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InterLOGIC dbc/OS32+

Reference Manual

Refrigeration Controls

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technical manual

InterLOGIC

REFRIGERATION CONTROLS
REFERENCE GUIDE

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Introduction

The following publication describes the InterLOGIC Refrigeration Control System features and is designed for those who are unfamiliar with Signal Server based control systems.

The system is menu driven and in most cases the selection of an item from a menu will display another menu from which selection may be made. This method of operation allows the system to be operated without personnel trained in computer programming or computer operation.

The hardware used by the control system is state of the art. By careful selection of components, LOGIC Technologies, Inc. has been able to use advanced technologies as they become available while retaining the use of a well defined existing software base.

We encourage all system administrators and operators to provide feedback and suggestions about items not mentioned that you would like to see in this publication.

Signal Server Technologies

“Signal Server Technologies” consist of the best of two worlds, the computer processor and PLC rack structures. The computer allows for an operating environment to execute powerful process tasks while maintaining a rugged real world interface to plant equipment. This architecture provides fault tolerant systems using localized or distributed control concepts. All control procedures are open architecture and allow the system administrator to change any sequence of operations.

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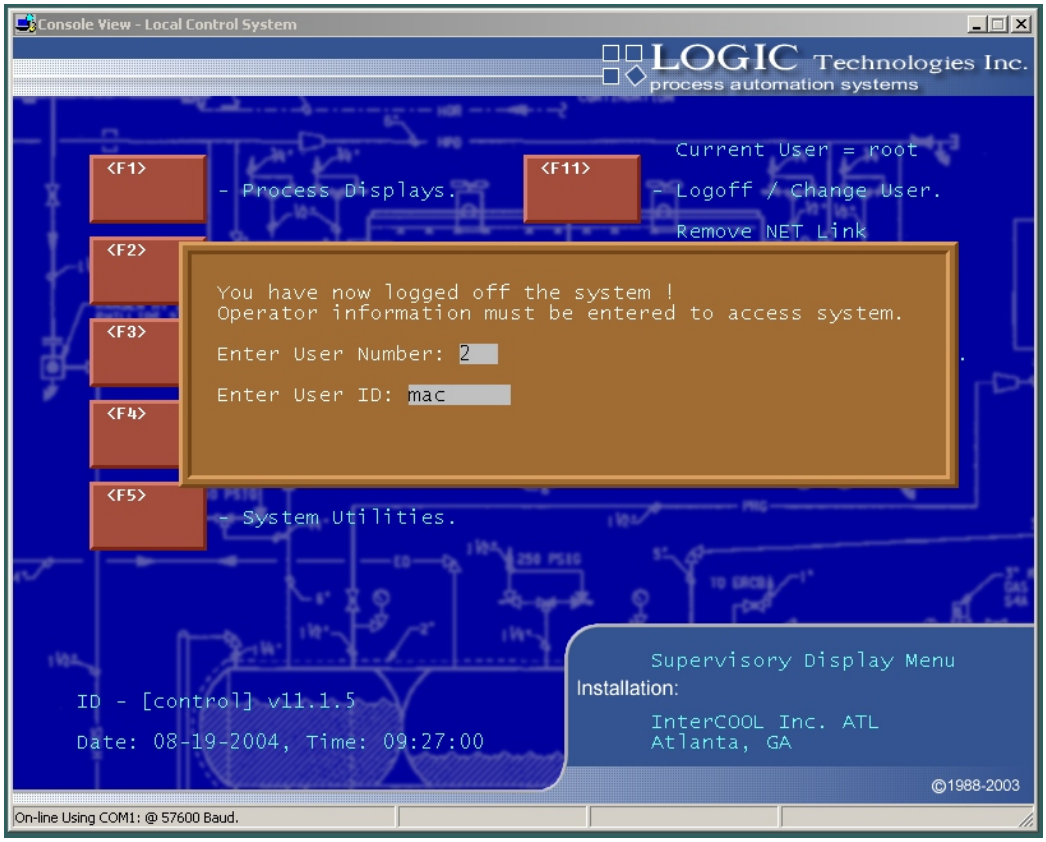
Refrigeration Systems Screens

Section I of this manual describes the main statistical information screens from the refrigeration control programs.



Button Access Sequence: *Initial Startup Screen/LOG On Screen*

- Upon system startup and logoff, this window is displayed. The logon window allows entry of current user information. This information tells the system what information should be made available for display and allowed to be changed by the user.

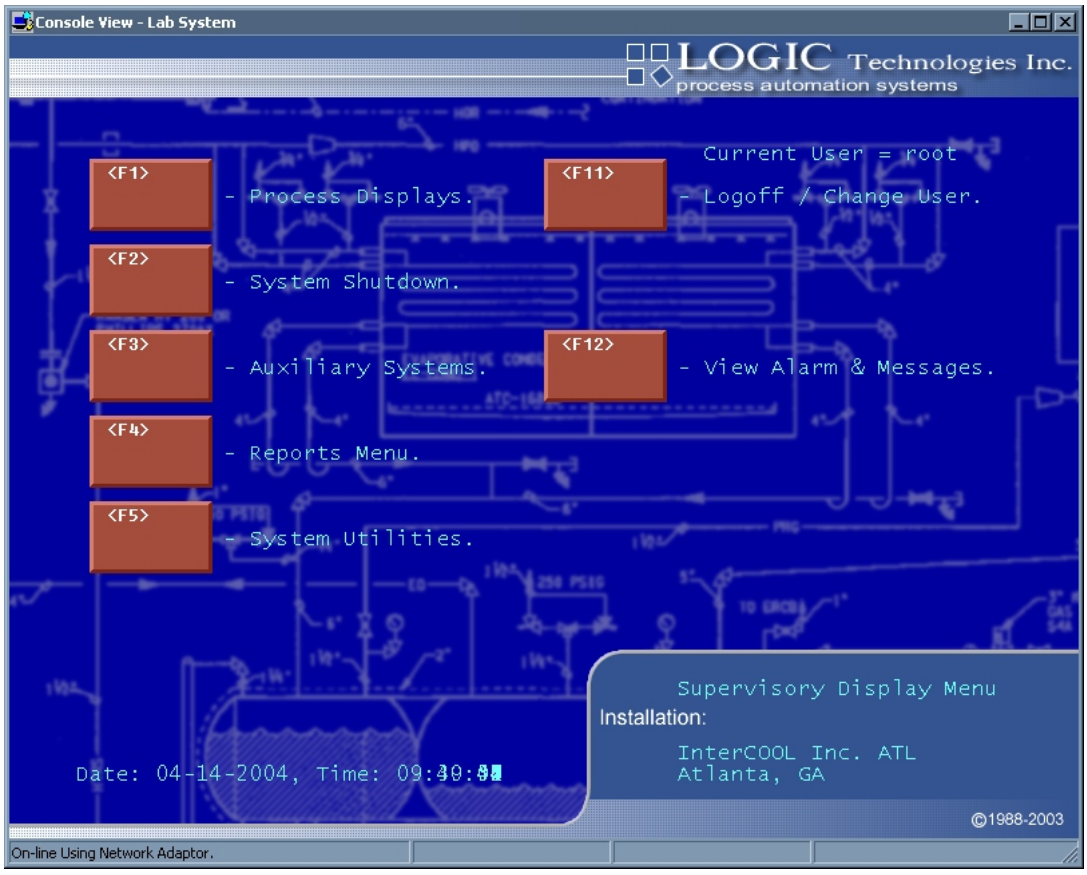
Example: Using the keyboard to enter a user number:

12 - for user number.

mac - for user name.

and the password which is shown as "*" for each character entered.

NOTE: To add, remove or modify a User name, ID or password, refer to page **SCR-29**.

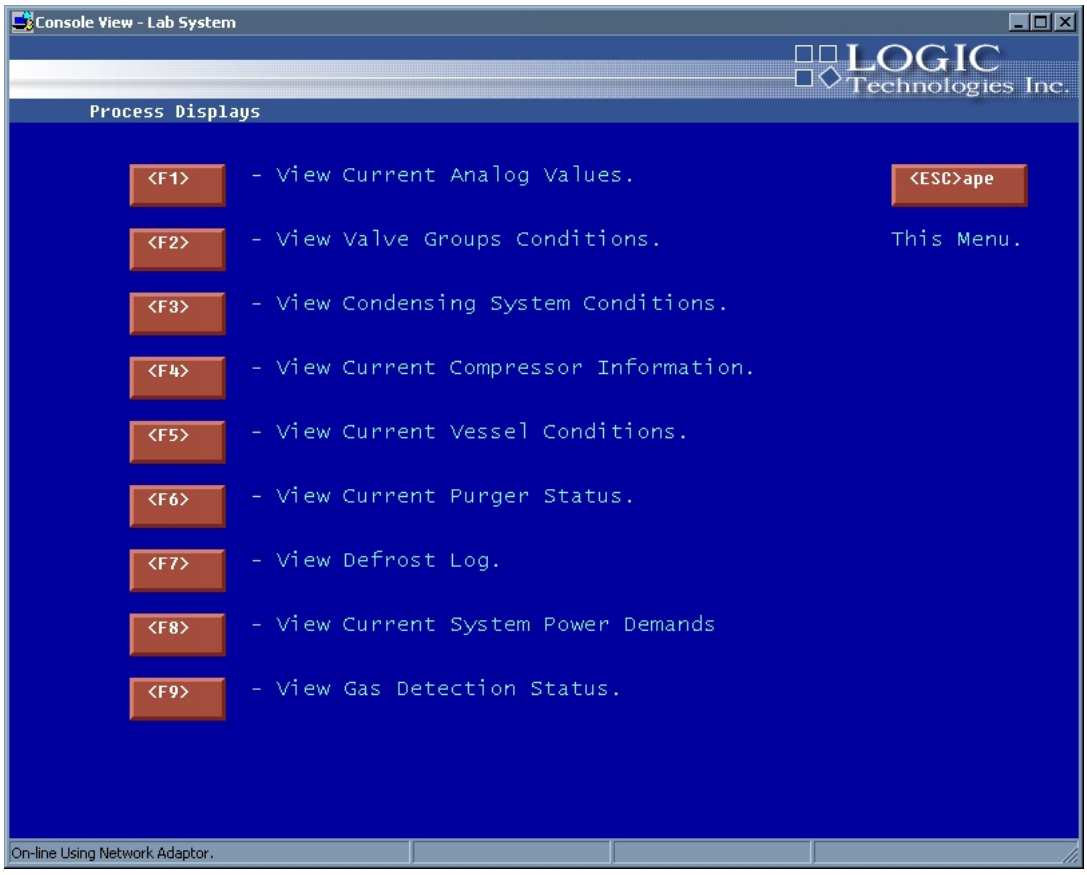


Button Access Sequence: *Main Selection Menu*

One of the greatest benefits from a **Signal Server** based control system comes from its continuous monitoring of the refrigeration system. Timely and accurate information on all system components, in text and graphical format, is available for use by the system operator.

The main system menu is displayed after logon entry. This screen categorizes control by areas of system function. All selections are initiated from this screen.

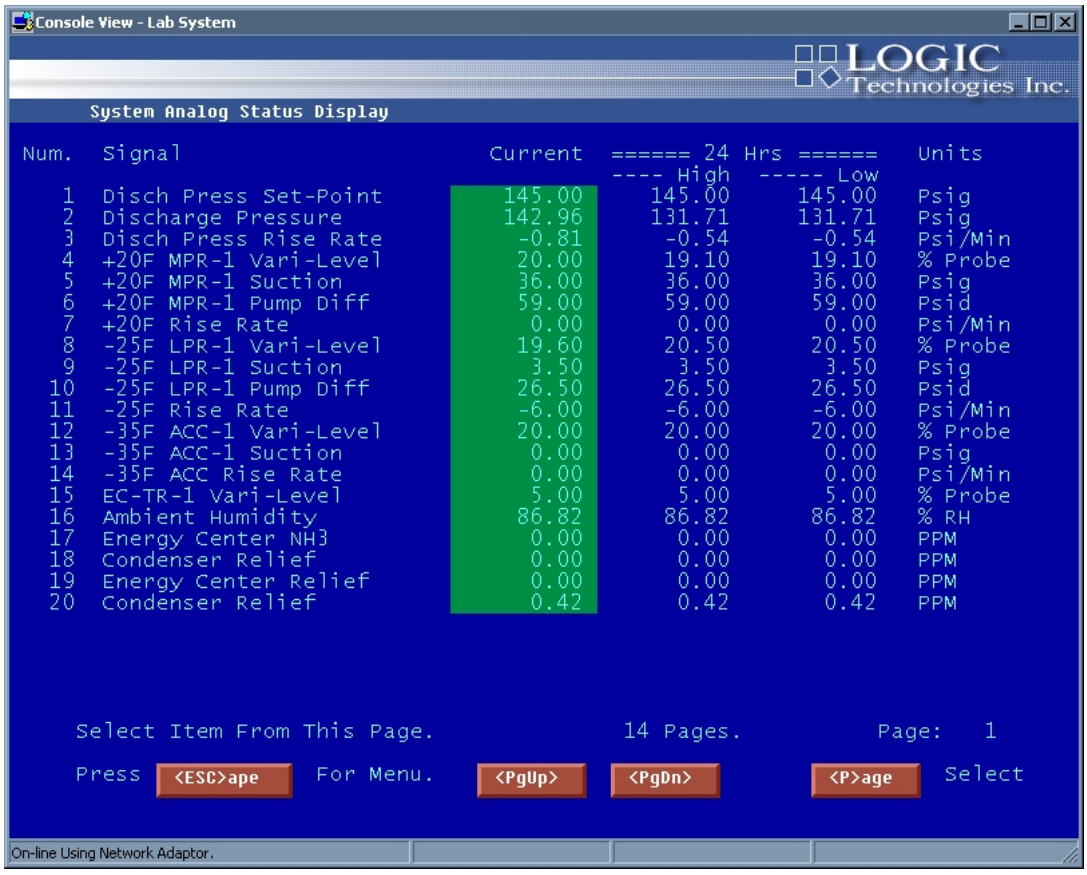
Operators may access any of the sub menus by moving the mouse cursor on top of any of the numeric buttons and pressing the left mouse button. It may also be accessed by pressing the appropriate F key.



Button Access Sequence: *Main Menu, F1*

(1) The System Status Menu breaks down the system components into nine (9) group selectable items. Each item displays the current status information for that group. In the following pages each group is described with a sample screen display. Select the desired item by manually entering its associated button number or click the mouse on the desired button.

To access this item of your Main Menu choose Button F1 on the screen.

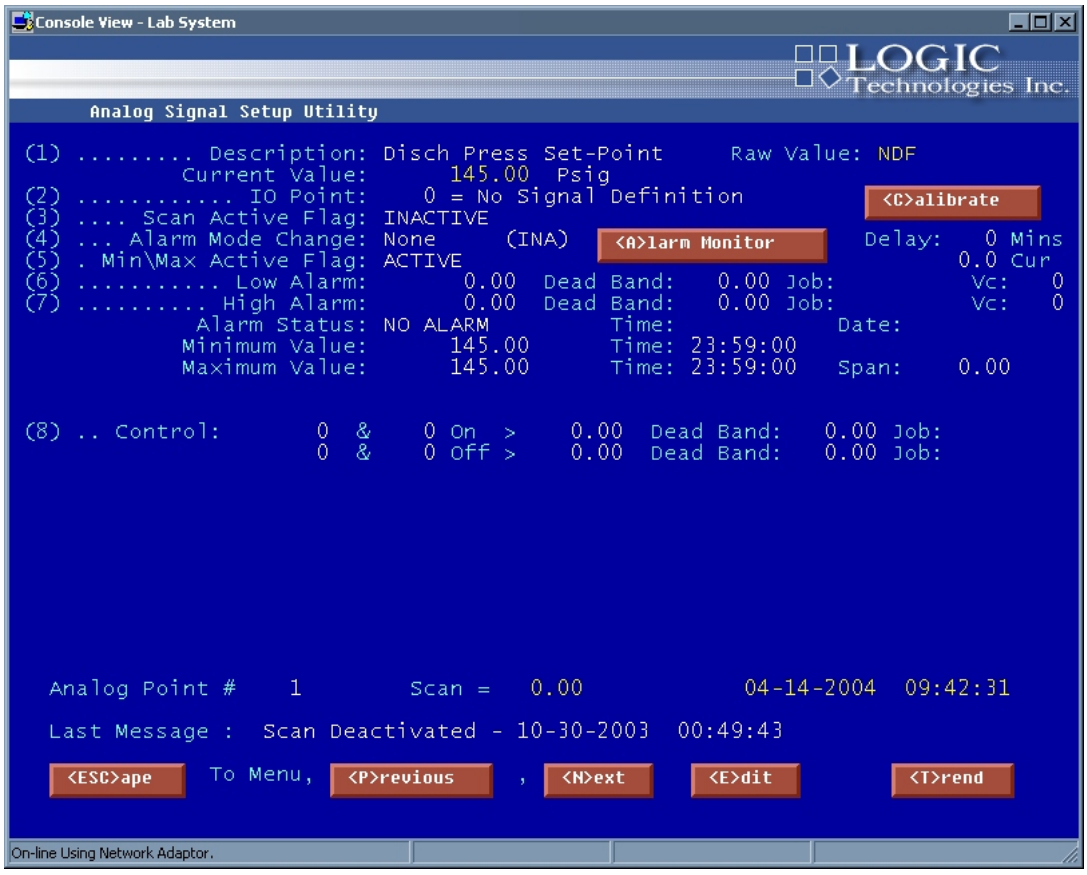


Button Access Sequence: *Main Menu F1, F1*

(1) **View Current Analog Values** - This selection is used to monitor all system analog measuring devices such as pressure transducers, temperature sensors, ammonia detectors, or other devices which provide variable voltage or current feedback signals. Depending upon your system, you may have a large number of analog measuring devices which cannot be displayed on one text page. To view the remaining pages, use the mouse and left click the page button at the bottom of the page. Then enter the page number from the keyboard or screen keypad displayed. Page up and page down also allow screen changing.

This is the top level analog status screen. Shown above is a list of analog signals which are controlling different parts of the refrigeration process. The information provided shows the analog reference number, signal description, current value of the signal, the high and low readings for the previous 24 hour period starting at midnight, and the engineering units descriptor.

If more information is desired, place the mouse pointer on the line displaying the signal and left click or press <F1> on the keyboard. Then enter the analog reference number. This screen is described on the following page.



Button Access Sequence: *Main Menu, 1, 1, Analog #*

If the operator selects an analog signal from the "**View Current Analog Values**" screen, this screen is displayed. Each field in the signal information record may be modified by placing the cursor on the field and selecting with mouse or by pressing **<E>** for edit and entering the line definition number on the left of the field description. The following describes the analog definition screen.

(1) - **Description** allows the operator to change the name and engineering units of the actual control point.

(2) - **I/O Point** defines which elementary system identification number to use in converting the signal.

(3) - **Scan Active Flag** starts or stops the automatic monitoring of the actual control point.

CAUTION: By deactivating this option, the InterLOGIC Control System will no longer monitor this analog signal!

(4) - **Alarm Mode Change** selects current alarm monitor mode. High, Low and High & Low monitoring are allowed. The **<A>larm Monitor Button** activates or deactivates the currently selected mode.

(5) - **Min\Max Active Flag** starts or stops 24 hour high and low recording on each system scan interval.

CAUTION: By deactivating this option of the system, it will no longer keep 24 hour history of this control point.

(6) - **Low Alarm** allows setup of low alarm trigger value, deadband, job to activate, and voice code.

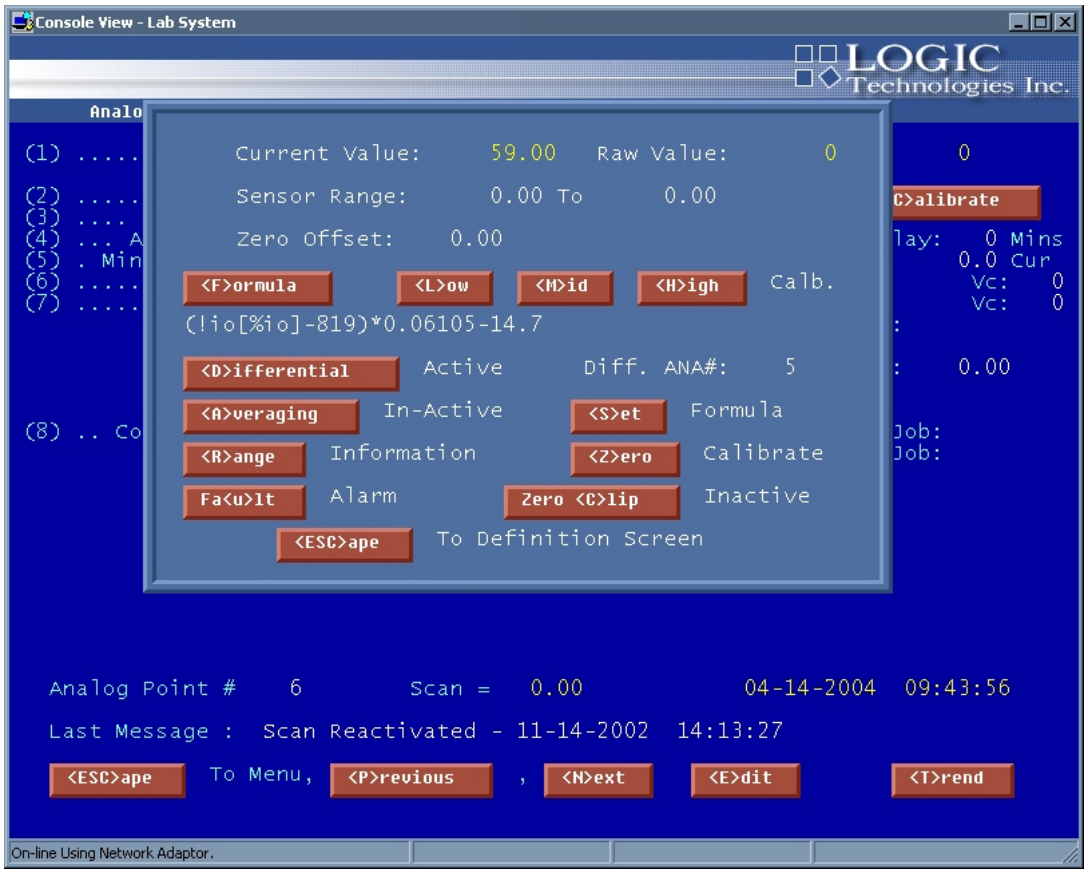
(7) - **High Alarm** allows setup of high alarm trigger value, deadband, job to activate, and voice code.

(8) - **Control Parameters** allow control of single point devices based on the current analog value.

Line one will activate the device when the current analog value is greater than the selected value and deactivate the device when the current value is less than the selected value minus the deadband value. Line two will deactivate the device when the current analog value is less than the selected value and activate the device when the current value is greater than the selected value plus the deadband value.

The **Current Value** field may be changed after signal scanning is deactivated. This is accomplished by selecting the descriptor area or entering edit mode and selecting 99 as the edit field. Upon display of the input box, the initial value will be displayed. This information may be deleted and reentered to reflect a new value. The new value will remain active and available to all system resources until the scan flag is reactivated.

<C>alibration button is used to calibrate the signal of the current analog point (pressure, temperature, %, etc.) which is described on the following pages.



Button Access Sequence: *Main Menu, F1, F1, Analog #, Calibration*

If the ***<C>alibration*** button is selected, the calibration window is displayed. This allows entry of information to determine signal conversion characteristics. ***<A>veraging*** selects if the current scan is averaged with the previous scan results, to smooth noisy information, or converted directly. Averaging levels may be up to 9 times the previous reading. ***<R>ange*** allows the high and low active sensor range to be entered. If conversion produces information outside this area, a system alarm is initiated and the sensor number is presented to the operator. ***<L>ow, <M>id, <H>igh*** allows entry of user collected information to determine the range/offset to achieve optimal sensor range. After entry of the collected data the ***<S>et*** formula creates a new formula for the selected signal. ***<Z>ero*** will ask for the current value to be entered and calculate the zero intercept for the formula created or entered.

When ***<L>ow***, ***<M>id***, ***<H>igh***, or ***<Z>ero*** are pressed the ***Cur. Value:*** prompt is displayed. The current value of the signal should be read from a known calibration source and entered at this prompt.

From time to time sensor span will change in relation to the signal transmitted to server. This requires the creation of a new formula.

Steps to create a new formula:

1 - Lower the real signal value (pressure, temperature etc.) Select ***<L>ow*** and enter the current real value.

2 - Allow the real signal value to rise to a value at the on the top end of the scale. Select ***<M>id*** and enter the current real value. Do not use the ***<H>igh*** setting. This is used to verify device linearity.

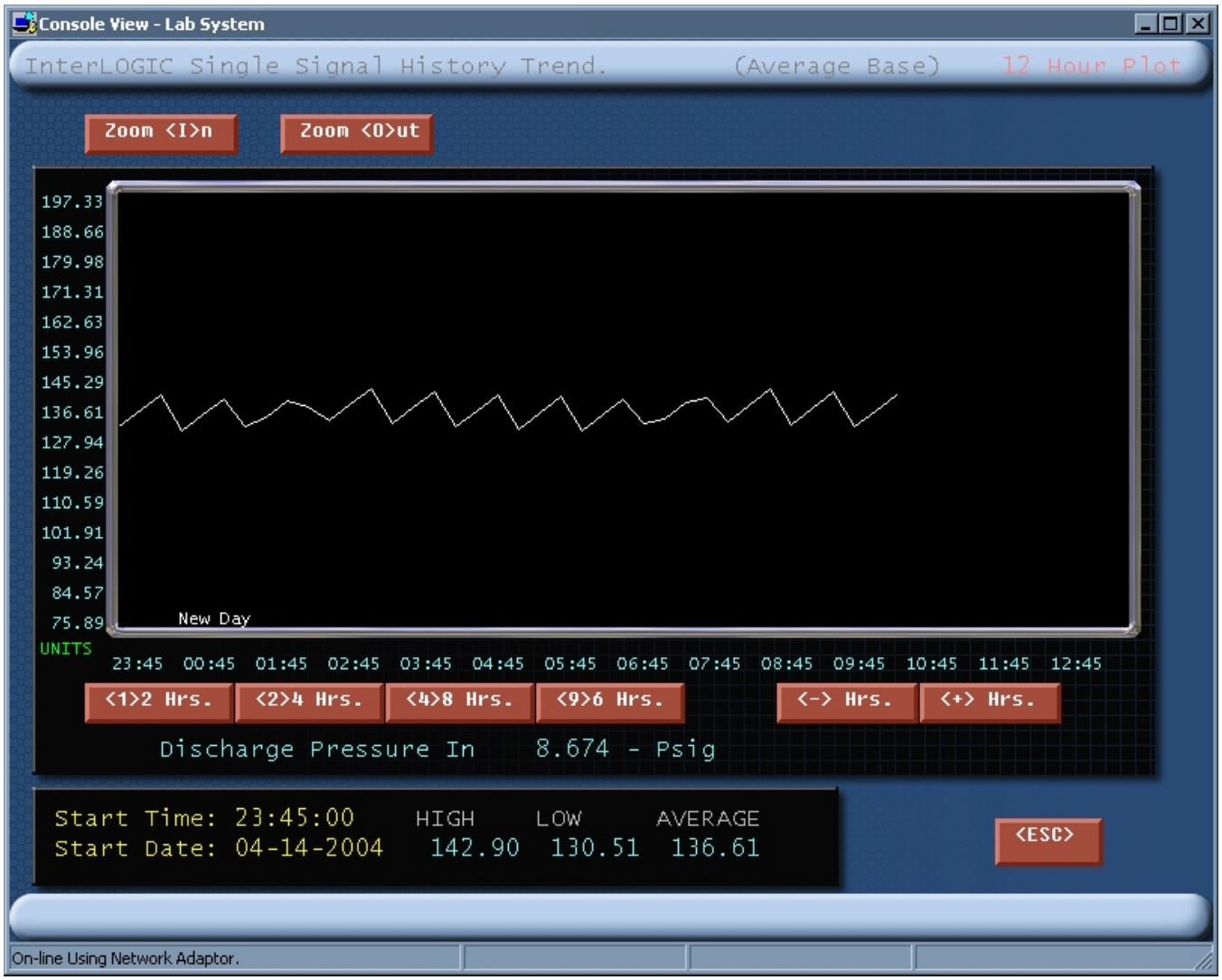
3 - Press ***<S>et*** Formula to create a new formula based on the previous entered data.

4 - Select ***<Z>ero*** and enter the current signal value. This reading may be any point on the signal scale.

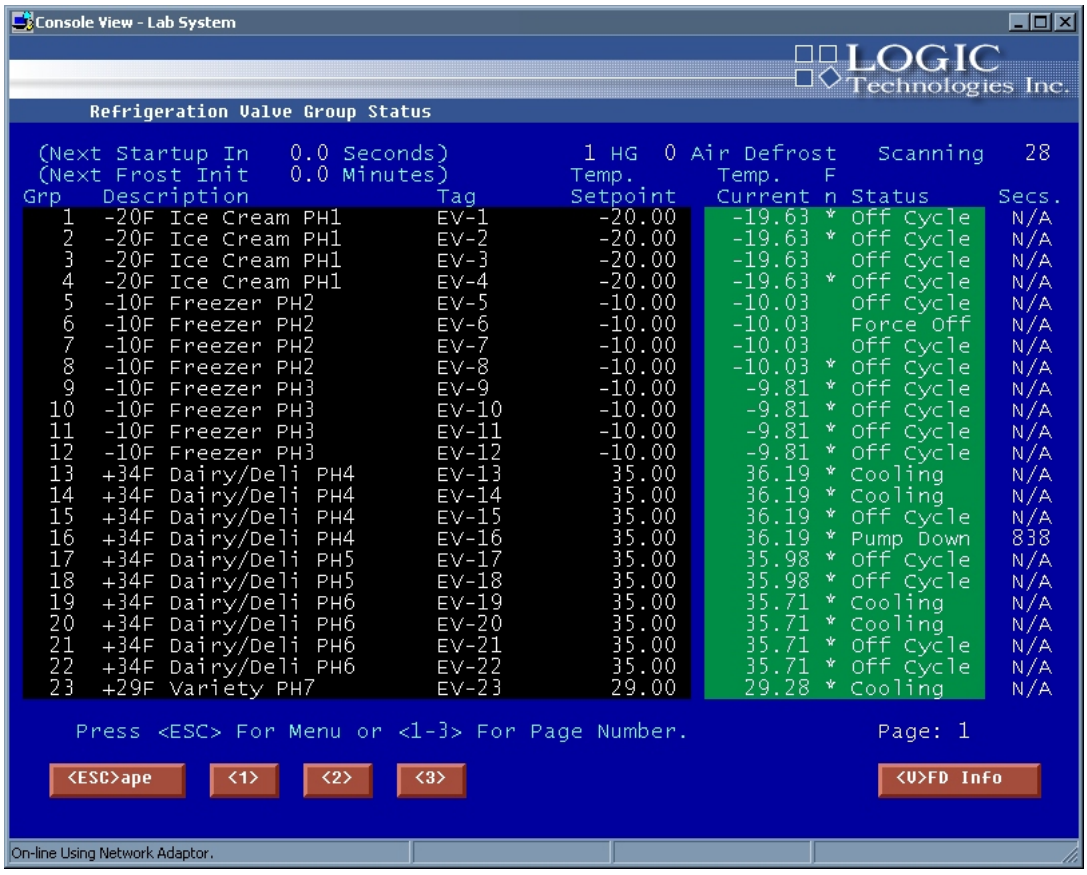
5- Select ***Fa<U>lt*** to shutdown

6- Pressing the ***Zero <C>lip*** button allows the user to change the active or inactive status.

Allow signal to rise and fall to verify calibration.



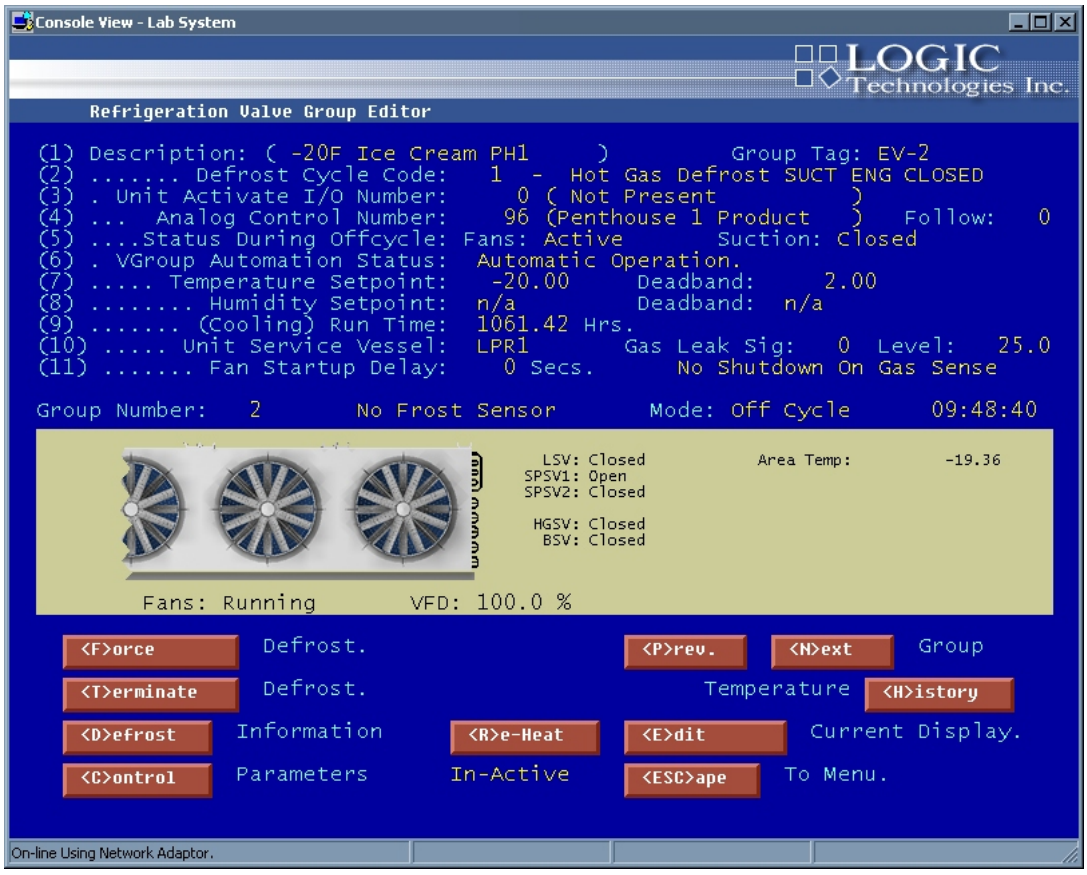
Pressing ***<H>istory*** on the Analog Definition Editor will display a trend graph for the selected signal. The **<+>** and **<->** buttons will go forward or back in time in 12 hour increments. Selecting one of the hours buttons, example ***<2>4 Hours***, will display a trend with a total span of 24 hours. The hours buttons may be selected by pressing 1 for 12 hours, 2 for 24 hours, 4 for 48 hours and 9 for 96 hours.



Button Access Sequence: *Main Menu,F1, F2*

(2) View Valve Group Conditions - This selection is used to monitor all single and multi-valved air units by displaying the valve group number, description, current temperature, control setpoint, current zone temperature, fan status, valve group status, and seconds remaining in any defrost cycle. If more than one page is available, selection buttons are provided across the bottom of the screen for page selection. Detailed group information may be displayed by pointing and selecting with the system mouse or by pressing **<F1>** and entering the group number when prompted. This information is described on the following page.

At the top of the screen you will see the time remaining before the next group is scheduled to start as well as the number of groups currently in defrost cycle. The scanning unit number currently being controlled is also displayed in this area.



Button Access Sequence: *Main Menu, F1, F2, Valve Group #*

Detailed group information is displayed if selected from the valve group status screen. This screen contains all the setup and operational parameters for the selected valve group allowing operator override of all conditions.

(1) - **Description** contains the group or air unit process area, name, and group tag.

(2) - **Cycle Code** selects type of defrost cycle to execute on valve group as follows:

(1) = Hot gas defrost / suction energized closed.
(2) = Air defrost.
(3) = Hot gas defrost / suction energized open.
(4) = Electric defrost.

(3) - **Unit Activate I/O Number** designates which elementary input will allow the unit to operate in automatic temperature control, if active. If no value is present, this option is inactive.

(5) - **Status During Offcycle** sets fan condition codes to activate fans during non cooling modes (Active), turn fans off during noncooling modes (Not-Active), or cycle fans during offcycle mode.

Suction changes suction valve during off cycle to open or close (Operator Defined).

(6)- **Vgroup Automation Status** sets the current mode of the entire valve group. The selection displays a window allowing the selection of forced on (refrigerate all the time), forced off (pumpdown all the time), or automatic modes (control unit by temperature). In the forced on or automatic modes, defrost cycles are executed. While in the forced off mode, defrost cycles are skipped.

(7) - **Current Control Setpoint** contains the desired control temperature for the selected valve group. This entry may be changed to adjust the on and off staging of the valve group as displayed to the right of the entry.The setpoint may be changed up to 6 times in a given 24 hour period as described later.

(8) - **Control Dead Band** determines the on to off span from the current setpoint preventing short cycle activity on the air unit.

(9) - **Cooling Run Time** displays total time the valve group was in cooling mode, until operator reset.

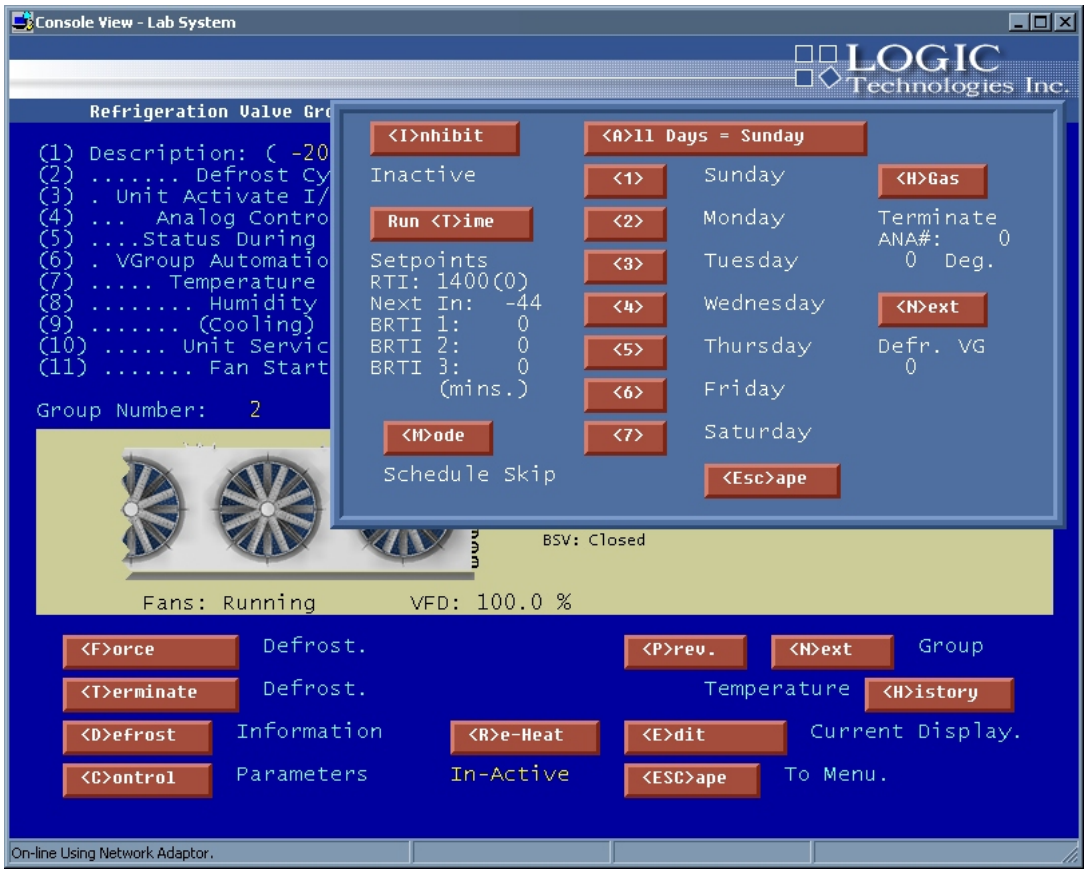
(10) - **Unit Service Vessel** associates the selected valve group with the engine room vessel. This association allows for sub-system shutdown control and liquid circulation control based on valve group activity. If the manual valves are changed to connect the unit to another system vessel, this entry should be changed to reflect the new association. Additional information is contained in "Theory of Operations" section provided in this manual.

(11) - **Fan Startup Delay** allows the operator to delay air unit fans from starting when the valve group transitions from offcycle to cooling mode. The delay allows coils, which may have collected moisture, to refreeze before fans are started.

Other selections not requiring edit mode are **<F>orce** Defrost, which activates a defrost cycle manually still using defrost start times. **<C>ancel** Defrost, which terminates a defrost cycle. These entries are used to clean up coils which may have collected abnormal amounts of ice. **<P>revious** manually selects valve group previous to current selection and **<N>ext** selects valve group following current selection.

<R>eheat, if active, places the valve group in heating mode by placing the unit in hot gas reheat mode and turning on the fans for air circulation.

<D>efrost start time and **<C>ontrol** parameters are discussed on the following pages to allow viewing of windows required to enter changes to these areas.



Button Access Sequence: *Main Menu, F1, F2, Air Unit #, Defrost Start*

Upon selection of **<D>efrost Information**, the system will display a window with day selections. This will allow the system operator to select the desired schedule day. Additionally, there is a selection **<A>ll Days = Sunday** which allows the schedule to be entered in the Sunday entry and copied to all other days with a single key entry.

SCR-010 will display results of day selection.

<I>nhibit - This selection allows the operator to stop the scheduled and runtime defrost cycles for the selected unit. Note: The text under the inhibit button will display the current inhibit mode of operation.

< R>un Time - This allows the operator to set the runtime period before initiating a defrost cycle for each valve group. The operator must select a specified time period in minutes and store this value in RTI storage, "Run Time Interval". The remaining time is then displayed under the RTI value. BRTI "Blast Run Time Interval" is available to allow variable defrost intervals after a blast cell is started. Steps 1 through 3 hold the interval times between each defrost cycle. Upon defrost execution, the next cycle time is placed in the RTI storage area.

<M>ode lets the operator choose the type of defrost control to apply to the selected valve group, runtime modes, or fixed schedules.

Selection modes are:

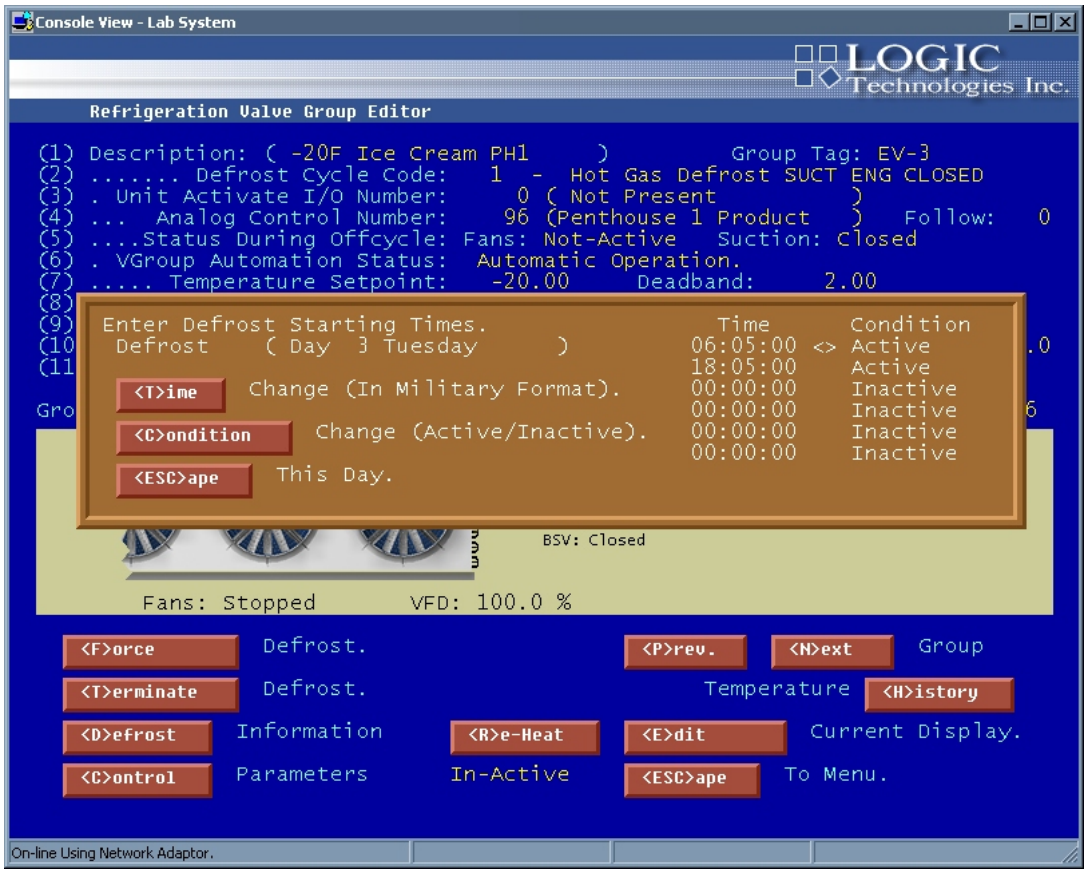
Scheduled - Defrost runs by user defined schedule only.

Schedule Skip - Defrost is executed if the desired refrigeration run time is present and a user defined schedule time is present.

Runtime - Defrost runs if the user set runtime has elapsed. (RTI) = Run Time Interval.

BRTI - The unit runs up to 3 user defined defrost runtime intervals. After each interval the next runtime duration is stored in the RTI which may have a different value.

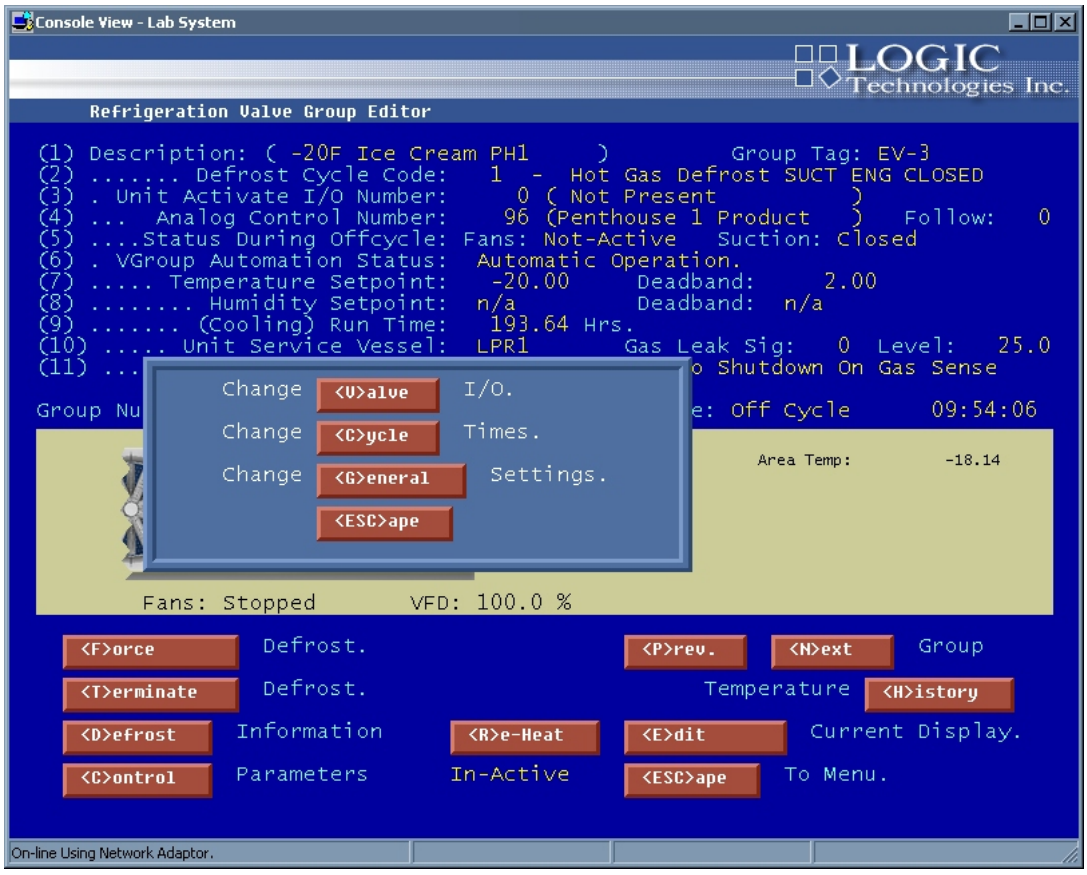
Signal - Defrost is initiated upon a request input signal (ie. Frost sensor)



Button Access Sequence: *Main Menu, F1, F2, Defrost Start time*

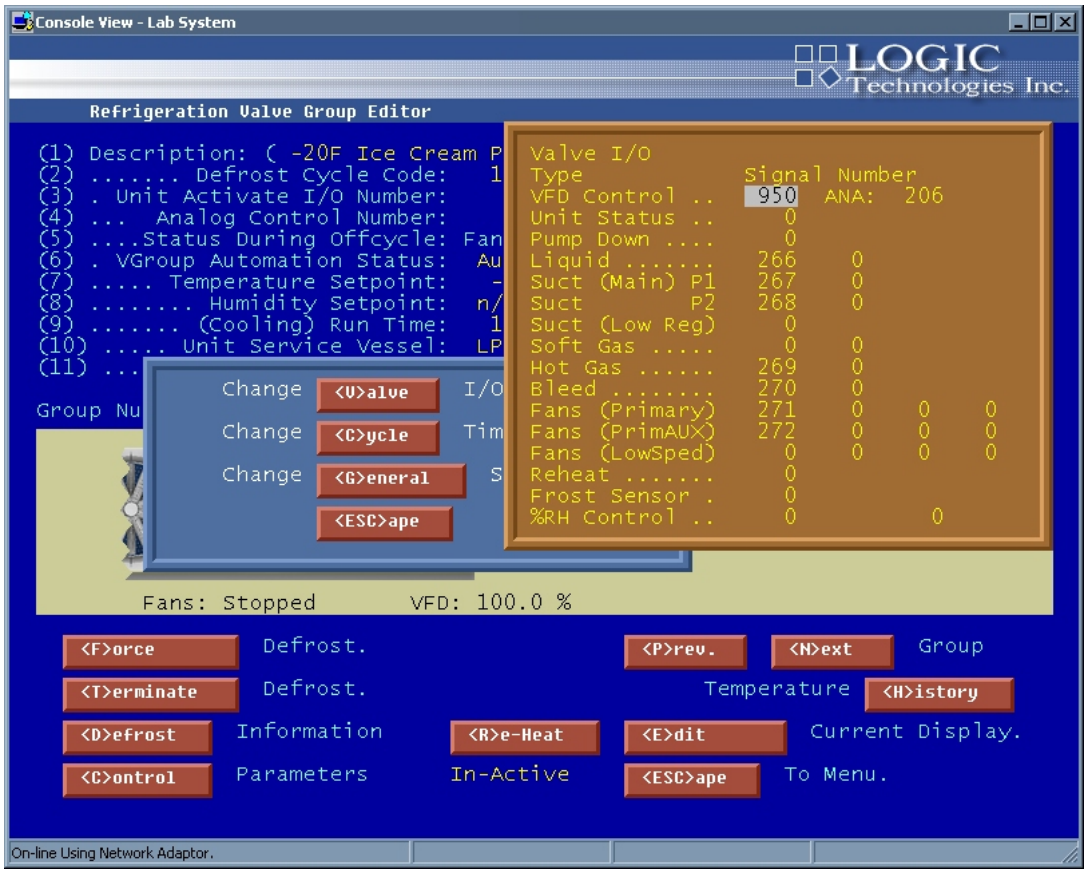
Upon day selection, the system will display the selected day schedule. The system allows up to 6 defrost times per day for each valve group. Each day of the week may consist of a different schedule.

