

# Accord

## Template Summary

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AT Biogas C1 Operator Manual.docx

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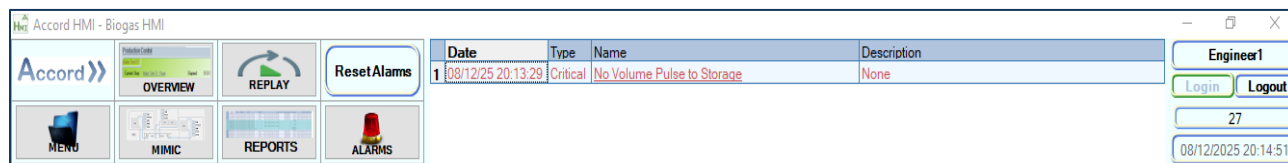
## **1 Introduction**

This Operator Manual is to describe the operation of an initial Biogas Template in the Accord platform. The system controls 3 Reception Tanks, 6 Storage Tanks and 3 Digesters.

The area is controlled by 1 PLC

## 2 Top Banner and Menu:

### 2.1 Top Banner



#### 2.1.1 Alarm Banner and Alarm Reset Button

The alarm banner is located in the top centre of the screen. It displays a list of currently active and unacknowledged alarms for the area. A panel for the device in Alarm appears when the device in the list is pressed.

Pressing 'Reset Alarms' is used to acknowledge and attempt to reset all current alarms or errors.

#### 2.1.2 LifeByte

The lifebyte values should always update every 1 or 2 seconds. This lifebyte indicates a healthy connection with the PLC. The lifebyte can be found in the top right.

#### 2.1.3 Login - Security Control

The Security Control is used to log into the Scada service. The name of the User who is currently Logged In User is shown. "Engineer1" is logged in above.

#### 2.1.4 Alarms Button

The 'Alarms' button will display the current and unacknowledged alarms in full screen.

#### 2.1.5 Overview Button

The 'Overview' button will display a screen showing the status of all automatic sequence programs and settings.

#### 2.1.6 Replay Button

The 'Replay' button will allow Mimic re-simulation of past processes. A time is defined and the devices on a mimic replay through a historical sequence of a process.

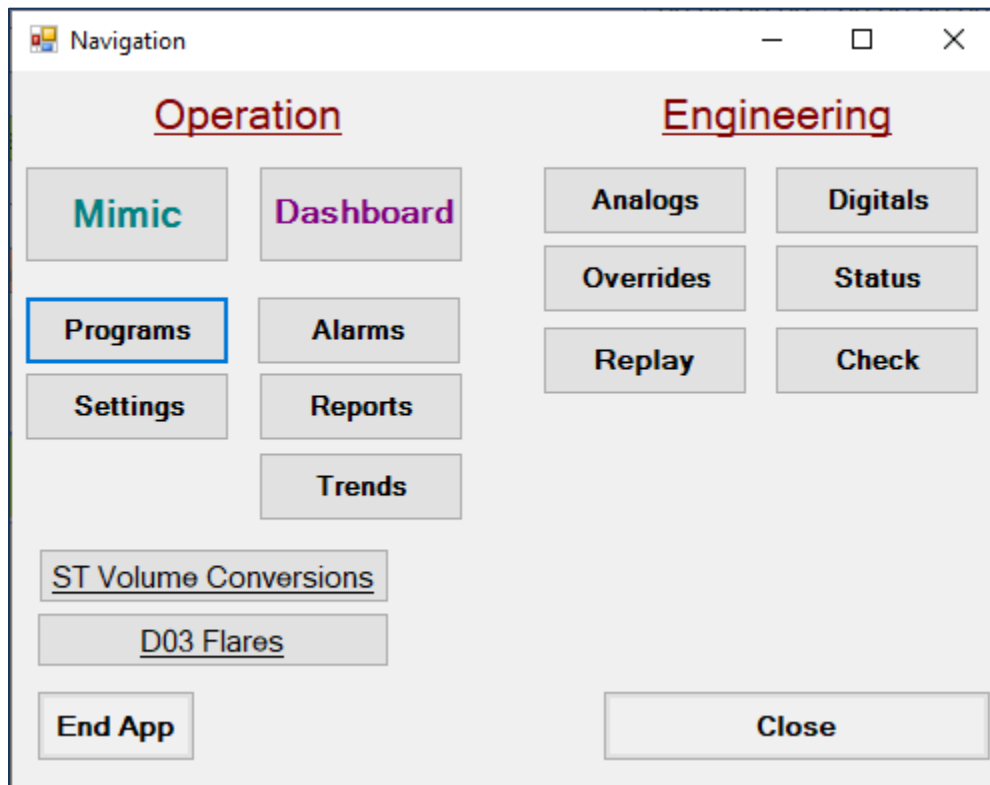
#### 2.1.7 Mimic Button

The 'Mimic' Button will open the Main mimic for this project.

#### 2.1.8 Reports Button

The 'Report' Button will allow for the lookup of historical logged information.

## 2.2 HMI Menu



This general navigation menu accessed by clicking on the 'Menu' Button in the Top Banner. It allows access to all screens; Mimic & Dashboard, and list based screens for Programs, Alarms, Analog Devices, Digital Devices, Overridden Devices, Device Status, Device Values, and screens for configurable Reports, Trends, and Check for Diagnostics. Popup screens for Storage Tank Volume Conversions and Digester 03 Flare control are also shown. Pressing the Close Button will close the Menu. Pressing the End App button will end the HMI application program.

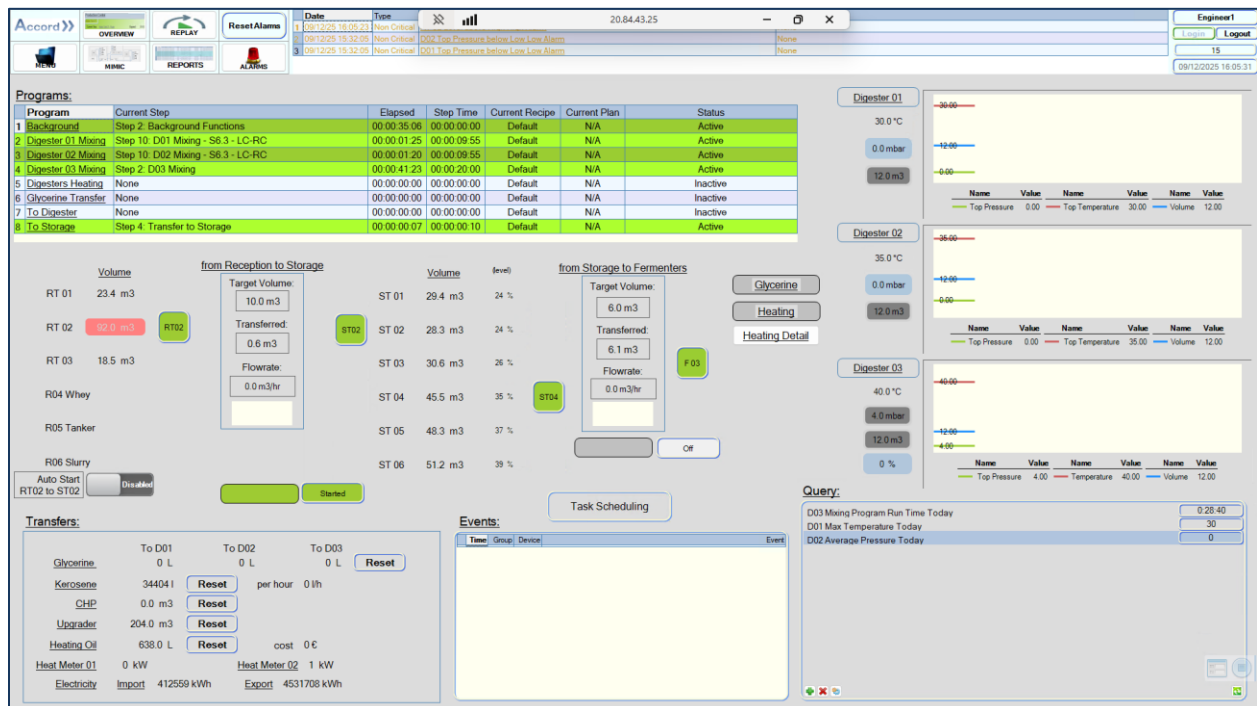
### 3 Overview / Dashboard Screen

This screen contains an active summary list of the programs, selections for each program and start buttons for the transfers. Main readings for Volumes and Flowrates.

Summary information and Trends for the Digesters is given at the right.

A Button which brings up the Task Scheduler is included.

The bottom of the screen shows a summary of consumptions, a list of recent events and a Query control, where the database can be queried for specific information.

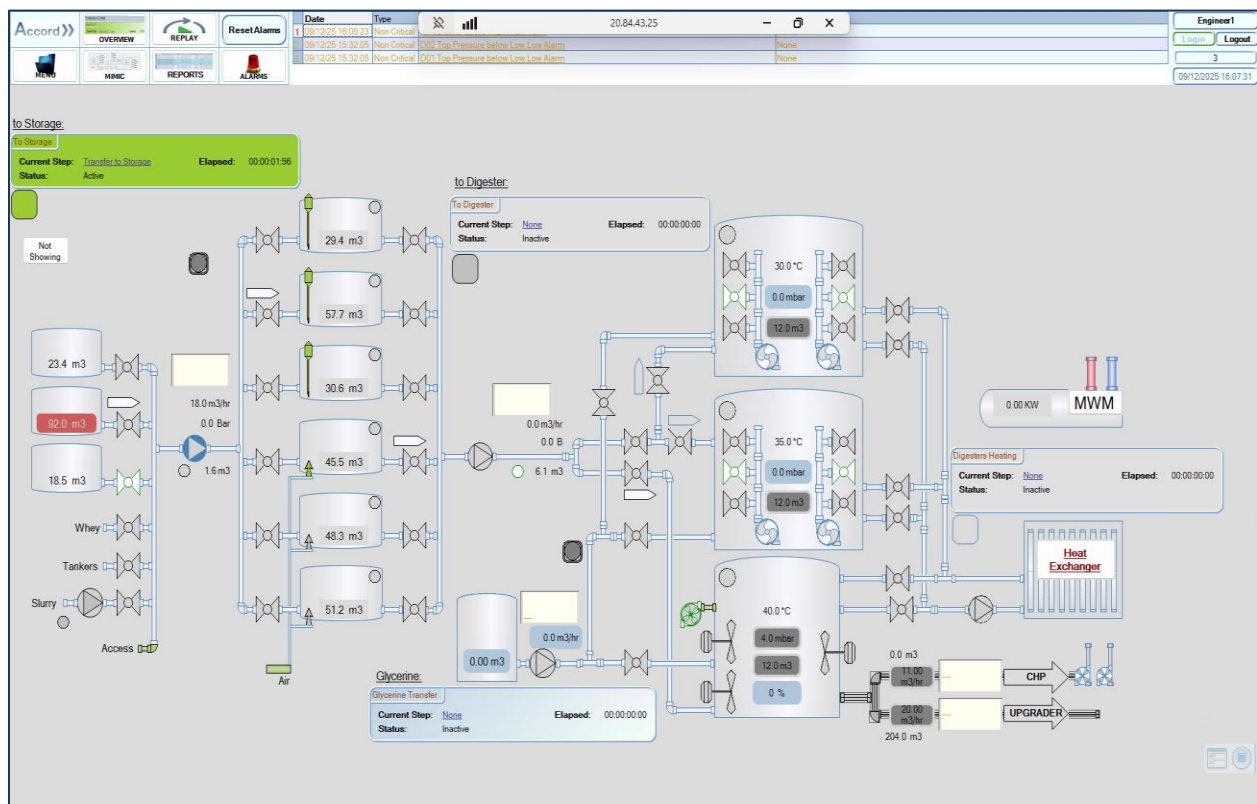


Overview Screen

## 4 Mimic Screen

This screen contains:

1. An active mimic representation of the Biogas System Tanks and Lines. This includes values for current filled Volumes for all tanks, and Pressure and Temperatures in the Digesters.
2. Filling and Transfer lines with line flowmeters with small trends and Volumes transferred.
3. Heat Exchanger for Digester Heating.
4. Program Controls for transfers 'To Storage', 'To Digester', 'Glycerine Transfer' and for 'Digester Heating'.



