

维控慧网物联系统：V-BOX 安装说明书

一、注意 Note

1. 慧盒V-BOX的所有通讯接口均支持RS232、RS485通讯，为复合通讯口。
2. 为了让人机界面能够正常工作，安装使用时敬请按照说明书的要求连接机壳地。
3. 为了让人机界面能够正常工作，安装使用时敬请按照本书说明书的要求接通通讯接口的地信号。

二、安全注意事项 Safety Precautions

安装、配线、操作、维护以及检查时，应随时注意一下安全注意事项。

安装要求：

1. 请依照手册指定的方式安装产品，以避免可能导致的设备损坏。
2. 请勿将本产品暴露在有水汽、腐蚀性气体、可燃性气体等物质的场所下使用，以避免可能会造成的触电或火灾。

配线要求：

1. 请将接地端子连接到CLASS-3 (100Ω以下) 接地，以避免接地不良可能会造成的触电或火灾。
2. 慧盒V-BOX请使用DC24V电源。其他范围电源的接入，将可能导致部分参数或性能的不稳定，严重的可能导致机器损坏。

操作要求：

1. 慧盒V-BOX需配合相关编辑软件设计工程，未经二次开发的产品，可能会导致不正常的运转。
2. 请勿在开启电源情况下改变配线，否则可能造成触电或人员受伤。
3. 请勿以尖锐物品碰触面板，否则可能导致面板凹陷，从而使人机界面无法正常工作。

保养及检查：

1. 禁止接触人机接口内部，否则可能会造成设备损坏和触电。
2. 电源启动时，禁止拆下人机接口面板，否则可能会造成设备损坏和触电。
3. 电源关闭10分钟内，不得接触接线端子，残余电压可能造成触电。
4. 人机界面在操作时，排气孔不可封住，否则容易造成故障。

通讯线材要求：

1. 请依标准规格采用通讯配线线材。
2. 通讯线材长度需符合规定内。
3. 采用正确的接地回路，以避免通讯不良。

三、工作环境 Work environment

本产品在安装之前必须置于其包装箱内，若暂时不使用，为了使该产品能够符合本公司的保修范围及日后的维护，储存时务必注意下列事项：

1. 必须置于无尘垢、干燥之位置；
2. 储存位置的环境温度必须在-20°C to +70°C (-4°F to 140°F) 范围内；
3. 储存位置的湿度必须在10%到85%范围内，且无结霜；
4. 避免储存于含有腐蚀性气、液体之环境中；
5. 最适合包装存放在架子上或台面。

四、基本检测 Basic Detection

在使用慧盒V-BOX之前请做如下的基本检测：

一般检测：

1. 定期检查慧盒接口与设备连接处的螺丝是否有松动。
2. 排气孔应避免由水、或金属粉等异物侵入，且应防止电钻的切削粉落入盒子内。
3. 慧盒若设置于有害气体或多粉尘的场所，应防止有害气体与粉尘的侵入。

操作前检测（未供应控制电源）

1. 配线端子的接线部请实施绝缘处理。
2. 通讯配线应正确，否则可能发生异常动作。
3. 检查是否有异物进入慧盒内部，特别是螺丝或金属片等导电性物体、可燃性物体。
4. 慧盒V-BOX附近使用的电子仪器受到电磁干扰时，请使用仪器调校以降低电磁干扰。
5. 请确定慧盒接口的供应电源电压是否正确。

运转前检测（已供应控制电源）

1. 电源指示灯是否显示。
2. 与各设备之间通讯动作是否正常。
3. 产品接口若有异常现象，请与厂商联络。

五、产品的安装 Product installation

注意事项：

1. 安装方向必须依本说明书规定，否则会造成故障。
2. 为了使冷却循环效果良好，安装人机接口时，其上下左右相邻的物品和挡板（墙），必须保持足够的空间，以避免散热不良造成的设备损坏。
3. 使用type 4x 室内使用等级之外壳平面。

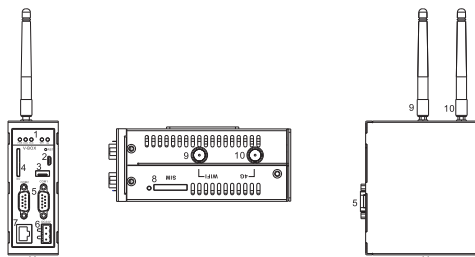
安装步骤：

1. V-BOX安装有两种模式：轨道式安装和壁挂式安装；
2. 确实将固定片螺丝组装入内，然后下方钩住前盖螺丝头顶住控制箱内顶；
3. 请以适合大小的扭力锁紧螺丝，切记不可以超过此力矩，否则将造成塑料外壳的损坏。扭力：6.17lb·inch (0.7NM)。

