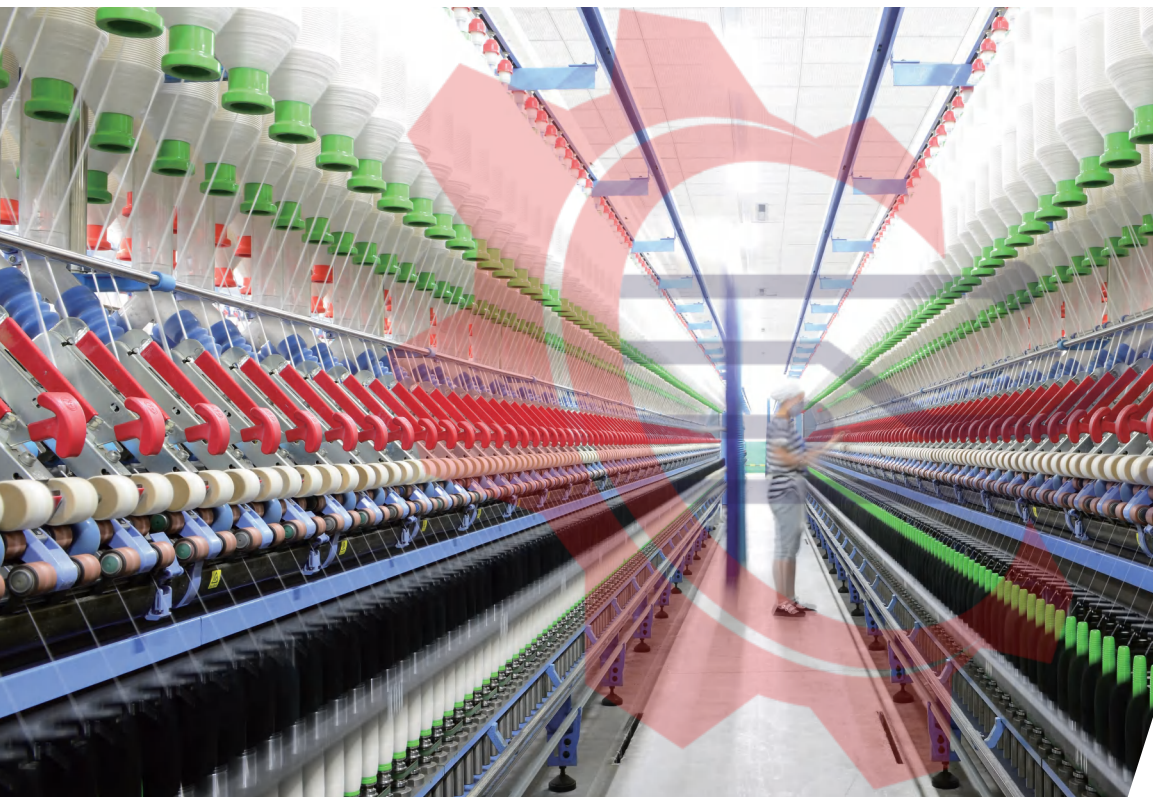
# Goodrive350 Series

## High-performance Multi-function VFD



# Goodrive350

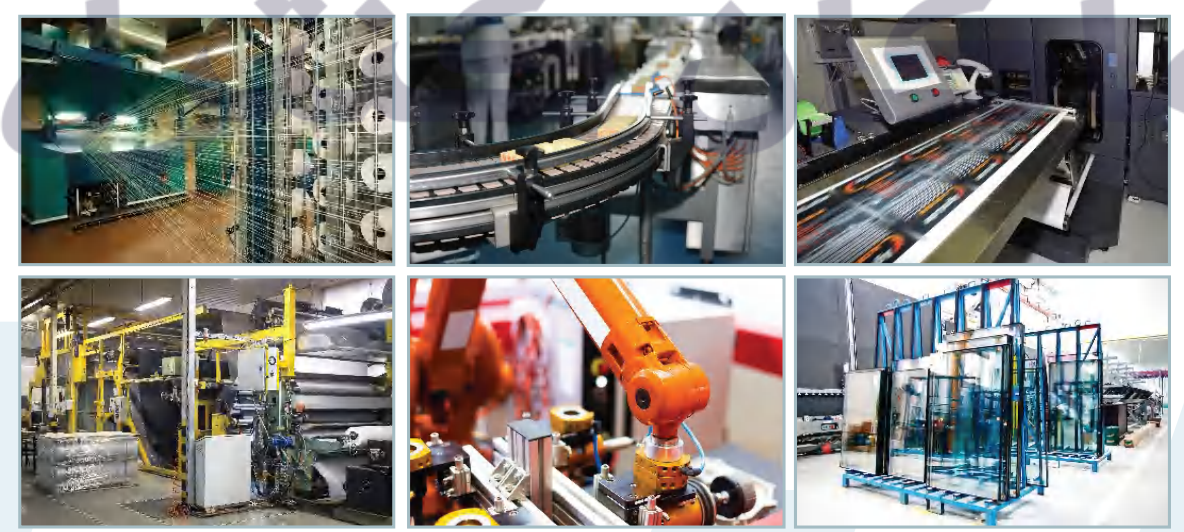
## Product Introduction

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≤ 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 theAsynchronous 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<br>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 | ±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)<br>Synchronous motor: 2.5 Hz/150% (SVC)<br>0Hz/200% (VC) |
| | Overload capacity | 150% of rated current: 1min;<br>180% of rated current: 10s;<br>200% of rated current: 1s; |
| Running control performance | Frequency setup mode | Digital, analog, pulse frequency, multi-step speed<br>Provide over 30 kinds of fault protection functions:<br>overcurrent, overvoltage, undervoltage,<br>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<br>Provide over 30 kinds of fault protection functions:<br>overcurrent, overvoltage, under-voltage,over-temperature,phase loss and overload, etc. |
| | Speed tracking restart function | Realize impact-free starting of the motor in rotating<br>Note: This function is available for 4kW and above models |
| Peripheral Interface | 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;<br>Max. frequency: 1kHz;<br>Internal impedance: 3.3kΩ<br>Two high-speed inputs;<br>Max. frequency: 50kHz;<br>supports quadrature encoder input;<br>Speed measurement function |
| | Digital output | One high-speed pulse output; max. frequency: 50kHz<br>One Y terminal open collector output |
| | Relay output | Two programmable relay outputs<br>RO1A NO, RO1B NC, RO1C common port<br>RO2A NO, RO2B NC, RO2C common port<br>Contact capacity: 3A/AC250V, 1A/DC30V |
