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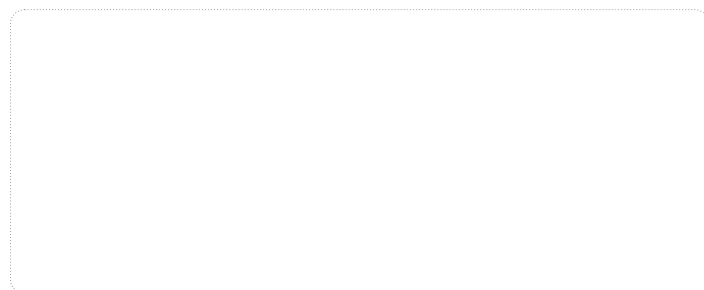
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## Goodrive350 Series

High-performance Multi-function VFD

*Your trusted industry automation solution provider*



Service line: 86-755-23535967 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:**
- Variable-Frequency Drive
  - Servo & Motion Control
  - Motor & Electric Spindle
  - PLC
  - HMI
  - Intelligent Elevator Control System
  - Traction Drive
- Electric Power:**
- SVG
  - Solar Pump Controller
  - UPS
  - Online Energy Management System
  - New Energy Vehicle Electric Control System

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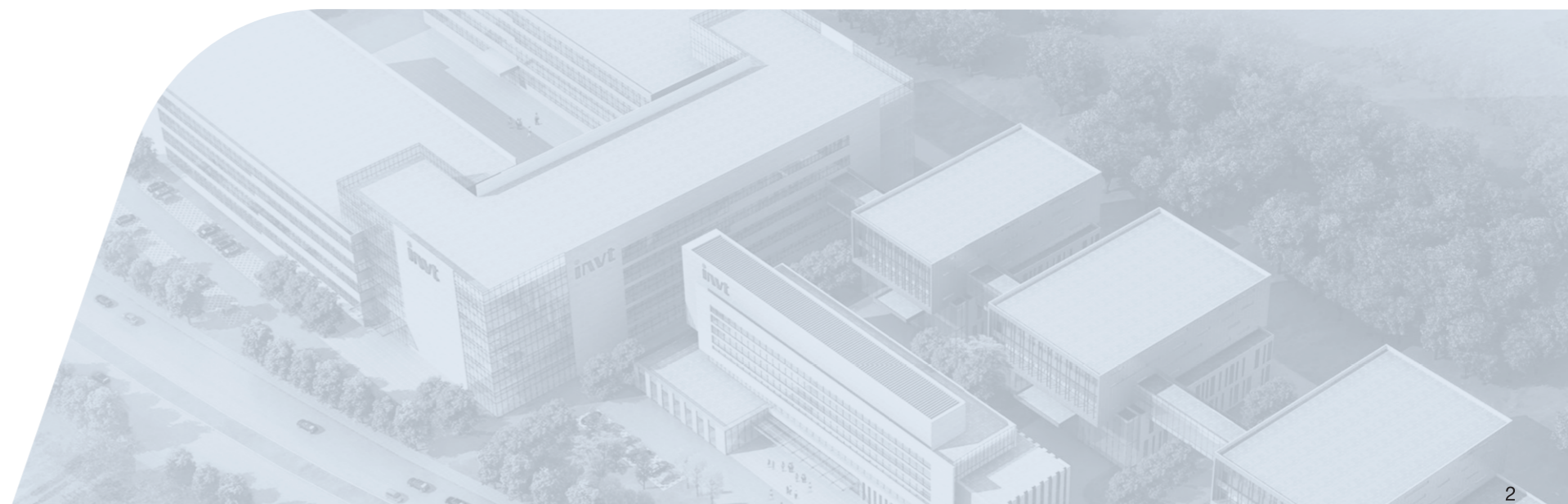
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# Introduction

GD350 is a brand new high-performance VFD which integrates the speed, torque, and position control. It is widely applicable to control over synchronous and asynchronous motors. 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 market, mainly covering 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 Ethernet/IP, Profinet, CAN Master/Slave, 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.

## Control performance

- New-type flux linkage observer, improving the stability of the high-speed control.
- New-type speed/current regulator, improving the current control result in quick start and reducing speed overshoot.
- New-type phase-locked loop, improving the stability of high-torque control.
- Compensation for output voltage phases and amplitude, improving the stability of high- and low-speed carriers.
- Adding the synchronous motor VF control mode based on reactive current control. The output current adapts to the load and the oscillation suppression algorithm.

# Product Advantage

## Full motion and all-round

### Performance improvement

Compared with the products of last generation, the performance is significantly improved

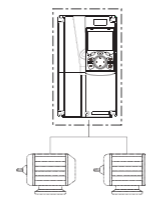


#### Motor auto-tuning

- Asynchronous motor—Eliminates the impact of the skin effect, improving the auto-tuning precision.
- Synchronous motor—Performs auto-tuning on the counter-electromotive force, effectively avoids the impact of the initial value of the counter-electromotive force.

#### High torque at low speed

- Special I/F control, featuring constant current source, highly applicable to scenarios where multiple motors are to be driven simultaneously and high torque is required at low speed.



| State   | IO/IN(M)(%)    |             |
|---|----------------|-------------|
|   | Multi-point VF | I/F control |
| Before and after brake open in forward running  | 62.80%         | 133.40%     |
| Before and after brake open in reverse running  | 62.50%         | 130.30%     |
| Before and after brake close in forward running | 65.70%         | 136.10%     |
| Before and after brake close in reverse running | 92.00%         | 136.30%     |

Data measured on a construction machinery site

#### DC braking

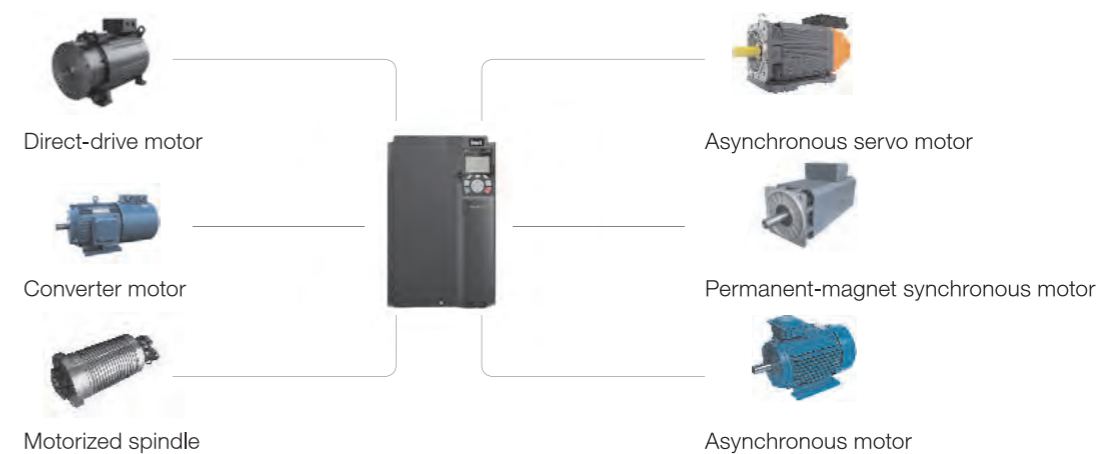
- The current change is smoother in the process of the motor entering DC braking from rotating, the current shock is weak, and the current response is faster.

#### Rotating speed tracking

- In any of the control modes, the rotating speed tracking method brings the least current shock, and thus significantly improves the stability.

## Drive multiple motors

Applicable to drive various motors



## Combine different controls

More precise, stronger torque, speed, and position control over motors

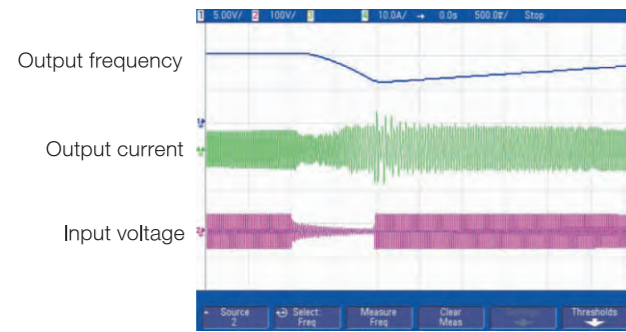
| Characteristic indicator   | Goodrive350   |
|----------------------------|---------------|
| Position control precision | $\pm 1$ pulse |

(2) Torque and speed control performance—Ensure stable mechanical operation, fast response, and low torque ripple

| Characteristic indicator            | Goodrive350 |
|-------------------------------------|-------------|
| Speed regulation range              | 1:1000      |
| Speed stabilization precision       | +0.02%      |
| Response time in torque control     | <10ms       |
| Torque control precision            | 5%          |
| Start frequency/higher start torque | 0Hz/200%    |

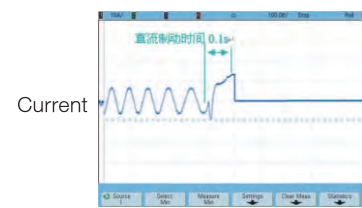
### Keep running when power down

When the grid encounters a momentary power outage, the VFD can keep running by using the fed-back energy within a certain period of time.  
It is highly applicable to chemical fiber and textile production lines and other scenarios where the device is Required to run continuously.

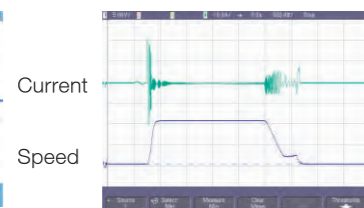


### Multiple braking modes to enable fast stop

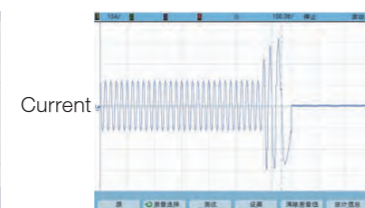
| Dynamic braking                                     | DC braking   | Magnetic braking  | Short-circuit braking   |
|---|--|---|---|
| High torque fast speed                              | No brake unit or brake resistor required   | No brake unit or brake resistor required; allowing fast braking                           | No brake unit or brake resistor required; allowing fast braking                         |
| Large-inertia loads scenarios are frequently braked | Applicable to scenarios where freely running motors are to be braked first and then started and where torque output needs to be kept after the motor is braked to run at the speed of zero | Applicable to scenarios where large-inertia loads are to be fast stopped at low frequency | Applicable only to fast stop of PMSMs or braking and then starting freely running PMSMs |



Current wave in the SVPWM mode for asynchronous motors  
Frequency: 10Hz  
Breaking current: 100%



PMSM short-circuit braking wave  
Acceleration time: 0.1s  
Deceleration time is 0.4s

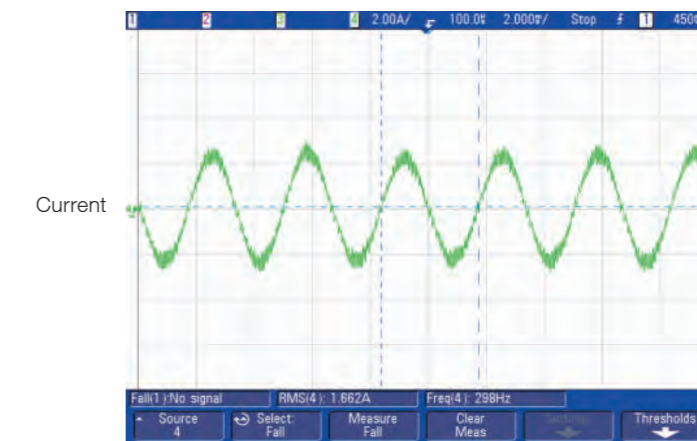


Magnetic flux braking current wave in the SVPWM mode for asynchronous motors  
Frequency: 50Hz  
Rated load: 100%

### Proper voltage and current control, effectively reducing the number of VFD fault protection times

| Overtoltage stall   | Overcurrent stall   |
|---|---|
| Regulates the output frequency during deceleration to prevent the motor from generating too much power due to too fast deceleration | Regulates the output frequency during acceleration to prevent too heavy loads caused due to too fast acceleration |

