Honeywell | Motor Drive & Control

Catalog

Honeywell HD710E Series Compact General Low Voltage Drives

HD710E SERIES COMPACT GENERAL LOW VOLTAGE DRIVES FROM SILVERSTONE FAMILY

Contents

HD710E Series Compact General Low Voltage Drives

New generation of Honeywell **"SILVERSTONE"** drive product family.
The HD710E series is designed for AC asynchronous and synchronous motor, and its power ranges from 0.75kW to 22kW.
Its compact booksize narrow design greatly saves the installation space in the cabinet due to parallel structure. And it also features easy cable routing and operation, reinforced coating, and independent air ducts to improve heat dissipation, so that it covers applications of small mechanical automation equipment with impressive reliability and stability.

CLEAN IN DESIGN

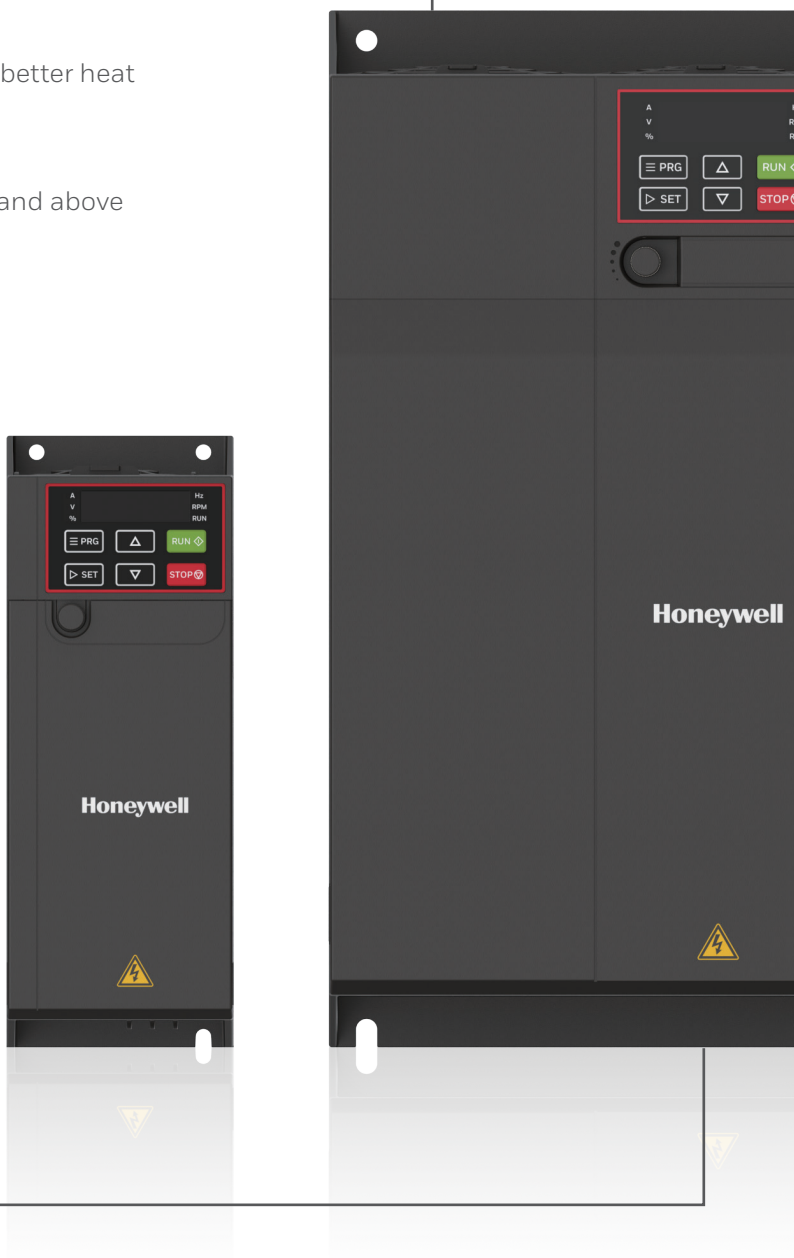
EASY IN USE

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
- Side installation for models 5.5 kW and below; Rail installation available
- Strengthened three-proof paint spray on circuit boards
- Independent air ducts for circuit device protection and better heat dissipation
- European terminals for easy wiring
- EMC terminals against interference for models 7.5 kW and above

