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Contact-Cooled Rotary Screw Air Compressor

R37-160



Product Information



Información del producto

F Informations sur le produit

PT Informações do produto



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ABOUT THIS MANUAL

The purpose of this manual is to provide site planning, installation and operation guidelines for the compressor.

For supporting documentation refer to Table 1.

Table 1 : Product Manuals

Publication	Part/Document Number			Region
rubication	Floadet	Americas	EMEIA *	Asia Pacific
Product Safety Information Manual	All	80446313	80446156	80446321
Product Maintenance Manual	All	80446354	80446248	80446362
Product Parts Information Manual	R37-45 kW	80448095		
	R45IE-75 kW	80446271		
	R132-160 kW Single-Stage	80446057		
	R90-160 kW Two-Stage	80446065		

* Europe, Middle East, India and Africa

Product specification sheets and reference drawings are also available.

SAFETY

- Locate, read, understand and follow all Danger, Warning, Caution, and Operating Instructions on the product and in all Manuals. Failure to comply with safety precautions described in the manuals supplied with the product, this manual or any of the labels and tags attached to the product may result in death, serious injury or property damage.
- It is your responsibility to make this information available to others.
- If you have any questions about safety or procedures not included in this manual, ask your supervisor or contact any **Ingersoll Rand** office or qualified **Ingersoll Rand** distributor.
- Check that all labels, tags and data (name) plates are in place and legible.

RECEIPT/HANDLING

RECEIPT

Before signing the delivery receipt, inspect for damage and missing parts. If damage or missing parts are apparent, make the appropriate notation on the delivery receipt, then sign the receipt. Immediately contact the carrier for an inspection.

All material shall be held in the receiving location for the carrier's inspection.

Delivery receipts that have been signed without a notation of damage or missing parts are considered to be delivered "clear." Subsequent claims are then considered to be concealed damage claims. Settle damage claims directly with the transportation company.

If you discover damage after receiving the compressor (concealed damage), the carrier shall be notified within 15 days of receipt and an inspection shall be requested by telephone with confirmation in writing. On concealed damage claims, the burden of establishing that the compressor was damaged in transit reverts back to the claimant.

Read the compressor nameplate to verify it is the model ordered, and read the motor nameplate to verify it is compatible with your electrical conditions.

Make sure electrical enclosures and components are appropriate for the installation environment.

UNPACKING AND HANDLING

The compressor will normally be delivered with a polyethylene or other cover. If a knife has to be used to remove this cover, ensure that the exterior paintwork of the compressor is not damaged.

Incorporated within the base of the compressor are slots to enable a fork lift truck to move the compressor. Ensure truck forks are fully engaged on both sides. Alternatively a special lifting frame can be used to enable a crane or hoist to move the compressor. Use only marked lifting points.

Once the packaging and pallet are discarded and the compressor is in its final position, remove the yellow painted transit brackets from the resilient mounts and store for future use or discard.

For Variable Speed Drive (VSD)

- (3) brackets at the separator tank
- (1) bracket from the air end discharge elbow.
- (1) bracket from the air end support.

For Fixed Speed (FS)

- (3) brackets at the separator tank
- (1) bracket from the air end support.
- (1) bracket from the motor mounting bracket.

LONG TERM STORAGE

If the product will not be commissioned within six months of receipt, it should be prepared for long term storage. Please contact **Ingersoll Rand** for details.



INSTALLATION

LOCATION IN PLANT



Key

- 1. Compressor
- 2. Air Receiver Dry Tank
- 3. Air Dryer
- 4. Compressed Air Filters
- 5. System Demand Points
- 6. Vent/Drain Trap
- 7. Isolation Valve
- 8. Air Receiver ("Wet Tank")
- The compressor can be installed on any level floor capable of supporting it. A dry, well ventilated area where the atmosphere is as clean as possible is recommended.
- The area selected for the location of the compressor should be free of dust, chemicals, metal filings, paint fumes and overspray.
- Hard surfaces may reflect noise with an apparent increase in the decibel level.
 When sound transmission is important, a sheet of rubber or cork can be installed beneath the compressor to reduce noise. Flexible piping may be required.
- See the general arrangement drawing for minimum space requirements for normal operation and maintenance.
- Minimum space in front of the control panel door as required by national or local codes shall be maintained.
- Ambient temperatures higher than 46 °C (115 °F) shall be avoided, as well as areas of high humidity.

NOTICE

A minimum of 1 m (3.3 ft) all around the compressor is recommended. If headroom is restricted, then the exhaust should be ducted or deflected away from the compressor.

Screw type compressors should not be installed in air systems with reciprocating compressors without means of isolation such as a common receiver tank. It is recommended that both types of compressor be piped to a common receiver tank using individual air lines.

The compressor is shipped with the shipping restraints in place. Ensure that these are removed to allow free movement of the drive assembly during operation. Each restraint is painted yellow.

DISCHARGE AND CONDENSATE PIPING

See Figure 1.

It is essential when installing a new compressor (1) to review the total air system. This is to ensure a safe and effective total system.

One item which should be considered is liquid carryover. Installation of air dryers (3) is always good practice since, when properly selected and installed, they can reduce any liquid carryover to zero.

An air receiver tank (2) is recommended to ensure that the total system volume is sufficient.

Discharge piping should be at least as large as the discharge connection of the compressor. All piping and fittings should be suitably rated for the discharge pressure. Discharge piping should not exert any unresolved moments or force on the compressor.

It is good practice to install line filters (4).

Include a vent or drain trap (6) to vent the discharge pipework downstream from the minimum pressure check valve located on the separator tank and upstream of the first system isolation valve (7).

This compressor has an internal discharge check valve. An external check valve is not required. An isolation valve (7) is required within 1 m (36 in) of the compressor discharge.

NOTICE

There should be no plastic or PVC piping attached to this compressor or used for any lines down stream with exception of condensate removal lines.

NOTICE

The discharged air contains a very small percentage of compressor coolant and care should be taken to ensure that downstream equipment is compatible.

When two rotary compressors are operated in parallel, provide an isolation valve (7) and drain trap (6) for each compressor before the common receiver. Ensure the discharge piping is arranged to prevent water from being forced into the non-operating compressor.

A wet tank (8) is recommended in cases where the air dryer is a regenerative desiccant type to prevent short cycling the compressor during the purging cycle when plant air demand is slow.

The built-in after-cooler reduces the discharge air temperature below the dew point (for most ambient conditions). Therefore, considerable water vapor is condensed. To remove this condensation, each compressor with a built-in after-cooler is furnished with a combination condensate separator/trap.

A dripleg assembly and isolation valve should be mounted near the compressor discharge. A drain line should be connected to the condensate drain in the base.

NOTICE

The drain line shall slope downward from the base to work properly. For ease of inspection of the automatic drain trap operation, the drain piping should include an open funnel. The drain line must have a minimum inside diameter of 8 mm (5/16 in).

NOTICE

For low volume systems that may not include an air receiver tank (2), compressor response time may need adjusting. Contact your local Ingersoll Rand service provider.

NOTICE

Do not use the compressor to support the discharge pipe.



ELECTRICAL

A qualified electrician shall perform all electrical installations and service.

The compressor shall be properly grounded / earthed in compliance with all applicable standards and regulations (local, state, country, federal, etc.).

Installation of this compressor shall be in compliance with all applicable standards and regulations (local, state, country, federal, etc.).

The compressor shall have its own isolator situated adjacent to it. The fuse protecting the circuit and the compressor shall be selected in accordance with recognized code requirements on the basis of the data provided in the specification sheet.

Feeder cables shall be sized to ensure that the circuit is balanced and not overloaded by other electrical equipment. The length of wiring from a suitable electrical feed point is critical as voltage drops may impair the performance of the compressor.

NOTICE

For VSD, cable sizes may vary considerably so the line reactor is equipped with copper bus connections. These connections can accept bolts between 6 mm and 12 mm.

Feeder cable connections to incoming terminals L1-L2-L3 shall be tight and clean.

The applied voltage shall be compatible with the compressor data plate ratings.

The control circuit transformer has different voltage tappings. Ensure that these are set for the specific applied voltage prior to starting.

Remove the blind plate to cut a hole for incoming power connection. If it is necessary to make a hole in the control box in a different location, care should be taken to not allow metal shavings to enter the starter and other electrical components within the box. If another hole is used, the original hole shall be blocked off.

The feeder cable shall be suitably glanded in to the starter box to maintain proper ingress protection. Fixed speed starter boxes are rated for NEMA 4 /IP65, and variable speed drive starter boxes are rated for NEMA 12/IP54. For variable speed drive starter boxes, the feeder cable shall be glanded to ensure that dirty air does not by-pass the filters.

On completion of electrical installation, check that the blower or fan motor rotation is correct.

Variable speed drive compressors are designed for use, where the electricity supply is separated from nearby residential and commercial areas. If the compressor is to be used in a light industrial, residential or commercial environment where the local supply network is shared, further Radio Frequency (RF) screening measures may be required. Consult your local distributor/supplier for details of the optional RF filter.

Variable speed drive compressors have an anti-condensation heater and thermostat in the electrical box. This circuit can be connected to an independent electrical supply of either 110 V or 230 V single phase, dependent on the country of installation. The supply shall be suitably fused and an independent isolator installed adjacent to the compressor. Verify that the thermostat is adjusted to 29 °C (85 °F). This shall be done in accordance with recognized codes. It is good practice, and sometimes mandatory, to display suitable signs warning that the compressor has two separate electrical supplies which both shall be isolated before any work is attempted.

For Variable speed drive compressors, the heater circuit can also be supplied from the 110 V tapping of the control transformer and connected as shown on the schematic wiring diagram furnished separately from this manual.

NOTICE

Main and fan motor insulation shall be tested by a qualified electrician prior to initial start-up or following an extended shutdown period in cold and damp conditions.

WATER-COOLED

COOLING WATER PIPING

NOTICE

Water piping to and from the compressor package shall be at least as large as the package connection size. Do not undersize the water piping.

Isolation valves with side drains should be installed on both the inlet and outlet lines. To maintain cooler cleanliness and reliability, it is important to install a strainer of 2 mm mesh size on the inlet line. Strainers are available from **Ingersoll Rand**.

For sea water applications (sea water option only) a zinc anode is not recommended as it will deteriorate the copper oxide film on the 70/30 copper-nickel alloy tubes in contact with sea water. To minimize galvanic corrosion and provide the greatest corrosion protection to the coolers, it is strongly recommended that a section of iron pipe (>00 mm length) be connected as close as possible to the air compressor package water inlet connection. The iron pipe will act as the sacrificial anode for the copper-nickel tubes and therefore shall be considered a regular maintenance and replacement item. For this reason, the section of iron pipe should be installed so that it can be easily replaced (e.g. with a union joint.).

The air compressor has a normally closed solenoid valve that is fitted to the water outlet side within the package. The valve is wired into the air compressor control circuit and closes when the compressor stops.

Carefully inspect the water system before installing the air compressor package. Ensure that the piping is free of scale and deposits that may restrict water flow to the air compressor package. If water cleanliness is poor, filtration installed on the water inlet pipe line is recommended.

Proper operation of the compressor requires that the cooling water flow be provided at a maximum supply temperature of 46 °C (115 °F). See the compressor engineering data sheets for cooling water flow rates.

Water temperature and pressure gauges should be installed in the water piping for use in any fault finding of the water system. Water pressure should ideally be between 3 and 5 bar (43.5 and 72.5 psi) but shall not be above 10 bar (145 psi).

Water cleanliness is also extremely important. Cleaning of coolers as a result of fouling is a customer responsibility. Therefore, it is highly recommended that proper water quality shall meet the requirements listed in WATER QUALITY RECOMMENDATIONS later in this section.

VENTING THE WATER SYSTEM

Air should be vented from the water side of the system to avoid poor performance and water hammer. Since the air compressor uses different type heat exchangers depending on your selection of "fresh water cooled" or "harsh water cooled" system, the venting procedure is different. Be sure to use the correct procedure below:

Fresh water coolers (brazed plate heat exchangers):

- Disconnect the water stop valve in the water outlet line of the compressor.
- 2. Open the inlet water valve(s) to allow the water to flow to the compressor.
- Allow all the air to escape from the system and observe water at the water outlet port.
- 4. Connect the water stop valve.

Harsh water coolers (shell and tube heat exchangers):

- 1. Locate the water system vent cocks on top of the after-cooler and oil cooler.
- 2. Open the water valve(s) allowing water to flow to the package.
- 3. Open the vent cocks and allow all air to escape from the system. When water is observed at the vent cocks, close them.



DRAINING THE WATER SYSTEM

Should it become necessary to completely drain the water system, use the following procedures specific to the water cooled option you have.

Fresh water coolers (brazed plate heat exchangers):

- Disconnect the inlet water line from the connection located at the rear of the compressor.
- Disconnect the water stop valve in the water outlet line of the compressor.
- 3. Allow the system to completely drain.

Harsh water coolers (shell & tube heat exchangers):

- 1. Disconnect the inlet and discharge water lines from the connections located at the rear of the compressor.
- Locate the after-cooler and oil cooler. Remove the drain plugs located at the bottom of the coolers.
- 3. Open the vent ports in the top of the after-cooler and oil cooler.
- 4. Allow the system to completely drain.

ADJUSTING THE AFTER-COOLER TRIM VALVE

See the piping and instrumentation diagram provided separately from this manual. The coolers are piped in a "parallel" water flow arrangement with a manual trim valve controlling the flow through the after-cooler. The after-cooler trim valve is factory set and should not need adjusting but if disturbed use following procedure.

- 1. Close valve fully clockwise and then open two full turns.
- 2. With the compressor running loaded observe the package discharge temperature on the controller display. It should be approximately 8 °C (15 °F) above the water inlet temperature.

- If the temperature is too high, open the valve ¼ turn and wait one minute. If the temperature is too low, close the valve ¼ turn and wait one minute. Repeat the incremental movements until the desired temperature is reached.
- 4. Put a "Warning Do Not Adjust" label on the valve or fit a lock.

WATER QUALITY RECOMMENDATIONS

Water quality is often overlooked when the cooling system of a watercooled air compressor is examined. Water quality determines how effective the heat transfer rate, as well as the flow rate, will remain during the life of the compressor. It should be noted that the quality of water used in any cooling system does not remain constant during the operation of the system. Evaporation, corrosion, chemical and temperature changes, aeration, scale and biological formations affect the water makeup. Most problems in a cooling system first appear as a reduction in the heat transfer rate, then in a reduced flow rate or increased pressure drop, and finally with damage to the system.

Scale: Scale formation inhibits effective heat transfer, yet it does help prevent corrosion. Therefore, a thin uniform coating of calcium carbonate is acceptable on the inner surface. Perhaps the largest contributor to scale formation is the precipitation of calcium carbonate out of the water. This is dependent on temperature and pH level. The higher the pH value, the greater the chance of scale formation. Scale can be controlled with water treatment.

Corrosion: In contrast to scale formation is the problem of corrosion. Chlorides cause problems because of their size and conductivity. Low pH levels promote corrosion, as well as high levels of dissolved oxygen.

Fouling: Biological and organic substances (slime) can also cause problems, but in elevated temperature environments such as cooling processes they are not a major concern. If they create problems with clogging, commercial shock treatments are available.

To ensure good operation life and performance of the compressor cooling system, the recommended acceptable ranges for different water constituents are included below:

		ACCEPTABLE MAXIMUM LIMITS		
Substance	Test Interval	Fresh Water	Dirty Water / Sea Water	
		(Brazed Plate Heat Exchanger)	(Shell & Tube Heat Exchanger)	
Langelier Index (LI)	Monthly	0 to 1	-0.5 to 2.5	
Ammonia [NH3], ppm	Monthly	<1	<2	
Ammonium [NH4-1], ppm	Monthly	<2	<5	
Chlorides [Cl-], ppm	Monthly	<80	<1000	
Copper [Cu], ppm	Monthly	<0.01	<0.5	
Dissolved Oxygen (DO) [O2], ppm	Weekly	<0.1	<3	
Iron + Manganese [Fe + Mn], ppm	Monthly	<0.3	<2	
Nitrate [NO3 -], ppm	Monthly	<100	<125	
Oil & Grease, ppm	Monthly	<5	<5	
Silicon Dioxide (silica) [SiO2], ppm	Monthly	<30	<100	
Sulfates [SO4-2], ppm	Monthly	<70	<250	

Table 2 : Acceptable Limits for Cooling Water Constituents

INTEGRATED DRYER

Do not connect condensate drains common to other pressurized drain lines in a closed circuit. Make sure the outflow from the condensate drains is unimpeded. Connect the condensate piping in such a way to ensure that sound levels are kept to a minimum during drainage.

Ensure that all condensate is disposed of in a responsible manner, in compliance with all applicable standards and regulations (local, state, country, federal, etc.).

The ambient air around the dryer and compressor shall not contain solid or gaseous contaminants. All compressed and condensed gases can generate acids or chemical products which may damage the compressor or components inside the dryer. Take particular care with sulphur, ammonia,

chlorine and installations in marine environments.

ENVIRONMENTAL LIMITS

The standard compressor package is designed for the following conditions: • Indoors only

- · Area not considered to be a high dust area.
- Ambient temperature range 2 to 46 °C (35-115 °F)

Ingersoll Rand offers the following options for fixed speed compressors that extend the environmental limits:

- Outdoor modification
- + Low ambient option (-23 to 46 $^\circ\text{C}$ / -15 to 115 $^\circ\text{F})$ at sea level
- High ambient option (2 to 55 $^\circ\text{C}$ / 35 to 131 $^\circ\text{F}$) at sea level
- High dust air filter
- · High dust package filter



The compressor is an electric motor driven, contact cooled screw compressor, complete with all necessary components piped, wired and baseplate mounted. It is a totally self contained air compressor package.

The standard compressor is designed to operate in an ambient range of 2 °C to 46 °C (35 °F to 115 °F). The standard maximum temperature of 46 °C (115 °F) is applicable up to an elevation of 1000 m (3280 ft) above sea level. Above this altitude, significant reductions in ambient temperature are required if a standard motor is to be used.

The compressor is managed by the onboard electronic controller. The controller and drive system operate together to vary the speed of the compressor to deliver compressed air at the target pressure.

For fixed speed (FS) models, the capacity is automatically controlled via 'ON-OFF LINE'. The compressor will operate to maintain a set discharge line pressure and is provided with an auto restart system for use in plants where air demand varies widely.

Panel instrumentation is provided to indicate the compressor operating conditions and general status.

The air/coolant mixture discharges from the compressor into the separation system. This system removes all but a few ppm of the coolant from the discharge air. The coolant is returned to the cooling system and the air passes to the after-cooler and out of the compressor through the moisture separator.

Air is pulled into the compressor by the cooling blower and through the coolant cooler and after-cooler.

By cooling the discharge air, much of the water vapor naturally contained in the air is condensed and is drained from the built-in moisture separator and drain.

The coolant system consists of a sump, cooler, thermostatic valve and a filter. When the compressor is operating, coolant is forced by air pressure from the separator tank to the thermostatic element. The position of the element (a direct result of coolant temperature) will determine whether the coolant circulates through the cooler, bypasses the cooler, or mixes the two paths together to maintain an optimum compressor discharge temperature. This temperature is controlled to preclude the possibility of water vapor condensing. By injecting coolant at a sufficiently high temperature, the discharge air coolant mixture temperature will be kept above the dew point.

