

# V-BOX Installation Manual

## Part 1 General Note

- ALL communication ports of V-BOX support RS232 and RS485 and RS422.
- The power ground must be connected to make the V-BOX run correctly.
- The communication ground must be connected to make the V-BOX communicate correctly.

## Part 2 Safety Precautions

Notice following safety precautions at any moment when installing,wiring,operating,vindicate and examine.

### Installation

- Please setup the V-BOX according to this manual otherwise it may cause device damage.
- It's Forbid to uncover the product in the environment that has water vapor,corrosive gas or combustibile gas,otherwise it may cause short circuit or fire.

### Wiring

- Please connect the grounding terminal with class-3 ground,otherwise it may cause short circuit or fire.
- V-BOX use 24-volt power supply.Any connection of non-standard power supply will lead to machine damage.

### Operation

- V-BOX need V-NET Client software to design project picture. V-BOX not designed may lead to run abnormally.
- Do not change wiring while the power is ON,otherwise it may cause short circuit or device damage.
- Please do not touch panel with sharp objects,otherwise it may lead to panel depressed,there by make V-BOX run abnormality.

### Maintenance

- It's forbidden to touch inside V-BOX,or else it may lead to short circuit or device damage.
- When power,It's forbidden to dismantle V-BOX panel,otherwise it may lead to short circuit or device damage .
- Do not touch connection terminal in 10 minutes of turning off power,otherwise residual voltage may lead to short circuit or device damage.
- When operating,exhaust vent should not be sealed,otherwise it may lead to failure easily.

### Communication

- Please connect to the communication wire according to this manual.
- The length of communication wire should meet the requirement.
- Use the correct ground loops in order to avoid abnormal communication.

## Part 3 Work Environment

The product must be placed in the pack box before installation,if not used for a while,in order to make the product accord with the warranty of our company and future maintenance, be sure to notice the following items when stored.

- Storage environment must be dry and dust-free.
- Storage ambient temperature must refer to "Specifications".
- Storage humidity must refer to "Specifications".
- Avoid corrosive gases and liquids in the storage environment.
- Avoid placing the product directly on the ground.

## Part 4 Basic Inspection

Please do following basic checking before using V-BOX.

### General inspection

- Check if each screw is loose.
- The vent hole should be protected from oil, water and metal powder, and the chip powder of the drill should be prevented from falling into the V-BOX.
- If there are harmful gases or dust in the V-BOX operating environment, please take protective measures.

### Checking before installation (Unpowered)

- Please deal with connection division of wiring terminal insulated.
- Communication wiring should be correct, otherwise abnormal operation may occur.
- Check for foreign matter entering the interior of the V-BOX, especially for flammable substances and conductive materials such as screws, metal sheets, etc.
- Please regulate instrument to reduce electromagnetism interference.
- Check V-BOX supply voltage.

### Checking before running (powered)

- Check the status of the power indicator.
- Check if the communication between the V-BOX and the device is normal.
- If there is any abnormality in the V-BOX interface, please contact the manufacturer.

## Part 5 Product Installation

### Notes:

- The installation direction must be in accordance, otherwise it may lead to fault.
- In order to make circle effect greatly, adjacent objects and baffle should be kept on enough space when installation, otherwise it will cause bad cooling.
- Used in crust plane of Type 4X indoor grade.

### Installation steps:

- V-BOX has two modes of installation :DIN-Rail Mounting and Wall Mount Installation.
- Make sure the fixed piece screw is cased , and then hitch front cover screw to withstand inside control box.
- Please tighten the screw with a suitable torque, remember not to exceed this torque, otherwise it will cause damage to the plastic shell. Torque: 6.17lb-inch9(0.7N-M)

## Part 6 Specifications

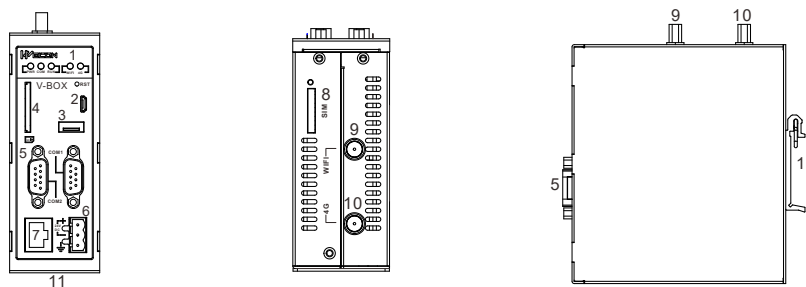
Content \ Module	S Series	E Series	H Series
Power voltage	DC24V		
Power voltage range	DC12V-DC28V		
Permissible instantaneous power failure time	< 5ms		
Power consumption	< 10W		
Operating ambient temperature	-10°C~+60°C		
Storage ambient temperature	-20°C~+70°C		
Operating ambient humidity	10%~85%RH (Non-condensing)		

