

BITWIRE SYSTEMS

Remote Monitor Unit



User Guide & Reference Manual

Warning and Disclaimer

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Introduction

Thank You for your purchase of this Remote Monitor Unit!

Please take the time to look at this manual to familiarize yourself with the product and its features before attempting to install and operate it.

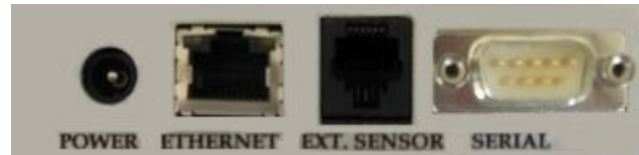
This manual covers both RMU-T and RMU-TH models. The only difference between the two models is type of internal sensors installed. Therefore, this manual will use the term "Remote Monitor Unit" or RMU as generic term referring to both models.

Package Contents

- 1- Remote Monitor Unit
- 1- 5 Volts 1 Amp adapter (110-120V, 50-60 Hz ROHS)
- 1- User Guide & Reference Manual

Installation

RMU ports



Power Port: Connect the 5V 1amp power adapter to this port

Ethernet Port: Connect Remote Monitor Unit to the network using Ethernet cable. Link status led lights up when unit has connectivity to the network. Activity status led blinks when there is network activity on the port.

Ext. Sensor Port: BitWire systems External sensors can be connected to this port. Make sure to disconnect power to the unit before connecting external sensors.

Serial Port: A standard null modem cable may be used to connect RS232 serial port to the computer serial port

Device Configuration (over Network)

