



VERTIVTM

Liebert[®]

PTMTM

Intelligent Power Train Manager
for Mission-critical Power Infrastructure



WE ARE VERTIV

Vertiv, formerly Emerson Network Power, designs, builds, and services mission critical technologies that enable vital applications for data centers, communication networks, and commercial & industrial environments.

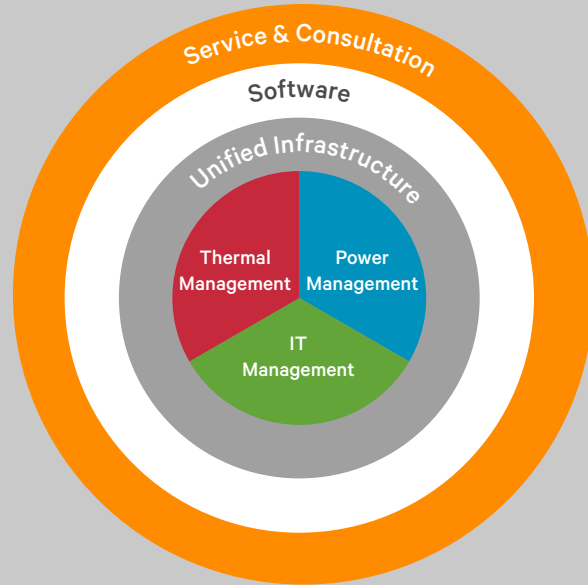


We support today's growing mobile and cloud computing markets with our portfolio of power, thermal and infrastructure management products, software and solutions, all complemented by our extensive global service network.

We help strengthen the world's most vital applications by bringing together global reach and local knowledge, and our decades-long heritage, including brands like Chloride, Liebert, NetSure, and Trellis.

Vertiv Your Vision, our Passion

With a unique combination of industry expertise, technology, and resources, our mission is to support and power mission-critical technologies that drive possibility.



Chloride®

Our global industrial power solutions meet the most demanding technical specifications and provide safe, reliable power- no matter the challenge

Liebert®

Our global power and thermal management solutions are some of the world's most efficient and reliable power and cooling technologies

NetSure™

Our global intelligently engineered DC power systems deliver high availability, energy efficiency and scalability for converged networks

Trellis™

Our industry-leading software gives customers an integrated view of operations across IT and facilities resources, enabling better decisions that save time and money



In today's dynamic business environment, every day imposes vibrant challenges to the facility managers. They must quickly respond to business needs of building a facility or adding quick capacity at the existing site using fewer resources and in a shorter time frame than ever before.

There is a dire need of an intelligent device, which assists and streamlines the power management function. Something that can optimize the power system while decreasing the system CAPEX significantly and reducing complexities.

The need of the hour is:

- An effective, top-of-the-line console that brings out premium management values, improves reliability comprehensively, manages fault diagnosis, and extends easy entry for upkeep and repair.
- A unique utility that empowers you to understand the current status, manage loads remotely, and be aware of your company's utility and on-site sources at a distribution level.
- A single point of accountability that takes the guesswork out by increasing the operational efficiencies, thereby giving you ultimate peace of mind.

THE RIGHT TO KNOW...

Power Train plays a vital role in maintaining the highest uptime in any critical facility. It uses Transformers, Gensets, UPS, PDU, SPM, and other crucial gear to power up the critical equipment. Most of them come with standalone power management solutions that are difficult to integrate.

Thus, this leaves the facility managers with a fragmented and incomplete view of their power infrastructure. For example- at times, there may be a lack of critical Pre-warning Alarm capabilities or Diagnostic features.

In today's dynamic era with ever-increasing demand and capacity, you need to ensure that all the equipment and components are functional and "playing nice" as every second counts.

It gains further precedence as system complexity and sophistication increases round-the-clock.

Therefore, there is a need for an advanced utility with powerful monitoring and control capabilities for your on-site power systems at the distribution level.

Every electrical infrastructure has a lot of components such as circuit breakers, UPS, Transformers, Gensets, sensors, SPM, and other utilities. The cohesion of all these power systems constitute a complete entity. Considering the entire power chain where every application has strategic characteristics, Vertiv brings you the latest innovation- PTM (Power Train Manager), which helps you to pro-actively identify, assess, and quantify the bottlenecks to improve resilience and reliability.

