Observer I & Observer II PC software manual

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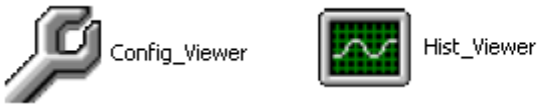
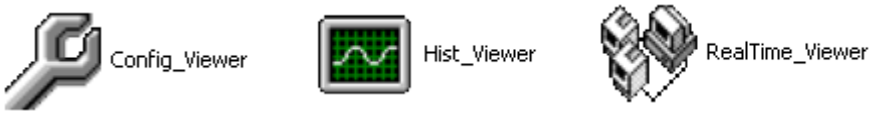
1.0 General

Observer I & II is the PC software used for paperless recorder.

Observer I contains two components



Observer II contains three components



CONFIG_VIEWER is for configuration of recorder from PC.

HIST_VIEWER is for monitoring historical trends in PC.

REAL TIME_VIEWER is for real time data logging in PC.

Observer 1 is supplied along with Recorder at free of cost.

Observer II is supplied on additional charge for real time data logging applications through PC.

1.1 System requirements

1.1.1 Hardware

PC with Minimum 200 MHz processor, 64 MB RAM
100 MB free space in the hard disk.
RS 232 serial port/ Network adopter RJ 45 female/ USB port and CF reader

1.1.2 Software

Operating system: Windows 98, Windows ME, Windows XP, Windows NT & Windows 2000.

1.1.3 Observer software Installation

Run the setup exe available at CD supplied and follow on screen instructions.
At any point of time only one either Observer I or Observer II will exist in any PC. If user install new version of Observer software, old version will be deleted automatically during installation of software.

1.1.4 Observer software Uninstallation

This is to remove Observer software from PC.

Observer I or Observer II may be uninstalled from PC any time from the following two ways

Control panel- Add/remove programs-Observer I/Observer II

Start –Programs-Observer I / Observer II / Uninstall

2.0 Configuration Viewer

This is used for configuration of recorder from PC.

Start-Programs-Observer I / Observer II-Configuration

2.1 Tool bar

To open new project

To open existing project file

To save the project file settings in PC

To delete the project file from PC

To select bank (CF card/ Ethernet / RS 232)

To select the channel (AI/AO/DI/DO/MATH)

To select display

To select tools (Timer/Counter/ Totalizer)

To select instrument details

To select system information (Type of cards available at slots, system version info)

Clock summer settings

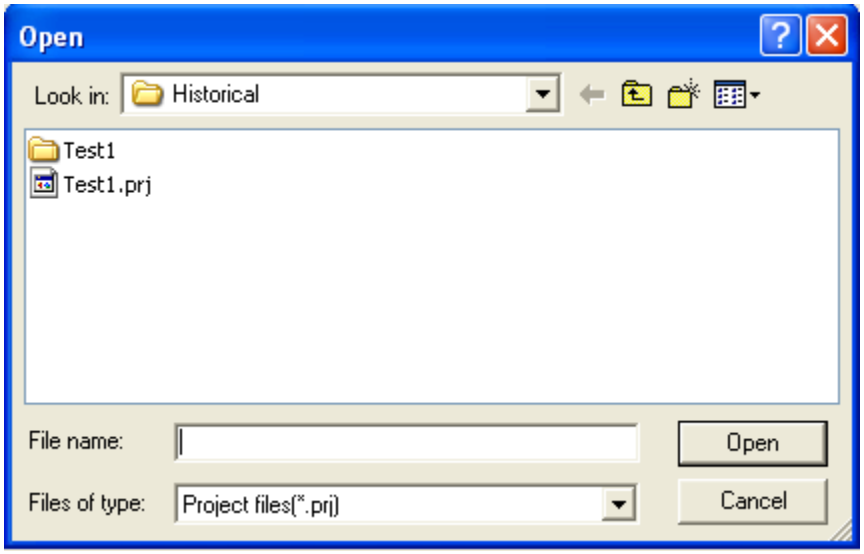
To set password

Receive configuration (CF reader/RS 232/Ethernet)

Send configuration (CF card/RS 232/Ethernet)

2.2 Opening of project

If Observer software has been already configured in the PC, you can select *.prj file to open the project.



For the first time configuration you can cancel the above window and select new project

Enter the name of the project.

2.3 Bank

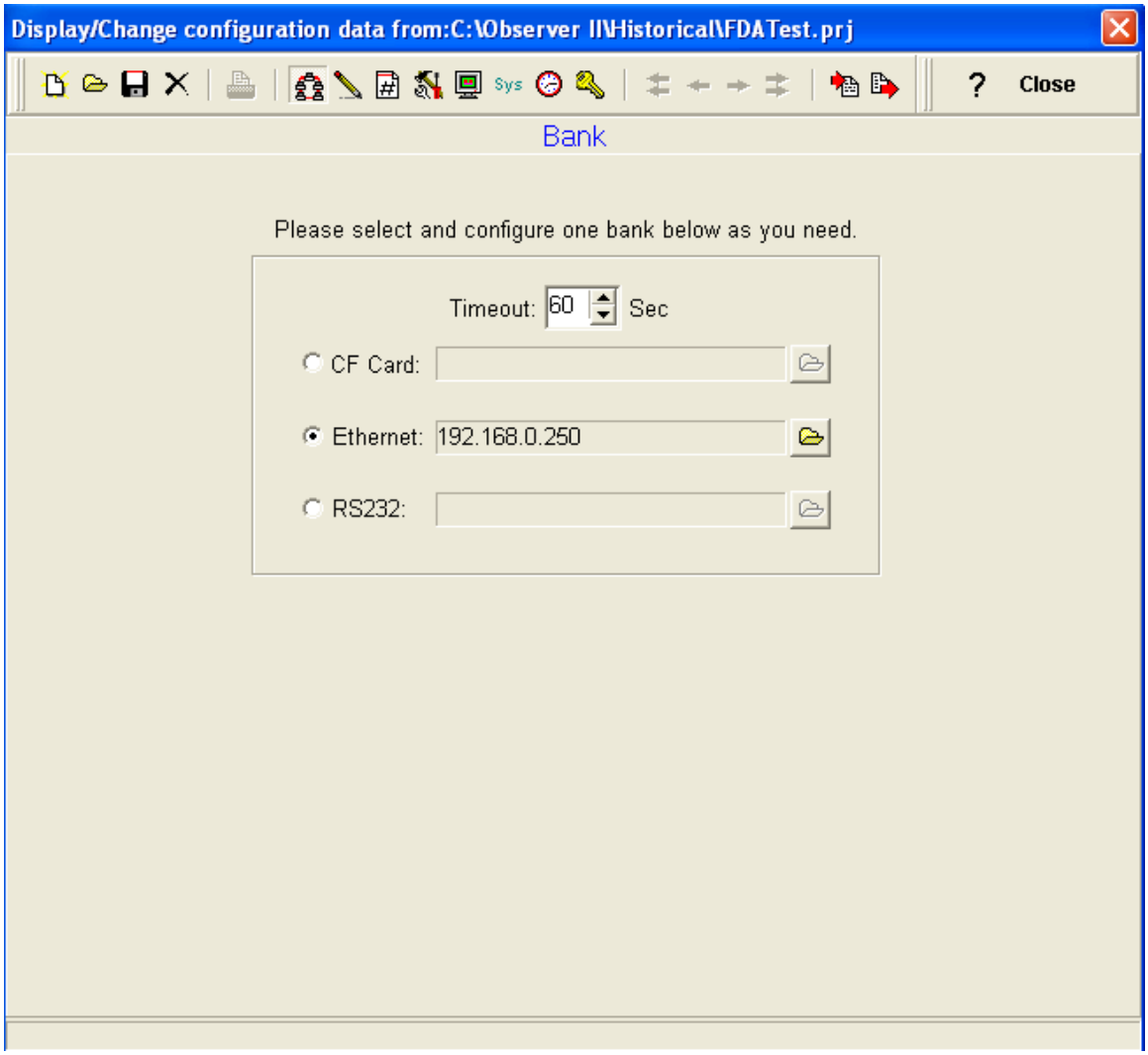
Bank

This is used to select physical connection between recorder and PC

Three options are available

1. CF card
2. Ethernet
3. RS 232

Set communication Time out in the following screen if required. Maximum possible time entry is 60 sec. For long distance communication, it is suggested to adjust Time out value to avoid communication errors during configuration.



32 MB CF card shall be supplied along with the recorder. Standard Ethernet port (RJ 45 female) shall be available at the recorder. RS 232/ RS485 shall be supplied as additional options.

It is possible to use Observer software for data logging from multiple recorders connected on network (Ethernet/RS 485).

Total number of devices that can be connected depends on the hardware interface selected for the application. For example, 255 devices can be connected on Ethernet. 247 devices can be configured on RS 485.

Maximum 1024 tags can be configured at Observer software for data logging, archiving and analysis. It includes physical inputs connected to recorder through cards AI, Math, DI, DO, Counter and Totalizer.

2.3.1 Ethernet configuration

1. Make sure that network adopter in PC is properly configured. IP address, Subnet mask and Gateway should be configured at the PC for using Observer II program. Please contact System administrator to set Unique IP address for the PC.

2. Install Observer II application software in PC. The software may be installed from setup available in the CD supplied as per the order.

3. Ethernet configuration at Recorder

   Please refer section 4.4 of recorder user manual for details of entering IP address, subnet mask and gateway address manually at the recorder. Gateway refers to a device on a network that sends local area traffic to other networks. Subnet mask numbers help to define the relationship between host and rest of the network.

   For every LAN, the Network administrator shall define Subnet mask and Gateway. Obtain subnet mask and gateway address for the LAN at the place where recorder to be connected. Enter these details at the Recorder manually using front buttons.

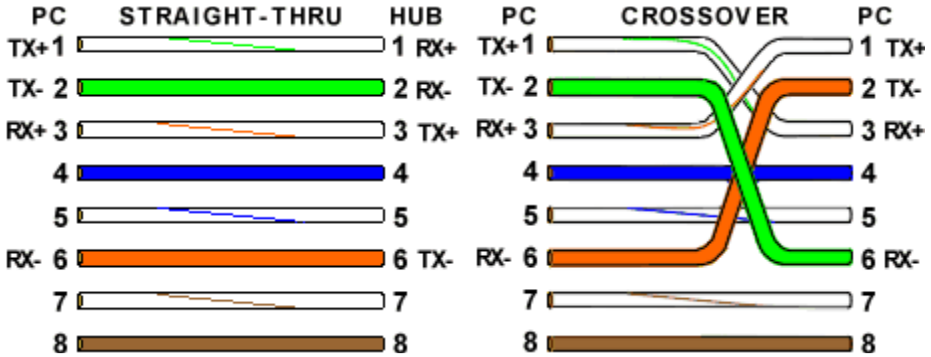
   By default, subnet mask address: 255.255.255.0,By default, Gate way: 0.0.0.0

   Allocate the Unique IP address to recorder and enter IP address at the recorder manually. Contact System administrator for obtaining free IP address available at user LAN. Naming duplicate IP address may disable the communication between recorder and PC/LAN HUB.

4. Local area network uses UTP cable for Ethernet connectivity. Maximum UTP cable distance between recorder and LAN/HUB/PC should be less than 100 Meters. If the distance is more than 100 Meters, additional LAN accessories/equipments may be required for increasing signal strength. Please contact network administrator for more information on extending LAN.

5. Two different types of cables shall be used for connecting recorder on Ethernet as follows.

   For connecting recorder to LAN HUB, then standard straight-through Ethernet cable should be used. For connecting recorder to PC/Notebook directly, then crossover Ethernet cable should be used.



6. Connect proper UTP Ethernet cable as per the requirements and observe the communication status between Recorder and PC/LAN HUB at the LED's dedicated for the purpose near female RJ 45 connectors.

Recorder side

Link (Green LED)
Green lit: Cable connected between recorder and PC/LAN HUB
Green Off: No Link between recorder and PC/LAN HUB

Tx/Rx
Orange Lit continuous: No cable connection
Orange slow blink: Communication established between recorder & PC/LAN HUB

7. If the communication between recorder and PC/LAN HUB is successful, then start Observer II in the PC as follows

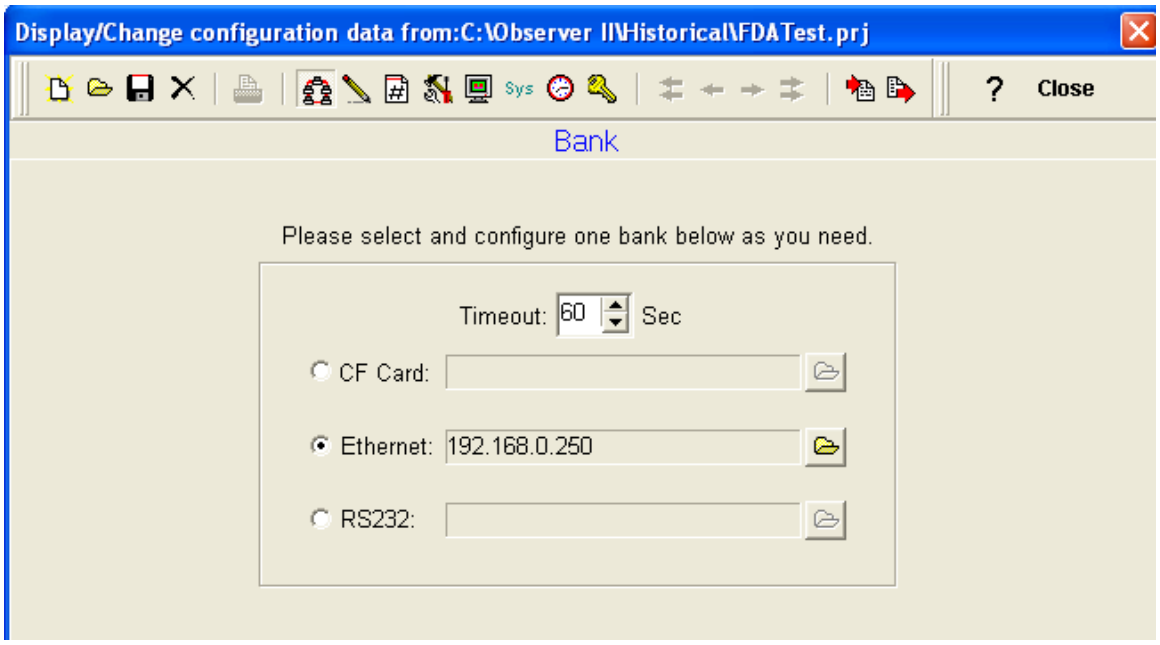
   Start-Programs-Observer II – Configuration

   For the first time, Under Historical folder .prj file shall not be available.

   Open new file

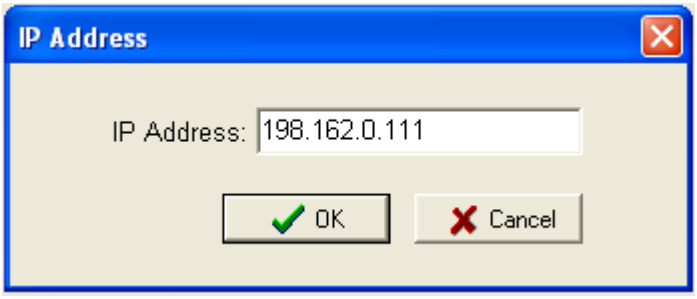
   Enter new name for the project, Ex: Boiler

   Select Ethernet in the Bank by using radial button



   Open for Ethernet connection

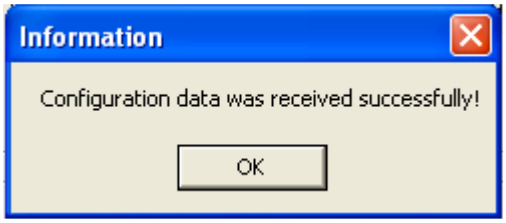
Enter the IP address of the Recorder



System will ask “Do you want to receive configuration data now? (Y/N)”

Click on “Yes” to upload recorder configurations to PC.

If Upload is successful, it shows message as “Configuration successful” and all the configuration settings of VR now available at PC. The information includes all channel details of Input/Output cards as per Jumper/switch settings.



If Upload is unsuccessful, it shown message as “No response from Recorder, connection fails”.

If this is the case, please check the Ethernet cable connections at both recorder and PC/LAN HUB side. Also make sure that green communication LED available for proper firm connection at RJ 45 connector.

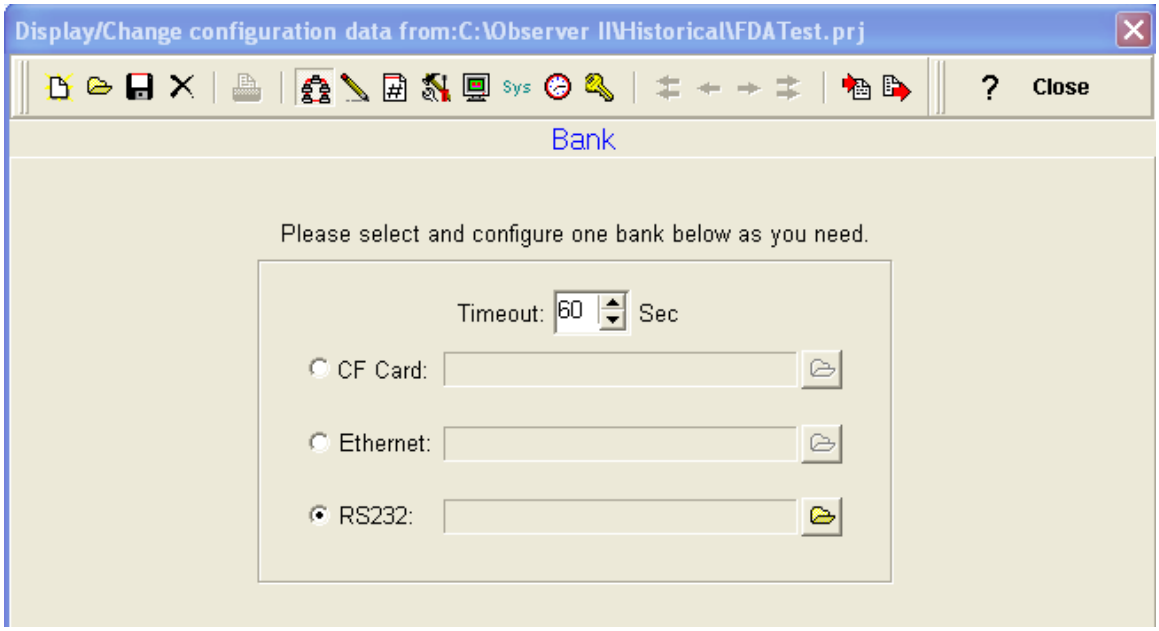
If still communication is not established between Recorder & PC, then once again check Subnet mask and gateway address at recorder & PC. Contact Network/ System administrator for proper Ethernet configuration of Recorder & PC. Please note that VR should have unique IP address in the network and PC being used for Observer II shall have separated Unique IP address in the network.

2.3.2 RS 232 configuration

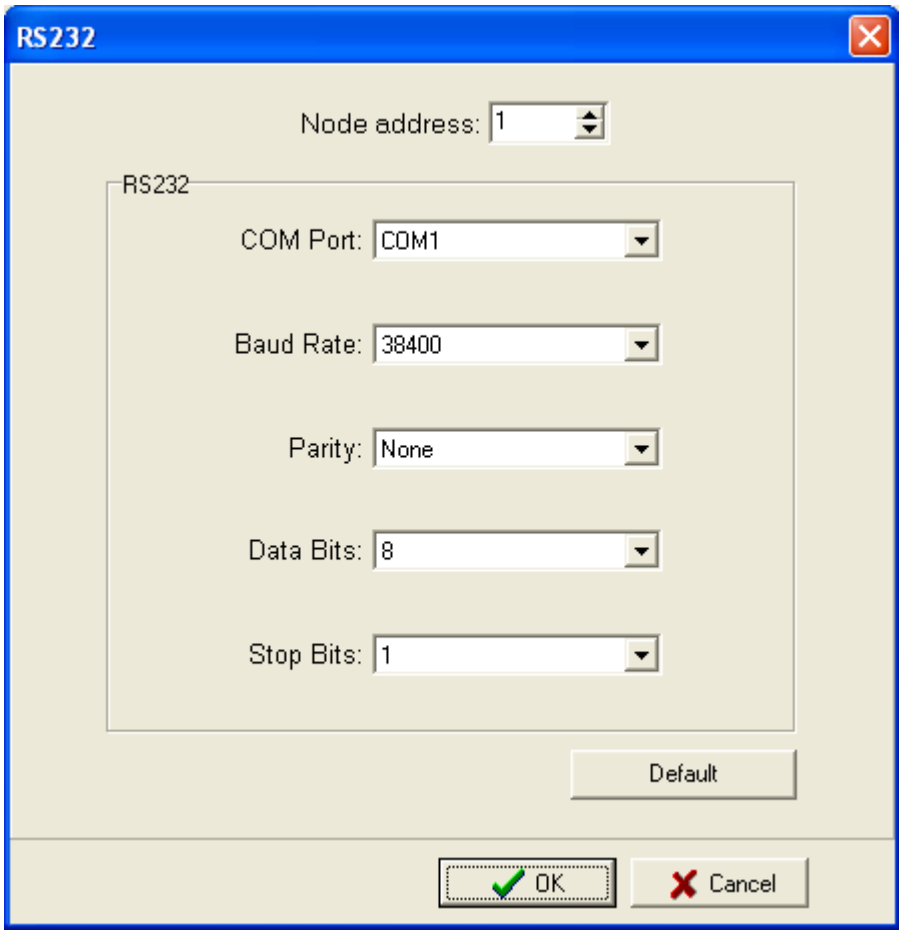
1. Make sure that RS 232 port is available at recorder. Normally it will be D9 male.
2. Also make sure that RS 232 port available at PC where Observer software is installed.
3. Please refer recorder user manual, section 2.5 for RS 232/RS 485/ RS 422 wiring connection details.
4. Set RS 232 communication settings at the recorder manually

   Please refer section 4.4 of recorder user manual and selection RS 232 at PC transfer. Set RS 232 communication details manually at the recorder. Please note that press Back Key to save the changes at the recorder. Switch off the recorder power supply, then switch on once again and make sure that RS 232 communication details are properly saved in the recorder.
5. Connect RS 232 cable between recorder and PC.
6. Select RS 232 in the bank as below through radial button

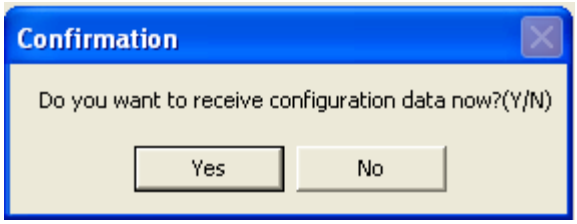
7. Click on for RS 232 communication settings.



8. Set communication parameters for RS 232 communication at PC.

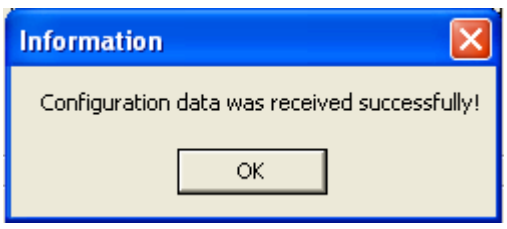


9. Click on OK after setting all above details. By default Node address is 1. If any change is there for the node address, then it should be set at recorder manually then enter the same node address in the above configuration.



10. Click on “Yes” to upload recorder configurations to PC.

11. If Upload is successful, it shows message as “Configuration successful” and all the configuration settings of recorder now available at PC. The information includes all channel details of Input/Output cards as per Jumper/switch settings.



If Upload is not success, it shown message as “No response from Recorder, connection fails”.

If this is the case, please check the RS 232 cable connections at both recorder and PC.

If still communication is not established between Recorder & PC, then once again check Node address at the recorder. If more than one recorder is connected in RS 485/ RS 422 network, make sure that all the devices have unique address. Check the communication settings at the individual recorders manually.

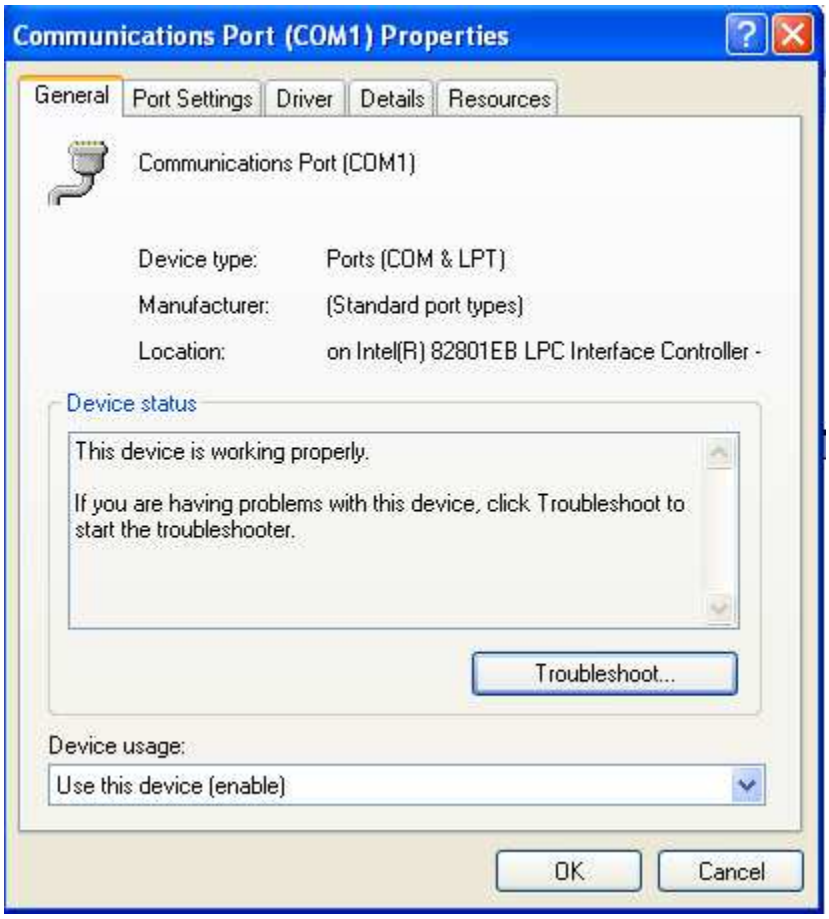
If SNA 10 A/B is being used for converting RS 485/ RS 422 to RS 232, then make sure that Dip switches are correctly set for the communication details.

If RS 485/ RS 422 has been used for connecting recorders, then make sure that last node is less than 1000 meters from the PC. Also make sure that STP cable is being used for RS 485 connections.

In some computers, COM 1 and COM 2 have been used for other devices. So it is required to carefully check whether RS 232 cable is connected to proper communication port at PC or not.

Check COM port settings for the PC.

My computer-Properties-Hardware-Device Manager – Ports – COM 1 – Properties

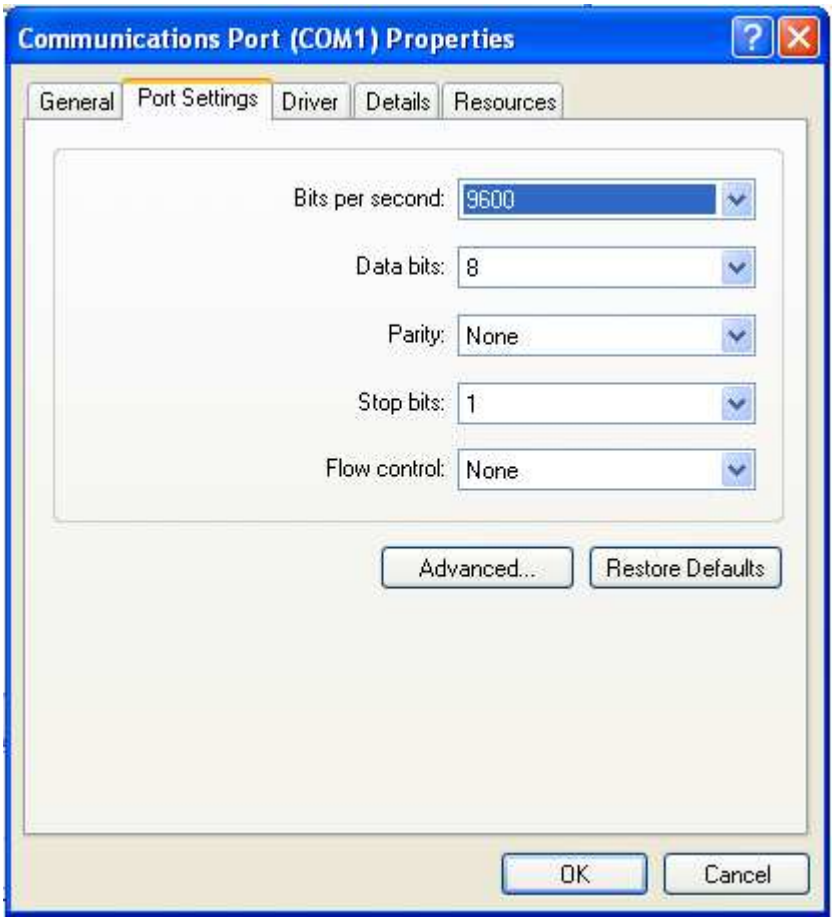


Devise usage: It should be enabled

Device status: The device is working properly.

If above conditions are not met, then RS 232 port is having problem at PC. Contact system administrator for replacing the port or updating driver properly.

If still communication is not established, user can try setting up Observer software in another PC where COM port is healthy.



Make sure that RS 232 communication setting at the recorder and PC is equal.

2.3.3 CF card configuration

1. 32 MB CF card shall be supplied along with the recorder.

2. Save recorder configurations from recorder to CF card at Recorder.

   Configuration – Save.
   This step will make sure that all IO cards information as per jumper and Dip switch selection will be saved in to the CF card.

3. Use CF reader to read recorder configuration on CF card in Observer software. Normally CF readers are available for use at USB port.

   Please note that all standard CF readers from major vendors will be detected automatically as mass storage devices by the Win XP operating system. If you are using any other operating system like Windows 98, windows ME, Windows NT and Windows 2000, then mass storage device may not be detected and you have to install the driver for the CF reader. Driver CD shall be shipped along with Observer software for configuration of CF card at PC. Please note that, you need to configure CF card driver only if operating system not detecting mass storage device.

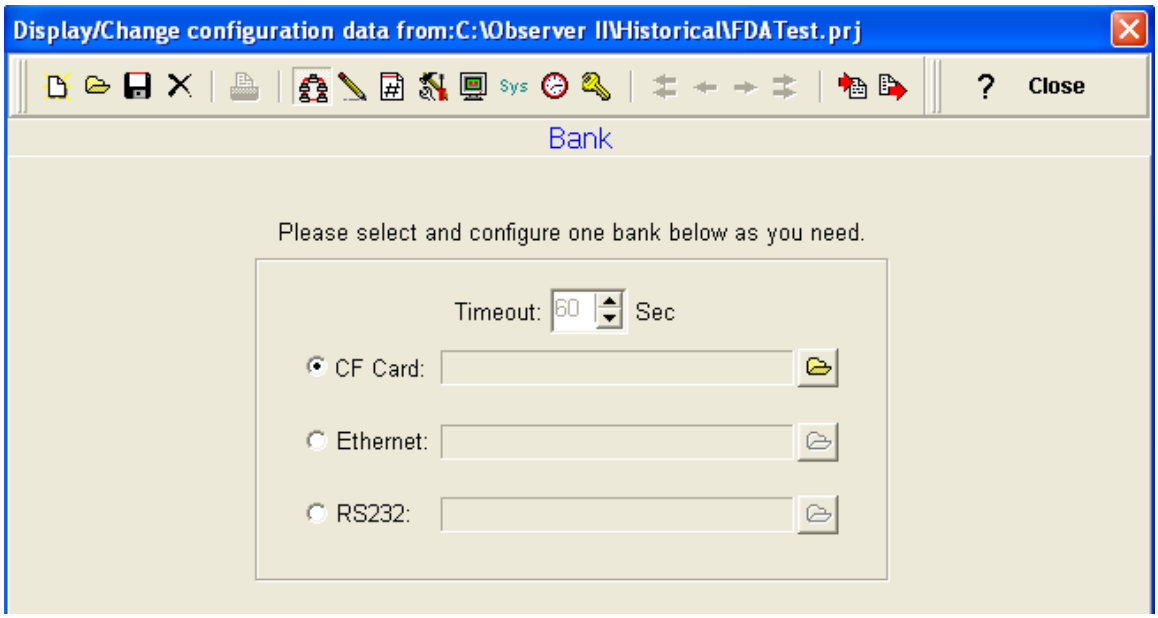
4. Once the PC detects CF reader along with CF card, and then it should appear as removable drive at my computer.

5. Start Observer program, Ex: Start-Programs-Observer 1 – Configuration

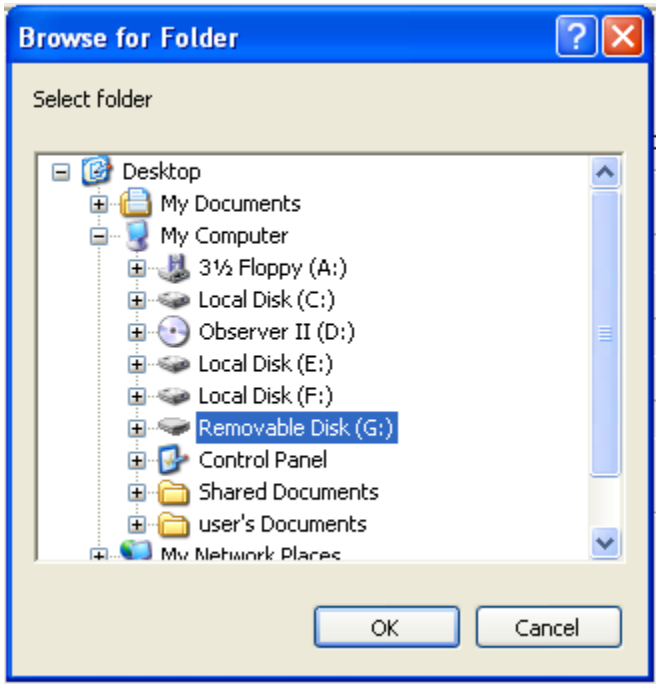
Open new file

Enter new name for the project, Ex: Boiler

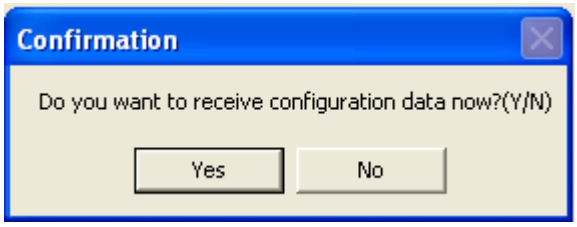
6. Select CF card using radial button



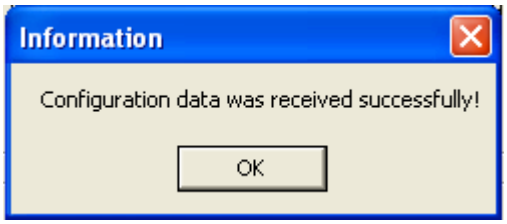
7. Click to set CF path to receive the configuration data available in CF card.



8. Click Yes to receive the configuration data from CF card to PC.

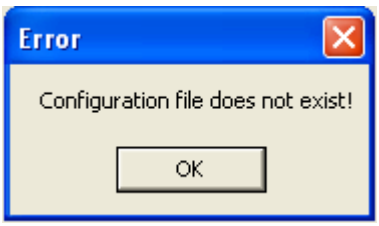


9. If Upload is successful, it shows message as “Configuration successful” and all the configuration settings of recorder now available at PC. The information includes all channel details of Input/Output cards as per Jumper/switch settings.



10. If Upload is not success, it shown error message as “Configuration file does not exist”.
    This message indicates that configuration information is not available in the CF card. Check correct path of CF card is selected.

    If still problem exists, check the files available in the CF card at PC. At least 2 files by name IO and RECORDER should be available. If the files are not available, then recorder configuration data is not properly saved in the CF card. Repeat from Step 2.



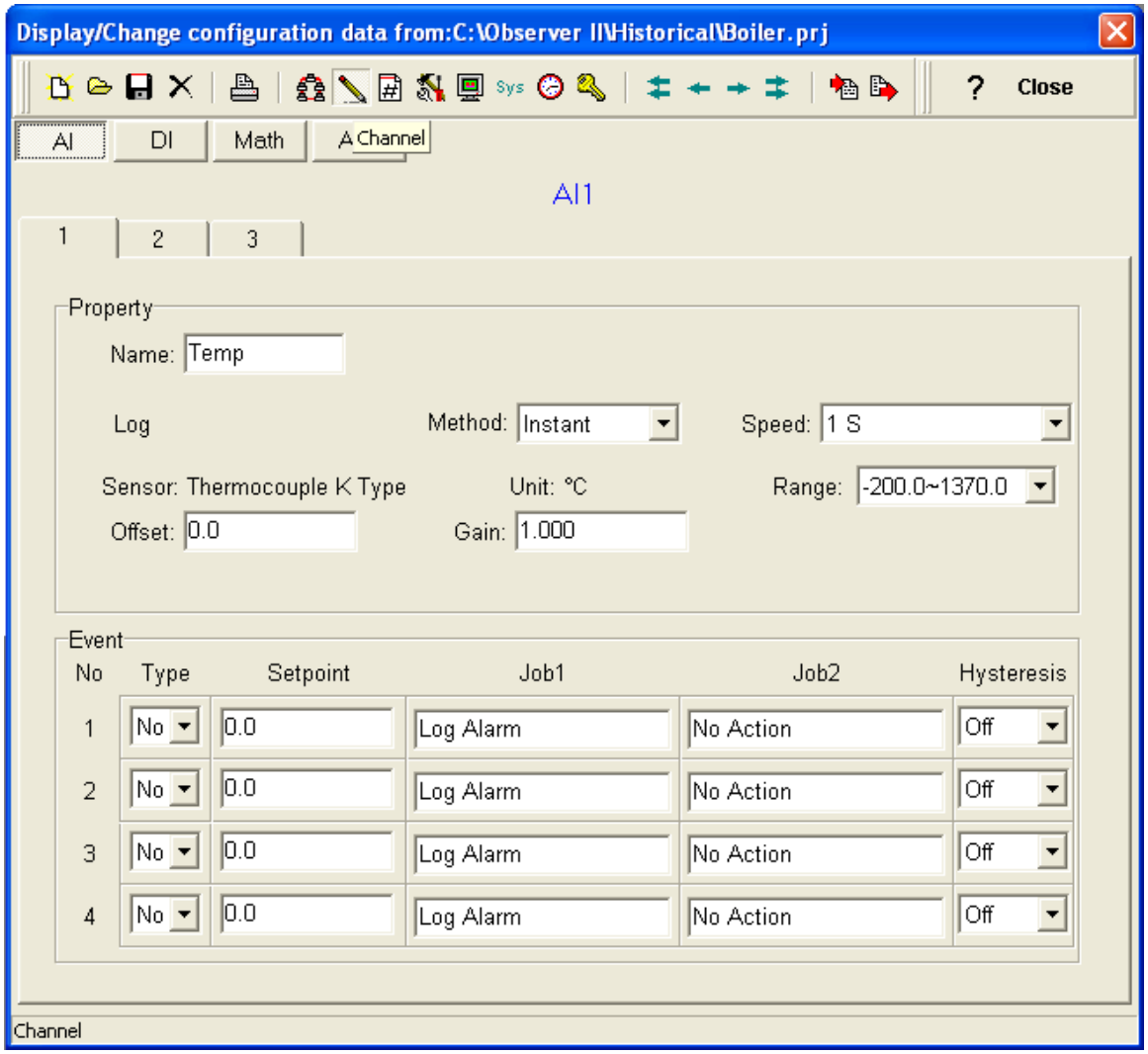
2.4 Channel

Channel

This is used to configure all Inputs/Outputs connected to recorder

Analog inputs (AI) /Analog outputs (AO) /Digital Inputs (DI) /Digital outputs (DO)

2.4.1 Analog input channel configuration



Maximum of 18 analogs can be connected to each recorder.

Different types of analog input cards are available 1/2/3.

Once the configuration is uploaded from recorder to PC, Observer software automatically detects IO cards connected along with its channels.

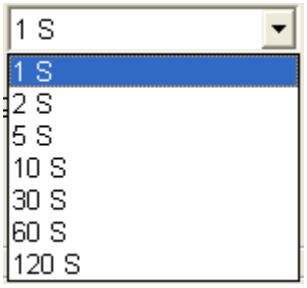
2.4.1.1 Property

Name: This is name of the tag. Ex: TP101. Maximum of 6 characters are allowed.

Log Method: Five options available namely Disable, Instant, Average, Minimum & Maximum

Channel scan rate for recorder is 200 msec i.e., 5 samples in a second.
Log speed at Observer is 1 sec. minimum. The limitation of 200 msec. log speed is at recorder hardware.

Speed: This is data log speed for data storage. Seven options are available for user selection.



For ex: If 1 sec is selected for speed, then

Instant: Last data of 5 samples collected in a second.
Average: Average value of 5 samples collected in a second.
Minimum: Minimum value of 5 samples collected in a second.
Maximum: Maximum value of 5 samples collected in a second.

Sensor: Set the jumpers and dip switches at Analog input card as per the requirements. Then Observer software automatically detects the sensor type and displays in the configuration.

Offset: The value of off set required in the display against the data logged.

Some times, user wants to correct the value showing at display because of drop in the cable or error in calibration.

Gain: This is multiplication factor applied to the data logged for showing in display. It can be used along with off set to show correct display.
Display value = (Process value + offset) X gain.
Range: It is the range of the specific channel, analog input ex: 0-100 ^{O}c.

2.4.1.2 Events

Events are used for alarm purpose. Event can also be used for digital out put, timer, Totalizer, counter and log reports.

Four different events can be configured for every analog input channel.

Type: Six different types of events can be selected for every event. There are High, Low, High High, Low Low, Rate of Increase and rate of decrease.

No: Disable event, select disable if event is not required for the channel at this time

H: High set point, when process value is high than this set point, event/job will be generated.

L: Low set point, when process value is high than this set point, event/job will be generated.

HH: High High set point, to set up another limit higher than high limit for generating event.

LL: Low low set point, to set up another limit lower than low limit for generating event.

R: Increasing rate of analog input engineering value, when channel input is changing the value greater than this set point, event can be generated. Ex: 100_1 s, if the process value is increasing more than 100 in 1 sec, then event will be generated.

Y: Rate of decrease, when channel input is changing the value less than this set point, event can be generated. Ex: 100_1 s, if the process value is decreasing more than 100 in 1 sec, then event will be generated.

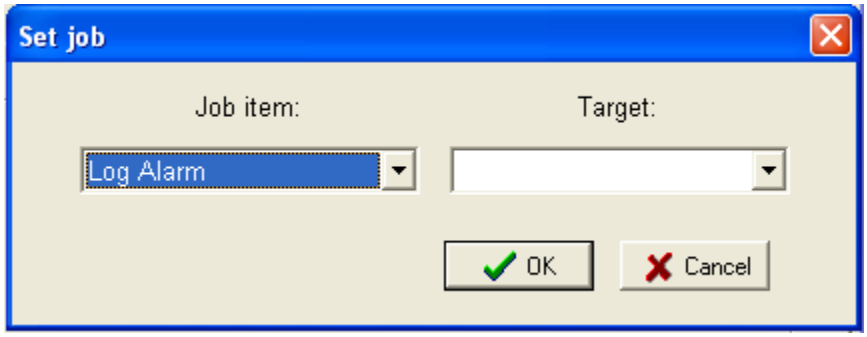
For ex: water tank have tank level signal to monitor its filling level with range 0-5000 liters.
Alarms/Events are required at different set points as follows

H = 4600, HH = 4800, L = 1000, LL = 500

For a specific channel, when the process value is changed, Events are generated as per the above set points.

When event occurs, the task to be performed is called job. Two jobs can be defined for every event for a specific channel.

Acknowledgement is not required for an event where as alarms needs to be acknowledged.



The following events are available for user configuration against each channel.

No Action, Job is not defined.

Log Alarm, to record alarm when process value crossed set point defined at the event.

Ex: Event type = H, Set point = 4800, Job 1 = Log alarm, Job 2 = No action, Hysteresis = 0.5 %
Note: This needs acknowledgement from the user.

Log Alarm (Auto Ack.), to record alarm when process value crossed set point defined at the event.

Ex: Event type = H, Set point = 4800, Job 1 = Log alarm, Job 2 = No action, Hysteresis = 0.5 %
Note: This alarm will be acknowledged automatically after it occurs.

Log Event, to record event when process value crossed set point defined at the event.

Ex: Event type = H, Set point = 4600, Job 1 = Log event, Job 2 = No action, Hysteresis = 0.5 %
Note: No need to acknowledge this event.

Start Logging, to start the data logging when process value crossed set point defined at event

Stop Logging, to stop the data logging when process value crossed set point defined at event

Sound Buzzer, sound the buzzer.

DO Latch on, set digital out put / relay on when process value crossed set point defined at event. Select target digital out put.

Ex: When process value increases beyond set point defined, then switch on (latch) digital out put 1 (DO 1), relay may be used to start water pump to fill water tank.

Event type = L, Set point: 1000, Job 1 = DO Latch on, Target = DO 1, Job 2 = No action, Hysteresis = 0.5 %

DO Latch off, set digital out put / relay off when process value crossed set point defined at event. Select target digital out put.

Ex: When process value decreases beyond set point defined, then switch off digital out put 1 (DO 1), relay may be used to stop water pump to fill water tank.

Event type = H, Set point: 4600, Job 1 = DO Latch off, Target = DO 1, Job 2 = No action, Hysteresis = 0.5 %

DO Process, select the digital out put. The relay will not be latched. Relay will change the state as per the set point defined at the event.

Enable Timer, start the timer and then select target timer from Timer 1 to Timer 6.

Disable Timer, stop the timer and then select target timer from Timer 1 to Timer 6.

Preset Totalizer, start the Totalizer with preset value and then select target from totalizer1 to Totalizer 6

Reset Totalizer reset the Totalizer and then select target from Totalizer 1 to 6

Enable Totalizer, start the Totalizer and then select target from Totalizer 1 to Totalizer 6.
Disable Totalizer, stop the Totalizer and then select target from Totalizer 1 to Totalizer 6.

Present counter, start the counter with preset value and then select the target from counter 1 to counter 6.

Reset counter reset the counter and then select the target from counter 1 to counter 6.

Increase counter, increase the counter and then select the target from counter 1 to 6.

Ex: When process value increases beyond set point, counter value will be incremented by 1.

Decrease counter, decrease the counter and then select the target from counter 1 to counter 6.

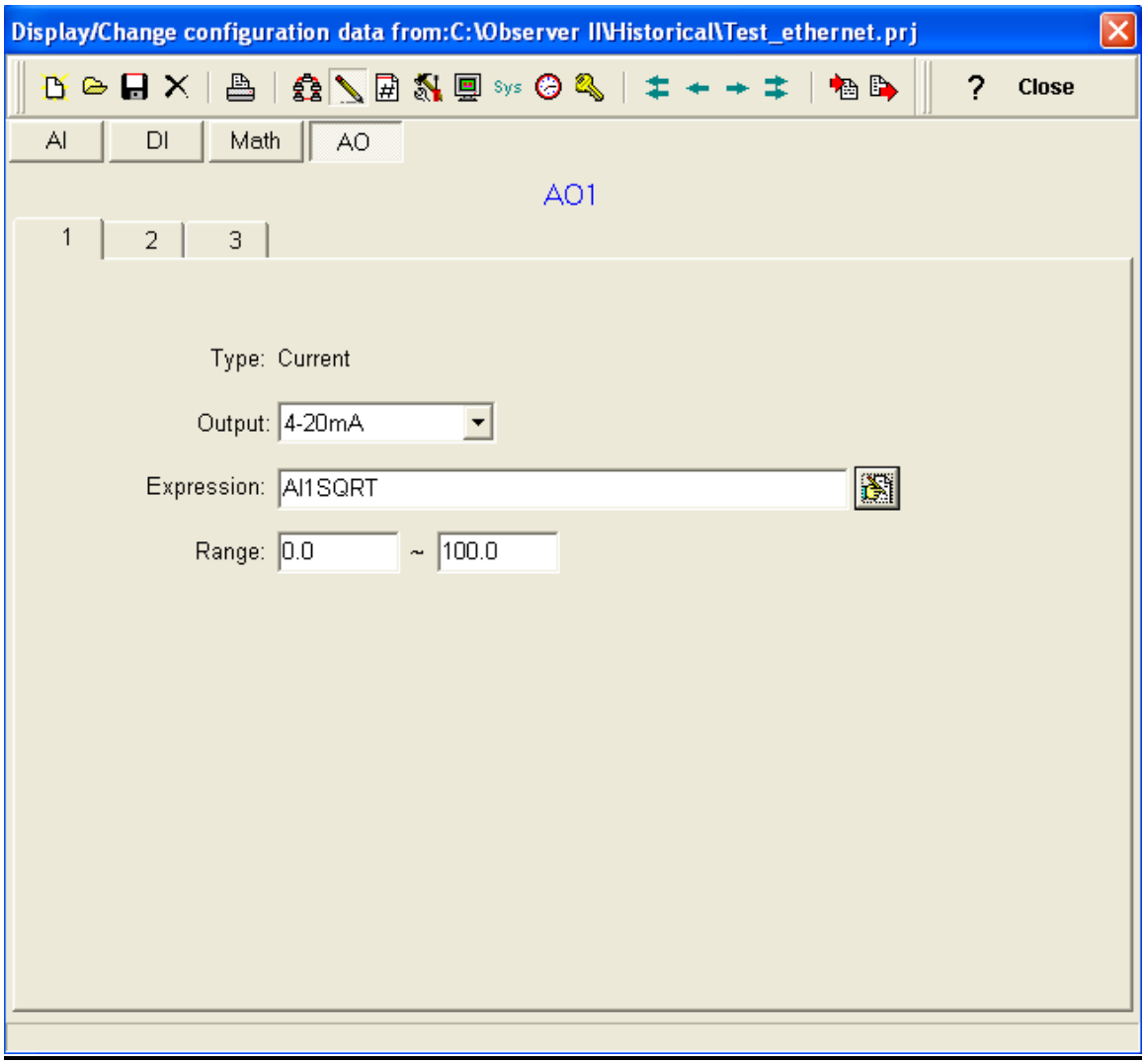
Ex: When process value decreases beyond set point, counter value will be decremented by 1.

