OLSON®

INTELLIGENT POWER MANAGEMENT

INSTALLATION MANUAL

Revision 01B June 2020

Contents

Important Safety Information 4

Product Description 5

PDU Monitor Module Product Features 6

Outlet Switching Module Product Features 7

Local Display 8

PDU Meter Display 9

Outlets Display 9

Alarms Display 10

Environ Display 10

About Display 11

Settings Display 12

Outlet Setup 13

Local Display - Settings 13

Network Setup 14

USB Functions 15

Alarms Setup 16

SMTP/SNMP Setup 17

Display Setup 17

The PDU Home Page 18

Web Interface 18

The Readings Page 19

The Outlets Pages 20

Outlet Setting Page Description 21

The Settings Page 22

Settings Page Description 23

Contents

PDU Controller Module Connections **26**

Switching Module Connections **28**

PDU Controller Module 29

Specifications **29**

PDU Switching Module 31

Appendix 1. USB Parameter file parameter codes **32**

Important Safety Information

Warranty

Olson Electronics Limited has made every effort to ensure the accuracy of the content of this manual. However, it is possible that it may contain technical inaccuracies or typographical or other errors. Olson Electronics will assume no liability for any inaccuracy found in this publication, nor for damages, direct, indirect, incidental, consequential or otherwise, that may result from such an inaccuracy.
The information provided in this manual is subject to change without notice.

Important Safety Information

All safety warnings give specific details of the potential danger/warning present and indicate how to reduce risk of injury, damage and electric shock resulting from improper use of the device. Carefully observe the following instructions:

- Installation and maintenance must be carried out by a competent person, in compliance with the manufacturer's instructions, the relevant wiring regulations and local safety regulations.

  If in any doubt, consult a qualified electrician.
- The device must be disconnected from the power supply before carrying out any installation work.
- Do not remove the device cover while the power supply is connected.
- Do not operate the device with the cover removed.
- Do not attempt to repair or replace any part of the device.
- All Maintenance operations must be carried out by a qualified technician.
- This appliance is not suitable for outdoor use.
- The manufacturer accepts no responsibility for any damage or injury caused by improper use or failure to comply with these instructions.

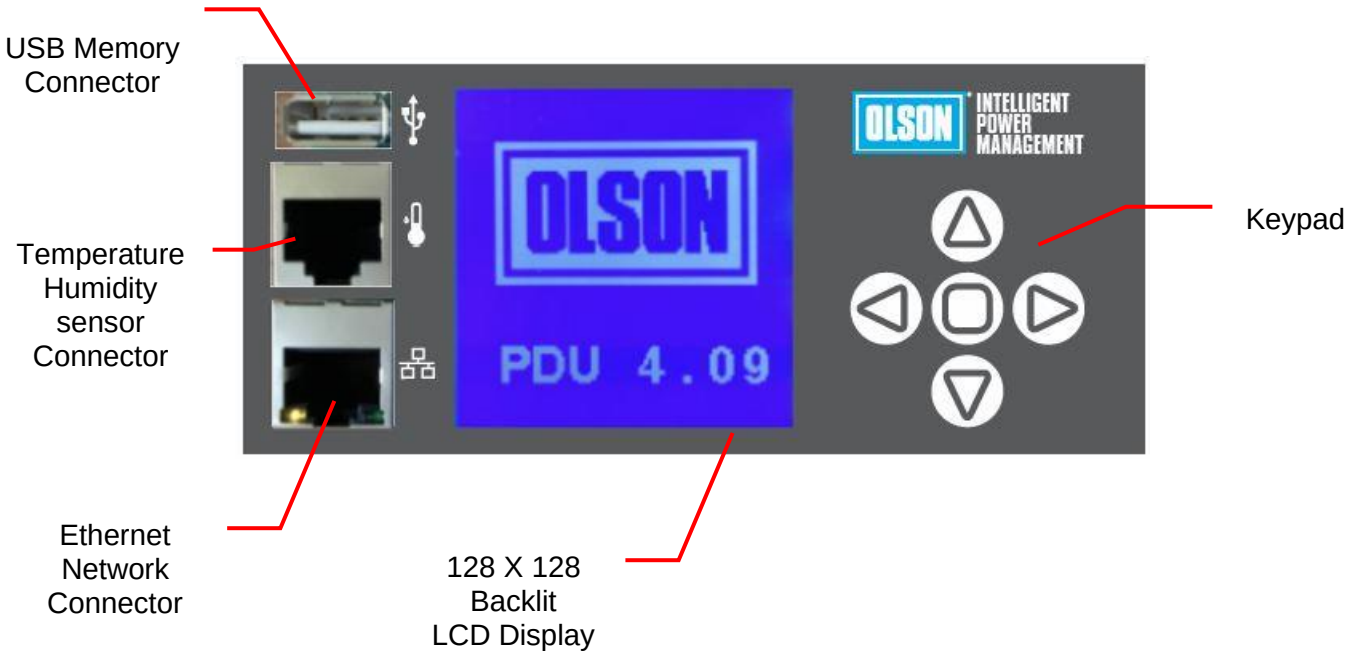
Product Description

The Olson intelligent remote monitoring and control PDU is a modular system which comprises a main AC monitor module with a built-in graphical display and keypad with the option to connect, via a 4-wire control bus, up to four 8 output switching modules allowing a total of 32 16A switched outputs to be controlled.

Without switching modules, the PDU controller module can be used to locally display volts, amps, power, power factor, frequency and KWh consumption of a locally connected AC load.
In addition, the module has a built-in web server allowing remote display of the measured values on any web browser. Email alarm sending to up to 5 recipients is also supported.
Built-in SNMP functionality enables measured values to be read remotely using an SNMP network management system. Other features such as external temperature* and humidity* measurement and the ability to load and save configuration data via USB memory stick are also provided.

In addition to the PDU controller module the system also supports the connection of up to four 8 output, 16A 250VAC switching modules* giving the capability to control and monitor up to 32 AC outlets, either locally from the PDU keypad, or remotely via a web browser or SNMP network management system.
Metering of each outlet is also provided. Load current, power and KWh consumption is displayed either locally or remotely for each switched outlet.
*Option requiring additional hardware

PDU Controller front Panel



PDU Monitor Module Product Features

Remote Monitor Module Features

.

Local Display	Display of all measured values on local 2.5" graphical display. Display configurable to operate in 4 different orientations.
Local Configuration	Local configuration of settings via keypad and local display
AC Monitor	Voltage, Current, True Power, Power Factor, Frequency & KWh
E**nvironmental**	Internal Temperature, external temperature & humidity monitor compatible with the 1-wire interface standard.
Web Server	Internal web server for remote display of all monitored values in standard web browser and remote management of settings and configurations User login password protected
SNMP	Allows remote SNMP based network management system to retrieve all measured values and manage configuration. SNMP trap capability for sending alarms if measured values fall outside of programmable limits
Email	Allows sending of alarm email notifications if measured values fall outside of programmable limits
FTP	Remote update of configuration and firmware update capability
Network	RJ45 Ethernet connector, auto detect 10/100 Mbps
USB	Firmware updating and configuration saving and loading available via local USB interface
Switching Module Control*	Controls up to four 8 output switching modules.

*Option requiring additional hardware

Outlet Switching Module Product Features

Switching Module Features

Output Control	Individual control of 8 16A AC outputs with total output load capability of 32A
Output Monitor	Individual monitoring of output current, power & KWh
Breaker/Fuse	Individual monitoring of fuse/breaker state
Total module Power & Energy	Monitor module configurable to display total PDU power & energy readings from monitor module power meter or alternatively from the aggregate of all switching modules. This allows total power and energy to be monitored if switching modules are powered directly, rather than via the monitor module.
Sequential Start	Programmable sequential start on power up. Programmable sequence delay Programmable opt in/out
Power on state	Programmable output state on power up: All On, All off, Previous state
Local Display	Local control of switched outputs via display and keypad on monitor module
Web Server	Remote control and state of all output switches via web server or SNMP on monitor module
Loss of Control Module	The state of the switch outputs will remain indefinitely if the control signal is lost from the master module. e.g. during master module swop or failure.
Switching Module bus	4 wire control bus for connection to master (monitor) module

