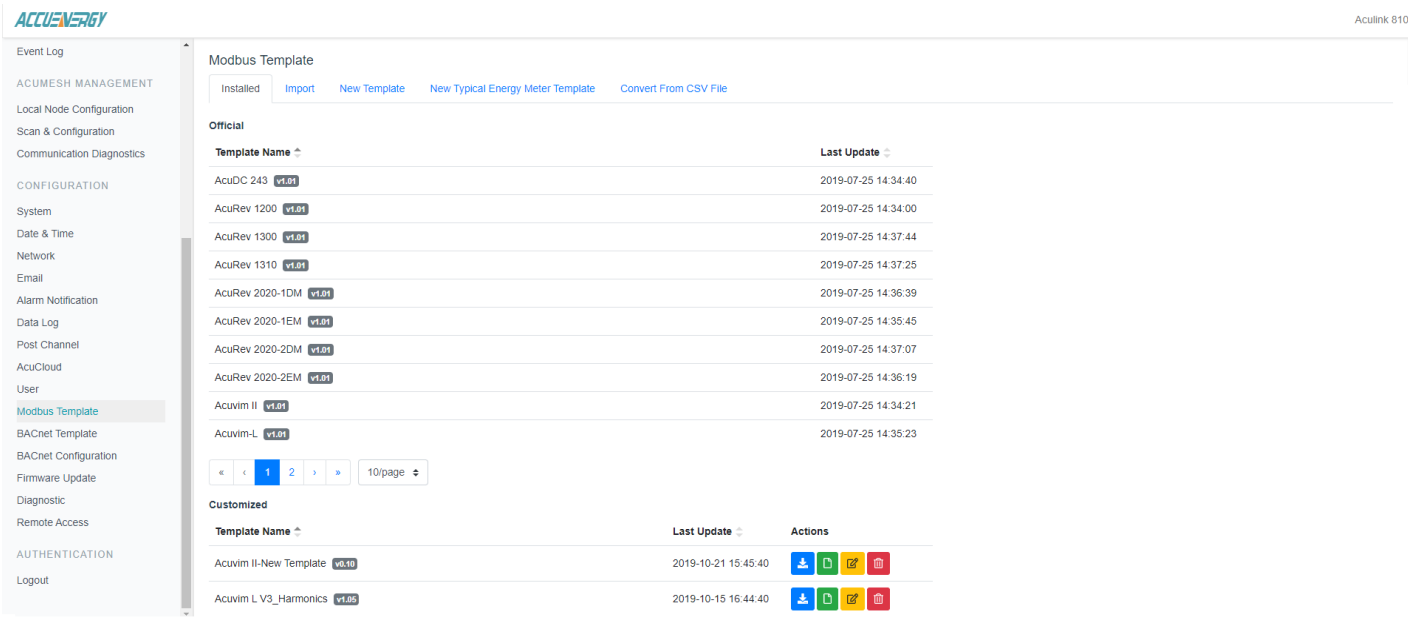
AcuLink 810 - Creating Modbus Templates from the Web Interface

1. Modbus Template

Modbus Templates are used in the AcuLink 810 to correctly read the metering data from Accuenergy and third party Modbus devices. Before a device can be added to the gateway a Modbus template for the device must first be uploaded and installed onto the unit.

On the left navigation panel under the ***CONFIGURATION*** menu, select ***Modbus Template***.

In the Modbus templates page users can view the templates and the version number currently installed on to the AcuLink under the ***Installed*** tab.



Customized Templates

If there are customized templates on the AcuLink 810 users have the following action items buttons available, where the icons have the following meaning:

- The first icon allows users to download the .def template file.
- The second icon allows users to create a new template based on that existing template.
- The third icon allows users to create a new version based on that existing template.
- The fourth icon allows users to delete the template.

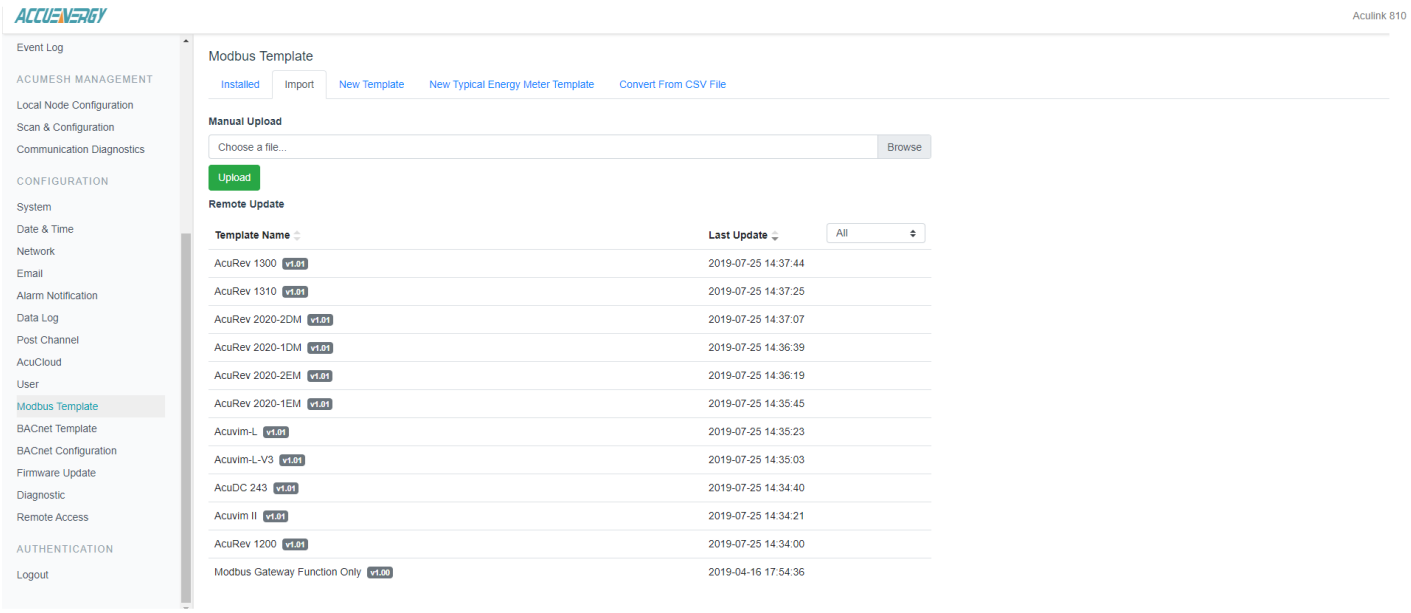
1.1 Import Template

To upload a new device template click on the***Import*** tab. All Accuenergy device templates can be found in the remote update section of the page. In order to use the remote upload function, users must ensure they have sufficient connection to the Internet.

