LXI980G

Industrial external GPRS / CDMA / 4G / ET wireless data transmission equipment

V2.1 Date: 2017/06/20

GPRS/4G/CDMA Version

Ethernet Version

Contents

Product Structure and Performance

1.1 Product list

LXI980G series	
Model	**Version**
LXI980G-GSM	GPRS+GPS version
LXI980G-CDMA	CDMA+GPS version
LXI980G-4G	4G all Netcom version
LXI980G-ET	Ethernet version
Customized model	If don’ t use the mainland of China, please confirm the specific model with our technical support;

1.2 Product overview

This series product has LXI980G-GSM/CDMA/ET three models，can meet customer’s requirement of GPRS wireless communication，CDMA wireless communication，Ethernet wire communication and WIFI wireless communication. It can compatible ith DSE, ComAp, Harsen, LIXiSE, Smartgen etc main controllers (Due to the increasing number of compatible controllers, the LIXiSE website will show details). The model with "G" means this product has the GPS function. The following will introduce LXI980G as sample.

LXI980G is a industrial-grade GPRS/CDMA /ET product with GPS global satellite positioning function. The product internal integration with high performance, low power consumption of industrial-grade GPS module and GPRS/CDMA/ET module, perfect combination of GPS global positioning technology and wireless GPRS/CDMA/ET communication technologies.

LXI980G platform based on ARM and embedded operating system, built-in industrial-grade module, it can be used in harsh environments, working temperature range can be up to -40℃～+ 85℃. LXI980G provide standard RS232 serial interface, can be quickly and PLC, industrial control, instruments, meters, RTU equipment is linked together, through the GPRS/CDMA/ET network will be linked to LXI980G equipment data transmission to a host on the Internet, realize the data remote transparent transmission, at the same time to the front-end equipment of GPS location information reported to host, realize positioning of the equipment.

LXI980G has positioning, wireless data communications and data processing capabilities, small size, strong and durable, stable and reliable, easy installation, It can be widely used in construction, transportation and other industries. Particularly suitable for tower crane monitoring, heavy machinery management. But

also can be used in the field of taxi operations management, transport vehicles, special vehicles, vehicle rental management and leasing, etc.

GPRS/CDMA/4GVersion

Ethernet Version

1.1 LXI980G Product appearance

1.3 Product features

2 Each frame can be set to 1024B length (CACHE 4 frames), suitable for continuous transmission of large amounts of data;

- ❖ Use industrial-grade GPRS/CDMA module, embedded protocol stack;
- ❖ Supply voltage range: 8V to 35V
- ❖ With device power off function, easy to control.
- ❖ Data transparent transmission, the user does not need to understand the complex TCP/IP, PPP and other protocols
- ❖ Support data center dynamic domain name or IP address access
- ❖ Support APN virtual private network service
- ❖ Support break automatically reconnect function
- ❖ Have humanized connection occasion controlled function, more save data flow rate.
- ❖ Support local and remote graphical interface configure and maintain
- ❖ supports GPS positioning data reporting and query functions, data import Baidu map to achieve satellite map precise positioning
- ❖ Reliable design of multiple hardware and software, combined the watchdog technology, make the safe running of the equipment

1.4 Compatibility table

Brand	Models	Description	Interface
Lixise	LXC6110	Remote start module	RS232
	LXC6120	AMF module	RS232
	LXC3910	Remote start module	USB
	LXC3920	AMF module	USB
	LXC7X10	Remote start module	RS232
	LXC7X20	AMF module	RS232
	LXC9510	Parallel Genset module	RS232
	LDR360	Generator monitor module	RS485
Deepsea	DSE6020	Auto start module	USB
	DSE6110	Remote start module	RS232/USB
	DSE6120	Auto start module	RS232/USB
	DSE7210	Remote start module	RS232/USB
	DSE7220	AMF module	RS232/USB
	DSE7310	Remote start module	RS232/USB
	DSE7320	AMF module	RS232/USB
	DSE8610	Parallel Genset module	RS232/USB
Compa	MRS10	Remote start module	RS232
	MRS16	Remote start module	RS232
	AMF20	AMF module	RS232
	AMF25	AMF module	RS232
	AMFIG-NT GC	AMF module	RS232
Harsen	GU620A	Remote start module	TTL RS232
	GU621A	AMF module	TTL RS232
	GU630A	Remote start module	TTL RS232
	GU631A	AMF module	TTL RS232
	GU3320	Control module	RS485
	GU3321	Control module	RS485
Smartgen	HGM410DC	Control module	LINK/USB
	HGM6320	Control module	RS485
	HGM6110U/N	Remote start module	LINK/USB
	HGM6120U/N	AMF module	LINK/USB
	HGM7x10	AMF module	LINK/USB
	HGM7x20	AMF module	LINK/USB
	HGM9510	Parallel Genset module	RS485

