



Model#: ST501

CO2/Temp/RH Indoor Air Quality Meter

Users Manual

Table of Content

1. FEATURES & SPECIFICATIONS.....	Page 3
2. CONTENT.....	Page 7
3. START UP	Page 8
4. LCD DISPLAY & SETUP	
4.1. Main Screen (6).....	Page 9
4.2. Parameter Setup Screen (7).....	Page 12
5. PC SOFTWARE/DRIVER INSTALLATION	
5.1. PC SOFTWARE INSTALLATION.....	Page 19
5.2. PC DRIVER INSTALLATION.....	Page 22
5.3. PARAMETER SETUP USING PC SOFTWARE.....	Page 39
5.4. DOWNLOAD RECORDS.....	Page 40
5.5. GRAPHIC & CHART ANALYSIS.....	Page 41
6. WARRANTY.....	Page 45

1. SPECIFICATIONS

Features

- 3 Independent CO2, humidity and temperature sensors
- User operated CO2 calibration
- Datalogging- up to 50,000 records
- Fast USB download (50,000 records in less than 10 seconds)
- Internal back-up battery to maintain Date/Time data
- Power management IC to increase battery efficiency
- Easy- to-Use PC software for parameter settings and data analysis
- Building-In audio CO2 buzzer/alarm

Specifications

- CO2 sensor - GE Dual Beam Absorption Infrared™
- Temperature/Humidity sensors
- Measurement range - 0 to 5,000 ppm display
- Display Resolution - ± 1 ppm
- Accuracy - ± 75 ppm or 10% of reading (whichever is greater)

Applications

- Building HVAC monitoring
- Indoor air quality survey
- Locate the presence of combustion fumes from vehicles and appliances

Sirius Technologies, Inc.

General

Operation Condition	32-122F(0-50C)
	0-95%, RH, non-condensing
Storage Temperature	-4 to 140F(-20 to 60C)

Sensors

CO2 Sensor

Type	Non-dispersive infra-red (NDIR)
Measurement Range	0 to 5,000 ppm display
Accuracy	±75 ppm or 10% of reading (whichever is greater)
Resolution	±1 ppm
Response Time	2 seconds

Relative Humidity Sensor

Type	CMOSens
Measurement Range	10%-90%
Accuracy	2.5%
Resolution	0.1%
Response Time	8 Seconds

Temperature Sensor

Type	Thermistor
Measurement Range	-80 to 75C
Accuracy	±0.2C from 0-70C
Resolution	0.1C
Response Time	1 seconds

Power Supply

Battery	Four AA batteries
Battery Operation	24 hours
External Power Supply	6V VDC with 0.5A

ST501- CO2/Temp/RH Indoor Air Quality Meter

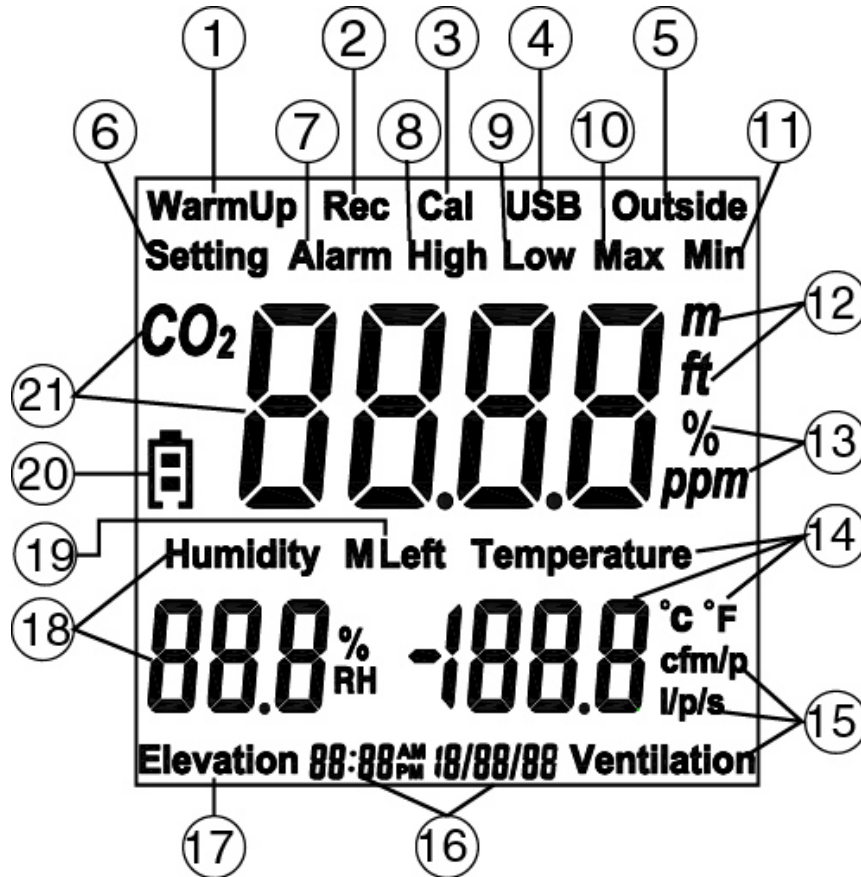
Model #	CO2/Temperature/Rh
ST501U	No data recording
ST501DU	With data recording



Buttons

1.		Mode	4.		Down Arrow
2.		Enter	5.		Up Arrow
3.		Power	6.		Record

LCD Display



1.	Warm Up	12.	Meter/Foot
2.	Recording	13.	% PPM
3.	Cal-Calibration	14.	Temperature Reading
4.	USB	15.	Flow Rate
5.	Outside- CO2	16.	Time & Date
6.	Setting	17.	Elevation
7.	Alarm	18.	Humidity
8.	High	19.	Memory Left
9.	Low	20.	Battery
10.	Maximum	21.	CO2 Reading
11.	Minimum		

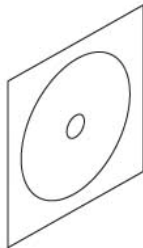
2. CONTENT



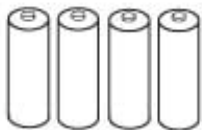
1.Main Unit



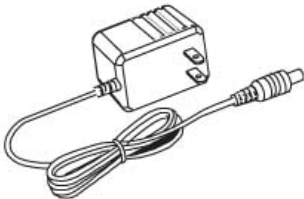
2. USB Cable



3. Installation Disk




4. 4X1.5V AA Alkaline
Battery



5. 6V DC Adaptor

3. START UP

1. Press the  Power button for 2 seconds to turn on ST501.
2. Wait 20 seconds until the “Warm-up” turns off.
3. The unit is ready to use.

4. LCD DISPLAY & SETUP

4.1. Main Screens (6 screens)





1.	2.	3.
Main Screen	% of Memory Left	Maximum Reading: <ul style="list-style-type: none"> • CO2 • Humidity • Temperature




4.	5.	6.
Minimum Reading of: <ul style="list-style-type: none"> • CO2 • Humidity • Temperature 	CFM/P ventilation (Cubic Foot Per Minute Per Person)	l/p/s Ventilation (Liter Per Second)

- Press to rotate the screen in the clockwise direction.
- Press to rotate the screen in the counter-clockwise direction.

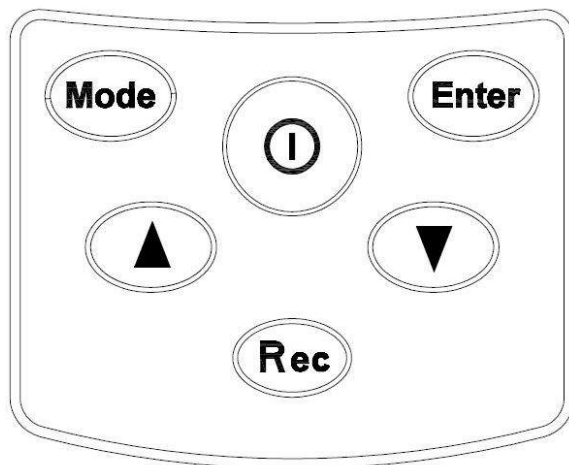
Sirius Technologies, Inc.

4.2. Parameter Setup Screen (7)

4.2.1	4.2.2.	4.2.3.	4.2.4.
			