By default RMU is configured for static IP addressing as shown below

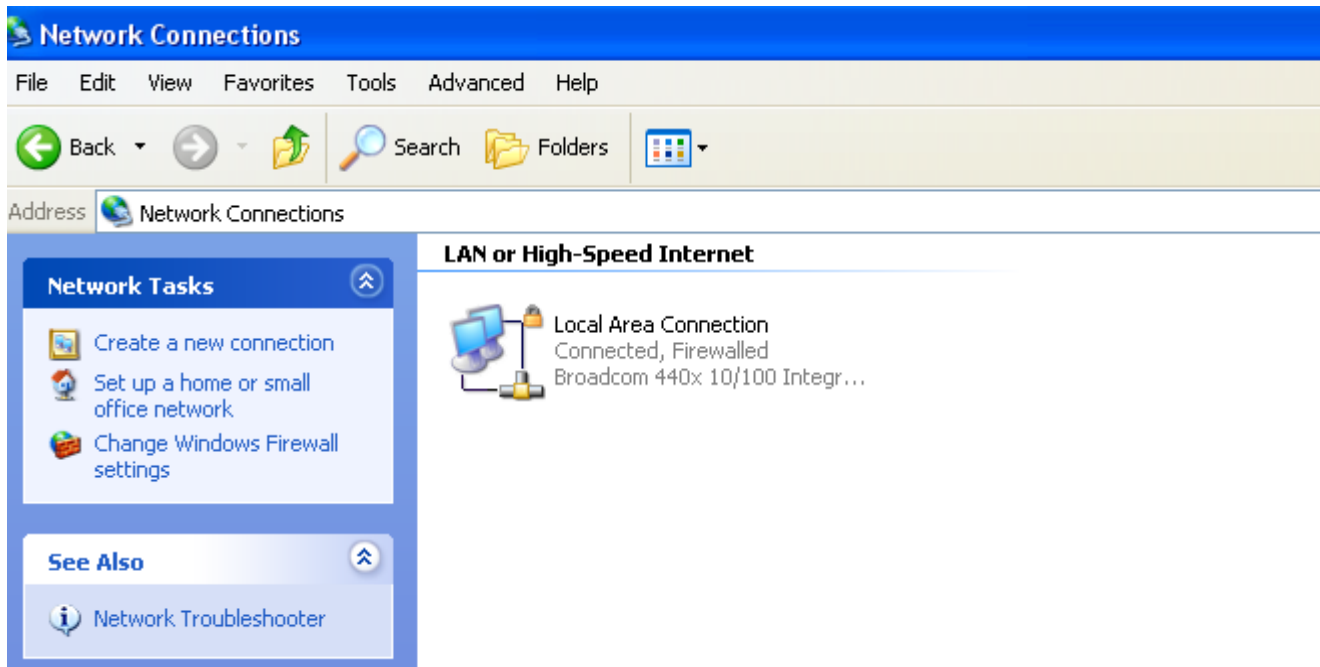
Factory Defaults

IP Address : 192.168.1.100
Gateway : 192.168.1.1
Subnet Mask : 255.255.255.0

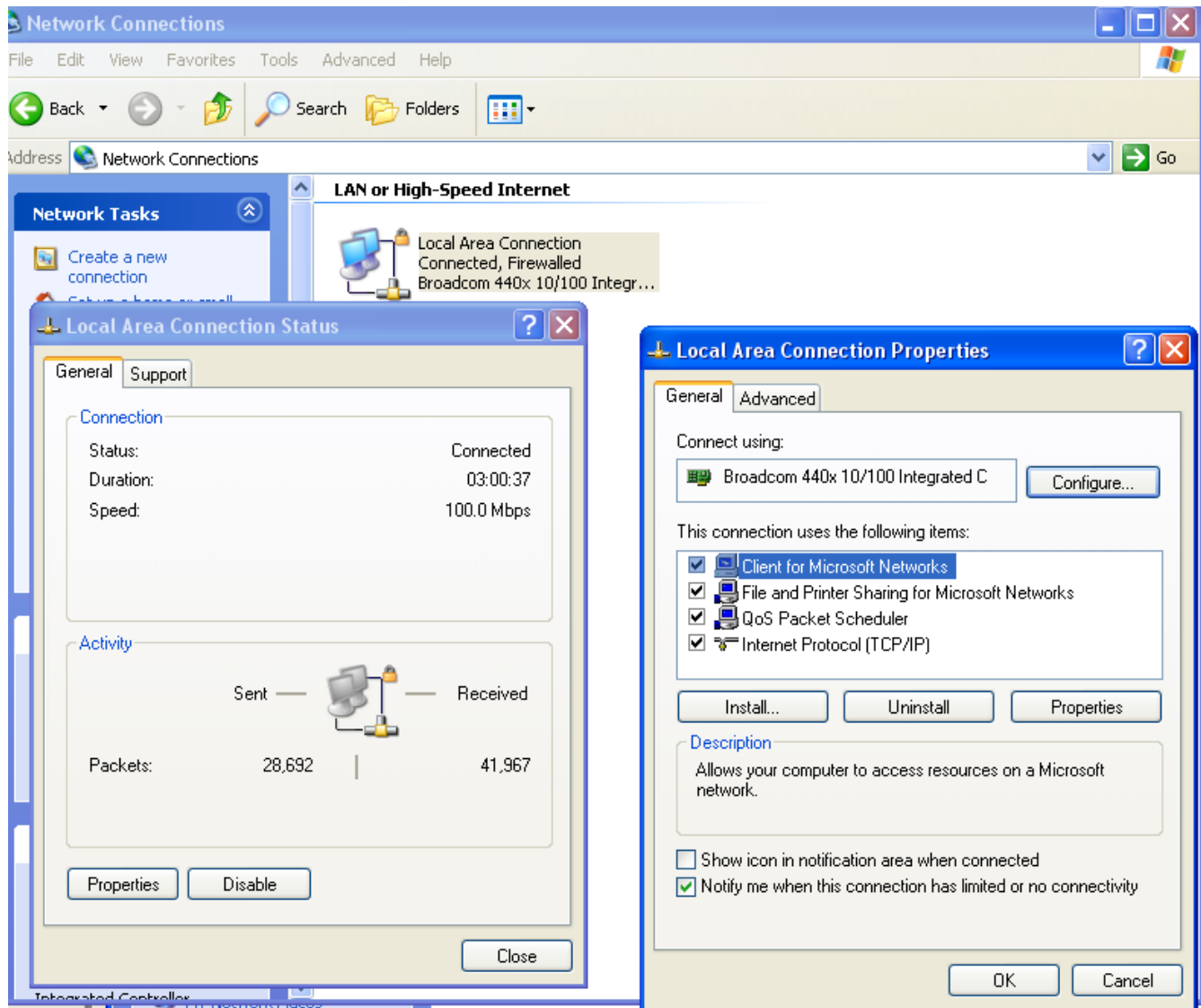
To initially configure the unit, connect RMU to computer network port using cross over cable to match subnet.