The ***<T>ime*** button allows entry of the schedule activation time next to the current select pointer. The ***<C>ondition*** button toggles the condition code from Active to Inactive, allowing the schedule to remain constant and not defrosting at the requested time. The up and down keyboard arrow keys or the **<Enter>** key will move the select pointer to the desired slot.



Button Access Sequence: *Main Menu, F1, F2, Control Parameters*

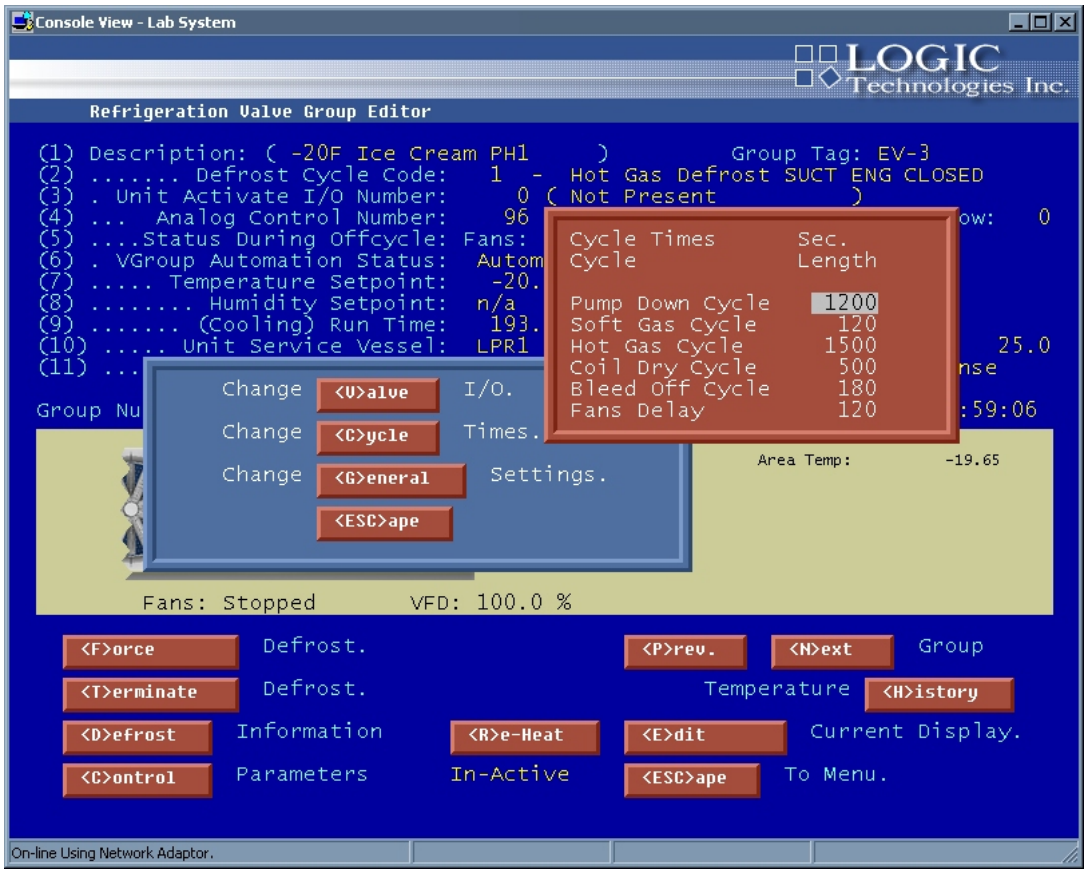
The **<C>ontrol Parameters** selection will display a window requesting I/O or defrost cycle time selections. The following two pages show resulting information windows.



Button Access Sequence: *Main Menu, F1, F2, Control Parameter, Change*

Change **<V>alve** I/O displays a window allowing entry of I/O identification numbers associated with the selected valve group. This window allows operators to reassign hardware rack positions to the group or add additional equipment to the control algorithm. The first column contains the primary device numbers and the second column contains secondary control elements. The sequence of these devices are explained in the "Theory of Operations" section of this publication.

CAUTION: Before changing any of these I/O numbers, refer to your original I/O identification drawings to verify proper I/O number. Only qualified operators should modify any I/O numbers in this section. Entering the wrong I/O information could cause incorrect system operation.



Button Access Sequence: *Main Menu, F1, F2, Valve Group Number*

Change **<C>ycle** Time allows operators to adjust defrost cycle duration times. All times are entered in seconds. This window format is determined by the group "Defrost Cycle Code" which changes the number of entries and the descriptions based on the type of defrost cycle.

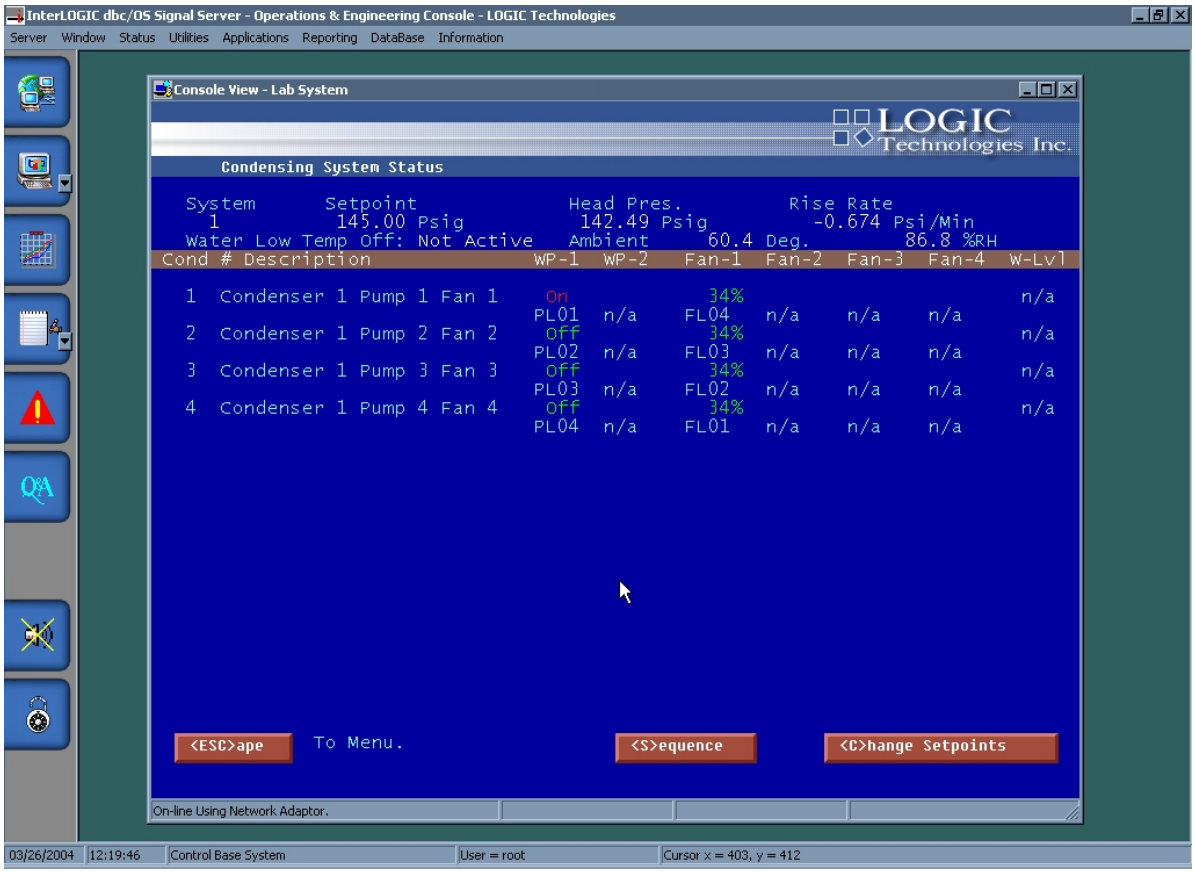
Pump Down Delay Time deenergizes the liquid feed solenoid valve for the specified time, keeping fans and suction valves in cooling mode, allowing all remaining liquid in coil to evaporate before energizing the hot gas valve.

Hot Gas Cycle Time energizes the hot gas solenoid valve and/or hot gas main, if applicable, and deenergizes fans and suction valve for the specified time.

Coil Dry Delay Time holds pressure on the coil but deenergizes the hot gas coil.

Bleed Delay Time allows pressure in the evaporator to equalize to system suction pressure by opening the bleed valve. It also deenergizes the hot gas, fans, and main suction valve.

Fans Delay Time allows liquid to enter the coil for the specified time before energizing the evaporator fans.



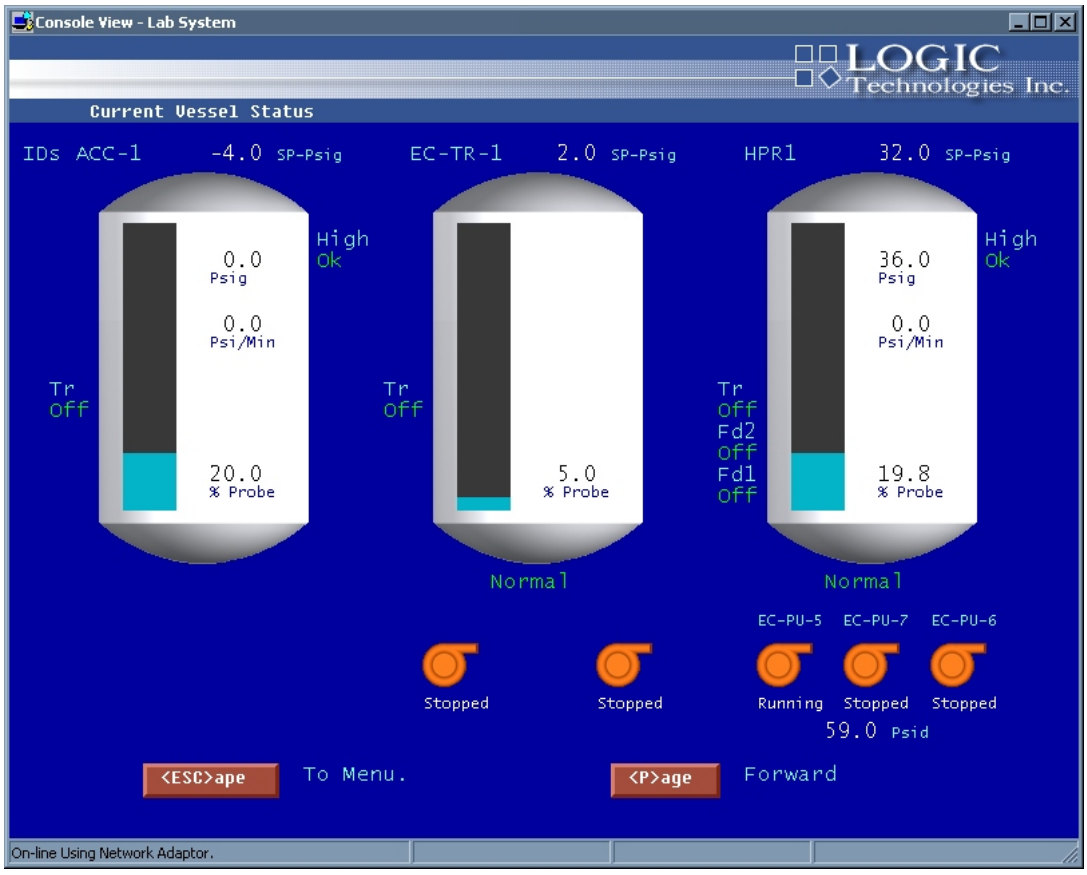
Button Access Sequence: *Main Menu, F1, F3*

(3) **View Condensing Conditions**, from the status menu, is used to display all system condensing components and the order in which they will sequence to maintain system discharge pressure.

The user selectable setpoint control window is displayed upon selecting **<C>hange** Setpoints via mouse or the keyboard. The sub menu allows the operator to change condensing system setpoints and change high pressure cutout setpoint.

The current discharge pressure is continually displayed along with the system setpoint. Head pressure control algorithms calculate and display pressure rise rate in pounds per minute. The rise rate determines system equipment response time.

NOTE: If the InterLOGIC system controls more than one condensing system, a system ID number button will be shown on the bottom of this screen. This button will display the condition of the selected system ID number.



Button Access Sequence: *Main Menu, F1, F4*

(4) View System Vessel Conditions displays the current conditions of each pressure vessel. The information on the base view consists of vessel ID, pressure rise rate, current vessel pressure, setpoint pressure, and percent full based upon column percentage. All float, feed valves, and transfer valves are displayed with real time condition on each vessel.

Vessel pump or pumper vessel status information is also displayed with the current condition of each removal system. Each vessel consists of P1 for pump 1 and P2 for pump 2 with a star to indicate the running mode, or T1 and T2 for pumper transfer drums.

System automatic pressure control is initiated by selecting the vessel with mouse or pressing <F1> and entering the sub-system ID code when requested. This section is described on the following page.

Button Access Sequence: *Main Menu, F1, F4, Select Vessel*

Upon selecting the vessel as described on the preceding page, all setpoint and operational modes are displayed in window format. **<C>hange Setpoints** will step through all vessel setpoint values and execute system change after the last entry is entered. Lead pump selection is initiated by pressing key **<1>** for pump 1 or **<2>** for pump 2. The alternate pump becomes standby. **<H>igh Level Lock Reset** clears high level flag for the selected vessel. **<R>eset Comp. Staging** resequences compressors associated with the selected vessel. Compressor sequencing is explained in the "Theory of Operations" section.

<H>igh Level Lock Reset: If the current vessel is in high level state or had a high level condition, the high level lock is active. The system will not restart until the high level lock/condition is reset (by Operator).

<R>eset Compressor Staging: After a high level condition on any vessel, and the high level lock is reset, the reset compressor staging button must be reset if the operator chooses to have the InterLOGIC Control System start the compressor staging sequence automatically. **Note:** If the operator chooses not to reset the compressor staging at the time of high level reset, the compressors have to be manually started and the InterLOGIC System will not control the starting and stopping of any compressors that are linked to this specific vessel experiencing the high level.

The **Start/Stop Vessel** button allows the operator to start or stop the current condition the vessel is operating under. Starting the vessel puts the current vessel in automatic condition. Therefore, the current vessel setpoint controls all vessel activity. Stopping the vessel puts the current vessel in the inactive mode, stopping the vessel's pumps and liquid feed solenoid.

Change Setpoint: Allows the operator to change current control setpoints on the current vessel.

a) **High Level:** Displayed in % full of vessel liquid column level. A high level condition will shutdown/ force fail any compressors, ammonia pumps, and liquid feed solenoid valves that are linked to the vessel experiencing a high level condition and will display the vessel ID and condition on the alarm status screen as described on page **SCR-55**.

b) **Operating Level:** Displayed in % of vessel liquid column level. The operating level is the level the vessel tries to maintain under normal operating conditions.

c) **Low Level:** Displayed in % of vessel liquid column level. A low level condition will stop the ammonia pumps from operating and will display the vessel ID and condition on the alarm status screen. Note: This condition will automatically reset if the low level condition is reset or corrected.

d) **Transfer Level:** Displayed in % of vessel liquid column level. This setpoint is used when a liquid transfer system is installed in the refrigeration system. It should be set to allow the liquid transfer system to energize before a high level condition occurs.

e) **Suction Setpoint:** Displayed in PSIG and is the vessel's suction operating setpoint. It also reflects suction and capacity control of the compressors that are linked to the current vessel. This setpoint is transmitted to each compressor assigned to the vessel.

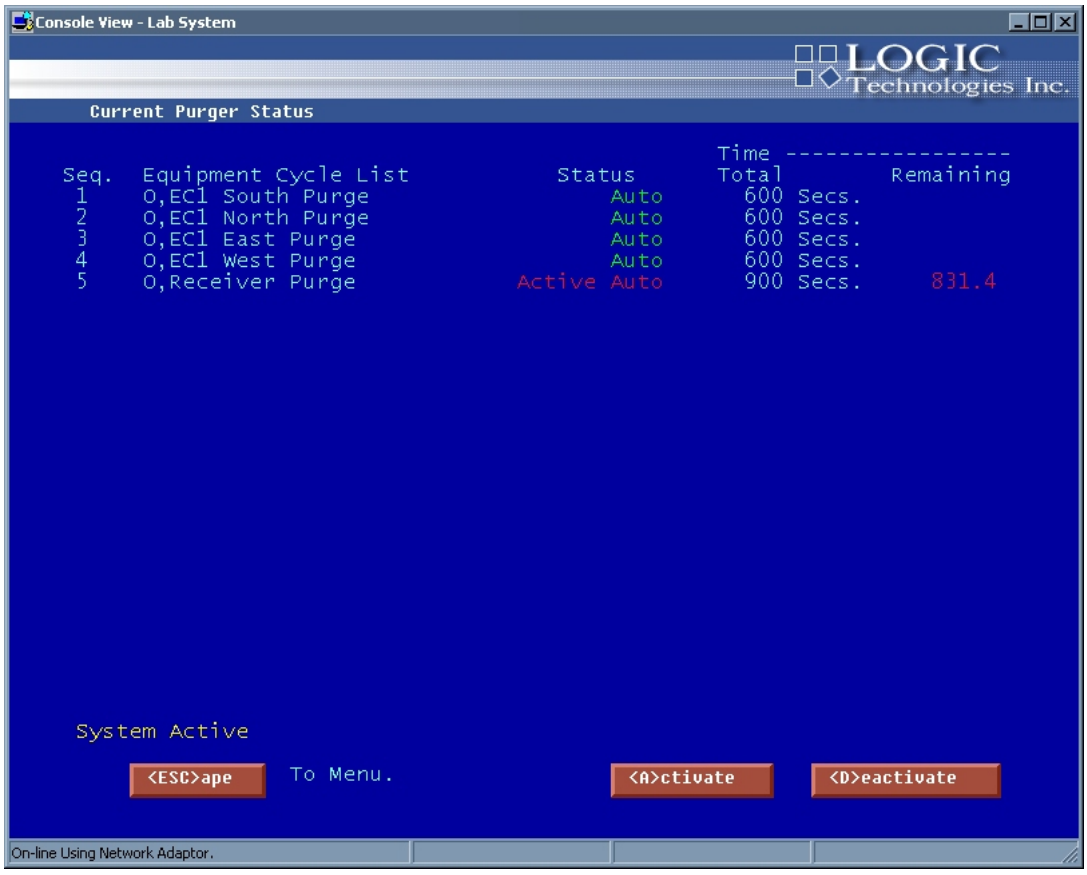
f) **Low Pump Pressure:** Displayed in PSIG. This setpoint is used to shut down the ammonia pumps if low pump discharge pressure occurs to prevent the pumps from cavitating. NOTE: Setpoint is a differential from actual vessel suction pressure.

g) **High VPCO:** High vessel pressure cutout is designed as a safety to shut down ammonia pumps vessel liquid feed preventing flooding conditions in the evaporators in case of compressor failure. This condition will also display a HVPCO on the vessel status screen. NOTE: This setpoint is a +offset pressure of the actual vessel suction pressure.

h) **Lead Pump/Lead Transfer:** <1>,<2> allows the operator to select or change the designated lead pump or transfer vessel.

When selecting a pressure vessel to change setpoints, various modes of the setpoint window will be displayed. The vessel setup database defines the type of vessel and each type will not require the same settings. The first example on **SCR-016** show the setpoint screen for a recirculator package with a variable level transmitter. The above screen is for a recirculator with float controls.

An accumulator vessel, as displayed above, may include transfer vessels to move the refrigerant liquid to a higher pressure vessel. This is accomplished using a trigger float or variable level indicator. The setpoint screen will ask for tank level trip points.

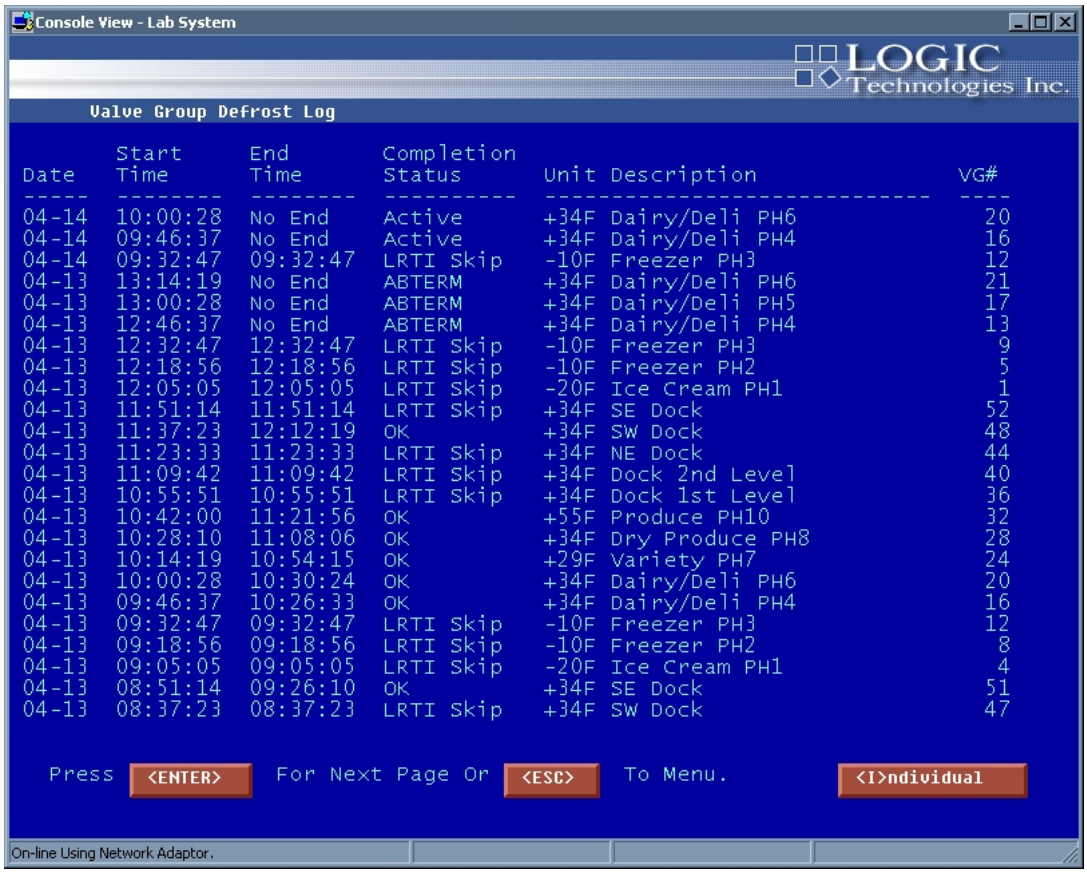


Button Access Sequence: *Main Menu, F1, F5*

(5) View System Purger Status is used to monitor the discharge pressure air purging system. The display includes the equipment purge sequence, purge status, total purge time, and time remaining for the active purge sequence point.

The ***<A>ctivate*** button will start the purge selection algorithm and the ***<D>eactivate*** button will terminate activity.

NOTE: To change the purger time sequence, refer to file maintenance menu on page **SCR-46** in this manual.

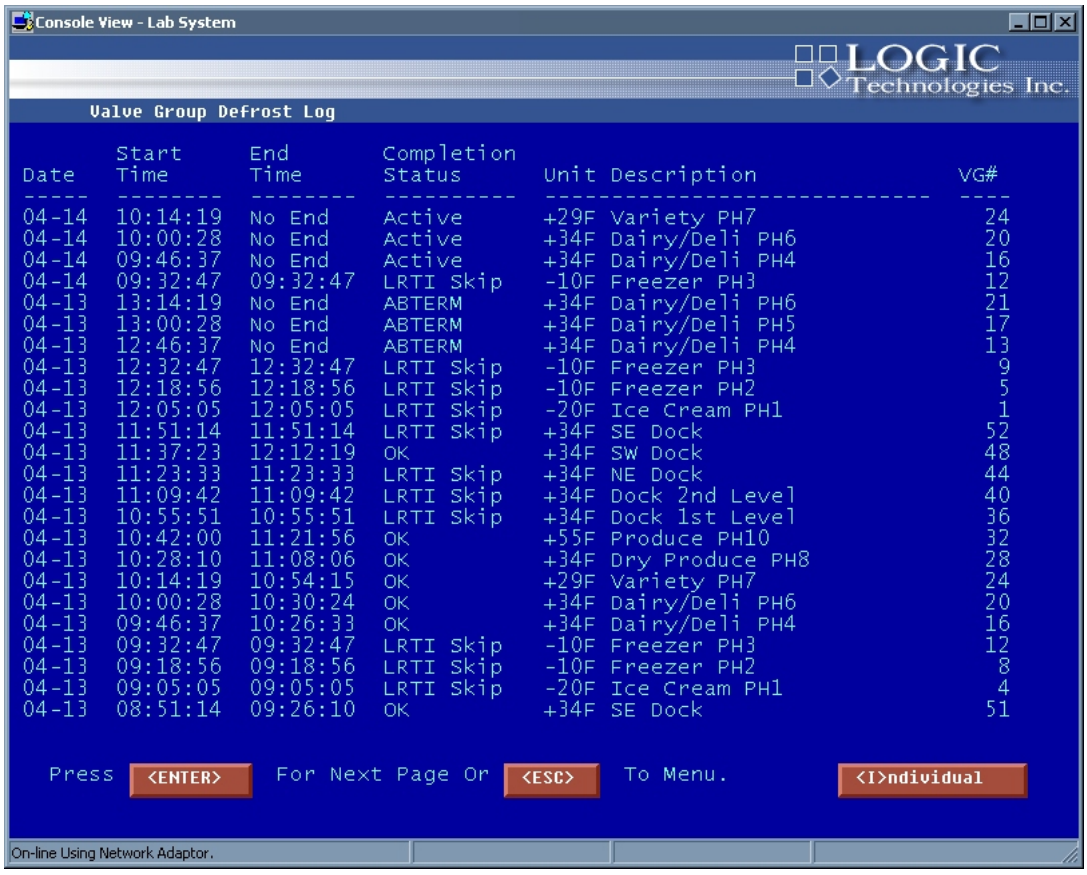


Button Access Sequence: *Main Menu, F1, F7*

(7) View Defrost Log selection displays a listing of system valve group defrost history. The information displayed consists of date, defrost start time, defrost end time, completion status, and description. Completion status codes identify how the defrost terminated.

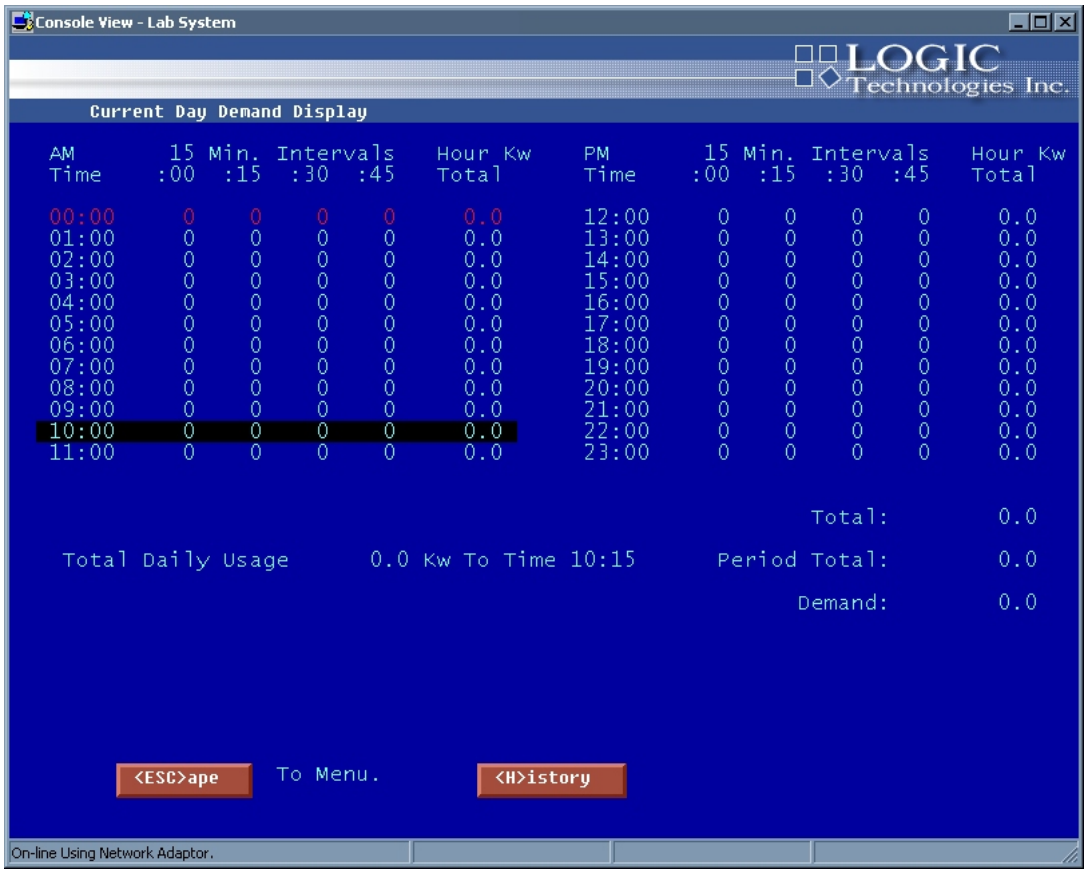
Completion Codes:

OK - Indicates a total defrost cycle completion with no complications.
No Type - Indicates the absence of an assigned defrost type code for the valve group.
Low Disch. - Indicates discharge pressure fell below the minimum setpoint for the defrost system.
OFF Maint. - Indicates the valve group was in forced off operation.
No Times - Indicates no cycle times were assigned to the valve group.
Task ACT - Indicates a defrost cycle was already active on the displayed valve group.
Alarm - Indicates the system was in alarm mode when the defrost became active.
User Term. - Indicates the system operator who terminated the defrost cycle.
Shutdown - Indicates the system was shutdown when the defrost became active.
NH3 Sense - Indicates the valve group NH3 sensor terminated the defrost cycle.
ABTERM - Indicates an abnormal defrost termination due to system reset of false end of procedure.



Button Access Sequence: *Main Menu, F1, F7, <I>ndividual*

The **<I>ndividual** button allows selection of one valve group to display. When selected entries from the group are displayed, a time span log of minutes between defrost is also viewed. This information is useful when designing and fine tuning a runtime defrost system.

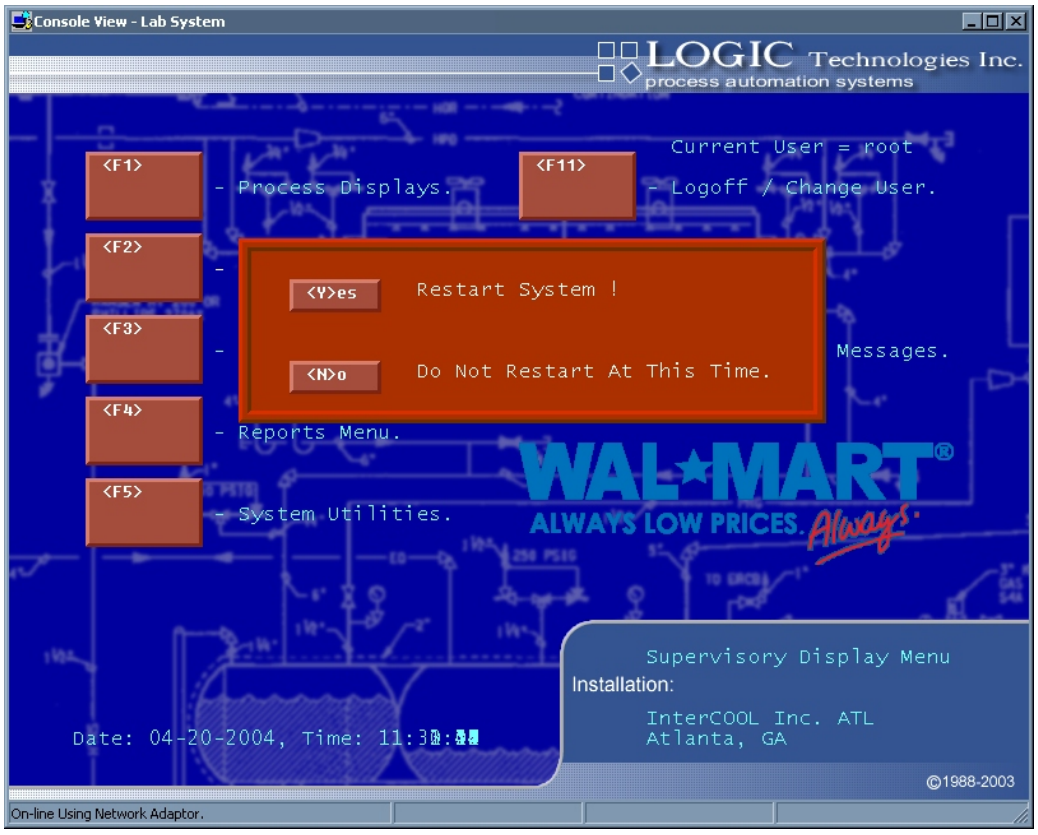


Button Access Sequence: *Main Menu, F1, F8*

(8) View Current System Power Demands selection is used to monitor hourly system power demand for the current 24 hours (requires power company XY pulse meter with end of period pulse). This feature may be used as a tool for organization, summarization, and statistical display to aid in the analysis of energy demands.

Snapshots of power demands are written to the database in 15 minute intervals. Highest hourly demand is displayed in **RED** to distinguish the entry from others.

The **<H>istory** button prompts the user for a requested day of year to display. The history is maintained for a one year period previous to current day of year.

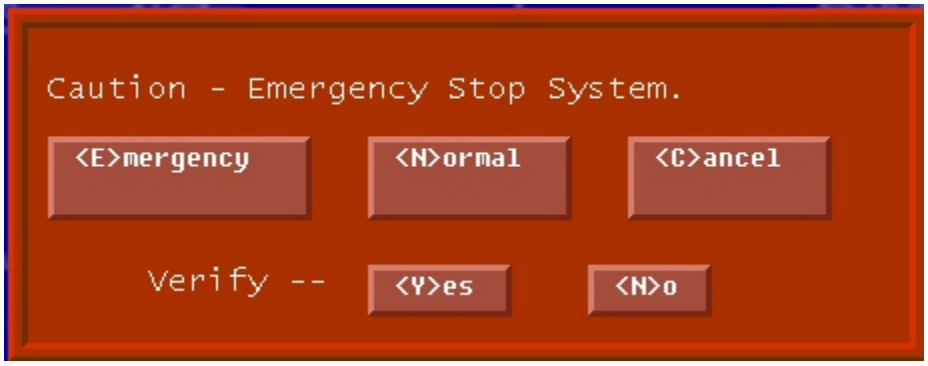


Button Access Sequence: *Main Menu, F3*

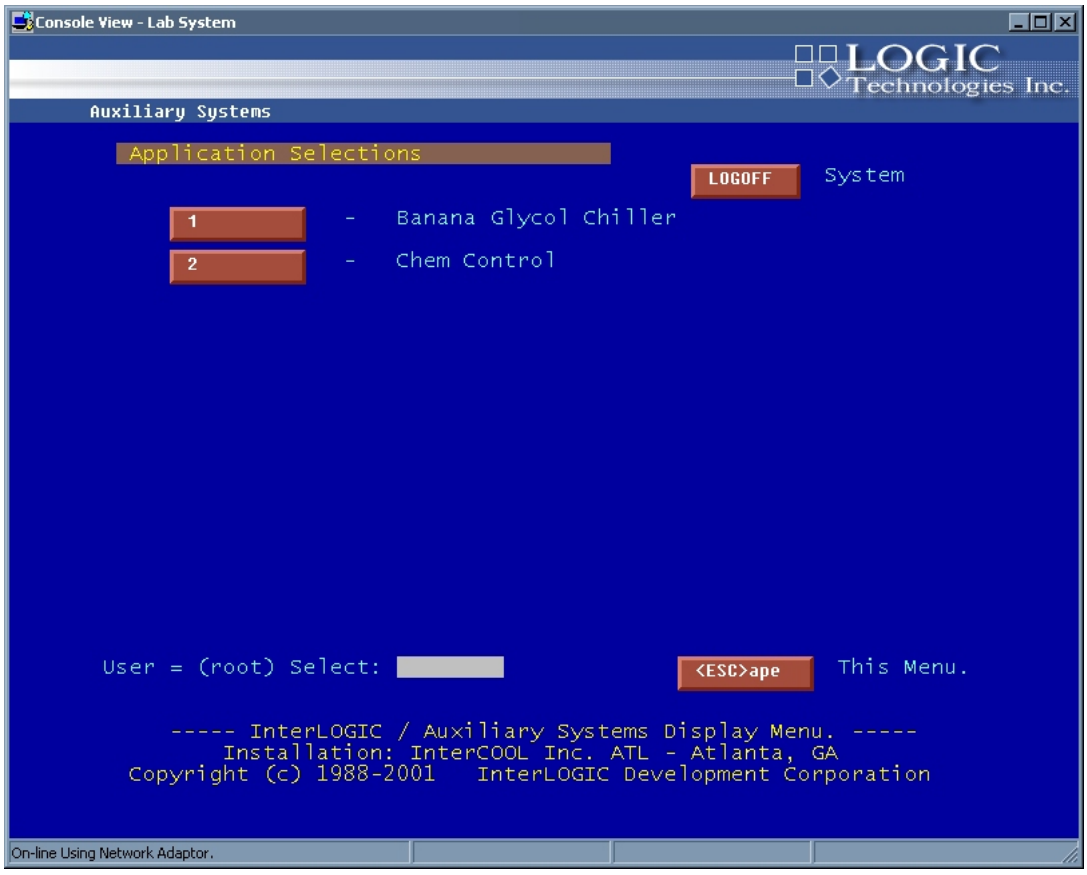
Selection ***<3>*** on the main application programs menu displays a window to allow operator initiated shutdown operations. The ***<E>mergency*** button will shutdown all system activity and sound system alarms. The ***<N>ormal*** shutdown button will place all air units in an offcycle mode, pumpdown, and then stop the engine room. ***<C>ancel*** will close the window without executing any operation. If a shutdown operation is requested, the operator is asked to verify the request with a ***<Y>es*** or ***<N>o,*** button as shown on the next page.

The following windows are displayed after selecting system shutdown or restart.

The operator has to verify if they want the system to shutdown.
<Y>es to confirm shutdown
<N>o to cancel and return to the main menu



This screen will appear if the operator decides to restart the control system. This window is displayed only if selection ***<3>*** on the main screen displays “Restart System”. Answering ***<Y>es*** will slowly restart the system. This will allow the engine room and air units to restage while not overloading electrical systems.



Button Access Sequence: *Main Menu, F3*

(4) Auxiliary System Menu selects user defined subsystems. The displayed screen allows connection to other control environments or other control screens not normally contained in standard software releases.

Each system selection provides a button and a description of the selection.

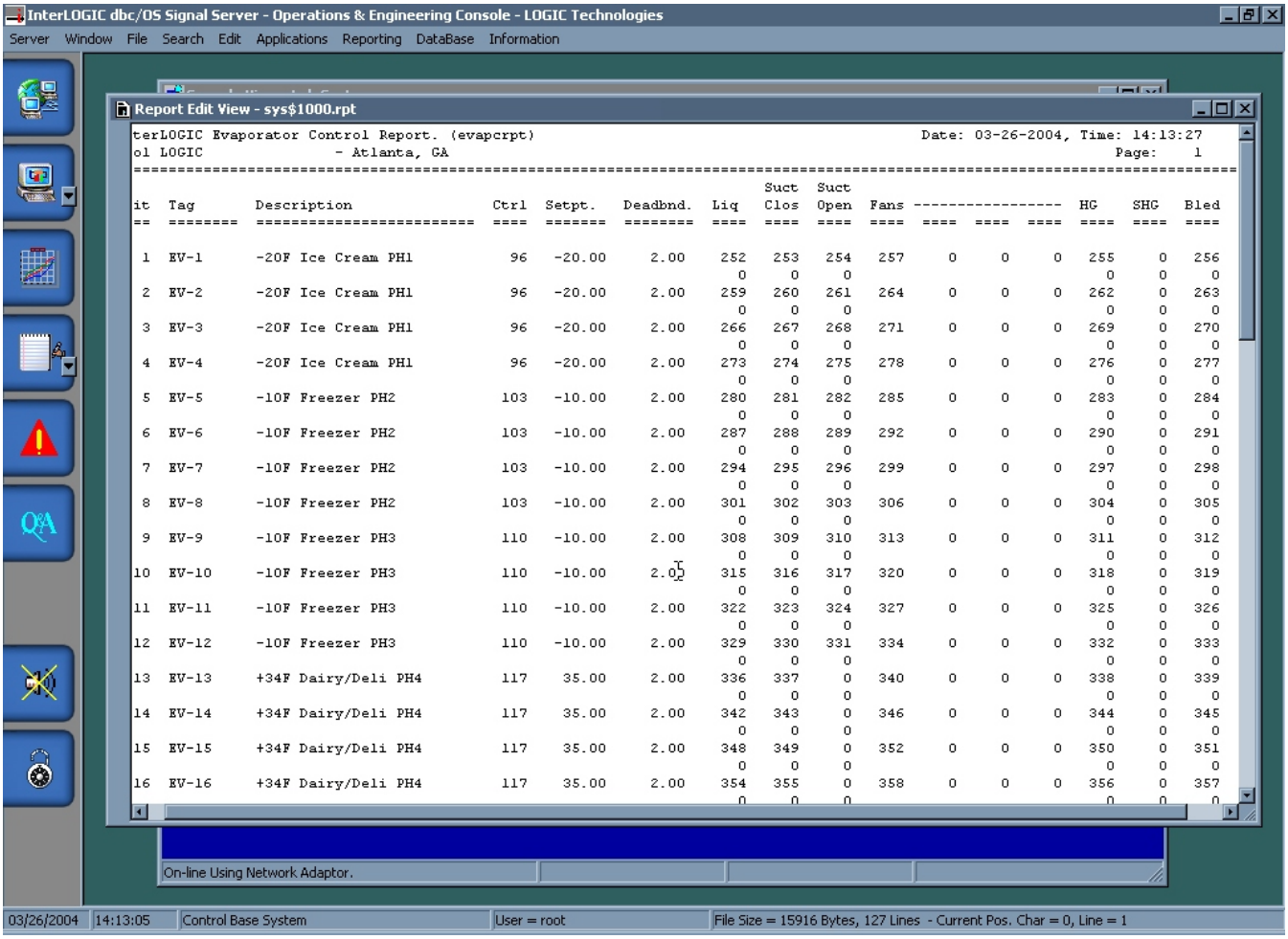
See Master File Maintenance for information on menu setup.

Button Access Sequence: *Main Menu, F4*

(5) Reports Menu allows the operator to select 1 of 8 reports available as related to the control system. The following pages display sample listings of each selection. When selected from the main console, the report procedure is placed in a background run mode and is printed on the main system printer. Remote selection of report programs place the report procedure in standard execution mode and the report is transmitted to the requesting console. A report printing message is displayed during this transmission. When the complete report is received, the menu returns and the report is printed on the remote console printer.

NOTE: When report printing is in progress on a remote console, the operator will not be able to change or move around to other selection menu items until the print job is completed.

1 - Evaporator Control Report.

