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Experion PKS

GUS Faceplate, Alarm, and Message Scripting User's Guide

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1 About This Document

This document contains information on configuring the GUS faceplate control on an ES-T node.

Revision history

Revision	Date	Description
A	December 2013	Initial release of document.

1.1 References

The following list identifies all documents that may be sources of reference for material discussed in this publication.

Document Title	Document ID
GUS Display Builder User's Guide	EPDOC-XX44-en-430A
GUS Display Scripting User's Guide	EPDOC-XX45-en-430A
TPN Server User's Guide	EPDOC-X143-en-430A
OPC Data Access Specification Reference Manual	TP40
PHD OPC Server User's Guide	PIM2901
Integrated Experion-TPS User's Guide	EPDOC-XX66-en-430A

2 GUS Faceplate Control

2.1 Faceplate Control Overview

2.1.1 Functional description

The GUS Faceplate Control (OCX) is an OLE Control for viewing and manipulating the parameters of a selected point.

Once configured, the Faceplate Control provides the following access:

The Faceplate Control mimics the functionality of one of the point positions in a Native Window (R6xx) group display.

In addition to GUS displays, any OCX container application can use the Faceplate Control.

2.1.2 Runtime and Buildtime modes

The Faceplate Control has a buildtime and a runtime mode.

The buildtime mode provides a property page to allow you to configure the point to be displayed at runtime. The buildtime mode display is the same for all point types. It consists of a dark gray rectangle, with a light gray rectangle bordering the upper third.

The buildtime mode display, with the addition of a red 'X' bisecting the rectangle, is the initial display that appears at runtime. The red 'X' indicates that the Faceplate has not completed the LXS data access connections. The Faceplate is not fully operational until the red 'X' disappears.

The runtime mode display is specific to each point type. The Faceplate selects the combination of graphical elements to represent a point type, based on the point's display type parameter.

2.1.3 Faceplate resizing

At buildtime, after inserting the Faceplate control into a GUS display, you must drag the object (define the height and width) to display the entire Faceplate. The Faceplate Control does not supply a default size.

If the display containing the Faceplate Control is re-sizeable at runtime, the font size can become too small to read. You are responsible for choosing a size large enough to be readable at runtime.

The Faceplate Control in the GUS Group Display and the Faceplate EXE maintain the original size of 125 pixels wide and 550 pixels high.

2.1.4 Supported Data Point types

The following table lists the point types supported by the GUS Faceplate Control.

Table 1: Supported Data Point Types

Supported Point Type	Point Types
AM Points	REGAM, FLAGAM, NUMERCAM, TIMERAM, COUNTAM, SWITCHAM, CUSTOMAM
NIM Points	ANINNIM, ANOUTNIM, DIINNIM, DIOUTNIM, DICMPNIM, REGPVNIM, REGCLNIM., LOGICNIM, FLAGNIM, TIMERNIM, NUMERNIM, DEVCTL, PRMODNIM

Supported Point Type	Point Types
HG Points	ANLINHG, ANLOUTHG, ANLCMPHG, DIGINHG, DIGOUTHG, DIGCMPHG, REGHG, COUNTHG, HGTIMER, FLAGHG, PRCMODHG, CTLCOUNT, NUMERCHG, LGCBLKHG
Fieldbus Points (CM Point Types)	FBCM (ANALGIN, ANALOUT, PID) PECM and SECM do not show Control Data

2.1.5 Supported IKB and OEP keys

The following table lists the keys on the IKB and OEP that the GUS Faceplate Control supports for points.

Table 2: Supported IKB and OEP Keys

Raise	NORM
Lower	AUTO
Fast raise	MAN
Fast Lower	Detail
SP	Enter
OP	Numeric Keys <0 - 9>
CLR ENTR	Numeric Keypad *

2.1.6 Faceplate constraints

The GUS Faceplate Control has the following constraints:

- The faceplate is not resizable in buildtime or runtime; that is, you cannot make it bigger or smaller by using the zoom feature or by setting the display property as zoom-to-fit. The Faceplate control does not zoom-to-fit.
- The colors and text of the Faceplate is not user configurable through the property page or scripting.
- Only four Faceplates may be running on a single ES-T node. If the GUS Group Display is running, then only three faceplates may run.
- When a point.parameter with Engineering keylevel access is changed through some other display, changes to parameters caused by the Engineering change will not be displayed in the Faceplate until it is re-invoked for that point. You must invoke the Faceplate for a point to see changes made under this condition
- The Faceplate only displays and manipulates points on the TPN that are accessed through the LXS. It cannot display points from an HCI server.

2.2 Faceplates in Runtime Mode

2.2.1 Major parts of Faceplates

The GUS runtime Faceplate Control has the following parts:

- **Title area** - Displays the point name, point descriptor, and the point status.
- **Graphic area** - Graphically displays the value of the PV, OP, and SP. The content varies based on the display type. If available, it displays system alarms, alarm enable status, alarm status, and engineering unit description. Digital point types show state boxes, descriptions, and choices. Regulatory types display grids, trip points, and a ramping bar. This area also displays the mode or state choices available for user modification.
- **Operation area** - Displays the current values and enables you to select and manipulate the values. It may consist of one or more buttons representing SP, PV, OP, Mode, OK, and a data entry box.

2.2.2 Regulatory Control Faceplate Example

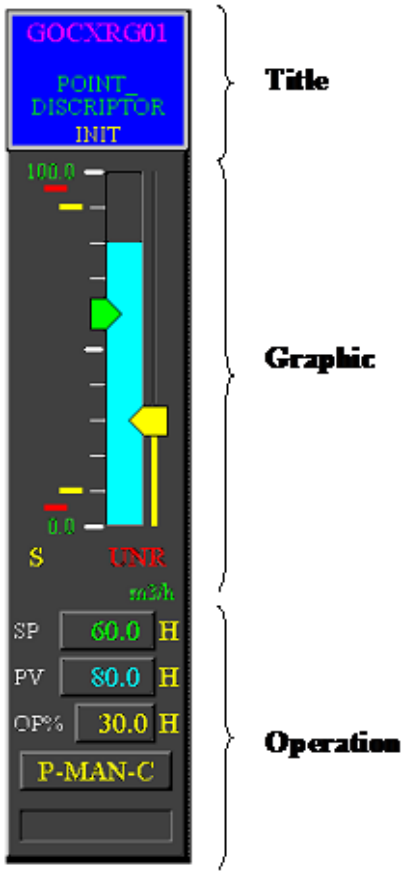

Figure 1: Regulatory Control Faceplate at Runtime

2.2.3 Digital Output Faceplate Example

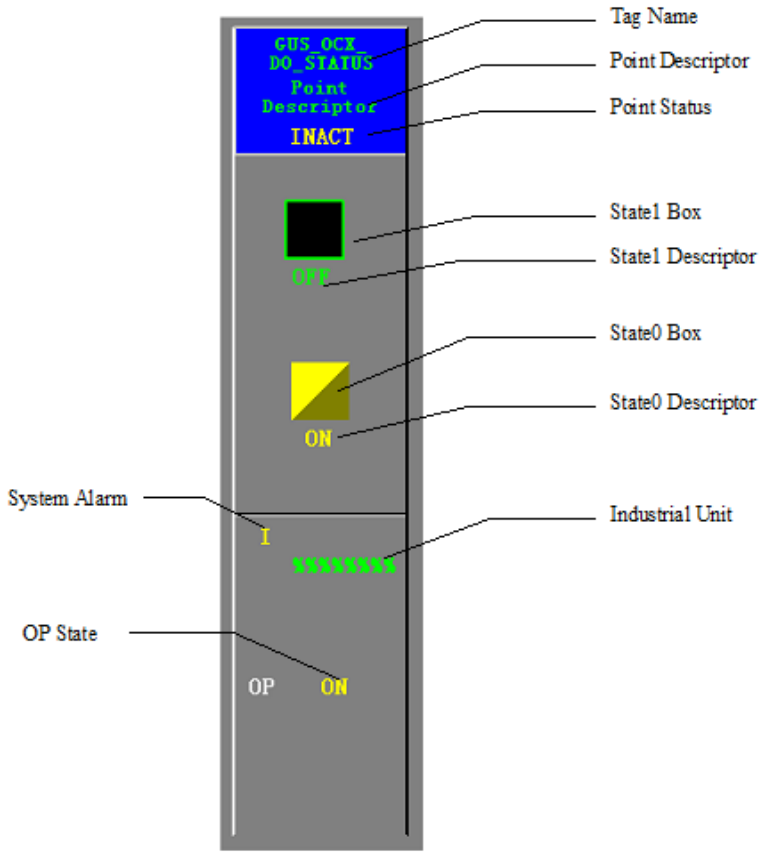

Figure 2: Digital Output Point at Runtime

2.2.4 Faceplate definition - Analog Input Points

Dashed boxes in the following examples indicate parameters unavailable in the example. Labels in bold have additional information described in tables following the example.

