GUS Solution Pack

Background

The GUS Solution Package (GSP) is a toolkit for efficiently building an effective, integrated process operation environment. It consists of display templates and components in the form of GUS Display (.pct) files. The GUS Solution Pack is based upon field-proven techniques for user interface design and optimal display performance.

Objectives

At the end of this course module you will be able to build an operator interface applying the GUS Solution Pack. The enabling objectives supporting the performance goal are the following:

• State the purpose of the GUS Solution pack in terms of
  - Reasons for using the solution package, and
  - What display components are in the Solution Pack.

• Interpret the design strategy of a GUS Solution Pack display in terms of its
  - Overall display layout,
  - Display component types,
  - Navigation scheme from the task panel,
  - Design hierarchy support from the task panel,
  - Indication of alarm behaviors, and
  - Toggle functions that assist the operator in viewing display data.

• Interpret Native Window Integration.

• Configure a simulated process using GUS Solution Pack display components managed by SafeView. The SafeView configuration itself is derived from a template in the GUS Solution Pack.

• Make Process changes.

• Interpret Display behavior when operating a process.

What is GUS Solution Pack?

A toolkit for efficiently building an effective, integrated process operation environment. It consists of:

- Dynamic Process display components
- Display navigation mechanisms
- Alarm annunciation mechanisms
- Established color conventions
- SafeView configurations
- Faceplates for making process changes
- Built-in mechanisms for synchronizing information across multiple displays

Introduction

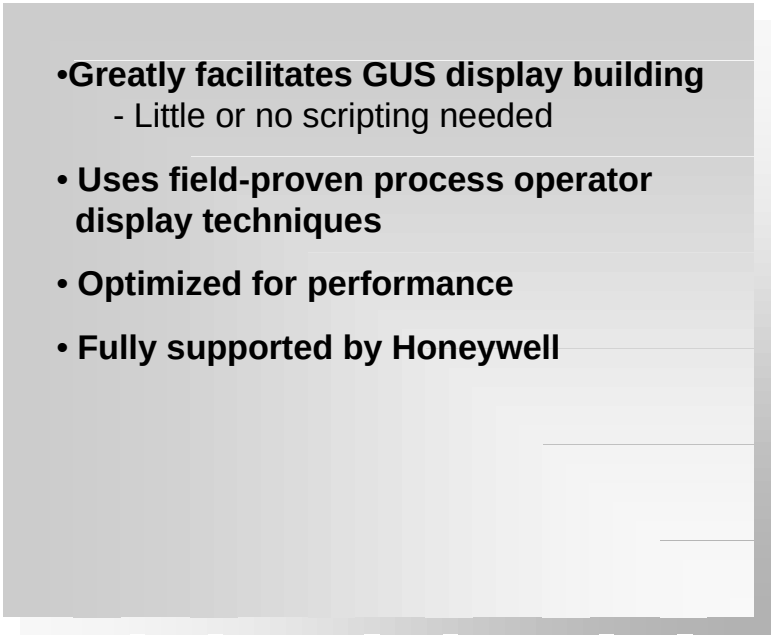
The GUS Solution Pack is a toolkit for efficiently building an effective, integrated process operations environment.

Summary of GSP Approach

When applying GSP to a plant project, you use a library of components to build your displays. To create the background display information of a plant's columns, towers, or other vessels, you can use static shapes of your own or use Honeywell static shapes.

- The display components are dynamic, meaning that they have scripting already completed for you.
- To facilitate display navigation, a Task Panel allows the operator to select from several displays.
- The alarm annunciation mechanisms provide a way for an operator to quickly respond and efficiently navigate to the desired display.
- Color conventions, based upon industry practice, are established for you. However, the color conventions can be user-modified.
- Using the GSP SafeView configurations, you can begin deploying a managed operator interface in a matter of minutes.
- Process changes (setpoint, output, mode) utilize the Honeywell Faceplate Control.
- Display information, such as hiding text or indicating alarms, is synchronized across the managed displays.

Why Use GUS Solution Pack?