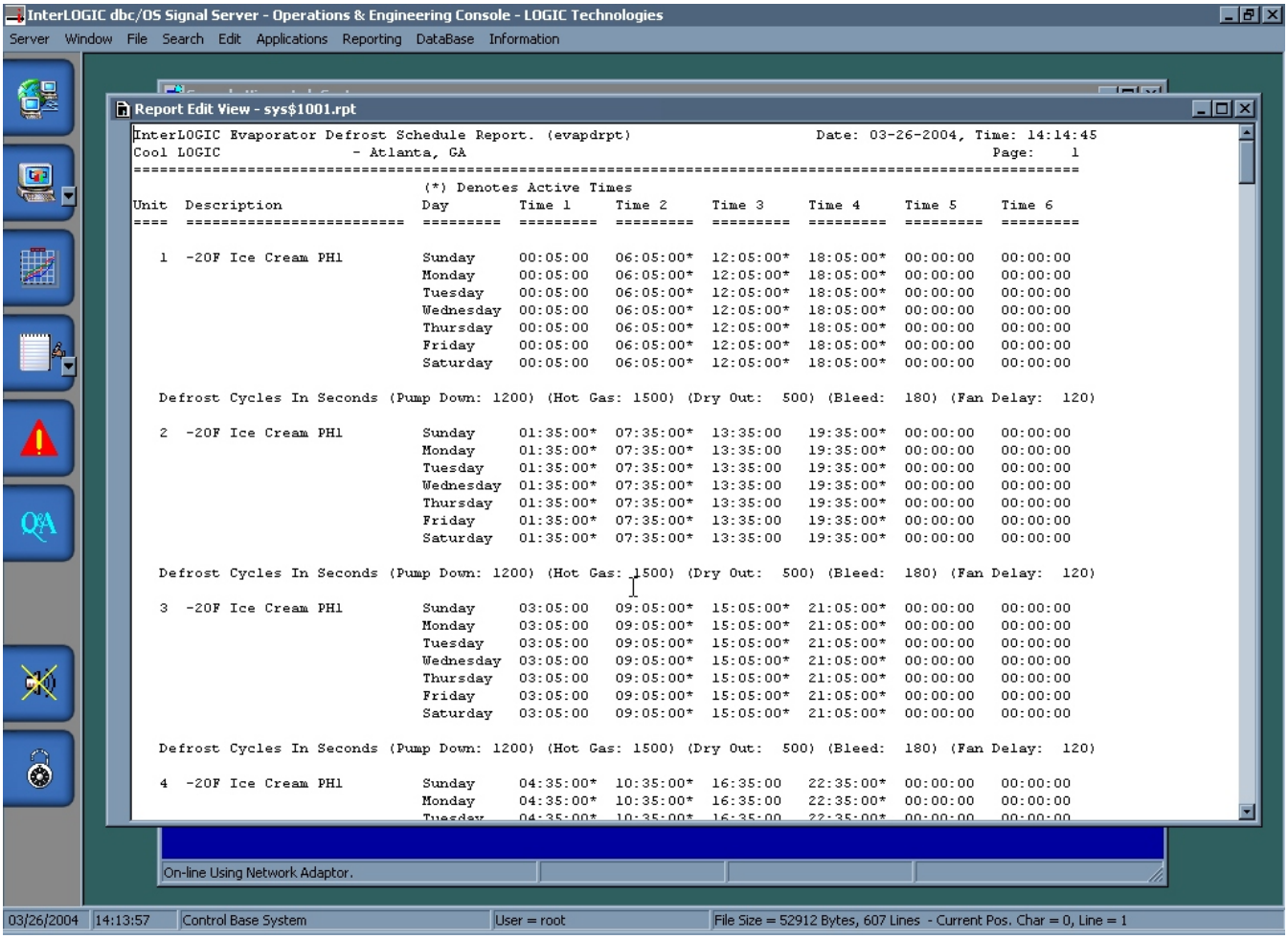


terLOGIC Evaporator Control Report. (evapcrpt) Date: 03-26-2004, Time: 14:13:27
ol LOGIC - Atlanta, GA Page: 1

it	Tag	Description	Ctrl	Setpt.	Deadbnd.	Liq	Suct Clos	Suct Open	Fans				HG	SHG	Bled
1	EV-1	-20F Ice Cream PH1	96	-20.00	2.00	252	253	254	257	0	0	0	255	0	256
						0	0	0					0	0	0
2	EV-2	-20F Ice Cream PH1	96	-20.00	2.00	259	260	261	264	0	0	0	262	0	263
						0	0	0					0	0	0
3	EV-3	-20F Ice Cream PH1	96	-20.00	2.00	266	267	268	271	0	0	0	269	0	270
						0	0	0					0	0	0
4	EV-4	-20F Ice Cream PH1	96	-20.00	2.00	273	274	275	278	0	0	0	276	0	277
						0	0	0					0	0	0
5	EV-5	-10F Freezer PH2	103	-10.00	2.00	280	281	282	285	0	0	0	283	0	284
						0	0	0					0	0	0
6	EV-6	-10F Freezer PH2	103	-10.00	2.00	287	288	289	292	0	0	0	290	0	291
						0	0	0					0	0	0
7	EV-7	-10F Freezer PH2	103	-10.00	2.00	294	295	296	299	0	0	0	297	0	298
						0	0	0					0	0	0
8	EV-8	-10F Freezer PH2	103	-10.00	2.00	301	302	303	306	0	0	0	304	0	305
						0	0	0					0	0	0
9	EV-9	-10F Freezer PH3	110	-10.00	2.00	308	309	310	313	0	0	0	311	0	312
						0	0	0					0	0	0
10	EV-10	-10F Freezer PH3	110	-10.00	2.00	315	316	317	320	0	0	0	318	0	319
						0	0	0					0	0	0
11	EV-11	-10F Freezer PH3	110	-10.00	2.00	322	323	324	327	0	0	0	325	0	326
						0	0	0					0	0	0
12	EV-12	-10F Freezer PH3	110	-10.00	2.00	329	330	331	334	0	0	0	332	0	333
						0	0	0					0	0	0
13	EV-13	+34F Dairy/Deli PH4	117	35.00	2.00	336	337	0	340	0	0	0	338	0	339
						0	0	0					0	0	0
14	EV-14	+34F Dairy/Deli PH4	117	35.00	2.00	342	343	0	346	0	0	0	344	0	345
						0	0	0					0	0	0
15	EV-15	+34F Dairy/Deli PH4	117	35.00	2.00	348	349	0	352	0	0	0	350	0	351
						0	0	0					0	0	0
16	EV-16	+34F Dairy/Deli PH4	117	35.00	2.00	354	355	0	358	0	0	0	356	0	357
						0	0	0					0	0	0

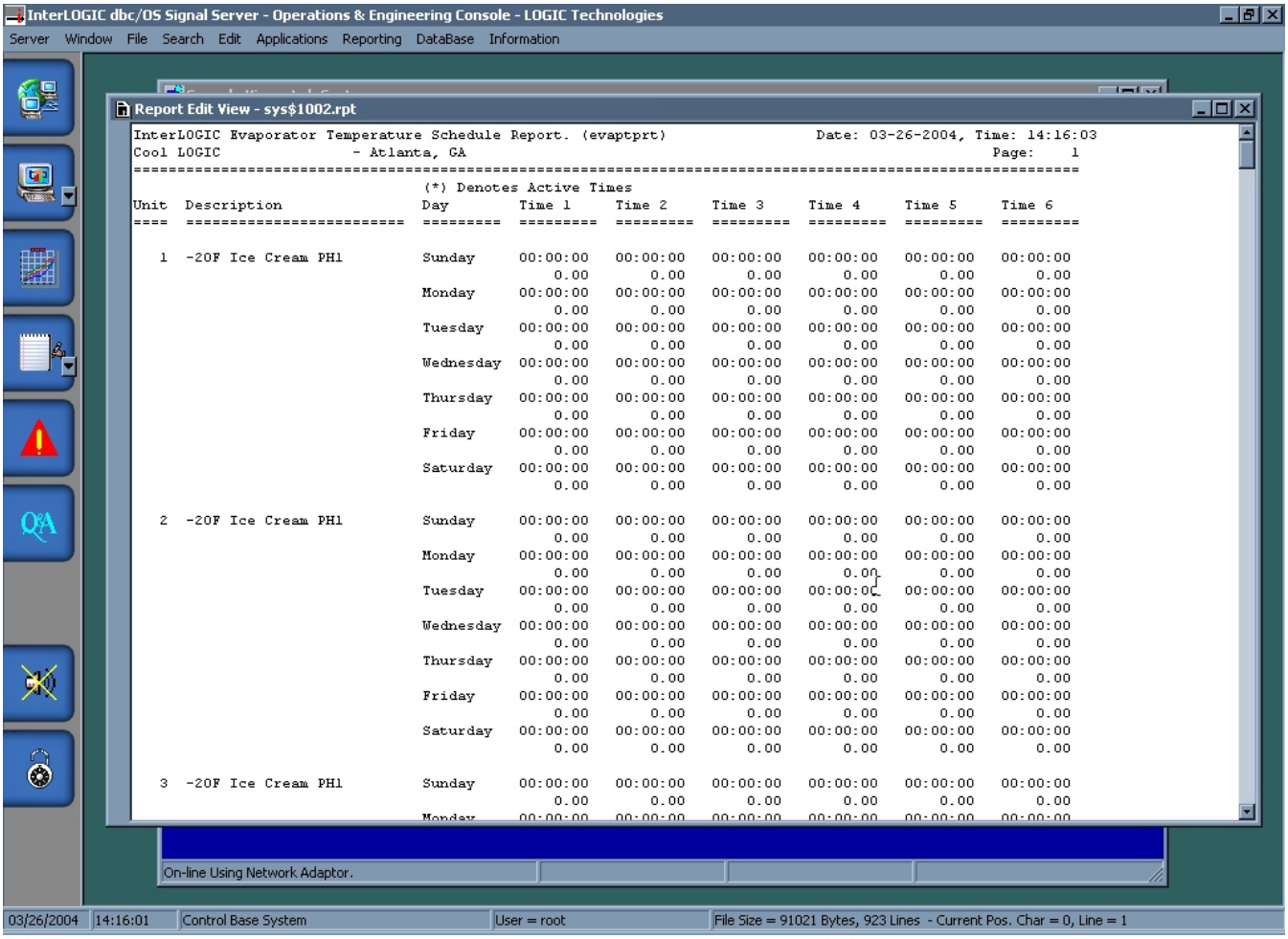
The **Evaporator Control** report prints the valve group ID number, descriptive name, current setpoint, deadband high and low from setpoint for off and on operation, liquid solenoid device number, suction pilot solenoid device numbers, hot gas solenoid device numbers, bleed solenoid device numbers, and fan starter device numbers. This report may be printed for device cross reference and trouble shooting information.

2 - Evaporator Defrost Times Report.



The **Evaporator Defrost Times** report prints each valve group with time slots for each day of the week. This report gives a quick global reference for all defrost times if executed from system scheduling.

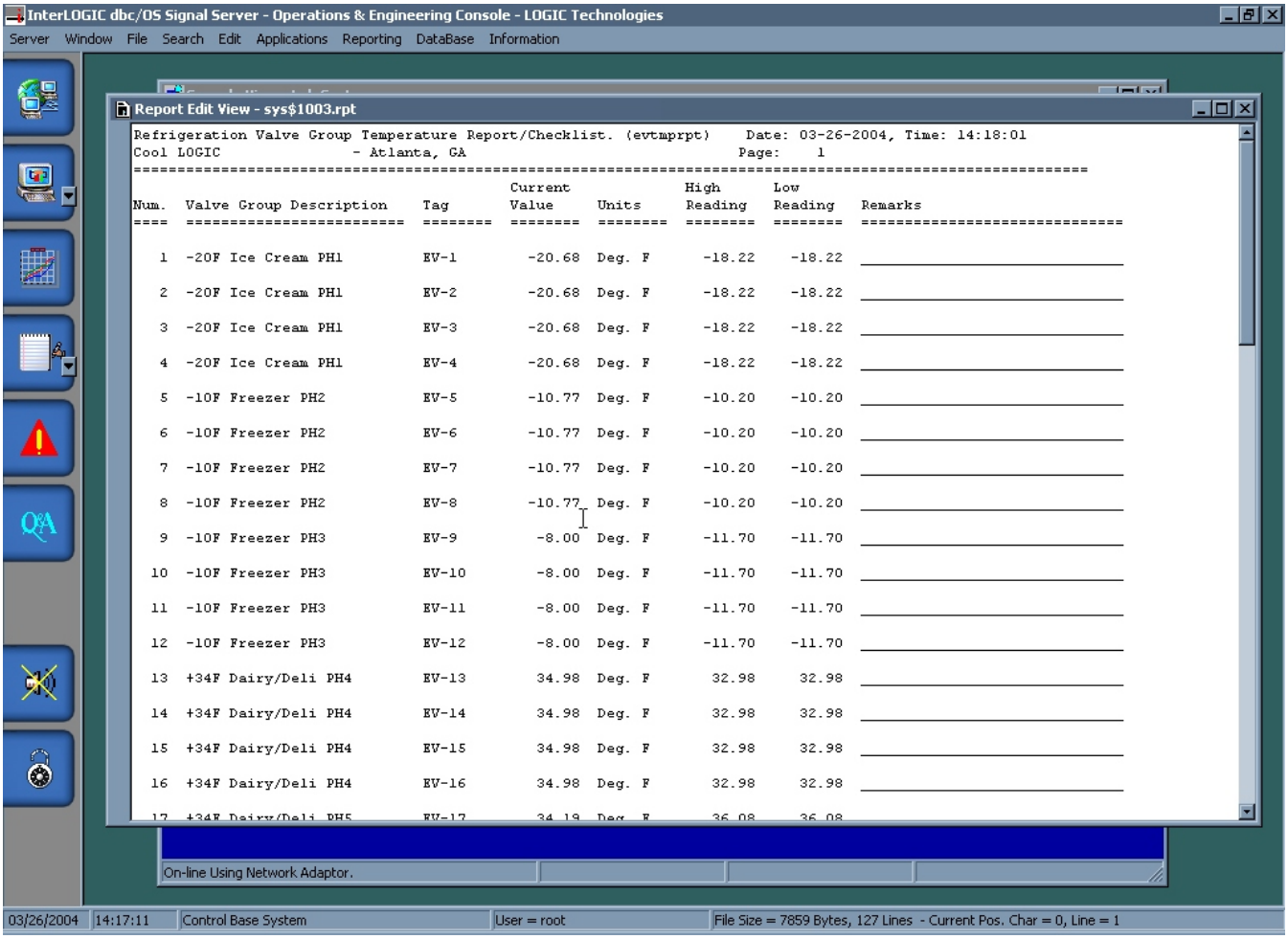
3 - Evaporator Temperature Schedule Report.



This report is used to print out each air unit's scheduled temperature setpoint change times. The information printed on this screen has to be plotted by the operator who enters the scheduled temperature and time changes.

NOTE: To edit temperature and time changes, refer to page **SCR-49**, System Temperature Schedule.

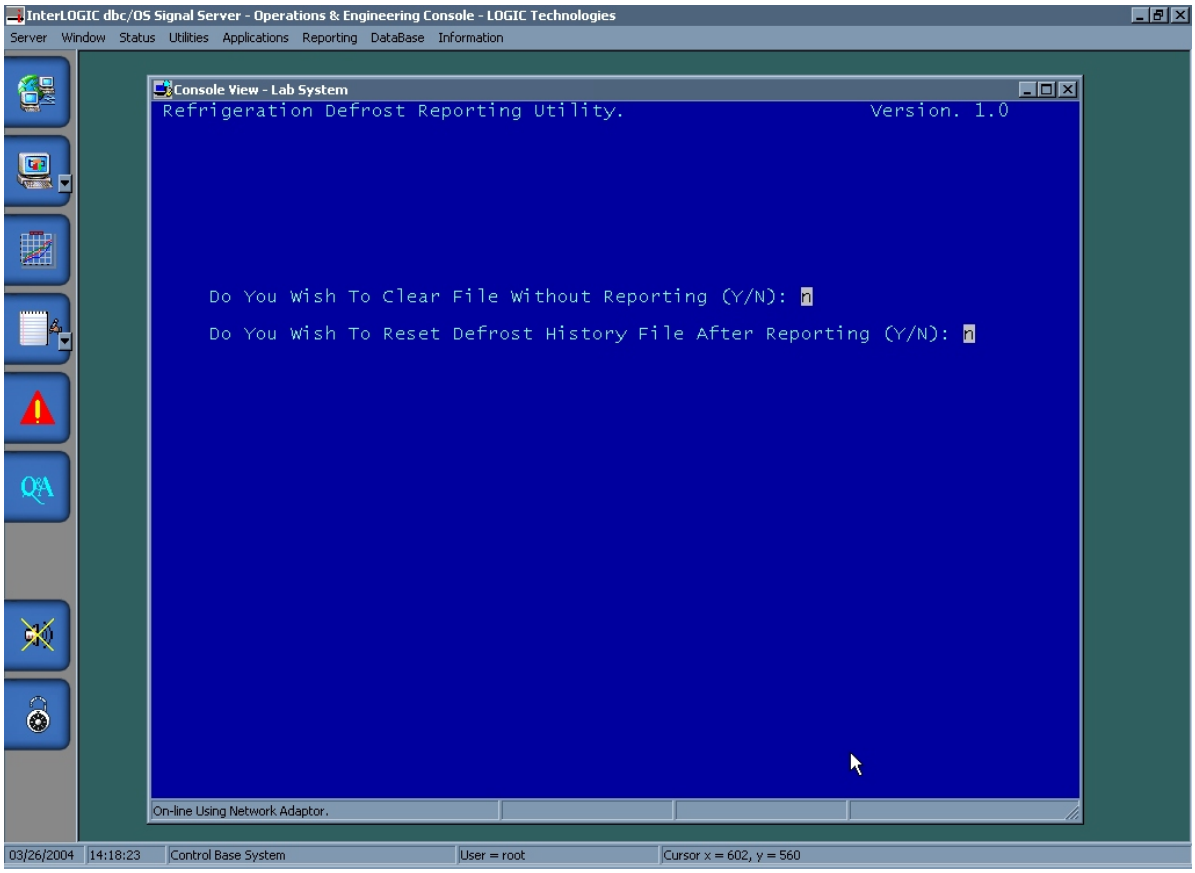
4 - Evaporator Current Temperature Report.



Refrigeration Valve Group Temperature Report/Checklist. (evtmprpt) Date: 03-26-2004, Time: 14:18:01
Cool LOGIC - Atlanta, GA Page: 1

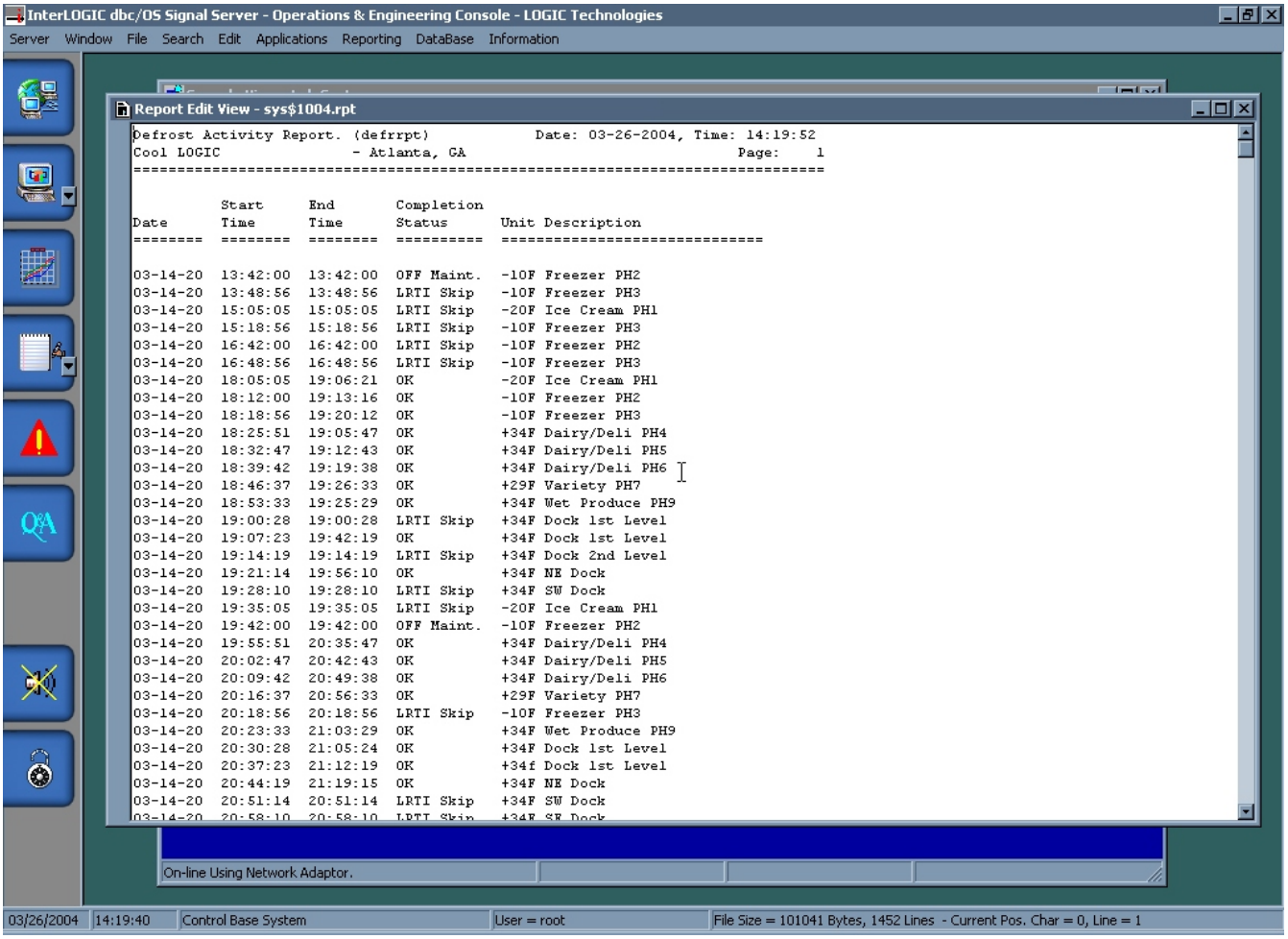
Num.	Valve Group Description	Tag	Current Value	Units	High Reading	Low Reading	Remarks
1	-20F Ice Cream PH1	EV-1	-20.68	Deg. F	-18.22	-18.22	
2	-20F Ice Cream PH1	EV-2	-20.68	Deg. F	-18.22	-18.22	
3	-20F Ice Cream PH1	EV-3	-20.68	Deg. F	-18.22	-18.22	
4	-20F Ice Cream PH1	EV-4	-20.68	Deg. F	-18.22	-18.22	
5	-10F Freezer PH2	EV-5	-10.77	Deg. F	-10.20	-10.20	
6	-10F Freezer PH2	EV-6	-10.77	Deg. F	-10.20	-10.20	
7	-10F Freezer PH2	EV-7	-10.77	Deg. F	-10.20	-10.20	
8	-10F Freezer PH2	EV-8	-10.77	Deg. F	-10.20	-10.20	
9	-10F Freezer PH3	EV-9	-8.00	Deg. F	-11.70	-11.70	
10	-10F Freezer PH3	EV-10	-8.00	Deg. F	-11.70	-11.70	
11	-10F Freezer PH3	EV-11	-8.00	Deg. F	-11.70	-11.70	
12	-10F Freezer PH3	EV-12	-8.00	Deg. F	-11.70	-11.70	
13	+34F Dairy/Deli PH4	EV-13	34.98	Deg. F	32.98	32.98	
14	+34F Dairy/Deli PH4	EV-14	34.98	Deg. F	32.98	32.98	
15	+34F Dairy/Deli PH4	EV-15	34.98	Deg. F	32.98	32.98	
16	+34F Dairy/Deli PH4	EV-16	34.98	Deg. F	32.98	32.98	
17	+34F Dairy/Deli PH5	EV-17	34.19	Deg. F	36.08	36.08	

Selecting option 4 will produce a report of all control groups with their associated control temperature.



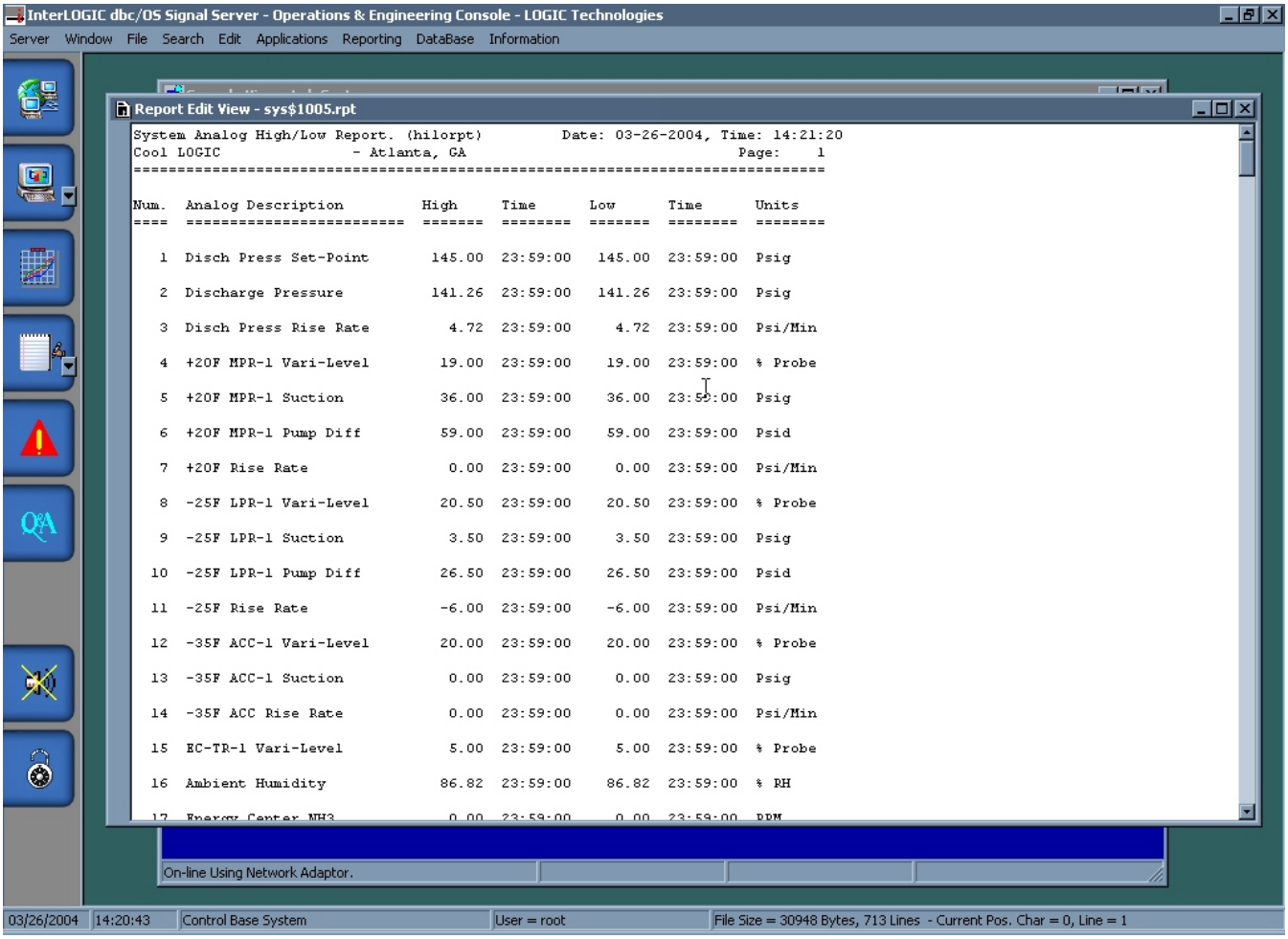
Selecting report option 5 will ask the above questions before printing the report. If you wish to clear the defrost history without printing a report answer the 1st request with a “Y” for yes. You may also clear the file after the report is printed as stated in the 2nd input request.

5 - System Defrost Activity Report.



This selection of the report menu prints out a 24 hr. history on defrost activity. Information displayed in this section is as follows: Date, start time/stop time, status of defrost (OK=No problems were noted), and air unit description.

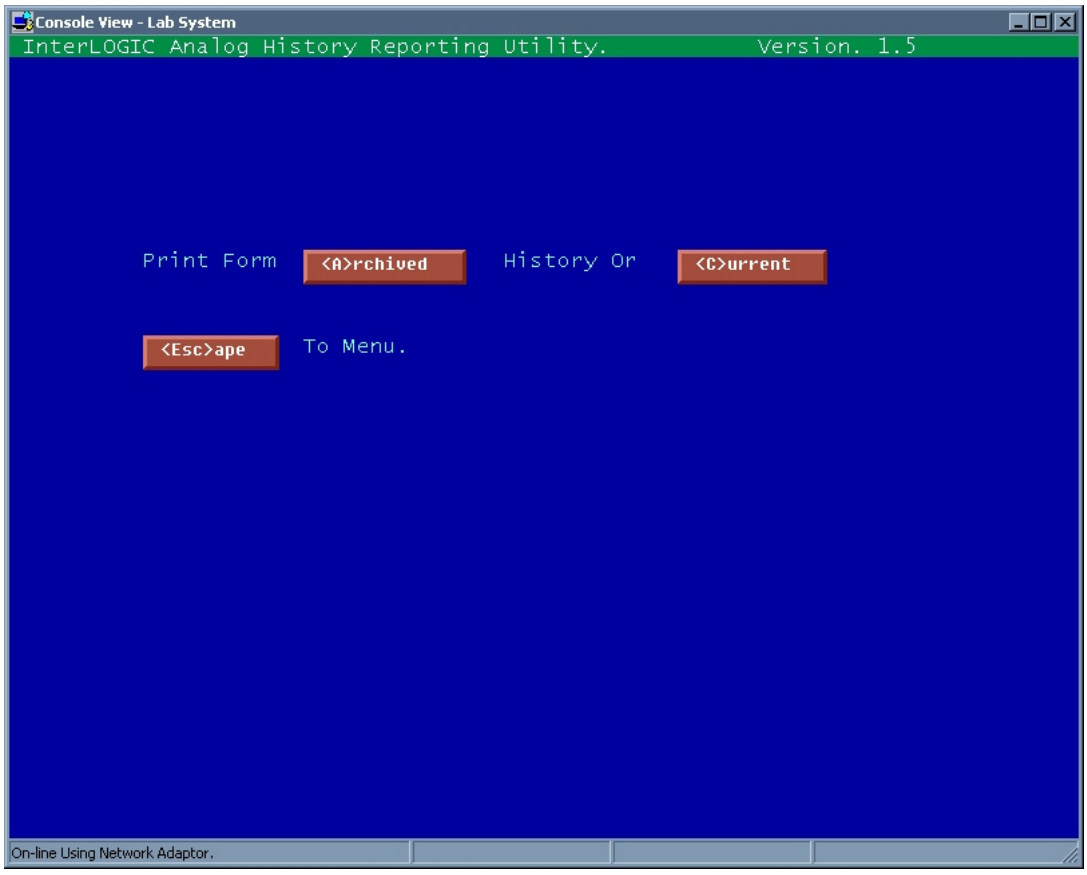
6 - System Analog (High/Low) Report.



System Analog High/Low Report. (hilorpt) Date: 03-26-2004, Time: 14:21:20
Cool LOGIC - Atlanta, GA Page: 1

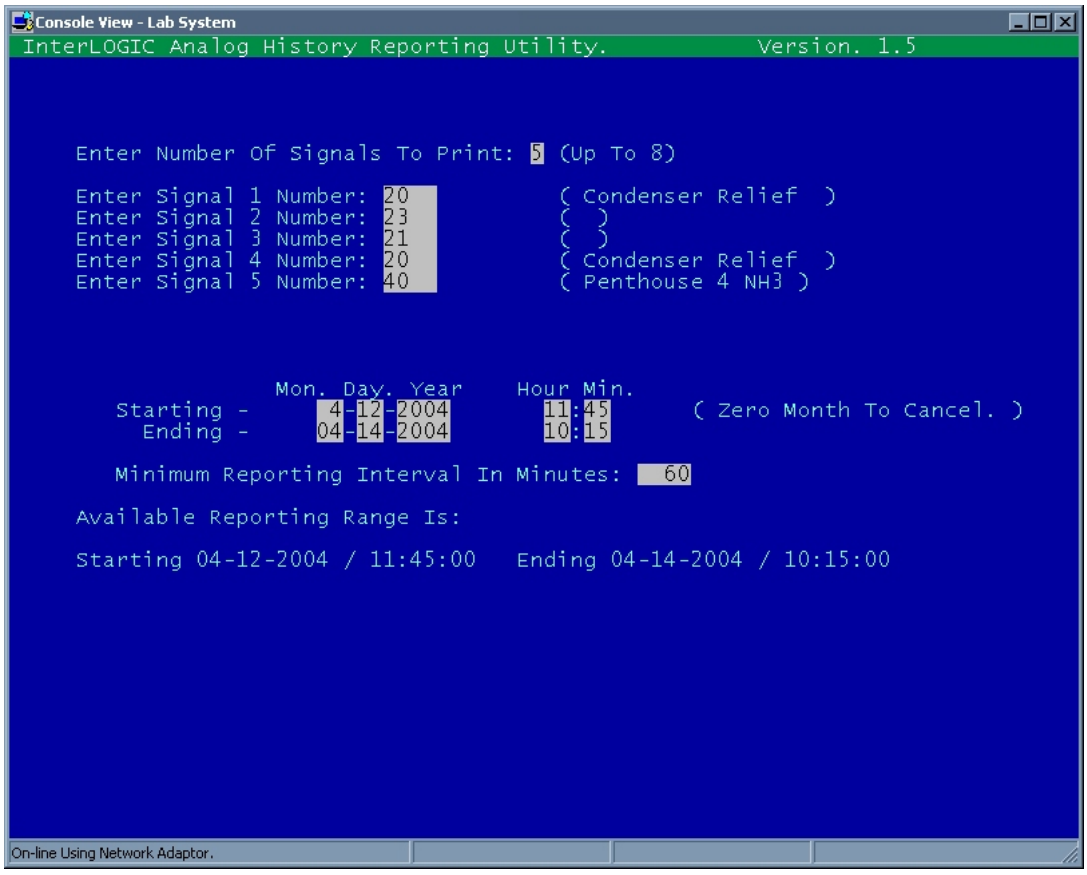
Num.	Analog Description	High	Time	Low	Time	Units
1	Disch Press Set-Point	145.00	23:59:00	145.00	23:59:00	Psig
2	Discharge Pressure	141.26	23:59:00	141.26	23:59:00	Psig
3	Disch Press Rise Rate	4.72	23:59:00	4.72	23:59:00	Psi/Min
4	+20F MPR-1 Vari-Level	19.00	23:59:00	19.00	23:59:00	% Probe
5	+20F MPR-1 Suction	36.00	23:59:00	36.00	23:59:00	Psig
6	+20F MPR-1 Pump Diff	59.00	23:59:00	59.00	23:59:00	Psid
7	+20F Rise Rate	0.00	23:59:00	0.00	23:59:00	Psi/Min
8	-25F LPR-1 Vari-Level	20.50	23:59:00	20.50	23:59:00	% Probe
9	-25F LPR-1 Suction	3.50	23:59:00	3.50	23:59:00	Psig
10	-25F LPR-1 Pump Diff	26.50	23:59:00	26.50	23:59:00	Psid
11	-25F Rise Rate	-6.00	23:59:00	-6.00	23:59:00	Psi/Min
12	-35F ACC-1 Vari-Level	20.00	23:59:00	20.00	23:59:00	% Probe
13	-35F ACC-1 Suction	0.00	23:59:00	0.00	23:59:00	Psig
14	-35F ACC Rise Rate	0.00	23:59:00	0.00	23:59:00	Psi/Min
15	EC-TR-1 Vari-Level	5.00	23:59:00	5.00	23:59:00	% Probe
16	Ambient Humidity	86.82	23:59:00	86.82	23:59:00	% RH
17	Energy Center MH3	0.00	23:59:00	0.00	23:59:00	RPM

This report shows current trend history of all the analog points in your system. The information displayed in this section is as follows: Analog # and description, high (time) when the current analog reached its highest reading, low (time) when analog reached its lowest reading, and engineering units (PSIG, % full, lbs. Min., etc.). The information displayed is a history report and reflects information based on a past 24 hr. period.



When reporting from analog history databases the above screen will be displayed. This allow the operator to open history files which have been closed out or select the current log file. If ***<A>rchived*** is selected a menu of files will be displayed with the year and day of year as the filename. This is the date the file was archived. You may select any of the displayed dates. If ***<C>urrent*** is selected the active history data file is opened for search.

After the selection is made the following page is displayed with starting and ending date information for the requested file. Selection of any date/time within the displayed range is allowed.

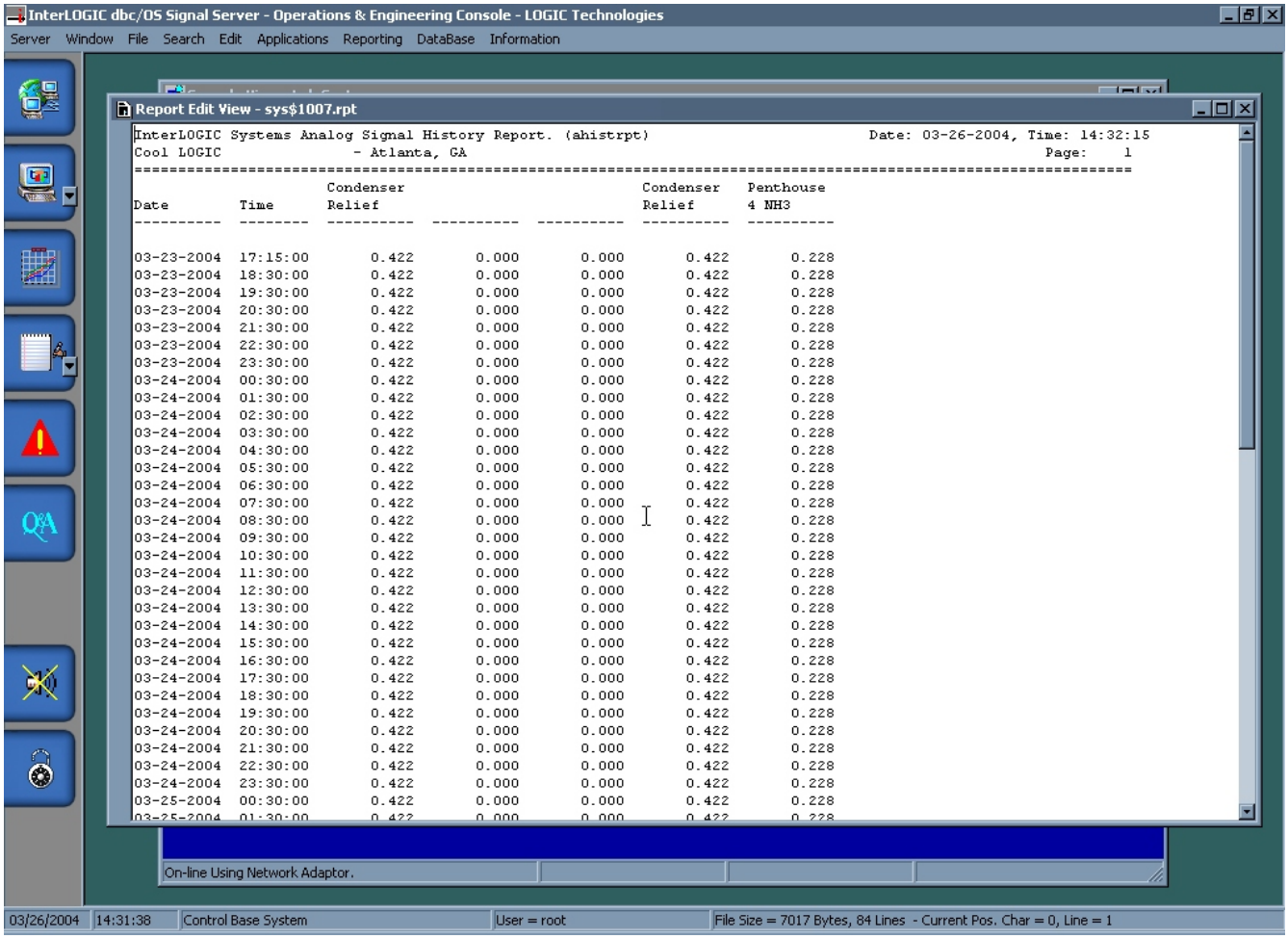


Button Access Sequence:

The **Analog History Report** is a user definable report which asks for up to 8 analog reference signals. After signal numbers are entered with starting date/time and ending date/time, a column format report is printed. The operator may also specify the reporting interval in minutes to shorten the report length.

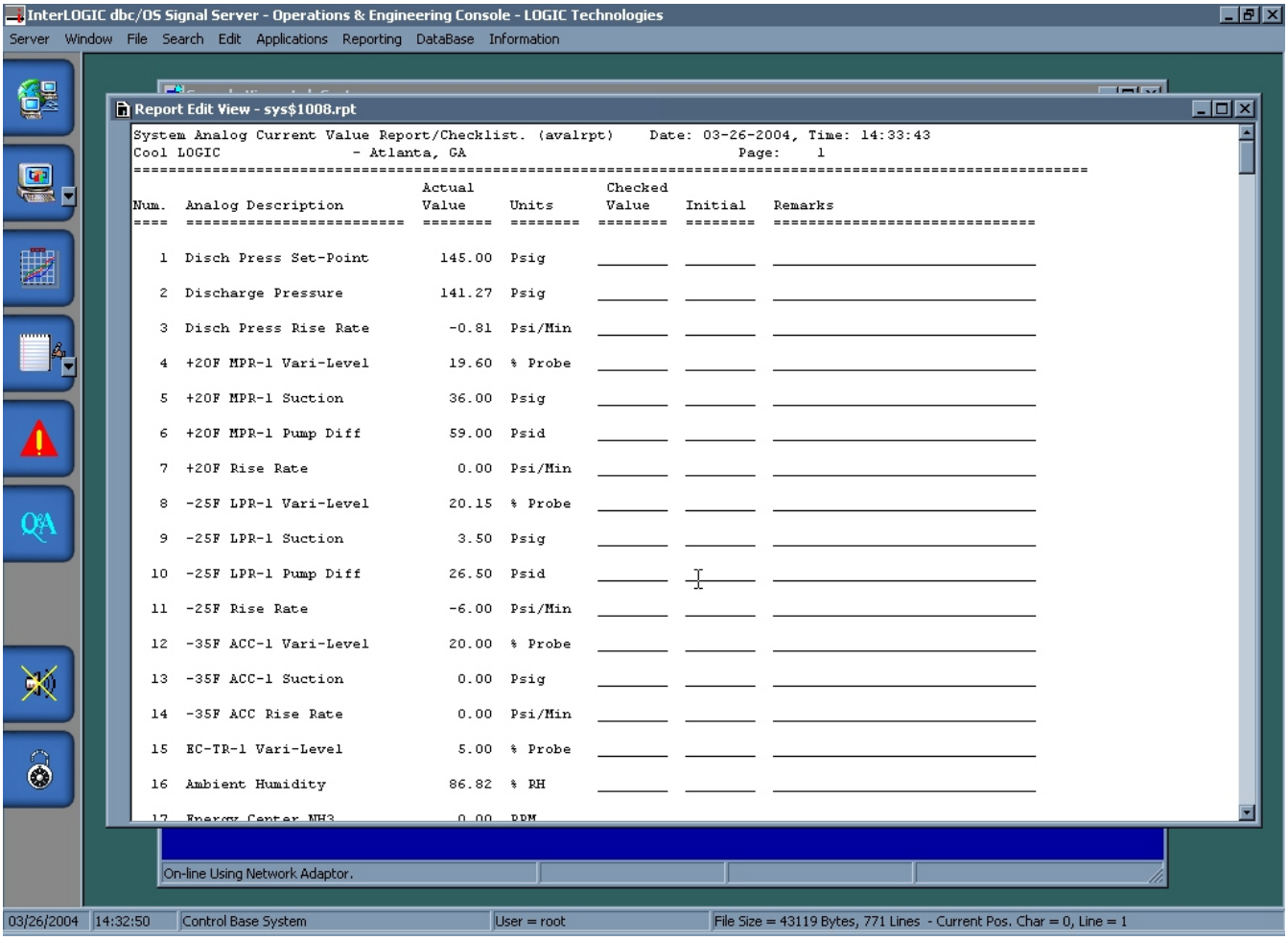
The following page displays a sample printing of the analog history report. This report may be printed for cross reference and troubleshooting information.

7 - Analog History Report.



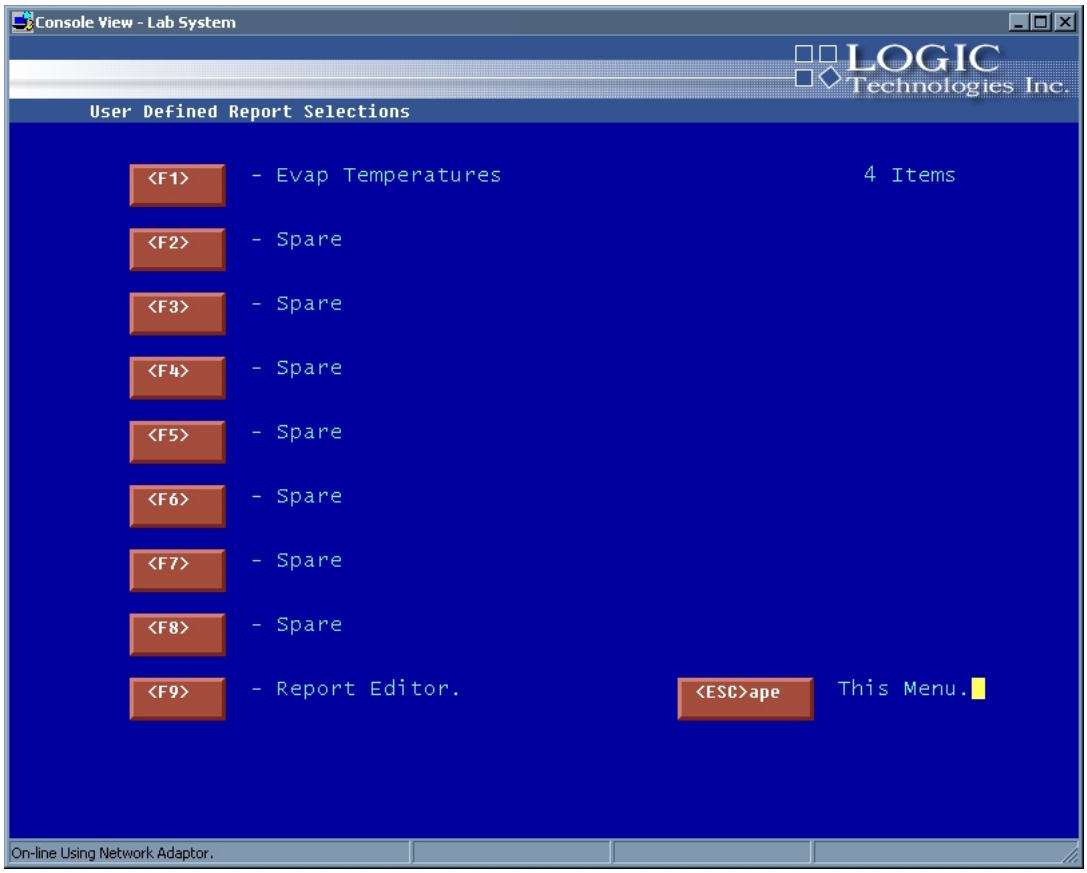
This report displays all analog history data on specific time intervals (set by operator). The information displayed on this page is as follows: Date, time and current condition/reading of each selected analog point at that specific time.

8 - Current Analog Values Report.

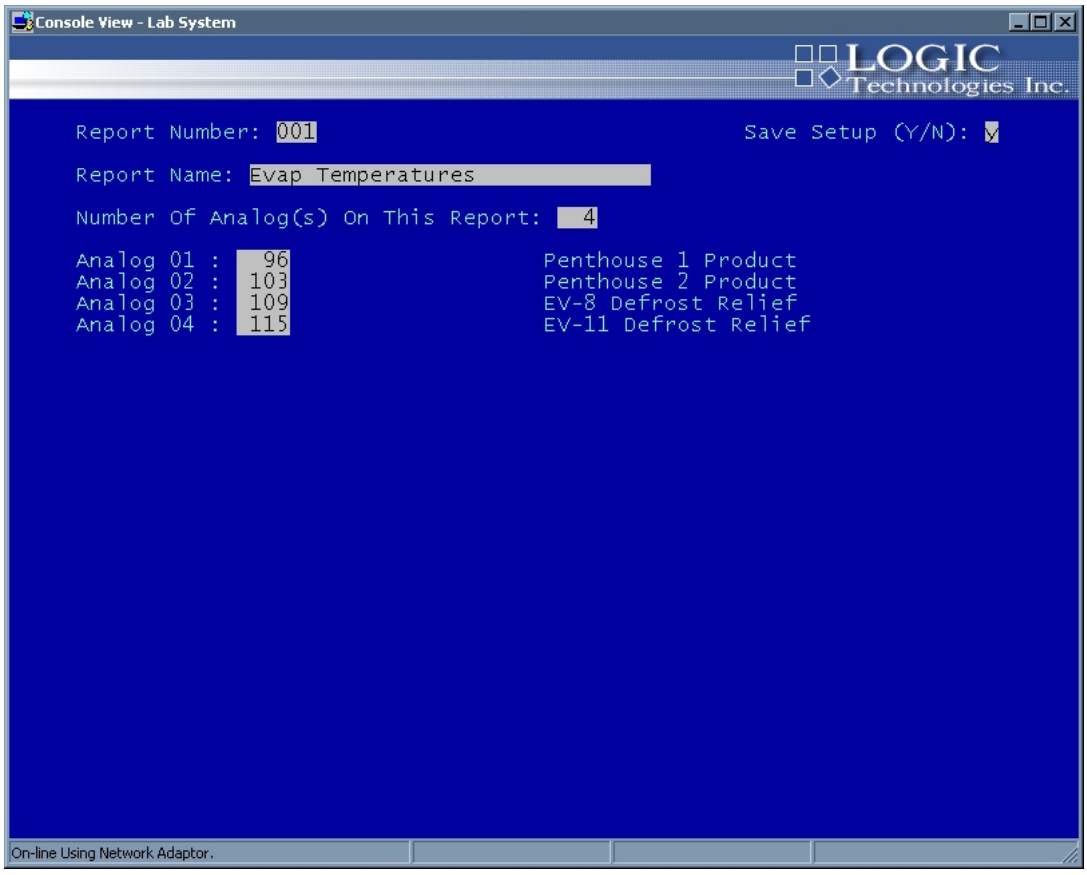


This sample page can be utilized as a check list for all analog points and can be used for record keeping and calibration of all analog points. The information displayed on this page is as follows: Analog #, description, actual reading, engineering units (PSIG, % full, temperature, etc.), check value (calibration cross reference), and initals of the operator who verified current calibration.

9 - User Defined Reports.

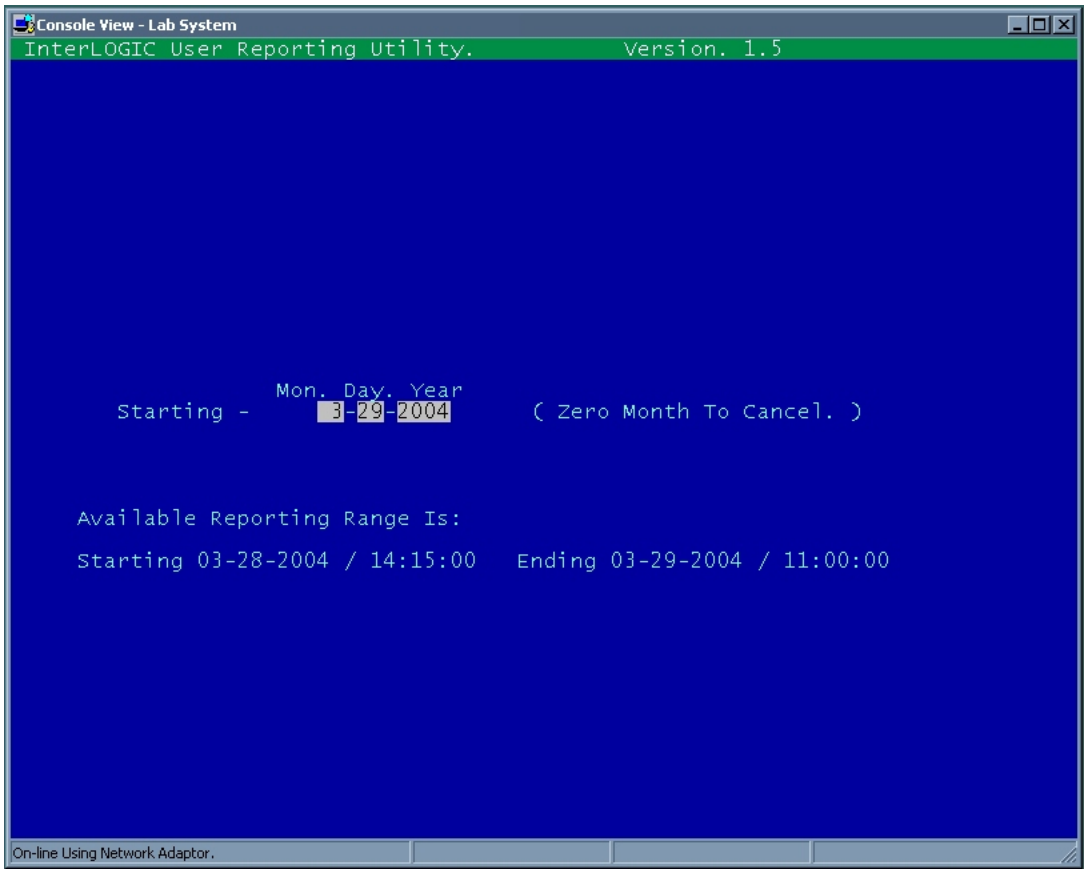


The Signal Server also allows operators to define reports to display hourly readings for a sensor point and the high, low and average reading for the day. As these report are defined, the heading will be displayed on each of the 1 to 8 selections.



