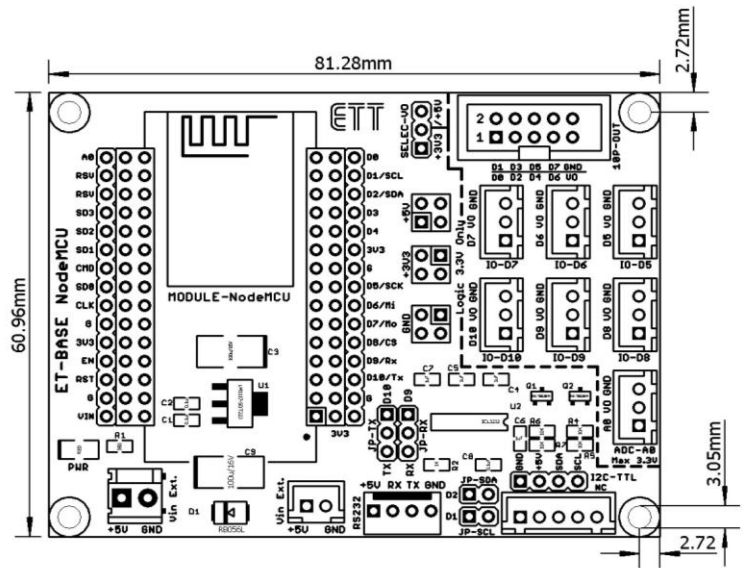
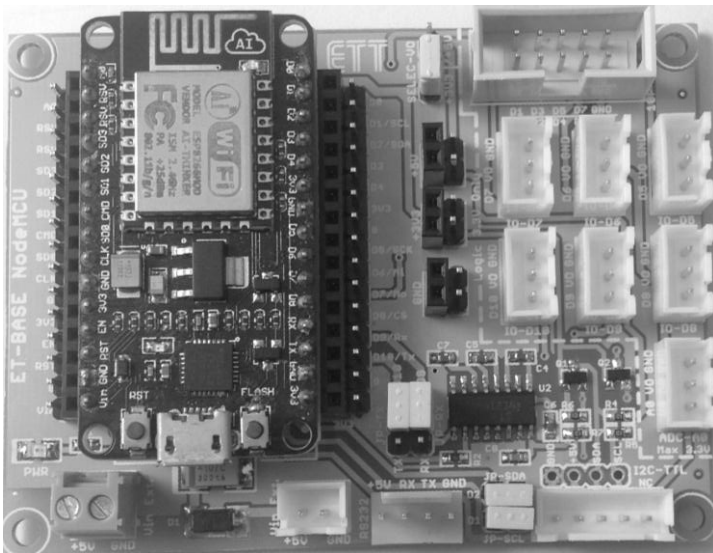




ET- BASE NodeMCU

Board ET-BASE NodeMCU supports the installation of Module NodeMCU; this Board externally pulls Pin I/O of Module to Connectors on Board, so it is easier to use. There is a part of Connector RS232 that has already connected Line Driver, so it can be connected with RS232 of computer of PC or other Interface Devices conveniently. In a part of this Pin I2C, it provides Connector that has already converted by Circuit Voltage Converter; so, it can be connected with I2C device that is Logic TTL (5V) instantly. For Power Supply of Module, it can be connected to Connector USB of Module directly; it is suitable for program development. Or, it may connect to Connector Power Supply 5V on Board ET-BASE NodeMCU, it suitable for actual use in the system.

It is easy when using this Board ET-BASE NodeMCU because it just connects Module NodeMCU to the specific position on board; next, provides Power into Module NodeMCU either through Connectors; and finally, the Module runs.



