



# AES Solar Pump Drives



**CAUTION:**  
High voltage inside

**WARNING:**  
Do not connect AC power to output terminals(U, V, W)  
Discharging time is greater than 5 seconds  
Do not inspect components unless isolation is turned off.

**PRODUCT INFORMATION  
TECHNICAL SPECIFICATION  
DRAWING AND SIZE**





# The Benefits of Solar Pumps in the Agriculture Sector



**Solar pumps offer several key benefits in agricultural settings, contributing to increased efficiency, sustainability, and cost-effectiveness. Here are some of the key benefits of using solar pumps in agriculture:**

## **Renewable Energy Source:**

Solar pumps harness energy from the sun, which is a renewable and abundant resource. This reduces reliance on conventional energy sources and helps mitigate environmental impact.

## **Reduced Operating Costs:**

Solar pumps use energy from the sun, eliminating the need for electricity or fuel. Once installed, they have lower operational costs compared to traditional pumps, which depend on grid power or diesel.

## **Independence from the Grid:**

Solar pumps provide autonomy to farmers, especially in remote or off-grid areas where access to electricity is limited. This independence ensures a consistent water supply for irrigation, even in areas with unreliable grid power.

## **Environmentally Friendly:**

Solar pumps produce clean energy without emitting greenhouse gases or other pollutants. This environmentally friendly approach aligns with sustainable agricultural practices and helps reduce the carbon footprint of farming activities.

## **Lower Maintenance Requirements:**

Solar pumps generally have fewer moving parts and simpler mechanisms than traditional pumps, leading to reduced maintenance needs. This can result in cost savings over the pump's lifecycle.

## **Scalability:**

Solar pump systems are scalable, allowing farmers to start with a smaller system and expand it as needed. This flexibility makes them suitable for various farm sizes and irrigation requirements.

## **Water Conservation:**

Solar pumps enable precise control over water usage, facilitating efficient water management. This can lead to water conservation and reduced water wastage, contributing to sustainable agriculture practices.

## **Improved Crop Yields:**

Consistent and reliable access to water through solar pumps allows for better irrigation scheduling, leading to improved crop yields. Proper irrigation is crucial for the health and productivity of crops.

## **Government Incentives:**

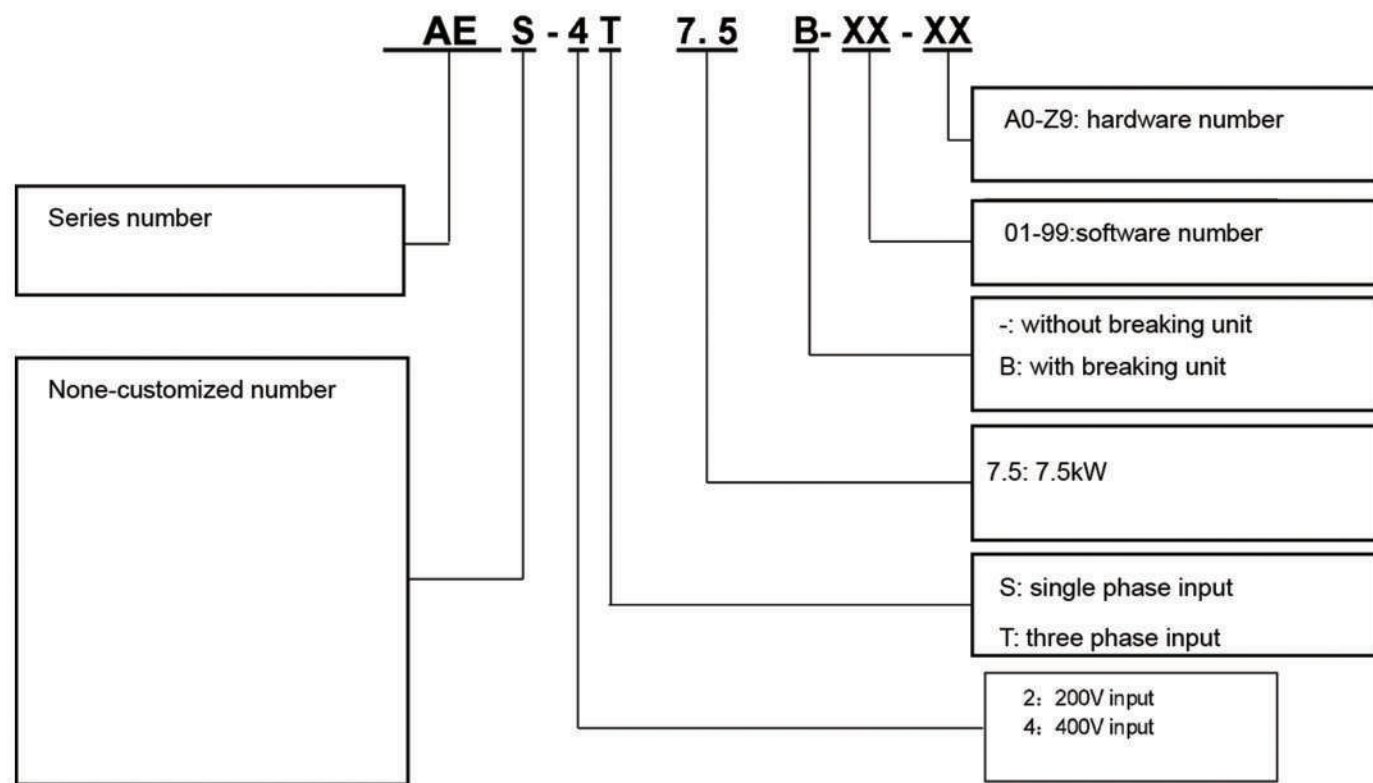
In many regions, governments provide incentives, subsidies, or financial support for the installation of solar-powered agricultural systems. This makes the initial investment more attractive and accelerates the adoption of solar pumps.