Module Content	S Series	E Series	H Series
Storage ambient humidity	10%~85%RH (Non-condensing)		
Vibration resistance	Conforms to IEC61131-2 standard: Continuous vibration:10Hz~57Hz 0.0755mm,57Hz~150Hz 9.8m/s <sup>2</sup> Intermittent vibration:10Hz~57Hz 0.0035mm,57Hz~150Hz 4.9 m/s <sup>2</sup> in each X, Y, Z direction 10 times (80 minutes)		
Corrosion resistance	Avoid corrosive gas		
Cooling method	Natural air cooling		

### The list of V-BOX models

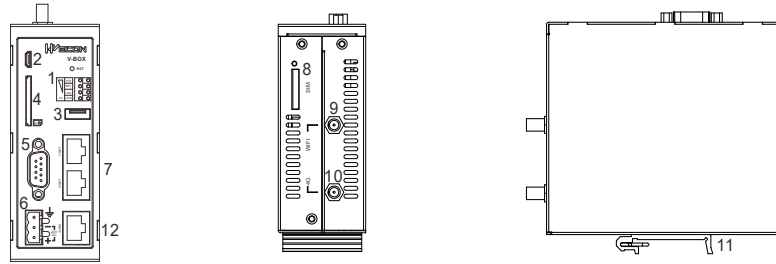
Series	Model	Description
S Series	V - BOX S -00	1 Ethernet port ,2 serial ,support WiFi
	V - BOX S -4G	1 Ethernet port ,2 serial ,support WiFi ,4G
	V - BOX S -AG	1 Ethernet port ,2 serial,support WiFi ,4G(global)
	V - BOX S -3N	3 Ethernet port ,1 serial ,support WiFi
	V - BOX S -NG	3 Ethernet port ,1 serial ,support WiFi ,4G
E Series	V - BOX E -00	1 Ethernet port, 1 serial ,
	V - BOX E -4G	1 Ethernet port, 1 serial ,support 4G
H Series	V - BOX H -00	3 Ethernet port ,1 serial,2 RS485 terminals, 2 input with optocoupler isolation ,2 relay output
	V - BOX H -WF	3 Ethernet port ,1 serial,2 RS485 terminals,WIFI , 2 input with optocoupler isolation ,2 relay output
	V - BOX H -4G	3 Ethernet port ,1 serial,2 RS485 terminals,4G , 2 input with optocoupler isolation ,2 relay output
	V - BOX H -AG	3 Ethernet port ,1 serial,2 RS485 terminals,4G(global) , 2 input with optocoupler isolation ,2 relay output
	V - BOX H -SG	3 Ethernet port ,1 serial,2 RS485 terminals,4G, 2 input with optocoupler isolation ,2 relay output , GPS

## Part 7 Parts And Function



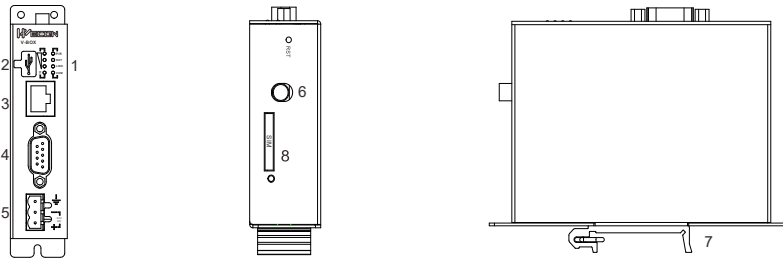
S-00 / S-4G / S-AG Components description

1	LED	2	Micro-USB	3	USB-A	4	SD card slot
5	COM	6	Power terminal	7	Ethernet	8	SIM card slot (optional)
9	WIFI antenna	10	4G antenna (optional)	11	Fixed buckle		



