# Model: UT-930 (Wireless zigbee transfer RS232/485/422)

# **Product Operating Instructions**





# **I. Applications**

Small data size (within 100 characters) transmission. Sending and receiving interval is above 100ms.

# **II.** Test Steps

Modify the UT-930 parameters with serial port debuger.

Set the UT-930 equipment connecting with PC as the central node and other equipment as transitroute node. The wireless frequency point and network ID of the central node and transitroute node must be the same. (The configuration method is as indicated below) Connect UT-930 equipment with PC (confirm that the interface is selected correctly).

# **III.** Configuration Method

1. Enter into the light disk and open the serial port debugging software.



After the settings of serial port debugging software, press CFG button for 3-5 seconds and then the following interface will show (different software version will have different interfaces)

1 SSCOM 3.2 (Author: Nie Xiaopan (Dingding), hor	nepage: http	://www.mcu	51.com,	
Ver: 4.4—00 Please Select Language 1.Chinese 2. English				<
Please input safety code: SHUNCOM				
0	Send file	1		<u></u>
Open file File name		Save window	·	HEX display
Serial port COM1  Close serial port Help	ww	W. MCU5	1.COM	Extend
Data hit 9 - Scheduled 1000 ms/ times		ample plate registration	owest price is 50 yuan/p page, support Taobao p	South States and State
Stop bit 1 THEX sending Send new line		ia com/pen/ it Daxia Forum in daxi	a website!!	
Flow Mana	★ Click here can	firectly enter into www	.daxia.com/bibis	
	[1 opened 3	8400bns 8 1	CTS=0 DSR=0	RISD=0

After selecting the language, there will be the prompt as please input safety code and the safety code is SHUNCOM

After the settings, press E to display module properties. If you need to modify parameters, select



A SSCOM 3.2 (Author: Nie Xiaopan (Dingding), ho	mepage: http	://www.mcu51.com,	
6. Wireless frequency point 7. Address coding 8. Se	ode type ending mode onfiguration d	4. Network type 5. Netv 9. Baud rate A Chee display F. Data source addr	k
Open file File name	Send file	Save window Clear window	HEX display
Serial port COM1  Close serial port Help	www	N. MCU51.COM	Extend
Baud rate 38400  Data bit 8 Scheduled Stop bit 1 Check bit None	Click to enter as thttp://www.daxi	CB sample plate, the lowest price is 50 yuan/pi mple plate registration page, support Taobao pa ia.com/pcb/ it Daxia Forum in daxia website!! firetly enter into www.daxia.com/bibis	and the providence of the second s
Flow control None			

### Cautions

If you press CFG for 3-5 seconds, the PWR light will be normally on. The NET light and ALM light will be flashed at the same time which indicates that it has already entered into configuration status. If the above interface doesn't show in the serial port debugging software, then:

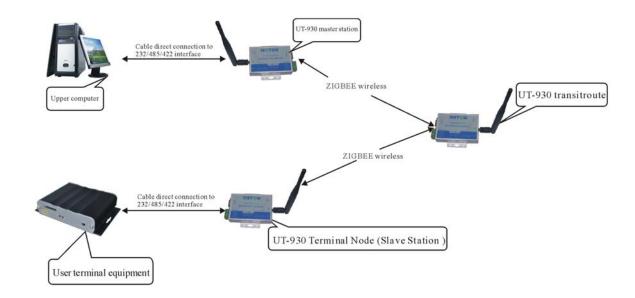
(i) Confirm the equipment port is selected correctly.

(ii) Confirm the serial port is selected correctly.

(iii) Confirm the 232, 485 and 422 wiring is wired correctly. 485 and 422 wire shall not be connected reversely.

(iv) Corresponding serial port should be selected for serial port debugging software.

# **IV. How to Connect**



# **Equipment Connection Diagram**



# **V. Configuration Scheme**

Note: communication among modules. The network ID and wireless frequency point must be the same. The address coding, baud rate, check bit and data bit must be the same with those in the user terminal equipment.

Node address: the address of central master station is fixed to be 0000 and the address of transitroute and terminal node can be randomly set between 0001 to FFFF.

#### 1. Transparent transmission

The sending mode of central master station is broadcasting and that of slave station is master and slave which can increase data sending efficiency.

No output of data source address.

