

INSTALLATION & OPERATION

SiloPatrol[®] / Flexar[®] **Inventory Monitoring System**

Installation & Operation Manual **Software Programming Manual**

SiloTrack[™] **Inventory Management Software** **Version 3.55**

(This bulletin is intended for use with an external USB RS-485 converter. If you are upgrading software and your RS-485 converter is an internal device or you are using a converter not supplied by Monitor, please consult the Airmatic for advice.)

ATTENTION:

USE OF VOLUME & WEIGHT CALCULATIONS

The HMI² and **SiloTrack**[™] Inventory Management Software can perform calculations to display the volume and weight of material in each vessel. When utilizing this capability, the HMI² or **SiloTrack** software will calculate the volume and weight based upon the distance measurement made by the SMU, the vessel dimensions and the material bulk density entered during setup.

The calculated volume and weight values are effected by variations in actual vessel dimensions, angle of repose, fluctuation in material bulk densities, material flow properties (ratholes, bridging, etc.), vessel inlet/discharge location(s) and location of the sensor on the vessel. The direct distance measurement made by the SMU is from the bottom of the SMU mounting flange to the point on the plumb bob.

Prior to equipment installation, please consult Airmatic to discuss the application details if the volume/weight calculation are of critical importance.

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LANGUAGE SELECTION

To switch between the Primary and Alternate language, from the main menu select **File** and **Switch Language**.



INTRODUCTION

This manual has been written to guide you toward a successful **SiloTrack™** installation. This programming manual is to be used in conjunction with Bulletins 344A (SMU Installation), 344F (if installing Auxiliary Output Enclosures) and 344H (if installing Wireless Interface), or 354A (**Flexar®** installation) which are the hardware installation manuals for this family of products.

The instructions contained within provide the essential steps required in program set up achieving this goal. Most screens during program setup are self-explanatory. If you have a question regarding any program step or entry during program setup, the comprehensive help files that were installed on your PC during installation will have the information you need to complete your task. If after consulting the help files you still have questions, please consult with Airmatic.

2.1 SiloTrack Concepts

With the ever-growing Information Technology Boom, our customer base began to ask for material level measurement information to be available on their PC. We answered that request by developing **SiloTrack V1.0**. Version 1.0 was a stand-alone program that only allows material level information to be viewed on one computer screen. Shortly after the release of V1.0 software, customers began asking for multi-user software so more than one PC could share and use the data. The nature of the requests expanded to include LAN (local area network) users, WAN (wide area network) users and Dial-Up users connecting by telephone. To accommodate these requests, we developed **SiloTrack V2.01 Server** (or Host) and **SiloTrack V2.01 Client** (remote user) software packages. The Server version resides on the PC that controls the SMUs (silo monitoring units) or **Flexar®** Guided Wave Radar. SMUs measure the distance between the SMU mounting location and the point on the material being measured at which the plumb bob impacts. **Flexar's** measure the distance from the process connection to the point on the cable that intersects the material in your tank or silo.

SiloTrack V2.01 Client version addressed the remote monitoring needs by allowing multi point access to the silo measurement database. It has the ability to initiate a remote physical measurement of material in the event that the last measurement taken data is too old to be satisfactory to the remote user. This version of software also lends itself to aiding in Vendor Managed Inventory scenarios. Remote users or Clients can not access the Server or Host unless the Server software has been configured and password protected to allow it. The current Version 3.5X further enhances **SiloTrack** functionality by the addition of a user-friendly Setup Wizard, expanded reporting capabilities, and will allow for multiple sensors (up to 5) on a single vessel to provide measurement averaging, and makes provision for **Flexar®** Guided Wave Radar.

No matter which communication method for Client access is chosen, secure communications are provided between the **SiloTrack** Server and any **SiloTrack** Client subscription. For networked TCP/IP connections (LAN and WAN), a 56-bit encryption technique is utilized to ensure that your data remains secure. Provisions are included to prohibit undesired IP addresses from gaining access to **SiloTrack** Server during setup and these addresses can be added, deleted, or modified at any time. Dial-up subscriptions between Server and Client are inherently secure if the telephone connection is hard wired. Additional dial-up security can be invoked by choosing the "Dial-Back" option during Client Security setup. When this option is selected, the Client calls the Server through its dial-up connection. The Server acknowledges the connection request and terminates the Dial-up connection. The Server then dials the Client back using a pre-configured telephone number thereby eliminating the possibility of someone trying to gain access to **SiloTrack** from an unapproved location.

2.2 Definitions

Network: **SiloTrack** will support up to eight networks. A network is defined as a single RS-485 communications bus. Using **SiloTrack**, up to eight networks can be supported on a single PC that is appropriately configured with the necessary amount of RS-485 ports. **SiloTrack** will support up to 16 SMUs per network. In addition, each network will support up to a total of 4 accessory devices consisting of Auxiliary Output Enclosures(AOEs) per network. **SiloPatrol** SMU's and **Flexar®** Guided Wave Radar can not coexist on the same RS485 network.

Node: Each SMU, on any common network, must have a unique sensor address. **SiloTrack** setup screens refer to this sensor address as a "node address." Specific instructions for setting the node address of each SMU may be found in Bulletin 344A. **SiloTrack** interprets the node address to be the value of the selector switch in the SMU as described in Bulletin 344A where selector switch position 1 equals node 1, switch position A equals node 10,

	SMU Switch Position															
	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	0
	SiloTrack Node Address															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Network 1	1:01	1:02	1:03	1:04	1:05	1:06	1:07	1:08	1:09	1:10	1:11	1:12	1:13	1:14	1:15	1:16
Network 2	2:01	2:02	2:03	2:04	2:05	2:06	2:07	2:08	2:09	2:10	2:11	2:12	2:13	2:14	2:15	2:16
Network 3	3:01	3:02	3:03	3:04	3:05	3:06	3:07	3:08	3:09	3:10	3:11	3:12	3:13	3:14	3:15	3:16
Network 4	4:01	4:02	4:03	4:04	4:05	4:06	4:07	4:08	4:09	4:10	4:11	4:12	4:13	4:14	4:15	4:16
Network 5	5:01	5:02	5:03	5:04	5:05	5:06	5:07	5:08	5:09	5:10	5:11	5:12	5:13	5:14	5:15	5:16
Network 6	6:01	6:02	6:03	6:04	6:05	6:06	6:07	6:08	6:09	6:10	6:11	6:12	6:13	6:14	6:15	6:16
Network 7	7:01	7:02	7:03	7:04	7:05	7:06	7:07	7:08	7:09	7:10	7:11	7:12	7:13	7:14	7:15	7:16
Network 8	8:01	8:02	8:03	8:04	8:05	8:06	8:07	8:08	8:09	8:10	8:11	8:12	8:13	8:14	8:15	8:16

Table 1: Example: 8 is the network # and 06 represents the SMU address. **Flexar®** uses ONLY decimal numbers.

and switch position 0 equals node 16. There are 16 positions on this switch and they must be set differently for each SMU that is connected to the same network. Table 1 shows all possible SMU addresses. Flexar addresses can be configured at the control head in parameter 1.6.2.

Note: The default node address for every Flexar shipped is 1. Although SiloTrack is capable of changing node addresses through software, this is only possible if only one Flexar is connected to a single RS-485 network at a time and powered on.

SiloPatrol® NETWORK CONFIGURATION

3.1 Network Connector Pin Assignments

Each RS-485 port on your SeaLevel® USB RS-485 converter is furnished with a DB-9P (male) connector. We have supplied one DB-9S (female) solder-type connector and data hood for each RS-485 network shipped in your order. The following Table 2 contains the connector pin assignments for your network cable.

SiloTrack™ only uses three wires for communication purposes (including the shield wire). Note that **SiloTrack** only uses pins one and two for communication signals in the DB-9 connector.

Also, be certain that the shield wire is connected on all SMUs, Flexars, or AOE's to terminals provided.

DB-9 Pin Assignments Specific to **SiloTrack™**

	Signal	Name	Pin #	Mode	Suggested Wire Color
Connect to External Ground	GND	Ground	5		Shield or Ground Wire
Connect to D+	RX+	Receive Data Positive	1	Input	Red
Connect to D-	RX-	Receive Data Negative	2	Input	Black

Table 2

3.2 Connecting the RS-485 to Converter

Connect each network cable from the SMUs or Flexar® to the appropriate DB-9 connector. Be certain to secure the connection with the hardware provided with each connector without over-tightening the screws. (These instructions are for a 2-channel USB RS-485 communication converter. If you are using a 4-, 6-, or 8-channel USB RS-485 communication converter for your system, please see Bulletin 344R.)

3.3 Ranges of Network/Configuration Addresses

Individual SMU Address Selection (See Figure 9 of Bulletin 344A)

Address

1 to 16

(The selector switch in an SMU has 16 address positions.)

SiloTrack™ Addresses for SMU and Flexar® units (See Pages 3 & 4 of this Bulletin)

Network Number : Node

1 to 8 : 1 to 16

(**SiloTrack** can have up to 8 networks. Each Network can have up to 16 SMU or 16 Flexar's exclusively.)

Auxiliary Output Enclosure (AOE) (See Pages 4 & 5 of Bulletin 334F)

Network Number : Enclosure Number

1 to 8 : 1 to 4

(**SiloTrack** can have up to 8 networks. Each Network can have up to 4 AOE's.)

Analog Card Addresses (See Page 5, Figure 6 of Bulletin 334F)

Network Number : AOE Number : Card Position #: Output #

1 to 8 : 1 to 4 : 1 to 4 : 1 to 4

(**SiloTrack** can have up to 8 networks. Each Network can have up to 4 AOE's. There are either 2 or 4 card positions depending on which AOE was purchased. All Analog Cards have 4 outputs.)

Relay Card Addresses (See Page 4, Figure 4 of Bulletin 334F)

Network Number : AOE Number : Card Position #: Output #

1 to 8 : 1 to 4 : 1 to 4 : 1 to 8

(**SiloTrack** can have up to 8 networks. Each Network can have up to 4 AOE's. There are either 2 or 4 card positions depending on which AOE was purchased. All Relay Cards have 8 outputs and Analog Cards have 4 outputs.)

Important Note If Using AOE: When you have Flexar sensors and are using **SiloTrack** as the controller or operator interface, the Flexar sensors and the AOE must reside on separate RS-485 networks. The network on which the AOE resides on must be configured to be used for a **SiloPatrol** SMU.

