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I. Introduction

A. Overview
The Data Aire idap Card is an Ethernet network card with browser based application software installed on the card allowing a standard desktop or laptop PC to communicate with the dap4 micro-processor controller using an open web browser application such as Windows Internet Explorer, Mozilla Firefox or Google Chrome. The idap card supplies web-management capability by means of an Ethernet network interface for monitoring and control of Data Aire precision cooling systems. The interface combines a number of features in this strategic monitoring and control product.

B. Features
• Connection to 10 Mbps Ethernet network
• Web server for real time monitoring of a wide range of precision cooling systems operating parameters such as return air condition, discharge air condition (optional), system status, equipment runtimes and alarms.
• Remote modification of the precision cooling systems operational parameter settings such as temperature and humidity setpoint, system ON/OFF control
• Continuous monitoring of alarms
• Logger and graphs
• Email alarm notifications to allow immediate action as a result of a malfunction. Also email logger and graphs.
• Support SNMPv1,v2, BACnet IP and Modbus TCP/IP protocols for BMS (Building Monitoring System) or BAS (Building Automation System) interface.

C. Applications
• Small data center
• Computer rooms, network access spaces or server closets
• Telecommunications facilities
• Medical equipment control centers
• Other sensitive electronic applications

II. Installation and Setup Procedures

A. Installation
1. Turn unit power OFF. Remove the cover of BMS card slot on dap4 controller or serial card 1 slot if it is a Mini dap4 controller.

2. Insert the idap card to the BMS card (serial card 1 on Mini dap4)

3. Install the idap card cover that comes with the card.

B. Set-up IP Address In idap Card for Ethernet Connection
1. After installing the idap card into the dap4 controller, turn the dap4 back ON, go to Menu G-Network Config and program BMS PORT 1 to “BACnet TCP/IP” protocol, BMS PORT 2 must be set to N/A (default setting).

2. To set-up the idap card you will need a laptop or PC with Windows XP or Windows 7 operating system and a CAT-5 crossover cable between the PC and the dap4 are required. Connect to the idap card and configure the card IP address. See detailed steps below.
3. All idap cards are set up for a DHCP server as default. Follow step 4 to step 12 to enter a static IP address if it requires.

4. Perform a factory reboot of the card by shutting OFF the power to the dap4 controller. While pressing and holding the Reset button of the idap card; power the dap4 controller back ON. The status LED will blink red and green rapidly for couple seconds, continue to hold the Reset button and wait approximately 20 seconds until the status LED begins to slowly blink red. After the first red blink, release the Reset button. The status LED continues to blink 2 more times for total of 3 red blinks. After releasing the Reset button, wait approximately another 50 seconds; and the card will now default to the factory default IP address. This default IP address only works after a factory reboot. If dap4 is reset, the card will go back to the IP address that is programmed on the card.

5. The factory default IP address for the idap card is as follows. **IP address – 172.16.0.1**  
**Net Mask – 255.255.0.0** Once you perform the factory reboot on the idap card, you must now configure your PC IP address to 172.16.0.* (* any value other then 1) in order to connect directly to the idap card. Ping the card IP address to verify the connection.

6. After your PC or laptop connects to the idap card, open the Windows Internet Explorer and enter the card’s IP address (172.16.0.1) to access the Ethernet card configuration page.

7. When you get to the website click on “Go to Administration Area.” The following prompt will be displayed on your PC’s Screen, enter User name: admin, and Password: fadmin. These are the default User name and Password. They can be changed, see Changing User name and Password section III-E for details.

8. After entering the correct information to log on to the idap card, you will be taken to the following screen.
9. Click the “Configuration:” tab on the left. Then click on the “Network” tab across the top of the screen. The IP address page will appear.

10. You may now enter or change the IP address (if applicable) by entering the IP under Eth0 IP address Main box and NetMask main box. The default setting is DHCP.

11. Click Submit after entering the IP address.

12. It will take approximately 5 minutes for the IP address change to take effect. The idap card may have to be manually rebooted by cycling the dap4 power ON and OFF if the reboot command does not respond. Wait for one minute after the card has been restarted then access...
the card using new IP address. Repeat steps 4 to 12 to connect to the card and verify the IP address if you cannot connect to the card, use a new IP address. Ping the idap card IP address to verify the connection.