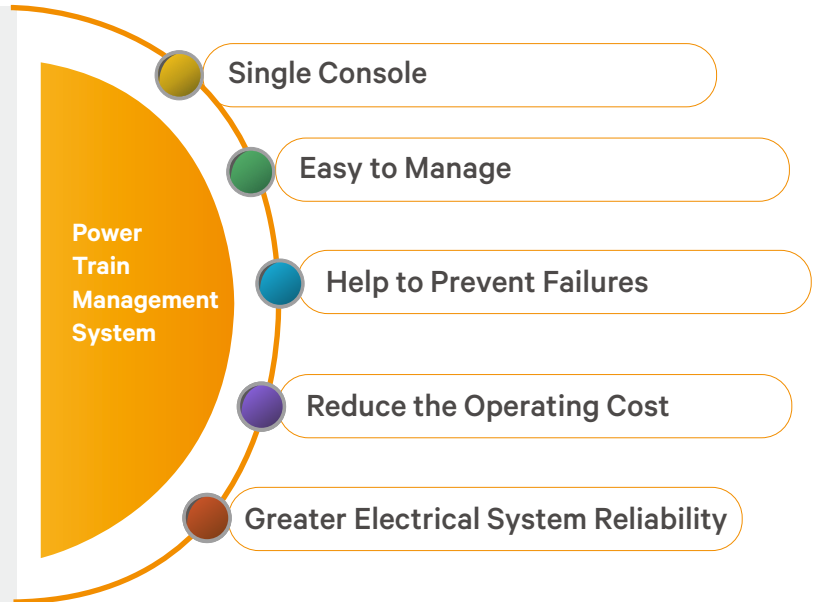
Our Solution

Vertiv™ brings you the latest innovation:

PTM (Power Train Manager)-

A comprehensive control, monitoring, and communication solution.

Ultimately, it gives you the Power to know & the Power to do at a distribution level. It eradicates the need to go to individual feeders to know the status and is notches above being a standard monitoring and control system.



- Reduced downtime & Energy consumption
- Remote monitoring
- Early detection of threats
- Warning messages, Alerts, & Notifications
- Streamlined diagnosis
- 24*7 monitoring at a distribution level
- Enhanced reliability
- Reduced OPEX costs with effective supervision
- Long term viability
- Single point of accountability
- Reduction in energy cost & Productivity
- Compatible with Centralized Monitoring systems

It's ideal for complex on-site power systems that support ultra-critical applications where the stakes are high, especially when the system operation is out of all established parameters:

Application Areas

- Data Centers
- Large Hospitals
- Financial Centers
- Manufacturing
- Rail stations
- Telecom

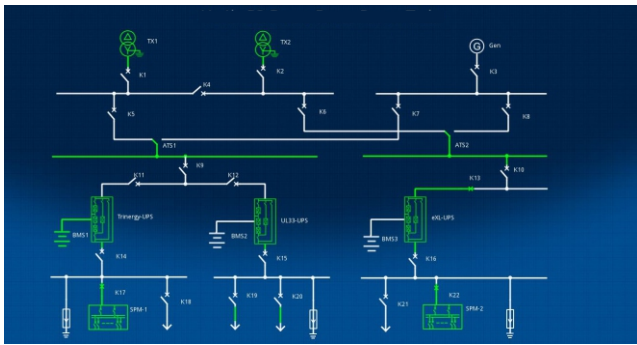


PTM integrates functions of the complete electric infrastructure and displays the status on a superlative monitoring interface - an intuitive console which complies to the highest degree of quality and safety. It is a useful utility and an advanced supervisory solution for your power needs. Another imperative factor is its network-agnostic, user rights-driven management capability along with an extensive emergency coverage that would hold you in good stead for years to come. It supports rapid deployment and accounts for a leaner cost structure through better utilization. Its single console reduces multiple-metering and man-hours cost in procurement planning. It is a dependable technology that is built for increasingly complex and advanced applications.

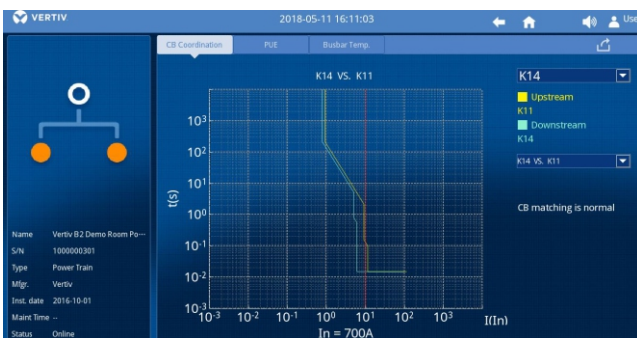
PTM inherit Single SLD that shows how the power is distributed to the feeders. Another significant aspect is how a single signal can be configured to be sent to the centralized platform, thereby eliminating the need to send multiple feeder signals.

- Dynamic & Visual SLD
- System Health Diagnosis
- Failure localization & Diagnosis
- Time Synchronization function
- Improved Operational Maintenance
- Easy-to-collect Information
- Provides comfortable interface for DCIM with quick deployment
- Realize Power Train conformity with improved management ability
- Increased Operational efficiency

PTM™'s cutting-edge design along with Vertiv's pioneering and committed approach delivers and is a global standard for reliability tailored for your facility's critical operations.

