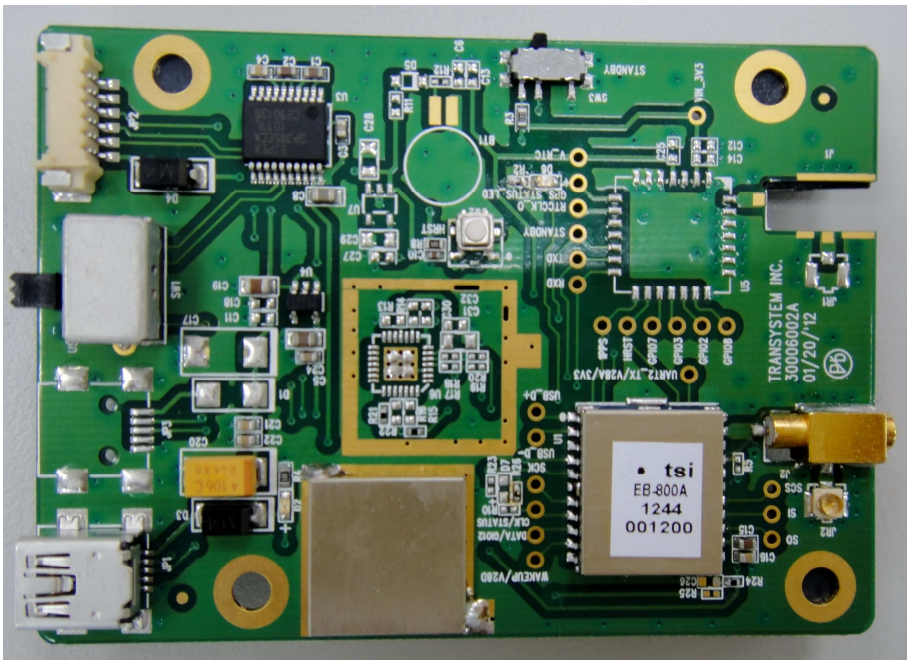
EB-800A GPS Engine Board
Evaluation Kit User's Manual

AN-01



TRANSYSTEM INC.

No. 1-2 Li-Hsin Rd. I, Science-Based
Industrial Park, Hsinchu 300, Taiwan
T : +886-3-5780393 / F : +886-3-5784111
www.transystem.com.tw
sales@transystem.com.tw

Rev.0.3

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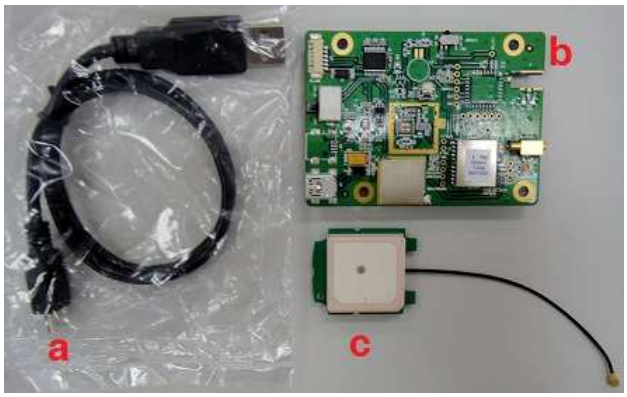
1. Introduction

EB-800A evaluation kit is an user friendly tool for your evaluation of TSI's EB-800A GPS / GLONASS engine board. With its miniature size, low power consumption and superior performance, EB-800A is your ultimate choice for all embedded applications such as :

- Handheld devices (PDA, Smart phone…)
- Automotive and Marine Navigation
- Automotive Navigator Tracking
- Emergency Locator
- Geographic Surveying
- Personal Position
- Sporting and Recreation