| | Extension interface | Three extension interfaces: SLOT1, SLOT2, SLOT3<br>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;<br>Optional built-in brake unit for 380V 45kW – 110kW(inclusive) models;<br>Optional external brake unit for 660V models; |
| | EMC filter | 380V models fulfill the requirements of IEC61800-3 C3<br>Optional external filter should meet the requirements of IEC61800-3 C2 |

# Guide for model selection

**GD350 – 5R5G – 4**

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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<br>G—Constant torque load |
| Voltage level | ③ | Voltage level | 4: AC 3PH 380V (-15%)–440V (+10%)<br>Rated voltage: 380V<br>6: AC 3PH 520V (-15%)–690V (+10%)<br>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 | 110 | 500*870*360 |
| GD350-160G-4 | 160 | 310 | 305 | | |
| 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 | | |
| GD350-350G-4 | 350 | 625 | 650 | 407 | 620*1700*560 |
| 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 | | |
| GD350-055G-6 | 55 | 65 | 62 | 67 | 325*680*365 |
| GD350-075G-6 | 75 | 85 | 86 | | |
| GD350-090G-6 | 90 | 95 | 95 | | |
| GD350-110G-6 | 110 | 118 | 131 | | |
| GD350-132G-6 | 132 | 145 | 147 | | |
| GD350-160G-6 | 160 | 165 | 163 | 110 | 500*870*360 |
| GD350-185G-6 | 185 | 190 | 198 | | |
| GD350-200G-6 | 200 | 210 | 216 | | |
| GD350-220G-6 | 220 | 230 | 240 | | |
| GD350-250G-6 | 250 | 255 | 274 | 165 | 680*960*380 |
| GD350-280G-6 | 280 | 286 | 300 | | |
| GD350-315G-6 | 315 | 334 | 328 | | |
| GD350-350G-6 | 350 | 360 | 380 | | |
| GD350-400G-6 | 400 | 411 | 426 | 407 | 620*1700*560 |

