

GD350 IP54 Series VFD

Introduction

Goodrive350 IP54 series VFDs provide the same control methods and extended functions as GD350. Some can be configured with optional built-in DC reactors as required by customers. The full-sheet metal structure is adopted. They support wall-mounting and flange installation. LCD keypads are the standard configuration. They are especially applicable in scenarios with harsh dust and water vapor conditions, such as those with HVAC, fans and pumps, stone, and wood.



Features:

- Ingress protection rating of IP54, applicable to working environments with harsh dust and water vapor conditions(Same as NAME 3S).
- Supporting both heavy and light loads, integrated G and P types.
- Reserving interfaces for implementing the real-time clock function.
- Supporting optional built-in DC reactors (18.5kW~110kW).
- Built-in brake resistors (1.5kW~37kW).

Level of protection—IP54



Built-in accessories

- Supporting built-in brake units(1.5~37kW), reducing customers' costs and installation space
- Providing built-in DC reactors for models of 18.5 kW~110 kW

Technical Specification

Function description		Specification
Technical control performance	Control mode	SVPWM control, SVC, VC
	Motor type	Asynchronous motor, permanent-magnet synchronous motor
	Speed regulation ratio	Asynchronous motor 1: 200 (SVC); Synchronous motor 1:20 (SVC) , 1:1000 (VC)
	Speed control precision	±0.2% (SVC), ±0.02% (VC)
	Speed fluctuation	± 0.3% (SVC)
	Torque response	<20ms (SVC) , <10ms (VC)
	Torque control precision	10% (SVC) , 5% (VC)
	Starting torque	Asynchronous motor: 0.25Hz/150% (SVC) Synchronous motor: 2.5 Hz/150% (SVC) 0Hz/200% (VC)
	Overload capacity	150% of rated current: 1min;180% of rated current: 10s;200% of rated current: 1s;
Running control performance	Frequency setup mode	Digital, analog, pulse frequency, multi-step speed running, simple PLC, PID, MODBUS communication, PROFIBUS communication, etc.; Realize switch-over between the set combination and the set channel
	Automatic voltage Regulation function	Keep the output voltage constant when grid voltage changes
	Fault protection function	Fault protection function Provide over 30 kinds of fault protection functions: overcurrent, overvoltage, undervoltage, over-temperature, phase loss and overload, etc.
	Speed tracking restart function	Realize impact-free starting of the motor in rotating Note: This function is available for 4kW and above models
Peripheral interface	Terminal analog input resolution	No more than 20mV
	Terminal digital input resolution	No more than 2ms
	Analog input	2 inputs, AI1: 0~10V/0~20mA; AI2: -10~10V
	Analog output	1 output, AO1: 0~10V /0~20mA

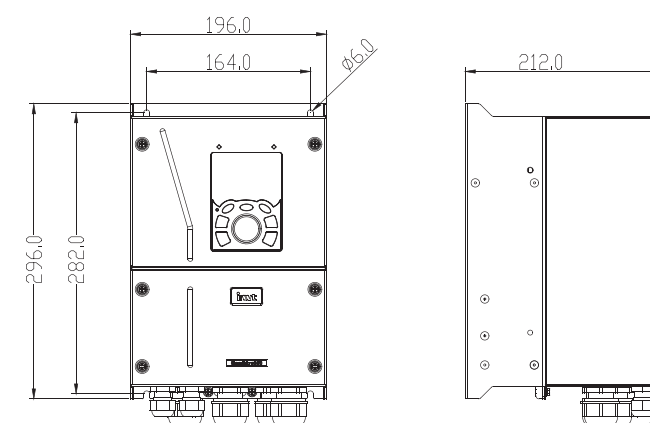
Function description		Specification
Peripheral interface	Digital input	Four regular inputs; max. frequency: 1kHz; internal impedance: 3.3kΩ Two high-speed inputs; max. frequency: 50kHz; supports quadrature encoder input; with speed measurement function
	Digital output	One high-speed pulse output; max. frequency: 50kHz One Y terminal open collector output
	Relay output	Two programmable relay outputs RO1A NO, RO1B NC, RO1C common port RO2A NO, RO2B NC, RO2C common port Contact capacity: 3A/AC250V, 1A/DC30V
	Extension interface	Three extension interfaces: SLOT1, SLOT2, SLOT3 Expandable PG card, programmable extension card, communication card, I/O card, etc
Others	Installation mode	Support wall-mounting and flange-mounting
	Temperature of running environment	-10~50°C, derating is required if the ambient temperature exceeds 40°C
	Protection level	IP54(3S in NAME)
	Pollution level	Level 3
	Cooling mode	Air cooling
	Brake unit	Built-in brake unit for 380V 1.5kW~37kW
	DC reactor	Built-in options in 18.5kW~110kW
EMC filter	380V models fulfill the requirements of IEC61800-3 C3 Optional external filter should meet the requirements of IEC61800-3 C2	