Log report, it generates report about counters and totalizers.

Hysteresis, this is to avoid frequent event trigger when process value is oscillating to settle in final value. It can be set in between 0.1 % to 10 % of span at full scale defined at range.

For example, the High value of water tank filling is set at 4600 liters. The range is 0-5000 liters. Hysteresis is set at 0.5 %, then it means, once water tank level reaches 4600 liters it generates event. If water level oscillates in between 4600 +/- 25, event will not be triggered once again

2.4.2 Analog output channel configuration

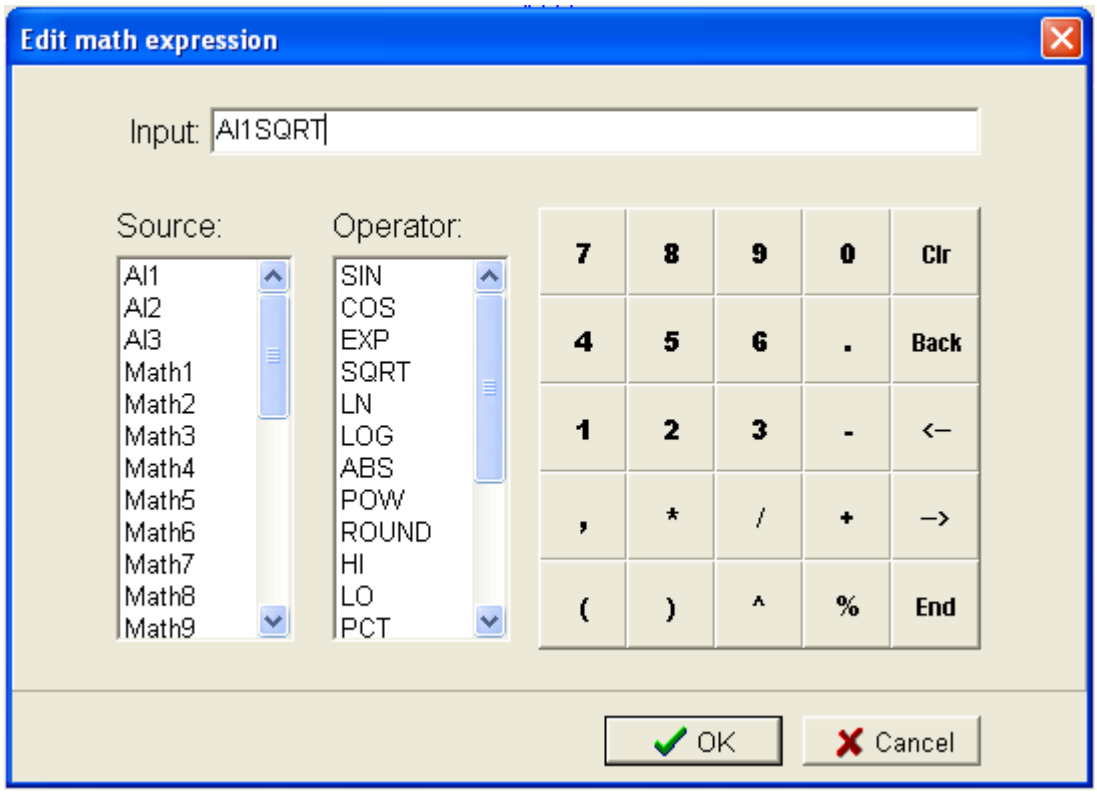


Maximum 3 channels are available in analog output card.

Type: It indicates type of output available from the card, ex: current, this will appear automatically as per the card inserted in the slot.

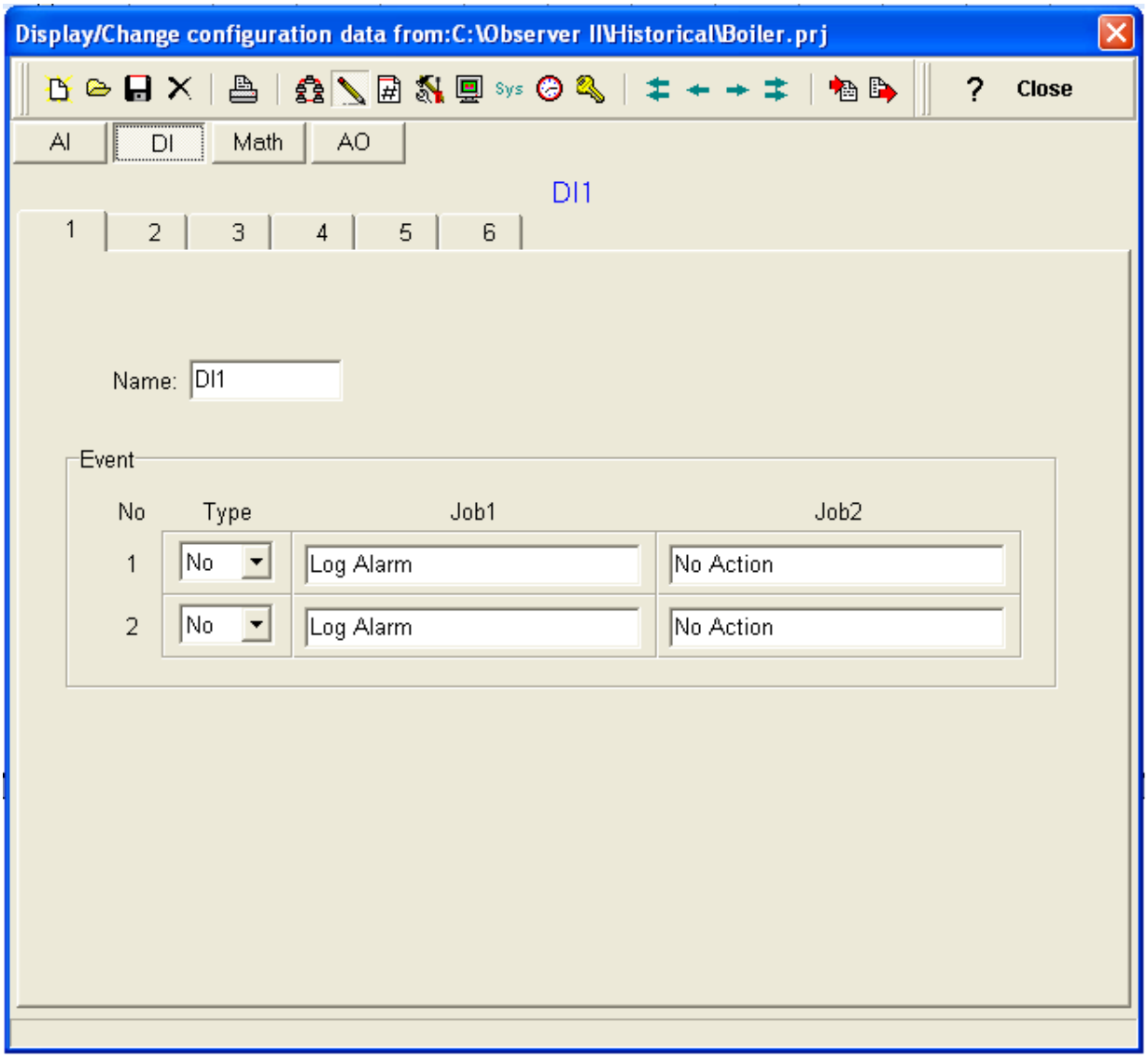
Output, Enable, enable the channel, disable, disable channel

Expression: Mathematical expression can be defined with analog inputs, mathematical results, counters. Ex: Square root of analog input 1, AI1 SQRT, Range,0-100



Range, analog output range, ex: 0-100 for 4-20 ma output, I.e., Scale low value, 4 ma at 0 and Scale high value, 20 ma at 100.

2.4.3 Digital input channel configuration



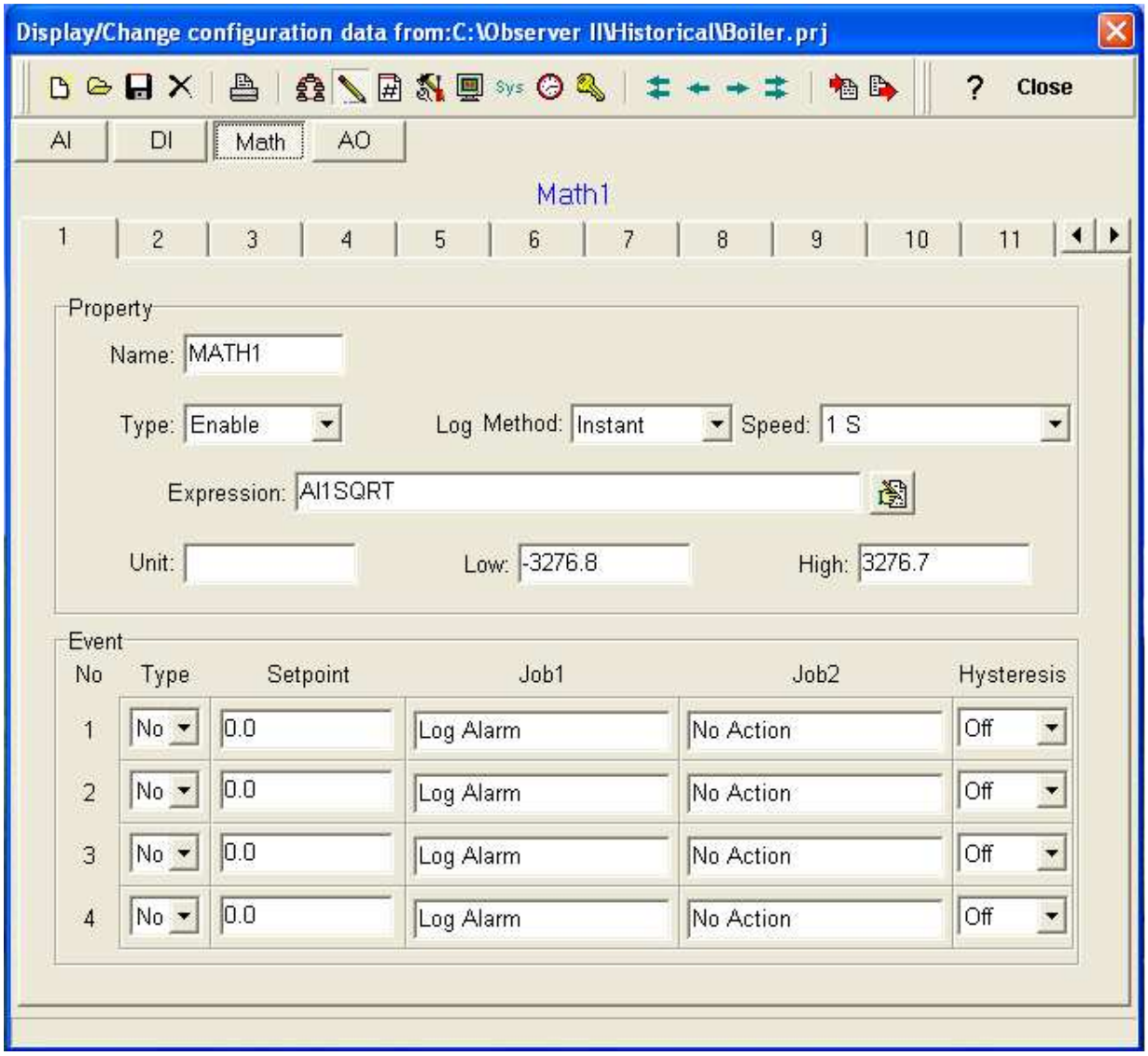
Name, maximum six characters are allowed, this is the name of digital input tag.

Every digital input card has 6 channels.

For every digital input, two events can be configured, two jobs can be configured for each event.

Ex: When DI1 change its state from Low to High, then generate alarm
Event type: H, Job 1 = Log alarm

2.4.4 Math channel configuration



Totalizers and counters are special functions available in recorder for process analysis. Please note that these math applications will be enabled in the recorder only if math option is ordered at the Boot ROM.

Contact supplier for obtaining Math boot ROM if you are recorder user with out these special functions. If you are new user, you can order this as additional option while ordering recorder.

Maximum 18 tags are available for math applications. User can define expression as per the requirements and use the result of application similar to any other analog input for trends, analysis, archiving etc.

Name: Maximum 6 characters are allowed.

Desc: Description of the tag name in detail

Type: Enable/ disable

Enable, to enable specific math channel

Disable, to disable specific math channel

Log Method: Total five options available

Disable, Instant, Average, Minimum and Maximum

Disable, Data manipulation is not required

Instant: Data manipulation as per predefined Log speed.

Average: Average result of expression for the samples scanned during predefined log speed.

Minimum: Minimum result of expression for the samples scanned during predefined log speed.

Maximum: Maximum result of expression for the samples scanned during predefined log speed.

Speed: This is data logging speed for storing the result of data arrive from mathematical expression.

Expression: This is the mathematical expression applied on the source like process value.
Standard mathematical operators are available for deriving expression.

Ex: AI1 SQRT

Once the expression is defined then the result of expression will be treated similar to the process value obtained from analog input. The result of data arrived from mathematical expression will be logged as per log speed set and data will be stored for further archiving and analysis.

Unit: This is unit for the result of mathematical expression.

Low: scale low value for result of mathematical expression

High: Scale high value for result of mathematical expression.

Event: This is similar to the events explained for analog input.

2.4.4.1 Math Example

Task: QC = QR * (Sqrt of Va) * (Sqrt of Vb)

Where QC = Compensated flow of steam

QR = Raw flow of steam measured at the orifice, signal 4-20 ma at AI1

Va and Vb are Variables

Va = T1 * (T2 ^ Pa) * (Pa ^ T3), Where T1, T2, T3 are constants
Pa = Base pressure, 4-20 ma signal at AI2

Vb = T1 * (T2 ^ Pb) * (Pb ^ T3), Where T1, T2, T3 are constants
Pb = Volume of steam, 4-20 ma signal at AI3

Use Math1 for calculating Va, Math2 for calculating Vb and Math3 for calculating QC. Then use Math1 and Math 2 for calculating Math 3.

T1 = 1, T2 = 2 and T3 = 3.

Va = MATH1 = 1*(2^AI2)*(AI2^3)
Vb = MATH2 = 1*(2^AI3)*(AI3^3)

MATH3 = AI1*(SQRT MATH1)*(SQRT MATH2)

If required, MATH3 can be taken as 4-20 ma signal by using analog output. This MATH3 is now same as any other analog input channel for trending, storing of data, archiving and analysis

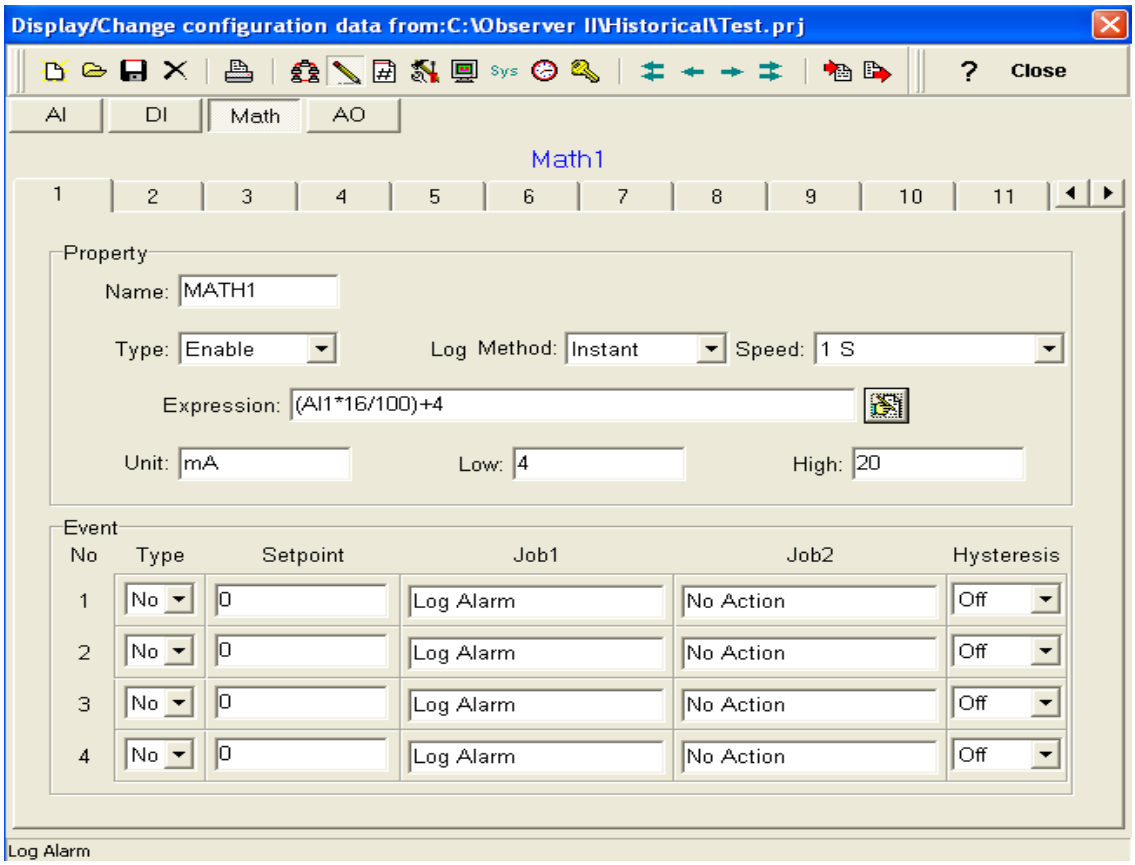
2.4.4.2 Scaling of Math channel

Assume Analog Input1, AI1, Input = 4-20 mA
Scale Low (RL) = 0, Scale High (RH) = 100
User need to scale 0-100 in display of AI1 and 4-20 in Math1

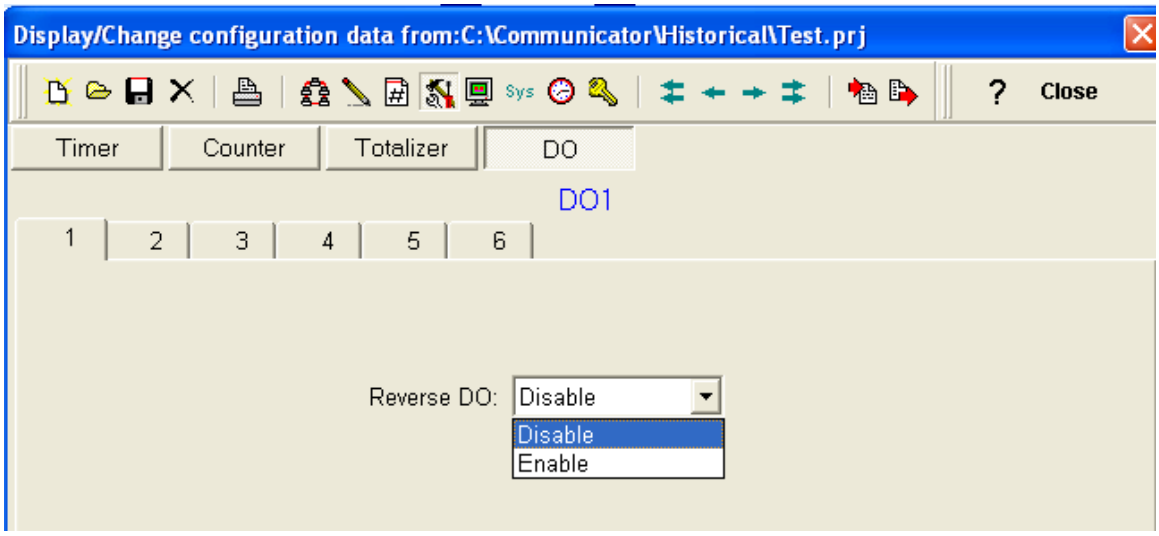
Math channel
Scale low (SL) = 4, Scale high (SH) = 20

Formula

(AI1- (RL)*(SH-SL)/(RH-RL))+SL
(AI1- (0)*(20-4)/(100-0))+4
(AI1*16)/100 + 4



2.4.5 Digital Output

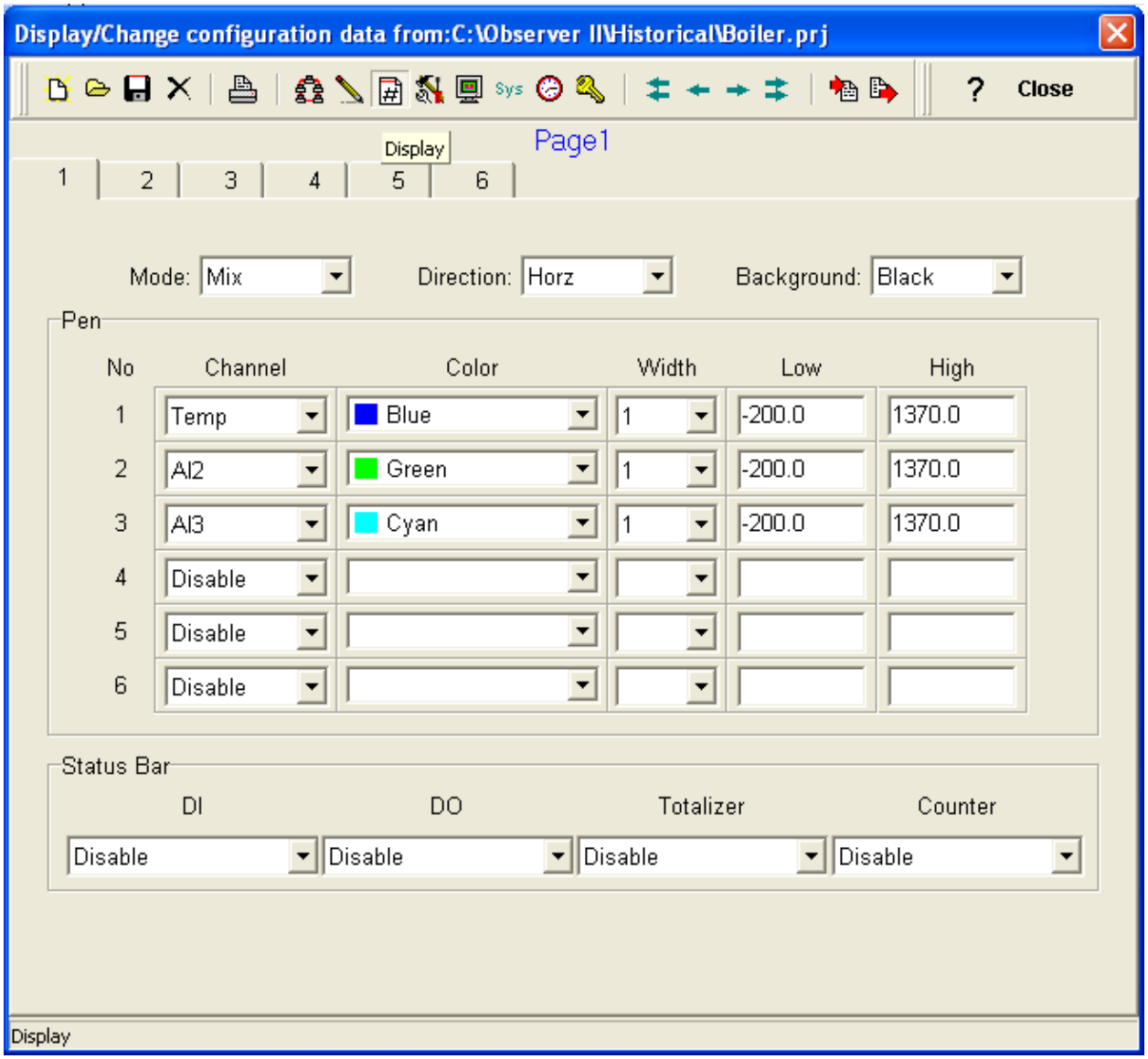


Normally Digital Output is configured while configuring events in the channel configuration. In some special applications, digital outputs required to be switched ON normally when Recorder is ON and switch OFF in case of an event. In such cases, you may use above feature

By default, Reverse DO is disabled. In case Reverse DO is required, enable it. This feature for Digital output can be accessed from DO at Tools Menu

2.5 Display

Display



Normally display is used for monitoring of process data in graphical representation like trends, bar graphs etc.

Maximum 6 pages are available for monitoring of process data obtained by the recorder.

Six pens can be configured in each page, the pens include analog input (Maximum 18 channels only) and result of data obtained from mathematical expressions (Maximum 18 channels only).

Mode: Five options are available

Disable, Mix, Trend, Bar and Digital

Disable: Display is not required for this page at this point of time

Mix: Data display is required in all type of graphical representations in the same page, these includes Trend, Bar and Digital.

Trend: Configured pens data display as Trends only

Bar: Configured pens data display as Bar graph only

Digital: Configured pens data display as Digital values only

Direction: Two options are available by names Horizontal and vertical.

Trends or Bar graphical representation can be configured for one of the directions as horizontal or vertical.

Background: This is to set the back ground color for the page display. Two options are available. White and black color

2.5.1 Pen

Six pens can be configured in each page

Channel: Select the pen required for graphical representation, source include all analog inputs and result of mathematical expressions.

Color: Total 14 colors are available for user selection against each pen.

Width: This is pen width in the display

Low: This is the select the low value of display (range) for the selected pen.

For ex: Analog input 1 has a scale of 0-100. But for most of the time, process value will be in the range of 0-50. So user can select the display range as 0-50 for better resolution.

Please note that the range set here is only for display purpose. Scale for data storage will depend on the scale defined at channel only and the range set at display will not have any effect on data logging/ data storage/data analysis.

High: This is to select the high value of display (range) for the selected pen.

2.5.2 Status bar

This is to show the status of Digital input, Digital output, Counter and Totalizer in summary. If configured, then status of selected channels will be shown in the status bar.

Digital Input

Disable: Digital input status is not required in the status bar.
Ex: Enable 1-6: Show the status of digital inputs from channel 1 to channel 6.

Digital Output

Disable: Digital output status is not required in the status bar.

Ex: Enable 1-6: Show the status of digital outputs from channel 1 to channel 6.

Totalizer

Disable: Totalizer status is not required in the status bar.
Ex: Enable 1-6: Show the status of totalizers from channel 1 to channel 6.

Counter

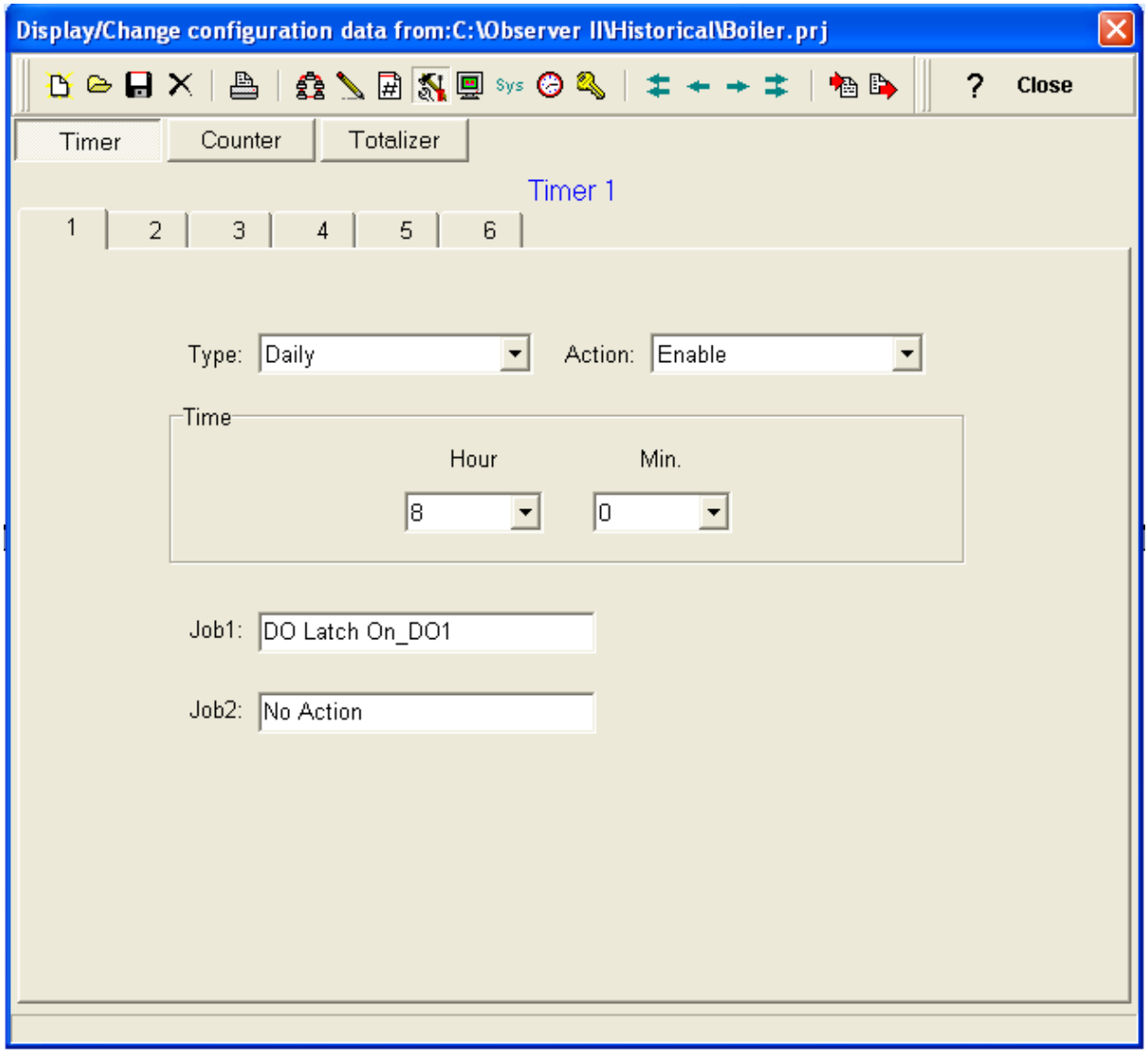
Disable: Counter status is not required in the status bar.
Ex: Enable 1-6: Show the status of counters from channel 1 to channel 6.

Please note that status bar display is available only at recorder and it is not available in real time viewer.

2.6 Tools

Tools

It is used to configure timers, counters and totalizers



2.6.1 Timer

Six timers available for user configuration (Timer 1 to Timer 6)

Type: Count down, repeat, daily, weekly or monthly

> ***Countdown***: Works as delay time as per set intervals in days, hours, min & sec. Please note that the set time interval is not real time that works with system clock.
>
> ***Repeat***: Repeats countdown this is also not real time
>
> **Daily, weekly and Monthly**: Timer works in selected interval of real time.

Action: Enable or disable the selected timer for the operation.

Job 1 & Job 2: Two jobs can be defined for each timer after elapsing of set time interval.

2.6.1.1 Example1

Task 1: Switch on water pump every day from 8.00 hrs to 9.00 hrs for plantation.

Hardware Requirements: At least One digital output card, DO 181 fitted in the recorder.

Select Timer 1
Type= Daily
Action= Enable
Hour=8
Min = 0
Job 1, Job Item = DO latch on, Target = DO 1

Select Timer 2
Type= Daily
Action= Enable
Hour=9
Min = 0
Job 1, Job Item = DO latch off, Target = DO 1

2.6.1.2 Example2

Task 2: when gear box oil temperature exceeds more than 80 deg.c, open the air valve after 10 sec, when temperature decreases by 79 deg.c, close the air valve.

Hardware Requirements: At least One digital output card, DO 181
One analog input AI183 card / one Digital input card DI181

Analog input 1
Name: T101
Log method: Instant
Speed: 1 S
Sensor: As per setting of dip Jumpers & Dip switches.
Unit: Deg.C or Fahrenheit as per settings of Jumper and Dip switches
Off set: 0.0
Gain: 1.0

Event no 1, Type=L, Set point = 79, Job 1 = Disable Timer, Target= Timer 1
Job 2 = DO Latch_off, Target = DO1
Event no 2, Type=H, Set point = 80, Job 1 = Enable Timer, Target= Timer 1,

Select Timer 1

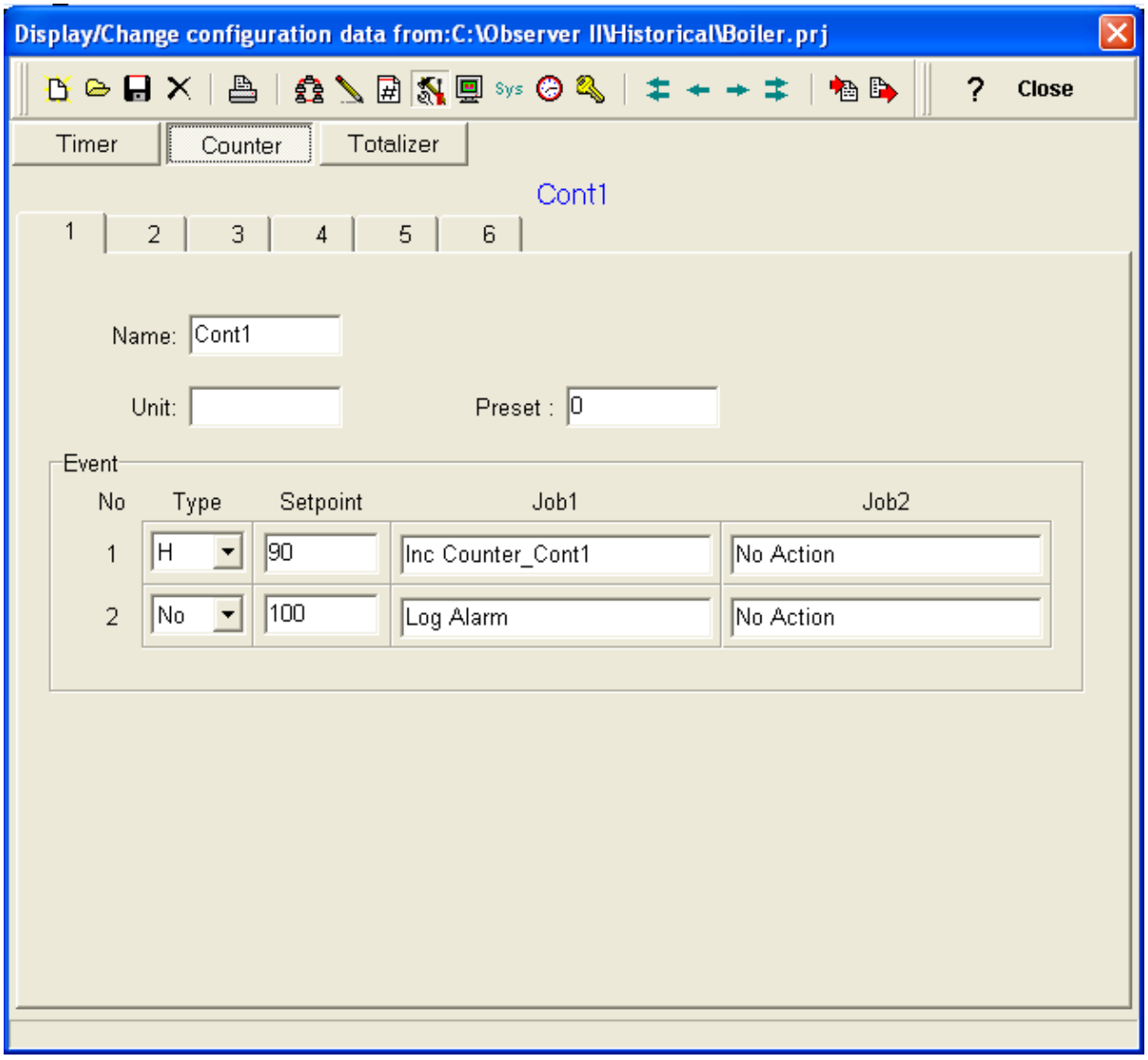
Type= Countdown
Action= disable
Day = 0
Hour=0
Min = 0
Sec=10

Job 1, Job Item = DO latch on, Target = DO1

2.6.2 Counter

This is used to count the number of events.

Six counters are available for user configuration (Counter 1 to Counter 2)



Name: Maximum six characters are allowed.

Unit: Unit of counter (six characters only)

Preset: this is initial value of the selected counter

Ex: Preset = 10, when counter is reset/ enable, then counter will be started from value 10.

Event: Two events can be configured for each counter

Two jobs can be configured for each event.

2.6.2.1 Application example

Task1: Manager wants to know how many times, inlet temperature of rotary kiln increases more than 1100 deg.c. If the process is disturbed more than 10 times, it should be appeared in the log report.

AN1, Name = T102
Log method: Instant
Speed = 1 S
Sensor = Thermocouple K type
Range= -200 to 1370
Gain = 1

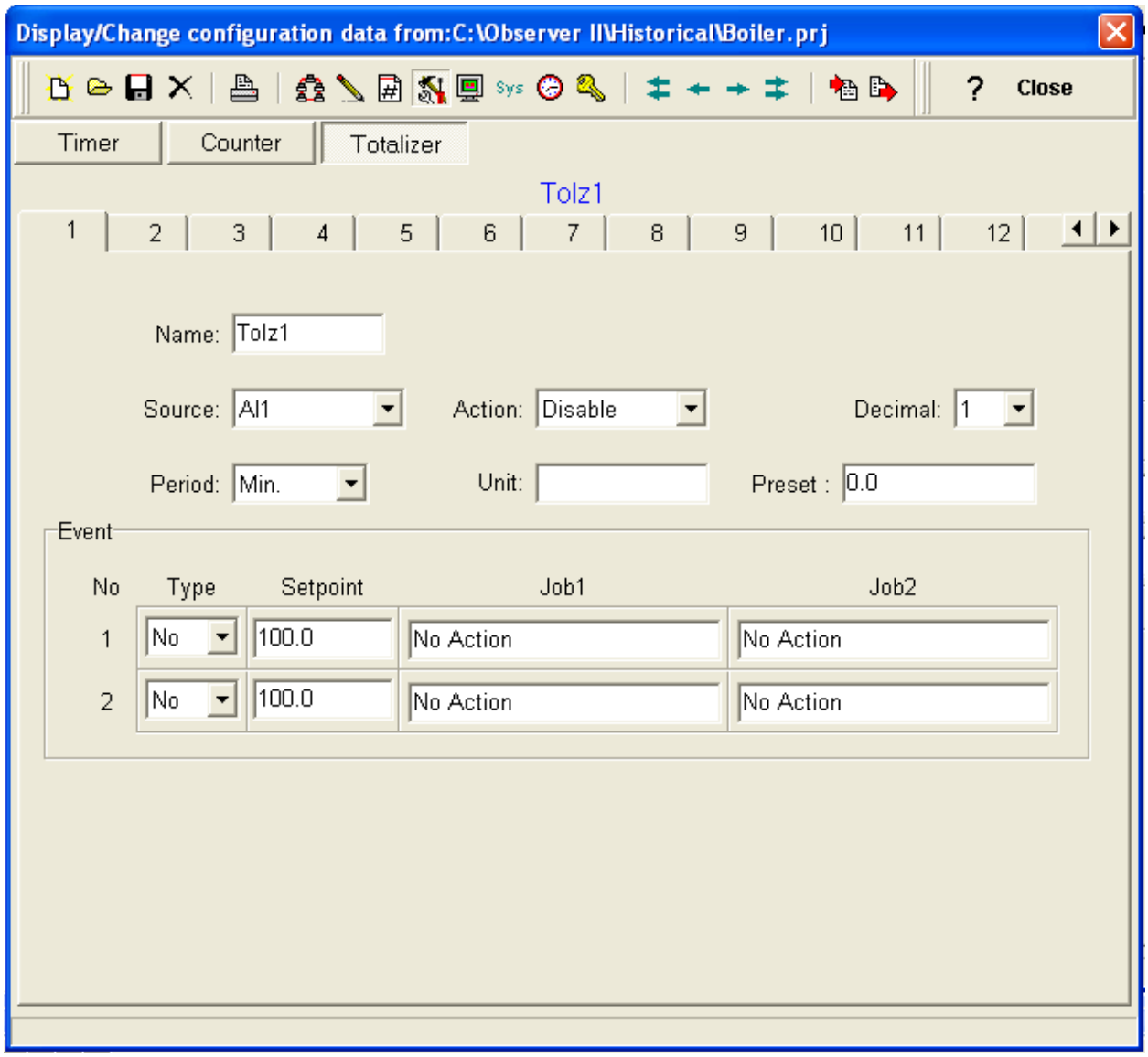
Event 1, Type = H, Job 1 = Increase counter, Target = Cont 1

Counter 1

Name: Kiln
Preset = 0
Event 1, Type = H, Set point = 10, Job 1 = Log report, target = Cont 1, Job 2 = Reset counter, target = cont1

2.6.3 Totalizer

It is used to totalize engineering value with set time base.
Eighteen totalizers are available for user configuration.



Ex: Water Flow meter calibrated for 0-1000 Cub.mter/sec.

Totalizer is used to measure total quantity of water flow (Cub.Meter) in a pipe.

Source = AI1, Period = Sec, Unit = CUBM, Preset = 0.0, Decimal = 1, Action = Enable

Name: Six characters are allowed.

Source: It is the data source, Analog input or result of mathematical expression can be used.
Ex: AI1, i.e., Totalizer uses analog input 1 as data source for totalizing

Action: Enable or disable for working of selected Totalizer

Decimal: defines decimal point for the selected Totalizer

Period: This is time base for the Totalizer. Sec/Min/Hour is available for selection

Unit: Defines unit for totalizing
Preset: For setting initial value at the Totalizer

Event: Two events can be configured for each Totalizer

Two jobs can be configured for each event

2.6.3.1 Examples

Task: For a city drinking water tank, When Totalizer reaches 100,000 cub,mtr, stop the water pump.

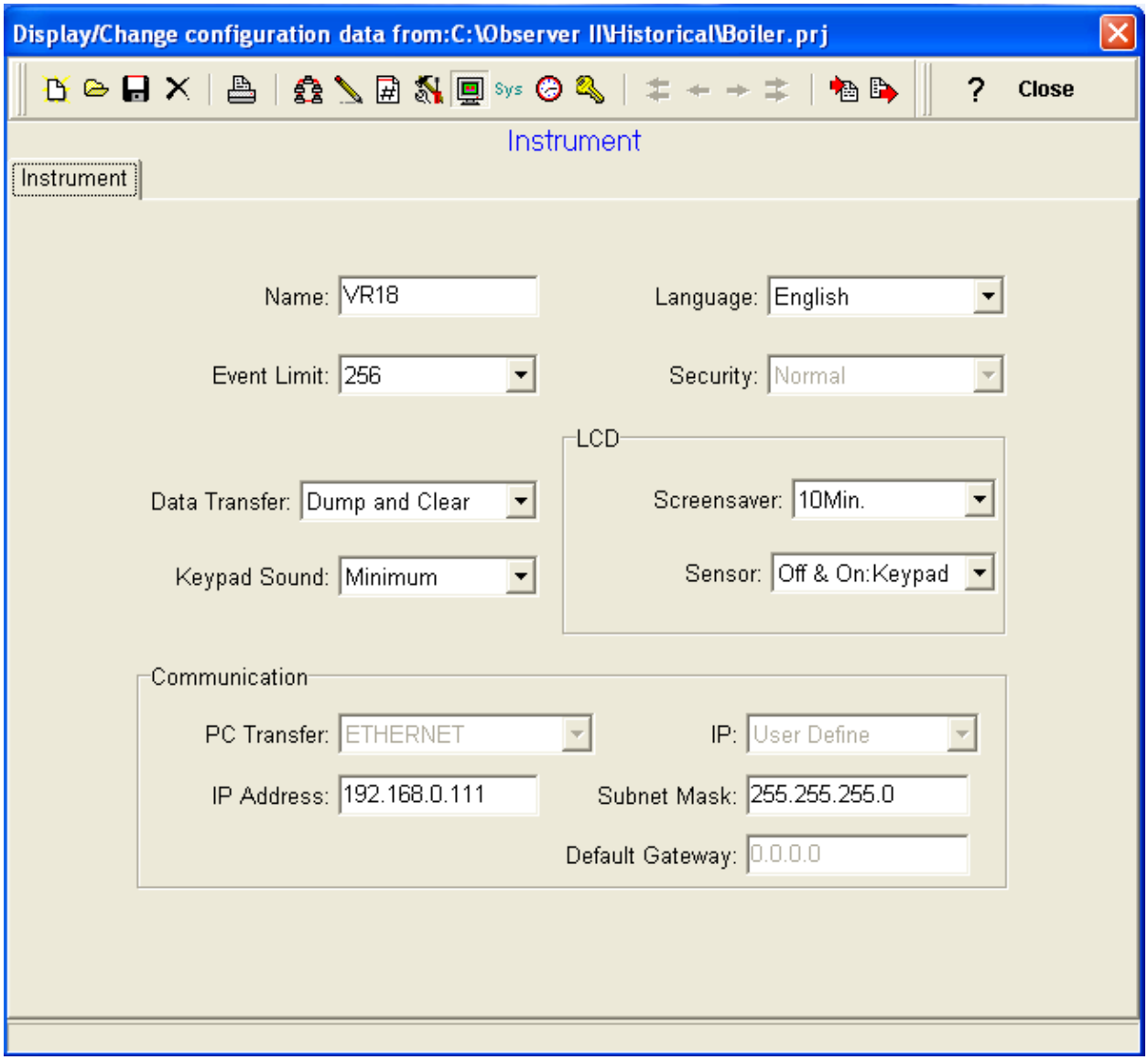
AI1, NAME = Flow, Range = 0-1000 cub.mter/sec, Unit = M3SEC

Totalizer 1

Source = AI1, Period = Sec, Unit = CUBM, Preset = 0.0, Decimal = 1, Action = Enable
Event 1, Type = H, Set point = 100,000, Job 1 = DO latch off, target = DO1

2.7 Instrument

Instrument



Name: name of the recorder

Event limit: Three options are available for user selection, 256, 512 and 1024. This will reserve memory space for the events in the internal memory.

Security: CFR 21 or normal available for user selection. This is in compliance with FDA 21- CFR part 11.

FDA 21-CFR part11 offers highest level of security which defines users among Supervisors and Operators. Thirty users are supported with password options.

2.7.1 Procedure to configure recorder FDA 21 CFR part 11

Please note that FDA 21 CFR part 11 should be configured directly at the recorder and it is not possible to configure this function from the Observer software. FDA 21 CFR part 11 function is available from Observer software version V 2.2 and recorder firmware version V 2.2 onwards.

Thirty users can be configured with different authorizations in one recorder.

Two different authorization levels are available for the users.

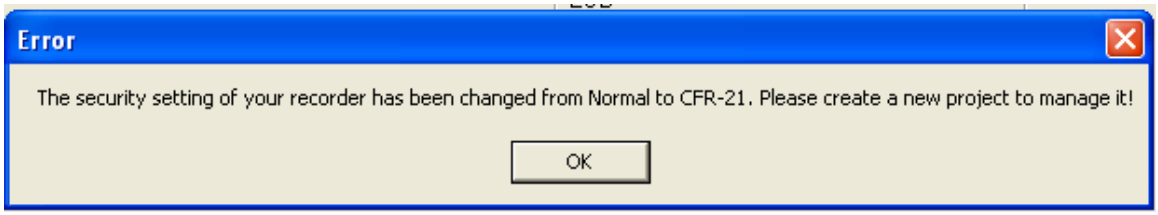
a) Supervisor: All functions are available including creation of new users.

b) User: Config, Operate, Clear, Dump and shut down functions are not available

Log out: This button is available at the recorder to change the users.