## 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 | •Supporting Bluetooth 4.0<br>•With INVT's mobile phone APP, you can set the parameters and monitor the VFD status through Bluetooth communication.<br>•Maximum communication distance in an unobstructed environment: 30 meters<br>•EC-TX501-1 with a built-in antenna, applicable to molded case machines<br>•EC-TX501-2 with an external sucker antenna, applicable to sheet metal machines | 11023-00088 |
| | EC-TX501-2 | | 11023-00089 |

| Name | Model | Specifications | Ordering information |
|---|---|---|---|
| Wi-Fi communication card | EC-TX502-1 | •Meeting requirements of IEEE802.11b/g/n<br>•Achieving local or remote monitoring through Wi-Fi communication with the mobile INVT Workshop<br>•Maximum communication distance in an unobstructed environment: 30 meters<br>•EC-TX502-1 with a built-in antenna, applicable to molded case machines<br>•EC-TX502-2 with an external sucker antenna, applicable to sheet metal machines | 11023-00101 |
| | EC-TX502-2 | | 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<br>•Supporting the CANopen protocol, selectable through a switch<br>•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<br>•Supporting resumable commissioning and task period execution mode selection<br>•Providing a user program storage space of 16K steps and data storage space of 8K words<br>•Six digital inputs<br>•Two relay outputs<br>•One analog input and one analog output<br>•One RS485 communication channel, allowing master/slave switchover through the host controller<br>•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<br>•Supporting the frequency-divided output of A, B, and Z<br>•Supporting input of pulse train reference | 11023-00109 |
| Incremental PG card with UVW | EC-PG503-05 | •Applicable to differential encoders of 5V<br>•Supporting the orthogonal input of A, B, and Z<br>•Supporting the pulse input of phases U, V, and W<br>•Supporting the frequency-divided output of A, B, and Z<br>•Supporting input of pulse train reference | 11023-00085 |
| Resolver PG card | EC-PG504-00 | •Applicable to resolver encoders<br>•Supporting frequency-divided output of resolver-simulated A, B, and Z<br>•Supporting input of pulse train reference | 11023-00086 |
| Multi-function incremental PG card | EC-PG505-12 | •Applicable to OC encoders of 5V or 12V<br>•Applicable to push-pull encoders of 5V or 12V<br>•Applicable to differential encoders of 5V<br>•Supporting the orthogonal input of A, B, and Z<br>•Supporting the frequency-divided output of A, B, and Z<br>•Supporting input of pulse train reference | 11023-00087 |
| 24V incremental PG card | EC-PG505-24B | •Applicable to OC encoders of 24V<br>•Applicable to push-pull encoders of 24V<br>•Applicable to differential encoders of 24V<br>•Supporting the orthogonal input of A, B, and Z<br>•Supporting the frequency-divided output of A, B, and Z<br>•Supporting input of pulse train reference | 11023-00139 |
| Simplified incremental PG card | EC-PG507-12 | •Applicable to OC encoders of 5V or 12V<br>•Applicable to push-pull encoders of 5V or 12V<br>•Applicable to differential encoders of 5V | 11023-00115 |
| 24V simplified incremental PG card | EC-PG507-24 | •Applicable to OC encoders of 24V<br>•Applicable to push-pull encoders of 24V<br>•Applicable to differential encoders of 24V | 11023-0012 |
| GPRS expansion card | EC–IC501-2 | •Supporting IoT monitoring<br>•Supporting remote VFD upgrade | 11023-00130 |
| 4G expansion card | EC-IC502-2-CN<br>EC-IC502-2-EU<br>EC-IC502-2-LA | •Supporting standard RS485 interface<br>•Supporting 4G communication<br>•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<br>11095-00017<br>11095-00018 |
| 24V power supply expansion card | EC-PS501-24 | •Input voltage range: DC18–30V(Rated 24VDC)/2A<br>•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

