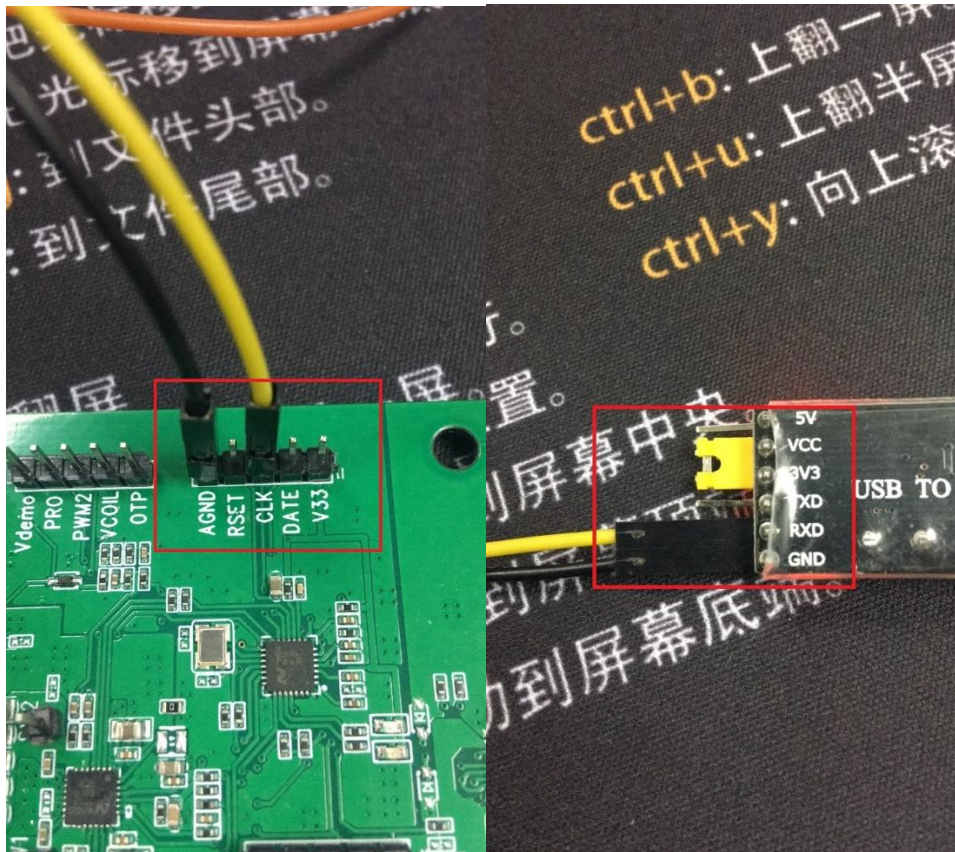


1 GUI for NU1020

1.1 HW setup

First, connect EVM with “USB to TTL” by two pin connection: GND and CLK (EVM side) – RXD (NU-Link side).


the connect is shown as following:



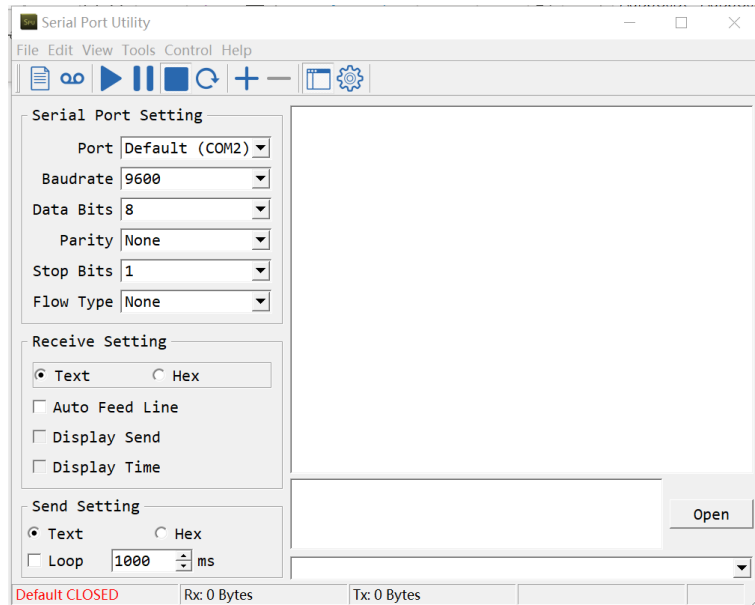
Second, connect NU-Link with computer by USB.

