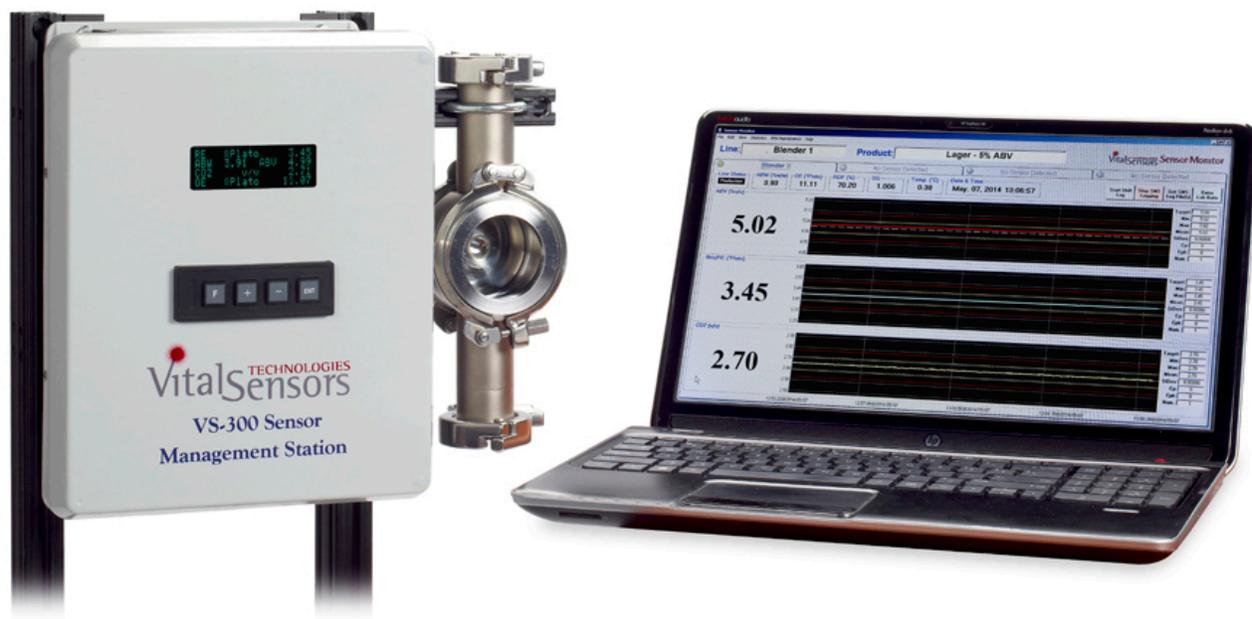


3.1.1 Sensor Monitor E Remote Client Software User's Guide



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Version: 1.1
 Updated: June 2019

Other Product Guides and Help:

This user guide specifically applies to the use and installation of the *Sensor Monitor E Remote Client* Software. The *VS-3000* and *VS-3000E* User Guides provide more details on the subjects covered in this document. Application Guides are also available for all fieldbus protocols. Available protocols are EtherNet/IP, ProfibusDP or 4-20mA with Remote/Relay. These guides are available at <http://beveragesensors.com> and can also be found on the documentation CD shipped with all *VS-3000 / 3000E* systems.

1. Introduction

This user guide describes the most important properties and functions of the *Sensor Monitor E Remote Client* software application. The *Sensor Monitor E* software allows a user to control and monitor up to four *VS-3000/VS-3000E Sensor Systems* simultaneously on an Ethernet network. The *Sensor Monitor E* software is typically installed on a laboratory computer running Windows® XP / Windows® Vista / Windows® 7 / Windows® 8/ Windows® 10

The *Sensor Monitor E* allows users to view real-time data from a *VS-3000/3000E Sensors*. Users have the ability to implement specifications for each measured parameter and view performance on an intuitive graphic interface. The *Sensor Monitor E* can be used to change brands and implement offsets without ever leaving the laboratory.

- The *DataViewer* part of the *Sensor Monitor E* allows the user to access statistical process reports.
- The *Sensor Monitor E* can act as a server to clients so that process measurement data can be view on remote desktops.

The *Sensor Monitor E* can be used in conjunction with a PLC for redundant process monitoring or for secondary recipe control should the PLC be offline.

2. Safety Instructions

This reference manual does not claim to address all of the safety issues associated with the use of the *VS-3000 / VS-3000E Series Sensor Systems* and samples. It is the responsibility of the user to establish health and safety practices and determine the applicability of regulatory limitations prior to use.

Before installing the *VS-3000 / VS-3000E Series Sensors* read this reference manual.

- BevSense LLC only warrants the proper functioning of the *VS-3000 / VS-3000E Series Sensors* if no unauthorized adjustments have been made to mechanical parts, electronic parts, software and the following points are adhered to.
- Follow all hints and instructions contained in this reference manual to ensure the correct and safe functioning of the *VS-3000 / VS-3000E Series Sensors*.
- Do not use the *VS-3000 / VS-3000E Series Sensors* for any purpose other than described in this reference manual. BevSense LLC is not liable for damages caused by incorrect use of the *VS-3000 / VS-3000E Series Sensors*.
- Do not use the *VS-3000 / VS-3000E Series Sensors* with any accessories other than those supplied or approved by BevSense LLC.
- The installation procedure should only be carried out by authorized plant engineer who is familiar with the installation instructions / industry best practices.
- Ensure that all operators are fully trained to use the instrument correctly and safely.
- Do not use the *VS-3000 / VS-3000E Series Sensors* if a malfunction is suspected, or damages, injuries or loss of life cannot be excluded under all circumstances.
- The **standard** *VS-3000 / VS-3000E Series Sensors* are not explosion-proof instruments and therefore must not be operated in areas where there is a risk of explosion. (Please contact BevSense prior to ordering if you require an explosion-proof instrument.)
- Due to the nature of the infrared measurement, *VS-3000 / VS-3000E Sensor* readings not only depend on the correct use and functioning of the sensor, but may also be influenced by other factors. We therefore recommend that suspect results are plausibility tested offline before consequential actions are taken.
- Repair and service procedures may only be carried out by authorized personnel or by BevSense LLC.
- In areas where strong electromagnetic fields are present or there is electrostatic discharge into the housing or cable, it may cause drift in the measuring results.

3. Symbols in the User's Guide

The following symbols are used in the user's guide:



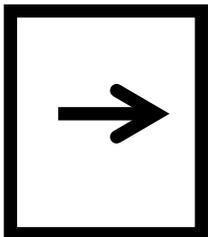
Warning:

The "Warning" sign indicates a **hazard**. It calls attention to an operating procedure, practice, etc. which, if not correctly performed or adhered to, could result in **injury or damage to goods**. Do not proceed beyond a "Warning" sign until the indicated conditions are fully understood and met.



Important:

The "Important" sign calls attention to an operating procedure, practice, etc. which, if not correctly performed or adhered to, could result in damage to the instrument or parts of it. Do not proceed beyond an "Important" sign until the indicated conditions are fully understood and met.



Hint:

The "Hint" sign calls attention to any **additional information** which might be of use to the operator.

4. *Sensor Monitor E* Software Installation

Sensor Monitor E Remote Client is an optional, Windows®-based software application. The *Sensor Monitor E* and *VS-300 / VS-200 SMS* communicate via the factory Ethernet network.



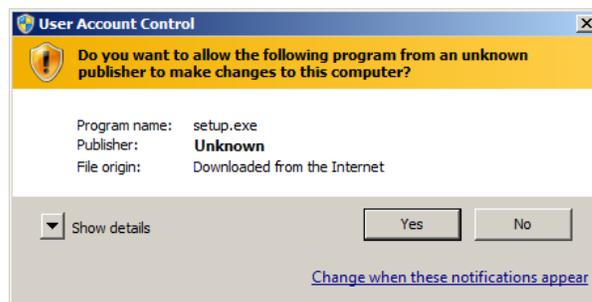
The *Sensor Monitor E* has the ability to modify settings in the *VS-300 / VS-200 SMS*. Only authorized QA/Laboratory personnel should operate the *Sensor Monitor E*. Changes made in the *Sensor Monitor E* will have an instantaneous effect on measurement readings (i.e. offset, brand change, etc.).

4.1 System Requirements for *Sensor Monitor E Remote Client* installation

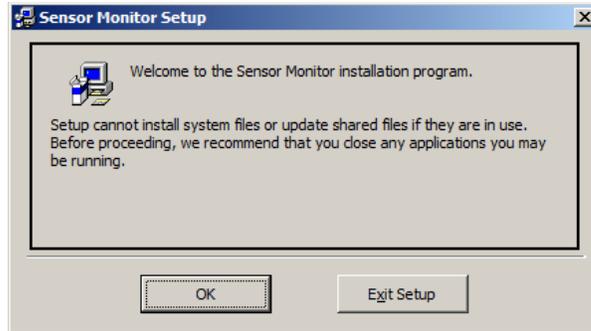
- Preferably an always available dedicated PC
- Windows® XP – Service Pack 3 (or later)
- 2 GB Ram (Windows XP) 8 GB Ram (Windows® 7 / Windows® 8 / Windows® 10)
- Intel i5 processor or later/equivalent
- PC connected to Ethernet network/switch

4.2 *Sensor Monitor E* Program Installation

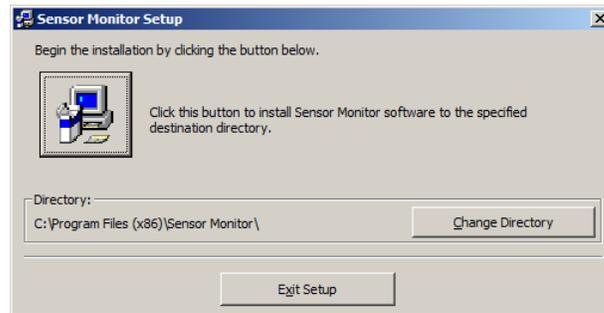
- 1.) Open the *Sensor Monitor E Installation Package* folder. Click “SETUP.EXE”
- 2.) You will be prompted by Windows security, Click **YES**



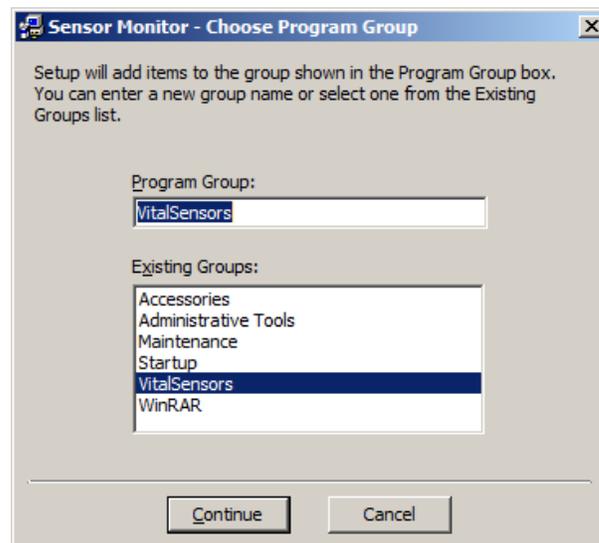
- 3.) A welcome screen will appear, click **OK**



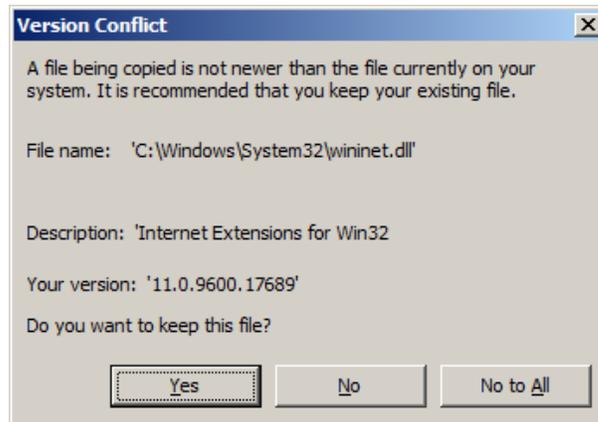
4.) The next screen confirms installation location, Click the **computer** icon to proceed



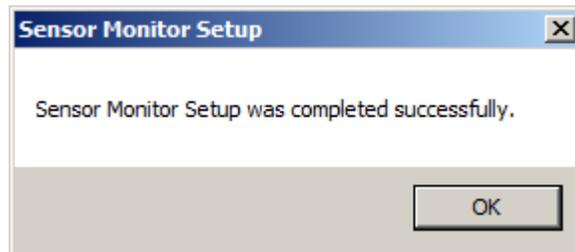
5.) The next screen confirms the program group, click **CONTINUE**



6.) If a screen labeled “Version Conflict” appears, click the **YES**.
 a. This screen may appear multiple times during the installation



7.) When the completion message is shown, click **OK**

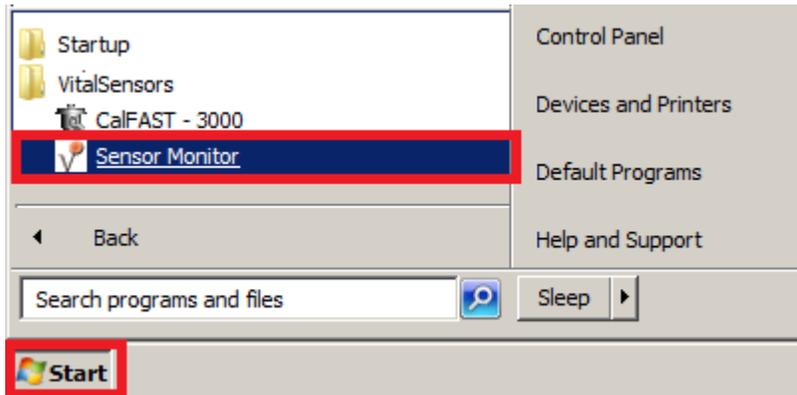


5. Start *Sensor Monitor E* and connect to *VS-3000 Sensor(s)*

This section covers configuration of the *Sensor Monitor E Remote Client* for communication with *VS-3000 Sensor(s)* and *VS-300 / VS-200 SMS* via factory Ethernet network.

