

# Goodrive350 Series

High-performance Multi-function VFD



# Goodrive350

## Product Introduction

GD350 is a brand new high-performance VFD. It is highly extensible and flexible with PG card, PLC card, communication card and IO card, meeting the demands of various industries. It's oriented for mid-high-end OEM equipment markets, mainly covering the applications of printing, packaging, winding, etc.



## Features

- Support SVC and VC(Closed loop) control for both asynchronous and synchronous motors.
- Enable high precision of speed, position, torque control and fast speed response.
- Support optional Field bus communication cards, including PROFIBUS-DP, CANopen, and Ethernet, etc.
- Accept plug-in of three expansion cards simultaneously (only two cards  $\leq$  7.5kW(10HP)).
- Integrate safety function-STO(Safe Torque OFF, SIL2).
- Unique I/F control and online transition with other control modes are very suitable for the situation where the Asynchronous motor has low speed with high torque and the speed accuracy is not high.
- Multi-function LCD keyboard.
- Support optional Bluetooth card and WIFI card.

## Application



# Technical Specification

Function description		Specification
Power input	Input voltage (V)	AC 3PH 380V ( -15%)–440V (+10%) rated voltage: 380V AC 3PH 520V ( -15%)–690V (+10%) rated voltage: 660V
	Input current (A)	Refer to Rated value
	Input frequency (Hz)	50Hz or 60Hz, allowable range: 47–63Hz
Power output	Output voltage (V)	0–input voltage
	Output current (A)	Refer to Rated value
	Output power (kW)	Refer to Rated value
	Output frequency (Hz)	0–400Hz
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	$\pm 0.2\%$ (SVC), $\pm 0.02\%$ (VC)
	Speed fluctuation	$\pm 0.3\%$ (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)
Running control performance	Overload capacity	150% of rated current: 1min; 180% of rated current: 10s; 200% of rated current: 1s;
	Frequency setup mode	Digital, analog, pulse frequency, multi-step speed Provide over 30 kinds of fault protection functions: overcurrent, overvoltage, undervoltage, over-temperature, phase loss and overload, etc
	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, under-voltage, over-temperature, phase loss and overload, etc.
Peripheral Interface	Speed tracking restart function	Realize impact free starting of the motor in rotating Note: This function is available for 4kW and above models
	Terminal analog input	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
	Digital input	Four regular inputs; Max. frequency: 1kHz; Internal impedance: 3.3k $\Omega$ Two high-speed inputs; Max. frequency: 50kHz; supports quadrature encoder input; 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.

Function description		Specification
Others	Installation mode	Support wall-mounting, floor-mounting and flange-mounting
	Temperature of running environment	-10~50°C, derating is required if the ambient temperature exceeds 40°C
	Protection level	IP20
	Pollution level	Level 2
	Cooling mode	Air cooling
	Brake unit	Built-in brake unit for 380V 37kW and below models; Optional built-in brake unit for 380V 45kW – 110kW(inclusive) models; Optional external brake unit for 660V models;
	EMC filter	380V models fulfill the requirements of IEC61800-3 C3 Optional external filter should meet the requirements of IEC61800-3 C2

## / Guide for model selection

**GD350 – 5R5G – 4**

①                      ②                      ③

Fig 3.6 Type designation key

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	5R5-5.5kW G—Constant torque load
Voltage level	③	Voltage level	4: AC 3PH 380V (-15%)~440V (+10%) Rated voltage: 380V 6: AC 3PH 520V (-15%)~690V (+10%) Rated voltage: 660V

## Power ratings and dimension

VFD model	Rated output power (kW)	Input current (A)	Rated output current (A)	Gross weight (kg)	Dimension (mm)
AC 3PH 380V(-15%)~440V(+10%)					
GD350-1R5G-4	1.5	5.0	3.7	3	126*186*185
GD350-2R2G-4	2.2	5.8	5		
GD350-004G-4	4	13.5	9.5	3.5	126*186*201
GD350-5R5G-4	5.5	19.5	14		
GD350-7R5G-4	7.5	25	18.5	4	146*256*192
GD350-011G-4	11	32	25	7	170*320*220
GD350-015G-4	15	40	32		
GD350-018G-4	18.5	47	38	10.5	200*340.6*208
GD350-022G-4	22	51	45		
GD350-030G-4	30	70	60	17	250*400*223
GD350-037G-4	37	80	75		
GD350-045G-4	45	98	92	29	282*560*258
GD350-055G-4	55	128	115		
GD350-075G-4	75	139	150		



