

Intelligent infrastructure monitoring for software-defined data centers

# Intelligent Power Manager Infrastructure

## Simplified IT-centric monitoring



Powering Business Worldwide

# Make more effective management decisions with intelligent power, space and environmental condition monitoring.

When you can see and understand the power, space and environmental constraints in your data center, it's easier to plan change, anticipate challenges and make more informed and effective management decisions. That's the power that the new Eaton Intelligent Power™ Manager (IPM) Infrastructure gives you.

Embedded within an Eaton Intelligent Power Controller, the new IPM Infrastructure software provides data center managers with an easy to use and simple to deploy infrastructure monitoring solution.

From the rack view to the data center dashboard, IPM Infrastructure allows IT professionals to understand and monitor data center power, environmental and physical capacity metrics, all within the context of their IT infrastructure.

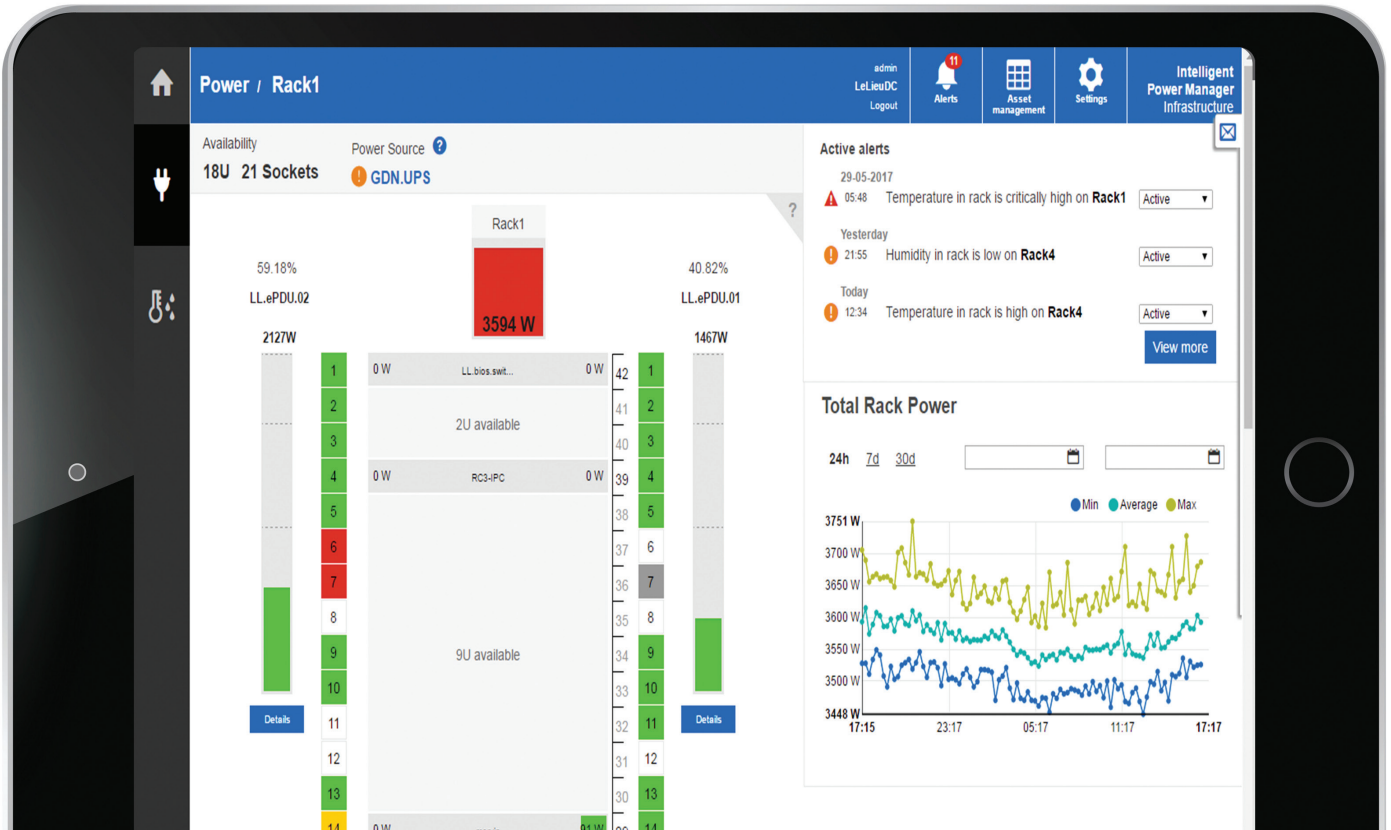
With the flexibility of the 42ITy™ ([www.42ITy.org](http://www.42ITy.org)) Open Source data center monitoring software stack, Eaton IPM Infrastructure simplifies complexity – so you can focus on what really matters.