NOTE:*For specific or third partytemplates please contact Accuenergy Technical Support.*

For third-party device templates, users can upload and install templates manually.

NOTE:*Datalog and alarm monitoring configurations will be lost after updating an existing device template.*



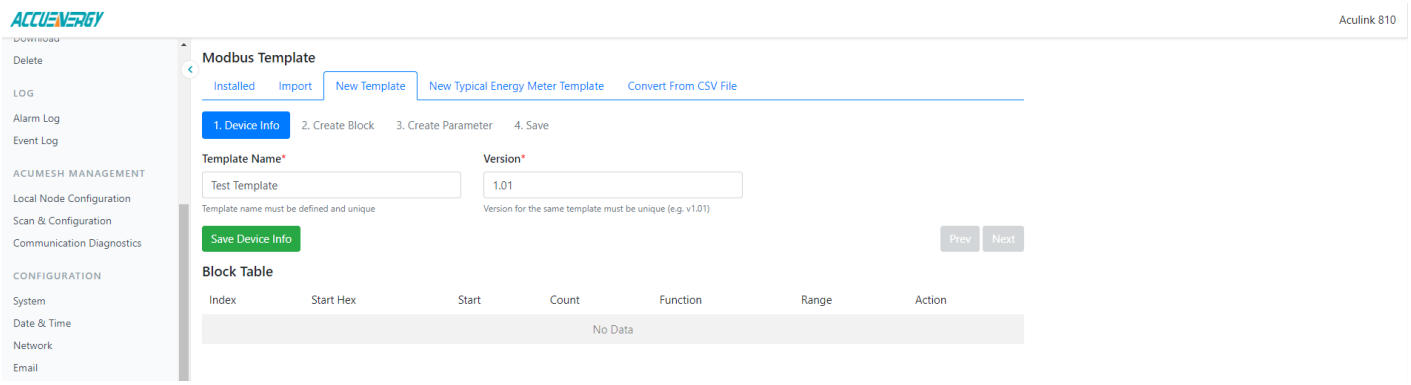
1.2 New Template

Under the***New Template*** tab, users can create and build their own Modbus template. There are four steps required in building the template which includes 1) Device Info, 2) Create Block, 3) Create Parameter, and 4) Save

1) Device Information

Users will need to enter in a Device Model, which must be a unique model name, They will also need to enter a device version which must also be unique.

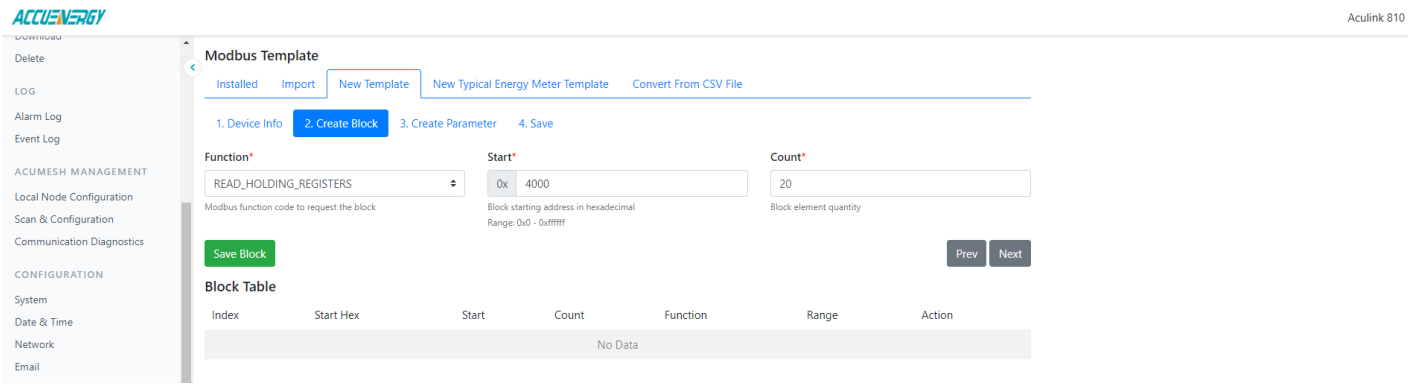
Click on***Save Device Info***once the information has been entered correctly.



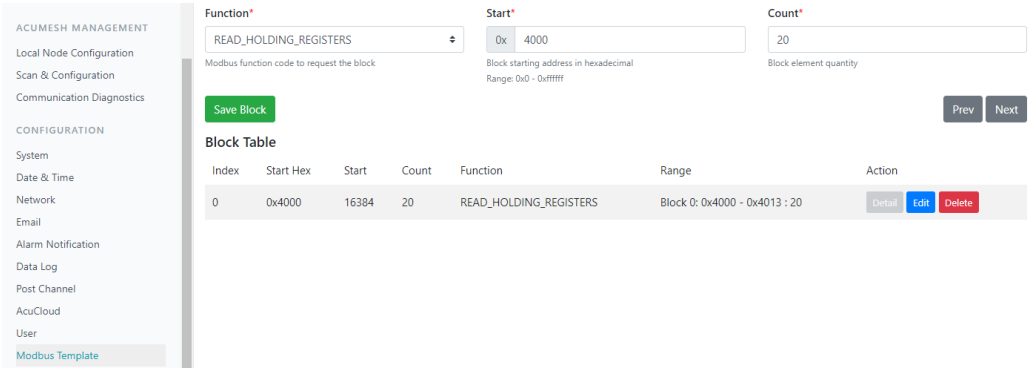
2) Create Block

The second step includes creating the register blocks for the Modbus Device.