PRE-INSTALLATION CONSIDERATIONS

4.1 Minimum PC Requirements

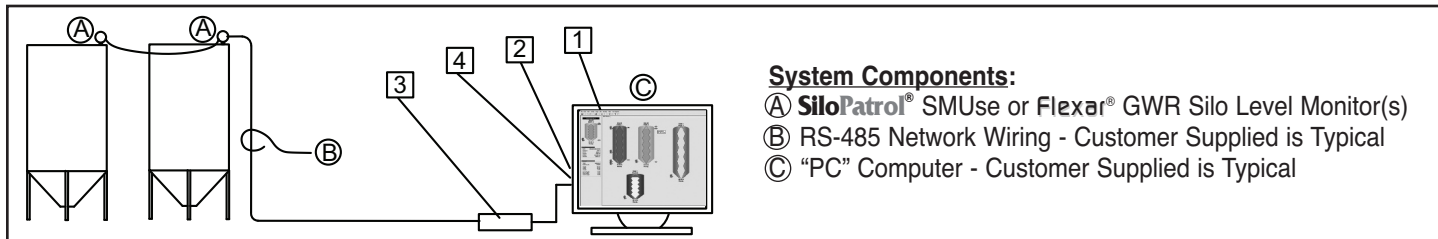
Processor: Pentium® IV
 System Memory: 1 GB
 Video: SVGA with 4MB Video Memory
 Hard Drive: 20GB with 650MB of Available Space
 Operating System: 2000, ME, XP, or Vista
 (Consult factory for other operating systems)
 Required Software: Internet Explorer® 4.0 or Greater
 Required Hardware: CD-ROM Drive, Soundboard and Speakers (May be integrated on CPU board), Local Area Network if Multi-User on LAN or WAN, Internet connection (full time for remote multi-user), **two available USB ports**
 COM Ports: **SiloTrack** only recognizes COM 1 through 9
 Highly Recommended: UPS with AC Line Surge Suppression and Telephone Line Transient Suppression

4.2 Physical Installation Specifications

For SMU SE installation, please refer to Installation & Operation Bulletin 344A for complete details on wire specification and acceptable wiring practices. Please adhere to this document to ensure a successful installation. Not referenced in Bulletin 344A is the RS-485 interface connector schematic or "pin out" information, which can be found on page 4 of this manual. You will need this information to complete your cabling from your sensors to the RS-485 communication port(s) on your converter. Bulletin 344F describes AOE installation. If installing Flexar®, use point to point (True Daisy-Chain) wiring without the use of any "T" junctions or multiple drops. For Flexar Guided Wave Radar, refer to Installation & Operation Bulletin 354A.

4.3 SiloTrack™ Installation Quick-View

A typical **SiloTrack** installation will resemble this:



A brief list of the more important installation points:

● **Electrical Service:**

Ensure there is adequate electrical service to the silo level sensor(s)

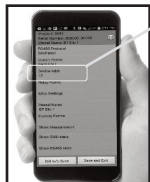
Tip: The LCD display on the **Flexar**® will be active and display a measurement value when powered.

Tip: **SiloPatrol**® SMUse can be manually cycled from the on-board “Manual Start” button when adequately powered.

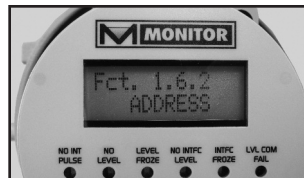
● **Sensor Address(es):**

Each sensor on a RS-485 network must be set to a unique address.

SiloPatrol Address is set via Bluetooth® radio link. An Android™-based device with Bluetooth capability is required. Monitor's ConfigSensor App can be downloaded for free at <http://www.monitortech.com> See Bulletin 344A, Pg. 8



-OR-

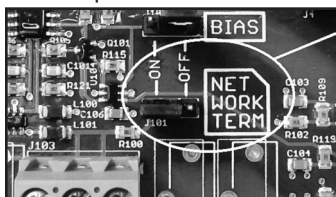


Flexar Address Parameter Screen
See Bulletin 354A, Pg. 27,
Parameter 1.6.2

Tip: Make note of the address assigned to each sensor and their corresponding silo(s). This information will be needed later to set up the **SiloTrack** program.

● **Network Termination Switch:**

The hardware components at the ends of the RS-485 network must have their network termination switch (NTS) set to the “ON” position.



SiloPatrol NTS
See Bulletin 344A, Pg. 6

-OR-

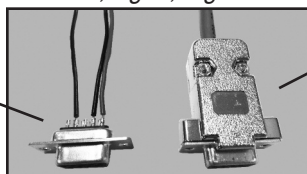


Flexar NTS
See Bulletin 354A, Pg. 13,
Figure 28

● **Network Wiring:**

SiloTrack communications via a 2-wire, half duplex RS-485 format. Ensure the RS-485 network wire is securely terminated to the correct pins on the DB-9 connector. See Bulletin 344A, Pg. 4, Figure 5.

DB-9 pinout when using
SeaLevel® converter:
Sig(+) to Pin 1
Sig(-) to Pin 2
Shield to Pin 5



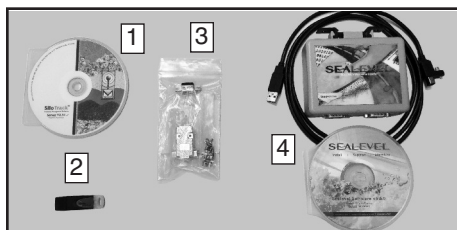
DB-9 connector completed with
protective hood installed.

Tip: It is recommended to wire the silo sensor network in a “daisy chaining” pattern.

Tip: **SiloPatrol** SMUse sensors and the **Flexar** GWR sensors **CANNOT** share a network. They must be networked separately.

● **SiloTrack Installation:**

Proceed with the installation of the SiloTrack software. See Bulletin 344J, Beginning Pg. 6.



SiloTrack™ Components:

- 1 **SiloTrack** Program CD
- 2 **SiloTrack Sentinel** USB Security Key
- 3 DB-9 Connector Kit
- 4 **SeaLevel**® RS-485 to USB Converter with Driver CD
- 5 Instruction Bulletin 344J (Not Shown)

Tip: Very Important - Load the **SeaLevel**® Driver installation first, then connect convertor to PC via USB cable.

The **SeaLevel**® device installation proceeds as follows:

Step 1 - Load driver. When the driver installation indicates “Finished”, connect convertor to PC via USB cable.

Step 2 - Once convertor is connected, **SeaLevel**® will complete the installation. This may require acknowledgement of additional installation steps.

4.4 RS-485 Port Configuration

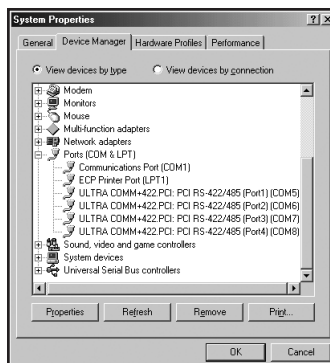
Installation of USB to Serial Converter -

Do Not connect the USB cable to the PC until the driver has been loaded. Insert the CD which accompanied the SeaLevel Inc. USB to Serial converter into the CD/DVD drive. As this CD loads the SeaCom device driver will be installed. When the driver InstallShield indicates "Finished", plug in the USB cable. When fully recognized, the serial ports will be assigned and can be found in Device Manager under Ports section. They will be listed as SeaLINK+2 devices.

2000, ME, XP, and Vista Users

(My Computer, Control Panel, System, Device Manager, Ports (COM & LPT))

Navigate as directed above and record the PC system COM number and the SeaLINK USB to Serial adapter port number information that was automatically assigned to each network of the RS-485 Communication converter. The picture at the right is a screenshot from a Windows® ME installation with a four port RS-485 communication converter installed.



RS-485 Com Port Assignment Worksheet

SiloTrack will recognize only single digit COM ports. If a COM port above "9" was assigned, consult your IT department to have a single digit COM port made available.

SiloTrack Network	Assigned Port Name	RS-485 Port
1	COM_____	1
2	COM_____	2
3	COM_____	3
4	COM_____	4
5	COM_____	5
6	COM_____	6
7	COM_____	7
8	COM_____	8

Table 3

INSTALLING **SiloTrack™** SERVER

If you are upgrading from version 1.0, 2.XX, or 3.03 you must uninstall the previous version before installing Version 3.5X. Previous data files are not compatible with V3.5X so save your silo configuration data on hard copy before proceeding.

The following applies to both **SiloTrack™** V3.55 Server and **SiloTrack** V3.55 Client. In the case of **SiloTrack** V3.55 Server, **be certain the hardware security key has been inserted in an available USB port.**

Insert the appropriate **SiloTrack** CD-ROM into you CD drive. Your operating system will query the CD and the InstallShield Wizard will run. If the CD does not automatically run, click on **Start, Run**, and click on **Browse**. A window will open that will allow you to identify and select the appropriate drive letter for your CD-ROM. Do so. Then, you will see a setup **icon**. Left click on the setup icon and then click on **Open**.

When the InstallShield wizard completes, click on Finish to exit from the installation software. During the installation, a **SiloTrack** icon was placed on your desktop. Click on it and the following screen will appear. (See Note 1.)



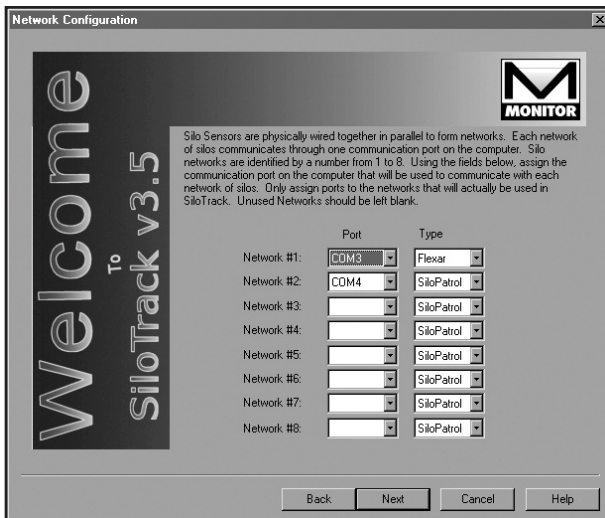
Continue the installation by clicking Next.



