# Product data sheet

Variable speed drive E710-2P5-H1EF-IP20, 0.4KW, 0.5HP, 200-240V

## Features

- Ideal product for fan & centrifugal pump applications
- High efficiency PM motor driving
- Advanced motor auto-tune function
- Two separate PID loop controls
- Real time clock built-in (RTC) (LED keypad)
- Intelligent over voltage suppression
- Intelligent over voltage suppression
- Hardware switch off function

| Component name | | | E710 |
|---|---|---|---|
| Inverter Capacity(HP) | | | 0.5 |
| Output Rating | Rated Output Capacity (KVA) | | 1.2 |
| | Rated Output Current(A) | | 2.8 |
| | Maximum Applicable Motor | (HP) | 0.5 |
| | | (KW) | 0.37 |
| | Maximum Output Voltage(V) | | Single Phase, 240V |
| | Maximum Output Frequency (Hz) | | 599.0Hz |
| Input Power | Rated Voltage, Frequency | | Single Phase, 200V to 240V, 50/60Hz |
| | Allowable Voltage Fluctuation | | -15% ~ +10% |
| | Allowable Frequency Fluctuation | | ±5% |
| Braking transistor | | | Built-in |
| Control characteristics | Display | | LED keypad |
| | Control Modes | | IM: V/F, V/F+PG, SLV, SV, SLV2<br>PM: SV, SLV<br>SRM (only for special projects): PMA-SyRM-SLV, SyRM-SLV<br>IM/PM: V/F+PG, SV (on request) |
| | Output Frequency | | 0.01~599.0Hz |
| | Frequency Accuracy | | ±0.3Hz |
| | Speed Control Accuracy | | 1% (Sensorless Vector Control Mode)<br>3%(VF) |
| | Frequency setting resolution | | Digital references: 0.01Hz, Analog refrences:0.06Hz at 60Hz |
| | Output Frequency Resolution | | 0.01Hz |
| | **Inverter Overload** | | 150%/1 min |
| | Frequency Setting Signal | | DC 0~10V/4~20mA |

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|---|---|---|
| Control characteristics | Acceleration/Deceleration Time | 2-stage acceleration/deceleration time can be set (0.1~3600.0 Sec) |
| | Voltage/Frequency Characteristics | Custom V/F curve based on parameters |
| | Braking Torque | About 10% |
| | Main Control Functions | Auto tuning, Soft-PWM, Over voltage protection, Speed search, Restart upon momentary power loss, 2 sets of PID control, Slip Compensation, RS-485 communication standard, Simple PLC function, 2 sets of analog outputs, Safety switch. |
| | Other Functions | Accumulated power-on/ run time, 30 sets of fault history records and latest fault record state, Energy-saving function setting, Phase loss protection, Smart braking, DC braking, Dwell, S curve acceleration and deceleration, Up/Down operation, Modbus, Display of multi-engineering unit, Local/ Remote switch, SINK/SOURCE input interface selection, User parameter settings |
| Protection Functions | Stall Protection | Current level can be setting (It can be set separately in acceleration or constant speed; it can be set with or without protection in deceleration) |
| | Over Current (OC) and Output Short-circuit (SC) Protection | It stops when the output current exceeds 300% of the inverter rated current |
| | Inverter Overload Protection (OL2) | If inverter rated current 150%/1min is exceeded, inverter stops. |
| | Motor Overload Protection (OL1) | Electrical overload protection curve |
| | Over Voltage Protection (OV) | If the main circuit DC voltage rises over 410V (200V class)/ 820V (400V class), the motor stops running. |
| | Under Voltage Protection (UV) | If the main circuit DC voltage falls below 190V (200V class) /380V (400V class), the motor stops running. |
| | Momentary power loss restart | Power loss exceeds 8 milliseconds.<br>Auto-restart function available after momentary power loss in 2 sec. ；3HP below for 1sec |
| | Overheat Protection (OH) | Thermistor sensor built-in IGBT module |
| | Ground Fault Protection (GF) | Protection by inverter software |
| | Charge Indicator | None |
| | Output Phase Loss Protection (OPL) | If the OPL function acts, the motor stops rotation automatically |
| | Input Phase Loss (IPL) Protection | If the IPL is detected, the motor stops automatically |