5.1 Start the *Sensor Monitor E Remote Client*

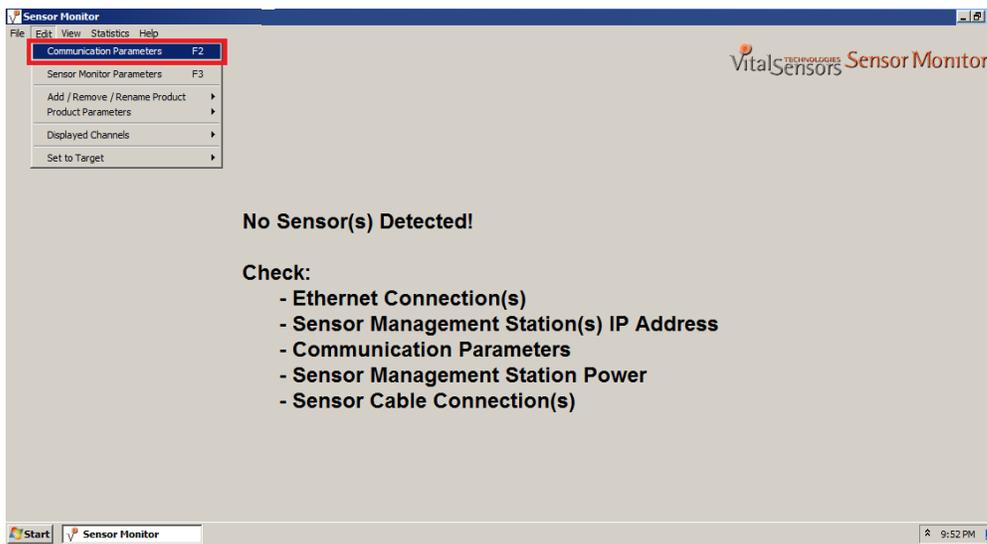
- 1.) Go to START >> VITALSENSORS >> SENSOR MONITOR E



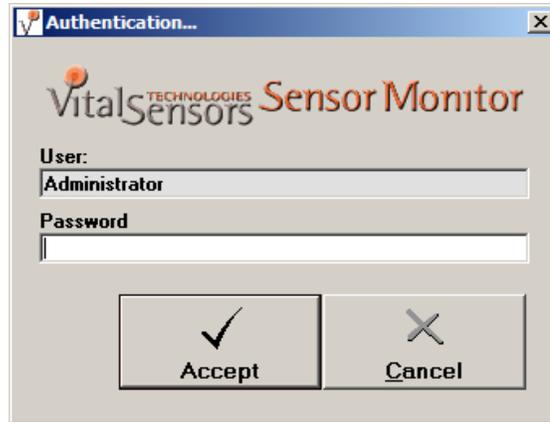
- 2.) The *Sensor Monitor E* will open

5.2 Connect to a *VS-3000 Sensor*

- 1.) Go to EDIT >> COMMUNICATION PARAMETERS

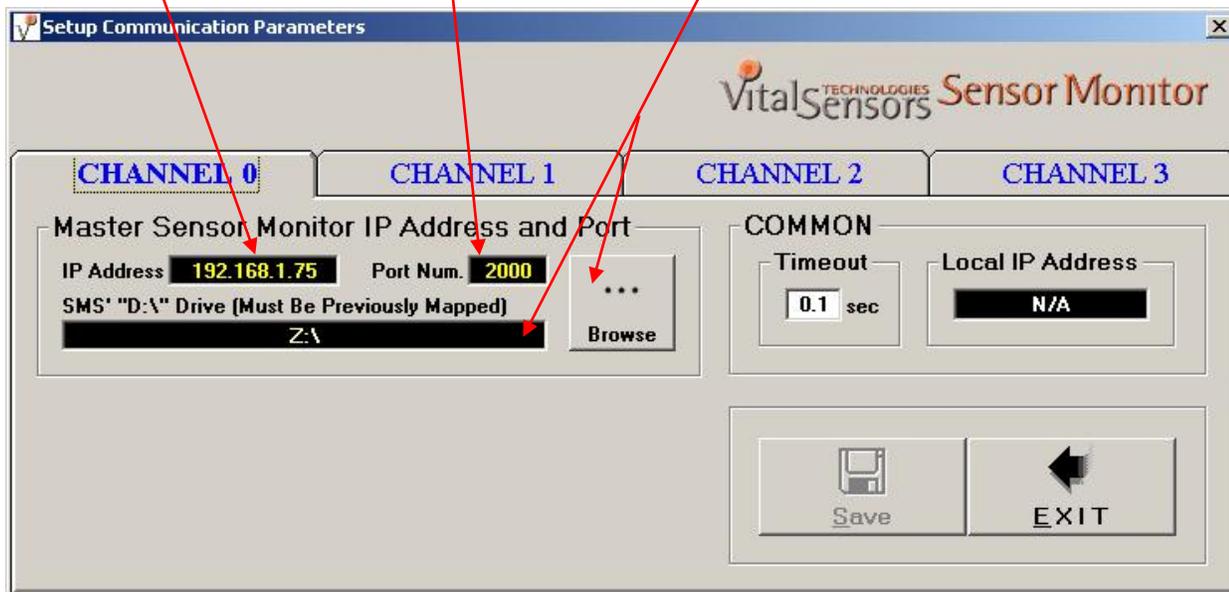


- 2.) You will be prompted for credentials.
 - a. The default username is “ADMINISTRATOR”
 - b. The default password is “123”



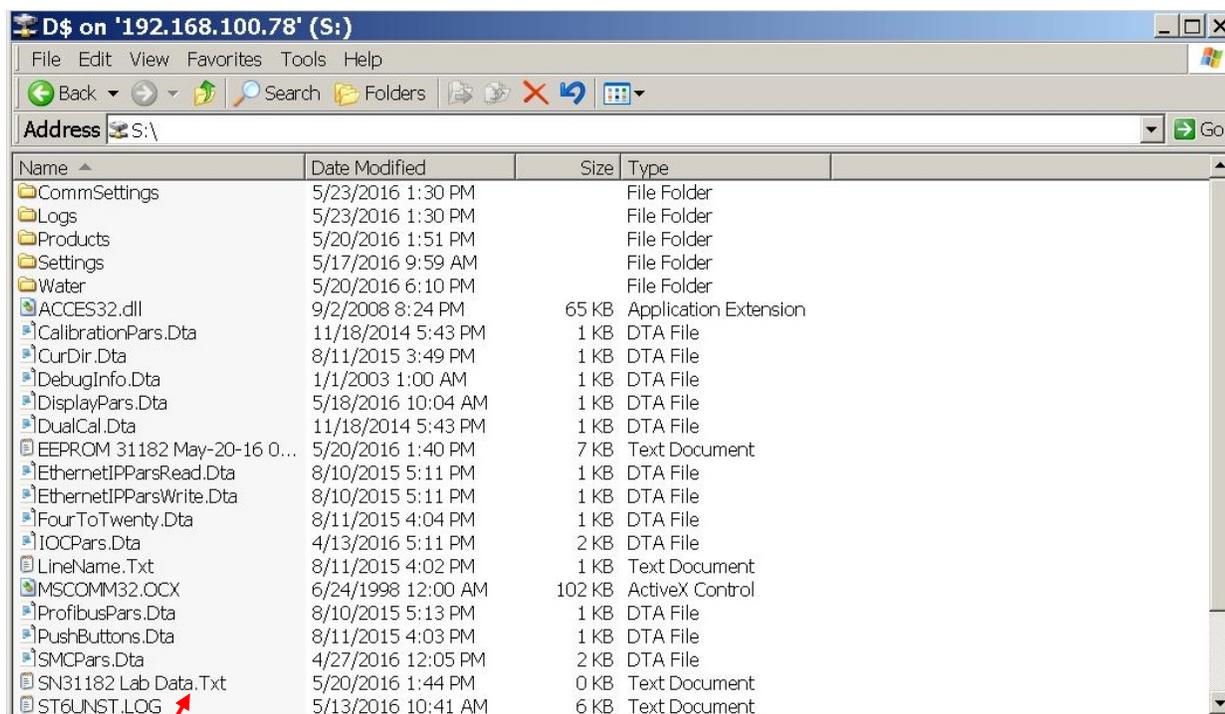
- 3.) Enter the IP Address for up to four VS-3000 Sensors / SMS
 - a. The default IP address of every VS-3000 Sensor System / SMS is **192.168.1.75**
 - b. This IP address will likely change during the field commissioning process to meet plant-specific network conditions. Each tab must have unique static IP address
 - c. Make sure port number agrees with port number on VS-300 SMS
 - d. Map the network drive at this time to facilitate lab data entry directly from the Sensor Monitor E.

Static IP address of SMS Port number Map Network Drive



- 4.) The communication will begin automatically after you click **SAVE**

Map Network Drive from Sensor Monitor E:



Lab Data file must be accessible from Sensor Monitor E. The calibration software – CalFAST™ 3000 – requires this file to be at this location. The Sensor Monitor E writes to this file using the correct format and date/time for when lab samples are taken.

5.3 Sensor Monitor E Multi Client Feature

If desired, the Sensor Monitor E Program allows the user to install multiple clients on the same network to enable viewing at multiple locations throughout the plant. To enable this feature, a “Master” Sensor Monitor E computer must be chosen and it also must have its own static IP address.

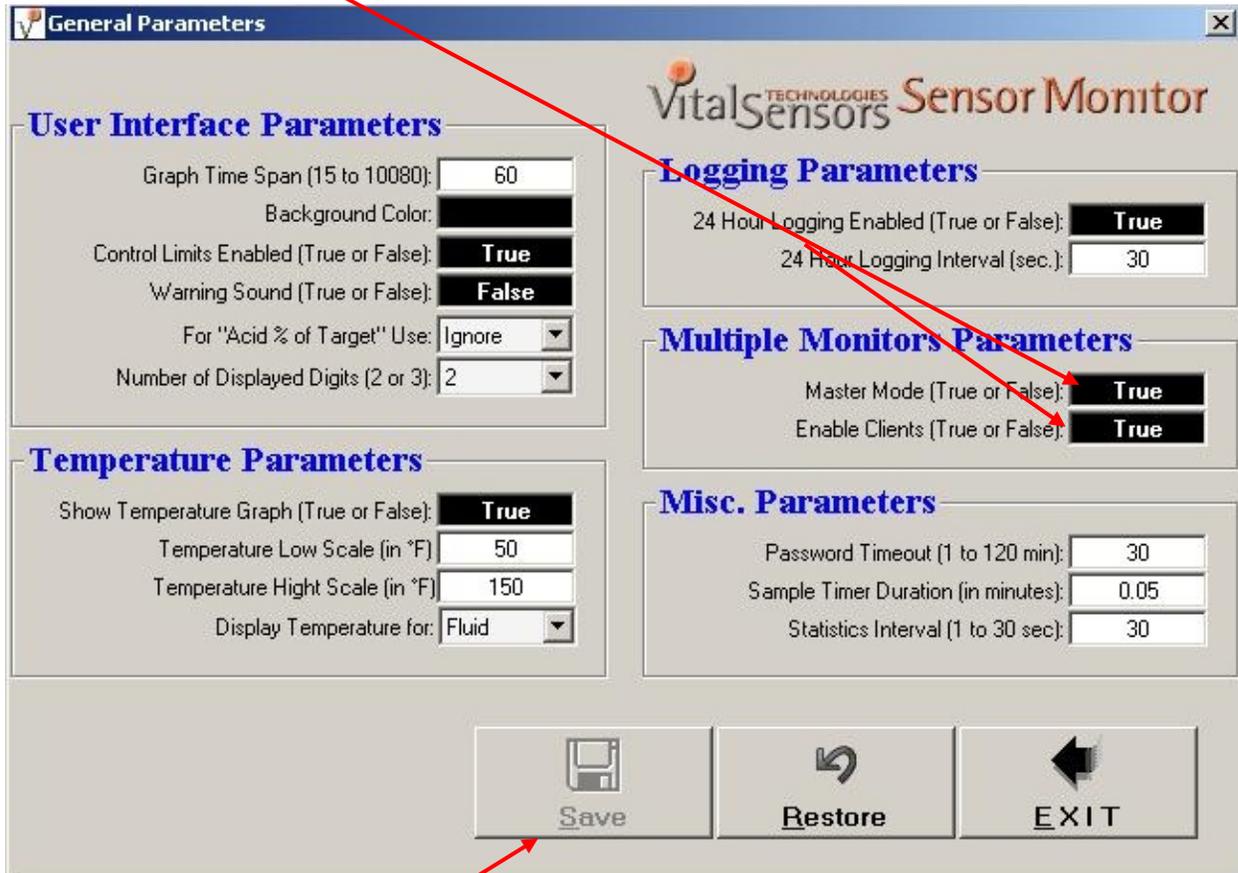
The Client Sensor Monitor E computers do not need to have static IP addresses, but the IP address of the Master is needed to enable Client operation.

If Master/Client arrangement is not used, the Master does not have to have a static IP address.

