**GROUP DISPLAY**

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*CHANGE DOCUMENT CONTROL*

*Once IC Pro have approved the document, every variation made on the document must be referenced as a change.*

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# Introduction

## Purpose

This document will brief the procedure to activate the status button present in the overview area of the screen.

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## Definitions, Acronyms, and Abbreviations

This section provides the definitions of all terms, acronyms, and abbreviations required to properly interpret this document:

| **Acronym/**  **Abbreviation** | **Definition** |
| --- | --- |
| GD | Group Display |

## References

1. [How can you have alarms displayed in the process picture with the smart object "Gr... - ID: 17778440 - Industry Support Siemens](https://support.industry.siemens.com/cs/document/17778440/how-can-you-have-alarms-displayed-in-the-process-picture-with-the-smart-object-group-display-when-the-bit-alarm-procedure-or-analog-alarm-is-being-used-as-the-alarm-process-?dti=0&lc=en-IN)
2. [How to configure group display option presented in the @Overview area? - 266107 - Industry Support Siemens](https://support.industry.siemens.com/forum/in/en/posts/how-to-configure-group-display-option-presented-in-the-overview-area/266107)
3. <https://support.industry.siemens.com/cs/mdm/109746340?c=93480196363&lc=el-GR>

**To make the group displays on the overview area work, you must put additional group display elements in your pdl process picture, for each item in your screen for which you want to be reflected on group display on overview area.**

For example, if there are multiple transmitters in a screen then ***one* group display for each transmitter must be inserted in the same picture. Add a tag for dynamization!!**

*NOTE: If separate* ***group displays in screen is not desired then make the GD element invisible after configuration!***(by properties, Set Display -Off).

# Group Display Element

The group display enables the current states of certain message types to be displayed by hierarchy. Using group display, it is possible for example to implement a quick change to represent an error source.

The smart object 'Group Display' permits you to display in a collected graphical form the alarm and message status of an object and the message statuses of measuring points from lower-level process pictures.

# Steps to configure Group Display

***Note: To make the group displays on overview area working, you have to put additional group display elements in your pdl process picture, for each item in your screen, for which you want to be reflected on group display on overview area.***

## INSERTING GROUP DISPLAY

1. Open the picture in which you want to insert a group display.
2. Click the "Group Display" smart object in the "Standard" selection window.
3. Keeping the left mouse button pressed, drag the object in the desired area of the picture to the desired size.

When you release the mouse button, the object is inserted at the corresponding location in the picture.

If you keep the <SHIFT> key pressed while inserting, you create a "Group Display" object in the shape of a square.

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## DEFAULT SETTINGS OF GROUP DISPLAY

* If you insert a picture into the group display, the group display will have five buttons.
* 11 message types and their respective colors and texts are assigned to those five buttons.
* The default settings of graphic objects are changed by using the property dialog (right mouse button) of the default object selected in the "Standard" selection window.

Right Click on the element added in the screen and open “**Object Properties**”.

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## OBJECT PROPERTIES

**TAG LINKING:** while connecting group display with a tag you assign individual bits on a need basis.

(Set Start value of tag 65535 (0x0000FFFF) means no alarms, everything OK. In this manner, you can ensure that at the start - from the view of the group display - there are no unacknowledged messages)

* Open the group display shortcut menu and select "Properties".
* Select "Miscellaneous" in the "Properties" tab.
* Open the shortcut menu in the "Group value" line, "Dynamic" column and select "Tag...". The tag must be a signed 32-bit variable.

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**MESSAGE TYPES:**  The "Message Types" property group contains attributes with which you can set the display of messages depending on the 16 message types.

For example, each message type may be visualized by an **appropriate label** (“Display text”) and by **color changes** of the button.

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These default configurations can be modified for each bit if required. This can be done by double clicking on the message type in “Attributes” and selecting the desired bit.

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**BUTTON ASSIGNMENTS:**  In the "Assignment" object property of the group display you assign message types to the buttons.

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Numbers highlighted in the above picture represent the bits of the Group value tag to be assigned to the respective button.

Up to eight buttons permit display and operation of messages. 5 buttons are configured by default.

You can change the assignment and can configure three additional buttons.

|  |  |  |
| --- | --- | --- |
| **Bit in double word** | **Message class** | **Message type** |
| Bit 31 (MS bit) | Alarm | AH |
| Bit 30 | Alarm | AL |
| Bit 29 | Warning | WH |
| Bit 28 | Warning | WL |
| Bit 27 | Tolerance | TH |
| Bit 26 | Tolerance | TL |
| Bit 25 | AS Process control message | Fault |
| Bit 24 | AS Process control message | Error |
| Bit 23 | Maintenance request | Maintenance request |
| Bit 22 | Process message | PM |
| Bit 21 | Not assigned | Not assigned |
| Bit 20 | Operator request | OR |
| Bit 19 | Operator message | OM |
| Bit 18 | Status message | Automation system (AS) status |
| Bit 17 | Status message | Status OS |
| Bit 16 | Measuring point locked | X |

***Note:*** Detailed meaning of bits in this DW is explained in the help section of the software.

# Settings to reflect the Group display in the Overview section.

1. Go to, OS Project Editor 🡪 Message Display 🡪 “**Enable”** Group Display Hierarchy

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1. Run Picture Tree 🡪 “**Enable**” Completely Recalculate Group Display Hierarchy When Saving 🡪 Save.

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***Note: Picture tree must be saved each time any modification in the Group display is done. Else the modification done may not get reflected in the overview area.***

# Group value /Event State Tag Details

To provide a group display with the necessary information, you can use the **status tag** of a message (status tag given in alarm section). At Runtime the status tag contains the message status (message arrived, gone, acknowledged). However, the format of the status tag does not match that of the group display and must be changed accordingly.

The following figure shows the data format for the group display compared with the format of the status tag of a message.

***Note****: You must use an "Unsigned 32-bit value" for the status tag and a "Signed 32-bit value" for the group display tag.*

A diagram of a message

Description automatically generated with medium confidence

**STATUS TAG to EVENT STATE TAG CONVERTION:**

**Consider a transmitter with Status tag TT1\_ST (Unsigned 32 bit) and Event State tag (Signed 32 bit) as TT1\_ET.**

STATUS TAG

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EVENT STATE TAGA screenshot of a computer

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**METHOD 1:** SATUS TAG to EVENT STATE TAG (Group Value Tag) conversion by scripting in WinCCA screenshot of a computer program

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In the above script lower word (status info) and higher word (acknowledgement info) of the Status tag TT1\_ST are swapped, ack information is inverted to obtain the Event state tag (TT1\_ET).

**METHOD 2:** **CHANGE THE FORMAT OF THE STATUS TAG TO THE FORMAT OF THE GROUP VALUE IN CONTROLLER**

* **Create 2 data blocks, one for Status tag and the other for Event tag.**
* **Add tags for each Group Display elements such that the offset for an element (Ex: TT1) in both the DB remains same.**

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* **Create FC with below script**

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* **Here n refers to byte offset in the DB.**
* **PEEK: Read Function**
* **POKE: Write Function**