

Accord HMI Runtime

User Guide

Document: [Accord HMI Runtime V1.9 User Guide.Docx](#)

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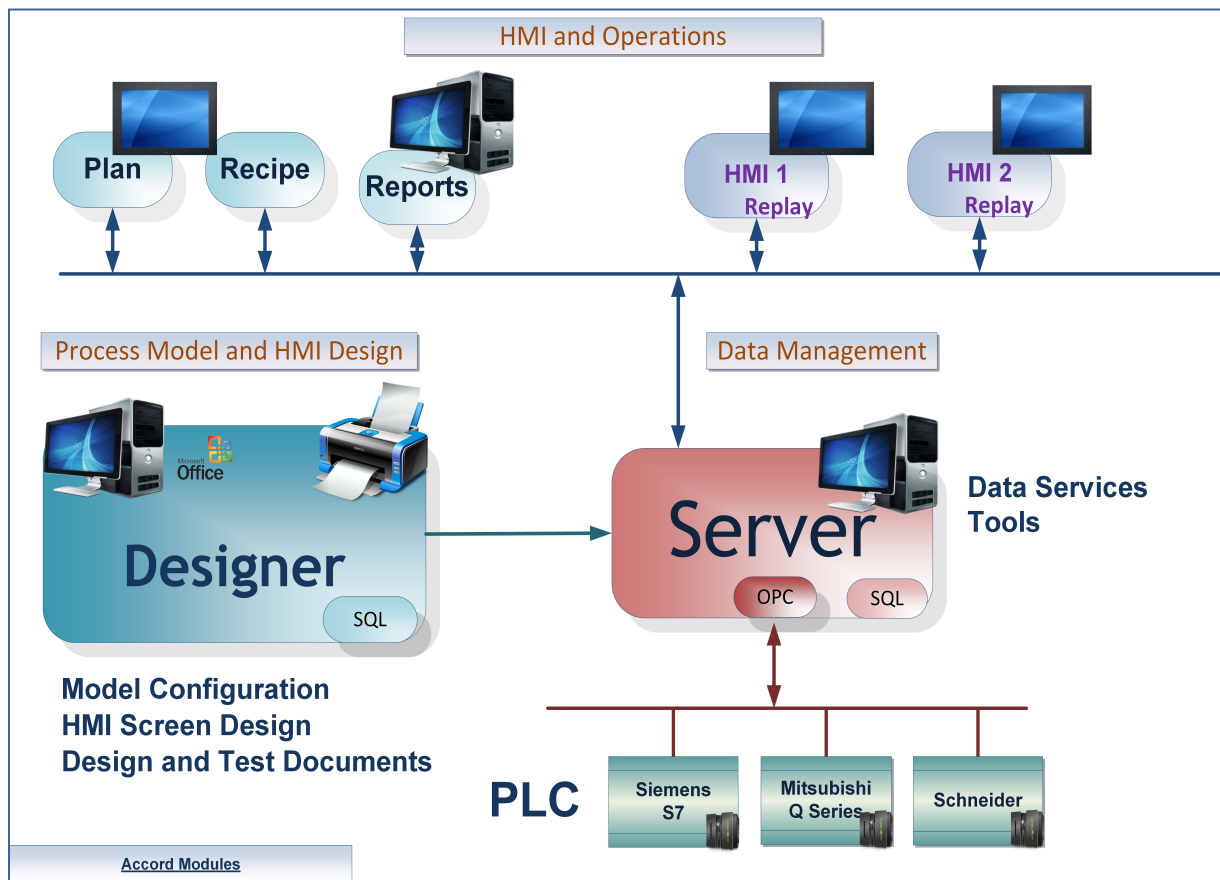
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1 Introduction

Accord Designer provides a graphical environment for engineering personnel to develop process models and associated HMI screens for control systems.

Process Model development is carried out by configuring equipment and programs and HMI screens are developed by placing devices and programs onto the screens. All relevant linking and control is implemented automatically by the Accord Server service. Items are available in HMI, Recipe or other modules when initially configured in Designer.



Accord Platform Modules

The Accord Modules may be hosted on single PC or distributed across many PC's.

This document provides explanations for HMI and Controls operation in Runtime

1.1 List of Accord Platform Modules

Designer	Application for configuring Process Model and HMI screens
PLC Library	PLC Runtime Library to implement control of the process in standard PLC.
Server	For management of PLC communications including download to PLC, Data for HMI's and modules, Logging, Redundancy, Security, Recipes and MES functions.
HMI	A runtime application showing the plant and providing device and program control. The screens are set-up and configured in Designer.
Recipe Manager	For generation and management of recipes of Setpoints, Selection Decisions and Step Times.
Plan / MES	This provides scheduling of program starts or other required actions in sequence and at selectable times.
Process Audit	For query of the Server Database to generate time or event based reports, with export to various formats.
Security Audit	For query of all interaction with the control system.
Relay	This provides transfer of Data to and from networked PLC's.
Emulation	This module provides PLC Emulation for multiple PLC's
Simulation	This module provides simulation of Inputs to PLC for Emulated PLC's

1.2 General Definitions

Plant	The process plant or machine to be modelled and controlled.
Database	The information for configuration and documentation of the control system project is contained in a SQL Server Database.
Controller	A container for the setup information for the Controller – either an Emulator or PLC - and the process model information. When a Process Model is deployed to PLC the PLC then controls the Plant using Process Model data and PLC Library. The library is downloaded to the PLC using the standard PLC editor.
Process Model	The configuration of data representing the Equipment and the Programs contained in the Controller container.

1.3 PLC Control and Accord Process Model Terms

These explanations are meant to reflect common industry understanding. These signals may be either electrical or on a bus system.

PLC Control

Digital Output	A Signal, having two states (On/Off, 1/0, True/False) sent from PLC to control a device.
Digital Input	A Signal, having two states (On/Off, 1/0, True/False) received from digital device or instrument.
Analog Output	A Signal from PLC to a modulating item, usually to control the item.
Analog Input	A Signal received from analog instrument.

Process Model Equipment

Valve	Allows material to flow from one part of plant to another. Always has a PLC Digital Output and may have one or more Feedbacks.
Motor (Pump)	Causes material to be transported. Always has a PLC Digital Output and may have one or more Feedbacks.
Digital Output	An Output from the PLC without Feedback, for a Lamp or Signal.
Analog Device - Control Valve	A Valve whose opening is dependent on an PLC analog output.
Analog Device - Variable Speed Drive	A Motor whose rotation speed depends on PLC Analog Output.
Digital Input – Switch	An indication that a physical state has been achieved.
Analog Input – Transmitter	An indication of the value of a physical state. This is a PLC Analog Input.
PID Controller	PID (Proportional, Integral, Derivative) This is a controller for an analog device, which uses common PID characteristics and terminology. Example - Flow Control loop using Variable Speed pump
Unit	This is a group of devices and instruments which form a logical section of plant. Examples; Water Supply Tank, Reactor, Conveyor, CIP Supply Line

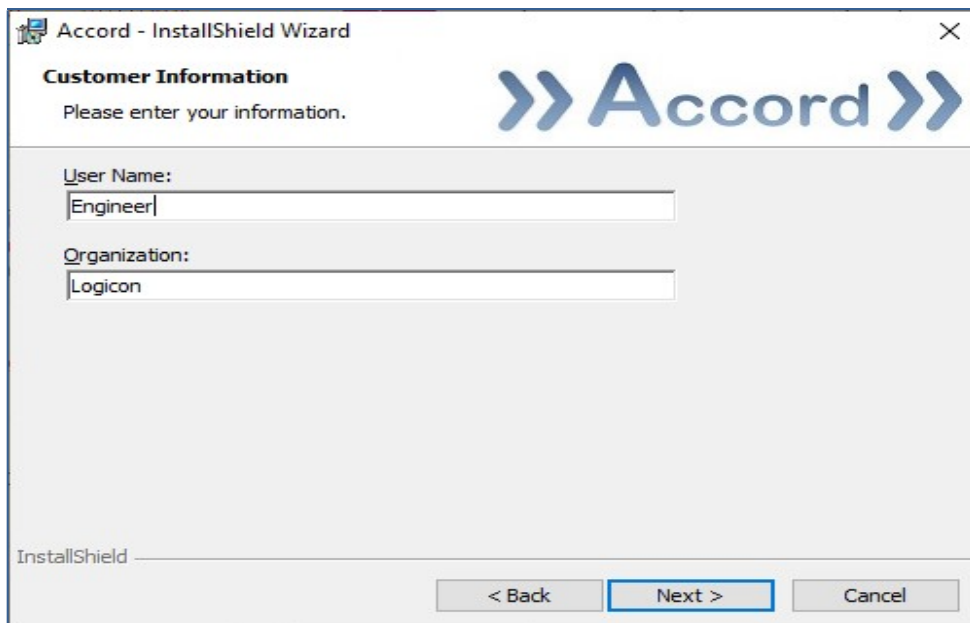
Process Model Program

Program	This is a set of items forming a distinct part of the process. It is also known as a program or sequence, as it may consist of a sequence of steps. Example - A Sequential Program to clean a part of plant
Step	This is an individual program stage performing a specific section of the program. This consists of step components. Example - An Initial Rinse step at start of Cleaning Program
Setpoint	This is a value written in Recipe or HMI or which is examined to determine if a condition is met. It is part of the default Recipe for the Program. Example – Rinse Temperature Setpoint
Activation	This is a signal activate a digital device or digital output.
Operation	This is a function for changing a value or a program status or step. Example – Supply Control Valve to Feed Setpoint.
Comparison	This is a test for status of a single item at a particular point. Example –Water Supply Tank below Empty Level.
Delay	A Wait time for an Event, which goes True when the Event is True for a configured time.
Combination	This allows combined Boolean logic to be applied to items. Example - High Pressure Level Switch AND Pressure High-High Alarm
Alarm	This is a fault in a program due to an operational failure. It may be configured to cause the program to go into Alarm and Hold. Example – Water Supply at Low Level.
Recipe	<ul style="list-style-type: none"> • Step Times : Time for steps in the Program. • Setpoints : List of setpoints for the program. • Decisions: List of On/Off Selections for the program.
Variable	This value is written by the PLC, usually as mathematical Operation result. Example – Water Volume used in Rinse.
Constant	This value is written only at configuration in Accord Builder for common time and setpoint values.

2 Installation

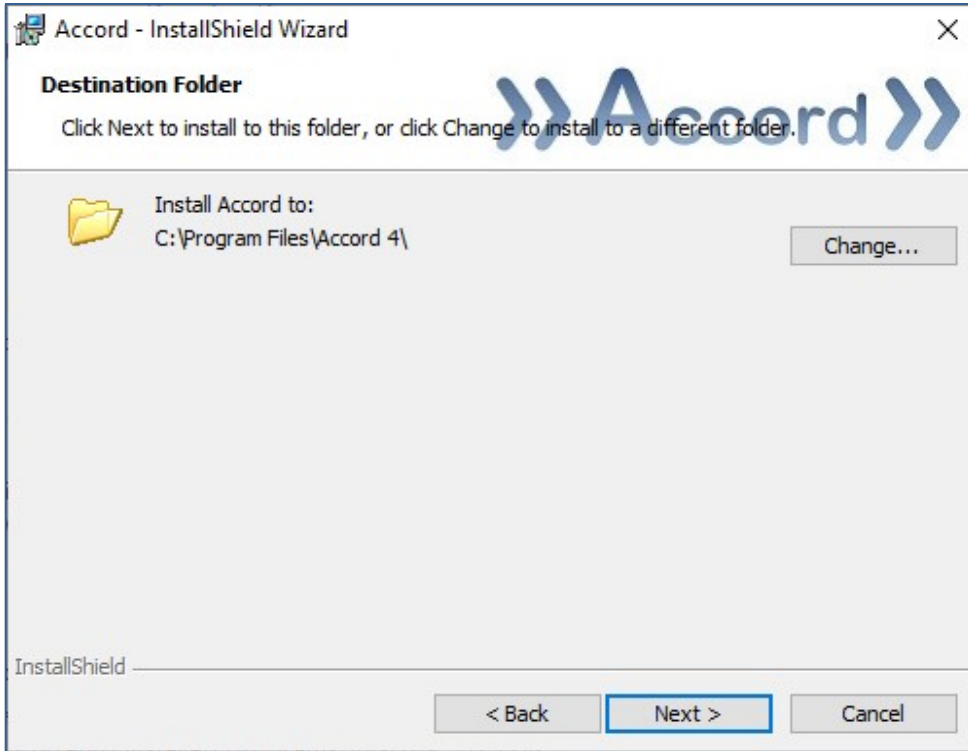
Accord HMI requires a standard PC. Accord Server may require a high performance PC, depending on applications sizes and system requirements.

HMI is installed from Accord Setup Installer. Server should be installed, either on this or a networked PC, to provide Database management.

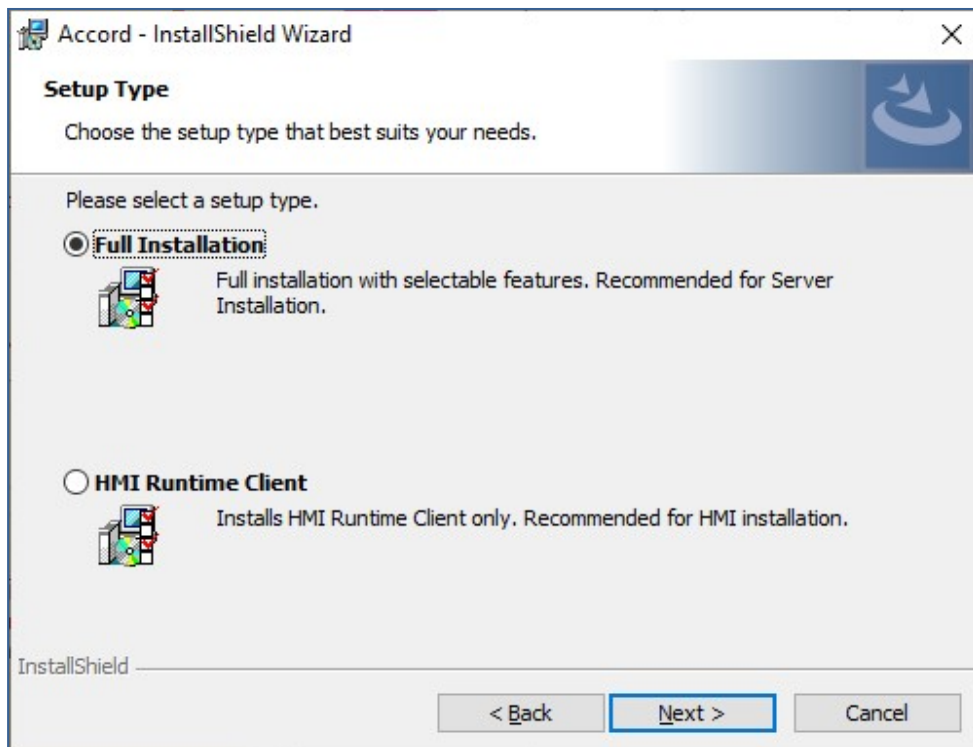


Accord Setup.exe

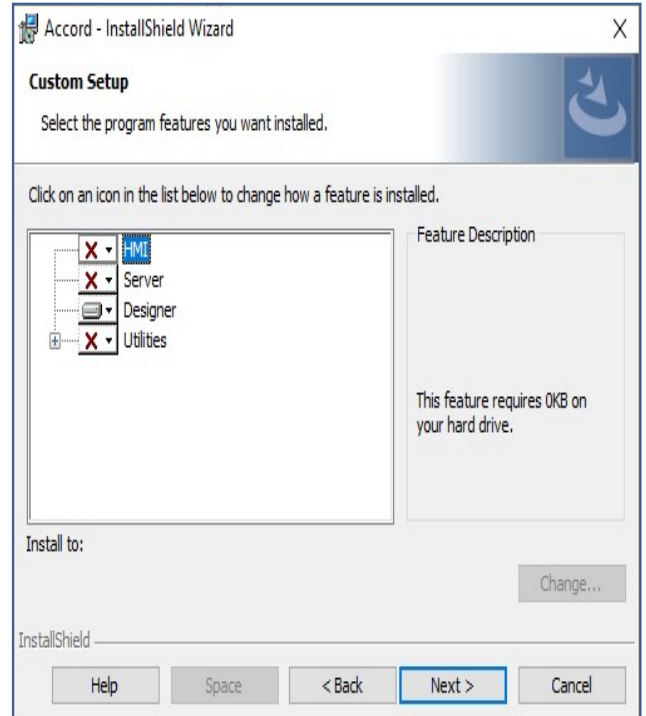
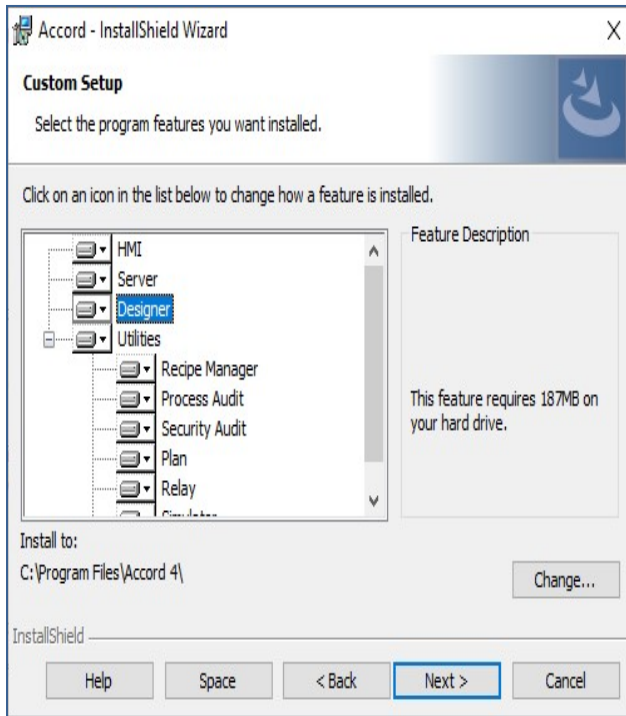
1. Entry of User Name and Organisation



2. Installation Folder selection

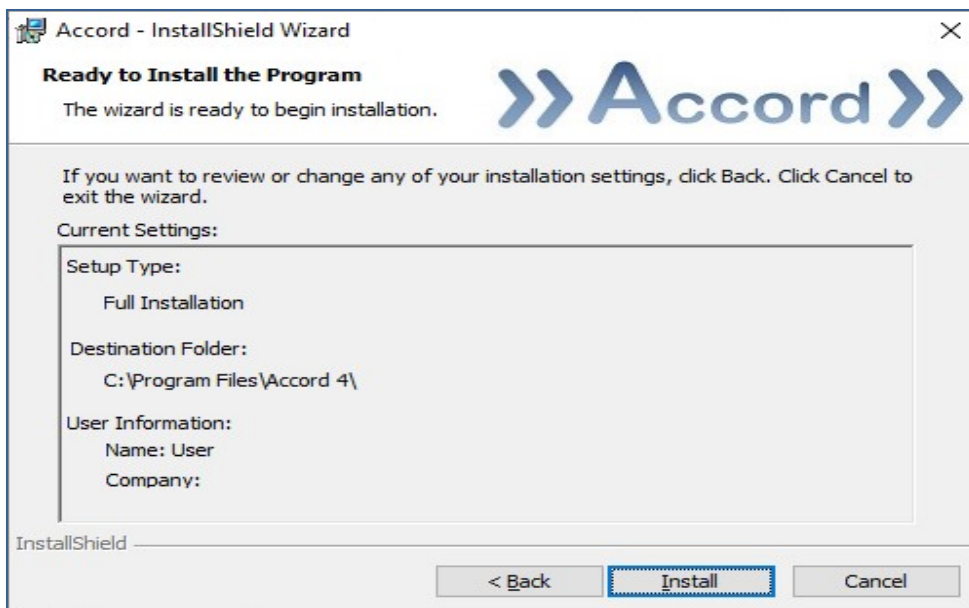


3. Installation selection



4. Selection of **HMI** and any other required modules. The installation is to a ProgramFiles folder but may be changed. Server must be installed on this PC or on a networked PC.

Note: Modules are selected to be installed by default. Right-click to deselect installation of a module.

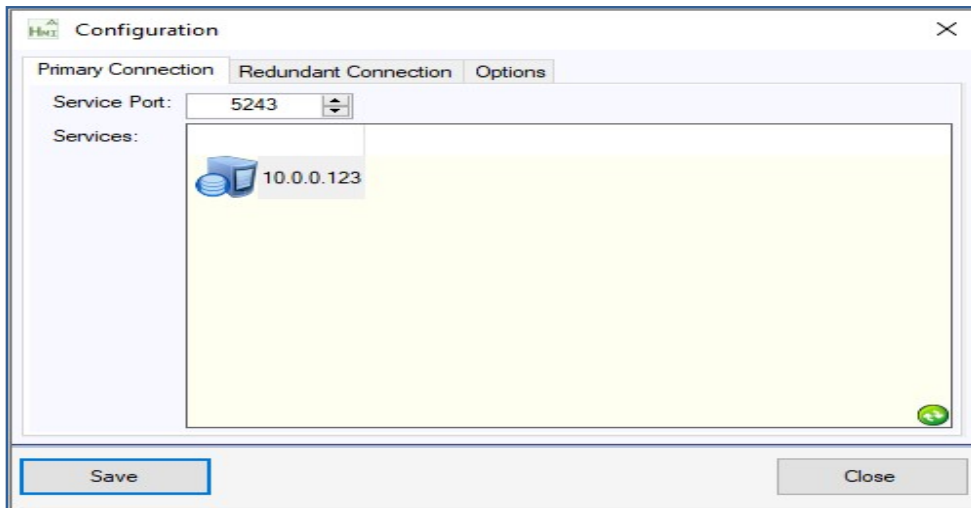


5. Installation is completed on pressing Install.

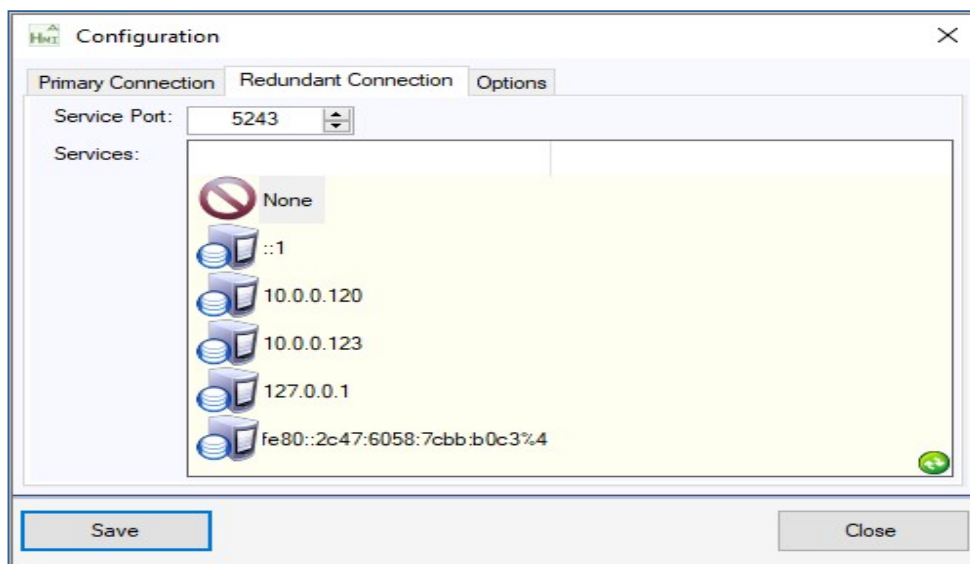
3 HMI Runtime Configuration

3.1 HMI Runtime Primary Connection

Starting HMI Runtime will cause Configuration popup to appear with Green Refresh button at the Bottom.



Primary Connection Selection

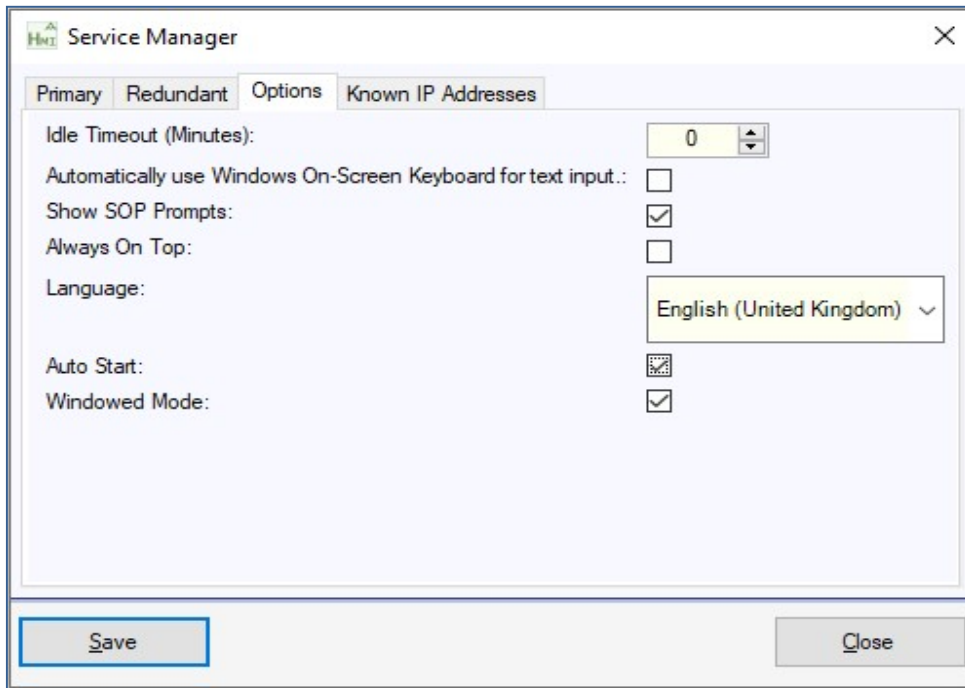


Redundant Server Selection

Connections are selected from the list. If the required IP address is not available it may be obtained by clicking Refresh button.

3.2 HMI Runtime Options

This is a popup for configuration of the HMI application instance.



HMI Options

3.2.1 Idle Timeout

This is a timeout to automatically log users out of the HMI application. The log out occurs when no user actions are taken in the selected time (in minutes). The value can be set to 0 if no idle timeout is required.

3.2.2 Windows On-Screen Keyboard

The Windows On-Screen Keyboard will be presented when user entry is needed.

3.2.3 Show SOP Prompts

This allows or causes SOP Prompts to be shown on this HMI.

3.2.4 Always On Top

This sets the HMI Runtime to be the top application on screen on a PC.

3.2.5 Language

This allows selection of a language for the controls in the HMI. English, Portuguese and Chinese are available.

3.2.6 Auto Start

HMI Runtime will be started when computer is started, if Auto Start is selected.

3.2.7 Windowed Mode

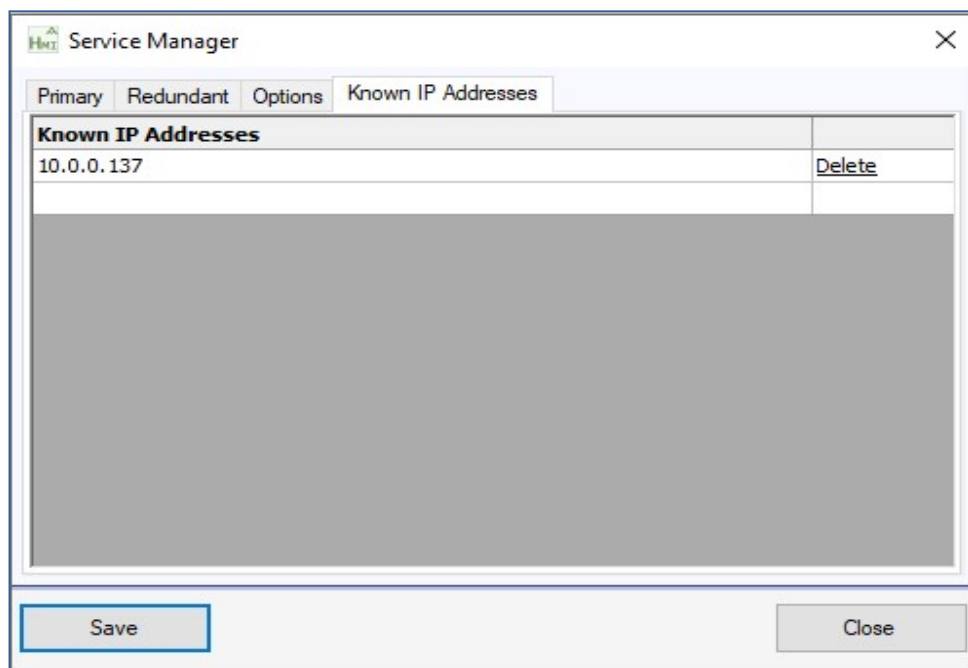
HMI Runtime application will run in a window instead of using the whole screen.

3.3 Known IP Addresses

The Known IP Addresses tab can be used to add to or remove from a list of known IP addresses for Accord Servers. The entered IP addresses will then appear in the search regardless of the availability of the Server. This is used for the case that the Accord Server is on a network or PC that does not support IP discovery protocols.

The Known IP Addresses are entered manually by typing into the row and clicking to store. An Entered address can be removed by selecting Delete.

The list will only accept valid IPv4 addresses.



Known IP Addresses

4 Main Controls

4.1 Alarm Reset

The Alarm Reset Control is used to acknowledge and attempt to reset all alarms within a project or across multiple projects.

When not logged in the Alarm Reset control is disabled. When a user logs in the button is enabled.



Clicking the control will then acknowledge and attempt to reset all alarms within the projects for which the control is configured.

4.2 Alarm Sound Player

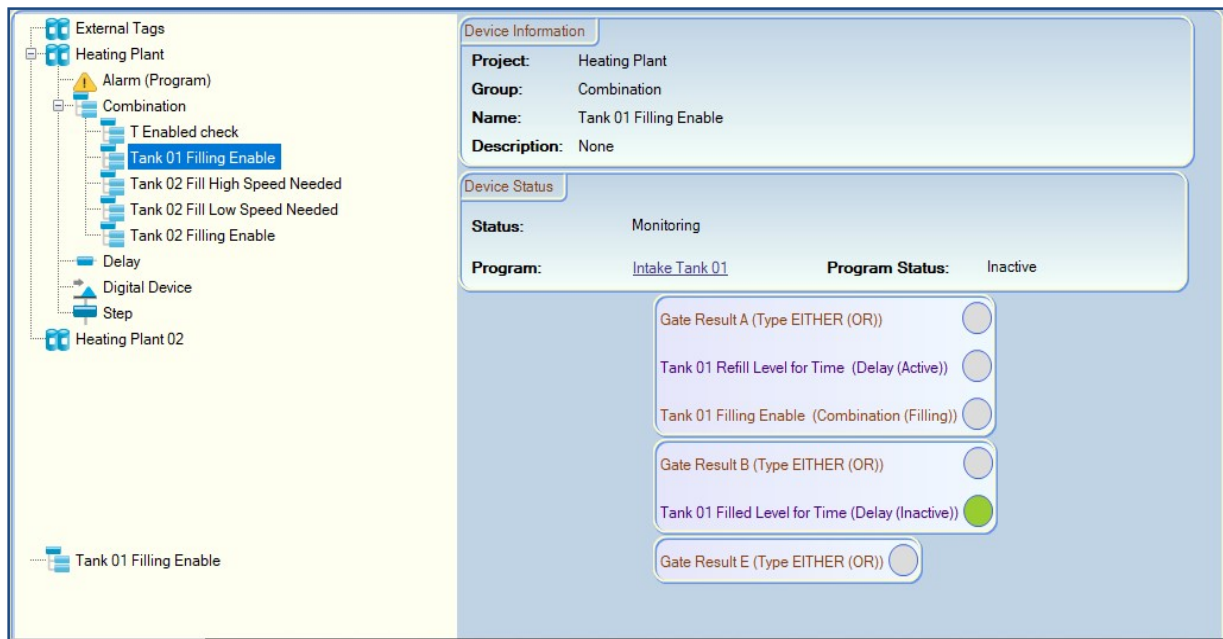
This provides for playing a .wav sound file if an Alarm or Event occurs in the controller.

4.3 Application Launcher

This allows an external application program to be launched on the PC

4.4 Check

The Check Control is used to drill down through the logic of a Device with a digital result to analyse the logical results of the affecting devices and components. This is for engineering personnel to troubleshoot a process.



Check Control

To select an item to analyse, navigate the tree menu at the left of the control and click on a Device name.

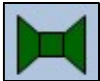
Once selected, relevant information about the Device will be displayed on the right of the control, along with a graphical representation of any logical operations. The current states of the items will be shown as Green for Active and Grey for Inactive. Each of the items is clickable to bring up the faceplate for the item. A link to the original item is kept at the left hand side to enable returning to this item from a drill down check.

4.5 Device

The Device Control is used to give a graphical representation of any device hosted by the Accord Server.



- Example of a Device Control representing a motor.



- Example of a Device Control representing a valve.

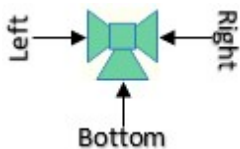
Clicking on a Device Control in Runtime will bring up the Device Faceplate associated with the device to which the control is bound.

See Section 6.11 – Device Faceplates below for more information regarding faceplates.

4.5.1 Device – Directional Valve

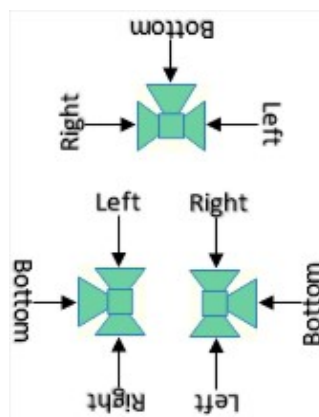
4.5.1.1 Default Orientation

By default, directional valve faces downwards, intake and outlet naming are important.



4.5.1.2 Other Orientations

Valve intake outlet naming does not change. Valve can be rotated any direction by the user, Bottom can be facing any direction, but still named Bottom as in examples below.



4.5.1.3 Directional Valve Setup

In Directional valve Static Flow indicates the direction in which flow will be constant if the valve is in either the ON or OFF state. Active flow is the direction of the flow during the ON state ONLY. The unconfigured outlet is the direction of the flow during the OFF State ONLY.

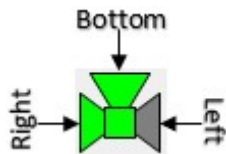
Static Flow:	Bottom	▼
Active Flow:	Left	▼

4.5.1.4 Active Bottom Left

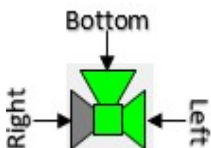
Select Bottom for Static Flow and Left for Active Flow.

Static Flow:	Bottom	▼
Active Flow:	Left	▼

While OFF, flow direction from Bottom to Right.



While ON, flow direction from Bottom to Left.

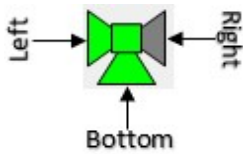


4.5.1.5 Active Bottom Right

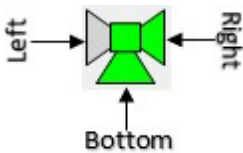
Select Bottom for Static and Right for Active flow.

Static Flow:	Bottom	▼
Active Flow:	Right	▼

While OFF, flow direction from Bottom to Left.



While ON, flow direction from Bottom to Right.

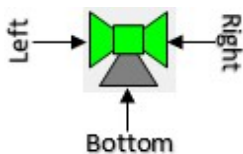


4.5.1.6 Active Left Bottom

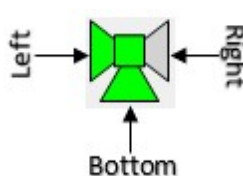
Select Left for Static Flow and Bottom for Active Flow.

Static Flow:	Left	▼
Active Flow:	Bottom	▼

While OFF, flow direction from Left to Right.



While ON, flow direction from Left to Bottom.

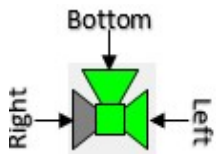


4.5.1.7 Active Left Right

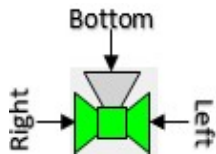
Select Left for Static Flow and Right for Active flow.

Static Flow:	Left
Active Flow:	Right

While OFF, flow direction from Left to Bottom.



While ON, flow direction from Left to Right.

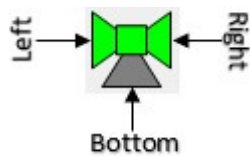


4.5.1.8 Active Right Bottom

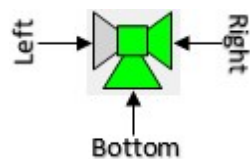
Select Right for Static Flow and Bottom for Active Flow.

Static Flow:	Right
Active Flow:	Bottom

While OFF, flow direction from Right to Left.



While ON, flow direction from Right to Bottom.

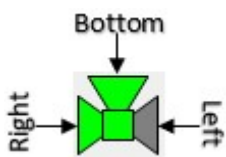


4.5.1.9 Active Right Left

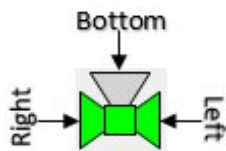
Select Right for Static flow and Left for Active flow.

Static Flow:	Right	▼
Active Flow:	Left	▼

While OFF, flow direction from Right to Bottom.



While ON, flow direction from Right to Left.



4.6 Device Faceplates

4.6.1 Analog Input

The Analog Input Faceplate shows the following information:

- **Actual Value:** The value returned from the instrument, scaled into Engineering Units.
- **Alarm:** The current device alarm, if any, which is active.
- **Status:** This shows the highest priority status of the item.
- **High High Reached:** The instrument value is above the High High Setpoint.
- **High Reached:** The instrument value is above the High Setpoint.
- **Low Reached:** The instrument value is below the Low Setpoint.
- **Low Low Reached:** The instrument value is below the Low Low Setpoint.
- **Min Limit Reached:** The instrument value is at the Lower Limit of the range.
- **Max Limit Reached:** The instrument value is at the Upper Limit of the range.
- **WireBreak:** An instrument failure has occurred, a faulty signal has been returned to the PLC.
- **Current Under:** The electrical signal returned to the PLC is below the lowest allowed value
- **Current Over:** The electrical signal returned to the PLC is above the highest allowed value

Once logged into the Accord Server service, the command buttons may be used to issue commands to the Analog Input.

- **Override:** This allows the value returned from the instrument to be over-written.
- **Override Value:** The over-write value if the instrument is being placed in Manual Override.
- **High High Setpoint:** The value for the instrument to register a High High Alarm.
- **High Setpoint:** The value for the instrument to register a High Alarm.
- **Low Setpoint:** The value for the instrument to register a Low Alarm.
- **Low Low Setpoint:** The value for the instrument to register a Low Low Alarm.
- **Min Range:** The lower limit of the range.
- **Max Range:** The upper limit of the range.
- **Maintenance:** The item may be put into maintenance here.
- **Time Setpoint:** The number of seconds required before the High High, High, Low or Low Low alarms are achieved or reset.
- **Hysteresis Setpoint:** The deadband value to release alarms.



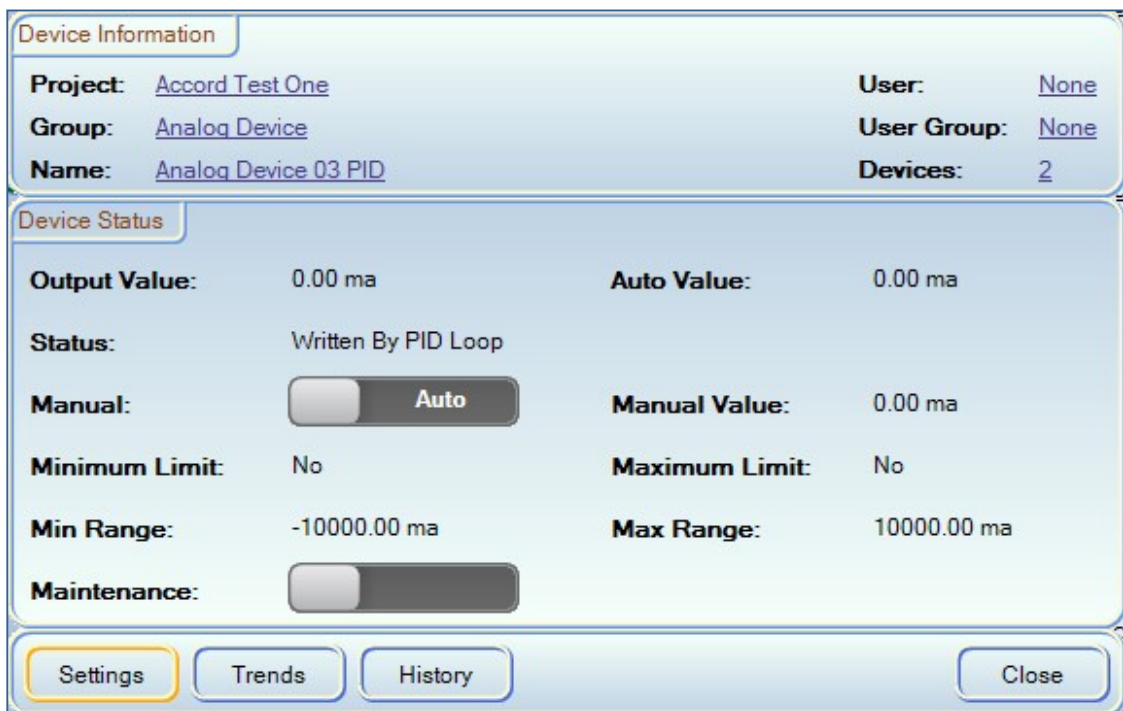
Analog Input Faceplate

4.6.2 Analog Device

The Analog Device Faceplate shows the following information:

- **Output Value:** The current value being output by the Analog Device.
- **Auto Value:** The value to which the output is set once the device is in Automatic mode.
- **Status:** Indicates the current status of the device.

- Once logged into the Accord Server service, the command buttons may be used to issue commands to the Analog Device.
- **Manual:** This allows the Device to be put into Manual Mode, overwriting the Automatic activation from the Program.
- **Manual Value:** This is the value to which the output is set once the Device is in Manual mode.
- **Min Range:** The minimum value to which the output of the Device can be set.
- **Max Range:** The maximum value to which the output of the Device can be set.
- **Maintenance:** This allows the device to be put into Maintenance.



Analog Device Faceplate

4.6.3 Digital Input

The Digital Input Faceplate shows the following information:

- **Status:** The current status of the Digital Input.
- **Result:** The display value of the result as configured within Accord Builder.

Once logged into the Accord Server service, the command buttons may be used to issue commands to the Digital Input.

- **Override Feedback:** Override the result of the device to the desired value.
- **Result Override:** The value to which the result is overridden once Override Feedback is active.
- **Delay Setpoint (On):** This is the number of seconds that the Device Output activation will be delayed for following an Automatic activation request.
- **Delay Setpoint (Off):** This is the number of seconds that the Device Output de-activation will be delayed for following loss of an Automatic activation request.



Digital Input Faceplate

4.6.4 Digital Output

The Digital Output Faceplate shows the following information:

- **Status:** The current status of the Digital Output.
- **Output:** The value of the output as configured within Accord Builder.
- **Interlock:** This shows that the item is currently interlocked by another device state. The list of interlocking devices can be found in the Equipment List document.
- **Pulse Active:** The device is being activated for a time as indicated in the Pulse Time setup.
- **Pulse Command:** This shows that a Pulse activation command for the device is being generated by a Program.
- **Auto Reserved:** This shows that the item is part of a unit which is being reserved by a Program, but the Program is not activating the item.
- **Auto Reserved Enabled:** This shows if the device is enabled for reserved for automatic.

- Once logged into the Accord Server service, the command buttons may be used to issue commands to the Digital Output.
- **Manual Mode:** This allows the item to be put into Manual Mode, overwriting the Automatic activation from the Program.
- **Manual Command:** This allows the item to be manually activated, overwriting the Automatic activation state. The item will be activated or deactivated immediately.
- **Interlock Override:** Enable this to allow the device to activate even when interlocked.
- **Delay Setpoint (On):** This is the number of seconds that the Device Output activation will be delayed for following an Automatic activation request.
- **Delay Setpoint (Off):** This is the number of seconds that the Device Output de-activation will be delayed for following loss of an Automatic activation request.
- **Override Reserve:** Enable this to allow the device to be set to manual mode even when reserved for automatic operation.
- **Maintenance:** Enable this to place the device into maintenance mode, preventing the device from activating.
- **Pulse Cycle Time:** This is the overall time in the Pulse Cycle.
- **Pulse Time Setpoint:** This is the time that the item is activated for in the Pulse Cycle.

Device Information

Project: Accord Test One	User: None
Group: Valve	User Group: None
Name: Valve 03	Devices: 3

Device Status

Auto

Manual

Interlock

Alarm

Output

Output:	Deactivated	Auto Command:	Off
Status:	Auto Activated/Deactivate	Feedback Correct:	No
Manual Mode:	<input type="checkbox"/> Manual <input checked="" type="checkbox"/> Auto	Manual Command:	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off
Interlock:	Yes	Interlock Override:	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off
Alarm:	No	Alarm Masked:	<input checked="" type="checkbox"/> Masked <input type="checkbox"/> Off
Pulse Active:	No	Pulse Command:	Off
Closed Feedback	Off	Open Feedback	Off
Delay On:	0 Seconds	Delay Off:	0 Seconds
Fail Time (On):	5 Seconds	Fail Time (Off):	2 Seconds
Pulse Cycle Time:	4 Seconds	Pulse Time:	2 Seconds
Activations:	0	Running Time:	00 Hours 00 Mins
Affected By Unit A:	No	Auto Reserve Enabled:	No
Affected By Unit B:	No	Auto Reserved:	No
Maintenance:	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off	Override Reserve:	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off

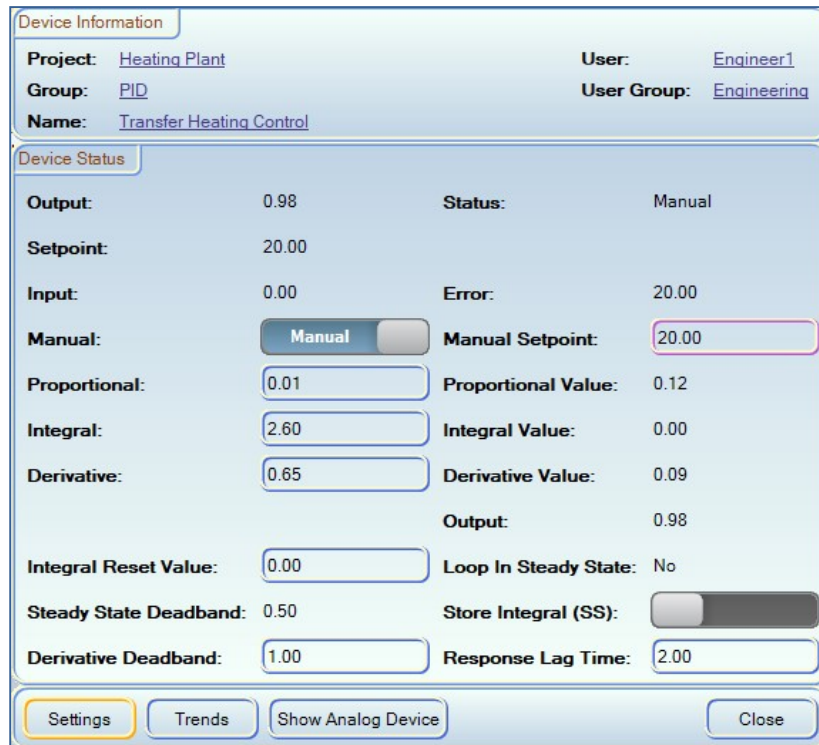
Settings

History

Close

Digital Device Faceplate

4.6.5 PID Loop



PID Loop Faceplate

The Properties of a PID Loop are as follows:

Property	Read-Only	Description
P Value	No	The Proportional, or Gain Term for the PID Loop,
Input	Yes	The Process Variable, the reading from the instrument whose value is to be maintained.
I Value	No	The Integral Term for the PID loop. In general - a larger integral means a slower acting loop.
Output	Yes	The value returned by the loop to be sent to the device being controlled.
D Value	No	The Differential Term for the PID loop. This is used to reduce the overshoot from the Integral Term. NB: PID Values are based on tuning of the Loop. They should not be altered, except by experienced personnel.
Error	Yes	This is the Difference between the Setpoint and the Input.
Manual Setpoint	No	This is the value used when the loop setpoint from phase programs is being overwritten using Operate Loop Manually.
Auto Setpoint	Yes	This is the Automatic Setpoint from the phase programs
Operate Loop	No	This allow the loop setpoint from phase programs to be overwritten.

Manually		
Gain Component	Yes	This is the value returned by the Proportional element of the PID loop algorithm
Store Integral When Steady State	No	This allows the Integral Value to be stored when the Loop is operating around its setpoint. This allows the Loop to recover to the associated Output value in the event of a restart of the Loop.
Derivative Component	Yes	This is the value returned by the Derivative element of the PID loop algorithm
Integral Reset Value	No	This value is a Preset Value for the integral component, to be used on the loop restart, to allow an output to be achieved quickly.
Integral Component	Yes	This is the value returned by the Integral element of the PID loop algorithm
Steady State Deadband	No	This is the deadband used to determine that the loop is operating normally around its setpoint.
Loop In Steady State	Yes	This indicated that the loop is operating normally at its setpoint.
Output At Low Limit	Yes	The Control element output is at rest, there is a minimum signal being sent out to it.
Response Lag Time	No	The delay in response of the instrument, this is used in calculating the Derivative component.
Output At High Limit	Yes	The Control element output is at rest, there is a maximum signal being sent out to it.

4.6.6 Program

The Program Faceplate shows the following information:

- **Name:** The name of the Program.
- **Current Step:** The name of the step which is currently running. If logged in, a user may click the step name to step to a selected step.
- **Step Number:** The recipe position of the current step.
- **Status:** The status of the Program.
- **Recipe:** The name of the recipe currently running. If logged in, clicking this will allow a user to change the recipe.
- **Expected:** The step time setpoint which has been configured.
- **Remaining:** The duration remaining before the step time setpoint has elapsed.
- **Elapsed:** The amount of time for which the current step has been active.
- **Plan:** The name of the Plan of which the Program is currently a part, if applicable.

Once logged in, the command buttons may be used to issue commands to the Program.

- **Start:** Start the Program if it is not running.
- **End:** End the Program if it is currently running.
- **Resume:** Resume the Program if it is currently in hold.
- **Hold:** Place the Program into hold if it is currently running.
- **Step On:** End the current step and start the next step in the recipe step order.
- **Step To:** End the current step and step to the selected step.
- **Timing / Time Held:** Toggle whether or not the step time will increment.

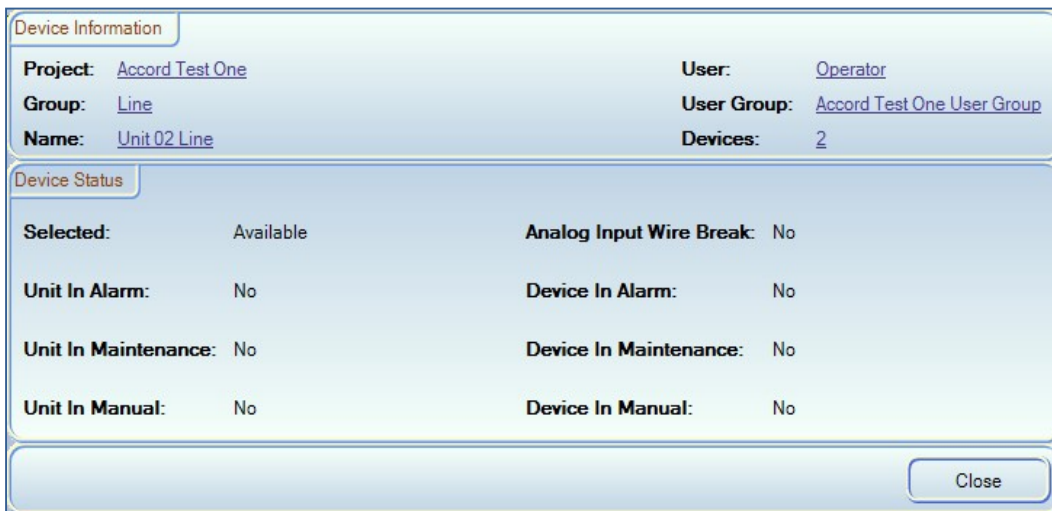


Program Faceplate

4.6.6 Equipment Unit

The Unit Faceplate shows the following information:

- **Selected:** Indicates whether a Unit can be selected for use by a Program.
- **Analog Input Wire Break:** Indicates whether an Analog Device within the Unit has a Wire Break alarm active.
- **Unit in Alarm:** Indicates whether a Unit is in an alarm state.
- **Device in Alarm:** Indicates whether a Device within the Unit is in an alarm state.
- **Unit in Maintenance:** Indicates whether a Unit is in maintenance mode.
- **Device in Maintenance:** Indicates whether a Device within the Unit is in maintenance mode.
- **Unit in Manual:** Indicates whether a Unit is in manual mode.
- **Device in Manual:** Indicates whether a Device within the Unit is in manual mode.



Unit Faceplate

4.7 Digital

The Digital Control is used to give a graphical representation of the state of a device or multiple devices with digital results.

Lines represented by the digital control will take on a preset colour is a bound device is active.

Clicking on a Digital control will bring up the list of devices and the control of the devices may be accessed from here.

4.8 List

The List Control is used to show a list of devices. There are multiple list types and filter options which can be used to customise the control.

4.8.1 Program List

A Program List will show all programs currently configured in the Accord Server to which the control is bound. This may be filtered to include/exclude specific projects or programs.

Program	Current Step	Remaining	Elapsed	Status
1 PR01 Test Conditions	Step 2: PR01 S01 DO01 Valve 01 Motor 01 Always On	00:02:47:25	00:00:12:35	Active
2 PR02 Test Combined Conditions	None	00:00:00:00	00:00:00:00	Inactive
3 PR03 Test Alarms	None	00:00:00:00	00:00:00:00	Inactive
4 PR04 Test Operations	None	00:00:00:00	00:00:00:00	Inactive
5 PR05 Program A	None	00:00:00:00	00:00:00:00	Inactive
6 PR06 Program B Auto Step On	None	00:00:00:00	00:00:00:00	Inactive
7 PR07 Write Variables	Step 2: Write Variables	00:00:00:00	00:00:15:49	Active

Program List

4.8.2 Device List

A Device List will show all devices currently configured in the Accord Server to which the control is bound. This may be filtered to include/exclude specific projects, device groups, device types or device names.

Name	Value
Setpoint 101	2.00
Setpoint 102	10.00
Setpoint 103	5.00
Setpoint 201	0.00
Setpoint 202	0.00
Setpoint 203	0.00
Setpoint 301	0.00
Setpoint 401	0.00
Setpoint 402	100.00
Setpoint 701	100.00

Setpoint List

4.8.3 Alarm List

An Alarm List will display any currently active alarms to which the control is bound.

	Date	Type	Parent	Name	Description
1	27/07/16 17:02:25	Equipment	Digital Input 02	Digital Input 02 (Alarm)	None
2	27/07/16 17:02:16	Equipment	Valve 03	Valve 03 (Fail To Deactivate Alarm)	None

Alarm List

Once a user is logged into the Accord Server service, right clicking on the control will bring up an option to acknowledge and attempt to reset selected alarms or all alarms.

	Date	Type	Parent	Name	Description
1	27/07/16 17:02:30	Equipment	Valve 01	Valve 01 (Fail To Activate Alarm)	None
2	27/07/16 17:02:25	Equipment	Digital Input 02	Digital Input 02 (Alarm)	
3	27/07/16 17:02:16	Equipment	Valve 03	Valve 03 (Fail To Deactivate Alarm)	

Reset Selected F6

Reset All Ctrl+F6

Clicking on an item in the list will bring up the Device Faceplate for the named device.

4.9 Plan

Accord Plan module allows scheduling of lists of programs and actions for automatic MES functionality. The Plans are configured in the Plan Module and the HMI control item for Plan allows access to Plans to view or control the operation.

Plan Name	Status	Current Step	Start Time
01 Test Comparisons	Active	P001 - Comparison - Source Greater than Setpoint	18/12/2024 16:28:45
04 Test Alarms	Alarm	P058 - Program Alarm - Critical	18/12/2024 16:28:53

▶

Launch Accord Plan

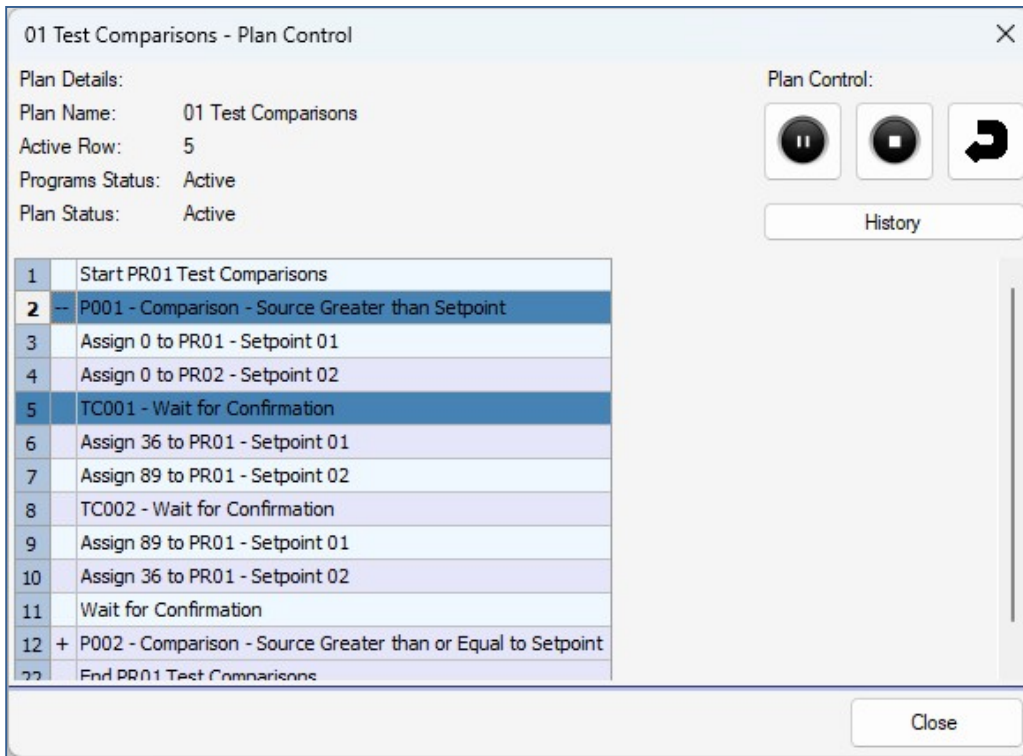
Plan Control showing list of Plans in System

The Plan Control displays a list of Plans that are available for execution as well as a button to launch Accord Plan Manager. The list is shown in a table format with the following columns:

- **Plan Name:** The name of the Plan.
- **Status:** The status of the Plan (i.e., Inactive, Active, Alarm, Paused).
- **Current Step:** The name of the current step that the Plan is in.
- **Start Time:** The time when the Plan was started, if it is active.

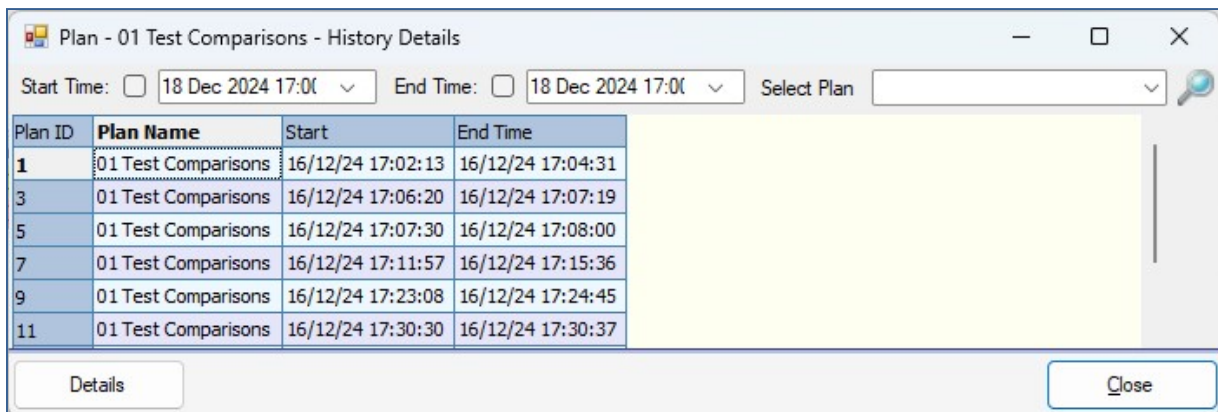
4.9.1 Control Panel

Clicking on a Plan Name or double-clicking on a row will bring up the control panel for the Plan. The control panel provides the interface for starting, stopping, pausing, resuming and manually stepping through a Plan. It also provides a detailed view of the steps in the Plan, highlighting which steps are currently active.



Steps in a Plan Currently processing

The execution history of a plan is displayed in table which can be viewed by clicking on the History button.



Recent History List of Plans that have Run

A detailed view of a plan execution history can be viewed by selecting a row from the list and clicking on the Details button.

Plan ID 71 Plan Name 01 Test Comparisons Start Time 17/12/24 17:21:32 End Time 17/12/24 17:21:36

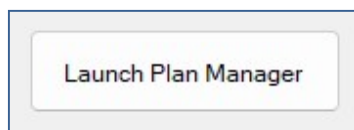
Row	Title	Property	Value	Recipe	Enabler Value	Start
1	Start PR01 Test Comparisons	Command	Start	Default	trigger	17/12/24 17:21:32
2	P001 - Comparison - Source Greater than Setpoint				trigger	17/12/24 17:21:33
3	P002 - Comparison - Source Greater than or Equal to Setpoint				trigger	
4	End PR01 Test Comparisons	Command	End		trigger	

Close

Event History of a completed Plan

4.10 Plan Launcher

The Plan Launcher Control is a button that launches Accord Plan Manager. Accord Plan Manager must be installed on the client machine for the button to work, otherwise an error message will appear to inform that the application could not be found.



4.11 Program Control

The Program Control is used to display the status and other information of Programs and the Program Control may be used to send commands to the program in Controller.



Program Control showing Active Program

- **Name:** The name of the Program.
- **Current Step:** The name of the step which is currently running. If logged in, a user may click the step name to step to a selected step.
- **Step Number:** The recipe position of the current step.
- **Status:** The status of the Program.
- **Recipe:** The name of the recipe currently running. If logged in, clicking this will allow a user to change the recipe.
- **Expected:** The step time setpoint which has been configured.
- **Remaining:** The duration remaining before the step time setpoint has elapsed.
- **Elapsed:** The amount of time for which the current step has been active.
- **Plan:** The name of the Plan of which the Program is currently a part, if applicable.

Once logged into the Accord Server service, the command buttons may be used to issue commands to the Program.

- **Start:** Start the Program if it is not running.
- **End:** End the Program if it is currently running.
- **Resume:** Resume the Program if it is currently in hold.
- **Hold:** Place the Program into hold if it is currently running.
- **Step On:** End the current step and start the next step in the recipe step order.
- **Step To:** End the current step and step to the selected step.
- **Timing / Time Held:** Toggle whether or not the step time will increment.

4.12 Multi Program Control

The Multi Program Control is used to display a Program Control (see above) from a pre-configured list of Programs.



MultiProgram Control

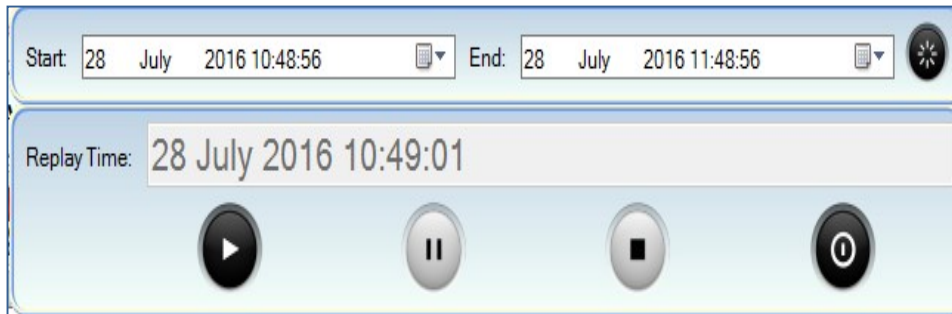
The highest priority Program from the list which is currently active will be displayed. If no Program in the list is currently active then the control will default to the highest priority Program. The User can select to show any bound program by clicking into the Program Name label. A list of bound programs will be shown for the users' choice.

4.13 Replay Control

The Replay Control can be used to select a time period and “replay” the states and values of devices displayed on the HMI.









Replay Control – Initial selection



Replay Control – Replay of previous time

4.13.1 Replay Control Buttons

-  Starts the replay at the selected time, or resume from paused.
-  Pauses the replay.
-  Ends the current replay and release any currently stored replay data.
-  Accesses Configuration to select Start and End Times
-  Closes the configuration window.
-  Loads replay data for the selected timespan.

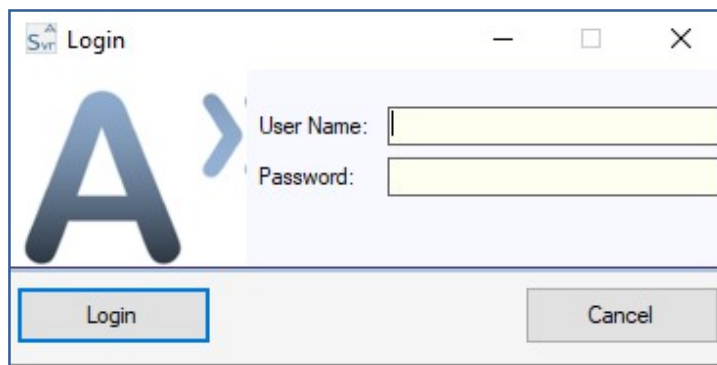
4.14 Security

The Security Control is used to log into the Accord service, enabling Operations for the HMI.



Login Button

Clicking on the “Login” button on the Security Control will bring up the Login window. Entering a user name and associated password in the window and clicking Login will log the user into the system.



Login Panel

4.15 Step List

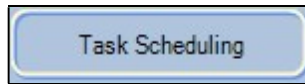
The Step List control is used to show a list of all steps of a selected program, and indicate the current step which is running.

In Runtime, the title bar of the Step List control will show the current recipe. Underneath this will be a list of all of the steps in the program to which the control is bound, with the current step highlighted in green.

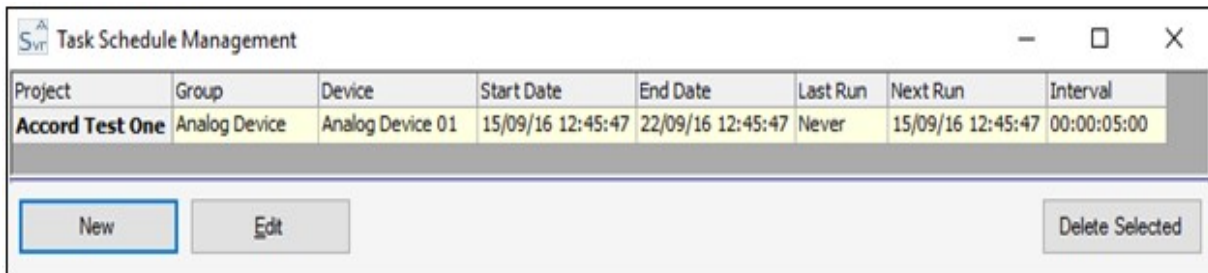
Default
PR01 Test Conditions Startup Step
PR01 S01 DO01 Valve 01 Motor 01 Always On
PR01 S02 General Activations
PR01 S03 General Activations 2
PR01 S03 Conditions Activations
PR01 S04 Conditions Activations 2

4.16 Task Scheduler

The Task Scheduler Control allows users to manage scheduled OPC writes. A schedule is a user configured event that automatically modifies the specific property of a device at a defined time.



Once clicked, the Task Scheduler Control displays the following information:



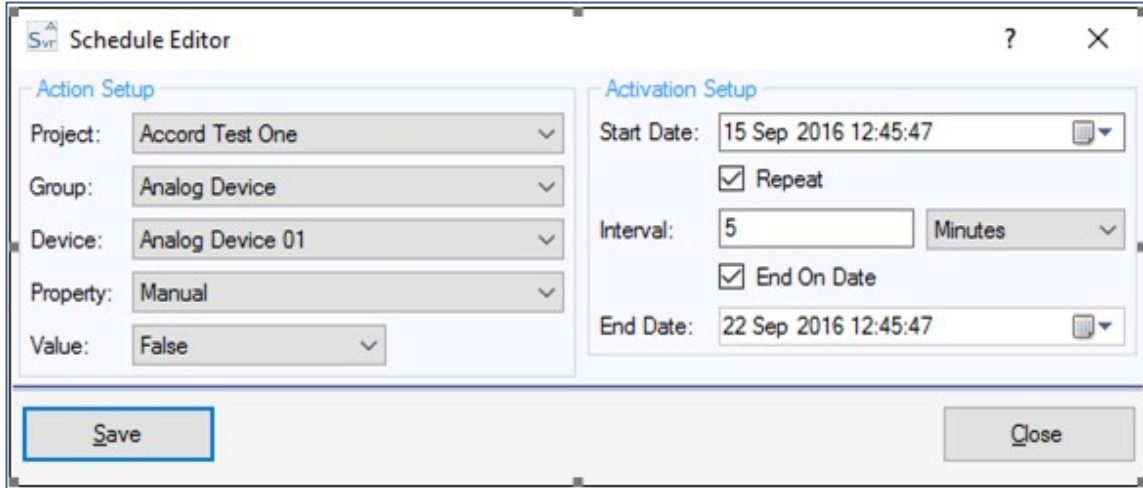
The Properties of a Scheduled Task are:

- | Item | Description |
|---------------|--|
| ○ Project | The name of the project that contains the device to be modified. |
| ○ Group | The name of the group for the device to be modified. |
| ○ Device Name | The name of the device to be modified. |
| ○ Start | The date when the action will be performed for the first time. |
| ○ End | The date when the action will no longer be performed. |
| ○ Last Run | The date when scheduled task last performed the requested action. |
| ○ Next Run | The date when scheduled task will next perform the requested action. |
| ○ Interval | The time interval for repeat of the action |

The buttons for Task Schedule provide for the following

- **New:** Create a new Schedule – See below for information regarding the Schedule Editor window.
- **Edit:** Edit the selected Schedule – See below for information regarding the Schedule Editor window.
- **Delete Selected:** Delete the currently selected Schedule.

4.16.1 Schedule Editor



Schedule Editor

This allows for the selection of the project, the item Group and the Device to be managed and the property of the Device to be changed.

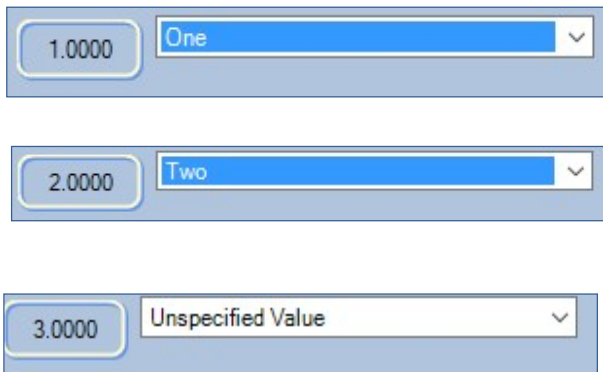
The required Value may be entered or selected from the possible choices.

A Start Date and Time may be entered using the Calendar and 'Repeat' may be selected and the Interval entered if the task is to be recurring. An End Date and Time can be selected for ending the recurrence.

4.15 Text Display

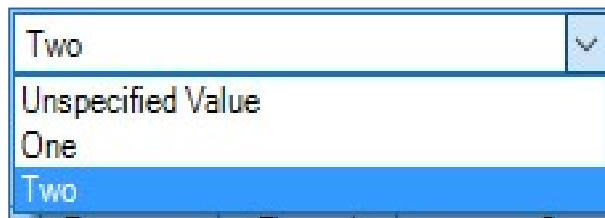
The Text Display control is used to show a pre-set text string instead of a value result from an Accord Server Device, and can be used to set the value by selecting the corresponding string.

As the result value of the device to which the control is bound changes, the text displayed in the control will update to the appropriate string. Should the current value not be configured in the control then “Unspecified Value” will be shown instead.