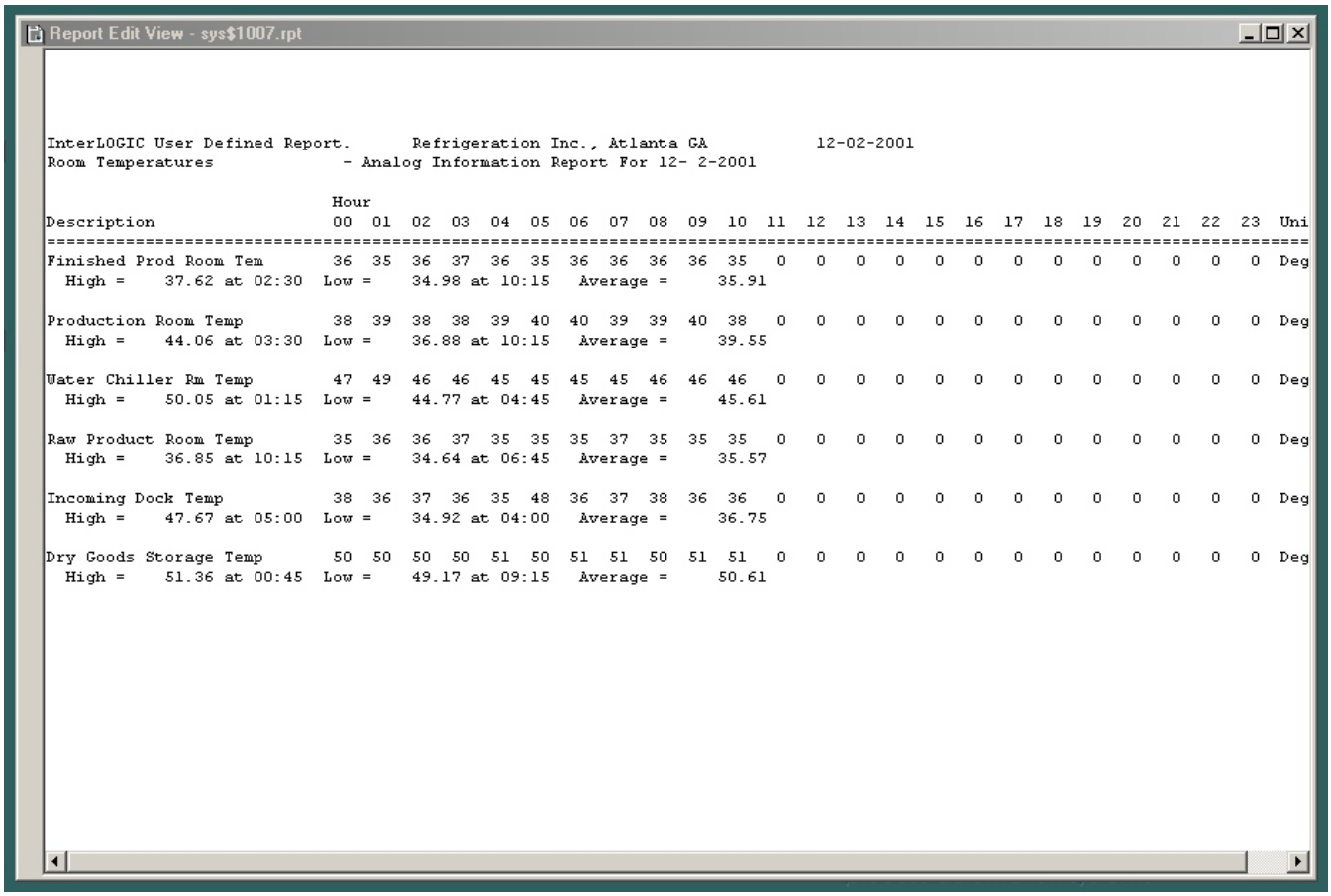
When 9 is selected the report editor is activated. The above setup screen is displayed requesting selection of the report number, report name, number of analog points to print and each analog database number.

The setup may be save as edited or scrapped by the Save Setup reqest.



After a report is defined, selecting the report will ask for the day to print, as shown above. The range available is also shown on the bottom of the screen.

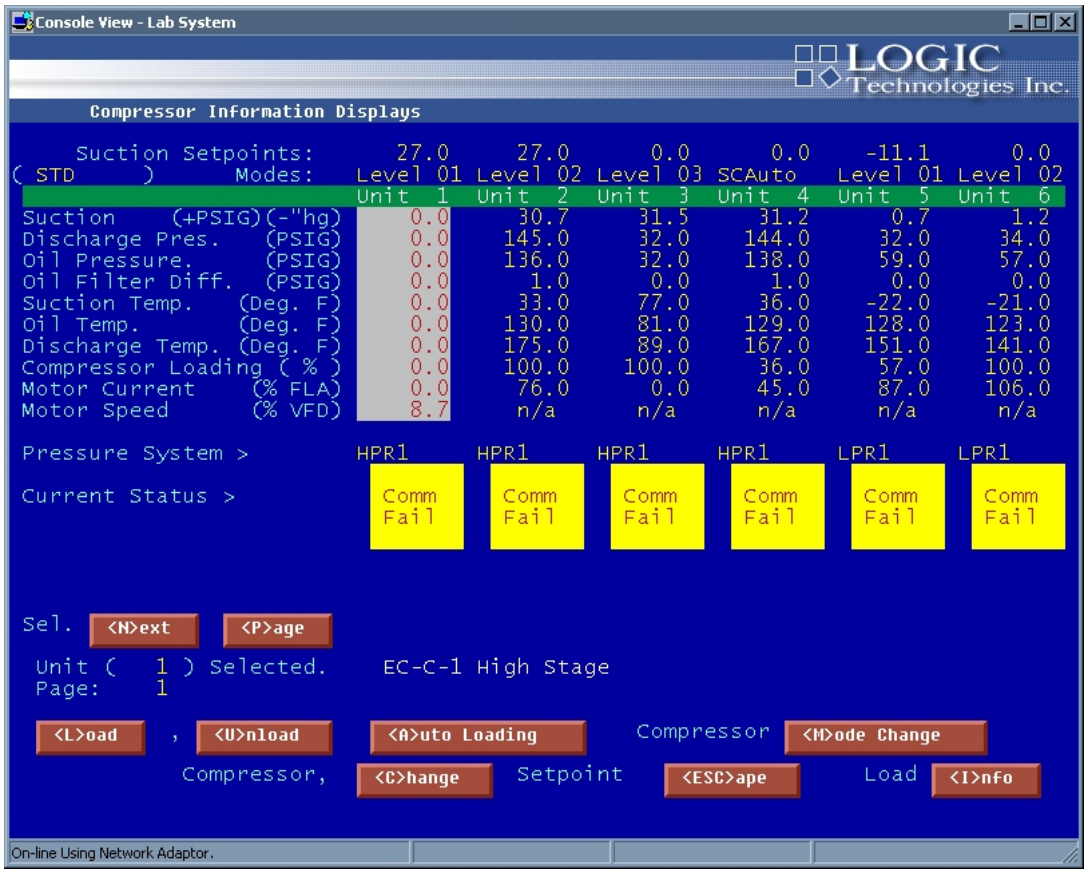
1 - Room Temperatures.



Report Edit View - sys$1007.rpt

```
InterLOGIC User Defined Report.      Refrigeration Inc., Atlanta GA          12-02-2001
Room Temperatures             - Analog Information Report For 12- 2-2001

                          Hour
Description                00  01  02  03  04  05  06  07  08  09  10  11  12  13  14  15  16  17  18  19  20  21  22  23  Uni
=============================================================================================================================
Finished Prod Room Tem      36  35  36  37  36  35  36  36  36  36  35   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    37.62 at 02:30  Low =    34.98 at 10:15   Average =     35.91

Production Room Temp        38  39  38  38  39  40  40  39  39  40  38   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    44.06 at 03:30  Low =    36.88 at 10:15   Average =     39.55

Water Chiller Rm Temp       47  49  46  46  45  45  45  45  46  46  46   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    50.05 at 01:15  Low =    44.77 at 04:45   Average =     45.61

Raw Product Room Temp       35  36  36  37  35  35  35  37  35  35  35   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    36.85 at 10:15  Low =    34.64 at 06:45   Average =     35.57

Incoming Dock Temp          38  36  37  36  35  48  36  37  38  36  36   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    47.67 at 05:00  Low =    34.92 at 04:00   Average =     36.75

Dry Goods Storage Temp      50  50  50  50  51  50  51  51  50  51  51   0   0   0   0   0   0   0   0   0   0   0   0   0 Deg
  High =    51.36 at 00:45  Low =    49.17 at 09:15   Average =     50.61
```

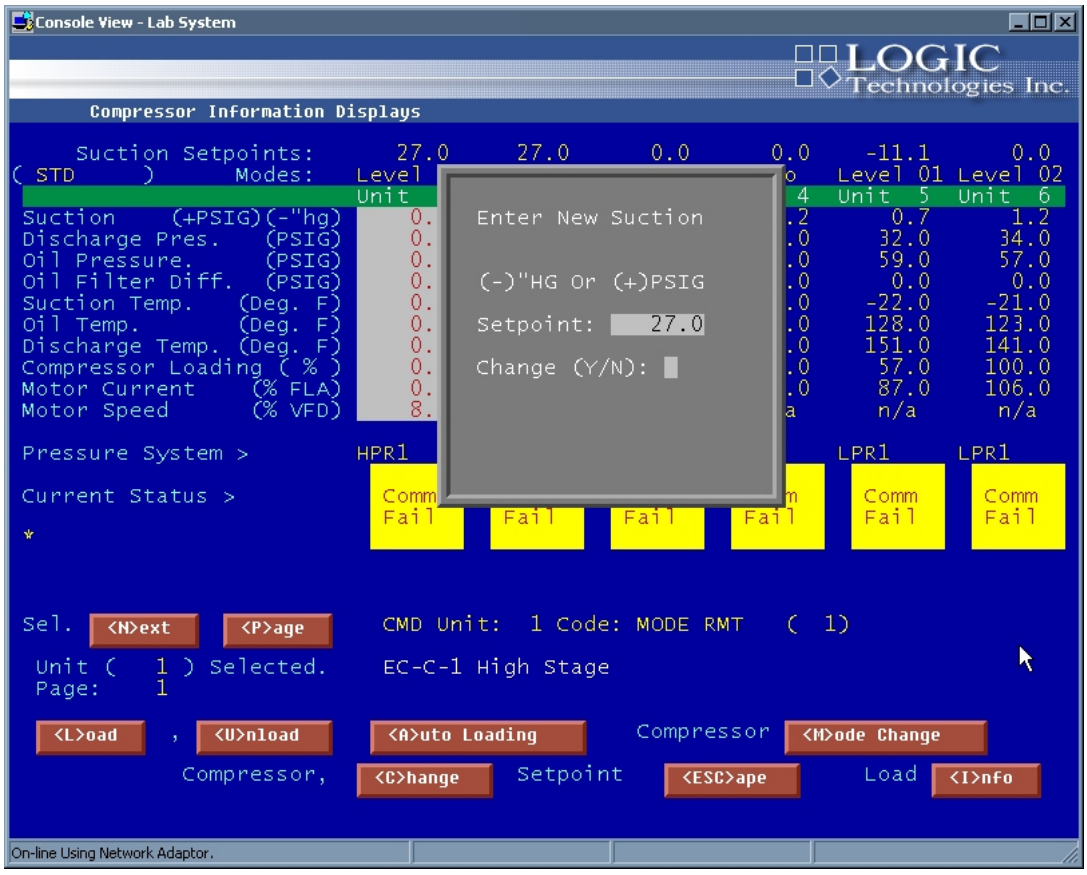
The layout of the user defined report will print the hourly reading as a whole value. This value is printed for each hour of the requested day. After the hourly reading are printed, the high, low and average will be printed for the day. These values are calculated with all data for the requested day. This may show a value lower or higher than the displayed hourly data. The hourly data is recorded on the hour only!



Button Access Sequence: *Main Menu, F1, F4*

The Compressor Control system was developed to support a wide variety of compressor packages such as Frick, Mycom, M&M, FES, and Vilter. To the operator, all compressors are transparent and appear the same at the display screen. Remote control and monitoring of each package is achieved through RS232/RS422/RS485 communications. Functional buttons at the bottom of the display allow the operator remote compressor control of all packages.

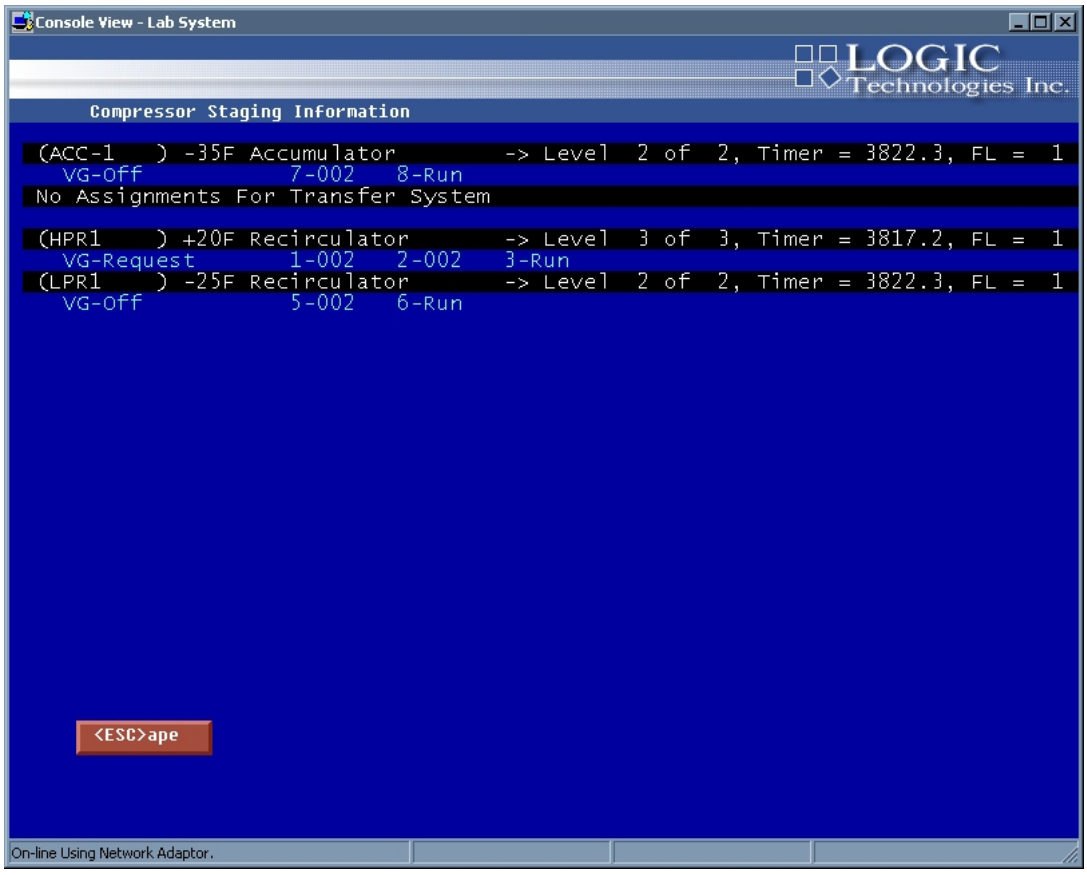
<N>ext - Select to highlight the next compressor
<P>age - Select to move to the next entire page if more than six compressors are controlled
<L>oad - Select to manually load the compressor.
<U>nload - Select to manually unload the compressor.
<A>uto Loading - Places the compressor loading mode to automatic.
<M>ode Change - Changes the operating mode of the compressor.
<S>tart - Displays the run window.
<S>top - Displays the stop window.
<R>eset - Clears cutouts and anti recycle modes(R is a hidden key not displayed in menu).
<C>hange - Displays the change setpoint window.
<ESC>ape - Exits the compressor control system.



Button Access Sequence: *Main Menu,F1, F4 ,<C>hange*

The **<C>hange** setpoint button will display a window which will allow the compressor suction setpoint to be changed from the normal vessel setpoint and take over control of the selected compressor until a reset/restage compressor sequence is initialized. This will also change the selected set point if the compressor mode is in **<A> utomatic** (controlled by the microprocessor on compressor) as described on page **SCR-48c**, engine room setup.

The compressor to be controlled must be highlighted using the **<N>ext** or **<P>age** buttons

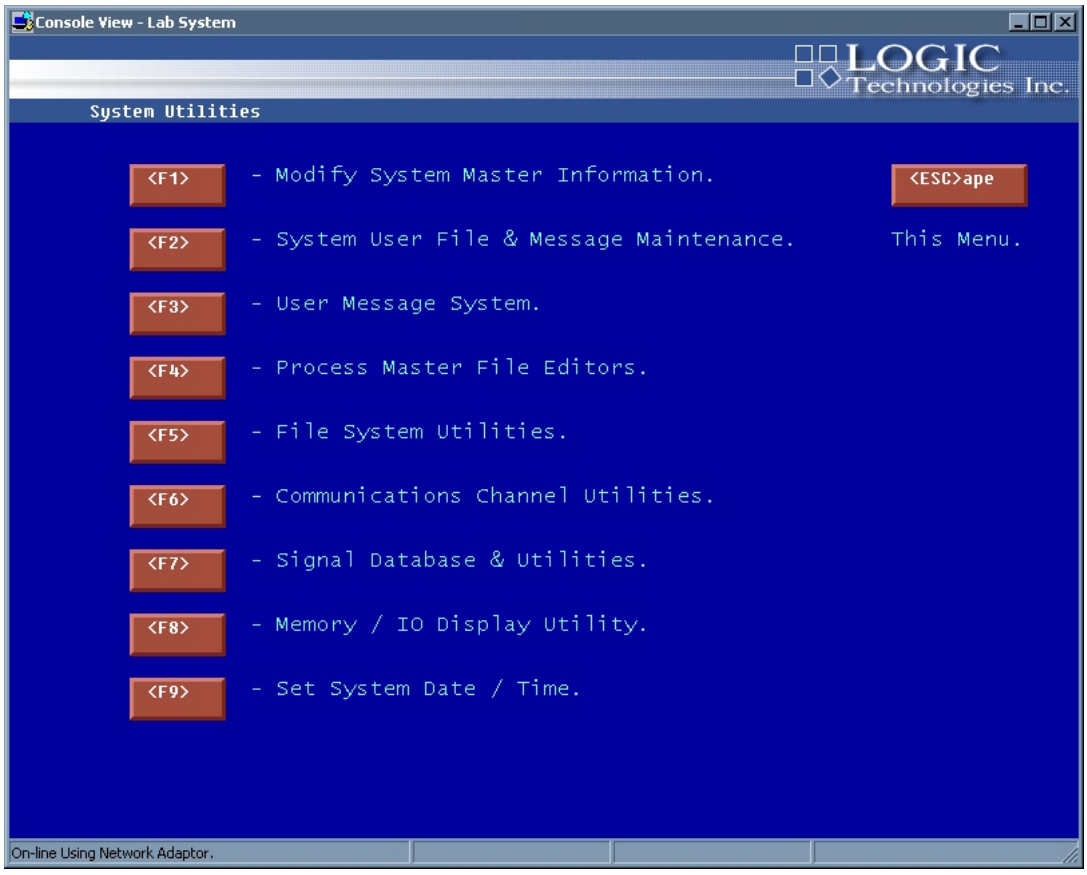


Button Access Sequence: *Main, F1, F4, <I>nfo*

This screen displays the compressor to vessel staging information. It shows how many compressors are assigned to each vessel (levels) and how many of the compressors assigned are currently running. This screen is for performance information.

System Utility & Setup Screens

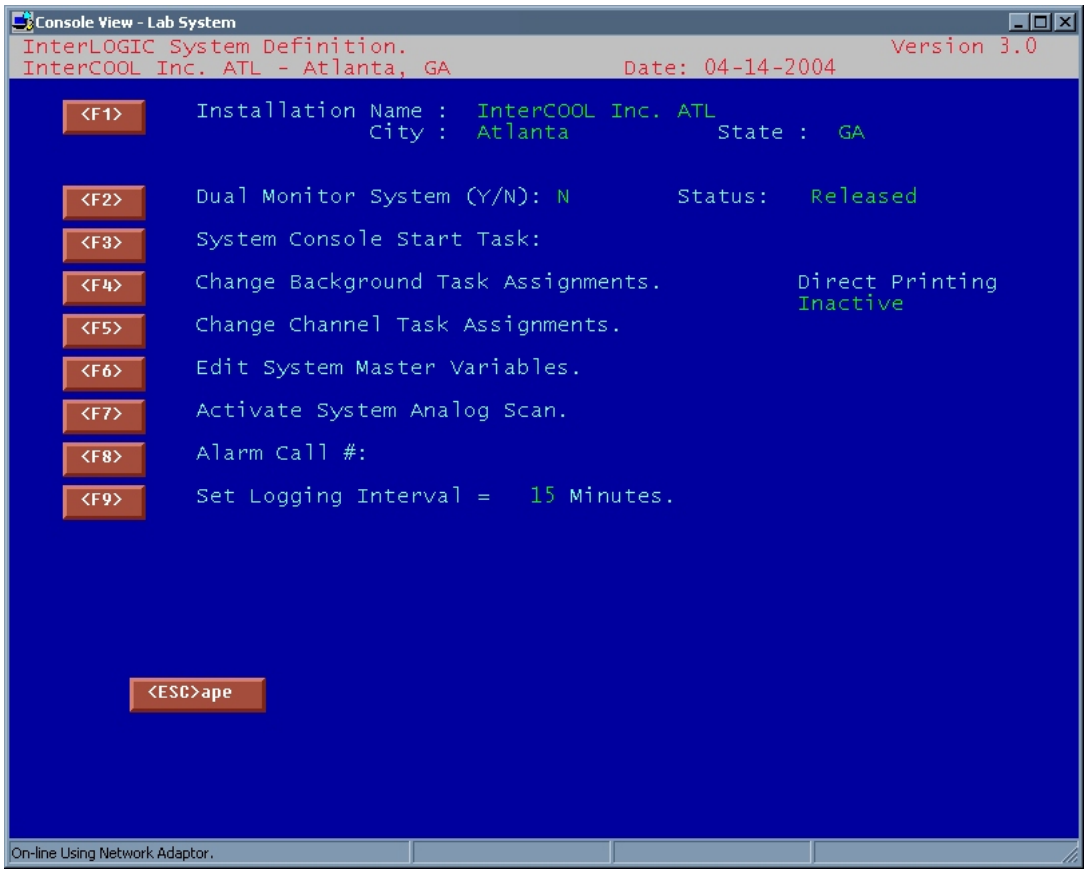
Section II of this manual describes the general signal database and system setup programs included with the installation. This section contains general setup and administrative functions and should be accessed by experienced operators and administrators.



Button Access Sequence: *Main Menu, F5*

The **(10) System Utilities** menu breaks down the system utilities into nine selectable group items. Each group serves as a specific utility in this control program. In the following pages, each group item is described. To select a desired item, simply enter the group item # in the dialog box below and press Enter or click the left mouse button on the selected group item button.

CAUTION: This section of the program should only be used by experienced operators. Modifying any of the information in this section could cause the InterLOGIC Control System to operate improperly.



Button Access Sequence: *Main Menu, F5, F1*

(1) Modify System Master Information screen is broken down into nine sub items. Note: This information screen should only be modified by experienced operators. If not set up properly, the InterLOGIC Control System could operate improperly.

1) **Installation Name:** Your Facility City: Facility Location State: Facility Location

All information may be changed by selecting the number buttons on this menu.

2) **Dual Monitor System:** (Y/N) Status:

The normal operating mode is "N" for no.

3) **System Console Start Task:** This allows the server main screen to execute a program other than the main menu when restarted.

4) **System Direct Reporting Status: NOTE:** This section is for system troubleshooting only and should not be used during regular operation. The normal operating mode is “Inactive”.

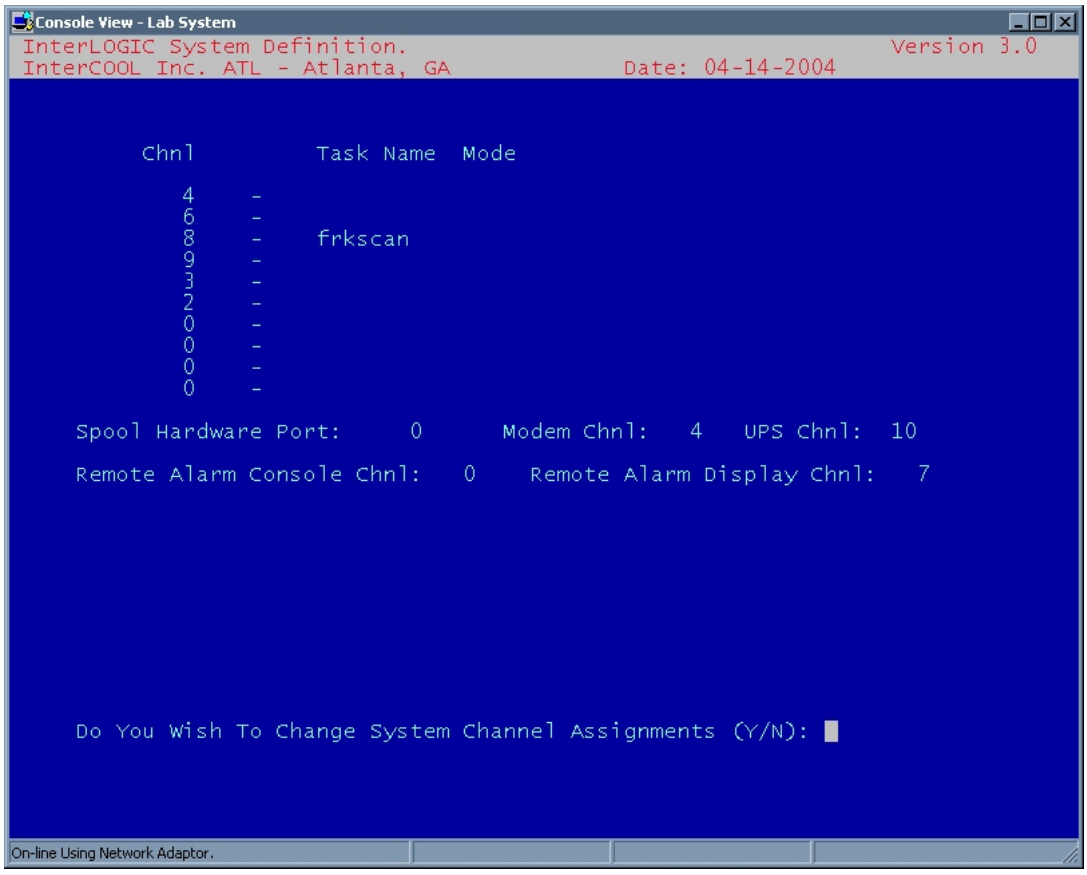
5) **Change Channel Job Assignments**: This section displays the tasks that are assigned to system channels such as remote consoles, modems, compressor scan programs, or other intelligent control scan programs.

6) **Edit System Master Variables**: This section contains general setup information about the system.

7) **Deactivate System Analog Screen**: This section is used to deactivate the system’s analog scanning system (pressure, temperature, 4-20mA signals) and is used for troubleshooting. If the operator selects to deactivate the analog scanning system, the button will change to reactivate the analog scanning system. Note: The InterLOGIC Control System will no longer function properly if the operator selects to deactivate the analog scanning system. The deactivate mode is used for diagnostics.

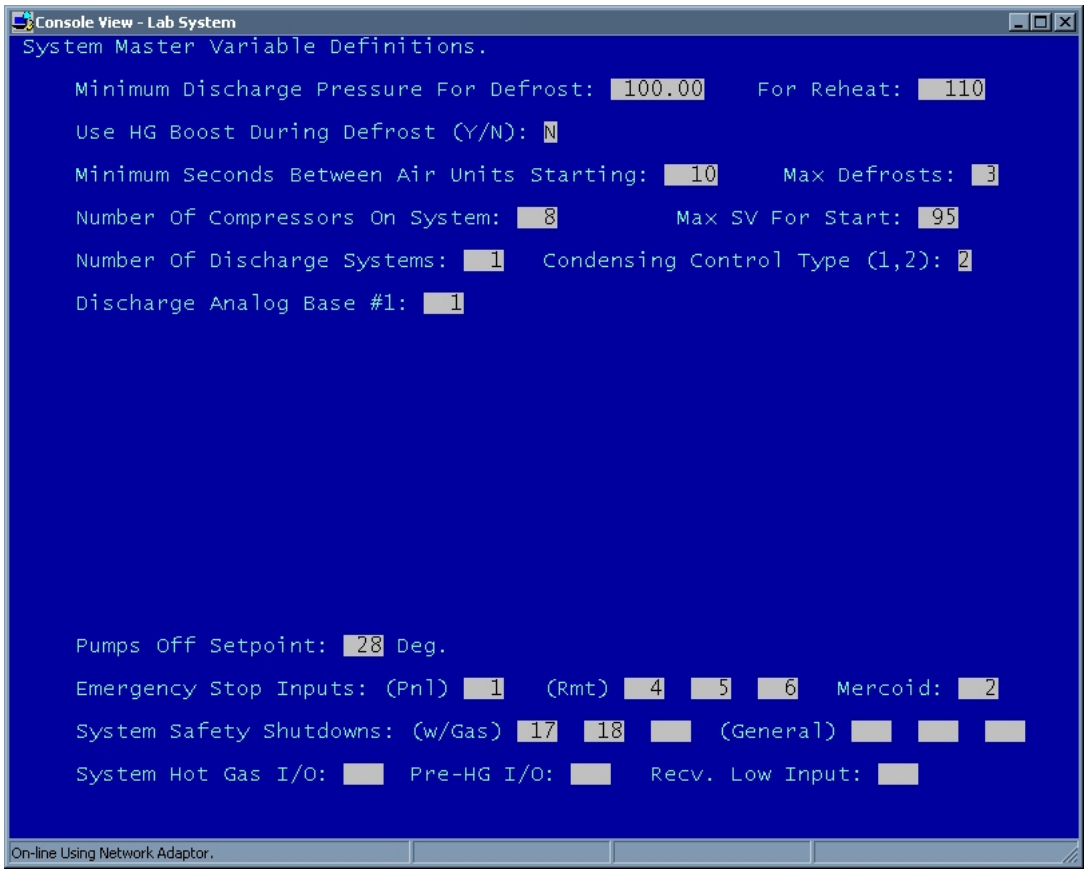
8) **Alarm Call Number**: This section can be used to notify an operator/administrator if the alarm condition on your system exists via a phone line. This option requires a remote console to be available to connect and display the alarm information.

9) **Set Logging Interval**:This allows the operator to set the logging interval time of all your system’s analog points. This time frame needs to be set for the operators preference and is used for history keeping purposes. The normal setting is 15 minutes. With larger storage media, it is possible to archive at 5 minute periods.



Change Channel Job Assignments displays the above screen. This information determines which terminal channels are started for remote access and procedures attached to these channels.

Other port information assigned such as printer harware port, modem channel, UPS channel, remote alarm console channel, and remote alarm display channel specifies where to attach external equipment to the server.



The master information data describes the basic setup for the refrigeration server.

Items covered on the 1st screen:

Minimum Discharge Pressure For Defrost: determines the lowest discharge pressure allowed when a defrost is initiated. If the pressure is below this value when started the defrost is skipped and a log entry is posted stating the reason.

For Reheat: is the minimum discharge pressure setpoint to allow a valve group to enter reheat mode.

If hot gas boost is selected the discharge boost pressure is entered. This setpoint is used to control the system head pressure during a defrost cycle on a valve group.

Seconds between air units starting is used to space starting times on valve groups. This keeps the air units from all starting at the same time.

The total compressor count defines how many compressors will be attached to the system. Maximum slide valve assigns the value at which the next stage compressor will be allowed to activate. This is available as a setpoint due to some compressor manufacturers controllers not displaying exactly 100% loading.

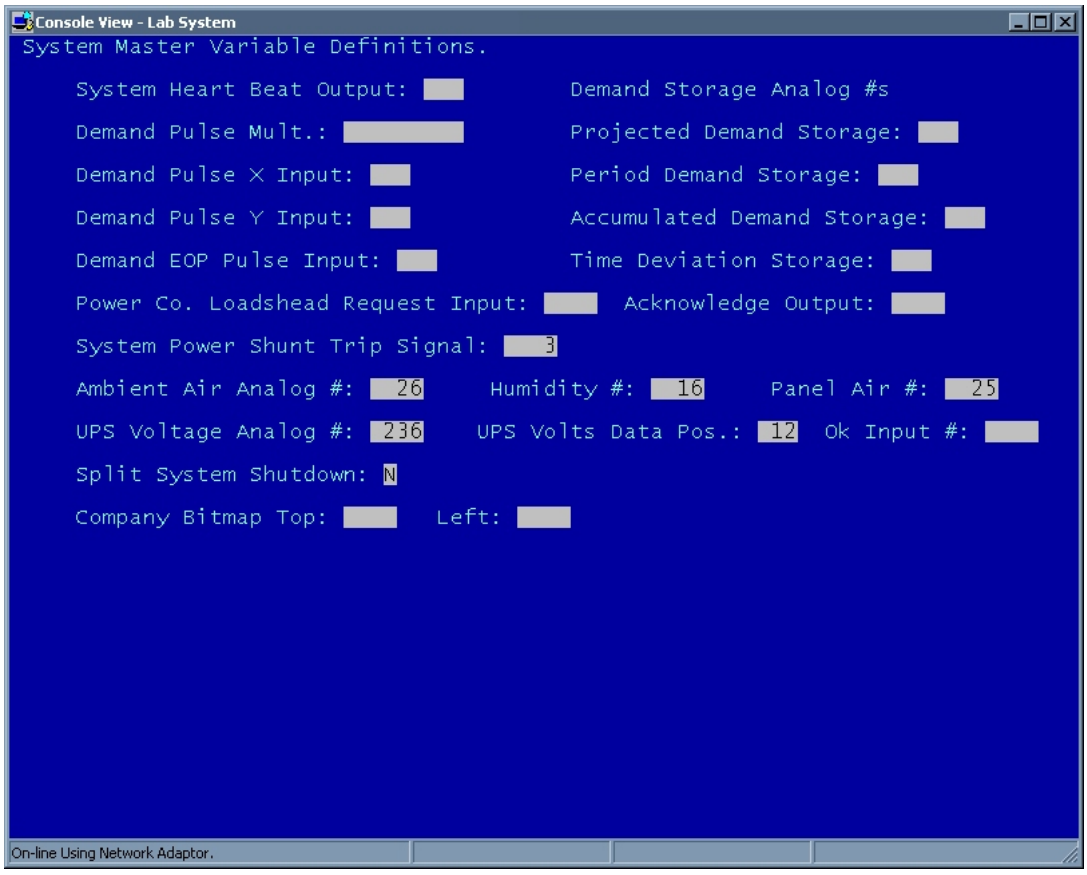
The number of discharge systems is entered and type code for control. There may be up to 3 discharge systems allocated on a single system. For each discharge system the base analog database ID is entered to point to 3 items used by the control procedures. These items include discharge setpoint, real discharge pressure and pressure rise rate.

Pumps off setpoint is entered next. This entry determines the ambient termperature at which condenser pumps will shutdown. They will restart 5 degrees above this setpoint.

Emergency stop inputs and mercoid input define points monitored for safety shutdown. If any input is assigned to the list the point is monitored for presence. If the point goes inactive the system is shutdown as an emergency and the reason is posted to the alarm log.

System safety shutdowns are defined as outputs which remain active as long as the refrigeration system is normally running. If the system is shutdown normally or E-stop activated all items on this list are deactivated until a system restart in issued.

The hot gas definition and pre-hot gas definition define points to turn on when a defrost cycle startes on a valve group. Upon cycle startup the pre-hot gas is activated. After a 15 second delay the main hot gas will be turned on. If defrost cycles overlap the main hot gas will remain active.



System heart beat output is an output that will pulse once at 5 second intervals.

The X, Y and end of period inputs define the inputs provided by a billing power meter. Each pulse from the X and Y inputs are totalized and multiplyed by the pulse multiplier. The information is then stored in the analog points assigned to projected demand storage (the total pulses over 3 mins. * mult. * 20), demand storage (the total pulses over 15 or 30 mins. * mult., and accumulated demand storage (the total pulses * mult. until reset).

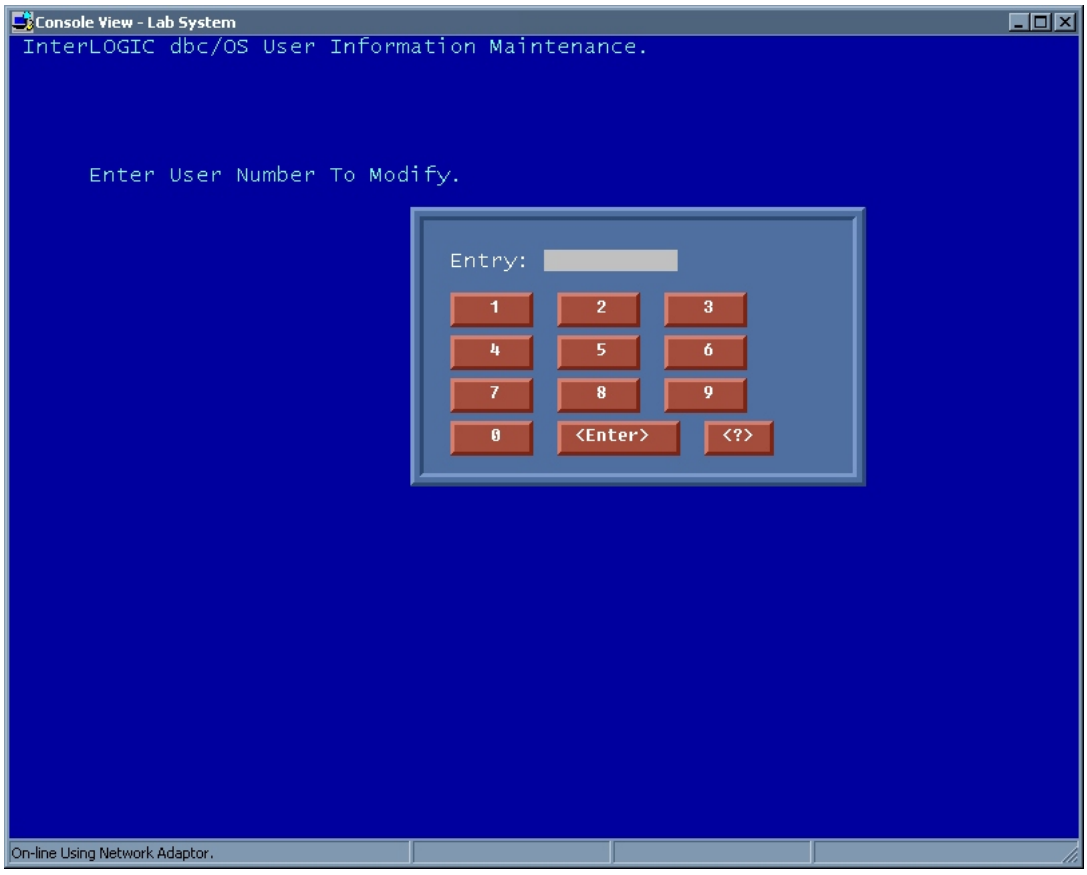
If the loadshead request input is defined, the presense of signal on this input will perform a normal system shutdown operation on the plant. When the signal is removed the system will restart the refrigeration in a controlled start as if the operator perfromed the operation from the main menu. The Acknowledge output is activated if the system shutdown is performed. This allows the utility system to be notified the action actualy occured.

Background color and resolution mode sets the graphic display mode used by server graphic systems.

Definitions for ambient air, and panel air analog points are entered here also.

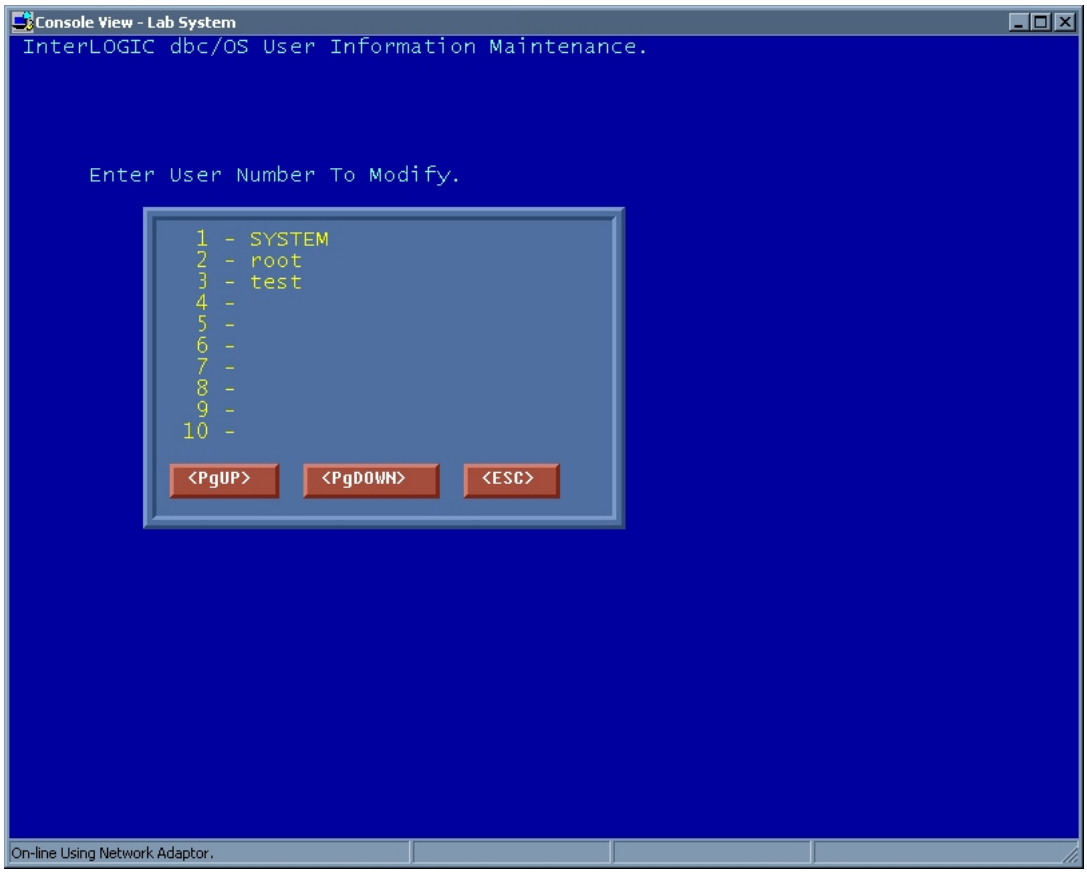
UPS voltage storage analog and data position are defined with an input to allow direct monitoring of the control voltage. If the UPS reads a voltage under 90 the system will shutdown refrigeration operations and restart when power returns to normal.

The last item on the screen selects split system shutdown. If this is answered yes only the compressors attached to the vessel in high level will be shutdown. This is a software only option. The server panel must be wired to allow this option to work.

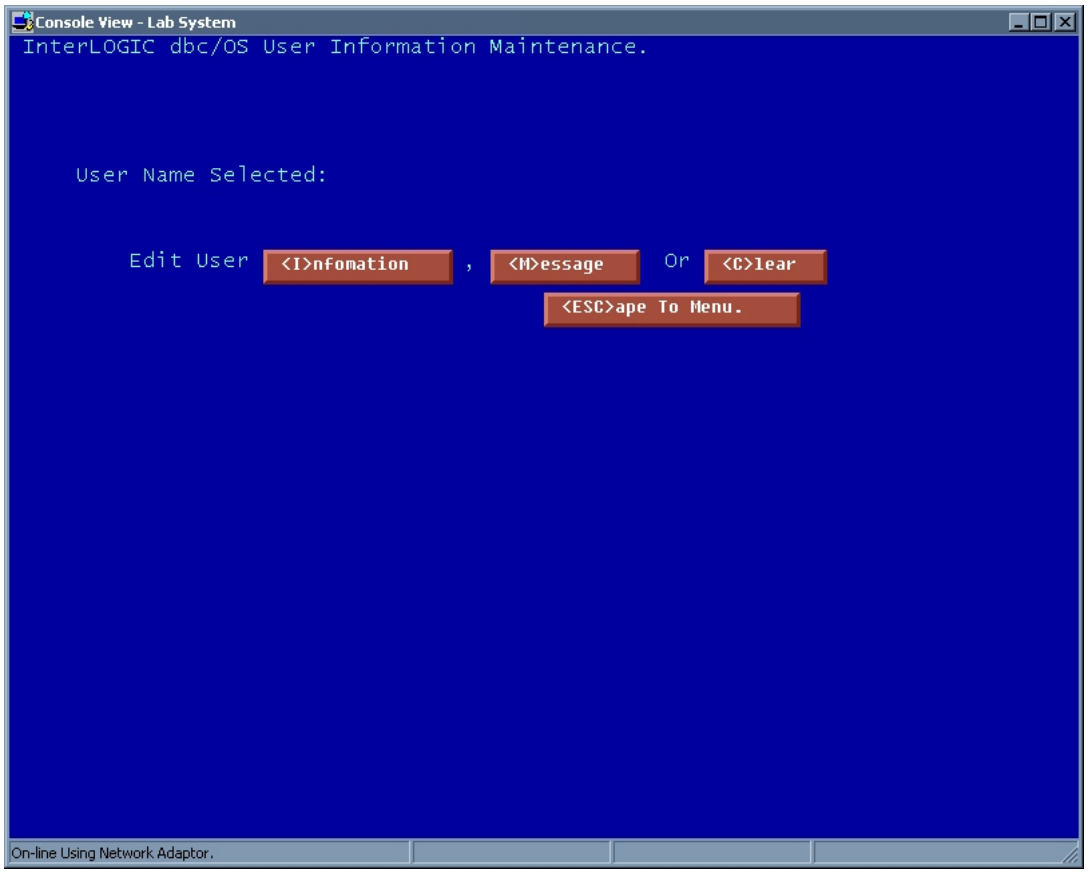


Button Access Sequence: *Main Menu, F5, F2*

(2) System User File And Message Maintenance: Upon selection, the operator is asked for a user number to be entered. The user number may also be referenced from a list by entering a "?" in the input area.



After the "?" is entered the above screen is displayed. This show each user ID allowed access to the system. The operator may select an item by pointing to a user name and left clicking the mouse.



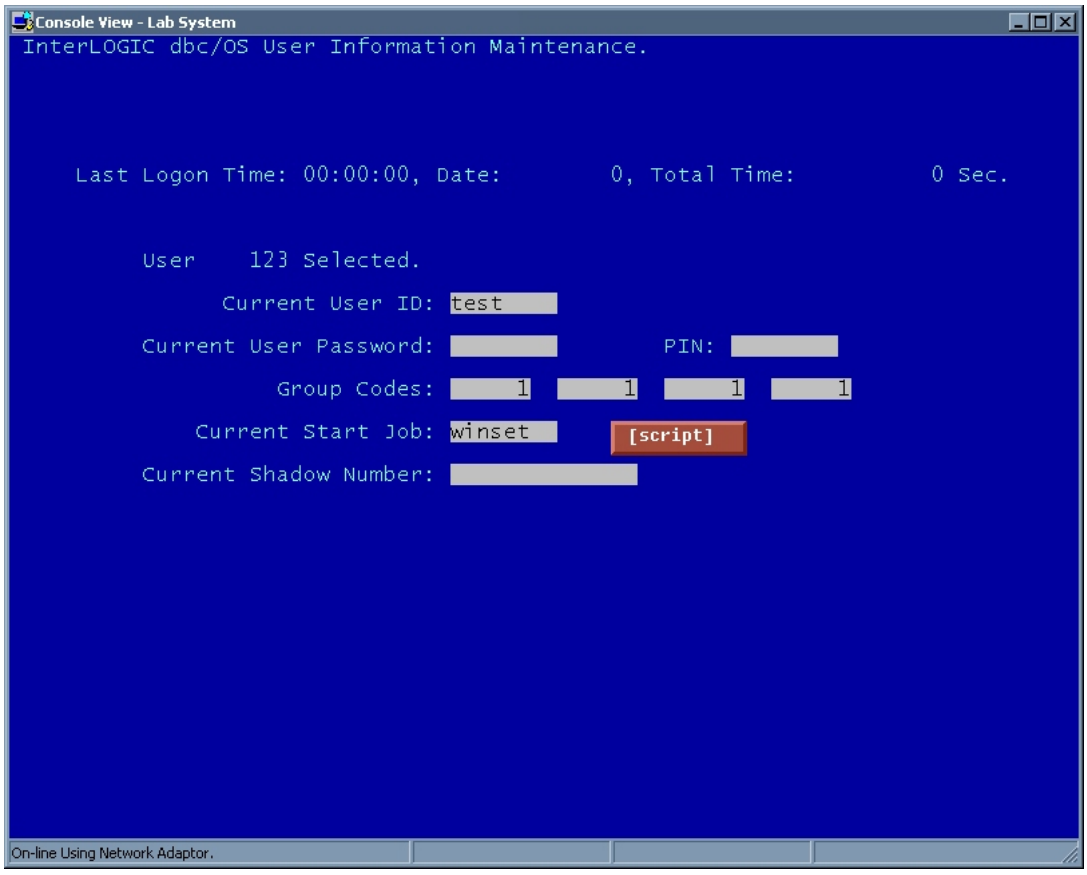
Button Access Sequence: *Main, F5, F2, User Number*

System User File And Message Maintenance: This section is designed to modify security entry into the InterLOGIC Control System, view and reset user logon time, and send specific messages to a specific operator.

