47925943
Revision B
February 2026

XS-100 Controller Software Update Manual

USER'S MANUAL

Save These Instructions

Ingersoll Rand®

EN

1. Safety Information

Only allow Ingersoll Rand trained technicians to perform maintenance on these products. For additional information, contact Ingersoll Rand or nearest authorized distributor. The use of other than genuine Ingersoll Rand replacement parts may result in safety hazards, decreased performance, increased maintenance and will invalidate all warranties.

Original instructions are in English. Other languages are a translation of the original instructions. Refer the necessary documents from the Ingersoll Rand Office and the authorized distributor.

1.1. Explanation of Safety Signal Words

Throughout this manual there are steps and procedures which, if not followed, may result in a hazard. The following signal words are used to identify the level of potential hazard.

DANGER	Indicates an imminently hazardous situation that will result in death or serious injury, if the necessary measures are not taken
WARNING	Indicates a potentially hazardous situation that could result in death or serious injury, if the necessary measures are not taken.
CAUTION	Indicates a potentially hazardous situation that might result in minor or moderate injury or property damage, if the necessary measures are not taken.
NOTICE	Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property

Note: Important Information

The following safety symbols are used in the manual. These safety symbols are kept in the appropriate areas of the compressor package, to alert users of the following conditions:

DANGER

Indicates a hazard with a high level of risk, which if not avoided, <u>WILL</u> result in death or serious injury.

Equipment Starts Automatically

Health Hazard - Explosive Release of Pressure

Cutting of Finger or Hand Hazard - Rotating Impeller Blade

High Voltage - Hazard of Shock, Burn, or Death Present until Electrical Power is Removed

Cutting of Finger or Hand Hazard - Rotating Fan Blade

Entanglement of Fingers or Hand/Rotating Shaft

Asphyxiation Hazard - Poisonous Fumes or Toxic Gases in Compressed Air

Burn Hazard - Hot surface

1.2. PROHIBITION/MANDATORY ACTION REQUIREMENTS

Do not Operate Compressor with Guard Removed

Lockout Electrical Equipment in De-Energized State

Do Not Lift Equipment with Hook - No Lift Point

Loud Noise Hazard - Wear Ear Protection

Handle Package at Forklift Points Only

Read the Operator's Manual Before Proceeding with Task

1.3. SAFETY PRECAUTIONS

Safety is everybody's business and is based on your use of good common sense. All situations or circumstances cannot always be predicted and covered by established rules. Therefore, use your past experience, watch out for safety hazards and be cautious. Some general safety precautions are given below:

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⚠ DANGER

Failure to observe these notices will result in injury to or death of personnel.

- **Keep fingers and clothing away from rotating fan, drive coupling/belting, etc.**
- **Disconnect the compressor unit from its power source, lockout and tagout before working on the unit- this machine is automatically controlled and may start at any time.**
- **Do not loosen or remove the enclosure or belt covers, or break any connections, etc., in the compressor air system until the unit is shut down and the air pressure has been relieved.**
- **Electrical shock can and may be fatal.**
- **Perform all wiring in accordance with the National Electrical Code (NFPA-70) and any applicable local electrical codes. Wiring and electrical service must be performed only by qualified electricians.**
- **Open main disconnect switch, lockout and tagout and check for voltage before working on the control.**

⚠ WARNING

Failure to observe these notices could result in damage to equipment.

- **Stop the unit if any repairs or adjustments on or around the compressor are required.**
- **Do not use the air discharge from this unit for breathing - not suitable for human consumption.**
- **An Excess Flow Valve should be on all compressed air supply hoses exceeding 1/2 inch inside diameter (OSHA Regulation, Section 1926.302).**
- **Do not exceed the rated maximum pressure values shown on the nameplate.**
- **Do not operate unit if safety devices are not operating properly. Check periodically. Never bypass safety devices.**

Table of Contents

SECTION 1
REVISION HISTORY

Version	Date	Notes
A	February 4, 2025	Initial Draft
B	February 6, 2025	Note added in section 5.4.2.3.1

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SECTION 2
INTRODUCTION & QUICK START

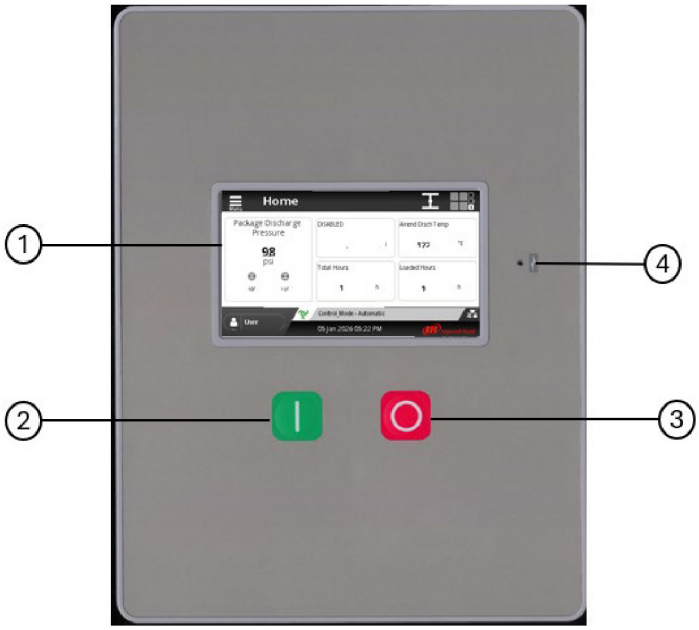
The Ingersoll Rand XS-100 controller is an advanced electronic control system designed to provide optimal operation of your Ingersoll Rand compressor. This manual describes the controller specifications and operation on Ingersoll Rand rotary screw compressors.

2.1 Components and Layout

The Ingersoll Rand XS-110 control system is made up of several different components embedded inside a unified controller housing, described briefly in this section.

2.1.1. Display

The display is the primary component that the user interacts with. On the front of the display, there is a color screen with touchscreen interface. The Start and Stop touch buttons are located directly under the touch screen on the controller faceplate as Membrane buttons. The controller Power Indicator LED is placed adjacent to the Touch screen display on the Controller faceplate. The display houses the processor and memory for the system and interfaces with the other components through communications ports.

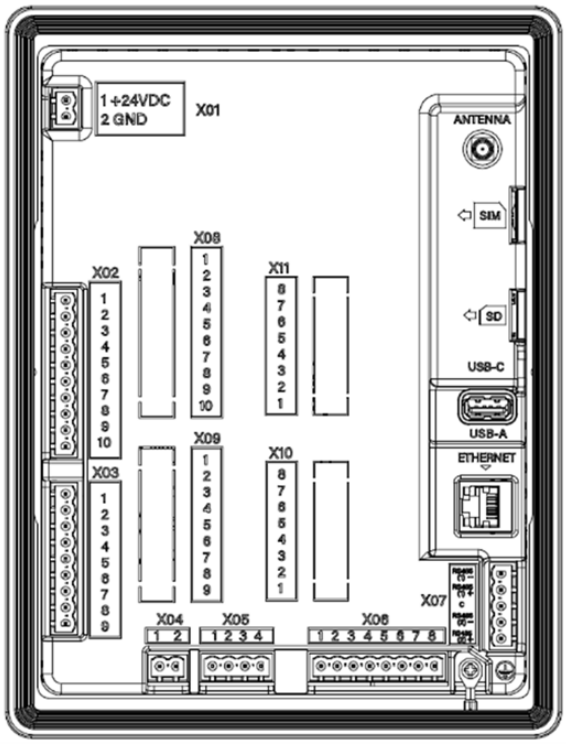


1. LCD Display / Touch Screen
2. Start Button (Membrane Key)
3. Stop Button (Membrane Key)
4. Power Indicator LED

Figure 1: Home Screen Display

2.1.2. Integrated IO Module

The IO module is integrated on the controller internally. The IO Module provides connection interfaces for the sensor inputs – Pressure & Temperature , Digital Inputs & Outputs. The XS-100 controller also has a variant with IO Expansion which provides extra Input / Output ports for additional Ios as required by the Customer. The IO module also contains 2 RS485 communications ports for customer connection and sequencing / VSD communication.



Port	
X01	Power
X02	Digital Inputs - Main IO Board
X03	Digital Outputs - Main IO Board
X04	Analog Outputs - Main IO Board
X05	Analog Inputs - Pressure - Main IO Board
X06	Analog Inputs - Temperature - Main IO Board
X07	RS-485
X08	Digital Inputs - Expansion IO Board
X09	Digital Outputs - Expansion IO Board
X10	Analog Inputs - Pressure - Expansion IO Board
X11	Analog Inputs - Temperature - Expansion IO Board

Figure 2: IO Module

The IO module is shown in **Figure 2** above. Note that depending on the type of compressor you have, your IO module may have more or less inputs and outputs present on it, indicated by the amount and size of connectors on the board.

2.1.3. Integrated IoT Module

The XS-100 controller features an all Integrated IoT Module on the Controller hardware. The Controller provides a SIM Card & Antenna Interface. This connects into the Cloud Platform by Ingersoll Rand to provide machine health monitoring and analysis.

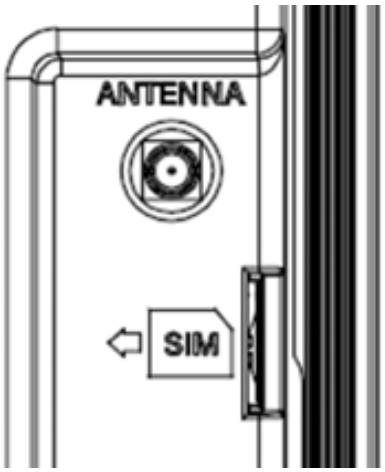


Figure 3: Cellular Module

The cellular module interface is shown in Figure 3 above. It is mounted in the control cabinet and connected to an antenna mounted on the top of the compressor package.

2.2. Features and Method of Control

The XS-100 controller is responsible for safe operation of the compressor package and optimal operation under the customer's parameters. The XS-100 controller utilizes Ingersoll Rand's heritage of compressor package design and operation to intelligently determine when the machine is operating normally and when it needs attention. System inputs, such as pressure and temperature, are looked at individually and collectively to check for a variety of different conditions.

When running the machine, the controller ensures that the customer's pressure requirements are maintained. After configuring and enabling the controller, all operation is automatic. The controller can be set up to start / stop on a schedule and use two different pressure bands to more efficiently meet system demand. Modbus and remote interfaces are provided to monitor the machine.

A standard set of control algorithms are incorporated into the XS-100 Controller, which efficiently provide the following functionalities:

- Start and Stop Control (Includes Start Permissive Monitoring and Control)
- Automatic Load and Unload Control
- Automatic Start and Stop Control
- Primary and Secondary Pressure Control
- Power Outage Recovery Control
- Sensor Calibration and Diagnostics
- Condensate Drain Control (Machine dependent)
- Blower Control (Machine dependent)
- On-Board IoT

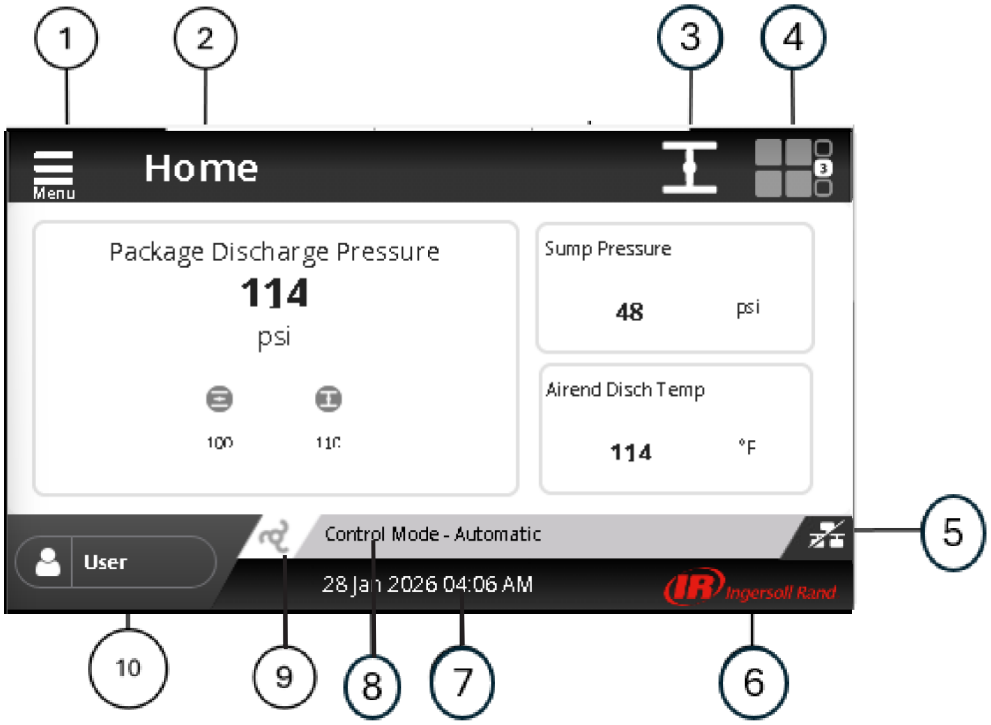
SECTION 3
CONTROLLER INTERFACE AND OPERATIONS

This section provides the basic information on the controller so that the user can understand how to interact with and operate the machine. It focuses only on the common elements of the user interface and the settings and actions that are required to get the compressor running and producing air.

3.1. Common User Interface Elements

The user interface has common elements that are shared across all screens in the system. Understanding these elements will help improve interaction with the controller.

3.1.1. Common Navigation and Status Elements



1. Menu Bar
2. Screen Title / Breadcrumbs
3. Forced Unload Button
4. Tile View Change
5. Network Status (Remote Connection)
6: Brand Logo
7: Date and Time
8: Status Message Bar
9: Motor Running icon
10: Login / User

Figure 4: Common Screen Elements

The common status and navigation elements are shown in Figure 4 above and described below.

1. The **Menu** bar expands when pressed and provides a cascading navigation for all screens on the system.
2. The **Screen Title / Breadcrumbs** shows your current location within the user interface structure and also provides a navigation link to the Menu options again. For example, if Menu -> Settings -> Configuration -> Date & Time was selected, clicking on Date & Time shall display the same menu options.
3. The **Forced Unload** Button gives you the ability to Manual Override Unload Action on the compressor. The Button can be used to toggle between Loaded State & Unloaded State.
4. Tile View Change gives the user the ability to change the view of the tile layout between 1 Tile , 3 Tile , 5 Tile. Each tile shows a different physical entity and its value. Pressing the tile view change will toggle the tile view through the 3 views.
5. The Network Status is present on the bottom right corner beside the status message bar. When the Remote Start Stop is enabled, the icon turns green, else it remains disabled.
6. The **Ingersoll Rand Logo** is present in the bottom right of every screen. Pressing this will navigate back to the Home screen from any screen in the system.
7. The **Date and Time** display in the Status Bar displays the current date and time set on the controller. It is important to ensure that this is correct as it is used for several system functions including logging, trends, and timer control.
8. **Status Message Bar** shows the current system message including alarm status if there is any.
9. The **Motor Running** Icon indicates the Rotation of Motor. The Icon shall Rotate if Motor is rotating and shall be static if Motor is stopped. The Status indicator in the Status Bar is a quick reference to the status of the machine from any screen on the system. The status can take any of the following forms:
   -  This image indicates that the machine is enabled. If the image is stationary, it indicates that the motor is not running, but could start at any time based on machine configuration and conditions. If the image is rotating, it indicates that the motor is currently running.
   -  This image indicates that the machine is ready to start with user input but not enabled. The **Start** button must be pressed before the machine will be allowed to start.
   -  This image indicates that the machine is shut down due to a fault condition. Refer to the Alarms system to determine the cause and resolve the fault condition.
10. The **Login** button in Status Bar indicates what access level is currently logged in to the system. Pressing it also provides a link to the Security screen, which is used to log in to the system.

3.1.2. Buttons and Switches

The user interface includes several types of buttons and switches that can be used to interact with the system.