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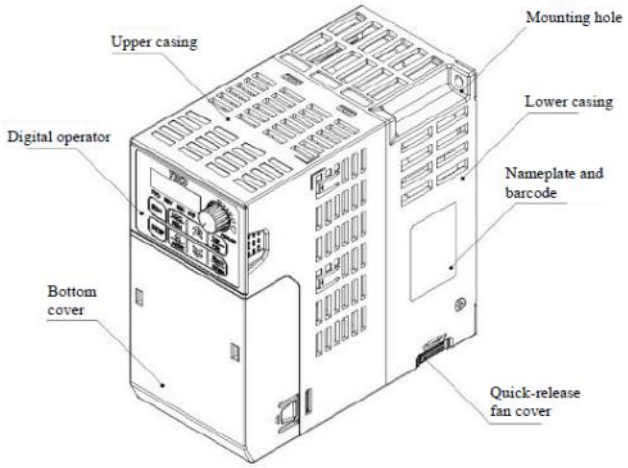
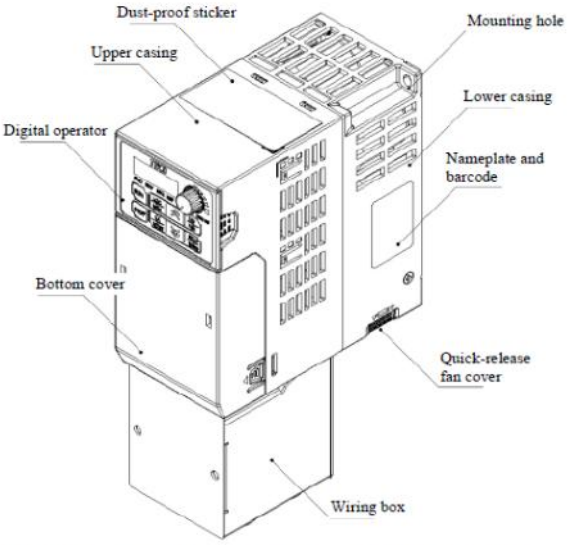
|---|---|---|---|
| Environment Specification | Install location | | Indoor (Protected from corrosive gases and dust) |
| | Ambient Temperature | | 10Hz≦f≦57Hz: ±0.075mm Amplitude;<br>57Hz≦f≦150Hz: 1.0G Acceleration: (in accordance with IEC60068-2-6 standards) |
| | Storage Temperature | | -20~+70℃ (-4℉~+158℉) |
| | Humidity | | 95% RH or less (no condensation) |
| | Altitude and Vibration | | Altitude: Below 1000 m (3281 ft.), It is required to derate 1% of current at each additional 100 m, the maximum altitude is 3000 m.<br>Vibration:<br>Maximum acceleration: 1.0G (9.8m/s2), from 49.84 to 150 Hz<br>Displacement amplitude: 0.3mm (peak value), between 10 to 49.84 Hz<br>(In accordance with IEC60068-2-6 standards) |
| Communication Function | | | Built-in RS-485 as standard (Modbus protocol with standard RJ45) |
| Electromagnetic Interference (EMI) | | | In compliance with EN61800-3 standard |
| Electromagnetic Compatibility (EMS) | | | In compliance with EN61800-3 standard |
| Certification | | CE | In compliance with EN61800-3 (CE & RE) and EN61800-5-1 (LVD) |
| | | UL | EN61800-5-1 |
| Option Card | | | 1.PG feedback card dedicated for IM (induction motor), available in Line Driver type and Open Collector type output options.<br>2.Ethernet communication expansion cards: Profinet/ OPC UA/ EtherCAT/ MODBUS TCP/ Ethernet IP/ BACnet IP<br>3.Other Protocols: TCP-IP/ Profibus DP/ CANopen |