Note:

Brand	LIXISE	ComAp	DeepSea	SmartGen	Harsen
Baud rate (default)	9600	9600	19200	9600	9600
ID	1	1	USB(10)/RS232(1)	1	1

1.5 Performance Parameters

1.1 LXI980G main parameters

Name	Parameter	Remark
Network type	GPRS mobile station type /GPRS Multi-slot type CDMA2000 1X /Ethernet	
Frequency band	GSM:GSM850/900/1800/1900MHz CDMA:CDMA 2000 1X 800MHz 4G:China TDD-LTE B38/B39/B40/B41 FDD-LTE B1/B3/B8 TD-SCDMA B34/B39 WCDMA/HSDPA/HSPA+ B1/B8 CDMA 1X/EVDO BC0 GSM/GPRS/EDGE 900/1800 MHz 4G: Outside mainland China, please contact our technical support	
GPRS network CDMA network	Downlink:	GPRS Max: 85.6Kbps CDMA Max: 153.6Kbps
GPRS/CDMA network transmission rate	Uplink:	GPRS Max: 42.8Kbps CDMA Max: 153.6Kbps
SIM card voltage	2.85V/1.8V	
Antenna Interface	50Ω/SMA	
Serial interface Level type	RS-232 Standard Level /RS485/LINK/CAN	
Serial port baud rate	300～115200bps	Supports standard baud rate
Power supply	DC: +6V～36V	
Power dissipation	Working: Max 800mA-104dBm	communication module work current
	Standby: ≤30 mA	
Working temperature	-25℃～+70℃	
Storage temperature	-40℃～+80℃	
Humidity range	0～95%	Non-condensing

Indicator Status Description:

LED Lamp	Color	State	Description
Power / Data state	Red	Light	Working status
		Flash	Data is being transmitted / Standby
Working	Green	Light	Already connected to wireless network
		Light off	Not connected to wireless network
		Fast flash	Connecting to data center
		Slow flash	Dialing
GPS	Red	Light	Has positioned the latitude and longitude
		Fast flash	To find the satellite signal, but not locate of the latitude and longitude
		Slow flash	The satellite signal was not found
RS232	Green	Light off	Not connected to the RS232 data serial port
		Light	Connected to the RS232 data serial port
LINK/USB	Green	Light off	Not connected to the LINK/USB data serial port
		Light	Connected to the LINK/USB data serial port
CAN/RS485	Green	Light off	Not connected to the CAN/RS485 data serial port
		Light	Connected to the CAN/RS485 data serial port

Terminal Blocks Description

Terminal	Description
B-/B+	Power supply. DC 8.0V to 35.0V continuous power supply
ICOM/IA	Generated current input. Maximum input current is 5A
AI1/2/3	Sensor input
IN1/2/3/4	Digital input （Grounding effective）
OUT1/2	Relay output, relay withstand current is 1A
GEN VOLTS (L N)	Generated voltage input. 15V AC-360V AC(ph-N)
F+/F-	Excitation voltage input, 10V DC-70V DC(ph-N)
ACT+/ACT-	Governor actuator input, 7V DC-30V DC(ph-N)
RS232(TX RX)	RS232 port, connect to controller(DSE/ComAp/LIXiSE etc)）
RS485(B- A+)	RS485 port, connect to controller(DSE/ComAp/LIXiSE etc)
CAN(H L)	CAN port, connect to ECU
Small USB port	Connect computer to do configuration settings
Big USB port	Connect to controller (DSE etc)
LINK port	Connect to controller(Smartgen/Harsen etc)

1.6 Mechanical Dimensions

1.2 LXI980G Shell mechanical Dimensions

1.7 Typical application

LXI980G module drives connected devices directly, for data reading and management, uploaded the intelligent data to the server and alarms, and user interaction.