#### Master station:

Slave station:

SHUNCOM Z-BEE CONFI	G:		SHUNC
Node address: 0000			Node ad
Node name: utek Star Ne	twork		Node na
Network ID: 01			Network
Wireless frequency point: 04	Ļ		Network
Address coding: HEX			Wireless
Sending mode: broadcasting			Address
Baud rate: 9600			Sending
Check: None			Baud rat
Data bit: 8+0+1			Check: N
Data source address: no outp	out		Data bit:
Please select setting paramet	ers:		Data sou
1. Node address	2. Node name	<ol><li>Node type</li></ol>	Please se
4. Network type 5. Network	etwork ID		1. Node
6. Wireless frequency point	<ol><li>Address coding</li></ol>	<ol><li>Sending mode</li></ol>	4. Netwo
9. Baud rate A Che	ck		6. Wirele
B Data bit	D Equipment rest	art E. Configuration	9. Baud
display F. Data source add	dress		B Data
SHUNCOM>			display

COM Z-BEE CONFIG: ddress: CA92 ame: utek Node type: transitroute k type: Star Network k ID: 01 ss frequency point: 04 s coding: HEX g mode: broadcasting ate: 9600 None t: 8+0+1 ource address: no output select setting parameters: address 2. Node name 3. Node type 5. Network ID ork type less frequency point 7. Address coding 8. Sending mode rate A Check D Equipment restart E. Configuration bit F. Data source address SHUNCOM>

#### **Examples:**

ComMaster (Conlast	ter)1.1 For	Vin2k/1	(P						ComMaster (ConTas	ter)1.1 Fo	Vinž	₽k/XP						
Debuger	Tester	N	Ionitor	Fi	lter	Helpe	r		Debuger	Tester	1	Monitor	1	Filter	1	Helper	1	
rial port CCM1 👻								~	Serial port CCM1 -	1236547890								
ad rate 9600 -									Buad rate 9600 -	1236547890								
ata bit 8 🔹									Data bit 8 •	1236547890								
neck bit MC 💌									Check bit 10 -	1236547890 1236547890								
										1236547890 1236547890								
Advanced									Stop bit 1 •	1236547890								
option									option	1236547890 1236547890								
Close serial									Close serial	1236547890 1236547890								
port									port	1236547890 1236547890								
display Clean display									Stop display Clean display	1236547890								
lexadecimal Re-display									Hexadecimal Re-display	1236547890 1236547890								
lect file Save data									Select file Save data	1236547890 1236547890								
file selected!								12	Mc file selected!	1236547890								
	1							<u>09</u>		1								_
Send Fexadecimal	:23456*890							~	Send   Hexadecima	a								
Period sending 100 WS									Period sending 100 WS									
ect fild Send file									Select fild Send file									
ile selected!									No file selected!	-								

#### 2. Sent according to target address



#### UTEK TECHNOLOGY (SHENZHEN) CO., LTD.

The sending mode of both master station and slave station is master-slave. The slave address must be added in front of the data sent by the master station while the address is not required for the data sent by the slave station. No output of data source address.

#### Master station:

#### **Slave station:**

SHUNCOM Z-BEE CONFIG:	SHUNCOM Z-BEE CONFIG:
Node address: 0000	Node address: BCA8
Node name: utek Node type: transitroute	Node name: utek Node type: transitroute
Network type: Star Network	Network type: Star Network
Network ID: 01	Network ID: 01
Wireless frequency point: 04	Wireless frequency point: 04
Address coding: HEX	Address coding: HEX
Sending mode: master-slave	Sending mode: master-slave
Baud rate: 9600	Baud rate: 9600
Check: None	Check: None
Data bit: 8+0+1	Data bit: 8+0+1
Data source address: no output	Data source address: no output
Please select setting parameters:	Please select setting parameters:
1. Node address 2. Node name 3. Node type	1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID	4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode	6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check	9. Baud rate A Check
B Data bit D Equipment restart E. Configuration	B Data bit D Equipment restart E. Configuration
display F. Data source address	display F. Data source address
SHUNCOM>	SHUNCOM>

#### **Examples:**

Sent by master station:	Received by slave station:
ComMaster(ComMaster)1.1 For Win2k/XP	🔀 😓 ComiMaster(ComMaster)1. 1 For Vin2k/XP
Debuger   Tester   Monitor   Filter   Helper	Debuger Tester Monitor Filter Helper
Serial port Buad rate 9600 Data bit 8 Check bit R0 Stop bit 1 Close serial port Stop display Clean display Henadecimal Re-display Select file Save data Bc file selez:eci	Serial port       1232547890         Buad rate 9600       1232547890         Data bit 8       1232547890         1232547890
Send Headcoins Period Sending 100 WS Select file selectal! 372 KTS ICE CTS II CD No signal Priming Check Sent out Receive out 115: 883 Recount Priming Check Sent out Receive out Recei	Send Hexadecimal Period sending 100 WS Select file Send file No file select 21 TE KTS 105F CTS LT CD No signal Priming Check Sent out. Receive out TX: 0 KT 258 Recount Operating Exit

In this mode, only the slave station can receive data. As a result, when the user terminal equipment can't distinguish which equipment the data will be sent to, this mode may be adopted. The UT-930 terminal node is used to distinguish data receiver.