## **Long Lifespan:**

Solar pump systems typically have a long lifespan, with durable components. This longevity contributes to the overall economic viability of the investment.

# PRODUCT INFORMATION

## Naming Rule



SEQ Figure 2-\* ARABIC 1 AES Series Nomenclature Specification

## Nameplate

|         |                         |
|---------|-------------------------|
| Model:  | AES-4T2.2B              |
| Power:  | 2.2Kw                   |
| Input:  | 3PH/380V 5.8A 50Hz60Hz  |
| Output: | 3PH/380V 5.6A 0Hz-600Hz |
| S/N:    | [ ]                     |

AES Series Nameplate Identification

# PRODUCT LINE

## ARABIC 1 AES Part Number and Technical Data

### ■ AES -2S/T □ □ □ B, single/three-phase 220V input drive

| Product Model Number | Power (kW) | Rated three-phase output current (a) | Single Phase Rated Input Current (a) | Rated three-Phase input current (a) | Motor power (kW) | Brake Unit |
|----------------------|------------|--------------------------------------|--------------------------------------|-------------------------------------|------------------|------------|
| AES -2S/T0.4B        | 0.4        | 2.8                                  | 5.5                                  | 3.2                                 | 0.4              | Built-in   |
| AES -2S/T0.75B       | 0.75       | 4.8                                  | 9.2                                  | 6.3                                 | 0.75             |            |
| AES -2S/T1.5B        | 1.5        | 8.0                                  | 14.5                                 | 9                                   | 1.5              |            |
| AES -2S/T2.2B        | 2.2        | 10                                   | 23                                   | 15                                  | 2.2              |            |
| AES -2S/T3.7B        | 3.7        | 15                                   | 35                                   | 20.5                                | 3.7              |            |

### ■ AES -2TXB , 3-phase 220V input drive

| Product Model Number | Power (kW) | Rated three-phase output current (a) | Rated three-phase input current (a) | Motor power (kW) | Brake Unit        |
|----------------------|------------|--------------------------------------|-------------------------------------|------------------|-------------------|
| AES -2T5.5B          | 5.5        | 24                                   | 29                                  | 5.5              | Built-in optional |
| AES -2T7.5B          | 7.5        | 32                                   | 35                                  | 7.5              |                   |
| AES -2T11(B)         | 11         | 45                                   | 50                                  | 11               |                   |
| AES -2T15(B)         | 15         | 60                                   | 65                                  | 15               |                   |
| AES -2T18.5(B)       | 18.5       | 73                                   | 80                                  | 18.5             |                   |
| AES -2T22(B)         | 22         | 91                                   | 95                                  | 22               |                   |
| AES -2T30(B)         | 30         | 112                                  | 118                                 | 30               |                   |

