



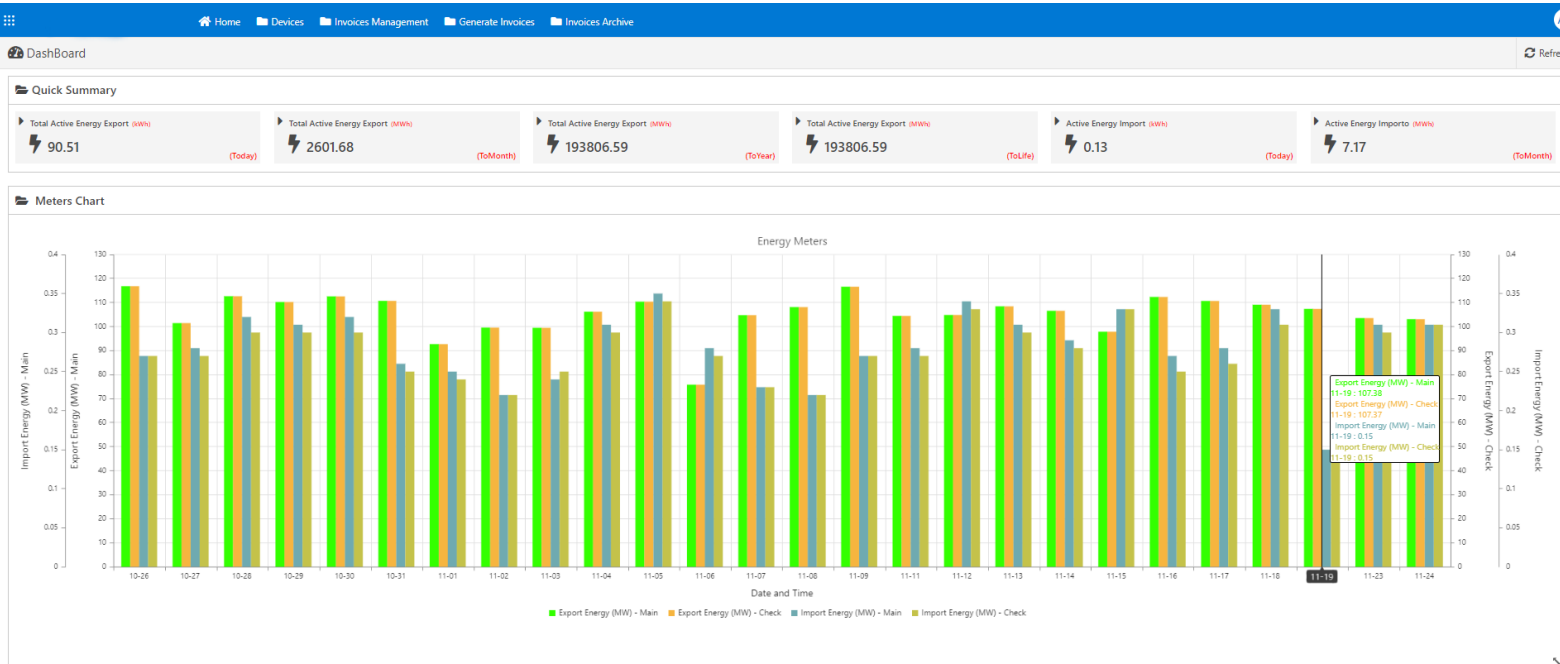
Power Meter Monitor

Business and Mission-

Critical Solutions Provider

Power Plant Energy Metering and Billing System

Data Sheet



Model: PMM1201
Document: Data Sheet
Document version: 1.1
Date: October 2020



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DECLARATION OF CONFORMITY

This restriction is subject to protect the operational process of the system in the business environment, which will produce, use, and transmit radiofrequency energy. Harmful interference to radio communication could result if instructions to the correct installation and usage were not applied. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device causes a bad effect on the radio / TV signal. The user could preclude that by turning the device on/off.

When this device produces some harmful interference, the user can use the following measure to solve the interference problem:

- 1-Setting the receiving antenna's direction or location to increase the distance between this device and receiver.
- 2- Plug in the device's power connector into different circuits of the power outlet with the receiver.
- 3- If any technical support is needed, the dealer or experienced radio/TV technical personnel must be informed.

TECHNICAL SUPPORT AND SERVICE

Visit Pmm-usa.us to browse FAQs and get further details.

User should collect the following information before submitting technical support and service requests:

- Product name, model and serial number.
- Installed software (operating system, OS version, installed applications and so on).
- Full description of the problem
- Detailed information about every error.



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KEY FEATURES

Meter Settlement

The accumulated energy read from meters doesn't represent the total value of energy generation.

However, the recorded values in the meter's memory which are accessed using our specialized PMMBEnergy system, represents the settlement information which is used to reconcile the plant's generation for billing purposes. In large plants, the difference between the accumulated energy and the meter's settlement value is significant.