For variable speed drive models, the system is enhanced by a control logic that varies the cooling blower speed dependent on the intake and discharge temperatures and hence controls the injection temperature even closer while saving blower motor energy.

The compressor is provided with a temperature sensor which will shut the compressor down in case of excessive temperature. This setting is typically 109 $^{\circ}$ C (228 $^{\circ}$ F).

Effective coolant filtration is provided by the use of a screw on, heavy duty coolant filter.

NOTICE

Standard air compressors are factory filled with compressor coolant. It is recommended to perform a coolant analysis every 2000 hours or 3 months to monitor condition and determine when to change the coolant. If an analysis is not performed, the recommended coolant change interval is 8000 hours or two years, whichever comes first.

For compressors supplied with optional food grade coolant, it is recommended to perform a coolant analysis every 500 hours or every month to monitor condition and determine when to change the coolant. If an analysis is not performed, the recommended coolant change intervals is 2000 hours or six months, when utilizing the food grade filter supplied with the compressor. For compressors running food grade coolant without the food grade filter, the change interval should be 1000 hours or three months, whichever comes first.

NOTICE

Fixed speed compressors should not be connected to variable speed drives. Please contact your local Ingersoll Rand representative before inverter duty conversion.

For fixed speed models, the compressor may not reach its normal operating temperature during periods of low demand. Sustained operation at low demand can result in the buildup of condensate in the coolant. If this situation occurs, the lubricating characteristics of the coolant can be impaired, which may lead to damage of the compressor.

The compressor should be allowed ample loading time.

INTEGRATED DRYER OPERATION

In the default mode, the dryer is non-cycling. The stop button must be pressed to shut-off the dryer.

In the energy efficient mode, the dryer may run up to 6 minutes before it shuts off automatically during the Start/Stop mode of the compressor package. Note the dryer could be off for an extended period if the compressor needs to come back on right away.

NOTICE

If ISO Class 4 dew point standards are critical to your application, run the compressor in unload mode (fixed speed) or idle mode (variable speed) for one minute at startup to allow the dryer to reach the required dew point before the compressor begins providing compressed air.



OPERATING INSTRUCTIONS FOR VARIABLE SPEED DRIVE (VSD)

BASIC OPERATION

NOTICE

The language and compressors of measure displayed on the controller will be preset before leaving the factory. If these are required to be changed, contact your local Ingersoll Rand service provider.

PRIOR TO STARTING

Check that the coolant level is at least visible in the center of the sight glass and add coolant if necessary. Refer to the maintenance procedures for setting the correct level.

Ensure that the discharge air isolation valve is open. Switch ON the main electrical isolation switch. The control panel will illuminate, indicating that the line and control voltages are available.

The contrast of the SG controller display may be adjusted by turning the small screw which is on the right hand side of the controller when accessed through the starter cabinet door.

INITIAL CHECK SEQUENCE

The controller will perform an initial check sequence if the compressor receives initial power to the controller or has experienced an trip reset. While the initial check sequence occurs, the controller will display a "Checking Machine" message.

During the initial check sequence, the controller will check the control system for proper operation. During this time, if any items are found inoperative, a trip will occur and the compressor will not start.

After completion of the initial check sequence, the controller will then display "READY TO START'. This process should be completed within 10 seconds.

START SEQUENCE

The compressor will initially start by the operator pressing the local start button or receiving a remote start command. The compressor will start loaded and will ramp up the motor speed to its minimum speed. Once the minimum speed has been achieved, the compressor will begin to control pressure by using its speed regulation. When the system pressure reaches the target pressure, the compressor will start to slow. If the system pressure rises to the immediate stop pressure setpoint the compressor will stop. If the system pressure rises to the auto stop setpoint and the compressor is at minimum speed, the compressor will stop.

NOTICE

During the first startup of the compressor, check for the proper direction of rotation of the dryer condenser fan. If the fan is not rotating in the direction indicated by the rotation arrow decal, reverse two of the wires at the main power supply or at the contactor in the package starter box. Perform the proper stop sequence and lockout/ tagout the main electrical supply before making changes to the wiring.

STOP SEQUENCE

The compressor can be stopped by a local or remote stop, a shutdown due to a trip, or an emergency stop. All of the above conditions will cause the compressor to stop immediately, except the local or remote stop. A local or remote stop will open the blowdown valve and the compressor will run for up to 10 seconds or until the pressure in the separator tank falls to 2.4 bar (35 psi) before stopping. The compressor will stop if the system pressure reaches the automatic stop or immediate stop pressure setpoints. However, if the compressor stops for this reason, it will automatically restart when the system pressure falls below the target pressure.

NOTICE

If the compressor has to be stopped in an emergency depress the emergency stop button located underneath the instrument panel.

WARM UP MODE

A warm up cycle occurs when the compressor's airend discharge temperature doesn't reach the required warm up temperature (82°C/180°F) for two consecutive operational cycles. On a warm up cycle, instead of stopping, the compressor will continue to run with the blowdown valve open. The compressor will run in a fixed speed mode, at minimum speed. The blower will operate at minimum speed. The compressor will run like this for approximately five minutes. During a warm up cycle, the controller will display the message "Warm Up Mode". If the pressure falls during this time period, the compressor will return to normal operation.

BLOWER CONTROL

The blower speed varies in some conditions to assist in controlling the aftercooler approach temperature and the coolant injection temperature. The blower motor has its own variable speed drive and will ramp up and down as the compressor starts and stops.

EMERGENCY STOPPING

If the compressor has to be stopped in an emergency **press the emergency stop button located underneath the instrument panel.**

This will over-ride the normal unload/stop button and will immediately stop the compressor.

RESTARTING AFTER EMERGENCY STOPPING

If the compressor has been switched OFF because of a compressor malfunction, identify and correct the fault before attempting to restart.

If the compressor has been switched OFF for reasons of safety, ensure that the compressor can be operated safely before restarting.

Refer to the *PRIOR TO STARTING* and *START SEQUENCE* instructions earlier in this section before restarting the compressor.



OPERATING INSTRUCTIONS (XE SERIES CONTROLLER)

USER INTERFACE

The standard user interface configuration of the controller consists of the membrane and the LCD display. The membrane consists of five command keys (START, STOP, LOAD, UNLOAD, and RESET), four navigation keys (UP, RIGHT, LEFT and DOWN), and an Edit mode selection key (ENTER). These keys, the color graphics display and the LED icons make up the user interface to the compressor.

Figure 2 : Xe-90M Controller Interface



Figure 3 : Xe-145M Controller Interface



LED STATUS ICONS

Three LED icons are used to indicate the current status of the control system from a distance and are located on the upper left side of the user interface.

Table 3 : LED Status Icons

lcon	Name	Function	
\checkmark	ОК	Illuminates when no Warnings or Trips are sensed. Can be in a Ready or Not Ready state.	
	Alert	Illuminates when an Warning (flashes) or Trip (constant ON) is sensed. Can be in a Ready (Warning) or Not Ready (Trip) state.	
	Auto	Illuminates when the compressor stops in auto restart.	

COMMAND KEYS

These keys command the controller to perform actions as specified in the following table. When any of these keys are pressed the action below will be initiated and logged in the event log.

Table 4 : Command Keys

lcon	Name	Function		
*		None		
	Load	Puts the compressor into the selected mode of operation. Unit will load if the pressure conditions are right.		
E	Unload	Puts the compressor into an unloaded state. Unit will run unloaded.		
	Reset	Clears Warnings and Trips once the condition is corrected.		
	Start	Starts the compressor.		
0	Stop	Stops the compressor. This button should be pressed instead of the E-Stop for normal stopping operation.		
	Enter	Toggles the display between the Navigation mode and the Edit mode.		
ΝΟΤΙϹΕ				

The LOAD and UNLOAD keys are not used on variable speed compressors.

NAVIGATION KEYS

There are four navigation keys (UP, RIGHT, DOWN and LEFT). While the ENTER key is not considered a navigation key, it is used in conjunction with the navigation keys to make or confirm a selection.

Figure 4 : Navigation Keys



Pressing one of the navigation keys will lead the user down a navigation path. Each time the key is pressed, another step in the path is taken.Once the end of a navigation path is reached, pressing the key one more time will bring the user back to the beginning of the path.Pressing the opposite key, will move the user through the navigation path in the opposite direction. Once the beginning is reached, pressing the opposite key will take the user to the end of the path.



DISPLAY LAYOUT

Figure 5 : Display Layout



Table 5 : Display Layout

Key	Key Name Description	
A Folder Bar Uses tabs to graphically identify each folder.		Uses tabs to graphically identify each folder.
В	B Title Bar Identifies current folder and page (underli	
С	C Page Content Content of the current page.	
D	Dashboard	Displays system status.

■ FOLDER NAVIGATION AND ICONS

To move among the tabbed folders shown on the LCD display, press the RIGHT and LEFT keys. The navigation rolls over from the last to the first folder and vice-versa.

Table 6 : Folder Bar Icons

Folder Name	lcon	Description
Home	G	System performance and status main information. The first page of this folder is the default page when the controller first powers up.
Operator Settings	Þ	System options and configuration settings.
Events	ß	System events log.
Trip History	Ą	Details on the most recent trips.
Graphing	₹	On-board graphing of system data. (Optional for some controllers)
Maintenance	Ŕ	Status and notification setup for compressor maintenance items.
General Settings	\checkmark	General settings such as Language, Time, and Units of Measure.
Integral Sequencing	đ	Inter Module communication status and configuration.
Status	l©	Measurements or status from/of all analog and digital I/O.
Factory Settings	С.	Compressor tuning parameters. Also displays hardware and software versions.

PAGE NAVIGATION

Once the desired folder is selected, press the DOWN key to move to the page selection area and then use the RIGHT and LEFT keys to select the desired page. Use the UP key to get back to the folder tabs.

Table 7 : Title Bar Page I	cons
----------------------------	------

lcon	Description
Ċ	Start of the page selection area.
≥	Indicates that there are more pages available by navigating right.
*	Indicates that there are more pages available by navigating left.

ACCESSING PARAMETERS

After the desired page is selected, the page's parameters can be selected by using the DOWN key. The cursor will move to the next parameter each time the DOWN key is pressed. Use the UP key to go back to the previous one.

The cursor rolls over, so once the last parameter is selected, pressing the DOWN key will navigate the cursor to the folder bar. If the first parameter is selected, pressing the UP key will move the cursor to the page selection area.

Once selected, access parameters by pressing the ENTER key. Make changes by using the NAVIGATION keys. The LEFT key can be used to move the cursor under the digit to be changed. Use the UP or DOWN keys to change the value. Once all digits have been changed, enter the setting by pressing the ENTER key again. After a parameter is accessed, pressing the ENTER key will enter the current setting into the control program and navigate the cursor back to the selected parameter on the page.

When the cursor is on a parameter that has an enabled/disabled box, pressing the ENTER key will cause the setting to toggle.

This "X" icon appears on numeric entry windows as shown below. Placing the cursor on it and then pressing the ENTER key will cancel the entry and any changes that were made. Press the RIGHT key to place the cursor on the icon.

Figure 6 : Numeric Entry Window



NOTICE

Not all pages have adjustable parameters. Some just have read-only information.

DASHBOARD ICONS

The dashboard is intended to be a quick at-a-glance view of system status. The following table lists standard dashboard icons and their definition. Note that the color of these icons changes based on the state set by the application while running.

Table 8 : Dashboard Icons

Name	lcon	Description
Network Control	æ	Network control is enabled.
Service Required	*	A service reminder is nearing or has expired (I.e.: an air or oil filter needs to be changed).
Unloaded Or	ञ	Compressor is in the unloaded state.
Loaded	1	Compressor is in the loaded state.



DASHBOARD STATUS MESSAGES

The dashboard also displays the current operating state of the compressor. The following states can be encountered during machine operation:

- **Ready to Start** The compressor currently has no trip or start inhibit conditions present. The machine can be started by pressing the start button at any time.
- **Starting** A start command has been given to the compressor and the start sequence is being performed. The time period for this state can vary depending on the starter type of the machine.
- Load Delay The compressor is waiting for a small period of time after starting before allowing the machine to load. This ensures the machine is at operating conditions before loading
- Running Loaded The compressor is operating and producing air. The inlet valve is open and the blowoff valve is closed.
- Running Unloaded The compressor is operating, but not producing air. The inlet valve is closed and the blowoff valve is open.
- Auto-Restart The compressor has stopped due to pressure rising above the offline or auto-stop setpoints and auto-restart being enabled. The compressor will automatically restart when pressure falls to the online or target pressure setpoint.
- **Stopping** The compressor has received a stop command and the stop sequence is being performed.
- **Blowdown** The compressor must wait for a brief period of time after stopping its motor before it is allowed to start again.
- Not Ready The compressor has detected a condition that will not allow the compressor to start. The condition must be cleared before a start is allowed, but does not need to be acknowledged.
- Tripped The compressor has detected an abnormal operational condition that has stopped the machine. A trip must be acknowledged by hitting the reset button before the compressor can start.
- · Processor Init The controller is being initialized.

FOLDER OPTIONS (FIXED SPEED)

HOME FOLDER

PAGE 1 – SYSTEM OVERVIEW

Figure 7 : Home Folder



This is the factory default display after powering up the system.

- Load Pressure is indicated in the white box and by the white arrow, which is always left of center on the gauge. The compressor will load when package discharge pressure falls below this value.
- **Unload Pressure** is indicated in the white box and by the white arrow, which is always right of center on the gauge. The compressor will unload when package discharge pressure rises above this value.
- **Package Discharge Pressure** is indicated by the large numbers centered below the gauge and by the red arrow.
- **Pressure Unit of Measure** is indicated below the Package Discharge Pressure. This is selectable from the General Settings folder.
- Airend Discharge Temperature is indicated by the numbers in the lower left of the display.

- **Temperature Unit of Measure** is indicated to the right of the Airend Discharge Temperature. This is selectable from the General Settings folder.
- **Run Hours** indicate the number of hours the compressor has been running.

PAGE 2 : COUNTERS

Figure 8 : Counters



- Hour Meters indicate the hours that: the controller has been powered up, the compressor has been running, and the compressor has running loaded.
- Starts indicate the number of times a start is attempted on the compressor.
- Date & Time is adjustable and configurable in the General Settings folder.

PAGES 3-4: ANALOG INPUTS

Figure 9 : Analog Inputs

ome		1234	4
		 للصا	
	1/0		
Y	Pkg Discharge Press	77 psi	
Y	Sump Pressure	20 psi	
0	Airend Disch Temp	104 °F	
0	Inject Coolant Temp	74 °F	
Y	Aftercool Disch P	58 psi	
Y	Sep Pressure Drop	0 psi	
¥	Coolant Filter Drop	71 psi	
eady t	o Start	h 🍐	2

ome		0	1234	1
	1/0			
¥	Inlet Vacuum		0.4 psi	
Y	Remote Pressure		62 psi	
8	Aftercooler Disch T		121 °F	
Y	Coolant Inlet Press		95 psi	
Y	Coolant Outlet Press		24 psi	
	Dryer Running			
			- 6	

lcon	Meaning
¥	Pressure
8	Temperature

NOTICE

All information on these pages is read only



The following inputs are displayed in this section:

- Package Discharge Pressure
- Sump Pressure
- Airend Discharge Temperature
- Injected Coolant Temperature
- After-cooler Discharge Temperature
- Separator Pressure Drop
- Coolant Filter Pressure Drop
- Inlet Vacuum
- After-cooler Discharge Pressure (integrated dryer compressors only)
- Remote Pressure (optional)
- Coolant Inlet Pressure
- Coolant Outlet Pressure
- Dryer Running



OPERATOR SETTINGS FOLDER

• PAGES 1-2: OPERATOR SETTINGS

Figure 10 : Operator Settings



Table 9 : Operator Settings

Operator Settings	Selection	Min.	Max.	Default	Step	Unit
Offline Pressure		75	Rated+10	Rated+10	1	psi
Online Pressure		65	Offline-10	Offline-10	1	psi
Lead/Lag	Lead/Lag			Lead		
Lag Offset		0	45	0	1	psi
Mode of Operation	Mode			ON/OFF line		
Condensate Release		2	20	5	1	sec
Condensate Interval		60	360	180	1	sec
Unloaded Stop Time		10	30	10	1	sec
Starter Time		7	30	10	1	sec

• PAGES 3-5: OPERATOR OPTIONS

Figure 11: Operator Options

	4	Æ	ß		<u>ر</u>	4
Operator Settings			1 3	2 3	4	►
	Options			_		٦
Enable Auto Restart						
Auto-Restart Time				360 :	;	
Auto-Restart Delay T	lime			0 :		
Communications Con	trol					
Remote Start-Stop						
Enable PORO						
PORO Time				10 :		
Ready to Start			h,	No.	2	

		1
Operator Settings	12	34 🍽
Options		
Low Ambient Temperature	3	5°F
Lead/Lag Cycle Time		0 Hrs
Scheduled Start Day	Sunday	V
Scheduled Start Hour		0 Hrs
Scheduled Start Minute		0 Min
Scheduled Stop Day	Sunday	\vee
Scheduled Stop Hour		0 Hrs
Ready to Start		ैं <u>ज</u>

Operator Settings	-	4	5	6	7
Options	-				1
Scheduled Stop Minute			01	Min	
Enable High Dust Filter					
Enable VSD					
Enable Remote Pressure					
					ų
					1



Operator Options	Selection	Min.	Max.	Def.	Step	Unit	Installed option required?
Enable Auto Restart	ON/OFF			OFF			No
Auto-Restart Time		2	60	10	1	Min	No
Auto-Restart Delay Time		0	60	0	1	Sec	No
Communications Control	ON/OFF			OFF			No
Remote Start/Stop	ON/OFF			OFF			No
Power Out Restart	ON/OFF			OFF			Yes
Power Out Restart Time		10	600	10	1	Sec	Yes
Low Ambient Temp*		30	60	35	1	Deg F	No
Lead/Lag Cycle Time**		0	750	0	1	Hours	No
Scheduled Start - Day		Day	Day	Sun	1	Day	Yes
Scheduled Start		00:00	23:59	00:00	1	Time	Yes
Scheduled Stop - Day		Day	Day	Sun	1	Day	Yes
Scheduled Stop		00:00	23:59	00:00	1	Time	Yes
Enable High Dust Filter	ON/OFF			OFF			Yes
Enable VSD	ON/OFF			OFF			Yes
Remote Sensor	ON/OFF			OFF			Yes

Table 10 : Operator Options

* The low ambient temperature is only adjustable if the low ambient factory set point is on.

** A value of 0 will disable the lead/lag cycle time feature.

PAGES 6-7: SENSOR CALIBRATION

Figure 12: Sensor Calibration

perator Settings	•	≪ 4 5
Calibration	Actual	Calibrate
Pkg Discharge Press	77 psi	
Sump Pressure	20 psi	
Inlet Vacuum	0.4 psi	
Remote Pressure	62 psi	
Aftercool Disch P	58 psi	
Coolant Inlet Press	95 psi	
Coolant Outlet Press	24 psi	

		4 E	10	ſ
- 14	Operator Settings	•	4 4 5 6	7
I	Calibration	Actual	Calibrate	٦
I	Interstage Pressure	17 psi		
l				4
ł				-
ľ				1
F	leady to Start			£

Sensor calibration can only take place when the compressor is stopped. There should be no pressure on a sensor when it is calibrated. Calibration only needs to take place after a sensor is replaced, the controller is replaced, or the operator suspects the sensor reading is in error. Calibrate a sensor by selecting the checkbox beside the sensor name. Each of the sensors listed below can be calibrated:

- Inlet Vacuum (1AVPT)
- Sump Pressure (3APT)
- Package Discharge Pressure (4APT)
- Coolant Filter Inlet Pressure (5CPT)
- Coolant Filter Outlet Pressure (6CPT)
- Remote Pressure (10APT) Only on compressors with the remote sensor option
- Interstage Pressure (2APT) Only on 2-stage compressors
- After-cooler Discharge Pressure (7APT) Only on compressors with integrated dryer

Please note that if a sensor is currently reading a value that is +/- 10% of its range from zero, the sensor will not be able to be calibrated. Please make sure the sensor is being exposed to atmosphere before attempting calibration.