Follow the directions below to configure your network card on Windows 95/98/2000/XP computer.

- 1) Click on Start button. Select Control Panel and then "Network Connections"
- 2) Locate the entry in "LAN or High-Speed network" window that corresponds to network card use to connect to RMU.

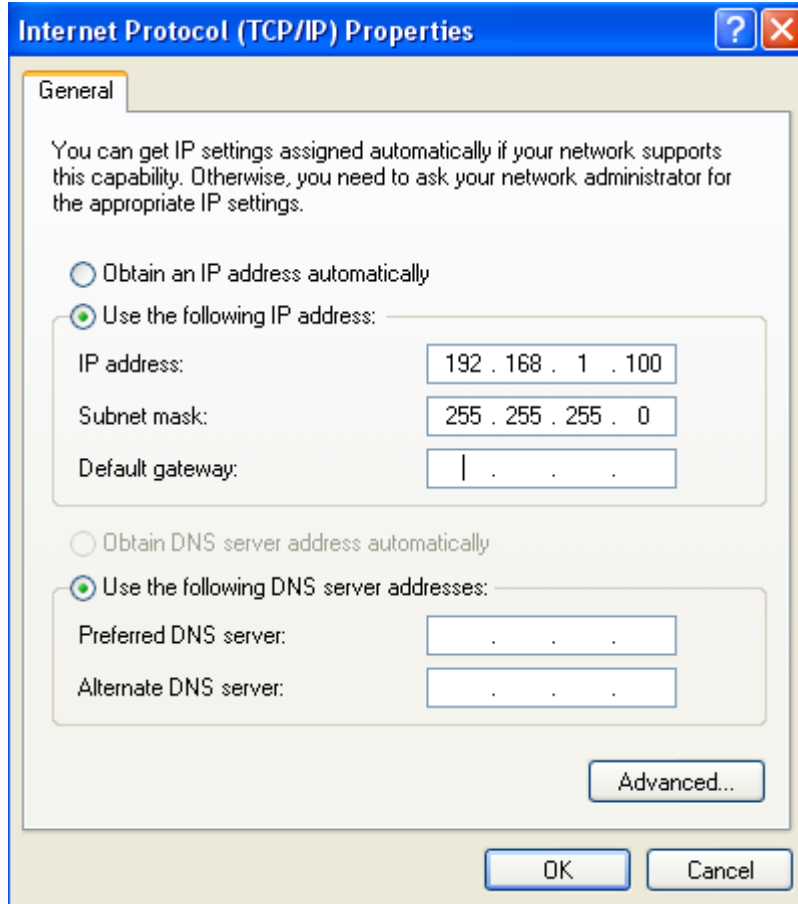


3) Double Click on network connection entry to open it's status window. Click on properties button.

