TSL PROFESSIONAL PRODUCTS LTD

V2

Power Manager Family

Intelligent Power Distribution, Management and Control

Effectively managing the equipment required to maintain system viability in broadcast or IT infrastructure has never been more challenging

Systems managers are increasingly faced with guaranteed up-time targets across diversely located equipment facilities. In today's cost-conscious and environmentally sensitive world, they may now also be required both to streamline maintenance and support teams, and to minimise energy consumption.

These challenges call for a comprehensive solution that – working remotely over wide or local area networks – can provide both monitoring and control of systems, and effective power management.

Power Management Units (PMUs) from TSL Professional Products Ltd provide just such system management and power distribution capabilities. Intelligent, intuitive and already well proven in the global market, TSL's PMUs enable systems managers to monitor and control all rack-mounted equipment anywhere in the world and to manage power requirements while reducing overall costs.

TSL's professional PMUs are the result of the long experience in the field of TSL's System Integration Division, which over 26 years has established an enviable reputation with numerous prestigious installations worldwide.

Product	No of fused outlets	Resettable over current switch	Input power fail alarm	Current and voltage measurement	Switched outputs	Programmable power up/down sequencing	GPI x 16	Temp sense	Ethernet connectivity reporting and config	SNMP alarms and email alerts	Over current prot	Auto changeover	Operating voltage
MDU-12PMi	12	16 Amp	•	•	•	•	•	•	•	•	•		110/240v
MDU-12PMi-32A	12	32 Amp	•	•	•	•	•	•	•	•	•		110/240v
MDU-12PM	12	16 Amp	•		•	•	•	•	•	•	•		110/240v
MDU-12PM-32A	12	32 Amp	•		•	•	•	•	•	•	•		110/240v
MDU-12PAi	12	16 Amp	•	•			•	•	•	•	•		110/240v
MDU-12PAi-32A	12	32 Amp	•	•			•	•	•	•	•		110/240v
MDU-12PA	12	16 Amp	•				•	•	•	•	•		110/240v
MDU-12PA-32A	12	32 Amp	•				•	•	•	•	•		110/240v
MDU-14CO	14	16 Amp									•	•	110/240v
MDU-14B	14	16 Amp									•		110/240v
MDU-14B-32A	14	32 Amp	•								•		110/240v
MDU-2CO	2	16 Amp	•								•	•	110/240v

In addition to the Power Management range, TSL Professional Products also specialise in Audio Monitoring, TallyMan systems and Custom Devices – thousands of which are in operation all over the world. For further information on our product range and expertise, visit www.tsl.co.uk/products or call +44 (0)1628 676221.

The Power Manager family from TSL enables systems managers to remotely monitor and control all equipment in a rack or facility, over wide or local area networks – no matter where the location

Overseas News Desk

NEW YORK

MDU-12PMi

Satellite Uplink Station

SAO PAULO

MDU-12PMi
MDU-14C0

Master Control Room

LONDON

MDU-12PMi
MDU-14C0

WAN ✉ LAN
EMAIL/SMS ALERTS

WAN ✉ LAN
EMAIL/SMS ALERTS

Recording Studios

SYDNEY

MDU-12PMi

Play-out Centre

TOKYO

MDU-12PMi
MDU-14C0

Monitoring

- Equipment fuse status
- Power consumption by outlet
- Rack equipment GPIs
- Rack temperature
- Rack input voltage
- Total power consumption
- Power source, main or backup

Comprehensive Information

- Email and SMS alerts for system failures or in case any pre-set variable is breached
- Real-time status information
- Industry standard SNMP alarm protocol

Multiple Remote Actions

- Re-boot individual equipment, rack, or complete facility
- Alert local maintenance, accurately describing fault and rack position
- React to equipment failure by re-routing signals
- Manage and track energy consumption
- React to power outage
- Centrally power down facility for out of hours working
- Configure PMUs

TSL's premium product, the MDU-12PMi, provides complete visibility of the health of the rack, monitoring status and alerting if pre-set limits are exceeded

It also offers 12 individually switched outlets with current, power and power factor measured for each outlet and in total. Programmable alerts are communicated via email, SMS – via external gateway, and SNMP traps. Alerts include failed fuses, 16 GPI inputs, temperature sensor, or over and under current consumption by outlet. The MDU-12PMi also offers the opportunity to invoke system pre-programmed power maps over LAN or WAN for energy management or individual equipment control

The Power manager range from TSL uniquely incorporates 16 opto GPI (General Purpose Inputs) which provide any switched alarm function - rack room door opening, intruder alarms, humidity sensors for example....

