Pristina AQM System Summary

The AQM system installed in Pristina, Kosovo is described below:

- One site in Pristina is collecting Continuous Particulate Matter (PM 2.5 micron) for PM at 2.5 microns and less measured in micrograms/cubic meter
- The site is using two Met One Beta Attenuation Monitors (BAM), which are EPA approved FEM (Federal Equivalency Method) units according to EPA specifications. The BAM-1020 is certified Class III FEM for PM2.5 continuous monitoring (EQPM-0308-170).
- The two units are side-by-side, are calibrated using the same methods and run on the same measurement principle. The primary unit reports the data, the secondary unit is used to ensure an extra layer of data reliability and validation.
- Data is collected continuously for the hourly prescribed averages by a data logger on an Industrial PC platform running Envidas Ultimate air pollution capture software
- The data is sent to secure server where it is then sent to the EPA Airnow website.
- The EPA Airnow website will compute an Air Quality Index (AQI) value and post the data to the Airnow website
- Post Staff have been trained on maintenance and operations of all equipment with remote support from WTS, LLC
Consular Data is sent to Embassy Envista ARM (DMS) via secure FTP. Embassy Envista ARM (DMS) data is then sent on to EPA AIRNOW via secure FTP.

Figure 1: General System Layout for Two Logger System
Air Quality Index

The Air Quality Index (AQI) is calculated from the highest hourly PM 2.5 value sent to the AIR Now Website.  
http://airnow.gov/index.cfm?action=aqibasics.aqi

Air Quality Index (AQI) Basics

The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air. EPA calculates the AQI for five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution also known as particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. For each of these pollutants, EPA has established national air quality standards to protect public health. Ground-level ozone and particle pollution are the two pollutants that pose the greatest threat to human health in this country.

How Does the AQI Work?

Think of the AQI as a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality.

An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy-at first for certain sensitive groups of people, then for everyone as AQI values get higher.

Understanding the AQI

The purpose of the AQI is to help you understand what local air quality means to your health. To make it easier to understand, the AQI is divided into six categories:

<table>
<thead>
<tr>
<th>Air Quality Index (AQI) Values</th>
<th>Levels of Health Concern</th>
<th>Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>When the AQI is in this range</td>
<td>...........................</td>
<td>...as symbolized by this color</td>
</tr>
<tr>
<td>0-50</td>
<td>Good</td>
<td>Green</td>
</tr>
<tr>
<td>51-100</td>
<td>Moderate</td>
<td>Yellow</td>
</tr>
<tr>
<td>101-150</td>
<td>Unhealthy for Sensitive Groups</td>
<td>Orange</td>
</tr>
<tr>
<td>151-200</td>
<td>Unhealthy</td>
<td>Red</td>
</tr>
<tr>
<td>201 to 300</td>
<td>Very Unhealthy</td>
<td>Purple</td>
</tr>
<tr>
<td>301 to 500</td>
<td>Hazardous</td>
<td>Maroon</td>
</tr>
</tbody>
</table>

Each category corresponds to a different level of health concern. The six levels of health concern and what they mean are:

- “Good” AQI is 0 - 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
- “Moderate” AQI is 51 - 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
- “Unhealthy for Sensitive Groups” AQI is 101 - 150. Although general public is not likely to be affected at this AQI range, people with lung disease, older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air.

...
“Unhealthy” AQI is 151 - 200. Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects.

“Very Unhealthy” AQI is 201 - 300. This would trigger a health alert signifying that everyone may experience more serious health effects.

“Hazardous” AQI greater than 300. This would trigger a health warnings of emergency conditions. The entire population is more likely to be affected.

