



# Data Logger User Manual

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

The screenshot displays the Industrial Datalogger User Interface (UI) with a menu bar at the top containing the following options: Com.Port, I/O Settings, Time settings, Modbus Ethernet, Wifi / GPRS Settings, Monitor, Change Password, Device Id Settings, and Debug. The 'Com.Port' tab is currently selected. Below the menu bar, the 'Com. Port' dropdown menu is set to 'COM159'. To the right of the dropdown is a green 'Close' button and a yellow 'Connected' status indicator. In the center of the screen, there is a 'Login' dialog box. Inside this dialog, the 'Password' field is filled with four asterisks (\*\*\*\*). Below the password field is a green 'Login' button. At the bottom of the screen, the text 'Login Success' is displayed in green.

## 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 'I/O Settings' tab in a software interface. At the top, there is a navigation bar with tabs: 'Com.Port', 'I/O Settings' (highlighted), 'Time settings', 'Modbus Ethernet', 'Wifi / GPRS Settings', 'Monitor', 'Change Password', 'Device Id Settings', and 'Debug'. Below the navigation bar, there are four checkboxes: 'MODBUS' (checked), 'Analog', 'Digital Input', and 'Modbus TCP'. To the right of these checkboxes are two buttons: 'Apply' (green) and 'Read' (blue), followed by a green checkmark. Below this section, there are three tabs: 'MODBUS' (highlighted), 'Analog', and 'Digital Input'. Under the 'MODBUS' tab, there are three sub-tabs: 'Com.Port Settings', 'MODBUS Settings' (highlighted), and 'Polling Interval'. The 'MODBUS Settings' sub-tab 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). At the bottom of this section, there are two buttons: 'Apply' (green) and 'Read' (blue), with a green checkmark between them.

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

☒ 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	<input checked="" type="checkbox"/>
2	2	10	Input Register	6	<input type="checkbox"/>
3	3	20	Holding Register	4	<input checked="" type="checkbox"/>
4	4	30	Coil	3	<input type="checkbox"/>
5					<input type="checkbox"/>
6					<input type="checkbox"/>
7					<input type="checkbox"/>
8					<input type="checkbox"/>
9					<input type="checkbox"/>
10					<input type="checkbox"/>

\* Max 10 Slave Address Apply Read

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.
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.

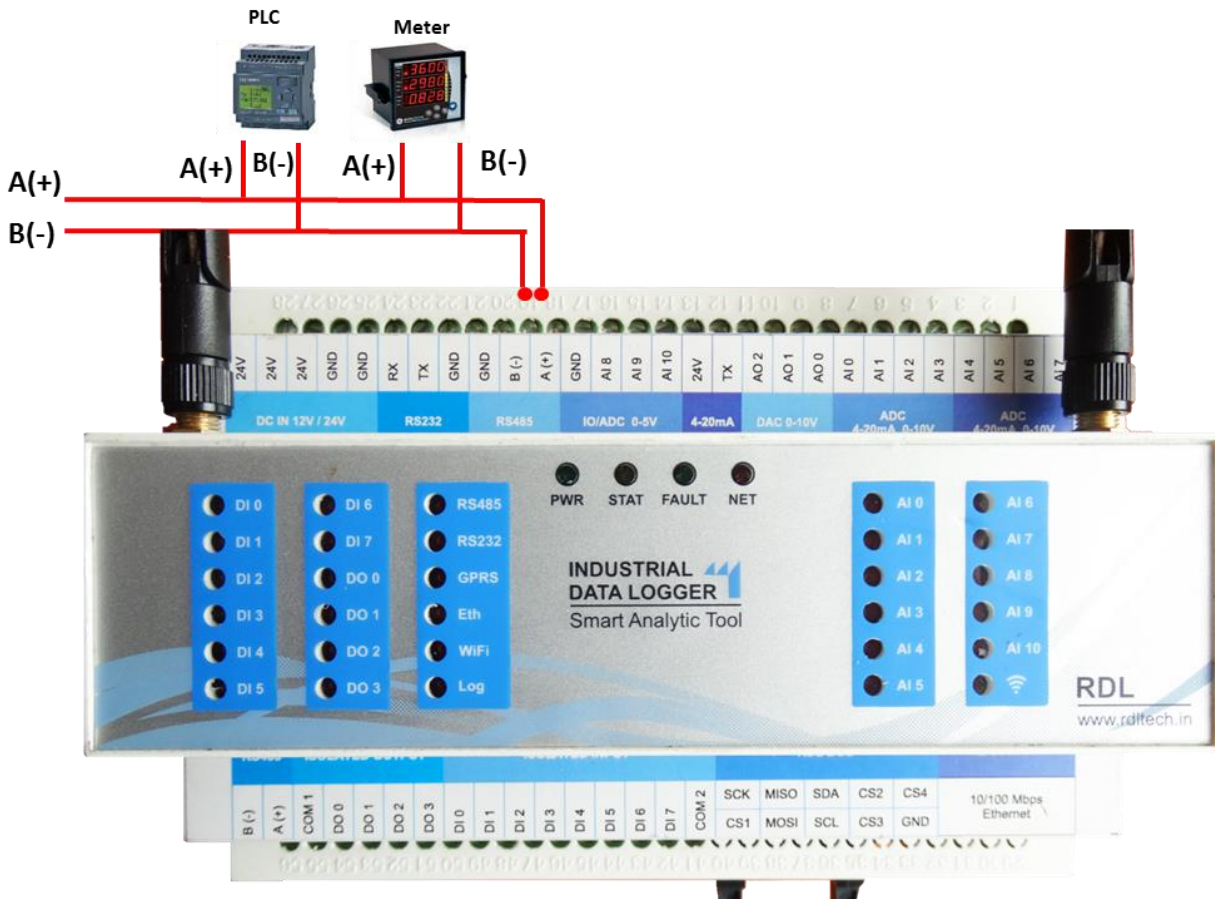
### 2.1.3. Modbus Polling RTU Interval

The screenshot shows the web interface of an Industrial Datalogger. At the top, there is a navigation bar with tabs: Com.Port, I/O Settings (highlighted), Time settings, Modbus Ethernet, Wifi / GPRS Settings, Monitor, Change Password, Device Id Settings, and Debug. Below the navigation bar, there are checkboxes for MODBUS (checked), Analog, Digital Input, and Modbus TCP. To the right of these checkboxes are two buttons: Apply (green) and Read (blue). Below this, there is a sub-menu with tabs: MODBUS (highlighted), Analog, and Digital Input. Under the MODBUS tab, there are two sub-tabs: Com.Port Settings and MODBUS Settings (highlighted). Under the MODBUS Settings tab, there is a sub-tab: Polling Interval (highlighted). In the Polling Interval section, there are three radio buttons: sec (selected), min, and hour. Below the radio buttons, there is a text input field labeled 'MODBUS Polling Interval:' with the value '10' entered. Below the input field, there is a checkbox labeled 'Save Log ( Saves to SD Card)' which is checked. At the bottom of the section, there are two buttons: Apply (green) and Read (blue). A green checkmark is visible to the right of the Read button.

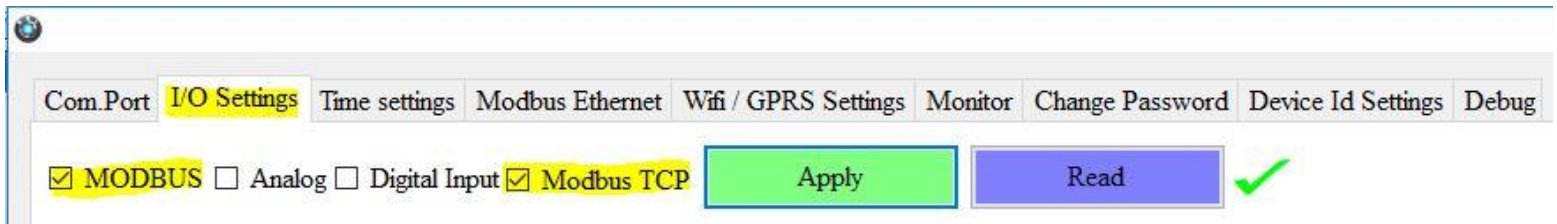
1. Select the Polling Interval **sec/min/hour**
2. Set the **MODBUS Polling Interval**
3. **Save Log:** If tick is enabled, the slave data pertaining to that slave id will be logger, if tick is not enabled, slave data is not logged.
4. Click Apply will write these configuration settings in the memory.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



### 2.1.3.1 Application Wiring Diagram



### 2.1.4. Modbus TCP



1. Select the **Modbus TCP**
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
Monitor
Change Password
Device Id Settings
Debug

Device IP

Data Logger IP: 192 . 168 . 1 . 15
Subnet Mask: 255 . 255 . 255 . 0
Gateway: 192 . 168 . 1 . 1

Modbus TCP Interval: 30
sec min hour
☒ sec ☐ min ☐ hour

☒ Save Log ( Saves to SD Card)

Apply Read

Note: Device and Slave Should be in Same Network!

