



Industrial Data Logger 4G LTE User Manual



ORDER CODE: RDL838

DOCUMENT VERSION: V2.0

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1. COM Port

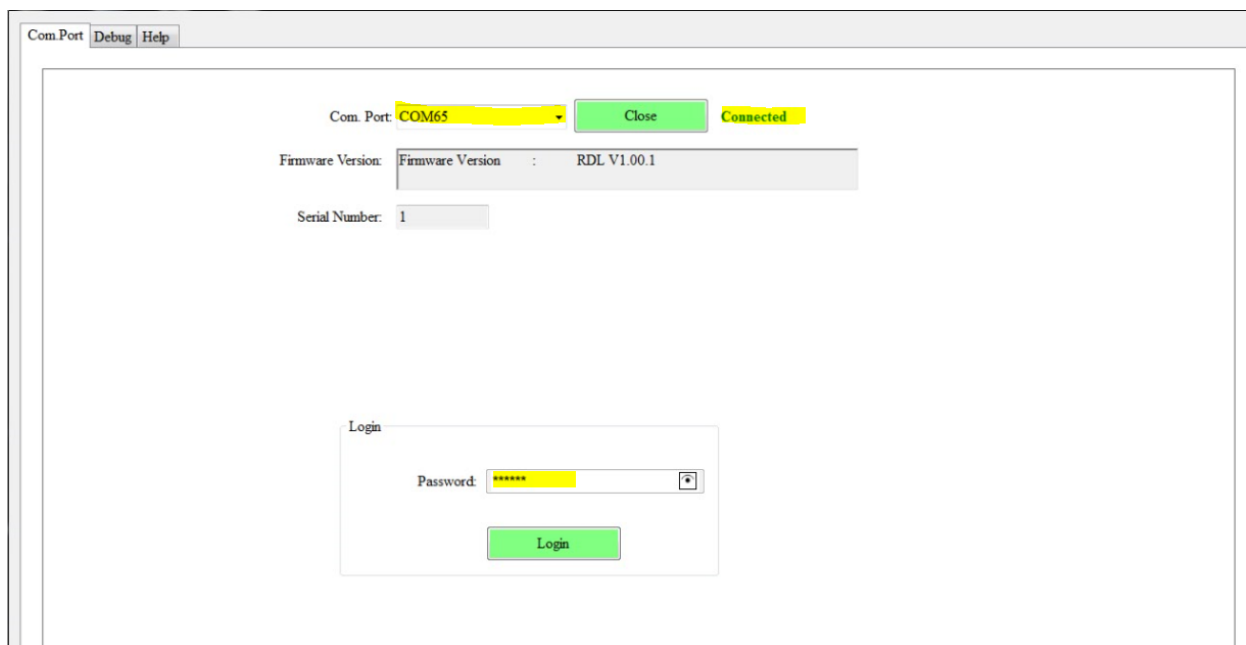
This should be the first step before in using the Data Logger UI.

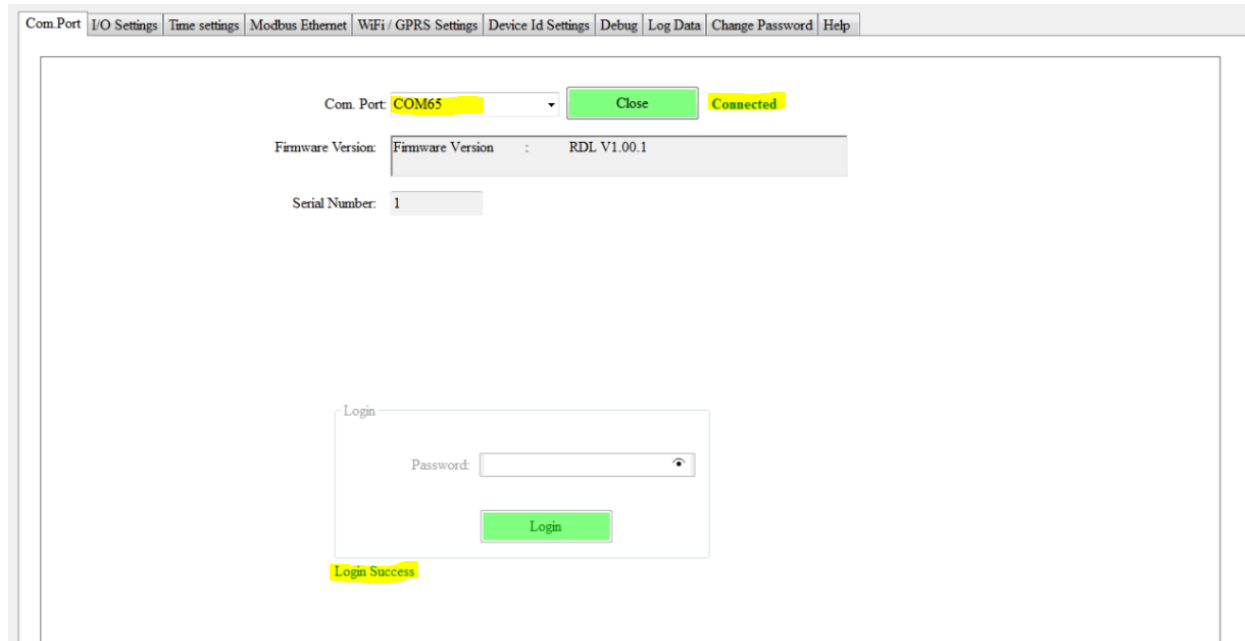
1. Plugin the hardware and check for the COM Port number in
2. **Computer->System Properties->Device Manager->Ports**
3. Select the COM Port number in the UI App as shown below and Click Open.
4. Use the Default Password “**RDL123**” during Login.

Note: Make sure that FTDI Com port driver installed. If not installed please download and install from below given link.

Link: <https://www.ftdichip.com/Drivers/VCP.htm>

Note: Make sure that power supply disconnected during configuration mode.





2. UI Settings

2.1.MODBUS RTU

1. Select the MODBUS and click on Apply.
2. Clicking on Read will display the configuration that is already saved

2.1.1.Com Port Settings

This is the UART settings for Modbus Communication. Refer the screenshot below.

The screenshot displays the 'Industrial Data Logger' web interface. At the top, a navigation bar includes tabs for 'Com.Port', 'I/O Settings' (which is active), 'Time settings', 'Modbus Ethernet', 'Wifi / GPRS Settings', 'Monitor', 'Change Password', 'Device Id Settings', and 'Debug'. Below the navigation bar, there are three checkboxes: 'MODBUS' (checked), 'Analog', and 'Digital Input'. To the right of these are two buttons: a green 'Apply' button and a blue 'Read' button. A green checkmark is visible to the right of the 'Read' button. Below this, there are three tabs: 'MODBUS' (active), 'Analog', and 'Digital Input'. Under the 'MODBUS' tab, there are three sub-tabs: 'Com.Port Settings', 'MODBUS Settings' (active), and 'Polling Interval'. The 'MODBUS Settings' sub-page contains four dropdown menus: 'Baud Rate' (set to 9600), 'Data Bit' (set to 8 bit), 'Parity' (set to None), and 'Stop Bit' (set to 1 bit). Below these dropdowns are two buttons: a green 'Apply' button and a blue 'Read' button. A green checkmark is visible to the right of the 'Apply' button.

1. Select **Baud Rate** from the list.
2. Select **Data Bit** from the list.
3. Select **Parity** from the list.
4. Select **Stop Bit** from the list.
5. Click on Apply.
6. Clicking on Read will display the configuration that is already saved.

2.1.2. Modbus Settings

Com Port I/O Settings Time settings Modbus Ethernet Wifi / GPRS Settings Monitor Change Password Device Id Settings Debug Log Data

☒ MODBUS ☐ Analog ☐ Digital Input ☐ Modbus TCP Apply Read ✓

MODBUS Analog Digital Input

Com Port Settings MODBUS Settings Polling Interval

S.No	Slave ID	Start Address	Type	Length	Status
1	1	1	Coil	5	☒
2	2	10	Input Register	6	☐
3	3	20	Holding Register	4	☒
4	4	30	Coil	3	☐
5					☐
6					☐
7					☐
8					☐
9					☐
10					☐

* Max 10 Slave Address
* Max 100 Registers can be scanned

Apply Read ✓

Note: Max 100 Registers can be scanned.

