

CYBER SWITCHING®

Dualcom S™



User Manual

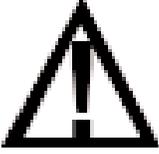
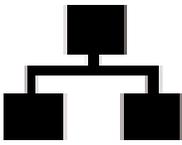
Serial and TCP/IP Interfaces
Web, Telnet, SNMP
with Temperature and Humidity Module

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Symbols

The following symbols are used as references and can be found on the Dualcom S:

	<p>Caution: There is a risk of equipment damage and or personal injury. Follow the instructions.</p>
	<p>Caution: Hazardous voltages are present. To reduce the risk of electrical shock and possible injury, please follow the instructions.</p>
	<p>TCP/IP (Web, Telnet, and SNMP): 10BaseT ethernet port.</p>
	<p>Serial Port: Direct RS232 connection to a laptop or desktop PC.</p>

Rack Mounting Instructions

When mounting the PDU to a network/data rack, please take note of the following safety and precautionary guidelines:

- A) Please only use the provided mounting hardware.
- B) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature specified by the manufacturer.
- C) Reduced Air Flow – Equipment should be installed so that the amount of air flow required for safe operation of the equipment is not compromised.
- D) Mechanical Loading – Equipment should be mounted so that a hazardous condition is not achieved due to uneven mechanical loading.
- E) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and to the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- F) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).
- G) For pluggable equipment, the socket outlet shall be installed near the equipment and shall be easily accessible. A suitably rated, listed branch circuit breaker shall be provided as part of the building installation.

Safety Instructions

FOR YOUR SAFETY, OBSERVE THE FOLLOWING PRECAUTIONS WHEN SETTING UP YOUR EQUIPMENT:



UPON INITIAL INSPECTION, IF THE UNIT APPEARS TO BE DAMAGED, DO NOT INSTALL. CONTACT CYBER SWITCHING IMMEDIATELY.



FOLLOW ALL CAUTIONS AND INSTRUCTIONS MARKED ON THE EQUIPMENT.



A SUITABLY RATED, LISTED BRANCH CIRCUIT BREAKER SHALL BE PROVIDED AS PART OF THE BUILDING INSTALLATION.



ENSURE THAT THE VOLTAGE AND FREQUENCY OF THE POWER SOURCE MATCH THE VOLTAGE AND FREQUENCY ON THE CYBER SWITCHING EQUIPMENT ELECTRICAL RATING LABEL.



NEVER PLACE FOREIGN OBJECTS OF ANY KIND THROUGH OPENINGS IN THE EQUIPMENT. CONDUCTIVE FOREIGN OBJECTS WILL PRODUCE A SHORT CIRCUIT THAT CAN CAUSE FIRE, EQUIPMENT DAMAGE, AND/OR ELECTRICAL SHOCK.



WHEN INSTALLING THE UNIT INTO A RACK, DO NOT BLOCK VENTILATION OPENINGS OF THE UNIT.



THE SOCKET OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND BE EASILY ACCESSIBLE.



DUAL SOURCE UNITS REQUIRE SEPARATE CIRCUITS TO INDIVIDUAL BRANCH CIRCUIT PROTECTION.



MULTIPLE POWER SOURCES REQUIRE THAT ALL SOURCES BE DISCONNECTED PRIOR TO SERVICING.

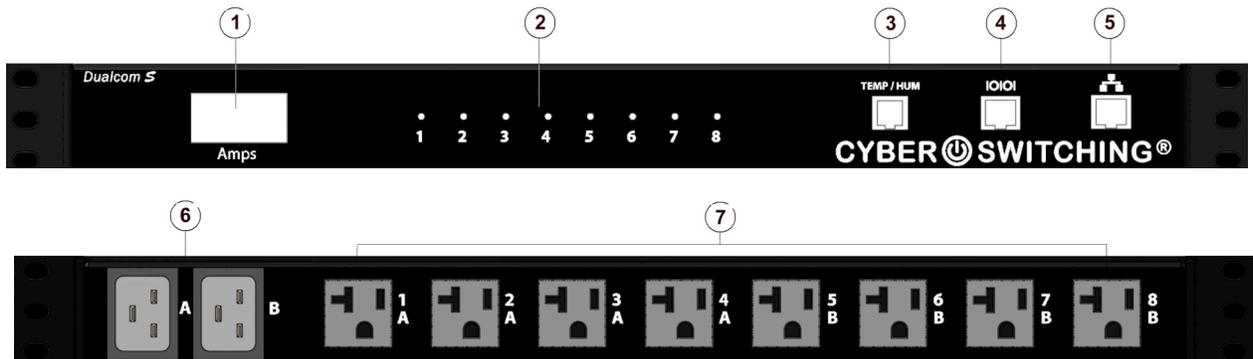


WARNING - TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, INSTALL IN A CONTROLLED ENVIRONMENT RELATIVELY FREE OF CONTAMINANTS.

Notes

INTRODUCTION

Hardware Overview



(Horizontal Unit Shown)

- 1: Indicates the total number of amps being used
- 2: Green LED indicates outlet is energized; red LED indicates Cyber Breaker® has tripped. Amber LED indicates outlet current is outside of the high or low limit setting.
- 3: Temperature/humidity sensor port (RJ25) – optional
- 4: RS232 Serial port (RJ45)
- 5: Ethernet port (RJ45)
- 6: AC inlet receptacles (C-20 shown)
- 7: AC outlets (5-20R shown)

Hardware Specifications

Model	Circuit Banks	Total Continuous Input/Output	Receptacle Type
Dualcom S 440i	2	16 A Per Bank	C19
Dualcom S 440L6	2	16 A Per Bank	L6-20
Dualcom S 460L5	2	24 A Per Bank	L5-30
Dualcom S 460L6	2	24 A Per Bank	L6-30
Dualcom S 820	1	16 A	5-20
Dualcom S 830i	2	12 A Per Bank	C13
Dualcom S 840	2	16 A Per Bank	5-20
Dualcom S 840i	2	16 A Per Bank	C19

Operating temperature: 0 – 45°C

Unit dimensions: 17.0W x 10.3D x 1.75H (19.0W with mounting hardware)

Chapter

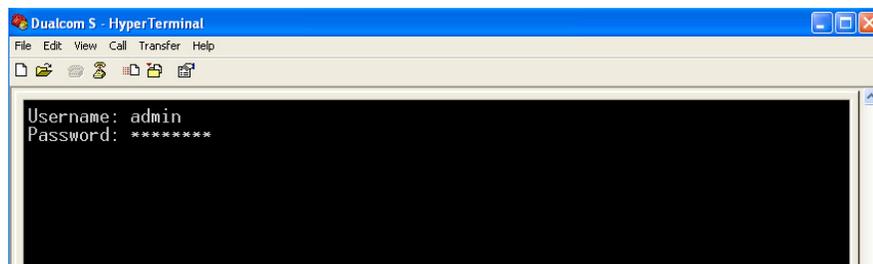
1

CONNECTING THE DUALCOM S

Perform the following to attach the Dualcom S unit using a serial or TCP/IP connection.

Serial Connection

- 1) Attach the unit to a COM port on your computer using the supplied DB9 to RJ45 adapter and the supplied green inverse cable.
- 2) Setup a terminal program using the following default settings:
 - 9600 baud
 - 8 data bits; no parity
 - 1 stop bit
 - no flow control
- 3) Establish a connection and log on using **admin** as the User Name and **password** as the Password.



Note: It is recommended that you periodically change the password to prevent unauthorized access to the Dualcom S.

The Dualcom S main menu appears:

```

Welcome to the Dualcom S(TM)
-----
OUTLET STATUS:
Outlet 1      ON   00.00  .....
Outlet 2      ON   00.00  .....
Outlet 3      ON   00.00  .....
Outlet 4      ON   00.00  .....
Outlet 5      ON   00.00  .....
Outlet 6      ON   00.00  .....
Outlet 7      ON   00.00  .....
Outlet 8      ON   00.00  .....
ALL OUTLETS: 00.00  .....

Temp/Hum: 19.8 C / 51.8%

Main Menu:
1 - Outlet States & Settings
2 - Temperature and Humidity Data & Settings
3 - Logs
4 - System Settings
X - Exit
```

Note: At the bottom of most screens are help areas that provide information on how to navigate and edit settings within the serial/telnet interface.

TCP/IP Connection

The Dualcom S administration can be performed either by Telnet or through a web browser. The Telnet session uses a VT100/ANSI terminal type, and is identical in look and feel to the Serial interface.

