
# Industrial Data Logger 4G LTE

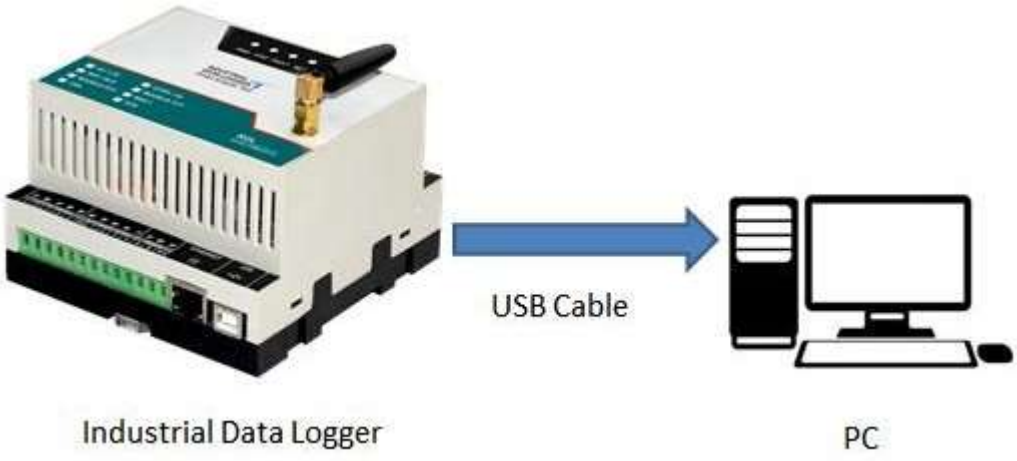
**ORDER CODE: RDL838**

**DOCUMENT VERSION: V5.1**

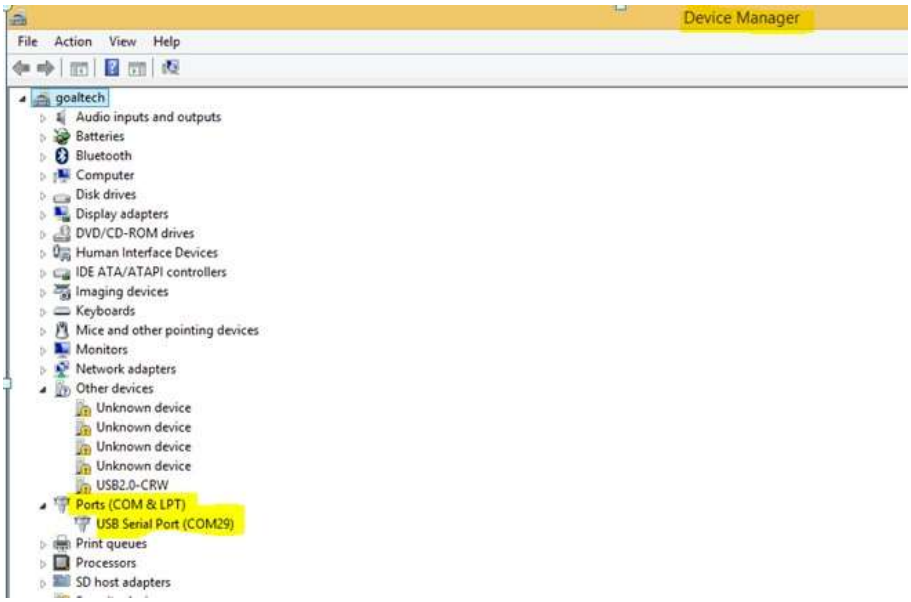
# CONTENTS

## 1. COM Port

This should be the initial step before using the data logger configuration manager.




Connect the USB Port to the configuration system as shown above




Check the COM Port → **Device Manager** → **Ports as** shown above

**NOTE:** Ensure that you have the FTDI Com port driver loaded. Please download and install from the link provided below if it is not installed.

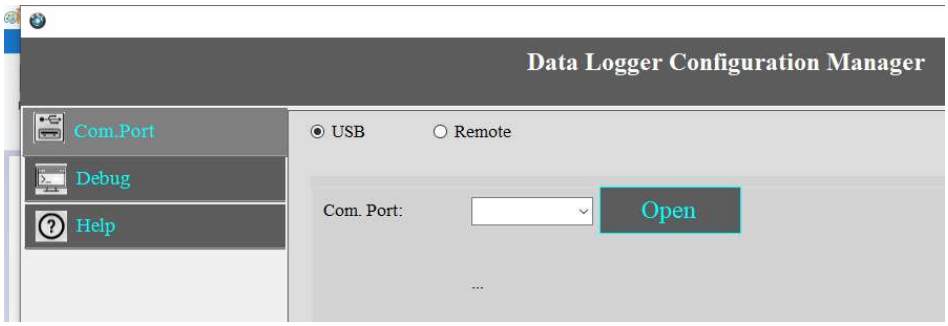
**Link:** https://www.ftdichip.com/Drivers/VCP.htm

For Installation Guide ,CLICK HERE

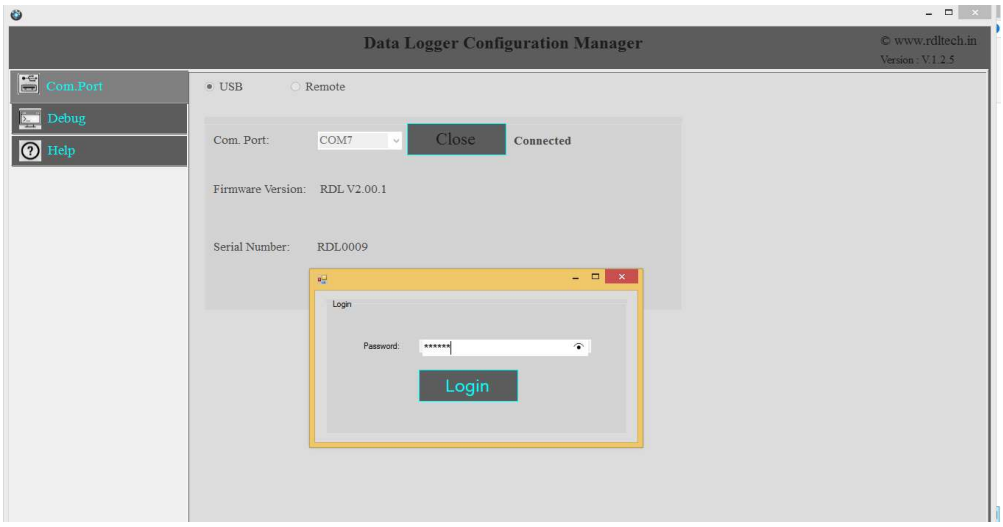
Device can be logged in two ways for configuration: 1. Local Login and

**2.** Remote Login(Refer Page 58 )

**Local Login:**

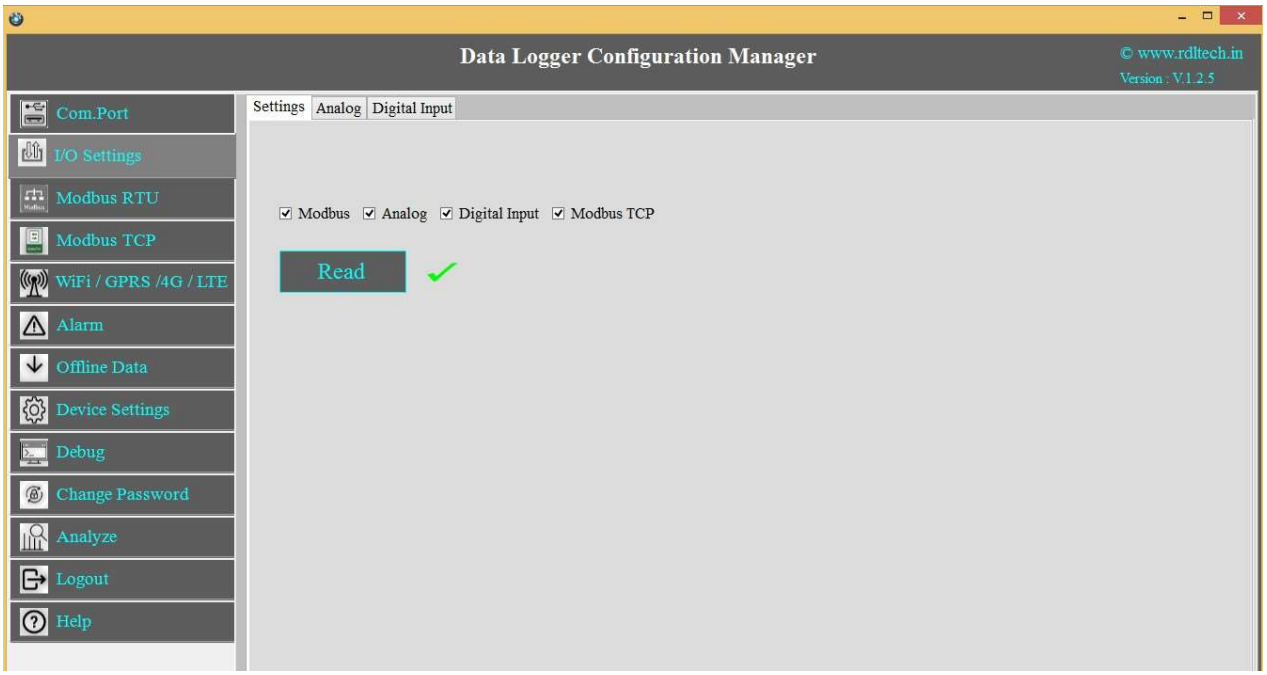



1. Click on Com Port Select USB.
2. Select your Com Port and click on Open.



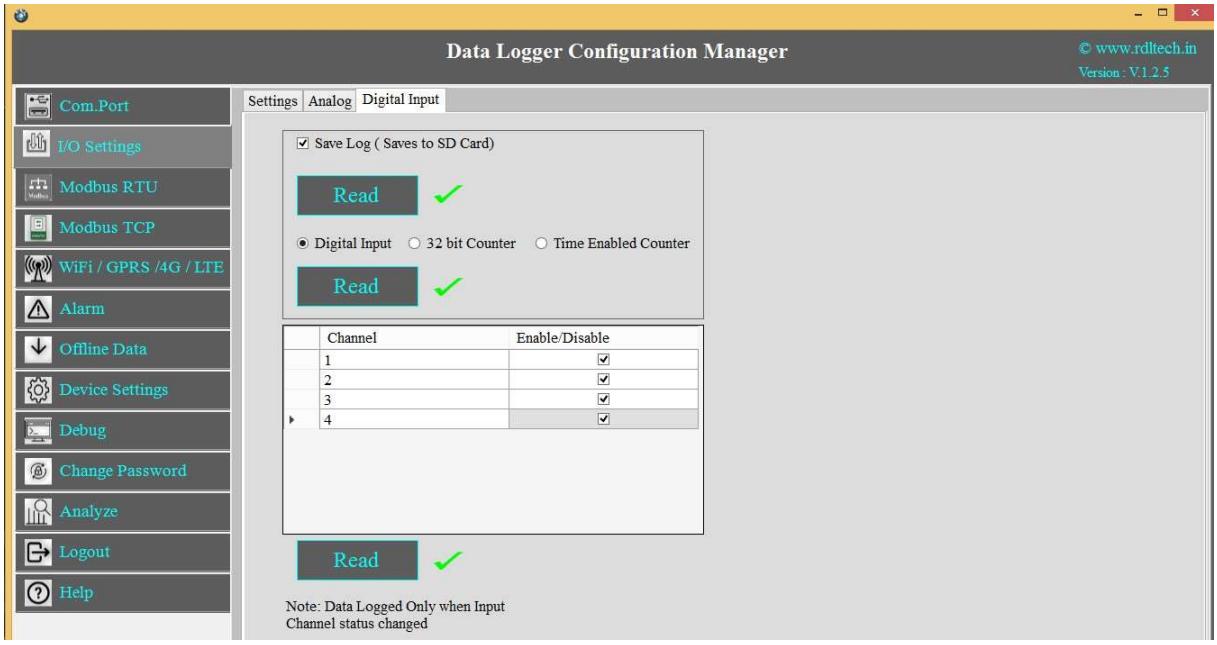

3. Use the Default Password "**RDL123"** during Login

## 2. I/O Settings




Select the required I/O options and click on **Save** button.

## 2.1 Digital Input Settings



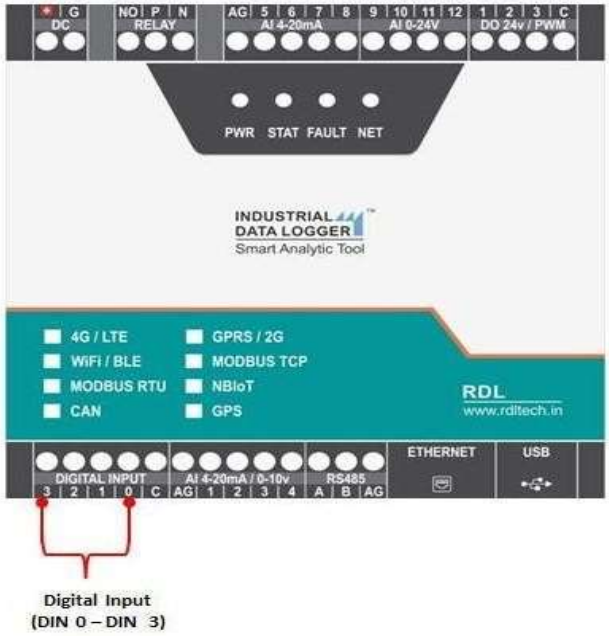
This Setting will indicate which digital input needs to be logged.

1. Select check box ☑ to save the data to the SD Card and click on **Save** button.
2. Select the type of **Digital Input** (Digital Input High/Low, 32 Bit Counter, Time Enabled Counter) and click on **Save** button.
3. Select the Check box ☑ to Enable/Disable Digital Input channel and click on **Save** button.
4. Click on Read to display the configuration that is already saved.

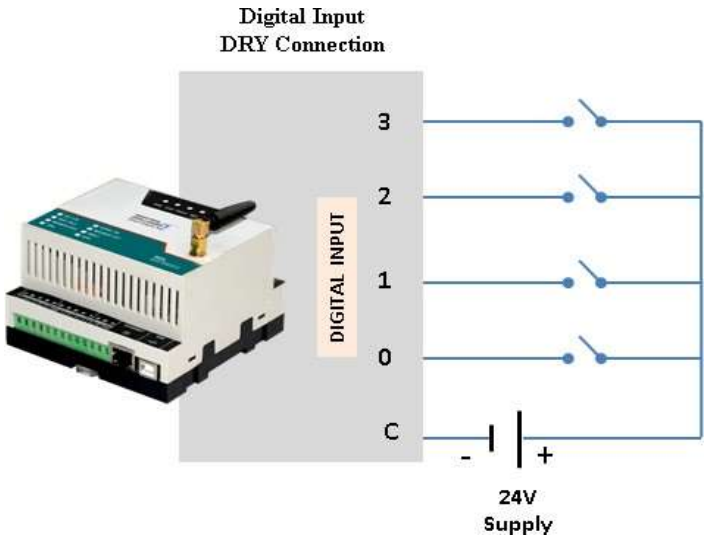
**NOTE:** Data Logged only when Input channel status changed (From High to Low or Low to High)

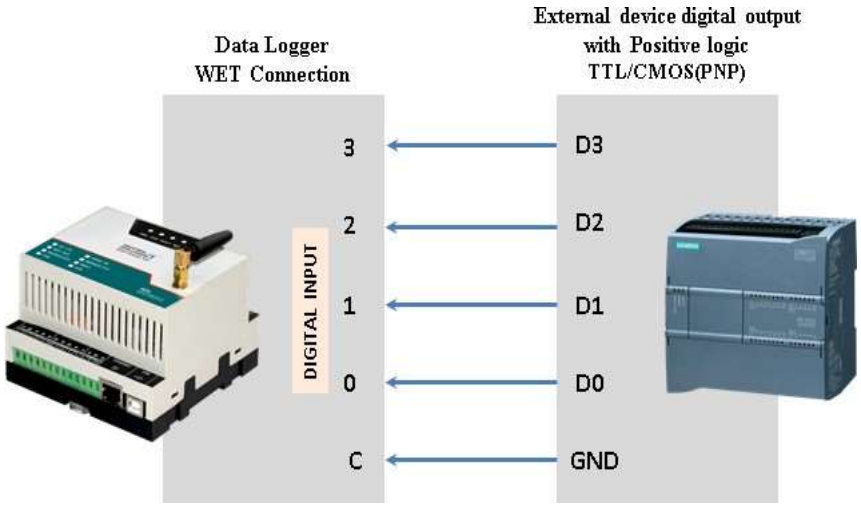
## 2.2 Digital Input Specification

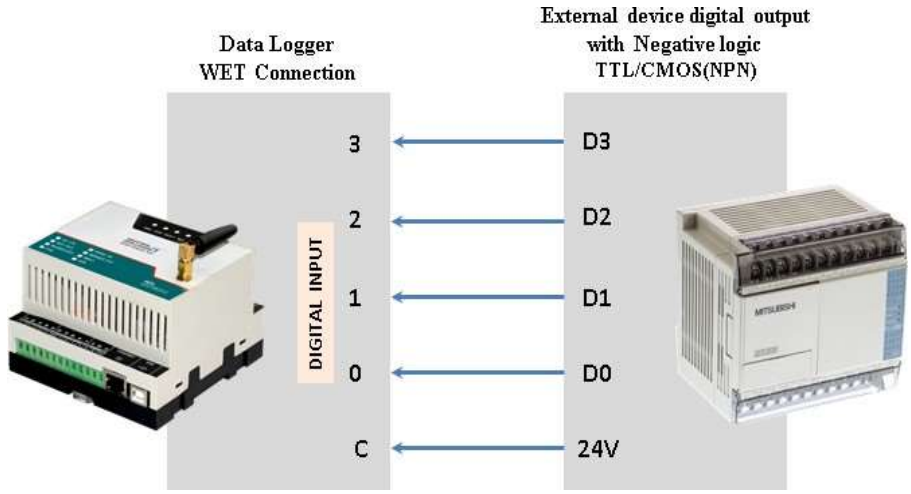
- Channels: 4
- Input Voltage: 0-24V
  - Logic High: > 5V
  - Logic Low: < 4V
- Isolation : 3750 VRMS
- Supports Inverted DI Status
- Supported Connection: Dry and Wet both
- Maximum Switching Frequency : 5Khz



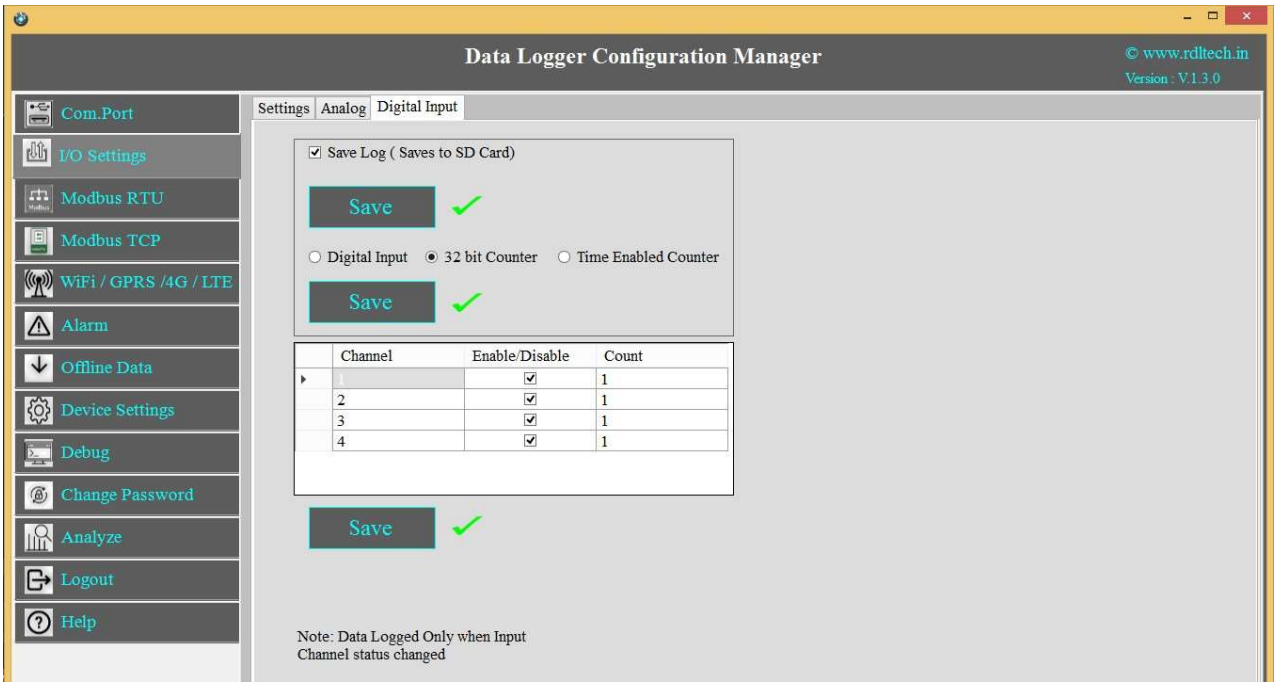

## Application Wiring Diagram




Data Logger
WET Connection
External device digital output
with Positive logic
TTL/CMOS(PNP)
DIGITAL INPUT
3
2
1
0
C
D3
D2
D1
D0
GND


Data Logger
WET Connection
External device digital output
with Negative logic
TTL/CMOS(NPN)
DIGITAL INPUT
3
2
1
0
C
D3
D2
D1
D0
24V

## 2.3 Counter Settings




These Settings will configure Digital counter input.