Also please note that, if you are already using Observer software prior to V 2.2 and planning to upgrade recorder to implement FDA 21 CFR part 11, then first upgrade Observer software with V 2.2 and also recorder firmware to V 2.2. As soon as Recorder security is changed to FDA 21CFR part 11, restart the recorder if prompted.

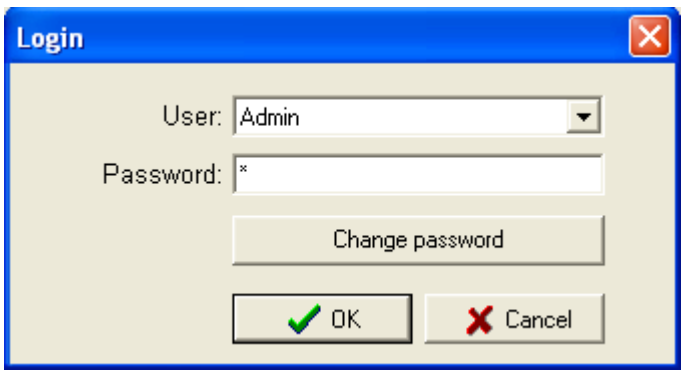
If you try to use existing old project in Observer software in PC after changing security to CFR 21, the following message will appear.



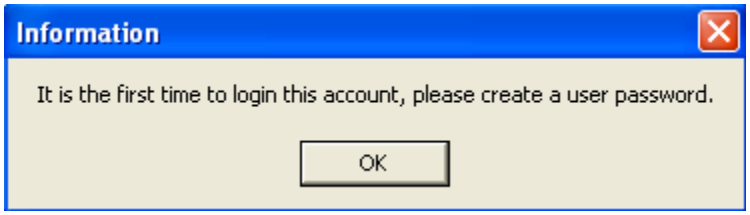
First create all the users with different authorization levels as per the requirements directly at the recorder.

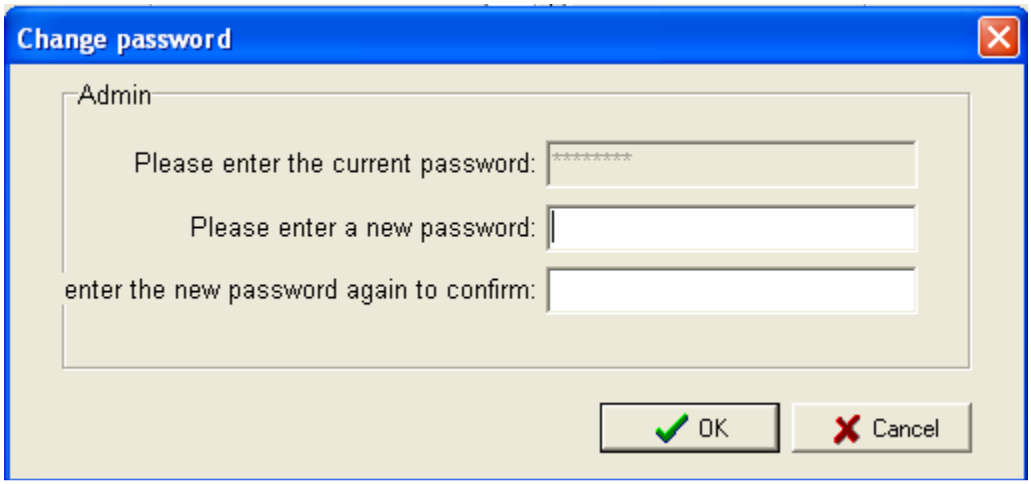
Then create new project in Observer software from the configuration to use Observer with CFR 21.

Start – Programs - Observer I/II – Configuration

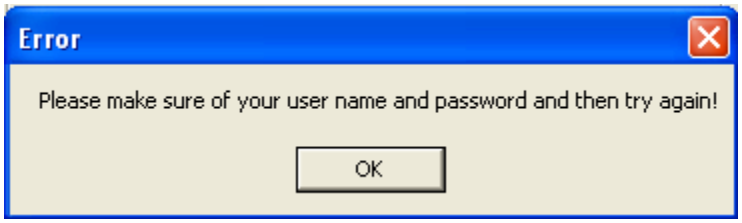


By default, Admin user with supervisor level authority will be created when new project is created. Select the user as Admin and give the password to enter into the recorder configuration set up. If no password entered in the recorder for Admin account, then for the first time when you try to log in, it prompts with the following message.

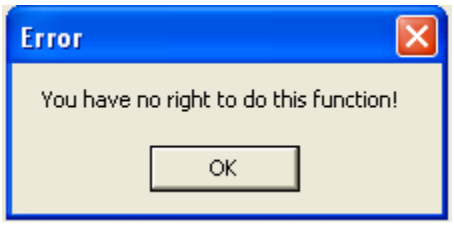




If user name and passwords are already created, during log in, if they are not matching, then the following message will appear



If you try to log in as user name other than supervisor authorization, then following message will appear. Configuration is restricted for supervisor level authorization only.



If user name (Supervisor authorizations) and passwords given correctly, then u can enter into the Observer software set up screen.

This is to receive configuration from recorder to PC.

Click on above icon at the Observer software to receive all the configurations from the recorder including information about user name and passwords.

Note: This icon is to send configuration from PC to recorder. Observe the difference carefully.

2.7.2 Data transfer

Two options are available

a) Dump and clear
b) Transfer and remain

2.7.2.1 Dump and clear

Recorder has internal memory of 8 MB.

Internal memory is used to store the events and data.

32 MB CF card shall be supplied along with the recorder.

In recorder at Top- right side, information about the storage space left in the internal memory is available as display

Ex: evnt = 70 %, it indicates that 70 % of the space reserved for recording events are still empty
Mem = 40 %, it indicates that 40 % of the space reserved for recording the data are still empty
CF = 50 %, it indicates that 50 % of the space is still free at the CF card.

When event memory or mem reached less than 25 %, then buzzer alarm indicates in the recorder, alerting the user for prompt action to transfer data manually.

During this time, user has the option to dump the data from recorder to CF card.

When dump and clear is selected as above, if CF card is empty, then when dump is activated in the recorder, data will be transferred from internal memory to the CF card and internal memory will be cleared.

If the CF card is already full, then it is not possible to transfer data from recorder to CF card.

If you try to transfer, the following message will appear in the recorder

“CF card space is not enough or CF card is not ready. Try again”

Because CF card is external memory-storage device like floppy-non-intelligent and data storage blocks in CF card cannot be controlled by another device like recorder.

During this case, user has to transfer data from CF card to PC.

Also please note that if CF card is full and also internal memory is full, then oldest data in the internal memory will be over written with the new data.

If transfer and clear is selected for data transfer, then after transferring data from CF card to PC, data in the CF card will be cleared and it is available for next data storage.

If internal memory reaches 90 % full, i.e., 10 % empty, user is not dumping the data, and then recorder will try to send old data in the internal memory to the CF card as small blocks of data for data storage.

Block transfer works as follows

600 sample data's for each channel will be transferred each time.

Each data take 2 bytes

i.e., total 600 X 2 = 1200 bytes/channel

For example, if you configure data log speed of analog input 1 is 1 sec, then

For 1 minute 60 sample data,
For 600 sample data's, it takes 10 minutes

So 600 sample data's collected in the span of 10 minutes shall be transferred as a block per channel each time. Please note that oldest data available in internal memory only will be transferred to the CF card in blocks and clearing that space for entering new data.

If 6 channels are available in the recorder, then 6 X 600 X 2 = 7200 bytes of data shall be transferred in total as a part of block transfer.

Irrespective of dump and clear or dump and remain, after block transfer, internal memory of the reorder will be cleared as per above calculation, creating space in the internal memory for new data storage.

Dump and clear works at two places in total

a) When data is transferred from recorder to CF card using dump at the recorder, internal memory will be cleared and data will be transferred to CF card.
b) When data is transferred from CF card to PC, using import data function at historical viewer in Observer software, data will be cleared from the CF card. Now CF card is free to store new data in recorder.

Note: When dump function is activated in the recorder, then the following seven files should be available in CF card.

Alarm.lst,P0.dat, p1.dat, p2.dat, P0.idx,P1.idx,P2.idx

After saving of configuration from recorder to CF card, the following two files should be available,
IO.dat & Recorder.Config.

I.e., If dump and clear is selected in the data transfer configuration, after importing data from CF card to PC, the above 7 files related to data will be cleared automatically in the CF card.

2.7.2.2 Transfer and remain

If this option is selected for data transfer, then it works as follows.

If the internal memory reaches, 75 % full, it alerts user for data transfer through a buzzer icon at the top of the recorder alarm banner.

If CF card is empty and when user use dump key, then data available at internal memory will be transferred to CF card and the internal memory will not be cleared, still data will remain.

If the internal memory reaches 90 % full, 10 % empty, then data from internal memory will be transferred to the CF card in small blocks as explained before.

If the CF card is already full, then it is not possible to transfer data from recorder to CF card.

If you try to transfer, the following message will appear in the recorder

"CF card space is not enough or CF card is not ready. Try again"

Transfer and remain works as follows.

a) When data is transferred from recorder to CF card using dump at the recorder, internal memory will not be cleared and data will be transferred to CF card.

Please not that when data is transferred from CF card to PC, using import data function at Historical Viewer in Observer software, ***data will be cleared*** from the CF card.

Note: When time in Recorder is changed, then if you dump data, irrespective of set data transfer option, all data will be transferred from Recorder internal memory to CF card and then it clears data in Internal memory. It is done to avoid any kind of data conflict in the Recorder after change of Time

Keypad sound: Disable, minimum, medium and maximum options are available for user selection. This is to sound after pressing any button in horizontal or vertical keypad.

LCD: Screen saver: Disable, 1 Min, 10 Min, 20 Min, 30 Min, 40 Min, 50 Min & 60 Min options available for selection

Sensor: The following three options are available

Off & on: Keypad,
Off & On: IR,
Off: IR, On: Keypad

IR sensor is fixed for the recorder to detect the movement of moving personal in front of the recorder. It detects the heat of the moving personal up to 2 meters distance.

Communication

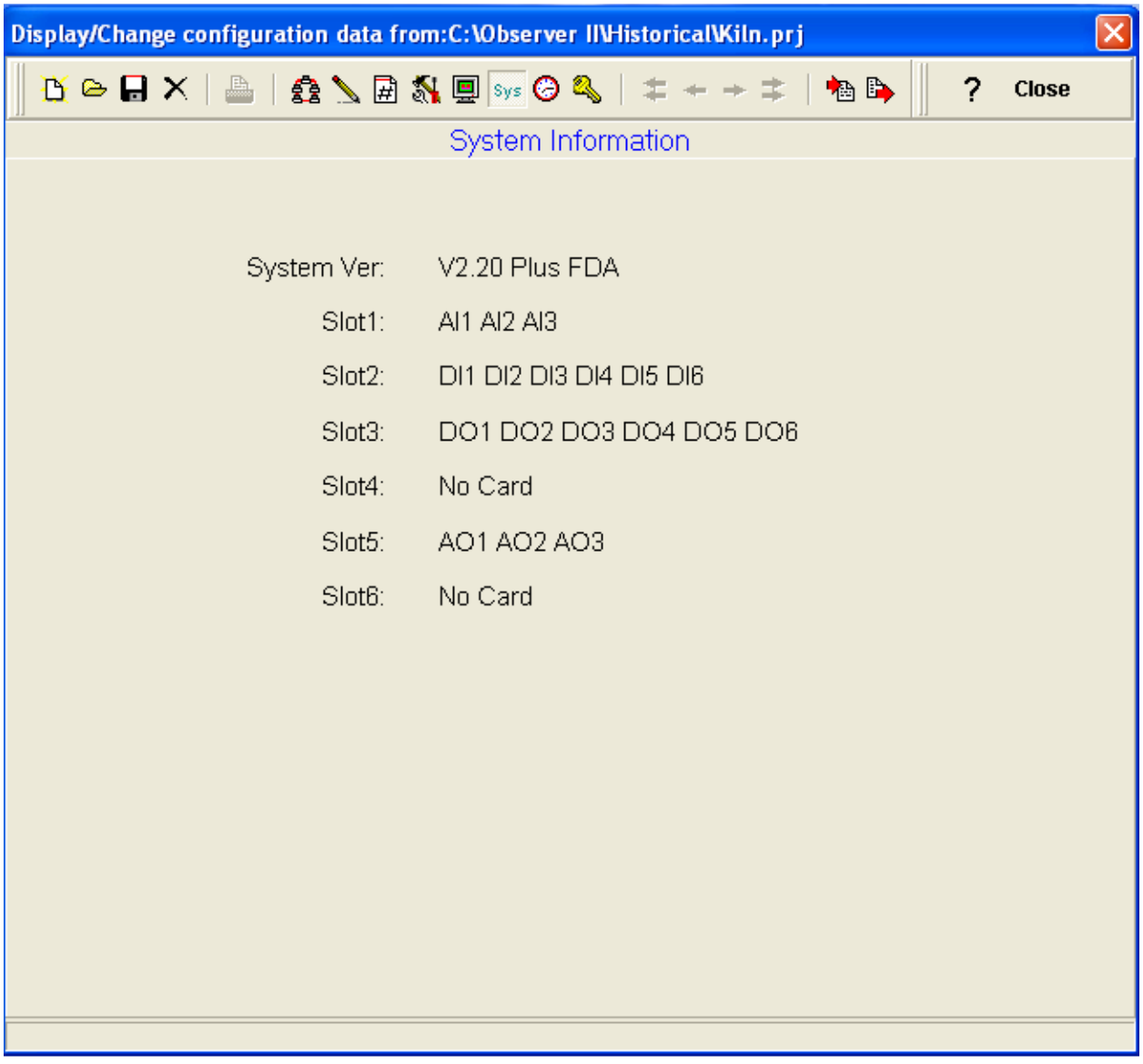
Ethernet and RS 232/RS485/RS422 options are available.

Please refer Ethernet configuration and RS232 configuration for more details about connecting recorder with PC or LAN/HUB.

2.8 System

system

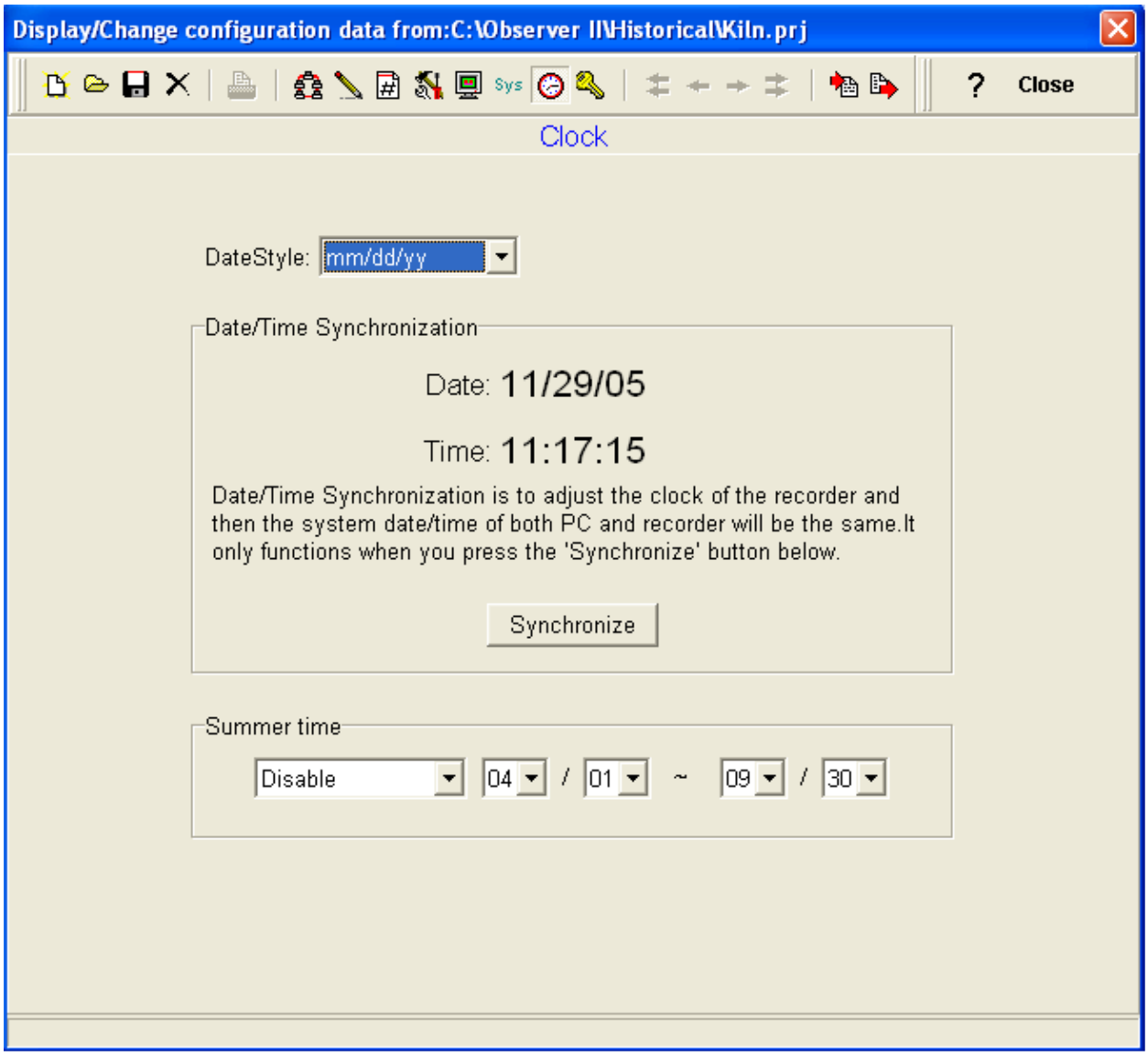
Displays recorder firmware information along with IO cards connected in the slots, at back side of the recorder.



2.9 Clock

Clock

This is used to synchronize recorder real time clock with PC date and time. If summer time is set, then recorder will be disabled from the data logging functions during this time to save the power and memory.



Note: When time in Recorder is changed, then if you dump data, irrespective of set data transfer option, all data will be transferred from Recorder internal memory to CF card and then it clears data in Internal memory. It is done to avoid any kind of data conflict in the Recorder after change of Time

Summer Time

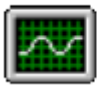
About Summer time, If enabled, by default, it is effective from April1 to Nov2 and it works as follows..

On April1, after 01:59:59, Clock in Recorder will change to 03.00
So, you will be not able to see historical data between 2.00 to 02:59:59

On Nov2, once time reaches 03:00, then time in recorder will change to 02:00
So, If you observe historical data, you will see two sets of data between 2:00 to 3:00

Please note that data will not loose when summer time is completed instead, you will be able to see two sets of data between 2:00 to 3:00 hrs. There is no need for user to do any thing manually.

3.0 HIST_VIEWER



This is used for data archiving.

Start-Programs-Observer I / Observer II-historical viewer

3.1 Tool bar

To open new project

To open existing project file

To configure recorder

To display the trend

Show events and alarm list

To show report

Signature list

Print

To select page

To export data to excel

Copy curves to clip board

Black background

White background

Show graphical representation horizontally

Show graphical representation vertically

Zoom out

Zoom in

Zoom all

Zoom by time

Zoom by value

Fast back ward for data monitoring

Backward

Forward

Fast forward

Search by specific time

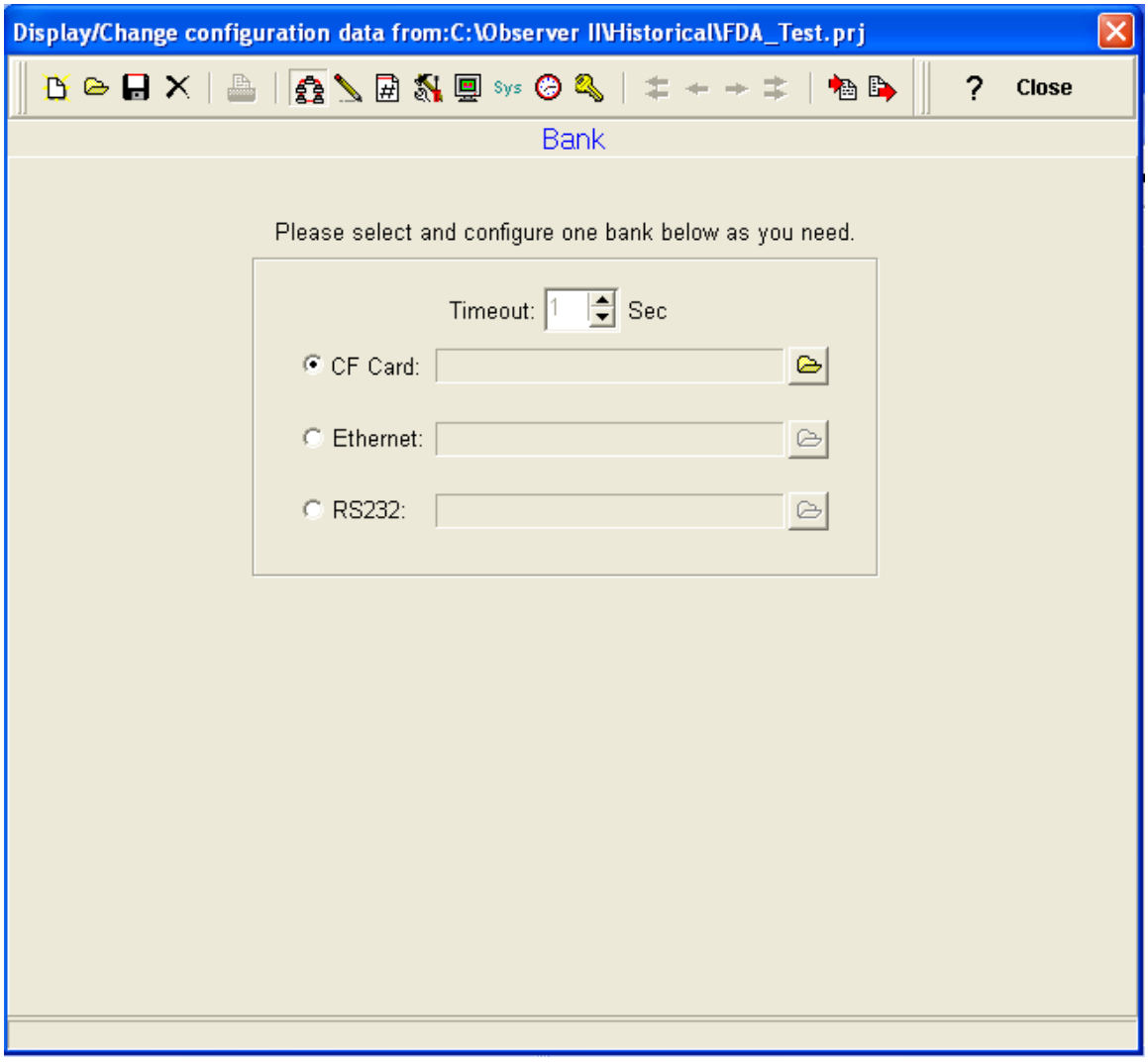
Search by a period of time

To import measured data from CF reader/RS 232/Ethernet

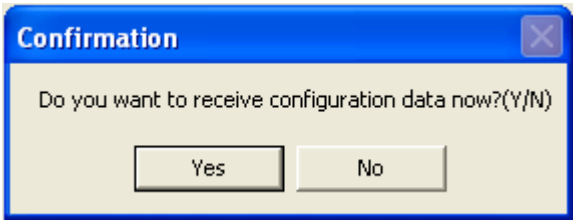
3.2 Opening a project

To create a new project

Select the bank



Specify the path for the data source



Select Yes, if the source contains configuration information to transfer recorder configuration to PC.

Option 1

If CF card is the source, then make sure that recorder configuration is already saved into the CF card. IO.dat and Recorder.config. should be available at CF card.

Use Config – Save to save the recorder configuration to CF card.

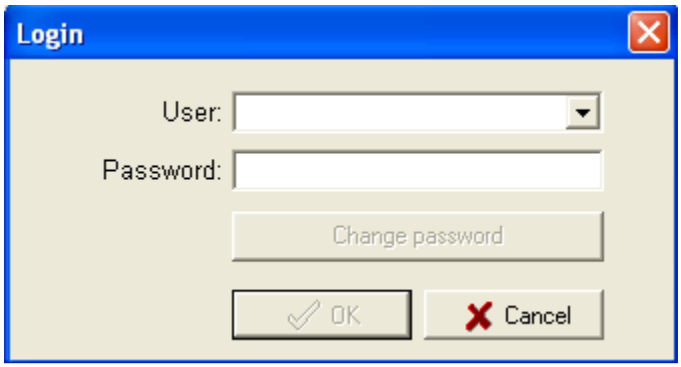
Option 2

If Ethernet is the data source, then configuration file will be transferred from recorder to PC via Ethernet if PC and recorder are properly configured as per 2.3.1 – Ethernet configuration.

Option 3

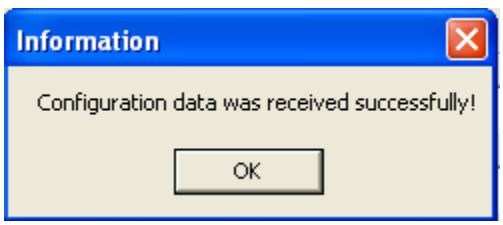
If RS 232 is the data source, then configuration file will be transferred from recorder to PC via RS232 if PC and recorder is properly configured as per 2.3.2 – RS232 configuration.

If CFR 21 is selected for security, then the following message will appear



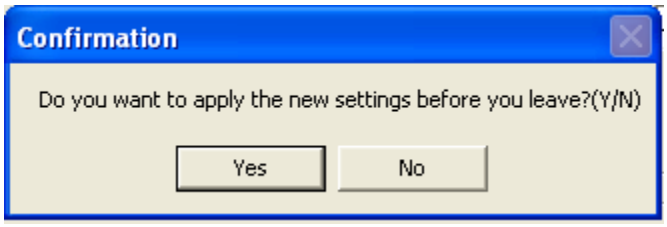
Give the password for transferring configuration from selected data source to PC.

If configuration data transfer is successful, then following message will appear.



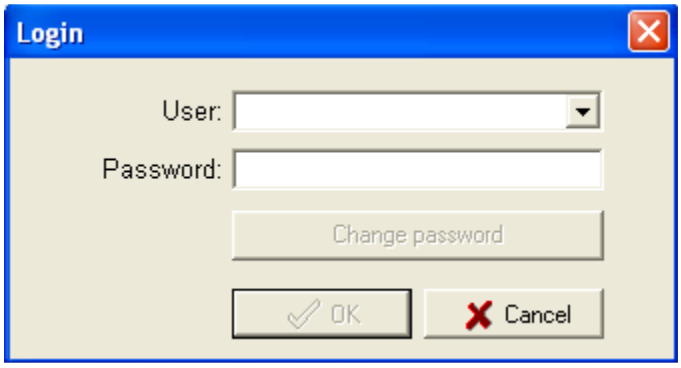
If configuration data transfer is not successful, then repeat 2.3.1/2.3.2/2.3.3

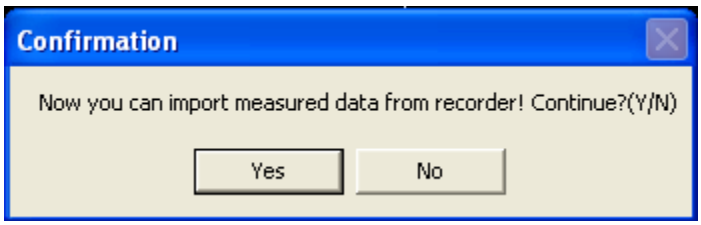
Modify the configuration if required and close the configuration screen,



Select yes.

If CFR 21 is configured for security the following message will appear. Give the password to continue to historical viewer.





Select “Yes” to receive the measured data from the selected data source and path.

Now all the measured data available at the selected data source will be transferred to PC

C:/Observer 1/II – Historical – Project name (Ex: Boiler)

In PC, the following files will be available at the above path

P0.dat, P1.dat, P2.dat, P0.idx, P1.idx, P2.idx

IO.dat, Recorder.config.

3.3 Display

Trends, Events/alarms, report, Configuration data are available for selection

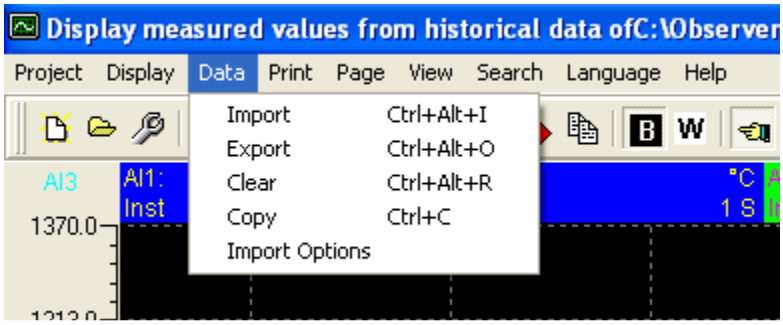
Trends: select this to display trends

Events/Alarms: select this to display alarms/trends

Report: select this to display report

Configuration data: select this to configure recorder

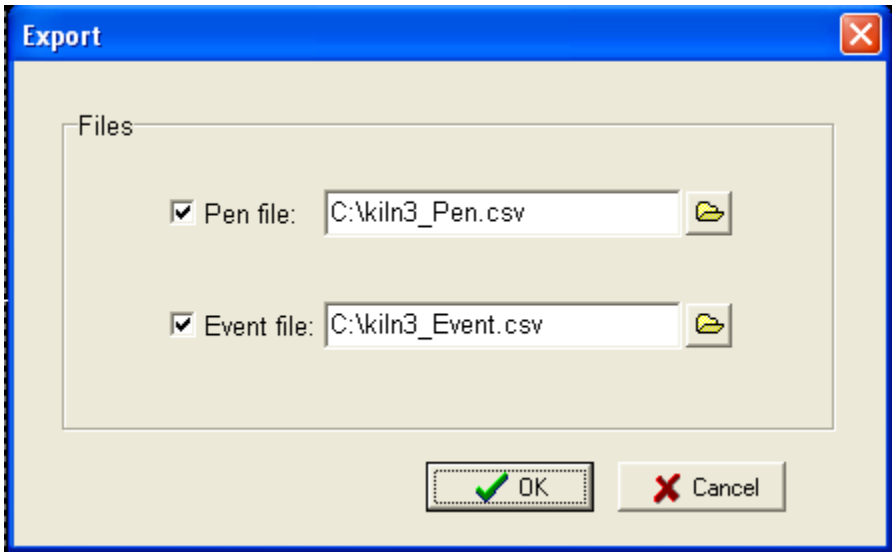
3.4 Data

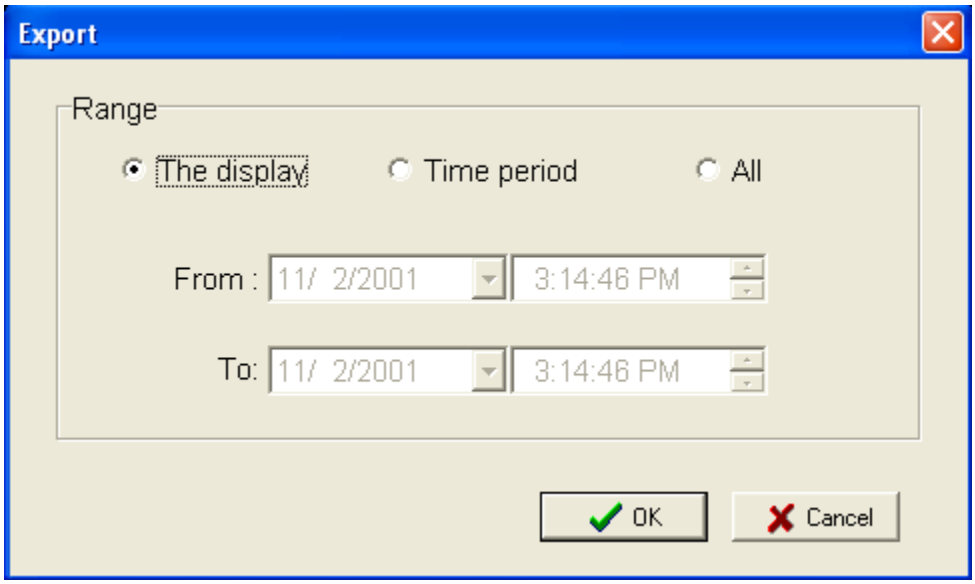


Import, Export, Clear, Copy and Import options available

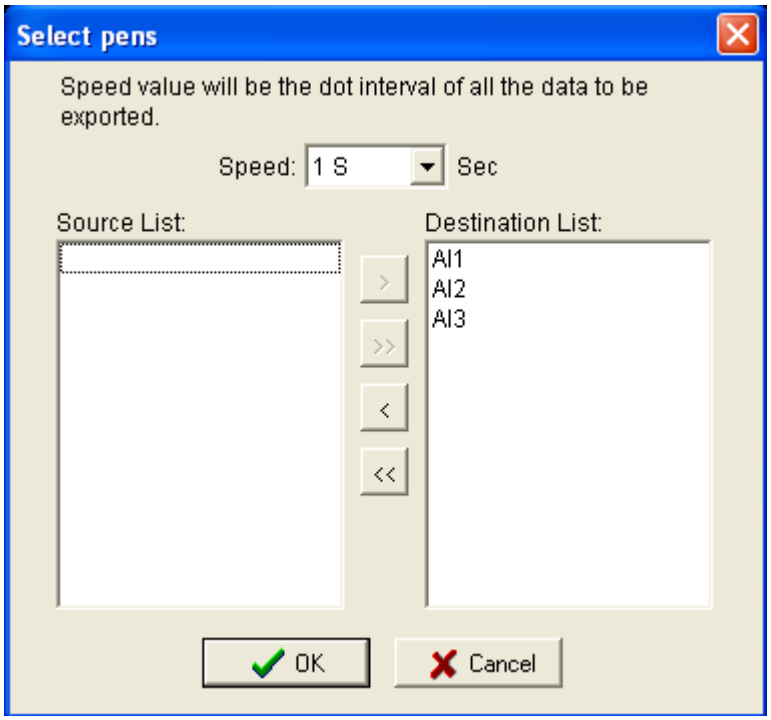
Import: New data will be imported from the selected data source and path as per selection at the bank.

Export: It is possible to export data from Observer software to Excel files in CSV format at the selected path. Data and events shall be saved in separate files.



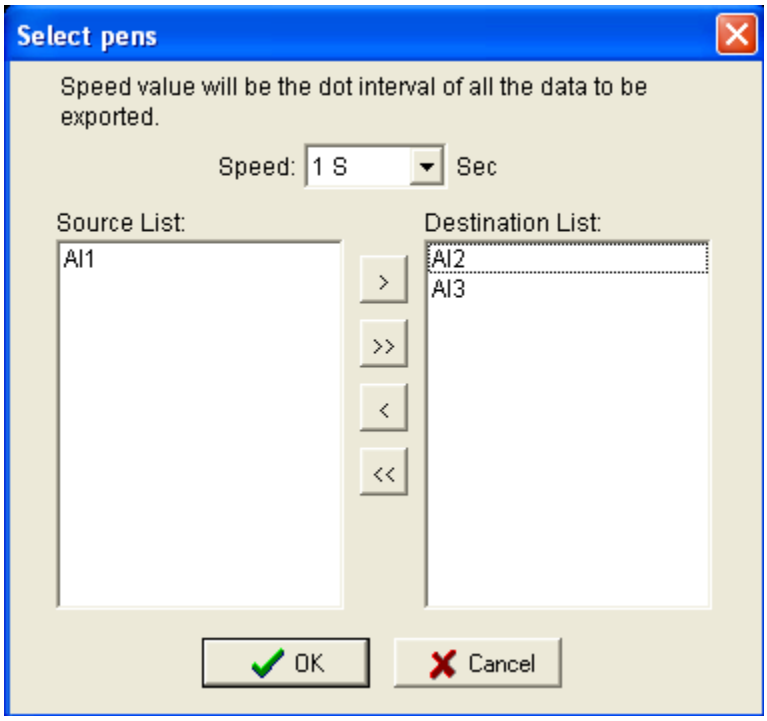


It is possible to export part of selected data to the Excel files. The range can be selected as above.



Also log speed and channels can be selected for data selection.

For ex: if you need to export data for channel AI1 only, then AI1 should be available at the destination list. If AI1 is available at source list, then click on to send from source list to destination list.
Pens available at the destination list data's only will be exported to the Excel files. If any pen is available at source list, then that particular pen data will not export to the Excel files.



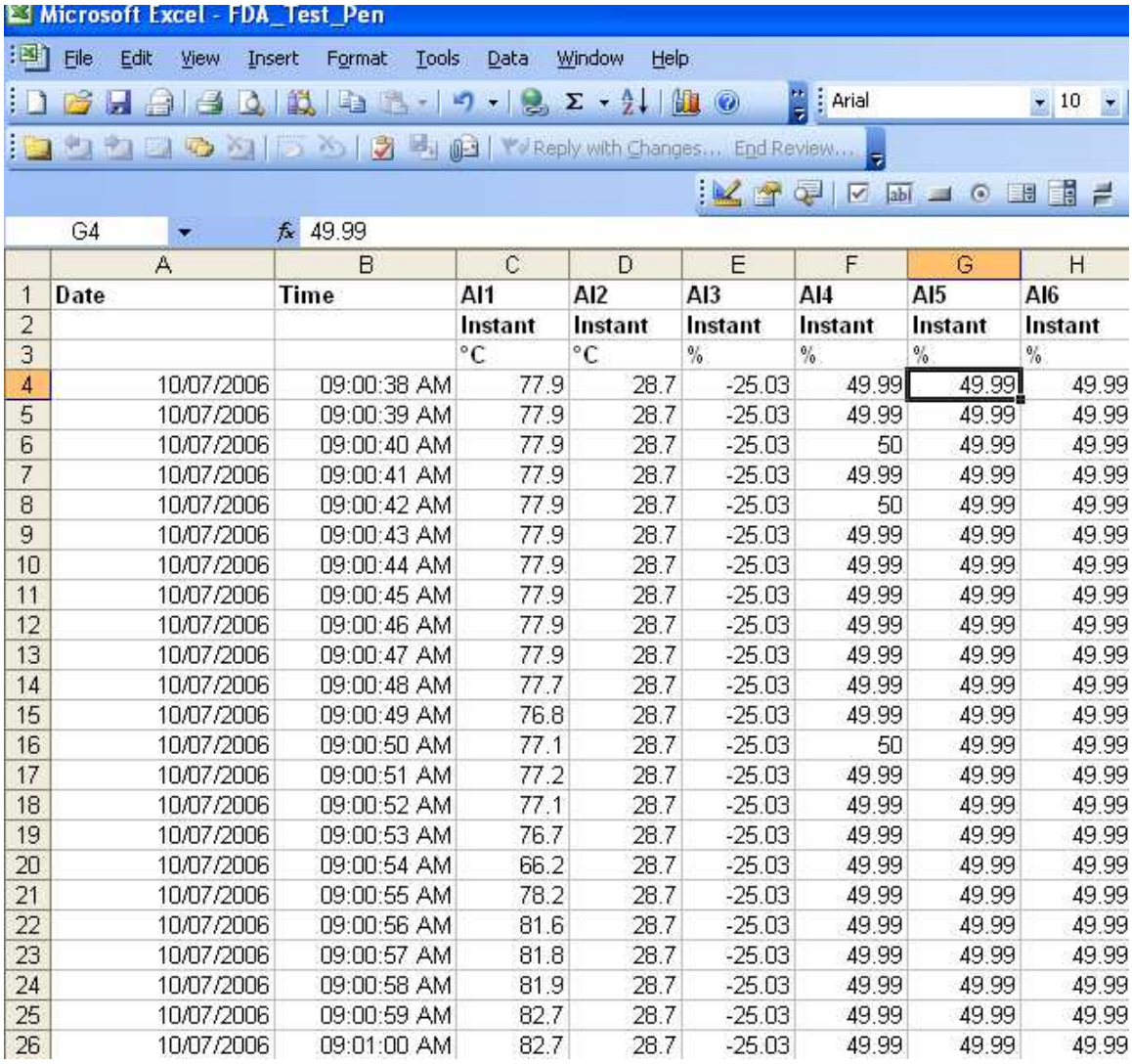
Select ok to export data.

If the data export is successful, then above message will appear.

If the CSV format file name is already available at the selected path, when prompted over write the file.

We suggest name a new file name when exporting data to a selected path instead of over writing the existing file.

If any ERROR appears in CSV format file, it means, no data available for that particular time. It is empty. To avoid showing these error messages, select the range properly when exporting data along with exact pens you need.



Microsoft Excel - FDA_Test_Pen

File Edit View Insert Format Tools Data Window Help

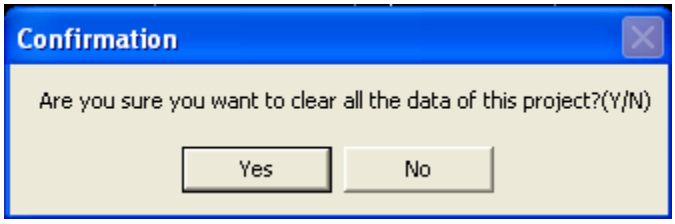
Arial 10

Reply with Changes... End Review...

G4 fx 49.99

	A	B	C	D	E	F	G	H
1	Date	Time	AI1	AI2	AI3	AI4	AI5	AI6
2			Instant	Instant	Instant	Instant	Instant	Instant
3			°C	°C	%	%	%	%
4	10/07/2006	09:00:38 AM	77.9	28.7	-25.03	49.99	49.99	49.99
5	10/07/2006	09:00:39 AM	77.9	28.7	-25.03	49.99	49.99	49.99
6	10/07/2006	09:00:40 AM	77.9	28.7	-25.03	50	49.99	49.99
7	10/07/2006	09:00:41 AM	77.9	28.7	-25.03	49.99	49.99	49.99
8	10/07/2006	09:00:42 AM	77.9	28.7	-25.03	50	49.99	49.99
9	10/07/2006	09:00:43 AM	77.9	28.7	-25.03	49.99	49.99	49.99
10	10/07/2006	09:00:44 AM	77.9	28.7	-25.03	49.99	49.99	49.99
11	10/07/2006	09:00:45 AM	77.9	28.7	-25.03	49.99	49.99	49.99
12	10/07/2006	09:00:46 AM	77.9	28.7	-25.03	49.99	49.99	49.99
13	10/07/2006	09:00:47 AM	77.9	28.7	-25.03	49.99	49.99	49.99
14	10/07/2006	09:00:48 AM	77.7	28.7	-25.03	49.99	49.99	49.99
15	10/07/2006	09:00:49 AM	76.8	28.7	-25.03	49.99	49.99	49.99
16	10/07/2006	09:00:50 AM	77.1	28.7	-25.03	50	49.99	49.99
17	10/07/2006	09:00:51 AM	77.2	28.7	-25.03	49.99	49.99	49.99
18	10/07/2006	09:00:52 AM	77.1	28.7	-25.03	49.99	49.99	49.99
19	10/07/2006	09:00:53 AM	76.7	28.7	-25.03	49.99	49.99	49.99
20	10/07/2006	09:00:54 AM	66.2	28.7	-25.03	49.99	49.99	49.99
21	10/07/2006	09:00:55 AM	78.2	28.7	-25.03	49.99	49.99	49.99
22	10/07/2006	09:00:56 AM	81.6	28.7	-25.03	49.99	49.99	49.99
23	10/07/2006	09:00:57 AM	81.8	28.7	-25.03	49.99	49.99	49.99
24	10/07/2006	09:00:58 AM	81.9	28.7	-25.03	49.99	49.99	49.99
25	10/07/2006	09:00:59 AM	82.7	28.7	-25.03	49.99	49.99	49.99
26	10/07/2006	09:01:00 AM	82.7	28.7	-25.03	49.99	49.99	49.99

Data clear: This is used to clear all the available data for the project



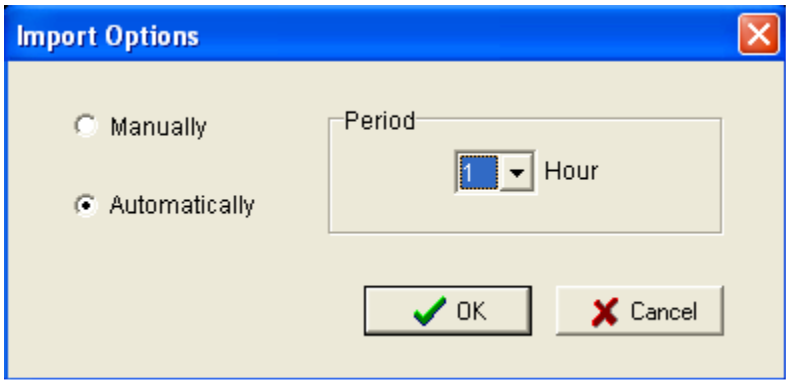
Data copy: this is to export the historical trend to the clip board.

Data import options: This option is used to import data from recorder to the PC.

Manual: User has to click on to receive the data from recorder to PC manually.

Automatic: Automatic data transfer from recorder to PC as per set period available in the range of 1 to 24 hrs.

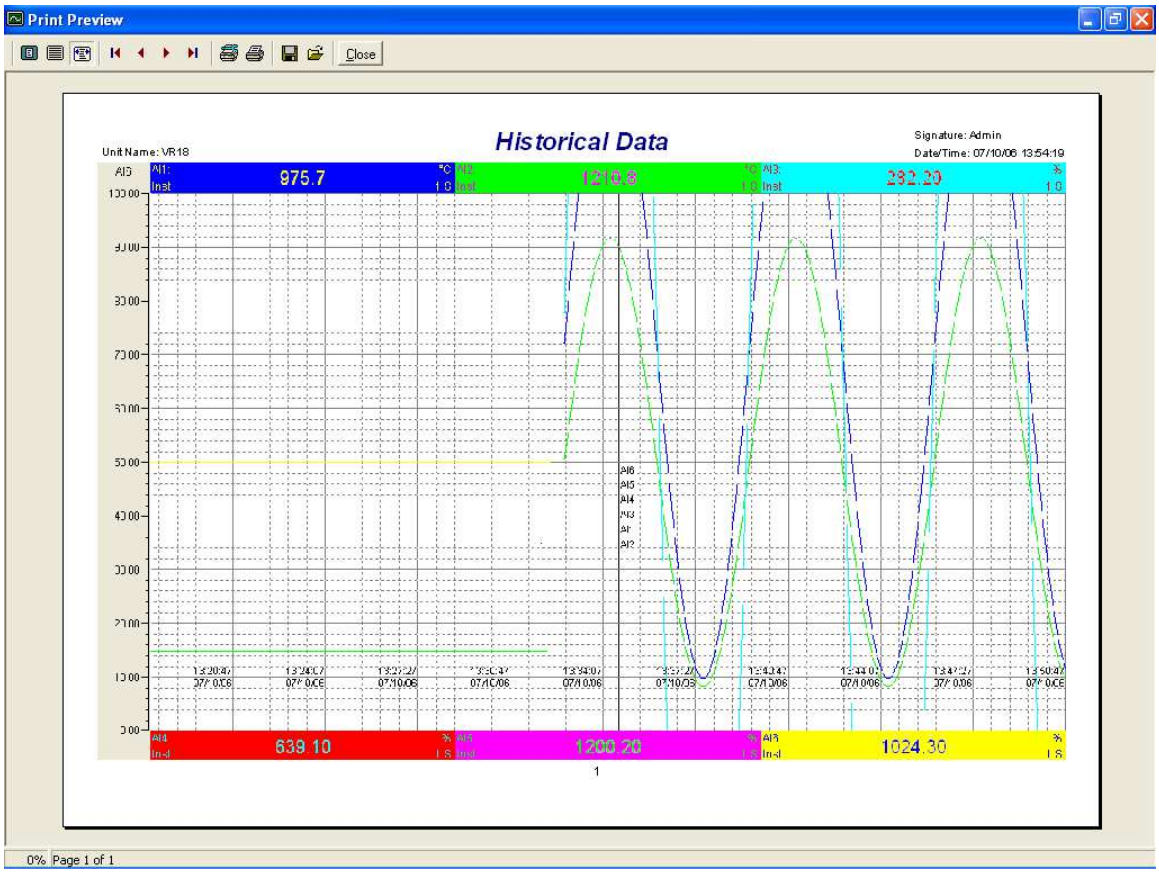
For ex: If automatically is selected with period of 1 hr, then once in every hour data will be transferred automatically with out user interference.



