

# UR51

# Industrial Cellular Router

Quick Start Guide



# Welcome

Thank you for choosing Ursalink UR51 industrial cellular router.

This guide describes how to install the UR51 and how to log in the Web GUI to configure the device. Once you complete the installation, refer to the Ursalink UR51 User Manual for instructions on how to perform configurations on the device.

#### **Related Documents**

This Start Guide only explains the installation of Ursalink UR51 router. For more functionality and advanced settings, please refer to the relevant documents as below.

Document	Description
Ursalink UR51 Datasheet	Datasheet for the Ursalink UR51 industrial cellular router.
Ursalink UR51 User Guide	Users could refer to the guide for instruction on how to log in the
Orsallik OKST Oser Guide	Web GUI, and how to configure all the settings.

The related documents are available on Ursalink website: <u>http://www.ursalink.com</u>.

#### **Declaration of Conformity**

Ursalink UR51 is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.





For assistance, please contact Ursalink technical support: Email: support@ursalink.com Tel: 86-592-5023060 Fax: 86-592-5023065

#### 1. Packing List

Before you begin to install the UR51 router, please check the package contents to verify that you have received the items below.

#### **1.1 Package Contents**



If any of the above items is missing or damaged, please contact your Ursalink sales Representative.



#### 2. Hardware Introduction

#### 2.1 Overview

#### A. Front Panel



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- ① Main Cellular Antenna Connector
- ② Micro SD Card Interface
- ③ LED Indicator Area
   POWER: Power Indicator
   STATUS: Status Indicator
   ▼: Signal Strength Indicator
   VPN: VPN Indicator
   SIM1: SIM1 Status Indicator
   SIM2: SIM2 Status Indicator
- (4) SIM Card Slot 1 & SIM Card Slot 2
- 5 AUX Cellular Antenna Connector



- 2 Power Connector
- ③ Ethernet Port Indicator
- ④ Serial Port: RS232 or RS485
- 5 Reset Button
- 6 GPS Antenna Connector

#### 2.2 Dimensions (mm)

FE

1

T

1

3

+ \_\_\_\_\_ DC 9-48V

└ - -'

1

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RESET

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# 2.3 Pinouts





V+ V-

0 0

PIN	RS232	RS485	Description
1		А	Data +
2	RXD		Receive Data
3	TXD		Transmit Data
4			
5	GND		Ground
6		В	Data -
7			
8			
9			

PIN	Description
10	Positive
11	Negative

# 2.4 LED Indicators

LED	Indication	Status	Description		
POWER	Power Status	Off	The power is switched off		
POWER	Power Status	On	The power is switched on		
		Off	The system goes wrong		
STATUS	System Status	Green Light	Static: Start-up		
		Green Light	Blinking slowly: the system is running properly		
VPN	VPN Status	Off	VPN is disconnected		
VPIN	VPIN Status	Green Light	VPN is connected		
		Off	SIM1 or SIM2 is registering or fails to register (or there		
		011	are no SIM cards inserted)		
			Blinking slowly: SIM1 or SIM2 has been registered and		
SIM1/SIM2	SIM Card Status	Green Light	is ready for dial-up		
31111/31112	Silvi Caru Status		Blinking rapidly: SIM1 or SIM2 has been registered and		
			is dialing up now		
			Static: SIM1 or SIM2 has been registered and dialed up		
			successfully		
		Off	No signal		
			Static/Off/Off: weak signals with 1-10 ASU (please		
			check if the antenna is installed correctly, or move the		
Signal strength	Signal 1/2/3		antenna to a suitable location to get better signal)		
	Jigitat 1/2/3	Green Light	Static/Static/Off: normal signals with 11-20 ASU		
			(average signal strength)		
			Static/Static/Static: strong signals with 21-31 ASU		
			(signal is good)		



#### 2.5 Reset Button

Function	Description			
Function STATUS LED		Action		
Dahaat	Blinking	Press and hold the reset button for about 5-15 seconds.		
Reboot         Static Green         Release the button and wait for system to reboo		Release the button and wait for system to reboot.		
	Blinking	Press and hold the reset button for more than 15 seconds.		
Deest	Static Green $\rightarrow$	Release the button and wait.		
Reset	Rapidly Blinking			
Off $\rightarrow$ Blinking The router is now reset to factory defaults.		The router is now reset to factory defaults.		