Elevation Setting	Clock Setting	Alarm Buzzer Setting	High CO2 Alarm Setting

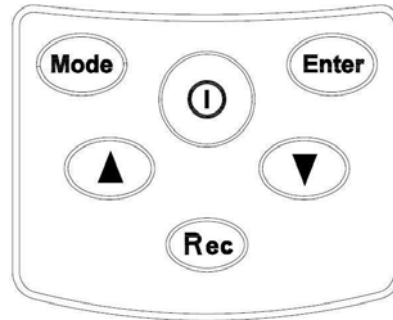
4.2.5.	4.2.6.	4.2.7.
		
Low CO2 Alarm Setting	Outside CO2 Calibration	CO2 Calibration







Keypad Operation



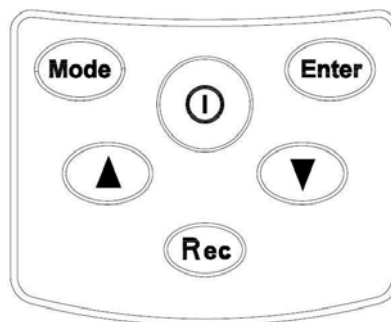
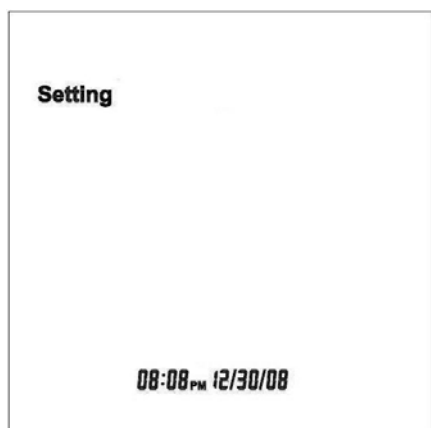
- Press **Mode** and **Enter** together to enter the setup menu.
- Press **▲** and **▼** to rotate between menus.
- Press **Enter** to start changing the value(digits start to blink).
- Press **Mode** to rotate between digits.
- Press **▲** and **▼** to change the values.
- Press **Enter** save the new setting.
- Press **Mode** and **Enter** to return to the main menu.




4.2.1. Elevation Setting



















- Press  and  to enter the setting menu.
- Press  to enter the setting mode. (Digits start to blink).
- Press  to increase elevation setting in the interval of 500.
- Press  to decrease elevation setting in the interval of 500.
- Press  again to save the settings and exit.

4.2.2. Clock Setting

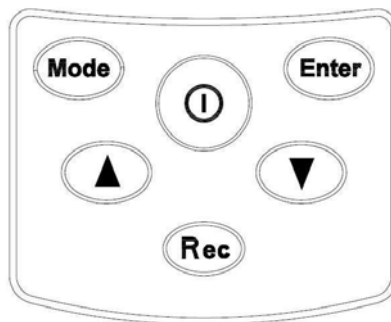









- Press  and  to enter the setting menu.
- Press  1 x time to reach the Clock-Setting screen.

Unit	Select Digit	Enter Value (0-9)
Hour		Use  and  (0AM -11PM)
Minute		Use  and  (0-59)
Month		Use  and  (1-12)
Date		Use  and  (1 to 28/29/30/31)
Year		Use  and  (2001-2037)

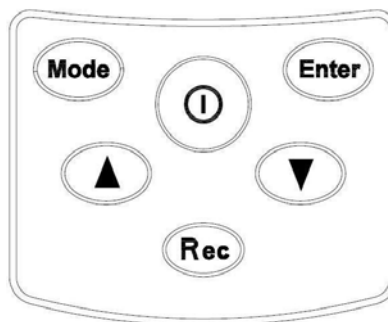
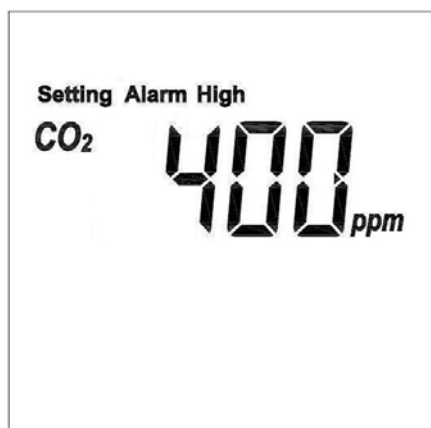
Press  to save and exit the Time Setting menu.

4.2.3. AUDIBLE ALARM SETTING




- Press  and  to enter the setting menu.
- Press  2 times.
- Press  to enter the Audible Alarm Setting Page. Current audible alarm status(on or off) will start to blink.
- Use  and  keys to switch between On/Off.
- Press  to save and exit.













4.2.4. CO2 HIGH ALARM SETTING




Press  and  to enter the setting menu.

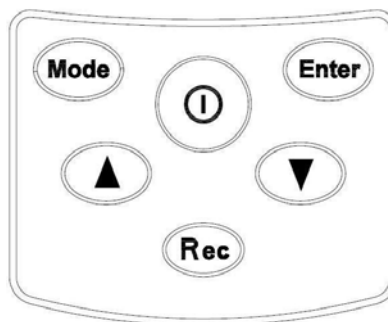
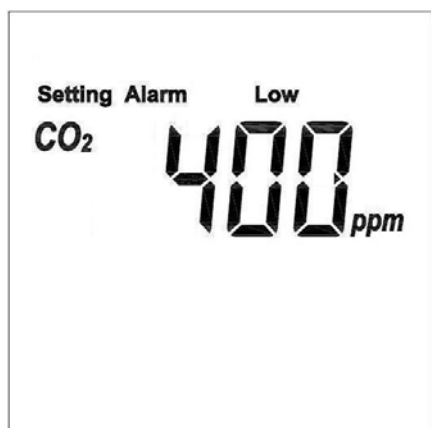
Press  3 times

Press  to enter the High Alarm Setting Menu (First digit starts to blink)

Unit	Select Digit	Enter Value
1 st Digit		Use  and  Select (0-9)
2 nd Digit		Use  and  Select (0-9)
3 rd Digit		Use  and  Select (0-9)
4 th Digit		Use  and  Select (0-9)

Press  to save and exit the High Alarm Setting menu.

4.2.5. CO2 Low Alarm Setting

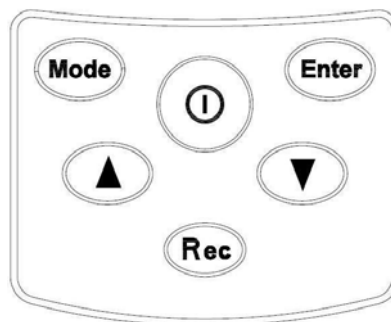
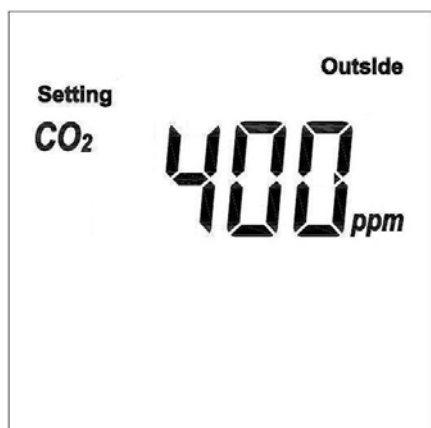


- Press **Mode** + **Enter** to enter the setting menu.
- Press **▼** 4 times
- Press **Enter** to enter the Low Alarm Setting Menu (First digit starts to blink)


Unit	Select Digit	Enter Value
1 st Digit	Mode	Use ▲ and ▼ Select (0-9)
2 nd Digit	Mode	Use ▲ and ▼ Select (0-9)
3 rd Digit	Mode	Use ▲ and ▼ Select (0-9)
4 th Digit	Mode	Use ▲ and ▼ Select (0-9)

Press **Enter** to save and exit the Low Alarm Setting menu.


4.2.6.Outside CO2 (default setting at 400ppm)
















1. Enter Outside CO2 Manually

Press  +  to enter the setting menu.