### ■ AES -4TXB, 3-phase 400V input drive

| Product Model Number | Power (kW) | Rated three phase output current (a) | Rated three-phase input current (a) | Motor power (kW) | Brake Unit |          |
|----------------------|------------|--------------------------------------|-------------------------------------|------------------|------------|----------|
| AES -4T0.75B         | 0.75G      | 0.75                                 | 2.8                                 | 3.5              | 0.75       | Built-in |
| AES -4T1.5B          | 1.5G       | 1.5                                  | 4.3                                 | 5.0              | 1.5        |          |



| Product Model No | Power (kW) | Rated three-phase output current (a) | Rated three-phase input current (a) | Motor power (kW) | Brake Unit |
|------------------|------------|--------------------------------------|-------------------------------------|------------------|------------|
| AES -4T2.2B      | 2.2G       | 2.2                                  | 5.6                                 | 2.2              |            |
| AES -4T3.7B      | 3.7G       | 3.7                                  | 9.4                                 | 3.7              |            |
| AES -4T5.5B      | 5.5G       | 5.5                                  | 13                                  | 5.5              |            |
| AES -4T7.5B      | 7.5G       | 7.5                                  | 17                                  | 7.5              |            |
| AES -4T11B       | 11G        | 11                                   | 25                                  | 11               |            |
| AES -4T15B       | 15G        | 15                                   | 32                                  | 15               |            |
| AES -4T18.5B     | 18.5G      | 18.5                                 | 39                                  | 18.5             |            |
| AES -4T22B       | 22G        | 22                                   | 45                                  | 22               | Built-in   |
| AES -4T30B       | 30G        | 30                                   | 60                                  | 30               |            |
| AES -4T37B       | 37G        | 37                                   | 75                                  | 37               |            |
| AES -4T45*       | 45G        | 45                                   | 91                                  | 45               |            |
| AES -4T55*       | 55G        | 55                                   | 112                                 | 55               |            |
| AES -4T75*       | 75G        | 75                                   | 150                                 | 75               |            |

## Technical Specification

|                        |                                 |   |   |
|------------------------|---------------------------------|---|---|
| Input/Output Feature   | Rated input voltage             | 200V voltage class: DC-200 ~ 400V, AC single/three-phase 220V<br>400V voltage class: 3-phase 380VAC voltage, continuous fluctuation $\pm 10\%$ , transient fluctuation $-15\% \sim +10\%$ |   |
|                        | Maximum Input DC Voltage        | 1 $\phi$ : 170V - 284V<br>3 $\phi$ : 323V - 528V  |   |
|                        | Mpvt Voltage Range              | Minimum: 200V, Maximum: 700V  |   |
|                        | Starting Voltage Range          | 1 $\phi$ AC : 208V - 240V<br>3 $\phi$ AC : 380V - 480V  |   |
|                        | Rated input frequency           | 50Hz/60Hz $\pm 5\%$   |   |
|                        | Output Voltage                  | 3-phase: 0 ~ rated input voltage, error less than $\pm 3\%$   |   |
|                        | Output frequency                | 0.00 ~ 600.00Hz, 0.01Hz   |   |
|                        | Overload capacity               | 150% 1 minute; 180% 10 second; 200% 0.5 second  |   |
|                        | Operation Control Feature       | Control Mode  | V/f control<br>PG-less vector control (SVC)                     |
|                        |                                 | Speed Control Range   | 1:100 (V/f)<br>1:200 (SVC)                                      |
| Speed Control Accuracy |                                 | $\pm 0.5\%$ (V/f control)<br>$\pm 0.2\%$ (SVC)  |   |
| Velocity fluctuation   |                                 | $\pm 0.3\%$ (SVC)   |   |
| Torque Response        |                                 | <10ms (SVC)   |   |
| Starting Torque        |                                 | 0.5Hz: 180% (V/f, SVC)<br>0.25Hz: 180% (SVC)  |   |
| Basic function         |                                 | V/F curve   | Three modes: linear type; Multipoint type; N-th power V/F curve |
|                        | V/F separation                  | Two modes: total separation and semi-separation   |   |
|                        | Acceleration/Deceleration Curve | Linear or S curve acceleration and deceleration mode; Four acceleration and deceleration times; Acceleration and deceleration time range 0.0 ~ 60000s                                     |   |
|                        | DC braking                      | DC braking frequency: 0.00Hz ~ maximum frequency, braking time: 0.0s ~ 30.0s, braking action current value: 0.0% ~ 100.0%   |   |
|                        | Inching control                 | Inching frequency range: 0.00Hz ~ 50.00Hz; Inching acceleration and deceleration time 0.0s ~ 60000s   |   |