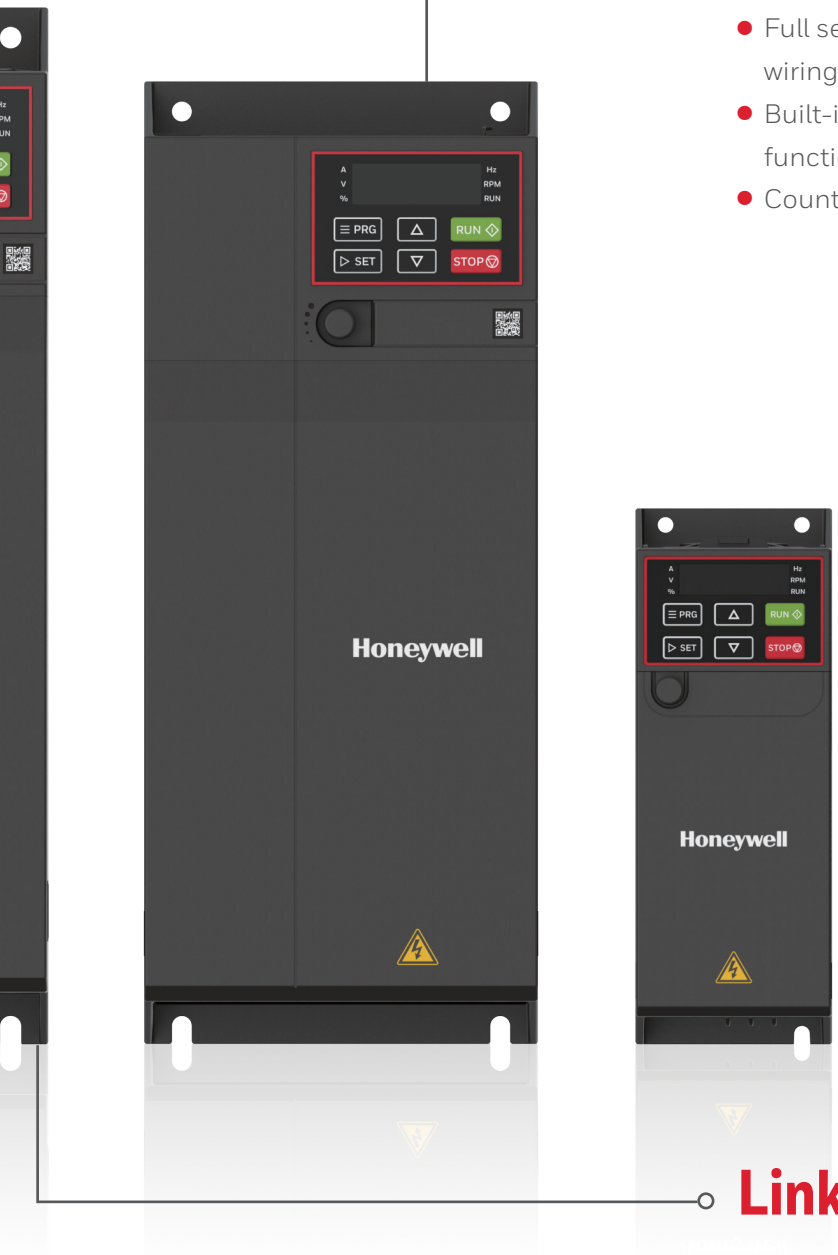


Easy in use

- Both asynchronous and synchronous motors compatible
- Parameters setting, copying and monitoring by operating panels and debugging software on upper computer
- Accurate motor parameters from static and dynamic 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 and PG-free vector control supported
- PID control, PUL control, and multi-stage speed control
- New generation of energy-saving technology for efficient operation of induction motor
- Full series standard with built-in brake units to reduce wiring, space and cost
- Built-in instantaneous power grid failure processing function
- Counting, timing, and swing frequency control supported