5.4 Sensor Monitor E Multi Client Feature setup

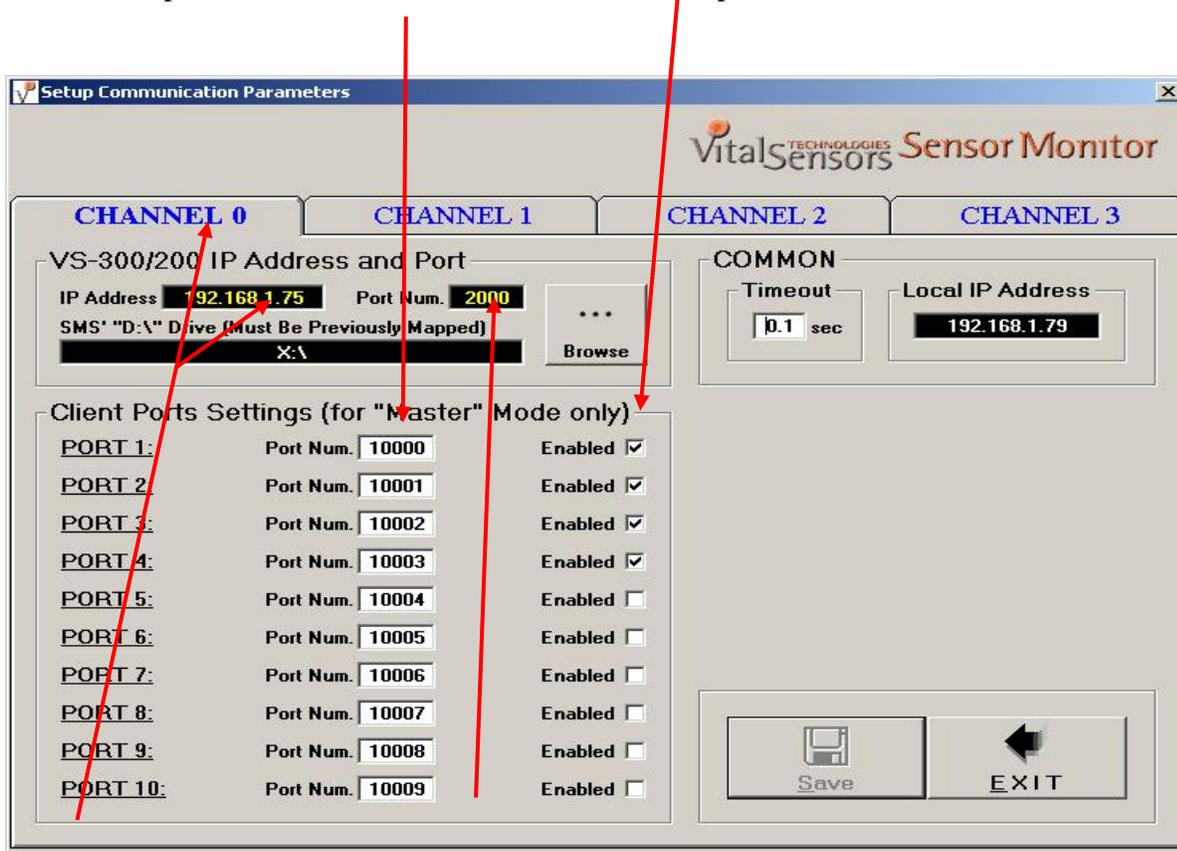
1. Go to Edit => Sensor Monitor E General Parameters. Choose *True* for both Multiple Monitor Es Parameters.

Multiple Monitor Parameters For Master Sensor Monitor E



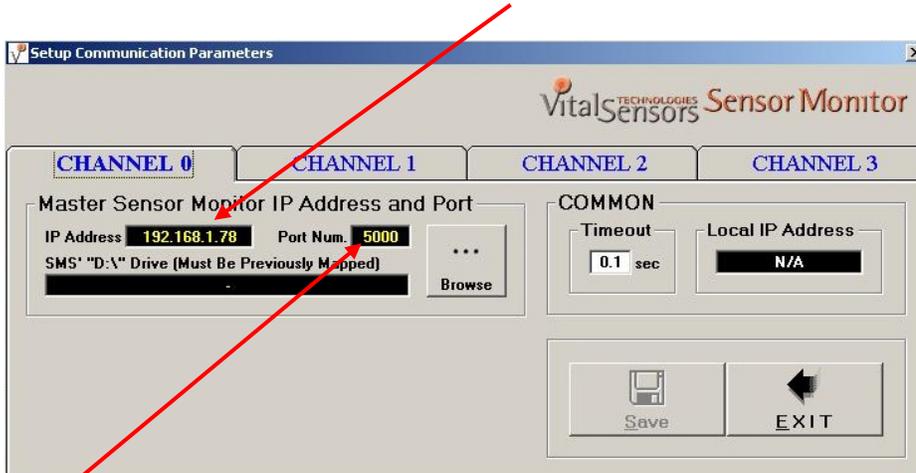
Click Save and Exit

Next, setup Master for Client Port numbers and click ports used.



Each tab represents VS-300 SMS that will be Monitor Eed, static IP address of SMS, and SMS Port number (set in Dashboard Communications Parameters).

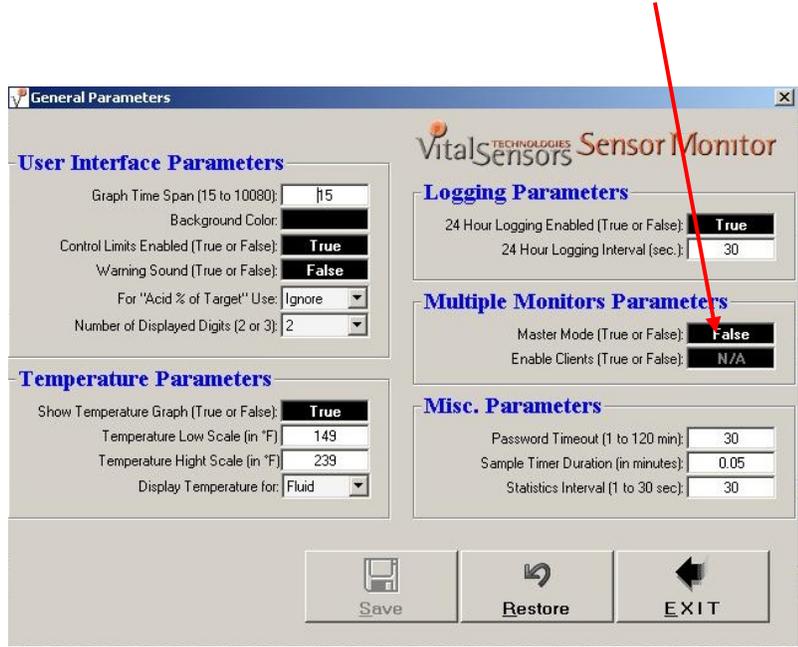
Click Save and Exit. Next, setup Client Communications Parameters on each Client: Edit => Communications Parameters. IP Address must be static IP address of Master.



Use Port Numbers as shown for each Channel on Master to see each SMS on the network. On Channel 1 tab port 5001 should be entered for next SMS, but the same static IP address must be used for the Master. Mapping features do not work from Client.

General Parameters settings for Client – Note Multiple Monitor Parameters settings for Client.

There can only be ONE Master Monitor. Master Mode on Clients must be false



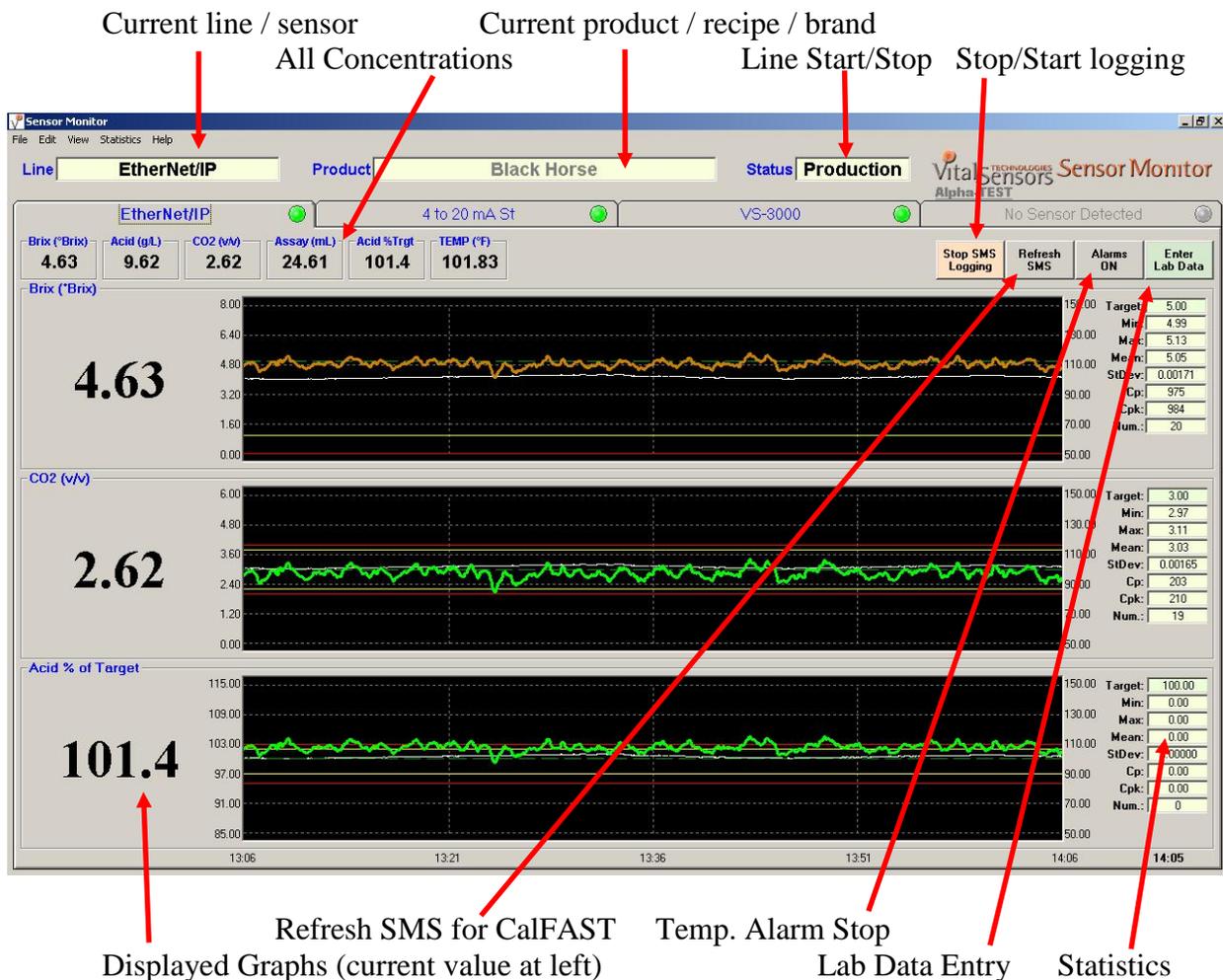
6. Sensor Monitor E Main Screen and User Interface

This section describes the main screen and user interface of the *Sensor Monitor E*. The information shown below is automatically generated/populated when communication is established between the *Sensor Monitor E* and *VS-300 / VS-200 Sensor Management Station*.

Among the information transmitted to the *Sensor Monitor E* is the following:

- 1.) Concentration values / readings
- 2.) Current product / recipe / brand
- 3.) Line name / Line Label
- 4.) System Time and Time Scale
- 5.) Logging Status

6.1 User Interface Overview



7. Basic Functionality

This section describes the principal functions of the *Sensor Monitor E*. The functions described below have a direct effect on measurement results and settings in the *VS-300 / VS-200 Sensor Management Station*.

7.1 Change Product / Recipe / Brand

The *Sensor Monitor E* automatically populates the list of products / recipes / brands stored in the *VS-300 / VS-200 Sensor Management Station*.

If a PLC is not used for automatic selection, changes can be made in the *Sensor Monitor E*

- 1.) Double-click on the PRODUCT box, then select the desired product/brand/recipe from the list
- 2.) Choose the desired product and click **SELECT**

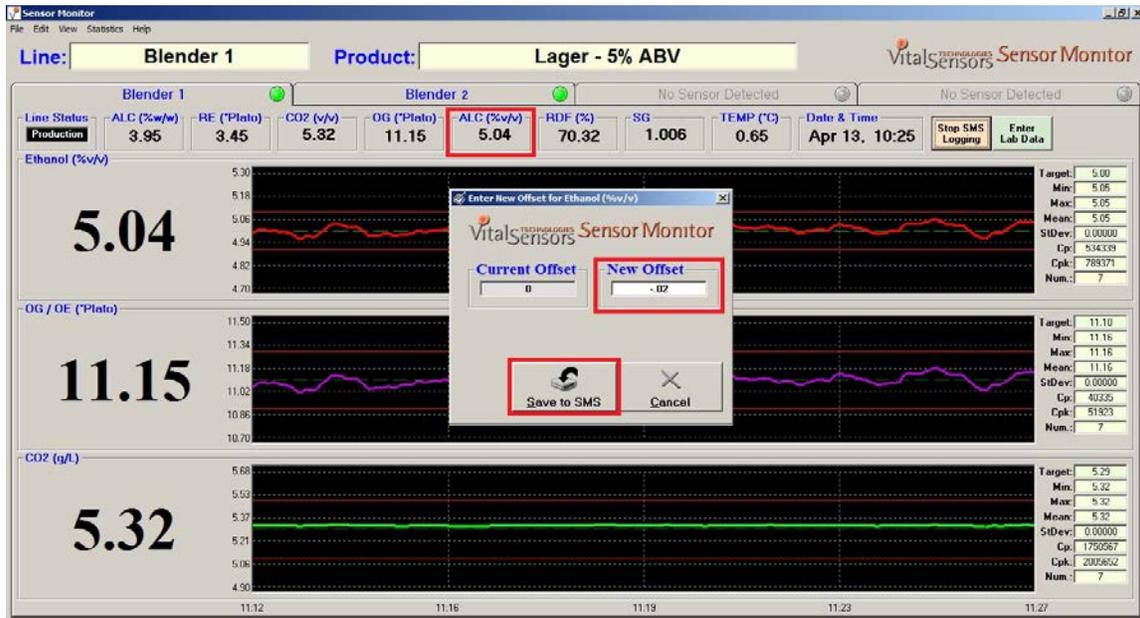


- 3.) If the PLC is being used for automatic product selection then the user of the Sensor Monitor E cannot manually change the product since it is under PLC control