AC 3PH 380V(-15%)-440V(+10%) rated value

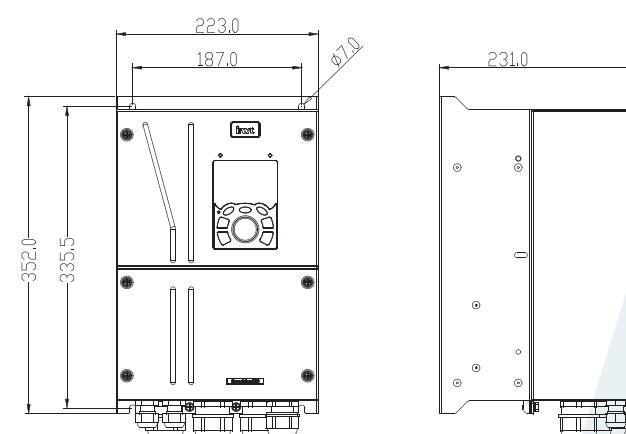
Product model	Output power (kW)	Input current (A)	Output current (A)	Gross weight (kg)	Dimension (mm)
GD350-004G/5R5P-45	4	13.5	9.5	17.7	196*296*212
GD350-5R5G/7R5P-45	5.5	19.5	14		
GD350-7R5G/011P-45	7.5	25	18.5	10.6	256*328*212
GD350-011G/015P-45	11	32	25		
GD350-015G/018P-45	15	40	32		
GD350-018G/022P-45	18.5	47	38	17.7	274*399*231
GD350-022G/030P-45	22	56	45		

Installation Dimensions

Wall mounting installation diagram



380V, 4~5.5kW



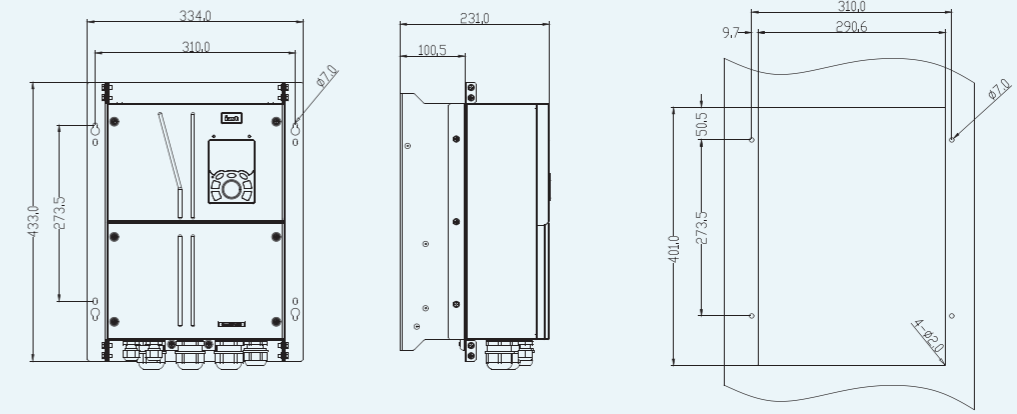
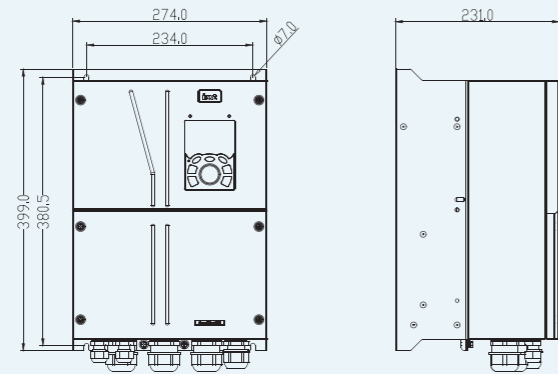
380V, 7.5~15kW