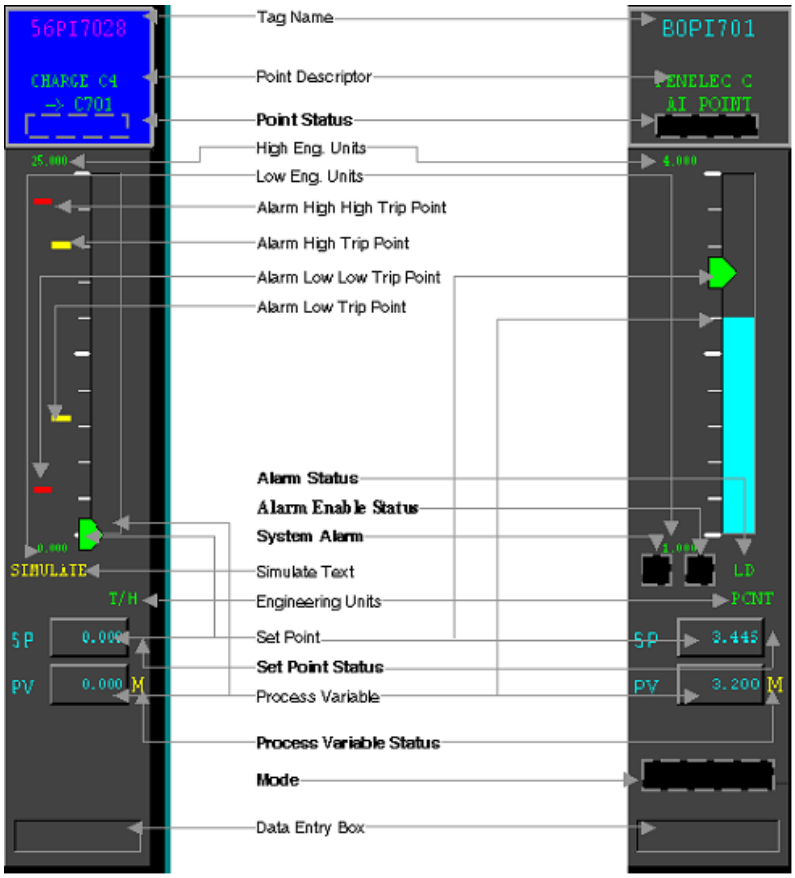

Figure 3: Analog Input Faceplate Displays

2.2.5 Analog Input Alarm Status

The label **Alarm Status** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the Alarm Status indicator appears on the Faceplate.

Table 3: AI and PID Alarm Status Indicators

Indicator	Meaning
[BLANK]	Point not in alarm or status is not accessible.
(Yellow)*	Overview Tracer; indicates when point's deviation from the setpoint is greater than the overview value.
ADV	Advisory Deviation
BP	Bad Process Variable
HD	High Deviation
2HD	High High Deviation
HP	High Process Variable
2HP	High High PV
INH	Alarms are inhibited.
LD	Low Deviation
LP	Low Process Variable
2LP	Low Low PV

Indicator	Meaning
OFN	Off Normal
ORC	Output Rate of Change
PSC	PV Significant Change
ROC	Rate of Change
RC+	Positive Rate of Change
RC-	Negative Rate of Change
Note*: Indicator color (red or yellow) corresponds to alarm's priority. For example: Red = Emergency, Yellow = High. This is defined in the system wide values.	

2.2.6 Analog Input Point Status

The label **Point Status** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the Point Status indicator appears on the Faceplate.

Table 4: AI Point Status Indicators

Indicator	Meaning
[BLANK]	Point is in Active state.
INACTIVE	Point is in Inactive State.

2.2.7 Analog Input Alarm Enable Status

The label **Alarm Enable Status** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the Alarm Enable Status indicator appears on the Faceplate.

Table 5: AI and PID Alarm Enable Status Indicators

Indicator	Meaning
[BLANK]	Alarm is Enabled (inhibited alarms are displayed in the Alarm Status area).
DIS	Alarm status is Disabled.
INH	Alarm status is Inhibited.

2.2.8 Analog Input System Alarm

The label **System Alarm** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the System Alarm indicator appears on the Faceplate.

Table 6: AI, AO, and PID System Alarm Indicators

Indicator	Meaning
[BLANK]	Point is in OK state.
F (Yellow)	Point's board is in device failed. (PIU, MC, PM, APM, LM).
I (Yellow)	Point is in IDLE state (MC, PM, APM, LM).
R (Yellow)	Point is in RESET state.
S (Yellow)	Point's backup box is in operation (data saved to the backup controller).
U (Yellow)	DHP not scanning point; possibly a bad PC-configuration address.

2.2.9 Analog Input SP Status

The Set Point Status indicators appear to the right of the SP value. The label **Set Point Status** on “Figure 3: Analog Input Faceplate Displays” identifies this area. The Indicators in bold are Fieldbus values.

Table 7: AI SP Status Indicators

Indicator	Meaning
[BLANK]	Normal or No data
B (Red)	Bad Setpoint
H (Yellow)	Setpoint High Limit
H (White)	**Setpoint High Limit (FF device)**
L (Yellow)	Setpoint Low Limit
L (White)	**Setpoint Low Limit (FF device)**
C (White)	**Setpoint Constant (FF device)**

2.2.10 Analog Input Mode

The Mode indicators appear directly below the PV value. The label **Mode** on “Figure 3: Analog Input Faceplate Displays” identifies this area. Fieldbus Analog Input Points are the only Analog Input Points that have a Mode.

Table 8: AI Mode Indicators

Indicator	Meaning
AUTO	AUTOmatic: Calculated by algorithm based on Operator setting.
MAN	MANual: Controlled by Operator.
OOS	Out of Service
???	Mode is inaccessible
!!!	Mode is indeterminate
---	Mode is invalid

2.2.11 Analog Input PV Status

The Process Variable Status indicators appear to the right of the PV value. The label **Process Variable Status** on “Figure 3: Analog Input Faceplate Displays” identifies this area. Indicators in bold are Fieldbus-related values.

Table 9: AI PV Status Indicators

Indicator	Meaning
[Blank]	Normal
B (Red)	Bad PV
H (Red)	Bad PV and PV Hi Extended Range Violation **Bad PV and PV High Limit Indication (FF device)**
L (Red)	Bad PV and PV Low Extended Range Violation **Bad PV and PV Low Limit Indication (FF device)**

Indicator	Meaning
C (Red)	**Bad PV and Constant Indication (FF device)**
M (Red)	Bad PV and PVSOURCE is Manual
S (Red)	Bad PV and PVSOURCE is Substituted
U (Yellow)	PV is Uncertain
H (Yellow)	PV is Uncertain and PV Clamped to Hi Extended Range **PV is Uncertain and PV Clamped to Hi Limit Indication (FF device)**
L (Yellow)	PV is Uncertain and PV Clamped to Lo Extended Range **PV is Uncertain and PV Clamped to Lo Limit Indication (FF device)**
M (Yellow)	PV is Uncertain and PVSOURCE is MANual
S (Yellow)	PV is Uncertain and PVSOURCE is Substituted **PV is Uncertain and Substituted (FF device)**
C (Yellow)	**PV is Uncertain and Constant (FF device)**
H (White)	**PV is Good and Hi Limit Indication (FF device)**
L (White)	**PV is Good and Lo Limit Indication (FF device)**
C (White)	**PV is Good and Constant (FF device)**

2.2.12 Faceplate definition - Analog Output Points

The “Figure 4: Analog Output Faceplate Displays” shows Analog Output Faceplate examples. Dashed boxes indicate the location for graphic elements unavailable on the example displays. Labels appearing in bold have additional information described in the tables following the example.

2.2.13 Analog Output Point Status

The label **Point Status** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the Point Status indicators appear on the Faceplate.

Table 10: AO Point Status Indicators

Indicator	Meaning
[BLANK]	Point is in active state.
INACTIVE	Point is in inactive state.
RED TAG	Point is red tagged.
STDBYMAN	Point is in stand-by manual mode.

2.2.14 Analog Output System Alarm

The label **System Alarm** on “Figure 3: Analog Input Faceplate Displays” identifies the area where the System Alarm Status indicators appear on the Faceplate.