Mimic Screen



## 4.1 System Colours:

Devices and Programs are shown and can be accessed by pressing on them.

Devices colours:

- Grey: Inactive
- White / Green: Active / On
- Red: Alarm / Error
- Purple: Masked – Error is not checked

Program Control colours;

- Light Blue: Idle
- Green: Active
- Red: Alarm
- Yellow: In Hold /Pause

See section 8 for more information on HMI controls.

## 5 Programs

A program is started by choosing a program, then pressing Start. Program selections are made prior to starting a program. Ending can be carried out from the program faceplate.

The system checks for the Tanks and Lines for any alarms when starting, and during programs.

### 5.1 Programs List

1. Digesters Heating
2. Digester 01 Mixing
3. Digester 02 Mixing
4. Digester 03 Mixing

#### Transfer Programs

5. Reception to Storage
6. Storage to Digesters
7. Glycerine Transfer

#### 5.1.1 Alarms General

The following general Alarms are monitored in the Programs;

Attempt to run while in Maintenance Mode.

Low Flow from the pumps.

Tank Empty

Tank at High High Level

Tank at Low Low Level

Tank at High Pressure

Tank at High Temperature

### 5.1.2 Setpoints

The following Setpoints are available in the programs.

Background	Heating Oil Cost per L
Background	ST01 Volume Factor
Background	ST02 Volume Factor
Background	ST03 Volume Factor
Background	ST04 Volume Factor
Background	ST05 Volume Factor
Background	ST06 Volume Factor
Background	Count Converter Glycerin
Background	Heating Oil L per pulse
Background	Kerosene Converter
Digester 03 Mixing	D03 Mixing Cycle Time
Digester 03 Mixing	D03 Mixer 01 Start Time
Digester 03 Mixing	D03 Mixer 02 Start Time
Digester 03 Mixing	D03 Mixer 03 Start Time
Digester 03 Mixing	D03 Mixer 01 Stop Time
Digester 03 Mixing	D03 Mixer 02 Stop Time
Digester 03 Mixing	D03 Mixer 03 Stop Time
Digester 03 Mixing	D03 Starting Pressure Flare 02
Digester 03 Mixing	D03 Minimum Pressure Flare 02
Digester 03 Mixing	D03 Starting Pressure Flare 01
Digester 03 Mixing	D03 Minimum Pressure Flare 01
Digester 03 Mixing	D03 Minimum Balloon Height Flare 02
Digester 03 Mixing	D03 Starting Balloon Height Flare 02
Digester 03 Mixing	D03 Minimum Balloon Height Flare 01
Digester 03 Mixing	D03 Starting Balloon Height Flare 01
Digesters Heating	D01 Heat On SP
Digesters Heating	D02 Heat On SP
Digesters Heating	D01 Heat Off SP
Digesters Heating	D02 Heat Off SP
Digesters Heating	D03 Heat On SP
Digesters Heating	D03 Heat Off SP
To Digester	Transfer Volume Target
To Storage	to Storage Target Volume

Setpoints

	Type	Name	Value
1	Setpoint	Count Converter Glycerin	1.00
2	Setpoint	D01 Heat Off SP	43.00 ° C
3	Setpoint	D01 Heat On SP	40.00 ° C
4	Setpoint	D02 Heat Off SP	43.00 ° C
5	Setpoint	D02 Heat On SP	40.00 ° C
6	Setpoint	D03 Heat Off SP	44.00 ° C
7	Setpoint	D03 Heat On SP	40.00 ° C
8	Setpoint	D03 Minimum Balloon Height Flare 01	93.00 %
9	Setpoint	D03 Minimum Balloon Height Flare 02	93.00 %
10	Setpoint	D03 Minimum Pressure Flare 01	4.50 mbar
11	Setpoint	D03 Minimum Pressure Flare 02	4.50 mbar
12	Setpoint	D03 Mixer 01 Start Time	1.00 min
13	Setpoint	D03 Mixer 01 Stop Time	15.00 min
14	Setpoint	D03 Mixer 02 Start Time	1.00 min
15	Setpoint	D03 Mixer 02 Stop Time	30.00 min
16	Setpoint	D03 Mixer 03 Start Time	1.00 min
17	Setpoint	D03 Mixer 03 Stop Time	15.00 min
18	Setpoint	D03 Mixing Cycle Time	60.00 min
19	Setpoint	D03 Starting Balloon Height Flare 01	95.00 %
20	Setpoint	D03 Starting Balloon Height Flare 02	95.00 %
21	Setpoint	D03 Starting Pressure Flare 01	4.90 mbar
22	Setpoint	D03 Starting Pressure Flare 02	4.90 mbar
23	Setpoint	Heating Oil Cost per L	0.00
24	Setpoint	Heating Oil L per pulse	1.00 l
25	Setpoint	Kerosene Converter	1.00 Imp/l
26	Setpoint	ST01 Volume Factor	1.20
27	Setpoint	ST02 Volume Factor	1.20
28	Setpoint	ST03 Volume Factor	1.20
29	Setpoint	ST04 Volume Factor	1.30
30	Setpoint	ST05 Volume Factor	1.30
31	Setpoint	ST06 Volume Factor	1.30
32	Setpoint	to Storage Target Volume	10.00 m3
33	Setpoint	Transfer Volume Target	1.00 m3

HMI Programs screen Setpoints section

### 5.1.3 Step Times

The Step Times can be accessed from the Program faceplate or from the Step Times section in the Program Screen.

Programs		
Type	Name	Value
12 Step	D01 Mixing - S6.3 - LC-RC	595 Seconds
13 Step	D01 Mixing - S6.5.1 - Pumps Off	5 Seconds
14 Step	D01 Mixing - S7 - Pause	595 Seconds
15 Step	D01 Mixing - S8 - Start Stir Mix	3600 Seconds
16 Step	D01 Mixing - Start	0 Seconds
17 Step	D02 Mixing - Gas Production	0 Seconds
18 Step	D02 Mixing - S1 - LT-RT	1800 Seconds
19 Step	D02 Mixing - S2 Pause	10 Seconds
20 Step	D02 Mixing - S3 - LB-RB	590 Seconds
21 Step	D02 Mixing - S4 - Crossover	0 Seconds
22 Step	D02 Mixing - S4.3 LC-RB	0 Seconds
23 Step	D02 Mixing - S5 - Crossover	0 Seconds
24 Step	D02 Mixing - S5.3 - LB-RC	0 Seconds
25 Step	D02 Mixing - S6 - Crossover	5 Seconds
26 Step	D02 Mixing - S6.3 - LC-RC	595 Seconds
27 Step	D02 Mixing - S6.5.1 - Pumps Off	5 Seconds
28 Step	D02 Mixing - S7 - Pause	595 Seconds
29 Step	D02 Mixing - S8 - Start Stir Mix	3600 Seconds
30 Step	D02 Mixing - Start	0 Seconds
31 Step	D03 Mixing	1200 Seconds
32 Step	D03 Mixing - Start	0 Seconds
33 Step	Glycerine Start	0 Seconds
34 Step	Glycerine to Digester 01	10 Seconds
35 Step	Glycerine to Digester 02	10 Seconds
36 Step	Glycerine to Digester 03	14 Seconds
37 Step	Heat Digester 01	1800 Seconds
38 Step	Heat Digester 02	1800 Seconds
39 Step	Heat Digester 03	4800 Seconds
40 Step	Heating Monitoring	0 Seconds
41 Step	Heating Start	0 Seconds
42 Step	Initialise to Digester	2 Seconds
43 Step	Initialise to Storage	2 Seconds
44 Step	Open Route to Digester	0 Seconds
45 Step	Open Route to Storage	10 Seconds
46 Step	Sample Digester 01	1800 Seconds
47 Step	Sample Digester 02	1800 Seconds
48 Step	Sample Digester 03	4800 Seconds
49 Step	To Digester Start	0 Seconds
50 Step	To Storage Start	0 Seconds
51 Step	Transfer to Digester	0 Seconds
52 Step	Transfer to Storage	10 Seconds
53 Step	Wait after Glycerine to Digester 01	10 Seconds
54 Step	Wait after Glycerine to Digester 02	10 Seconds
55 Step	Wait after Glycerine to Digester 03	10 Seconds

HMI Programs screen Step times section

## 5.2 Transfer Reception to Storage Tank

The program is started from the Overview / Dashboard screen by selecting Reception Source and Storage Target Tanks and a Target Volume and pressing the Start button. The status changes from Off to Started and the program status can be seen in the Programs list in the top. The program activates valves and pumps until the target volume is transferred.

Normal Step Order

Order	Name
1	Transfer to Storage Startup Step
2	Initialise to Storage
3	Open Route to Storage
4	To Storage Start
5	Transfer to Storage

## 5.3 Transfer Storage to Digester

The program is started from the Overview / Dashboard screen by selecting Storage Source and Digester Target and entering a Target Volume and pressing the Start button. The status changes from Off to Started and the program status can be seen in the Programs list in the top. The program activates valves and pumps until the target volume is transferred.

Normal Step Order

Order	Name
1	Transfer to Digester Startup Step
2	Initialise to Digester
3	Open Route to Digester
4	To Digester Start
5	Transfer to Digester

## 5.4 Digesters Heating

The program generally waits in a Monitoring step and goes to the required step to transfer digestate from digester, through the Heat Exchanger and back to the Digester when required due to a fall in temperature in the Digester. The Heating must be enabled for the Digester. There is also the facility to Sample a Digester. The Enable and Sampling are available in Heating popup.

	Fermenter	Fermenter	Fermenter
Sample	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Off
Heating	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Off
Required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High SP	43 *C	43 *C	44 *C
Actual	0 *C	0 *C	0 *C
Low SP	40 *C	40 *C	40 *C

The Heating is called when the Actual Temperature, or Average Temperature, falls below the Low Setpoint, and continues until the Actual Temperature rises above the High Setpoint.

toggling the Sample to On causes the transfer through the Heat Exchanger for a fixed time of 30 minutes.

Normal Step Order:

Order	Name
1	Digesters Heating Startup Step
2	Heating Start
3	Heating Monitoring
4	Heat Digester 01
5	Heat Digester 02
6	Heat Digester 03
7	Sample Digester 01
8	Sample Digester 02
9	Sample Digester 03

## 5.5 Digester 01 Mixing

This program performs a mixing cycle, using internal valves and pumps.

Normal Step Order:

Order	Name
1	Digester 01 Mixing Startup Step
2	D01 Mixing - Start
3	D01 Mixing - S1 - LT-RT
4	D01 Mixing - S2 Pause
5	D01 Mixing - S3 - LB-RB
6	D01 Mixing - S4 - Crossover
7	D01 Mixing - S4.3 LC-RB
8	D01 Mixing - S5 - Crossover
9	D01 Mixing - S5.3 - LB-RC
10	D01 Mixing - S6 - Crossover
11	D01 Mixing - S6.3 - LC-RC
12	D01 Mixing - S6.5.1 - Pumps Off
13	D01 Mixing - S7 - Pause
14	D01 Mixing - S8 - Start Stir Mix
15	D01 Mixing – Gas Production

## 5.6 Digester 02 Mixing

Normal Step Order:

Order	Name
1	Digester Mixing Startup Step
2	D02 Mixing - Start
3	D02 Mixing - S1 - LT-RT
4	D02 Mixing - S2 Pause
5	D02 Mixing - S3 - LB-RB
6	D02 Mixing - S4 - Crossover
7	D02 Mixing - S4.3 LC-RB
8	D02 Mixing - S5 - Crossover
9	D02 Mixing - S5.3 - LB-RC
10	D02 Mixing - S6 - Crossover
11	D02 Mixing - S6.3 - LC-RC
12	D02 Mixing - S6.5.1 - Pumps Off
13	D02 Mixing - S7 - Pause
14	D02 Mixing - S8 - Start Stir Mix
15	D02 Mixing – Gas Production



## 5.7 Glycerine Transfer

This program transfers a set amount of Glycerine to each Digester in turn. The amount is set up in the settings from the program faceplate or the general Programs Settings.