- Select the Modbus Function Code of the register block (i.e. Read Holding Registers, Read Discrete Input, Read Coils, read Input Registers)
- Enter in the starting address of the register block, this address must be in hexadecimal.
- Enter the count, i.e. the number of registers in this block.



- Once all register block information is configured correctly click on***Save Block.*** The saved block will then appear in the Block Table at the bottom portion of the web page. In the Block, Table users have the option to edit, delete or view the details of the register block created.



- If there are multiple register blocks for the Device users can continue creating them. Once all register blocks are complete click on***Next***to continue.

3) Create Parameter

The third step includes adding the parameters required to the template.

Users will need to select what block the parameter resides in and also create a display tab to view the parameter once the template is complete.

Block:Select the block for the parameter in the drop-down menu

Select display tab(s):in this field enter in a tab that you wish to create and can press enter to create the tab. For example, this tab could be named Energy, or Real-time data. This tab is where users can find the parameter they have created under once the template is complete. Once the tab is created it can be selected from the drop-down menu. Users can create multiple tabs in the same manner.

Label:Enter in a label for the parameter, i.e. voltage, current, temperature, etc.

Address:Enter in the Modbus register address for the parameter. This address must be hexadecimal.

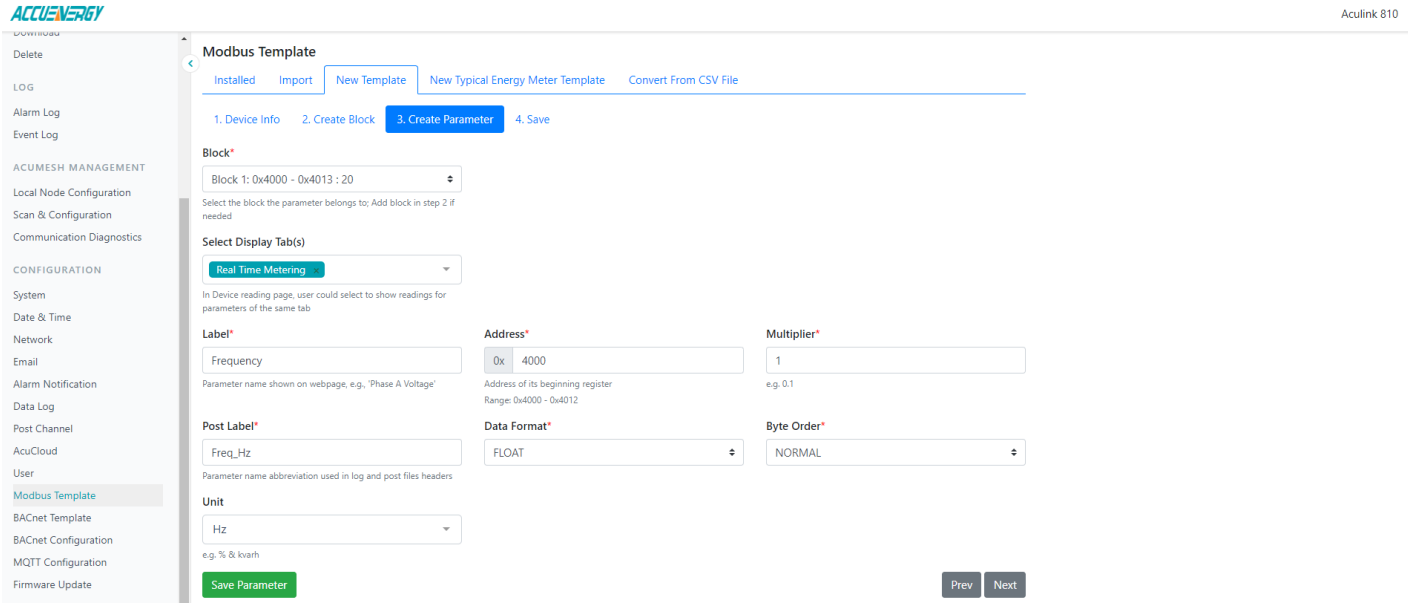
Multiplier:Users can input a multiplier on the parameter.

Post Label:Users can define a post label for the parameter. The post label is used whenever the device data is downloaded or sent to an external server, where the CSV file that is generated would have the post label as the header in the file.

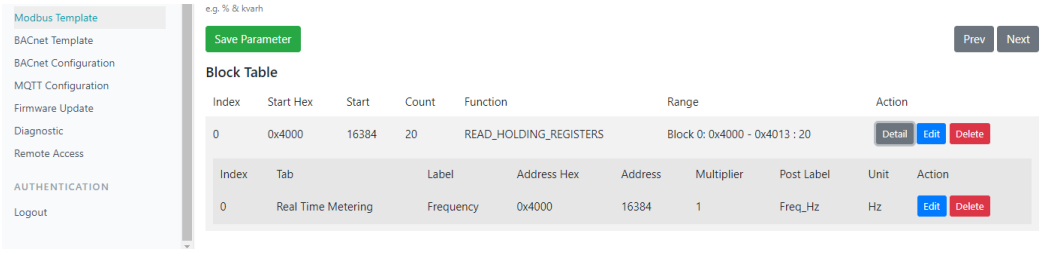
***Data* Format:** Select the data format for the parameter, some typical data types include Int, float, hex, etc.

Byte Order: The byte order for the parameter can be specified, i.e. some devices require the byte order to be swapped in order to read the parameter correct.

Unit (optional): Users can enter the preferred unit for the parameter, this setting is optional.



