

SIM28M/28ML GPS Receiver Modem



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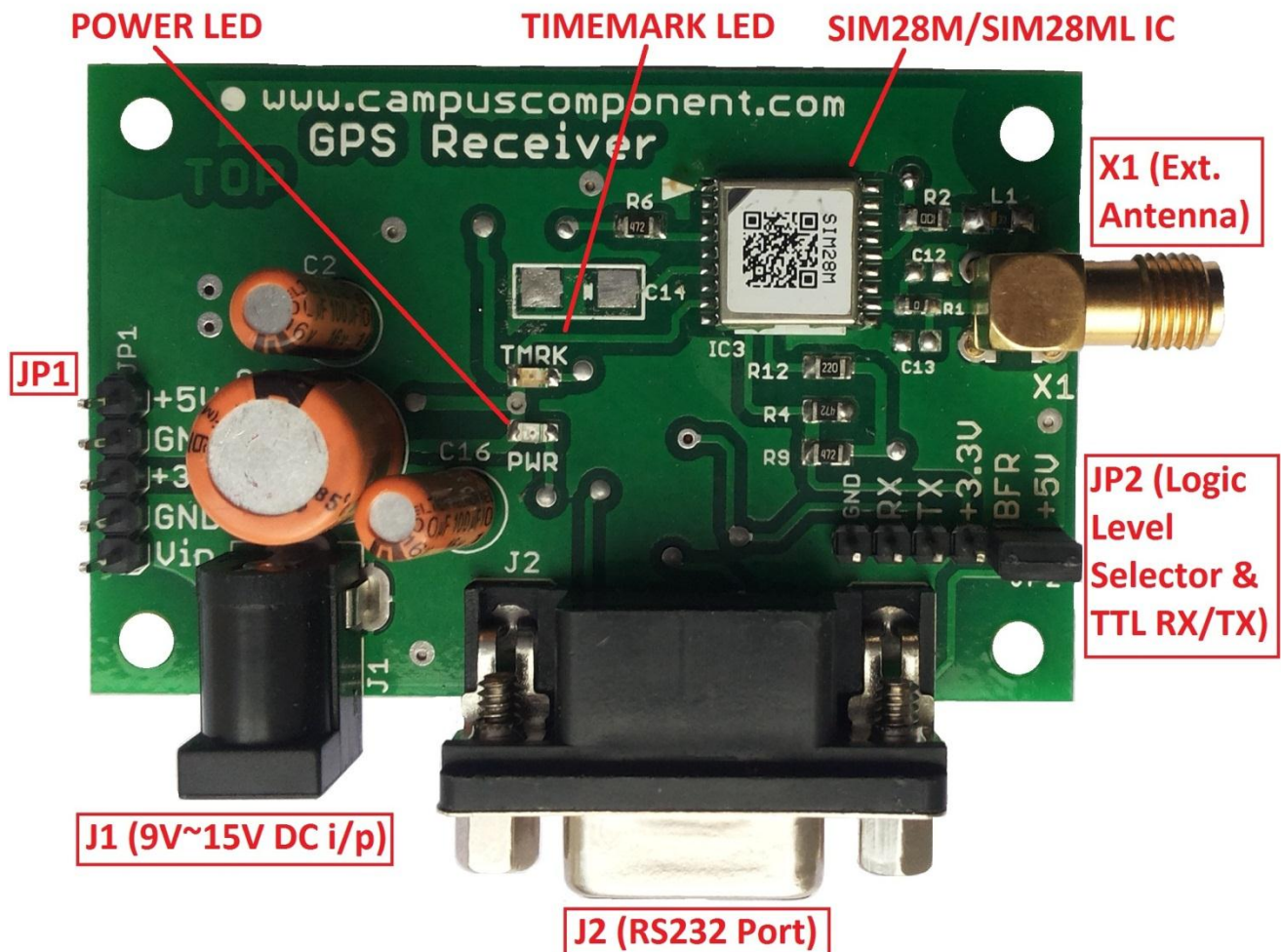
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GPS Receiver Modem

