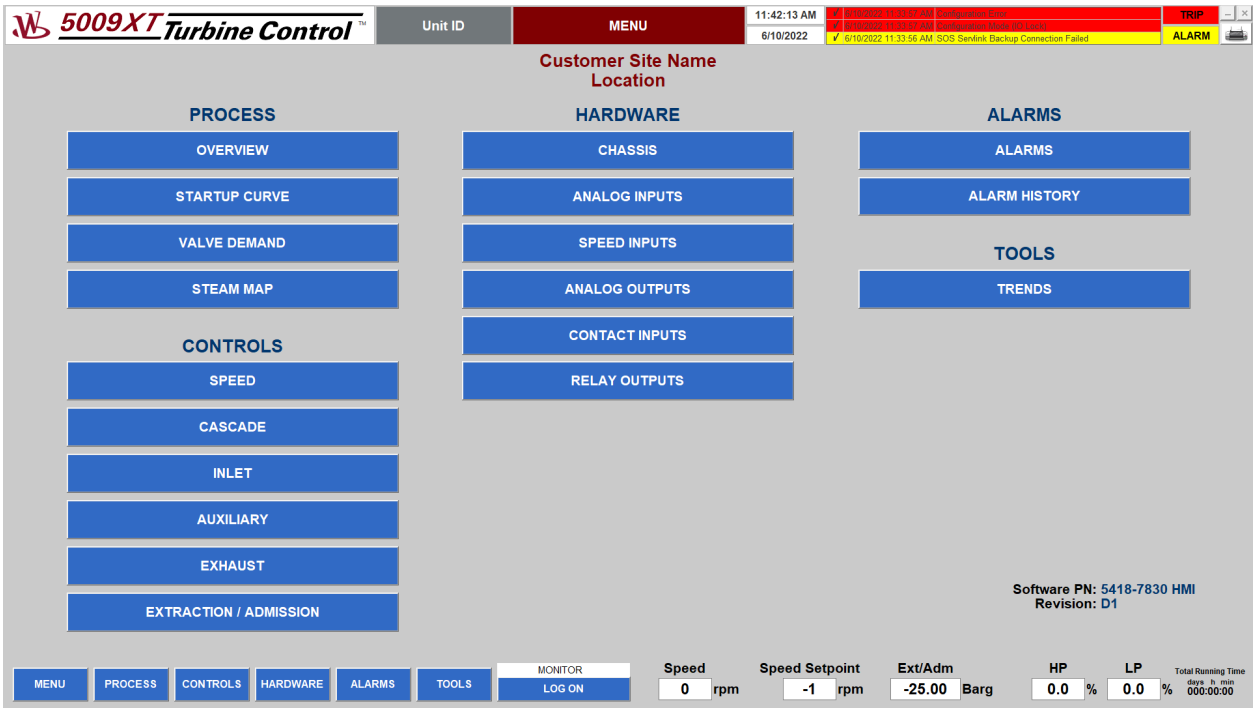
Released

Product Manual 35135V3
(Revision -, 8/2022)
Original Instructions



5009XT Digital Fault Tolerant Control for Steam Turbines (Single Valve, Extraction and/or Admission)

HMI Interface Manual Volume 3

Manual 35135 consists of three volumes (35135V1, 35135V2, 35135V3)

General Precautions

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment.

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.

Revisions

This publication may have been revised or updated since this copy was produced. To verify that you have the latest revision, check manual 26455, *Customer Publication Cross Reference and Revision Status & Distribution Restrictions*, on the *publications page* of the Woodward website:

www.woodward.com/publications

The latest version of most publications is available on the *publications page*. If your publication is not there, please contact your customer service representative to get the latest copy.

Proper Use

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

Translated Publications

If the cover of this publication states "Translation of the Original Instructions" please note:

The original source of this publication may have been updated since this translation was made. Be sure to check manual 26455, *Customer Publication Cross Reference and Revision Status & Distribution Restrictions*, to verify whether this translation is up to date. Out-of-date translations are marked with ⚠. Always compare with the original for technical specifications and for proper and safe installation and operation procedures.

Revisions— A bold, black line alongside the text identifies changes in this publication since the last revision.

Woodward reserves the right to update any portion of this publication at any time. Information provided by Woodward is believed to be correct and reliable. However, no responsibility is assumed by Woodward unless otherwise expressly undertaken.

Manual 35135V2
Copyright © Woodward, Inc. 2019 - 2022
All Rights Reserved

Released

Contents

WARNINGS AND NOTICES **4**

CHAPTER 1. HMI DESCRIPTION **5**

CHAPTER 2. HMI SCREEN AREAS AND NAVIGATION **6**
Screen Areas 6
Navigation 7
Button Colors 7
ANALOG AND CONTROL POP-UPS 8

CHAPTER 3. HMI DEFAULT CREDENTIALS **11**

CHAPTER 4. HMI SCREENS **12**
MENU 12
OVERVIEW 13
TURBINE STARTUP 14
VALVE DEMAND 15
STEAM MAP 17
SPEED CONTROL 19
CASCADE CONTROL 21
INLET CONTROL 22
AUXILIARY CONTROL 23
EXHAUST CONTROL 24
EXTRACTION/ADMISSION CONTROL 25
MicroNet TMR CHASSIS 26
ANALOG INPUTS 27
SPEED INPUTS 28
ANALOG OUTPUTS 29
CONTACT INPUTS 30
RELAY OUTPUTS 31
ACTUATOR OUTPUTS 32
ALARMS 33
ALARM HISTORY 34
TRENDS 35
TRENDS CONFIGURATION 37
CONFIGURATION 38

APPENDIX A. HMI SYSTEM REQUIREMENTS **39**

APPENDIX B. iFIX 6.1 PROFICY HMI/SCADA INSTALLATION **40**

APPENDIX C. PROFICY COMMON LICENSING 19.2 INSTALLATION **46**

APPENDIX D. 8.0 PROFICY HISTORIAN INSTALLATION **48**

APPENDIX E. 8.0 PROFICY HISTORIAN iFIX COLLECTOR INSTALLATION **53**

APPENDIX F. SERVLINK-TO OPC SERVER (SOS) TOOL **59**
SOS Communication Link 59
Installing SOS 59
Connecting a PC/Laptop to the Control 60

APPENDIX G. 5009XT HMI CONFIGURATION PROCEDURE **62**
Required Software Before HMI Configuration 62
Required Hardware Before HMI Configuration 62
HMI Application Files 62
HMI Configuration 63
First HMI Application Start 70

DECLARATIONS **75**

Released

Illustrations and Tables

Figure 2-1. HMI Screen Areas 6
Figure 2-2. HMI Navigation 7
Figure 2-3. Analog Signals Pop-ups 8
Figure 2-4. Controller Pop-up 9
Figure 2-5. Control Pop-up 10
Figure 4-1. Menu Screen 12
Figure 4-2. Overview Screen 13
Figure 4-3. Turbine Startup Screen 14
Figure 4-4. Valve Demand Screen for Single Valve Turbine 15
Figure 4-5. HP Valve Demand Screen for Extraction/Admission Turbine 16
Figure 4-6. LP Valve Demand Screen for Extraction/Admission Turbine 16
Figure 4-7. Steam Map Screen 17
Figure 4-8. Steam Map Screen with Control Mode Pop-up 18
Figure 4-9. Speed Control Screen 19
Figure 4-10. Speed Control Screen for Generator Application 20
Figure 4-11. Cascade Control Screen 21
Figure 4-12. Inlet Control Screen 22
Figure 4-13. Auxiliary Control Screen 23
Figure 4-14. Exhaust Control Screen 24
Figure 4-15. Extraction / Admission Control Screen 25
Figure 4-16. MicroNet TMR Chassis Screen 26
Figure 4-17. Analog Inputs Screen 27
Figure 4-18. Speed Inputs Screen 28
Figure 4-19. Analog Outputs Screen 29
Figure 4-20. Contact Inputs Screen 30
Figure 4-21. Relay Outputs Screen 31
Figure 4-22. Actuators Outputs Screen 32
Figure 4-23. Alarms Screen 33
Figure 4-24. Alarm History Screen 34
Figure 4-25. Trends Screen in Real Time Mode 35
Figure 4-26. Trends Screen in Historical Mode 36
Figure 4-27. Trends Configuration Screen 37
Figure 4-28. Configuration Screen 38
Figure B-1. iFIX Installation Menu Window 40
Figure B-2. Program Compatibility Assistant Window 40
Figure B-3. iFIX Installation InstallFrontEnd Window 41
Figure B-4. iFIX Installation Welcome Window 41
Figure B-5. iFIX License Agreement Window 42
Figure B-6. iFIX Setup Type Window 42
Figure B-7. iFIX Setup Choose Destination Location Window 43
Figure B-8. iFIX Setup Ready to Install the Program Window 43
Figure B-9. i iFIX Configure Wizard Window 44
Figure B-10. iFIX Setup Firewall Settings Window 44
Figure B-11. iFIX Setup Question Window 44
Figure B-12. iFIX Setup InstallShield Wizard Complete Window 45
Figure B-13. iFIX Database Dynamo Configurator Window 45
Figure C-1. Common Licensing Installation Menu Window 46
Figure C-2. Welcome to the InstallShield Wizard for Common Licensing Window 46
Figure C-3. Install USB HASP Drivers Window 47
Figure C-4. Update Complete Window 47
Figure D-1. Historian Setup Menu Window 48
Figure D-2. Historian Setup Welcome Window 48
Figure D-3. Historian Setup License Agreement Window 49
Figure D-4. Historian Setup Destination Disc Window 49
Figure D-5. Historian Setup Destination Data Folder Window 50
Figure D-6. Historian Setup UAA Configuration Window 50

Released

Figure D-7. Historian Setup Choose the Type of Install Window 51
Figure D-8. Historian Setup You are Ready to Install Window 51
Figure D-9. Historian Setup Installation Successful Window 52
Figure D-10. Historian Setup Reboot Required Window 52
Figure E-1. Historian Setup Menu Window 53
Figure E-2. Historian Collector Setup Welcome to Historian Collectors Window 53
Figure E-3. Historian Collector Setup License Agreement Window 54
Figure E-4. Historian Collector Setup Destination Disc Window 54
Figure E-5. Historian Collector Setup Destination Data Folder Window 55
Figure E-6. Historian Collector Choose the Collector(s) to Install Window 55
Figure E-7. Historian Collector Begin Configurations for iFix Collector Window 56
Figure E-8. Historian Collector Provide the Name of the Destination Server Window 56
Figure E-9. Historian Collector You are Ready to Install Window 57
Figure E-10. Historian Collector Installation Successful Window 57
Figure E-11. Historian Collector Setup Reboot Required Window 58
Figure F-1. SOS Servlink OPC Server Setup Window 59
Figure F-2. SOS Installation Successfully Completed Window 60
Figure F-3. SOS2 Server Status Window 60
Figure F-4. SOS2 – New Session Window 61
Figure F-5. SOS2 Server Status Window with Active Session 61
Figure G-1. 5009XT HMI Application Folder Localization 62
Figure G-2. iFIX Startup Window 63
Figure G-3. SCU Configuration Window 63
Figure G-4. Local Startup Definition Window 64
Figure G-5. iFIX OPC Client Server Connection Window 64
Figure G-6. OPC Power Tool Window 65
Figure G-7. OPC Power Tool Default Path 65
Figure G-8. OPC Power Tool Display Setup 66
Figure G-9. OPC Power Tool Window – Save Configuration 66
Figure G-10. SCU Configuration Window – Save Configuration 67
Figure G-11. Create Desktop Shortcut 67
Figure G-12. APPLICATION.ini File 68
Figure G-13. Show Hidden Files, Folders and Drives Option in File Explorer 68
Figure G-14. iFIX License Dongle Key 69
Figure G-14. HMI Menu Screen with Login Window 70
Figure G-15. Shrink SOS2 OPC Server SID File 71
Figure G-16. Trends Configuration Screen (Generate Tags) 71
Figure G-17. Trends Configuration Screen 72
Figure G-18. Trends on Controller Pop-ups 72
Figure G-19. Close iFIX 73

Table 2-1. Button Colors 7
Table 3-1. Default Credentials 11

Released

Warnings and Notices

Important Definitions

This is the safety alert symbol used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

- **DANGER** - Indicates a hazardous situation, which if not avoided, will result in death or serious injury.
- **WARNING** - Indicates a hazardous situation, which if not avoided, could result in death or serious injury.
- **CAUTION** - Indicates a hazardous situation, which if not avoided, could result in minor or moderate injury.
- **NOTICE** - Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT** - Designates an operating tip or maintenance suggestion.

⚠WARNING

Overspeed / Overtemperature / Overpressure

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.

⚠WARNING

Personal Protective Equipment

The products described in this publication may present risks that could lead to personal injury, loss of life, or property damage. Always wear the appropriate personal protective equipment (PPE) for the job at hand. Equipment that should be considered includes but is not limited to:

- **Eye Protection**
- **Hearing Protection**
- **Hard Hat**
- **Gloves**
- **Safety Boots**
- **Respirator**

Always read the proper Material Safety Data Sheet (MSDS) for any working fluid(s) and comply with recommended safety equipment.

⚠WARNING

Start-up

Be prepared to make an emergency shutdown when starting the engine, turbine, or other type of prime mover, to protect against runaway or overspeed with possible personal injury, loss of life, or property damage.

Released

Chapter 1.
HMI Description

The Human Machine Interface (HMI) user interface requires the Proficy iFIX application running on a computer with a Windows operating system and a full HD resolution screen (1920x1080) or full HD resolution touch screen.

HMI allows the user to:

- View operating points
- Control setpoints
- Issue control commands
- Check fully animated turbine startup curve
- Check animated valve demand logic
- Check fully animated steam map for extraction/admission turbines
- Check I/O signals
- Collect historical trends
- Collect alarms

The HMI installation procedure is described in Appendix G.

Chapter 2.
HMI Screen Areas and Navigation

Screen Areas

The HMI screen is divided into three areas: header, main screen, and footer.

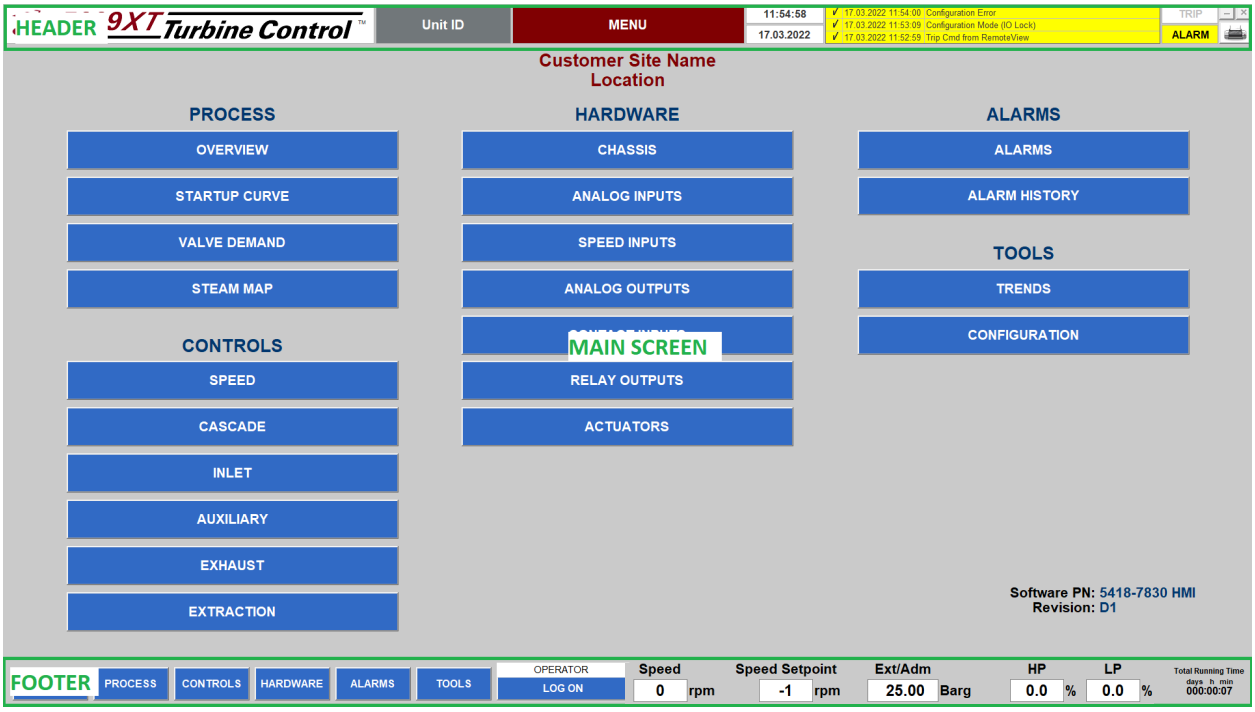


Figure 2-1. HMI Screen Areas

The header allows the user to:

- Check Unit ID
- Check main screen name
- Check date and time
- Check alarms and shutdowns
- Print screen
- Minimize HMI window (only with administrator rights)
- Close HMI application (only with administrator rights)

The main screen area displays the selected HMI screen.

The footer allows the user to:

- Navigate between HMI screens using menu buttons
- Log-in HMI user
- Check basic process values such as turbine speed, speed setpoint, and control valves demands
- Check turbine total running time

Navigation

The HMI user can navigate to all HMI screens from the menu screen or by using the navigation buttons from the footer menu.

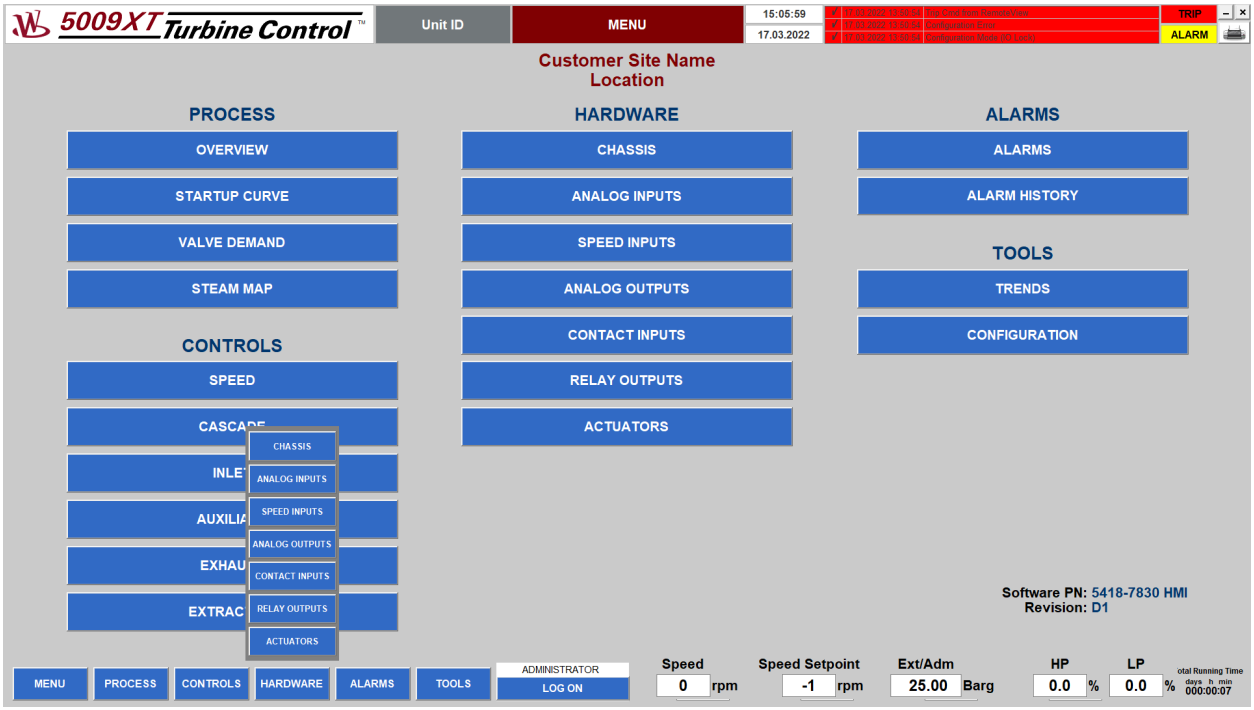


Figure 2-2. HMI Navigation

The main menu screen can be quickly displayed by pressing MENU in the footer.

Unconfigured controllers are not visible in the CONTROLS group on the menu screen. The ACTUATORS button is only visible when actuators are configured.

The footer menu displays all buttons, but unconfigured controllers and actuator buttons are disabled and grayed out.

Button Colors

Table 2-1. Button Colors

Button Type	Color	Function
Navigation		Changes MAIN SCREEN area screen
Control		Issues command to control
Pop-ups		Opens control pop-up

ANALOG AND CONTROL POP-UPS

All screens with analog indicators allow analog signals to open pop-ups that include signal trend and other detailed information (by clicking on the indicator).

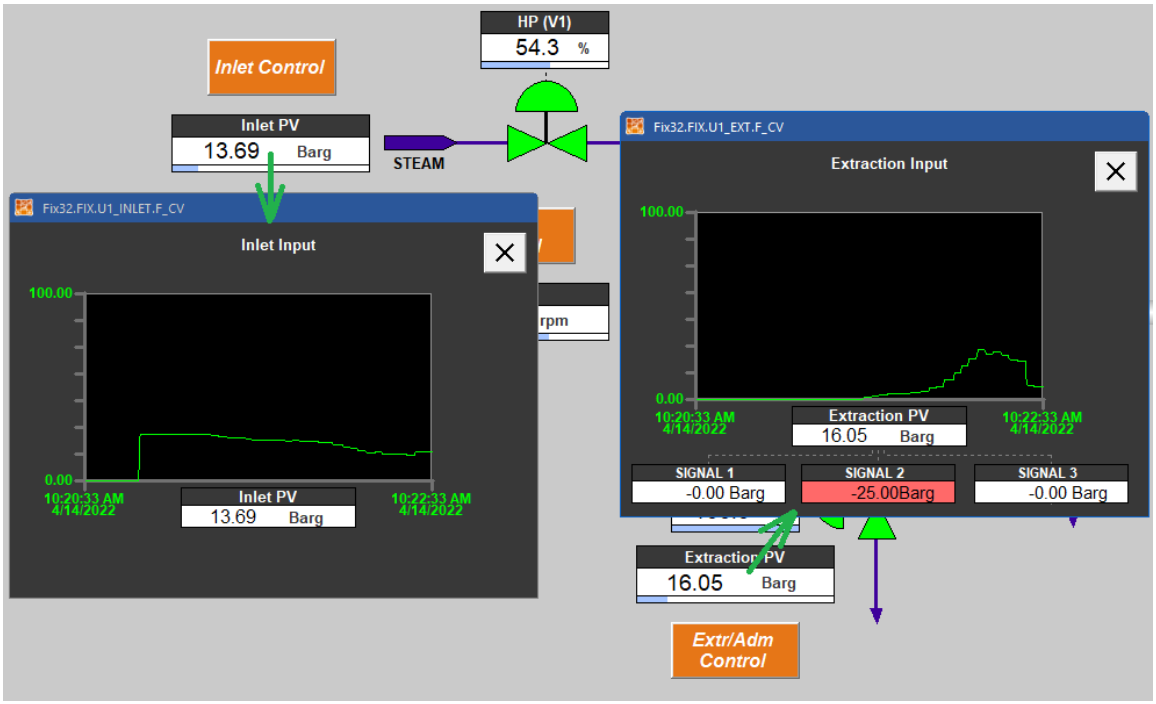


Figure 2-3. Analog Signals Pop-ups

All screens with orange buttons and “control” captions allow the user to open controller pop-ups with trends and command buttons.

Controller pop-ups allows the user to:

- Set setpoints (using Set SP button)
- Raise/lower setpoints (using buttons with triangle symbols ▲▼)
- Issue commands (using command buttons like Start, Stop, Go To Idle, Go To Rated)
- Select desired trends by clicking on trend text data line below trend chart
- Configure trends (description, range, unit) by clicking on the settings button
- Switch pop-up trends to Big Trend screen by clicking on Big Trend button
- Close pop-up by clicking on the close button

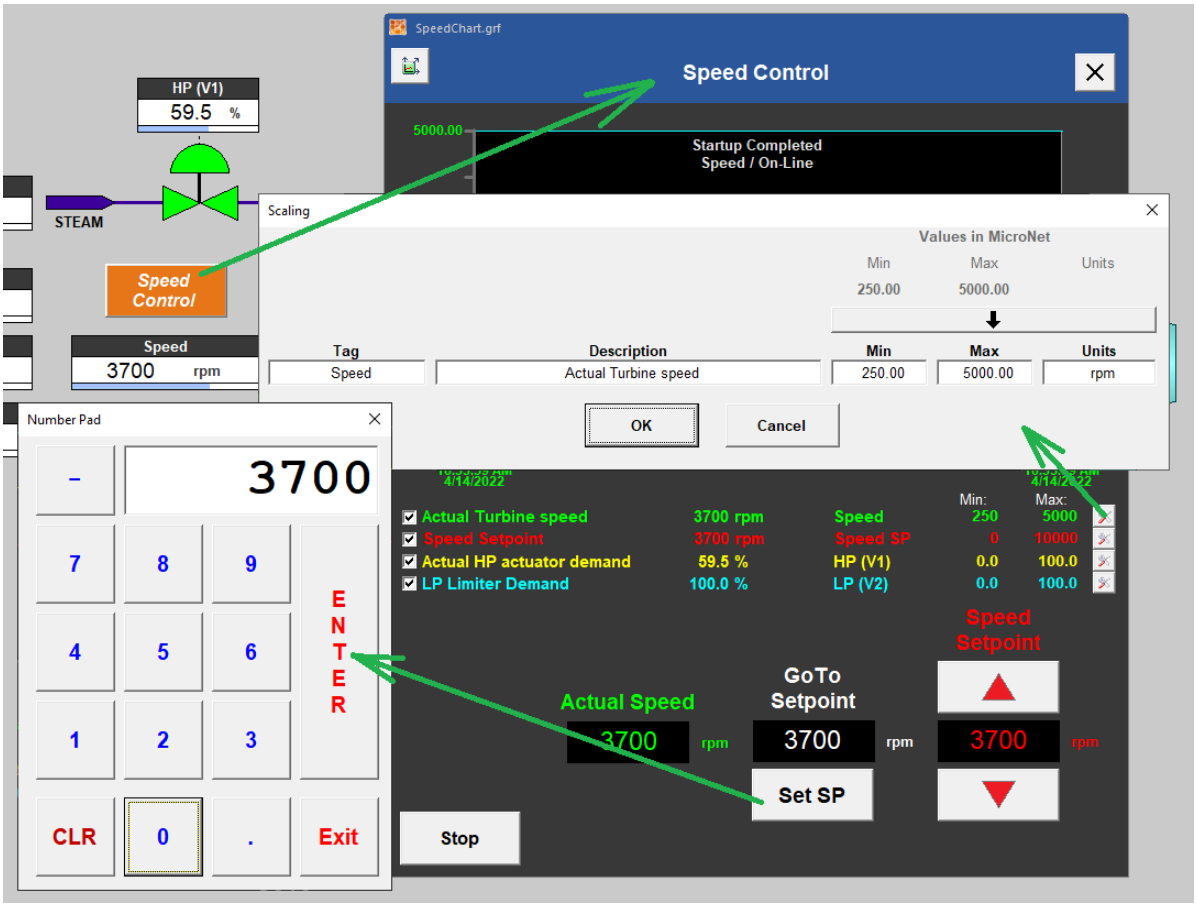


Figure 2-4. Controller Pop-up

All screens with orange buttons allow the user to open Control pop-ups with detailed data and command buttons.

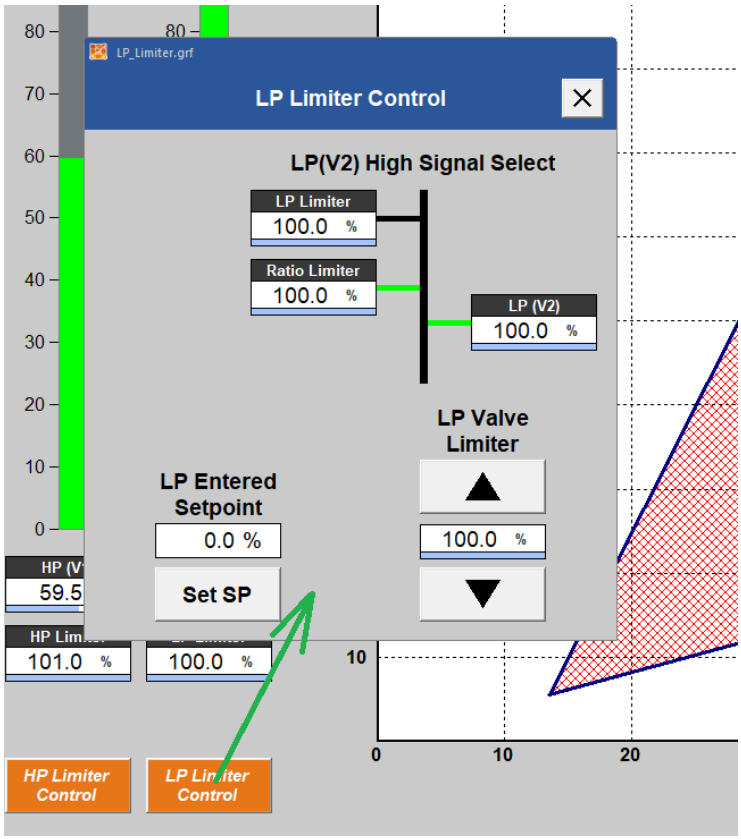


Figure 2-5. Control Pop-up

Released

Chapter 3.
HMI Default Credentials

The 5009XT HMI application has preconfigured credentials. Users from the ADMINISTRATOR group can configure new user accounts and edit existing accounts.

