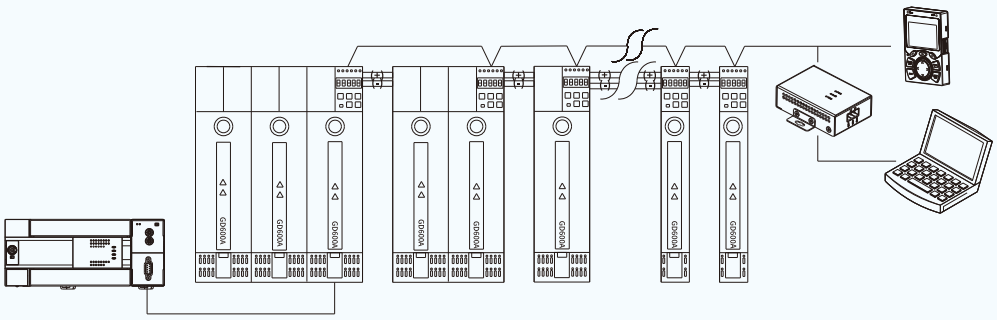
PLC+ Optional PROFIBUS-DP fieldbus networking



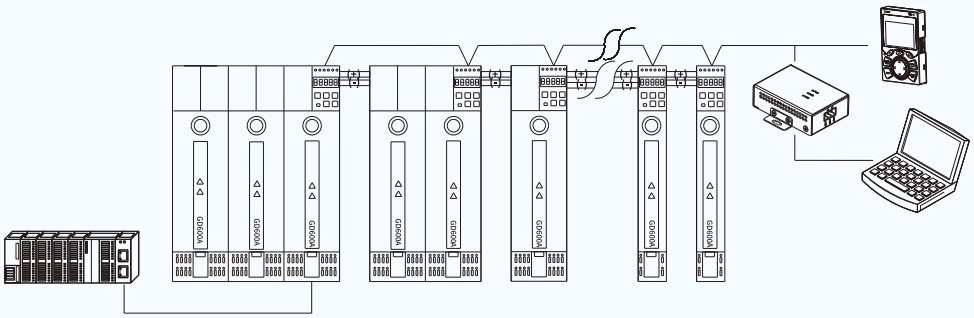
PLC+ Optional PROFINET/EtherCAT industrial Ethernet networking



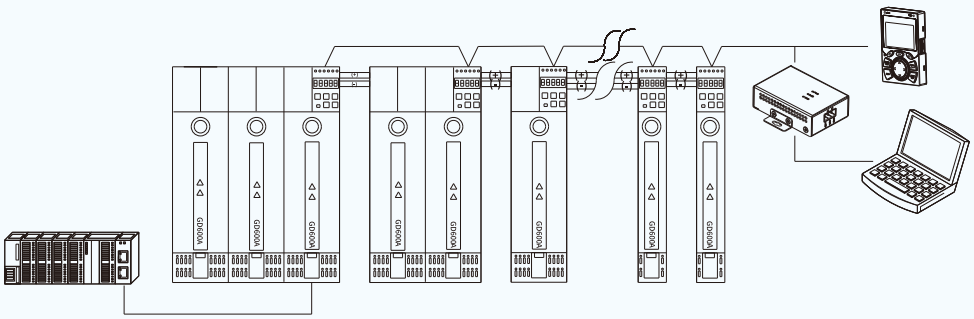
PLC+ Optional PROFIBUS-DP/CANopen network bridge networking



PLC+ Optional PROFINET/CANopen network bridge networking



PLC+ Optional EtherCAT/CANopen network bridge networking



Technical specifications

- Semi-controlled rectifier unit specifications

Function description		Specifications
Power input	Input voltage (V)	AC 3PH 380V (-15%) – 440V (+10%); Rated voltage: 380V
	Input frequency (Hz)	50Hz or 60Hz; Allowed range: 47–53 (50Hz), 57–63 (60Hz)
Power output	Output voltage (V)	457Vdc–684Vdc
Protection functions	Protection against abnormal input voltage	Protection against abnormal input voltage, such as input phase loss, input voltage too low, three-phase imbalance of input voltage
	Braking circuit protection	Protection against braking circuit over current, braking resistor short-circuit, and braking-transistor direct connection
	Other protection functions	Such as protection against over voltage, undervoltage, and over temperature
Peripheral interface	Digital input	Five regular inputs. Max frequency: 1kHz. Internal impedance: 3.3 kΩ. Resolution: no more than 2ms
	Relay output	Two programmable relay outputs RO1A: NO; RO1B: NC; RO1C: common RO2A: NO; RO2B: NC; RO2C: common Contact capacity: 3A/AC 250V, 1A/DC 30V
	Communication interface	One RS485 communication interface, supporting the Modbus communication protocol Two CAN communication interfaces, of which CAN1 supports the CANopen communication protocol and CAN2 supports CAN master/slave control.
	Expansion interface	Two expansion interfaces, SLOT1 and SLOT2, supporting programmable cards, communication cards, I/O cards, and so on
Other	Installation method	Wall mounting or flange installation (not supported by 355kW)
	Operating ambient temperature	-10–50°C. Derating required above 40°C.-10–50°C. Derating required above 40°C.
	IP rating	IP00
	Pollution degree	Degree 2
	Cooling method	Forced air cooling
	Braking unit	Already built in the 45kW model; optional part (externally connected) for other models
	EMC filter	All the series meet the IEC61800-3 C3 requirements. Optional external filters can be used to meet the IEC61800-3 C2 requirements.

Uncontrolled rectifier unit specifications

Function description		Specifications
Rectifier unit with network bridge		
Power input	Input voltage (V)	AC 3PH 380V (-15%) – 440V (+10%); Rated voltage: 380V
	Input frequency (Hz)	50Hz or 60Hz; Allowed range: 47–53 (50Hz), 57–63 (60Hz)
Power output	Output voltage (V)	457Vdc–684Vdc
Protection functions	Protection against abnormal input voltage	Protection against input phase loss
	Braking circuit protection	Protection against braking circuit over current, braking resistor short-circuit, and braking-transistor direct connection
	Other protection functions	Such as protection against overvoltage, undervoltage, and overtemperature
Peripheral interface	Digital input	Five regular inputs. Max frequency: 1kHz. Internal impedance: 3.3 kΩ. Resolution: no more than 2ms
	Relay output	Two programmable relay outputs RO1A: NO; RO1B: NC; RO1C: common RO2A: NO; RO2B: NC; RO2C: common Contact capacity: 3A/AC 250V, 1A/DC 30V
	Communication interface	One RS485 communication interface, supporting the Modbus communication protocol Two CAN communication interfaces, of which CAN1 supports the CANopen communication protocol and CAN2 supports CAN master/lave control.
	Expansion interface	Two expansion interfaces, SLOT1 and SLOT2, supporting programmable cards, communication cards, I/O cards, and so on
Other	Mounting method	Wall mounting or flange mounting
	Operating ambient temperature	-10–50°C. Derating required above 40°C.
	IP rating	IP00
	Pollution degree	Degree 2
	Cooling method	Forced air cooling
	Braking unit	Braking unit already built in the 22kW and 110kW models
	EMC filter	All the series meet the IEC61800-3 C3 requirements. Optional external filters can be used to meet the IEC61800-3 C2 requirements.

Function description		Specifications
Rectifier unit without network bridge		
Power input	Input voltage (V)	AC 3PH 380V (-15%) – 440V (+10%); Rated voltage: 380V
	Input frequency (Hz)	50Hz or 60Hz; Allowed range: 47–53 (50Hz), 57–63 (60Hz)
Power output	Output voltage (V)	457Vdc–684Vdc
Protection functions	Protection against abnormal input voltage	Protection against input phase loss
	Braking circuit protection	Protection against braking circuit overcurrent, braking resistor short-circuit, and braking transistor direct connection
	Other protection functions	Such as protection against overvoltage, undervoltage, and overtemperature
Peripheral interface	Relay output	One programmable relay output RO1A: NO; RO1B: RC; RO1C: common terminal Contact capacity: 3A/AC 250V, 1A/DC 30V
	Communication interface	One CAN communication interface, supporting the rectifier unit and inverter unit internal CAN protocol
Other	Mounting method	Wall mounting or flange mounting
	Operating ambient temperature	-10–50°C. Derating required above 40°C.
	IP rating	IP00
	Pollution degree	Degree 2
	Cooling method	Forced air cooling
	Braking unit	Braking unit already built in the 22kW and 110kW models
	EMC filter	All the series meet the IEC61800-3 C3 requirements. Optional external filters can be used to meet the IEC61800-3 C2 requirements.