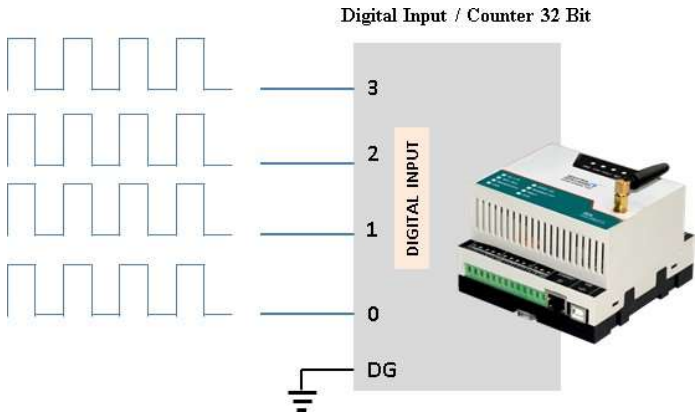
1. Select the Checkbox ☑ to **Enable/Disable** Digital Counter Input channel.
2. Set the Max **Count**
3. Click **Save** to write these count settings in the memory.
4. Click on Read to display the configuration that is already saved. will display the current max count / channel.

**NOTE:** 1. Data Logged only when Input Channel status changed (From High to Low or Low to High).

2. Data will be pushed to the Remote Server once counter reaches to max set count (Applicable only when counter option enabled).

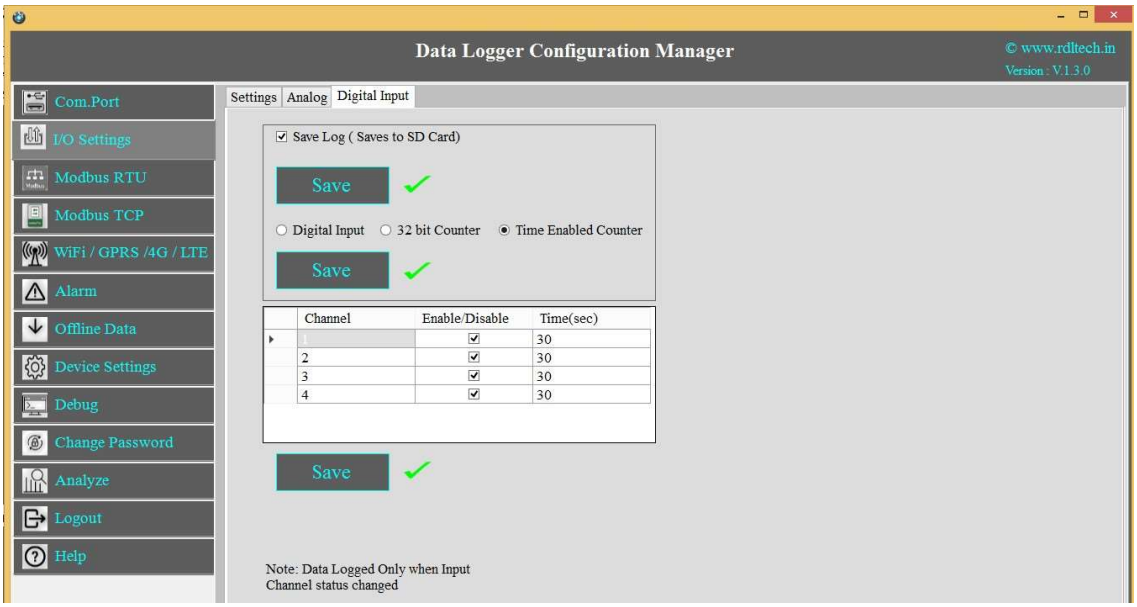
3. Once counter reaches the max count then it resets to zero (Applicable only when counter option enabled).

## Application Wiring Diagram




## 2.4 Time Enabled Counter

Counting with respect to time in sec

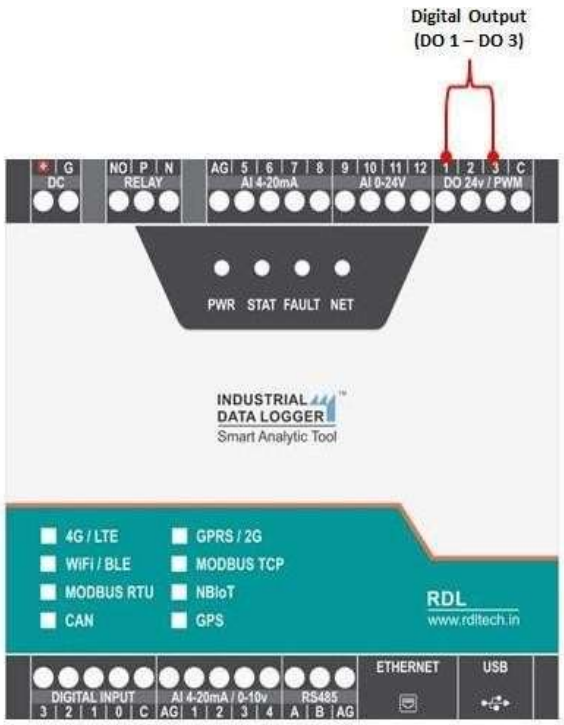



1. Select the Checkbox ☑ to **Enable/Disable** Digital Counter Input channel.
2. Set the **Time**(sec)
3. Click **Save** to write these count settings in the memory.
4. Click on Read to display the configuration that is already saved. will display the current max count / channel.

# 3. Digital Output

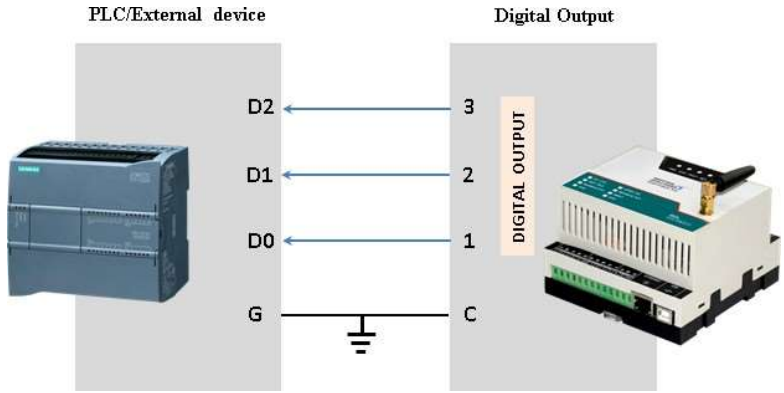
## 3.1 Digital Output Specification

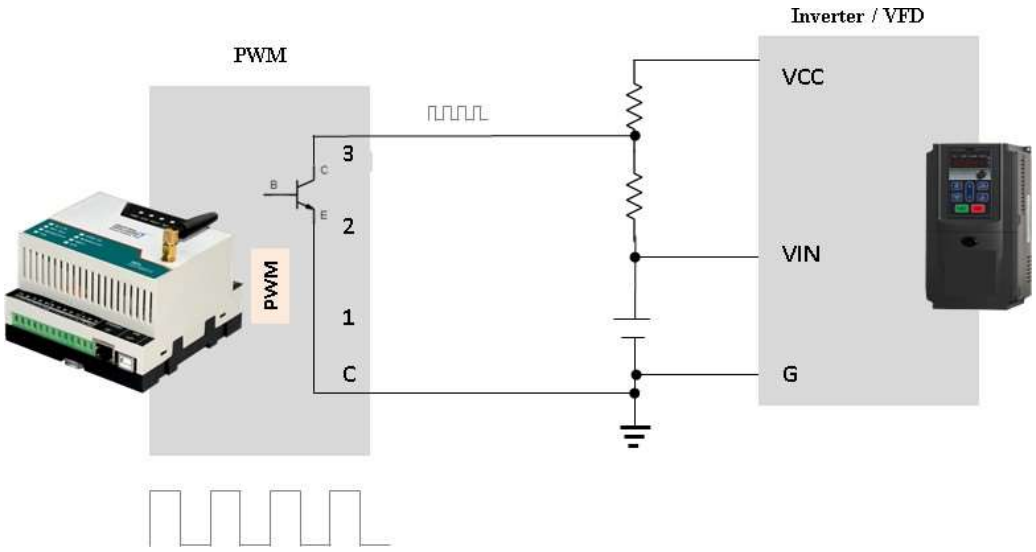
- Channels: 3
- Open Collector
- Isolation : 3750 VRMS
- Absolute maximum voltage 35V, Current 100mA
- Maximum PWM frequency : 5Khz




**NOTE:** Max load current 100mA, 35v In the case of load drawing more current you need to add the additional driver.

## Application Wiring Diagram



**Digital Output:**

Digital Output / PWM can controlled directly from server using MQTT Subscribe service.

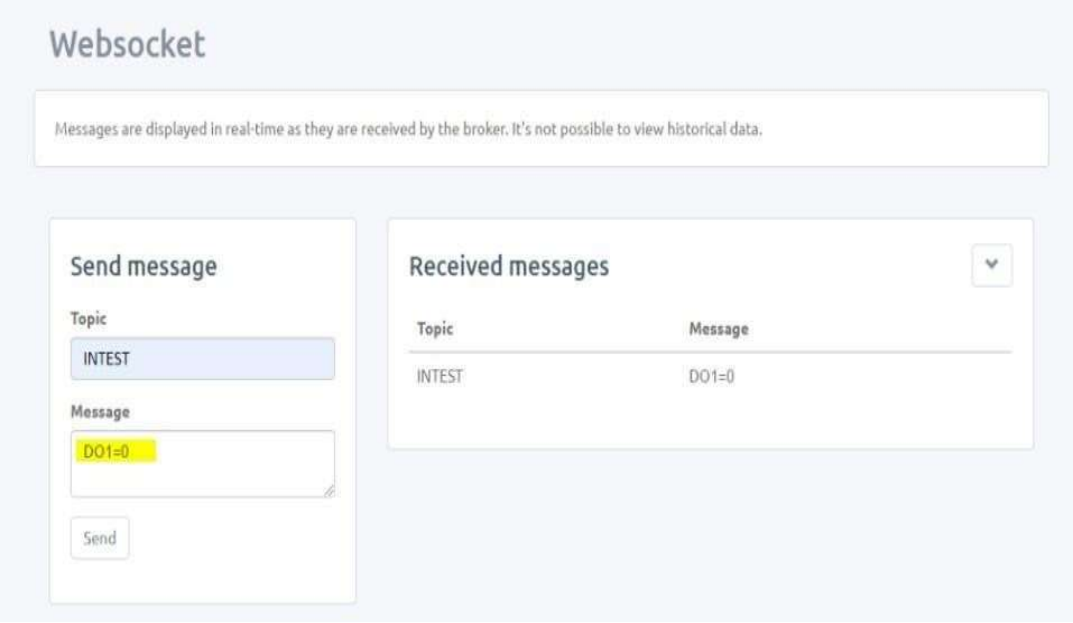
**Command: Digital _Channel =Logic High/ Low**

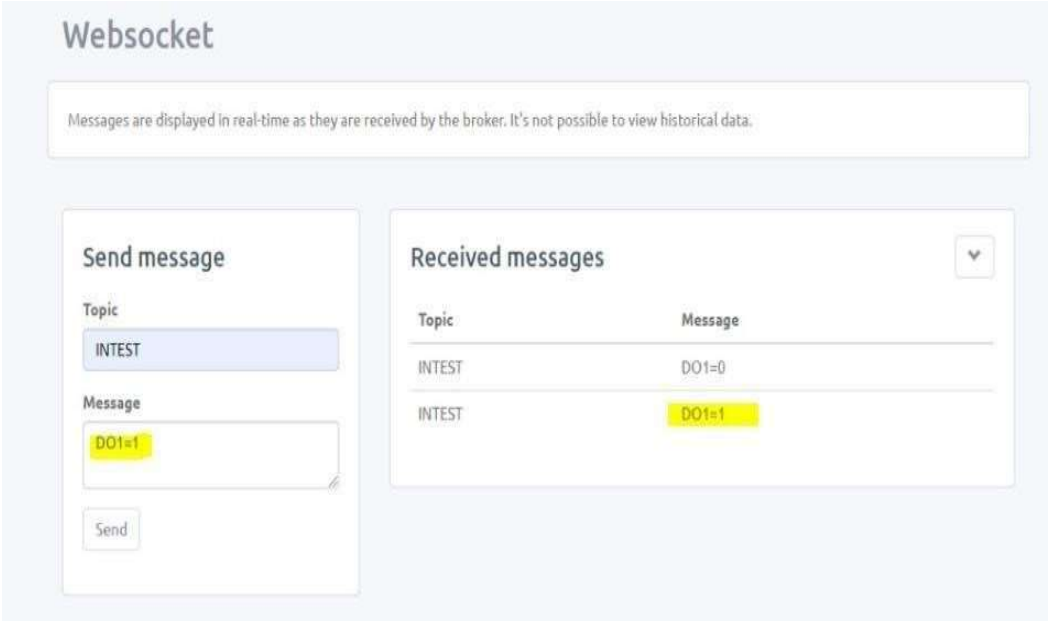
Example:

1. DO1=0 → Digital output (DO) 1 becomes LOW
2. DO1=1 → Digital output (DO) 1 becomes HIGH
3. DO2=0 → Digital output (DO) 2 becomes LOW
4. DO2=1 → Digital output (DO) 2 becomes HIGH
5. DO3=0 → Digital output (DO) 3 becomes LOW
6. DO3=1 → Digital output (DO) 3 becomes HIGH

**NOTE:** Digital Output works only for 4G and 2G, it doesn't support for WiFi Communication.

**Digital Output handling using MQTT subscribe service**

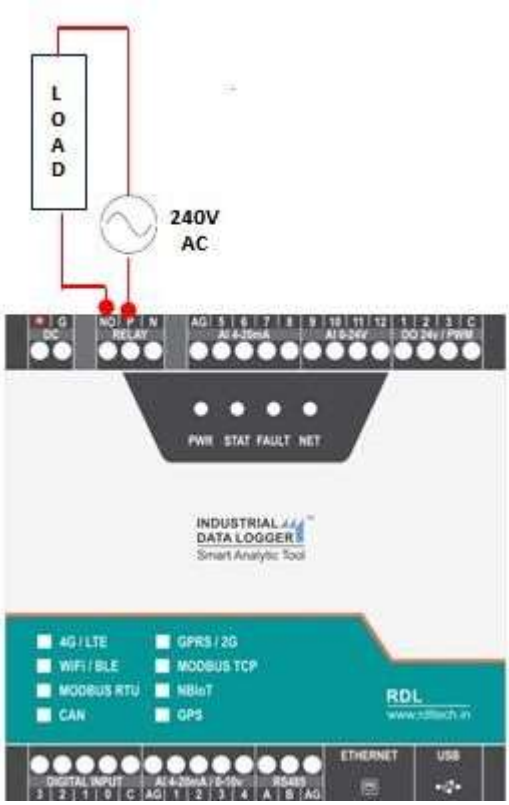


## 4. Relay Output

Relay can be controlled directly from server using MQTT Subscribe service.