WOODWARD and ADMINISTRATOR accounts should only be used for HMI configuration.

User accounts should be configured in the OPERATOR group with all rights required to control turbine application.

The MONITOR account is not password protected and allows turbine monitoring only.

Table 3-1. Default Credentials

Full Name	Login Name	Password	Group	Access level	Description
WOODWARD	WW	ww1	ADMINISTRATORS	8	Full rights with additional options on configuration screen
ADMINISTRATOR	ADMIN	1113	ADMINISTRATORS	8	Full rights with user configuration
ENGINEER	ENGINR	1112	SUPERVISORS	5	Elevated rights
OPERATOR	OPER	1111	OPERATOR	3	Unit control rights
MONITOR	MONIT		MONITOR	1	Only monitoring (no password)

Chapter 4.
HMI Screens

MENU

The MENU screen contains navigation buttons to all HMI screens.

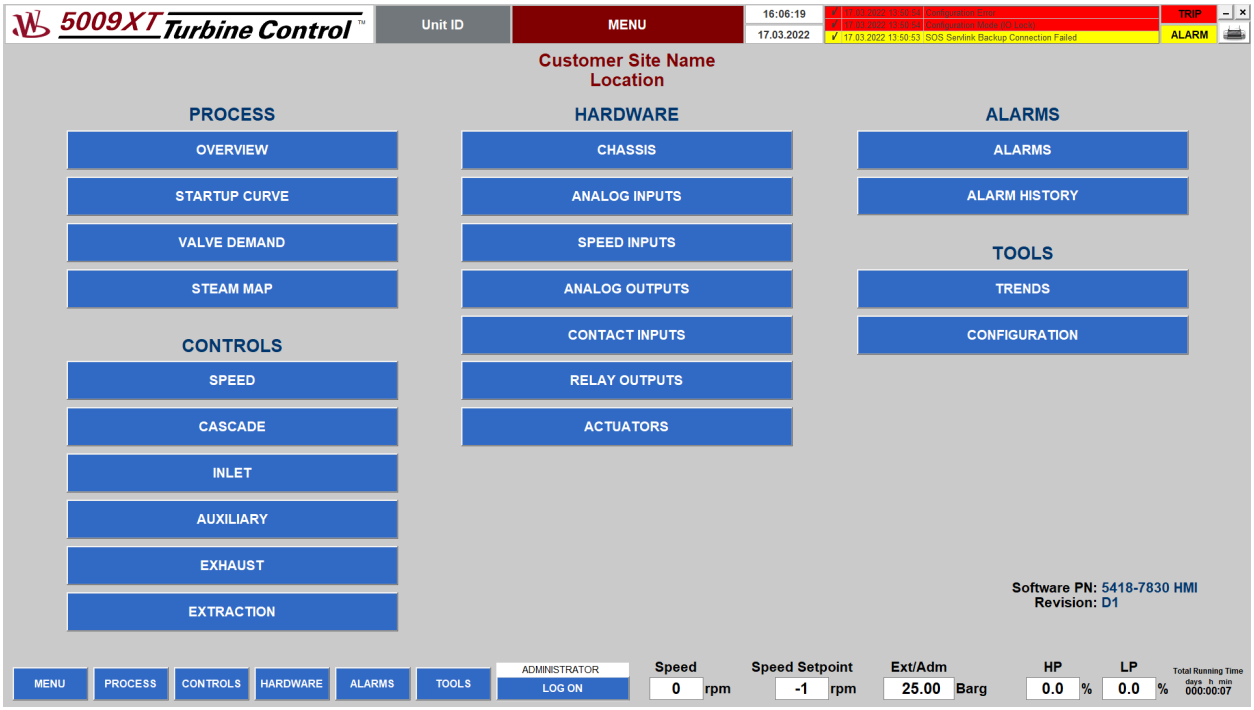


Figure 4-1. Menu Screen

The main menu screen can be quickly displayed by pressing the MENU button from the footer. Unconfigured controllers are not visible in the CONTROLS group on the menu screen. The ACTUATORS button is only visible when actuators are configured.

OVERVIEW

The OVERVIEW screen shows a simplified turbine unit layout with basic signals and controller buttons based on unit configuration.

The OVERVIEW screen allows the user to:

- Check basic process signals
- Check valves state
- Check generator and breakers state (for generator applications)
- Open controllers' pop-ups (orange buttons)
- Start/stop controlled unit
- Reset controlled unit

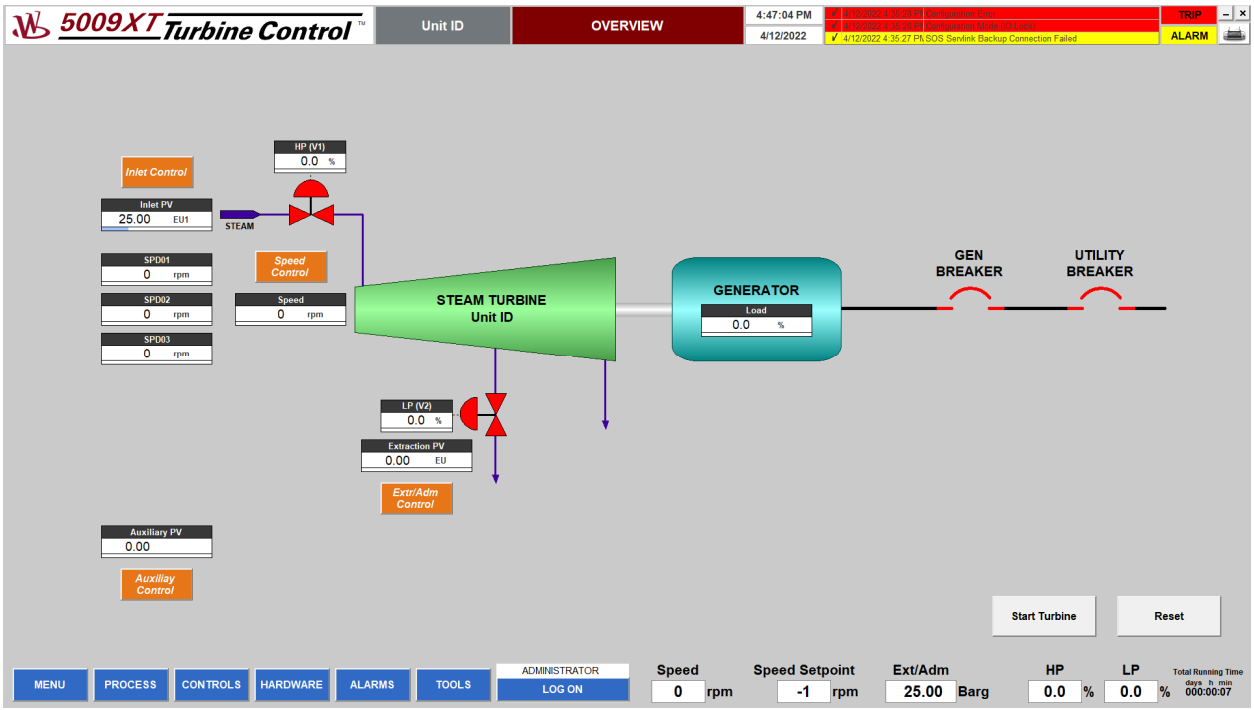


Figure 4-2. Overview Screen

TURBINE STARTUP

The TURBINE STARTUP screen allows the user to:

- Check turbine startup curve shape
- Check speed levels for: Idle, Min Governor, Max Governor, Rated Speed, Overspeed, and Max Speed
- Check critical regions
- Observe turbine speed, speed rate, and speed setpoint
- Issue control commands (gray control buttons such as Start, Stop, Go To Idle, Go To Rated, Reset)
- Control speed and speed setpoint from the Speed Control pop-up
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valves limiters from limiters pop-ups
- Check idle timers
- Check hot/cold startup level.

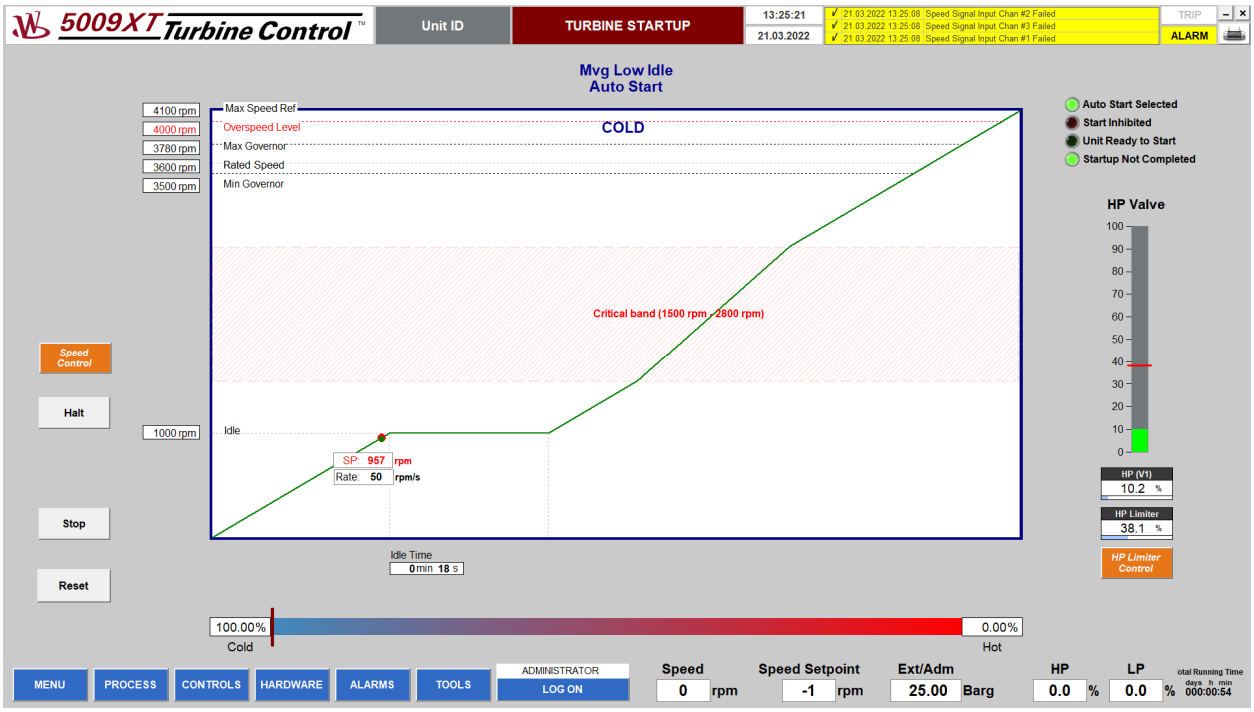


Figure 4-3. Turbine Startup Screen

Released

VALVE DEMAND

The VALVE DEMAND screen allows the user to:

- Check the flow of the control signal from the controller to the control valve
- Check control values
- Set valve limiters (using buttons with triangle symbols ▲▼)
- Enable/disable HP Manual Demand
- Set HP Manual Demand (using buttons with triangle symbols ▲▼)
- Enable/disable pre-start warmup if option is available
- Open controller pop-ups (orange buttons)

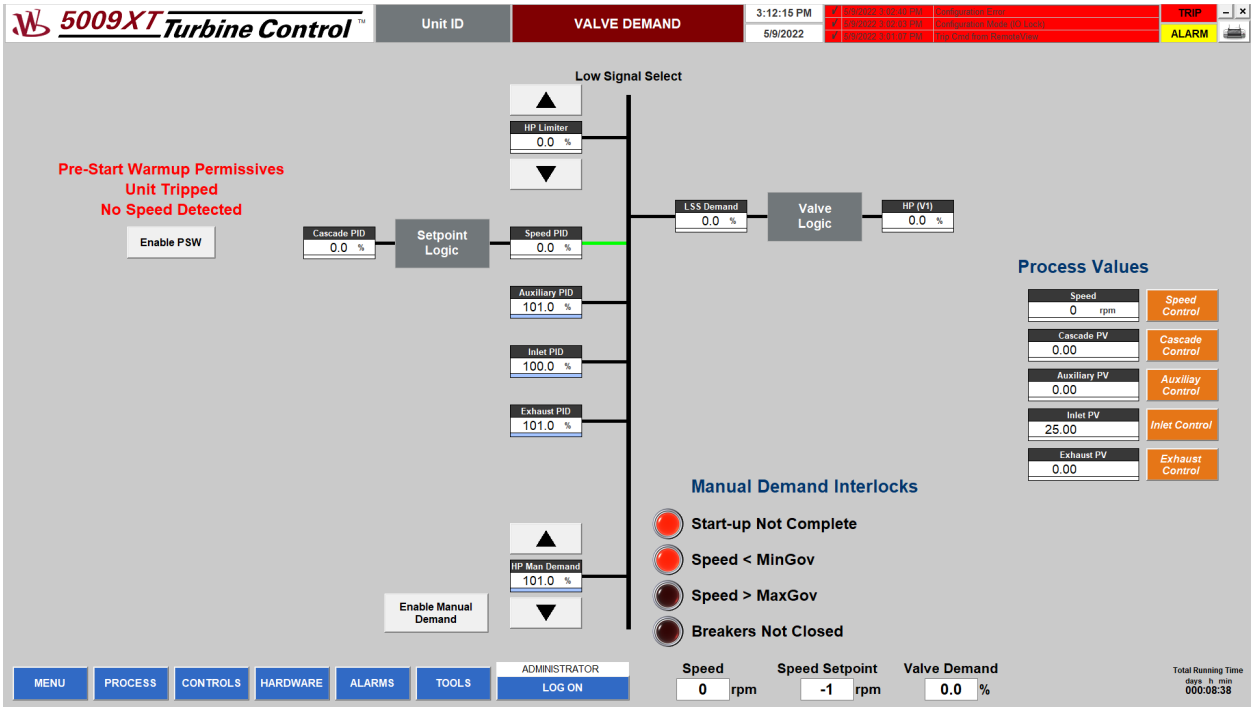


Figure 4-4. Valve Demand Screen for Single Valve Turbine

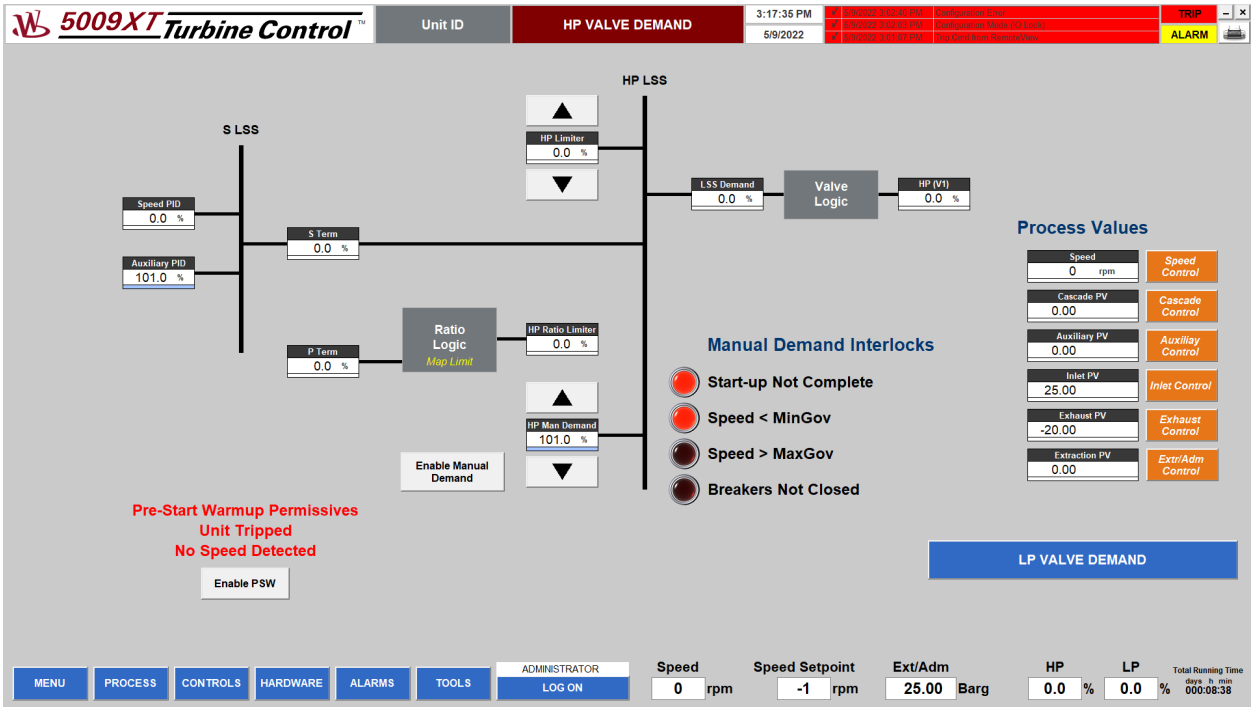


Figure 4-5. HP Valve Demand Screen for Extraction/Admission Turbine

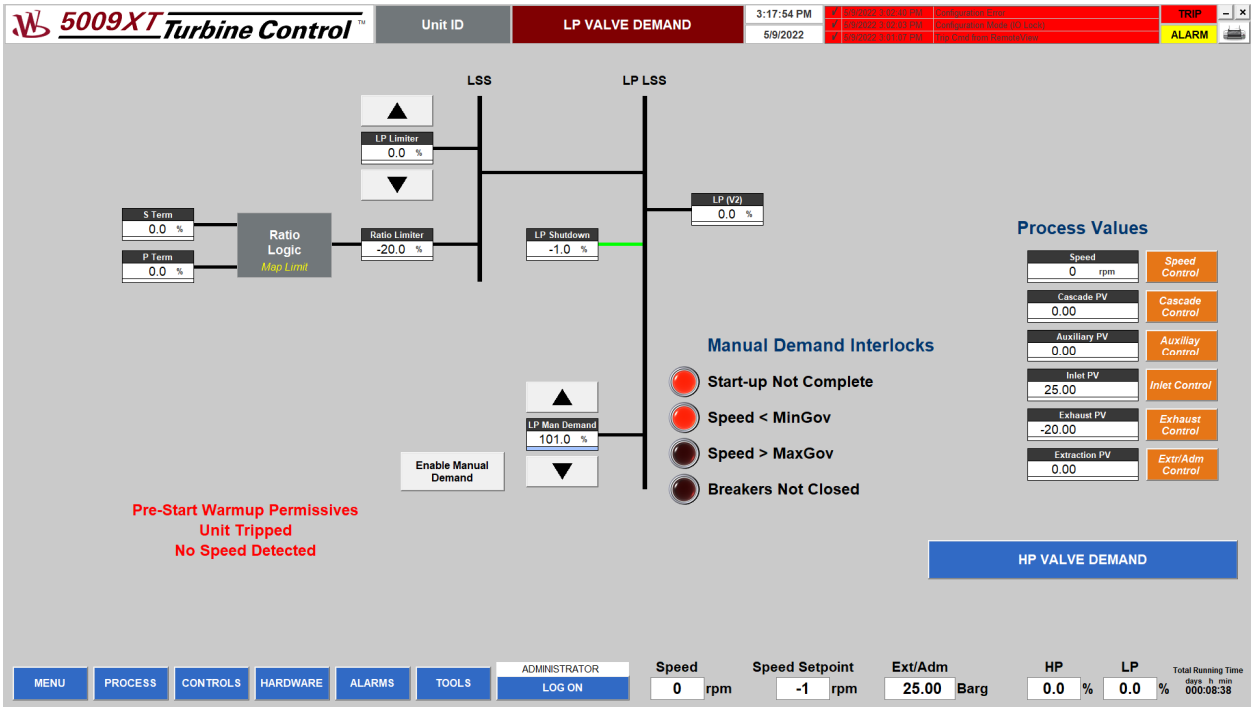


Figure 4-6. LP Valve Demand Screen for Extraction/Admission Turbine

STEAM MAP

The STEAM MAP screen allows the user to:

- Check operating point position on steam map
- Check forbidden areas (red checkered areas) determined by valve limiters
- Check if map limit is reached (LED indicator)
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from pop-ups
- Raise/lower setpoints (using buttons with triangle symbols ▲▼)
- Set control mode
- Open controller pop-ups (orange buttons)

Note: The STEAM MAP screen is only available for extraction/admission turbines.

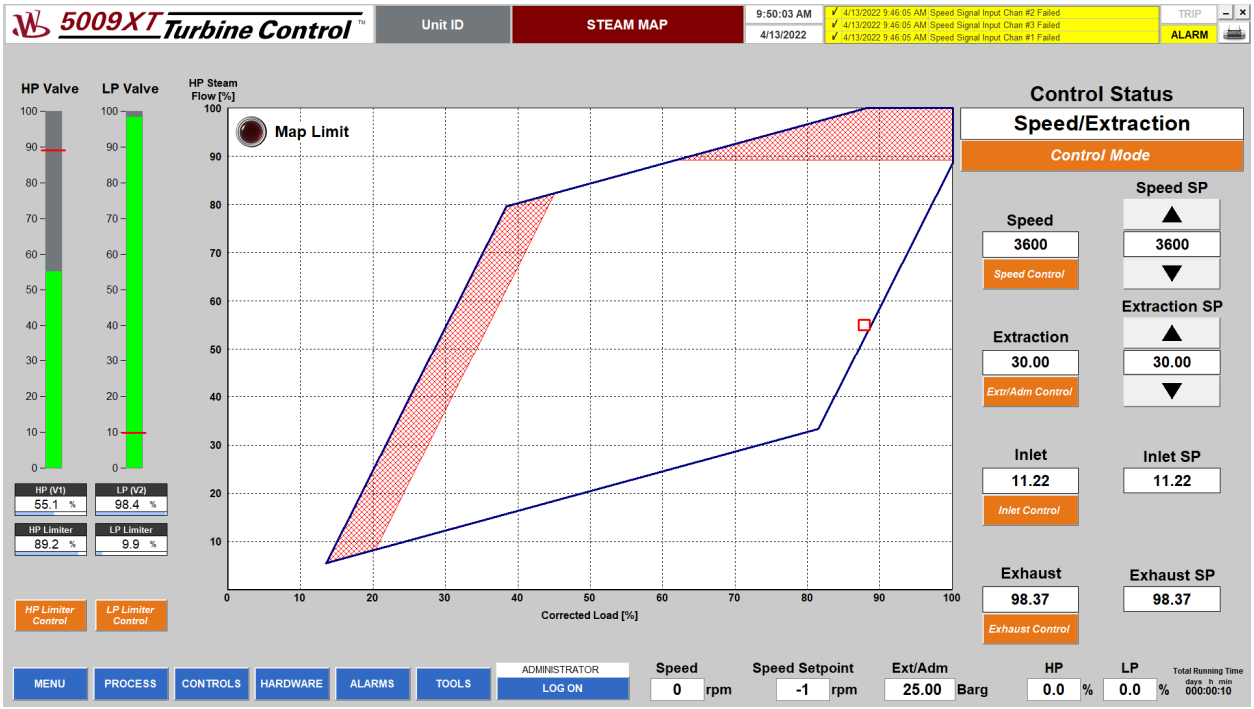


Figure 4-7. Steam Map Screen

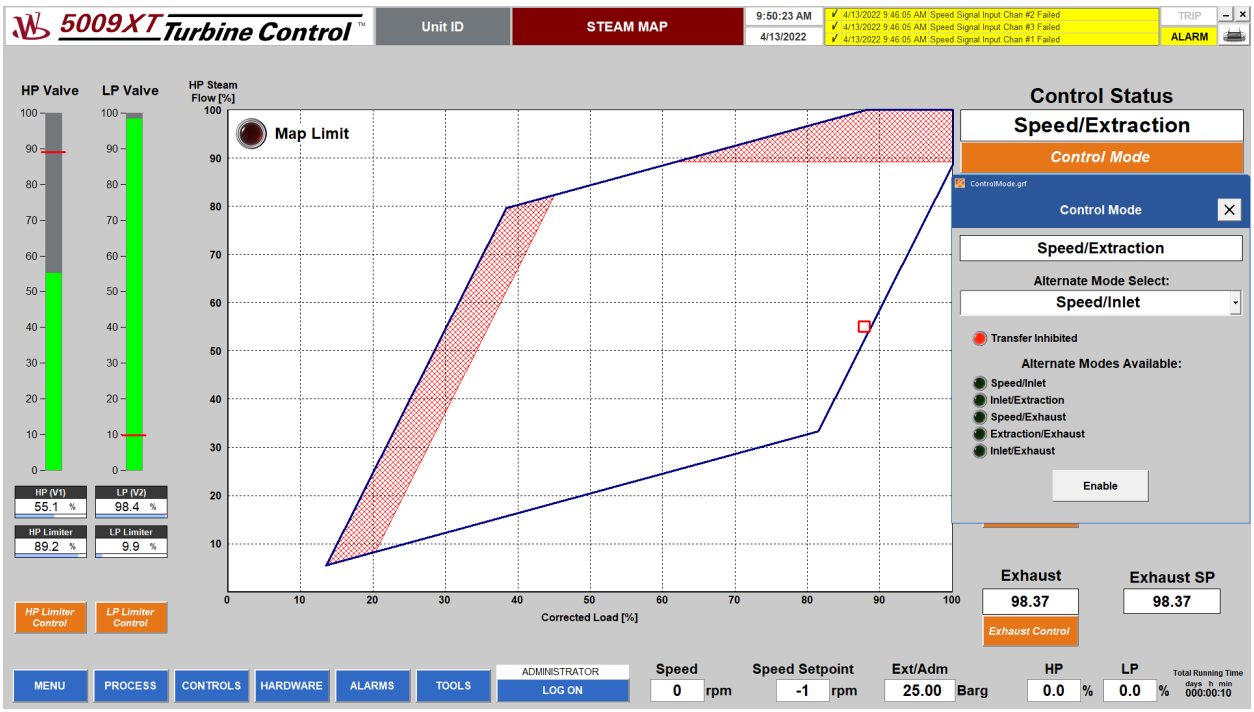


Figure 4-8. Steam Map Screen with Control Mode Pop-up

SPEED CONTROL

The SPEED CONTROL screen allows the user to:

- Check turbine speed on gauge indicator with green area between Min and Max Governor speed
- Check status indicators
- Check actual control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from pop-ups
- Open control pop-ups (orange buttons)
- Set speed setpoint from Speed Control pop-up
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Set load setpoint for generator application from Load Setpoint pop-up
- Perform overspeed test from Overspeed Test pop-up
- Reset controlled unit

Note: SPEED CONTROL screen provides different data (based on turbine system configuration).