7.2 Change offsets

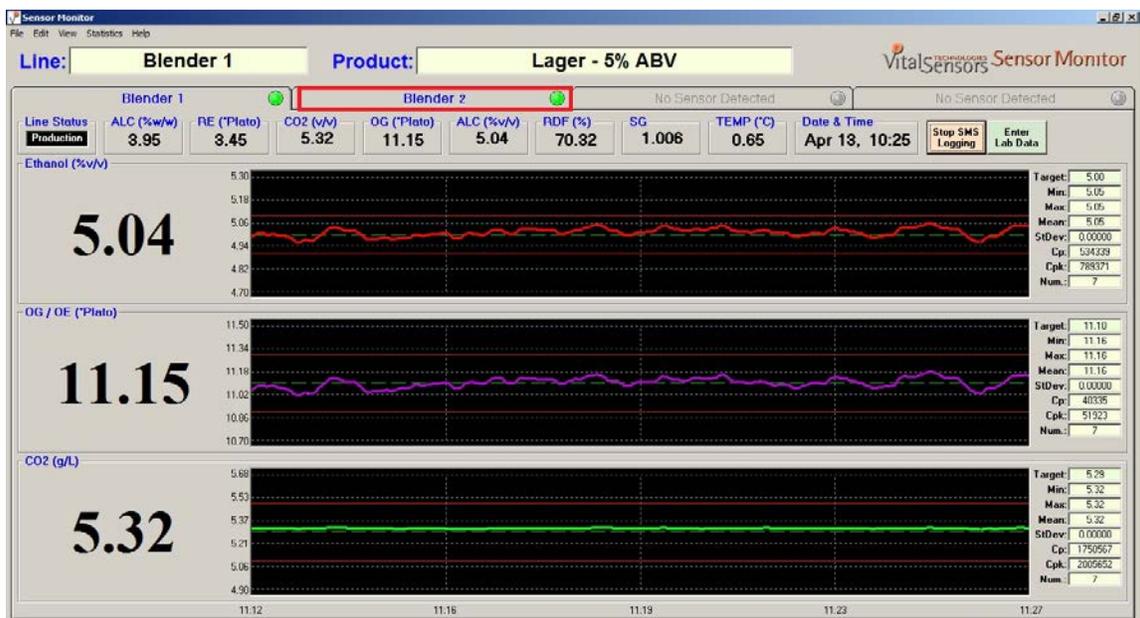
Please note: Instruction applies only to the brand/recipe/product currently being produced

- 1.) Double-click on any concentration value
- 2.) The ENTER OFFSET box will appear, Enter new offset and click **SAVE INTO SMS**



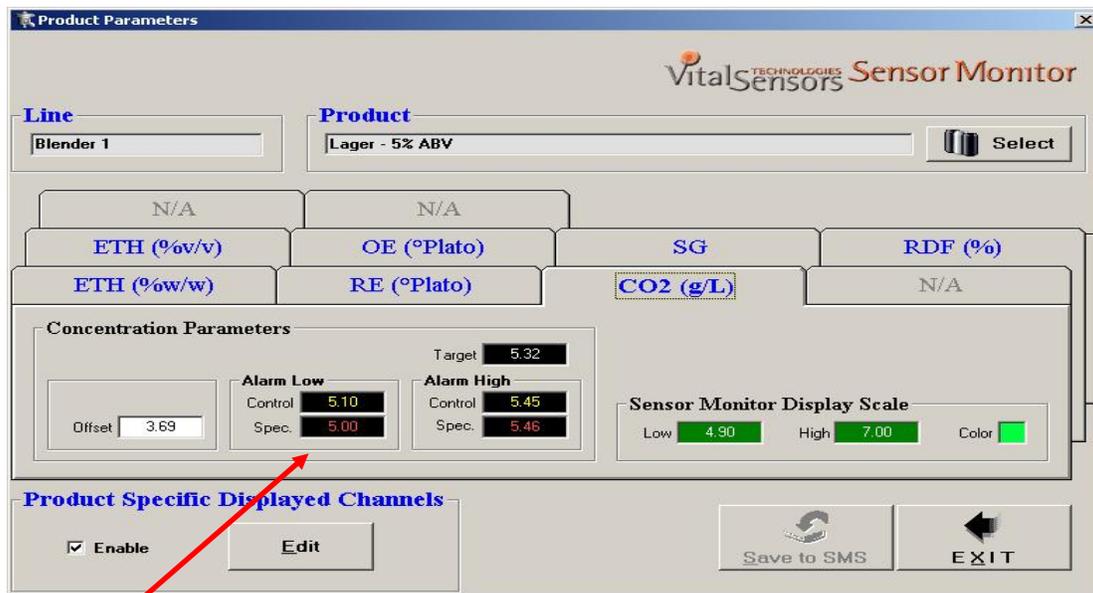
7.3 Switch to a different line / sensor

- 1.) Click on the tab of the desired line/sensor to switch and make changes to that unit



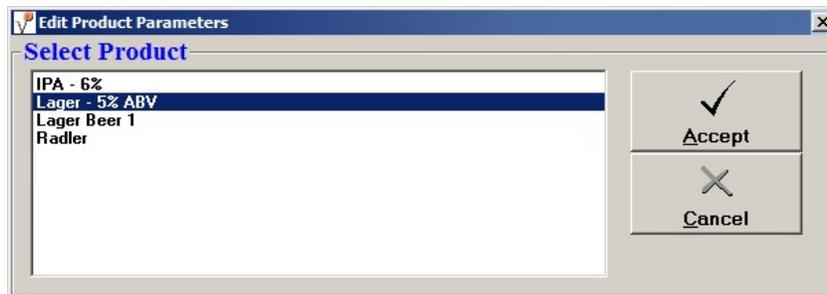
7.4 Implement Limits/Alarm thresholds for a product/recipe/brand

- 1.) Go to EDIT >> PRODUCT PARAMETERS FOR >> (Blender 1, Line 2, etc...)
- 2.) Enter your limits for each product (click on tabs) in the **ALARM LOW** and **ALARM HIGH** boxes
 - a. The “outer limits” are referred to as **SPEC (primary)**
 - b. The “inner limits” are referred to as **CONTROL (secondary)**
 - i. If your company does not maintain an “inner limit”, then enter values which are 0.01 greater than/less than your **SPEC** limits
- 3.) Click **SAVE TO SMS** when done



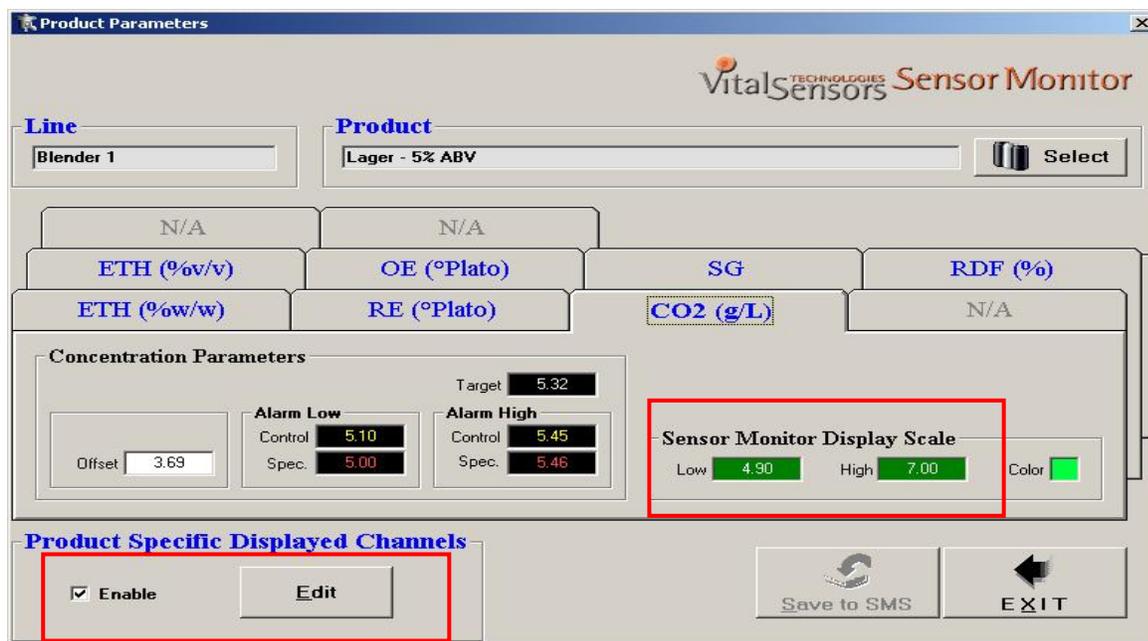
SPEC and **CONTROL** limits are shown as **RED** or **YELLOW** lines on the graphs

Please Note: By default, the current product/recipe/brand will be modified. If you want to make changes to a different product/brand/recipe, click the select button at the top of the PRODUCT PARAMETERS menu and choose another product/brand/recipe.



Change the graph scale (Y axis)

- 1.) Go to EDIT >> PRODUCT PARAMETERS FOR >> (Blender 1, Line 2, etc...)
- 2.) Enter a scale range limits for each product in the **SENSOR MONITOR E DISPLAY SCALE** boxes
 - a. These values should be slightly higher / lower than the SPEC limits to ensure out of spec production can be graphed / observed
 - b. The color of a particular graph can also be changed in this box/menu
- 3.) To override the Default Displayed Channels for a particular product check the Enable Box and select the channels to be displayed on the Sensor Monitor Graph.
 - a. This feature is useful when the control parameters differ on a particular product. For example: Cola 1 “Assay” is a control parameter and Cola 2 “% of Target” is a control parameter.
 - b. With this feature Products can use the default Sensor Monitor displayed products in the graph or they can have their own particular Displayed Product Parameters.
- 4.) Click **SAVE INTO SMS**



Optional

8. Lab Data / Calibration Reference Data Entry

This section describes how to enter and store laboratory data via the *Sensor Monitor E*. Lab Data / Calibration Reference Data is used for the following:

- 1.) Automatic offset
- 2.) Start-up checks (if mandated by company SOP)
- 3.) Historical Archiving
- 4.) *CalFAST-3000* calibration software

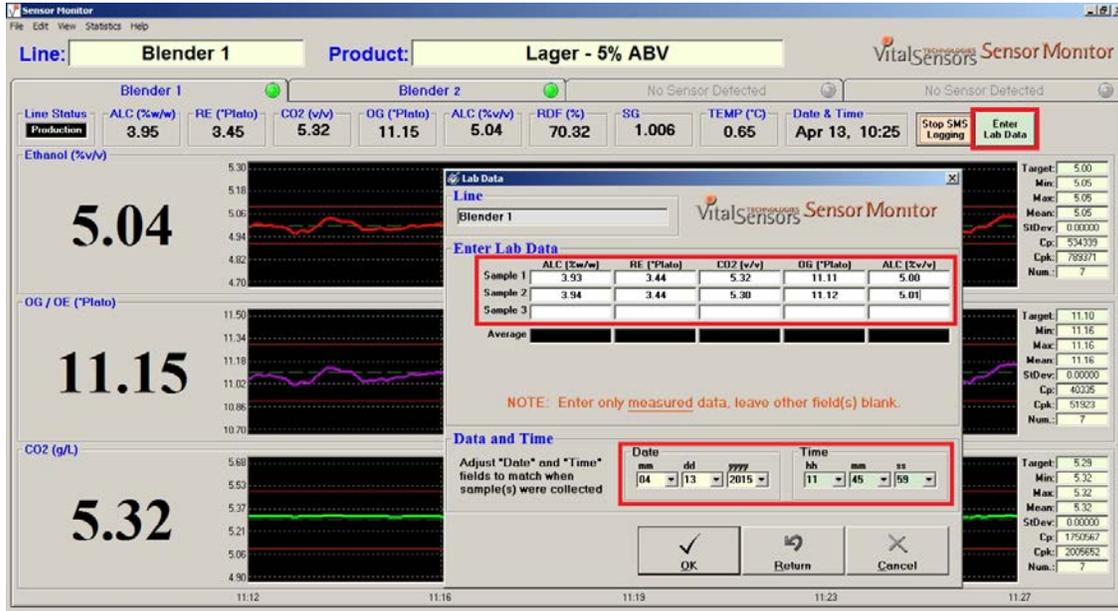
8.1 Enter Lab Data for Existing Samples (manual time-stamp)

If you have lab samples/results for a previously processed sample, enter data in this method. The **TIME** of the sample must be the exact time it was sourced from the production line. Do not record the time when the laboratory measurement was actually performed.