Normal Step Order:

Order	Name
1	Glycerine Transfer Startup Step
2	Glycerine to Digester 01
3	Wait after Glycerine to Digester 01
4	Glycerine to Digester 02
5	Wait after Glycerine to Digester 02
6	Glycerine to Digester 03
7	Wait after Glycerine to Digester 03

## 5.8 0 Common - Background

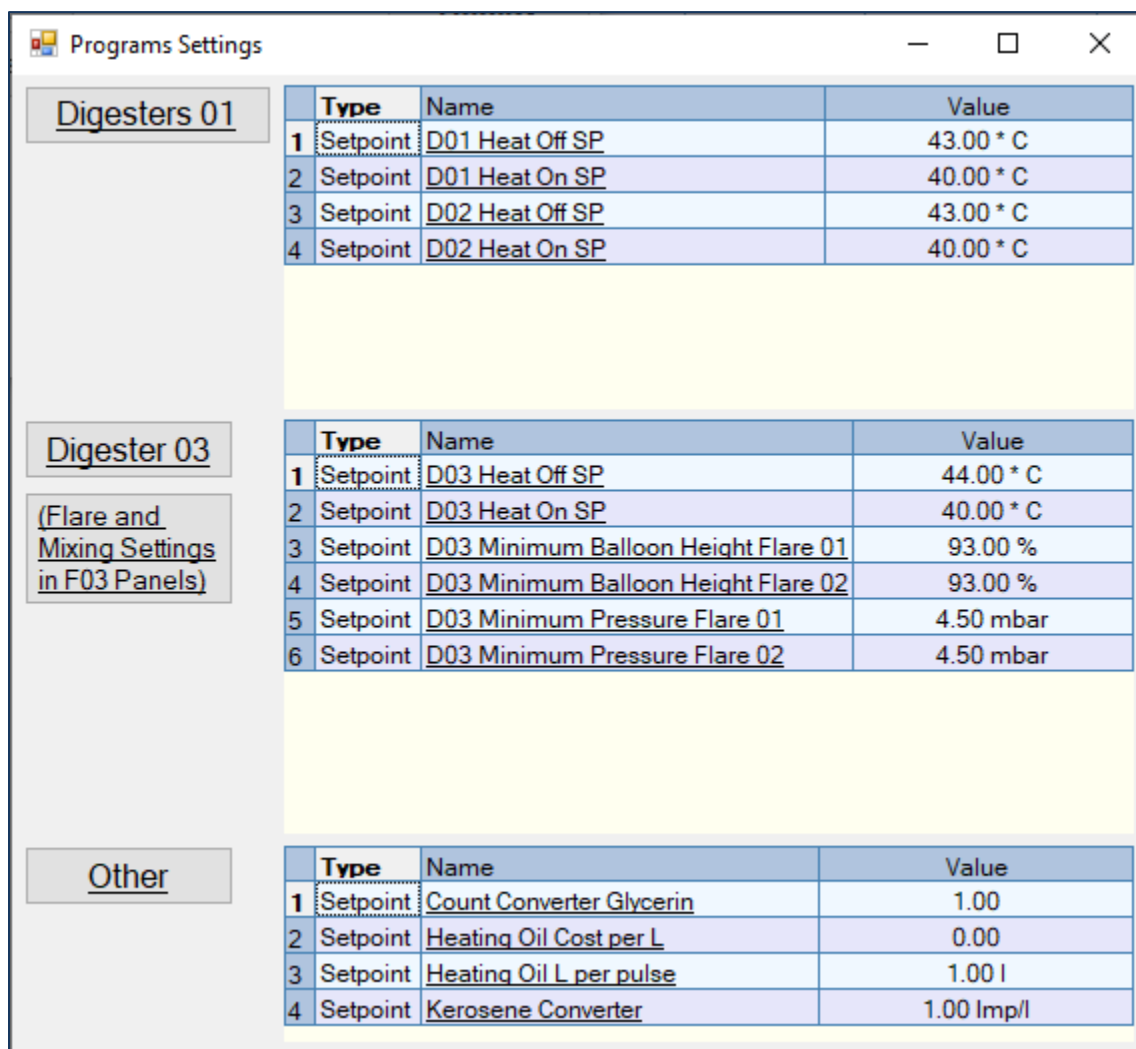
This program will start automatically on a PLC Start-up or reboot or may be stopped and started from PC. The Program has only one Step and should never be ended.

## 6 Other Screens

### 6.1 Settings Popup

This is a summary of main Programs Setpoints.

Each setpoint may be selected for change by pressing on the underlined text.



**Programs Settings**

Digesters 01

	Type	Name	Value
1	Setpoint	<u>D01 Heat Off SP</u>	43.00 * C
2	Setpoint	<u>D01 Heat On SP</u>	40.00 * C
3	Setpoint	<u>D02 Heat Off SP</u>	43.00 * C
4	Setpoint	<u>D02 Heat On SP</u>	40.00 * C

Digester 03

(Flare and Mixing Settings in F03 Panels)

	Type	Name	Value
1	Setpoint	<u>D03 Heat Off SP</u>	44.00 * C
2	Setpoint	<u>D03 Heat On SP</u>	40.00 * C
3	Setpoint	<u>D03 Minimum Balloon Height Flare 01</u>	93.00 %
4	Setpoint	<u>D03 Minimum Balloon Height Flare 02</u>	93.00 %
5	Setpoint	<u>D03 Minimum Pressure Flare 01</u>	4.50 mbar
6	Setpoint	<u>D03 Minimum Pressure Flare 02</u>	4.50 mbar

Other

	Type	Name	Value
1	Setpoint	<u>Count Converter Glycerin</u>	1.00
2	Setpoint	<u>Heating Oil Cost per L</u>	0.00
3	Setpoint	<u>Heating Oil L per pulse</u>	1.00 l
4	Setpoint	<u>Kerosene Converter</u>	1.00 Imp/l

## 6.2 Digester 03 Flares Popup

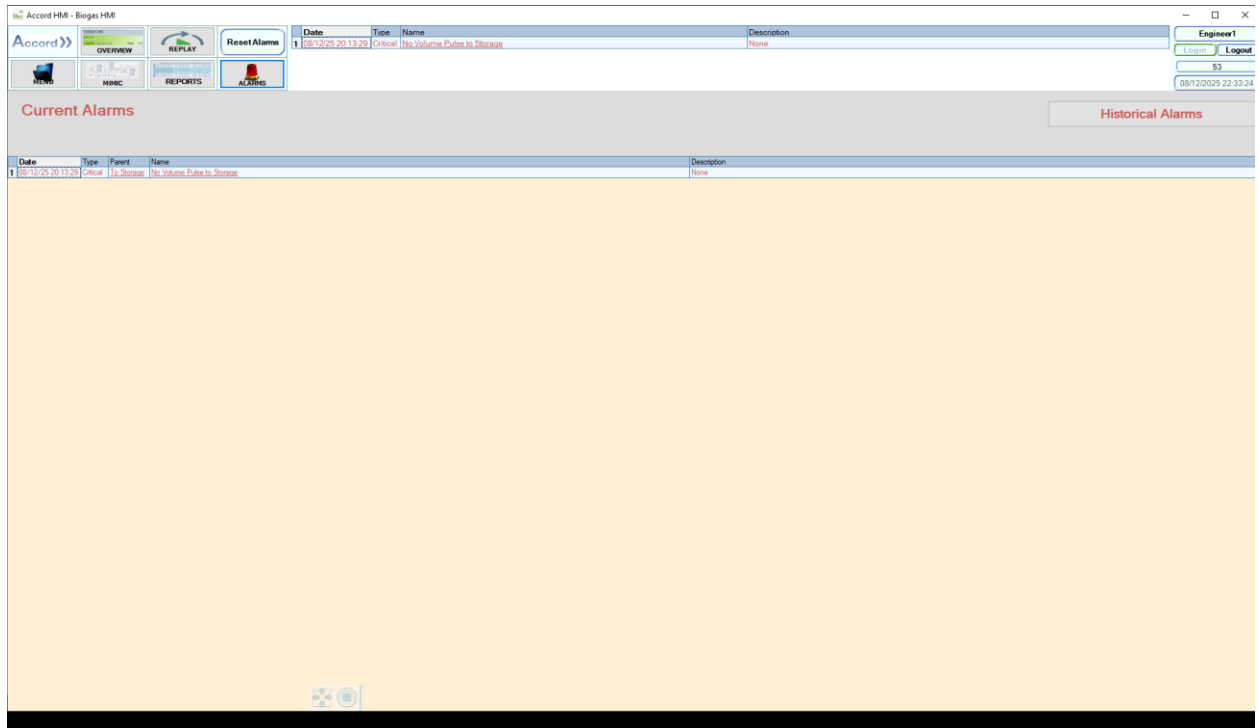
**Digester 03 Flares**

Digester 03 Flares

	Flare 01		Flare 02	
	Balloon	Pressure	Balloon	Pressure
	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Off	<input type="checkbox"/> Off
Start	95.00	5	95.00	5
Stop	93.00	4	93.00	4

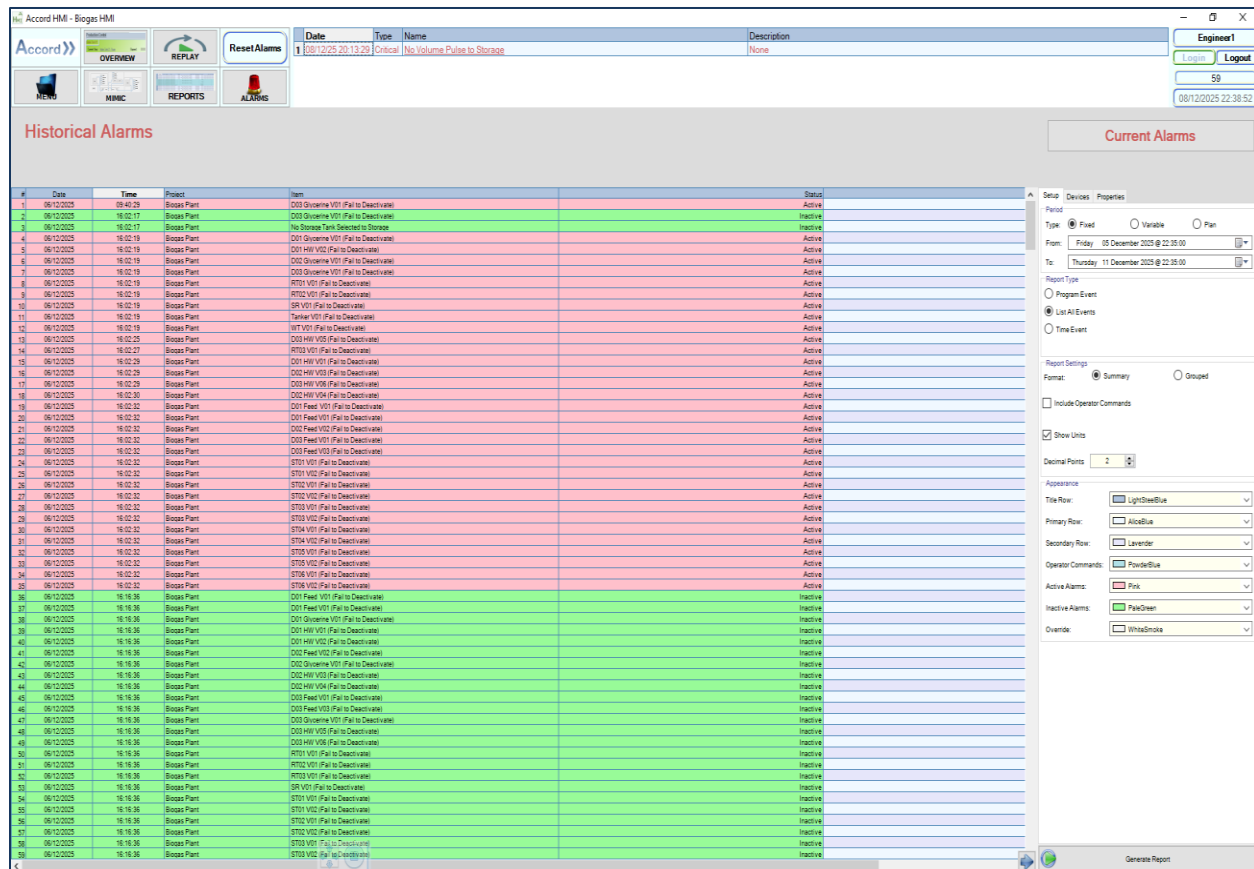
This gives control of Flares from Digester 03 by either Balloon Height or Pressure to activate each of the two flares.

