Honeywell | Motor Drive & Control


Catalog

# Honeywell HD770G Series High Performance Low Voltage Drives

# HD770G SERIES HIGH PERFORMANCE LOW VOLTAGE DRIVES FROM SILVERSTONE FAMILY

# Contents

# HD770G Series High Performance Low Voltage Drives

New generation of Honeywell **"SILVERSTONE"** drive product family.
The HD770G series is designed for AC asynchronous and synchronous motor with open and closed loop control ranging from 0.75 kW to 800kW. Its booksize design, user-friendly operation, rich functions, multi-communication protocol compatibility, and enhanced heat dissipation and dustproof design ensure higher reliability for various industrial applications.

INTELLIGENCE IN APPLICATION

LINKAGE IN EXPANSION

# Clean in design

- Booksize narrow structure design
- Direct heat dissipation upwards and downwards, space saving by parallel installation of multiple drives
- Strengthened three-proof paint spray on circuit boards
- Enhance independent air duct to protect circuit devices
- European terminals for easy wiring
- EMC terminals against interference


# Easy in use

- Induction asynchronous motors, permanent magnet synchronous motors, direct-drive motors, and reluctance motors applicable
- Parameter setting, copying and monitoring through the operation panel and debugging software on the upper computer
- Motor parameters accurately accessible under both static and dynamic motor auto-tuning
- Real-time parameters monitoring on the computer through virtual oscilloscope function in the full-featured software, which makes debugging, monitoring and troubleshooting more convenient and efficient
- Excellent performance at low speed while high torque and high speed for various needs from customers

# Intelligence in application

- V/F control, SVC, FVC, and voltage-frequency split control
- PID control, PUL control, and multi-stage speed control
- New generation of energy-saving control technology for economic operation of induction motors
- Models below 22kW standard with built-in brake units to reduce wiring, space and cost
- Over-excitation braking function for quick braking
- Built-in instantaneous power grid failure processing, speed tracking function
- Tension control, proportional synchronization, and swing frequency control


# Linkage in expansion

- Built-in RS485 interface integrated with the standard Modbus protocol for easy communication with other devices
- CANopen, Profinet, ProfibusDP, EtherCAT and other bus communication cards optional
- Standard with operation panels and two RS482 interfaces
- Two expansion interfaces for optional expansion, PG, I/O terminal and communication bus boards

Honeywell HD770G series low voltage drives from Silverstone family, Solution for all kinds of industrial application challenges.

## Typical Applications

01 Petrochemistry
02 Electricity
03 Building Air Conditioning
04 Water Treatment
05 Warehousing & Logistics
06 Mining
07 Metal Material Processing
08 Plastics & Rubber
09 Packaging & Printing
10 Food & Beverage


**SILVER STONE**

As one of the most frequently raced tracks in the world, the Silverstone Circuit with its extra long straights and high-speed bends, is known not only as an excellent place to test the performance of racing cars, but also to test the ceiling of the drivers' driving skills and courage.

# Typical Applications

| Industry | Application | Function |
|---|---|---|
| Petrochemistry  | Oil pump<br>Compressor<br>Circulating water pump<br>Ventilation fan<br>Mixer | Enhanced coating and independent heat dissipation ducts, sensitive device coated against corrosion; Instantaneous power-off processing allowing normal operation of the drive even during short power outage;<br>Fault managed based on actual situations and years of application experience by being classified into fault codes and pre-warnings to reduce shutdown;<br>Software compatible with asynchronous motors and synchronous motors for option;<br>Latest energy-saving control technology for the efficient operation of induction motors. |
| Electricity  | Boiler fan and pump<br>Storage pump<br>Circulating water pump<br>Air-cooled island<br>Afterheat recycle | Enhanced coating and independent heat dissipation ducts for long time stable operation in harsh environment;<br>Dedicated constant voltage PID control of required sleep and wake up for energy saving;<br>Larger power range for more applications;<br>Instantaneous power-off processing for normal operation during short power failure. |
| Building air conditioning  | Ventilation equipment<br>Water pump<br>Air conditioner | Dedicated constant voltage PID control of timed sleep and wake up for energy saving;<br>Standard C3 filter for great harmonics reduction;<br>Smooth operation with low motor noise during acceleration and deceleration;<br>Latest energy-saving control technology for economic operation of the motor. |
| Water treatment  | Municipal water supply<br>Sewage treatment<br>Farmland irrigation<br>Seawater desalination<br>Fountain system | Enhanced coating and independent heat dissipation ducts for long time stable operation in harsh environment;<br>Dedicated constant voltage PID control of required sleep and wake up for energy saving;<br>Heavy-duty and light-duty models settable by parameters for customers' convenience;<br>Instantaneous power-off processing for normal operation during short power failure. |
| Warehousing logistics  | Conveyor belt<br>Lifter<br>Stacker | High-performance vector control for both asynchronous and synchronous motors with large starting torque;<br>A variety of mainstream communication protocols for easy access to modern industrial networks;<br>Built-in dedicated braking logic in software with dual redundancy of frequency and current to open and close the gates;<br>Booksize narrow structure for easy cabinet installation;<br>Simple PLC control for multi-stage speed setting. |
| Mining  | Crusher<br>Grinder<br>Belt conveyor<br>Winch<br>Pump | Power distribution for auto slave adjustment with master torque to achieve balanced torque output with the external bus communication card;<br>Enhanced coating and independent heat dissipation ducts, sensitive device coated against corrosion;<br>High-performance vector control for open-loop and closed-loop with large starting torque. |
| Metal Material Processing  | Casting, forging and stamping<br>Heat treatment<br>Cutting<br>Drawing<br>Slitting | Enhanced coating and independent heat dissipation ducts, sensitive device coated against corrosion;<br>Abundant expansions for your choice;<br>Fault managed based on actual situations and years of application experience by being classified into fault codes and pre-warnings to reduce shutdown.<br>Special technology for wire drawing machines with advanced PID control algorithm to deliver high response speed and smooth start-stop. |
| Plastic Rubber  | Extruder<br>Injection molder<br>Mixer<br>Feeder | High performance vector control technology for both synchronous and asynchronous motors;<br>Booksize narrow design for optimized layout;<br>FVC with 200% of the starting torque for reduced direct driving to the reducer and the deformation caused by mechanical clearance or elasticity to improve control accuracy and reduce vibration and noise. |
| Packaging Printing  | Compressor<br>Printer<br>Reeler | PUL counting port acceptable for 100kHz pulse signal; Smooth operation in the process of acceleration and deceleration, and low motor noise; Accurate current and voltage limiting function to ensure the accuracy of shutdown position; High speed and high response;<br>Smooth operation with low motor noise during acceleration and deceleration;<br>Accurate current and voltage limit function for accurate shutdown position;<br>EMC against electromagnetic interference. |
| Food and Beverage  | Fan, pump<br>Centrifuge conveyor<br>Grinder<br>Separator<br>Mixer<br>Dryer<br>Granulator<br>Filling production line | Booksize narrow design for optimized layout;<br>High speed and quick response; Smooth operation with low motor noise during acceleration and deceleration.<br>EMC against electromagnetic interference.<br>Enhanced coating and independent heat dissipation ducts, sensitive device coated against corrosion;<br>Simple and easy HMI. |