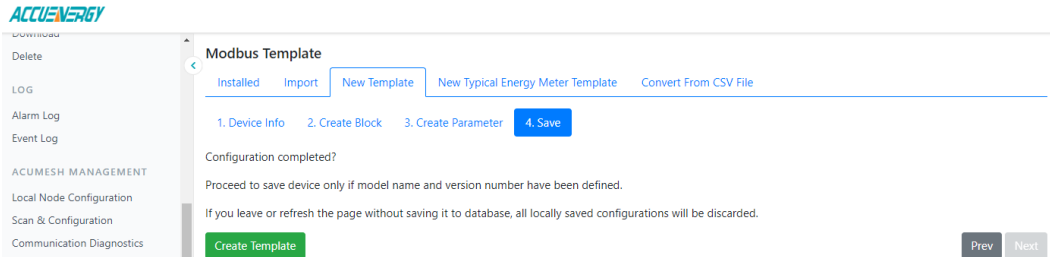
- Once all parameter settings are configured click on***Save Parameter***. Once the parameter is saved users can view the parameter in the Block Table below under the***Detail***tab. Under the detail tab users can edit the existing parameter by selecting the***Edit***button, and can delete the existing parameter by selecting the***Delete***button.

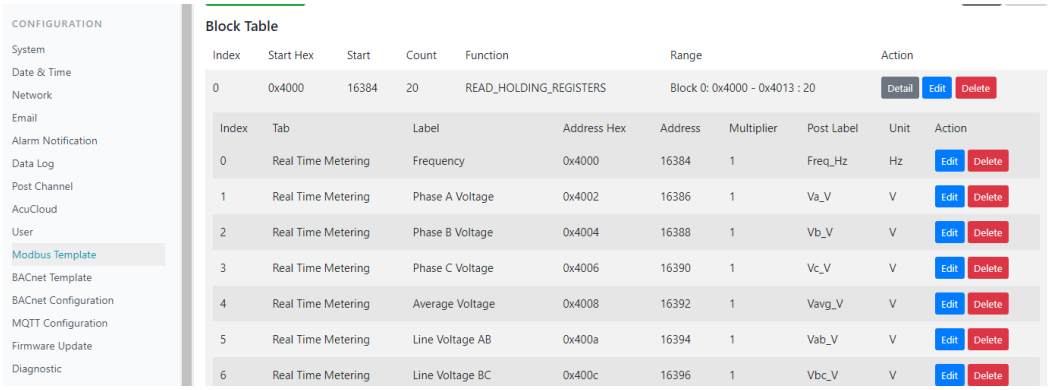


- Once Users have added all required parameters to the Modbus Template click on**Next**.

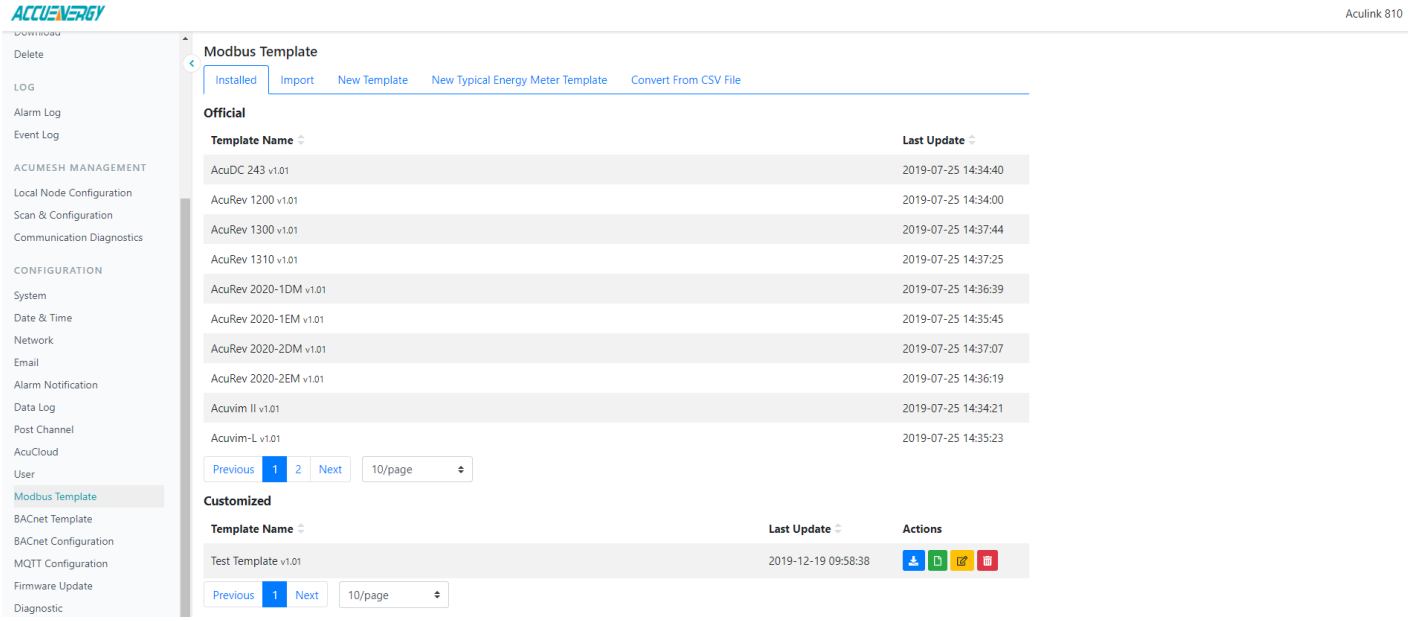
4) Save

The last step is saving the device template. Users can review the Block Table and modifying any parameters before saving the template. They can also click on***Prev***to go back and alter any blocks or parameters as needed.





- Once users have reviewed all details of the Modbus Template click on ***Create Template***, they will be redirected to the ***Installed*** tab of the Modbus Template page where the newly created template will be seen under the ***Customized Templates*** at the bottom of the page.



1.3 Typical Energy Meter Template

The Typical Energy Meter Template allows users to create a Modbus Template for their third party device and have the ability topost data to our cloud-based energy management software ***AcuCloud***. To create a device template that allows third-party devices to post data to the AcuCloud software click on the ***Typical Energy Meter Template*** tab.