The web interface utilizes MD5 security. Some older versions of web browsers may have problems with the higher level of security required for MD5 authentication. If problems with logging in are experienced, please download the latest version or update the browser.

The following describes how to connect to the Dualcom S using a web browser:

- 1) Note the MAC address from the label on the Dualcom S unit.
- 2) Attach the unit to a network with a DHCP server using the Ethernet port on the front of the Dualcom S unit. Power up unit and allow it to pick up an IP address.
- 3) Once an IP address is selected, find the address in the DHCP table of your DHCP server that corresponds to the unit's MAC address.
- 4) In your browser, enter the IP address assigned by your DHCP server.
- 5) Log on using **admin** and **password** as the User Name and Password (once other user accounts have been created, they can be used here as well).



Note: It is recommended that you periodically change the password to prevent unauthorized access to the Dualcom S.

The following screen appears:

						User:admin	Logout
Outlets	Temp/Hum	Logs	Users	Setup	11:57 AM · 25 Oct 2008 22.6°C / 28.1%		
1		On	Off	Reboot		server-01-1	0.0A
2		On	Off	Reboot		server-02-5	0.0A
3		On	Off	Reboot		server-02-8	0.0A
4		On	Off	Reboot		server-03-3	0.0A
Bank A Total							0.0A
5		On	Off	Reboot		server-03-1	0.0A
6		On	Off	Reboot		Outlet 6	0.0A
7		On	Off	Reboot		Outlet 7	0.0A
8		On	Off	Reboot		Outlet 8	0.0A
Bank B Total							0.0A
ALL		On	Off	Reboot		ALL OUTLETS	0.0A

[Save Startup State](#)

Chapter

2

SERIAL INTERFACE SETUP

Once communication with the Dualcom S is configured as described in the **Serial Connection** section, the serial interface is ready for use.

Serial Interface Navigation

There are two ways to navigate and select items using a serial connection:

- Press a number key (if applicable)
- Use the arrow keys to highlight an item, and hit **Enter** to select it.

Once an item has been selected, you can edit it by pressing **Backspace** to erase existing values, and the number/letter keys to enter new ones. You can also use **Backspace** to return to a previous screen.

Outlet States & Settings

From the main menu, type 1 to select **Outlet States & Settings**.

```

Welcome to the Dualcom S(TM)
-----
OUTLET STATUS:
Outlet 1      ON   00.0A .....
Outlet 2      ON   00.0A .....
Outlet 3      ON   00.0A .....
Outlet 4      ON   00.0A .....
Outlet 5      ON   00.0A .....
Outlet 6      ON   00.0A .....
Outlet 7      ON   00.0A .....
Outlet 8      ON   00.0A .....
ALL OUTLETS: 00.0A                               Temp/Hum: 19.8 C / 51.8%
-----
Main Menu:
1 - Outlet States & Settings
2 - Temperature and Humidity Data & Settings
3 - Logs
4 - System Settings
X - Exit
```

The following screen appears:

```

Welcome to the Dualcom S(TM)
-----
OUTLET STATUS:
Outlet 1      ON  00.0A  .....
Outlet 2      ON  00.0A  .....
Outlet 3      ON  00.0A  .....
Outlet 4      ON  00.0A  .....
Outlet 5      ON  00.0A  .....
Outlet 6      ON  00.0A  .....
Outlet 7      ON  00.0A  .....
Outlet 8      ON  00.0A  .....
ALL OUTLETS: 00.0A                               Temp/Hum: 20.1 C / 52.4%

Edit Outlet States:
Use arrow keys to select outlet.
Press + to turn selected outlet on. Press - to turn selected outlet off.
Press R to reboot outlet.
Press ENTER to edit properties for the selected outlet.
Press Backspace to return to main menu.
Press 0 to set the outlets to this state at power up.
```

There are four things that can be done from this screen:

- Turn on/off a specific outlet
- Reboot an outlet
- Select an outlet to edit its properties
- Save the current on/off state for each outlet as the power on state

Turning an Outlet On/Off

To turn an individual outlet on or off, navigate to the desired outlet and press **+** to turn it on, or **-** to turn it off. To turn all outlets on or off at once, navigate to **ALL OUTLETS** and press **+** or **-**.

Note: When the Dualcom S is powered up, all outlets are ON by default. To change an outlet so that it will be off when the Dualcom S is powered up, turn off all desired outlets as described above and press **0**. Similarly, turn on an outlet that is turned off and press **0** to have it be on whenever the Dualcom S powers up.

Rebooting an Outlet

To reboot an individual outlet, navigate to the desired outlet and press **R/r**. The outlet will turn off after the reboot delay timer expires and then turn back on once the reboot off timer terminates. To reboot all outlets at once, navigate to **ALL OUTLETS** and press **R/r**.

Note: The settings for both the reboot delay timer and reboot off timer can be changed in the properties of each individual outlet (see **Editing the Properties of an Outlet**). The default for both timers is five seconds.

Editing the Properties of an Outlet

To edit the properties of an outlet, navigate to the desired outlet and press **Enter**. The following screen appears:

```

Welcome to the Dualcom S(TM)
-----
EDIT OUTLET-SETTINGS

Outlet: 1
Outlet Label: Outlet 1

Reboot delay <0-6000s>: 5
Reboot off <0-6000s> : 5

[ ] Enable Low Current Alerts.
Low Current <Amps>    : 00.0
Low Grace Period <ms> : 10000

[ ] Enable Virtual Circuit Breaker(TM).
[ ] Enable High Current Alerts.
High Current <Amps>   : 16.0
High Grace Period <ms>: 10000

-----
Outlet Settings Help:
Current alerts trigger syslogs or SNMP traps when the current rises above
or falls below the set current level for longer than the set grace period.

```

There are ten outlet settings that can be changed:

- **Outlet Label**
- **Reboot delay (sec.)**
- **Reboot off (sec.)**
- **Enable Low Current Alerts**
- **Low Current (Amps)**
- **Low Grace Period (ms)**
- **Enable Cyber Breaker® the Virtual Circuit Breaker™**
- **Enable High Current Alerts**
- **High Current (Amps)**
- **High Grace Period (ms)**

Note: The **Enable Low/High Current Alerts** options must be selected for the Low/High Current and Low/High Grace Period settings to be operational. See **Setting High/Low Currents and Grace Periods**.

1. To change the Outlet Label or Reboot delay/off times, navigate to the desired setting and press **Enter**.
2. Use **Backspace** and the number/letter keys to change values. Press **Enter** when done.

Setting High/Low Currents and Grace Periods

When the current rises above or falls below the current limit for longer than the grace period, current alerts send syslogs and trigger SNMP traps. Do the following to enable high/low current alerts and grace periods. Once enabled, a log and a SNMP trap will be sent if the measured current drops below or rises above the limit for longer than the low or high grace period.

1. To enable low current alerts, navigate to [] **Enable Low Current Alerts** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.
2. To change the Low Current or Low Grace period times, navigate to the desired setting and press **Enter**.
3. Use **Backspace** and the number keys to change values. Press **Enter** when done.
4. To enable high current alerts, navigate to [] **Enable High Current Alerts** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.
5. To change the High Current or High Grace period times, navigate to the desired setting and press **Enter**.
6. Use **Backspace** and the number keys to change values. Press **Enter** when done.

Enabling Cyber Breaker® the Virtual Circuit Breaker™

Cyber Breaker® the Virtual Circuit Breaker™ provides protection for each individual outlet, so if one is pulling too much current, only that outlet is tripped. It also eliminates uncertainties about when a circuit will trip.

Cyber Breaker® is not designed to protect against short circuits or major over current conditions. If a circuit is shorted or if the bank/unit current is above the rated limit, the primary or branch circuit breaker may still be tripped.

Selecting **Enable Virtual Circuit Breaker** trips the circuit if the current goes over the number of amps set in the **High Current (Amps)** box for longer than the number of milliseconds set in the **High Grace Period** box. The LED for that outlet will then turn red, indicating the outlet is tripped. To reset Cyber Breaker®, turn it off and then back on. The outlet will then turn on.

To enable Cyber Breaker®, navigate to [] **Enable Virtual Circuit Breaker (TM)** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.

Temperature and Humidity Data & Settings

Setting Temperature and Humidity alerts trigger syslogs and SNMP traps when the temperature or humidity rises above or falls below the set value, informing the user when a problem occurs. High/low limits can be set individually for both sensors and for both temperature and humidity.