Refer to Table AI, AO, and PID System Alarm Indicators for a list of all the indicators and what they mean.

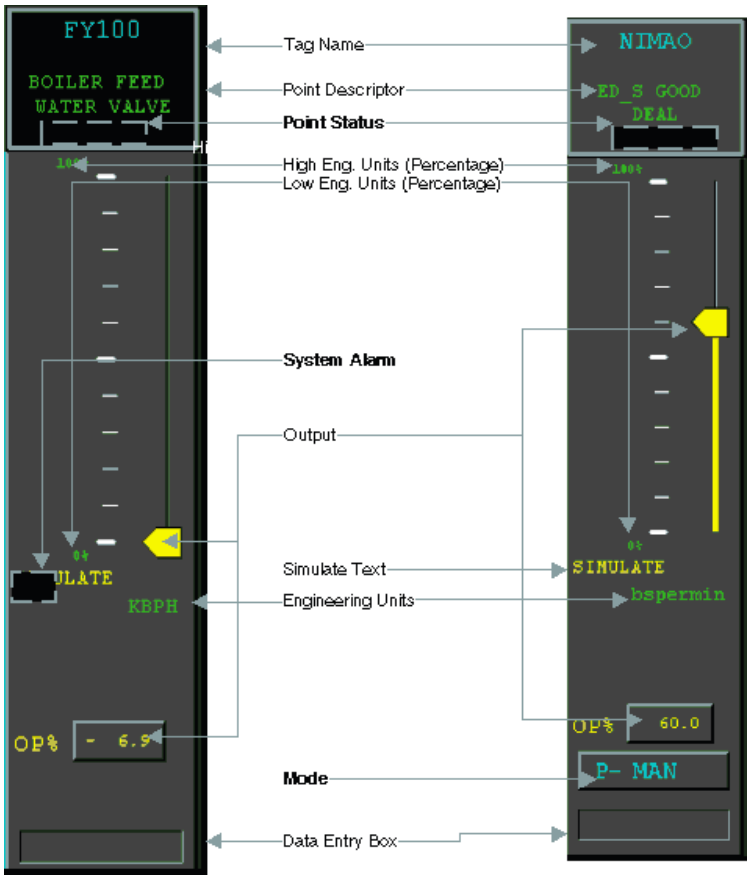

Figure 4: Analog Output Faceplate Displays

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2.2.15 Analog Output Mode

The Mode indicators appear directly below the OP value. The label **Mode** on "Figure 3: Analog Input Faceplate Displays" identifies this area. Non-Fieldbus TPS Points have only MAN, AUTO, CAS, BCAS, and NORM as mode selections. Selections vary based on the point type.

Table 11: AO Mode Indicators

Indicator	Meaning
AUTO	AUTOmatic: OP is calculated by algorithm based on Operator setting.
BCAS	Backup Cascade: OP receives its setpoint from the OP of a primary data point
CAS	CAScade: OP is from an AM or a CM, or from a point in the same Hiway controller file.
IMAN	Initialization MANual
LO	Local Override
MAN	MANual: OP is controlled by the Operator.
NORM	Normal Mode
OOS	Out of Service
RCAS	Remote Cascade
ROUT	Remote Output (applicable to PID)

Indicator	Meaning
???	Mode is inaccessible
!!!	Mode is indeterminate
---	Mode is invalid

2.2.16 Faceplate definition - Regulatory Control Points

The following figure shows a Regulatory Control (PID) Faceplate. Dashed boxes indicate the location for graphic elements unavailable on the example display. Labels appearing in bold have additional information described in the tables following the figure.

2.2.17 PID Point Status

The label **Point Status** in the figure identifies the area where the Point Status indicators appear on the Faceplace.

Table 12: PID Point Status Indicators

Indicator	Meaning
[BLANK]	Point is in Active state.
INACTIVE	Point is in Inactive state.
STDBYMAN	Point is in stand-by Manual mode.
INIT	Point is being initialized.
OR in SEL	Point selected by override selector.
OR Not SEL	Point not selected by override selector.
RED TAG	Point is red tagged.
Custom String(8)	User configured status message for RED TAG state.

2.2.18 PID Alarm Status

The label **Alarm Status** in the figure identifies the area where the Alarm Enable Status indicators appear in the Faceplate.

Refer to Table AI and PID Alarm Status Indicators for a list of all the indicators and what they mean.

2.2.19 PID System Alarm Status

The label **System Alarm** in the figure identifies the area where the System Alarm indicators appear in the Faceplate.

For more details, refer to Table AI, AO, and PID System Alarm Indicators for a list of all the indicators and what they mean.

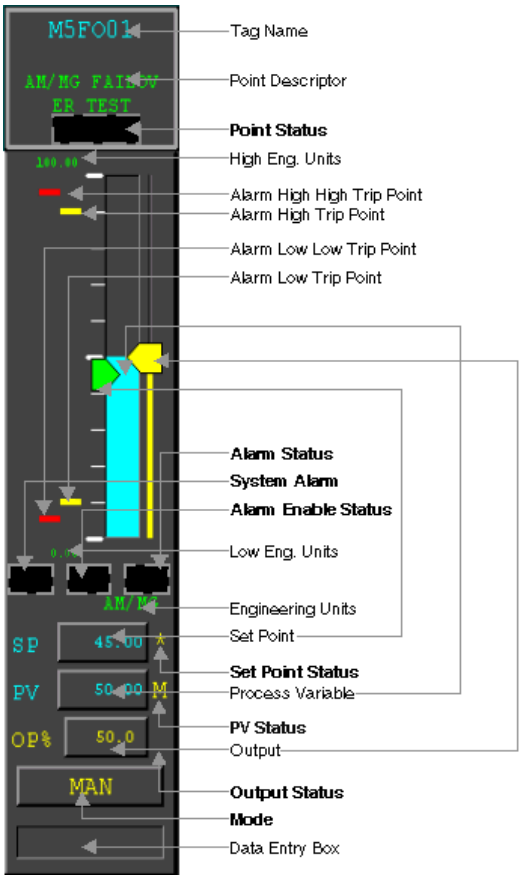

Figure 5: PID Faceplate Display

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2.2.20 PID Alarm Enable Status

The label **Alarm Enable Status** in the figure identifies the area where the Alarm Enable Status indicators appear in the Faceplate.

Refer to Table AI and PID Alarm Status Indicators for a list of all the indicators and what they mean.

2.2.21 PID SP Status

The Set Point Status indicators appear to the right of the SP value. The label **Set Point Status** on identifies this area. The Indicators in bold are new / extended Fieldbus values.

Table 13: PID SP Status Indicators

Indicator	Meaning
[BLANK]	Normal or No data
B (Red)	Bad Setpoint
H (Yellow)	Setpoint High Limit
H (White)	**Setpoint High Limit (FF device)**
L (Yellow)	Setpoint Low Limit

Indicator	Meaning
L (White)	Setpoint Low Limit (FF device)
C (White)	Setpoint Constant (FF device)
P	Target Value Processor State Preset : AM only
R	Target Value Processor State Run: Am only
*	Target Value Processor State Off No control action occurs when point is in Manual mode. **NOTE: Setpoint windup HiLo does not apply to FF devices.**
^	Setpoint cannot be increased because of output limiting (TPS windup high).
v	Setpoint cannot be decreased because of output limiting (TPS windup low).

2.2.22 PID Output Status

The Output Status indicators appear to the right of the OP value. The values in bold are new/extended Faceplate values.

Table 14: PID Output Status Indicators

Indicator	Meaning
[BLANK]	Normal
* (Yellow)	Secondary of this point is not in Cascade mode (TPS points)
*** (Yellow)**	**Secondary of this point is not accepting Cascade mode (FF device)**
*** (Red)**	**Secondary of this point is in fault active state (FF device)**
*** (Green)**	**Secondary of this point is requesting initialization (FF device)**
B (Red)	**Bad output (FF device only)**
H (Red)	**Bad output and Hi Limit indication (FF device)**
L (Red)	**Bad output and Lo Limit indication (FF device)**
C (Red)	**Bad output and Constant indication (FF device)**
F (Red)	**Initiate Fault-State indication to downstream block (FF device only)**
H (Yellow)	Output is at the OP High Limit (TPS and **FF device**)
L (Yellow)	Output is at the OP Low Limit (TPS and **FF device**)
^ (Yellow)	Secondary of this point is at Setpoint or Output High Limit, or reset High action limited
v (Yellow)	Secondary of this point is at Setpoint or Output Low Limit, or reset Low action limited
C (Yellow)	**Output Constant indication (FF device)**
A (Green)	**Initialization Acknowledgement indication to downstream block (FF device only)**

2.2.23 PID PV Status

The PV Status indicators appear to the right of the PV value. The label **PV Status** on identifies this area. The values in bold are new/extended Faceplate values.