## External View

(a) 220V : 0.5~1HP/440V : 1~2HP

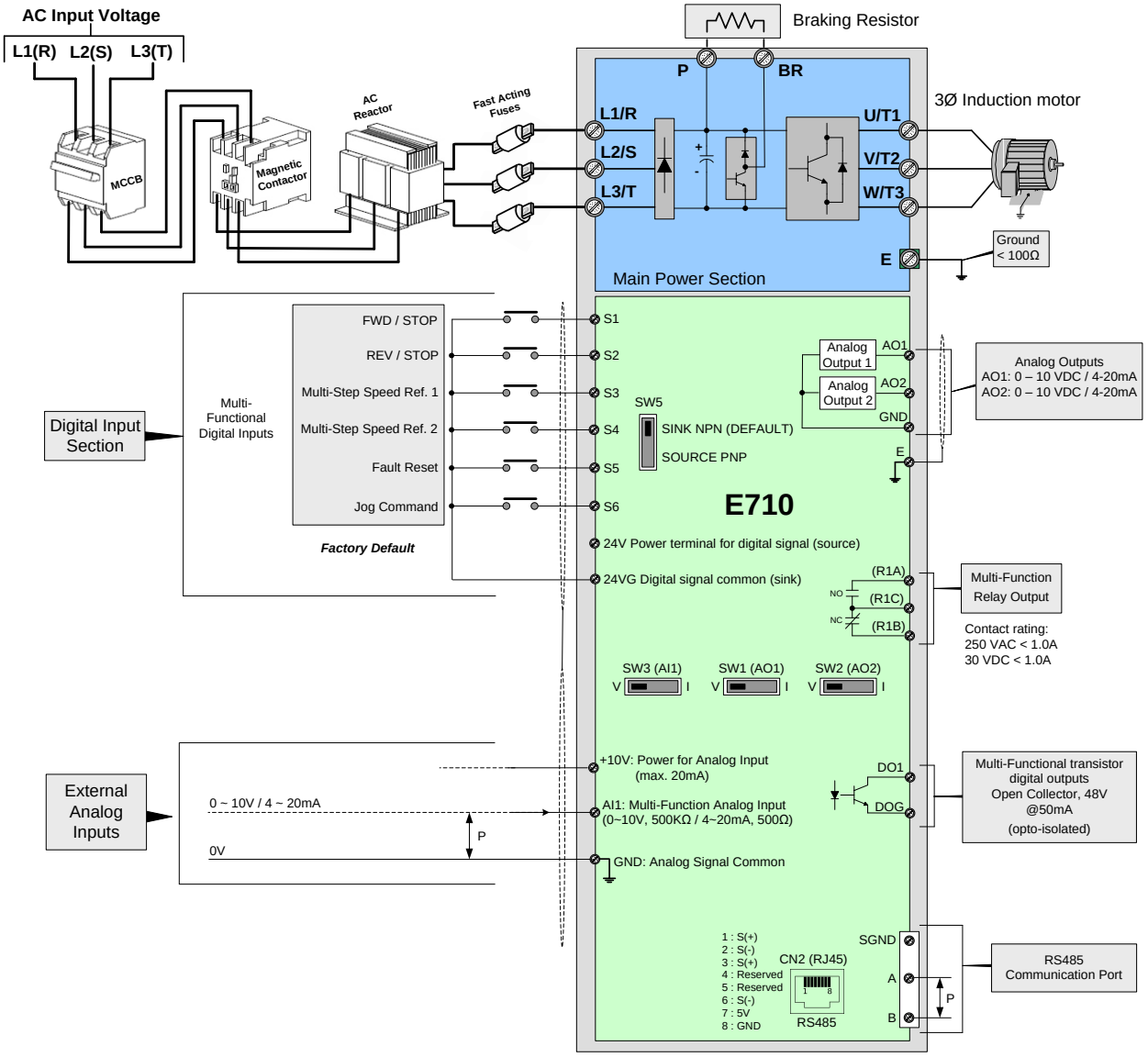



(wall-mounted type, IEC IP00)




(Wall-mounted type, IEC IP20,NEMA1)

## General Wiring Diagram




Notes:

*1: Use SW5 to select between Sink (NPN, with 24VG common) or Source (PNP, with +24V common) for multi-function digital input terminals S1~S7.