PMMBEnergy billing system can be integrated with almost any energy meters to provide the additional settlement energy values.

Automated Billing

The process of billing can be tedious, since plant operators need to export the data from their SCADA systems and import it into complex spreadsheets or separate systems, so they can divide the data into separate times of day to match the plant's PPA rate schedule.

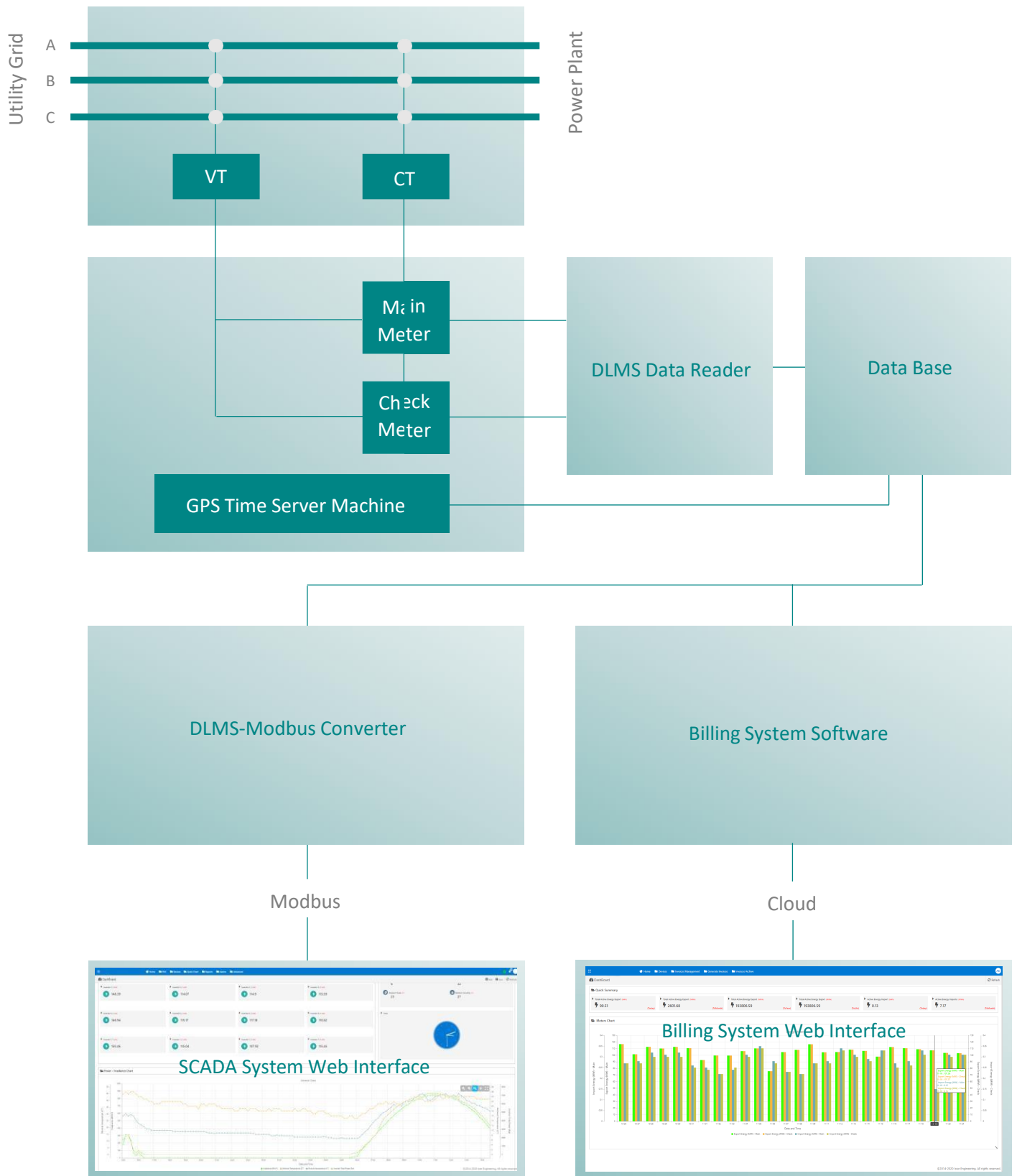
The information is then logged into the customer's accounting system, where additional details are added, eventually producing a sales order and an invoice that are sent to the off taker for billing.

PMMBEnergy adds the support needed to automate the process. For example, it allows customers to review and automatically create invoices in their accounting systems without any manual manipulation.

DESCRIPTION

PMMBEnergy is an economical solution designed to overcome the complexity of the bill settlement and mundane operations associated with energy data collection. The System is a combination of several hardware and software components of a site, to simplify how owners run their site economics.