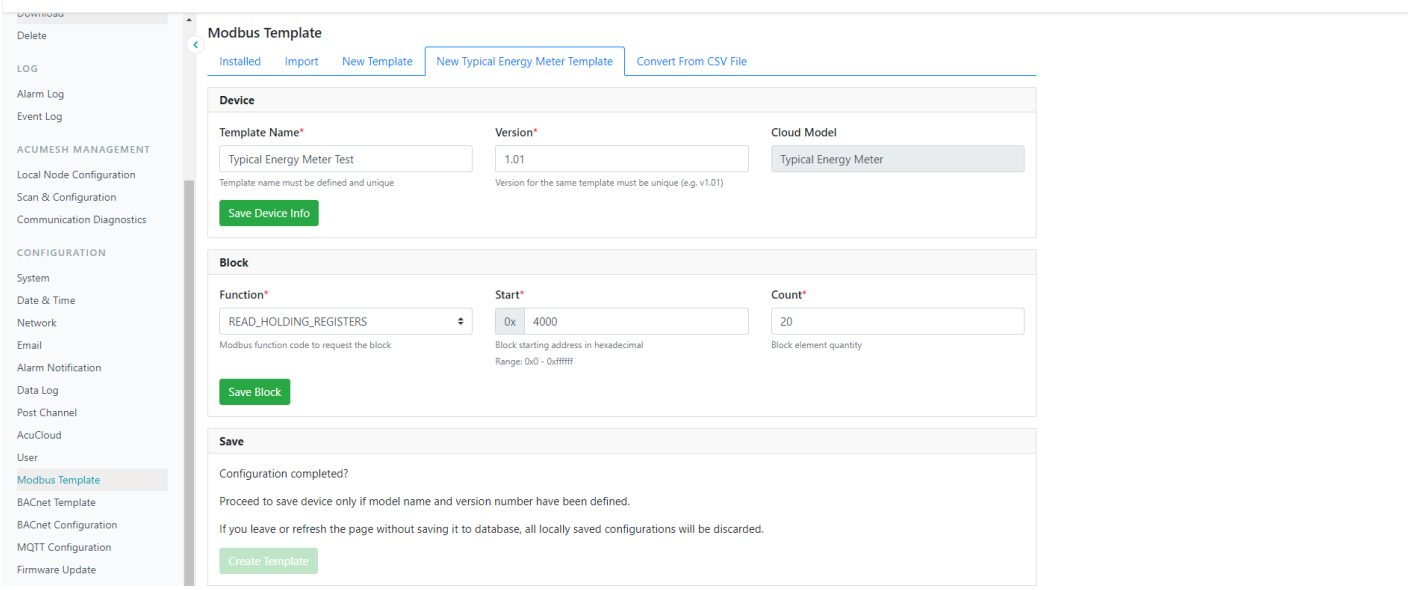
This page will have the following sections:

1) Device

Under the device section, users can enter in the Template name and the version number. Once all device settings are configured click on ***Save Device Info***.

2) Block

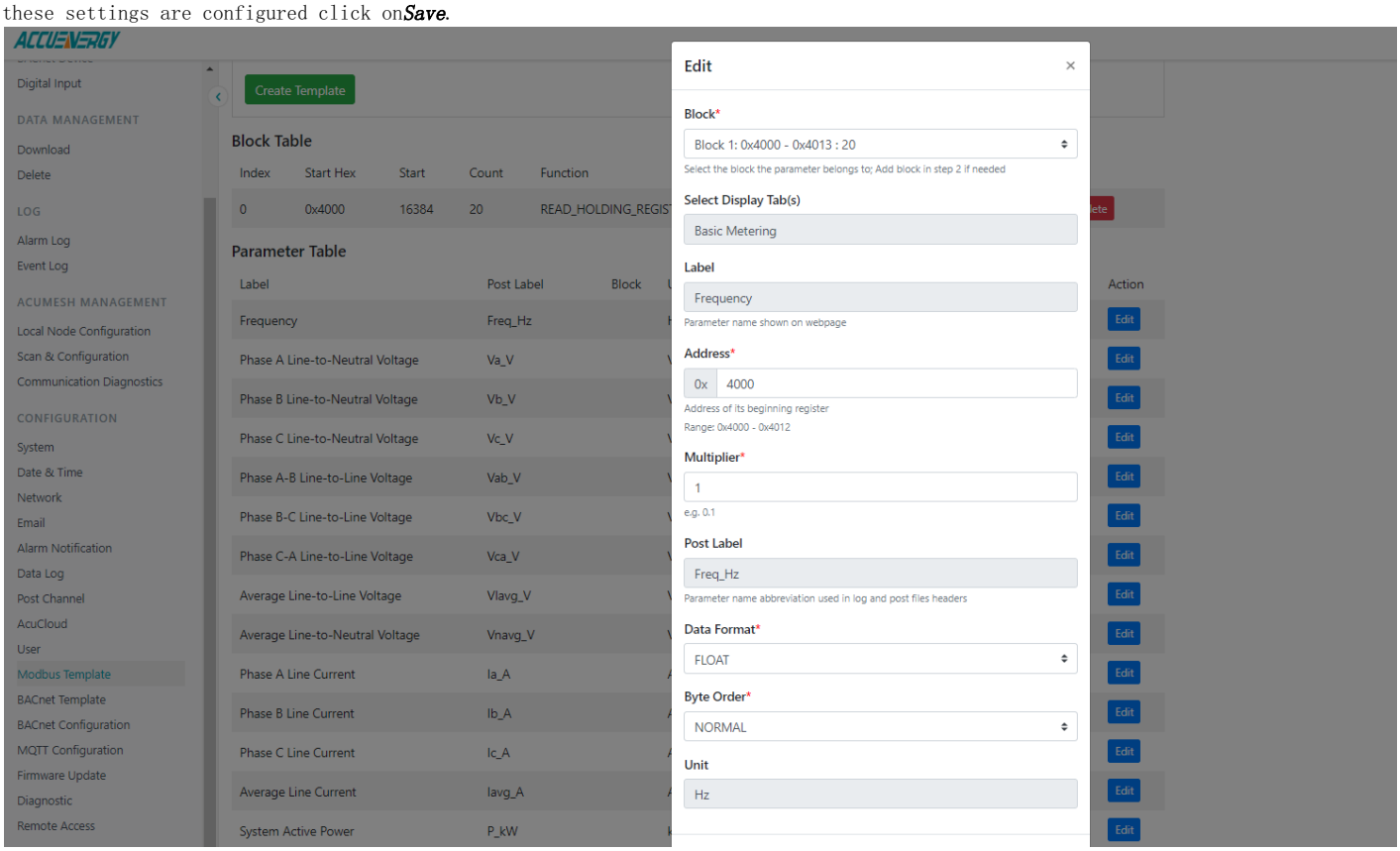
Users can create the required register blocks for their device, where the function, starting address in hex, and the register count must be specified. Once a block is created click on ***Save Block***, users can create multiple blocks for the device template. All created blocks will appear in the block table located further down the page.