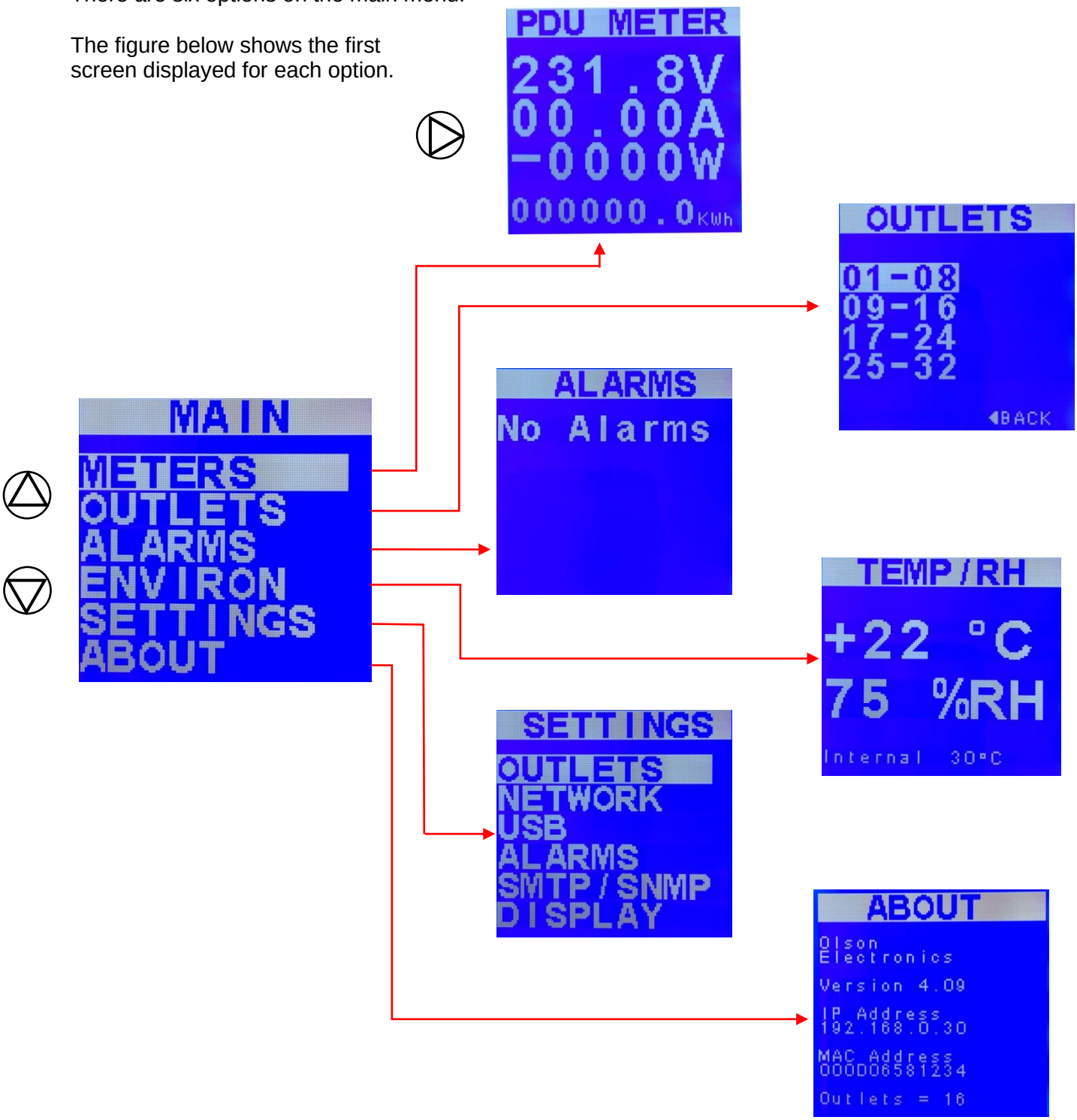
Local Display

The PDU monitor module display and keypad are used to locally display the measured values and can be used to configure the PDU. If switching modules are attached, individual outlet settings can be changed or viewed.

Use the up/down arrows to highlight the desired selection and then the enter or right arrow to move to the selected item.

There are six options on the main menu.

The figure below shows the first screen displayed for each option.



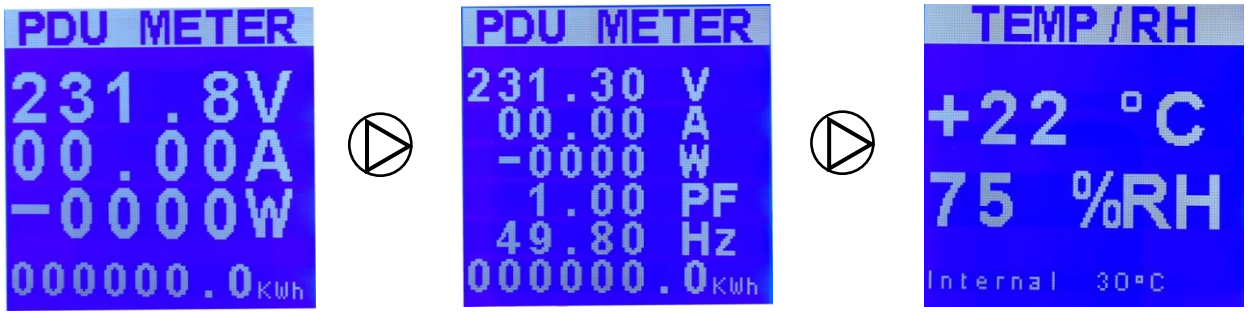
Local Display

PDU Meter Display

The initial PDU meter display shows Volts, Amps, Watts and KWh.

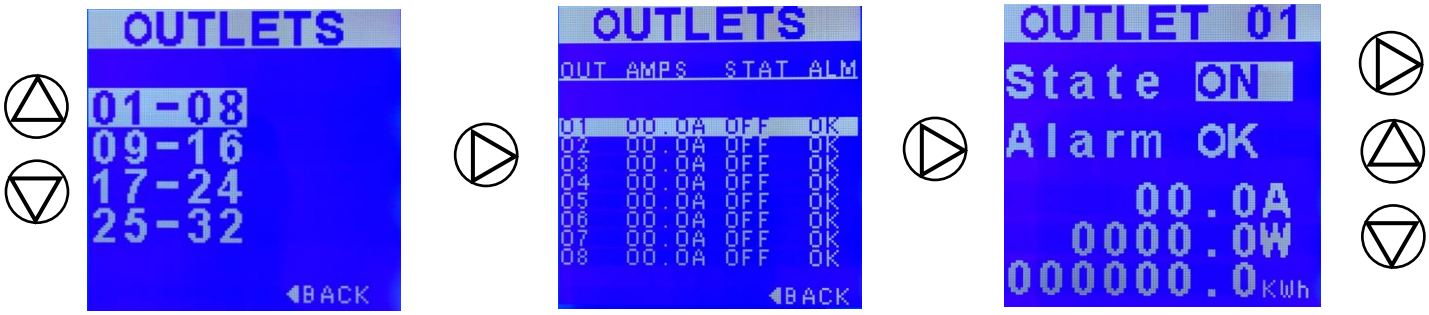
Press ▷ to cycle between alternative meter screens.

◁ Returns to main menu



Outlets Display

This display allows the current outlet state to be viewed or changed.
The outlet configuration and status are displayed in groups of 8
The first screen selects the group using the △ ▽ keys. Use ▷ to enter the group.



Outlet Group Select

Outlet Status Summary

Outlet Detail

▷ Turn ON/OFF

△▽ Next Outlet

Local Display

Alarms Display

Any active alarms are displayed on this screen.

If output alarms are present, the lowest number alarmed outlet is displayed.
If there are any alarms present an * is displayed next to ALARMS in the main menu.

OR Back to main menu

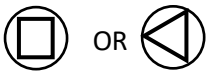
Environ Display

This screen shows the temperature and humidity from the external sensor.
The internal module temperature is also displayed.
Links this display to the PDU meter displays.

Local Display

About Display

The About screen gives general information relating to the PDU and the current network settings.



Back to main menu

The information shown is:

Current firmware version

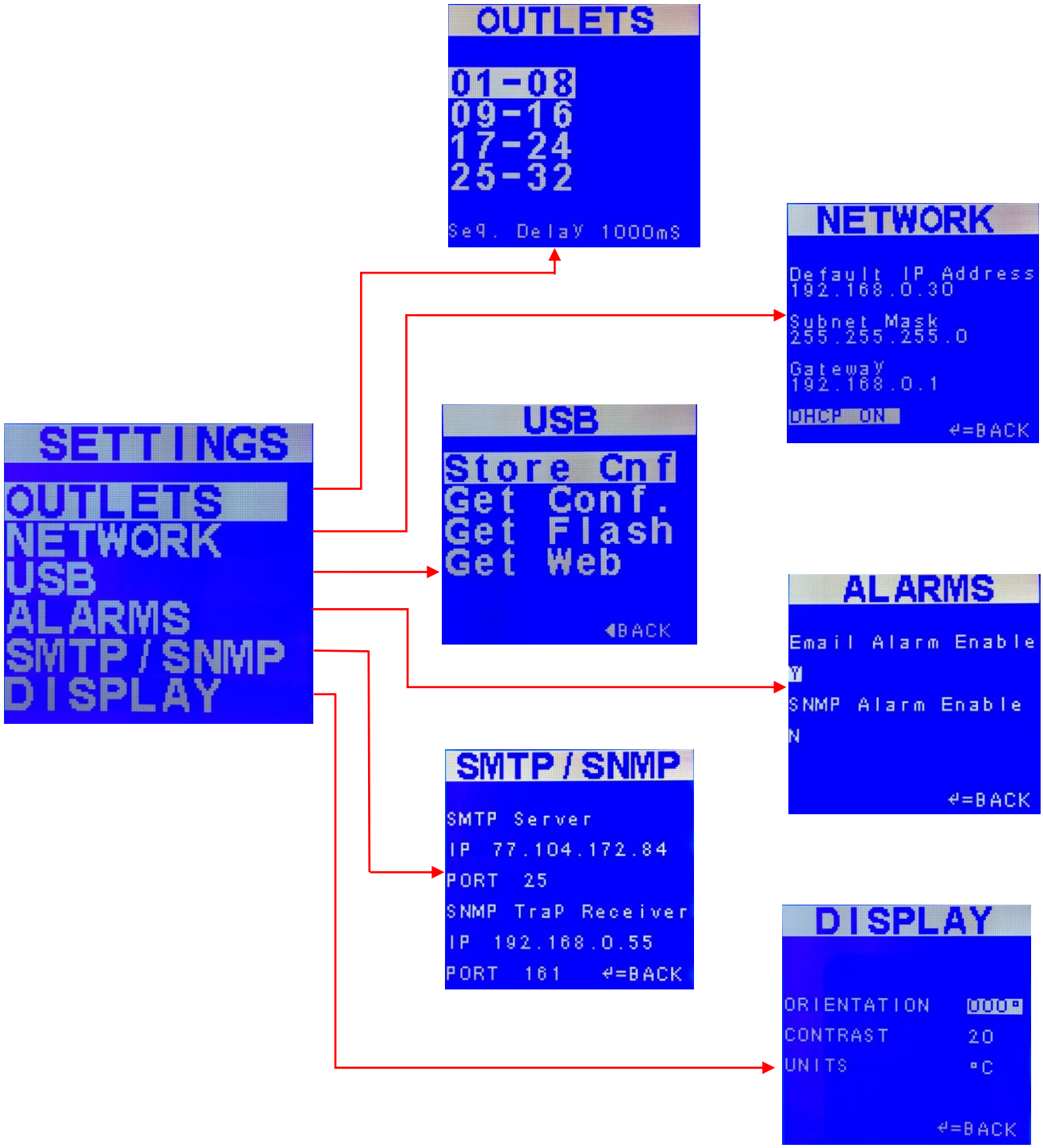
The number of outlets connected to the PDU module (0, 8, 16, 24 or 32)

The current IP address and MAC address of the network interface.

Local Display

Settings Display

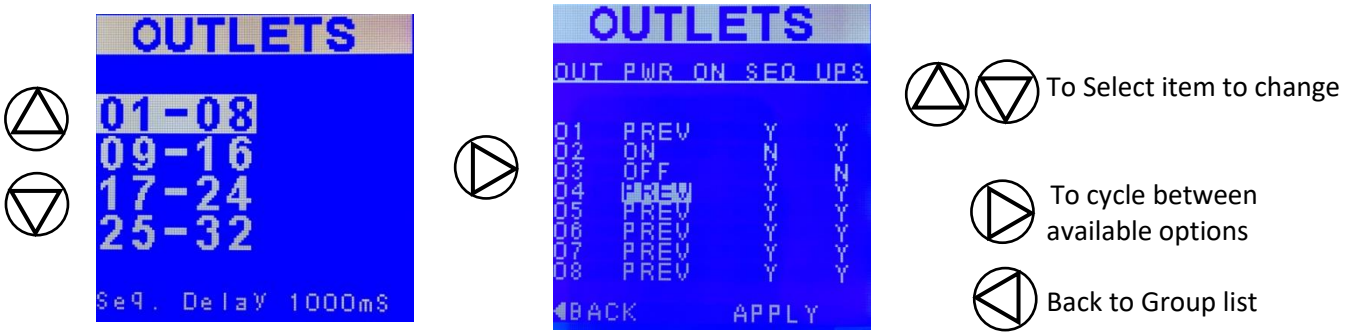
The settings menu allows programming of the various PDU meter parameters as well as behaviour of the switch module outlets.
The first settings screen shows a menu of the various setup groups. Items are selected in the same way as the main menu items:



Local Display - Settings

Outlet Setup

This display allows the current outlet power up behaviour to be viewed or changed.
The power on sequencing delay time is also programmed here.
The outlet configuration is displayed in groups of 8
The first screen selects the group using the ▲ ▼ keys. Use ▶ to enter the group.



Outlet Group Select and Sequence Delay Select

Outlet Status Summary

Outlet power up options:

PWR = Power up state can be:
ON - Always powers up in ON state
OFF - Always powers up in OFF state
PREV - Always powers up in state previous to power down

Output Sequence

SEQ = Include in power up sequence

N = No power up sequencing applies; output assumes state set in PWR immediately.
Y = Output is included in power on sequencing delay.
All outputs included in sequencing will turn on sequentially (if PWR setting requires it to be ON)
The delay between turning on successive outlets is set by the Seq Delay parameter
on the outlets group select screen.

UPS = Outlet to remain on (if set to be on) when UPS is active.

Y = Output remains on when UPS active.
N = Output is turned off while UPS is active.

The UPS function is provided so that non-essential loads may be shed during UPS operation to conserve power.

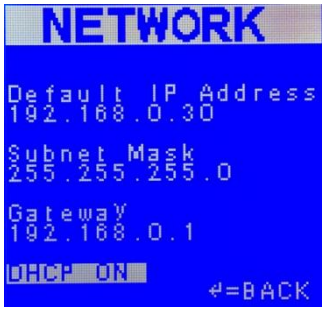
Local Display - Settings

Network Setup

The network setup screen allows the essential network parameters to be set or viewed.

The parameters which can be set are:

Default IP address
Subnet Mask
Default Gateway
DHCP enable



Use the ▲ ▼ keys to highlight the item to be adjusted, then use the ◀ ▶ keys to increment/decrement the chosen value.

The factory default values are:

Default IP address:	192.168.0.30
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.0.1
DHCP:	Off

Note that if using DHCP the IP address will be set automatically but the default gateway will not. The default gateway must be set manually.

Local Display - Settings

USB Functions

A USB memory stick port is provided through which the following functions can be performed:

Store PDU/Switch configuration (saves the current configuration to a USB device)
Get PDU/Switch configuration (loads a stored configuration from a USB device to the PDU)
Get/Update Firmware (loads Firmware file from a USB device to the PDU)
Get/Update Web Server (loads Web Server file from a USB device to the PDU)

The required function is selected from the USB menu.

Get/Store Configuration

This function is provided to enable simple backup of the programmed PDU configuration or to facilitate "cloning" of one PDU from another.

The "store configuration" function will create a human readable text configuration file on the USB memory named OLSON.CPF. This filename must not be changed if is required to load it using the "load configuration" option.
It is permissible to edit the OLSON.CPF file if it is required to load a previously stored PDU configuration but with some changes.

The OLSON.CPF file can also be remotely uploaded to a PDU over the network connection using the "olsonload" utility program.

For information on the setup parameter names used in the configuration file see appendix 1.

Note: only USB memory devices using the FAT 16 or FAT 32 format are supported.

Get/Update Firmware

This option updates the PDU the flash firmware.
The flash firmware file "olson.cff" must be present on the USB memory for this operation.

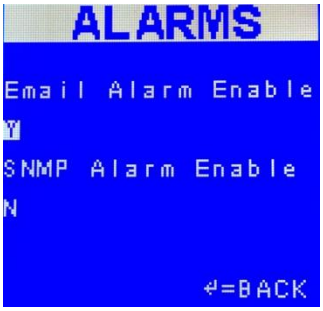
Get/Update Web Server

This option updates the web pages on the PDUs on board web server.
The web file "olson.cwf" must be present on the USB memory for this operation.

Local Display - Settings

Alarms Setup

This screen enables or disables email (SMTP) alarms and SNMP alarms.



Use the ▲ ▼ keys to highlight the item to be adjusted, then use the ◀ ▶ keys to toggle between Y and N.

If email alarms are enabled an alarm alert email will be sent to all alarm email recipients programmed whenever an alarm becomes active e.g. low mains voltage or outlet fuse fault.

Email recipients and email server information is programmed via the web interface settings page.

If SMTP alarms are enabled an SNMP TRAP will be sent to the programmed SNMP trap receiver IP address whenever an alarm becomes active.

The SNMP configuration and TRAP server IP address is programmed via the web interface settings page.