Power Manager Graphical User Interface

The **MDU-12PMi/PM** and no-switch options the **MDU-12PAi/PA** have a built-in web based configuration tool with intelligent GUI that enables full configuration and status reporting. User defined encrypted name and password for enhanced secure web browser access.

Status Page

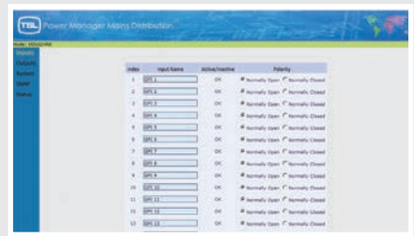
Shows all Input and Output alarm states, Current, VA, and Power Factor for each output and total shown for the whole unit.

Systems Page

Entering the IP addresses and details of the MDU.

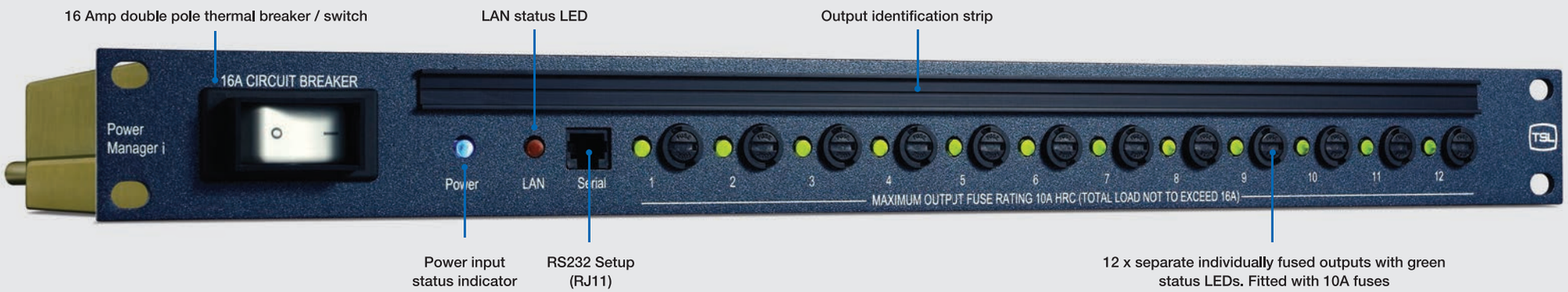
SNMP Page

This is for setting the SNMP alarm trap IP addresses, email alert settings, and Temperature alarm settings.



Input Page

Naming the GPI alarms and determining if they are normally open or closed.



Specification

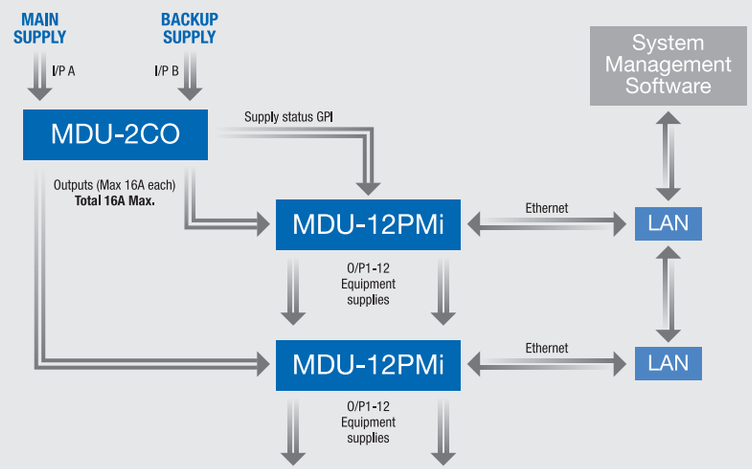
- Encrypted web browser access
- Ethernet control of each of the 12 individually fused outputs using latching relays and secure web browser
- Current, voltage and power factor measurement for each outlet plus the unit total
- Input voltage measurement
- Sequential, immediate, or user configured delayed output start up
- 16 Opto-isolated GPI alarm inputs
- Returns to last configuration once power up sequence has completed should a complete power failure occur
- RS232 and Ethernet setup
- Ethernet SNMP alarms and email and SMS alerts
  - Power input fail alarm
  - Internal temperature sensor with adjustable limits
  - Over/under current alarm for each outlet
  - Fuse failure
  - 16 x GPI triggers