Standardizes Re-usable Components

Most display designers agree that much of their display building effort is not in building the process displays themselves, but in building the re-usable display components (such as valves and control loops) used in the displays. Additionally, a display designer often spends time defining display conventions such as alarm and mode colors. The GSP provides these re-usable components and user-modifiable color conventions for you.

Uses Field-Proved Process Techniques

The GUS Solution Pack uses field-proven process operation techniques.

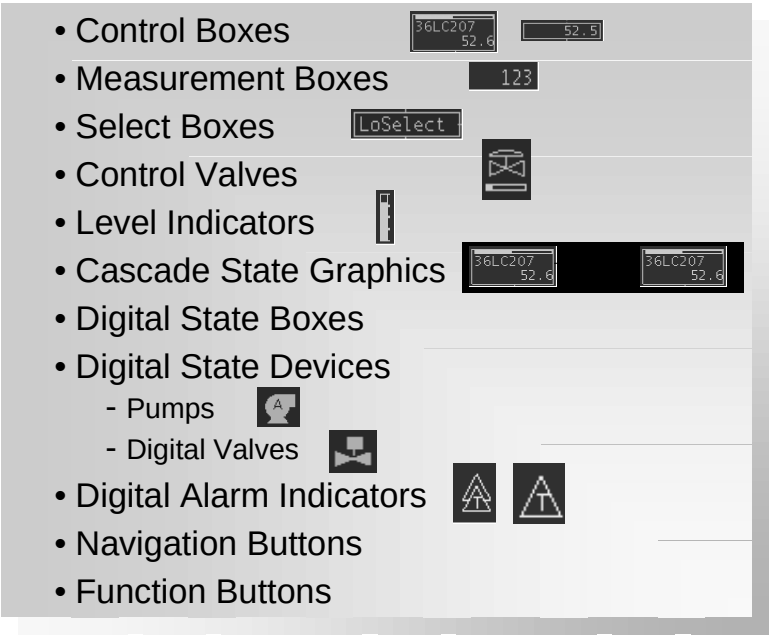
Optimized Designs

The displays are optimized for performance and comply with guidelines stated in the Display Authoring Tutorial.

Fully Supported

Honeywell fully supports the GUS Solution Pack approach to process display designs.

GUS Solution Pack Display Components



Background

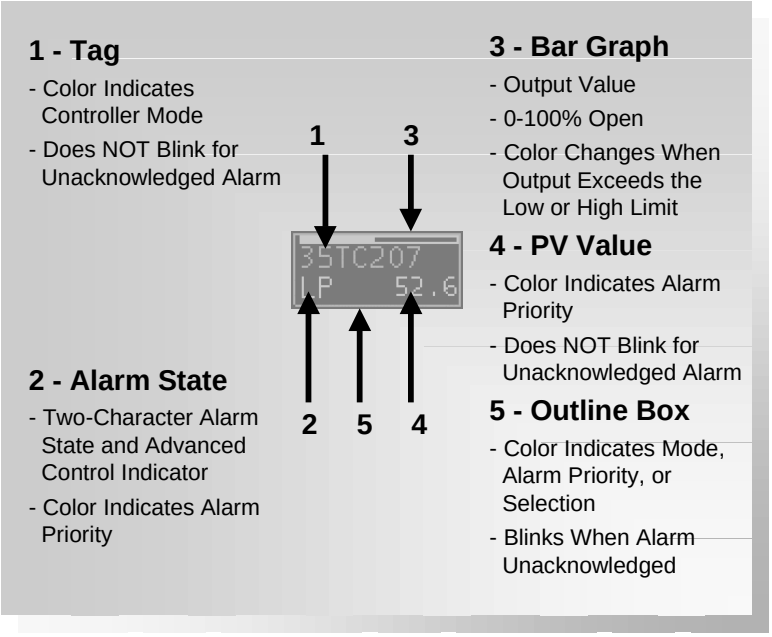
The GUS Solution Pack (GSP) is a toolkit consisting of display templates and components in the form of GUS Display (filename.pct) files. The GUS Solution Pack components are based upon field-proven techniques to provide a process operator the data he or she needs to perform the job.