Figure 5: Button Styles

The various button and switch styles can be seen above in Figure 5 and are described in more detail below:

- Primary buttons are displayed in dark blue, and indicate the default or most common action(s) for the screen. For example, on a Backup/Restore screen the Save User Configuration to Controller button will be a primary button.
- The Secondary buttons are outlined in blue with white fill. These buttons represent the less common action(s) for a screen. For example, on a Backup/Restore screen the Cancel button will be a secondary button.
- If a button is locked it will be shown as in the Primary Locked and Secondary Locked examples above. This usually indicates that the appropriate access level is not currently logged in, but it could also be locked because the current machine status does not allow the action, or the action is not applicable to the machine configuration.
- On / Off switches are used for settings that can be enabled / disabled. If the item is disabled, or off, the switch will show “Off” in blue with a white background. If the item is enabled, or on, the switch will show “On” in white with a green background. Pressing the switch will toggle it to the opposite state.

3.1.3. Scroll Elements

System uses scroll bar as shown in **Figure 6**. It is used for screens when there is a long list of individual elements. Pressing the single arrows will move the selection up or down one element. For example, pressing the down arrow in the example below will select the next oldest entry in the Alarm History.
Pressing the double arrow buttons will jump down or up several selections to allow for quickly scrolling multiple entries.

Figure 6: Scroll Button Example

3.1.4. Settings and Input Elements

The system uses several styles for elements that are used to show and change settings or other user interface controls.

3.1.4.1. Dropdown Boxes

Dropdown selections allow the user to select an item from a pre-defined list of available options. An example is shown in Figure 7 below. To deploy the dropdown, press on the value that is shown (Automatic in the example below). With the dropdown deployed, you can change the selection by pressing on the option that you would like to select.

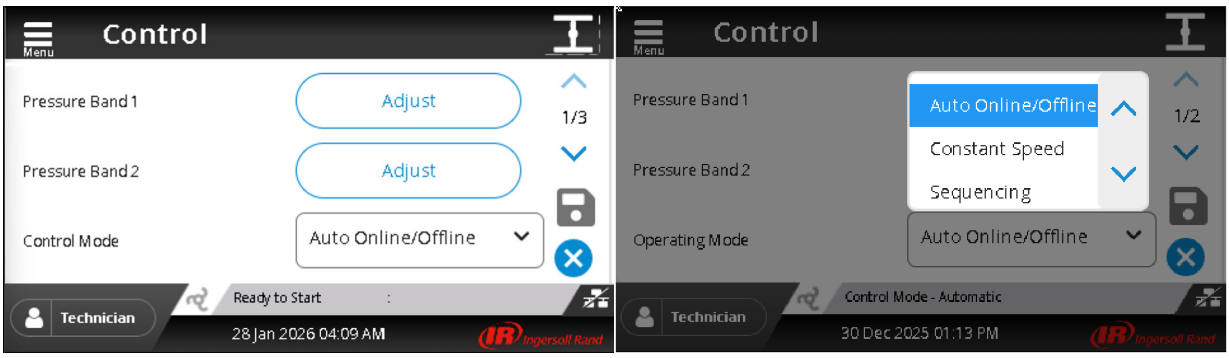


Figure 7: Dropdown Box

3.1.4.2. Value Settings

Value boxes display a numerical or text value. Pressing on the box will bring up a number or text entry keypad. An example of a numerical value setting and keypad is shown below in Figure 8.

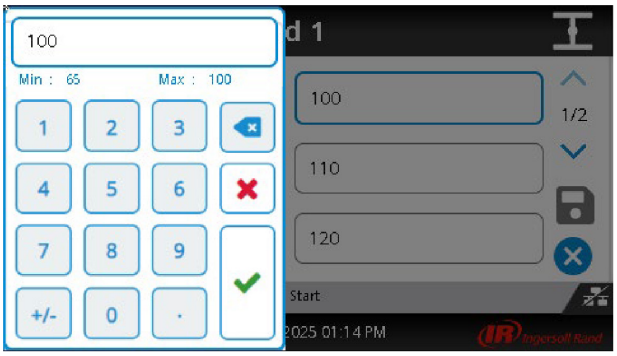


Figure 8: Number Keypad

Keypad entry operation is described below:

- For inputs that have a maximum and minimum valid range, the keypad will display the valid input range as shown in Figure.
- To change the value, start typing a new value and it will overwrite the existing setting.
- To commit changes and close the keypad, press  .
- To close the keypad without saving changes, press  .
- To delete the most recently entered number, press 

An example of a text entry keypad is shown in **Figure 9** below. The operation of this keypad and its controls are identical to the number keypad described above.

Figure 9: Text Keypad

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SECTION 4

4.1. Operating the Compressor

The compressor is now ready to operate. This section gives a basic overview of how to operate the machine.

4.1.1. Starting

From the home screen, the Message Status Bar should display “Ready to Start” as shown in **Figure 10.**

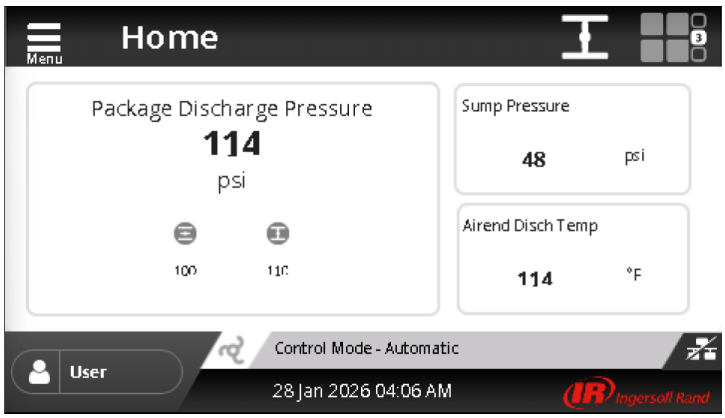

Figure 10: Home Screen Ready to Start

Press the **Start** button  on the Controller Faceplate. If the package discharge pressure is below the load pressure setting, the compressor will start and accelerate the motor, then open the inlet valve and begin building pressure. If this is the first time that the compressor has been started, make sure that all systems are working properly (refer to the machine service manual for more information).

If package discharge pressure is above the load pressure setpoint, the compressor will complete the selected starting sequence then remain either unloaded and/or stop after the designated stop delay timer expires.

4.1.2. Running

When running under the Automatic Operating Mode and control settings, compressor operation will continue as described below:

- The controller will attempt to keep the pressure within the set pressure band.
- If the package discharge pressure exceeds the unload pressure setting, the controller will close the inlet valve, and the Status Message Bar will display information about the new running state – Running Unloaded.
- If the package discharge pressure remains above the load pressure with the inlet valve closed for a set amount of time based on the machine design, the controller will stop the motor until the package discharge pressure falls back below the Load pressure. While in this state, the Status Message Bar will indicate that the machine is Automatic Stop and will start when the pressure requirement is met.

4.1.3. Stopping

To stop the machine, press the Stop button  directly on the controller faceplate. The machine will go through a soft stop process where it is depressurized before stopping. When the Stop button is pressed, the inlet valve will close immediately (if the machine is currently loaded) and the Message Status Bar will display that the controller is stopping.

The progress of the stopping process is shown on the Message Status Bar. The time value shown (for example, “20 seconds”), is the time remaining on the stop timer. The pressure value shown is the amount of pressure in the sump that must be vented for the system to be depressurized, or blown- down, to the appropriate value for the machine. For example, if the machine is designed to vent to 25 PSI in the sump and the sump currently has 85 PSI during the stopping process, the Message Status Bar would display 60 PSI. The motor will be stopped when both the time and pressure requirements have been met, or a maximum time of 120 seconds if the machine does not fully vent.

After stopping, the display will return to the Ready state if NO Warning or Trip Conditions are triggered.

4.1.4. Emergency Stop

The **Emergency Stop** button is located on the front door of the control panel close to the display and is identified by a red button with a yellow background. The **Emergency Stop** cuts power to outputs on the controller immediately and stops the machine abruptly. This should only be used in case of emergency where the machine must be stopped immediately.

Figure 11: Emergency Stop Switch

Regular use of the Emergency Stop will cause damage to the machine. Always use the Stop button as described above to stop the machine under normal operation.

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4.1.5. Operating Modes

It is important for the user to have a basic understanding of the operating states incorporated and displayed on the controller status bar (bottom bar). The following states (with brief description) have been incorporated into the control logic:

Table 1: Operating Modes

State as Displayed	Description	Example
Ready to Start	Not rotating, but all start permissive inputs satisfied (physical and logical)	High temps returned to normal and trip reset
Starting	Ramping to speed from a start and may include alternate safety limits	Some sensors may be ignored during starting state due to range
Running Unloaded	Rotating at rated speed with minimum flow and internal pressure to support cooling	Minimum pressure check valve is closed while unloaded
Running Loaded	Rotating and contributing to system	Inlet valve open and contributing to system
Automatic Start Stop	Not rotating, but automatically start and load when pressure falls to Load Pressure Setpoint (As indicated in the menu of displays of controller).	Backup compressor during low consumption
Stopping	Stop button pressed (or other) and compressor coasting to a stop	Normal stop button pressed and compressor ramping down to stop
Power Outage Restart Start	Automated start of compressor after power failure	Power failure from storm
Tripped	One or more safeties exceeded the trip value, causing the compressor to shutdown	High discharge temp trip

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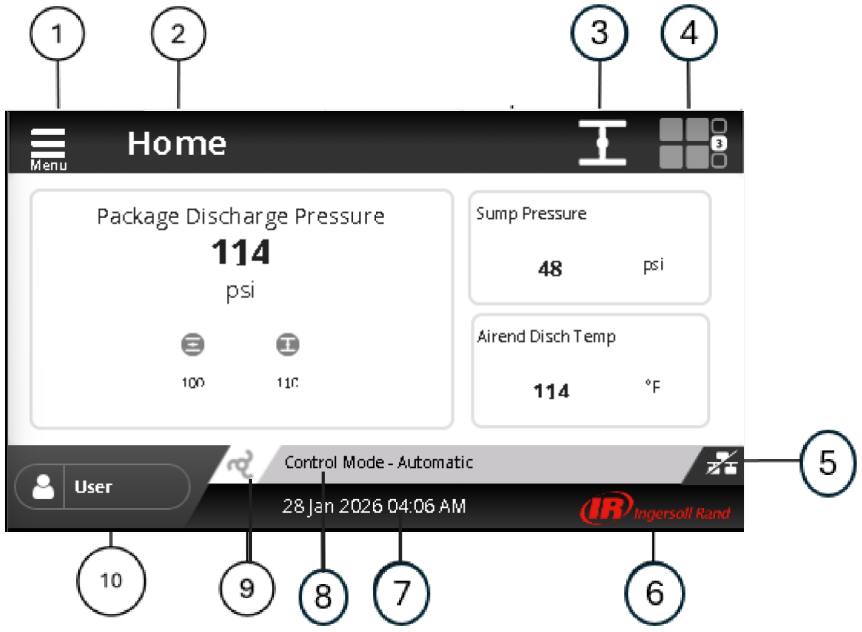
SECTION 5

5.1. Home Screen

The Home screen is the primary screen for operation of the machine. It displays machine status messages, pressure and temperature readings, essential settings, and maintenance status. Figure 12 shows a typical home screen and its elements.



1. Menu Bar
2. Screen Title / Breadcrumbs
3. Forced Unload Button
4. |Tile View Change
5. Network Status
6: Brand Logo
7: Date and Time
8: Status Message Bar
9: Motor Running icon
10: Login / User

Figure 12: Home Screen Elements

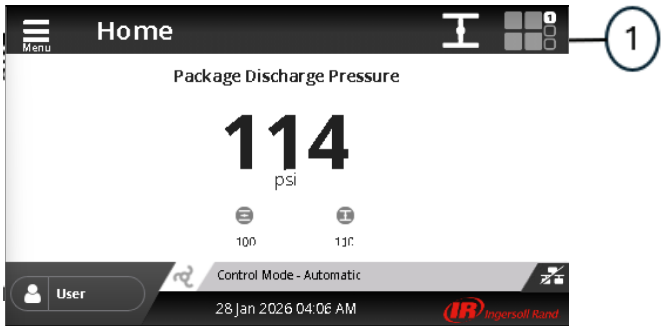


Figure 13: One Tile

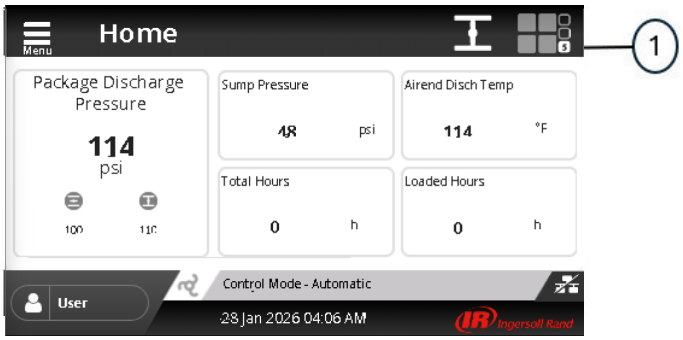


Figure 14: Five Tiles

5.2. Screen Saver

The Controller screen is designed to transition to a screensaver showing the Package Discharge Pressure and Running status in a large font visible from a far distance. This Screensaver also shows the machine Running status and an animated indication of Motor rotation Icon. The screens is color coded and the Icon and the Numeric Value are shown in Yellow if the Warning condition persists, Red if Trip Condition persists. The Motor Rotation icon changes to a Trip Indicator if Warning or Trip are recorded. The Color of the icon is determined by the Type of event – warning will make the icon Yellow and Trip will make the icon Red. The Screensaver screen also shows machine status of Automatic Start Stop shown by Green Trip Icon.

Figure 15: Screen Saver

5.2. Navigation Menu

The Menu provides quick access to all screens on the system. Subcategories of the Menu will expand when selected if there are multiple screens available.

Pressing the Menu button 

in the upper left corner of the screen will deploy the Menu, as shown in Figure 16 below. With the Menu deployed, press the X at the top of the Menu to hide the Menu.

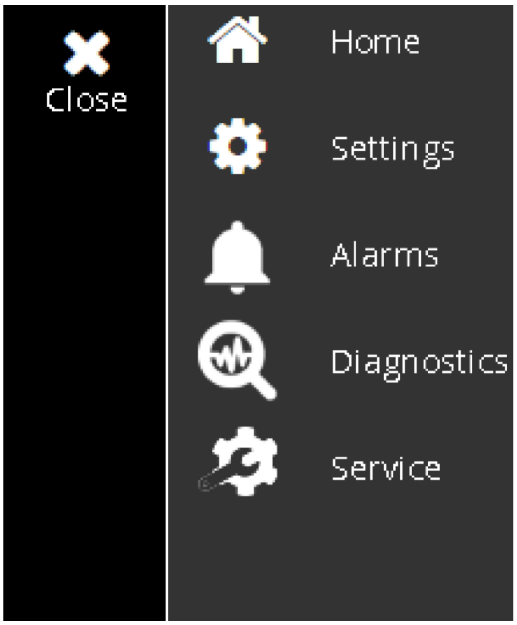


Figure 16: Menu Deployed

The following screens and categories are available through the Menu:

- **Home**: This button links to the Home screen.
- **Settings**: Deploys cascading Settings Menu structure to view or modify any setting on the system.
- **Alarms**: Deploys cascading Alarms Menu with links to the Active Alarms and Alarm History views.
- **Diagnostics**: Deploys the cascading Diagnostics Menu structure. This area of the user interface allows viewing information about the operation of the controller and the machine for technical and troubleshooting use.
- **Service**: This button links to the Service Dashboard & Counters screen, which allows viewing the service timers and counters.

As you navigate through the system, the Menu will cascade to the right to indicate your current position. For example, **Figure 17** below shows the view of the Menu after selecting **Settings**, then **Configuration**. Pressing the will take you back to the previous menu which will be **Settings**.

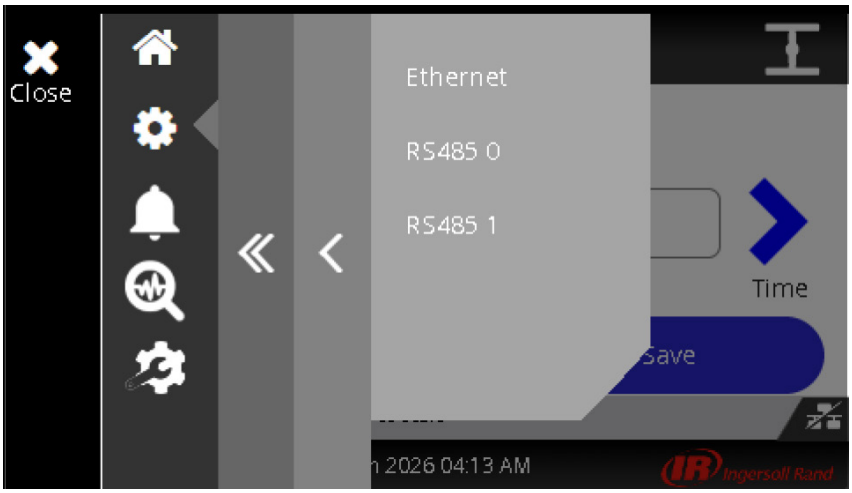


Figure 17: Menu Cascade

5.3. Logging In

Before making any changes to the settings on the controller, you must log in with an appropriate access level. The current access level is indicated by the **User** button on the **Status Bar** in the bottom left of the screen as shown in **Figure 18** below. The text of the button indicates the current access level.