# Parameters

| | | | | |
|---|---|---|---|---|
| **Input** | | | | |
| Input Voltage | Single phase 220V ~ 240V; 50Hz/60Hz | | | |
| | Three-phase 220V ~ 240V; 50Hz/60Hz | | | |
| | Three-phase 380V ~ 480V; 50Hz/60Hz | | | |
| | Three-phase 660V ~ 690V; 50Hz/60Hz | | | |
| Voltage fluctuation | 220V, 10% ~10% ; 380V, 15% ~10% ; 660V, 10% ~10% ; Voltage imbalance ratio < 3% | | | |
| Frequency fluctuation | ±5%; Distortion rate in conformity to IEC618002 | | | |
| **Output** | | | | |
| Output Voltage | 0 ~ input voltage, tolerance < 5% | | | |
| Output frequency range | 0~ 599Hz※ 1 | | | |
| Overload capacity | Heavy duty HD | 150% of rated current for 60 seconds; 180% of rated current for 10 seconds; 200% of rated current for 3 seconds | | |
| | Normal duty ND | 110% of rated current for 60 seconds; 150% of rated current for 3 seconds | | |
| Carrier frequency | 1kHz~16kHz | | | |
| **Control Characteristics** | | | | |
| Motor | Asynchronous motors, permanent magnet synchronous motors, synchronous reluctance motors | | | |
| Control mode | V/F control, open-loop vector control, closed-loop vector control, and voltage-frequency split control | | | |
| Speed range | Open-loop vector control | 1:200 | Closed-loop vector control | 1:1000 |
| Speed stabilizing accuracy | Open-loop vector control | ± 0.5% ※3 | Closed-loop vector control | ±0.02% |
| Starting torque | Open-loop vector control | 0.25Hz, 150% of rated torque | Closed-loop vector control | 0Hz, 200% of rated torque |
| Torque accuracy | Open-loop vector control | ±5% | Closed-loop vector control | ±2.5% |
| Torque response time | Open-loop vector control | <10ms | Closed-loop vector control | <5ms |
| Torque Boost | Auto torque boost in | 0.0%~100.0% | Manual torque boost | 0.1%~30.0% |
| **Product Functions** | | | | |
| Main functions | Speed control, speed tracking, torque limit, built-in voltage adjustment, auto current limit, auto energy-saving, swing frequency, power-cut restart, vibration suppression, common DC bus, and parameter copy | | | |
| Speed setting | Via panel, terminal, communication, PLC, analog, multi-stage speed and PID. | | | |
| Braking capacity | Models 0.75kW ~ 22kW standard with built-in brake units; Models 30kW ~ 110kW optional for built-in brake units; Models 110kW and above requiring external brake units prepareds by users | | | |
| DI | 5 x switching input, wherein 1 can be optional for high pulse input(X5) | | | |
| DO | 1 x switching output, 1 x relay output | | | |
| AI | 2 x analog input terminal, 0 ~ 10V/0 ~ 20mA optional | | | |
| AO | 1 x analog output terminal, 0 ~ 10V/0 ~ 20mA optional | | | |
| RS485 communication | Standard RS485 communication interface with Modbus protocol(RTU) allows for remote control via the operation panel | | | |
| Operation panel | Single and dual line LED panel, multi-functional LCD | | | |
| Independent duct | Whole series with independent air ducts | | | |
| IP | IP20 | | | |
| **Protection** | | | | |
| Main functions | Protection of overvoltage, undervoltage, phase loss, overcurrent suppression, overload, stall, short circuit, drive overheat, communication card errors, communication errors, auto tuning errors, motor overheat(expansion), and external devices | | | |
| **Environment** | | | | |
| Working environment | Pollution degree 2 and below free of oil mist, corrosive gas, flammable gas, dust, radioactive substances and flammable materials | | | |
| | Places free of harmful gases and liquids; Metal powder, oil, water and other foreign matters will not enter the drive; A place without direct sunlight | | | |
| | Vertically installed in well-ventilated electric control cabinet; Horizontal installation not allowed. Air-cooled | | | |
| Environment Temperature | -10°C ~ +50°C, derate 1% for every 1°C rise when above 40°C; Max.temperature 60 °C | | | |
| Storage temperature | -30 °C ~ +60°C | | | |
| Humidity | 5-95% RH (No condensation) | | | |
| Vibration | < 5.9 m/s$^2$ (0.6g) during 10Hz ~ 200Hz | | | |
| Altitude | < 1000m. Please consult the manufacturer when above 2000m | | | |
| | Derate 1% for every 100m rise when above 1000m | | | |

Note: ※1. Please consult the manufacturer for higher frequency.
※2. Overload at rated current is allowed for 1min every 10min(inverse time).
※3. Speed stabilizing accuracy is within ± 0.1% for open-loop vector control of permanent magnet synchronous motors.

# Type Selection

Model HD770 G 4T 0007 V01 - □□

- HD770: Product series
- G: Type — G: High performance vector type
- 4T: Voltage — 2S/T: Single/Three-phase 220V-240V; 4T: Three-phase 380V-480V; 6T: Three-phase 660V-690V
- 0007: Capacity — 0007: 0.75kW; 0075: 7.5kW; 0150: 15kW; 1320: 132kW; .....; 8000: 800kW
- V01: Development sequence — V: Standard
- □□: Accessory — B: Built-in brake unit; D: Built-in DC reactor; BD: Built-in brake unit + DC reactor

# General Specification

| Single/Three-phase 220V; 50Hz/60Hz | | | | | |
|---|---|---|---|---|---|
| Heavy Duty (HD) | | Normal Duty (ND) | | Drive Model | Cooling Method |
| $P_{HD}$ | $I_{HD}$ | $P_{ND}$ | $I_{ND}$ | | |
| kW | A | kW | A | | |
| 0.75 | 4 | - | - | HD770G2S/T0007V01-B | Forced air cooling |
| 1.5 | 7 | - | - | HD770G2S/T0015V01-B | Forced air cooling |
| 2.2 | 10 | - | - | HD770G2S/T0022V01-B | Forced air cooling |
| 4 | 16 | - | - | HD770G2S/T0040V01-B | Forced air cooling |
| 5.5 | 20 | - | - | HD770G2S/T0055V01-B | Forced air cooling |
| 7.5 | 30 | - | - | HD770G2S/T0075V01-B | Forced air cooling |
| 11 | 42 | - | - | HD770G2S/T0110V01-B | Forced air cooling |
| 15 | 55 | - | - | HD770G2S/T0150V01 | Forced air cooling |
| 18.5 | 70 | - | - | HD770G2T0185V01 | Forced air cooling |
| 22 | 80 | - | - | HD770G2T0220V01 | Forced air cooling |
| 30 | 110 | - | - | HD770G2T0300V01 | Forced air cooling |
| 37 | 130 | - | - | HD770G2T0370V01 | Forced air cooling |
| 45 | 160 | - | - | HD770G2T0450V01 | Forced air cooling |
| 55 | 200 | - | - | HD770G2T0550V01 | Forced air cooling |

* For higher power, please consult the manufacturer.