Refer to Table AI PV Status Indicators for a list of all the indicators and what they mean.

2.2.24 PID Mode

The Mode indicators appear directly below the Output value. The label **Mode** on identifies this area. The values in bold are new/extended Faceplate values.

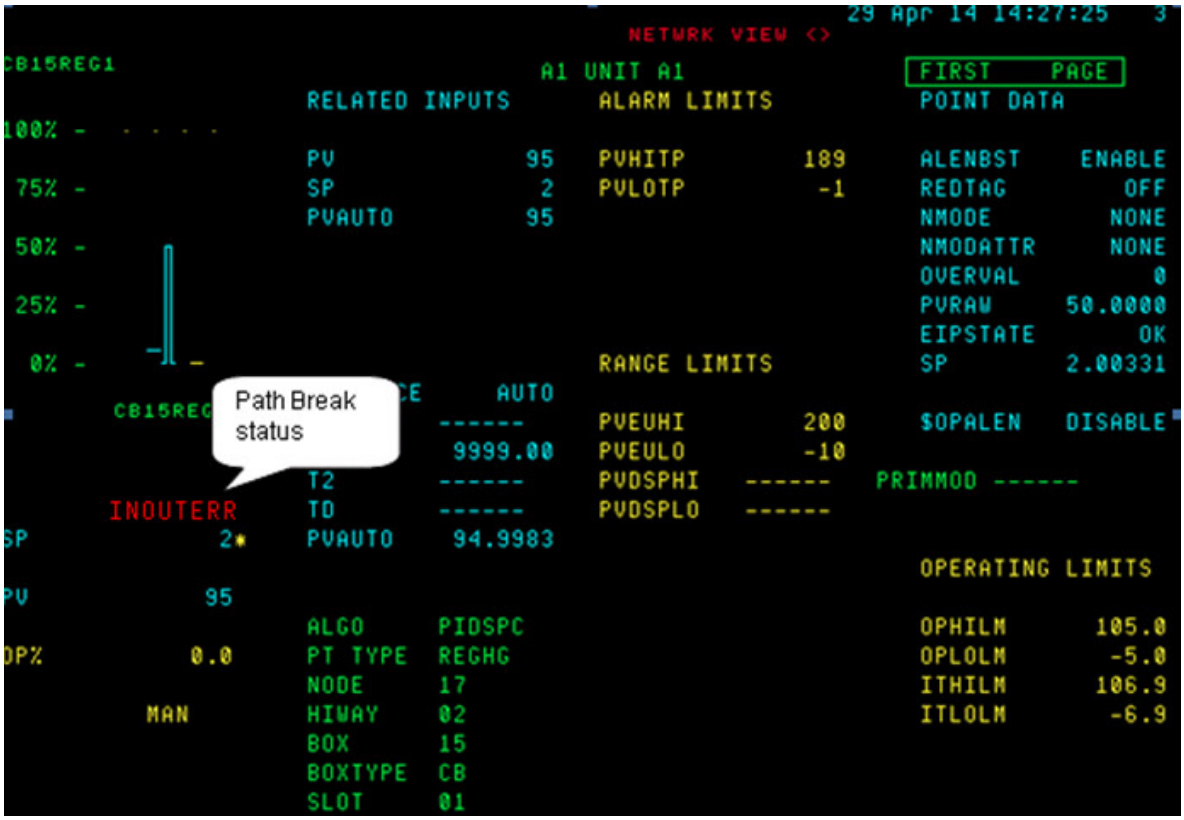
Refer to Table AO Mode Indicators for a list of all the indicators and what they mean.

2.2.25 Path Break Status

The **$PATHSTS** parameter indicates whether there is a break in the input path, output path, or both. This parameter will be displayed in the Native Window Point detail, Group display, GUS Faceplate and Experion Faceplate.

Table 15: Path Break Status Indicators

Indicator	Meaning
INOUTERR	Input Output error
OK	Input Output is OK
INERR	Input error
OUTERR	Output error



2.3 GUS Faceplate Property Pages

2.3.1 Description

There is a single GUS Faceplate Property Page. Here is an example of a typical Property page.

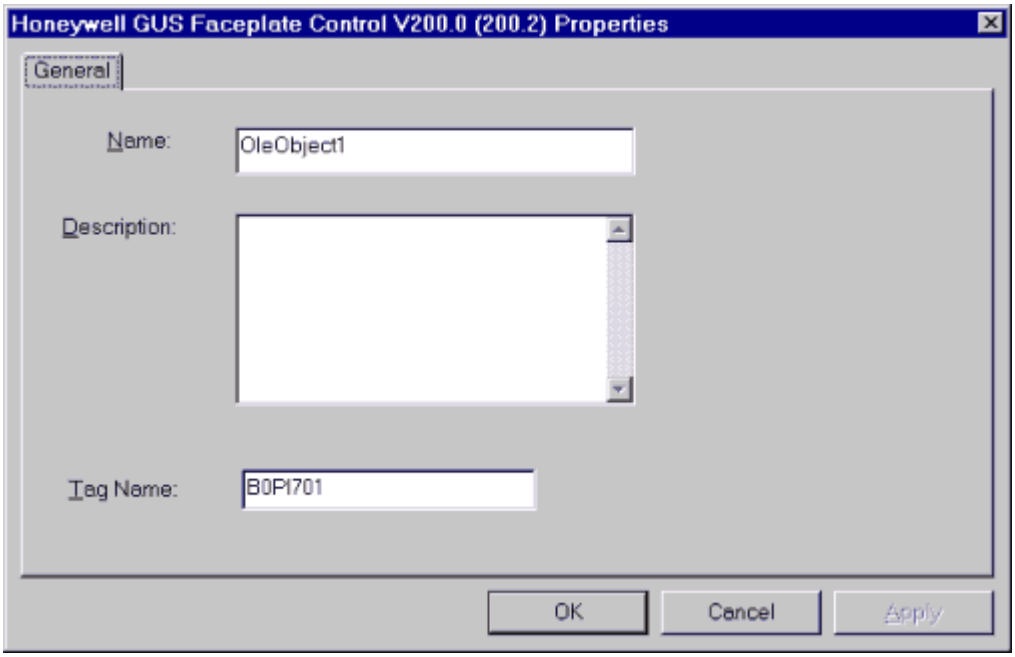


Figure 6: GUS Faceplate Property Page

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There are three fields on the Property page.

- **Name** - Runtime read-only property that provides the Name for the control.
- **Description** - Runtime read-only property that provides the documentation Description for the control.
- **Tag Name** - Property that provides the tag name identification for the point to be displayed.

2.3.2 Setting Faceplate Properties

1 Select the Faceplate Control to be modified.
RESULT: Handles at the corners and midpoint edges identify an item as selected.

2 From the Edit Menu, select Object Properties or, alternatively, select Properties from the right mouse button menu.
(Double-clicking on the control also displays the Property Sheet.)

RESULT: The Control displays its Property sheet. The General Tab is the default tab displayed, indicated by the highlighting rectangular box surrounding the word General.

Attention
Initially, the Name options on the tab will have a default value. Subsequently, any value applied and saved for a property will appear as the default value.

3 Accept the default value for the Name or change it, as desired.

Access Name by clicking on the Name edit box, using the Tab key to navigate to the edit box, or using the Alt key and the accelerator N.

Attention
A legal name must begin with an alphabetic character, and can have up to 23 additional alphanumeric or underscore characters.

4 Accept the value for the Description or change as desired.

Access Description by clicking on the Description edit box, using the Tab key to navigate to the edit box, or using the Alt key and the accelerator D.

Attention
The length limit for Description is 1000 characters.

5 Accept the value for Tag Name or change as desired.

Access Tag Name by clicking on the Tag Name edit box, using the Tab key to navigate to the edit box, or using the Alt key and the accelerator T.

2.4 GUS Faceplate Scripting Properties and Methods

2.4.1 GUS Faceplate Properties

The following table describes GUS Faceplate properties.