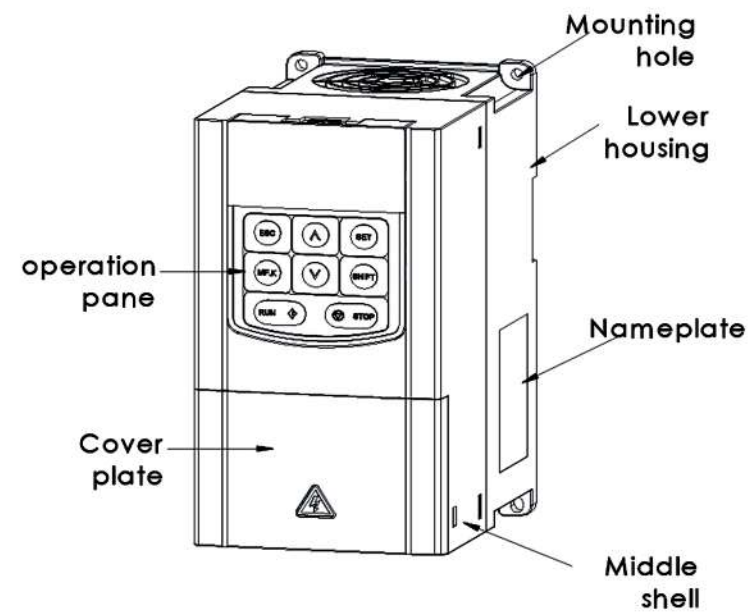
|                   |   |  |
|-------------------|---|--|
|                   | Simple PLC, multi-speed operation   | Up to 16-speed operation via built-in PLC or control terminal  |
|                   | Built-in PID  | Closed-loop control system capable of realize process control conveniently   |
|                   | Automatic voltage regulation (AVR)  | When the grid voltage changes, it can automatically keep the output voltage constant   |
|                   | Overvoltage and overspeed loss control  | Automatically limits current and voltage during operation to prevent frequent overcurrent and overvoltage trip   |
|                   | Fast current limiting function  | Minimize overcurrent faults and protect the normal operation of the product  |
|                   | Torque limitation and control   | Automatic torque limit during operation to prevent frequent overcurrent trip   |
|                   | Input terminal  | Six switching value input terminals, of which X6 can be used as high-speed pulse input. Support active open collector NPN, PNP and dry contact input mode, two analog input terminals, one for voltage and current input optional, one for voltage input                               |
|                   | Output Terminal   | A high-speed pulse output terminal, a square wave signal output of 0-50kHz, a switching value output terminal, a group of relay output terminals,<br>An analog output terminal, voltage and current output optional, can set the frequency, output frequency and other physical output |
| Featured function | All kinds of main and auxiliary setting and switching, speed search, multiple acceleration and deceleration curve selection, brake control, can support up to 16 speed operation (two speed support flexible frequency setting mode), Swing frequency control operation, Fixed length control, Counting function, Overexcitation braking, Overvoltage stall, Undervoltage stall, Restart after power failure, Jump frequency, Frequency binding, Free switching of four-stage |  |