An example alarm alert email is shown below:

```
Automated ALARM NOTIFICATION email from Olson PDU.

PDU Name: MK1, Rack 4
ALARM: Outlet Fault Alarm
Readings:

260.5 Volts
00.01 Amps
0000  Watts
1.00  PF
35    Deg.C Internal
21    Deg.C External
65    %RH External

Outlet Status
1   2   3   4   5   6   7   8   9   10  11  12  13  14  15  16
OK  OK  ALM OK  OK  OK  OK  OK  OK  OK  ALM OK  OK  OK  OK  OK

17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32
--- --- --- --- --- --- --- --- --- --- --- --- --- --- --- ---

-- end of message --
```

Local Display - Settings

SMTP/SNMP Setup

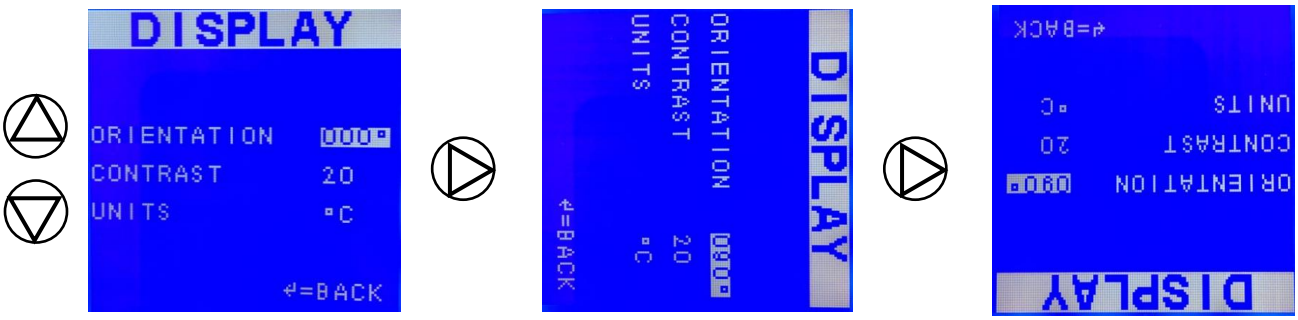
This screen allows the IP address and port number for the email (SMTP) server and the SNMP trap receiver IP address and port number to be viewed or set.

Use the ▲ ▼ keys to highlight the item to be adjusted, then use the ◀ ▶ keys to increment/decrement the chosen value.

Display Setup

This function allows the display and keypad orientation to be set to aid reading the display when the PDU is installed in different orientations.

The display and keypad can be set to operate in four different orientations; 0º,90º,180º & 270º



From this screen the display contrast can also be set and the temperature units can be set to ºC or ºF

Web Interface

The PDU controller module has a built-in web server to enable PDU meter readings to be viewed remotely and to enable configuration and setting to be performed remotely.

The default home page should be displayed when connecting to the unit.

The currently configured IP address of the web server can be found on the front panel main menu "about" option.

Note – Network settings may slow the response time for the web server to respond resulting in the screens and or the graphics not being updated. Please ensure that an exception is added to the Anti-Virus or Firewall software to allow the IP address of the remote monitoring unit to pass through, if slowness, intermittent disconnections or a failure to load the configuration screen correctly is experienced.

Aside from the home page, there are three main web pages:

Readings Page which displays the current PDU meter readings

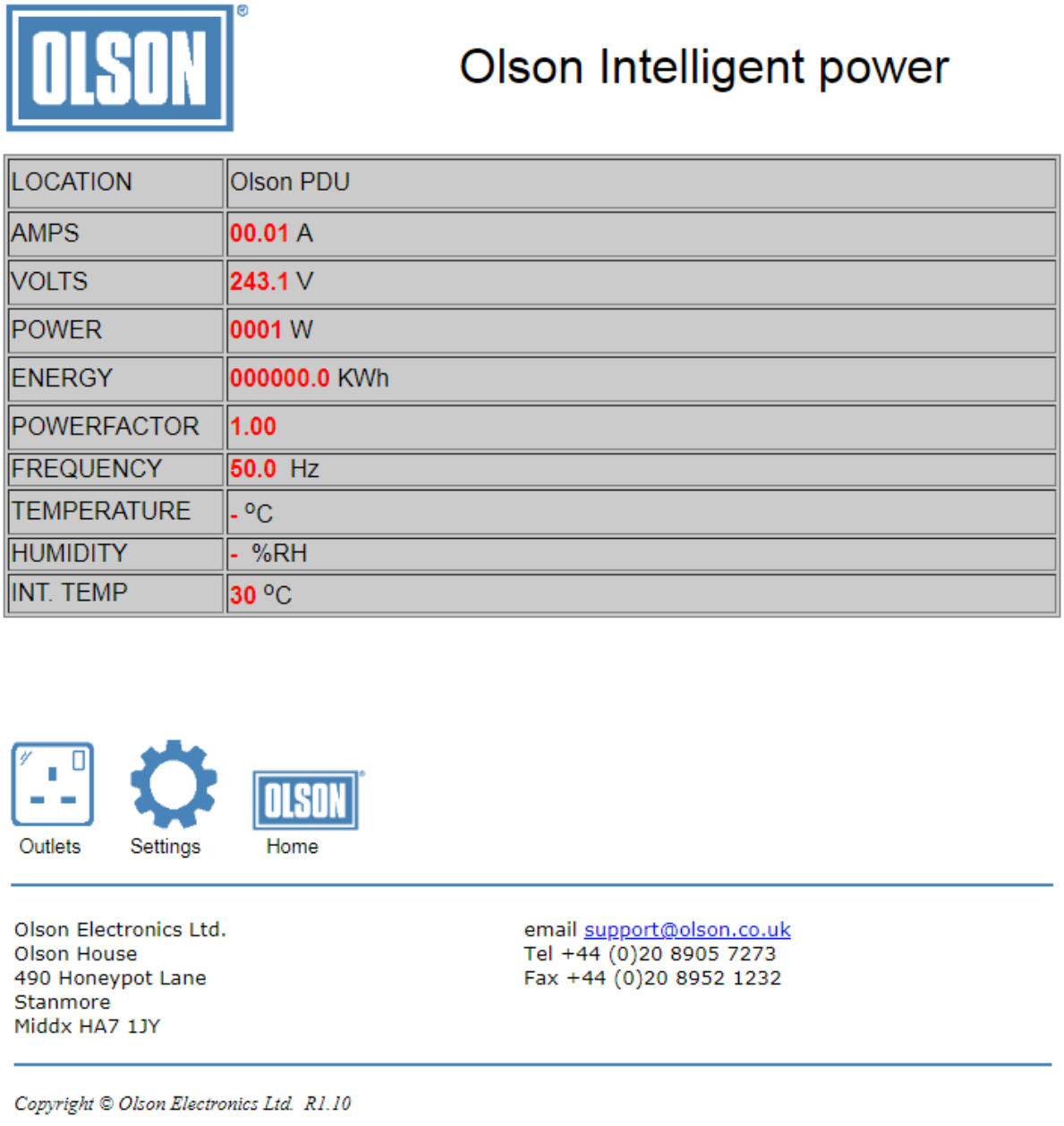
Outlets page which displays the current outlet states and allows user outlet settings

Settings page which displays the current system configuration and accepts user changes.

The PDU Home Page

Web Interface

The Readings Page



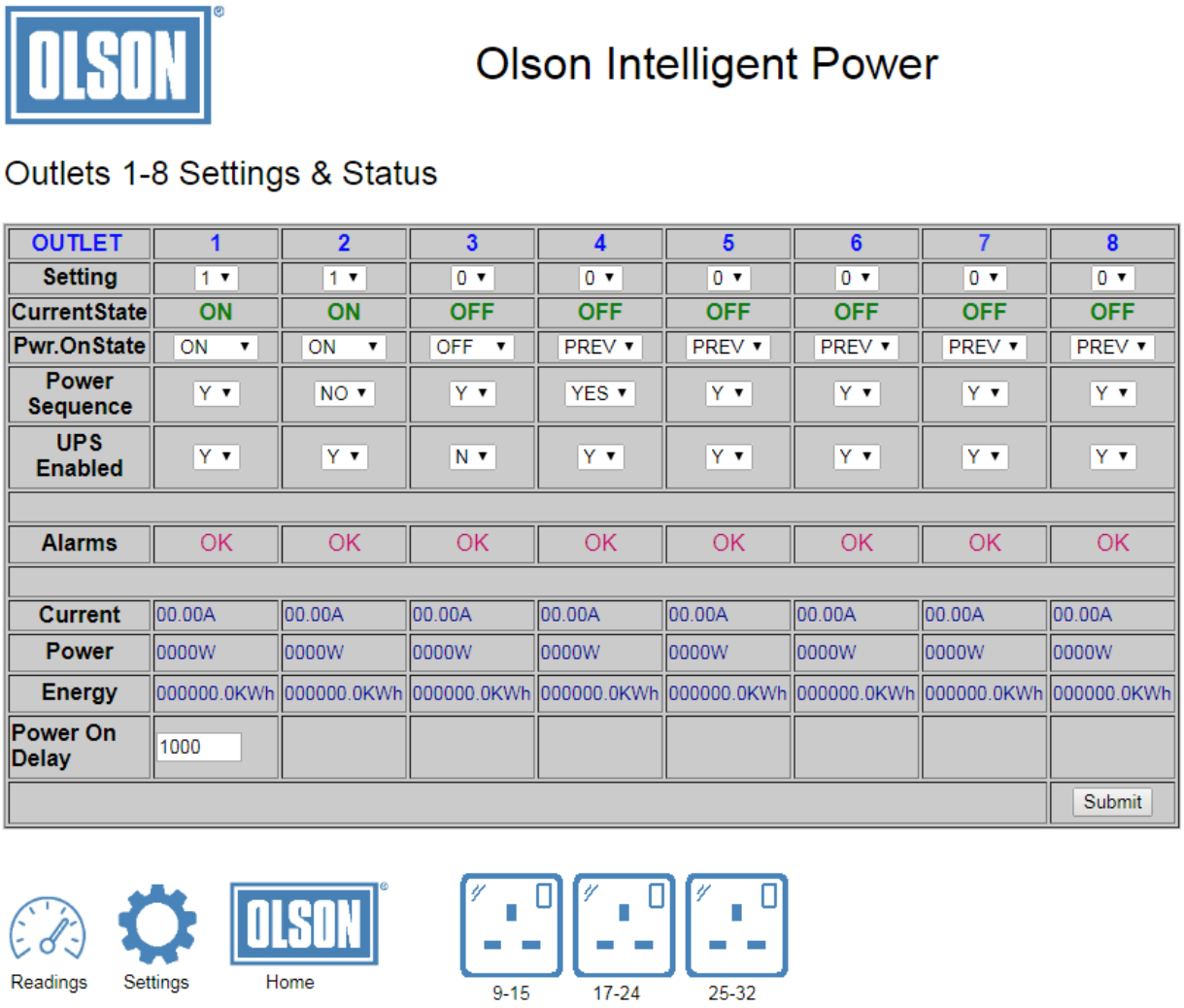
The PDU readings page above is fairly self-explanatory.
If no external temperature/humidity sensor is connected a "-" will be displayed for these values.