Inverter unit specifications

Function description		Specifications
Power input	Input voltage (V)	350Vdc~800Vdc
Power output	Output voltage (V)	0–0.7*Input voltage (V)
	Output frequency (Hz)	0~400Hz
Technical control performance	Control mode	Space vector modulation (SVM) control, sensorless vector control (SVC), and feedback vector control (FVC)
	Motor type	Asynchronous motor (AM) and permanent magnetic synchronous motor (SM)
	Speed regulation ratio	For AMs: 1: 200 (SVC) For SMs: 1: 200 (SVC) or 1: 1000 (FVC)
	Speed control accuracy	± 0.2% (SVC); ± 0.02% (FVC)
	Speed fluctuation	±0.3% (SVC)
	Torque response	< 20ms (SVC); < 5ms (FVC)
	Torque control accuracy	10% (SVC); 5% (FVC)
	Starting torque	For AMs: 0.25Hz/150% (SVC) For SMs: 0.25Hz/150% (SVC); 0Hz/200% (FVC)
	Overload capacity	150% rated current for 1 minute, 180% rated current for 10 seconds, 200% rated current for 1 second
Running control performance	Frequency setting method	Settings can be implemented through digital, analog, pulse frequency, multi-step speed running, simple PLC, PID, Modbus communication, CANopen communication and so on. Settings can be combined and the setting channels can be switched.
	Automatic voltage regulation	The output voltage can be kept constant although the bus voltage changes.
	Fault protection	Comprehensive protection functions, such as protection against overcurrent, overvoltage, undervoltage, overtemperature, and overload; protection against communication faults and position control faults
	Speed tracking restart	Enables smooth startup of a rotating motor.
Peripheral interface	Digital input	Two inputs. AI1: 0(2)–10V / 0(4)–20mA; AI2: -10 – +10V Resolution: No more than 20mV
	Analog output	One output. AO1: 0–10V/0–20mA
	Digital input	Four regular inputs. Max frequency: 1kHz. Internal impedance: 3.3 kΩ. Resolution: no more than 2ms
	Digital output	One Y terminal open collector output

Function description		Specifications
Peripheral interface	Relay output	Two programmable relay outputs RO1A: NO; RO1B: NC; RO1C: common RO2A: NO; RO2B: NC; RO2C: common Contact capacity: 3A/AC 250V, 1A/DC 30V
	Communication interface	One RS485 communication interface, supporting the Modbus communication protocol. One CAN communication interface, for master/slave synchorization control.
	Expansion interface	Two expansion interfaces: SLOT1 and SLOT2 Supporting PG cards, programmable expansion cards, communication cards, I/O cards and so on
Other	Mounting method	Wall mounting or flange mounting
	Operating ambient temperature	-10–50°C. Derating required above 40°C.
	IP rating	IP00
	Pollution degree	Degree 2
	Cooling method	Forced air cooling

Model selection

Model designation rules

GD600A-71-045-4-B-S

① ② ③ ④ ⑤ ⑥

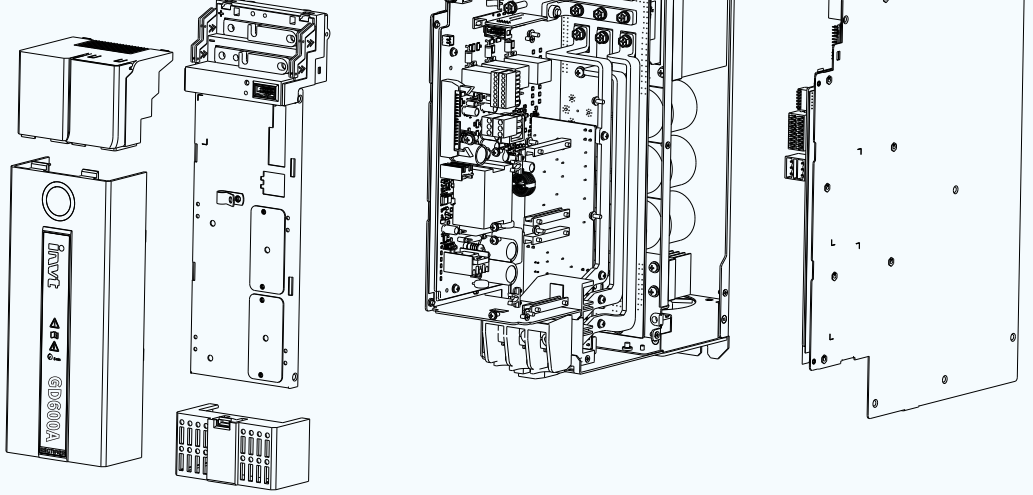
Field	Symbol	Naming example
Product series	①	GD600A: High-performance multi-drive VFD
Product type	②	71: Semi-controlled rectifier unit 61: Uncontrolled rectifier unit 51: Inverter unit
Power code	③	045:45kW
Voltage class	④	4:400V
Braking unit	⑤	None: Empty by default B: Built-in braking unit
Order management number	⑥	Empty: With network bridge S: Without network bridge

Note: The 160kW and 355kW rectifier units support the use of optional built-in input current detection module for data analysis, which needs to be customized.

Product overview

Appearance									
	Rectifier unit					Inverter unit			
Power (kW)	22	45	110	160	355	1.5-7.5	11-37	45-75	90-160
Dimensions (W*H*D)	50*400*350	100*400*350	200*400*350	300*400*350	180*805*423	50*400*350	100*400*350	200*400*350	300*400*350
Appearance									
Category	Communication card			PLC card	PG card	I/O card			

Rectifier unit module structure



Selection of rectifier units

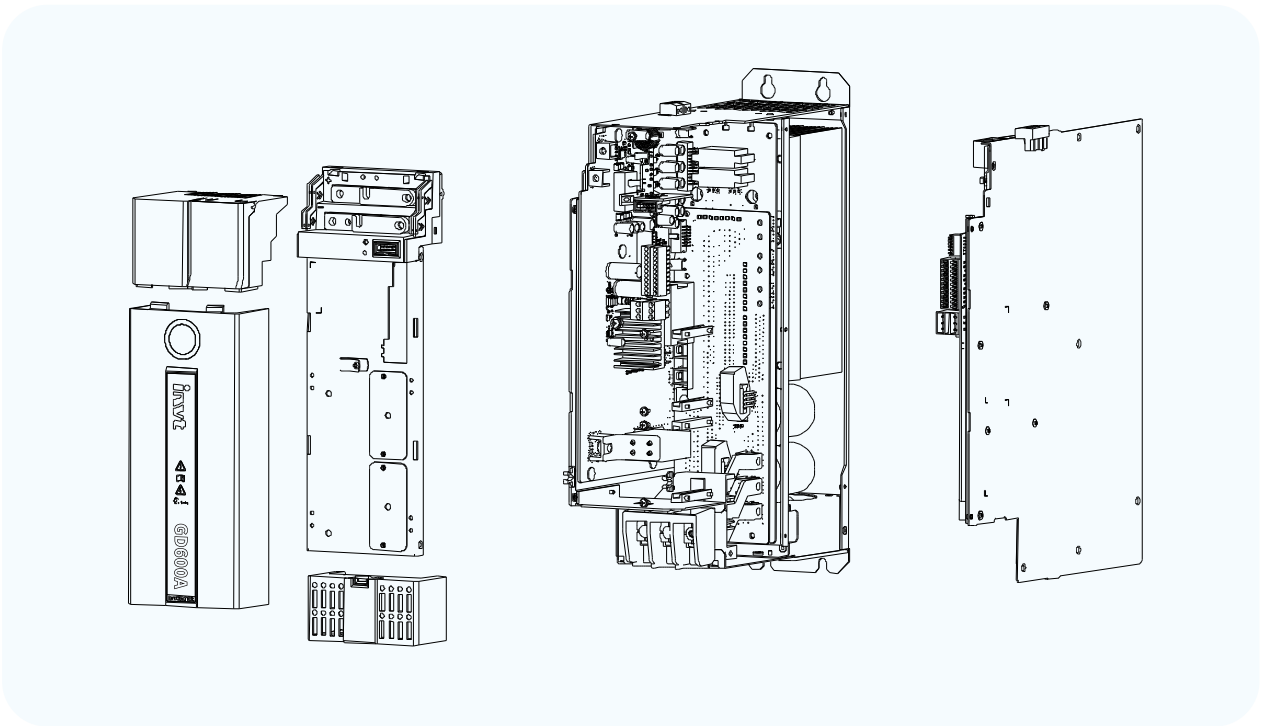
- Semi-controlled rectifier unit ratings