Press  5 times

Press  to enter the Outside CO2 setting Menu (First digit starts to blink)

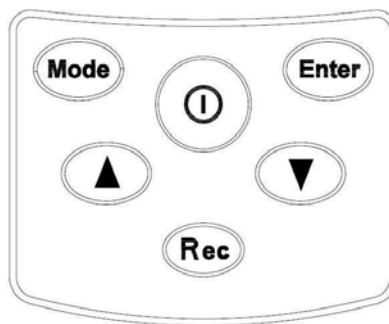
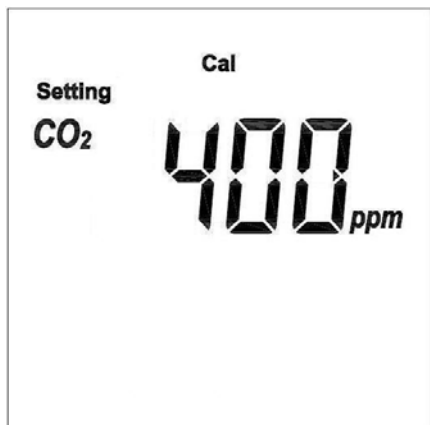
Unit	Select Digit	Enter Value
1 st Digit		Use  and  Select (0-9)
2 nd Digit		Use  and  Select (0-9)
3 rd Digit		Use  and  Select (0-9)
4 th Digit		Use  and  Select (0-9)




Press  to save and exit the Low Alarm Setting menu.

2. Auto Setting

Press and hold  to 2 seconds. The current CO2 reading will be stored in the memory.

4.2.7. CO2 Calibration



- Press  to enter the setting mode.
- Press  to start calibration.
- PPM reading will flash while calibrating.
- Press  to stop the calibration (LCD will display "Err")
- When the calibration is completed, the LCD screen will display "SUCC"

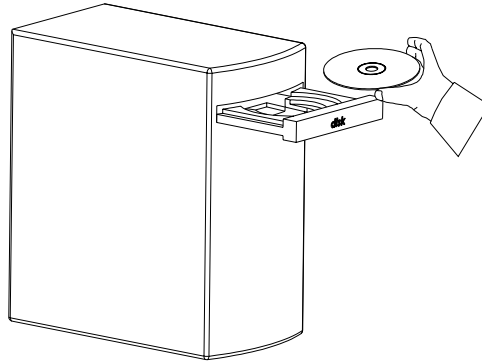
5.1. PC SOFTWARE INSTALLATION

Installation Requirements:

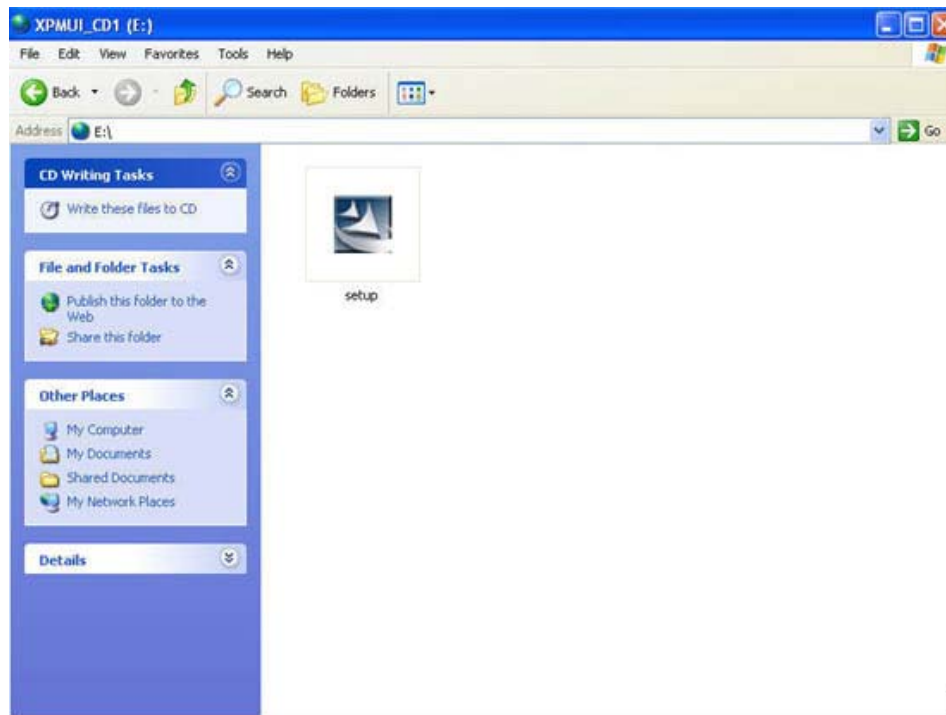
- Minimum system requirements for the software
 - Pentium III - 500 MHz processor or equivalent with 128 megabytes of RAM.
- Optimal Performance:
 - Pentium 4 - 2.8 gigahertz processor or equivalent with 256 Megs or ram
- Operating System Requirements:
 - Windows 2000
 - Windows XP

Sirius Technologies, Inc.

1. Insert the CD into the disk drive.

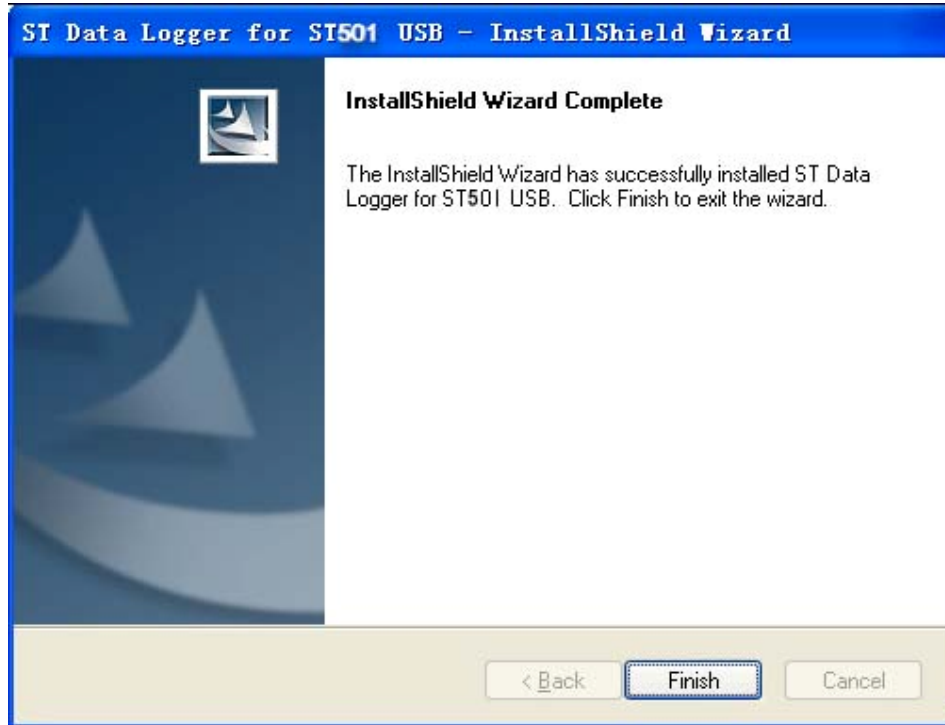


2. Click **Setup** to start installation




Sirius Technologies, Inc.

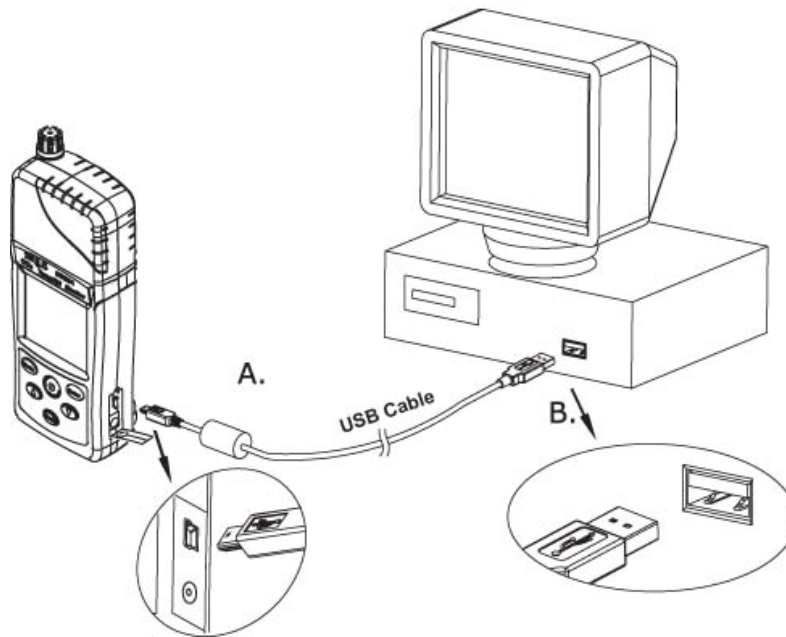
3. Follow the steps on the Installation Shield Wizard and click Finish to complete the installation.