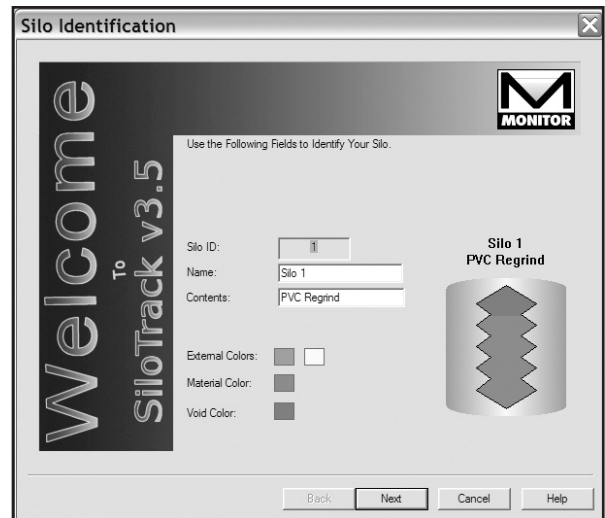
Although it is possible to have 16 silo icons on a single page, It may be desirous to organize groups of silos on individual pages. To do so, you would simple enter a name for a new page in the Page Name box and click on the Add key. Pages can be added, deleted, or renamed manually at a later time if desired. Once you have entered additional page names or you only need one page, click on Next to continue installation and the following screen will appear.

Note 1:

In the event that the **SiloTrack™** Server program is being installed on a Windows® 7, 8 or 10 PC, the Setup Wizard may not completely function. There is a possibility that the Silo Communication Test function may not reflect COM status of user set up info. Please continue with the Wizard. Once exited from the Wizard, COM status can be verified by viewing the newly created silo image.



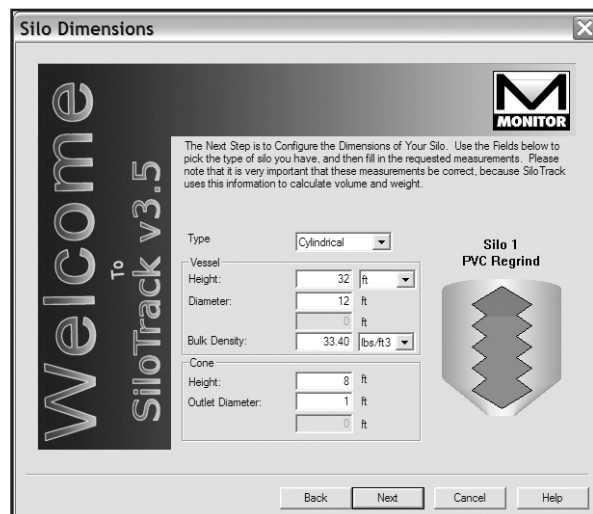
SiloTrack must know where to send and receive data communications from. Simply enter the data you recorded in Table 3 when you installed the USB RS-485 converter. Having to declare a sensor type at the COM port assignment screen is new to V3.5X. **SiloPatrol®** and **Flexar®** communication protocols are so vastly different that they can not coexist on the same RS-485 network. Click on next when finished. (**SiloPatrol** SMUse and **Flexar** sensors must be on separate networks.)



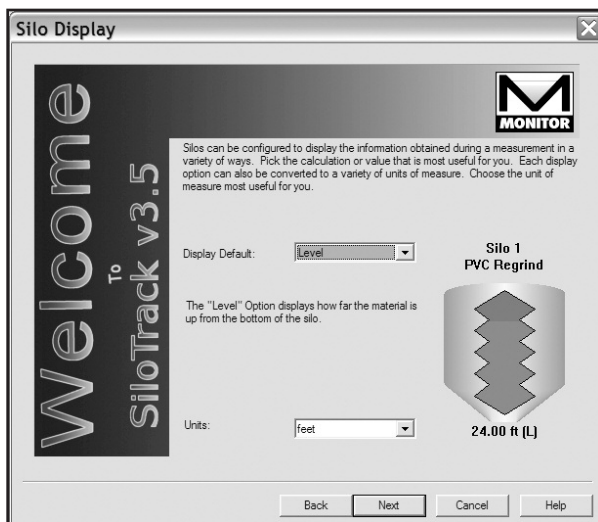
The Silo ID Tag* is configured automatically by **SiloTrack** for internal purposes and can not be changed by the user. Enter a Silo Name or number and silo contents (if desired) in the appropriate boxes as shown above to help you better identify your material inventory. While on this screen, by clicking on the color boxes, you have the ability to customize the appearance of your silo icon by changing the default colors for each silo as they are created. This change may also be done manually at a later date. (**SiloTrack** uses the Silo ID Tag as the unique identifier in its data handling operations. The Silo ID Tag is not reused so if a Silo is deleted and then later re-established, a new Silo ID Tag is assigned.)



The above screen allows you to choose which silos will appear on each page. To add a silo, type the silo name and contents in the boxes provided and click the Add button. The Silo Configuration Wizard will start and walk you through configuring the new silo. To make changes to the configuration select the silo from the list and click the Configure button. Click Next when finished.

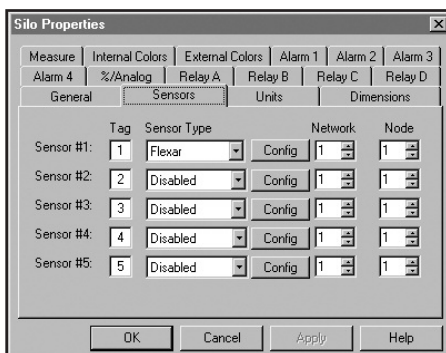


If you intend to display units of measure other than Distance to Product, it is imperative that the dimensional information and the material Bulk Density be as accurate as possible. **Remember that an SMUse only measures the DISTANCE between the sensor location and the material surface. All other display values are calculated using the end user supplied vessel data.** Enter the information then click on Next to continue.



Select what you wish to be the Default measurement display to be beneath the silo icon on your page display and also declare the unit of measure you wish to use. All other available measurement displays (Distance, %, Volume and Weight) are always readily available to you by displaying individual silo properties or in the Silo Panel View which will be further explained later in this document. Click on Next to continue.

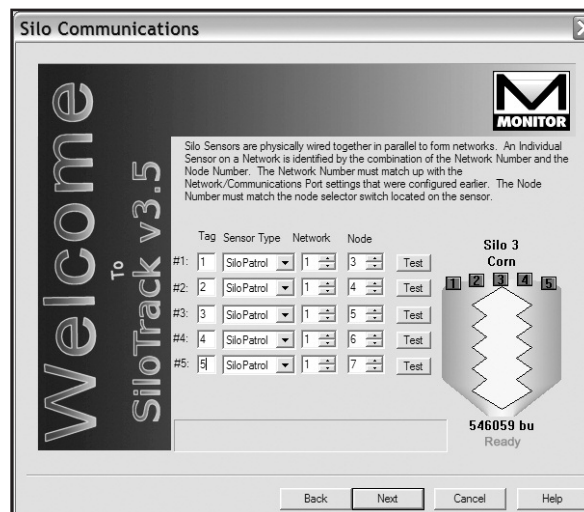
Every SMU Sensor connected to a common RS-485 Network must have its own unique sensor address by network and node. The network number is determined by which RS-485 cable you are connecting to as defined in the worksheet from Page 5. In the column for sensor type, select **SiloPatrol®** or **Flexar®** from the drop down menu. The Node number refers to the position of the rotary address switch as covered in Bulletin 344A and will have a range of 1 through 16. If **Flexar**, program a unit number of 1 through 16 in parameter 1.6.2.



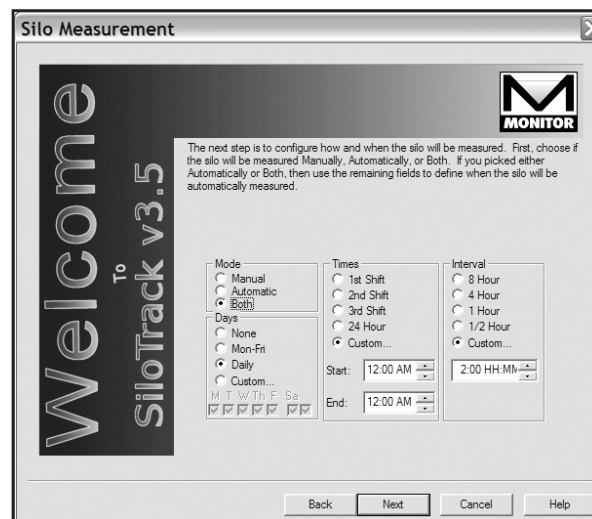
A new feature in this release of **SiloTrack** is the ability to install multiple sensors on a single vessel. As many as five SMUs or **Flexar's** can be installed on one silo. When measurements are taken, the measured distances of the assigned sensor will be averaged and then this average distance will be used to calculate the other measurement displays previously mentioned. The Sensor type for this release must be set to **SiloPatrol®** or to **Flexar®**. **Remember that SiloPatrol and Flexar must be on separate RS-485 networks.**

When using **Flexar®** Guided Wave Radar as your sensor technology, much of the pertinent program and calibration parameters of the application have been set at the factory during probe calibration. This does not include the unit node number as programmed in parameter 1.6.2 of the set-up screens. **SiloTrack** will function

independently of any factory set calibration value that is accessible by the end user and normally, no performance adjustments should be necessary. Should you feel an adjustment is needed, DO NOT ATTEMPT TO CHANGE ANY VALUE OF ANY PROGRAM PARAMETER ON ANY **Flexar®** CONFIGURATION SCREEN THAT MAY APPEAR BY NAVIGATING ANY SET UP SCREEN THAT FOLLOWS SELECTING THE CONFIG BUTTON SHOWN IN THE ABOVE PICTURE. DOING SO CAN CAUSE YOUR SENSOR TO STOP FUNCTIONING. SHOULD THIS OCCUR, IT MAY BE NECESSARY TO RETURN THE SENSOR TO THE FACTORY TO BE RE-CALIBRATED. Re-calibration under these circumstances shall not be considered to be a warranty item unless you were directed by Monitor Engineering or Technical Support person to do so. If there is any reason you feel compelled to enter these set-up areas, please contact Monitor Technologies LLC Technical Support group for guidance while making changes. Should you find it necessary to call Monitor for help, please have the serial number of the **Flexar®** unit readily available.



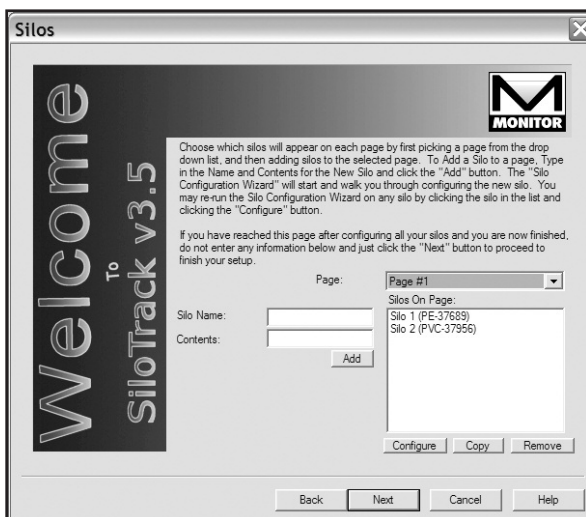
Click on next once you have configured the addresses and the following screen will appear.