Table 16: GUS Faceplate Properties

Property	Description	Default Value	Script Type *(C++ Type)*	Configurable Through Property Page	Scripting Access
Description	Runtime read-only property that provides the documentation Description for the control	' '	String(1000)	Yes	Read Only
Name	Runtime read-only property that provides the Name for the control.	OleObject1	String(24)	Yes	Read Only
Tag Name	Property that provides the tag name identification for the point to be displayed.	' '	String(19)	Yes	Read /Write
Visible	Extended OLE Control property that provides the indicator for visibility	TRUE	Boolean	No	Read /Write

2.4.2 GUS Faceplate Methods

The following table describes GUS Faceplate methods.

Table 17: Faceplate Methods

Method	Definition	Parameter	Return
OnError	Method used to receive a string error message.	String	None
SetFocus	Method used to set the focus to the Faceplate.	None	None

2.4.3 GUS Faceplate Events

The following table describes GUS Faceplate events.

Table 18: GUS Faceplate Events

Faceplate Event	Definition	Parameter
ButtonClicked	An event automatically executed at runtime, when a button is clicked on the faceplate.	Integer Button 1 = PV clicked 2 = SP clicked 3 = OP clicked 4 = MODE clicked 5 = OK clicked 6 = POK clicked 7 = MAN clicked 8 = AUTO clicked 9 = CAS clicked 10 = BCAS clicked 11 = PROG/OPR clicked 12 = RCAS clicked 13 = ROUT clicked 14 = OOS clicked
OnError	An event automatically executed at runtime, when an error occurs when changing a point.parameter on the faceplate. Refer to the topic OnError Event for details.	String Message This is the error message.

2.4.4 OnError Event

Attention
There is no default error handling for the GUS Faceplate Control.

You must script the OnError event to display the error. The error message is a parameter of the OnError event. Consider using a text object or a message box to display the message to the user.

The example display in the following figure shows the error message to the user in a text object and then clears the error message text when a different button is clicked.

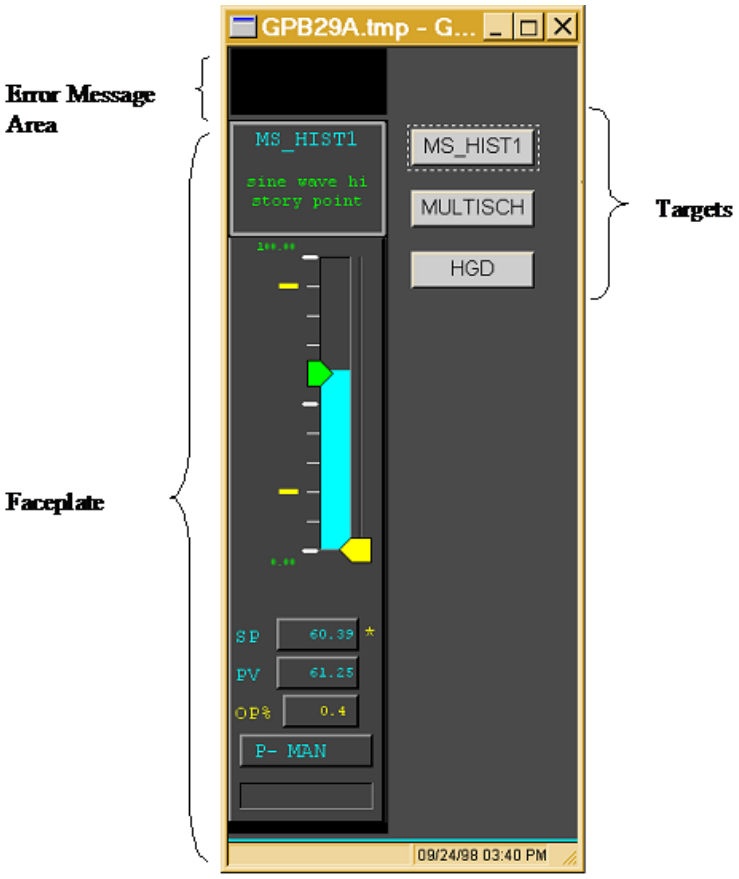

Figure 7: Text Object Error Message

The following figure shows the same display as in the previous figure, but with script on the OnError event, displaying a message in the errmsg text object.

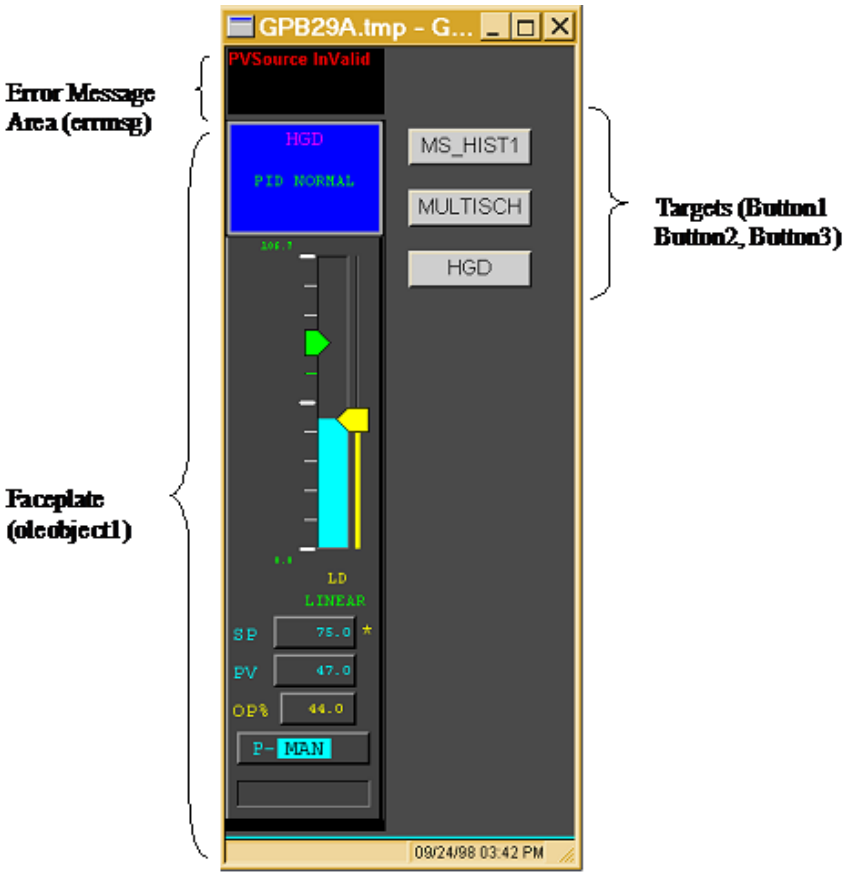

Figure 8: ERRMSG Text Object Error Message

2.4.5 GUS Faceplate Scripting Examples

Script on Faceplate Control, oleobject1.

```
Sub ButtonClicked(Button As Integer)
errmsg.text = ''
'clears out the errmsg object when
a different button is clicked
End Sub
Sub OnError(Message As String)
errmsg.text = message
End Sub
```

Script on Targets

Using a DispDB Object

```
Sub OnRButtonClick()
OleObject1.TagName = dispdb.[$cz_enty].[name]
End Sub
Button1
Sub OnLButtonClick()
OleObject1.TagName = 'ms_hist1'
End Sub
Button2
Sub OnLButtonClick()
OleObject1.TagName = 'multisch'
End Sub
Button3
Sub OnLButtonClick()
OleObject1.TagName = 'hgd'
End Sub
```

Read a Point Name from an Entry Box

```
Sub OnLButtonClick()
OleObject1.TagName = AskBox$ ('Enter Point Name >')
End Sub
```

Set the Name and Then Set Focus to the Faceplate

```
Sub OnLButtonClick()
If Faceplate.tagname = 'M5FO01' Then
Faceplate.tagname = 'M5FO02'
Else
Faceplate.tagname = 'M5FO01'
End If
Faceplate.SetFocus
End Sub
```

Invoking a Faceplate for a Point

A Faceplate for a Fieldbus point will be invoked in two ways.

- Specifying a Fieldbus point name on the Faceplate Property page
- By setting the TagName parameter at runtime.

2.5 Manipulating GUS Fieldbus Faceplates

2.5.1 Changing SP, PV, OP value

A parameter represented by a button on the Faceplate may be changed under the appropriate conditions. The data owner determines the access permissions for changing any parameter. Not all buttons appear on all Faceplate displays.

1 Press the SP or OP key on the keyboard.

Or

Touch the screen over the button representing the parameter to be changed.

Or

Click the left mouse button when the cursor is over the button representing the parameter to be changed.

RESULT:

The background of the entry box at the bottom of the Faceplate changes from black to white, and a cursor appears, positioned for data entry.

The parameter button reverses video; that is, the background changes from black to cyan, and the text changes from cyan to black.