High/low limits can be set individually for both sensors and for both temperature and humidity. This allows for maximum granularity and flexibility when monitoring a rack.

From the main menu, type **2** to select **Temperature and Humidity Data & Settings**.

```

Welcome to the Dualcom S(TM)
-----
OUTLET STATUS:
Outlet 1      ON   00.00 .....
Outlet 2      ON   00.00 .....
Outlet 3      ON   00.00 .....
Outlet 4      ON   00.00 .....
Outlet 5      ON   00.00 .....
Outlet 6      ON   00.00 .....
Outlet 7      ON   00.00 .....
Outlet 8      ON   00.00 .....
ALL OUTLETS: 00.00                               Temp/Hum: 20.3 C / 48.0%

Main Menu:
1 - Outlet States & Settings
2 - Temperature and Humidity Data & Settings
3 - Logs
4 - System Settings
X - Exit
  
```

The following screen appears:

```

Welcome to the Dualcom S(TM)
-----
Temperature and Humidity:
Primary Sensor:      20.5 C / 47.5%
  [ ] Enable Alert
  High Temperature Alert: 26.6 C
  Low Temperature Alert : 15.5 C
  High Humidity Alert  : 60.0%
  Low Humidity Alert   : 40.0%
Secondary Sensor:   --.- C / --.-%
  [ ] Enable Alert
  High Temperature Alert: 45.0 C
  Low Temperature Alert : 10.0 C
  High Humidity Alert  : 60.0%
  Low Humidity Alert   : 15.0%

Temperature and Humidity Settings Help
Temperature and humidity alerts trigger syslogs and SNMP traps when the
temperature or humidity rises above or falls below the set value.
  
```

From here, you can do the following (as administrator only):

- Enable the primary and/or secondary sensor alert
- Set the high/low temperature/humidity limits

- Set the high/low humidity limits

Note: The respective **Enable Alert** option must be selected for the Low/High Temperature and Low/High Humidity Alert settings to be operational.

1. To enable the alert for the primary sensor, navigate to [] **Enable Alert** under Primary Sensor: and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.
2. To change the High/Low Temperature or High/Low Humidity Alert threshold for the primary sensor, navigate to the desired setting and press **Enter**.
3. Use **Backspace** and the number keys to change values. Press **Enter** when done.
4. To enable the alert for the secondary sensor, navigate to [] **Enable Alert** under Secondary Sensor: and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.
5. To change the High/Low Temperature or High/Low Humidity Alert threshold for the secondary sensor, navigate to the desired setting and press **Enter**.
6. Use **Backspace** and the number keys to change values. Press **Enter** when done.

Logs

The Dualcom S maintains a log of 64 events at a time. When enabled, the Dualcom S can e-mail the log to a designated person manually at anytime, or automatically once the log file is full. If the log file is full and e-mail is not enabled, the unit will overwrite the oldest event, and thus keep the log current. To setup log e-mail, refer to the **Logging Setup** section on page 15.

From the main menu, type **3** to select **Logs**.

```

Welcome to the Dualcom S(TM)
OUTLET STATUS:
Outlet 1      ON  00.00  .....
Outlet 2      ON  00.00  .....
Outlet 3      ON  00.00  .....
Outlet 4      ON  00.00  .....
Outlet 5      ON  00.00  .....
Outlet 6      ON  00.00  .....
Outlet 7      ON  00.00  .....
Outlet 8      ON  00.00  .....
ALL OUTLETS: 00.00                               Temp/Hum: 20.0 C / 52.9%

Main Menu:
1 - Outlet States & Settings
2 - Temperature and Humidity Data & Settings
3 - Logs
4 - System Settings
X - Exit
```

The following screen appears:

```

Welcome to the Dualcom S(TM)
LOGS:
^ <133>Jan 1 03:51:43 10.0.0.18 admin logged in from 69.107.74.130.
[] <133>Jan 1 03:51:33 10.0.0.18 admin logged out from 69.107.74.130.
<133>Jan 1 02:52:33 10.0.0.18 admin logged in from 69.107.74.130.
<133>Jan 1 00:10:20 10.0.0.18 admin logged out from 10.0.0.3.
<133>Jan 1 00:01:32 10.0.0.18 admin logged in from 10.0.0.3.
<133>Jan 1 00:00:37 10.0.0.18 Unit contacted SNMP trap server 010.000.000.0
<131>Jan 1 00:00:09 10.0.0.18 Unit cannot contact SNMP trap server.
<133>Jan 1 00:00:04 10.0.0.18 Unit finished booting (power loss).
^<[]
View Logs:
Use arrow keys to navigate logs.
Press 1 to send logs to administrator.
Press 2 to send logs to administrator and clear log buffer.
Press 3 to clear log buffer.
Press Backspace to return to Main Menu.
```

From here, you can do the following:

- Send the logs to an administrator by pressing **1**.
- Send the logs to an administrator and clear the log buffer by pressing **2**.
- Clear the log buffer by pressing **3**.

System Settings

From the main menu, type **4** to select **System Settings**.

```

Welcome to the Dualcom S(TM)
OUTLET STATUS:
Outlet 1      ON  00.0A .....
Outlet 2      ON  00.0A .....
Outlet 3      ON  00.0A .....
Outlet 4      ON  00.0A .....
Outlet 5      ON  00.0A .....
Outlet 6      ON  00.0A .....
Outlet 7      ON  00.0A .....
Outlet 8      ON  00.0A .....
ALL OUTLETS: 00.0A                               Temp/Hum: 20.0 C / 51.8%

Main Menu:
1 - Outlet States & Settings
2 - Temperature and Humidity Data & Settings
3 - Logs
4 - System Settings
X - Exit
```

The following screen appears:

```

Welcome to the Dualcom S(TM)
SETTINGS
1 - Time/Date
2 - Network Settings
3 - Logging Settings
4 - SNMP Settings
5 - General Settings
6 - Manage Users

Settings Help:
Use arrow keys to select a setting category and press Enter.
Press Backspace to return to Main Menu.
```

From here you can set the following attributes:

- Time/Date
- Network Settings
- Logging Settings
- SNMP Settings
- General Settings
- Manage Users

TIME/DATE Setup

The following shows how to set the time and date on your unit. It is important that the time and date be accurate as they directly affect the logs and schedules for desired use. The time and date can be set manually, or automatically using NTP.

From the System Settings screen, type **1** to select **Time/Date**. The following screen appears:

```

Welcome to the Dualcom S(TM)
SETTINGS-TIME/DATE
Hour: 24
Minute: 29
Month: 1
Day: 1
Year: 1980
Time Zone: GMT-08:00
[x] Daylight Savings

[x] Use NTP
NTP Server 1: 10.0.0.3
NTP Server 2: 192.83.249.28

Time/Date Help:
The time and date are used for outlet scheduling and logging purposes.
Press Backspace to return to Settings Menu.
```

There are six Time/Date and two NTP settings that can be changed:

- **Hour** (24 hour format, e.g., 7pm would be 19)
- **Minute** (from 1-59)
- **Month** (from 1-12)

- **Day** (from 1-31)
- **Year** (full format i.e. 2004)
- **Time Zone:** (e.g. GMT – 08:00 = Pacific Standard Time)
- **NTP Server 1:** (Address of first NTP server)
- **NTP Server 2:** (Address of second NTP server)

Note: The **Use NTP** option must be selected for the NTP Server 1 and NTP Server 2 settings to be operational. See step 5.

- 1) To change a value, navigate to the desired setting and press **Enter**.
- 2) Use **Backspace** and the number keys to change values. Press **Enter** when done.
- 3) Repeat steps 1 and 2 for each time/date setting to be changed.
- 4) To automatically compensate for Daylight Savings Time, navigate to **[] Daylight Savings Time** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.
- 5) To activate NTP (and automatically get the time/date from the network server), navigate to **[] Use NTP** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.

Note: It is highly recommended that a network NTP server be used.

- 6) Once all values and settings have been set, hit **Backspace** to return to the System Settings screen.

NETWORK Setup

From the System Settings screen, type **2** to select **Network Settings**. The following screen appears:

```

Welcome to the Dualcom S(TM)
SETTINGS-NETWORK <These settings will not take effect until after reboot>
[ ] Enable DHCP
IP       : 010.000.000.018   Using: 10.0.0.18
Subnet Mask : 255.255.255.000
Gateway   : 010.000.000.001
DNS       : 010.000.000.003
Host      : DUALCOM-S-8-1
Domain    : ??? .com

[REBOOT... ]

Network Settings Help:
To use the web interface on the Dualcom S(TM), Network Settings must be
properly configured. For more information on each setting, consult your
manual.

Press Backspace to return to Settings Menu.
```

There are six Network settings that can be changed:

- IP
 - Subnet Mask
 - Gateway
 - DNS
 - Host
 - Domain
- 1) To activate DHCP, navigate to [] **Enable DHCP** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable the option.