Linkage in expansion

- Standard with operation panels
- Built-in RS485 interface integrated with standard Modbus protocol for quick communication with other devices
- CAN communication (Customizable) for directly connection and expansion through network ports

Parameters

Input		
Input voltage	Single phase 220V ~ 240V; 50Hz/60Hz	
	Three-phase 220V ~ 240V; 50Hz/60Hz	
	Three-phase 380V ~ 480V; 50Hz/60Hz	
Voltage fluctuation	220V, -10% ~ 10% ; 380V, -15% ~ 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 ~ 500Hz	
Overload capacity	Single/Three-phase 220V	120% of rated current for 60 seconds; 180% of rated current for 3 seconds
	Three-phase 380V	150% of rated current for 60 seconds; 180% of rated current for 10 seconds; 200% of rated current for 3 seconds
Carrier frequency	1kHz ~ 16kHz	
Control Characteristics		
Motor	Asynchronous/Synchronous motors	
Control mode	V/F control, PG-free vector control	
Speed range	Open-loop vector control	1:100
Speed stabilizing accuracy	Open-loop vector control	≤ 2% of rated sync speed
Starting torque	Open-loop vector control	0.5Hz, 150% of rated torque
Torque response time	Open-loop vector control	<20ms
Torque boost	Auto between 0.0% ~ 100.0%; Manual between 0.0% ~ 30.0%	
Frequency accuracy	Digit setting: max. frequency x ±0.01%; analog setting: max. frequency x ±0.2 %	
Frequency resolution	Digit setting: 0.01Hz; analog setting: max. frequency x ±0.05 %	
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	
Speed setting	Via panel, terminal, communication, PLC, analog, multi-stage speed and PID	
Braking capacity	Built-in brake unit as standard; Start frequency: 0.00 Hz ~ 50.00 Hz; Braking time: 0.0 s ~ 60.0 s; Braking current: 0.0% ~ 150.0% of rated current	
DI	4 x switching input, wherein 1 can be optional for pulse input(X4)	
DO	1 x switching output, 1 x switching output	
AI	1 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 errors, auto tuning errors	
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 50°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	

Type Selection

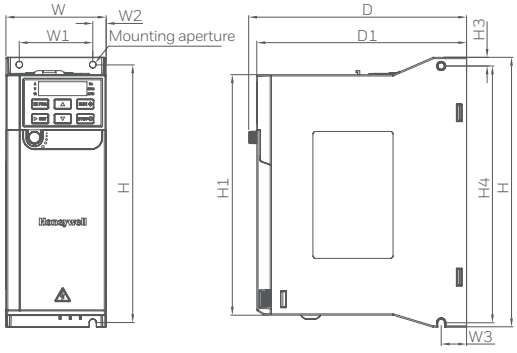
Model HD710 - E - 4T - 0055 - V01 - □□

HD710	E	4T	0055	V01	□□
Product series	Type E: Compact and universal	Voltage 2S/T: Single/Three-phase 220V 4T: Three-phase 380V	Capacity 0007: 0.75kW 0055: 5.5kW 0220: 22kW	Development sequence V: Standard	Accessory B: Built-in brake unit, support NPN/PNP BN: Built-in brake unit, supports NPN only BP: Built-in brake unit, supports PNP only