VFD model	Rated output power (kW)	Input current (A)	Rated output current (A)	Gross weight (kg)	Dimension (mm)
AC 3PH 380V(-15%)~440V(+10%)					
GD350-090G-4	90	168	180	52	338*554*330
GD350-110G-4	110	201	215		
GD350-132G-4	132	265	260		
GD350-160G-4	160	310	305	110	500*870*360
GD350-185G-4	185	345	340		
GD350-200G-4	200	385	380		
GD350-220G-4	220	430	425	165	680*960*380
GD350-250G-4	250	460	480		
GD350-280G-4	280	500	530		
GD350-315G-4	315	580	600	407	620*1700*560
GD350-350G-4	350	625	650		
GD350-400G-4	400	715	720		
GD350-500G-4	500	890	860		
AC 3PH 520V(-15%)~690V(+10%)					
GD350-022G-6	22	35	27	32	270*555*325
GD350-030G-6	30	40	34		
GD350-370G-6	37	47	42		
GD350-045G-6	45	52	54	67	325*680*365
GD350-055G-6	55	65	62		
GD350-075G-6	75	85	86		
GD350-090G-6	90	95	95	110	500*870*360
GD350-110G-6	110	118	131		
GD350-132G-6	132	145	147		
GD350-160G-6	160	165	163	165	680*960*380
GD350-185G-6	185	190	198		
GD350-200G-6	200	210	216		
GD350-220G-6	220	230	240	407	620*1700*560
GD350-250G-6	250	255	274		
GD350-280G-6	280	286	300		
GD350-315G-6	315	334	328		
GD350-350G-6	350	360	380		
GD350-400G-6	400	411	426		

## Extension cards

Name	Model	Specifications	Ordering information
IO expansion card 1	EC-IO501-00	Four digital inputs; One digital output; One analog input; One analog output; Two relay outputs: one double-contact output and one single-contact output	11023-00083
IO expansion card 2	EC-IO502-00	Four digital inputs; One PT100; One PT1000; Two relay outputs: single-contact N.O. output	11023-00119
Bluetooth communication card	EC-TX501-1	<ul style="list-style-type: none"> <li>•Supporting Bluetooth 4.0</li> <li>•With INVT's mobile phone APP, you can set the parameters and monitor the VFD status through Bluetooth communication.</li> </ul>	11023-00088
	EC-TX501-2	<ul style="list-style-type: none"> <li>•Maximum communication distance in an unobstructed environment: 30 meters</li> <li>•EC-TX501-1 with a built-in antenna, applicable to molded case machines</li> <li>•EC-TX501-2 with an external sucker antenna, applicable to sheet metal machines</li> </ul>	11023-00089