Note: DHCP is on by default, as the Dualcom S gets its IP address from a DHCP server. The assigned address is displayed next to **Using:**. If no DHCP server is found, the default address of 192.168.1.2 is shown.
 - 2) To change any of the values, navigate to the desired setting and press **Enter**.
 - 3) Use **Backspace** and the number keys to change values. Press **Enter** when done.
 - 4) Repeat steps 2 and 3 for each network setting to be changed.

Note: For any new settings to take effect, the Dualcom S must be rebooted. Do so by navigating to [**REBOOT...**] and pressing **Enter**. Once the Dualcom S reboots (it may take a minute), you'll be prompted to log on again.
 - 5) If no changes were made, or you don't wish to reboot the Dualcom S at this time, hit **Backspace** to return to the System Settings screen.

LOGGING Setup

From the System Settings screen, type **3** to select **Logging Settings**. The following screen appears:

```
_____ Welcome to the Dualcom S(TM) _____
SETTINGS-LOGGING
Syslog Server : 255.255.255.255
Log Facility  : 16
Log Level     : 06

[ ] Send email when log buffer is full
Email Server  : smtp.????.com
Email Address : administrator@????.com
From Address  : DUALCOM-S-8@????.com
Subject       : DUALCOM-S-8 Log Dump

Logging Settings Help:
The Dualcom S(TM) can dump logs to email when the log buffer is full.
Fill out the information above to have logs emailed to you.
You can also enter a syslog server to log to.

Press Backspace to return to Settings Menu.
```

There are three syslog settings and four e-mail settings that can be changed:

- **Syslog Server** (specify the IP address of your syslog server)
- **Log Facility** (specify the logging facility)
- **Log Level** (specify the level of logs you want to report)
- **E-mail Server** (specify the SMTP server name)
- **E-mail Address** (specify recipient of the notice)
- **From Address** (specify a name)
- **Subject** (specify a subject)

Note: The **Send e-mail when log buffer is full** option must be selected for the E-mail Server and E-mail Address settings to be operational. See step 4.

- 1) To change any of the values, navigate to the desired setting and press **Enter**.
- 2) Use **Backspace** and the number keys to change values. Press **Enter** when done.
- 3) Repeat steps 1 and 2 for each network setting to be changed.
- 4) To have the log buffer e-mailed to you once it's full, navigate to [] **Send e-mail when log buffer is full** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and deactivate the option.

Note: The **E-mail Server** and **E-mail Address** fields must be filled out for an e-mail to be sent.

- 5) Once all values and settings have been set, hit **Backspace** to return to the System Settings screen.

SNMP Setup

From the System Settings screen, type **4** to select **SNMP Settings**. The following screen appears:

```
_____ Welcome to the Dualcom S(TM) _____
SETTINGS-SNMP
[] Enable SNMP
[ ] Use Concatenated Username & Password as Communities
    <Communities 1 & 2 below will be ignored>

Community 1 <[ ] write access> : public
Community 2 <[] write access> : private
Trap Host IP   : 010.000.000.003

-----
SNMP Settings Help:
WARNING: Disable SNMP if you aren't using it, or it might be a security hazard!
Set the Trap Host IP to 000.000.000.000 to disable traps.

Press Backspace to return to Settings Menu.
```

1. By default, SNMP is OFF. To allow SNMP, navigate to [] **Enable SNMP** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable SNMP.

Note: If SNMP is not being used, disable it to prevent a security hazard.

2. To use “adminpassword” as the SNMP Community, navigate to [] **Use Concatenated Username & Password as Communities** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and deactivate the option.
3. To enable write access to Community 1, navigate to **Community 1** [] and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and disable writing to Community 1. Repeat to enable **Community 2** [].
4. To change “public” as the password string for Community 1, navigate to **public** and press **Enter**.
5. Use **Backspace** and the letter keys to change values. Press **Enter** when done. Repeat to change “private” as the password string for Community 2.
6. By default, the Trap Host IP is disabled (IP address is 000.000.000.000). To enable it, navigate to **Trap Host IP** and press **Enter**.
7. Use **Backspace** and the number keys to enter a valid IP address and press **Enter**.

Note: To disable the Trap Host IP again, enter **000.000.000.000** as the IP address.

8. Once all values and settings have been set, hit **Backspace** to return to the System Settings screen.

GENERAL Setup

From the System Settings screen, type **5** to select **General Settings**. The following screen appears:

```

Welcome to the Dualcom S(TM)
SETTINGS-GENERAL
[ ] Require confirmation to change outlets from web page.
Outlets page refresh rate <5-999s>: 10
Outlet on stagger time <0-5000ms> : 100
Outlet off stagger time <0-5000ms>: 100
Unit of Temperature: [ ] F [x] C
Serial BAUD Rate: 9600

General Settings Help:
The Outlets Page Refresh controls how often the Outlets web page refreshes.
The Outlet Stagger Times control how fast outlets switch on/off when the
unit boots, or when an all on/off command is issued.
```

There are four General settings that can be changed:

- **Outlets page refresh rate (5-999s): xxx** (Default is 10)
This controls how often the Outlets web page refreshes. Please note that if the refresh rate is set too high the system will not have enough time to load the entire page. On slower machines this could cause instability. Regardless of the refresh rate, setting the network speed will determine how fast a page is loaded.
 - **Outlet on stagger time (0-5000ms): xxxx** (Default is 100)
Sets the time between successive outlets turning on at power up or when all outlets are turned on.
 - **Outlet off stagger time (0-5000ms): xxxx** (Default is 100)
Sets the time between successive outlets turning off when all outlets are turned off.
 - **Unit of temperature [F] [C]:** Selects whether the optional Temperature/Humidity sensor readings are in Fahrenheit or Celsius.
 - **Serial BAUD Rate: xxxx** (Default is 9600. Choose 2400, 4800, 9600, 19200, 38400 or 57600)
1. To change any of the values, navigate to the desired setting and press **Enter**.
 2. Use **Backspace** and the number keys to change values. Press **Enter** when done.
 3. Repeat steps 1 and 2 for each general setting to be changed.
 4. To require a confirmation before an outlet can be changed from the web page, navigate to [] **Require confirmation to change outlets from web page** and press **Enter**. An **x** appears indicating the option is active. Once enabled, the user will be prompted for a confirmation each time they try to change the state of an outlet. Press **Enter** again to remove the **x** and deactivate the option.
 5. Once all values and settings have been set, hit **Backspace** to return to the System Settings screen.

USER(S) Setup

1. From the System Settings screen, type **6** to select **Manage Users**. The following screen appears:

```

Welcome to the Dualcom S(TM)
SETTING-USERS
 1 - admin          10 -
 2 -              11 -
 3 -              12 -
 4 -              13 -
 5 -              14 -
 6 -              15 -
 7 -              16 -
 8 -              17 -
 9 -

Users Help:
Use arrow keys to select a user.
Press Enter to modify user.
Press - to delete user.
Press Backspace to return to Settings Menu.

```

- To delete a user, navigate to the user and press **-**.
- To edit the settings for a particular user (or add a new one), navigate to the desired line and press **Enter**. A screen similar to following appears:

```

Welcome to the Dualcom S(TM)
MODIFY USER 1
  Username: admin
  Password: *****
 Retype Password: *****
 Administrator: [x]
 User can modify these outlets (Administrators can modify ALL outlets):
 1 2 3 4 5 6 7 8 ALL
 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]
 [SAVE USER]

Modify User Help:
You MUST choose [SAVE USER] for user settings changes to apply.
Use arrow keys to navigate.
Press Enter to change setting.
Press Backspace to cancel and return to Settings Menu.

```

There are two User settings that can be changed:

- Username:** Specify the username (3 to 15 characters). Spaces are allowed.
- Password:** Specify the password (6 to 15 characters). Confirm on the next input box.

Note: You'll need to re-enter your password under **Retype Password** for verification purposes.

- To change any of the values, navigate to the desired setting and press **Enter**.
- Use **Backspace** and the number/letter keys to change values. Press **Enter** when done.
- Repeat steps 4 and 5 for each general setting to be changed.

