

Narrow Band Powerline Communication Module with Simple MAC User Manual

Catalog

1.Introduction.....	2
2. Specification:	3
3. Application:.....	3
4. Headers Illustrations:	4
5. Test specification	6

1.Introduction

LinkSprite Narrow Band Power line Communication Module is new generation professional power line communication product, which uses dedicated PLC IC as core IC, coordinate with communication algorithm and power line interface signal driver circuit, so our product has features such as: high communication speed, reliable, anticlutter capacity and far communication distance ect. This is high-performance power line communication product, specialize for home and abroad power line application environment.

LinkSprite Narrow Band Power line Communication Module included all the complicated peripheral circuits, such as: 220V power reduction voltage 、 carrier coupling ect., also it can supply 5V power supply for user's device, TTL uart interface data rate is selectable in 600, 1200, 2400, 4800, 9600 or 19200 bps, can directly connect to RXD、 TXD on MCU, thereby to finish data transparent transmit from serial port to carrier. This will be easier for users to proceed 2nd development.

LinkSprite Narrow Band Power line Communication Module have half-duplex communication function, can realize LAN communication on 220V / 110V, 50 / 60Hz power line . It supply users with transparent data transmission channel, the data transmission has nothing to do with user protocol, it depends on user's data transmission protocol to verify the reliability of data transmission. multi modules can be connected to the same power line, each module can work alone under master-slave communication mode, without influence each other.

LinkSprite Narrow Band Power line Communication Module can also use low tension DC power supply(emergency power supply such as storage cell etc.) to transmit data even there's no power(no AC 220V power supply on power line), this can be widely used in home appliance, the internet of things, smart home control etc, it can also use in cable guard against theft, power grid monitor etc.

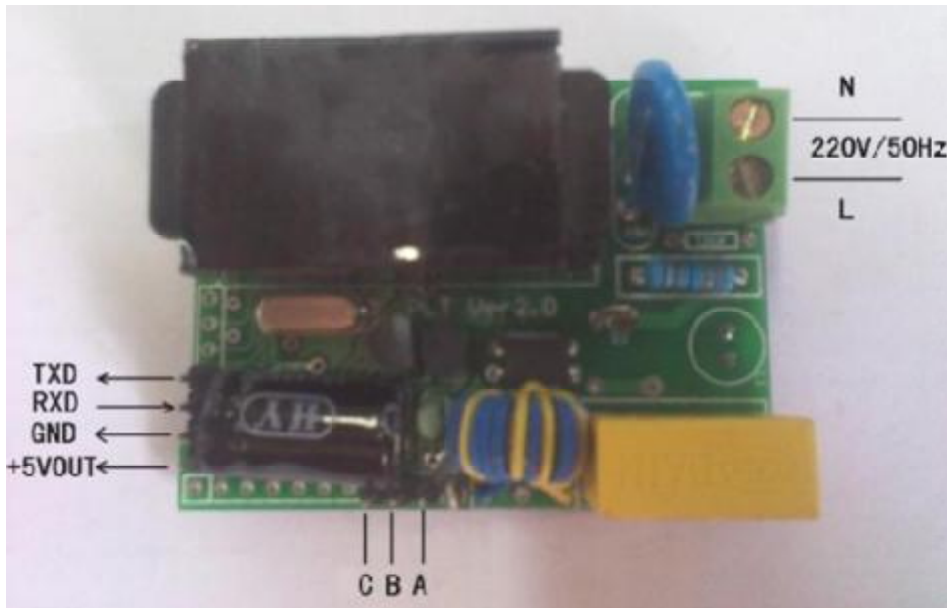
2. Specification:

- | Voltage: 220V/110V AC or 12V-16V DC
- | TTL UART interface data rate: 600, 1200, 2400, 4800, 9600 or 19200 bps
- | Interface: TTL UART, RXD, TXD
- | Communication power line: 220V/110V, 50Hz/60Hz, DC, or no power
- | Communication Distance: 1000 meters (depends on the power line environment)
- | Frame Length: ≤ 20 Bytes
- | Carrier frequency: 290KHz/125KHz
- | Power line communication data rate: 500 bps
- | Modulation: zeropassage bimodule / narrow band
- | Working temperature: -20 degree C to +70 degree C
- | Small size: 6 cm X 4.5 cm X 2 cm (L x W x H)

3. Application:

- | AMR
- | Industry manufacture and control
- | Safeguard, fire alarm, smoke alarm
- | Collect and transmit instrument data
- | Safeguard and monitor
- | Home automation
- | Parking Meters

4. Headers Illustrations:



Picture 1. Module interface

- I Input AC 220V, there's no difference between N&L, randomly connect.
- I A、 B、 C are the select input interface of communication baud-rate, they have internal pull-up resistor, hang in the air as high level. If you want input 0, just connect port to the ground. When input ABC in the following situations, the baud-rate as below:

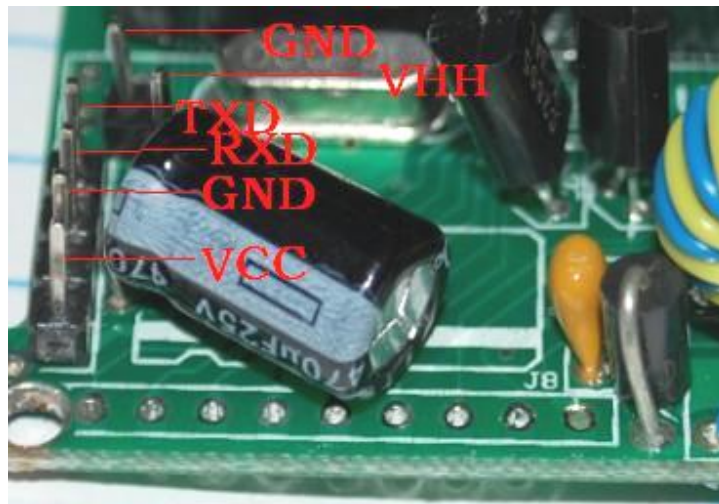
A B C = [1 1 1]	19200, default
A B C = [1 1 0]	9600,
A B C = [1 0 1]	4800,
A B C = [1 0 0]	2400,
A B C = [0 1 1]	1200,
A B C = [0 1 0]	600,

Attention: the default baud-rate is 119200 , baud-rate setting on the two communication modules should be the same.

- I MCU serial port setting: data bit 8, stop bit 1, check bit: NONE, flow control: NONE。
- I TXD (TTL) and RXD (TTL) connection, notice that the direction of arrow in

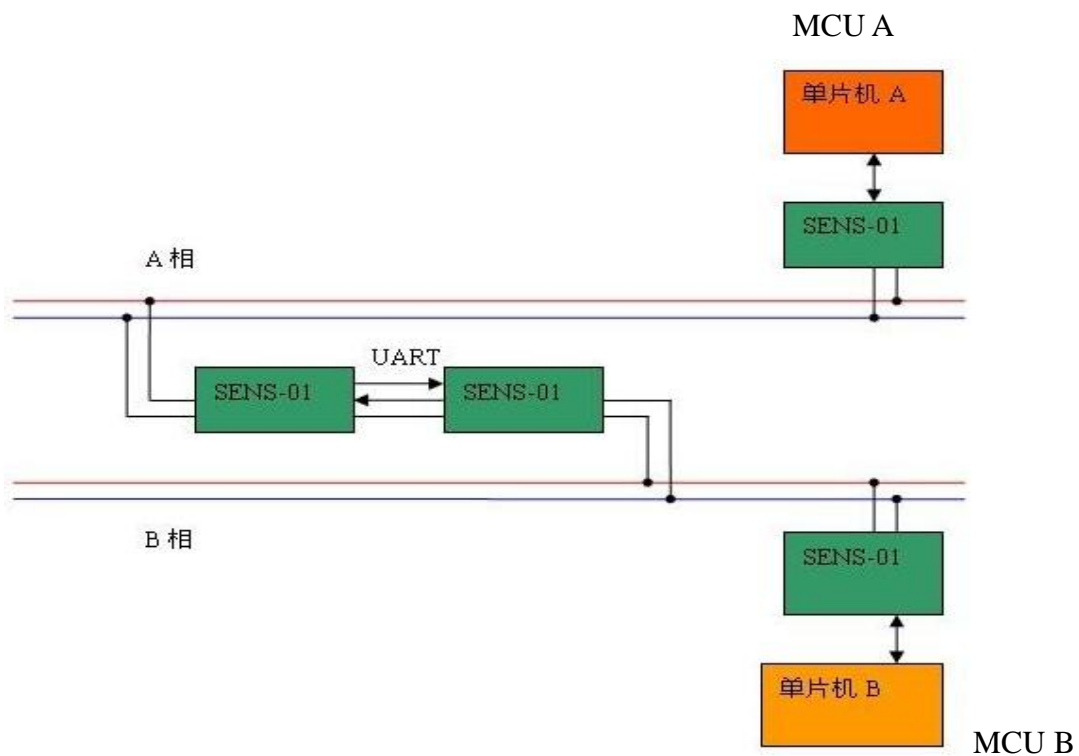
picture 1 represent I/O.

- I 5V power output (VOUT) ,maximum power 2W, can supply with user’s MCU and other systems.
- I When there’s no DC power supply, you can connect 12V-16V DC to VHH as power supply for the module, connection as picture 2.