## 6.3 Alarms Screen



Clicking on a Device item in the list will bring up the associated Faceplate, and overrides etc may be carried out from here.

## 6.4 Historical Alarms Screen



The screenshot displays the 'Historical Alarms' screen in the Accord HMI - Biogas HMI. The interface includes a top navigation bar with buttons for Overview, Replay, Reports, and Alarms. A search bar at the top right allows filtering by Date, Time, Name, and Description. The main table lists historical alarms with columns for #, Date, Time, Project, Item, and Status. The table is filtered for 'Critical' status and 'No Volume Pulse to Storage'. The right-hand side contains configuration panels for Report Type, Report Settings, and Appearance.

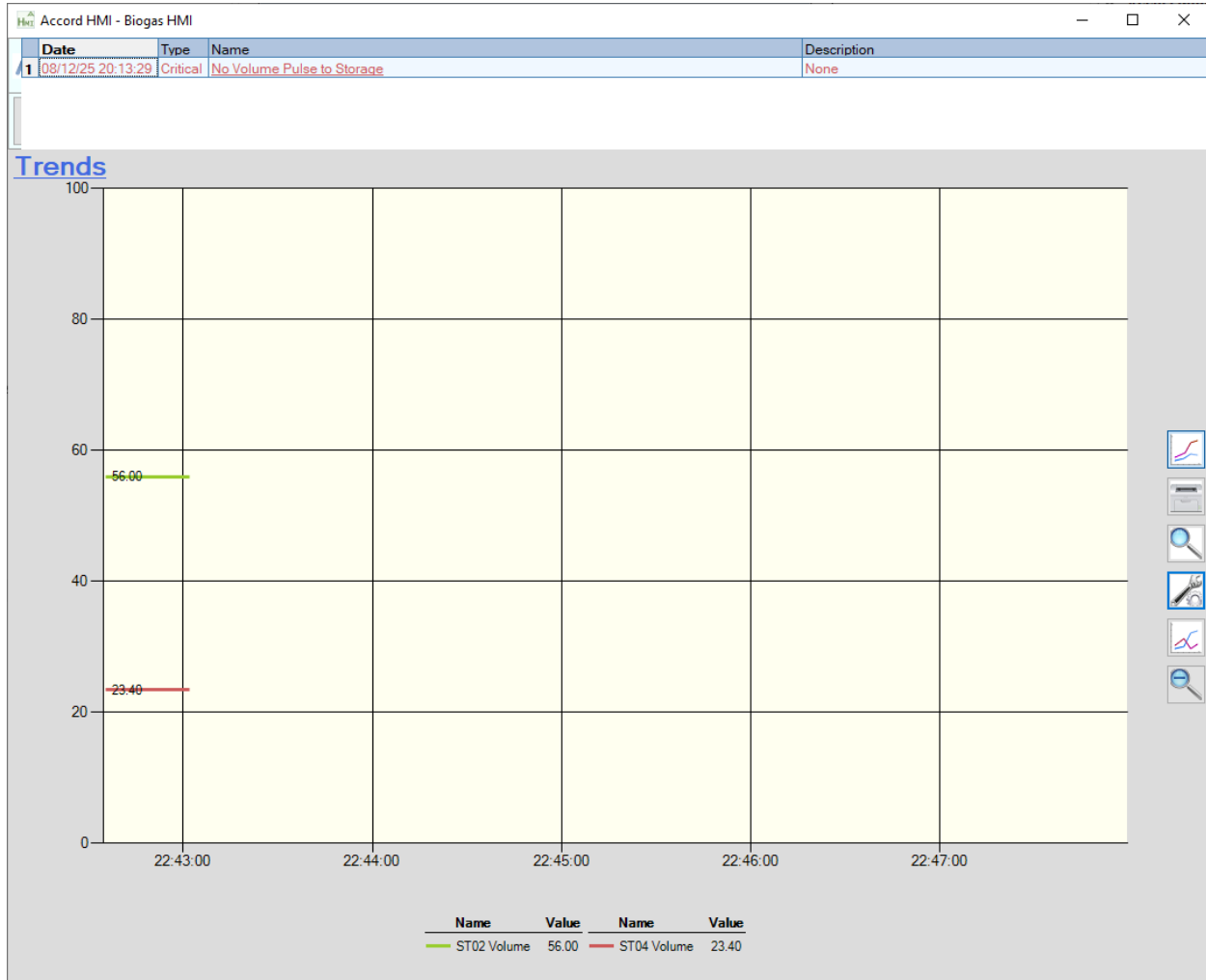
#	Date	Time	Project	Item	Status
1	06/12/2025	09:40:29	Biogas Plant	D03 Glycerine V01 (Fail to Deactivate)	Active
2	06/12/2025	16:02:17	Biogas Plant	D03 Glycerine V01 (Fail to Deactivate)	Inactive
3	06/12/2025	16:02:17	Biogas Plant	No Storage Tank Deactivated to Storage	Inactive
4	06/12/2025	16:02:19	Biogas Plant	D01 Glycerine V01 (Fail to Deactivate)	Active
5	06/12/2025	16:02:19	Biogas Plant	D01 HMI V02 (Fail to Deactivate)	Active
6	06/12/2025	16:02:19	Biogas Plant	D02 Glycerine V01 (Fail to Deactivate)	Active
7	06/12/2025	16:02:19	Biogas Plant	D03 Glycerine V01 (Fail to Deactivate)	Active
8	06/12/2025	16:02:19	Biogas Plant	RT01 V01 (Fail to Deactivate)	Active
9	06/12/2025	16:02:19	Biogas Plant	RT02 V01 (Fail to Deactivate)	Active
10	06/12/2025	16:02:19	Biogas Plant	SP1 V01 (Fail to Deactivate)	Active
11	06/12/2025	16:02:19	Biogas Plant	Tankar V01 (Fail to Deactivate)	Active
12	06/12/2025	16:02:19	Biogas Plant	WT V01 (Fail to Deactivate)	Active
13	06/12/2025	16:02:20	Biogas Plant	D02 HMI V03 (Fail to Deactivate)	Active
14	06/12/2025	16:02:27	Biogas Plant	RT02 V01 (Fail to Deactivate)	Active
15	06/12/2025	16:02:29	Biogas Plant	D01 HMI V01 (Fail to Deactivate)	Active
16	06/12/2025	16:02:29	Biogas Plant	D02 HMI V03 (Fail to Deactivate)	Active
17	06/12/2025	16:02:29	Biogas Plant	D02 HMI V06 (Fail to Deactivate)	Active
18	06/12/2025	16:02:30	Biogas Plant	D02 HMI V04 (Fail to Deactivate)	Active
19	06/12/2025	16:02:32	Biogas Plant	D01 Feed V01 (Fail to Deactivate)	Active
20	06/12/2025	16:02:32	Biogas Plant	D01 Feed V01 (Fail to Deactivate)	Active
21	06/12/2025	16:02:32	Biogas Plant	D02 Feed V02 (Fail to Deactivate)	Active
22	06/12/2025	16:02:32	Biogas Plant	D03 Feed V01 (Fail to Deactivate)	Active
23	06/12/2025	16:02:32	Biogas Plant	D02 Feed V02 (Fail to Deactivate)	Active
24	06/12/2025	16:02:32	Biogas Plant	ST01 V01 (Fail to Deactivate)	Active
25	06/12/2025	16:02:32	Biogas Plant	ST01 V02 (Fail to Deactivate)	Active
26	06/12/2025	16:02:32	Biogas Plant	ST02 V01 (Fail to Deactivate)	Active
27	06/12/2025	16:02:32	Biogas Plant	ST03 V02 (Fail to Deactivate)	Active
28	06/12/2025	16:02:32	Biogas Plant	ST03 V01 (Fail to Deactivate)	Active
29	06/12/2025	16:02:32	Biogas Plant	ST03 V02 (Fail to Deactivate)	Active
30	06/12/2025	16:02:32	Biogas Plant	ST04 V01 (Fail to Deactivate)	Active
31	06/12/2025	16:02:32	Biogas Plant	ST04 V02 (Fail to Deactivate)	Active
32	06/12/2025	16:02:32	Biogas Plant	ST05 V01 (Fail to Deactivate)	Active
33	06/12/2025	16:02:32	Biogas Plant	ST05 V02 (Fail to Deactivate)	Active
34	06/12/2025	16:02:32	Biogas Plant	ST06 V01 (Fail to Deactivate)	Active
35	06/12/2025	16:02:32	Biogas Plant	ST06 V02 (Fail to Deactivate)	Active
36	06/12/2025	16:16:36	Biogas Plant	D01 Feed V01 (Fail to Deactivate)	Inactive
37	06/12/2025	16:16:36	Biogas Plant	D01 Feed V01 (Fail to Deactivate)	Inactive
38	06/12/2025	16:16:36	Biogas Plant	D01 Glycerine V01 (Fail to Deactivate)	Inactive
39	06/12/2025	16:16:36	Biogas Plant	D01 HMI V01 (Fail to Deactivate)	Inactive
40	06/12/2025	16:16:36	Biogas Plant	D01 HMI V02 (Fail to Deactivate)	Inactive
41	06/12/2025	16:16:36	Biogas Plant	D02 Feed V02 (Fail to Deactivate)	Inactive
42	06/12/2025	16:16:36	Biogas Plant	D02 Glycerine V01 (Fail to Deactivate)	Inactive
43	06/12/2025	16:16:36	Biogas Plant	D02 HMI V03 (Fail to Deactivate)	Inactive
44	06/12/2025	16:16:36	Biogas Plant	D02 HMI V04 (Fail to Deactivate)	Inactive
45	06/12/2025	16:16:36	Biogas Plant	D03 Feed V01 (Fail to Deactivate)	Inactive
46	06/12/2025	16:16:36	Biogas Plant	D03 Feed V03 (Fail to Deactivate)	Inactive
47	06/12/2025	16:16:36	Biogas Plant	D03 Glycerine V01 (Fail to Deactivate)	Inactive
48	06/12/2025	16:16:36	Biogas Plant	D03 HMI V05 (Fail to Deactivate)	Inactive
49	06/12/2025	16:16:36	Biogas Plant	D03 HMI V06 (Fail to Deactivate)	Inactive
50	06/12/2025	16:16:36	Biogas Plant	RT01 V01 (Fail to Deactivate)	Inactive
51	06/12/2025	16:16:36	Biogas Plant	RT02 V01 (Fail to Deactivate)	Inactive
52	06/12/2025	16:16:36	Biogas Plant	RT03 V01 (Fail to Deactivate)	Inactive
53	06/12/2025	16:16:36	Biogas Plant	SP1 V01 (Fail to Deactivate)	Inactive
54	06/12/2025	16:16:36	Biogas Plant	ST01 V01 (Fail to Deactivate)	Inactive
55	06/12/2025	16:16:36	Biogas Plant	ST01 V02 (Fail to Deactivate)	Inactive
56	06/12/2025	16:16:36	Biogas Plant	ST02 V01 (Fail to Deactivate)	Inactive
57	06/12/2025	16:16:36	Biogas Plant	ST02 V02 (Fail to Deactivate)	Inactive
58	06/12/2025	16:16:36	Biogas Plant	ST03 V01 (Fail to Deactivate)	Inactive
59	06/12/2025	16:16:36	Biogas Plant	ST03 V02 (Fail to Deactivate)	Inactive

The right-hand side of the screen contains configuration panels for Report Type, Report Settings, and Appearance. The Report Type panel includes options for Program Event, List All Events, and Time Event. The Report Settings panel includes options for Format (Summary, Grouped), Include Operator Comments, and Show Units. The Appearance panel includes options for Title Row, Primary Row, Secondary Row, Operator Commands, Active Alarms, Inactive Alarms, and Override.