Type Selection

GD350 – 022G/030P – 4 5

① ② ③ ④

Field	Sign	Description	Contents
Abbreviation of product series	①	Abbreviation of product series	GD350: Goodrive350 high-performance multi-function VFD
Rated power	②	Power range+ Load type	022: 22kW G—Constant torque load P—Special for fans and pumps
Voltage level	③	Voltage level	4: AC 3PH 380V(-15%)—440V(+10%)
IP level	④	IP level	5: IP54

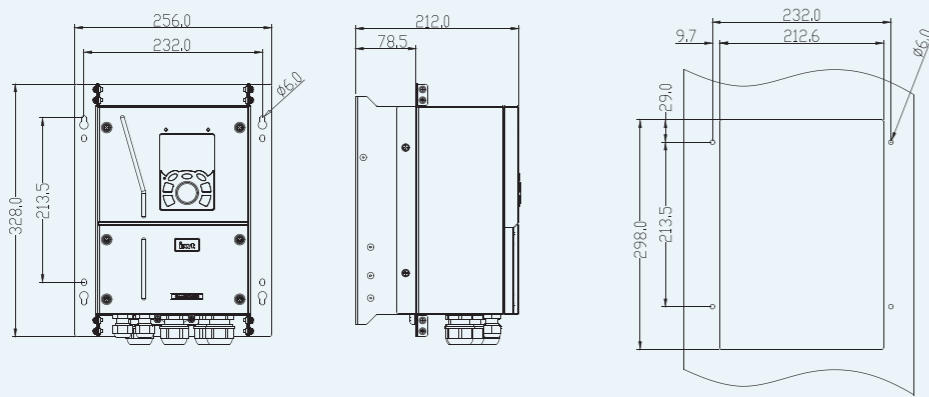


380V, 18.5~22kW

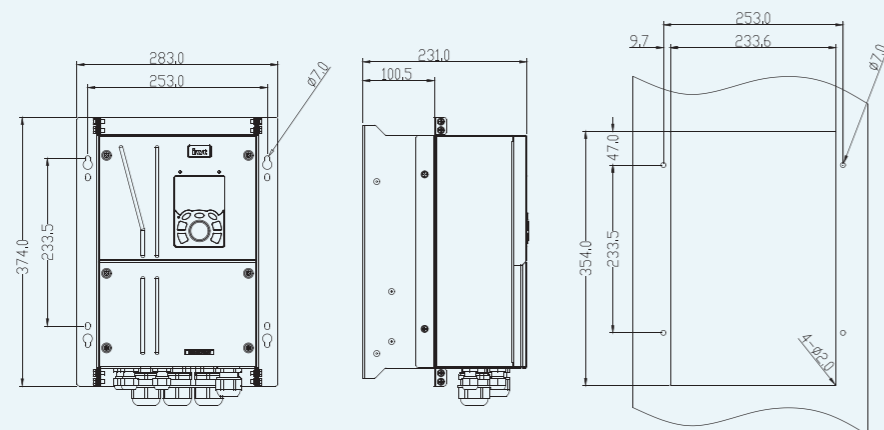
VFD specification	W1	W2	H1	H2	D1	Installation hole diameter	Fixing screw
4~5.5kW	192	164	296	282	212	6	M5
7.5~15kW	223	187	352	335.5	231	7	M6
18.5~22kW	274	234	399	380.5	231	7	M6

VFD specification	W1	W2	W3	W4	H1	H2	H3	H4	D1	D2	Installation hole diameter	Fixing screw
4~5.5kW	256	232	212.6	9.7	328	213.5	298	29	212	78.5	6	M5
7.5~15kW	283	253	233.6	9.7	374	233.5	354	47	231	100.5	7	M6
18.5~22kW	334	310	290.6	9.7	433	273.5	401	50.5	231	100.5	7	M6