Display Component Summary

Display Components consist of the following:

- Control Boxes
  - Supplied in several versions.
  - That can display PV, Tag, Setpoint and Mode information.Control Boxes
  - For regulatory control loops.
- Measurement Boxes - That represent PV (analog input) data and point status.
- Control Valves - That show locations of Control Valves and are available in vertical and horizontal orientations. Control Boxes and Control Valves are typically inserted to represent a control loop.
- Level Indicators - That are typically Bar graphs used inside a vessel (horizontally or vertically) to represent a PV.
- Cascade State Graphics - That are symbols (lines and arrowheads) that indicate status.
- Digital State Boxes - That display the PV state of digital points (input, composite, device control, and flags).
- Digital State Devices - That include valve types (such as solenoid, MOV) and 2-state and 3-state pumps and motors.
- Digital Alarm Indicators - That can either be Graphic (shown on slide) or Text symbols.
- Navigation and Function Buttons - That appear in the Task Panel.

Example Control Box



Explanation

This is an example of the Control Box generated by the GUS Solution Pack.

Tag

Displays the same tagname as seen in the Native Window display.

- The tagname color indicates the controller mode.
- The tagname does not blink for an unacknowledged alarm.

Alarm State

- Uses a two-character alarm state indicator.
- The color of the alarm text indicates the alarm priority.

Bar Graph

- The bar across the top of the box indicates the output value.
- The output value is shown between 0% (left side) and 100% (right side) of the bar.
- The bar color changes when the output exceeds the Low or High limits.

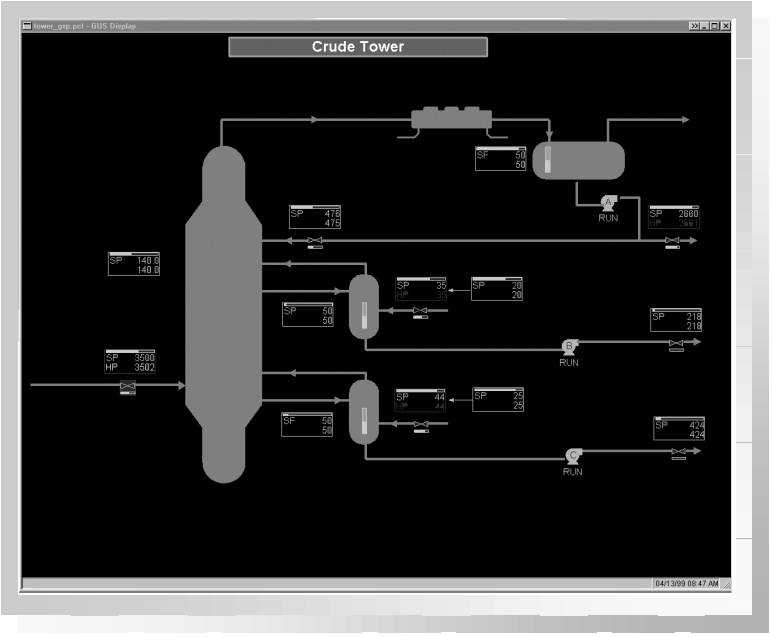
PV Value

- The number indicates the value of the point.
- When in alarm, the color indicates the alarm priority.

Outline Box

- The color of the border of the box indicates the mode, alarm priority, or selection.
- The outline blinks for an unacknowledged alarm.

Example Display



Example Display

This example display is representative of a typical GSP application. The display presents information on a black background. The black background is not "absolute" black; it is actually one shade away from absolute black

Most domestic users have black backgrounds in their process displays.

The rationale for using a black background is that black tends to show yellow alarm indications and dynamic process changes better.