1.2 Install GUI Tool interface

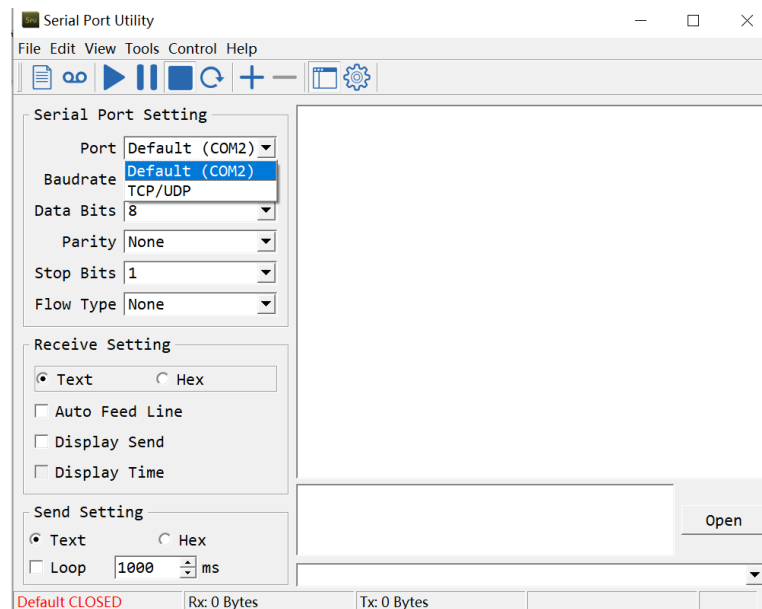
install “serial_port_utility_latest.exe” step by step

 serial_port_utility_latest.exe

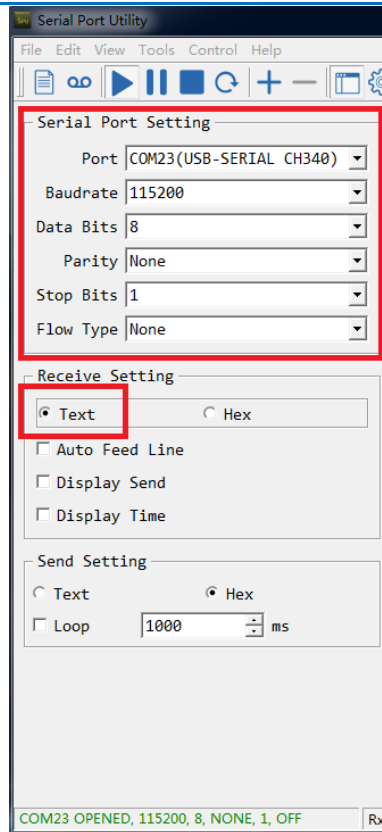
After finish installation, you can see below interface:



Step1- Choose the corresponding port in "Port" list:



Step2- Choose baudrate as "115200" as following

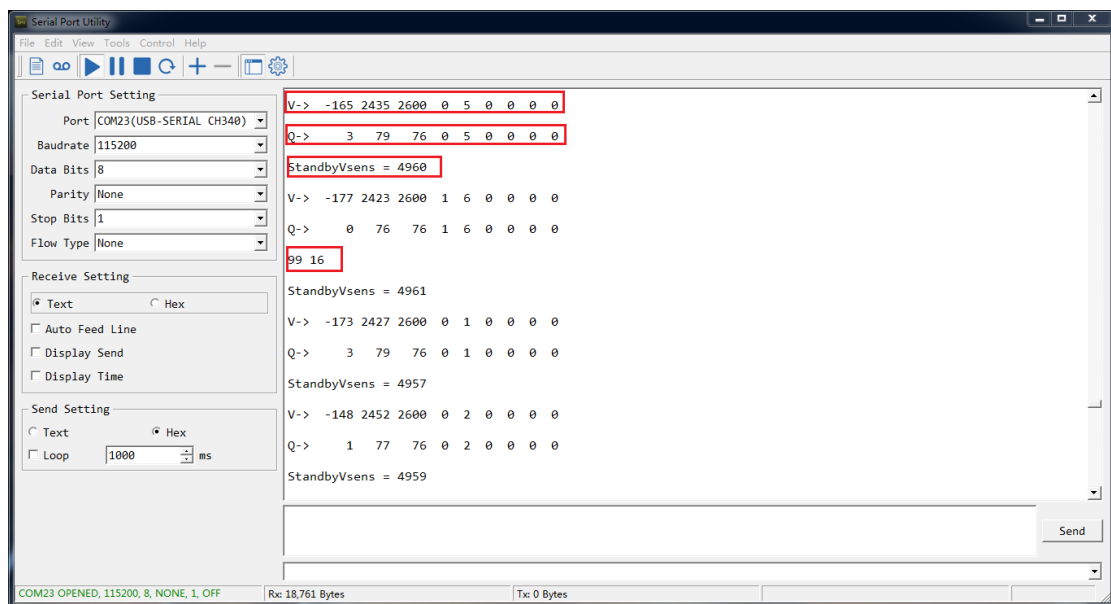


Step3- Click “start▶”, it starts to output the log message on the right side window.
If the user want to stop the log, you can click “Pause”.