Product model	Rated power (kW)	Power supply capacity (kVA)	Input current AC (A)	Output current DC (A)	Built-in busbar current carrying Capacity (A)	Braking current (A)	Recommended braking unit	Recommended resistance	Network bridge function
GD600A-71-045-4-B	45	76	110	135	350	60	Built-in	⩾13	√
GD600A-71-160-4	160	215	320	380	350	/	DBU100H- 320-4	⩾2.2	√
GD600A-71-355-4	355	433	625	766	/	/	DBU100H-320-4×2	⩾2.2x2	√

- Uncontrolled rectifier unit ratings

Product model	Rated power (kW)	Power supply capacity (kVA)	Input current AC (A)	Output current DC (A)	Built-in busbar current carrying Capacity (A)	Braking current (A)	Recommended braking unit	Recommended resistance	Network bridge function
GD600A-61-022-4-B	22	45	55	67	200	37	Built-in	⩾17	√
GD600A-61-022-4-B-S	22	45	55	67	200	37		⩾17	×
GD600A-61-110-4-B	110	169	225	276	350	145		⩾4.4	√
GD600A-61-110-4-B-S	110	169	225	276	350	145		⩾4.4	×

Inverter unit module structure



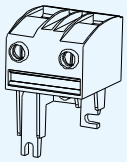
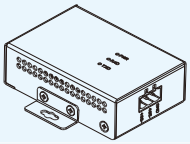
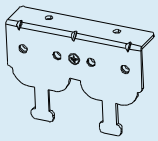
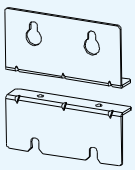
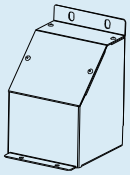
Inverter unit selection

Input voltage range: 350Vdc–800Vdc Output voltage range: 0–0.7*Input voltage					
Product model	Rated power (kW)	Input current DC (A)	Output current AC (A)	Built-in busbar current carrying capacity (A)	Adapted motor kw
GD600A-51-1R5-4	1.5	3.6	3.7	200	1.5
GD600A-51-2R2-4	2.2	5.5	5	200	2.2
GD600A-51-004-4	4	9.6	9.5	200	4
GD600A-51-5R5-4	5.5	14.2	14	200	5.5
GD600A-51-7R5-4	7.5	19	18.5	200	7.5
GD600A-51-011-4	11	26	25	350	11
GD600A-51-015-4	15	33	32	350	15
GD600A-51-018-4	18.5	40	38	350	18.5
GD600A-51-022-4	22	47	45	350	22
GD600A-51-030-4	30	62	60	350	30
GD600A-51-037-4	37	79	75	350	37
GD600A-51-045-4	45	97	92	350	45
GD600A-51-055-4	55	121	115	350	55
GD600A-51-075-4	75	158	150	350	75
GD600A-51-090-4	90	206	180	350	90
GD600A-51-110-4	110	240	215	350	110
GD600A-51-132-4	132	288	260	350	132
GD600A-51-160-4	160	350	305	350	160

Optional expansion cards

Expansion card type	Model	Category	Specifications
 PG card	EC-PG705-12B	Multi-function incremental PG card	Supports 5V/12V incremental encoders with differential, push-pull, and open-collector ABZ signals,up to 200 kHz. Supports pulse + direction command, up to 200kHz, and 5V differential output with 1–255× frequency multiplication.
	EC-PG704	Resolver PG card	Supports differential pulse/direction inputs up to 200kHz; provides 5V differential output with 2^n (1–255×) multiplication.
	EC-PG707-24	24V incremental PG card	Supports 24V incremental encoders with differential, push-pull, and open-collector ABZ signals, up to 200kHz.
	EC-PG708-24	Absolute encoder SSI communication PG card	Supports 24V incremental encoders with differential, push-pull, and open-collector ABZ signals, up to 400kHz. Supports SSI signal, 5V differential input, interrupted clock signal synchronization, with clock frequency up to 700kHz Supports frequency-division output with division ratios from 1 to 255.
	EC-PG705-24	Multifunction incremental PG card	1. Encoder interface: compatible with 24V push-pull, open collector, and differential signals, up to 400kHz 2. Pulse reference: compatible with 24V push-pull, open collector, and differential signals, up to 400kHz 3. Frequency-divided output: Supports open-collector output; external pull-up resistor required at the input side. Supports frequency division with division ratios from 1 to 255, configurable via P20.16 or P24.16. Supports frequency-division output source selection, configurable via P20.17 or P24.17.
 Communication card	EC-TX703	PROFIBUS-DP communication card	PROFIBUS protocol, 9.6kbps–12Mbps
	EC-TX709	PROFINET communication card	Uses the PROFINET protocol and 100Mbps full-duplex operation.
	EC-TX704	Host controller card	Uses INVT internal Ethernet protocol to support INVT Studio monitoring.
	EC-TX708	EtherCAT communication card	Uses the EtherCAT protocol to function as an EtherCAT slave. Provides two real-time industrial Ethernet interfaces, and supports 100Mbit/s full-duplex operation.
 Programmable card	EC-PC701-02	Programmable expansion card	Supports three programming languages—IL (Instruction List), LD (Ladder Diagram), and SFC (Sequential Function Chart); features 16K steps of user program memory and 8K words of data memory (D registers).
 IO card	EC-IO702	IO card	Supports two digital inputs, one analog input, one analog output, one relay output, and supports temperature sensing with four sensor types: KTY84-130, PT100, PT1000, and NTC.

Selection of structural components

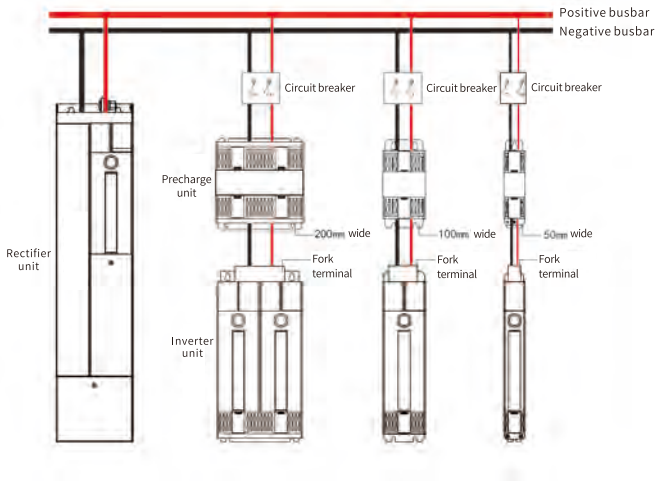
Name	Illustration	Model/Ordering code	Applicable model
External DC connection terminal		GD600-CON1	Current-carrying capability: 100A; applicable to 1.5–7.5kW inverter units.
		GD600-CON2	Current-carrying capability: 200A; applicable to 45kW and 160kW rectifier units and 11–75kW inverter units.
External LCD keypad		SOP-600	All rectifier and inverter units
USB-RS485 communication module		EC-TM485-USB	Used to connect the rectifier unit to the upper computer
Shield bracket		GD600-SH1	Shield bracket, 50mm, applicable to 1.5–7.5kW inverter units and 22kW rectifier unit.
		GD600-SH2	Shield bracket, 100mm, applicable to 11–37kW inverter units and 45kW rectifier unit.
		GD600-SH3	Shield bracket, 200mm, applicable to 45–75 kW inverter units.
		GD600-SH4	Shield bracket, 300mm, applicable to 90–160 kW inverter units.
Flange-type mounting bracket		GD600-FLAN1	Mounting bracket, 50mm, applicable to 1.5–7.5kW inverter units and 22kW rectifier unit.
		GD600-FLAN2	Mounting bracket, 100mm, applicable to 11–37kW inverter units and 45kW rectifier unit.
		GD600-FLAN3	Mounting bracket, 200mm, applicable to 45–75kW inverter units and 110kW rectifier units.
		GD600-FLAN4	Mounting bracket, 300mm, suitable for 90–160 kW inverter units and 160kW rectifier units.
Air baffle		GD600-AD1	Air baffle, 50mm, applicable to 1.5–7.5kW inverter units and 22kW rectifier units.
		GD600-AD2	Air baffle, 100mm, applicable to 11–37kW inverter units and 45kW rectifier unit.
		GD600-AD3	Air baffle, 200mm, applicable to 45–75kW inverter units and 110kW rectifier units.
		GD600-AD4	Mounting bracket, 300mm, applicable to 90–160 kW inverter units and 160kW rectifier unit.