3.5 Print

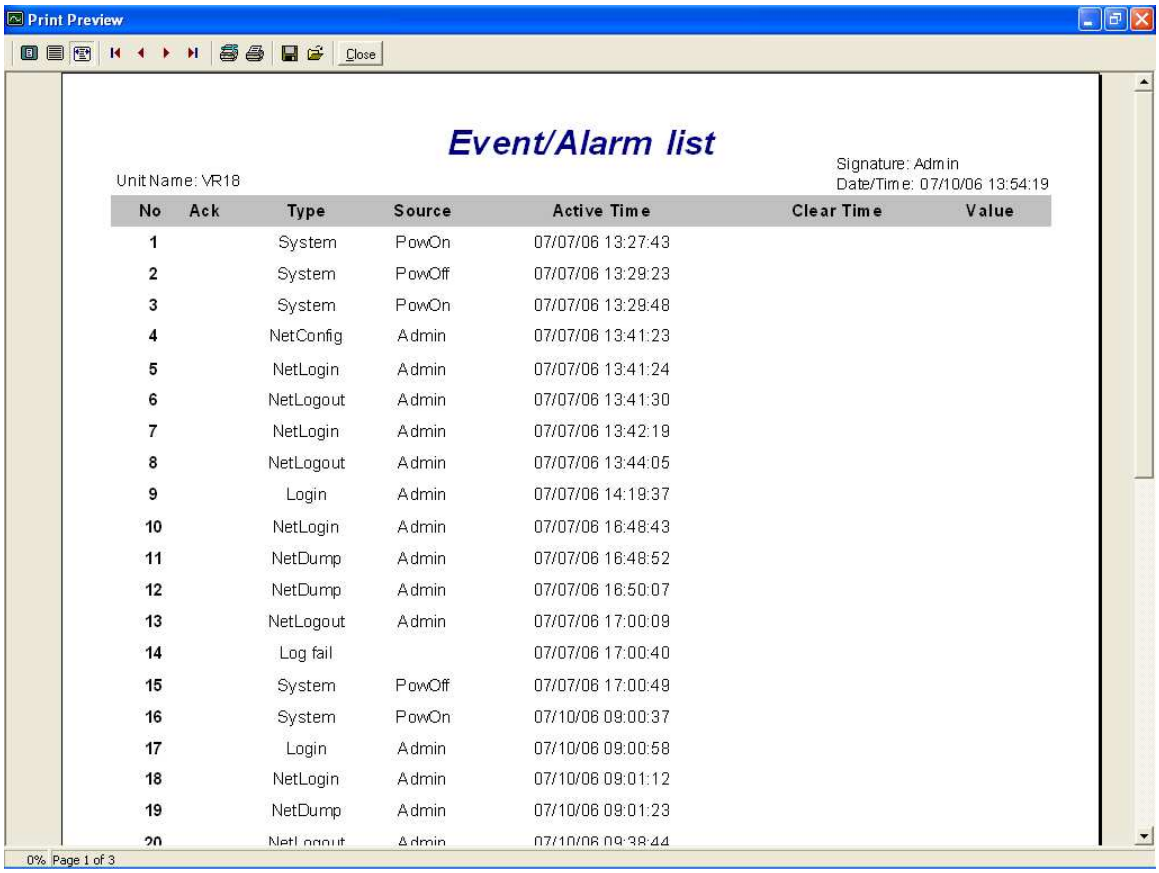
Active Trend view and alarm list can be taken print out.

Trend Print



Note: For CFR 21 part 11, signature also will be printed as shown above.

Event /Alarm list print



Note: For CFR 21 part 11, signature also will be printed as shown above.

3.6 Page

This is for page selection. If more than 1 page is configured, then particular page can be selected from this place.

3.7 View

Zoom in, Zoom out, Zoom all, Hour, Day, Week, Month, Horizontally, Vertically, Black back ground, white back ground are available for selection.

Zoom in: This is to monitor the trends by decreasing x axis.

Zoom out: This is to monitor the trends by increasing the X axis.

Hour: This is to monitor the trend with one hour interval set at X axis.

Day: This is to monitor the trend with one day interval set at X axis.

Week: This is to monitor the trend with one week interval set at X axis.

Month: This is to monitor the trend with one month interval set at X axis.

Horizontally: This is to view the trend horizontally

Vertically: This is to view the trend vertically

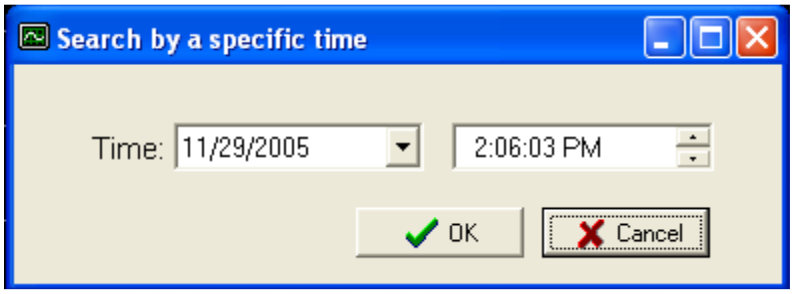
Black back ground: This is to set black back ground to the trend

White back ground: This is to set white back ground to the trend

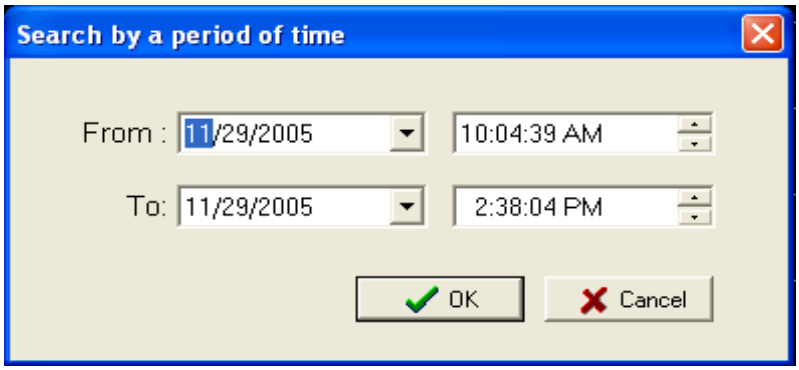
3.8 Search

By specific time and by period of time options are available for user selection.

Specific time: It is possible to search the historical data for a combination of specific date and time.

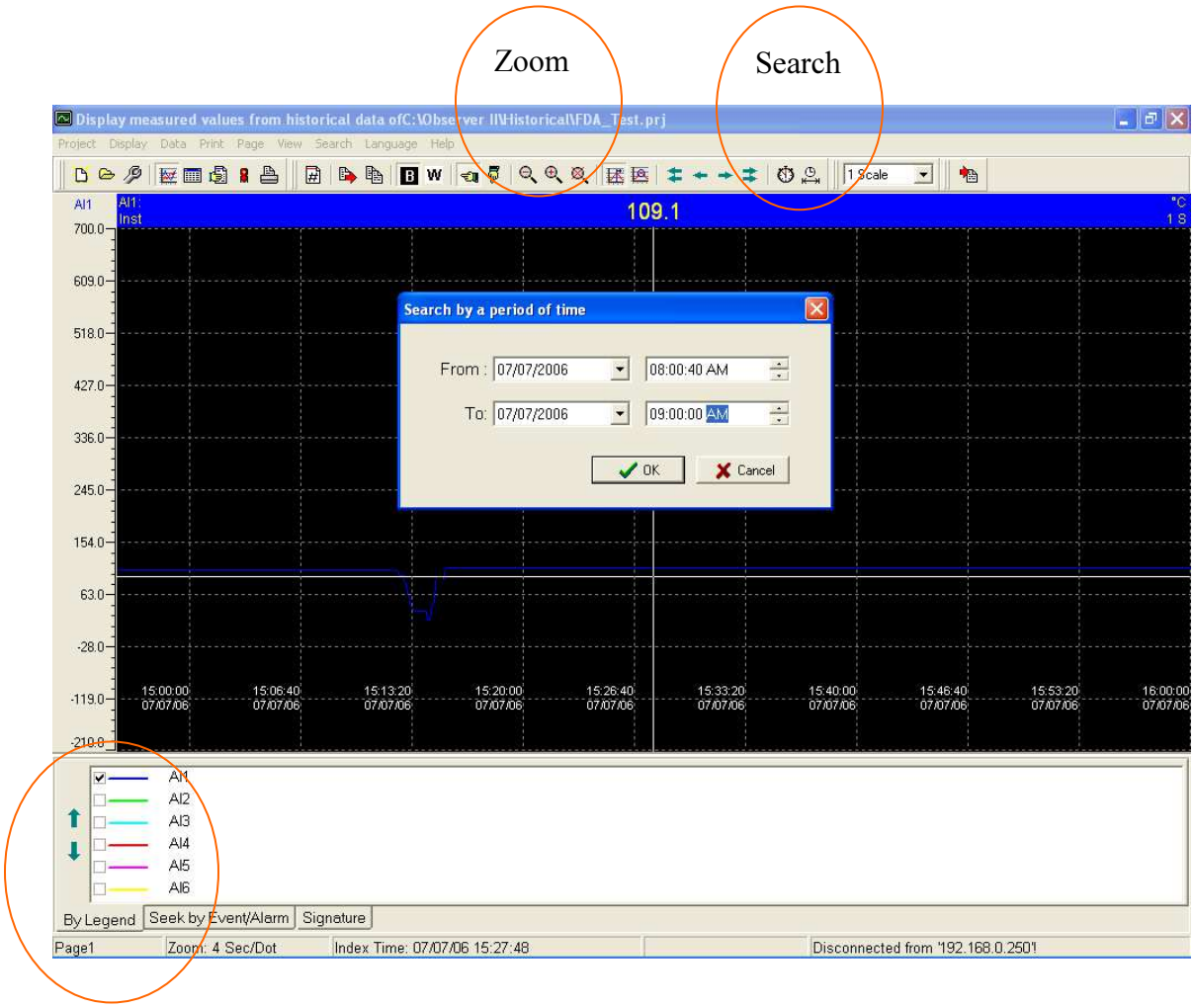


Period of time: This is to search the historical data in between specific time period.



Procedure for searching historical data

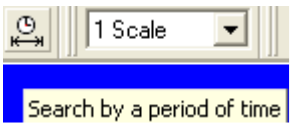
1. Open historical viewer at PC.



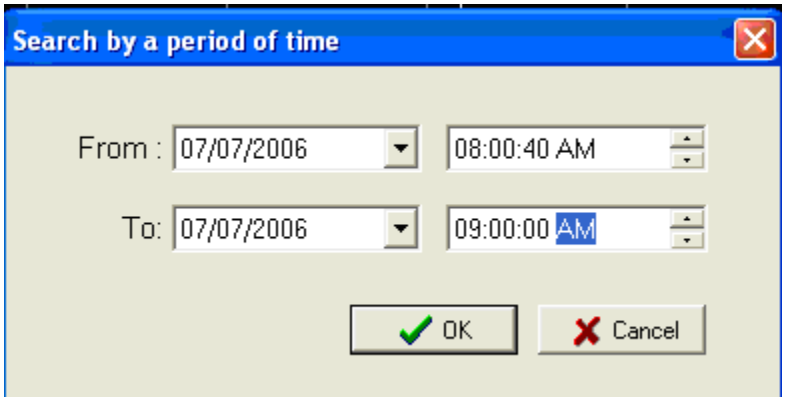
2. Click on Legend

3. Select the tags required for display. For ex: if you would like to see trend of Analog input1, then select AI1, now only AI1 will be displayed.

4. Then click on “Search by period of time” icon

5. 

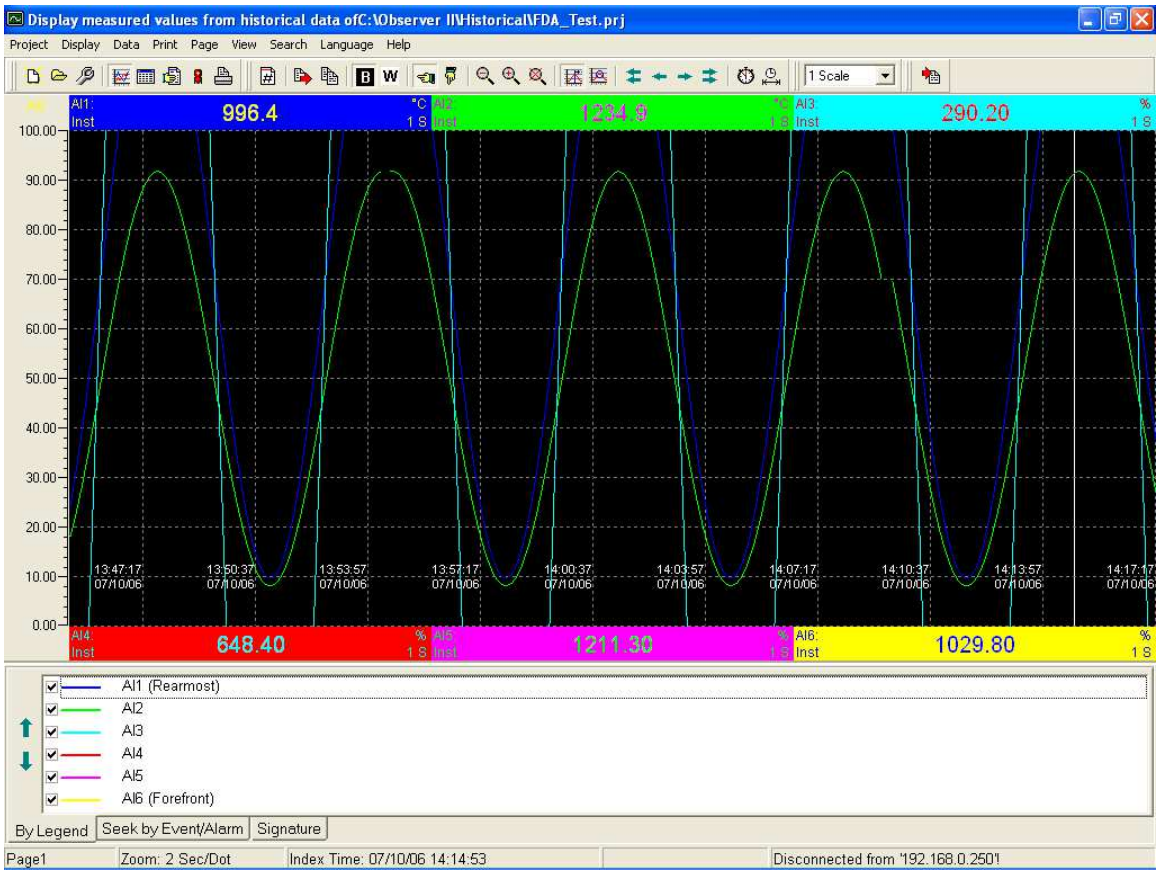
6. Then the following display appears



7. Enter the date and time as above, then click OK

8. Now the screen shown data from 8.00 AM to 9.00 AM for selected data

9. Now if required apply Zoom to observe the historical data as per your requirements.



10. Once trend is available as above for the data selected, then if required, print out can be taken from Print – Trend view option.

3.9 Language

User can select one of the 14 languages supported by the recorder.

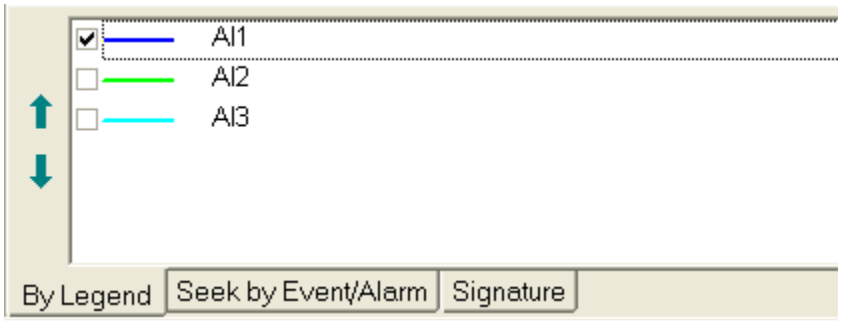
Please note that, before selecting language option, make sure that language is properly set at my computer – control panel – regional settings. Also selected language fonts should be installed if you have an operating system installed with English version. Other wise fonts shall not be displayed properly in the Observer software and the fonts are filled with ????????.

3.10 Help

Historical view help: This is to select Observer software user guide.

About: this is to check the Observer software version number.

3.11 Status bar



By legend

It is possible to display selected pens with the range set in scale. Select the check box against each channel as shown above.
Seek by event/alarm: It is possible to set the status bar to monitor summary of events/alarms

Signatures: If FDA 21 CFR part 11 is selected, then signatures can be monitored in the bottom status bar.

3.12 View CF card data in PC via Historical viewer

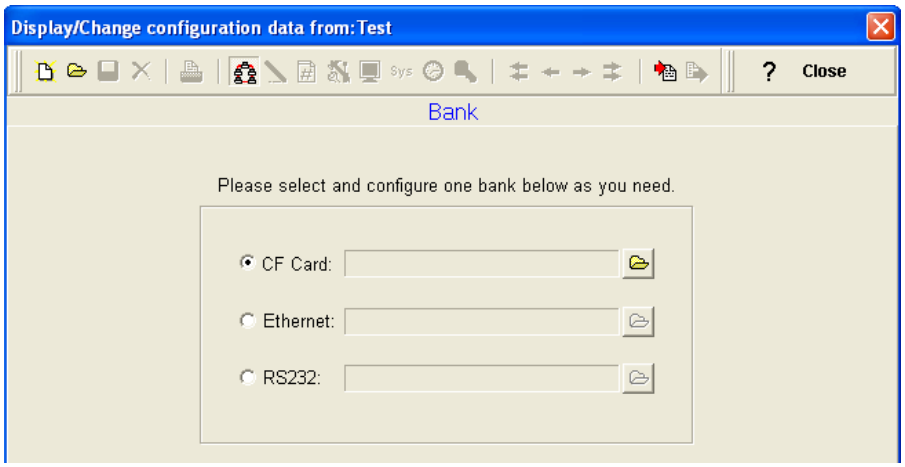
First dump data from Recorder Internal memory to CF card.

Remove CF card from Recorder. Insert CF card in CF card reader and insert in PC. Make sure that CF card is detected by the PC. If CF card is not detected, then you may need to install CF card drivers particularly for windows operating system versions Win95, 98 and 2000.

In PC, open Historical viewer. It prompts to create a new project.

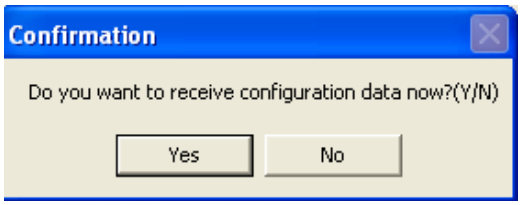
Give the name to the project.

Then it ask for selection of Bank as follows..

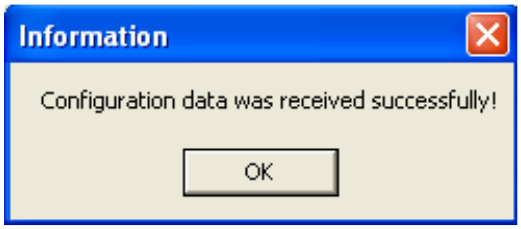


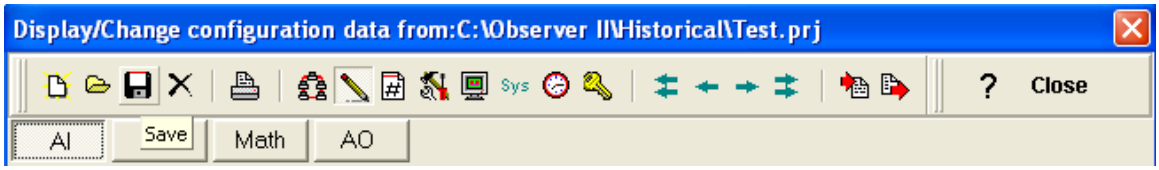
Select the bank as CF card. Then click on and select the path for the CF card.

Select CF card as shown above

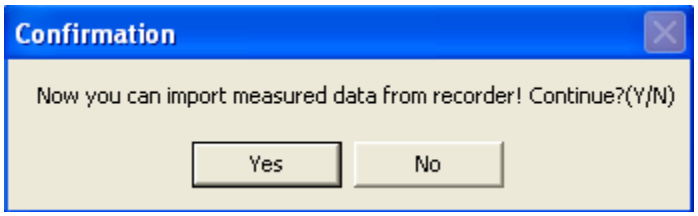


Click on Yes





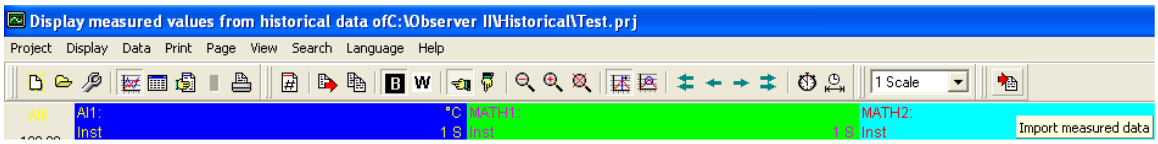
Click on Save



Click on “Yes”

Then all the data will be transferred from CF card to the PC. You can see the historical data.

Creating of a project is required only at the first time. For further data transfers, user needs to just import data by pressing “Measured data” icon



3.13 Historical data share and view from multiple computers

Assume project name is “Test”. Then in server PC, “Test” folder is available at C:\Program files\ObserverII\Historical and C:\Program Files\ObserverII\RealTime. Run Both Real time viewer and Historical viewer in the server. In the historical viewer, Data import, set automatic say once in a hour.

C:\Program Files\ObserverII\Historical: When data is imported in historical viewer (CF card/Ethernet as bank), data recorded at paperless recorder will be transferred to PC and historical data will be available at this path.

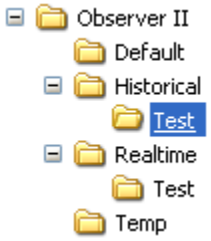
C:\Program Files\ObserverII\RealTime: When real time viewer is running in PC, data will be stored in PC automatically and this is equivalent to the historical data stored in the recorder.

1. Procedure to view historical data (Recorder) in Client- Server mode

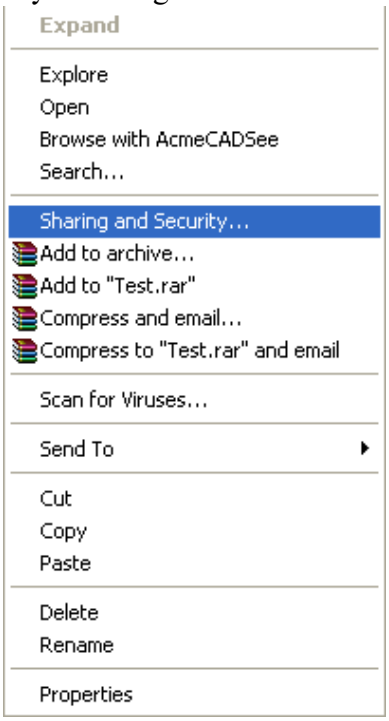
In this case, Paperless Recorder, Server PC and Client PC are in the LAN.

ServerPC

Set Share option manually for Test folder at C:\Program Files\Historical



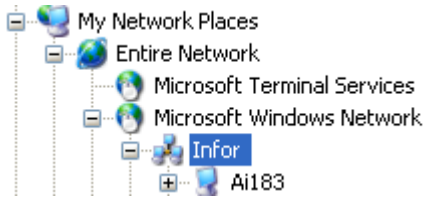
Right Click by selecting Test

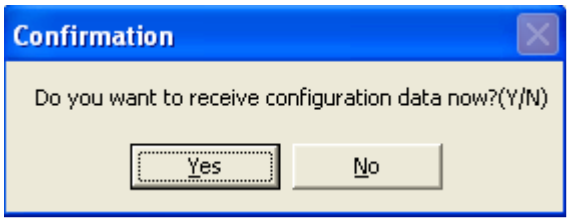


Do the Network sharing and security selections as shown below. In this example share name is given as “Test_Hist”.

Client:

Client PC should be connected in LAN with Server PC. Install Observer I software in Client PC. Create a new project in the Historical viewer. In the bank choose “CF” card and then link this with “Test_Hist” shared folder available in the Server PC. Select this via network places.





Click on “Yes”, if the link is proper, then you will receive hardware configuration. Now you can open historical viewer, import the data manually and then see historical data same as historical data viewed at server. Please note that in the client PC, data import should be done manually. Automatic data import from Server PC to Client PC is not supported.

2. Procedure to view historical data in Client PC directly from the Paperless Recorder

In this case, Paperless Recorder is connected to LAN. There is no PC by name Server. Any PC connected in the LAN can import data directly from paperless recorder. No need to share any folder for this purpose in any PC.

In the Paperless Recorder, in the configuration, press on Instrument, then in the Data Transfer, select “Transfer and Remain” option.

Install Observer I in the PC. Create a new project in the Historical viewer. Select bank as Ethernet. Insert IP address of the Recorder. Hardware configuration will be received and save this. Data can be imported manually at any time by pressing at Data-Import. To set automatic data transfer option, in the Historical viewer, click on Data, then import options, select period say 1 hr. (Available options 1 to 24)

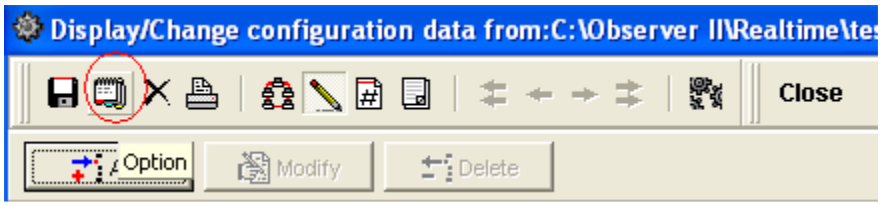
3. Procedure to view historical data (Recorded in PC by the Real time viewer) in Client- Server mode

ServerPC

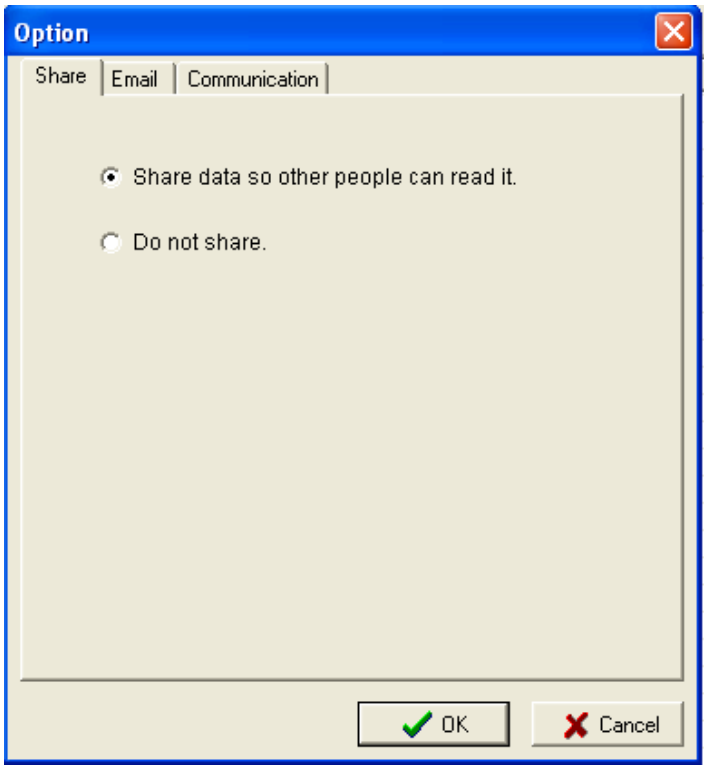
Open the Real Time viewer.

In the Real time viewer, click on configuration data icon

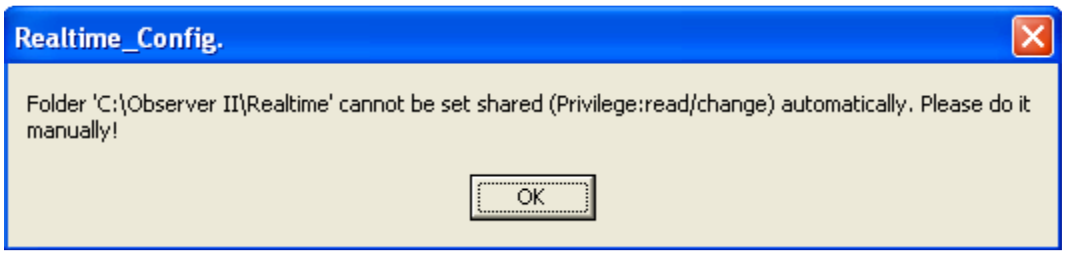
Then click on Option as shown below.



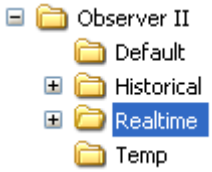
Then select Share as shown below and then press on OK.

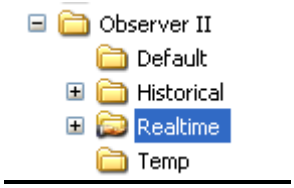


Then you will get the following message if real time viewer is on online with the recorder.



Set Share option manually for RealTime Folder at C:\Program Files\ObserverII

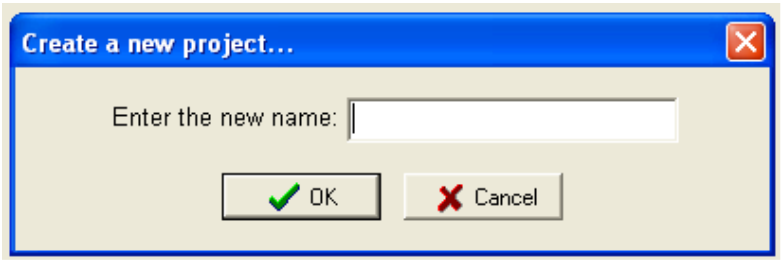




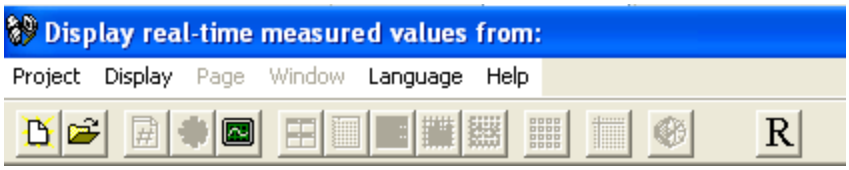
Client PC

Install Observer II Software.

Open the Real Time Viewer. It will ask to create a new project as follows..

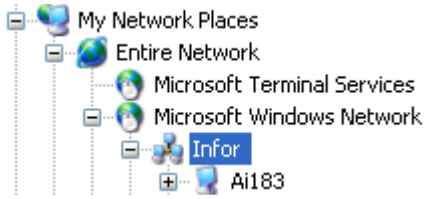


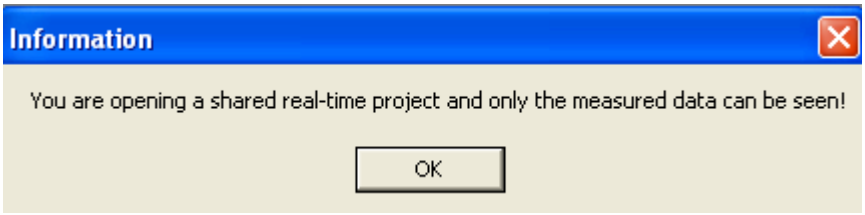
Click on cancel



Click on icon

Then choose project file “Test” available at Realtime folder shared at the server from My network places.





Now, you can see display of measured values from Historical data available at server. It is possible to set data import automatic option. Click on Data, then import options, select Automatically and then choose period between 1 to 24 hrs, say 1 hr.

3.14 FDA 21 CFR part 11 compliance

On August 20th 1997 the Food and Drug Administration made 21 CFR Part 11 came into effective. This regulation is summarized as follows:

“The Food and Drug Administration (FDA) is issuing regulations that provide criteria for acceptance by FDA, under certain circumstances, of electronic records, electronic signatures, and handwritten signatures executed to electronic records as equivalent to paper records and handwritten signatures executed on paper. These regulations, which apply to all FDA program areas, are intended to permit the widest possible use of electronic technology, compatible with FDA’s responsibility to promote and protect public health. The use of electronic records as well as their submission to FDA is voluntary.”

Summary

The Paperless Recorders have been designed to meet the standards set out in CFR 21 part 11 and it can be used as part of a validated system.

1) All process data recorded by Paperless Recorders is protected by an Encrypted “Digital Signature” to ensure the authenticity of these records.

2) Solid state flash memory is used to provide secure storage of data that is not reliant on battery back-up and which is not subject to magnetic fields.

3) Historical Viewer review software provides the ability to view the data records and audit trails in a human readable form.

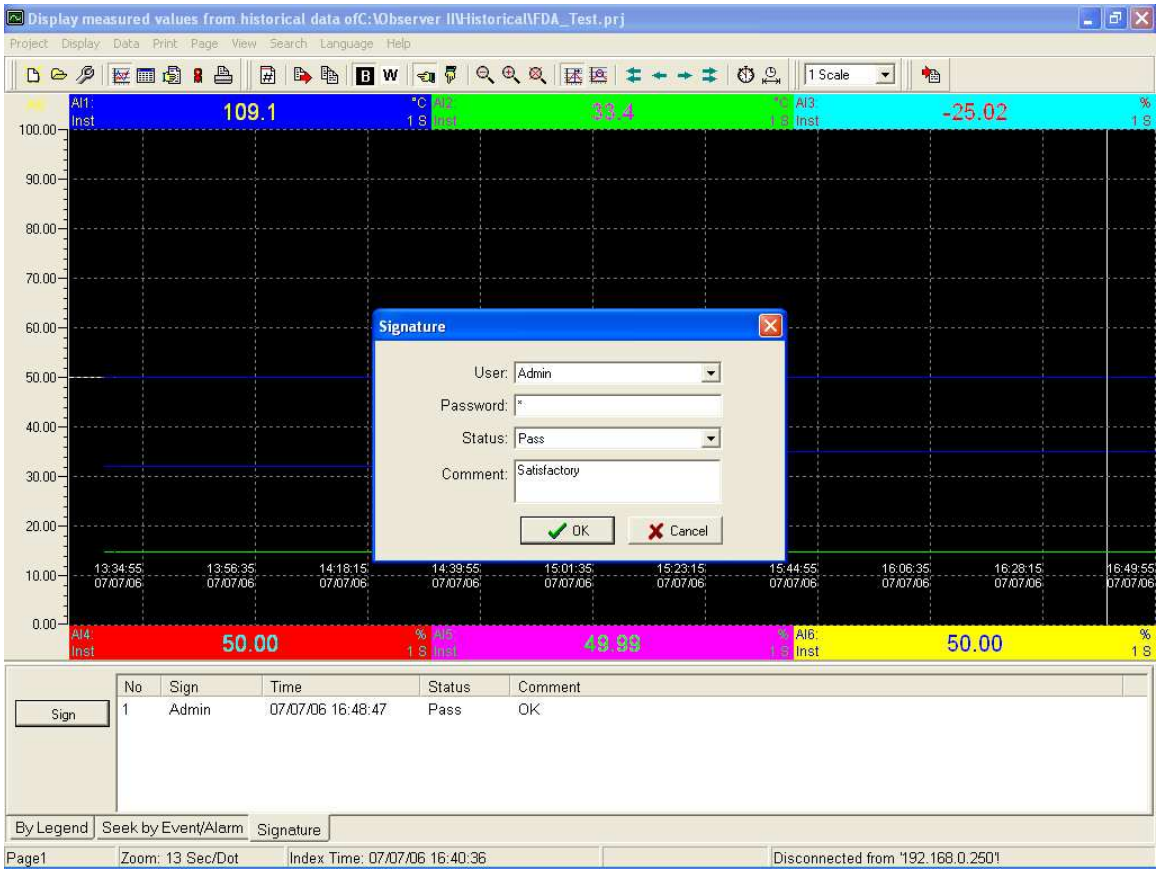
4) User id and Password are provided in the recorders to limit access to authorized personnel.

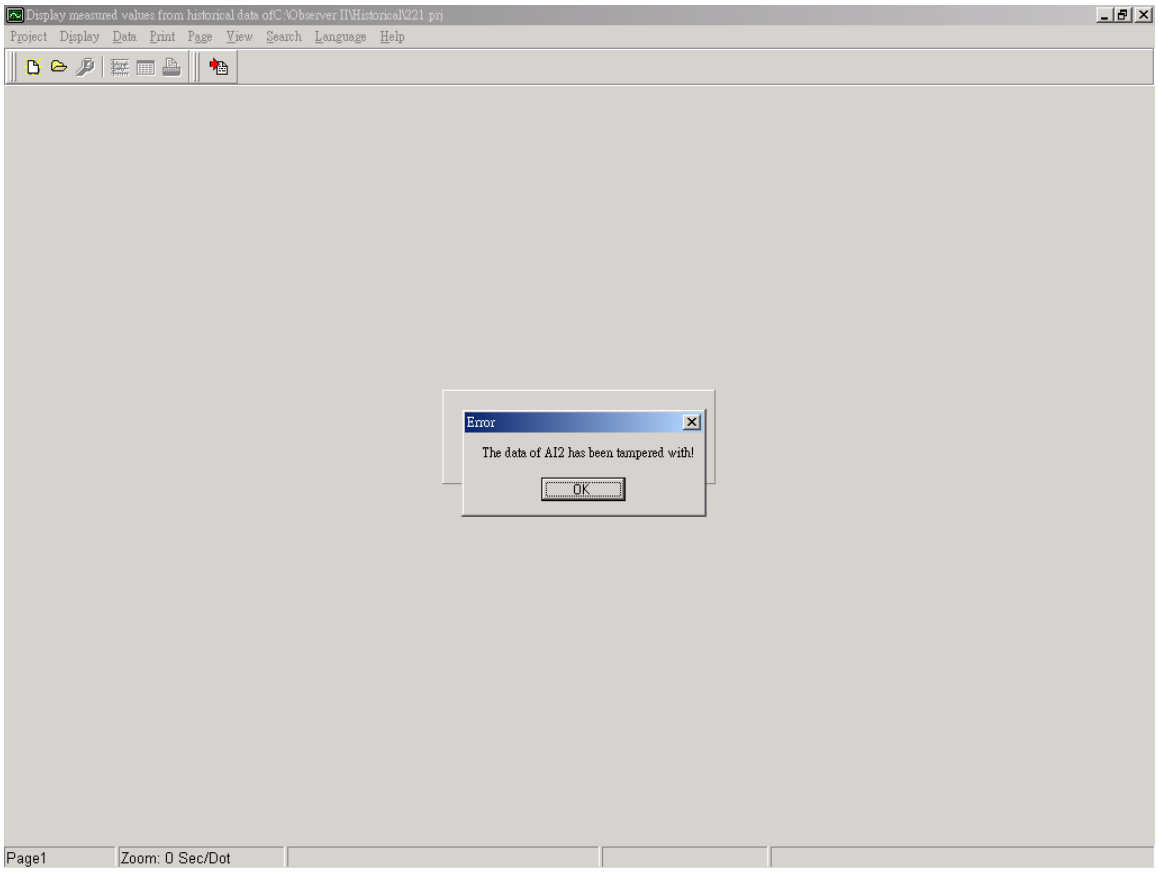
5) A detailed audit log accompanies all process data recorded by a VR18 Paperless Recorder. All system events including configuration changes, power failures are logged. All entries are time and date and time stamped including an operator id.

FDA 21 CFR Part 11 Subpart B, Section 11.10: Controls for modification.

'Persons who use closed systems to create, modify, maintain, or transmit electronic records shall employ procedures and controls designed to ensure the authenticity, integrity, and when appropriate the confidentiality of electronic records, and can ensure that the signer cannot repudiate the signed record as not genuine."

All process data recorded by paperless recorder are in proprietary (tamper-proof) format and read-only from normal operator interface. Via the use of Historical Viewer data review software "digital signature" can be added and checked to validate the integrity of the data. If any part of the data record is changed the Historical Viewer software will warn the user of the invalid nature of the record.

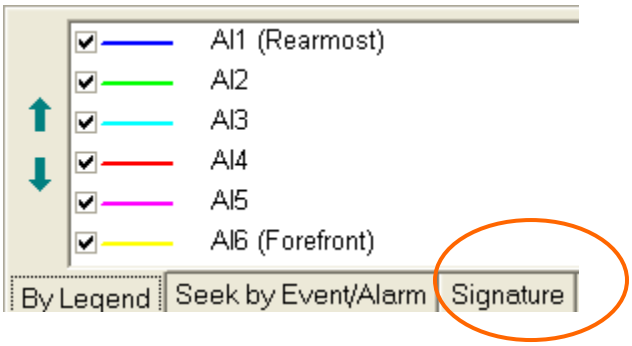




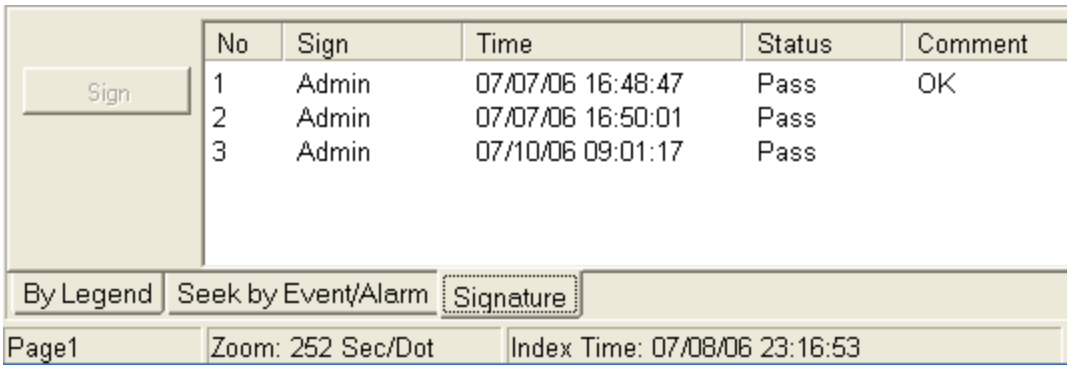
Procedure for sign of the records

1. Open historical viewer
2. Log in with specific user already created.

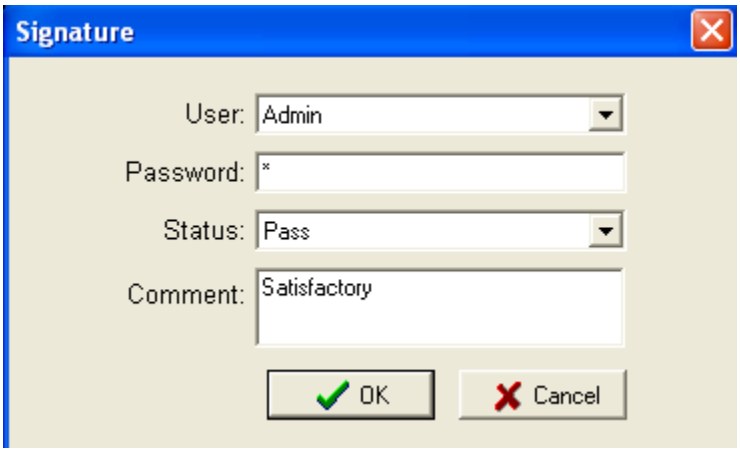
3. Click on Import measured data icon . This will import all data from recorder to PC.
4. Check all the data.
5. Then click on Signature at task bar available at bottom side of the screen in the historical viewer



6. Then signature section will appear as follows.



7. By default “Sign” button will be disabled as shown above. Once latest data is imported from recorder to PC using Icon, then “Sign” button is enabled. Now user can sign the record with his comments as per the following image.

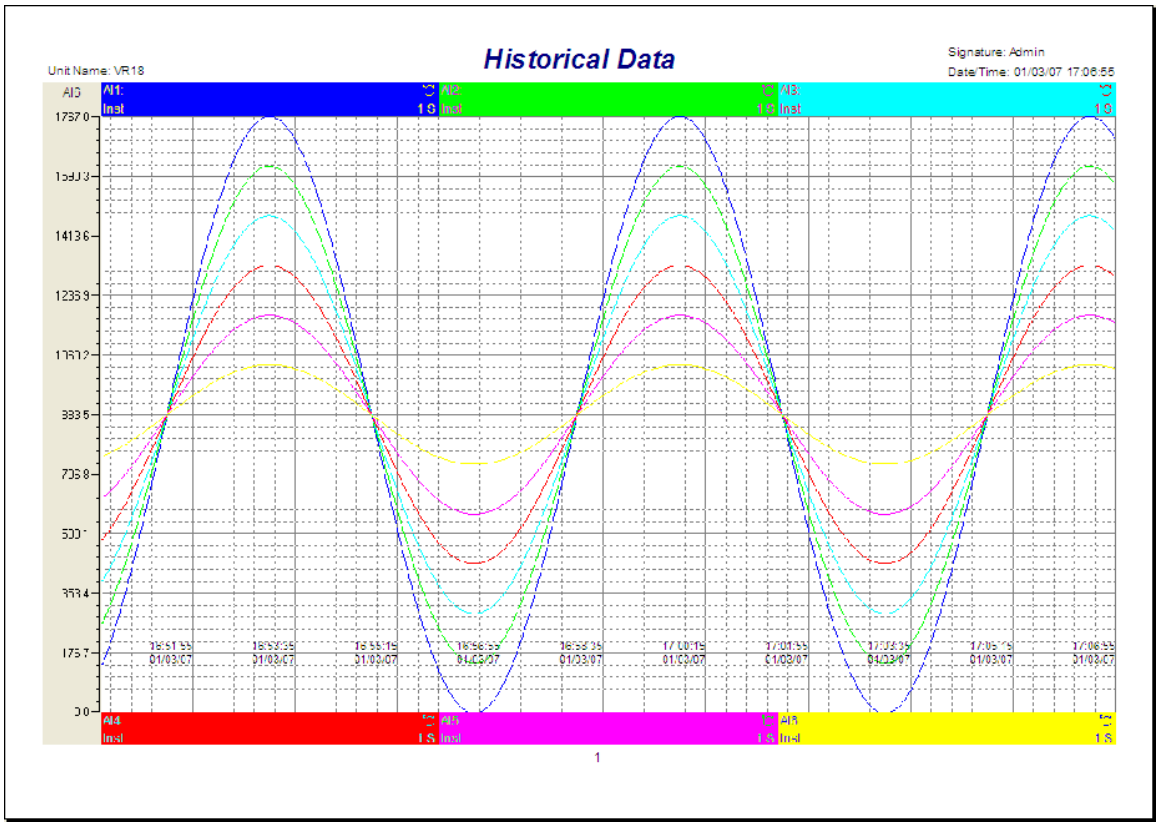


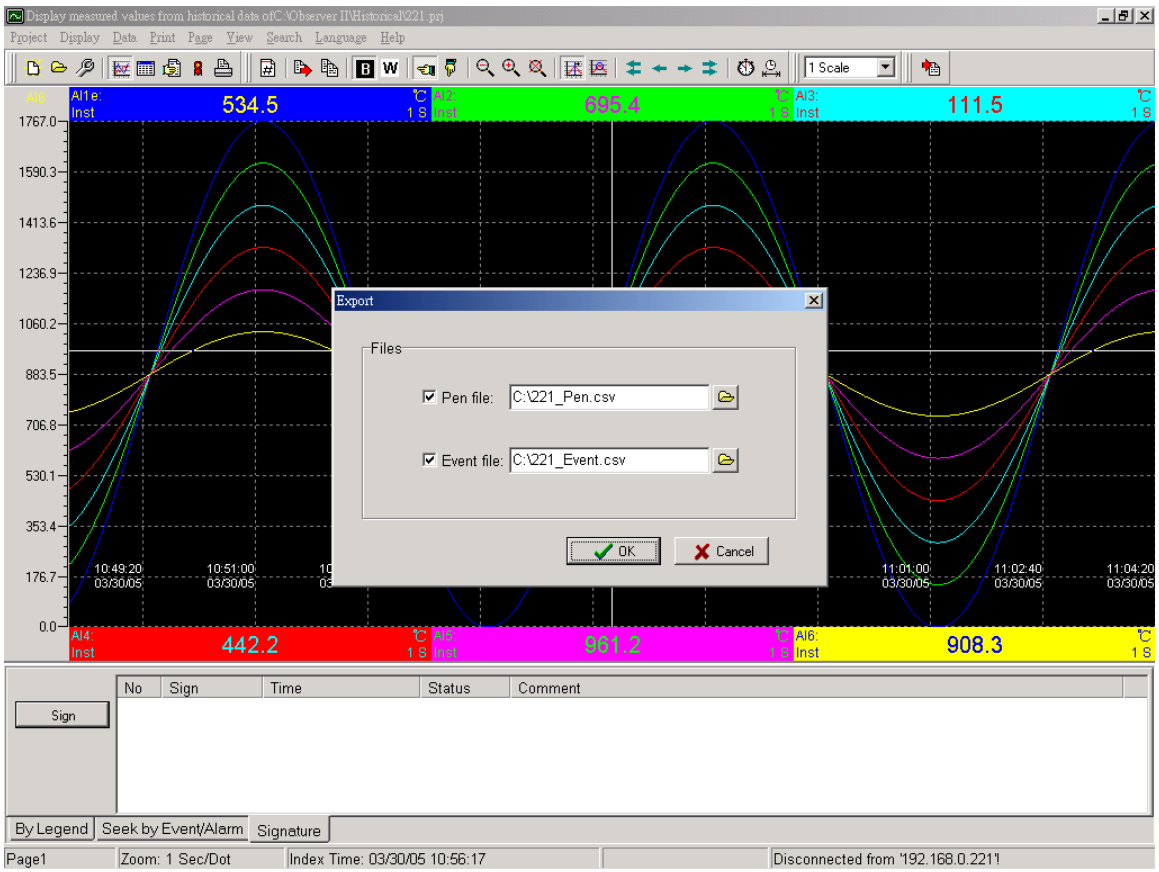
8. Status: Select Pass/ Fail
   Comment: Give your comments about the checked data
   Then press “OK” to complete signature process which is equal to signing of paper record.