A sample of how the calculation works is shown below and this calculator is accessible at:

http://airnow.gov/index.cfm?action=resources.aqi_conc_calc
### AQI Calculator: AQI to Concentration

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Units</th>
<th>AQI Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.5</td>
<td>$\mu g/m^3$</td>
<td>Moderate</td>
</tr>
</tbody>
</table>

**Sensitive Groups**
- People with respiratory or heart disease, the elderly, and children are the groups most at risk.

**Health Effects Statements**
- Unusually sensitive people should consider reducing prolonged or heavy exertion.

**Cautonary Statements**
- Unusually sensitive people should consider reducing prolonged or heavy exertion.

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**Local Air Quality Conditions**
- Zip Code: [Go](#)
- State: [Alabama](#)

**National Summary**

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**SCIENTIFIC INSTRUMENTATION**

97 South Main Street  
Mont Vernon, New Hampshire 03057  
Offices in: CT and NC  

Tel. (603) 880-7100  
Fax (603) 880-3157  
Email: sales@jjwilbur.com
Met One BAM 1020 FEM PM 2.5 monitor

**BAM-1020**
Continuous Particulate Monitor

**Features**
- U.S. EPA Equivalent Method for PM_{10}, PM_{2.5}, and PM_{10-2.5} monitoring
- Long term unattended remote operation of up to 60 days between site visits
- Very low operating costs
- Automatic Scan Calibration checks
- Fast and easy field audits using common PM audit tools
- Bench top or equipment rack mounting in mobile or stationary shelters
- Rugged anodized aluminum, stainless steel, and baked enamel construction
- Highly accurate, reliable, and mechanically simple flow system
- Hourly filter advances minimize effects on volatile compounds
- Advanced Smart Heater technology precisely controls sample relative humidity
- Integrated datalogger allows the connection of up to six meteorological sensors
- Data retrieval through RS-232 serial ports using direct PC connections, modems, printers, or digital data collection systems

**Designations**
The Met One Instruments Model BAM-1020 was the first instrument to obtain U.S. EPA Federal Equivalent Method (CEM) designation for continuous PM_{10} monitoring, in addition to its longstanding EPA designation for PM_{10} monitoring. The BAM-1020 has also obtained the corresponding PM_{2.5} and PM_{10-2.5} certifications in the European Union. Two BAM-1020 units can also be operated together as an EPA designated PM_{2.5} coarse method. Met One Instruments supplies complete sampling accessory kits for compliance with each designation.

**Principle**
The BAM-1020 automatically measures and records airborne particulate concentration levels (in milligrams or micrograms per cubic meter) using the industry-proven principle of beta ray attenuation. Thousands of BAM-1020 units are currently deployed worldwide, making the unit one of the most successful air monitoring platforms in the world.
Operation
At the beginning of each sample hour, a small $^{14}C$ (carbon-14) element emits a constant source of high-energy electrons (known as beta rays) through a spot of clean filter tape. These beta rays are detected and counted by a sensitive scintillation detector to determine a zero reading. The BAM-1020 then advances this spot of tape to the sample nozzle, where a vacuum pump pulls a measured and controlled amount of outside air through the filter tape, loading it with ambient dust. At the end of the sample hour, this dust spot is placed back between the beta source and the detector, thereby causing an attenuation of the beta ray signal which is used to determine the mass of the particulate matter on the filter tape. This mass is used to calculate the volumetric concentration of particulate matter in ambient air.

Data Collection
All data files are accessible via an industry-standard two-way RS-232 serial port using common terminal programs or Met One Instruments software such as Air Plus™ and Comet™. The data is available in a variety of formats including daily reports, last record, all data, and new records since last download. Configuration files, error logs, and flow statistics are also available. Optional Ethernet and USB data collection support is also available.

Error Handling
The BAM-1020 performs continuous user-selected evaluation of a variety of criteria for data validation including flow statistics and a comprehensive set of error codes including power failures, flow failures, hardware failures, tape errors, nozzle errors, span check errors, beta count errors, and more.

Maintenance
The BAM-1020 is designed to run continuously with only monthly or bi-monthly scheduled maintenance—a single roll of filter tape will last more than 60 days. The BAM-1020 also contains a comprehensive self-test function which allows the unit to preemptively test itself for any mechanical failures in the tape control system.
### Specifications
#### BAM-1020