5.2. PC DRIVER INSTALLATION

1. Initial Connection

- Turn on PC.
- Press  to turn on the ST501.
- Connect ST501 and PC together with a USB cable.



2. ST501DU Detected

Windows XP will detect the ST501DU

The driver has not been installed yet.

ST501 hardware driver needs to be manually installed into the PC.



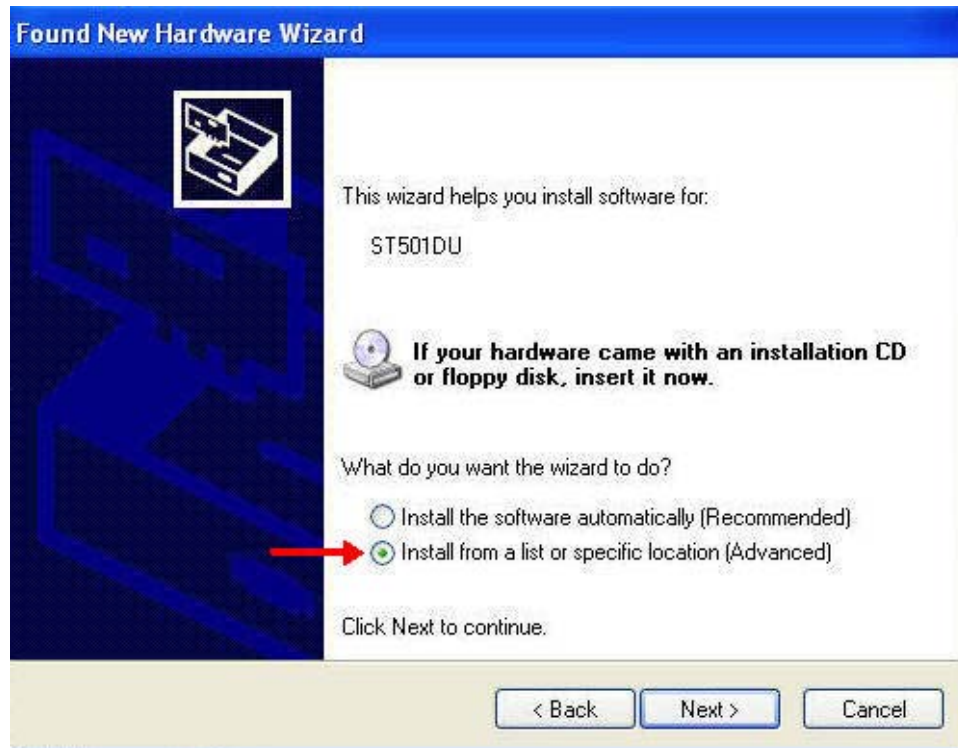
3. Found New Hardware Wizard

- Select “No, not this time”.
- Click “Next”



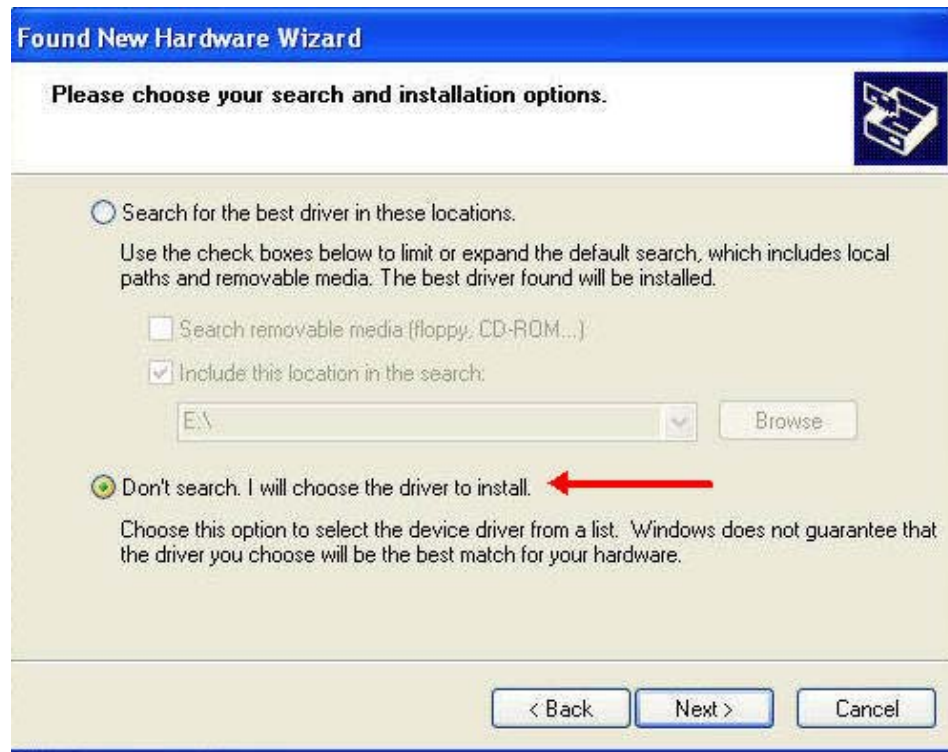
3. Found New Hardware Wizard

- Click “Install from a list of specific location (Advanced).”
- Click “Next”



4. Found New Hardware Wizard

- Select “Don’t search, I will choose the driver to install.”
- Click “Next”



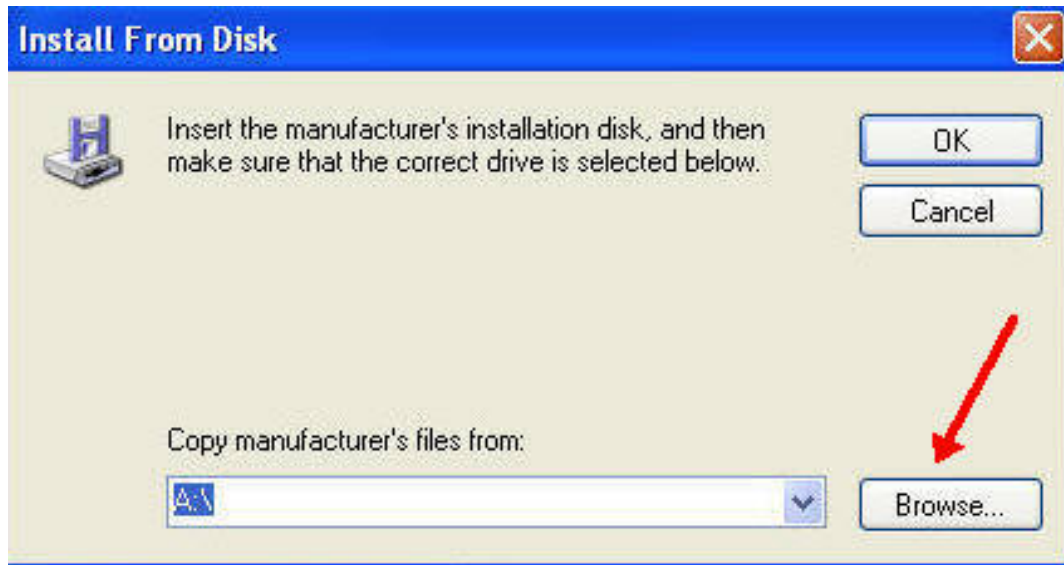
5. Select Driver

- Select "Have Disk"
- Click "Next"

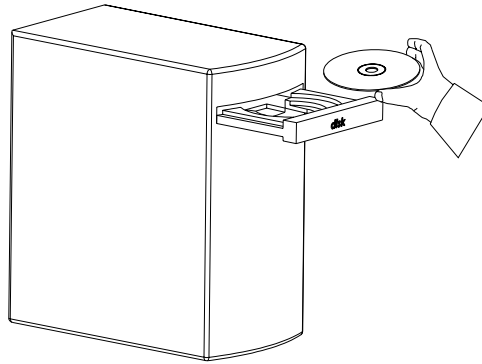


6. Install From Disk

Click Browse to locate the driver file.



