

ADL200G Series Frequency Inverter

1. Application



ADL200G

General functions and descriptions of ADL200G series frequency inverter:

1. Abundant voltage classes: support three voltage classes, namely single-phase 220V, three-phase 220V and three-phase 380V.
2. Abundant control mode: apart from vector control of velocity sensor, sensorless vector control and V/F control, support V/F separation control.
3. Abundant field bus: support Modbus-RTU and CANlink field bus.
4. Abundant encoder types: support difference encoder, open collector encoder and rotary transformer, etc.
5. Brand-new sensorless vector control algorithm Brand-new SVC creates better low-velocity stability, stronger low-frequency load capacity, and supports torque control of SVC.
6. Powerful background software: uploading, downloading parameters, real-time oscilloscope can be realized on background software.

Functions	Descriptions
Overheat protection of motor	After choosing ADL200GPC1 expansion card, AI3 can receive temperature sensor input of motor (PT100, PT1000) to realize overheat protection
Fast current limiting	Avoid over-current fault of frequency converter
Dual motor switch	Two sets of motor parameters can realize dual motor switch
Restore user parameters	Users can save or restore own parameter settings
Accurate AIAO	After factory calibration (or spot calibration), AIAO accuracy can be <20mv
Show customized parameters	Users can customize function parameters to be displayed
Show altered parameters	User can view function parameters after modification
Optional fault handing ways	Users can select action modes of convertor after confirming certain faults: free halting, deceleration halting, continual operation. The users can also select frequency for continual operation.
PID parameter switch	Two sets of PID parameters can switch by terminal or based on deviation
PID feedback loss detection	PID feedback loss detection value realizes protection during PID operation
DIDO positive/negative logic	Users can set positive/negative logic of DIDO
DIDO response delay	Users can set response delay time of DIDO
Run under instantaneous stop	Frequency convertor continues running within short time if instantaneous power outage or voltage decrease
Timing operation	Support timing operation for 6,500 minutes at most

2. Specification

Items		Specifications	
Basic functions	Highest frequency	Vector control: 0~300Hz	
		V/F control: 0~3200Hz	
	Carrier frequency	0.5kHz~16kHz	
		Adjust carrier frequency automatically based on load characteristic	
	Input frequency resolution	Number setting: 0.01Hz	
		Simulation setting: highest frequency×0.025%	
	Control mode	SVC	
		FVC	
		V/F control	
	Starting torque	G-style machine: 0.5Hz/150% (SVC); 0Hz/180% (FVC)	
		P-style machine: 0.5Hz/100%	
	Speed regulation range	1: 100 (SVC)	1: 1000 (FVC)
	Speed stabilizing precision	±0.5% (SVC)	±0.02% (FVC)
	Torque control precision	±5% (FVC)	
	Overload capacity	G-style machine: 150% rated current at 60s; 180% rated current at 3s	
		P-style machine: 120% rated current at 60s; 150% rated current at 3s	
	Torque promotion	Automatic torque promotion; manual torque promotes by 0.1%~30.0%	
	V/F curve	Three ways: linear type; multipoint type; N power type V/F curve	
		(1.2 power, 1.4 power, 1.6 power, 1.8 power, 2 power)	
	V/F separation	2 ways: full separation, semi-separation	
	Acceleration/deceleration curves	Linear or S-curve acceleration/deceleration way. Four kinds of acceleration/deceleration time	
		Acceleration/deceleration time range: 0.0~6500.0s	
	DC braking	DC braking frequency: 0.00Hz~maximum frequency; Braking time: 0.0s~36.0s braking action; Current value:0.0%~100.0%	
	Inching control	Inching frequency range: 0.00Hz~50.00Hz;	
		Inching acceleration/deceleration time 0.0s~6500.0s	
	Simple PLC, multi-stage velocity operation	Realize 16-stage velocity operation at most through built-in PLC or control terminal	
	Built-in PID	Easy to realize process control, closed-loop control system	
	Automatic voltage regulation	Keep constant output voltage automatically if any change of network voltage	
	Overvoltage, overcurrent, stalling control	Limit current/voltage automatically during operation, prevent frequent tripping caused by over-current and over-voltage	
	Fast current-limiting function	Reduce over-current fault, protect normal operation of convertor	
	Torque limit and control	"Nawy" character limit torque during operation, prevent frequent overcurrent tripping, closed-loop vector mode can realize torque control	