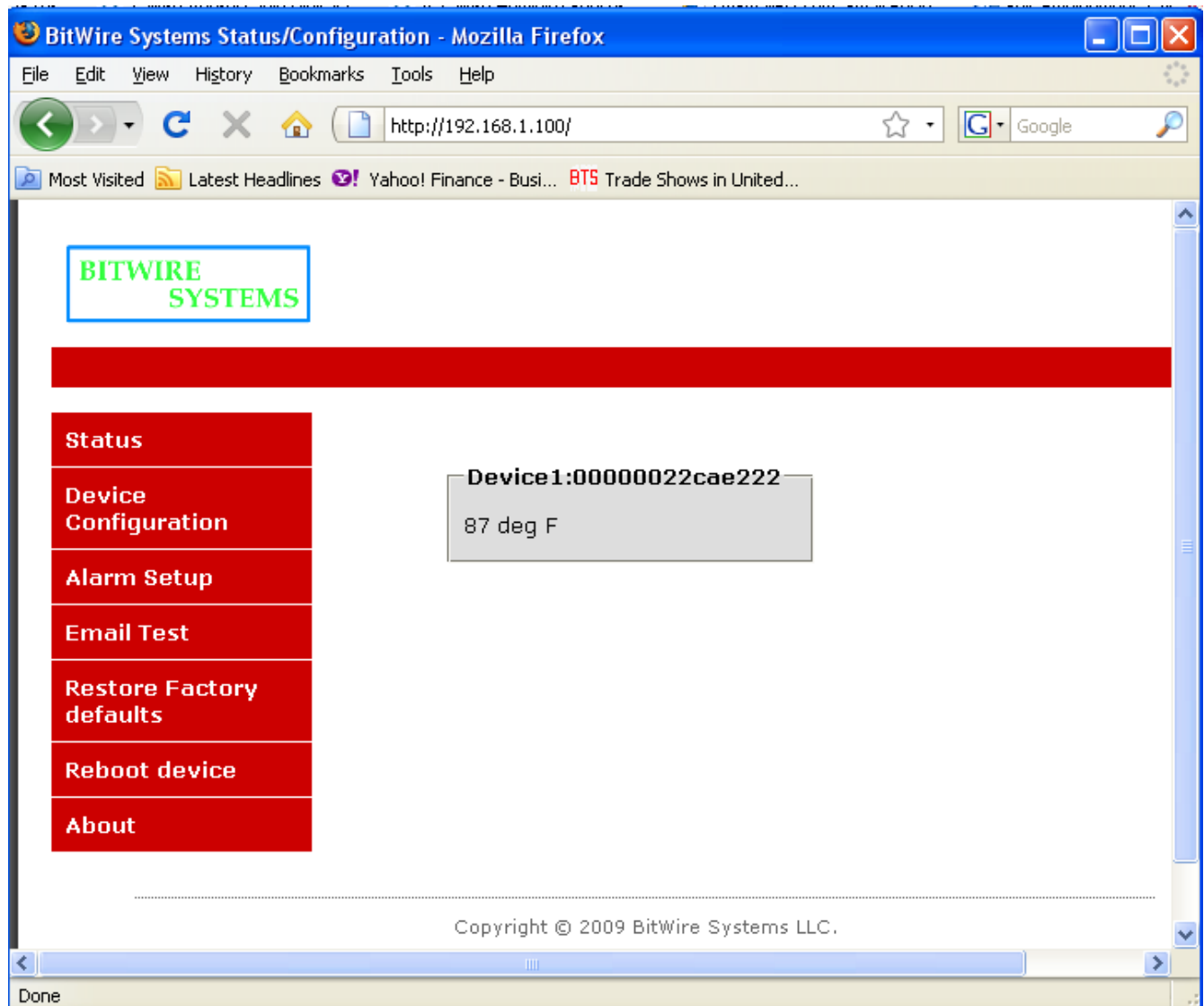


4) Click on Internet Protocol (TCP/IP) and click on properties. Note down existing settings so that you can restore them afterwards.

5) Change settings as shown below and click ok



6) Now open browser and type <http://192.168.1.100> and RMU web page opens up similar to shown below



7) Click on Device Configuration
Authentication is required to access this page
User name : admin
default password : bitwire

- Status
- Device Configuration**
- Alarm Setup
- Email Test
- Restore Factory defaults
- Reboot device
- About

Device Configuration

CAUTION: Incorrect settings may cause the board to lose network connectivity.

General Configuration

Serial#:

Display Units

Temperature Unit:

Network Configuration

MAC Address:

Host Name:

Enable DHCP

IP Address:

Gateway:

Subnet Mask:

Primary DNS:

Secondary DNS:

Admin Password

Change Password

New Password:

Confirm New Password:

SMTP Server: Port:

User Name:

Password:

To:

Update Settings as required:

Serial: Enter Serial number for the RMU

Display Units: Select appropriate display unit from drop down box

Hostname: Enter host name for the RMU

Enable DHCP box: Select this for dynamic IP addressing

Static IP: Enter IP address, Gateway, Subnet mask, Primary DNS, Secondary DNS if enable DHCP box was left unchecked.