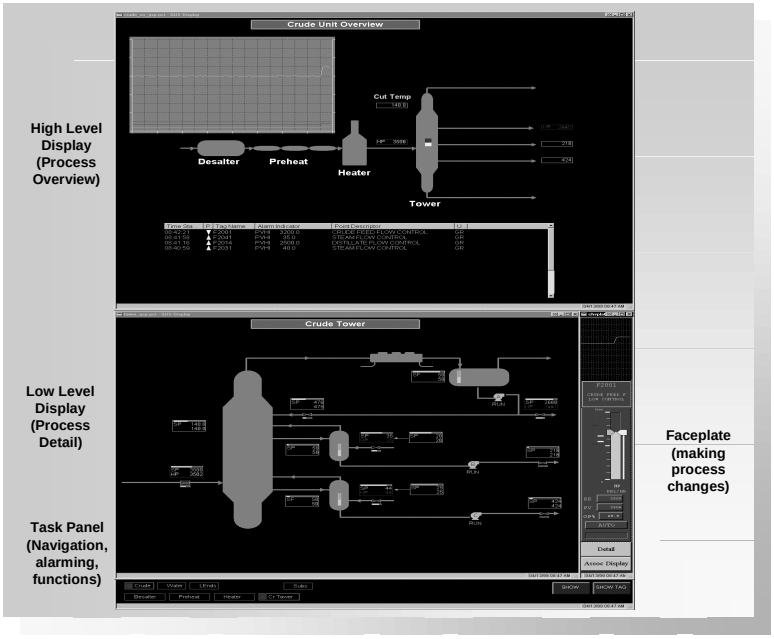
You have the option of changing the background color to non-black. If you decide to do so, you should examine your alarm colors against your background and determine if operator visibility is satisfactory.

3D and 2D Process Elements

The process elements shown in this example are for operator reference only. Because these elements are for reference only, they are built as two-dimensional (not three-dimensional) shapes. They are also a darker gray color.

The GUS Solution Pack supports the use of 3D elements, including 3D elements from the process History Database (PHD) products. However, the use of 3D elements should be evaluated as to their actual benefit in helping an operator perform a task. Additionally, 3D elements can cause display performance degradation as stated in the Display Authoring tutorial.

Operating Environment



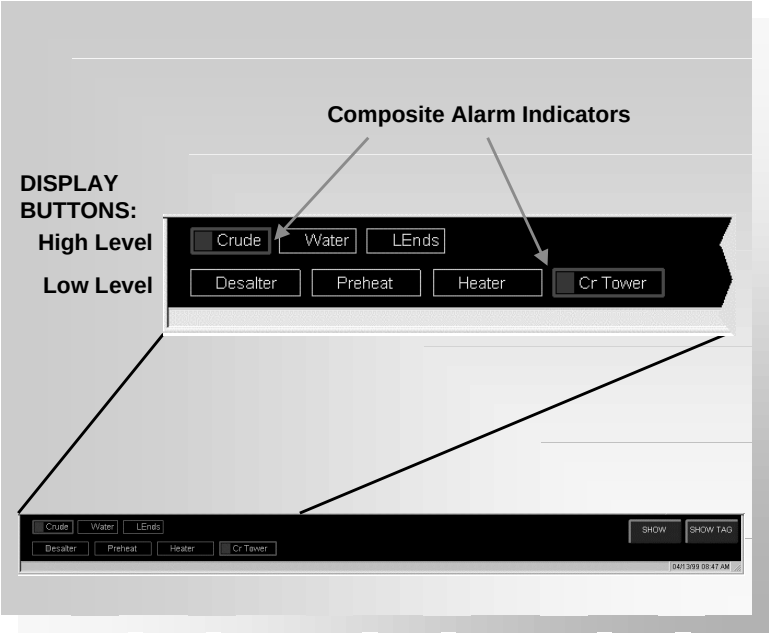
Typical Operating Environments

Plants often have dual-tier operating configurations.

The GUS Solution Pack provides the ability to have the upper tier screen display a High Level display while the lower tier screen displays a more detailed Low Level Display.

Operators usually need access to several high level displays. By using navigation buttons on the Task Panel, positioned below the low level display, an operator can navigate through the high level displays.