Items		Specifications
Individualized functions	Excellent performance	Realize motor control with high-performance current vector control
	Operate under instantaneous stop	Offset reduced voltage through load feedback energy if instantaneous outage, keep continual operation of frequency convertor within short time
	Fast current limiting	Avoid frequent over-current fault of frequency convertor
	Timing control	Timing control function: set time range 0.0Min~6500.0Min
	Multi-motor switch	2 sets of motor parameters realize switch control of 2 motors
	Multi-threading bus	Support two kinds of spot field bus: RS-485 , CAN link
	Overheating protection	Optional multi-function card, analog input A13 can receive motor temperature sensor input(PT100, PT1000)
	Multi encoder	Support various encoders such as differentiation, open collector and rotary transformer
	Programmable by users	Optional user programmable card realizes secondary development
	Powerful background software	Support parameter operation and virtual oscilloscope function. Realize graphic monitoring of internal status of frequency convertor through virtual oscilloscope
Operation	Command source	Given operation panel, given control terminal, given serial communication port. Switch through multiple ways
	Frequency source	10 frequency sources: given digit, given analog voltage, given
		Analog current, given pulse, given serial port. Switch through
		Multiple ways
	Auxiliary frequency source	10 auxiliary frequency sources. Realize auxiliary frequency trimming and frequency synthesis flexibly
	Input terminals	Standard:
		5 digital input terminals, in which 1 terminal supports high-speed
		Impulse input at 100Hz
		2 analog input terminals, in which 1 supports voltage input at 0~10V, 1 supports voltage support at 0~10V or current input at 4~20mA
		Expansion capability:
		5 digital input terminals
		1 analog input terminal supports voltage support at 0~10V
	Output terminals	Standard:
		1 high-speed pulse output terminal (open collector is optional), support square signal output at 0~100kHz
		1 digital output terminal
		1 relay output terminal
		1 analog output terminal supports current input at 0~20mA or voltage support at 0~10V
		Expansion capability:
		1 digital output terminal
		1 relay output terminal
		1 analog output terminal supports current input at 0~20mA or voltage support at 0~10V