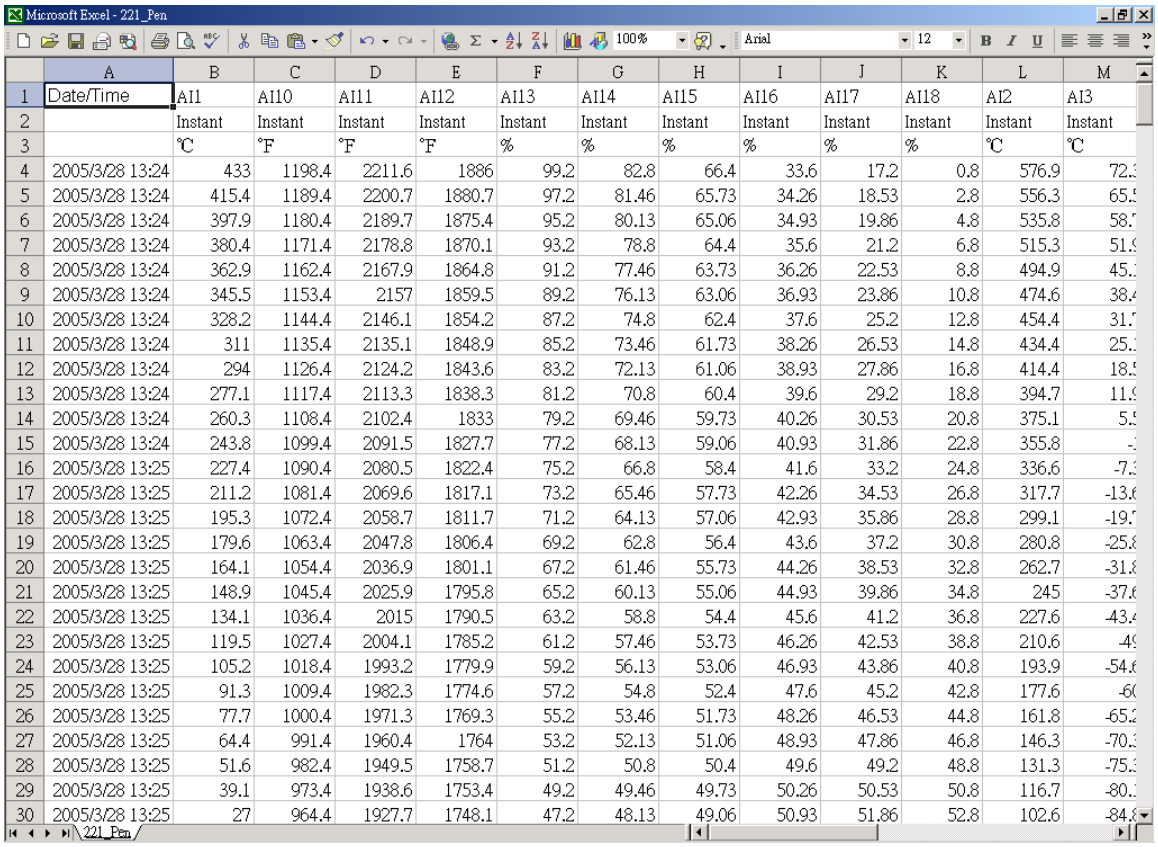
FDA CFR21 Part 11 Section 11.10 (b)

“The ability to generate accurate and complete copies of records in both human readable and electronic form suitable for inspection, review, and copying by the agency (FDA”

Paperless recorder can create process data files on Compact Flash memory cards in proprietary format. These data files are created from secure records stored in internal flash memory. Error detection algorithms are employed to ensure that the stored data faithfully represents the actual raw measurements made by the recorder. Each write to the archive media is also verified to ensure the integrity of the data record. The archived process data files can be viewed using the Historical Viewer review software. The data can be viewed and printed in graphical formats. Standard spreadsheet formats (e.g. Microsoft Excel) of the archived data files can be created for viewing by users who do not have the review software.


Historical Data
Unit Name: VR18
Signature: Admin
Date/Time: 01/03/07 17:06:55
AI1:
Inst
1 S
AI2:
Inst
1 S
AI3:
Inst
1 S
AI4:
Inst
1 S
AI5:
Inst
1 S
AI6:
Inst
1 S
1767.0
1590.3
1413.6
1236.9
1060.2
883.5
706.8
530.1
353.4
176.7
0.0
01/03/07
1


Display measured values from historical data of C:\Observer II\Historical\221.prj
Project Display Data Print Page View Search Language Help
1 Scale
AI1:
Inst
534.5
1 S
AI2:
Inst
695.4
1 S
AI3:
Inst
111.5
1 S
AI4:
Inst
442.2
1 S
AI5:
Inst
881.2
1 S
AI6:
Inst
908.3
1 S
1767.0
1590.3
1413.6
1236.9
1060.2
883.5
706.8
530.1
353.4
176.7
0.0
10:49:20
03/30/05
10:51:00
03/30/05
11:01:00
03/30/05
11:02:40
03/30/05
11:04:20
03/30/05
Export
Files
Pen file:
C:\221_Pen.csv
Event file:
C:\221_Event.csv
OK
Cancel
Sign
No
Sign
Time
Status
Comment
By Legend
Seek by Event/Alarm
Signature
Page1
Zoom: 1 Sec/Dot
Index Time: 03/30/05 10:56:17
Disconnected from '192.168.0.221'!



Microsoft Excel - 221_Pen

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Date/Time	AI1	AI10	AI11	AI12	AI13	AI14	AI15	AI16	AI17	AI18	AI2	AI3
2		Instant	Instant	Instant	Instant	Instant	Instant	Instant	Instant	Instant	Instant	Instant	Instant
3		℃	℉	℉	℉	%	%	%	%	%	%	℃	℃
4	2005/3/28 13:24	433	1198.4	2211.6	1886	99.2	82.8	66.4	33.6	17.2	0.8	576.9	72.
5	2005/3/28 13:24	415.4	1189.4	2200.7	1880.7	97.2	81.46	65.73	34.26	18.53	2.8	556.3	65.
6	2005/3/28 13:24	397.9	1180.4	2189.7	1875.4	95.2	80.13	65.06	34.93	19.86	4.8	535.8	58.
7	2005/3/28 13:24	380.4	1171.4	2178.8	1870.1	93.2	78.8	64.4	35.6	21.2	6.8	515.3	51.
8	2005/3/28 13:24	362.9	1162.4	2167.9	1864.8	91.2	77.46	63.73	36.26	22.53	8.8	494.9	45.
9	2005/3/28 13:24	345.5	1153.4	2157	1859.5	89.2	76.13	63.06	36.93	23.86	10.8	474.6	38.
10	2005/3/28 13:24	328.2	1144.4	2146.1	1854.2	87.2	74.8	62.4	37.6	25.2	12.8	454.4	31.
11	2005/3/28 13:24	311	1135.4	2135.1	1848.9	85.2	73.46	61.73	38.26	26.53	14.8	434.4	25.
12	2005/3/28 13:24	294	1126.4	2124.2	1843.6	83.2	72.13	61.06	38.93	27.86	16.8	414.4	18.
13	2005/3/28 13:24	277.1	1117.4	2113.3	1838.3	81.2	70.8	60.4	39.6	29.2	18.8	394.7	11.
14	2005/3/28 13:24	260.3	1108.4	2102.4	1833	79.2	69.46	59.73	40.26	30.53	20.8	375.1	5.
15	2005/3/28 13:24	243.8	1099.4	2091.5	1827.7	77.2	68.13	59.06	40.93	31.86	22.8	355.8	-.
16	2005/3/28 13:25	227.4	1090.4	2080.5	1822.4	75.2	66.8	58.4	41.6	33.2	24.8	336.6	-7.
17	2005/3/28 13:25	211.2	1081.4	2069.6	1817.1	73.2	65.46	57.73	42.26	34.53	26.8	317.7	-13.
18	2005/3/28 13:25	195.3	1072.4	2058.7	1811.7	71.2	64.13	57.06	42.93	35.86	28.8	299.1	-19.
19	2005/3/28 13:25	179.6	1063.4	2047.8	1806.4	69.2	62.8	56.4	43.6	37.2	30.8	280.8	-25.
20	2005/3/28 13:25	164.1	1054.4	2036.9	1801.1	67.2	61.46	55.73	44.26	38.53	32.8	262.7	-31.
21	2005/3/28 13:25	148.9	1045.4	2025.9	1795.8	65.2	60.13	55.06	44.93	39.86	34.8	245	-37.
22	2005/3/28 13:25	134.1	1036.4	2015	1790.5	63.2	58.8	54.4	45.6	41.2	36.8	227.6	-43.
23	2005/3/28 13:25	119.5	1027.4	2004.1	1785.2	61.2	57.46	53.73	46.26	42.53	38.8	210.6	-4
24	2005/3/28 13:25	105.2	1018.4	1993.2	1779.9	59.2	56.13	53.06	46.93	43.86	40.8	193.9	-54.
25	2005/3/28 13:25	91.3	1009.4	1982.3	1774.6	57.2	54.8	52.4	47.6	45.2	42.8	177.6	-6
26	2005/3/28 13:25	77.7	1000.4	1971.3	1769.3	55.2	53.46	51.73	48.26	46.53	44.8	161.8	-65.
27	2005/3/28 13:25	64.4	991.4	1960.4	1764	53.2	52.13	51.06	48.93	47.86	46.8	146.3	-70.
28	2005/3/28 13:25	51.6	982.4	1949.5	1758.7	51.2	50.8	50.4	49.6	49.2	48.8	131.3	-75.
29	2005/3/28 13:25	39.1	973.4	1938.6	1753.4	49.2	49.46	49.73	50.26	50.53	50.8	116.7	-80.
30	2005/3/28 13:25	27	964.4	1927.7	1748.1	47.2	48.13	49.06	50.93	51.86	52.8	102.6	-84.

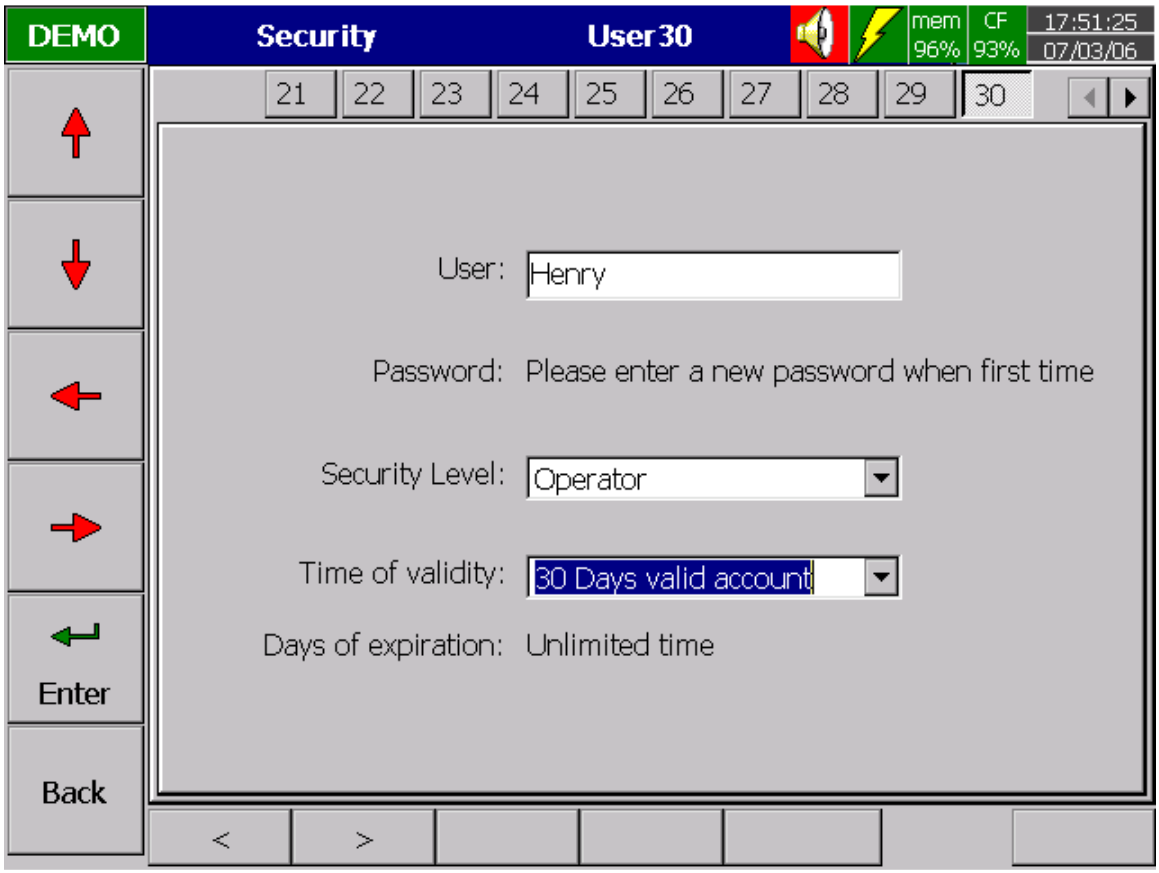
221_Pen

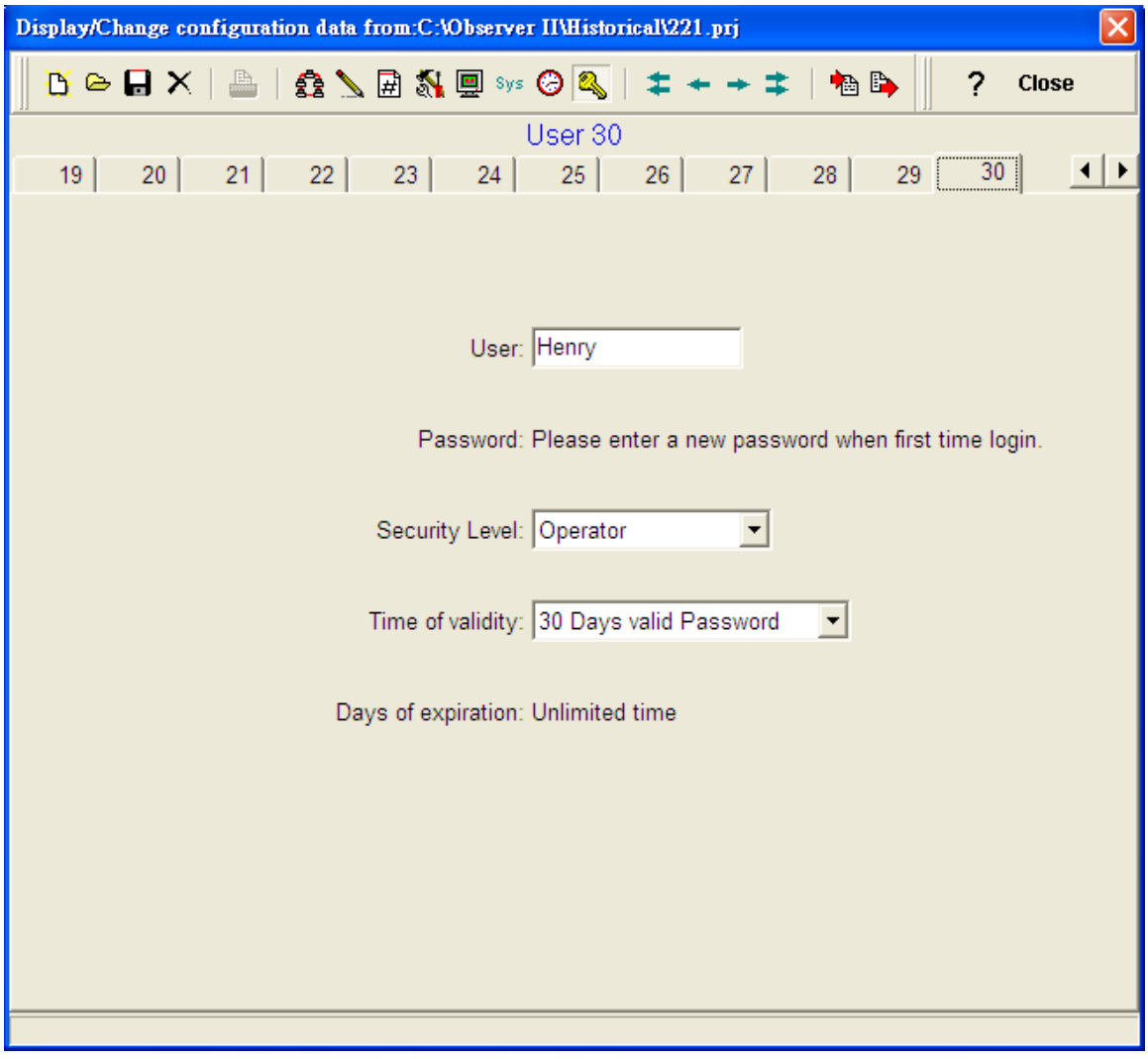
FDA CFR21 Part 11 Section11.10 (c)
"Protection of records to enable their accurate and ready retrieval throughout the records retention period"

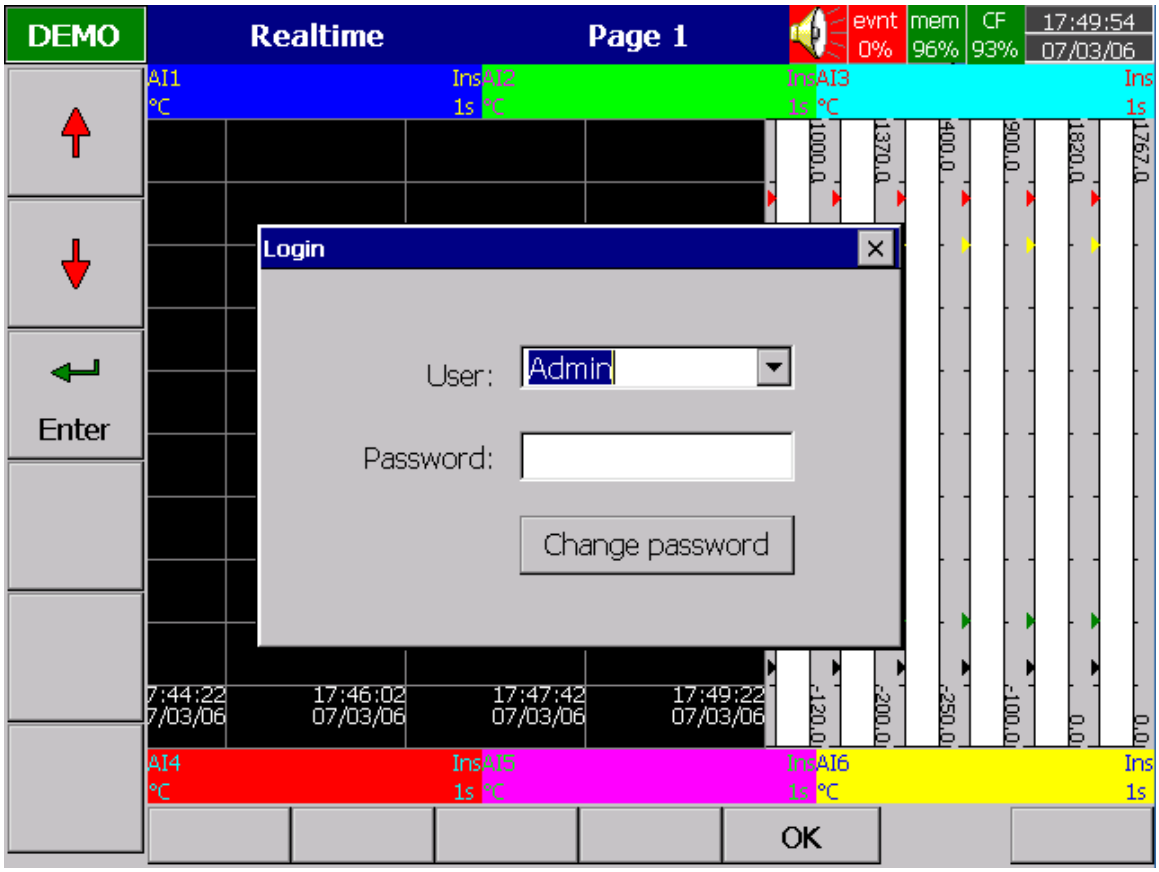
Paperless recorder use solid state flash memory, for data storage, in the form of Compact Flash card. Data retention for this device is specified at a minimum of 10 years. It provides Zero power data retention i.e. the data integrity is not dependent on battery back-up. The data is not affected by magnetic fields. For even longer term data storage the archive files can be copied to CDROM or to a network file server.

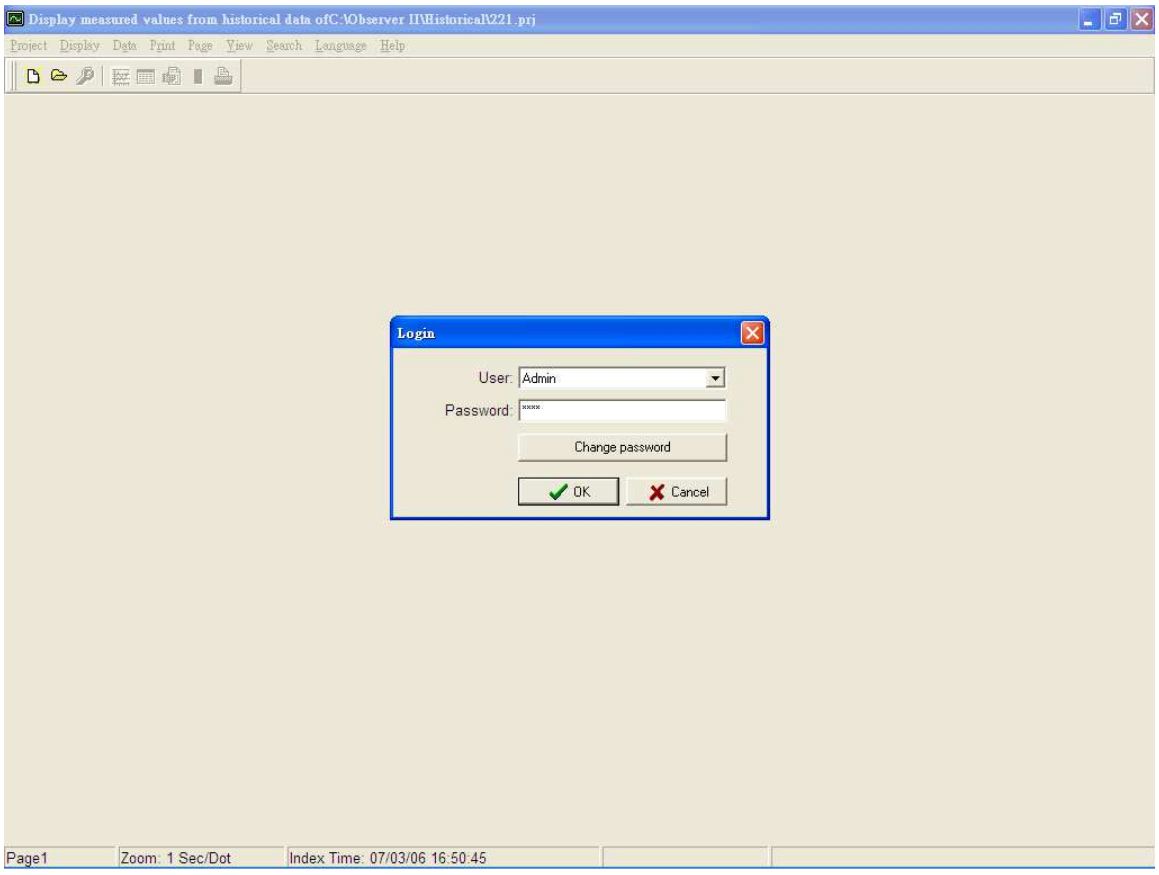
FDA CFR21 Part 11 Section11.10 (d)
"Limiting system access to authorized individuals."

Paperless recorder provide the ability to limit access to the instruments configuration and critical operator functions. For each user a unique id and password can be created for access to the configuration parameters. The id and password can be alphanumeric and up to 8 characters in length. In order to gain access to the configuration parameters, a valid operator id and password combination should to be entered. Any modification of the instruments configuration is recorded in the audit log identifying the user responsible for the change. Paperless recorder will logout automatically after a period of inactivity say 10 minutes.


DEMO
Security
User30
mem
96%
CF
93%
17:51:25
07/03/06
21
22
23
24
25
26
27
28
29
30
User:
Henry
Password:
Please enter a new password when first time
Security Level:
Operator
Time of validity:
30 Days valid account
Days of expiration:
Unlimited time
Enter
Back
<
>

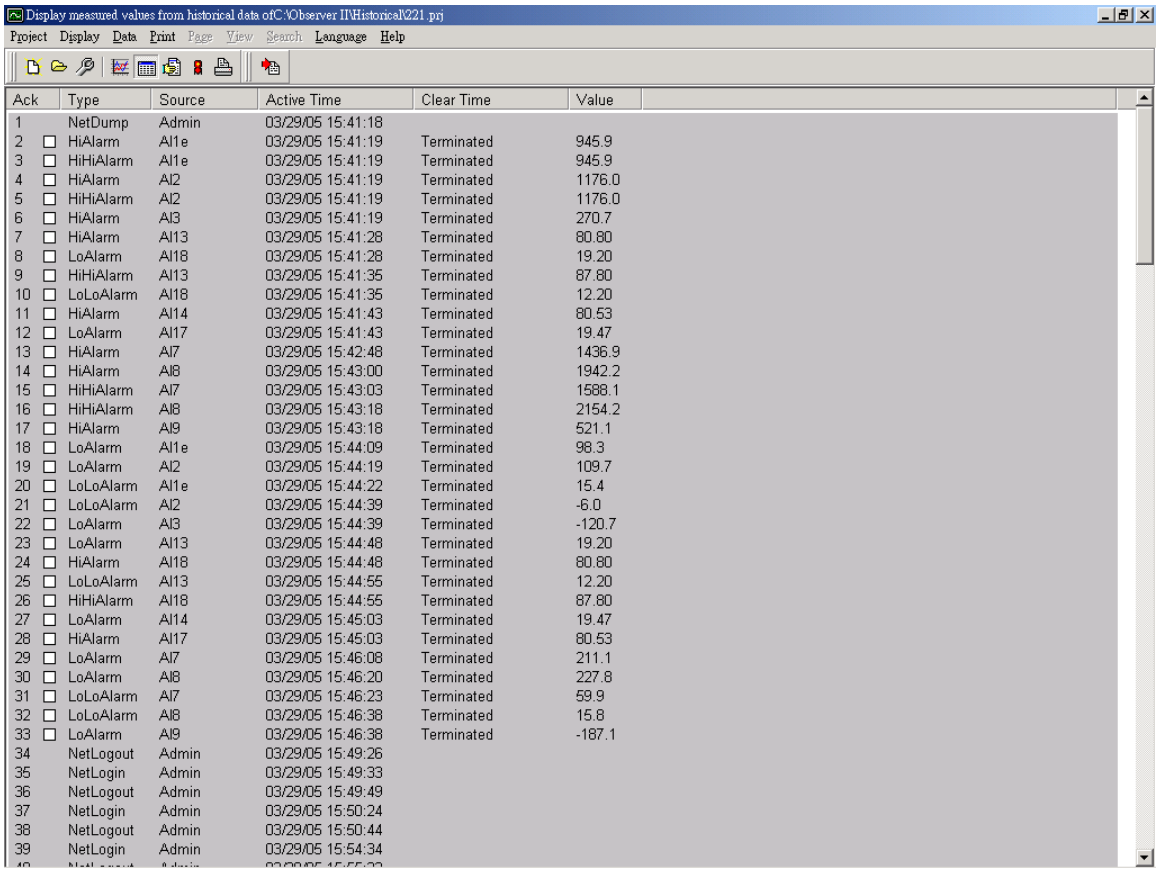

Display/Change configuration data from:C:\Observer II\Historical\221.prj
Close
User 30
19
20
21
22
23
24
25
26
27
28
29
30
User:
Henry
Password:
Please enter a new password when first time login.
Security Level:
Operator
Time of validity:
30 Days valid Password
Days of expiration:
Unlimited time


DEMO
Realtime
Page 1
evnt 0%
mem 96%
CF 93%
17:49:54
07/03/06
AI1 °C Ins 1s
AI2 °C Ins 1s
AI3 °C Ins 1s
Login
User:
Admin
Password:
Change password
Enter
OK
AI4 °C Ins 1s
AI5 °C Ins 1s
AI6 °C Ins 1s


Display measured values from historical data ofC:\Observer II\Historical\221.prj
Project Display Data Print Page View Search Language Help
Login
User: Admin
Password:
Change password
OK
Cancel
Page1
Zoom: 1 Sec/Dot
Index Time: 07/03/06 16:50:45

FDA CFR21 Part 11 Section11.10 (e)
"Use of secure, computer-generated, time-stamped audit trails to independently record the date and time of operator actions that create, modify or delete electronic records", Record changes shall not obscure previously recorded information. Such audit trail documentation shall be retained at least as long as that required for the subject electronic records and shall be available for agency review and copying"

The Paperless recorders automatically produce a time stamped audit trail that includes power failure and recovery, configuration changes, data dumping and clearing, critical operator functions. This information is stored in an audit log which can be archived to a permanent file on Compact flash. A separate alarm/event log automatically produces a time stamped record of all alarm state changes and can also be archived to a permanent file.



Ack	Type	Source	Active Time	Clear Time	Value
1	NetDump	Admin	03/29/05 15:41:18		
2 ☐	HiAlarm	AI1e	03/29/05 15:41:19	Terminated	945.9
3 ☐	HiHiAlarm	AI1e	03/29/05 15:41:19	Terminated	945.9
4 ☐	HiAlarm	AI2	03/29/05 15:41:19	Terminated	1176.0
5 ☐	HiHiAlarm	AI2	03/29/05 15:41:19	Terminated	1176.0
6 ☐	HiAlarm	AI3	03/29/05 15:41:19	Terminated	270.7
7 ☐	HiAlarm	AI13	03/29/05 15:41:28	Terminated	80.80
8 ☐	LoAlarm	AI18	03/29/05 15:41:28	Terminated	19.20
9 ☐	HiHiAlarm	AI13	03/29/05 15:41:35	Terminated	87.80
10 ☐	LoLoAlarm	AI18	03/29/05 15:41:35	Terminated	12.20
11 ☐	HiAlarm	AI14	03/29/05 15:41:43	Terminated	80.53
12 ☐	LoAlarm	AI17	03/29/05 15:41:43	Terminated	19.47
13 ☐	HiAlarm	AI7	03/29/05 15:42:48	Terminated	1436.9
14 ☐	HiAlarm	AI8	03/29/05 15:43:00	Terminated	1942.2
15 ☐	HiHiAlarm	AI7	03/29/05 15:43:03	Terminated	1588.1
16 ☐	HiHiAlarm	AI8	03/29/05 15:43:18	Terminated	2154.2
17 ☐	HiAlarm	AI9	03/29/05 15:43:18	Terminated	521.1
18 ☐	LoAlarm	AI1e	03/29/05 15:44:09	Terminated	98.3
19 ☐	LoAlarm	AI2	03/29/05 15:44:19	Terminated	109.7
20 ☐	LoLoAlarm	AI1e	03/29/05 15:44:22	Terminated	15.4
21 ☐	LoLoAlarm	AI2	03/29/05 15:44:39	Terminated	-6.0
22 ☐	LoAlarm	AI3	03/29/05 15:44:39	Terminated	-120.7
23 ☐	LoAlarm	AI13	03/29/05 15:44:48	Terminated	19.20
24 ☐	HiAlarm	AI18	03/29/05 15:44:48	Terminated	80.80
25 ☐	LoLoAlarm	AI13	03/29/05 15:44:55	Terminated	12.20
26 ☐	HiHiAlarm	AI18	03/29/05 15:44:55	Terminated	87.80
27 ☐	LoAlarm	AI14	03/29/05 15:45:03	Terminated	19.47
28 ☐	HiAlarm	AI17	03/29/05 15:45:03	Terminated	80.53
29 ☐	LoAlarm	AI7	03/29/05 15:46:08	Terminated	211.1
30 ☐	LoAlarm	AI8	03/29/05 15:46:20	Terminated	227.8
31 ☐	LoLoAlarm	AI7	03/29/05 15:46:23	Terminated	59.9
32 ☐	LoLoAlarm	AI8	03/29/05 15:46:38	Terminated	15.8
33 ☐	LoAlarm	AI9	03/29/05 15:46:38	Terminated	-187.1
34	NetLogout	Admin	03/29/05 15:49:26		
35	NetLogin	Admin	03/29/05 15:49:33		
36	NetLogout	Admin	03/29/05 15:49:49		
37	NetLogin	Admin	03/29/05 15:50:24		
38	NetLogout	Admin	03/29/05 15:50:44		
39	NetLogin	Admin	03/29/05 15:54:34		

FDA CFR21 Part 11 Section 11.10 (g)
"Use of authority checks to ensure that only authorized individuals can use the system, electronically sign a record, access the operation or computer system input or output device, alter a record, or perform the operation at hand."

The recorders security system outlined in part d) limits access to the system to modify any configuration parameters.

FDA CFR21 Part 11 Section 11.10 (h)
"Use of device (e.g., terminal) checks to determine, as appropriate, the validity of the source of data input or operational instruction.

System errors and input channel status are logged

FDA CFR21 Part 11 Section 11.10 (i)
"Determination that the persons who develop, maintain, or use electronic record/electronic signature systems have the education, training and experience to perform their assigned tasks."

Only suitably qualified people are employed in product design & development and their training is updated to meet advances in technology.

FDA CFR21 Part 11 Section 11.10 (k)
"Use of appropriate controls over systems documentation including:
(1) Adequate controls over the distribution of, access to, and use of documentation for system operation and maintenance.
(2) Revision and change control procedures to maintain an audit trail that documents time-sequenced development and modification of systems documentation."

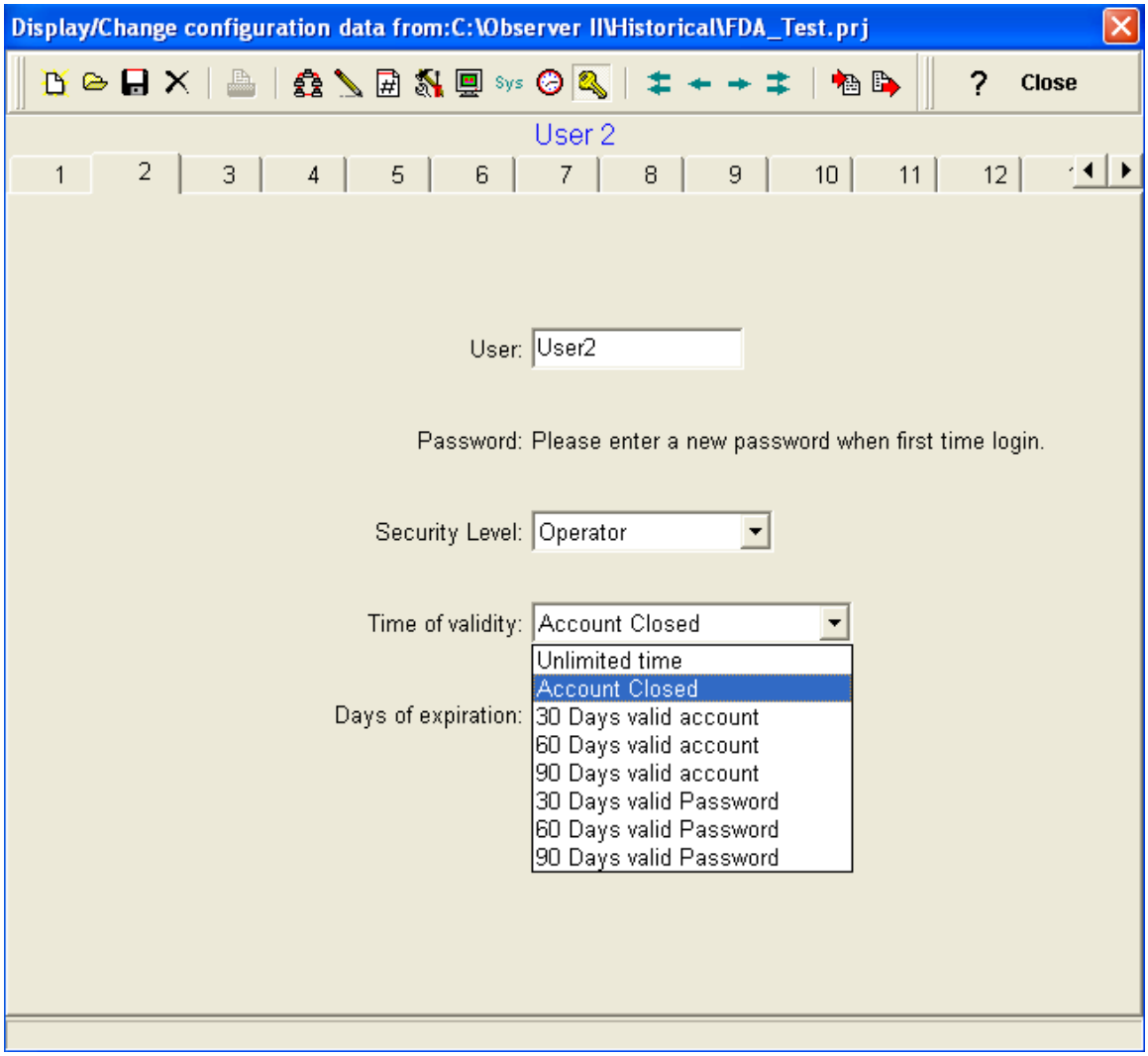
A design control system is used which is fully documented and traceable. Documentation is provided for installation, configuration and operation in the instruments User Guide.

§ 11.300 Controls for identification codes/passwords.
Persons who use electronic signatures based upon use of identification codes in combination with passwords shall employ controls to ensure their security and integrity. Such controls shall include:
(a) Maintaining the uniqueness of each combined identification code and password, such that no two individuals have the same combination of identification code and password.

Any duplication of user name from a new created account will be forbidden.

(b) Ensuring that identification code and password issuances are periodically checked, recalled, or revised, (e.g., to cover such events as password aging).

The following things will automatically be done:
1. Closing the user account when the time of account limitation expires.
2. Force the user to enter a new password when the time of password expires.



(d) Use of transaction safeguards to prevent unauthorized use of passwords and/or identification codes, and detect and report in an immediate and urgent manner any attempts at their unauthorized use to the system security unit, and, as appropriate, to organizational management.

Any event of failed login will be logged for audit trail.

4.0 REAL TIME VIEWER

This is used for real time data monitoring for process control applications.

Start-Programs-Observer I / Observer II-real-time viewer

4.1 Tool bar

To open new project

To open existing project file

To select page

Measured data

To select configuration of the recorder

Arrange all (Digital display, trends, bar graph & events/alarm list) in one screen

To select events/alarms for full page display

To select digital display in full page

To select bar graph display in full page

To select trend display in full page

To select all channels digital display

To select the status display in full page (DI, DO, AO, Counter & Totalizer)

This is to mute buzzer in PC.

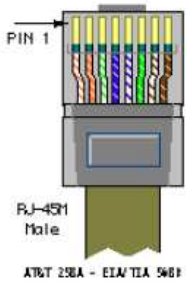
This is to set up recorder configuration

4.2 Create new project

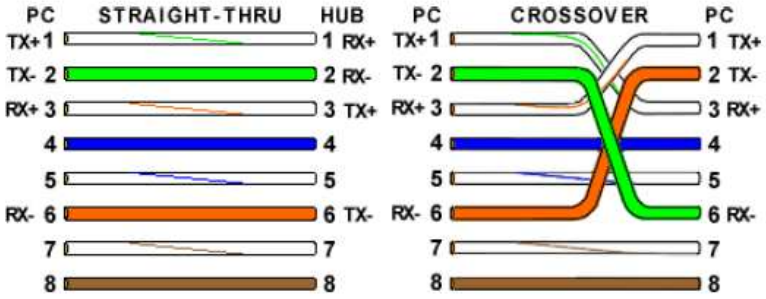
How to access data from Paperless Recorder to ObserverII software (Real time viewer) via Ethernet

Note: For Recorder to PC direct connection, Cross over cable is required
For Recorder to PC via LAN, Straight through cable is required

Straight Through Cable VR18-LAN/HUB	
RJ-45 PIN	RJ-45 PIN
1 Tx+	1 Rc+
2 Tx-	2 Rc-
3 Rc+	3 Tx+
6 Rc-	6 Tx-



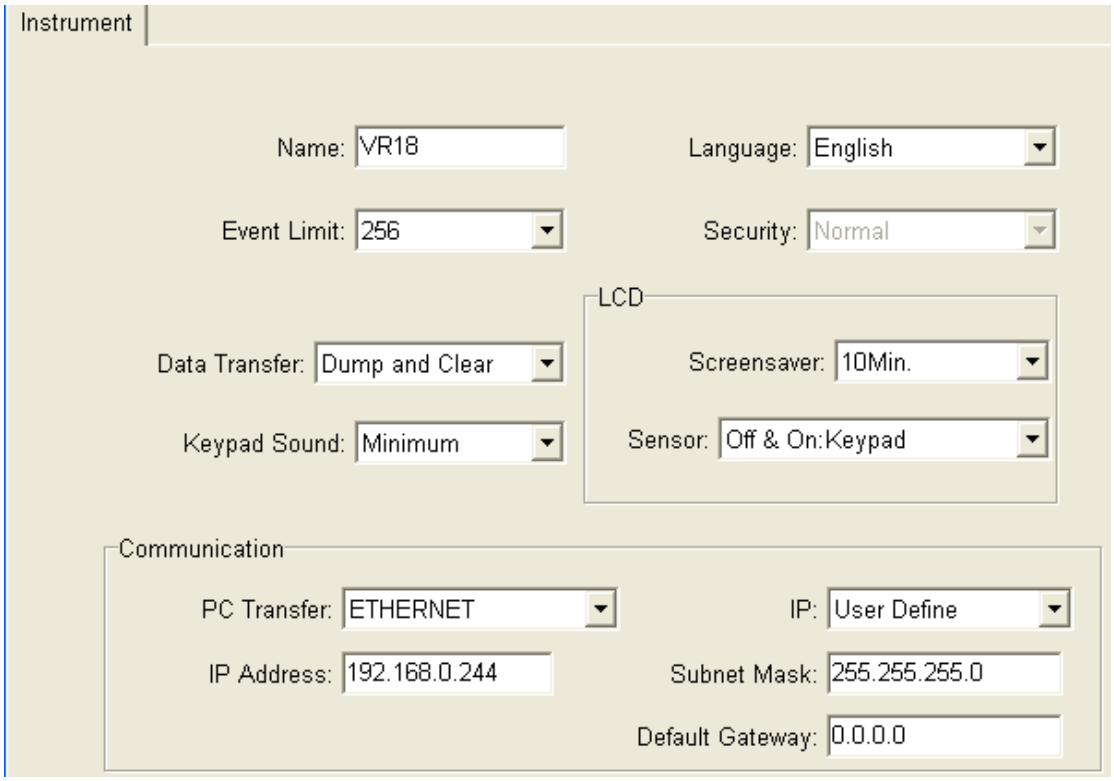
Crossover Cable VR18-PC/Notebook	
RJ-45 PIN	RJ-45 PIN
1 Rx+	3 Tx+
2 Rc-	6 Tx-
3 Tx+	1 Rc+
6 Tx-	2 Rc-



1. In Recorder, press "Config", select "Instrument", press "Enter".

2. In Communication, select IP = "User defined" and enter IP address, Subnet mask and Gateway address

Note: By default, gateway address = 0.0.0.0 and it works in most of cases. If it is not working, check with your system administrator and enter gateway address properly



After completing setup, press “Back” once, switch OFF power supply to Paperless Recorder and Power ON

3. Connect proper UTP Ethernet cable as per the requirements and observe the communication status between the Recorder and PC/LAN HUB at the LED’s dedicated for the purpose near female RJ45 connector in Recorder

Recorder side

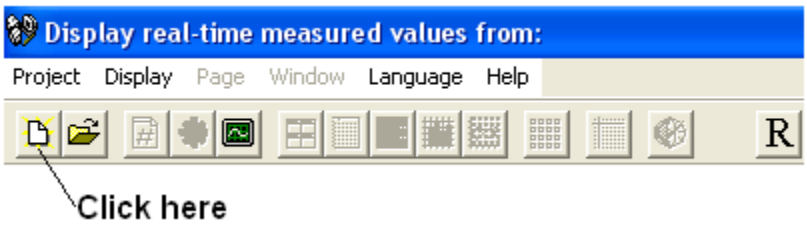
Link (Green LED)
Green lit: Cable connected between the recorder and PC/LAN HUB
Green Off: No Link between the recorder and PC/LAN HUB

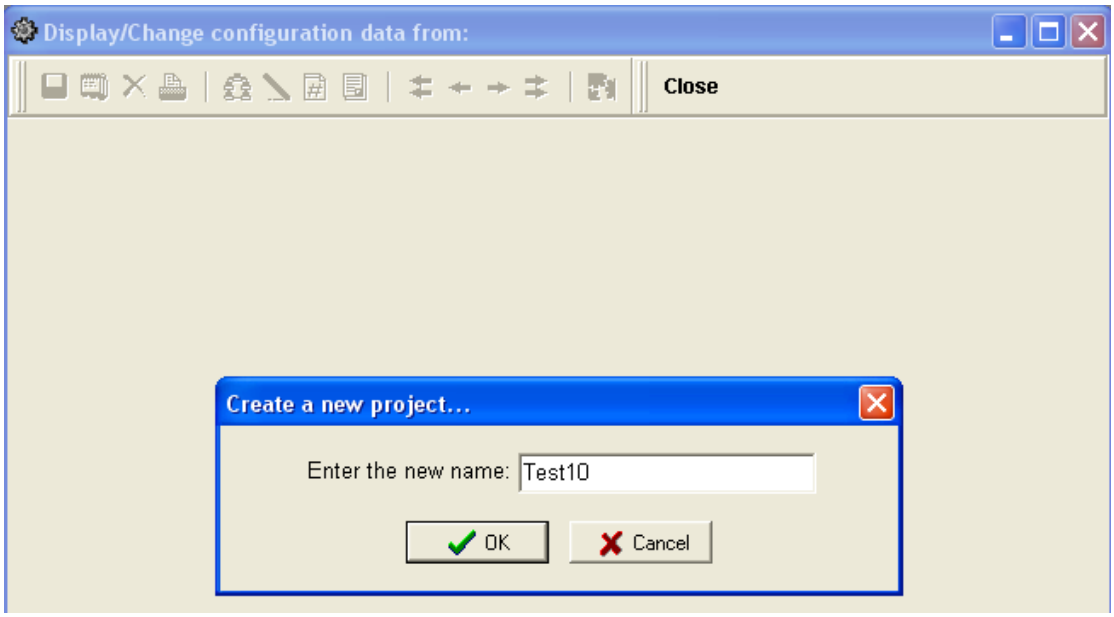
Tx/Rx
Orange Lit continuous: No cable connection
Orange slow blink: Communication established between recorder & PC/LAN HUB