**Environmental monitoring** including temperature and humidity with more functionality to follow

**Simple IT asset management** including business prioritization capabilities

**Power chain monitoring** including power kW, energy consumption (kWh), phase and circuit balancing

**Trending analysis** via an intuitive web interface with auditable logs and email alerts



### Understanding your infrastructure

IPM Infrastructure gives you a unique insight into what's happening in your data center.

Its power chain monitoring capabilities keep you informed about power usage (kW) and energy consumption (kWh), in addition to phase and circuit balancing. Environmental monitoring covers temperature and humidity while IT asset management helps you manage business prioritization.

All the information gathered from these inputs is reported via an intuitive web interface, with email alerts.

### Simple and centralized

IPM Infrastructure has been designed from the start to be easy to use. As a powerful monitoring solution, it has a number of valuable features which make comprehensive data center monitoring intuitive, simple and centralized.

#### Intuitive, drill-down interface

Easily understand physical infrastructure constraints within the context of the IT infrastructure.

#### Centralized management appliance

The Intelligent Power Controller acts as a local, centralized repository. It is accessible via the network through a powerful, intuitive and responsive HTML5 / AngularJS web interface or SSH.

#### Simplified capacity management

See and understand the physical infrastructure's available capacity at a glance. Space, power and environmental metrics provide essential information for ensuring business continuity and maximizing IT device operating lifetimes.

HP  
EATON  
EATON  
EATON  
EATON

The top three racks contain network and power management equipment. The top rack is an HP network switch with multiple ports. The second rack is an EATON network switch with a digital display showing '50.0'. The third rack is an EATON ATX power supply unit with an RS232 port and a digital display.

QNAP

The fourth and fifth racks contain storage devices. The fourth rack is a QNAP storage server with four drive bays. The fifth rack is a server with four drive bays, likely another QNAP or similar storage device.

UCS

The sixth rack contains a blade server chassis with multiple server blades installed. The UCS logo is visible on the right side.

HP

The seventh rack contains a server chassis with multiple drive bays and a control panel on the left. The HP logo is visible on the left side.

System x3530 M4  
IBM

The eighth rack contains a server chassis with a DVD drive and a control panel. The text 'System x3530 M4' and the IBM logo are visible.

PowerEdge R320  
DELL

The ninth rack contains a Dell server chassis with a control panel. The text 'PowerEdge R320' and the Dell logo are visible.

PowerEdge R610  
DELL

The tenth rack contains a Dell server chassis with a control panel. The text 'PowerEdge R610' and the Dell logo are visible.

PRIMECLUSTER  
FUJITSU

The eleventh rack contains a Fujitsu server chassis with a control panel. The text 'PRIMECLUSTER' and the Fujitsu logo are visible.

EATON

The twelfth rack contains a power management unit with a digital display showing 'Load protected', '94%', '5.1kW', '5.1kVA', and 'Efficiency: 94%'. The EATON logo is visible on the right side.

## Real-time intelligence

By providing you with real-time information, IPM Infrastructure enables quick and effective responses to events, to reduce MTTR (Mean Time to Repair).

## Real-time monitoring and graphical trending analysis

Real-time device monitoring provides instantaneous visibility of the state of your physical infrastructure and its constraints.