7. To allow the user full admin privileges, navigate to **Administrator []** and press **Enter**. An **x** appears indicating the option is active. Press **Enter** again to remove the **x** and deny the user full admin privileges.
8. To select which outlets a normal user has control of, navigate to one of the eight outlets that appear under **User can modify these outlets (Administrators can modify ALL outlets):** and press **Enter**. An **x** appears indicating the user has control over that outlet. Press **Enter** again to remove the **x** and deny the user access to that outlet.
9. Repeat step 8 to set/unset any remaining outlets the user can control.
10. Once all settings and options have been set, navigate to **[SAVE USER]** and press **Enter** to save the user profile.
11. When done, hit **Backspace** to return to the System Settings screen.

Chapter

3

WEB INTERFACE SETUP

Once the Dualcom is configured and on the network as explained in the **TCP/IP Connection** section, the Dualcom S unit is ready for use.

The web interface features five tabs that run along the top of the page:



The following functions can be performed from within the tab listed:

- **Outlets**
 - Change the state of the outlets
 - Setup scheduling
 - Rename outlets
 - View current draw per outlet
 - Set outlets to a certain state when unit powers up
 - Set up Cyber Breaker® the Virtual Circuit Breaker™
- **Temp/Hum**
 - Enable the primary and/or secondary sensor alert
 - Set the high/low temperature/humidity limits
- **Logs**
 - View the last 64 events that have occurred in detail.
- **Users**
 - Add, Edit and Delete users
- **Setup**
 - Time/Date Settings
 - Network Settings
 - Logging Settings

- SNMP Settings
- General Settings

Note: Only users with Administrator privileges can access the **Logs**, **Users** and **Setup** tabs.

Outlet Tab

Click the **Outlet** tab to view a screen similar to the following:

					User:admin	Logout	
Outlets	Temp/Hum	Logs	Users	Setup	11:57 AM · 25 Oct 2008	22.6°C / 28.1%	
1		On	Off	Reboot		server-01-1	0.0A
2		On	Off	Reboot		server-02-5	0.0A
3		On	Off	Reboot		server-02-8	0.0A
4		On	Off	Reboot		server-03-3	0.0A
Bank A Total						0.0A	
5		On	Off	Reboot		server-03-1	0.0A
6		On	Off	Reboot		Outlet 6	0.0A
7		On	Off	Reboot		Outlet 7	0.0A
8		On	Off	Reboot		Outlet 8	0.0A
Bank B Total						0.0A	
ALL		On	Off	Reboot		ALL OUTLETS	0.0A

[Save Startup State](#)

There are five procedures that can be done from the **Outlet** tab:

- Turn an outlet on or off
- Reboot an outlet
- Edit the properties of an outlet
- Set High/Low Currents and Grace Periods
- Enable Cyber Breaker® the Virtual Circuit Breaker™

Turning an Outlet On/Off

When the Dualcom S is booted up, all outlets by default are turned on and represented by a green LED. To turn an individual outlet off, click the **Off** link next to the desired outlet. The green LED icon changes to white, indicating that the outlet is off. Click **On** to turn the outlet back on.

To turn all outlets on or off at the same time, click on **On** or **Off** next to **ALL**

To change an outlet so that it will be off when the Dualcom S is powered up, do the following:

1. Turn off all desired outlets as described above.
2. Click **Set Outlets to This State at Power Up** at the bottom of the screen.

Rebooting an Outlet

To reboot an individual outlet, click on **Reboot** next to the desired outlet. The outlet turns off after the reboot delay timer expires and then turn back on once the reboot off timer terminates. To reboot all outlets at once, click **Reboot** next to **ALL**.

Note: The settings for both the reboot delay timer and reboot off timer can be changed in the properties of each individual outlet (see **Editing the Properties of an Outlet**). The default for both timers is five seconds.

Editing the Properties of an Outlet

To edit the properties of a specific outlet, click on the name of an outlet. The following screen appears:

Outlet Label: server-01-1

Enable Low Current Alerts

Low Current Threshold: 0.0 A

Low Current Grace Period: 10000 msec.

Enable Virtual Circuit Breaker™

Enable High Current Alerts

High Current Threshold: 16.0 A

High Current Grace Period: 10000 msec.

Reboot Delay Time (0-6000): 5 sec.

Reboot Off Time (0-6000): 5 sec.

Save Cancel

There are ten Outlet settings that can be changed:

- **Outlet Label**

- **Enable Low Current Alerts**
- **Low Current (Amps)**
- **Low Grace Period (ms)**
- **Enable Cyber Breaker® Virtual Circuit Breaker™**
- **Enable High Current Alerts**
- **High Current (Amps)**
- **High Grace Period (ms)**
- **Reboot delay (sec.)**
- **Reboot off (sec.)**

Note: The **Enable Low/High Current Alerts** options must be selected for the Low/High Current and Low/High Grace Period settings to be operational. See **Setting High/Low Currents and Grace Periods**. Click in the checkbox of an option to activate it.

1. To change the label for an outlet, click in the box next to **Outlet Label** and enter a new name using a maximum 15 characters.
2. To change the Reboot delay/off times, click in the box next to either option and enter a new number between 0 and 6000.
3. Click **Save Properties** when done.

Setting High/Low Currents and Grace Periods

When the current rises above or falls below the set current level threshold for longer than the set grace period, current alerts trigger syslogs or SNMP traps. Do the following to enable high/low current alerts, grace periods and the Virtual Circuit Breaker™. Once enabled, a log and an SNMP trap will be sent if the measured current drops below or rises above the limit for longer than the low or high grace period.

1. To enable low current alerts, click in the box next to **Enable Low Current Alerts**. A checkmark appears indicating the option is active. Click again to remove the checkmark and disable the option.
2. To change the Low Current or Low Grace period times, click in the box next to either option and enter a new time.
3. To enable high current alerts, click in the box next to **Enable High Current Alerts**. A checkmark appears indicating the option is active. Click again to remove the checkmark and disable the option.

4. To change the High Current or High Grace period times, click in the box next to either option and enter a new time.
5. Click **Save Properties** when done.

Enabling Cyber Breaker® the Virtual Circuit Breaker™

Cyber Breaker® the Virtual Circuit Breaker™ provides protection for each individual outlet, so if one is pulling too much current, only that outlet is tripped. It also eliminates all uncertainties about when a circuit will trip.

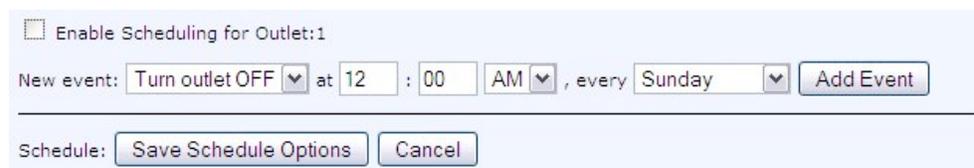
Cyber Breaker® is not designed to protect against short circuits or major over current conditions. If a circuit is shorted or if the current is too high above the limit, the primary or branch circuit breaker will still be tripped.

To enable Cyber Breaker®, click the **Enable Virtual Circuit Breaker™** box. A checkmark appears indicating the option is active. Click again to remove the checkmark and disable the option.

Cyber Breaker® trips the circuit if the current goes over the number of amps set in the **High Current (Amps)** box for longer than the number of milliseconds set in the **High Grace Period** box. The LED for that outlet turns red, indicating the outlet is no longer functioning. To reset Cyber Breaker®, turn the outlet off and then back on. The outlet will turn on.

Scheduling a Task

To set a scheduled task, select the clock icon  that corresponds to the outlet to be scheduled. The following screen appears:



Enable Scheduling for Outlet:1

New event: Turn outlet OFF at 12 : 00 AM , every Sunday Add Event

Schedule: Save Schedule Options Cancel

Add events by doing the following:

1. Enter a start time in the **at** hour and minute boxes. Be sure to specify **AM** or **PM**.
2. Select the day of the week from the **every** pull-down menu.
3. Click **Add Event**.
4. Click the checkbox to enable scheduling for this outlet.
5. Click **Save Schedule Options**.

Note: To utilize the outlet scheduling feature, the correct time and date must first be setup.

To delete an event, click on the **x** next to the desired event:

Temp/Hum Tab

Setting Temperature and Humidity alerts trigger syslog messages and SNMP traps when the temperature or humidity rises above or falls below the set value, informing the user when a problem occurs.

High/low limits can be set individually for both sensors and for both temperature and humidity. This allows for maximum granularity and flexibility when monitoring a rack.