#### 3. Point to point transmission

The sending mode of both master and slave modes is point to point. The target address must be added in the front of all sent data.

No output of data source address.



#### **Master station:**

SHUNCOM Z-BEE CONFIG		
Node address: 0000	•	
Node name: utek Node typ	e transitroute	
Network type: Star Network	e. transitioute	
Network ID: 01		
Wireless frequency point: 04		
Address coding: HEX		
Sending mode: point to point		
Baud rate: 9600		
Check: None		
Data bit: 8+0+1		
Data source address: no output	t	
Please select setting parameter	rs:	
1. Node address	2. Node name	<ol><li>Node type</li></ol>
4. Network type 5. Net	work ID	
6. Wireless frequency point	7. Address coding	8. Sending mode
9. Baud rate A Check	k	0
B Data bit	D Equipment rest	art E. Configuration
display F. Data source add	1 1	U
SHUNCOM>		

#### Slave station:

SHUNCOM Z-BEE CONFIG:
Node address: BCA8
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: point to point
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration
display F. Data source address
SHUNCOM>

### **Example:**

Sent by master station:

## Received by slave station:

t, ComMaster(ComTaster)1.1 For Ψin2k/ΣΡ		🔀 🖏 ComMaster(ComMaster) i. i For Vin2k/XP
Debuger   Tester   Monitor   Filter   Helper		Debuger   Tester   Monitor   Filter   Helper
Serial port Buad rate 900 Data bit Check bit NO Stop bit Check bit Data bit Check bit NO Check bit NO Close serial port Close serial port Stop display Clean display Hexademia Re-display Select file Salezzeit Send Hexademia Select file Send file Select file Send file	8 8 8	Serial port       57: 93 01 22 45 67 80 11 22 45 67 80 01 23 15 67 90 01 22 45 67 80 01 23 45 67         Buad rate       9000         Data bit       6         Observation       80 12 34 57 80 11 22 45 77 80 11 22 45 77 80 11 23 45 67 80 11 23 45 77         Data bit       6         Observation       80 12 34 57 80 11 22 45 77 80 11 23 45 77 80
No file selected!	2	30 file selected!
DTE KTS ISF CIS EI CD         No signal Framing error         Check error         Sent out Receive out error         TX: 35327 RX: 265         Recount         Operating help	<sup>ng</sup> Exit	JTE KTS DEF CIS EI CD No signal Framing error Sent out Receive out TX: 238 Recount Account Receive out RX: 25

## Sent by slave station:

## Received by master station:

ComMaster(ComMaster)1.1 For Win2k/XP	ComMaster(ComTaster)1.1 For Vin2k/XP
Debuger Tester Monitor Filter Helper	ComMaster(Collaster)1.   For Vin2k/XP
Serial port	Serial port       11       23       45       67       69       01       23       45       67       39       01       22       45       67       69       11       23       45       67       39       01       22       45       67       69       11       23       45       67       39       01       22       45       67       69       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11       23       45       67       39       11
Send Wensteinal Period 100 WS Select file Send file No file selectal DTE KTS DEF CTS 21 (D) No signal Priming Check Sent out Receive out TX: 33433 Recount Priming Check Sent out Receive out TX: 33433 Priming Priming Priming Check Sent out Receive out TX: 33433 Priming Priming Priming Check Sent out Receive out TX: 33433 Priming Priming Primin	Send Period Period Select file Select f



## 4. Output of data source address

Allowable in the sending modes of broadcasting, master-slave and point to point.

Output of master station data source address (select ASCII or HEX as per actual situations), no output in slave station.

#### Master station:

#### Slave station:

SHUNCOM Z-BEE CONFIG:	SHUNCOM Z-BEE CONFIG:
Node address: 0000	Node address: BCA8
Node name: utek Node type: transitroute	Node name: utek Node type: transitroute
Network type: Star Network	Network type: Star Network
Network ID: 01	Network ID: 01
Wireless frequency point: 04	Wireless frequency point: 04
Address coding: HEX	Address coding: HEX
Sending mode: broadcasting	Sending mode: broadcasting
Baud rate: 9600	Baud rate: 9600
Check: None	Check: None
Data bit: 8+0+1	Data bit: 8+0+1
Data source address: no output	Data source address: no output
Please select setting parameters:	Please select setting parameters:
1. Node address 2. Node name 3. Node type	1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID	4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode	6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check	9. Baud rate A Check
B Data bit D Equipment restart E. Configuration	B Data bit D Equipment restart E. Configuration
display F. Data source address	display F. Data source address
SHUNCOM>	SHUNCOM>

## **Example: ASCII output**

Sent by slave station:	Received by master station
🎝 ComMaster(ComMaster)1.1 For Vin2k/XP	ComMaster(ComMaster)1.1 For Vin2k/XP
Debuger Tester Monitor Filter Helper	Debuger   Tester   Monitor   Filter   Helper
Serial port Buad rate 9600 • Data bit 8 • Check bit % • Stop bit 1 • Advanced Advanced Advanced Option Close serial Stop display Clean display Hecustemat Re-display Select file Save data ¥c file salez:eć!	Serial port         57512248670600           Buad rate 9600         57551224867060           Data bit         8           7551224867060         57551224867060           7551224867060         57551224867060           7551224867060         57551224867060           7551224867060         57551224867060           7551224867060         57551224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           7551224867060         5751224867060           755122486
Send Henaterina Period 100 WS Select file Send file No file selectsel 3"Z KT3 EF CTS EI CD No signal Praming Check Sent out Receive out TX: 450 Period 100 WS Select file Send file No file selectsel TX: 450 Ex: 0 Recount Mathematica Operating Exit	Send       Resubcitant         Period       :0C         Select file       Send file         No file select bd!       Check         27E KIS BGF CIS KI CD       No signal Finning engre       Check         Send file       Check         Send file       Engre         KIS BGF CIS KI CD       No signal Finning engre       Check         KIS 10F CIS KI CD       No signal Finning engre       Sent out Receive out Engre       TX: 0

The terminal node and user terminal equipment is in one-one correspondence. If the data output by user terminal equipment includes equipment address (i.e. the data can be distinguished from which terminal equipment), the UT-930 master station can be set as no output of data source address, thus forming transparent transmission. On contrary, the UT-930 master station can be set as output of data source address. At this time, the module address will be added in front of the data by receiving terminal to distinguish data source.

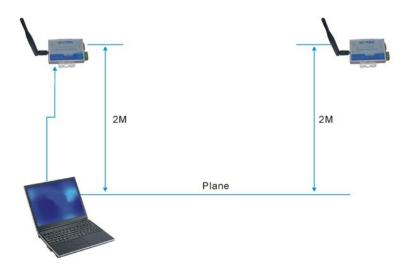
#### V. Distance test instructions

- 1. Spacious range of visibility;
- 2. Sunny weather;
- 3. Sufficient power source (DC-12V, above 500mA of supply current)



- 4. Terrain clearance 2M;
- 5. Test antenna DT2400-21CM, gain 5DBI;
- 6. Horizontal and vertical positioning of antenna.

#### **Test Diagram**



#### 1. Cases influencing transmission distance

1. Unstable power source, insufficient supply voltage or insufficient output current The supply voltage of UT-930 is required to be 9V or above and the output current is above 300mA;

#### 2. Barrier in the middle, non-line of sight

Since the wavelength is short in 2.4G frequency band, basically it's transmitted in straight line with poor penetrability, so the pavement gradient and barrier in the middle will exert great influence on transmission distance (people and trees also may keep out);

#### 3. Not satisfied module positioning

(i) Normally, if the ground clearance is less than 50Cm, the microwave is easy to be absorbed by the ground, so the ground clearance is very important. Our test is made at the height of a normal people.

(ii) The two modules must be at the same horizontal plane and the height fall will influence test distance.

#### 4. Other factors

(i) Weather, normally sunny day is better than rainy days;

(ii) Antenna, horizontally vertical (the antenna is vertical polarization), placed horizontally or slantly will have influence. Different antenna gain leads to different distances. Theoretically, the more the antenna gain, the further the transmission distance;

- (iii) The tester body shield signal sending and receiving;
- (vi) Same frequency interference;
- (v) High-tension cable, mobile base station;
- (vi) Other uncertainties.