The reading will refresh by default every 10 seconds.

The refresh readings update period can be changed in the "infoPage refresh rate" setting on the settings page if required.

Web Interface

The Outlets Pages



Olson Intelligent Power

Outlets 1-8 Settings & Status

OUTLET	1	2	3	4	5	6	7	8
Setting	1	1	0	0	0	0	0	0
CurrentState	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
Pwr.OnState	ON	ON	OFF	PREV	PREV	PREV	PREV	PREV
Power Sequence	Y	NO	Y	YES	Y	Y	Y	Y
UPS Enabled	Y	Y	N	Y	Y	Y	Y	Y
Alarms	OK	OK	OK	OK	OK	OK	OK	OK
Current	00.00A	00.00A	00.00A	00.00A	00.00A	00.00A	00.00A	00.00A
Power	0000W	0000W	0000W	0000W	0000W	0000W	0000W	0000W
Energy	000000.0KWh	000000.0KWh	000000.0KWh	000000.0KWh	000000.0KWh	000000.0KWh	000000.0KWh	000000.0KWh
Power On Delay	1000							
								Submit

Readings Settings Home 9-15 17-24 25-32

OlsonElectronics Ltd.
Olson House
490 Honeypot Lane
Stanmore
Middx HA7 1JY

email support@olson.co.uk
Tel +44 (0)20 8905 7273
Fax +44 (0)20 8952 1232

There are four outlet setting and status pages, one for each group of 8 outlets.
The first outlet setting page is shown here for outlets 1-8.
The various fields are described in detail below.

Web Interface

Outlet Setting Page Description

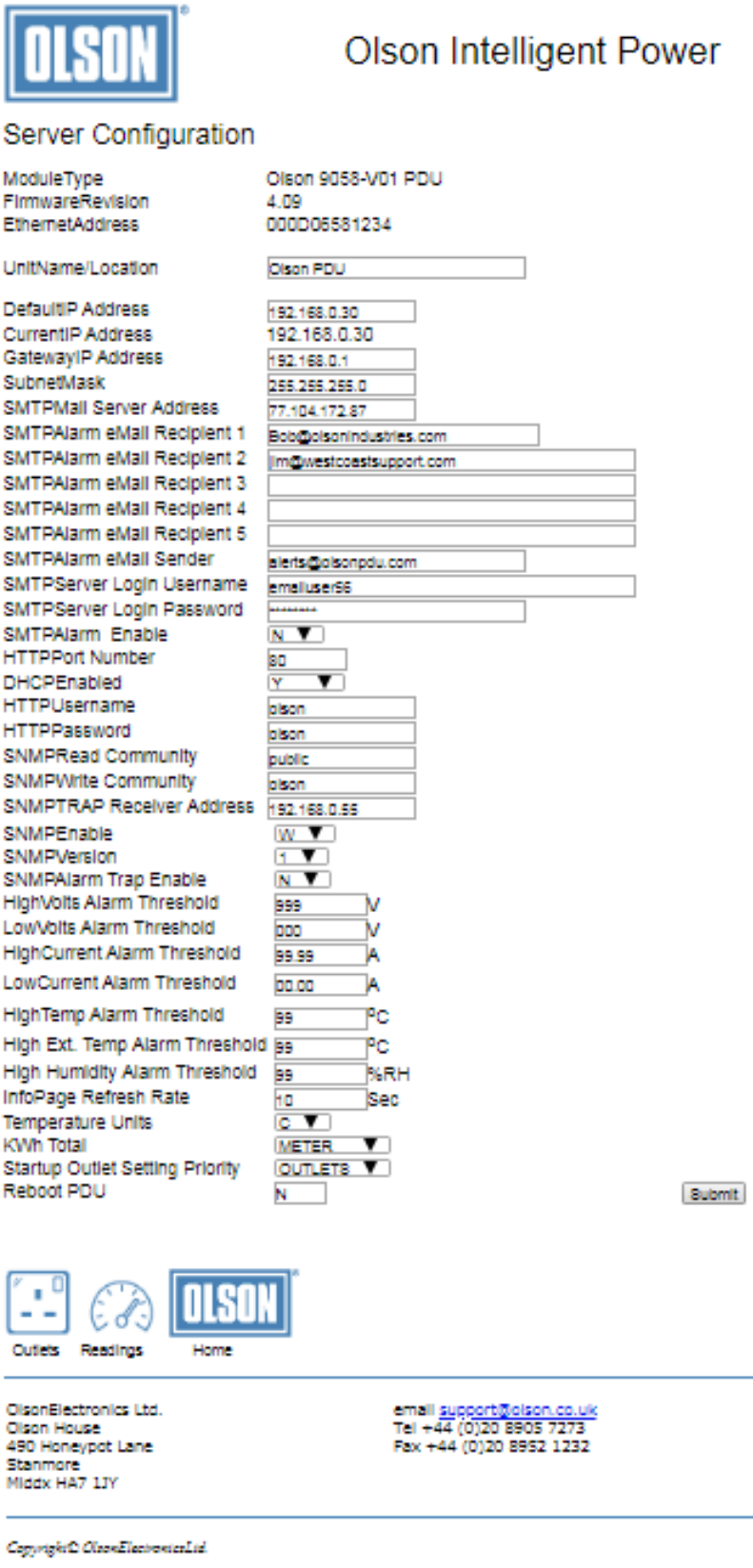
There are four outlet setting pages.
Each outlet page shows the status and setting for one group of 8 outlets.

The fields displayed are as follows:

Setting	The currently set outlet state 1=ON, 0=OFF
Current State	The actual reported outlet state
Pwr. on State	The desired power up state, can be ON, OFF or PREV
Power sequence	Whether or not outlet is included in the power on sequencing, Y or N
UPS Enable	If set to "Y" the outlet will stay on when the UPS is active.
Alarms	Reads "OK" if no alarm or "ALM" if outlet is in alarm condition. An alarm condition exists if the outlet is programmed to be on but no output is detected OR if the output is programmed to be off but output voltage is detected.
Current	The current outlet load Amps reading
Power	The current outlet power reading
Energy	The current outlet energy (KWh) reading
Power On Delay	The delay in milliseconds between turning on successive outlets at power on for outlets included in power sequencing. Values can be from 100mS to 3 seconds in 100mS steps.

Web Interface

The Settings Page



Olson Intelligent Power

Server Configuration

ModuleType	Olson 9058-V01 PDU
FirmwareRevision	4.09
EthernetAddress	000D06581234
UnitName/Location	Olson PDU
DefaultIP Address	192.168.0.30
CurrentIP Address	192.168.0.30
GatewayIP Address	192.168.0.1
SubnetMask	255.255.255.0
SMTPMail Server Address	77.104.172.87
SMTPAlarm eMail Recipient 1	Bob@olsonindustries.com
SMTPAlarm eMail Recipient 2	jim@westcoastsupport.com
SMTPAlarm eMail Recipient 3	
SMTPAlarm eMail Recipient 4	
SMTPAlarm eMail Recipient 5	
SMTPAlarm eMail Sender	alerts@olsonpdu.com
SMTPServer Login Username	emailuser56
SMTPServer Login Password	********
SMTPAlarm Enable	N
HTTPPort Number	80
DHCPEnabled	Y
HTTPUsername	olson
HTTPPassword	olson
SNMPRead Community	public
SNMPWrite Community	olson
SNMPTRAP Receiver Address	192.168.0.55
SNMPEnable	W
SNMPVersion	1
SNMPAlarm Trap Enable	N
HighVolts Alarm Threshold	999 V
LowVolts Alarm Threshold	000 V
HighCurrent Alarm Threshold	99.99 A
LowCurrent Alarm Threshold	00.00 A
HighTemp Alarm Threshold	99 °C
High Ext. Temp Alarm Threshold	99 °C
High Humidity Alarm Threshold	99 %RH
InfoPage Refresh Rate	10 Sec
Temperature Units	C
KWh Total	METER
Startup Outlet Setting Priority	OUTLETS
Reboot PDU	N

Submit

Outlets Readings Home

OlsonElectronics Ltd.
Olson House
490 Honeypot Lane
Stanmore
Middx HA7 1JY

email support@olson.co.uk
Tel +44 (0)20 8905 7273
Fax +44 (0)20 8952 1232

Copyright© OlsonElectronicsLtd

Web Interface

Settings Page Description

The settings page is where the operational PDU parameters are displayed and configured.