### Excellent driving performance on special motors

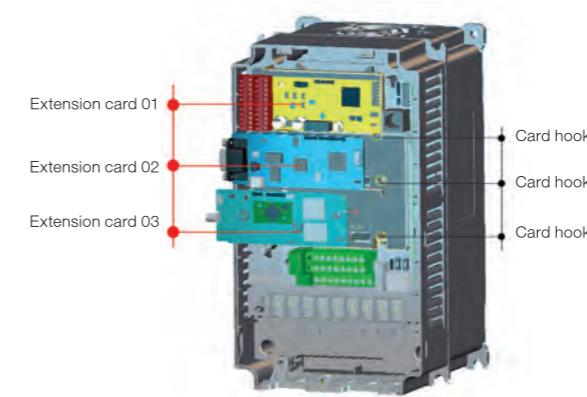


Current wave at 300 Hz with 100% of the rated load in the open-loop vector control mode for synchronous motors

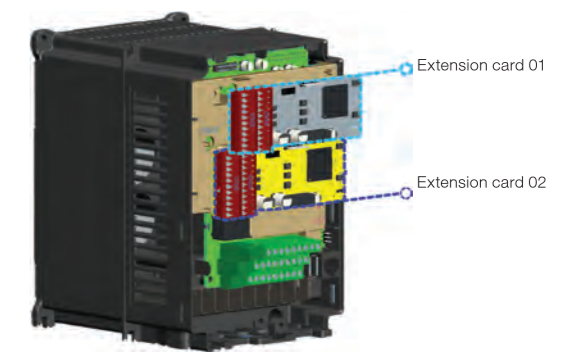
### Multi-function

#### Enhanced extension performance

- (1) Optional PLC, I/O, communication, and PG cards
- (2) Consistent extension card dimensions



≥7.5kW



≤5.5kW

### Supporting customers' secondary development

- (1) Meeting customization requirements, reducing customers' costs, and improving the processes
- (2) Optional PLC card, 128 k program memory space

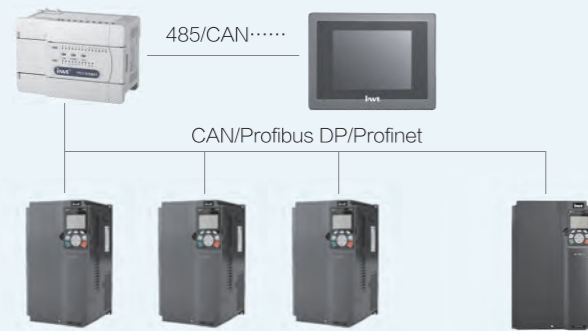


Standard two HDIs that can serve as speed sources or high-speed AB pulse inputs, which can be used for simple closed-loop application

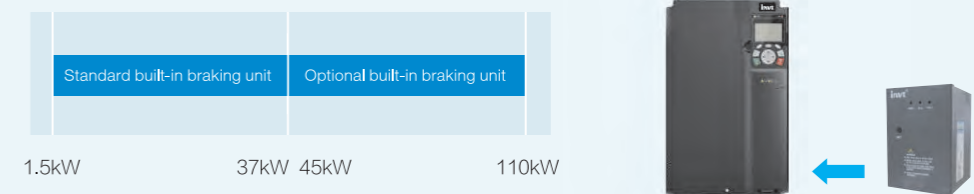


### Supporting various industrial communication protocols

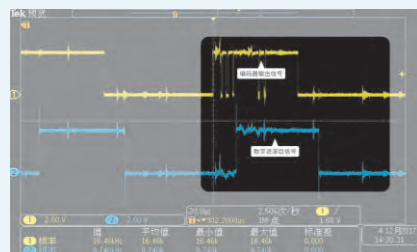
- (1) Standard Modbus communication, supporting the following communication modes based on extension cards



Supporting built-in brake units at a maximum of 110 kW, reducing customers' costs and installation space



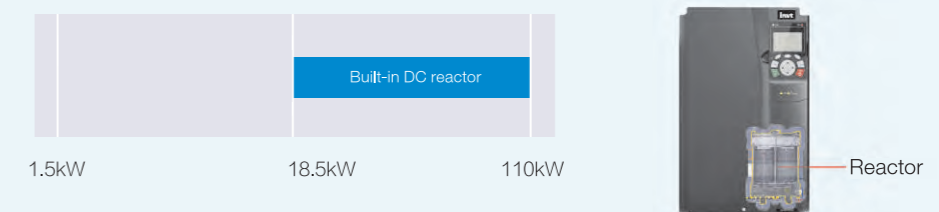
Adopting the digital filtering technology that improves EMC; the anti-interference performance is twice that of conventional solutions



Encoder signal: near-field coupling of 100m motor wire

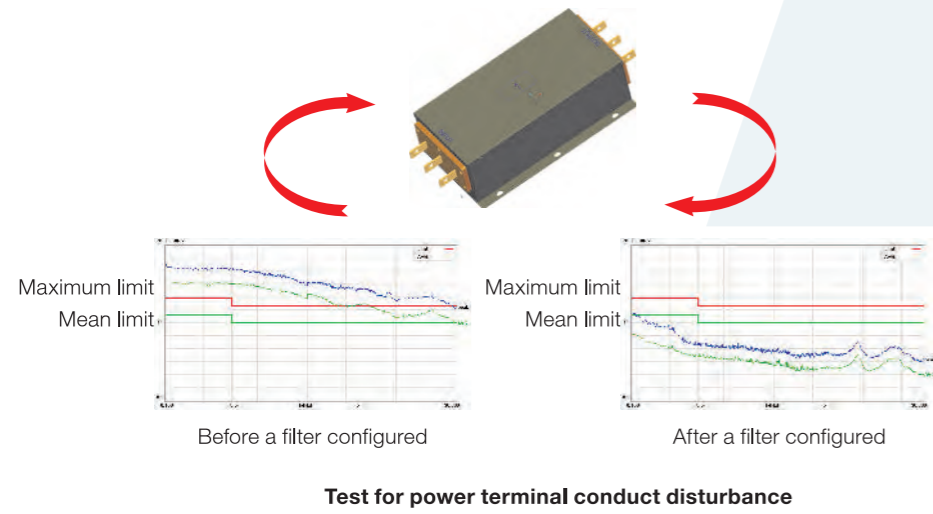
- (1) Supporting pulse reference and frequency-divided output;
- (2) providing the fast encoder disconnection detection function to prevent the expansion of the system fault impact

Providing built-in DC reactors for models of 18.5 kW–110 kW



Built-in C3 input filters; optional C2 filters for 380V models

Built-in C3 input filters of 380 V in factory reduce external installation space and prevents electromagnetic interference



**Note:**  
 C2 filters: EMC performance meets civilian environments.  
 C3 filters: EMC performance meets industrial environments.

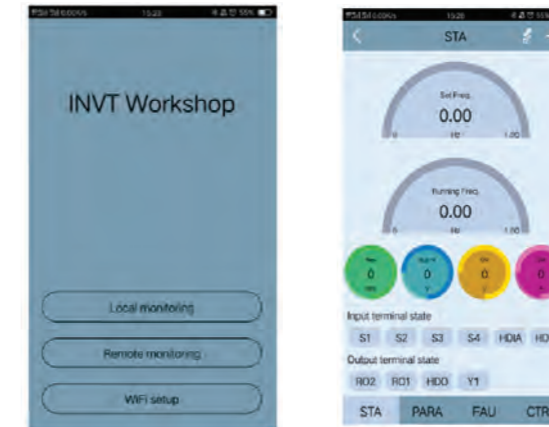
Abundant external interfaces, meeting the requirements of most application sites

| Terminal type           | Quantity | Feature   |
|-------------------------|----------|---|
| Digital input           | 4        | 1. Programmable multi-function terminal<br>2. Max. input frequency: 1 kHz<br>3. Compatible with both NPN and PNP inputs   |
| High-speed pulse input  | 2        | 1. Max. input frequency: 50 kHz<br>2. Compatible with both NPN and PNP inputs<br>3. Supporting the input of quadrature encoders, and providing the speed detection function |
| Analog input            | 2        | 0~10V, 0~20mA, -10~-10V   |
| Digital output          | 1        | Max. output frequency: 1 kHz  |
| High-speed pulse output | 1        | Max. output frequency: 50kHz  |
| Analog output           | 2        | 0~10V, 0~20mA   |
| Relay output            | 2        | 3A/AC250V, 1A/DC30V; NO+NC  |

### Ease of use

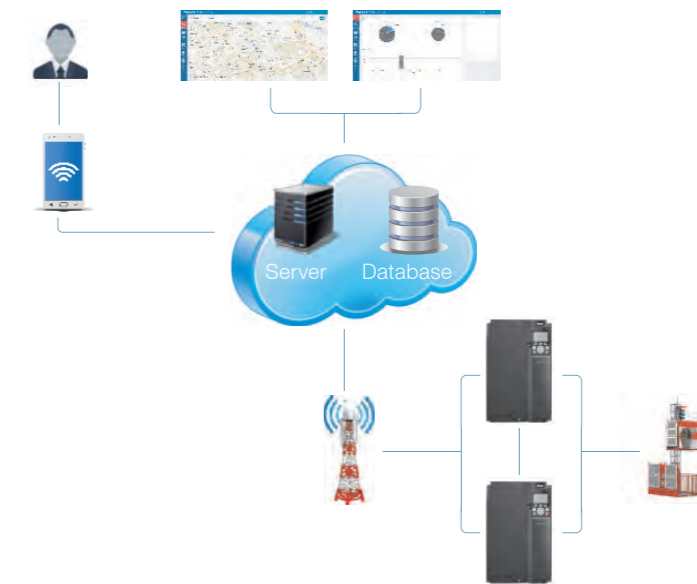
Wireless commissioning

(1) Bluetooth/WIFI connection. You can use the mobile phone application to substitute for the traditional keypad.



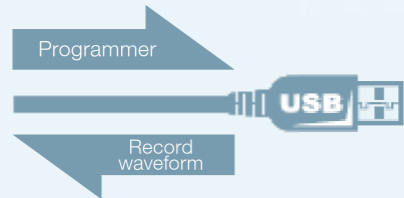
### Connecting through the Internet of Things (IoT), remote monitoring

(1) Wireless access. You can easily connect to the IoT, operate the VFD through mobile phone or PC, and obtain the running state of the VFD in real time.



### Standard USB interface

USB update  
 Record the operation curve and failure waveform for easy mainstream and analysis.