Connection between Module NodeMCU and Board ET-BASE NodeMCU

Dimensions of Board ET-BASE NodeMCU

1. SPECIFICATIONS of BOARD ET-BASE NodeMCU

- Connector receives external 5V Power Supply for module; there are 2 types of Connector; Terminal and Block 2 Pin.
- Connector directly supplies 5V, 3.3V and GND to all external devices that are connected with.
- Provide Connector I/O D0-D7 as Block 10 Pin type for connection; Signal I/O at this Connector only supports the Voltage level that is not higher than 3.3V.
- Provide Connector I/O D5-D10 and A0 as Block 3 Pin type for connection; Signal I/O at this Connector only supports the Voltage level that is not higher than 3.3V.
- Pin VO of Connector Block 10-Pin and 3-Pin can choose 2 Voltage levels by setting Jumper to choose the Voltage level either to be 3.3V or 5V.
- Connector I2C as Block 5-Pin type that has been converted by the Circuit Voltage Converter completely can support the Logic 5V (TTL).
- Connector RS232 as 4-Pin type that has been converted by IC Line Driver ST3232 completely can be connected with RS232 of PC or RS232 of other devices that have RS232 and it has also been converted by IC Line Driver.

2. Connector's Position of ET-BASE NodeMCU

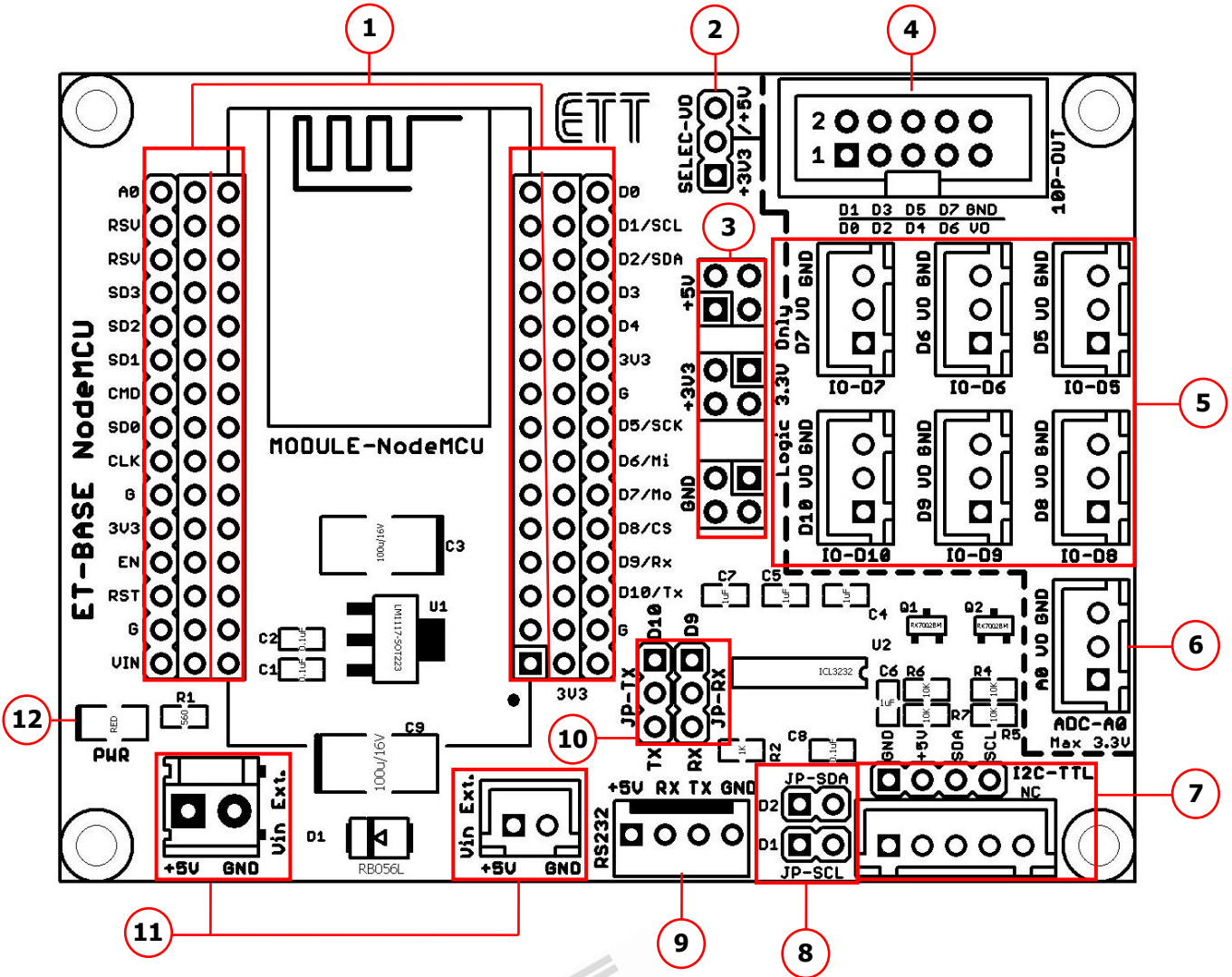
(1) Con.NodeMCU: This Connector is connected with Module NodeMCU. When connecting the device, it has to connect at the innermost Pin; it should turn Micro USB Header on the Module towards the Connector Power of Board BASE (please turn the device according to