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Principle</td>
<td>Measures ambient particulate concentrations using beta-ray attenuation</td>
</tr>
<tr>
<td>U.S. EPA Equivalencies</td>
<td>Class III FPM, PM_{10} (EQPM-0798-122) PM_{2.5} (EQPM-0308-170) PM_{0.3} (EQPM-0703-185)</td>
</tr>
<tr>
<td>EU Certifications</td>
<td>TUV Rheinland, PM_{10} (996621209919/A) PM_{10} (996621205338/A) 99662120762/A</td>
</tr>
<tr>
<td>PERFORMANCE</td>
<td></td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.24 µg in 1 mg range, 2.4 µg in 10 mg range, 12 bit resolution</td>
</tr>
<tr>
<td>Data Resolution</td>
<td>1 µg/min</td>
</tr>
<tr>
<td>Data Interval</td>
<td>Hourly concentration values: Min sensor averages from 1 to 60 min</td>
</tr>
<tr>
<td>Hourly Detection Limit (2a)</td>
<td>&lt; 4.8 µg/m³ (0.6 µg/m³ typical)</td>
</tr>
<tr>
<td>24 Hour Detection Limit</td>
<td>&lt; 1.0 µg/m³</td>
</tr>
<tr>
<td>Range</td>
<td>1 mg (1000 µg) default setting. Settable from 0.1 mg to 10 mg</td>
</tr>
<tr>
<td>Measurement Cycle Time</td>
<td>1 hour</td>
</tr>
<tr>
<td>Flow Rate</td>
<td>16.7 liters per minute, actual or standard flow conditions</td>
</tr>
<tr>
<td>Filter Tape</td>
<td>Glass fiber filter tape, 60 days of operation per roll</td>
</tr>
<tr>
<td>Span Check</td>
<td>Automatic 0.8 mg span membrane verification with ±5% deviation alarms</td>
</tr>
<tr>
<td>Beta Source</td>
<td>¹⁴C (carbon-14), 60 µCi ±15 µCi (&lt; 2.22 x 10⁶ Bq), half-life 5730 years</td>
</tr>
<tr>
<td>Beta Detector Type</td>
<td>Photomultiplier tube with organic plastic scintillator</td>
</tr>
</tbody>
</table>

### ENVIRONMENTAL
- Operating Temperature: 0ºF to +50ºF (inside shelter)
- Ambient Temperature: -40ºF to +50ºF (BA-500 AT-sensor), -30ºC to +50ºC (BA-592), Extended range sensors available
- Ambient Humidity: 0 - 90% RH, noncondensing
- Sample Humidity Control: Active inlet heater module with internal filter RH and temperature sensors
- Enclosure: Weatherproof enclosure or shelter is required

### INTERFACE
- User Interface: Standard 8x40 character LCD with dynamic keypad, Optional color touch screen
- Analog Output: Isolated 0–1 VDC output standard, 0–10 V, 4–20 mA, 0–16 mA switch-selectable
- Serial Interface: RS-232 serial port with USB converter, Ethernet and extended serial ports with BX-965 option
- Telemetry Inputs: Clock reset (interval or contact closure), telemeter fault (contact closure)
- Alarm Contact Closures: Data error, tape fault, flow error, power failure, maintenance
- Error Reporting: User-configurable available through serial port, display, and relay outputs
- Memory: 4369 records (142 days at 1 record/hr), Expanded memory with BX-965 option

### ELECTRICAL
- Power Supply: Factory configured for 100/240 or 220/240 VAC and 50 or 60 Hz. Dedicated 15A service OK
- Power Consumption: 110V 2620W max with Medc pump and inlet heater running (642W with Gast pump)
- Power Consumption: 230V 3120W max with Medc pump and inlet heater running (717W with Gast pump)

### PHYSICAL
- Weight: 54 lbs (24.5 kg) without external accessories
- Unit Dimensions: Height = 12.25” (31 cm) Width = 17” (43 cm) Depth = 16” (60 cm)

* Slope and offset bias in linear regression with reference method samplers at low concentrations, see 40 CFR part 53.
Standard Equipment
- Operation Manual and Quick Setup Gland
- Internal Automatic Spin Membrane
- Internal Flow Sensor and Flow Controller
- Internal Filter Temperature, Pressure, and RH Sensors
- 6x Channel Data Logger for Accessory Sensors
- Serial Data Cable and Modular Power Cable
- Pump Control Cable and Air Tubing
- Rack Mounting Brackets and Hardware
- Comet™ Data Collection Software
- One Roll of 4001.20 Glass Fiber Filter Tape

Complete Sampling Accessories Kits (Pumps Separate)
- BX-TEM42 Accessories kit for EPA PM2.5 configuration
- BX-TEM42 Accessories kit for 12 PM2.5 configuration
- BX-3.5 Accessory kit for non-regulatory PM2.5
- BX-1D Accessory kit for EPA PM2.5 configuration
- BX-GSAS4 Accessories kit for EPA PM4.0
- dual unit configuration

BX-965 Report Processor Option
This upgraded back panel assembly has expanded digital communications support including Ethernet, an autonomous REPORT serial port with expanded memory, and the capability to serially network two BAMS together in the PM-100a configuration. BX-965 is recommended for all BAMS where data is collected digitally.