Figure 18: Login Button

Pressing this button will navigate to the Security screen as shown in **Figure 19** below.

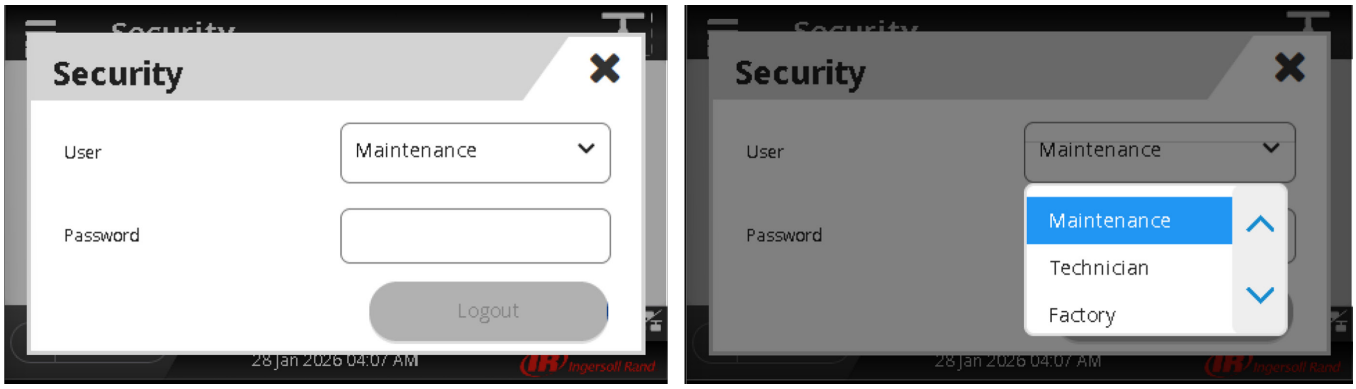


Figure 19: Security Screen

To log in, select the desired access level from the User dropdown, enter the password into the **Password** field, and press the **Log In** button.

Access to operation and configuration of the XS-100 Controller is protected and controlled through three (3) fixed user classes, each with a predefined set of permissions based on the following assumptions:

User: The user class is the default and lowest level of access. Intended for personnel who may only need to start and stop the compressor, or review operating parameters, the user has the following limited permissions:

- Start (automatic) and stop the compressor (only if in a permissive state)
- Navigate through various screens (some screens may be hidden from user)
- Monitor operating parameters presented on screens.

Maintenance: The maintenance class is the most commonly accessed class, intended for end users charged with operating the compressor and maintaining the compressed air system for the facility. Building upon the user class, the maintenance class assumes all user permissions as well as the following additional permissions:

- Manual start, stop and control (load/unload) permission for the compressor
- Reset service timers and operating alerts (warning and trips)
- Manual adjust pressure setpoints and related settings.

Technician: The technician class is intended primarily for personnel charged with maintaining and troubleshooting individual compressors and air system as a whole. This class, intended for facilities maintenance technicians, distributor technicians and other authorized service providers, inherits all lower level permissions and includes the following additional permissions:

- Access to diagnostic and calibration screens for sensors and other instruments
- Extract data and other diagnostic data from the controller
- Configure factory setpoints and other operating parameters not accessible by a lower class
- Enabling option modules and software options
- Update application software or firmware.

Factory: The factory class is intended for factory authorized personnel only. Similar to the previous classes, the factory class inherits all of the previous permissions along with any remaining restrictions to allow full access to all settings and features.

Please note the passwords can be changed from their default by accessing and using the “Adjustments” button on the screen once logged in.

As a best practice to ensure safe and reliable operation of your Ingersoll Rand compressor, all users should log out after completing any adjustments or work within the controller.

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The available access levels and default passwords are shown below in Table 2 below.

Table 2: Access Levels

User Level	Default Password	Description
User	None	Default level, limited access
Maintenance	407	End user. Basic settings access and ability to reset service timers.
Technician	Contact Ingersoll Rand	Advanced access targeted towards distributors and service technicians.
Factory	Contact Ingersoll Rand	Full access to all settings and features. The password rotates automatically throughout the life of the machine. It may not be changed. This password should only be required under unusual circumstances and must be provided by Ingersoll Rand Technical Support.

Note that the passwords can be changed from the default by selecting **Settings > Configuration > Security** once logged in.

After logging in, press the  button to return to the previous screen.

5.4. Settings

Before running the machine, there are several basic configuration settings that may need to be changed.

5.4.1. Control

The settings under the Control Menu determine how the machine operates to match the process requirements of the customer. The default settings of the machine are acceptable for most installations. However, if the Pressure Band displayed on the gauge on the Home screen does not match the desired pressure range for the site, the Pressure Band must be adjusted.

To adjust the Pressure Band, navigate to **Settings > Control** as shown in **Figure 20**. Then, press the **Adjust** button next to Pressure Band 1.

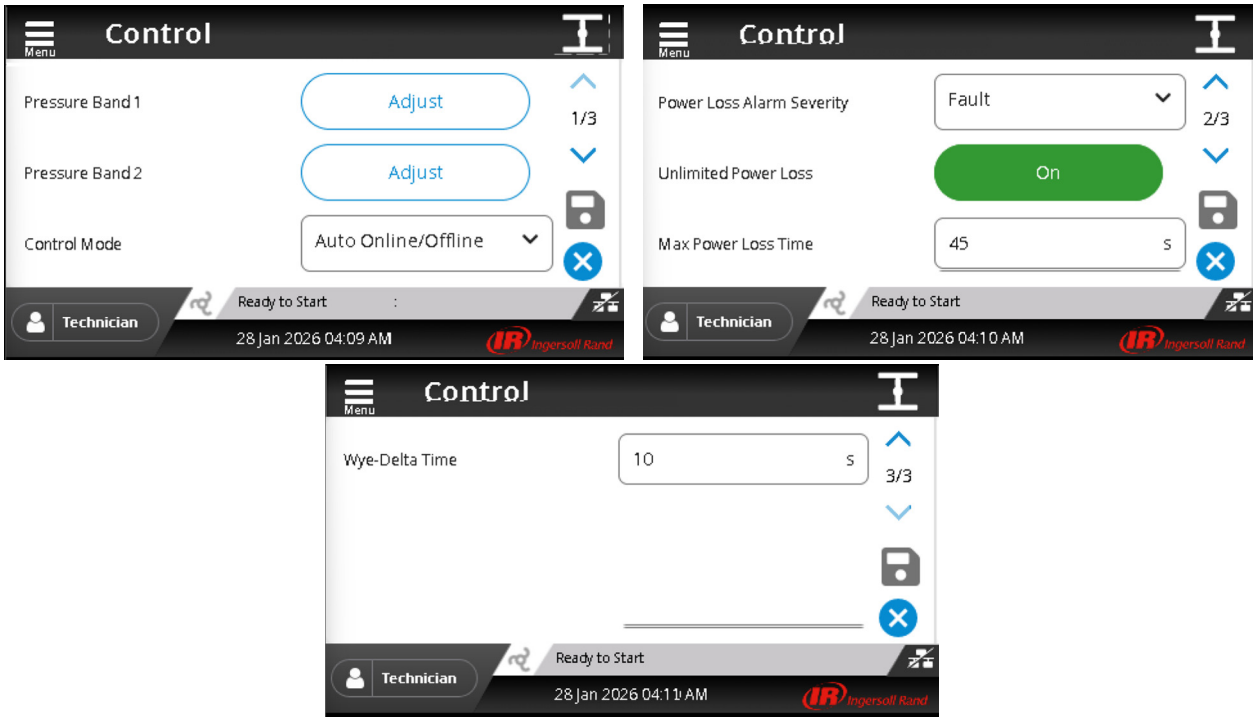

Figure 20: Control Settings

The Pressure Band 1 Setting screen is shown in **Figure 21** below.

Figure 21: Pressure Band 1 Settings

To make adjustments per requirement press the **Text Box**. This will bring up a numeric entry keypad using which the values can be set.

Note that the minimum and maximum values that will be allowed for each box will change dynamically based on the Rated pressure of the machine as well as the values of the other settings. For example, to increase the Load pressure to 121 PSI, the Unload pressure would first need to be increased to allow the Maximum Value of Load Pressure to increase and allow a high value to be entered for Load Pressure.

Once you are satisfied with the pressure band settings, press the ✔ button on Numerical Pad, and then press 💾 on Pressure Band 1 Setting Screen to commit the changes.

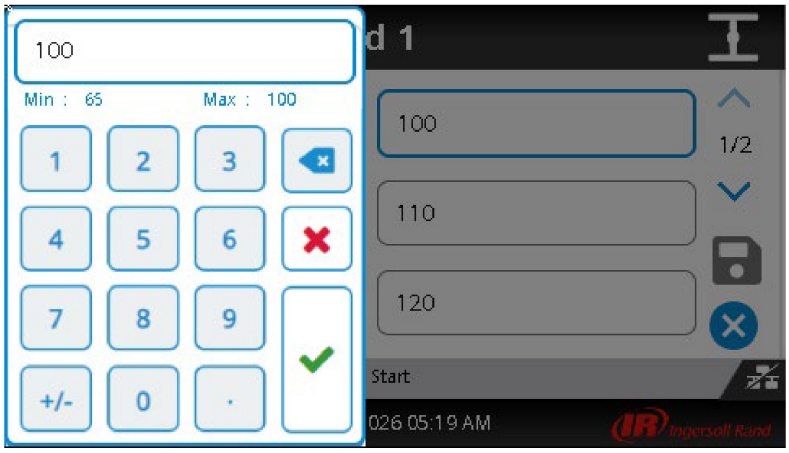

Figure 22: Primary Pressure Band Setting

Table 3: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Operating Mode	This setting lets the user select the right Control Mode for the Controller to control the Compressor.	R	RW	RW	RW
Pressure Band 1	This setting group lets the user enter the correct desired Thresholds for Pressure Band 1 on Discharge pressure for Load / Unload & Warning / Fault trigger.	R	RW	RW	RW
Pressure Band 2	This setting group lets the user enter the correct desired Thresholds for Pressure Band 2 on Discharge pressure for Load / Unload & Warning / Fault trigger.	R	RW	RW	RW
Condensate Release Time	This setting lets the user define the time for which the Condensate Drain should remain open to drain the condensate. This setting is machine applicable and may not apply to some machines.	R	RW	RW	RW
Condensate Interval Time	This setting lets the user define the time for which the Condensate Drain should wait before opening to drain the condensate again. This setting is machine applicable and may not apply to some machines.	R	RW	RW	RW
Unlimited Power Loss	This setting lets the user enable the Unlimited power loss feature. Enabling this will allow the customer to have the machine start up automatically on power restoration without any time boundary on power loss.	R	RW	RW	RW

Element Name	Description	User	Maint	Tech	Factory
Max Power Loss Time	This setting lets the user set the time for which the Automatic Start of Machine shall work on power restoration. If the power is lost for more than the time set in this setting, the Automatic Start operation shall NOT be triggered.	R	RW	RW	RW
Power Loss Severity	This setting allows the user to define the Power Loss Event as either Warning or a Trip.	R	RW	RW	RW

5.4.2. Configuration

Basic controller configuration is located under the Settings -> Configuration menu as shown in **Figure 23**. Please note that depending upon type of user level logged in, number of parameter showing under Configuration will vary.

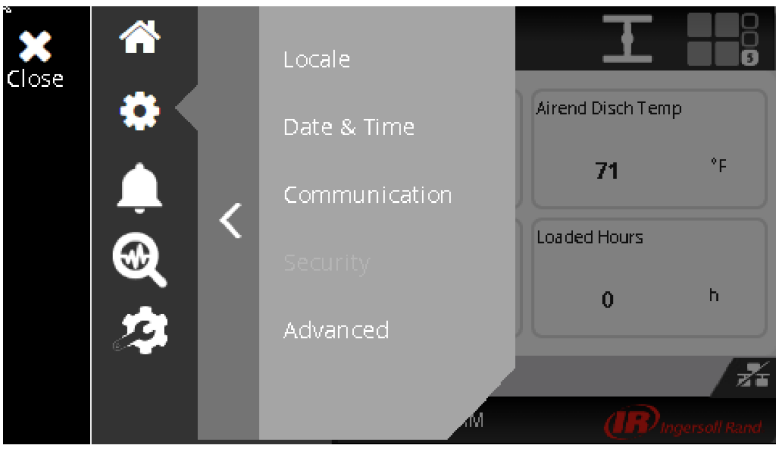

Figure 23: Configuration Menu with Technician Login

5.4.2.1. Locale

First, ensure that the units are set as desired by selecting the Locale link from the Configuration menu. The Pressure, Temperature, and Flow Units can be set individually by scrolling up and down as shown in Figure 24. If the Language needs to be changed, it may be changed by selecting the View/Select button below the units.

Figure 24: Locale Configuration

Table 4: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Pressure Units	Sets the unit of measurement for pressure (bar, psi)	R	RW	RW	RW
Temperature Units	Sets the unit of measurement for temperature (°C, °F)	R	RW	RW	RW
Flow Units	Sets the unit of measurement for flow rate (e.g., m³/min, m³/hr, CFM)	R	RW	RW	RW
Language	Selects the interface language for display and interaction (English, French, Spanish, German, Italian, Portuguese)	R	RW	RW	RW

5.4.2.2. Date & Time

It is important to verify that the Date, Time, and Time-zone are set properly for the site. The date and time are relied on for logs, timer control, trends, etc. Setting the time-zone properly ensures that daylight savings time adjustments will be accounted for automatically. The Date and Time Configuration screen is

shown in Figure 25 below. Use and to toggle between the Time, Date and Time-zone screen

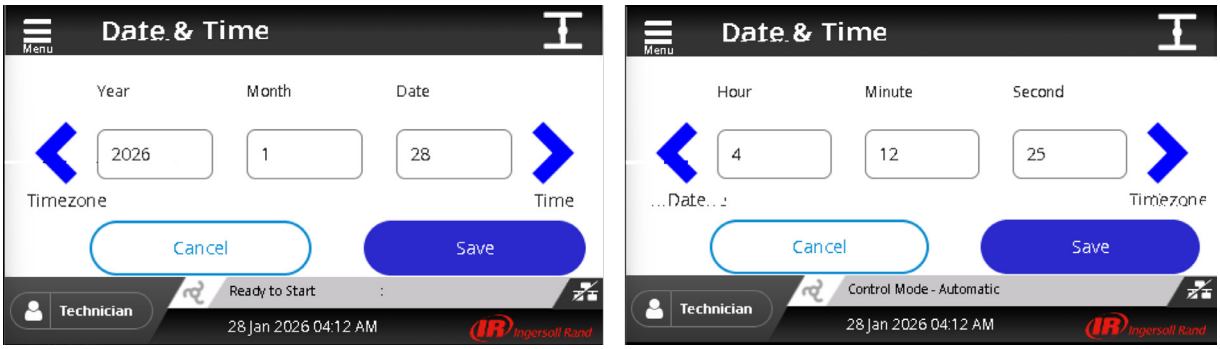

Figure 25: Date and Time Configuration

To set the time-zone, click on the **Timezone** box and use the selector dialog that appears to select the appropriate time-zone for your region as shown in **Figure 26** below.