SiloTrack allows great flexibility in scheduling automatic measurements. In order for automatic measurements to be made, either Automatic or Both needs to be selected in the above box labeled Mode. Adjust the other selections for Days, Times, and interval as desired and click on Next to advance to the next screen.

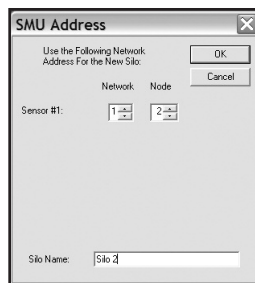


Acknowledge the completion of **SiloTrack** Installation Wizard for Silo 1 by clicking on Finish.



From the above screen you can continue to add additional silos like before. However, if the next silo to be created has the same dimensional properties as any previously configured silo, it is faster and easier to copy and existing silo and modify the name, Network, and node address to make the copy unique. When you are finished creating additional silos, click on Next.

On the above screen, use your pointing device to select the silo you wish to copy. Then, click on the button labeled Copy and the screen at the right will appear.



Adjust the Network and Node number as necessary. Rename the Silo to whatever name you wish to use for identification purposes and click on OK. Once you click on OK, the PC will revert to the previous screen with the addition of the new silo you just copied to (added). If desired configuration changes can be made to any silo shown by highlighting the desired silo then clicking on the Configure Button. Once all additions and modifications have been completed, click on the next button (with no silos highlighted) to go to the last phase of the setup wizard. The following screen will appear.

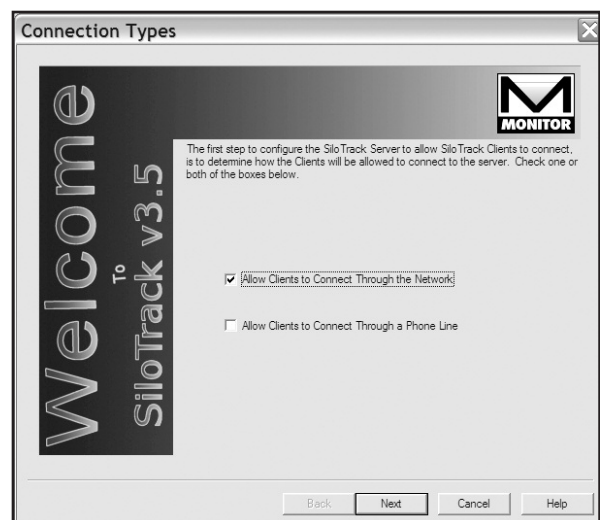


By entering a system password for full access, you lock out the ability for unauthorized users to make any changes, additions, or

subtraction to your **SiloTrack** setup. However, everyone with access to the **SiloTrack** Server software will have the ability to make measurements and collect/view inventory data. If you do not enter a password or whenever you are ever asked for one, simply leave the password blank and click on OK. See the section on security later in this document for further information

If you purchased the optional **SiloTrack** Client software, you will now have the ability to configure Groups and Individual users while still in the Wizard. Simply check the above box and click on Finish to add Client information. If the box is not checked, the Wizard will now terminate.

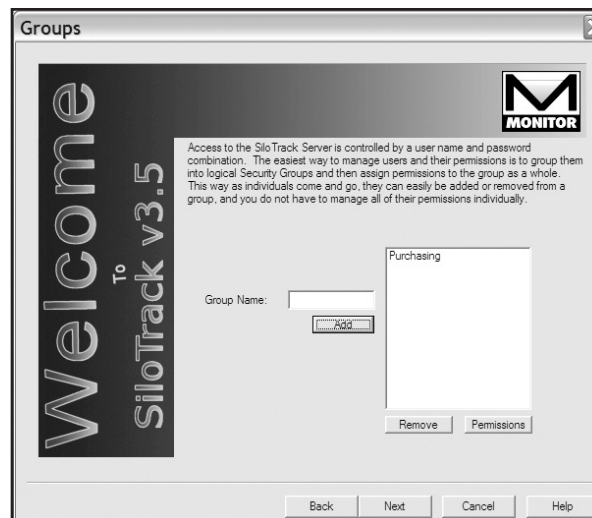
If you checked the box to configure Clients, the following screen will appear.



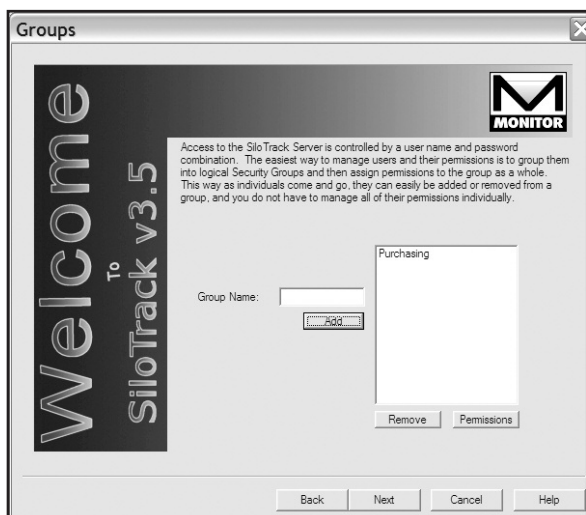
First, you must declare how **SiloTrack** Clients will connect with **SiloTrack** Server. If you allow Clients to connect through the network, the Server PC must have a static IP address. A static IP address is one that never changes when the PC is rebooted. Contact your IT professional if you need assistance in this regard. The other option is to allow the Client to connect via a dial-up modem. Make your selection and click Next to continue.



For improved security **SiloTrack** Server goes beyond a user name and password. In this screen, Server can be configured to enforce security at the hardware level. To allow only certain computers to connect to **SiloTrack** Server select the “Allow Clients to Connect ONLY From THESE Computers” option. Fill in the Clients’ static (NOT dynamic) IP addresses in the box. If you need additional help with this feature, please contact your IT professional or refer to Allow/Deny lists in the **SiloTrack** help system.

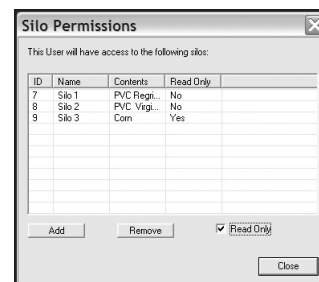


Users must be added and configured. To add a user, press the Add button. The Edit button allows you to make changes to an existing user. To configure Silo Permissions for the user use the Permissions button. The user will inherit permissions from the groups he or she belongs to, so you may not need to configure Silo Permissions on an individual basis. Click Next when finished.



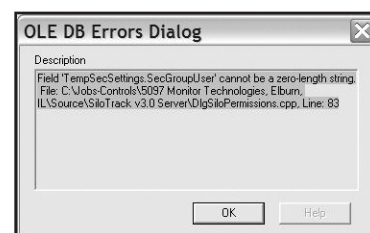
The easiest way to manage users is to establish Groups. By setting up Groups you can assign permissions to several users at once instead of on a individual basis. Type the Group name into the box and click the Add button. Once you have finished creating Groups, click on Next to continue.

After defining Group names, if used, you must now identify individual Users and assign them a password. This user name and password are required for the Client software to connect. In this screen, you can also assign the user to a Group by clicking the Add button. Click OK when finished.



Permissions to view silo measurement information has to be granted to both Groups and/or Users. Once the administrator has granted permissions, determine if the Client is to be allowed to initiate a measurement from his or her own PC. The status of Read-Only equals “Yes” must be changed to “No” on a silo-by-silo basis in order to do so.

If you ever get this error on your screen (See image right), it is because you failed to highlight a name to grant permissions to.



This is where the Wizard ends. Alarms and all auxiliary output options (if so equipped) must be done manually as described later in this document. It would be a good idea to close **SiloTrack** to save all data to disk. The next time you run the **SiloTrack** program it will start in the restricted access mode. So if you need to modify anything select Security, Full Access, enter your password when prompted, and click OK. Then you will have full editing capabilities.

See Pg. 20 of this document (344J) for working with **SiloTrack** on Windows® 7, 8 or 10 environments.

Preparing SiloTrack™ SERVER for CLIENTS

Click on the Security tab on the SERVER desktop toolbar and highlight "Client Security" from drop down menu and select TCP/IP Security. **Security -> Client Security -> TCP/IP Security**

If allowing all Clients to connect, uncheck "Enforce TCP/IP Security" box.

If allowing only select Clients to connect, enter the static IP address of each user in the "Allow These.....to Connect" section.

For additional details, please see "For TCP/IP Access" on Pg. 15.

INSTALLING SiloTrack™ CLIENT

Insert the appropriate **SiloTrack™** CD-ROM into your CD drive. Your operating system will query the CD and InstallShield will run. If the CD does not automatically run, click on Start, Run, and click on Browse. A window will open that will allow you to identify and select the appropriate drive letter for your CD-ROM. Do so. Then, you will see a setup icon. Left click on the setup icon and then click on Open.

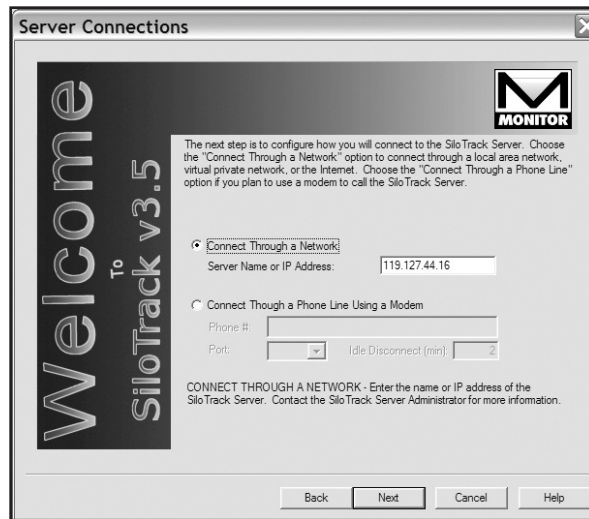
When InstallShield completes, click on Finish to exit. During the installation, a **SiloTrack** icon was placed on your desktop. Click on it and the following screen will appear, which is the Client Setup Wizard.



Click on Next to continue. The first time Client software is run on any PC, you will get an error message indication "Backup of Data File Failed!" Ignore this error by clicking on OK.



You have the ability to select your own screen appearances that are totally independent of that which was configured in the **SiloTrack** Server setup. Adding pages works exactly as previously described. Once you have created any additional Pages you desire, click on Next to continue.