# **2.6 Ethernet Port Indicator**

Indicator	Status	Description
	On	Connected
Link Indicator (Orange)	Blinking	Transmitting data
	Off	Disconnected



#### 3. Hardware Installation

#### **Environmental Requirements**

- Power Input: 9-48 VDC (For UR51: 48 V Power Input is Needed for 802.3af PoE Output )
- Power Consumption: Typical 1.8 W, max 2.7 W for
- Operating Temperature: -20°C to 70°C (4°F -158°F)
- Relative Humidity: 0% to 95% (non-condensing) at 25°C/77°F

#### 3.1 SIM Card/Micro SD Card Installation

#### 3.1.1 SIM Card Installation

A. Push the yellow button on the left panel of the slot router, and then you will see the SIM card slot popping out directly.

B. Put SIM card onto the slot then insert the back into the hole.





#### 3.1.2 Micro SD Card Installation

Insert Micro SD card





#### 3.2 Rotate the Antenna into the Antenna Connector

The external antenna should be installed vertically always on a site with a good cellular signal.



## 3.3 Connect the Router to a Computer



#### 3.4 Mount the Router

The router can be placed on a desktop or mounted to a wall or a DIN rail.

#### 3.4.1 Wall Mounting (Measured in mm)

Use 4 pcs of M3  $\times$  6 flat head Phillips screws to fix the wall mounting kit to the router, and then use 2 pcs of M3 drywall screws to mount the router associated with the wall mounting kit on the wall.



Recommended torque for mounting is 1.0 N·m, and the maximum allowed is 1.2 N·m.





#### 3.4.2 DIN Rail Mounting (Measured in mm)

Use 2 pcs of M3  $\times$  6 flat head Phillips screws to fix the DIN rail to the router, and then hang the DIN rail on the mounting bracket. It is necessary to choose a standard bracket.

Recommended torque for mounting is 1.0 N·m, and the maximum allowed is 1.2 N·m.



#### **3.5 Power Supply Installation**

- A. Take out the terminal from the router and unscrew the bolt on terminal
- B. Screw down the bolt after inserting power cable into the terminal



Connecting	the	Power	Cable
------------	-----	-------	-------

Color	Polarity
Red	+
Yellow	-

If the wires are inserted into the reverse holes, the router will not start and the user must switch the wires into the correct holes.

#### **3.6 Protective Grounding Installation**

A. Remove the grounding nut.

B. Connect the grounding ring of the cabinet's grounding wire onto the grounding stud and screw up the grounding nut.





The router must be grounded when deployed. According to operating environment, the ground wire should be connected with grounding stud of router.

#### **Getting Started**

## 4. PC Configuration for Web GUI Accessing to Router

Please connect PC to FE/GE port of UR51 router directly. PC can obtain an IP address, or you can configure a static IP address manually. The following steps are based on Windows 10 operating system for your reference.



Windows 10 taskbar.

(2) Click "Control Panel" to open it, and then click "View network status and tasks".

		- 🗆 X	Ethernet Status	X
🗧 🔿 👻 🛧 🚺 🛚 🗧 🗠 Netwo	k and Internet > Network and Sharing Center	v 🖏 Search Control Panel 🔎		
Control Panel Home Change adopter settings Change advanced sharing cettings See also HomeGroup Infared Internet Options Windows Firewall	View your basic network informati View your active networks Yaastar36 Private network Identifying Change your networking settings Change your networking settings Set up a new connection or networ Set up a her adband, (al-up, or VP Toublechoot problems Diagnose and repair network probl	Access type Internet HomeGroup: Ready to create Connections: all VF-fi (VestarSG) Access type: No network access Connections: Ethernet	General Connection IP-v4 Connectivity: No network access IP-v6 Connectivity:	

