

700



AWT100-AP/WFH AWT100-STA/WFH Wi-Fi 数据转换器  
AWT100-AP/WFH AWT100-STA/WFH Wi-Fi Data Converter

安装使用说明书 V1.0  
Installation and Operation Instructions

安科瑞电气股份有限公司

Acrel Electric Co., Ltd.

## 申明

### Statement

版权所有，未经本公司之书面许可，此手册中任何段落、章节内容均不得摘抄、拷贝或以任何形式复制、传播，否则一切后果由违者自负。

All rights reserved. Without the written permission of the Company, any paragraph or section of this manual shall not be extracted, copied or reproduced or distributed in any form. Otherwise, all consequences shall be borne by the violator.

本公司保留一切法律权利。

The Company reserves all legal rights.

本公司保留对本手册所描述之产品规格进行修改的权利，恕不另行通知。订货前，请垂询当地代理商以获悉本产品的当前规格。

Our Company reserves the right to modify the product specifications described in this manual without further notice. Please consult your local agent for the current specifications of this product before placing an order.

## 安全信息

### safe Information

这份手册并未包含操作设备（模块、设备）的所有安全措施，因为特殊的操作条件、当地的法规要求或规定可能需要采取进一步的措施。然而，它包含了一些必须阅读的信息，这些信息关系到您的人身安全和避免物质损害。这些信息通过一个警告三角形来强调，并根据潜在危险的程度如下表示。

This manual does not contain all of the safety measures for operation of the equipment(module, device),because special operating conditions, and local code requirements or regulations may necessitate further measures. However,it does contain information which must be read for your personal safety and to avoid material damages. This information is highlighted by a warning triangle and is represented as follows, depending on the degree of potential danger.



“危险”表示一种危险的情况，如果不加以避免，将导致死亡或重伤。  
不遵循这些说明将导致死亡或重伤。

DANGER indicates a hazardous situation which, if not avoided, will result indeath or serious injury.  
Failure to follow these instructions will result in death or serious injury.



“警告”表示一种危险的情况，如果不加以避免，可能导致死亡或重伤。

WARNING indicates a hazardous situation which, if not avoided, could resultin death or serious injury.



“小心”表示一种危险的情况，如果不加以避免，可能导致轻度或中度伤害。

CAUTION indicates a hazardous situation which, if not avoided, could result inminor or moderate iniury.

# 目 录

## Contents

1 概述 .....	1
1 Overview .....	1
2 型号说明 .....	1
2 Description of Model .....	1
3 功能列表 .....	1
3 List of Functions .....	1
4 典型应用 .....	2
4 Typical Applications .....	2
5 技术参数 .....	2
5 Technical Parameters .....	2
6 外形尺寸 .....	4
6 Overall Dimensions .....	4
7 接线与安装 .....	5
7 Connection and Installation .....	5
7.1 通讯端子 .....	5
7.1 Communication Terminal .....	5
8 指示灯 .....	5
8 Indicator lights .....	5
8.1 指示灯说明 .....	5
8.1 Indicator light description .....	5
9 按键说明 .....	6
9 Key description .....	6
10 通信说明 .....	6
10 Communication Instructions .....	6
11 常见故障分析 .....	6
11 Common Fault Analysis .....	7
11.1 通讯故障 .....	7
11.1 Communication Failure .....	7

# 1 概述

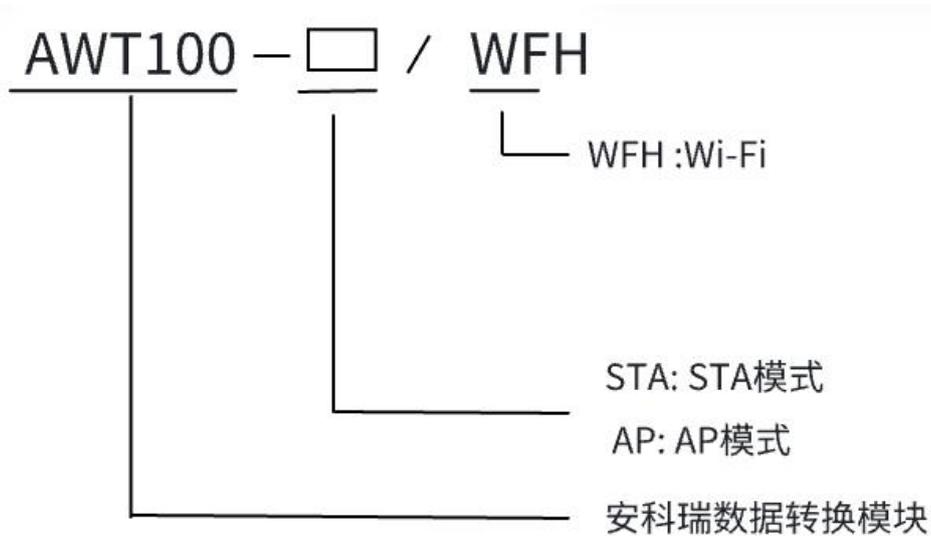
## 1 Overview

AWT100-AP/WFH、AWT100-STA/WFH 是一款符合 IEEE802.11 ah 标准的 Wi-Fi 数据转换模块，AWT100-STA/WFH 工作在 STA 模式，AWT100-AP/WFH 工作在 AP 模式，两者组网，可以实现点对点或一点到多点间的无线数据传输。支持 730MHZ-950MHZ 频段，与 2.4GWiFi 相比，传输距离更远。适用于无线抄表、楼宇自动化与安防、电力负荷监控等行业领域。