Name	Model	Specifications	Ordering information
Wi-Fi communication card	EC-TX502-1	•Meeting requirements of IEEE802.11b/g/n •Achieving local or remote monitoring through Wi-Fi communication with the mobile INVT Workshop	11023-00101
	EC-TX502-2	•Maximum communication distance in an unobstructed environment: 30 meters •EC-TX502-1 with a built-in antenna, applicable to molded case machines •EC-TX502-2 with an external sucker antenna, applicable to sheet metal machines	11023-00102
PROFIBUS-DP communication card	EC-TX503D	Supporting the PROFIBUS-DP protocol	11023-00151
CAN multi-protocol communication card	EC-TX505D	•Based on the CAN2.0A and CAN2.0B physical layer •Supporting the CANopen protocol, selectable through a switch •Supporting INVT master/slave control proprietary protocol, selectable through a switch	11023-00164
PROFINET communication card	EC-TX509C	Supporting the PROFINET protocol	11023-00149
Ethernet/IP multi-protocol communication card	EC-TX510B	Supporting the Ethernet/IP, Modbus TCP, and internal Ethernet protocols, selectable through a switch	11023-00197
Programmable card	EC-PC502-00	•Adopting the global mainstream programmable card development environment, supporting multiple programming languages such as the instruction language, ladder diagram, and sequential function chart •Supporting resumable commissioning and task period execution mode selection •Providing a user program storage space of 16K steps and data storage space of 8K words •Six digital inputs •Two relay outputs •One analog input and one analog output •One RS485 communication channel, allowing master/slave switchover through the host controller •Supporting saving data of 1K words at power down	11023-00146
Sin/Cos PG card	EC-PG502	•Applicable to Sin/Cos encoders with or without CD signals •Supporting the frequency-divided output of A, B, and Z •Supporting input of pulse train reference	11023-00109
Incremental PG card with UVW	EC-PG503-05	•Applicable to differential encoders of 5V •Supporting the orthogonal input of A, B, and Z •Supporting the pulse input of phases U, V, and W •Supporting the frequency-divided output of A, B, and Z •Supporting input of pulse train reference	11023-00085
Resolver PG card	EC-PG504-00	•Applicable to resolver encoders •Supporting frequency-divided output of resolver-simulated A, B, and Z •Supporting input of pulse train reference	11023-00086
Multi-function incremental PG card	EC-PG505-12	•Applicable to OC encoders of 5V or 12V •Applicable to push-pull encoders of 5V or 12V •Applicable to differential encoders of 5V •Supporting the orthogonal input of A, B, and Z •Supporting the frequency-divided output of A, B, and Z •Supporting input of pulse train reference	11023-00087
24V incremental PG card	EC-PG505-24B	•Applicable to OC encoders of 24V •Applicable to push-pull encoders of 24V •Applicable to differential encoders of 24V •Supporting the orthogonal input of A, B, and Z •Supporting the frequency-divided output of A, B, and Z •Supporting input of pulse train reference	11023-00139
Simplified incremental PG card	EC-PG507-12	•Applicable to OC encoders of 5V or 12V •Applicable to push-pull encoders of 5V or 12V •Applicable to differential encoders of 5V	11023-00115
24V simplified incremental PG card	EC-PG507-24	•Applicable to OC encoders of 24V •Applicable to push-pull encoders of 24V •Applicable to differential encoders of 24V	11023-0012
GPRS expansion card	EC-IC501-2	•Supporting IoT monitoring •Supporting remote VFD upgrade	11023-00130
4G expansion card	EC-IC502-2-CN EC-IC502-2-EU EC-IC502-2-LA	•Supporting standard RS485 interface •Supporting 4G communication •CN: Domestic version; EU: European and American version; LA: Latin American version. Note: The 4G SIM card is standard for the domestic version.	11095-00009 11095-00017 11095-00018
24V power supply expansion card	EC-PS501-24	•Input voltage range: DC18–30V(Rated 24VDC)/2A •Three channels of output voltage: +5V/1A (±5%), +15V/0.2A (±10%), -15V/0.2A (±10%)	11023-00135

Note: Contact us for details about the EtherCAT communication card, relay card, 24V power supply card, GPRS expansion card with anti-vibration and high-precision GPS positioning functions.

# GD350 IP54

## 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 3S in NAME)
- 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 (30–110 kW)
- Built-in brake resistors (4–37 kW)

## Guide for model selection

**GD350 – 022G/030P – 4 5**

①

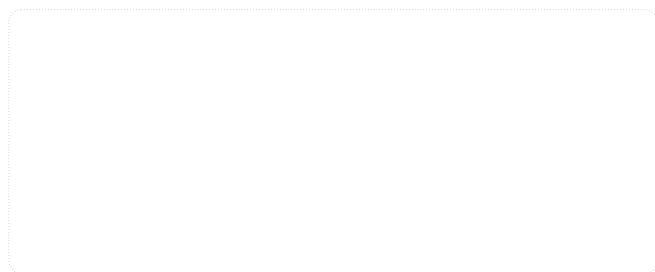
②

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

*Your trusted industry automation solution provider*



E-mail: [overseas@invt.com.cn](mailto:overseas@invt.com.cn)

Website: [www.invt.com](http://www.invt.com)

SHENZHEN INVT ELECTRIC CO.,LTD. INVT Guangming Technology Building, Songbai Road, Matian, Guangming District, Shenzhen, China

- Industrial Automation:**
- HMI
  - PLC
  - VFD
  - Servo System
  - Elevator Intelligent Control System
  - Rail Transit Traction System
- Electric Power:**
- UPS
  - DCIM
  - Solar Inverter
  - New Energy Vehicle Powertrain System
  - New Energy Vehicle Charging System
  - New Energy Vehicle Motor

INVT Copyright.

Information may be subject to change without notice during product improving.

66003-00176

202411(V2.0)