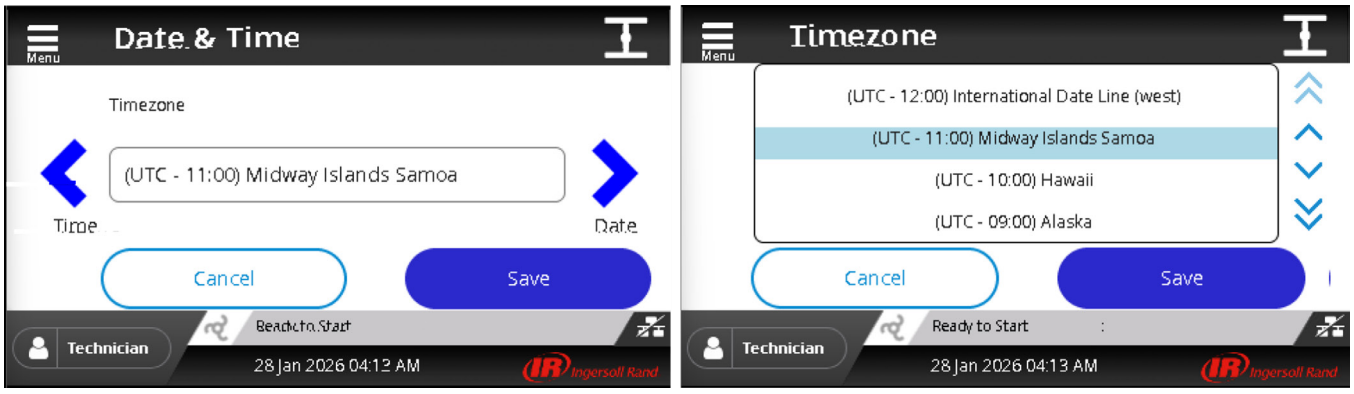

Figure 26: Timezone Selection

5.4.2.3. Communication

5.4.2.3.1. Ethernet

This interface allows technicians to configure Ethernet communication parameters for the device. It supports static and dynamic IP setups, enabling integration into local networks, remote monitoring systems, and cloud platforms. Note the IP Address displayed on the controller will NOT be correct if the Ethernet Cable is NOT connected.

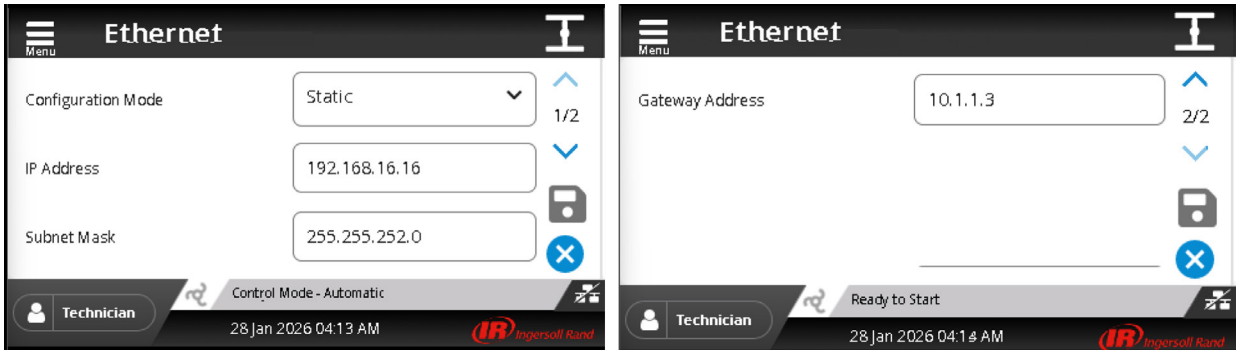

Figure 27: Ethernet Page

5.4.2.3.2. RS485 0

The RS485 configuration interface enables setup of serial communication parameters for devices operating in networked or sequenced environments. It supports protocol selection, address assignment, and data formatting for reliable multi-device communication. This port shall be used for VSD communication

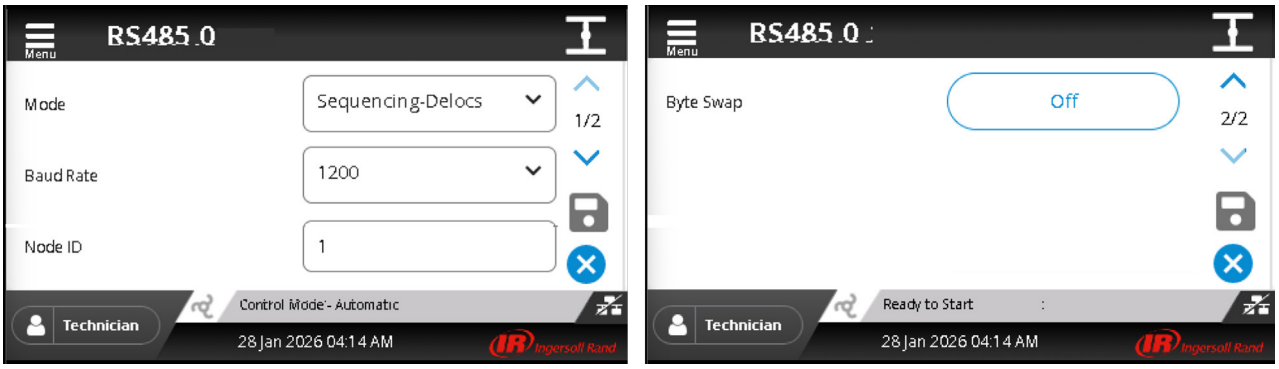

Figure 28: RS485 0 Page

5.4.2.3.3. RS485 1

This interface configures RS485 serial communication parameters for devices operating in Modbus networks or other industrial protocols. It enables reliable data exchange, device addressing, and compatibility with external controllers or SCADA systems.

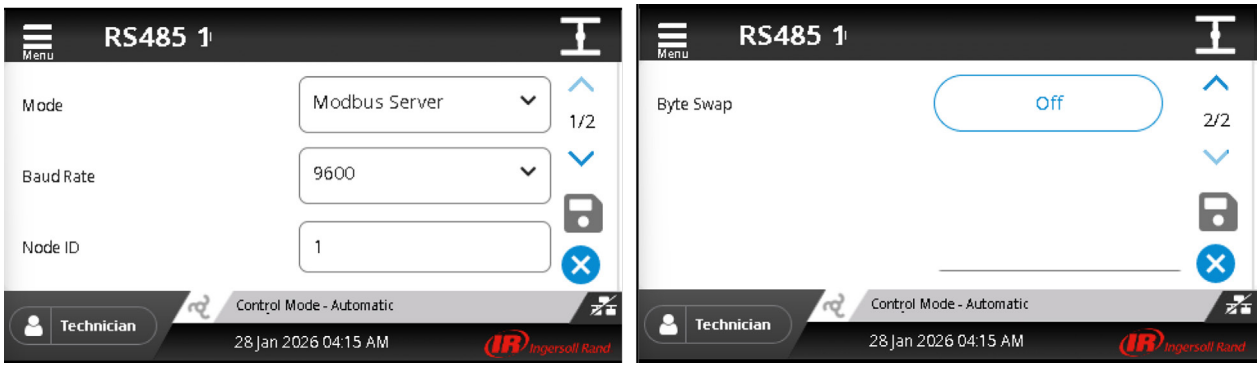

Figure 29: RS485 1 Page

5.4.2.4. Advanced

The Advanced Configuration interface provides access to system-level settings that influence device security, control logic, and integration behavior. It is intended for experienced technicians and engineers during commissioning, diagnostics, or compliance validation.

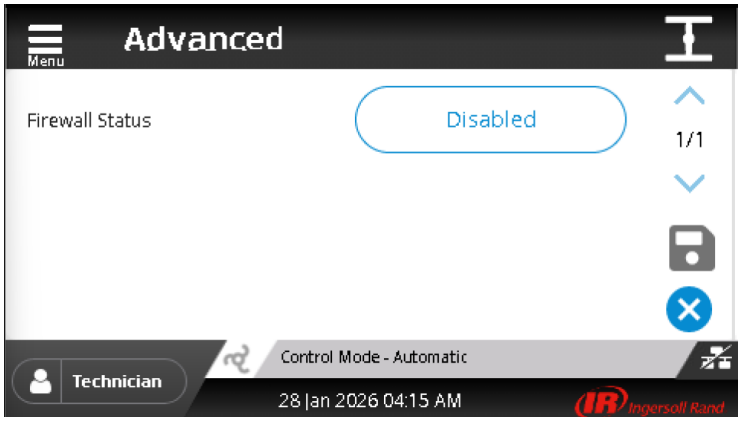

Figure 30: Advanced Page

Table 5: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Year	This setting lets the user set the right Year.	RW	RW	RW	RW
Month	This setting lets the user set the right Month.	RW	RW	RW	RW
Date	This setting lets the user set the right Date.	RW	RW	RW	RW
Hour	This setting lets the user set the right Hour.	RW	RW	RW	RW
Minute	This setting lets the user set the right Minute.	RW	RW	RW	RW
Second	This setting lets the user set the right Second.	RW	RW	RW	RW
TimeZone	This setting lets the user set the right Timezone	RW	RW	RW	RW
Configuration Mode	This setting on Ethernet Settings page allows the user to select the mode of Ethernet – Static , DHCP.	R	RW	RW	RW
IP Address	This setting on Ethernet Setting page allows the user to set the IP Address for the controller.	R	RW	RW	RW
Subnet Mask	This setting on Ethernet Setting pages allows the user to set the Subnet Mask for the Ethernet configuration.	R	RW	RW	RW
Gateway Address	This setting on Ethernet Setting page allows the user to set the Gateway Address for Ethernet configuration.	R	RW	RW	RW
Mode RS485 0	This setting on RS-485 0 Configuration page allows the user to Set the RS485 Interface 1 to the mode – Sequencing , Modbus Peripheral , Modbus Server , Modbus Client.	R	RW	RW	RW
Baud Rate RS485 0	This setting on RS-485 0 Configuration page allows the user to Select the Baud rate for the interface.	R	RW	RW	RW
Node ID RS485 0	This setting on RS-485 0 configuration page allows the user to set the Note ID if the controller for the modbus network.	R	RW	RW	RW
Byte Swap RS485 0	This setting on RS-485 0 Configuration page allows the user to Enable / Disable Byte Swap on the interface.	R	RW	RW	RW
Mode RS485 1	This setting on RS-485 1 Configuration page allows the user to Set the RS485 Interface 1 to the mode – Sequencing , Modbus Peripheral , Modbus Server , Modbus Client.	R	RW	RW	RW
Baud Rate RS485 1	This setting on RS-485 1 Configuration page allows the user to Select the Baud rate for the interface.	R	RW	RW	RW
Node ID RS485 1	This setting on RS-485 1 configuration page allows the user to set the Note ID if the controller for the modbus network.	R	RW	RW	RW
Byte Swap RS485 1	This setting on RS-485 1 Configuration page allows the user to Enable / Disable Byte Swap on the interface.	R	RW	RW	RW
Firewall Status	This setting on Configuration > advanced page lets the user Enable / Disable the Firewall on the controllers Ethernet Interface.	R	RW	RW	RW

5.4.3. Options

The Options Page under the Settings Menu provides Settings that are required for adjusting the Options on the Controller mainly the Automatic Start Stop , Power Outage Restart , Scheduler & Modbus Control.

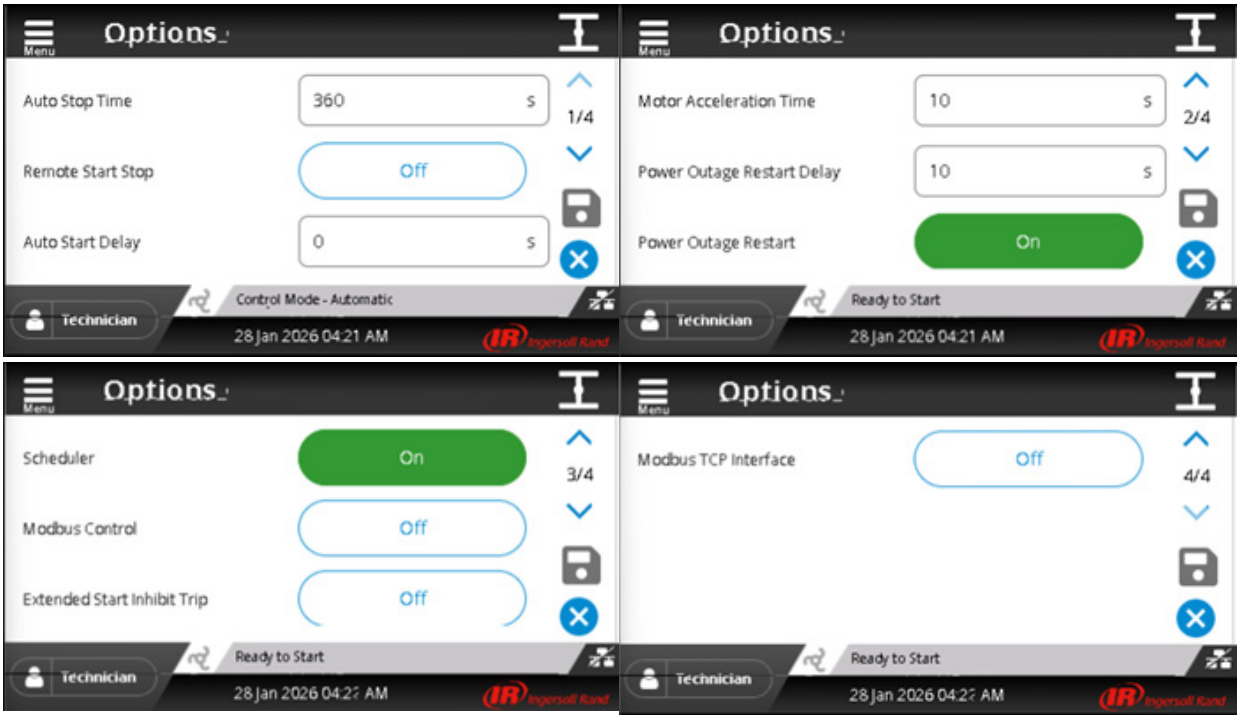

Figure 31: Options

Table 6: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Motor Acceleration Time	Enter the right Starter time setting. This setting shall be used by the controller for ramping the motor up to its speed.	R	RW	RW	RW
Modbus Control	This setting lets the user Enable / Disable the Control of machine over Modbus RTU. Setting this setting to ON shall let the Modbus control Active.	R	RW	RW	RW
Modbus TCP Interface	This setting lets the user Enable / Disable the Control of machine over Modbus TCP. Setting this setting to ON shall let the Modbus control Active.	R	RW	RW	RW
Remote Start / Stop	This setting lets the user Enable / Disable the Remote Start / Stop feature over Digital Inputs. If this setting is set to OFF, the Digital Inputs for Remote Start / Stop Operation shall NOT have any effect.	R	RW	RW	RW
Extended Start Inhibit Trip	This setting lets the user Enable / Disable the Extended Start Inhibit Trip.	R	RW	RW	RW
Automatic Stop Time	Enter a Valid Automatic Stop Time setting. This setting shall be used to Stop the machine and place in Automatic Start Stop Standby mode if the machine runs Unloaded.	R	RW	RW	RW
Automatic Start Delay	Enter a valid Automatic Start Delay setting. This setting shall be used as a Delay to Start the machine from Automatic Start Stop Standby when a demand is registered as a result of Package Discharge Pressure falling below Load Pressure.	R	RW	RW	RW

Scheduler	This setting allows the user to Enable / Disable the Timer Control Functions. • Run Schedule • P2 Band Schedule Setting this setting to OFF shall Disable both functionality.	R	RW	RW	RW
Power Outage Restart	Select ON/OFF for Power Outage Restart feature. Select ON to turn the feature ON and select OFF to Turn the feature OFF.	R	RW	RW	RW
Power Outage Restart Delay	Enter a Valid Power Restart Delay Setting. This setting shall be used to prolong a Power Outage Restart of the machine and use the time to sound an audible horn.	R	RW	RW	RW

5.4.4. Calibration

5.4.4.1. Pressure Calibration

The Pressure Calibration interface allows technicians to fine-tune pressure sensor readings for accuracy and reliability. It supports system commissioning, sensor replacement, and ongoing validation of pressure feedback used in control logic.

