

# User Manual

---Apply to D80 Series 4G/3G Serial to IP Modem

V2.5 http://www.wlink-tech.com Feb, 2025





#### Copyright © Shenzhen WLINK Technology Company Limited 2012 $\sim$ 2025

Without our written approval, Anyone can't extract, copy whole or part of content of this file and can't spread out in any format.

#### Caution

Due to product updates or functional upgrading, we may renew the content of this file, and this file only for reference. All statement, information, suggestion.etc in this file do not compose any form of guarantee and we WLINK reserves the right of final explanation.

#### Shenzhen WLINK Technology Company Limited

Add	2A, F5 Building, TCL International E City, No.1001 Zhongshanyuan Rd., Nanshan Dist., Shenzhen, 518052, China
Web	http://www.wlink-tech.com
Service Email	support@wlink-tech.com

Phone 86-755-86089513

Fax 86-755-26059261

## Contents

1 Product Introduction
1.1 Product Overview
1.2 Typical Application Diagram3
1.3 Features
2 Hardware Installation
2.1 LED Status5
2.2 Dimension
2.3 How to Install6
3 Configuration
3.1 Serial Port Settings8
3.2 D80 Serial to IP Modm Configuration11
3.3 D80 Typical Application(point to point)20



# 1 Product Introduction

## 1.1 Product Overview

The rugged D80 serial to IP modem which is a cellular modem have been developed especially for M2M/IoT application. It provides RS232/RS-485/TTL interface and equipped with PPP, TCP/IP and DDP protocol, it could convert the user data into 4G, NB-IoT/CATM, 3G, EDGE or GPRS network and transmits the data to the customer's data service center through complete transparent data channel, allows a simple and rapid integration of cellular network connectivity into M2M/IoT application.

With the robust, reliable, long life and compact metal case design, the D80 ideally adapts to onboard standard, easy to deploy and maintenance, it has been widely applied in many fields worldwide, such as power SCADA, oil field, coal mine, weather forecast, environment protection, water conservancy, heating, natural gas, petroleum and so on.

## **1.2 Typical Application Diagram**

Wlink 4G/NB/3G/2G modem widely used in AMR, Oil, transportation, power grid, mining and other industries fields.





Figure 1-1 Network Topology

#### 1.3 Features

- Various cellular module optional, 4G/NB/3G/2G optional
- Optimized EMC design
- Standard PPP, Coap/TCP/IP and UDP/IP protocol
- Industrial pluggable terminal block
- Industrial 4G/NB/3G/EDGE/GPRS wireless module
- Support APN and VPDN wireless private network
- Support short message service (SMS)
- Support transparent data transmission
- Support data service center with dynamic IP address
- Support LED status indication
- Wide range voltage input
- Smart power management
- External power on/off control
- Reliable, flexible and easy to deploy



This chapter is mainly for installation introduction, there would be some difference between the scheme and real object. But the difference doesn't have any influence to products performance.



## 2.1 LED Status

#### LED indicator Status

silk-screen	color	status	Indication
NET	Red	Weak Signal	CSQ<20
	Green	Good Signal	CSQ>21
		Fast Blinking	Self-checking
		Light on 2s,Light off 1s	Standby
		Light on 1s, Light off 2s	Online
PWR	Green	Light on	D80 system runs



## 2.2 **Dimension**



## 2.3 How to Install

#### 2.3.1 SIM/UIM card installation

Open SIM shelter by screw-driver, then insert SIM/UIM card.





Before connecting, please disconnect any power resource of D80.





## 2.3.2 Serial port



PIN	1	2	3	4	5	6	7	8	9
RS232		Tx	Rx		GND				
RS485		В	A						
TTL		Tx	Rx		GND				

#### 2.3.4 Power Supply

In order to get high reliability, adapt wide voltage input: +5V $\sim$ +36VDC, support hot plug and complex application environment.