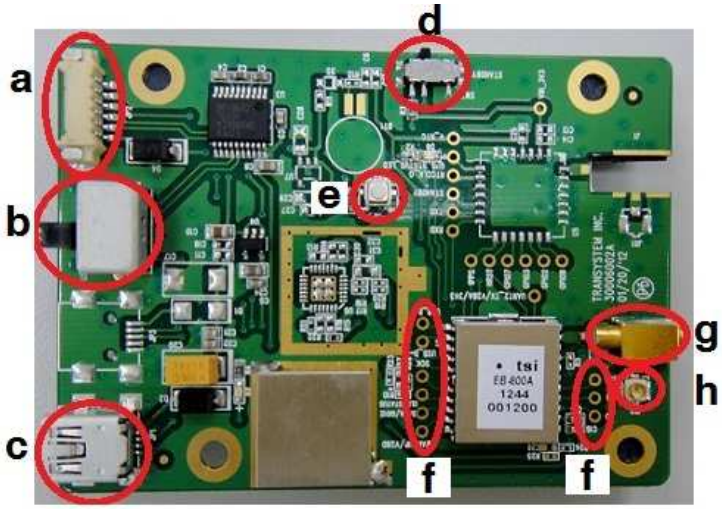
2. When you open it

2.1. Checking the package content



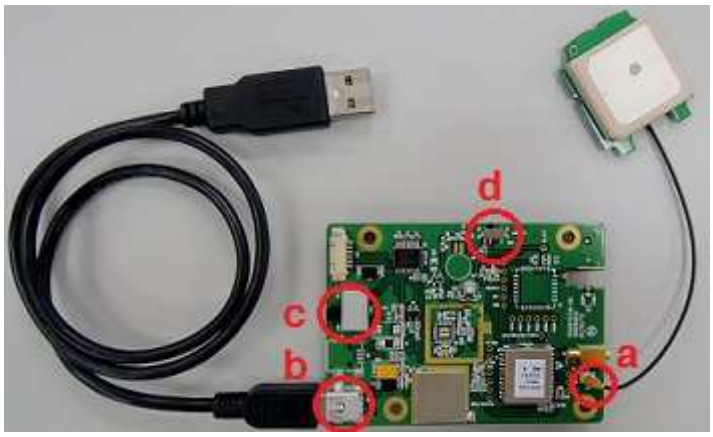
a. USB cable *1
b. EB-800A evaluation board *1
c. GA-723A active antenna *1

2.2. Evaluation Board Picture



a. RS-232 port
b. USB & RS232 select switch
c. Mini USB port
d. Standby switch
e. Hardware reset button
f. Test point
g. Aux RF port1 (MMCX)
h. RF port2 (IPEX)

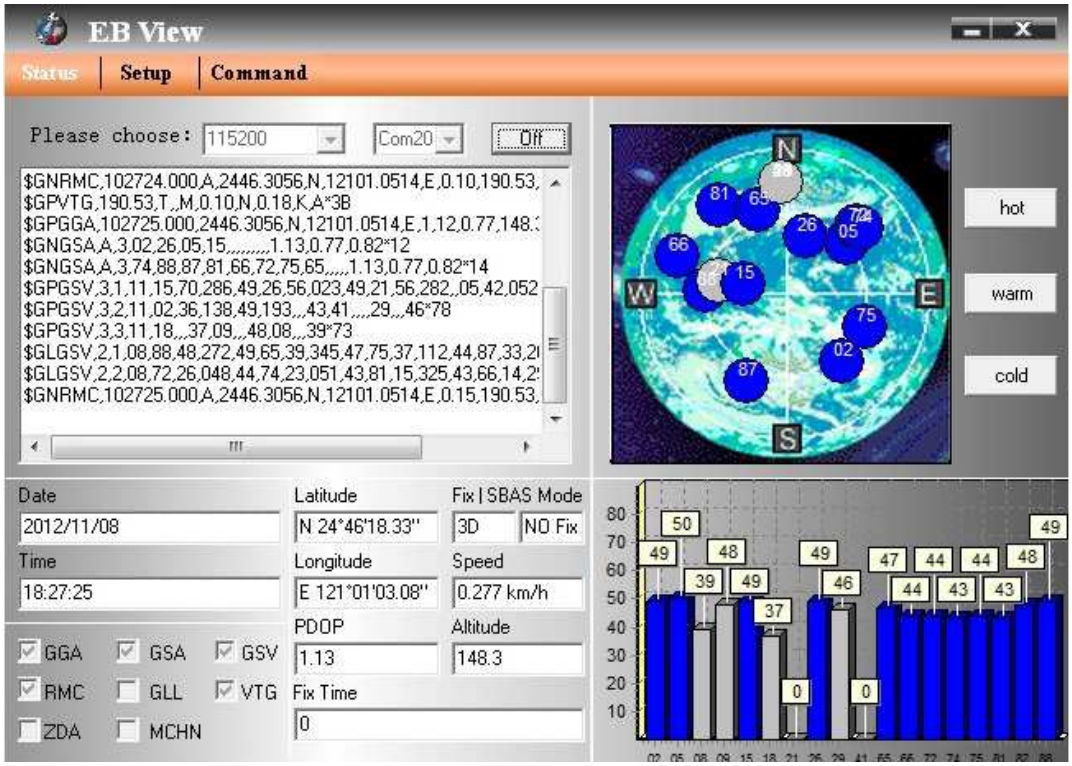
2.3. USB Setup



a. Plug active antenna into the RF port2 (IPEX)
b. Connect USB cable between EB-800A evaluation board and PC
c. Turn USB & RS232 select switch to “USB” position
d. Turn GPS / GNSS on/off switch to “GPS / GNSS on” position