**<u>Command:</u> Relay = Logic High/ Low**

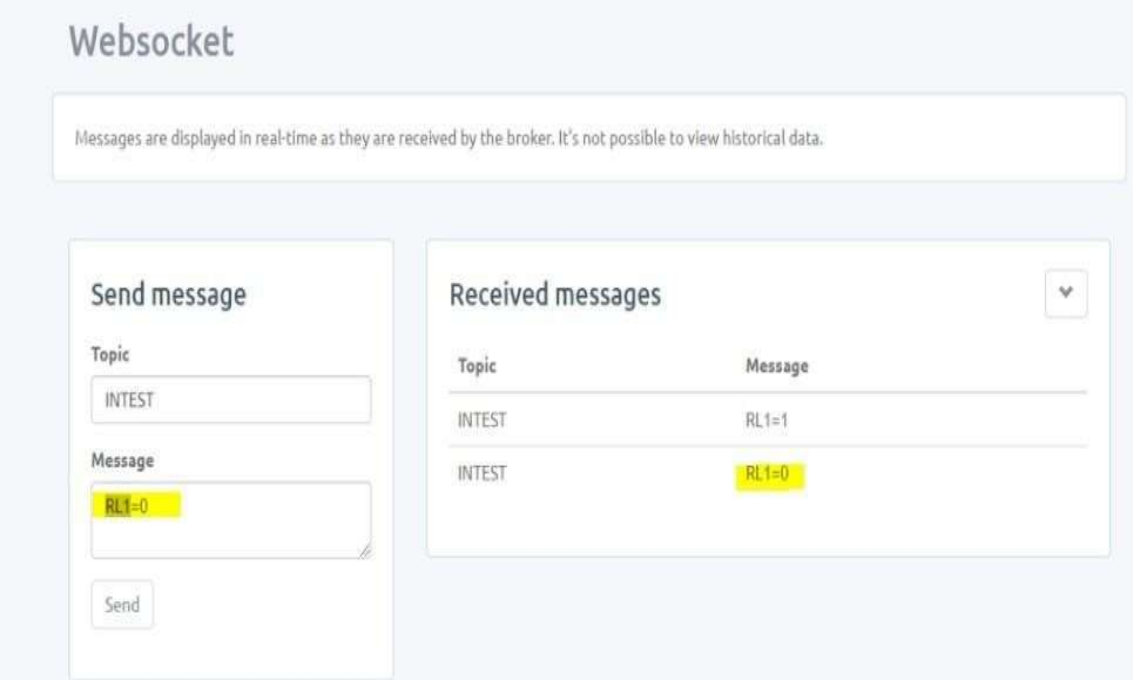



**Relay output command:**

RL1=1 → Relay becomes HIGH

RL1=0 → Relay becomes LOW

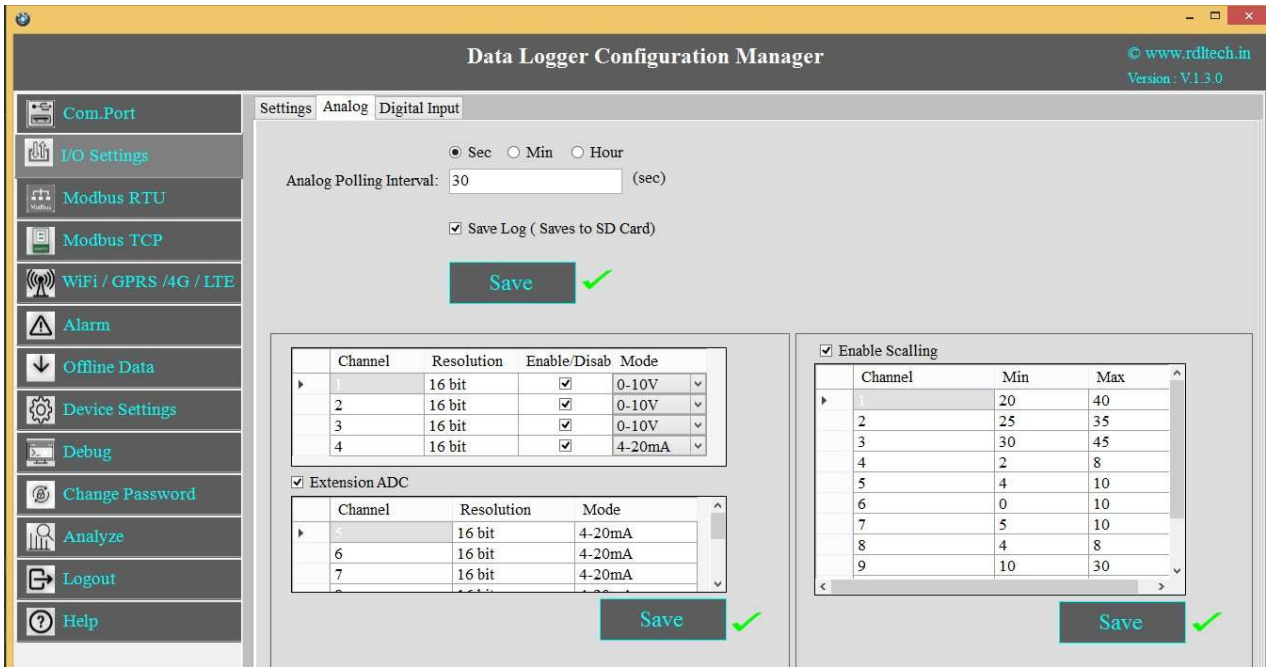
**Relay Output handling using MQTT subscribe service**



# 5. Analog

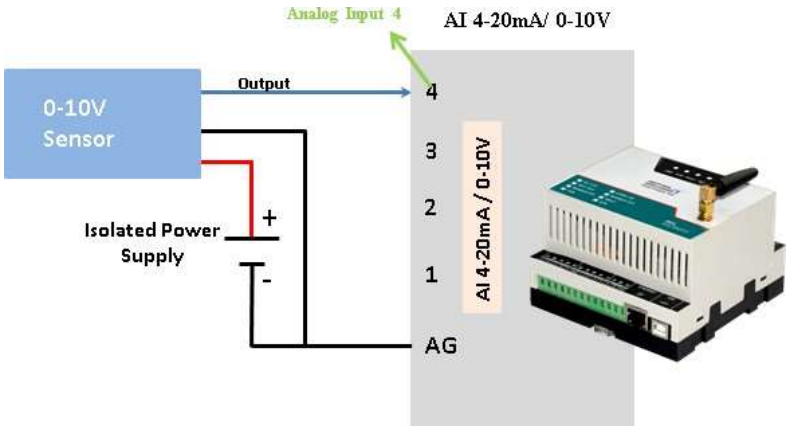
## 5.1 Analog Channel Settings

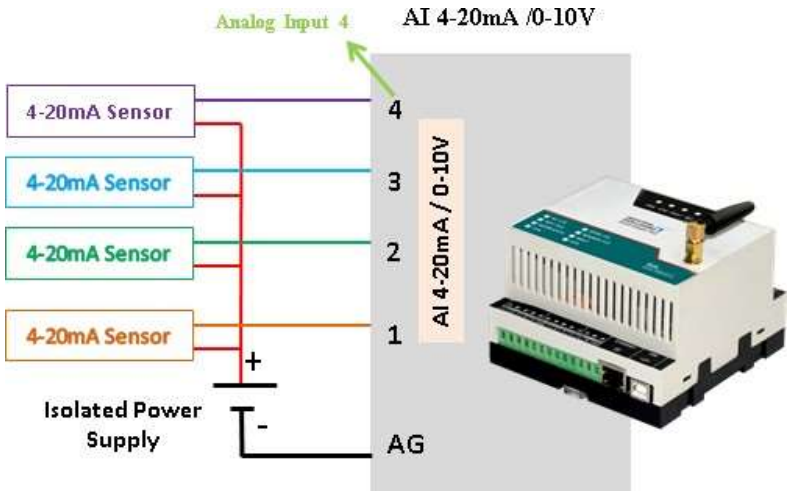
The below given settings shows how to configure Loop current (4-20mA) and 0-10V Analog Channels.




1. Select the Polling Interval **sec/min/hour**
2. Set the **Polling Interval**
3. **Save Log:** Select the Check box☑ to store the data to the SD Card.
4. Click on **Save** button will write these configuration settings in the memory.
5. Select the Check box to **Enable/Disable** Analog channel
6. Select **4-20mA / 0-10V** from the dropdown.
7. **Extension ADC** is an additional option under this the first four analog channels are for **4-20mA loop current** and the next four for **0- 24V channel**.
8. **Scaling:** Click on the check box ☑ to **enable scaling**. Scale the raw value of input to required output value.
9. Click on **Save** button to save the above configuration.
10. Click on **Read**, to display the configuration that is already saved.

## Application Wiring Diagram



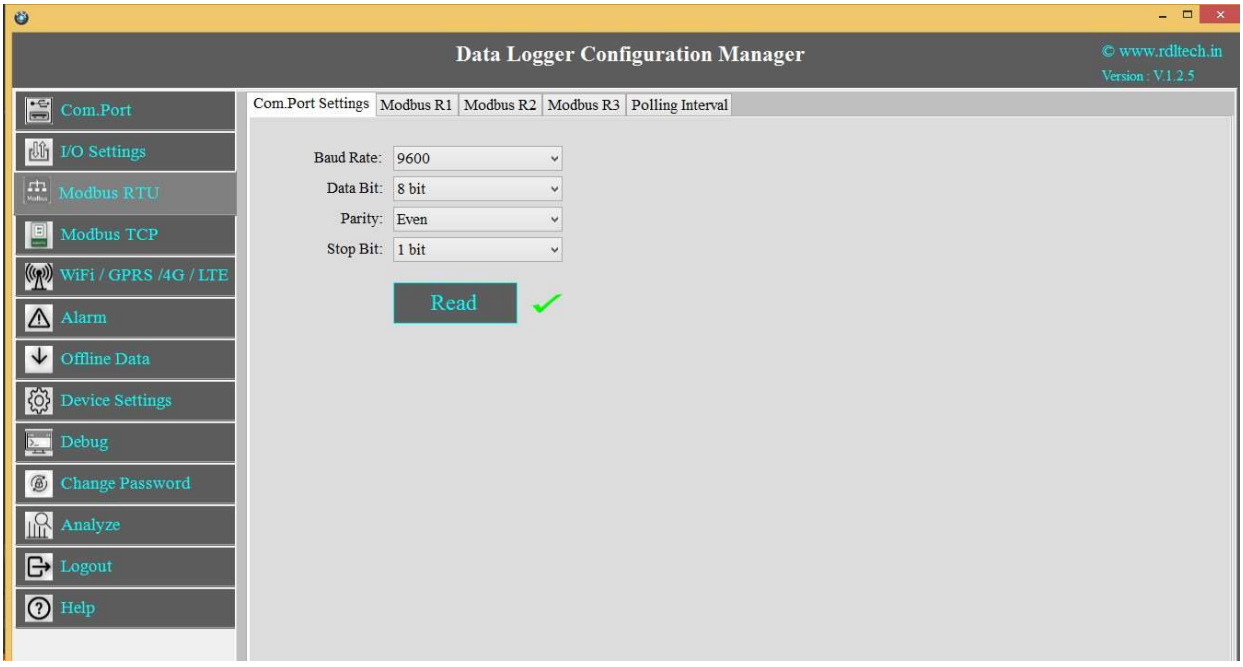




**NOTE:** Don't connect Voltage source when Channel is set for Current Source Mode.

# 6. MODBUS RTU


Select the check box ☑ for enabling the **MODBUS** and Click on **Save** button.

## 6.1 Com Port Settings




1. Click on **MODBUS RTU** from the side bar menu
2. Click on **Read** to know the previous stored Configuration.
3. Click on **Com Port** Settings
    a. Select **Baud Rate** from the dropdown.

b. Select **Data Bit** from the dropdown.
c. Select **Parity** from the dropdown.
d. Select **Stop Bit** from the dropdown.
e. Click on **Save** button.
f. Click on Read to display the configuration that is already saved., will display the configuration that is already saved.

Based on Meter/Slave type the register polling classified in three Bank R1, R2 and R3.

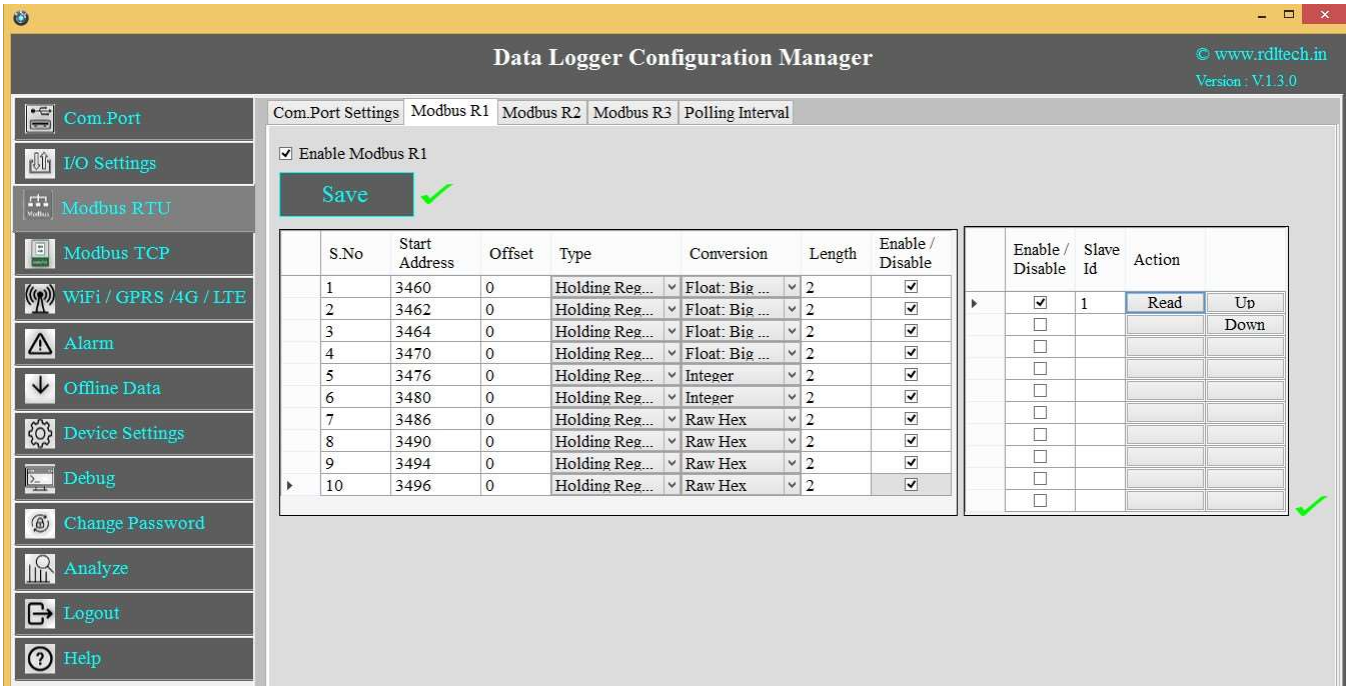
R1 Register Bank meant for reading maximum 10 slave devices and maximum register length of 100 for each slave.

R2 Register Bank meant for reading maximum 32 similar slave /meters with 30 register length for each slave/meter

R3 Register Bank meant for reading maximum 10 devices with 100 register length for each slave devices and all slaves can be set for different polling time.

**NOTE:** Maximum 1000+ tags can be polled by combining R1, R2, and R3 Register Banks.

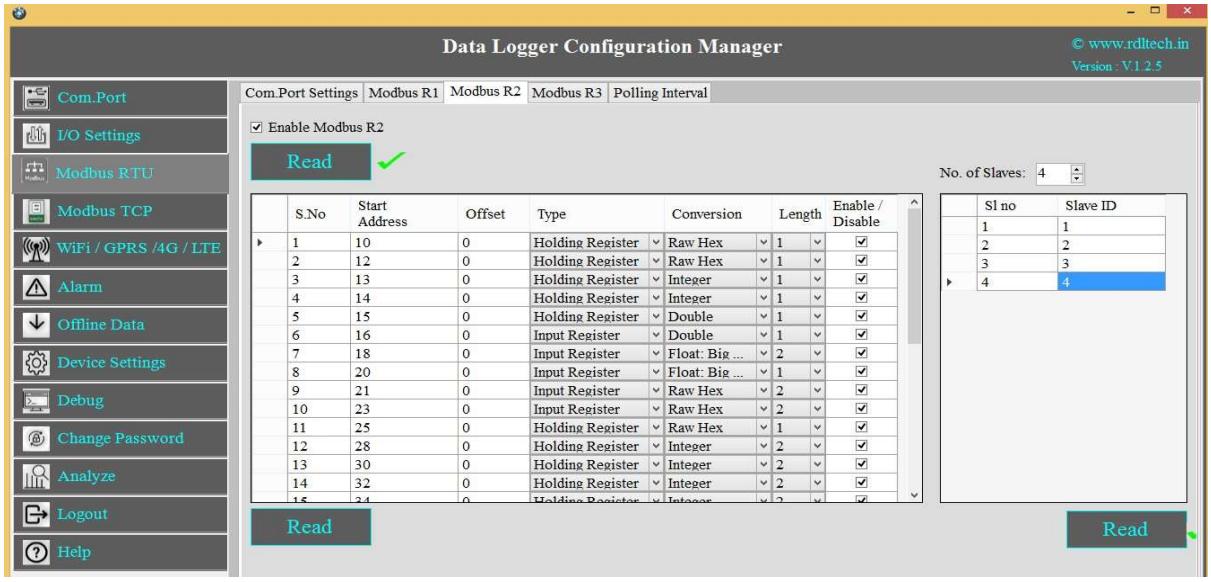
## MODBUS R1:




1. Click on the check box ☑ to **enable MODBUS Register Bank R1**, and click on **Save** button.
2. Enter MODBUS Register details as shown above
3. Enter MODBUS credential.

   R1 Register Bank supports 10 slave devices for each slave you can configure max length up to 100 register.
4. Select **Enable/Disable** check box ☑ to poll the register.
5. Click on **Save** button.

## MODBUS R2:

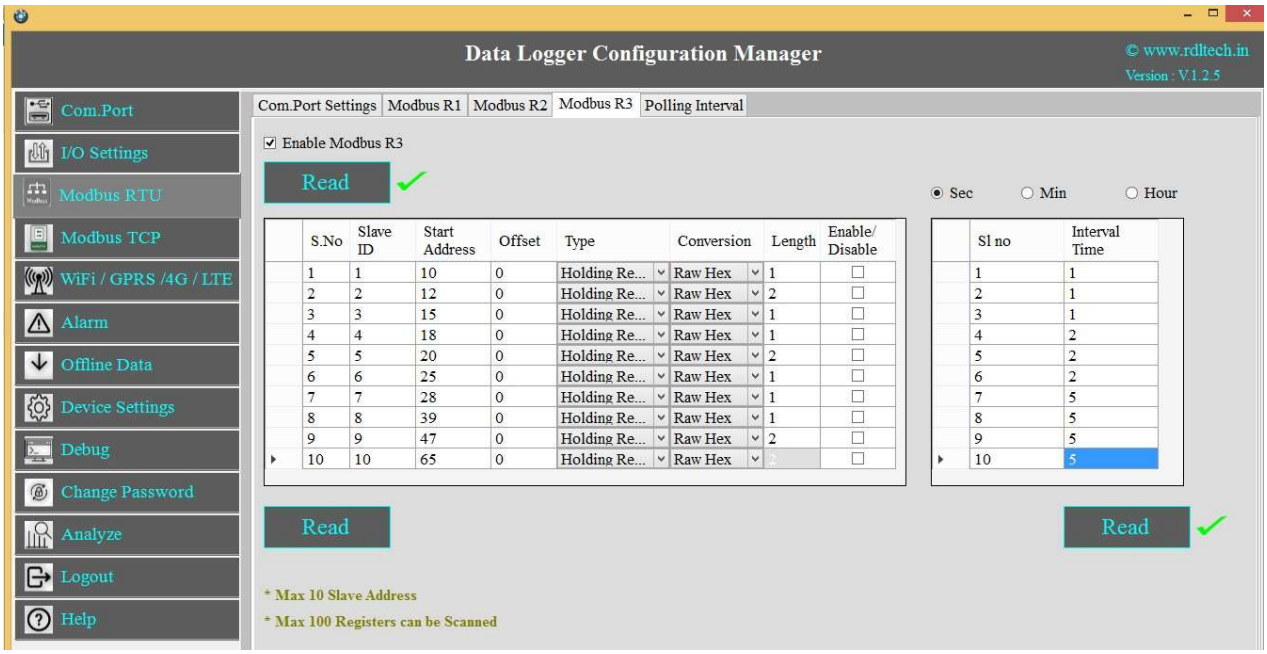



1. Click on the check box ☑ to enable **MODBUS Register Bank R2**, and click on **Save** button.
2. Enter MODBUS credential as shown above.

   This supports for 32 similar slaves/meters with 30 registers length for each slave/meter
3. Select **Enable/Disable** check box ☑ to poll the register
4. Click on **Save** button.

**NOTE:** In R2, Address configuration is same for multiple slaves; it has only facility to change Slave ID of each device.