2 Equipment installation

The product must be installed and set correctly before it can meet the expected design requirements. This section mainly describes the installation steps of the product.

2.1 Antenna installation

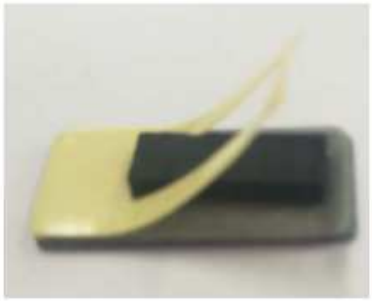
The antenna interface of the product adopts 50 Ω SMA female base, and the external antenna must use GPRS / CDMA / 4G / antenna of corresponding frequency band. If other mismatched antennas are adopted, the use of the equipment will be affected, and serious damage may be caused to the product.

2.2 SIM card installation

The product uses the GPRS / CDMA / 4G network of the mobile operator, so you need to buy the SIM card of the operator.



1、Install the SIM into the card slot with the metal face down 2、Insert into the card slot of the collector, with the metal side facing down and the small triangle facing out




3、After the card is installed, paste the SIM card seal sticker to complete the SIM card installation

Note: it is forbidden to plug and unplug SIM card when DTU is powered on. During the initialization of the device, all SMS messages in the SIM card will be deleted. When users use the SIM card in practice, they should pay attention to the backup of your useful information. We apologize for the deleted information.

2.3 Power selection and installation

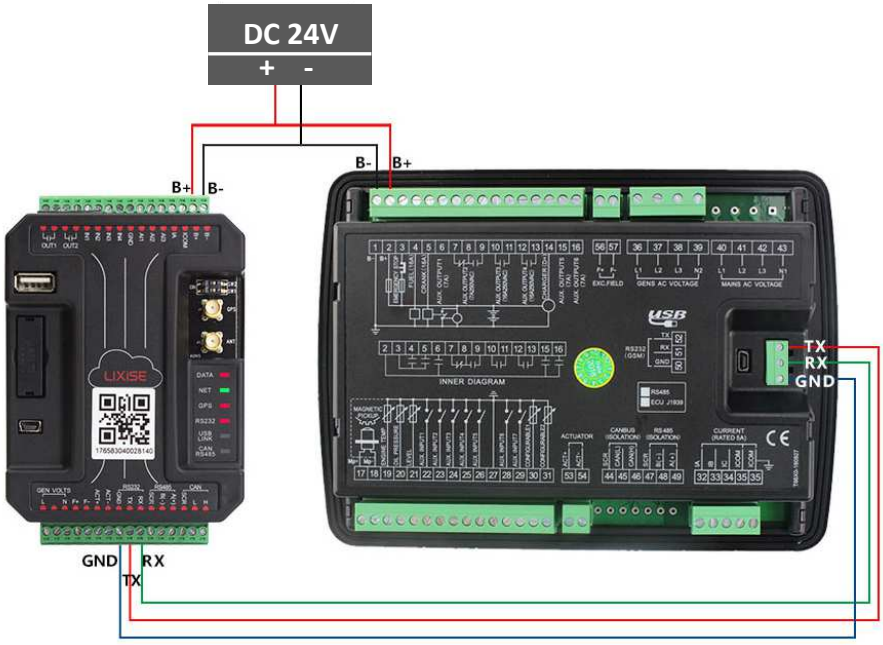
The product can use a wide range of voltage supply of + 8V ~ 35V, and the power ripple is controlled within 300mV. In wireless communication, the instantaneous current of the product will be very large and change rapidly, so the internal resistance of the external power supply should be as small as possible.