|                     |   |   |
|---------------------|---|---|
|                     | acceleration and deceleration time, Motor temperature protection, Flexible fan control, Process PID control, Simple PLC, Droop control, Parameter identification, Field weakening control, High-precision torque limit, V/VF Separation control |   |
| Protection Function | Short circuit detection, overcurrent protection, overvoltage protection, undervoltage protection, overheat protection and overload protection of electrified motor  |   |
| Environment         | Place of use  | Indoor, not direct sunlight, no dust, corrosive gases, flammable gases, oil mist, water vapor, dripping water or salt and so on |
|                     | Altitude above sea level  | For derating above 1000m, the rated output current will be derated by 1% for every 100m   |
|                     | Ambient temperature   | -10 °C ~ 50 °C, 50 °C ~ 60 °C for derating, 1 °C higher, 1% lower rated output current  |
|                     | Humidity  | 5 ~ 95%, condensation is not allowed  |
|                     | Vibration   | Less than 5.9 m/S <sup>2</sup> (0.6g)   |
|                     | Storage Temperature   | -20°C ~ +60°C   |
| Other               | Mounting method   | Wall-mounted  |
|                     | Degree of protection  | IP20  |
|                     | Cooling Mode  | Forced Air Cooling  |



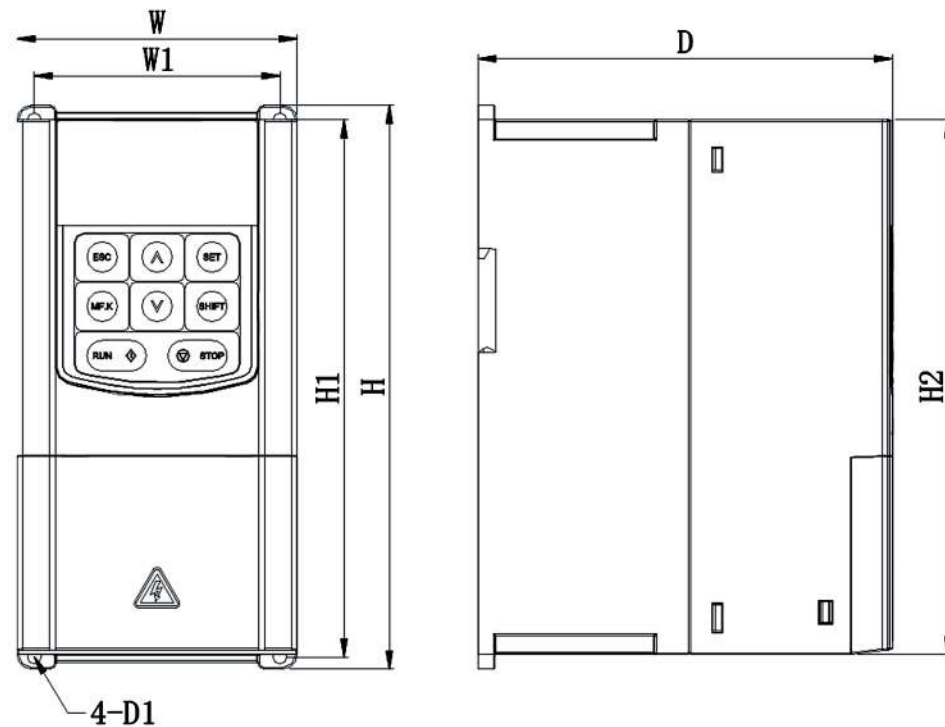
### Product outline drawing and mounting hole sizes