This is in form of a configurable database query Report. The style of the report, the start and end times and the devices to be queried may all be selected on the right hand side panels.

## 6.5 Trends

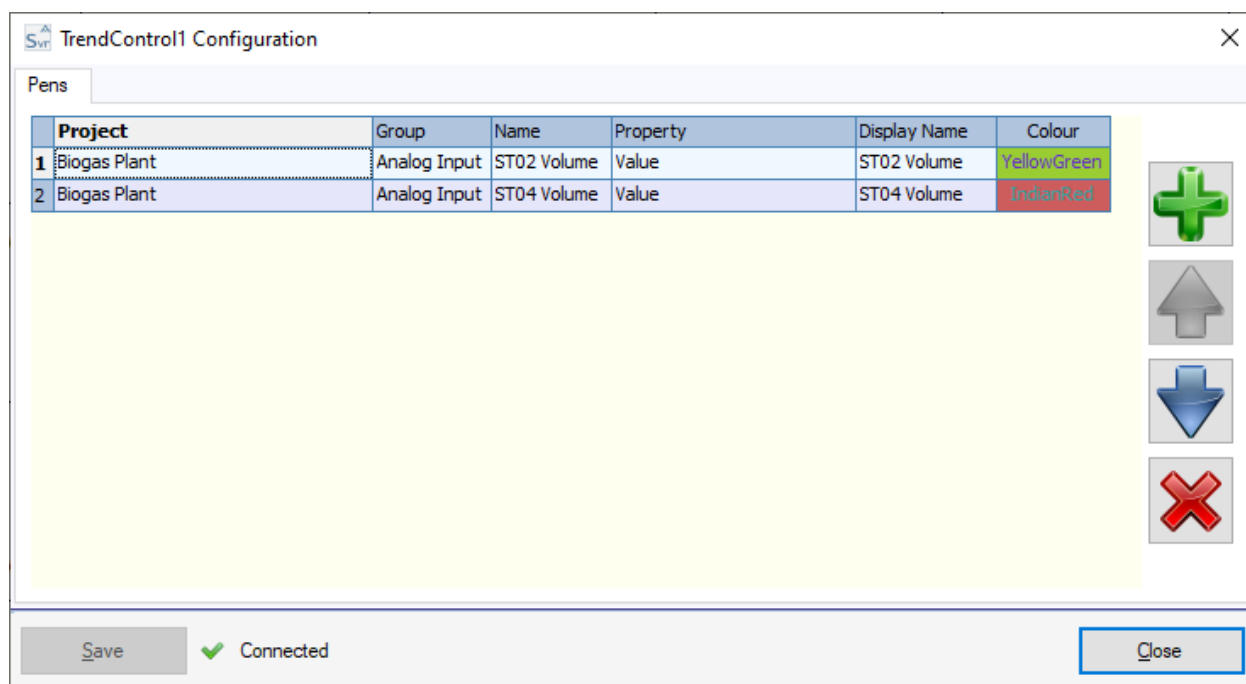
The Trend control can be used to display a live or historical trend graph of values. Historical trends are available for Logged devices. Selections and style settings are available at the right hand side.



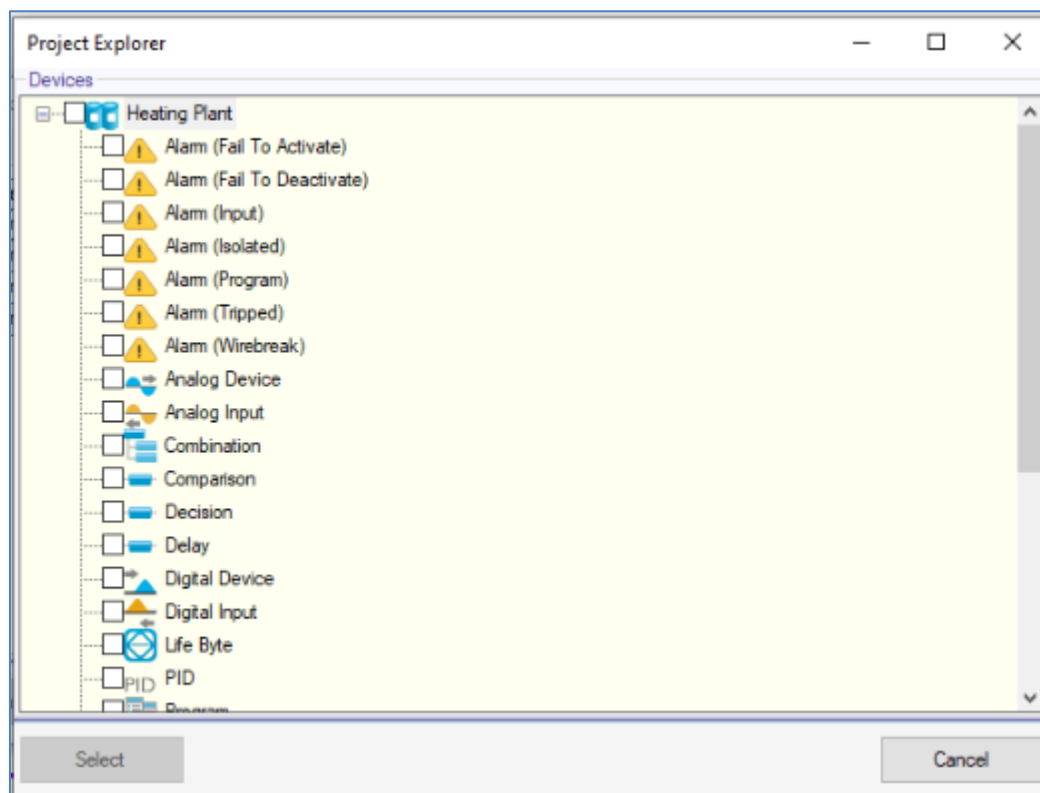
The following configuration options are available to the Trend control:

Right-click on the Trend allows the Trend Pens to be configured.

- An explorer window allows the required device to be accessed for the pen.
- A property of the device may also be assigned. Usually, the Value property is used.
- Text can be entered for the Display Name if required. The Device name will be used by default.
- A colour may be assigned to the Pen using the colour picker.



The required items for trend pens are selected using the Explorer, by pressing “+”

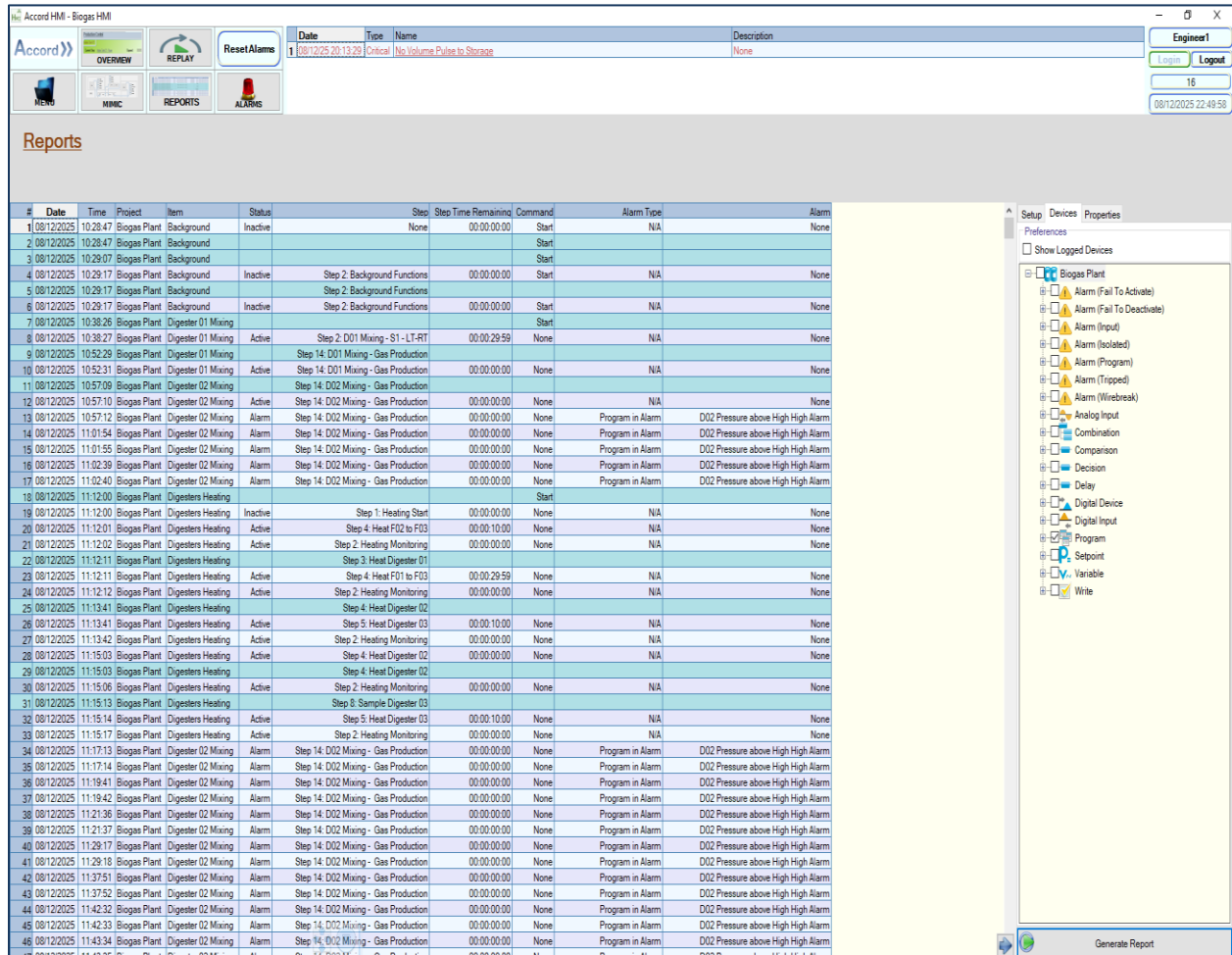


## 6.6 History Reports

The History Control is used to view a report of historical data via the HMI during Runtime.

This is in form of a configurable database query Report. The style of the report, the start and end times and the devices to be queried may all be selected on the right hand side panels.

The select desired devices and timescale and report types are selected before clicking 'Generate Report'.



The screenshot displays the 'Reports' section of the Accord HMI. At the top, there are navigation buttons: OVERVIEW, REPLAY, and RESET ALARMS. Below these, a table shows the current report details: Date (08/12/2025 20:13:29), Type (Critical), Name (No Volume Pulse to Storage), and Description (None). The main area is a large table with columns: #, Date, Time, Project, Item, Status, Step, Step Time Remaining, Command, Alarm Type, and Alarm. The table lists various operations for the Biogas Plant, including background functions, mixing steps, and heating processes. On the right side, there is a 'Setup' panel with tabs for Devices, Properties, and Preferences. The 'Devices' tab is active, showing a list of devices and their properties. At the bottom right, there is a 'Generate Report' button.