2.4 Connection description of LXI980 and equipment

Take LXI980 and LXC6110E connection as an example:

2.4.1 Connection

Connect the B + and B-,positive and negative poles of lxi980 and lxc6110e to the 8-32vdc power supply, and connect the RS232 ports of the two products with three wires. Pay attention to the corresponding connection.



2.4.2 Power-on Test

Electrically tested:

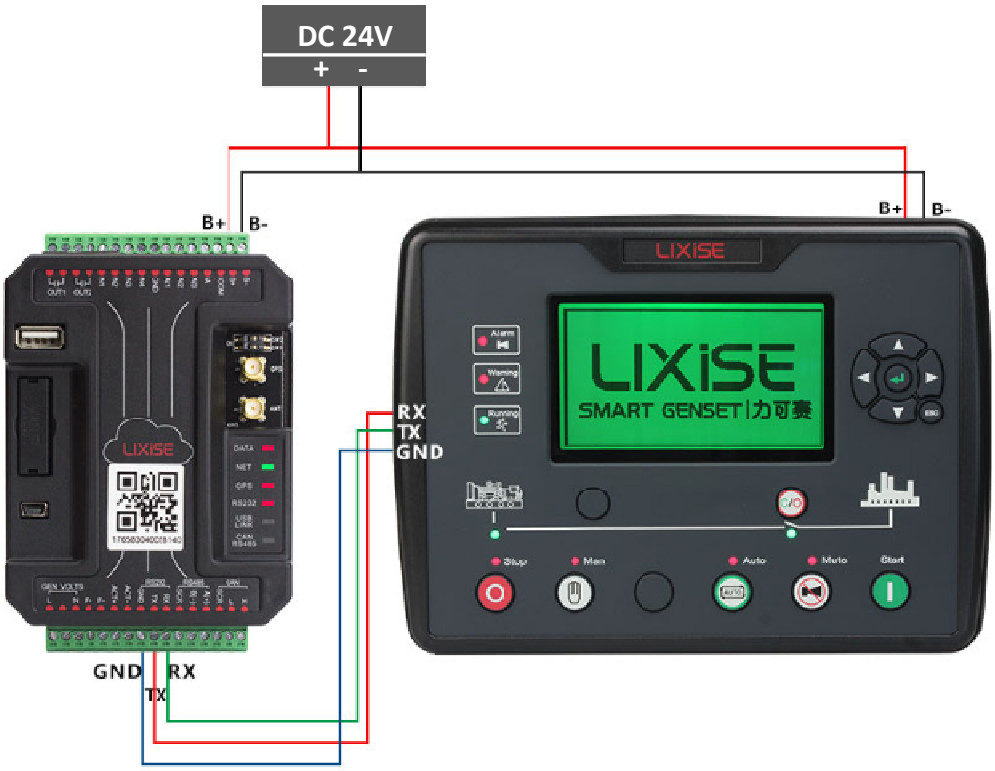
• Data light is on that the electricity is on.

·Net blinks to indicate that the network is being connected, and normally on to indicate that the communication is normal.

·GPS is always on, indicating that the positioning is successful.

·If RS232 is not on, it means the connection fails; if it is normally on, it means the connection is normal.

When Net and RS232 are normally on, it means the wiring installation is correct, and you can go to the platform to add units for use.



After the above steps are completed, the basic telecommunication system is connected.

Note 1:Please refer to 1.4.1 compatible controller model table for currently supported controller modules.

Note 2: The same baud rate, communication address and port type as the controller must be selected to ensure normal communication with the controller.