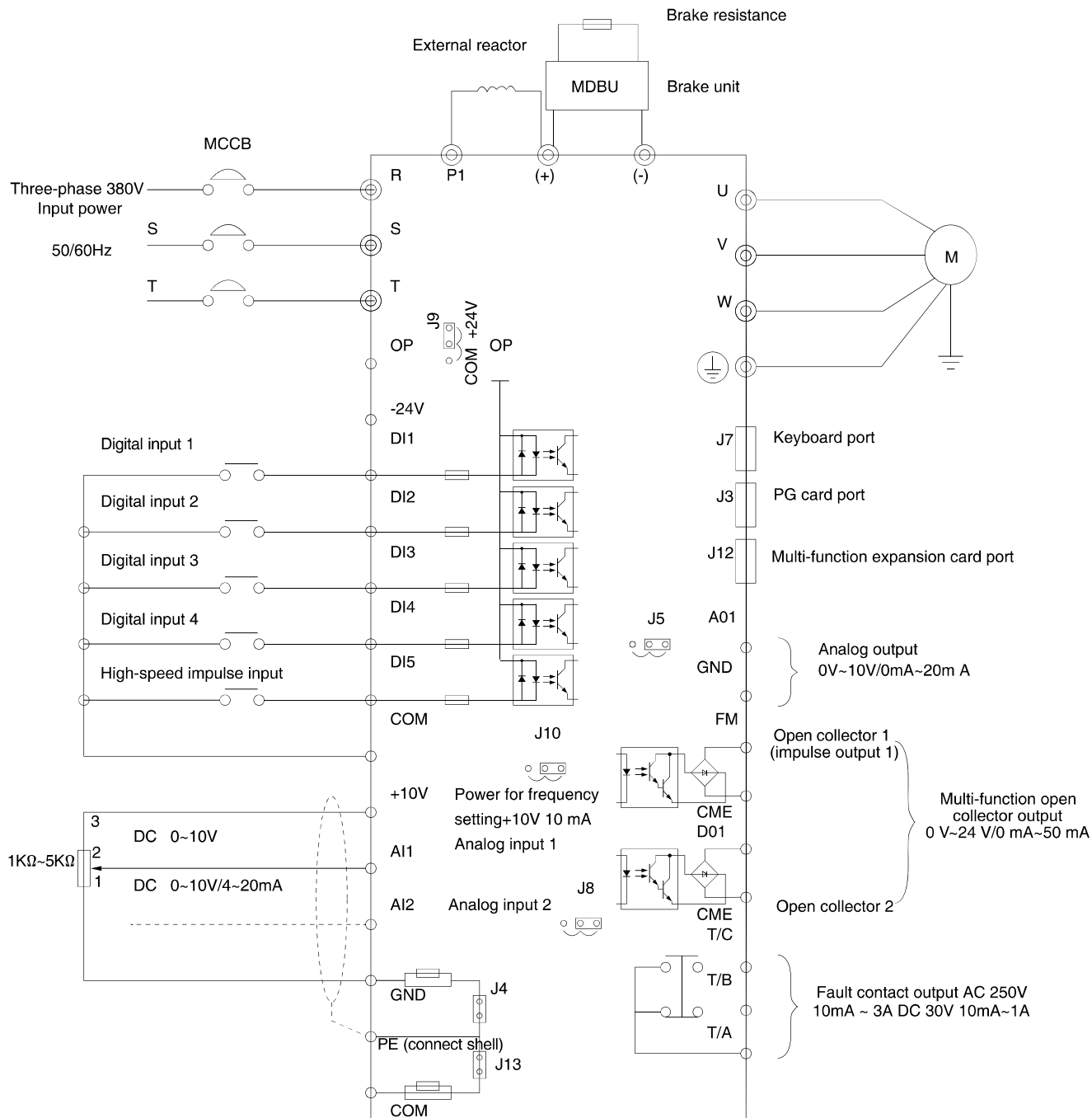
Items		Specifications
Display and keyboard operation	LED display	Display parameters
	Key locking and function selection	Partial or all locking of keys, define function range of some keys to prevent misoperation
	Protection function	Short-circuit detection of motor when electrifying, input/output default phase protection, over-current protection, overvoltage protection, undervoltage protection, overheating protection, overload protection
	Optional accessories	LCD operation panel, braking unit, multi-function expansion card, IO expansion card, RS485 communication card, CAN link communication card, differential input PG card, rotary transformer PG card, OC input PG card
Operating environment	Using place	Indoor without direct sunlight, dust, corrosive gas, combustible gas, oil mist, water vapor, dropping water or salinity
	Altitude	<1,000m
	Environment temperature	-10°C~+40°C(environment temperature at 40°C~50°C , please derate to use)
	Humidity	<95%RH, no condensing drops
	Virbration	<5.9m/s ² (0.6g)
	Storage temperature	-20°C~+60°C

3. Type and Meaning

<u>ADL</u>	<u>200G</u>	-	<u>0R7</u>		<u>G</u>	<u>B</u>	-	<u>T</u>		<u>4</u>			
company name	product series	power level	0R7	...	022	G	general type	Mark	braking unit	T	three-phase	voltage grade	
ANDELI	100G	adaptable motor(KW)	0.75KW	...	22KW	P	fan/pump type	blank	no	S	single phase	1	110V
	200G							B	yes			2	220V
												4	380V

