



# IP Sensor Appliance

## IP-PC-101



Anyone who can surf the web, now can do sensor monitoring, control, data logging, and email alerts without any training or custom software. All you need is a web browser running on any laptop, PDA, or cell phone anywhere in the world.

The *Maverick* IP Sensor Appliance incorporates a web server, analog/digital inputs and relay outputs. Power the appliance with any 24VAC transformer, plug it into a hub/router, launch any web browser, punch in the default IP and connect. No custom software to load, no discovery routines, no custom cables, or training.

The IP Sensor Appliance serves up static web pages with dynamic data updates every second or two. Most users can set up and utilize the appliance without any training or support in less than 5 minutes due to the innovative and familiar web browser based configuration.

The *Maverick* is an ideal low cost solution for light commercial, residential and remote monitoring applications. The appliance can also be used to enhance existing HVAC control systems by adding email alerts and data logging to critical points.



8189 Century Boulevard • Minneapolis, MN 55317-8002 • USA  
800-843-5116 • 952-556-4900 • Fax 952-556-4997  
sales@mamacsys.com • www.mamacsys.com

Baird House, Units 6&7  
Pensnett Estate • Kingswinford  
West Midlands • DY6 7YA • United Kingdom  
01384-271113 • Fax 01384-271114

4 Arminger Court, Unit 2  
Holden Hill • S.A. 5088 • Australia  
08-8395-4333 • Fax 08-8395-4433

155 McIntosh Drive, Units 5&6 • Markham  
Ontario • L3R 0N6 • Canada  
905-474-9215 • Fax 905-474-0876

No. 22 Lorong 21A Geylang # 11-02  
Prosper Industrial Building  
Singapore • 388421  
656-3927273 • Fax 656-3927276

# IP-PC-101

## **GENERAL:**

The Maverick IP Sensor Appliance has an embedded lean TCP-IP stack including HTTP, SMTP, DHCP, DNS, FTP, and ARP.

The Maverick also has XML embedded with formatted input & output data. In this way, the Maverick can communicate directly with any IT system which has an XML parser. Similarly, any simple JavaScript can be used to communicate and acquire HTML data. These unique features enable the Maverick to function as a extremely low cost XML & HTML node for large enterprise IT systems.

## **INPUTS & OUTPUTS:**

The Maverick is available in two I/O versions - First version has 8 analog or digital inputs and the second has 4 analog or digital inputs and 4 relay outputs. The analog inputs can be specified to be voltage or current inputs. On voltage input versions, the appliance can be field configured for 0-5 or 0-10 VDC inputs. Both analog versions (voltage or current) accept 10 VDC maximum as digital input. The output relays are rated for 5 Amps @ 250 VAC and can be used for pilot duty or light load switching directly.

Any input can be assigned to control relays 1 through 4. An output can be controlled by an input, and/or by time based control. If an output has both input and time control, the time based control will force the output on and override the input during "ON" time. However, if time based control is off, input control will take over and force the output on if the value is above/below set point.

The most powerful feature the Maverick has is browser initiated manual control. Any output can be controlled remotely with a web browser running on a cell phone, PDA or a laptop. In this way, if an email alert is received, the user can remotely control the output manually and handle the emergency. Using email alerts, the load can be operated

manually until a convenient time to dispatch a service technician.

## **EMAIL ALERTS:**

Biggest short coming of all existing control systems is their inability to directly send email alerts and alarms. The Maverick appliance has a very user friendly email alert capability and can send email alerts to up to two different addresses. Email alerts can be configured on all inputs and the Maverick also has the capability to attach a comma separated log file to the email alert. In this way, the user does not only receive an alert but also can parse the log file and know why the alert is coming.

The Maverick appliance can also send email alerts in case of a power outage. The appliance logs the time the power went out and when the power is restored, sends an email with time stamp when the power went out and when it was restored.

Similarly, the appliance can be configured to send an email if the DHCP IP assignment has been changed. In this way, if the Maverick is running as a DHCP client, it can keep the users abreast of it's DHCP IP assignment and the user does not have to discover the appliance.