In order for the client to be able to locate the **SiloTrack** Server, you need to be able to give it either the Computer Name (only on Windows® XP) the Server software resides on -or- provide the IP address of the Server PC.

Note: For Windows® 7, 8 or 10 - When using an IP address, it must be a static IP address. A static IP address is one that never changes when the PC is rebooted. Contact your IT professional if you need assistance in this regard.

If you will be connecting through a dial-up modem, simply fill in the requested information for telephone number to connect to the **SiloTrack** Server PC, and the serial port assignment for your Client PC Modem. Click on Next to continue.



The user name and password provided by the **SiloTrack** Server administrator must be entered. This user name and password must be setup in **SiloTrack** Server before the Client setup will be recognized.



This screen allows you to configure how updates will be received from **SiloTrack** Server. There are three options: Manual, Automatic - Server Triggered and Automatic - Scheduled. After selecting the appropriate option, click Next to continue. **Automatic – Server Triggered** is the recommended setting. That way, every time the **SiloTrack** Server makes a new measurement, the Client will automatically be updated if the Client software is actively running.



SiloTrack Client will now attempt to connect to **SiloTrack** Server using the information you provided. If you are unable to connect, please contact the **SiloTrack** Server administrator.

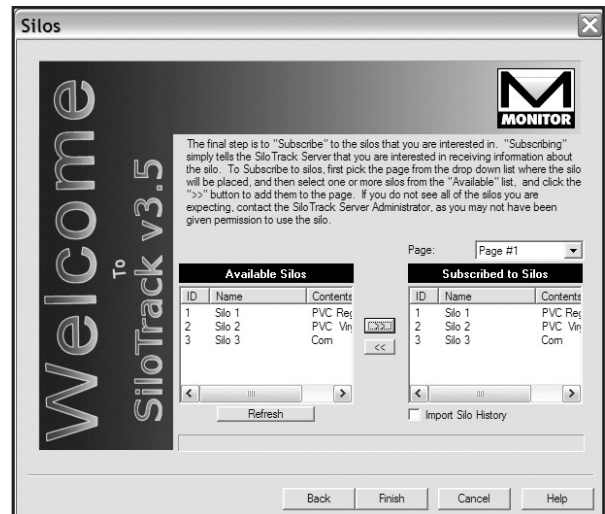
If you receive a WinSock error, below are some items to take into consideration.

A) SiloTrack Server is running on a PC with Windows® 7, 8 or 10. See section on Pg. 20 for “Operating **SiloTrack** on Windows® 7, 8 or 10 Environments”.

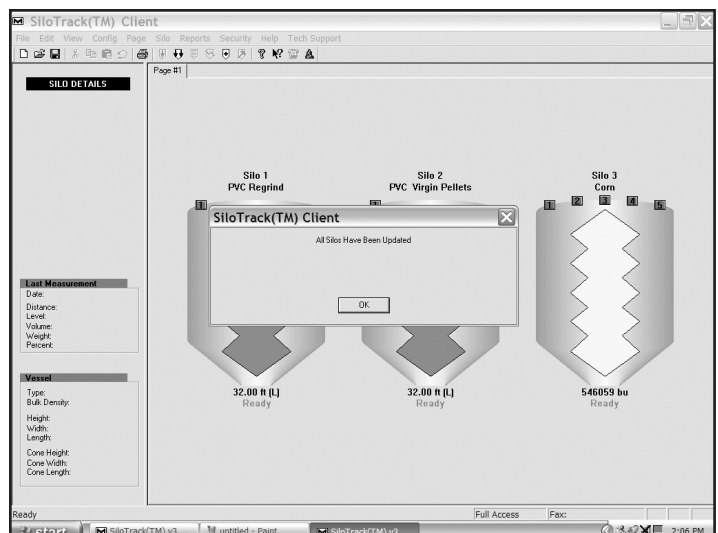
B) Ensure Client is attempting to connect to a PC which is powered on and has **SiloTrack** Server open and running (can be “minimized”).

C) Verify Client IP address is entered accurately (must be a static address) at the TCP/IP Security Setting page in **SiloTrack** Server: **Security -> Client Security -> TCP/IP Security**. If IP addresses are not being used, ensure the “Enforce TCP/IP” box on the TCP/IP Security Setting page is unchecked.

D) Firewall setting - If 64 bit OS is involved, ensure **SiloTrack** is allowed to communicate through Firewall.



The final step is to “Subscribe” to the silos you are interested in displaying. To “Subscribe” to a silo, select the correct Page from the drop down list and then select the corresponding silo from the list below. If you do not see the silo you are looking for, please contact the **SiloTrack** Server Administrator. You may not have permission to view the silo.

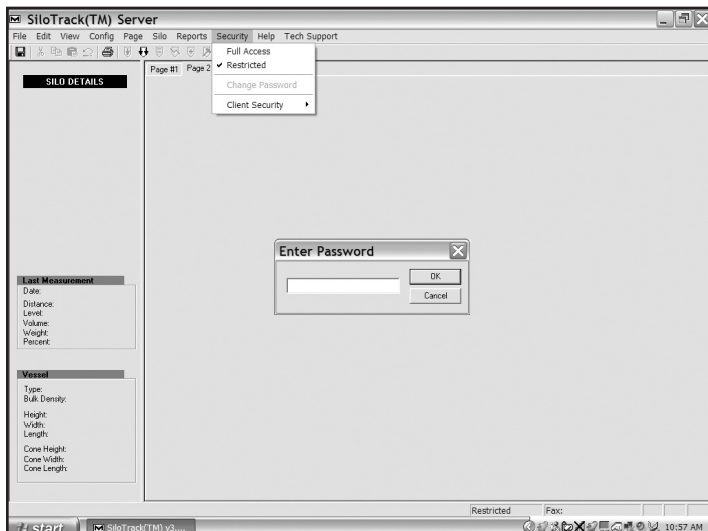


This is where the Wizard ends. Alarms and all auxiliary output options (if so equipped) must be done on the **SiloTrack** Server PC. It would be a good idea to close **SiloTrack** to save all data to disk.

During the installation process, a shortcut Icon for **SiloTrack** Client was created and placed on your Desktop. Click on this Icon to start the **SiloTrack** Client Program and the main screen will appear.

MANUAL SERVER SOFTWARE PROGRAM SETUP

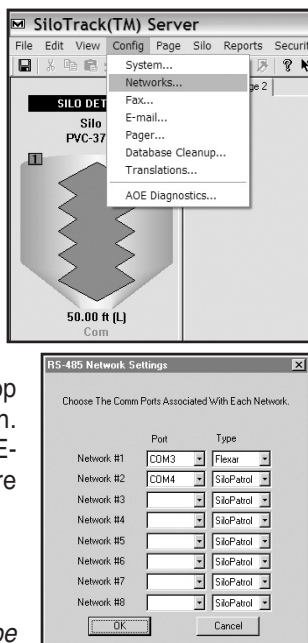
Upon software installation, if you closed the Installation Wizard without entering vessel and material parameters, you will either have to run the Wizard again or you can manually program vessel and material information as follows.



At the top of the screen, left click on Security and then click on Full Access. An Enter Password window will open. Leave the password blank and click OK unless you entered a password in the setup Wizard.

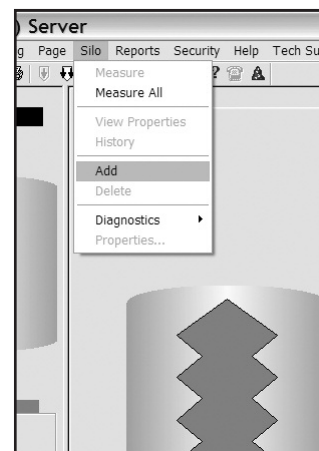
Before configuring any other feature of **SiloTrack™**, on the main screen, click on Config and then on Networks. Left clicking on Networks will cause the window shown below right to open. Enter in the COM port information as described earlier in this document depending upon your operating system. Once you have completed all applicable COM entries for Network assignments, click on OK. Again, left click on Config and the drop down window will again open. Complete system setup, Fax setup, E-mail setup, and Pager setup if you are going to use these features.

Note: Having to declare a sensor type at the COM port assignment screen is new to V3.5X. **SiloPatrol®** and **Flexar®** communication protocols are so vastly different that they can not coexist on the same RS-485 network.

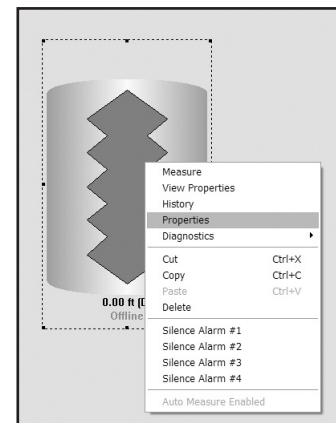


7.1 Creating Silos (Silo – Add Silo)

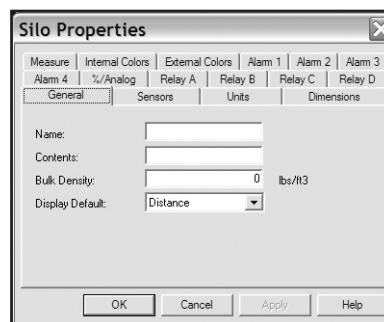
Note: At the default icon size, as shown, you will be able to fit 16 silo icons on a single page if your video resolution is sufficiently high. Instructions on adding screen pages will be described in a later section of this manual. As silos are added, the icons will automatically resize and reposition.



Next, right click on the Silo image that was just created and a drop down menu screen will appear.



Click on Properties and the screen below will appear.



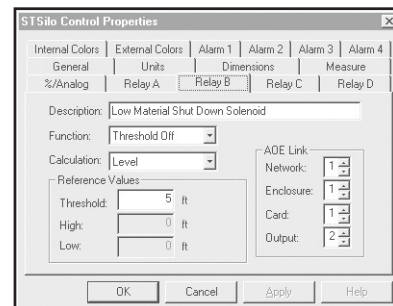
7.2 Properties General Tab (Silo – Properties – General)

Note: Whatever you choose for Display Default is what will be used to determine alarm set points. All other Tabs shown at the left are self-explanatory in terms of what information needs to be entered. If you need additional information, please consult the comprehensive help files by clicking on the Help button.

7.3 Relay Functions

If you do not have the optional Auxiliary Output Enclosures, Section 7.3 does not apply.

Disabled: Selecting Disabled in the function column disables all relay function and prohibits relay contact from closing.



Fail On: Relay contact will close when a failure occurs.