Model of frequency inverter	Power capacity kVA	Input current A	Output current A	Adaptive motor kW HP	
Single-phase power: 220V, 50/60Hz					
ADL200G-0R4GB-S2	1	5.4	2.3	0.4	0.5
ADL200G-0R7GB-S2	1.5	8.2	4	0.75	1
ADL200G-1R5GB-S2	3	14	7	1.5	2
ADL200G-2R2GB-S2	4	23	9.6	2.2	3
Three-phase power: 220V, 50/60Hz					
ADL200G-0R4GB-T2	1.5	3.4	2.1	0.4	0.5
ADL200G-0R7GB-T2	3	5	3.8	0.75	1
ADL200G-1R5GB-T2	4	5.8	5.1	1.1	1.5
ADL200G-2R2GB-T2	5.9	10.5	9	2.2	3
ADL200G-3R7GB-T2	8.9	14.6	13	3.7	5
ADL200G-5R5GB-T2	17	26	25	5.5	7.5
ADL200G-7R5GB-T2	21	35	32	7.5	10
ADL200G-11G-T2	30	46.5	45	11	15
ADL200G-15G-T2	40	62	60	15	20
ADL200G-18R5G-T2	57	76	75	18.5	25
ADL200G-22G-T2	69	92	91	22	30
ADL200G-30G-T2	85	113	112	30	40
ADL200G-37G-T2	114	157	150	37	50
ADL200G-45G-T2	134	180	176	45	60
ADL200G-55G-T2	160	214	210	55	70
ADL200G-75G-T2	231	307	304	75	100
Three-phase power: 380V, 50/60Hz					
ADL200G-0R7GB-T4	1.5	3.4	2.1	0.75	1
ADL200G-1R5GB-T4	3	5	3.8	1.5	2
ADL200G-2R2GB-T4	4	5.8	5.1	2.2	3
ADL200G-3R7GB-T4/ADL200G-3R7PB-T4	5.9	10.5	9	3.7	5
ADL200G-5R5GB-T4/ADL200G-5R5PB-T4	8.9	14.6	13	5.5	7.5
ADL200G-7R5GB-T4/ADL200G-7R5PB-T4	11	20.5	17	7.5	10
ADL200G-11GB-T4/ADL200G-11PB-T4	17	26	25	11	15
ADL200G-15GB-T4/ADL200G-15PB-T4	21	35	32	15	20
ADL200G-18R5G-T4/ADL200G-18R5P-T4	24	38.5	37	18.5	25
ADL200G-22G-T4/ADL200G-22P-T4	30	46.5	45	22	30
ADL200G-30G-T4/ADL200G-30P-T4	40	62	60	30	40
ADL200G-37G-T4/ADL200G-37P-T4	57	76	75	37	50
ADL200G-45G-T4/ADL200G-45P-T4	69	92	91	45	60
ADL200G-55G-T4/ADL200G-55P-T4	85	113	112	55	70
ADL200G-75G-T4/ADL200G-75P-T4	114	157	150	75	100
ADL200G-90G-T4/ADL200G-90P-T4	134	180	176	90	125
ADL200G-110G-T4/ADL200G-110P-T4	160	214	210	110	150
ADL200G-132G-T4/ADL200G-132P-T4	192	256	253	132	175
ADL200G-160G-T4/ADL200G-160P-T4	231	307	304	160	210
ADL200G-185G-T4/ADL200G-185P-T4	240	345	340	185	248
ADL200G-200G-T4/ADL200G-200P-T4	250	385	377	200	260
ADL200G-220G-T4/ADL200G-220P-T4	280	430	426	220	300
ADL200G-250G-T4/ADL200G-250P-T4	355	468	465	250	350
ADL200G-280G-T4/ADL200G-280P-T4	396	525	520	280	370
ADL200G-315G-T4/ADL200G-315P-T4	445	590	585	315	500
ADL200G-355G-T4/ADL200G-355P-T4	500	665	650	355	420
ADL200G-400G-T4/ADL200G-400P-T4	565	785	725	400	530

4. Wiring Diagram



5. Terminal And Wiring Of Main Circuit

1. Description of terminal of main circuit for single-phase frequency inverter

Terminal marking	Name	Description
L1,L2	Input terminal of single-phase power	Contact poin of single-phase 220V AC power
(+),(-)	Positive/negative terminals of DC bus	Input point of DC bus
(+),PB	Connection terminal of brake resistance	Connect brake resistance
U,V,W	Output terminal of convertor	Connect three-phase motor
PEⓈ	Earthing terminal	Earthing terminal

2. Description of terminal of main circuit for single-phase frequency convertor

Terminal marking	Name	Description
R,S,T	Input terminal of three-phase power	Connection point of AC input three-phase power
(+),(-)	Positive/negative terminals of DC bus	Input point of DC bus and brake unit
(+),PB	Connection terminal of brake resistance	Connect brake resistance
P1,(+)	Connection terminal of external DC reactor	Connection point of external DC reactor
U,V,W	Output terminal of convertor	Connect three-phase motor
PEⓈ	Earthing terminal	Earthing terminal

Wiring precautions:

a. Input power L1, L2 or R, S, T:

b. Wiring on input side of convertor has no requirement on phase sequence. Wiring precautions:

1. (+) (-) terminals of DC bus: there's residual voltage for DC bus (+) (-) immediately after outage. Contact after CHARGE light extinguishes and confirm it's <36V, otherwise there is risk of electric shock.