This GPS Receiver Modem is based on SIMCOM's SIM28M/SIM28ML GPS Module. SIM28M is a stand-alone or A-GPS receiver. With built in LNA, SIM28M can relax antenna requirement and don't need for external LNA. SIM28M can track as low as -165dBm signal even without network assistance. SIM28M has excellent low power consumption characteristics (acquisition 17mA, tracking 16mA). SIM28M supports various location and navigation applications, including autonomous GPS, QZSS, SBAS ranging (WASS, EGNOS, GAGAN, MSAS), DGPS and A-GPS.

Hardware Description:



A 9~15V DC (DC Only) Adaptor can be used to power up this modem. Adaptor can be connected to DC Jack/Socket **J1**. User can also share power supply available on their other circuit boards using *berg/header wires*. 9V~15V DC can be connected to Vin (Input Voltage) and GND (Ground/0V) Pins at male header **JP1**. A diode (**D1**) protects the modem from reverse polarity. User can also power up this modem by sharing voltage level +5V or +3.3V from their other circuit boards. +5V or +3.3V must be connected at **JP1**.

(Caution: Reverse Polarity Protection (RPP) is only available to Vin & GND Pins, any wrong connection to +5V/GND or +3.3V/GND or +5V/3.3V pins may damage modem permanently, so utmost care should be taken while providing power from these pins)

SIM28M IC runs on +3.3V supply, 9~15V is given to the input of LM7805 voltage regulator IC. LM7805 IC gives a output of +5V which is provided as input to LM1117 IC which gives +3.3V output to SIM28M IC.

So user should share **only one** voltage level (There are three voltage levels on GPS Receiver Modem Board:- Vin, +5V & +3.3V) *GND being common is ignored.*

1. Providing supply at Vin Pin or DC Jack **J1** (9V~15V DC) will automatically generate +5V & +3.3V from voltage regulators on GPS Receiver Modem Board.
2. Providing a +5V supply at +5V pin of **JP1** will automatically generate +3.3V from voltage regulator LM1117 (**IC1**) on GPS Receiver Modem Board.

Please Note:- +5V in this case is generated by voltage regulator on your other circuit board, not the one on GPS modem. Actually we are bypassing modem's +5V regulator.

3. Providing a +3.3V supply at +3.3V pin of **JP1** will power up SIM28M IC.
Please Note:- +3.3V in this case is generated by voltage regulator on your other circuit board, not the one on GPS modem. Actually in this case we are bypassing modem's both +5V & +3.3V regulators.

For powering up GPS Board give supply from:- (**J1** alone or **Vin** alone or **+5V** alone or **+3.3V** alone & ofcourse **GND** will be used in each combination.)

PWR LED:- Power LED ON indicates board is powered up.