The background of the upper Title Area of the Faceplate changes from black to blue, indicating the Faceplate is selected.

2 Type a value when the entry box has a cursor.

Or

Press the Raise/Lower or the Fast Raise/Fast Lower keys on the keyboard. (You can press these keys continuously to ramp or soak the value.)

NOTE: To clear an incorrect value, press the corresponding SP, OP, or Clr Entr / numeric-keypad * key in the IKB or OEP, enter the correct value, and press Enter. To clear a single incorrect character, press the backspace key once.

3 After typing a value, press the Enter key to deselect the parameter.

Faceplate - parameter value change

- Faceplate - parameter value change

  The following figure shows a Faceplate selected for a parameter change.

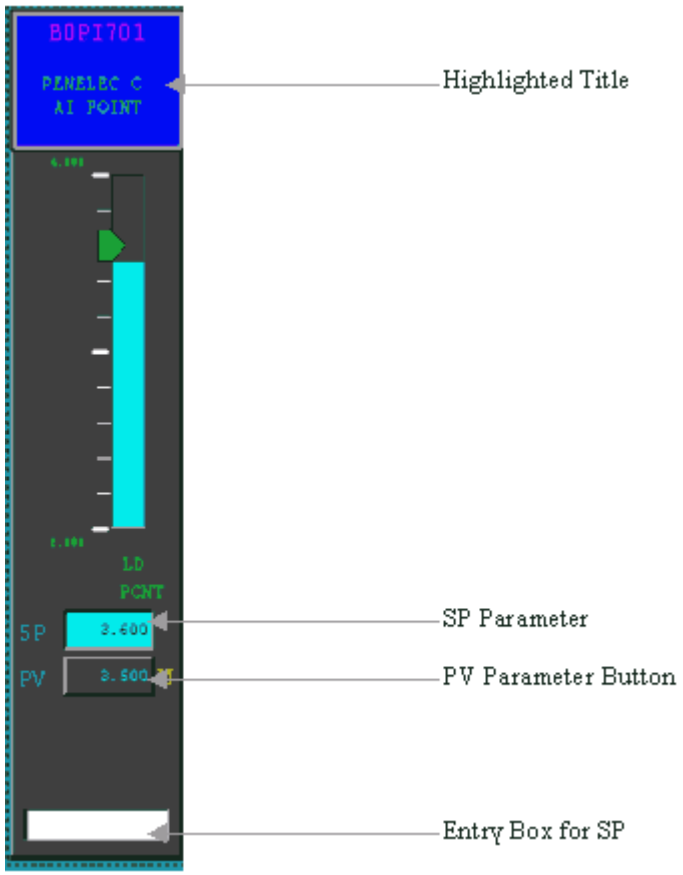

Figure 9: Parameter Value Change

2.5.2 Changing Mode

The Mode button appears below the SP/PV/OP button set, with the current mode appearing as the label.

1 Touch the screen over the Mode button.

Or

Click the left mouse button when the cursor is over the Mode button.

RESULT:

The Mode button reverses video, the background changes from black to yellow, and the text changes from yellow to black.

The selections for mode appear as small buttons in the Graphic Area along the left-side of the analog bar for analog-related points, and above the button set for digital points.

Fieldbus will show a column with a maximum of seven buttons, with the four-letter character name for each mode.

The current mode has its text color as cyan. The other mode selections have green as the text color.

2 Click the left mouse button when the cursor position is over the OOS, MAN, AUTO, CAS, NORM, ROUT, OOS, or RCAS button, and then press the Enter key or select the OK button to confirm the choice.

Or

Touch the screen over the small button representing the mode selection, and then press the Enter key or select the OK button to confirm the choice.

Or

Press the MAN, AUTO or NORM key on the IKB or OEP keyboard.

Deselecting mode change

- Deselecting mode change
  Pressing the Enter key or the OK button to confirm the Mode change automatically deselects the Mode change. If a timeout period expires or you begin another operation, this also automatically deselects the mode change.

Faceplate - mode change

- Faceplate - mode change
  The following figure shows a Faceplate selected for a mode change.

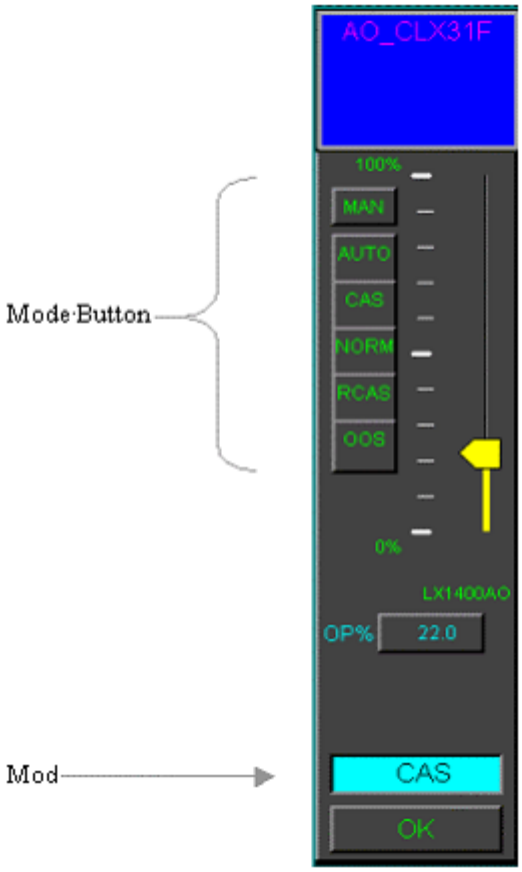

Figure 10: Mode Change

2.5.3 Changing Mode Attribute

The Mode attribute indicates who has the right to change the parameters of a point. The Mode Attribute has two possible values:

- **Operator** – The operator can change the SP, OP, Mode, ratio, and bias of a point. If the Mode attribute is operator, the indicator is a blank.
- **Program** – A program can provide the SP, OP, mode, ratio, and bias of the point. The indication on the display for the Mode attribute is a 'P,' for 'Program,' displayed preceding the mode name on the Mode button.

Mode Attribute appears as a selection button for non-Fieldbus Analog Input, Analog Output, and PID types.

For points that have a Mode attribute, it is also possible to change the Mode attribute while selecting a Mode.

To change the Mode Attribute, do the following:

- Click the left mouse button when the cursor is over the PROG button, and then click the left mouse button when the cursor is over the OK button.

  Or

  Touch the screen over the PROG button, and then touch the OK button.

  Or

  Press NORM on the IKB or OEP keyboard.

2.5.4 Error Handling

Access errors

If you attempt a change when the key level access does not permit the change, a message displays indicating 'ACCESS LEVEL ERR'.

If you attempt to change a parameter and the mode does not allow it, a message displays indicating 'READ ONLY PAR.'

Input Errors

The default error handling for Faceplate is: Do not change a value if the following is true:

- The value entered is beyond the upper or lower limit for the parameter, or
- The content of the value is not compatible with the value type, such as non-numeric characters when only numeric characters are appropriate.

Attention

There is no user-visible indication of an input error unless you script the OnError event. The OnError event occurs for any error raised by the data owner.

Invalid Tagname error

The error reporting Invalid Tagname will be reported on the Faceplate itself. The OnError event will not occur for Invalid Tagname.

2.6 Fieldbus Modes

2.6.1 Fieldbus Modes General description

Fieldbus Mode management and the set of possible values for the Mode differ from the traditional TPS Mode.

The following applies to Fieldbus points:

- The Mode is presented as a composite of the *actual* and *target* Modes of the CM point.
- The number of parameter values for the CM Mode is extended to eight.
- Not all modes are valid for all point types.

2.6.2 Mode definitions

The following table describes the Fieldbus modes.

Table 19: Fieldbus Modes

Mode		Applicable Points	Meaning	Service Priority
2 Chars	***4 Chars***			
OS	OOS	AI, AO, PID	Out of Service	8
IM	IMAN	AO, PID	Initialization Manual	7
LO	LO	AO, PID	Local Override	6
M	Man	AI, AO, PID	Manual	5
A	Auto	AI, AO, PID	Automatic	4
C	Cas	AO, PID	Cascade	3
RC	Rcas	AO, PID	Remote Cascade	2
RO	ROut	PID	Remote Output	1

2.6.3 Mode attributes

The Fieldbus mode attributes are:

- **Actual** - the current value of the mode.
- **Target** - the value that the operator wants for the mode.
- **Permitted** - the allowable target modes.
- **Normal** - the mode (or combination of modes) to which the target will be set when the operator presses the NORMAL key.