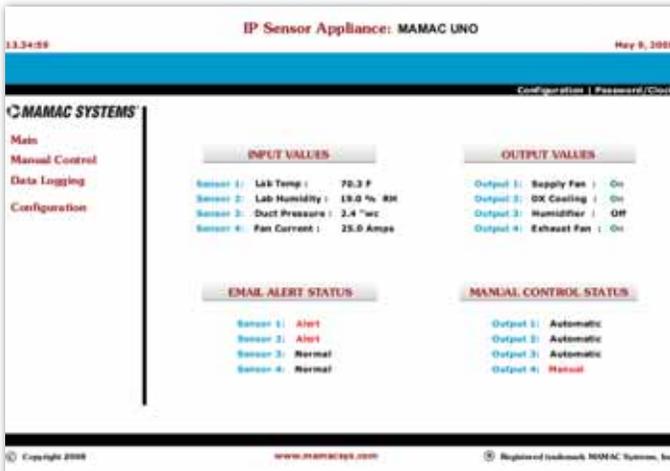
## **DATA LOGGING:**

The appliance can log 2048 samples for each input. The logging interval can be from 1 second to 99.99 hours. Data is logged in a standard CSV file and can be reviewed with Notepad, Wordpad, Excel or any other software application which can open comma separated files.

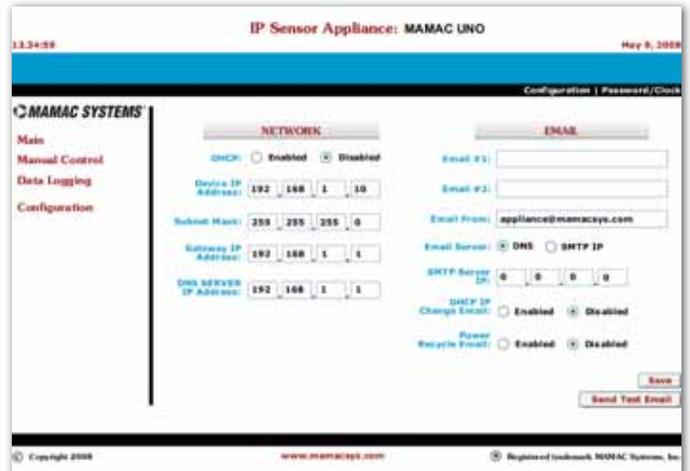
The Maverick also uses a JavaScript which runs on the web browser to display the logged data as a graph. The X scale (sensor value) and the Y scale (time) on the graph can be adjusted. As a result, the graph can be plotted to show only the relevant data.

# IP-PC-101

## MAVERICK BROWSER SCREEN SHOTS:



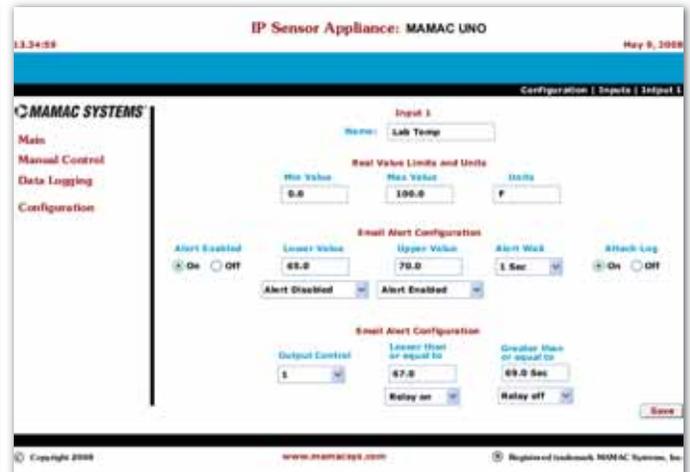
Main page with complete status of every input & output