BX-970 Touch Screen Display
This upgraded front door assembly consists of a high-visible color touch screen display with simplified menu navigation. This system also allows BAMS-1020 data to be transferred to a USB flash drive. All touch screen units also come with a BX-965 Report Processor back panel.

BX-894 Real-Time Module Option
This add-on light scatter module allows the BAM to log real-time particulate trending levels on any unused sensor inputs channel, without interfering with the high-accuracy beta system measurements in any way.

Individual Sampling Accessories and Options
- BX-121 & BX-122 High Capacity Gas Pump
- BX-126 & BX-127 Low Noise Media Pump
- BX-822 EPA Louvered PM2.5 Inlet
- BX-898 BGI PM2.5 VSCF™ Cyclone
- BX-827 BGI PM10 Sharp Cut Cyclone
- BX-811 BGI PM10 Sharp Cut Cyclone
- BX-827 & BX-830 Smart Inlet Heater
- BX-903 TSP Inlet with Excretta Screen
- BX-320 Zero Filter Audit Kit with Leak Valve
- BX-325 Leak Check Valve with Hose Barb
- BX-344 Inlet Cleaning Kit
- BX-388 Service Tool Kits
- BX-390 Wind Direction Sensor
- BX-581 Wind Speed Sensor
- BX-592 Ambient Temperature Sensor
- BX-593 Ambient RH Sensor
- BX-594 Barometric Pressure Sensor
- BX-595 Solar Radiation Sensor
- BX-596 Ambient Temperature and Pressure Sensor
- BX-9028, BX-9032, & BX-9066 Weatherproof Mini Shelter Kits
- BX-907 Standard 8” Inlet Tube Kit With Roof Flange
- 8-112-X Custom Length Inlet tubes, up to 8 feet per segment
- Inlet tube extension kits, up to 16 feet total
- Phone, cellular, radio, and satellite modem kits

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E-mail: sales@metone.com | www.metone.com

Rev July 2013

Wilbur Technical Services, LLC
Affiliate of the J.J. Wilbur Co.

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Fax (603) 880-3157
Email: sales@jjwilbur.com
Monitoring Station Logger DAS at Jakarta Central and South site

ENVIDAS Ultimate
The Ultimate Solution for Emission, Air and Water Quality Monitoring System

A typical ENVIDAS system contains the following in a single industrial chassis:
- PC-based DAS
- Core 2 Due processor
- 1 - 64 serial ports
- 16 - 2560 Measurements
- 16 - 2560 digital outputs
- 16 - 2560 digital inputs
- Site Oriented Configuration
- Rugged platform
- SQL Data Base
- 6 USBx2 Ports
- SVGA video display
- Real Time clock
- Flexible easy-to-use
- Menu driven software
- 1U/2U/3U & 4U chassis
- Real Time Charting
- Internal WEB Site
- Analyzers Data collection via TCP/IP or RS232C
- Collect Analyzers Status and Diagnostic data

INTRODUCTION
ENVIDAS is an intelligent, multi-function, high - performance data acquisition and reporting system. It is designed with affordability and versatility in mind.

ENVIDAS is a state-of-the-art system that uses nonproprietary desktop or industrial PC computer components to run flexible, environmental data acquisition software. A wide variety of data acquisition modules may be installed.

ENVIDAS software features pull-down windows based menus. Only basic knowledge of PC software operations is required for system operation. All hardware components are open stock items available from multiple suppliers. As the name implies, ENVIDAS is designed to help you automate your environmental data acquisition system projects and make your job easier.

The system requires an initial setup. Then it starts to run automatically, acquiring measurements, controlling processes and transferring data to the central computer room. The system has the capability of detecting errors and autonomously transmitting alarms to the central. Data values can be filtered and collected according to user-defined criteria. Local on screen display, printing and alerts transfer by e-mails and text messages (SMS) supported.