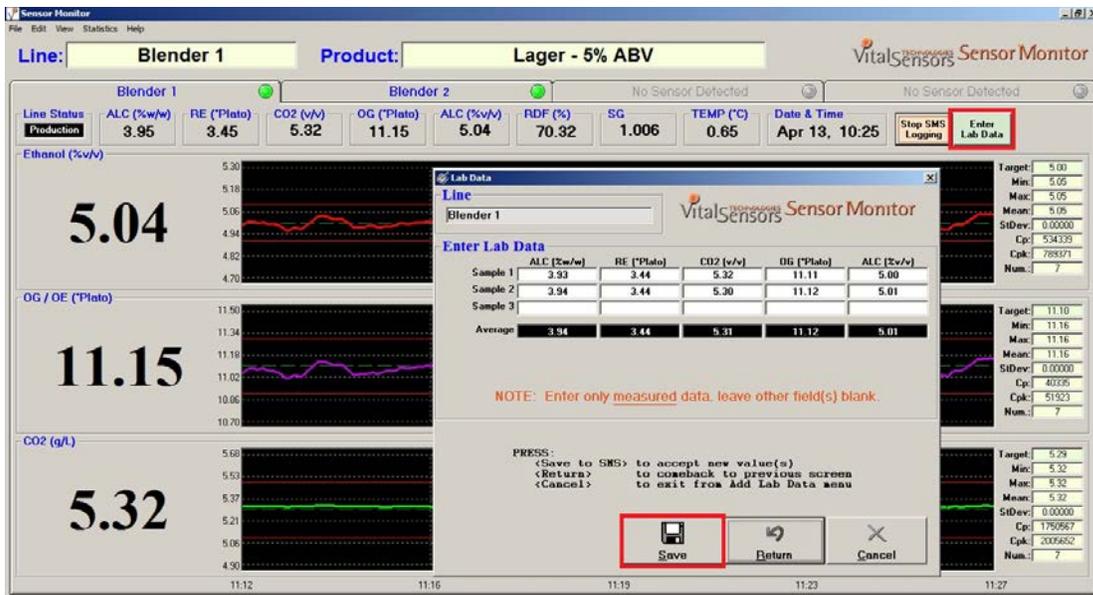
- 1.) Click **ENTER LAB DATA** on the *Sensor Monitor E* main screen
- 2.) Click **ENTER LAB DATA** under the EXISTING SAMPLE heading



- 3.) Enter the laboratory results as well as the sample time using the form. Click **OK**
 - a. If your standard laboratory sampling procedure calls for multiple samples to be processed, enter up to 3 results for the same sample time and an average will be calculated



- 4.) A confirmation screen will appear with the average laboratory results, click **SAVE**
 - a. The results are now saved for the purposes of historical archiving and for use in *CalFAST-3000* calibration software



8.2 Auto Offset / Enter Lab Data for a sample to be collected now (automatic time-stamp)

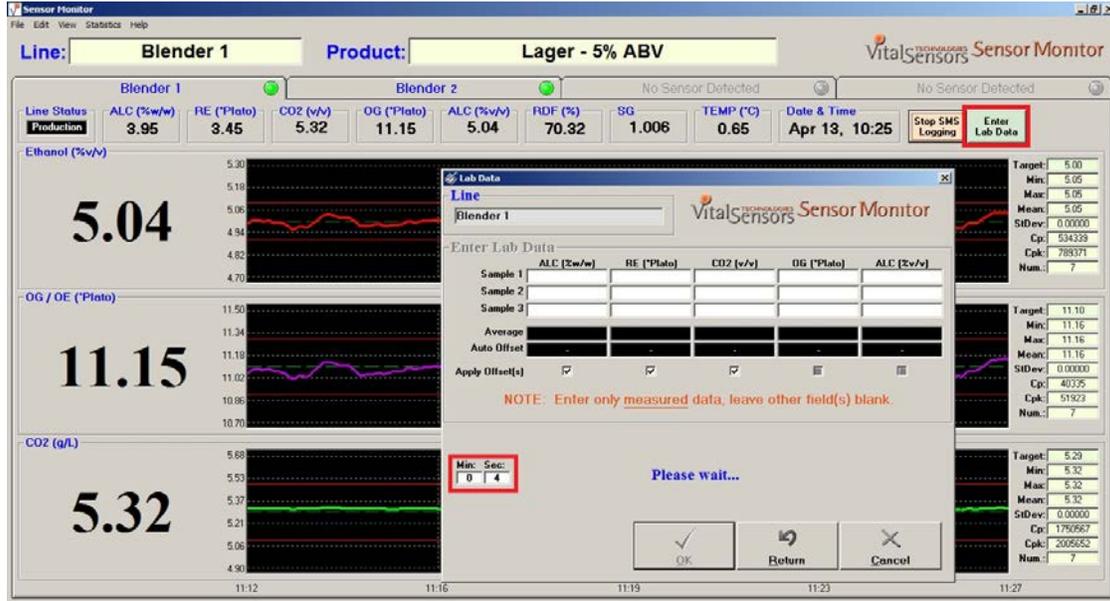
If you want to take a sample now, the *Sensor Monitor E* has the facilities to automatically time-stamp the results and automatically offset readings (if desired). The VitalSensors **GO** timer uses a predetermined value (in minutes) based on the time it takes to walk to the line and pull a sample. By default, the **GO** timer is set to 3 minutes. Once the sample is collected and processed, the results are entered in the **LAB DATA** form.

- 1.) Click **ENTER LAB DATA** on the *Sensor Monitor E* main screen
- 2.) Click **GO** under the NEW SAMPLE heading
 - a. Then walk to the line and pull your sample, when the timer expires you can enter the laboratory results at your leisure

Please Note: No additional *Sensor Monitor Es* functions can be performed until the **GO** sample results are entered or the operation is cancelled



3.) The GO timer will count down from the pre-set time



4.) When the timer reaches 0, you may enter the laboratory results. Click OK

- a. If your standard laboratory sampling procedure calls for multiple samples to be processed, enter up to 3 results and an average will be calculated



5.) The *Sensor Monitor E* automatically calculates a proposed **AUTO OFFSET** based on the sensor readings at the time of the sample compared to the laboratory results. By default, this offset is automatically applied upon clicking **SAVE**.

- a. If you do not want to automatically apply an **AUTO OFFSET**, uncheck the relevant parameters



9. Advanced Functionality

This section covers advanced functions which may be required periodically or during initial setup:

- 1.) Setup **DISPLAYED CHANNELS**
- 2.) Adjust graph timescale (X axis)
- 3.) Add or Delete or Modify a product/recipe/brand
- 4.) Reset or disable/enable statistics
- 5.) Disable/enable **CONTROL LIMITS** (inner/secondary limits)

9.1 Setup displayed channels

The *Sensor Monitor E* has the capability to display up to eight process variables/concentrations. However, only 3 graphs may be displayed at any one time. The instructions below cover how to change the graphical display to any combination of process variables/concentrations.

- 1.) Go to EDIT >> DISPLAYED CHANNELS >> (Blender 1, Line 2, etc...)
- 2.) Select the parameters you want to display/graph



- 3.) Upon clicking save the desired parameters will be shown on the graph(s)
- 4.) See Page 20 for optional Product Specific Displayed Parameters

9.2 Sensor Monitor E Parameters (Adjust graph timescale, GO timer and Enable control limits)

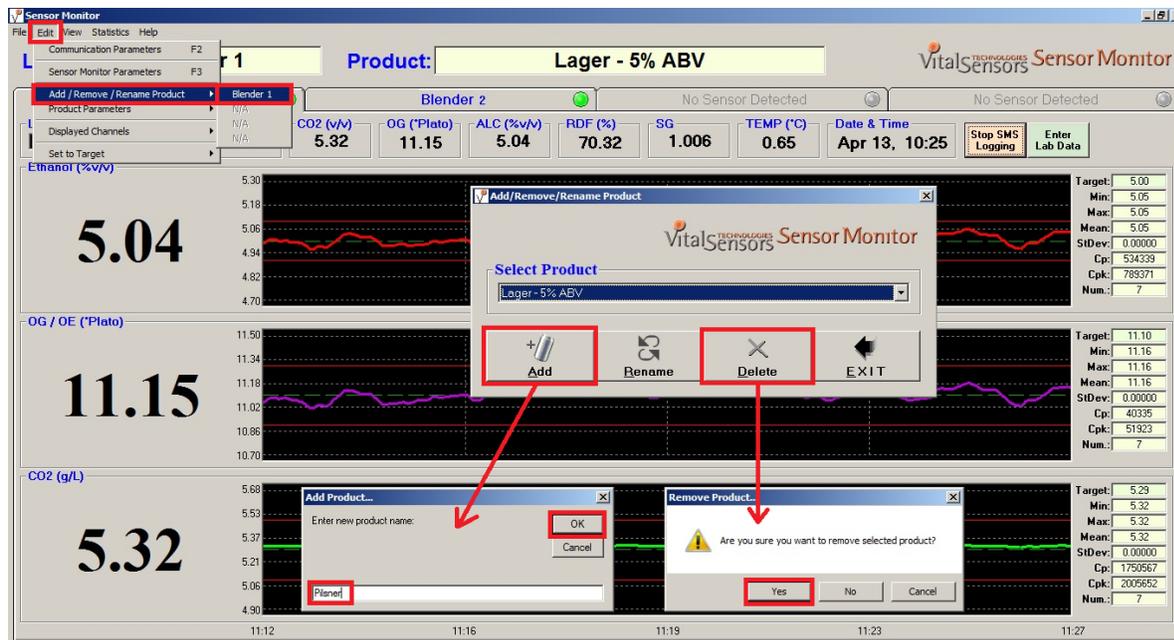
Go to EDIT >> SENSOR MONITOR E PARAMETERS (or F3)

- 1.) The user has the ability to adjust the graph timescale (from 15 minutes to 10,080 minutes)
- 2.) The user has the ability to adjust the **Lab Data GO Timer** duration (default is 3 minutes)
- 3.) The user has the ability to enable or disable **CONTROL** (inner/secondary) limits/alarms
 - a. False = Disabled True = Enabled



9.3 Add or delete or modify product/recipe/brand

- 1.) Go to EDIT >> ADD / REMOVE / RENAME PRODUCT
- 2.) Select the desired function
- 3.) Make changes and **SAVE**



The SKU number can also be added at this time. The existing SKU numbers for the SMS are copied over so there will be coordination between the SMS and the Master Monitor E.

9.4 Disable/enable statistics and reset statistics

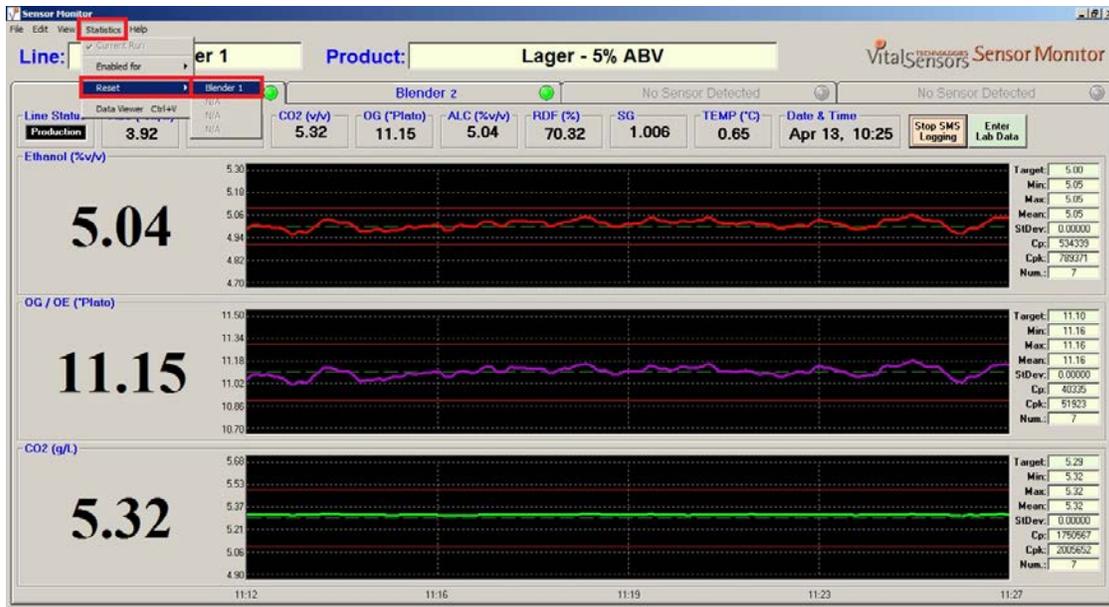
Sensor Monitor E maintains statistics of a production run. By default, statistics are enabled.

- 1.) To disable, go to STATISTICS >> ENABLED FOR >> (Blender 1, Line 2, etc...)
- 2.) Click on the desired line/sensor to “check – enable” or “uncheck – disable”

Please Note: If statistics are disabled, the graph will expand horizontally



- 3.) To reset statistics, go to STATISTICS >> RESET >> (Blender 1, Line 2, etc...)

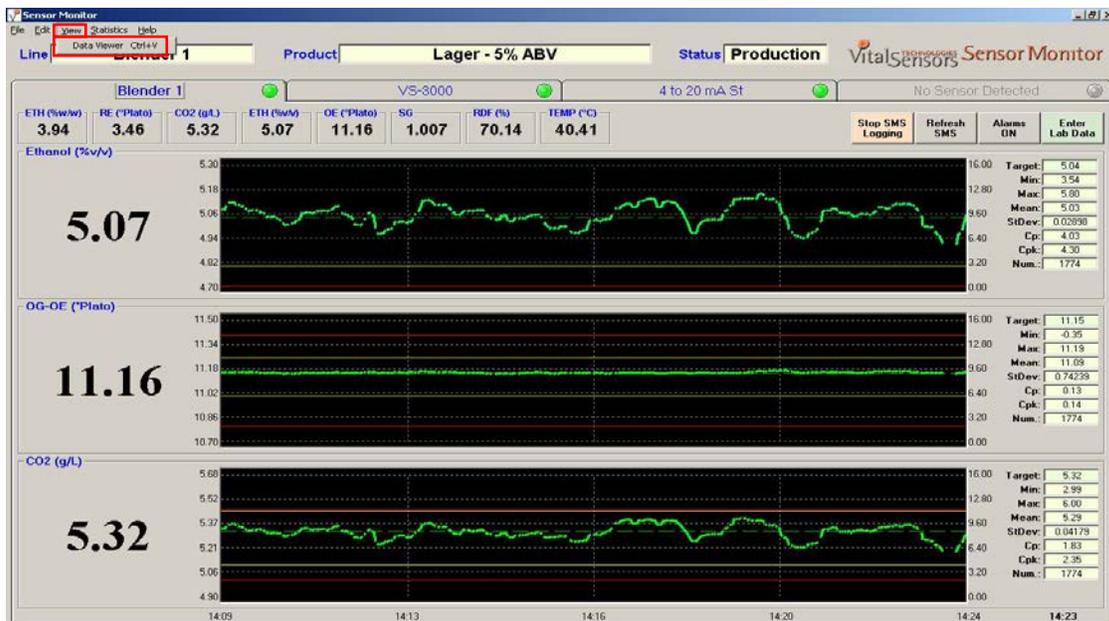


10. Using BevSense *Data Viewer* Function/Sub-Application

This section covers the use of the *VitalSensors Data Viewer* sub-application. *Data Viewer* is accessed via the *Sensor Monitor E* and provides facilities to graph and print daily reports.