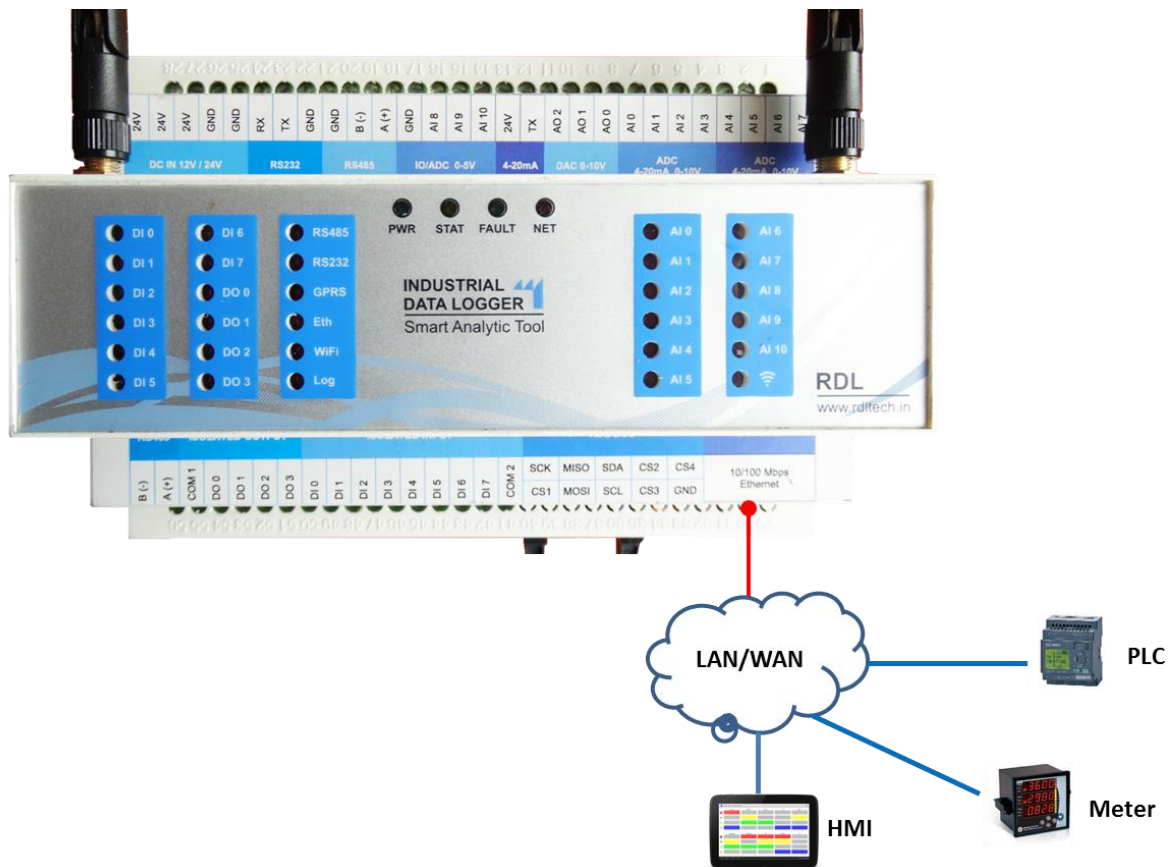
S.No	Slave ID	Slave IP	Slave Port No.	Start Address	Type	Length	Status
1	1	192 . 168 . 1 . 20	502	1	Coil	5	<input checked="" type="checkbox"/>
2	2	192 . 168 . 1 . 21	502	10	Input Register	4	<input type="checkbox"/>
3	3	192 . 168 . 1 . 22	502	20	Holding Register	6	<input checked="" type="checkbox"/>
4							<input type="checkbox"/>
5							<input type="checkbox"/>
6							<input type="checkbox"/>
7							<input type="checkbox"/>
8							<input type="checkbox"/>
9							<input type="checkbox"/>
10							<input type="checkbox"/>

Save Read

1. Set the Device IP Address, Subnet Mask, Gateway and click on Apply.
2. **Slave ID:** This is the Modbus Slave ID. Maximum 10 Slave info can be accessed.
3. **Slave IP:** Mention the IP Address of the Slave.
4. **Slave Port No:** Mention the Port No. (Default 502)
5. **Start Address:** This is the starting address of the slave from where data needs to be read.
6. **Type:** Mention the register type. It could be Coil/Input Register/Holding Register.
7. **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.
8. **Status:** If tick is enabled, the slave id will be ENABLED for polling, else pertaining slave id polling will be DISABLED.
9. Click on Save will write these configuration settings in the memory.

10. Clicking on Read will display the configuration that is already saved
11. Select the Polling Interval **sec/min/hour**
12. Set the **MODBUS TCP Interval**
13. **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.
14. Click Apply will write these configuration settings in the memory.
15. Clicking on Read will display the configuration that is already saved.

### 2.1.5.1 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.

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

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

MODBUS **Analog** Digital Input

☒ sec ☐ min ☐ hour

Analog Polling Interval:  (sec)

☒ Save Log ( Saves to SD Card)

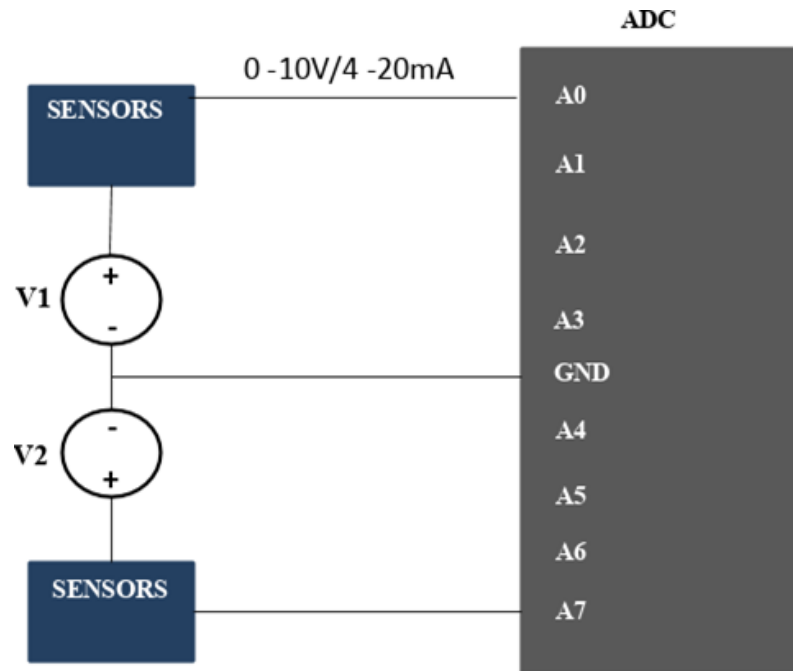
Apply Read ✓

Channel	Resolution	Enable/Disable	Mode
1	16 bit	<input checked="" type="checkbox"/>	0-10V
2	16 bit	<input checked="" type="checkbox"/>	4-20mA
3	16 bit	<input checked="" type="checkbox"/>	0-10V
4	16 bit	<input checked="" type="checkbox"/>	4-20mA
5	10 bit	<input type="checkbox"/>	0-10V
6	10 bit	<input type="checkbox"/>	0-10V
7	10 bit	<input type="checkbox"/>	0-10V
8	10 bit	<input type="checkbox"/>	0-10V

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 logger, 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. Selecting **4-20mA** will configure the Analog as a loop current channel, leaving ADC in **0-10V** will configure Analog as an Analog channel.
7. Click Apply will write these configuration settings in the memory
8. Clicking on Read will display the configuration that is already saved.

### 2.2.2. 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.

## 2.3. Digital Input

### 2.3.1. Digital Input Settings

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

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

MODBUS Analog **Digital Input**

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

Channel	Enable/Disable	Condition	Digital Output Channel
1	<input checked="" type="checkbox"/>	Low	D0
2	<input checked="" type="checkbox"/>	High	D1
3	<input checked="" type="checkbox"/>	Low	D2
4	<input type="checkbox"/>	High	D3
5	<input type="checkbox"/>	Low	No Connection
6	<input type="checkbox"/>	Low	No Connection
7	<input type="checkbox"/>	Low	No Connection
8	<input type="checkbox"/>	Low	No Connection

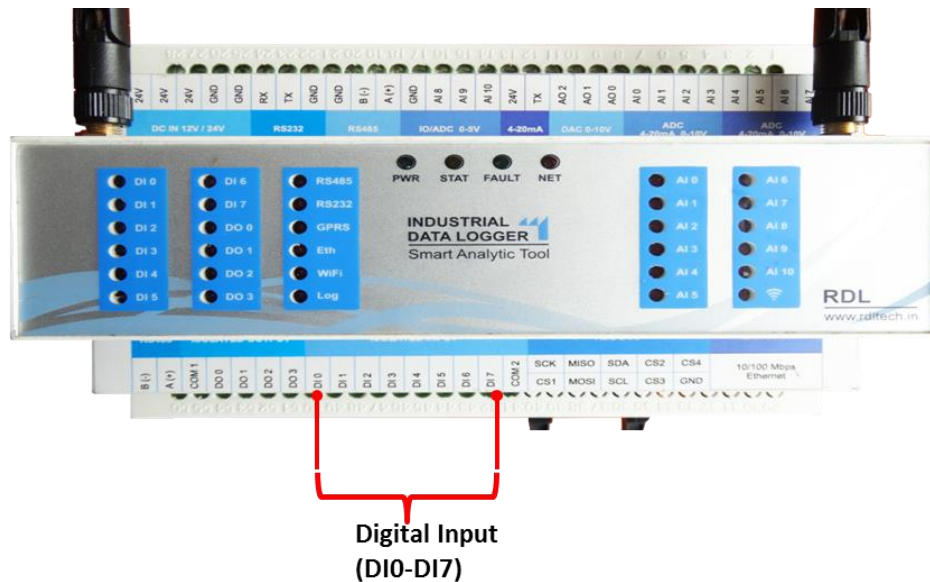
Note: Data Logged Only when Input Channel status changed Apply Read ✓

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

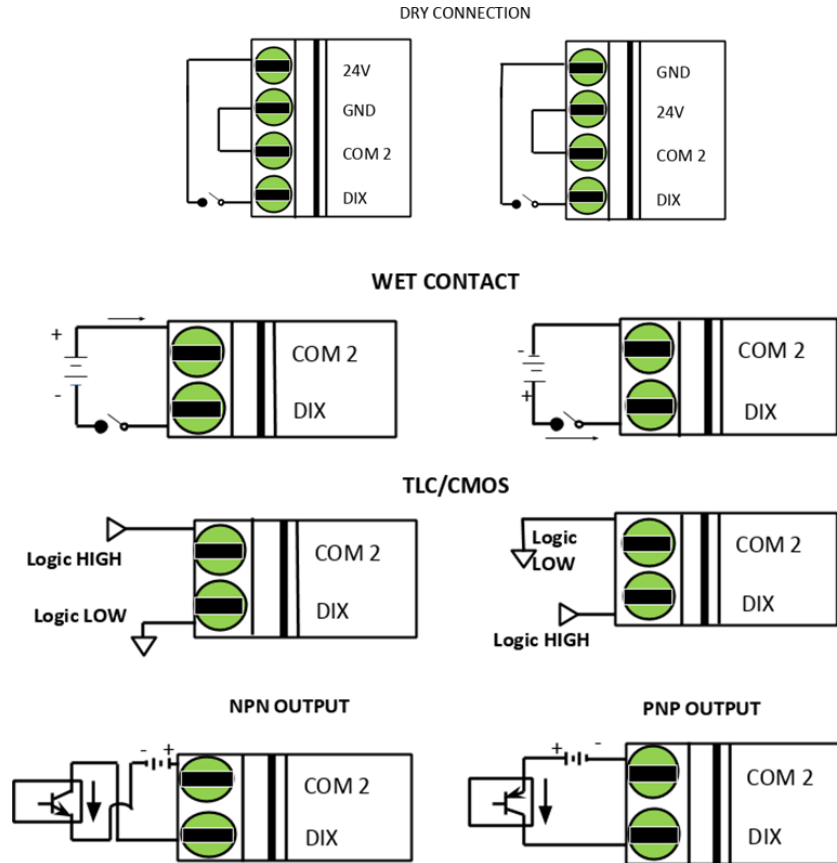
1. **Tick the Checkbox to Enable/Disable** Digital Input channel.
2. Digital Input channel can set for condition (**HIGH/LOW**) to the selected Digital Output channel.
3. If you don't want to attach **Digital Input** to the **Digital Output** set as **No Connection**
4. Click Apply will write these configuration settings in the memory.
5. Clicking on Read will display the configuration that is already saved.