4. Use Ping instruction at DOS prompt and check if Recorder with specific IP address is responding properly or not

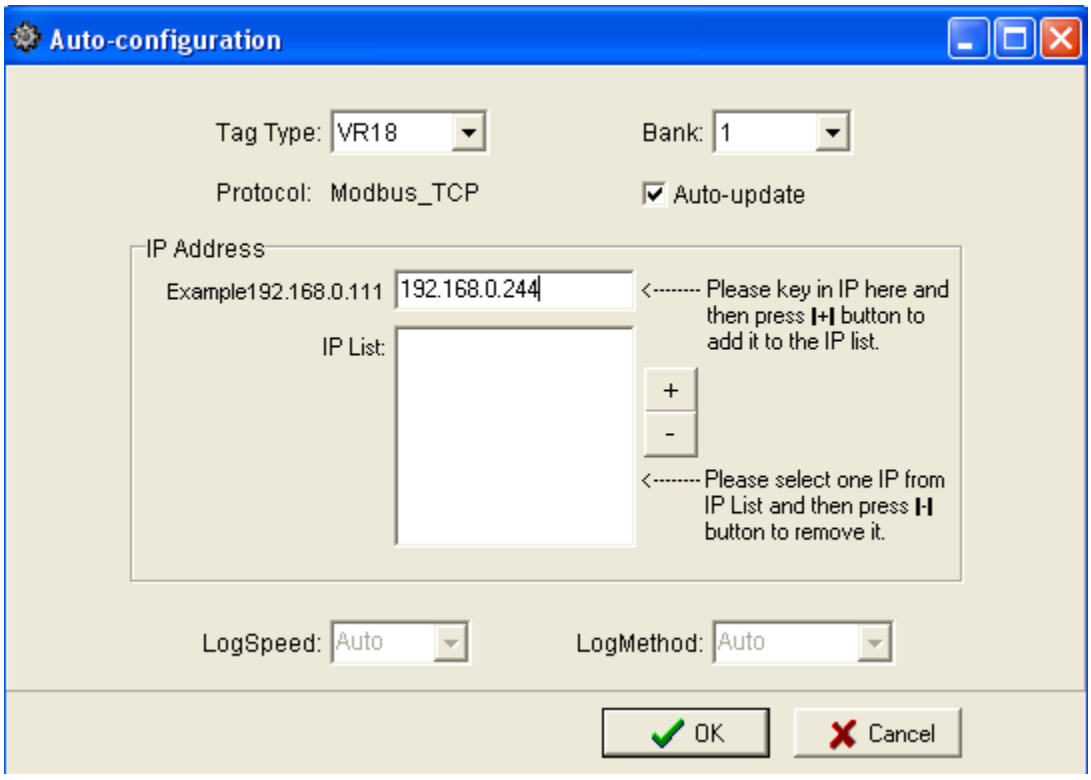
```
C:\Documents and Settings\mahi.MAHIDHAR>ping 192.168.0.244

Pinging 192.168.0.244 with 32 bytes of data:

Reply from 192.168.0.244: bytes=32 time=6ms TTL=128
Reply from 192.168.0.244: bytes=32 time=4ms TTL=128
Reply from 192.168.0.244: bytes=32 time=1ms TTL=128
Reply from 192.168.0.244: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.244:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 6ms, Average = 3ms
```

5. Now, open Real time viewer, create new project and enter IP address of Recorder



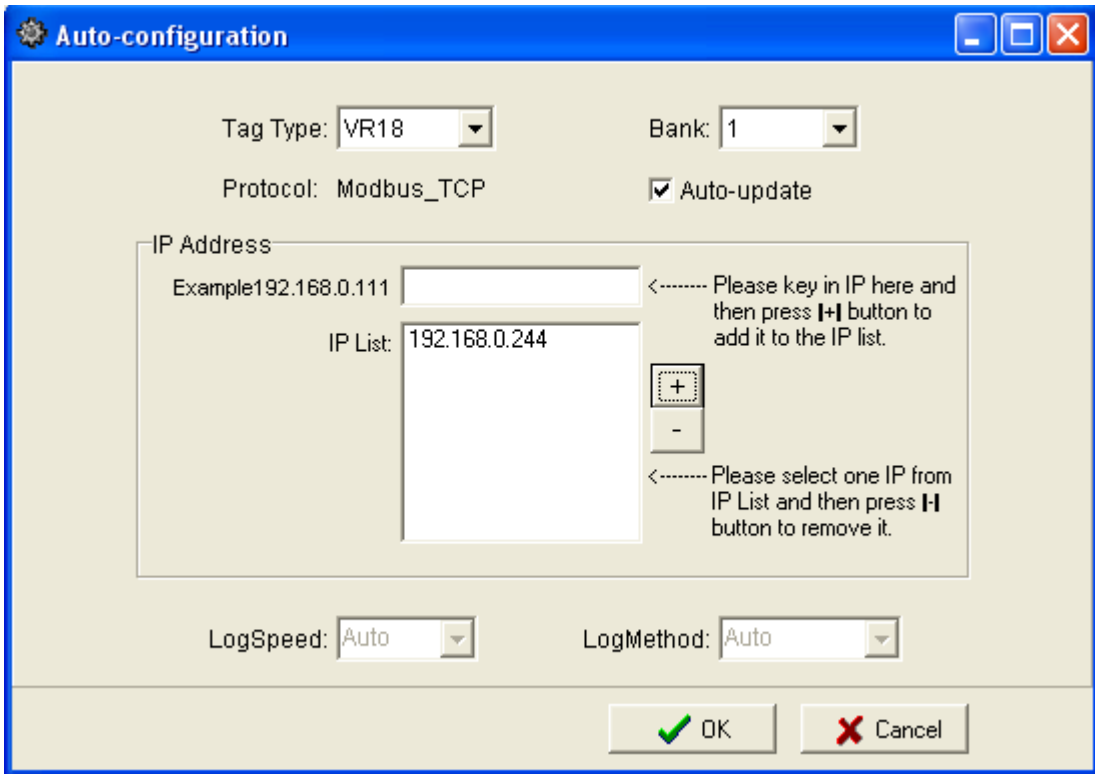


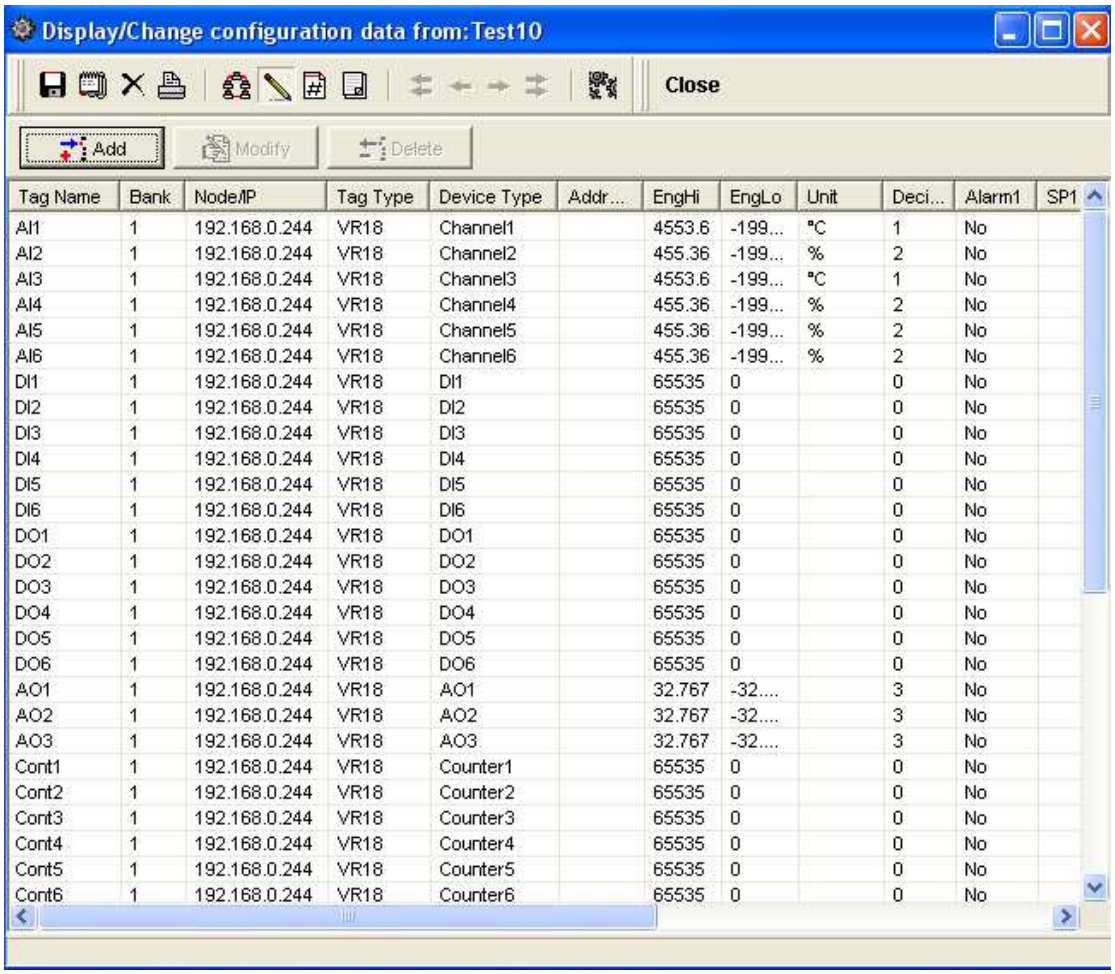
Enter name for the project and click at “OK”



Enter IP address of Paperless Recorder

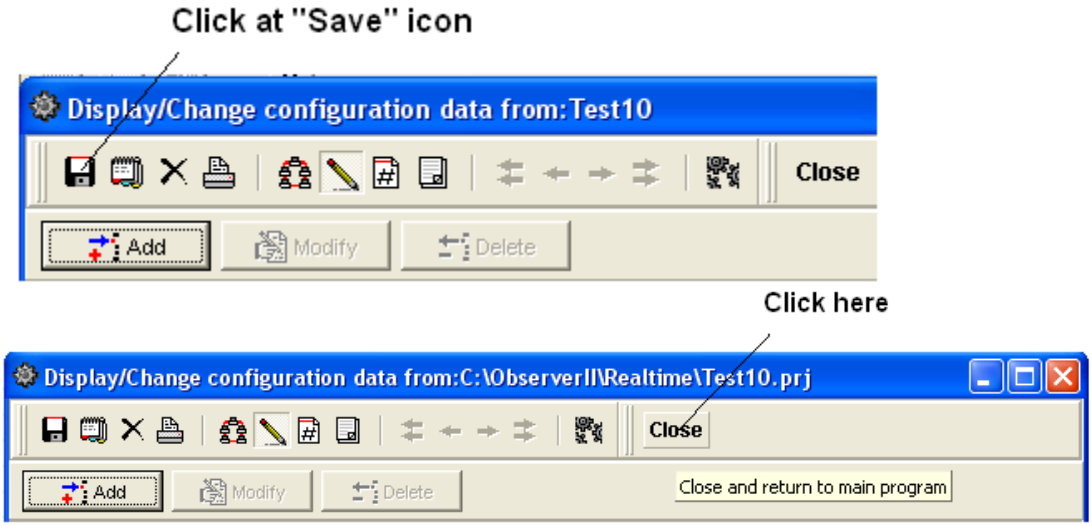
Then, click at “+” such that, IP address will appear at IP list as shown below and then click at “OK”





Tag Name	Bank	Node/IP	Tag Type	Device Type	Addr...	EngHi	EngLo	Unit	Deci...	Alarm1	SP1
AI1	1	192.168.0.244	VR18	Channel1		4553.6	-199...	°C	1	No	
AI2	1	192.168.0.244	VR18	Channel2		455.36	-199...	%	2	No	
AI3	1	192.168.0.244	VR18	Channel3		4553.6	-199...	°C	1	No	
AI4	1	192.168.0.244	VR18	Channel4		455.36	-199...	%	2	No	
AI5	1	192.168.0.244	VR18	Channel5		455.36	-199...	%	2	No	
AI6	1	192.168.0.244	VR18	Channel6		455.36	-199...	%	2	No	
DI1	1	192.168.0.244	VR18	DI1		65535	0		0	No	
DI2	1	192.168.0.244	VR18	DI2		65535	0		0	No	
DI3	1	192.168.0.244	VR18	DI3		65535	0		0	No	
DI4	1	192.168.0.244	VR18	DI4		65535	0		0	No	
DI5	1	192.168.0.244	VR18	DI5		65535	0		0	No	
DI6	1	192.168.0.244	VR18	DI6		65535	0		0	No	
DO1	1	192.168.0.244	VR18	DO1		65535	0		0	No	
DO2	1	192.168.0.244	VR18	DO2		65535	0		0	No	
DO3	1	192.168.0.244	VR18	DO3		65535	0		0	No	
DO4	1	192.168.0.244	VR18	DO4		65535	0		0	No	
DO5	1	192.168.0.244	VR18	DO5		65535	0		0	No	
DO6	1	192.168.0.244	VR18	DO6		65535	0		0	No	
AO1	1	192.168.0.244	VR18	AO1		32.767	-32....		3	No	
AO2	1	192.168.0.244	VR18	AO2		32.767	-32....		3	No	
AO3	1	192.168.0.244	VR18	AO3		32.767	-32....		3	No	
Cont1	1	192.168.0.244	VR18	Counter1		65535	0		0	No	
Cont2	1	192.168.0.244	VR18	Counter2		65535	0		0	No	
Cont3	1	192.168.0.244	VR18	Counter3		65535	0		0	No	
Cont4	1	192.168.0.244	VR18	Counter4		65535	0		0	No	
Cont5	1	192.168.0.244	VR18	Counter5		65535	0		0	No	
Cont6	1	192.168.0.244	VR18	Counter6		65535	0		0	No	

If there is good communication between PC and Paperless Recorder, then all data base (as per available channels) of Paperless Recorder should appear as above.

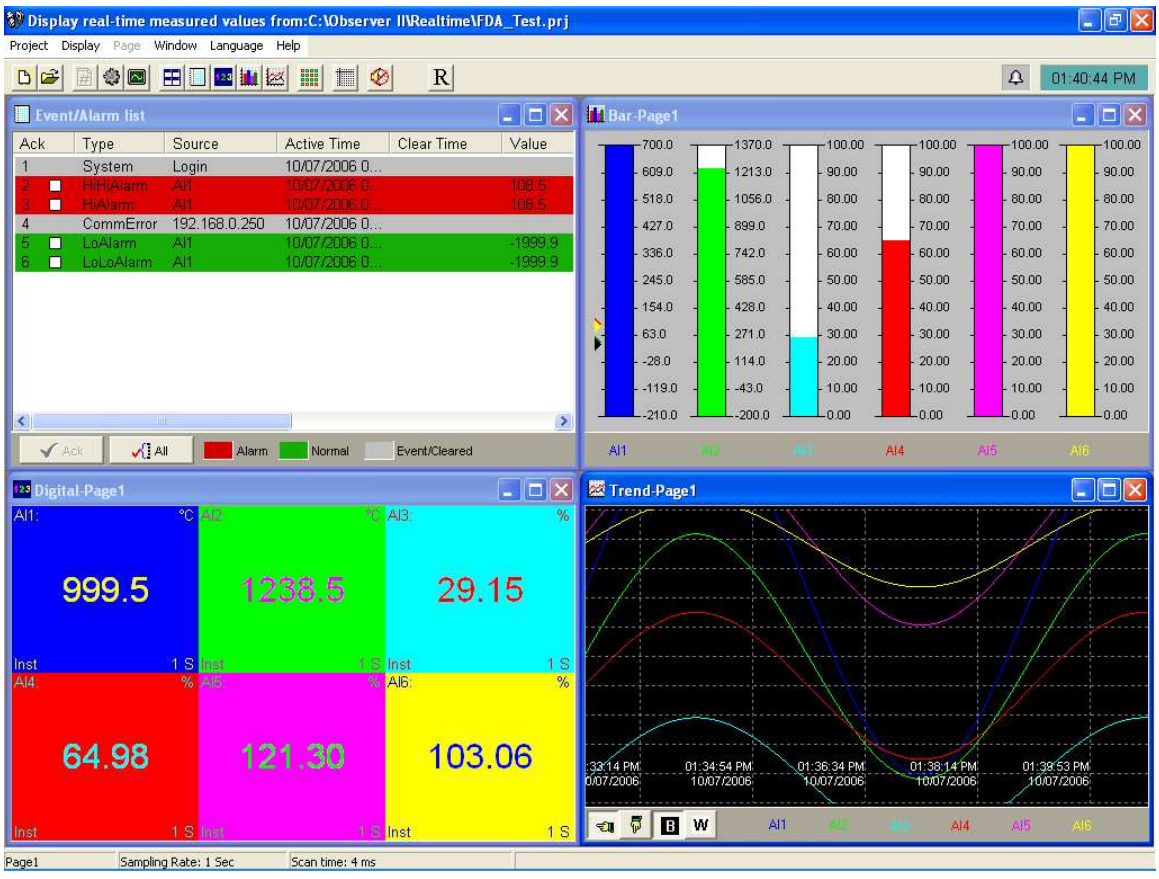


4.3 Opening a project

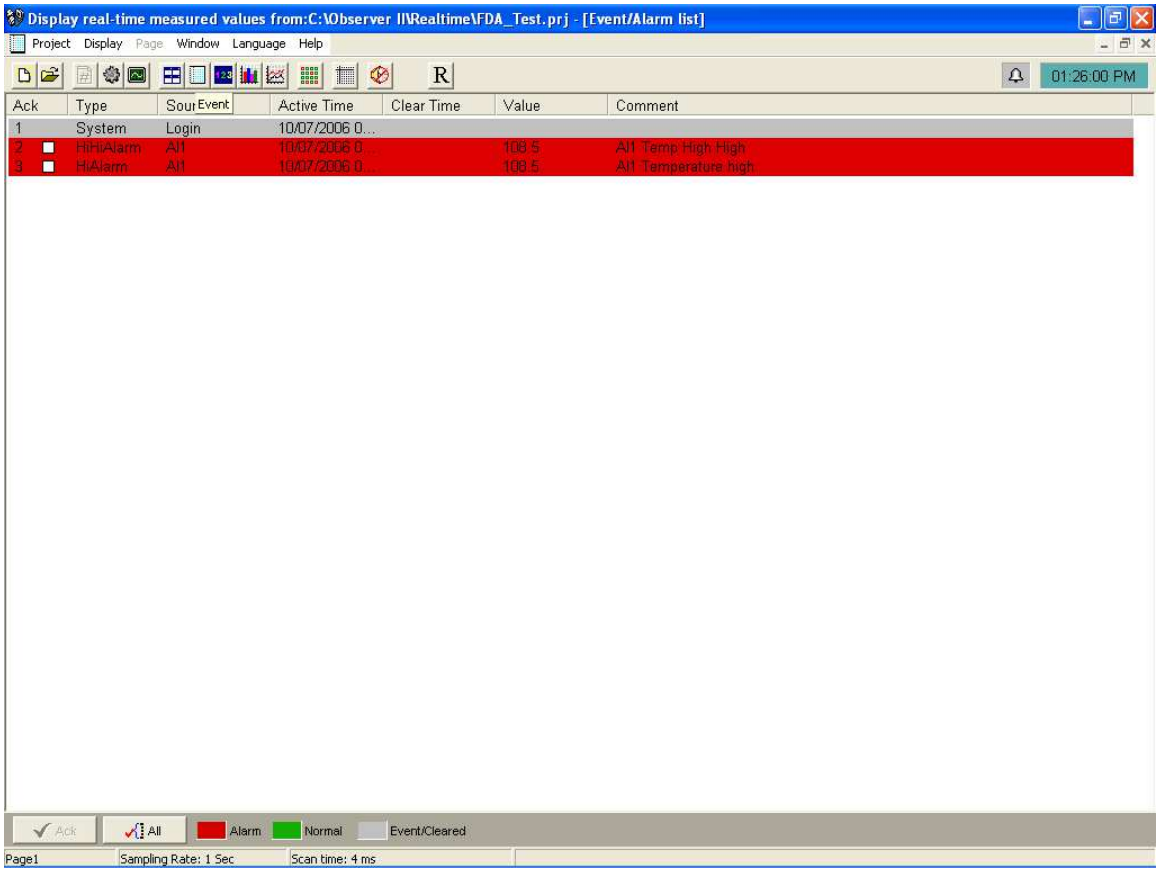
Repeat earlier to create new project if it is first time user or open the existing project by selecting appropriate path.

If the communication is established between recorder and PC over the selected bank, then after opening real time viewer, by default the following screen will appear. This is the default window opens, which shows all the objects like Events/Alarm list, Bar graph-page1, Digital values – Page 1 and Trends – Page1.

Click on Arrange all Icon to display Digital values, trends, bar graph & events/alarm list in one screen

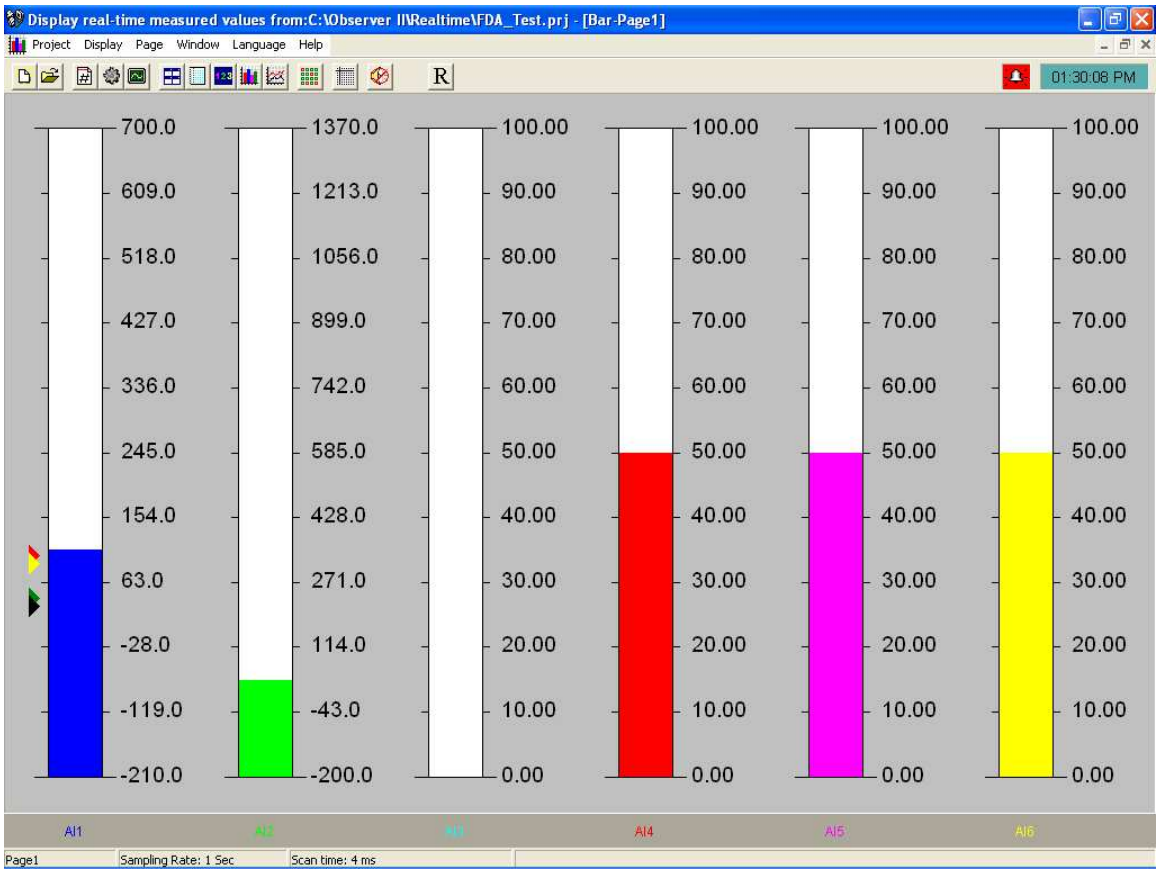


Click on Event Icon **to show events full page**

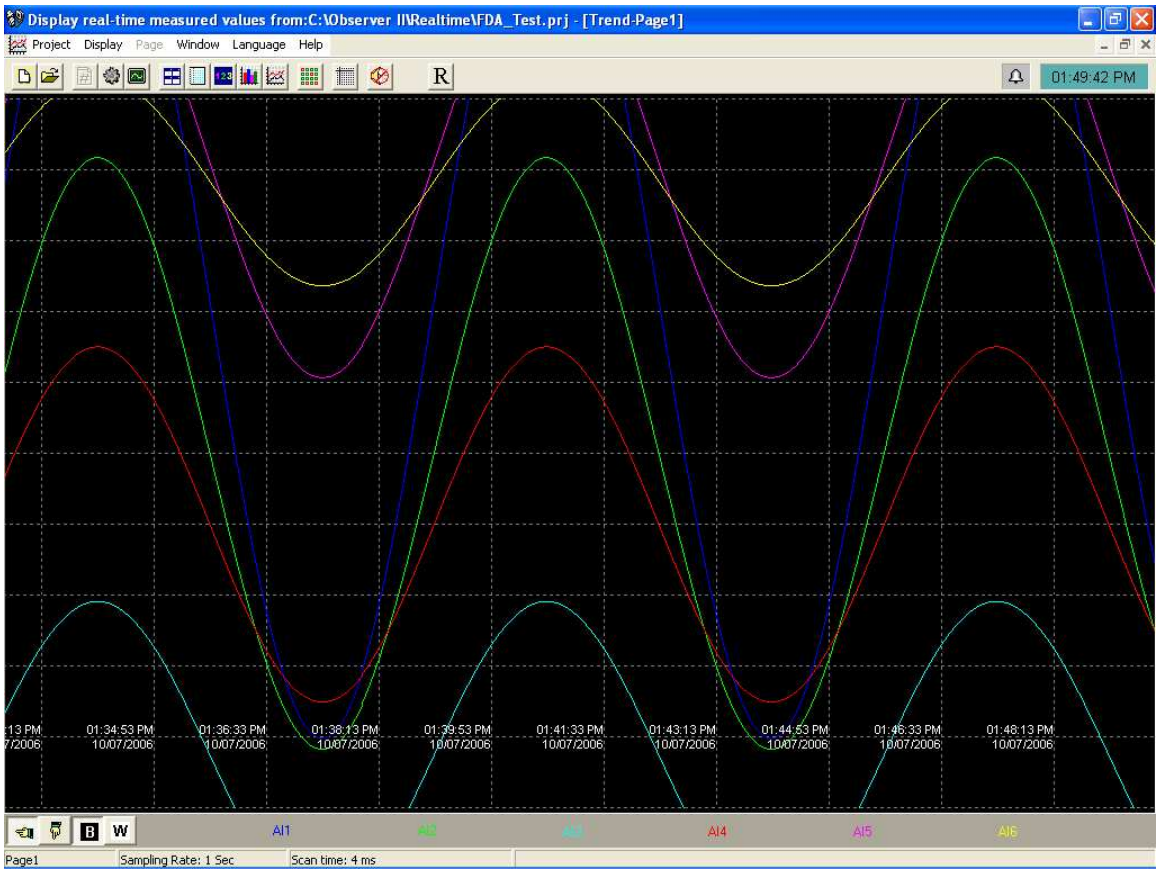


Click on Digital Icon **to show all digital values in dedicated screen**

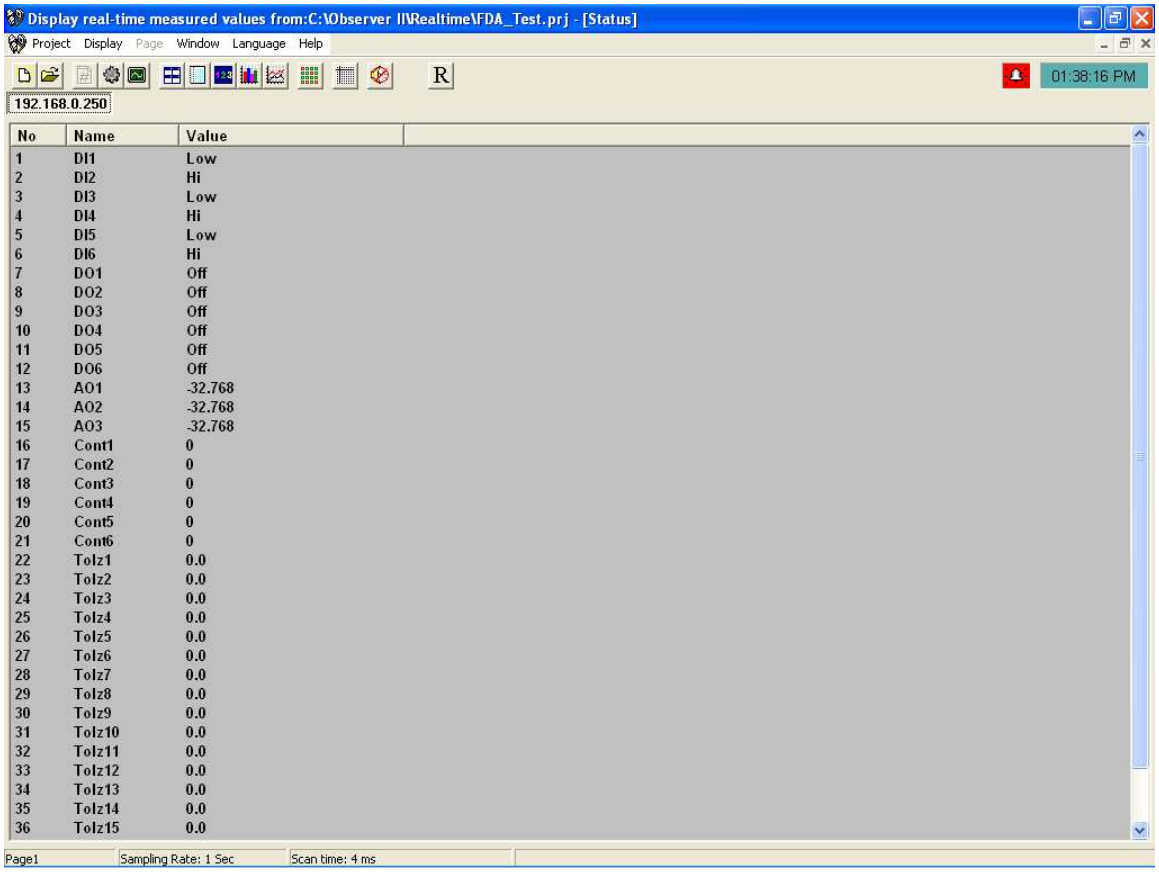
Click on Bar Icon **to show all Bar graphs in dedicated screen**



Click on Trends Icon **to show all Trends in dedicated screen**



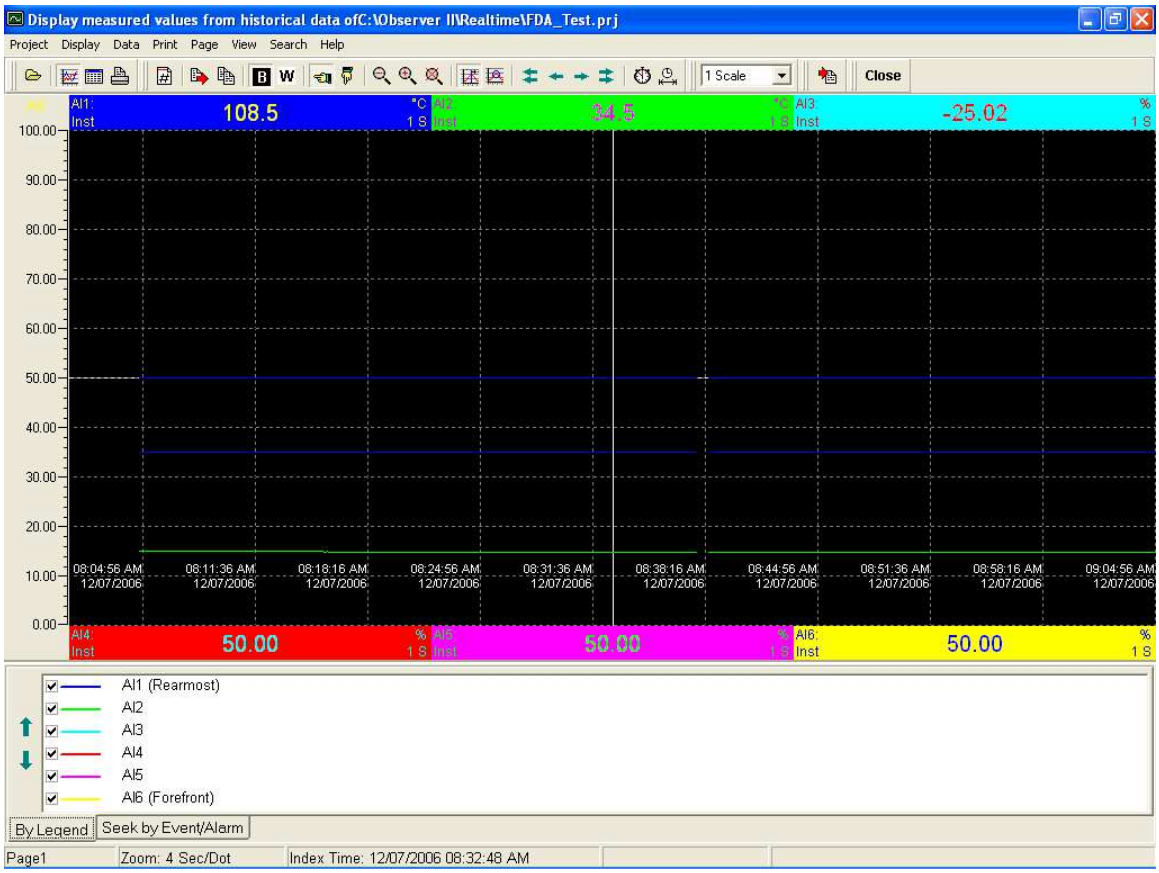
Click on Status Icon **to show all Status of DI, DO, AO, Counter, Totalizer in dedicated screen**



No	Name	Value
1	DI1	Low
2	DI2	Hi
3	DI3	Low
4	DI4	Hi
5	DI5	Low
6	DI6	Hi
7	DO1	Off
8	DO2	Off
9	DO3	Off
10	DO4	Off
11	DO5	Off
12	DO6	Off
13	AO1	-32.768
14	AO2	-32.768
15	AO3	-32.768
16	Cont1	0
17	Cont2	0
18	Cont3	0
19	Cont4	0
20	Cont5	0
21	Cont6	0
22	Totz1	0.0
23	Totz2	0.0
24	Totz3	0.0
25	Totz4	0.0
26	Totz5	0.0
27	Totz6	0.0
28	Totz7	0.0
29	Totz8	0.0
30	Totz9	0.0
31	Totz10	0.0
32	Totz11	0.0
33	Totz12	0.0
34	Totz13	0.0
35	Totz14	0.0
36	Totz15	0.0

Page1 | Sampling Rate: 1 Sec | Scan time: 4 ms

Measured data

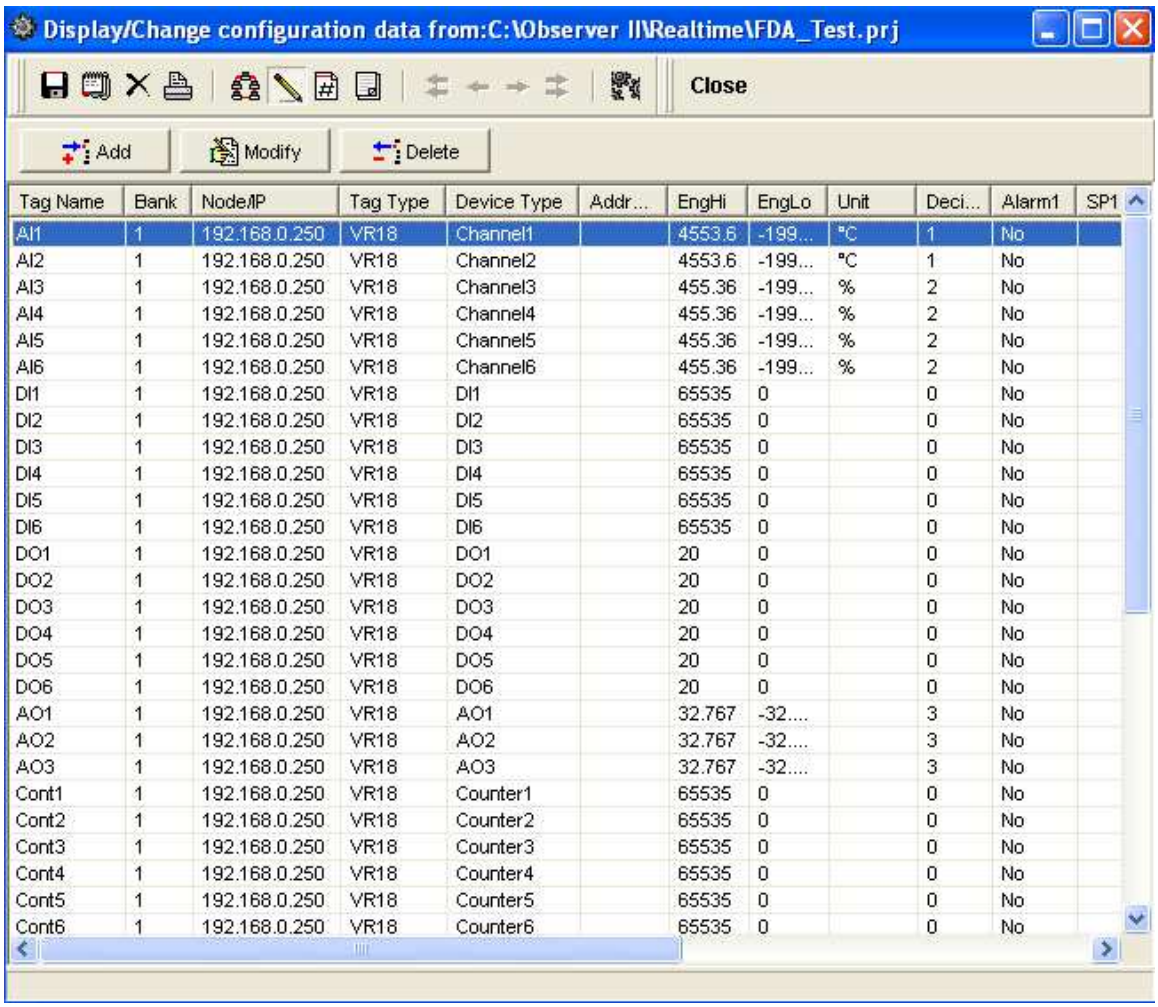


Measured data: When real time viewer is running, it also saves data in PC at C:\ObserverII\Real time\Filename* folder in proprietary format which is tamper proof. To access this data, click on “measured data” icon . New screen will open as shown above, which looks like similar to historical viewer. All the features available for historical data like data export to excel files, print, search will be available for this data also. kindly note that this data is different from historical viewer data imported from recorder.

4.4 Configuration data in real time

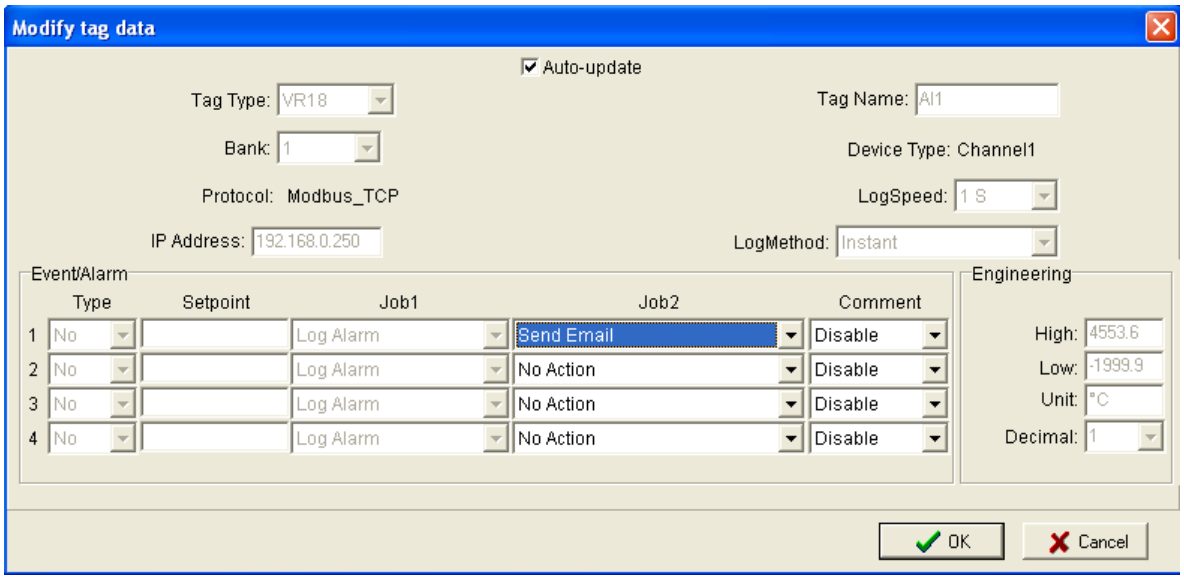
Configuration data

It is used to define the configuration of the recorder for Real-Time Viewer. Please note that the configuration of Real-Time Viewer can be redefined and independent to the configuration of recorder itself.



Tag Name	Bank	Node/IP	Tag Type	Device Type	Addr...	EngHi	EngLo	Unit	Deci...	Alarm1	SP1
AI1	1	192.168.0.250	VR18	Channel1		4553.6	-199...	°C	1	No	
AI2	1	192.168.0.250	VR18	Channel2		4553.6	-199...	°C	1	No	
AI3	1	192.168.0.250	VR18	Channel3		455.36	-199...	%	2	No	
AI4	1	192.168.0.250	VR18	Channel4		455.36	-199...	%	2	No	
AI5	1	192.168.0.250	VR18	Channel5		455.36	-199...	%	2	No	
AI6	1	192.168.0.250	VR18	Channel6		455.36	-199...	%	2	No	
DI1	1	192.168.0.250	VR18	DI1		65535	0		0	No	
DI2	1	192.168.0.250	VR18	DI2		65535	0		0	No	
DI3	1	192.168.0.250	VR18	DI3		65535	0		0	No	
DI4	1	192.168.0.250	VR18	DI4		65535	0		0	No	
DI5	1	192.168.0.250	VR18	DI5		65535	0		0	No	
DI6	1	192.168.0.250	VR18	DI6		65535	0		0	No	
DO1	1	192.168.0.250	VR18	DO1		20	0		0	No	
DO2	1	192.168.0.250	VR18	DO2		20	0		0	No	
DO3	1	192.168.0.250	VR18	DO3		20	0		0	No	
DO4	1	192.168.0.250	VR18	DO4		20	0		0	No	
DO5	1	192.168.0.250	VR18	DO5		20	0		0	No	
DO6	1	192.168.0.250	VR18	DO6		20	0		0	No	
AO1	1	192.168.0.250	VR18	AO1		32.767	-32....		3	No	
AO2	1	192.168.0.250	VR18	AO2		32.767	-32....		3	No	
AO3	1	192.168.0.250	VR18	AO3		32.767	-32....		3	No	
Cont1	1	192.168.0.250	VR18	Counter1		65535	0		0	No	
Cont2	1	192.168.0.250	VR18	Counter2		65535	0		0	No	
Cont3	1	192.168.0.250	VR18	Counter3		65535	0		0	No	
Cont4	1	192.168.0.250	VR18	Counter4		65535	0		0	No	
Cont5	1	192.168.0.250	VR18	Counter5		65535	0		0	No	
Cont6	1	192.168.0.250	VR18	Counter6		65535	0		0	No	

Double click on any row say channel1 AI1 in the above spreadsheet to show the following Modify tag data with email configuration. If auto-update option is selected in modify tag data as shown in following screen, then all the settings done at the channel for events will appear here. If it is not selected, then user can configure manually for different set points in order to generating alarm emails.

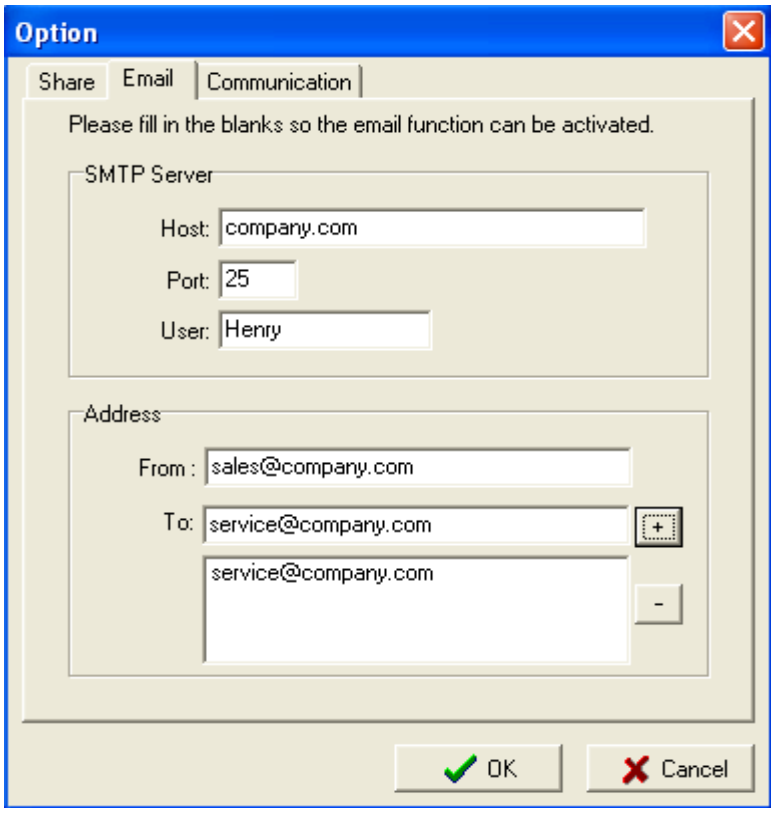


Select Send email option for the job as shown above.

The Email on event will be received like this,

Type:HiAlarm
Source:AI1
ActiveTime:12/12/20059:49:59AM
Value:23.8

Option Three options of Share, Email and Communication are to be defined. It is mainly to set email configuration and real time log speed.



Share: Share/do not share options are available for user selection. If share option is selected, then Observer data available in the computer can be shared from other computers. On selection of this share data, shared folder will be created in C:\Observer.

For example, you have one recorder and wish to analyze historical data at different computer. While opening project in the second computer, directly link to the project file available under C:\Observer through network configuration. This will minimize the data transfer between recorder and the computers and make it more efficient by using available resources through network configurations.

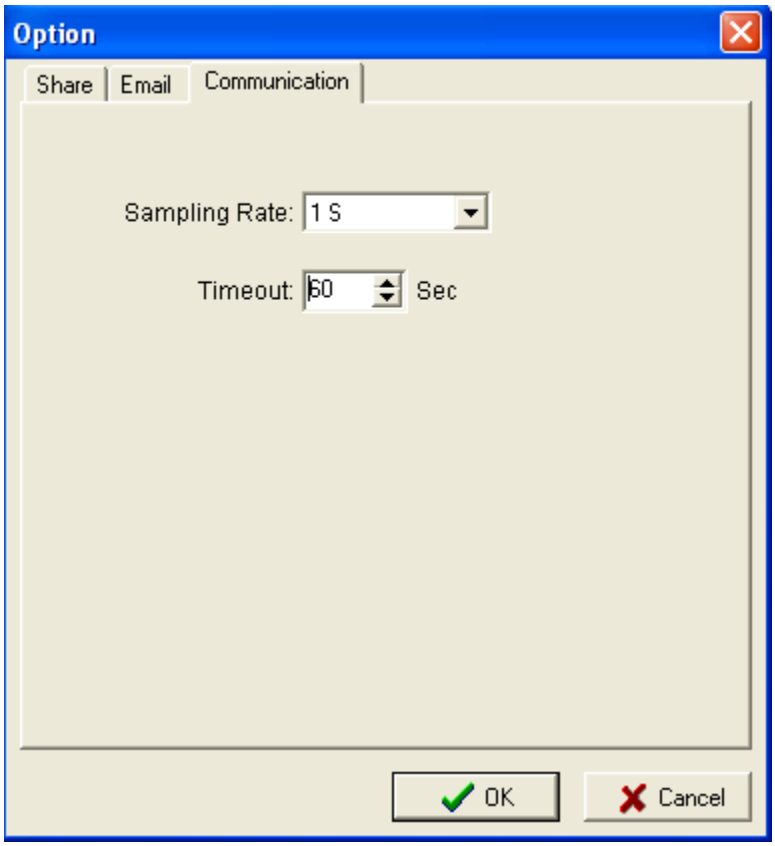
Email: The default Port number 25 is used to send email from STMP server. If your network administrator configured different port in your LAN for accessing internet/email, then you have to modify the port number accordingly.

To send an email for any event, the procedure is as follows.

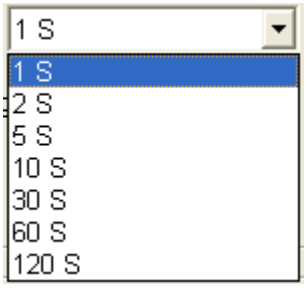
Set SMTP server details as below. Please contact system or network administrator for the server details if your computer is connected in LAN.

Host, Port, User name, From: Sender email address
To: Receiver email address (Max.10 email addresses can be selected)

Communication:

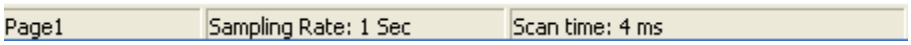


Sampling rate: It is used to set data display time for Real-Time Viewer. User can select one from the following for real time monitoring.



Time out: This is time set for generating time out errors related to real time viewer communication.