10.1 Start BevSense *Data Viewer*

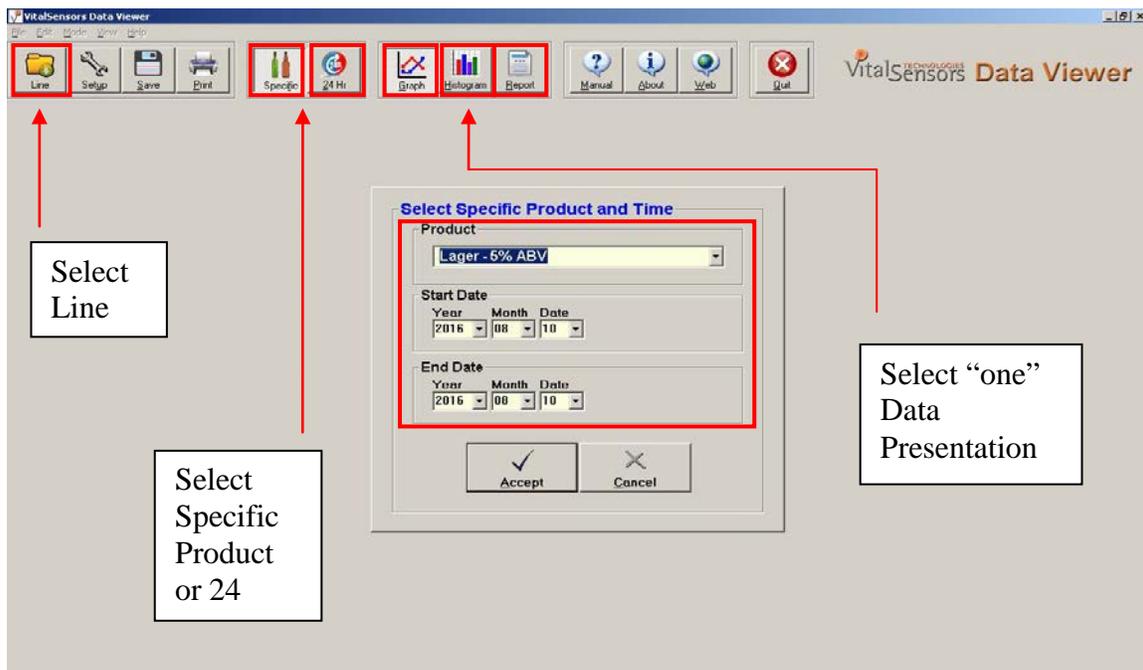
- 1.) Go to VIEW >> DATA VIEWER



10.2 Select data to plot

Data is stored by Line/Sensor and by date. Your last Line/Sensor selection is remembered.

- 1.) Click **SELECT** Line first
- 2.) Click and **SELECT** Either “**Specific**” product or “**24 Hr.**” for specific line selected – **Specific** is for one product data and **24 Hr.** is for all products run on the line over 24 Hrs.

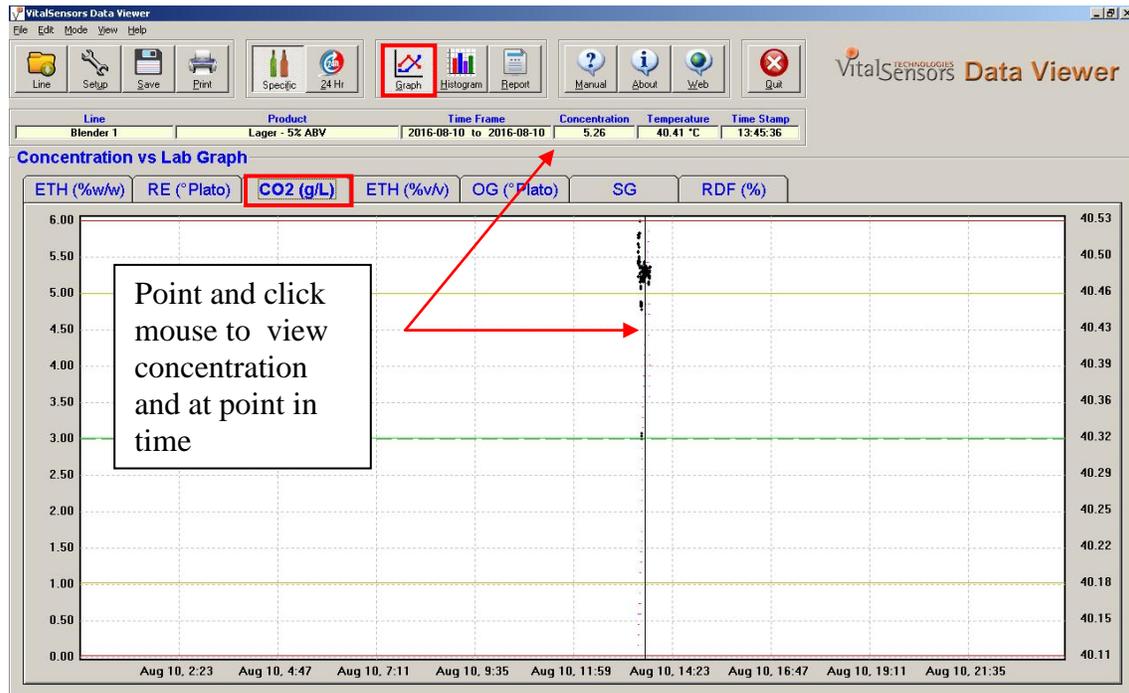


- 3.) Once step #2 is completed the user has a choice whether to display a **Graph**, **Histogram** or **Report** of the Data selected.

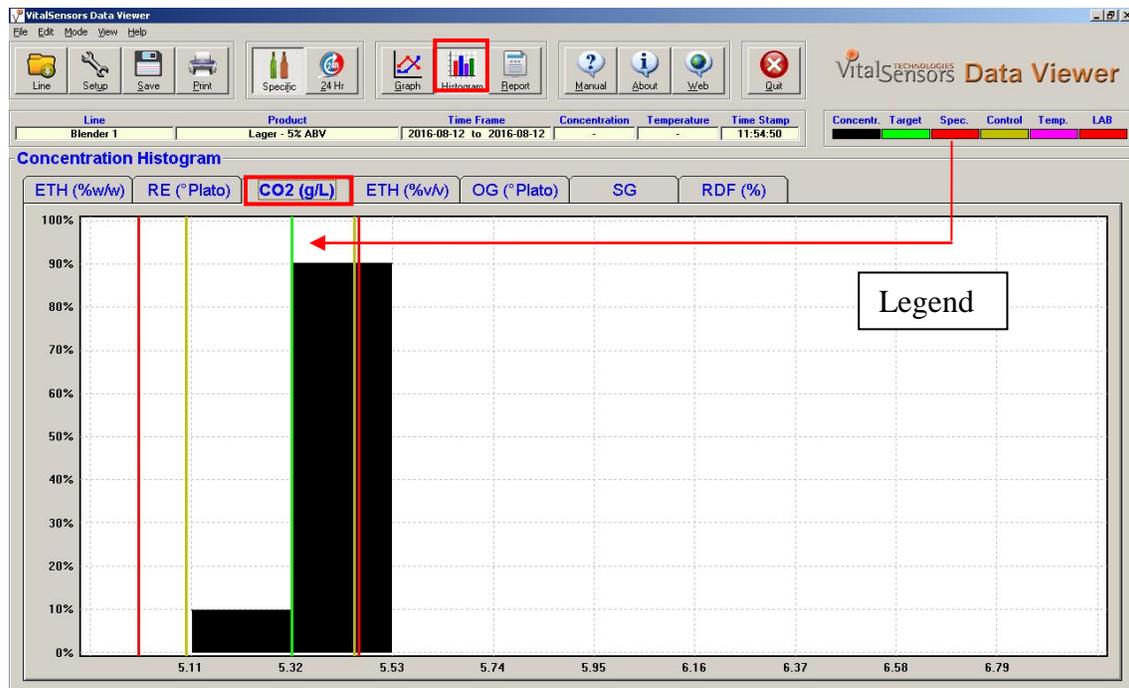
By clicking the tabs Graph, Histogram or Report tab the user can view the different reports.

- 4.) Once the Report selected appears on the screen – Click on the **folder tabs** to view the data from the active concentrations

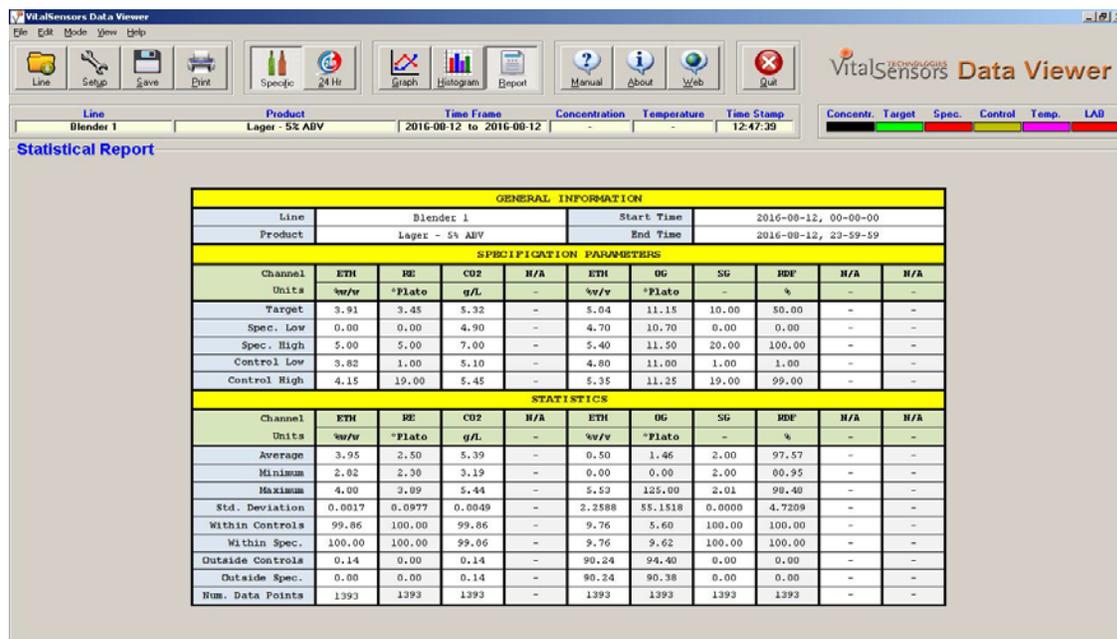
Graph:



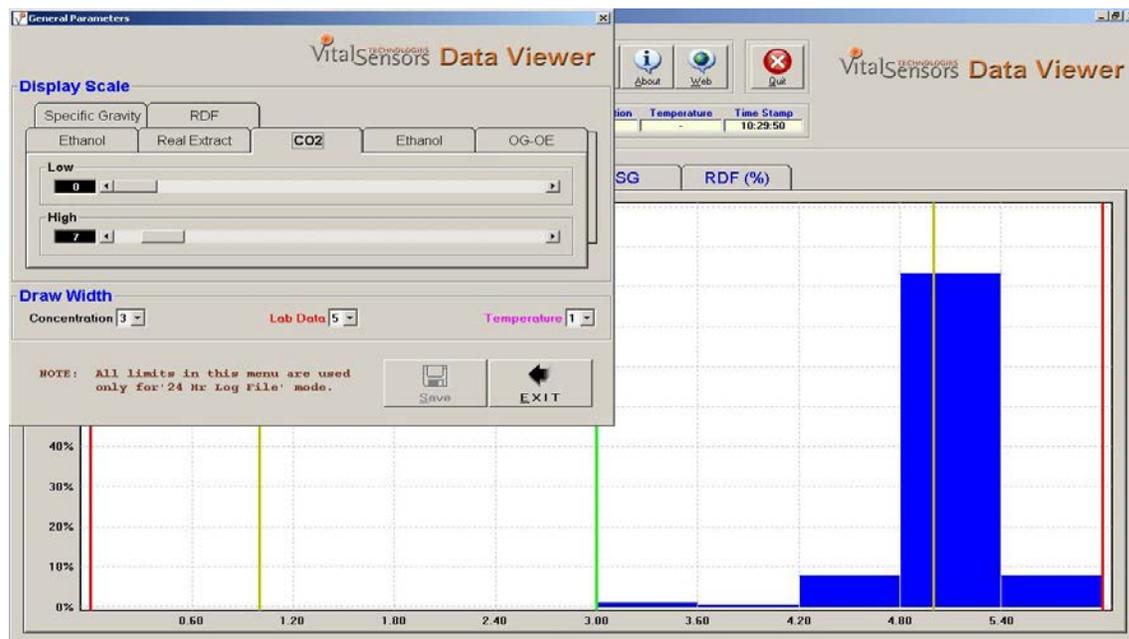
Histogram:



Statistical Report:



- 5.) If desired, print your daily report by going to **FILE** >> **PRINT**
- 6.) If desired, save a daily report by going to **FILE** >> **SAVE**



- 7.) By clicking General Parameters the Display Scale can be adjusted along with the width of lines

11. Declaration of Conformity



Tel: 978-635-0450
 Fax: 978-310-7074
www.vitalsensortech.com

577 Main Street
 Hudson, MA 01749
 USA

Declaration of conformity
Konformitätserklärung
Déclaration de conformité

We/Wir/Nous VitalSensors Technologies LLC
 577 Main Street
 Hudson, MA 01749
 USA

declare under our sole responsibility that the product,
 drklären in alleiniger Verantwortung, dass dieses Produkt,
 déclarons sous notre seule responsabilité que le produit

Description **VS-3000/3000E Sensor and VS-300 Sensor Management Station (24 VDC)**

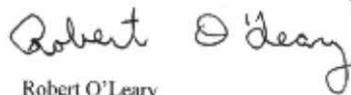
Beschreibung/
Description to which this declaration is in conformity with the following standard(s) or other normative document (s)
 auf welches sich diese Erklärung bezieht, mit der/den folgenden Norm(en) oder Richtlinie(n) übereinstimmt.
 Auquel se réfère cette déclaration est conforme à la (aux) norme(s) ou au(x) document(s) normative(s).

| | |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low-voltage directive/Nieder-Spannungs-Richtlinie/ <u>Directive basse tension</u> | 2004/108/EC |
| <u>Norm/Standard/Standard</u> Radiated/Conducted Emissions: | EN 55022:2010/AC:2011 EN 61000-3-3:2008, EN 61000-3-2:2006/A1:2009/A2:2009 EN 61000-4-5, EN 61000 4-6, EN-61000-4-8:2010, EN 61000-4-11 |
| RF Immunity/Susceptibility: EMC | EN 61326-1:2013 |

Place and Date of Issue
Ausstellungsort/-Datum
Lieu et date d' emission Hudson, MA USA 5 January 2015

VitalSensors Technologies LLC


 Rene Martinez
 President


 Robert O'Leary
 VP & Chief Technology Officer



EMC Emissions Conformity

- EN 55022:2006/A1:2007/A2:2003 Class A ITE emissions requirement EU
- ICES-003 Issue 4 Class A Digital Apparatus emissions requirements (Canada)

This Class A digital apparatus complies with Canadian ICES-003

Cet appareil numérique de la classe A est conforme a la norme NMB-003 du Canada

- FCC 47 CFR Part 15 Class A emissions requirements (USA)

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions: 1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

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 his own expense.