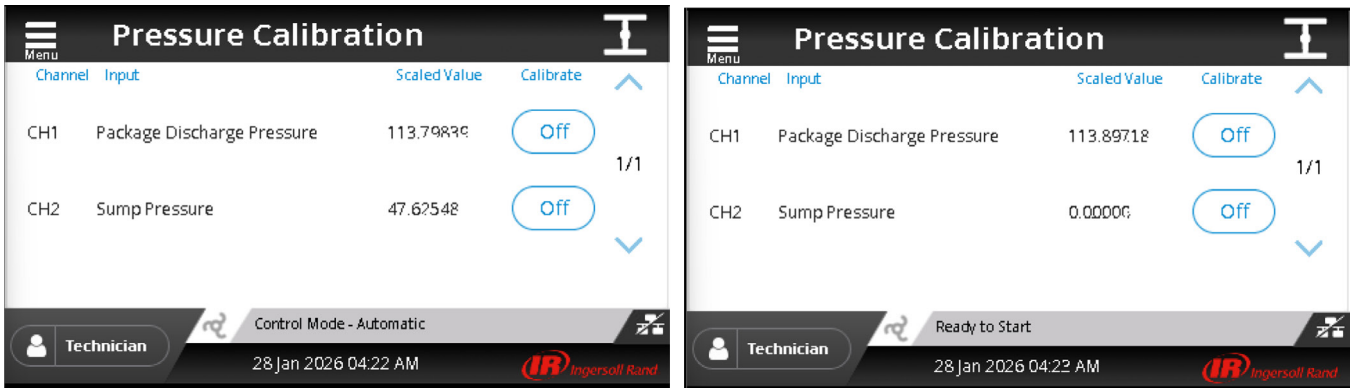

Figure 32: Pressure Calibration Page

Table 7: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Channel 1 Input	Sensor input label for CH1 (e.g., Package Discharge Pressure)	R	R	R	R
Channel 1 Scaled Value	Real-time calibrated pressure reading from CH1 (e.g., 92.00418)	R	R	R	R
Channel 1 Calibrate Toggle	Enables or disables calibration mode for CH1	R	RW	RW	RW
Channel 2 Input	Sensor input label for CH2 (currently disabled)	R	R	R	R
Channel 2 Scaled Value	Real-time calibrated pressure reading from CH2 (inactive)	R	R	R	R
Channel 2 Calibrate Toggle	Enables or disables calibration mode for CH2	R	RW	RW	RW

5.4.5. Settings / Schedule

The Controller provides a mechanism to Schedule Machine Start & Stop and Scheduling Load & Unload Pressure setting based on Day of the week & time of the day. The Controller provides 8 different setting for which the Start – Stop and / or pressure schedules can be defined. These Settings are located in the Settings / Schedule menu.

Figure 33: Settings

The menu houses 2 sub screens – Run Schedules & P2 Band Schedules.

Run Schedules provides 8 Schedule settings for scheduling Machine Start & Stop operations.

P2 Band Schedules provides 8 Schedule settings for scheduling the Pressure Band 2.

Each Schedule Setting has a Start Time at which the Schedule will start taking effect, a Stop time when the Schedule will be removed from effect, Day of the week – The schedule shall be active only between the Start & Stop time on the selected Day of the week. A Delete Channel button is provided to delete the Schedule if it is no longer required.

A Schedule Visual View is also provided on the controller to visually see when during the week the schedules will take effect. This can be seen by pressing the  icon on the Schedule Page.

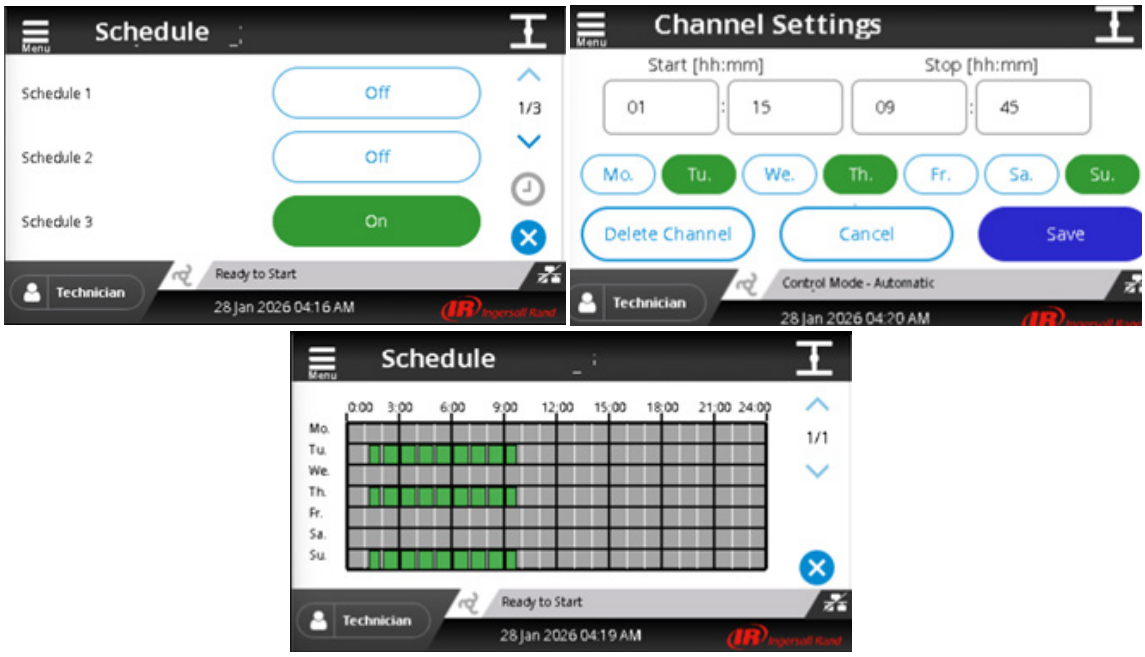

Figure 34: Schedule

5.4.6. Advanced

5.4.6.1. Setup

The Setup interface under Advanced Settings allows technicians to configure core system parameters such as model identity, runtime counters, pressure ratings, and auxiliary equipment toggles. It supports initial commissioning, equipment validation, and service-level customization.

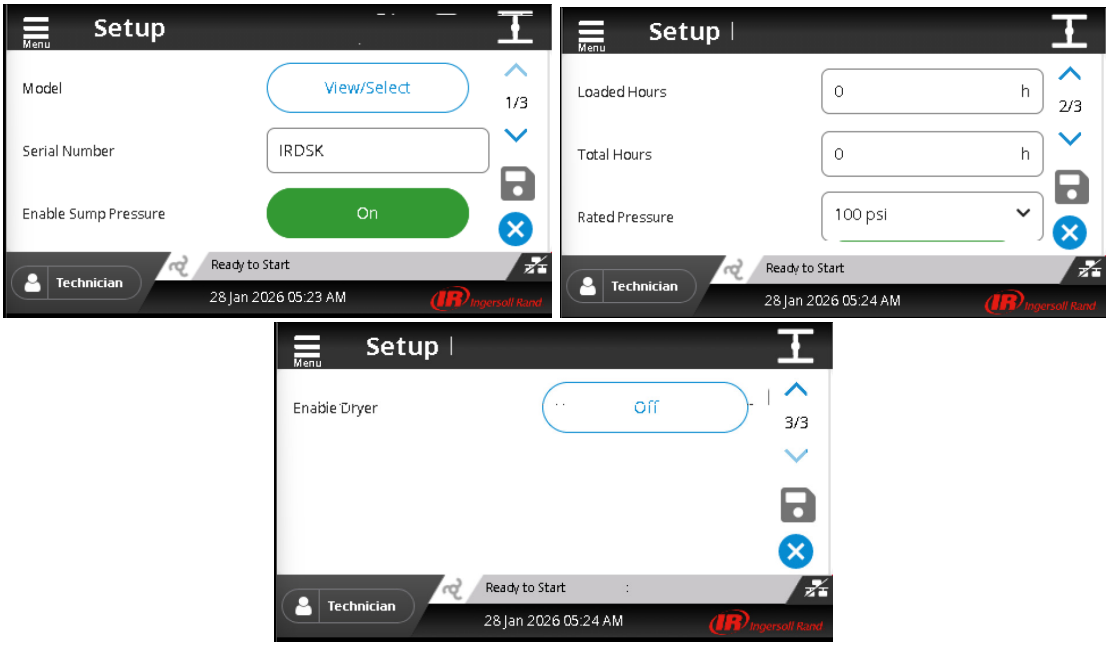

Figure 35: Setup Page

Settings / Advanced / Setup / Model (Variable Speed)

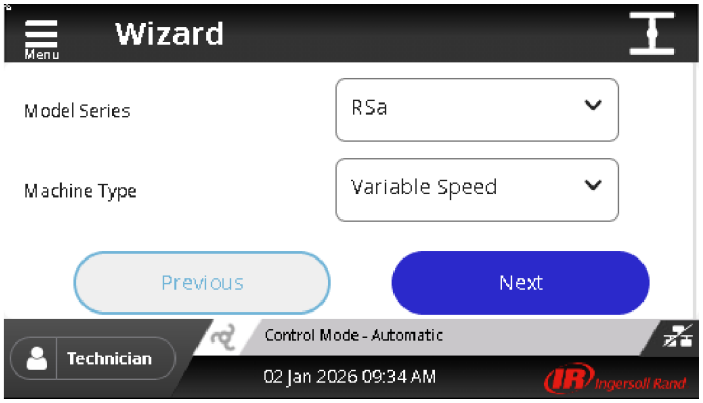

Figure 36: Wizard for VS

Settings / Advanced / Setup / Model (Fixed Speed):

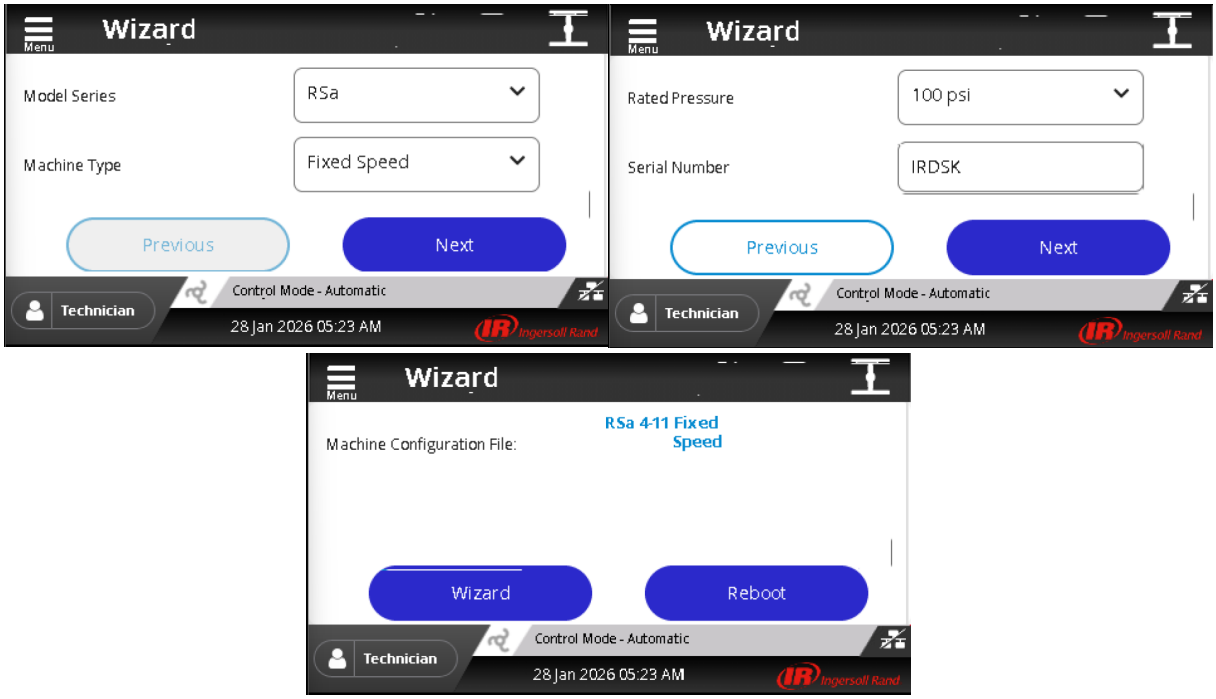

Figure 37: Wizard for FS

5.4.6.2. Controls

The Controls interface under Advanced Settings allows technicians to configure operational thresholds, safety checks, and performance limits. It supports startup behavior, runtime logic, and load management for industrial systems.

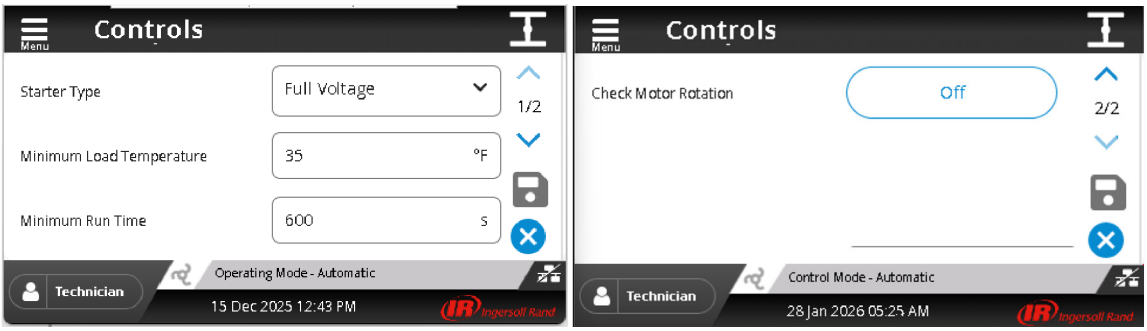

Figure 38: Controls Page for FS

5.4.6.3. Backup & Restore

The Backup/Restore interface allows technicians to manage user configuration data across controller and USB storage. It supports system recovery, configuration portability, and factory reset operations.

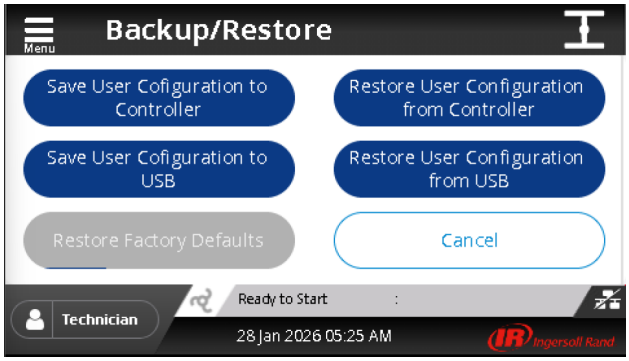

Figure 39: Backup & Restore Page

5.4.6.4. Operating Limits

The Operating Limits interface allows technicians to define pressure thresholds that govern system startup and shutdown behavior. It supports safe operation, energy efficiency, and compliance with equipment specifications.

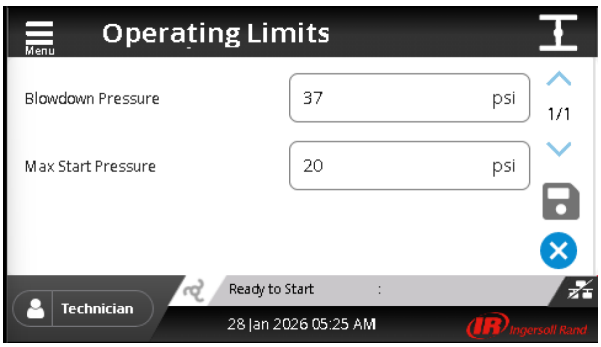

Figure 40: Operating Limits Page

5.4.7. VSD

The Controller has a few Dedicated VSD Pages that are only available if the Machine type selected is Variable Speed. These pages contain settings specific to VSD Control Features. The Settings are divided into specific screens that are dedicated to specific control. All settings related to VFD Features pertaining to Control of Motor are housed in the “Motor” screens. All Settings related to PID Feature are housed inside the “PID Tuning” Screens. These screens are ONLY visible to Access levels Technicians and above.

Settings / Advanced / Motor :

This page provides settings for special VFD features – Fixed Speed mode where the VFD can be made to run at a fixed speed, Skip Speed Band where the controller allows 2 sets of Frequencies that can be avoided by the VFD while running.