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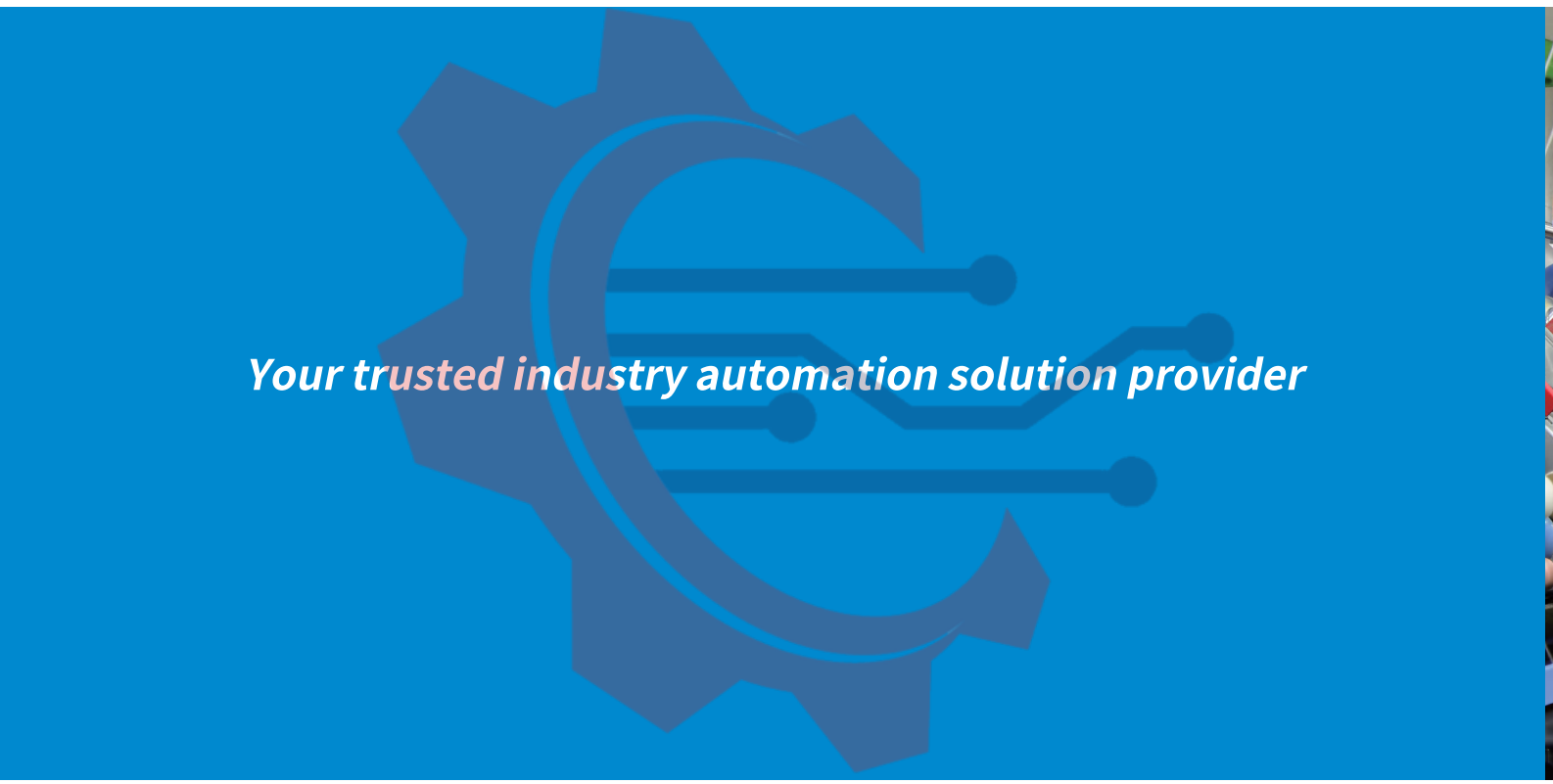
| Field | Sign | Description | Contents |
|---|---|---|---|
| Abbreviation of product series | ① | Abbreviation of product series | GD350: Goodrive350 high-performance multi-function VFD |
| Rated power | ② | Power range + Load type | 022: 22kW<br>G—Constant torque load<br>P—Special for fans and pumps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



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