#### Ursalink UR51 Quick Start Guide



etworking Si	haring		
Connect using			
Intel(R)	82567LM Gigabit Netw	vork Connection	
		Configure.	
This connectio	on uses the following ite		
	for Microsoft Networks	S	~
🗹 🟆 File a	nd Printer Sharing for N	Microsoft Networks	
	Packet Scheduler		
	net Protocol Version 4 (		
	soft Nety Adapter	Multiplexor Protocol	
Internet	Protocol Ve	rsion 4 (TCP/IF	v(4)
internet		131011 4 (101711	V-T)
1.1.1	. <u>U</u> ninstal	Properties	
I <u>n</u> stall			
Description			
Description Transmissio wide area n	n Control Protocol/Inter etwork protocol that pro rse interconnected netv		

General	Alternate Configuration				
this cap	n get IP settings assigned au pability. Otherwise, you need appropriate IP settings.				
0	btain an IP address automat	ically			
OU	se the following IP address:				
IP a	ddress:				
Subr	net mask:		10	- in - 1	
Defa	ault gateway:		+		
	btain DNS server address au	tomatically			
OU	se the following DNS server a	addresses:			
Pref	erred DNS server:				
Alter	rnate DNS server:		4		
□ v	alidate settings upon exit			Advance	ed

(6) Method 1: click "Obtain an IP address automatically";

nternet Protocol Version 4 (TCP/	'IPv4) Properties X
General	
You can get IP settings assigned this capability. Otherwise, you re	192.168.1.20
for the appropriate IP settings.	255.255.255.0
○ Obtain an IP address autom	192.168.1.1
• Use the following IP address	
IP address:	192 . 168 . 1 . 20
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192.168.1.1
Obtain DNS server address	automatically
• Use the following DNS serve	r addresses:
Preferred DNS server:	192.168.1.1
Alternate DNS server:	· · · ·
Validate settings upon exit	192.168.1.1
7	OK Cancel

(5) Double Click "Internet Protocol Version 4 (TCP/IPv4)" to configure IP address and DNS server.

Method 2: click "Use the following IP address" to assign a static IP manually within the same subnet of the router.

(Note: Remember to click "OK" to finish configuration.)



# 5. Access to Web GUI of Router for Cellular Connection

This chapter explains how to log in UR51 router's Web GUI, and connect the router to cellular network. Ursalink router provides web-based configuration interface for management. If this is the first time you configure the router, please use the default settings below:

IP Address: **192.168.1.1** Username: **admin** Password: **password** 

#### 5.1 To Log in the Router:



A. Start a Web browser on your PC (Chrome and IE are recommended), type in the IP address, and press Enter on your keyboard.

B. Enter the username and password, click "Login".

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$\leftrightarrow$ $\rightarrow$ $\circlearrowright$   192.168.1.1/login.html	🛄 🕁 🗌	₽	Ø	۵	
192.168.1.1	🌐   English				
URSALINK					
Username					
Password					
Login					



# If you enter the username or password incorrectly more than 5 times, the login page will be locked for 10 minutes.

C. When you login with the default username and password, you will be asked to modify the password. It's suggested that you change the password for the sake of security. Click "Cancel" button if you want to modify it later.

Old Password	
New Password	
Confirm New Password	



D. After you log in the Web GUI, you can view system information and perform configuration on the router.

Status	Overview	Cellular	Network	VPN	Routing	Host List	GPS			
Network	System Informat	lion								
	Model		UR51							
System	Partnumber		L00E-S11-GPS	3						
Industrial 🕨	Serial Number	Serial Number		621380430068						
	Firmware Version	Firmware Version								
Maintenance	Hardware Version		0110							
	Local Time		2018-02-23 13	:58:01						
	Uptime		00:02:43							
	CPU Load		10%							
	RAM (Capacity/Av	ailable)	128MB/86MB(	67.19%)						
	Flash (Capacity/Av	vailable)	128MB/94MB(	73.44%)						

#### 5.2 Configure the Cellular Connection

Take inserting SIM card into SIM1 slot as an example; please refer to the following detailed operations.

- A. Click "Network"  $\rightarrow$  "Interface"  $\rightarrow$  "Cellular"  $\rightarrow$  "Cellular Setting" to configure the cellular info.
- B. Enable SIM1.
- C. Choose relevant network type. "Auto", "4G First", "4G Only", "3G First", "3G Only", "2G First" and "2G Only" are optional.
- D. Click "Save" and "Apply" for configuration to take effect.