The fields on the settings page are as follows:

Module Type	Identifies the PDU module type - currently "Olson 9058-V01 PDU"
Firmware Revision	PDU Module firmware revision
Ethernet Address	PDU Module MAC address (module serial number)
Unit Name/Location	User defined name or description for the PDU
Default IP Address	The default IP address if not using DHCP
Current IP Address	The current IP address (allocated by DHCP if enabled)
Gateway IP Address	Subnet Gateway IP address
SubnetMask	Subnet Mask
SMTP Mail Server Address	SMTP mail server address. NB this has to be an IP address and not a URL as no DNS lookup is performed.
SMTP Alarm email Recip 1	email address of first email alarm recipient (34 characters)
SMTP Alarm email Recip 2	email addresses for next 4 alarm email recipients (48 Characters)
SMTP Alarm email Recip 3	"
SMTP Alarm email Recip 4	"
SMTP Alarm email Recip 5	"
SMTP Alarm email Sender	email address of alarm email "sender"
SMTP Svr Login Usrname	SMTP server login username
SMTP Svr Login Passwrd	SMTP server login password
SMTP Alarm Enable	set to "Y" to enable email alarms
HTTP Port Number	HTTP (web) port number, default is 80
DHCP Enabled	Set to "Y" to enable automatic IP address allocation
HTTP Username	Login username for setting & outlets pages, default "olson"
HTTP Password	Login password for setting & outlets pages, default "olson"
SNMP Read Community	SNMP read community name, default "public"
SNMP Write Community	SNMP write community name, default "olson"

Web Interface

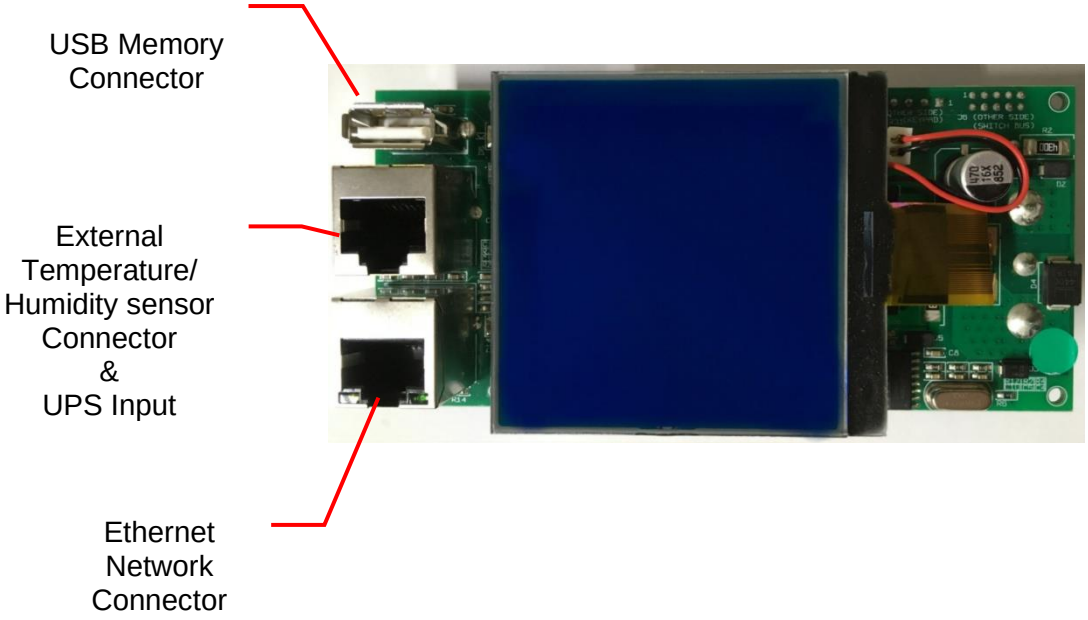
SNMP TRAP Rcvr Address	IP destination address for sending SNMP TRAP messages
SNMP Enable	Set to "R" to enable SNMP read only functions, set to "W" to enable SNMP read and write and set to "N" to disable SNMP.
SNMP Version	Set to "1" or "2" to select SNMP version
SNMP Alarm Trap Enable	Enables sending of SNMP traps when alarm conditions are active. set to "Y" to enable SNMP traps.
High Volts Alarm Thres.	Alarm threshold for high AC volts alarm. Set to "999" to disable
Low Volts Alarm Thres.	Alarm threshold for low AC volts alarm. Set to "000" to disable
High Current Alarm Thresh	Alarm threshold for high AC current alarm. Set to "999" to disable
Low Current Alarm Thresh	Alarm threshold for low AC current alarm. Set to "000" to disable
High Temp Alarm Thresh.	Alarm threshold for high internal temperature alarm. Set to "999" to disable
High Ext. Temp Alm Thres	Alarm threshold for high external temperature alarm. Set to "999" to disable
High Humidity Alm Thresh.	Alarm threshold for high external humidity alarm. Set to "999" to disable
Info Page Refresh Rate	Time in seconds for reading page auto refresh
Temperature Units	set to "C" or "F" to set temperature units
KWh Total	Selects whether the total KWh reading displayed is the KWh measured by the PDU controller module or the aggregate of all the individual outlet KWh readings. Set to "METER" to display the PDU meter KWh total or set to "OUTLETS" to display the sum of the outlet KWhs.

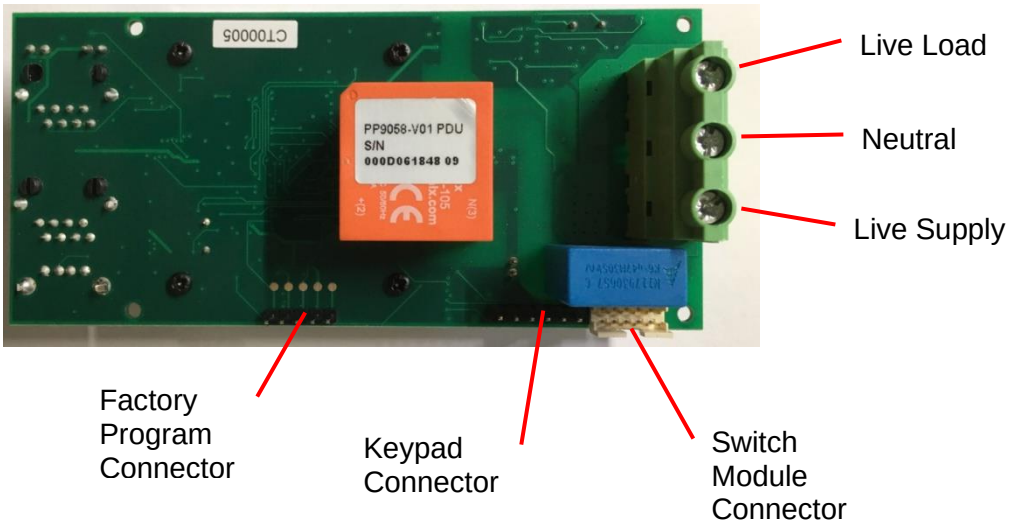
Web Interface

Startup Outlet Set Priority	Selects output state programming priority. This feature is not currently used and should be set to “METER” as default. Setting to “OUTLETS” may cause issues if the PDU Controller Module is replaced at any time.
Reboot PDU	Set this parameter to "Y" to remotely reboot the PDU controller.

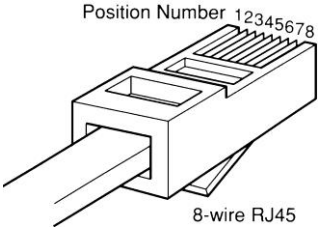
PDU Controller Module Connections

The PDU controller module connections are shown below.



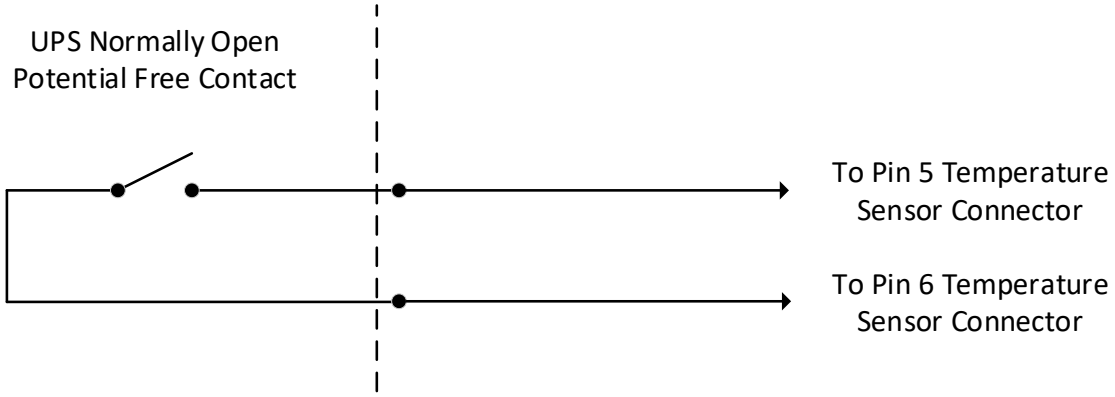


UPS active input is signaled by closure of a relay contact connected between pins 5 & 6 of the external Temperature sensor connector.