#	Date	Time	Project	Item	Status	Step	Step Time Remaining	Command	Alarm Type	Alarm
1	08/12/2025	10:28:47	Biogas Plant	Background	Inactive	None	00:00:00:00	Start	N/A	None
2	08/12/2025	10:28:47	Biogas Plant	Background	Inactive	None	00:00:00:00	Start	N/A	None
3	08/12/2025	10:29:07	Biogas Plant	Background	Inactive	None	00:00:00:00	Start	N/A	None
4	08/12/2025	10:29:17	Biogas Plant	Background	Inactive	Step 2: Background Functions	00:00:00:00	Start	N/A	None
5	08/12/2025	10:29:17	Biogas Plant	Background	Inactive	Step 2: Background Functions	00:00:00:00	Start	N/A	None
6	08/12/2025	10:29:17	Biogas Plant	Background	Inactive	Step 2: Background Functions	00:00:00:00	Start	N/A	None
7	08/12/2025	10:38:26	Biogas Plant	Digester 01 Mixing	Active	Step 2: D01 Mixing - S1 - LT-RT	00:00:29:59	None	N/A	None
8	08/12/2025	10:38:27	Biogas Plant	Digester 01 Mixing	Active	Step 14: D01 Mixing - Gas Production	00:00:00:00	None	N/A	None
9	08/12/2025	10:52:31	Biogas Plant	Digester 01 Mixing	Active	Step 14: D01 Mixing - Gas Production	00:00:00:00	None	N/A	None
10	08/12/2025	10:52:31	Biogas Plant	Digester 01 Mixing	Active	Step 14: D01 Mixing - Gas Production	00:00:00:00	None	N/A	None
11	08/12/2025	10:57:09	Biogas Plant	Digester 02 Mixing	Active	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	N/A	None
12	08/12/2025	10:57:10	Biogas Plant	Digester 02 Mixing	Active	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	N/A	None
13	08/12/2025	10:57:12	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
14	08/12/2025	11:01:54	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
15	08/12/2025	11:01:55	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
16	08/12/2025	11:02:39	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
17	08/12/2025	11:02:40	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
18	08/12/2025	11:12:00	Biogas Plant	Digesters Heating	Inactive	Step 1: Heating Start	00:00:00:00	None	N/A	None
19	08/12/2025	11:12:00	Biogas Plant	Digesters Heating	Active	Step 4: Heat F02 to F03	00:00:10:00	None	N/A	None
20	08/12/2025	11:12:01	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
21	08/12/2025	11:12:02	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
22	08/12/2025	11:12:11	Biogas Plant	Digesters Heating	Active	Step 3: Heat Digester 01	00:00:00:00	None	N/A	None
23	08/12/2025	11:12:11	Biogas Plant	Digesters Heating	Active	Step 4: Heat F01 to F03	00:00:29:59	None	N/A	None
24	08/12/2025	11:12:12	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
25	08/12/2025	11:13:41	Biogas Plant	Digesters Heating	Active	Step 5: Heat Digester 02	00:00:10:00	None	N/A	None
26	08/12/2025	11:13:41	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
27	08/12/2025	11:13:42	Biogas Plant	Digesters Heating	Active	Step 4: Heat Digester 02	00:00:00:00	None	N/A	None
28	08/12/2025	11:15:03	Biogas Plant	Digesters Heating	Active	Step 4: Heat Digester 02	00:00:00:00	None	N/A	None
29	08/12/2025	11:15:03	Biogas Plant	Digesters Heating	Active	Step 4: Heat Digester 02	00:00:00:00	None	N/A	None
30	08/12/2025	11:15:06	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
31	08/12/2025	11:15:13	Biogas Plant	Digesters Heating	Active	Step 8: Sample Digester 03	00:00:10:00	None	N/A	None
32	08/12/2025	11:15:14	Biogas Plant	Digesters Heating	Active	Step 5: Heat Digester 03	00:00:10:00	None	N/A	None
33	08/12/2025	11:15:17	Biogas Plant	Digesters Heating	Active	Step 2: Heating Monitoring	00:00:00:00	None	N/A	None
34	08/12/2025	11:17:13	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
35	08/12/2025	11:17:14	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
36	08/12/2025	11:19:41	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
37	08/12/2025	11:19:42	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
38	08/12/2025	11:21:36	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
39	08/12/2025	11:21:37	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
40	08/12/2025	11:29:17	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
41	08/12/2025	11:29:18	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
42	08/12/2025	11:37:51	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
43	08/12/2025	11:37:52	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
44	08/12/2025	11:42:33	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
45	08/12/2025	11:42:33	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
46	08/12/2025	11:43:34	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm
47	08/12/2025	11:43:35	Biogas Plant	Digester 02 Mixing	Alarm	Step 14: D02 Mixing - Gas Production	00:00:00:00	None	Program in Alarm	D02 Pressure above High High Alarm

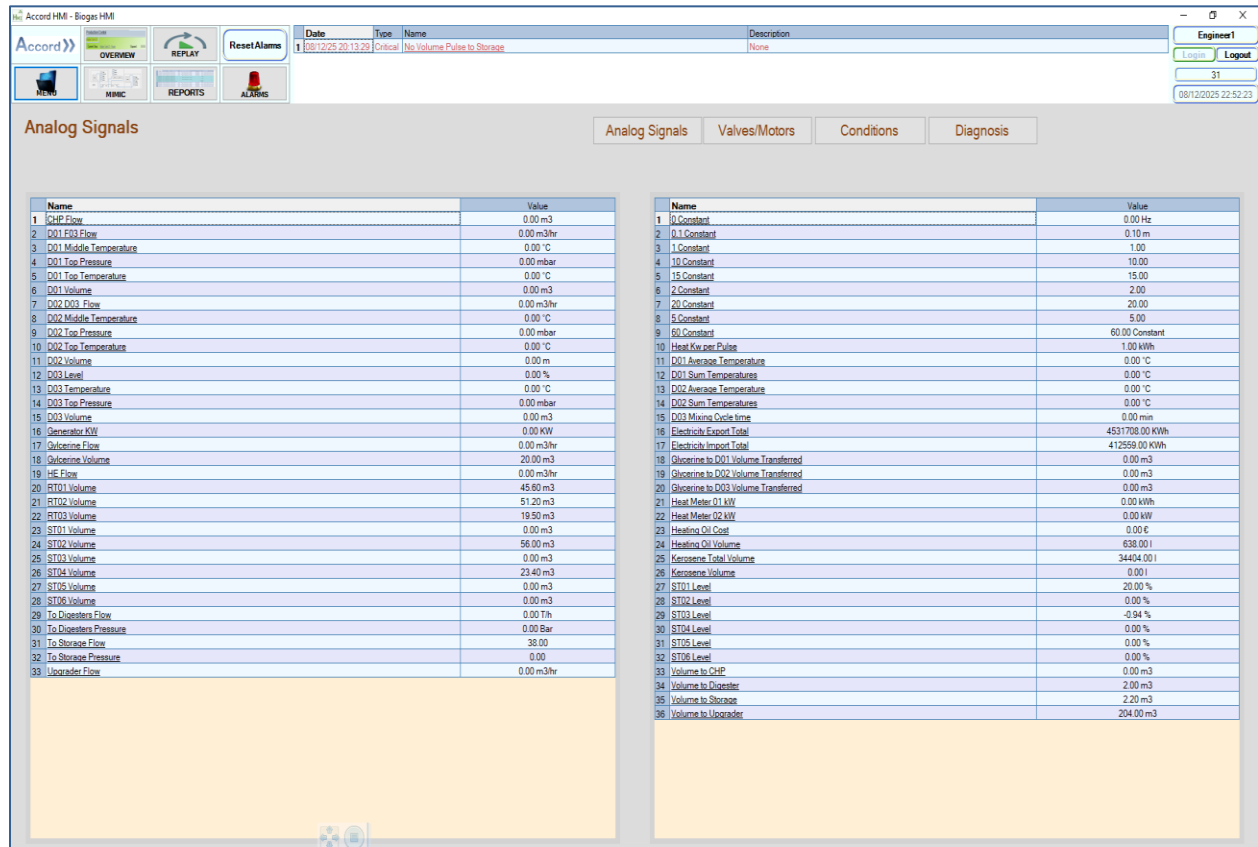


## 6.7 Engineering List Screens

These screens provide summary information on devices

### 6.7.1 Analogs

This provides the current status of all analog inputs and variable values in the controller. All devices may be accessed by clicking to select.



**Analog Signals**

Name	Value
1 CHP Flow	0.00 m3
2 D01 F03 Flow	0.00 m3/hr
3 D01 Middle Temperature	0.00 °C
4 D01 Top Pressure	0.00 mbar
5 D01 Top Temperature	0.00 °C
6 D01 Volume	0.00 m3
7 D02 D03 Flow	0.00 m3/hr
8 D02 Middle Temperature	0.00 °C
9 D02 Top Pressure	0.00 mbar
10 D02 Top Temperature	0.00 °C
11 D02 Volume	0.00 m
12 D03 Level	0.00 %
13 D03 Temperature	0.00 °C
14 D03 Top Pressure	0.00 mbar
15 D03 Volume	0.00 m3
16 Generator KW	0.00 KW
17 Glucose Flow	0.00 m3/hr
18 Glucose Volume	20.00 m3
19 HF Flow	0.00 m3/hr
20 RT01 Volume	45.00 m3
21 RT02 Volume	51.20 m3
22 RT03 Volume	19.50 m3
23 ST01 Volume	0.00 m3
24 ST02 Volume	56.00 m3
25 ST03 Volume	0.00 m3
26 ST04 Volume	23.40 m3
27 ST05 Volume	0.00 m3
28 ST06 Volume	0.00 m3
29 To Diester Flow	0.00 T/h
30 To Diester Pressure	0.00 Bar
31 To Storage Flow	38.00
32 To Storage Pressure	0.00
33 Upgrader Flow	0.00 m3/hr

Name	Value
1 D Constant	0.00 Hz
2 D1 Constant	0.10 m
3 D1 Constant	1.00
4 D1 Constant	10.00
5 D1 Constant	15.00
6 D1 Constant	2.00
7 D1 Constant	20.00
8 D1 Constant	5.00
9 D1 Constant	60.00 Constant
10 Heat Kw per Pulse	1.00 kWh
11 D01 Average Temperature	0.00 °C
12 D01 Sum Temperature	0.00 °C
13 D02 Average Temperature	0.00 °C
14 D02 Sum Temperature	0.00 °C
15 D02 Mixing Cycle Time	0.00 min
16 Electricity Export Total	4531708.00 kWh
17 Electricity Import Total	412559.00 kWh
18 Glucose to D01 Volume Transferred	0.00 m3
19 Glucose to D02 Volume Transferred	0.00 m3
20 Glucose to D03 Volume Transferred	0.00 m3
21 Heat Meter 01 kW	0.00 kWh
22 Heat Meter 02 kW	0.00 kWh
23 Heating Oil Cost	0.00 €
24 Heating Oil Volume	638.00 l
25 Kerosene Total Volume	34404.00 l
26 Kerosene Volume	0.00 l
27 ST01 Level	20.00 %
28 ST02 Level	0.00 %
29 ST03 Level	-0.94 %
30 ST04 Level	0.00 %
31 ST05 Level	0.00 %
32 ST06 Level	0.00 %
33 Volume to CHP	0.00 m3
34 Volume to Diester	2.00 m3
35 Volume to Storage	2.20 m3
36 Volume to Upgrader	204.00 m3

## 6.7.2 Digitals

This displays the current status and values for all digital inputs and digital outputs in the system. Device faceplates may be accessed by clicking on the underlined name.

The screenshot shows the Accord HMI - Biogas HMI interface. The top navigation bar includes buttons for Overview, Replay, Reset Alarm, and Alarms. A status bar at the top right shows 'Engineer1' and '37'. The main area displays two tables of digital inputs and outputs, each with columns for Type, Name, and Value.