AWT100-AP/WFH and AWT100-STA/WFH are Wi-Fi data converter modules compliant with the IEEE 802.11ah standard. The AWT100-AP/WFH operates in STA mode, while the AWT100-AP/WFH functions in AP mode. When networked together, they enable point-to-point or point-to-multipoint wireless data transmission. Supporting the 730MHz-950MHz frequency band, they offer a longer transmission range compared to 2.4GHz Wi-Fi. These modules are suitable for a wide range of industrial applications, including Automatic Meter Reading、Building Automation and Security and Power Load Monitoring etc.

## 2 型号说明

### 2 Description of Model



## 3 功能列表

### 3 List of Functions

- 物理吞吐量 150kbps 至 3.5Mbps，满足低速传感器到高速图像数据传输要求；  
The physical throughput ranges from 150 kbps to 3.5 Mbps, meeting the data transmission requirements for applications from low-speed sensors to high-speed image data.
- 采用信道冲突评估(CCA)和载波侦听多路访问/冲突检测机制 (CSMA\_CD) 进行信道接入避让。  
Channel access backoff is implemented using Channel Conflict Assessment (CCA) and Carrier Sense Multiple Access with Collision Detection (CSMA/CD) mechanisms.

- 自动频率选择，自动频率控制；

The system utilizes Automatic Frequency Selection and Automatic Frequency Control to maintain optimal signal connectivity and stability.

- 支持低功耗。  
Supports Low Power Consumption.
- 支持中继、漫游；  
Supports Relay and Roaming.
- 支持组播；  
Supports Multicast.

## 4 典型应用

### 4 Typical Applications

网关和 AWT100-AP/WFH 串口连接，仪表和 AWT100-STA/WFH 串口连接，网关抄表指令通过串口径 AWT100-AP/WFH 和 AWT100-STA/WFH 建立的无线 WIFI 通道透传给 AWT00-STA/WFH 的串口给仪表，仪表的数据报文通过相反路径传递给网关；

The gateway is connected to the AWT100-AP/WFH via a serial port, and the meter is connected to the AWT100-STA/WFH likewise. Meter reading commands from the gateway are transmitted transparently through the serial port to the AWT100-AP/WFH, then over the established wireless Wi-Fi link to the AWT100-STA/WFH, and finally forwarded via its serial port to the meter. Meter data packets follow the reverse path back to the gateway.

## 5 技术参数

### 5 Technical Parameters

项目 Item	AWT100-AP/WFH	AWT100-STA/WFH
尺寸(LxWxH) Dimensions	18mm x 125mm x70mm	
<b>通信接口</b> Communication Interface		
<b>串口</b> Serial Interface		
接线端子 Terminal	RJ45	
波特率 Baudrate	2400bps-115200bps	
<b>WIFI</b>		
天线接口 Antenna Interface	50 欧姆/SMA (母头) 50 Ohm / SMA Female	
WI-FI 协议 Protocol	802.11ah	
工作频率 Operating Frequency	902MHz-928MHz 859MHz-894MHz	
安全机制 Security	WPA2-PSK	
加密类型 Encryption	AES	
通信距离 Range	200 米 Up to 200 meters	
漫游 Roaming	-	支持 Support
中继 Relay	-	支持 Support
组播 Multicastt	支持 Support	支持 Support

表 2 技术参数说明  
Table 2: Technical Specifications

电源要求	
Power Requirements	
电源 Power	AC220V
功耗 Power Consumption	≤ 3W
环境要求	
Environment	
操作温度 Operating temperature range	-20°C~+55°C
储存温度 Storage temperature	-40°C~+85°C
湿度范围 Relative humidity	<95%RH, 不结露, 不适用于潮湿环境 ≤95% (without condensation) "Not suitable for damp environments"
IP 等级 IP rating	正面: IP51 (室内); 整体: IP20。 IP20 on terminal strip without protective housing and IP51 in protective housing, per IEC 60529
污染等级 Pollution Degree	II
UC 等级 UC Degree	III
安装环境 Installation environment	室内 Indoor use

表 2 技术参数说明(续)