## Alert notification

Email, and email to SMS gateway alerts, ensure you are informed of critical alerts in real time.

## Trends and evolution

Key power and environmental data is conveniently stored, and converted into easy to use in-application trend indicators and graphs. This means you can better understand how your data center capacity is evolving over time.

## Load balancing

By automatically tracking power draw from the UPS through the rack power distribution, IPM Infrastructure helps you to ensure the load is equally distributed across all phases at all times.

## Diversity, interoperability, support

You can rely on IPM Infrastructure to support whatever devices you currently operate.

## Multi-vendor device support

IPM Infrastructure supports Eaton power devices out of the box, but is based on the 42ITy™ open source project, enabling us to provide vendor-neutral data acquisition via the NUT open source engine ([www.networkupstools.org](http://www.networkupstools.org)). Multi-vendor device support is provided via the SNMP protocol.

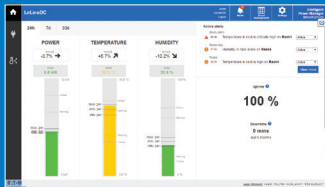
## Extreme support

If we don't support your SNMP power device out of the box, we'll build a new driver configuration within 72 business hours of receiving your complete device profile information.

## Integration

Open RESTful API facilitates third-party application integration.

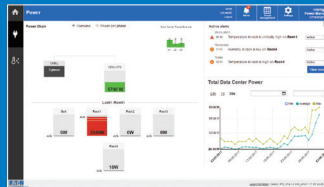
## Application highlights



### Data Center Dashboard:

Understand your data center. All the key KPIs you need for peace of mind.

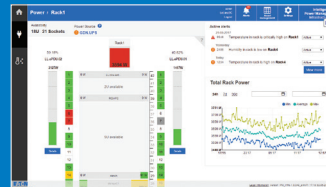
- Total DC energy consumption
- Data Center Temperature
- Data Center Humidity
- Power availability KPI
- Trends on all KPIs
- Alert summary



### Data Center Power Chain view:

Master your critical power consumption and extrapolate future usage trends.

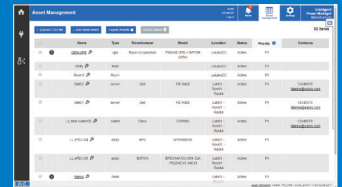
- Simplified power chain
- UPS overview including phase detail
- Total power consumption per rack
- Total critical power consumption
- Historical power trend graph
- Alert summary



### Rack level:

Where IT and Power meet. Understand the intersection of power and physical capacity at a glance.

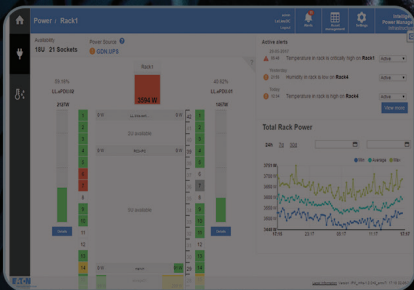
- Available capacity – outlet and U space
- Installed devices
- Total rack power consumption
- Power consumption per rack PDU
- Feed balance
- Outlet identification per device
- Historical power trend graph
- Alert summary



### Simplified asset management:

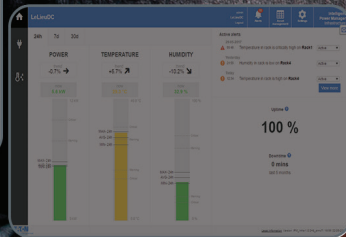
Manage the lifecycle of your IT devices.