Benefits of system integration with Power Manager PMUs

- Tri-colour front panel using status LEDs for rapid failure identification
- Intuitive Graphic User Interface (GUI) for ease of set-up
- Self contained operation with all software and hardware functions
- 16 Amp or 32 Amp over current resettable switch with trip-free resettable action for efficient local maintenance and safety
- 110/240vfor worldwide operation
- ROHS and WEEE compliant so acceptable worldwide

TSL's MDU change over products are designed to work in any system where reliable switching is needed between the main and secondary power supplies

These products are designed to meet the challenging safety specification BS-EN-62040-1-1:2003 which governs Uninterruptible Power Supply (UPS) products. The MDU-14CO offers reliable and programmable safety of main and backup supplies to 14 IEC outlets.



The MDU-2CO works in tandem with either the MDU-12PMi or PAi to have complete protection and system visibility. Fast switching relays offer reliable operation and cool running.

Power Management for demanding applications

Recognising the increasing power demands of leading edge video products TSL has developed 32A versions of all its most popular Power Management Units. The new designs are identical in every way to the already established lower rated products and can operate side by side in a mixed system.

The new units mean that broadcast engineers can benefit from having complete visibility of the whole broadcast infrastructure, whatever the demands of the end product.

MDU-14B-32A

32A total capability in a 1U basic unit.

MDU-12PMi-32A

32A total capability in a 1U intelligent unit.

by Chris Exelby, General Manager, TSL Professional Products Ltd

Environmental impact

TSL's family of Power Manager products can play an important role in improving the energy efficiency of your business and reducing your carbon emissions. They offer the opportunity to pre-programme the system to power down to different functional levels, minimising power consumption in terms of both systems operation and rack room temperature control.

Out of hours working

With "out of hours working" the system automatically powers only the minimum necessary components of the system – perhaps just the play-out servers and satellite uplink. A single operation from the control room can power the facility back to operating readiness when required and introduce the power outlet by outlet and rack by rack in a sequential, delayed or immediate way.

Programmable power usage

In developing countries where power generation is lagging demand, occasional heavy usage can act to ration the available power. Managing a cut in consumption to a specific level can be problematic in traditional broadcast installations where power is supplied rack by rack making the powering down of selective rack components difficult. There is also the added risk that manual operation could result in the accidental switching off of an essential component. The use of TSL's Power Management switched output function enables the power down operation to be automated so providing a safe and reliable method of matching consumption to the available power.

This sophisticated automation could offer a number of power maps so permitting the pre-determining of the power usage matched to the broadcast facilities operational function. This would permit for instance the powering down of a studio, or in the worst case, of selective channels.

Reducing power consumption upon demand is important in countries where supplies are variable and requests to reduce consumption to prevent network overload are commonplace. Even more important, the widescale implementation of energy efficiency measures around the world will play a crucial part in securing the future of the planet. Implementing a Power Management Unit from TSL will help your company to reduce its carbon footprint and achieve its sustainability goals.