### 2.3.2. Digital Input Specification

- Channels: 8
- Input Voltage: 0-24V
  - Logic High: >9V
  - Logic Low: <6V
- Isolation : 3750 VRMS
- Supports Inverted DI Status
- Supported Connection: Dry and Wet both
- Maximum Frequency : 200Hz-38KHz



### 2.3.3. Application Wiring Diagram

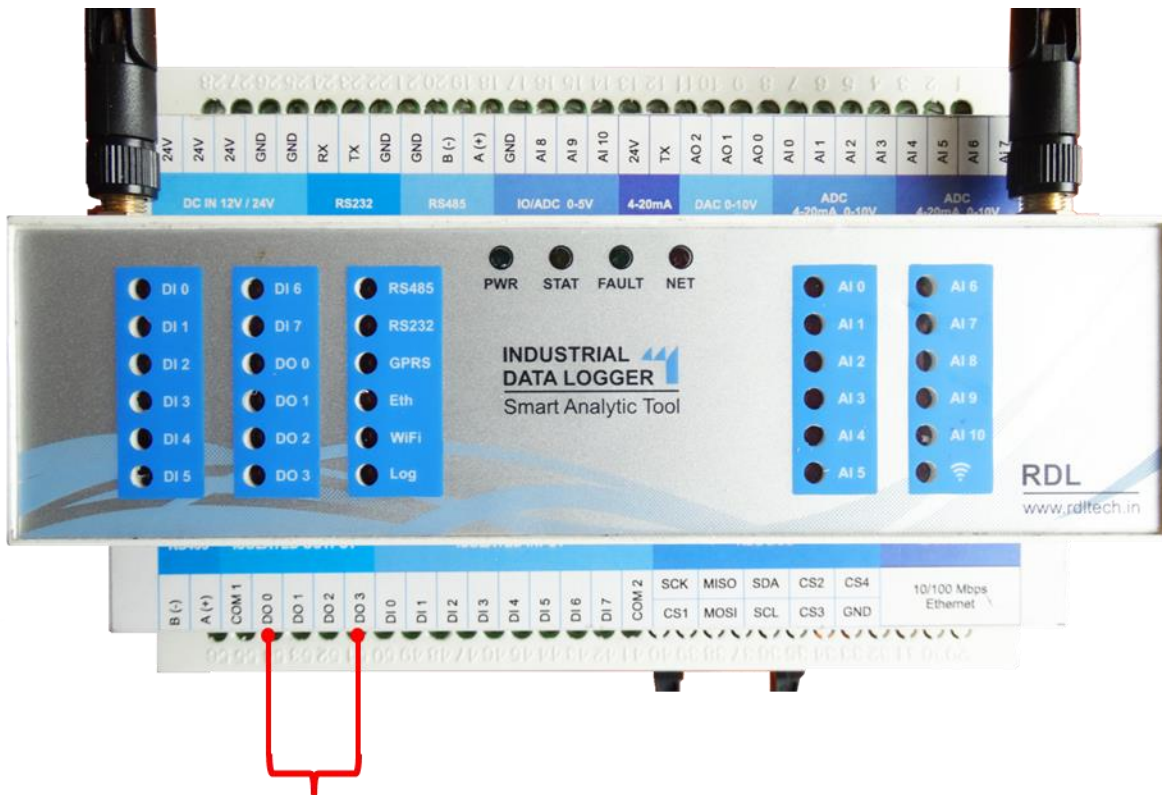




### 3. Digital Output

#### 3.1.1. Digital Output Specification

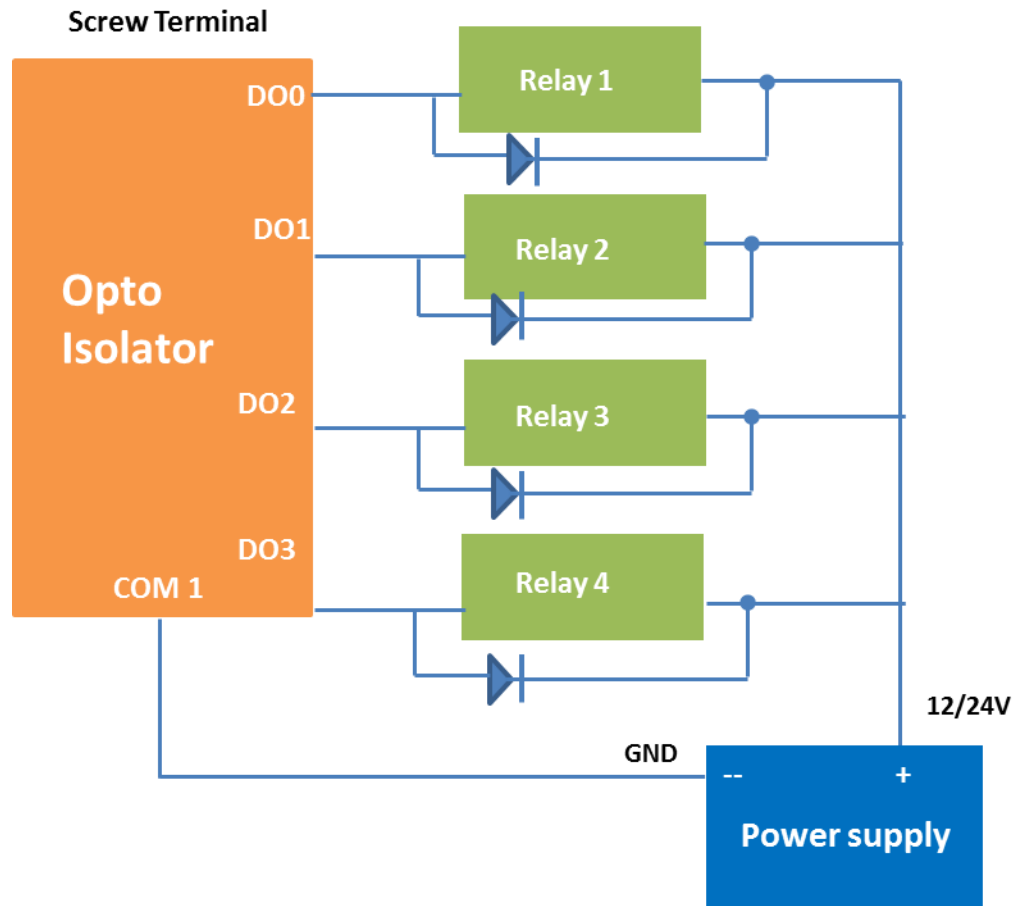
- Channels: 3
- Open Collector
- Isolation : 3750 VRMS
- Absolute maximum voltage 35V, Current 100mA
- Cut-Off Frequency : 10KHz



**Digital Output  
(DO0-DO3)**

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

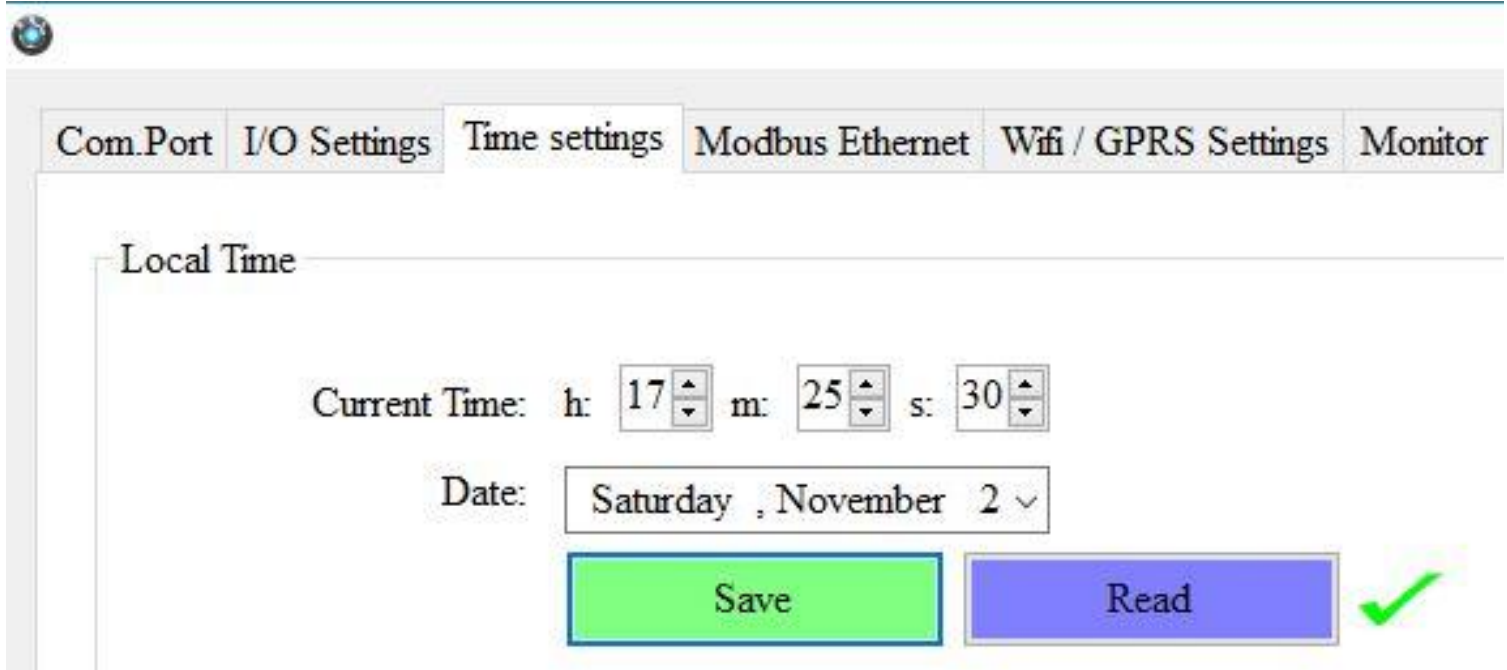
### 3.1.2. Application Wiring Diagram:



## 4. 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 a 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' field 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.