Main circuit accessory selection

Type	Product model	Reactor	Filter
Rectifier side	GD600A-61-022-4-B(-S)	GDL-ACL0051-4AL	FLT-P04065L-B
	GD600A-71-045-4-B	GDL-ACL0110-4AL	FLT-P04100L-B
	GD600A-61-110-4-B(-S)	GDL-ACL0220-4AL	FLT-P04240L-B
	GD600A-71-160-4	GDL-ACL0330-4AL	FLT-P04400L-B
	GD600A-71-355-4	GDL-ACL0580-4AL	FLT-P04800L-B
Inverter side	GD600A-51-1R5-4	GDL-OCL0005-4CU	FLT-L04006L-B
	GD600A-51-2R2-4	GDL-OCL0006-4CU	
	GD600A-51-004-4	GDL-OCL0010-4CU	FLT-L04016L-B
	GD600A-51-5R5-4	GDL-OCL0014-4CU	
	GD600A-51-7R5-4	GDL-OCL0020-4CU	FLT-L04032L-B
	GD600A-51-011-4	GDL-OCL0025-4CU	
	GD600A-51-015-4	GDL-OCL0035-4AL	FLT-L04045L-B
	GD600A-51-018-4	GDL-OCL0040-4AL	
	GD600A-51-022-4	GDL-OCL0050-4AL	FLT-L04065L-B
	GD600A-51-030-4	GDL-OCL0060-4AL	
	GD600A-51-037-4	GDL-OCL0075-4AL	FLT-L04100L-B
	GD600A-51-045-4	GDL-OCL0092-4AL	
	GD600A-51-055-4	GDL-OCL0115-4AL	FLT-L04150L-B
	GD600A-51-075-4	GDL-OCL0150-4AL	
	GD600A-51-090-4	GDL-OCL0220-4AL	FLT-L04240L-B
	GD600A-51-110-4	GDL-OCL0220-4AL	FLT-L04240L-B
	GD600A-51-132-4	GDL-OCL0265-4AL	FLT-L04240L-B
	GD600A-51-160-4	GDL-OCL0330-4AL	FLT-L04400L-B

BUB selection

BUB600 series precharge unit is a DC precharging device designed for use with the inverter units of the GD600A series VFDs. When used in conjunction with a circuit breaker and external DC bus terminals, it enables independent power-up and power-down operations of the inverter unit, allowing convenient inverter unit replacement without interrupting the power supply to the rectifier.

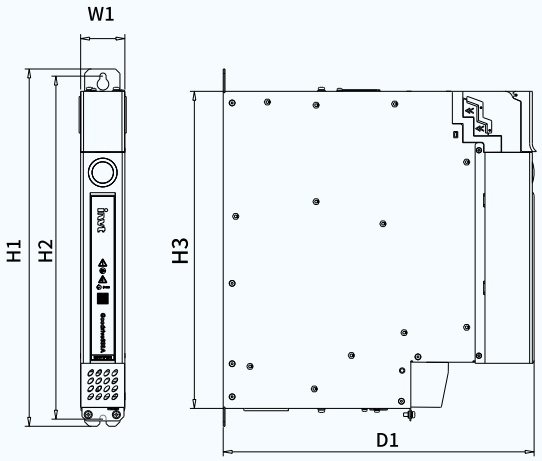


System schematic diagram

Inverter unit	Matching BUB model	Recommended circuit breaker rated current (A)
GD600A-51-1R5-4	BUB600-7R5-4	40
GD600A-51-2R2-4	BUB600-7R5-4	40
GD600A-51-004-4	BUB600-7R5-4	40
GD600A-51-5R5-4	BUB600-7R5-4	40
GD600A-51-7R5-4	BUB600-7R5-4	40
GD600A-51-011-4	BUB600-037-4	80
GD600A-51-015-4	BUB600-037-4	80
GD600A-51-018-4	BUB600-037-4	80
GD600A-51-022-4	BUB600-037-4	80
GD600A-51-030-4	BUB600-037-4	125
GD600A-51-037-4	BUB600-037-4	125
GD600A-51-045-4	BUB600-075-4	200
GD600A-51-055-4	BUB600-075-4	200
GD600A-51-075-4	BUB600-075-4	315

Mounting dimensions

- Wall mounting dimensions (for rectifier unit)



Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-61-022-4-B(-S)	400	355	50	350	384	-	-	Φ7	4.7

Table D-1 Wall mounting dimensions for the 380V 22kW uncontrolled rectifier unit

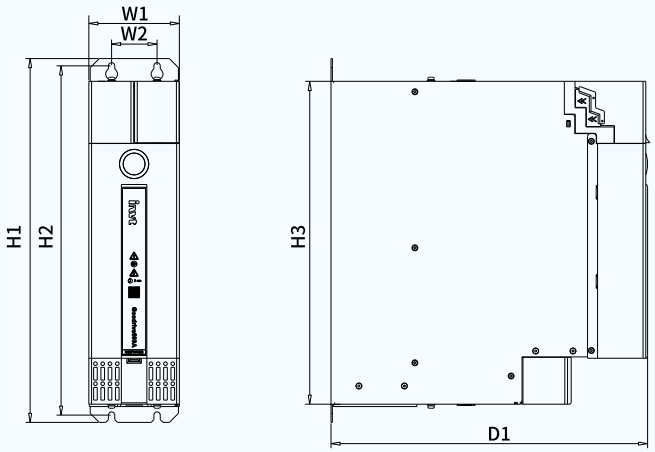


Figure D-4 Wall mounting drawing for the 380V 45kW rectifier unit

Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-71-045-4-B	400	355	100	350	384	50	-	Φ7	9

Table D-2 Wall mounting dimensions for the 380V 45kW rectifier unit

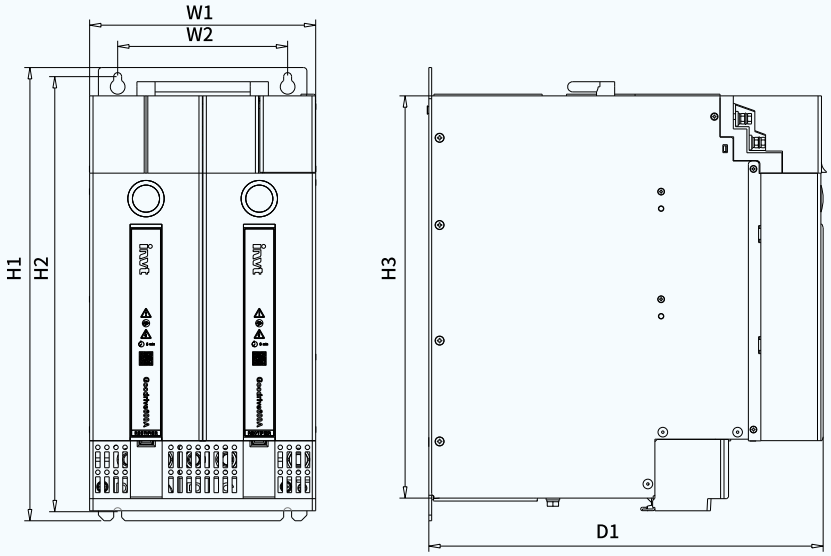


Figure D-5 Wall mounting drawing for the 380V 110kW uncontrolled rectifier unit

Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-61-110-4-B(-S)	400	355	200	350	384	150	-	Φ7	16.8