7. Insert the included CD into the CD drive.

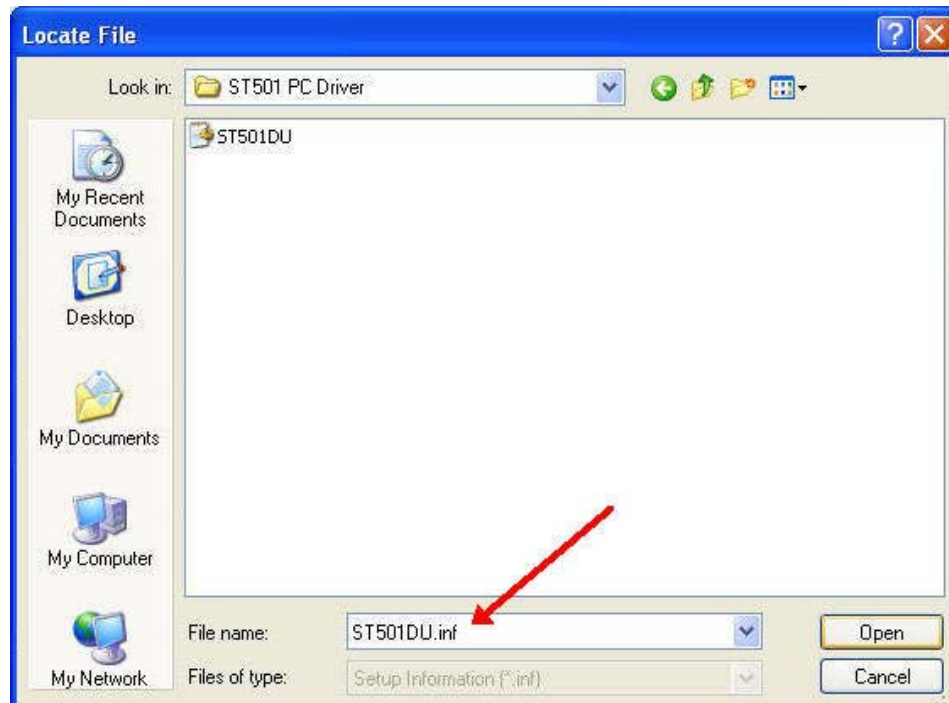


Open “ST501 PC Driver” Folder



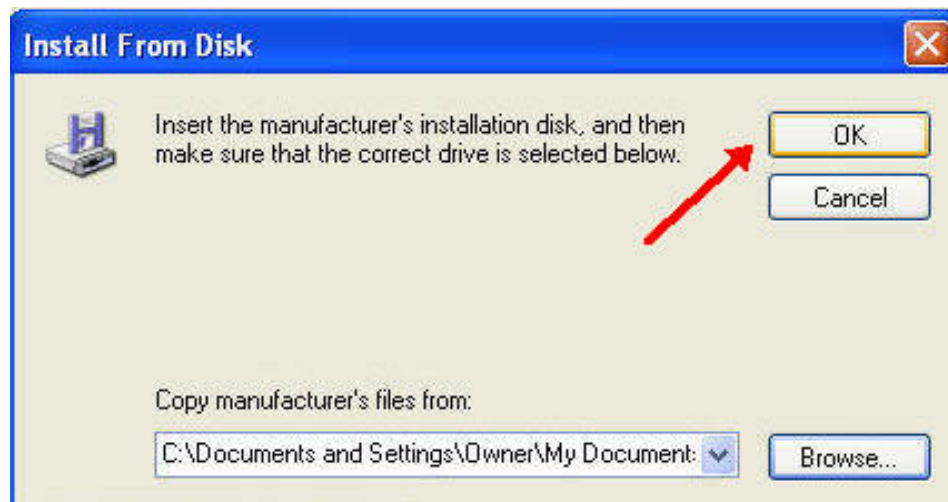
8. Locate ST501DU Driver File

- Locate the driver file- "ST501DU.inf"
- Click Open



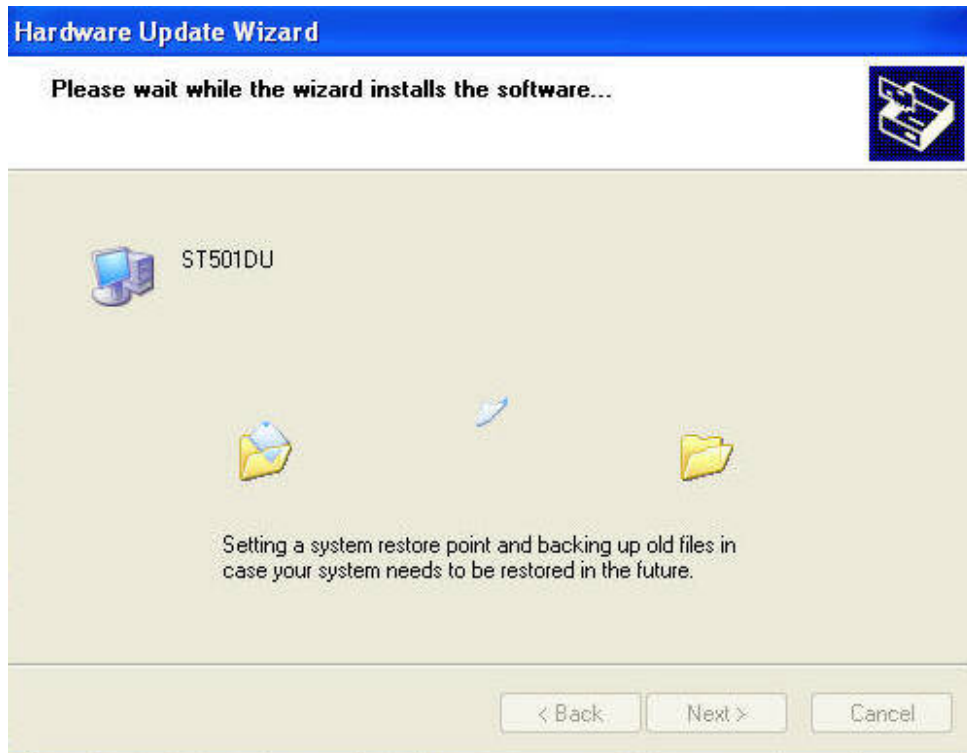
9. Install From Disk

- The driver file, "ST501DU.inf" is selected.
- Click OK

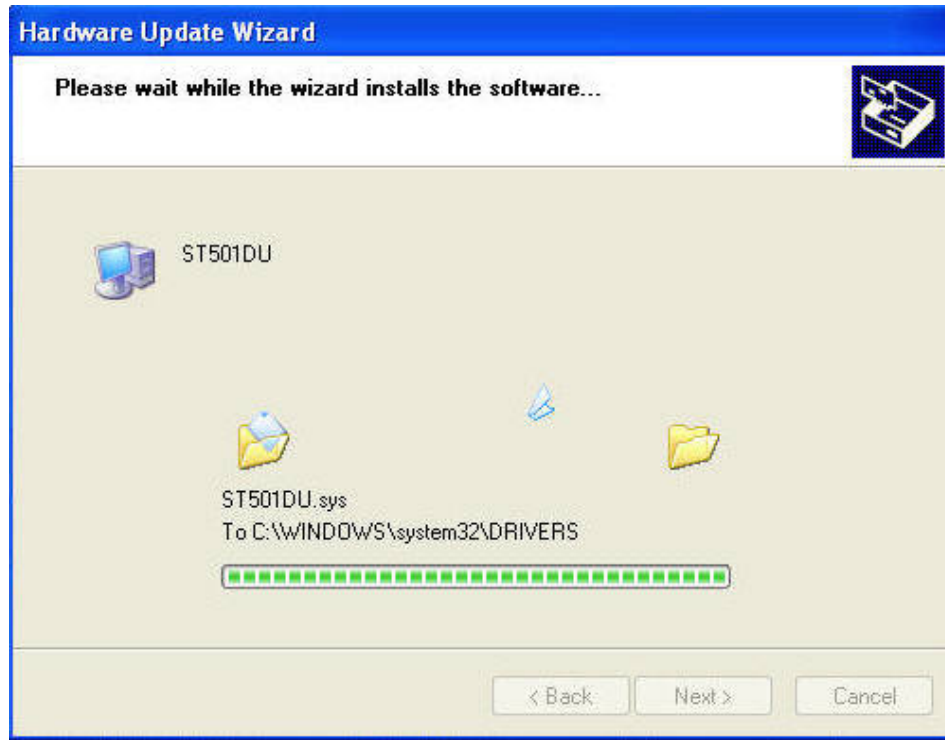


10. Hardware Update Wizard

Window XP is updating the ST501DU driver.