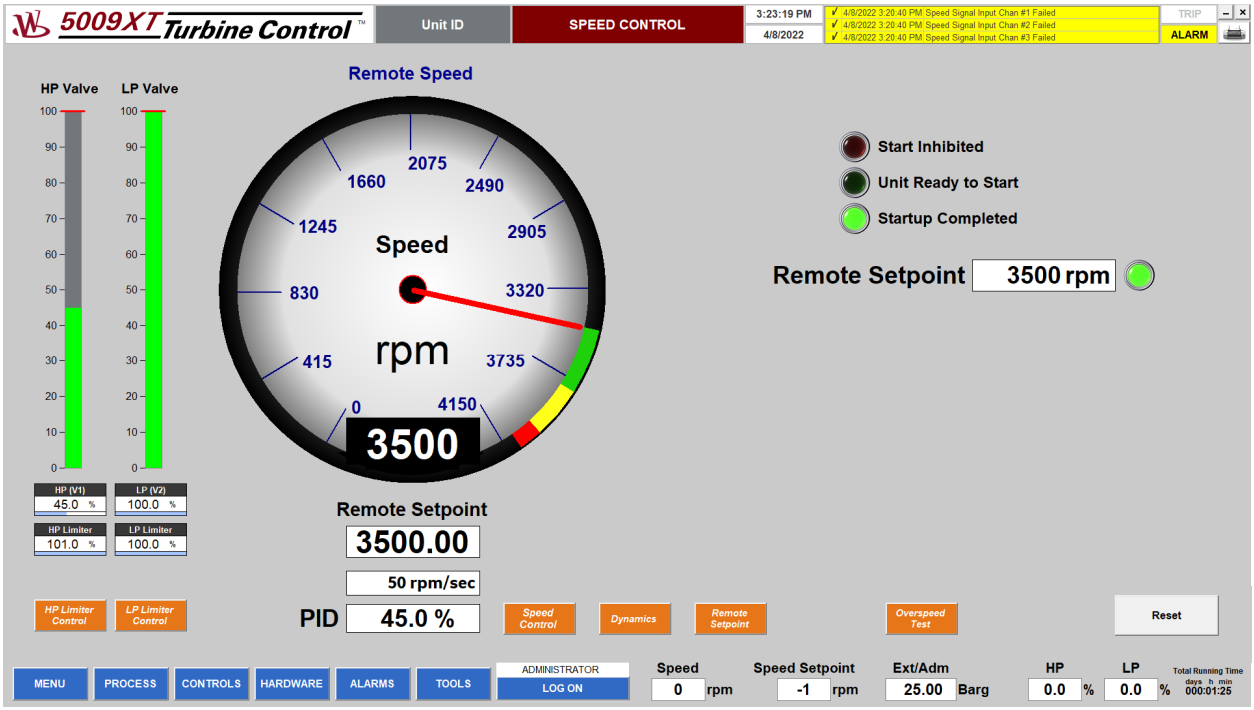


Figure 4-9. Speed Control Screen

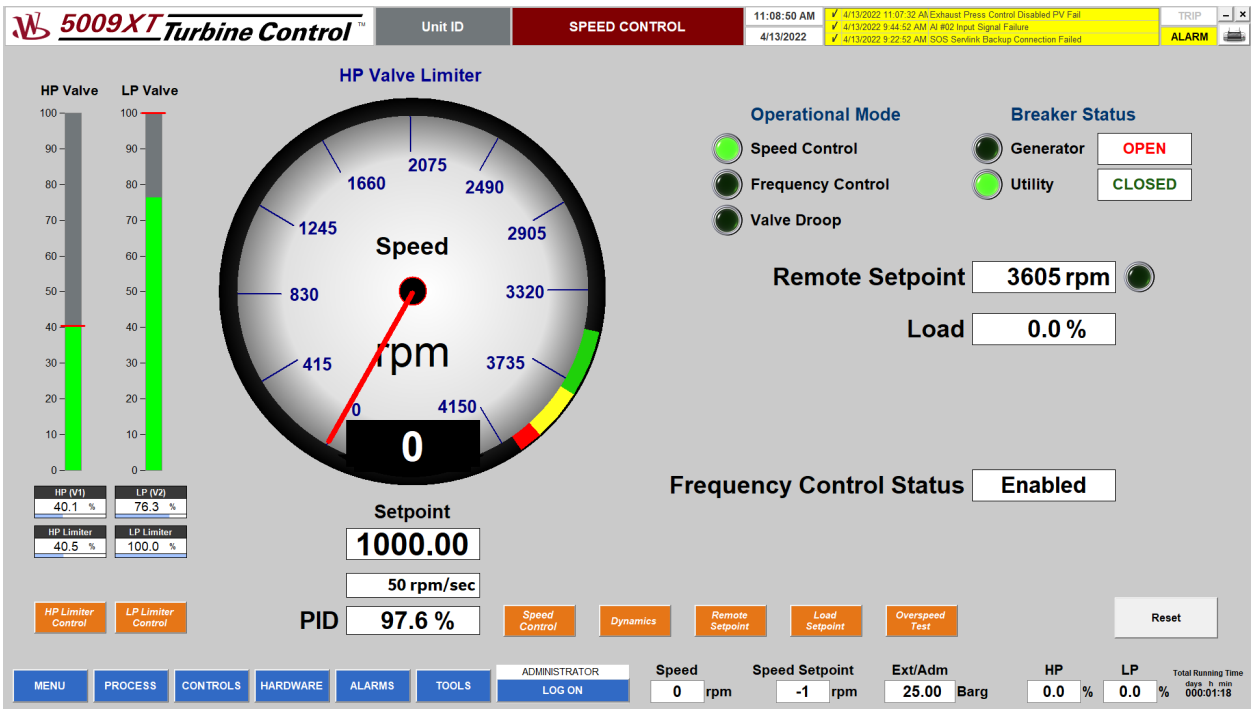


Figure 4-10. Speed Control Screen for Generator Application

CASCADE CONTROL

The CASCADE CONTROL screen allows the user to:

- Check cascade process value on gauge indicator
- Check status indicators
- Check control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from Limiters pop-ups
- Enable/disable cascade controller
- Open control pop-ups (orange buttons)
- Set cascade setpoint from Cascade Control pop-up
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Reset controlled unit

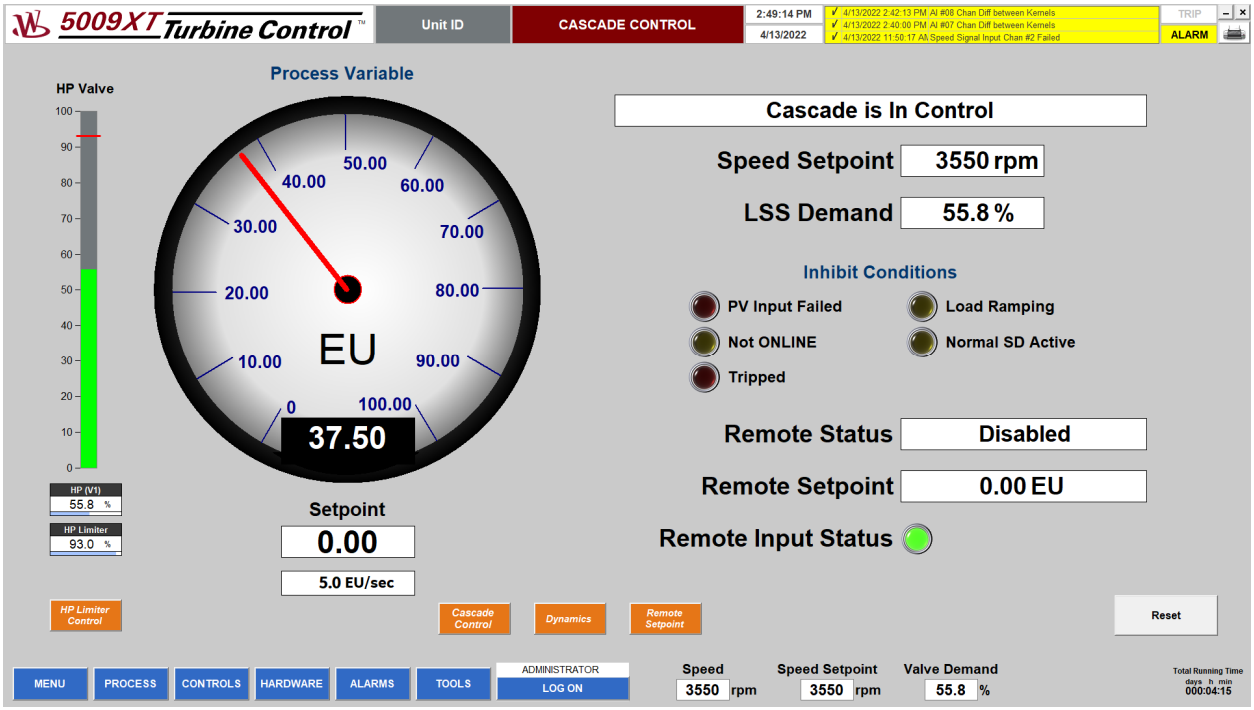


Figure 4-11. Cascade Control Screen

INLET CONTROL

The INLET CONTROL screen allows users to:

- Check inlet process value on gauge indicator
- Check status indicators
- Check control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from Limiters pop-ups
- Enable/disable inlet controller
- Open Control pop-ups (orange buttons)
- Set inlet setpoint from Inlet Control pop-up
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Reset controlled unit

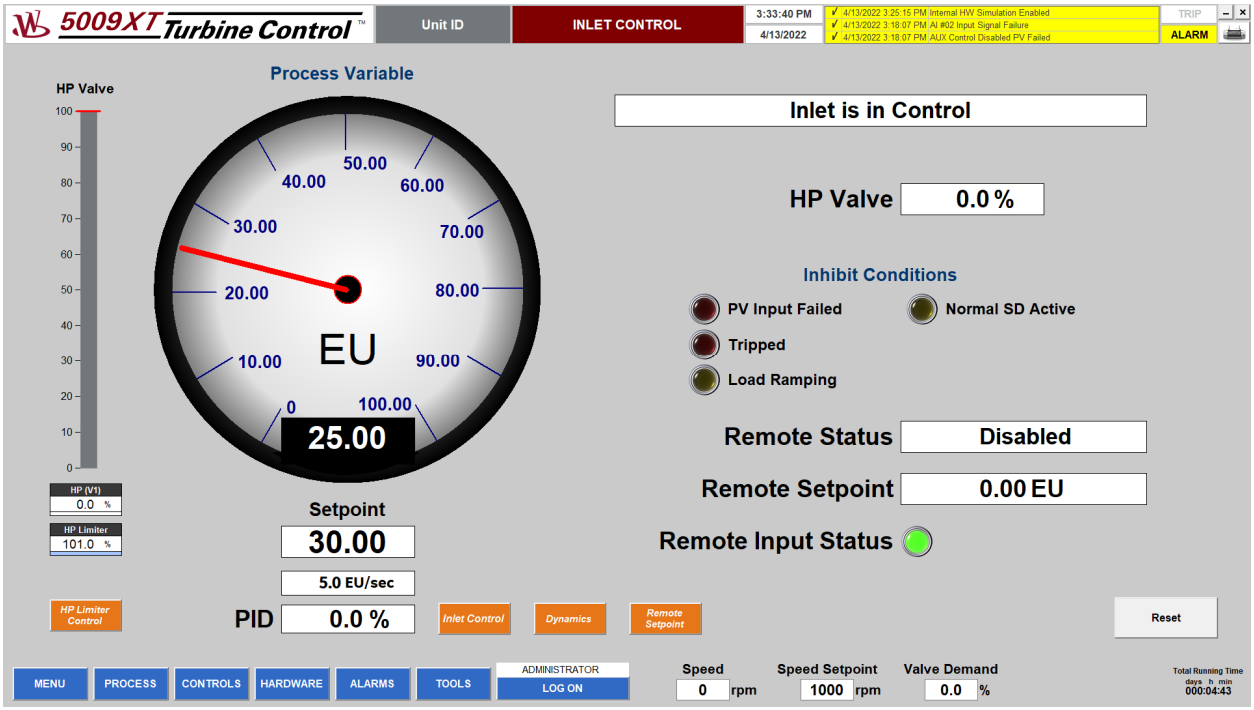


Figure 4-12. Inlet Control Screen

AUXILIARY CONTROL

The AUXILIARY CONTROL screen allows the user to:

- Check auxiliary process value on gauge indicator
- Check status indicators
- Check control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from Limiters pop-ups
- Enable/disable auxiliary controller
- Open Control pop-ups (orange buttons)
- Set auxiliary setpoint from Auxiliary Control pop-up
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Reset controlled unit

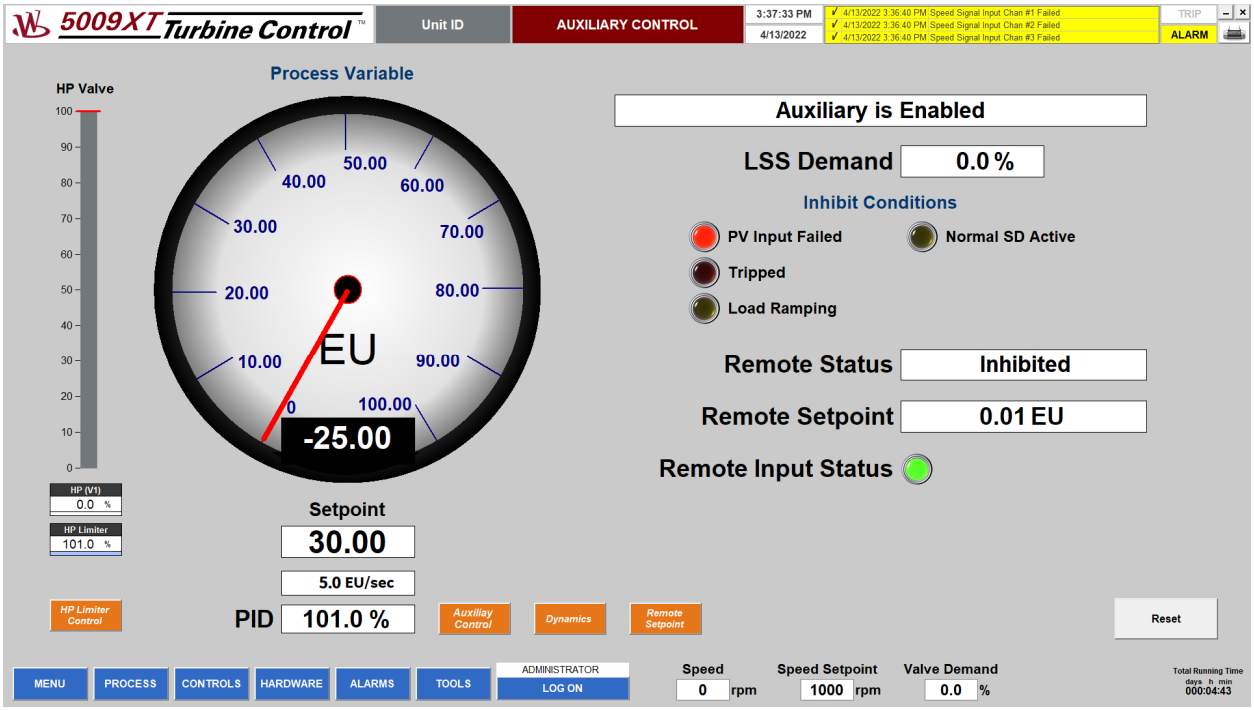


Figure 4-13. Auxiliary Control Screen

EXHAUST CONTROL

The EXHAUST CONTROL screen allows the user to:

- Check exhaust process value on gauge indicator
- Check status indicators
- Check control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valve limiters from Limiters pop-ups
- Open control pop-ups (orange buttons)
- Set exhaust setpoint from Exhaust Control pop-up
- Enable/disable exhaust controller
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Reset controlled unit

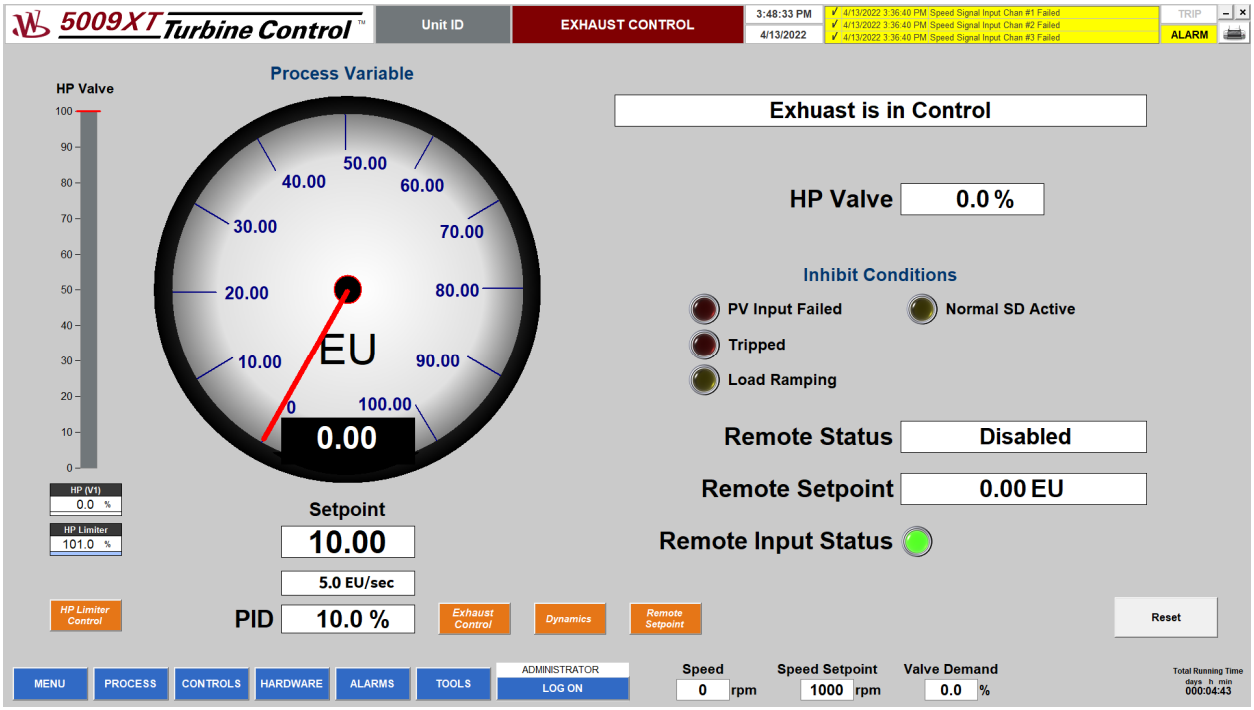


Figure 4-14. Exhaust Control Screen

Released

EXTRACTION/ADMISSION CONTROL

The EXTRACTION/ADMISSION CONTROL screen allows the user to:

- Check extraction/admission process value on gauge indicator
- Check status indicators
- Check control values
- Check control valves demands and limiters (HP valve and LP valve if configured)
- Set valves limiters from Limiters pop-ups
- Open control pop-ups (orange buttons)
- Set extraction/admission setpoint from Extr/Adm Control pop-up
- Enable/disable extraction/admission controller
- Tune PID settings from Dynamics pop-up (available only for administrator)
- Enable/disable Manual P Demand from Manual P pop-up
- Enable/disable remote setpoint from Remote Setpoint pop-up
- Reset controlled unit

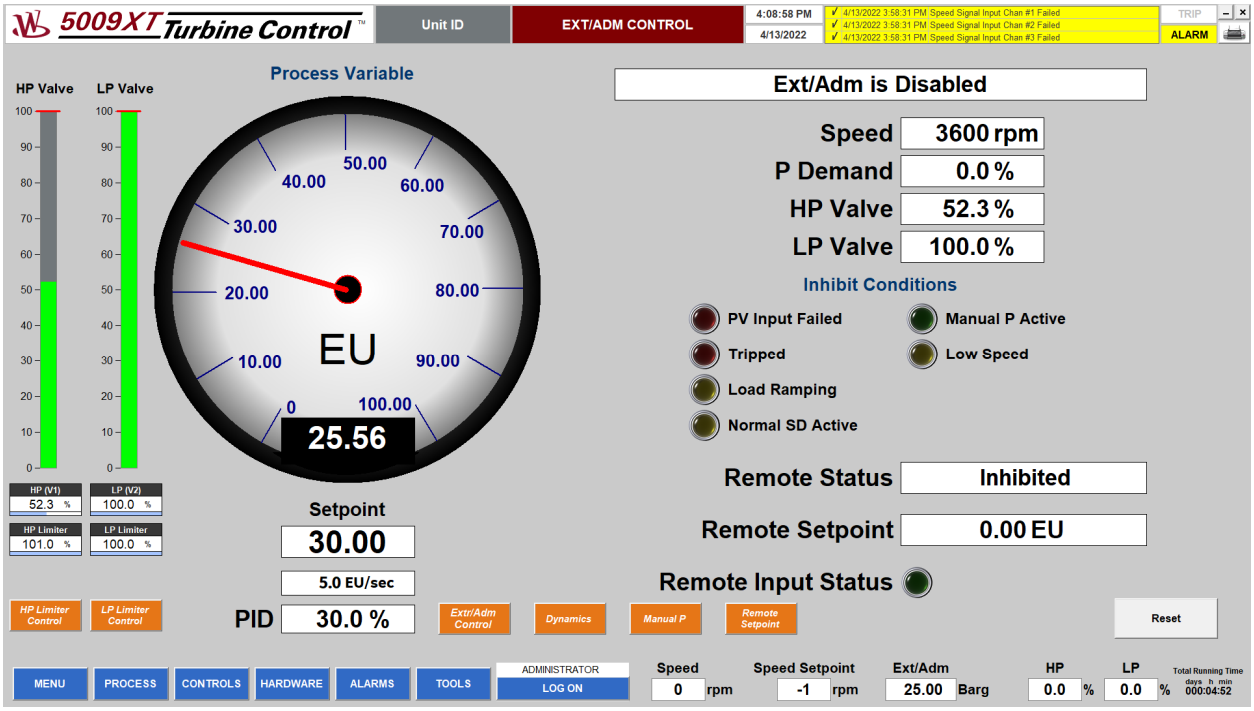


Figure 4-15. Extraction / Admission Control Screen

MicroNet TMR CHASSIS

MicroNet TMR CHASSIS screen allows the user to:

- Check status of MicroNet controller
- Check status of all installed modules
- Check power supply faults
- Check CAN faults if CAN is configured
- Check Modbus Links faults if configured

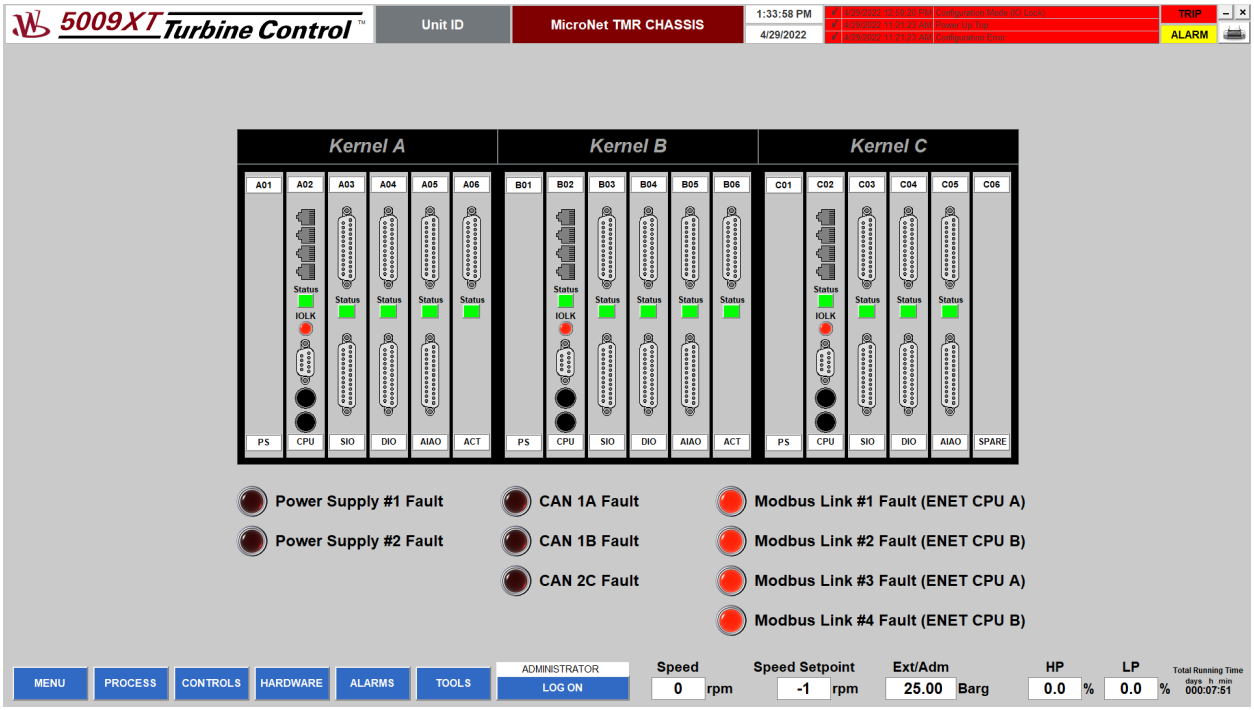


Figure 4-16. MicroNet TMR Chassis Screen

ANALOG INPUTS

The ANALOG INPUTS screen allows the user to:

- Check status of analog input signals
- Open Analog Signal pop-up by clicking the selected signal
- Change group of signals using blue navigation buttons below signals table (AI 1-12, SLOT 5, LinkNet 1, LinkNet 2, RTD)

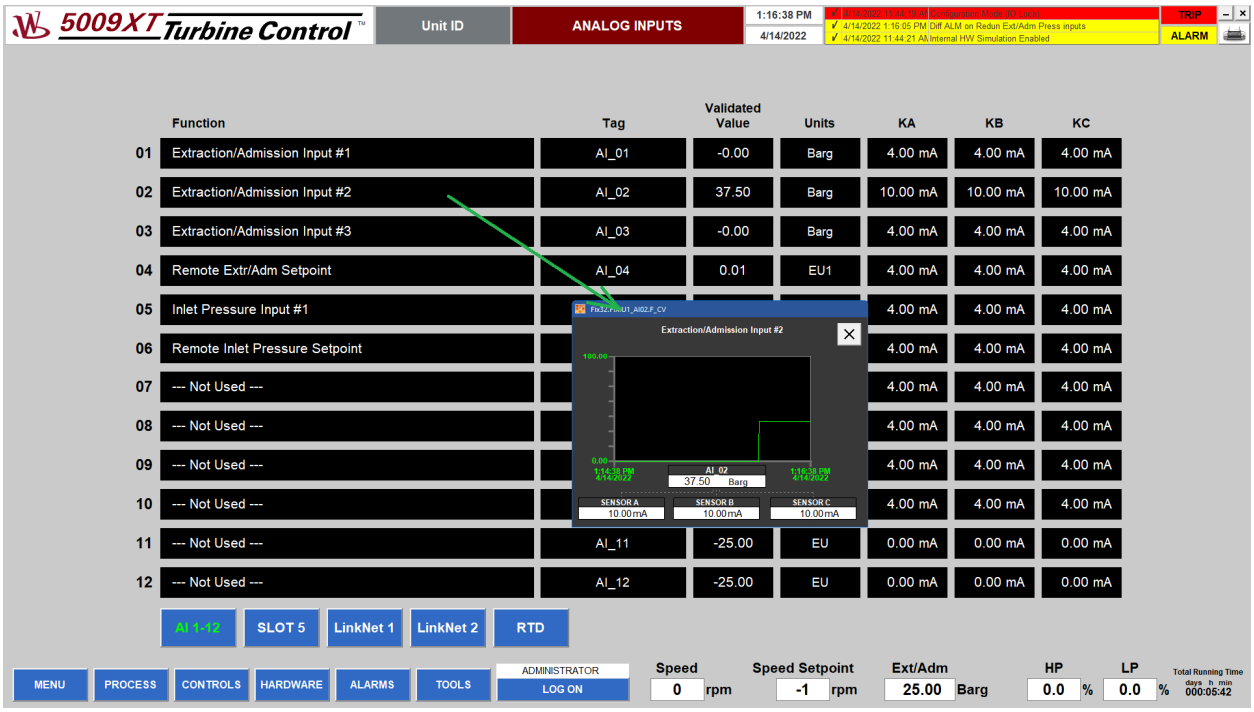


Figure 4-17. Analog Inputs Screen

SPEED INPUTS

The ANALOG INPUTS screen allows users to:

- Check status of speed signals
- Open signal analog signal pop-up by clicking on the selected signal
- Check validated turbine speed

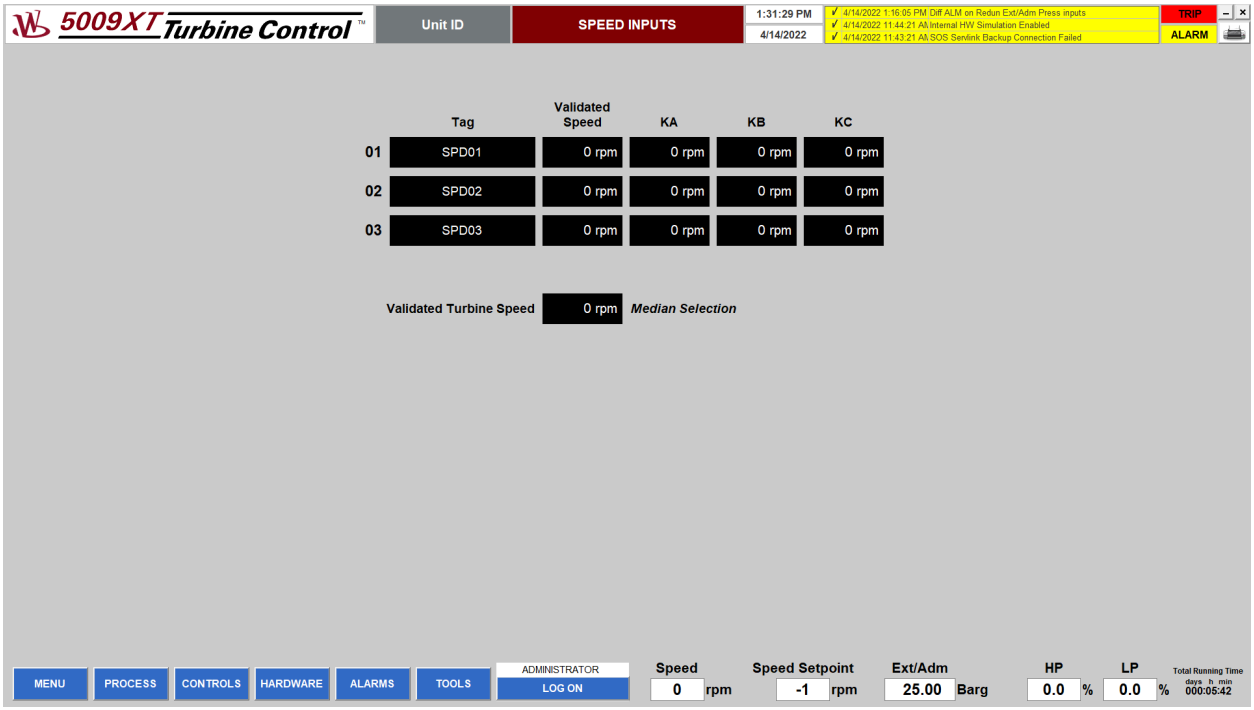


Figure 4-18. Speed Inputs Screen

ANALOG OUTPUTS

The ANALOG OUTPUTS screen allows users to:

- Check status of analog output signals
- Open Analog Signal pop-up by clicking on the selected signal
- Change the group of signals using blue navigation buttons below signals table (AO 1-4, SLOT 5, LinkNet)

Note: Blue navigation buttons (Varistroke, Varistroke Node 2, SPC11, SPC12) open dedicated device screens for configured CAN devices.