Table D-3 Wall mounting dimensions for the 380V 110kW uncontrolled rectifier unit

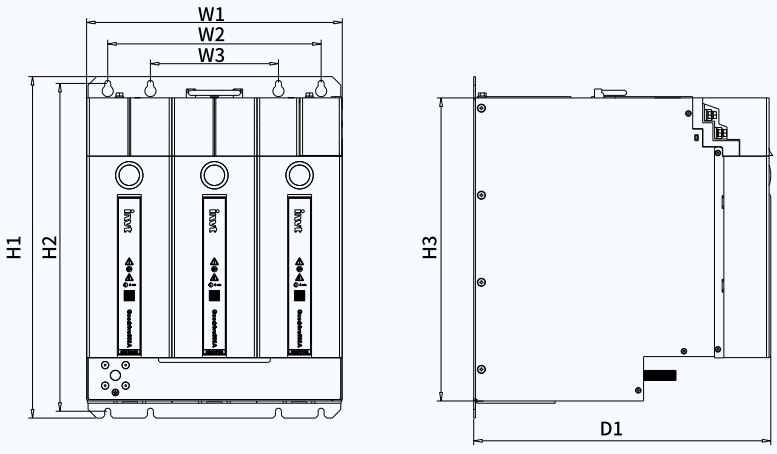


Figure D-6 Wall mounting drawing for the 380V 160kW rectifier unit

Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-71-160-4	400	355	300	350	384	250	150	Φ7	28

Table D-4 Wall mounting dimensions for the 380V 160kW rectifier unit

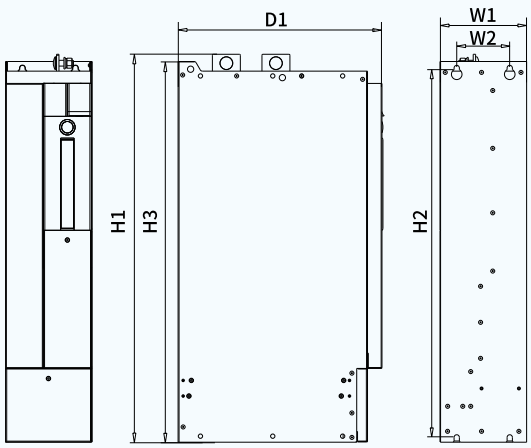


Figure D-7 Wall mounting drawing for the 380V 355kW rectifier unit

Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-71-355-4	805	790	180	423	767.5	110	-	Φ11	42.6

Table D-5 Wall mounting dimensions for the 380V 355kW rectifier unit

Wall mounting dimensions (for inverter unit)

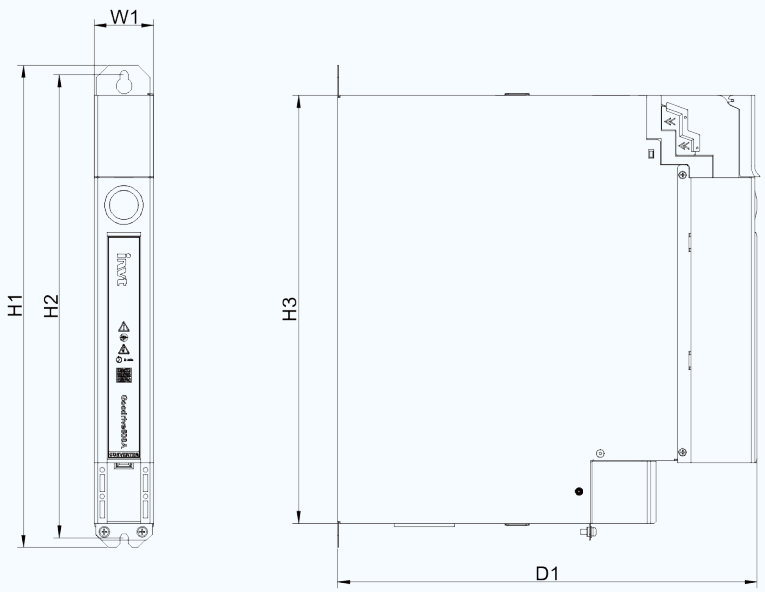


Figure D-8 Wall mounting drawing for the 380V 1.5–7.5kW rectifier unit

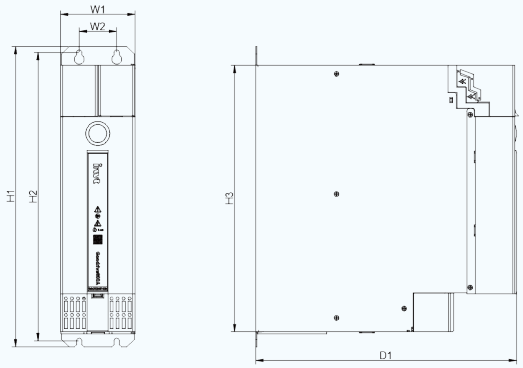


Figure D-9 Wall mounting drawing for the 380V 11–37kW inverter unit

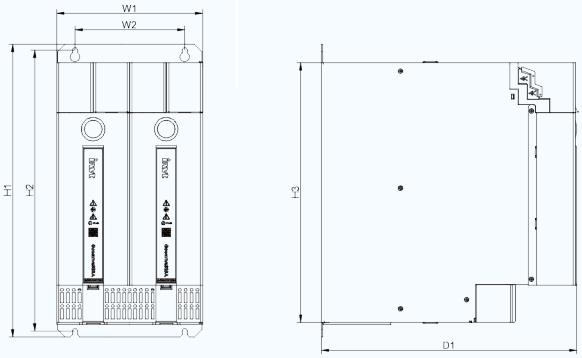


Figure D-10 Wall mounting drawing for the 380V 45–75kW inverter unit

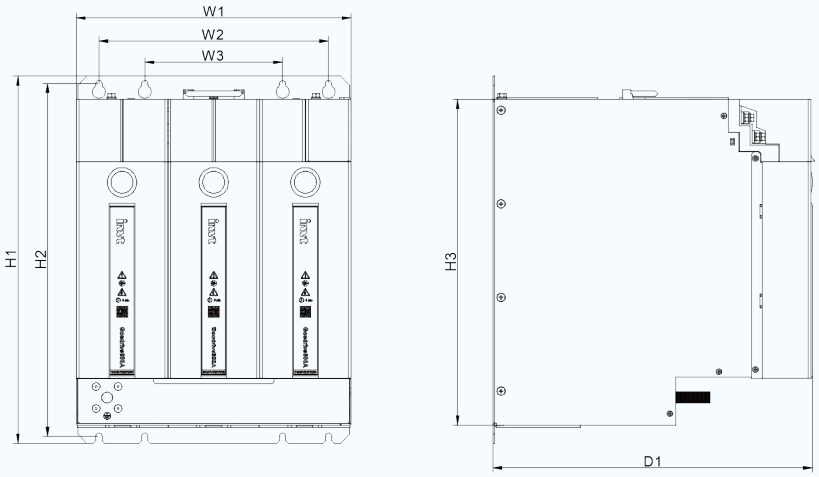


Figure D-11 Wall mounting drawing for the 380V 90–160kW inverter units

Model	Outline dimensions (mm)				Mounting hole spacing (mm)			Mounting hole diameter (mm)	Weight (kg)
	H1	H3	W1	D1	H2	W2	W3		
GD600A-51-(1R5-7R5)-4	400	355	50	350	384	-	-	Φ7	4
GD600A-51-(011-037)-4	400	355	100	350	384	50	-	Φ7	9
GD600A-51-(045-075)-4	400	355	200	350	384	150	-	Φ7	18
GD600A-51-(090-160)-4	400	355	300	350	384	250	150	Φ7	28