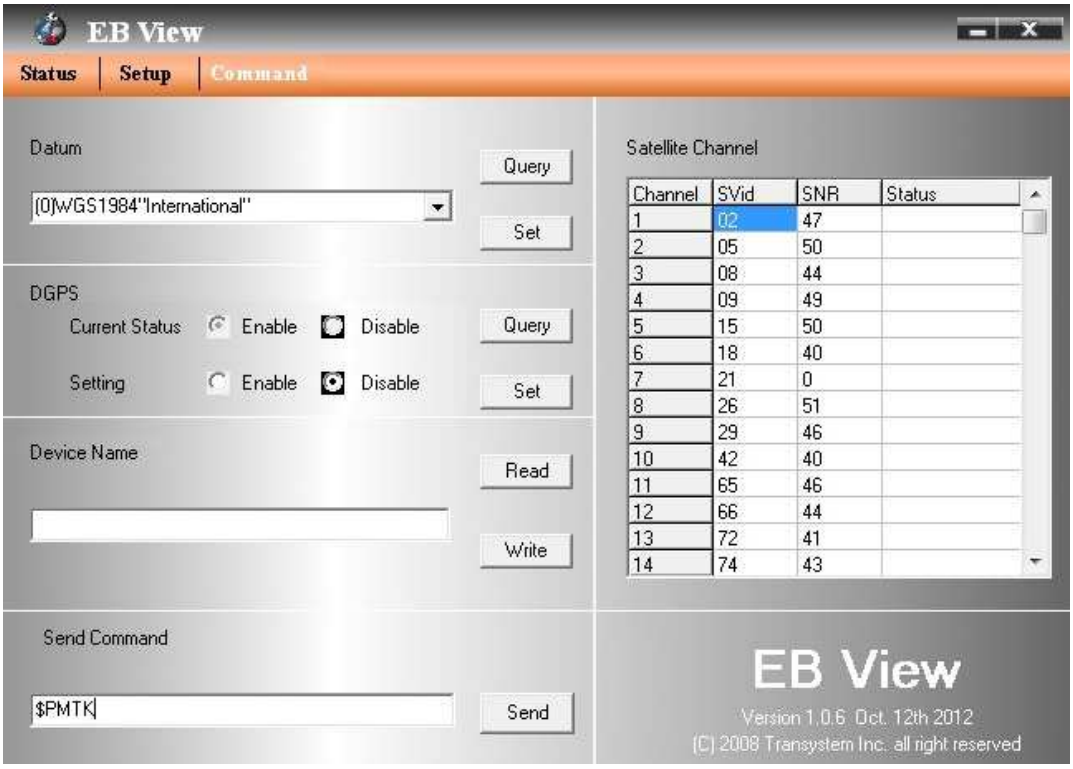
3. EB View Software

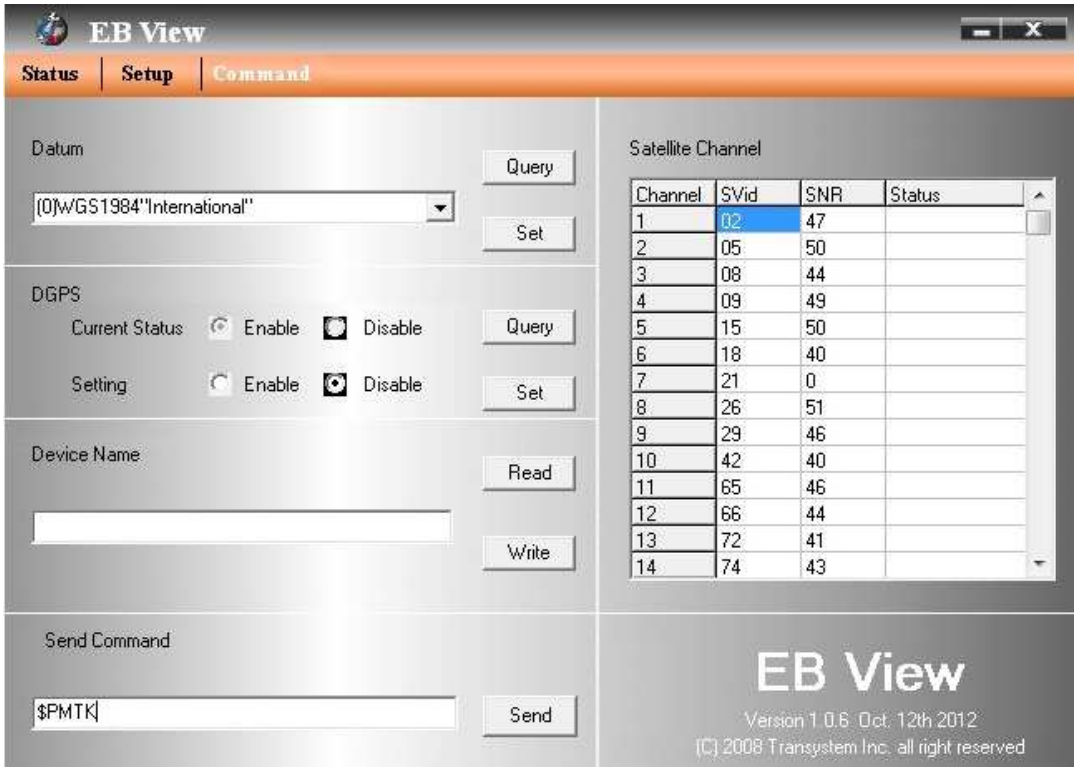
Open EB View software and select correct COM port and Baud Rate and then click “On” button to establish the communication between EB-800A evaluation board and PC. If the connection is successful, the NMEA stream will keep showing.



3.1. Configuration

In Setup and Command Page, Output frequency of each NMEA can be changed from 1second to 5 seconds and Fix update rate can be changed from 1 time to 5 times per second. DGPS like WASS, EGNOS, MSAS can be enable or disable. Here also allow users to update the AGPS and record the NMEA sentence.





For example:

NMEA output setting	+	Fix update-rate	=	Real NMEA output
GGA(1), GSA(1), GSV(1), RMC(1)	+	1	=	GGA(1), GSA(1), GSV(1), RMC(1)
GGA(1), GSA(1), GSV(1), RMC(1)	+	2	=	GGA(1/2), GSA(1/2), GSV(1/2), RMC(1/2)
GGA(1), GSA(1), GSV(1), RMC(1)	+	3	=	GGA(1/3), GSA(1/3), GSV(1/3), RMC(1/3)
GGA(1), GSA(1), GSV(1), RMC(1)	+	4	=	GGA(1/3), GSA(1/3), GSV(1/3), RMC(1/3)
GGA(1), GSA(1), GSV(1), RMC(1)	+	5	=	GGA(1/5), GSA(1/5), GSV(1/5), RMC(1/5)
Note:	1. GGA(1) means GGA sentence output every 1 second, GGA(2) output every 2 seconds. 2. GGA(1/2) means GGA sentence output 2 times per second, (1/5) output 5 times per second.			