2. When selecting external braking component, avoid inverse connection of (+) (-) polarity, otherwise it will lead to damage of frequency convertor and even fire.

3. Wiring length of brake unit should not exceed 10m. Twisted pair or tight double-line should be used for parallel wiring. Do not connect brake resistance directly to DC bus, otherwise it will lead to damage of frequency convertor and even fire.

c. Connection terminal (+), PB of brake resistance: Confirm the model of built-in brake unit, and connection terminal of brake resistance is valid. Model selection of brake resistance refers to recommended value and wiring distance should be <5m, otherwise frequency convertor may be damaged.

d. Connection terminal P1, (+) of external DC reactor

For the frequency convertor at above 220V37KW and 380V75kW, connection strap between P1 and (+) terminals needs to be removed when installing DC reactor externally, and connect DC reactor between two terminals.

e. U, V, W on output side of frequency convertor: output side of frequency convertor shall not connect capacitor or surge absorber, otherwise it will lead to frequent protection and even damage of convertor. Due to influence of distributed capacitance, if motor cable is too long, electric resonance wil produce easily, which will damage motor insulation or produce large leak current and frequent protection of convertor. If motor cable is >100m, AC input reactor should be installed.

f. Earthing terminal PE,Ⓢ

For different models, the marking of earthing terminal may be different, but the meaning is same. In above descriptions, PE,Ⓢ means that earthing marking is PE or Ⓢ.

Keep reliable earthing of earthing terminal and resistance value of ground wire should be <0.1Ω, otherwise it will lead to abnormal operation and even damage of device. Do not use earthing terminal PE or Ⓢ and N terminal on null line of power in common.

Control terminal and wiring

1. Layout diagram of terminals on control circuit is as below:

(Note: there's no short-circuit strap between CME and COM, OP and +24V of ADL200G frequency convertor. Users select wiring way of CME and OP respectively through J10, J9)

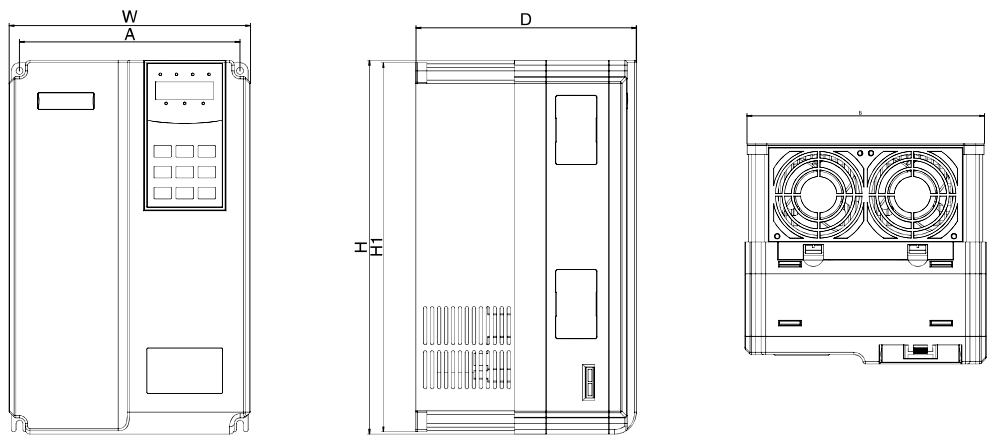
+10V	AI1	AI2	DI1	DI1	DI3	DI4	DI5	COM					
	GND	GND	A01	CME	COM	D01	FM	+24V	OP		T/A	T/B	T/C

