Band4	Text
BackColor	High Level
ForeColor	Visible
Blink	
🔲 Blink	BlinkColor
Image	
BitmapFile	ImageLayout
	None
Transparent	
Transparent	TransparentColor
Flip	Rotate
None	0 💌
Value	
81	

Band4 range: Band 4 value to Band5 value-1 i.e., 81 to 90

Band5 BackColor	Text High High Level				
ForeColor	Visible				
Blink Blink	BlinkColor				
Image BitmanFile	Imagel autout				
	Nane				
Transparent	TransparentColor				
Flip	Rotate				
None	0				
Value					
91					

Band5 range: More than or equal to value defined at band 5 (In this case number of bands=5) i.e., greater than 91

5.3.17.19 Check Box

Check box (or tick box) is a graphical user interface widget that permits user to make multiple selections from a number of options in run time. Generally it is linked

with Digital type tag Flag/Bit memory in PLC for using them in ladder programming to receive action from operator.



Every check box is linked with single *Digital* tag from properties.

In above white box, normally, White space means Not selected, False, Tag Value = 0 Tick mark means, True, Tag value = 1

A caption describing the meaning of the check box is normally shown adjacent to the check box. Inverting the state of a check box is done by touching with a finger or clicking the mouse on the box, or the caption.



ieneral	Common	Events	
App	earance		Tana
		BackColor	P101
		and a state of the	
		ForeColor	Checked
Te	xtFont Name	ForeColor WriteDesignTimeVal	Checked ue Size
Te	vtFont Name Taho	ForeColor WriteDesignTimeVal ma	Checked ue Size 12
Te	▼ xtFont Name Taho Style	ForeColor WriteDesignTimeVal ma	Checked ue Size 12

Properties

Write design time value: If selected, it over writes the default value defined at tag data base.

Checked: Default setting, available options True/False

For example: Tag1 is linked with Checkbox 1. If Checked = False, that means Tag1=0, if Checked = true, then Tag1 = 1.

Text: It is Text appears near Check box as caption. Example: Text = P101

Events

Changed: Define action using function editor. When operator presses on check box in Run time, the actions defined here will be executed.

Example: There are three pumps by name P101, P102 and P103 and operator may wish to select pump P101 for start up. Then, use check box, write a meaningful caption via property **%**EXT+to appear at right side of check box, and link each of above check box with appropriate Tags say P101, P102 and P103.

Then, when P101 is selected by operator in run time, P101 Tag value will become 1.



If checked = false is selected in design time, then, normally, Tag value = 0. If operator presses on check box in Run time, then symbol \checkmark appears and Tag value becomes 1.

If checked = True is selected in design time, then, normally, Tag value = 1 and it appears \checkmark in Run time. If operator presses on check box in design time, then symbol \checkmark disappears and Tag value becomes 0.

If you are unable to select the required selection using check box in Run time, please perform touch screen calibration once.

If Check box is linked with Analog type Tag, then, it is possible to select individual bit.

ieneral	Common	Events	
Appe	arance		
	-	BackColor	Text
	-	ForeColor	Ц Спескеа
		WriteDesignTimeValue	
Tex	tFont Namo		Sizo
	Tahor	na 🗸	12
	Style		
	Bold	*	
T	TagBindir	ng	TagBitNo
	Tag2	M	
			0
			2
			3
			4
			6
			7

5.3.17.20 Combo box



A combo box is a commonly-used graphical user interface widget. It is a combination of a drop-down list or list box and a single-line textbox, allowing the user to choose from the list of existing options in Run time. Generally it is linked with Analog tag. Based on selection, value of tag will be changed and it can be used in Logic at PLC.

It saves space in Recorder screen by allowing operator to select the option only when it is required by touching at the down arrow at right side of Combo box.

Every Combo box is linked with single *Analog* tag from properties.

heral	Items Common Events	
Арр	earance BackColor ButtonWidth 20	ForeColor
Te	extFont	
	Taboma	SIZE
	Style	12
	Bold	

General	Items	Common	Events
Option A			
Option B			
Option C	4 1		
Option D	t i		
Option E			
Option F			
Option G	1		

Note: Do not keep any empty space between different text entries, other wise, unpredictable results may appear

Property grid

Ξ	Appearance		1.	
	BackColor	White		*
	ButtonWidth	20		Option A
	ForeColor	ControlText		Option B
Ŧ	TextFont	Tahoma,12,Bold		Option C
	Behavior	and the second	Same and	Ontion D
	Visible	True	Write List of	Option D
	Data		-Ontione in	Option E
	Items	(Collection) /	Design time	Option F
	TagBinding	Tag10	Design nine	Option G

Ξ	Design	Sec. Sec.				
	(Name)	ComboBox1				
	Locked	False				
	SecurityLevel	0				
Θ	Events					
	Changed.					
Ξ	Layout					
	Dock	None				
Ð	Location	128, 96				
Ð	Size	224, 24				

Properties

Button Width: Define width of Button. It modifies width of down arrow at right side of combo button.