the direction that is printed on PCB or please look at the connection in the picture above). For the remaining 2 rows of Pin, each side is connected parallel with the first row in order to jump wires conveniently.

(2) **JP Selec-VO:** This Jumper chooses Output Voltage either to be 3.3V or 5V for Pin VO at Connector Block 10-Pin and Block 3-Pin; in this case, user needs to set Jumper to the correct side to setup the preferable Output Voltage for Pin VO. If this Jumper is removed from board, all Pin VO is floated.

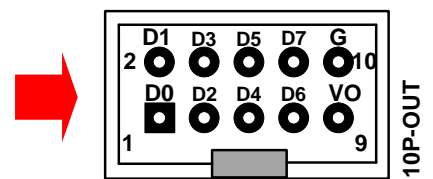
NOTE: Please be careful when setting Voltage for Pin VO; if using Connector Signal I/O at Block 10 Pin (4) and Block 3 Pin (5,6) as Input, it only supports the Voltage level at 3.3V, otherwise Pin I/O may be damaged.



Picture shows Connector's positions of Board ET-BASE NodeMCU.

(3) **Output Voltage 5V, 3.3V,GND:** This Connector Output Voltage has 2 Voltage levels that can be chosen by Jumper either to be 5V and 3.3V with GND to directly supply to external device.

(4) **Con. I/O Block 10Pin:** This Connector I/O Pin D0-D7 is directly connected from Module NodeMCU; it only supports Signal Logic 1 at the Voltage level of 3.3V and its pin arrangement is shown in the picture.



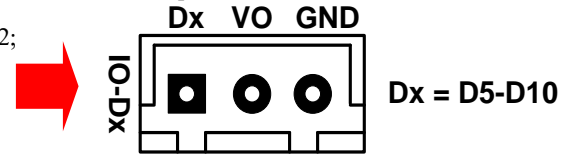
- For Pin D1(SCL) and Pin D2(SDA), it is pulled and used together with Connector I2C; so, it has to choose only one Connector when using this pin. When it removes Jumper JP-SDA and JP-SCL (8) from board, this I/O 2 Pin is floated and it is independent of Connector I2C.



(5) **Con. I/O Block 3Pin:** This Connector I/O D5-D10 is separated as single Pin type and it is directly connected from Module NodeMCU.

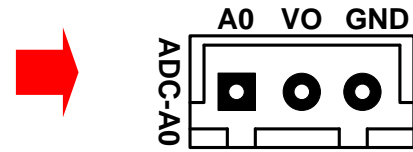
It only supports Signal Logic 1 at the Voltage level of 3.3V and its pin arrangement is shown in the picture.

- For Connector I/O D9, D10, it is pulled and used in a part of Connector RS232; so, it has to set Jumper JP-Rx and JP-Tx(10) to the position of D10 and D9 correctly when using these 2 Connectors.



(6) **Con. ADC Block 3Pin:** This Connector ADC-A0 is used as Input; it receives and converts Signal Analog into Digital.