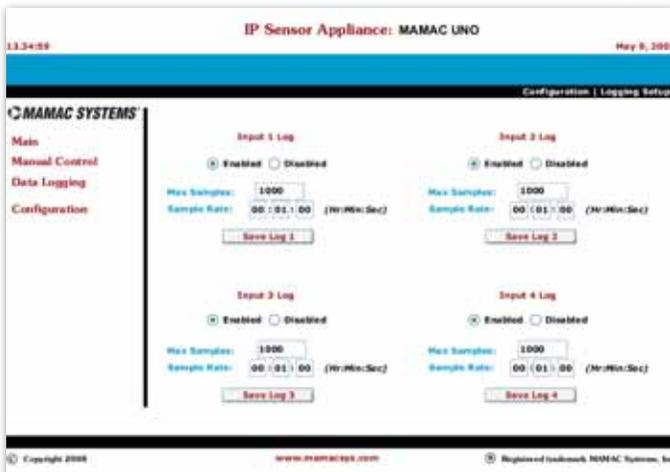
Network & email configuration



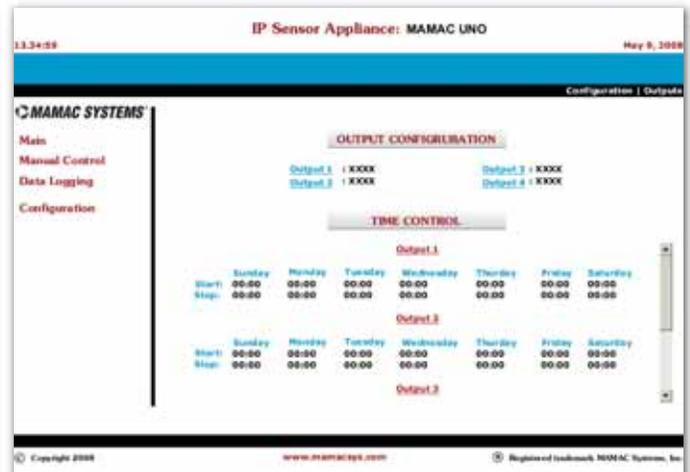
Password & Time configuration



Input & email alert configuration



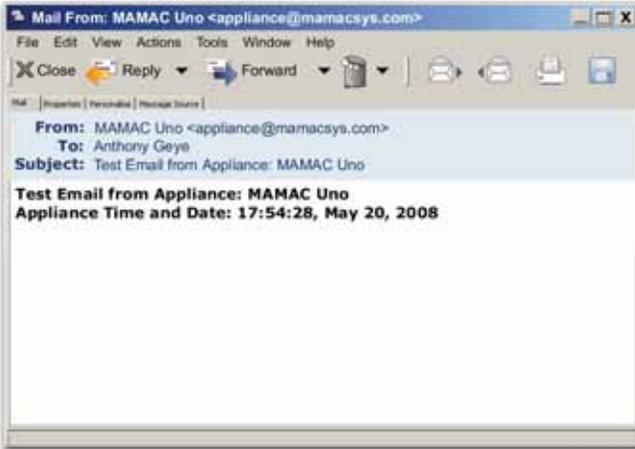
Logging setup



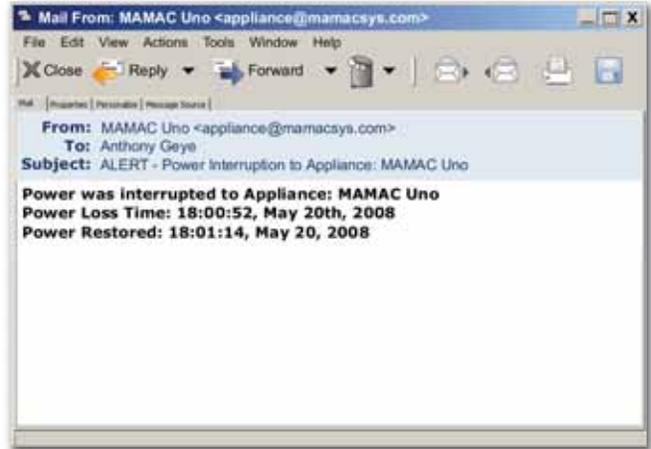
Output configuration

# IP-PC-101

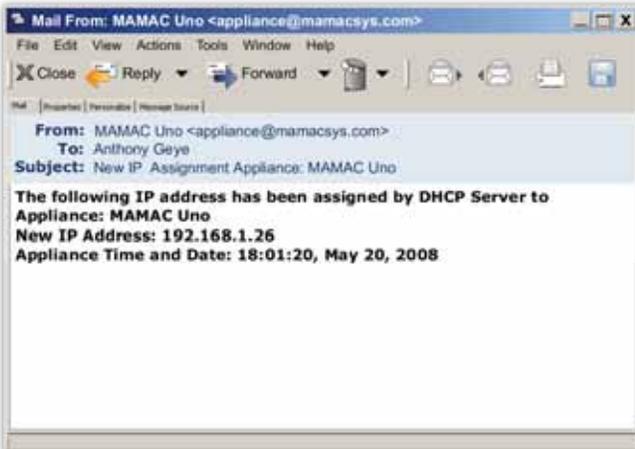
## EMAIL ALERT SCREEN SHOTS



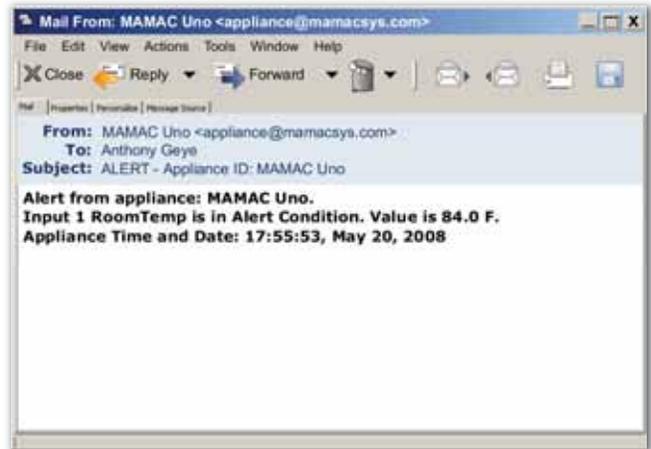
Test email



Power cycle email



DHCP Assignment



Email Alert

# IP-PC-101

## SPECIFICATIONS:

- Supply Voltage:** 24 VAC/VDC
- Supply Current:** 250 mA (6 VA)
- Input Impedance:** 125K ohms (VDC or Digital)  
250 ohms (4-20 mA)
- Digital Input:** 10.00 VDC maximum
- Output Relay Rating:** 250 VAC @ 5.0 Amps  
UL Listed
- Ethernet:** 10-Base T
- IP Assignment:** Static or DHCP
- Email:** SMTP to two email addresses
- Data Logging:** 2048 samples each input
- Logging Interval:** 1.0 second to 99.99 hours
- Environmental:** 10-90%RH non-condensing
- Operating Temp:** -40°F-125°F (-40°C-52°C)