*2: Use SW3/SW4 to switch between voltage (0~10V) and current (4~20mA) input for Multi-function analog input 1/2 (AI1/AI2). Besides please also check parameter 04-00 for proper setting.

*3: When S7 is used as pulse input, connecting an external resistor is unnecessary due to the built-in pull-up resistor.

*4: The safety input contacts F1&F2 are short-circuited to the SG inverter for normal output. When using safety input, remove the short-circuit wires between F1-SG and F2-SG.

*5: AO1/AO2 presets a 0~10V output can be set to voltage output (0~10V) or current output (4~20mA) through switch SW1/SW2 to match parameter settings.

*6: When DO2 uses pulse output functions, pull-up resistance is recommended to be 200Ω.

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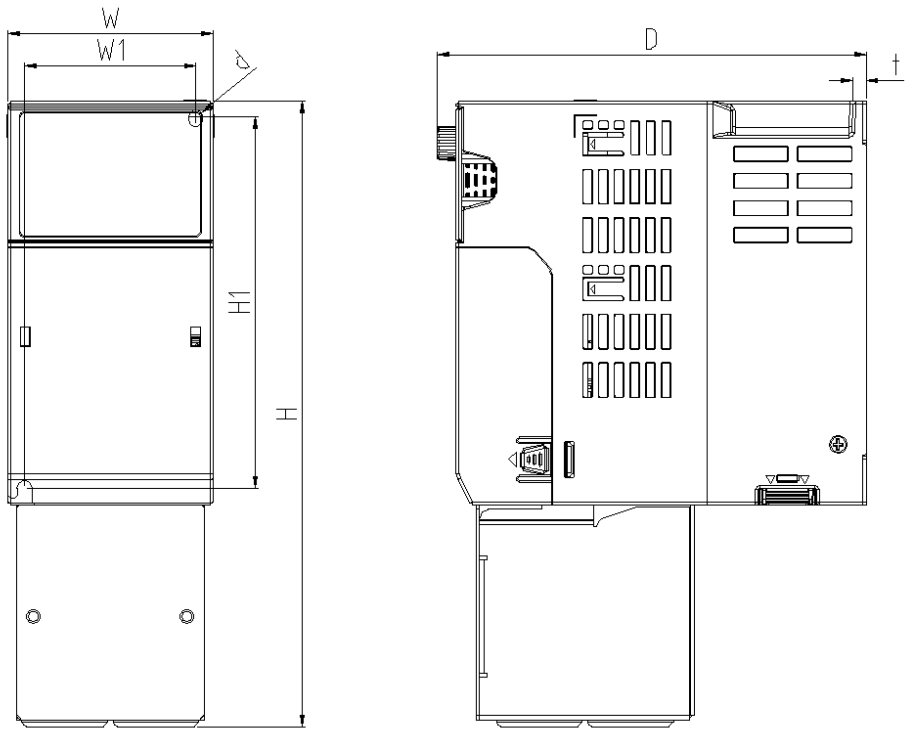
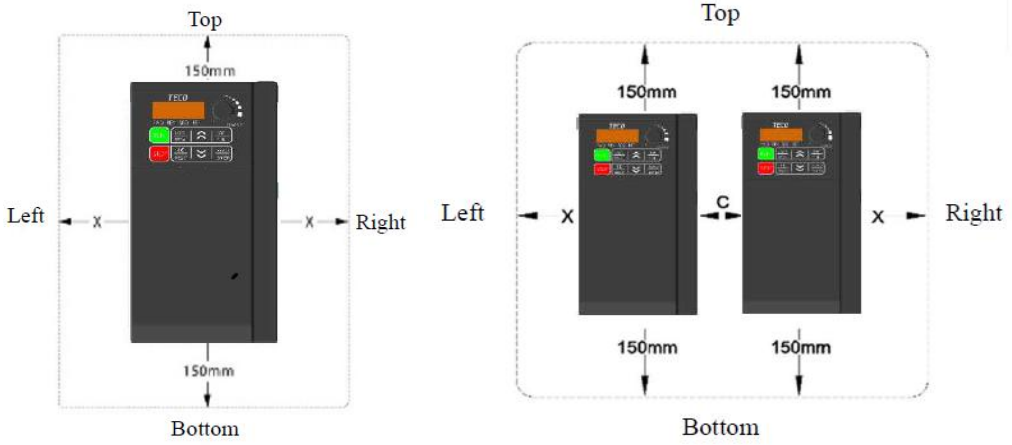
## Dimensions