Fail Off: Places the relay in a state of "Normally Energized" which means the relay contact will be closed during normal operation. This relay will then open when a failure occurs.

Threshold On: When material reaches the level set for threshold, the relay will energize and close the relay contacts.

Threshold Off: When the material reaches the level set for threshold, the relay will de-energize and the relay will open.

Window On: When selected, the relay will energize and close the contacts when the material level remains between the high and low threshold values.

Window Off: When the material level is between the high and low reference values, the relay will de-energize and the contacts will open.

Fill Pump: This feature has a high and low reference value. The relay will energize and close the contacts when material falls below the low reference value. The relay will remain energized until the material reaches the high reference value and then it will de-energize. The relay will remain de-energized until the material again reaches the low reference value and begin another pump cycle.

Discharge Pump: This feature has a high and low reference value. The relay will energize and close when material reaches the high reference value. The relay will remain energized until the material reaches the low reference value at which time the relay will de-energize and open the contacts. The relay will then remain de-energized until the material again reaches the high reference value and begin another pump cycle.

Fixed On: Selecting this feature energizes the relay and closes the contacts. The relay will remain on until one of the other functions is selected.

Fixed Off: Selecting this has the same function as disabling the relay. The relay remains de-energized and the contacts are open.

AOE Link: The AOE Link Column is where you would enter the address information for an optional Auxiliary Output Enclosure if you purchased one for your system. Please refer to Bulletin 344A for information on address configuration of the AOE.

Calculation: This selection allows you to determine on what basis you wish the measurements and the unit of measure selection to be used in determining when to open or close a relay contact. The selection here determines the unit of measure requirement for entering the reference values of the actual switch point.

Reference Values: Depending on what you chose in the Function column, enter the appropriate switch point reference values as necessary.

7.4 Enable Remote Access (If Used)

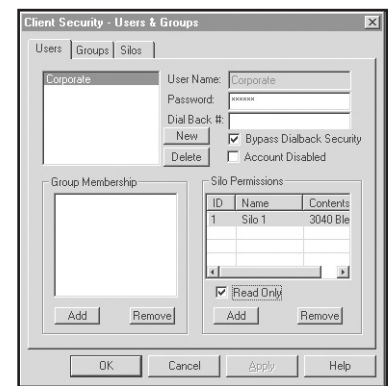
Silo must be selected or highlighted to see if Read Only is selected or not.

If you choose to Enforce TCP/IP Security, Determine the Name or IP Address of the client computer.

When Configuring TCP/IP communication in conjunction with **SiloTrack** programming, it is important to know if your IP address is subject to change.

If **SiloTrack** Server resides on a PC on an Internal Local Area Network (LAN), you should have an IP address for internal communication that remains at a constant value. This "fixed" value is referred to as a **Static IP Address**. If you are connecting through a Wide Area Network (WAN) via the Internet, you most likely have an Internet IP address that changes (although slightly) every time you connect. A changing IP address is called a **Dynamic IP Address**. Most Internet Service Providers have the capability, usually for an additional monthly fee, of providing you with a **Static IP Address**, if desired.

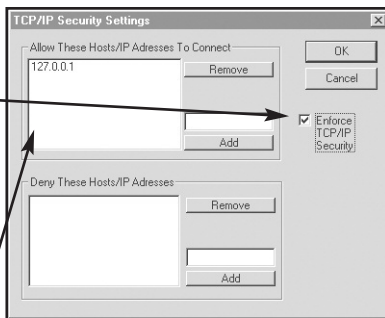
A typical IP address might look something like this: **199.125.55.69**. In the example shown, there are four different number fields separated by decimals that define the address. If you have a Dynamic IP Address, you can contact your service provider to determine the "range" of IP addresses you can expect to see. Using the above address as a reference, your ISP may inform you that the first two fields will always remain constant, but the last two will vary with each new connection. If you enter the IP address in the TCP/IP setup of Client Security of the **SiloTrack** Server software as **199.128**. (omitting the remaining two fields), anyone attempting to connect with an IP address beginning with the first two fields would be allowed access no matter what values are in fields three and four. (Access will only be granted if their User Name and Password match what was entered during setup of the **SiloTrack** Server software.)



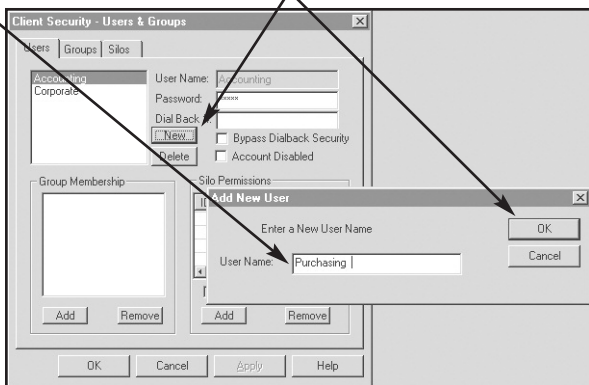
For TCP/IP Access (Ethernet)

Go to Security Client Security TCP/IP Security and enter The IP Addresses of each Client you wish to allow access to **SiloTrack**. If you do not know the IP Address, contact your system administrator. Repeat the procedure for any IP Address or Address Range you wish to specifically Deny access to in the lower box.

If access is granted outside your internal LAN, it is strongly recommended that the **Enforce TCP/IP Security** Box be checked at all times. Selecting this option prohibits TCP/IP access from any IP address other than those included in the Allow list. Type the client computer Name or IP Address in the box above the Add button in the "Allow These Hosts/IP Addresses to Connect" section. Click the Add button to add the client to the allow list. Click OK.

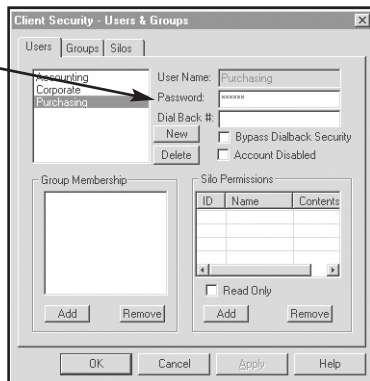


Next, create a Client User Name and Password. Beginning from the Tool Bar, Choose Security, Client Security, Users and Groups. Select the Users tab if necessary. Click the New button. Type a new user name and click OK.



Next, type a User's password in the password field:

Choose one or more silos and click OK. If you are choosing more than one silo, click on the first silo you wish to add to select it. Multiple silos can be selected by pressing and holding the control key while clicking on the additional silos **before** clicking on **OK**. The new user will be granted read-only access to the selected silos.



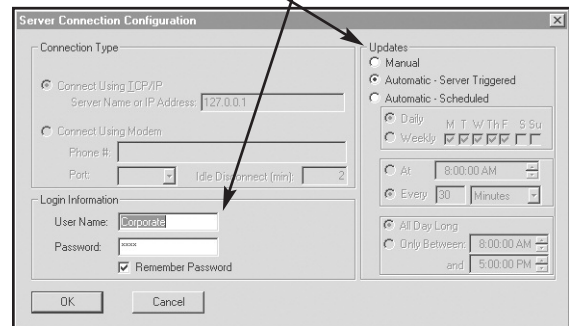
If you want the client to be able to measure the silos, click one or more silos in the list and uncheck the Read-Only box. The status of the "Read Only" box is only visible when the silo in question is highlighted. Click OK. Click the Save button on the toolbar to save all configuration changes. Make sure the phone line and/or network cable is connected to the **SiloTrack** V3.5X Server computer.

7.5 Security

WHEN ALL PROGRAMMING HAS BEEN COMPLETED, CLICK ON SECURITY. CHANGE THE SiloTrack PASSWORD TO PREVENT YOUR PARAMETERS FROM BEING INADVERTENTLY CHANGED OR DELETED. THEN SELECT RESTRICTED ACCESS. Doing so will limit the functionality of **SiloTrack** so that the operator can only take measurements and display measurement data. Be sure to record your password and store it in a safe place. Only trusted key personnel should be allowed full-unrestricted access to your **SiloTrack** programming functions.

MANUAL CLIENT SOFTWARE PROGRAM SETUP

1. Start the **SiloTrack**™ V3.5X Client software
2. Change to Full Security Level (See above).
3. Click the New button on the toolbar, or choose File New.
4. Choose a Connection Type.
5. Type in your Login Information.
6. Choose an Update Type.

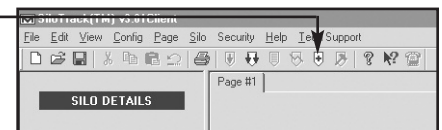


Automatic - Server Triggered: When this option is selected, each time the Server software has a new measurement or other event, the server will automatically update the Client Data screen.

Manual: Requires the user to select UPDATE or UPDATE ALL from the SILO menu in order to receive the latest silo level information.

Automatic - Scheduled: Provides scheduled silo data updates as a function of time and day.

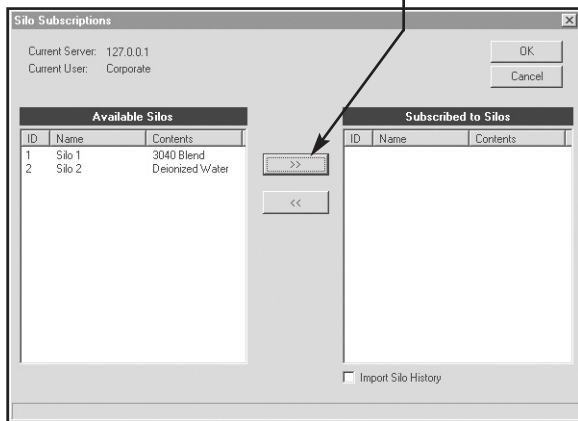
7. Click OK.
8. Click the Silo Subscriptions button on the toolbar, or choose Silo Add.



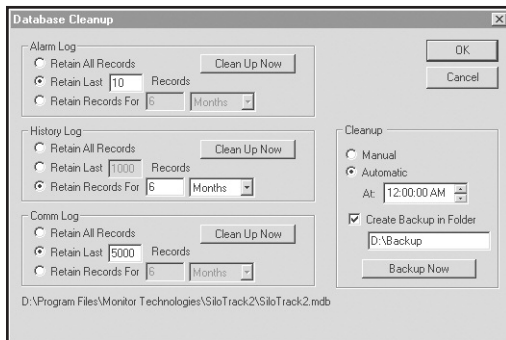
The Silo Subscription Button is the picture of a Silo with a "+" on it.

9. At this point the **SiloTrack** V3.5X Client will attempt to contact the **SiloTrack** V3.5X Server and login. If successful, you will be presented with a Silo Subscriptions box from which you may choose one or more silos to subscribe to. If the connection fails, check the Comm Log on both the Client and Server for information, check the Password, and check spelling of the User Name.