Items: Define all the available options in design time.

For example: There are 7 options available to select a process.

Tag1, Analog type of Tag is linked to Combo box1

```
Now, If Option A is selected, then in Run time, Tag1 value = 0
If Option B is selected, then Tag1 value = 1
\tilde{0} ..
\tilde{0} ..
If Option G is selected, then Tag1 value = 6
```

Events

Changed: Define action using function editor. When operator presses on combo box in Run time, the actions defined here will be executed.

To increase up/down arrow size on combo box, then, increase size of text font.

5.3.17.21 List box



A list box is a Graphical User Interface widget that allows the user to select single item from a list of available items. The available options are entered during Design time and they are available for selection at Run Time. On selection, it writes value to a Tag based on the order number.

Every List Box should be linked with *Analog* Tag.

GUI Wizard/dialog

General	Items Common Events	
Арре	arance	
	BackColor	ForeColor
	ScrollBarWidth	
	20	
Text	tFont	
	Name	Size
	Tahoma 🖌	12
	Style	
	Bold	
	Bold	

Conoral	Items	Common	Evonto
General	Tomo	Common	Events
Select A			
Select B			
Select C			
Select D			
Select E			
Select F			
Coloct C			

Note: Do not keep any empty space between different text entries, other wise, unpredictable results may appear

Property Grid

	Appearance		ea				
	BackColor	White			E	Design	
	ForeColor	ControlText	ŧ.			INamel	ListBox1
	ScrollBarWidth	20	10			Locked	False
Ð	TextFont	Tahoma,12,8c	bld			SecurityLevel	0
	Behavior	-		Frank in the	E	Events	
18	Visible	True		Enter List of		Changed	
	Data			Options in	Ð	Layout	
	Items	[Collection]	-	Design time		Dock	Noné
R	TagBinding	Tag10		Select Analog	Đ	Location	176, 128
				Tag	Ŧ	Size	160, 112

Properties

Scroll Bar Width: Define width of scroll bar appears on Right side of List box.

Items: Define all the available options in design time.

For example: There are 6 options available to select a process.

Tag1, Analog type of Tag is linked to List box1

Now, If Select A is selected, then Tag1 value = 0 If Select B is selected, then Tag1 value = 1 $\tilde{0}$.. $\tilde{0}$.. If Option G is selected, then Tag1 value = 5

Events

Changed: Define action using function editor. When operator presses on list box item in Run time, the actions defined here will be executed.

5.3.17.22 Group Panel

It is used to group objects in a screen.

Procedure

Click on Group Panel+at Basic Objects

On Screen, just draw a rectangle with mouse over the objects for which group function is required. It will show as follows



Now, double click on Group Panel object

GroupPa	nel1's Properties		×
General	Common		
App	earance BackColor	GroupControls	

Select Group Controls+check box and click GK+

Now, you will be able to move group panel to another location or rescale it to fit to another screen size etc..

Group Controls: Select Check box to apply group function. De select the check box for ungroup

5.3.18 Enhanced Objects

Fine components are available for User interface and display. The components include Dial, Digital LED, Level, Meter, Slider, Switch, Thermometer and Toggle.

5.3.18.1 Common Properties

Appearance

Back Color: Set background color of the component.

Bevel: It is to set border including inner border, outer border and style of border.

Inner Border: True/False

Outer Border: True/False

Style: 9 styles are available

None, Flat, Single, Double, Raised, Lowered, Double Raised, Double lowered, Frame Raised, Frame Lowered.

Behavior

Visible: True/False, Determine whether control is visible or hidden.

Enable: This is for event control. If linked with Digital tag, if tag value =1 in run time, then, events configured for the object will be executed. If tag value = 0, then, events will be not executed

Data

Tag Binding: Select the Analog Tag of process value

Write design time value: If selected, then, value entered here in design time will be replaced by default value defined at tag data base.