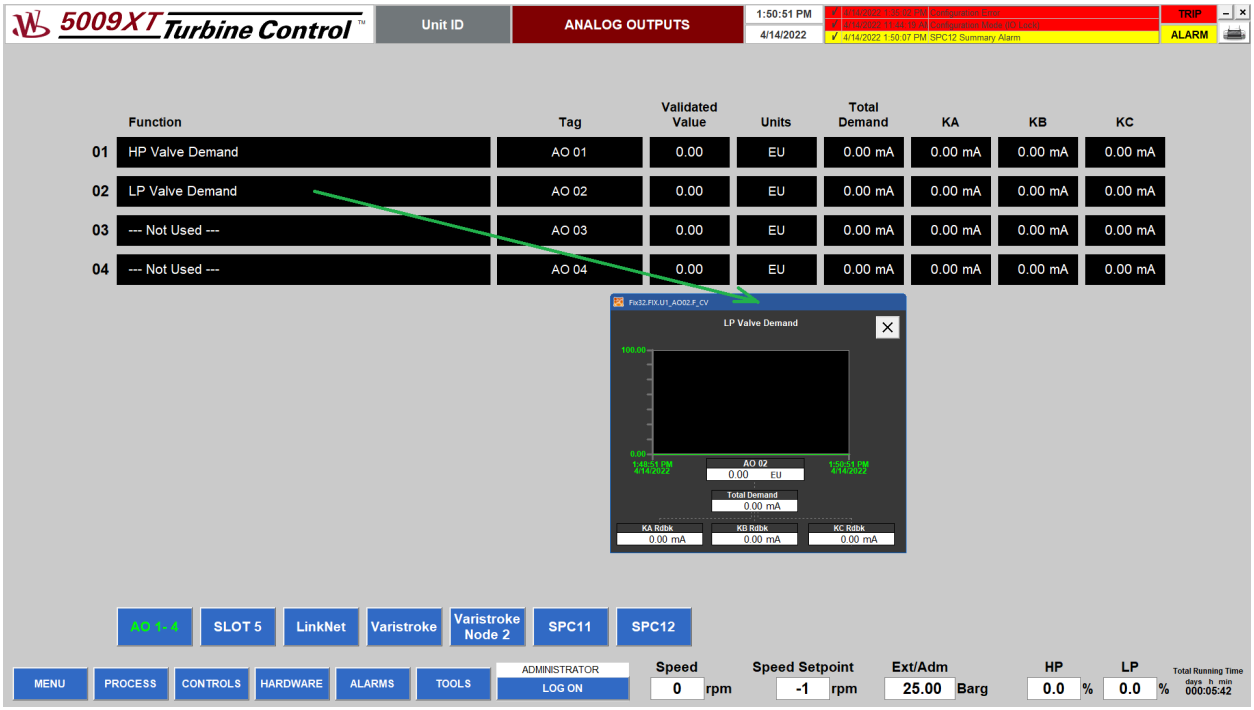


Figure 4-19. Analog Outputs Screen

CONTACT INPUTS

The CONTACT INPUTS screen allows the user to:

- Check the status of contact input signals
- Change the group of signals by using the blue navigation buttons below signals table (BI 1-24, LinkNet)

Note: The Contact Inputs BI 1-24 screen also allows the user to check the status of channels (A,B,C) and the status of redundant signal (R) for emergency stop if redundancy is configured.

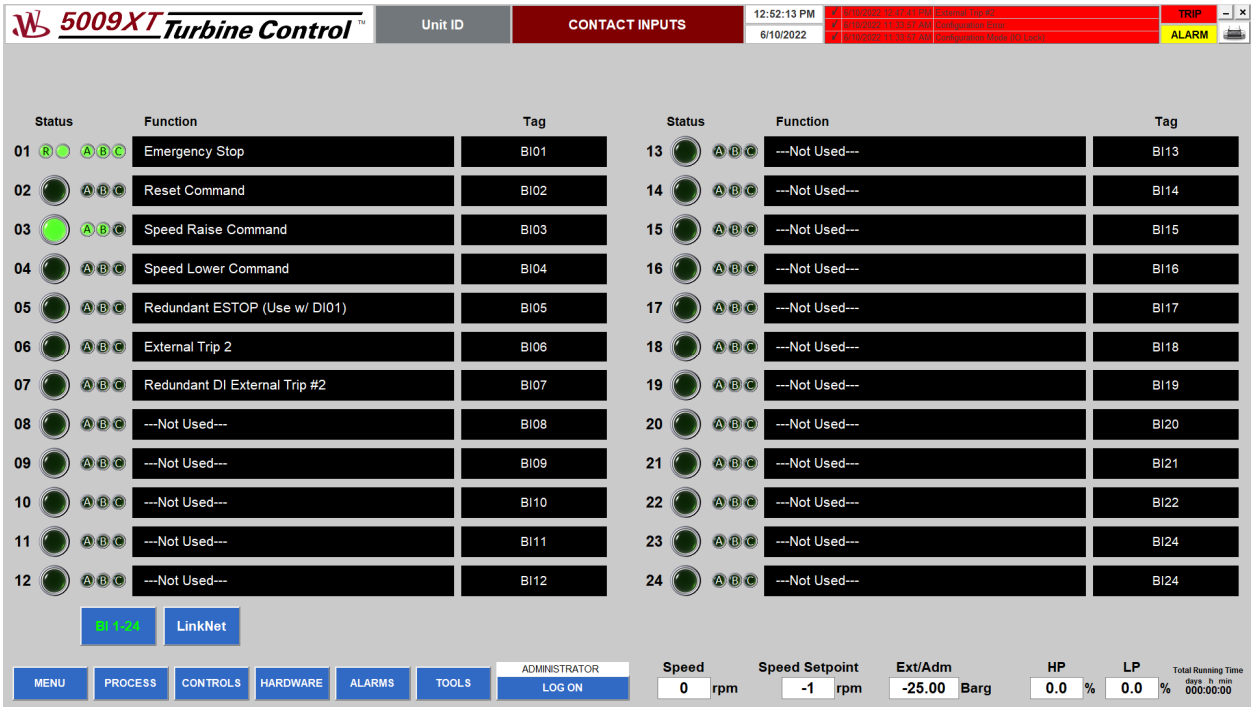


Figure 4-20. Contact Inputs Screen

RELAY OUTPUTS

The RELAY OUTPUTS screen allows the user to:

- Check the status of relay output signals
- Change the group of signals by using the blue navigation buttons below signals table (BO 1-12, LinkNet)

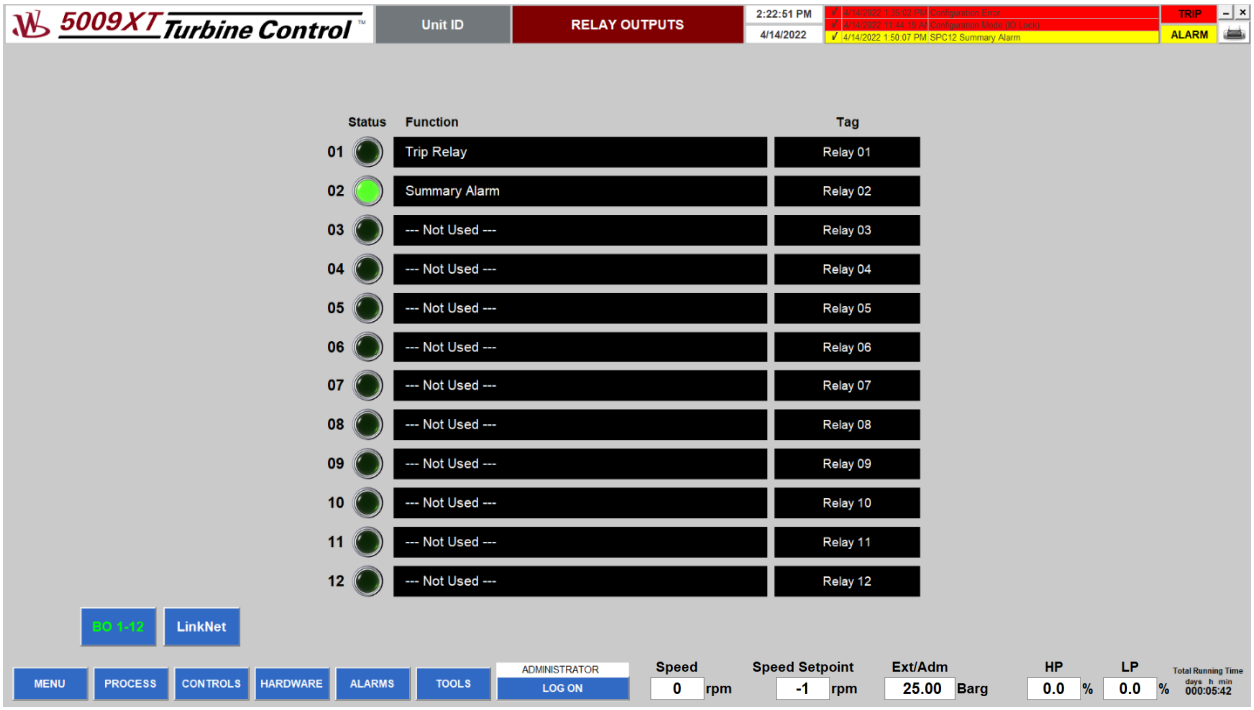


Figure 4-21. Relay Outputs Screen

ACTUATOR OUTPUTS

The ACTUATOR OUTPUTS screen allows the user to:

- Check the status of actuator outputs signals
- Open the Analog Signal pop-up by clicking on the selected signal

Note: The Actuator Outputs screen is available only when channel 2 actuator module in slot 6 is enabled.

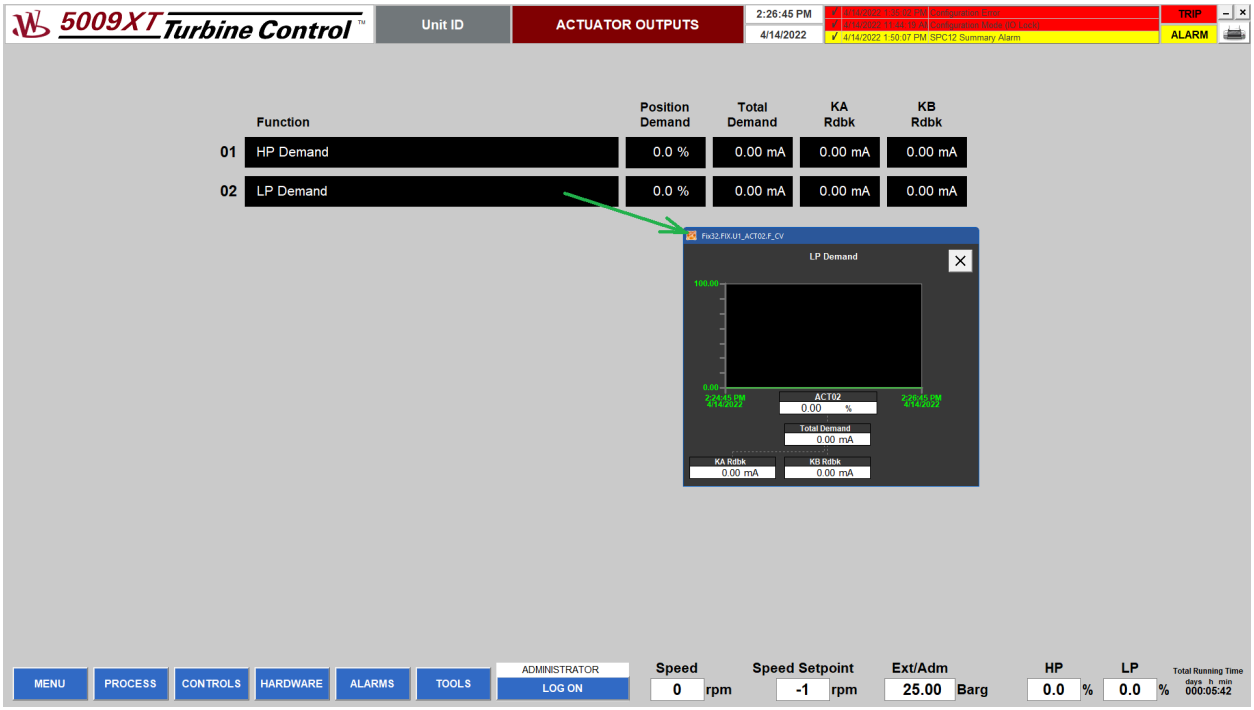


Figure 4-22. Actuators Outputs Screen

ALARMS

The ALARMS screen allows the user to:

- Check alarms
- Enable auto acknowledge by clicking the Auto Acknowledge button (green when enabled)
- Acknowledge visible alarms by clicking the Acknowledge Visible button
- Acknowledge all alarms by clicking the Acknowledge All button
- Reset alarms by clicking the Reset button
- Filter alarms by using filter buttons below the alarms table

Note: Alarm auto acknowledge is the recommended option for applications without a permanent operator being present. Enabling the auto acknowledge option allows the user to register multiple consecutive alarms in the alarm history.

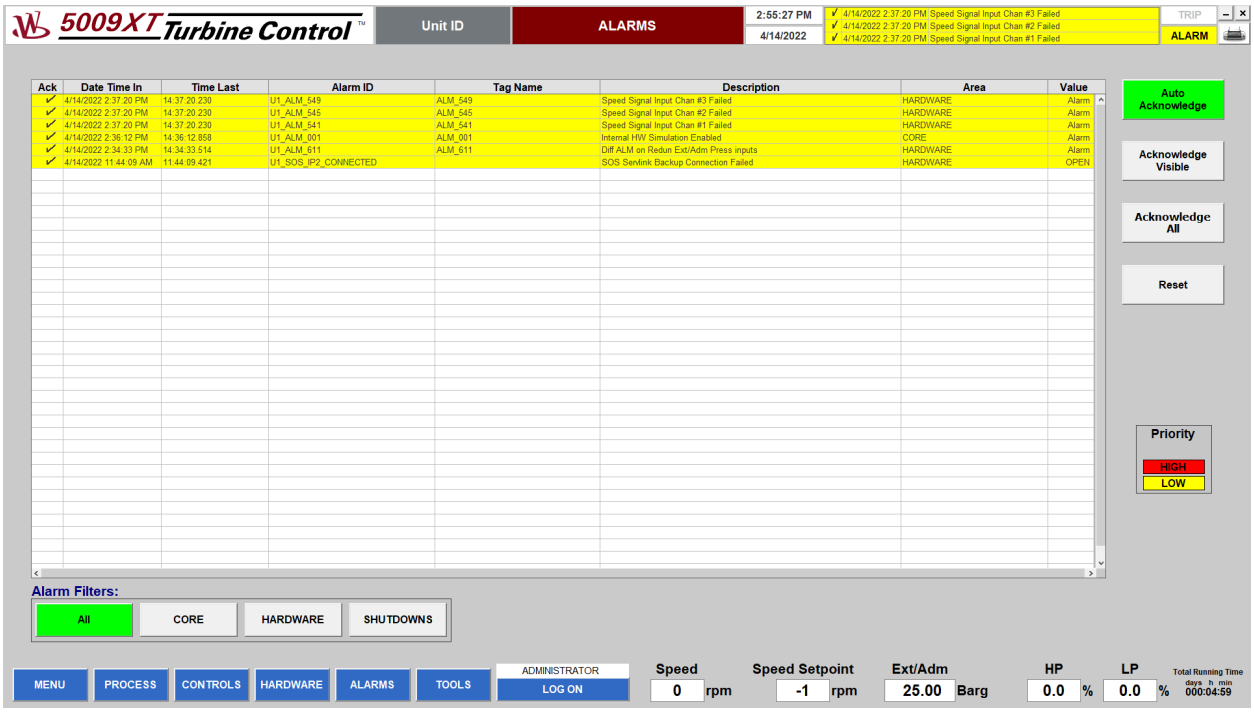


Figure 4-23. Alarms Screen

ALARM HISTORY

The ALARM HISTORY screen allows the user to:

- Check historical alarms
- Change period of time (From: – To:)
- Filter results by using filter fields above Alarm ID, Tag, Name, and Description Area columns
- Reset filters with the Reset Filters button
- Export alarms to csv file using the Export button

Note: Click the Apply Filters button after the change request to refresh the alarm table.

Note: Character % in filter field means any text.

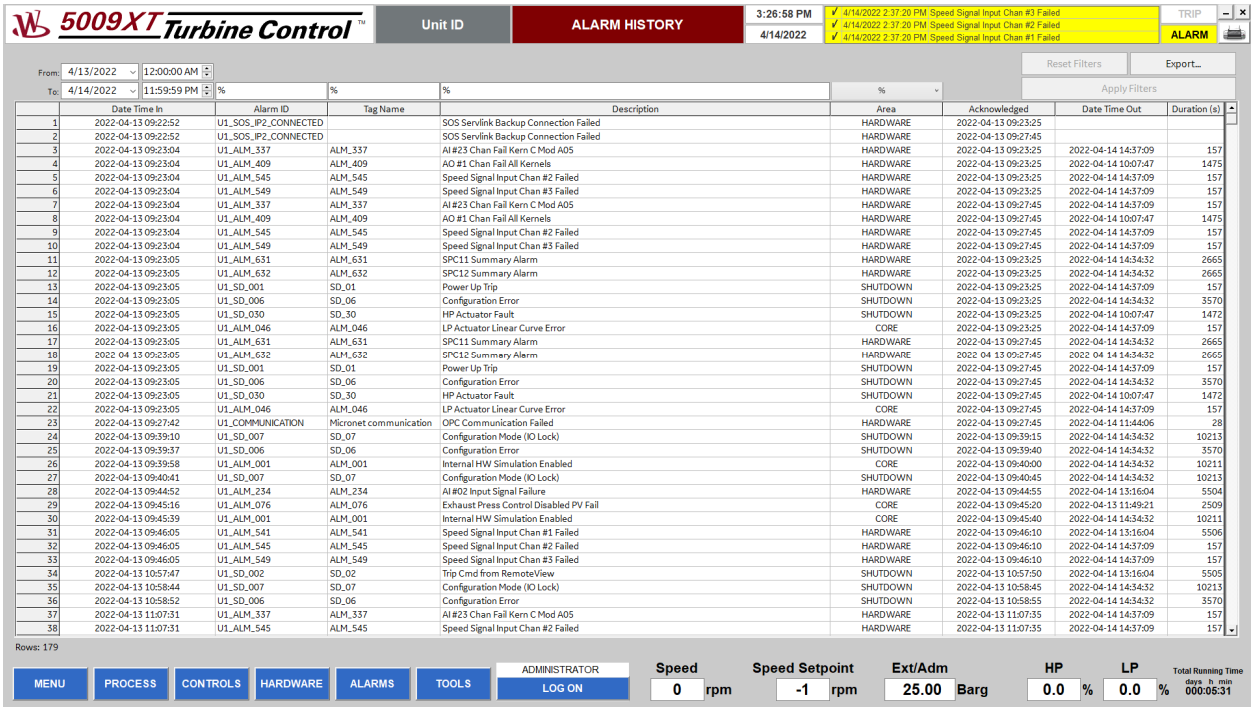


Figure 4-24. Alarm History Screen

TRENDS

The TRENDS screen allows the user to:

- Switch between real time and historical mode using Switch to Historical or Switch to Real Time mode buttons
- Select trends group from the drop-down list located in the upper right corner of the screen
- Zoom in and out of the period of time displayed using Zoom In and Zoom Out buttons
- Select the date and time in historical mode
- Add or select time markers in historical mode
- Move trends in time using << and >> buttons
- Select and zoom trend area using computer mouse in historical mode

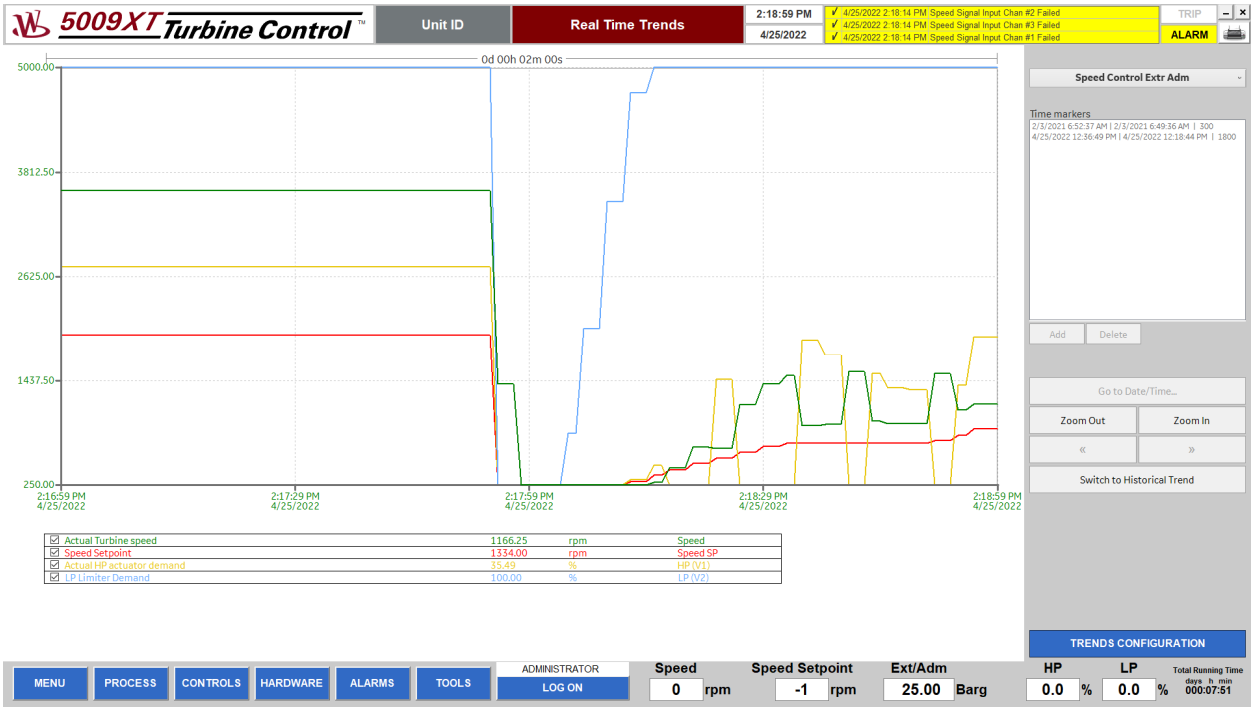


Figure 4-25. Trends Screen in Real Time Mode

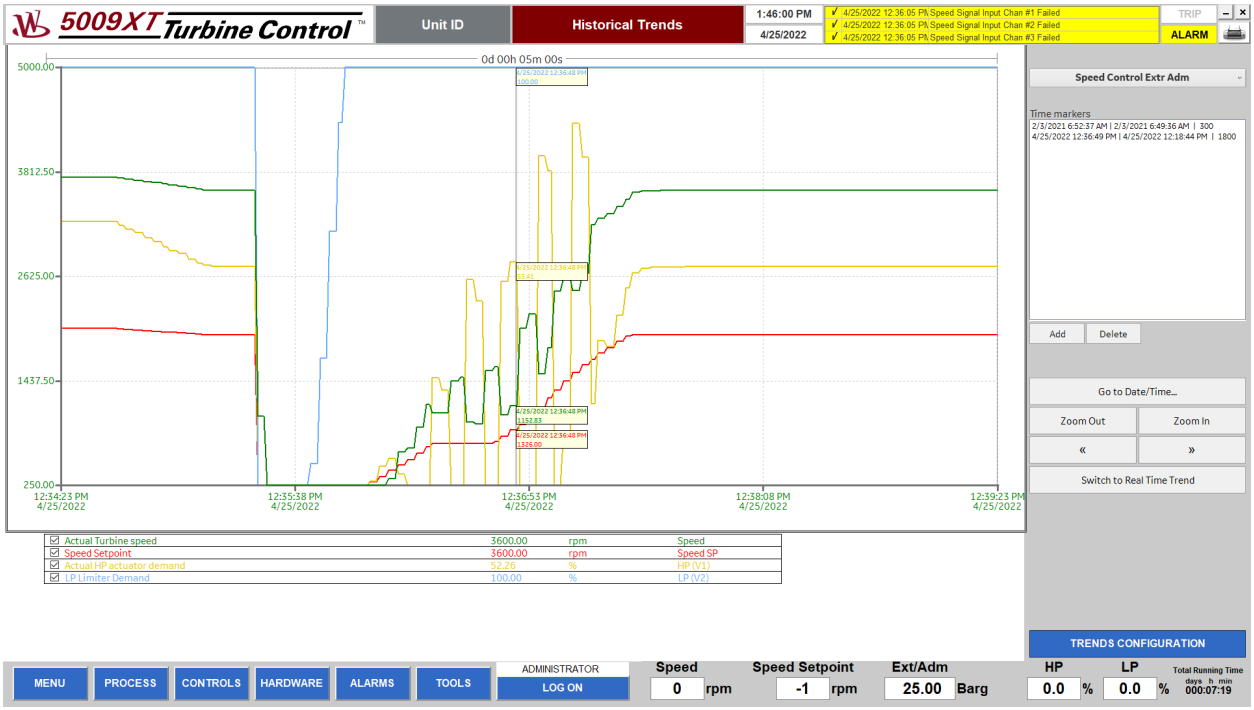


Figure 4-26. Trends Screen in Historical Mode

TRENDS CONFIGURATION

The TRENDS CONFIGURATION screen allows the user to:

- Use Generate Historian Tags button to generate historian tags in iHistorian server based on 5009XT configured signals
- Edit and update selected trend from trends list (tag, description, units, min and max values)
- Create/delete trend groups using + and - buttons
- Add/remove trends to trend groups using → and ← buttons
- Edit pen colors of trends in trend group

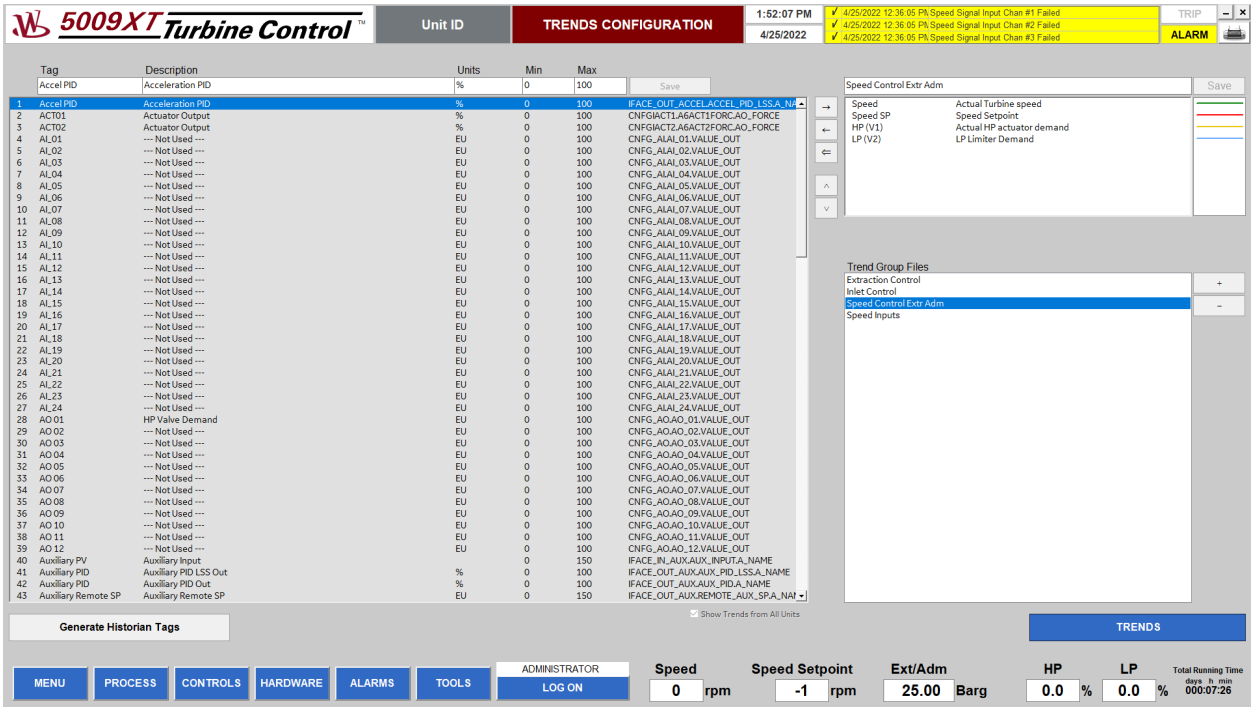


Figure 4-27. Trends Configuration Screen

CONFIGURATION

The CONFIGURATION screen allows the user to:

- Configure colors for analog values indicators by clicking on squares located around indicators
- Open trends configuration using the Configure Trends button
- Export alarms and signals to csv file (option available only for administrators)
- Import alarms and signals from csv file (option available only for administrators)
- Shrink SOS2 OPC Server SID file (option described in APPENDIX G in First HMI application start chapter)
- Reset OPC communication in case of communication issues
- Configure HMI users (option only for administrators)

Note: Trends configuration is available only for users with administrative rights.