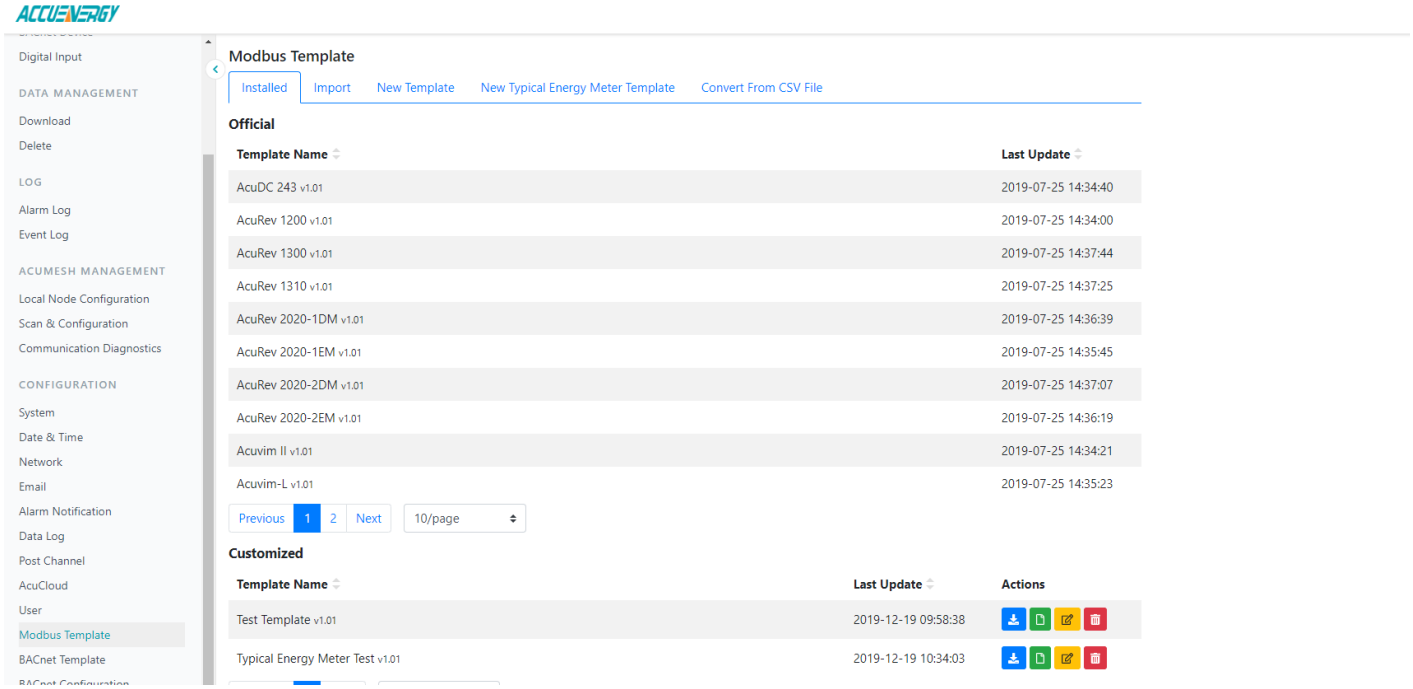
3) Parameter Table

The parameter table has all the parameters that are supported on our cloud-based software. Users can find and locate the same parameters within the table that are supported on their thirdparty device and configure it to their template by clicking on the ***Edit*** button next to that parameter.

On theedit page, users will need to select the block, starting address, multiplier, data type and byte order of the parameter. Once these settings are configured click on ***Save***.



After all desired parameters have been configured and added to the template, click on the ***Create Template*** button. Users will be redirected to the ***Installed*** tab on the Modbus Template page, where the newly created Typical Energy Meter Template will be seen under the ***Customized*** templates at the bottom of the page.

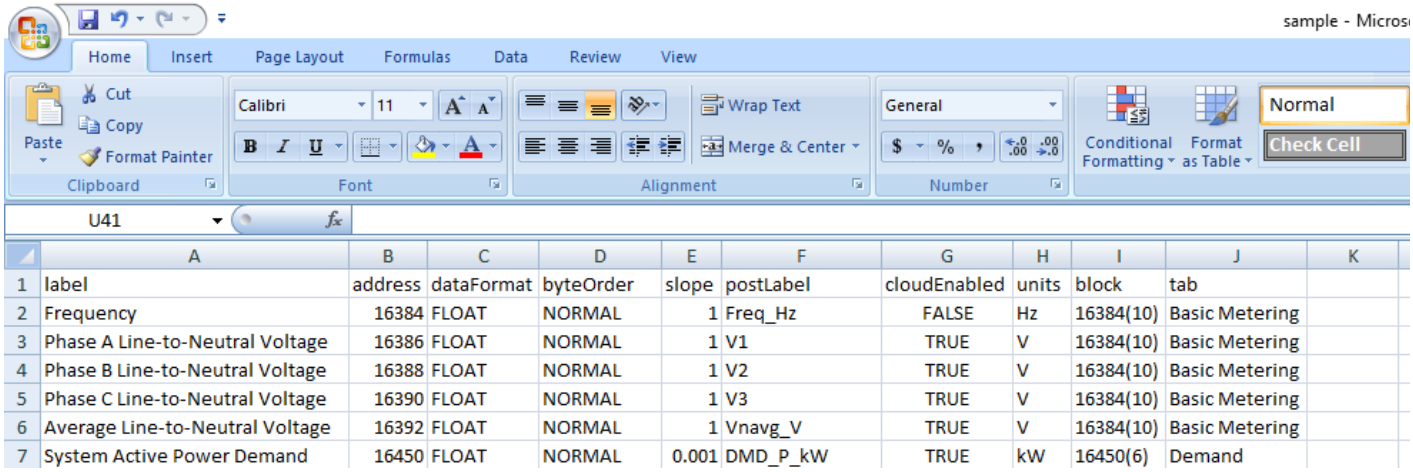


1.4 Creating Template from CSV

AcuLink 810 supports a CSV to the Modbus template converter directly from its web interface. To access this converter click on the ***Convert From CSV File*** tab on the Modbus Template page.