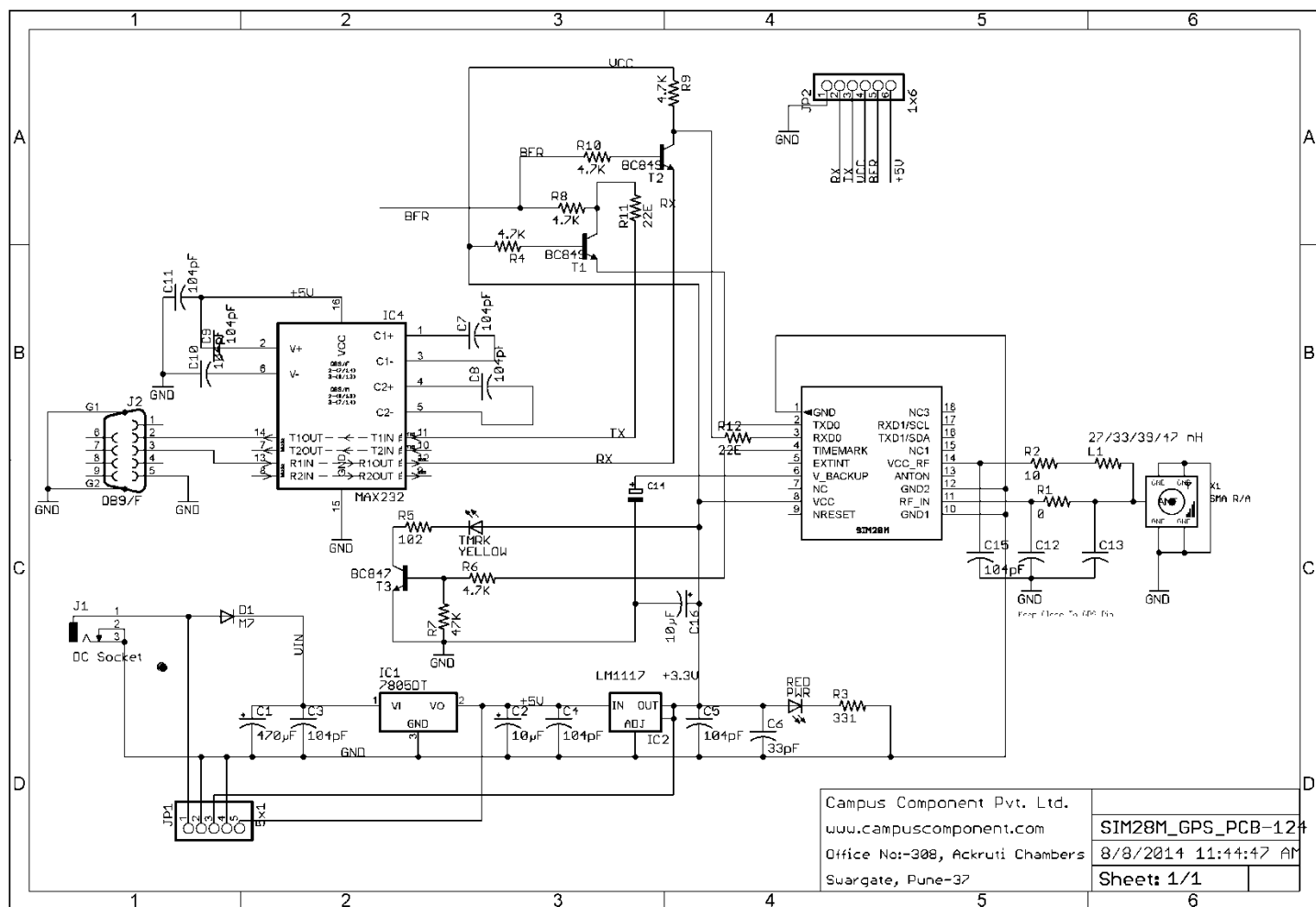
TMRK LED:- Timemark LED is connected to TIMEMARK pin which starts blinking at 1Hz (1PPS one pulse per second) when GPS is FIXED.

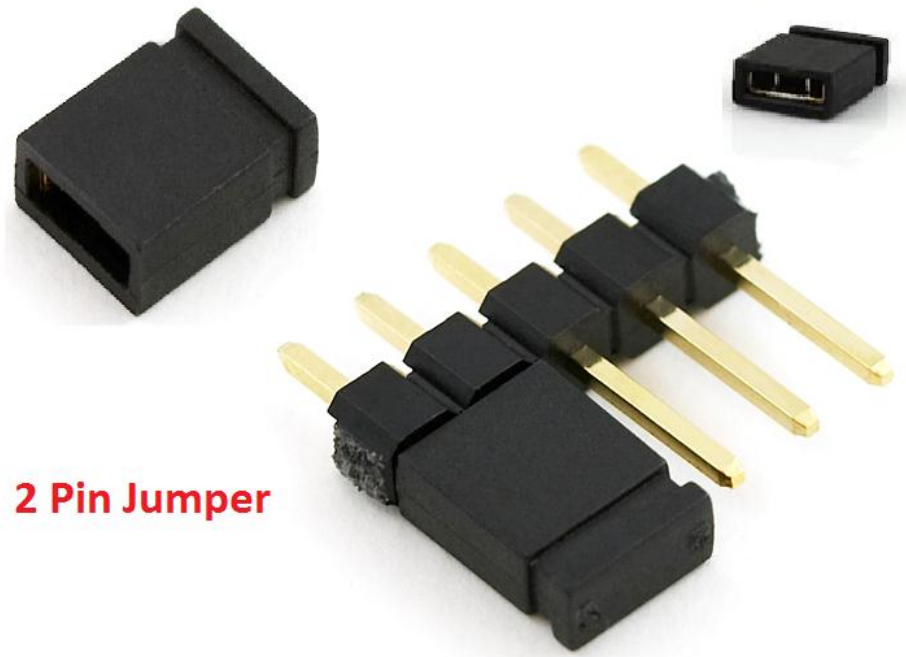
RS232 Interface:- Any RS232 compatible device like PC can be connected to DB9 connector **J2**. User can observe data flow on softwares like hyperterminal, realterm etc. Baudrate to select is 9600.