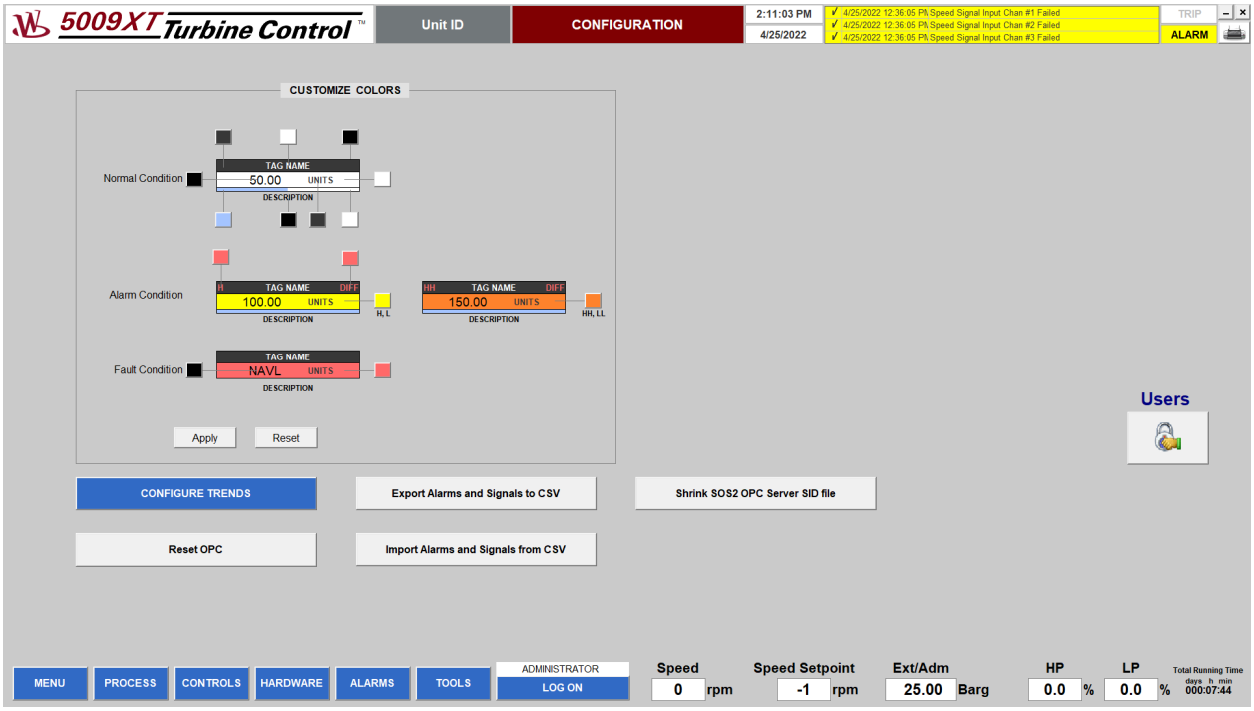


Figure 4-28. Configuration Screen

Released

Appendix A.
HMI System Requirements

GE recommends using the latest service packs for Windows operating systems. The minimum iFIX software requirements include:

- One of the following operating systems:
  - Microsoft® Windows® 10 (32-bit or 64-bit) Professional or Enterprise Edition.
  - Microsoft® Windows® 10 IoT Enterprise with LTSC enabled, or an operating system released under Long Term Service Channel for iFIX for IoT. Use of iFIX for IoT is further restricted by your End User License Agreement (EULA), please see your EULA for details.
  - Microsoft® Windows® 8.1 (32-bit or 64-bit), Professional or Enterprise Edition.
  - Microsoft® Windows® Server 2019.
  - Microsoft® Windows® Server 2016.
  - Microsoft® Windows® Server 2012 R2.

  TIPS: Since Microsoft Windows has continuous updates, run the Windows update feature to receive the latest Windows software for use with iFIX.

- Network interface software for TCP/IP network communication and certain I/O drivers.
- If using iFIX and Historian on the same machine, it is highly recommended to install iFIX first.

Woodward SOS Servlink OPC Server requires installed .NET Framework 4.7.2 or higher.
Install the latest service packs for Windows to receive the latest .NET Framework version or install .NET Framework 4.7.2 manually before SOS Servlink installation.

Appendix B.
iFIX 6.1 Proficy HMI/SCADA Installation

Start iFIX installation program and select Install iFIX 6.1 option to install HMI software.

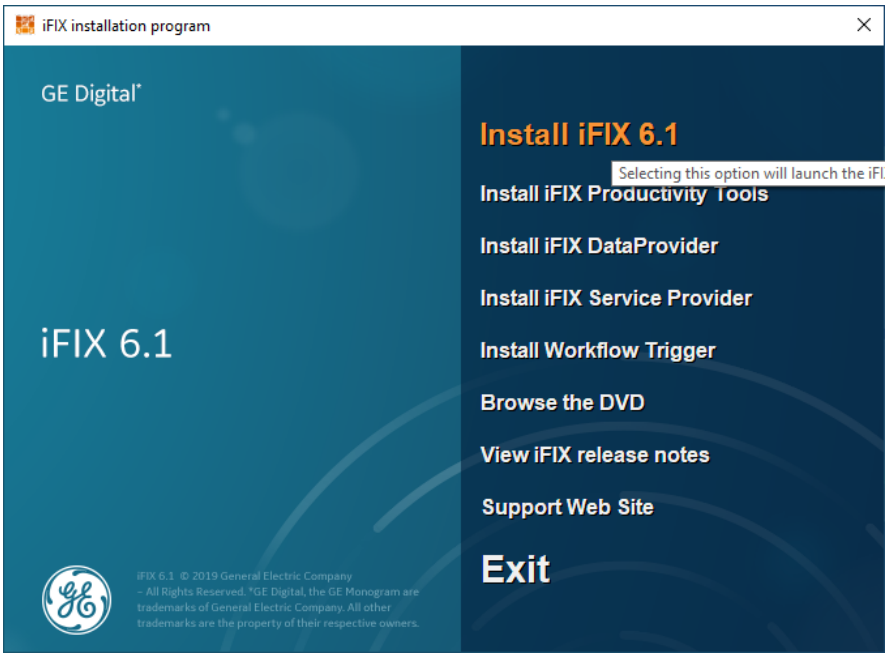


Figure B-1. iFIX Installation Menu Window

After the iFIX installation begins, the “Program Compatibility Assistant” window will be displayed. Close the window and continue iFIX installation.

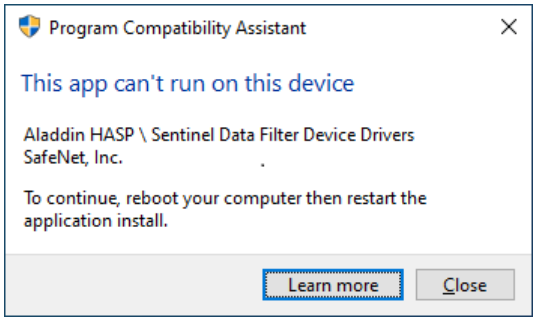


Figure B-2. Program Compatibility Assistant Window

Click the Yes button on the “InstallFrontEnd” window.

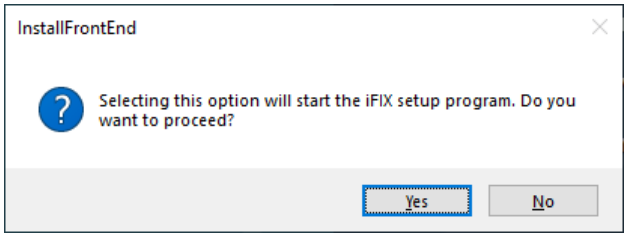


Figure B-3. iFIX Installation InstallFrontEnd Window

Click the Next> button on the “Welcome” window.

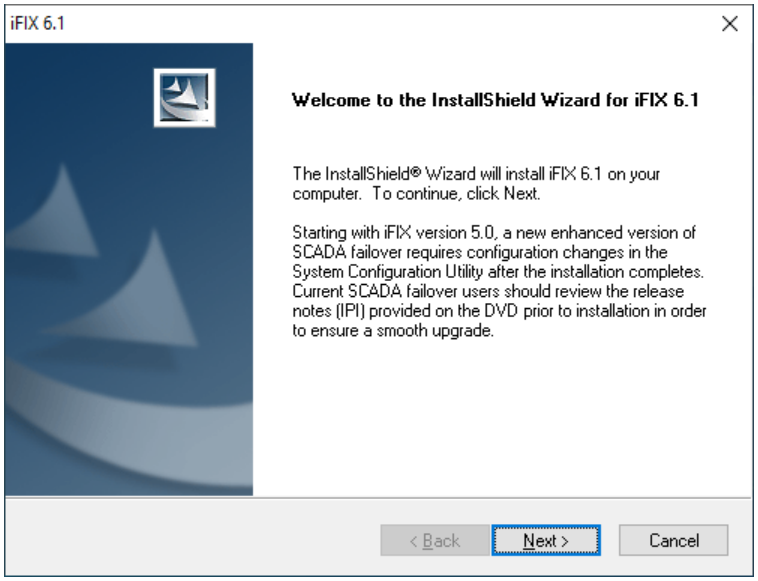


Figure B-4. iFIX Installation Welcome Window

Select “I accept the terms of the license agreement” and click the Next> button on the “License Agreement” window.

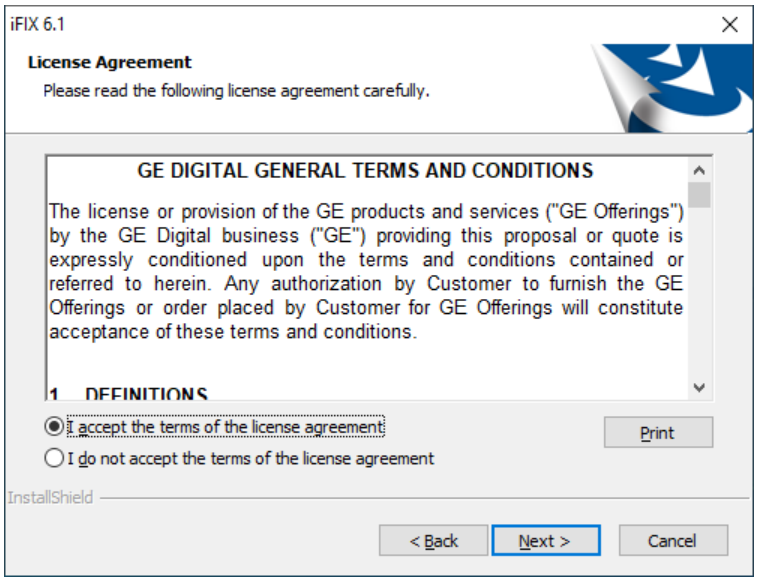


Figure B-5. iFIX License Agreement Window

Select “Typical” setup type and click the Next> button on the “Setup Type” window.

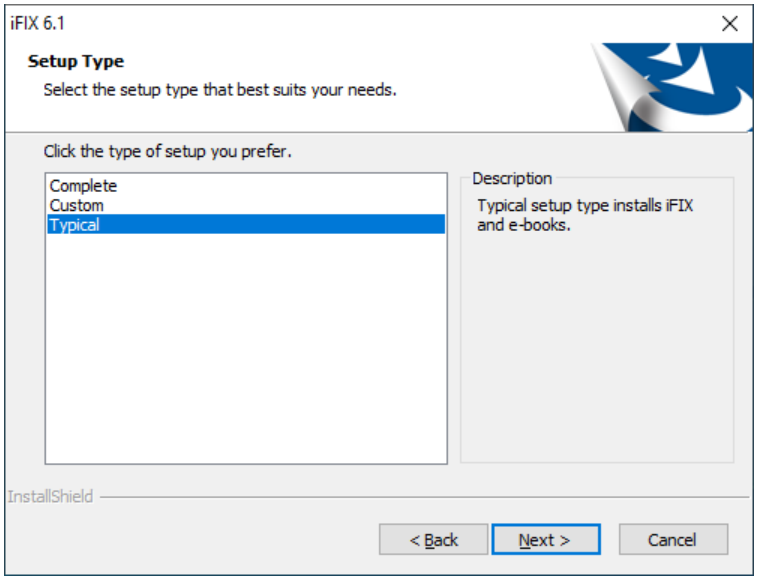


Figure B-6. iFIX Setup Type Window

Select the destination folder and click the Next> button on the “Choose Destination Location” window.

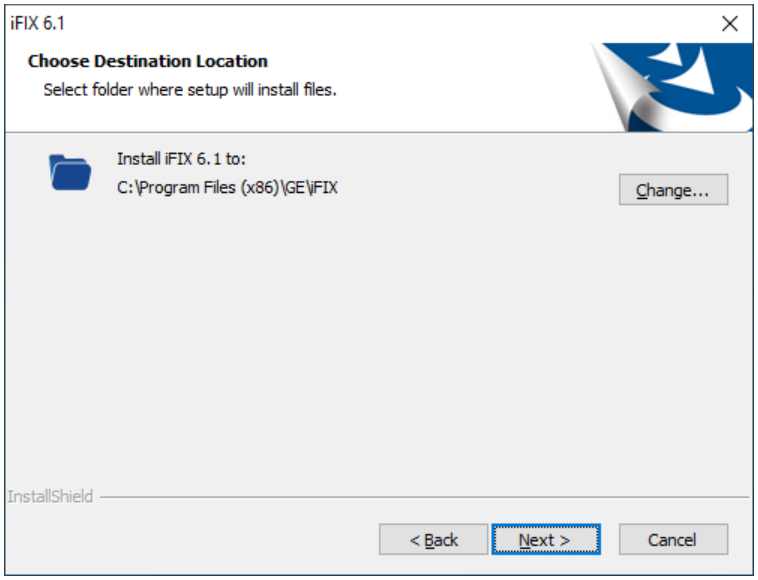


Figure B-7. iFIX Setup Choose Destination Location Window

Click the Install button on the “Ready to Install the Program” window.

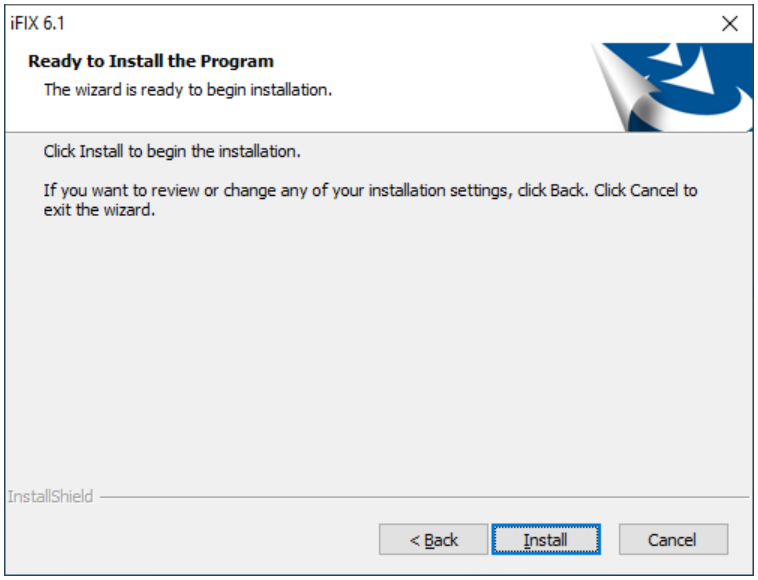


Figure B-8. iFIX Setup Ready to Install the Program Window

Select SCADA node type and Stand Alone connectivity and click the OK button on the “iFIX Configure Wizard” window.

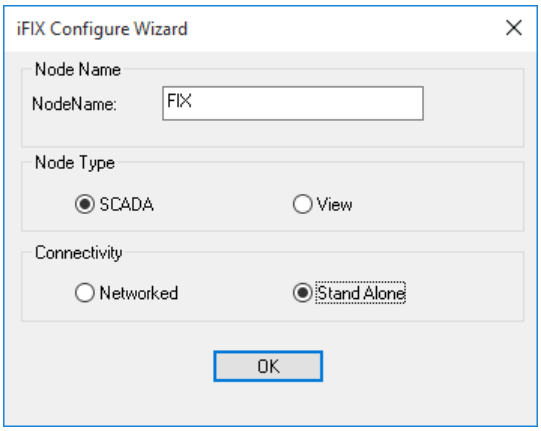


Figure B-9. i iFIX Configure Wizard Window

Click the Yes button on the “Firewall Settings” Window.

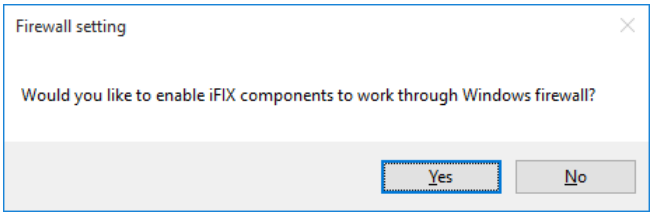


Figure B-10. iFIX Setup Firewall Settings Window

Select Yes if you want to read the release notes on the “Question” window.

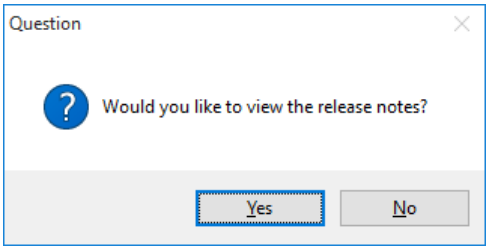


Figure B-11. iFIX Setup Question Window

Select “Yes, I want to restart my computer now” and click the Finish button on the “InstallShield Wizard Complete” window.

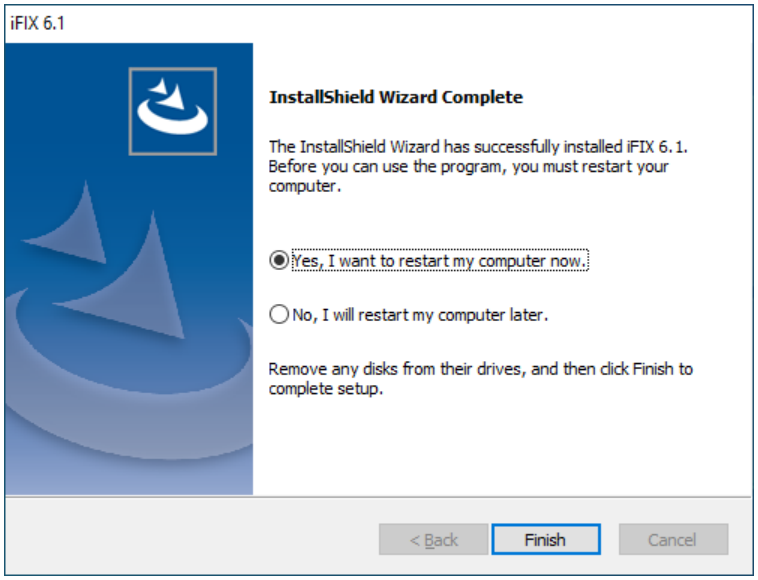


Figure B-12. iFIX Setup InstallShield Wizard Complete Window

Start the iFIX Database Dynamo Configurator (file location: C:\Program Files (x86)\GE\iFIX\ Btkcfg.exe), add BTK_TXR Database Dynamo from Available Database Dynamos list, save configuration and close iFIX Database Dynamo Configurator.

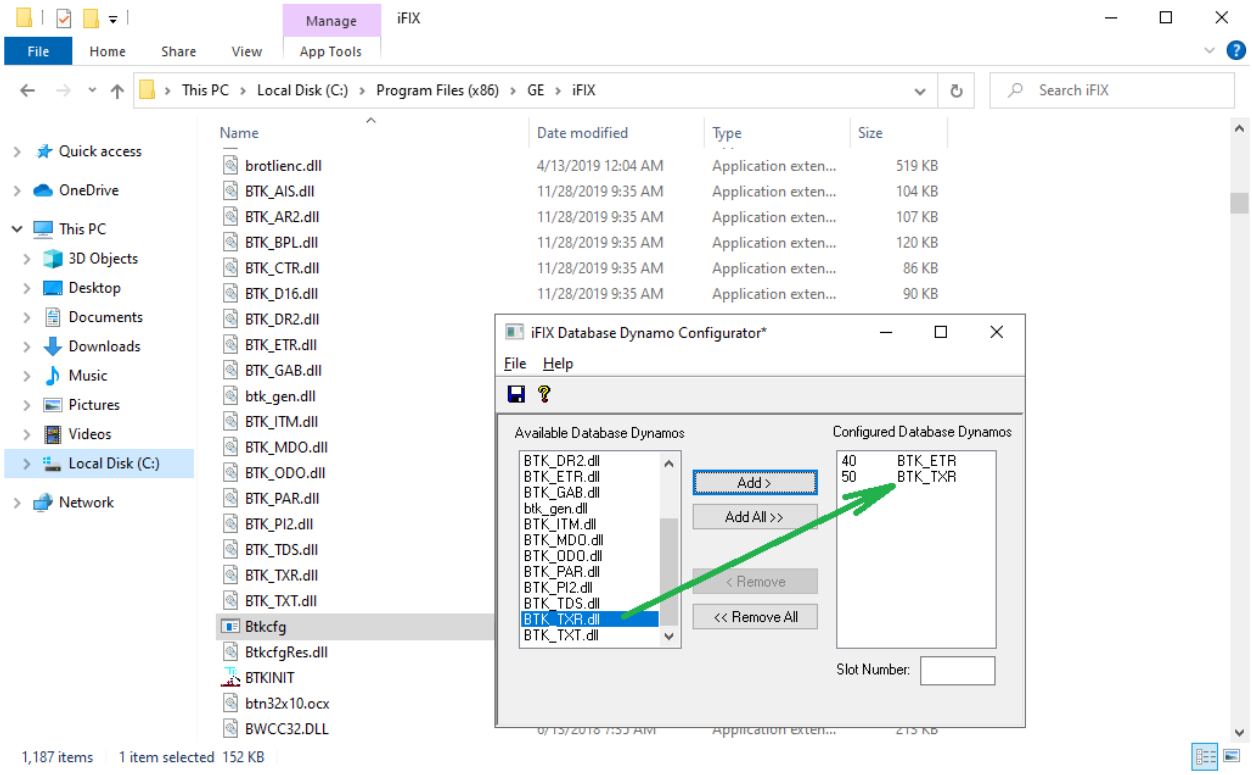


Figure B-13. iFIX Database Dynamo Configurator Window

Appendix C.
Proficy Common Licensing 19.2 Installation

Start the Common Licensing 19.2 program and select the Install License Client option to install licensing drivers.

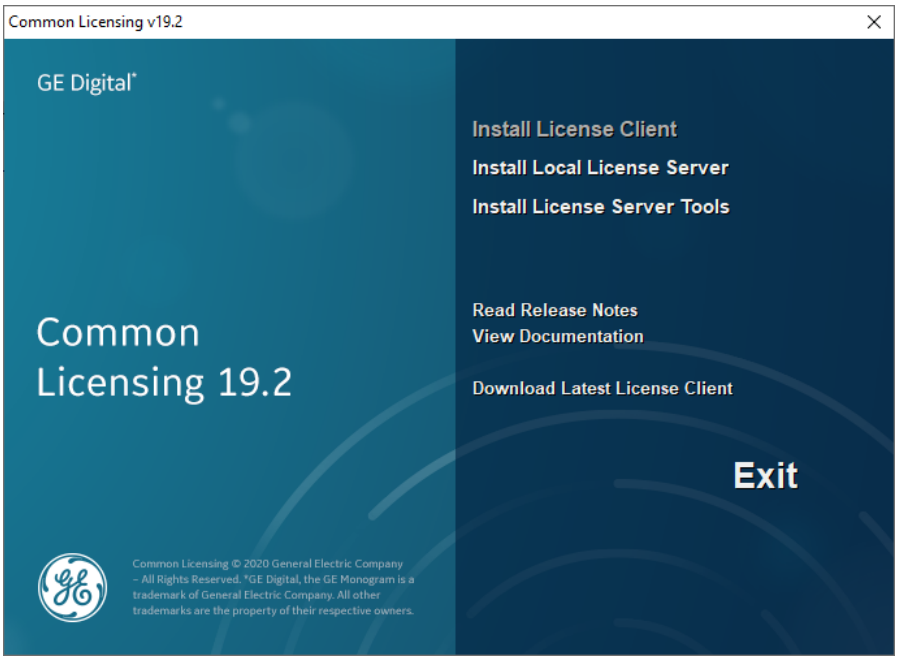


Figure C-1. Common Licensing Installation Menu Window

Click the Next> button on the “Welcome to the InstallShield Wizard for Common Licensing” window.

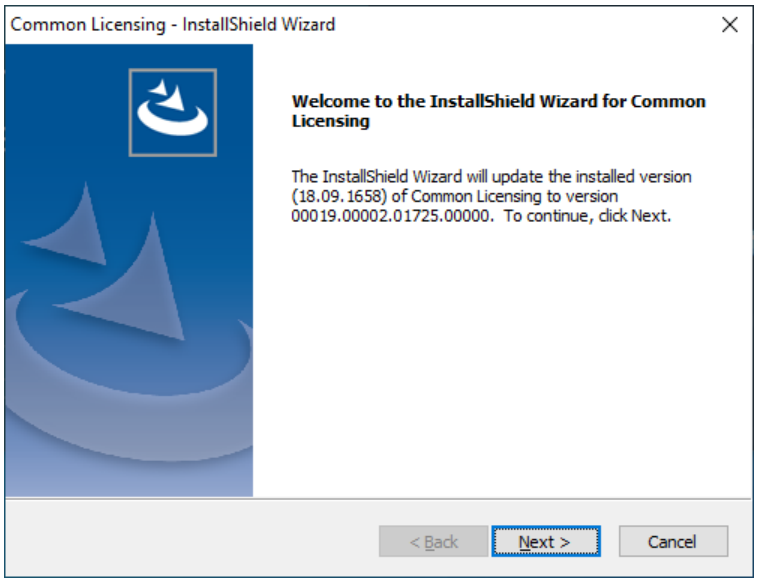


Figure C-2. Welcome to the InstallShield Wizard for Common Licensing Window

Select “I wish to install USB HASP Drivers” option and click the Next> button on “Install USB HASP Drivers” window.

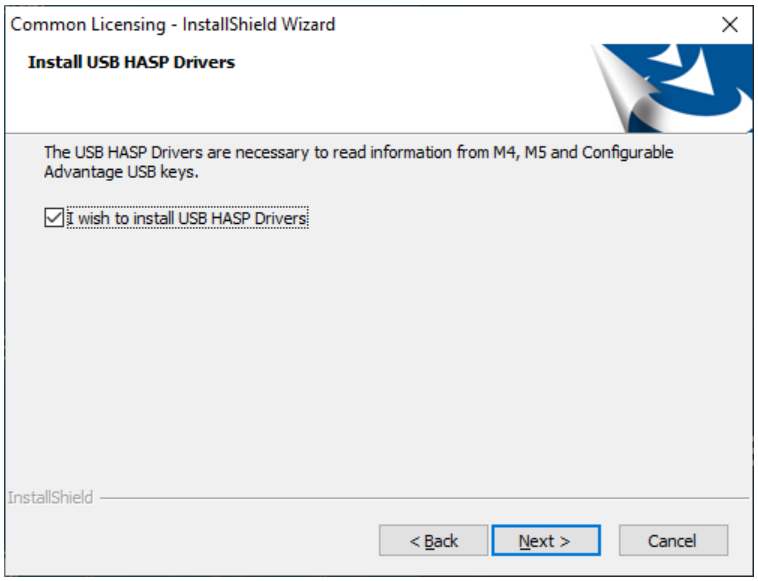


Figure C-3. Install USB HASP Drivers Window

Select “Yes, I want to restart my computer now” and click the Finish button on the “Update Complete” window.

