



Power Meter Monitor

**Business and Mission-
Critical Solutions Provider**

PMM Cloud-SCADA System

Data Sheet



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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

- This system monitor data from a numerous device, including meters, inverters, weather stations, trackers, DC strings and substation equipment.
- System Contents: Databases, Webserver, Graphic curve, Reports and Raw-data.
- Automated methods of identifying and addressing performance issues.
- Manage multiple sites simplifying how owners run their sites.
- Constantly monitor equipment at a site and record sampled data to a local datalogger server equipment.
- Real-time data is visually represented on operator screens and is used to assess alarm conditions.
- Advance Summary informative screen of the collected data to show trends and identify irregularities with showcase design queries and reports that summarize the data for operational maintenance and management.
- Performance-based alarms to alert operators when a site, or individual devices within that site, are not performing optimally.
- Customizable installation.
- Totally scalable – simply upgraded through various tag levels with provision of a new software key.

APPLICATIONS

- Remote visualization and control.
- Interfacing with PLCs.
- Manufacturing machinery.
- Material handling control.
- Discrete or continuous manufacturing.
- Patient monitoring.

DESCRIPTION

PMM SCADA system is an economical solution to analyze and investigate root causes of the plant issues. The System links together several hardware and software components of a site to simplify how owners run their sites. It provides action-able information to determine whether the solar plant equipment is performing as expected or not, identifying offline and malfunctioning equipment. System operators and performance engineers can be proactive through analyzing the SCADA data and determine when to deploy technicians to resolve any issues on time, before it becomes difficult to solve as well as to minimize energy losses during malfunctions.

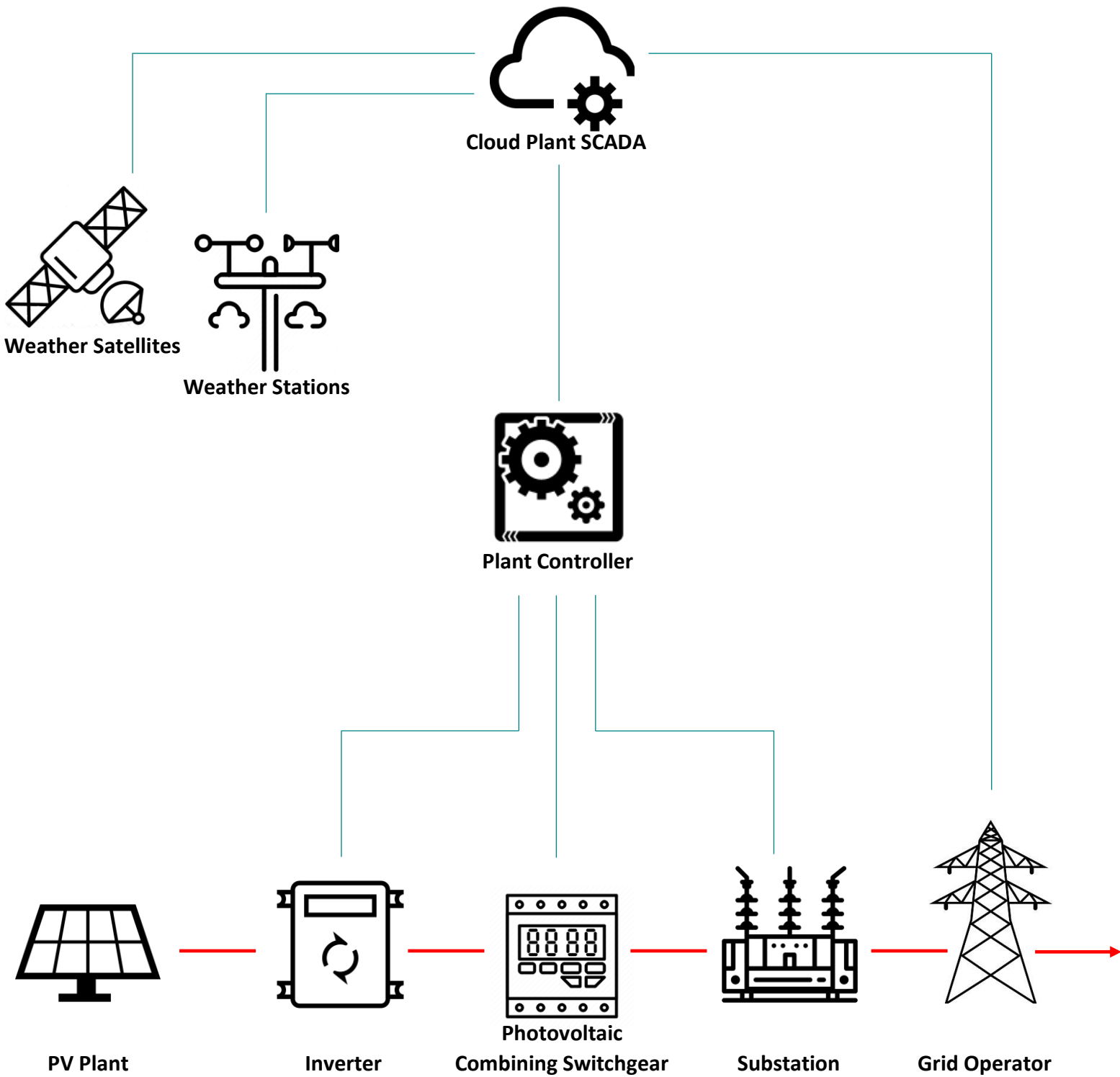
Benefits:

- Can link directly into any business for monitoring purposes.
- Maximize productivity.
- Improve product quality.
- Reduce maintenance and operating costs.

ALARMS

- Disable and enable alarms individually by page, category, or priority.
- Context-sensitive help for runtime alarms.
- 255 levels of alarm priority or category.
- Operator comments can be attached to alarms.
- Deviation, rate-of-change alarms, and adjustable trip points.
- Display alarms by category or priority.
- Historical alarm and event logging.
- Online alarm disables and threshold modification.
- Event-triggered alarms.
- Alarm-triggered reports.
- User-defined formats and colors.

PV SYSTEM DIAGRAM



Software- User Interface

Main Dashboard

Current Power	Inverters power, String Power, Combiner, Plant Total
Harvested Energy	Today, this Months, this Year, Lifetime
Performance Ratio	Plant Performance ration in XX%
Weather Stations Support	Multi Weather Station Support
Weather Stations	Irradiance Ambient Temperature Humidity Precipitation Windspeed, etc.
Inverters grid	List of inverters data showing: <ul style="list-style-type: none"> • Inverter Status • Inverter Input Power • Inverter Output Power • Inverter Alerts
Main Dashboard	Chart showing system daily performance of the current month
Top Screen Alerts	Alert indicator (flashing icon) with alert count