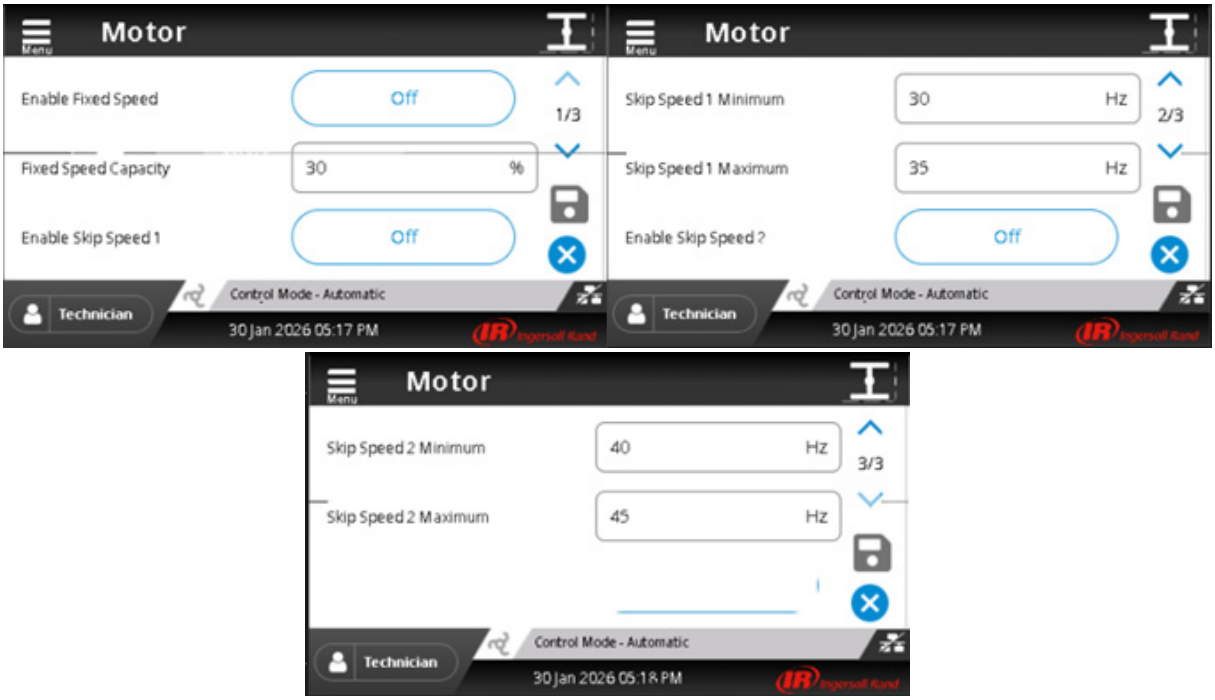

Figure 41: Motor

Table 8: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Enable Fixed Speed	This setting lets the technician enable the fixed speed operation mode of the VSD. When enabled the controller will force the VFD to run at a fixed speed defined in the Fixed Speed Capacity setting. This setting is Volatile and is defaulted to OFF one a power Cycle.	H	H	RW	RW
Fixed Speed Capacity	This setting lets the technician run the VFD at a Fixed speed. This setting lets us set the % loading of the machine and internally calculated the Speed at which the machine should be fixed at and run the machine At this speed.	H	H	RW	RW
Enable Skip Speed 1	This setting lets the technician to enable / disable the 1st Skip speed band.	H	H	RW	RW
Skip Speed 1 Minimum	This Setting lets the technician set the Minimum Frequency of the band to skip. Frequences starting from here going up will NOT be set to the Drive to run at till the max band max frequency.	H	H	RW	RW
Skip Speed 1 Maximum	This Setting lets the technician set the Maximum Frequency of the band to skip. The controller shall Skip the frequences starting from Min Frequency till the Max frequency for the band.	H	H	RW	RW
Enable Skip Speed 2	This setting lets the technician to enable / disable the 2nd Skip speed band.	H	H	RW	RW
Skip Speed 2 Minimum	This Setting lets the technician set the Minimum Frequency of the band to skip. Frequences starting from here going up will NOT be set to the Drive to run at till the max band max frequency.	H	H	RW	RW
Skip Speed 2 Maximum	This Setting lets the technician set the Maximum Frequency of the band to skip. The controller shall Skip the frequences starting from Min Frequency till the Max frequency for the band.	H	H	RW	RW

Settings / Advanced / PID Tuning :

This page provides the technician with the settings to tune the Proportional , Integral & Derivative coefficients of the PID algorithm controlling the VFD. This page is NOT accessible to Access levels lower than Technician.

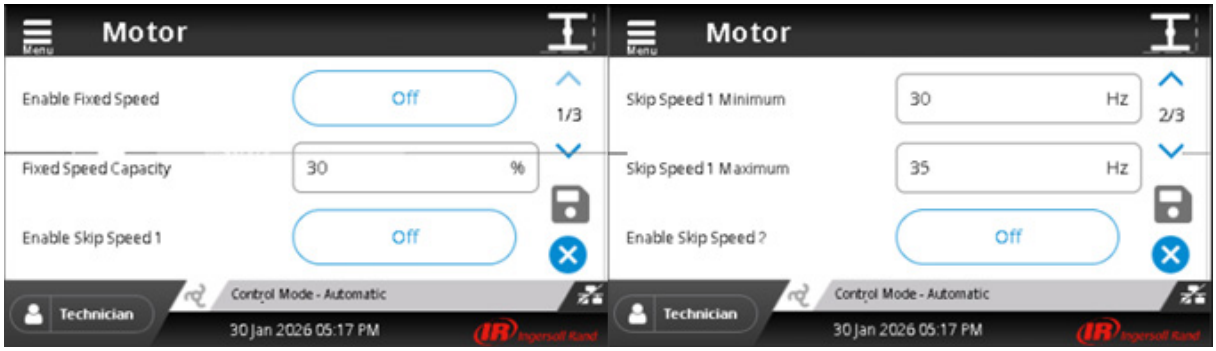

Figure 42: PID Tuning

Table 9: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Proportional	This setting lets the technician set the Proportional Coefficient.	H	H	RW	RW
Integral	This setting lets the technician set the Integral Coefficient.	H	H	RW	RW
Derivative	This setting lets the technician set the Derivative Coefficient.	H	H	RW	RW
Ramp Rate	This setting lets the technician set the Ramp Rate.	H	H	RW	RW

Table 10: Available Fields

Page	Element Name	Description	User	Maint	Tech	Factory
Setup	Enable Sump Pressure	Select the Integrated Dryer ON/OFF based on machine configuration of Integrated dryer installed. Select ON if Integrated Dryer is Installed & select OFF if Integrated Dryer is NOT installed.	H	H	RW	RW
Setup	Enable Dryer	Select the Integrated Dryer ON/OFF based on machine configuration of Integrated dryer installed. Select ON if Integrated Dryer is Installed & select OFF if Integrated Dryer is NOT installed.	H	H	RW	RW
Setup	Rated Pressure	Select the correct Rated Pressure of the machine as mentioned on the compressor nameplate. DO NOT Select any other value or value different from the nameplate, doing so may result in unexpected machine behavior.	H	H	RW	RW
Setup	Enable PAC	This setting is used to Enable / Disable the PAC (Progressive Adaptive Control) on the machine.	H	H	RW	RW
Setup	Model	This is the Wizard setting to select the right configuration of the machine to enable the controller to set right set of settings applicable to the machine configuration.	H	H	RW	RW
Setup	Serial Number	This field is to enter the Compressor Serial Number.	H	H	RW	RW
Setup	Loaded Hours	This field is to be used in case of a controller replacement and to be entered with the value of Loaded hours on previous Controller.	H	H	RW	RW
Setup	Running Hours	This field is to be used in case of a controller replacement and to be entered with the value of Running hours on previous Controller.	H	H	RW	RW
Setup	Elevation Setting (VSD ONLY)	This field is to enter the Elevation of the machine from sea level./	H	H	RW	RW
Control	Starter Type (FS ONLY)	This field is to be used to select the right Starter type on the Starter panel. Selecting an incorrect starter type may resulting in undesired or NO machine operation.	H	H	RW	RW
Control	Minimum Run Timer	This timer is to be used to set the time for which the machine should at least run for this time minimum before being allowed to stop Automatically. This is linked to number of starts per hour. Say motor is rated for 6 Starts / hour , then the value suitable for this setting is 60 /<Number of starts per hour> = 10 Mins or more.	H	H	RW	RW

Page	Element Name	Description	User	Maint	Tech	Factory
Control	Minimum Load Temperature	Enter the correct Value for Discharge Temperature to be reached to allow the machine to load. Entering an incorrect value shall result in improper operation.	H	H	RW	RW
Control	Rotation Direction Check	This setting is used to enable / disable the Rotation direction check Trip on the controller.	H	H	RW	RW
Control	Cold Start Time (VSD ONLY)		H	H	RW	RW
Control	Capacity Limit Value (VSD ONLY)		H	H	RW	RW
Operating Limits	Blowdown Pressure	This setting is used to set blowdown pressure for the machine.	H	H	RW	RW
Operating Limits	Max Start Pressure	This setting is used to set Max Start pressure for the machine.	H	H	RW	RW

5.5. Alarms

If there are any faults present on the machine, they must first be cleared to allow the machine to be started.

If a fault is active on the machine, the Active Alarms screen can be accessed by pressing on the Alarm triangle on the Message Status Bar on the Home screen, or by navigating to **Menu > Alarms > Active Alarms** through the Menu. The Active Alarms screen is shown in **Figure 43** with the Active Alarm for Emergency Stop.

Figure 43: Active Alarm Screen (With Active Event & With NO Active Event)

Once all faults have been resolved, press the **Reset All** button, which will move the alarms to the Alarm History screen as shown in **Figure 44**. To view Previous Events, Press the Alarm History icon to be navigated to Alarm History Screen. Once all faults have been reset, return to the Home screen.

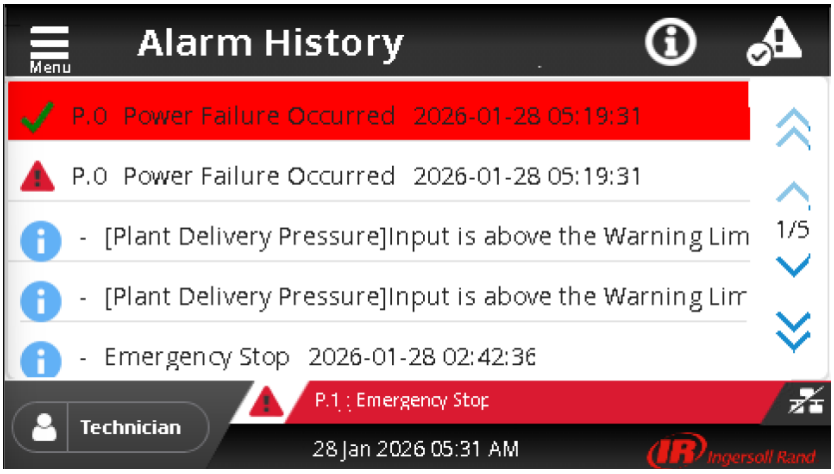

Figure 44: Alarm History Screen

5.5.1. Alarm Info

The Controller provides an interface to see the parameters of the machine at the time of an event. This is recorded in the Alarm Info. The Alarm info can be opened by selecting the event for which alarm info is to be opened for and tapping the icon. The Alarm info screen contains details of The Alarm Code, Alarm Name , Timestamp of the event, Status of Ios at the instant of event, Machine State, Running & Loaded Hours, Load & Unload Pressure. Alarm Infor can be seen on both Active Alarms page as well as Alarm History Page.

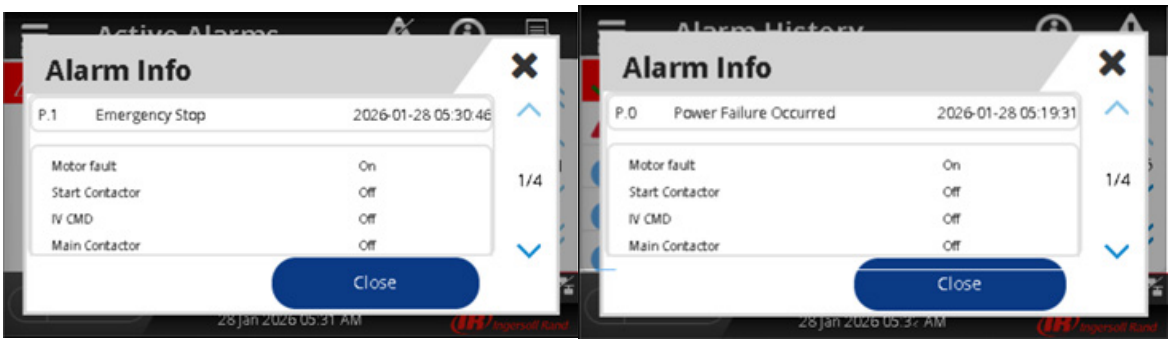

Figure 45: **Alarm Info**

5.6. Diagnostics

The Diagnostics module provides technicians and authorized users with tools to monitor, validate, and maintain controller performance. It supports system integrity, operational continuity, and compliance with industrial standards across edge and integrated environments.

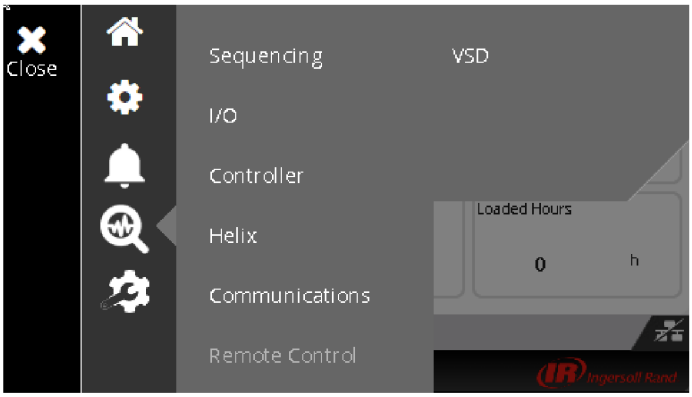

Figure 46: Diagnostics Menu

5.6.1. Diagnostics -> Communications

The Communications page under Diagnostics provides visibility into how the controller exchanges data with connected devices and networks. It is primarily used to verify connectivity, troubleshoot issues, and ensure stable communication paths.

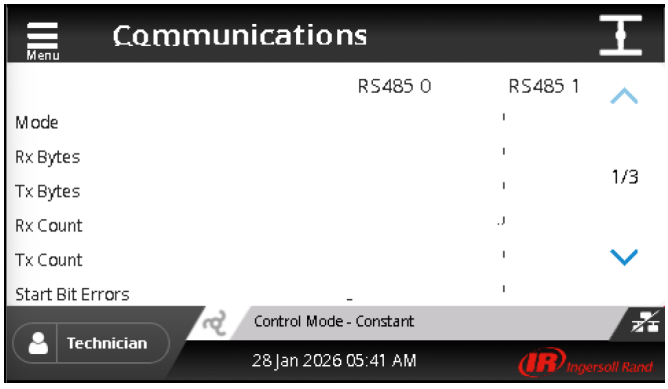

Figure 47: Communications Page

Table 11: Available Fields

Element Name	User	Maint	Tech	Factory
Mode	R	R	R	R
Rx Bytes	R	R	R	R
Tx Bytes	R	R	R	R
Rx Count	R	R	R	R
Tx Count	R	R	R	R
Start Bit Errors	NA	NA	R	R
Stop Bit Errors	NA	NA	R	R
Parity Errors	NA	NA	R	R
Overrun Errors	NA	NA	R	R
Semaphore Errors	NA	NA	R	R
DV Read Errors1	NA	NA	R	R
DV Read Errors2	NA	NA	R	R
DV Write Errors	NA	NA	R	R
Framing Errors	NA	NA	R	R
Bad Responses	NA	NA	R	R
Unsupported Msgs	NA	NA	R	R
Timeouts	NA	NA	R	R

5.6.2. Diagnostics -> Controller -> General

The General section under Diagnostics → Controller provides a high level overview of the controller's identity. It is primarily used for quick reference and troubleshooting.