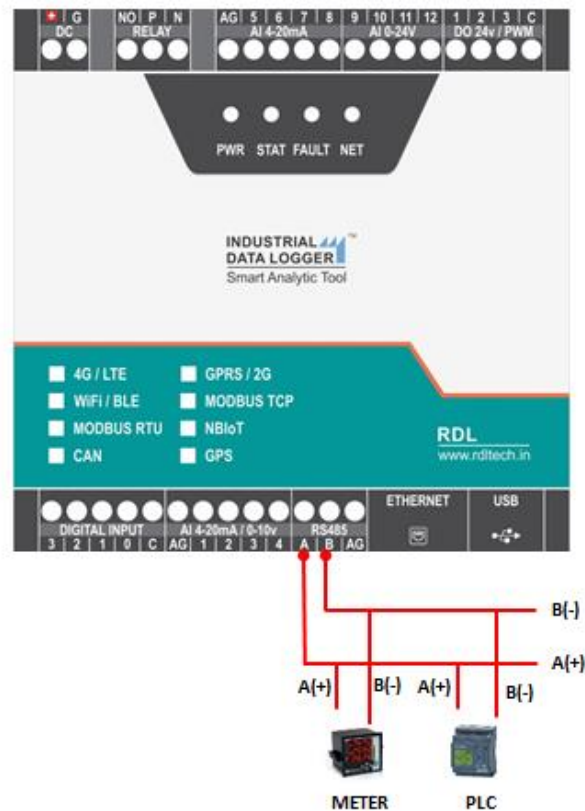
1. **Slave ID:** This is the Modbus Slave ID. Maximum 10 Slave info can be accessed.
2. **Start Address:** This is the starting address of the slave from where data needs to be read.
3. **Type:** Mention the register type. It could be Coil/Input Register/Holding Register.
4. **Length:** Number of data to read. Ex: 5 indicates registers are read from address 0001 to 0005, a total of $5 \times 2 = 10$ bytes as each data is 2 bytes wide (16bit).
5. **Status:** If tick is enabled, the slave id will be ENABLED for polling, else pertaining slave id polling will be DISABLED.
6. Click Apply will write these configuration settings in the memory.
7. Clicking on Read will display the configuration that is already saved.

2.1.3. Modbus Polling RTU Interval

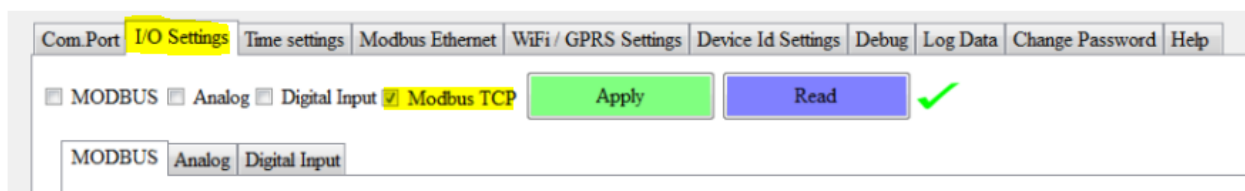
The screenshot shows the 'I/O Settings' tab selected in the top navigation bar. Below the navigation bar, there are checkboxes for 'MODBUS' (checked), 'Analog', 'Digital Input', and 'Modbus TCP'. To the right of these checkboxes are 'Apply' and 'Read' buttons. Below this, there are tabs for 'MODBUS', 'Analog', and 'Digital Input', with 'MODBUS' being the active tab. Under the 'MODBUS' tab, there are sub-tabs for 'Com.Port Settings', 'MODBUS Settings', and 'Polling Interval', with 'Polling Interval' being the active sub-tab. In the 'Polling Interval' sub-tab, there are radio buttons for 'sec' (selected), 'min', and 'hour'. Below these is a text input field labeled 'MODBUS Polling Interval:' containing the value '10'. Below the input field is a checkbox labeled 'Save Log (Saves to SD Card)' which is checked. At the bottom of the sub-tab are 'Apply' and 'Read' buttons, with a green checkmark to the right of the 'Read' button.

1. Select the Polling Interval **sec/min/hour**
2. Set the **MODBUS Polling Interval**
3. **Save Log:** If tick is enabled, the slave data pertaining to that slave id will be logger, if tick is not enabled, slave data is not logged.
4. Click Apply will write these configuration settings in the memory.
5. Clicking on Read will display the configuration that is already saved.

Application Wiring Diagram



2.1.4. Modbus TCP (Master)



1. Select the **Modbus TCP (Master)**.
2. Click Apply will write these configuration settings in the memory.
3. Clicking on Read will display the configuration that is already saved.

2.1.5. Modbus Ethernet Settings

Com.Port
I/O Settings
Time settings
Modbus Ethernet
WiFi / GPRS Settings
Device Id Settings
Debug
Log Data
Change Password
Help

Device IP
MAC Address: 00 : 08 : dc : ab : cd : ef
Data Logger IP: 192.168.1.177
Subnet Mask: 255.255.255.0
Gateway: 192.168.1.251
Modbus TCP Interval: 2 (sec)
☒ sec ☐ min ☐ hour
☐ Save Log (Saves to SD Card)
Apply Read ✓

Note: Device and Slave Should be in Same Network!

S.No	Slave ID	Slave IP	Socket	Slave Port No.	Start Address	Type	Length	Status
1	1	192.168.1.187	0	502	1	Holding Register	12	☒
2	2	192.168.1.155	1	502	2	Coil	15	☒
3	3	192.168.1.187	0	502	5	Input Register	10	☒
4	4	192.168.1.144	2	502	10	Holding Register	50	☐
5								☐
6								☐
7								☐
8								☐
9								☐
10								☐

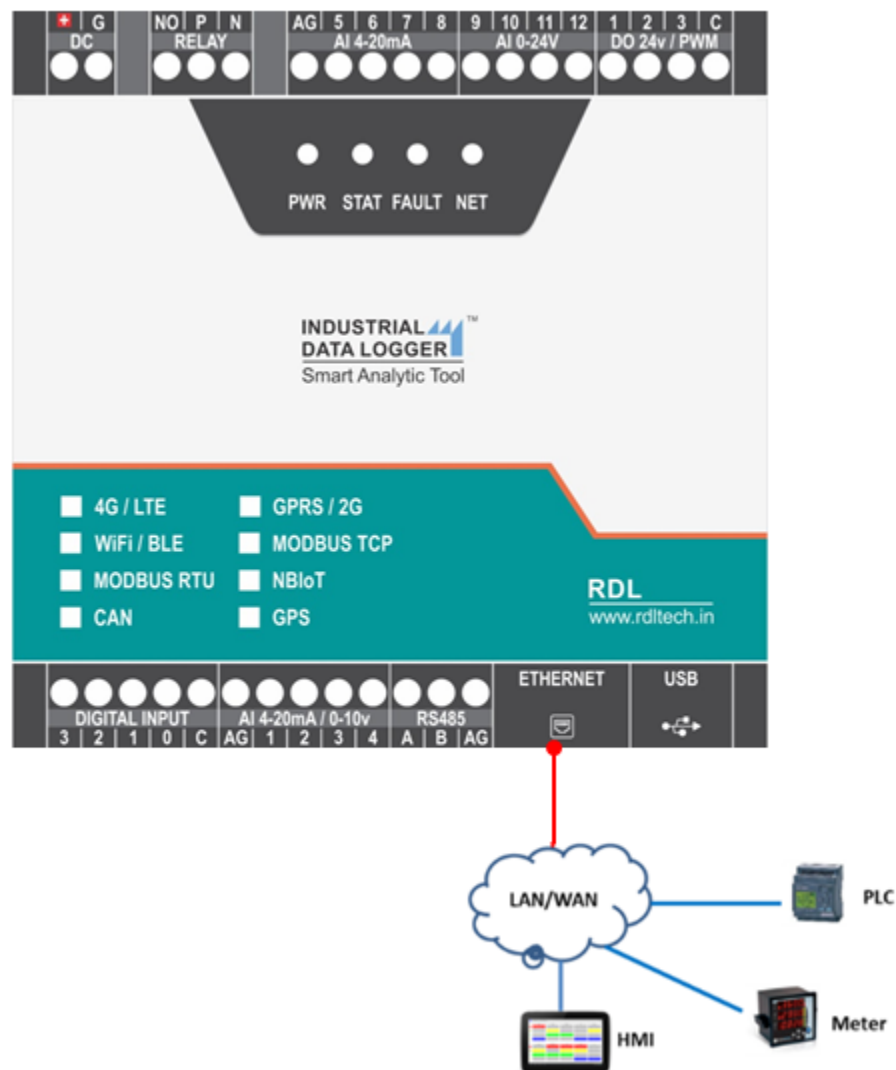
* Max 100 Registers can be Scanned

Save Read ✓

- Set the Device MAC Address, Data Logger IP, Subnet Mask, Gateway and click on Apply.
- Slave ID:** This is the Modbus Slave ID. Maximum 10 Slave info can be accessed.
- Slave IP:** Mention the IP Address of the Slave.
- 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)).
- Slave Port No:** Mention the Port No. (Default 502)
- Start Address:** This is the starting address of the slave from where data needs to be read.
- Type:** Mention the register type. It could be Coil/Input Register/Holding Register.
- Length:** Total length will be 100, you can use length of 1-100 of 16 bit data
- Status:** If tick is enabled, the slave id will be ENABLED for polling, else pertaining slave id polling will be DISABLED.
- Click on Save will write these configuration settings in the memory.
- Clicking on Read will display the configuration that is already saved
- Select the Polling Interval **sec/min/hour**

13. Set the **MODBUS TCP Interval**
14. **Save Log:** If tick is enabled, the slave data pertaining to that slave id will be logger, if tick is not enabled, slave data is not logged.
15. Click Apply will write these configuration settings in the memory.
16. Clicking on Read will display the configuration that is already saved.