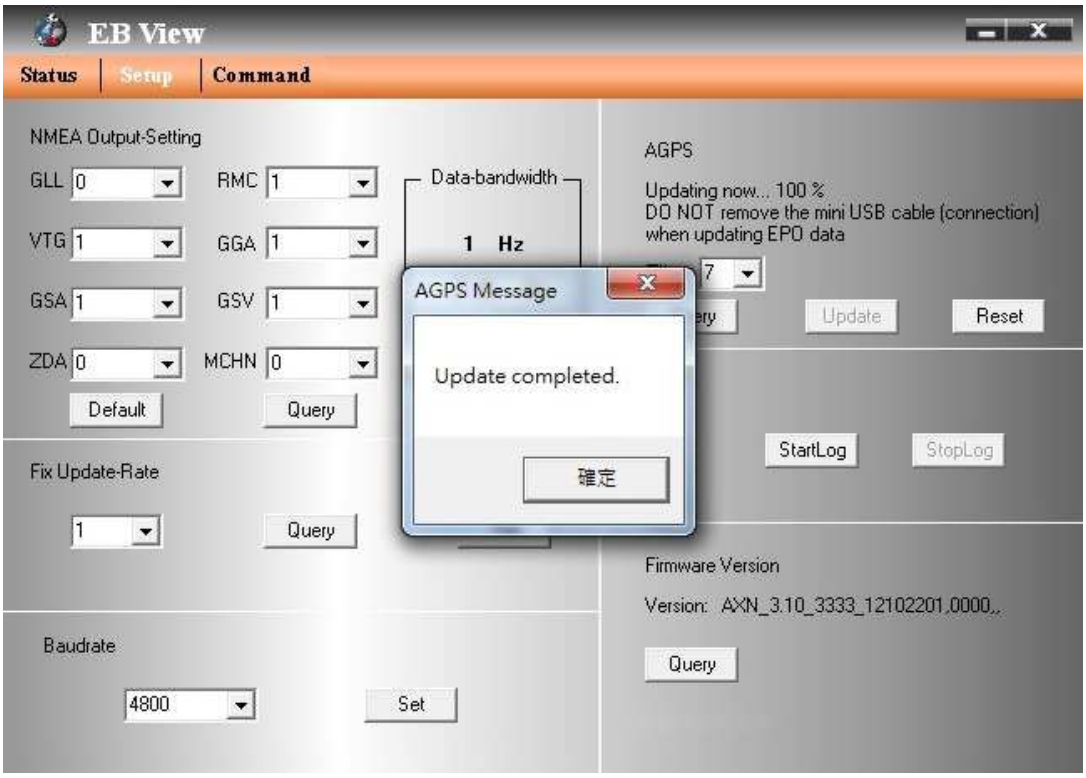
3.2. Update AGPS

Step1. Make sure you have network available for accessing the internet.

Step2. Connect EB-800A evaluation board to PC and then open EB View to establish the communication.

Step3. Go to “Setup” page

Step4. Click “Update” button under AGPS to update the AGPS data. The program will connect to the AGPS server and download the data automatically. You can also check the valid time of AGPS by clicking Query. Clear AGPS data by clicking Reset.



Note: AGPS has 7 or 14 days time limited it was depend by your select file.