Note3: Please download the connection instructions of other devices on the website: “http://www.lixise.com.cn/download/”

3 Device configuration

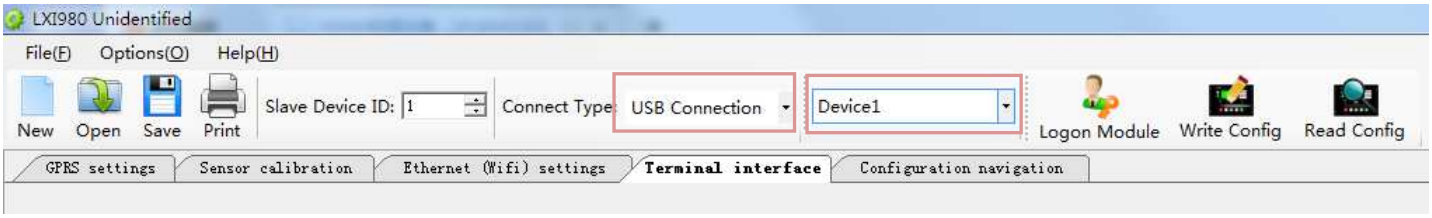
Open LXI 980 configuration software, the LXI 980 connected to the computer via USB as shown in Figure

1：Select the connection mode: USB connection, displays "Device 1"；

2：Click on the "reading configuration"

3：Configuration software displays "enter configuration mode successfully" LXI980 now ready to be configured.

4：After configuration, click [Write Configuration] to enter the normal working condition.



3 Configuration software interface

3.1 GPRS Setting project

3.1.1Device ID number （DTUID）

This is a uniqueness identification number of the module, through this number, the server can identify the connected module. The number is 15-bit ASCII character, set by the manufacturer, users can not modify.

3.1.2 Equipment hardware (software) version number （HDVER，SWVER）

They reflect the software and hardware version information of the module, the parameters set by the manufacturer, users can not modify. When user is seeking technical support, provide such information can get more targeted recommendations.

3.1.3 Server Name

Server name comments

3.1.4 Server IP (Domain name)

Fill in the IP or domain name of the server, the manufacturer’s sever information has been filled in by default when leaving the factory.

3.1.5 Server port number

the manufacturer’s sever information has been filled in by default when leaving the factory.

3.1.6 Server login password

The factory has filled in the server information of the manufacturer by default. In order to increase the security of the data center ,DTU will send a package of data called “registration package” when logging into the target server. This parameter will be included in the registration package. If the user software finds that the login password is inconsistent , it can refuse the login of the device. The login password can be set to any 8-byte string.

3.1.7 DNS setting （DNS）

When using the domain name way connected data center, need to configure the DNS server IP. Usually, using the local mobile DNS server connection would be more rapid, such as Guangdong Mobile's DNS server IP address:

211.136.20.203, Beijing Mobile's DNS server address: 211.136.17.107, Shanghai Mobile's DNS server address: 211.136.18.171. Of course, you can also search for "China DNS server list" on the "Baidu" to find a local DNS server, then make menuconfig. In addition, this can be left blank, to use DTU internal curing DNS address blank when left blank.

3.1.8 Reconnection interval, connection times

When the network signal is bad, or data center server fails, the target server's connection may become difficult, if DTU constantly try to connect, will produce large amounts of data flow, increase the burden of the user. Through the parameters, users can easily control the connection conditions.

Target reconnection interval is used to control time interval of second try connection, minimum is 20s, the longest is 65534s.

3.1.9.Heartbeat packet interval （BEATTIM）

After module is connected to the server, if long time no produce data flow, connections will be cut off by operators. In order to keep connection activated state, the module will intermittent send a few bytes meaningless data to the server (the default Settings for FEH), the data is called heartbeat packets. The time intervals between two heartbeat packets can be set according to the local network situation, generally tens of seconds. Users can set heartbeat packet time interval by this parameter, value scope is 30 ~ 65534 (unit: S).

3.1.10Heartbeat packet response timeout time （BEATOVER）

When the heartbeat packets sent, if in a heartbeat packet response timeout time, did not get reply packets, this kind of situation happen 3 times in a row, it should be network anomalies. DTU will connected to the Internet again. Users can through this parameter to set the heartbeat packets response timeout time, value range is 1 ~ 65534 (unit: s).

3.1.11APN name、 user name、 password （APN，USRNAM，PWD）

These parameters are usually use the default values. If using a dedicated VPN card, these parameters can be filled out according to the actual situation.