Permitted modes apply to the target mode. A write request to the target is rejected if it does not match the permitted list.

The Actual mode is not constrained by the Permitted mode, because some modes are required for initialization.

2.6.4 Displayed Mode values

When the *actual* and *target* modes are the same, the Faceplate will represent them as a single mode.

When the actual and target modes are different, Faceplate will display them as a combination mode, as indicated in the following table.

Table 20: Combination Modes

Actual	Target
M	(C)
LO	(A)
MAN	(A)
AUTO	(C)
CAS	(RC)

Attention
IMan and LO are not legal target modes.

The following table lists the normal modes that can be displayed for a Fieldbus point:

Table 21: Normal Modes

Mode		Meaning
2-Chars	*4 Chars*	
M	Man	Manual
A	Auto	Automatic
C	Cas	Cascade
RC	Rcas	Remote Cascade
RO	Rout	Remote Output

Attention
OOS and LO are not valid normal operating modes.

3 Standard Display Applications

3.1 GUS Group Display

3.1.1 GUS Group Display General description

The GUS Group Display looks similar and behaves similar to the Native Window standard Group Display. An example is shown below.

If a point has tuning parameters, those parameters will appear in the area below the group of eight Faceplates when you select one of the Faceplates. Currently tuning parameters do not display for Fieldbus points.

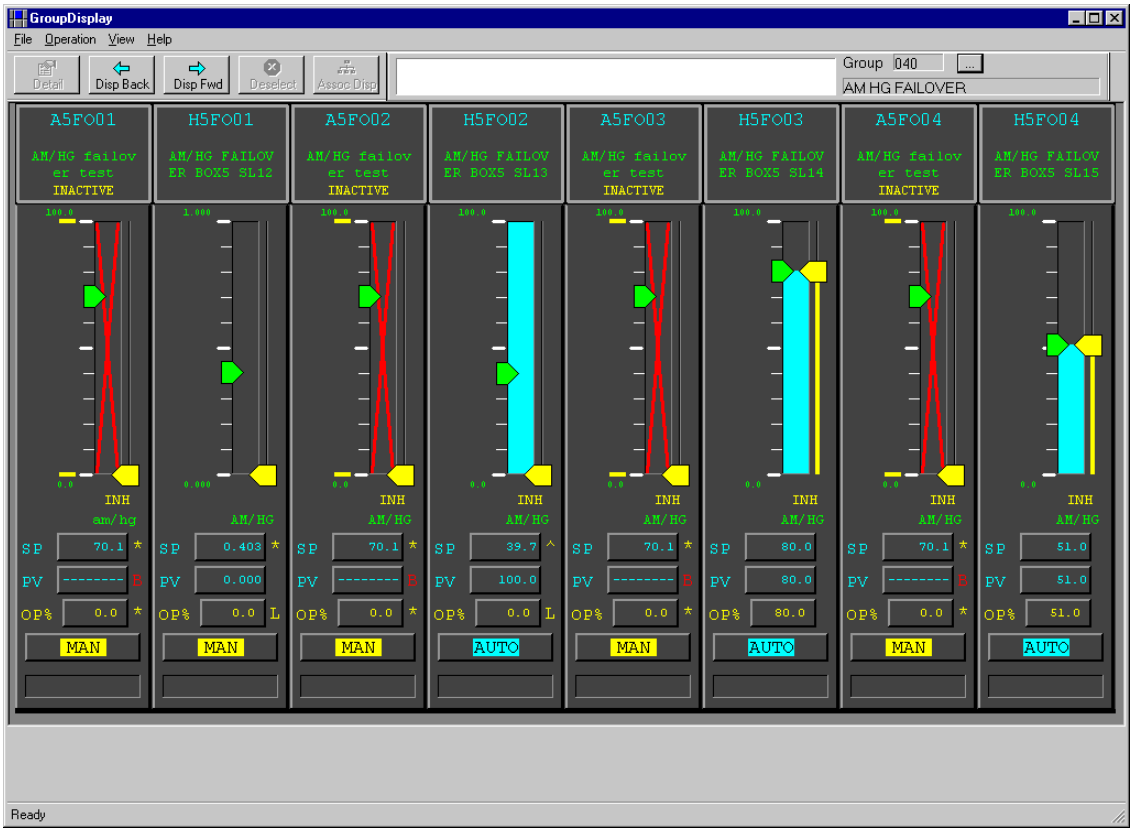

Figure 11: GUS Group Display

3.1.2 Runtime behavior

- Only one GUS Group Display can be running per GUS node. Only three faceplates can run if the GUS Group Display is running.
- When Faceplate in the Group Display has focus, it interacts with the IKB/OEP keys. You may interact with the Faceplate using the point manipulation keys: SP, OUT, MAN, AUTO, NORM, and rampkeys.
- Errors are shown in the message area on the toolbar at the top of the display.
- The display size is 1024 x 768. The display does not zoom-to-fit.
- The display registers itself with SafeView with the category 'GroupDisplay.'
- The display window has the full functionality of a window (for example, it can be closed and it can be moved).
- Because it is a well-behaved client of SafeView, the GUS Group Display can be constrained by the properties set by the SafeView workspace.

3.1.3 GUS Group display buttons

The following table describes buttons located at the top of the GUS Group Display. These buttons do not appear on the Native Window Standard Group Display.

Table 22: GUS Group Display Buttons

Button	Description
Detail	Invokes the Detail display for the selected point.
Disp Back	Invokes the Group previous in numerical order to the displayed group.
Disp Fwd	Invokes the Group subsequent in numerical order to the displayed group.
Deselect	Deselects the selected faceplate slot.
Assoc Disp	Invokes the Associated Display for the selected point or the Group if a point is not selected.
Help Disp	Invokes the Help Display for the Group.
…	Invokes a dialog box to enter a group number.

3.1.4 TPN Connection error

When the Group Display fails to connect to the TPN or loses its connection to the TPN, a red 'X' is drawn across the Group, as shown in the following figure.

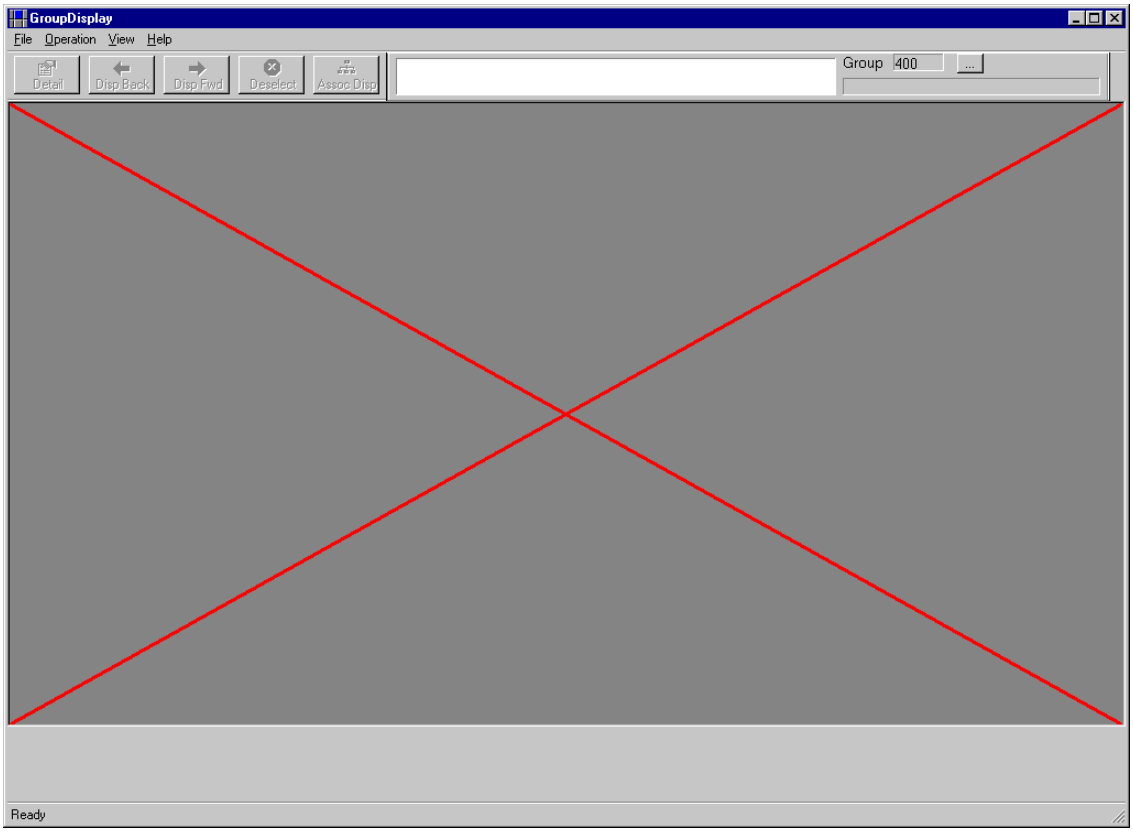

Figure 12: GUS Group Display With No Connection to TPN

3.2 Configure GUS Group Display to be Standard Group Display

Perform the following steps to configure the GUS Group Display to be the Standard Group Display for the TPS groups on an ES-T node.