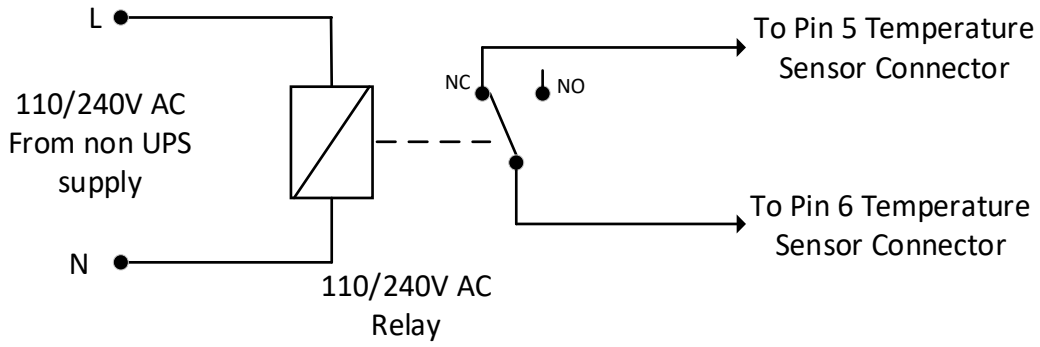


UPS Connection Examples

UPS Connection – UPS with normally open potential free contact – contact closes when UPS is active

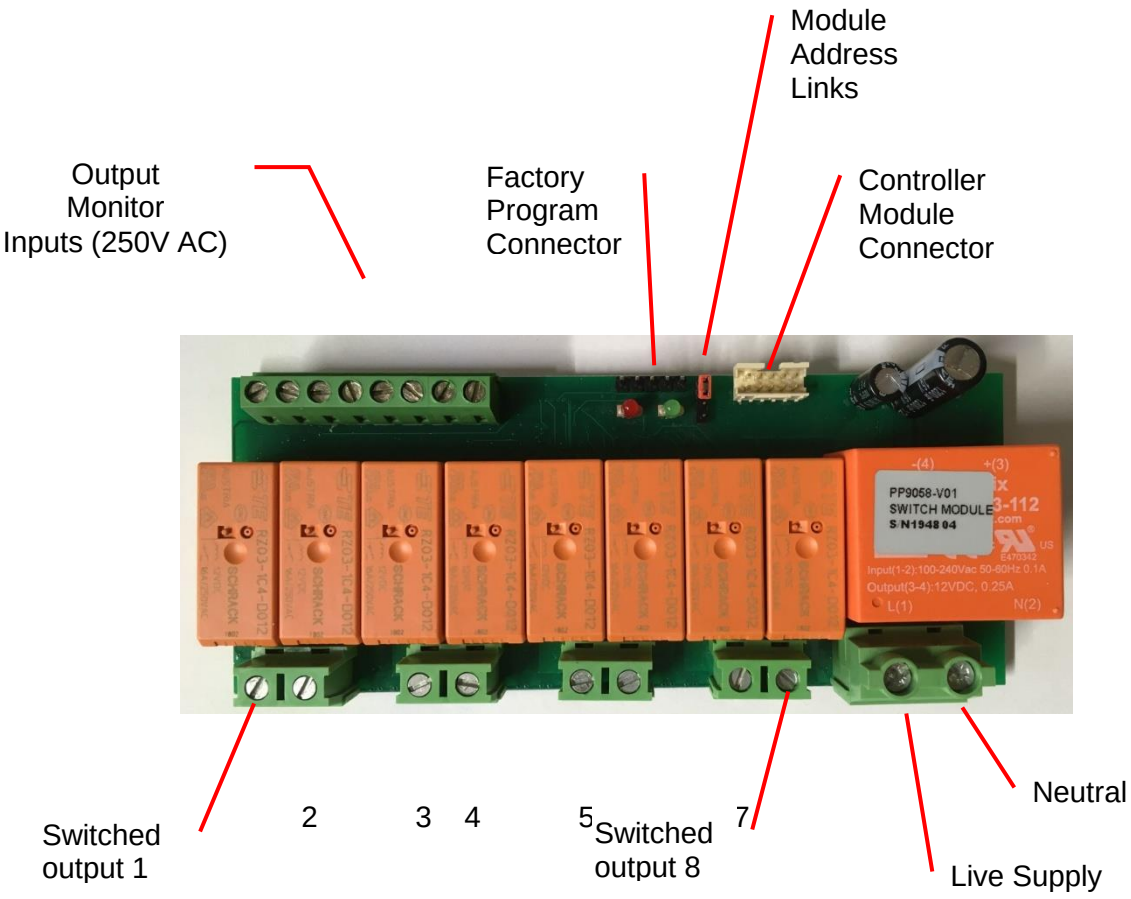


UPS Connection – UPS does not have internal activation signal



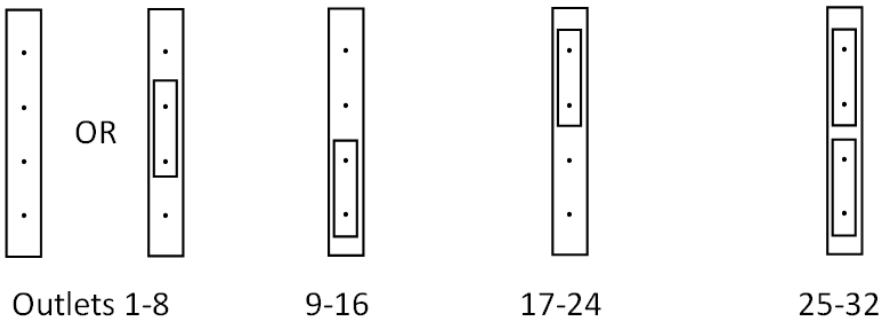
Switching Module Connections

The switching module connections are shown below.



Module Addressing

Switching modules can be configured to one of four outlet groups according to the placement of the module address links as follows:



Specifications

PDU Controller Module

Display

Type	White on Blue backlit LCD graphic display
Size	2.5" square aspect
Orientation	0º, 90º, 180º or 270º - configurable,

Keypad

Type	Tactile membrane, incorporated into front panel graphic overlay
Keys	5, 4 cursor + enter

AC measurements

Volts (RMS):	000.0 to 299.9
Amps (RMS):	00.00 to 49.99
Power (W):	0000 to 9999
Energy (KWh)	000000.0 to 999999.9 (15.5 years @ full 32A load) with reset to zero function.
Frequency	40 to 70Hz
Power Factor	.00 to .99
Accuracy	1% maximum error

Internal Temperature Measurement

Range	0-99ºC
Accuracy	3%

External Temperature & Humidity Port

Interface	Conforms to 1-Wire standard
Sensor Type	Configurable for various sensor types.

Network Port

Ethernet	10/100baseT auto sensing.
Connector	RJ45 with speed and data indicator LEDs
IP Address	Configurable static, or dynamic using DHCP protocol
Protocols	IP, ARP, DHCP, DNS, TCP, UDP, HTTP, TFTP, SNMP, SMTP

Web Server

Internal web server for remote display of all monitored values in standard web browser and remote management of settings and configurations. User login password protected

SNMP

Monitor & Control	SNMP V1 & V2c supported. Allows remote SNMP based network management system to retrieve all measured values and manage configuration.
Traps	SNMP trap capability for sending alarms if measured values fall outside of programmable limits

Specifications

Alarms

General	High/Low AC Volts, High/Low AC current, High internal temperature, High external Temperature* High external humidity* Outlet Fault
Email	Any of the above alarms can send an alarm notification email
SNMP	Any of the above alarms can send an SNMP V1/V2c trap alarm notification

USB Port

Type	USB 2.0
Connector	USB Type A
Format	FAT 16/32
Functions	USB Memory stick support for saving and loading configuration files, Firmware updates, Web server updates.

Switching Module Control Port

Type	4 wire multi-drop bus supporting up to 4 switching modules

Mains Input

90-260 VAC, 50/60Hz, 32A maximum load

Environmental

Operating Temperature	0-55ºC
Operating Humidity	10-90%

Dimensions

120mmL x 55mmW x 40mmH

*Option requiring additional hardware

Specifications

PDU Switching Module*

Mains Outputs

Number	8
Current	16A maximum load per circuit – Inrush Current 80A / 20ms**
Type	Relay
Total Load	Total maximum load for all 8 outputs combined 32A

**** Important Note - some phone, tablet and laptop chargers can have extremely high inrush currents and will weld the switching relay contacts together. Olson can supply a High-Power Switching Module with an inrush current rated at 120A for 20ms. Please contact Olson Sales for more details and prices. It is the user's responsibility to check the inrush current of devices before connecting them to the Switching Module as any damage caused by over current will not be covered by the warranty.**

Switching

Control	On/Off control via local keypad, Web Interface or SNMP
Power On	All outputs can be configured to be ON, OFF or previous state following a power fail
Sequential Start	Programmable sequential start delay after power fail Individual outputs can be configured to opt in or out of sequential start

Monitoring

Measurements	Individual measurement of output current (A) and power (W) and Energy (KWh)
Fuse/Breaker	Individual status of each output fuse/breaker

Alarms

Switching Module	Fuse/Breaker open alarm and relay stuck alarm for each output.
Email	Any of the above alarms can send an alarm notification email
SNMP	Any of the above alarms can send an SNMP V1/V2c trap alarm notification

Switching Module Control Port

4 wire multi-drop bus supporting for connecting switching module to monitor (master) module.