EVENTS FOLDER

• PAGES 1-42 (MAX.)

Figure 13 : Events Folder

vents		• 1	2
#	Description	Time	Date
1.Fa	n Motor Overload	10:51:55	3/29
2.En	nergency Stop	10:51:51	3/29
3.Po	werUp	10:50:40	3/29
4.Po	werDown	10:50:01	3/29
5.Fa	n Motor Overload	10:48:05	3/29
6.En	nergency Stop	10:48:02	3/29
7.Po	werUp	10:47:06	3/29

The pages in the Events folder document up to the last 250 events that the controller has experienced, and time stamps each. The events are recorded in sequence, with number one being the newest and 250 being the oldest. When a new event occurs, it becomes number one and all others are shifted up in number.

The page numbers in the Title Bar are used to scroll through the events, with each page displaying up to seven. Page one displays events one through six, page two displays seven through twelve, and so on.

The following items will generate an event:

- Power ON
- Power OFF
- Press the Start Key
- Press the Stop Key
- Press the Load Key
- Press the Unload Key
- Warning
- Trip
- Start Inhibit

Active Warnings will be highlighted in amber while cleared Warnings will have amber text.

Active Trips will be highlighted in red while cleared Trips will have red text.

Active Start Inhibits will be highlighted in blue while cleared Start Inhibits will have blue text. The display will indicate the compressor is not ready to start if a start inhibit is active.

See the following lists for details about messages in each type of event.

WARNING EVENTS LIST

Change Inlet Filter

Will occur if 1AVPT is greater than 0.7 psi vacuum (or 1.3 psi vacuum if the high dust filter option is enabled) and the compressor has been fully loaded for at least 8 seconds. This condition must exist for 3 seconds before the warning is issued.

NOTE: Change Inlet Filter cannot be checked if the compressor is modulating.

Change Coolant Filter

This will occur if the compressor has been running loaded for at least 8 seconds, is warmed up, and the coolant filter pressure drop (5CPT - 6CPT) is greater than 25 psi. This condition must exist for 150 seconds before the warning is issued.

Sensor Failure

This will occur whenever sensors 4ATT, 5DTT, 6DTT, and 10APT are recognized as missing or broken. The sensor failure message shall follow the following format: SENSOR FAILURE 4ATT. The 5DTT and 6DTT sensor failures will be

shown only when the integrated dryer is installed (accessed in the factory settings menu). The 10APT sensor failure will be shown only when the Enable Remote Pressure is On. This failure will cause the controller to automatically start using 4APT for loading and unloading the compressor. This condition must exist for 3 seconds before the warning is issued.

Change Separator Element

Will occur if the compressor is loaded, the compressor is warmed up (the injected coolant temperature is at least 120 °F), the package discharge pressure is at least 90 psi, and the separator pressure drop is greater than 12 psi. This condition must exist for 3 seconds before the warning is issued.

High Airend Discharge Temperature

Will occur if the compressor is running and 2ATT is greater than 221 °F (97% of 228) and the compressor is running. This condition must exist for 3 seconds before the warning is issued.

High Sump Pressure

If the compressor is running loaded, has been loaded for at least 8 seconds and the sump pressure is more than 25 psi above the rated pressure for the compressor. If this warning occurs, the online and offline pressures will be reduced. For example, a rated pressure of 100 psi would have a maximum offline pressure of 110 psi. This warning would occur if the sump pressure goes above 125 psi in this example. This condition must exist for 3 seconds before the warning is issued.

Auxiliary 1

This will occur if auxiliary input 1 closes. The contact must be closed for at least 3 seconds before the warning will occur.

Auxiliary 2

This will occur if auxiliary input 2 closes. The contact must be closed for at least 3 seconds and the Enable Control Power Loss setting must be off before the warning will occur.

Service

Service warnings occur when the compressor has operated a certain number of hours, based on the total hours. Service warnings can have multiple levels, depending on the service level selection. A service level selection of 0 disables service warnings.

Service Level 1

If service level 1 has been selected for the compressor, a "SERVICE REQUIRED" warning will be issued on hour intervals equal to the service time period set point. This warning can be reset the same as any other warning.

Service Level 2

If service level 2 has been selected for the compressor, the service complete factory set point will be used to clear a level 2 service warning and reset the service time or date. The service complete can be reset before a service warning occurs.

The initial "SERVICE REQUIRED" warning will occur at total hour intervals equal to the service time period set point. However, 100 hours before this a "100 HOURS TO SERVICE" warning will occur. This warning can be reset the same as any other warning. One hundred hours later the "SERVICE REQUIRED" warning will occur. This warning can be reset the same as any other warning will occur. This warning can be reset the same as any other warning will occur. This warning can be reset the same as any other warning will occur. This warning can be reset the same as any other warning, however this warning will return in 24 hours if the service complete factory set point has not be set. If the service complete has not been set, 100 hours later, the "ALARM – SERVICE REQUIRED" warning will be issued. This warning can only be cleared by the service complete factory set point. Once the service complete factory set point is set, indicating the service is completed, the time for the next "SERVICE REQUIRED" warning will be calculated by adding the service time period to the total hours value, with the "100 HOURS TO SERVICE" warning occurring 100 hours after that time.



High Discharge Pressure

Will occur if the compressor is using a remote sensor or is under the control of an external device, such as an 8XI, is loaded, and the discharge pressure (4APT) is greater than the maximum offline pressure. This condition must exist for 3 seconds before the warning is issued. If this condition occurs, the compressor will automatically unload. The compressor will be available to reload once the discharge pressure falls to the rated pressure value.

Condensate Drain Error

This will occur if the compressor is running, the package discharge pressure is over 50 psi, and the condensate drain error contact closes for at least 30 minutes. This warning will be ignored for 4.5 minutes after starting.

Freeze Warning

This will occur if the evaporator sensor has a value of 678 (about 0.5 C) or below (low temp) while the dryer is running, on compressors with the integrated dryer. This is a dryer fault. If this happens, the compressor will continue to run, but the dryer will stop. The condition must exist for at least 180 seconds before the warning will occur. NOTE: If this warning is reset while the conditions for running the dryer exist, the dryer can restart. Also the dryer can restart if the evaporator value rises to 709 (about 5 C). However the warning will still be displayed.

• Dryer High Pressure

On compressors with the integrated dryer, this will occur if the dryer high pressure switch opens while the dryer is running. This is a dryer fault. If this happens, the compressor will continue to run, but the dryer will stop. The contact must be open for at least 3 seconds before the warning will occur. If this warning is reset while the conditions for running the dryer exist, the dryer can restart. However, this switch is a locking switch. The switch must be reset before the dryer can run. Resetting the warning on the display does not reset the switch.

Condenser Temperature High

This will occur if the condenser sensor has a value above high temperature threshold while the dryer is running, on compressors with the integrated dryer. This is not a dryer fault. If this happens, the compressor and dryer will continue to run. The condition must exist for at least 180 seconds before the warning will occur.

Condenser Temperature Low

This will occur if the condenser sensor has a value below the low temperature threshold while the dryer is running, on compressors with the integrated dryer. This is not a dryer fault. If this happens, the compressor and dryer will continue to run. The condition must exist for at least 180 seconds before the warning will occur.

Change HE Filter

The HE filter is located between the after-cooler discharge and the inlet to the dryer and is only on compressors with an integrated dryer. The drop across the HE filter is measured by subtracting the package discharge pressure from the after-cooler discharge pressure. If the compressor is running, the measured drop across the HE filter is at or above 14 psi (0.9 bar), the compressor is hot (injected coolant temp above 120 °F), and the package discharge pressure (4APT) is above 90 psi, this warning can occur. The sin to a dryer fault. If this happens, the warning will be displayed, but the dryer will continue to run.

Invalid Calibration

Will occur if the sensor zero value is +/- 10% of its scale. This will only occur when a sensor is calibrated.

TRIP EVENTS LIST

Low Sump Pressure

Will occur if the compressor is running unloaded or loaded and 3APT is less than 13 psi for 15 seconds.

High Airend Discharge Temperature

This will occur if 2ATT is greater than 228 °F.

Check Motor Rotation

This will occur if 3APT is less than 1 psi on a compressor, 3 seconds after starting (6 seconds if the compressor is equipped with a soft starter or airend discharge temperature is less than 50 °F). This condition can be caused by the motor running in reverse. Once correct motor rotation is established, this trip will not be checked again unless power is removed from the controller.

Main Motor Overload

This will occur if the motor overload relay contact opens. The contact must be open for at least 3 seconds before the trip will occur. This trip will not occur if there is an active Emergency Stop trip.

• Fan Motor Overload

Will occur if a fan motor overload relay contact opens and the compressor is not equipped with a variable speed blower. The contact must be open for at least 3 seconds before the trip will occur.

Remote Stop Failure

Will occur if the remote start/stop option is enabled, the remote stop button remains open and either start button is pressed.

• Remote Start Failure

Will occur if the remote start/stop option is enabled, the compressor is started by the remote start button, and the button stays closed for 7 seconds after the compressor starts.

Sensor Failure

This will occur when a sensor is recognized as missing or broken. The sensors affected by this trip are 1AVPT, 3APT, 4APT, 5CPT, 6CPT, 2APT (if 2 stage compressor), 7APT (if integrated dryer), 2CTT, and 2ATT. The sensor should be displayed along with the sensor failure message. The sensor failure message shall follow the following format: SENSOR FAILURE 1AVPT. Sensor Failure 1AVPT will only occur if the compressor is running and loaded.

Emergency Stop

This will occur when the emergency stop button is engaged.

• High Sump Pressure

This will occur if the compressor is running loaded for at least 8 seconds, and any one of the 3 following conditions exist. (1) The sump pressure is above the rated pressure by 35 psi. (2) The separator pressure drop is measured to be more than 25 psi and the package discharge pressure at least equal to the minimum online set point value. (3) The sump pressure is above 165 psi if the rated pressure is less than 190 psi or the sump pressure is above 220 if the rated pressure is 190 psi.

High Coolant Filter Pressure Drop

This will occur if the compressor has been running loaded for at least 8 seconds, is warmed up, already has a change coolant filter warning, and the coolant filter pressure drop (5CPT - 6CPT) has been greater than 35 psi for 10 seconds.

High Inlet Vacuum

This will occur if the compressor is running loaded and the inlet vacuum is greater than 1.8 psi. If the compressor has a high dust filter, the trip threshold for inlet vacuum is 2.4 psi.



• Unit Too Cold To Start

This will occur if the compressor does not have the low ambient option, the airend discharge temperature (2ATT) is less than 35 °F, and the operator attempts to start the compressor. This fault can only occur once a day. Once this fault occurs, the operator can reset it and start the compressor. This fault will be logged in the trip history to indicate that the compressor is being started in low ambient conditions.

• High Interstage Pressure

This will occur if the compressor is running and the interstage pressure (2APT) is greater than 75 psi. This trip will only occur in 2 stage compressors.

Blower Fault

This will occur if the variable speed blower setting is enabled, the output to the isolation contact for the blower VSD is on, the compressor is running, and fan motor overload input opens for 3 seconds.

Control Power Loss

This will occur if the control power input (auxiliary 2) opens for at least 0.5 seconds and the setting Enable Control Power Loss is enabled.

START INHIBIT LIST

• High Airend Discharge Temperature

This will occur if 2ATT is greater than 95% of 228 °F.

High Sump Pressure

This will occur if the sump pressure (3APT) is 25 psi or higher than the rated pressure of the compressor.

Isolation Contact Open

This will occur if the compressor is equipped with a variable speed blower and the isolation contact is not energized. TRIP HISTORY

PAGES 1-4 (MAX.)

Figure 14 : Trip History



The pages in the Trip History folder document up to the last 15 trips that the controller has experienced, and time stamps each. The trips are recorded in sequence, with number one being the newest and 15 being the oldest. When a new trip occurs, it becomes number one and all others are shifted up in number.

The page numbers in the Title Bar are used to scroll through the events, with each page displaying up to seven. Page one displays events one through five, page two displays six through ten, and so on.

The following items will generate an event.

- Power ON
- Power OFF
- · Press the Start Key
- Press the Stop Key
- Press the Load Key
- Press the Unload Key
- Warning
- Trip
- Start Inhibit

Active Trips will be highlighted in red while cleared Trips will have red text.

The trip history also records compressor data at the time of the trip to assist in diagnostics and troubleshooting. Navigating to the trip entry and hitting the enter button will bring up the trip history dialog box.

Figure 15: Trip History Dialog



While the dialog box is active, press the left and right keys in order to scroll through the displayed data. The name of the trip will always be shown in the title bar of the dialog box. Press enter when finished viewing the data to return to the trip history screen.



PAGES 1 THRU 5: INDIVIDUAL GRAPHS

Figure 16 : Individual Graphs



Graphing is only available on the Xe-145 controller.

Variable (Read Only) Each page graphs one variable, displaying the variable name and unit of measure in the top center of the page. The variables that will be graphed on each of the five pages are selectable from page six. The units of measure are selectable from the GENERAL SETTINGS folder.

Y-Axis (Read Only) is auto-scaling.

X-Axis (Read Only - The time duration is selectable from page six. The sample rate varies, based on the selected duration.

The graph plots a minimum of 255 readings

PAGE 6 – GRAPHING SELECTIONS

₽ 俞 A Graphing 3 4 5 6 E. -Pkg Discharge Press 60 minutes 🗸 V Pkg Discharge Press V 60 minutes 🗸 Pkg Discharge Press 60 minutes 🗸 V Pkg Discharge Press V 60 minutes V Pkg Discharge Press 60 minutes V V H & T Ready to Start

Figure 17 : Graphing Selections

The selections for page one through five are organized sequentially in rows. The top row has page one selections and the bottom row has page five selections.

Variables - include all analog inputs as well as some calculated variables. The amount of variables will vary depending on the compressor type and the options it has.

Duration - selectable from the following five times

- 10 minutes
- 30 minutes
- 60 minutes
- 12 hours
- 24 hours

These times are fixed and cannot be changed.

MAINTENANCE FOLDER

• PAGE 1: FILTER STATUS

Figure 18 : Filter Status



This page displays the following:

- Separator Element Status
- Coolant Filter Status
- Inlet Filter Status
- PAC Active

PAGE 2: MAINTENANCE STATUS

Figure 19 : Maintenance Status



This page displays the time until the compressor should be serviced.

PAGE 3: MAINTENANCE CONFIGURATION

Figure 20 : Maintenance Configuration

Maintenance	123
Service Config	- General
Hours Until Service	4000
Service Interval	4000
	Reset
Ready to Start	ተ 🌾 ፲

This page allows the user to set the service interval and to reset the counter after the service has been performed.





NOTICE All parameters in this folder are adjustable.

PAGE 1: LANGUAGE SELECTION

Figure 21 : Language Selection



Language is selectable from the following 31 choices:

- English (default)
- Bulgarian
- Chinese, simplified
- Croatian
 Maltese
 - Norwegian
 - Polish
- Dutch
 Portuguese
- Estonian Romanian
- Finish

Czech

• Danish

- French
- German
- Greek
- Hungarian
- Italian
- Indonesian
 - -----
- ThaiTurkish

Russian

Slovak

Slovenian

Spanish

Swedish

Korean

Latvian

Lithuanian

Japanese

The controller will display all screens in the selected language and only one language can be selected at a time.

Each language appears in its native translation.

The following compressors of measure settings are displayed in this section.

Table 11 : Units of Measure Settings

Display Text	Description
Temperature	Selectable between °F and °C.
Pressure	Selectable among psi, kpa, bar, kg/cm ² .
Date Format	Selectable between dd/mm/yyyy (default) and mm/dd/yyyy.

PAGE 2: TIME & DATE SETTINGS

Figure 22 : Time & Date Settings

Seneral Settings	1 2 3 4 1
Time and	Date
Time	10 :57 :40
Year	2018
Month	3
Day	29
Confirm Date and Time	Apply

All items are adjustable.

The following settings are displayed in this section:

Table 12 : Time & Date Settings

Display Text	Description
Time	Allows the current hours, minutes, and seconds to be set. The time format is 00:00:00.
Year	Allows current year to be set.
Month	Allows current month to be set.
Day	Allows current day to be set.
Confirm Time and Date	Used to verify that changes to selections are desired. Select Apply before any changes will take affect.

The controller will continue to display any changes, even when the selections have not been confirmed and the user exits the page, then returns. Cycling of the power returns all selections to their current settings.

NOTICE

The controller does not support Daylight Savings Time.

PAGE 3: HOME PAGE SELECTION

Figure 23 : Home Page Selection

	-						2	-	1	
eneral Settings	_	_	_	_		- 1	2	4	14	-
		Di	spla	ıy				1		1
Return to Home]
Delay Time									30 :	5
Home Folder					Ho	me			\vee	
Home Page										1

Table 13 : Home Page Selection

Display Text	Description
Return to Home	Enables the controller to return the display back to the selected Home Page if there is no user activity for the Delay Time shown. This is only enabled when an "x" appears in the checkbox.
Delay Time	Determines how many seconds of inactivity it will take before the controller will return to the Home Page.
Home Folder	Used to select the Home folder.
Home Page	Used to select the Home Page within the selected Home folder.



PAGE 4: BACKLIGHT SETTINGS

Figure 24 : Backlight Settings

General Settings	∎ 123 4 ≫
Backlig	ht
Backlight Brightness	90 %
Backlight Auto Shutoff	
Backlight Off Delay	30 s
	 In Section 2.4
Ready to Start	ሐ 🔏 ፹

The following settings are displayed in this section:

Table 14 : Backlight Settings

Display Text	Description
Backlight Brightness	Adjusts the brightness of the display.
Backlight Auto-Off	Enables the controller to shut-off the backlight if there is no user activity for the delay time shown.
Backlight Off Delay	Determines how many seconds of inactivity it will take before the controller will shut-off the backlight.

NOTICE

The backlight will be switched ON whenever any of the controller's keys are pressed.

The START, STOP, LOAD, UNLOAD, RESET, and ACKNOWLEDGE keys on the controller remain functional while the backlight is switched OFF. It is recommended to press the ENTER key or one of the navigation keys in order to switch the backlight ON.

PAGE 5 - PROTOCOLS

Figure 25 : Protocols Î I₹ **General Settings** 5 6 -Protocols Modbus Address Modbus Pressure psi V Modbus Temperature °F V Airbus Address Ready to Start th a 2

This page allows the user to set up the network addresses for the RS-485 networks the controller is capable of communicating with.

MODBUS Address – Sets the modbus node ID for the controller to communicate with a Modbus capable device, this can be any value between 1 and 247.

MODBUS Pressure - Sets the unit type for pressure data read out via the Modbus connection

MODBUS Temperature – Sets the unit type for temperature read out via the Modbus connection

Airbus Address - Sets the airbus address that allows the controller to communicate over Integral Sequencing or an X-Series system controller network.