Eco Power Mapping

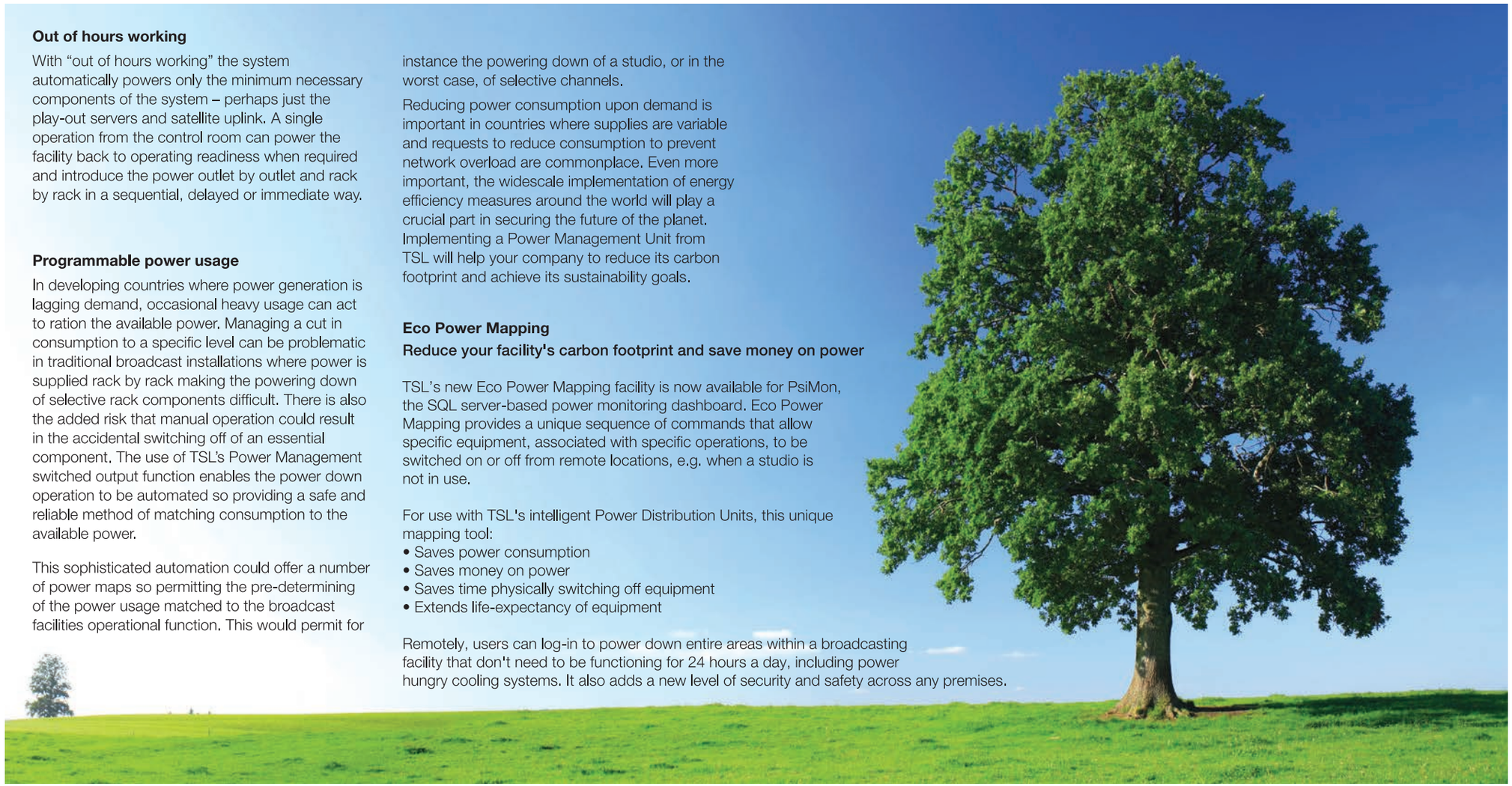
Reduce your facility's carbon footprint and save money on power

TSL's new Eco Power Mapping facility is now available for PsiMon, the SQL server-based power monitoring dashboard. Eco Power Mapping provides a unique sequence of commands that allow specific equipment, associated with specific operations, to be switched on or off from remote locations, e.g. when a studio is not in use.

For use with TSL's intelligent Power Distribution Units, this unique mapping tool:

- Saves power consumption
- Saves money on power
- Saves time physically switching off equipment
- Extends life-expectancy of equipment