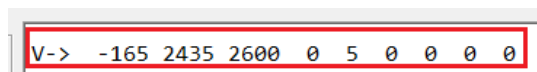
2 Explanation of log message

2.1 Analog Ping / Q Ping / Digital Pin Log Message (IDLE mode)

Below Figure shows the log message in IDLE mode:



Line 1 in red:



“2600” means the reference voltage of Vcoil in AP phase to distinguish if there is FO.

“2435” means the ADC measured voltage of Vcoil in AP phase

“-165” means the delta voltage between the measured voltage and the reference voltage.

Line 2 in red:

Q-> 3 79 76 0 5 0 0 0

“76” means the reference Q-Factor in QP phase.

“79” means the measured Q-Factor.

“3” means the delta Q value between the measured value and the reference value.

Line 3 in red:

StandbyVsens = 4960

“StandbyVsens” means the ADC measured voltage of Vin in IDLE mode.

Line 4 in red:

99 16

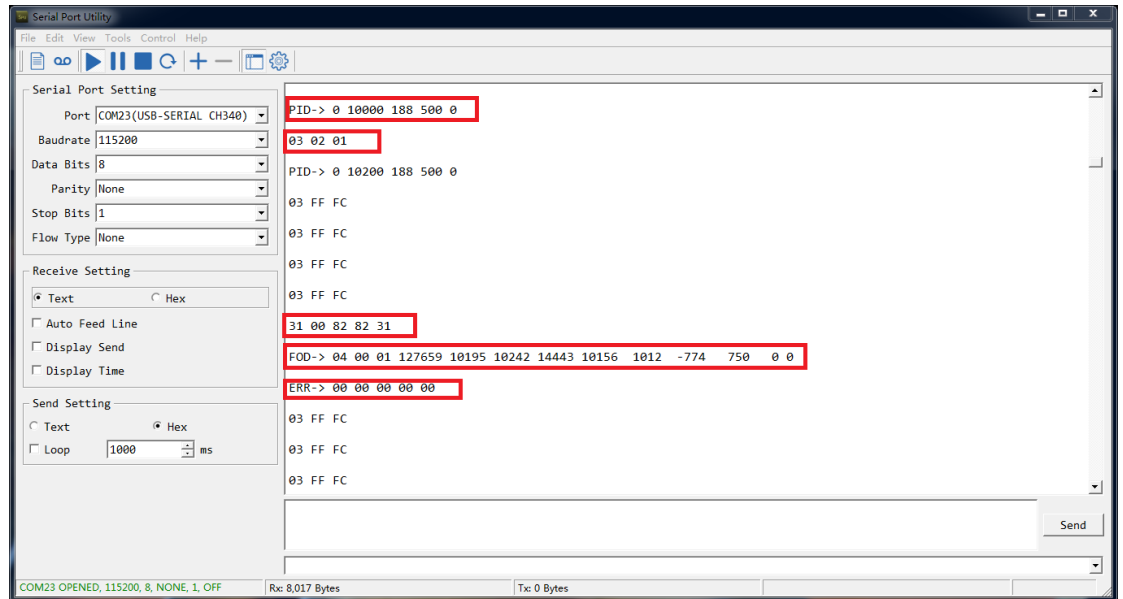
“99” is an indication of the reason why stop charging. It follows the charging failure ID.

The charging failure ID refers to following:

```
typedef enum
{
    FAULT_NONE = 0x00,
    FAULT_PINGNOSIGNAL = 0x01,
    FALUT_IDENTIFICATIONERROR = 0x02,
    FAULT_SEQUENCEERROR = 0x03,
    FAULT_CONFIGURATIONERROR = 0x04,
    FAULT_CONTROLHOLDOFFERROR = 0x05,
    FAULT_POWERYPENAK = 0x06,
    FAULT_NEGOTIATIONERROR = 0x07,
    FAULT_CALIBRATEPOWER = 0x08,
    FAULT_TRANSFERPACKETERROR = 0x09,
    FAULT_IDENTNOCORRECTPACKET = 0x0A,
    FAULT_NOCONTROLPOWERPACKET = 0x0B,
    FAULT_NORECEIVEPACKET = 0x0C,
    FAULT_CALIBRATIONLONG = 0x0D,
    FAULT_VOLTAGEOVER = 0x0E,
    FAULT_FODNAK = 0x0F,
    FAULT_FODERROR = 0x10,
    FAULT_TEMPERATUREOVER = 0x11,
    FAULT_SOURCEVOLTAGEOVER = 0x12,
    FAULT_OVERCURRENT = 0x13,
    FAULT_NU1008 = 0x14,
    FAULT_ENDPOWERTRANSFER = 0x15,
    FAULT_PINGNOPACKET = 0x16,
    FAULT_POWERSTAGEERROR = 0x17,
    FAULT_DIGITAL_PING_OVER_CURRENT = 0x18,
    FAULT_ENTER_FACTORY_TEST = 0x19,
    FAULT_SOURCEVOLTAGEUNDER = 0x1A,
    FAULT_CLEARCALIDATA = 0x1B,
    FAULT_CALIDATAERROR = 0x1C,
    FAULT_EPP_RECEIVE_PACKET_04 = 0x1D,
    FAULT_OVER_POWER = 0x1E,
} TerminateCause;
```

In this case, “16” means the charging failure comes from “PINGNOPACKET”.