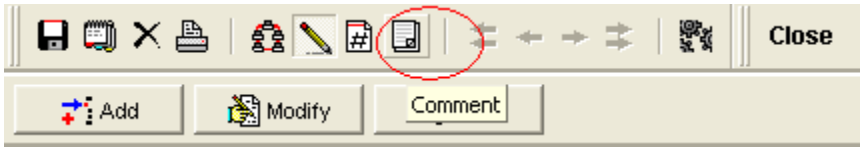
For example, if recorder and Observer are located at different places connected through Ethernet across different gateways, then user can adjust sampling rate and time out settings to avoid errors in communication. When real time viewer is running, please observe the following taskbar at the bottom side of the screen.



Here, scan time should always be less than sampling rate. Other wise, communication errors will occur. If PC and Recorder is connected by long distance network, then there might be chances that scan time gets increased. So check this and set sampling rate more than scan time. Also user can set time out settings to generate communication failure errors. Maximum time out settings possible is 60 sec.

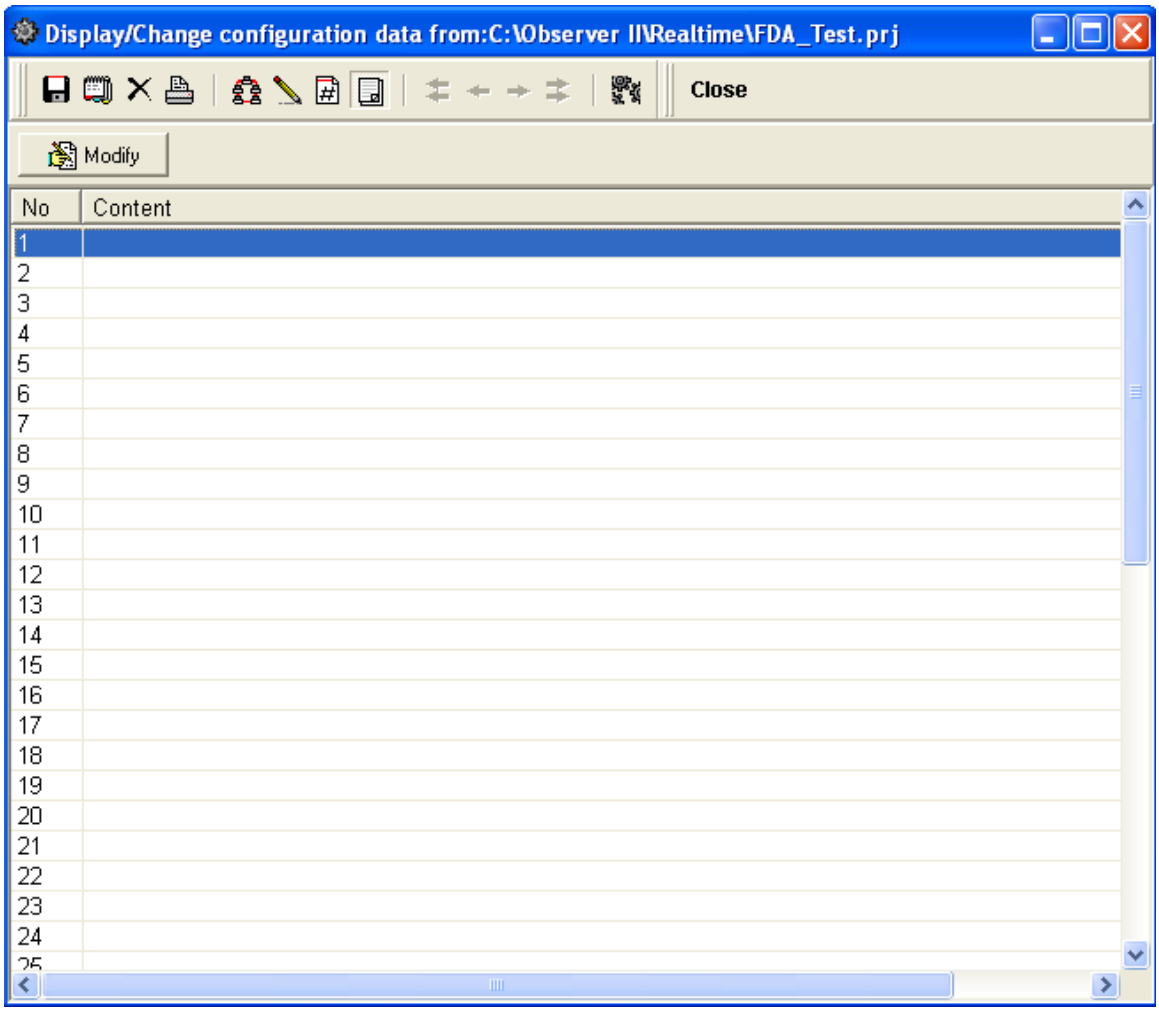
For example, scan time is adjusted and time out setting = 30 sec. This means, if scan time is more than sampling rate for more than 30 sec, then communication errors will be generated.

Comment:



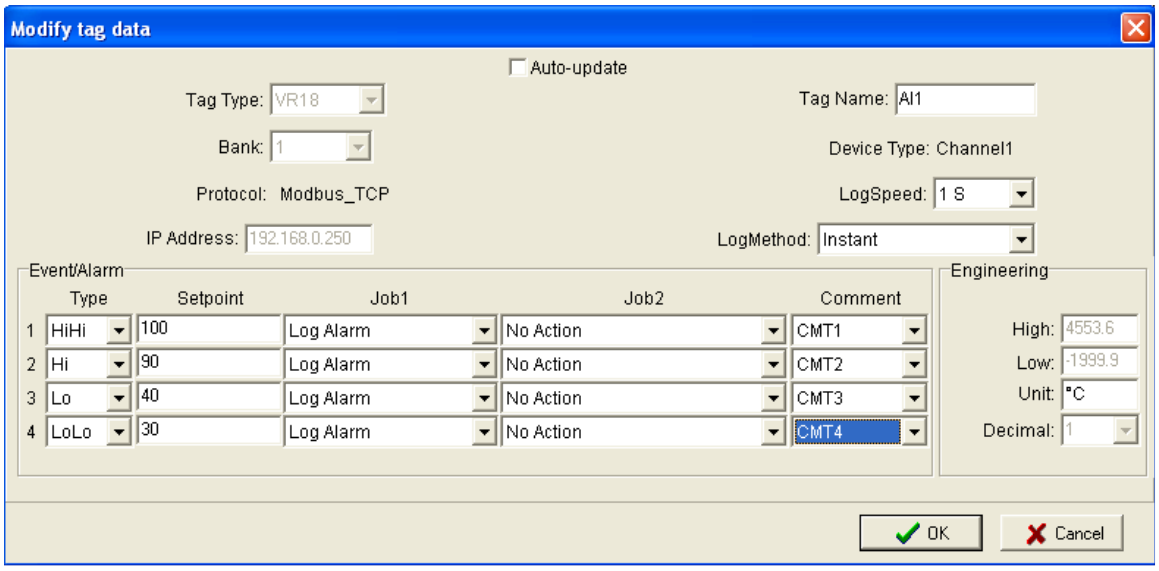
This is additional feature in PC software version 2.3

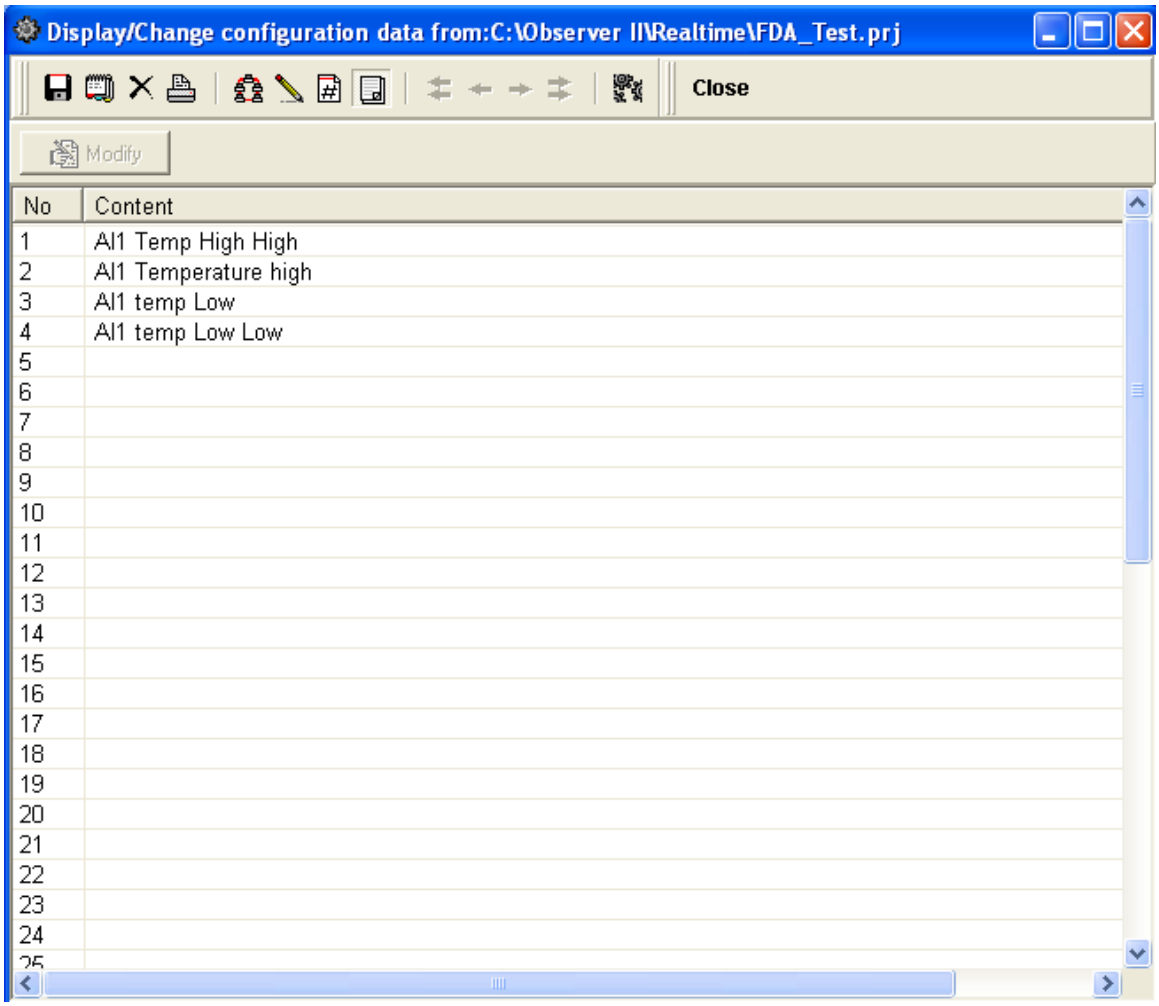
In real time viewer, click on configuration data, then click on above Icon by name Comment as shown above. Then following screen will open.



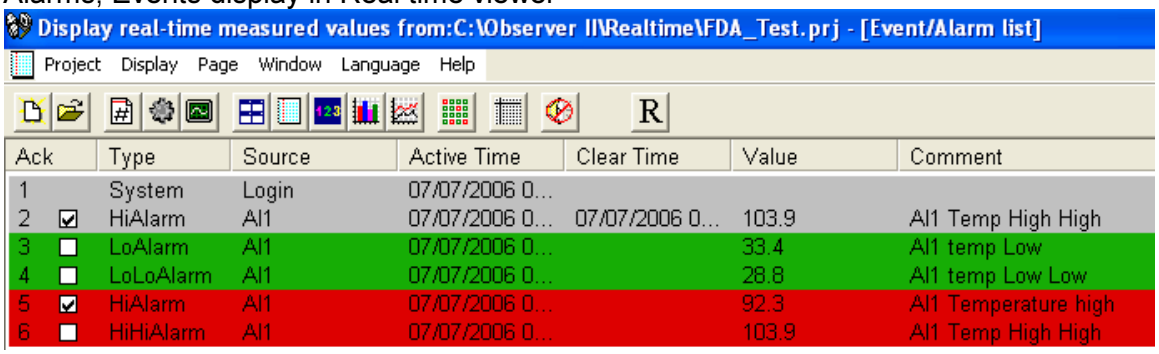
Maximum 50 comments are possible in each project. CMT1 = Comment1, CMT2 = Comment2….. CMT50 = Comment 50. Each comment can have maximum 60 characters. Once standard comments are defined in a project, then these comments can be selected for any channel for alarm/event purpose.

Example





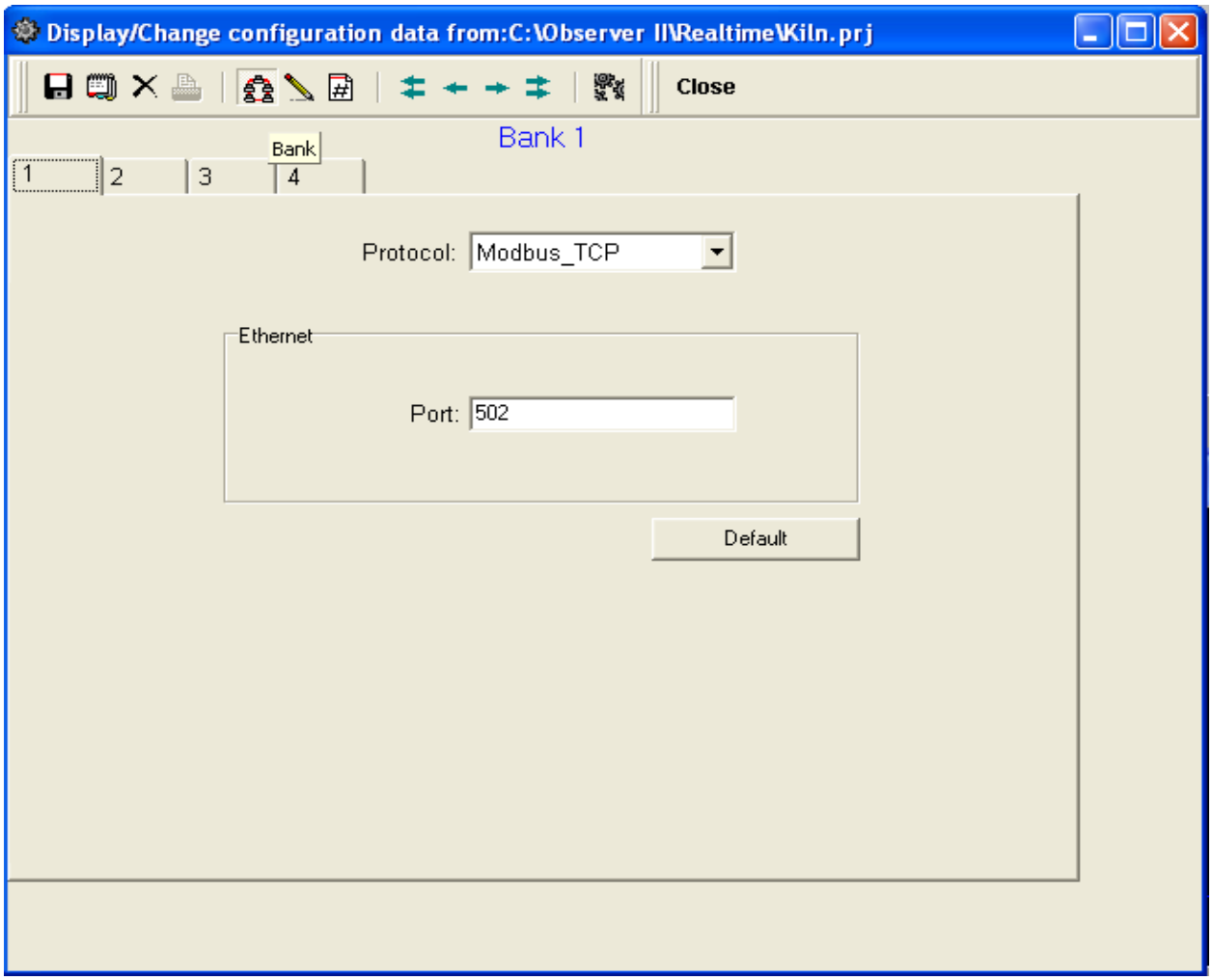
Alarms, Events display in Real time viewer



BANK

Bank

Bank: It is to modify the channel for communication between Recorder and Observer from Real-Time Viewer. Four banks are available. In each bank protocol options Disable, Modbus_RS232 and Modbus_TCP are available for user selection. This Bank is used for Real-Time Viewer only, which is different from the Bank used for recorder itself on Page 60.



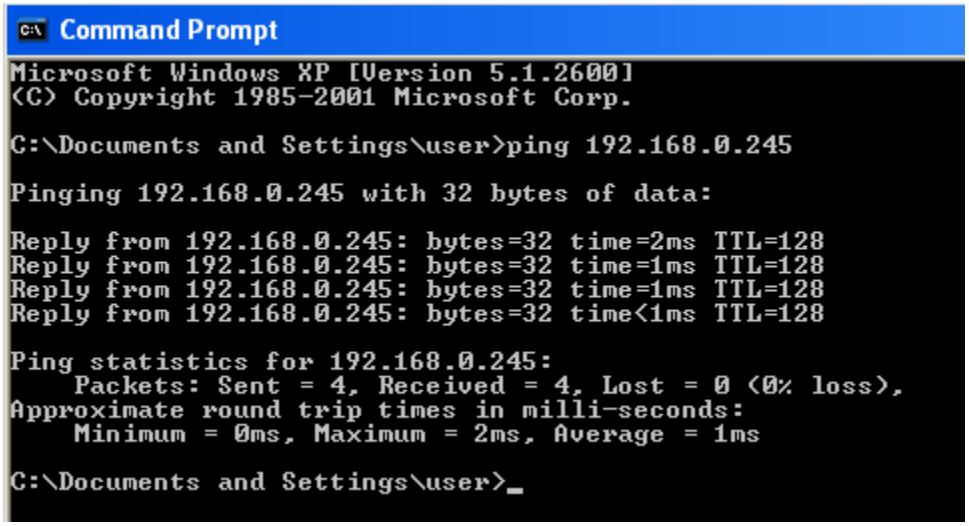
For Ethernet, Recorder uses port no. 502 for communicating with Observer. If you change the port number in Observer, you cannot establish communication between Observer and Recorder. Port no: 502 is used to establish communication between recorder and Observer software to exchange data on Ethernet over Modbus_TCP protocol.

4.5 How to add two Recorders in Real time Viewer

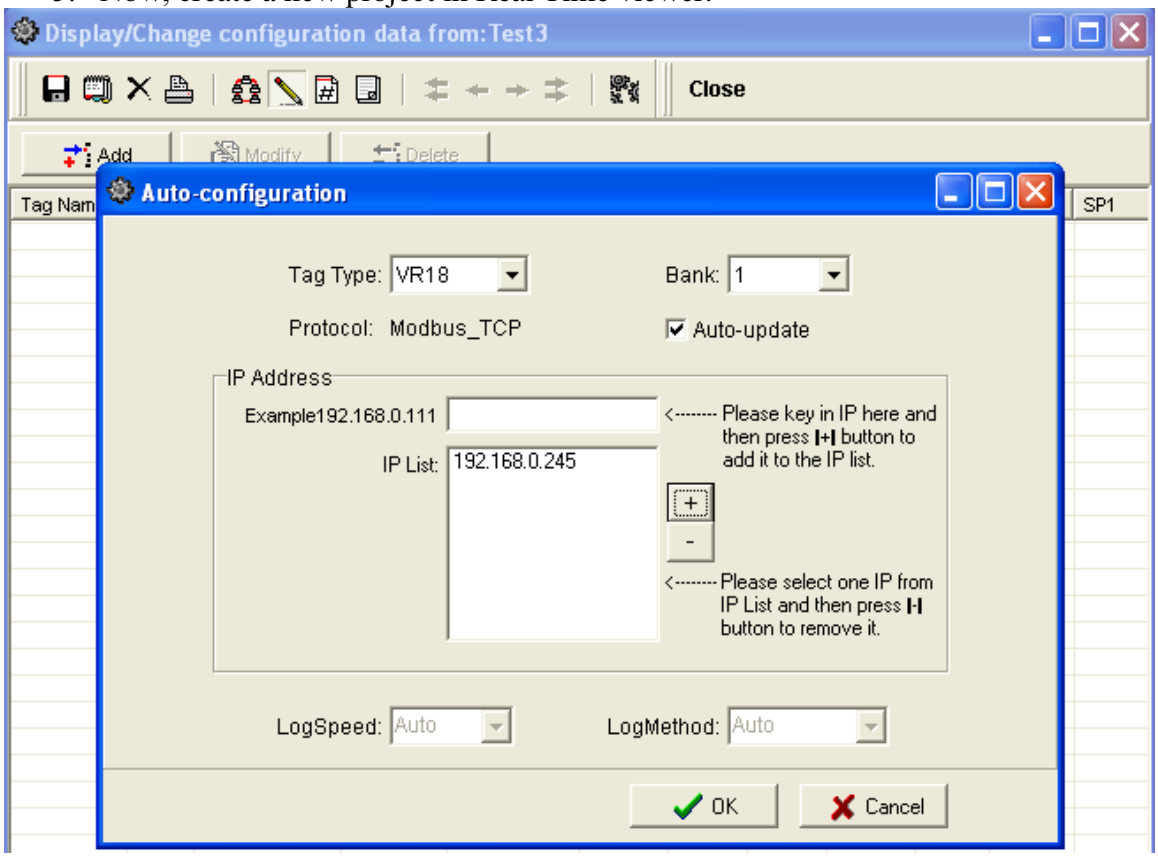
Ethernet

IP address of Recorder1: 192.168.0.245
IP address of Recorder2: 192.168.0.246
IP address of PC: 192.168.0.247

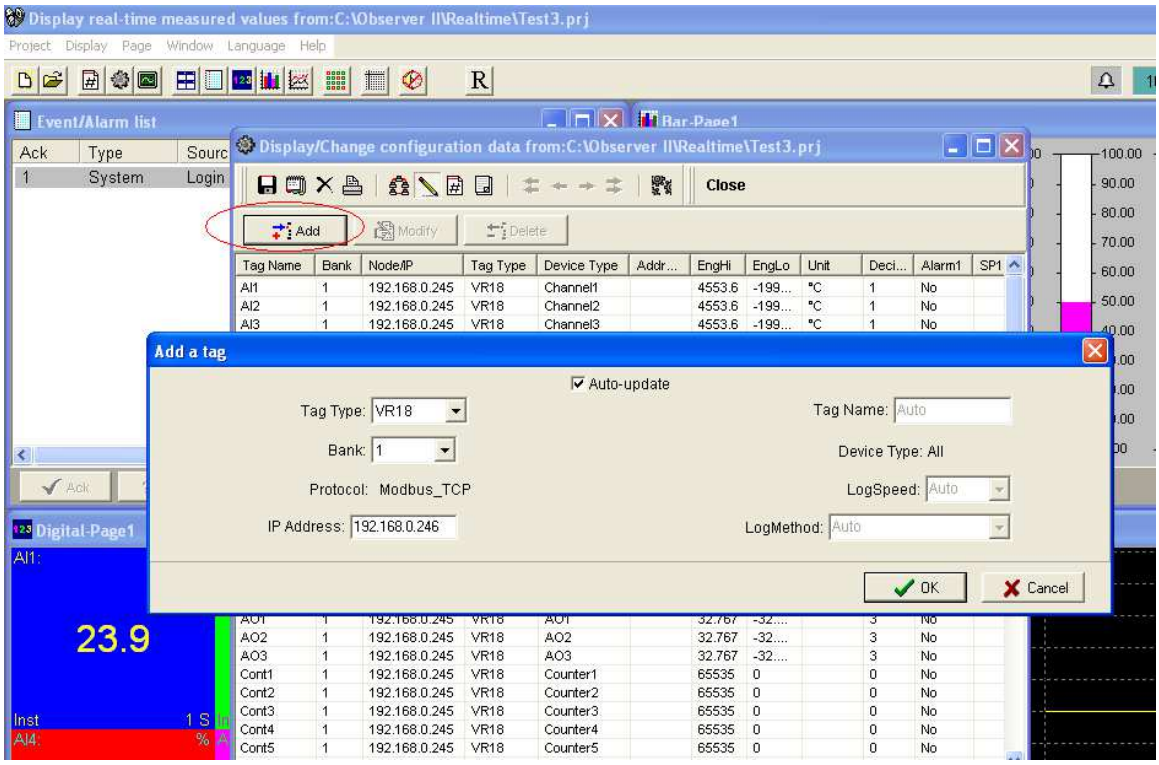
1. Install ObserverII software in PC
2. Connect 2 nos. paperless recorders and PC via Ethernet
3. Check communication between recorders and PC using Ping command



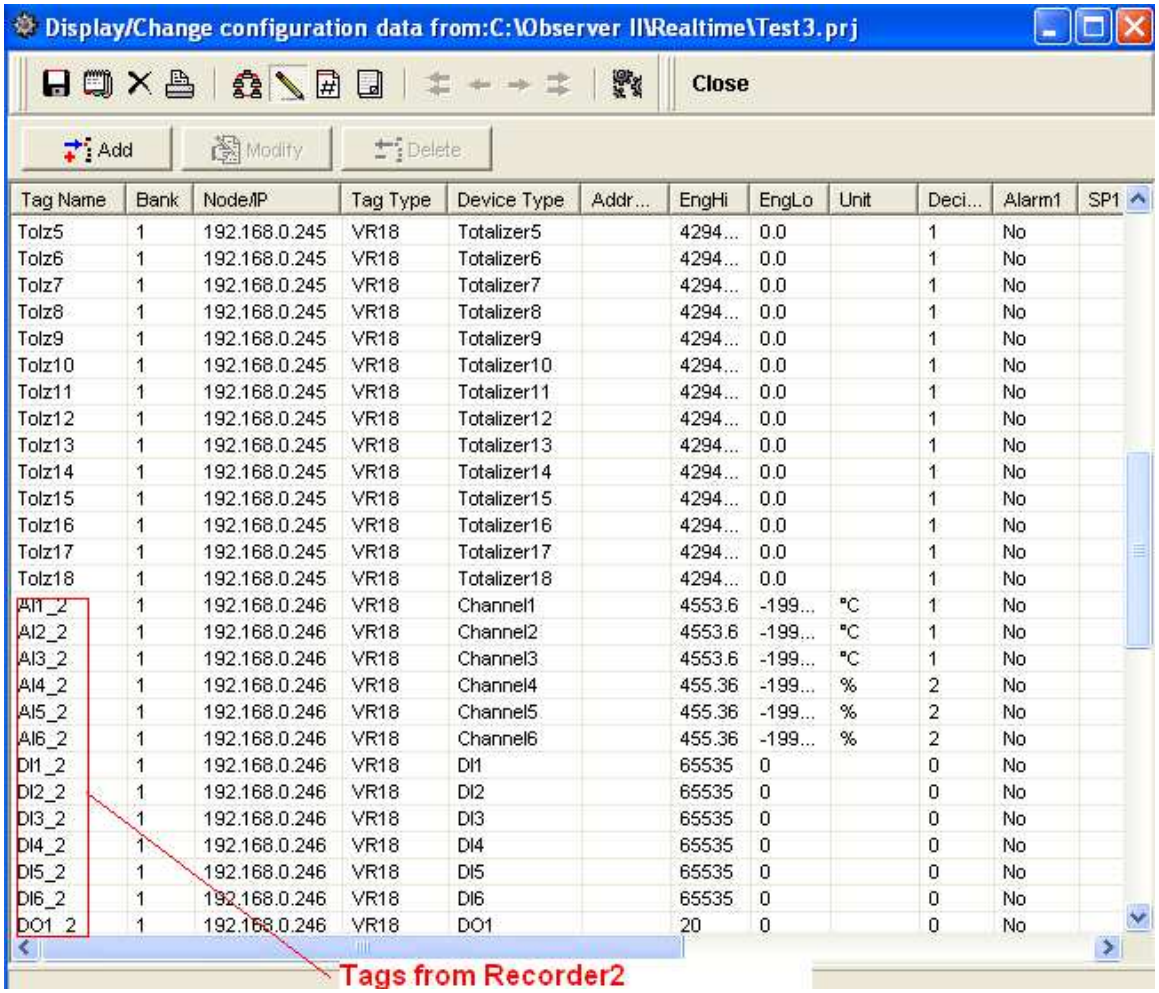
4. Configure both the recorders individually from the Configurator. You may give two different project names for two recorders say Test1 and Test2
5. Now, create a new project in Real Time viewer.



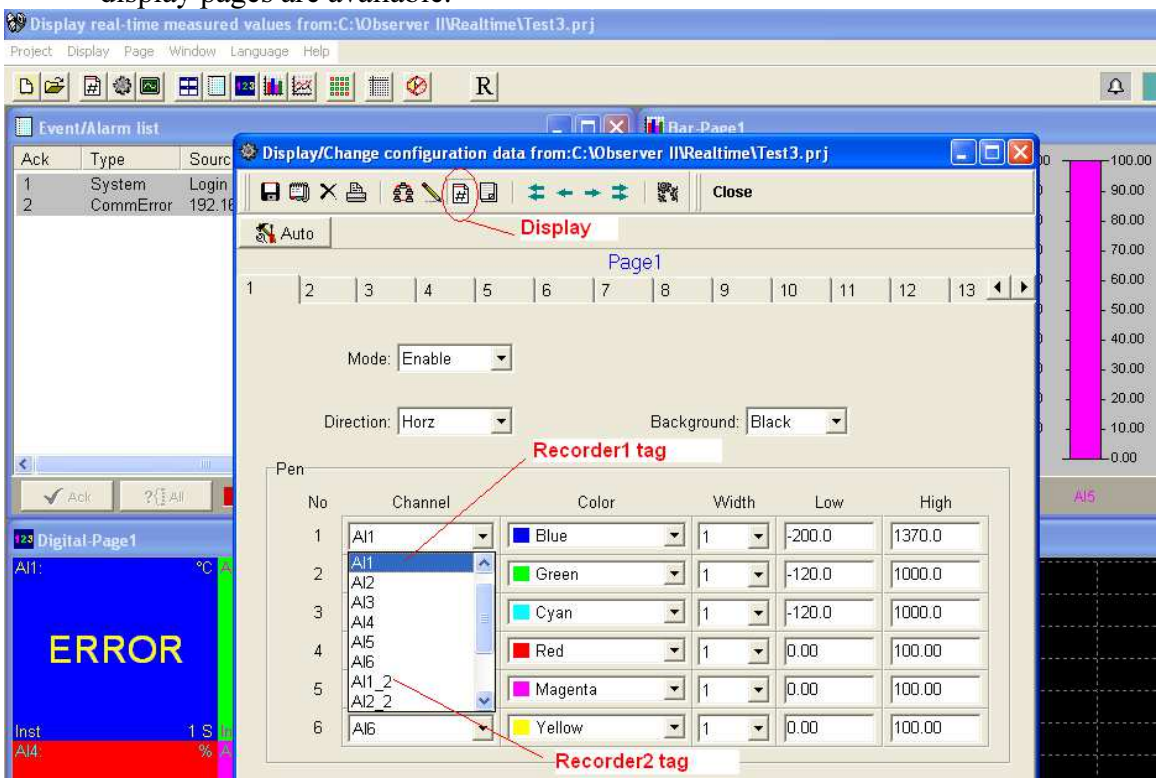
6. After saving, you should be able to see digital values, bargraph and trend of recorder1 in your PC.
7. Now add second recorder into the real time viewer. Press “Display” and then “Configuration data” in the Menu of real time viewer.



8. Click on “Add” button. A new Pop up screen “Add a tag” will appear as shown above. Now enter IP address of second recorder 192.168.0.246 and then click on ‘OK” button.



9. All the tags from second recorder now gets added into the data base as shown above. AI1_2 means, it is analog input1 from second paperless recorder. Now click on “Save”.
10. Real time viewer in Observer II software support 1024 tags in total. There are 200 display pages are available.



11. In the real time viewer, press on Display icon as shown above and configure display settings as per your requirement. As you can see in above Fig. tags from both recorder1 and recorder2 now available for you for selection.

4.6 DDE link

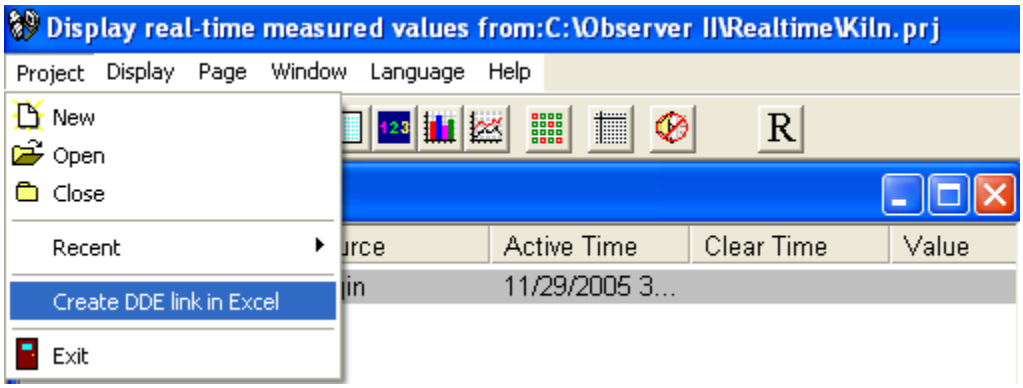
Dynamic Data Exchange (DDE) is a standard inter-application communication protocol built into Microsoft Windows operating systems and supported by many applications that run under Windows. DDE takes data from one application and gives it to another application. It allows Windows programs that support DDE to exchange data between themselves.

Data from the Observer software can be exchanged with Excel on DDE link.

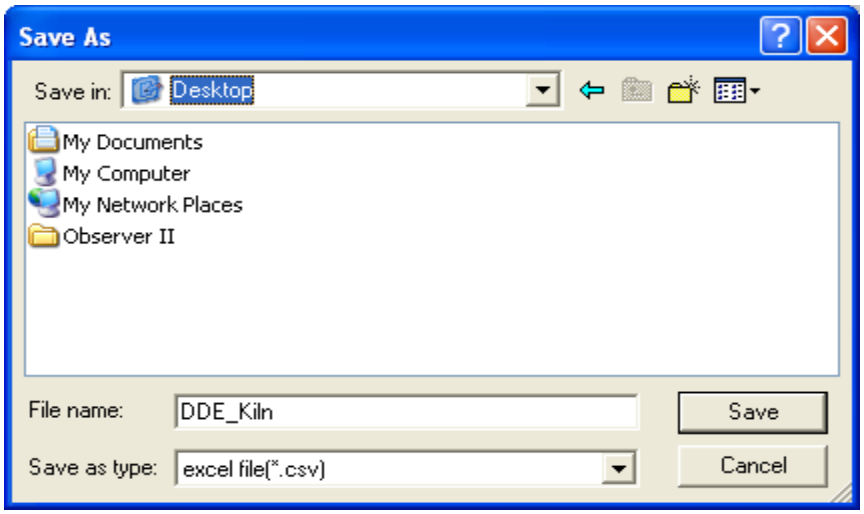
Please note that it is not possible to exchange data directly from the recorder to third party applications like Excel. Once Observer II software is installed with real timer viewer and configured properly in PC, then it is possible to exchange data between Observer software and Excel using DDE link.

Open real time viewer from start – programs – Observer II – Real-time viewer

Project – create DDE link in excel

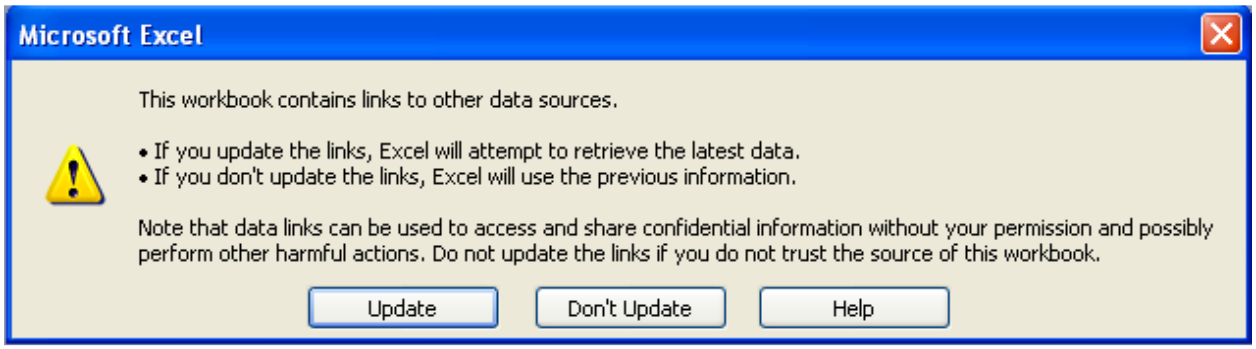


Specify the path and file name as follows.



By default the file name will start with DDE and the project name with underscore in between to avoid confusion in naming the file. Save the file name in PC at selected path as above to proceed further.

For example, if desk top is selected in the path, then the file should be available in the desk top. Please check up the desk top for the excel file. If the MS Office is not installed in the PC, then you cannot open the excel file created as above procedure. Please contact your system administrator to install MS office software in the PC. Now try to open the file from the desk top created for using DDE application with the recorder through Observer software.



Click on update to activate DDE between Observer software and Excel application. If the DDE is successful, then real time data of the pens should be updated in excel file as shown in sample screen.

DDE expression format to get real time data from the Observer software is as follows.

=RealTime_Viewer|TagService!_TagN

Where N = 1,2,3…..

Application = RealTime_Viewer
Topic = Tag Service
Tag name = _Tag1 (Please observe underscore before the tag number)
It is possible to exchange data related to AI, DI, DO, Counters and Totalizers between Observer software and third party applications running under windows operating systems via DDE.

Note: From Observer Version 2.22, Tag name format for DDE is changed.

Example: Actual tag name in the Recorder configuration, For Analog input1: AI1

Till Version V2.21, DDE tag format is as follows
=RealTime_Viewer|TagService!_AI1
Tag name appears as it is in the DDE format also.

From Version V2.22, DDE tag format is as follows
=RealTime_Viewer|TagService!_Tag1 ‘ For Analog input 1’
=RealTime_Viewer|TagService!_Tag2 ‘ For Analog input 2’

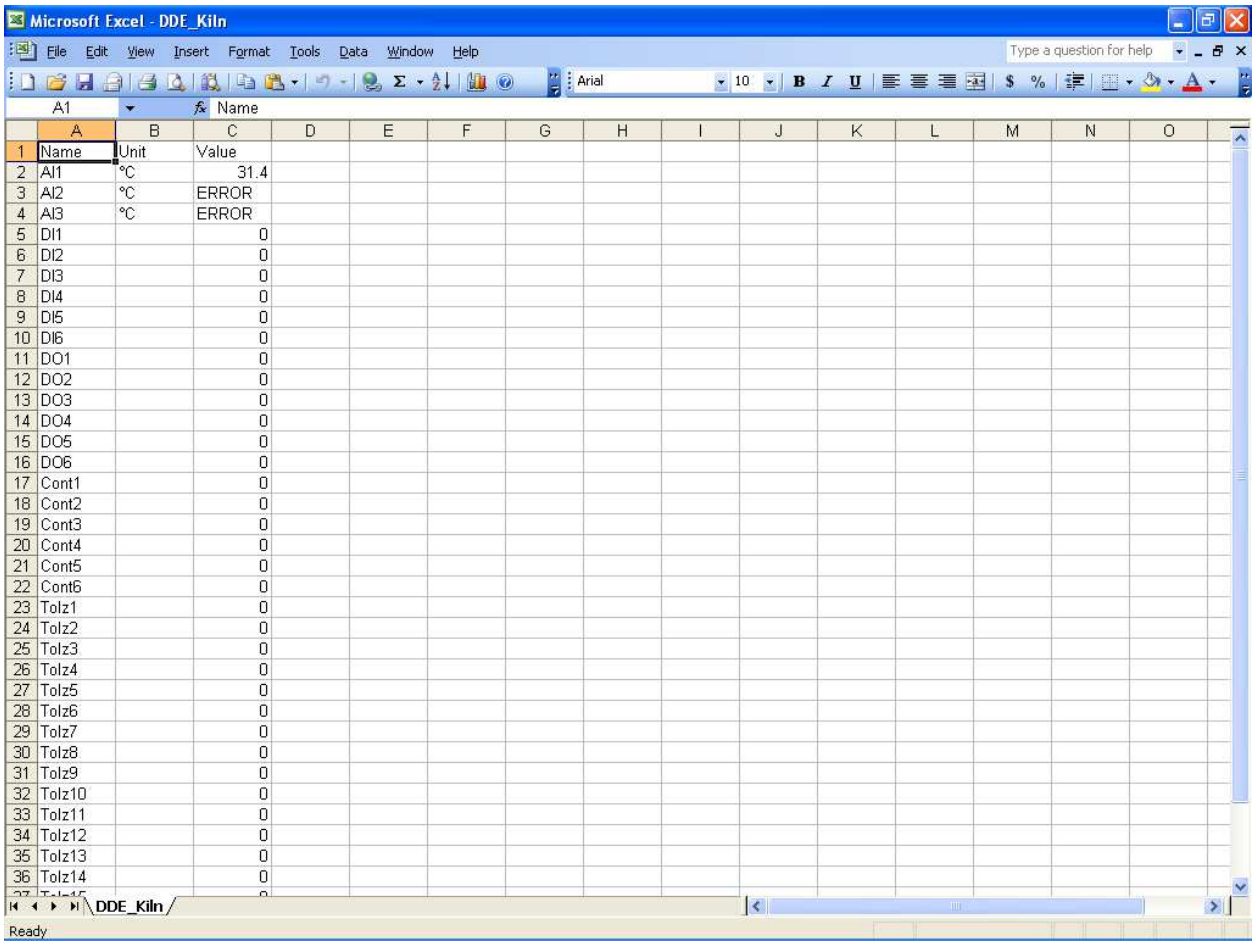
Original tag name is substituted with default Tag number.

Procedure to find the tag number for the tag name to use in DDE applications

Create DDE link from Real time viewer.
Open Excel file.
Three columns appear in the excel file as Name, Unit and Value as shown in the Excel file.

Name: This is tag name actually defined in the Recorder configuration
Unit: This is unit for the tag name defined in the Recorder configuration
Value: This is the specific cell where, process value for the tag will appear in real time.

To find the DDE format for any tag defined at the recorder, for a specific tag, double click at Value for the corresponding tag defined at Name. For ex: For Name= AI1 is at R2C1, double click at cell R2C3 to see DDE format for tag AI1. Click on Esc button at the key board to see process value at the cell from displaying DDE format.



	A	B	C
1	Name	Unit	Value
2	AI1	°C	31.4
3	AI2	°C	ERROR
4	AI3	°C	ERROR
5	DI1		0
6	DI2		0
7	DI3		0
8	DI4		0
9	DI5		0
10	DI6		0
11	DO1		0
12	DO2		0
13	DO3		0
14	DO4		0
15	DO5		0
16	DO6		0
17	Cont1		0
18	Cont2		0
19	Cont3		0
20	Cont4		0
21	Cont5		0
22	Cont6		0
23	Tolz1		0
24	Tolz2		0
25	Tolz3		0
26	Tolz4		0
27	Tolz5		0
28	Tolz6		0
29	Tolz7		0
30	Tolz8		0
31	Tolz9		0
32	Tolz10		0
33	Tolz11		0
34	Tolz12		0
35	Tolz13		0
36	Tolz14		0

If any “Error” test appears in any cell at excel, possible reasons is no data available at selected tag. Check the data availability at the recorder and Real time viewer for specific tag.

If any “NAME” text appears in the excel file, it indicates that particular tag is not configured properly. Tag name may not available at Observer software. If this happens, check the valid tag names at Observer software at the following link

Real time viewer - Display – configuration data

Note: If Excel file is not opening from the selected path, then check the following

1. RAM size in the PC is very less. Restart the computer and then create the DDE link once again and open the Excel file.
2. Increase virtual memory in the PC. Please contact system administrator to check the virtual memory settings at the PC.
   My computer-properties-advanced-performance settings –advanced-virtual memory.

4.6.1 DDE with third party applications

Once the data is available at Excel at particular cell, then data can be exchanged with the third party applications like PLC, SCADA, and Visual Basic etc. If data is to be exchanged with PLC, then PLC programmer can write Visual basic macro in Excel from the following link

Excel – Tools – macro

For the source code examples, PLC programmer may check the PLC manuals for DDE sample macros. It is also possible to exchange data from recorder to SCADA applications through DDE.

4.6.1.1 Example 1

DDE link between Allen-Bradley SLC 5/03 PLC and Excel

Task: Write a block of data (10 floating points) from Excel to PLC.

Name of the Excel file = Reports.XLS
Data Source: D 37 to D 46, data in total 10 cells
Target= PLC, Starting address= F8

User RSLinx to configure PLC and DDE link
DDE topic name in RSLinx= DDE_REPORTS

```
Sub Block_Write()

                'open dde link: testsol=DDE Topic  This is comment only

 RSIchan = DDEInitiate("RSLinx", "DDE_REPORTS")

                'write data thru channel This is comment only

 DDEPoke RSIchan, "F8:2,L10", Range("[Reports.XLS]sheet1!D37:D46")

                'close dde link This is comment only

 DDETerminate (RSIchan)

End Sub
```

4.6.1.2 Example 2

DDE link between Allen-Bradley SLC 5/03 PLC and Excel

Task: Read a block of data (5 integers) from PLC to excel

Name of the Excel file = Reports.XLS
Data Source: PLC, Starting address= N7:30
Target cells in Excel= A7 to A11

User RSLinx to configure PLC and DDE link
DDE topic name in RSLinx= DDE_REPORTS

```
Sub Block_Read()

                'open dde link: testsol=DDE Topic  This is comment only

RSIchan = DDEInitiate("RSLinx", "DDE_REPORTS")

                'get data and store in data variable This is comment only

data = DDERequest(RSIchan, "N7:30,L5,C1")

                'Paste data into selected range This is comment only
```

```
Range("[Reports.XLS]Sheet1!A7:A11").Value = data

                'close dde link  This is comment only

DDETerminate (RSIchan)

End Sub
```

4.6.1.3 Example 3

DDE between Observer software and SCADA (Allen-Bradley RSVIEW32)

When the Real time viewer in Observer II is working well in PC, then the tag data from Observer software will be available in the expression format as follows

=RealTime_Viewer|TagService!_Tag1

Application = RealTime_Viewer
Topic = Tag Service
Tag name = _Tag1 (Please observe underscore before the tag number)

The above tag information can be directly configured in SCADA to enable DDE between Observer software and RSVIEW 32 SCADA. There is no need to configure any thing at RSLinx.

Procedure for configuration

1) Open SCADA project

2) System – Node – Select DDE server as data source

3) Name = VR18 (No gaps)

4) Application = RealTime_Viewer

5) Topic = Tag Service

6) Check enable in the box. (This node should be selected)

7) Now open the data base

8) Create analog tag with all the details similar to the tag at the recorder.

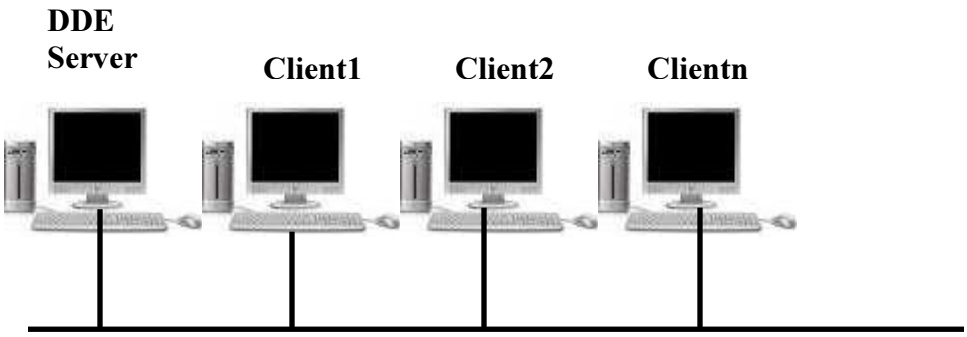
9) Select VR18 at the NODE

10) Write the tag address. For ex: analog input 1, AI1 should be written as _Tag1. Please check up excel file for the tag number corresponding to the tag name defined in the Recorder configuration. Please note that underscore is required before the tag number other wise, data will not be exchanged.

11) Now open the tag monitor and configure for the above tag for checking of DDE with the tag.

If DDE is configured properly, then tag value should appear correctly at the tag monitor with state as “VALID”. If any error message is available, then you have to repeat from step 1. Please note that before checking tag monitor, real time viewer in PC should be in running condition.

4.6.1.4 NET DDE



NET DDE

This is useful when Real time viewer is running in one computer and other computers in local area network (LAN) want to exchange real time data with third party software via DDE.