Com.Port	I/O Settings	Time settings	Modbus Ethernet	Wifi / GPRS Settings	Monitor
Local Time					
Current Time: h: 17 m: 25 s: 30					
Date: Saturday , November 2					
<div>Save</div> <div>Read</div>					

## 5. WiFi/GPRS Settings

### 5.1. GSM/GPRS FTP Settings

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

Primary Connection: **GSM/GPRS**

Save Read ✓

Wifi Settings **GPRS Settings**

☒ **FTP** ☐ JSON ☐ MQTT ☐ Disable APN: **bsnlnet**

Apply Read ✓ Save Read ✓

FTP JSON MQTT

FTP Server IP: cloudplc.in

Username: abcabc

Password: abc12345

Port Number: 21

Log Folder: remote\_folder

**FTP Uploading Time**

☒ sec ☐ min ☐ hour

Uploading Interval: 10 (sec)

Apply Read ✓

Apply Read ✓

1. Choose **GSM/GPRS** in the **Primary Connection**. Click on Save.
2. **GPRS Settings** are enabled now, ready for **FTP**
3. **FTP**: Data logging happens to FTP server. Click on Apply.
4. **FTP Server IP**: Provide IP address for the FTP connection.
5. **Username**: Provide Username for the FTP Server.
6. **Password**: Provide Password for the FTP Server.
7. **Port Number**: Provide Port number for the FTP Server.
8. **Log Folder**: Provide folder name for the FTP Server.
9. Click Apply will save these settings in the memory.
10. **APN**: Provide APN for the connection. Click on Save. Ex: for BSNL it is "bsnlnet".
9. **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>

## 5.2. GSM/GPRS JSON Settings

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

Primary Connection: **GSM/GPRS**

Save Read ✓

Wifi Settings **GPRS Settings**

☐ FTP ☒ **JSON** ☐ MQTT ☐ Disable

APN: **bsnlnet**

Apply Read ✓

FTP **JSON** MQTT

Post URL: your\_domain\_name.com

Hash Key: 1234

Path: datalogger/json\_passing.php

Content Type: application/json

Device ID/Tag: 1

Port No: 80

Apply Read ✓

- Choose **GSM/GPRS** in the **Primary Connection**. Click on Save.
- **GPRS Settings** are enabled now, ready for **JSON**
- **JSON**: Data logging happens to JSON server. Click on Apply.
- **Post URL**: Provide Server URL.

- **Hash Key:** Provide AES encryption key for security.
- **Path:** Provide Path for the URL.
- **Content Type:** Choose from dropdown.
- **Device ID/Tag:** Provide the ID
- **Port No:** Mention the port number.
- 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-Datalogger/blob/master/JSON%20PARSING.pdf>

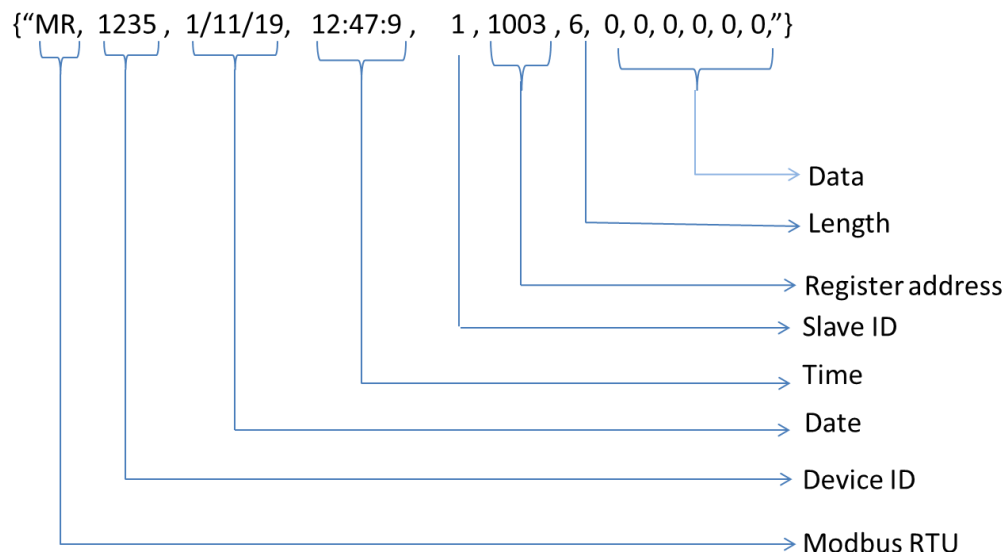
### 5.2.1 GSM/GPRS JSON Uploading Format:

#### 5.2.1.1 MODBUS RTU

##### API FORMAT:

{“MR,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length,”}

EX:



### 5.2.1.2 MODBUS TCP

#### API FORMAT:

{“MT,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length,”}

EX:

{“MT, 1123, 4/11/19, 12:21:21, 1, 1060, 6, 1165, 1166, 1167, 1168, 1169, 1170, ”}

Diagram illustrating the mapping of the example API string to its components:

- MT → Modbus TCP
- 1123 → Device ID
- 4/11/19 → Date
- 12:21:21 → Time
- 1 → Slave ID
- 1060 → Register address
- 6 → Length
- 1165, 1166, 1167, 1168, 1169, 1170 → Data



### 5.2.1.3 ANALOG Input

**API Format:** {"AN,DeviceID,DATE,TIME,AI0,AI1,AI2,AI3,AI4,AI5,AI6,AI7,"}

**Eg:**

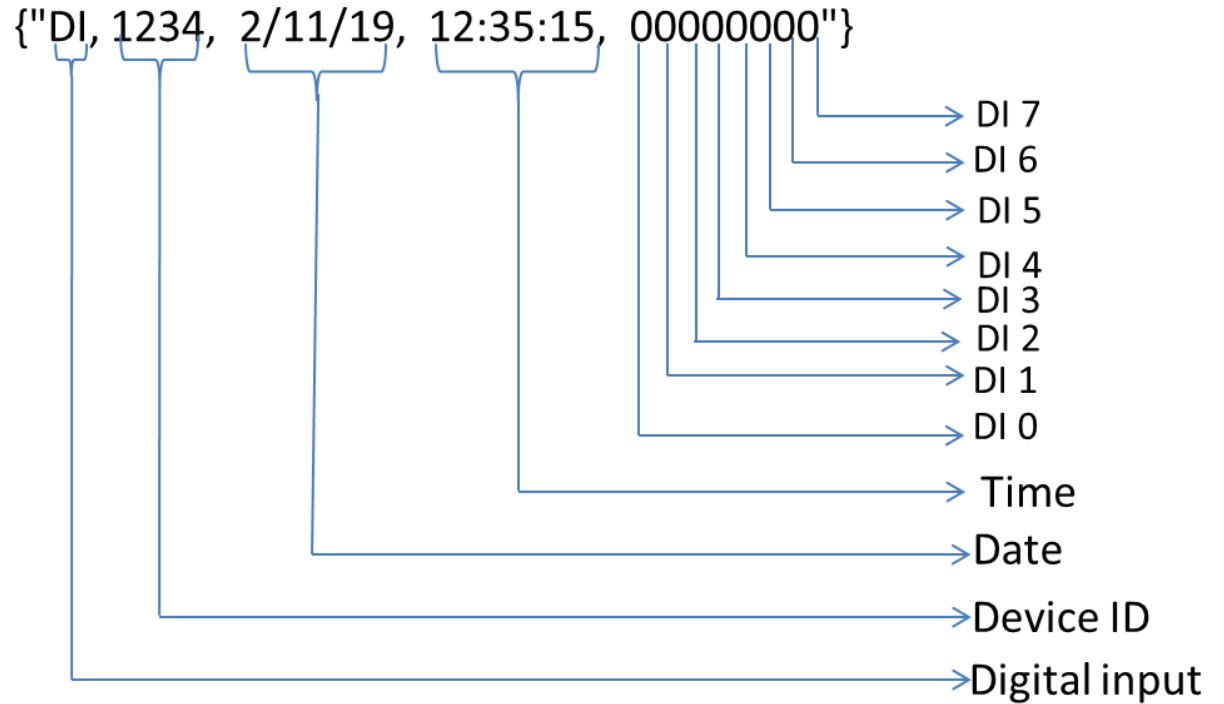
{ "A ↓, 1234, 2/11/19, 11:23:27, 0.09, 0.08, 0.09, 0.08, 0.07, 0.01, 0.00, 9.24 " }

- Analog 7
- Analog 6
- Analog 5
- Analog 4
- Analog 3
- Analog 2
- Analog 1
- Analog 0
- Time
- Date
- Device ID
- Analog input

#### 5.2.1.4 Digital Input

API Format: {"DI,DeviceID,DATE,TIME,CH1CH2CH3CH4CH5CH6CH7CH8"}

EX:



### 5.3. GSM/GPRS MQTT Settings:

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

Primary Connection: **GSM/GPRS**

Save Read ✓

Wifi Settings **GPRS Settings**

☐ FTP ☐ JSON ☒ **MQTT** ☐ Disable APN: **bsnlnet**

Apply Read ✓ Save Read ✓

FTP JSON **MQTT**

Profile Type: **MQTT Broker** ☐ Enable SSL/TSL

Broker Address: your\_broker\_address.com

UserName: user

Password: 12345

Port: 11139

Topic: datalogger

Device Id/Tag: 1

Apply Read ✓

- Choose **GSM/GPRS** in the **Primary Connection**. Click on Save.
- **GPRS Settings** are enabled now, ready for **MQTT**
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Profile Type**: Select in the dropdown menu **MQTT Broker**
- **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.
- **Topic**: Provide Topic name.
- **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](https://github.com/researchdesignlab/Industrial-Data-Logger/blob/master/MQTT_Linux_Bringup_ver1.0.pdf)

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

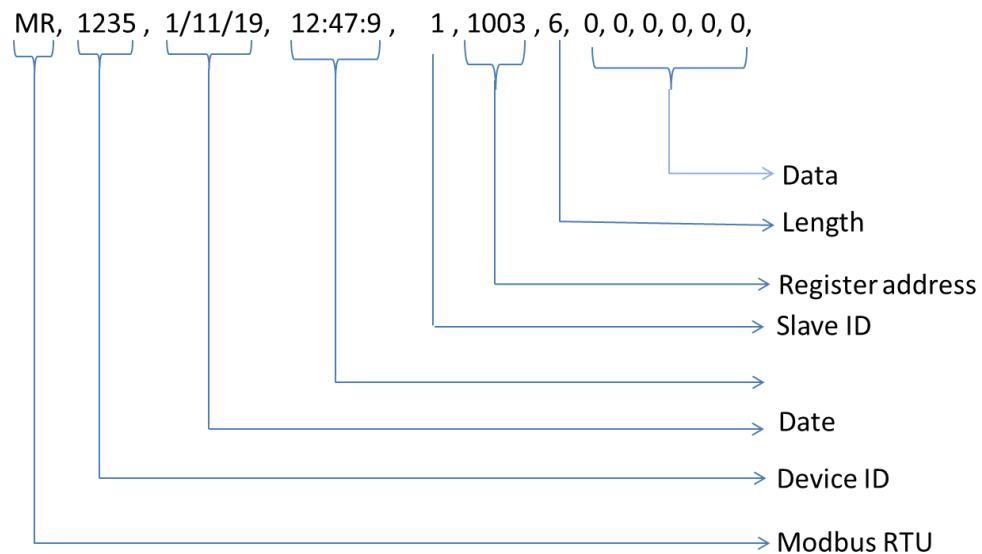
### 5.3.1 GSM/GPRS MQTT Data Parsing Format:

#### 5.3.1.1 MODBUS RTU

**Parsing Format:**

**MR,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length**

**Ex:**

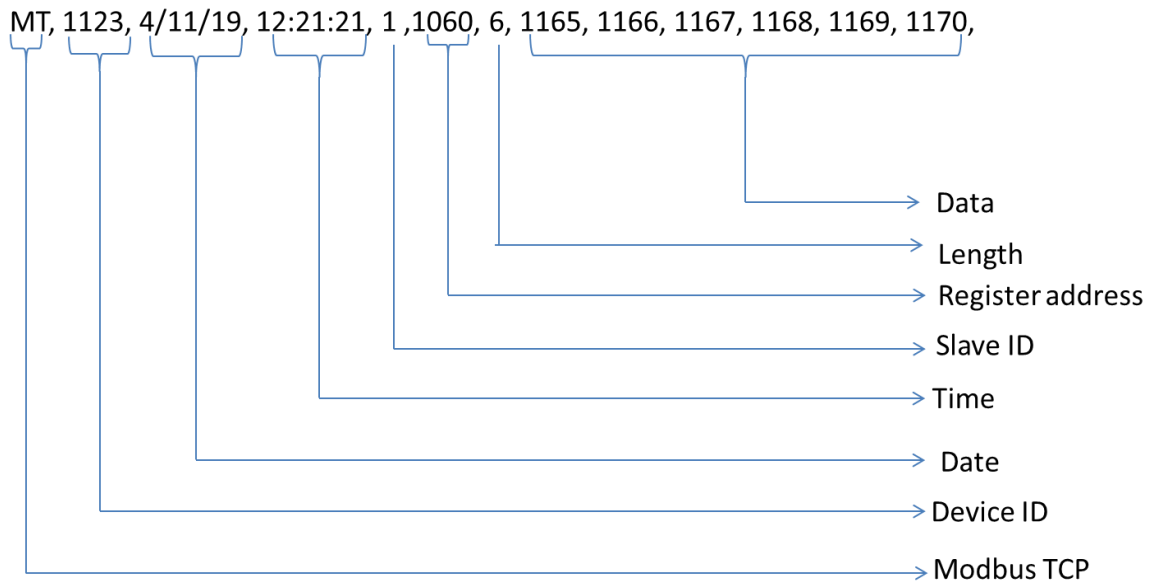


### 5.3.1.2 MODBUS TCP

#### Parsing Format:

**MT,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length**

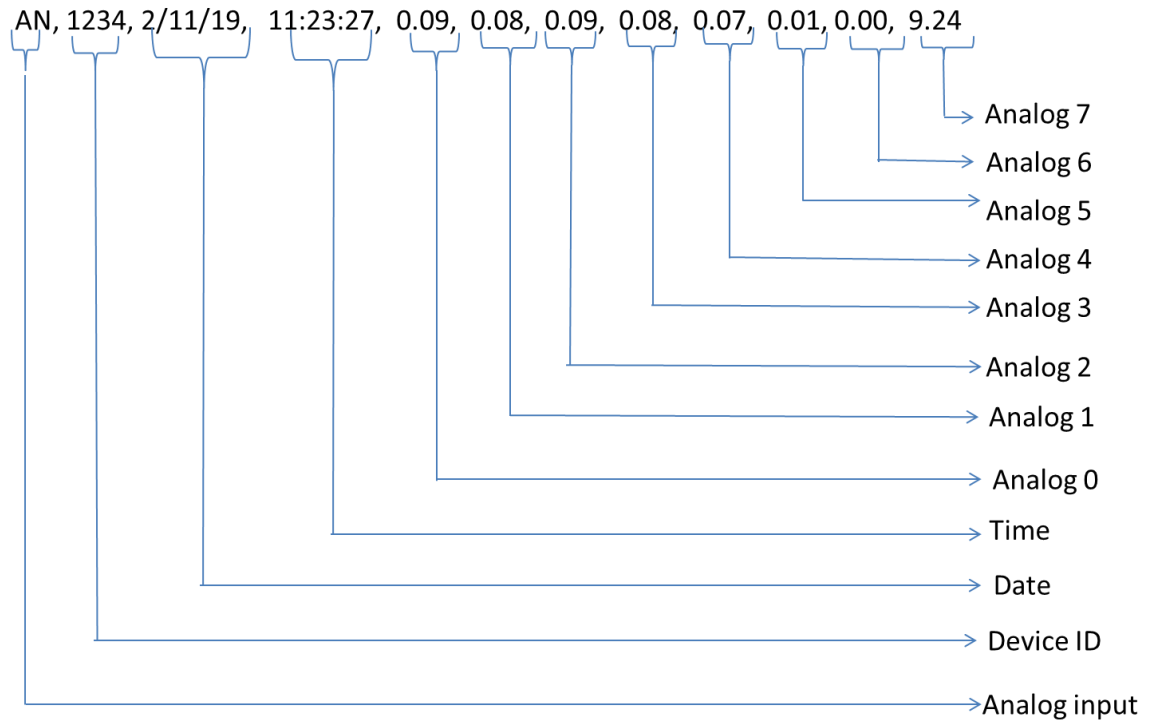
#### Ex:



### 5.3.1.3 ANALOG Input

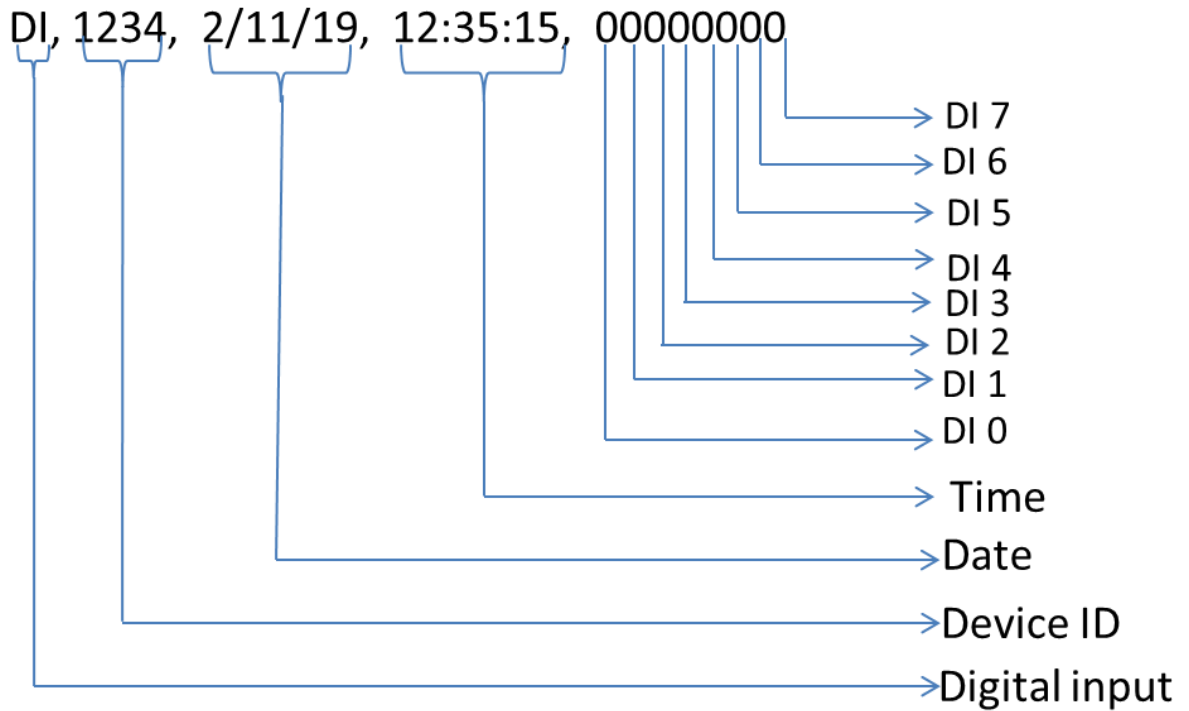
**Parsing Format:**     **AN,DeviceID,DATE,TIME,AI0,AI1,AI2,AI3,AI4,AI5,AI6,AI7**

**Ex:**



#### 5.3.1.4 Digital Input

Parsing Format: **DI,DeviceID,DATE,TIME,CH1CH2CH3CH4CH5CH6CH7CH8**





## 5.4. GSM/GPRS MQTT with SSL Settings

The screenshot shows the 'Wifi / GPRS Settings' tab in the configuration menu. The 'Primary Connection' is set to 'GSM/GPRS'. Below this, there are 'Save' and 'Read' buttons, with a green checkmark indicating success. The 'GPRS Settings' sub-tab is active, showing radio buttons for 'FTP', 'JSON', 'MQTT' (selected), and 'Disable'. There are 'Apply' and 'Read' buttons for GPRS settings, also with a green checkmark. The 'APN' is set to 'bsnlnet', with 'Save' and 'Read' buttons and a green checkmark. The 'MQTT' sub-tab is active, showing a 'Profile Type' dropdown set to 'MQTT Broker'. Below this, there are input fields for 'Broker Address' (your\_broker\_address.com), 'UserName' (user), 'Password' (12345), 'Port' (11139), 'Topic' (datalogger), and 'Device Id/Tag' (1). To the right, the 'Enable SSL/TSL' checkbox is checked. Below it, the 'SSL Parameters' section includes a 'Protocol' dropdown set to 'TLSv1.2', a 'CA Certificate' field with a file path 'e:\RAM\certificate\cacert.pem' and a 'Browse..' button, and a 'Delete Certificate' button. At the bottom right, there are 'Apply' and 'Read' buttons.

- Choose **GSM/GPRS** in the **Primary Connection**. Click on Save.
- **GPRS Settings** are enabled now, ready for **MQTT**
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Profile Type**: Select in the dropdown menu **MQTT Broker**
- **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.
- **Topic**: Provide Topic name.
- **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.