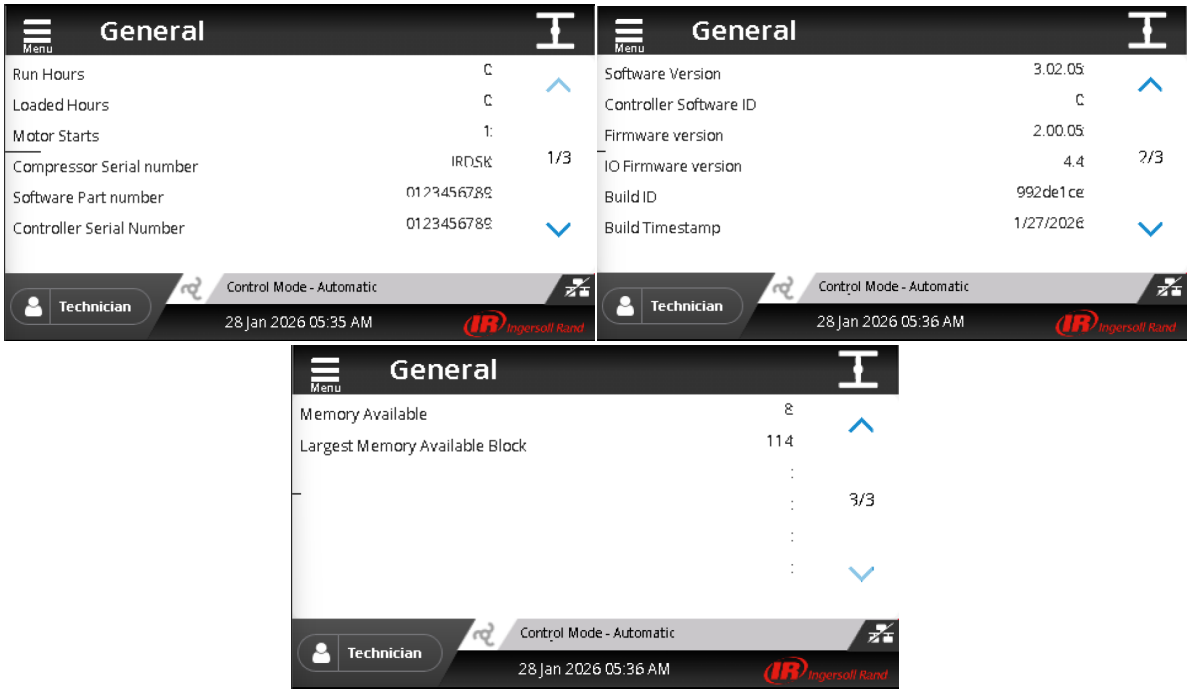

Fig 48: General page

Table 12: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Total Hours Run	Displays total runtime hours of the compressor.	R	R	R	R
Total Hours Loaded	Displays total hours the compressor has operated under load.	R	R	R	R
Total Motor Starts	Displays total number of motor start events.	R	R	R	R
Compressor Serial Number	Displays the serial number of the compressor.	R	R	R	R
CCN	Displays the compressor control number.	R	R	R	R
Controller Serial Number	Displays the serial number of the controller.	R	R	R	R
Software Version	Displays the installed software version.	R	R	R	R
Controller Software ID	Displays the software ID of the controller.	R	R	R	R
Firmware Version	Displays the firmware version of the controller.	R	R	R	R
IO Firmware Version	Displays the firmware version of the IO module.	R	R	R	R
Build ID	Displays the build identifier of the software.	R	R	R	R
Build Timestamp	Displays the timestamp of the software build.	R	R	R	R
Memory Available	Displays total available memory in the system.	R	R	R	R
Largest Memory Block	Displays the size of the largest available memory block.	R	R	R	R

5.6.3. Diagnostics -> Controller -> Logs

The Logs page under Diagnostics → Controller provides access to the controller's internal event history. This section is essential for maintenance, troubleshooting, and audit purposes.

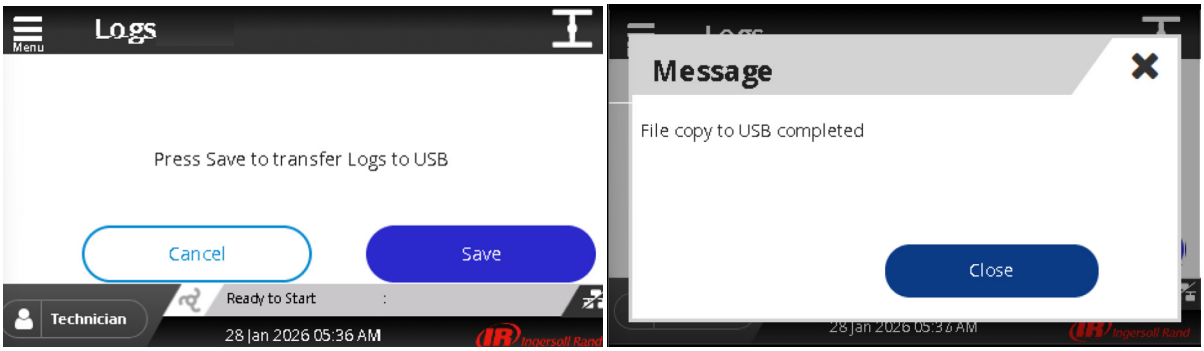

Fig 49: Logs

- When logged in as User:
  - The "Save" button is not displayed.
- When logged in as Maint, Tech, or Factory:
  - The "Save" button is active and functional.
  - Changes are validated and committed upon confirmation.

5.6.4. Diagnostics -> Controller -> Update Software

This function enables authorized users to update the controller software via a USB interface. It ensures the system operates with the latest validated firmware, addressing performance enhancements, security patches, and regulatory compliance updates.

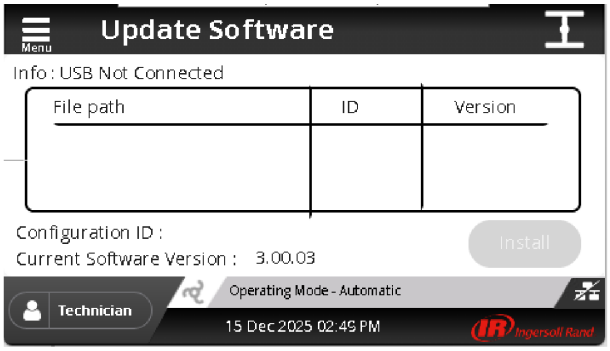

Figure 50: Update Software

The **Install** option is governed by two conditions to ensure safe and valid software updates:

- **USB Connection Required** : The system must detect a connected USB device. If no USB is present, the interface will display a message such as “USB Not Connected” and the Install button will remain disabled.
- **Valid Package File Available** : A compatible update package must be present on the USB. Once detected, the system will populate the file path, ID, and version fields. Only then will the Install button become active.

5.6.5. Diagnostics -> Controller -> Audit

The Audit function provides a chronological log of configuration changes and user actions performed on the controller. It supports traceability, accountability, and compliance with operational and cybersecurity standards.

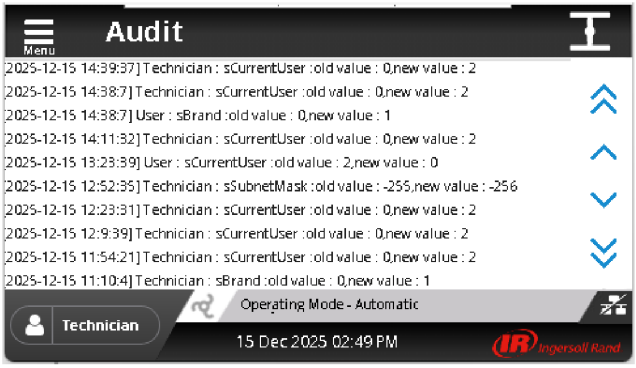

Figure 51: Audit Logs

5.6.6. Diagnostics -> Controller -> Screen Calibration

The Screen Calibration function ensures accurate touch response across the device’s touchscreen interface. It is essential for maintaining usability, especially in environments where precision input is critical for operational control.

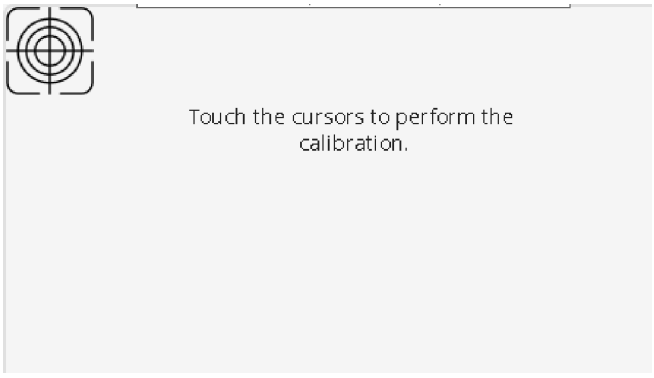

Figure 52: Screen Calibration

To ensure accurate touch input detection, the calibration process requires direct interaction with the on-screen cursor.

Calibration Procedure

- A target cursor (crosshair with concentric circles) will appear sequentially at different locations on the screen.
- The user must tap precisely at the center of each cursor as it appears.
- This step must be repeated for all cursor positions to complete the calibration successfully.

Completion Criteria

- Calibration is considered complete only after all designated cursor points have been accurately touched.
- If the user misses or taps outside the center, the system may prompt to retry or restart the calibration sequence.

5.6.7. Diagnostics -> iConn

The iConn diagnostics interface provides visibility into the device's remote connectivity status, enabling technicians to monitor modem, cellular, and network parameters. It supports proactive maintenance, remote monitoring, and integration with cloud-based analytics platforms.

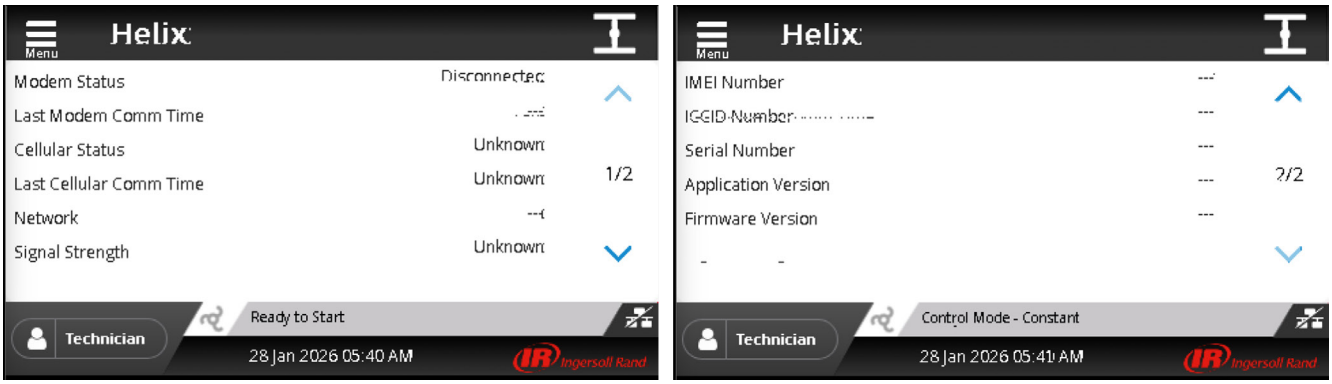

Figure 53: iConn

Table 13: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Modem Status	Displays current status of the modem.	R	R	R	R
Last Modem Comm Time	Shows timestamp of last successful modem communication.	R	R	R	R
Cellular Status	Indicates current cellular connection status.	R	R	R	R
Last Cellular Comm Time	Shows timestamp of last cellular communication.	R	R	R	R
Network	Displays current network type and connection status (e.g., 4G/LTE).	R	R	R	R
Signal Strength	Indicates strength of the cellular signal.	R	R	R	R
IMEI Number	Displays the device's IMEI identifier.	R	R	R	R
ICCID Number	Displays the SIM card's ICCID identifier.	R	R	R	R
Serial Number	Displays the serial number of the iConn module.	R	R	R	R
Application Version	Displays the installed application version.	R	R	R	R
Firmware Version	Displays the firmware version of the iConn module.	R	R	R	R

5.6.8. Diagnostics -> IO

5.6.8.1. Digital Inputs

This interface provides real-time visibility into the status of digital input channels connected to the controller. It supports monitoring, troubleshooting, and validation of external signals such as sensors, switches, and interlocks.

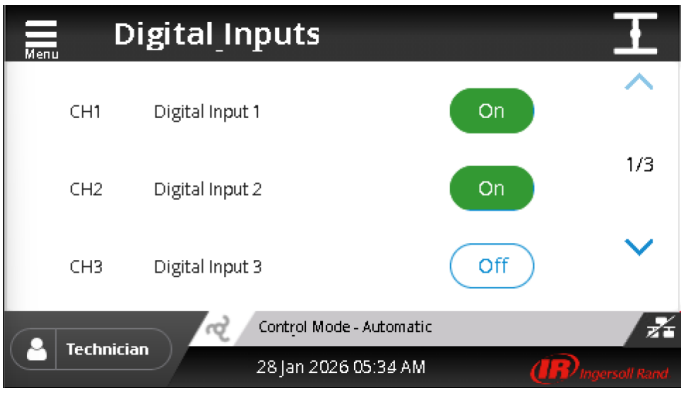

Figure 54: Digital Inputs Page

5.6.8.2. Digital Outputs

This interface allows technicians to monitor and validate the status of digital output channels. It supports functional testing, output verification, and manual override (forcing) when permitted.

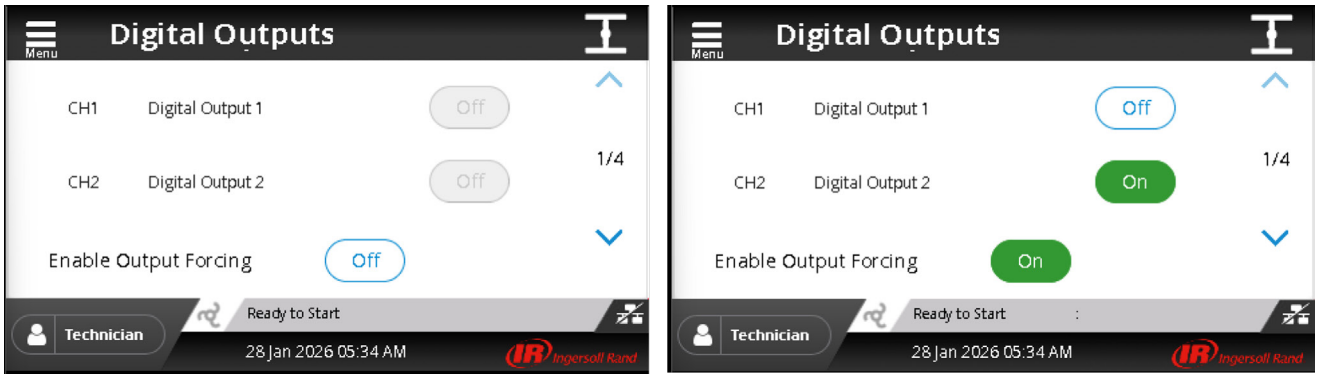

Figure 55: Digital Outputs Page

5.6.8.3. Pressure Inputs

This interface enables technicians to monitor real-time pressure sensor data across multiple input channels. It supports calibration verification, sensor health checks, and system diagnostics in environments where pressure feedback is critical to operation.

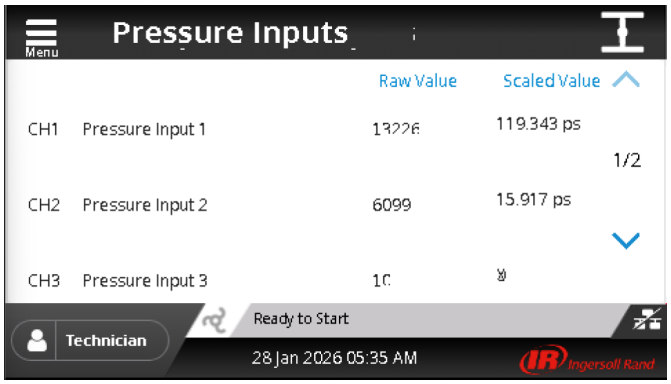

Figure 56: Pressure Inputs Page

5.6.8.4. Temperature Inputs

This interface allows technicians to monitor real-time temperature sensor data across multiple input channels. It supports calibration verification, fault detection, and system diagnostics in environments where thermal feedback is critical to performance and safety.