Admin Password: Click on change password box and enter new admin password if desired

SMTP server settings: Enter SMTP server, port, user name and password

To: Enter email address for sending all email alerts

Click on save config

Note: RMU does not support SSL enabled SMTP email server

The unit at this time should save these settings and reboot with new settings.

*You will lose connection to the RMU if network settings were changed.

Now since you are done with RMU configuration, restore Computer network Card settings.

RMU configured with Static IP address: Now open browser and type <http://<static ip address>> to check network connectivity

RMU configured with Dynamic IP address: Connect null modem serial cable between RMU serial port and computer serial port. Use terminal program with 57600 baud, 8 data bits, No parity, 1 stop bit and no flow control to connect to RMU. When unit is powered ON, it displays IP address assigned to the unit. Now open browser and type <http://<dynamic ip address>> to check network connectivity

Device Configuration (over Serial)

RMU configuration over serial RS232 connection is also possible for some of the parameters in case of a network connectivity problem.

RMU serial pinout:

2: RxD

3: TxD

5: Gnd

Use terminal program with 57600 baud, 8 data bits, No parity,1 stop bit and no flow control to connect to RMU

Power cycle RMU and within 3 seconds press 'M' to enter configuration menu

```
BitWire Systems
RMU Remote Monitor Unit
v1.01
```

```
1: Change serial number:          1
2: Change host name:             RMU
3: Change static IP address:     192.168.1.100
4: Change static gateway address: 192.168.1.1
5: Change static subnet mask:    255.255.255.0
6: Change static primary DNS server: 192.168.1.1
7: Change static secondary DNS server: 0.0.0.0
8: Enable DHCP & IP Gleaning:    DHCP is currently disabled
9: Restore Factory Defaults
0: Save & Quit.
```

```
Enter a menu choice: _
```

Choose option desired and enter new settings for that parameter and press enter. Once done press 0 to save and quit. If network settings were changed power cycle the RMU so it can boot with newly saved settings.

Status screen

This is default screen that opens up when you open up RMU web page. It list sensor devices (with unique device id) connected to RMU, sensor data and status of sensors. Sensor alarms are latched and show the sensor value highlighted in red if there was alarm triggered on that sensor.

The screenshot shows a Mozilla Firefox browser window displaying the BitWire Systems Status/Configuration page. The browser's address bar shows the URL `http://192.168.1.100/index.htm`. The page features a navigation menu on the left with red buttons for 'Status', 'Device Configuration', 'Alarm Setup', 'Email Test', 'Restore Factory defaults', 'Reboot device', and 'About'. The main content area displays the 'Status' for 'Device1:00000022cae222', showing a temperature of '88 deg F'. A copyright notice at the bottom reads 'Copyright © 2009 BitWire Systems LLC.' The browser's status bar at the bottom shows the URL `http://192.168.1.100/index.htm`.