- VCCI Class A ITE emissions requirements (Japan)
- AS/NZS CISPR 22:2002 Class A ITE emissions requirements (Australia)
- EN 61000-3-2:2010 Limits for harmonic current emissions (equipment input current up to and including 16A per phase)
- EN 61000-3-3:1995/A1:2007 Limitation of voltage fluctuations and flicker in low-voltage supply systems for equipment with rated current up to and including 16A

EMC Emissions and Immunity:

- EN 61326:2006/A1:2007/A2:2001 EMC requirements for Electrical equipment for measurement, control and laboratory use – Industrial and General Use (with the exception of EN 61000-4-4 EFT testing)

12. End-User License Agreement for BevSense LLC Software

BevSense Sensor Management Console / Dashboard Software Kit

Important--READ CAREFULLY: This End-User License Agreement (“EULA”) is a legal agreement between you (either an individual or a single entity) licensee of the BevSense *SensorManagement Console / Dashboard Software*[™] (VS-300 SMC) Software being licensed by BevSense LLC (BevSense) for the software product (s) identified above (“SOFTWAREPRODUCT or “SOFTWARE”). You may not use the software except in conjunction with a VS-3000 Series Inline Sensor. The SOFTWARE PRODUCT includes computer software, the associated media, any printed materials, and any “on-line” or electronic documentation. By installing, copying or otherwise using the SOFTWARE PRODUCT you agree to be bound by the terms of this EULA. If you do not agree to the terms of this EULA, VITALSENSORS is unwilling to license the SOFTWARE PRODUCT to you. In such event, you may not use or copy the SOFTWARE PRODUCT, and you should promptly contact BevSense or your reseller for instructions on return of the unused *VS-3000E*[™] and *VS-3000*[™] Sensors and *Dashboard* Software for a refund.

SOFTWARE PRODUCT LICENSE

The SOFTWARE PRODUCT is owned by BevSense and is protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The SOFTWARE PRODUCT is licensed, not sold and BevSense retains all rights not expressly granted. You acknowledge and agree that the copyright, patent, trade secret, and all other intellectual property right of whatever kind in the SOFTWARE PRODUCT and *VS-3000E*[™], and *VS-3000*[™] Sensors and related specifications and documentation shall remain the property of BevSense LLC.

1. GRANT OF LICENSE:

This EULA grants you the following rights:

Software: You may install and use one copy of the SOFTWARE PRODUCT on the BevSense VS-300 Sensor Management Station.

Network Services: If the SOFTWARE PRODUCT includes functionality that enables the VS-300 Sensor Management Station to act as a network server, any number of computers may access or otherwise utilize the basic network services of the server. The basic network services are more fully described in the printed materials accompanying the SOFTWARE PRODUCT.

Storage and Network Use: You may also store or install a copy of the computer software portion of the SOFTWARE PRODUCT on the COMPUTER to allow your other computers to use the SOFTWARE PRODUCT over an internal network. However, you must acquire and dedicate a license for the SOFTWARE PRODUCT for each computer on which the SOFTWARE PRODUCT is used or to which it is distributed. A license for the SOFTWARE PRODUCT may not be shared or used concurrently on different computers.

Back-up: You may make a single back-up copy of the SOFTWARE PRODUCT. You may use the back-up copy solely for archival purposes.

Right to Audit End User: VitalSensors reserves the right to audit the end user to verify compliance with the EULA.

2. DESCRIPTION OF OTHER RIGHTS AND LIMITATIONS:

Limitations on Reverse Engineering, Decompilation, and Disassembly: You may not reverse engineer, decompile, or disassemble the SOFTWARE PRODUCT, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.

Separation of Components: The SOFTWARE PRODUCT is licensed as a single product. Its component parts may not be separated for use on more than one computer.

Single COMPUTER: The SOFTWARE PRODUCT is licensed to a VS-300 Sensor Management Station where the *VS-3000E or VS-3000 Sensors* are installed as a single integrated product. The SOFTWARE PRODUCT may only be used with that VS-300 Sensor Management Station.

Rental: You may not rent or lease the SOFTWARE PRODUCT individually. The renting or leasing of a complete VS-300 Sensor Management Station and *VS-3000E or VS-3000 Sensors* as a system where the SOFTWARE PRODUCT is one component is allowed however.

Software Transfer: You may permanently transfer all of your rights under this EULA only as part of a sale or transfer of the VS-300 Sensor Management Station and *VS-3000E or VS-3000 Sensors* provided you retain no copies, you transfer SOFTWARE PRODUCT (including all component parts, the media and printed materials, any upgrades, this EULA and, if applicable the recipient agrees to the terms of this EULA. If the SOFTWARE PRODUCT is an upgrade, any transfer must include all prior versions of the SOFTWARE PRODUCT.

Termination: Without prejudice to any other rights, VitalSensors may terminate this EULA if you fail to comply with the terms and conditions of this EULA. In such event, you must destroy all copies of the SOFTWARE PRODUCT and all its component parts.

3. UPGRADES:

If the SOFTWARE PRODUCT is an upgrade from another VitalSensors product, you may use or transfer the SOFTWARE PRODUCT only in conjunction with that upgraded product and the associated VitalSensors *VS-3000E or VS-3000 Sensors*. If the SOFTWARE PRODUCT is an upgrade of a VitalSensors product, you may use that upgraded product only in accordance with this EULA. If the SOFTWARE PRODUCT is an upgrade of a component package of software programs which you licensed as a single product package, the SOFTWARE PRODUCT may be used and transferred only as part of that single product package and may not be separated for use on more than one COMPUTER and ADAPTER.

4. COPYRIGHT:

All title and copyrights in and to the SOFTWARE PRODUCT (including but not limited to all images, and text incorporated into the SOFTWARE PRODUCT), the accompanying printed materials, and any copy of the SOFTWARE PRODUCT, are owned by VitalSensors or its suppliers. The SOFTWARE PRODUCT is protected by copyright laws and international treaty provisions. You may not copy the printed materials accompanying the SOFTWARE PRODUCT.

5. DUAL-MEDIA SOFTWARE:

You may receive the SOFTWARE PRODUCT in more than one medium. Regardless of the type of medium you receive, you may use only one medium that is appropriate for your single COMPUTER. You may not loan, rent, lease, or otherwise transfer the other medium to another user except as a permanent transfer (as provided above) of the SOFTWARE PRODUCT.

6. PRODUCT SUPPORT:

Product support for the SOFTWARE PRODUCT is provided by BevSense.

7. U.S. GOVERNMENT RESTRICTED RIGHTS:

The SOFTWARE PRODUCT and documentation are provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the Government is subject to restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software - Restricted Rights at 48 CFAR 52.227-19 as applicable. The Manufacturer is VitalSensors Technology LLC, 577 Main St. #105 Hudson MA, 01749.

8. EXPORT LAWS AND REGULATIONS:

The end user agrees to comply with the export laws and regulations of the United States and other governing jurisdictions

13. BevSense LLC Limited Product Warranty

Software Warranty

BevSense LLC warrants that the licensed software enclosed herein when properly installed in conjunction with BevSense *VS-3000E or VS-3000 Sensors* will perform substantially in accordance with BevSense specifications contained in BevSense Documentation provided with the software for a period of 60 days from the date of the original purchase. BevSense warrants that the media upon which the software is stored is free from defects or workmanship for a period of 60 days. If the software should fail to perform substantially in accordance with BevSense' Documentation or if there is a defect in the media during the warranty period, BevSense will use reasonable commercial efforts to correct any failure of the software to perform substantially in accordance with BevSense' documentation and will replace the defective media when the defective media is returned to BevSense by the original licensee. The remedy for breach of this warranty shall not cover any other damages, including but not limited to the loss of profit data, special, incidental, consequential, and other similar claims.

Hardware Warranty

BevSense LLC ("BevSense") warrants that the *VS-3000E or VS-3000 Sensors* be free of defects in materials and workmanship under normal use for a period of one year from the date of purchase. In the event of a defect in *VS-3000E or VS-3000 Sensors* material or workmanship during such warranty period, BevSense at its discretion, will repair or replace the defective product when the defective product is returned to BevSense by owner. The remedy for this breach of warranty is limited to replacement only and shall not cover any other damages, including but not limited to the loss of profit, data, special, incidental, consequential, and other similar claims.

BevSense except for the warranties stated in this limited product warranty specifically disclaims all other warranties or representations, expressed or implied including but not limited to implied warranties of merchantability and fitness for a particular purpose. With respect to the use of the software and *VS-3000E or VS-3000 Sensors* in no event shall BevSense be liable for any loss of profit, data, or any commercial damage, including but not limited to special, incidental, consequential, or other damages. Some states/countries do not allow the exclusion of limitation of liability for consequential or incidental damages, in which case the above limitation may not apply to you.

IF THE PRODUCT IS FOUND TO BE DEFECTIVE, BEVSENSE LLC, AT ITS OPTION, AGREES TO REPLACE OR REPAIR THE PRODUCT AT NO CHARGE EXCEPT AS STATED BELOW, PROVIDED THAT YOU DELIVER THE PRODUCT WITH A RETURN MATERIAL AUTHORIZATION (RMA) NUMBER AND A DATED PROOF OF PURCHASE. IF YOU SHIP THE PRODUCT TO BEVSENSE LLC, YOU MUST ASSUME THE RISK OF DAMAGE OR LOSS IN TRANSIT. YOU MUST USE THE ORIGINAL CONTAINER (OR EQUIVALENT) AND PAY THE SHIPPING CHARGE.

BEVSENSE LLC MAY REPLACE OR REPAIR THE PRODUCT WITH NEW OR RECONDITIONED PARTS, AND THE REPLACEMENT PARTS OR PRODUCT BECOME THE PROPERTY OF BEVSENSE LLC. BEVSENSE LLC WARRANTS THE REPAIRED OR REPLACED PARTS OR PRODUCT TO BE FREE FROM DEFECTS IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF THE GREATER OF: (1) NINETY (90) DAYS FROM THE RETURN SHIPPING DATE OF THE REPAIRED OR REPLACED PRODUCT, OR (2) THE PERIOD OF TIME REMAINING ON THE ORIGINAL CONTAINER ONE YEAR WARRANTY.

BEFORE RETURNING ANY PRODUCT, CONTACT BEVSENSE LLC TECHNICAL SUPPORT (FOR TELEPHONE NUMBERS AND ADDRESSES, SEE THE TECHNICAL SUPPORT SECTION OF THIS DOCUMENT). IF BEVSENSE LLC TECHNICAL SUPPORT VERIFIES THAT THE PRODUCT IS

DEFECTIVE, THE RETURN AUTHORIZATION DEPARTMENT WILL ISSUE AN RMA NUMBER TO PLACE ON THE OUTER PACKAGE OF THE PRODUCT. BEVSENSE LLC WILL NOT ACCEPT ANY PRODUCT THAT DOES NOT INCLUDE AN RMA NUMBER ON THE PRODUCT.

14. Standard Terms and Conditions of Sale

1. CONTRACT:

All sales transactions are expressly subject to these terms and conditions. Modification or additions will be recognized only if accepted in writing by an officer of BevSense LLC (Seller) or an officially designated representative. Provisions of Buyer's Purchase Order or other documents that add to or differ from these Terms and Conditions are EXPRESSLY rejected. No waiver of these Terms and Conditions or acceptance of others shall be construed as failure of Seller to raise objections.

2. QUOTATIONS AND PUBLISHED PRICES:

Quotations automatically expire 30 calendar days from the date issued unless otherwise stated in the quotation and are subject to withdrawal by notice within that period. Seller reserves the right to extend such quotation up to 6 months from the date of issuance. Prices shown on the published price lists and other published literature issued by Seller are not unconditional offers to sell, and are subject to change without notice. Seller's prices for equipment, unless otherwise specified, do not include an allowance for installation and or final on site adjustment. Prices shall be subject to adjustment to those in effect at time of shipment. Project documents and quotations must not be duplicated or given to third parties with the Seller's consent.

3. REPAIR ORDERS:

In carrying out repair orders, Seller reserves the right to modify prices based on findings which become apparent during the repair order execution. Expenses for estimates of repair and maintenance or for expert instrument or process valuations shall be invoiced to Buyer.

4. TAXES:

Seller's prices do not include any applicable sales, goods and services, use, excise or similar taxes and the amount of any such tax which Seller may be required to pay or collect will be added to each invoice and paid by the Buyer unless the Buyer has furnished Seller with a valid tax exemption certificate acceptable to the taxing authorities prior to shipment. If, upon subsequent sales, use, excise, or similar tax audit, an exemption certificate, provided to Seller by Buyer is, through no fault of Seller, determined to be invalid, Seller will attempt to acquire a valid exemption certificate, notarized affidavit of exempt use or other necessary documentation from Buyer. If Buyer fails to furnish a valid exemption certificate, notarized affidavit or other necessary documentation, in a timely manner the previously unpaid sales, use or similar excise tax will be billed to and paid by the Buyer.