4. Connector Definition

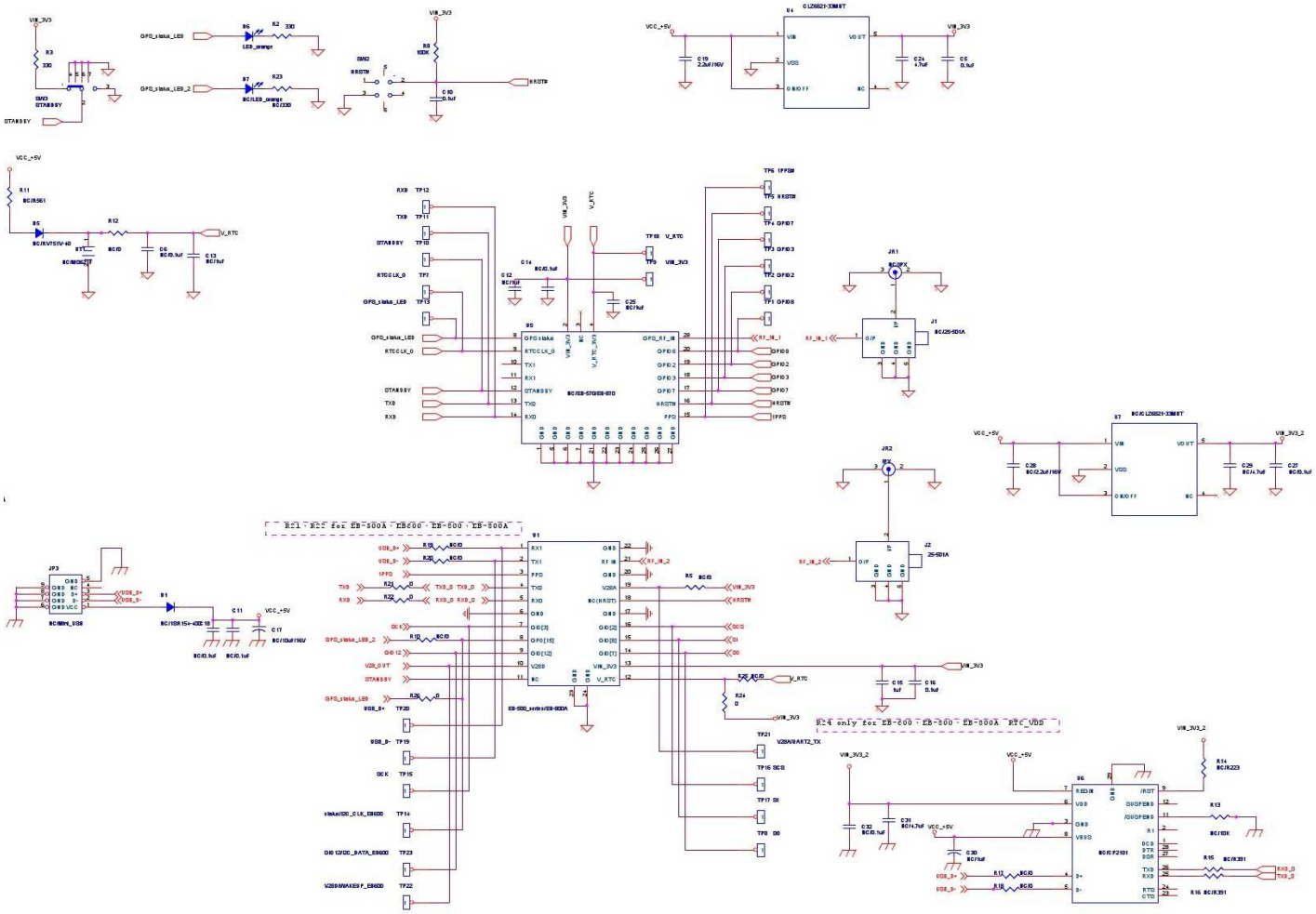
Pin#	Signal Name	Type	Description
1	RX1	I	UART port 1 input
2	TX1	O	UART port 1 output
3	PPS	O	Pulse per second output when GPS has position fix, 10% duty cycle
4	TX0	O	GPS TX0
5	RX0	I	GPS RX0
6	GND	P	Ground
7	GPIO	I/O*	General input/ output, leave open if not used
8	GNSS status	O	When GNSS is position fix, pin 8 alternates between High/Low. When no fix, pin8 always goes low.
9	GPIO	I/O*	General input/ output, leave open if not used
10	NC	I	NC
11	Standby	I	Falling edge trigger. Back to High for normal operation. Leave open if not used
12	VRTC_3V3	P	RTC power 2.0~4.3V Quiescent current 2.0uA max
13	VCC_3V3	P	Power Supply 2.8~4.3V DC
14	GPIO	I/O*	General input/ output, leave open if not used
15	GPIO	I/O*	General input/ output, leave open if not used
16	GPIO	I/O*	General input/ output, leave open if not used
17	GND	P	Ground
18	HRST	I	Module reset, active low. Internal pull high leave open if not used
19	Rsvd	I/O*	Reserve for future use, leave open if not used
20	GND	P	Ground
21	RF Input	I	Antenna port, L1, 1575.42MHz, 50 ohm
22	GND	P	Ground