# General Specifications

| Three-phase 380V; 50Hz/60Hz | | | | | |
|---|---|---|---|---|---|
| Heavy Duty (HD) | | Normal Duty (ND) | | Drive Model | Cooling Method |
| $P_{HD}$ | $I_{HD}$ | $P_{ND}$ | $I_{ND}$ | | |
| kW | A | kW | A | | |
| 0.75 | 3 | 1.5 | 4 | HD770G4T0007V01-B | Forced air cooling |
| 1.5 | 4 | 2.2 | 6 | HD770G4T0015V01-B | Forced air cooling |
| 2.2 | 6 | | - | HD770G4T0022V01-B | Forced air cooling |
| 4 | 10 | 5.5 | 13 | HD770G4T0040V01-B | Forced air cooling |
| 5.5 | 13 | 7.5 | 17 | HD770G4T0055V01-B | Forced air cooling |
| 7.5 | 17 | 11 | 25 | HD770G4T0075V01-B | Forced air cooling |
| 11 | 25 | 15 | 32 | HD770G4T0110V01-B | Forced air cooling |
| 15 | 32 | 18.5 | 38 | HD770G4T0150V01-B | Forced air cooling |
| 18.5 | 38 | 22 | 45 | HD770G4T0185V01-B | Forced air cooling |
| 22 | 45 | 30 | 60 | HD770G4T0220V01-B | Forced air cooling |
| 30 | 60 | 37 | 75 | HD770G4T0300V01 | Forced air cooling |
| 37 | 75 | 45 | 90 | HD770G4T0370V01 | Forced air cooling |
| 45 | 90 | 55 | 110 | HD770G4T0450V01 | Forced air cooling |
| 55 | 110 | 75 | 150 | HD770G4T0550V01 | Forced air cooling |
| 75 | 150 | 90 | 180 | HD770G4T0750V01 | Forced air cooling |
| 90 | 180 | 110 | 210 | HD770G4T0900V01 | Forced air cooling |
| 110 | 210 | 132 | 250 | HD770G4T1100V01 | Forced air cooling |
| 132 | 250 | 160 | 310 | HD770G4T1320V01-D | Forced air cooling |
| 160 | 310 | 185 | 340 | HD770G4T1600V01-D | Forced air cooling |
| 185 | 340 | 200 | 380 | HD770G4T1850V01-D | Forced air cooling |
| 200 | 380 | 220 | 415 | HD770G4T2000V01-D | Forced air cooling |
| 220 | 415 | 250 | 470 | HD770G4T2200V01-D | Forced air cooling |
| 250 | 470 | 280 | 510 | HD770G4T2500V01-D | Forced air cooling |
| 280 | 510 | 315 | 600 | HD770G4T2800V01-D | Forced air cooling |
| 315 | 600 | 355 | 670 | HD770G4T3150V01-D | Forced air cooling |
| 355 | 670 | 400 | 750 | HD770G4T3550V01-D | Forced air cooling |
| 400 | 750 | 450 | 800 | HD770G4T4000V01-D | Forced air cooling |
| 450 | 800 | 500 | 860 | HD770G4T4500V01-D | Forced air cooling |
| 500 | 860 | 560 | 990 | HD770G4T5000V01-D | Forced air cooling |
| 560 | 990 | 630 | 1100 | HD770G4T5600V01-D | Forced air cooling |
| 630 | 1100 | 710 | 1260 | HD770G4T6300V01-D | Forced air cooling |
| 710 | 1260 | 800 | 1500 | HD770G4T7100V01-D | Forced air cooling |
| 800 | 1500 | 900 | 1620 | HD770G4T8000V01-D | Forced air cooling |

* For higher power, please consult the manufacturer.

# General Specifications

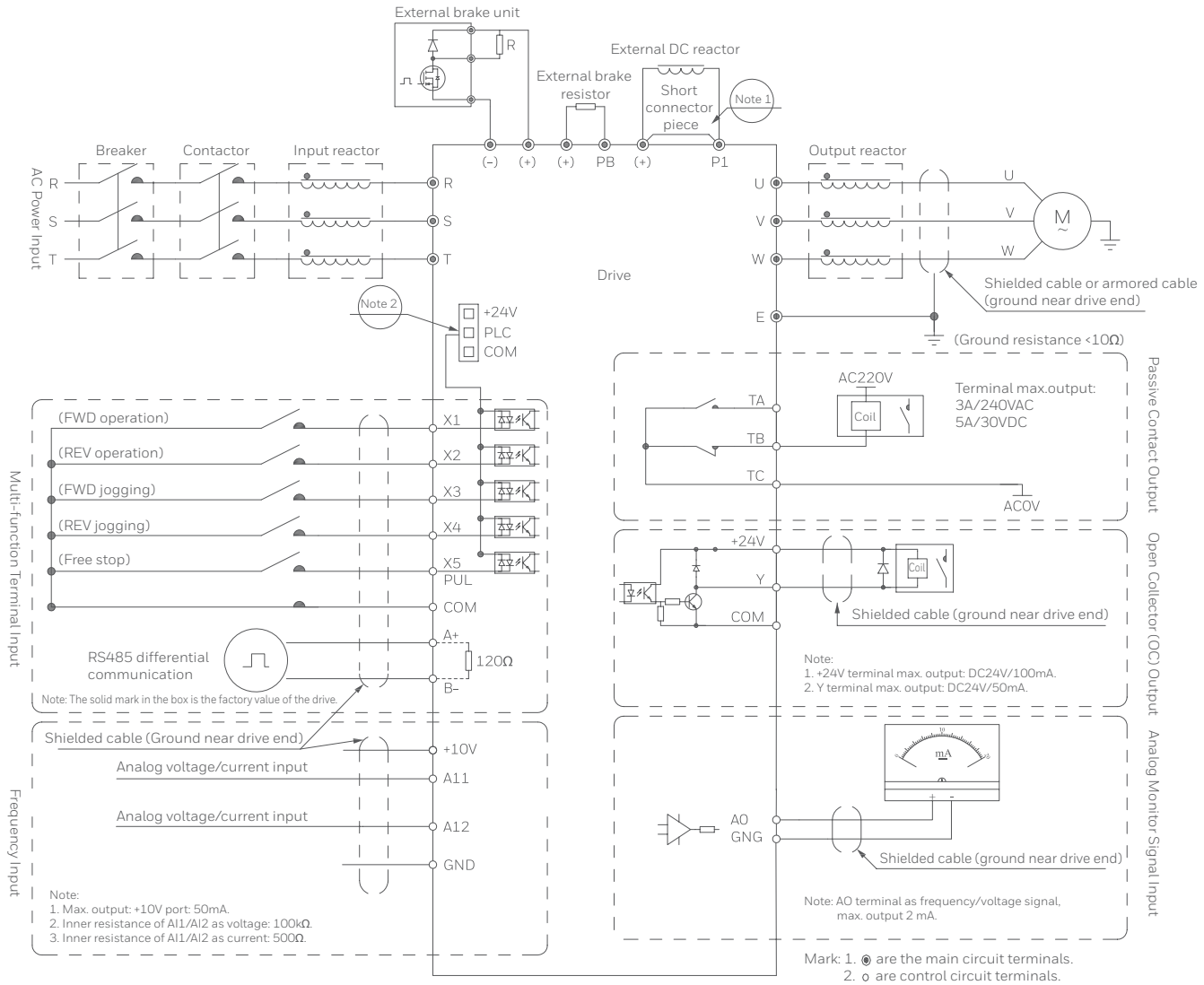
| Three-phase 660V; 50Hz/60Hz | | | | | |
|---|---|---|---|---|---|
| Heavy Duty (HD) | | Normal Duty (ND) | | Drive Model | Cooling Method |
| $P_{HD}$ | $I_{HD}$ | $P_{ND}$ | $I_{ND}$ | | |
| kW | A | kW | A | | |
| 22 | 28 | 30 | 35 | HD770G6T0220V01 | Forced air cooling |
| 30 | 35 | 37 | 45 | HD770G6T0300V01 | Forced air cooling |
| 37 | 45 | 45 | 52 | HD770G6T0370V01 | Forced air cooling |
| 45 | 52 | 55 | 63 | HD770G6T0450V01 | Forced air cooling |
| 55 | 63 | 75 | 86 | HD770G6T0550V01 | Forced air cooling |
| 75 | 86 | 90 | 98 | HD770G6T0750V01 | Forced air cooling |
| 90 | 98 | 110 | 121 | HD770G6T0900V01 | Forced air cooling |
| 110 | 121 | 132 | 150 | HD770G6T1100V01 | Forced air cooling |
| 132 | 150 | 160 | 175 | HD770G6T1320V01-D | Forced air cooling |
| 160 | 175 | 185 | 198 | HD770G6T1600V01-D | Forced air cooling |
| 185 | 198 | 200 | 218 | HD770G6T1850V01-D | Forced air cooling |
| 200 | 218 | 220 | 235 | HD770G6T2000V01-D | Forced air cooling |
| 220 | 235 | 250 | 270 | HD770G6T2200V01-D | Forced air cooling |
| 250 | 270 | 280 | 330 | HD770G6T2500V01-D | Forced air cooling |
| 280 | 330 | 315 | 345 | HD770G6T2800V01-D | Forced air cooling |
| 315 | 345 | 355 | 380 | HD770G6T3150V01-D | Forced air cooling |
| 355 | 380 | 400 | 430 | HD770G6T3550V01-D | Forced air cooling |
| 400 | 430 | 450 | 466 | HD770G6T4000V01-D | Forced air cooling |
| 450 | 466 | 500 | 540 | HD770G6T4500V01-D | Forced air cooling |
| 500 | 540 | 560 | 600 | HD770G6T5000V01-D | Forced air cooling |
| 560 | 600 | 630 | 680 | HD770G6T5600V01-D | Forced air cooling |
| 630 | 680 | 710 | 750 | HD770G6T6300V01-D | Forced air cooling |
| 710 | 750 | 800 | 860 | HD770G6T7100V01-D | Forced air cooling |
| 800 | 860 | 900 | 932 | HD770G6T8000V01-D | Forced air cooling |