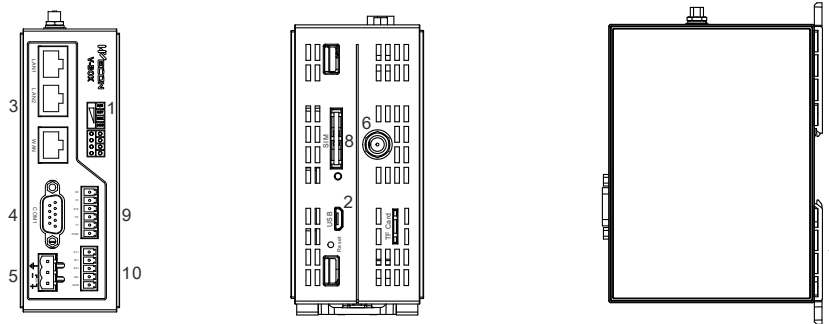
S-3N / S- NG Components description

1	LED	2	Micro-USB	3	USB-A	4	SD card slot
5	COM	6	Power terminal	7	LAN	8	SIM card slot (optional)
9	WIFI antenna	10	4G antenna (optional)	11	Fixed buckle	12	WAN



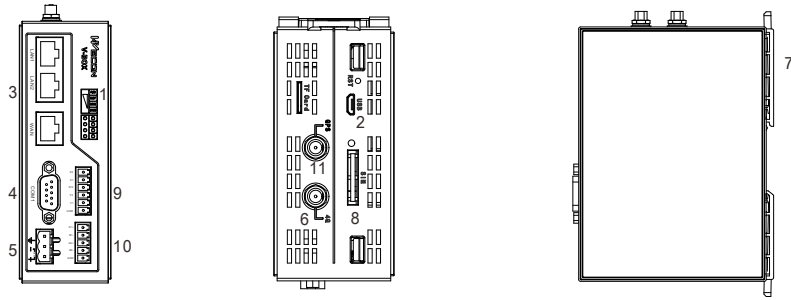
E-00 / E-4G Components description

1	LED	2	Micro-USB	3	Ethernet	4	COM
5	Power terminal	6	4G antenna (optional)	7	Fixed buckle	8	SIM card slot (optional)



H-00 / H-WF / H-4G / H-AG Components description

1	LED	2	Micro-USB	3	Ethernet	4	COM
5	Power terminal	6	4G/WIFI antenna (optional)	7	Fixed buckle	8	SIM card slot (optional)
9	I/O port	10	RS 485 terminals				



H-SG Components description

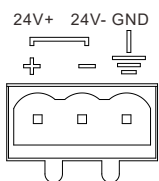
1	LED	2	Micro-USB	3	Ethernet	4	COM
5	Power terminal	6	4G antenna (optional)	7	Fixed buckle	8	SIM card slot (optional)
9	I/O port	10	RS 485 terminals	11	GPS antenna		

**I / O Specification:**

Power supply	DC input	Input circuit components
<b>Input signal voltage</b>	DC24V ±10%	<p>The picture is NPN connection , if S / S connection 24V negative , X then Positive , namely PNP connection .</p>
<b>Input signal current</b>	5mA/DC24V	
<b>Input ON current</b>	3.5mA/DC24V	
<b>Input OFF current</b>	< 1.5mA	
<b>Input responding time</b>	About 10ms	
<b>Input signal type</b>	Contact input or NPN, PNP Open electrode transistor input	
<b>Circuit insulation</b>	Optocoupler insulation	

Output type	Relay	Output circuit components	
<b>Power supply</b>	< AC250V/<DC30V		
<b>Circuit insulation</b>	Mechanical insulation		
<b>Maximum load</b>	<b>Resistive</b>		2A/1 point, 8A/4 points
	<b>Inductive</b>		80VA
	<b>General</b>		100W
<b>Leak current</b>	--		
<b>Minimum load</b>	DC5V 2mA (Reference)		
<b>Response time</b>	About 10ms		
<b>Output signal mode</b>	--		
<b>Output type</b>	Relay		