| Inverter model | Dimensions in mm (inch) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | W | H | D | W1 | H1 | t | d | NW in kg(lbs) |
| E710-2P5-H1EF | 72 (2.83) | 220 (8.66) | 150 (5.9) | 60 (2.36) | 130.5 (5.14) | 5 (0.2) | M4 | 1.5 (3.3) |

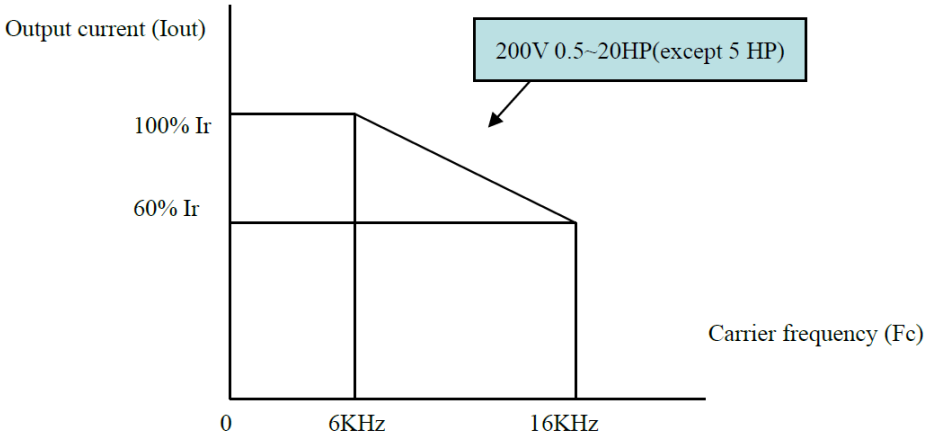
## Installation Spaces

When installing the inverter, ensure that inverter is installed in upright position (vertical direction) and there is adequate space around the unit to allow normal heat dissipation as per the following figure.

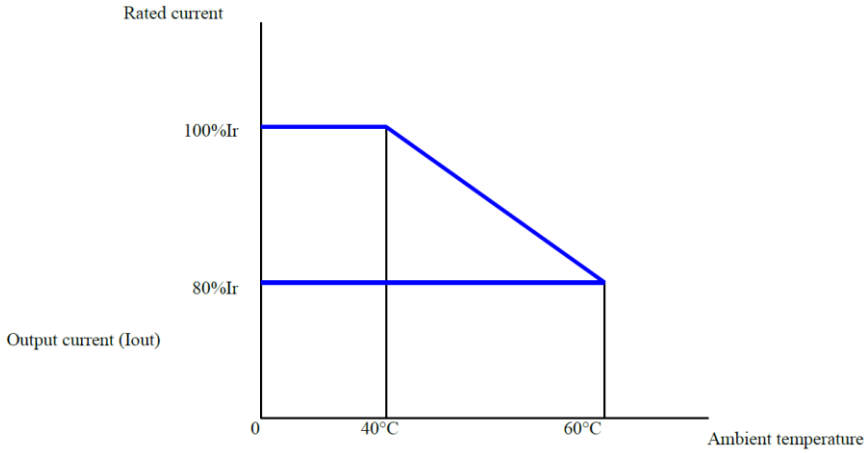



**X=The inverter capacity is 7.5HP(and below), the minimum recommended width is 30mm**
**When C≥30mm, the allowed maximum ambient temperature is 50°C.**
**When C=0mm, the allowed maximum ambient temperature is 40°C.**

## Derating curve according to the carrier size




## Inverter De-rating Based on Temperature




*Users should adjust the load size appropriately according to the ambient temperature of the inverter to avoid damaging the inverter.
*The carrier of models 205/208/410 is 2kHz, and the carrier of the remaining models is the default factory 4kHz.