PAGE 6 - COM2 CONFIGURATION

Figure 26 : COM2 Configuration

	OM2 Con	figuration	í	
Baud Rate	9600	V	9	600
Stop Bits	1	\vee		1
Parity	None	\vee	N	one
	1	Apply	Ca	ncel
		(pp)	04	

This page allows the user to adjust the baud rate, stop bits, and parity for Com 2.

Baud Rate - The baud rate is adjustable from 9600 to 115200.

Stop Bits - The stop bits can be set as 1 or 2.

Parity - The parity can be set as none, even, or odd.

Apply – After editing the desired settings navigate, to the accept setting and press enter in order for the values in the setting variables to be confirmed by the controller.

Cancel – Discard any changes made to the Com2 configuration settings.

• PAGES 7-8: ETHERNET SETTINGS

Figure 27 : Ethernet Settings

		402			1.5	<u> </u>		2	<u> </u>
General Settings	_		1	•	-	6	7	8	9
	E	thern	et			_			٦
IP Address (Set	ting)			192	. 16	8.	2	.22	D
IP Address (Act	ual)			192	. 16	8.	2	.22	D
Default Gatewa	y (Sett	ting)		192	. 16	8.	2	. 1	
Default Gatewa	y (Acti	ual)		192	. 16	8.	2	. 1	
Subnet Mask (S	etting)			255	5.25	5.2	55	. 0	
Subnet Mask (A	ctual)			255	5.25	5.2	55	. 0	
MACAddress			1	la:0	1:4	2:a	3:5	1:0	в
						-	03	1	L
General Settings	R	4	ſ ŀ£		<i>1</i> €	6	2 7	2 2 8	9
General Settings	Z	4	ſ ŀ		≁. ≪	6	2 2 7	2 2 8	9
General Settings	Eth	ernet ((1/2)		-/ð «	6	? 7	2	9
General Settings	Eth Fals	ernet ((1/2)		-/3 -/3	6 als	• •	8	9
General Settings Enable DHCP IP (Used) CW (Used)	Eth Fals	ernet se	(1/2)	19	4 F 2.1	6 als 68.	2.2 2.2	20 1	9
General Settings Enable DHCP IP (Used) GW. (Used) Sub (Used)	Eth Fals	ernet se	(1/2)	19	F	6 als 68.	e 2.2 1.2.	20 1	9
General Settings Enable DHCP IP (Used) GW. (Used) Sub. (Used)	Eth Fals	ernet se	(1/2) ▼	19	F 12.11 192.	6 als 68. 168 55.	02 7 2.2 3.2. 255	20 1 5.0	9
General Settings Enable DHCP IP (Used) GW. (Used) Sub. (Used)	Eth Fals	ernet se Apply	(1/2)	19	F 12.11 192. 5.2 C	6 als 68. 168 55.	e 2.2 2.2 el	20 1 5.0	9
General Settings Enable DHCP IP (Used) GW. (Used) Sub. (Used)	Eth Fals	ernet se Apply	(1/2)	19	F 12.11 192. 5.2	6 als 68. 168 55.	02 7 2.2 3.2. 255 el	20 1 5.0	9

IP Address Setting – When DHCP is not enabled, this setpoint sets the IP address of the controller.

IP Address Actual – This will match the IP address setting when DHCP is not enabled. If DHCP is enabled this will display the address assigned to the controller by the DHCP server.

Default Gateway Setting – Setpoint for the default gateway.

Default Gateway Actual - Current reading/setting for the default gateway.



Subnet Mask Setting - Setpoint for the subnet mask.

Subnet Mask Actual - Current reading/setting for the subnet mask.

MAC Address – This is the unique hardware MAC address for the controller. This can not be changed.

Enable DHCP – Allow the controller to automatically receive an IP address from the Local Area Network (LAN)

Apply – After editing the desired setpoint navigate to the accept setting and press enter in order for the values in the setting variables to be confirmed by the controller.

Cancel – Discard any changes made to the Ethernet settings.

PAGE 9: OPTION MODULE INFORMATION

Figure 28 : Installed Options

		Â	5		<u>٢</u>	4
General Settings	•	-	6	7	8	9
Installe	dOptions					1
PORO Sched S/S						
23749021						I
						ł
						ł
and the second second						I
Ready to Start		đ.	4	102	<u>7</u>	

The option module information screen allows the user to see which software options have been installed in the controller.

An option module that is installed will show up with an "X" in the appropriate box. The option part number is displayed with the option name. If no options are installed, this screen will not appear on the controller.

INTEGRAL SEQUENCING FOLDER

PAGES 1 THRU 3 : ETHERNET SETTING

Figure 29 : Ethernet Settings

Setu	p
ntegral Sequencing	
.oad Pressure	90 psi
Jnload Pressure	100 psi
System Pressure	X psi
of 🖪 🗛 🗠	
Tunin	
Tunin Damping	▲ 1 <u>2</u> 3 19 1.0
CORECTION Tunin Camping Folerance	1 2 3 1 2 3 1g 1.0 3 psi
Tunin Damping Start Delay Interval	1 2 3 1 2 3 1g 1.0 3 psi 3 s
egral Sequencing Tunin Pamping 'olerance itart Delay Interval	1 2 3 1 2 3 1g 1.0 3 psi 3 s
C A A C regral Sequencing Tunin Damping Olerance Start Delay Interval Number of Compressors	1 2 3 1 2 3 19 1.0 3 psi 3 s 2



Integral Sequencing allows the compressor to be networked with up to three other compressors (fixed or variable speed) to maintain a stable system pressure by loading and unloading compressors as needed. Integral sequencing requires no additional hardware other than a serial two wire connection daisy chained between all compressors in the system.

Please note that the compressor's address in the integral sequencing system is defined by the airbus address that is set on the general settings folder. Also note that the pressure signal used to determine when to load or unload another compressor is based on the pressure reading from the compressor at address 1 in the system.

Integral Sequencing – Enabling Integral Sequencing selects this compressor to be the leader of the integral sequencing system. It is important that only one compressor in the sequence be selected as the lead compressor.

Unload Pressure – Determines the pressure at which a compressor will be unloaded by the system.

Load Pressure – Determines the pressure at which a compressor will be loaded by the system.

System Pressure – Shows the current pressure reading that the system is using for control. This is typically compressor 1's package discharge pressure reading.

Start Delay Interval – Determines the amount of time between loading compressors. This prevents all compressors from loading at once.

Damping – The pressure control "Damping" setting which is used to tune how quickly the system responds to pressure deviations. The default is 1.0 and should not normally be changed.

Tolerance - The pressure control "Tolerance" setting, which is used to tell the system how to respond to changes in pressure above and below the load/ unload pressures. The default is 3 psi and should not normally be changed.

Number of Compressors – Defines how many compressors are in the system. There is a maximum of 4.

Sequence – Displays the current load/unload order of the system. Each compressor in the system is assigned a letter, with "A" being the compressor to load first and unload last, and "D" being the compressor to load last and unload first.

Priority – Each compressor can be assigned a priority level. Compressors will only rotate positions with other compressors of the same priority level.

Rotate Now – Selecting this setpoint will cause the sequence to shift according to the priorities, regardless of the rotation interval setpoint.

Rotation Interval – Determines the time period between sequence rotations.

Time Left - Counts down the time until the sequence rotation will occur.





The following inputs are displayed in this section:

- Package Discharge Pressure
- Sump Pressure

6

STATUS FOLDER

- Airend Discharge Temperature
- Injected Coolant Temperature
- After-cooler Discharge Temperature
- Separator Pressure Drop
- Coolant Filter Pressure Drop
- Inlet Vacuum
- · After-cooler Discharge Pressure (integrated dryer compressors only)
- Remote Pressure (optional)
- Coolant Filter Inlet Pressure

- Coolant Filter Outlet Pressure
- Interstage Pressure (2-stage compressors only)
- Evaporator
- Condenser

PAGES 4-5: COMPRESSOR DATA

Figure 31 : Compressor Data

Status	•	12	34 ៷
Ti	mers		-
Power On Hours		(Hrs
Power On Hours		14	4 Min
Running Hours		(Hrs
Running Hours		(Min
Loaded Hours		(Hrs
Loaded Hours		(0 Min
Num of Main Motor Start:	s	(C



The following data are displayed in this section:

- Power On Hours and Minutes
- Running Hours and Minutes
- · Loaded Hours and Minutes
- · Number of Main Motor Starts
- Real Time Clock



PAGES 6-7: DIGITAL INPUTS

Figure 32 : Digital Inputs

	Ø			k	ð	
Status	١	۲	5	6	7	۲
Digital Inp	uts					٦
Emergency Stop						
Main Motor Overload				\boxtimes		
Fan Motor Overload				\boxtimes		
Dryer High Pressure				\boxtimes		
Condensate Drain Error						
Remote Stop				\boxtimes		
Remote Start						
Dandute Start						
Ready to Start	đ				5	
Ready to Start	3		7	8	9	10
Ready to Start	uts	•	7	8	9	10
Ready to Start	uts	•	2	8	9	10
Ready to Start	uts	•	7	8	9	10
Ready to Start	uts	•	7	8	9	10
Ready to Start	uts	••••	2	8	9	10
Ready to Start	uts	••••	7	8	9	10
Ready to Start	uts	 •••• <li< th=""><th>7</th><th>8</th><th>9</th><th>10</th></li<>	7	8	9	10

A marked checkbox beside a digital input indicates that the input is in its TRUE state. For example, Starter Feedback is TRUE when its input is in the high state, where as, E-Stop is TRUE when its input is at 0Vdc.

- Emergency Stop
- Main Motor Overload
- Fan Motor Overload
- Condensate Drain Error
- Remote Stop
- Remote Start
- Remote Lead/Lag
- Remote Load Enable
- Remote Load/Unload
- Auxiliary Input 1
- Auxiliary Input 2
- Dryer High Pressure

• PAGES 8-9: DIGITAL OUTPUTS

Figure 33 : Digital Outputs



A marked checkbox beside a digital output indicates that it is energized.

- Starter Contact 1
- Starter Contact 2
- Fan Starter Contact
- 1SV
- 5SV
- Condensate Drain
- Dryer Run / Fan Run
- PORO Horn
- Trip Relay
- Warning Relay
- True Running

NOTICE

(RO) indicates read-only values.



PAGE 10: ANALOG OUTPUTS

Figure 34 : Analog Outputs



The value for the analog outputs will be in mA.

VSD Blower Output

ΝΟΤΙϹΕ	
(RO) indicates read-only values.	

FACTORY SETTINGS FOLDER This folder is for factory and service personnel. A password must be entered on page one in order to adjust values in this folder. This folder is used for setting parameters that are specific to that compressor and displaying

software information for the controller. **PAGE 1: PASSWORD** •

Figure 35 : Password



Table 15 : Password

Display Text	Description
Password	Provides access to enter a valid password to gain access to password protected parameters. The password is entered by scrolling down to the password value and pressing the RETURN key.
Password Entered	This checkbox will indicate a valid password has been entered. If this checkbox is blank, a valid password has not been entered or it has timed out. This is read only.
Enable PW Timeout	Checking this box will enable the password time feature.
Password Timeout	This timeout along with the password timeout enable allows the user to set an adjustable amount of time to require a valid password to be re-entered. Once this timeout is reached re-entry of a valid password is required.

PAGES 2-5: FACTORY SETTINGS •

Figure 36 : Factory Settings

actory Settings	1234)
Factory	Setpoints
Rated Pressure	100 PSI
Enable Two Stage	
Starter Type	Star-Delta 🗸
Service Level	1
Enable Modulation	
Enable PAC	
Enable Dryer	

Factory Settings	▶ 1234 ₩
Factory Setp	ooints
Constant Running Dryer	
Enable VSD Blower	
Limit Blower VSD	
Enable Low Ambient	
Blower Speed	101 %
Max Inlet Vacuum	12.8 psi
Gateway	





These pages are used for setting parameters that are specific to the compressor. All of the factory settings that are adjustable are listed below. All settings on these pages are password protected.

- Rated Pressure (psi 100, 115, 135, 190)
- Enable Two Stage (On/Off)
- Starter Type (Star-delta, Remote Starter, Soft Starter)
- Service Level (0, 1, or 2)
- Enable Modulation (On/Off)
- Enable PAC (On/Off)



- Enable Dryer (On/Off)
- Constant Run Dryer (On/Off)
- Enable VSD Blower (On/Off)
- Limit Blower VSD (On/Off)
- Enable Low Ambient (On/Off)
- Blower Speed (adjustable)
- Max Inlet Vacuum (adjustable)
- Gateway (On/Off)
- Enable Control Power Loss (On/Off)
- Running Hours (adjustable)
- · Loaded Hours (adjustable)
- Power On Hours (adjustable)
- Number of Main Motor Starts (adjustable)

PAGES 6-7: SOFTWARE VERSION

Figure 37 : Softare Version



These pages are used for displaying software information for the controller. All items are read only.

- FOLDER OPTIONS (VARIABLE SPEED)
- HOME FOLDER
- PAGE 1: SYSTEM OVERVIEW



This is the factory default display after powering up the system.

- **Target Pressure Setpoint** is indicated in the white box and by the white arrow, which is always centered on the gauge. This is the pressure that the compressor is trying to maintain.
- Automatic Stop Setpoint is indicated in the white box and by the white arrow, which is always right of center on the gauge. When the compressor reaches this setpoint the compressor will unload and stop.
- **Package Discharge Pressure** is indicated by the large numbers centered below the gauge and by the red arrow. This is the output pressure of the compressor.
- **Pressure Unit of Measure** is indicated below the Package Discharge Pressure. This is selectable from the GENERAL SETTINGS folder.
- **Percent Capacity** is indicated on the lower left side of the screen. This is how much air the compressor is producing as a percentage of its maximum capacity.
- Airend Discharge Temperature is indicated by the numbers in the lower right of the display.
- **Temperature Unit of Measure** is indicated to the right of the Airend Discharge Temperature. This is selectable from the GENERAL SETTINGS folder.
- **Run Hours** indicate the number of hours the compressor has been running.

NOTICE

The target pressure and automatic stop set points can be selected and modified on this page. All other information on this page is read only.

• PAGE 2: COUNTERS



- Hour Meters indicate the hours that: the controller has been powered up, and the compressor has been running.
- **Starts** indicate the number of times a start is attempted on the compressor.
- Date & Time is adjustable and configurable in the GENERAL SETTINGS folder.

NOTICE

All information on this page is read only.

PAGES 3-5: ANALOG INPUTS & COMPRESSOR INFORMATION

Figure 40 : Analog Inputs & Compressor Information



lome	1234
Average Package kW/hr	0
Average % Capacity	0.0 %
Average Capacity	0 cfm
Energy Cost	0.000
Energy Savings	0.000
Lifetime Energy Savings	0.000
and the Start	- K -

lcon	Meaning
¥	Pressure
l	Temperature

NOTICE

All information on these pages is read only.

The following analog inputs are displayed in this section:

- Package Discharge Pressure
- Sump Pressure
- Airend Discharge Temperature
- Injected Coolant Temperature
- · After-cooler Discharge Temperature
- Separator Pressure Drop
- Coolant Filter Pressure Drop
- Inlet Vacuum
- Remote Pressure (optional)
- After-cooler Discharge Pressure (integrated dryer compressors only)

Additionally, the following compressor status readings are included in this section:

- Motor Speed
- Package kW
- Dryer Running
- Average Package kW/hour
- Average % Capacity
- Average Capacity
- Energy Cost
- Energy Savings
- Lifetime Energy Savings



OPERATOR SETTINGS FOLDER

• PAGES 1: OPERATOR SETTINGS

Figure 41 : Operator Settings

Operator Settings	1234	5
Setpoints	s	٦
Target	100 psi	
Automatic Stop	110 psi	
Immediate Stop	120 psi	
% Savings Compared To	Modulation 🔽	
Energy Rate	0.000	
Reset Averaging		
eady to Start	* 15 7	

The parameters below are adjustable at any time:

Operator Settings	Default	Min.	Max.	Step	Unit
Target Pressure	100	65	145	1	psi
Automatic Stop Pressure	110	Target+1	Target+10	1	psi
Immediate Stop Pressure	120	Auto	Auto+10	1	psi
% Savings Compared To	Modulation				
Energy Rate	0.000	0.000	9999.999		
Reset Averaging	//	-	-	-	Date
Condensate Release	5	2	20	1	Sec
Condensate Interval	180	90	270	1	Sec

Table 16 : Operator Settings

• PAGES 2-3: OPERATOR OPTIONS

Figure 42 : Operator Options

Operator Settings	•	12	34	5
Option	5			
Communications Control				
Remote Start-Stop				
Enable PORO			\boxtimes	
POROTime			10 s	
Scheduled Start Day	Sun	day	\vee	
Scheduled Start Hour			0 Hrs	
Scheduled Start Minute			0 Min	
leady to Start	ſ	ħ ,	্র স	

Option	5	
Scheduled Stop Day	Sunday	V
Scheduled Stop Hour	C	Hrs
Scheduled Stop Minute	C	Min
Enable Remote Pressure]
Condensate Release	5	is
Condensate Interval	180	1 \$

The parameters immediately below are only adjustable when the compressor is stopped.

The options set points are similar to the operator set points except these set points cannot be changed while the compressor is running.

Table 17 : Operator Options

Option Items	Selection	Min.	Max.	Step	Unit	Installed option required?
Remote Sensor	ON/OFF					No
Comm Control	ON/OFF					No
Remote Start-Stop	ON/OFF					No
Enable PORO	ON/OFF					Yes
PORO Time		10	600	1	Sec	Yes
Scheduled Start Day		Day	Day	1	Day	Yes
Scheduled Start Hour		00:00	23:59	1	Time	Yes
Scheduled Stop Day		Day	Day	1	Day	Yes
Scheduled Stop Hour		00:00	23:59	1	Time	Yes

If an option has not been purchased and installed in the compressor, the message "Not Installed" will be shown on the selection display screen. Installation of options will be done using the **Ingersoll Rand** service tool.

* The low ambient temperature is only adjustable if the low ambient factory set point is ON.

** A value of 0 will disable the lead/lag cycle time feature.

PAGE 4-5: SENSOR CALIBRATION

Figure 43 : Sensor Calibration

	4 E	ð	☑	4
Operator Settings	•	12	34	5
	Actual	Calib	rate	٦
Pkg Discharge Press	39 psi			
Sump Pressure	2 psi		1	
Inlet Vacuum	-0.6 psi			
Remote Pressure	86 psi]	
Aftercool Disch P	94 psi			
Coolant Inlet Press	136 psi		1	
Coolant Outlet Press	232 psi		1	
Ready to Start	6		2	E
Ready to Start		***		Ē
Ready to Start		1 2	₹ ∑ 3 4	5
Ready to Start	A E	1 2 Calib	∑ 2 3 4 rate	5
Ready to Start	A Kotual 209 psi	th A	2 2 2 3 4	5
Ready to Start	A K Actual 209 psi	1 2 Calib	2 3 4 rate	5

Sensor calibration can only take place when the compressor is stopped. There should be no pressure on a sensor when it is calibrated. Calibration only needs to take place after a sensor is replaced, the controller is replaced, or the operator suspects the sensor reading is in error. Calibrate a sensor by selecting the checkbox beside the sensor name.

Each of the sensors listed below can be calibrated.