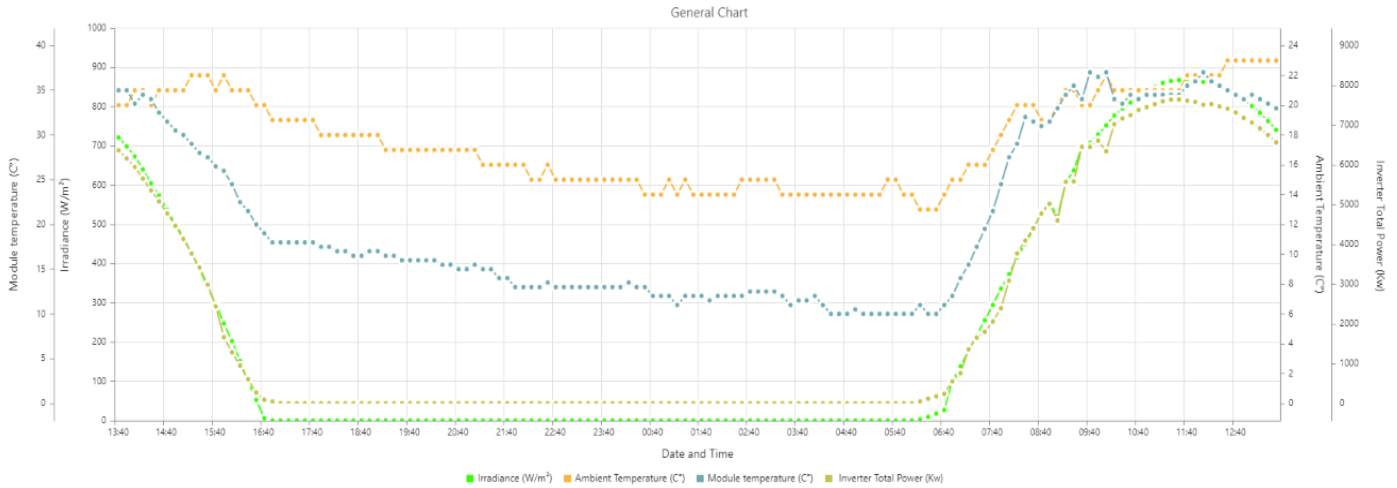
The screenshot displays a web-based dashboard for a power system. At the top, there is a navigation bar with icons for Home, POC, Devices, Quick Chart, Reports, Alarms, and Advanced. A user profile icon labeled 'SA' is visible in the top right corner. Below the navigation bar, the main content area is titled 'DashBoard' and includes 'Add', 'Save', and 'Refresh' buttons. The dashboard is divided into several sections:

- Quick Summary:** A row of six cards showing key metrics:
 - Total Power (KW): 210.5 (Now)
 - Total Active Energy Export (MWh): 47.7 (Today)
 - Total Active Energy Export (MWh): 977.8 (ToMonth)
 - Total Active Energy Export (MWh): 15661.3 (ToYear)
 - Total Active Energy Export (MWh): 90787.3 (ToLife)
 - Performance ratio (%): 82.06 (Today)
- Inverters Power:** A grid of eight cards showing individual inverter power levels:
 - Inverter 1_1 (KW): 10.01
 - Inverter 1_2 (KW): 6.01
 - Inverter 1_3 (KW): 8.56
 - Inverter 1_4 (KW): 8.49
 - Inverter 2_1 (KW): [Value obscured]
 - Inverter 2_2 (KW): [Value obscured]
 - Inverter 2_3 (KW): [Value obscured]
 - Inverter 2_4 (KW): [Value obscured]
- Weather Stations:** A section for 'Weather Station 1' with four data points:
 - POA Irradiance (W/m²): 2
 - Pyranometer (W/m²): 34
 - GHI Irradiance (W/m²): 19
 - Wind Direction (°): 363

General Trend Widget

A chart displaying 4 main parameters for the last 24 hours, which are: Irradiance (W/m²), Ambient Temperature (C), Module temperature (C), Inverter Total Power (Kw)

Power - Irradiance Chart



Point of Connections (POC)

Meters

An unlimited number and any type of meters can appear, and the following parameters can be displayed:

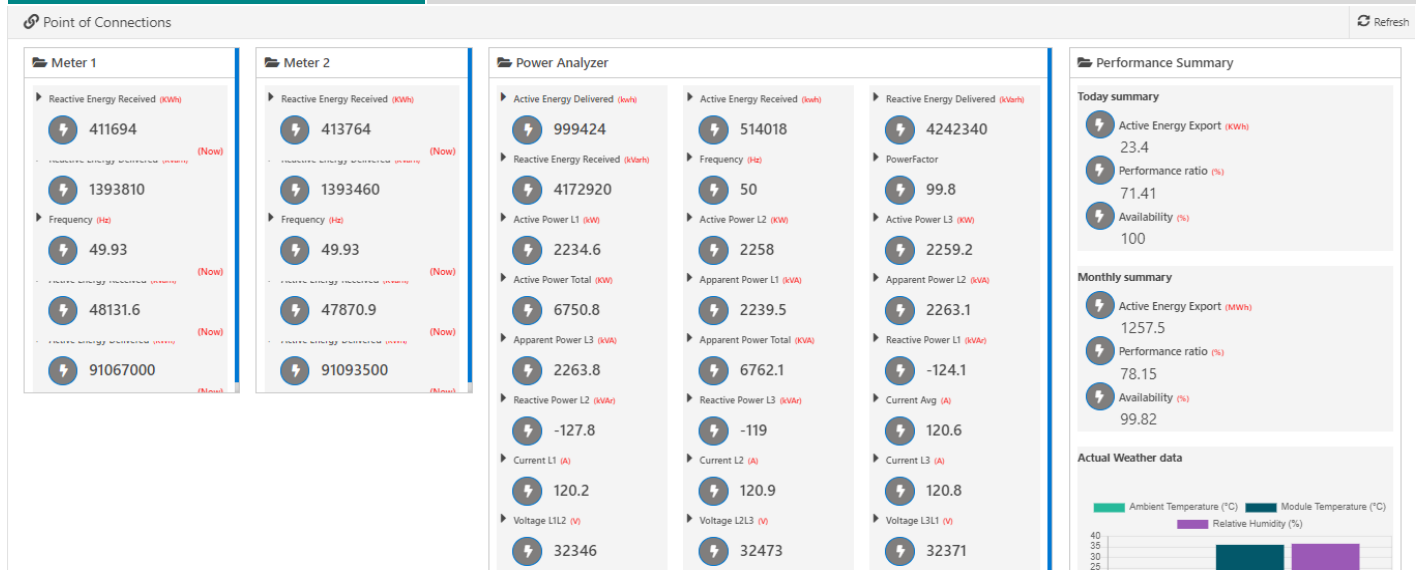
- Reactive Energy Received (KWh)
- Frequency (Hz) etc.

Power Analyzer

By means of the power analyzing and control system the following parameters can be displayed:

voltage, frequency, active power, reactive power etc. many parameters can be monitored and recorded.

Archived energy records can be reported.



Devices Data

Devices

All the data of the monitored equipped devices in the plant can be obtained as reports in anytime.

Such as: Meters, Power Analyzer, Weather Stations, Inverters, etc.

Devices Data Refresh

Meter1 One Minute Resolution 2020-11-01 00:00:00 2020-11-29 13:11:00 Load

Device Data

FILE HOME INSERT DATA PAGE LAYOUT REVIEW OTHERS

	A1										
	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3											
4											
5											
6											
7											
8											
9											
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13											
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22											
23											

Performance Summary

Today summary

- ⚡ Active Energy Export (kWh)
29.7
- ⚡ Performance ratio (%)
72.41
- ⚡ Availability (%)
100

Monthly summary

- ⚡ Active Energy Export (MWh)
1263.8
- ⚡ Performance ratio (%)
78.15
- ⚡ Availability (%)
99.82

Quick Chart

Quick Chart

A Chart with 4 axis that can be obtained to display quick and different parameters at different short-periods of time (last 24 hours, this week, this month, this year)

Quick Chart Refresh

Axis 1: WS1 Windspeed (m/s) Axis 2: OFF Axis 3: OFF Period: Last 24 Hour Load

Advance Chart Cursor | Trackball Mode

Date and Time

■ WS1 Windspeed (m/s)

Print Save as Image Export To CSV

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Reports

Reports Data

(Minute, hour, daily, monthly, yearly) based reports can be generated for the following purposes:

- Performance Ratio
- Plant Availability
- Weather and Energy Report
- Alarm Report

Reports Refresh

Performance Ratio 5 Minute Resolution 2020-11-01 Load

Report Data

FILE	HOME	INSERT	DATA	PAGE LAYOUT	REVIEW	OTHERS						
							A1					
	A	B	C	D	E	F	G	H	I	J	K	
1												
2												
3												
4												
5												
6												
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8												
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25												

Performance Summary

Today summary

- Active Energy Export (kWh) 38
- Performance ratio (%) 75.01
- Availability (%) 100

Monthly summary

- Active Energy Export (MWh) 1272.1
- Performance ratio (%) 78.15
- Availability (%) 99.82

Actual Weather data

Ambient Temperature (°C) █ Module Temperature (°C) █ Relative Humidity (%) █

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Alarms Dashboard

Alarms

Systems alarms are classified into two categories depends on whether an immediate action shall be taken or a warning to bring the operator attention.