Layout diagram of terminals on control circuit

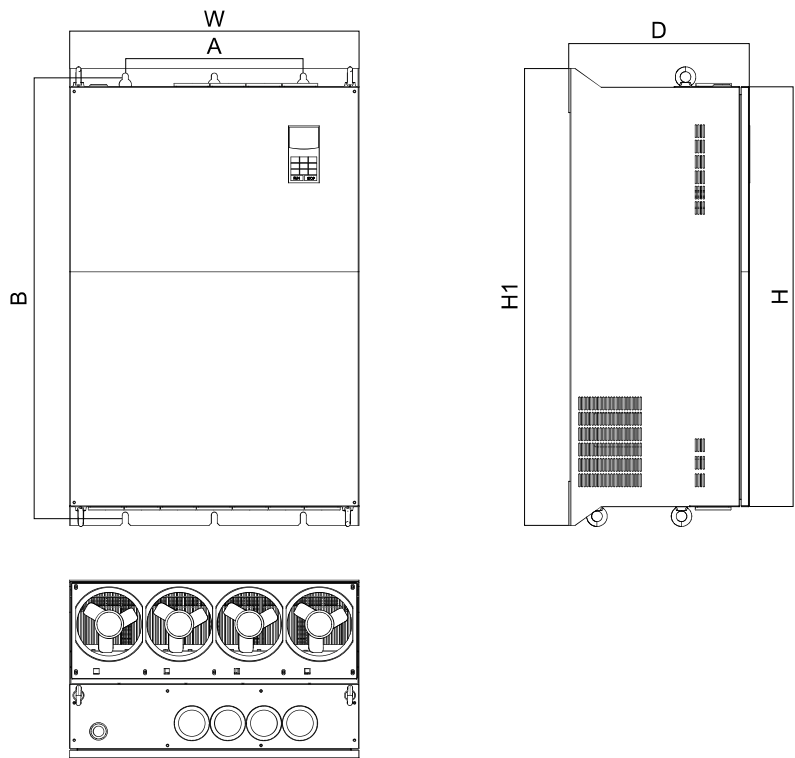
2. Functional descriptions of control terminals

Type	Terminal symbol	Terminal name	Functional description
Power	+10V-GND	Connect 10V power externally	Offer +10V power externally, max. output current: 10mA Be commonly used as working power of external potentiometer, resistance value range of potentiometer: 1kΩ~5kΩ
	+24V-COM	Connect 24V power externally	Offer +24V power externally, be used as working power of digital input/output terminal and power of external sensor Max. output current: 200mA
	OP	Input terminal of external power	Connect +24V or COM through J9 jumper on control panel If using external signal to drive DI1~DI5, OP needs to connect with external power, and pull out J9 jumper
Analog input	AI1-GND	Analog input terminal 1	1. Range of input voltage: DC 0V~10V 2. Input impedance: 22kΩ
	AI2-GND	Analog input terminal 2	1. Input range: DC 0V~10V/4mA~20mA, depend on J8 jumper on control panel 2. Input impedance: 22kΩ for voltage input, 500Ω for current input
Digital input	DI1-OP	Digital input 1	1. Optical coupling isolation, be compatible with bipolar input 2. Input impedance: 2.4kΩ 3. Voltage range for level input: 9V~30V
	DI2-OP	Digital input 2	
	DI3-OP	Digital input 3	
	DI4-OP	Digital input 4	
	DI5-OP	High-speed impulse input terminal	Apart from features of DI1~DI4, it can be high-speed impulse input channel. Max. input frequency: 100kHz
Analog output	AO1-GND	Analog output 1	J5 jumper on control panel decides voltage or current output Output voltage range: 0V~10V Output current range: 0mA~20mA
Digital output	DO1-CME	Digital output 1	Optical coupling isolation, bipolar open collector output Output voltage range: 0V~24V; output current range: 0mA~50mA Caution: digital output CME and digital input COM are internally isolated, but short circuit of CME and COM is realized through J10 jumper on control panel (DO1 is +24V drive by default). If DO1 needs to be driven by external power, pull out J10 jumper
	FM- CME	High-speed impulse output	Be restricted by function code F5-00 "output way selection of FM terminal" As high-speed impulse output, max. frequency is 100kHz As open-collector output, it's the same with DO1 specification
Relay output	T/A-T/B	Normally closed terminal	Drive capability of contact: AC250V,3A, COSφ=0.4 DC 30V,1A
	T/A-T/C	Normally open terminal	