- Storage Temp:** -40°F-150°F (-40°C-66°C)
- Enclosure:** UL 94V-5-O Polycarbonate plastic
- Termination:** Removable terminal blocks 16 Ga  
max, RJ-45 Ethernet jack
- Weight:** 0.5 lbs. (.25 kg)

## CONFORMANCE & TESTING:

### RoHS Compliant

### FCC Testing -

- Rule Part 15, Subpart B - Unintentional Radiators Class B Limits 15.107 & 15.109

### EMC/EMI Testing -

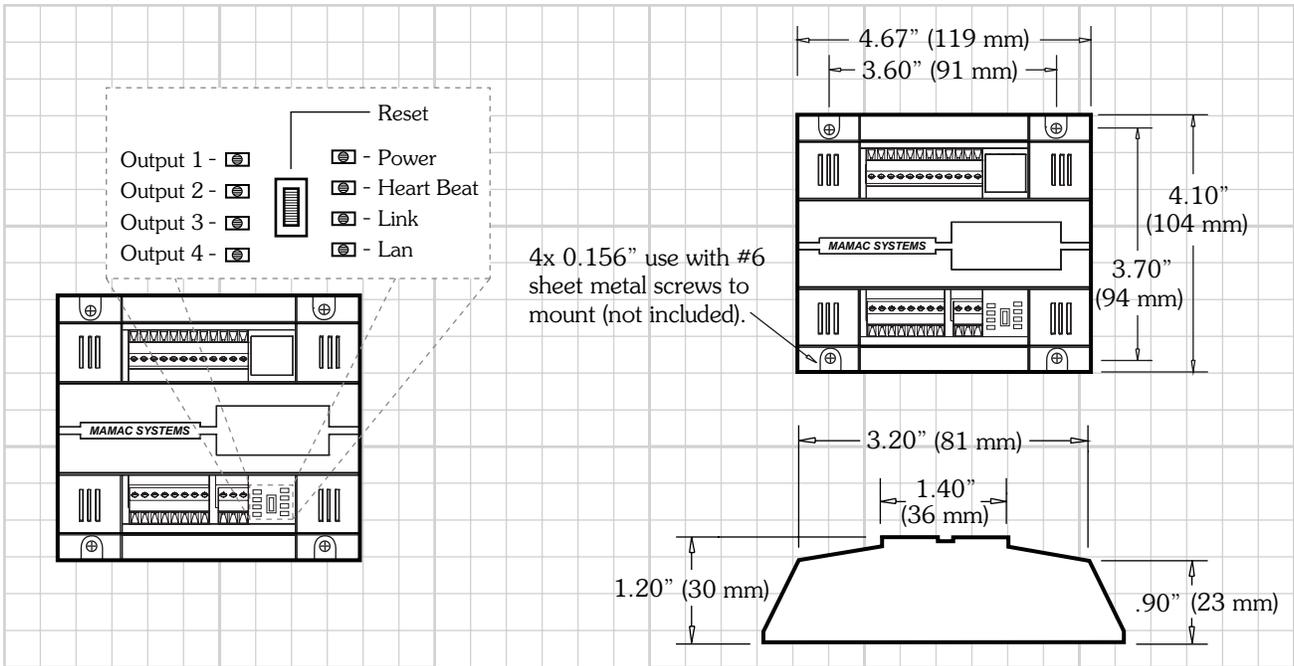
- BS EN 55022:1998, CISPR 22:1997 Amendments 1 & 2
- BS EN 55024:1998 CISPR 24:1997 Amendments 1 & 2
- EN 61000-3-3: Limitations of voltage fluctuations and flicker in low-voltage supply systems <16A
- EN 61000-4-2: Electrostatic Discharge (ESD)
- EN 61000-4-3: Radiated, radio frequency, Electromagnetic field immunity test
- EN 61000-4-4: Electrical Fast Transient/burst immunity test (EFT)
- EN 61000-4-5: Surge Immunity Test (Mains)
- EN 61000-4-6: Immunity to conducted disturbances, induced by radio frequency fields
- EN 61000-4-11: Voltage dips, short interruptions & voltage variations immunity test