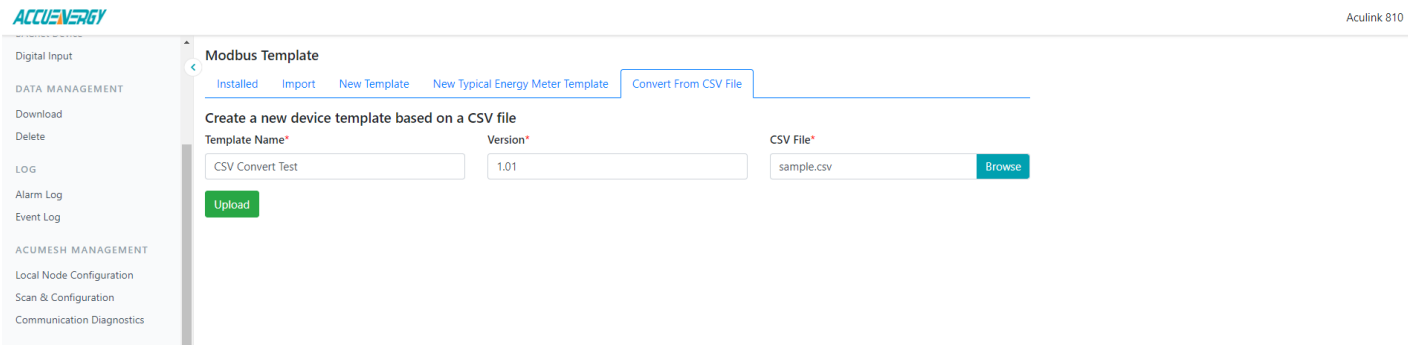
Users can enter the desired name and version number for the Template.

Under the CSV file section, users will need to upload a CSV file containing all device register information for their device. The following image shows a sample of the format the CSV file should be in for the conversion into a Modbus template to be successful. Users can contact Accuenergy Technical Support for a sample CSV file that they can edit and use to build their own CSV file.

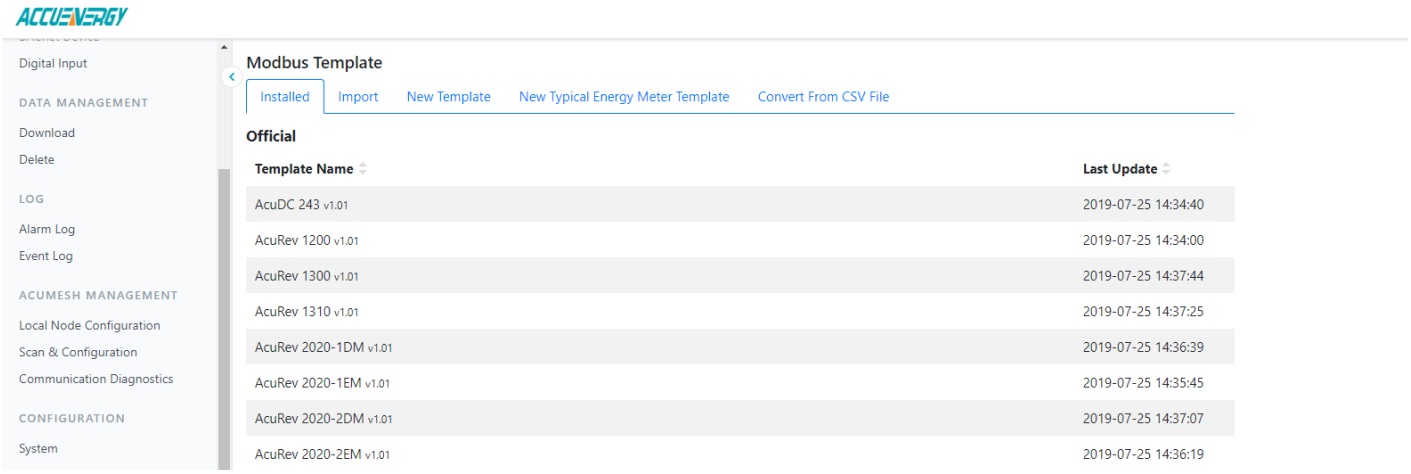


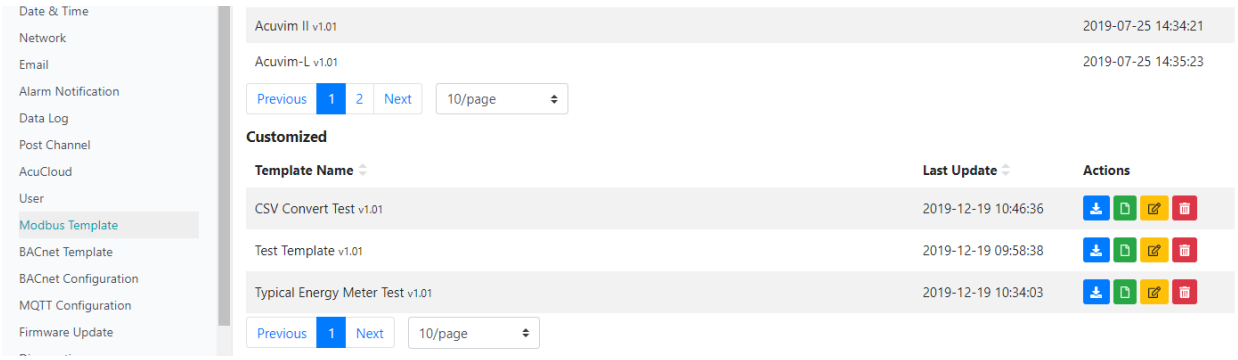
	A	B	C	D	E	F	G	H	I	J	K
1	label	address	dataFormat	byteOrder	slope	postLabel	cloudEnabled	units	block	tab	
2	Frequency	16384	FLOAT	NORMAL	1	Freq_Hz	FALSE	Hz	16384(10)	Basic Metering	
3	Phase A Line-to-Neutral Voltage	16386	FLOAT	NORMAL	1	V1	TRUE	V	16384(10)	Basic Metering	
4	Phase B Line-to-Neutral Voltage	16388	FLOAT	NORMAL	1	V2	TRUE	V	16384(10)	Basic Metering	
5	Phase C Line-to-Neutral Voltage	16390	FLOAT	NORMAL	1	V3	TRUE	V	16384(10)	Basic Metering	
6	Average Line-to-Neutral Voltage	16392	FLOAT	NORMAL	1	Vnavg_V	TRUE	V	16384(10)	Basic Metering	
7	System Active Power Demand	16450	FLOAT	NORMAL	0.001	DMD_P_kW	TRUE	kW	16450(6)	Demand	