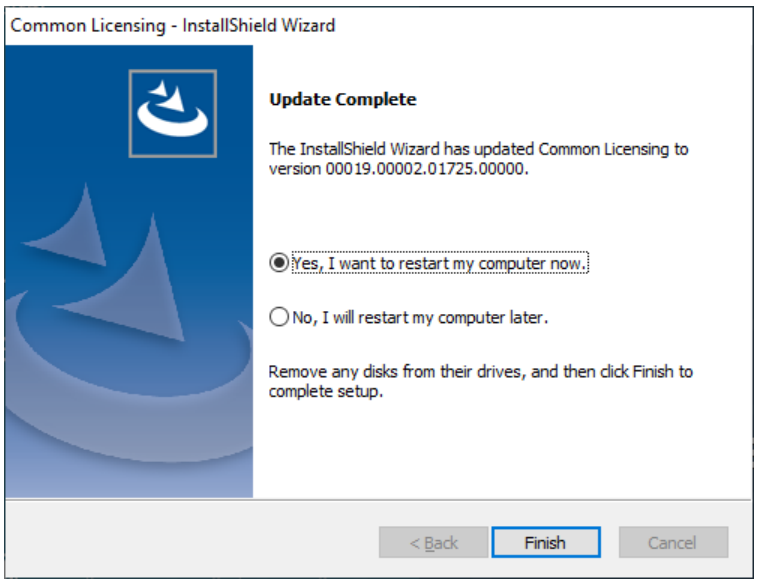


Figure C-4. Update Complete Window

Appendix D.
8.0 Proficy Historian installation

Start the Historian 8.0 installation program and select Install Historian option.

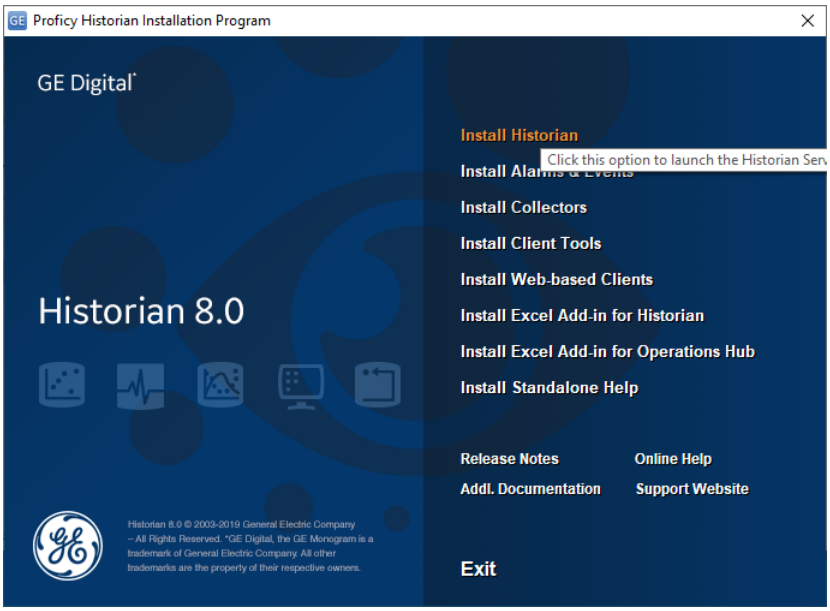


Figure D-1. Historian Setup Menu Window

Click the Next button on the “Welcome” window.

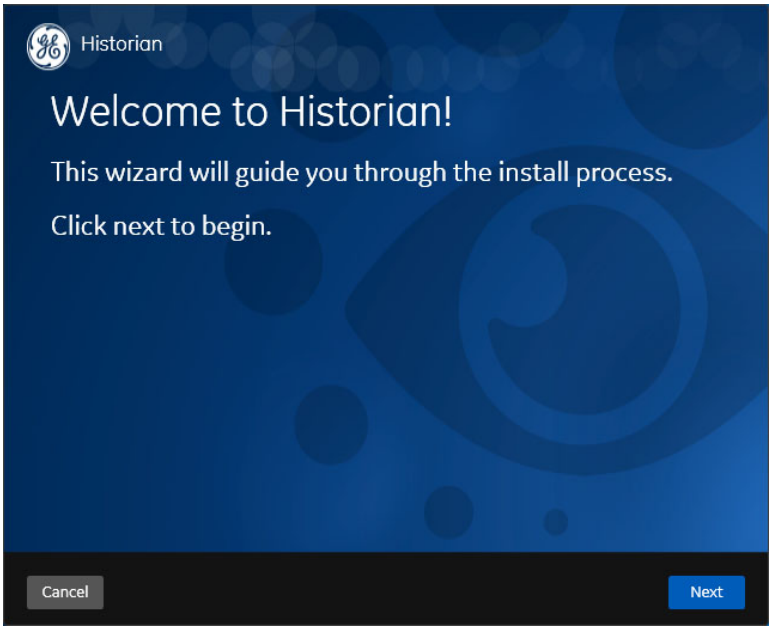


Figure D-2. Historian Setup Welcome Window

Select “Accept” and click the Next button on the “License Agreement” window.

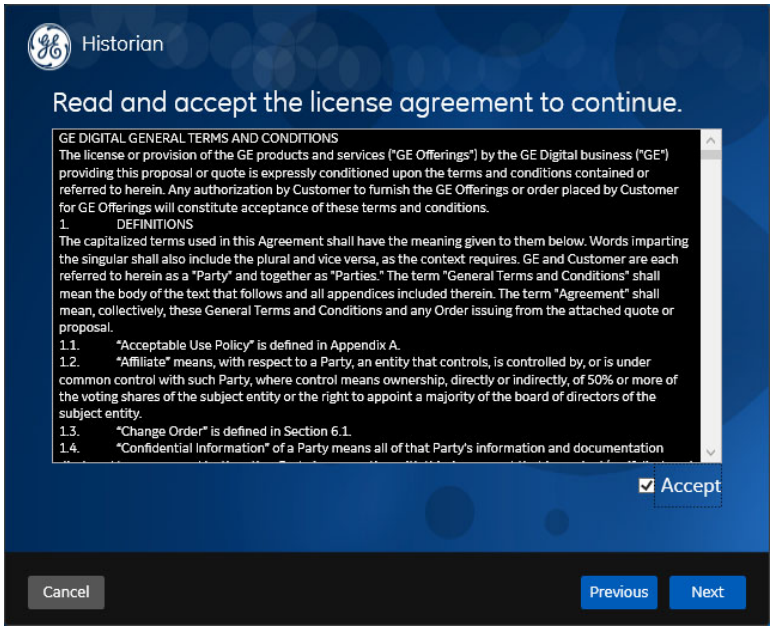


Figure D-3. Historian Setup License Agreement Window

Select destination disc for Historian (default is C:\) on the following window.

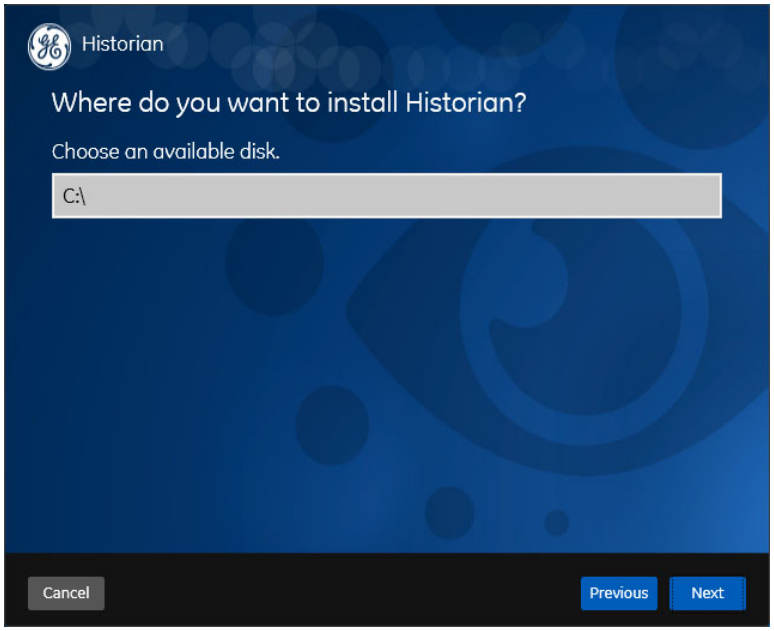


Figure D-4. Historian Setup Destination Disc Window

Select the folder for Historian Data (default is C:\Proficy Historian Data) on the following window.

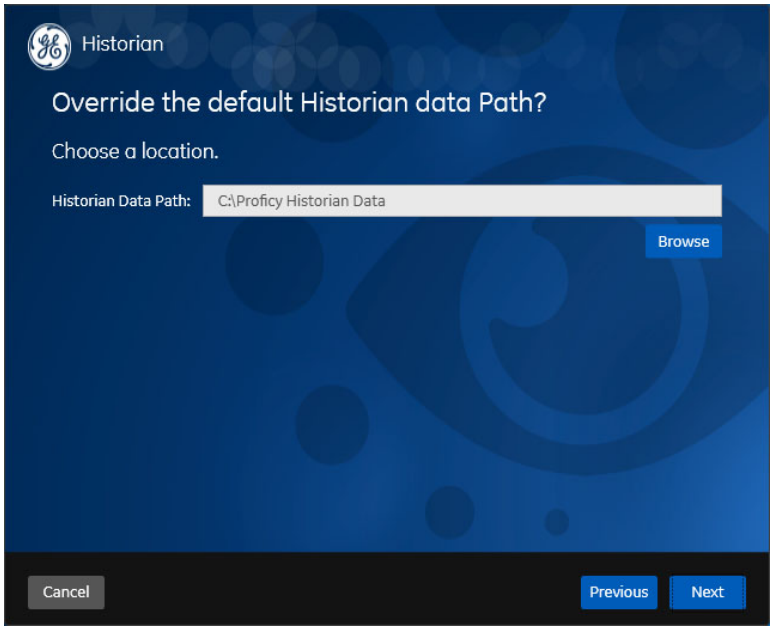


Figure D-5. Historian Setup Destination Data Folder Window

Click the Next button on the “UAA Configuration” window.

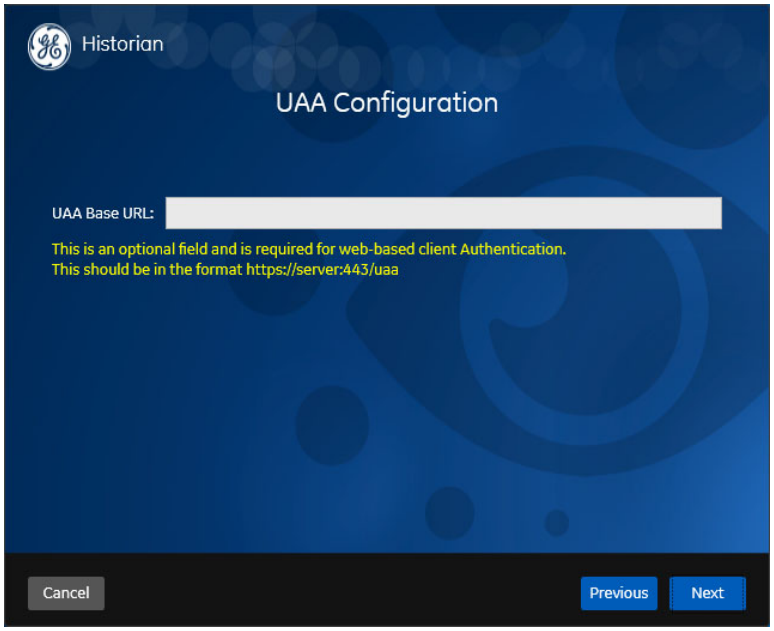


Figure D-6. Historian Setup UAA Configuration Window

Select “Historian Single Server” and click the Next button on the “Choose the Type of Install” window.

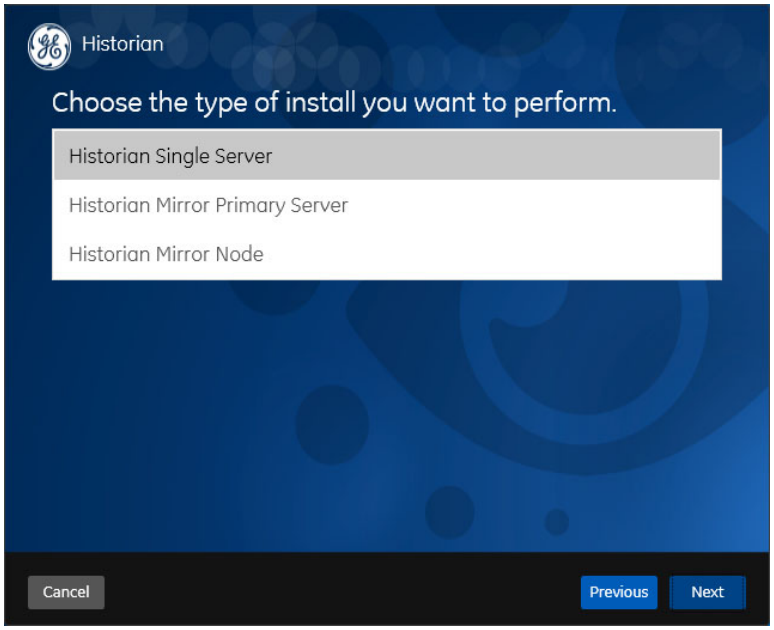


Figure D-7. Historian Setup Choose the Type of Install Window

Click the Install button on the “You are Ready to Install” window.

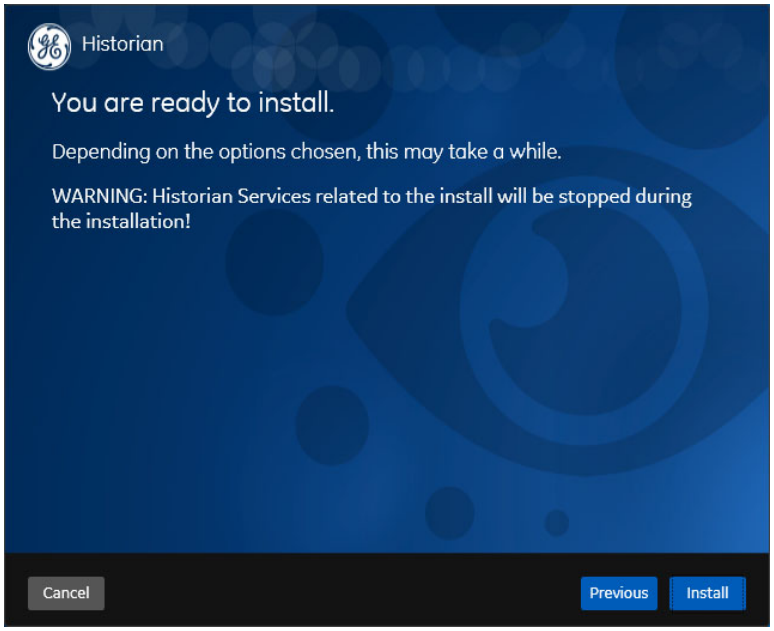


Figure D-8. Historian Setup You are Ready to Install Window

Click the Exit button on the “Installation Successful” window.

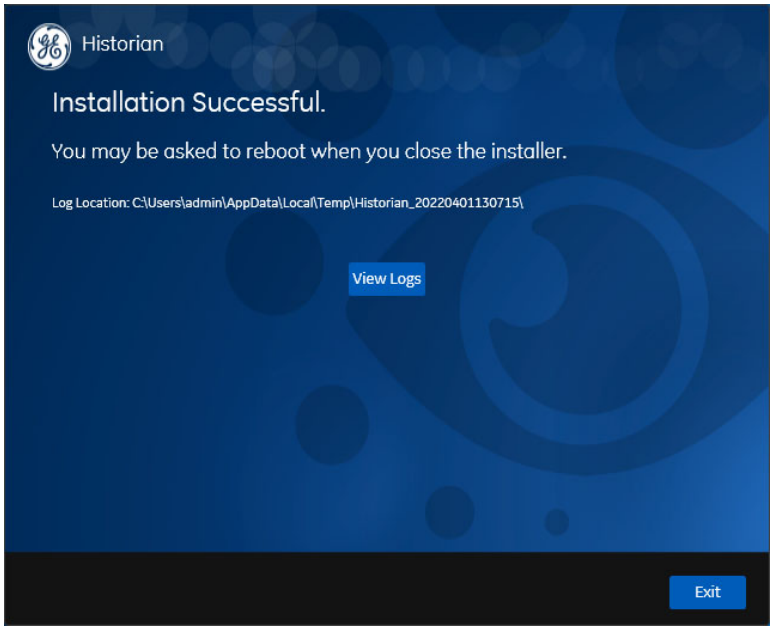


Figure D-9. Historian Setup Installation Successful Window

Click the Yes button on the “Reboot Required” window.

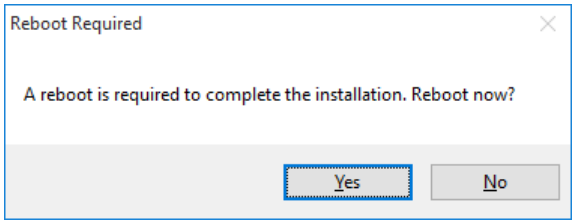


Figure D-10. Historian Setup Reboot Required Window

Appendix E.
8.0 Proficy Historian iFIX Collector Installation

Start the Historian 8.0 installation program and select Install Collectors option.

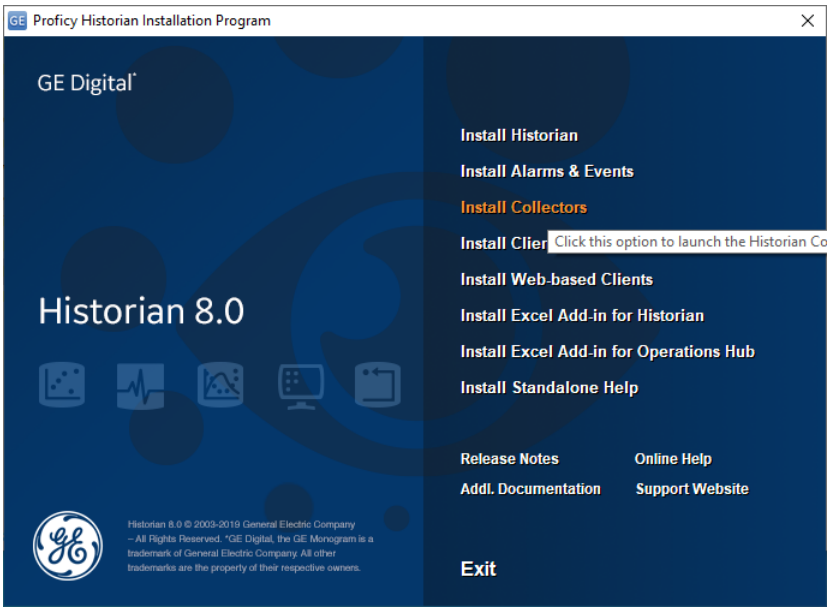


Figure E-1. Historian Setup Menu Window

Click the Next button on the “Welcome to Historian Collectors” window.

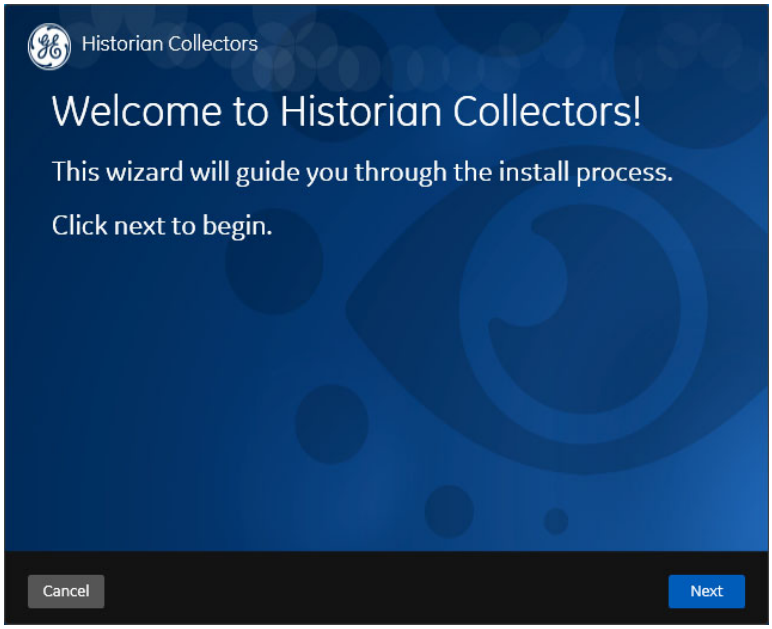


Figure E-2. Historian Collector Setup Welcome to Historian Collectors Window

Select “Accept” and click the Next button on the “License Agreement” window.

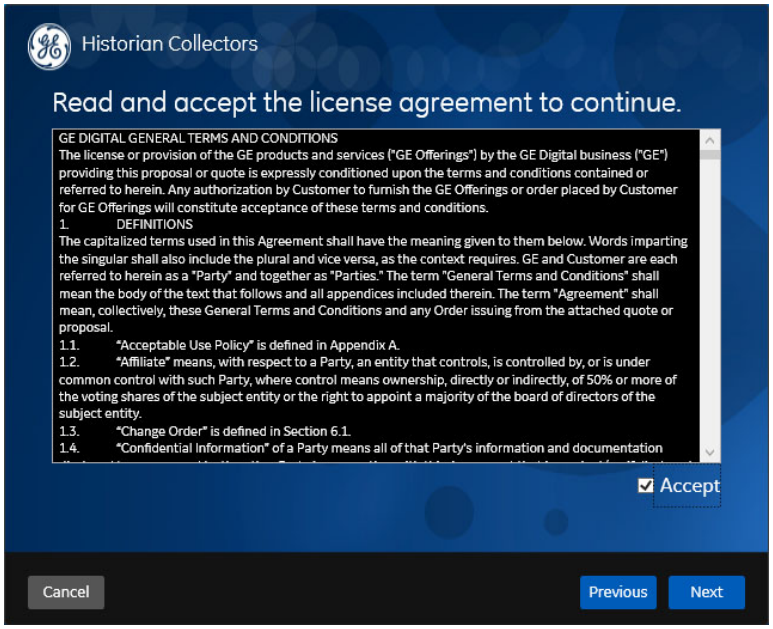


Figure E-3. Historian Collector Setup License Agreement Window

Select the destination disc for Historian Collector (default is C:\) on the following window.

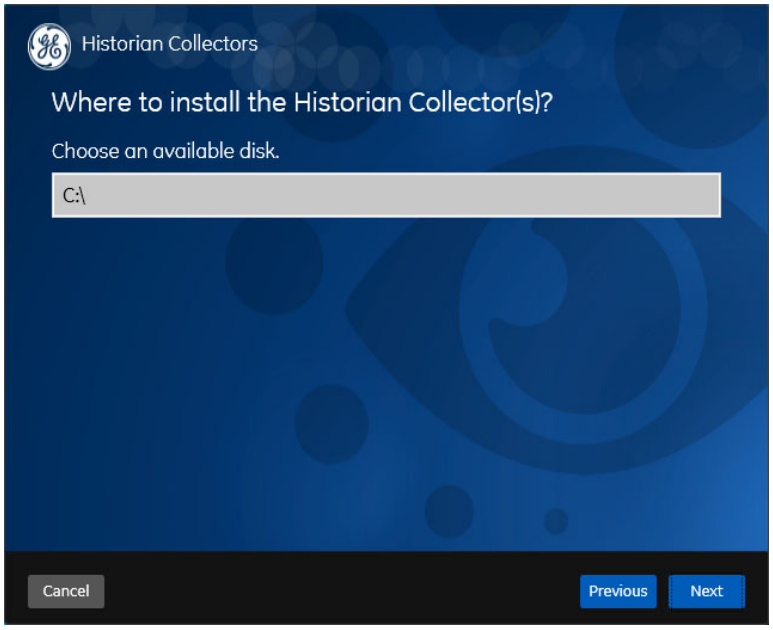


Figure E-4. Historian Collector Setup Destination Disc Window

Select the folder for Historian Data (default is C:\Proficy Historian Data) on the following window.

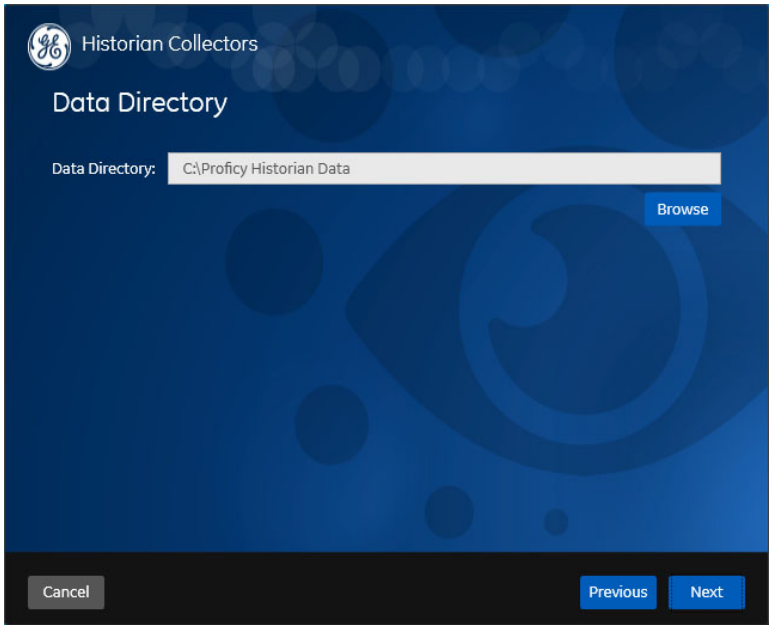


Figure E-5. Historian Collector Setup Destination Data Folder Window

Select “iFix Collector” and click the Next button on the “Choose the Collector(s) to Instal”l window.

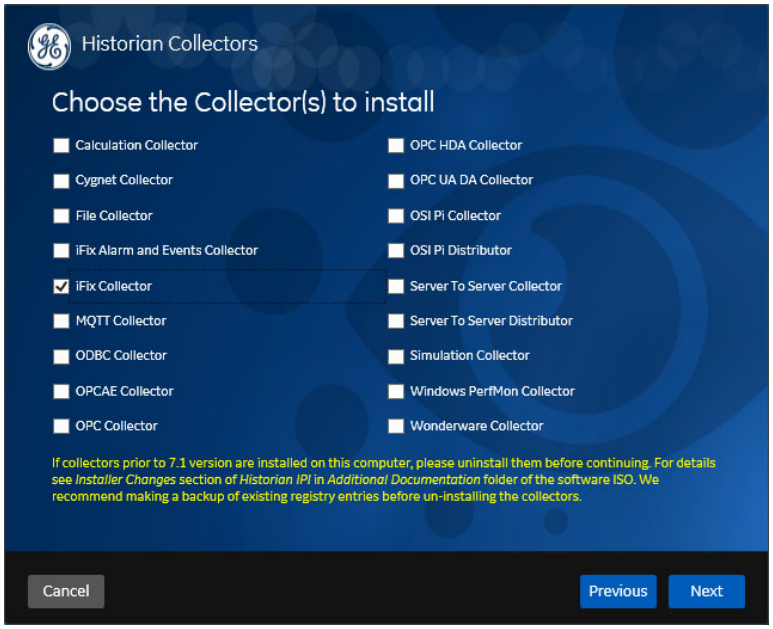


Figure E-6. Historian Collector Choose the Collector(s) to Install Window

Click the Next button on the “Begin Configurations for iFix Collector” window.

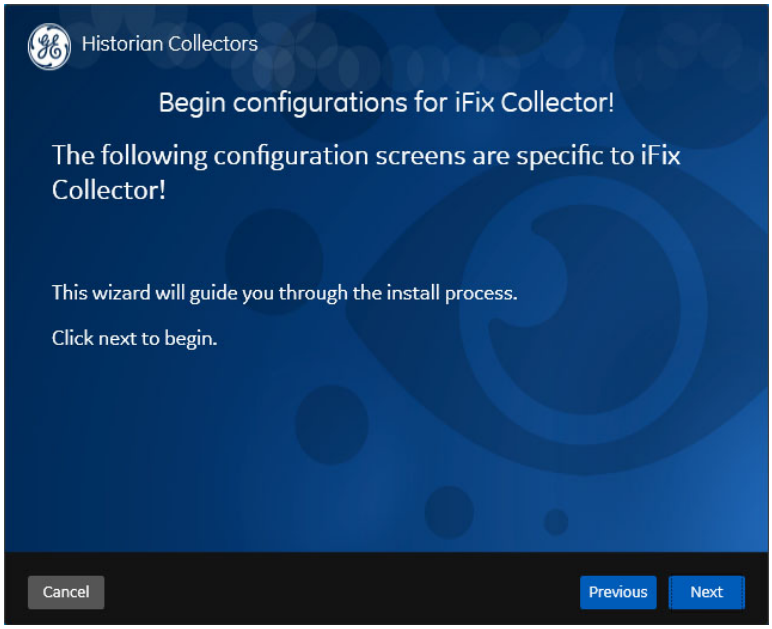


Figure E-7. Historian Collector Begin Configurations for iFix Collector Window

Click the Next button on the “Provide the Name of the Destination Historian Server” window. The default Destination Server is set to the local Historian Server installed on the computer.