#### 2.3.5 Review

After insert the SIM/UIM card, connect serial cable, necessary antenna, then connect power cable.

## CAUTION

Please connect the antenna before connect the power cable, otherwise because of impedance mismatching, the signal maybe poor.

Notice:

Step 1 Check antenna connection.

Step 2 Check SIM/UIM card, configure SIM/UIM card is available.

Step 3 Power on D80



## 3.1 Serial Port Settings

Run D80 Config Tool and select serial port, then setup serial port parameters in the bottom of D80 Config Tool as below.



Run Config Tool, click Config button to setup serial port parameters as below.



NOTE

Click Connect button, modem will be connected to the tool and enter configuration mode. If the connection is successful, it will display Connected dialog box as below.

#### Khenzhen Wlink Technology Co., LTD 深圳市徳传物联技术有限公司

D80 Modem User Manual

D8(	D Conf Tool
왕 COM 금 Cellular 念 Data Center	COM Setting Baud Rate 57600   Data Bit 8  Stop Bit 1  Parity Bit none  Protocol NONE Max packet 1024 1~1024 bytes Min Interval 300 100~1000 ms
<ul> <li>Protocol</li> <li>Work Mode</li> <li>Manage</li> <li>Update</li> </ul>	
Product Info	Save Source Connect Disconnect Interview Inter

【Config】 Tool Serial port configuration.

【Connect】Connect D80.

[Disconnect] Close serial port to leave configuration mode.

[Import] Import configuration file into Config tool.

**[**Export **]** Export current settings to file. It's convenient for butch setup.

【Default】 Setup D80 to default settings.

【Read】 Inquiry current D80 setting.

**[**Save **]** Save settings to D80.



## 3.2 **D80 Serial to IP Modm Configuration**

## 3.2.1 COM Settings

D8	0 Conf Tool
# COM 중 Cellular	COM Setting Baud Rate 57600  Data Bit 8  Stop Bit 1  Parity Bit none  Protocol NONE Max packet 1024 1~1024 bytes Min Interval 300 100~1000 ms
<ul> <li>Protocol</li> <li>Work Mode</li> <li>Manage</li> <li>Update</li> </ul>	
E Product Info	St Config Connect Disconnect Inport Export Factory Default A Read Save

#### COM settings instruction.

Parameters	Description	Instruction	Default
Baud rate	Serial port properties	300/600/1200/2400/4800/9600/19200/384 00/57600/115200 optional. RS232 Port for 115200bps as default. RS485 Port for 115200bps as default.	
Data bits		8	8
Stop bits		1/2	1
Parity		NULL/ODD/EVEN	NULL
Trans Proto	Transmission protocol between D80 and device. Under command mode, terminal might setup D80 configuration.	Transparent and Command are optional. The default is for transparent protocol.	Transparent
Max Package Length	The max transmission unit. Once data package length exceeds to MTU, D80 will split data package as MTU.	1~1024bytes	1024bytes



	▲ 深圳市德传物联技术有限公司	D80 Modem	User Manual
Parameters	Description	Instruction	Default
Min Internal	The Min Interval is the waiting time interval for transmitting the data package that is less the MTU. If the last package equals to the MTU, D80 will transmit it immediately.	100~1000ms	300ms
Data center 1 IP	Data server center IP address(static IP address)	D80 will transmit COM1 data to Data center 1	0.0.0.0
Port	Data server center port	0~65535	40001
Protocol	UDP/TCP		UDP
Domain name	No static IP for server	It's just available when center IP is configured as 0.0.0.0,	NULL

## 3.2.2 Cellular Settings

D8	ConfTool	
얇 COM <del>@</del> Cellular	APN     cmnet       Username	Ŷ
n Data Center ♥ Protocol > Work Mode	PING IP Address O.0.0.0 Domain Interval O O -255 mins DNS Setting	
Update	Primary 0.0.0.0 Secondary 0.0.0.0 PIN Setting PIN Code	
	Sconfig Connect Disconnect En Import Export Factory Default A Read	Save