Display Navigation



Task Panel: Your Display Navigator

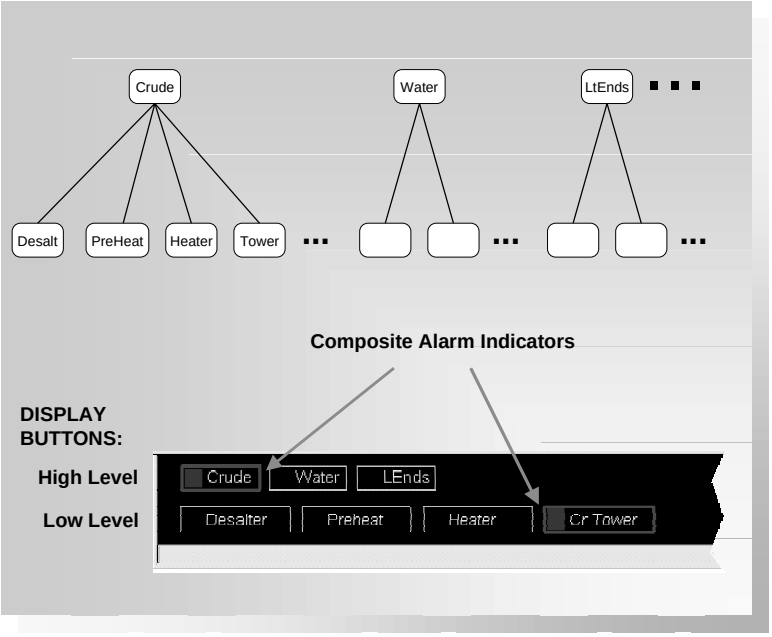
Through the use of two tiers of buttons in the Task Panel, an operator can navigate through the plant's displays.

You can configure a maximum of

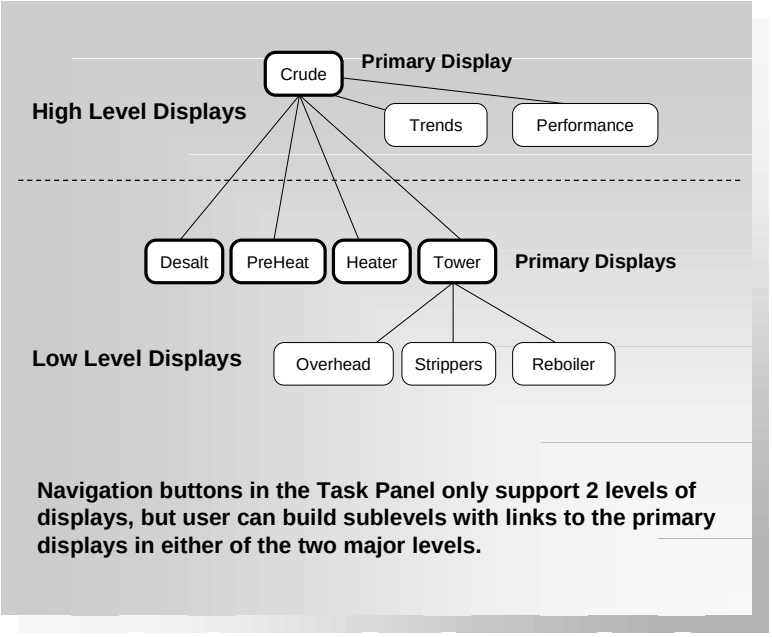
- 15 High Level Display Buttons and
- 15 Low Level Display Buttons.

This provides 225 displays -- more than enough for most plant operations.