Design

Name: Label1, It is name of the component. Every Component will have a **UNIQUE** number in a page. If more than one Label is available in the same page, number will be incremented automatically. If required, user can also change name of this component if required.

Component Mame+property is very useful and it can be used in scripts also.

Example: Task: Change Label1 back color to blue in Run time when Tag1 is equal to 1.

```
if(Tag1 == 1)
{
    Screen1.Label1.BackColor=Color.Blue;
    }
```

Screen1: It is location of Label1 Label1: Object name BackColor: Property of Label related to back ground color Color.Blue: Target Color

If above script is executed in scheduler once in a sec, then when Tag1 == 1, then, back color for Label1 will be changed to Blue color in Run time.

Properties are case sensitive.

BackColor : OK Backcolor : Not OK

Security Level: Define security level for the component to be used by the operator. If operator security level is less than security level defined for component, it will not allow operator to operate the component.

Locked: True/False: It is to Move or Resize the component.

Layout

Dock: Defines which borders of the control are bound to the container.

Location: The coordinates of the upper-left corner of the component relative to upper-left corner of the container. Set X and Y position in screen in pixels.

Size: Size of the component in pixel. Set height and width of component in pixels.

Position: It is define position of Label, Value etc, for some components. Available options include None, Top Left, Bottom Right, Both and Internal.



Position naming convention for components

For example: Level component, Label Position = **Bottom Right**

If Orientation is Vertical, then, Label will be displayed at *Right* side to component.

If Orientation is Horizontal, then, Label will be displayed at **Bottom** side to component.

5.3.18.2 Level

It is normally used to display process parameter value in several steps. Generally it is linked with Analog type tag (Analog input type tag at PLC, which is received as 4-20 mA signal from field transmitters like Ear level transmitters (sound detectors in ball mills etc).



魓 Level1 Configur	Level1 Configuration 🛛 🔀				
General Advance	d Values	SectionsColors	ActiveColorSection	Inactive 🔹 🕨	
Appearance					
	BackColor		LabelsPosition		
0.5.4.1			Both	M	
Unentati	on		Indent	1	
TextFort	-	<u> </u>	32		
Name			Size		
Tahoma	1	*	12		
Style			-		
Bold		*			
Bevel					
🔲 Inner	Border		OutterBorder		
Style					
None	-	*			
Decima	al				
0					
TagBinding	-				
		*			

Properties

Back Color: Define background color for the component.

Labels Position: Define labels position. Available options are Top Left, Bottom Right and Both. Naming convention depends on orientation. If orientation = Vertical, then, if ‰op left+is selected, label position will be shown on ‰eft+side. If orientation = Horizontal, then if ‰op Left+is selected, label position will be shown on ‰op+side of component.

Orientation: Vertical/Horizontal. Select direction.

Text Font: It is to set font for the label including Name of Font, Size of font and Style of font. Supported styles include Regular, Bold, Italic, Underline & Strikeout.

Bevel: Define inner border and outer border for the component. Please refer common properties at beginning of this section for more details.

Decimals: Define number of decimals to be displayed for value to be displayed along with level component in run time.

Tag Binding: Select the Analog Tag of process value.

General	Advanced \	/alues SectionsColors	ActiveColorSection	Inactive 🔹
Tick	s TicksPosition		Ticksl ength	
	Both	*	32	
Sca	le			
	ScaleDivisio	ons	ScaleLabelDivision	s
	10		5	
	ScaleSubD	ivisions	ScaleWidth	
	5		10	
Bar	-		-	
	BarWidth		Divisions	_
	30		50	
	Space		-	
	1			

Ticks:

Ticks Position: Define Ticks Position. Available options include Top Left, Bottom Right, Both and None.

Ticks length: Define length of Ticks in pixels.

Scale:

Scale divisions: Define number of Big Ticks in Level graph.

Scale Sub Divisions: Define number of ticks between two big ticks.

Scale Label Divisions: Define number of Labels to be displayed. Example: If Scale label division = 5, Scale = 0-100, then, it display labels as 0, 20, 40, 60, 80 & 100.

Scale Width: Define Scale width. If ticks are selected to display on both directions, then, this define width between two scales on both sides.

Bar

Bar Width: Define width of Bar graph.

Divisions: Define number of divisions (Like bricks) to appear in Bar graph.

Space: Define Space between divisions (bricks) in pixels.