Flange mounting installation diagram

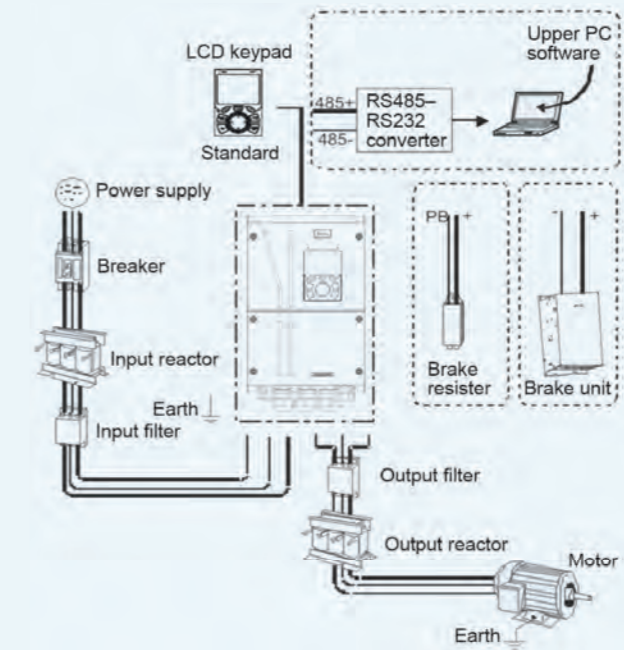


380V, 4~5.5kW



380V, 7.5~15kW

Optional Parts



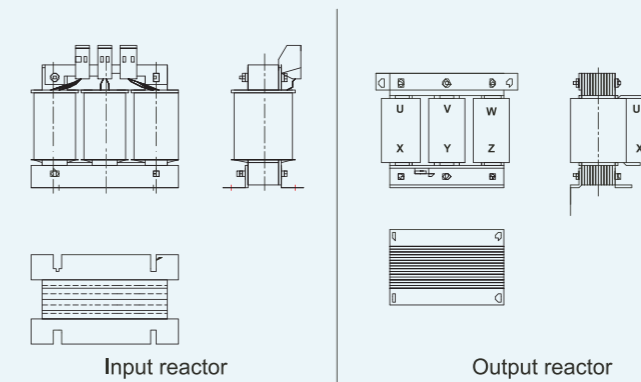
- VFDs of 380 V, 22 kW or lower are equipped with built-in brake units.
- VFDs of 380 V, 18.5 kW to 22 kW are equipped with built-in DC reactors.
- The brake units INVT's DBU series standard brake units. For details, see the DBU operation manual.

Image	Name	Description
	Cable	Accessory for signal transmission
	Breaker	Device for electric shock prevention and protection against short-to-ground that may cause current leakage and fire. Select residual-current circuit breakers (RCCBs) that are applicable to VFD and can restrict high-order harmonics, and of which the rated sensitive current for one VFD is larger than 30 mA.
	Input reactor	Accessories used to improve the current adjustment coefficient on the input side of the inverter, and thus restrict high-order harmonic currents.
	Input filter	Accessory that restricts the electromagnetic interference generated by the VFD and transmitted to the public grid through the power cable. Try to install the input filter near the input terminal side of the VFD.
	Brake unit or brake resistor	Accessories used to consume the regenerative energy of the motor to reduce the deceleration time. VFDs of 380 V, 22 kW or lower need only to be configured with brake resistors.
	Output filter	Accessory used to restrict interference generated in the wiring area on the output side of the VFD. Try to install the output filter near the output terminal side of the VFD.
	Output reactor	Accessory used to lengthen the valid transmission distance of the VFD, which effectively restrict the transient high voltage generated during the switch-on and switch-off of the IGBT module of the VFD.