C. Program IP Address on idap Card Using dap4 Display Panel Keypad

Note: This procedure applies to dap4 controller with BIOS version 5.18 or later and idap card with firmware version A1.5.0 B1.2.4 or later. dap4 BIOS version number can be viewed on dap4 menu F - Information.

1. To program the IP address to the idap card using the dap4 display keypad, simply press and hold the ALARM and ENTER keys simultaneously for one second, the following screen will appear:

   >SYSTEM INFORMATION
   LOG DATA
   OTHER INFORMATION
   FLASH/USB MEMORY

2. Use Select down key (↓) to move the cursor to OTHER INFORMATION and press Enter. This screen will appear:

   >ID NUMBER INFO
   PCOWEB/NET CONFIG
   MEMORIES STATUS

3. Use Select down key (↓) then Enter key to select PCOWEB/NET CONFIG, the following screen will appear:

   >PCOWEB settings
   PCONET settings

4. Press Enter key to select PCOWEB settings option. The following screen will appear:

   DHCP: ON
   IPAddress: ---.---.---.---

5. Use Enter key to move the cursor then use the arrow keys to make change. If you select DHCP ON, you cannot enter a static IP address. Select OFF on DHCP if you want to enter a static address.

6. Press Select down key (↓) to go to next page to enter NetMask and Gateway address then go to the next page to enter DNS1 and DNS2 address if not, press Select down (↓) key to go to next page.

7. You may enter a BACnet device instance number if BACnet connection required otherwise press Select down key (↓) to go to the next page, the screen will appear:

   PCONET CONFIG ENABLE
   Update pCOweb? NO

8. Use Select down key (↓) to select YES then press Enter key to confirm the change. These screens will show:

   Please wait for end of update
   Then
   Update complete-Reboot pCOnet to apply new settings
9. Restart the dap4 to reboot the idap card and wait for about one minute for the dap4 and idap card to complete their reboot process.

10. Connect to idap card using the new IP address. Ping the idap card IP address to verify the connection.

III. Configure idap Card on Start-up
After establishing the Ethernet connection to the card, open a web browser such as Internet Explorer (Version 10 or newer), Mozilla Firefox or Google Chrome to browse the card. Click on "Go to Administration Area." The following screen will appear:

Enter factory default user name **admin** and factory default password **fadmin** then click Log In. The System status page will appear with data.

A. Program Location, Unit name, Model and Cooling Type.
Click "Configuration" on the left side task bar of the page, and then select "General." The following screen will appear:
Enter unit location, unit name that you want to the card to display on the location and unit name on the left hand of the main system status page. Next select the floor or ceiling model on model type check box then select cooling type: DX is for compressor only unit, CW is chilled water cooling only unit and ES is for DX and CW combination unit. These selections will alter the data that displays on the main System status page. For instance if you select DX cooling type, the CW valve data will not display. If you select CW the compressor data will not display.

After entering this information, Press F5 on your computer to save and refresh this page, your location and unit name will start to appear on your System status page.

B. Configure a New IP address (If necessary).
To change IP address click the “Network,” this screen will appear

Enter the new IP address where “Eth0” is on the screen above. Then click “Submit” button on the bottom of the page. The card should reboot and the new IP address can be used to access the card. If the card does not automatically reboot, manually reboot the card by resetting the dap4 then use the new IP address to access the card. If the card is not accessible after changing the IP address, use factory reboot mentioned in section II-B above to access the card and verify the IP address.
C. Configure Email on Alarm Notification

To configure the idap card to automatically send out emails on an alarm event, click on “Events and Email” menu bar on the left hand side of the main System status page. The following screen will appear:

The default settings for sending out emails on alarm are shown above. If you do not want a email sent out on a particular alarm merely uncheck (clicking on the check mark box) the event and send email boxes in the same row as the alarm description. Email subject and message are easily modified by simply clicking in the box and typing your message. To enter/modify email recipients’, click on the emails tab then select, “View and modify events recipients,” the following screen will display:
Enter recipient’s name and email address/account in the appropriate box. Suggest entering the unit name in sender’s name box. If required by the email server there are fields for user name and password. Finally enter the recipient’s email address and SMTP server address then click on the “Store the E-mail configuration” box.