A) **Record:** This section displays the logon time (for each individual user, specified in your system), User ID, User Password, and Group Code. Note: Each specific user can change their logon name and password. Only the administrator has access to each user's ID, password, and group code and has the ability to change each item.

B) **Message:** Allows the user to read or leave specific messages to other users on this system. This message is maintained until the respondant user deletes it.

C) **Clear:** Allows an administrator to reset a user's total logon time from the history information.



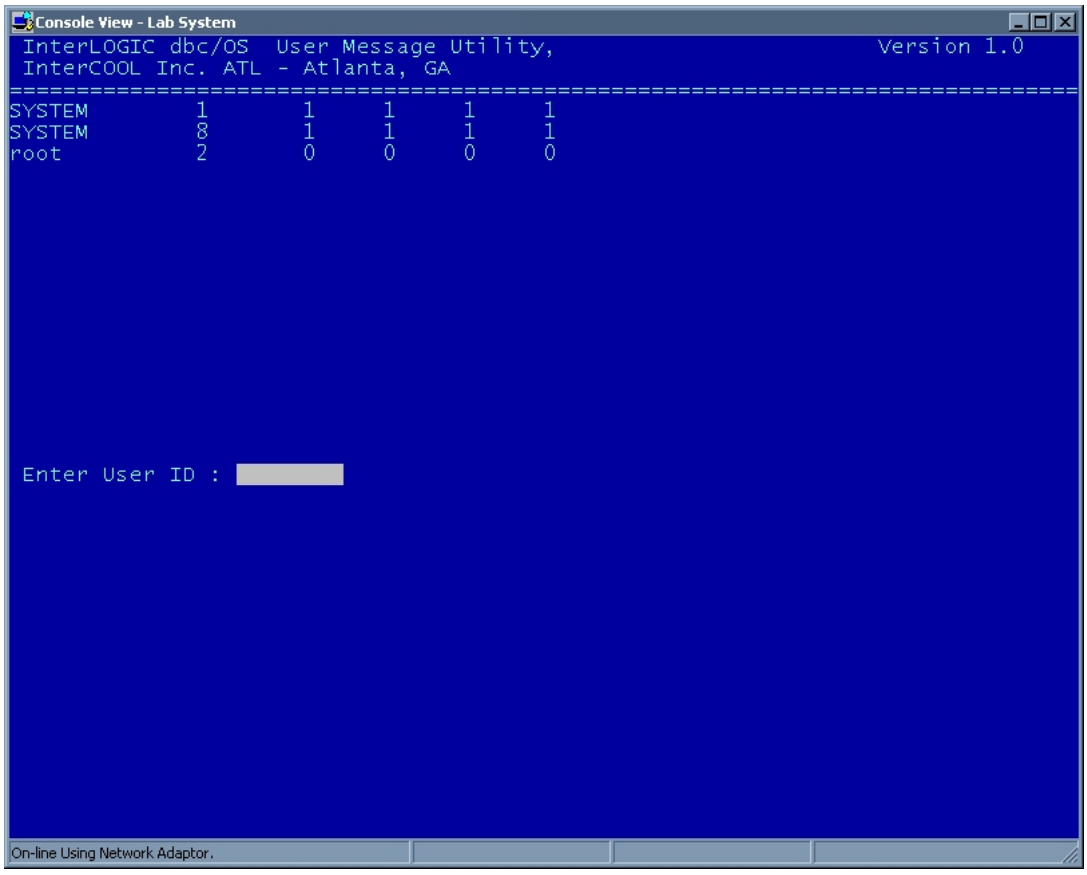
Button Access Sequence: *Main, F5, F2, User#, <R>ecord*

The above screen displays the layout of the user setup program. This screen allows a user to add, remove, or modify their access information. Only the administrators of the control system are allowed access to all user information. Each user may change their password and user name when desired.

Group codes are used to allow or restrict access to areas of the system. The 1st edit field contains the security level 0-100 in value. Positions 2-4 are special groups above 100 which allow user access to selected programs.

Group Codes: 0 = All access rights
1 to 30 = Technical access
31 to 60 = Supervisor access
61 to 80 = Operator access
81 to 100 = General user access

The start job assigns which system procedure will execute when the user logs onto the system. If a shadow number is assigned when the user logs onto the system, the system will disconnect and call the user back if the logon procedure is sucessful.

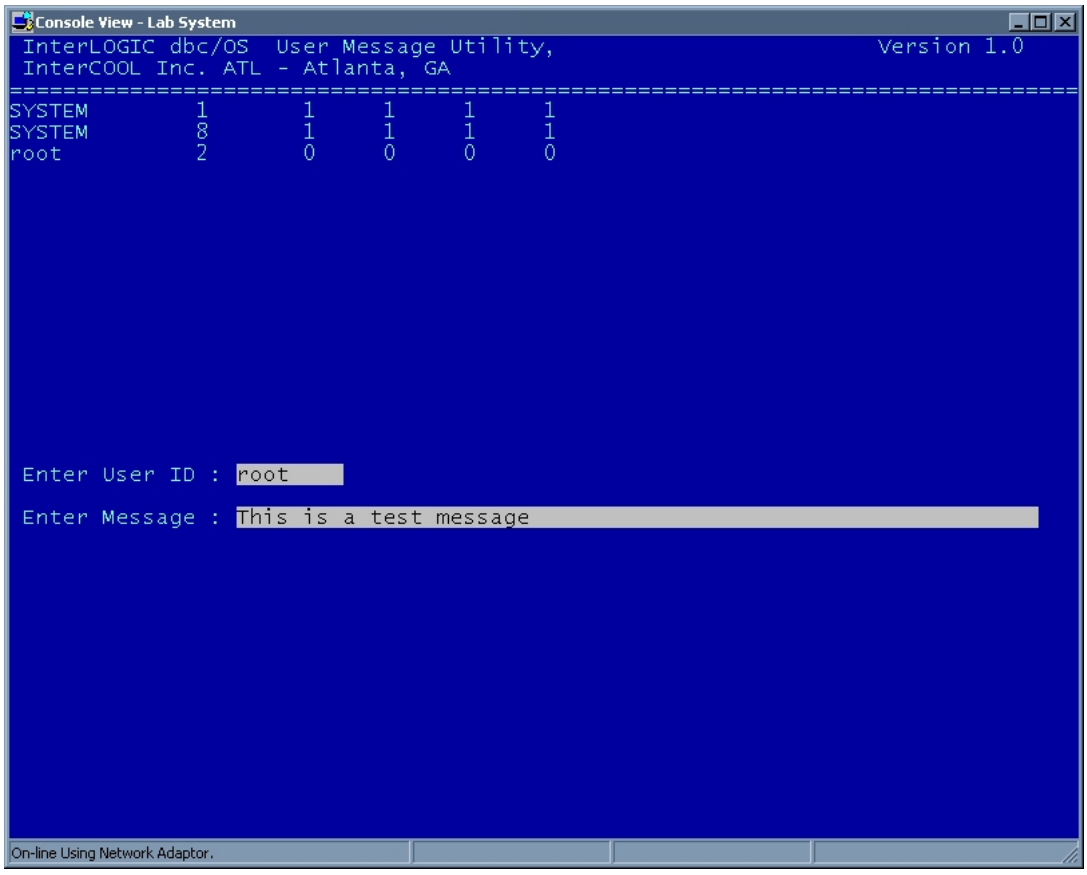


Button Access Sequence: *Main Menu, F5, F3*

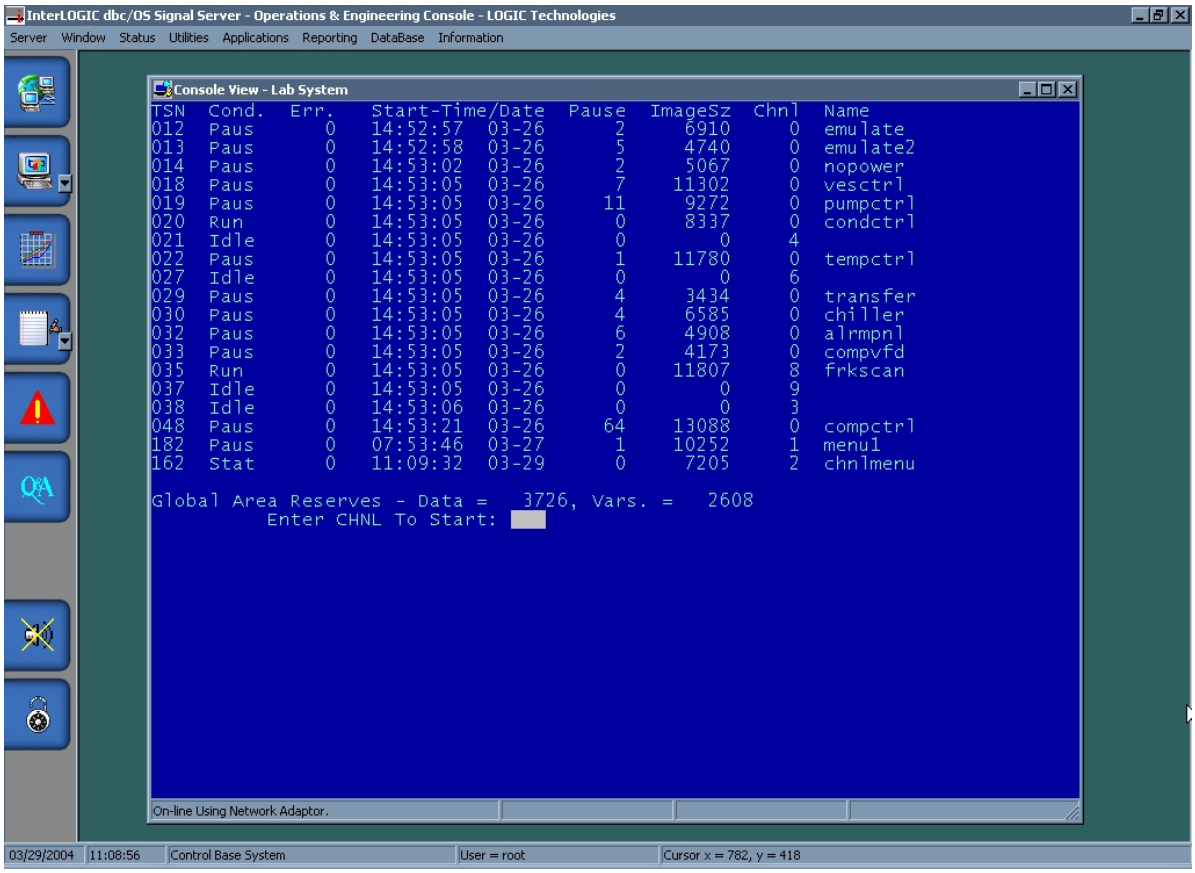
(3) User Message System: This section is used to leave an instant message to other operators that are currently logged on to the InterLOGIC Control System.

Enter the operator's user ID into the dialog box and hit the enter key. The ENTER message dialog box will appear. Enter the instant message you wish to send. When finished, hit the enter key. Your message has now been sent.

The message will be displayed on the selected user console at the bottom of the screen. If the windows remote console is connected, the message box is displayed.



The above example shows how a message is displayed on the ECON Windows based console. If the user is logged on to the main console the message will display on the last line of the screen.

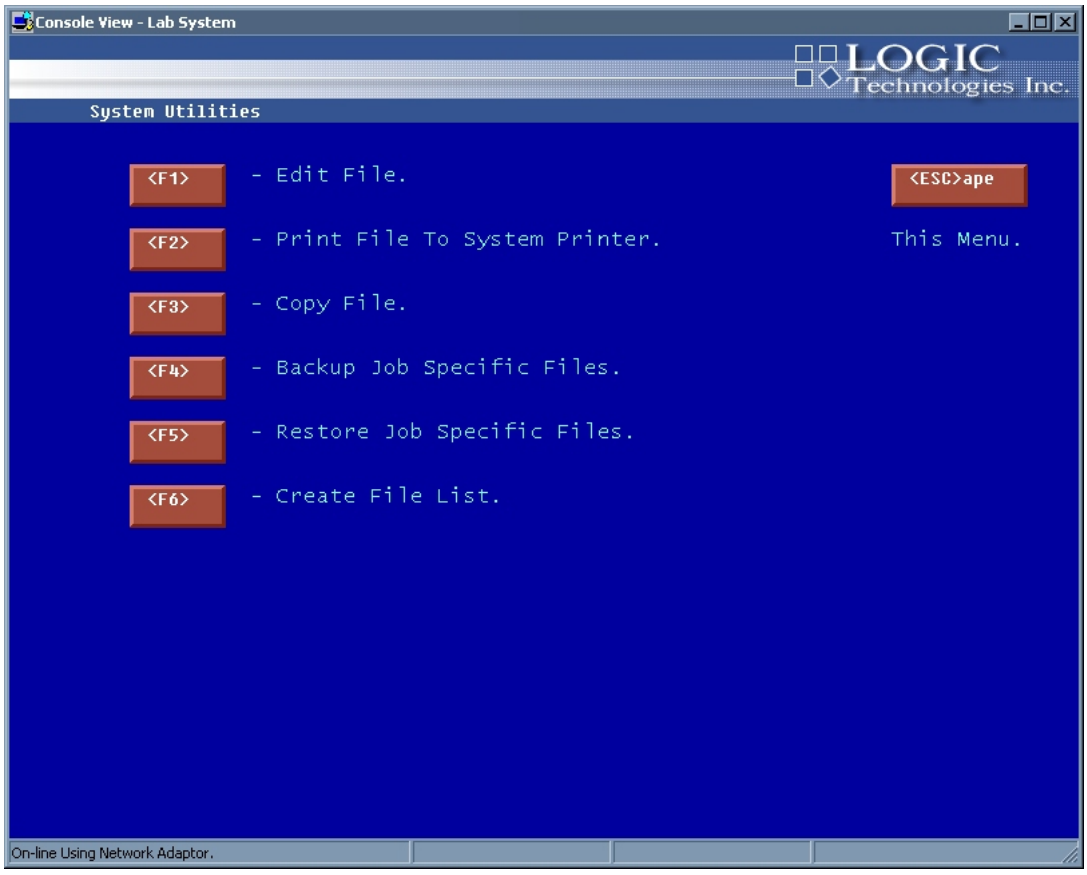


Button Access Sequence: *Main Menu, F5, F6, F7*

(4) Remove Task From System: This section of the InterLOGIC Control System will remove any specific task that is currently running in the InterLOGIC Refrigeration Control Program.

CAUTION: This section of the program should only be used by experienced operators. Removing a specific task from the InterLOGIC Control System program could cause the system to operate improperly.

Only administrative level users are allowed kill privilege.



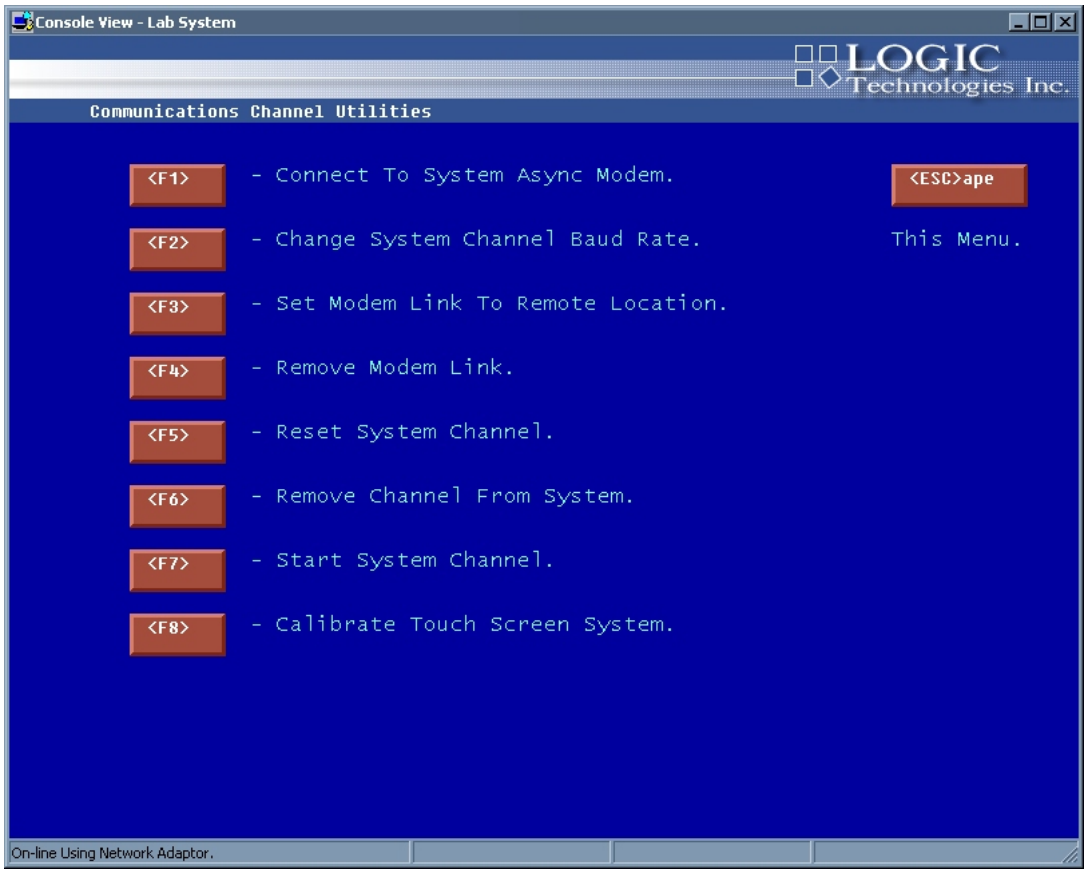
Button Access Sequence: *Main Menu, F5, F5*

(5) File System Utilities: This section is used to change, print or copy specific files and could be used to copy history files to a floppy disk or tape back up system.

1) **Edit File:** By selecting the edit file button, the dialog box will appear on the bottom of the screen. Enter file name to edit. If the file is not available, the user is asked if they wish to create a new file.

2) **Print File To System Printer:** Allows the operator to send specific files to your local printer.

3) **Copy File:** Allows the operator to copy specific files to a specific location on your hard drive or floppy drive.

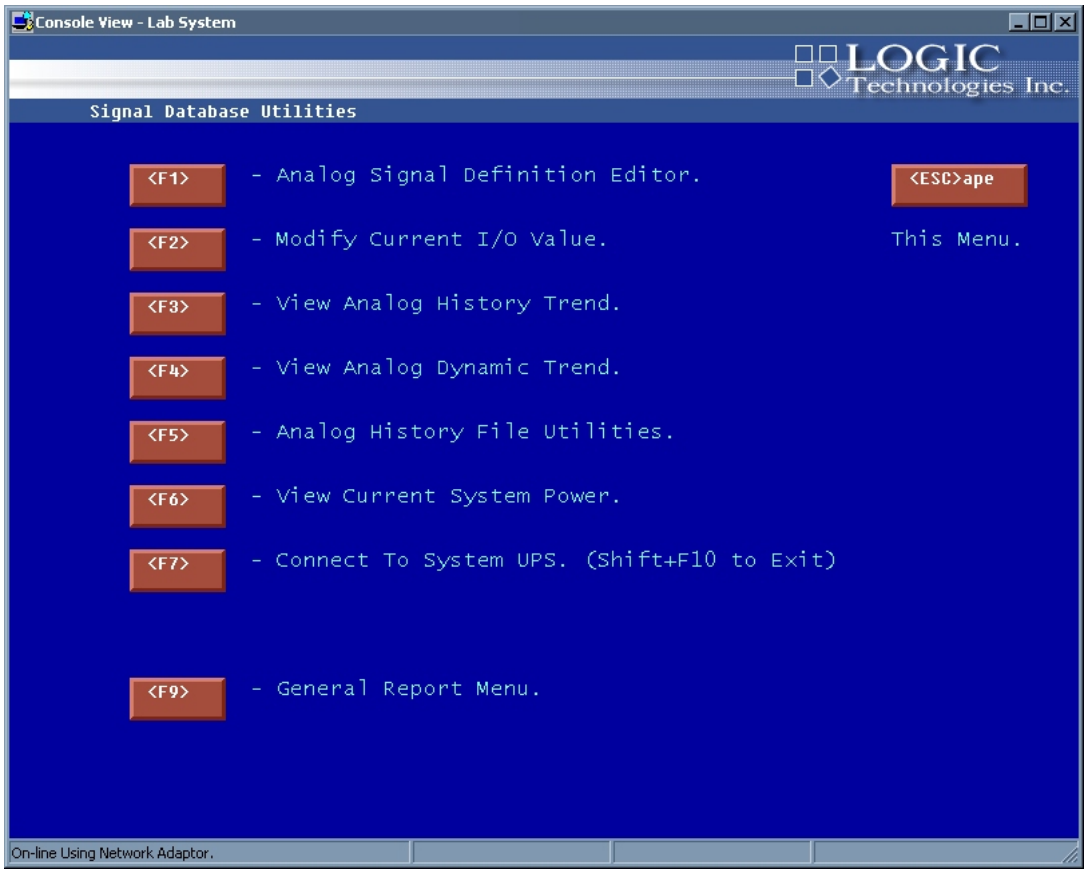


Button Access Sequence: *Main Menu, F5, F6*

(6) Channel Utilities: This section of the InterLOGIC Control system is used to modify/remove specific channels in the InterLOGIC Control System program.

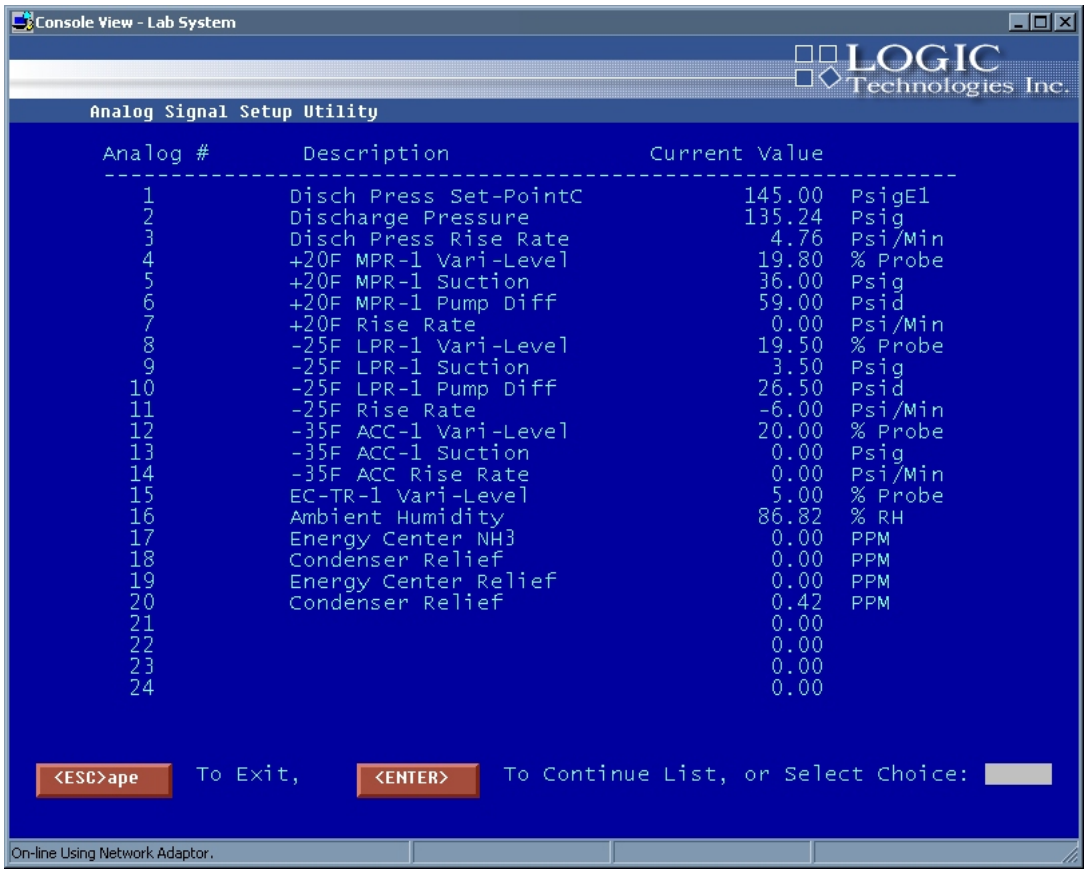
The selections also allow access to remote InterLOGIC Systems available to the operator.

CAUTION: This section should only be used by experienced operators. Removing/modifying system channels could cause the system to operate improperly.



Button Access Sequence: *Main Menu, F5, F7*

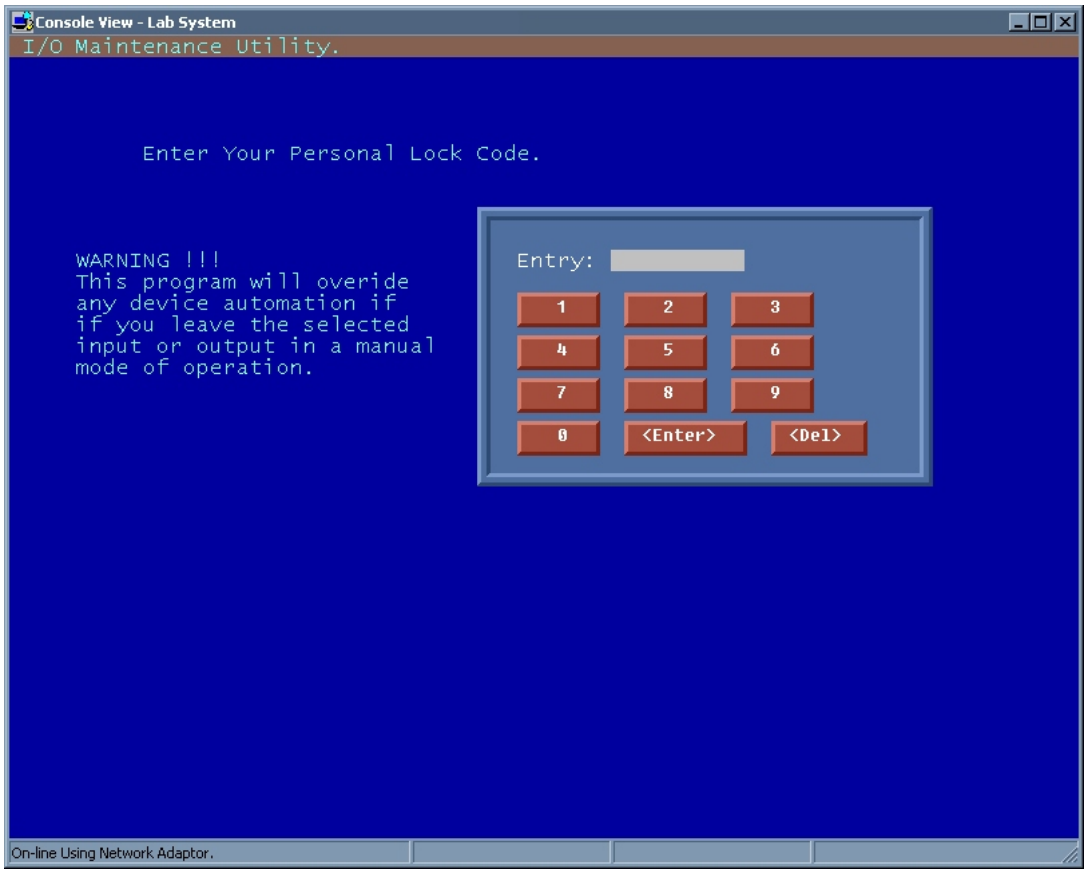
(7) Signal Database And Utilities: This section is broken down into nine specific group items. Each specific group item is described on the following pages.



Button Access Sequence: *Main Menu, F5, F7, F1*

(1) Analog Signal Definition Editor: This section defines all of the system's analog points by number. The operator can modify, change, add, and remove specific analog points. To add a new analog point to the system, press the enter key down to the last described analog number. Enter the analog number that has no description into the dialog box on the bottom of the screen. Press the enter key. Specifics on how to add data to a new analog number screen is described on page five in this manual.

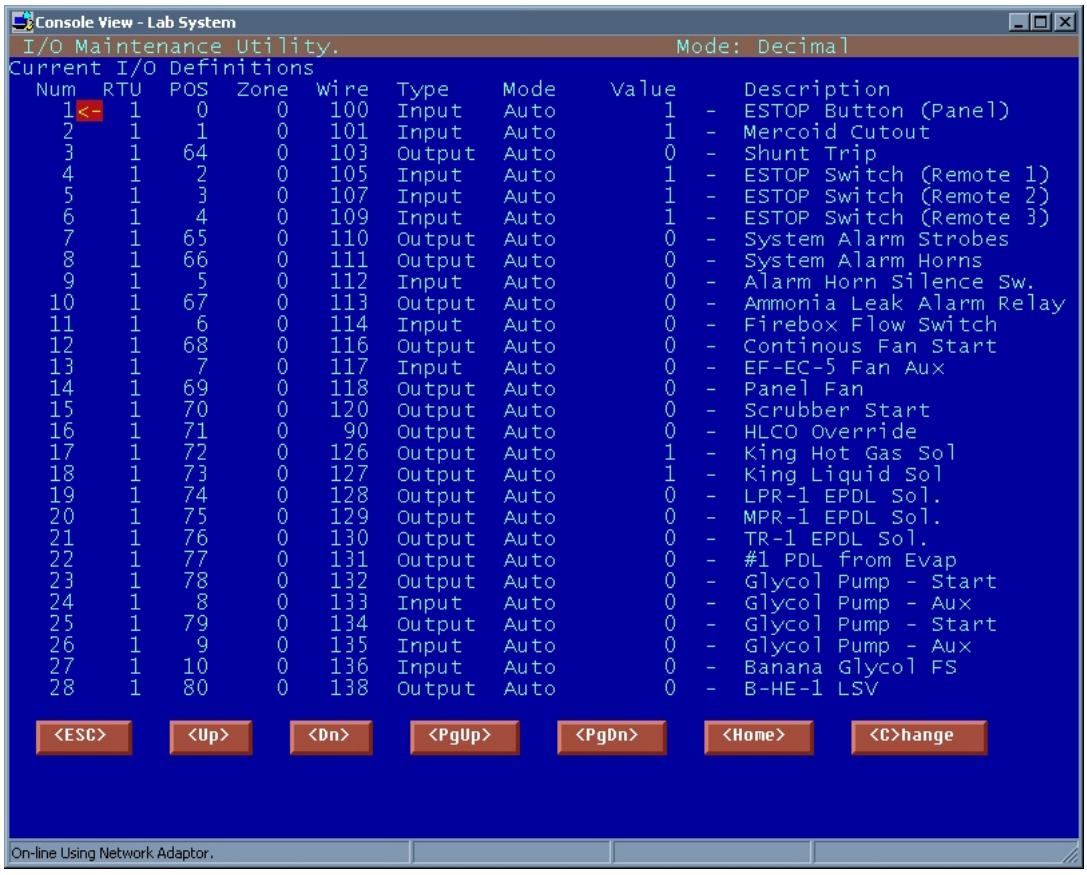
NOTE: Only experienced operators should define/modify analog points. Entering the wrong information could cause the InterLOGIC Control System to operate improperly.



Button Access Sequence: *Main Menu, F5, F7, F2*

(2) Modify Current I/O Value: This section allows the operator or administrator to modify specific I/O points. When selecting this section, the security lock code window appears as shown in the example above. This requires the operator to enter a number in order to proceed. This code is used to lock out any other operator to change specific I/O points that the previous operator has modified from automatic to manual or automatic to force off. The operator can change the lock out I/O point only if the original numeric code is entered in the security lock code window. Once the I/O point is restored to automatic, any operator specified in the system user file section (as described on page SCR-29) can modify any I/O point that is in automatic position.

NOTE: Changing the condition of any I/O point described in the InterLOGIC Control System program from its automatic state will no longer be controlled by the InterLOGIC Control System program. This operation is for trouble diagnostics or lock out procedures only and should not be used for general control purposes. Only experienced operator should make such changes.



Button Access Sequence: *Main Menu, F5, F7, F2, Lock Code*

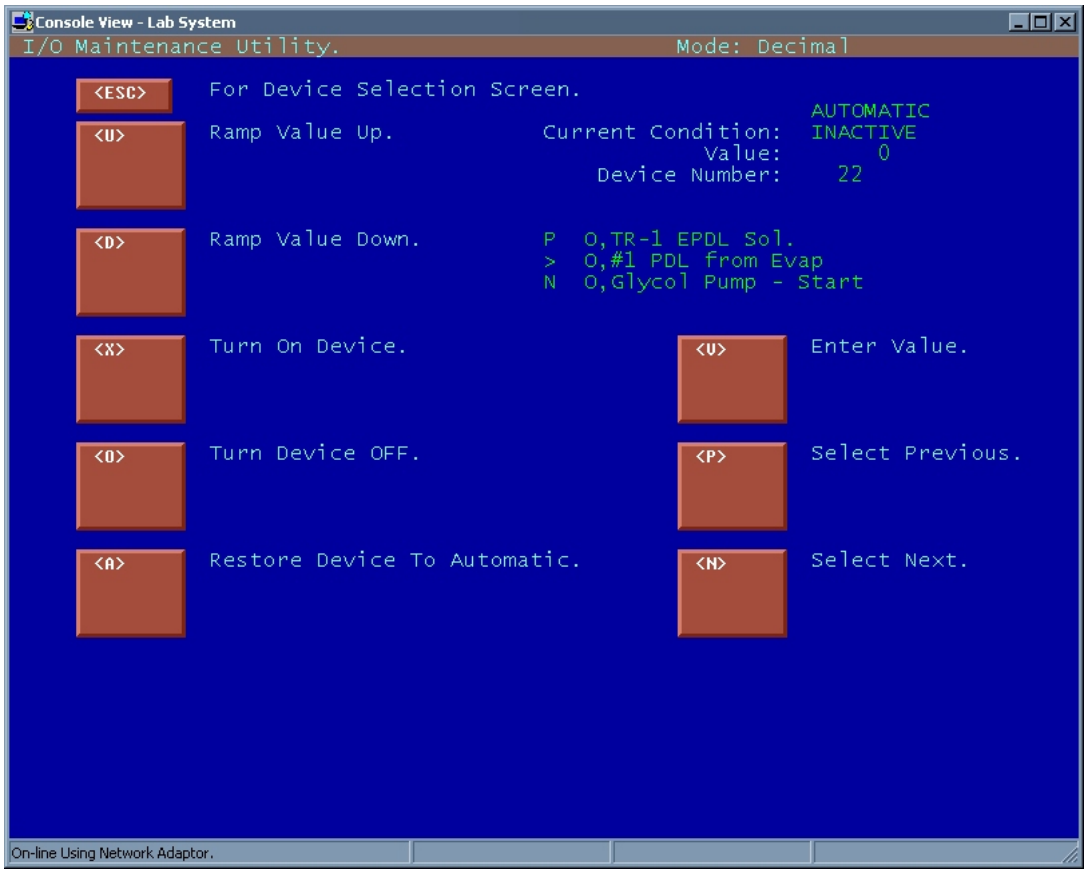
After the operator enters a lock code number on the previous screen, a view displays all I/O points defined to your control system.

<Up> Moves the cursor up one number at a time.
<Dn> Moves the cursor down one number at a time.

<PgUp> Moves the cursor up one page at a time.
<PgDn> Moves the cursor down one page at a time.

<Home> Moves the cursor back to the first I/O position.

<Change> Allows the operator to change a specific I/O point's state described on the next page. In order to change a specific I/O number, the operator must select which I/O number to change. Move the cursor to the desired number using the ***<Up>***, ***<Dn>***, ***<PgUp>*** or ***<PgDn>*** keys and select change button. The mouse may also be placed on the desired line and selected with a left mouse button press.



Button Access Sequence: *Main Menu, F5, F7, F2, Lock Code, I/O #*

When selection of a desired I/O is processed, the above screen is displayed. This area allows the operator to change the condition of the selected I/O #. The current state of the selected I/O # is displayed at the top of this screen. The current condition shows if current I/O point is active or inactive. The value area is used to show the raw value of a signal coming back to the PC and is used on analog points and other devices controlled by the InterLOGIC Control System program.

Device #: Shows the number of the current I/O selected.

P: Shows previous I/O point as defined.

>: Current I/O point selected.

N: Next I/O point as defined.

<*U*>: Ramp value up is used to change a value on an analog point or /modulating device.

<*D*>: Ramp value down is used to change a value on an analog point or modulating device.

<X>: Turn Device On: Turns the specific device (currently selected) on in manual and overrides the automatic control.

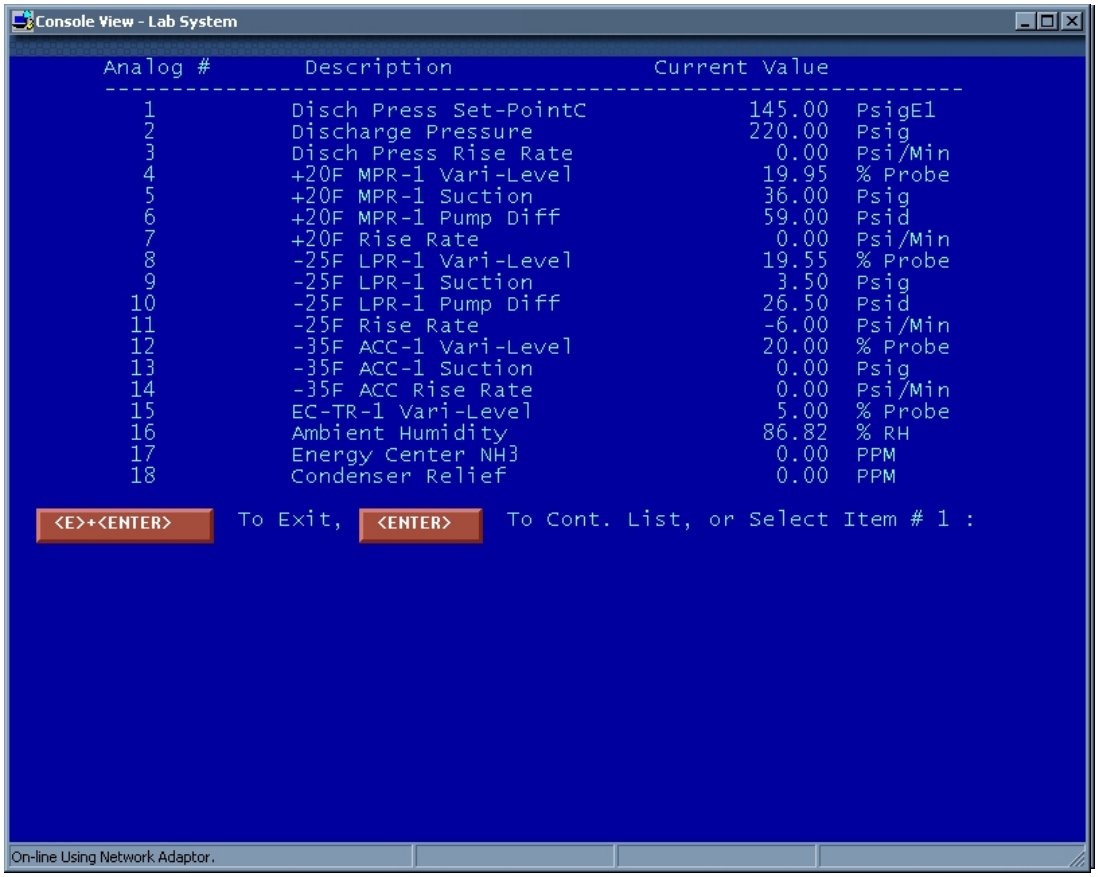
<*O*>: Turn Device Off: Shuts down the specific device (currently selected) in manual off position and overrides the automatic control.

<*A*>: Restore Device To Automatic: Restores the specific device (currently selected) back into automatic position so that the InterLOGIC Control System takes over its control function.

<*P*>: Select Previous: Selects the previous I/O device.

<*N*>: Select Next: Selects the next I/O device.

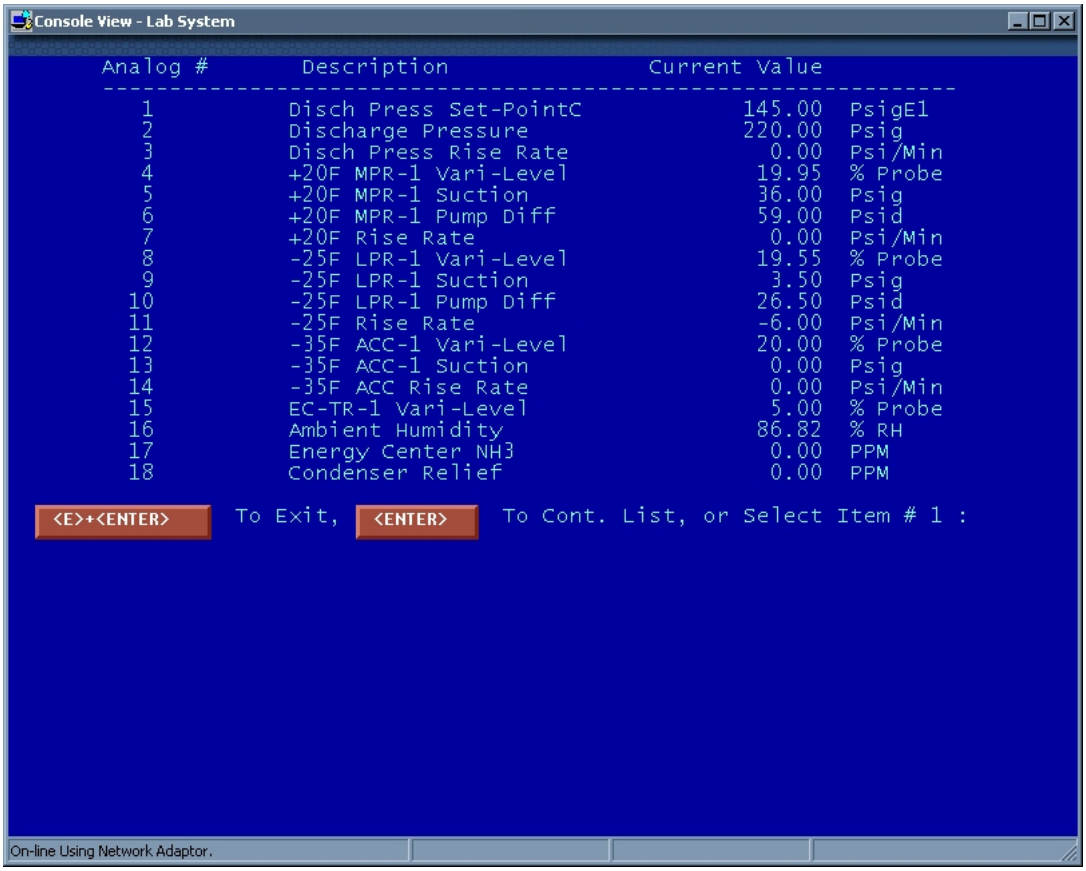
CAUTION: Any device left in the manual on or off position is not controlled by the InterLOGIC Control System program. A device has to be returned to automatic mode in order for the system to control its function.



Button Access Sequence: *Main Menu, F5, F7, F3*

(3) View Analog History Trend: This section allows the operator to plot information to view a history graph. This is a vital tool for trend logging and troubleshooting.

Enter Number Of Signals To Plot: The operator can choose up to three individual analog points. After entering the number of analog points to plot, the "Enter Starting Year:" dialog box will appear. The date shown in the dialog box may be changed by pressing the backspace key and adding the date the operator wants to start from. Next, the month dialog box will appear. To change its number, follow the steps described in the previous change year description. The same procedure should be followed until the 12 hr., 24 hr. and new date buttons appear on the bottom of the screen. Select the plot duration by selecting either the 12 hr. or 24 hr. button.

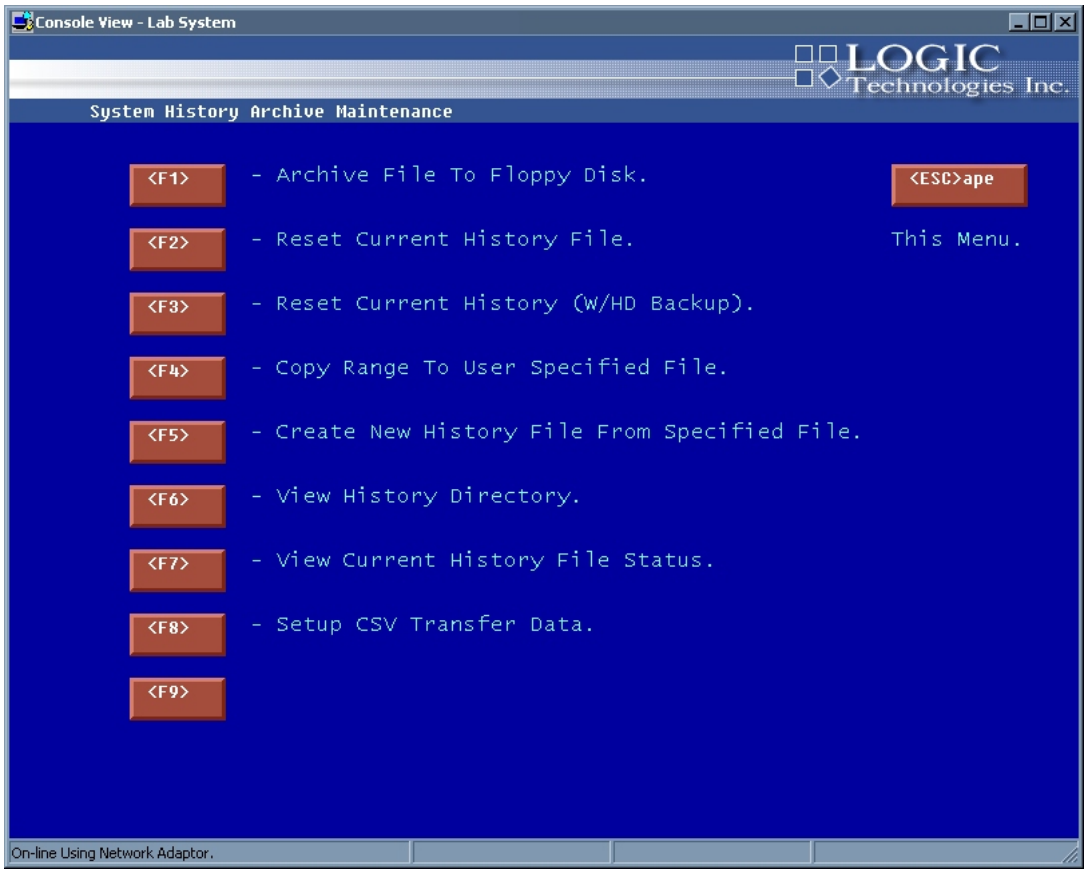


Button Access Sequence: *Main Menu, F5, F7, F3*

This menu will be displayed after selecting the year, date, month, hour, minute, and duration. The operator must now select the analog ID's he wants to graph. To select an analog ID, type the value to be selected in the edit box on the bottom right of your screen and press the enter key. This procedure must be repeated if more than one analog ID is selected. The item number to the left of the edit box will show the current selected item number.

Access Sequence: ***Main Menu, F5, F7, F3***

After the requested analog signals are selected, the history graph is displayed. This is an example of the analog history graph. To preview earlier plotting times or to move the graph to an earlier start time, the <-> key must be selected on the keyboard or screen button. The same procedure must be followed in order to move the graph forward by using the <+> selection. The Signal Description Box will display the high, low and average reading during the time selected to display. The Y units box displays the unit of measurement, temperatures, pressure, and the current position reading of the cursor in the graph display box.



Button Access Sequence: *Main Menu, F5, F7, F5*

F5 Archive/Reset Analog History File: This section of the InterLOGIC Control System program is used for maintenance of history files. It allows the operator to copy, reset, and create history files specified in the InterLOGIC Control System. The following pages will describe each function of this section.

F1) **Archive File to Floppy Disk:** By selecting the number one button on this screen the back up media size screen appears. User must select the size of diskette to be used. Next, the size of the history file will be shown and the number of diskettes needed to copy the current history file will be displayed. If the operator wishes to cancel this procedure, he may at this time.