Application Wiring Diagram



2.2.Analog

2.2.1.Analog Channel Settings

These Settings will configure Analog as either loop current channel (4-20mA) or 0-10V Analog Channel.

The screenshot shows the 'I/O Settings' tab in the software. The 'MODBUS' section is active, with 'Analog' selected. The 'Analog Polling Interval' is set to 2 seconds. The 'Save Log' checkbox is checked. Below this, there are two tables for channel configuration. The first table has 4 channels, and the second table, 'Extension ADC', has 5 channels (5-9). Each channel has a resolution of 16 bit and a mode (0-10V or 4-20mA). The 'Apply' and 'Read' buttons are visible at the bottom right of the interface.

Com Port | **I/O Settings** | Time settings | Modbus Ethernet | WiFi / GPRS Settings | Device Id Settings | Debug | Log Data | Change Password | Help

☐ MODBUS ☒ Analog ☐ Digital Input ☐ Modbus TCP Apply Read ✓

MODBUS | **Analog** | Digital Input

☒ sec ☐ min ☐ hour

Analog Polling Interval: 2 (sec)

☒ Save Log (Saves to SD Card)

Apply Read ✓

Channel	Resolution	Enable/Disable	Mode
1	16 bit	☒	0-10V
2	16 bit	☒	0-10V
3	16 bit	☒	4-20mA
4	16 bit	☐	4-20mA

☒ Extension ADC

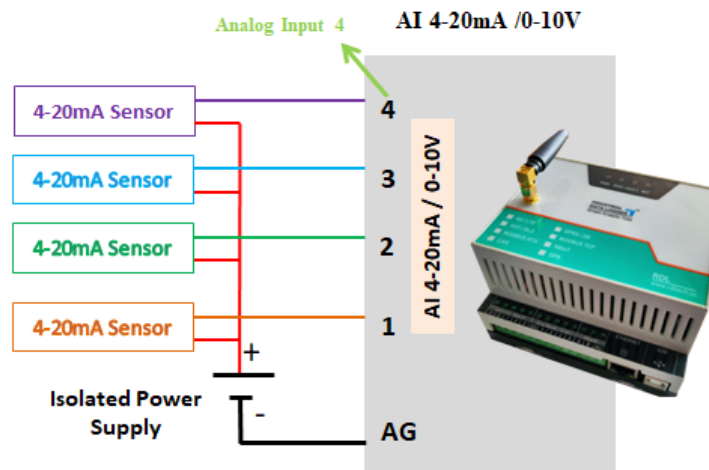
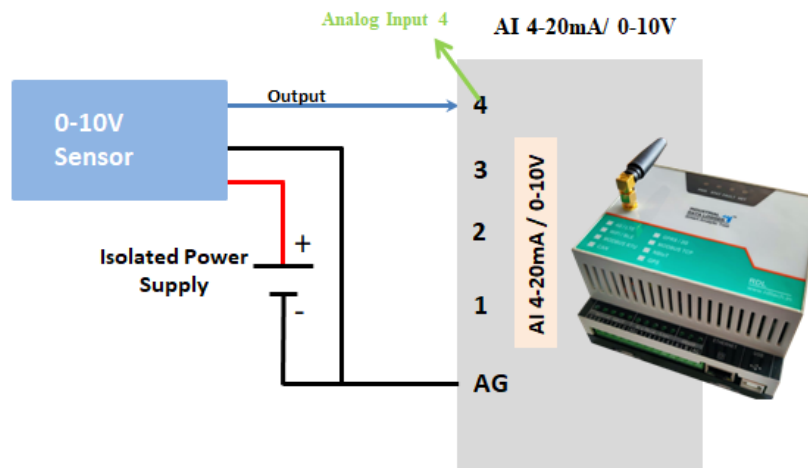
Channel	Resolution	Mode
5	16 bit	0-10V
6	16 bit	0-10V
7	16 bit	0-10V
8	16 bit	0-10V
9	16 bit	4-20mA

Apply Read ✓

1. Select the Polling Interval **sec/min/hour**
2. Set the **Analog Polling Interval**
3. **Save Log:** If tick is enabled, the slave data pertaining to that slave id will be logged, if tick is not enabled, slave data is not logged.
4. Click Apply will write these configuration settings in the memory.
5. **Tick the Checkbox to Enable/Disable** Analog channel
6. For first four channels → selecting **4-20mA** will configure the Analog as a loop current channel, leaving ADC in **0-10V** will configure Analog as an Analog channel.
Extension ADC is an additional option under this the first four analog channels are for **0-10V** and the next four for **4-20mA/loop current channel**.

- Click Apply will write these configuration settings in the memory
- Clicking on Read will display the configuration that is already saved.

Application Wiring Diagram



***Note:** When Analog channel selected for loop current, voltage source should not apply. If given, damage could happen to the internal circuitry.

3. Digital Input

3.1 Digital Input Settings

Com.Port I/O Settings Time settings Modbus Ethernet WiFi / GPRS Settings Device Id Settings Debug Log Data Change Password Help

☐ MODBUS ☐ Analog ☒ Digital Input ☐ Modbus TCP Apply Read ✓

MODBUS Analog Digital Input

☒ Save Log (Saves to SD Card) Apply Read ✓

☒ Digital Input ☐ Counter Apply Read ✓

Channel	Enable/Disable
1	☒
2	☒
3	☐
4	☐

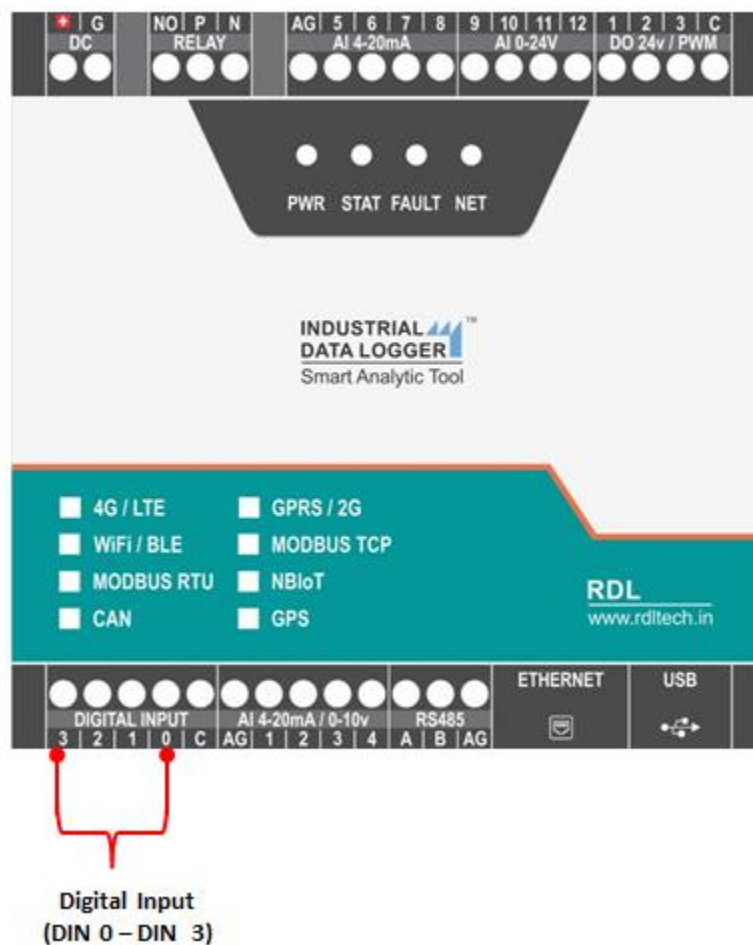
Note: Data Logged Only when Input Channel status changed Apply Read ✓

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

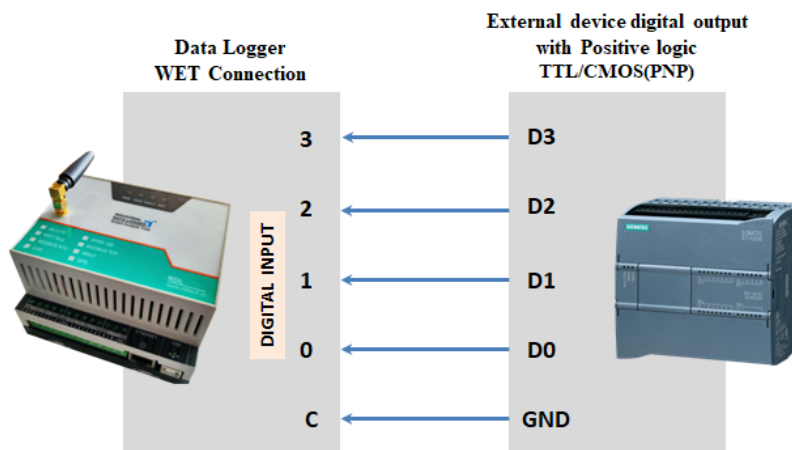
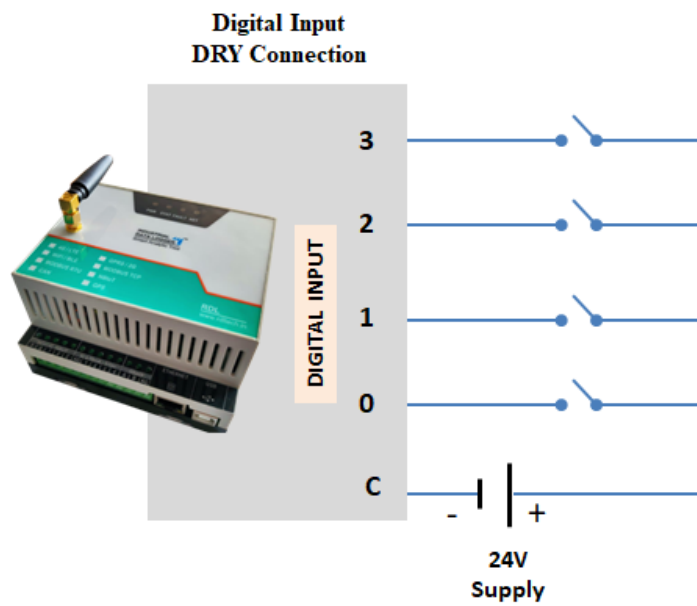
1. **Tick the Checkbox to Enable/Disable** Digital Input channel.
2. Click Apply will write these configuration settings in the memory.
3. Clicking on Read will display the configuration that is already saved.