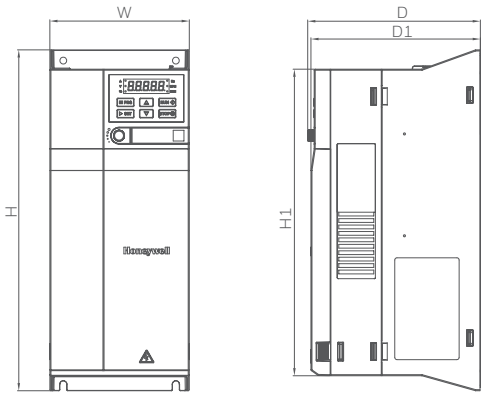
General Specifications

Single/Three-phase 220V; 50Hz/60Hz																
Drive model	Rated power	Rated current	Outer dimension (mm)					Front mounting dimension (mm)			Side mounting dimension (mm)			Mounting aperture	Weight	Comment
	(kW)	(A)	W	H	H1	D	D1	W1	W2	H2	W3	H3	H4		(kg)	
HD710E2S/T0007V01-B	0.75	4	65	177	155	148	142	45	10	168	19	6.5	167	3-M4	0.9	Wall-mounting A
HD710E2S/T0015V01-B	1.5	7	75	202	180	163	157	55	10	193	19	6.5	192	3-M4	1.3	Wall-mounting A
HD710E2S/T0022V01-B	2.2	10														
Three-phase 380V; 50Hz/60Hz																
Drive model	Rated power	Rated current	Outer dimension (mm)					Front mounting dimension (mm)			Side mounting dimension (mm)			Mounting aperture	Weight	Comment
	(kW)	(A)	W	H	H1	D	D1	W1	W2	H2	W3	H3	H4		(kg)	
HD710E4T0007V01-B*	0.75	3	65	177	155	148	142	45	10	168	19	6.5	167	3-M4	0.9	Wall-mounting A
HD710E4T0015V01-B*	1.5	4														
HD710E4T0022V01-B*	2.2	5														
HD710E4T0040V01-B*	4	9.5	75	202	180	163	157	55	10	193	19	6.5	192	3-M4	1.3	Wall-mounting A
HD710E4T0055V01-B*	5.5	13														
HD710E4T0075V01-B	7.5	17	130	320	286	161	158	105	12.5	302	-	-	-	M5	3.65	Wall-mounting B
HD710E4T0110V01-B	11	25														
HD710E4T0150V01-B	15	32	170	342.5	303.5	183	180	145	12.5	326.5	-	-	-	M6	5.58	Wall-mounting B
HD710E4T0185V01-B	18.5	38														
HD710E4T0220V01-B	22	45														

*: Refers to the input method of NPN/PNP transistors, as specified in the "Product Type Selection".



Wall-mounting A

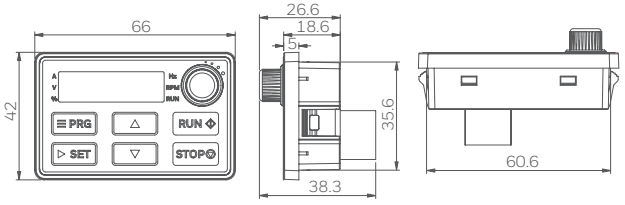


Wall-mounting B

Operation Panel Dimensions

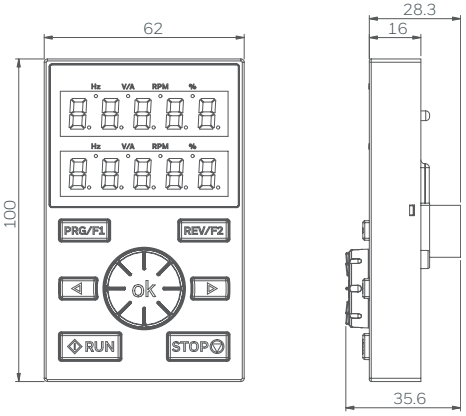
External Single-line LED Panel with Knob