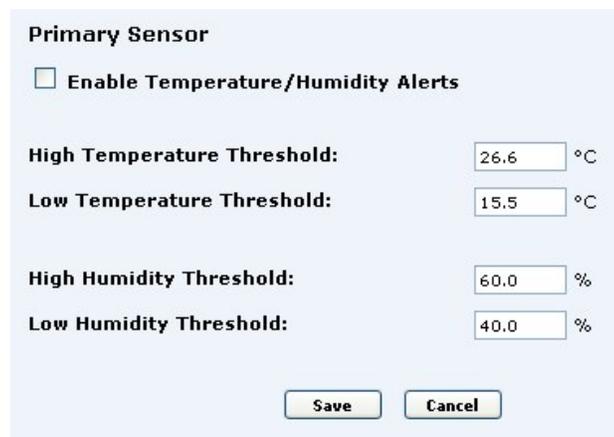
Note: The respective **Enable Alert** option must be selected for the Low/High Temperature and Low/High Humidity Alert settings to be operational.

Click the **Temp/Hum** tab to view a screen similar to the following:

1. To enable the alert for the primary sensor, click **Edit** next to Primary Sensor.

Note: This can only be done by an administrator.

- Click in the **Enable Temperature/Humidity Alerts** checkbox. An **x** appears indicating the option is active. Click again to remove the **x** and disable the option.
- To change the High/Low Temperature or High/Low Humidity Threshold settings for the primary sensor, click in the box of the desired setting.
- Enter the desired high and low temperature and/or humidity threshold number.
- Click **Save**.



Primary Sensor

Enable Temperature/Humidity Alerts

High Temperature Threshold: °C

Low Temperature Threshold: °C

High Humidity Threshold: %

Low Humidity Threshold: %

- To enable the alert for the secondary sensor, click **Edit** next to Secondary Sensor.
- Click in the **Enable Temperature/Humidity Alerts** checkbox. An **x** appears indicating the option is active. Click again to remove the **x** and disable the option.
- To change the High/Low Temperature or High/Low Humidity Threshold settings for the secondary sensor, click in the box of the desired setting.
- Enter the desired high and low temperature and/or humidity threshold number.
- Click **Save**.

Secondary Sensor

Enable Temperature/Humidity Alerts

High Temperature Threshold: °C

Low Temperature Threshold: °C

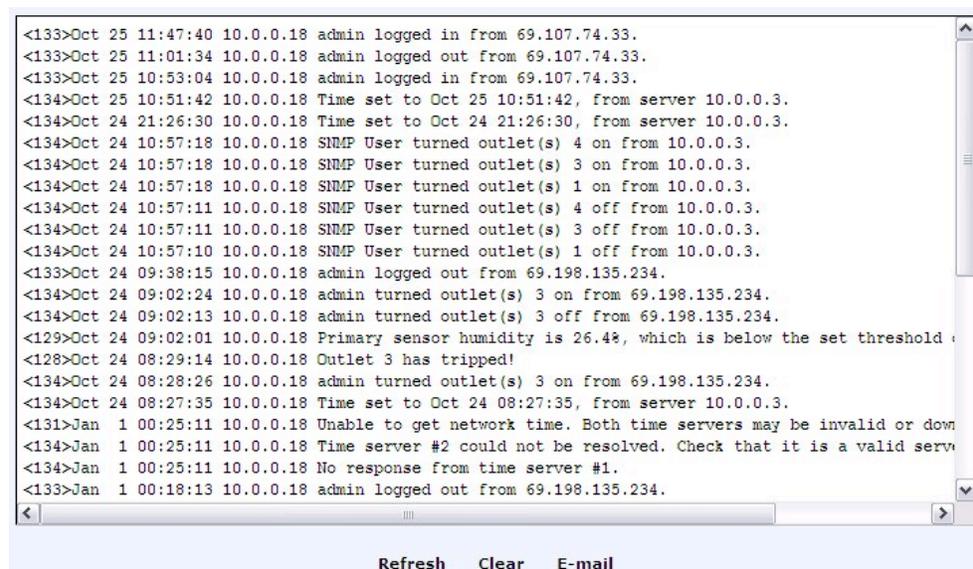
High Humidity Threshold: %

Low Humidity Threshold: %

Logs Tab

The Dualcom S maintains a log of 64 events at a time. When enabled, the Dualcom S can e-mail the log to a designated person manually at anytime, or automatically once the log file is full. If the log file is full and e-mail is not enabled, the unit overwrites the oldest event, thus keeping the log current. To setup log e-mail, see the **Logging Setup** section under “Setup Tab”.

Click on the **Logs** tab to view a screen similar to the following:



```
<133>Oct 25 11:47:40 10.0.0.18 admin logged in from 69.107.74.33.
<133>Oct 25 11:01:34 10.0.0.18 admin logged out from 69.107.74.33.
<133>Oct 25 10:53:04 10.0.0.18 admin logged in from 69.107.74.33.
<134>Oct 25 10:51:42 10.0.0.18 Time set to Oct 25 10:51:42, from server 10.0.0.3.
<134>Oct 24 21:26:30 10.0.0.18 Time set to Oct 24 21:26:30, from server 10.0.0.3.
<134>Oct 24 10:57:18 10.0.0.18 SNMP User turned outlet(s) 4 on from 10.0.0.3.
<134>Oct 24 10:57:18 10.0.0.18 SNMP User turned outlet(s) 3 on from 10.0.0.3.
<134>Oct 24 10:57:18 10.0.0.18 SNMP User turned outlet(s) 1 on from 10.0.0.3.
<134>Oct 24 10:57:11 10.0.0.18 SNMP User turned outlet(s) 4 off from 10.0.0.3.
<134>Oct 24 10:57:11 10.0.0.18 SNMP User turned outlet(s) 3 off from 10.0.0.3.
<134>Oct 24 10:57:10 10.0.0.18 SNMP User turned outlet(s) 1 off from 10.0.0.3.
<133>Oct 24 09:38:15 10.0.0.18 admin logged out from 69.198.135.234.
<134>Oct 24 09:02:24 10.0.0.18 admin turned outlet(s) 3 on from 69.198.135.234.
<134>Oct 24 09:02:13 10.0.0.18 admin turned outlet(s) 3 off from 69.198.135.234.
<129>Oct 24 09:02:01 10.0.0.18 Primary sensor humidity is 26.4%, which is below the set threshold
<128>Oct 24 08:29:14 10.0.0.18 Outlet 3 has tripped!
<134>Oct 24 08:28:26 10.0.0.18 admin turned outlet(s) 3 on from 69.198.135.234.
<134>Oct 24 08:27:35 10.0.0.18 Time set to Oct 24 08:27:35, from server 10.0.0.3.
<131>Jan 1 00:25:11 10.0.0.18 Unable to get network time. Both time servers may be invalid or down
<134>Jan 1 00:25:11 10.0.0.18 Time server #2 could not be resolved. Check that it is a valid serv
<134>Jan 1 00:25:11 10.0.0.18 No response from time server #1.
<133>Jan 1 00:18:13 10.0.0.18 admin logged out from 69.198.135.234.
```

The following can be done from this screen:

- Refresh the log screen by clicking **Refresh Logs**.

- E-mail the logs to an administrator by clicking **E-mail**.
- Clear the log screen by clicking **Clear**.

Users Tab

The **Users** tab allows you to add or edit user attributes and assign user privileges. Up to 16 users can be created on the Dualcom S. To Access the **Users** tab, the user must be an Administrator.

Click the **User** tab to display a screen similar to the following:

		Outlet Permissions									
Username	Administrator	1	2	3	4	5	6	7	8		
1 admin	✓	✓	✓	✓	✓	✓	✓	✓	✓	Edit	Delete
2										Add	
3										Add	

To remove a user, click **Delete** next to the user to remove. The user and all of their settings will be deleted.

Edit/Add Users

To add or edit an existing user, click **Edit** in the row desired. A window similar to the following appears (shown is an eight outlet Dualcom S):

Username:

Change Password:

Re-enter Password:

User is an administrator

Outlet Permissions:

1	2	3	4	5	6	7	8
<input checked="" type="checkbox"/>							

1. To add/change the username, click in the **Username** box and enter a name between 3 and 15 characters.

- To allow the user full admin privileges, click in the **User is an administrator** box. A checkmark appears indicating the option is active. Click again to remove the checkmark and deny the user full admin privileges.
- To set which specific outlets a normal user has control of, click in all of the boxes that appear under **User may modify these outlets (administrators can modify all outlets regardless of these settings)** you wish the user to have access to. A checkmark appears indicating the user has control over those outlets. Click again to remove a **checkmark**.