Figure D-8 Wall mounting drawing for the 380V 1.5–160kW inverter units

- Flange mounting dimensions (rectifier and inverter units in parallel)

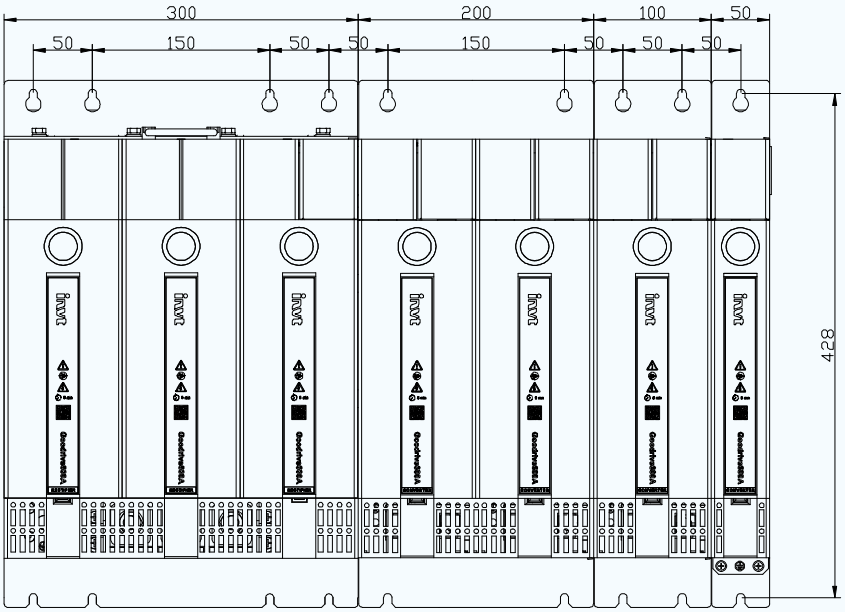


Figure D-12 Flange mounting drawing for the 380V rectifier and inverter units

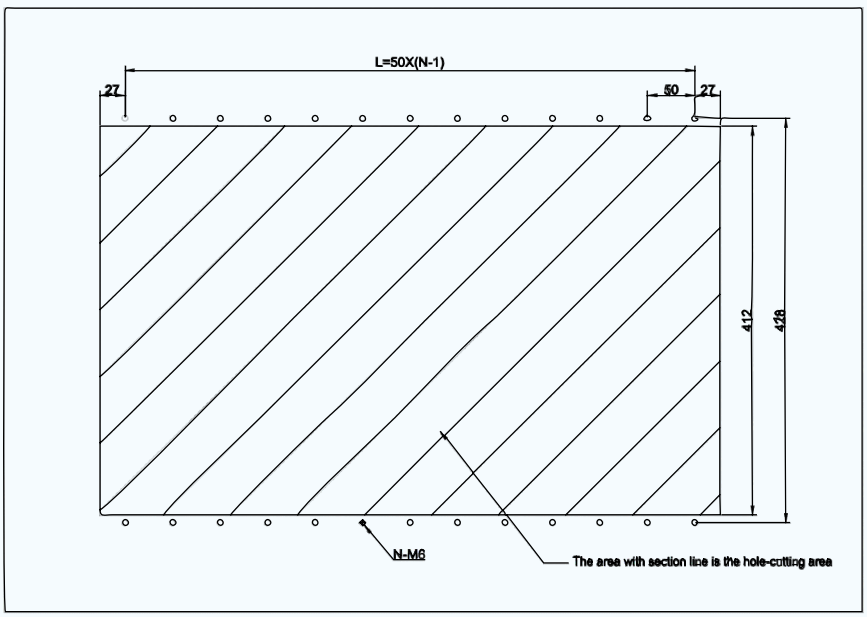
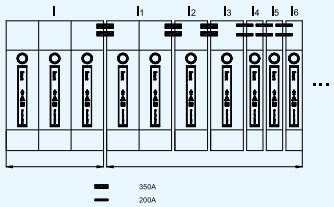
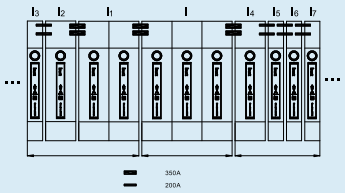
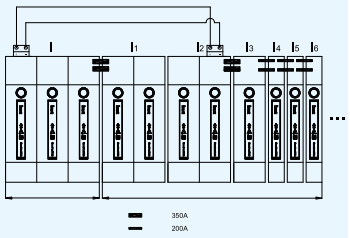
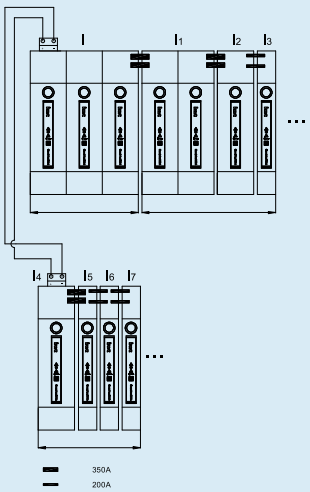
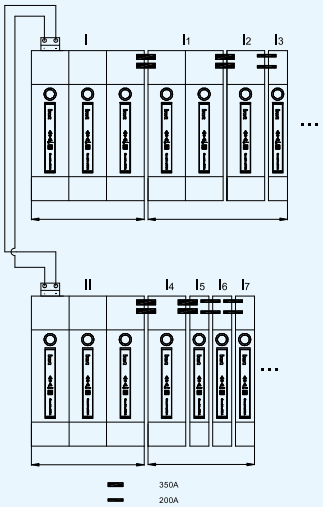
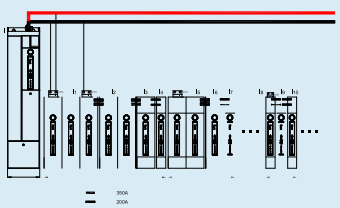
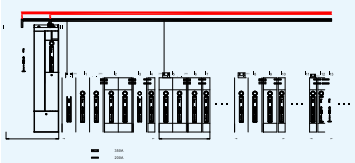


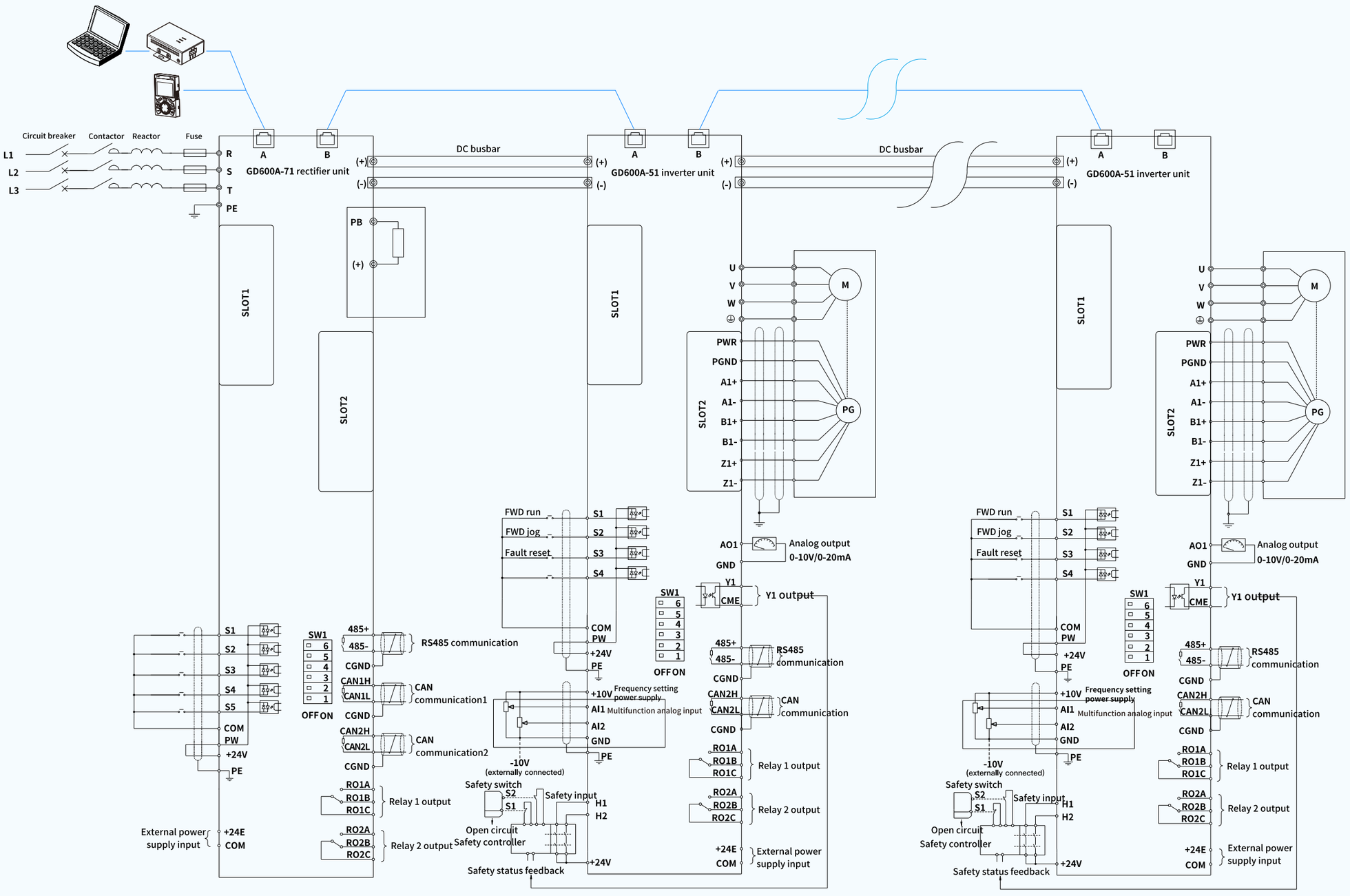
Figure D-13 Flange mounting drawing for the 380V rectifier and inverter units