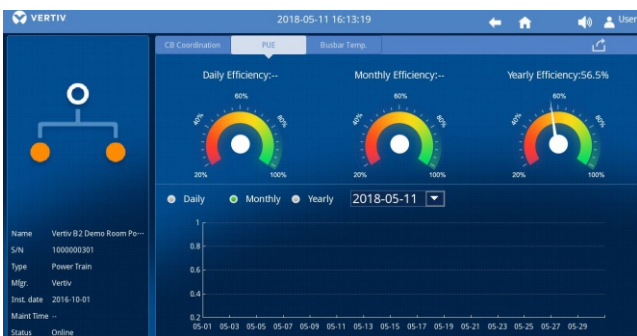


The PUE Dashboard shows **daily, monthly, and yearly wise PUE/Energy efficiency trends**. User can also generate customized reports in PTM in few clicks! which will help you gain insight into the various statistics thereby streamlining your data analysis experience.



They help gain insight into a better understanding of the Power train and shed light on the following:

- Outage reports
- Alarm reports
- Normal, Emergency, & Total Energy consumption
- Communication settings & Equipment set points and statistics
- Historical Log reports providing time-stamp event logs for events at a device and severity level
- Diagnostic reports on equipment



Severity	Description	Device	Occurred Time	Detail
Open	Equipment work status - Open	K4	2018-05-11 16:30:56	
Closed	Equipment work status - Closed	K5	2018-05-11 16:30:56	
Closed	Equipment work status - Closed	K6	2018-05-11 16:30:56	
Closed	Equipment work status - Closed	K1	2018-05-11 16:30:55	
Disconnected	Equipment comm. status - Disconnected	APL400KVA	2018-05-11 16:10:41	
Closed	Equipment work status - Closed	K15	2018-05-11 16:10:27	
Disconnected	Equipment comm. status - Disconnected	K15	2018-05-11 16:10:27	
Disconnected	Equipment comm. status - Disconnected	EM300_outputF	2018-05-11 16:10:26	
Disconnected	Equipment comm. status - Disconnected	K8	2018-05-11 16:10:26	
Disconnected	Equipment comm. status - Disconnected	K8-Meter	2018-05-11 16:10:26	
Disconnected	Equipment comm. status - Disconnected	EM300_outputB	2018-05-11 16:10:24	
Disconnected	Equipment comm. status - Disconnected	K7	2018-05-11 16:10:24	
Closed	Equipment work status - Closed	K16	2018-05-11 16:10:24	
Disconnected	Equipment comm. status - Disconnected	K16	2018-05-11 16:10:24	
Disconnected	Equipment comm. status - Disconnected	K7-Meter	2018-05-11 16:10:23	

The PTM can be tailor-made to your on-site power systems and provides the Power to Know and Power to Do which is required for even the most complex on-site power systems.

Technical Specifications

Basic Electric Parameters	
Rated Voltage	24V DC
Ground System	TN-S
Voltage Range	18 to 27V DC
Maximum Supply Current(24VDC)	1A
Maximum Power Dissipation	20Watts
Performance Index	
Devices Connected (Max.)	30
Sample Points (Max.)	30000
Real-time Data Update Interval (Max.)	3 minute
Data Statistics Points (Max.)	1000
Longest Data Statistics	1 year
UI Language	Simplified Chinese (Default)/English
Fault Points (Max.)	1000
Event Logs	20000
Model	
Index	<50dB
Dimensions (W x D x H)(mm)	L400 x H222 x D48.5
Installation type	PAD mounted
Temperature and humidity range	0 ~ +50°C
Function Description	
One-line topology, Device information, Circuit breaker information, Power train information, PUE information, Data statistics, Alarms analysis, Real-time wave data (special device, support only one control source), Fault wave (special device), UI display	
Standards and Specifications	
General Standards	GB 13539-92, IEC 50(441), IEC 50 (604), IEC 73, IEC 364-3, IEC 364-4-41, IEC 364-4-481:1993
Process Specifications	TS-SOC0299001 General Process Rules for Power Distribution TS-SOD0199001 Processing Specifications for Electromagnetic Components

PTM works with not only Vertiv's centralized monitoring system but also with third-party monitoring systems to give you an overview and understanding of the inner workings of the power equipment at the feeder level. Instead of using multiple feeder signals, a single signal is all that needs to be sent to the centralized platform to leverage the benefits of monitoring the power systems effectively.

Reap the benefits of a Unified solution

- Automatically monitor & respond to events to ensure availability
- Gain deep insight into capacity to maximize usage and defer capital expense
- Improve operating margins with accurate planning and execution
- Model the effect of change to enhance availability and performance
- Increase the flexibility and resilience of the power systems with real-time, trend, and historical change tracking
- Optimize processes and workload management with a complete view of the power assets
- Support business model shifts and growth with accurate insight into the current usage and model the impact of change



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