Test email notifications
Available on idap software version 1.2.0 or later

1. Turn e-mail service to debug mode to monitor the mail traffic:

The following page will open:

And the log displayed:
2. Send all notification messages whether the corresponding events occur or not

3. Check the email logs:
   Example #1: with no errors
   Example #2: with error – no emails will be sent

4. Restart: idap must be reboot when finished monitoring the traffic to server.
D. Set Date and Time
The idap card does not have a built-in time clock, its date and time are synchronized with the dap4 controller. The default idap card has been programmed to synchronize with the dap4 controller time clock every minute. Do not try to change the time clock synchronizer settings. Changing time clock synchronization settings will cause time clock and event logging errors. To change the date and time, go to dap4 menu C - Clock and Scheduler. To view the clock synchronizer setting, click on “Data and Graphs” the click on “Clock” tab. The following screen will appear:

E. Changing User Name and Password
To change user name and password, click on “Password” in the “Configuration” page then click on “Change User Name and Password.” The following screen will appear:

Click on “admin”, the following screen will display:
Enter new user name and password then click “Submit.” The next access will require the new user name and password.

IV. System Monitoring and Control

A. View System Status
To view system status, open a web browser such as Internet Explorer (Version 10 or newer), Mozilla Firefox or Google Chrome; then enter the IP address of the idap card you want to monitor into the web page address box and press Enter. If the address is correct the following page will appear:

Enter the user name and password then click “Log In.” The factory default user name is admin and factory default password is fadmin. If the correct user name and password are entered, this System status screen will appear as follows:
System status will display:

- Current temperature and humidity setpoint
- Current temperature and humidity deadband
- Current return air temperature and humidity
- Alarm status
- System ON/OFF current operation: fan, cooling stages (DX unit only), heating, humidification, dehumidification, chilled water valve opening (Chilled water unit only), EC fan running speed percentage (gForce unit only).
- Equipment runtimes
- Optional discharge temperature and optional chilled water temperature

Discharge temperature and chilled water temperature will not show if an optional discharge temperature or optional chilled water temperature sensor is not installed.

**Tip:** If you monitor several units, you can bookmark units and assign the names to them on the web browser for a quick access.

B. View Alarm Message.

If the system detects an alarm, the Alarm box on the system status screen will turn red and display "Yes". Click the “View” button next to the alarm box.
An alarm table will display. Active alarms will be indicated by a red button in front of the alarm message.

| Water under floor detected | Standby pump on* |
| No air flow alarm          | Custom alarm #1* |
| Dirty filter              | Custom alarm #2* |
| Firestat alarm            | Custom alarm #3* |
| Compressor short cycle warning | Humidity sensor falls |
| Humidity sensor fails      | Humidifier inhibited* |
| Temperature sensor failure | Reheat inhibited* |
| Maintenance schedule due   | Reheat and humidification inhibited* |
| Hi pressure compressor 1   | Low discharge temperature* |
| Lo pressure compressor 1   | Manual overide warning |
| Hi pressure compressor 2   | High condensation level* |
| Lo pressure compressor 2   | Unit in standby, all functions held off* |
| Smoke detected*            | CW sensor failure* |
| No water flow*             | Humidifier failure, check water* |
| Discharge temp. sensor failure* | UPS power on* |
| High temperature           | Loss of power* |
| Low temperature            | Local alarm #1 |
| High humidity              | Local alarm #2 |
| Low humidity               | Local alarm #3 |
| Fan fail/pass/motor overload* | Log file enabled* |

C. View Logs, Graphs and Download Log Files
To view the return air temperature and humidity graphs for the past 24 hrs, click on “Data and Graphs” menu tab on the left hand of the main system status. The following screen will appear:

Click on Graphs then select “View the latest graph” to display the latest graph with the data that is logged by the idap card for the previous day.
The idap card continuously logs and.save data in a CSV files format in 30 seconds increments. New log file start at midnight. The date when the log occurs is used for the log file name. These files are stored in the memory of the idap card until the memory is full. When memory of the card is full, the card automatically deletes the oldest log file to make room for latest log file. These files can also be downloaded and saved. To download a log file, click on “Download all the csv files and graphs” or “Download the latest csv file”, in the “Data and Graphs”section. If you select “Download the latest csv file” only the latest 24 hours data. If you select “Download all the csv files and graphs” then the following screen will appear and show all the log files stored in the card’s memory for downloading:

The log file and the graph have no data to show when card is first installed and started up. To get the log file and graph to collect data and show most updated data immediately, click “Update files to this very moment.” The first selection on the screen shot above.
An update completed message window will appear when the data update finishes. Wait for a minute for the card to upload the latest log file then click “View the latest graph” or “Download the latest csv file.”