6. Outline & Installation Dimension (mm)



Schematic diagram of external dimension and mounting dimension of ADL200G plastic structure



Schematic diagram of external dimension and mounting dimension of ADL200G metal plate structure

Shell structures of ADL200G series models are as follow:

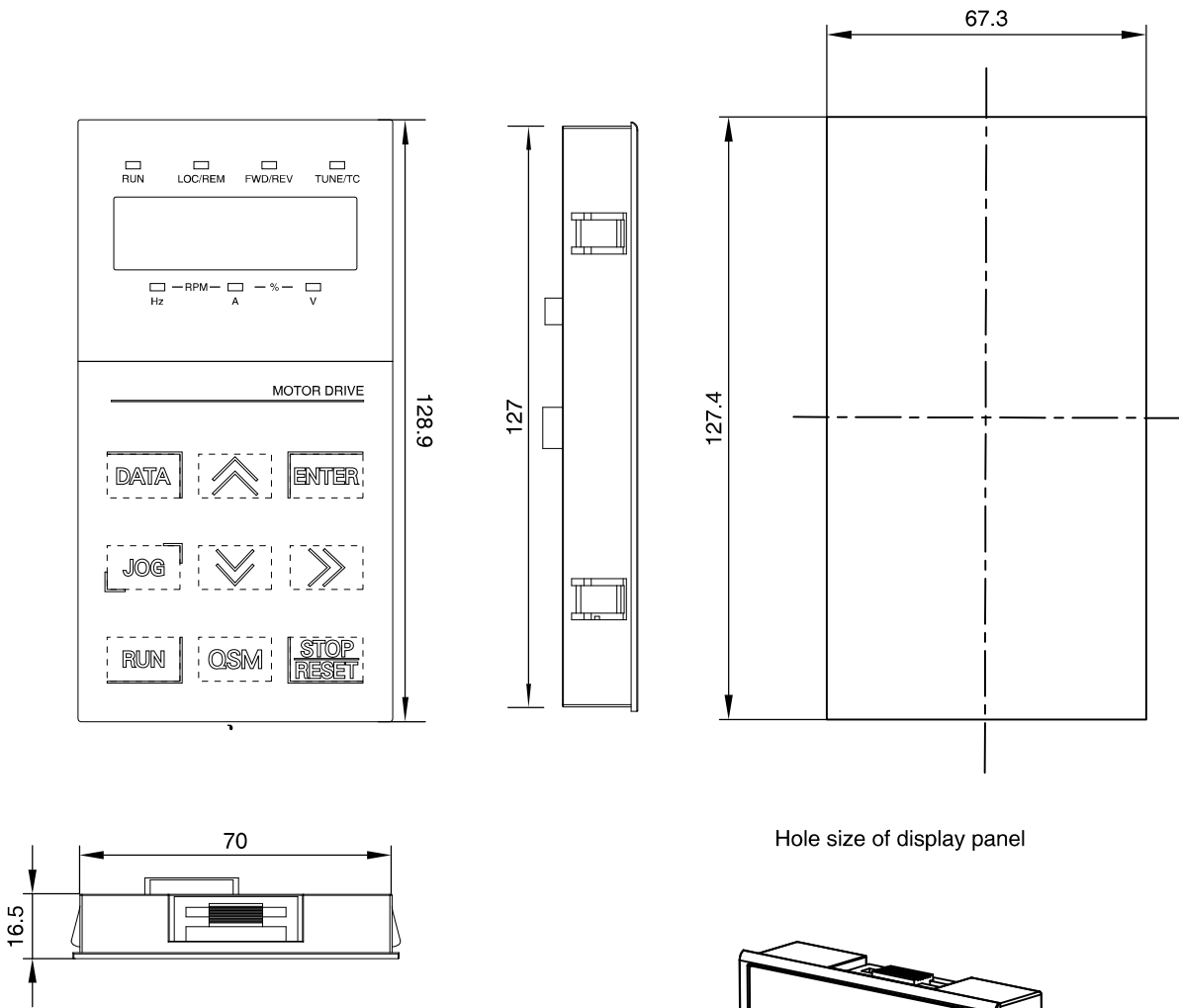
Model	Shell type
Single-phase 220V	
0.4kW~2.2kW	Plastic structure
Three-phase 220V	
0.4kW~7.5kW	Plastic structure
11kW~75kW	Metal plate structure
Three-phase 380V	
0.75kW~15kW	Plastic structure
18.5kW~400kW	Metal plate structure