Attention

The Experion GUS Displays Runtime package can be installed only on an ES-T node.

The Experion GUS Remote Displays Client can be installed only on the Console Extension node.

In an Experion Station, the TPS Interface must be configured to enable TPS Groups on the Configuration > System Hardware > System Interfaces > TPS > Configuration tab.

1 Invoke the **Configuration Utility**.

2 Select **GUS Group Displays** from the **Configure** menu.
RESULT: The GUS Alarm/Message/Group Displays configuration page is displayed.

3 Check **Enabled** for the Group Display.

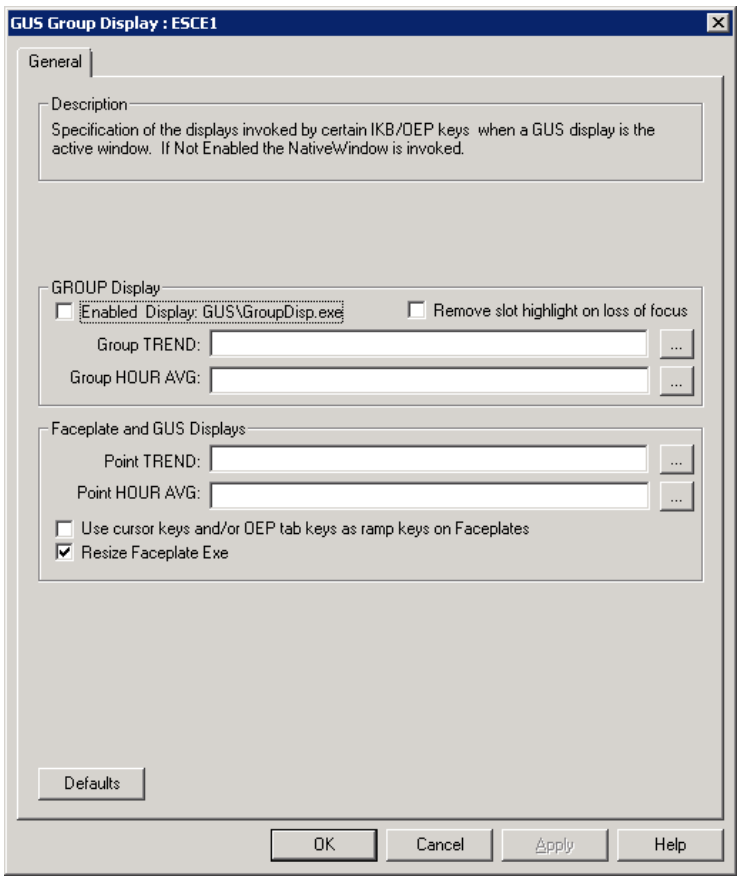

Figure 13: GUS Group Displays Configuration Page

3.3 Invoking the GUS Group Display

If you have configured the GUS Group Display to be the standard Group Display, then you may invoke the display from the GROUP Key or from a GUS script.

Invoking a Group from a Native Window display will display the Native Window Group Display.

To invoke the Group Display from a GUS script, use the GROUP Actor:

```
Sub OnLButtonClick()
Group 40
End Sub
```

Attention

A slot to be selected upon invocation cannot be passed through the GROUP Actor to the GUS Group Display.

3.4 Faceplate Application

The GUS faceplate OCX has been embedded in a standalone application, faceplate.exe. All running GUS displays manipulate the same faceplate. By being a standalone application, the Faceplate Application allows the maximum number of GUS displays to be available to the user. It also conserves display space by allowing the faceplate to exist outside of a GUS display. The size of the faceplate window is 160 x 600.

This Faceplate Application (faceplate.exe) can be created and manipulated using GUS scripting. You cannot run the faceplate application from a command line or by double clicking on the file in Windows Explorer.

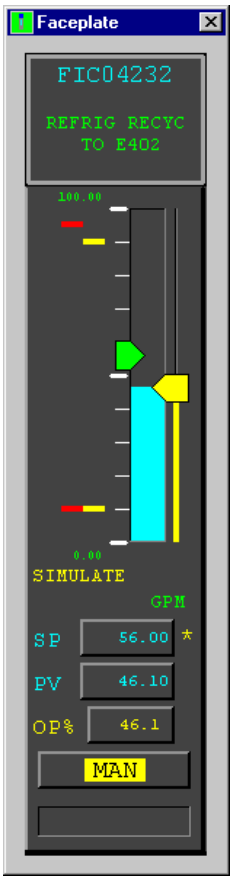

Figure 14: GUS Faceplate

3.4.1 Runtime Behaviour

The following is a description of the behavior of the Faceplate Application during runtime.

- Only one faceplate.exe may be running per GUS node. All running GUS displays manipulate the same faceplate application.
- Setting the tagname to an empty string will blank the faceplate, but the faceplate window will still be visible.
- When the faceplate window has focus, it interacts with the IKB/OEP keys. You can interact with the faceplate using the point manipulation keys, SP, OUT, MAN, AUTO, NORM, and rampkeys.
- The Faceplate Application's default error handling is to display a message box containing the error message. The message box must be acknowledged before you can continue working in the faceplate.
- The Faceplate Application registers itself with SafeView with the category 'Faceplate.'

- The faceplate window has the full functionality of a window (for example, it can be closed and it can be moved). Because it is a well-behaved client of SafeView, it can be constrained by the properties set by the SafeView workspace.
- The Faceplate Application will shutdown when there are no displays (clients) connected to the faceplate, and you have closed the faceplate window. You can close the faceplate window at any time, but if the faceplate application still has a display (for example, a client) connected to it, the application will continue to run in the background.
- If the Faceplate Application fails to connect to the TPN or loses its connection to the TPN, a red 'X' is drawn on the faceplate.

3.5 Scripting a GUS Display to Interact with the Faceplate Application

3.5.1 Identifying the Faceplate Application to a GUS Display

Each GUS display that wants to interact with the faceplate application must assign the faceplate application to an object.

```
dim MyFaceplateObject as object
set MyFaceplate = createobject('Faceplate.Application')
```

For example, create a public object 'MyFaceplateObject' In an OnDisplayStartUp script, set MyFaceplateObject equal to the faceplate object.

Attention

This create can be done in each embedded display.

```
Main Display/Embedded Display Script
----------------------------------------
public MyFaceplateObject as object
OnDisplayStartup()
set MyFaceplate = createobject('Faceplate.Application')
End Sub
```

3.5.2 Setting the TagName of the Faceplate from a GUS Display

First, you need to know the object to which the faceplate application has been assigned; then you can set the property, **TagName**, of the faceplate to a valid TPN point.

Faceplate Property	Definition	Type	Default Value	Valid Values
TagName	Property that specifies the point-of-interest displayed in the faceplate.	String	(Null String)	Valid Point Names

```
Button1 Script on Main Display/Embedded Display:
public MyFaceplateObject as object
Sub OnLButtonClick()
MyFaceplateObject.TagName = 'A100'
End Sub
```

3.5.3 Setting the TagName of the Faceplate and Defining Error Handling

There is a method on the faceplate application that allows you to set the tagname and set an object in the calling display to handle the faceplate error. The method is SetTagNameHandleErrors. It takes two arguments. The first argument represents the tagname of type string. The second argument represents the object that will handle the error.

Faceplate Application Method	Definition	Parameter	Return
SetTagNameHandleErrors	Method used to set the tagname in the faceplate and set an object in the calling display to handle the faceplate errors.	TagName as string Errorhandler as object	None

```
Button2 Script on Main Display/Embedded Display:
public MyFaceplateObject as object
Sub OnLButtonClick()
MyFaceplateObject.SetTagNameHandleErrors 'A100',
text2.methods 'text2 is in the same embedded display
```

```
End Sub
Text2 Script on Main Display/Embedded Display: Note: The object handling errors must handle the
event, Faceplate_OnError (message as string).
Sub Faceplate_OnError (message as string)
me.text = message
End Sub
```

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  or

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