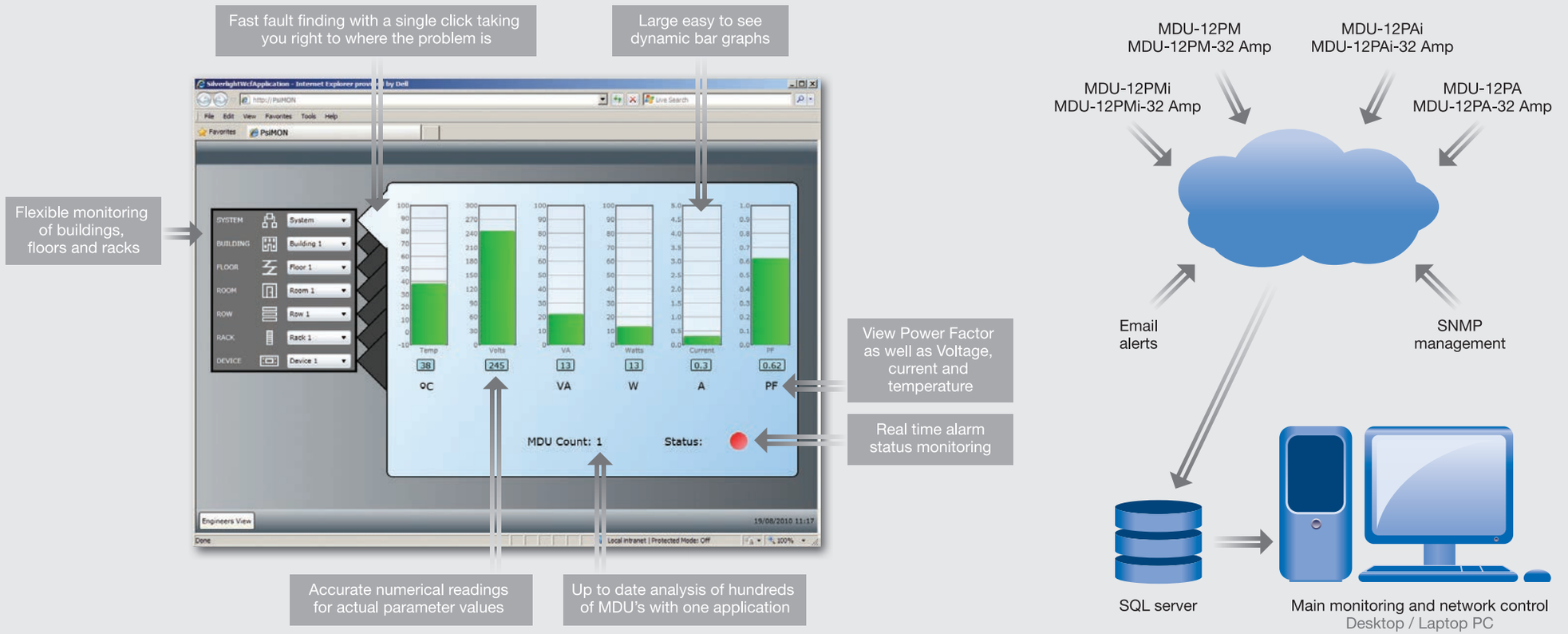
Remotely, users can log-in to power down entire areas within a broadcasting facility that don't need to be functioning for 24 hours a day, including power hungry cooling systems. It also adds a new level of security and safety across any premises.



PsiMon

TSL's PDU's have a proven track record of working well with established software. To enhance and take full advantage of the extensive functionality of the PDU products TSL has developed its own solution, PsiMon. An SQL Server based system which provides comprehensive monitoring and control of TSL's PDU products. With superior operational functionality in mind PsiMon has been designed to show a unique dash board display providing all of the system power management monitoring and control you will ever need.

Convenient Web based application



Feature list

Protected by the user assigned encrypted user name and password, there are a host of features available to provide complete visibility and control of your broadcast infrastructure. A product for every application, the Power Management integrated design provides a comprehensive platform for a number of products, identified here against the appropriate specification.