Outside drawing and mounting hole dimension (mm) of ADL200G frequency inverter

Model of frequency inverter	Mounting hole(mm)		External dimension(mm)				Hole diameter	Weight(kg)
	A	B	H	H1	W	D		
Single-phase 220V								
ADL200G-0R4GB-S2	113	172	186	/	125	164	5	1.1
ADL200G-0R7GB-S2								
ADL200G-1R5GB-S2								
ADL200G-2R2GB-S2								
Three-phase 220V								
ADL200G-0R4GB-T2	113	172	186	/	125	164	5	1.1
ADL200G-0R7GB-T2								
ADL200G-1R5GB-T2								
ADL200G-2R2GB-T2	148	236	248	/	160	183	5	2.5
ADL200G-3R7GB-T2								
ADL200G-5R5GB-T2	190	305	322	/	208	192	6	6.5
ADL200G-7R5GB-T2								
ADL200G-11G-T2	235	447	432	463	285	228	8	20
ADL200G-15G-T2								
ADL200G-18R5-T2	260	580	549	600	385	265	10	32
ADL200G-22G-T2								
ADL200G-30G-T2								
ADL200G-37G-T2	343	678	660	700	473	307	10	47
ADL200G-45G-T2								
ADL200G-55G-T2	449	905	880	930	579	375	10	90
ADL200G-75G-T2								
Three-phase 380V								
ADL200G-0R7GB-T4	113	172	186	/	125	164	Ø5.0	1.1
ADL200G-1R5GB-T4								
ADL200G-2R2GB-T4								
ADL200G-3R7GB-T4	148	236	248	/	160	183	Ø5.0	2.5
ADL200G-5R5PB-T4								
ADL200G-5R5GB-T4								
ADL200G-7R5PB-T4								
ADL200G-7R5GB-T4	190	305	322	/	208	192	Ø6	6.5
ADL200G-11PB-T4								
ADL200G-11GB-T4								
ADL200G-15GB-T4								
ADL200G-15PB-T4	235	447	432	463	285	228	8	20
ADL200G-18R5PB-T4								
ADL200G-18R5G-T4								
ADL200G-22P-T4								
ADL200G-22G-T4	260	580	549	600	385	265	10	32
ADL200G-30P-T4								
ADL200G-30G-T4								
ADL200G-37P-T4								
ADL200G-37G-T4	343	678	660	700	473	307	10	47
ADL200G-45P-T4								
ADL200G-45G-T4								
ADL200G-55P-T4								
ADL200G-55G-T4	420	1030	983	1060	650	377	12	130
ADL200G-75P-T4								
ADL200G-75G-T4								
ADL200G-90P-T4								
ADL200G-90G-T4	320	1166	1090	1192	440	310	10	90
ADL200G-110P-T4								
ADL200G-110G-T4								
ADL200G-132P-T4								
ADL200G-132G-T4	520	1300	1203	1358	800	400	14	200
ADL200G-160P-T4								
ADL200G-160G-T4								
ADL200G-185P-T4								
ADL200G-185G-T4	420	1030	983	1060	650	377	12	130
ADL200G-200P-T4								
ADL200G-200G-T4								
ADL200G-220P-T4								
ADL200G-220G-T4	520	1300	1203	1358	800	400	14	200
ADL200G-250P-T4								
ADL200G-250G-T4								
ADL200G-280P-T4								
ADL200G-280G-T4	520	1300	1203	1358	800	400	14	200
ADL200G-315P-T4								
ADL200G-315G-T4								
ADL200G-355P-T4								
ADL200G-355G-T4	520	1300	1203	1358	800	400	14	200
ADL200G-400P-T4								
ADL200G-400G-T4								
ADL200G-450P-T4								

Due to continuous improvements outline dimension(Size)parameter may have changed. Please confirm with us before ordering.

External dimension of display panel



Hole size of display panel