#### Cellular settings instruction

Parameters	Description	Instruction	Default
APN	SIM information for dial up	1~63bytes	cmnet
User name		0~63bytes	NULL
Password		0~63bytes	NULL
Ping IP address	Check destination IP address		0.0.0.0
Domain Name	Check destination domain name. If IP 0.0.0.0 and domain name is null,	0~63byts	NULL



D80 Modem User Manual

Parameters	Description	Instruction	Default
	Ping is disable.		
Interval	PING check interval when idle.	0~255mins 0 indicates PING is disable status.	0
Primary DNS	Defined Primary DDNS server IP address	If configured 0.0.0.0, D80 will use default DNS IP address as domain name resolution server.	0.0.0.0
Secondary DNS	Defined secondary DDNS server IP address	If main DNS for 0.0.0.0, the secondary DNS will be invalid.	0.0.0.0
PIN	SIM card PIN code	If SIM card is defined PIN code. It need to be configured the correct PIN code in D80. Otherwise, D80 won't identify SIM. If configured an error PIN code in D80, SIM card will be damage. We suggest not pre-configure PIN code in SIM card.	NULL

#### 3.2.3 Data Center settings

D8(	0 Conf Tool
稽 COM <del>雷</del> Cellular	Connection Setting Frist Center IP 0.0.0.0 Port 40009 Protocol TCP Domain
😤 Data Center 😳 Protocol	Second Center 0.0.0.0 Port 40009 Protocol TCP 🗸
> Work Mode	Third Center IF0.0.0.0 Port 40009 Protocol TCP 🔽
Update	
	💦 Config 🕘 Connect 💿 Disconnect 🕒 Import 🏝 Export 🕒 Factory Default 🏻 🖧 Read 🖞 Save

Data Center settings instruction

	Shenzhen Wlink Technology Co., LTD
	深圳市德传物联技术有限公司

Parameters	Description	Instruction	Default
First center IP	First Data server center IP address(static IP address)		0.0.0.0
Port		0~65535	40001
Connect type	UDP/TCP		UDP
Domain name	No static IP for server	Only when setup center IP as 0.0.0.0, it's just available.	N/A
Second center IP	Second Data server center IP address(static IP address)		0.0.0.0
Port		0~65535	40002
Connect Type	UDP/TCP		UDP
Second Domain Name	No static IP for server	Only when setup center IP as 0.0.0.0, it's just available.	N/A
Third center IP	Third Data server center IP address(static IP address)		0.0.0.0
Port		0~65535	40003
Connect Type	UDP/TCP		UDP
Third Domain Name	No static IP for server	Only when setup center IP as 0.0.0.0, it's just available.	N/A



1. D80 will synchronously connect to 3 data center when configured 3 center IP inside of tool.

2. D80 will retry connect other centers as long as it has connected one center.

3. D80 will redial up if it's failed to connect all of 3 centers more than 9times in succession.

D80 Modem User Manual



## 3.2.4 Protocol settings

D8(	D Conf Tool	
緍 COM	Device ID	^
😁 Cellular 🕄 Data Center	Protocol Select Protocol NONE	
Protocol	Heartbeat Interval	
🕒 Manage	Custom Heartbeat Package	
Update	Enabled Heartbeat Heartbeat	
	Save	

#### Communication Protocol settings instruction

Parameters	Description	Instruction	Default
Custom ID	Identify D80 in data server center	4byte length	NULL
Protocol Options	Transparent/WLINK/DDP	parent/WLINK/DDP [Transparent] Transparent transmission. T [DRMP]WLINK transmission protocol. [HD-DDP] unavailable	
ID Position	ID insert data package in order to identify which D80 sent data.	0~24bytes	1
Heartbeat Interval	0~65535s	D80 will automatically send heartbeat to data server as defined setting. It will keep the connection between D80 and data center. 0 means no heartbeat	0
ID Position	ID insert data package in order to identify which D80 sent data.	0~24bytes	0
Custom Heartbeat Package	D80 log in data center server and keep connection.	0~24bytes	NULL
Custom ACK Package	D80 receive ACK after sent heartbeat. If no ACK 3times in succession, D80 will reconnect to data center server.	0~24bytes	NULL