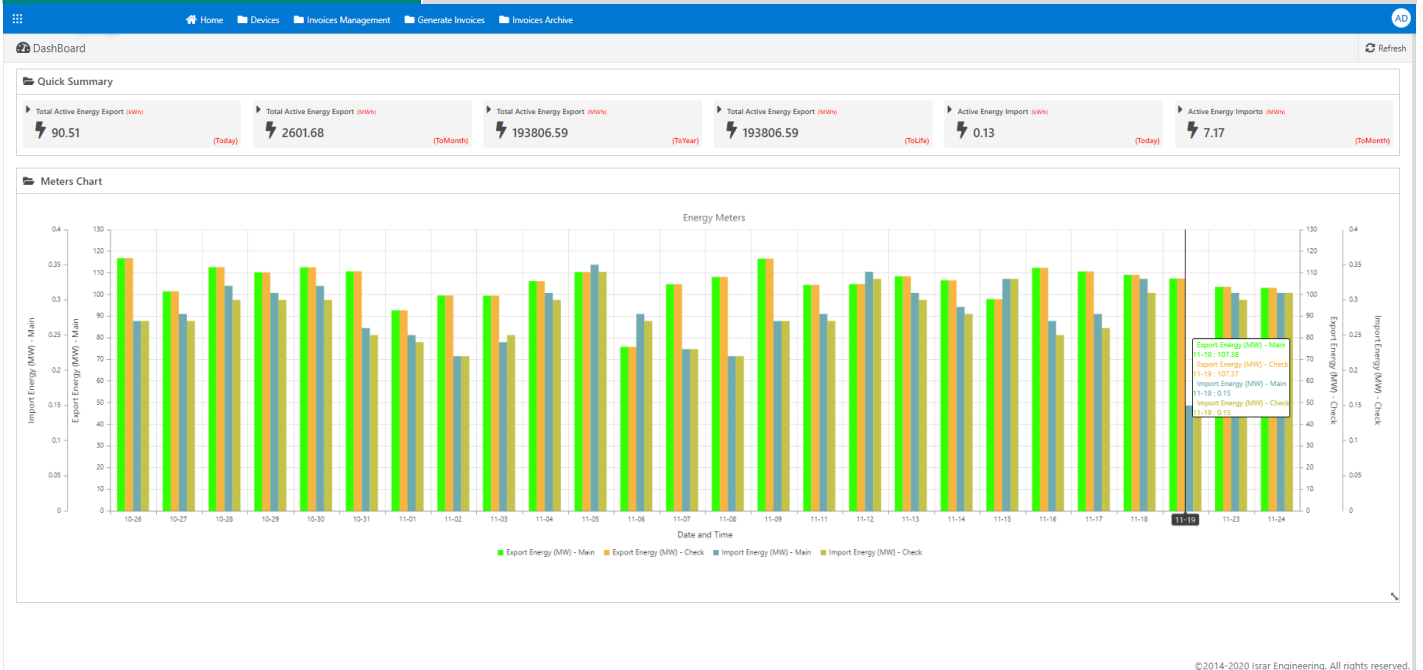
SYSTEM BLOCK DIAGRAM



Software- User Interface

Monitoring Dashboard

Harvested Energy	Today, this Month, this Year, Lifetime
Performance Ratio	Plant Performance ration in XX % Percentage
Availability	Plant Availability ration in XX % Percentage that affects billing
Weather Stations Support	Multi Weather Station Support
Weather Stations	Irradiance Ambient Temperature Module Temperature PPCSetPoint Export (Kvar) Curtailment (%)
Meters grid	List of meters associated data: <ul style="list-style-type: none"> • Export (kWh) • Import (kWh) • Export (Kvarh) • Import (Kvarh)
Main Dashboard	Chart showing system daily performance of the current month



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Meters

Reports	System user can generate the following tabular reports for any selected time period (Each records contains accumulated data or every 30 minutes) <ul style="list-style-type: none"> • TimeStamp • Kwh_export • Kwh_import • Kvarh_export • Kvarh_import
Export Capability	Listed data can be exported to Excel and CSV files

Invoicing

Reports

User can generate the following tabular invoices for any selected time period (Each record contains accumulated data or every 30 minutes)

- TimeStamp
- Kwh_export
- Kwh_import
- Kvarh_export
- Kvarh_import

Parameters

System user can enter summer time dates before generating the invoice

Charts and Reports

Devices Data

Meter1 One Minute Resolution 2020-10-20 08:13:00 2020-10-20 10:13:00 Load

TimeStamp	Active Power Total	Active Energy Deliv	Active Energy Recel	Reactive Energy Del	Reactive Energy Rec	Power Factor Total	Current Avg (A)	Voltage L-L Avg (V)	Frequency (Hz)	THD Current A (%)
2020-10-20 10:13	-393.751	346031	1325.16	92.267	169768	-0.901049	605.257	417.056	49.9544	2.3203
2020-10-20 10:12	-394.74	346024	1325.16	92.267	169765	-0.900346	607.213	416.897	49.9623	2.3998
2020-10-20 10:11	-394.642	346018	1325.16	92.267	169762	-0.899501	607.083	417.648	50.0119	2.3254
2020-10-20 10:10	-395.509	346011	1325.16	92.267	169758	-0.900081	607.607	417.723	50.0624	2.2265
2020-10-20 10:09	-396.755	346004	1325.16	92.267	169755	-0.900049	609.093	417.962	50.0036	2.2074
2020-10-20 10:08	-397.733	345998	1325.16	92.267	169752	-0.900107	610.732	417.76	50.0429	2.1809
2020-10-20 10:07	-397.025	345991	1325.16	92.267	169749	-0.900328	608.95	418.09	50.0386	2.2755
2020-10-20 10:06	-397.732	345984	1325.16	92.267	169745	-0.900917	608.5	418.873	50.061	2.3120
2020-10-20 10:05	-397.387	345978	1325.16	92.267	169742	-0.899933	609.058	418.582	50.0637	2.2179
2020-10-20 10:04	-396.801	345971	1325.16	92.267	169739	-0.900446	608.323	418.4	50.0751	2.2397
2020-10-20 10:03	-394.421	345964	1325.16	92.267	169736	-0.908044	600.584	417.233	50.0754	2.2204
2020-10-20 10:02	-397.634	345958	1325.16	92.267	169733	-0.899696	611.104	417.941	50.0619	2.2528
2020-10-20 10:01	-397.797	345951	1325.16	92.267	169729	-0.899927	610.884	417.764	50.0547	2.2773
2020-10-20 10:00	-397.267	345944	1325.16	92.267	169726	-0.900054	609.833	417.642	50.0665	2.3227
2020-10-20 09:59	-398.194	345938	1325.16	92.267	169723	-0.899933	611.092	418.226	50.0751	2.2622
2020-10-20 09:58	-395.034	345931	1325.16	92.267	169720	-0.908733	599.475	418.662	50.089	2.2742
2020-10-20 09:57	-389.53	345925	1325.16	92.267	169717	-0.907439	592.345	418.427	50.1046	2.1773
2020-10-20 09:56	-381.359	345918	1325.16	92.267	169714	-0.899477	584.94	418.474	50.0901	2.3339
2020-10-20 09:55	-382.224	345912	1325.16	92.267	169711	-0.899065	586.454	418.532	50.0977	2.2418
2020-10-20 09:54	-382.035	345906	1325.16	92.267	169708	-0.900531	584.938	418.726	50.0719	2.3337
2020-10-20 09:53	-379.389	345899	1325.16	92.267	169704	-0.900447	581.802	418.106	50.0821	2.3190
2020-10-20 09:52	-379.94	345893	1325.16	92.267	169701	-0.900256	582.091	418.578	50.0764	2.3342
2020-10-20 09:51	-378.386	345886	1325.16	92.267	169698	-0.899828	578.834	419.428	50.0693	2.3232
2020-10-20 09:50	-378.601	345880	1325.16	92.267	169695	-0.900156	578.914	419.455	50.0752	2.3717
2020-10-20 09:49	-377.754	345874	1325.16	92.267	169692	-0.899761	578.289	419.154	50.0646	2.3574
2020-10-20 09:48	-376.247	345867	1325.16	92.267	169689	-0.907374	571.274	419.06	50.0979	2.3532

Performance Summary

Today summary

- Active Energy Export (kWh): 1714
- Performance ratio (%): 77.1
- Availability (%): 100

Monthly summary

- Active Energy Export (MWh): 112.31
- Performance ratio (%): 80.59
- Availability (%): 86.31

Actual Weather data

Ambient Temperature (°C) Module Temperature (°C) Wind Speed (m/s)

Quick Chart

Axis 1: Meter1 Reactive Energy Delivered (KV) Axis 2: Meter1 Reactive Energy Delivered (KV) Axis 3: OFF Period: Last 24 Hour Load

Advance Chart

Cursor: Trackball Mode

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Supported Hardware and Protocols

Supported Protocols

DLMS	Device language message specification
IEC 60870-5	101/104 Save Protocols
Modbus	RTU, TCP
DNP3	Distributed Network Protocol 3
ION	Schneider ION
OPC (Server/Client Gateway)	DA (Data access) AE (Alarm & Events) HDA (Historical Data Access) XML DA (XML Data Access) DX (Data exchange) protocols
Supported Peripheral Interfaces	Ethernet Fiber USB CAN Bus Wi-Fi Serial Communication: RS203/RS485/RS422

Operating System

Operating System	Windows Server R12 2008 and above
Database	My SQL, SQL Server