TTL Interface:- User can directly use TTL output which is available at connector **JP2**. A level shifter is used to make it compatible with +5V & +3.3V microcontrollers. A 2 pin jumper is in default connection with **BFR** & **+5V** pins of **JP2** so TTL '**RX/TX**' of GPS modem can be connected to '**RX/TX**' of any +5V microcontroller like 8051, AVR, PIC etc.. For any +3.3V microcontroller like LPC2138, LPC2148, Cortex-M3 etc. connect the jumper **BFR** & **+3.3V** Pins.

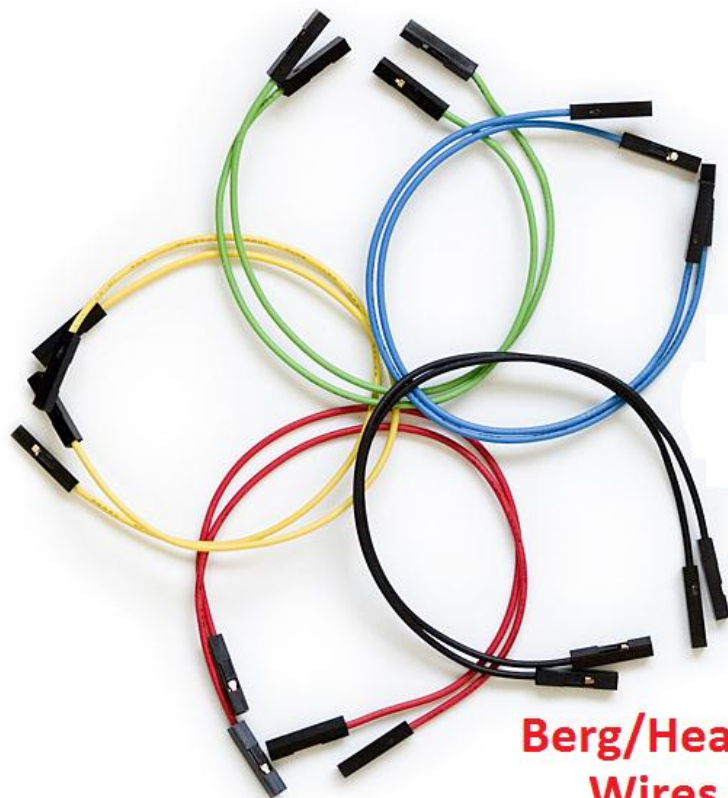
Jumper position at:-

1. BFR & +5V:- TTL '**RX/TX**' of GPS modem can be connected to '**RX/TX**' of any +5V microcontroller like 8051, AVR, PIC etc.
2. BFR & +3.3V:- TTL '**RX/TX**' of GPS modem can be connected to '**RX/TX**' of any +3.3V microcontroller like LPC2138, LPC2148, Cortex-M3 etc.

Circuit Diagram:-



2 Pin Jumper



**Berg/Header
Wires**