Two-Level Display Hierarchy



Multiple-Level Display Hierarchy

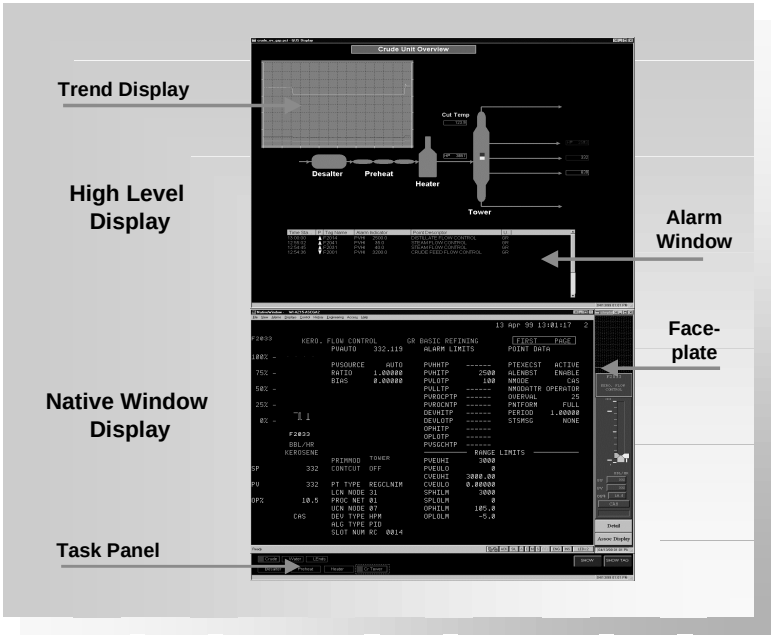


Multiple - Level Display Hierarchy

Although the Task Panel is intended to support 2 levels of displays, you can build additional sublevels if you need multiple display level invocation.

The buttons to call up the additional display levels are inserted in the High Level and/or Low Level display.

Native Window Integration



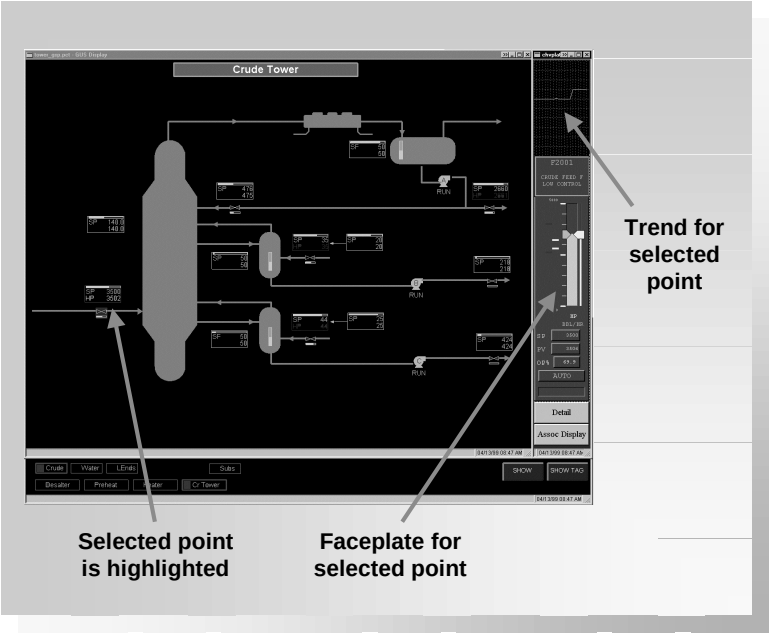
Native Window Integration

The Native Window appears in the Low Level display.

When a GUS first boots up, you want the Native Window display to appear. When your GUS displays run, you may want the Native Window to run in a "minimized" mode. By minimizing the Native Window while using SafeView, you won't have the Native Window "peak through" the Low Level display when changing GUS displays.

To use a minimized Native Window, use Navigation buttons in the Display Component folder that have a “nw” prefix in their .pct filename. These buttons then deploy a minimized Native Window when the buttons are selected.

Faceplate - Making Process Changes

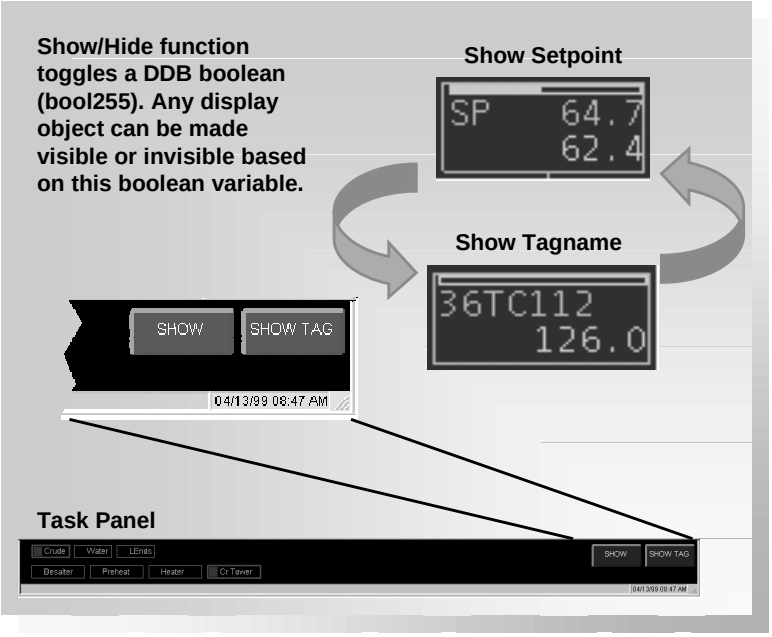


Faceplate - Making Process Changes

When a point is selected in a display, the Faceplate containing information for that point is called up. Depending on your GUS screen resolution and the Faceplate that you have selected for your SafeView configuration, a Trend display can also appear above the Faceplate. The trend example in the slide represents a faceplate (gspplate_fp1) for a GUS with 1280 x 1024 screen resolution. (The Faceplate for a GUS with 1024 x 768 screen resolution does not contain a trend.)

The Faceplate uses Honeywell's Standard Control (OCX). Beneath the Faceplate, there are buttons to call up a Native Window detail display or an associated display, if one is available.

Toggle Functions



Toggle Functions

Toggle functions are performed with the two buttons at the far right of the Task Panel. They are the SHOW & HIDE and the SHOW TAG & SHOW SP buttons.

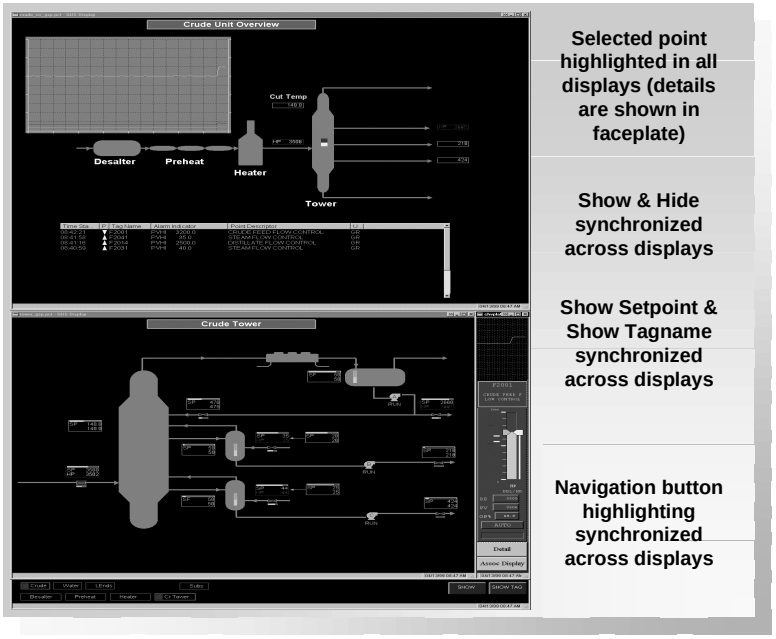
SHOW & HIDE

This button toggles all display descriptions so they are either visible or invisible.

SHOW SP & SHOW TAG

This button toggles all PV displays so either setpoints or tagnames are displayed.

Inter-Display Synchronization



Inter-Display Synchronization

The GUS Solution Pack synchronizes your displays so an action performed on one display will be reflected on the other display.

SELECTED POINT--If a point is selected (highlighted) on one display, the same point (if visible) will be shown highlighted on the other display. The information for that point will also be displayed on the faceplate.

SHOW or HIDE--If the SHOW or HIDE button is used to make descriptions visible or invisible on one display, the same action will occur on the other display.

SHOW SP or SHOW TAG--If the SHOW SP or SHOW TAG button is used to view either setpoints or tagnames on one display, the same action will occur on the other display.

NAVIGATION BUTTON SYNCHRONIZATION--When a Task Panel high-level display button is used to select a display, only the low-level display buttons that link to displays containing information relevant to that high-level display will be highlighted on the low-level section of the Task Panel.