Breakers and electromagnetic contactor

VFD model	Fuse (A)	Breaker (A)	Rated current of the contactor (A)
GD350-004G/5R5P-45	30	25	16
GD350-5R5G/7R5P-45	45	25	16
GD350-7R5G/011P-45	60	40	25
GD350-011G/015P-45	78	63	32
GD350-015G/018P-45	105	63	50
GD350-018G/022P-45	114	100	63
GD350-022G/030P-45	138	100	80

Reactor



Input reactor

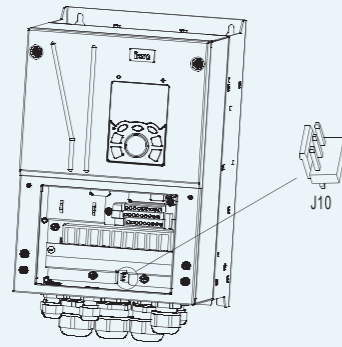
Output reactor

Control cables

VFD model	Recommended cable size (mm ²)		Size of connectable cable (mm ²)				Terminal screw specification	Tightening torque (Nm)
	RST UVW	PE	RST UVW	P1, (+)	PB, (+), (-)	PE		
GD350-004G/5R5P-45	2.5	2.5	2.5-6	2.5-6	2.5-6	2.5-6	M4	1.2-1.5
GD350-5R5G/7R5P-45	2.5	2.5	2.5-6	2.5-6	2.5-6	2.5-6	M4	1.2-1.5
GD350-7R5G/011P-45	4	4	2.5-6	4-6	4-6	2.5-6	M4	1.2-1.5
GD350-011G/015P-45	6	6	4-10	4-10	4-10	4-10	M5	2.3
GD350-015G/018P-45	6	6	4-10	4-10	4-10	4-10	M5	2.3
GD350-018G/022P-45	10	10	10-16	10-16	10-16	10-16	M5	2.3
GD350-022G/030P-45	16	16	10-16	10-16	10-16	10-16	M5	2.3

VFD model	Input reactor	Output reactor
GD350-004G/5R5P-45	ACL2-004-4	OCL2-004-4
GD350-5R5G/7R5P-45	ACL2-5R5-4	OCL2-5R5-4
GD350-7R5G/011P-45	ACL2-7R5-4	OCL2-7R5-4
GD350-011G/015P-45	ACL2-011-4	OCL2-011-4
GD350-015G/018P-45	ACL2-015-4	OCL2-015-4
GD350-018G/022P-45	ACL2-018-4	OCL2-018-4
GD350-022G/030P-45	ACL2-022-4	OCL2-022-4

Filters



Note: Do not connect C3 filters in IT power systems.

Filter model description

FLT – P 04 045 L B

A B C D E F

Field identifier	Field description
A	FLT: Name of the VFD filter series
B	Filter type P: Power input filter L: Output filter
C	Voltage class 04: AC 3PH 380V (-15%)–440V (+10%)
D	3-digit code indicating the rated current. For example, 015 indicates 15 A.
E	Filter performance L: General H: High-performance
F	Filter application environment A: Environment Category I, C1 (EN 61800-3:2004) B: Environment Category I, C2 (EN 61800-3:2004) C: Environment Category II, C3 (EN 61800-3:2004)

VFD model	Input filter	Output filter
GD350-004G/5R5P-45	FLT-P04016L-B	FLT-L04016L-B
GD350-5R5G/7R5P-45		
GD350-7R5G/011P-45	FLT-P04032L-B	FLT-P04032L-B
GD350-011G/015P-45		
GD350-015G/018P-45	FLT-P04045L-B	FLT-P04045L-B
GD350-018G/022P-45		
GD350-022G/030P-45	FLT-P04065L-B	FLT-P04065L-B

Brake system

VFD model	Brake unit model	Resistance applicable for 100% brake torque (Ω)	Dissipated power of brake resistor (kW)			Min. allowable brake resistance (Ω)
			10% brake usage	50% brake usage	80% brake usage	
GD350-004G/5R5P-45	Built-in brake unit	122	0.6	3	4.8	80
GD350-5R5G/7R5P-45		89	0.75	4.1	6.6	60
GD350-7R5G/011P-45		65	1.1	5.6	9	47
GD350-011G/015P-45		44	1.7	8.3	13.2	31
GD350-015G/018P-45		32	2	11	18	23
GD350-018G/022P-45		27	3	14	22	19
GD350-022G/030P-45		22	3	17	26	17