Picture 2. Power port on the power line communication module

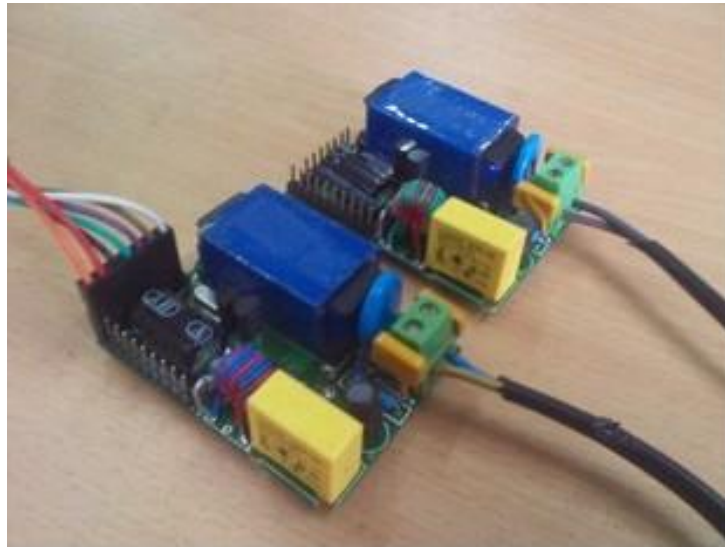
- I Solution for communication on three phase power grid



Picture 3. three phase power grid

5. Test specification

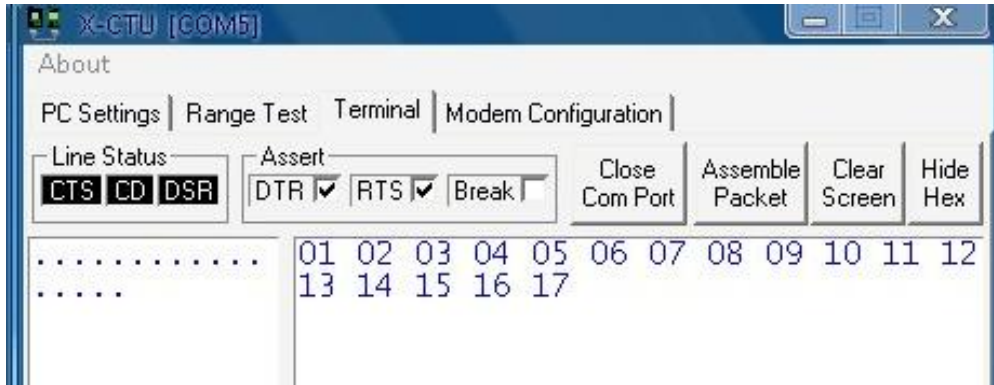
Serial port connect to COM on PC, and put the power supply of power line communication module onto patch panel. Same way connection on next PC.



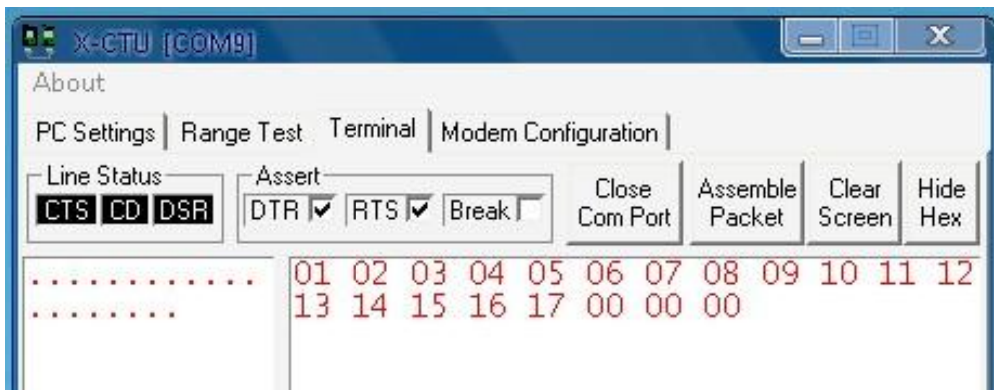
Picture 4. Power line communication module

Open the serial port debug assistant, to setting parameters:

- I Serial port No.: choose COM interface on PC which connected to the communication module , make sure choose correct, if not, it will not work.
- I Baud rate: 19200
- I Data bit: 8
- I Stop bit: 1
- I Check bit: none
- I Flow control: none
- I Input data in the character string input box : 01 02 03 ect.



Picture 5. Send data



Picture 6. Receive data

Notice: Each frame length \leq 20Byte, will automatically make up 0 if not enough for 20; and if exceed 20, will only receive front 20 datas, if send data $>$ 20 Byte, please subpackage for transmission.

LinkSprite Technologies, Inc.

Add: 1067 S Hover St, Unit E-186, Longmont, CO 80501

Tel: 720-204-8599

Email: sales@linksprite.com

Web: www.linksprite.com