* For higher power, please consult the manufacturer.

Note: $P_{HD}$ means motor power under heavy duty and $I_{HD}$ means allowed continuous current at 40 °C under heavy duty.
$P_{ND}$ means motor power under normal duty and $I_{ND}$ means allowed continuous current at 40 °C under normal duty.

# Basic Wiring

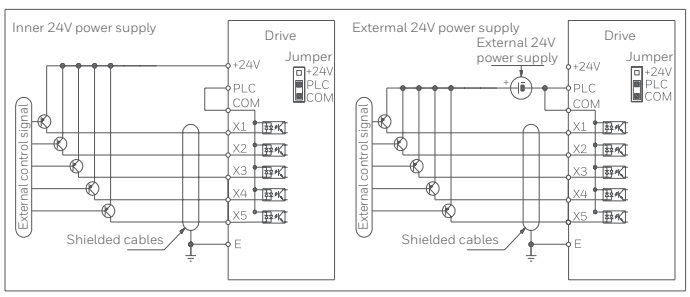
## Control circuit wiring:



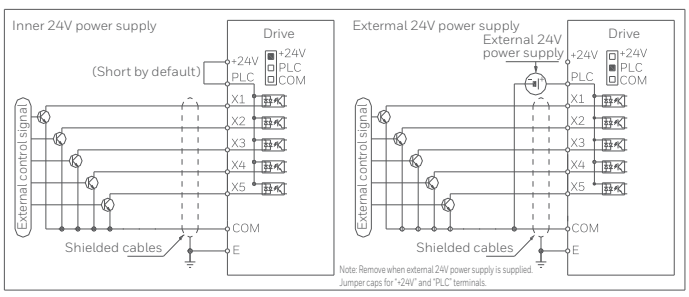

Note: 1. Models 22kW and below, three-phase 380V are optional for built-in braking units according to the required braking resistors; For models without built-in brake units, external brake units can be installed.
2. X1 ~ X5/PUL terminals support NPN or PNP signal input, and the bias voltage can be selected from the internal power supply of the drive (+ 24V terminal) or external power supply (PLC terminal).