Parallel connection

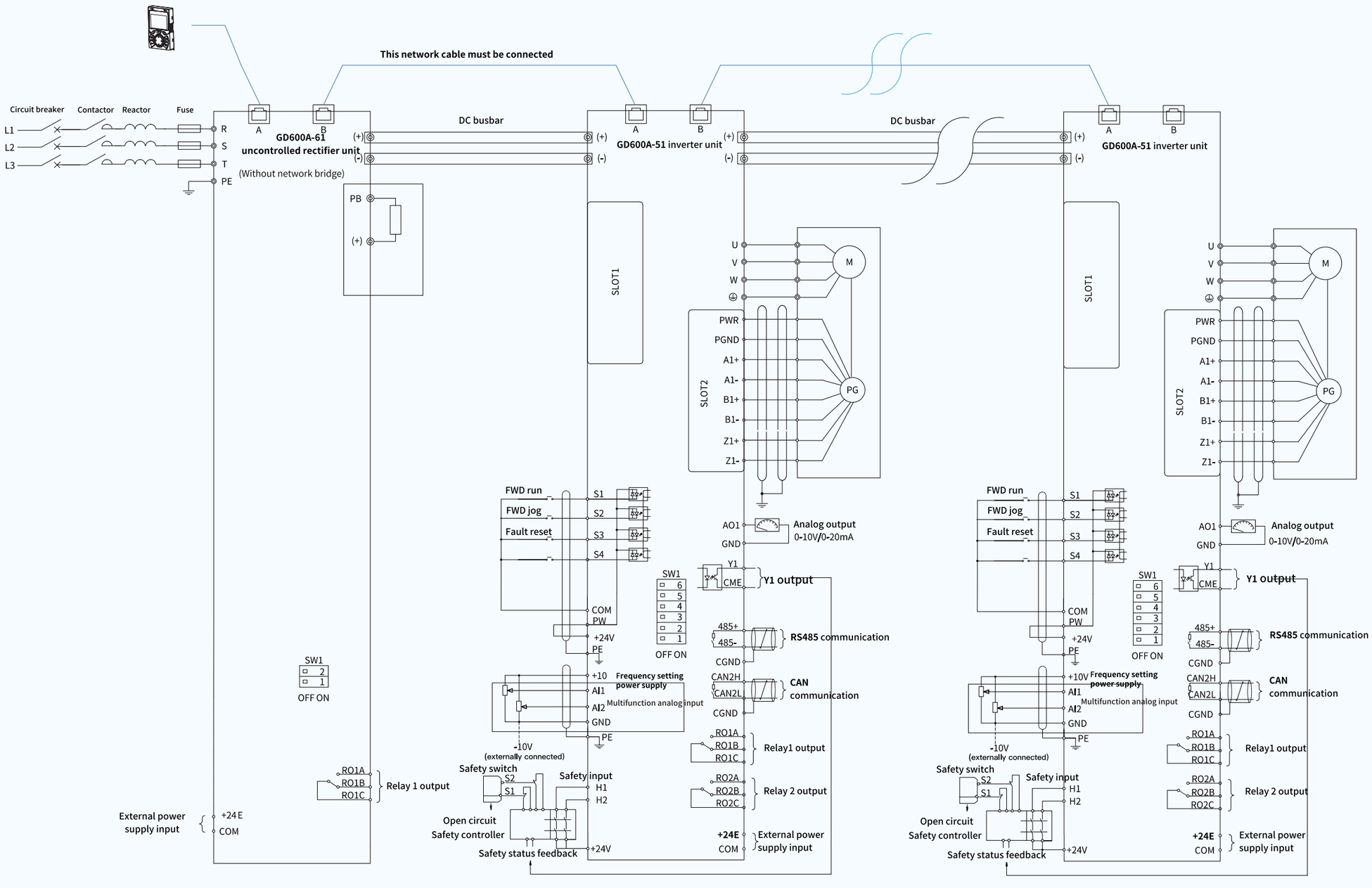
Parallel configuration	Parallel connection diagram	Required conditions
Single-row layout (rectifier on the left)		I(Rectifier)≥0.8*(I1+I2+ I3+I4+I5+I6+…) I1+I2+I3+I4+I5+I6+…≤350A I4+I5+I6+…≤200A
Single-row layout (rectifier in the center)		I(Rectifier)≥0.8*(I1+I2+ I3+I4+I5+I6+I7+…) I1+I2+I3+…≤350A I4+I5+I6+I7+…≤350A I5+I6+I7+…≤200A I3+…≤200A
Single-row layout (external busbar connection)		I(Rectifier)≥0.8*(I1+I2+ I3+I4+I5+I6+…) I1+I2≤350A I3+I4+I5+I6+…≤350A I4+I5+I6+…≤200A
Double-row layout (single rectifier)		I(Rectifier)≥0.8*(I1+I2+ I3+I4+I5+I6+I7+…) I1+I2+I3+…≤350A I4+I5+I6+I7+…≤350A I5+I6+I7+…≤200A I3+…≤200A

Parallel configuration	Parallel connection diagram	Required conditions
Double-row layout (multiple rectifiers in parallel)		I(Rectifier 1)+II(Rectifier 2)≥0.8*(I1+I2+I3+I4+I5+I6+I7+…) I(Rectifier 1)/II(Rectifier 2)≈ (I1+I2+I3+…)/(I4+I5+I6+I7+…) I1+I2+I3+…≤350A I4+I5+I6+I7+…≤350A I5+I6+I7+…≤200A I3+…≤200A
Single-row layout (rectifier on the left)		I(Rectifier)≥0.8*(I1+I2+ I3+I4+I5+I6+I7… +I8+I9+I10+I11…) I1+I2+I3+I4≤350A I5+I6+I7+…≤200A I8+I9+I10…≤100A
Single-row layout (rectifier on the left)		I(Rectifier 1)+II(Rectifier 2)≥ 0.8*(I1+I2+I3+I4+I5+I6+I7… +I8+I9+I10…+I11+I12+I13…) I1+I2+I3+I4≤350A I5+I6+I7…≤350A I8+I9+I10…≤200A I11+I12+I13…≤100A