## 5.5. WiFi Settings

### 5.5.1 WiFi DHCP Settings:

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:

Subnet Mask:

Gateway:

Primary DNS:

Secondary DNS:

**Apply** **Read**

Access Point

SSID: **RDL**

Password: **12345**

**Apply** **Read**

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

## 5.5.2 WiFi Static Settings

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 **WiFi** in the **Primary Connection**. Click on Save.
- **WiFi Settings** are enabled now, ready for **JSON**
- **WiFi 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.

## 5.6. WiFi JSON Settings

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

Post URL:

Hash Key:

Path:

Content Type:

Port No:

**Apply** **Read** ✓

- Choose **WiFi** in the **Primary Connection**. Click on Save.
- **WiFi Settings** are enabled now, ready for **JSON**
- **JSON**: Data logging happens to JSON server. Click on Apply.
- **Post URL**: Provide Server URL.
- **Hash Key**: Provide AES encryption key for security.
- **Path**: Provide Path for the URL.
- **Content Type**: Choose from dropdown.
- **Port No**: Mention the port number.
- Click Apply will save these settings in the memory.

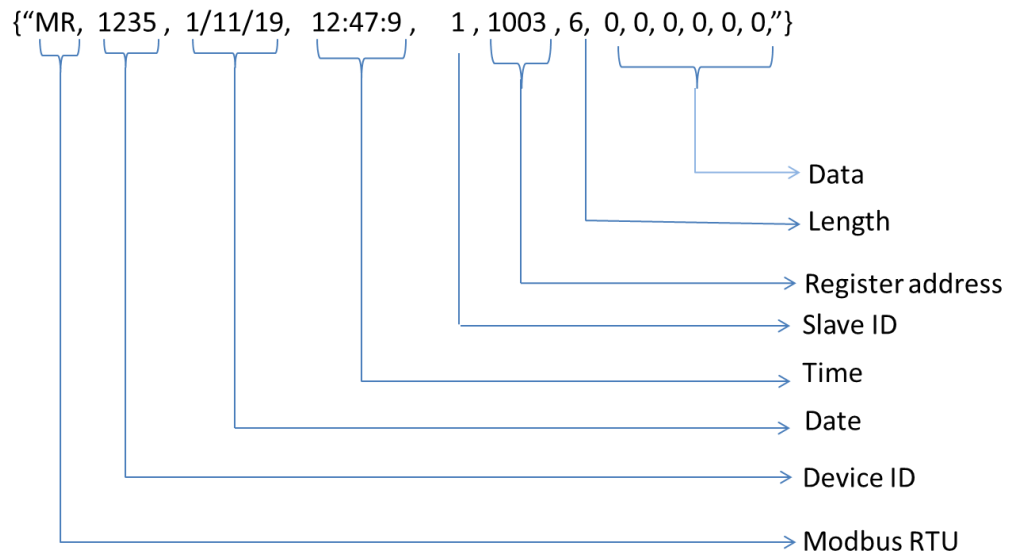
## 5.6.1 WiFi JSON Uploading Format:

### 5.6.1.1 MODBUS RTU

API FORMAT:

{“MR,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length,”}

EX:



### 5.6.1.2 MODBUS TCP

#### API FORMAT:

`{"MT,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data_Length,"}`

EX:

`{"MT, 1123, 4/11/19, 12:21:21, 1, 1060, 6, 1165, 1166, 1167, 1168, 1169, 1170, "}`

The diagram illustrates the mapping of the example API string to its components. Brackets above the string group the values, and arrows on the right point from these groups to their respective labels:

- Modbus TCP (points to "MT")
- Device ID (points to "1123")
- Date (points to "4/11/19")
- Time (points to "12:21:21")
- Slave ID (points to "1")
- Register address (points to "1060")
- Length (points to "6")
- Data (points to the range "1165, 1166, 1167, 1168, 1169, 1170")

### 5.6.1.3 ANALOG Input

**API Format:** {"AN,DeviceID,DATE,TIME,AI0,AI1,AI2,AI3,AI4,AI5,AI6,AI7,"}

**Eg:**

{"AN, 1234, 2/11/19, 11:23:27, 0.09, 0.08, 0.09, 0.08, 0.07, 0.01, 0.00, 9.24 "}

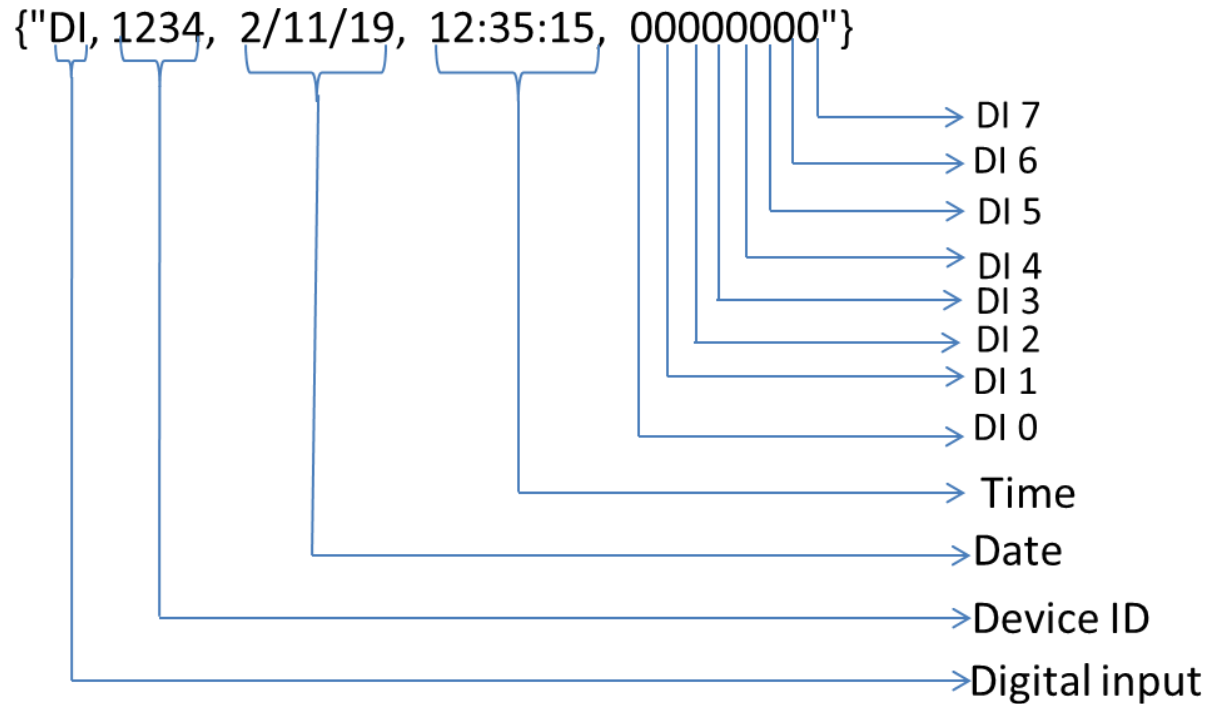
- Analog 7
- Analog 6
- Analog 5
- Analog 4
- Analog 3
- Analog 2
- Analog 1
- Analog 0
- Time
- Date
- Device ID
- Analog input



### 5.6.1.4 Digital Input

API Format: {"DI,DeviceID,DATE,TIME,CH1CH2CH3CH4CH5CH6CH7CH8"}

EX:



## 5.7. WiFi MQTT Settings

Primary Connection: Wifi Save Read ✓

Wifi Settings GPRS Settings

☐ JSON ☒ MQTT ☐ Disable Apply Read ✓

JSON MQTT Wifi Settings

Profile Type: MQTT Broker

Broker Address:

UserName:

Password:

Port:

Topic:

Device Id/Tag:

Apply Read ✓

- Choose **WiFi** in the **Primary Connection**. Click on Save.
- **WiFi Settings** are enabled now, ready for **MQTT**
- **MQTT**: Data logging happens to MQTT server. Click on Apply.
- **Profile Type**: Select in the dropdown menu **MQTT Broker/Google Cloud IOT**
- **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.
- **Topic**: Provide Topic name.
- **Device Id/Tag**: Provide the Device ID
- Click Apply will save these settings in the memory.

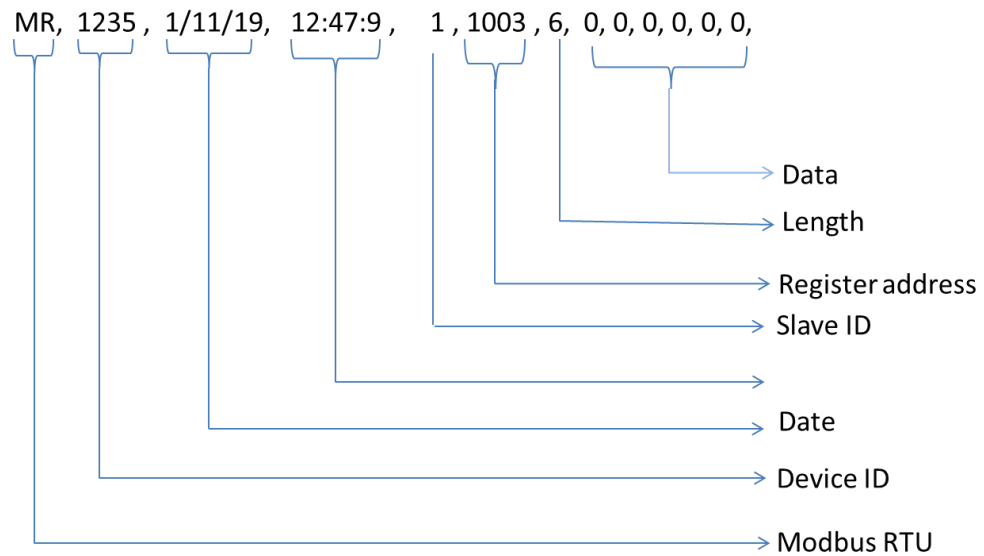
## 5.7.1 WiFi MQTT Data Parsing Format:

### 5.7.1.1 MODBUS RTU

Parsing Format:

MR,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length

Ex:

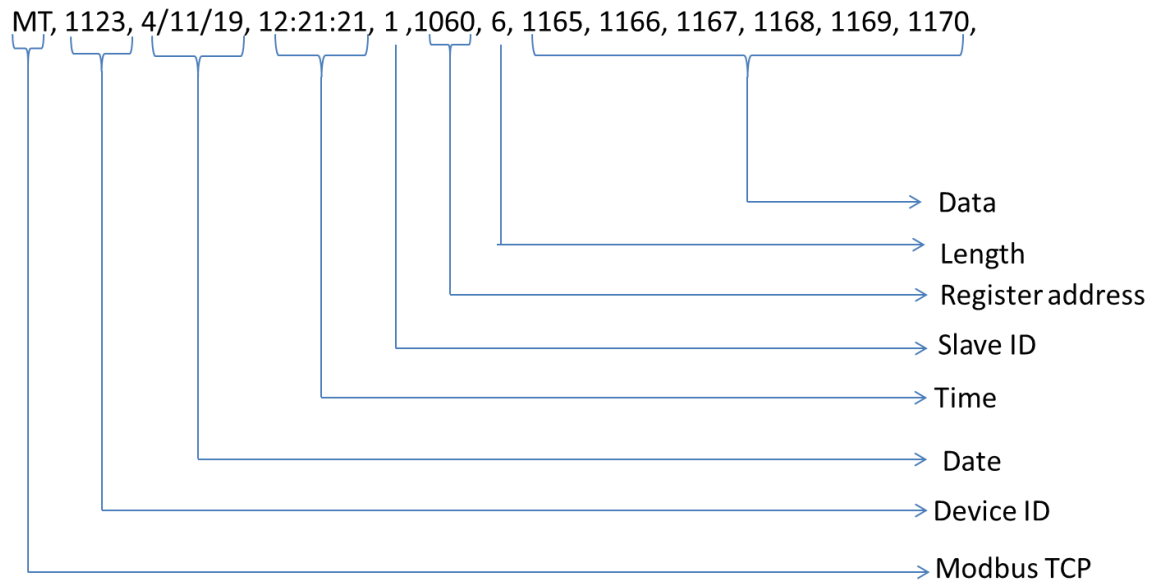


### 5.7.1.2 MODBUS TCP

**Parsing Format:**

**MT,DeviceID,Date,Time,SlaveID,SlaveAddress,Length,Data1,Data2,.....Data\_Length**

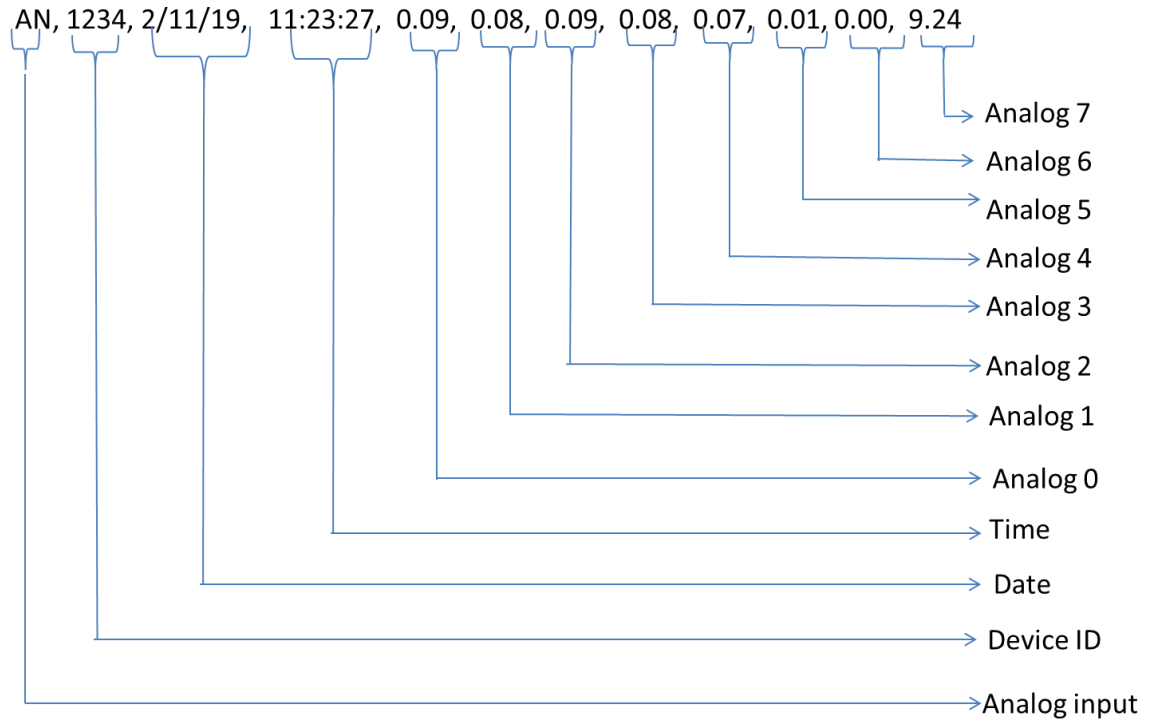
**Ex:**



### 5.7.1.3 ANALOG Input

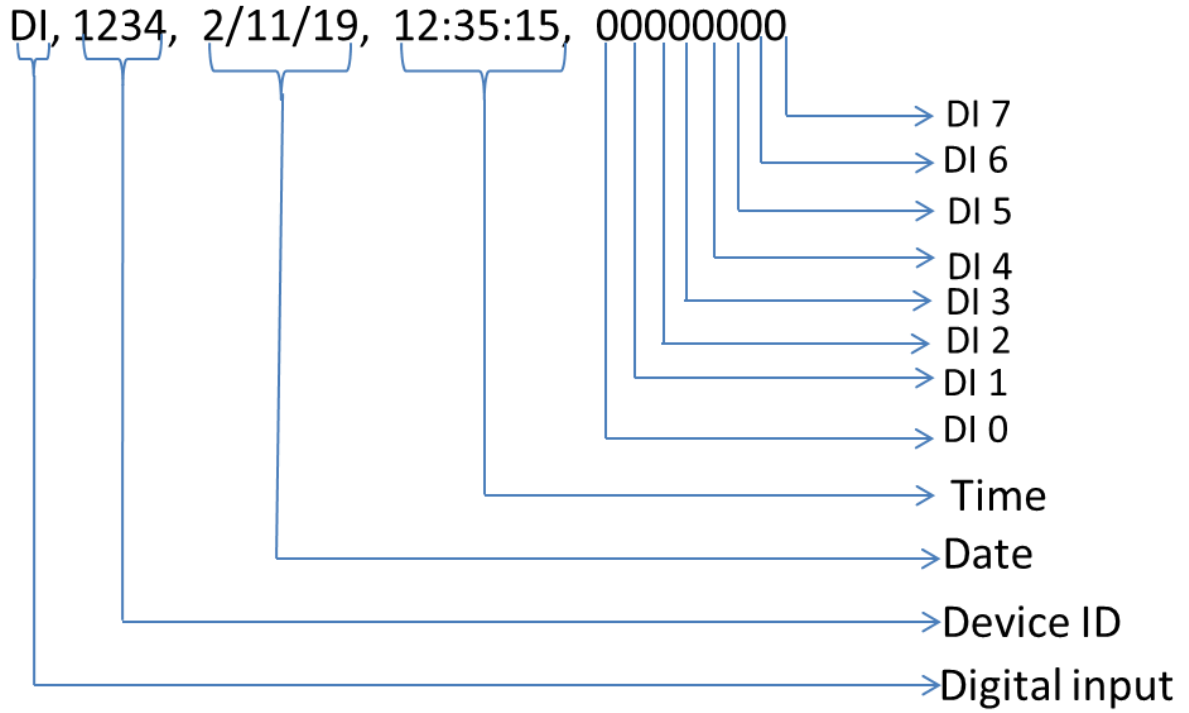
**Parsing Format:**     **AN,DeviceID,DATE,TIME,AI0,AI1,AI2,AI3,AI4,AI5,AI6,AI7**