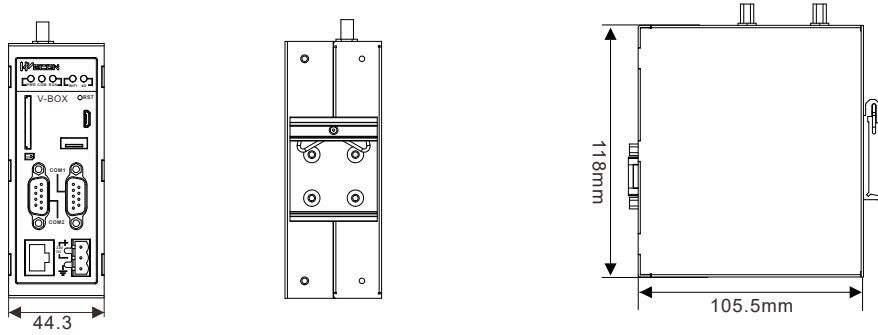
The power interface is defined as follows (from left to right):



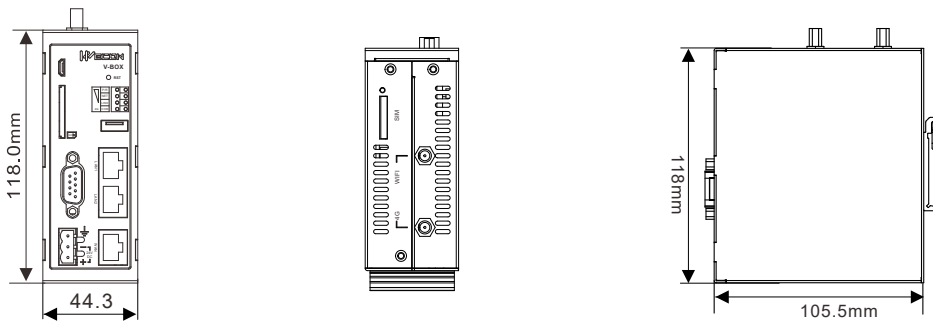
DC 24V +	DC24V -	GND
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## Part8 The Size Of Product