General	Advanced	Values	SectionsColors	ActiveColorSection	InactiveColorSection
Scale					
	Maximu	m		Minimum	
	100	_		0	
	🗌 Reve	erseScale	t in the second s		
Beha	vior				
	Step			Value	
	2	_		10	
	🗹 Islnd	icatorOnl	у	U WriteDes	signTimeValue
	ValuePos	ition			
	Tool eff		~		

Maximum: This is maximum range of process value (Analog input Type Tag)

Minimum: This is minimum range of Process Value (Analog input Type Tag)

Example: If Ear Level transmitter range is 0 to 100, set Minimum = 0, Maximum = 100.

Reverse Scale: True/False. If it is selected, then, zero will be on bottom side and 100 will be at top side for vertical orientation.

Step: It is the minimum value to reflect change in Bar graph position. Bar Step and Bar divisions settings are closely related. If Bar divisions = 50 for

scale value 0-100, then, if Step=2, when process value changes by value 2, it shows level value change clearly in level graph.

Value: It is used to enter process value in design time and check Bar graph display status in PC. It requires operator to enter value in multiples of step value or else, it is automatically corrected close to multiples of step value.



Is Indicator only: If it is selected, level graph is used only for Read only purpose. If it is not selected, then, you can use level graph for write purpose similar to Slider to send set point from Recorder to PLC etc. Just use finger to touch at various places in Level graph to set the level required.

Value Position: Define position of process value to be displayed in Run time along with Level graph. Available options include None, Top Left, Bottom Right and Both.



Sections colors: It is configure bands for the sections to show different colors for Labels and Ticks in Level graph.

Example: Three bands Section 1, Max % = 60 that means, its band is from 0 to 60 % it shows labels and ticks in black color.

Section 2, Max % = 80 that means, its band is from 61 to 80 %.

Section 3, Max % = 100 that means, its band is from 81 to 100 %.

Note: Band setting is in % for the total Scale defined (Minimum to maximum).

💀 Level1 Configuration	
Values SectionsColors ActiveColorSection	InactiveColorSection Common
Section1	
	MaximumPercent
Loior	50
Section2	
Delet	MaximumPercent
	80
Section3	- market and a second
E Color	MaximumPercent
Culor	100

Active Color Section: Define Active color for process value band. For example: If process value range is 0-100, set different bands in % for process value, define colors to appear with in level Bar graph in Run Time.

When process value is between 0 and 50 % of scale, display bricks in Lime color.

When process value is between 51 and 80 % of scale, display bricks in Yellow color

When process value is between 81 and 100 % of scale, display bricks in Red color.

Configuration from Property grid

E ActiveColorSection	ColorSection[] Array
⊞ InactiveColorSection	ColorSection[] Array

Click at ColorSection[] Array, then it following screen will appear, then set all the bands and colors.

ColorSection Collection Editor		? 🛛
Members: 0 Color [Line] - 50% 1 Color [Yellow] - 80% 2 Color [Red] - 100% Add Bemove	•	Color [Lime] - 50% properties:
		OK, Cancel

Inactive Color Section: Define Inactive color for process value bands same as above. Generally light colors are selected for Inactive colors and Dark colors with more contrast is selected for Active colors, then users/operators will be able to differentiate between active and inactive colors clearly.

📰 Leve	Level1 Configuration					
Values	SectionsColors	ActiveColorSection	InactiveColorSection	Commor 4 >		
S	ection1	lor	MaximumPercent	1		
SI	ection2	lor	MaximumPercent 80			
S	ection3	lor	MaximumPercent	1		

Events: It is to trigger functions/jobs to be executed when process value of tag linked with Level bar graph is changed in run time.

5.3.18.3 Meter

Meter is component generally used to display process value like pressure, Temperature, Flow etc. Generally it is linked with Analog type tag (Analog input type tag at PLC, which is received as 4-20 mA signal from field transmitters like Temperature, pressure etc...)



Heter	1 Configuration	X
General	Advanced Values Sections	Colors Common Events
App Be	earance BackColor evel	PointerColor
	InnerBorder	OutterBorder
	Style	
	DoubleRaised 🛛 👻	
Te	extFont Name	Size
	Tahoma 💌	12
	Style	
	Bold	
Tag	Binding	
Ta	g1 🖌 🖌	

Properties

Back color: It is to set back ground color for the Meter.

Pointer Color: It is to set Pointer Color.

Bevel: It is to set border including inner border, outer border and style of border.