## ORDERING INFORMATION: IP-PC-101-

CONFIGURATION	INPUT
<b>44</b> (4 inputs 4 relay outputs)	<b>mA</b> (4-20 mA 2-wire)
<b>80</b> (8 inputs only)	<b>VDC</b> (0-5 VDC or 0-10 VDC field selectable)

**Example: IP-PC-101-44-VDC:** 4 VDC Inputs and 4 Relay Outputs

# IP-PC-101



**WARRANTY:** MAMAC Systems, Inc. warrants its products to be free of defects in material and workmanship for a period of two (2) years from date of shipment. If a unit is malfunctioning, it must be returned to the factory for evaluation. A return authorization number (RMA) will be issued by the customer service department and this number must be written or prominently displayed on the shipping boxes and all related documents. The defective part should be shipped freight pre-paid to the factory. Upon examination by MAMAC Systems, Inc., if the unit is found to be defective, it will be repaired or replaced at no charge to the customer. However, this warranty is void if the unit shows evidence of being tampered with, damaged during installation, misapplied, misused, or used in any other operating condition outside of the unit's published specifications.

**MAMAC Systems, Inc. makes no other warranties or representations of any kind whatsoever, expressed or implied, except that of title. All implied warranties including any warranty of merchantability and fitness for a particular purpose are hereby disclaimed. User is responsible to determine suitability for intended use.**

**LIMITATIONS OF LIABILITY:** The remedies of buyer set forth herein are exclusive and the total liability of MAMAC Systems, Inc. with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the product upon which liability is based. **In no event shall MAMAC Systems, Inc. be liable for consequential, incidental or special damages.** MAMAC Systems, Inc. reserves the right to change any specifications without notice to improve performance, reliability, or function of our products.

Every precaution for accuracy has been taken in the preparation of this manual, however, MAMAC Systems, Inc. neither assumes responsibility for any omissions or errors that may appear nor assumes liability for any damages that result from the use of the product in accordance with the information contained in the manual.

## MAMAC SYSTEMS®

8189 Century Boulevard • Minneapolis, MN 55317-8002 • USA  
 800-843-5116 • 952-556-4900 • Fax 952-556-4997  
 sales@mamacsys.com • www.mamacsys.com

Baird House, Units 6&7  
 Pensnett Estate • Kingswinford  
 West Midlands • DY6 7YA • United Kingdom  
 01384-271113 • Fax 01384-271114

4 Arminger Court, Unit 2  
 Holden Hill • S.A. 5088 • Australia  
 08-8395-4333 • Fax 08-8395-4433

155 McIntosh Drive, Units 5&6 • Markham  
 Ontario • L3R 0N6 • Canada  
 905-474-9215 • Fax 905-474-0876

No. 22 Lorong 21A Geylang # 11-02  
 Prosper Industrial Building  
 Singapore • 388421  
 656-3927273 • Fax 656-3927276