Note: Only an administrator has access to change the above settings.

- To add or change a password, enter a password (between 6 to 15 characters) in the **Password** box. Confirm in the **Retype Password** box.



Username:

Change Password:

Re-enter Password:

User is an administrator

Outlet Permissions:

1	2	3	4	5	6	7	8
<input checked="" type="checkbox"/>							

- Click **Save** when done making all changes.

Setup Tab

Click on the **Setup** Tab. The following screen appears:

Outlets		Temp/Hum		Logs		Users		Setup		
								User:admin	Logout	
								12:22 PM · 25 Oct 2008	22.8°C / 28.4%	
System Clock [Edit]										
Sat, 25 Oct 2008 · 12:21 PM										
Time Zone:	GMT-08:00									
Daylight Savings:	Enabled									
NTP:	Enabled									
NTP Server 1:	10.0.0.3									
NTP Server 2:	192.83.249.28									
Network [Edit]										
MAC Address:	00-09-E6-00-01-01									
DHCP:	Disabled									
			DEFAULTS			ACTIVE				
IP Address:	10.0.0.18			10.0.0.18			10.0.0.18			
Subnet Mask:	255.255.255.0			255.255.255.0			255.255.255.0			
Default Gateway:	10.0.0.1			10.0.0.1			10.0.0.1			
DNS Server:	10.0.0.3			10.0.0.3			10.0.0.3			
Hostname:	DUALCOM-S-8-1			DUALCOM-S-8-1			DUALCOM-S-8-1			
Domain:	??? .com			??? .com			??? .com			
Logging [Edit]										
Syslog Server:	255.255.255.255									
Logging Facility:	16									
Logging Level:	6									
E-mail Logs: Don't dump logs to e-mail when buffer is full										
SMTP Server:	smtp.??? .com									
To:	administrator@??? .com									
From:	DUALCOM-S-8@??? .com									
Subject:	DUALCOM-S-8 Log Dump									
SNMP [Edit]										
Interface:	Enabled									
Communities:	Use Community 1 and Community 2 for Communities.									
Community 1:	*****read-only									
Community 2:	*****read-write									
Trap Server:	010.000.000.003									
System Name:	pdu-01-a									
System Contact:	My Contact Info									
System Location:	My Location									
General [Edit]										
State Change Confirmation:	Don't require confirmation to change outlet states from the web page									
Web Refresh Rate:	Every 10 seconds									
Stagger On Time:	100 ms									
Stagger Off Time:	100 ms									
Unit of Temperature:	°C									
Serial Baud Rate:	9600									
System Information										

From here you can set the following attributes:

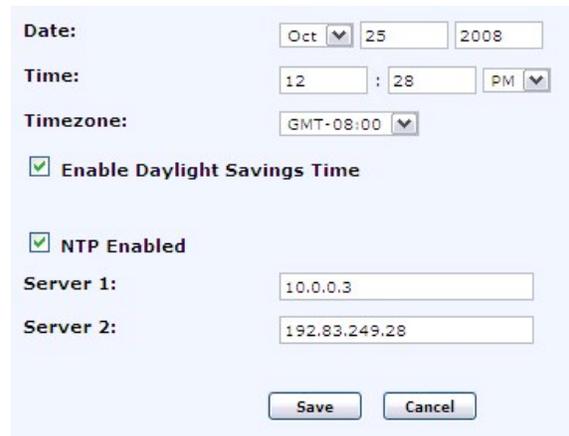
- **System Clock Settings**
- **Network Settings**
- **Logging Settings**
- **SNMP Settings**
- **General Settings**

The **Setup** tab is only accessible to administrators. To make changes, click **Edit** next to the appropriate heading.

TIME/DATE Setup

The following shows how to set the time and date on your unit. It is important that the time and date be accurate as they directly affect the logs and schedules for desired use.

NTP



The screenshot shows a configuration window with the following elements:

- Date:** Oct 25, 2008
- Time:** 12 : 28 PM
- Timezone:** GMT-08:00
- Enable Daylight Savings Time**
- NTP Enabled**
- Server 1:** 10.0.0.3
- Server 2:** 192.83.249.28
- Buttons:** Save, Cancel

The time/date on the Dualcom S can either be set manually or automatically using NTP.

To configure the NTP settings with an NTP Server, do the following:

1. Click in the box next to **NTP Enabled**. A checkmark appears.
2. Enter Server 1 and Server 2 settings in their respective boxes.
3. Click the **Save**. The page refreshes with the new date and time that the Dualcom S receives from the server.

To manually set the date and time, uncheck the **NTP Enabled** check box and enter the date and time in the corresponding **Date:** and **Time:** boxes. Be sure to select **AM** or **PM**, and the time zone you are in.

To compensate for daylight savings time, click in the **Enable Daylight Savings Time** checkbox. A checkmark appears.

Note: It is highly recommended that a network NTP server be used.

NETWORK Setup

DHCP Enabled

IP Address:

Subnet Mask:

Gateway:

DNS Server:

Host Name:

Domain:

There are six Network settings that can be changed:

- IP Address
- Subnet Mask
- Gateway
- DNS Server
- Host Name
- Domain

To enter a **Network** setting, click on the box next to the setting to edit and type in a new value. Once all fields are filled in, click **Save and Reboot**.

Note: The network settings will not take affect until the unit has been rebooted.

LOGGING Setup

Administrators can use this screen to setup e-mail properties and server settings. When enabled, the Dualcom S can e-mail the log to a designated person manually at anytime, or automatically once the log file is full.

The screenshot shows a configuration window with the following fields and options:

- Syslog Server:** 255.255.255.255
- Facility:** (16) Local-0
- Minimum Level:** (6) Informational
- Dump logs to e-mail when local buffer is full**
- SMTP Server:** smtp.????.com
- To:** administrator@????.com
- From:** DUALCOM-S-8@????.com
- Subject:** DUALCOM-S-8 Log Dump

At the bottom of the form are two buttons: **Save** and **Cancel**.

There are three syslog settings and four e-mail settings that can be changed:

- **Syslog Server** (specify the IP address of your syslog server)
- **Facility** (specify the logging facility)
- **Minimum Level** (specify the level of logs you want to report)
- **SMTP Server** (specify the SMTP server name)
- **To E-mail Address** (specify recipient of the notice)
- **From E-mail Address** (specify a name)
- **Subject** (specify a subject)

Note: The **Dump logs to e-mail when local buffer is full** option must be selected for the SMTP Server and E-mail Address settings to be operational.

To enable the **e-mail logs** feature, do the following:

1. Enter an IP address in the box next to **Syslog Server**.
2. Select the desired attributes from the **Facility** and **Minimum Level** pull-down menus.
3. Enter the **SMTP Server** name as well as the **E-mail Address** of the person to receive the logs.

Note: The "From" and "Subject" fields are optional and are not required to send the log.

4. Click the **Dump logs to e-mail when local buffer is full** box. A checkmark appears.
5. Click **Save**. The unit is now ready to send the log once the buffer is full.

Note: The SMTP Server is the outgoing e-mail server. Please consult with the network administrator for any missing information. Without the proper SMTP Server, the unit will not be able to e-mail the logs out regardless of all other settings.

SNMP Setup



The image shows a web-based configuration interface for SNMP. It features several sections: 'Enable SNMP' with a checked checkbox, 'Use Concatenated Username & Password as Communities' with an unchecked checkbox, 'Community 1' with a text box containing 'public' and an unchecked 'write access' checkbox, 'Community 2' with a text box containing 'private' and a checked 'write access' checkbox, 'Trap Server IP' with a text box containing '010.000.000.003' and a note '(Leave blank to disable)', 'System Name' with a text box containing 'pdu-01-a', 'System Contact' with a text box containing 'My Contact Info', and 'System Location' with a text box containing 'My Location'. At the bottom are 'Save' and 'Cancel' buttons.

The following can be set from this screen:

- **Enable SNMP**
SNMP is disabled by default. To enable SNMP, click in the box next to this option. A checkmark appears.
Note: If SNMP is not being used, disable it to prevent a security hazard.
- **Use Concatenated Username & Password as Communities**
Once enabled, you can use a concatenated username and password as communities. For example “adminpassword” would work if the default username and password are used. To enable, click in the box next to this option. A checkmark appears.
- **Community 1**
You can enter a password for “Community 1” by typing it in the **Community 1:** text box. To set “community 1” to be read/write, then click in the **write access** box. A checkmark appears. Leave it unchecked to be read only.