3.1.12 Authorized User number

LXI980G can set three authorization number, the authorized cell phone number can use text message or ringing to configuration and awakening parameters of DTU, and when DTU configuration as server, can know the DTU local IP and port number.

✧ **Note:** When any one of the three authorized user number is configured to "888888", any number in the case of correct password, can use SMS to operate DTU, does not include ringing.

3.2 Ethernet (Wi-Fi) setting project

3.2.1IP

Set the local IP of the LXI980-ET according to the actual network environment.

3.2.2 Subnet mask

Set the local subnet mask of the LXI980-ET according to the actual network environment.

3.2.3 Default Gateway

Set the default gateway of the LXI980-ET according to the actual network environment.

3.2.4 DNS1,DNS2

Set the DNS of the local network of the LXI980-ET according to the actual network environment.

3.2.5 Time zone settings

Set the time zone of the location of the LXI980-ET,and set China to (UTC +8:00)

3.2.6 Manual setting of latitude and longitude

Set the longitude and latitude of the location of LXI980-ET.Since LXI980-ET has no GPS function, it is necessary to set the longitude and latitude manually of the product installation location, and set the correct longitude and latitude to see the accurate location of the equipment on the platform.

3.3 Device Interface

4 Make the following settings according to the external connection controller.

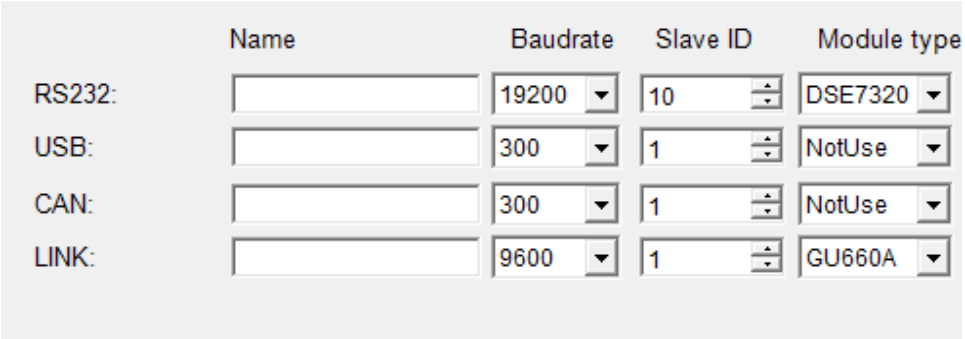
5 Ensample

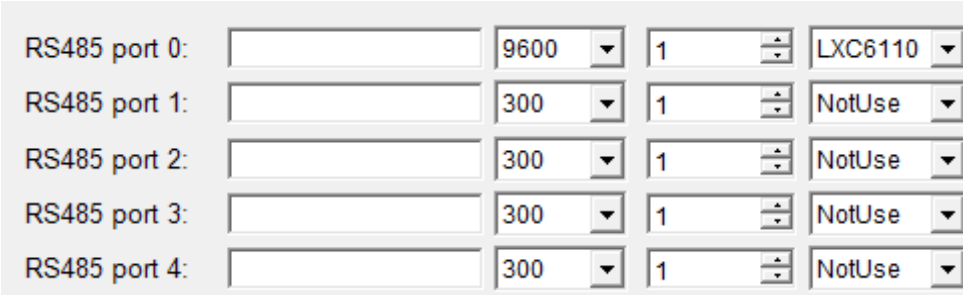
6 RS232 port connect DSE7320(baud rate is 19200， ID is 10)

7 LINK port connect Harsen 660A(baud rate is 9600， ID is 1)

8 RS485 port connect LIXiSE6110(baud rate is 9600， ID is 1)

As shown Below:





4.Statement

LXI980G industrial-grade external GPRS/CDMA/ET wireless data transmission equipment (DTU) and related software copyright belongs to Dongguan Tuancheng Automation Equipment Co., LTD., the property rights shall be protected by state law absolutely, without our authorization, other companies, institutions, agents and individual can't use illegally and copy it, otherwise will be severely repressed by national laws.

If you need our company's products and related information, please do not hesitate to contact us, we will warm reception.

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