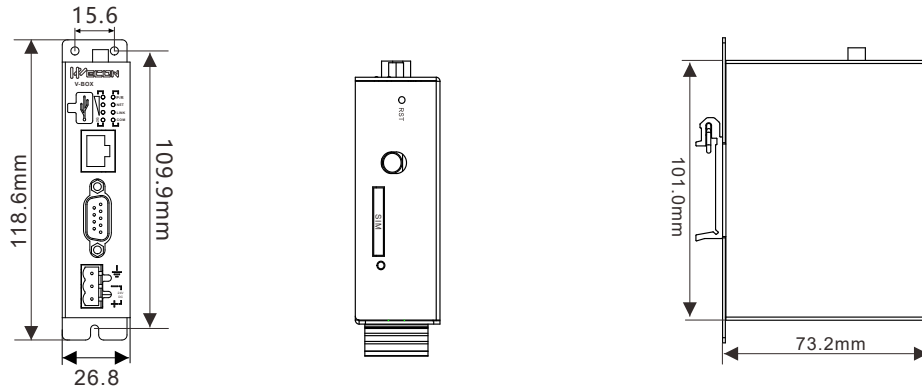
Unit : mm , error range : ±0.5mm



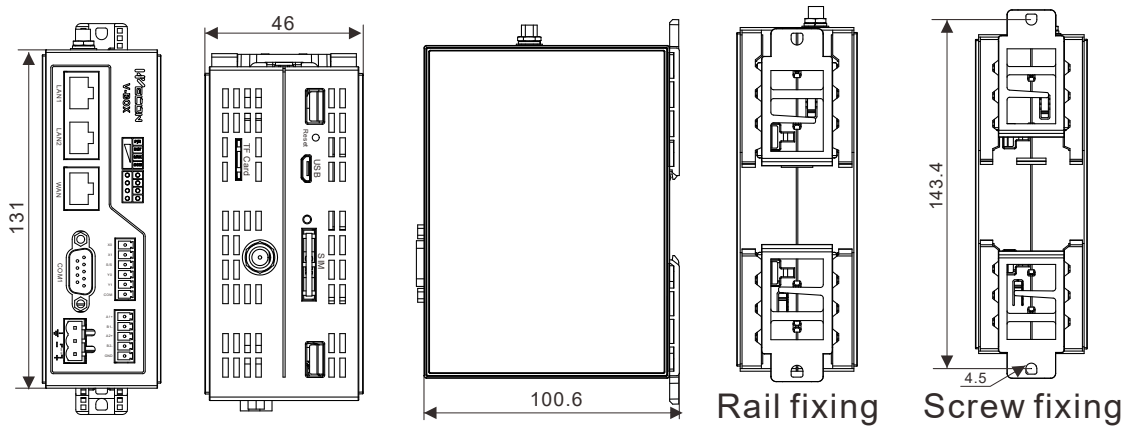
S -00 / S -4G / S -AG Installation size



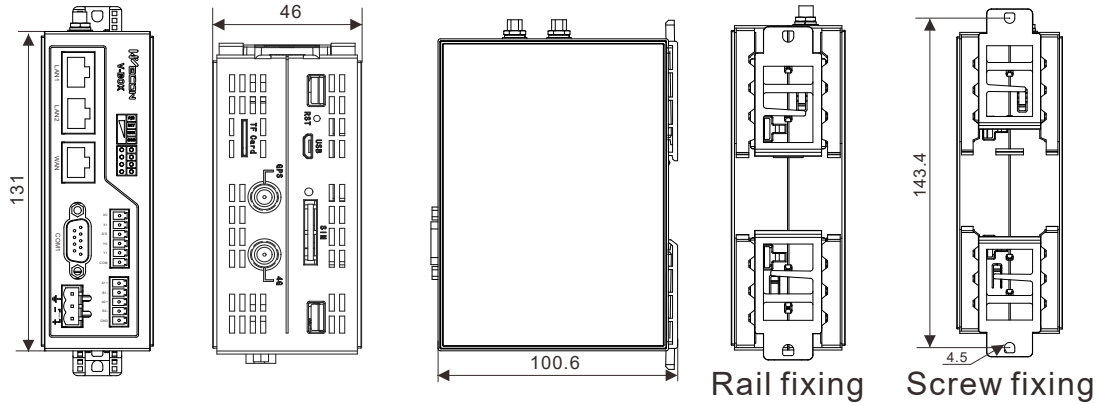
S -3N / S -NG Installation size



E -00 / E -4G Installation size



H-00 / H-WF / H-4G / H-AG Installation size



H-SG Installation size

## Part 9 Interface Definition

### S-00 / S-4G / S-AG series interfaces

COM1 definition:

Pin	Definition	Pin	Definition
1	RS422 TX+/RS485 A +	2	RS232 RXD
3	RS232 TXD	5	GND
6	RS422 TX-/RS485 B-	8	RS422 RX-
9	RS422 RX+		

COM2 definition:

Pin	Definition	Pin	Definition
1	RS485 A +	2	RS232 RXD
3	RS232 TXD	5	GND
6	RS485 B-	7	COM3 RS485 A+
8	COM3 RS485 B-		

▲ Note: You can use only one communication of S-00 / S-4G / S-AG series V-BOX at the same time.

### S-3N / S-NG / E-00 / E-4G series interfaces

COM1 definition:

Pin	Definition	Pin	Definition
1	RS422 TX+/RS485 A +	2	RS232 RXD
3	RS232 TXD	5	GND
6	RS422 TX-/RS485 B-	8	RS422 RX-
9	RS422 RX+		

▲ Note: RS422 and RS485 can not be used in COM1 port of S-3N / S-NG / E-00 / E-4 series V-BOX at the same time.

**H-00 / H-WF / H-4G / H-AG / H-SG series interfaces**

COM1 definition:

Pin	Definition	Pin	Definition
1	RS422 TX+/RS485 A +	2	RS232 RXD
3	RS232 TXD	5	GND
6	RS422 TX-/RS485 B-	8	RS422 RX-
9	RS422 RX+		

▲ Note:RS422 and RS485 can not be used in COM1 port of H-00 / H-WF / H-4G / H-AG / H-SG series V-BOX at the same time.

**H series terminal interface definition**

COM		I/O Port		
	COM2		X n	Input terminal
	A1+	RS485+	Y n	Relay output terminal
	B1-	RS485-	S/S	Support NPN input (connected to 24V+) or PNP input (connected to 24V-)
	COM3			
	A2+	RS485+		
	B2-	RS485-	COM	Output common
GND	GND			

## Notice

The contents of this manual are subject to change without notice.


**Wecon Technology Fu Zhou**

Address: 10 Building, E area, Fuzhou Software park, Fujian, P. R. China;  
 Tel: 0086-591-87868869;  
 Email: sales@we-con.com.cn;  
 Web: www.we-con.com.cn/en;

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