六、产品规格 Specifications

内容	型号	V-BOX
电源电压		DC24V
电源电压范围		DC24V±10%
容许瞬停时间		5ms以下
功率		10W以下
使用环境温度		-10°C ~ +60°C
保存环境温度		-30°C ~ +70°C
使用环境湿度		10% ~ 90%RH (无凝露)
保存环境湿度		10% ~ 90%RH (无凝露)
抗干扰		干扰电压：AC1000VP-P脉冲周期：11μs持续时间：1ns
耐压		AC500 20mA/小于1分钟 (电源端子与FG端子间)
绝缘阻抗		DC500V 20MΩ以上 (电源端子与FG端子间)
耐振动		符合IEC61131-2标准 连续振动场合:10Hz ~ 57Hz 0.075mm, 57Hz ~ 150Hz 9.8 m/s ² 不连续振动场合:10Hz ~ 57Hz 0.035mm, 57Hz ~ 150Hz 4.9 m/s ² X、Y、Z三个方向各10次 (80分钟)
耐静电		符合IEC61000-4-2标准:接触放电:4KV,空气放电:8KV
耐腐蚀		避免腐蚀性气体
冷却方式		自然风冷
保险丝额定值		3.15A/300V

七、产品的部件与功能 Parts and function



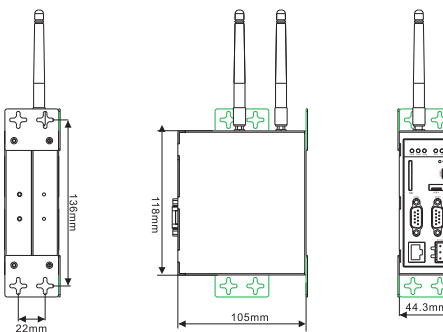
慧盒V-BOX外观部件图

1 指示灯	2 USB-B	3 USB-A	4 SD卡槽
5 COM口	6 电源口	7 以太网口	8 SIM模块(选配)
9 WIFI天线	10 4G天线(选配)	11 固定卡扣	

电源接口定义如下（按照上述图，从上到下）：

DC24V正极	DC24V负极	机壳地端
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八、产品的尺寸图 The size of product



九、接口定义 Interface definition

慧盒V-BOX的接口定义

COM1接口定义

引脚	定义	引脚	定义
1	RS422 TX+/RS485 A+	2	RS232 RXD
3	RS232 TXD	4	CANL
5	GND	6	RS422 TX-/RS485 B-
7	CANH	8	RS422 RX-
9	RS422 RX+		

COM2接口定义

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

▲注：

1. V-BOX的COM1口中RS422和RS485通讯方式不能同时使用。
2. 485通讯接口都是带隔离。

保修说明

产品维修时，请把此保修卡和所购产品一起妥善送（寄）回我公司维修部进行维修。注意事项：

1. 自您购买产品之日起，凡按照产品使用说明书安装使用，十八个月内本公司免费维修，十八个月之后维修只收取维修工本费。
2. 非本公司产品质量原因引起的维修，如使用不当、保管不妥、擅自拆机等原因造成的损坏，公司维修只收取维修工本费。

生产及售后服务地址：福建省福州市鼓楼区软件园E区10栋3楼。

服务电话：0591-87868869

传真：0591-87843899 邮编：350001

网站：www.we-con.com.cn we-con.en.alibaba.com

技术支持Q：800008806 维控论坛群:11983792

电话:0591-87868869

**产品维修前，请与我公司市场部联系，以便公司尽快安排维修事宜。
**本保修卡内容的最终解释权、修改权归福州富昌维控电子科技有限公司所有。

注意

本说明书内容若有变更，恕不另行通知，请谅解！
福州富昌维控电子科技有限公司

WECON Product Installation Manual

Part 1 General Notes

- ALL communication ports of V-BOX support RS232 and RS485 .
- The power ground must be connected to make the HMI 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 notice

- 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 combustible gas , otherwise it may cause short circuit or fire.

Wiring notice

- 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 notice

- V-BOX need related editor software to design project picture. HMI 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 box run abnormality.

Maintenance and inspection

- It's forbidden to touch inside HMI, or else it may lead to short circuit or device damage.
- When power, It's forbidden to dismantle HMI 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.

Wiring of communication wire

- 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.

- Must be placed place of no dust and dryness.
- The environment temperature of deposited place should in the range of -20°C to +60°C.
- Relative humidity of deposited place should in the range of 10% to 90% and be non-condensing.
- Avoid storing at the environment of caustic gas and liquid.
- It had better be packed propriety in the carcase or table-board.

Part 4 Basic Inspection

Please do following basic check before using V-BOX.

General inspection

- Examine whether the screw connecting V-BOX and device because flexible.
- Avoid oil, water or metal powder invading vent and keep electric drill powder away V-BOX.
- If V-BOX is placed the ground of having harmful gas or dust , you should avoid them invading.