#### Schematic diagram of product shapes



AES Series 4T01.5B-4T22B Outline 2

#### Dimensions of appearance and mounting hol

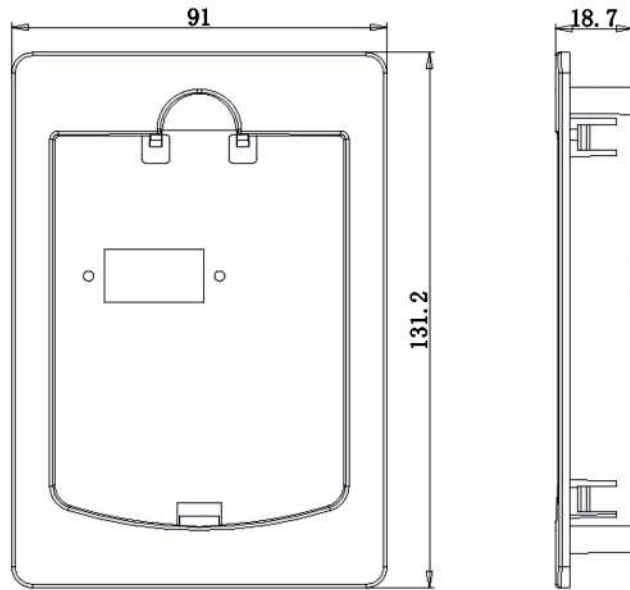


Outline dimensions and mounting dimensions of AES series 4T1.5B-4T22B

### AES Product Appearance and Mounting Hole Size (mm)

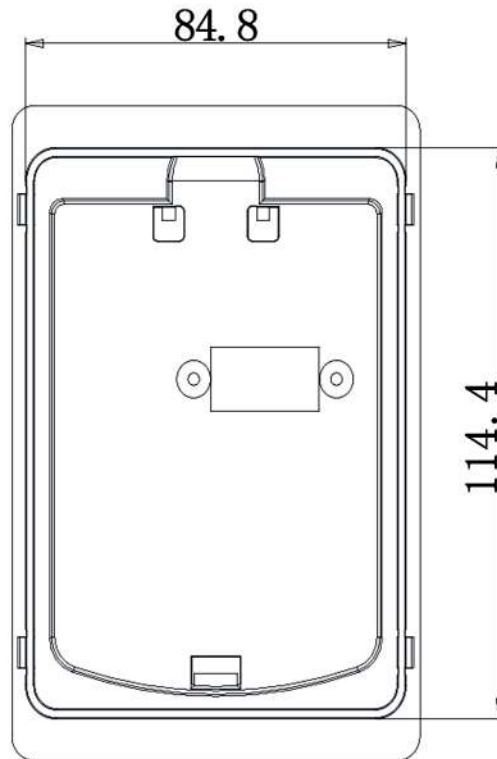
| Product Model Number | Mounting hole position mm |       | Body Size mm |    |      |       | Mounting aperture mm | Gross Weight kg |
|----------------------|---------------------------|-------|--------------|----|------|-------|----------------------|-----------------|
|                      | W1                        | H1    | H            | H2 | W    | D     |                      |                 |
| AES -2S/T 0.4B       | 67.5                      | 160   | 170          | /  | 84.5 | 129   | ø4.5                 | 1.0             |
| AES -2S/T0.75B       |                           |       |              |    |      |       |                      |                 |
| AES -2S/T 1.5B       |                           |       |              |    |      |       |                      |                 |
| AES -2S/T2.2B        | 85                        | 185   | 194          | /  | 97   | 143.5 | ø5.5                 | 1.4             |
| AES -2S/T3.7B        |                           |       |              |    |      |       |                      |                 |
| AES -4T3.7B          |                           |       |              |    |      |       |                      |                 |
| AES -4T5.5B          | 106                       | 233   | 245          | /  | 124  | 171.2 | ø5.5                 | 2.5             |
| AES -2T5.5B          |                           |       |              |    |      |       |                      |                 |
| AES -4T7.5B          |                           |       |              |    |      |       |                      |                 |
| AES -4T11B           | 147                       | 298   | 310          | /  | 165  | 186.3 | ø6                   | 8.2             |
| AES -4T15B           |                           |       |              |    |      |       |                      |                 |
| AES -4T18.5B         |                           |       |              |    |      |       |                      |                 |
| AES -4T22B           | 150                       | 387.5 | 405          | /  | 255  | 195   | ø8                   | 12.8            |
| AES -4T30B           |                           |       |              |    |      |       |                      |                 |
| AES -4T37B           |                           |       |              |    |      |       |                      |                 |
| AES -4T45B           | 180                       | 437   | 455          |    | 300  | 225   | ø10                  | 17.8            |
| AES -4T55B           |                           |       |              |    |      |       |                      |                 |

### External dimension of external keyboard



External Dimensions of External Keyboard

### Installation hole size of external keyboard.



Dimensions of the Mounting Holes of the External Keyboard



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