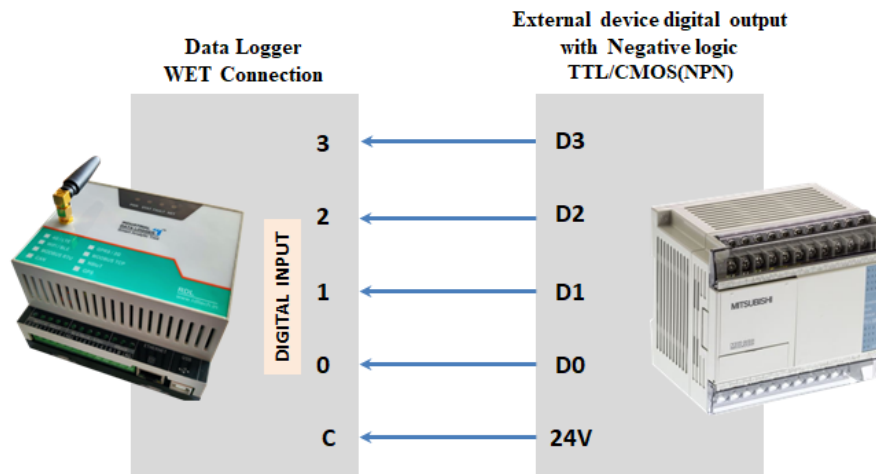
3.2 Digital Input Specification

- Channels: 4
- Input Voltage: 0-24V
 - Logic High: >12V
 - Logic Low: <10V
- Isolation : 3750 VRMS
- Supports Inverted DI Status
- Supported Connection: Dry and Wet both
- Maximum Switching Frequency : 5Khz



Application Wiring Diagram





3.3 Counter Settings

Com.Port | **I/O Settings** | Time settings | Modbus Ethernet | WiFi / GPRS Settings | Device Id Settings | Debug | Log Data | Change Password | Help

☐ MODBUS ☐ Analog ☒ **Digital Input** ☐ Modbus TCP Apply Read ✓

MODBUS | **Analog** | **Digital Input**

☒ Save Log (Saves to SD Card) Apply Read ✓

☐ Digital Input ☒ **Counter** Apply Read ✓

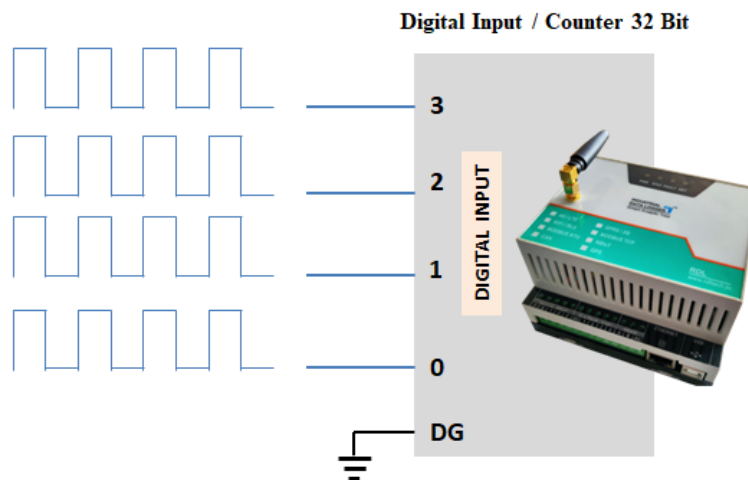
Channel	Enable/Disable	Count
1	☒	200
2	☒	400
3	☐	50
4	☐	100

Note: Data Logged Only when Input Channel status changed Apply Read ✓

These Settings will configure Digital counter input.

1. **Tick the Checkbox to Enable/Disable** Digital Counter Input channel.
1. **Set** the Max Count
2. Click Save will write these count settings in the memory.
3. Clicking on Read will display the current max count / channel.

