Vajravegha 400V DC Isolated Voltage Sensor Module with Serial UART Communication MODBUS Compatible

Features:

- Precise isolated DC Voltage measurement. Galvanic isolation protects sensitive systems from hazardous voltage measurement
- DC voltage measurement range: 0-400V
- 1.5kV DC Isolation between measured voltage and communication systems
- Works on single 5v Power Supply
- Measured voltage data is available on TTL UART Serial Interface. Programmable Baud Rate, default is 9600
- Can be configured as MODBUS RTU slave by connecting it to a TTL to RS485 Converter, programmable Slave ID, default value is 1
- Compact PCB size 35x35mm
- Typical Applications include Test and Measurement Systems, Instrumentation and Control Systems, Motor Control, Industrial Automation, Solar Systems, Battery Chargers, Electric Vehicles, etc.
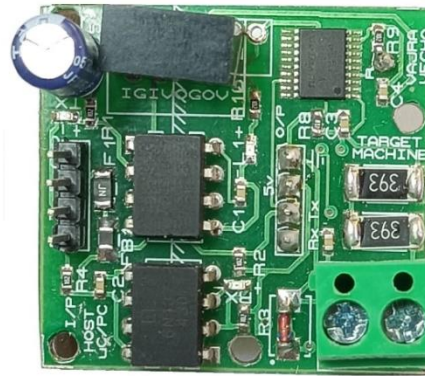
Description: VVM102 Digital Voltage Sensor Module provides economical and precise isolated DC voltage measurement solution for industrial and commercial applications. It allows system designers to safely monitor line voltage. Measured voltage is digitally available on Serial UART TTL interface. This interface can also be connected to RS232/RS485 systems

Connection:
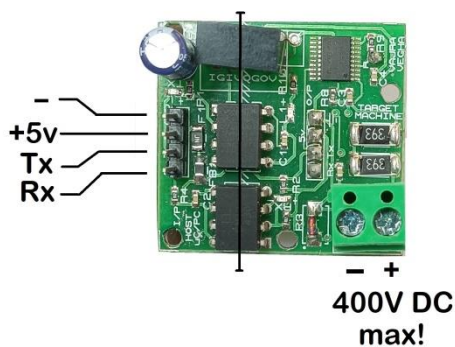
- **+5v:** Stable 5v supply required from host microcontroller or PC
- -- : Supply negative
- **Rx:** Measured voltage is available here in UART TTL. Connect this pin to Rx of host controller or USB TTL Converter. Default baud 9600
- **Tx:** Host controller/PC can send data to module for configuration. Connect this pin to Tx of host controller or USB TTL Converter

Connect the voltage to be measured at the 2pin screw terminal on bottom right of the above image. Ensure correct polarity!

Format of Serial Data on Rx pin is as shown:

V99.99D\n

where V: Voltage

99.99 measured voltage value, D for DC, can be used as delimiter, \n is for new line.

Data is transmitted at rate of 3 values per second.

1

Changing Baud rate: Default Baud rate is 9600. To change this value, send command **BAU** followed by any single digital number from 1 to 5 through the Serial Port via the Tx pin. For example, to change the Baud Rate to 115200, enter the following command **BAU5** To change baud to 19200, send command **BAU2**

Following are the numbers and their respective Baud rates
1-9600;   2-19200;   3-38400;   4-57600;   5-115200

On entering a valid command, new Baud is set and device prompts to reset, else **Invalid Baud** will be displayed on the Console.

The device can also be connected to a TTL to USB converter or TTL to RS485 converter, depending on the application.
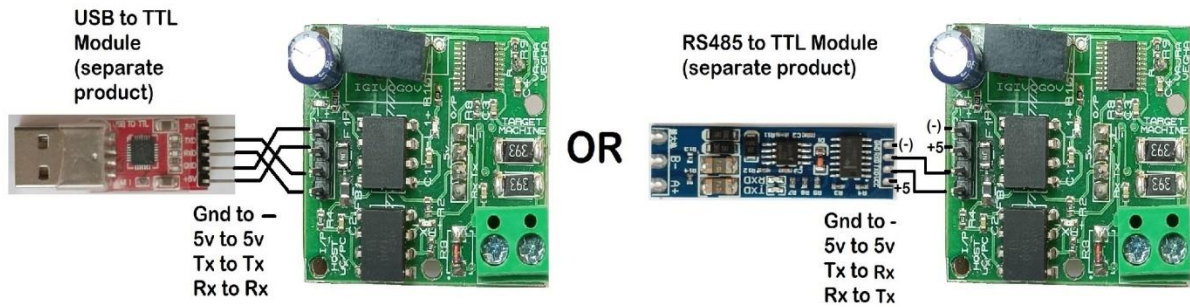
MODBUS: The device can be configured as a Modbus slave. Default Slave ID is 1. To change this value, send command **SLVXXX** through the Serial Port, where XXX denotes Slave ID from 001 to 247. Only valid slave IDs from 001 to 247 are permitted. For example to set Slave ID as 5, send **SLV005.** To enter Modbus slave mode, send **MOD** through the Serial Port. "Modbus Mode Selected" message appears and device restarts into Modbus Mode. Register format is as follows:

In Modbus slave Mode, regular Serial UART communication will not be available, because the data will be communicated via Modbus protocol. To exit Modbus slave mode, send **SERIALON** message via the Serial Port. "Serial Mode Selected" message appears and device restarts into regular Serial mode.