Checking before operation power not supplied

- Please deal with connection division of wiring terminal insulated.
- Communication wiring should be correct , otherwise it may act abnormally.
- Examine whether there are conductive and flammable objects such as screws or metal pieces inside V-BOX.
- Please regulate instrument to reduce electromagnetism interference.
- Be sure that whether the voltage of V-BOX power is correct.

Checking before running power supplied

- Examine whether power indicator light displays.
- Whether action communication with device is in gear.
- Please contract with manufacture if there are exceptional phenomenon in V-BOX.

Part 5 Installation of PI series HMI

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.

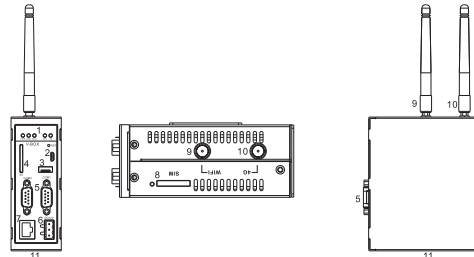
Installation steps:

- 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 tight screw aptly and remember not too strength, otherwise it will lead to crustaceous damage. Gnarl strength: 6.17lb-inch9(0.7N-M)

Part 6 Product standard

Module	V-BOX
Content	V-BOX
Power voltage	DC24V
Power voltage range	DC2V-DC24V
Instantaneous stop time	Below 5ms
Power	Below 10W
Temperature	-20°C ~ +60°C
Store temperature	-20°C ~ +70°C
Humidity	10% ~ 85%RH, non-condensing
Store humidity	10% ~ 85%RH, non-condensing
Anti-jamming	Interference voltage : AC1000VP-P pulse period: 11μs, duration: 1 ns
Pressure	AC500V 20mA below 1 minute between power terminal and FG terminal
Insulation impedance	AC500V above 20M between power terminal and FG terminal
Vibration resistance	Accord with IEC61131-2 standard: continuous vibration occasions: 10Hz-57Hz 0.0755mm, 57Hz-150Hz 9.8m/s ² discontinuous vibration occasions: 10Hz-57Hz 0.0035mm, 57Hz-150Hz 4.9 m/s ² each of X、Y、Z 10 times in 80 minutes
Static resistance	Accord with IEC61000-4-2 standard: contact discharge: 4KV, air discharge: 8kv
Corrosion	Avoid corrosive gas
Protection level	Equal in IP65(surface)
Cooling	Natural air cooling
Fuse rating	3.15A/300V

Part 7 Parts and function



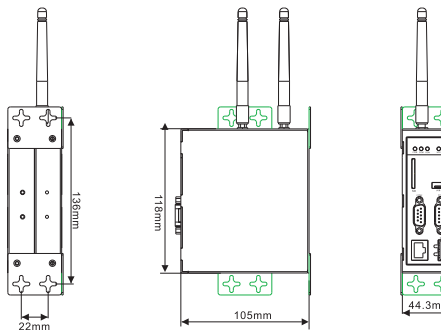
V-BOX Components description

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

Power supply interface is defined as the following according to view above from top to bottom:

DC24V anode	DC24V cathode	ground
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Part 8 The size of product



Part 9 Interface definition

V-BOX serie interface

COM1 definition:

Pin	Definition	Pin	Definition
1	RS422 TX+/RS485 A+	2	RS232 RXD
3	RS232 TXD	4	CANL
5	GND	6	RS422 TX-/RS485 B-
7	CANH	8	RS422 RX-
9	RS422 RX+		

COM1 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 :

- 1、RS422 and RS485 in COM port can not be used of V-BOX serie at the same time.
- 2、RS485 communication interface with isolation.

Warranty Description

Please send product and this warranty Card to our service department ,When maintenance product.

Notes:

1. According to prescription , the period for protecting to fix product is 18 months (From the day when you purchase). During this period, any belongs to under normal usage circumstance cause because of the product quality's problem of breakdown, our company will be responsible for giving free maintain.
2. Free maintain won't be given under the following circumstance :
(1) The breakdown caused by the manipulation that hasn't follow the requests of the Manual.
(2) The damage caused by the unauthorized disassemble.
(3) The damage caused by customer inappropriate preservation, maintain, or the usage.
(4) The breakdown and the damage caused by the Force majeure.
3. Service Address: Floor 3-4st, NO.10, E district, software park of Fu Zhou.
Phone: +86-0591-87868869 Fax: 0591-87843899 Code: 350002
E-mail: dengchenlin@we-con.com.cn

Website: <http://www.we-con.com.cn> we-con.en.alibaba.com
* * Please contact our marketing department before the product is repaired so that the company can arrange maintenance as soon as possible.

* * The final interpretation of the content of this warranty , the right to change to Wecon Technology Co., Ltd. All Rights Reserved.

Notice

Please forgive that the contents of the manual may be changed without notice.