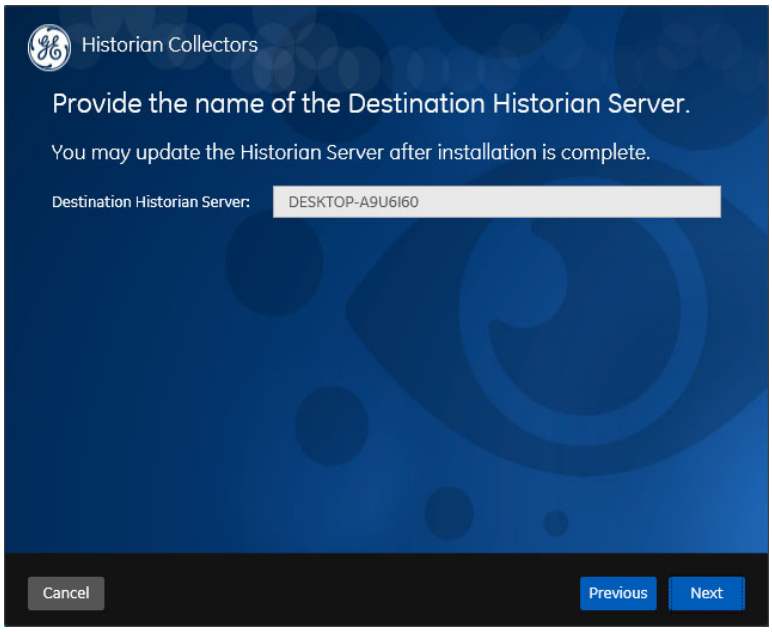


Figure E-8. Historian Collector Provide the Name of the Destination Server Window

Click the Install button on the “You are Ready to Install” window.

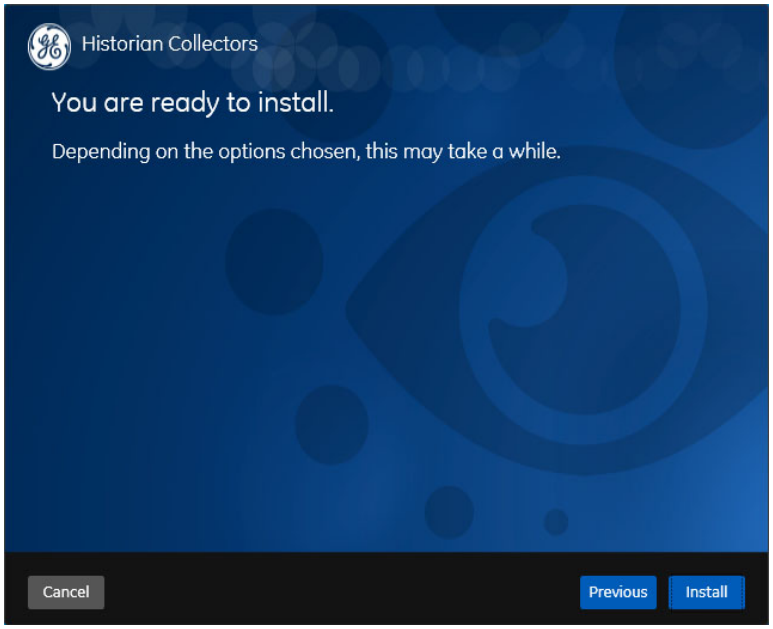


Figure E-9. Historian Collector You are Ready to Install Window

Click the Exit button on the “Installation Successful” window.

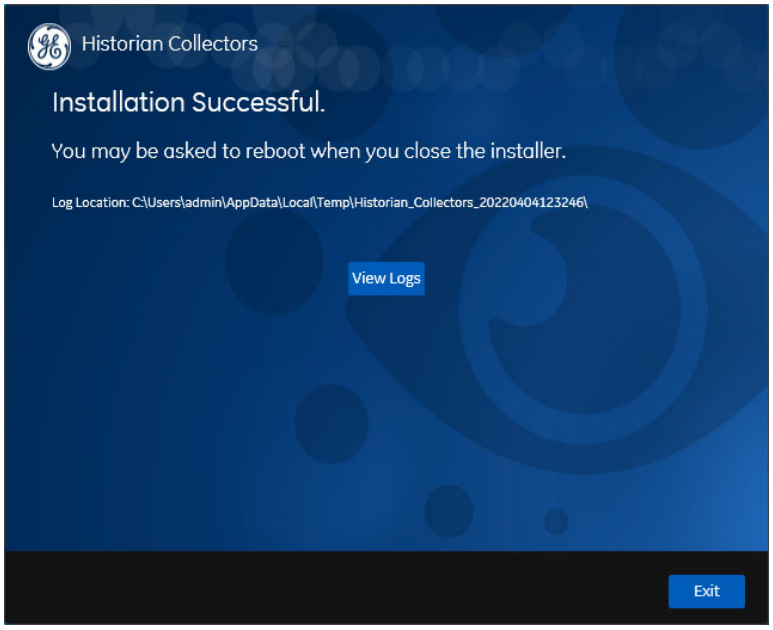


Figure E-10. Historian Collector Installation Successful Window

Released

Click the Yes button on the “Reboot Required” window.

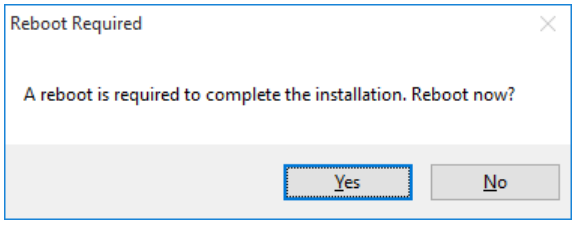


Figure E-11. Historian Collector Setup Reboot Required Window

Appendix F.
Servlink-to OPC Server (SOS) Tool

SOS Communication Link

The HMI is connected to the 5009XT via SOS2 Servlink OPC Server available in SOS Servlink installation package version 5.01 (PN: 9927-1223).

The Woodward SOS2 Servlink OPC server provides an OPC interface for third party OPC clients. It runs on a Windows PC that accesses data on controls using the Woodward proprietary Servlink protocol through an Ethernet connection. SOS2 implements the OPC Data Access 2.0 standard, so other OPC client applications may also function with it.

Features of SOS2

- Establishes communication link between control and a PC
- Supports redundant Ethernet links to a single control
- Support links to many controls at the same time
- Creates a .CSV file of all alarm and trip events

Installing SOS

Select “I agree to the license terms and conditions” and click the Install button on the “SOS Servlink OPC Server Setup” window.

Figure F-1. SOS Servlink OPC Server Setup Window

Click the Close button on the “Installation Successfully Completed” window.

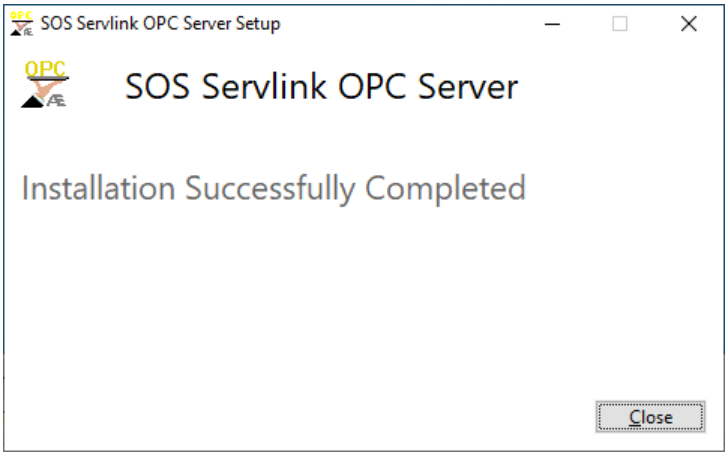


Figure F-2. SOS Installation Successfully Completed Window

Connecting a PC/Laptop to the Control

You will need to connect to the 5009XT with an RJ45 Ethernet cable. Any Ethernet port can be used; however, it is most convenient to use the same network port that handles all LAN communications (if the 5009XT is connected to a plant network). You will need to know the IP address of the Ethernet port.

The Default IP for Ethernet 1 = 172.16.100.15 (subnet = 255.255.0.0)

All information in the communication link between the 5009XT and the PC is done via a Woodward Servlink connection (using the SOS2 tool). It is recommended to initially launch this tool independently to establish a healthy communication link. Once this is done, the PC will cache this information so that future launches will remember 5009XT controls.

To launch SOS independently:
Under Start / All Programs / Woodward / SOS2 Servlink OPC Server
Click on SOS2 Servlink OPC Server
You will see the following window.

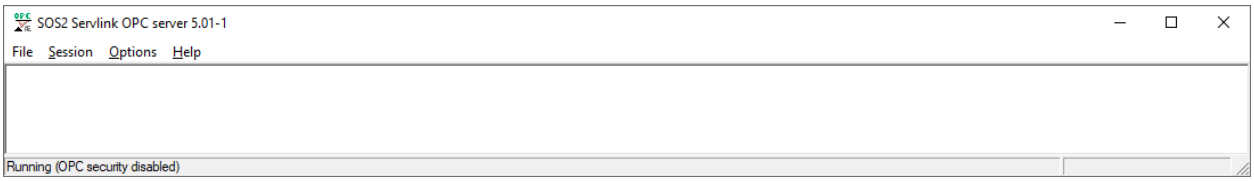


Figure F-3. SOS2 Server Status Window

Under the Session tab, scroll down and select New Session. A dialog box similar to the one below will appear. In the top entry box, enter the IP address of the 5009XT.

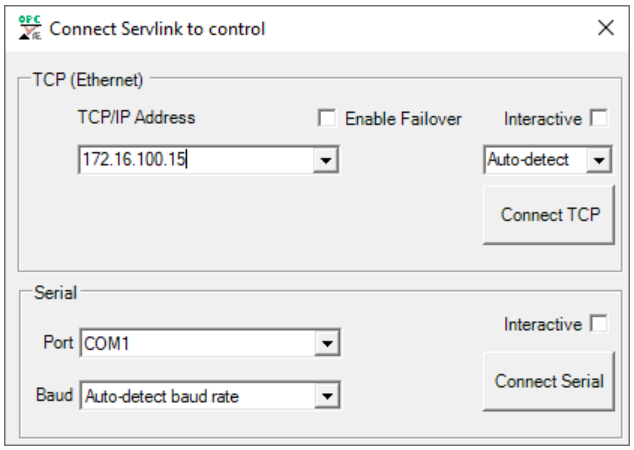


Figure F-4. SOS2 – New Session Window

If you are connected to Ethernet Port 1 of the 5009XT, enter the IP address of this port. The 5009XT default is shown below or enter the IP for your plant LAN network.
Then click on the Connect TCP button.

The SOS2 program will locate the control and establish a Woodward Servlink connection between the control and your PC. This will take a few seconds to establish, the SOS2 Servlink OPC server window should now look like the figure below (with the IP address being equal to what you typed in above).

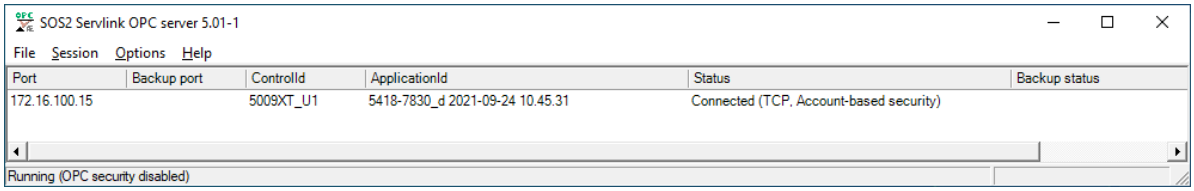


Figure F-5. SOS2 Server Status Window with Active Session

Control Name and Control ID

The default Control Name of production CPU's can be found on the front label. For example:

ControlName VXM00058990

The Control ID is setup in the control application as a tunable string value. This ID will be used by iFIX HMI application to identify the session configured in SOS2 Servlink OPC server.

iFIX HMI application requires 5009XT_U1 Control ID.

Released

Appendix G.
5009XT HMI Configuration Procedure

Required Software Before HMI Configuration

Before HMI application configuration, make sure that the following software is installed:

- iFIX 6.1 (installation described in Appendix B)
- Proficy Common Licensing 19.2 (installation described in Appendix C)
- Proficy Historian 8.0 (installation described in Appendix D)
- iFIX Collector (installation described in Appendix E)
- SOS2 Servlink OPC Server 5.01 or higher version (installation described in Appendix F)

Required Hardware Before HMI Configuration

HMI application requires a computer compatible with an operating system equipped with Ethernet port and full HD screen (display resolution 1920x1080).

HMI Application Files

Create C:\IFIX folder on HMI computer hard drive and copy 5009XT folder extracted from 5418_7830.HMI_d.zip file to C:\IFIX folder.

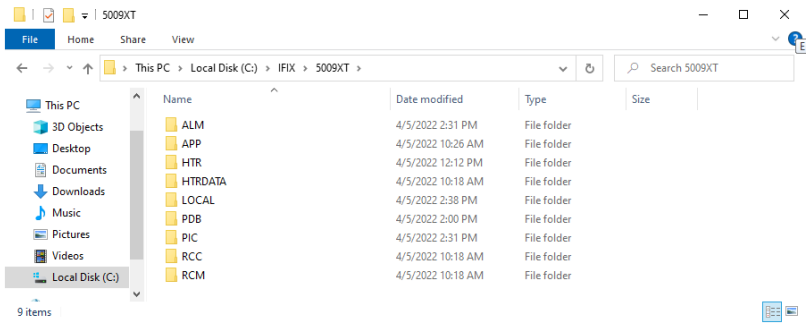


Figure G-1. 5009XT HMI Application Folder Localization

HMI Configuration

Double click the

icon located on Desktop.

Click SCU to start iFIX system configuration on the “iFIX Startup” window

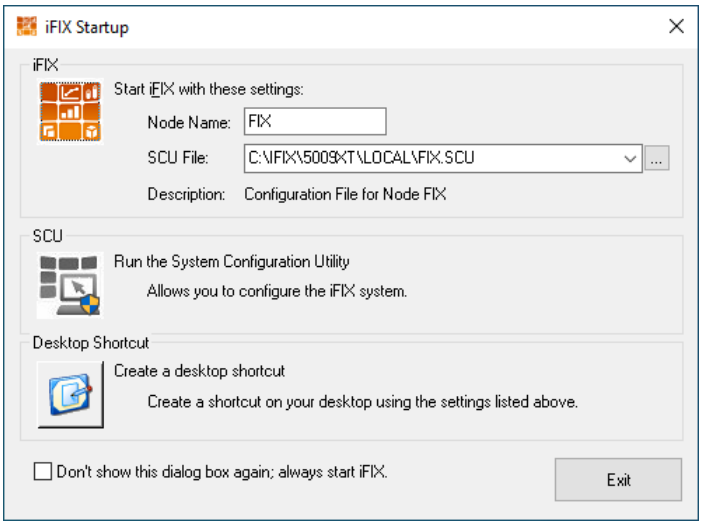


Figure G-2. iFIX Startup Window

Open C:\IFIX\5009XT\LOCAL\FIX.SCU file using the File\Open option on the SCU configuration window.

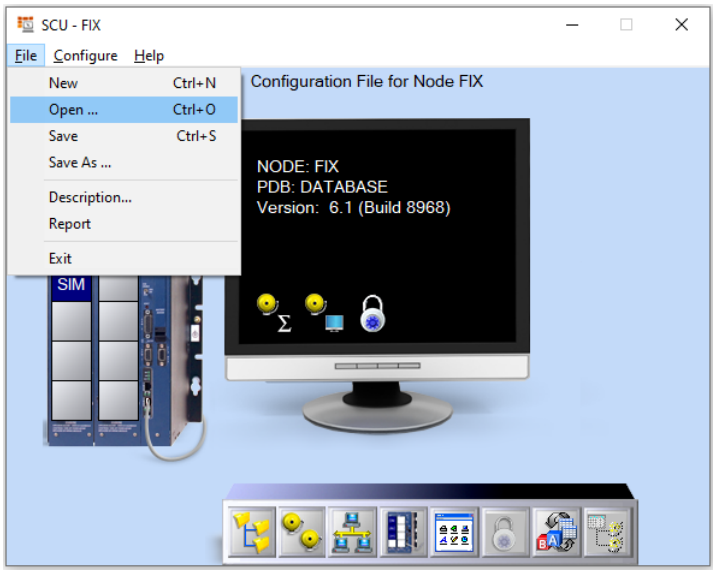


Figure G-3. SCU Configuration Window

Released

Select the Configure\Local Startup option on the SCU configuration window and set C:\IFIX\5009XT\LOCAL\FIX.SCU file as Configuration File on the “Local Startup Definition” window.

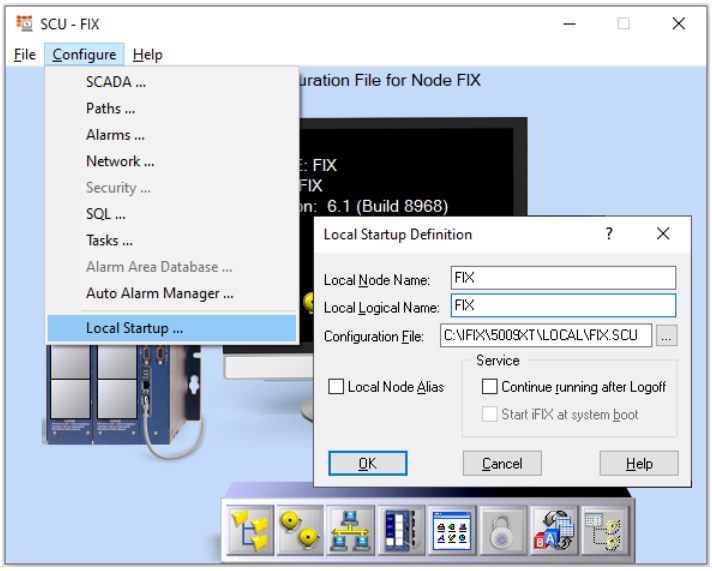


Figure G-4. Local Startup Definition Window

Double click the OPC icon on the SCU configuration window to start “Proficy iFIX OPC Client Server Connection” window, then click the Connect button.

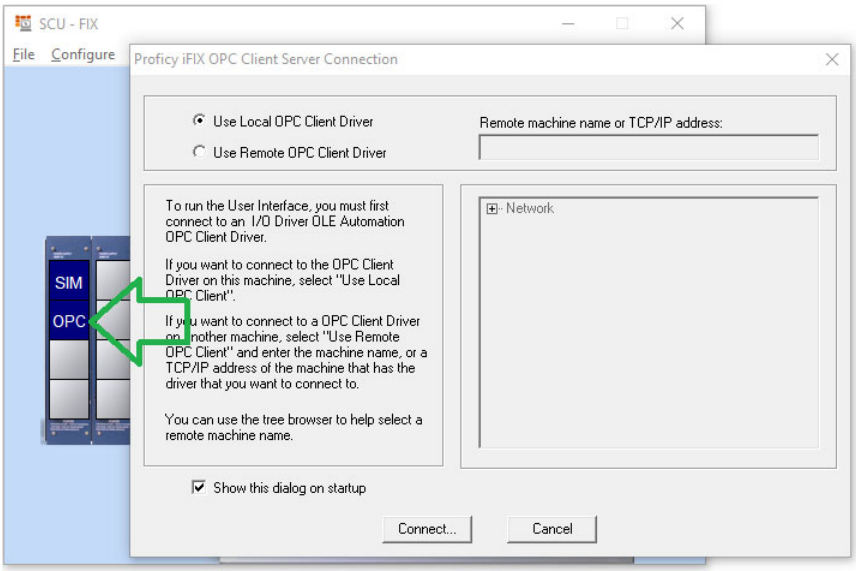


Figure G-5. iFIX OPC Client Server Connection Window

Select the File\Open option on the “OPC Power Tool” window and open C:\IFIX\5009XT\PDB\FIX.OPC file.

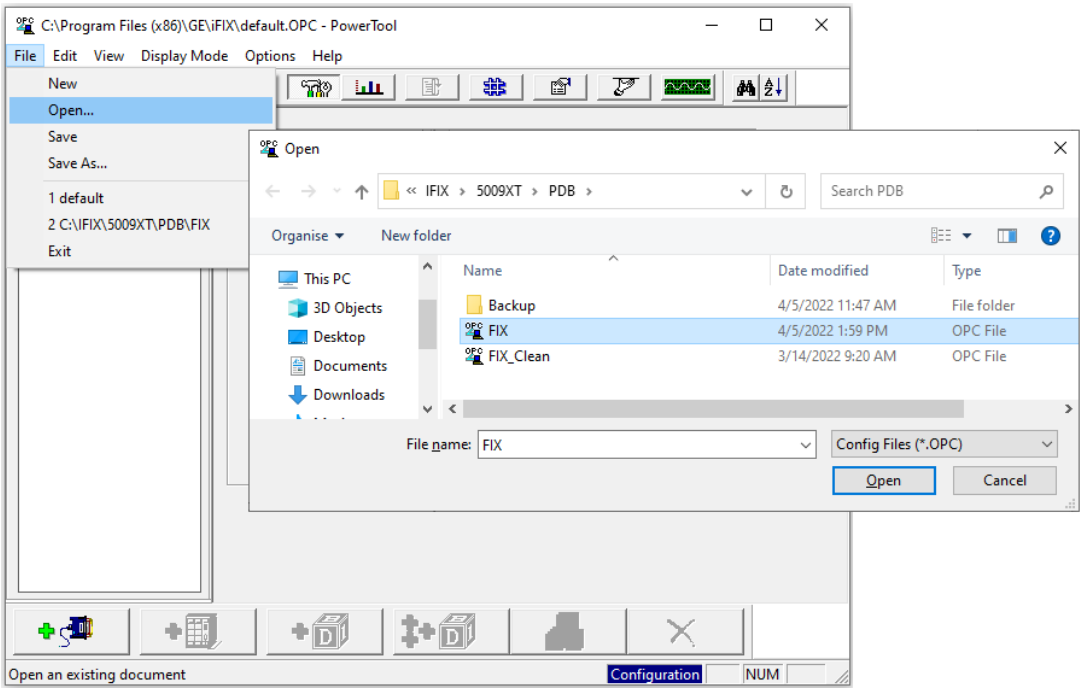


Figure G-6. OPC Power Tool Window

Select the Options\Setup option on “OPC Power Tool” window and configure Default Path page as below.

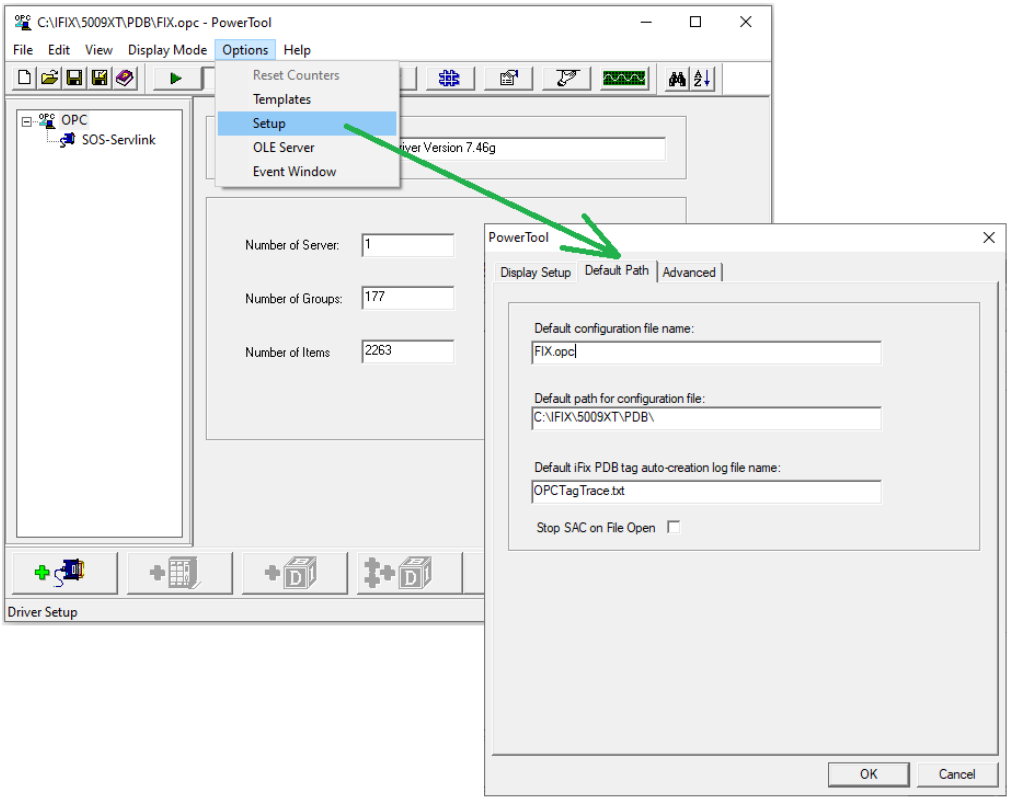


Figure G-7. OPC Power Tool Default Path

Select the Options\Setup option on the “OPC Power Tool” window and configure the Display Setup page as below.

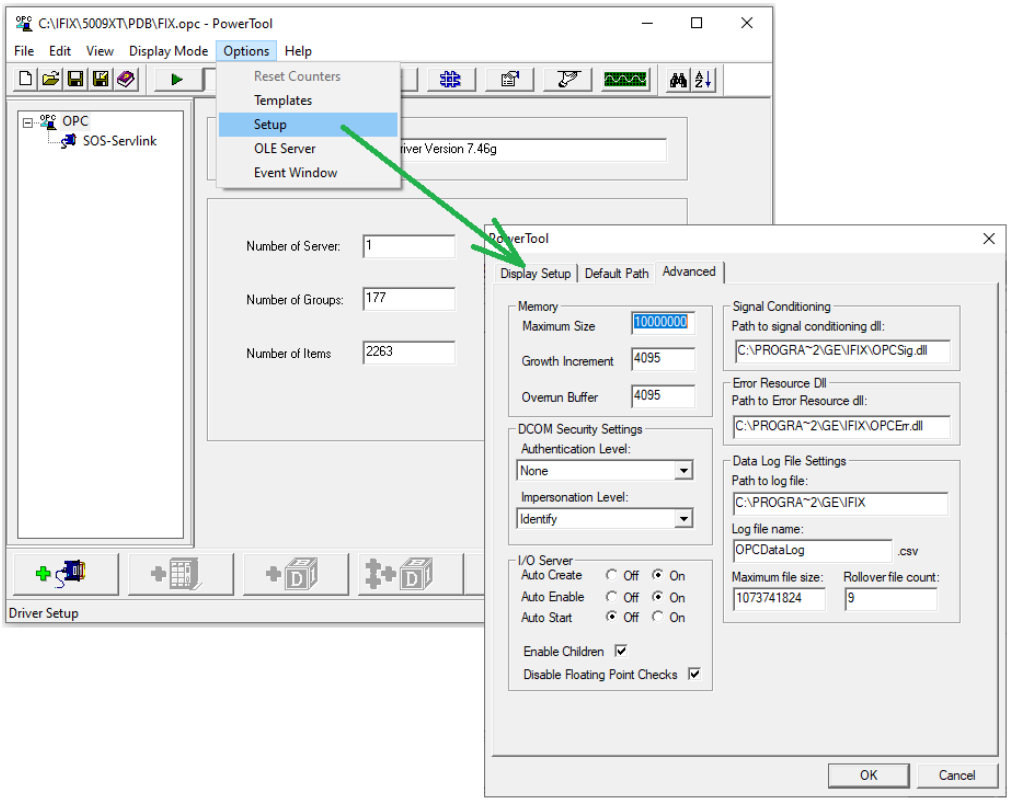


Figure G-8. OPC Power Tool Display Setup

Click the Save icon and close “OPC Power Tool” window.

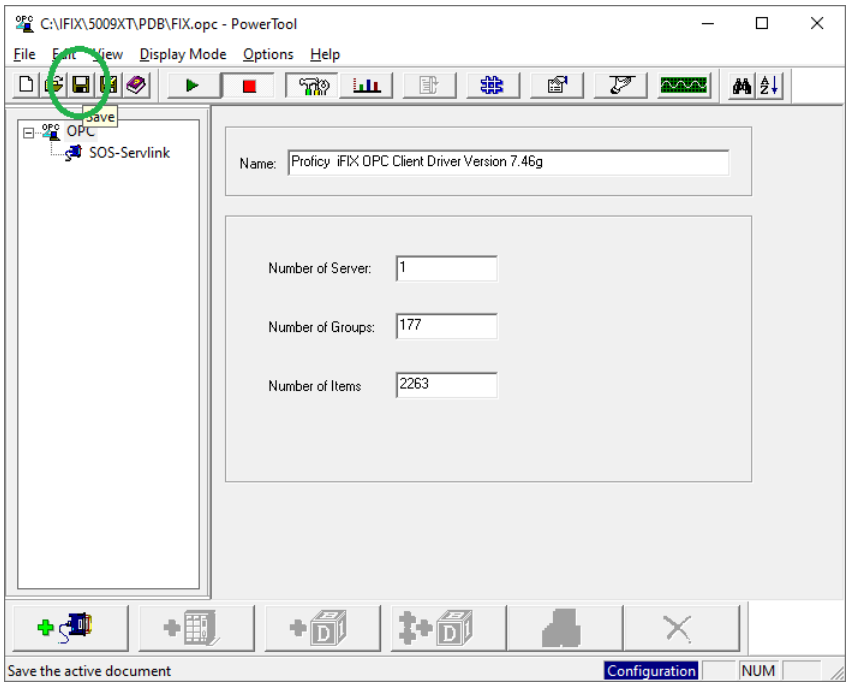


Figure G-9. OPC Power Tool Window – Save Configuration

Save the SCU configuration and close SCU window.