- Inlet Vacuum (1AVPT)
- Sump Pressure (3APT)
- Package Discharge Pressure (4APT)
- Coolant Filter Inlet Pressure (5CPT)
- Coolant Filter Outlet Pressure (6CPT)
- Remote Pressure (10APT) Only on compressors with the remote sensor option
- Interstage Pressure (2APT) Only on 2-stage compressors
- After-cooler Discharge Pressure (7APT) Only on compressors with integrated dryer

Please note that if a sensor is currently reading a value that is +/- 10% of its range from zero, the sensor will not be able to be calibrated. Please make sure the sensor is being exposed to atmosphere before attempting calibration.

EVENTS FOLDER

PAGES 1-42 (MAX.)

Figure 44 : Events Folder

ents		• 1 2	3 4
#	Description	Time	Date
1.Po	wer Up	11:31:48	517
2.Po	werDown	11:31:25	5/7
3.5e	nsor 4ATT Failure	11:23:49	517
4.Se	nsor 2CTT Failure	11:23:49	5/7
5.Emergency Stop		11:23:46	5/7
6.Po	werUp	11:22:23	517
7.Po	werDown	11:22:18	5/7

The pages in the Events folder document up to the last 250 events that the controller has experienced, and time stamps each. The events are recorded in sequence, with number one being the newest and 250 being the oldest. When a new event occurs, it becomes number one and all others are shifted up in number.

The page numbers in the Title Bar are used to scroll through the events, with each page displaying up to seven. Page one displays events one through six, page two displays seven through twelve, and so on.

The following actions will generate an event:

- Power ON
- Power OFF
- Press the Start Key
- Press the Stop Key
- Press the Load Key
- Press the Unload Key
- Warning
- Trip
- Start Inhibit

Active Warnings will be highlighted in amber while cleared Warnings will have amber text.

Active Trips will be highlighted in red while cleared Trips will have red text.

Active Start Inhibits will be highlighted in blue while cleared Start Inhibits will have blue text. The display will indicate the compressor is not ready to start if a start inhibit is active.

See the following lists for details about messages in each type of event.

WARNING EVENTS LIST

Change Inlet Filter

This will occur if the compressor has been running for at least 7 seconds, the motor speed is equal to or greater than the minimum speed, and the inlet vacuum is greater than 0.7 psi. This condition must exist for 3 seconds.

• Change Coolant Filter

This will occur if the compressor has been running for at least 7 seconds, the injected coolant temperature is at least 140 °F, the motor speed is at least equal to the minimum speed, and the coolant filter pressure drop (5CPT - 6CPT) is greater than 25 psi. This condition must exist for 150 seconds before the warning will occur.

Sensor Failure (Units without Integrated Dryer)

Will occur whenever a sensor is recognized as missing or broken. The sensors affected by this warning are 1ATT, 2ATT, 4ATT, and 3CTT. The sensor failure message shall follow the following format: SENSOR FAILURE 4ATT. The conditions for a sensor failure warning must exist for 3 seconds before the warning will be issued.



• Sensor Failure (Units with Integrated Dryer)

Will occur whenever a sensor is recognized as missing or broken and the compressor has an integrated dryer. The sensors affected by this warning are 5DTT and 6DTT. The sensor failure message shall follow the following format: SENSOR FAILURE 5DTT. The conditions for a sensor failure warning must exist for 3 seconds before the warning will be issued.

Change Separator Element

This will occur if the compressor has been running for at least 7 seconds, the injected coolant temperature is at least 120 °F, the package discharge pressure is at least 65 psi, and the separator pressure drop is at least 12 psi. If the target pressure is less than 90 psi, the warning value will increase 1 psi per 5 psi in reduced target pressure. For example, if the target pressure is between 89 and 85 psi, the warning value will be 13 psi. This condition must exist for 3 seconds before the warning is issued.

High Airend Disch Temp

Will occur if the compressor is running and 2ATT is greater than 221 °F (97% of 228) or the compressor is in idle mode and 2ATT is greater than 184 °F. This warning will normally have a 5 second delay, however, if the hot side thermal valve is set to ON, this warning will have a 90 second delay.

High Discharge Press

Will occur if the compressor is under the control of an external device, such as an X-series, and the discharge pressure is greater than the immediate stop pressure. This condition must exist for 3 seconds before the warning is issued.

• Auxiliary Warning 1 (2)

This will occur if the auxiliary warning input closes. The contact must close for at least 3 seconds before the warning will be issued.

Service

Service warnings could change significantly once the predictive maintenance warnings have been determined.

Service warnings occur when the compressor has operated a certain number of hours, based on the total hours. Service warnings can have multiple levels, depending on the service level selection. Selecting service level 0 disables service warnings.

Service Level 1

If service level 1 has been selected for the compressor, a "SERVICE REQUIRED" warning will be issued the amount of operating hours in the Service Time Period set point. This warning can be reset the same as any other warning.

Service Level 2

If service level 2 has been selected for the compressor, the service complete factory set point will be used to clear a level 2 service warning and reset the service time or date. The service complete can be reset before a service warning occurs.

The first "SERVICE REQUIRED" warning will occur at the total hours value of the service time period set point. However, 100 hours before this a "100 HOURS TO SERVICE" warning will occur. This warning can be reset the same as any other warning. One hundred hours later, at the total hours value of the service time period, the "SERVICE REQUIRED" warning will occur. This warning can be reset the same as any other warning, however this warning will return in 24 hours if the service complete factory set point has not be set. If the service complete has not been set, 100 hours later (service time period + 100) the "ALARM – SERVICE REQUIRED" warning will be issued. This warning can only be cleared by the service complete factory set point. Once the service complete factory set point is set, indicating the service is completed, the time for the next "SERVICE REQUIRED" warning will be calculated by adding the service time period to the total hours value, with the "100 HOURS TO SERVICE" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning will be calculated by adding the service time period to the total hours value, with the "100 HOURS TO SERVICE" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours before and the "ALARM – SERVICE REQUIRED" warning occurring 100 hours after that time.

Condensate Drain Error

This will occur if the compressor is running, the package discharge pressure is over 50 psi, and the condensate drain error contact closes for at least 30 minutes. This warning will be ignored for 4.5 minutes after starting.

High VSD Ambient Temperature

This warning will occur if the VSD ambient temperature gets within 5% of the shutdown value (133 °F). This condition must exist for 3 seconds before the warning will be issued.

Freeze Warning

This will occur if the evaporator sensor has a value of 687 (about 0.5 °C) or below (low temp) while the dryer is running, on compressors with the integrated dryer. This is a dryer fault. If this happens, the compressor will continue to run, but the dryer will stop. The condition must exist for at least 180 seconds before the warning will occur. NOTE: If this warning is reset while the conditions for running the dryer exist, the dryer can restart. Also the dryer can restart if the evaporator value rises to 709 (about 5 °C). However the warning will still be displayed.

Dryer High Pressure

On compressors with an integrated dryer, this will occur if the dryer high pressure switch opens while the dryer is running. This is a dryer fault. If this happens, the compressor will continue to run, but the dryer will stop. The contact must be open for at least three seconds before the warning will occur. If this warning is reset while the conditions for running the dryer exist, the dryer can restart. However, this switch is a locking switch. The switch must be reset before the dryer can run. Resetting the warning on the display does not reset the switch.

Sensor Failure 10APT

This will occur whenever the remote sensor is recognized as missing or broken. The sensor failure message shall follow the following format: SENSOR FAILURE 10APT. If this warning occurs, the compressor will automatically switch to the package discharge pressure sensor for control. This condition must exist for 3 seconds before the warning will be issued.

High Sump Pressure

This will occur if the compressor is running, the package discharge pressure is at least 65 psi, and the sump pressure is more than 15 psi (22 psi for units with an integrated dryer) above the target pressure. The occurrence of this warning will cause the controller to evaluate the need to lower the maximum speed. This condition must exist for 3 seconds before the warning will be issued.

Condenser Temperature High

This will occur if the condenser sensor has a value of 1019 (about 65 °C) or above (high temp) while the dryer is running, on compressors with the integrated dryer. This is not a dryer fault. If this happens, the compressor and dryer will continue to run. The condition must exist for at least 180 seconds before the warning will occur.

Condenser Temperature Low

This will occur if the condenser sensor has a value of 887 (about 40 $^{\circ}$ C) or below (low temp) while the dryer is running, on compressors with the integrated dryer. This is not a dryer fault. If this happens, the compressor and dryer will continue to run. The condition must exist for at least 180 seconds before the warning will occur.

Change HE Filter

The HE filter is located between the after-cooler discharge and the inlet to the dryer and is only on compressors with an integrated dryer. The drop across the HE filter is measured by subtracting the package discharge pressure from the after-cooler discharge pressure. If the compressor is running at a minimum of 75% capacity, the measured drop across the HE filter is at or above 10 psi (0.7 bar), the compressor is hot (injected coolant temp above 120 °F), and the package discharge pressure (4APT) is above 90 psi, this warning can occur. The condition must exist for at least 3 seconds before the warning will occur. This is not a dryer fault. If this happens, the warning will be displayed, but the dryer will continue to run.

Replace Coolant Filter

This will occur if the idle mode is set to on. This trip is used as a reminder to **Ingersoll Rand** service to only use idle mode if a new coolant filter is installed.



Invalid Calibration

Will occur if the sensor zero value is +/- 10% of its scale. This will only occur when a sensor is calibrated.

TRIP EVENTS LIST

• High Airend Disch Temp

This will occur if 2ATT is greater than 228 $^\circ F$ during normal operation. This trip will occur at 200 $^\circ F$ if the compressor is in idle mode.

Blower Fault

Will occur if the fault contact opens for 3 seconds on the blower VSD and the compressor is running or stopped in auto restart. This trip will not occur on water cooled units..

Remote Stop Failure

Will occur if the REMOTE START/STOP option is enabled, the remote stop button remains open and either start button is pressed.

Remote Start Failure

Will occur if the compressor is started by the remote start button and the button stays closed for 7 seconds after the compressor starts.

Sensor Failure

This will occur when a sensor is recognized as missing or broken. The sensors affected by this trip are 4APT, 3APT, 2APT, 1AVPT, 5CPT, 6CPT, 7APT and 2ATT. The sensor should be displayed along with the sensor failure message. The sensor failure message shall follow the following format: SENSOR FAILURE 4APT. Sensor 4APT has the following additional logic. A sensor failure 4APT will be issued if the sump pressure is over 100 psi and the package discharge pressure (4APT) is 50 psi less than the sump pressure. 2APT is only a sensor failure on units with an integrated dryer.

Emergency Stop

This will occur when the EMERGENCY STOP button is engaged.

VSD Fault

For R30-37 kW, the VSD fault is read from drive, controller only shows VSD FAULT. Once fault is eliminated from drive, VSD fault can be cleared by pressing the reset button and machine can be restarted.

For R37e-160 kW, the VSD fault is read from the drive. The controller will read the status menu of the variable speed drive. If a fault condition is returned in the status information, the controller will issue a VSD FAULT trip and display the number of the fault condition. VSD faults 39 - 42 and 44 cannot be cleared by pressing the reset button. All other VSD faults can be cleared by pressing the reset button. The only way to clear a VSD fault 39 - 42 or 44 is by cycling the power on the compressor. Cycling the power causes the VSD to execute a power module test. The power module test must be passed before the compressor can be restarted after a VSD fault 39 - 42 or 44. VSD faults 39, 40, and 41 (IGBT failures) have additional logic associated with them. Due to false trips the logic was modified to allow an automatic restart. If the VSD fault 39, 40, or 41 occurs, the controller will trip and display the fault message. After two minutes, the controller will issue a command to the VSD to run the power module test. While the VSD is running the power module test, the controller will force itself into a reset. Upon completing the reset, the controller will monitor the VSD for completion of the power module test. If the power module test is completed and all conditions have passed, the controller will automatically restart the compressor. If the power module test is failed, the controller will show the power module test failure message and the failure code. The controller will not allow more than five automatic restarts of VSD Fault 39 - 41 within a 24 hour period. The controller will also not allow two automatic restarts of VSD Fault 39 - 41 within a 10 minute period. If a VSD Fault 39 - 41 occurs and violates the time periods, the controller will not issue a power module test and restart. It will display the fault and not allow a reset from the controller. The operator must cycle power. Another exception on all drives are VSD faults 10, 12 - 14, and 16. If the compressor trips due to one of these faults, instead of shutting down on the VSD fault, the controller will reset and then restart the compressor. If the compressor is equipped with a power outage restart option (PORO), the controller will execute a PORO restart. If the compressor does not have PORO, the controller will restart the compressor 10 seconds after the controller has reset. A compressor will be allowed to do this up to five times in a one hour period. If the compressor exceeds five occurrences within a one hour period, the sixth occurrence will be treated like a regular VSD fault.

Low Sump Pressure

This will occur if the compressor is operating and the sump pressure drops below 13 psi for 15 seconds.

Check Motor Rotation

This will occur if the controller reads a negative speed from the VSD when starting. This fault is checked after every power cycle. Once correct rotation is established, this fault will not be checked again until power is cycled on the controller.

• VSD Communication Failure

This will occur if the controller does not receive a response from the VSD when requesting information. This trip will take about 8 seconds to occur.

Incorrect VSD Type

This will occur at power up if the VSD type does not match the size of compressor. The controller will determine this by comparing the compressor type with the drive ID board.

Control Power Loss

This will occur if the compressor should be running and the AC input voltage, as read from the VSD, falls below 300 VAC (480 VAC if the unit is rated for 575 volts). There is a delay of 5 seconds on this trip in case the power quickly returns.

• Stop Failure

This will occur if the compressor should be stopped, but the motor speed has not dropped below the minimum motor speed set point. The controller will wait 8 seconds for the compressor to stop before issuing this trip.

• High Interstage Pressure

This will occur if the compressor is running, is a two stage compressor, and the interstage pressure is above 75 psi.

• High Coolant Filter Pressure Drop

This will occur if the compressor has been running for at least seven seconds, the injected coolant temperature is at least 140 °F, already has a change coolant filter warning, the motor speed is at least equal to the minimum speed, and the coolant filter pressure drop (5CPT - 6CPT) is greater than 35 psi. This trip has a 10 second delay.

High Inlet Vacuum

This will occur if the compressor is running loaded, the motor speed is at least minimum speed, and the inlet vacuum is greater than 1.8 psi (vacuum).

• High Sump Pressure

This will occur if the compressor is running and any one of the three following conditions exist: (1) The sump pressure is above the target pressure by 25 psi. (2) The separator pressure drop is measured to be more than 25 psi (32 psi if unit is equipped with an integrated dryer) and the package discharge pressure is at least 65 psi. (3) The sump pressure is above 168 psi.

• Power Module Timeout

The VSD will automatically do a power module test at power up. The controller will monitor the power module test result parameter. A value of 0 will indicate the power module test is running. If it does not complete within 20 seconds after power up, the controller will issue the trip.

Fan Motor Overload

Will occur if the fault contact opens for 3 seconds and the unit is water cooled.



START INHIBIT LIST

• High Airend Discharge Temperature

This will occur if 2ATT is greater than 95% of 228 °F.

High Sump Pressure

This will occur if the sump pressure (3APT) is 25 psi (32 psi if the unit is equipped with an integrated dryer) or higher than the rated pressure of the compressor.

• Waiting for VSD Comms

This will occur if the compressor VSD has not responded to the initial communications from the controller.

Power Module Test

This will occur if the VSD is running a power module test.

High VSD Ambient

This will occur if the VSD ambient temperature rises to 133 °F while the compressor is stopped.

Isolation Contact Open

This will occur if the isolation contact has been cycled too many times.

TRIP HISTORY

• PAGES 1-2 (MAX.)

	Figure 45 : Trip H	listory			
		Æ	ð		4
Trip Hist	ory	•	1		
#	Description	Tim	e	Date	Т
1.Em	ergency Stop	11:23	:46	5/7	
2.VS	D Comm Failure	11:17	:43	5/7	
3.Po	wer Module Test Timeou	11:17	:37	5/7	
4.Em	ergency Stop	11:17	:17	5/7	Т
5.Po	wer Module Test Timeou	11:06	:57	5/7	
6.Em	ergency Stop	11:06	:37	5/7	
7.V S	D Comm Failure	11:06	:09	5/7	
Readyto	Start	đ	h ,	্র স	

The pages in the Trip History folder document up to the last 15 trips that the controller has experienced, and time stamps each. The trips are recorded in sequence, with number one being the newest and 15 being the oldest. When a new trip occurs, it becomes number one and all others are shifted up in number.

The page numbers in the Title Bar are used to scroll through the events, with each page displaying up to seven. Page one displays events one through five, page two displays six through ten, and so on.

The following actions will generate an event:

- Power ON
- Power OFF
- Press the Start Key
- Press the Stop Key
- Press the Load Key
- · Press the Unload Key
- Warning
- Trip
- Start Inhibit

Active Trips will be highlighted in red while cleared Trips will have red text.

The trip history also records compressor data at the time of the trip to assist in diagnostics and troubleshooting. Navigating to the trip entry and pressing the enter button will activate the trip history dialog box.

Figure 46 : Trip History Dialog



While the dialog box is active, press the left and right keys to scroll through the displayed data. The name of the trip will always be shown in the title bar of the dialog box. Press enter when finished viewing the data to return to the trip history screen.





PAGES 1 THRU 5: INDIVIDUAL GRAPHS

Figure 47 : Individual Graphs



Graphing is only available on the Xe-145 controller.

Variable (Read Only) Each page graphs one variable, displaying the variable name and unit of measure in the top center of the page. The variables that will be graphed on each of the five pages are selectable from page six. The units of measure are selectable from the GENERAL SETTINGS folder.

Y-Axis (Read Only) is auto-scaling.

X-Axis (Read Only - The time duration is selectable from page six. The sample rate varies, based on the selected duration.

The graph plots a minimum of 255 readings

PAGE 6 – GRAPHING SELECTIONS

Figure 48 : Graphing Selections

Sump Pressure	V	_	60 minutes V
Sump Pressure	V		60 minutes V
Sump Pressure	V		60 minutes V
Sump Pressure	\checkmark		60 minutes 🗸
Sump Pressure	\vee		60 minutes 🗸

The selections for page one through five are organized sequentially in rows. The top row has page one selections and the bottom row has page five selections.

Variables - include all analog inputs as well as some calculated variables. The amount of variables will vary depending on the compressor type and the options it has.

Duration - selectable from the following five times

- 10 minutes
- 30 minutes
- 60 minutes
- 12 hours
- 24 hours

These times are fixed and cannot be changed.

MAINTENANCE FOLDER

• PAGE 1: FILTER STATUS

Figure 49 : Filter Status



This page displays the following:

- Coolant Filter Status
- Separator Element Status
- Inlet Filter Status
- PAC Active

PAGE 2: MAINTENANCE STATUS

Figure 50 : Maintenance Status



This page displays the time until the compressor should be serviced.

PAGE 3: MAINTENANCE CONFIGURATION

Figure 51 : Maintenance Configuration

Maintenance	123
Service Config	guration
Hours Until Service	4000
Service Interval	4000
	Reset
Ready to Start	ሐ 🔏 표

This page allows the user to set the service interval and to reset the counter after the service has been performed.



ď



NOTICE

All parameters in this folder are adjustable.