Choose one or more silos from the list of available silos on the left side of the screen. Silos listed here are all of the silos that have been configured in the **SiloTrack V3.5X** Server and that you have been granted access to. Click the >> button to move the silos to the Subscription list on the right side of the screen.



If you would like to import ALL of the historical data available on the Server, click the "Import History" box. **WARNING: This may take a long time depending on how often the silo is configured to measure and how long the silo has been in operation.** If you DO NOT select the "Import History" box, historical information will only be available from this point forward.



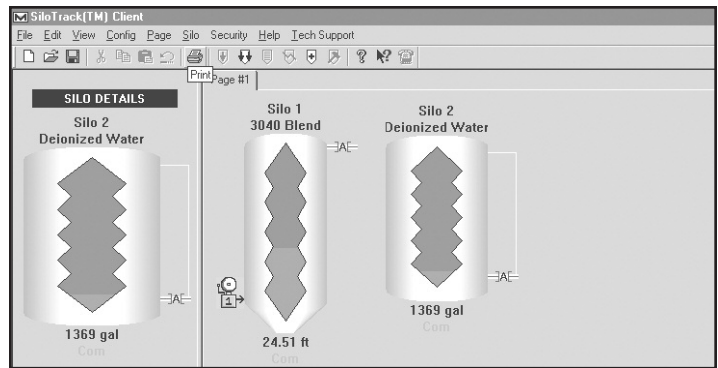
The more frequently you program automatic measurements, the more data you will accumulate and will thus impact the file transfer time when you import silo histories. By minimizing the frequency of measurement and by using the Database Cleanup utility (located under **Config** in the **Menu Bar**) you will be able to keep these files to a size suitable for Client importing said historical data.

Each silo that you have chosen to subscribe to will be placed on the screen and updated from the Server.

Arrange and resize the Silos as desired. In the left example, both silos need to be moved and resized. Relay and alarm indications as well as Silo Name are not completely visible until the silo is appropriately sized (See example).

You may also use the Silo Properties option to change the colors used to display the silo and contents. Most of the Silo Properties are disabled in the Client version and can only be changed by the **SiloTrack V3.5X** Server software.

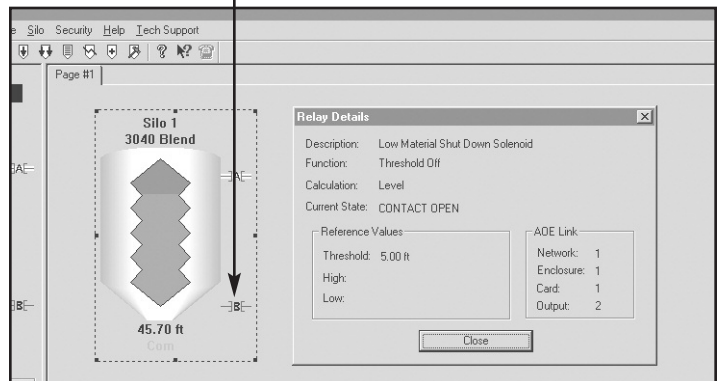
Click the Save button on the toolbar to save this Server Connection Document. You will be prompted for a name and location to save the file.



USING SiloTrack™

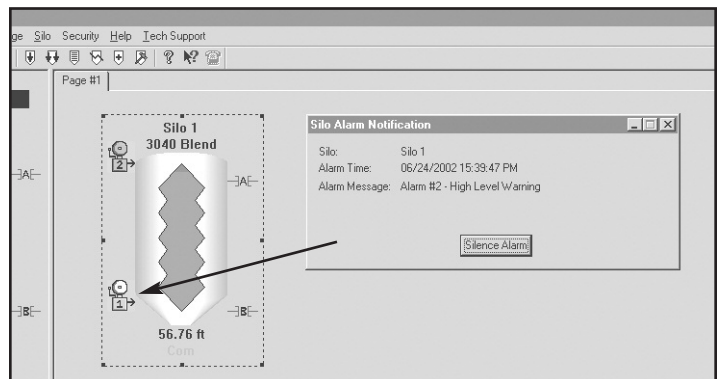
9.1 Relay Contact Indicators

Right clicking on any relay or Alarm symbol will cause an information window to open that will give all pertinent information regarding the selected symbol.



9.2 Alarm Indicators

Note: Once an alarm has been silenced, it will not become audible again until the condition causing the alarm has ceased and then a second instance of the identical alarm condition occurs again. A Red Bell indicates an active alarm. A Green Bell indicates an inactive alarm.



9.3 SiloTrack (SMU) Diagnostics (Server Version Only) (Silo – Diagnostics)

The total number of cycles an SMU performs, both good and bad, is retained in memory of each SMU. We consider a cycle to be bad if an SMU reports an error (Motion, Index or Return) related to movement of the plumb bob. Occasional examination of this information can be useful in scheduling preventative maintenance ser-

vice for each individual SMU. These numbers are accumulative and can not be reset by the user. A high ratio of good to bad cycles indicates smooth functionality. An increase in the amount of Bad Cycles would indicate that the SMU cover should be removed and that a preventative maintenance inspection/service should be performed.

9.4 Adding Pages

If your system has more than 16 silos or you simply want to organize the appearance of your silo icons, you may add **Page Tabs** as desired. Any SMU on any Network may be placed on any page you create. To create a new page, simply right click on the Page Tab located towards the upper left-hand corner of the **SiloTrack** screen. A menu will appear giving you the options of **Add Page**, **Delete Page**, or **Rename Page**. Click on **Add Page** and a new Screen Tab will be created. On this new page, you can add silos and edit their properties just as previously instructed for the first page.

To switch between pages, simply click on the tab of the page you wish to display. Right clicking on the tab for the added screen will again cause a menu to appear that gives you the option of renaming the page to a name of your choosing.

9.5 History

Clicking on **History** will produce a graphical representation of material levels in a particular silo over a user-defined period of time. Each time a silo is measured, the data is recorded for this purpose. This screen can be printed if desired.

9.6 Automatic Reports

Another new feature in **SiloTrack** Version 3.5X is enhanced reporting capabilities including automatically scheduling report generation with the ability to email or fax inventory reports. To configure this feature, from the main **SiloTrack** screen, click on Config and then on E-mail and the following screen will appear.

The **Email Configuration** dialog box is divided into three main sections: **General**, **SMTP Client**, and **Message**.
 - **General**: Includes a radio button for **MAPI Client** and a section for **MAPI Settings** with fields for **Email System User Name** and **Email System Password**.
 - **SMTP Client**: Includes a radio button for **SMTP Client** and a section for **SMTP Settings** with fields for **Server** (containing "Your Server Address.com") and **From Address** (containing "gderudder@monitortech.com").
 - **Message**: Includes a **Reorder Message** section with a text area containing "Dear Vendor, A material reorder alarm has occurred on the following vessel. Please contact our purchasing department or proceed ahead with re-supply in accordance with".
 - **Recipients**: Includes fields for **Email Address #1** (containing "gderudder@monitortech.com") and **Email Address #2**, each with a **Reports...** button.
 At the bottom are **OK** and **Cancel** buttons.

SMTP email routing is also new to rev 3.5X. Using the SMTP protocol eliminates the need for operator intervention to approve an out going email report, alarm, or Vendor material order notice. Contact your IT Professional to obtain your correct SMTP address assigned to your email account. Next, enter up to two e-mail addresses that will receive the scheduled report. Click on Reports to declare which of the available reports you wish to send.

The **Automatic Reports** dialog box has a title bar with a close button. Below the title bar is a label "Choose the reports you would like to receive automatically." and an **OK** button. The main area contains a table with columns: **Enable**, **Report Type**, **Language**, **Report Options...**, and **Schedule...**.
 - Row 1: ☒ Silo History Details, English, Report Options..., Schedule...
 - Row 2: ☒ Silo History Details, English, Report Options..., Schedule...
 - Row 3: ☐ Silo History Details, English, Report Options..., Schedule...
 - Row 4: ☐ Silo History Details, English, Report Options..., Schedule...
 - Row 5: ☐ Silo History Details, English, Report Options..., Schedule...
 - Row 6: ☐ Silo History Details, English, Report Options..., Schedule...

After selecting the type of report, click on the Report Options.

The **Report Options** dialog box has a title bar with a close button. It contains the following fields:
 - **Include data for the last**: 1 Days
 - **For this Silo**: Silo 1 (PVC 79832)
 - **Report Format**: Excel 5 (xls)
 At the bottom right are **OK** and **Cancel** buttons.

Make the appropriate selections and click OK when finished. From the Automatic Reports screen click on Schedule.

The **Report Schedule** dialog box has a title bar with a close button. It contains the following sections:
 - **Frequency**: Radio buttons for **Hourly**, **Daily** (selected), and **Monthly**.
 - **Days**: A row of checkboxes for M, T, W, Th, F, Sa, Su. M, T, W, Th, and F are checked.
 - **At**: A time field set to 7:00:00 AM.
 At the bottom are **Trigger Report**, **OK**, and **Cancel** buttons.

The Report Schedule screen also gives you the option of immediately triggering and sending a report. Make the appropriate selections and click OK.

FLEXAR® CONFIGURATION

The **Flexar Configuration** dialog box has a title bar with a close button. It features a tabbed interface with tabs for **Basic Parameters**, **Display**, **Current Outputs**, **User Data**, **Application**, and **Serial I/O**. The **Basic Parameters** tab is active, showing:
 - **1.6.1 Baud Rate**: 9600
 - **1.6.2 Address**: 2
 At the bottom are **Read Config**, **Write Config**, **Refresh**, and **OK** buttons.

1.6.2, as seen above, is where the node address can be configured by **SiloTrack**. However, if you plan on setting this within **SiloTrack** as opposed to changing it at the sensor head, it must be the only sensor powered on and connected to the RS-485 network. Two **Flexar**® sensors both factory configured as node 1 would interfere with each other on a common RS-485 network and prohibit satisfactory programming results.

Flexar Configuration

Display | Current Outputs | User Data | Application | Serial I/O | **Factory Setup**

1.1.1 Probe Length 48.00 inches
 1.1.2 Offset 1376 uS
 1.1.3 Btm Short Circuit Yes
 1.1.4 Pulse Type Positive
 1.2.1 Mode Direct Mode
 1.2.2 Reference
 Gain 0
 Threshold 1.46 v
 1.3.1 Transmit Type RS485
 2.4 Elec Cal Speed 1708.41 uS/m
 2.5 Mech Cal Speed 993.01 uS/m
 2.6 Gas Epsilon R 1
 3.3 Serial # AIDAAA3AA
 3.4 F. Nbr 8236600000
 3.5 G. Nbr DEMO

Factory Login

Read Config Write Config Refresh Ok

The factory Setup screen is not changeable by the end user and is shown for reference only.