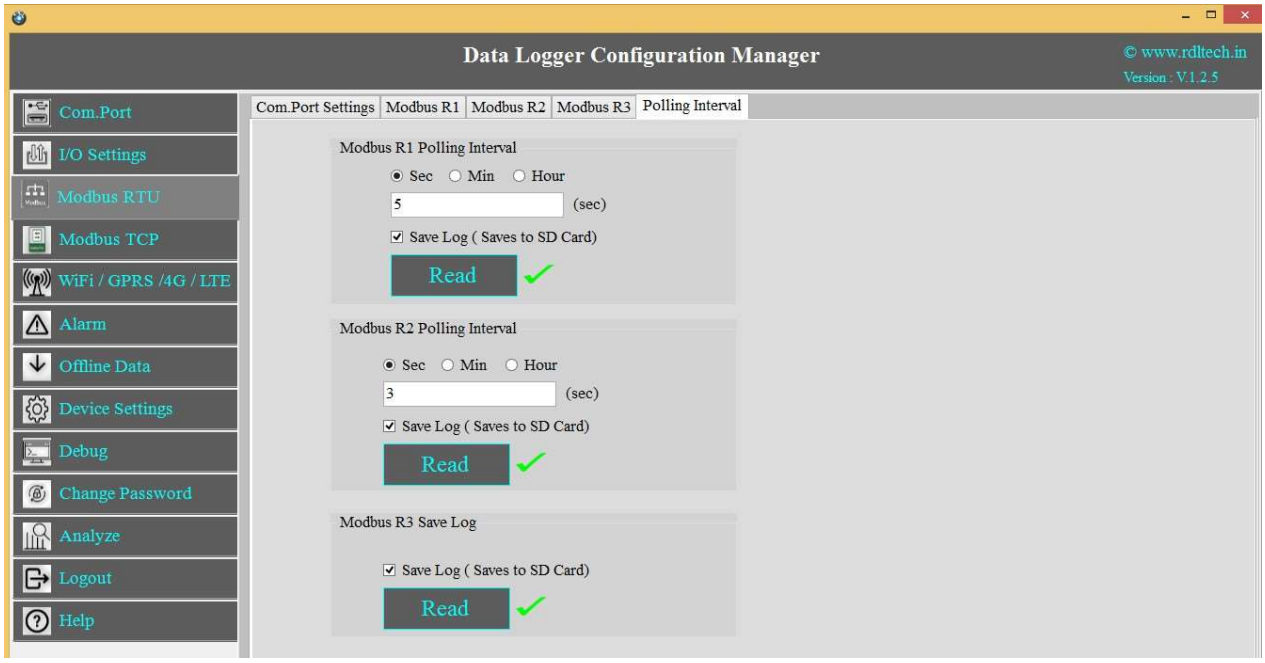
## MODBUS R3:




1. Click on the check box ☑ to enable **MODBUS Register Bank R3**, and click on **Save** button.
2. Enter MODBUS credential as shown above.

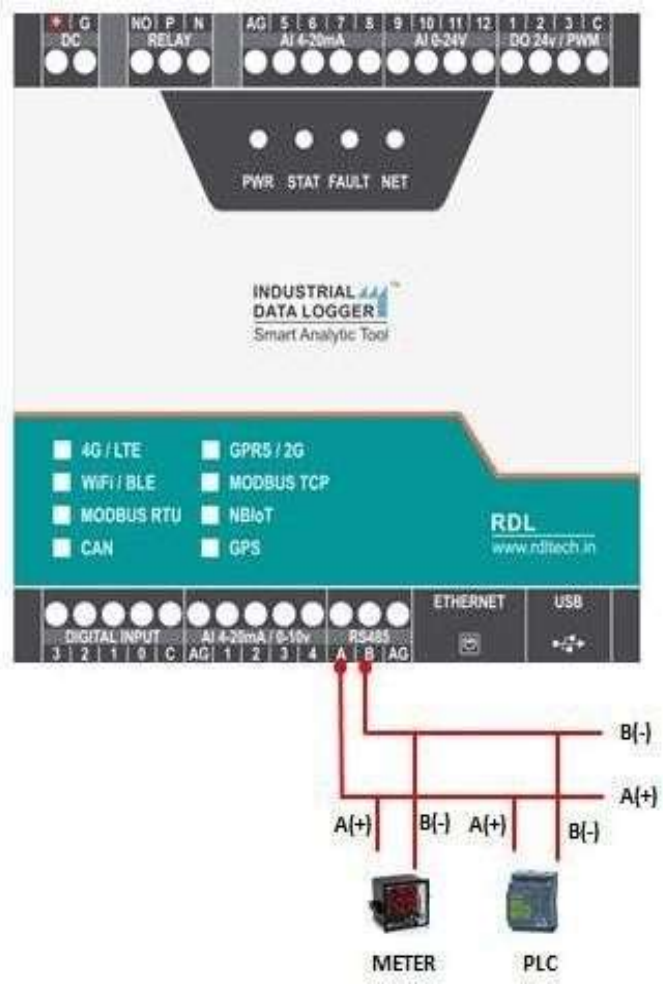
   This supports 10 slaves, for each slave 10 start registers are available and for each start register configure up to 100 lengths.
3. R3 has the facility to add polling time for each slave ID.
4. Select **Enable/Disable** check box ☑ to poll the register.
5. Click on **Save** button.

## 6.2 MODBUS RTU Polling Interval

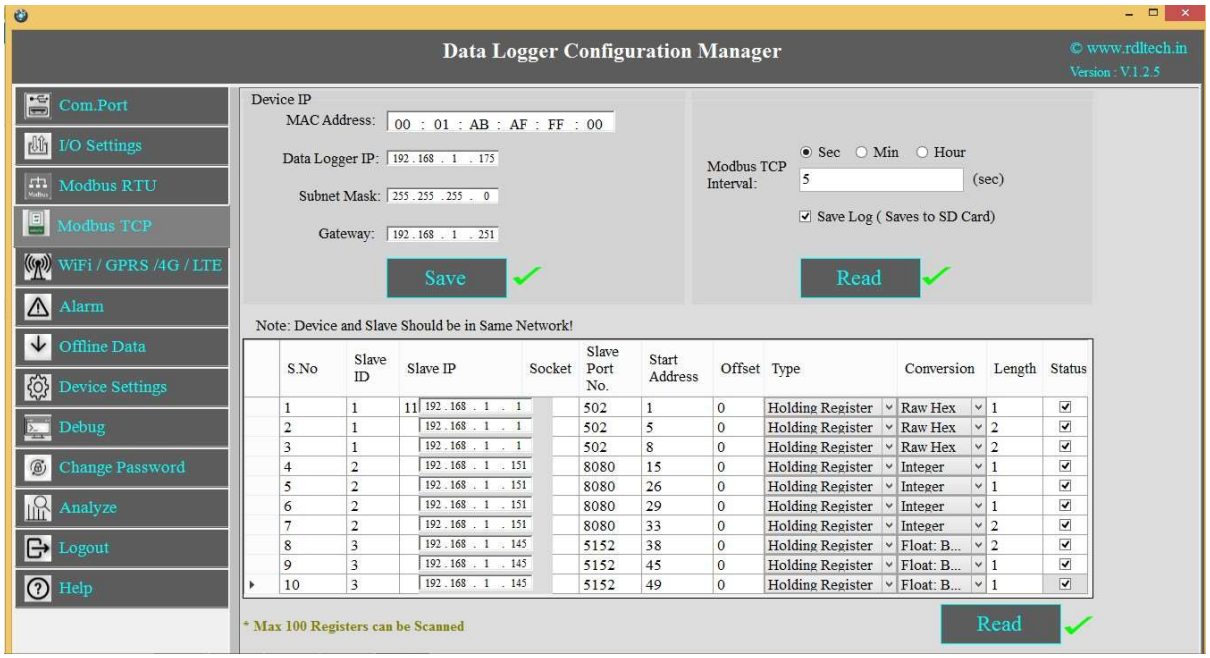



1. Select the Polling Interval **sec/min/hour.**
2. Set the **MODBUS Polling Interval.**
3. Click on check box ☑ to Save the Log.
4. Click on **Save** button to save the above configuration.
5. Click on Read to display the configuration that is already saved.

## Application Wiring Diagram



# 7. MODBUS TCP Settings




1. Set the Device MAC Address, Data Logger IP, Subnet Mask, Gateway and click on **Save**.
2. **Slave ID:** This is the MODBUS Slave ID. Maximum10 Slave info can be accessed.
3. **Slave IP:** Mention the IP Address of the Slave.
4. **Socket:** If the Slave IP address is same for multiple requests then the socket number will be the same. If the IP address is different, then the socket number is different as shown above (**Ex**: For Slave ID 1 and 3 the slave IP is same (192.168.1.187) so the socket number should be the same (0)).
5. **Slave Port No:** Mention the Port No. (Default 502)
6. **Start Address:** This is the starting address of the slave from where data needs to be read.
7. **Offset: Enter** Offset of the Slave device**.**
8. **Type:** Mention the register type. It **c**ould be Coil/Input Register/Holding Register.
9. **Conversion:**

   **Raw Hex:** MODBUS 16 bits are extracted from slaves.

   **Integer:** MODBUS 16 bits are extracted from slaves.

   **Float-Big Endian:** MODBUS floats are extracted from slaves in Big Endian format.

**Float-Little Endian:** MODBUS floats are extracted from slaves in Little Endian format.

**Mid-Little Endian Float:** MODBUS floats are extracted from slaves in Mid-little Float format.

**Mid-Big Endian Float:** MODBUS floats are extracted from slaves in Mid-big Float format.

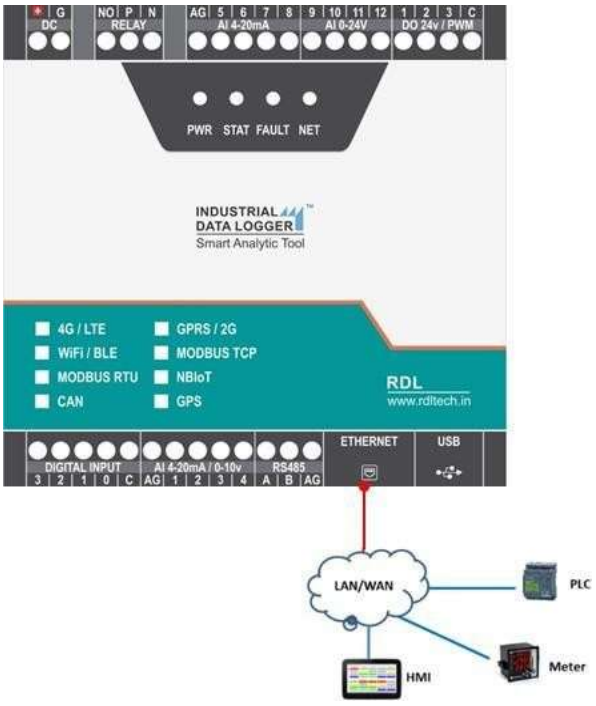
**64-bit UINT:** MODBUS 64 bits are extracted from slaves.

10. **Length:** Total length will be 100,you can use length of 1-100 of 16 bit data
11. **Status:** If check box ☑ is enabled, the slave id will be ENABLED for polling, else slave id polling will be DISABLED.
12. Click on **Save** button to save the above configuration.
13. Click on Read to display the configuration that is already saved., to display the configuration that is already saved
14. Select the Polling Interval **sec/min/hour**

**NOTE:** 1. Device and Slave should be in same network

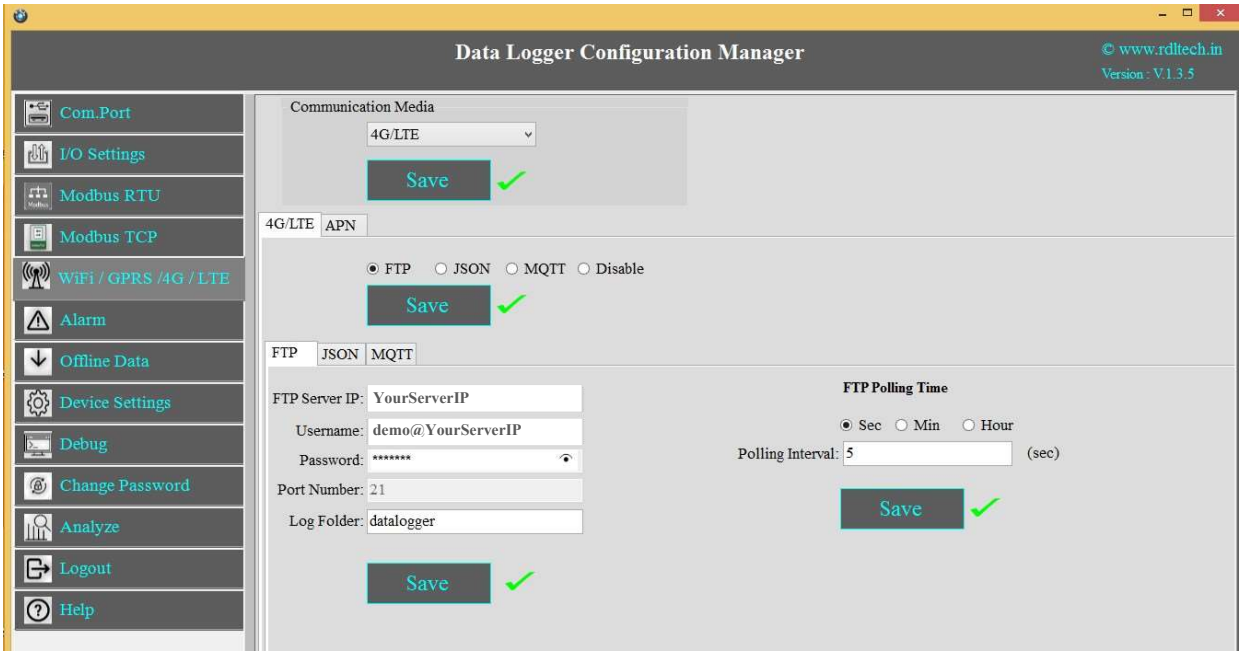
2. Max 100 registers can be scanned.

## Application Wiring Diagram



# 8. Wi-Fi/GPRS/4G/LTE Settings

## 8.1 4G/LTE FTP Settings

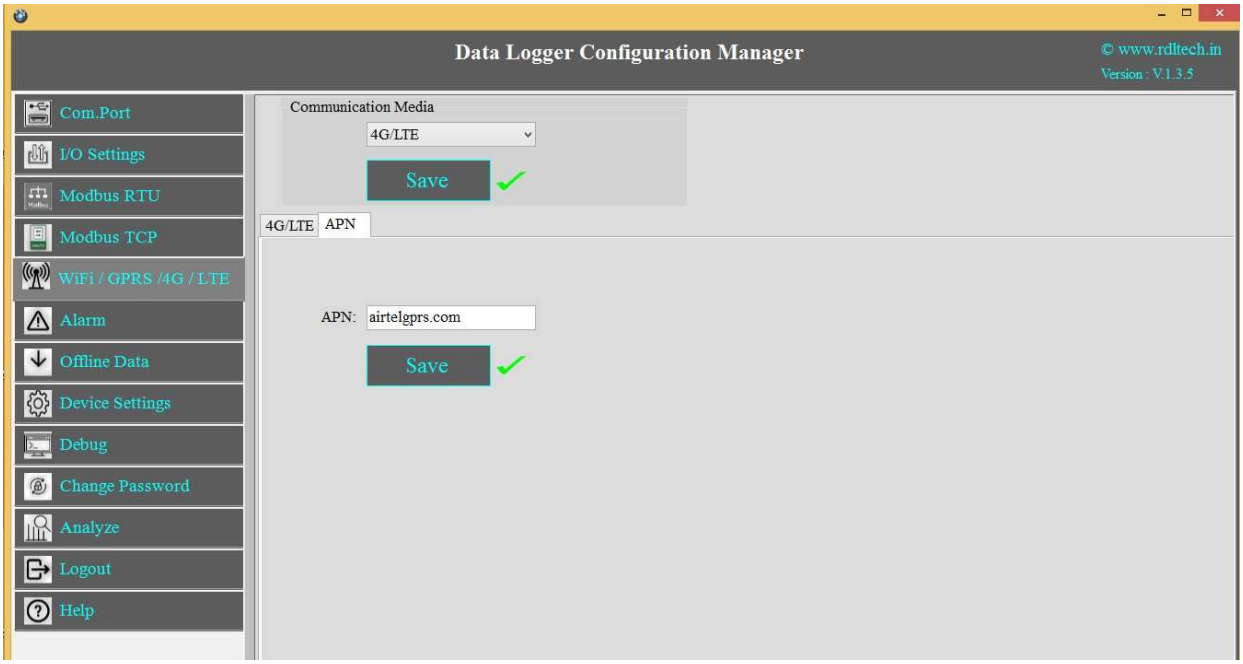



1. Choose **4G/LTE** in the **Communication Media**. Click on **Save**.
2. Select the protocol **FTP** and **Save**.
3. Provide FTP Server IP(Ex:YourServerIP/),Username(Ex:demo@YourServerIP), Password(Ex:abcdef).
4. **Log Folder:** Provide folder name for the FTP Server(Ex:datalogger).
5. Click on **Save** will save these settings in the memory.
6. **APN:** Provide APN for the connection.Click on **Save**.
   Ex: for BSNL it is "bsnlnet".
7. **FTP Uploading Time:** Select the Polling Interval **sec/min/hour**
8. Click on **Save** button to save the above configuration.
9. Click on Read to display the configuration that is already saved.

**NOTE:** FTP Account creating guideline document. Please go through the below given link document.

**LINK1**:https://github.com/researchdesignlab/Industrial-Data-Logger/blob/master/CREATING%20FTP%20ACCOUNT.pdf

**YouTube Link**: https://www.youtube.com/watch?v=_MfcA8Jcmtk




**APN:** Provide APN for the connection. Click on **Save**.

Ex: for BSNL → **"bsnlnet"**.