Device	Status
Device1:00000022cae222	88 deg F

Alarm Setup screen

Authentication is required to access this page

User name : admin

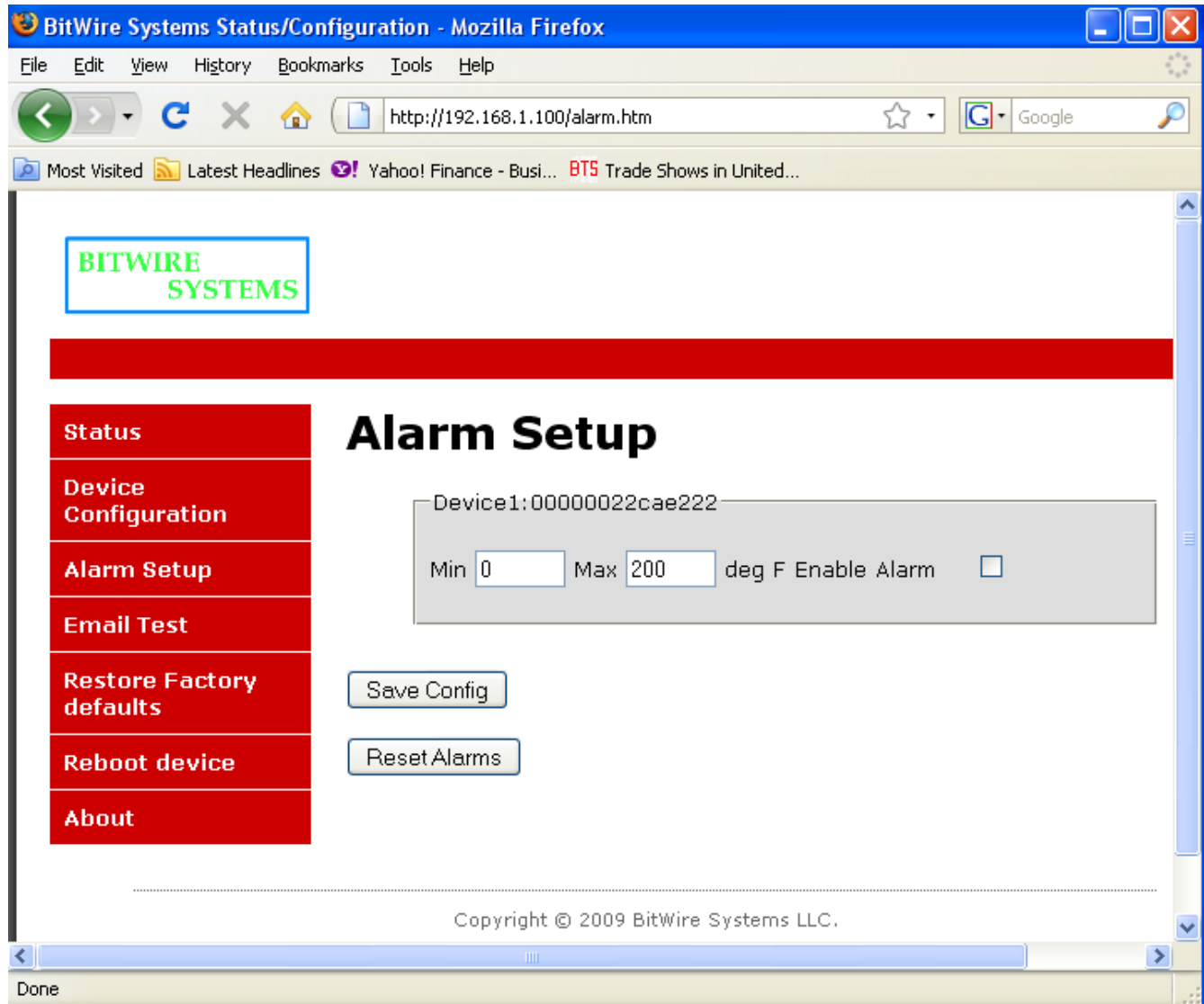
default password: bitwire

Click on Alarm Setup menu on left to setup alarm settings. Enter range of permissible values by entering Min and Max boxes.

Enable alarms by checking Enable Alarm boxes for sensor devices and click on save config button.

Disable alarms by un-checking Enable Alarm box for devices and click on save save config button.

Sensor Alarms are latched. Clear All Sensor alarms by clicking on Reset Alarms button.