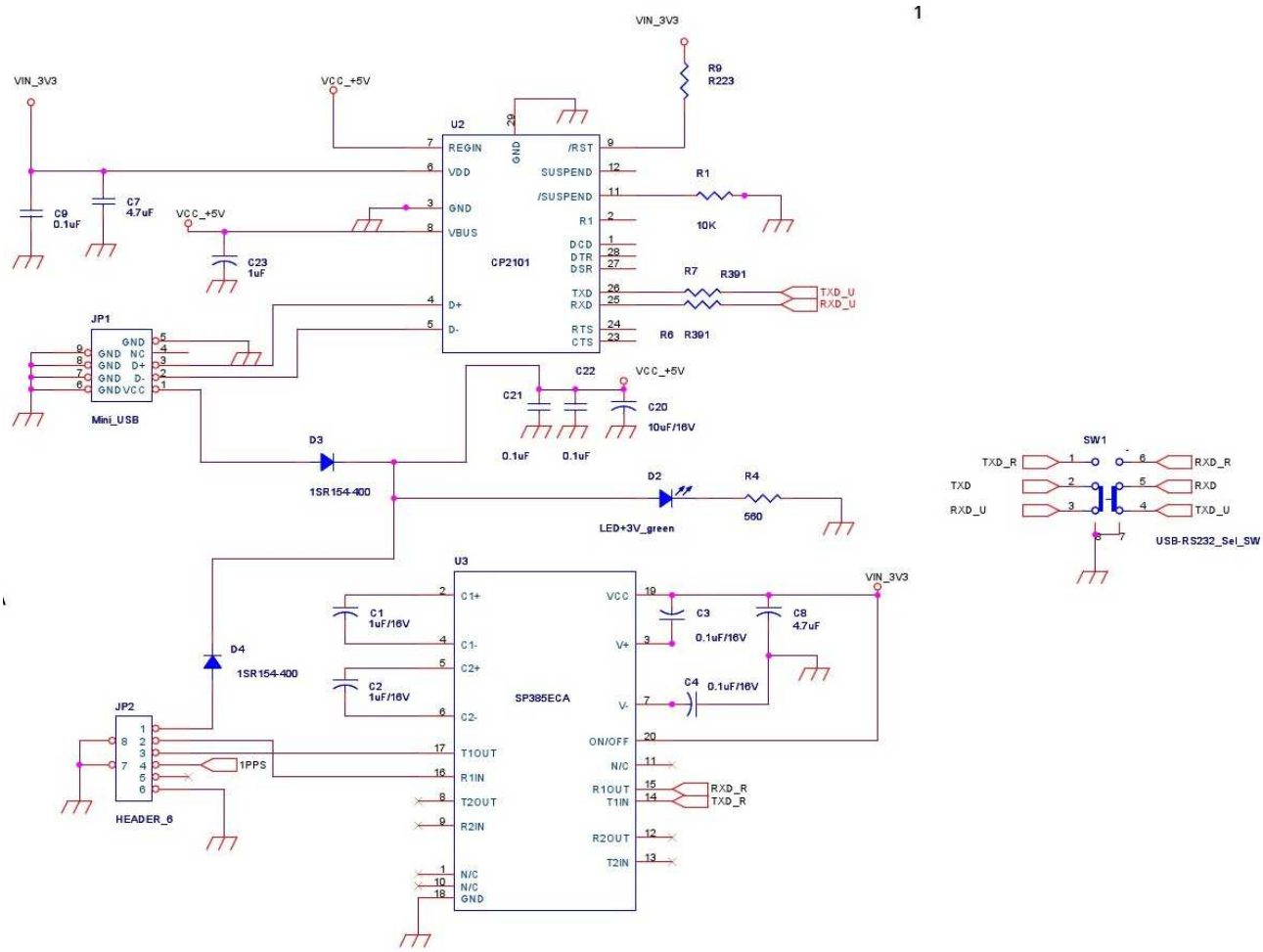
Note : 1) P: Power, I: Input, O: Output, I/O*: Input or Output, leave open if not used

2) GPIO current output default：4mA, Max ：16mA

3) Please supply VRTC_3V3 / VCC_3V3 voltage simultaneously or supply VRTC_3V3 voltage first when powering on the module.

5. Evaluation Board Schematics




VIN_3V3
VCC_+5V
U2
CP2101
REGIN
VDD
GND
VBUS
/RST
SUSPEND
/SUSPEND
R1
DCD
DTR
DSR
TXD
RXD
RTS
CTS
D+
D-
R9
R223
R1
10K
R7
R391
R6
R391
TXD_U
RXD_U
C9
0.1uF
C7
4.7uF
C23
1uF
JP1
Mini_USB
C22
C21
C20
10uF/16V
0.1uF
0.1uF
D3
1SR154-400
D2
LED+3V_green
R4
560
SW1
USB-RS232_Sel_SW
TXD_R
RXD_R
TXD
RXD
RXD_U
TXD_U
U3
SP385ECA
C1+
C1-
C2+
C2-
VCC
V+
V-
ON/OFF
N/C
T1OUT
R1IN
T2OUT
R2IN
R1OUT
T1IN
R2OUT
T2IN
C1
1uF/16V
C2
1uF/16V
C3
0.1uF/16V
C4
0.1uF/16V
C8
4.7uF
D4
1SR154-400
JP2
HEADER_6
1PPS
RXD_R
TXD_R

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Contact Information

Transystem Inc.
No.1-2 Li-Hsin Rd. 1,
Science-Based Industrial Park,
Hsinchu 300, Taiwan, R.O.C.
Tel: +886.3.578.0393 / Fax: +886.3.578.4111
www.transystem.com.tw/
sales@transystem.com.tw