ENVIDAS has been used in support of data acquisition and control in the following areas:
- Continuous Emissions Monitoring.
- Ambient Air Quality Monitoring.
- Meteorological Monitoring.
- Water Quality Monitoring.
- Toxic Gas Monitoring.
- Radiation Monitoring.
- Noise Monitoring.
HARDWARE

The basic ENVIDAS system includes 9 analog, 16 digital inputs, 16 digital outputs and 4 RS232C communication ports.

ADAM-5000/485
4-Slot Distributed DA&C System
The ADAM-5000/485 and ADAM-5000E systems conform to the EIA RS-485 communication standard. This is the industry's most widely used, balanced, bidirectional transmission line standard. RS-485 was specifically developed for industrial applications to transmit and receive data at high rates over long distances.

C104H
4 PORT'S RS232C BOARD

- Number of ports: 4
- I/O address: 0x0000-0xFFFF
- IRQ: 2, 3, 4, 5, 7, 10, 11, 12, 15
- Data bits: 5, 6, 7, 8
- Stop bits: 1, 1.5, 2
- Parity: none, even, odd, space, mark
- Speed (BPS): 50-115.2K

GIGABYTE ATX GA-EP45-DS3LR

- CPU: Intel® Pentium Dual Core 2.2 GHz
- RAM: 1024 MB DDR2 RAM 667MHz
- Cache Memory: 4 MB
- Features SATA 3Gb/s interface with RAID function (2 ports with RAID function supported by GIGABYTE SATA2)
- Northbridge: Intel® P45 Express Chipset
- Supports 1333/1066/800/533 MHz FSB
- Supports DDR2 1333/1066/800/667 memory
- Parallel port: One enhanced parallel port, supports SPP/EPP/ECP modes
- ATX form factor, 305 x 211mm
- 2 PCI slots, 1 PCI Express X16 slot, 4 PCI Express X1 slot
- DVD Reads/Write
- Serial ports: One RS-232 on-board
- 8 USB 2.0/1.1 ports
- 2 USB 2.0/1.1 connectors for additional 4 ports by cable
- Use of licensed Award BIOS/Dual BIOS
- PS2 Mouse Port
- Realtek 8111C Gigabit LAN Controller
- Option industrial CPU with Watch Dog system
- 15", 17" or 19" LCD SVGA screen
ENVIAS SOFTWARE MAIN SPECIFICATIONS & FEATURES

ENVIAS supports automatic calibration control, recording and correction. The software generates calibration and data reports at different time intervals, and can transfer data via several communication devices.

ENVIAS software is a flexible, easy-to-use, turnkey application software that turns a PC with a data acquisition module into an intelligent environmental data acquisition system. It has the following features:

- Multi-tasking software - no data is lost during polling
- Multi-tasking software allows user interaction without interrupting data collection
- Runs under Windows XP Pro., Vista Business, Windows 2003/8 Server
- Handles up to 2,560 analog inputs
- Handles 64-2,560 digital input channels
- Handles 64-2,560 digital output channels
- Supports up to 64 RS232C channels
- Remote access for edit or check configuration, calibration, start/stop, viewing current measurements, and complete remote control

- Measuring rate: every 1, 2, 5, 10 sec or any requested rate
- User selected average: 1, 5, 6, 15 or 60 min are typical
- Dynamic display of instantaneous values in engineering units, voltages, or any calculation
- Password protection, 3 user levels
- Calculations for math and meteorological statistics
- N-Sec sample data storage for pre-configured amount of days
- Automatic calibration correction and control via relays, calibrators or analyzer remote commands

- Daily, weekly, monthly, periodic data listing: textual and graphical reports
- Histogram, Wind Rose, Pollution Rose, Polar and Event Analysis reports
- Calibration report
- System fail report
- Analyzer Digital status information report
- Analyzer Diagnostic Report
- Service Log-Book Writer and Reporter
- Complete Internal Web Site for remote reporting and On-Line Display’s
- Manual data transfer by using a USB Key
Wilbur Technical Services, LLC
Affiliate of the J.J. Wilbur Co.