URSALINK				💄 admin 🛛 🔁
Status	Port WAN	LAN VLAN Trunk	Cellular	
Network	Cellular Setting		2 Cellular	
Interface	1.10.10	SIM1	SIM2	
Interface	Enable	2	8	
	ork Type	4G First Auto	<ul> <li>Auto</li> </ul>	
1 Inter	face	4G First 4G Only		
9	ame	3G First 3G Only		
	Password	2G First 2G Only		
DDNS	Access Number			
Link Backup	PIN Code			
Routing	Authentication Type	3"Aut	o" or others	
	Roaming	C /idi		
VPN	SMS Center			
System	Connection Setting			
	Dual SIM Strategy			
Industrial	Enable NAT			
Maintenance	ICMP Server	88.88		
Maintenance	Secondary ICMP Server	114.114.114.114		
APP	PING times	5		
	Total Packet Loss Rate	20		
	SMS Settings			
	SMS Mode	PDU	×	
	2 mm			



				Apply
Status	Port WAN	LAN WLAN	Cellular	Loopbac 5 Apply
	Cellular Setting			
Network 👻		SIM1	SIM2	2
Interface	Enable		s.	
Firewall	Network Type	Auto	▼ Au	to 🔻
QoS	APN			
400	Username			
DHCP	Password			
DDNS	Access Number			
Link Failover	PIN Code			
	Authentication Type	Auto	▼ Au	to 🔻
Routing	Roaming			
VPN	SMS Center			
System	Connection Setting			
	Dual SIM Strategy			
Industrial 🕨 🕨	Enable NAT			
	ICMP Server	8.8.8		
Maintenance	Secondary ICMP Server	114.114.114.114		
	PING Times	5		
APP 🕨	Packet Loss Rate	20	%	
	SMS Settings			
	(4) Save	PDU	•	
	Save			

If you select "Auto", the router will obtain ISP information from SIM card to set APN, Username, and Password automatically. This option will only be taken effect when the SIM card is issued from a well-known ISP.

If you select "4G First" or "4G Only", you can click "Save" to finish the configuration directly.

If you select "3G First", "3G Only", "2G First" or "2G Only", you should manually configure APN, Username, Password, and Access Number.

UR51 router has two cellular interfaces, named SIM1 & SIM2. Only one cellular interface is active at one time. If both cellular interfaces are enabled, SIM1 interface takes precedence by default.



## 5.3 Check the Cellular Connection Status

#### 5.3.1. Check the Cellular Connection Status by WEB GUI of Router

Click "Status"  $\rightarrow$  "Cellular" to view the status of the cellular connection. If it shows "Connected", it means SIM1 has dialed up successfully.

	NK								
Status		Overview	Cellular	Network	WLAN	VPN	Routing	Host List	GPS
Network	F	Modem							
		Status		Ready					
System	•	Model		U9300C					
Industrial	•	Current SIM		SIM1					
industrial		Signal Level		29asu (-56dBm)					
Maintenance	►	Register Status		Registered (Home	e network)				
		IMSI		460070615219248	8				
APP	•	ICCID		898602E6131532	019248				
		ISP		CHINA MOBILE					
		Network Type		LTE					
		PLMN ID		46007					
		LAC		fffe					
		Cell ID		f700e28					
		IMEI		86280803245998	7				
		Network							
		Status		Connected	Connect	ted			
		IP Address		10.39.128.14					
		Netmask		255.255.255.252					
		Gateway		10.39.128.13					
		DNS		211.143.147.120					
		Connection Duration		0 days, 00:15:35				Manual Refresh 🔻	Refresh

#### 5.3.2. Check the Cellular Connection Status by Hardware

On the other hand, you can check the status of SIM1 indicator. If it keeps on green light statically, it means SIM1 has dialed up successfully.

#### 5.4 Check out if Network Works Properly by Browser on PC

Open your preferred browser on PC, then type any available web address into address bar and see if it is able to visit Internet via UR51 router.