Airtel → "**airtelgprs.com**"

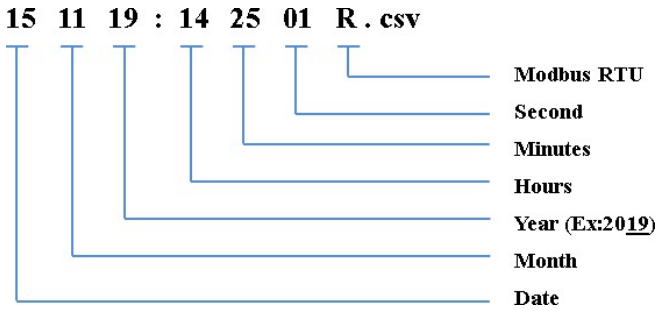
Idea → "**internet**"

## 8.2 4G/LTE FTP Data Uploading Format:

### 8.2.1 MODBUS RTU Data Uploading Format

File uploading format for given date 15/11/2019 will be

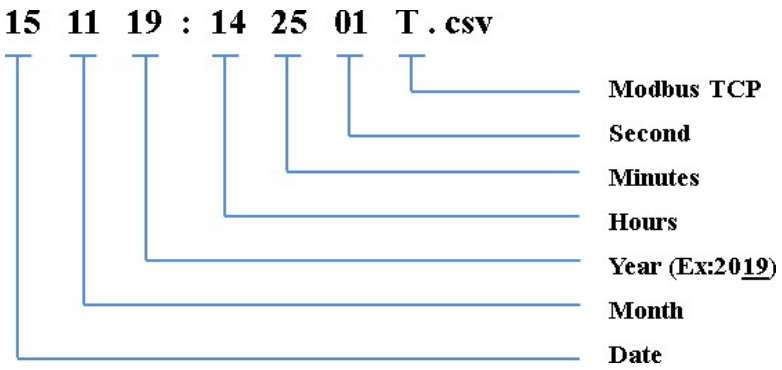
**151119:142501R.csv**




### 8.2.2 MODBUS TCP Data Uploading Format

File uploading format for given date 15/11/2019 will be

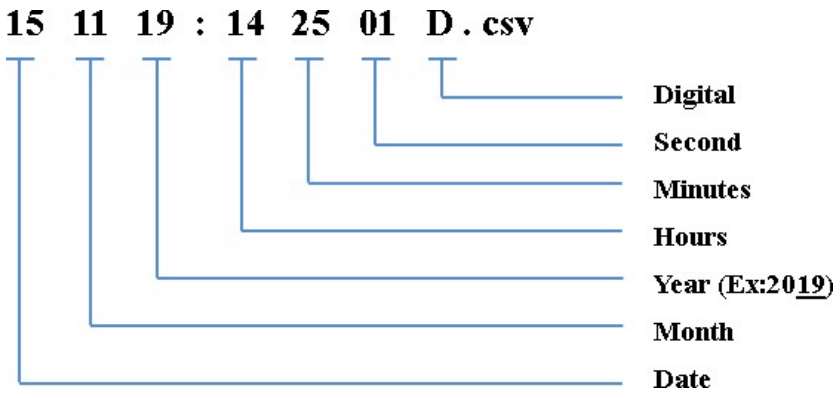
**151119:142501T.csv**



### 8.2.3 Digital Input Data Uploading Format

File uploading format for given date 15/11/2019 will be

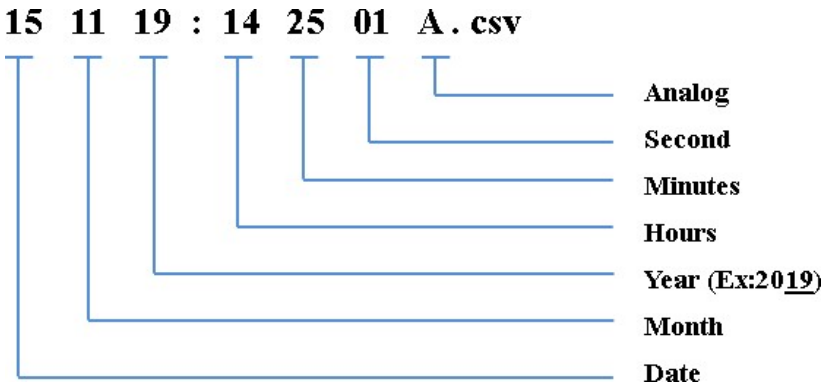
**151119:142501D.csv**



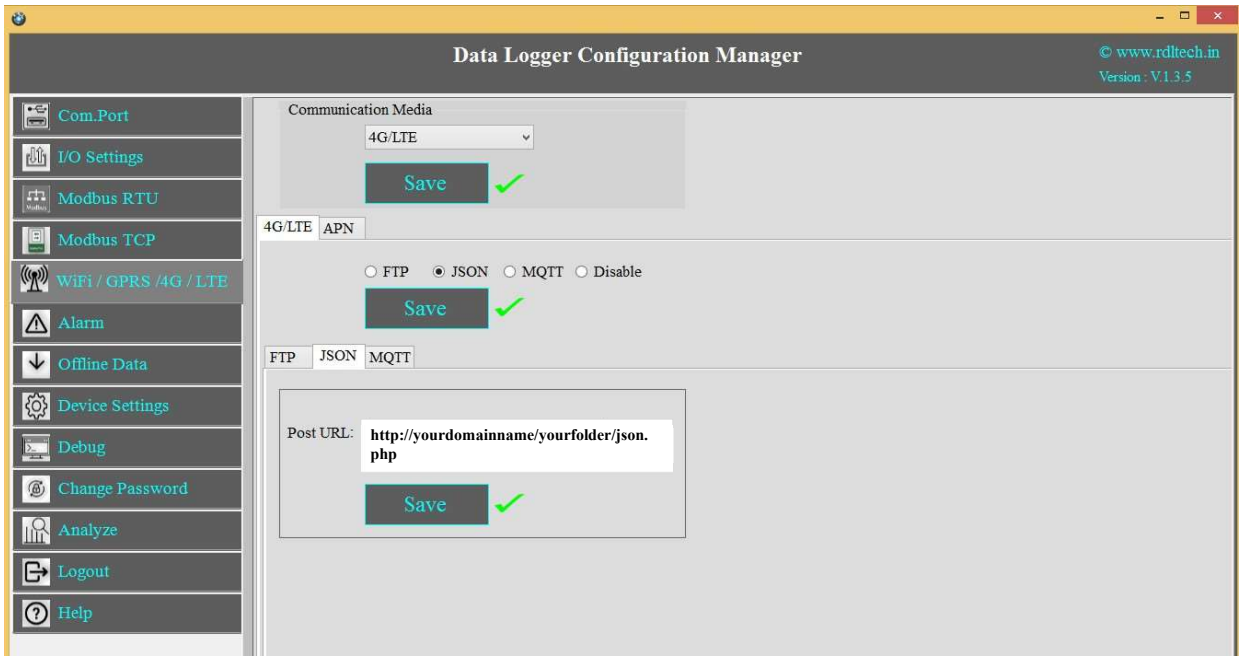

### 8.2.4 Analog Input Data Uploading Format

**File uploading format for given date 15/11/2019 will be**

**151119:142501A.csv**



## 8.3 4G/LTE JSON Settings




1. Choose **4G/LTE** in the **Communication Media**. Click on Save.
2. Select the protocol **JSON and Save**.
3. **Post URL:** Provide Your Server URL(Ex:http://yourdomainname/yourfolder/json.php).
4. Click on **Save** button to save the above configuration.
5. **APN:** Provide APN for the connection. Click on **Save**.

   Ex: for BSNL it is "bsnlnet".

**NOTE:** JSON implementation guideline document. Please go through the below given link document.

**LINK1:** https://github.com/researchdesignlab/Industrial-Data-Logger/blob/master/JSON%20PARSING.pdf

**YouTube Link:** https://www.youtube.com/watch?v=8W-eybka80s

### 8.3.1 4G/LTE JSON Data Uploading Format

**MODBUS RTU Data Uploading Format:**

**API FORMAT:**

{“Type”:”MR”,”ID”:”1235”,”DATE”:”1/11/19”,”TIME”:”12:47:9”,”SL_ID” :”1”,”Reg Ad”:”1003”,”Length”:”6”,”D1”:”0”,”D2”:”0”,”D3”:”0”,”D4”:”0”,”D5”:”0”,”D6”:”0”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hex decimal format.

**MODBUS TCP Data Uploading Format:**

**API FORMAT:**

{“Type”:”MT”,”ID”:”1123”,”DATE”:”4/11/19”,”TIME”:”12:21:21”,”SL_ID” :”1”,”Reg Ad”:”1060”,”Length”:”6”,”D1”:”1165”,”D2”:”1166”,”D3”:”1167”,”D4”:”1168”,”D5”:” 1169”,”D6”:”1170”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal format

## ANALOG Input Data Uploading Format:

**API FORMAT:**

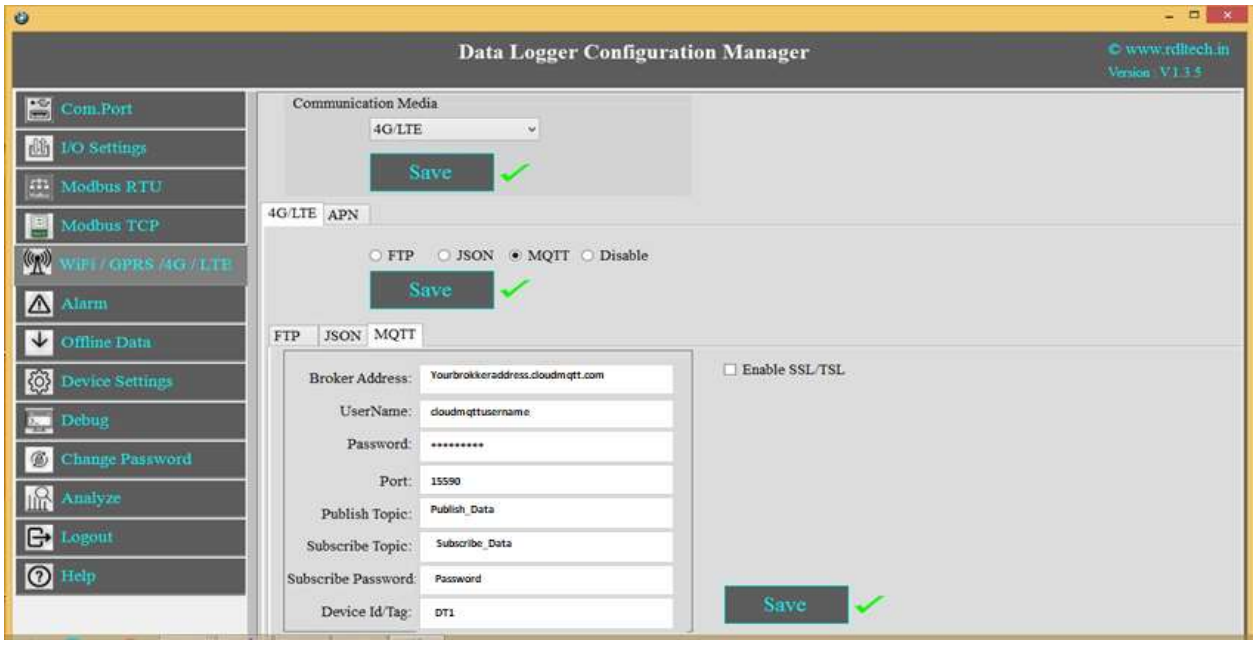
{"Type":"AN","ID":"6549","DATE":"18/08/21","TIME":"15:54:43","AC1":"0.00","AC2":"0.
00","AC3":"0.00","AC4":"0.00","AC5":"0.00","AC6":"0.00","AC7":"0.00","AC8":"0.00","A
C9":"0.00","AC10":"0.00","AC11":"0.00","AC12":"0.00"}

## Digital Input Data Uploading Format:

**API FORMAT:**

{“Type”:”DI”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”12:35:15”,”DC1”:”0”,”D
C2”:” 0”,”DC3”:”0”,”DC4”:”0”}

## 8.4 4G/LTE MQTT Settings:




1. Choose **4G/LTE** in the Communication Media. Click on **Save**.
2. Select the protocol **MQTT** and **Save**.
3. **Broker Address**: Enter your broker address of MQTT(Ex:yourbrokeraddress.cloudmqtt.com).
4. **Cloud Username**: Enter MQTT cloud Username(Ex:Cloudmqttusername).
5. **Password**: Enter MQTT cloud Password(Ex:abcdef).
6. **Port**: Enter Port number for MQTT cloud(Ex:15590).
7. **Publish Topic**: Enter Topic name to publish the data to server(Ex:Publish_Data).
8. **Subscribe Topic**: To receive the data from the server(Ex:Subscribe_Data).
9. **Device Id/Tag**: Enter the Device ID(Ex:DT1)
10. Click on **Save** will save these settings in the memory.
11. **APN**: Enter APN for the connection. Ex: for BSNL it is "bsnlnet".
12. Click on **Save**.

**NOTE:** MQTT Broker creating guideline document. Please go through the below given link document.

LINK 1:https://github.com/researchdesignlab/Industrial-Data-Logger/blob/master/MQTT_Linux_Bringup_ver1.0.pdf

LINK 2: https://www.cloudmqtt.com/docs/index.html

YouTube Link: https://www.youtube.com/watch?v=qNFmfBpNMsg&t=3s

### 8.4.1 4G/LTE MQTT Data Parsing Format:

**MODBUS RTU Data Parsing Format:**

**Parsing Format:**

{"Type":"MR","ID":"1235","DATE":"1/11/19","TIME":"12:47:9","SL_ID" :"1","Reg Ad":"1003","Length":"6","D1":"0","D2":"0","D3":"0","D4":"0","D5":"0","D6":"0"}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

**MODBUS TCP Data Parsing Format:**

**Parsing Format:**

{"Type":"MT","ID":"1123","DATE":"4/11/19","TIME":"12:21:21","SL_ID" :"1","Reg Ad":"1060","Length":"6","D1":"1165","D2":"1166","D3":"1167","D4":"1168","D5":"1169","D6":"1170"}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

## ANALOG Input Data Parsing Format:

**Parsing Format:**

{"Type":"AN","ID":"6549","DATE":"18/08/21","TIME":"15:54:43","AC1":"0.00","AC2":"0.00","AC3":"0.00","AC4":"0.00","AC5":"0.00","AC6":"0.00","AC7":"0.00","AC8":"0.00","AC9":"0.00","AC10":"0.00","AC11":"0.00","AC12":"0.00"}

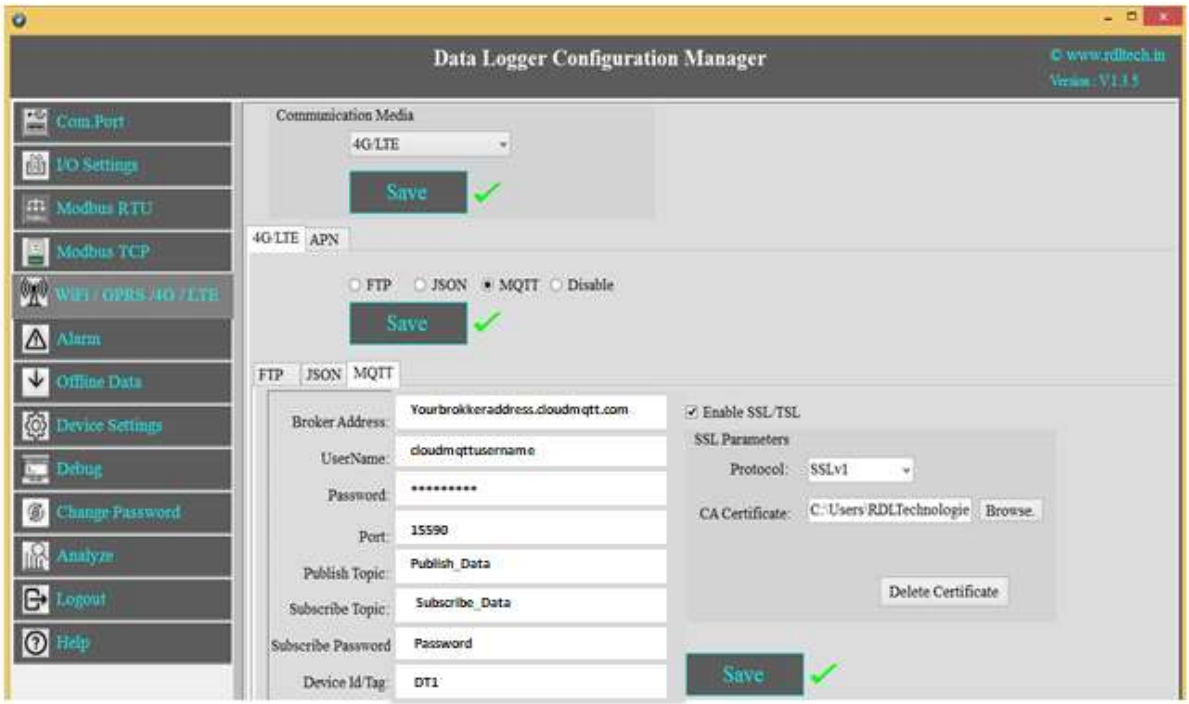
**NOTE:** For Analog Input configuration look into the section 2.2 in this document

## Digital Input Data Parsing Format:

**Parsing Format:**

{“Type”:”DI”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”12:35:15”,”DC1”:”0”,”DC2”:”0”,”DC3”:”0”,”DC4”:”0”}

## 8.5 4G/LTE MQTT with SSL Settings



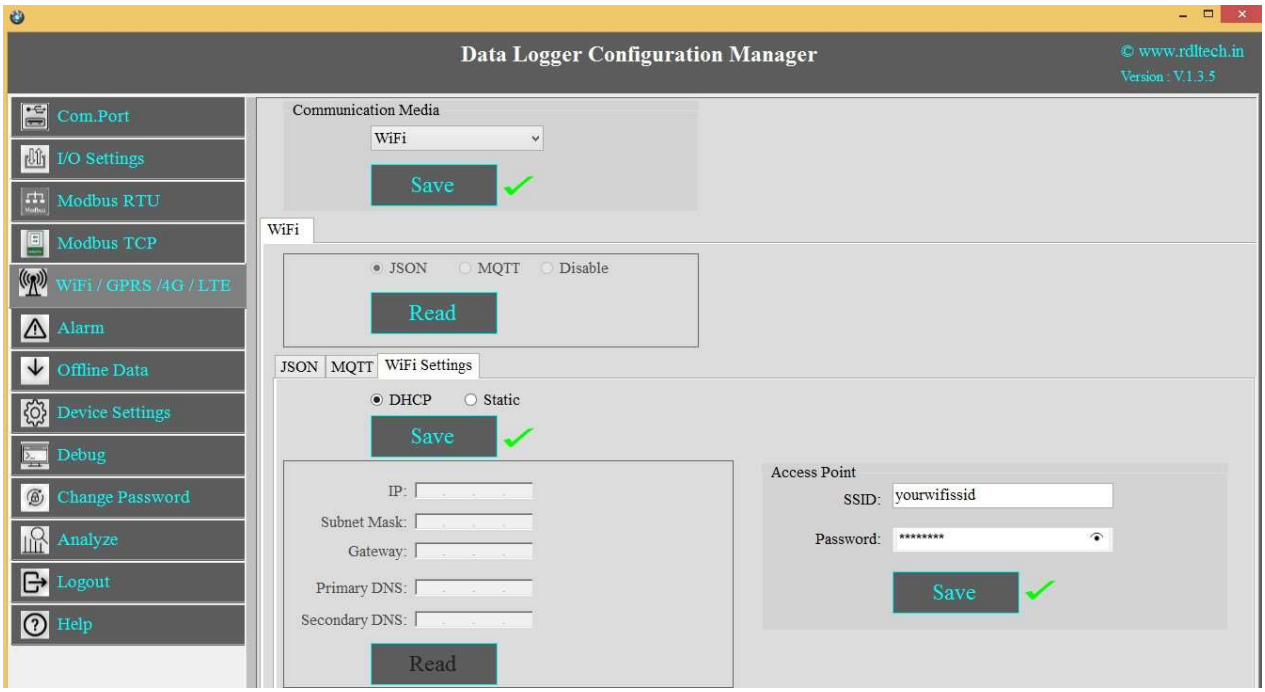

1. Choose **4G/LTE** in the **Communication Media**. Click on Save.
2. **Select the protocol MQTT and Save**.
3. **Broker Address:**Enter your broker address of MQTT
   (Ex:yourbrokeraddress.cloudmqtt.com).
4. **Cloud Username:** Enter MQTT cloud User Name.(Ex:cloudmqttusername).
5. **Password:** Enter MQTT cloud Password(Ex:abcdef).
6. **Port:** Enter Port number for MQTT cloud(Ex:15590)
7. **Publish Topic:** Enter Topic name to publish the data to server(Ex:Publish_Data).
8. **Subscribe Topic:** To receive the data from the server(Ex:Subscribe_Data)
9. **Device Id/Tag:** Provide the Device ID(Ex:DT1)
10. Click on **Enable SSL/TSL and** set the **SSL Parameters.**
11. **Protocol:** Select in the dropdown which protocol you are using.