Text Display Samples

The value of the device may be set by selecting the associated string via the drop-down list.

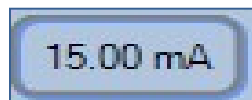


Entry Using Text Display

4.16 Value Control

The Value control is used to display a numerical value result from an Accord Server Device.

During Runtime and once connected to the Accord Server service, the Value Control will show the current value in the desired format with the configured engineering units used, if applicable.



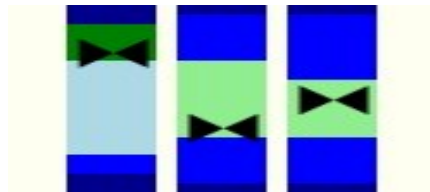
Value Control

Clicking on the Value Control in Runtime will bring up the Device Faceplate associated with the device to which the control is bound, per section on Device Faceplates.

5 KPI Controls

5.1 Analog Input Monitor

The Analog Input Monitor Control is used to quickly monitor the value(s) of a single or multiple Analog Inputs in relation to their Low Low, Low, High and High High Levels.

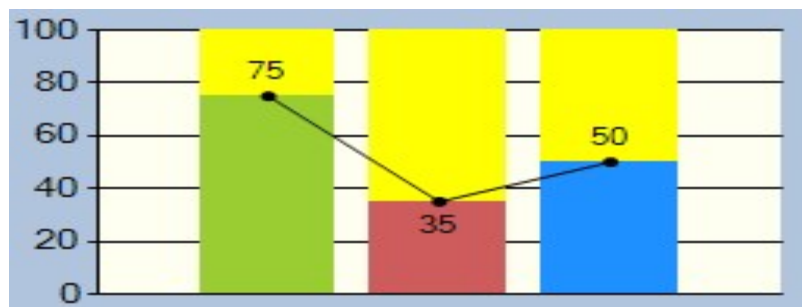


In the above example, the current value of the first monitored Device is above the configured High Level, while the other devices have values between the configured High and Low Levels.

Clicking on a bar will bring up the Faceplate associated with the Device.

5.2 Bar

The Bar Control is used to quickly monitor the value(s) of a single or multiple device properties.

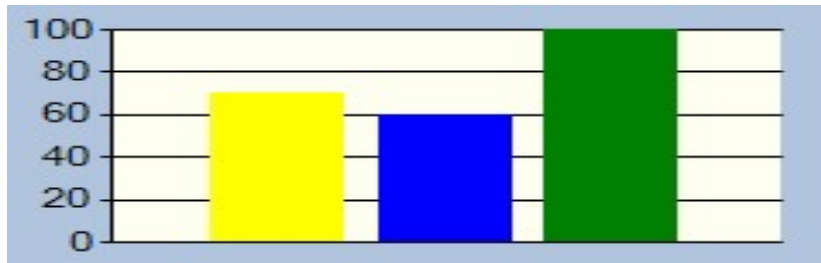


In the above example, the Bar Control is configured with specified limits of 1-100, is showing background gridlines, value labels and with a connecting line between each of the bars.

Clicking on a bar will bring up the Faceplate associated with the Device.

5.3 PID Monitor

The PID Monitor Control is used to quickly monitor the Setpoint, Input and Output values of a single PID Loop.

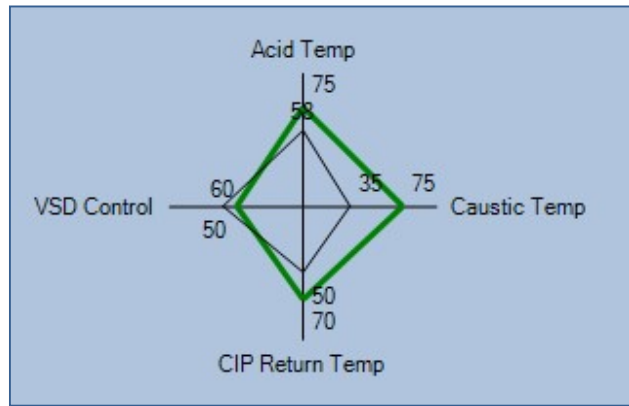


In the above example, the PID Monitor Control is configured with specified limits of 1-100 and is showing background gridlines.

Clicking on the control will show the PID faceplate, per earlier section.

5.4 Polar Star

The Polar Star Control is used to quickly monitor the values of multiple Accord Server Devices in relation to selected targets.



Polar Star

In the above example, the Polar Star Control is configured to show Description labels, and labels with both the target and current values.

5.5 Spark Line

The Spark Line Control can be used to display a minimalistic live trend graph of a value from a single Accord Server Device.

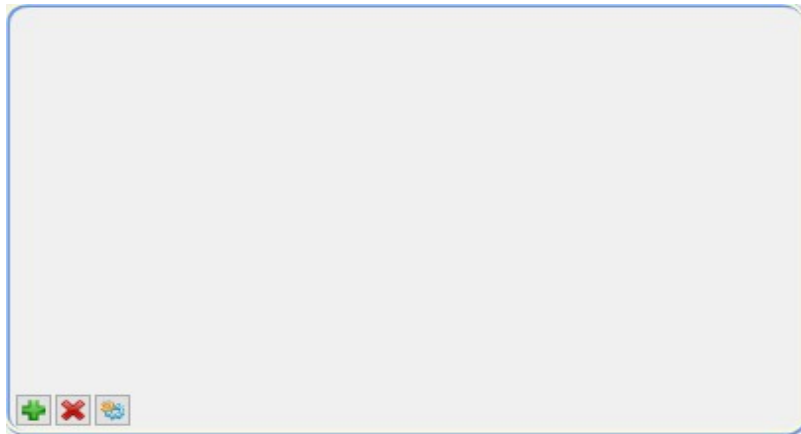


Spark Line Control

5.6 Query

The KPI Control is used to display a number of runtime-configurable values from historical data.

Each Row on the Control is a Query. A Row is added by clicking on the '+' button and removed by selecting the row and clicking on the 'X' button.



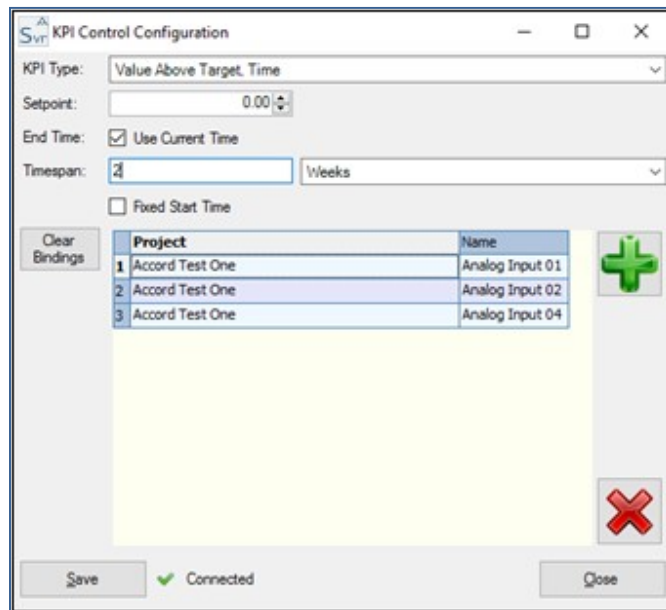
Query Control – Initial Setup

Clicking on the text field at the top right side of the form and then the configure button at the bottom left brings up the configuration panel.



Row Selection for Configuration

The configuration panel allows the query type and objects to be configured.



KPI Query Setup

- **KPI Type:** The operation type used to determine the value displayed on the row:
 - **Program Active / Running / Held / Alarm Time:** The total time for which the selected Program(s) were active / running / held / in alarm during the configured time period.
 - **Program Starts:** The total number of times the selected Program(s) were started during the configured time period.
 - **Digital Input Count:** The total number of times the selected Digital Input(s) were active during the configured time period.
 - **Digital Input Time:** The total time for which the selected Digital Input(s) were active during the configured time period.
 - **Display Value:** Used to display the current value of a single selected Device.
 - **Value Average:** The average (mean) value of the selected Device(s) over the configured time period.
 - **Value Min:** The minimum value of the selected Devices(s) during the configured time period.
 - **Value Max:** The maximum value of the selected Device(s) during the configured time period.

- **Alarm Count:** The total number of times the selected Alarm(s) were in alarm during the configured time period.
- **Alarm Time:** The total time for which the selected Alarm(s) were in alarm during the configured time period.
- **Digital Device Activations:** The total number of times the selected Digital Device(s) were activated during the configured time period.
- **Digital Device Time:** The total time for which the selected Digital Device(s) were activated during the configured time period.
- **Value Above / Below Target, Time:** The total time for which the selected Device(s) value was above / below the configured setpoint.
- **Value Above / Below Target, Count:** The total number of times the selected Device(s) value was above / below the configured setpoint.
- **Analog Input Above / Below LL / L / H / HH, Count:** The total number of times the selected Analog Input(s) value was above / below the LL / L / H / HH level.
- **Analog Input Above / Below LL / L / H / HH, Time:** The total time for which the selected Analog Input(s) value was above / below the LL / L / H / HH level.
- **Setpoint:** The setpoint used for the KPI types which require a configured value.
- **End Time:** The date and time used to configure the time period used for the KPI calculations.
- **Use Current Time:** If this is checked, the end time will update dynamically to the current time when the calculation is run. If left unchecked, a static date and time will need to be selected.
- **Timespan:** The duration of the time period used for the KPI calculations.
- **Fixed Start Time:** If this is checked, a static date and time will need to be selected for the beginning of the time period. If left unchecked, a duration (for example: 2 days) will need to be set.
- **Clear Bindings:** Used to clear the list of devices currently selected for the KPI calculation.

6 Help

6.1 System Information

Clicking the Help menu and select About presents information about Accord and to the operating system.



6.2 Connection Issues on Deployed HMIs

It can happen that an HMI works fine during design time and fail to connect when it is deployed. This is usually caused by incorrect service manager configuration. See section 4.2.7 on how to configure the connections properly. Always ensure the service manager has the correct settings for both service IP address and port number. Having a live connection on HMI Design does not guarantee connectivity for Deployed HMIs (Runtime). This is because the connection settings for Design and Runtime are different. Runtime connections are dependent on the Service Manager settings.

6.3 Deploying HMIs with a Redundant Service

Before deploying an HMI intended to take advantage of Accord's Redundancy Service, it is important to remember to configure the Redundancy IP address on the Service Manager. It is not enough to only configure Accord Primary and Partner services. We also need to tell the HMI which IP address is used to look for the Redundant/Partner service. See section 4.2.7. on where to set the Redundant Service IP for deployed HMIs.