## 3.2.5 Work Mode Setting

D8	D Conf Tool
윤 COM 중 Cellular 윤 Data Center	Work Mode         Mode Select       ONLINE         Reconnection       10         secs
<ul> <li>Protocol</li> <li>Work Mode</li> <li>Manage</li> </ul>	SMS Setting SMS Number
🕵 Update	Debug Information Debug Level NONE Switch AT +++++
	at coming the connect of mport the caport the racioly belading the read to save

Parameters	Description	Instruction	Default
Mode Select	ONLINE/WAKEUP	<b>[ONLINE]</b> After powered on, D80 automatically connect and reconnect to data center server to keep online always.	NULL
		[WAKEUP] After Powered on, D80 will work on standby mode. Once D80 received wake up short message from defined phone number, or received the triggering data from terminal, D80 will dial up and connect to data center server. After idle time, D80 will re-enter wake up mode. [SMS] D80 works short message mode.	
Reconnect Interval	D80 reconnect to data center server after interval time when connection is failed.	5~65535s	300s
Idle Interval		5~65535s	300s
Discard WAKEUP DATA			
SMS Number	Short message and call wake up and short message configuration from the specified number.	0~31bytes	NULL
Allow to Transfer SMS	D80 will transmit any short message to terminal	Enable/Disable	Disable
Transfer SMS	Transfer SMS to COM1/COM2	COM1/COM2 Options	COM1

#### Shenzhen Wlink Technology Co., LTD 深圳市徳传物联技术有限公司

D80 Modem User Manual

Parameters	Description	Instruction	Default	
Debug	Control serial port debug information NONE/DEBUG/STATUS/AT. Configure A level during testing with PC. Configure NULL, then connect D80 to device.			
		<b>[NONE]</b> D80 won't send any information to serial port.		
		<b>[DEBUG]</b> D80 sends simple information to serial port. It's convenient to test D80.		
		<b>[Status]</b> D80 sends operation status, signal strength to serial.		
		<b>[AT]</b> D80 sends all debug information to serial port. It's convenient to test D80		
Switch CMD	D80 will be switched to configuration mode from transmission mode. After switched to configuration mode, The D80 will enter command mode to communicate with terminal.	6 visible characters	+++++	

## 3.2.6 Manage settings

D8	D Conf Tool
縮 COM	Remote Management           Run Mode         Online
e Cellular क्वै Data Center	Reconnection 300 secs
<ul><li>Protocol</li><li>Work Mode</li></ul>	IP 0.0.0.0 Port 51010 Domain Winktech.com.cn
🕮 Manage	
Product Info	
	Config       Connect       Disconnect       Harport       Factory Default       A Read       Save

#### Remote management settings instruction

Parameters	Description	Instruction	Default
Run Mode		Online/Timing mode options	Online



D80 Modem User Manual

Parameters	Description	Instruction	Default
Start Interval	D80 will connect to remote management software as this start interval time.	0 means this function is invalid.	
Reconnection	D80 will reconnect to remote management software as this interval time when the connection is down.	0~65535s	1440s
Remote IP	WLINK remote management platform IP address in HQ	D80 will automatically login WLINK management platform so that customers might manage and monitor D80 in platform	0.0.0.0
Port		0~65535	51010
Domain Name	No static IP in HQ	Domain name is available when the IP address is setup 0.0.0.0	NULL