- Real-Time instantaneous values graph
- Communication via RS232C to the smart analyzers (Multi-drop & Star connection available)
- Collection and reporting of analyzer status information

- Remote access feature allows the user to have direct analyzer connection from a remote location
- Calibration sequence control via RS232C, TCP/IP and Digital Outputs
- Automatic alarm messages via GSM SMS and/or e-mail transfer.
- Optional Bill Boards display support
- More than 10 years of Data Base Information

The following smart analyzers are supported by ENVIDAS’s RS232C communication protocols:
- Thermo Environment M & I Series
- Monitor Labs 9400 Series
- Teledyne API a & e Series
- TE-R&P Techm, FDMS, Partisol+
- Horiba AGM Series
- Environment S.A. M Series
- MODBUS Master & Slave
- OPC Server & Client

Other RS232C protocols available upon request
A.9.1 Envidas Ultimate Hardware Platforms

Envidas Ultimate systems are commonly delivered on Advantech 510 industrial Workstations. A 19” monitor, keyboard and mouse are included with each system. A color inkjet printer is also supplied.

**Industrial ATX 4U Rackmount System with Pentium Processor (PENTIUM 2.6G 800F 2M 775P E5300(G))**

- Featuring Intel® PENTIUM 2.6G 800F 2M 775P E5300(G) processor with CPU fan installed
- Built with Intel® 945G+ICH7 chipset revision control industrial grade motherboard for long roadmap
- 8 GB installed/ 2G Dual channel DDR2 667 SDRAM
- 5 PCI, one PCI Express x16 and x1 expansion slots
- On board Dual Gigabit LAN
- 300W ATX/PFC auto-switching power supply
- 2 channel raid card installed, RAID 0/1 CARD SATA2 2CH PCI(G)
- Dual 250GB 3.5” SATA 7K RPM 8M(G) Hard Drives installed into the front accessible Mobile hard drive tray/ RACK 5.25” SATA FR&C(R)
- IDE DVD+-RW installed into unit
- Windows XP Professional service pack 3 installed
- Unit has standard assembly + Software Installation * Testing

**System consist of the following:**

<table>
<thead>
<tr>
<th>LINE ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>IPC-510-BTO System Consisting of the Following:</td>
<td>1</td>
</tr>
<tr>
<td>101</td>
<td>IPC-510MB-302BE IPC-510MB With 300W P/S RohS Ver.B</td>
<td>1</td>
</tr>
<tr>
<td>102</td>
<td>P-4 ATX IMB FSB 800, VGA,2GBE,4COM</td>
<td>1</td>
</tr>
<tr>
<td>103</td>
<td>PENTIUM 2.6G 800F 2M 775P E5300(G)</td>
<td>1</td>
</tr>
<tr>
<td>104</td>
<td>2G DDR2-667 240PIN 128X8 VLP 5AM(G)</td>
<td>2</td>
</tr>
<tr>
<td>105</td>
<td>Cooler l-St-77S-S95W 98<em>92</em>44-SS 12V 0.2</td>
<td>1</td>
</tr>
<tr>
<td>106</td>
<td>SEAGATE 250G 3.5&quot; SATA 7K RPM 8M(G)</td>
<td>2</td>
</tr>
<tr>
<td>107</td>
<td>PROMISE RAID 0/1 CARD SATA2 2CH PCI(G)</td>
<td>1</td>
</tr>
<tr>
<td>108</td>
<td>5.25&quot; SATA HDD Case</td>
<td>2</td>
</tr>
<tr>
<td>109</td>
<td>LG 22X IDE DVD+-RW DL RETAIL(G)</td>
<td>1</td>
</tr>
<tr>
<td>110</td>
<td>WIN XP PRO SP3 ENGLISH W/RECOVERY CD(G)</td>
<td>1</td>
</tr>
</tbody>
</table>

System may be ordered with DR DAS LTD standard system images which includes all Windows updates, SQL Server 2005 Express, EnvidasFW and Envidas Ultimate images, Moxa drivers, Advantech drivers, and DR DAS’s library of environmental and meteorological Instrument manuals and support software. License keys for DR DAS LTD software must be purchased from DR DAS LTD (sales@dr-das.com). Part #: IPC-510-BTO-DR-DAS.