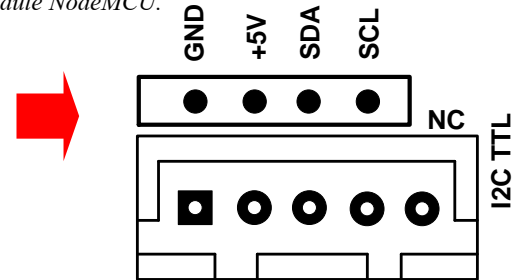
The incoming Voltage level is in the range of 0-3.3 only and its pin arrangement is shown in the picture below;



WARNING: Pin I/O at Connector Block 10 Pin (4), Block 3 Pin (5), and ADC(6) only supports Signal Logic 1 at the Voltage Level of 3.3V. When using as Input, the incoming Logic Voltage level should not be higher than the specific level, otherwise I/O Pin may be damaged.

NOTE: Some Pin I/O at Connector Block 10 Pin and 3 Pin are only used as either to be Input or Output; or, the initial value may be Logic 0 or 1 but it is not related to some I/O because it is setup for Hardware use of its own Module NodeMCU.

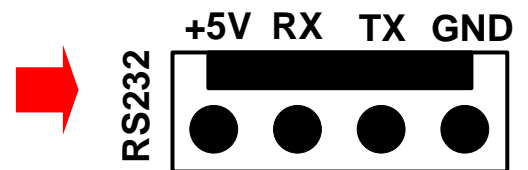
(7) **Con. I2C TTL:** This Connector I/O D1(SCL)-D2(SDA) supports Signal Logic 1 at the Voltage level of 5V(TTL). This Connector can be used as I/O or I2C as required. This Connector 4 Pin is for general use and Connector Block 5 Pin is for connecting with Temperature/Humidity Sensor from ETT; in this case, it has to short Jumper JP-SDA and JP-SCL (8).



(8) **JP -SDA,SCL:** This Jumper connects Signal I/O Pin D1-D2 to Circuit to adjust the Voltage level from 3.3V to 5V and Output will be released at Connector I2C TTL(7) to support the Logic 1 at 5V. Remember, if using Connector I2C TTL (7), it has to short both Jumpers.

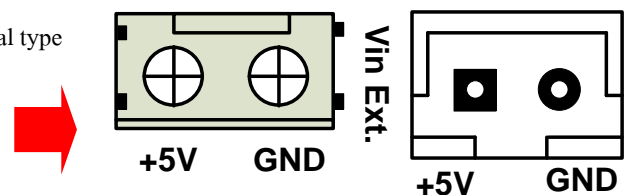
(9) **Con. RS232:** This Connector RS232 is connected via Line Driver #ST3232 from Pin D9, D10. It can be connected to Port RS232 of PC or Port RS232 of Board MCU that is also connected via Line Driver; in this case, it has to cross the Cables between Rx and Tx while connecting the devices together.

- When using this Connector, it has to set Jumper JP-Tx and JP-Rx(10) to the position of Tx,Rx and Connector I/O D9, D10 must be floated, not being connected to any Interface Device. When using this Connector, Connector I/O D9,D10 and Port Micro USB on Module NodeMCU are inactive.