8	System Reactive Power Demand	16452	FLOAT	NORMAL	0.001	DMD_Q_kvar	TRUE	kvar	16450(6)	Demand	
9	System Apparent Power Demand	16454	FLOAT	NORMAL	0.001	DMD_S_kVA	TRUE	kVA	16450(6)	Demand	
10	System Import Active Energy	16456	UINT32	NORMAL	0.1	EP_IMP_kWh	TRUE	kWh	16456(18)	Energy	
11	System Export Active Energy	16458	UINT32	NORMAL	0.1	EP_EXP_kWh	TRUE	kWh	16456(18)	Energy	
12	System Import Reactive Energy	16460	UINT32	NORMAL	0.1	EQ_IMP_kvarh	TRUE	kvarh	16456(18)	Energy	
13	System Export Reactive Energy	16462	UINT32	NORMAL	0.1	EQ_EXP_kvarh	TRUE	kvarh	16456(18)	Energy	
14	System Total Active Energy	16464	UINT32	NORMAL	0.1	EP_TOTAL_kWh	TRUE	kWh	16456(18)	Energy	
15	System Net Active Energy	16466	INT32	NORMAL	0.1	EP_NET_kWh	TRUE	kWh	16456(18)	Energy	
16	System Total Reactive Energy	16468	UINT32	NORMAL	0.1	EQ_TOTAL_kvarh	TRUE	kvarh	16456(18)	Energy	
17	System Net Reactive Energy	16470	INT32	NORMAL	0.1	EQ_NET_kvarh	TRUE	kvarh	16456(18)	Energy	
18	System Apparent Energy	16472	UINT32	NORMAL	0.1	ES_kVAh	TRUE	kVAh	16456(18)	Energy	
19	Phase A Import Active Energy	17952	UINT32	NORMAL	0.1	EPa_IMP_kWh	FALSE	kWh	17952(30)	Energy	
20	Phase A Export Active Energy	17954	UINT32	NORMAL	0.1	EPa_EXP_kWh	FALSE	kWh	17952(30)	Energy	
21	Phase B Import Active Energy	17956	UINT32	NORMAL	0.1	EPb_IMP_kWh	FALSE	kWh	17952(30)	Energy	
22	Phase B Export Active Energy	17958	UINT32	NORMAL	0.1	EPb_EXP_kWh	FALSE	kWh	17952(30)	Energy	
23	Phase C Import Active Energy	17960	UINT32	NORMAL	0.1	EPc_IMP_kWh	FALSE	kWh	17952(30)	Energy	
24	Phase C Export Active Energy	17962	UINT32	NORMAL	0.1	EPc_EXP_kWh	FALSE	kWh	17952(30)	Energy	
25	Phase A Import Reactive Energy	17964	UINT32	NORMAL	0.1	EQa_IMP_kvarh	FALSE	kvarh	17952(30)	Energy	
26	Phase A Export Reactive Energy	17966	UINT32	NORMAL	0.1	EQa_EXP_kvarh	FALSE	kvarh	17952(30)	Energy	
27	Phase B Import Reactive Energy	17968	UINT32	NORMAL	0.1	EQb_IMP_kvarh	FALSE	kvarh	17952(30)	Energy	
28	Phase B Export Reactive Energy	17970	UINT32	NORMAL	0.1	EQb_EXP_kvarh	FALSE	kvarh	17952(30)	Energy	
29	Phase C Import Reactive Energy	17972	UINT32	NORMAL	0.1	EQc_IMP_kvarh	FALSE	kvarh	17952(30)	Energy	
30	Phase C Export Reactive Energy	17974	UINT32	NORMAL	0.1	EQc_EXP_kvarh	FALSE	kvarh	17952(30)	Energy	
31	Phase A Apparent Energy	17976	UINT32	NORMAL	0.1	ESa_kVAh	FALSE	kVAh	17952(30)	Energy	
32	Phase B Apparent Energy	17978	UINT32	NORMAL	0.1	ESb_kVAh	FALSE	kVAh	17952(30)	Energy	
33	Phase C Apparent Energy	17980	UINT32	NORMAL	0.1	ESc_kVAh	FALSE	kVAh	17952(30)	Energy	
34											



Once all information and CSV files have been uploaded click on the ***Upload*** button. Users will be redirected to the ***Installed*** tab on the Modbus Template page where the newly converted Modbus template will be seen under the ***Customized*** templates located at the bottom of the page.




Date & Time
Network
Email
Alarm Notification
Data Log
Post Channel
AcuCloud
User
Modbus Template
BACnet Template
BACnet Configuration
MQTT Configuration
Firmware Update
Acuvim II v1.01
2019-07-25 14:34:21
Acuvim-L v1.01
2019-07-25 14:35:23
Previous
1
2
Next
10/page
Customized
Template Name
Last Update
Actions
CSV Convert Test v1.01
2019-12-19 10:46:36
Test Template v1.01
2019-12-19 09:58:38
Typical Energy Meter Test v1.01
2019-12-19 10:34:03
Previous
1
Next
10/page