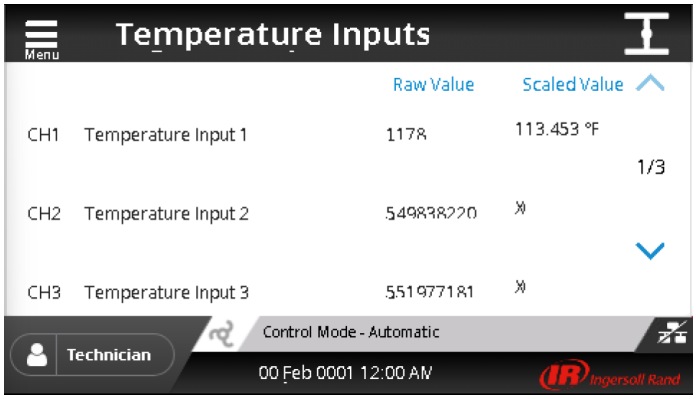

Figure 57: Temperature Inputs Page

Table 14: Available Fields

Element Name	User	Maint	Tech	Factory
DI Channel No (All Channels)	R	R	R	R
DI Input Name (All Channels)	R	R	R	R
DI Status (All Channels)	R	R	R	R
DO Channel No (All Channels)	R	R	RW	RW
DO Output Name (All Channels)	R	R	RW	RW
DO Status (All Channels)	R	R	RW	RW
Enable Output Forcing	R	R	RW	RW
AI Press Channel No (All Channels)	R	R	R	R
AI Press Input Name (All Channels)	R	R	R	R
AI Press Raw Value (All Channels)	R	R	R	R
AI Press Scaled Value (All Channels)	R	R	R	R
AI Temp Channel No (All Channels)	R	R	R	R
AI Temp Input Name (All Channels)	R	R	R	R
AI Temp Raw Value (All Channels)	R	R	R	R
AI Temp Scaled Value (All Channels)	R	R	R	R

5.6.9. Diagnostics -> VSD

The Controller provides VFD Diagnostics screens to monitor the VFD parameters and also ability to read / write specific registers on the VFD Modbus table.

Parameter List :

The Parameter list screen provides a Static list of parameters with Live Status from the drive displayed on the screen showing the Motor Status , Run Hours, Frequency at which the motor is running at, the Calculated min & Max Frequencies on the Speed table & motor parameters read from the Drive.

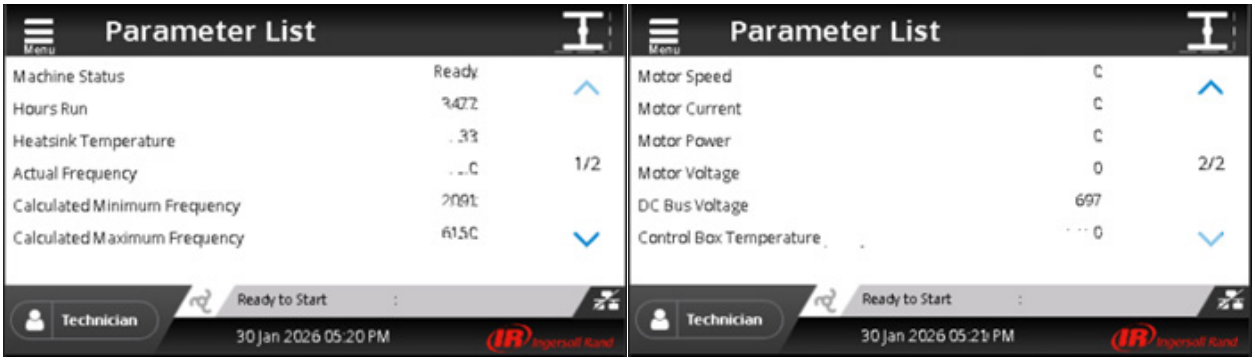

Figure 58: Parameter List

Table 15: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Machine Status	Provides the Machine status – Ready, Faulted, Running	H	H	R	R
Hours Run	Provides the Run hours of the machine.	H	H	R	R
Heatsink Temperature	Provides the Heatsink Temperature read from the VFD.	H	H	R	R
Actual Frequency	Provides the Frequency at which the Drive is running the motor as read from the VFD.	H	H	R	R
Calculated Minimum Frequency	Provides the Calculated Minimum frequency sent to the VFD from the speed table.	H	H	R	R
Calculated Maximum Frequency	Provides the Calculated Maximum frequency sent to the VFD from the speed table.	H	H	R	R
Motor Speed	Provides the Motor speed in RPM at which the motor is running at as read from the VFD.	H	H	R	R
Motor Current	Provides the Motor Current in A that the motor is drawing as read from the VFD.	H	H	R	R
Motor Power	Provides the Motor Power in kw as read from the VFD.	H	H	R	R
Motor Voltage	Provides the Voltage the motor is seeing as read from the VFD.	H	H	R	R
DC Bus Voltage	Provides the DC Bus voltage the Drive is measuring as read from the VFD.	H	H	R	R
Control Box Temperature	Provides the Control Box Temperature the Drive is measuring as read from the VFD.	H	H	R	R

RW Register :

The Controller provides an interface to Read / Write a specific Modbus Register on the CFD Modbus table. The interface allows both read and write (Not simultaneously). The Read button reads the Register address from the VFD Modbus table entered in the Register ID field and provides the value received as response in the Data Value field. The Write Button Writes the Value entered in the Data Value field to the Register address entered in the Register ID field.

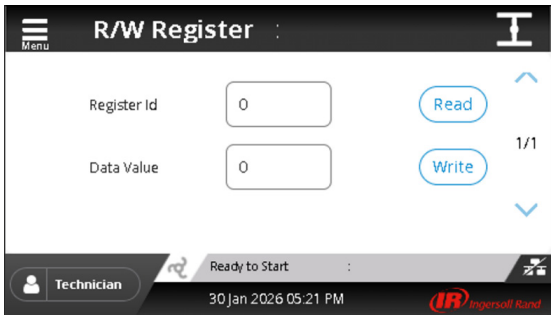

Figure 59: RW Register

Table 16: Available Fields

Page	Element Name	User	Maint	Tech	Factory
General	Total Hours Run	R	R	R	R
General	Total Hours Loaded	R	R	R	R
General	Total Motor Starts	R	R	R	R
General	Compressor Serial Number	R	R	R	R
General	CCN	R	R	R	R
General	Controller Serial Number	R	R	R	R
General	Software Version	R	R	R	R
General	Controller Software ID	R	R	R	R
General	Firmware Version	R	R	R	R
General	IO Firmware Version	R	R	R	R
General	Build ID	R	R	R	R
General	Build Timestamp	R	R	R	R
General	Memory Available	R	R	R	R
General	Largest Memory Available Block	R	R	R	R
Update Software	USB Info	R	R	R	R
Update Software	Configuration ID	R	R	R	R
Update Software	Current Software version	R	R	R	R
Update Software	File Path	R	R	R	R
Update Software	ID	R	R	R	R
Update Software	Version	R	R	R	R
Update Software	Install	R	R	RW	RW
RW Register	Register ID	R	R	RW	RW
RW Register	Data Value	R	R	RW	RW
RW Register	Read Button	R	R	RW	RW
RW Register	Write Button	R	R	RW	RW
Parameter List	Complete VSD RUN time Parameters	R	R	RW	RW

5.6.10. Diagnostics -> Commissioning (only for FS)

If this is the first time that the machine has been started after being connected to power, the motors must be jogged to verify correct rotation. To do this, you must be logged in as a Technician. After logging in, navigate to **Diagnostics > Commissioning**. The Commissioning screen is shown in **Figure 60**.

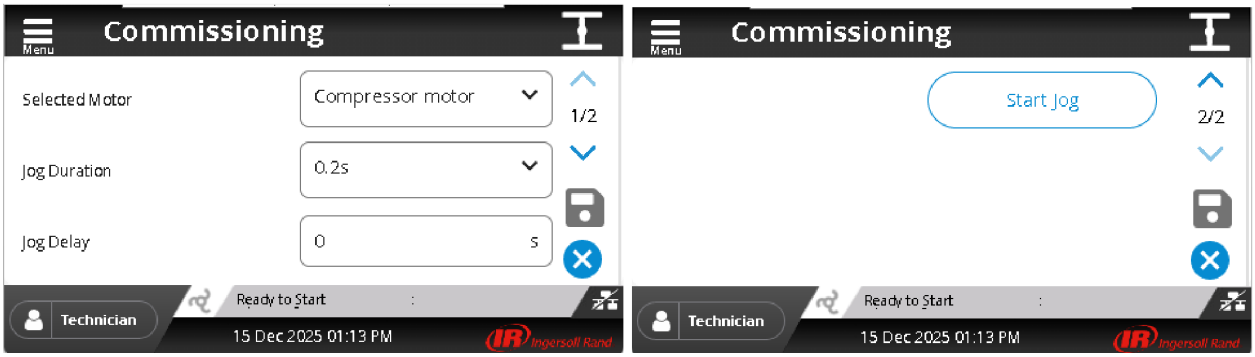

Figure 60: Commissioning Page

Commissiong screen is designed to test jogging of both Main Compressor motor as well as Blower Motor (If present on the machine). Select the desired Motor to jog, jog duration from the dropdown as shown. You will need to jog both individually to verify correct rotation. The Jog Delay field allows you to delay the start of the jog from the time that you press the **Start Jog** button. This is to allow you time to get into a position to view the rotation before the motor is started. Note that the controller will only allow one jog every 10 seconds and will disable the **Start Jog** button during this time period.

After correct rotation has been verified, return to the Home screen and proceed to operate the compressor.

Table 17: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Select Motor	This setting is selection for the motor that is to be jogged. If Compressor motor is selected here ,the Jog will be executed on Compressor Motor and if Blower Motor is selected (IF APPLICABLE) , the jog will be executed on blower motor.	R	RW	RW	RW
Jog Duration	This setting is used to define the time for which the motor needs to be jogged. This is the duration of the jog.	R	RW	RW	RW
Jog Delay	This setting is used to define a time delay from issuing a start Jog command before the motor is actually jogged. This is to allow some time to the technician to get in a position to visually verify the direction.	R	RW	RW	RW
Start Jog	This button is used to issue a Jog command.	R	RW	RW	RW

5.7. Service

5.7.1. Service -> Dashboard

The Service Dashboard provides a centralized view of upcoming maintenance schedules, enabling technicians to plan service interventions proactively. It supports lifecycle management, uptime optimization, and compliance with preventive maintenance protocols.

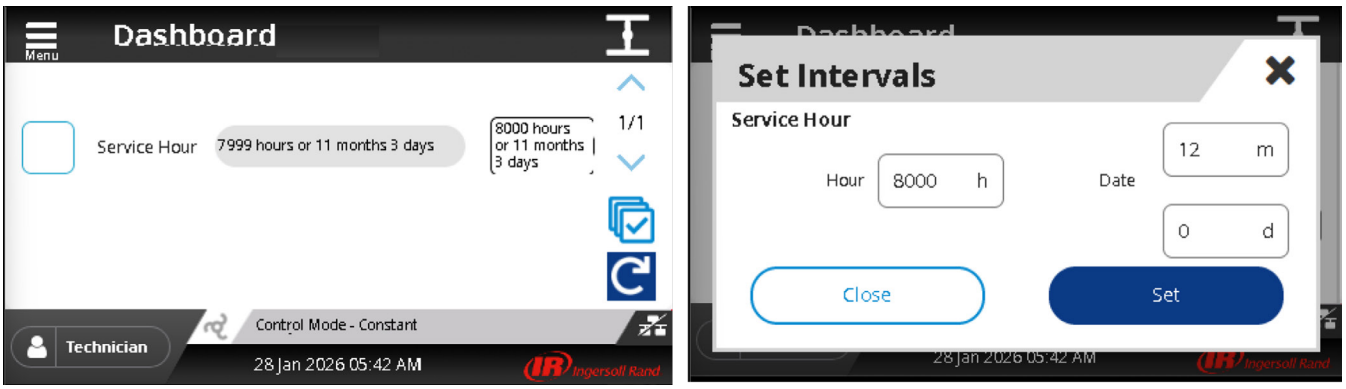

Figure 61: Service Dashboard

5.7.2. Service -> Distributor Info

The Distributor Info interface allows technicians and service personnel to store and access contact details for authorized distributors. This supports streamlined communication, warranty coordination, and regional service compliance.

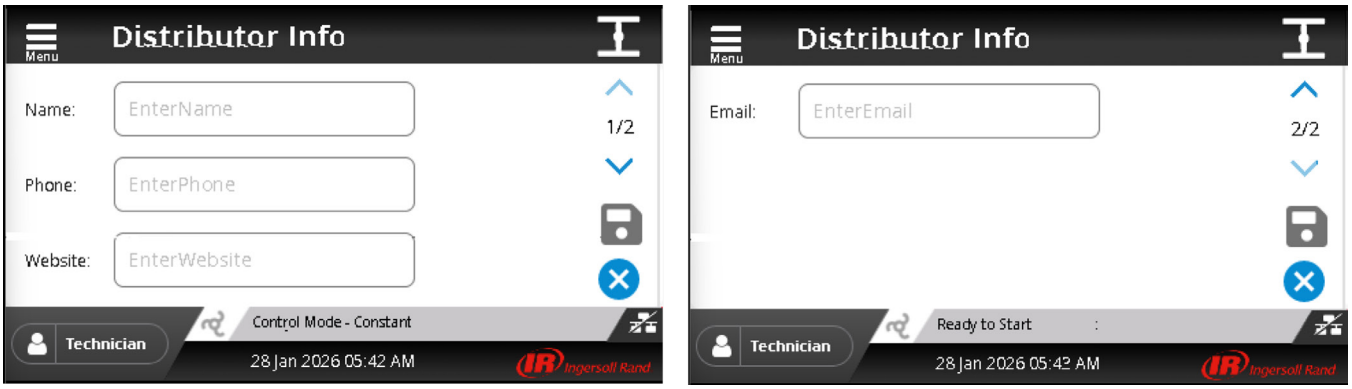

Figure 62: Distributor Information Page

Table 18: Available Fields

Element Name	Description	User	Maint	Tech	Factory
Distributor Name	Field to enter the distributor's name.	R	RW	RW	RW
Distributor Phone	Field to enter the distributor's contact number.	R	RW	RW	RW
Distributor Website	Field to enter the distributor's website URL.	R	RW	RW	RW
Email	Field to enter the distributor's email ID.	R	RW	RW	RW
Save Function	Commits entered distributor info to system memory.	R	R	RW	RW

EN

5.7.3. Service -> Counters

The Counters interface tracks key operational metrics that influence service intervals, component wear, and system lifecycle thresholds. It helps technicians monitor usage against predefined limits and plan maintenance proactively.

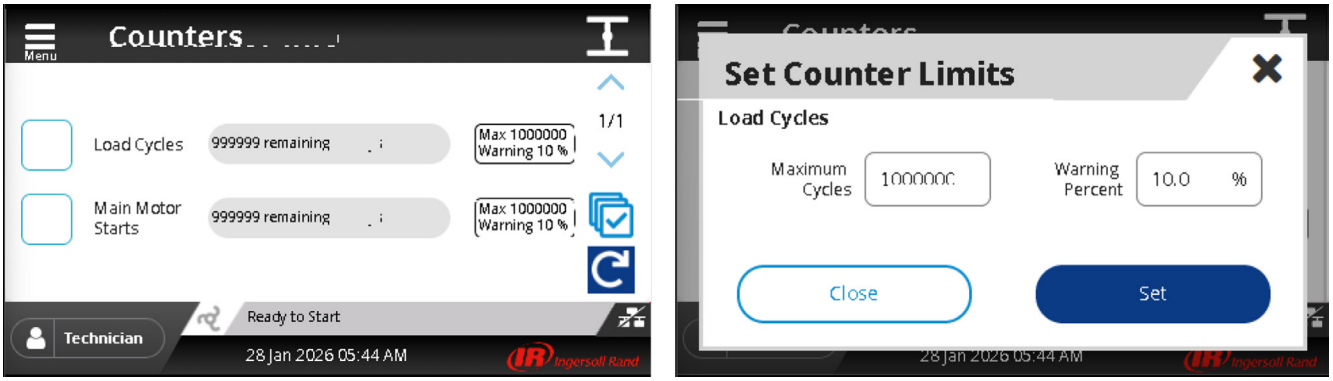

Figure 63: Counters

Table 19: Available Fields

Page	Description	User	Maint	Tech	Factory
Counters	Load Cycles	R	R	RW	RW
Counters	Main Motor Starts	R	R	RW	RW
Dashboard	Service Hours	R	R	RW	RW

SECTION 6
MODBUS

All Modbus data points and registers are specific to the compressor model and configuration. The available parameters, register mappings, and supported functions are defined in the Modbus Manual provided for the compressor.

Key Notes:

- **Data Scope**: Only the registers documented in the compressor's Modbus Manual will be accessible.
- **Model Dependency**: Different compressor models may expose different sets of Modbus registers.
- **Reference Requirement**: Technicians must consult the **Modbus Manual** for the exact register list, scaling factors, and communication details.
- **Compliance**: Integration or monitoring systems should be validated against the manual to ensure correct data interpretation.