11. Window XP is updating the ST501DU driver

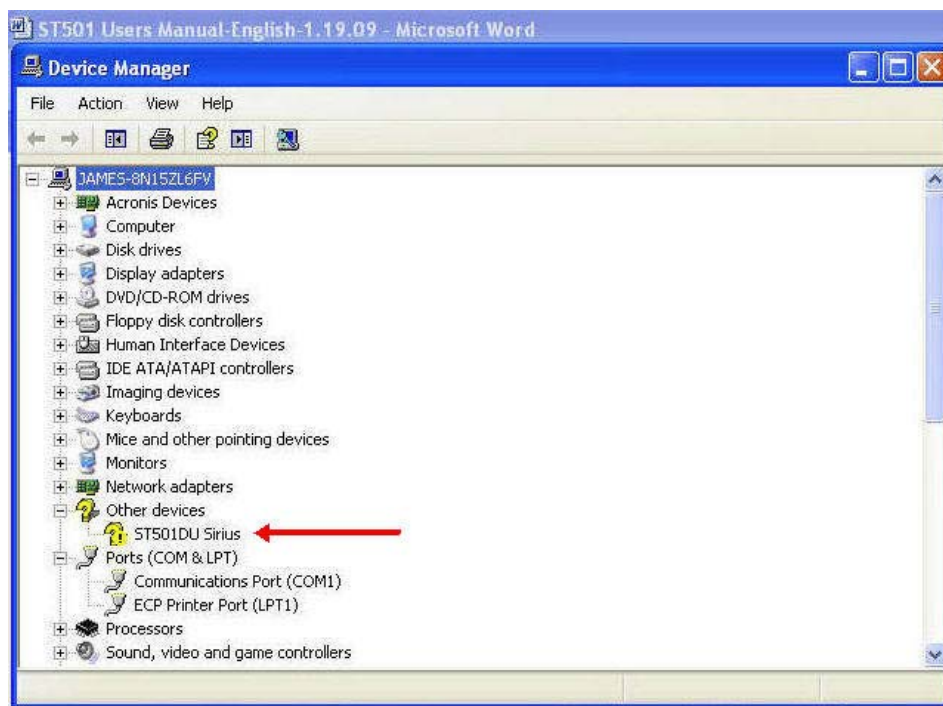


12. Driver Installation Completed

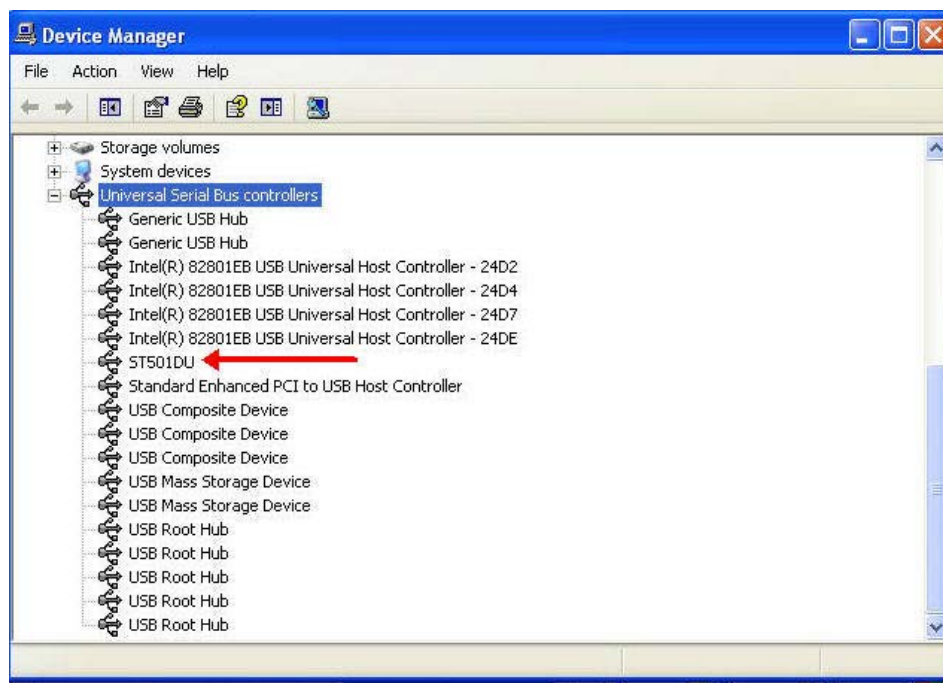
- Update completed.
- Click “Finish” to complete the driver installation.