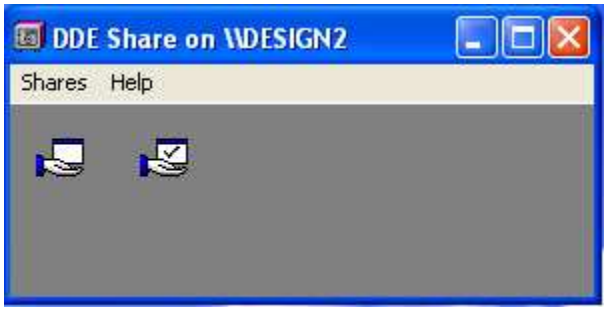
NetDDE is standard built in utility available in windows operating systems. NetDDE allows windows based client applications like Excel and DDE server applications communicate over a network just as if two applications running in same computer.

Procedure for configuration of NetDDE

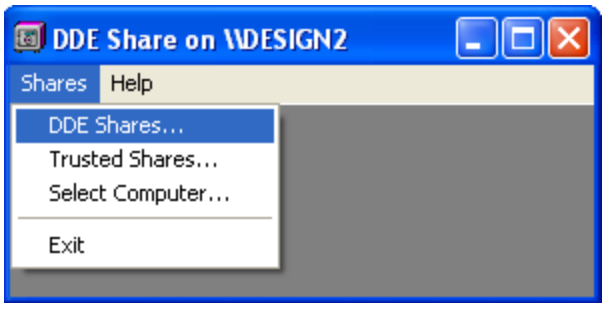
1. Create user account in server PC with Administrator privileges. Real time viewer shall be running in this computer. Create DDE link from real time viewer and open Excel file in this computer for testing purpose.

2. Create user account with Administrator privileges in the client computer where you need real time viewer data via DDE.

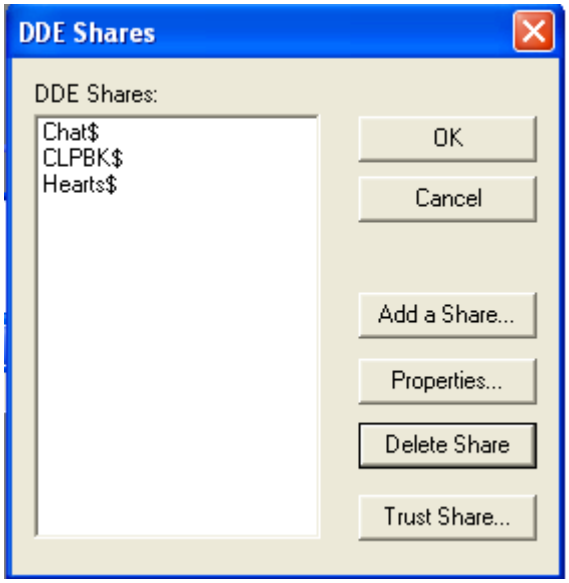
3. In the server PC, Click on Start- Run – ddeshare. Then the following screen will be opened.



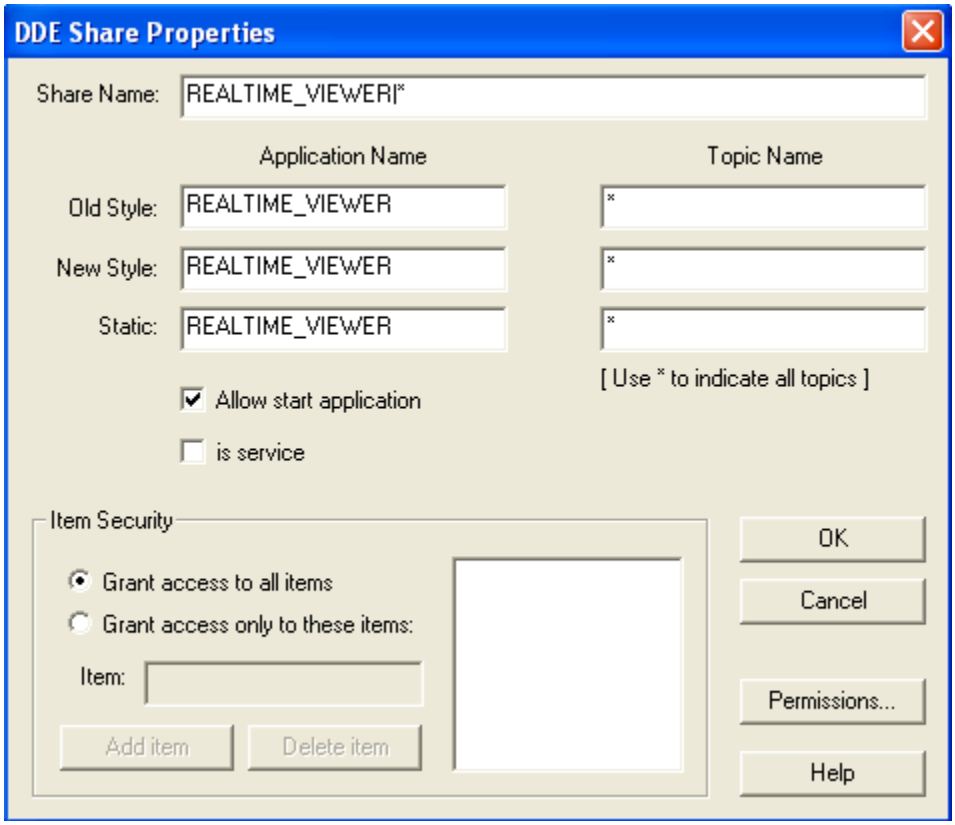
Click on Shares – DDE Shares as follows



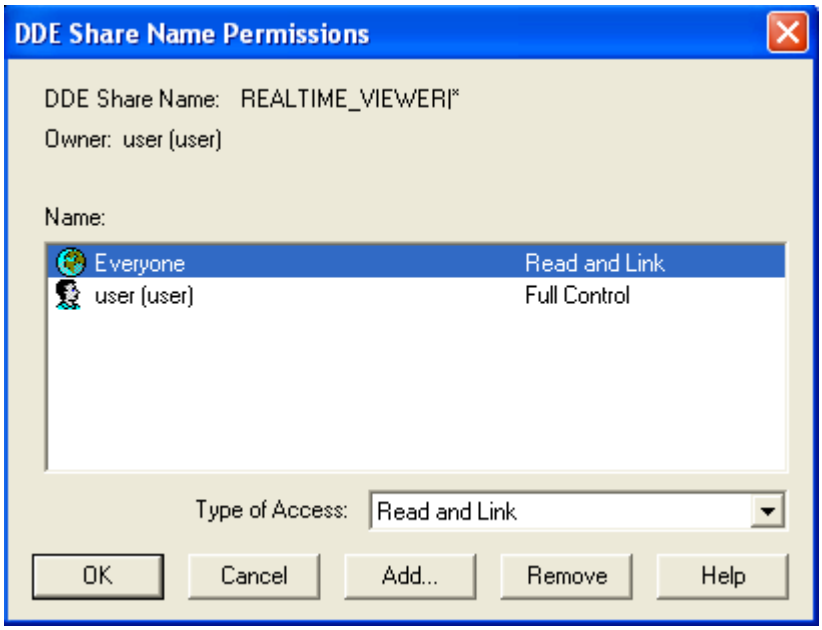
DDE shares screen will appear as follows



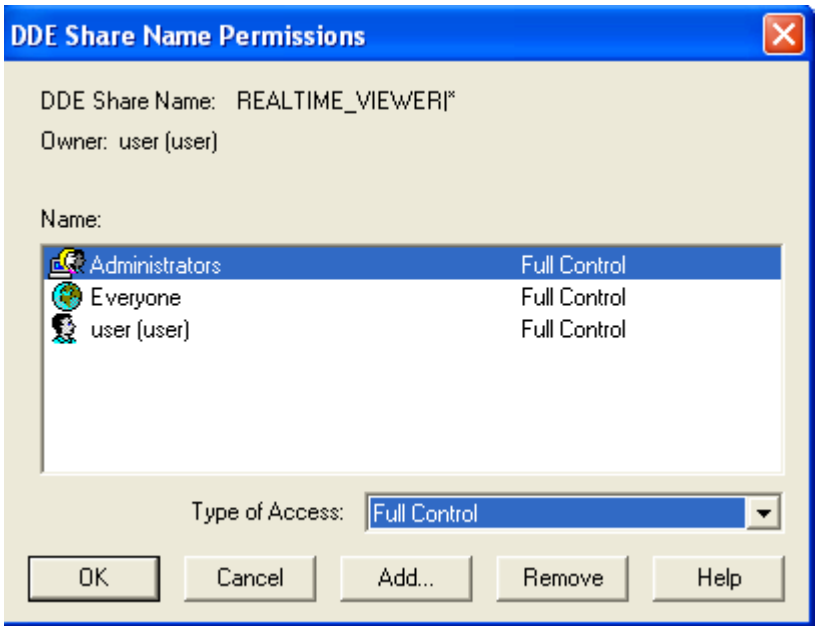
Click on “Add a Share”, then enter the details as follows



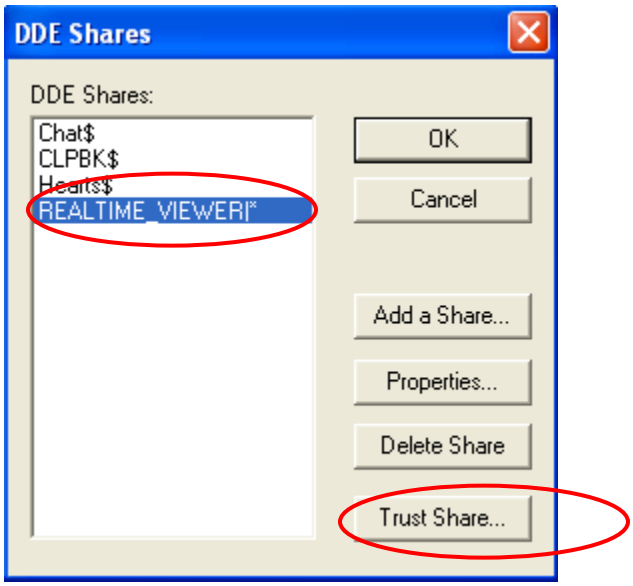
Click on “Permissions” and the following screen will appear



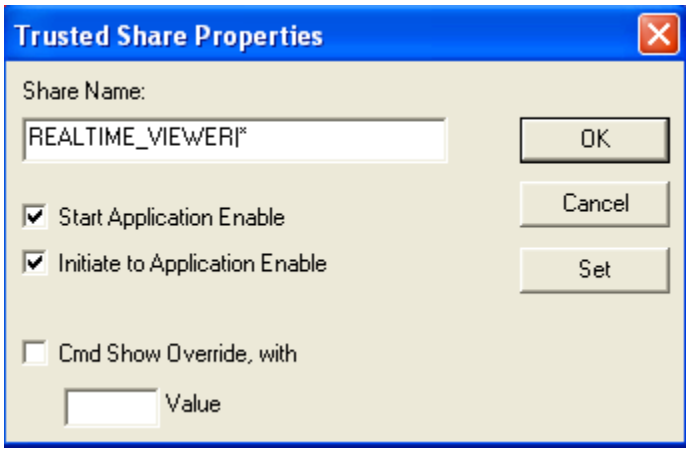
Give “Full Control” to Everyone. Also add Administrator account and give “Full Control”, then the above screen will appear as follows.



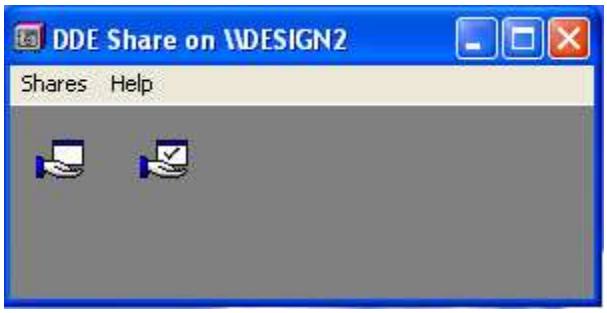
Press OK twice to go back to DDE shares screen. You can Observer “REALTIME_VIEWER|* in the DDE share list as follows. Please note that |* symbol is important after REALTIME_VIEWER. Other wise, NetDDE will not work.



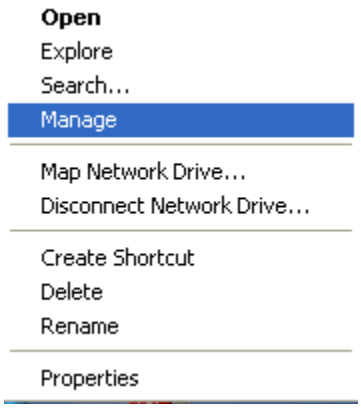
In above DDE Shares screen, select “REALTIME_VIEWER|* , Click on “Trust Share” and configure as per following screen

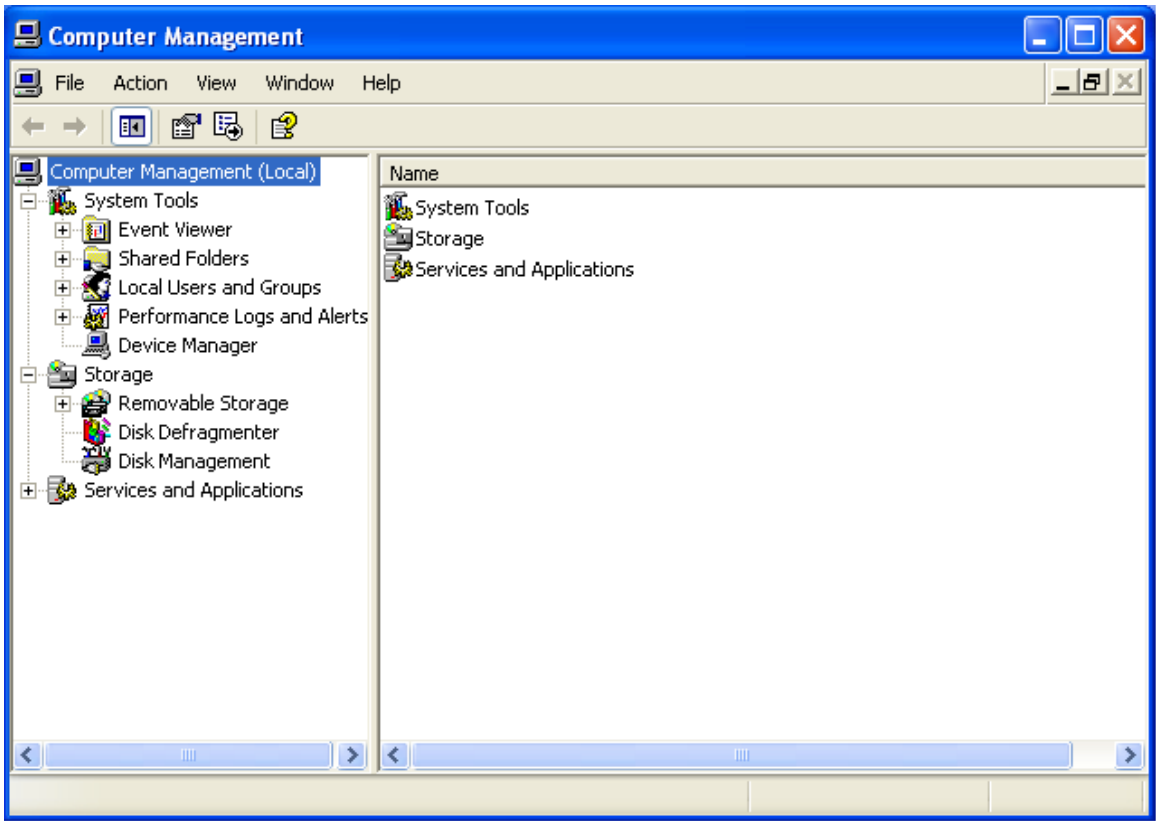


Press “OK” twice and minimize the following screen

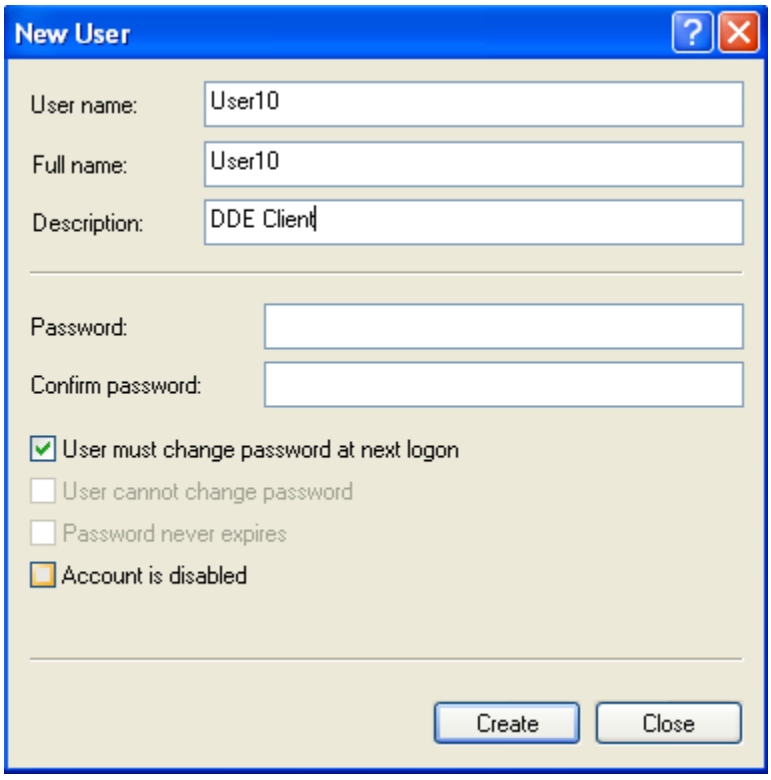


4. Now In Server PC, my computer, right click and click on “Manage” as follows.

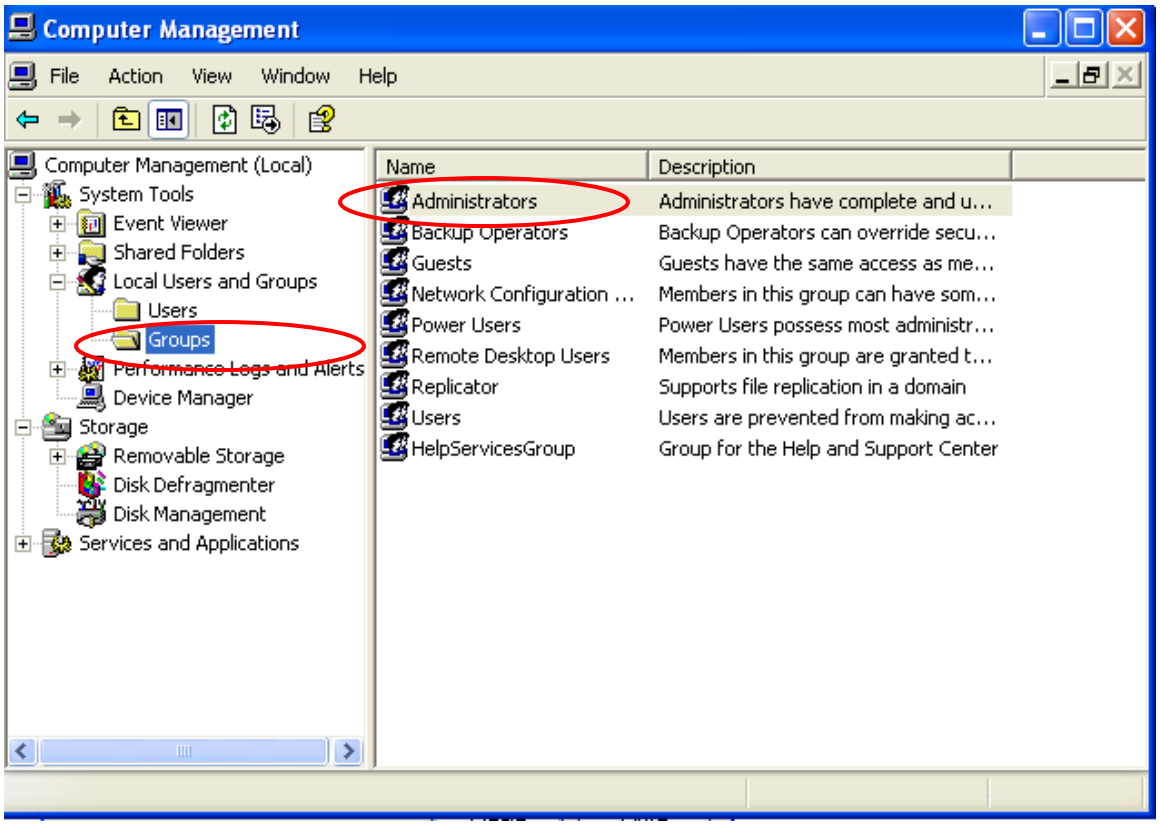


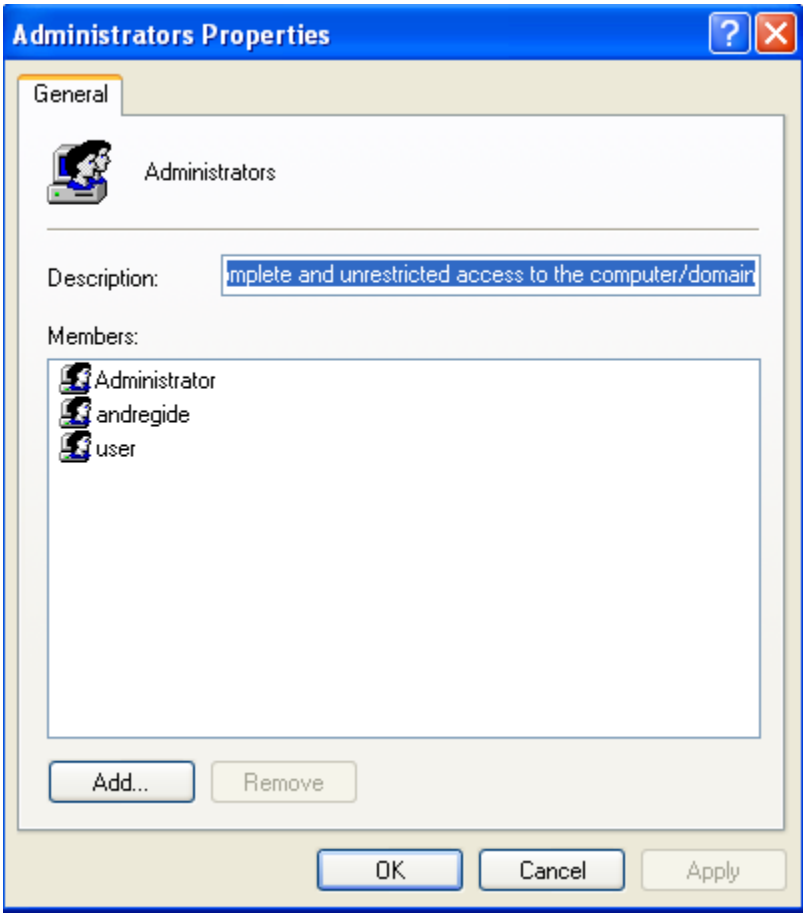


In computer management, permission should be given to the client PC to access the data from the server PC. Go to Local users and Groups and add client user name with passwords. Once the detailed are filled, then click on “Create” to create user. For ex: User10.

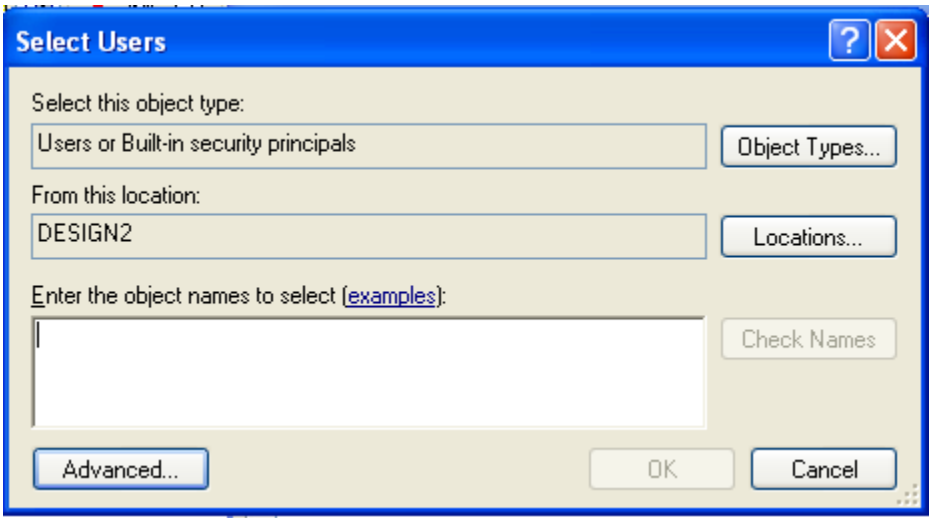


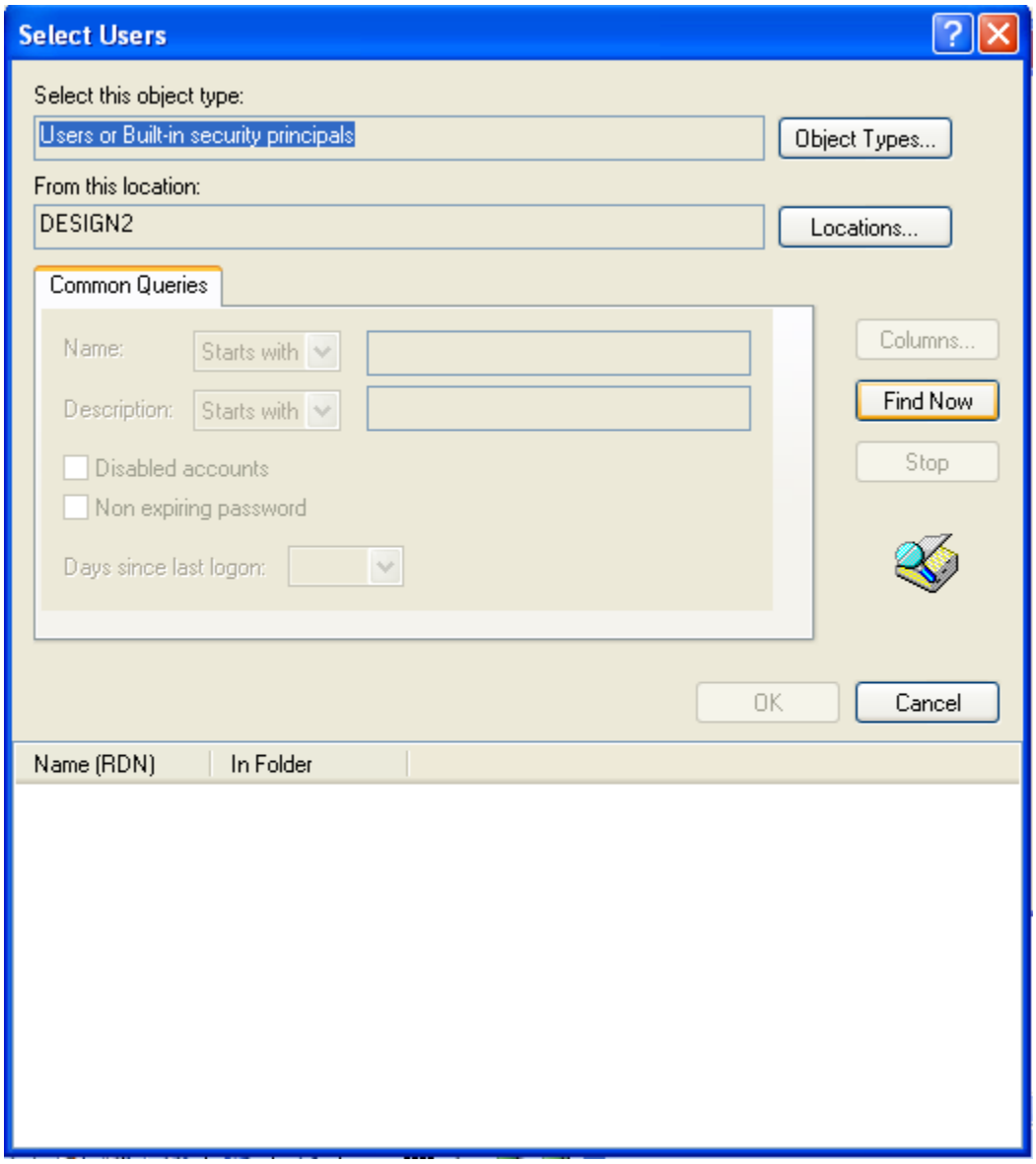
The client user For ex: User10 should be grouped into administrator in Server PC. The procedure is as follows. Click on Groups, then Administrators.

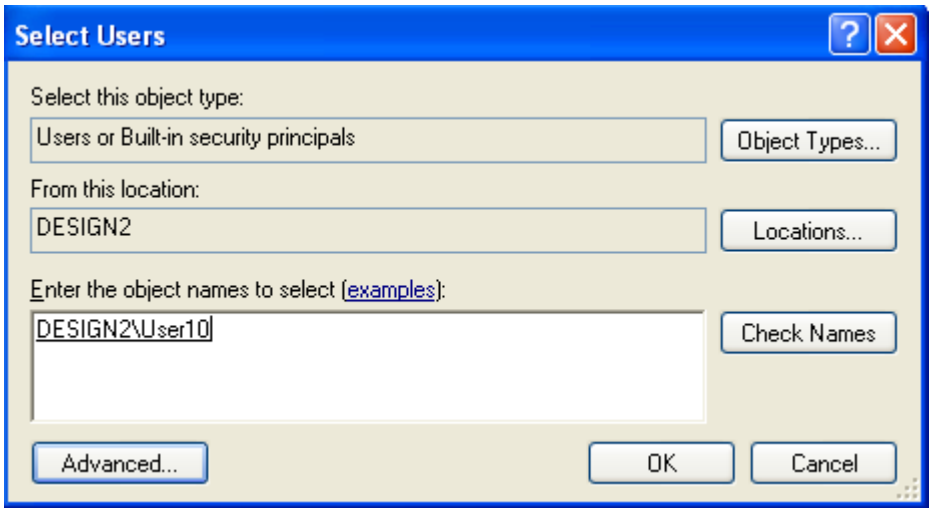




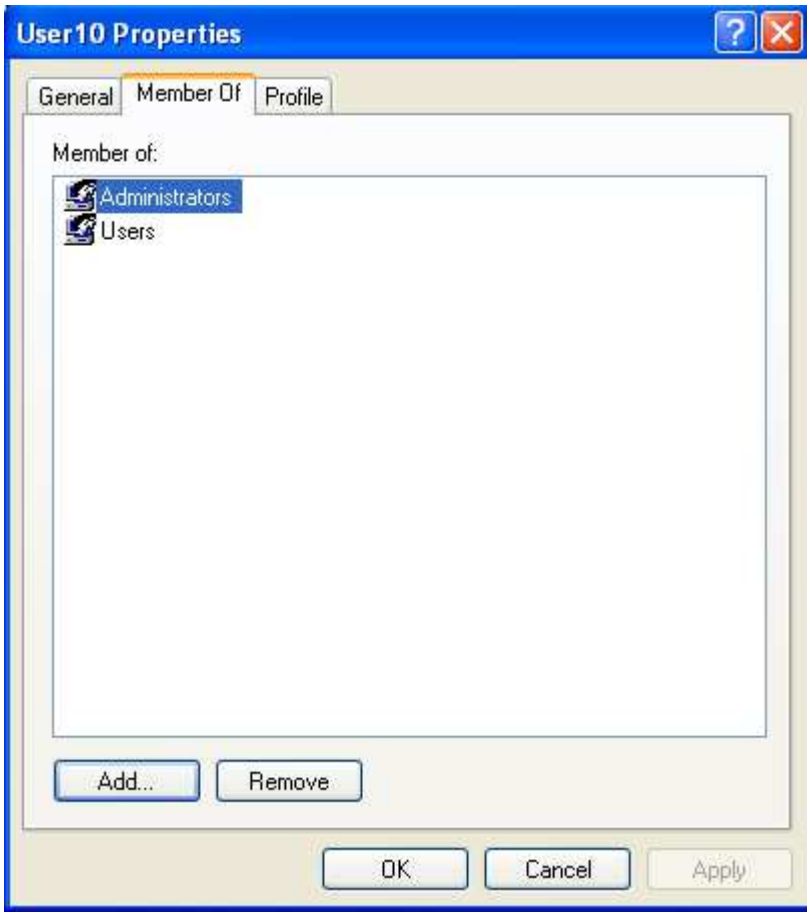
Click on “Add” in Administrators properties screen. Then select users. In this case, click on “Advanced” button and click on “Find now”, then select User10.



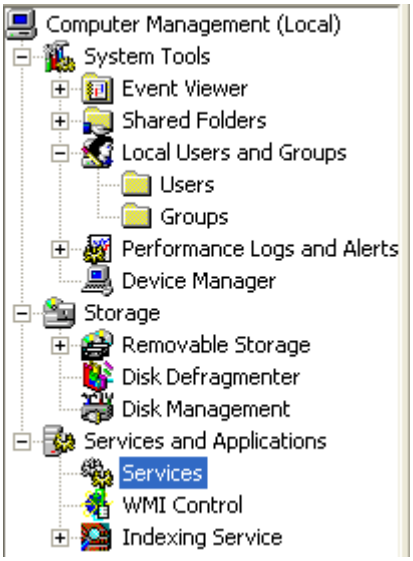


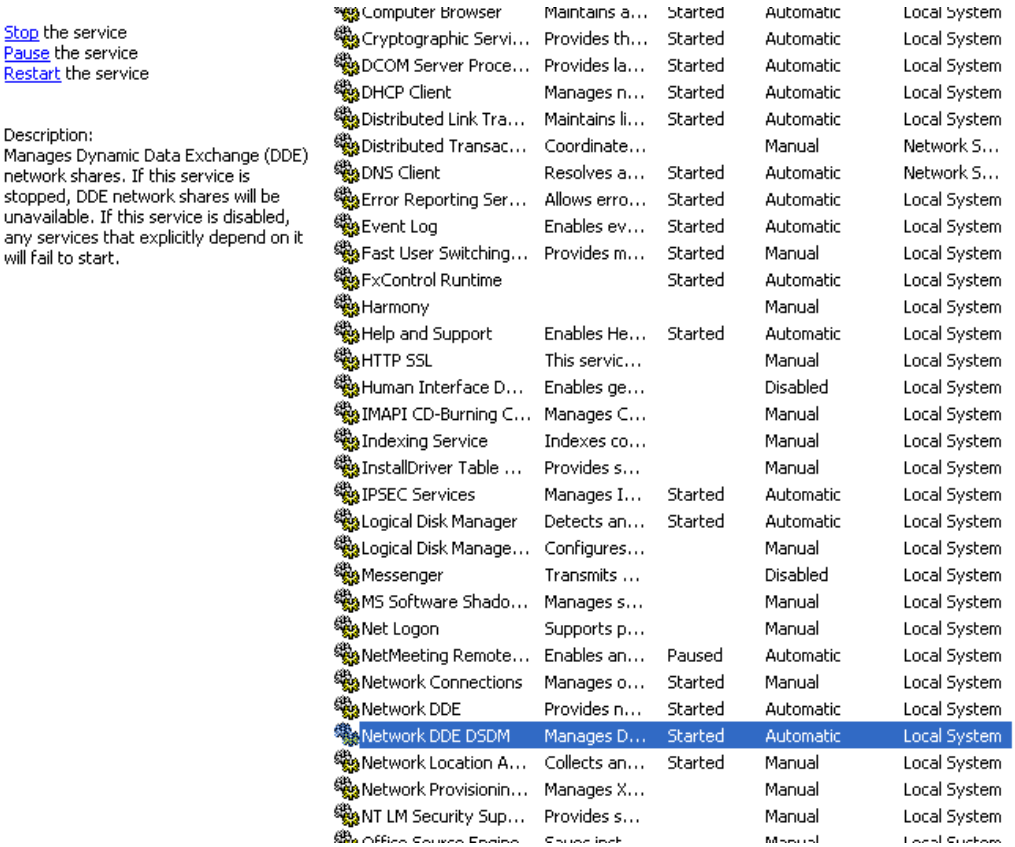


Once above steps are performed correctly, then check up the user10 membership properties. The screen should look like follows. Now user10 should be member of "Administrators".



Now restart NetDDE service once as follows





5. NetDDE can be configured as “Automatic” such that, when even computer starts, NetDDE service can be started automatically. Please contact “System administrator” to start NetDDE at server startup.

6. Now Log in as User10 in the client PC, open Excel and then type the command in the following format

   =\\Server Station Name\DDE Share name|Topic name!Tag number

   For ex:

   =\\Design2\REALTIME_VIEWER|TagService!_Tag1

For the first time, when you enter above formula in Excel cell, the cell shows as #NA. Press enter, client will try to access data from server via DDE. If no response is observed, you can enter the formula once again and press enter. After few seconds, client PC should show the real time value obtained from server via DDE. If you have some problems in obtaining the data, try to restart NetDDE service manually in server and client and restart the computer once if required.

5.0 Frequently asked questions

Q1: What is the maximum scale low and scale high values we can set in the recorder for the analog inputs and outputs?

A1: The minimum low scales of analog input are various -19999, - 1999.9, - 199.99, - 19.999, -1.9999, -0.19999 depending on the position of the decimal point

The maximum high scales of analog input are various 45536, 4553.6, 455.36, 45.536, 4.5536, and 0.45536 depending on the position of the decimal point

The minimum low scales of Math input are various -32768, -3276.8, -327.68, -32.768, -3.2768, -0.32768 depending on the position of the decimal point

The maximum high scales of Math input are various 32767, 3276.7, 327.67, 32.767, 3.2767, 0.32767 depending on the position of the decimal point

Q2: What is the maximum distance between PC and Recorder for Ethernet communication?

A2: The distance is limited in 100 meters. If it is farer than that, then you can use Hub or networking bridge to strengthen the signal.

Q3: What is the maximum distance if PC is accessing data from recorder on wireless network through Ethernet protocol?

A3: Maximum distance should be within 30 meters. Also make sure that there are no obstacles/ HT cables between PC and recorder to avoid communication errors. Also Noise could effect the wireless communication at the factory floor.

Q4: Is there any battery available inside the recorder which needs to be changed frequently?

A4: The lithium battery Toshiba CR2032 3.0V/220mAH can last for many years. It can be replaced by local sourcing if Real Time Clock is not working properly.

Q5: What is the accuracy of Real Time Clock in the recorder?

A5: The crystal oscillator used in recorder could have a lag time in a few seconds each week. Press Synchronization button in PC software Observer II to synchronize the time between PC and the recorder. The temperature inside the housing has an effect on accuracy of Real Time Clock of crystal oscillator.

Temperature range	Time lag per month
10 ~ 40 ˚C	18 sec.
0 or 50 ˚C	52 sec.
-10 or 60 ˚C	107 sec.

Q6: What kind of security is available in recorder?

A6: There are two kinds of security. The normal security offers a common password. The high security with FDA 21 CFR part 11 compliance is available from version

2.2 on both recorder and PC software Observer. It supports maximum 30 users with different passwords. The supervisor level authorization has the right to define other supervisors and operators. The supervisor can change configuration, save and clear data but not operators. Operators can only view the historical data, events and status.

Q7: What is Boot Rom? Anything related to Math option? Is it possible to upgrade it into new version via internet or CF card?

A7: Boot ROM is a chip available in recorder that contains boot loader information. The Boot ROM BT181 has no option. The Boot ROM BT182 has options of Math, Counter, Totalizer & FDA 21 CFR part 11 compliance. It is required to remove BT181 away and install BT182 on the socket when those options are needed. It is not possible to upgrade it into new version via internet or CF card.

Q8: How does it upgrade into the new version of recorder system and PC software?

A8: If necessary, contact your supplier about the latest updates. The supplier is able to supply the latest version of recorder system and PC software via email or FTP (file transfer protocol) for easy download through internet. Follow the procedure to update it into the new version of recorder system. Install the new version of Observer software. It shall automatically uninstall the old one.

Q9: If it needs to upgrade the recorder system, what do we have to take care?

A9: Any recorder system before V 1.20, it is mandatory to update first to V 1.20 and then to the latest version i.e. it needs to upgrade twice. Direct update to the latest version could damage the DOC.

Q10: What are the differences between Observer I & Observer II PC software?

A10: Observer I is supplied for free. Observer II is supplied at additional cost. Observer I is used for recorder configuration from PC and also it is used for reading historical data in PC at set time period of 1 to 24 hours. Observer II is used for real time data monitoring in PC along with configuration and historical data view.

Q11: How many AI, AO, DI, DO cards, and 24VDC auxiliary power card can be inserted into the recorder?

A11: Maximum 6 cards in any combination can be inserted into rear Slots.

Q12: What are those larger capacities of compact flash cards supported by the recorder and recommended manufacturer?

A12: If the user prefers to use larger capacities CF card we usually recommend 256MB or 1GB. To be fully compatible, we only recommend one brand **Scandisk** CF card

Q13: What is the product warranty period? How user should handle the defective recorder?

A13: It is 18 months after shipping from factory. Contact your supplier once if it becomes defective.

Q14: How does the agent handle the defective recorder? What is the lead time for the repairs?

A14:To be cost effective, the agent is requested to verify and return the defective board according to the trouble shooting flow chart in the user manual. If it is difficult to verify the defective board, then the whole unit may be returned to the factory for repairing. The repairing is at no charge if it is within warranty period of time. It will be charged at reasonable cost, if it out of warranty. The lead time will be 3 weeks after receiving the defective items by the factory.

Q15: What is the procedure to transfer data from the internal memory to CF card after the internal memory is full?

A15: After 8MB internal memory is full, the earliest data and events will be saved into CF card in small batch automatically, details in 2.7.2, data transfer.

Q16: Is Alarm banner available in the recorder along with customized message display?

A16: Alarm banner is unavailable for customized message display. The alarm banner appears after alarms or events occurred, or the internal memory or CF card is running shortage. A buzzer can be set to activate if any alarms/events arise.

Q17: How many analog and math channels available and is it possible to retransmit these channels?

A17: Maximum18 analog inputs plus 18 math inputs are available in one recorder. It is possible to retransmit the analog and math channels by using 3-channel current output card AO183I or 3-channel voltage output card AO183V.

Q18: Is the recorder supplied with OPC server?

A18: The OPC server is not available with the present recorder but the next generation. However Observer II PC software does offer DDE solution to allow data transferred to other devices like PLC, SCADA etc. Please review a few examples in **4.3.1 DDE dynamic data exchange.**

Q19: Which protocols and hardware interface recorder supports?

A19: For RS-232, RS-422, RS-485 communication, the protocol is Modbus RTU. For Ethernet communication, the protocol is TCP/IP.

Q20: How many recorders can be connected in a network?

A20: It depends on hardware interface selected. If it is Ethernet communication, maximum, 255 devices can be connected in the network, each device in unique IP address. If it is RS 485 communication, 247 units can be connected in the network then.

Q21: How many recorders can be viewed in the Real-time Viewer of PC software Observer II?

A21: Maximum 1024 tags can be viewed from the Real-time Viewer. These tags cover AI, Math, DI, DO, Counter and Totalizer, excluding AO. If each recorder is used with 6 tags in average, then the Real-time Viewer can view maximum 170 units of recorders.

Q22: Once the user forgot the password, is there a common password? If not, how to reset recorder to the factory settings?

A22: There is no common password for this purpose. It needs to do RESET procedure to recall the factory settings. Press and hold the top left key before turn on the power. Do not release it until you hear two "BI " sounds. Turn the power off and on again. All factory settings will be restored. Please note that, after this procedure, all project configuration data will erase. You have to configure the recorder like the beginning once again.

Q23: To change the analog input, what is the next step after changing the dip switches and jumpers on the analog input card?

A23: It needs to press the icon of Observer software to receive configuration about modified input from the recorder to PC first. Modify the configuration if necessary, and then send the new configuration back to the recorder.

Q24: Which type of Ethernet cable should be used to connect with the recorder?

A24: Straight through cable should be used for the real network connection between HUB and recorder. Cross through cable should be used for the non-real network connection, only between PC and recorder.

Q25: How many days the data can be stored in CF card?

A25: It depends on the number of channels, the log speed of channels, and the memory of CF card. If the recorder is used with **6-channel inputs**, an easy chart to show the maximum days CF can store the data.

CF card	32MB	256MB	1GB
Log speed			
1 second	30 days	240 days	960 days
10 seconds	300 days	2400 days	9600 days
120 seconds	3600 days	28800 days	115200 days

Q26: Is it possible to display all the selected channels in one page on recorder?

A26: Yes, press **Page** key to get to **Page all** mode. Then, all selected channels in digits can be displayed in one page.

Q27: Is it possible to print out the data in selected time from the recorder?

A27: Please note that it is not possible to connect printer directly to the recorder. It is possible to print out the data in selected time from the Observer software. The printing data in Excel is available from the Historical Viewer of Observer software.

If any error appears like floating point error when user attempts to print data out, then the reason might be that data is not available for selected pens. Search it by a specific time or by a period of time, make sure that data is shown on the trend. Select the pen correctly, and then proceed the printing.

Q28: How many timers, counters and totalizers are available in a recorder?

A28: 6 counters, 6 timers and 18 totalizers are available in one recorder if this option been ordered.

Q29: Can I use digital inputs for the counting application?

A29: Recorder can detect maximum of 30 pulses/Minute at a frequency of 0.5 Hz. The possible alternative is usage of pulse to current 4-20 mA converter available in the market.

Q30: When the user is trying to open Observer software, he might get the following message, what is the next move?

A30: If Observer software file was corrupted in the PC, possible reasons might be virus, installation of new software which is incompatible with your operating system. The solution is to uninstall the old Observer software as per procedure given in section 1.4 of this software guide. Then, install the new Observer software from CD supplied. If the problem still can't be solved, then uninstall the old Observer software and create a back up for the historical and real-time folders under C:/Observer and remove Observer folder from C: Then install the new Observer software again.

Q31: How to write Observer data and configurations back up to CD's?

A31: Data will be available at .dat,idx files and .lst files at the path C:/Observer. The files will be available under historical and realtime folders. Configuration file name is Recorder.cfg. You can create a folder and save all historical and real time folders in to back up folder, and then you can write this information to CD.

Q32: If I have some configuration problems, which files I have that to send to the supplier?

A32: Both Recorder.cfg. and IO.dat. files in C:/Observer/Historical are required under this case.

Q33: Does the recorder have an option to supply DC power supply to the transmitters?

A33: The 24VDC auxiliary power supply card AP181 can offer the power to 6 pieces of transmitters.

Q34: I am trying to connect recorder on RS 232/RS422/RS485/Ethernet but I couldn't set up the communication properly.

A34: Please refer detailed information **to** Observer I & Observer II PC software guide, 2.3.1 Ethernet Configuration & 2.3.2 RS 232, RS485, RS422 Configuration, 2.3.3 CF card configuration.

Q35: When export data to Excel CSV files, what if the historical data is not appearing in spread sheet?

A35: Make sure that the selected pens are available at destination list. If they are available at source list, then move them to destination list, and then you can export data. Also make sure that data is available at the selected period or interval time. Otherwise, you may not see anything in the target Excel sheet.

Q36: I want to count pulses to measure power consumption in KWH. Each pulse is one KWH. Can I use Math application for this?

A36: Yes, use DI and configure Events of Channel as follows

Event Type = High, Job 1 = Increase Counter, Target = Counter 1

But please note that maximum value counter can store is 65535.

Please note that recorder can detect maximum of 30 pulses/Minute at a frequency of 0.5 Hz. The better possible solution is to use an external converter for the application. The standard pulses to 4-20mA converters are available in the market where you can set pulse width and duration between pulses.

Q37: I am getting the following message in Real time viewer. What to do next?

A37: Tag name may have special characters like ".", ",", "*", "+", "-"etc. Correct the tag name and try once again. If you are using Observer 2.22 or later, it is possible to input above special characters for the tag name. You can update firmware and PC software to V2.22 and above to avoid above error message.

Q38: I updated Observer software and Recorder firmware to V 2.22 or above, DDE is not working properly with third party applications.

A38: From Observer 2.22 and later, DDE format changed. Please refer section 4.4 for more information on changing DDE format at the Tag name.

Q39: I want to exchange data available from real time viewer with third party applications in other computers in the same local area network, is there any solution??

A39: Real time viewer supports DDE application. It is possible to configure NetDDE and then exchange data from real time viewer to other computers connected in the network via DDE. Please refer section 4.4.1.4 NetDDE for configuration details.

Q40: In Observer software, i am getting following Error and how to solve it

***application_executable_name* - Illegal System DLL Relocation**

The system DLL user32.dll was relocated in memory. The application will not run properly. The relocation occurred because the DLL C:\Windows\System32\Hhctrl.ocx occupied an address range reserved for Windows system DLLs. The vendor supplying the DLL should be contacted for a new DLL
Reason: It is a bug from the Microsoft security update.

This problem is because of Installation of security update 925902 & 928843 directly from Microsoft via automatic updates set option in the PC.

Solution: Install 935448 security update from Microsoft to fix this problem. Please check the following url once and install security update

http://support.microsoft.com:80/kb/935448/en-us

Alternatively, you can manually run windows update once to fix the issue