F2) **Reset Current History File:** Allows the operator to remove current data that is stored on the history file. CAUTION: By selecting the number two option in this segment, the operator will lose all history data and permanent information for trend logging. The operator is prompted to verify this operation with (Y/N).

F3) **Reset Current History:** (W/HD Backup) allows the operator to reset current history and relocates the information into a history directory on your hard drive. NOTE: Even though the history file will reset, no information will be lost. It is stored on the hard drive. Experienced operators can recall any information stored on the hard drive, if needed.

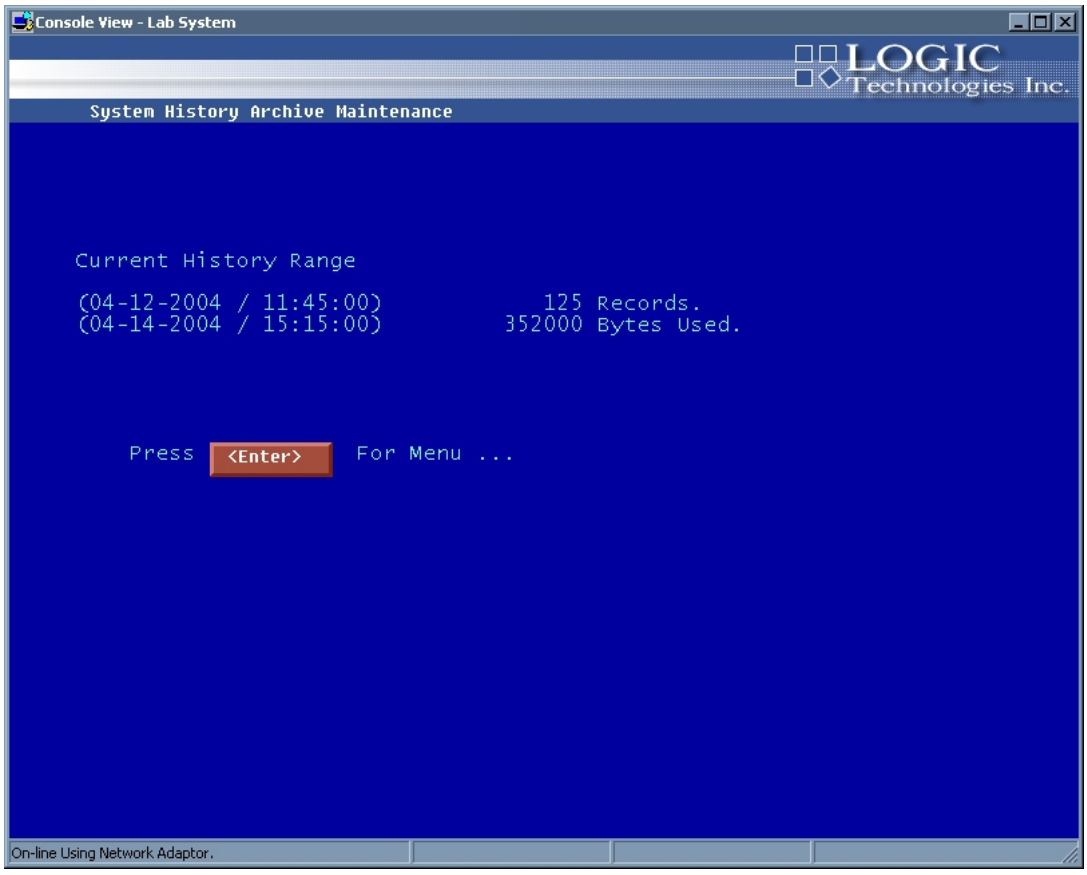
F4) **Copy Range To User Specified File:** Allows the operator to copy ranges of current history data to a floppy or new file created by the operator. NOTE: No history data will be lost since the operator only copies information and does not remove data from the history file.

F5) **Create New History file From Specified File:** Allows the operator to create a new history file from information copied from the original history file. All data in the current file is deleted.

F6) **View History Directory:**Allows the operator to view existing history files from archive.

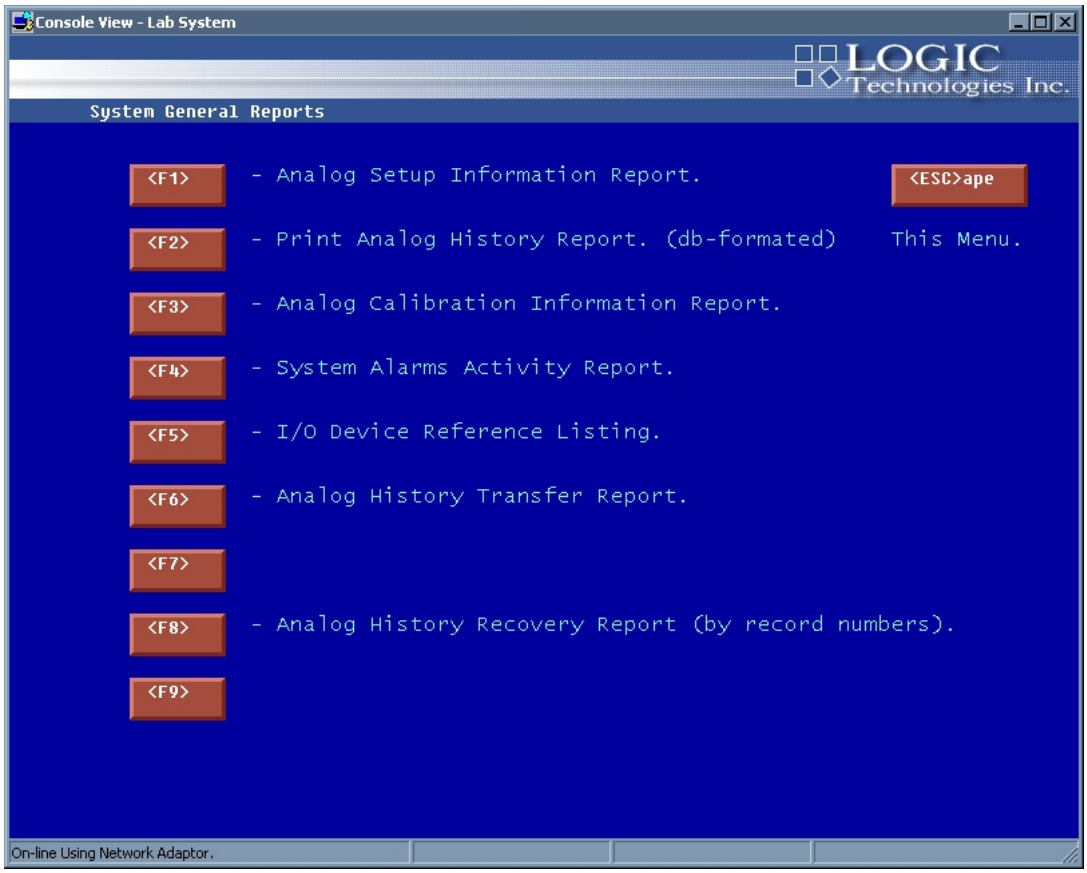
F7) **View Currect History File Status:** Shows the operator how many records there are available and the amount of bytes used for them.

F8) **Setup CSV Transfer Data:** Allows operator to create a CSV (Excel) file that shows the high/low/average for the requested signals for the selected analog numbers.



Button Access Sequence: *Main Menu, F5,F5, F7*

(8) View Current History File Status: This segment displays information on the system history file, size, date/time of activation, and last date of history file stored.



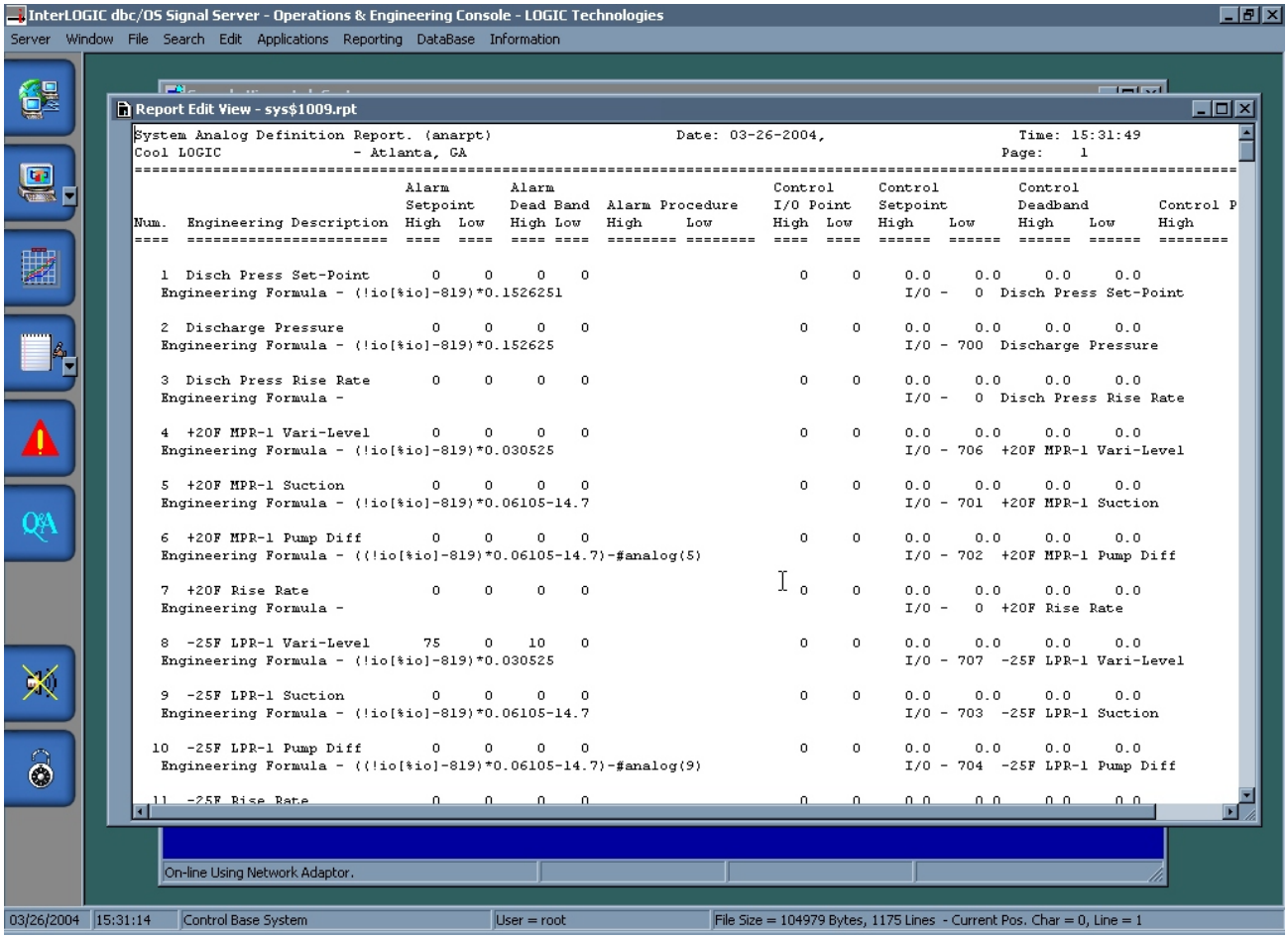
Button Access Sequence: *Main Menu, F5, F7, F9*

(9) General Report Menu: This section of the general report menu allows the operator to print various reports common to all InterLOGIC systems.

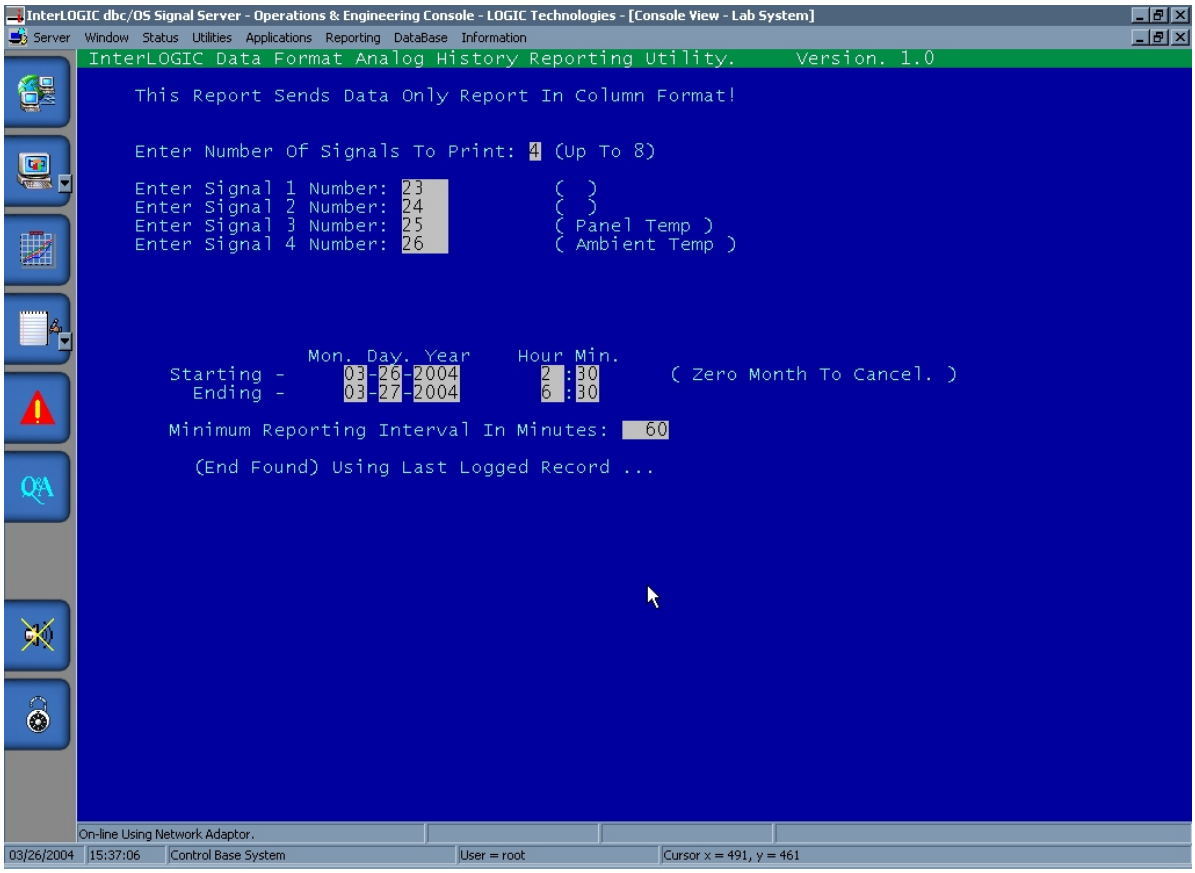
<1>: **Analog Setup Information Report:** This report will print vital information of each analog point, I/O number, conversion formulas, and description.

<2>: **Print Analog History Report** (db Format): This option prints out the same type of information but in a database format that allows the operator to import information to spreadsheet formats for report purposes.

1 - Analog Setup Information Report.

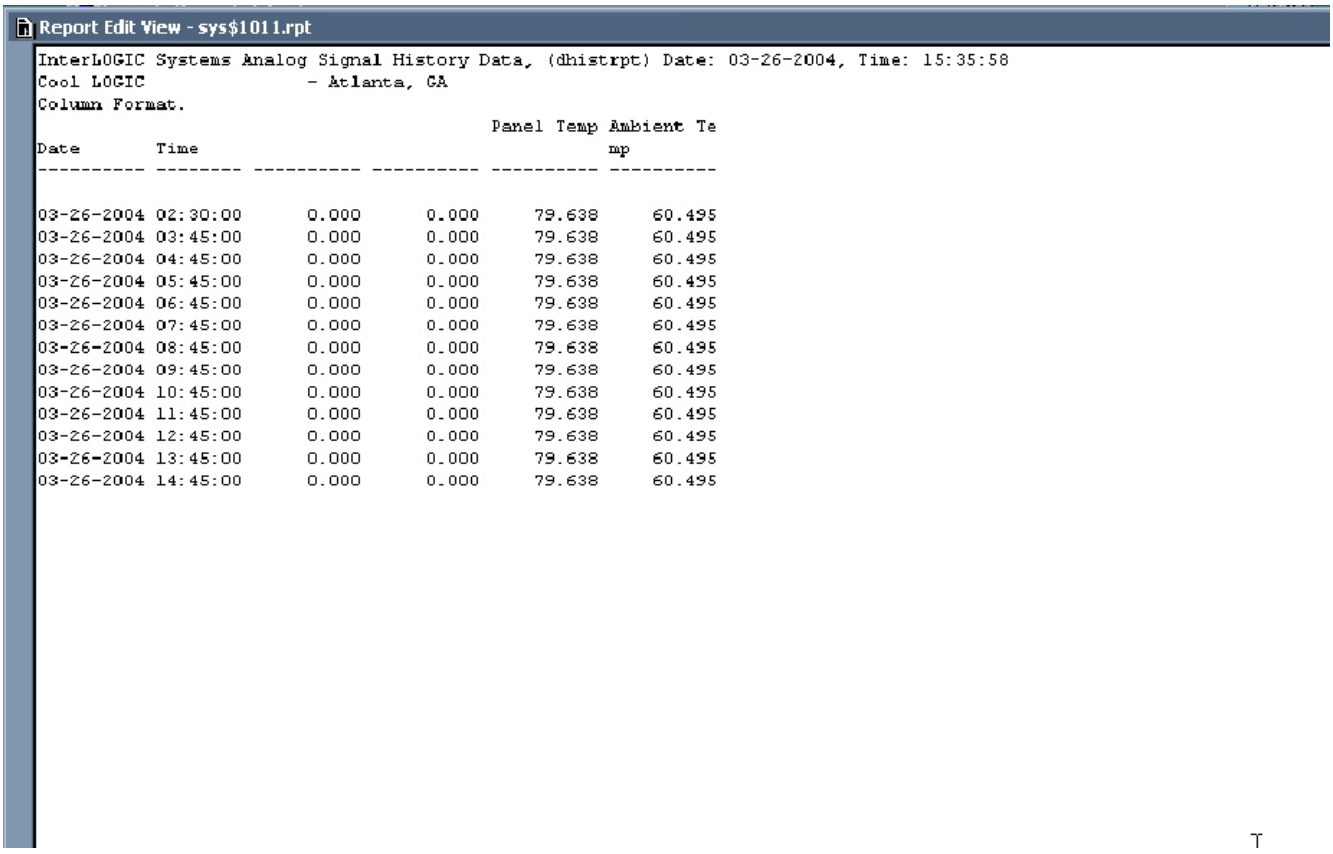


This report shows the current setup for each analog signal. Included in the report is description, alarm setpoints and deadbands, alarm procedure assignments, generic control points with setpoint and deadbands, engineering conversion formulas, and rack I/O positions.


InterLOGIC dbc/OS Signal Server - Operations & Engineering Console - LOGIC Technologies - [Console View - Lab System]
Server Window Status Utilities Applications Reporting DataBase Information
InterLOGIC Data Format Analog History Reporting Utility. Version. 1.0
This Report Sends Data Only Report In Column Format!
Enter Number Of Signals To Print: 4 (Up To 8)
Enter Signal 1 Number: 23 ( )
Enter Signal 2 Number: 24 ( )
Enter Signal 3 Number: 25 (Panel Temp)
Enter Signal 4 Number: 26 (Ambient Temp)
Mon. Day. Year Hour Min.
Starting - 03-26-2004 2 :30 (Zero Month To Cancel.)
Ending - 03-27-2004 6 :30
Minimum Reporting Interval In Minutes: 60
(End Found) Using Last Logged Record ...
On-line Using Network Adaptor.
03/26/2004 15:37:06 Control Base System User = root Cursor x = 491, y = 461

Section II

2 - Print Analog History Report. (db-formatted)



Report Edit View - sys$1011.rpt

```
InterLOGIC Systems Analog Signal History Data, (dhistrpt) Date: 03-26-2004, Time: 15:35:58
Cool LOGIC                - Atlanta, GA
Column Format.
                                        Panel Temp Ambient Te
Date       Time                                    mp
---------- -------- ---------- ---------- ---------- ----------

03-26-2004 02:30:00       0.000      0.000     79.638     60.495
03-26-2004 03:45:00       0.000      0.000     79.638     60.495
03-26-2004 04:45:00       0.000      0.000     79.638     60.495
03-26-2004 05:45:00       0.000      0.000     79.638     60.495
03-26-2004 06:45:00       0.000      0.000     79.638     60.495
03-26-2004 07:45:00       0.000      0.000     79.638     60.495
03-26-2004 08:45:00       0.000      0.000     79.638     60.495
03-26-2004 09:45:00       0.000      0.000     79.638     60.495
03-26-2004 10:45:00       0.000      0.000     79.638     60.495
03-26-2004 11:45:00       0.000      0.000     79.638     60.495
03-26-2004 12:45:00       0.000      0.000     79.638     60.495
03-26-2004 13:45:00       0.000      0.000     79.638     60.495
03-26-2004 14:45:00       0.000      0.000     79.638     60.495
```

T

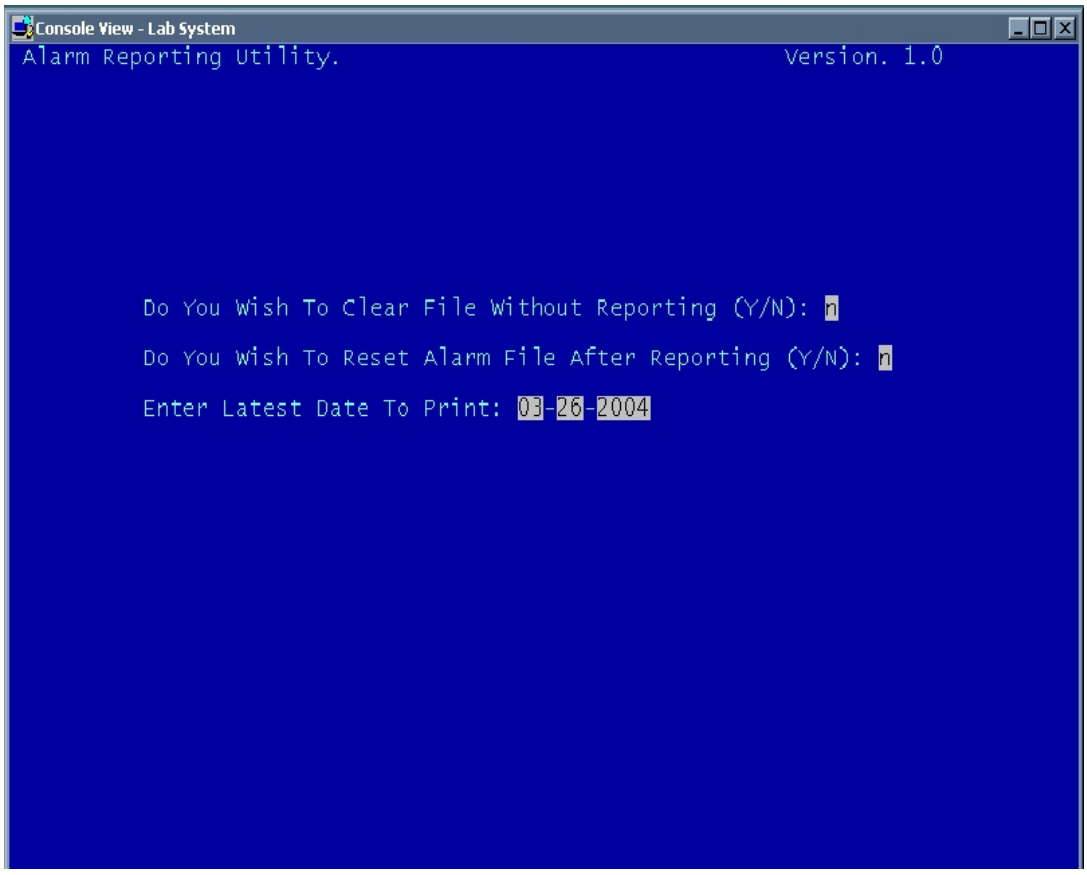
The db-formatted report is operated in the same maner as the analog history report shown on screen **SCR-26b**. This report differs in the column headers. Only one header is printed for the entire report allowing easy inporting into spread sheet applications.

3 - Analog Calibration Information Report.

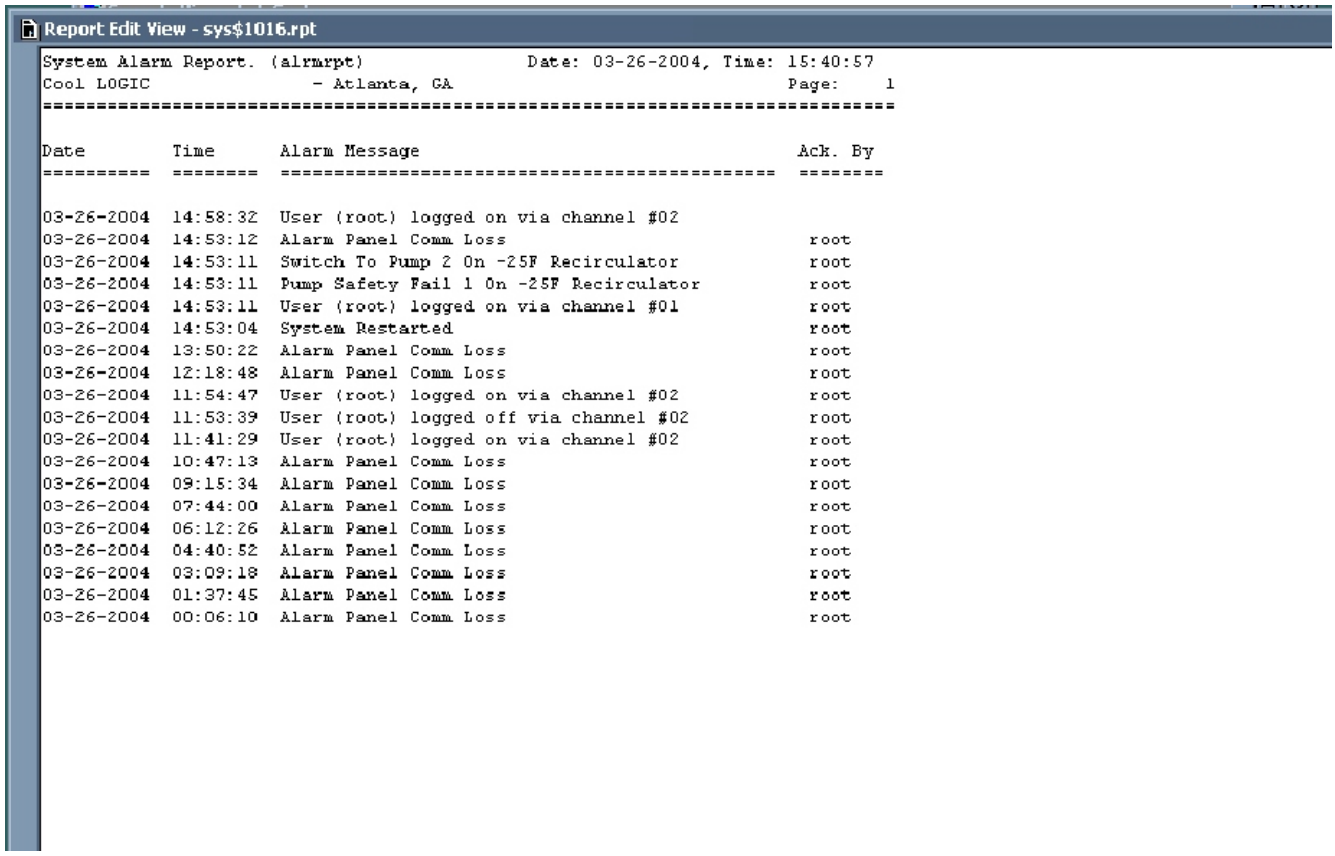
Report Edit View - sys$1014.rpt

System Analog Calibration Information Report. (acalrpt) Date: 03-26-2004, Time: 15:38:51
Cool LOGIC - Atlanta, GA Page: 1

Num.	Analog Description	Actual Value	Units	Zero Offset	Slope
1	Disch Press Set-Point	145.00	Psig	0.00	0.000
2	Discharge Pressure	132.80	Psig	0.00	0.000
3	Disch Press Rise Rate	-0.51	Psi/Min	0.00	0.000
4	+20F MPR-1 Vari-Level	21.30	% Probe	0.00	0.000
5	+20F MPR-1 Suction	36.00	Psig	0.00	0.000
6	+20F MPR-1 Pump Diff	59.00	Psid	0.00	0.000
7	+20F Rise Rate	0.00	Psi/Min	0.00	0.000
8	-25F LPR-1 Vari-Level	19.60	% Probe	0.00	0.000
9	-25F LPR-1 Suction	3.50	Psig	0.00	0.000
10	-25F LPR-1 Pump Diff	26.50	Psid	0.00	0.000
11	-25F Rise Rate	-6.00	Psi/Min	0.00	0.000
12	-35F ACC-1 Vari-Level	20.00	% Probe	0.00	0.000
13	-35F ACC-1 Suction	0.00	Psig	0.00	0.000
14	-35F ACC Rise Rate	0.00	Psi/Min	0.00	0.000
15	EC-TR-1 Vari-Level	5.00	% Probe	0.00	0.000


Console View - Lab System
Alarm Reporting Utility.
Version. 1.0
Do You Wish To Clear File Without Reporting (Y/N): n
Do You Wish To Reset Alarm File After Reporting (Y/N): n
Enter Latest Date To Print: 03-26-2004

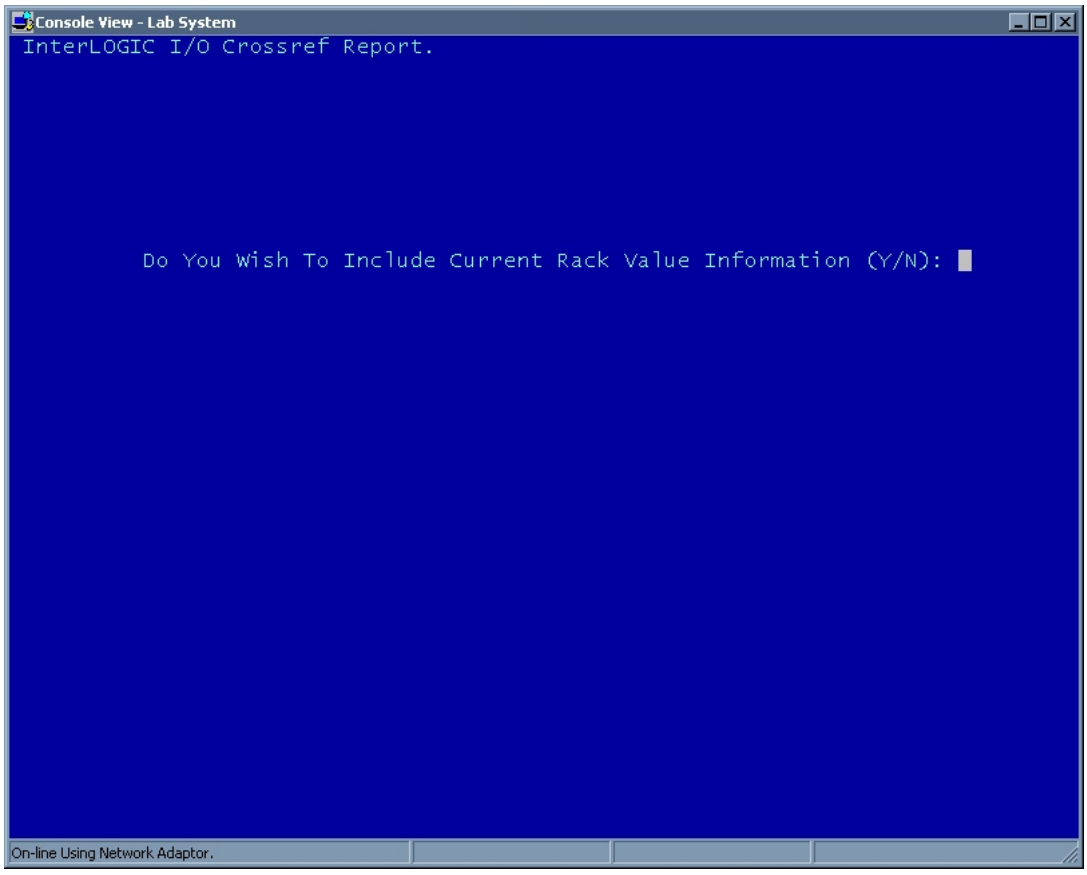
4 - System Alarms Activity Report.



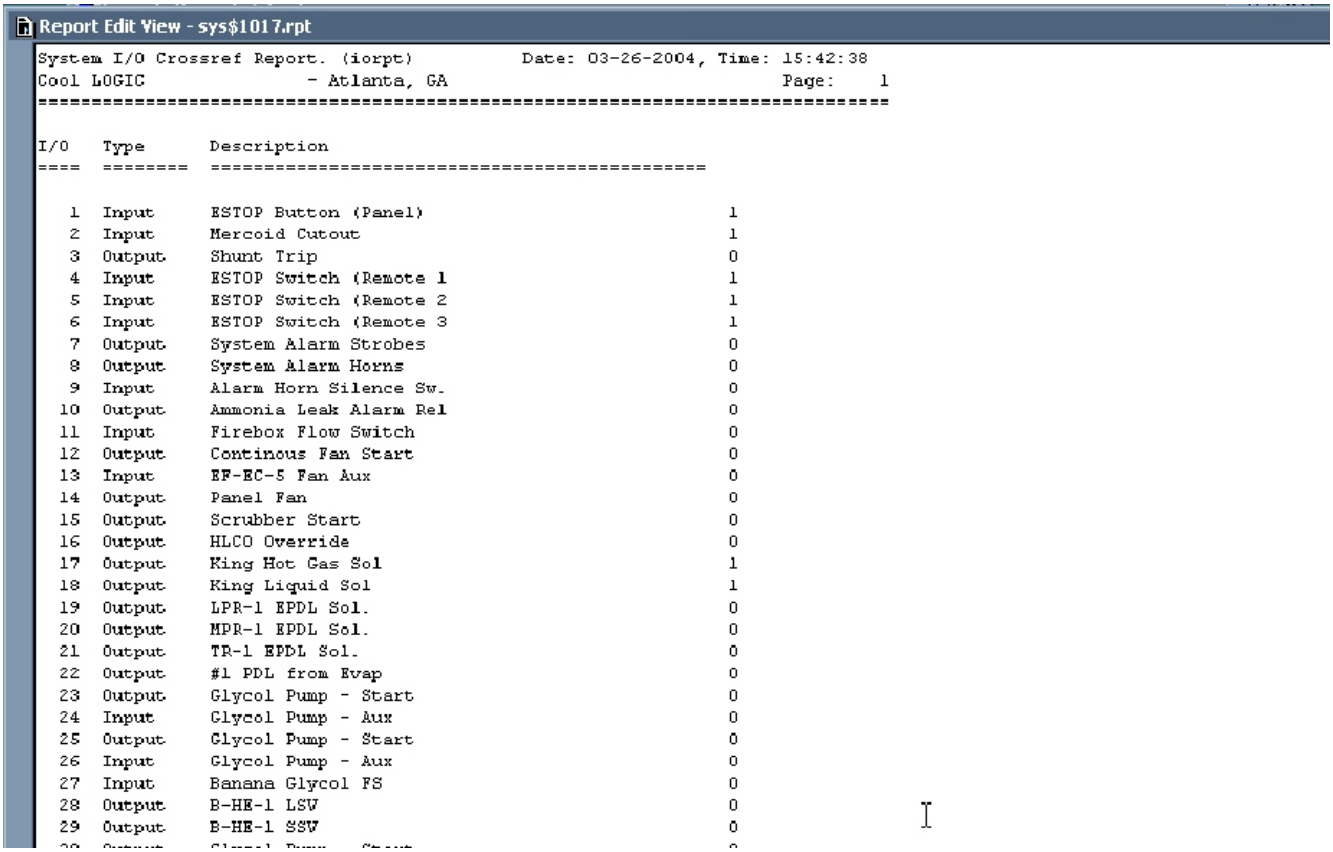
Report Edit View - sys$1016.rpt

System Alarm Report. (alrmrpt) Date: 03-26-2004, Time: 15:40:57
Cool LOGIC - Atlanta, GA Page: 1

Date	Time	Alarm Message	Ack. By
03-26-2004	14:58:32	User (root) logged on via channel #02	
03-26-2004	14:53:12	Alarm Panel Comm Loss	root
03-26-2004	14:53:11	Switch To Pump 2 On -25F Recirculator	root
03-26-2004	14:53:11	Pump Safety Fail 1 On -25F Recirculator	root
03-26-2004	14:53:11	User (root) logged on via channel #01	root
03-26-2004	14:53:04	System Restarted	root
03-26-2004	13:50:22	Alarm Panel Comm Loss	root
03-26-2004	12:18:48	Alarm Panel Comm Loss	root
03-26-2004	11:54:47	User (root) logged on via channel #02	root
03-26-2004	11:53:39	User (root) logged off via channel #02	root
03-26-2004	11:41:29	User (root) logged on via channel #02	root
03-26-2004	10:47:13	Alarm Panel Comm Loss	root
03-26-2004	09:15:34	Alarm Panel Comm Loss	root
03-26-2004	07:44:00	Alarm Panel Comm Loss	root
03-26-2004	06:12:26	Alarm Panel Comm Loss	root
03-26-2004	04:40:52	Alarm Panel Comm Loss	root
03-26-2004	03:09:18	Alarm Panel Comm Loss	root
03-26-2004	01:37:45	Alarm Panel Comm Loss	root
03-26-2004	00:06:10	Alarm Panel Comm Loss	root


Console View - Lab System
InterLOGIC I/O Crossref Report.
Do You Wish To Include Current Rack Value Information (Y/N):
On-line Using Network Adaptor.

5 - I/O Device Reference Listing.

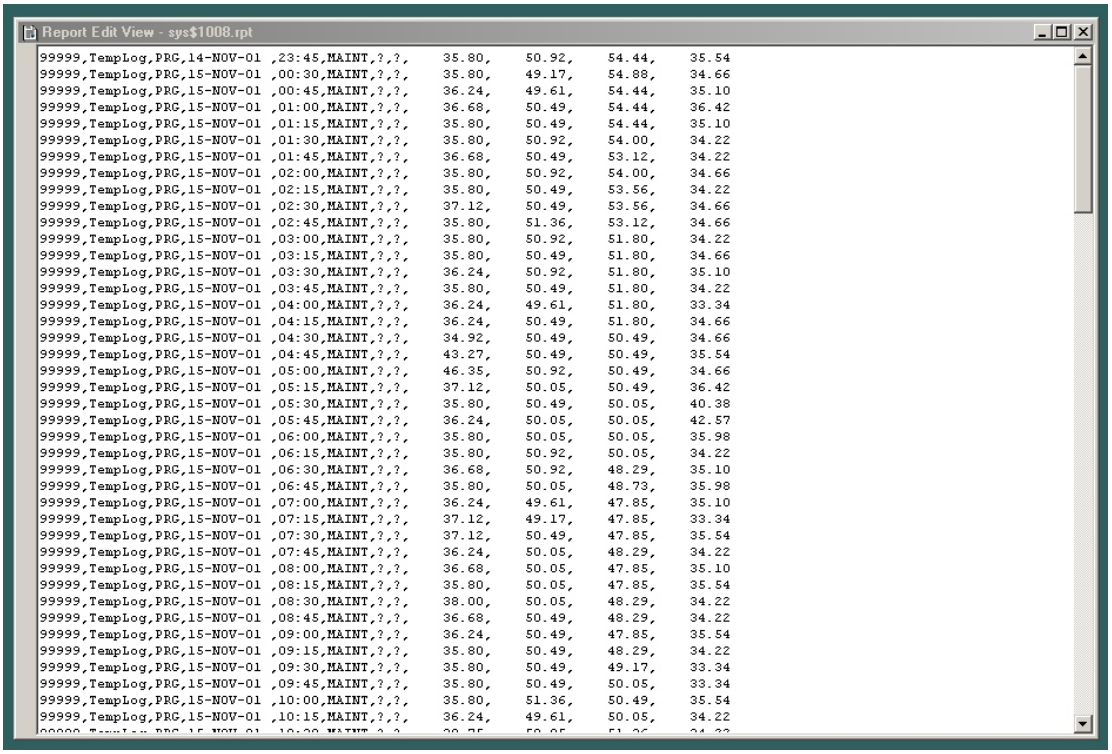


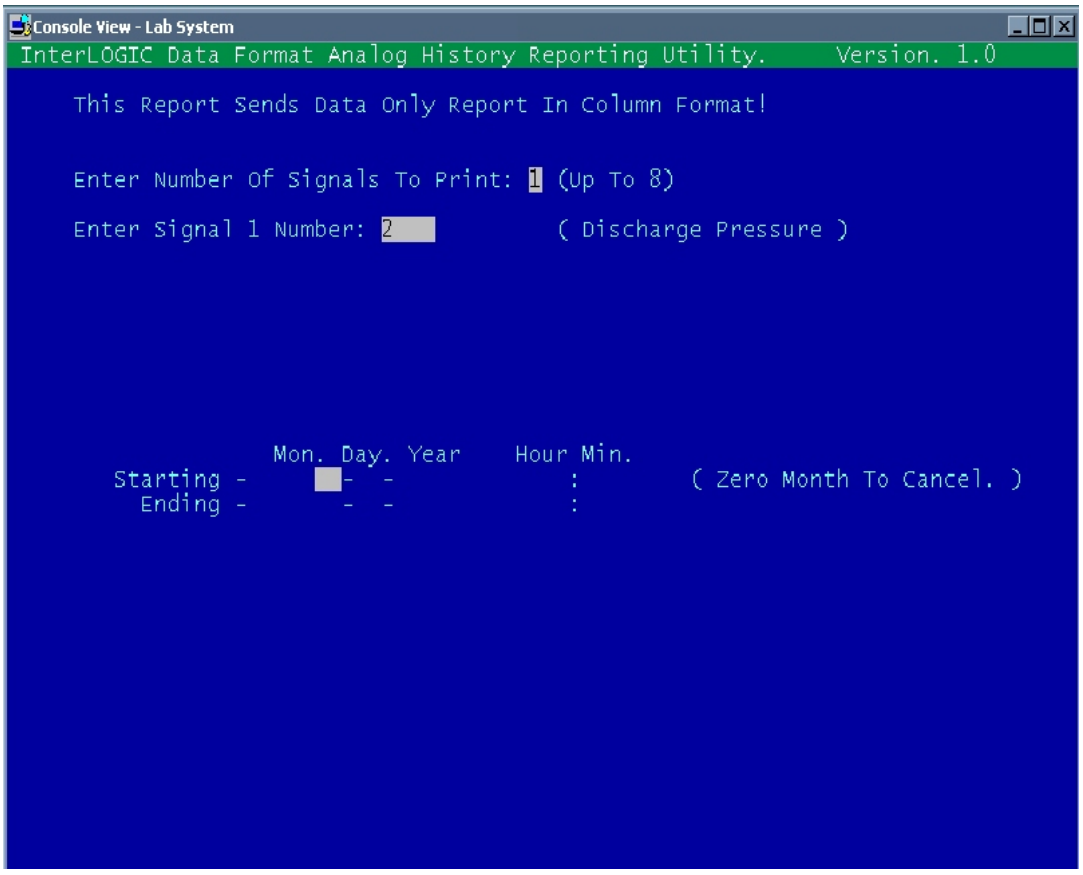
Report Edit View - sys$1017.rpt

```
System I/O Crossref Report. (iorpt)          Date: 03-26-2004, Time: 15:42:38
Cool LOGIC                - Atlanta, GA                                  Page:    1
================================================================================

I/O   Type      Description
====  ========  ================================================

   1  Input     ESTOP Button (Panel)                                    1
   2  Input     Mercoid Cutout                                          1
   3  Output    Shunt Trip                                              0
   4  Input     ESTOP Switch (Remote 1                                  1
   5  Input     ESTOP Switch (Remote 2                                  1
   6  Input     ESTOP Switch (Remote 3                                  1
   7  Output    System Alarm Strobes                                    0
   8  Output    System Alarm Horns                                      0
   9  Input     Alarm Horn Silence Sw.                                  0
  10  Output    Ammonia Leak Alarm Rel                                  0
  11  Input     Firebox Flow Switch                                     0
  12  Output    Continous Fan Start                                     0
  13  Input     EF-EC-5 Fan Aux                                         0
  14  Output    Panel Fan                                               0
  15  Output    Scrubber Start                                          0
  16  Output    HLCO Override                                           0
  17  Output    King Hot Gas Sol                                        1
  18  Output    King Liquid Sol                                         1
  19  Output    LPR-1 EPDL Sol.                                         0
  20  Output    MPR-1 EPDL Sol.                                         0
  21  Output    TR-1 EPDL Sol.                                          0
  22  Output    #1 PDL from Evap                                        0
  23  Output    Glycol Pump - Start                                     0
  24  Input     Glycol Pump - Aux                                       0
  25  Output    Glycol Pump - Start                                     0
  26  Input     Glycol Pump - Aux                                       0
  27  Input     Banana Glycol FS                                        0
  28  Output    B-HE-1 LSW                                              0
  29  Output    B-HE-1 SSW                                              0
```

Section II

6 - Analog History Transfer Report.



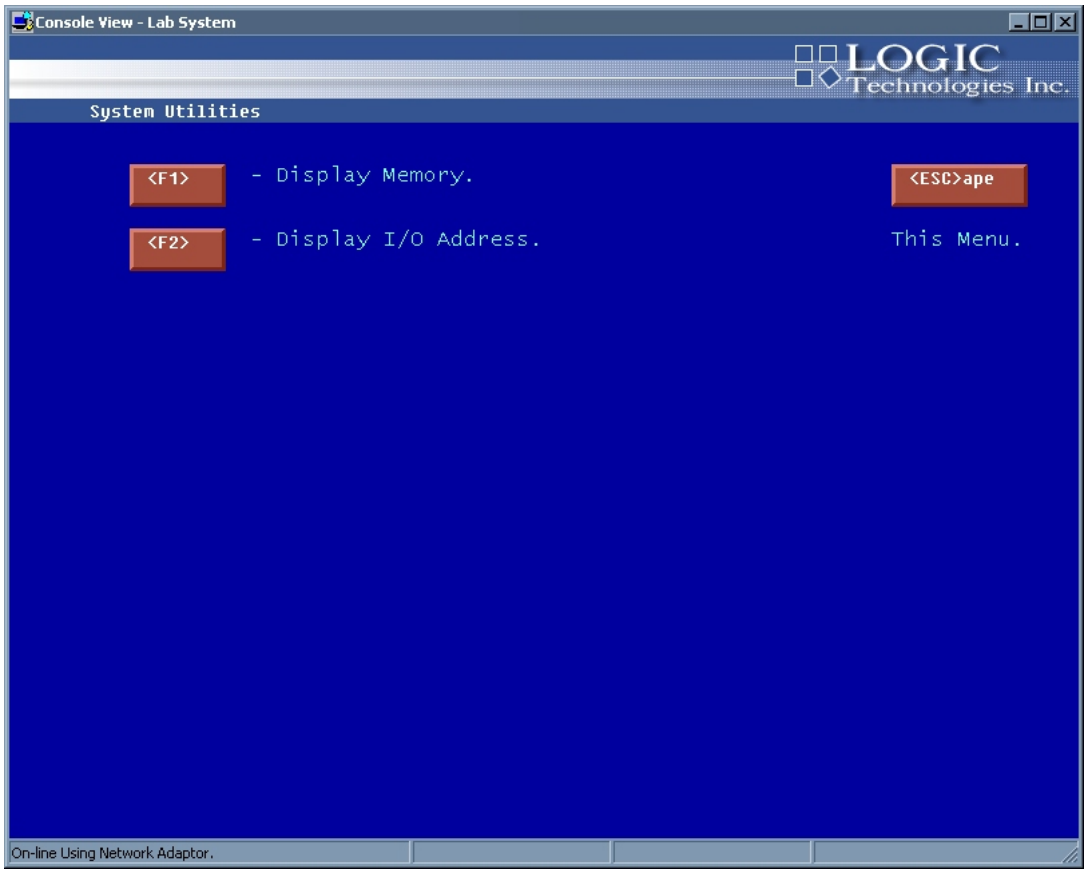

Console View - Lab System
InterLOGIC Data Format Analog History Reporting Utility. Version. 1.0
This Report Sends Data Only Report In Column Format!
Enter Number Of Signals To Print: 1 (Up To 8)
Enter Signal 1 Number: 2 (Discharge Pressure)
Mon. Day. Year Hour Min.
Starting - - - : (Zero Month To Cancel.)
Ending - - - :

8 - Analog History Recovery Report (by record numbers).