13. Driver Verification

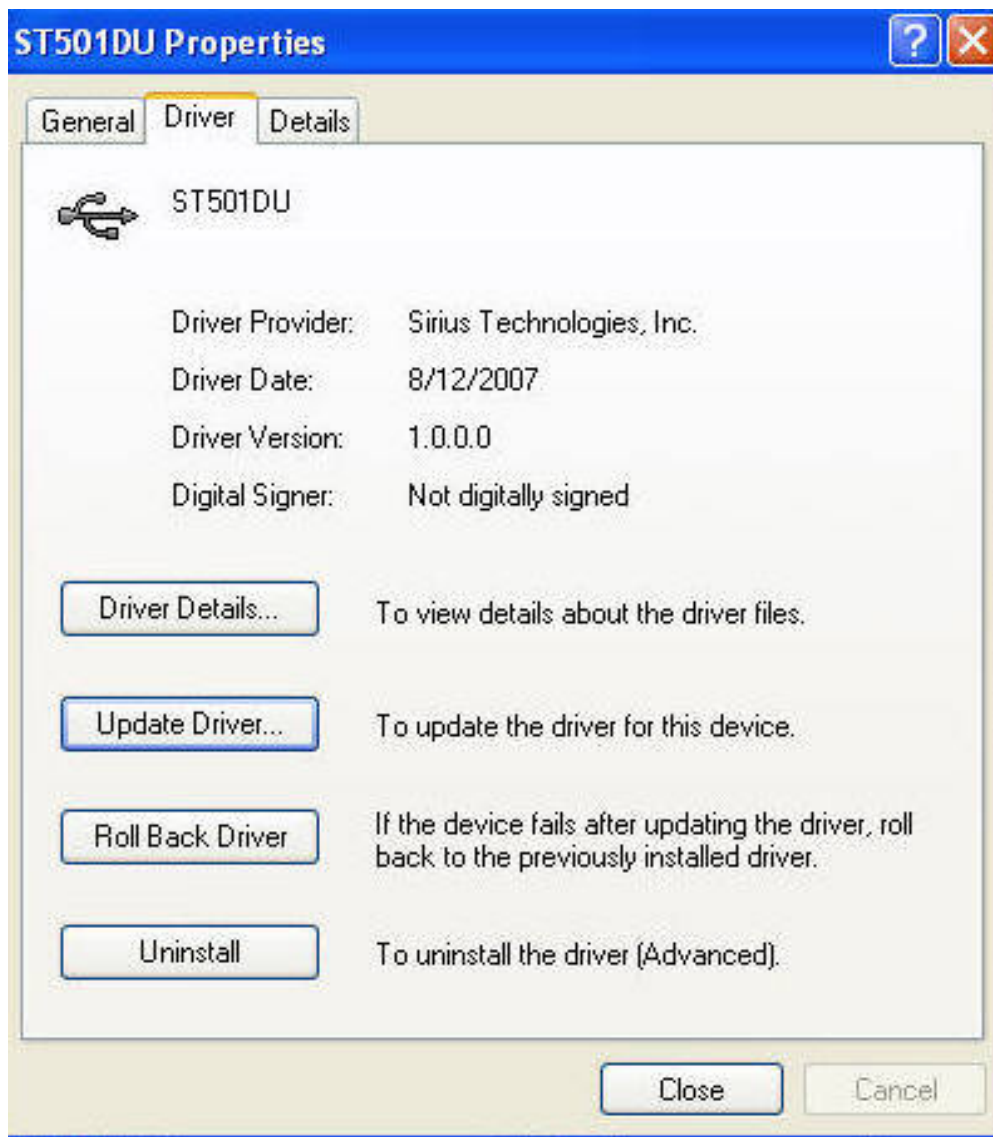


Before Driver Installation



After Driver Installation

14. Installed Driver Detail



5.3. PARAMETER SETUP USING PC SOFTWARE

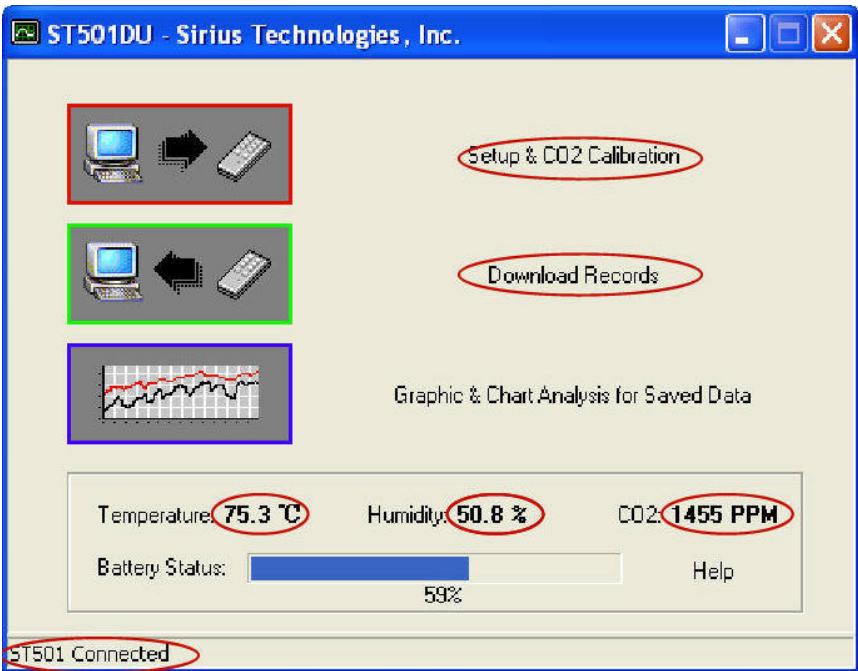
- Start Window XP software.
- Click on **All programs**, Click on **ST501**.
- Click on **ST Logger** to start the PC program.



Connection Status



No Connection Screen



Connected Screen

Setup Screen

The screenshot shows the 'Data Logger Setup' window with a blue title bar and a close button. It has two tabs: 'Setting' (selected) and 'CO2 Calibration'. The 'GENERAL' section includes fields for Product# (ST501DU - USB), Current Date&Time (11/17/2007 10:59:57), Start Date&Time (07/25/2007 23:28:21), End Date&Time (07/26/2007 05:01:41), Unit Description (ST501DU), and Interval (5sec). There are checkboxes for Time synchronization, Temperature Unit (F/C), and Ventilation Unit (LPS/CFM/P). The 'ALARM LIMIT' section has input fields for High CO2 Limit (100 PPM), Low CO2 Limit (20 PPM), High Rh Limit (90 %RH), Low Rh Limit (20 %RH), High Temp Limit (70 C), and Low Temp Limit (20 C). The 'CALIBRATION' section has fields for Elevation (0 m), Temperature Offset (0.0 C), and Outside CO2 (400 PPM), along with an Elevation Unit (Feet(ft)/Meter(m)). At the bottom are buttons for Help, Save Settings, and Close.

The values in the white area **can** be changed by the user.

High CO2 Limit PPM

The value in the inverted area **can not** be changed by the user.

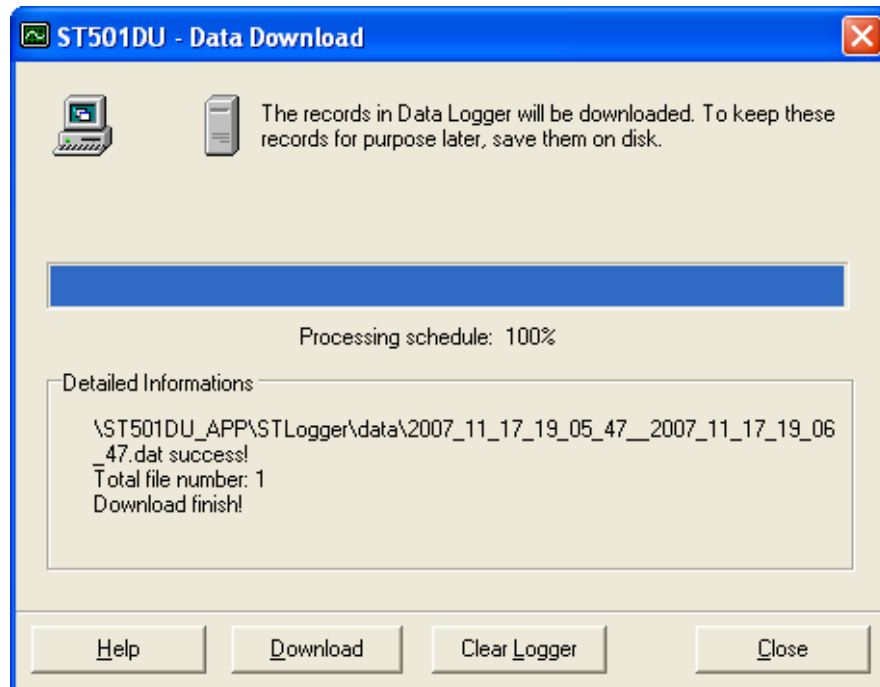
Product# ST501DU - USB

Click **Save Settings** to save the values to ST501.

5.4. DOWNLOAD RECORDS

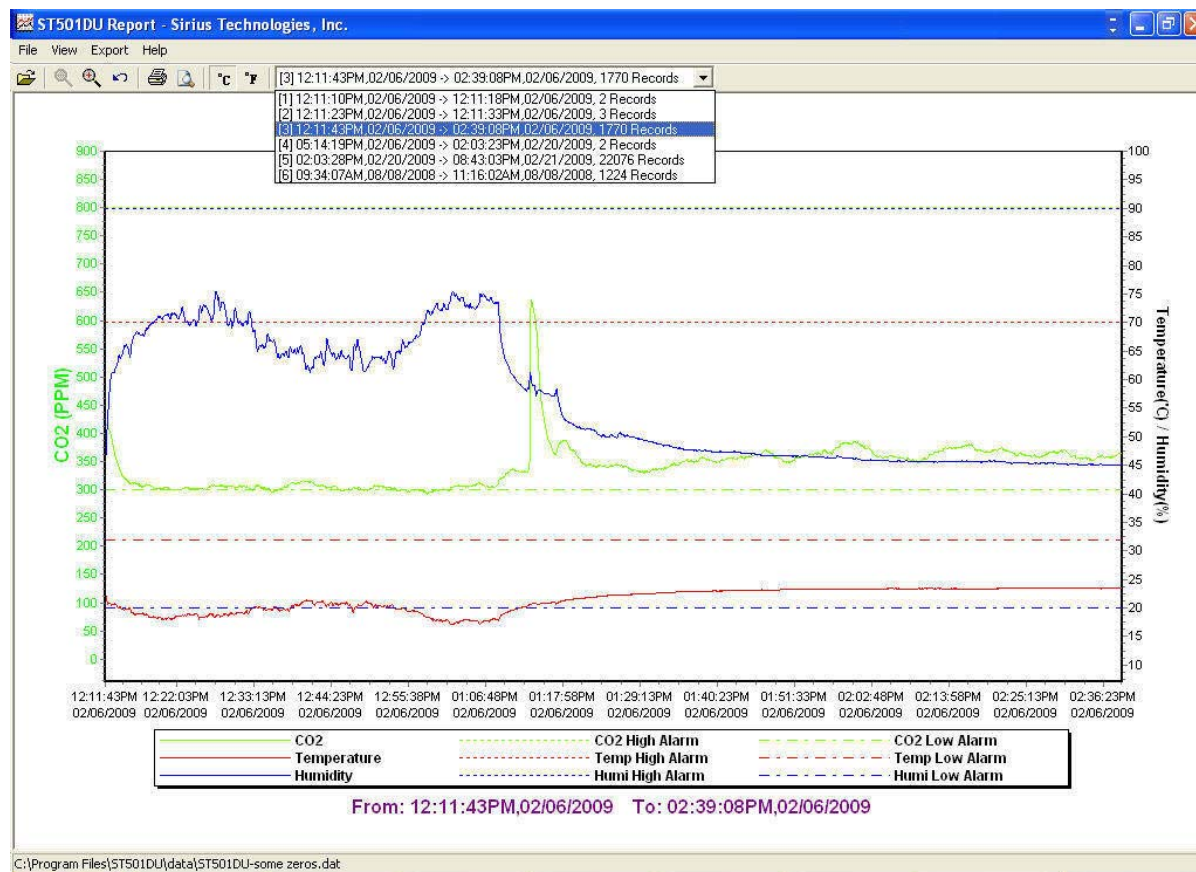
Click Download key to download the stored data.