Model: HD770DP02



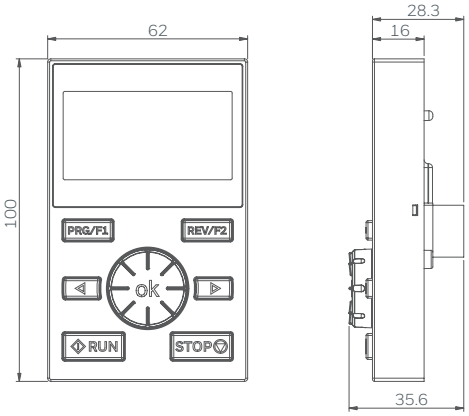
External Dual-line LED Panel

Model: HD770DP03



External LCD Panel

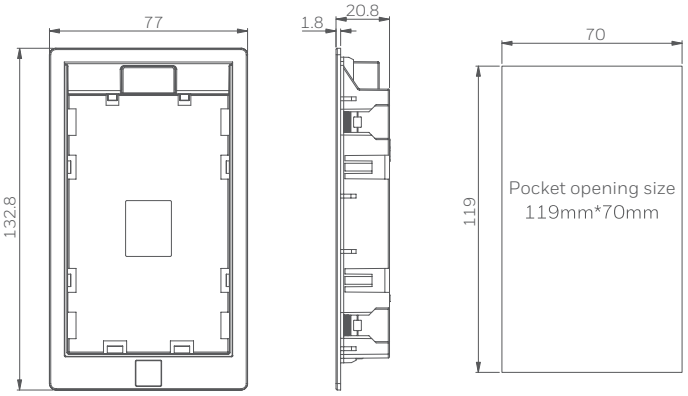
Model: HD770DP04



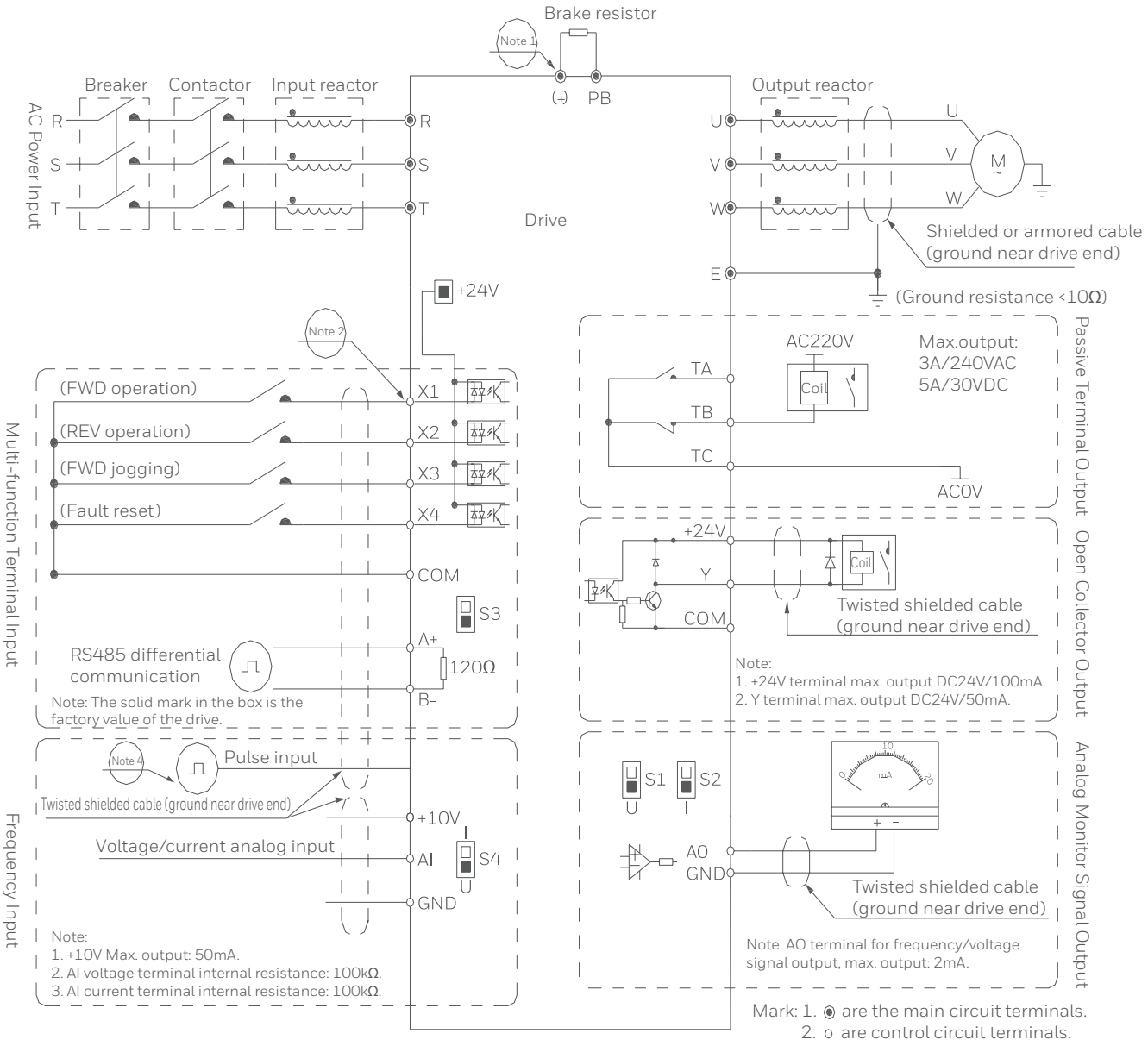
Panel Pocket

Model: HD770DPX

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



Basic Wiring

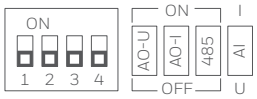
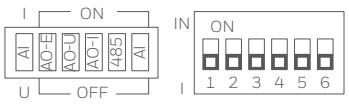


Note: 1. Select the appropriate braking resistor according to the actual conditions.

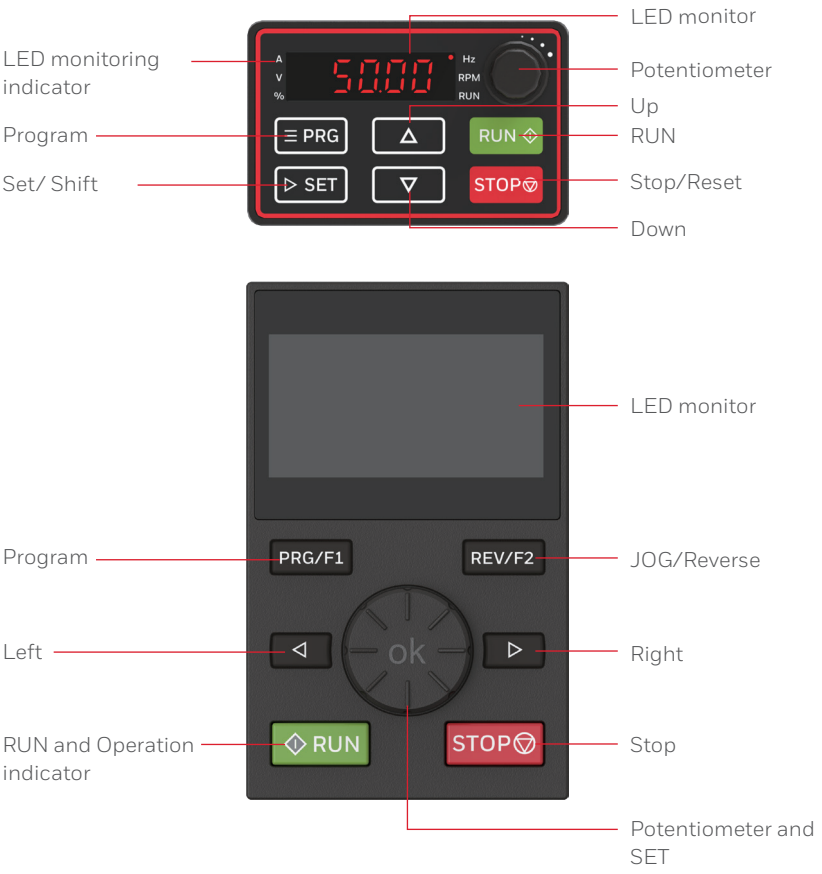
2. Terminals X1 ~ X4/PUL support NPN,PNP signal as input; Please consult the manufacturer for transistor input order for models 5.5 kW with PNP transistors.
3. The analog monitoring is used for ammeters, voltmeters and other indication meters, not for control operations such as feedback.
4. There are many pulse types in actual use, please refer to the detailed description for the specific wiring.
5. For 0.75 kW ~ 5.5 kW models, COM and GND are merged into GND terminal; For 7.5 kW ~ 22kW models, COM and GND are separate.