Inner Border: True/False

Outer Border: True/False

Style: 9 styles are available

None, Flat, Single, Double, Raised, Lowered, Double Raised, Double lowered, Frame Raised, Frame Lowered.

Text Font: It is to set font for the label including Name of Font, Size of font and Style of font. Supported styles include Regular, Bold, Italic, Underline & Strikeout.

Tag Binding: Select the Analog Tag of process value.

eneral	Advanced Values	s SectionsColors	Common Events
Label	Is		
	LabelsCount		LabelsRadius
	10		120
	☑ LabelsVisible		
Point	er		
	ExternalPointerR	adius	InternalPointerRadius
	80		20
	PointerSize		PointerType
	7		Triangle
Ticks			
	TicksCount		TicksLength
	10		32
	TicksRadius		TicksSubDivisionsCo
	50		5
	TicksVisible		
Cente	er Width		Height
	Ó		neight 0
	<u>v</u>		V
Circle		1000	-
	BorderCircle	Color	CircleColor
	CircleRadius		
	150		

Labels:

LabelsCount: Number of labels to be displayed around the Meter.

Example: Pressure transmitter range 0-100 bar Label count: 10, then, around, Meter, you will see labels marked with 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100.

LabelsRadius: It is to set radius of Labels to be displayed around the Meter.

LabelsVisible: True/Flase, it is to set visibility for the label



External Pointer Radius: It is to set external pointer Radius, define end position.

Internal pointer Radius: It is to set Internal Pointer Radius, defines start position.

Pointer Size: It is to set Pointer Size in pixels.

Pointer Type: It is set Pointer type. Available types include Triangle, Circle and Line.

Ticks

Ticks Count: Set number of ticks between labels.

Ticks Length: Set Tick length in pixels.

Ticks Radius: Set Tick Radius

Ticks subdivision counts: Set Tick sub division counts

Ticks Visible: True/False, Set Ticks visibility

Center

Width: Adjust width of meter with in boundaries.

Height: Adjust height of meter with in boundaries. This is useful when semi meter is required and need to adjust meter to the center as shown.



Circles

Border circle Color: Set border color for circle.

Circle Color: Set Color for circle.

Circle Radius: Set Radius for circle.



Note: If Border circle color, Circle Color is same as Back color, then, circle is not visible and it appears as shown below.



ieneral	Advanced Values SectionsColo	ors Common Events
Angle	And Scale	
	Minimum	StanAngle
	0	0
	Maximum	EndAngle
	100	270
	ReverseScale	
Beha	vior	
	Step	Value
	0	0

Angles & Scale

Maximum: This is maximum range of Process Value (Analog input Type Tag).

Minimum: This is minimum range of Process Value (Analog input Type Tag).

Example: If pressure transmitter range is 0 to 100 bar, set Minimum = 0, Maximum = 100.

Start Angle: It is start angle for the Range low (Analog input)

End Angle: It is end angle for the Range high (Analog input)

Reverse Scale: It is to set scale direction in Meter

False: Anti Clock wise

True: Clock wise



Fig: Standard Reference angle

Reverse Scale = True

For example: If you want 0^{0} (Left) to 180^{0} (Right) Meter for Process value range 0-100, set the following.

Start Angle: 0 $^{\circ}$, End Angle: 180 $^{\circ}$ and Reverse Scale = True.

Behavior

Step: It is the minimum value to reflect change of pointer position in Meter.

For example: By default, Step = 0, i.e., pointer moves its position in Meter in Real time even with minor change in process value.

For example: Step = 5, i.e., pointer moves its position in Meter in Real time in steps of 5.

Value: It is used to enter process value in design time and check pointer position in PC.



Indicator only: By default, it should be selected such that the meter will be used for Read only purpose. If it is not selected, then, you can use the Meter for Write purpose similar to Slider to send set point from Recorder to PLC etc. Just use finger and move pointer to change set point.

Write design time value: If selected, it writes design time value instead of default value defined at tag data base.

Meter1'	s Properties		and the second se
General	Advanced Values	SectionsColors	Common Events
	SectionCount 3		
-Se	ction1		MaximumPercent
-Se	ction2		MaximumPercent
-Se	ction3		MaximumPercent 100

Sections colors:

It is configure bands for the sections to show different colors for Labels and Ticks in Meter.

Example: Three bands

Section 1, Max % = 60 that means, its band is from 0 to 60 % it shows labels and ticks in black color.

Section 2, Max % = 80 that means, its band is from 61 to 80 %.