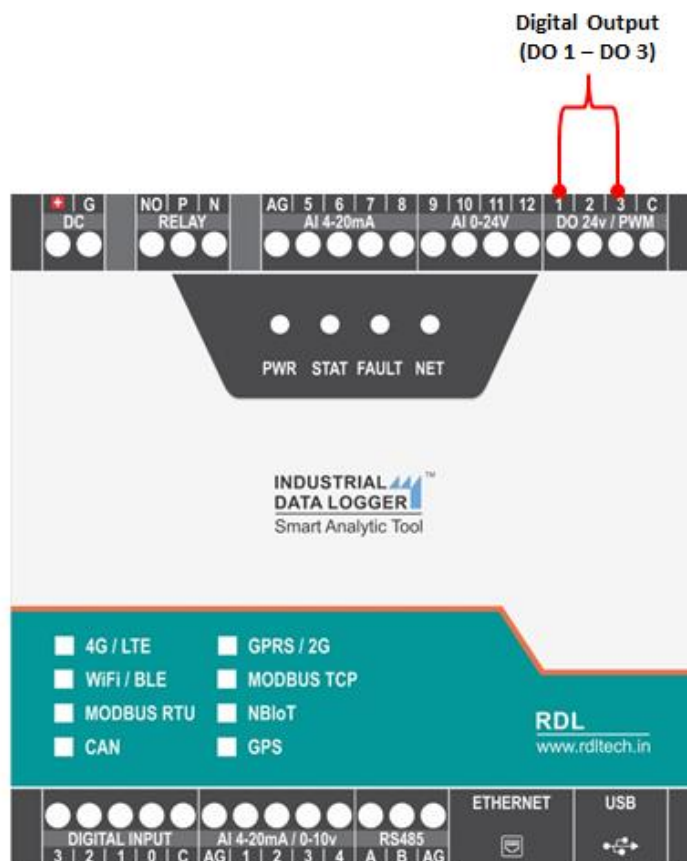
Application Wiring Diagram



4. Digital Output

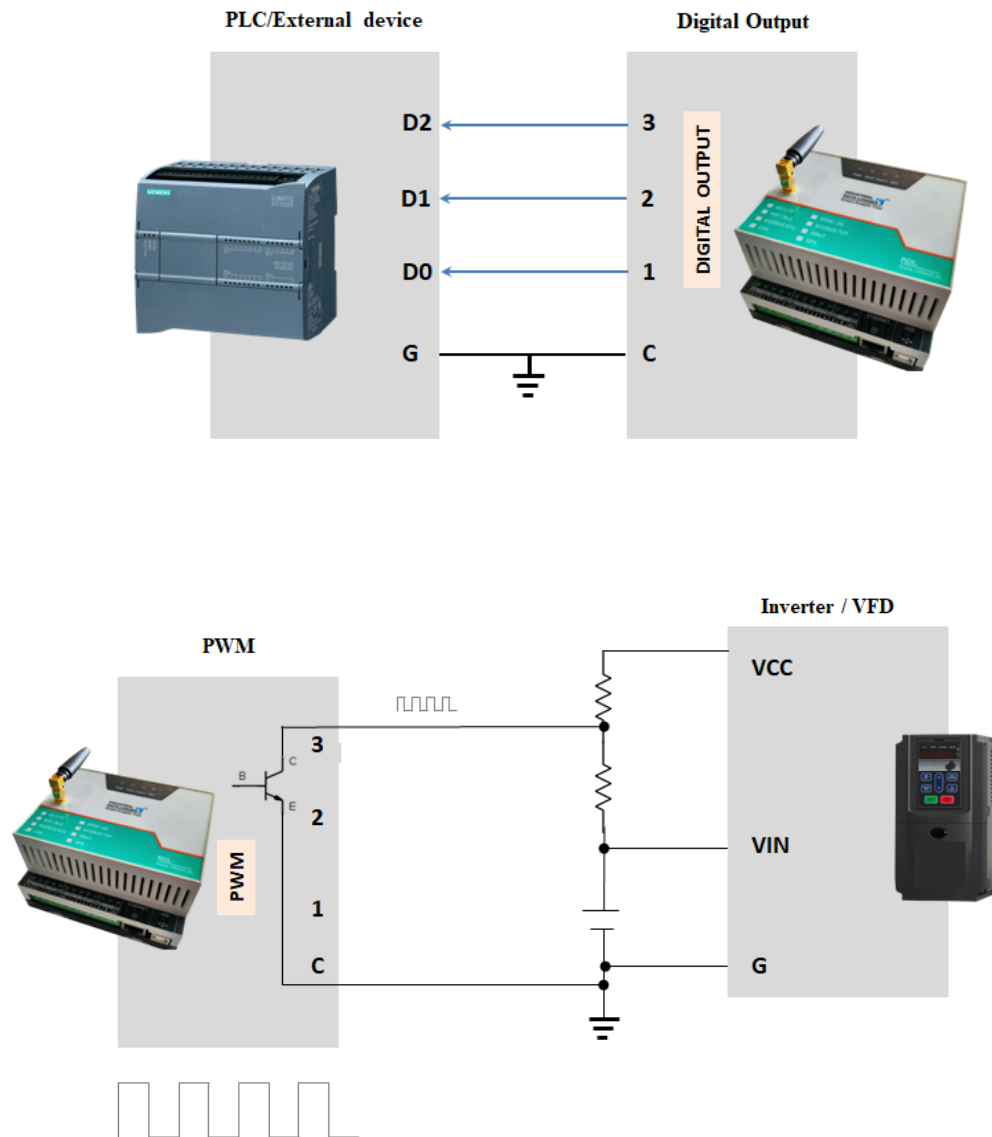
4.1 Digital Output Specification

- Channels: 3
- Open Collector
- Isolation : 3750 VRMS
- Absolute maximum voltage 35V, Current 100mA
- Maximum trigger 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

Digital Output handling using MQTT subscribe service

Websocket

Messages are displayed in real-time as they are received by the broker. It's not possible to view historical data.

Send message

Topic

INTEST

Message

DO1=0

Send

Received messages

Topic

Message

INTEST

DO1=0

Websocket

Messages are displayed in real-time as they are received by the broker. It's not possible to view historical data.

Send message

Topic

INTEST

Message

DO1=1

Send

Received messages

Topic

Message

INTEST

DO1=0

INTEST

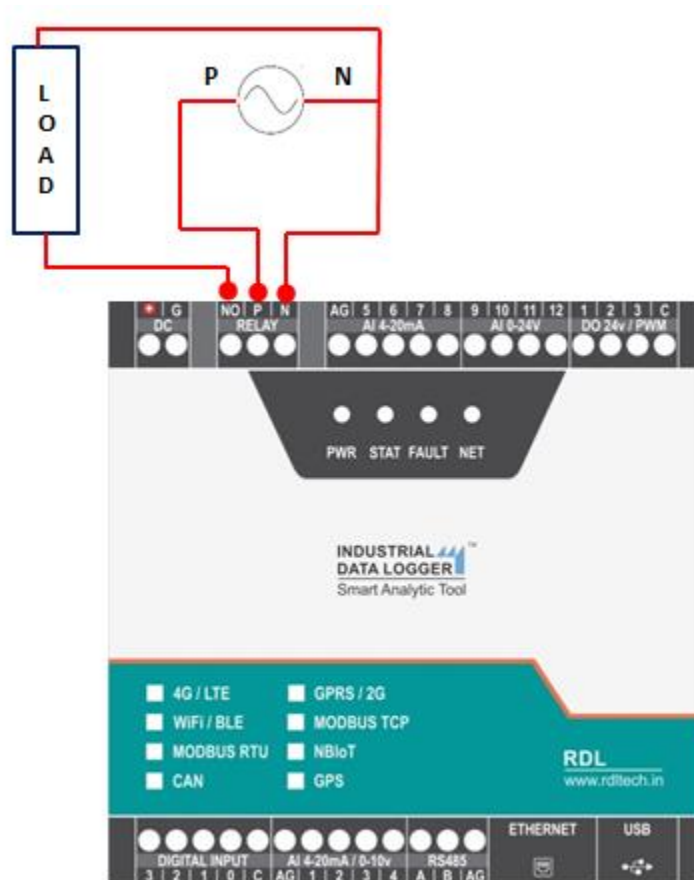
DO1=1

5. Relay Output

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

Command

Relay=Logic High/ Low



Note: Zero cross detection technique used for switch the relay at no load to avoid the noise.

Relay output command:

RL1=1 → Relay becomes HIGH

RL1=0 → Relay becomes LOW

Relay handling using MQTT subscribe service

Websocket

Messages are displayed in real-time as they are received by the broker. It's not possible to view historical data.

Send message

Topic

Message

Send

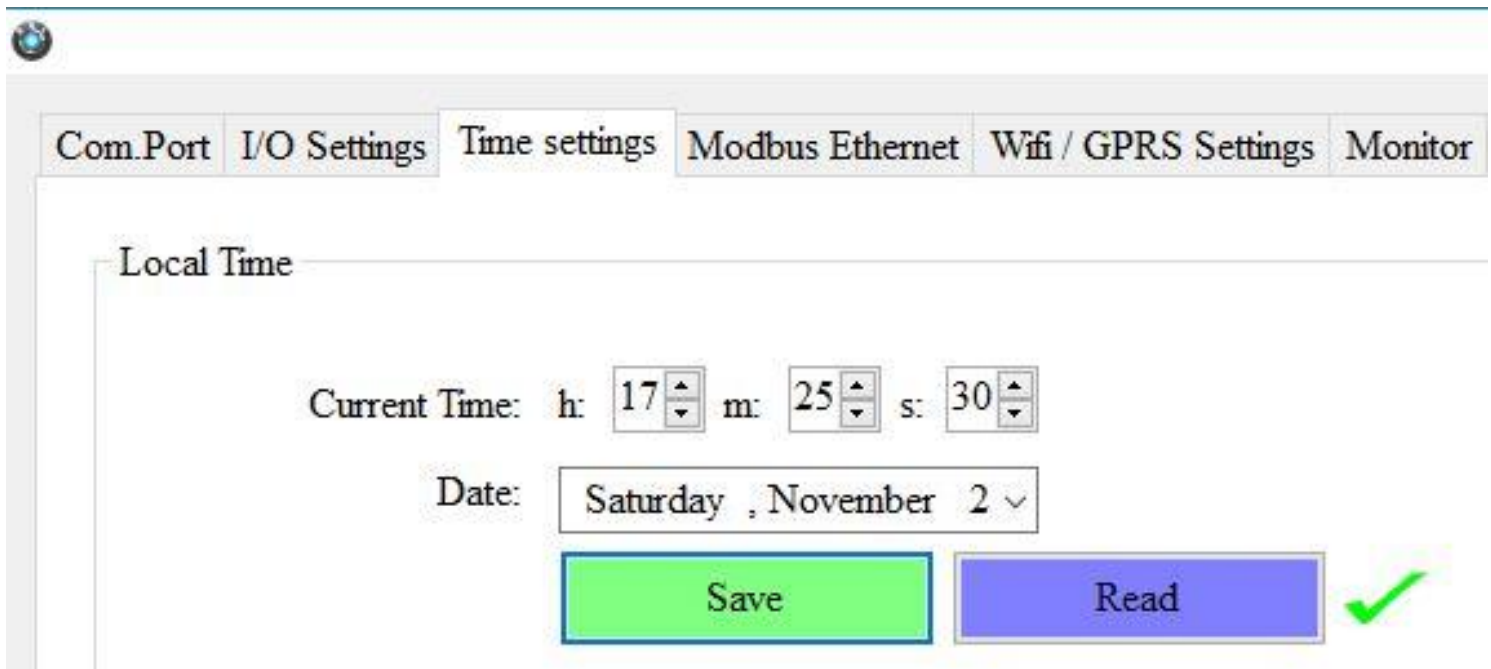
Received messages

Topic	Message
INTEST	RL1=1
INTEST	RL1=0

6. Time Settings

This setting is for Setting/getting time from local machine.

1. **Current Time:** Time in hour, minute and seconds.
2. **Date:** Select from the drop down menu
3. Click Save will write these time settings in the memory.
4. Clicking on Read will display the current time.



The screenshot shows the 'Time settings' tab selected in the software interface. The 'Local Time' section contains a 'Current Time' field with three spinners for hours (17), minutes (25), and seconds (30). Below it is a 'Date' dropdown menu showing 'Saturday , November 2'. At the bottom are two buttons: a green 'Save' button and a blue 'Read' button. A green checkmark is visible to the right of the 'Read' button.

7. Wi-Fi/GPRS Settings

7.1 4G/LTE FTP Settings

The screenshot shows the 'WiFi / GPRS Settings' tab in the Industrial Data Logger interface. The 'Primary Connection' is set to '4G/LTE'. Below this, there are 'Save' and 'Read' buttons. The '4G/LTE' section is active, showing 'APN' settings. The 'FTP' option is selected for data logging, with 'Apply' and 'Read' buttons. The 'FTP' section includes fields for 'FTP Server IP' (cloudplc.in), 'Username' (abcd), 'Password' (***), 'Port Number' (21), and 'Log Folder' (RDL). The 'FTP Polling Time' is set to '3600' seconds, with 'Apply' and 'Read' buttons. The 'Read' buttons are marked with green checkmarks, indicating successful configuration or retrieval.