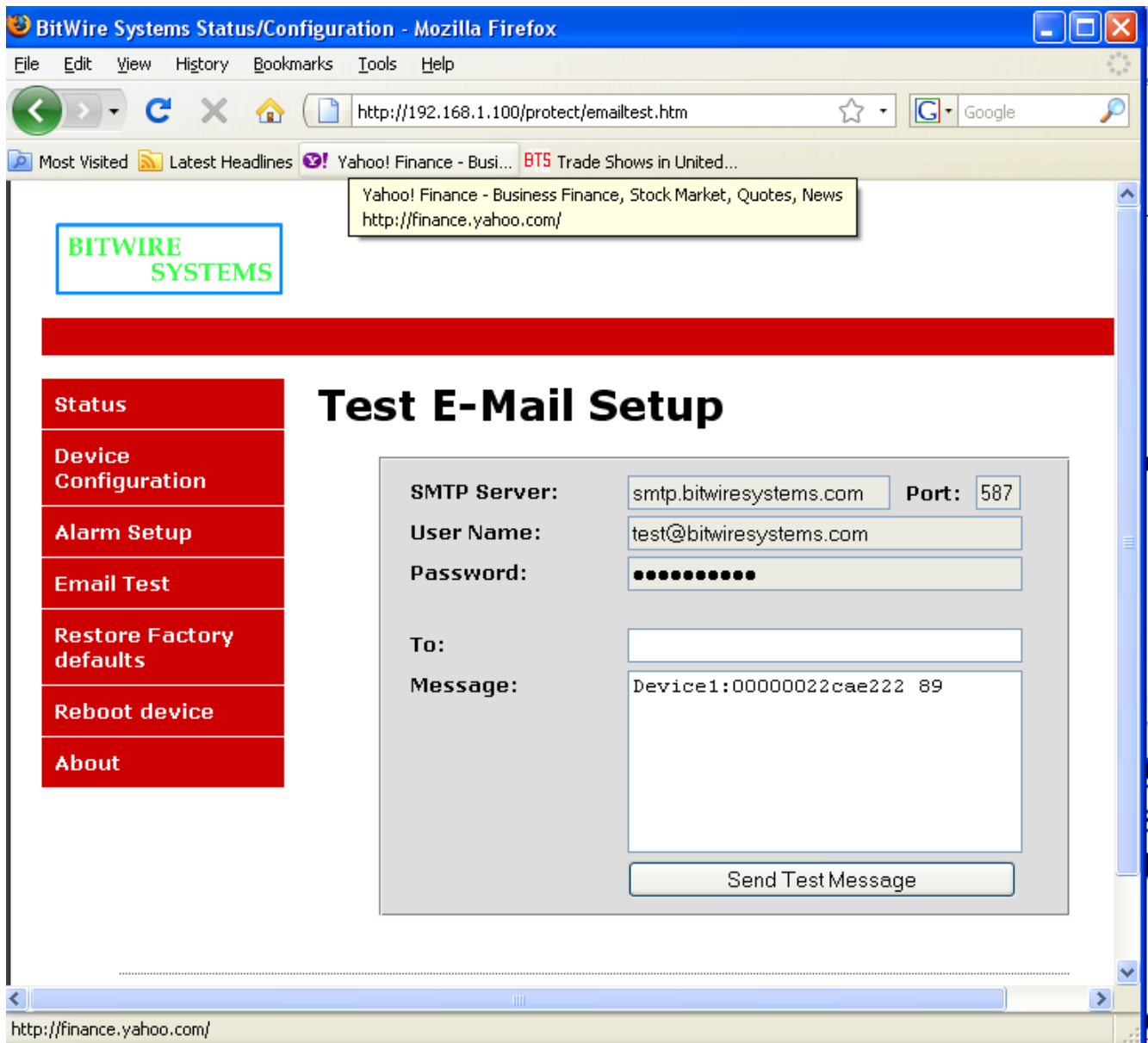
Email Test Screen

Authentication is required to access this page

User name : admin

default password: bitwire

Use this screen to test SMTP server settings and connection. Enter email address in To: box and click on Send Test Message box.



Restore Factory defaults menu

Authentication is required to access this page

User name : admin

default password: bitwire

This will restore RMU to factory defaults settings

Reboot device menu

Authentication is required to access this page

User name : admin

default password: bitwire

This will reboot RMU

About menu

This shows product and firmware version, host name and serial number for the RMU.

Accessing RMU Sensor Data over TCP connection

RMU runs TCP server and allows TCP client to connect over port **9760** to request real time sensor data from RMU over TCP connection.

Request packet format

\$<device id>

Example: To request data for sensor device 1
\$1 (in hexadecimal <0x24><0x01>)

RMU response format

<STX><ascii sensor data><ETX>

(in hexadecimal <0x02><ascii data><0x03>)

Accessing RMU Sensor Data over Serial connection

RMU Sensor data could also be accessed over serial RS232 connection(57600 baud, 8 data bits, No parity,1 stop bit and no flow control)

Request packet format

\$<device id>

Example: To request data for sensor device 1
\$1 (in hexadecimal <0x24><0x01>)

RMU response format

<STX><ascii sensor data><ETX><CR><LF>

(in hexadecimal <0x02><ascii data><0x03><0x0D><0x0A>)