PAGE 1: LANGUAGE SELECTION

Figure 52 : Language Selection

	Setup
anguage	English 🗸
Pressure	psi 🔽
lemperature	°F 🗸
low	cfm 🗸

Korean

Latvian

• Lithuanian

Norwegian

• Polish

Russian

Slovak

• Thai

Language is selectable from the following 31 choices:

- English (default)
- Bulgarian
- Chinese, simplified
- Croatian Maltese
- Czech
- Danish • Dutch
 - Portuguese Romanian
- Estonian
- Finish
- French
- German Slovenian
- Greek Spanish
- Hungarian • Swedish
- Italian
- Indonesian
- Turkish Japanese

The controller will display all screens in the selected language and only one language can be selected at a time.

Each language appears in its native translation.

The following compressors of measure settings are displayed in this section:

Table 18 : Units of Measure Settings

Display Text	Description
Pressure	Selectable among psi, kpa, bar, kg/cm ² .
Temperature	Selectable between °F and °C.
Flow	Selectable between CFM and m ³ /m.

PAGE 2: TIME & DATE SETTINGS •

Figure 53 : Time & Date Settings

	4 12	-10		Ľ
General Settings	•	1 2	34	*
Time	and Date			
Time		11 :40 :	57	
Year			2018	
Month			5	
Day			7	
Confirm Date and Time			Apply	
Date Format		mm/dd	YYYY	
				1011
			8 =	-

All items are adjustable.

The following settings are displayed in this section:

Table 19 : Time & Date Settings

Display Text	Description
Time	Allows the current hours, minutes, and seconds to be set. The time format is 00:00:00.
Year	Allows current year to be set.
Month	Allows current month to be set.
Day	Allows current day to be set.
Confirm Date and Time	Used to verify that changes to selections are desired. Select Apply before any changes will take effect.
Date Format	Selectable between dd/mm/yyyy (default) and mm/ dd/yyyy.

The controller will continue to display any changes, even when the selections have not been confirmed and the user exits the page, then returns. Cycling of the power returns all selections to their current settings.

NOTICE

The controller does not support Daylight Savings Time.



PAGE 3: HOME PAGE SELECTION

Figure 54 : Home Page Selection

eneral Settings		•	1 2	3 4	
	Display	_	_	-	
Return to Home					2
Delay Time				30 :	s
Home Folder		Hom	e	\vee	1
Home Page					1
		_			

The following settings are displayed in this section:

Table 20 : Home Page Selection

Display Text	Description
Return to Home	Enables the controller to return the display back to the selected Home Page if there is no user activity for the Delay Time shown. This is only enabled when an "x" appears in the checkbox.
Delay Time	Determines how many seconds of inactivity it will take before the controller will return to the Home Page.
Home Folder	Used to select the Home folder.
Home Page	Used to select the Home Page within the selected Home folder.

PAGE 4 : BACKLIGHT SETTINGS

Figure 55 : Backlight Settings



The following settings are displayed in this section:

Table 21 : Backlight Settings

Display Text	Description
Backlight Brightness	Adjusts the brightness of the display.
Backlight Auto Shutoff	Enables the controller to shut-off the backlight if there is no user activity for the delay time shown.
Backlight Off Delay	Determines how many seconds of inactivity it will take before the controller will shut-off the backlight.

NOTICE

The backlight will be switched ON whenever any of the controller's keys are pressed.

The START, STOP, LOAD, UNLOAD, RESET, and ACKNOWLEDGE keys on the controller remain functional while the backlight is switched OFF. It is recommended to press the ENTER key or one of the navigation keys in order to switch the backlight ON.

PAGE 5 - PROTOCOLS

Figure 56 : Protocols

General Settings	i ≪ 5 €	i 7 🕨
Protocol	5	
Modbus Address		1
Modbus Pressure	psi	\vee
Modbus Temperature	°F	
Airbus Address		1
Ready to Start		স

This page allows the user to set up the network addresses for the RS-485 networks the controller is capable of communicating with.

MODBUS Address – Sets the modbus node ID for the controller to communicate with a Modbus capable device, this can be any value between 1 and 247.

MODBUS Pressure - Sets the unit type for pressure data read out via the Modbus connection

MODBUS Temperature – Sets the unit type for temperature read out via the Modbus connection

Airbus Address - Sets the airbus address that allows the controller to communicate over Integral Sequencing or an X-Series system controller network.

PAGE 6 - COM2 CONFIGURATION

Figure 57 : COM2 Configuration

	COM2 Confi	iguration	_	_
Baud Rate	9600	V	96	300
Stop Bits	1	\checkmark		1
Parity	None	\vee	No	one
	A	pply	Ca	ncel

This page allows the user to adjust the baud rate, stop bits, and parity for Com 2.

Baud Rate - The baud rate is adjustable from 9600 to 115200.

Stop Bits - The stop bits can be set as 1 or 2.

Parity - The parity can be set as none, even, or odd.

Apply – After editing the desired settings navigate, to the accept setting and press enter in order for the values in the setting variables to be confirmed by the controller.

Cancel - Discard any changes made to the Com2 configuration settings.



PAGES 7-8: ETHERNET SETTINGS

Figure 58 : Ethernet Settings

Seneral Settings		•	*	6	7	8
	Ethern	et	104			
IP Address (Sett	ing)	1	92.16	58.	2	.220
IP Address (Actu	ual)	1	92.16	68.	2	.220
Default Gateway	(Setting)	1	92.16	8.	2	. 1
Default Gateway	(Actual)	1	92.16	88.	2	. 1
Subnet Mask (Se	tting)	2	55.25	55.2	255	. 0
Subnet Mask (Ac	tual)	2	55.25	55.2	255	. 0
MAC Address eady to Start		1a	:01:4	2:a	3:5	1:02
MAC Address eady to Start		1a	:01:4	2:a	3:5	1:0a
MAC Address eady to Start	Ethored		:01:4	2:a	3:5 0 7	1:0a
MAC Address eady to Start	Ethernet (1a	:01:4	2:a	3:5	1:0a
MAC Address eady to Start	Ethernet	1a	:01:4	2:a	3:5 3:5 7 7 2.2	1:07 2 2 20
MAC Address eady to Start	Ethernet	1a	:01:4	2:a	3:5 0 7 2.2 3.2.	1:07 2 8 20 1
MAC Address eady to Start	Ethernet False	1a	:01:4	2:a	3:5 7 2.2 3.2. .25	1:07 2 2 2 2 2 1 5.0
MAC Address eady to Start Constant General Settings Enable DHCP IP (Used) GW. (Used) Sub. (Used)	Ethernet False	1a	:01:4	2:a	3:5 7 2.2 3.2. .25:	2 2 2 2 2 2 1 5.0
MAC Address eady to Start Constant Enable DHCP IP (Used) GW. (Used) Sub. (Used)	Ethernet False	1a	:01:4	2:a	3:5 7 2.2 3.2. 25 :el	20 1 5.0

The following settings are displayed in this section:

IP Address Setting – When DHCP is not enabled, this setpoint sets the IP address of the controller.

IP Address Actual – This will match the IP address setting when DHCP is not enabled. If DHCP is enabled this will display the address assigned to the controller by the DHCP server.

Default Gateway Setting – Setpoint for the default gateway.

Default Gateway Actual - Current reading/setting for the default gateway.

Subnet Mask Setting - Setpoint for the subnet mask.

Subnet Mask Actual – Current reading/setting for the subnet mask.

MAC Address – This is the unique hardware MAC address for the controller. This can not be changed.

Enable DHCP – Allow the controller to automatically receive an IP address from the Local Area Network (LAN)

Apply – After editing the desired setpoint navigate to the accept setting and press enter in order for the values in the setting variables to be confirmed by the controller.

Cancel – Discard any changes made to the Ethernet settings.

PAGE 9: OPTION MODULE INFORMATION

Figure 59 : Installed Options

	£	L.	5	Ø	
General Settings	•	۲	6	7	89
Installed Opt	ions		_		
PORO Sched S/S					
23749021					
					_
					_
	_		_		
Ready to Start		ħ	1	203	ন

The option module information screen allows the user to see which software options have been installed in the controller.

An option module that is installed will show up with an "X" in the appropriate box. The option part number is displayed with the option name. If no options are installed, this screen will not appear on the controller.



• PAGES 1 THRU 3 : SETUP, TUNING, AND SEQUENCE

Figure 60 : Integral Sequencing Settings

Integral Sequencing	1 2 3
Setup	1
Integral Sequencing	
Unload Pressure	100 psi
Load Pressure	90 psi
System Pressure	X psi
D d 0	· *
Ready to Start	- 18
Ready to Start	ጠ 🔊 ፲
Ready to Start	ጠ 💉 ፲
Integral Sequencing	
Integral Sequencing	
Integral Sequencing Damping	
Integral Sequencing Damping Tolerance	m ☆ 21
Integral Sequencing Tuning Damping Tolerance Start Delay Interval	1 2 3 9 1.0 3 psi 3 s
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	1 2 3 1 2 3 9 1.0 3 psi 3 s 2
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	1 2 3 9 1.0 3 psi 3 s 2
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	1 2 3 9 1.0 3 psi 3 s 2
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	1 2 3 9 1.0 3 psi 3 s 2
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	1 2 3 9 1.0 3 psi 3 s 2
Integral Sequencing Tuning Damping Tolerance Start Delay Interval Number of Compressors	▲ 21 ▲ 1 2 3 9 1.0 3 psi 3 s 2


ntegral Sequencing	_	•	1	2 3		
Sequ	ence					
Sequence					-	-
Priority				1 1	1	1
			R	otate	No	w
Rotation Interval				:	24 1	1
Time Left Until Rotation					0 1	4

Integral Sequencing allows the compressor to be networked with up to three other compressors (fixed or variable speed) to maintain a stable system pressure by loading and unloading compressors as needed. Integral sequencing requires no additional hardware other than a serial two wire connection daisy chained between all compressors in the system.

Please note that the compressor's address in the integral sequencing system is defined by the airbus address that is set on the general settings folder. Also note that the pressure signal used to determine when to load or unload another compressor is based on the pressure reading from the compressor at address 1 in the system.

Integral Sequencing – Enabling Integral Sequencing selects this compressor to be the leader of the integral sequencing system. It is important that only one compressor in the sequence be selected as the lead compressor.

Unload Pressure – Determines the pressure at which a compressor will be unloaded by the system.

Load Pressure – Determines the pressure at which a compressor will be loaded by the system.

System Pressure – Shows the current pressure reading that the system is using for control. This is typically compressor 1's package discharge pressure reading.

Start Delay Interval – Determines the amount of time between loading compressors. This prevents all compressors from loading at once.

Damping – The pressure control "Damping" setting which is used to tune how quickly the system responds to pressure deviations. The default is 1.0 and should not normally be changed.

Tolerance - The pressure control "Tolerance" setting, which is used to tell the system how to respond to changes in pressure above and below the load/ unload pressures. The default is 3 psi and should not normally be changed.

Number of Compressors – Defines how many compressors are in the system. There is a maximum of 4.

Sequence – Displays the current load/unload order of the system. Each compressor in the system is assigned a letter, with "A" being the compressor to load first and unload last, and "D" being the compressor to load last and unload first.

Priority – Each compressor can be assigned a priority level. Compressors will only rotate positions with other compressors of the same priority level.

Rotate Now – Selecting this setpoint will cause the sequence to shift according to the priorities, regardless of the rotation interval setpoint.

Rotation Interval – Determines the time period between sequence rotations.

Time Left - Counts down the time until the sequence rotation will occur

! When using integral sequencing with variable speed compressors, only 1 compressor will change speeds and that compressor must be in the 1st position in the sequence.

STATUS FOLDER

NOTICE

All information on these pages is read only.

PAGES 1-3: ANALOG INPUTS

Figure 61 : Analog Inputs

Status	∎ <u>1</u> 234 »
Апа	log Inputs
Pkg Discharge Press	39 psi
Sump Pressure	1 psi
Airend Disch Temp	132 °F
Inject Coolant Temp	79 °F
Aftercooler Disch T	96 °F
Sep Pressure Drop	0 psi
Coolant Filter Drop	-94 psi

Status	1234 >>
Analo	g Inputs
Inlet Vacuum	-0.6 psi
Remote Pressure	86 psi
Aftercool Disch P	94 psi
Coolant Inlet Press	137 psi
Coolant Outlet Press	232 psi
Evaporator	3008
Condenser	2834

n n



The following inputs are displayed in this section:

- Package Discharge Pressure
- Sump Pressure
- · Airend Discharge Temperature
- Injected Coolant Temperature
- · After-cooler Discharge Temperature
- Separator Pressure Drop
- Coolant Filter Pressure Drop
- Inlet Vacuum
- · After-cooler Discharge Pressure (integrated dryer compressors only)
- Remote Pressure (optional)
- Coolant Filter Inlet Pressure

•



- Coolant Filter Outlet Pressure
- Interstage Pressure (2-stage compressors only)
- Evaporator
- Condenser
- Cooler Out Temperature
- Package Inlet Temperature

• PAGES 4-5: DIGITAL INPUTS

Figure 62 : Digital Inputs

Status	1234
Digital Ir	nputs
Emergency Stop	
Blower Fault	
Condensate Drain Error	
Remote Stop	
Remote Start	
Auxiliary 1	
Auxiliary 2	
eady to Start	ሐ 🆧 ፺
Status	■ ≪ 5 67 ×
Digital Ir	nputs
Dryer High Pressure	



A marked checkbox beside a digital input indicates that the input is in its TRUE state. For example, Starter Feedback is TRUE when its input is in the high state, where as, E-Stop is TRUE when its input is at 0Vdc.

The following are displayed in this section:

- Emergency Stop
- Blower Fault
- Condensate Drain Error
- Remote Stop
- Remote Start
- Auxiliary Input 1
- Auxiliary Input 2
- Dryer High Pressure

PAGES 6-7: DIGITAL OUTPUTS

Figure 63 : Digital Outputs



A marked checkbox beside a digital output indicates that it is energized.

- Isolation Contact
- K1 Contact
- PDM Fan Contact
- 1SV
- Condensate Drain
- Dryer Running
- PORO Horn
- Trip Relay
- Warning Relay
- True Running

NOTICE

(RO) indicates read-only values.

• PAGE 8: ANALOG OUTPUTS

Figure 64 : Analog Outputs

	: 18 0			ō	
Status	C	*	8	9 10	11
/	nalog Outputs				٦
VSD Blower Output			0.	0 %	
					4
					1
Ready to Start		÷	1	5	Ŧ

The value for the analog outputs will be in %.

• VSD Blower Output.



PAGES 9-11: COMPRESSOR DATA

Figure 65 : Compressor Data

	-10		4	lõ (
Status			« 8	9 10 11
	VSD	_	_	
% Energy Savings			0.0 %	
Capacity			0.0 %	
Package Power			0 k	w
Power On Hours			0 H	rs
Power On Hours			39 N	lin
Running Hours			0 H	rs
Running Hours			0 1	lin
Ready to Start		6	ħ,	& य
	Å	Q	4	l o
Status		•	۹ 8	9 10 11
	VSD	_		
Motor Speed			0 r	pm
Time		11:	49:13	
Motor Current			0 4	mps
Motor Voltage			0 \	
AC Input Voltage			300 V	
DC Bus Voltage			0 V	
IGBT U Temperature			32 °	F
Ready to Start		6	ħ,	고
	6	Ø	44	l i i
Status		•	۹ 8	9 10 11
	VSD			
IGBT V Temperature			32 °	F
IGBT W Temperature			32 "	F
Input Rectifier Tempe	ratur		32 °	F
VSD Ambient Tempera	ature		32 "	F
Target			100 p	si
Ready to Start		6	ħ,	<u>ू</u> म

The following are displayed in this section:

- % Energy Savings
- % Capacity
- Package Power
- Power On Hours and Minutes
- Running Hours and Minutes
- Motor Speed
- Time
- Motor Current
- Motor Voltage
- AC Input Voltage
- DC Bus Voltage
- IGBT U Temperature
- IGBT V Temperature
- IGBT W Temperature
- Input Rectifier Temperature
- VSD Ambient Temperature
- Target Pressure

FACTORY SETTINGS FOLDER

This folder is for **Ingersoll Rand** factory and service personnel. A password must be entered on page one in order to adjust values in this folder. This folder is used for setting parameters that are specific to that compressor and displaying software information for the controller.

• PAGE 1 : PASSWORD

Figure 66 : Password 4 12 10 1 œ. **Factory Settings** 1234 🕨 Password Password **Password Entered** Enable Password Timeout **Timeout Delay** 10 s Ready to Start +

Table 22 : Password

Password:	Provides access to enter a valid password to gain access to password protected parameters. The password is entered by scrolling down to the password value and pressing the return key.
Password Entered:	This checkbox will indicate a valid password has been entered. If this checkbox is blank, a valid password has not been entered or it has timed out. This is read only.
Password Timeout Enable:	Checking this box will enable the password time feature.
Timeout Delay:	This timeout along with the password timeout enable allows the user to set an adjustable amount of time to require a valid password to be re-entered. Once this timeout is reached re-entry of a valid password is required.

PAGES 2-4 : FACTORY SETTINGS

Figure 67 : Factory Settings

Factory Settings	12	34
Factory Se	tpoints	
Compressor Type	90 kW	V
Enable Two Stage		
Enable Water Cooled		
Enable PAC		
Service Level	1	
Enable Dryer		
Constant Running Dryer		

FN-40



These pages are used for setting parameters that are specific to the compressor. All of the factory settings that are adjustable are listed below. All settings on these pages are password protected.

Compressor Type will be selected here. The choices are listed below:

- 37 kW/50 hp 1-S (46, 47) (38, 39)
- 45 kW/60 hp 1-S (47) (39)
- 55 kW/75 hp 1-S (48, 49) (40, 41)
- 75 kW/100 hp 1-S (49) (41)
- 90 kW 1-S (50, 51) (42, 43)
- 125 hp 1-S (50, 51) (42, 43)
- 110 kW 1-S (51) (43)
- 150 hp 1-S (51) (43)
- 132 kW 1-S (52, 53) (44, 45)
- 200 hp 1-S (53) (45)
- 160 kW 1-S (53) (45)
- 90 kW 2-S (50, 51) (42, 43)
- 125 hp 2-S (50, 51) (42, 43)
- 110 kW 2-S (51) (43)
- 150 hp 2-S (51) (43)
- 132 kW 2-S (52, 53) (44, 45)
- 200 hp 2-S (53) (45)
- 160 kW 2-S (53) (45)
- Enable Water Cooled (ON/OFF)
- Enable Two Stage (ON/OFF)

Enable PAC (ON/OFF)

Enable Dryer (ON/OFF)

Constant Running Dryer (ON/OFF)

Service Level (0, 1, or 2)

Variable Speed Delay (adjustable)

Remote Sensor Offset (adjustable)

Running Hours (adjustable)

Power On Hours (adjustable)

Number of Main Motor Starts (adjustable)

PAGES 5-8 : MAXIMUM VALUES

Figure 68 : Maximum Values





	< 5 6 7
ximum Values	
	32 °F
11:23:02	05/07/18
15	32 °F
11:23:02	11:23:02
eratur	32 °F
11:23:02	05/07/18
	ximum Values 11:23:02 11:23:02 eratur 11:23:02



The maximum values pages are used to record the highest value the controller has seen since the last time the maximum values have been reset. Each maximum value entry displays the highest value recorded as well as the time and date stamp of when these maximum values have occurred.

The final maximum value page has a reset setting at the bottom of the page, highlighting this button and hitting enter will cause the controller to clear all history of maximum values and begin recording them again. The password must be entered in order to use this reset functionality.