## 3.2.7 Upgrade settings

D8	80 Conf Tool			otro:		
緍 COM	Upgrade					
	Firmware	G:\Firmware\DTU\程序\程序	WL-D803-4 Server Firmware	and Conf Tc 🕞		
🖶 Cellular	FW Name	D80_mpB3TS01				
🍰 Data Center	FW Verion	B3.TS.01				
Protocol	FW Size	68132				
	Checksum	28881				
> Work Mode						
🖳 Manage		Start				
Ct Update						
In the second						
Product Info						
	💦 Config 🛛 🔘 🖉	Connect Disconnect	🕒 Import 👘 Export	🖸 Factory Default	🛉 Read	Save
	pos:11264					^
	pos:12288					
	pos.13312					~

#### Upgrade settings instruction

Parameters	Description	Instruction	Default
Firmware	Select firmware	The firmware is Bin file	
FW Name	Firmware name		
FW Version	Firmware version		



Parameters	Description	Instruction	Default
Firmware Size	Firmware size		
Checksum	Firmware Verification		
Start	Upgrade firmware	Click Start button to upgrade firmware. Restart D80 modem after upgrade is completed.	

#### 3.2.8 Production Info

D8	0 Conf Tool					d d to		
	Product Info							
SE COM	Туре	D80						
<del>@</del> Cellular	Model	D80-F12T						
😭 Data Center	Serial Port	232						
Protocol	Version	B3.10.07						
	SN	100000180	100001					
Manage Manage  Multiplate  Product Info								
	Reading parameter Read parameter com Read system parameter	Connect pleted ter complete	Disconnect	B Import	n Export	Factory Default	A Read	♦ Save

#### Information instruction

Parameters	Description	Instruction	Default
Product Name			
Product Model			
Serial Port Type			
Version			
SN			

#### ---End

## 3.3 **D80 Typical Application (point to point)**

D80 establishes a TCP connection to data server center. D80 transmits serial port data to data server center by TCP protocol. D80 acts as TCP client as below settings. The serial port tool SSCOM32 simulates serial port device. TCP/IP net Assistant tool simulates data server center.



#### D80 Settings List

Parameters Menu	Settings	Note	
Serial	Serial	Configure baud rate, data bit, stop bit and parity to match with terminal.	
	Debug	If test D80 with PC's serial tool, better select STATUS which is easy to check D80 status.	
		If tested D80 with device, better select NONE.	
Network	APN	Uninet	
	User name	NULL	
	Password	NULL	
	PING	221.118.79.21	
Connection	First Center IP	221.118.79.21	
	Port	50081	
	Heartbeat Interval	120	
Protocol	Custom ID	1390000001	
	Protocol Select	NONE	
	ID position	0	
	Custom Heartbeat Package	hello	
	Custom ACK Package	yes	
Work Mode	Mode Select	ONLINE	
	Reconnect Interval	300	



Parameters Menu	Settings	Note
Remote Management	Start Interval	0

Serial Port Status display

After configured, please restart the D80 and run SSCOM32 serial port tool, it'll display D80 work status. The hyper terminal tool is also available to display D80 status.



TCP Server Demo

## MLINK Shenzhen Wlink Technology Co., LTD 深圳市徳传物联技术有限公司

深圳市德	传物联技术有限公司	D80 Modem User Manual
• / (	TCP/IP Net Assistant (V3.8)	- 🗆 ×
Settings	Data Receive	
(1) Protocol	<pre>Keceive from 14.29.100.246 : 13561] : 30 30 30 31 02 06 00 B2 BB</pre>	30 30 30 31 AA
(2) Local host IP 192,168,10,114		
(3) Local host por 21		
Disconnect		
Recv Options		
TReceive to file		
🦵 Show timestamp		
🔽 Receive as hex		
🥅 Receive pause		
Save Clear		
Send Options		
🖵 Data from file		
🗍 Auto checksum		
🥅 Auto clear input		
🦵 Send as hex		
🥅 Send cyclic	Peers: All Connections	
Interval 1000 ms		Send
🗲 Ready!	Send : 0 Recv : 10	064 Reset