1. Choose **4G/LTE** in the **Primary Connection**. Click on Save.
2. **FTP**:Data logging happens to FTP server. Click on Apply.
3. **FTP Server IP**: Provide IP address for the FTP connection.
4. **Username**: Provide Username for the FTP Server.
5. **Password**:Provide Password for the FTP Server.
6. **Port Number**:Provide Port number for the FTP Server.
7. **Log Folder**:Provide folder name for the FTP Server.
8. Click Apply will save these settings in the memory.
9. **APN**: Provide APN for the connection. Click on Save. Ex: for BSNL it is "bsnlnet".
10. **FTP Uploading Time**: Select the Polling Interval **sec/min/hour**
11. Click Apply will save these settings in the memory.
12. Clicking on Read will 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>

7.2 4G/LTE FTP Data Uploading Format:

7.2.1 MODBUS RTU Data Uploading Format

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

15_1119 M.CSV

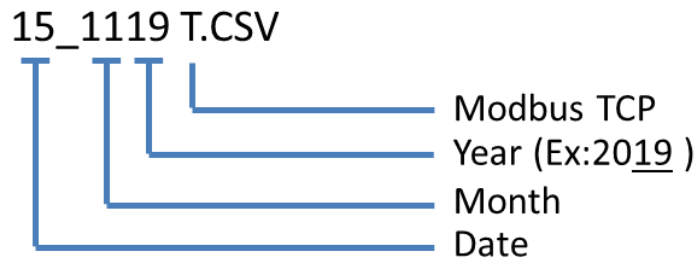


Uploaded .CSV File Looks as below

24_1019M.csv							
	A	B	C	D	E	F	G
1	DATE	TIME	SLAVE ID	ADRESS	LENGTH	DATA	
2	24/10/19/	14:35:01	120		2	291	123
3	24/10/19/	14:35:01	140		2	1929	789
4	24/10/19/	14:35:01	160		2	869	365
5	24/10/19/	14:35:11	120		2	291	123
6	24/10/19/	14:35:11	140		2	1929	789
7	24/10/19/	14:35:11	160		2	869	365
8	24/10/19/	14:35:21	120		2	291	123
9	24/10/19/	14:35:21	140		2	1929	789
10	24/10/19/	14:35:21	160		2	869	365
11	24/10/19/	14:35:31	120		2	291	123
12	24/10/19/	14:35:31	140		2	1929	789
13	24/10/19/	14:35:31	160		2	869	365
14	24/10/19/	14:35:41	120		2	291	123
15	24/10/19/	14:35:41	140		2	1929	789
16	24/10/19/	14:35:41	160		2	869	365
17	24/10/19/	14:35:51	120		2	291	123
18	24/10/19/	14:35:51	140		2	1929	789
19	24/10/19/	14:35:51	160		2	869	365
20	24/10/19/	14:36:01	120		2	291	123
21	24/10/19/	14:36:01	140		2	1929	789

7.3 MODBUS TCP Data Uploading Format

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



Uploaded .CSV File Looks below

← 24_1019M.csv Open with ▼							
	A	B	C	D	E	F	G
1	DATE	TIME	SLAVE ID	ADRESS	LENGTH	DATA	
2	24/10/19/	14:35:01	120	2	291	123	1234
3	24/10/19/	14:35:01	140	2	1929	789	1011
4	24/10/19/	14:35:01	160	2	869	365	563
5	24/10/19/	14:35:11	120	2	291	123	1234
6	24/10/19/	14:35:11	140	2	1929	789	1011
7	24/10/19/	14:35:11	160	2	869	365	563
8	24/10/19/	14:35:21	120	2	291	123	1234
9	24/10/19/	14:35:21	140	2	1929	789	1011
10	24/10/19/	14:35:21	160	2	869	365	563

7.3.1 Digital Input Data Uploading Format

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

15_1119 D.CSV



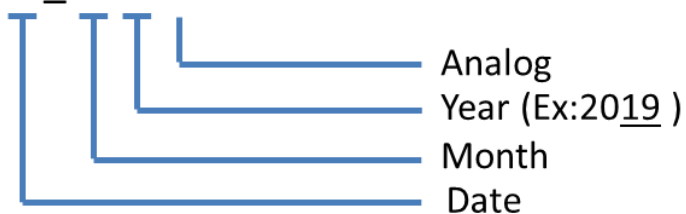
Uploaded .CSV File looks below.

4_1119D.csv										
	A	B	C	D	E	F	G	H	I	J
1	DATE	TIME	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
2	4/11/19/	10:56:47	1	1	1	1	0	0	0	0
3	4/11/19/	10:57:33	1	0	1	1	0	0	0	0
4	4/11/19/	10:57:50	1	1	1	1	0	0	0	0
5	4/11/19/	11:03:13	1	1	1	1	0	0	0	0
6	4/11/19/	11:23:43	1	1	1	1	0	0	0	0
7	4/11/19/	12:22:52	1	0	0	0	0	0	0	0

7.3.2 Analog Input Data Uploading Format

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

15_1119 A.CSV

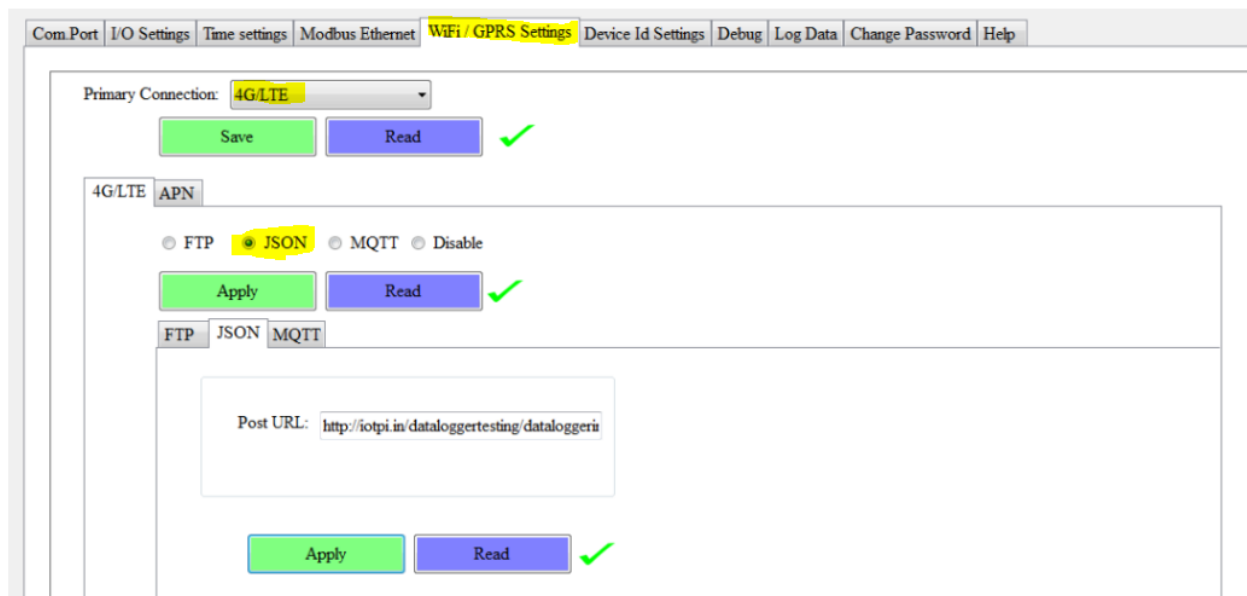


Uploaded .CSV File looks below.



	A	B	C	D	E	F	G	H	I	J
1	DATE	TIME	AN1	AN2	AN3	AN4	AN5	AN6	AN7	AN8
2	2/11/19/	11:23:27	0.09	0.08	0.09	0.08	0.07	0.01	0	9.26
3	2/11/19/	11:23:37	0.09	0.08	0.09	0.08	0.06	0.08	0.07	5.52
4	2/11/19/	11:25:58	0.09	0.08	0.09	0.08	0.07	0.01	0	9.24
5	2/11/19/	11:26:18	0.09	0.08	0.09	0.08	0.07	0.08	0.07	2.82
6	2/11/19/	11:26:28	0.09	0.08	0.09	0.08	0.07	0.09	0.06	4.36
7	2/11/19/	11:26:38	0.09	0.08	0.09	0.08	0.06	0.08	0.08	4.43
8	2/11/19/	11:26:49	0.09	0.08	0.09	0.08	0.09	0.08	0.04	0.13
9	2/11/19/	11:27:00	0.09	0.08	0.09	0.08	0.07	0.08	0.07	4.5
10	2/11/19/	11:27:10	0.09	0.08	0.09	0.08	0.06	0.18	0.03	5.94

7.4 4G/LTE JSON Settings



Com Port I/O Settings Time settings Modbus Ethernet **WiFi / GPRS Settings** Device Id Settings Debug Log Data Change Password Help

Primary Connection: 4G/LTE

Save Read ✓

4G/LTE APN

☐ FTP ☒ JSON ☐ MQTT ☐ Disable

Apply Read ✓

FTP JSON MQTT

Post URL: http://iotpi.in/dataloggertesting/dataloggeri

Apply Read ✓

- Choose **4G/LTE** in the **Primary Connection**. Click on Save.
- **JSON**: Data logging happens to JSON server. Click on Apply.
- **Post URL**: Provide Server URL.
- Click Apply will save these settings in the memory.
- **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>

7.4.1 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:

1. MODBUS RTU configuration looks into the section 2.1 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa 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:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal format

ANALOG Input Data Uploading Format:

API FORMAT:

```
{“Type”:”AN”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”11:23:27”,”AC1”:”0.09”,”AC2  
”:”0.08”,”AC3”:”0.09”,”AC4”:”0.08”}
```

Note: For Analog Input configuration look into the section 2.2 in this document.