Note: If you are using “Community 1”, do not check the **Use Concatenated Username&Password as Communities** box.

- **Community 2**

You can enter a password for “Community 2” by typing it in the **Community 2:** text box. To set “community 2” to be read/write, then click in the **write access** box. A checkmark appears. Leave it unchecked to be read only.

Note: If you are using “Community 2”, do not check the **Use Concatenated Username&Password as Communities** box.

- **Trap IP Server**

By default, the Trap Host IP is disabled. To set the address of the Host machine running SNMP management software to send traps to, enter an address in the **Trap Host IP:** box. Leave the box empty to disable traps.

- **System Name/Contact/Location**

Enter **System Name** (Dualcom S name), **System Contact** (contact person for Dualcom S), and **System Location** (Dualcom S location) information in their respective boxes.

Note: When done entering settings, click on **Save** to activate all changes.

GENERAL Setup

Behavioral settings, such as outlet change confirmations and refresh rates, can be changed from this screen.

Confirm outlet state changes over HTTP

HTTP Refresh Rate: sec.

Outlet Stagger-On Rate: msec.

Outlet Stagger-Off Rate: msec.

Temperature Unit: ▼

RS232 Baud Rate: ▼

The following can be set from this screen:

- **Require confirmation to change outlets from web page**

To avoid accidental on/off, confirmation for each on/off event can be required on the web. To enable this feature, click in the box next to the **Confirm outlet state changes over HTTP** option. A checkmark appears. Once enabled, the user is prompted for a confirmation each time they try to change the state of an outlet.

- **HTTP refresh rate in seconds (5-999)**
The Outlets page refreshes at the rate specified. Please note that if the refresh rate is set too high the system will not have enough time to load the entire page. On slower machines this could cause instability. Regardless of the refresh rate, setting the network speed determines how fast a page is loaded. If the connection speed is not defined, set the refresh rate to about 15 seconds. The default setting is 10 seconds. To set, click in the box next to this option and enter a value.
- **Outlet stagger-on rate in milliseconds (0-5000)**
Sets the time between successive outlets turning on at power up or when all outlets are turned on. To set, click in the box next to this option and enter a value.
- **Outlet stagger-off rate in milliseconds (0-5000)**
Sets the time between successive outlets turning off when all outlets are turned off. To set, click in the box next to this option and enter a value.
- **Temperature Unit**
Select **Celsius (°C)** or **Fahrenheit (°F)** from the pull-down menu.
- **RS232 BAUD Rate**
Sets the baud rate to 9600, 19200, 38400 or 57600. Select a baud from the **RS232 Baud Rate:** pull-down menu.

Note: When done entering settings, click on **Save** to activate all changes.

System Information

General		[Edit]
State Change Confirmation:	Don't require confirmation to change outlet states from the web page	
Web Refresh Rate:	Every 10 seconds	
Stagger On Time:	100 ms	
Stagger Off Time:	100 ms	
Unit of Temperature:	°C	
Serial Baud Rate:	9600	

[System Information](#)

Click the **System Information** link at the bottom of the **Setup** screen to display current system information about the Dualcom S unit in use:

System Information

Product Name: DUALCOM-S-8
Serial Number: XXXX-000101
MAC Address: 00-09-E6-00-01-01
Firmware Version: v2.0.0.D840_Xfh2nsX.RELEASE
Manufacture Date: 09/12/2008 11:36:57

Compile Date: Oct 24 2008
Compiler Version: 07.25

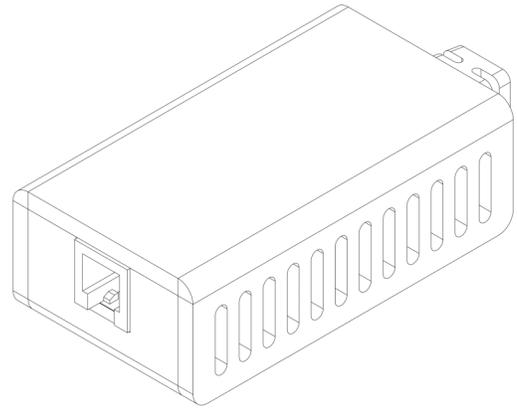
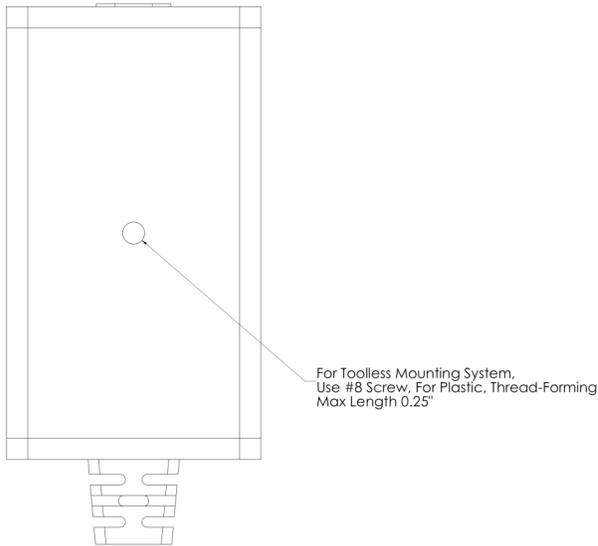
User Block Version: EC
User Block Location: 0x3F7C
User Block Size: 0x3F7C

FAQs

Questions	Answers
Why is there no power at the outlets?	Check to insure that the input power cord is plugged in and that the outlet indicator lights are on.
Why do my arrow keys not function in Windows when I run Hyper Terminal?	There is a known bug with Terminal Emulation on Windows Operating Systems. Download the latest Service Pack and updates for your machine before connecting to the Dualcom S again. The Updates should fix the problem.
Why does the Dualcom S indicate there is no load when I have my mini hub plugged into one of the outlets?	To avoid improper current readings, the Dualcom S is designed so that any load lower than 0.2 A is considered zero.
I can't connect to the Dualcom S using the serial port.	Check your settings to ensure that you are connected to the proper COM port and that the settings on the COM port are 9600, 8, None, 1, and NO flow control .
The Dualcom S does not appear to be responding to any commands on all the interfaces.	If the Dualcom S stops responding, a soft reset can be performed. Quickly press and release the reset button. The reset button is located through a hole on the right side of the Dualcom S just behind the front bracket.
Is there a way to reset the Dualcom S to factory default settings?	To reset the Dualcom S to factory defaults, press and hold the reset button for approximately 10 seconds, until the LED's flash rapidly, and then release the reset button. Caution: Off outlets will simultaneously turn on. The reset button is located through a hole on the right side of the Dualcom S just behind the front bracket.
What is the sequence of reboot?	When you reboot an outlet, the outlet turns off after the delay timer expires then comes back on after the off timer expires. The default delay / off time is 5 seconds. You can specify them in the Edit Outlet Properties window.
What happens if I turn an outlet On or Off when it is still in the reboot process?	If you turn an outlet on or off when that outlet is still in the reboot process, the reboot is cancelled and the outlet immediately turns on or off.
What happens if I change delay time / off time when an outlet is in the reboot process?	If you reboot an outlet, then change the off time before the delay timer expires, the previous off time will still be used. That means the newer changes can not override the previous delay / off time setting during an outlet's reboot process.
What happens if I reboot an outlet when ALL OUTLETS are in the reboot process?	If you reboot an outlet when ALL OUTLETS are still in the reboot process, ALL OUTLETS' reboot is cancelled and that individual outlet's reboot is finished.

Temperature/Humidity Sensor

The temperature/humidity sensor is an optional add-on module that can be used in conjunction with supporting Dualcom S units. The attached cable on the sensor plugs into the RJ25 (6P6C) connector on the Dualcom S. Once communication has been established between the two devices, the display on the Dualcom S will update with the detected temperature/humidity data. See pages 10 and 26 for additional details. A second remote sensor can be daisy-chained from the temperature/humidity sensor module to compare measurements from two different physical locations.



RADIO FREQUENCY INTERFERENCE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE WILL ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

This Class “A” digital apparatus meets all requirements of the Canadian Interface Causing Equipment Regulations.

Cet appareil numérique de la classe “A” respecte toutes les exigences du règlement sur le matériel brouilleur du Canada.

WARNING: CHANGES OR MODIFICATIONS TO THIS UNIT NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USERS AUTHORITY TO OPERATE THE EQUIPMENT.

NOTE: THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND, IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.