System alarms are set if a failure or malfunction has been detected by the system sensors integrated within the system components.

Another type of alarms is generated when a degradation in performance (compared to a preset KPIs)

Alarms Refresh

Alarms Table Show Active Inverter_1_3 Run Export to Excel Export to CSV Acknowledge All

ALARM	DATE	PRIORITY	MESSAGE	STATE	ACTION
Inverter_1_3 Run	2020-11-30 13:07:00	Event	Inverter_1_3 is Run	Active	Acknowleg
Inverter_1_4 Run	2020-11-30 13:07:00	Event	Inverter_1_4 is Run	Active	Acknowleg
Inverter_1_3 Inverter Start	2020-11-30 13:06:00	Event	Inverter_1_3 is Inverter Start	Active	Acknowleg
Inverter_1_4 Inverter Start	2020-11-30 13:06:00	Event	Inverter_1_4 is Inverter Start	Active	Acknowleg
Inverter_1_3 Checking Grid	2020-11-30 13:06:00	Event	Inverter_1_3 is Checking Grid	Active	Acknowleg
Inverter_1_4 Checking Grid	2020-11-30 13:06:00	Event	Inverter_1_4 is Checking Grid	Active	Acknowleg
Inverter_1_3 Run	2020-11-30 07:41:00	Event	Inverter_1_3 is Run	Active	Acknowleg
Inverter_1_4 Run	2020-11-30 07:41:00	Event	Inverter_1_4 is Run	Active	Acknowleg

Performance Summary

Today summary

- Active Energy Export (kWh) 33.2
- Performance ratio (%) 64.06
- Availability (%) 100

Monthly summary

- Active Energy Export (MWh) 1311.3
- Performance ratio (%) 78.15
- Availability (%) 99.82

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Advanced Dashboard

Advanced Chart

A fully-Customized chart with 4 axis that can be obtained to display different parameters at different and long-periods of time (days, months, years) with advanced features for analysis purposes

File Manager

A system that enables users to save the obtained data as reports in different forms such as, Excel reports, Word reports, PDF reports, etc.

The screenshot displays the 'Devices Data' dashboard. On the left, a 'File Manager' window is open, showing a 'FileBrowser/' directory with a 'New folder' icon and a search bar. On the right, a 'Performance Summary' panel provides key metrics:

- Today summary:** Active Energy Export (kWh) 44, Performance ratio (%) 77.97, Availability (%) 100.
- Monthly summary:** Active Energy Export (MWh) 1278.1, Performance ratio (%) 78.15, Availability (%) 99.82.
- Actual Weather data:** A chart showing Ambient Temperature (°C), Module Temperature (°C), and Relative Humidity (%).

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Supported Hardware and Protocols

User Interfaces

Browser Based	Web based and user authentication on secure domain server
API	Client may integrate some functionalities into his own asset management software

Compatibility Devices

Inverters	All Inverter types are applicable
DC String Combiners	All DC String Combiner types are applicable
Trackers	All tracker types are applicable
Weather Station	All weather station types are applicable
Power Meter	All power meter types are applicable
Substation Equipment	All Substation equipment types are applicable
Note: Devices need to be equipped with standard communication port	

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: RS232/RS485/RS422

Operating System

Operating System	Windows Server R12 2008 and above, Linux
Database	Any SQL Database server

CONTACT INFORMATION:

- For direct inquiries or any customized orders, contact us on sales@Pmm-usa.us