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”}
```

Note: For Digital Input configuration look into the section 3.1 in this document.

7.5 4G/LTE MQTT Settings:

Com.Port I/O Settings Time settings Modbus Ethernet **WiFi / GPRS Settings** Device Id Settings Debug Log Data Change Password Help

Primary Connection: 4G/LTE

Save Read ✓

4G/LTE APN

☐ FTP ☐ JSON ☒ MQTT ☐ Disable

Apply Read ✓

FTP JSON MQTT

☐ Enable SSL/TSL

Broker Address: cloudmqtt.com

UserName: abcd

Password: *****

Port: 15520

Publish Topic: OUTTEST

Subscribe Topic: INTEST

Device Id/Tag: 123

Apply Read ✓

- Choose **4G/LTE** in the **Primary Connection**. Click on Save.
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Broker Address**: Provide your broker address of MQTT
- **Cloud Username**: Provide MQTT cloud UserName.
- **Password**: Provide MQTT cloud Password.
- **Port**: Provide Port number for MQTT cloud.
- **Publish Topic**: Provide Topic name to publish the data to server
- **Subscribe Topic**: To receive the data from the server
- **Device Id/Tag**: Provide the Device ID
- Click Apply will save these settings in the memory.
- **APN**: Provide APN for the connection. Ex: for BSNL it is "bsnlnet".
- 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

LINK2: <https://www.cloudmqtt.com/docs/index.html>

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

7.5.1 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:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal 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”:”1  
169”,”D6”:”1170”}
```

Note:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal forma

ANALOG Input Data Parsing Format:

Parsing Format:

```
{“Type”:”AN”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”11:23:27”,”AC1”:”0.09”,”AC  
2”:”0.08”,”AC3”:”0.09”,”AC4”:”0.08”}
```

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”}
```

Note: For Digital Input configuration look into the section 3.1 in this document.

7.6 4G/LTE MQTT with SSL Settings

Com.Port | I/O Settings | Time settings | Modbus Ethernet | **WiFi / GPRS Settings** | Device Id Settings | Debug | Log Data | Change Password | Help

Primary Connection: **4G/LTE**

Save Read ✓

4G/LTE | APN

☐ FTP ☐ JSON ☒ **MQTT** ☐ Disable

Apply Read ✓

FTP JSON MQTT

☒ **Enable SSL/TSL**

SSL Parameters

Protocol: SSLv1

CA Certificate: E:\DATA_LOG_Ethernet_Bo Browse..

Delete Certificate

Apply Read ✓

Broker Address: cloudmqtt.com

UserName: abcd

Password: *****

Port: 15520

Publish Topic: OUTTEST

Subscribe Topic: INTEST

Device Id/Tag: 123

- Choose **4G/LTE** in the **Primary Connection**. Click on Save.
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Broker Address**: Provide your broker address of MQTT
- **Cloud Username**: Provide MQTT cloud User Name.
- **Password**: Provide MQTT cloud Password.
- **Port**: Provide Port number for MQTT cloud.
- **Publish Topic**: Provide Topic name to publish the data to server
- **Subscribe Topic**: To receive the data from the server
- **Device Id/Tag**: Provide the Device ID
- Click on **Enable SSL/TSL** and set the **SSL Parameters**.
- **Protocol**: Select in the dropdown which protocol you are using.
- **CA Certificate**: Please upload the CA Certificate.
- Click Apply will save these settings in the memory.
- **APN**: Provide APN for the connection. Ex: for BSNL it is "bsnlnet". Click on Apply.

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

7.7 Wi-Fi Settings

7.7.1 Wi-Fi DHCP Settings

The screenshot displays the 'Wifi / GPRS Settings' tab in the Industrial Data Logger interface. The 'Primary Connection' is set to 'Wifi'. Below this, there are 'Save' and 'Read' buttons, with a green checkmark indicating success. The 'Wifi Settings' sub-tab is active, showing radio buttons for 'JSON', 'MQTT', and 'Disable', with 'JSON' selected. Below these are 'Apply' and 'Read' buttons, also with a green checkmark. The 'Wifi Settings' sub-tab is further expanded to show 'DHCP' and 'Static' options, with 'DHCP' selected. Below these are 'Apply' and 'Read' buttons, with a green checkmark. A section for 'Access Point' settings is visible on the right, with 'SSID' set to 'RDL' and 'Password' set to '12345'. Below these are 'Apply' and 'Read' buttons, with a green checkmark. At the bottom, there are input fields for 'IP:', 'Subnet Mask:', 'Gateway:', 'Primary DNS:', and 'Secondary DNS:', followed by 'Apply' and 'Read' buttons.

- Choose **Wi-Fi** in the **Primary Connection**. Click on Save.
- **Wi-Fi Settings** are enabled now, ready for **JSON/MQTT**
- **Wi-Fi**
- **Settings**: Select DHCP. Click on Apply.
- **Access Point**: Set the SSID and Password
- Click Apply to save these settings in the memory.

7.7.2 Wi-Fi Static Settings

The screenshot displays the 'Wifi / GPRS Settings' tab in the Industrial Data Logger web interface. The 'Primary Connection' is set to 'Wifi'. Below this, the 'Wifi Settings' tab is active, showing 'JSON' as the selected protocol. The 'Static' radio button is selected for the connection type. The IP configuration section includes fields for IP (192.168.1.25), Subnet Mask (255.255.255.0), Gateway (192.168.1.1), Primary DNS (192.168.1.251), and Secondary DNS (192.168.1.251). The 'Access Point' section shows SSID (RDL) and Password (12345). Green 'Apply' and 'Read' buttons are present for each section, with green checkmarks indicating successful operations.

Com.Port I/O Settings Time settings Modbus Ethernet Wifi / GPRS Settings Monitor Change Password Device Id Settings Debug

Primary Connection: Wifi

Save Read ✓

Wifi Settings GPRS Settings

☒ JSON ☐ MQTT ☐ Disable

Apply Read ✓

JSON MQTT Wifi Settings

☐ DHCP ☒ Static

Apply Read ✓

IP: 192.168.1.25

Subnet Mask: 255.255.255.0

Gateway: 192.168.1.1

Primary DNS: 192.168.1.251

Secondary DNS: 192.168.1.251

Apply Read ✓

Access Point

SSID: RDL

Password: 12345

Apply Read ✓

- Choose **Wi-Fi** in the **Primary Connection**. Click on Save.
- **Wi-Fi Settings** are enabled now, ready for **JSON**
- **Wi-Fi Settings**: Select Static. Click on Apply.
- Enter the IP, Subnet Mask, Gateway, Primary DNS, Secondary DNS.
- Click Apply will save these settings in the memory.
- **Access Point**: Set the SSID and Password
- Click Apply will save these settings in the memory.

7.8 Wi-Fi JSON Settings

The screenshot displays the 'WiFi / GPRS Settings' tab in the Industrial Data Logger web interface. The 'Primary Connection' dropdown is set to 'WiFi'. Below it, the 'WiFi' section is active, showing radio buttons for 'JSON' (selected), 'MQTT', and 'Disable'. The 'JSON' section is further expanded, showing a 'Post URL' field with the value 'http://iotpi.in/dataloggertesting/dataloggerinsert.php'. Green 'Save' and 'Apply' buttons, and blue 'Read' buttons, are present for each section, accompanied by green checkmarks indicating successful configuration.

Com.Port I/O Settings Time settings Modbus Ethernet **WiFi / GPRS Settings** Device Id Settings Debug Log Data Change Password Help

Primary Connection: **WiFi**

Save Read ✓

WiFi

☒ JSON ☐ MQTT ☐ Disable

Apply Read ✓

JSON MQTT WiFi Settings

Post URL:

Apply Read ✓

- Choose **Wi-Fi** in the **Primary Connection**. Click on Save.
- **Wi-Fi Settings** are enabled now, ready for **JSON**
- **JSON**: Data logging happens to JSON server. Click on Apply.
- **Post URL**: Provide Server URL.
- **Content Type**: Choose from dropdown.
- Click Apply will save these settings in the memory.

7.8.1 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:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal 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”:”1  
169”,”D6”:”1170”}
```

Note:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal format

ANALOG Input Data Uploading Format

API Format:

```
{“Type”:”AN”,”ID”:”1234”,”DATE”:”2/11/19”,”TIME”:”11:23:27”,”AC1”:”0.09”,”AC2”:”0.08”,”AC3”:”0.09”,”AC4”:”0.08”}
```

Note: For Analog Input configuration look into the section 2.2 in this document.