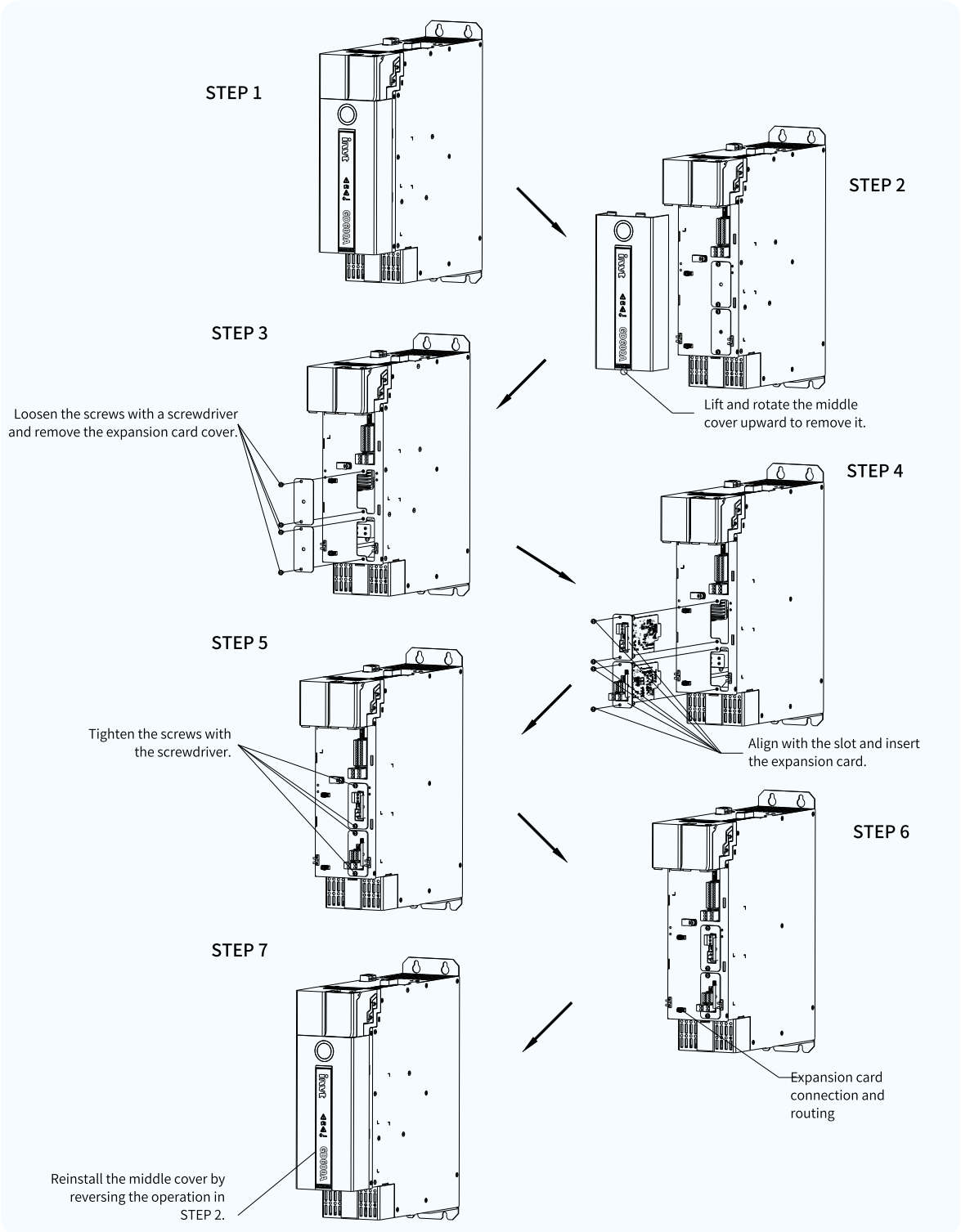
Semi-controlled rectifier unit wiring diagram



Uncontrolled rectifier unit wiring diagram



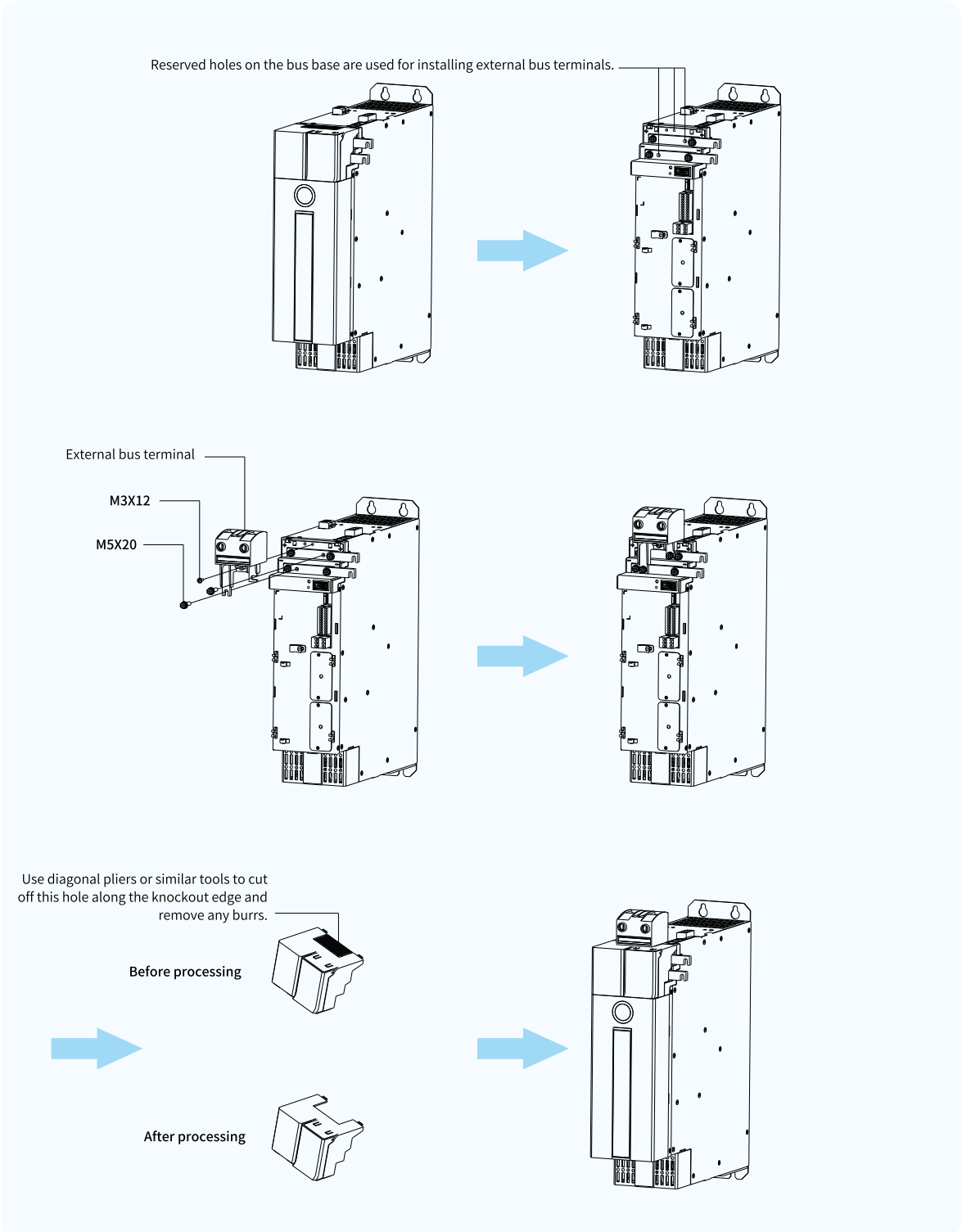
Expansion card installation illustration



Note:

1. Ensure that no power is applied before installing the expansion card.
2. The expansion card can be installed in any one of the SLOT1 and SLOT2 card slots.
3. If interference occurs on the external wires after the expansion card is installed, change the installation slot flexibly to facilitate the wiring. For example, since the connector of the DP card connection cable is large, you are recommended to install the card in SLOT1.

External bus terminal installation illustration



Note: Please tighten screws with proper torque: For M3: 5–6 kgf · cm; For M5: 25–28 kgf · cm

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