

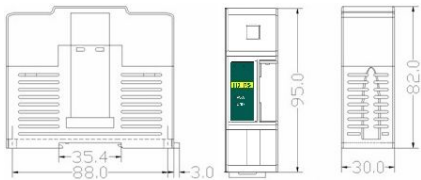


H01ZB 通讯模块使用说明书

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一、产品型号及外观

型 号	功率(24VDC)	外形尺寸
H01ZB	0.4VA	30*95*82mm



二、指示灯说明

- 1、POW：电源指示灯，绿色。常亮 - 电源正常；不亮 - 电源异常。
- 2、LINK：绿色常亮 - 模块与 PLC 主机连接正常；绿色闪烁 - 模块与 PLC 主机交互数据；红色闪烁 - 固件不完整。
- 3、COM：网络指示灯，红色。常亮 - 已加入网络；普通闪烁 - 搜寻与组建网络（亮 250ms，灭 250ms）；快速闪烁 - 从空中接收到数据（亮 30ms，灭 30ms）。

三、规格参数

项 目	规格参数
供电方式	主机扩展口供电
环境温度	工作温度：0~+55 ℃；储存温度：-25~+70 ℃
工作频率	2.4~2.5GHz
发射功率	+14dBm
接收灵敏度	-95 dBm
中继(路由)级数	默认最大 6 级
协议转换	Zigbee<=>modbus
最大通讯速率	38400bps
使用信道数	6 个
PANID 范围	1~31
最大网络容量	65535 个
可靠传输距离	150m（空旷可视环境）
ZigBee 协议版本	ZigBee Pro
网络类型	Mesh
节点类型	协调器、路由器
天线接口类型	SMA

四、模块功能说明

H01ZB 是一款用于支持 PLC 主机间无线通信的扩展模块。扩展了该模块的主机可使用 MODR/MODW 指令来实现无线方式的读写通信。一台主机最多可扩展 3 个通讯接口(所用扩展模块型号可为 H01ZB 或者 S01RS 等通讯扩展模块)。

五、组网步骤

- 1、将 H01ZB 模块挂接在 PLC 主机的扩展插槽（或者其它挂接在主机后面模块的扩展插槽）。具体详见后面第六节模块连接方法的介绍。
- 2、配置 PLC 主机的地址(可通过主机拨码开关)，使之地址值在网络内唯一。
- 3、选择网络内任意一个 H01ZB 模块担当 Zigbee 协调器身份：方法是将该模块拨码开关第 6 位拨到“ON”。而同一网络内的其他模块拨码开关第 6 位拨为“OFF”，作为路由器。详见第七节的示意图及介绍。
- 4、拨动网络内所有 H01ZB 模块的拨码开关 1~5 位到同一个数值（用作网络 PANID，范围 1~31）。用户需组建

多个不同网络时，依靠拨码开关值来区分。

5、上电后模块将自动进行搜寻组网。未建立/加入网络时，模块的 COM 指示灯将进行周期闪烁；建立/加入网络后，COM 灯保持常亮。

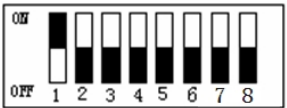
6、使用 PLC 主机的 modbus 通信指令(MODR/MODW)来读写网络内其它主机。

六、模块连接方法

扩展模块与主机间或扩展模块间的连接是用总线方式实现的，每一个扩展模块上都有一根用于连接到上一个模块的扩展连接线。打开前一个模块的小翻盖，将要接入的模块的扩展连接线接头插入到前一个模块的扩展接口中，插牢后将前一个扩展模块的小翻盖合上使其复位。

七、拨码开关的设定

如右图所示，为位于 H01ZB 模块一端的 8 位拨码开关，拨码开关的前五位 1~5 为用于设定网络 ID，**拨码开关第六位为协调器/路由器开关，当拨到 ON 时，便决定此模块为协调器，而同一网络的其他模块则只能拨到 OFF，作为路由器。**拨码开关的第 7 位第 8 位为无效数值。



当用户要设定网络 ID 时，修改方法如下：图中黑色部分表示拨码开关的位置，把其中的一位拨到 ON 时表示该位为 1，拨到 OFF 时表示该位为 0，上图中第 1 位为 ON，2~5 位为 OFF，反映到 ID 号时，用二进制表示：拨码开关的第 1 位表示二进制的第 0 位（b0），拨码开关的第 5 位表示二进制的第 4 位（b4），由此，拨码开关前 5 位可用于表示二进制的数从 00000 ~ 11111，把二进制数转化为十进制数后即网络 ID 号。如上图所示的拨码开关的位置表示 00001，即十进制数为 1，表示网络 ID 号为 1；合法的网络 ID 为 1~31。

八、固件升级说明

升级完固件后模块将会进入固件完整性检查状态，此状态将会花费一两分钟时间，检查结果为完整后模块将自动正常运行。若此时掉电，则模块下次上电将重新进行固件完整性检查。

九、使用注意事项

- 1、组网的时候严格按照第五点的说明组网步骤顺序进行。
- 2、一个网络只能有一个协调器，当有一个模块的拨码开关第 6 位拨为“ON”作为协调器时，其他模块必须将拨码开关第 6 位保持在“OFF”状态（此时网络身份为路由器）。
- 3、支持同一网络内多台主机间互相读写访问，但是当有两台或者两台以上主机同时访问同一台主机时，将会造成通讯异常。