- Installed devices
- Contact details per device
- Business priority per device
- Simple alert notification per device
- Warranty details per device with alert capability
- Import / Export to .csv



**Asset Management**

Asset ID	Type	Manufacturer	Model	Location	Status	Inventory ID	Comments
ASSET-001	Server	Dell	R730	Rack 1	OK	ASSET-001	
ASSET-002	Server	Dell	R730	Rack 1	OK	ASSET-002	
ASSET-003	Server	Dell	R730	Rack 1	OK	ASSET-003	
ASSET-004	Server	Dell	R730	Rack 1	OK	ASSET-004	
ASSET-005	Server	Dell	R730	Rack 1	OK	ASSET-005	
ASSET-006	Server	Dell	R730	Rack 1	OK	ASSET-006	
ASSET-007	Server	Dell	R730	Rack 1	OK	ASSET-007	
ASSET-008	Server	Dell	R730	Rack 1	OK	ASSET-008	
ASSET-009	Server	Dell	R730	Rack 1	OK	ASSET-009	
ASSET-010	Server	Dell	R730	Rack 1	OK	ASSET-010	



## Technical Specifications

### Intelligent Power Controller 3000

#### Processing and storage characteristics

CPU	1GHz Dual Core ARM processor
Boot Flash storage	128 MB
Mass storage	4 GB SD Card
RAM	1 GB

#### Power connections

Input	2 x IEC C14 redundant power connectors
Cables	2 x 2m C13 – C14 power cables included

#### Communication connectors

Ethernet ports	2 x front facing RJ45 10/100/1000 Ethernet for redundant monitoring network connectivity 1 x rear facing RJ45 10/100/1000 Ethernet for rack PDU data aggregation
USB ports	4 x USB ports, including 1 x powered 5V/2A
RJ45 Serial ports	4 x RS232 T&H ports with EMP001 auto configuration capability 8 x RS232 serial ports for future monitoring probe aggregation or device monitoring 4 x RS232 / RS485 software selectable serial ports for select 3rd party Modbus T&H sensors
Service console port	1 x DB9 serial service port
Dry contact	10 x dry contact terminals for dry contact sensors
Relays	5 x output relays, 12V

#### Indicators / Display

LED indicators	2 x Power Feed Status LEDs, 1 x Network Status LED, 1 x Device Power Status LED, 1 x Service Status LED, 1 x Heart Beat LED
Display	1 x Monochrome LCD

#### Dimensions H x W x D / Weight

IPC3000 dimensions	42 x 300 x 211 mm
IPC3000 weight	2.2 kg / 4 lbs
Housing	Rack mount; 1U, ½ width

#### Operating Conditions, standard and approvals

Operating temperature	Maximum 45° C continuous, for indoor operation only
Operating humidity	Maximum 90%
Noise level	Fanless
Safety Approvals	CE ; cTUVus

#### Integration

Open REST API	HTTP/HTTPS RESTful API for integration with 3rd party applications
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#### Protocols

Supported network protocols	TCP/IP, HTTP, HTTPS, SNMPv1, SNMPv2c, DHCP, DNS, SSH
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#### Graphical User Interface

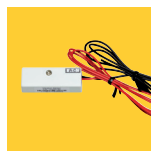
Browser support	Desktop: Most recent versions of modern web browsers including MS Internet Explorer, Chrome, Firefox, and Safari Mobile: Most recent versions of modern mobile web browsers
Technology	Fully responsive, HTML 5 & AngularJS client application

#### Customer Service and Support

Hardware warranty	2 Year
Software	Free 1 Year IPM Infrastructure Software Subscription included

## Accessories

Product Code	Description	Image
EMP001	Temperature and Humidity Sensor	
DCS001	Door contact sensor	
WLD012	Water leak detector	
VIB001	Vibration detector	
M12	Smoke detector	
XCELW	PIR motion detector	



This product includes software released under multiple open source projects under various licenses including BSD licenses, and developed by various projects, peoples and entities, such as, but not limited to: the Regents of the University of California, Berkeley and its contributors:

- the OpenEvidence Project,
- Oracle and/or its affiliates
- the 42ITy project ([www.42ITy.org](http://www.42ITy.org))
- the NUT project ([www.networkupstools.org](http://www.networkupstools.org)).



Open Source  
Initiative

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. ([www.openssl.org](http://www.openssl.org)).

This product includes cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

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© 2017 Eaton  
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Publication No. BR152022EN / CSSC-658  
Article No. Intelligent Power Manager  
Infrastructure brochure, Rev B  
September 2017

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