



Connect

Measure

Control

**Customized
Solutions
For Data Centers**



IEC 60950



COMPANY INTRODUCTION

Elcom International is a leading Electro-Mechanical & Electronics (EM&E) manufacturing company from India, since 1981. Elcom has been manufacturing Basic PDUs for a number of years and is now India's 1st Indigenous manufacturer of Smart PDUs for next-gen data centers.

FORWARD INTEGRATION to Smart PDUs:
Having developed a solid infrastructure for Embedded Technology and having a design, development & manufacturing base for world class Electro-mechanical products, we have launched Best in Class Smart PDUs for the Data Centers

Designed, Engineered, and Manufactured in India by Elcom International Pvt. Ltd. an ISO 9001:2015, ISO 14001:2015 OHSAS 18001:2007 and ISO 26000:2010 certified Company.



Smart PDU The Need of The Hour!

- With the growth of the Internet usage, the Data Center requirements are growing rapidly. Energy costs are one of the highest concerns of Data Center operations and need for energy management and intelligent power distribution management solutions is on the rise.
- We entered the Power Distribution and Management market with a keen objective to offer Smart / Intelligent PDUs to Data Centers. We specialize in Standard as well as Customized Products.
- With our expertise in Engineering design & manufacturing,

we support our customers with the state-of-the-art and reliable power management products.

- Range: Basic Power Distribution Units (PDU) and Smart / Intelligent Power Distribution Units (IPDU). With our range of IPDUs, Data Center Managers & Facility Managers can remotely measure, monitor and manage the power being supplied to the servers in the server racks. This improves the PUE of their Data Centre or other IT infrastructure facilities. Our products also assure the functionality without disrupting the continuity of server operations in the data center.

..Build Green
Data Center

..Minimise
Environmental
Impact

..Focus on
Sustainable
Operation

..Maximise
Energy
Efficiency

Basic PDU



Smart Ready PDU



Smart PDU -Vertical



Smart PDU -Horizontal



**Environmental
Monitoring Device**



Inline Meter



**Power Measurement
Device (PMD)**



STS/ATS





Power
Management
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Power Distribution Unit (PDU)

Unique features

100% rated and
compact Hydraulic- Magnetic
Circuit Breakers

Secure Lock
Power Sockets

USB host for
data storage

**+/-
1%**

kWh Metering
Accuracy

Energy efficient &
reliable
latching relays

Colored socket
versions available (optional)

Basic PDU

A basic PDU distributes electric power to server, storage devices and networking equipment located within racks and cabinets in a data centre. Elcom's Basic PDUs are easy to use - plug-in and play. It has a wide range of input & output connections depending upon your power consumption and IT infrastructure.

A Single Phase Rack Mount and a Three Phase Rack Mount are available in either a horizontal (1U, 2U) or a vertical (0U) form factors. It uses all types of sockets including IEC, NEMA, Indian, Universal, Octagonal, Schuko, etc. Basic Rack-PDU is available with HyMag circuit breakers (Optional)

Smart Ready PDU

Elcom is the first company in the world to offer an Upgradable Rack PDU for Data Centers. We offer a Basic Rack-PDU which can be upgraded to a Smart Aggregate Metered PDU any time without a shutdown of the PDU and the connected servers. This is a feature which offers economic advantages as you have the option of buying a Basic PDU from Elcom which can be later upgraded to a Smart Rack-PDU at an additional cost.



Metering



Aggregate
Metering
(AM)

Aggregate
Metering
Individual
Switching
(AMIS)

- Unit level and Outlet level metering: Measurement of all the electrical parameters of a PDU
- Key value propositions:
 - Energy optimization and circuit protection
 - Mitigate risk with real-time local and remote alerts
 - Informed decisions on load balancing
 - Right sizing IT environments to lower total cost of ownership

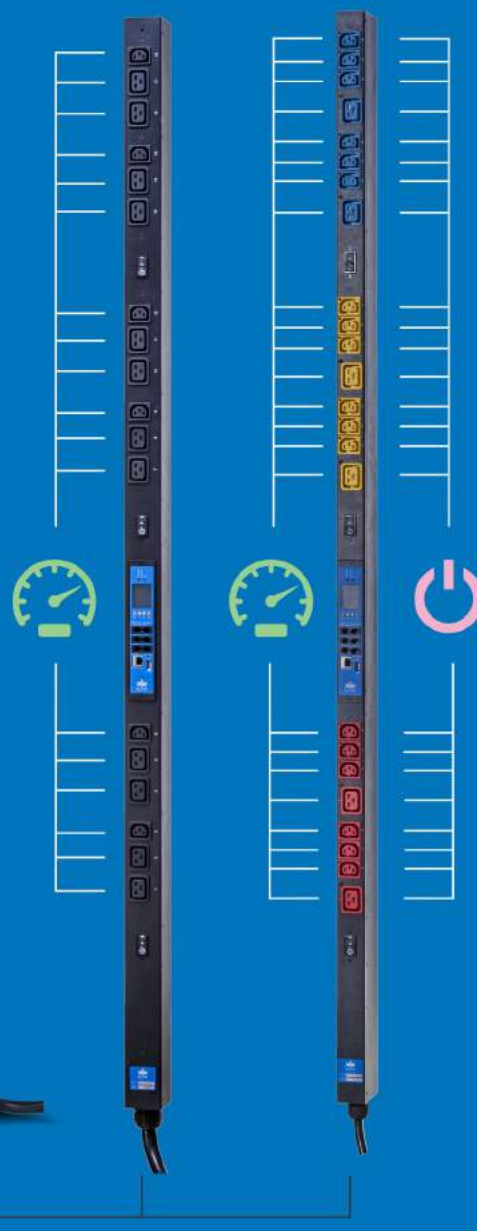
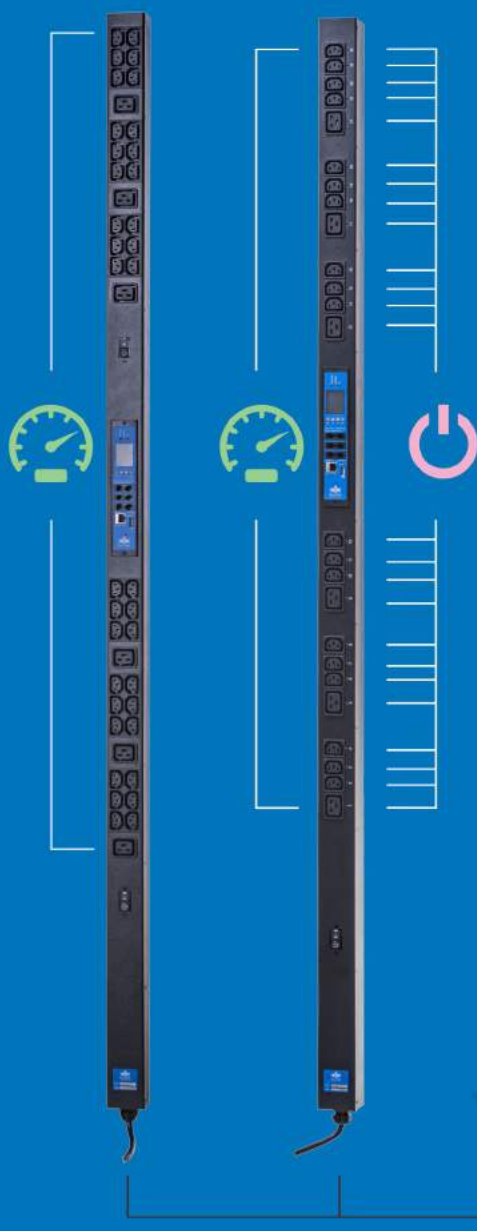
Individual
Metering
(IM)

Individual
Metering
Individual
Switching
(IMIS)

Switching



- Control aggregate or individual outlet status (ON/OFF).
- Key value propositions
 - Power cycling is made simple
 - Remotely reboot servers
 - Activate backup systems
 - Power devices can be shut down ahead of a flood or other natural disaster



All the variants are available in both - Horizontal & Vertical form factors



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Smart PDU for Smart Data Centers

Product Features	Smart Rack-PDU			
	AM	IM	AMIS	IMIS
Power Distribution	✓	✓	✓	✓
Branch Circuit Protection	✓	✓	✓	✓
Aggregate Outlet - Power Measurement	✓	✓	✓	✓
Power Measurement per outlet	✗	✓	✗	✓
Power Measurement per Inlet	✓	✓	✓	✓
Control of Individual Outlets	✗	✗	✓	✓
*Environmental Monitoring	Optional	Optional	Optional	Optional
**Hydraulic Magnetic Circuit Breaker	Optional	Optional	Optional	Optional
USB - Host	✓	✓	✓	✓
MODBUS RTU (RS-485) (Master/Slave)	✓	✓	✓	✓
Cascading	Max 8 PDUs	Max 6 PDUs	Max 8 PDUs	Max 6 PDUs
Hot-swapping of Controller Module	✓	✓	✓	✓
Internal Temperature Sensor	✓	✓	✓	✓
Networking :- 10/100 BaseT Ethernet.	✓	✓	✓	✓
Graphic TFT Display	Optional	Optional	Optional	Optional
SNMP V1	✓	✓	✓	✓
SNMP V2/V3	Optional	Optional	Optional	Optional
HTTP	✓	✓	✓	✓
HTTPS	Optional	Optional	Optional	Optional
MODBUS RTU (TCP-Server)	✓	✓	✓	✓
FTP	✓	✓	✓	✓
FTPS	Optional	Optional	Optional	Optional
SMTP	Optional	Optional	Optional	Optional
Syslog	Optional	Optional	Optional	Optional
Telnet	✓	✓	✓	✓
IPV4	✓	✓	✓	✓
IPV6	Optional	Optional	Optional	Optional
NTP Client	✓	✓	✓	✓
Neutral Current Measurement of 3Phase PDU	✓	✓	✓	✓
Radius	Optional	Optional	Optional	Optional
LDAP	Optional	Optional	Optional	Optional
Residual Current Measurement	Optional	Optional	Optional	Optional
Wireless Sensors (Temperature, Humidity)	Optional	Optional	Optional	Optional

● *Environmental Monitoring comes with temperature, humidity & water sensors.

● **Option available for MCB - Thermal



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Smart PDU for Smart Data Centers

Testing Parameters	Smart Rack-PDU			
	AM	IM	AMIS	IMIS
High Load Rated Current Test	✓	✓	✓	✓
High Voltage Test	✓	✓	✓	✓
Calibration & Functionality Test	✓	✓	✓	✓

Parameters Measured

Voltage (V)

Phase Current (A)

Neutral Current (A)

Active Power (kW)

Reactive Power (kVAR)

Power Consumption (kWh)

Power Factor (PF)

Residual Current (A)

Frequency (Hz)

Temperature (°C)

Humidity (%)

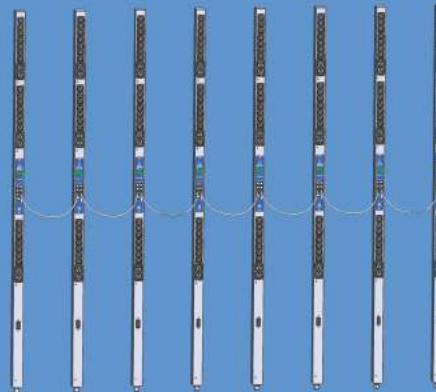
Water Leakage

PDU Accessories

- 1) Temperature Sensor (single) with cable and connector
- 2) Temperature Sensor (three) with cable and connector
- 3) Temperature Sensor (single) with Humidity Sensor, cable and connector
- 4) Temperature Sensor (three) with Humidity Sensor, cable and connector
- 5) Smoke Detector (for EMD)
- 6) Door Open Detector (for EMD)
- 7) Water Leak Detector (for EMD)
- 8) Locking Power Cords

- Distribute power to critical IT equipment with 100% reliability.
- Monitor electrical parameters locally and remotely with Class-I Accuracy ($\pm 1\%$)
- Available with various types of Outlets with Phase-wise different colors
- Environmental monitoring
- Internal Data logging
- Hot swapping of controller cards with 'ZERO'-Downtime
- Unique features of latching relays ensures zero downtime of PDU Even during service
- Seven Segment LED & Color LCD Display (Optional)
- USB Data Storage
- Optional Wi-Fi
- Warning for overload and low load
- Daisy-Chaining through RS-485 (Max 8)
- Can be integrated with various DCIM Softwares.