十、模块的安装

导轨安装方式

与 H01ZB 相配的导轨规格：标准 35mm 导轨。

螺丝安装方式

每台通讯隔离模块均有两个螺丝定位孔，其孔径为 4.5mm，定位孔的位置请参考产品外型尺寸图，两个定位孔的中心间距为 91mm。

感谢您选用 Haiwell PLC，若您对我们的产品或服务有问题或不足之处，敬请告诉我们！
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User's Manual of H01ZB communication module

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1. Product Model List

Model	Power Consumption (24VDC)	Dimension
H01ZB	0.4VA	30*95*82mm



2. Indicator Description

- ① POW: Power indicator, green. ON - Power good; OFF - Power error.
- ② LINK: Green continuous ON - Module and PLC connected properly, Green Flickering - Module and PLC are exchanging data, Red Flickering - Firmware incomplete.
- ③ COM: Network indicator, red. Continuous On - It has joined the network; Slow flashing - It is searching and networking (250ms ON and 250ms OFF); Rapid flashing - it is receiving data (30ms ON and 30ms OFF).

3. Specifications

Item	Specification
Power supply	The host extension power supply
Environment temperature	Operating temperature: 0~+55℃ Storage temperature: -25~+70℃ Humidity: 5~95%RH, No condensation
Operating Frequency	2.4~2.5GHz
Transmit Power	+14dBm
Receiver sensitivity	-95dBm
Allowed relay (routing) Number	Up to 6 by default
Protocol conversion	Zigbee<=>modbus
Maximum communication rate	38400bps
The number of channels	6
PANID range	1~31
The largest network capacity	65535
Reliable transmission distance	150m (No hinder, linear distance)
ZigBee protocol version	ZigBee Pro
Network type	Mesh
Node types	The coordinator, routers
Antenna type	SMA antenna

4. Module Function Specification

H01ZB is an expansion modules used for supporting wireless communication among the PLC hosts. With this module, the PLC can use MODR/MODW instructions to communicate with each other in a wireless way. A host can be extended up to three communication interfaces (expansion modules could be H01ZB or S01RS communication expansion module).

5. Networking Steps

- Attached the H01ZB module to the PLC host's expansion slot (or other module's expansion slot which attached to the PLC). For specific please see the section VI behind - Module Connection Methods.
- Configure the host PLC address (through the DIP switch), ensure that the address are unique within the network.
- Choose one of the H01ZB Zigbee modules within the network (anyone will be fine but just only one)

serves as the coordinator. The method is: Dialed the sixth position of DIP switch to "ON", the other modules on the same network serve as routers, the same position can only be dialed to "OFF". See the illustration and presentation of Section VII.

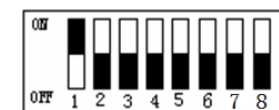
- For all modules within the network, the 1 to 5 position of the DIP switches should be set to the same value (as the network's PANID, ranging from 1 to 31).
- After power up, the module will automatically search network. If not join the network, COM indicator will periodically flashes; after joining the network, COM indicator stays on.
- Use the Modbus communication instruction (MODR/MODW) to read or write other hosts in the network.

6. Module Connection Methods

The connection between expansion modules and the host or between expansions module are realized through Bus. Each expansion module has a cable to connect to its front module. Open the front module's small flip, insert the cable into the expansion connector, Ensure firmly seated, closed the small flip.

7. Set The Address

As was shown in the right picture, the H01ZB module's eight positions DIP switches, The top five positions of DIP switches(1-5) is used for setting the network ID, **the DIP switches sixth position as a coordinator / router switch, when dialed to "ON", we decided this module as coordinator, and the others in the same network serve as routers can only be dialed to "OFF"**. DIP switch's 7 and 8 positions is invalid.



When users want to set the network ID, as follows: The black part in the picture represents the position of the DIP switch, dialed one of them to "ON" indicates this bit is 1, while t dialed to "OFF" indicates the bit is 0. In the above picture the first one is "ON", 2 ~ 5 is "OFF", reflected to the ID number, in binary: DIP switch first position represents LSB(b0), the 5th represents MSB (b4). Thus, The top five represent a binary number from 00000 ~ 11111, converted the binary number to decimal to obtain the network ID number. The DIP switch positions in the picture above indicates 00001, that is decimal number 1, indicating that the network ID number is 1; legitimate network ID ranging from 1 to 31.

8. The firmware upgrade instructions

After upgrading the firmware modules will enter a state of firmware integrity check, at this time it will take a minute or two time, test results for the complete module will automatically run normally. If break power supply at this time, the next time will continue when turning on the power supply module firmware integrity check.

9. Precautions For Use

- In strict accordance with the instructions of the fifth form a network.
- One network can only have one coordinator, when there is a module servers as the coordinator (the DIP switch's sixth position dialed to "ON"), the other modules must be dialed to "OFF" state (serves as routers).
- Allow multiple hosts access across each other in the same network, but when there are two or more than two hosts access the same host, will result in communication error.

10. Mounting And Installation

Rail Mounting: Use standard 35 mm rail.

Screw Mounting: Each communication isolation module has two positioning screw holes, the diameter of the hole is 4.5mm. Please refer to the dimension figure for the location of the positioning holes and their spacing.

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