Providing the multi-function LCD operating panel, user-friendly design, focusing on user experience



| No. | name             | No. | name                |
|-----|------------------|-----|---------------------|
| 1   | Run              | 9   | Running key         |
| 2   | Trip             | 10  | Stop/Reset key      |
| 3   | Quick/Jog        | 11  | Direction key       |
| 4   | Function key     | 12  | Display screen      |
| 5   |                  | 13  | RJ45 interface      |
| 6   |                  | 14  | Clock battery cover |
| 7   | Short-cut key    | 15  | Mini USB terminal   |
| 8   | Confirmation key |     |                     |

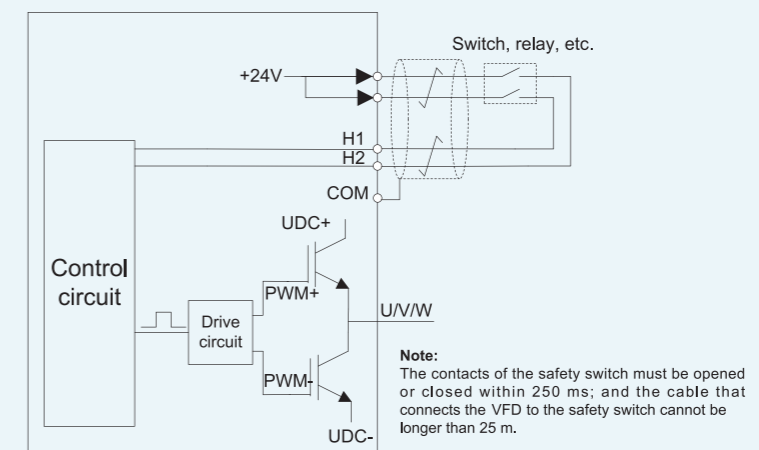
### Safe and reliable

Optimal reliability test system, ensuring that the product meets the most complicated application environments

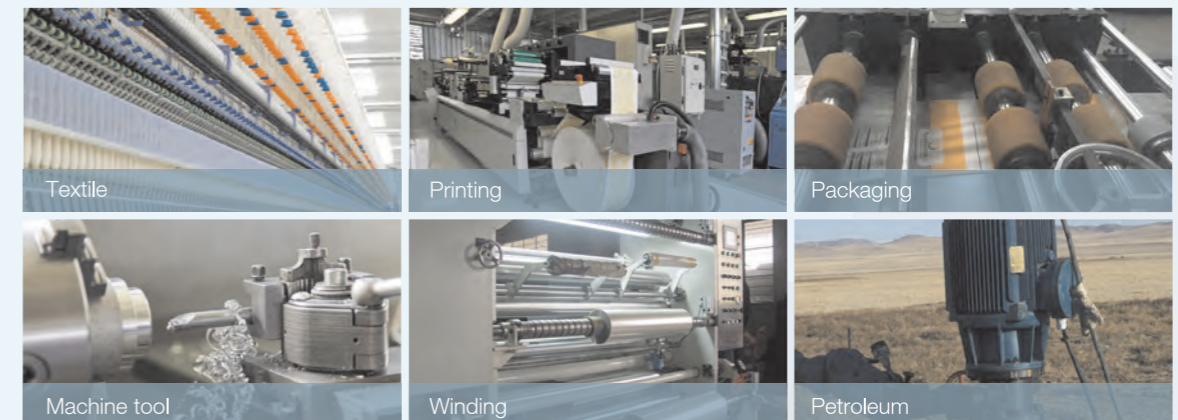
INVT is the first manufacturer in China that has been awarded the Acceptance of Client Testing (ACT) accreditation (data accreditation) issued by TÜV SÜD, which means the technologies, test data, and test reports of INVT's labs are accepted by TÜV SÜD.

Providing the built-in safe torque off (STO) function, reaching the international level, ensuring more safe and reliable application

- (1) SIL2 level
- (2) Can be used to set up a safety system



## Application Scenarios



# 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 <i>Rated value</i>  |
|                                       | Input frequency (Hz)              | 50Hz or 60Hz, allowable range: 47~63Hz   |
| Power output                          | Output voltage (V)                | 0~input voltage  |
|                                       | Output current (A)                | Refer to <i>Rated value</i>  |
|                                       | Output power (kW)                 | Refer to <i>Rated value</i>  |
|                                       | 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   |
| 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: 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   |

# Type 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<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) | Net/Gross weight (kg) | Dimension (mm) |
|-------------------------------------|-------------------------|-------------------|--------------------------|-----------------------|----------------|
| <b>AC 3PH 380V(-15%)~440V(+10%)</b> |                         |                   |                          |                       |                |
| GD350-1R5G-4                        | 1.5                     | 5.0               | 3.7                      | 2/3                   | 126*186*185    |
| GD350-2R2G-4                        | 2.2                     | 5.8               | 5                        |                       |                |
| GD350-004G-4                        | 4                       | 13.5              | 9.5                      | 2.5/3.5               | 126*186*201    |
| GD350-5R5G-4                        | 5.5                     | 19.5              | 14                       |                       |                |
| GD350-7R5G-4                        | 7.5                     | 25                | 18.5                     | 3/4                   | 146*256*192    |
| GD350-011G-4                        | 11                      | 32                | 25                       |                       |                |
| GD350-015G-4                        | 15                      | 40                | 32                       | 6/7                   | 170*320*220    |

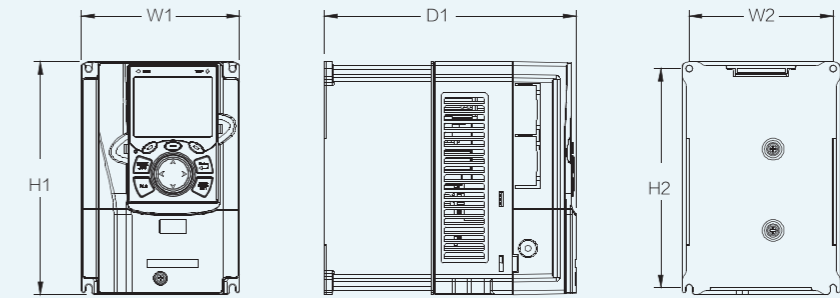


| VFD model                           | Rated output power (kW) | Input current (A) | Rated output current (A) | Net/Gross weight (kg) | Dimension (mm) |
|-------------------------------------|-------------------------|-------------------|--------------------------|-----------------------|----------------|
| <b>AC 3PH 380V(-15%)~440V(+10%)</b> |                         |                   |                          |                       |                |
| GD350-018G-4                        | 18.5                    | 47                | 38                       | 8.5/10.5              | 200*340.6*208  |
| GD350-022G-4                        | 22                      | 51                | 45                       |                       |                |
| GD350-030G-4                        | 30                      | 70                | 60                       | 16/17                 | 250*400*223    |
| GD350-037G-4                        | 37                      | 80                | 75                       |                       |                |
| GD350-045G-4                        | 45                      | 98                | 92                       | 25/29                 | 282*560*258    |
| GD350-055G-4                        | 55                      | 128               | 115                      |                       |                |
| GD350-075G-4                        | 75                      | 139               | 150                      |                       |                |
| GD350-090G-4                        | 90                      | 168               | 180                      | 41/52                 | 338*554*330    |
| GD350-110G-4                        | 110                     | 201               | 215                      |                       |                |
| GD350-132G-4                        | 132                     | 265               | 260                      | 85/110                | 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                      | 135/165               | 680*960*380    |
| GD350-250G-4                        | 250                     | 460               | 480                      |                       |                |
| GD350-280G-4                        | 280                     | 500               | 530                      |                       |                |
| GD350-315G-4                        | 315                     | 580               | 600                      | 350/407               | 620*1700*560   |
| GD350-355G-4                        | 355                     | 625               | 650                      |                       |                |
| GD350-400G-4                        | 400                     | 715               | 720                      |                       |                |
| GD350-500G-4                        | 500                     | 890               | 860                      |                       |                |
| <b>AC 3PH 520V(-15%)~690V(+10%)</b> |                         |                   |                          |                       |                |
| GD350-022G-6                        | 22                      | 35                | 27                       | 30/32                 | 270*555*325    |
| GD350-030G-6                        | 30                      | 40                | 34                       |                       |                |
| GD350-370G-6                        | 37                      | 47                | 42                       |                       |                |
| GD350-045G-6                        | 45                      | 52                | 54                       | 47/67                 | 325*680*365    |
| GD350-055G-6                        | 55                      | 65                | 62                       |                       |                |
| GD350-075G-6                        | 75                      | 85                | 86                       |                       |                |
| GD350-090G-6                        | 90                      | 95                | 95                       | 85/110                | 500*870*360    |
| GD350-110G-6                        | 110                     | 118               | 131                      |                       |                |
| GD350-132G-6                        | 132                     | 145               | 147                      |                       |                |
| GD350-160G-6                        | 160                     | 165               | 163                      | 85/110                | 500*870*360    |
| GD350-185G-6                        | 185                     | 190               | 198                      |                       |                |
| GD350-200G-6                        | 200                     | 210               | 216                      |                       |                |
| GD350-220G-6                        | 220                     | 230               | 240                      | 135/165               | 680*960*380    |
| GD350-250G-6                        | 250                     | 255               | 274                      |                       |                |
| GD350-280G-6                        | 280                     | 286               | 300                      |                       |                |
| GD350-315G-6                        | 315                     | 334               | 328                      |                       |                |
| GD350-355G-6                        | 355                     | 360               | 380                      |                       |                |

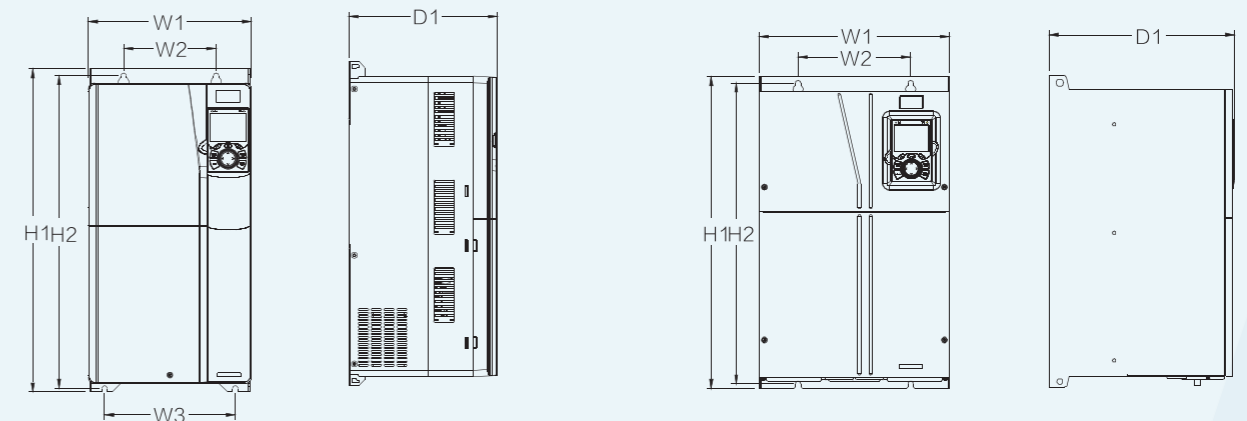
|              |     |     |     |         |              |
|--------------|-----|-----|-----|---------|--------------|
| GD350-400G-6 | 400 | 411 | 426 | 350/407 | 620*1700*560 |
| GD350-450G-6 | 450 | 445 | 465 |         |              |
| GD350-500G-6 | 500 | 518 | 540 |         |              |
| GD350-560G-6 | 560 | 578 | 600 |         |              |
| GD350-630G-6 | 630 | 655 | 688 |         |              |

## Installation Dimension

### Wall mounting installation diagram

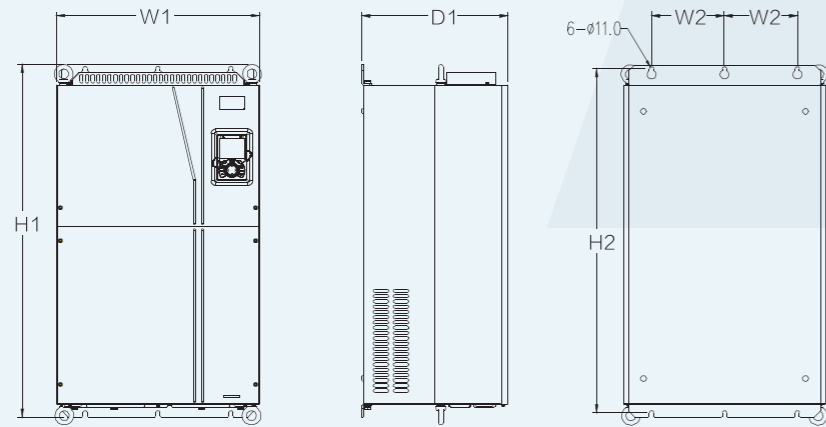


380V, 1.5~37kW

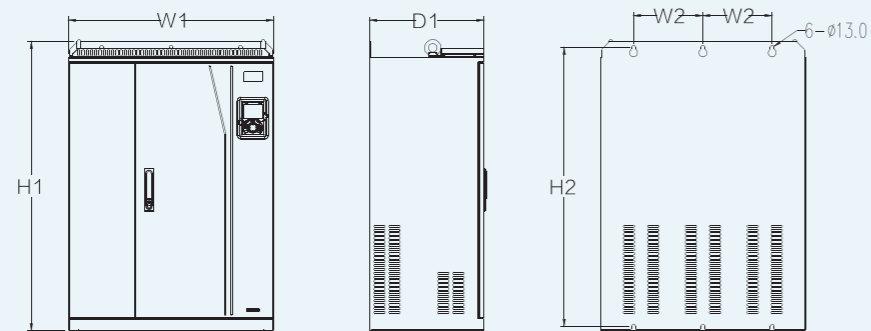


380V, 45~75kW

380V, 90~110kW

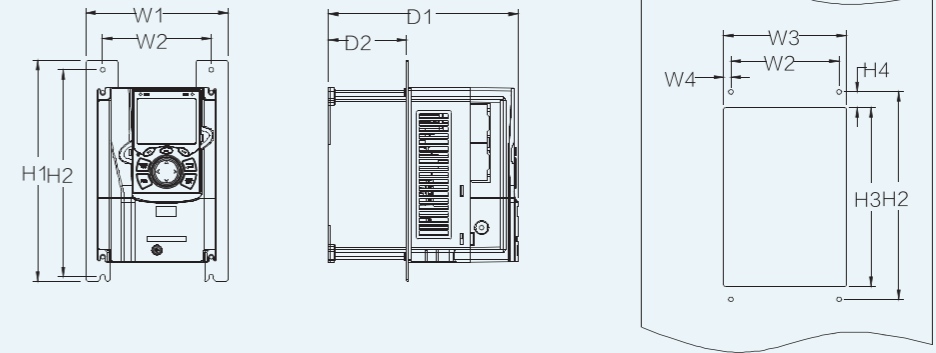


660V, 160~220kW

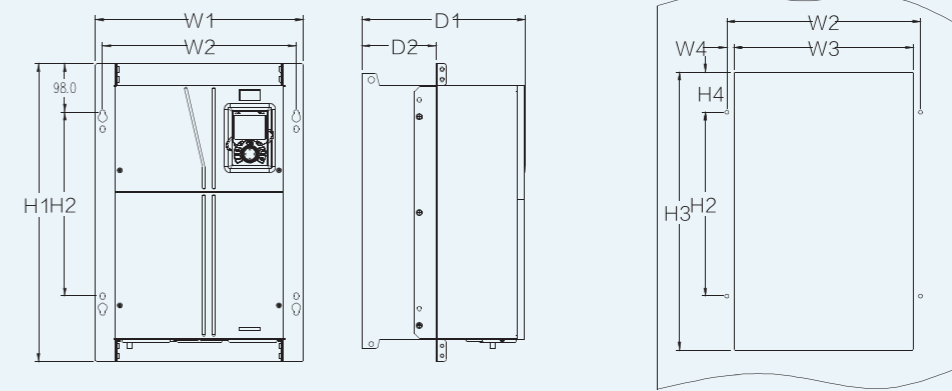


660V, 250~355kW

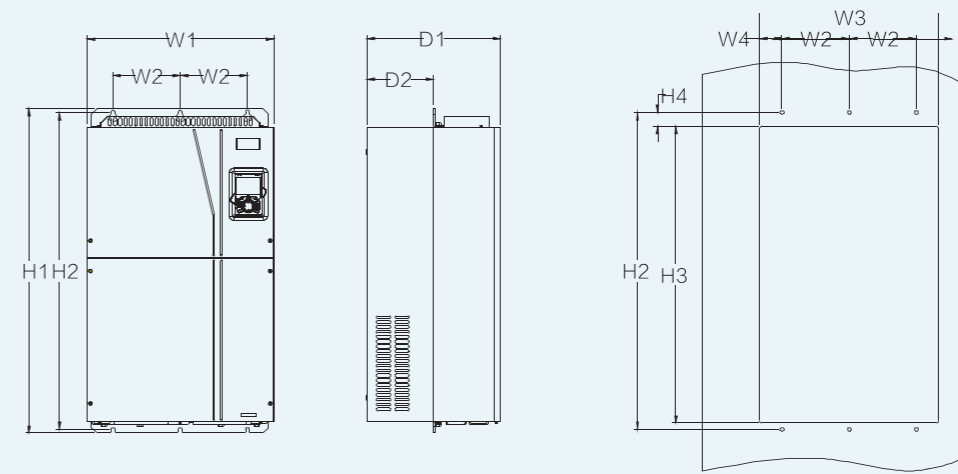
### Flange mounting installation diagram



380V, 1.5~75kW

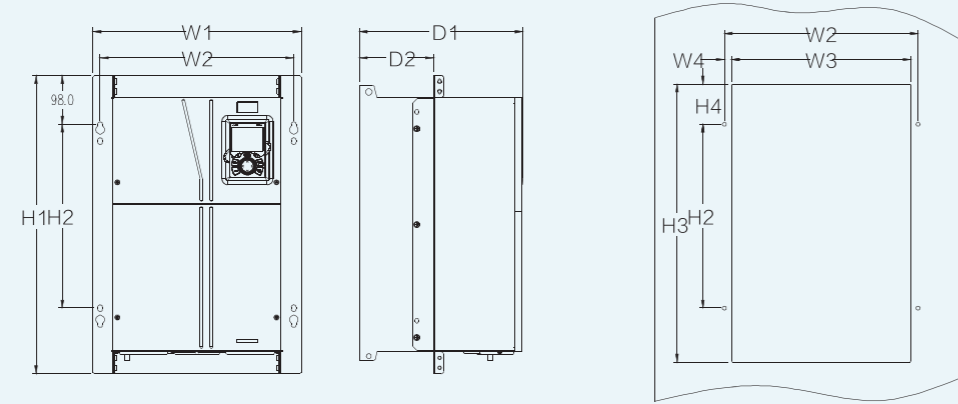


380V, 90~110kW

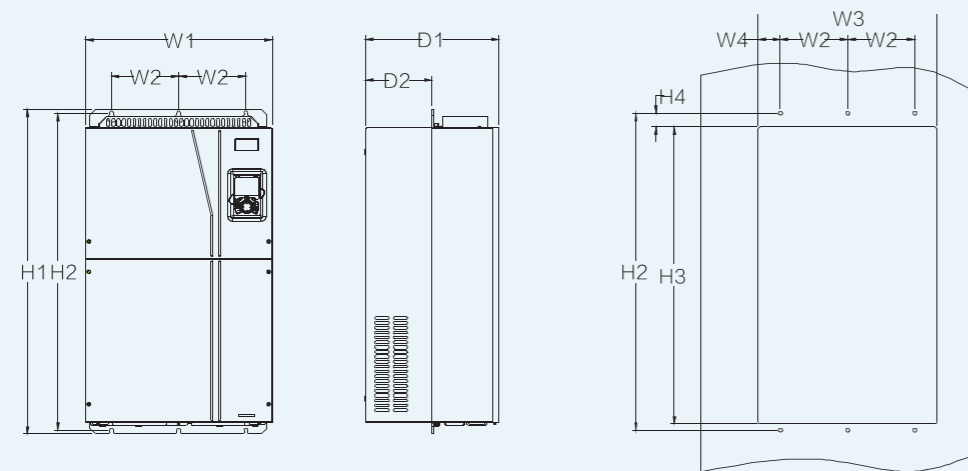


380V, 132~220kW

| Model       | W1          | W2  | W3  | H1  | H2    | D1    | Installation hole diameter | Fixing screw |     |
|-------------|-------------|-----|-----|-----|-------|-------|----------------------------|--------------|-----|
| 380         | 1.5kW~2.2kW | 126 | 115 | -   | 186   | 175   | 185                        | 5            | M4  |
|             | 4kW~5.5kW   | 126 | 115 | -   | 186   | 175   | 201                        | 5            | M4  |
|             | 7.5kW       | 146 | 131 | -   | 256   | 243.5 | 192                        | 6            | M5  |
|             | 11kW~15kW   | 170 | 151 | -   | 320   | 303.5 | 220                        | 6            | M5  |
|             | 18.5kW~22kW | 200 | 185 | -   | 340.6 | 328.6 | 208                        | 6            | M5  |
|             | 30kW~37kW   | 250 | 230 | -   | 400   | 380   | 223                        | 6            | M5  |
|             | 45kW~75kW   | 282 | 160 | 226 | 560   | 542   | 258                        | 9            | M8  |
|             | 90kW~110kW  | 338 | 200 | -   | 554   | 535   | 330                        | 10           | M8  |
|             | 132kW~200kW | 500 | 180 | -   | 870   | 850   | 360                        | 11           | M10 |
| 220kW~315kW | 680         | 230 | -   | 960 | 926   | 380   | 13                         | M12          |     |
| 660V        | 22kW~45kW   | 270 | 130 | -   | 555   | 540   | 325                        | 7            | M6  |
|             | 55kW~132kW  | 325 | 200 | -   | 680   | 661   | 365                        | 9.5          | M8  |
|             | 160kW~220kW | 500 | 180 | -   | 870   | 850   | 360                        | 11           | M10 |
|             | 250kW~355kW | 680 | 230 | -   | 960   | 926   | 380                        | 13           | M12 |



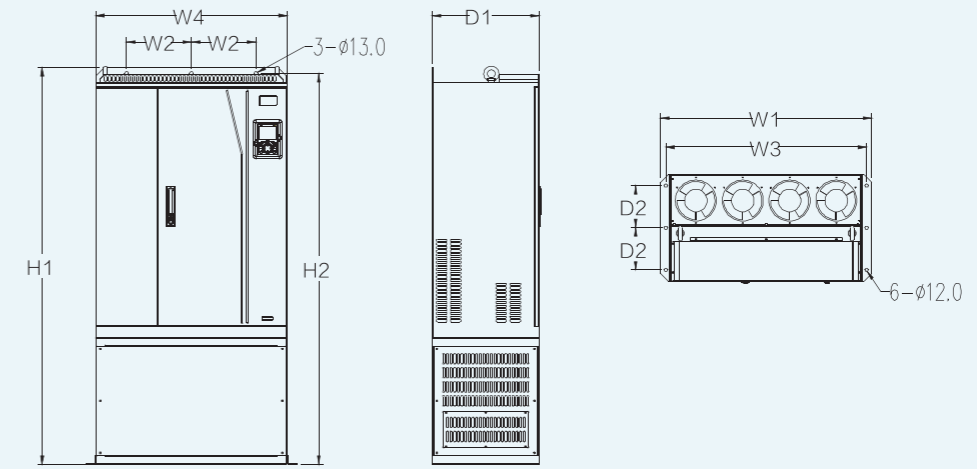
660V, 22~132kW



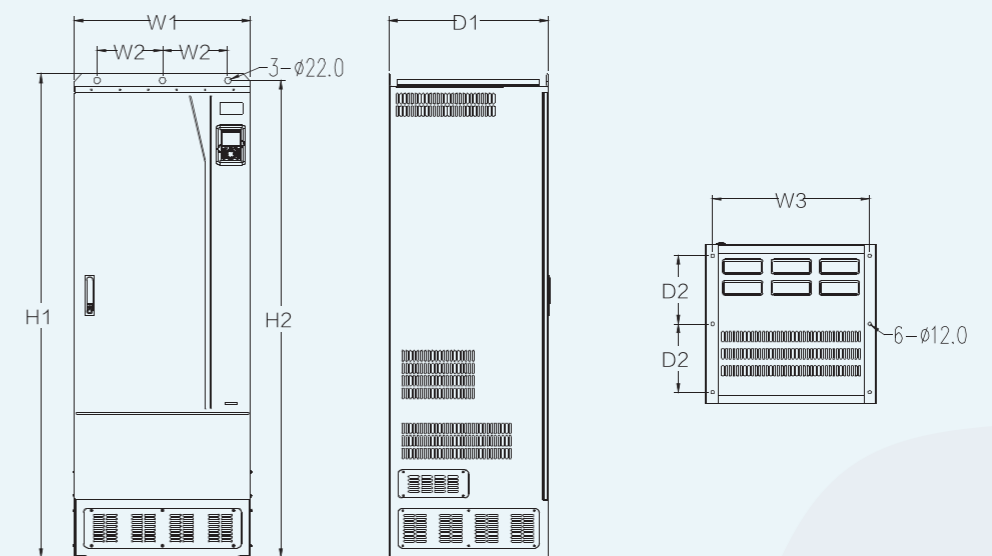
600V, 160~220kW

|      | Model       | W1    | W2    | W3  | W4   | H1  | H2  | H3    | H4    | D1  | D2    | Installation hole diameter | Fixing screw |
|------|-------------|-------|-------|-----|------|-----|-----|-------|-------|-----|-------|----------------------------|--------------|
| 380V | 1.5kW~2.2kW | 150.2 | 115   | 130 | 7.5  | 234 | 220 | 190   | 13.5  | 185 | 65.5  | 5                          | M4           |
|      | 4kW~5.5kW   | 150.2 | 115   | 130 | 7.5  | 234 | 220 | 190   | 13.5  | 201 | 83    | 5                          | M4           |
|      | 7.5kW       | 170.2 | 131   | 150 | 9.5  | 292 | 276 | 260   | 6     | 192 | 84.5  | 6                          | M5           |
|      | 11kW~15kW   | 191.2 | 151   | 174 | 11.5 | 370 | 351 | 324   | 12    | 220 | 113   | 6                          | M5           |
|      | 18.5kW~22kW | 266   | 250   | 224 | 13   | 371 | 250 | 350.6 | 20.3  | 208 | 104   | 6                          | M5           |
|      | 30kW~37kW   | 316   | 300   | 274 | 13   | 430 | 300 | 410   | 55    | 223 | 118.3 | 6                          | M5           |
|      | 45kW~75kW   | 352   | 332   | 306 | 12   | 580 | 400 | 570   | 80    | 258 | 133.8 | 9                          | M8           |
|      | 90kW~110kW  | 418.5 | 389.5 | 361 | 14.2 | 600 | 370 | 559   | 108.5 | 330 | 149.5 | 10                         | M8           |
|      | 132kW~200kW | 500   | 180   | 480 | 60   | 870 | 850 | 796   | 37    | 360 | 178.5 | 11                         | M10          |
| 660V | 22kW~45kW   | 270   | 130   | 261 | 65.5 | 555 | 540 | 56    | 17    | 325 | 167   | 7                          | M6           |
|      | 55kW~132kW  | 325   | 200   | 317 | 58.5 | 680 | 661 | 626   | 23    | 363 | 182   | 9.5                        | M8           |
|      | 160kW~220kW | 500   | 180   | 480 | 60   | 870 | 850 | 796   | 37    | 358 | 178.5 | 11                         | M10          |

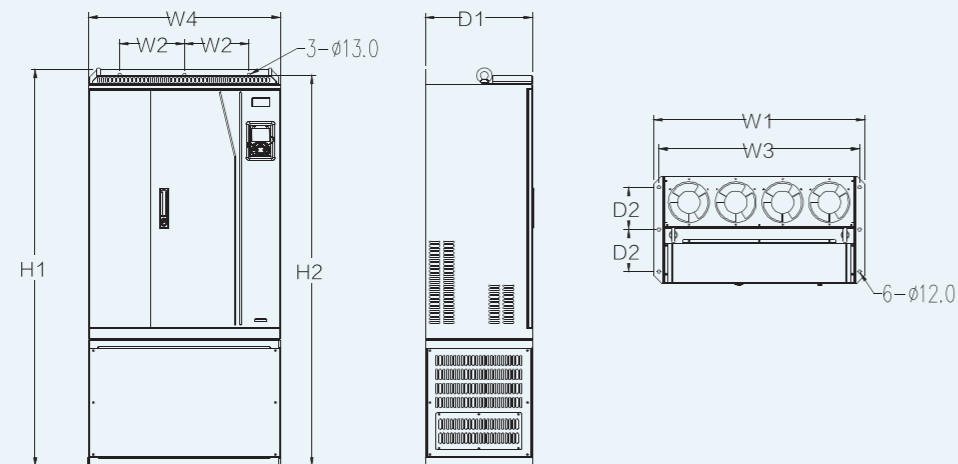
Floor mounting installation diagram



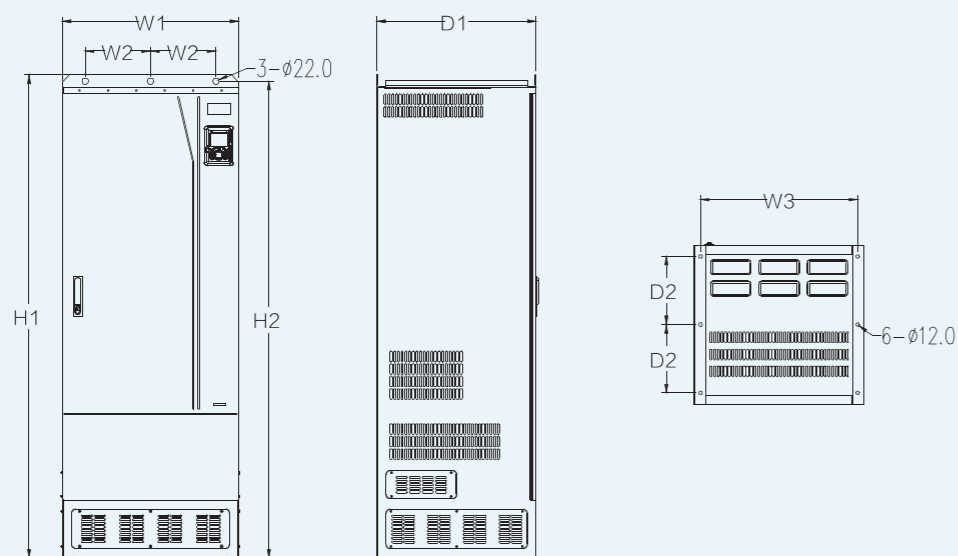
380V, 220~315kW



380V, 355~500kW



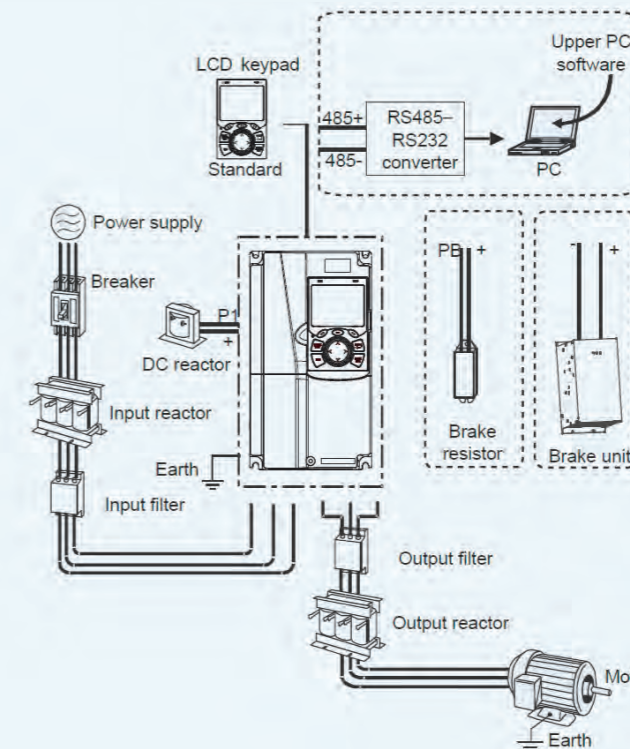
660V, 250~355kW



660V, 400~630kW

| Model | W1          | W2  | W3  | W4  | H1  | H2   | D1   | D2  | Installation hole diameter | Fixing screw |         |
|-------|-------------|-----|-----|-----|-----|------|------|-----|----------------------------|--------------|---------|
| 380V  | 220kW~315kW | 750 | 230 | 714 | 680 | 1410 | 1390 | 380 | 150                        | 13\12        | M12/M10 |
|       | 355kW~500kW | 620 | 230 | 572 | -   | 1700 | 1678 | 560 | 240                        | 22\12        | M20/M10 |
| 660V  | 250kW~355kW | 750 | 230 | 714 | 680 | 1410 | 1390 | 380 | 150                        | 13\12        | M12/M10 |
|       | 400kW~630kW | 620 | 230 | 572 | \   | 1700 | 1678 | 560 | 240                        | 22\12        | M20/M10 |

## Optional Parts



- VFDs of 380V, 37 kW or lower are equipped with built-in brake units, and VFDs of 45 kW to 110 kW can be configured with optional built-in brake units
- VFDs of 380 V, 18.5 kW to 110 kW are equipped with built-in DC reactors
- P1 terminals are equipped only for VFDs of 380 V, 132 kW or higher, which enable the VFDs to be directly connected to external DC reactors
- P1 terminals are equipped for all VFDs of the 660 V series or higher, which enable the VFDs to be directly connected to external DC reactors
- The brake units INVT's DBU series standard brake units. For details, see the DBU operation manual

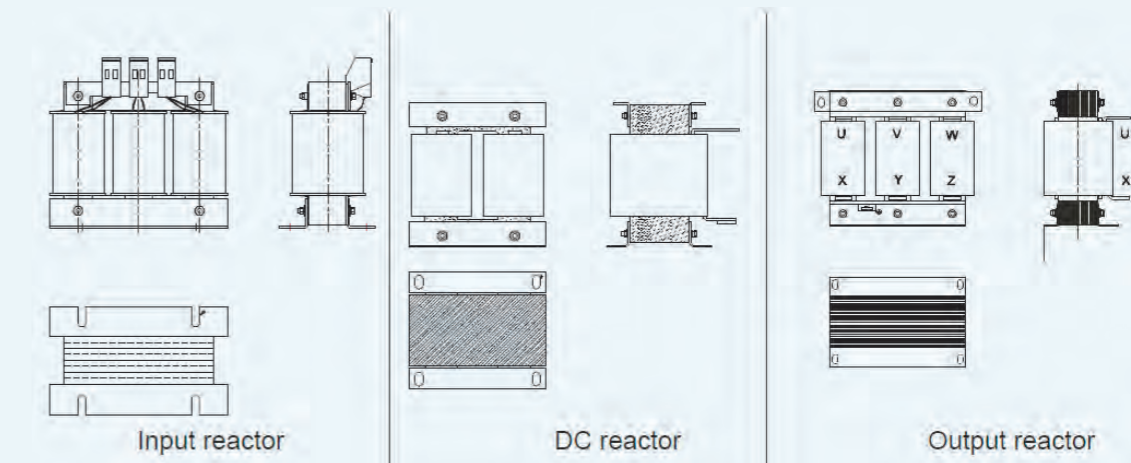
## Breakers and electromagnetic contactors

| Model        | Fuse (A)     | Breaker (A) | Rated current of the contactor (A) |    |
|--------------|--------------|-------------|------------------------------------|----|
| 380V         | GD350-1R5G-4 | 1           | 16                                 | 10 |
|              | GD350-2R2G-4 | 17.4        | 16                                 | 10 |
|              | GD350-004G-4 | 30          | 25                                 | 16 |
|              | GD350-5R5G-4 | 45          | 25                                 | 16 |
|              | GD350-7R5G-4 | 60          | 40                                 | 25 |
|              | GD350-011G-4 | 78          | 63                                 | 32 |
|              | GD350-015G-4 | 105         | 63                                 | 50 |
| GD350-018G-4 | 114          | 100         | 63                                 |    |

|              | Model        | Fuse (A) | Breaker (A) | Rated current of the contactor (A) |
|--------------|--------------|----------|-------------|------------------------------------|
| 380V         | GD350-022G-4 | 138      | 100         | 80                                 |
|              | GD350-030G-4 | 186      | 125         | 95                                 |
|              | GD350-037G-4 | 228      | 160         | 120                                |
|              | GD350-045G-4 | 270      | 200         | 135                                |
|              | GD350-055G-4 | 315      | 200         | 170                                |
|              | GD350-075G-4 | 420      | 250         | 230                                |
|              | GD350-090G-4 | 480      | 315         | 280                                |
|              | GD350-110G-4 | 630      | 400         | 315                                |
|              | GD350-132G-4 | 720      | 400         | 380                                |
|              | GD350-160G-4 | 870      | 630         | 450                                |
|              | GD350-185G-4 | 1110     | 630         | 580                                |
|              | GD350-200G-4 | 1110     | 630         | 580                                |
|              | GD350-220G-4 | 1230     | 800         | 630                                |
|              | GD350-250G-4 | 1380     | 800         | 700                                |
|              | GD350-280G-4 | 1500     | 1000        | 780                                |
|              | GD350-315G-4 | 1740     | 1200        | 900                                |
|              | GD350-355G-4 | 1860     | 1280        | 960                                |
| GD350-400G-4 | 2010         | 1380     | 1035        |                                    |
| GD350-450G-4 | 2445         | 1630     | 1222        |                                    |
| GD350-500G-4 | 2505         | 1720     | 1290        |                                    |
| 660V         | GD350-022G-6 | 105      | 63          | 50                                 |
|              | GD350-030G-6 | 105      | 63          | 50                                 |
|              | GD350-370G-6 | 114      | 100         | 63                                 |
|              | GD350-045G-6 | 138      | 100         | 80                                 |
|              | GD350-055G-6 | 186      | 125         | 95                                 |
|              | GD350-075G-6 | 270      | 200         | 135                                |
|              | GD350-090G-6 | 270      | 200         | 135                                |
|              | GD350-110G-6 | 315      | 200         | 170                                |
|              | GD350-132G-6 | 420      | 250         | 230                                |
|              | GD350-160G-6 | 480      | 315         | 280                                |
|              | GD350-185G-6 | 480      | 315         | 280                                |
|              | GD350-200G-6 | 630      | 400         | 315                                |
|              | GD350-220G-6 | 720      | 400         | 380                                |
|              | GD350-250G-6 | 720      | 400         | 380                                |
|              | GD350-280G-6 | 870      | 630         | 450                                |
|              | GD350-315G-6 | 1110     | 630         | 580                                |
|              | GD350-355G-6 | 1110     | 630         | 580                                |

|      | Model        | Fuse (A) | Breaker (A) | Rated current of the contactor (A) |
|------|--------------|----------|-------------|------------------------------------|
| 660V | GD350-400G-6 | 1230     | 800         | 630                                |
|      | GD350-450G-6 | 1470     | 960         | 735                                |
|      | GD350-500G-6 | 1500     | 100         | 780                                |
|      | GD350-560G-6 | 1740     | 1200        | 900                                |
|      | GD350-630G-6 | 2010     | 1380        | 1035                               |

### Reactors



|      | Model        | Input reactor | DC reactor           | Output reactor |
|------|--------------|---------------|----------------------|----------------|
| 380V | GD350-1R5G-4 | ACL2-1R5G-4   | /                    | OCL2-1R5G-4    |
|      | GD350-2R2G-4 | ACL2-2R2G-4   |                      | OCL2-2R2G-4    |
|      | GD350-004G-4 | ACL2-004G-4   |                      | OCL2-004G-4    |
|      | GD350-5R5G-4 | ACL2-5R5G-4   |                      | OCL2-5R5G-4    |
|      | GD350-7R5G-4 | ACL2-7R5G-4   |                      | OCL2-7R5G-4    |
|      | GD350-011G-4 | ACL2-011G-4   |                      | OCL2-011G-4    |
|      | GD350-015G-4 | ACL2-015G-4   |                      | OCL2-015G-4    |
|      | GD350-018G-4 | ACL2-018G-4   | Standard<br>Built-in | OCL2-018G-4    |
|      | GD350-022G-4 | ACL2-022G-4   |                      | OCL2-022G-4    |
|      | GD350-030G-4 | ACL2-030G-4   |                      | OCL2-030G-4    |
|      | GD350-037G-4 | ACL2-037G-4   |                      | OCL2-037G-4    |
|      | GD350-045G-4 | ACL2-045G-4   |                      | OCL2-045G-4    |
|      | GD350-055G-4 | ACL2-055G-4   |                      | OCL2-055G-4    |
|      | GD350-075G-4 | ACL2-075G-4   |                      | OCL2-075G-4    |
|      | GD350-090G-4 | ACL2-090G-4   |                      | OCL2-090G-4    |
|      | GD350-110G-4 | ACL2-110G-4   |                      | OCL2-110G-4    |
|      | GD350-132G-4 | ACL2-132G-4   |                      | DCL2-132-4     |

|              | Model        | Input reactor        | DC reactor  | Output reactor |
|--------------|--------------|----------------------|-------------|----------------|
| 380V         | GD350-160G-4 | ACL2-160G-4          | DCL2-160-4  | OCL2-160G-4    |
|              | GD350-185G-4 | ACL2-185G-4          | DCL2-185-4  | OCL2-185G-4    |
|              | GD350-200G-4 | ACL2-200G-4          | DCL2-200-4  | OCL2-200G-4    |
|              | GD350-220G-4 | ACL2-220G-4          | DCL2-220-4  | OCL2-220G-4    |
|              | GD350-250G-4 | ACL2-250G-4          | DCL2-250-4  | OCL2-250G-4    |
|              | GD350-280G-4 | ACL2-280G-4          | DCL2-280-4  | OCL2-280G-4    |
|              | GD350-315G-4 | ACL2-315G-4          | DCL2-315-4  | OCL2-315G-4    |
|              | GD350-355G-4 | Standard<br>Built-in | DCL2-400-4  | OCL2-350G-4    |
|              | GD350-400G-4 |                      | DCL2-400-4  | OCL2-400G-4    |
|              | GD350-450G-4 |                      | DCL2-500-4  | OCL2-500G-4    |
| GD350-500G-4 | DCL2-500-4   |                      | OCL2-500G-4 |                |
| 660V         | GD350-022G-6 | ACL2-022G-6          | DCL2-022G-6 | OCL2-022G-6    |
|              | GD350-030G-6 | ACL2-030G-6          | DCL2-030G-6 | OCL2-030G-6    |
|              | GD350-370G-6 | ACL2-370G-6          | DCL2-037G-6 | OCL2-037G-6    |
|              | GD350-045G-6 | ACL2-045G-6          | DCL2-045G-6 | OCL2-045G-6    |
|              | GD350-055G-6 | ACL2-055G-6          | DCL2-055G-6 | OCL2-055G-6    |
|              | GD350-075G-6 | ACL2-075G-6          | DCL2-075G-6 | OCL2-075G-6    |
|              | GD350-090G-6 | ACL2-090G-6          | DCL2-090G-6 | OCL2-090G-6    |
|              | GD350-110G-6 | ACL2-110G-6          | DCL2-110G-6 | OCL2-110G-6    |
|              | GD350-132G-6 | ACL2-132G-6          | DCL2-132G-6 | OCL2-132G-6    |
|              | GD350-160G-6 | ACL2-160G-6          | DCL2-160G-6 | OCL2-160G-6    |
|              | GD350-185G-6 | ACL2-185G-6          | DCL2-185G-6 | OCL2-185G-6    |
|              | GD350-200G-6 | ACL2-200G-6          | DCL2-200G-6 | OCL2-200G-6    |
|              | GD350-220G-6 | ACL2-220G-6          | DCL2-220G-6 | OCL2-220G-6    |
|              | GD350-250G-6 | ACL2-250G-6          | DCL2-250G-6 | OCL2-250G-6    |
|              | GD350-280G-6 | ACL2-280G-6          | DCL2-280G-6 | OCL2-280G-6    |
|              | GD350-315G-6 | ACL2-315G-6          | DCL2-315G-6 | OCL2-315G-6    |
|              | GD350-355G-6 | ACL2-350G-6          | DCL2-350G-6 | OCL2-350G-6    |
|              | GD350-400G-6 | Standard<br>Built-in | DCL2-400G-6 | OCL2-400G-6    |
|              | GD350-450G-6 |                      | DCL2-500G-6 | OCL2-500G-6    |
|              | GD350-500G-6 |                      | DCL2-500G-6 | OCL2-500G-6    |
| GD350-560G-6 | DCL2-560G-6  |                      | OCL2-560G-6 |                |
| GD350-630G-6 | DCL2-630G-6  |                      | OCL2-630G-6 |                |

Filters

**FLT-P 04 045 L-B**  
 A B C D E F

| Filter identifier | Field description  |
|-------------------|--|
| A                 | FLT: Name of the VFD filter series   |
| B                 | Filter type<br>P: Power input filter<br>L: Output filter   |
| C                 | Voltage class<br>04: AC 3PH 380V (-15%)~440V (+10%)<br>06: AC 3PH 520V (-15%)~690V (+10%)  |
| D                 | 3-digit code indicating the rated current. For example, 015 indicates 15A.   |
| E                 | Filter performance<br>L: General<br>H: High-performance  |
| F                 | Filter application environment<br>A: Environment Category I, C1 (EN 61800-3:2004)<br>B: Environment Category I, C2 (EN 61800-3:2004)<br>C: Environment Category II, C3 (EN 61800-3:2004) |

| VFD model                             | Input filter  | Output filter |
|---------------------------------------|---------------|---------------|
| <b>AC 3PH 380V (-15%)~440V (+10%)</b> |               |               |
| GD350-1R5G-4                          | FLT-P04006L-B | FLT-P04006L-B |
| GD350-2R2G-4                          |               |               |
| GD350-004G-4                          | FLT-P04016L-B | FLT-P04016L-B |
| GD350-5R5G-4                          |               |               |
| GD350-7R5G-4                          | FLT-P04032L-B | FLT-P04032L-B |
| GD350-011G-4                          |               |               |
| GD350-015G-4                          | FLT-P04045L-B | FLT-P04045L-B |
| GD350-018G-4                          |               |               |
| GD350-022G-4                          | FLT-P04065L-B | FLT-P04065L-B |
| GD350-030G-4                          |               |               |
| GD350-037G-4                          | FLT-P04100L-B | FLT-P04100L-B |
| GD350-045G-4                          |               |               |
| GD350-055G-4                          | FLT-P04150L-B | FLT-P04150L-B |
| GD350-075G-4                          |               |               |
| GD350-090G-4                          | FLT-P04240L-B | FLT-P04240L-B |
| GD350-110G-4                          |               |               |
| GD350-132G-4                          |               |               |
| GD350-160G-4                          | FLT-P04400L-B | FLT-P04400L-B |
| GD350-185G-4                          |               |               |
| GD350-200G-4                          |               |               |

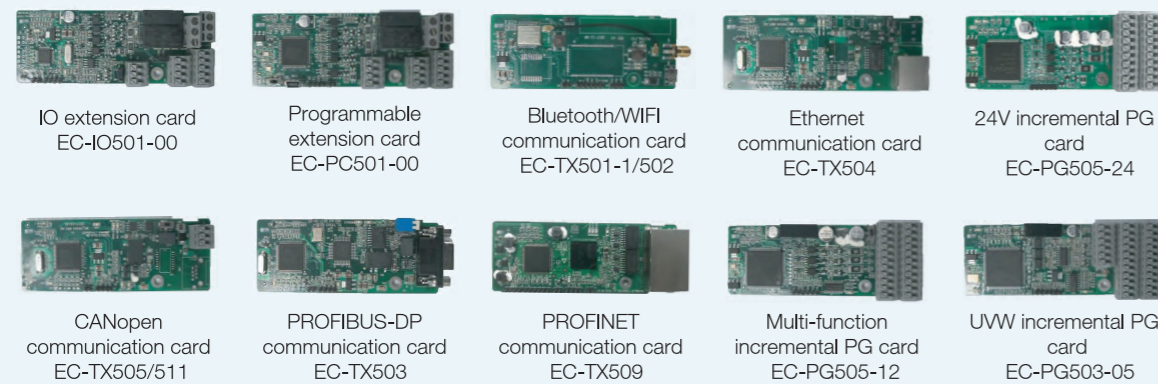
| VFD model                               | Input filter   | Output filter  |
|---|----------------|----------------|
| <b>AC 3PH 380V (-15%)–440V (+10%)</b>   |                |                |
| GD350-220G-4                            | FLT-P04600L-B  | FLT-P04600L-B  |
| GD350-250G-4                            |                |                |
| GD350-280G-4                            |                |                |
| GD350-315G-4                            | FLT-P04800L-B  | FLT-P04800L-B  |
| GD350-355G-4                            |                |                |
| GD350-400G-4                            |                |                |
| GD350-450G-4                            | FLT-P041000L-B | FLT-P041000L-B |
| GD350-500G-4                            |                |                |
| <b>AC 3PH 520V (-15%) – 690V (+10%)</b> |                |                |
| GD350-022G-6                            | FLT-P06050H-B  | FLT-P06050H-B  |
| GD350-030G-6                            |                |                |
| GD350-370G-6                            |                |                |
| GD350-045G-6                            | FLT-P06100H-B  | FLT-P06100H-B  |
| GD350-055G-6                            |                |                |
| GD350-075G-6                            |                |                |
| GD350-090G-6                            |                |                |
| GD350-110G-6                            | FLT-P06200H-B  | FLT-P06200H-B  |
| GD350-132G-6                            |                |                |
| GD350-160G-6                            |                |                |
| GD350-185G-6                            |                |                |
| GD350-200G-6                            | FLT-P06300H-B  | FLT-P06300H-B  |
| GD350-220G-6                            |                |                |
| GD350-250G-6                            |                |                |
| GD350-280G-6                            |                |                |
| GD350-315G-6                            | FLT-P06400H-B  | FLT-P06400H-B  |
| GD350-355G-6                            |                |                |
| GD350-400G-6                            | FLT-P061000H-B | FLT-P061000H-B |
| GD350-450G-6                            |                |                |
| GD350-500G-6                            |                |                |
| GD350-560G-6                            |                |                |
| GD350-630G-6                            |                |                |

### Brake system

| VFD model                             | Brake unit model  | Resistance applicable for brake torque (Ω) | Dissipated power of brake resistor (kW) |                 |                 | Min. allowable brake resistor (Ω) |     |
|---------------------------------------|-------------------|--|---|-----------------|-----------------|-----------------------------------|-----|
|                                       |                   |  | 10% brake usage                         | 50% brake usage | 80% brake usage |                                   |     |
| <b>AC 3PH 380V (-15%)–440V (+10%)</b> |                   |  |   |                 |                 |                                   |     |
| GD350-1R5G-4                          | Standard Built-in | 326  | 0.23                                    | 1.1             | 1.8             | 170                               |     |
| GD350-2R2G-4                          |                   | 222  | 0.33                                    | 1.7             | 2.6             | 130                               |     |
| GD350-004G-4                          |                   | 122  | 0.6                                     | 3               | 4.8             | 80                                |     |
| GD350-5R5G-4                          |                   | 89   | 0.75                                    | 4.1             | 6.6             | 60                                |     |
| GD350-7R5G-4                          |                   | 65   | 1.1                                     | 5.6             | 9               | 47                                |     |
| GD350-011G-4                          |                   | 44   | 1.7                                     | 8.3             | 13.2            | 31                                |     |
| GD350-015G-4                          |                   | 32   | 2                                       | 11              | 18              | 23                                |     |
| GD350-018G-4                          |                   | 27   | 3                                       | 14              | 22              | 19                                |     |
| GD350-022G-4                          |                   | 22   | 3                                       | 17              | 26              | 17                                |     |
| GD350-030G-4                          |                   | 17   | 5                                       | 23              | 36              | 17                                |     |
| GD350-037G-4                          |                   | 13   | 6                                       | 28              | 44              | 11.7                              |     |
| GD350-045G-4                          |                   | DBU100H-110-4                              | 10                                      | 7               | 34              | 54                                | 6.4 |
| GD350-055G-4                          |                   |  | 8                                       | 8               | 41              | 66                                |     |
| GD350-075G-4                          |                   | DBU100H-160-4                              | 6.5                                     | 11              | 56              | 90                                | 4.4 |
| GD350-090G-4                          | 5.4               |  | 14                                      | 68              | 108             |                                   |     |
| GD350-110G-4                          | DBU100H-220-4     | 4.5  | 17                                      | 83              | 132             | 3.2                               |     |
| GD350-132G-4                          |                   | 3.7  | 20                                      | 99              | 158             |                                   |     |
| GD350-160G-4                          | DBU100H-320-4     | 3.1  | 24                                      | 120             | 192             | 2.2                               |     |
| GD350-185G-4                          |                   | 2.8  | 28                                      | 139             | 222             |                                   |     |
| GD350-200G-4                          | DBU100H-400-4     | 2.5  | 30                                      | 150             | 240             | 1.8                               |     |
| GD350-220G-4                          |                   | 2.2  | 33                                      | 165             | 264             |                                   |     |
| GD350-250G-4                          | Two sets          | 2.0  | 38                                      | 188             | 300             | 2.2*2                             |     |
| GD350-280G-4                          |                   | 3.6*2                                      | 21*1                                    | 105*2           | 168*2           |                                   |     |
| GD350-315G-4                          |                   | 3.2*2                                      | 24*2                                    | 118*2           | 189*2           |                                   |     |
| GD350-355G-4                          |                   | 2.8*2                                      | 27*2                                    | 132*2           | 210*2           |                                   |     |
| GD350-400G-4                          | Two sets          | 2.4*2                                      | 30*2                                    | 150*2           | 240*2           | 1.8*2                             |     |
| GD350-450G-4                          |                   | 2.2*2                                      | 34*2                                    | 168*2           | 270*2           |                                   |     |
| GD350-500G-4                          | DBU100H-400-4     | 2.0*2                                      | 38*2                                    | 186*2           | 300*2           |                                   |     |

| VFD model                             | Brake unit model | Resistance applicable for brake torque (Ω) | Dissipated power of brake resistor (kW) |                 |                 | Min. allowable brake resistor (Ω) |
|---------------------------------------|------------------|--|---|-----------------|-----------------|-----------------------------------|
|                                       |                  |  | 10% brake usage                         | 50% brake usage | 80% brake usage |                                   |
| <b>AC 3PH 520V (-15%)–690V (+10%)</b> |                  |  |   |                 |                 |                                   |
| GD350-022G-6                          | DBU100H-110-6    | 55   | 4                                       | 17              | 27              | 10.0                              |
| GD350-030G-6                          |                  | 40.3                                       | 5                                       | 23              | 36              |                                   |
| GD350-370G-6                          |                  | 32.7                                       | 6                                       | 28              | 44              |                                   |
| GD350-045G-6                          |                  | 26.9                                       | 7                                       | 34              | 54              |                                   |
| GD350-055G-6                          |                  | 22.0                                       | 8                                       | 41              | 66              |                                   |
| GD350-075G-6                          |                  | 16.1                                       | 11                                      | 56              | 90              |                                   |
| GD350-090G-6                          |                  | 13.4                                       | 14                                      | 68              | 108             |                                   |
| GD350-110G-6                          |                  | 11.0                                       | 17                                      | 83              | 132             |                                   |
| GD350-132G-6                          | DBU100H-160-6    | 9.2  | 20                                      | 99              | 158             | 6.9                               |
| GD350-160G-6                          |                  | 7.6  | 24                                      | 120             | 192             |                                   |
| GD350-185G-6                          | DBU100H-220-6    | 6.5  | 28                                      | 139             | 222             | 5.0                               |
| GD350-200G-6                          |                  | 6.1  | 30                                      | 150             | 240             |                                   |
| GD350-220G-6                          | DBU100H-320-6    | 5.5  | 33                                      | 165             | 264             | 3.4                               |
| GD350-250G-6                          |                  | 4.8  | 38                                      | 188             | 300             |                                   |
| GD350-280G-6                          |                  | 4.3  | 42                                      | 210             | 336             |                                   |
| GD350-315G-6                          |                  | 3.8  | 47                                      | 236             | 378             |                                   |
| GD350-355G-6                          | DBU100H-400-6    | 3.5  | 53                                      | 263             | 420             | 2.8                               |
| GD350-400G-6                          |                  | 3.0  | 60                                      | 300             | 480             |                                   |
| GD350-450G-6                          | Two sets         | 5.5*2                                      | 34*2                                    | 168*2           | 270*2           | 3.4*2                             |
| GD350-500G-6                          |                  | 4.8*2                                      | 38*2                                    | 188*2           | 300*2           |                                   |
| GD350-560G-6                          | DBU100H-320-6    | 4.3*2                                      | 42*2                                    | 210*2           | 336*2           |                                   |
| GD350-630G-6                          |                  | 3.8*2                                      | 47*2                                    | 236*2           | 378*2           |                                   |

### Extension cards



| Type                | Name  | model   | Specification  |
|---------------------|---|---|--|
| I/O card            | IO extension card                           | EC-IO501-00   | 4 channels switch input 1 channel switch output<br>1 channel analog input 1 channel analog output<br>2 channels relay output.  |
| PLC card            | Programmable extension card                 | EC-PC501-00   | 6 channels switch input<br>2 channels switch output<br>2 channels relay output.  |
| Communication card  | Bluetooth communication card                | EC-TX501-1<br>EC-TX501-2  | Support Bluetooth 4.0<br>PCB antenna type or external sucker antenna.<br>Effective communication distance is 30m.  |
|                     | CANopen communication card                  | EC-TX505  | Based on the CAN2.0A physical layer<br>Support the CANopen protocol.   |
|                     | PROFIBUS-DP communication card              | EC-TX503  | Support PZB to control data exchange.<br>Support PZW to access VFD parameters.<br>Baud rate supports up to 12Mbps.   |
|                     | WIFI communication card                     | EC-TX502-1<br>EC-TX502-2  | Monitor the VFD locally or remotely through WIFI with INVT's mobile phone APP<br>Effective communication distance is 30m.  |
|                     | Ethernet communication card                 | EC-TX504  | Support Ethernet communication with INVT's internal protocol<br>INVT Studio  |
|                     | CAN master/slave control communication card | EC-TX511  | Based on the CAN2.0B physical layer<br>Adopt INVT's master-slave control proprietary protocol  |
|                     | PROFINET communication card                 | EC-TX509  | Support the PROFINET protocol  |
| PG card             | Multi-function incremental PG card          | EC-PG505-12   | Applicable to OC encoders of 5 V or 12 V<br>Applicable to push-pull encoders of 5 V or 12 V<br>Applicable to differential encoders of 5 V<br>Supporting pulse string setting |
|                     | UWV incremental PG card                     | EC-PG503-05   | Encoder interface: 5V incremental differential ABZ(UWV) encoder, maximum 400kHz.   |
|                     | Resolver PG card                            | EC-PG504-00   | Rotary transformer encoder. support / directional differential input of pulse. support 5V differential signal 1-255 frequency division output, up to 200kHz                  |
|                     | 24V incremental PG card                     | EC-PG505-24   | Support A, B, Z orthogonal input<br>Support A, B, Z frequency-divided output<br>Support pulse string reference input   |
|                     | Sin/Cos PG card                             | EG-PG502  | Applicable to Sin/Cos encoders with or without CD signal<br>Support A, B, Z frequency-divided output<br>Support pulse string reference input                                 |
| Incremental PG card | EC-PG507-12                                 | Applicable to OC encoders of 5 V or 12 V<br>Applicable to push-pull encoders of 5 V or 12 V<br>Applicable to differential encoders of 5 V |  |



## 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



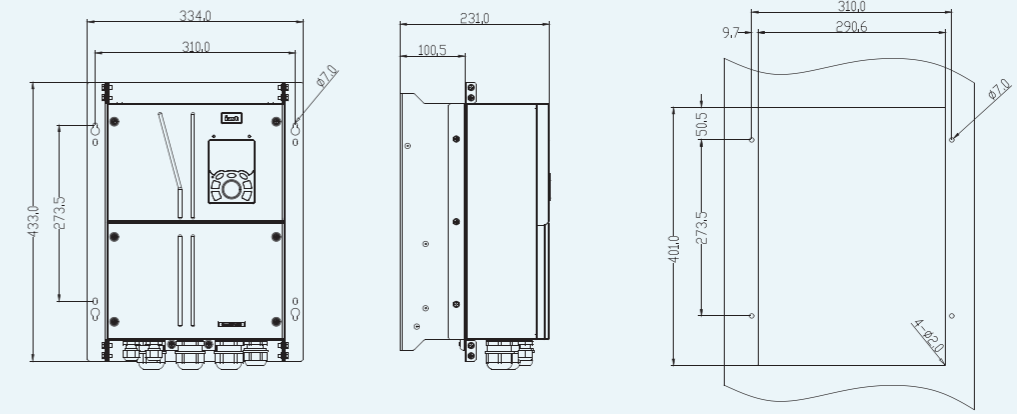
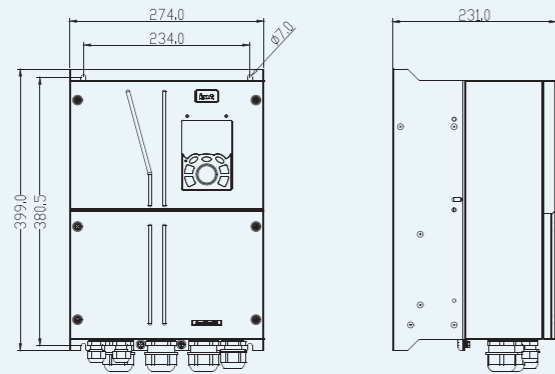
### Built-in accessories

- 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)<br>Synchronous motor: 2.5 Hz/150% (SVC)<br>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<br>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<br>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   |



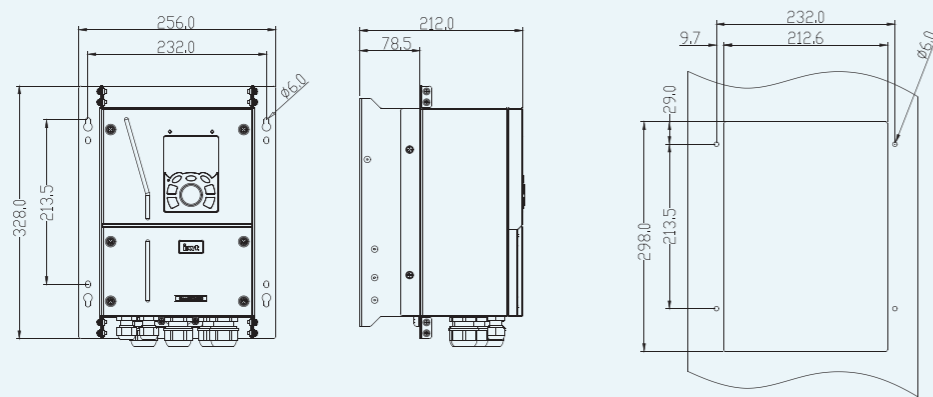


380V, 18.5~22kW

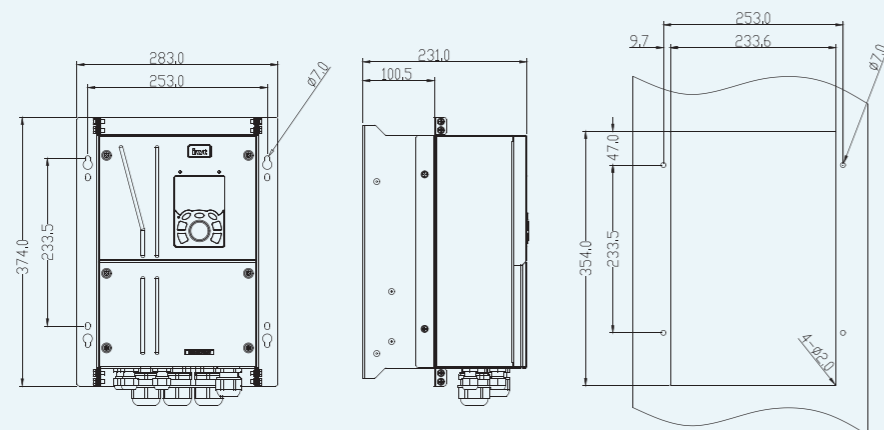
| VFD specification | W1  | W2  | H1  | H2    | D1  | Installation hole diameter | Fixing screw |
|-------------------|-----|-----|-----|-------|-----|----------------------------|--------------|
| 4~5.5kW           | 192 | 164 | 296 | 282   | 212 | 6                          | M5           |
| 7.5~15kW          | 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

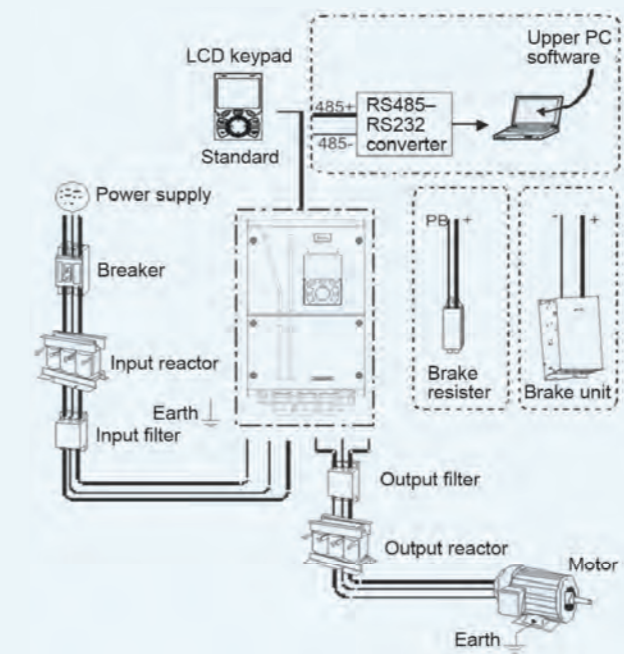


380V, 4~5.5kW



380V, 7.5~15kW

### Optional Parts



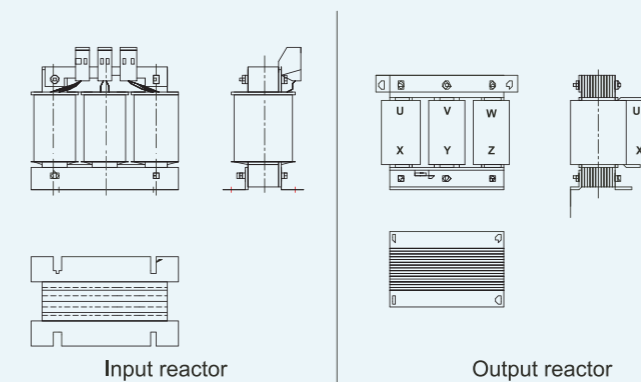
- VFDs of 380 V, 22 kW or lower are equipped with built-in brake units.
- VFDs of 380 V, 18.5 kW to 22 kW are equipped with built-in DC reactors.
- The brake units INVT's DBU series standard brake units. For details, see the DBU operation manual.

| 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

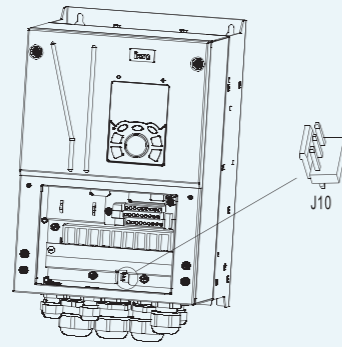


### Control cables

| VFD model          | Recommended cable size (mm <sup>2</sup> ) |     | Size of connectable cable (mm <sup>2</sup> ) |         |              |       | 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**

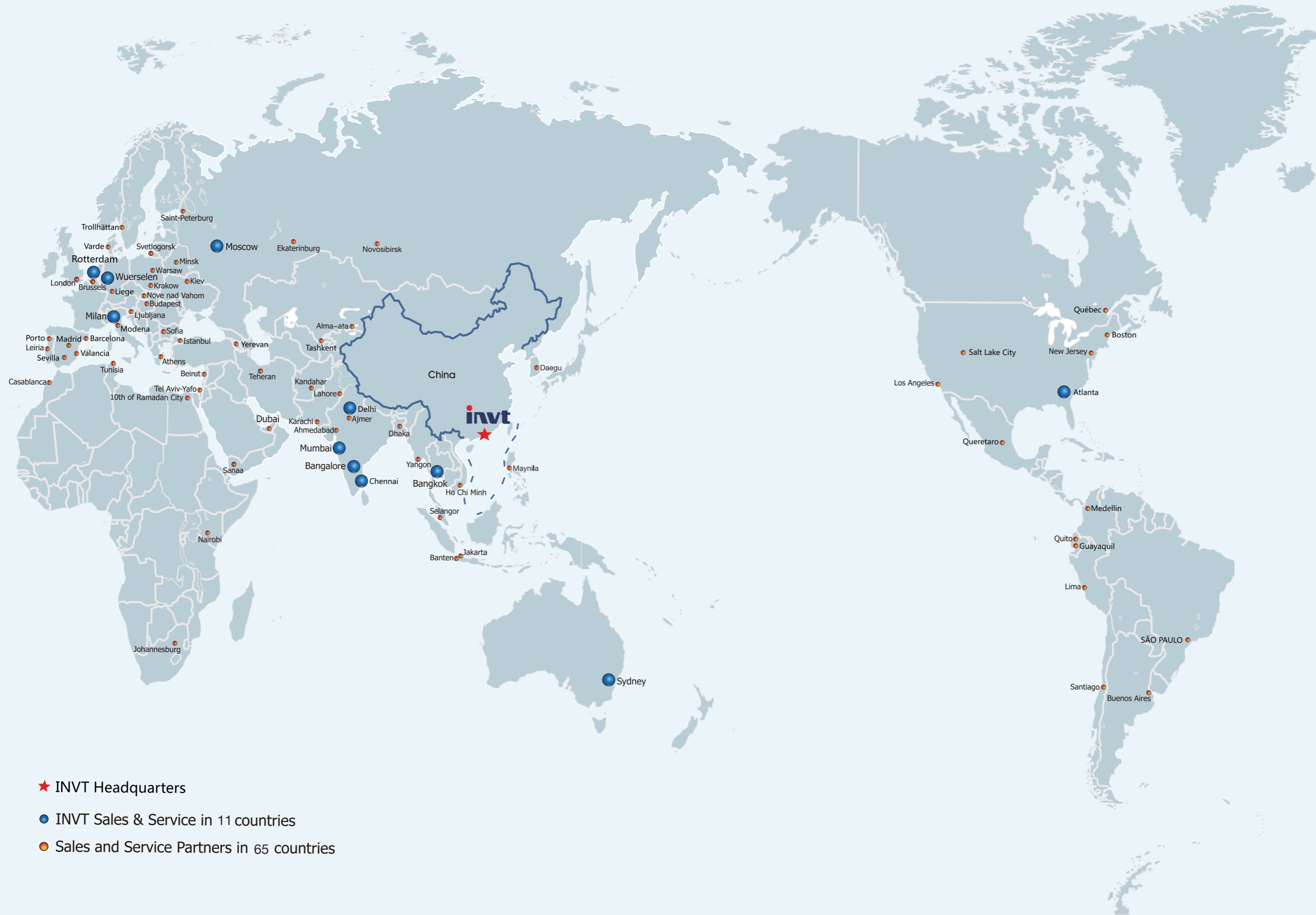
**A B C D E F**

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

## 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                                  |



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