Type	Name	Value
1	Valve D01.02 Feed V04	Auto Deactivated
2	Valve D01.02 Feed V01	Auto Deactivated
3	Valve D01.02 Feed V01	Auto Deactivated
4	Valve D01.02 Feed V01	Auto Deactivated
5	Valve D01.02 Feed V01	Auto Deactivated
6	Valve D01.02 Feed V01	Auto Deactivated
7	Valve D01.02 Feed V01	Auto Deactivated
8	Valve D01.02 Feed V01	Auto Deactivated
9	Valve D01.02 Feed V01	Auto Deactivated
10	Valve D01.02 Feed V01	Auto Deactivated
11	Valve D01.02 Feed V01	Auto Deactivated
12	Valve D01.02 Feed V01	Auto Deactivated
13	Valve D01.02 Feed V01	Auto Deactivated
14	Valve D01.02 Feed V01	Auto Deactivated
15	Valve D01.02 Feed V01	Auto Deactivated
16	Valve D01.02 Feed V01	Auto Deactivated
17	Valve D01.02 Feed V01	Auto Deactivated
18	Valve D01.02 Feed V01	Auto Deactivated
19	Valve D01.02 Feed V01	Auto Deactivated
20	Valve D01.02 Feed V01	Auto Deactivated
21	Valve D01.02 Feed V01	Auto Deactivated
22	Valve D01.02 Feed V01	Auto Deactivated
23	Valve D01.02 Feed V01	Auto Deactivated
24	Valve D01.02 Feed V01	Auto Deactivated
25	Valve D01.02 Feed V01	Auto Deactivated
26	Valve D01.02 Feed V01	Auto Deactivated
27	Valve D01.02 Feed V01	Auto Deactivated
28	Valve D01.02 Feed V01	Auto Deactivated
29	Valve D01.02 Feed V01	Auto Deactivated
30	Valve D01.02 Feed V01	Auto Deactivated
31	Valve D01.02 Feed V01	Auto Deactivated
32	Valve D01.02 Feed V01	Auto Deactivated
33	Valve D01.02 Feed V01	Auto Deactivated
34	Valve D01.02 Feed V01	Auto Deactivated
35	Valve D01.02 Feed V01	Auto Deactivated
36	Valve D01.02 Feed V01	Auto Deactivated
37	Valve D01.02 Feed V01	Auto Deactivated
38	Valve D01.02 Feed V01	Auto Deactivated
39	Valve D01.02 Feed V01	Auto Deactivated
40	Valve D01.02 Feed V01	Auto Deactivated
41	Valve D01.02 Feed V01	Auto Deactivated
42	Valve D01.02 Feed V01	Auto Deactivated
43	Valve D01.02 Feed V01	Auto Deactivated
44	Valve D01.02 Feed V01	Auto Deactivated

Type	Name	Value
1	Digital Output Alarm Relay 01	Auto Deactivated
2	Digital Output Camera Light 01	Auto Deactivated
3	Digital Output Camera Light 02	Auto Deactivated
4	Digital Output Flame	Auto Deactivated
5	Digital Output ST04 Air On	Auto Deactivated
6	Digital Output ST05 Air On	Auto Deactivated
7	Digital Output ST06 Air On	Auto Deactivated
8	Motor Air Blower	Auto Stopped
9	Motor D01.02 Feed V01	Auto Stopped
10	Motor D01.02 Feed V01	Auto Stopped
11	Motor D01.02 Feed V01	Auto Stopped
12	Motor D01.02 Feed V01	Auto Stopped
13	Motor D01.02 Feed V01	Auto Stopped
14	Motor D01.02 Feed V01	Auto Stopped
15	Motor D01.02 Feed V01	Auto Stopped
16	Motor D01.02 Feed V01	Auto Stopped
17	Motor D01.02 Feed V01	Auto Stopped
18	Motor D01.02 Feed V01	Auto Stopped
19	Motor D01.02 Feed V01	Auto Stopped
20	Motor D01.02 Feed V01	Auto Stopped
21	Motor D01.02 Feed V01	Auto Stopped
22	Motor D01.02 Feed V01	Auto Stopped
23	Motor D01.02 Feed V01	Auto Stopped
24	Motor D01.02 Feed V01	Auto Stopped
25	Motor D01.02 Feed V01	Auto Stopped
26	Motor D01.02 Feed V01	Auto Stopped
27	Motor D01.02 Feed V01	Auto Stopped
28	Motor D01.02 Feed V01	Auto Stopped
29	Motor D01.02 Feed V01	Auto Stopped
30	Motor D01.02 Feed V01	Auto Stopped
31	Motor D01.02 Feed V01	Auto Stopped
32	Motor D01.02 Feed V01	Auto Stopped
33	Motor D01.02 Feed V01	Auto Stopped
34	Motor D01.02 Feed V01	Auto Stopped
35	Motor D01.02 Feed V01	Auto Stopped
36	Motor D01.02 Feed V01	Auto Stopped
37	Motor D01.02 Feed V01	Auto Stopped
38	Motor D01.02 Feed V01	Auto Stopped
39	Motor D01.02 Feed V01	Auto Stopped
40	Motor D01.02 Feed V01	Auto Stopped
41	Motor D01.02 Feed V01	Auto Stopped
42	Motor D01.02 Feed V01	Auto Stopped
43	Motor D01.02 Feed V01	Auto Stopped
44	Motor D01.02 Feed V01	Auto Stopped

### 6.7.3 Overrides

Displays all devices in the system that are in manual, override or have feedback alarm masked.

Type	Name (Masked)	Status
1	Motor Air Blower	Feedback Alarm Masked
2	Motor D01 Mixing Pump 01	Feedback Alarm Masked
3	Motor D01 Mixing Pump 02	Feedback Alarm Masked
4	Motor D02 Mixing Pump 01	Feedback Alarm Masked
5	Motor D02 Mixing Pump 02	Feedback Alarm Masked
6	Motor D03 Flare 01	Feedback Alarm Masked
7	Motor D03 Flare 02	Feedback Alarm Masked
8	Motor D03 Mixer 01	Feedback Alarm Masked
9	Motor D03 Mixer 02	Feedback Alarm Masked
10	Motor Glycerine Pump	Feedback Alarm Masked
11	Motor Hot Water Pump	Feedback Alarm Masked
12	Motor P02 Heating Pump	Feedback Alarm Masked
13	Motor Slurry Reception Pump	Feedback Alarm Masked
14	Motor ST01 Mixer	Feedback Alarm Masked
15	Motor ST02 Mixer	Feedback Alarm Masked
16	Motor ST03 Mixer	Feedback Alarm Masked
17	Motor T0 Glycerine Pump 02	Feedback Alarm Masked
18	Motor T0 Storage Pump P01	Feedback Alarm Masked
19	Valve D01 02 Feed V04	Feedback Alarm Masked
20	Valve D01 Feed V01	Feedback Alarm Masked
21	Valve D01 Feed V01	Feedback Alarm Masked
22	Valve D01 Glycerine V01	Feedback Alarm Masked
23	Valve D01 HW V01	Feedback Alarm Masked
24	Valve D01 HW V02	Feedback Alarm Masked
25	Valve D01 MV01	Feedback Alarm Masked
26	Valve D01 MV02	Feedback Alarm Masked
27	Valve D01 MV03	Feedback Alarm Masked
28	Valve D01 MV11	Feedback Alarm Masked
29	Valve D01 MV12	Feedback Alarm Masked
30	Valve D01 MV13	Feedback Alarm Masked
31	Valve D02 Feed V02	Feedback Alarm Masked
32	Valve D02 Glycerine V01	Feedback Alarm Masked
33	Valve D02 HW V03	Feedback Alarm Masked
34	Valve D02 HW V04	Feedback Alarm Masked
35	Valve D02 MV01	Feedback Alarm Masked
36	Valve D02 MV02	Feedback Alarm Masked
37	Valve D02 MV03	Feedback Alarm Masked
38	Valve D02 MV11	Feedback Alarm Masked
39	Valve D02 MV12	Feedback Alarm Masked
40	Valve D02 MV13	Feedback Alarm Masked
41	Valve D03 Feed V01	Feedback Alarm Masked
42	Valve D03 Feed V02	Feedback Alarm Masked
43	Valve D03 Glycerine V01	Feedback Alarm Masked
44	Valve D03 HW V05	Feedback Alarm Masked



6.7.4 Status

Displays the current state of Comparisons and Combinations and Delays in the controller.

Accord HMI - Sloges HMI

Accord

OVERVIEW

REPLAY

Reset Alarms

Date

08/12/25 20:13:29

Type

Critical

Name

No Volume Pulse to Storage

Description

None

Engineer1

Login

Logout

41

08/12/2025 22:57:54

Conditions and Alarms

Analog Signals

Valves/Motors

Conditions

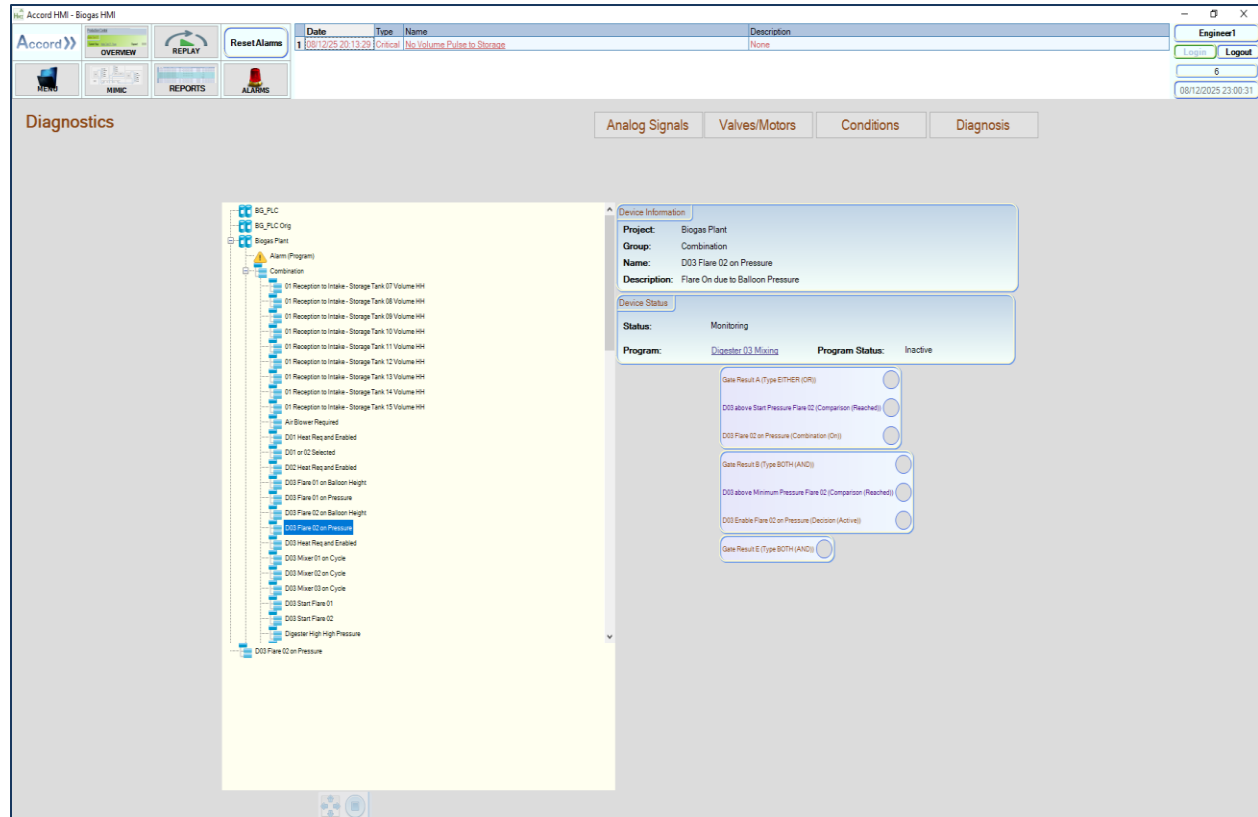
Diagnosis

Type	Name	Value
1	Combination 01 Reception to Intake - Storage Tank 07 Volume HH	Inactive
2	Combination 01 Reception to Intake - Storage Tank 08 Volume HH	Inactive
3	Combination 01 Reception to Intake - Storage Tank 09 Volume HH	Inactive
4	Combination 01 Reception to Intake - Storage Tank 10 Volume HH	Inactive
5	Combination 01 Reception to Intake - Storage Tank 11 Volume HH	Inactive
6	Combination 01 Reception to Intake - Storage Tank 12 Volume HH	Inactive
7	Combination 01 Reception to Intake - Storage Tank 13 Volume HH	Inactive
8	Combination 01 Reception to Intake - Storage Tank 14 Volume HH	Inactive
9	Combination 01 Reception to Intake - Storage Tank 15 Volume HH	Inactive
10	Delay 01 Second Pulse	Inactive
11	Combination Air Blower Required	Deactivated
12	Decision 001 Enable Heating	Inactive
13	Combination 001 Heat Req and Enabled	Inactive
14	Comparison 001 Heat Required	Reached
15	Delay 001 Heat Required Timed	Active
16	Combination 001 or 02 Selected	Inactive
17	Decision 001 Sample	Inactive
18	Comparison 001 Temperature SP Reached	Monitoring
19	Delay 001 Temperature SP Reached Timed	Inactive
20	Decision 002 Enable Heating	Inactive
21	Combination 002 Heat Req and Enabled	Inactive
22	Comparison 002 Heat Required	Reached
23	Delay 002 Heat Required Timed	Active
24	Decision 002 Sample	Inactive
25	Comparison 002 Temperature SP Reached	Monitoring
26	Delay 002 Temperature SP Reached Timed	Inactive
27	Comparison 003 above Minimum Pressure Flare 01	Monitoring
28	Comparison 003 above Minimum Pressure Flare 02	Monitoring
29	Comparison 003 above Start Pressure Flare 01	Monitoring
30	Comparison 003 above Start Pressure Flare 02	Monitoring
31	Comparison 003 Balloon Level above Minimum Flare 01	Monitoring
32	Comparison 003 Balloon Level above Minimum Flare 02	Monitoring
33	Comparison 003 Balloon Level above Start Flare 01	Monitoring
34	Comparison 003 Balloon Level above Start Flare 02	Monitoring
35	Decision 003 Enable Flare 01 on Balloon Height	Inactive
36	Decision 003 Enable Flare 01 on Pressure	Inactive
37	Decision 003 Enable Flare 02 on Balloon Height	Inactive
38	Decision 003 Enable Flare 02 on Pressure	Inactive
39	Decision 003 Enable Heating	Inactive
40	Combination 003 Flare 01 on Balloon Height	Monitoring
41	Combination 003 Flare 01 on Pressure	Monitoring
42	Combination 003 Flare 02 on Balloon Height	Monitoring
43	Combination 003 Flare 02 on Pressure	Monitoring
44	Combination 003 Heat Req and Enabled	Inactive

Type	Name	Value
1	Comparison 001 Heat Required	Reached
2	Comparison 001 Temperature SP Reached	Monitoring
3	Comparison 002 Heat Required	Reached
4	Comparison 002 Temperature SP Reached	Monitoring
5	Comparison 003 above Minimum Pressure Flare 01	Monitoring
6	Comparison 003 above Minimum Pressure Flare 02	Monitoring
7	Comparison 003 above Start Pressure Flare 01	Monitoring
8	Comparison 003 above Start Pressure Flare 02	Monitoring
9	Comparison 003 Balloon Level above Minimum Flare 01	Monitoring
10	Comparison 003 Balloon Level above Minimum Flare 02	Monitoring
11	Comparison 003 Balloon Level above Start Flare 01	Monitoring
12	Comparison 003 Balloon Level above Start Flare 02	Monitoring
13	Comparison 003 Heat Required	Reached
14	Comparison 003 Mixer 01 Start Cycle Reached	Monitoring
15	Comparison 003 Mixer 01 Stop Cycle Reached	Monitoring
16	Comparison 003 Mixer 02 Start Cycle Reached	Monitoring
17	Comparison 003 Mixer 02 Stop Cycle Reached	Monitoring
18	Comparison 003 Mixer 03 Start Cycle Reached	Monitoring
19	Comparison 003 Mixer 03 Stop Cycle Reached	Monitoring
20	Comparison 003 Mixing Cycle Time Reached	Monitoring
21	Comparison 003 Temperature SP Reached	Monitoring
22	Comparison Target Volume to Diposter Reached	Monitoring
23	Comparison Target Volume to Storage Reached	Monitoring

### 6.7.5 Check

This control is used to Check the reasons for Activations, and can query the status of components of logic.



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.

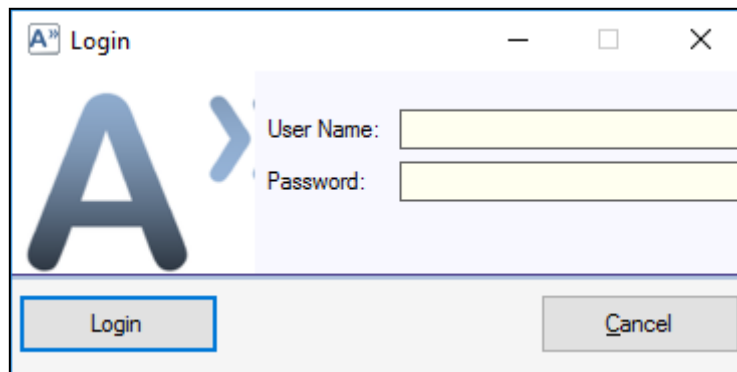
## 7 Screen Functions and general operation

### 7.1 Security Control

The Security Control is used to log into the HMI for control of programs and devices.



Clicking on the “Login” button on the top banner brings up the Login window and the user name and password are entered. The username is then shown in the top banner.



### 7.2 Alarm Reset

The Alarm Reset Control is used to acknowledge and attempt to reset all alarms. You must be logged in to use the Alarm Reset.



Once a user logs into Scada service, the button will be enabled.



### 7.3 Program Control

The Program Control is used to display the status and other information of Program.

The screenshot displays the 'Program Control' window. It is divided into two main sections: 'Device Information' and 'Device Status'.

**Device Information:**

- Project:** [Biogas Plant](#)
- Group:** [Program](#)
- Name:** [Digesters Heating](#)
- User:** [Engineer1](#)
- User Group:** [Engineering](#)

**Device Status:**

<b>Current Step:</b>	<a href="#">Step 2: Heating Monitoring</a>	<b>Expected:</b>	00:00:00:00
<b>Step Number:</b>	2	<b>Remaining:</b>	00:00:00:00
<b>Status:</b>	Active	<b>Elapsed:</b>	00:03:31:15
<b>Program Recipe:</b>	<a href="#">Default</a>		

Below the status table is a row of buttons: [Start](#), [End](#), [Resume](#), [Hold](#), [Step On](#), [Step To](#), [Timing](#), and [...](#).

At the bottom of the window are two buttons: [History](#) and [Close](#).

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.
- **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.

Once logged in the command buttons may be used.

- **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.
- **Settings:** Examine related program conditions and change Setpoints and Step Times.



## 7.4 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 Scada service, the Value Control will show the current value in the desired format with the configured engineering units used, if applicable.



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

## 7.5 Analog Input

Device Information

Project: [Biogas Plant](#)  
Group: [Analog Input](#)  
Name: [ST02 Volume](#)

User: [Engineer1](#)  
User Group: [Engineering](#)

Device Status

Actual Value:	56.00 m3	Signal Value:	0.00 m3
Status:	Normal		
Override:	<input type="checkbox"/>	Override Value:	<input type="text" value="0.00 m3"/>
High High Setpoint:	<input type="text" value="90.00 m3"/>	High High Reached:	No
High Setpoint:	<input type="text" value="80.00 m3"/>	High Reached:	No
Low Setpoint:	<input type="text" value="10.00 m3"/>	Low Reached:	No
Low Low Setpoint:	<input type="text" value="5.00 m3"/>	Low Low Reached:	No
Min Range:	<input type="text" value="0.00"/>	Min Limit Reached:	No
Max Range:	<input type="text" value="130.00"/>	Max Limit Reached:	No
Time Setpoint:	<input type="text" value="5 Seconds"/>	Wirebreak:	No
Hysteresis Setpoint:	<input type="text" value="1.00"/>	Signal Under:	No
Maintenance:	<input type="checkbox"/>	Signal Over:	No

Settings

Trends

History

Close

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 signal returned to the PLC is below the lowest allowed value
- **Current Over:** The signal returned to the PLC is above the highest allowed value

Once logged into the Scada 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 alarms are achieved or reset
- **Hysteresis Setpoint:** The deadband value to release alarms.

## 7.6 Analog Device

The screenshot displays the 'Analog Device' faceplate interface. It is divided into two main sections: 'Device Information' and 'Device Status'. The 'Device Information' section at the top shows 'Project: Heating Plant', 'Group: Analog Device', 'Name: CV03 Heating Control', 'User: Engineer1', and 'User Group: Engineering'. The 'Device Status' section below it contains various controls and readouts: 'Output Value: 0.00 %', 'Auto Value: 0.00 %', 'Status: Written By PID Loop', a 'Manual' toggle switch currently set to 'Auto', 'Manual Value: 0.00 %', 'Minimum Limit: No', 'Maximum Limit: No', 'Min Range: 0.00 %', 'Max Range: 100.00 %', and a 'Maintenance' toggle switch. At the bottom, there are four buttons: 'Settings' (highlighted with a yellow border), 'Trends', 'Show PID Loop', and 'Close'.

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 Scada 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.

There are currently no Analog Devices in the system.

## 7.7 Digital Devices

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.

## 7.8 Digital Input

The screenshot displays a software interface for a Digital Input device. It is divided into two main sections: 'Device Information' and 'Device Status'. The 'Device Information' section includes fields for Project (Biogas Plant), Group (Alarm), Name (ST02 High Level Switch), User (Engineer1), and User Group (Engineering). The 'Device Status' section shows the current Result (Not Full), Status (Normal), and Override (Off). It also features input fields for Delay On (5 Seconds) and Delay Off (5 Seconds), and a Maintenance toggle (Off). At the bottom, there are 'Settings' and 'Close' buttons.

Device Information	
Project:	Biogas Plant
Group:	Alarm
Name:	ST02 High Level Switch
User:	Engineer1
User Group:	Engineering

Device Status	
Result:	Not Full
Status:	Normal
Override:	<input type="checkbox"/> Off
Override State:	<input type="checkbox"/> Not Full
Delay On:	5 Seconds
Delay Off:	5 Seconds
Maintenance:	<input type="checkbox"/> Off

Settings Close

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 Scada 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.

## 7.9 Digital Output / Device

Device Information

Project: [Biogas Plant](#)

User: [Engineer1](#)

Group: [Valve](#)

User Group: [Engineering](#)

Name: [ST02 V02](#)

Device Status

Auto

Manual

Interlock

Alarm

Output

Output:	Deactivated	Auto Command:	Off
Status:	Auto Deactivated	Feedback Correct:	Yes
Manual Mode:	<div><div></div>Auto</div>	Manual Command:	<div><div></div>Off</div>
Interlock:	No	Interlock Override:	<div><div></div></div>
Alarm:	No	Alarm Masked:	<div><div></div>Unmasked</div>
Pulse Active:	No	Pulse Command:	Off
Activated Feedback	No	Deactivated Feedback	Yes
Delay On:	<div>5 Seconds</div>	Delay Off:	<div>5 Seconds</div>
Fail Time (On):	<div>15 Seconds</div>	Fail Time (Off):	<div>15 Seconds</div>
Pulse Cycle Time:	<div>0 Seconds</div>	Pulse Time:	<div>0 Seconds</div>
Activations:	0	Activation Time:	00 Hours 00 Mins
ABM Unit A:	No	Auto Reserve Enabled:	No
ABM Unit B:	No	Auto Reserved:	No
Maintenance:	<div><div></div></div>	Override Reserve:	<div><div></div></div>

Settings

Check

Close

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 the 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 Scada 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.
- **Plus Time Setpoint:** This is the time that the item is activated for in the Pulse Cycle.





## 7.10 Unit

The screenshot shows a software interface for a 'Unit'. It has two tabs: 'Device Information' and 'Device Status'. The 'Device Information' tab is active, displaying fields for Project, Group, Name, User, and User Group. The 'Device Status' tab is also visible, showing a table of status indicators. A 'Close' button is located at the bottom right of the interface.

Device Information	
Project:	Biogas Plant
Group:	Tank
Name:	Digester 01
User:	Engineer1
User Group:	Engineering

Device Status	
Selected:	Available
Unit In Alarm:	No
Unit In Maintenance:	No
Unit In Manual:	No
Analog Input Wire Break:	No
Device In Alarm:	No
Device In Maintenance:	No
Device In Manual:	No

Close

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.