Save IP Address Utilization by Daisy Chaining up to 8 PDUs



Smart Communications

- Physical Ethernet (PHY 10/100)
- HTTP based communication for Configuration Web server
- HTTP based connectivity to external servers (Local / Cloud Based)
- MODBUS TCP-IP/RS-485 (RTU)
- Email notification(SMTP)
- SNMP Traps(V1/V2/V3)
- Telnet
- Serial communication (RS-232)



Hot Swappable Replaceable Controller

In case of technical failure controller is field-replaceable, which assures the 'ZERO'-Downtime of Data Center Operations.





Home



Configuration



Branch Information



Switching



Network Setting



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Monitoring Solutions for Data Centers

Inline Meter



Elcom's Branch Monitoring Solution consists of intelligent **Inline Meter**, which is used to measure and monitor the energy consumption and power supply parameter for the basic Rack-PDU remotely. The device can be setup for Single Phase as well as Three Phase supply. The Inline Meter supplies & measures electricity to the connected device (load) via CEE plugs. There are two types of Inline Meters available; Single Inline Meter and Dual Inline Meter. Single Inline Meter consists of two CEE plugs; one for input & another for output. Dual Inline Meter has four CEE plugs; two for input and two for output. The input voltage of the connected device passes through the Output CEE plugs of Inline Meter.

Elcom offers **Environmental Monitoring Device (EMD)** to cater to the environmental monitoring needs of new-age data center facilities. It ensures increased life and improved performance of IT equipment and it covers various aspects of data center environment, such as Temperature, Humidity, Smoke leakage, Water leakage, door-open alarm, etc.

Temperature Sensor: Elcom offers a reliable Temperature Sensor which can be connected to the Smart Rack-PDU for monitoring temperature round the clock, placed on individual racks and near the vents of the air-conditioning system to measure the overall efficiency.

Humidity Sensor: Elcom provides Humidity Sensors which can be connected with your Smart PDU and can monitor the humidity in the server rooms. This in turn helps increase the life of your equipment and improve the performance of your data centre.

Water Sensor: Water Sensors monitor water collected at the bottom of the racks. The water is accumulated due to the condensation. Water sensors are placed at the lowest point (wherever water would tend to collect) on the floor, and underneath any pipe junctions.

Door Sensor: Elcom offers dry-contact sensors that detect the opening and closing of the rack doors.

Smoke Detector Sensor: Smoke detectors are installed in the Racks or areas to be covered by the PDU/EMD to detect any fire hazard.



EMD





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Monitoring Solutions for Data Centers

PMD



Elcom's Branch Monitoring Solution consists of intelligent **Power Measurement Device (PMD)** having clamp on current transformers, with class-I accuracy to do complete branch monitoring of a single rack, multiple rack and floor mounted PDU. It can be integrated with a wide range of current transformers depending on power consumption. Branch Monitoring can be introduced for single phase and three phase circuits and with a range of channels starting from 1 channel up to 72 channels. The power can be monitored locally and remotely depending on the application.

STS/ATS

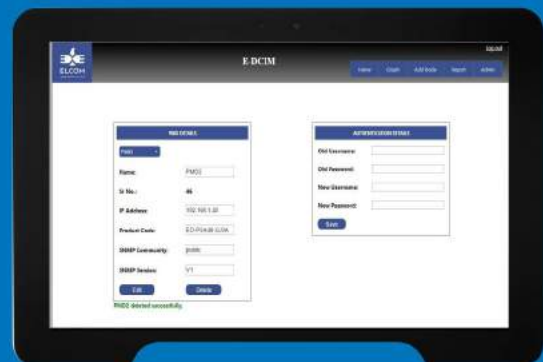
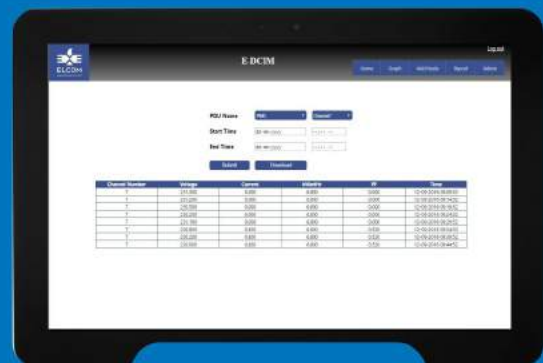
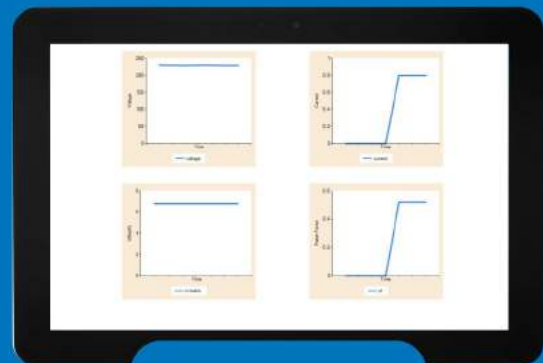