Control Circuit Terminal

Control Circuit		
Name	Mark	Description
Power	+10V-GND	Provide +10V for external devices Max. output current: 50mA
	+24V-GND (0.4~5.5kW) +24V-COM (7.5kW- 22kW)	Provide +24V for external devices Max. output current: 100mA
AI	AI-GND	1. Input voltage: DC 0V ~ 10V 2. Output current: DC 0mA ~ 20mA
DI	X1~X4-GND (0.4~5.5kW) X1~X4-COM (7.5kW- 22kW)	1. Voltage range at high level: 10V ~ 30V 2. Voltage range at low level: 0V ~ 5V 3. X4 (PUL): 100KHz
AO	AO-GND	1. Input voltage: DC 0V ~ 10V 2. Output current: DC 0mA ~ 20mA
DO	Y-GND (0.4~5.5kW) Y-COM (7.5kW- 22kW)	Open collector output 1. DC 0V ~ 30V 2. DC 0mA ~ 50mA
Relay output	TA-TC normally open TB-TC normally closed	Contact drive capacity: 1. 240V AC, 3A 2. 30VDC, 5A
Communication terminal	A+ B-	RS485 communication interface to access the terminal resistor by dip switch

Dip Switch			
0.75kW- 5.5kW dip switch	Pin	Position	Description
	S1	ON	Enable AO 0V ~ 10V
		OFF	Disable analog voltage output
	S2	ON	Enable AO 0mA ~ 20mA or 4mA ~ 20mA
		OFF	Disable analog current output
	S3	ON	RS485 communication connected to 120Ω terminal resistance
		OFF	RS485 communication disconnected to 120Ω terminal resistance
	S4	ON	Enable AI 0mA ~ 20mA
		OFF	Enable AI 0V ~ 10V
7.5kW-22kW dip switch	Pin	Position	Description
	S1	ON	Enable AI 0mA ~ 20mA
		OFF	Enable AI 0V ~ 10V
	S2	ON	Enable AO 0.0kHz ~ 100.0kHz
		OFF	Disable analog frequency output
	S3	ON	Enable AO 0V ~ 10V
		OFF	Disable analog voltage output
	S4	ON	Enable AO 0mA ~ 20mA or 4mA ~ 20mA
		OFF	Disable analog current output
	S5	ON	RS485 communication connected to 120Ω terminal resistance
		OFF	RS485 communication disconnected to 120Ω terminal resistance
	S6	ON	Control board grounded
		OFF	Control board not grounded

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]

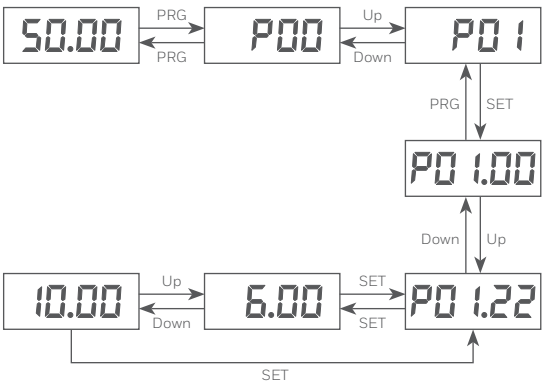
Common Codes

"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.



NOTES

Honeywell Motor Drive & Control

GTS Drive System (Suzhou) Co., Ltd.
Customer Hotline: 400 876 6608
F301, Building 7, Pujiang Intelligent Valley, No. 1188
Lianhang Road, Minhang District, Shanghai, China.

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