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”}
```

Note: For Digital Input configuration look into the section 3.1 in this document.

7.9 Wi-Fi MQTT Settings

Com Port | I/O Settings | Time settings | Modbus Ethernet | **WiFi / GPRS Settings** | Device Id Settings | Debug | Log Data | Change Password | Help

Primary Connection: **WiFi**

Save **Read** ✓

WiFi

☐ JSON ☒ **MQTT** ☐ Disable

Apply **Read**

JSON **MQTT** **WiFi Settings**

☐ Enable SSL/TSL

Broker Address: cloudmqtt.com

UserName: ID/JOSHDH

Password: *****

Port: 15520

Topic: OUTTEST

Client Id/Tag: 123

Apply **Read** ✓

- Choose **Wi-Fi** in the **Primary Connection**. Click on Save.
- **Wi-Fi Settings** are enabled now, ready for **MQTT**
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Broker Address**: Provide your broker address of MQTT
- **Cloud Username**: Provide MQTT cloud UserName.
- **Password**: Provide MQTT cloud Password.
- **Port**: Provide Port number for MQTT cloud.
- **Topic**: Provide Topic name.
- **Device Id/Tag**: Provide the Device ID
- Click Apply will save these settings in the memory.

7.9.1 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:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal 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”:”1  
169”,”D6”:”1170”}
```

Note:

1. MODBUS TCP configuration looks into the section 2.1.4 in this document.
2. MODBUS RTU/TCP 16bit/32bit data parsed in hexa decimal format

ANALOG Input Data Parsing Format:

Parsing Format:

```
{“Type”:“AN”,“ID”:“1234”,“DATE”:“2/11/19”,“TIME”:“11:23:27”,“AC1”:“0.09”,“AC2”:“0.08”,“AC3”:“0.09”,“AC4”:“0.08”}
```

Note: For Analog Input configuration look into the section 2.2 in this document.

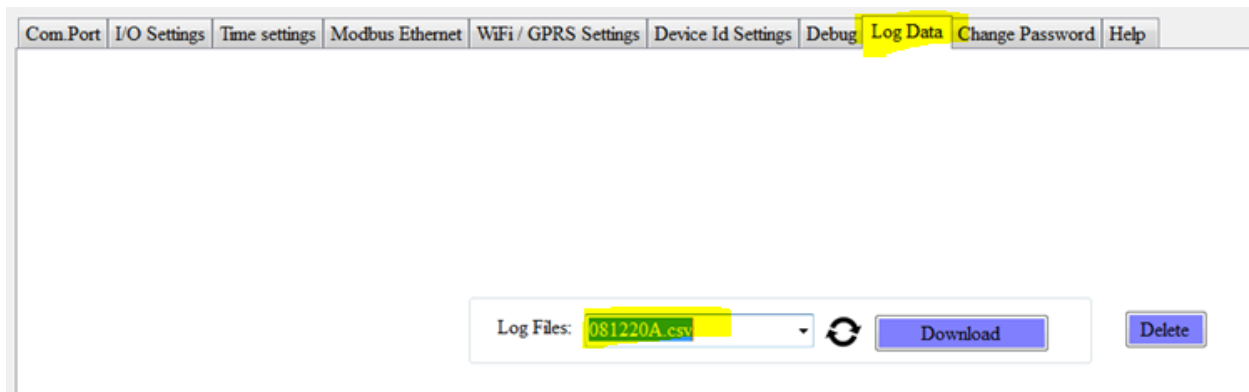
Digital Input Data Parsing Format:

Parsing Format:

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

Note: For Digital Input configuration look into the section 3.1 in this document.

8. Log Data

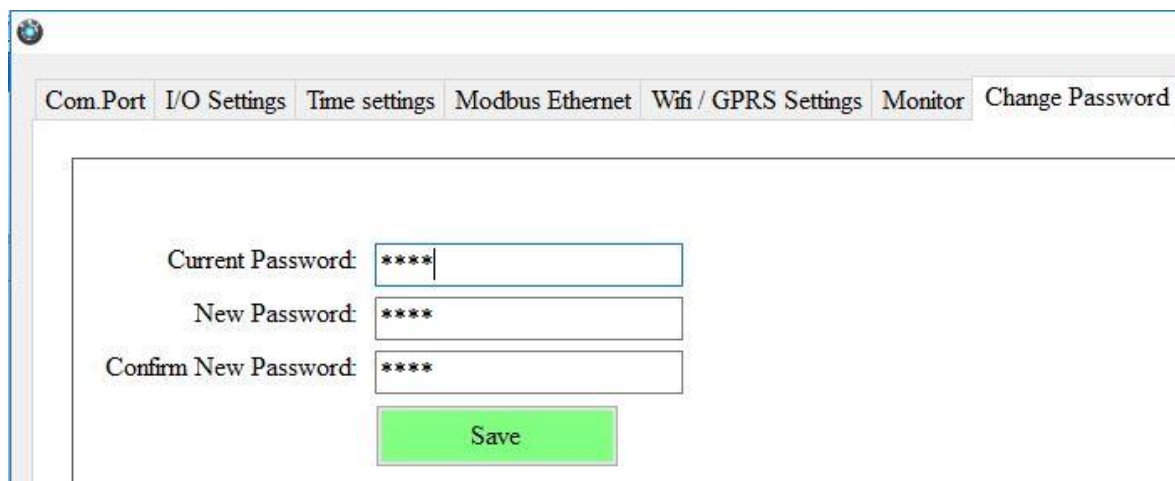


Log Files: You can select the .CSV files

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

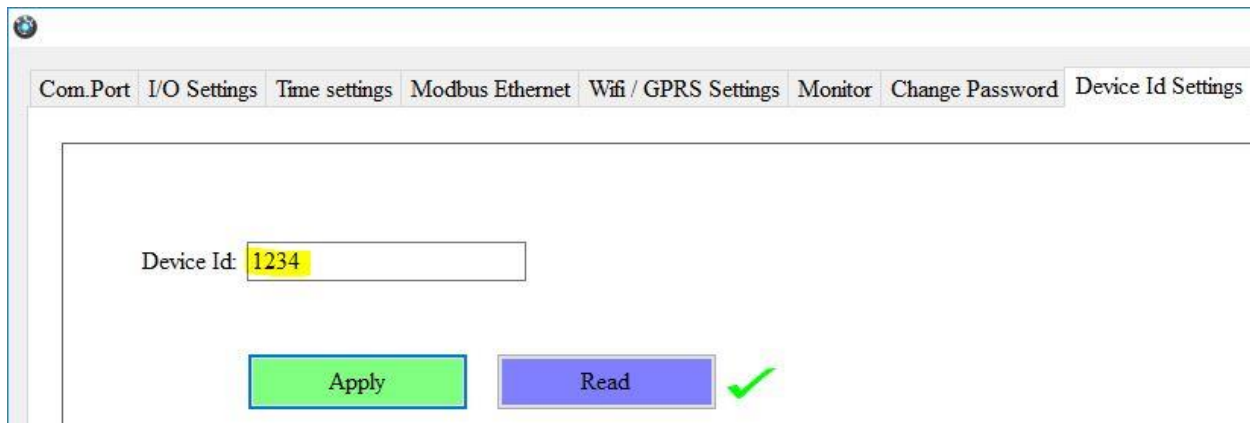
Delete: You can select the Log files which you want to delete from the Dropdown and click on Delete.

9. Change Password



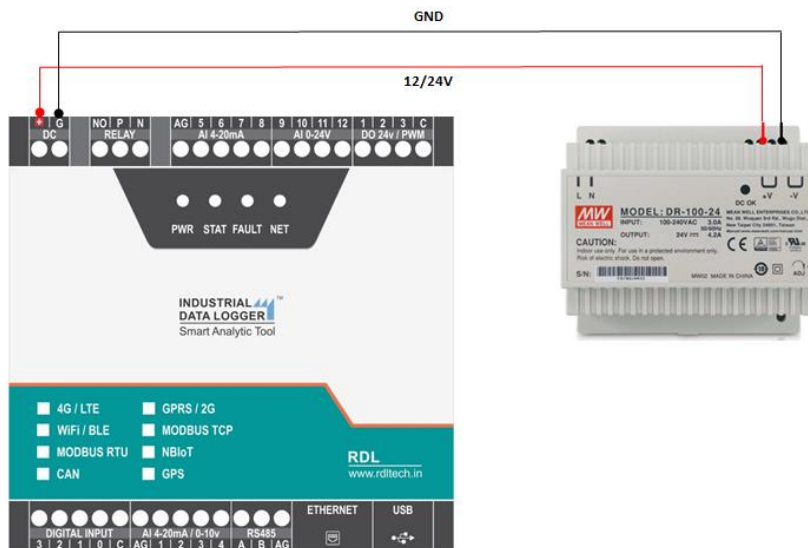
You can change the Default password by giving the New Password.

10. Device ID Settings



You can set the Device ID for the particular module.

11. Power Supply



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