Mains Input

90-260 VAC, 50/60Hz, 32A maximum load

Environmental

Operating Temperature	0-55^{o}C
Operating Humidity	10-90%

Dimensions

120mmL x 55mmW x 40mmH

*Option requiring additional hardware

Appendix 1. USB Parameter file parameter codes

When the PDU settings are saved to USB memory file a human readable text file containing the PDU settings is created. These can be edited if required before reading back into the same or another PDU.

Each parameter has a 3 digit parameter code which is case sensitive.

The table below shows the parameter codes for reference.

002	Module Type
001	Firmware Revision
0P0	card ethernet (MAC) address
0P1	Server Name
0P2	Default IP address
0P3	Subnet Mask
0P4	Default Gateway
0P5	SNMP Trap Receiver IP
0P6	SMTP Server IP
0P7	HTTP Port Number
0P8	TFTP Port Number
0P9	SNMP Port Number
0PA	SMTP Port Number
0PB	HTTP Enable
0PC	DHCP Enable
0PD	SNMP Enable [N/R/W]
0PE	SNMP Traps Enable
0PF	SMTP Alarms Enable
0PG	SNMP Version
0PH	TFTP Enable
0PI	HTTP Username
0PJ	HTTP Password
0PL	SMTP Sender email address
0PM	SMTP User Name (48 bytes)
0PN	SMTP Server Password (32 bytes)
0PO	SNMP Read Community
0PP	SNMP Write community
0PR	info web page refresh rate
0VH	Hi Volts Alarm Threshold
0VL	Lo Volts Alarm Threshold
0IH	Hi Current Alarm Threshold
0IL	Lo Current Alarm Threshold
0HT	Hi Temp Alarm Threshold
0ET	Ext Hi Temp threshold
0EH	Ext Hi Humid threshold
0PK	SMTP Receiver email address 1 (34 bytes)
0E1	SMTP copy email address 1 (48 bytes)
0E2	SMTP copy email address 2 (48 bytes)
0E3	SMTP copy email address 3 (48 bytes)
0E4	SMTP copy email address 4 (48 bytes)
0x1	1-wire device types
0w1	1-Wire Device 1 address
0w2	1-Wire Device 2 address
0wB	Temperature Units [C/F]
0wC	Total KWh from Meter or Switch cards
0wD	Startup switch configuration source
0PS	outlet sequence delay

Appendix 1. USB Parameter file parameter codes

0Z0	outlet switch setting 1	0U0	UPS enable outlet 1
0Z1	outlet switch setting 2	0U1	UPS enable outlet 2
0Z2	outlet switch setting 3	0U2	UPS enable outlet 3
0Z3	outlet switch setting 4	0U3	UPS enable outlet 4
0Z4	outlet switch setting 5	0U4	UPS enable outlet 5
0Z5	outlet switch setting 6	0U5	UPS enable outlet 6
0Z6	outlet switch setting 7	0U6	UPS enable outlet 7
0Z7	outlet switch setting 8	0U7	UPS enable outlet 8
0Z8	outlet switch setting 9	0U8	UPS enable outlet 9
0Z9	outlet switch setting 10	0U9	UPS enable outlet 10
0ZA	outlet switch setting 11	0UA	UPS enable outlet 11
0ZB	outlet switch setting 12	0UB	UPS enable outlet 12
0ZC	outlet switch setting 13	0UC	UPS enable outlet 13
0ZD	outlet switch setting 14	0UD	UPS enable outlet 14
0ZE	outlet switch setting 15	0UE	UPS enable outlet 15
0ZF	outlet switch setting 16	0UF	UPS enable outlet 16
0ZG	outlet switch setting 17	0UG	UPS enable outlet 17
0ZH	outlet switch setting 18	0UH	UPS enable outlet 18
0ZI	outlet switch setting 19	0UI	UPS enable outlet 19
0ZJ	outlet switch setting 20	0UJ	UPS enable outlet 20
0ZK	outlet switch setting 21	0UK	UPS enable outlet 21
0ZL	outlet switch setting 22	0UL	UPS enable outlet 22
0ZM	outlet switch setting 23	0UM	UPS enable outlet 23
0ZN	outlet switch setting 24	0UN	UPS enable outlet 24
0ZO	outlet switch setting 25	0UO	UPS enable outlet 25
0ZP	outlet switch setting 26	0UP	UPS enable outlet 26
0ZQ	outlet switch setting 27	0UQ	UPS enable outlet 27
0ZR	outlet switch setting 28	0UR	UPS enable outlet 28
0ZS	outlet switch setting 29	0US	UPS enable outlet 29
0ZT	outlet switch setting 30	0UT	UPS enable outlet 30
0ZU	outlet switch setting 31	0UU	UPS enable outlet 31
0ZV	outlet switch setting 32	0UV	UPS enable outlet 32

Appendix 1. USB Parameter file parameter codes

0T0	outlet 1 power on seq [YES/NO]	0X0	power on state 1 [PREV/ON/OFF]
0T1	outlet 2 power on seq [YES/NO]	0X1	power on state 2 [PREV/ON/OFF]
0T2	outlet 3 power on seq [YES/NO]	0X2	power on state 3 [PREV/ON/OFF]
0T3	outlet 4 power on seq [YES/NO]	0X3	power on state 4 [PREV/ON/OFF]
0T4	outlet 5 power on seq [YES/NO]	0X4	power on state 5 [PREV/ON/OFF]
0T5	outlet 6 power on seq [YES/NO]	0X5	power on state 6 [PREV/ON/OFF]
0T6	outlet 7 power on seq [YES/NO]	0X6	power on state 7 [PREV/ON/OFF]
0T7	outlet 8 power on seq [YES/NO]	0X7	power on state 8 [PREV/ON/OFF]
0T8	outlet 9 power on seq [YES/NO]	0X8	power on state 9 [PREV/ON/OFF]
0T9	outlet 10 power on seq [YES/NO]	0X9	power on state 10 [PREV/ON/OFF]
0TA	outlet 11 power on seq [YES/NO]	0XA	power on state 11 [PREV/ON/OFF]
0TB	outlet 12 power on seq [YES/NO]	0XB	power on state 12 [PREV/ON/OFF]
0TC	outlet 13 power on seq [YES/NO]	0XC	power on state 13 [PREV/ON/OFF]
0TD	outlet 14 power on seq [YES/NO]	0XD	power on state 14 [PREV/ON/OFF]
0TE	outlet 15 power on seq [YES/NO]	0XE	power on state 15 [PREV/ON/OFF]
0TF	outlet 16 power on seq [YES/NO]	0XF	power on state 16 [PREV/ON/OFF]
0TG	outlet 17 power on seq [YES/NO]	0XG	power on state 17 [PREV/ON/OFF]
0TH	outlet 18 power on seq [YES/NO]	0XH	power on state 18 [PREV/ON/OFF]
0TI	outlet 19 power on seq [YES/NO]	0XI	power on state 19 [PREV/ON/OFF]
0TJ	outlet 20 power on seq [YES/NO]	0XJ	power on state 20 [PREV/ON/OFF]
0TK	outlet 21 power on seq [YES/NO]	0XK	power on state 21 [PREV/ON/OFF]
0TL	outlet 22 power on seq [YES/NO]	0XL	power on state 22 [PREV/ON/OFF]
0TM	outlet 23 power on seq [YES/NO]	0XM	power on state 23 [PREV/ON/OFF]
0TN	outlet 24 power on seq [YES/NO]	0XN	power on state 24 [PREV/ON/OFF]
0TO	outlet 25 power on seq [YES/NO]	0XO	power on state 25 [PREV/ON/OFF]
0TP	outlet 26 power on seq [YES/NO]	0XP	power on state 26 [PREV/ON/OFF]
0TQ	outlet 27 power on seq [YES/NO]	0XQ	power on state 27 [PREV/ON/OFF]
0TR	outlet 28 power on seq [YES/NO]	0XR	power on state 28 [PREV/ON/OFF]
0TS	outlet 29 power on seq [YES/NO]	0XS	power on state 29 [PREV/ON/OFF]
0TT	outlet 30 power on seq [YES/NO]	0XT	power on state 30 [PREV/ON/OFF]
0TU	outlet 31 power on seq [YES/NO]	0XU	power on state 31 [PREV/ON/OFF]
00V	outlet 32 power on seq [YES/NO]	0XV	power on state 32 [PREV/ON/OFF]