Report Edit View - sys$1020.rpt

InterLOGIC Systems Analog Signal History Report. (ahistrpt) Date: 03-26-2004, Time: 15:54:26
Cool LOGIC - Atlanta, GA Page: 1

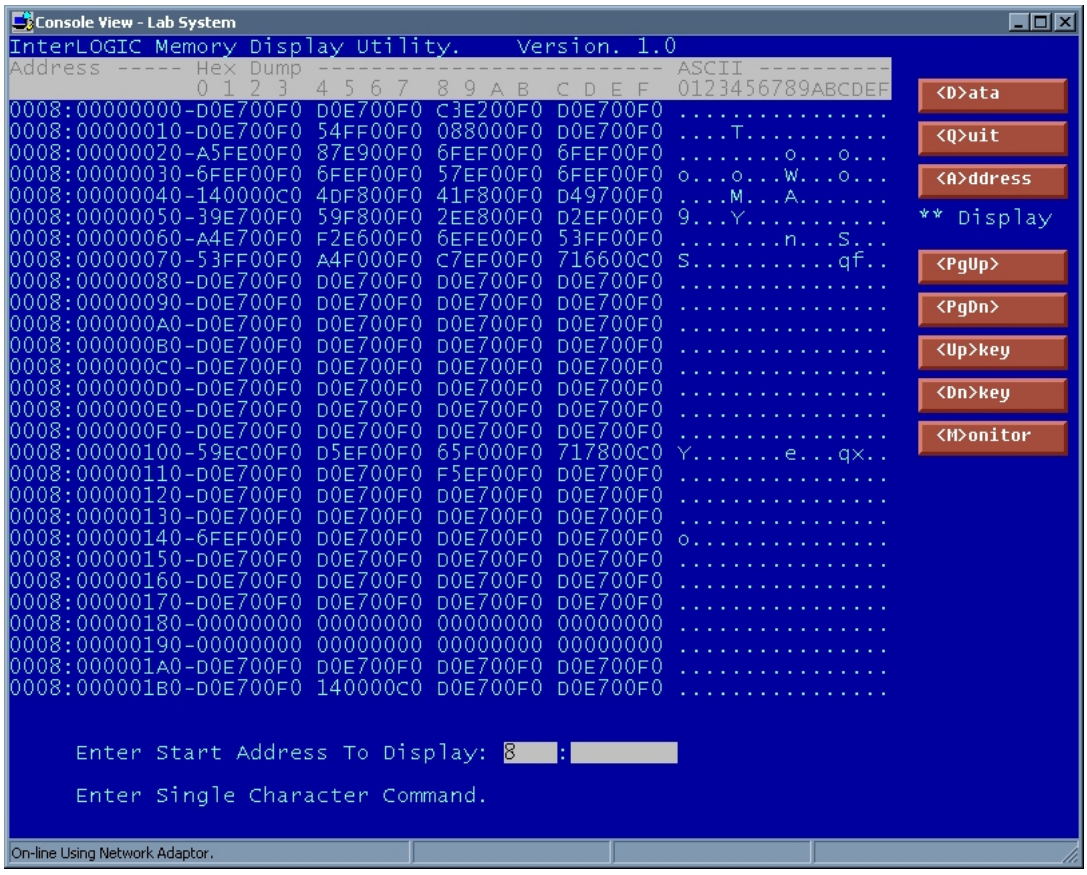
Date	Time			Panel Temp	Ambient Temp
02-04-2004	20:45:00	0.000	0.000	79.638	60.495
02-04-2004	22:00:00	0.000	0.000	79.638	60.495
02-04-2004	23:00:00	0.000	0.000	79.638	60.495
02-05-2004	00:15:00	0.000	0.000	79.638	60.495
02-05-2004	01:00:00	0.000	0.000	79.638	60.495
02-05-2004	02:00:00	0.000	0.000	79.638	60.495
02-05-2004	03:00:00	0.000	0.000	79.638	60.495
02-05-2004	04:00:00	0.000	0.000	79.638	60.495
02-05-2004	05:00:00	0.000	0.000	79.638	60.495
02-05-2004	06:00:00	0.000	0.000	79.638	60.495
02-05-2004	07:00:00	0.000	0.000	79.638	60.495
02-05-2004	08:00:00	0.000	0.000	79.638	60.495
02-05-2004	09:00:00	0.000	0.000	79.638	60.495
02-05-2004	10:00:00	0.000	0.000	79.638	60.495
02-05-2004	11:00:00	0.000	0.000	79.638	60.495
02-05-2004	12:00:00	0.000	0.000	79.638	60.495
02-05-2004	13:00:00	0.000	0.000	79.638	60.495
02-05-2004	14:00:00	0.000	0.000	79.638	60.495
02-05-2004	15:00:00	0.000	0.000	79.638	60.495
02-05-2004	16:00:00	0.000	0.000	79.638	60.495
02-05-2004	17:00:00	0.000	0.000	79.638	60.495
02-05-2004	18:00:00	0.000	0.000	79.638	60.495
02-05-2004	19:00:00	0.000	0.000	79.638	60.495
02-05-2004	20:00:00	0.000	0.000	79.638	60.495
02-05-2004	21:00:00	0.000	0.000	79.638	60.495
02-05-2004	22:00:00	0.000	0.000	79.638	60.495
02-05-2004	23:00:00	0.000	0.000	79.638	60.495
02-06-2004	00:15:00	0.000	0.000	79.638	60.495
02-06-2004	01:00:00	0.000	0.000	79.638	60.495
02-06-2004	02:00:00	0.000	0.000	79.638	60.495



Button Access Sequence: *Main Menu, 10, 8*

(8) Memory/I/O Display Utility:

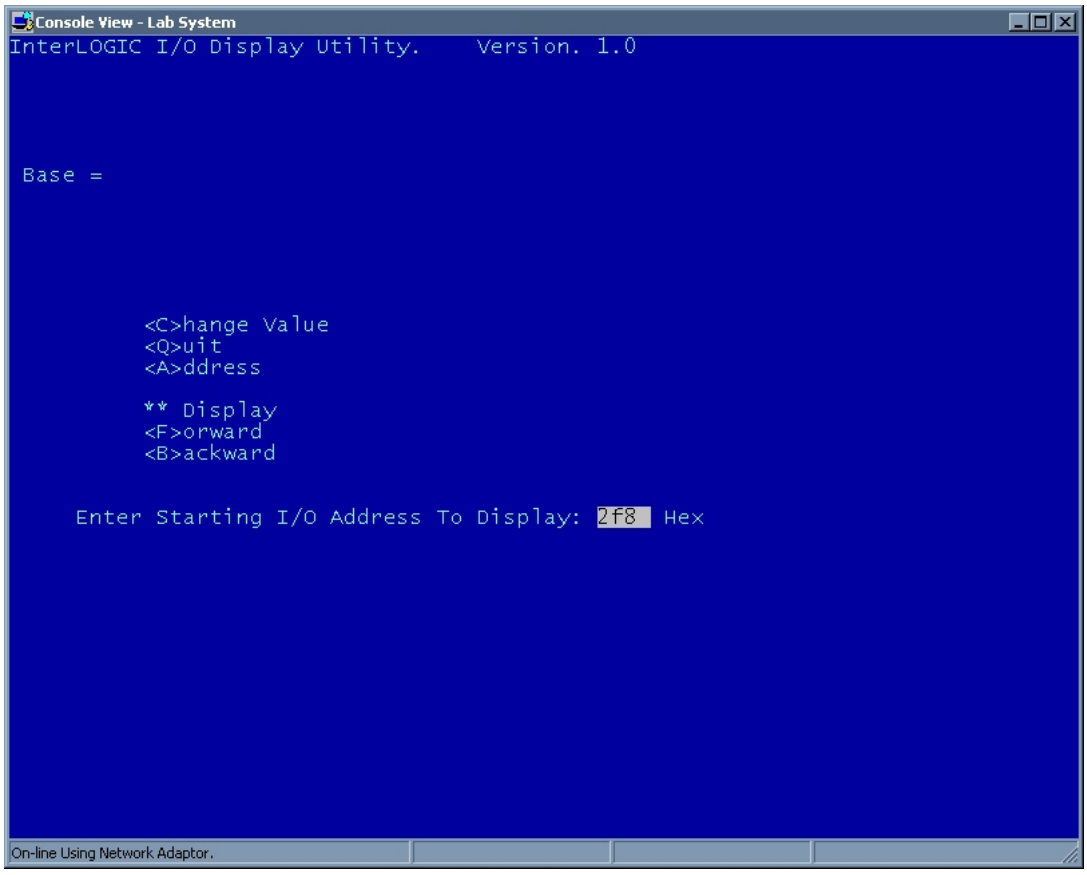
NOTE: This section is used for the InterLOGIC Control System program for troubleshooting only and should not be accessed by operators during normal conditions.



Button Access Sequence: *Main Menu, F5, F8, F1*

Selection 1 displays all memory that is used by the InterLOGIC Control System program.

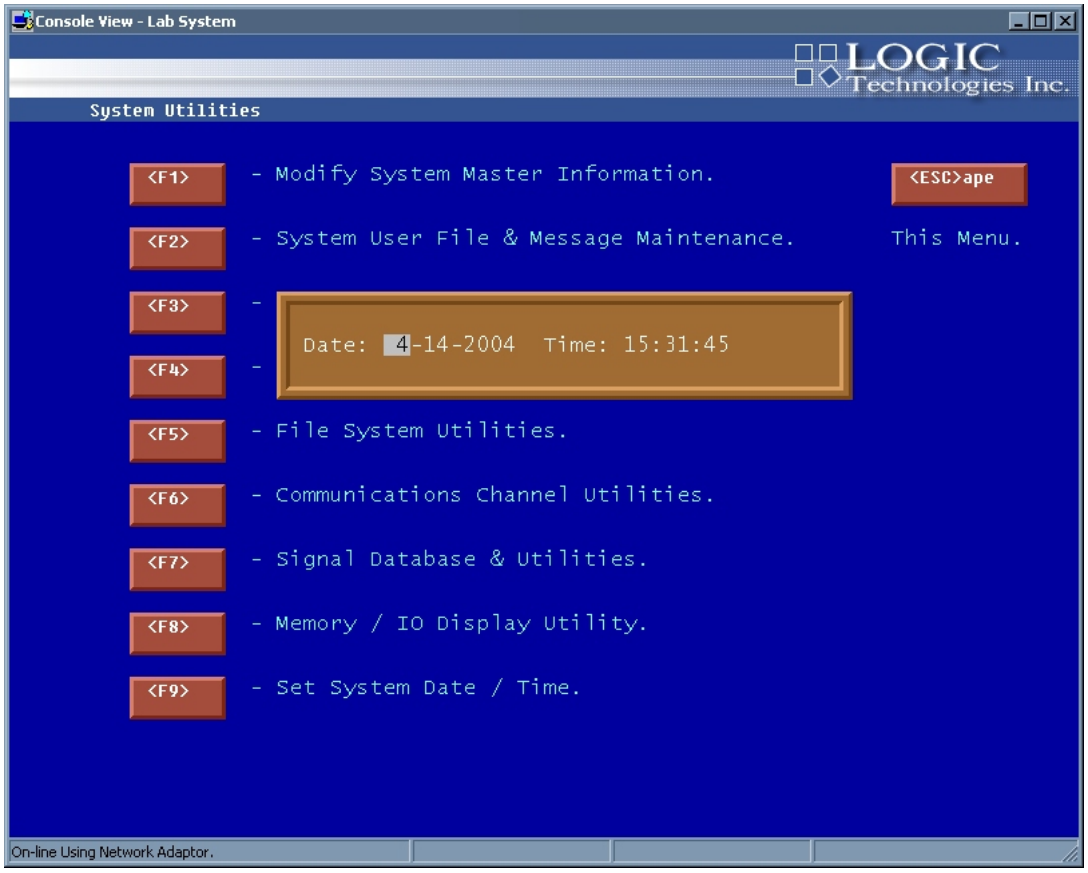
NOTE: This section is used for troubleshooting purposes and should not be accessed by operators during normal conditions.



Button Access Sequence: *Main Menu F5, F8, F2*

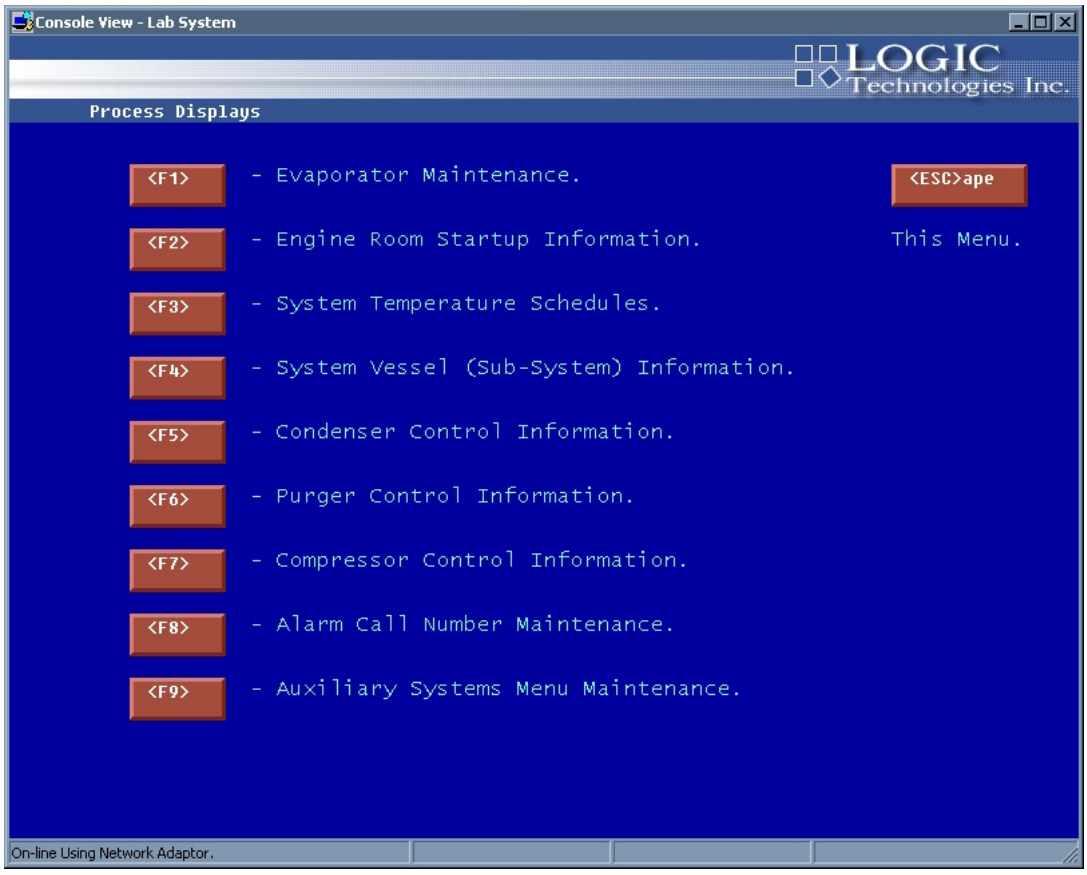
Selection 2 displays the memory addresses being used by the InterLOGIC Control System program.

NOTE: This section is used for troubleshooting only and should not be accessed during normal operating conditions.



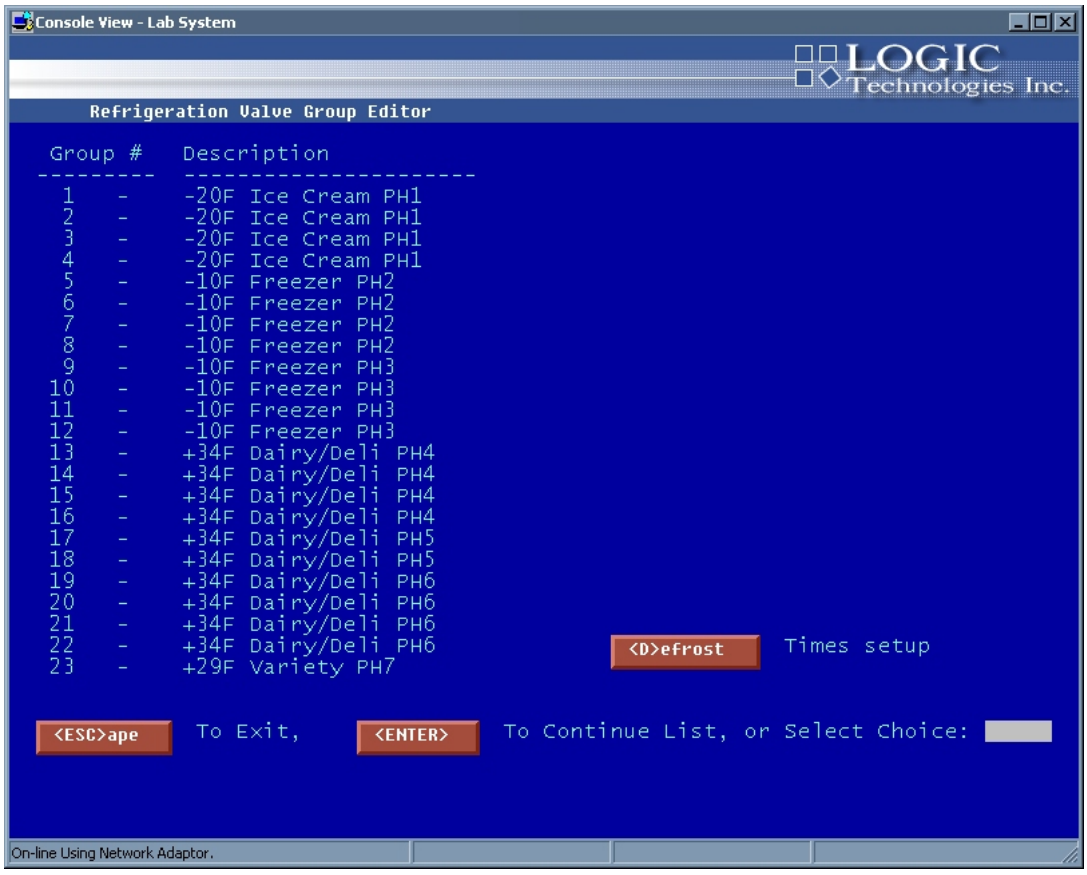
Button Access Sequence: *Main Menu ,F5, F9*

This option allow the server date and time to be changed by the operator. When the date or time is changed, the systemschedule is terminated and resubmitted.



Button Access Sequence: *Main Menu, F4, F1*

(11) System File Maintenance: The system file maintenance menu is broken down into nine utility groups and displays information of the system set up for each group. In the following pages each group item is described with a sample screen. To select a program group, enter the group number in the edit box and press the enter key or press the left mouse button on a desired group number.



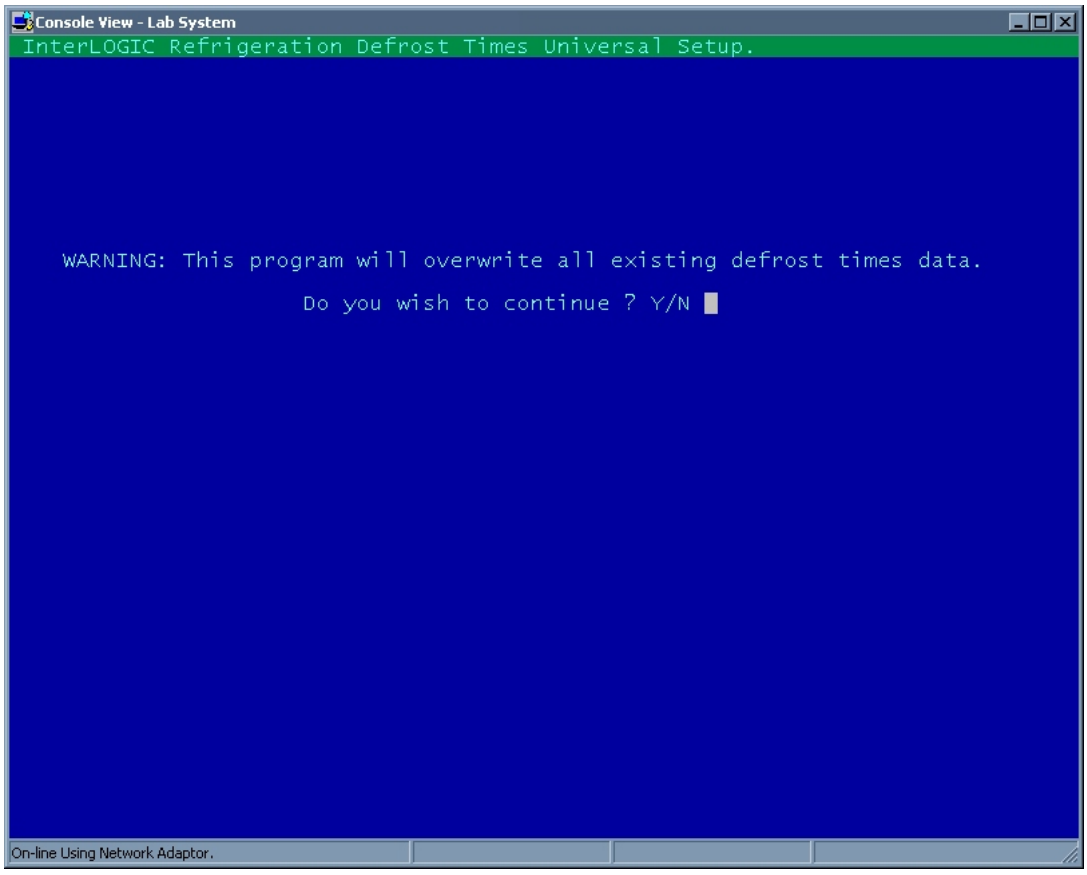
Button Access Sequence: *Main Menu, F4, F1*

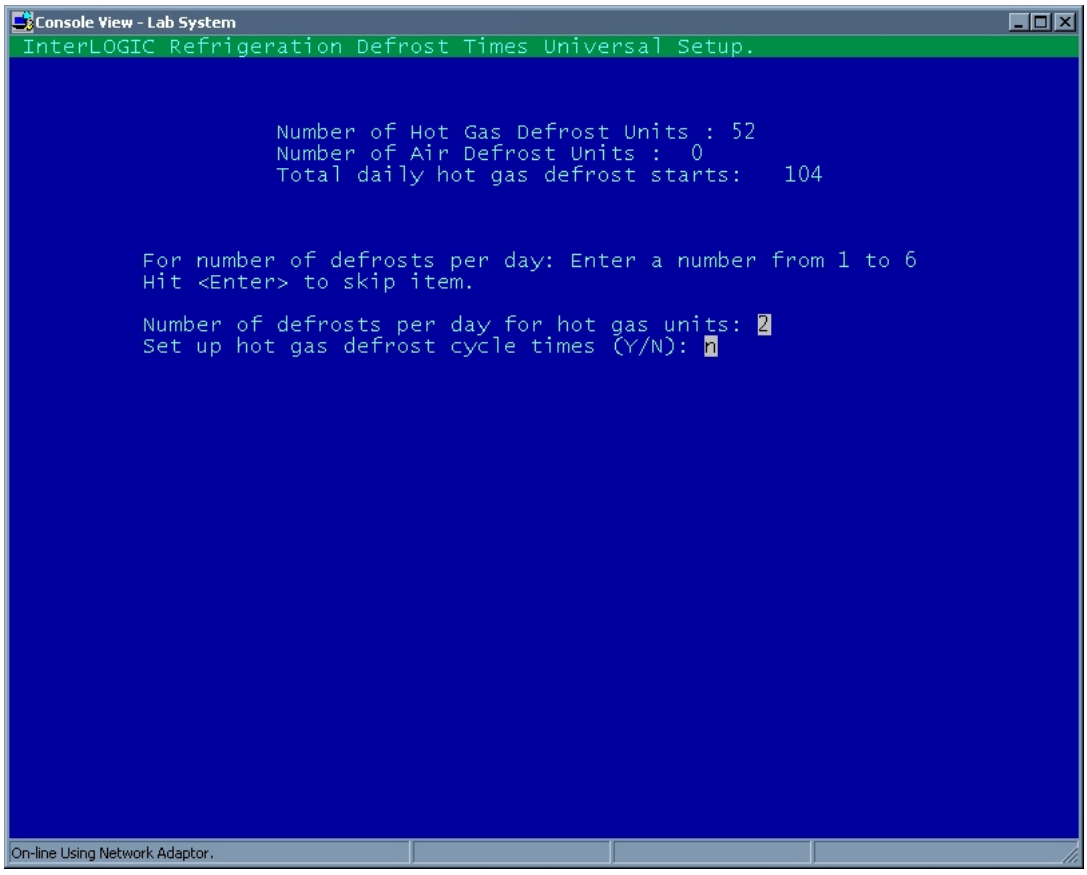
(1) Evaporator Maintenance: This section of the system file maintenance displays a list of all valve groups and descriptions. To select a specific air unit, enter the group number in the dialog box or click left mouse button on the desired number the operator wishes to view. Detailed information on how to edit information that will be displayed while selecting a specific group is described on page **SCR-5** in this manual.

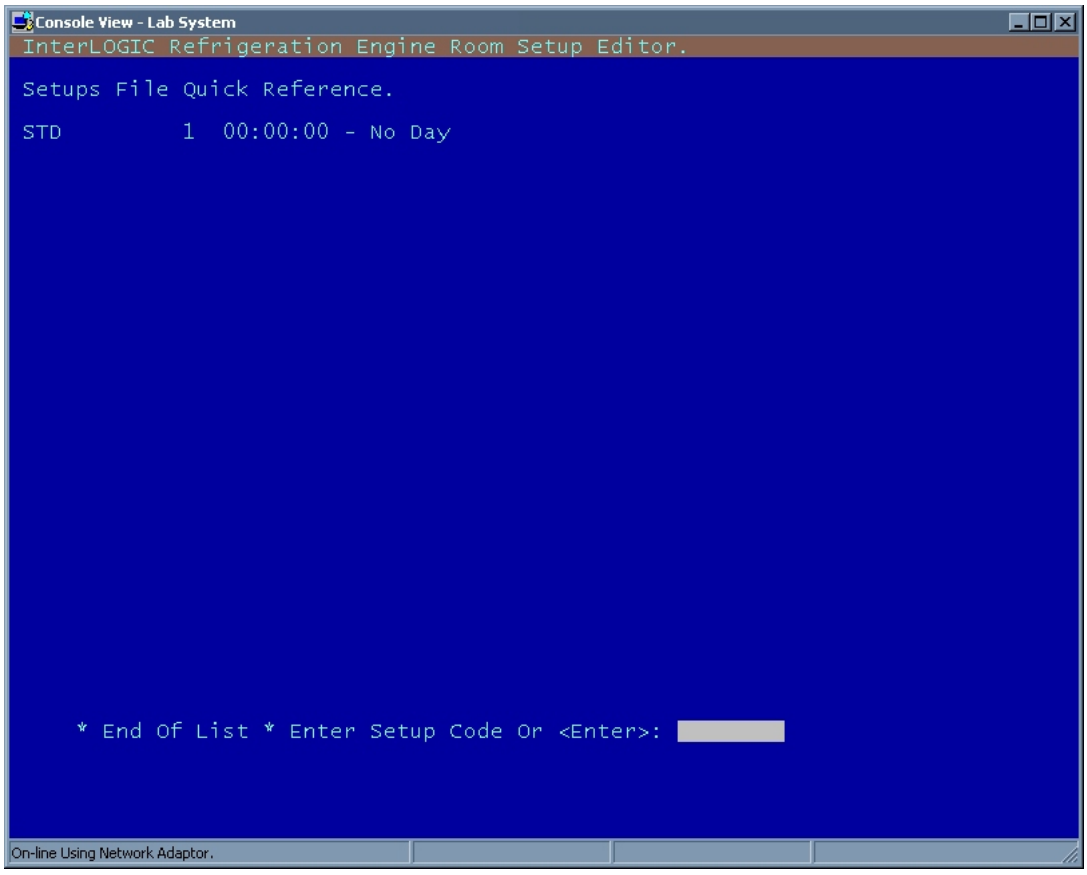
NOTE: Only experienced operators should enter this section of the InterLOGIC Control System program. Any changes to a specific air unit/group could cause the InterLOGIC Control System program to operate improperly.

<D>efrost Time Setup**:** this section of the air units editor allows the operator to schedule defrost (via a program in the InterLOGIC Control System program) equally throughout a 24 hr. Period. It automatically sets defrost schedules from user entered information equally spacing times throughout a 24 hr. period.

NOTE: The operator still has the option to add/remove additional defrosts to specific air units. For more information on defrost scheduled times, refer to page **SCR-10**, Defrost Start Times.


Console View - Lab System
InterLOGIC Refrigeration Defrost Times Universal Setup.
WARNING: This program will overwrite all existing defrost times data.
Do you wish to continue ? Y/N
On-line Using Network Adaptor.


Console View - Lab System
InterLOGIC Refrigeration Defrost Times Universal Setup.
Number of Hot Gas Defrost Units : 52
Number of Air Defrost Units : 0
Total daily hot gas defrost starts: 104
For number of defrosts per day: Enter a number from 1 to 6
Hit <Enter> to skip item.
Number of defrosts per day for hot gas units: 2
Set up hot gas defrost cycle times (Y/N): n
On-line Using Network Adaptor.



Button Access Sequence: *Main Menu, F5 , F4, F2*

(2) Engine Room Start Up Information: This section of the InterLOGIC Control System lets the operator customize the type of setup to be used to control the engine room, system discharge press., compressor staging, and purge point sequencing and timing. The Setup portion can be changed by selecting any of the items mentioned above. A Standard setup (STD) is part of the default setup of this program and is used in the original installation of your program. This Standard setup can be modified by the plant operator/administrator to fit the plants' operating conditions.

a) A Blank screen will appear when selecting this section, with one menu button **<?> List Items**. After selecting the item to be edited, a submenu will appear. This is described in detail on the following pages.

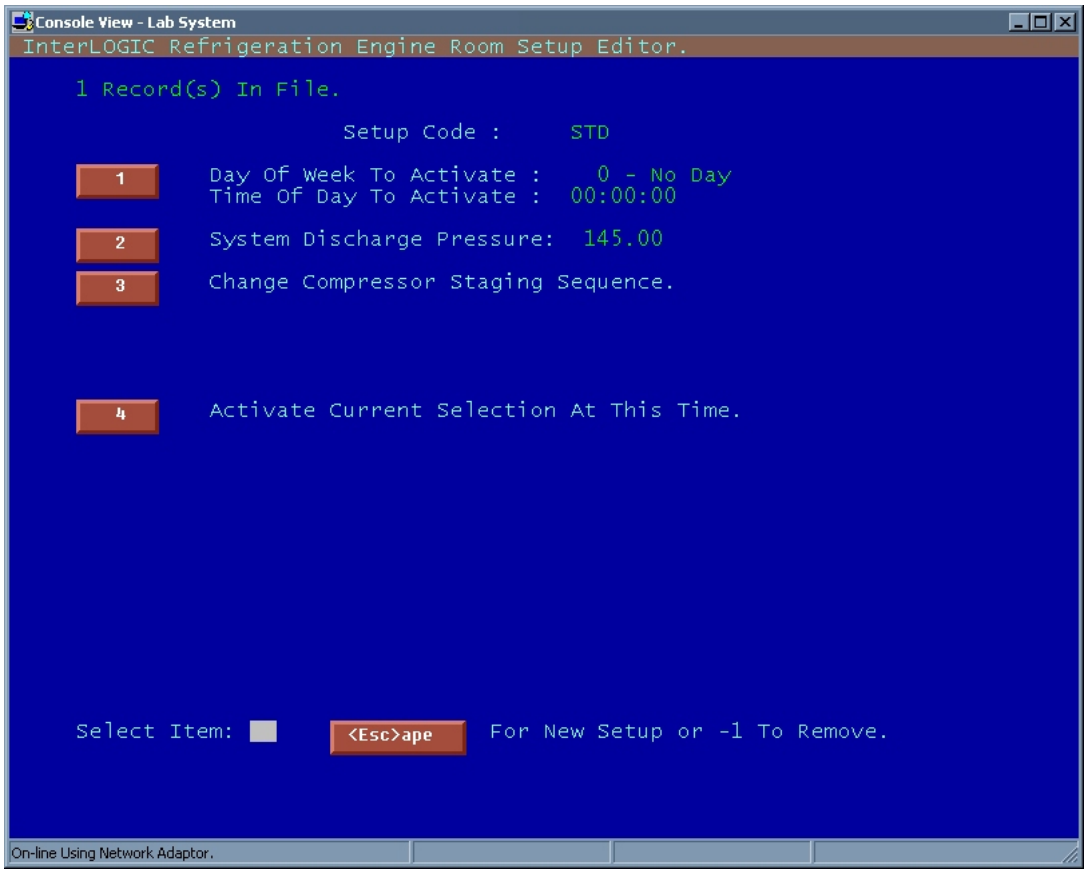
Note: Any changes to either of the following items in this section have to be activated before exiting this section. The operator can do this by selecting the #6 Button on the following submenu (Activate Current Selection at this Time).

CAUTION: Changing any information in the following selections could affect the operation of the InterLOGIC Control System and its efficiency.

Button Access Sequence: *Main Menu, F5, F4, F2, Setup Code*

Engine Room Setup Editor: This section will display a list of setups that can be selected by typing in the appropriate letters in the dialog box. After doing such, the next option menu will appear.

NOTE: ***STD*** is a standard setup and is used at the initial startup of your facility. Operators can add or remove other engine room setups. By adding a different engine room setup, the menu will display the new setup automatically in the above displayed list.



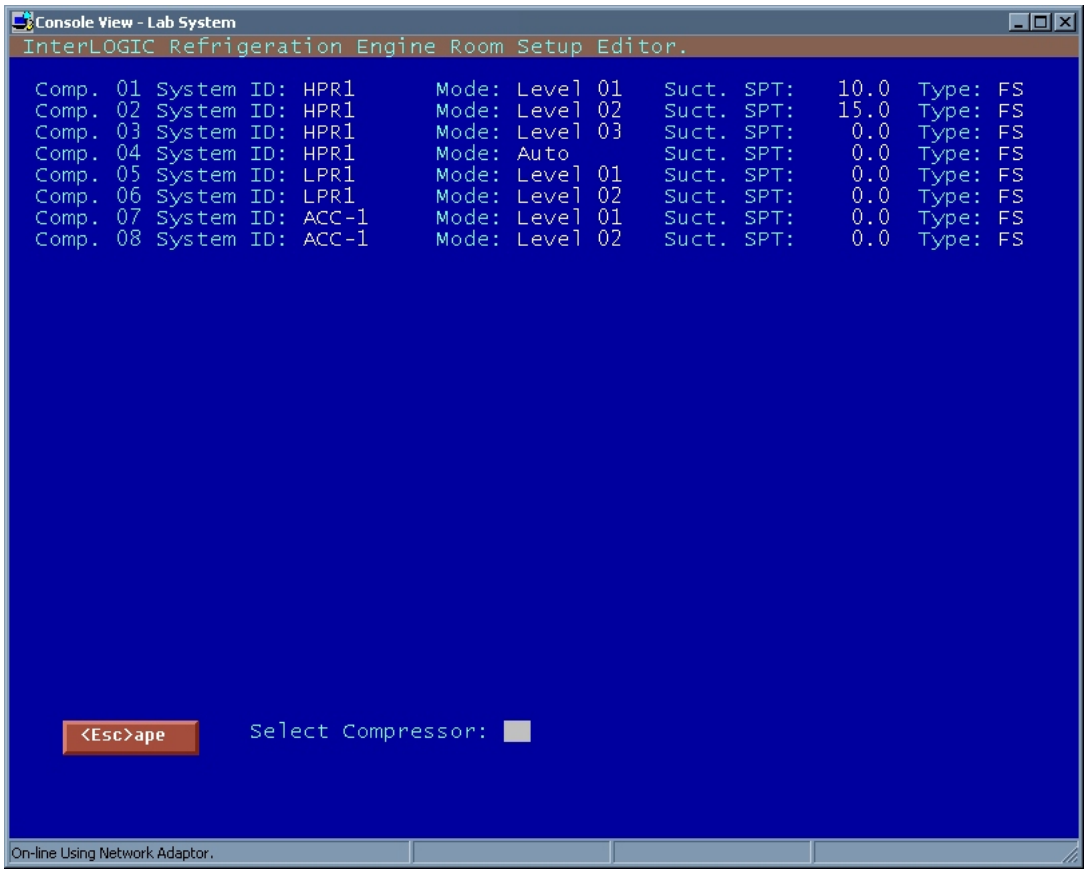
Button Access Sequence: *Main Menu, F5, F4, F2, STD*

In this section of the engine room editor, six specific items are displayed and can be modified by the operator.

<*1*>: **Day Of Week** to activate and time of day to activate: Allows the operator to set the day when he wishes this setup to actively control the engine room.

<*2*>: **System Discharge Pressure**: This set point controls the system discharge pressure and is also referred to on page **SCR-14**. If the setpoint is different from the current setpoint, the new value will become the new system discharge setpoint.

Items number three through six are described on the following pages.



Button Access Sequence: *Main Menu, F5, F4, F2, STD*, 3

<3> Compressor Staging Sequence: This section displays the current setup and starting and stopping sequence of all system compressors. The following information is displayed on this screen: compressor ID #, cuction cet point, mode, system ID and type of compressor.

The Compressor ID # and type of compressor are only used for reference and not for control purposes. The suction set point is a reflection of the current suction set point of the compressor which is described in detail on page **SCR-27** in this manual.

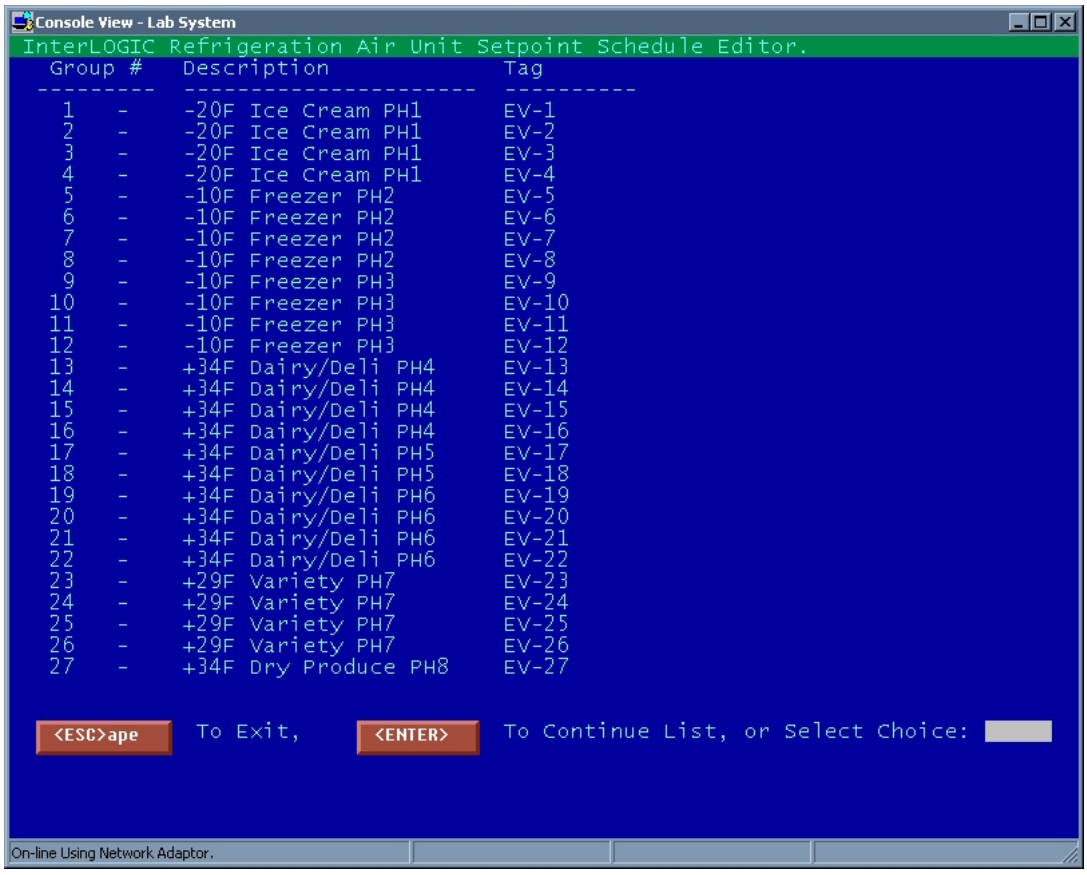
Mode: This section describes the actual level or starting sequence of each individual machine as they are staged in respect to vessel ID #. The following is a brief example and Theory Of Operation of this section.

Example: Your engine room consists of two vessels.(**V-1** is for low stage vessel and **V-2** as high stage vessel) and the system has six compressors. Two compressors are boosters and four are high stage compressors. The following scenario could apply:

Comp 1 - Booster#1	Level#2	System ID: V-1
Comp 2 - Booster#2	Level#1	System ID: V-1
Comp 3 - High Stage Comp.#1	Level#3	System ID: V-2
Comp 4 - High Stage Comp.#2	Level#2	System ID: V-2
Comp 5 - High Stage Comp.#3	Level#4	System ID: V-2
Comp 6 - High Stage Comp.#4	Level#1	System ID: V-2

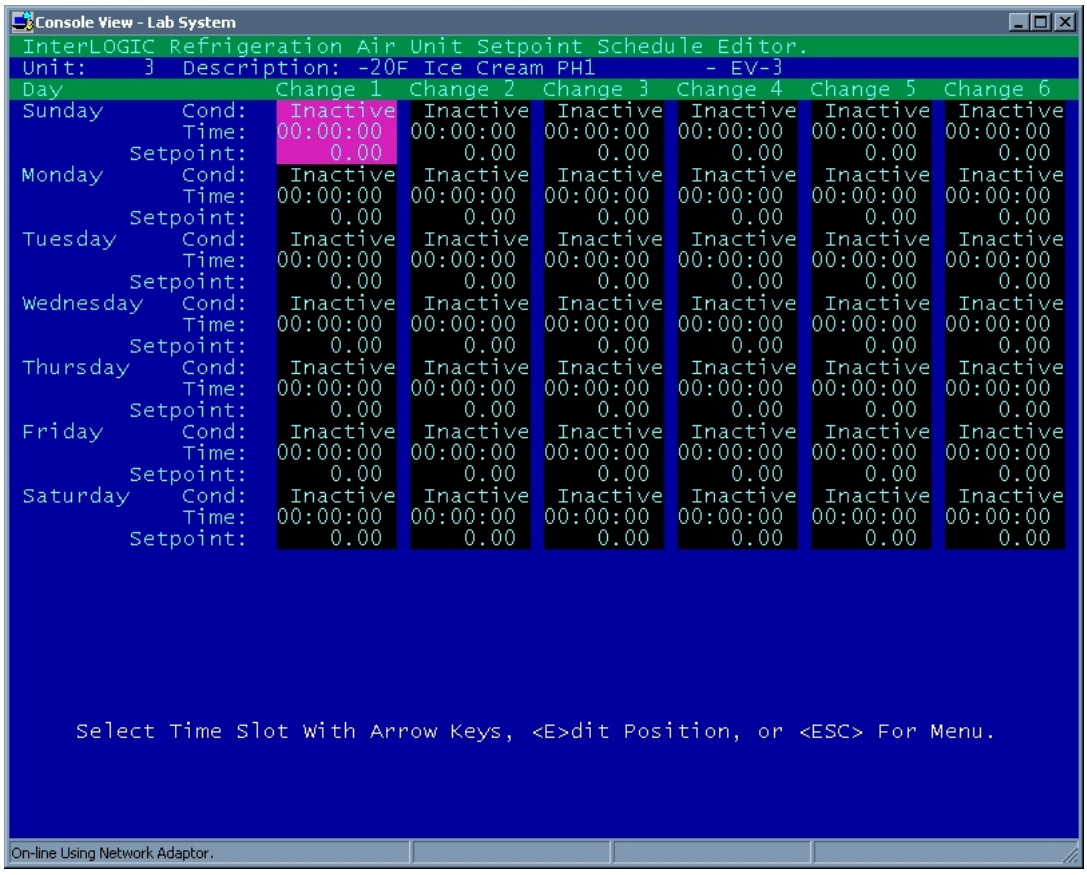
For the V-1 vessel, compressor 2 starts first with compressor 1 starting second. The number 2 compressor is the highest level on the V-1 vessel. For the high stage or V-2 vessel, compressor 6 is the first to start followed by compressor 4, then compressor 3 and finally compressor 5, etc..

The Stopping sequence is set to stop the last compressor that started and follow in respect to that sequence. In the level ID section, the operator can also define a selected compressor to be controlled by its own Micro Processor by entering the letter "A" in the level control section. Each System level ID must be in sequence in order to perform automatically. Also note that the compressor setup section has a high discharge pressure setpoint. This is to prevent any booster compressor from starting before the high stage suction pressure drops below it's setpoint. To change this setpoint, follow the instructions as described on page **SCR 51** to **SCR51b**. To add a compressor to the system (high stage or low stage), a vessel # and vessel ID in respect to the staging sequence has to be assigned to the new compressor . Example: To add a booster compressor , (which would become booster #3 in example above) simply add Booster #3 or Compressor #7 to Level#3 (which puts this machine as third in the starting sequence) and the Vessel ID : V-1 (Low stage).



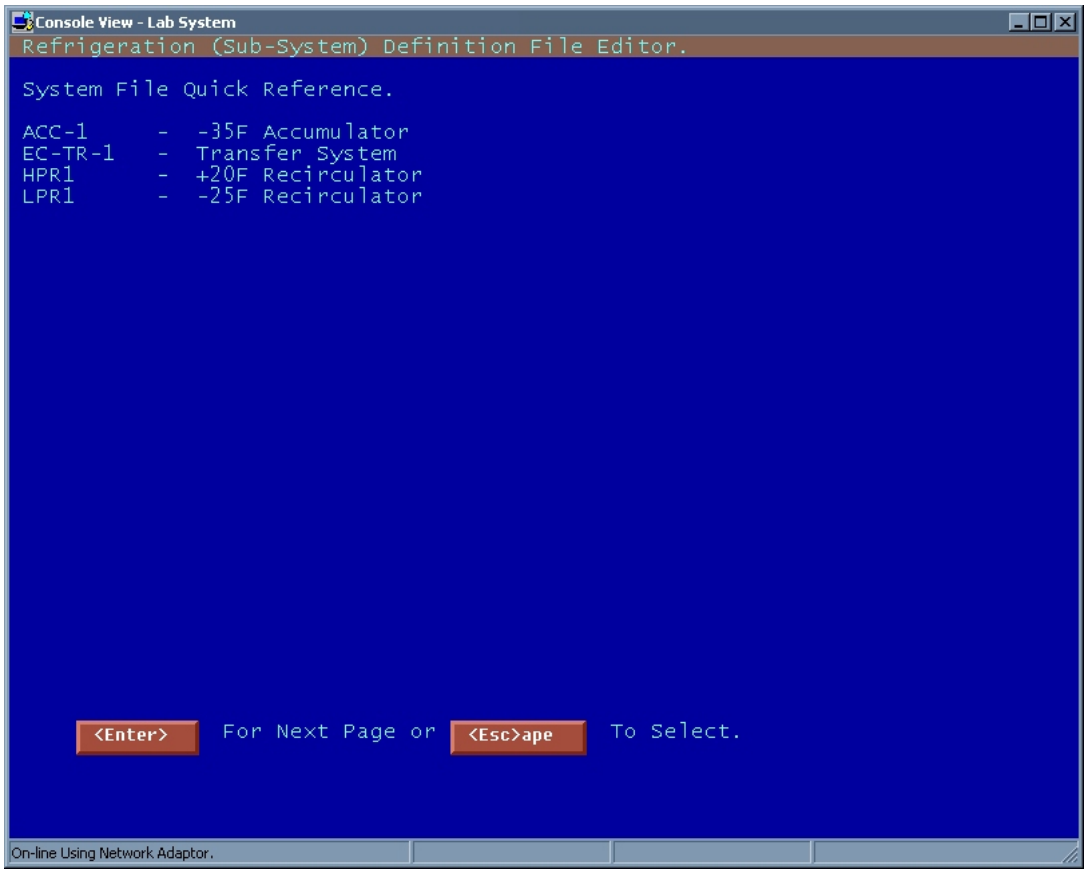
Button Access Sequence: *Main Menu, F5, F4, F3*

System Temp. Schedule : This section allows the operator to define different temperature setpoints at different times of the day for each valve group/air unit defined in your InterLOGIC Control System. After selecting this option from your submenu, the listing of all group#/air units appears. Select the group/air unit you wish to set the time schedule. Next, the air unit scheduler will appear. To change this, press the ***<E>***dit key and insert the time and temperature you wish to set.