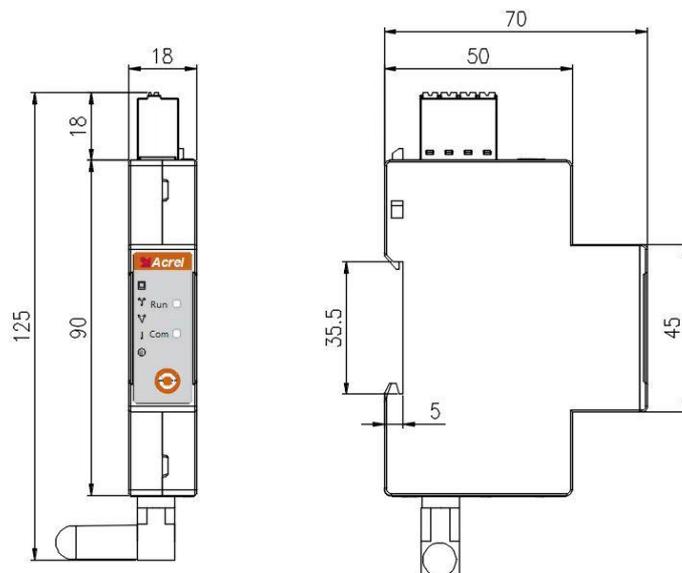
Table 2: Technical Specifications (Continued)

## 6 外形尺寸

### 6 Overall Dimensions

仪表尺寸 (单位: mm)

Instrument Dimensions (Unit:mm)



注：尺寸的公差为 1mm。

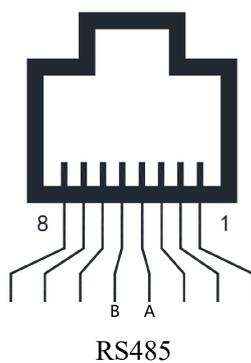
Note: The tolerance of the dimensions is 1mm.

## 7 接线与安装

### 7 Connection and Installation

#### 7.1 通讯端子

#### 7.1 Communication Terminal



## 8 指示灯

### 8 Indicator lights

#### 8.1 指示灯说明

#### 8.1 Indicator light description

指示灯名称 Indicator name	说明 illustrate
RUN	绿色慢闪 初始状态 绿色快闪 WiFi 正在入网 绿色常亮: WiFi 入网成功

	红色闪烁：485 端收到报文 Green Slow Blink: Initial State Green Fast Blink: Wi-Fi Connecting Green Solid: Wi-Fi Connected Red Blink: RS-485 Data Received
COM	红色闪烁：Wi-Fi 发送数据 绿色闪烁：Wi-Fi 收到数据 Red Blink: Wi-Fi Transmitting Data Green Blink: Wi-Fi Receiving Data

## 9 按键说明

### 9 Key description

短按切换自动配网模式，长按切换 AP 模式和 STA 模式。

A short button press is used to enter or leave auto-provisioning mode.

A long button press is used to switch between AP mode and STA mode.

## 10 通信说明

### 10 Communication Instructions

网关的通信接口支持 MODBUS-RTU 通信协议，通信口波特率可在 1200bps、2400 bps、4800 bps、9600bps、19200 bps 和 38400 bps 之间设置，校验位为无校验。

The gateway's communication interface supports the MODBUS-RTU protocol. The baud rate for the communication port is configurable and can be set to 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, or 38400 bps, with the parity bit set to None.

网关的 RS485 通信口要求使用屏蔽双绞线连接，布线时要考虑整个网络的布局：如通信线缆的长度、走向、上位机的位置、网络末端的匹配电阻、通信转换器、网络可扩展性、网络覆盖范围、环境的电磁干扰情况等因素，都要综合考虑。

The gateway's RS-485 communication port requires a shielded twisted-pair (STP) cable for connection. When planning the cabling, the entire network layout must be comprehensively considered, factoring in elements such as cable length, routing, host computer location, terminating resistors at network ends, communication converters, network scalability, coverage area, and ambient electromagnetic interference (EMI).

RS-485 总线长度不超过 1000 米。

The RS-485 bus length shall not exceed 1000 meters.

## 11 常见故障分析

## **11 Common Fault Analysis**

### **11.1 通讯故障**

#### **11.1 Communication Failure**

(1) RS485 通讯方式通讯故障时：检查通讯接线是否正确，A、B 是否接反。

For RS-485 communication faults: Verify correct wiring and check for reversed A/B lines.

(2) Wi-Fi 通讯方式通讯故障时：检查 Wi-Fi 账号密码等参数配置是否正确。

For Wi-Fi communication faults: Verify the configuration of Wi-Fi parameters (e.g., SSID and password).

总部：安科瑞电气股份有限公司

地址：上海市嘉定区育绿路 253 号

邮编：201801

生产基地：江苏安科瑞电器制造有限公司

地址：江苏省江阴市南闸街道东盟工业园区东盟路 5 号

电话：0086 - 188 6162 8731

网址：www.acrel-electric.uk

邮箱：elsie.ren@email.acrel.cn

邮编：214405

Headquarters: Acrel Co., Ltd.

Trade Company: Acrel E-Business(Shanghai)Co., Ltd.

Address: No.253 Yulv Road, Jiading District, Shanghai, China

Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., Ltd.

Address: No.5 Dongmeng Road, Dongmeng industrial Park, Nanzha Street, Jiangyin City, Jiangsu Province, China

MP./WhatsApp: 0086 - 188 6162 8731

Web-site: www.acrel-electric.uk

E-mail: elsie.ren@email.acrel.cn

Postcode: 214405