**Advantech DR DAS Ultimate PC Platform Specification**
MAIN SOFTWARE FEATURES

- Microsoft .NET C# programs for Windows Vista & XP Pro.
- SQL Server 2005 or Oracle9i/10g DB.
- Multithreaded communication with data loggers and instruments.
- Internet and intranet networking support.
- Open system architecture.
- Multi-lingual design.
- Multi-document interface.
- Completely menu-driven.
- Alert/Alarm transmission via SMS & email.
- Collects data from remote stations at scheduled times or upon request.
- Manages up to 999 remote stations (9999 remote stations optional).
- Dynamic displays.
- GIS dynamic map (SHP Format) viewer.
- Ad-hoc reporter designer.
- On the fly QA.
- Automatic data backup.
- Data analysis and reporting.
- Optional equipment inventory and maintenance system.
- Optional voice information system.

DYNAMIC DISPLAYS

The following Dynamic displays are available:

- Tabular: Display current data for one or more stations.
- Last Received: Date/Time of last data and calibration received from each station.
- Dynamic GIS Map Viewer: GIS Viewer interface for data display on user supplied base GIS layer map.

REPORTS & ANALYSIS

By using this feature, the user can produce text and graphical reports.

- Station Data Report - Standard tabular and graphical reports for Station values. Day, week, month and user-defined (periodic) report intervals are supported. Stored data values may be averaged before being reported. Values reported may be filtered.
- Multi-Station - Reflects the same items that "Station Data Report" reflects, only for more than one station and multi parameters report.
- Group - Report that reflects a group of monitors related to one or more stations as set up by the user.
- Histogram - The frequency of occurrence for various ranges of a monitor's value.
- Index - Performance of the Air Quality Indexes value for a station or several stations.
- 2Y Time Plot - Two parameters plotted against time.
The user can select the following analysis features:

- Analysis period of day, week, month, or year.
- Average Type Mean, Running, Running Forward, Maximum and Minimum.
- Data average interval of 1min, 5min, 6min, 10min, 15min, 30min, 1hr, 3hr, 6hr, 8hr, 12hr, or 24hr.
- Output to display, printer, or file (.xls, .wmf, .jpg and .bmp format).

OPERATIONAL REPORTS

By using this feature, the user can view the operational quality of the network.

- Calibration - Analyzers 2 Point, 3 Point and Multi-Points Calibration reports.
- Status - Gives information about % of the data with various status codes.
- Diagnostic - Report Diagnostic information collected from smart analyzers.
- Digital Monitor - Reports on monitor status alarms based on the digital status information retrieved from smart analyzers with serial interfaces.
- Digital I/O - Reports on digital I/O changes based on the digital input information retrieved from the digital I/O of data loggers.
- Communications - Display the errors that occurred because of using the data acquisition program, by date, station and port according the relevant communication type.
- Power Off - Station power failure report.
- Missing Data - Display every time that a monitor has not received data.
- Log Book - Display collected technician write notes related to analyzers services, and let the user to see these notes as a report.
- Edit History - Reports on the edits that have been made to raw station data values and/or status.
- Validity - Report of intentioned validating of monitors as done by the editor or supervisor.

Figure 5 - Example of Analyses Results

- Wind Polar - Joined wind direction with average or percent of wind speed or pollution per each direction.
- Wind & Pollution Rose - Joined pollution concentration, wind direction and Speed relative frequency.
- Wind Polar Time - Wind direction against time.
- XY/Time Plot - Correlation between two parameters.
- Events - Creation of an event (over value) report by scanning pre-defined period.

Figure 6 - Example of Wind Roses

Figure 7 - Parameter Validation Report
COMMUNICATION CENTER

The Envista CommCenter module is an intelligent communication controller that can manage large state and regional monitoring networks. It can communicate over a maximum of 128 RS232C ports in parallel as well as via TCP/IP enabled media. CommCenter can simultaneously poll, receive incoming calls from other central systems and log/process event driven incoming messages from remote stations.

CommCenter can communicate with the following data loggers:

- EnviDAS for Windows & Envidas DOS
- Campbell Scientific CR 10X, 21X, 23X, 1000,
- ESC, EMC, ODESSA & DASIBI
- Met One 455, 456, 457, BAM models
- TEI, ME and Environnement S.A. Analyzers

Figure 8 – CommCenter Trace Display

Figure 9 – AQM Network Structure

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