PAGE 9 : VSD DIAGNOSTICS

Figure 69 : VSD Diagnostics

Factory Settings		8	9	10 >>
actory octings			-	10 10
V SD Di	agnostics			
Control and Interface Bo	ard Test			
Control and Interface Bo	ard Result			1
Power Module Test				
Power Module Result				1
VSD Memory Test				0
Error Code 1				0
Error Code 2				0

The VSD Diagnostics screens are used to troubleshoot any drive problems.

ΝΟΤΙϹΕ
These screens must only be used by authorized service technicians. The password must be entered in order to activate these diagnostic tests.

PAGES 10 -12 : VSD SERVICE MENUS

Figure 70 : VSD Service Menus

	4	ō		Q.	
Factory Settings	•	-	8	9	10 🕨
VSD Setu	,		_		
Minimum Motor Speed			98	80 rj	pm
Maximum Motor Speed			18	10 rj	pm
Proportional Gain		3	35.0	00	
Integral Gain			12.0	00	
Derivative Gain			0.0	00	
RampRate			100	.0 %	
Skip Speed Point				0 rj	pm
Ready to start	-6	Th.	1	50	-24
Factory Settings	4		11	ୁ ଙ୍କ 12	13 14
Factory Settings			11	ୁ ଅନ୍ତ୍ର 12	13 14
Factory Settings VSD Setur Skip Speed Band	44		11	0 r	21 13 14
Factory Settings VSD Setur Skip Speed Band Idle Mode		•	11	0 rj	21_ 13 14 pm
Factory Settings VSD Setur Skip Speed Band Idle Mode Lowest Blower %			20	0 rj	21_ 13 14 pm
Factory Settings VSD Setur Skip Speed Band Idle Mode Lowest Blower % Warm Up Temperature			20 18	0 rj 0 rj 0 %	21_ 13 14 pm
Factory Settings VSD Setur Skip Speed Band Idle Mode Lowest Blower % Warm Up Temperature Warm Up Time			11 20 18	C≪ 12 0 r; 0 % 30 °i 5 M	21 13 14 pm F lin
Factory Settings Factory Settings VSD Setu Skip Speed Band Idle Mode Lowest Blower % Warm Up Temperature Warm Up Time			11 20 18	C4 12 0 rj 0 % 80 °l 5 M	21 13 14 pm F



The VSD service menus contain parameters used to set up the compressor for optimal operation.



These screens must only be used by authorized service technicians. The password must be entered in order to modify these parameters.

PAGES 13-14 : SOFTWARE VERSION

Figure 71 : Software Version

	4		5 1	ଞ୍	
Factory Settings	•	-	11	12	13 14
Software Ve	ersion		_		
Controller Serial Number		S	hiva	kun	nar
Display Boot Version					1.8
Display Firmware Version				3.	4.0
Display App Version				3.	4.0
I/O Boot Version					1.8
I/O Firmware Version				3.	4.0
IO App Version			-	3.	4.0
Ready to Start					- 16
Ready to Start	43			ଝ	<u>.</u>
Ready to Start	4		11	ୁ ଜୁ 12	13 14
Ready to Start A A A T Factory Settings Software Ve	ersion		11	ୁ ଅନ୍ତି 12	13 14
Ready to Start A A T A T Factory Settings Software Ve Software CCN	A A A A A A A A A A A A A A A A A A A		11	() 12 748	21 13 14 981
Ready to Start Factory Settings Software Version	ersion	•	11	C 12 748 0	981 .00
Ready to Start	ersion		11 237	C4 12 748: 0	981 .00
Ready to Start Factory Settings Software Version VSD Software Version	ersion	•	11 237	Cd 12 7489 0	981 .00

These pages are used for displaying software information for the controller. All items are read only.



Ingersoll Rand Xe-90M/ Xe-145M web pages are a visualization application which offers a window using a web browser on your PC. The web pages allows the user to monitor air system at a glance or take a more detailed look into system operation, equipment status and setup through an intuitive web-page based user interface. To access this application running on the controller, simply connect via a Web Browser from any PC using an Ethernet connection. The PC can be local stand alone or part of a LAN.



The system administrator can assign a user one of three levels of access (view only, user, and administrator) which will determine which functions will be available to that user. For example, only users with administrator access will be able to make new accounts and to view or modify the configuration overview parameters. See section Account Management.

The Xe-90M/ Xe-145M functions as a web server for the compressor. The web server offers the following through the interface:

- Display of current operating state of the compressor
- · Compressor Information model number, serial number, rated capacity and other details
- Start, Stop, Reset Alarm buttons
- Adjust operating parameters
- Display of analog signals
- Display of hour meters
- Display of Event log
- Graphing (Xe-145M Only)
- Display of maintenance timers
- Edit and display of maintenance log
- Notification of alarm/trip events via email

COMMISSIONING PROCEDURES

There are certain parameters that must be configured in order for the controller to properly communicate to the LAN and to the network. Outlined below is a list of steps that must be completed before the visualization software can be fully utilized. Please be sure that you have ADMIN rights before attempting to configure the controller.

If you will only be connecting to the controller to a single PC, go to step 1. If you will be using a static IP or DHCP assigned IP address on your company's LAN please go to step 2.

- 1. Connect the controller to a PC Follow the procedure outlined in section "CONNECTING TO A PC". Please go to step 3.
- 2. Configure the controller Ethernet settings Obtain a static IP address from your IT department or have an assigned domain name for DHCP access. Follow the procedures in "ETHERNET CONFIGURATION".
- 3. Login to the web pages Follow the procedure in section "LOGIN PROCESS".
- 4. Configure compressor information Follow the procedures in section "COMPRESSOR INFORMATION". Make sure you have the compressor nameplate data available.
- 5. Set up user accounts Follow the procedures in section "ACCOUNT MANAGEMENT".



CONNECTING TO A PC

In order to configure your computer to communicate point-to-point with the Xe-90M/ Xe-145M controller, you must first set the IP address range of your computer to the default IP address range of the controller. To do this, please follow the instructions listed below to configure the computer IP address. These settings are accessible using Windows XP by selecting:

Using Classic View:

Select Start

Select Settings

Select Network Connections

Using XP Start View:

Select Start

Select Control Panel

Select Network Connections

Please note that the controller ships with a default IP address of 192.168.2.220

1. Select "Local Area Connection" from the list





2. Right click on the "Local Area Connection" and select "Properties".

S Network Connections							
File Edit View Favorites Tools	Advanced Help						
🕞 Back + 🌔 - 🏂 🔎 S	earch 🜔 Folders 🛄	-					
Address S Network Connections							🗸 🎒 Go
	Name	Туре		Status	Device Name	Phone # or Host Address	Owner
Network Tasks 🛞	Dial-up						
Create a new connection Change Windows Firewall settings	LAN or High-Speed Int	Dial-up		Disconnected	HUAWEI Mobile C		System
 Disable this network device Repair this connection Rename this connection View status of this connection Change settings of this connection Control Panel My Notwork Places My Computer Details 	Lord or night-speed inc (***) Wireless Network Conne Local Area Connection 3 Local Area Connection 4 1394 Connection 4	ction 3 LAN or High-S LAN or High-S Disable S Status S Repair Bridge Connections Create Shortcut Delete Rename Properties	Speed Internet Speed Internet Speed Internet Speed Internet	Not connected Connected Disabled Connected	DW1520 Wireless Intel(R) 82577LM Cisco Systems VP 1394 Net Adapter		System System System

3. Scroll down the connection list to find the "Internet Protocol (TCP/IP)". Select the "Internet Protocol (TCP/IP)" and click on "Properties".

Local /	Area Conne	ction 3	Properti	es		?
General	Advanced					
Connect	t using:					
🛒 In	tel(R) 82577L	vl Gigabit I	Network Co	• 🔲	Configure	e
This con	nnection uses	he followir	ng items:			
	File and Print QoS Packet Internet Proto	er Sharing Scheduler col (TCP/	for Microso	oft Networ	rks	<
<		1111				>
	nstall	Un	install	F	^o robertie	s
Descrip Trans wide a acros	ption mission Contro area network p s diverse inter	l Protocol protocol th connected	'Internet Pr at provides I networks.	rotocol. T communi	he defau ication	lt
Sho <u>v</u> Notify	v icon in notific y <u>m</u> e when this	ation area connecti	when con on has limit	nected ed or no d	connecti	vity
				OK) [[]	ancel



4. Click on the "Alternative Configuration" tab.

Internet	Protocol (TCP/IP)) Properties 🛛 🛛 🔀
General	Alternate Configuratio	on
You car this cap the app	n get IP settings assign ability. Otherwise, you ropriate IP settings.	ned automatically if your network supports need to ask your network administrator for
<u>⊙</u> 0t	otain an IP address aut	tomatically
OUs	e the following IP addr	Iress:
IP ac	ldress:	
Subr	iet mask:	
Defa	ult gateway:	
⊙ 0 <u>t</u>	otain DNS server addre	ess automatically
OUs	e the following DNS se	erver addresses:
Prefe	rred DNS server:	
Alten	nate DNS server:	
		Advanced
		OK Cancel

5. Click on "User Configured" Button.

Internet Protocol (TCP/IP) Prop	erties	;			? 🔀
General Alternate Configuration					
If this computer is used on more than settings below.	one ne	twork,	enter	the alterna	ate IP
Automatic private IP address					
User configured					
IP address:		1			
Subnet mask:					
Default gateway:				2	
Preferred DNS server:		×			
Alternate DNS server:			5	1	
Preferred <u>W</u> INS server:		3		-	
Alternate WI <u>N</u> S server:		14		-	
	_	_			
			OK		Cancel



6. Enter IP address for the computer (192.168.2.221), Enter the Subnet mask for the computer (255.255.255.0) and leave all other field boxes blank.

ieneral Alternate Configuration	n one network	. enter	the alter	nate IP
settings below.				
O Automatic private IP address				
Oser configured				_
IP address:				
S <u>u</u> bnet mask:				
Default gateway:]
Preferred DNS server:				
Alternate DNS server:		•	(*)]
Preferred <u>W</u> INS server:				
Alternate WI <u>N</u> S server:				

7. Click on "OK" button when it is complete.

Internet Protocol (TCP/IP) Prop	erties 🛛 🛛 🔀
General Alternate Configuration	
If this computer is used on more than settings below.	one network, enter the alternate IP
O Automatic private IP address	
User configured	
IP address:	192.168.2.221
S <u>u</u> bnet mask:	255 . 255 . 255 . 0
Default gateway:	
Preferred DNS server:	
Alternate DNS server:	
Preferred <u>W</u> INS server:	
Alternate WI <u>N</u> S server:	
	OK Cancel



8. Connect an Ethernet cable to your computer and to the controller. Within a minute, the computer will make a connection to the controller. Once connected, you will be able to log into and configure the controller.

ETHERNET WIRES

Wiring the network is accomplished by connecting the user computer to the controller using Category 5 (or better) cables. The connection point on the user computer is a RJ-45 port located on the Network Interface card.



The Ethernet cables are terminated with CAT 5 RJ-45 (RJ means "Registered Jack") modular plugs. RJ-45 plugs are similar to those seen on the end of a telephone cable except they have eight versus four or six contacts on the end of the plug and they are about twice as big

ETHERNET CONFIGURATION

The Ethernet configuration allows the user to select how the controller will be connected to the LAN.

			5	V	
General Settings		• •	6	7 8	►
	Ethernet (1/2)				
Enable DHCP	False V	/	Fa	lse	
IP (Used)		19	2.16	8.2.2	2
GW.(Used)		19	92.1	68.2.	1
Sub.(Used)		25	5.2	55.25	5.
	Apply		Ca	ncel	
RunningLoaded		đ	4	2022 022	-

The controller ships with a default IP address of 192.168.2.220. If "Enable DHCP" option is true in the "General Settings" [screen# 8] of the controller, then it will obtain an IP address via DHCP. Refer R55 - 160 kW Instruction manual for more information.

Once the user changes the "DHCP Enable" option to true, the "Assigned IP" address (e.g. 10.40.193.73) will appear below this selection in few seconds. The users connected with the local area network can use this new assigned IP to login to the web pages. Please note that depending on the LAN architecture, not all users will be able to view the web pages from their PC.

Changing the Ethernet configuration of the controller may cause the web pages to become unresponsive and require IT or other support to return the web pages to an operational condition. Be certain all Ethernet settings are correct before saving changes.



LOGIN PROCESS

The server is accessed either by host name or by IP. Accessing by name requires that a router be in the network. During the installation and commissioning process a network address was assigned to the CONTROLLER by your IT department.

This address may be a static IP (e.g. http://192.168.2.220, recommended) or a DHCP assigned domain name address (e.g. http://fenixsim.com). A domain name address is a web page address chosen by the user to represent the controller. The domain name must be approved by your IT department but can generally be any text label you wish. You must have this address before you can log in to the web pages. See section – Ethernet Configuration.

Please note that Web Pages requires Internet Explorer 8 (or newer) or Mozilla Firefox 5 (or newer). Certain functions may not behave correctly when using older browser software.

To log in to the web pages you must first type the address into your browser and then press the enter button. For example, with a DHCP enabled controller you might type this:

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Ele Edit View Higtory Bookmarks Tools Help	
ingersoll Rand Industrial Technologies Sect +	
(C) http://fenixsim	습 - C

While with a static IP address you might type this:

10	🕖 Ingersoll Rand Industrial Technologies Sector in the Americas - Mozilla Firefox						
Eile	Edit	⊻jew	History	Bookmarks	Tools	Help	
1	ngerso	Rand	Industrial	Technologies S	ect	+	
*)>		ttp://192.1	168.2.220/			습 - C

If the controller is configured correctly you will then see the web pages in your browser. This may take a few seconds depending on your network connection speed.

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(R) Indersoll Pand	
Industrial Technologies	
LOGIN	Compressor mcma
Username:	admin
Password:	••••••
Language:	English
	Login
×	



The login screen requires the user to enter their username, password and select the language for the web pages. This login screen will authenticate the user against the type of account. After log in the user can view/modify the data as per the available access to the user account.

Enter the username & password for log into system and access the web pages.

Username:	
Password:	

Type in your user name (case sensitive)

Type in your password (case sensitive)

If the user name or password are incorrect the login page will show a message "Unknown combination of username and password".

Click on the dropdown control and select the "Language" from language dropdown control. The full list of languages for the X^e-145M controller is supported by the web interface. The user may select one language from this list. This selection will be the language for the web interface after the login is successful.



Select your language from the dropdown list

Click on "Login" button to continue. Upon successfully logging in you will see the system HOME screen.



Only 5 users can concurrently login to the controller at a time. If another user attempts to login, an error message will be displayed. "The limit on the number of concurrent users has been reached. Please wait for a user to logoff before trying again."

Please see below section for default account information, and section "ACCOUNT MANAGEMENT" for more detailed information about the account management process.



DEFAULT ACCOUNTS

The web page software comes with default administrator account. The system administrator can assign users one of three levels of access (view only, user and administrator) which will determine which functions will be available. For example, only users with administrator access will be able to create a new user account and view or modify the configuration overview parameters.

It is highly advised that the administrator change these accounts as soon as feasible to prevent unauthorized access to the Visualization software. The three level of access rights are as follows:

- 1. **VIEW :** The user is able to view information on all the screens. The user is unable to change any set points or access to the configuration overview screens.
- 2. USER: The user has all rights available to the VIEW access level as well as being able to change setpoints on the HOME screen and working duration of the maintenance counter. The user is able to manually start, stop, load and unload the compressors, as well as reset the alarm.
- 3. **ADMIN**: The user has all rights of the VIEW and USER access levels as well as full access to the configuration overview screens and the account management utility.

Please note that there can be as many as five (5) maximum users logged into the system at one time, and only one administrator logged in at one time. Only a user with ADMIN rights will be able to modify these default accounts.

The default account is:

Login	:	admin
Password	:	password
Rights	:	ADMIN



NAVIGATION

Each of the main segments is represented by a tab on the top of web pages. Clicking on the tab will bring you to the screen for that particular segment.

TAB NAVIGATION



The components of the tab navigation are as follows:

ŝ	Home Clicking this tab will bring the user to the HOME page. See section HOME Page.		
	Event Log	Clicking this tab will bring the user to the EVENT LOG. See section EVENT LOG UTILITY	
E	Performance Log (Xe-145 Only)	Clicking this tab will bring the user to the PERFORMANCE LOG. See section PERFORMANCE LOG UTILITY	
	Graphing (Xe-145 Only)	Clicking this tab will bring the user to the GRAPHING page. See section GRAPHING UTILITY	
囷	Maintenance	Clicking this tab will bring the user to the MAINTENANCE page. See section MAINTENANCE UTILITY	
R	Inspection Log (Xe-145 Only)	Clicking this tab will bring the user to the INSPECTION LOG. See section INSPECTION LOG UTILITY	
	Compressor Information	Clicking this tab will bring the user to the COMPRESSOR INFORMATION page. See section COMPRESSOR INFORMATION	
	Account	Clicking this tab will bring the user to the ACCOUNT page. See section ACCOUNT MANAGEMENT	

COMMAND BUTTONS

All pages show five command buttons (Start, Stop, Reset Alarm, Load and Unload), five dash board icons and current status of the compressor.

If the current user's account type does not have the necessary access rights to control the compressor via the web interface, remote control from the web interface will be disabled at the controller.

"Command Keys" on the web pages command the compressor to perform actions as specified in the following table.

Key	Name	Function	
	Start	Start the Compressor	
\bigcirc	Stop	Stops the compressor. This button should be pressed instead of the E-Stop for normal stopping operation.	
\bigotimes	Reset Alarm	Clears Warnings and Trips once the condition is corrected.	
	Load	Loads the compressor. Not used with variable speed application.	
	Unload	Unloads the compressor. Not used with variable speed application.	

Remote starting and stopping can be accomplished through the Ethernet Port. Panel power must be on, all utilities must be running and permissive functions satisfied in order for the start-up from the web page.

There will be a 2nd Level of confirmation for each "Command Key"



DASHBOARD ICONS

"Dashboard Icons" are intended to be a quick at-a-glance view of system status. These icons are always visible regardless of the folder/page selected.

The following table lists standard dashboard icons and their definition. Note that the color of these icons changes based on the state set by the application while running.

lcons	Name	Description
\wedge	Alert	Illuminates when a Warning (flashes) or Trip (constant on) is sensed.
ata	Remote Control	Remote control is enabled.
10	Service Required	A Service reminder is nearing or has expired (i.e. an air or oil filter needs to be changed)
ਖ਼ਿ	Unloaded	Compressor is in the unloaded state
	Loaded	Compressor is in the loaded state

Compressor Name, User Name, Print Button and Log Out button are always visible on the right side top of the page, regardless of the tab selected.

Compressor Name	Compressor: mcb2403	The user can set the "Compressor Name" from the "Compressor Information" tab. The user can use this host name as a browser address for the web pages. A "Compressor Name" is a domain address to log in the CONTROLLER web pages.	
Logged in User User: admin		Currently logged in user is shown on the right side top in each web page.	
Print Button		Click on "Print" button, to print the content on existing web page	
Log Out Button	Logout	Click on "Logout" button to terminate the current session. Clicking this button will log out the current user and return to the web page login screen.	