Feature		PA GUI	PM GUI	PAi GUI	PMi GUI
System	Edit location label	•	•	•	•
	Show Software version	•	•	•	•
	Set IP address	•	•	•	•
	Set subnet mask	•	•	•	•
	Set Gateway address	•	•	•	•
	Set Primary DNS address	•	•	•	•
	Set Secondary DNS address	•	•	•	•
	Set temperature alarm limit	•	•	•	•
	Set output power startup mode (Immediate/Delay/Sequential)	N/A	•	N/A	•
	Set 'sequential' output power startup mode time	•	•	•	•
	Set input voltage alarm thresholds	N/A	N/A	•	•
	Show voltage alarm status for input	N/A	N/A	•	•
	Show input voltage level	N/A	N/A	•	•
	Set total current consumption alarm threshold	N/A	N/A	•	•
	Set voltage upper and lower alarm thresholds	N/A	N/A	•	•
SNMP Alerts	Send "Input Power failed/restored" for MDU	•	•	•	•
	Send "temperature over/under" for MDU	•	•	•	•
	Send "fuse failed" for each output	•	•	•	•
	Send "GPI input alert" for each GPI	•	•	•	•
	Send "voltage over/under" for MDU	N/A	N/A	•	•
	Send "current over/under" for each output	N/A	N/A	•	•
GPI's	Set GPI input labels	•	•	•	•
	Change input polarity detection	•	•	•	•
	Show GPI Alarm status for all GPI inputs	•	•	•	•

Feature		PA GUI	PM GUI	PAi GUI	PMi GUI
Email	Set SMTP Server IP	•	•	•	•
	Set POP3 Server IP	•	•	•	•
	Email account user name	•	•	•	•
	Email account user password	•	•	•	•
	Sender's email address (From:)	•	•	•	•
	Recipients' email address (To:)	•	•	•	•
	Send "temperature over/under" for MDU	•	•	•	•
	Send "fuse failed" for each output	•	•	•	•
	Send "GPI input alert" for each GPI	•	•	•	•
	Send "voltage over/under" for input	N/A	N/A	•	•
	Send "current over/under" for each output	N/A	N/A	•	•
Power Output	Set output labels	•	•	•	•
	Show fuse status	•	•	•	•
	Set Delay time for 'Delay' output power startup mode for each output	•	•	•	•
	Enable or disable each power output	N/A	•	N/A	•
	Enable or disable SNMP locks	N/A	•	N/A	•
	Set lower and upper current thresholds for each output	N/A	N/A	•	•
	Show current status for each output	N/A	N/A	•	•
	Show current level for each output	N/A	N/A	•	•
	Show VA level for each output	N/A	N/A	•	•
	Show Power Factor for each output	N/A	N/A	•	•

Flexible rack mount solutions to satisfy all of your power management requirements

MDU-12PM

The Power Manager unit

12-way intelligent power distribution with latching relays and e-mail alert alarms.

Features

- 16 Amp double pole resettable breaker/switch
- Remote ethernet control of 12 seperate outputs via secure web browser
- Sequential, immediate or user configured delayed output startup
- 16 x opto-isolated GPI alarm inputs
- Ethernet SNMP alarms and e-mail alerts for all 16 x GPIs and 12 x fuses
- Ethernet input power failure alarm
- Intergral temperature sensor with adjustable SNMP alarm
- Unit and SNMP configuration via secure web browser interface
- RS232 setup via front and rear mounted connectors (RJ11 and D9)
- LAN status LED
- Tri-colour output status LEDs
- 110-240v AC 16 Amps max. load
- Rounded cable tie bar
- 12 x IEC 13 outputs

MDU-14B

The Power Standard unit

Reliable14-way mains distribution at excellent value.

Features

- 14-way fused IEC outlets
- 16 Amp double pole resettable breaker/switch
- Green LED power indicators
- Competitive price point
- 110-240v AC 16 Amps max. load
- Rounded cable tie bar
- 32A version available
- 14 x IEC 13 outputs

MDU-12PA

The Power Alert unit

12-way intelligent power distribution with e-mail alert alarms.

Features

- Ethernet SNMP alarms and e-mail alerts for all 16 x GPIs and 12 x fuses and power input
- 16 AMP double pole resettable breaker/switch
- Ethernet input power failure alarm
- 16 x opto-isolated GPI inputs
- Intergral temperature sensor with adjustable SNMP alarm
- Unit and SNMP configuration via secure GUI
- LAN status LED
- 110-240v AC 16 Amps max. load
- Rounded cable tie bar
- RS232 setup via front and rear mounted connectors (RJ11 and D9)
- Bi-colour output status LEDs
- 32A version available
- 12 x IEC 13 Outputs

Global reseller network

TSL Professional Products Ltd has a network of distributors supporting our products all over the world.
For further details about our product range and where to buy please visit www.tsl.co.uk/products

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