12. **CA Certificate:** Please upload the CA Certificate.
13. Click on **Save** button to save the above configuration.
14. Click on Delete Certificate to delete the uploaded Certificate.
15. **APN:** Provide APN for the connection. Ex: for BSNL ->"bsnlnet".Click on Apply.

**NOTE:** Make sure that power supply connected during the process of uploading the SSL certificate

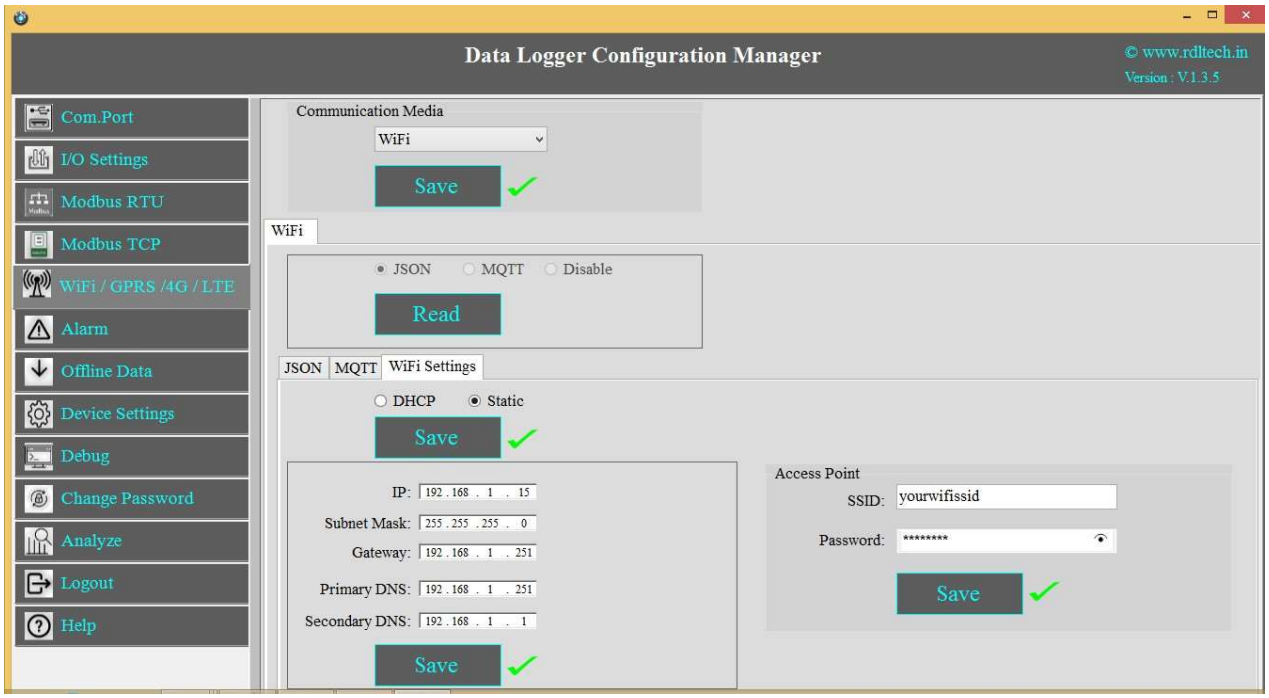
# 9. Wi-Fi Settings

## 9.1 Wi-Fi DHCP Settings



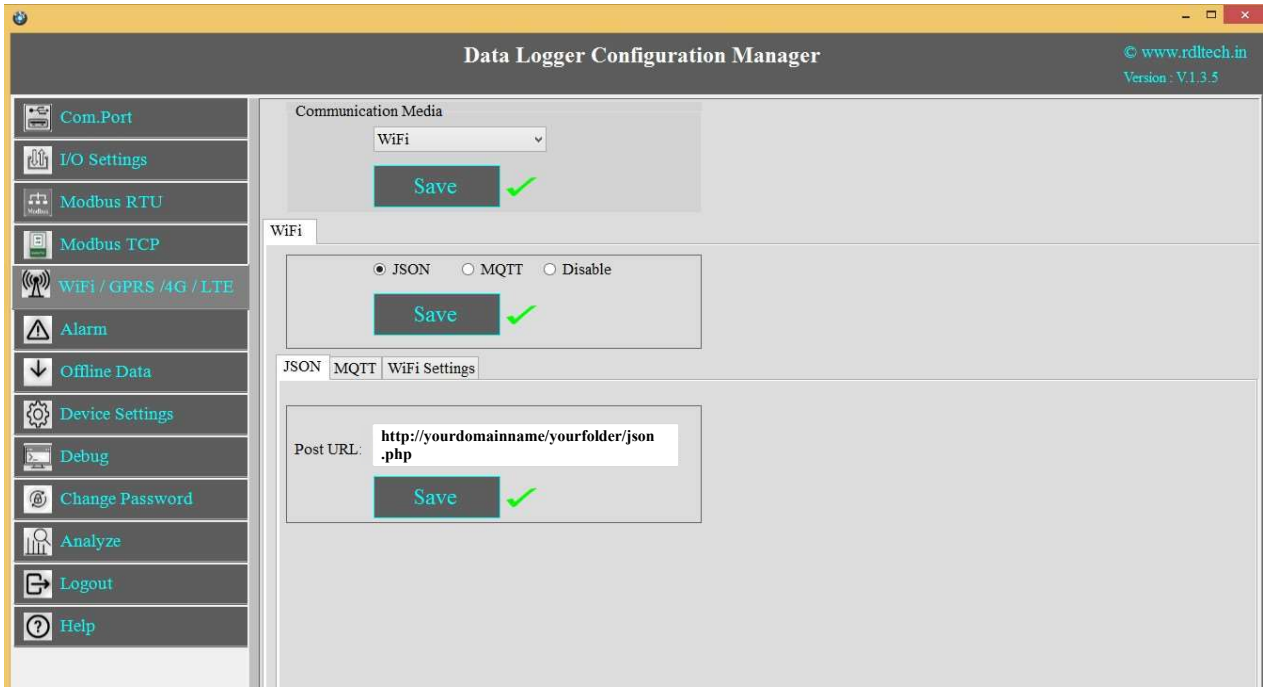

1. Choose **Wi-Fi** in the **Communication Media**. Click on Save.
2. **Wi-Fi Settings** are enabled now.
3. Select protocol **MQTT/JSON** and click on **Save** button**.**
4. Wi-Fi Settings: Select **DHCP**. Click on **Apply**.
5. **Access Point:** Set the SSID (Ex:yourwifissid) and Password (EX:abdcdef).
6. Click on **Save** button to save these settings in the memory.

## 92 Wi-Fi Static Settings




1. Choose **Wi-Fi** in the **Communication Media**. Click on Save.
2. Select the protocol **JSON**
3. **Wi-Fi Settings:** Select **Static**. Click on **Apply**.
4. Enter the IP, Subnet Mask, Gateway, Primary DNS, Secondary DNS and click on **Save**.
5. **Access Point:** Set the **SSID** (Ex:yourwifissid) and **Password**(Ex:abcdef), Click on **Save** button.

## 93 Wi-Fi JSON Settings




1. Choose **Wi-Fi** in the **Communication Media**. Click on Save.
2. **Wi-Fi Settings:** Select the protocol **JSON and Save**.
3. **Post URL:** Provide Your Server URL.(Ex: http://yourdomainname/yourfolder/json.php)
4. Click on **Save** button to save the above configuration.

.

### 9.3.1 Wi-Fi JSON Data Uploading Format

**MODBUS RTU Data Uploading Format**

**API FORMAT:**

{“Type”:”MR”,”ID”:”1235”,”DATE”:”1/11/19”,”TIME”:”12:47:9”,”SL_ID” :”1”,”Reg Ad”:”1003”,”Length”:”6”,”D1”:”0”,”D2”:”0”,”D3”:”0”,”D4”:”0”,”D5”:”0”,”D6”:”0”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

**MODBUS TCP Data Uploading Format**

**API FORMAT:**

{“Type”:”MT”,”ID”:”1234”,”DATE”:”4/11/19”,”TIME”:”12:21:21”,”SL_ID” :”1”,”Reg Ad”:”1060”,”Length”:”6”,”D1”:”1165”,”D2”:”1166”,”D3”:”1167”,”D4”:”1168”,”D5”:”1169”,”D6”:”1170”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

## Analog Input Data Uploading Format

**API Format:**

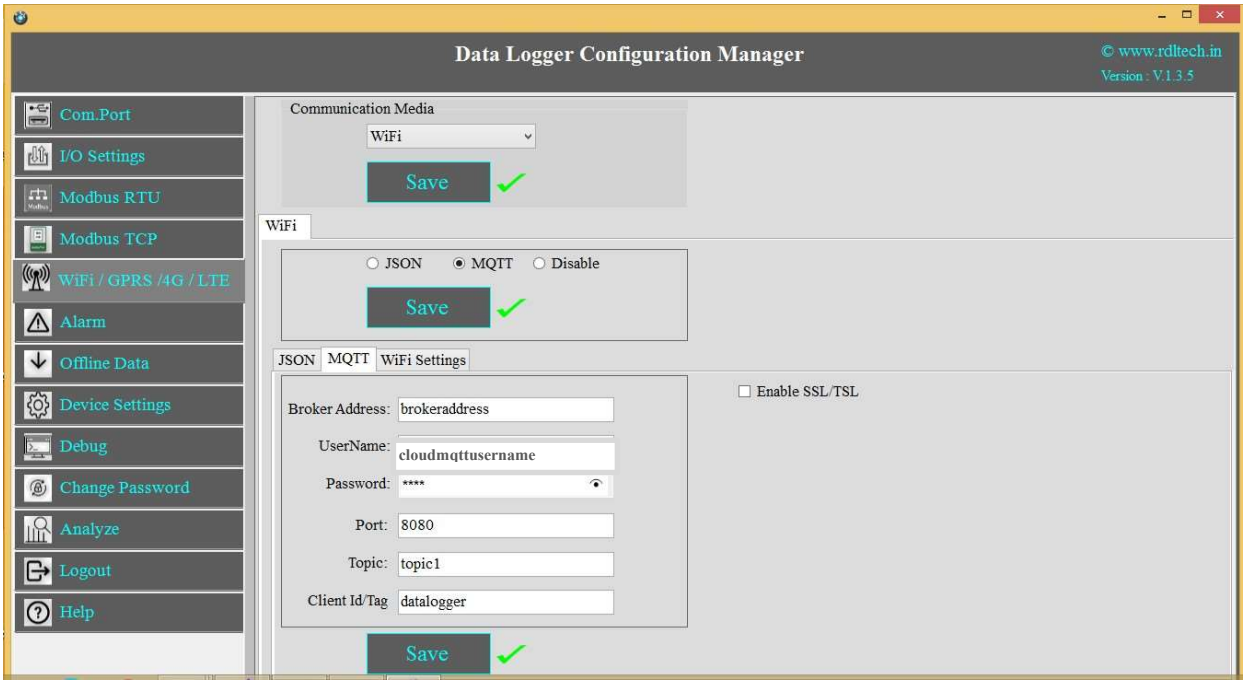
{"Type":"AN","ID":"6549","DATE":"18/08/21","TIME":"15:54:43","AC1":"0.00","AC2":"0.00","AC3":"0.00","AC4":"0.00","AC5":"0.00","AC6":"0.00","AC7":"0.00","AC8":"0.00","AC9":"0.00","AC10":"0.00","AC11":"0.00","AC12":"0.00"}

## Digital Input Data Uploading Format

**API Format:**

{“Type”:”DI”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”12:35:15”,”DC1”:”0”,”DC2”:”0”,”DC3”:”0”,”DC4”:”0”}

## 9.4 Wi-Fi MQTT Settings




1. Choose **Wi-Fi** in the **Communication Media**. Click on **Save**.
2. **Wi-Fi Settings** are enabled now, ready for **MQTT**
3. **MQTT:** Data logging happens to MQTT server. Click on Save.
4. **Broker Address:** Provide your broker address of MQTT (Ex: yourbrokeraddress.cloudmqtt.com)
5. **Cloud Username:** Provide MQTT cloud Username.(Ex: Cloudmqttusername)
6. **Password:** Provide MQTT cloud Password.(Ex:abcdef)
7. **Port:** Provide Port number for MQTT cloud.(Ex:15590)
8. **Topic:** Provide Topic name.(Ex:Topic1)
9. **Device Id/Tag:** Provide the Device ID(Ex:datalogger)
10. Click on **Save** button to save the above configuration.

### 9.4.1 Wi-Fi MQTT Data Parsing Format:

**MODBUS RTU Data Parsing Format:**

**Parsing Format:**

{“Type”:”MR”,”ID”:”1235”,”DATE”:”1/11/19”,”TIME”:”12:47:9”,”SL_ID” :”1”,”Reg Ad”:”1003”,”Length”:”6”,”D1”:”0”,”D2”:”0”,”D3”:”0”,”D4”:”0”,”D5”:”0”,”D6”:”0”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

**MODBUS TCP Data Parsing Format**

**Parsing Format:**

{“Type”:”MT”,”ID”:”1123”,”DATE”:”4/11/19”,”TIME”:”12:21:21”,”SL_ID” :”1”,”Reg Ad”:”1060”,”Length”:”6”,”D1”:”1165”,”D2”:”1166”,”D3”:”1167”,”D4”:”1168”,”D5”:”1169”,”D6”:”1170”}

**NOTE:** MODBUS RTU/TCP 16bit/32bit data parsed in hexadecimal format

## Analog Input Data Parsing Format:

**Parsing Format:**

{"Type":"AN","ID":"6549","DATE":"18/08/21","TIME":"15:54:43","AC1":"0.00","AC2":"0.00","AC3":"0.00","AC4":"0.00","AC5":"0.00","AC6":"0.00","AC7":"0.00","AC8":"0.00","AC9":"0.00","AC10":"0.00","AC11":"0.00","AC12":"0.00"}

## Digital Input Data Parsing Format:

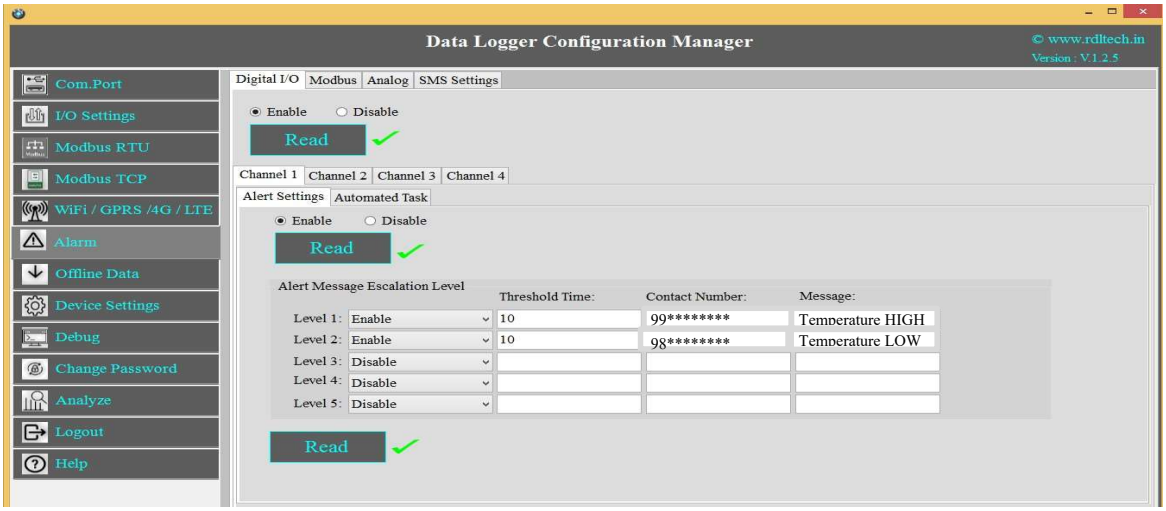
**Parsing Format:**

{“Type”:“DI”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”12:35:15”,”DC1”:”0”,”DC2”:”0”,”DC3”:”0”,”DC4”:”0”}

# 10. Alarm

Device sends emergency alerts and different Escalation level SMS to the remote user on real time basis. Device also supports Automating the remote asset based on set threshold. Alarm can be applied for Digital, Analog and Modbus Inputs.

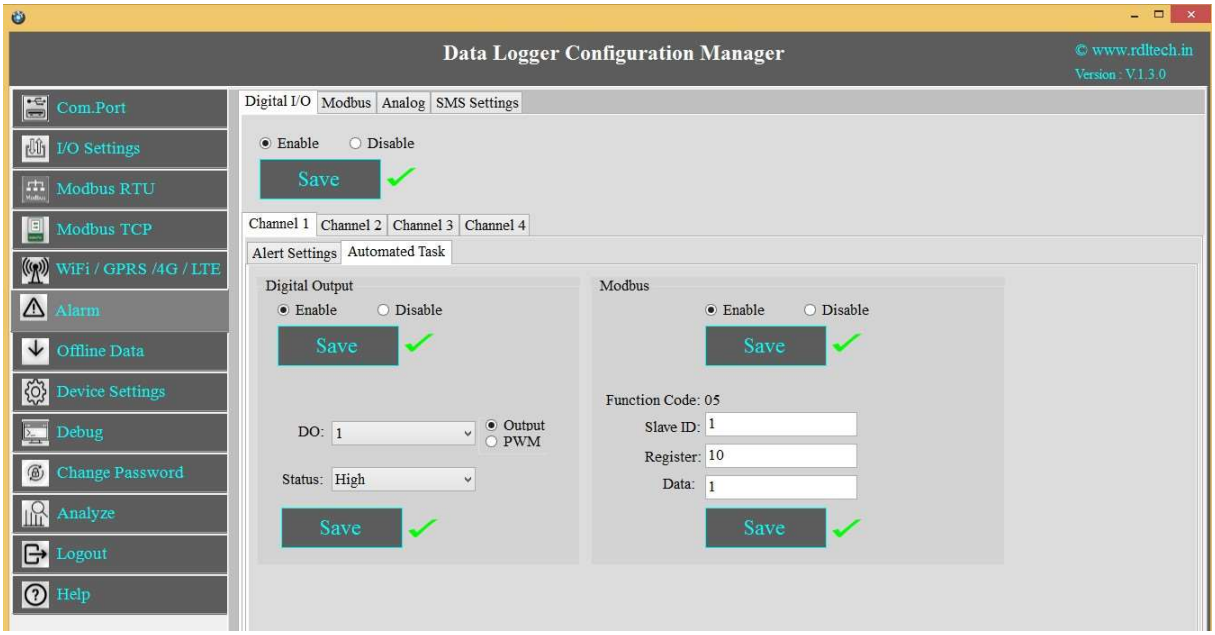
## Setting up Alarm for Digital Input:




1) Enable Digital I/O and Click on Save button.
2) Click on Channel 1 and select Alert Settings tab and Enable it and then Save.
3) Alert Message Escalation Level, enable the Levels, set the Threshold Time, enter the contact number and write the alert message to be sent and click on Save button.
4) Maximum 5 phone numbers and maximum 25 character length alert messages can be registered.