D. View Available Memory of the Card
To view the free memory of the idap card, from the main system status page click the “Configuration” tab on the left hand side then click “General” tab and select the “View Used/Free disk space,” this message will appear to show the used and free disk space:

E. View Network IP Address of the Card
To view the IP address of the idap card, from the main System status page click the “Configuration” tab on the left hand side then click “General” tab and select the View Network Configuration, this message will appear to show the current IP address of the Card:
F. idap Software Version
To find the idap card software and firmware version, simply click “Configuration” tab from the menu on the left, then click on the “Utilities” tab from the menu across the top of the page.

Consult with factory if software or firmware upgrade are needed.

G. Change Setpoints and Deadbands
To modify the system temperature, humidity setpoint and deadband, simply click on the “Change” button next to the Relative humidity setpoint and deadband on the system status page. The following window will appear, enter new setpoint or deadband then click “Submit.”
A setpoint change confirm window will appear, click “OK” to confirm the change.

The new setpoint or deadband will show on the system status screen.

**H. System On/Off Control**

*Important Note:* The system ON is the default setting, to turn the system OFF, the web browser must be always active during the OFF mode control period and communicate with the idap card. In other words, idap web page must be active otherwise the system will revert to ON mode if the web page interface is inactive.

To turn the system OFF, simply click “Change” button next to the system ON box, select OFF then click “Submit”, the following warning window will appear:

Click OK, the system will turn OFF and the system ON/OFF status box will show OFF message in red background.
To turn the system back ON, simply click the “Change” button again then select ON on the “Turn System ON/OFF” window then click “Submit.”
### V. Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot connect to the idap card</td>
<td>• Check network connections such cable and network switch.</td>
</tr>
<tr>
<td></td>
<td>• If private network, check network permission. Contact network administrator.</td>
</tr>
<tr>
<td></td>
<td>• Perform ping test to check connection.</td>
</tr>
<tr>
<td></td>
<td>• Check the IP address that is assigned and programmed to the card. Use a laptop or dap4 display to check this programmed IP address.</td>
</tr>
<tr>
<td></td>
<td>• Reboot the card (restart dap4).</td>
</tr>
<tr>
<td></td>
<td>• Perform Factory reboot and use a laptop to connect directly to the card via a cross-over cable to check the card. Again see section II.B for details.</td>
</tr>
<tr>
<td>System status does not show any data or data does not update</td>
<td>• Check the connection to the card. See above</td>
</tr>
<tr>
<td></td>
<td>• Check the dap4 menu setting, menu G- Network Config BMS port 1 must be set to BACnet TCP/IP. BMS port 2: N/A</td>
</tr>
<tr>
<td></td>
<td>• Check to make sure dap4 is online.</td>
</tr>
<tr>
<td></td>
<td>• Reboot the card.</td>
</tr>
<tr>
<td>Missing data or data does not display properly</td>
<td>• Check the Model and Cooling type setting on Configuration-General page</td>
</tr>
<tr>
<td>Incorrect Location and unit Name</td>
<td>• Check and correct the location and unit name on Configuration-General page.</td>
</tr>
<tr>
<td>Graph does not display or not update</td>
<td>• Check to make sure logger is enable.</td>
</tr>
<tr>
<td></td>
<td>• Check to make sure sensor is enable.</td>
</tr>
<tr>
<td></td>
<td>• Select update files to this very moment.</td>
</tr>
<tr>
<td></td>
<td>• Reboot the card and wait for few minutes.</td>
</tr>
<tr>
<td>No Email on alarms</td>
<td>• Check to make sure alarms and events are enabling. See Configure Email on alarm notification section.</td>
</tr>
<tr>
<td></td>
<td>• Check recipients’ email address, user name, password and SMTP server address.</td>
</tr>
<tr>
<td></td>
<td>• Refresh the card.</td>
</tr>
<tr>
<td>Card the does respond after changing settings</td>
<td>• Check connection.</td>
</tr>
<tr>
<td></td>
<td>• Perform ping test.</td>
</tr>
<tr>
<td></td>
<td>• Reboot the card</td>
</tr>
<tr>
<td>Unit comes back ON after command unit to OFF mode</td>
<td>• Check to make sure idap web page is active</td>
</tr>
<tr>
<td></td>
<td>• Check to make sure network connection is okay. Ping test can be used to verify connection.</td>
</tr>
</tbody>
</table>