HOME PAGE

The "HOME" tab shows information about the compressor operating parameters, total power consumption, running hours, loaded hours, number of starts, etc

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			^
			D Username: admin Lopout
Номе			Compressor mema
Stop Target pressure	100	PSI	
Automatic stop pressure	110	PSI	
Immediate stop pressure	120	PSI	
Discharge pressure	89.8 PSI		
Package Discharge Temperature	100 °F		
Inlet Vacuum	0.5 PSI		
1st Stage Inlet Temperature	100 °F		
1st Stage Discharge Temperature	371 °F		
2nd Stage Inlet Pressure	7.8 PSI		
2nd Stage Discharge Pressure	90.7 PSI		
2nd Stage Inlet Temperature	60 °F		
2nd Stage Discharge Temperature	171 °F		
Oil Filter Inlet Pressure	90.6 PSI		
Bearing Oil Pressure	99.7 PSI		
Remote pressure	101.5 PSI		
Bearing Oil Temperature	100 "F		
Oil Filter Pressure Drop	-9.1 PSI		
Percent Capacity	0 %		
Motor Speed	0 RPM		
Package Power	0 kW		
VSD Blower Output	100 %		
Powered hours	15 hrs		
Running Hours	5 hrs		
Number of Starts (Main Motor)	16		
Number of Starts (Blower Motor)	16		
Time	11:21		
Ready to Start			🛆 👬 🎸 王 🗸

Click on the pressure set point value in the white box, to change the "Pressure Set Point" value. Enter the new pressure set point value and click on "Confirm" button. "Pressure Set Point" is only editable parameter for the "Admin" and "User" type accounts. The user with "View" type account can't change these system parameters.

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Ingersoll Rand	- 乾 邑 細	
Start HOME		Complexant mena
Stop Target pressure	100 PSI	
Reset Alarm	110 PSI	
Im Taiger pressure (nov	- PSI	
Package D Min: 65 Max: 150		
Confirm		
1st S		
1st Stage Discharge Temperature	371 °F	
2nd Stars Discharge Greenwa	7.8 PSI	
Znu stage bischarge Pressure	90.4 PSI	
2nd Stage Inter Temperature	60 °F	
Zitu Stage Oscharge remperature	1/1 -	
Oli Filter Iniet Pressure	90.6 PSI	
Deaning on Fressure	39.6 F 31	
Pasting Oil Tamparatura	101.7 Pol	
Oil Filter Pressure Drop	6 2 PSI	
Percent Canacity	0%	
Motor Speed	0 RPM	
Package Power	0 kW	
VSD Blower Output	100 %	
Powered hours	15 hrs	
Running Hours	5 hrs	
Number of Starts (Main Motor)	16	
Number of Starts (Blower Motor)	16	
Time	11:24	
Ready to Start		



EVENT LOG UTILITY

The "EVENT LOG" tab shows the event log from the controller. This tab contains the event log details for the system events, warnings and trips that have occurred and provides first-out indication. It also provides controls for filtering the list of events as shown. Any time an event occurs, the system will send the display to the first event log page

Each event is added into "EVENT LOG" with a date (mm/dd), time (hh:mm:ss) and the event value. This is the value that triggered the event. The event labeled as "1" is the newest event.



Click on the dropdown control and select the number of events per page. If the events per page are 20, then previous events will be available in the next page. Click on the "Next" button will display the previous twenty events.



The "Event Type" dropdown allows the user to filter the list of events by event type. The user can select the type of event from the list by clicking the dropdown control. The events recorded and placed into one of three categories: Warnings, Trips/ Shutdowns, and System Events. "EVENT LOG" page highlights all the trips in red text, warnings in yellow text and system events in the blue text.



The "History" dropdown allows the user to select the option to see the event log history for a selected time period. Click on the dropdown command and select option "Last 7 Days" to see the event log of last 7 days.



The EVENT LOG will record the last 500 events. Once this 500 event limit has been reached the oldest events will be cleared and the newest events will appear at the top of the event log.



PERFORMANCE LOG UTILITY

The "PERFORMANCE LOG" tab shows the performance details and system data for the compressor including Average system pressure, hour meters, number of trips and warnings. The Performance log report provides a summary of the compressed air system's performance for the selected time period.



The "PERFORMANCE LOG" page is divided into two major sections. The top section displays the parameter values. The bottom section contains the controls for the Performance log.

The "Running Hours" are the amount of time that the compressor has been operating between all start and stop sequence. The "Loaded Hours" is the amount of time that the compressor has been running and not running unloaded. The "Unloaded Hours" is the amount of time that the compressor has been running unloaded.

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Ready to Start	



The "PERFORMANCE LOG" provides two dropdown controls that allow the user to select sampling of reporting and reporting settings. The user can change the frequency of reporting and monitoring interval by clicking on the dropdown controls.

The time period of the performance report is selected based on the "Frequency of Reporting". Click on the dropdown control and select the "Frequency of Reporting" at which performance log will be emailed to the users that request it via the email notification section of the "ACCOUNT" page. The default frequency of reporting is "Every 8 hours". In this case after every 8 hours, the web page application will send the performance log to the user at a specified email account.

The sampling rate of the data capture can be set by the user selection of the "Monitoring Interval". The "Monitoring Interval" dropdown control determines the time interval after which parameters will be updated in to the "PERFORMANCE LOG". All parameters are stored in a rolling FIFO manner.



User names will be displayed as "E-mail recipients" in the "PERFORMANCE LOG", if the check box for the same is checked in the Email notification section of the "ACCOUNT" page.

Refer E-mail notification section of the "ACCOUNT MANAGEMENT" page to change the E-mail address



Whenever the user changes the "Frequency of reporting" and/or "Monitoring Interval", a "Submit" button will appear on the screen. Click on "Submit" button to save the changes.



GRAPHING UTILITY

Click on "GRAPHING" tab to view the data in a graphical format for the selected analog input variable and time duration. The GRAPHING UTILITY allows the user to plot a graph on hour, day or week basis. The default option is Hours. Activation of a button will deselect any other button previously selected. When "Hours" has been selected, the X axis will be scaled such that the span on graph represents duration of 1 hour.



When "Days" has been selected, the X axis will be scaled such that the span on graph represents duration of 1 day.



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	ial Rand 🔺 🗟 🖻 🎦 🥵 🕄 🗐 💷	
Start Stop	GRAPHINO Monitoring: Discharge pressure	Username: admin Logout Compressor
🚫 Reset Alarm	90	
	Marker Marker	
	89.6 / / / / / / / / / / / / / / / / / / /	
	89.7 2014.6.24 15:53:00 2014.6.25 15:50:54 Hours Days Weeks	
	Running Loaded	≙ ♣ 秦 ≊

When "Weeks" has been selected, the X axis will be scaled such that the span on graph represents duration of 1 week.

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	ul Rand 🔺 🗟 🖻 🚹 🔂 🛍 💷	
Stop Reset Alarm	CRAPHINO CRAPHINO Monitoring: Discharge pressure v 90 89.6 89.7 20145.24 15:51:00 20145.25 15:50:54 10urs Days Weeks	Upename: somn Logent Compressor
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The drop down menu allows the user to choose a variable to view data on the graph. Click on the dropdown menu and select the variable to monitor on the graph. Variables include all analog inputs as well as some calculated variables. The amount of variables will vary depending on the compressor type and the available options.



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Start Stop Stop Reset Alarm	More that we have a set of the set of	S 11:38:54

By moving the mouse over graph will display the determined value at the position of cursor with the date and time. Due to performance requirements the data on the real time chart cannot be interacted with directly so this allows the user to determine the approximate value of any data point.

MAINTENANCE UTILITY

"MAINTENANCE" tab contains the service schedule hours same as shown on the "MAINTENANCE" folder of controller.

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() Start	MAINTENANCE		Usemame admin Logout Compressor mema
Stop Reset Alarm	Hours Until Service	1996 hrs Reset	
	Service Hours 2000 hrs Inlet Filter Status OK Oli Filter Status OK Contact Name: Contact Address: Contact Phone Number:	Ingersoll Rand 800 B Boaly St Davidson, NC 28036 800 247 8640 Submit	
			🛆 🚠 🏄 王

This tab provides a service scheduler so that periodic maintenance reminders may be scheduled for consumable parts.

The user can also change the contact address & contact number to call for parts or service. This is the number of the local **Ingersoll Rand** representative. Click on "Confirm" button to save the changes.



"Admin" and "User" type accounts can only have an access to change the working duration of the maintenance counter and Contact details. The "View" type account can't have an access to change these parameters.



INSPECTION LOG UTILITY

The "INSPECTION LOG" tab is intended to record machine data over a fixed period of time and a fixed rate. Inspection log contains the controller logged data for the variables at the time of download. The controls section of the "INSPECTION LOG" shows the user name currently set to receive inspection logs via email, as per the specified time interval and time of the day for instantaneous data.



Click on the dropdown control and select the "Interval". The default time interval is "Daily". If the time interval is "Weekly", then the web page application will send the inspection log to the user at a specified email address on weekly basis.

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1 Start	INSPECTION LOG					ć	Username: Compressor	admin Log mema	out
O Stop	Report S Interval: Weekly Time of day: 00:00	Day of w	eek: Sunday	~					
Neset Alarm	E-mail recipients:								
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	For parts or technical support - visit:	S	erial Number: N/A						
	www.ingersollrandproducts.com	spection log C	compressor model	number: N/A					
	Variable Name	6/23 - 13:24:54	6/24 - 14:24:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	
	Running Hours	0	5	0	0	0	0	0	
	Machine State	0	3	0	0	0	0	0	
	Inlet Vacuum	0.0	0.5	0.0	0.0	0.0	0.0	0.0	
	2nd Stage Inlet Pressure	0	8	0	0	0	0	0	
	2nd Stage Discharge Pressure	0	91	0	0	0	0	0	
	Discharge pressure	0	90	0	0	0	0	0	
	Oil Filter Inlet Pressure	0	91	0	0	0	0	0	
	Bearing Oil Pressure	0	100	0	0	0	0	0	
	Remote pressure	0	101	0	0	0	0	0	
	1st Stage Inlet Temperature	0	101	0	0	0	0	0	
	1st Stage Discharge Temperature	0	371	0	0	0	0	0	
	2nd Stage Inlet Temperature	0	60	0	0	0	0	0	
	2nd Stage Discharge Temperature	0	171	0	0	0	0	0	
	Bearing Oil Temperature	0	100	0	0	0	0	0	
	Package Discharge Temperature	0	100	0	0	0	0	0	
	Percent Capacity	0	0	0	0	0	0	0	
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Click on the dropdown control and select the "Time of day". It is shown in a 24 hours clock format.



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1 Start						(Username:	admin Logout
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0	E-mail recipients: 01:00 01:30							
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	www.ingersollrandproducts.com 05:00	h lo	g Compressor model	number: N/A				
	Variable Name 06:00	13	24:54 6/24 - 14:24:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00
	Running H 07:30		5	0	0	0	0	0
	Machine \$ 08:00 08:30		3	0	0	0	0	0
	Inlet Vac 09:00		0.5	0.0	0.0	0.0	0.0	0.0
	2nd Stage Inlet Pres 10:00		8	0	0	0	0	0
	2nd Stage Discharge Pres 10:30 11:00		91	0	0	0	0	0
	Discharge pres 11:30 12:00		90	0	0	0	0	0
	Oil Filter Inlet Pres 12:30		91	0	0	0	0	0
	Bearing Oil Pres 13:30		100	0	0	0	0	0
	tet Stage Inlet Tempera 14:00	~	101	0	0	0	0	0
	1st Stage Discharge Temperature	0	371	0	0	0	0	0
	2nd Stage Inlet Temperature	ō	60	0	0	0	0	0
	2nd Stage Discharge Temperature	0	171	0	0	0	0	0
	Bearing Oil Temperature	0	100	0	0	0	0	0
	Package Discharge Temperature	0	100	0	0	0	0	0
	Percent Capacity	0	0	0	0	0	0	0
	Running Loaded						<u>_</u>	h 🦽 😤 🗸

Click on the "Submit" button to save the changes into the report settings. The user will receive the INSPECTION LOG as per the selected time interval and time of the day. If the interval is "Daily" and time of day is "09:00" then the web page application will send inspection logs via email, everyday at 9:00 AM.

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Stop Reset Alarm	Report Settings Time of deg: 06:30 E-mail recipients: Image Settings Defension Reduced Renders Industrial Technologies For parts or fechnical support - visit: Towersollandportducts.com Image Settings	Day of w	eetc: Sunday Monday Tuesday Wednesday Thursday Friday Saturday Saturday Serial Number: N// Compressor mode	Submit			Compressor	mena	
	Variable Name	6/23 - 13:24:54	6/24 - 14:24:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	1/1 - 0:00:00	
	Running Hours	0	5	0	0	0	0	0	
	Machine State	0	3	0	0	0	0	0	
	Inlet Vacuum	0.0	0.5	0.0	0.0	0.0	0.0	0.0	
	2nd Stage Inlet Pressure	0	8	0	0	0	0	0	
	2nd Stage Discharge Pressure	0	91	0	0	0	0	0	
	Discharge pressure	0	90	0	0	0	0	0	
	Oil Filter Inlet Pressure	0	91	0	0	0	0	0	
	Bearing Oil Pressure	0	100	0	0	0	0	0	
	Remote pressure	0	101	0	0	0	0	0	
	1st Stage Inlet Temperature	0	101	0	0	0	0	0	
	1st Stage Discharge Temperature	0	371	0	0	0	0	0	
	2nd Stage Inlet Temperature	0	60	0	0	0	0	0	
	2nd Stage Discharge Temperature	0	171	0	0	0	0	0	
	Bearing Oil Temperature	0	100	0	0	0	0	0	
	Package Discharge Temperature	0	100	0	0	0	0	0	
	Percent Capacity	0	0	0	0	0	0	0	
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The user name will be displayed as "E-mail recipients" in the "INSPECTION LOG", if the check box for the same is checked in the Email notification section of the "ACCOUNT" page.



Refer E-mail notification section of the "ACCOUNT" page to change the E-mail address



COMPRESSOR INFORMATION

The "COMPRESSOR INFORMATION" tab contains the compressor name, compressor model number, compressor serial number, rated capacity, rated pressure, rated voltage, running current, starting current, power requirement, motor service factor, measuring units and Email (SMTP) settings.

COMPRESSOR IDENTIFICATION

The "Host Name" is shown as a "Compressor Name" on the right side top of each web page. The user can use this domain name as a web page browser address to access the web pages. To change the existing host name, enter the new hostname in the white box and click on "Submit" button.



Once the user will submit the new host name, the compressor name will be changed automatically on the next login.

Enter the "Serial Number" and "Model Number" as per the compressor nameplate, and click on "Submit" button to save these compressor details.





EMAIL (SMTP) SETTINGS

If email notifications are to be used, the SMTP server settings must be obtained from IT and entered in this location. Enter the "SMTP Server" & "SMTP Account" and then click on "Submit" button to save the SMTP settings.





User account with access level "Admin" can only have an access to change the parameters in "Compressor Identification" and "Email (SMTP) Settings" blocks. User account with access level "User" and "VIEW" cannot have an access to change these parameters.



COMPRESSOR DETAILS

Enter the rated capacity, rated pressure, rated voltage, running current, starting current, nominal power in kW and main motor service factor as per the data available in the compressor datasheet.

Click on the "Submit" button to save the compressor details.

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	1/0	Firmware Version	1.6.0.6					
	Dis	play App Version	1.6.0.6					
	Ven	Coffware Devision	1.0.0.0					
	Pated Capacity	200 CEM						
	Rated Pressure	125 PSI						
	Rated Voltage	460 V	-					
	Running current	150 A						
	Starting Current	300 A						
	Nominal kW (Drive Motor)	75 kW						
	Drive Motor Service Factor	1.10						
	Total Package kW	80 kW						
		Submit						
	Unit type	English	~					
	Running Loaded					\wedge	i	æ ,

UNIT TYPE

Click on the dropdown control and select the measurement unit type for the compressor parameters. Default unit type is "English".



User account with access level "Admin" and "User" can only have an access to change these compressor parameters. User account with access level "VIEW" can only monitor the data and the user can not have an access to change these parameters.



ACCOUNT MANAGEMENT

The administrator can create any number of users desired and assign each user one of three levels of access, as well as assigning email notifications to various events that may occur.



ADD ACCOUNT

The "ACCOUNT" tab shows the list of accounts that currently exist which are listed by user name and access rights. Clicking on an account will highlight that account in blue color. Click on "ADD" button to add an account with a specified access level for the web page application. Enter the ADMIN password to proceed.

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To generate a new user account; enter the unique username, password and select the user access rights. Click on "Add Account" button will add the new user account into the list of user accounts. Only a user with "ADMIN" rights will be able to make a new account or remove the existing accounts.

Select the user account from the list and click on "X" button to delete the selected user account.

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MODIFY THE ACCESS LEVEL

User account with access level "ADMIN" can also change the access level of existing user accounts. To change the access level or password of an existing user account, select the user account from the list and click the Change PW/AL button.



Click on the dropdown control and choose the new access level for selected user account. Again, click on "Change PW/AL" button to save the changes in access level or password for selected user account.

Set the email address settings for the user by clicking on the "Add" button in the email list. Then type in the email address and check the boxes for the type of alerts the user should receive. When finished, press the "Submit" button.

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User account with access level "Admin" can only have an access to make a new account or modify the access level of these accounts. User account with access level "User" and "VIEW" can't have an access to make a new account or modify the user accounts.



NOTICES AND DISCLAIMERS

Machine models represented in this manual may be used in various locations worldwide. Machines sold and shipped into European community countries shall display the EC Mark and conform to various directives. In such cases, the design specification of this compressor has been certified as complying with EC directives. Any modification to any part is absolutely prohibited and would result in the CE certification and marking being rendered invalid.

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Details of approved equipment are available from Ingersoll Rand Service departments.

The company accepts no responsibility for errors in translation of this manual from the original English version.

The design of this Compressor package and certain features within it are covered by patents held by Ingersoll Rand and patents pending.

WARRANTY

The Company warrants that the equipment manufactured by it and delivered hereunder will be free of defects in material and workmanship for a period of twelve months from the date of placing the Equipment in operation or eighteen months from the date of shipment from the factory, whichever shall first occur. The Purchaser shall be obligated to promptly report any failure to conform to this warranty, in writing to the Company in said period, whereupon the Company shall, at its option, correct such nonconformity, by suitable repair to such equipment or, furnish a replacement part F.O.B. point of shipment, provided the Purchaser has stored, installed, maintained and operated such Equipment in accordance with good industry practices and has complied with specific recommendations of the Company. Accessories or equipment furnished by the Company, but manufactured by others, shall carry whatever warranty the manufacturers have conveyed to the Company and which can be passed on to the Purchaser. The Company shall not be liable for any repairs, replacements, or adjustments to the Equipment or any costs of labor performed by the Purchaser or others without Company's prior written approval.

The effects of corrosion, erosion and normal wear and tear are specifically excluded. Performance warranties are limited to those specifically stated within the Company's proposal. Unless responsibility for meeting such performance warranties are limited to specified tests, the Company's obligation shall be to correct in the manner and for the period of time provided above.

THE COMPANY MAKES NO OTHER WARRANTY OR REPRESENTATION OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED.

Correction by the Company of nonconformities whether patent or latent, in the manner and for the period of time provided above, shall constitute fulfilment of all liabilities of the Company for such non conformities whether based on contract, warranty negligence, indemnity, strict liability or otherwise with respect to or arising out of such Equipment.

The purchaser shall not operate Equipment which is considered to be defective, without first notifying the Company in writing of its intention to do so. Any such use of Equipment will be at Purchaser's sole risk and liability.

Note that this is **Ingersoll Rand** standard warranty. Any warranty in force at the time of purchase of the compressor or negotiated as part of the purchase order may take precedence over this warranty.





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