Elcom's **Static Transfer Switch (STS) / Automatic Transfer Switch (ATS)** is an electrical device that allows instantaneous transfer of power sources to the load, thereby allowing systems administrators to manage 99.999% uptime for their datacenter infrastructure.

Available in 1 U profile and for rated current of 32 Amps, Single phase, Elcom's STS/ATS ensures superior switching time of 4 - 10 milliseconds. This means that if one power source fails Elcom's STS/ATS switches to the back-up power source so quickly that the load never recognizes the transfer made.

Data Center Infrastructure Management (DCIM) refers to the processes, guidelines, tools and methodologies used for the provisioning, governance and overall management of data center assets and infrastructures. It provides a comprehensive approach to operating, monitoring and maintaining data center IT resources.

ELCOM's **E-DCIM** software allows integration with complete suite of "Smart" products including iPDUs, Inline Meter, EMD, PMD and STS/ATS. Rack wise Interval time can be configured in E-DCIM for data logging. Alarm conditions, Network Status also can be monitored via the same password protected web interface. Further, Elcom's E-DCIM allows generation of Graphs and Reports on the fly. Complete data center infrastructure can thus be monitored via E-DCIM software. With DCIM, there is visibility down to the device within the rack and this helps to automate monitoring processes that were once manually driven.





Elcom Aggregate Metered Rack-PDU Standard Offering

[illegible]

Elcom Aggregate Metered & Individual Switched Rack-PDU Standard Offering

[illegible]

Elcom Individual Metered Rack-PDU Standard Offering

[illegible]

Elcom Individual Metered & Individual Switched Rack-PDU Standard Offering

[illegible]

Elcom Basic Rack-PDU Standard Offering

Model Configuration	Form	Horizontal 1U	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
	Input	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Single Phase	Three Phase	Three Phase
	Type	Basic	Basic	Basic	Basic	Basic	Basic	Basic	Basic
	Rating	16 Amp	32 Amp	32 Amp	32 Amp	32 Amp	32 Amp	32 Amp	32 Amp
	Socket Configuration	Indian Sockets (6A) 6 or Universal Sockets- 6 or Indian Sockets (6/16A)-6	C13-18	C13-21	Octagonal Sockets-2	Octagonal Sockets-2	UK Sockets-28 or Schuko Sockets -26	Universal Sockets-24 or Indian Sockets (6/16A)-24	UK Sockets-24 or Schuko Sockets -24
		C13-8 & C19-2 or C13 - 10	C19-6	C19-6	Indian Hexagonal Sockets-16	C13-20 & C19-4	NEMA 5-15R/ 5-20R Sockets-30	C13-21 & C19-6	NEMA 5-15R/5-20R-30
	Display	Voltmeter/Ameter							
	Circuit Breaker	Hydraulic-Magnetic/Thermal							
	Termination of Cables	Usually Open End (Options available for Industrial Plug)							
	Length of Cables	2 meters 2.5 meters	3 meters	3 meters	3 meters	3 meters	3 meters	3 meters	3 meters

In addition to the models shown here, customised solution can also be provided.



Connect

Measure

Control

**Customized Rack
PDU Solutions**

HQ:

Elcom International Pvt. Ltd.
20, Ground Floor, Prabhadevi
Industrial Estate, 408, Veer
Savarkar Marg, Prabhadevi,
Mumbai - 400025
Maharashtra, India.

Tel: +91 22 66114444

Email:
smartsolutions@elcom-in.com
elcom.mail@elcom-in.com

Factory:

Plot E-4, Kagal Five Star MIDC, Kagal,
Kolhapur - 416236
Maharashtra, India

Tel: +91 231 6618007