**NOTE:** If digital Input is triggered then send a configured message to the configured number based on threshold time priority.

## Automated Digital I/O Alarm Task:




**Case 1:** Automate Task when Digital Input Channel 1 goes High, make the Digital Output Channel High.

To do the above task, follow the below given steps:

1) Click on Channel 1.
2) Click on Automated Task tab and enable the Digital Output and Save.
3) Select the Digital Output Channel
4) Make the bit status High/Low.
5) Click on **Save** button to save the above configuration.

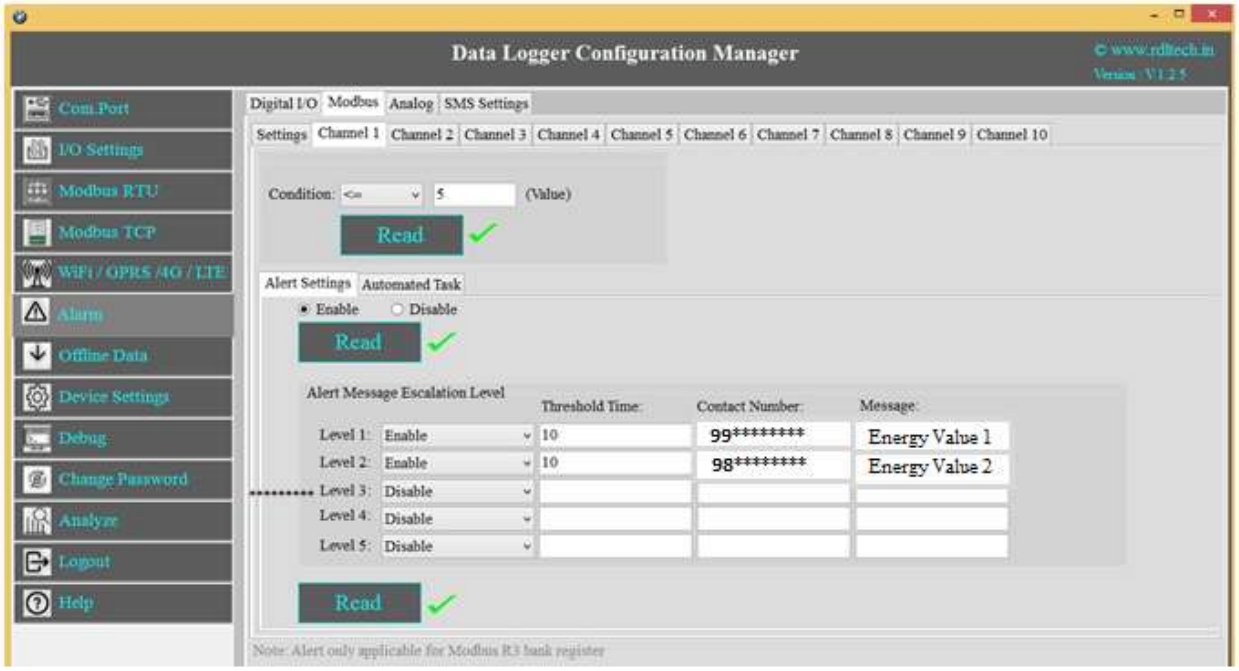
**Case 2:** Automate Task when Digital Input Channel 1 goes High ,write data to slave ID 1 and register ID 10.

To do the above task, follow the below given steps:

1) Click on Channel 1.
2) Click on Automated Task tab and enable the Digital Output and Save.
3) Select the Digital Output Channel

4) Make the bit status High/Low.
5) Enable the MODBUS and Click on Save button.
6) Enter the Slave ID, Register address and Data.
7) Click on **Save** button to save the above configuration.

### Setting up Alarm for MODBUS:

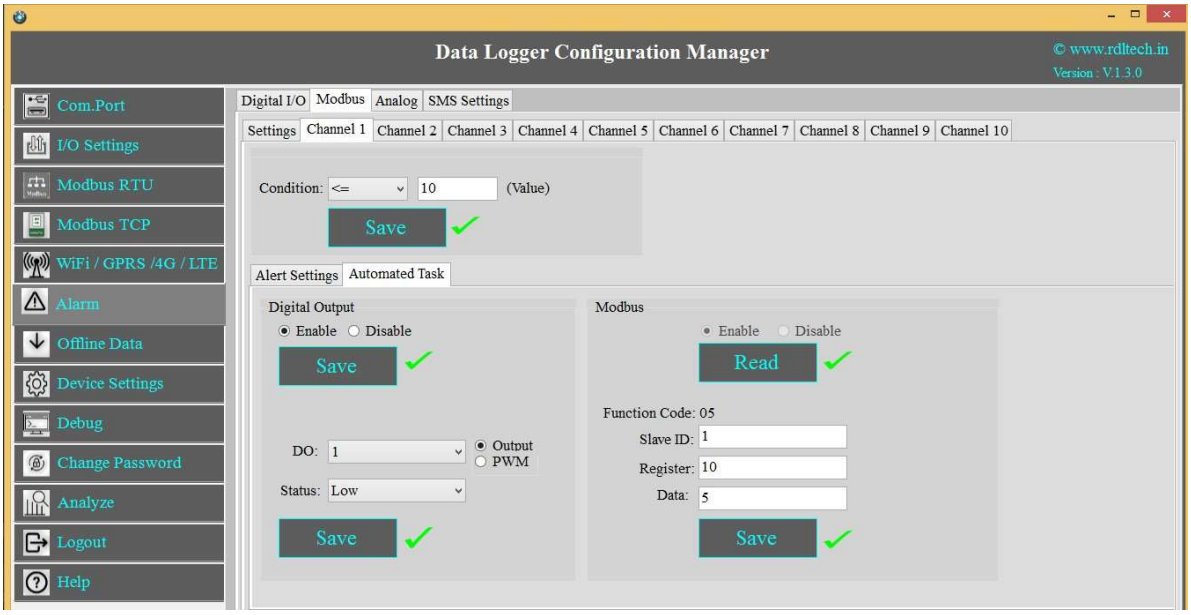



1) Select MODBUS, Click on Channel 1 and select Alert Settings tab and Enable it and then Save.
2) Alert Message Escalation Level, enable the Levels, set the Threshold Time, enter the contact number and write the alert message to be sent and click on Save button.
3) Maximum 5 phone numbers and maximum 25 character length alert messages can be registered.

**NOTE:** MODBUS Alarm is linked to MODBUS Register Bank R3.

MODBUS Register Bank R3 set slave received value match with an alarm registered condition and value, if the condition is successful, then send a configured message to the configured number based on threshold time and escalation priority.

## Automated MODBUS Alarm Task:




**Case 1:** Automate Task when MODBUS Channel 1 goes High, make Digital Output Channel High.

To do the above task, follow the below given steps:

1) Click on Channel 1 and select Automated Task tab and Enable it and then Save.
2) Select the Digital Output Channel
3) Make the bit status High/Low.
4) Click on **Save** button to save the above configuration.

.

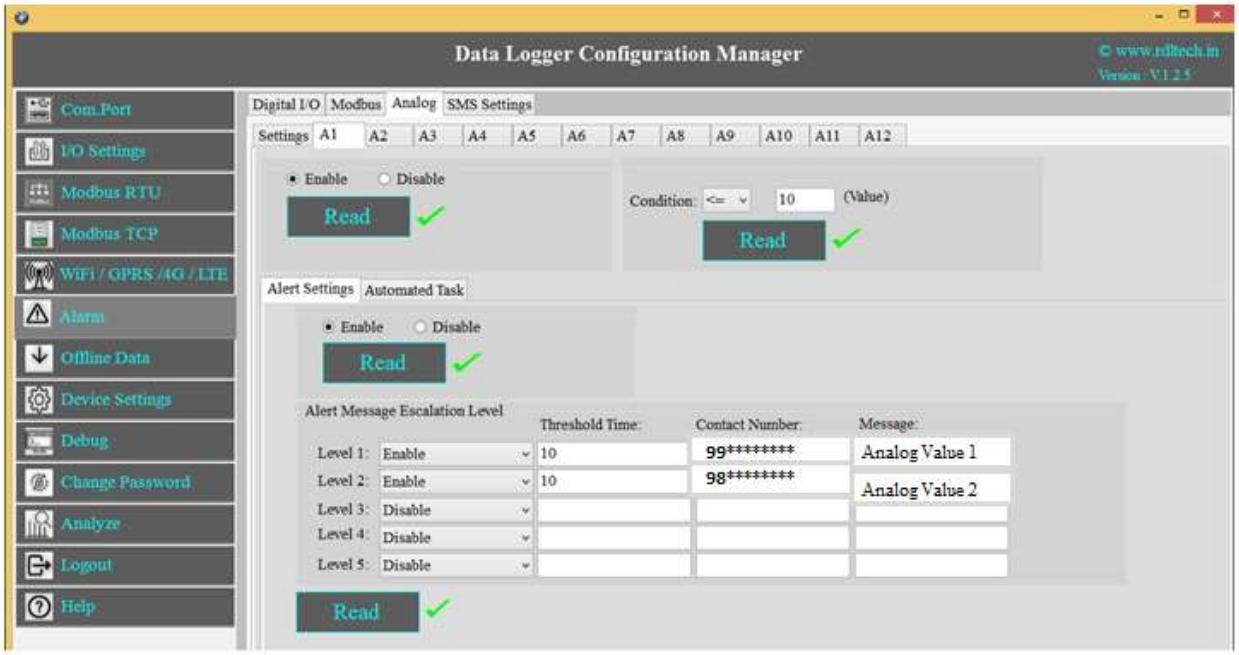
**Case 2:** Automate Task when MODBUS Input Channel 1 goes High , write data to slave ID 1 and register ID 10.

To do the above task, follow the below given steps:

1) Click on Channel 1 and select Automated Task and Enable it and then Save
2) Select the Digital Output Channel
3) Make the bit status High/Low.
4) Enable the MODBUS and Click on Save button.

5) Enter the Slave ID, Register address and Data.
6) Click on **Save** button to save the above configuration.

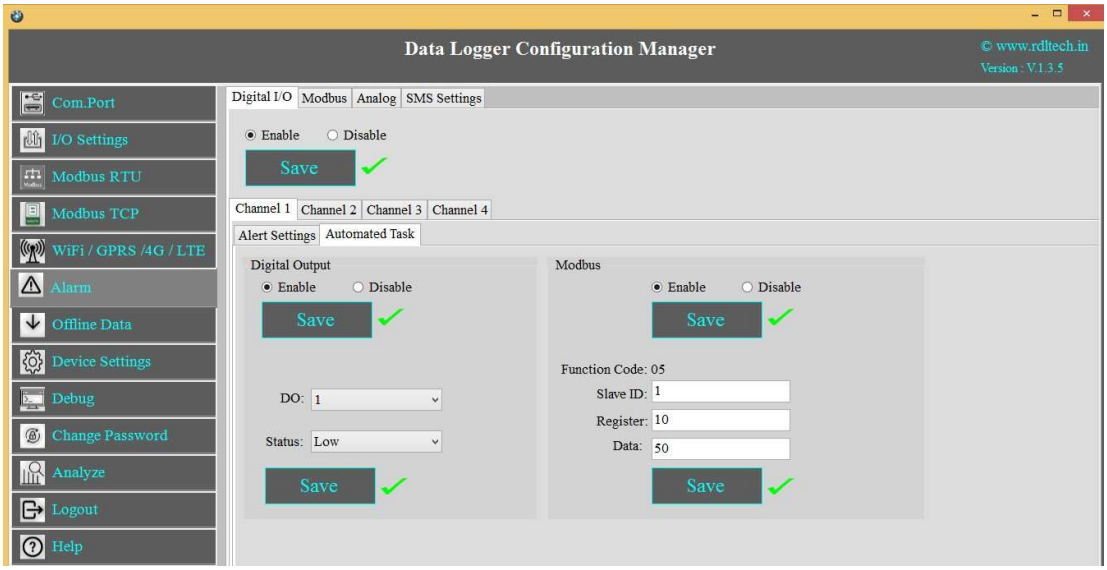
## Setting up Alarm for Analog:




1) Click on Analog and select the Channels (A1-A12) and Click on Enable and Save.
2) Select Alert Settings tab and Enable it and then Save
3) Alert Message Escalation Level, enable the Levels, set the Threshold Time, enter the contact number and write the alert message to be sent and click on Save button.
4) Maximum 5 phone numbers and maximum 25 character length alert messages can be registered.

**NOTE:** Analog value, match with an alarm registered condition and value, if the condition is successful, then send a configured message to the configured number based on threshold time priority.

## Automated MODBUS Alarm Task:




**Case 1:** Automate Task when Analog Channel 1 goes High, make Digital Output Channel High.

To do the above task, follow the below given steps:

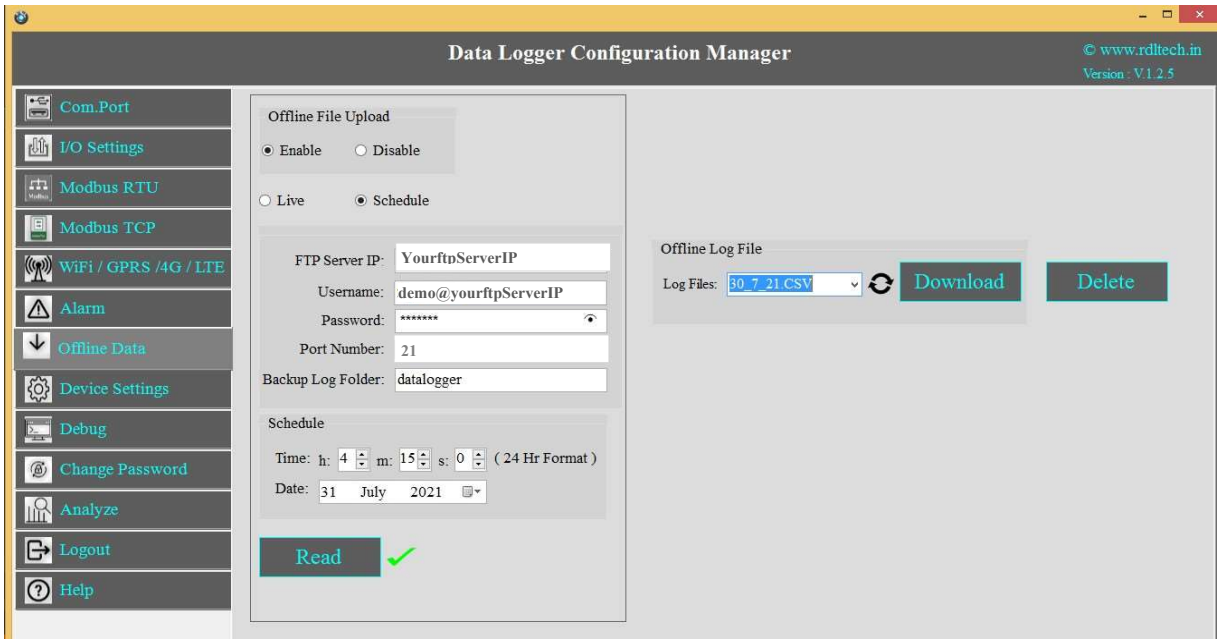
1) Click on Channel 1 and select Automated Task tab and Enable it and then Save
2) Select the Digital Output Channel
3) Make the bit status High/Low.
4) Click on **Save** button to save the above configuration.

**Case 2:** Automate Task when Analog Input Channel 1 goes High, write data to slave ID 1 and Register ID 10.

To do the above task, follow the below given steps:

1) Click on Channel 1 and select Automated Task tab and Enable it and then Save.
2) Select the Digital Output Channel
3) Make the bit status High/Low.
4) Enable the MODBUS and Click on Save button.
5) Enter the Slave ID, Register address and Data and Save it.

## 11. Offline Data




1. **Enable:** Select enable to upload the file offline/when there is no internet connectivity.
2. Select radio button to Enable/Disable offline file
3. **Live:** Offline data sent to a configured server after receiving an internet connection.
4. **Schedule:** Offline data is stored in the "jsn_bup.txt" file. That file is sent to the Configured FTP Server at configured time.
5. **FTP Details:** Enter the FTP Server IP (Ex:yourftpServerIP), Username (Ex:demo@yourftpserverIP), Password(Ex:abcdefg) and the Port Number
6. Click on Save button.
7. **Backup Log Folder:** Enter FTP server folder name(In case of multiple folder enter folder name with path)
8. **Schedule:** Set the Time and Date for offline data FTP poll.
9. **Offline Log Data:**

**Log Files**: You can select the .CSV files

**Download**: You can select the Log files from the Dropdown and Click on Download.

**Delete:** You can select the Log files which you want to delete from the Dropdown and click on Delete.

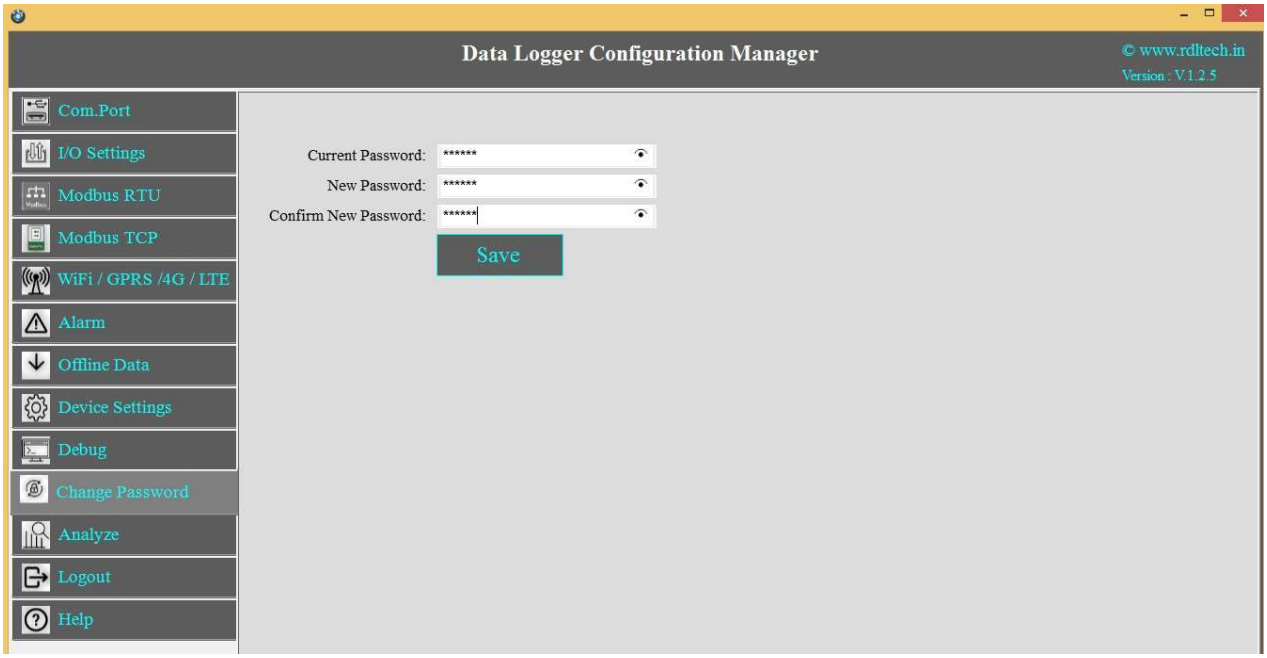
## 12. Device Settings


1. Set the Device Id (Ex:6549) and click on Save
2. Click on **Read** to display the configuration that is already saved.
3. Select the **Enable Debug** and click on Save.