REFERENCE SECTION

10.1 The following screens are shown for reference only. They are not intended as a starting point should one of your personnel erase some programmed value that adversely affects the performance of your sensor.

Explanations for these listed parameters can be found in the **Flexar®** Installation and Operation Bulletin that came with your sensor and was included as a PDF file during the **SiloTrack** installation and loaded on your hard drive.

Flexar Configuration

Basis Parameters | **Display** | Current Outputs | User Data | Application | Serial I/O | F

1.2.1 Display Mode Single Mode
 1.2.2 Display Item Distance

Display Items
 Level ☐ Interface Level
 Distance ☐ Interface Distance
 Volume ☐ Interface Volume
 Ullage Volume ☐ Interface Layer
 Percentage ☐

1.2.3 Cyclic Time 1 sec
 1.2.4 Length Unit inches
 1.2.5 Volume Unit m3
 1.2.6 Error Message No

Read Config Write Config Refresh Ok

Flexar Configuration

Basis Parameters | Display | Current Outputs | User Data | Application | Serial I/O | F

1.3.1 Function I 1 Distance
 1.3.2 Range I 1 4-20mA / Error = 22
 1.3.3 Scale I 1 Min 0.00 inches
 1.3.4 Scale I 1 Max 291.36 inches
 1.3.5 Function I 2 OFF
 1.3.6 Range I 2 4-20mA
 1.3.7 Scale I 2 Min 0.00
 1.3.8 Scale I 2 Max 787.44

Read Config Write Config Refresh Ok

Flexar Configuration

Basis Parameters | Display | Current Outputs | User Data | Application | Serial I/O | F

1.1.1 Tank Height 30.00 feet
 1.1.2 Dead Zone 0.50 feet
 1.1.3 Time Constant 1 sec
 1.1.4 Window Frozen No
 1.1.5 Level Window 4.00 feet
 1.1.6 Interface Level Window 1.64 feet
 1.1.7 Probe Length 28.00 feet

Read Config Write Config Refresh Ok

Flexar Configuration

Basis Parameters | Display | Current Outputs | User Data | Application | Serial I/O | F. < >

1.5.1 Level
Gain: 1
Threshold: 0.00 v

1.5.2 Distance Input: 0.00 feet

1.5.3 Detection Delay: 0.00 feet

1.5.4 Interface Level
Gain: 1
Threshold: 0.00 v

1.5.5 Epsilon R: 2.5

1.5.6 Interface Input: 0.00 feet

1.5.7 Settling: No

1.5.8 CIP: No

1.5.9 Mode: Direct Mode

Read Config Write Config Refresh Ok

Flexar Configuration

Basis Parameters | Display | Current Outputs | User Data | Application | Serial I/O | F. < >

1.4.1 Language: English

1.4.2 Entry Code 1: No

1.4.3 Code 1: UUUUEUEU

1.4.4 Device Nbr:

1.4.5 Serial Nbr: AIOAAAa3AA

1.4.6 F. Nbr: 8236600000

1.4.7 G. Nbr: DEMO

1.4.8 Option: optional

1.4.9 Probe Type: Type B - Twin Cable

Read Config Write Config Refresh Ok

TROUBLESHOOTING

11.1 System Errors

COM Errors: SiloTrack™ is in practically constant communication with every sensor and Auxiliary Device on each Network attached and configured to the system. In the event communication from a sensor is interrupted, the word "Ready" on the Silo Icon of the offending sensor will be replaced with "Com." When communication is restored, the status will return to "Ready."

The more common causes of this type of error are:

- A) No electrical service at the sensor.
- B) Fault on network cabling. Common sources of this problem are unplugged DB-9 connector, damaged cable section, or flooded junction box.
- C) Incorrect channel address setting on sensor.

Index Errors (SMU Only): An Index Error will be reported anytime the distance measurement taken on the downward travel of the plumb bob is less than the distance back to its socketed position.

Motion Errors (SMU Only): If a Motion Error occurs, it will be because the **SiloPatrol** SMU was commanded to take a measurement but no movement of the Plumb Bob was detected. Several conditions can cause this error including a broken cable, a buried plumb bob, or (in northern climates) the plumb bob is frozen to the flange. If the latter occurs (or is anticipated), we recommend the addition of our standpipe heater accessory to each SMU affected.

The more common causes of this type of error are:

- A) Plumb bob cable is not passing through the wiper seal (typically as a result of damaged cable -or- an accumulation of contaminants in the seal compartment).
- B) Plumb bob weight is getting stuck or otherwise not free to descend into silo.
- C) Roller or wheel inside **SiloPatrol®** unit is not turning freely.

Return Errors (SMU Only): A Return error will be reported anytime the distance of downward travel is greater than the distance measured back to the socketed position.

Automatic Error Reset (SMU Only): Because any error can be a simple matter of circumstances, **SiloTrack** will attempt to self clear the error by instructing the offending SMU to take up to three additional consecutive measurements. Three attempts is the default but other quantities may be obtained as directed by the Factory Technical Support Staff. Once a valid measurement (the distances of plumb bob travel in both directions are equal) is taken, the error status will clear and revert to "Ready." This paragraph does NOT apply to Flexar®.

Offline Errors:

The more common causes of this type of error are:

- A) RS-485 to serial convertor is not properly set up or not connected to PC.
- B) Incorrect COM Port associated with **SiloTrack** Network in Network Config.
- C) Incorrect Network selected in Silo Properties set up.

Unspecified WinSock Errors:

The more common causes of this type of error are:

- A) If not enforcing TCP/IP security, ensure that the "Enforce TCP/IP Security" setting at the **SiloTrack** Client Security set up page is unchecked.
- B) Firewall settings are not allowing **SiloTrack** Server and Client to communicate.
- C) **SiloTrack** Client is not able to identify **SiloTrack** Server PC by Computer Name. Change to IP address option. (This is a common error in Windows® 7, 8 or 10 systems.)

11.2 Help Functions

Clicking on Help Topics will give onscreen access to brief definitions and descriptions of all the topics that have been previously discussed and additional topics that were not mentioned but are somewhat self-explanatory. Additionally, you will find direct access to all Installation & Operation manuals in PDF format that will enable you to view or print any necessary information not contained in this document. Links are also provided so you can have direct contact to Monitor Technologies Technical Support Staff who can guide you through any difficulty you may encounter. This level of support is available Monday through Friday from 8:00 AM until 5:00 PM except Holidays and periods of Internet inaccessibility by our server. A visit to the Monitor Technologies' website is also possible by selecting Website from the menu. There you will find literature for our full line of products. Additionally, you will find other useful information such as industry links, product news, and other valuable information. Clicking on About **SiloTrack** will display the exact version of **SiloTrack** software installed on your system.

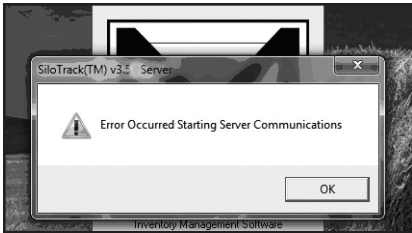
OPERATING **SiloTrack™** ON Windows® 7, 8 or 10 ENVIRONMENTS

12.1 Windows® 7, 8 and 10 Environments

While **SiloTrack™** was designed prior to the development of Windows® 7, **SiloTrack** can operate on a PC which is running Windows® OS versions 7, 8 or 10. However, there are two issues that an installer will need to be aware of.

Note 1: In the event that the **SiloTrack™** Server program is being installed on a Windows® 7, 8 or 10 system, the **SiloTrack** Setup Wizard may not properly function and some user input data may not be retained. (If this is experienced see page 13 for manual setup directions.)

Note 2: The **SiloTrack** installation may display the below error “Error Occurred Starting Server Communications”:



This error indicates the **SiloTrack** Server is not able to open a port to listen for clients such as the **SiloTrack** Client application. It is suspected that Windows® is not supplying the correct default address to the socket API when attempting to bind to the port. There is a registry entry in **SiloTrack** which will force it to bind to a static address.

If the **SiloTrack** Server program is to be operated alone and there are no **SiloTrack** Client installations are planned, this error can be considered a nuisance error and can be ignored by clicking on the OK button. Operation of the single stand alone **SiloTrack** Server program will not suffer.

If there are plans to add the Client version of **SiloTrack** to your network an IP address must be bound to a port in the PC registry. To do so one must first determine the IP address of the PC or one must assign a static IP address. Secondly, the computer registry will have to be modified.

To Assign or Determine the IP address for the PC, click on: Start > Control Panel > Network and Internet (in category view) > Networking and Sharing Center > Change Adapter Settings. This will open a view of the network(s) available to the computer. Right click on the network connection.

-Properties: select Internet Protocol Version 4

-Properties:

Record IP address or Enter you choice of an IP address.
Check with your IT manager, if applicable, for assigned IP address or simply make one up such as IP: 192.168.1.1
Subnet Mask: 255.255.255.0

-Close all windows

To modify the PC Registry:

-Press the Windows® button and “R” key simultaneously to open RUN window

-Type in **regedit** then click OK

Click on: Computer > HKEY_LOCAL_MACHINE > Software > Wow6432Node > Monitor Technologies > **SiloTrack** v3.55 Server > General.

When you click on General a list should open up on the screen adjacent to the registry directory tree. Double click on the **BindIP** entry *. Enter the IP address previously recorded or established (i.e. 192.168.1.1), not required to add subnet mask.

-OK

-Close window

-Restart PC

* If the General list does not contain the **BindIP** entry:

Right click anywhere on blank space to the right of the registry directory tree. Click on New and select String Value. Type **BindIP** in the box. Double click on the **BindIP** box and enter the IP Address.

-OK

-Close window

-Restart PC

WARRANTY

Monitor Technologies LLC warrants the licensed software media to be free from defects in workmanship and materials. For a period of ninety (90) days from the date of installation Monitor Technologies LLC will replace the software media without charge if determined to be defective. The Purchaser must give notice of any defect to Monitor Technologies LLC within the warranty period, return the software product intact and prepay transportation charges. The obligation of Monitor Technologies LLC under this warranty is limited to the replacement of the software media. This warranty shall not apply to any product that is repaired or altered outside of Monitor Technologies LLC factory, or which has been subject to misuse, negligence, accident or incorrect installation. Monitor Technologies LLC reserves the right to change the design and/or specifications without prior notice.

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