**Ex:**

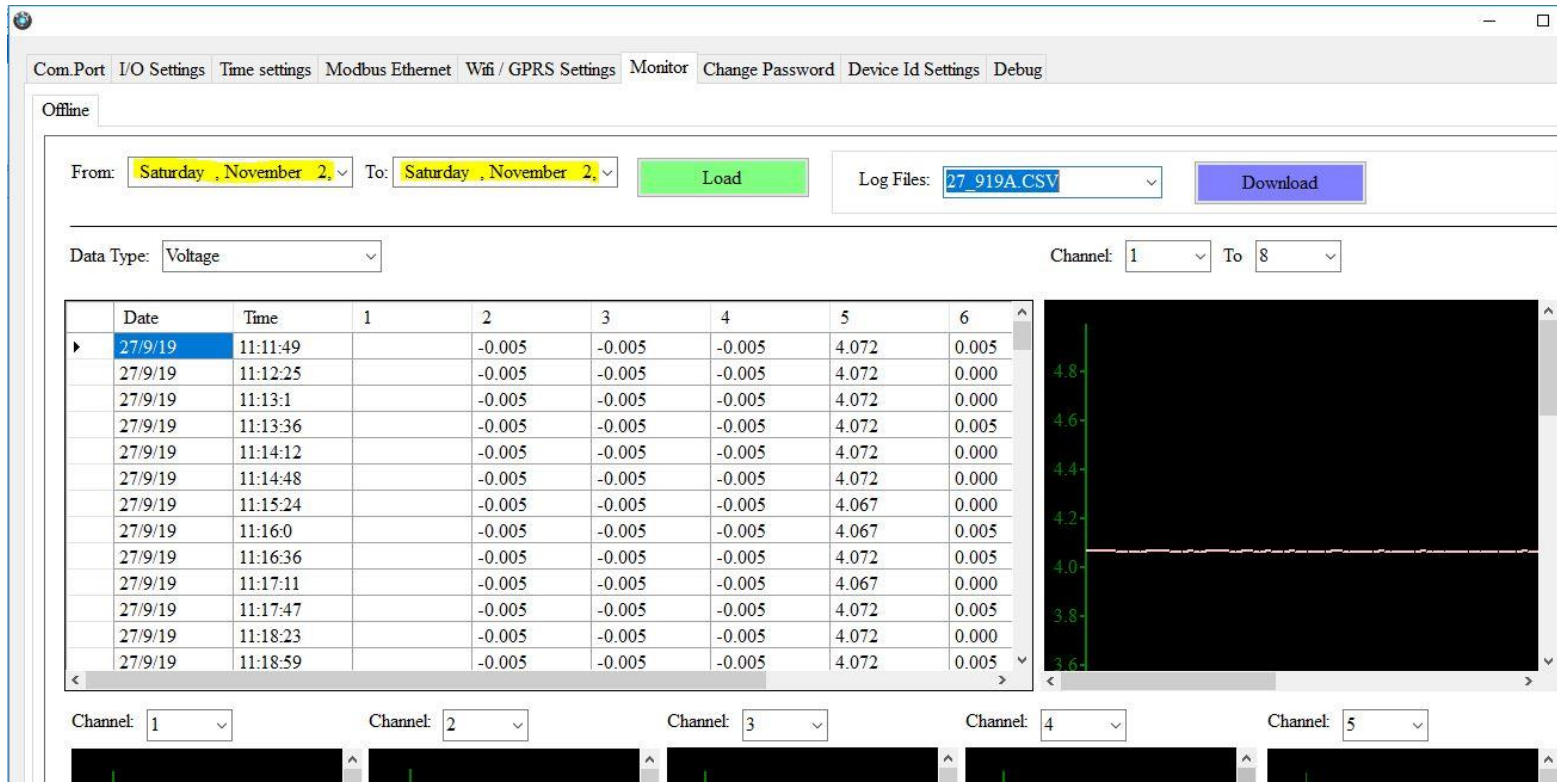


### 5.7.1.4 Digital Input

Parsing Format: **DI,DeviceID,DATE,TIME,CH1CH2CH3CH4CH5CH6CH7CH8**



## 6. Monitor



**Date:** Monitor the Log files by selecting the Date and click on the Load

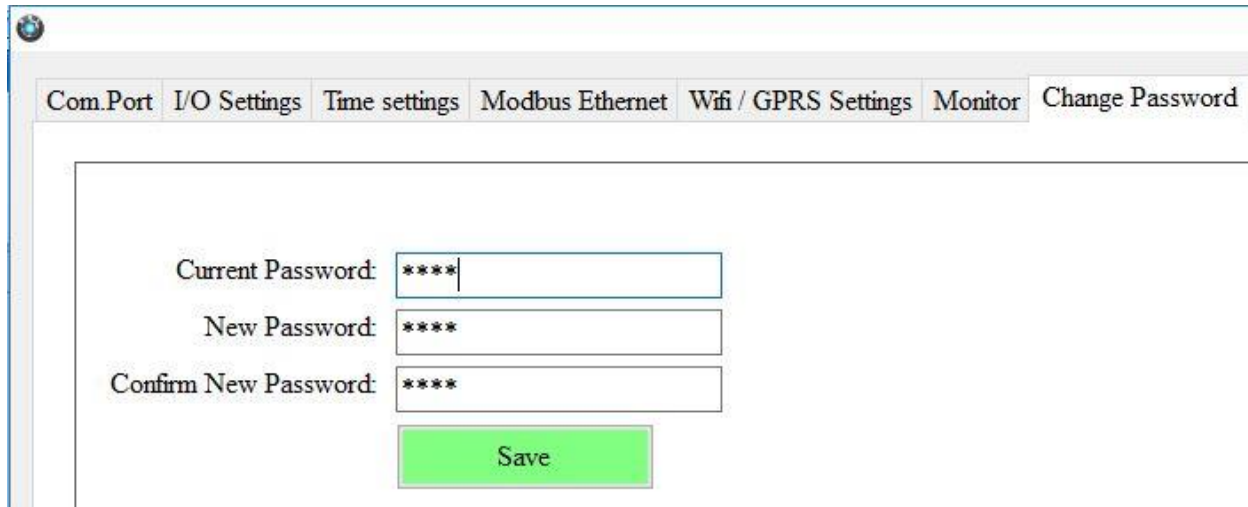
**Log Files:** You can select the .CSV files

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

**Data Type:** Covert the data to Voltage to Bits or Vice versa.

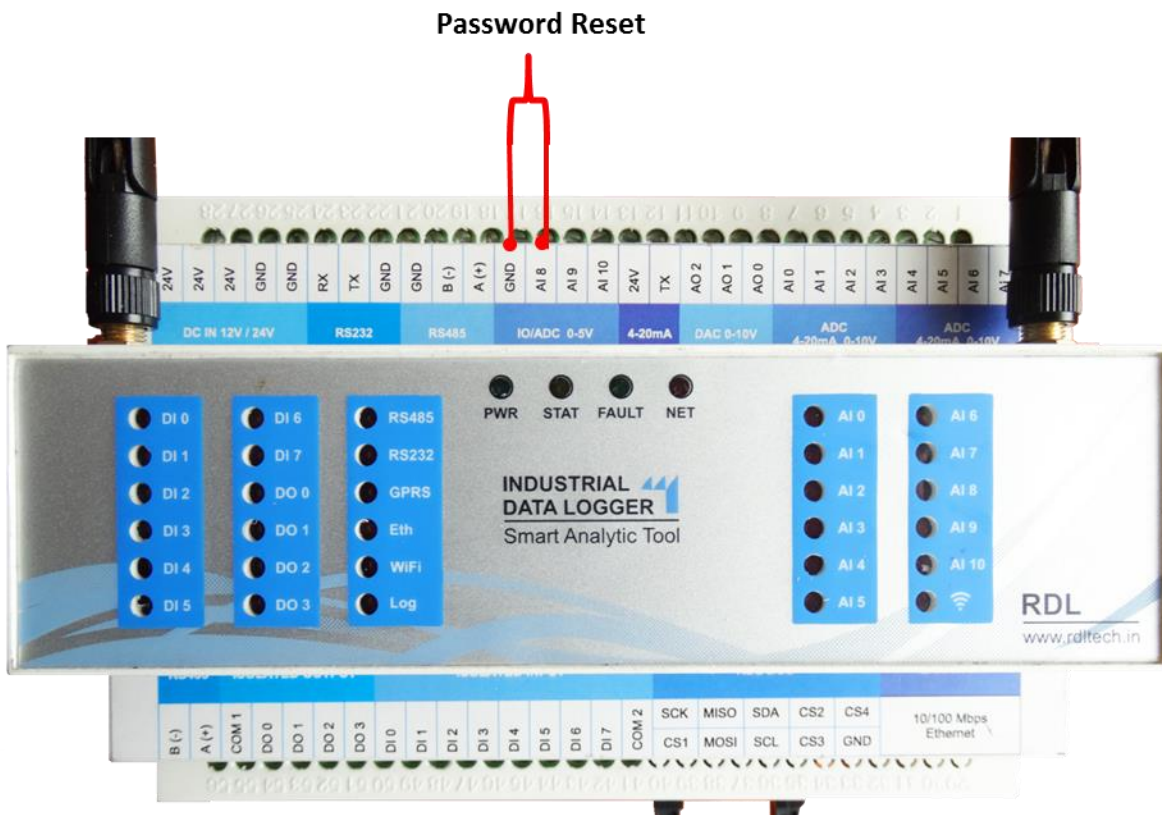
**Channel:** Select the Channel to display the Graph.

## 7. Change Password



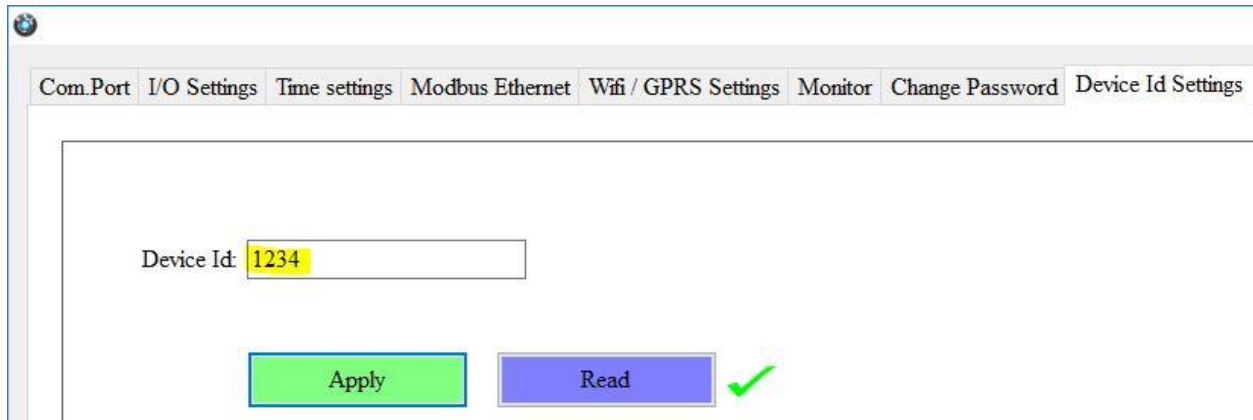
You can change the Default password by giving the New Password.

**Forgot Password:** You need to do the hard reset by connecting wire GND To AI8 and then restart the Datalogger. Password will be set to default password: “**RDL123**”



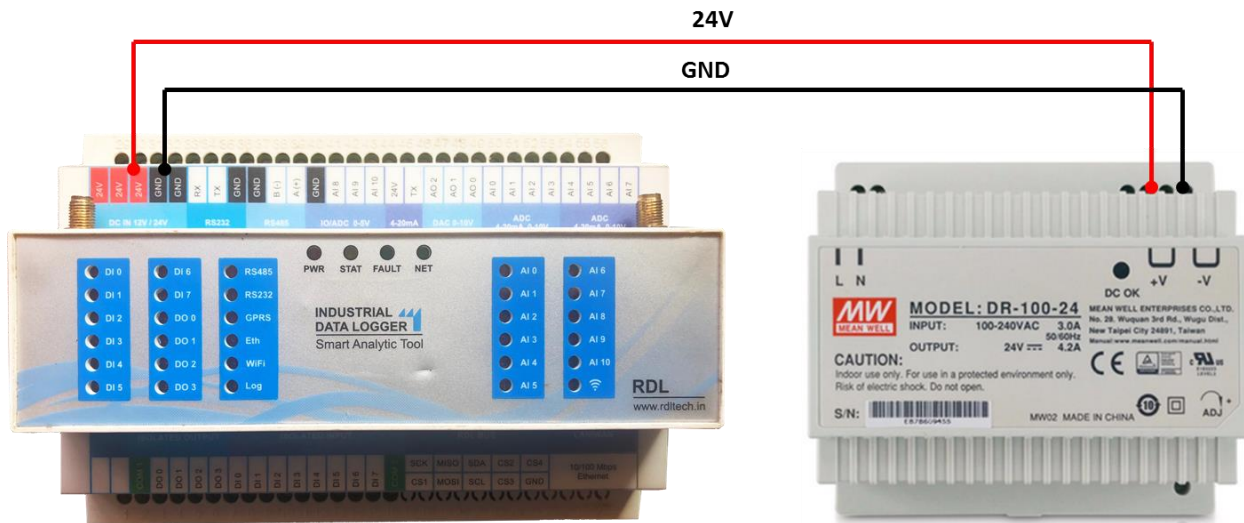


## 8. Device ID Settings



You can set the Device ID for the particular module.

## 9. Power Supply



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