1. Set the device **Current time** in hour, minute and seconds.
2. **Date:** Select the date from the drop down menu.
3. Click on Save to save the above configuration.


1. Click on **Backup** to take the entire data logger configuration backup.
2. Click on **Restore** and select the file to restore the data logger Configuration.
3. **Factory Default**: Click on Factory Default to restore the factory default configuration settings.
4. **Restart**: Click on Restart button to restart the Data Logger.

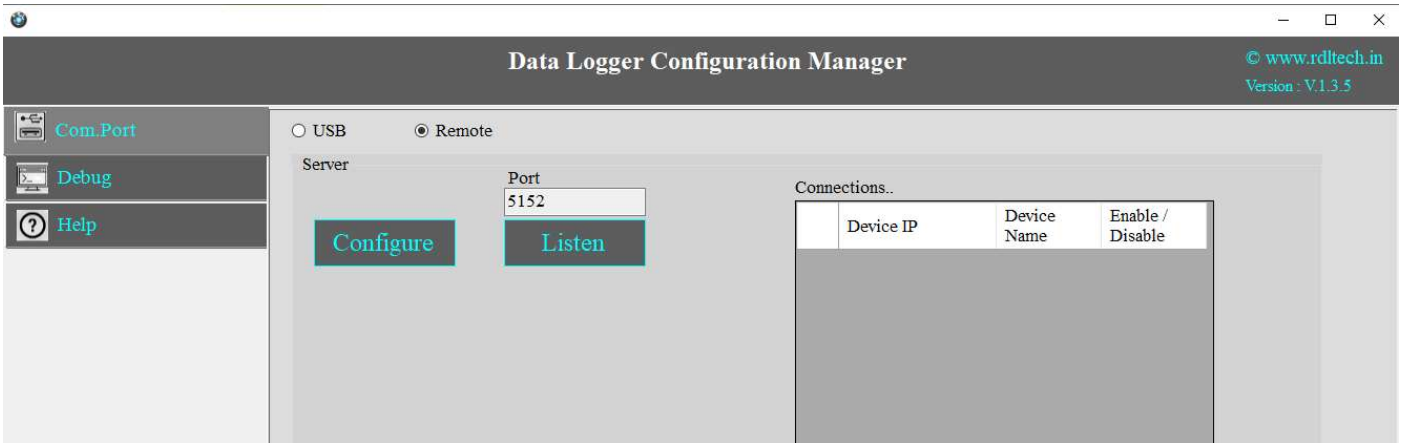
## 13. Change Password



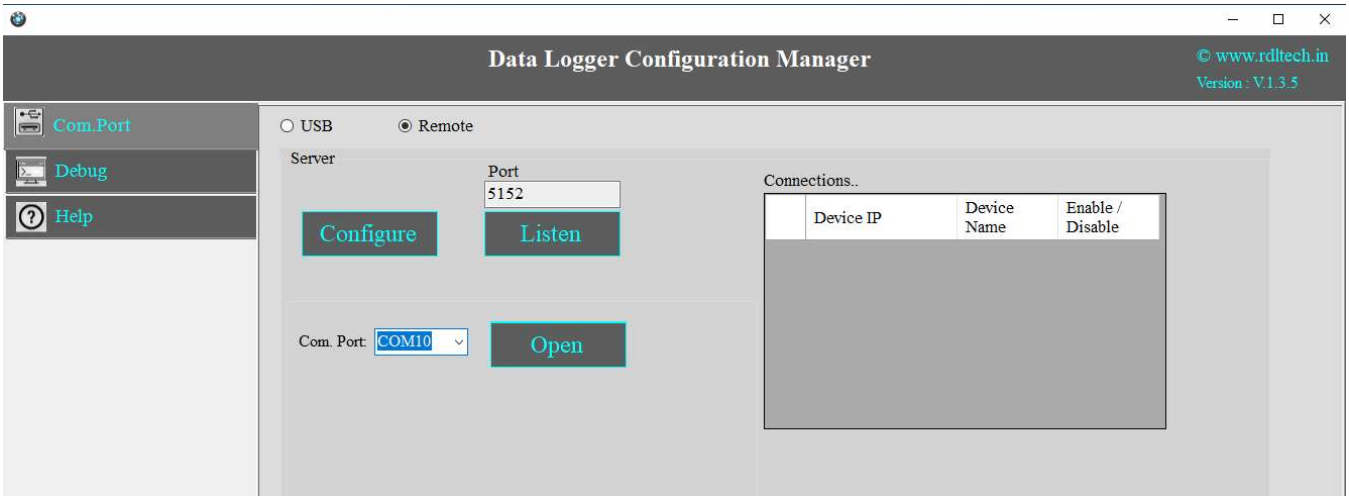

You can change the default password by entering the New Password.

## 14. Remote Login:

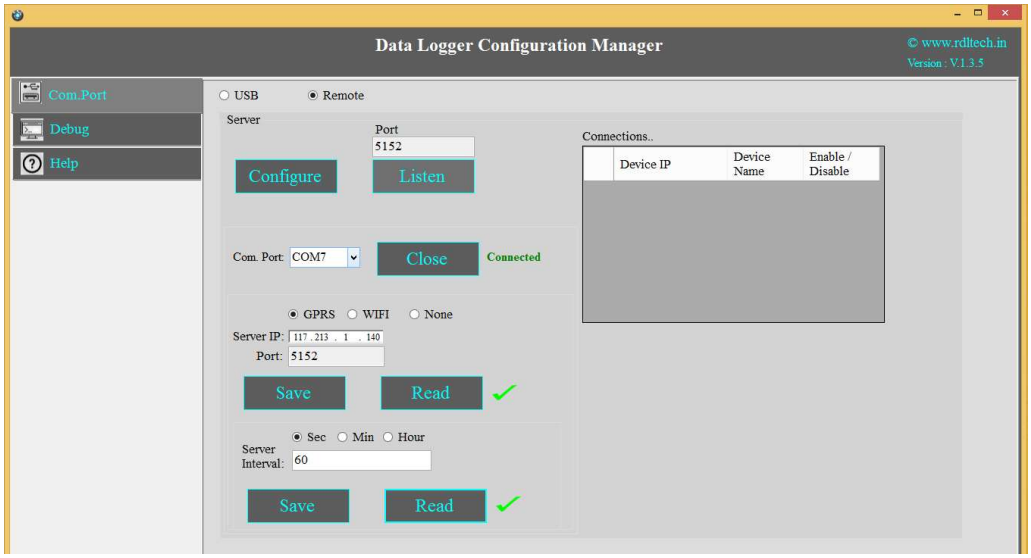
**NOTE:** (Before Configuring the Remote, make sure that under Local login you have selected GPRS/WIFI. (For Ex:If you want to select GPRS in Remote ,first you need to configure GPRS in Local Login. Similarly if Wifi in Remote then you need to configure WiFi in Local Login).



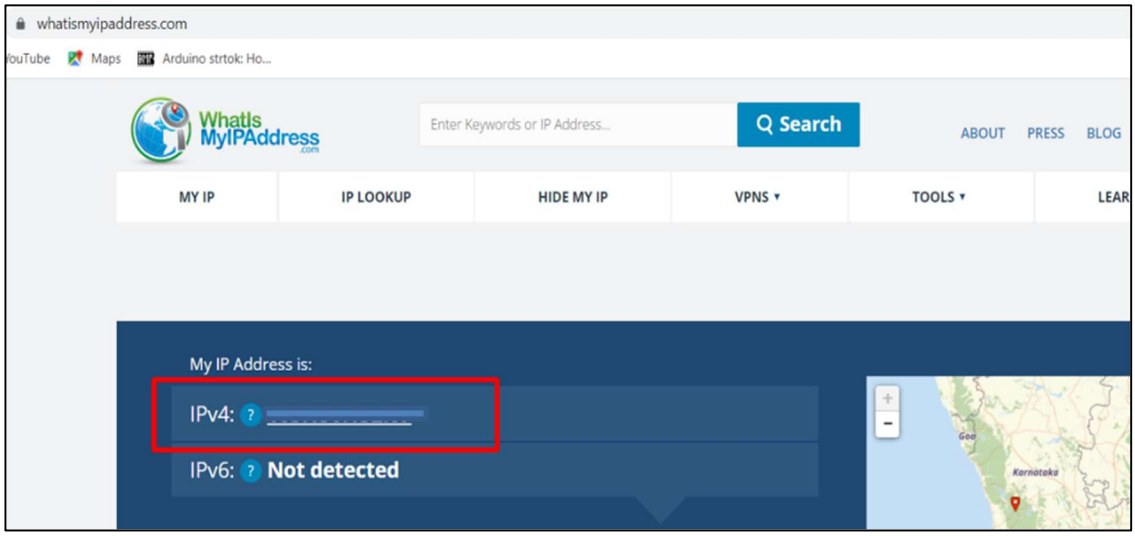

1. Click on Com port and Select Remote from the radio button.



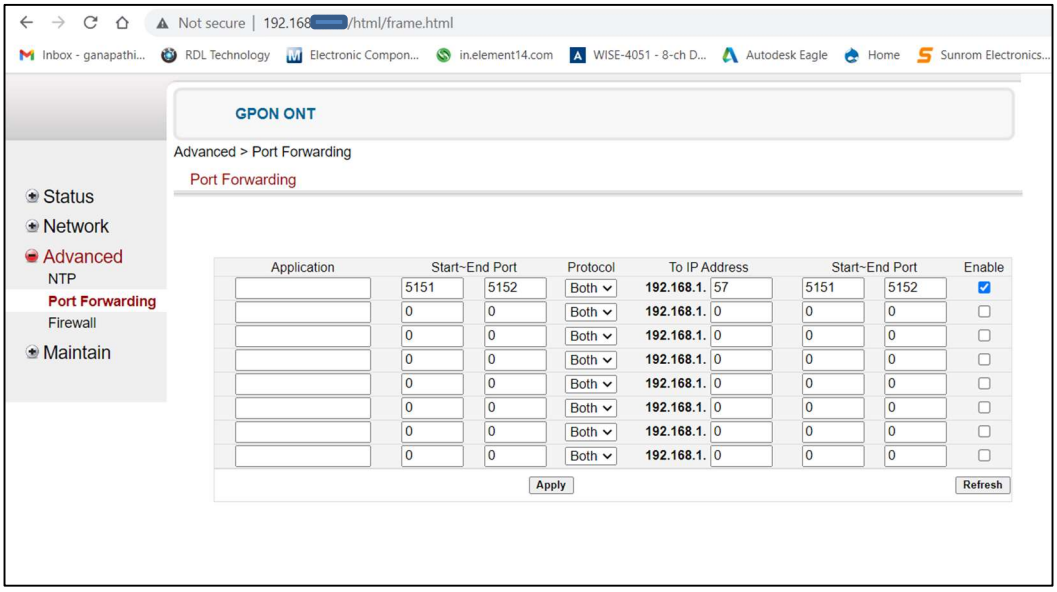

2. Click on Configure
3. Select the Com Port and click on Open




1. Click on **Configure** and Choose **WiFi** or **GPRS** from the radio button and enter the IP address.
2. In GPRS Configuration use Public IP address. If the configuration is Wi-Fi then you can use Private or Public IP addresses.
3. To get the Public IP address you can use [https://whatismyipaddress.com/](https://whatismyipaddress.com/) where you can get the Public IP.(refer the below image)

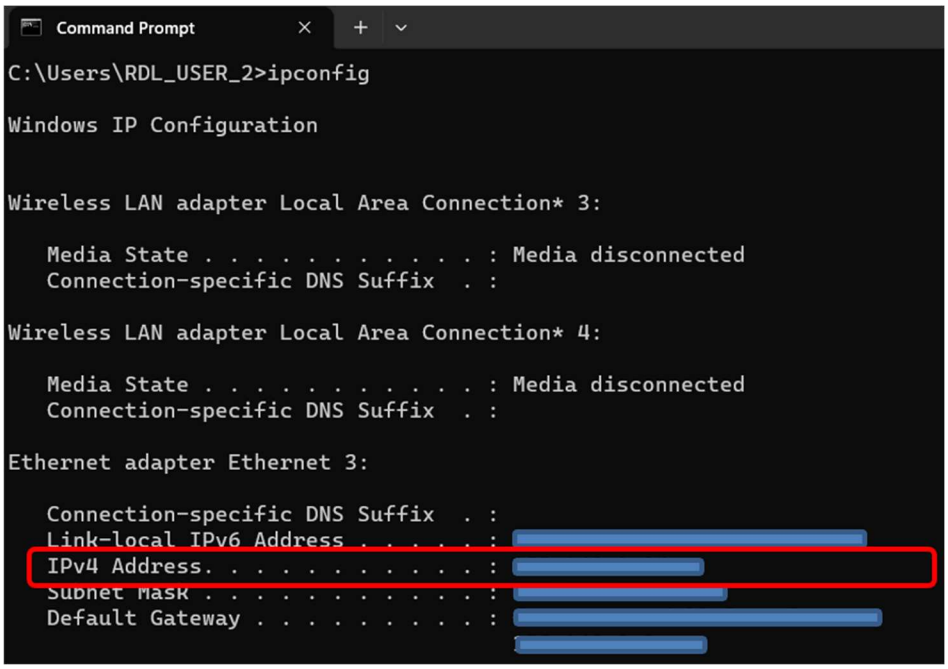


4. While using GPRS option, user has to enable the port forwarding in their router settings(Image reference given below).



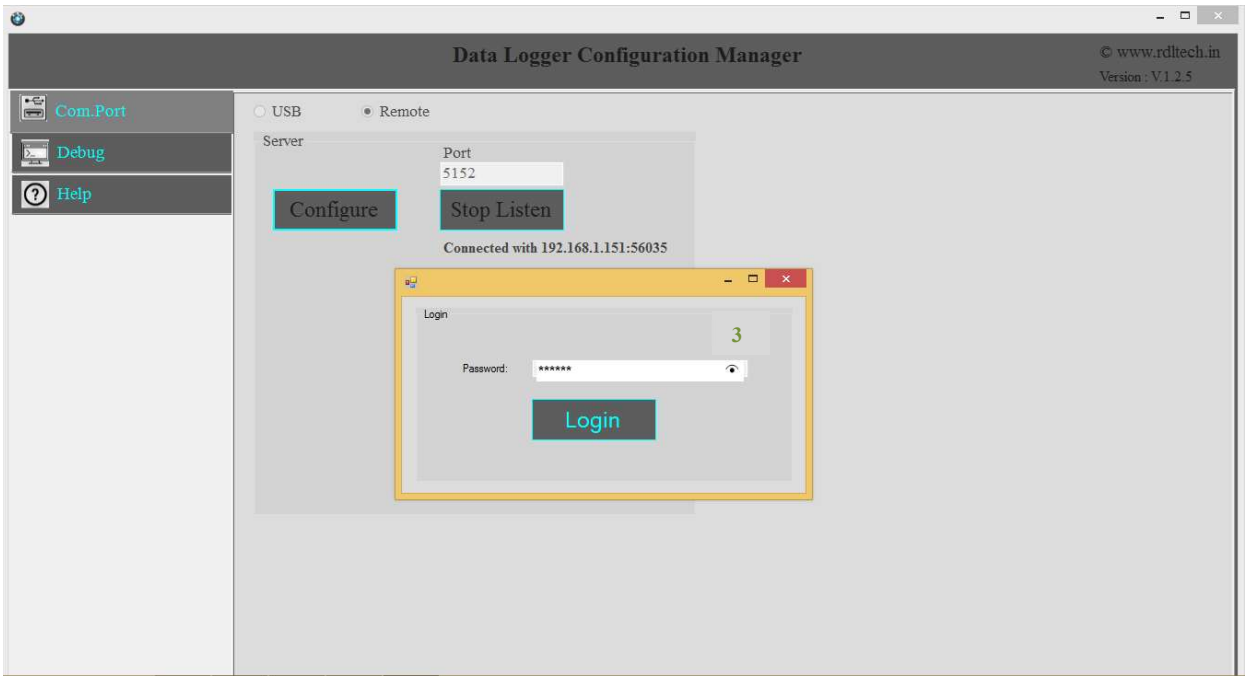

Note: Please contact the service provider for more details on Port forwarding.

5. To get the Private IP address, open command prompt and use the command ipconfig (refer the below image)



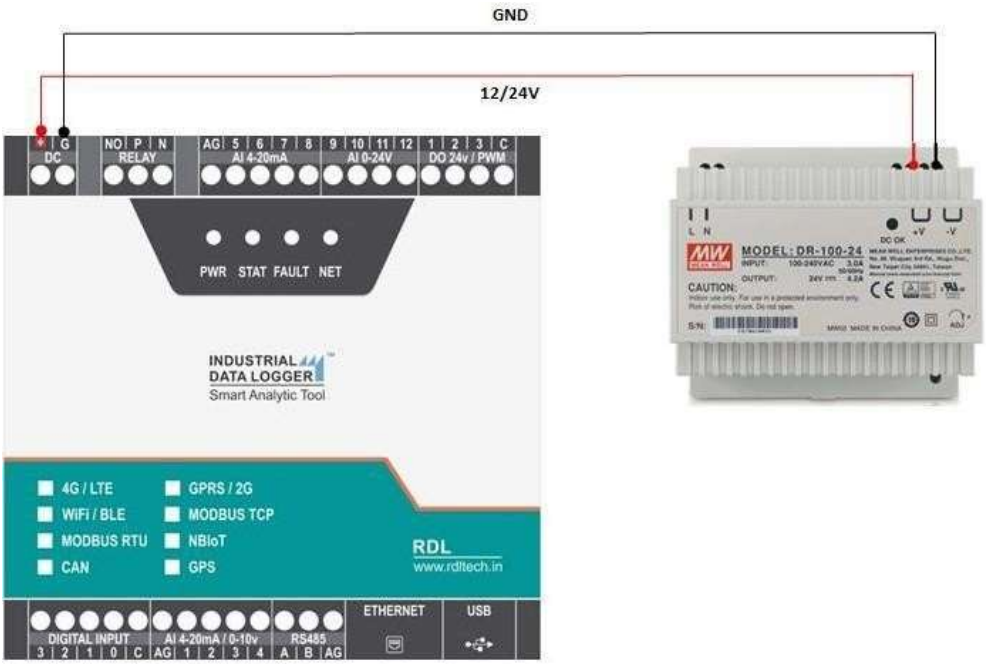
6. Click on **Save** Button
7. Click on Read to display the configuration that is already saved. will display the configuration that is already saved
8. Enter the **Server Interval time**(Ex: 60sec) of connection.
9. Click on **Save**.
10. Close the Com Port which is Open.
11. Click on Listen

Note: If you are using Linux/Mac OS then use ifconfig to get the IP address and other network details.




1. Use the Default Password "**RDL123"** during Login
2. For next step **Page 5**

## 15. Power Supply




**ATTENTION:** Recommended to use Meanwell power supplies of 24V 2A

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