Download completed screen



5.5. GRAPHIC & CHART ANALYSIS

Downloaded data will first be displayed in graphic format.



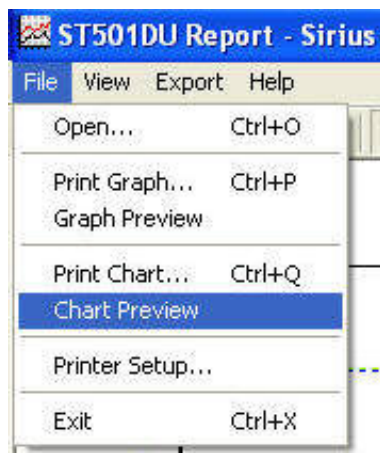
Each data groups are listed according to the date of acquisition. Lowest group number represents earliest acquisition date.



Data in Text Format

To display data in Listing format:

1. Click File
2. Click Chart Preview



Sirius Technologies, Inc.

Text Listing Format

Product Name: ST501DU
Description: STLogger Record Data
Start Date&Time: 12:11:43PM,02/06/2009
End Date&Time: 02:39:08PM,02/06/2009
Interval: 5 seconds
Record Count: 1770
CO2 Alarm High: 800 PPM
CO2 Alarm Low: 300 PPM
Temp Alarm High: 70.0 °C
Temp Alarm Low: 32.0 °C
Humi Alarm High: 90 %
Humi Alarm Low: 20 %

No.	Date	Time	Temp(°C)	Alarm	Humi(%)	Alarm	CO2(PPM)	Alarm
1	12:11:43PM	02/06/2009	22.7	Low	45.6		412	
2	12:11:48PM	02/06/2009	22.5	Low	45.9		415	
3	12:11:53PM	02/06/2009	22.1	Low	47.6		416	
4	12:11:58PM	02/06/2009	21.5	Low	50.0		417	
5	12:12:03PM	02/06/2009	20.8	Low	52.5		411	
6	12:12:08PM	02/06/2009	20.6	Low	54.3		410	
7	12:12:13PM	02/06/2009	20.8	Low	55.4		409	
8	12:12:18PM	02/06/2009	20.8	Low	57.3		406	
9	12:12:23PM	02/06/2009	20.7	Low	58.4		404	
10	12:12:28PM	02/06/2009	20.9	Low	59.8		401	
11	12:12:33PM	02/06/2009	20.6	Low	60.4		396	
12	12:12:38PM	02/06/2009	20.5	Low	60.9		393	
13	12:12:43PM	02/06/2009	20.6	Low	61.2		388	
14	12:12:48PM	02/06/2009	20.6	Low	61.2		384	
15	12:12:53PM	02/06/2009	20.6	Low	61.2		378	
16	12:12:58PM	02/06/2009	20.7	Low	61.2		372	
17	12:13:03PM	02/06/2009	20.8	Low	61.3		367	
18	12:13:08PM	02/06/2009	20.5	Low	61.7		363	
19	12:13:13PM	02/06/2009	20.5	Low	62.2		358	
20	12:13:18PM	02/06/2009	20.6	Low	62.4		355	
21	12:13:23PM	02/06/2009	20.3	Low	62.4		352	
22	12:13:28PM	02/06/2009	20.3	Low	62.5		350	
23	12:13:33PM	02/06/2009	20.0	Low	63.2		346	
24	12:13:38PM	02/06/2009	19.9	Low	64.0		344	
25	12:13:43PM	02/06/2009	20.0	Low	64.3		339	
26	12:13:48PM	02/06/2009	20.1	Low	64.1		337	
27	12:13:53PM	02/06/2009	20.2	Low	63.7		334	
28	12:13:58PM	02/06/2009	20.0	Low	63.8		333	
29	12:14:03PM	02/06/2009	19.9	Low	64.1		329	
30	12:14:08PM	02/06/2009	19.8	Low	64.4		326	
31	12:14:13PM	02/06/2009	19.8	Low	64.5		325	
32	12:14:18PM	02/06/2009	19.7	Low	64.8		324	
33	12:14:23PM	02/06/2009	19.6	Low	65.6		323	
34	12:14:28PM	02/06/2009	19.6	Low	65.9		322	
35	12:14:33PM	02/06/2009	19.8	Low	65.7		321	
36	12:14:38PM	02/06/2009	19.8	Low	66.0		319	
37	12:14:43PM	02/06/2009	19.8	Low	66.1		318	
38	12:14:48PM	02/06/2009	19.9	Low	66.0		316	
39	12:14:53PM	02/06/2009	19.9	Low	65.8		316	
40	12:14:58PM	02/06/2009	19.8	Low	65.6		315	
41	12:15:03PM	02/06/2009	19.8	Low	65.3		314	
42	12:15:08PM	02/06/2009	19.9	Low	64.8		313	

Printed 3/4/2009

Page 1

Sirius Technologies, Inc.

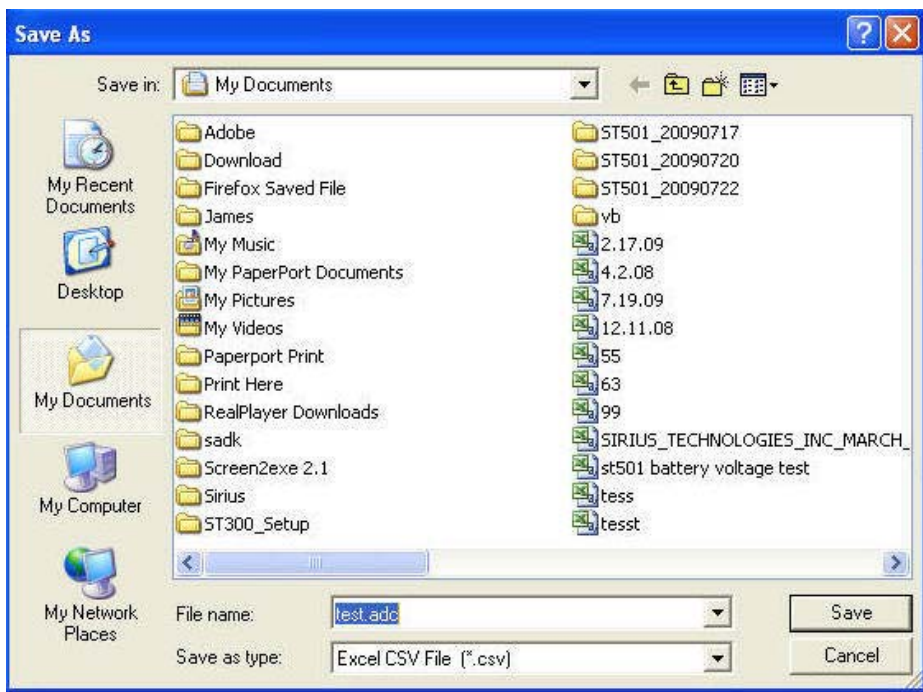
Data Export

Select export data type:

1. Text
- or
2. Excel CSV



Click Save to save the file in .CSV/Txt format.



File Saved.



6. Warranty

Sirius Technologies, Inc. equipment is warranted for a period of twelve (12) months from the date of purchase to be free of defects in material or workmanship. This warranty does not apply to damage resulting from accident, alteration, abuse, loss of parts or repair by other than Sirius Technologies, Inc. The equipment will be repaired or replaced, at our option, without charge to the owner for parts or labor incurred in such repair. This warranty shall not apply unless the equipment is returned for our examination with all transportation charges prepaid to:

Sirius Technologies, Inc.

418-B Cloverleaf Drive
Baldwin Park, CA 91706
U.S.A.

<http://www.siriustec.com>

7. End of life



Caution: this symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal