

# CHAPTER 7

## DISPLAYING AND INPUTTING DATA

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## 7.1. Numeric Entries

You can enter a value and change the specified variable using a numeric entry.

### 7.1.1. Operation Options

The following operation options can be added to a numeric entry. Select and set up the options in the Numeric Entry property sheet.

Options	Description
Scaling	<p>The value of the monitored variable will be displayed in a scaled manner. The following is the scaling formula.</p> $\text{DisplayedValue} = \text{MonitoredValue} * \text{Gain} + \text{Offset}$ <p>If the option is selected, the entered value will be scaled by the following formula with the same coefficients (<i>Gain</i> and <i>Offset</i>) before it is output.</p> $\text{OutputValue} = (\text{EnteredValue} - \text{Offset}) / \text{Gain}$ <p>Select and set this option in the Advanced page.</p> <p><b>Note:</b> The <i>Gain</i> and <i>Offset</i> are 32-bit floating point numbers. They have at most 6 significant digits. The rounding and truncation errors may happen.</p>
Range Check	<p>The numeric entry will verify the entered value according to the specified maximum and minimum. If the entered value is not within the allowable range, the value will not be output. Select and set this option in the Advanced page.</p> <p><b>Note 1:</b> When the scaling option is selected, the output value instead of the entered value is verified.</p> $\text{OutputValue} = (\text{EnteredValue} - \text{Offset}) / \text{Gain}$ <p><b>Note 2:</b> When the scaling option is selected, the allowable maximum and minimum shown on the numeric keypad are the scaled version of the specified maximum and minimum.</p> $\text{ScaledMaximum} = \text{Maximum} * \text{Gain} + \text{Offset}$ $\text{ScaledMinimum} = \text{Minimum} * \text{Gain} + \text{Offset}$
Touch Operation Control	<p>You can enable or disable the touch operation of the object by the specified bit or by the current user level. Select and set up this option in the Advanced page.</p>
Timeout	<p>If the keypad for the data entry receives no input for the specified time period, the data entry operation will be cancelled.</p>
Notification	<p>The Object will notify the specified bit of a successful data entry operation. Select and set up this option in the Advanced page.</p>
Operator Confirmation	<p>When a value is entered by the operator, the Confirmation box will display for the operator confirmation. If the operator selects "Yes", the object will write the entered data to the specified variable. If the operator selects "No" or the operator does not respond within the specified time period (Maximum Waiting Time), the data entry operation will be cancelled. Select and set up this option in the Advanced page.</p>
Operation Logging	<p>The entered value and the time of the data entry will be recorded. Select and set up this option in the Advanced page.</p>
Visibility Control	<p>You can show or hide the object by the specified bit or by the current user level. Select and set up this option in the Visibility page.</p>

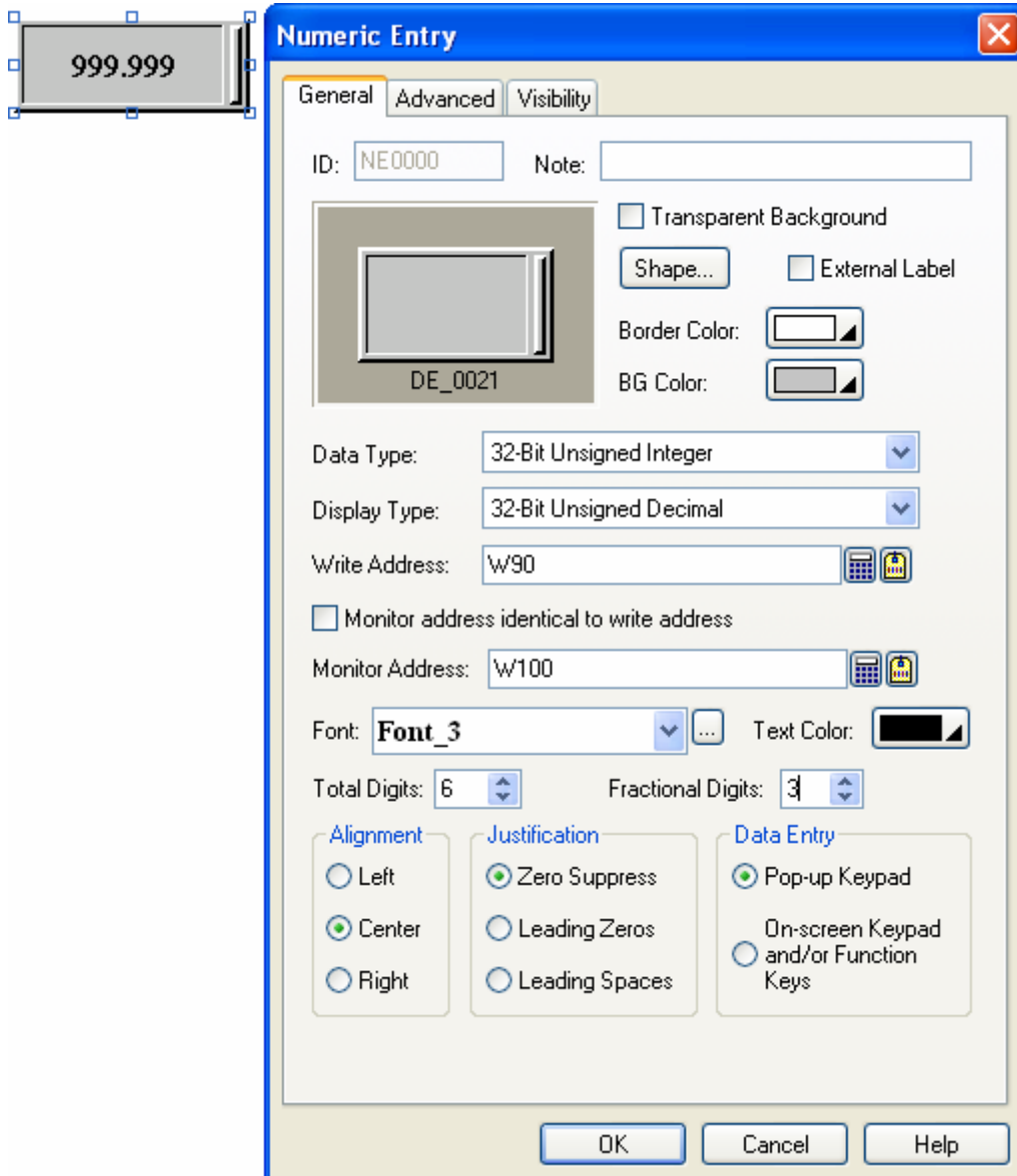
## 7.1.2. Settings

You can complete all the settings of a numeric entry in the Numeric Entry property sheet. This sheet contains the following four pages. Some of the pages appear only when they are needed.






- **General**  
Described in [Section 7.1.3.](#)
- **Advanced**  
Described in [Section 7.1.4.](#)
- **Visibility**  
Described in [Section 4.4.6.](#)
- **External Label**  
Described in [Section 4.3.8.](#)

## 7.1.3. General Settings

This section describes how to define the general settings for a numeric entry. The following is an example of the General page of the Numeric Entry property sheet.



The following table describes each property in the General page.

Property	Description																								
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the numeric entries is NEnnnn.																								
Note	You can type a note for the object.																								
Transparent Background	Select this option if you want the object to have a transparent background.																								
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> .  , Border Color, BG Color.																								
External Label	Check this option if you want the object to have an external label. Set up the external label in the External Label page.																								
Data Type	The data type of the destination variable and the monitored variable. The supported data types include: 16-Bit Unsigned Integer, 32-Bit Unsigned Integer, 16-Bit Signed Integer, 32-Bit Signed Integer, 16-Bit BCD, 32-Bit BCD, 32-Bit Floating Point, 16-Bit Signed BCD (LMB), 32-Bit Signed BCD (LMB), 16-Bit Signed BCD (LMD), and 32-Bit Signed BCD (LMD).																								
Display Type	The display type for the value of the monitored variable. The following table shows the available display types for each data type. <table border="1" data-bbox="300 860 1501 1397"> <thead> <tr> <th>Data Type</th> <th>Available Display Types</th> </tr> </thead> <tbody> <tr> <td>16-Bit Unsigned Integer</td> <td>16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal</td> </tr> <tr> <td>32-Bit Unsigned Integer</td> <td>32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal, Password</td> </tr> <tr> <td>16-Bit Signed Integer</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed Integer</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit BCD</td> <td>16-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit BCD</td> <td>32-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit Floating Point</td> <td>32-Bit Floating Point</td> </tr> <tr> <td>16-Bit Signed BCD (LMB)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMB)</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit Signed BCD (LMD)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMD)</td> <td>32-Bit Signed Decimal</td> </tr> </tbody> </table>	Data Type	Available Display Types	16-Bit Unsigned Integer	16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal	32-Bit Unsigned Integer	32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal, Password	16-Bit Signed Integer	16-Bit Signed Decimal	32-Bit Signed Integer	32-Bit Signed Decimal	16-Bit BCD	16-Bit Unsigned Decimal	32-Bit BCD	32-Bit Unsigned Decimal	32-Bit Floating Point	32-Bit Floating Point	16-Bit Signed BCD (LMB)	16-Bit Signed Decimal	32-Bit Signed BCD (LMB)	32-Bit Signed Decimal	16-Bit Signed BCD (LMD)	16-Bit Signed Decimal	32-Bit Signed BCD (LMD)	32-Bit Signed Decimal
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Write Address	Specifies the destination variable where the entered value will be written to. Click  to enter an address for this field. Click  to select a tag for this field.																								
Monitor Address identical to Write Address	Specifies that the monitored variable is the same as the destination variable. With this item checked, you don't need to specify the monitored variable in the Monitor Address field.																								
Monitor Address	Specifies the monitored variable. Click  to enter an address for this field. Click  to select a tag for this field.																								
Font	The font of the displayed value.																								
Text Color	The color of the displayed value.																								
Total Digits	The number of digits to be displayed. <b>Note:</b> This property applies to the display of the initial value, the allowable minimum, and the allowable maximum on the numeric keypad.																								

Continued







Property	Description																																																												
Fractional Digits	<p>When the Display Type is 32-bit Floating Point, this property specifies the number of fractional digits to be displayed.</p> <p>When the Display Type is not 32-bit Floating Point, this property specifies not only the number of fractional digits to be displayed but also the number of least significant digits to be displayed as the fractional part. With this feature, an integer can be shown and entered as a fixed point number. When the Fractional Digits is nonzero, say N, the entered value will be converted to an integer according to the following formula before being output.</p> $\text{OutputValue} = \text{EnteredValue} * (\text{Nth power of } 10)$ <p><b>Example 1:</b></p> <table border="1"> <thead> <tr> <th>Display Type</th> <th>Total Digits</th> <th>Fractional Digits</th> <th>Justification</th> <th>Monitored Value</th> <th>Displayed Value</th> </tr> </thead> <tbody> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>12.34</td> <td>12.34</td> </tr> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>123.4</td> <td>23.40</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>12345</td> <td>123.45</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>-5</td> <td>-0.05</td> </tr> </tbody> </table> <p><b>Example 2:</b></p> <table border="1"> <thead> <tr> <th>Display Type</th> <th>Total Digits</th> <th>Fractional Digits</th> <th>Entered Value</th> <th>Output Value</th> </tr> </thead> <tbody> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>12.34</td> <td>12.34</td> </tr> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>123.4</td> <td>Error!</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>123.45</td> <td>12345</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>-0.05</td> <td>-5</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>3</td> <td>300</td> </tr> </tbody> </table> <p><b>Note:</b> This property applies to the display of the initial value, the allowable minimum, and the allowable maximum on the numeric keypad.</p>	Display Type	Total Digits	Fractional Digits	Justification	Monitored Value	Displayed Value	32-bit Floating Point	4	2	Zero Suppress	12.34	12.34	32-bit Floating Point	4	2	Zero Suppress	123.4	23.40	16-bit Signed Decimal	5	2	Zero Suppress	12345	123.45	16-bit Signed Decimal	5	2	Zero Suppress	-5	-0.05	Display Type	Total Digits	Fractional Digits	Entered Value	Output Value	32-bit Floating Point	4	2	12.34	12.34	32-bit Floating Point	4	2	123.4	Error!	16-bit Signed Decimal	5	2	123.45	12345	16-bit Signed Decimal	5	2	-0.05	-5	16-bit Signed Decimal	5	2	3	300
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Alignment	The alignment of the displayed value. There are three types of alignment: Left, Center, and Right.																																																												
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Data Entry	<p>Specifies how to enter a value for the numeric entry at runtime. There are two options:</p> <table border="1"> <thead> <tr> <th>Option</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Pop-up Keypad</td> <td>You can bring up the keypad by pressing the numeric entry and enter a value with the keypad.</td> </tr> <tr> <td>On-screen Keypad and/or Function Keys</td> <td>You can move the cursor by using the function buttons with the operation of Select Next Data Entry Object or Select Previous Data Entry Object to select the numeric entry. If there is an on-screen keypad you can enter a value for the numeric entry right away. You can also use the function buttons with the operation of Increase Value By One or Decrease Value By One to change the value of the destination variable.</td> </tr> </tbody> </table> <p><b>Note:</b> When On-screen Keypad and/or Function Keys option is selected, you can only enter a value for the numeric entry with the input focus. To set the input focus on the corresponding object, you need to click the object first.</p>	Option	Description	Pop-up Keypad	You can bring up the keypad by pressing the numeric entry and enter a value with the keypad.	On-screen Keypad and/or Function Keys	You can move the cursor by using the function buttons with the operation of Select Next Data Entry Object or Select Previous Data Entry Object to select the numeric entry. If there is an on-screen keypad you can enter a value for the numeric entry right away. You can also use the function buttons with the operation of Increase Value By One or Decrease Value By One to change the value of the destination variable.																																																						
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### 7.1.4. Advanced Settings for Numeric Entries


This section describes how to define the advanced settings for the numeric entries. The following is an example of the Advanced page of the Numeric Entry property sheet.

The following table describes each property in the Advanced page.

Property		Description
Scaling	Scaling	Check this option if you want the value of the monitored variable to be displayed in a scaled manner. The following is the scaling formula. $\text{DisplayedValue} = \text{MonitoredValue} * \text{Gain} + \text{Offset}$ If this option is selected, the entered value will be scaled by the following formula with the same coefficients ( <i>Gain</i> and <i>Offset</i> ) before it is output. $\text{OutputValue} = (\text{EnteredValue} - \text{Offset}) / \text{Gain}$ <b>Note:</b> The <i>Gain</i> and <i>Offset</i> are 32-bit floating point numbers. They have at most 6 significant digits. The rounding and truncation errors may happen.
	Gain	The <i>Gain</i> of the scaling formulas.
	Offset	The <i>Offset</i> of the scaling formulas.

Property		Description						
Range Check	Range Check	<p>Check this option if you want the numeric entry to verify the entered value according to the specified minimum and maximum. If the entered value is not within the allowable range, the entered value will not be output.</p> <p><b>Note 1:</b> When the scaling option is selected, the output value instead of the entered value is verified.</p> $\text{OutputValue} = (\text{EnteredValue} - \text{Offset}) / \text{Gain}$ <p><b>Note 2:</b> When the scaling option is selected, the allowable maximum and minimum shown on the keypad are the scaled version of the specified maximum and minimum.</p> $\text{ScaledMaximum} = \text{Maximum} * \text{Gain} + \text{Offset}$ $\text{ScaledMinimum} = \text{Minimum} * \text{Gain} + \text{Offset}$						
	Variable Range	Check this option if the minimum and maximum are specified by the designated variables at runtime.						
	Min.	<p>Specifies the minimum when the Variable Range is not selected.</p> <p>When the Variable Range is selected, this property specifies the variable that stores the minimum at runtime. Click  to enter an address. Click  to select a tag.</p>						
	Max.	<p>Specifies the maximum when the Variable Range is not selected.</p> <p>When the Variable Range is selected, this property specifies the variable that stores the maximum at runtime. Click  to enter an address. Click  to select a tag.</p>						
Touch Operation Control	Enabled by Bit	Check this option so the touch operation of the numeric entry will be enabled and disabled by the specified bit.						
	Control Bit	<p>Specifies the bit that enables and disables the touch operation.</p> <p>Click  to enter a bit address. Click  to select a bit tag.</p>						
	Enabling State	Specifies the state (On or Off) that enables the touch operation.						
	Enabled by User Level	Check this item so the touch operation of the numeric entry will be enabled and disabled by the current user level.						
	Lowest Enabling User Level	Specifies the lowest user level that is required to enable the touch operation.						
	Show Disabled Sign	Check this option so the touch operation disabled sign will be shown on the numeric entry when the touch operation is disabled.						
Timeout	Timeout	Check this option so the data entry will be cancelled if the numeric keypad does not receive any input within the specified time.						
	Timeout Time	Specifies the maximum time that the numeric keypad will wait to get a new input. If there is no input within the specified time, the numeric keypad will be closed and the data entry will be cancelled.						
Notification	Notification	Check this option so the numeric entry will notify the specified bit after it finishes outputting the entered value to the destination variable.						
	Signal	<p>Select one of the following signal for the notification:</p> <table border="1"> <thead> <tr> <th>Signal</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td>Set the specified bit to the specified state.</td> </tr> <tr> <td>Pulse</td> <td>Send a positive pulse to the specified bit.</td> </tr> </tbody> </table>	Signal	Description	Level	Set the specified bit to the specified state.	Pulse	Send a positive pulse to the specified bit.
	Signal	Description						
	Level	Set the specified bit to the specified state.						
	Pulse	Send a positive pulse to the specified bit.						
Bit	Specifies the bit that receives the notification.							
State	Specifies the state (On or Off) that is used for the notification.							

Continued

Property		Description
Operator Confirmation	Operator Confirmation	Check this option if you want the operator to confirm what he/she enters for the numeric entry. The Confirmation box will be displayed when a value is entered for the numeric entry. If the operator selects "Yes" in the Confirmation box, the numeric entry will write the entered value to the specified variable. If the operator selects "No" or the operator does not respond within the specified time period (Maximum Waiting Time), the numeric entry will cancel the data entry operation.
	Maximum Waiting Time	Specifies the maximum time that the numeric entry will wait for the operator's confirmation. The data entry will be cancelled if the operator does not respond within this time.
Operation Logging	Operation Logging	Check this option so the following three items will be recorded in the operation log when the numeric entry outputs the entered value. There are three recorded items: 1) The time when the operation is performed 2) The entered value 3) The predefined operation message
	Message	Enter the operation message of the first language here.
		Click this button to bring up the Operation Message dialog box that you can edit the operation message for all the languages.



## 7.2. Numeric Displays

You can use a numeric display to show the value of the specified variable.

### 7.2.1. Operation Options

The following operation options can be added to a numeric display. Select and set up the options in the Numeric Display property sheet.

Options	Description
Scaling	The value of the monitored variable will be scaled by the following formula before it is displayed. $\text{DisplayedValue} = \text{MonitoredValue} * \text{Gain} + \text{Offset}$ Select and set this option in the Advanced page. <b>Note:</b> The <i>Gain</i> and <i>Offset</i> are 32-bit floating point numbers. They have at most 6 significant digits. The rounding and truncation errors may happen.
Range Display	You can specify a low limit and a high limit for the numeric display. The limits can be constants or variables. At runtime, when the value of the monitored variable is below the low limit, the numeric display shows the value with the text color and the BG color set for the low limit. When the value of the monitored variable is over the high limit, the numeric display shows the value with the text color and the BG color set for the high limit.
Visibility Control	You can show and hide the numeric display by the specified bit or the current user level. Select and set this option in the Visibility page.

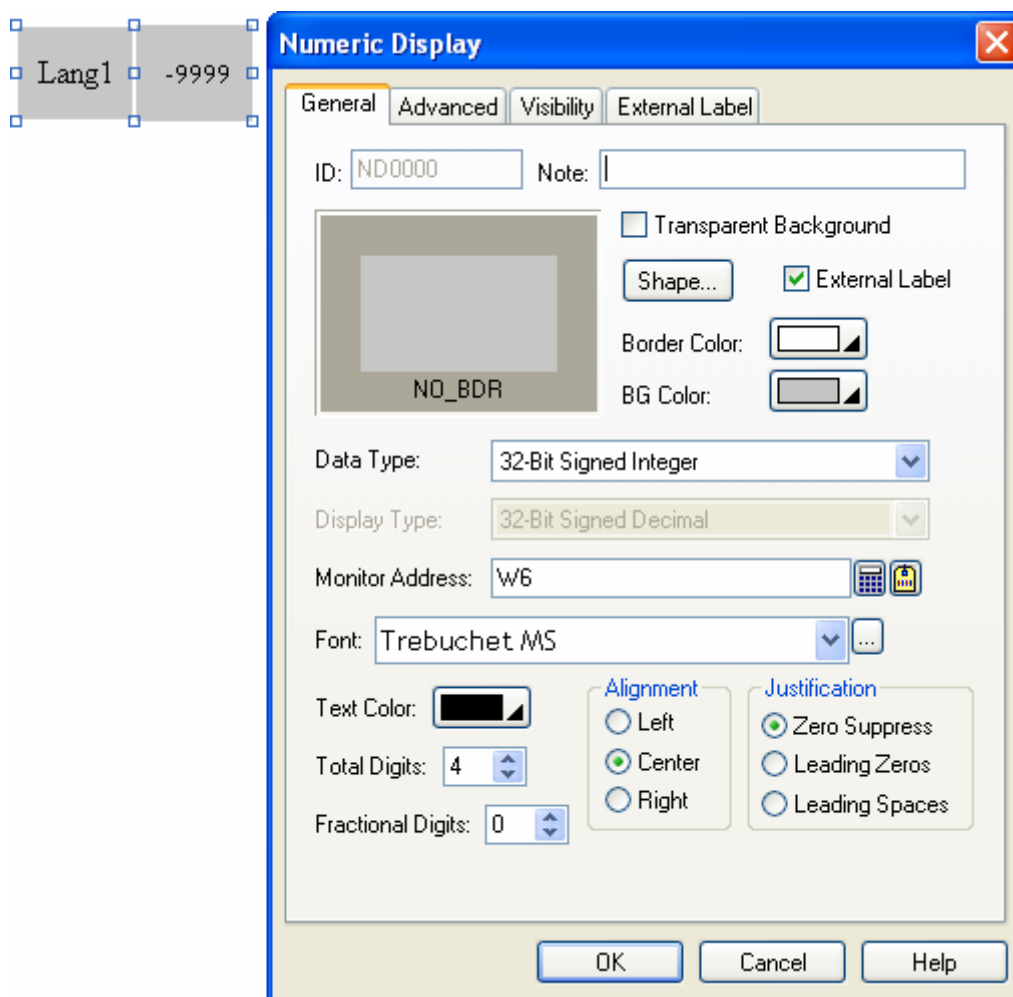
### 7.2.2. Settings

You can complete all the settings of a numeric display in the Numeric Display property sheet. This sheet contains the following four pages. Some of the pages appear only when they are needed.

- **General**  
Described in [Section 7.2.3.](#)
- **Advanced**  
Described in [Section 7.2.4.](#)
- **Visibility**  
Described in [Section 4.4.6.](#)
- **External Label**  
Described in [Section 4.3.8.](#)

### 7.2.3. General Settings



This section describes how to define the general settings for a numeric display. The following is an example of the General page of the Numeric Display property sheet.



The following table describes each property in the General page.

Property	Description
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the numeric displays is NDnnnn.
Note	You can type a note for the object.
Transparent Background	Select this option if you want the object to have a transparent background.
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object.</a> <a href="#">Shape...</a> , Border Color, BG Color
External Label	Check this option if you want the object to have an external label. Set up the external label in the External Label page.
Data Type	The data type of the monitored variable. The supported data types include: 16-Bit Unsigned Integer, 32-Bit Unsigned Integer, 16-Bit Signed Integer, 32-Bit Signed Integer, 16-Bit BCD, 32-Bit BCD, 32-Bit Floating Point, 16-Bit Signed BCD (LMB), 32-Bit Signed BCD (LMB), 16-Bit Signed BCD (LMD), and 32-Bit Signed BCD (LMD).





Continued

Property	Description																														
Display Type	<p>The display type for the value of the monitored variable. The following table shows the available display types for each data type.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Available Display Types</th> </tr> </thead> <tbody> <tr> <td>16-Bit Unsigned Integer</td> <td>16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal</td> </tr> <tr> <td>32-Bit Unsigned Integer</td> <td>32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal</td> </tr> <tr> <td>16-Bit Signed Integer</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed Integer</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit BCD</td> <td>16-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit BCD</td> <td>32-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit Floating Point</td> <td>32-Bit Floating Point</td> </tr> <tr> <td>16-Bit Signed BCD (LMB)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMB)</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit Signed BCD (LMD)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMD)</td> <td>32-Bit Signed Decimal</td> </tr> </tbody> </table>	Data Type	Available Display Types	16-Bit Unsigned Integer	16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal	32-Bit Unsigned Integer	32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal	16-Bit Signed Integer	16-Bit Signed Decimal	32-Bit Signed Integer	32-Bit Signed Decimal	16-Bit BCD	16-Bit Unsigned Decimal	32-Bit BCD	32-Bit Unsigned Decimal	32-Bit Floating Point	32-Bit Floating Point	16-Bit Signed BCD (LMB)	16-Bit Signed Decimal	32-Bit Signed BCD (LMB)	32-Bit Signed Decimal	16-Bit Signed BCD (LMD)	16-Bit Signed Decimal	32-Bit Signed BCD (LMD)	32-Bit Signed Decimal						
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Monitor Address	<p>Specifies the monitored variable.</p> <p>Click  to enter an address for this field. Click  to select a tag for this field.</p>																														
Font	The font of the displayed value.																														
Text Color	The color of the displayed value.																														
Total Digits	The number of digits to be displayed.																														
Fractional Digits	<p>When the Display Type is 32-bit Floating Point, this property specifies the number of fractional digits to be displayed.</p> <p>When the Display Type is not 32-bit Floating Point, this property specifies not only the number of fractional digits to be displayed but also the number of least significant digits to be displayed as the fractional part. With this feature, an integer can be shown as a fixed point number.</p> <p><b>Example:</b></p> <table border="1"> <thead> <tr> <th>Display Type</th> <th>Total Digits</th> <th>Fractional Digits</th> <th>Justification</th> <th>Monitored Value</th> <th>Displayed Value</th> </tr> </thead> <tbody> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>12.34</td> <td>12.34</td> </tr> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>123.4</td> <td>23.40</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>12345</td> <td>123.45</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>-5</td> <td>-0.05</td> </tr> </tbody> </table>	Display Type	Total Digits	Fractional Digits	Justification	Monitored Value	Displayed Value	32-bit Floating Point	4	2	Zero Suppress	12.34	12.34	32-bit Floating Point	4	2	Zero Suppress	123.4	23.40	16-bit Signed Decimal	5	2	Zero Suppress	12345	123.45	16-bit Signed Decimal	5	2	Zero Suppress	-5	-0.05
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## 7.2.4. Advanced Settings

This section describes how to define the advanced settings for a numeric display. The following is an example of the Advanced page of the Numeric Display property sheet.

The following table describes each property in the Advanced page.

Property		Description	
Scaling	<Check Box>	Check this option if you want the value of the monitored variable to be displayed in a scaled manner. The following is the scaling formula. Displayed Value = Monitored Value * <i>Gain</i> + <i>Offset</i> <b>Note:</b> The <i>Gain</i> and <i>Offset</i> are 32-bit floating point numbers. They have at most 6 significant digits. The rounding and truncation may happen.	
	Gain	The <i>Gain</i> of the scaling formula.	
	Offset	The <i>Offset</i> of the scaling formula.	
Range Display	<Check Box>	Check this option if you want the numeric display to display the value with different color when the value is below the specified low limit or over the specified high limit.	
	Variable Range	Check this option if the low limit and high limit are specified by the designated variables at runtime.	
	Low Limit	Specifies the low limit when the Variable Range is not selected. When the Variable Range is selected, this property specifies the variable that stores the low limit at runtime. Click  to enter an address. Click  to select a tag.	
	High Limit	Specifies the high limit when the Variable Range is not selected. When the Variable Range is selected, this property specifies the variable that stores the high limit at runtime. Click  to enter an address. Click  to select a tag.	
	High Color	Text Color	The text color for the high limit.
		BG Color	The shape's BG color for the high limit.
	Low Color	Text Color	The text color for the low limit.
BG Color		The shape's BG color for the low limit.	

## 7.3. Advanced Numeric Displays

### 7.3.1. Advanced Features

An advanced numeric display provides the following advanced features:

- 1) You can specify an arithmetic expression or a macro for the object to calculate the display value.
- 2) You can specify an arithmetic expression or a macro for the object to convert the operator entered value to the output value.
- 3) You can specify up to 10 ranges for the object to display.

### 7.3.2. Operation Options

The following operation options can be added to an advanced numeric display. Select and set the options in the Advanced Numeric Display property sheet.

Options	Description
Range Display	The advanced numeric display can support up to 10 fixed ranges or 3 variable ranges. You can define the text color, the BG color, and the lower bound for each range. At runtime, the advanced numeric display uses the color settings for the range to which the value belongs to display the value.
Range Check	The advanced numeric display will verify the entered value according to the specified maximum and minimum. If the entered value is not within the allowable range, the value will not be output. Select and set this option in the Range page. <b>Note:</b> If the output expression or the output macro is defined, the converted value stored in the variable \$W instead of the entered value is verified.
Touch Operation Control	You can enable and disable the touch operation of the advanced numeric display by the specified bit or the current user level. Select and set this option in the Advanced page.
Timeout	The keypad displayed for the advanced numeric display will be closed and the data entry operation will be cancelled after the keypad receives no input for the specified time period.
Notification	The advanced numeric display will notify the specified bit when it finishes outputting the entered value. Select and set this option in the Advanced page.
Operator Confirmation	The Confirmation box will be displayed when a value is entered for the advanced numeric display. If the operator selects "Yes" in the Confirmation box, the advanced numeric display will write the entered value to the specified variable. If the operator selects "No" or the operator does not respond within the specified time period (Maximum Waiting Time), the advanced numeric display will cancel the data entry operation. Select and set this option in the Advanced page.
Operation Logging	The time, the entered value, and the predefined operation message will be recorded when the advanced numeric display outputs the entered value. Select and set this option in the Advanced page.
Visibility Control	You can show and hide the advanced numeric display by the specified bit or the current user level. Select and set this option in the Visibility page.

### 7.3.3. Settings

You can complete all the settings of an advanced numeric display in the Advanced Numeric Display property sheet. This sheet contains the following seven pages. Some of the pages appear only when they are needed.

- **General**

Described in [Section 7.3.4](#).

- **Range**

Described in [Section 7.3.5](#)

- **Advanced**

Described in [Section 4.4.5](#).

- **Visibility**

Described in [Section 4.4.6](#).

- **External Label**

Described in [Section 4.3.8](#).

- **Display Macro**

Described in [Section 14.2.6](#).

- **Output Macro**

Described in [Section 14.2.6](#).

### 7.3.4. General Settings

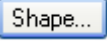




This section describes how to define the general settings for an advanced numeric display. The following is an example of the General page of the Advanced Numeric Display property sheet.

The screenshot shows the 'Advanced Numeric Display' dialog box with the 'General' tab selected. The dialog has a title bar with a close button (X) and a tabbed interface with 'General', 'Range', 'Advanced', 'Visibility', and 'Output Macro' tabs. The 'General' tab contains the following settings:





- ID:** AND0000
- Note:** (empty text box)
- Shape:** A preview window showing a rectangular display with the label 'DE\_0011' below it. To its right are checkboxes for 'Transparent Background' (unchecked) and 'External Label' (unchecked), and a 'Shape...' button.
- Border Color:** (color selection box)
- BG Color:** (color selection box)
- Font:** Tw Cen MT (dropdown menu)
- Text Color:** (color selection box)
- Total Digits:** 4 (spin box)
- Fractional Digits:** 0 (spin box)
- Alignment:** Left (radio), Center (selected radio), Right (radio)
- Justification:** Zero Suppress (selected radio), Leading Zeros (radio), Leading Spaces (radio)
- Data Type:** 16-Bit Unsigned Integer (dropdown)
- Display Type:** 16-Bit Unsigned Decimal (dropdown)
- Display:**
  - Monitor Address: (radio)
  - Expression: \$D =  $(w/80+w/81+w/82+w/83)/4-20$  (selected radio, with keypad and help icons)
  - Macro (\*The value to be displayed should be assigned to \$D) (radio)
- Operator Input:** (checked checkbox)
- Write Address (\$W):** W84 (text box, with keypad and help icons)
- Output:**
  - Direct: \$W = \$K (\$K represents the keypad input) (radio)
  - Expression: (radio)
  - Macro (\*The value to be output should be assigned to \$W) (selected radio)

At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

The following table describes each property in the General page.

Property	Description																								
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the advanced numeric displays is ANDnnnn.																								
Note	You can type a note for the object.																								
Transparent Background	Select this option if you want the object to have a transparent background.																								
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> ,  , Border Color, BG Color																								
External Label	Check this option if you want the object to have an external label. Set up the external label in the External Label page.																								
Data Type	The data type for the variables, arithmetic expressions, macros of the advanced numeric display. The supported data types include: 16-Bit Unsigned Integer, 32-Bit Unsigned Integer, 16-Bit Signed Integer, 32-Bit Signed Integer, 16-Bit BCD, 32-Bit BCD, 32-Bit Floating Point, 16-Bit Signed BCD (LMB), 32-Bit Signed BCD (LMB), 16-Bit Signed BCD (LMD), and 32-Bit Signed BCD (LMD).																								
Display Type	<p>The display type for the advanced numeric display. The following table shows the available display types for each data type.</p> <table border="1"> <thead> <tr> <th>Data Type</th> <th>Available Display Types</th> </tr> </thead> <tbody> <tr> <td>16-Bit Unsigned Integer</td> <td>16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal</td> </tr> <tr> <td>32-Bit Unsigned Integer</td> <td>32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal</td> </tr> <tr> <td>16-Bit Signed Integer</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed Integer</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit BCD</td> <td>16-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit BCD</td> <td>32-Bit Unsigned Decimal</td> </tr> <tr> <td>32-Bit Floating Point</td> <td>32-Bit Floating Point</td> </tr> <tr> <td>16-Bit Signed BCD (LMB)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMB)</td> <td>32-Bit Signed Decimal</td> </tr> <tr> <td>16-Bit Signed BCD (LMD)</td> <td>16-Bit Signed Decimal</td> </tr> <tr> <td>32-Bit Signed BCD (LMD)</td> <td>32-Bit Signed Decimal</td> </tr> </tbody> </table>	Data Type	Available Display Types	16-Bit Unsigned Integer	16-Bit Unsigned Decimal, 16-Bit Hexadecimal, 16-Bit Octal	32-Bit Unsigned Integer	32-Bit Unsigned Decimal, 32-Bit Hexadecimal, 32-Bit Octal	16-Bit Signed Integer	16-Bit Signed Decimal	32-Bit Signed Integer	32-Bit Signed Decimal	16-Bit BCD	16-Bit Unsigned Decimal	32-Bit BCD	32-Bit Unsigned Decimal	32-Bit Floating Point	32-Bit Floating Point	16-Bit Signed BCD (LMB)	16-Bit Signed Decimal	32-Bit Signed BCD (LMB)	32-Bit Signed Decimal	16-Bit Signed BCD (LMD)	16-Bit Signed Decimal	32-Bit Signed BCD (LMD)	32-Bit Signed Decimal
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Display	Monitor Address	<p>Select this option so the advanced numeric display will monitor the variable specified in the Monitor Address field and display its value. When this option is selected, you need to specify the monitored variable.</p> <p>Click  to enter an address for this field. Click  to select a tag for this field.</p>																							
	Expression	<p>Select this option so the advanced numeric display will display the result of the arithmetic expression specified in the Expression field. When this option is selected, you need to specify the arithmetic expression that calculates the value to be displayed.</p> <p>Click  to enter an address for this field. Click  to select a tag for this field.</p>																							
	Macro	Select this option so the advanced numeric display will run the macro defined in the Display Macro page before displaying the value of the internal variable \$D. The macro can decide the value to be displayed by saving the desired value in the internal variable \$D.																							
Operator Input	Select this option so the advanced numeric display will allow the operator to enter values for it.																								

Continued

Property		Description																																																												
Write Address		Specifies the destination variable where the entered value will be written to when the Operator Input is selected. Click  to enter an address for this field. Click  to select a tag for this field.																																																												
Output	Direct	Select this option so the advanced numeric display will write the entered value to the destination variable specified in the Write Address field directly.																																																												
	Expression	Select this option so the advanced numeric display will write the result of the arithmetic expression specified in the Expression field. When this option is selected, you need to specify the arithmetic expression that calculates the value to be output. To use the entered value as an operand in the expression, specify the internal variable \$K for the entered value. Click  to enter an address for this field. Click  to select a tag for this field.																																																												
	Macro	Select this option so the advanced numeric display will run the macro defined in the Output Macro page before writing the value of the internal variable \$W to the destination variable. The macro can decide the value to be output by saving the desired value in the internal variable \$W. To use the entered value in macro commands as a parameter, specify the internal variable \$K for the entered value.																																																												
Font		The font of the displayed value.																																																												
Text Color		The color of the displayed value.																																																												
Total Digits		The number of digits to be displayed. <b>Note:</b> This property applies to the display of the initial value, the allowable minimum, and the allowable maximum on the numeric keypad.																																																												
Fractional Digits		<p>When the Display Type is 32-bit Floating Point, this property specifies the number of fractional digits to be displayed.</p> <p>When the Display Type is not 32-bit Floating Point, this property specifies not only the number of fractional digits to be displayed but also the number of least significant digits to be displayed as the fractional part. With this feature, an integer can be shown and entered as a fixed point number. When the Fractional Digits is nonzero, say N, the entered value will be converted to an integer according to the following formula before being output.</p> <p>Output Value = Entered Value * (Nth power of 10)</p> <p>Example 1:</p> <table border="1"> <thead> <tr> <th>Display Type</th> <th>Total Digits</th> <th>Fractional Digits</th> <th>Justification</th> <th>Monitored Value</th> <th>Displayed Value</th> </tr> </thead> <tbody> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>12.34</td> <td>12.34</td> </tr> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>Zero Suppress</td> <td>123.4</td> <td>23.40</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>12345</td> <td>123.45</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>Zero Suppress</td> <td>-5</td> <td>-0.05</td> </tr> </tbody> </table> <p>Example 2:</p> <table border="1"> <thead> <tr> <th>Display Type</th> <th>Total Digits</th> <th>Fractional Digits</th> <th>Entered Value</th> <th>Output Value</th> </tr> </thead> <tbody> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>12.34</td> <td>12.34</td> </tr> <tr> <td>32-bit Floating Point</td> <td>4</td> <td>2</td> <td>123.4</td> <td>Error!</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>123.45</td> <td>12345</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>-0.05</td> <td>-5</td> </tr> <tr> <td>16-bit Signed Decimal</td> <td>5</td> <td>2</td> <td>3</td> <td>300</td> </tr> </tbody> </table> <p>Note: This property applies to the display of the initial value, the allowable minimum, and the allowable maximum on the numeric keypad.</p>	Display Type	Total Digits	Fractional Digits	Justification	Monitored Value	Displayed Value	32-bit Floating Point	4	2	Zero Suppress	12.34	12.34	32-bit Floating Point	4	2	Zero Suppress	123.4	23.40	16-bit Signed Decimal	5	2	Zero Suppress	12345	123.45	16-bit Signed Decimal	5	2	Zero Suppress	-5	-0.05	Display Type	Total Digits	Fractional Digits	Entered Value	Output Value	32-bit Floating Point	4	2	12.34	12.34	32-bit Floating Point	4	2	123.4	Error!	16-bit Signed Decimal	5	2	123.45	12345	16-bit Signed Decimal	5	2	-0.05	-5	16-bit Signed Decimal	5	2	3	300
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Continued



Property	Description	
Alignment	The alignment of the displayed value. There are three types of alignment: Left, Center, and Right.	
Justification	The justification of the displayed value. There are three types of justification:	
	<b>Option</b>	<b>Description</b>
	Zero Suppress	The leading digits will not display when they are 0.
	Leading Zeros	All digits will display.
Leading Spaces	The leading digits will display as blank character when they are 0.	

### 7.3.5. Range Settings

This section describes how to define the range settings for an advanced numeric display. The following is an example of the Range page of the Advanced Numeric Display property sheet.









The screenshot shows the 'Range' tab of the Advanced Numeric Display property sheet. It is divided into two main sections: 'Range Display' and 'Range Check'.

**Range Display:** This section is checked. It includes a checkbox for 'Variable Bounds (3 ranges)' which is unchecked. Below it, 'Number of Ranges' is set to 7. A table lists 7 ranges with their respective lower bounds, text colors, background colors, and blink settings.

Range No.	Lower Bound	Text Color	BG Color	Blink
1 (Highest)	9000	Black	Light Gray	<input checked="" type="checkbox"/>
2	8000	Black	Light Gray	<input type="checkbox"/>
3	7000	Black	Light Gray	<input type="checkbox"/>
4	6000	Black	Light Gray	<input type="checkbox"/>
5	5000	Black	Light Gray	<input type="checkbox"/>
6	4000	Black	Light Gray	<input type="checkbox"/>
7 (Lowest)		Black	Light Gray	<input checked="" type="checkbox"/>

**Range Check:** This section is checked. It includes a checkbox for 'Variable Range' which is checked. Below it, 'Min.' is set to W64 and 'Max.' is set to W65. Both fields have calculator and help icons.

The following table describes each property in the Range page.

Property		Description	
Range Display	Range Display	Check this option if you want the advanced numeric display to support the range display. The advanced numeric display can support up to 10 fixed ranges or 3 variable ranges. You can define the text color, the BG color, and the lower bound for each range. At runtime, the monitored value will be displayed with the color setting for the range that the monitored value belongs.	
	Variable Bound (3 ranges)	Check this option so the lower bounds of range 1 and range 2 will be determined at runtime by the variables specified in the Lower Bound fields for Range 1 and Range 2. The advanced numeric display supports 3 ranges when the Variable Bound is selected. When the Variable Bound is not selected, the advanced numeric display can support up to 10 ranges. You need to specify the lower bounds for every range except the lowest range.	
	Number of Ranges	The number of ranges that the advanced numeric display supports.	
	Range 1 (Highest)	Lower Bound	Specifies the lower bound of range 1 when the Variable Bound is not selected. When the Variable Bound is selected, this property specifies the variable whose value will be the lower bound of range 1 at runtime. Click  to enter an address for this field. Click  to select a tag for this field.
		Text Color	The text color for range 1.
		BG Color	The shape's BG color for range 1.
		Blink	Check the item when you want the display blinks for range 1.
	Range 2	Lower Bound	Specifies the lower bound of range 2 when the Variable Bound is not selected. When the Variable Bound is selected, this property specifies the variable whose value will be the lower bound of range 2 at runtime. Click  to enter an address for this field. Click  to select a tag for this field.
		Text Color	The text color for range 2.
		BG Color	The shape's BG color for range 2.
		Blink	Check the item when you want the display blinks for range 2.
	Range 3 to Range 10	Lower Bound	Specifies the lower bound of the corresponding range when the range is not the lowest range.
		Text Color	The text color for the corresponding range.
BG Color		The shape's BG color for the corresponding range.	
Blink		Check the item when you want the display blinks for the corresponding range	
Range Check	Range Check	Check this option if you want the advanced numeric display to verify the entered value according to the specified minimum and maximum. If the entered value is not within the allowable range, the entered value will not be output. <b>Note:</b> If the output expression or the output macro is defined, the converted value stored in the variable \$W instead of the entered value is verified.	
	Variable Range	Check this option so the minimum and maximum will be determined at runtime by the variables specified in the Minimum and Maximum fields.	
	Min.	Specifies the minimum when the Variable Range is not selected. When the Variable Range is selected, this property specifies the variable whose value is the minimum. Click  to enter an address for this field. Click  to select a tag for this field.	
	Max.	Specifies the maximum when the Variable Range is not selected. When the Variable Range is selected, this property specifies the variable whose value is the maximum. Click  to enter an address for this field. Click  to select a tag for this field.	

## 7.4. Character Entries

You can enter a string for a variable using a character entry. If the target panel is a PC, you can also use this object to enter a Unicode string.

### 7.4.1. Operation Options

The following operation options can be added to a character entry. Select and set up the options in the Character Entry property sheet.

Option	Description
Touch Operation Control	You can enable or disable the touch operation of the object by the specified bit or by the current user level. Select and set up this option in the Advanced page.
Timeout	If the keypad for the data entry receives no input for the specified time period, the data entry operation will be cancelled.
Notification	The Object will notify the specified bit of a successful data entry operation. Select and set up this option in the Advanced page.
Operator Confirmation	When a character string is entered by the operator, the Confirmation box will display for the operator confirmation. If the operator selects "Yes", the object will write the entered data to the specified variable. If the operator selects "No" or the operator does not respond within the specified time period (Maximum Waiting Time), the data entry operation will be cancelled. Select and set up this option in the Advanced page.
Operation Logging	The entered character string and the time of the data entry will be recorded. Select and set up this option in the Advanced page.
Visibility Control	You can show or hide the object by the specified bit or by the current user level. Select and set up this option in the Visibility page.

### 7.4.2. Settings

You can complete all the settings of a character entry in the Character Entry property sheet. This sheet contains the following four pages. Some of the pages appear only when they are needed.

- **General**

Described in [Section 7.4.3.](#)

- **Advanced**

Described in [Section 7.4.4.](#)

- **Visibility**

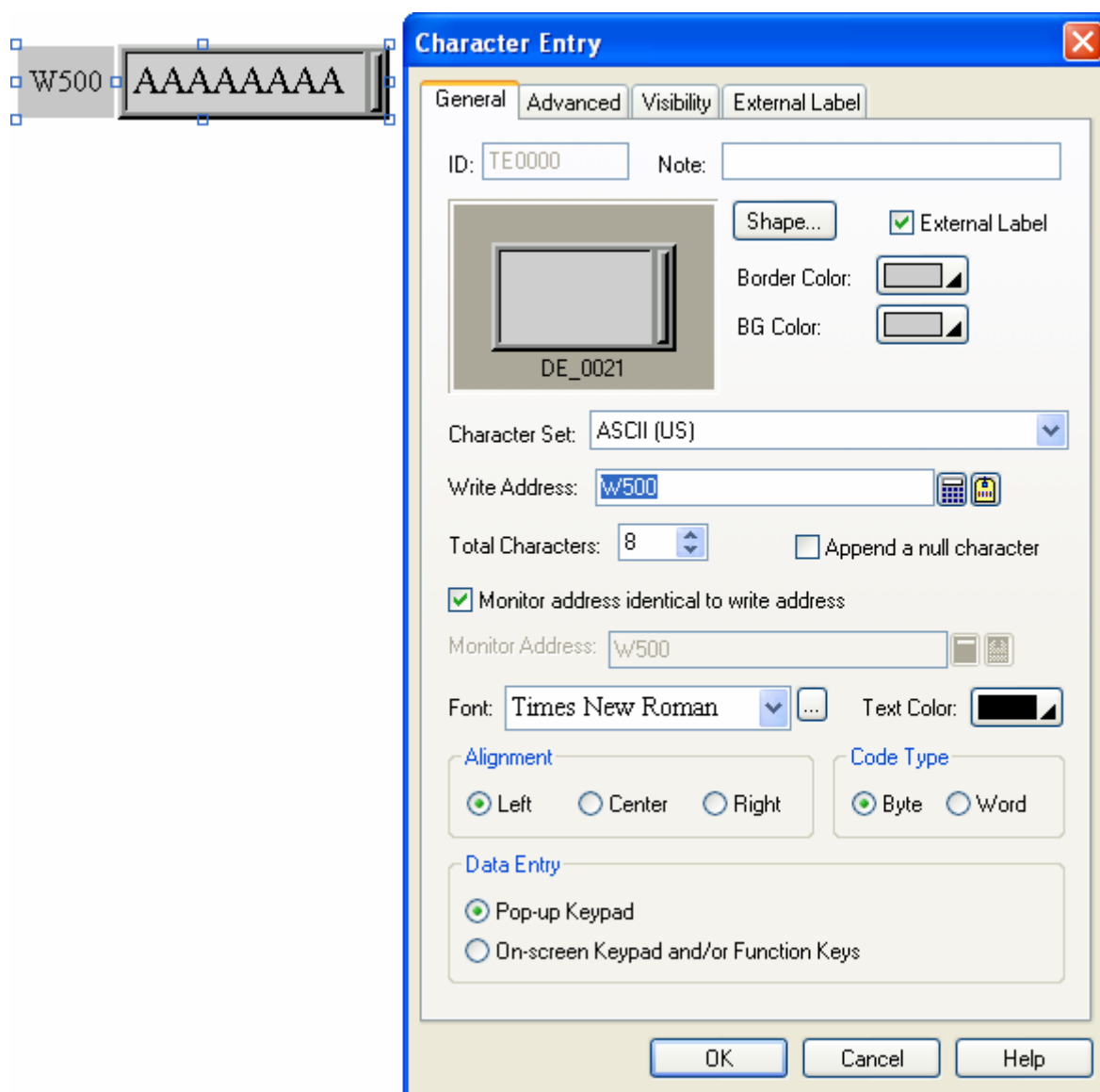
Described in [Section 4.4.6.](#)

- **External Label**

Described in [Section 4.3.8.](#)

### 7.4.3. General Settings





This section describes how to define the general settings for the character entries. The following is an example of the General page of the Character Entry property sheet.



The following table describes each property in the General page.

Property	Description
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the Character entries is TEnnnn.
Note	You can type a note for the object.
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> . <a href="#">Shape...</a> , Border Color, BG Color
External Label	Check this option if you want the object to have an external label. Set up the external label in the External Label page.

Continued

Property	Description								
Character Set	<p>Select one of the following three character sets to encode characters into a stream of code units</p> <table border="1"> <thead> <tr> <th>Character Set</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>ASCII (US)</td> <td>Defines 128 characters. And uses 8 or 16 bits per character.</td> </tr> <tr> <td>ISO-8859-1 (Western European)</td> <td>Covers mostly Western European languages. And uses 8 or 16 bits per character.</td> </tr> <tr> <td>Unicode</td> <td>Available only when the target panel is a PC. Each character occupies one word and the code is Unicode.</td> </tr> </tbody> </table>	Character Set	Description	ASCII (US)	Defines 128 characters. And uses 8 or 16 bits per character.	ISO-8859-1 (Western European)	Covers mostly Western European languages. And uses 8 or 16 bits per character.	Unicode	Available only when the target panel is a PC. Each character occupies one word and the code is Unicode.
Character Set	Description								
ASCII (US)	Defines 128 characters. And uses 8 or 16 bits per character.								
ISO-8859-1 (Western European)	Covers mostly Western European languages. And uses 8 or 16 bits per character.								
Unicode	Available only when the target panel is a PC. Each character occupies one word and the code is Unicode.								
Write Address	<p>Specifies the destination variable where the entered character string will be written to.</p> <p>Click  to enter an address for this field. Click  to select a tag for this field.</p>								
Total Characters	Specifies the number of characters that the Character entry can display and the destination variable can receive.								
Append a null character	Check this option so the Character entry will always append a null character to the entered character string before outputting it.								
Monitor Address identical to Write Address	Specifies that the monitored variable is the same as the destination variable. With this item checked, you don't need to specify the monitored variable in the Monitor Address field.								
Monitor Address	<p>Specifies the monitored variable.</p> <p>Click  to enter an address for this field. Click  to select a tag for this field.</p>								
Font	The font of the displayed string.								
Text Color	The color of the displayed string.								
Alignment	The alignment of the displayed value. There are three types of alignment: Left, Center, and Right.								
Code Type	<p>Select one of the following two code types.</p> <table border="1"> <thead> <tr> <th>Type</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Byte</td> <td>Each character occupies one byte.</td> </tr> <tr> <td>Word</td> <td>Each character occupies one word.</td> </tr> </tbody> </table> <p>Available only when the character set is ASCII (US) or ISO-8859-1 (Western European).</p>	Type	Description	Byte	Each character occupies one byte.	Word	Each character occupies one word.		
Type	Description								
Byte	Each character occupies one byte.								
Word	Each character occupies one word.								
Data Entry	<p>Specifies how to enter a character string for the Character entry at runtime. There are two options:</p> <table border="1"> <thead> <tr> <th>Option</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Pop-up Keypad</td> <td>You can bring up the keypad by pressing the Character entry and enter a character string with the keypad.</td> </tr> <tr> <td>On-screen Keypad and/or Function Keys</td> <td>You can move the cursor by using the function buttons with the operation of Select Next Data Entry Object or Select Previous Data Entry Object to select the Character entry. If there is an on-screen keypad you can enter a character string for the Character entry with that keypad.</td> </tr> </tbody> </table> <p><b>Note:</b> When On-screen Keypad and/or Function Keys option is selected, you can only enter a character string for the Character entry with the input focus. To set the input focus on the corresponding object, you need to click the object first.</p>	Option	Description	Pop-up Keypad	You can bring up the keypad by pressing the Character entry and enter a character string with the keypad.	On-screen Keypad and/or Function Keys	You can move the cursor by using the function buttons with the operation of Select Next Data Entry Object or Select Previous Data Entry Object to select the Character entry. If there is an on-screen keypad you can enter a character string for the Character entry with that keypad.		
Option	Description								
Pop-up Keypad	You can bring up the keypad by pressing the Character entry and enter a character string with the keypad.								
On-screen Keypad and/or Function Keys	You can move the cursor by using the function buttons with the operation of Select Next Data Entry Object or Select Previous Data Entry Object to select the Character entry. If there is an on-screen keypad you can enter a character string for the Character entry with that keypad.								


## 7.4.4. Advanced Settings

This section describes how to define the advanced settings for the character entries. The following is an example of the Advanced page.

The following table describes each property in the Advanced page.

Property		Description
Touch Operation Control	Enabled by Bit	Check this option so the touch operation of the Character entry will be enabled and disabled by the specified bit.
	Control Bit	Specifies the bit that enables and disables the touch operation. Click  to enter a bit address. Click  to select a bit tag.
	Enabling State	Specifies the state (On or Off) that enables the touch operation.
	Enabled by User Level	Check this item so the touch operation of the Character entry will be enabled and disabled by the current user level.
	Lowest Enabling User Level	Specifies the lowest user level that is required to enable the touch operation.
	Show Disabled Sign	Check this option so the touch operation disabled sign will be shown on the Character entry when the touch operation is disabled.
Timeout	Timeout	Check this option so the data entry will be cancelled if the numeric keypad does not receive any input within the specified time.
	Timeout Time	Specifies the maximum time that the numeric keypad will wait to get a new input. If there is no input within the specified time, the Character keypad will be closed and the data entry will be cancelled.

Continued

Property		Description						
Notification	Notification	Check this option so the Character entry will notify the specified bit after it finishes outputting the entered value to the destination variable.						
	Signal	Select one of the following signal for the notification: <table border="1" data-bbox="501 349 1445 479"> <thead> <tr> <th>Signal</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>Level</td> <td>Set the specified bit to the specified state.</td> </tr> <tr> <td>Pulse</td> <td>Send a positive pulse to the specified bit.</td> </tr> </tbody> </table>	Signal	Description	Level	Set the specified bit to the specified state.	Pulse	Send a positive pulse to the specified bit.
	Signal	Description						
	Level	Set the specified bit to the specified state.						
	Pulse	Send a positive pulse to the specified bit.						
Bit	Specifies the bit that receives the notification.							
State	Specifies the state (On or Off) that is used for the notification.							
Operator Confirmation	Operator Confirmation	Check this option if you want the operator to confirm what he/she enters for the numeric entry. The Confirmation box will be displayed when a value is entered for the Character entry. If the operator selects "Yes" in the Confirmation box, the numeric entry will write the entered value to the specified variable. If the operator selects "No" or the operator does not respond within the specified time period (Maximum Waiting Time), the Character entry will cancel the data entry operation.						
	Maximum Waiting Time	Specifies the maximum time that the Character entry will wait for the operator's confirmation. The data entry will be cancelled if the operator does not respond within this time.						
Operation Logging	Operation Logging	Check this option so the following three items will be recorded in the operation log when the Character entry outputs the entered value. There are three recorded items: 1) The time when the operation is performed 2) The entered Character 3) The predefined operation message						
	Message	Enter the operation message of the first language here.						
		Click this button to bring up the Operation Message dialog box that you can edit the operation message for all the languages.						

## 7.5. Character Displays

You can use a character display to display the string stored in a variable. This object can display Unicode string if the target panel is a PC.

**Note:** The difference between a character display and a text object is:

A character display is used to either display text, to request text, or to do both. The text of the Character display is not allowed to be set at design time but can easily be done at run time. You can specify the text by changing its defined variable.

A text object can be used to create a label at design time which is a short text that accompanies other control to indicate what it is used for. It can not be changed at run time.

### 7.5.1. Operation Options

The following operation option can be added to a character display. Select and set up the option in the Character Display property sheet.

Options	Description
Visibility Control	You can show or hide the Character display by the specified bit or by the current user level. Select and set up this option in the Visibility page.

### 7.5.2. Settings

You can complete all the settings of a character display in the Character Display property sheet. This sheet contains the following three pages. Some of the pages appear only when they are needed.

- **General**

Described in [Section 7.5.3.](#)

- **Visibility**

Described in [Section 4.4.6.](#)

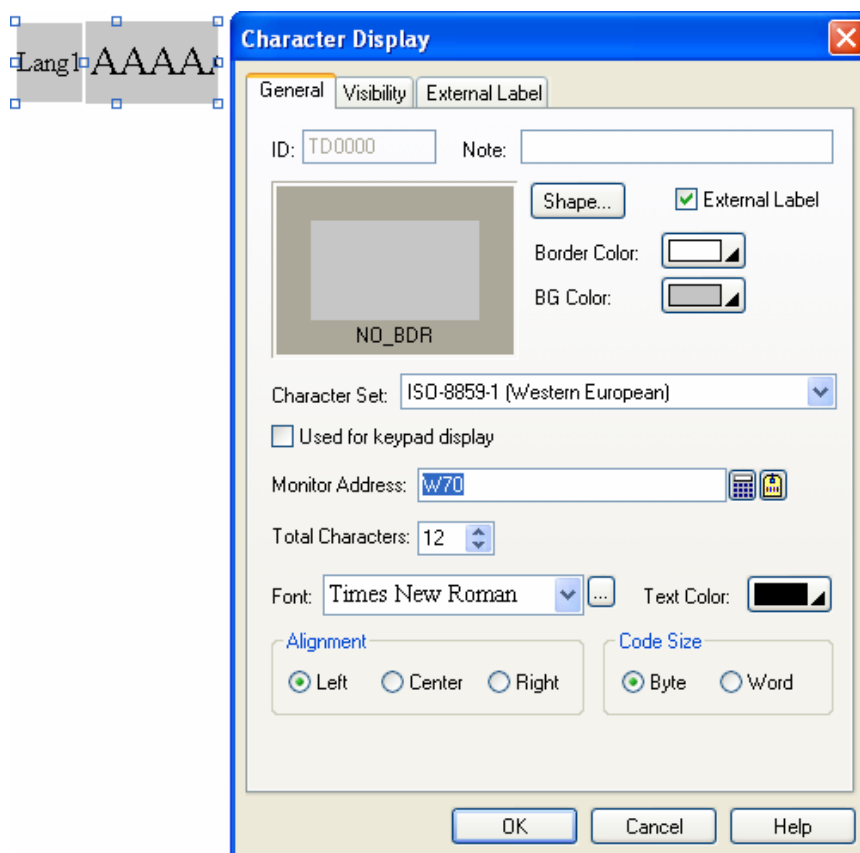
- **External Label**

Described in [Section 4.3.8.](#)

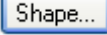




### 7.5.3. General Settings

This section describes how to define the general settings for the character displays. The following is an example of the General page of the Character Display property sheet.

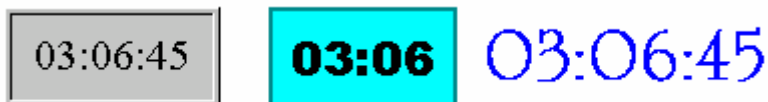


The following table describes each property in the General page.

Property	Description
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the Character displays is TDnnnn.
Note	You can type a note for the object.
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> .  , Border Color, BG Color
External Label	Check this option if you want the object to have an external label. Set up the external label in the External Label page.
Character Set	The types of character code of the string in the monitored variable. You can select ASCII(US) code or ISO-8859-1(Western European). If the target panel is a PC, the Unicode is also an option.
Used for keypad display	Check this option if the character display is used to display the input for a custom keypad.
Monitor Address	Specifies the monitored variable. Click  to enter an address for this field. Click  to select a tag for this field.
Total Characters	Specifies the number of characters that the Character display can display.
Font	The font of the displayed string.
Text Color	The color of the displayed string.
Alignment	The alignment of the displayed value. There are three types of alignment: Left, Center, and Right.
Code Size	The size of each character. You can select Byte or Word.

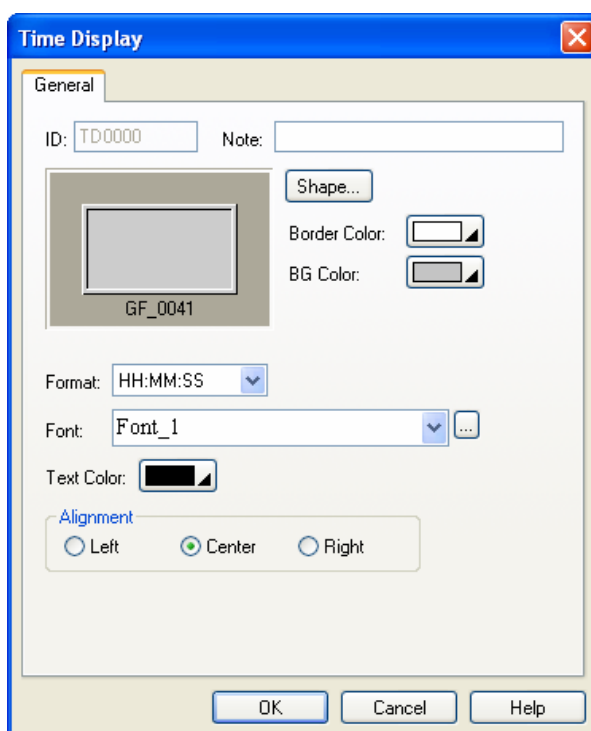
## 7.6. Time Displays

You can use a time display to show the time of the panel.



### 7.6.1. Settings

You can complete all the settings of a time display in the Time Display property sheet. The following is an example of the sheet.



The following table describes each property in the General page.

Property	Description						
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the time displays is TDnnnn.						
Note	You can type a note for the object.						
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> . Shape..., Border Color, BG Color						
Format	The format of how the time is displayed. There are two kinds of format available. <table border="1"> <thead> <tr> <th>Format</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>HH:MM</td> <td>HH: 00~23 (hour); MM: 00~59 (minute)</td> </tr> <tr> <td>HH:MM:SS</td> <td>HH: 00~23 (hour); MM: 00~59 (minute); SS: 00~59 (second)</td> </tr> </tbody> </table>	Format	Description	HH:MM	HH: 00~23 (hour); MM: 00~59 (minute)	HH:MM:SS	HH: 00~23 (hour); MM: 00~59 (minute); SS: 00~59 (second)
Format	Description						
HH:MM	HH: 00~23 (hour); MM: 00~59 (minute)						
HH:MM:SS	HH: 00~23 (hour); MM: 00~59 (minute); SS: 00~59 (second)						
Font	The font of the text.						
Text Color	The color of the text.						
Alignment	The alignment of the text in the object. There are three kinds of alignment available: Left, Center, and Right.						

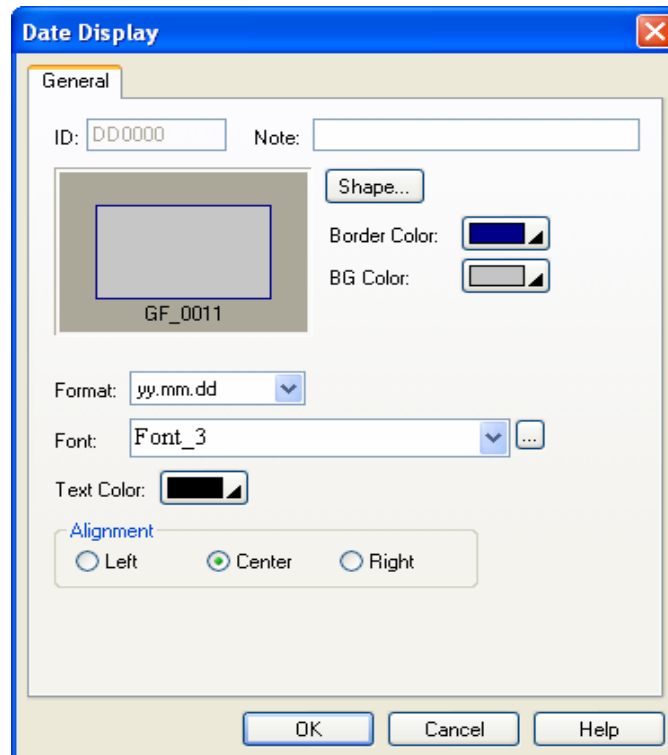
## 7.7. Date Displays

You can use a date display to show the date of the panel.



### 7.7.1. Settings

You can complete all the settings of a date display in the Date Display property sheet. The following is an example of the sheet.



The following table describes each property in the General page.

Property	Description
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the date displays is DDnnnn.
Note	You can type a note for the object.
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object</a> . <a href="#">Shape...</a> , Border Color, BG Color
Format	The format of how the date is displayed. There are 12 kinds of format available: dd/mm/yy, mm/dd/yy, yy/mm/dd, dd.mm.yy, mm.dd.yy, yy.mm.dd, dd-mm-yy, mm-dd-yy, yy-mm-dd, dd-MMM-yy, MMM-dd-yy, and yy-MMM-dd. To change the date display format, choose one from the drop-down table. <b>Note:</b> dd: 01~31 (day); mm: 01~12 (month); yy: 00~99 (year); MMM: JAN~DEC (month)
Font	The font of the text.
Text Color	The color of the text.
Alignment	The alignment of the text in the object. There are three kinds of alignment available: Left, Center, and Right.

## 7.8. Day-of-week Displays

You can use a day-of-week display to show the day-of-week of the panel.



### 7.8.1. Settings

You can complete all the settings of a day-of-week display in the Day-of-week Display property sheet. This sheet contains the following two pages.

- **General**

Described in [Section 7.8.2.](#)

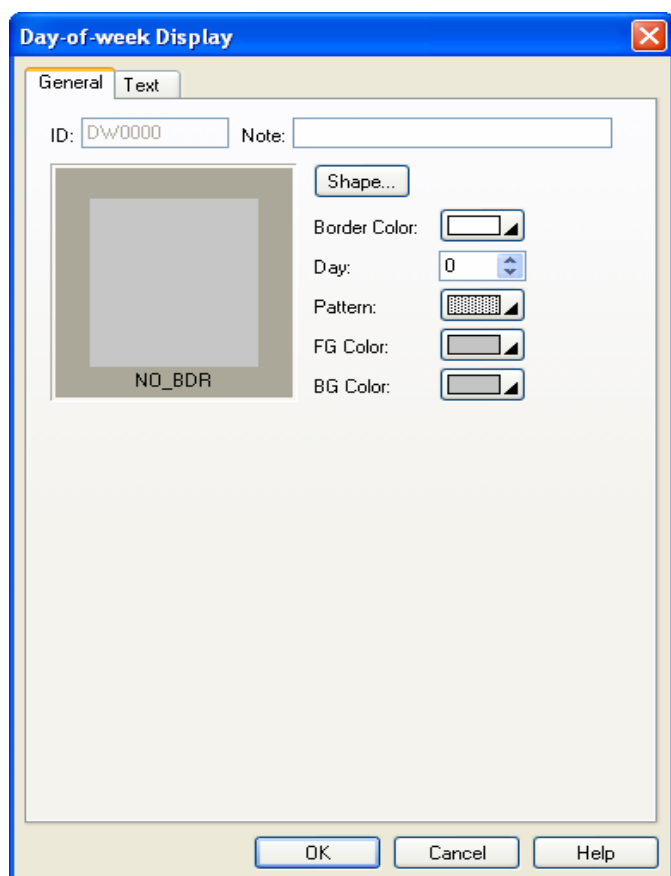
- **Text**

Described in [Section 4.3.6.](#)

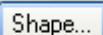
**Note:** When using the Text page to specify the text for each day, note that state 0 corresponds to Sunday, state 1 corresponds to Monday, and so on.

### 7.8.2. General Settings

This section describes how to define the general settings for a day-of-week display. The following is an example of the General page of the Day-of-week property sheet.



The following table describes each property in the General page.

Property	Description
ID	The object's identifier. It is generated when the object is created. The identifier is unique within the screen where the object is on. The format of the ID's for the day-of-week displays is DWnnnn.
Note	You can type a note for the object.
Shape settings	For details about the following properties, see <a href="#">Section 4.3.4 Setting up the Shape of an Object.</a>  , Border Color, Pattern, FG Color, BG Color
Day	Select a day from 0 to 6 so you can view and set the Pattern, FG Color, and BG Color for that day. Day 0 corresponds to Sunday; day 1 corresponds to Monday, and so on.