Button Access Sequence: *Main Menu, F5, F4, F3, VG#*

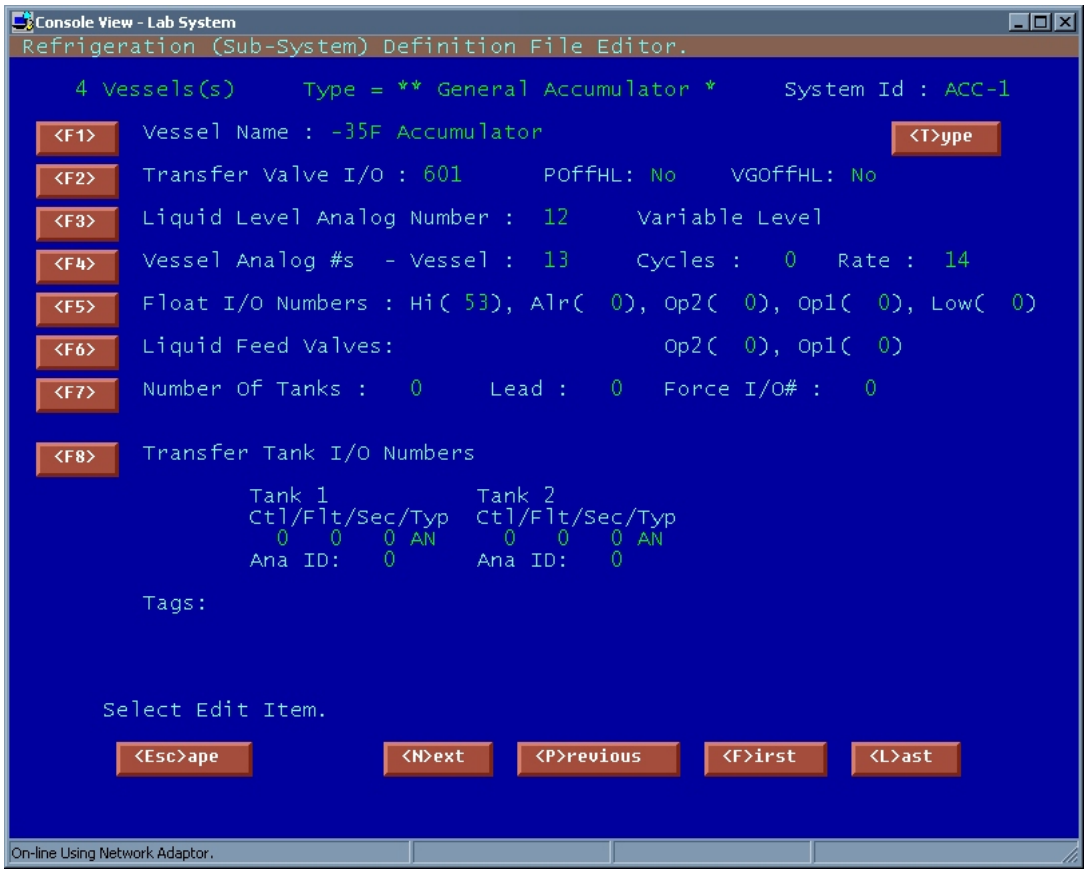
When the operator selects a valve group, the temperature schedule is displayed. This screen allows the operator to assign up to 6 temperature change times for each day of the week.



Button Access Sequence: *Main Menu, F5, F4, F4*

This section of the setup program defines all the system vessel information, high-level, operating level, low-level, pump aux., and nput/output points. To view each vessel setup, the vessel code, as listed in the above shown example, must be entered into the edit box or click the left mouse button on the desired vessel code.

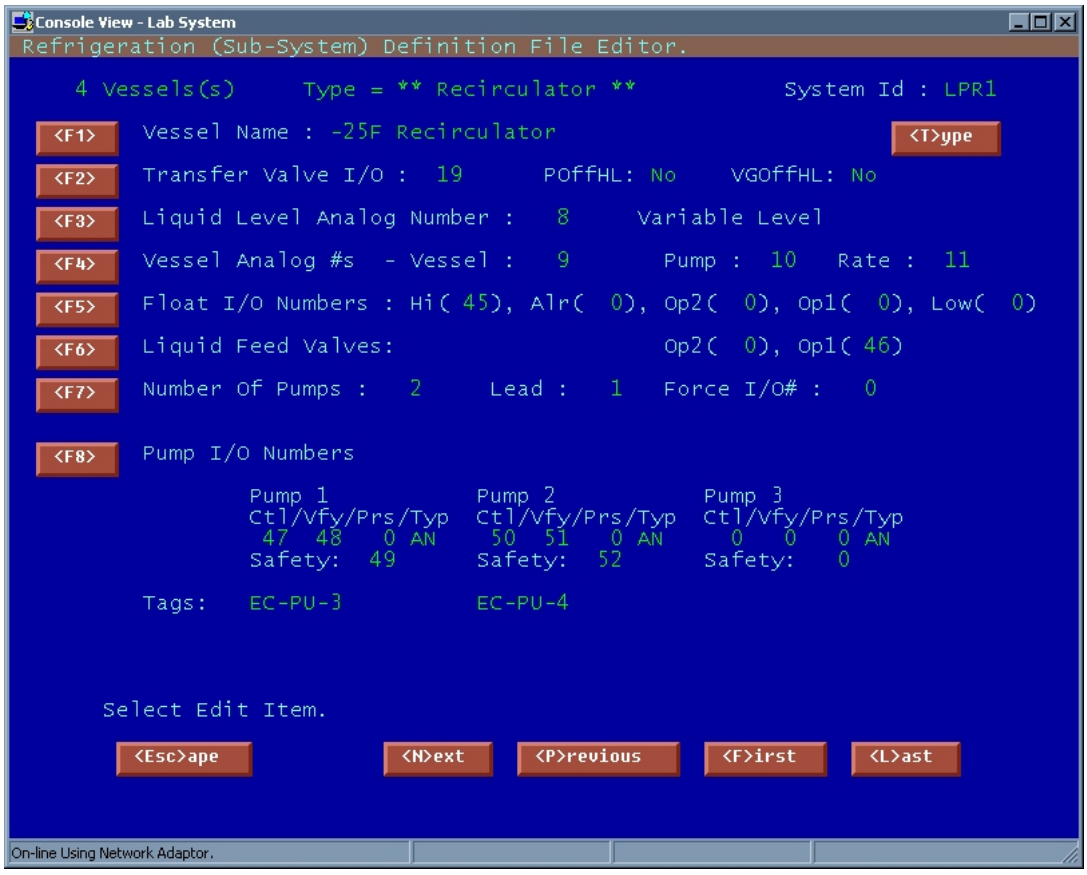
A description of the vessel setup is shown on the following page.

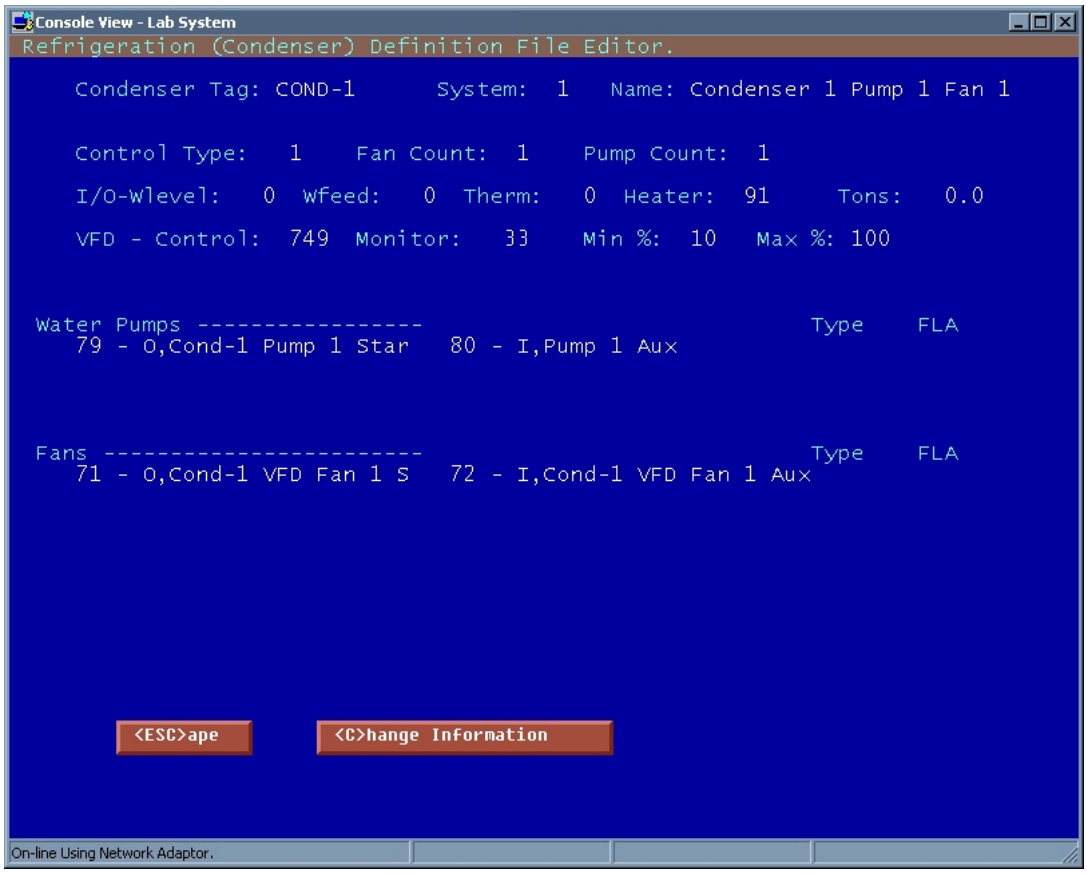


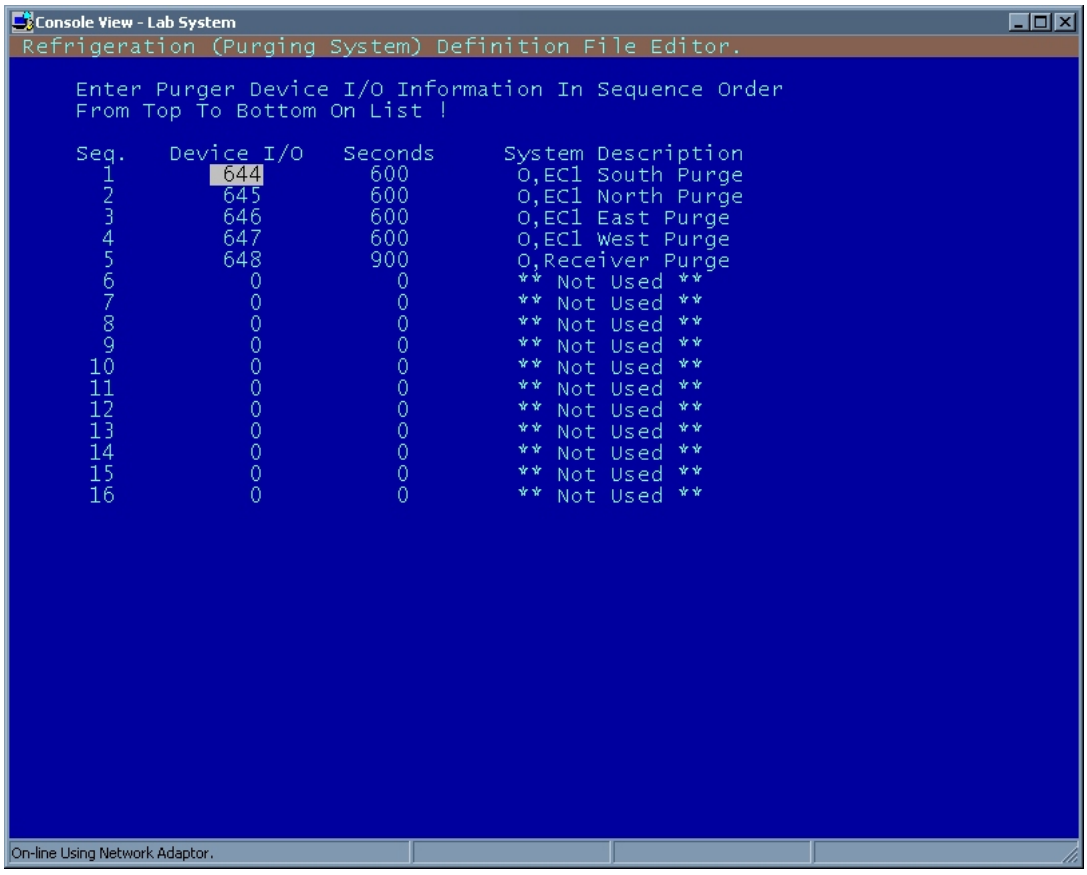
Button Access Sequence: *Main Menu, F5, F4, F4, Select Vessel*

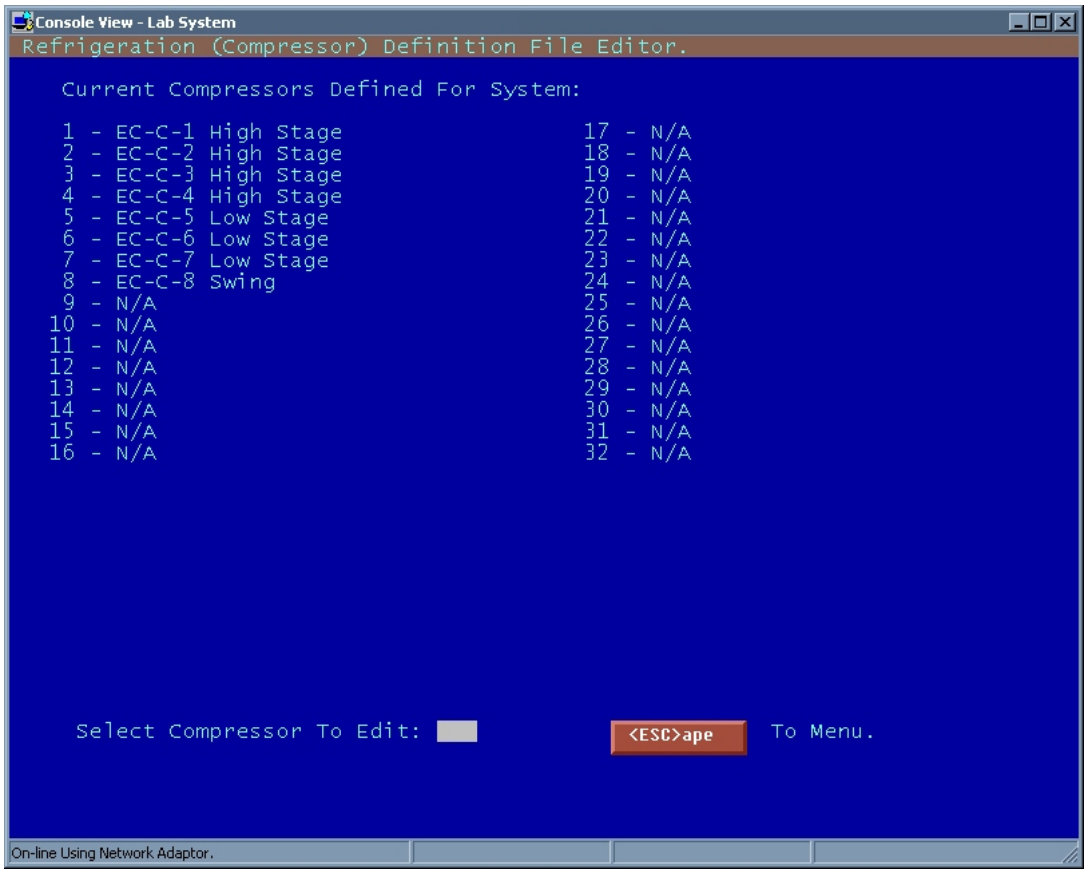
The **Vessel Definition Editor** allows the operator to edit vessel information to the respective I/O numbers in the InterLOGIC Control System program.

NOTE: Only experienced operators should edit any information on this screen. Entering the wrong information could cause the InterLOGIC Control System to operate improperly and could cause damage to the system's equipment. Operators must refer to the I/O manual for device assignments.


Console View - Lab System
Refrigeration (Sub-System) Definition File Editor.
4 Vessels(s) Type = ** Recirculator ** System Id : LPR1
<F1> Vessel Name : -25F Recirculator <T>ype
<F2> Transfer Valve I/O : 19 POffHL: No VGOffHL: No
<F3> Liquid Level Analog Number : 8 Variable Level
<F4> Vessel Analog #s - Vessel : 9 Pump : 10 Rate : 11
<F5> Float I/O Numbers : Hi(45), Alr(0), Op2(0), Op1(0), Low(0)
<F6> Liquid Feed Valves: Op2(0), Op1(46)
<F7> Number Of Pumps : 2 Lead : 1 Force I/O# : 0
<F8> Pump I/O Numbers
Pump 1 Pump 2 Pump 3
Ctl/Vfy/Prs/Typ Ctl/Vfy/Prs/Typ Ctl/Vfy/Prs/Typ
47 48 0 AN 50 51 0 AN 0 0 0 AN
Safety: 49 Safety: 52 Safety: 0
Tags: EC-PU-3 EC-PU-4
Select Edit Item.
<Esc>ape <N>ext <P>revious <F>irst <L>ast
On-line Using Network Adaptor.


Console View - Lab System
Refrigeration (Condenser) Definition File Editor.
Condenser Tag: COND-1 System: 1 Name: Condenser 1 Pump 1 Fan 1
Control Type: 1 Fan Count: 1 Pump Count: 1
I/O-Wlevel: 0 Wfeed: 0 Therm: 0 Heater: 91 Tons: 0.0
VFD - Control: 749 Monitor: 33 Min %: 10 Max %: 100
Water Pumps ----------
Type FLA
79 - O,Cond-1 Pump 1 Star
80 - I,Pump 1 Aux
Fans ----------
Type FLA
71 - O,Cond-1 VFD Fan 1 S
72 - I,Cond-1 VFD Fan 1 Aux
<ESC>ape
<C>hange Information
On-line Using Network Adaptor.

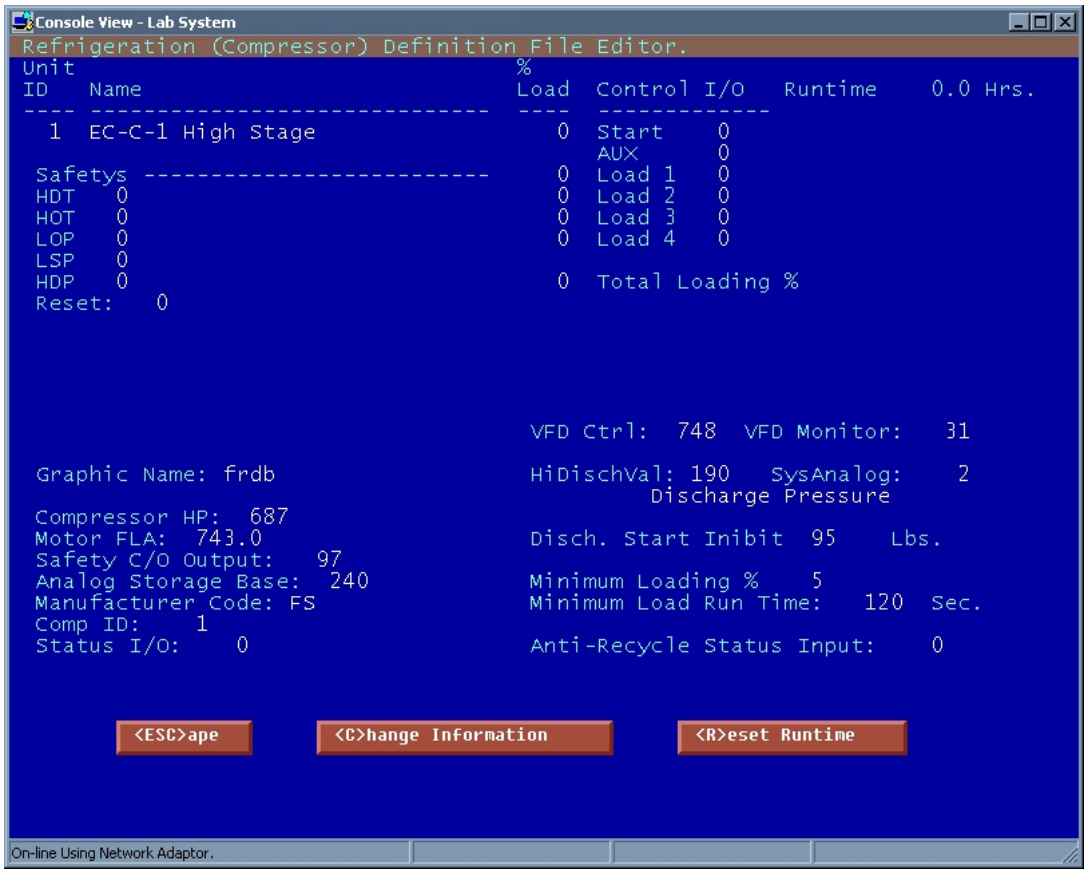

Console View - Lab System
Refrigeration (Purging System) Definition File Editor.
Enter Purger Device I/O Information In Sequence Order
From Top To Bottom On List !
Seq. Device I/O Seconds System Description
1 644 600 O,EC1 South Purge
2 645 600 O,EC1 North Purge
3 646 600 O,EC1 East Purge
4 647 600 O,EC1 West Purge
5 648 900 O,Receiver Purge
6 0 0 ** Not Used **
7 0 0 ** Not Used **
8 0 0 ** Not Used **
9 0 0 ** Not Used **
10 0 0 ** Not Used **
11 0 0 ** Not Used **
12 0 0 ** Not Used **
13 0 0 ** Not Used **
14 0 0 ** Not Used **
15 0 0 ** Not Used **
16 0 0 ** Not Used **
On-line Using Network Adaptor.



Button Access Sequence: *Main Menu, F5, F4, F7*

Compressor Control Information Editor displays a list of all compressors assigned to the InterLOGIC Control System. To edit information on a specific compressor, enter the compressor number in the edit box or click the left mouse button on the compressors to be edited.

CAUTION: The information described on the next screen is vital safety and operational information. It defines all I/O points/safeties for each specific compressor. Editing this information should only be done by experienced operators. Entering the incorrect information could cause the InterLOGIC Control System to operate improperly and could cause damage to your equipment.



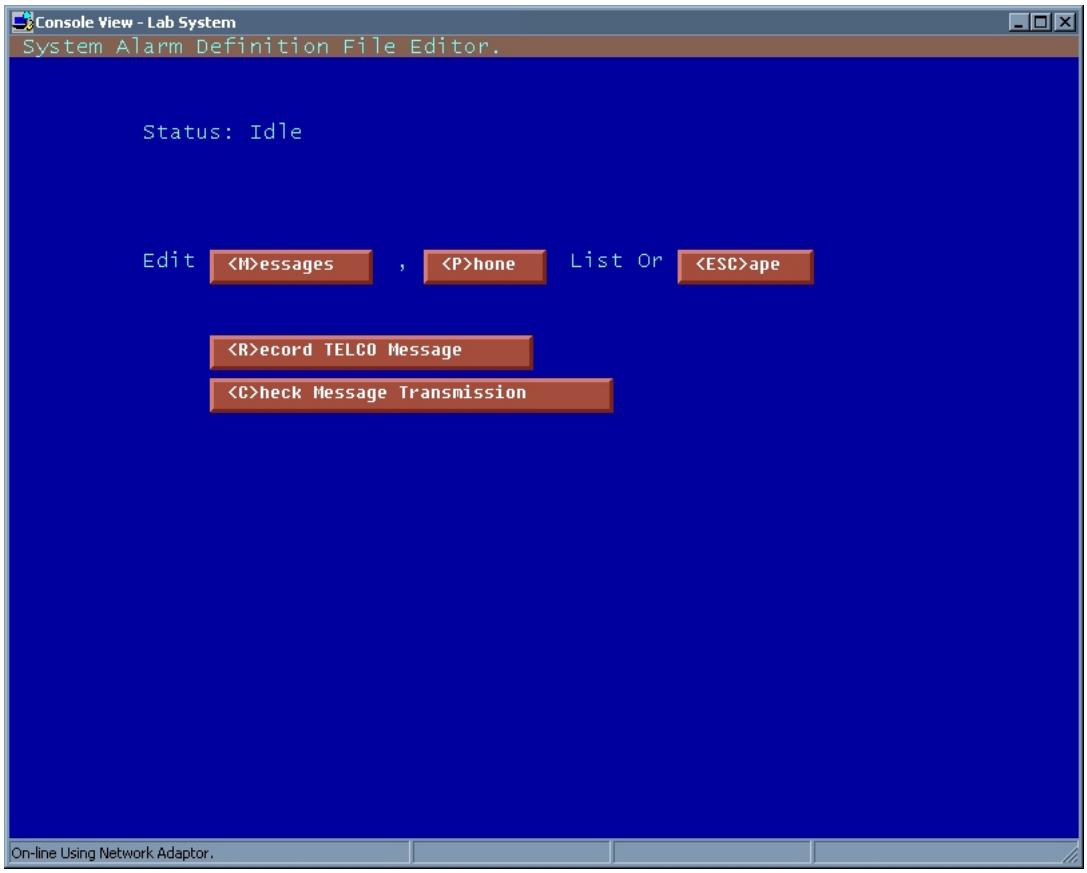
Button Access Sequence: *Main Menu, F5, F4, F7, Select Compressor ID*

The information on the screen shown above identifies all related I/O points to the appropriate control functions it displays, run time, basic compressor information, and vital safety I/O points. Every section described on this screen can be edited by pressing the ***<C>hange Information*** button. The operator can also reset compressor run time on the reset button.

CAUTION: Before changing any information in this segment, refer back to the original I/O layout manual provided by LOGIC Technologies, Inc.

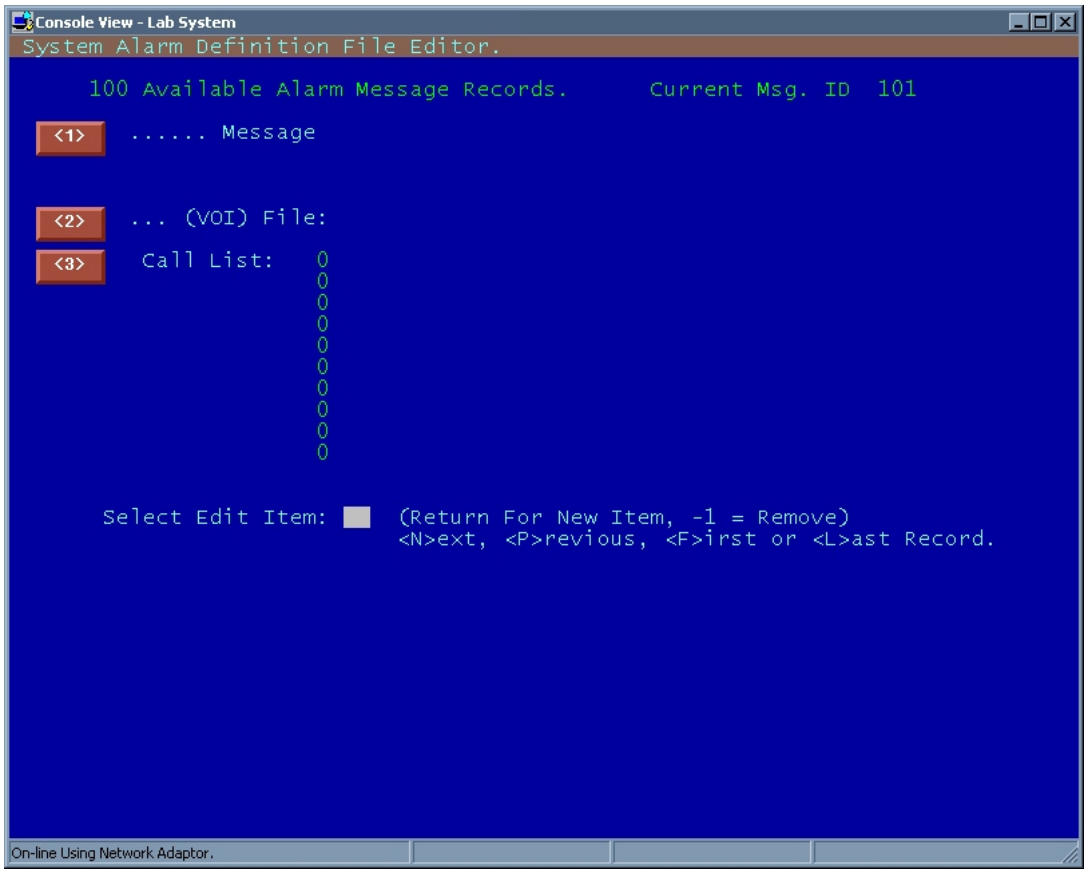
NOTE: The high discharge value for booster compressors is described in example page **SCR-48c**.

This is used to inhibit the starting of the compressor until the desired discharge pressure is present. The analog signal may be assigned to a vessel pressure if the compressor is piped as a booster system. Minimum loading % is the percentage setpoint which starts the shutdown timer for the compressor. The time is entered as minimum load runtime in minutes.



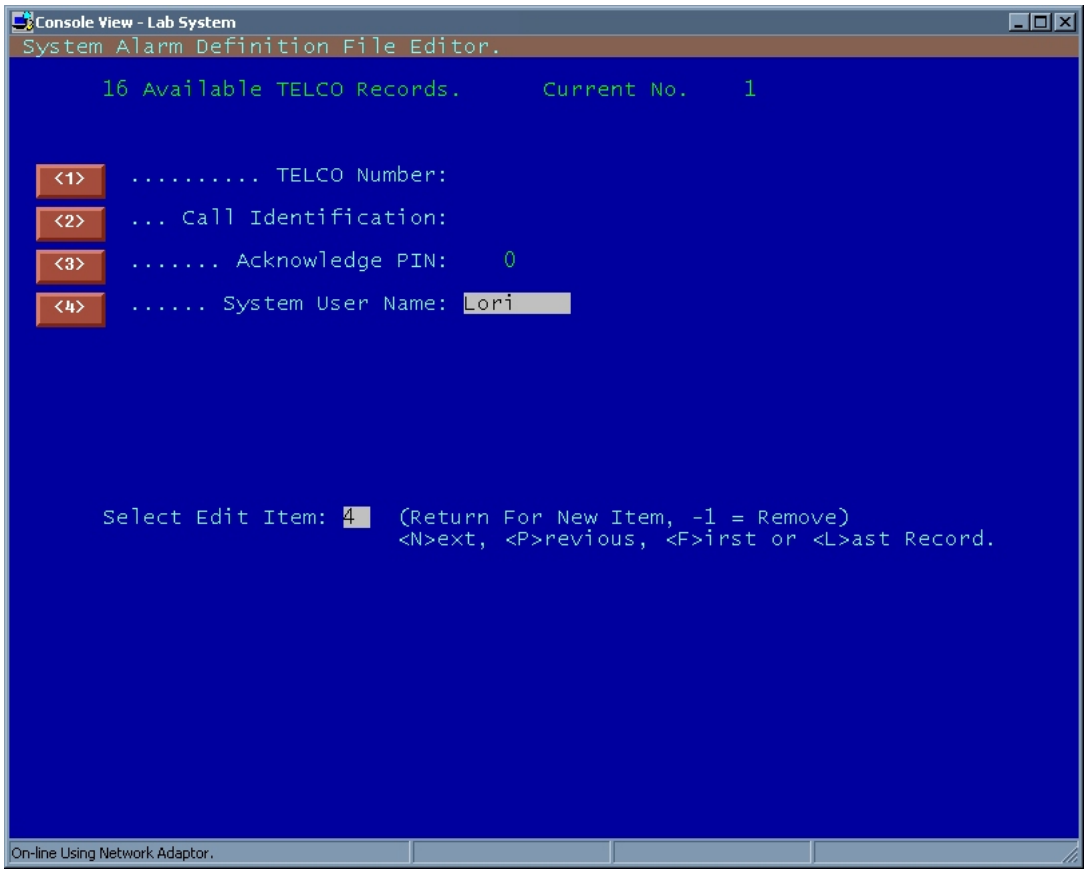
Button Access Sequence: *Main Menu, F5, F4, F8*

Alarm Call Number Maintenance: This optional function is used if a voice card is installed in your InterLOGIC Control System. This allows the operator to record alarm messages in reference to actual alarms. The InterLOGIC Operating System will then dial a list of phone numbers, programmed by the operator, until the system program reaches a specific person. The person then may reset the existing alarm, entering a preprogrammed reset code. This is a special option of the InterLOGIC Operating System program and is desribed on the following pages.



Button Access Sequence: *Main Menu, F5, F4, F8, <M>, <?>, Select Message#*

This section of the voice alarm call setup defines the type of alarms. ***<1>*** contains the description that will be displayed on the system alarm screen, ***<2>*** the file the voice message is stored in, and ***<3>*** the list of persons that will be called if the alarm occurs. This section may be setup to contact up to 10 numbers for each type of alarm recorded. To setup a list of call numbers refer to the next page



Button Access Sequence: *Main Menu, F5, F4, F8, <M>, <P>hone, <?>, Call Number*

This section allows the operator to define specific contacts for the voice alarm message system.

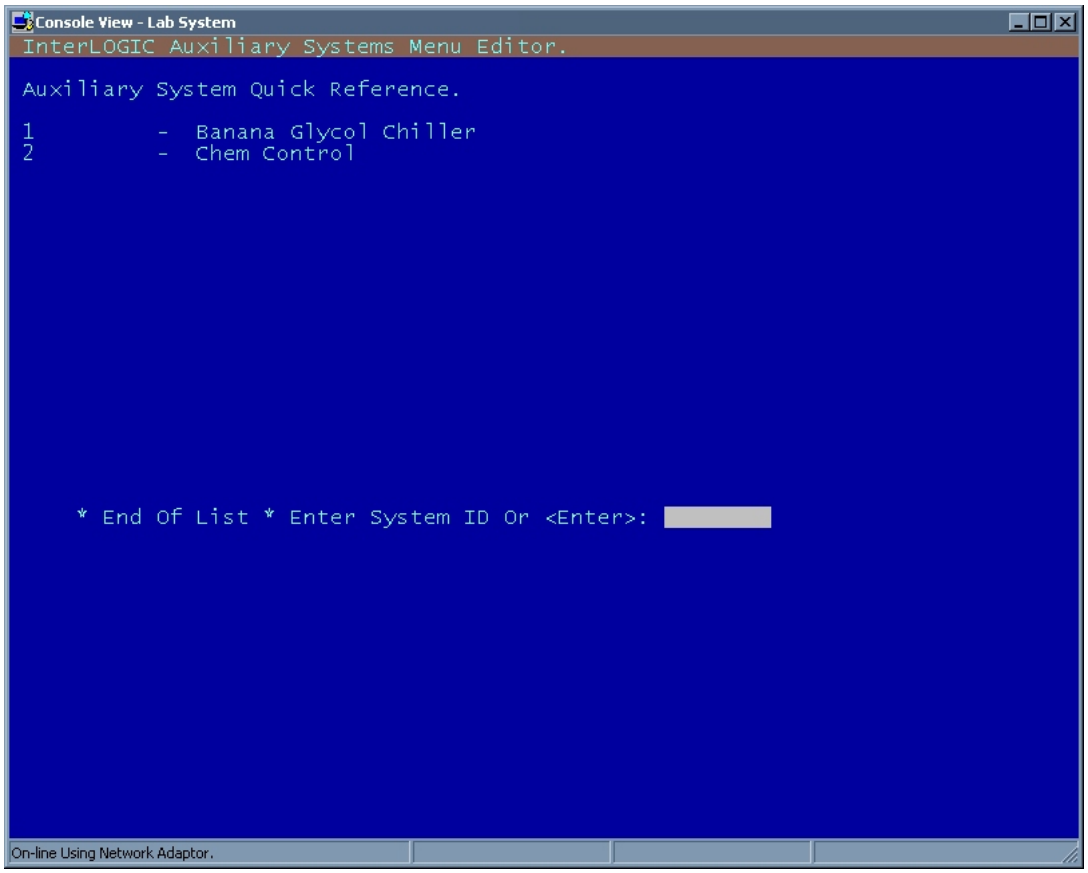
<1> Telco Number: Defines the phone number for the individual to be contacted.

<2> Call Identification: Describes the contact.

<3> Acknowledge PIN: Is the code used to acknowledge alarm by individual contacted.

Note: PIN# is operator defined and should be unique for each call identification.

<4> System user name decribes the user code that will be displayed on the alarm screen upon acknowledgement of the alarm for informational purposes.

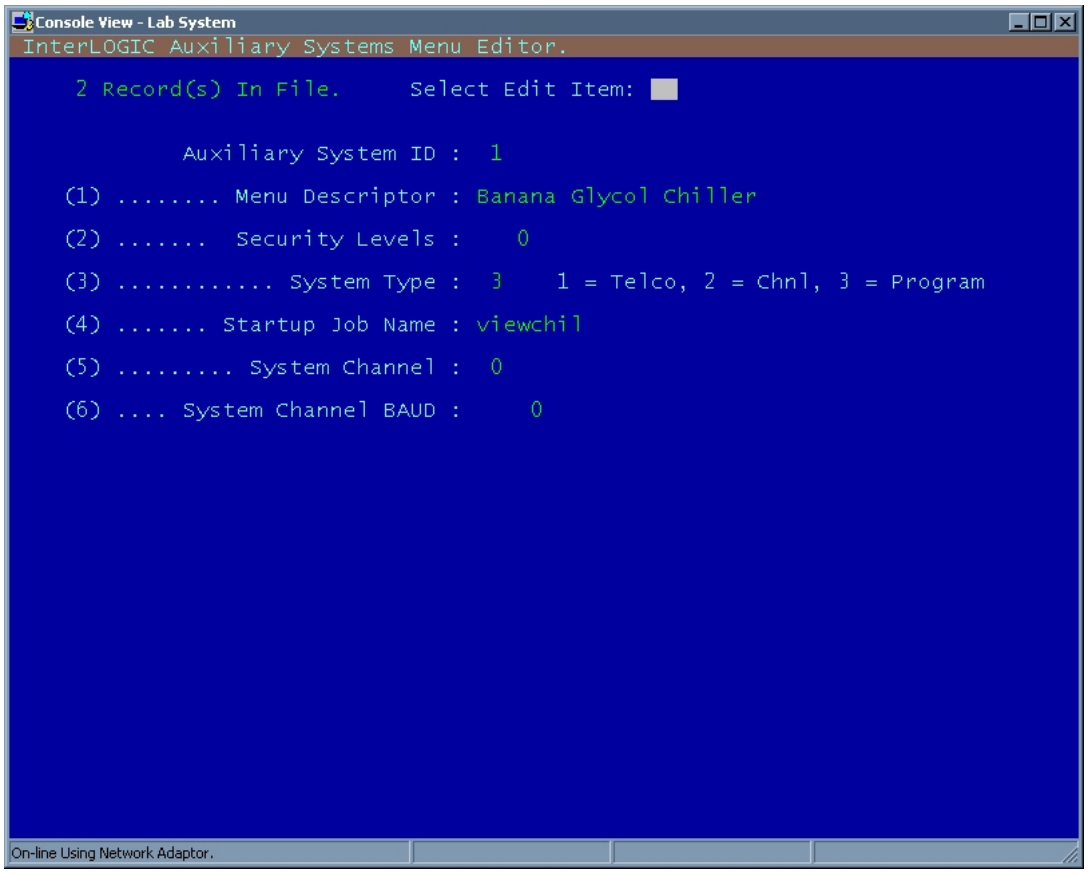


Button Access Sequence: *Main Menu, F3*

Auxiliary System Menu Maintenance: This area of the InterLOGIC Control System program is used to customize the auxiliary menu (button #4 on the Main Menu). This section allows the operator to customize special procedures to be accessed and used. The following page will give an example of installed auxiliary menus.

When selecting the auxiliary system menu maintenance option, a blank screen will appear. The operator can then enter the name of the auxiliary menu he wishes to edit. A list of auxiliary menu items can also be displayed by pressing <?> list items button or entering the question mark symbol in the dialog box.

Upon selecting a menu item, the menu edit screen appears.

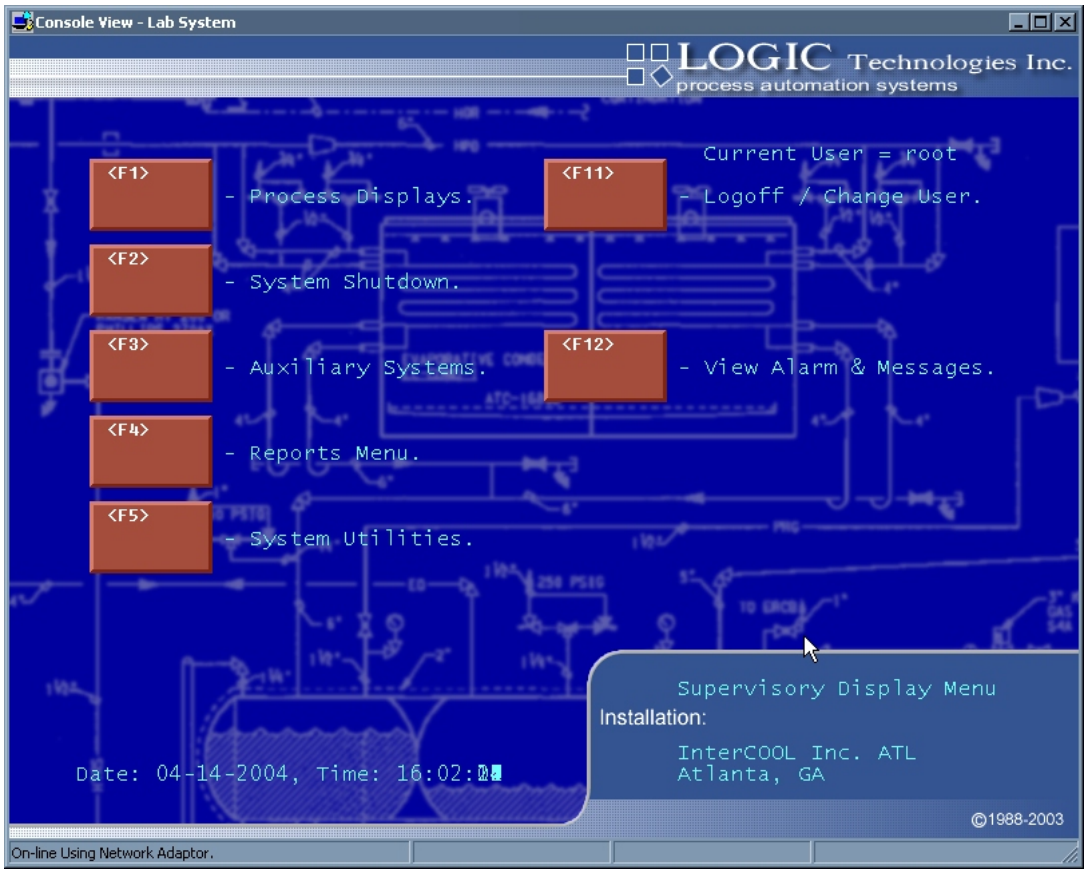


Button Access Sequence: *Main Menu, F3, Name Of Auxiliary Menu*

The menu editor defines the auxiliary menu selected. The operator can edit, add, or remove any information on this screen.

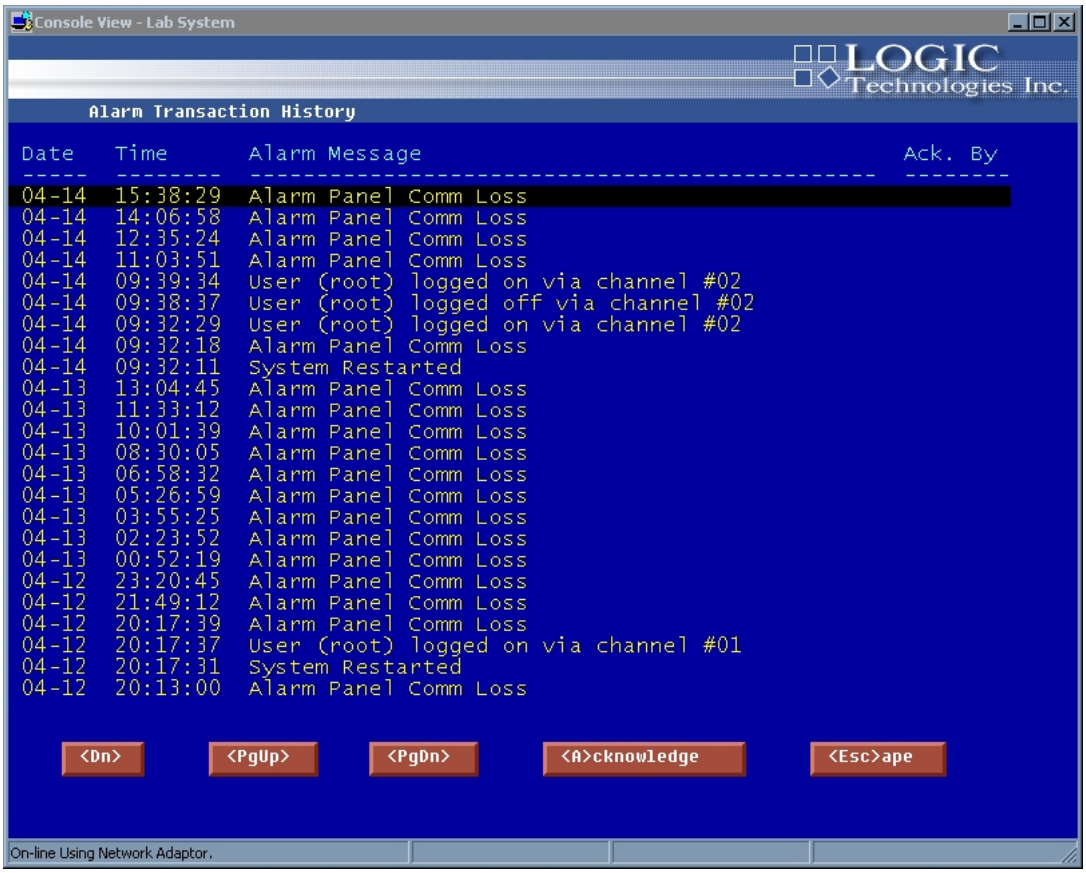
CAUTION: Changing/editing any information in this section of the InterLOGIC Control System program should only be done by experienced operators. Changing/editing any information can result in the improper operation of the auxiliary menu option or the system.

Item 1 is the menu description to identify the selection on the menu. Item 2, the security level, blocks users with privilege levels lower than specified from using the selection. Item 3, system type, identifies if the entry runs a program or connects to a remote server via telephone or channel connections. Item 4 selects the startup procedure for entry. Items 5 & 6 specify connection channel and baud rate if not a program system type.



Button Access Sequence: *F11 On Main Menu*

(F11) Logoff/Change User: This menu option allows the operator to logoff the main screen or to change users. Each operator should logoff after completing their task in the InterLOGIC Operating System. This section of the InterLOGIC Operating System is part of the security option described in detail on page **SCR29**. After operators select the F11 button on the main menu, the security logon window will appear. Any registered operator can logon this window and reenter the operations described in this manual.



Button Access Sequence: *F12 On Main Menu*

(F12) View Alarm Status: This section displays all current and past system alarms. The information displayed on this screen is as follows: Date and time of alarm condition, type of alarm, and the operator that acknowledged the alarm.

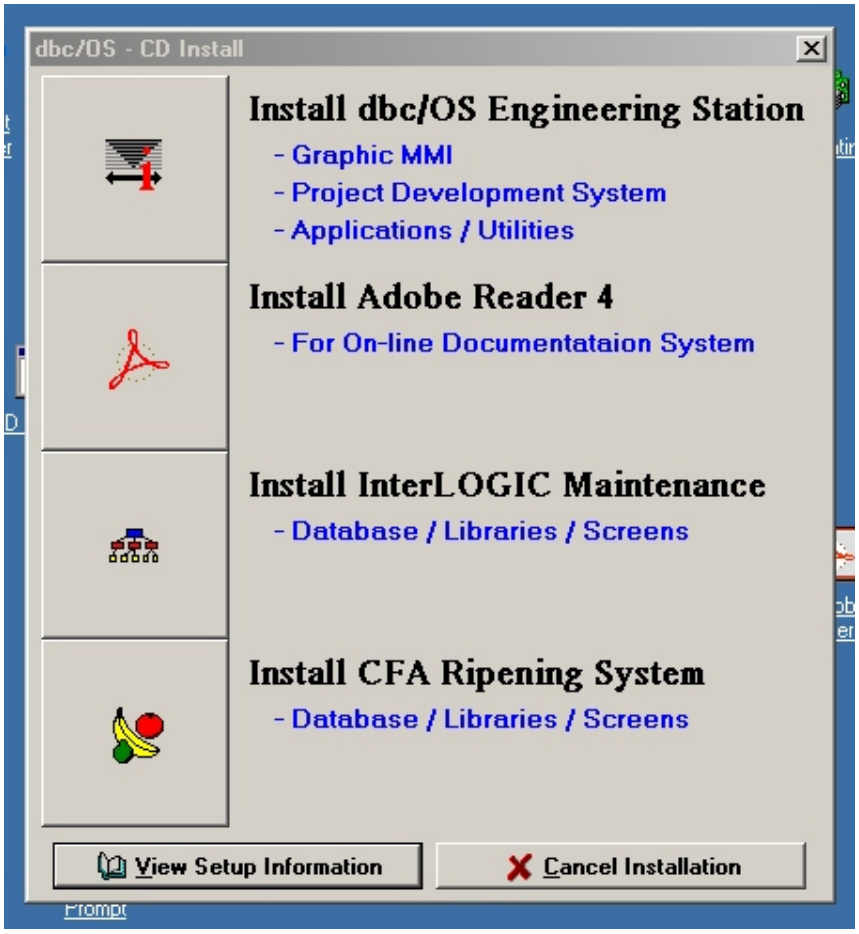
Failure and non-failure causing alarms (Example: System force fail compressor, E-Stop System shutdown, High Discharge Pressure, etc.) are displayed in **RED** text.

All acknowledged alarms or failures are displayed in **GREEN** text.

All system messages are diplayed in **YELLOW** text. System messages are displayed when warnings or actions the system corrected occur.

Engineering Console

Section III describes the installation and usage of the WIN32 Engineering Console used to access the dbc/OS Signal Server from remote locations.



The dbc/OS Engineering Console is released on CD due to the large volume of program files installed. Setup of the software is accomplished by inserting the CD and selecting the INSTALL program located in the root directory. Upon execution of the program, the above dialog box will appear. Select the top button and when asked for install options, select custom to install all programs. If you are updating from an older version of this software, you should select the normal installation procecure.

Optional programs included are the Adobe Reader and RAR Archive Utility. Adobe Reader is used by the console program to view online documentation such as this manual or system drawing sets. RAR is used to maintain backups of program on the server in a managable size.

If you do not have available any high definition graphic files, the Project Setup Data will contain demo graphic files and libraries. If you have purchased the high definition graphics package, your current graphical views and libraries will be installed.