## Multi-function input terminal connection diagrams:

### PNP Wiring



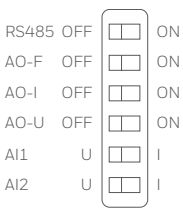

### NPN Wiring



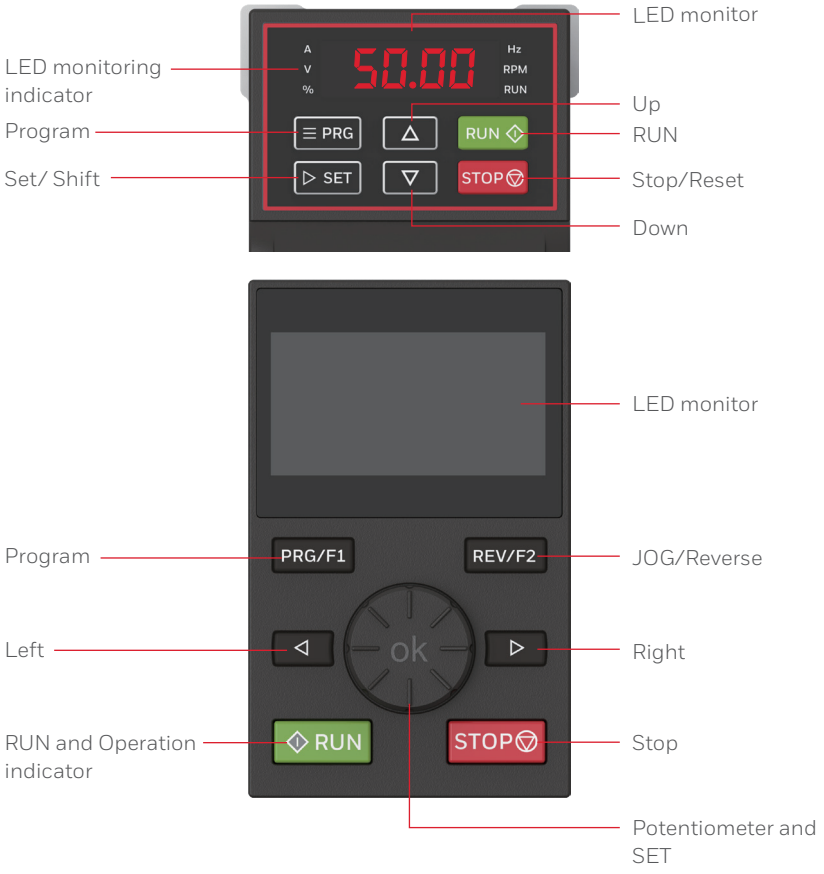
# Terminals

| Control Circuit | | | |
|---|---|---|---|
| Name | Mark | Terminal Name | Description |
| Power | +10V-GND | External + 10V power supply | Provide +10V power supply to external devices, max. output current: 50mA. Generally used as power supply for the potentiometer, potentiometer resistance range:1kΩ ~ 5kΩ. |
| | +24V-COM | External +24V power supply | Provide +24V power supply to external devices. Generally used as power supply for digital input and output terminals and external sensors. Max. output current: 100mA. |
| | PLC | External common terminal | Connected to + 24V terminal by default. When X1 ~ X5/PUL are receiving external signals, PLC needs to be connected with external power supply, and disconnected to + 24V power (See "+ 24V","PLC", and "COM" wiring diagram). |
| AI | AI1-GND | Voltage/Current analog input | 1. Input range: DC 0V~10V/ 0mA ~ 20mA.<br>2. Voltage impedance: 100kΩ.<br>3. Current impedance: 500kΩ. |
| | AI2-GND | Voltage/Current analog input | 1. Input range: DC 0V~10V/ 0mA ~ 20mA.<br>2. Voltage impedance: 100kΩ.<br>3. Current impedance: 500kΩ. |
| DI | X1-PLC | Multi-function terminal 1 | Optocoupler isolated, compatible with bipolar input.<br>1. Input impedance: 4.4kΩ.<br>2. Voltage range at high level: 10V~30V.<br>3. Voltage range at low level: 0V~5V. Low speed pulse, 0-5kHz (Standard). |
| | X2-PLC | Multi-function terminal 2 | |
| | X3-PLC | Multi-function terminal 3 | |
| | X4-PLC | Multi-function terminal 4 | |
| | X5-PLC | Multi-function terminal 5 | |
| | X5/PUL-PLC* | Multi-function terminal 5/high-speed pulse terminal * | Except for characteristics of X1 ~ X4, X5 can also be used for high-speed pulse (Separate model).<br>1. Optocoupler isolated, compatible with bipolar input, max. input frequency:100kHz.<br>2. Input impedance: 1.5kΩ.<br>3. Pulse input level range: 10V~30V. |
| AO | AO-GND | Analog output | 1. Voltage range: DC 0V ~ 10V.<br>2. Current range: DC 0mA ~ 20mA.<br>3. Pulse range: 0kHz~100kHz Max. output 2mA when used as frequency/voltage type. |
| DO | Y-COM | DI terminal 1 | Optocoupler isolated, open collector output. Driving capability: DC 0V ~ 30V; DC 0mA ~ 50mA. |
| Relay Output | TA-TC | Normally open | Driving capability:240V AC, 3A. |
| | TB-TC | Normally closed | |
| Communication terminal | A+ | Communication terminal A+ | RS485 communication interface.<br>Please see the legend and description of the dip switch, RS485 switch decides whether RS485 is accessed to the 120Ω terminal resistance. |
| | B- | Communication terminal B- | |

| Main Circuit Terminal | | |
|---|---|---|
| Mark | Terminal Name | Description |
| (+), (-) | DC power terminal | DC power output,(-) is the negative electrode of DC bus, and (+) is the positive pole of DC bus. Used for external brake unit. |
| (+), PB | Braking resistor terminal | For connecting to external braking resistor for quick stop. |
| R, S, T | Drive input terminal | For connecting to three-phase AC supply. |
| U, V, W | Drive output terminal | For connecting to the motor. |
| E | Grounding | Grounding terminal with resistance <10Ω. |

| Dip Switch | | |
|---|---|---|
| Pin | Position | Description |
|  | RS485 terminal resistance | RS485 is dialed to ON and it is connected to the a 120Ω termination resistor. |
| | AO - frequency | Enable frequency output 0.0kHz ~ 100kHz.<br>When AO-F is dialed to ON, raise it to high level (connect to a 5.1 kΩ resistor to increase voltage to 10V). |
| | AO - current | Enable current output 0mA ~ 20mA or 4mA ~ 20mA |
| | AO - voltage | Enable voltage output 0V ~ 10V |
| | AI1-current/voltage | Enable current input 0mA ~ 20mA or voltage input 0V ~ 10V. |
| | AI2-current/voltage | Enable current input 0mA ~ 20mA or voltage input 0V ~ 10V. |

# Operation Method




| Name | Function |
|---|---|
| PRG | Enter the program interface during standby or running; When the parameter is modified, press this key to exit; Long press this key during standby or operation (1 second), directly enter the status page |
| Set/ Shift | Set: After modifying the value, press the key to confirm the changed values |
| | Shift: Long press the key (1 second) to move the operation position, and cyclic shift if it is held |
| Up/Down | Up increases the values, and Down decreases them |
| Run | During operation and stop, press the key to turn the drive forward. When in FWD operation, the status indicator is on; And when in REV operation, the status indicator flashes |
| Stop/Reset | When the command source is the control panel, press the key to stop the drive; Set parameters [P11.03] to define whether other command channels are valid; During fault, press this key to reset the drive |
| Digital potentiometer | Rotate clockwise to increase values, and counterclockwise to decrease them |
| OK | Press the key to confirm after modification |
| Left/Right | Move the bit left and right |
| JOG/Reverse | Select the function of this key on [P11.02] |

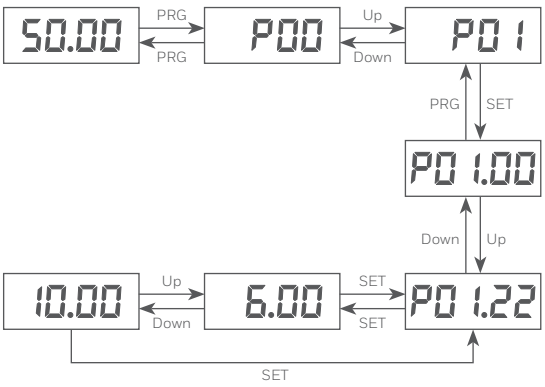
## Common Codes

"Pon" indicates the control panel is powered. "SAvE" indicates factory settings are restored, "T-00" indicates auto-tuning "CoPy" is displayed when uploading parameters, and "LoAd" is displayed when downloading parameters.

| Indicator | Unit | Status | Description |
|---|---|---|---|
| Unit indicator | Hz | Flash/ON | Frequency |
| | A | ON | Current |
| | V | Flash/ON | Voltage |
| | RPM | ON | Speed |
| | % | Flash/ON | Percentage |
| Status indicator | RUN | ON | Drive in forward operation |
| | RUN | Flash | Drive in reverse operation |
| | RUN | Off | Drive in shutdown status |

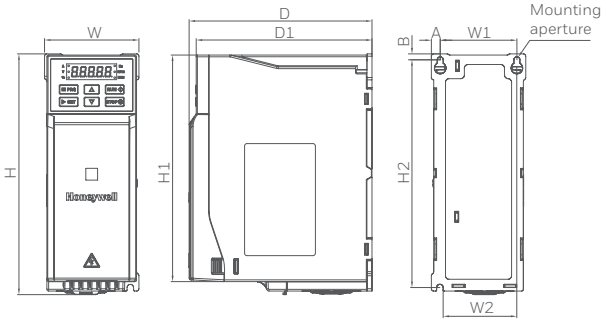
## Basic Parameter Setting

Take P01.22 [Acceleration Time 1] = 10.00s setting as an example to illustrate basic operation of the LED panel. The shift key can be used to quickly select the correct bit when modifying the values on tens, hundreds, and thousands bits of parameters.

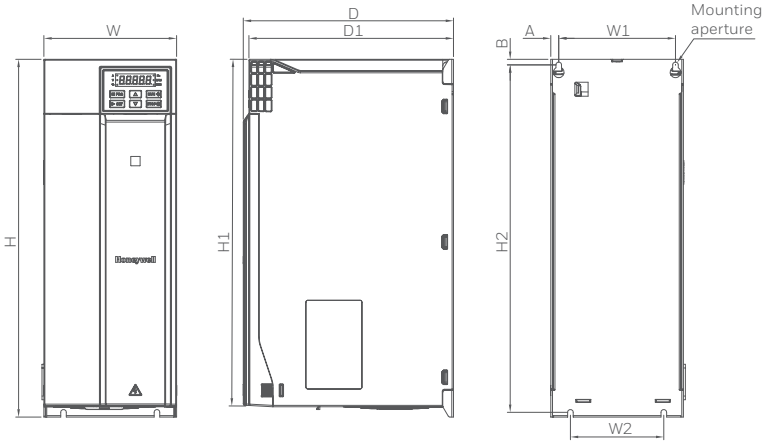


# Dimensions

| Drive Model | Outer Dimension (mm) | | | | | Mounting Dimension (mm) | | | | | Mounting Aperture | Estimated Weight (kg) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | H1 | D | D1 | W1 | W2 | H2 | A | B | | | |
| Single/Three-phase 220V | | | | | | | | | | | | | |
| HD770G2S/T0007V01-B | 76 | 200 | 192 | 155 | 149 | 65 | 65 | 193 | 5.5 | 4 | 3-M4 | 1.3 | Wall-mounting A |
| HD770G2S/T0015V01-B | | | | | | | | | | | | | |
| HD770G2S/T0022V01-B | 100 | 242 | 231 | 155 | 149 | 84 | 86.5 | 231.5 | 8 | 5.5 | 3-M4 | 1.9 | Wall-mounting A |
| HD770G2S/T0040V01-B | | | | | | | | | | | | | |
| HD770G2S/T0055V01-B | 116 | 320 | 307.5 | 175 | 169 | 98 | 100 | 307.5 | 9 | 6 | 3-M5 | 3.5 | Wall-mounting A |
| Three-phase 380V | | | | | | | | | | | | | |
| HD770G4T0007V01-B | 76 | 200 | 192 | 155 | 149 | 65 | 65 | 193 | 5.5 | 4 | 3-M4 | 1.3 | Wall-mounting A |
| HD770G4T0015V01-B | | | | | | | | | | | | | |
| HD770G4T0022V01-B | | | | | | | | | | | | | |
| HD770G4T0040V01-B | 100 | 242 | 231 | 155 | 149 | 84 | 86.5 | 231.5 | 8 | 5.5 | 3-M4 | 1.9 | Wall-mounting A |
| HD770G4T0055V01-B | | | | | | | | | | | | | |
| HD770G4T0075V01-B | 116 | 320 | 307.5 | 175 | 169 | 98 | 100 | 307.5 | 9 | 6 | 3-M5 | 3.5 | Wall-mounting A |
| HD770G4T0110V01-B | | | | | | | | | | | | | |
| Single/Three-phase 220V | | | | | | | | | | | | | |
| HD770G2S/T0075V01-B | 142 | 383 | 372 | 225 | 219 | 125 | 100 | 372 | - | 6 | 4-M5 | 5.9 | Wall-mounting B |
| HD770G2S/T0110V01-B | | | | | | | | | | | | | |
| HD770G2S/T0150V01 | 172 | 430 | - | 225 | 219 | 150 | 150 | 416.5 | - | 7.5 | 4-M5 | 9.5 | Wall-mounting B |
| HD770G2T0185V01 | | | | | | | | | | | | | |
| HD770G2T0220V01 | | | | | | | | | | | | | |
| Three-phase 380V | | | | | | | | | | | | | |
| HD770G4T0150V01-B | 142 | 383 | 372 | 225 | 219 | 125 | 100 | 372 | - | 6 | 4-M5 | 5.9 | Wall-mounting B |
| HD770G4T0185V01-B | | | | | | | | | | | | | |
| HD770G4T0220V01-B | | | | | | | | | | | | | |
| HD770G4T0300V01 | 172 | 430 | - | 225 | 219 | 150 | 150 | 416.5 | - | 7.5 | 4-M5 | 9.5 | Wall-mounting B |
| HD770G4T0370V01 | | | | | | | | | | | | | |




Wall-mounting A (Plastic)



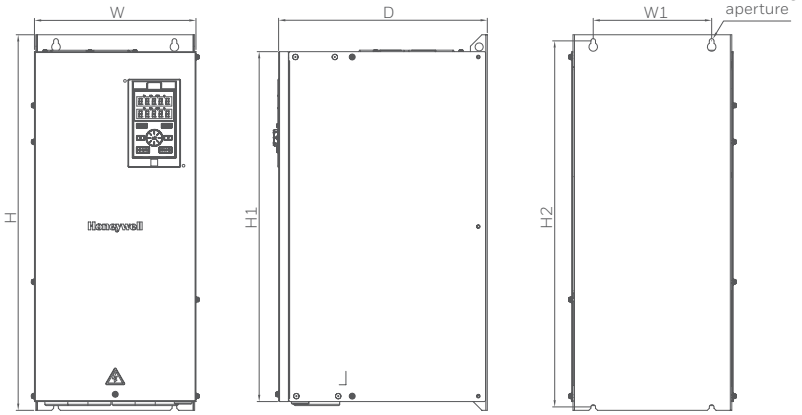

Wall-mounting B (Plastic)

# Dimensions

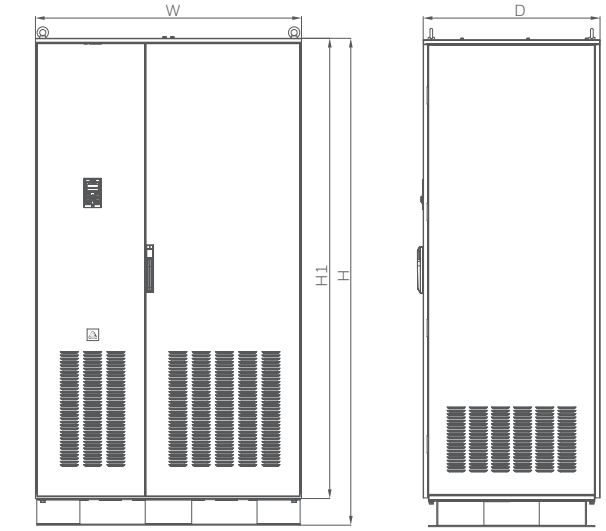
| Drive Model | Outer Dimension (mm) | | | | Mounting Dimension (mm) | | | | | Mounting Aperture | Estimated Weight (kg) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | H1 | D | W1 | W2 | H2 | D1 | D2 | | | |
| Single/Three-phase 220V | | | | | | | | | | | | |
| HD770G2T0300V01 | 240 | 560 | 520 | 310 | 176 | - | 544 | - | - | 4-M6 | 23.3 | Wall-mounting C |
| HD770G2T0370V01 | | | | | | | | | | | | |
| HD770G2T0450V01 | | | | | | | | | | | | |
| HD770G2T0550V01 | 270 | 638 | 580 | 350 | 195 | - | 615 | - | - | 4-M8 | 35.8 | Wall-mounting C |
| Three-phase 380V | | | | | | | | | | | | |
| HD770G4T0450V01 | 240 | 560 | 520 | 310 | 176 | - | 544 | - | - | 4-M6 | 23.3 | Wall-mounting C |
| HD770G4T0550V01 | | | | | | | | | | | | |
| HD770G4T0750V01 | | | | | | | | | | | | |
| HD770G4T0900V01 | 270 | 638 | 580 | 350 | 195 | - | 615 | - | - | 4-M8 | 35.8 | Wall-mounting C |
| HD770G4T1100V01 | | | | | | | | | | | | |
| HD770G4T0900V01 | 270 | 638 | 580 | 350 | 195 | - | 615 | - | - | 4-M8 | 35.8 | Wall-mounting C |
| HD770G4T1100V01 | | | | | | | | | | | | |
| HD770G4T1320V01-D | 350 | 738 | 680 | 405 | 220 | - | 715 | - | - | 4-M8 | 64.7 | Wall-mounting C |
| HD770G4T1600V01-D | | | | | | | | | | | | |
| HD770G4T1850V01-D | 360 | 940 | 850 | 480 | 200 | - | 910 | - | - | 4-M16 | 93 | Wall-mounting C |
| HD770G4T2000V01-D | | | | | | | | | | | | |
| HD770G4T2200V01-D | | | | | | | | | | | | |
| HD770G4T2500V01-D | 370 | 1140 | 1050 | 545 | 200 | - | 1110 | - | - | 4-M16 | 125 | Wall-mounting C |
| HD770G4T2800V01-D | | | | | | | | | | | | |
| HD770G4T3150V01-D | 400 | 1250 | 1140 | 545 | 240 | - | 1213 | - | - | 4-M16 | 167 | Wall-mounting C |
| HD770G4T3550V01-D | | | | | | | | | | | | |
| HD770G4T4000V01-D | | | | | | | | | | | | |
| HD770G4T4500V01-D | 460 | 1400 | 1293 | 545 | 300 | - | 1363 | - | - | 4-M16 | 235 | Wall-mounting C |
| HD770G4T5000V01-D | | | | | | | | | | | | |
| HD770G4T5600V01-D | | | | | | | | | | | | |
| Three-phase 660V | | | | | | | | | | | | |
| HD770G6T0220V01 | 240 | 560 | 535 | 310 | 176 | - | 544 | - | - | 4-M16 | 23.3 | Wall-mounting C |
| HD770G6T0300V01 | | | | | | | | | | | | |
| HD770G6T0370V01 | | | | | | | | | | | | |
| HD770G6T0450V01 | | | | | | | | | | | | |
| HD770G6T0550V01 | | | | | | | | | | | | |
| HD770G6T0750V01 | | | | | | | | | | | | |
| HD770G6T0900V01 | 270 | 638 | 580 | 350 | 195 | - | 615 | - | - | 4-M8 | 35.8 | Wall-mounting C |
| HD770G6T1100V01 | | | | | | | | | | | | |
| HD770G6T1320V01-D | 350 | 738 | 680 | 405 | 220 | - | 715 | - | - | 4-M8 | 64.7 | Wall-mounting C |
| HD770G6T1600V01-D | | | | | | | | | | | | |
| HD770G6T1850V01-D | 360 | 940 | 850 | 480 | 200 | - | 910 | - | - | 4-M16 | 93 | Wall-mounting C |
| HD770G6T2000V01-D | | | | | | | | | | | | |
| HD770G6T2200V01-D | | | | | | | | | | | | |

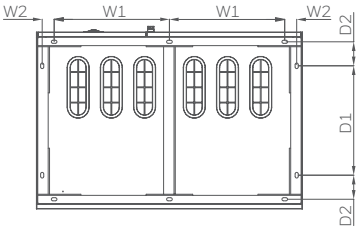
# Dimensions

| Drive Model | Outer Dimension (mm) | | | | Mounting Dimension (mm) | | | | | Mounting Aperture | Estimated Weight (kg) | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | W | H | H1 | D | W1 | W2 | H2 | D1 | D2 | | | |
| Three-phase 660V | | | | | | | | | | | | |
| HD770G6T2500V01-D | 370 | 1140 | 1050 | 545 | 200 | - | 1110 | - | - | 4-M16 | 125 | Wall-mounting C |
| HD770G6T2800V01-D | | | | | | | | | | | | |
| HD770G6T3150V01-D | 400 | 1250 | 1140 | 545 | 240 | - | 1213 | - | - | 4-M16 | 167 | Wall-mounting C |
| HD770G6T3550V01-D | | | | | | | | | | | | |
| HD770G6T4000V01-D | | | | | | | | | | | | |
| HD770G6T4500V01-D | 460 | 1400 | 1293 | 545 | 300 | - | 1363 | - | - | 4-M16 | 235 | Wall-mounting C |
| HD770G6T5000V01-D | | | | | | | | | | | | |
| HD770G6T5600V01-D | | | | | | | | | | | | |
| Three-phase 380V | | | | | | | | | | | | |
| HD770G4T6300V01-D | 1200 | 2200 | 2080 | 800 | 520 | 54 | - | 494 | 118.5 | Ø14 | 485 | Cabinet D |
| HD770G4T7100V01-D | | | | | | | | | | | | |
| HD770G4T8000V01-D | | | | | | | | | | | | |
| Three-phase 660V | | | | | | | | | | | | |
| HD770G6T6300V01-D | 1200 | 2200 | 2080 | 800 | 520 | 54 | - | 494 | 118.5 | Ø14 | 485 | Cabinet D |
| HD770G6T7100V01-D | | | | | | | | | | | | |
| HD770G6T8000V01-D | | | | | | | | | | | | |




Wall-mounting C (Steel)



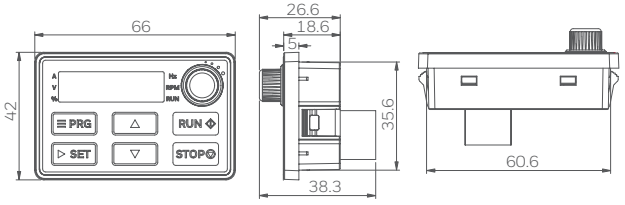




Cabinet D

# Operation Panel Dimensions

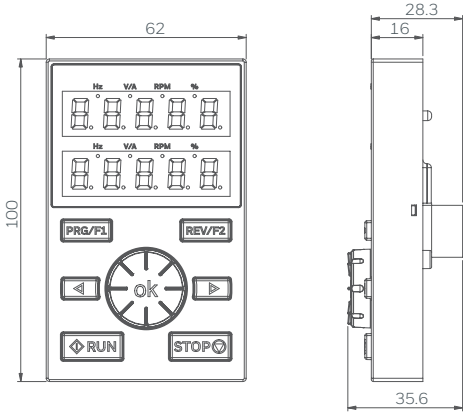
## External Single-line LED Panel with Knob

Model: HD770DP02



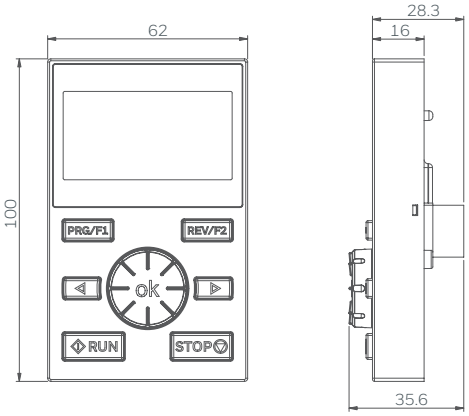

## External Dual-line LED Panel

Model: HD770DP03




## External LCD Panel

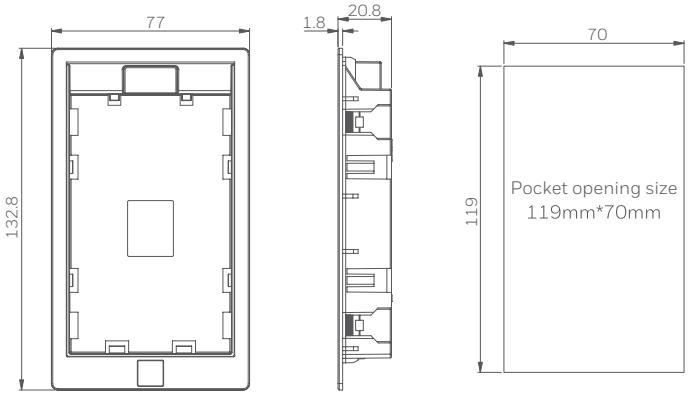
Model: HD770DP04




## Panel Pocket

Model: HD770DPX

Dual-line LED panels are fully compatible with LCD panel in outer and opening dimensions.



# Accessories

| Drive Model | Power | Input filter | AC reactor | DC reactor | Braking unit | |
|---|---|---|---|---|---|---|
| | HD/ND | | ACR | DCR | BU | |
| | | Built-in | External | External | Built-in | External |
| Three-phase 380V; 50/60Hz | | | | | | |
| HD770G4T0007V01-B | 0.75/1.5 | ● | △ | | ● | |
| HD770G4T0015V01-B | 1.5/2.2 | ● | △ | | ● | |
| HD770G4T0022V01-B | 2.2 | ● | △ | | ● | |
| HD770G4T0040V01-B | 4.0/5.5 | ● | △ | | ● | |
| HD770G4T0055V01-B | 5.5/7.5 | ● | △ | | ● | |
| HD770G4T0075V01-B | 7.5/11 | ● | △ | | ● | |
| HD770G4T0110V01-B | 11/15 | ● | △ | | ● | |
| HD770G4T0150V01-B | 15/18.5 | ● | △ | | ● | |
| HD770G4T0185V01-B | 18.5/22 | ● | △ | | ● | |
| HD770G4T0220V01-B | 22/30 | ● | △ | | ● | |
| HD770G4T0300V01 | 30/37 | ● | △ | | ○ | |
| HD770G4T0370V01 | 37/45 | ● | △ | | ○ | |
| HD770G4T0450V01 | 45/55 | ● | △ | ○ | ○ | |
| HD770G4T0550V01 | 55/75 | ● | △ | ○ | ○ | |
| HD770G4T0750V01 | 75/90 | ● | △ | ○ | ○ | |
| HD770G4T0900V01 | 90/110 | ● | △ | ○ | ○ | |
| HD770G4T1100V01 | 110/132 | ● | △ | ○ | ○ | |
| HD770G4T1320V01-D | 132/160 | ● | △ | ● | | △ |
| HD770G4T1600V01-D | 160/180 | ● | △ | ● | | △ |
| HD770G4T1850V01-D | 185/200 | ● | △ | ● | | △ |
| HD770G4T2000V01-D | 200/220 | ● | △ | ● | | △ |
| HD770G4T2200V01-D | 220/250 | ● | △ | ● | | △ |
| HD770G4T2500V01-D | 250/280 | ● | △ | ● | | △ |
| HD770G4T2800V01-D | 280/315 | ● | △ | ● | | △ |
| HD770G4T3150V01-D | 315/355 | ● | △ | ● | | △ |
| HD770G4T3550V01-D | 355/400 | ● | △ | ● | | △ |
| HD770G4T4000V01-D | 400/450 | ● | △ | ● | | △ |
| HD770G4T4500V01-D | 450/500 | ● | △ | ● | | △ |
| HD770G4T5000V01-D | 500/560 | ● | △ | ● | | △ |
| HD770G4T5600V01-D | 560/630 | ● | △ | ● | | △ |
| HD770G4T6300V01-D | 630/710 | ○ | △ | ● | | △ |
| HD770G4T7100V01-D | 710/800 | ○ | △ | ● | | △ |
| HD770G4T8000V01-D | 800/900 | ○ | △ | ● | | △ |

● Built-in standard ○ Built-in optional ▲ External standard △ External optional

Note:

- Braking resistance and braking unit is related to system inertia, deceleration time, lowering distance and time (potential energy), please choose them according to the actual situation. The greater the inertia of the system, the shorter the deceleration time and the more frequent braking is applied, and the greater the power of the braking resistance and the smaller the resistance value.
- Input filter: Reduce the interference input to the drive from power supply and improve its the anti-interference capability and reduce the conduction and radiation interference from the drive.
- Models 0.75 ~ 560kW for wall-mounting are standard with built-in C3filters, and optional for external C2 filters; Cabinet models 630 ~ 800kW are optional for C2 and C3 filters.
- Input AC reactor: It is used at the front end of power inlet of the drive to limit the current impact caused by sudden change of grid voltage and overvoltage, and further reduce higher harmonics and improve input power factor.
- DC Reactor: It is used between the DC rectifier and inverter process to improve the power factor of the drive and suppress higher harmonics.
- Output filter: It can reduce the external conduction and radiation interference from the drive.
- Output AC reactor: When the cable between the drive and motor exceeds 100m, please install an AC output reactor which can suppress high frequency oscillation to avoid motor insulation damage, excessive leakage current and frequent protection from the drive.
- Thermal protection relay: Although the drive has its own motor overload protection function, when one drive drives two or more motors or drives a multipole motor, please install a thermal protection relay between the drive and each motor to prevent the motor from overheating.

# Optional Expansions

| | | |
|---|---|---|
| LED Single-line panel | HD770-DP02 | External panel for option |
| LED Dual-line panel | HD770-DP03 | External panel for option |
| LCD panel | HD770-DP04 | External panel for option |
| Panel pocket | HD770-DPX | Optional Accessory |
| PG card | HD770-PG01-5V | 5V (Differential/Open collector) |
| | HD770-PG01-12V | 12V (Differential/Open collector) |
| | HD770-PG07 | Rotary transformer board |
| Bus board | HD770-EX-CAN | CAN board |
| | HD770-EX-PN | Profinet board |
| | HD770-EX-PD | Profibus board |
| | HD770-EX-ECT | EtherCAT board |
| I/O expansion | HD770-DT01 | 4 x digital input<br>1 x digital output<br>1 x relay output<br>1 x analog output<br>1 x temperature sensor |

We reserve the right to make technical modifications or changes to this document without prior notice.

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