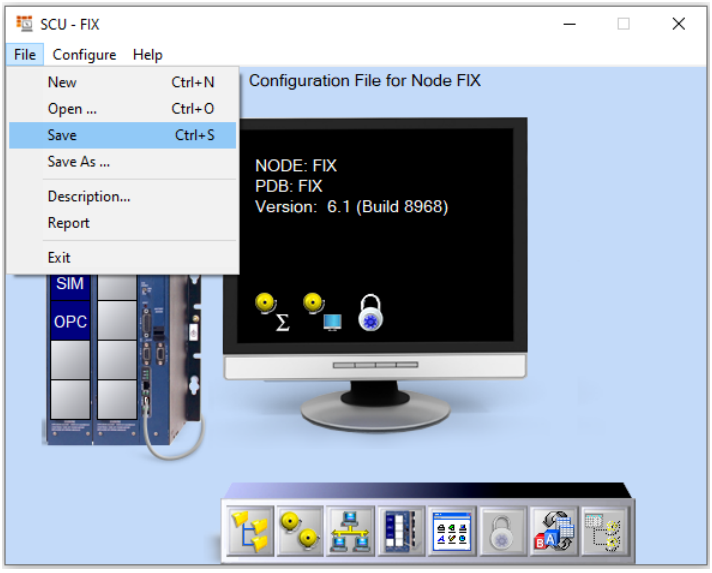


Figure G-10. SCU Configuration Window – Save Configuration

Double click the

icon located on Desktop.

Click Desktop Shortcut to create a desktop shortcut icon (recommended shortcut name is 5009XT).

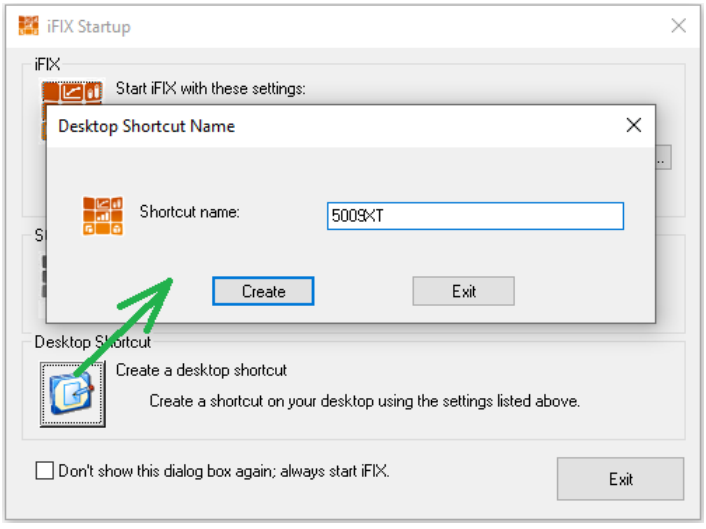


Figure G-11. Create Desktop Shortcut

Open C:\IFIX\5009XT\LOCAL\APPLICATION.ini file and check if OPC_Server settings are correct (modify if required).

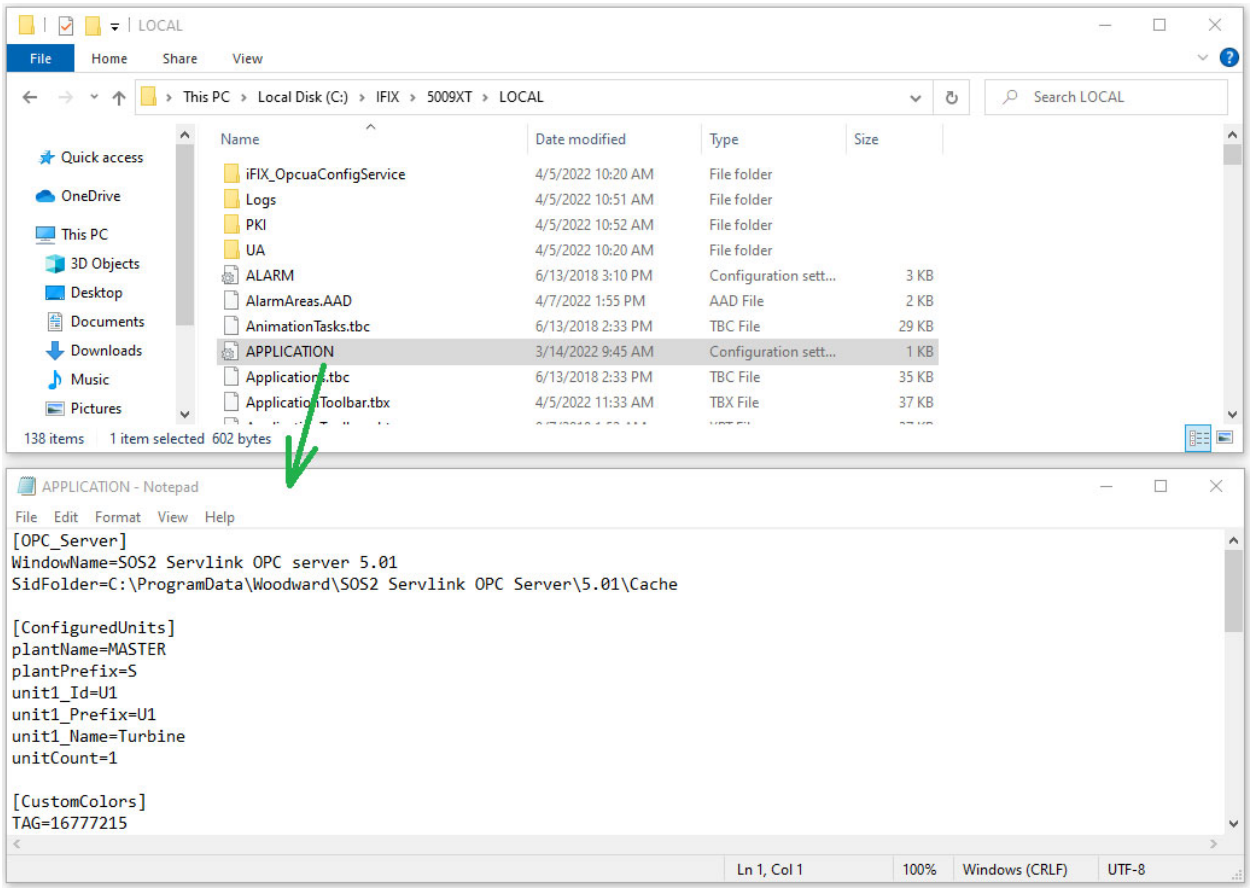


Figure G-12. APPLICATION.ini File

Note: C:\ProgramData folder has a hidden attribute. File Explorer can show hidden files and folders only if “show hidden files, folders and drives” option is enabled (see below).

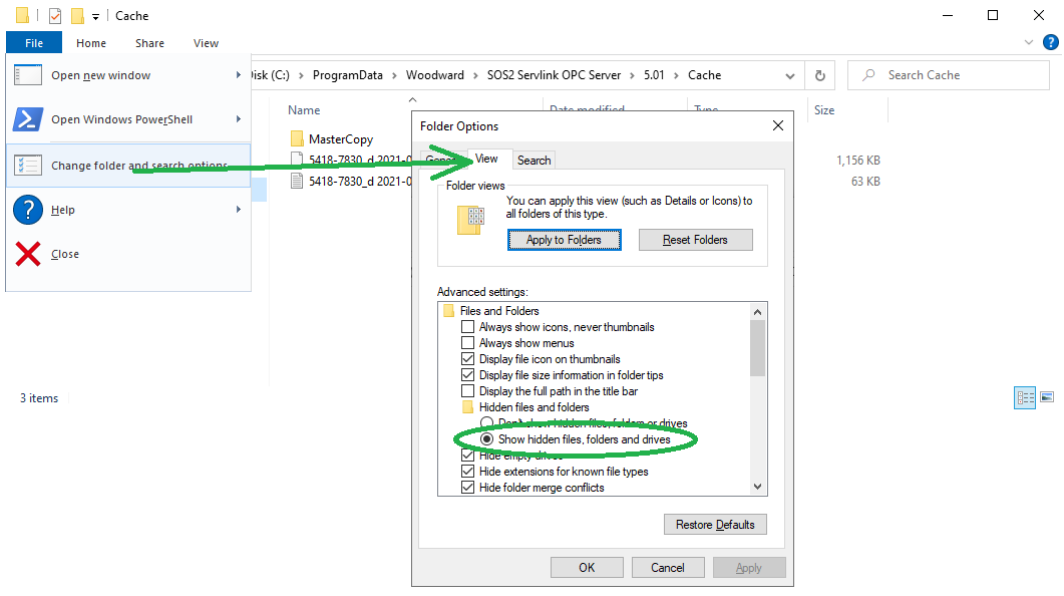


Figure G-13. Show Hidden Files, Folders and Drives Option in File Explorer

Released

Connect iFIX license dongle key to the computer and restart the computer.

Figure G-14. iFIX License Dongle Key

First HMI Application Start

Note: Before the first HMI application start, it is recommended that you configure the 5009XT unit using the example configuration screens in the GUI application available in RemoteView tool (described in manual 35135V2 in Appendix L).

Double click the 5009XT icon located on Desktop (created desktop shortcut) to start the HMI application. Login to the HMI application as administrator (User: admin Password: 1113).

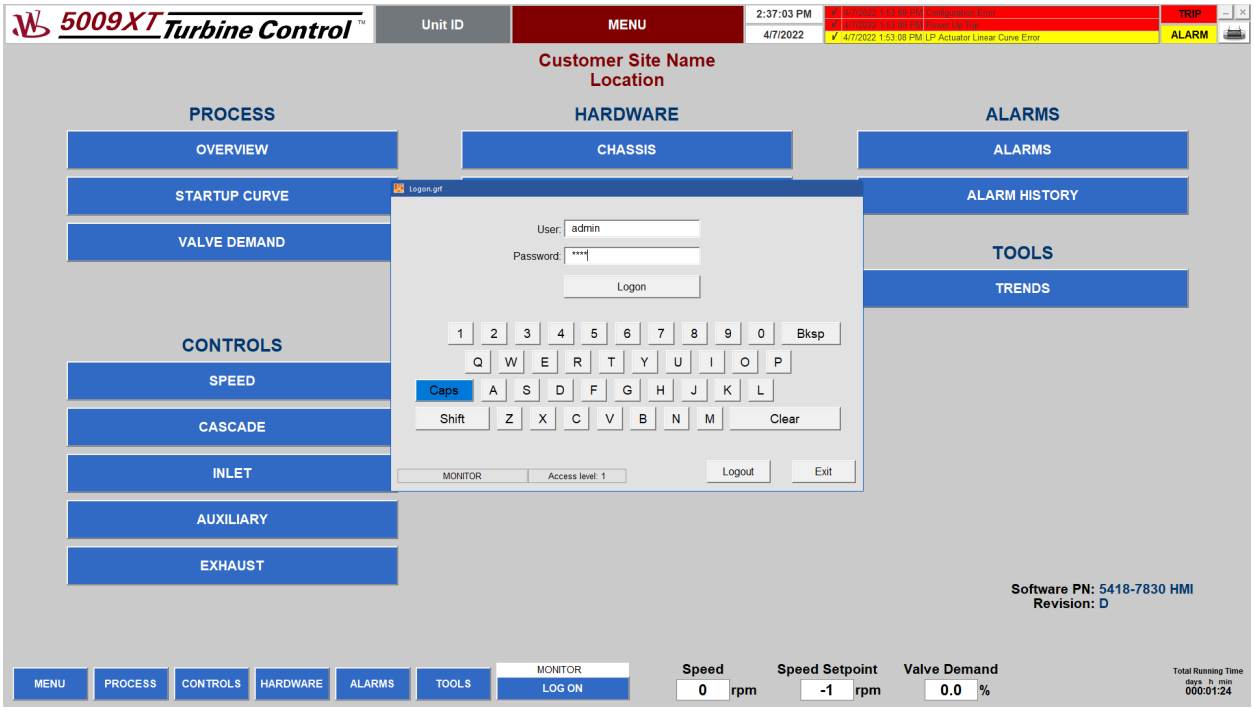


Figure G-14. HMI Menu Screen with Login Window

Click “Shrink SOS2 OPC Server SID file” and wait for the message window (shown below).
The shrunken SID file will increase SOS2 Servlink OPC server performance.

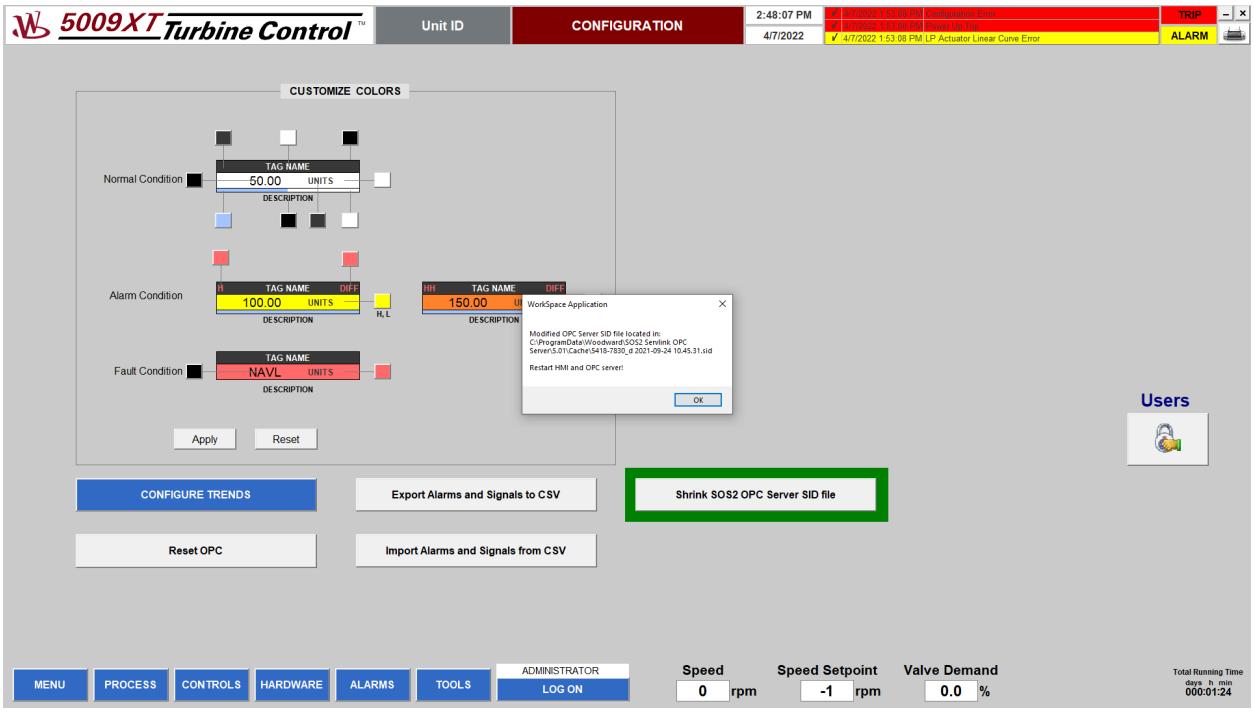


Figure G-15. Shrink SOS2 OPC Server SID File

Click the CONFIGURE TRENDS button to open the Trends Configuration screen.
Click the “Generate Historian Tags” button on the “Trends Configuration” screen and confirm (click Yes on Confirmation window).

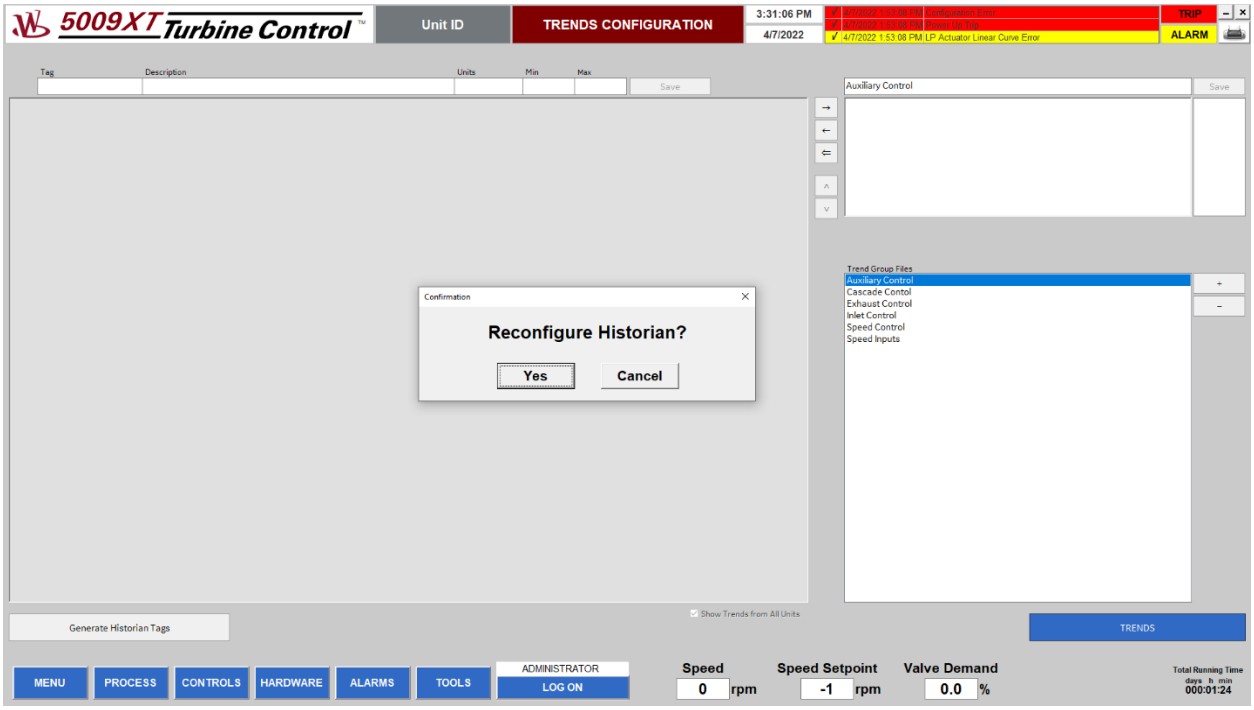


Figure G-16. Trends Configuration Screen (Generate Tags)

Verify trends (Tag, Description, Units, Min, Max) and save after update.
Create additional trend groups and assign signals if required.

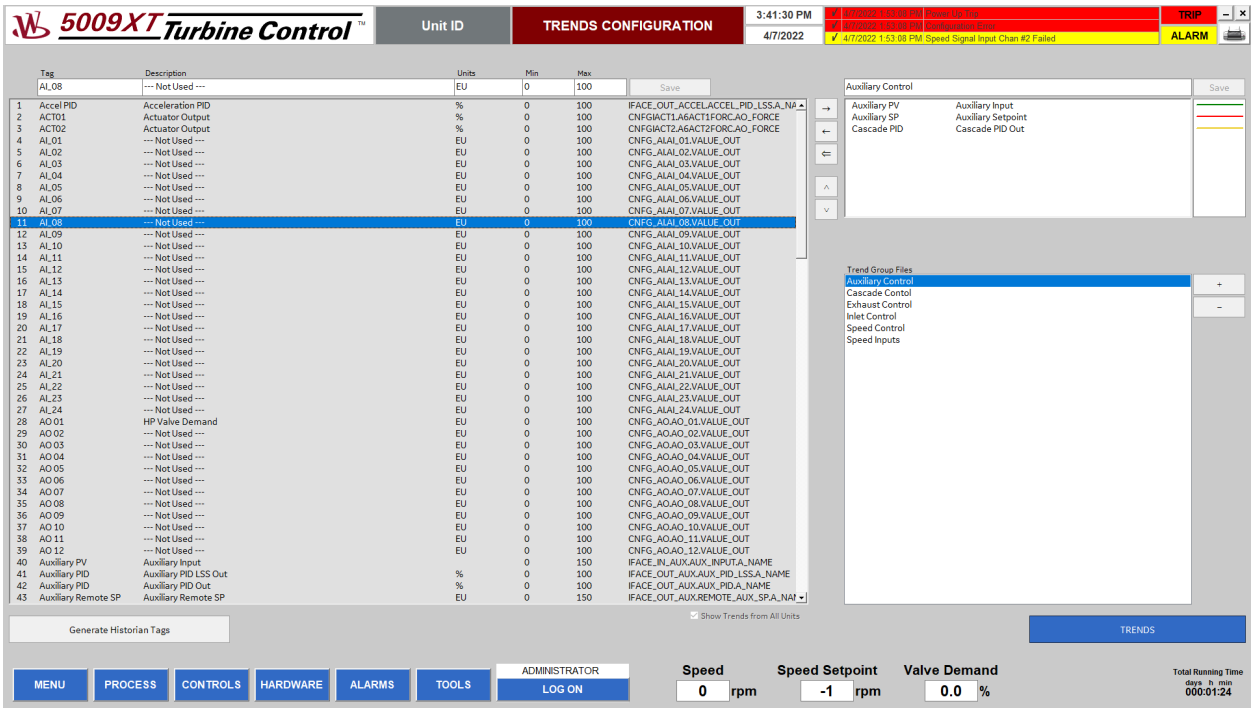


Figure G-17. Trends Configuration Screen

Verify trends settings on controller pop-ups and update if required (Tag, Description, Min, Max, Units).

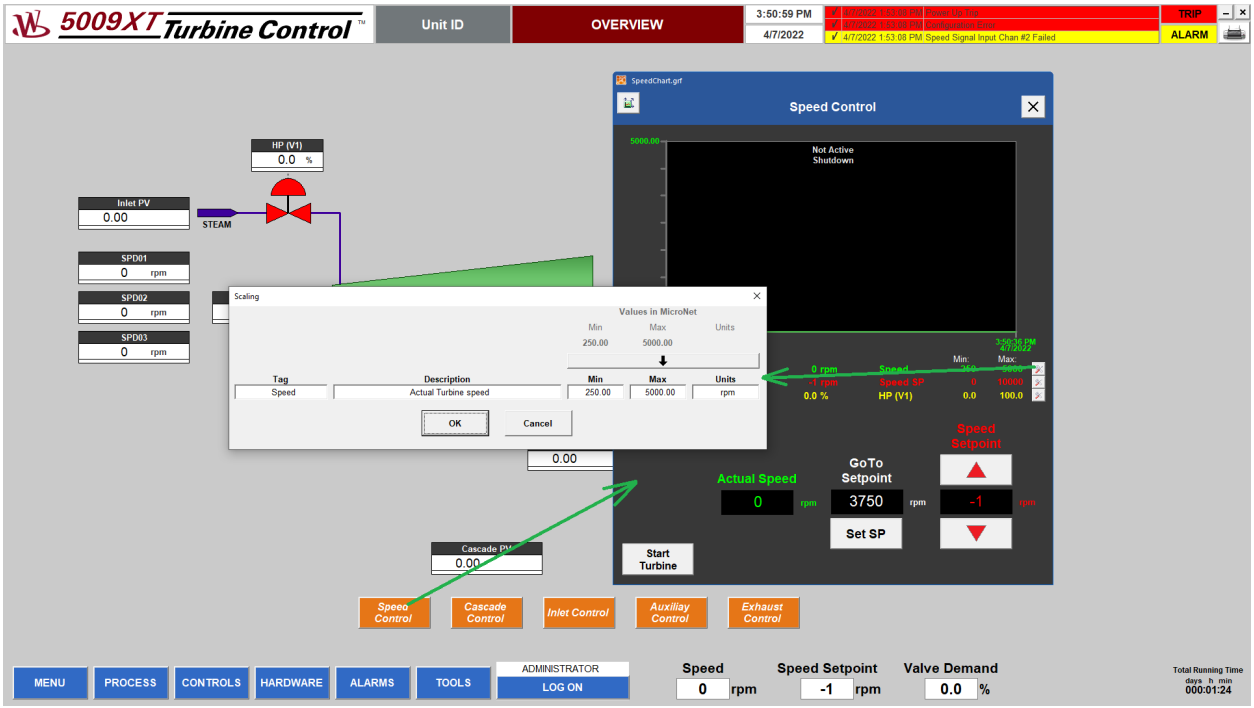


Figure G-18. Trends on Controller Pop-ups

After trends configuration, close iFIX (x button in right up corner) and restart HMI computer.

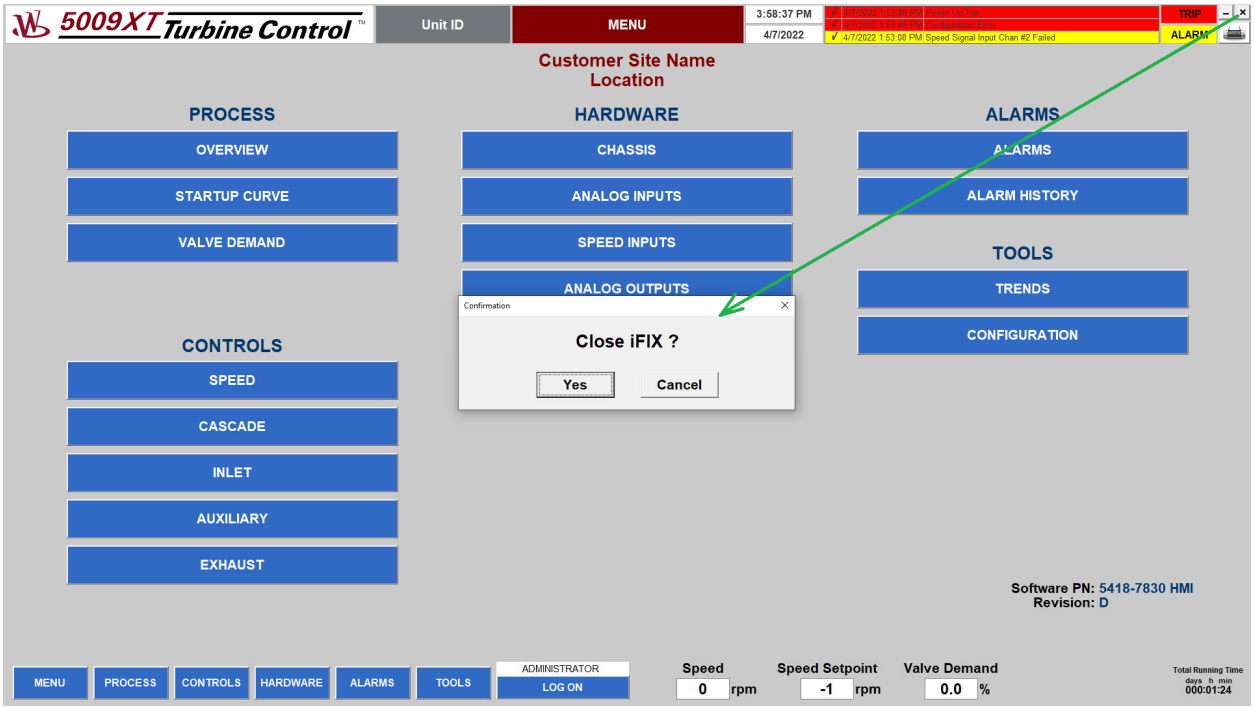


Figure G-19. Close iFIX

Released

Revision History

Revision –

- New manual

Released

Declarations

EU DECLARATION OF CONFORMITY

EU DoC No.:	00421-04-EU-02-01
Manufacturer's Name:	WOODWARD INC.
Manufacturer's Contact Address:	1041 Woodward Way Fort Collins, CO 80524 USA
Model Name(s)/Number(s):	5009FT, 5009XT
The object of the declaration described above is in conformity with the following relevant Union harmonization legislation:	Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to electromagnetic compatibility (EMC) Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits
Applicable Standards:	EN 61000-6-4, 2007 A1, 2011: EMC Part 6-4: Generic Standards Emissions for Industrial Environments EN 61000-6-2, 2005: EMC Part 6-2: Generic Standards - Immunity for Industrial Environments EN61010-1, 2010: Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1:General Requirements

This declaration of conformity is issued under the sole responsibility of the manufacturer
We, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s).

MANUFACTURER

Signature	
Full Name	**Mike Row**
Position	**Engineering Supervisor**
Place	**Woodward, Fort Collins, CO, USA**
Date	**15-Jul-2019**

5-09-1183 Rev 31

Released

We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com

Please reference publication 35135V3.

B 3 5 1 3 5 v 3 : -

PO Box 1519, Fort Collins CO 80522-1519, USA
1041 Woodward Way, Fort Collins CO 80524, USA
Phone +1 (970) 482-5811

Email and Website—www.woodward.com

Woodward has company-owned plants, subsidiaries, and branches, as well as authorized distributors and other authorized service and sales facilities throughout the world.

Complete address / phone / fax / email information for all locations is available on our website.