2.2 The log Message in charging mode:

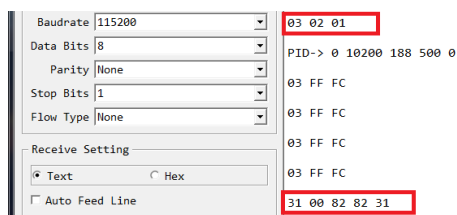


Line 1 in red:

PID-> 0 10000 188 500 0

- The first data indicates the control mode of Tx.
 - “0” means the control mode is controlling the input voltage of power stage.
 - “1” means the control mode is controlling the operating frequency.
 - “2” means duty cycle control.
- “10000” is the setting voltage of Vin.
- “188” means the operating frequency. It needs to transfer to frequency by below formula: $\text{freq} = 24\text{MHz} / 188 = 127.6596\text{kHz}$
- “500” means the duty cycle is 50%

Line 2 and Line 3 in red:



It indicates the received Rx Packet.

Line 4 in red:

FOD-> 04 00 01 127659 10195 10242 14443 10156 1012 -774 750 0 0

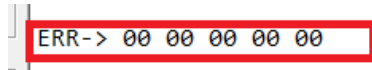
This indicates the charging state to distinguish FOD:

- 127659 means the frequency is 127659Hz.
- 10195 means the Rx received power is 10195mW.

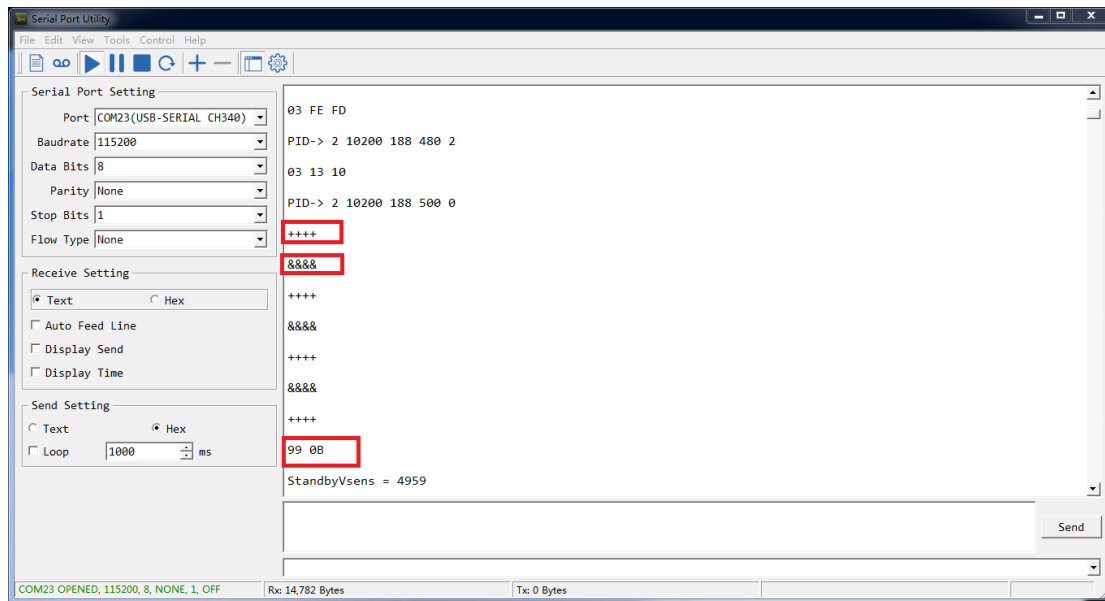
- 10242 means the Tx transferred power is 10242mW.
- 14443 means the Vcoil voltage is 14443mV.
- 10156 means the Vin voltage is 10156mV
- 1012 means the average current of lin is 1012mA

Line 5 in red:

This line will indicate the history of charging failure ID.



2.3 The log message of demodulation



- ++++ indicates that Tx change the demodulation source (Ipk, Iin and Vcoil_peak).
- &&&& indicated that Tx adjust the power a bit to improve the demodulation.
- Here the failure ID is "0B", as explained above, refer to charging failure ID, it means "No control power packet"