5. TERMS OF PAYMENT:

Unless explicitly agreed to elsewhere in writing, terms are 30% at time of order, 70% prior to shipment. Amounts past due are subject to a service charge of 1.5% per month (or fraction thereof) or maximum contract rate permitted by law. If Seller deems that by reason of the financial condition of the Buyer or otherwise, the continuance or production or shipment on the terms specified is not justified, Seller may require full or partial payment in advance. Payment shall be made in United States currency and remitted as set forth in the invoice

6. DELIVERY:

Delivery dates indicated in the contract documents are approximate and are based on prompt receipt of all necessary information regarding the equipment covered by the contract and down payment. Seller will use reasonable efforts to meet the indicated delivery dates, but cannot be held responsible for its failure to do so. Title to the equipment and risk of loss shall pass to Buyer upon delivery to a carrier at Seller factory. In the

event of any delay in delivery caused by the Buyer, Seller will store and handle all items ordered at the Buyer's risk and will invoice the Buyer for the unpaid portion of the contract price, plus storage, insurance, and handling charges on or after the date which the equipment is ready for delivery. The invoice will be payable in full within 30 days from the invoice date. Seller has the right to make partial shipments and bill for those shipments. The buyer will make payment in accordance with terms referenced in Article 4 above.

7. SHIPPING AND HANDLING CHARGES:

Shipments are Ex Works Seller. Unless the Buyer elects a freight collect shipment, shipping charges plus the applicable Seller handling charge will be prepaid and billed as a separate item on the equipment invoice.

8. CHANGES:

Buyer may with the express written consent of Seller make changes in the specifications for equipment or work covered by the contract. In such event the contract price and delivery dates shall be equitably adjusted. Seller shall be entitled to payment for reasonable profit plus costs and expenses incurred by it for work and materials rendered unnecessary as a result of such changes and for work and materials required to effect said changes.

9. CANCELLATION AND RETURN OF EQUIPMENT:

Undelivered parts of any order may be canceled by the Buyer only with the written approval of Seller. If the Buyer makes an assignment for the benefit of creditors, or in the event that Seller for any reason feels insecure about the Buyer's willingness or ability to perform, Seller shall have the unconditional right to cancel this sales transaction. In the event of any cancellation of this order by either party, the Buyer shall pay to Seller the reasonable costs and expenses (including engineering and technician expenses and all shipping costs and commitments to its suppliers and subcontractors) incurred by Seller prior to receipt of notice of such cancellations, plus Seller's usual rate of profit for similar work. The minimum cancellation charge shall be 15% of the contract price. Products that are substantially customized for a Buyer's specific application and at Buyer request cannot be cancelled.

10. SECURITY INTEREST:

Buyer agrees to pay for the equipment according to Seller's payment terms and does hereby grant to Seller a purchase money security interest in the equipment until such time as it is fully paid. Buyer will assist Seller in taking the necessary action to perfect and protect Seller's security interest. In the event of a default by Buyer, Seller shall be entitled to any of the rights and remedies provided by law, including but not limited to repossession of the equipment.

11. DEFAULT:

Upon default and placing of the buyer's account for collection or repossession of equipment, the Buyer agrees to reimburse collection cost, legal fees, and court cost incurred by Seller in connection therewith.

12. WARRANTIES:

ABSENT A SEPARATE WARRANTY ISSUED TO BUYER BY SELLER, SELLER EXPRESSLY WARRANTS THE EQUIPMENT MANUFACTURED AND THE SERVICES PERFORMED BY IT TO BUYER SOLELY AS SET FORTH HEREIN. SELLER DISCLAIMS ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED (INCLUDING WITHOUT LIMITATION WARRANTIES AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE). THESE WARRANTIES MAY BE TRANSFERRED TO A SUBSEQUENT PURCHASER OF THE EQUIPMENT ONLY WITH THE PRIOR WRITTEN CONSENT OF SELLER. IN ADDITION, THE FOLLOWING SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDIES OF BUYER FOR ANY BREACH BY SELLER OF ITS WARRANTY HEREUNDER.

A. PRODUCT –

Seller warrants that the equipment covered by this warranty will be free from defects in workmanship and materials, under normal use, for a period of 12 months from the date of shipment to Buyer. Should any such defects be found and reported during the term of the warranty, Seller will, at its option, grant a fair price reduction or correct such defects, furnishing replacement parts and labor free of charge to Buyer. Seller will also furnish travel up to 80 kilometers (50 miles) from the nearest Seller service representative or authorized Seller service provider free of charge during the warranty period.

B. SOFTWARE –

Seller warrants that software developed by Seller will perform substantially the functions described in the software documentation when properly installed. Seller does not warrant that the software is error-free, that Buyer will be able to operate the software without interruption, or that the software will be free of vulnerability to intrusion or attack. The warranty period will be the same as the warranty period for Seller equipment within which the software is embedded. If the software is not embedded within Seller equipment, the terms and conditions of the respective end user license agreement of Seller shall apply exclusively. If no end user license agreement is applicable, the warranty period will be 90 days from the date of purchase by Buyer.

C. SERVICE –

Seller warrants that services will be performed in a workmanlike manner in conformity with standard industry practice. Should any nonconformity be detected within 30 days after the work is completed and prompt notification is made by Buyer in writing to Seller, Seller will supply the necessary service, direction or consultation to correct the nonconformity.

D. GENERAL –

The foregoing warranties are further subject to the following general conditions:

- (1) Buyer giving immediate notice in writing of any defects that have occurred. Buyer shall prove immediately the presence of a defect; in particular he shall make available immediately to Seller all material, installation drawings and data in his possession.
- (2) Consumables, accessories, normal wear and tear, wear parts and perishables are expressly excluded from the foregoing warranties.
- (3) If Buyer requests the performance of warranty work provided for under the foregoing warranties during other than normal Seller work periods, Buyer will be required to pay for all premium time.
- (4) These warranties will not apply where Seller's equipment and/or software has been subjected to: accident, alteration, misuse, abuse, failure on the part of Buyer to ensure proper storage, operation and/or maintenance, installation or servicing by other than Seller authorized personnel, the addition or supply of equipment not approved for incorporation into Seller's product, integration into the Buyer's environment, or Buyer/ third party supplied software or interfacing.
- (5) Seller's warranty obligation shall not extend to any defects due to assembly and installation work not undertaken by Seller, inadequate equipment, or due to non-compliance with installation requirements, use of non-approved process connections and operating conditions, overloading of parts in excess of design values in Seller's product specifications, negligent or faulty handling or the use of inappropriate materials, nor for defects in materials attributable to material supplied by the buyer. Nor shall the Seller be liable for damage due to acts of third parties or excess voltages and chemical influences.

- (6) Products of other manufacturers sold by Seller as such are warranted by Seller solely to the extent of any remaining warranty provided by the original manufacturer.
- (7) In the event equipment is repaired by Seller, the performance of such repair work will not extend existing nor generate new warranty coverage for the equipment as a whole or for those parts not repaired or replaced by Seller.

E. METHODS OF CORRECTION OF DEFECTS DURING WARRANTY –

To correct defects Seller may attempt to diagnose and resolve the defect over the telephone or electronically. Certain equipment contains remote support capabilities for direct problem reporting, remote problem determination, and resolution with Seller. When Buyer contacts Seller for warranty work, it must follow the problem determination, resolution and procedure that Seller specifies. At any time following or to assist in problem determination, Seller may require return of the part or product to depot for service. If Seller determines on-site work is required, a service technician will be scheduled for on-site work. If Buyer gives notice of a defect to Seller and requests Seller for on-site work when the defect could have been remedied remotely, or if Seller responds to Buyer's notice of defect and no defect is found for which Seller is liable, Seller shall be entitled to compensation for any work performed and costs it has incurred as a result of Buyer's request. Seller encourages Buyer to use available remote support technologies. Failure to install and use available remote connectivity tools and equipment for direct problem reporting, remote problem determination and resolution may result in increased response-time and additional costs to Buyer.

13. INDEMNITY:

Seller agrees to indemnify Buyer and hold it harmless from and against any direct loss suffered and any direct liability to third parties whenever such loss or liability is directly due to bodily injury (including death) to any third party or direct damage to any third party property occurring in the course of, and caused exclusively by, any negligent act or omission by Seller on the premises of Buyer that occurs in the performance of the work contemplated herein. This indemnity shall include reasonable legal fees and settlements of claim or suit. Buyer shall provide prompt written notice to Seller of any actual or anticipated claims against it that might trigger the foregoing indemnity; failure to do so waives Buyer's right to indemnification hereunder. Following such written notice, Seller shall have the sole and exclusive right to manage the defense of any indemnified claims and shall be authorized to settle or compromise such claims at its sole and exclusive discretion. Buyer shall cooperate in the defense of all indemnified claims as deemed necessary by Seller.

14. PATENT INFRINGEMENT:

Seller shall defend any suit or proceeding brought against Buyer so far as the same is based on a valid claim that any Equipment of Seller's design furnished hereunder, or any part thereof, constitutes an infringement of any applicable patent, if notified promptly in writing and given authority, information and assistance (at Seller's expense) for the defense of the same and if such alleged infringement is not the result of a design or other special requirement specified by Buyer or the result of the application of the use to which such Equipment is put by Buyer or others. Seller will pay all damages and costs finally awarded in such suit or proceeding against Buyer provided that Seller has the sole and exclusive right to defend, settle or compromise any suit or proceedings and Buyer takes no action that would materially detract from Seller's ability to conduct an effective defense, settlement or compromise. In such case Equipment or part in such suit held to infringe any such patent and the use thereof is enjoined, Seller will at its expense either, at its option; (a) obtain for Buyer the right to continue using such Equipment or part or; (b) replace the same with non infringing Equipment, or; (c) modify the same so that it becomes non infringing or; (d) remove said Equipment and refund the purchase price and the transportation and installation costs thereof. The foregoing states the entire liability of Seller to Buyer for patent infringement.

15. REGULATORY LAWS AND OR STANDARDS:

The performance of the parties hereto is subject to the applicable laws of the United States or Canada, depending on the location of delivery of the product or service. Seller takes reasonable steps to keep its

products in conformity with various nationally recognized standards and such regulations, which may affect its products. However, Seller recognizes that its products are utilized in many regulated applications and that from time to time standards and regulations are in conflict with each other. Seller makes no promise or representation that its product will conform to any federal, provincial, state or local laws, ordinances, regulations, codes or standards except as particularly specified and agreed upon for compliance in writing as a part of the contract between Buyer and Seller. Seller prices do not include the cost of any related inspections or permits or inspection fees.

16. INTELLECTUAL PROPERTY:

The sale and delivery of Seller's equipment and/or software to Buyer will in no way transfer to Buyer any right of ownership in any patents, copyrights, trademarks, technologies, designs, specifications, drawings, or other intellectual property incorporated into the equipment and/or software.

17. DISCLAIMER OF DAMAGES:

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY TYPE OF SPECIAL CONSEQUENTIAL, INCIDENTAL OR PENAL DAMAGES, WHETHER SUCH DAMAGES ARISE OUT OF OR ARE A RESULT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE. Such damages shall include but not be limited to loss of profits or revenues, loss of use of the equipment or associated equipment, cost of substitute equipment, facilities, down time costs, increased construction costs or claims of Buyer's customers or contractors for such damages. Buyer agrees that in the event of a transfer, assignment, or lease of the equipment sold hereunder Buyer shall secure for Seller the protection afforded to it in this paragraph.

18. LIMITATION OF LIABILITY:

Seller will not be liable for any loss, claim, expense or damage caused by, contributed to or arising out of the acts or omissions of Buyer and third parties, whether negligent or otherwise. In no event will Seller's aggregate liability for any and all types of damages or losses related to this agreement or the products or services sold or delivered pursuant hereto exceed the cost of the item giving rise to the claim, whether based in contract, warranty, indemnity, or tort (including negligence). Any suit arising hereunder must be commenced within one year from the date on which the cause of action accrues.

19. NO RESPONSIBILITY FOR GRATUITOUS INFORMATION OR ASSISTANCE:

If Seller provides Buyer with assistance or advice which concerns any parts, products, service supplied hereunder or any system or equipment in which any such part product service may be installed and which is not required pursuant hereto, the furnishing of such assistance or advice shall not subject Seller to any liability, whether based in contract warranty, tort (including negligence) or otherwise.

20. INTERPRETATION:

Should any term or provision contained in the contract contravene or be invalid under applicable law, the contract shall not fail by reason thereof but shall be construed in the same manner as if such term or provision had not appeared therein.

21. INSURANCE:

Upon request, Seller shall provide evidence of insurance in accordance with its standard coverage and limits. Seller does not provide third parties direct access to its insurance or give additional rights to its insurance, such as naming additional insured parties.

22. FORCE MAJEURE:

The inability of Seller to fulfill its obligations required under these terms and conditions resulting from defaults or delays caused by conditions beyond Seller's reasonable control including, but not limited to strikes, insurrection, acts of God, war, terrorist activities, emergencies, shortages or unavailability of materials, weather, change in law or other similar causes, will extend the period for the performance of the obligations for the period equal to the period(s) of any such delays(s) and Buyer will not have the right to termination; provided that Seller will continue to perform to the extent feasible in view of such force majeure.

23. EXPORT CONTROL:

Buyer acknowledges that the equipment may include technologies and software that are subject to export control regulations in Europe or the United States of America or countries in which the equipment is delivered or used. The Buyer is solely responsible for adherence to these restrictions in case the Buyer exports or re-exports the equipment and the Buyer agrees to indemnify and hold Seller harmless from, or in connection with, any violation of such export restrictions by Buyer, or its employees, consultants, agents, or customers.

24. GOVERNING LAW AND PLACE OF JURISDICTION:

The legal relationship between Buyer and Seller shall be governed by the laws of the United States of America. Exclusive place of jurisdiction shall be Boston, Massachusetts. Seller however reserves the right to initiate court proceedings against the Buyer at any other court of competent jurisdiction. The United Nations Convention on Contracts for the International Sale of Goods is explicitly excluded.