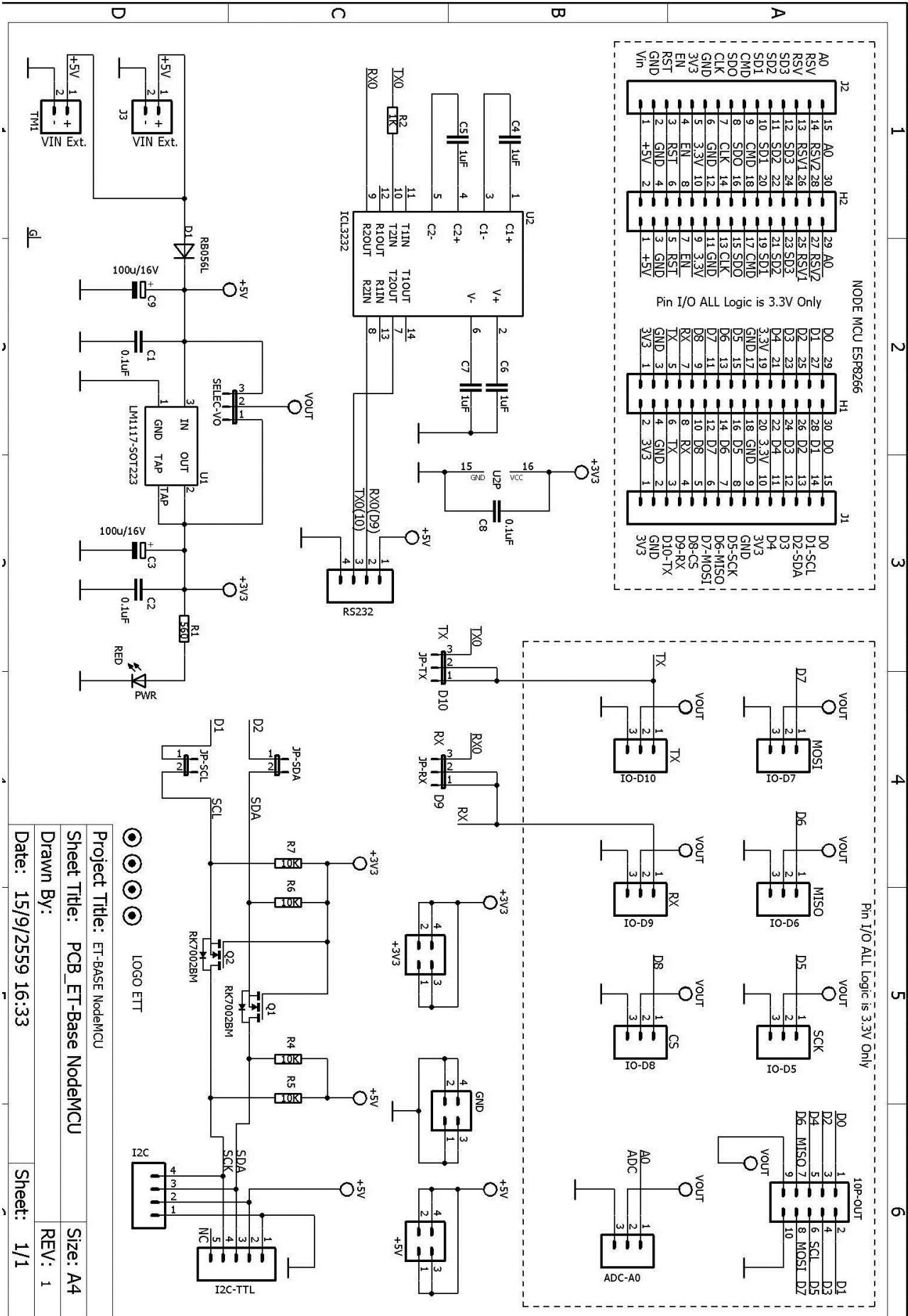


(10) **JP-Tx,Rx:** This Jumper connects Pin D9(Rx), D10(Tx) to Line Driver #ST3232 to use Connector RS232(9). If using Connector RS232(9), it has to set Jumper JP-Tx to the position of Tx and set Jumper JP-Rx to the position of Rx. Or, if using Connector I/O D9,D10 or Port Micro USB on Module NodeMCU, it has to set Jumper JP-Tx to the position of D10 and set Jumper JP-Rx to the position of D9.

(11) **Con.Ext-Power 5V:** This Connector receives external Power Supply 5V to supply to board and Module NodeMCU. There is Connector as Terminal type and Block 2 Pin Type; user can choose any type as required. When supplied Power to this Connector, LED Power will be lit up and the position of Connector is shown in the picture.



(12) **LED Power:** This LED displays the state of connecting Power. When connecting Power Supply 5V to any Connector Power of board or it is connected through Micro USB of Micro NodeMCU, this LED must be lit up.



Project Title: ET-BASE NodeMCU
 Sheet Title: PCB_ET-Base NodeMCU
 Drawn By:
 Date: 15/9/2559 16:33
 Size: A4
 REV: 1
 Sheet: 1/1

Circuit of Board ET-BASE NodeMCU