Section 3, Max % = 100 that means, its band is from 81 to 100 %.

Note: Band setting is in % for the total Scale defined (Minimum to maximum).

5.3.18.4 Slider

This is normally used to change set point of process by operator from Recorder in Run time. Generally it is linked with Analog type tag (Analog output type tag at PLC, to send 4-20 mA signal out from PLC for external Controllers, Variable speed drives etc).



In above fig, Scale divisions = 10 (Big ticks). Scale sub divisions = 5 (Small ticks between big ticks). Scale Label divisions = 10 (0, 10, 20 till 100).

General	Advanced	Values	SectionsColors	Common	Events	
App	earance Bac Acti	kColor veBarCo	lor		LedColor InactiveBa abelsPosition	rColor
	anu anu	erbarco	IUI	1	FopLeft	~
	Orientat	ion			Indent	
	Horizon	tal	~		16	
Sli	derSize Width			F	leiaht	
	32			4	18	
Te	xtFont					_
	Name	-		S	Size	
	Tahom	a	*	1	2	
	Style					
	Bold		*			
Be	vel					
	🗹 Innei	Border			✓ OutterBor	der
	Style					
	Flat		*			
	Decima	al l				
	0					
	TagBinding	1				
	Tag2		*			

Properties

Back color: Back color for the component.

Active bar color: Define active bar color.

Slider bar color: Define border color for the slider.

LED color: Color of the handle

Inactive bar color: Define inactive bar color.

LabelsPosition: Define Labels position. Available options include Top Left, Bottom Right, Both, Internal and None.

Orientation: Horizontal/Vertical. This is orientation of Slider component and in above figure, it is Horizontal direction.

Slide size: Define height and width of the slider.

Text Font: It is to set font for the label including Name of Font, Size of font and Style of font. Supported styles include Regular, Bold, Italic, Underline & Strikeout.

Bevel: It is to set border including inner border, outer border and style of border.

Inner Border: True/False

Outer Border: True/False

Style: 9 styles are available

None, Flat, Single, Double, Raised, Lowered, Double Raised, Double lowered, Frame Raised, Frame Lowered.

Tag Binding: Select the Analog Tag of process value.

General	Advanced	Values	SectionsColors	Common	Events
Tick	s				
	TicksPo	sition		9	TicksLength
	Both		*	1	3
ocu	ScaleD	ivisions	-		ScaleLabelDivision:
	10			1	
	scales	ubDivisit	JIIS	1	
	9			L	20
Bar	D -4124				
	Barwid	th			
	15				

Ticks:

Ticks Position: Define ticks position. Available options include Top Left, Bottom Right, Both, Internal and None.

Ticks Length: Set Tick length in pixels

Scale:

Scale divisions: Define number of Scale divisions (Big ticks).

Scale Sub Divisions: Define number of Sub divisions (Small Ticks between big ticks).

Scale Label Divisions: Define number of Labels to appear like 0, 10, 20 etc. till 100 for scale 0 to 100.



Define same value for both Scale divisions and Scale label divisions.

Scale Width: Define Scale width.

Note: This is only width for Scale divisions. Example: If ticks position is selected on both sides, then it is gap between two scale ticks (Top and Bottom in Horizontal orientation or Left and Right in vertical orientation).

Bar:

Bar Width: Define width of Bar.

General A	dvanced \	Values	SectionsColors	Common	Events
Scale					
	Maximum	1		1	Minimum
	100			(0
Behavi	or Step			2	Value
Behavi	or Step			N I	Value 20
Behavi	Step 1 IsIndic	atorOnly	y	, [2 [Value 20] WriteDesignTimeValue
Behavi	or Step 1 IsIndic ValuePositi	atorOnl <u>i</u>	y	[2 [Value 20] WriteDesignTimeValue

Scale:

Maximum: This is maximum range of Set point (Analog Tag, Normally Analog Output).

Minimum: This is minimum range of Set Point (Analog Tag, Normally Analog Output).

Example: If Controller set point is 0 to 100 Deg.C, set Minimum = 0, Maximum = 100.

Reverse Scale: If Selected, Scale labels will be displayed in Reverse.

Behavior:

Step: It is the minimum value to reflect change of the slider position.

For example: By default, Step = 0, i.e., Slider moves its position in Real time even with minor change in process value.

For example: Step = 5, i.e., Slider moves its position in Real time in steps of 5.

Value: It is used to enter process value in design time and check the Slider position in PC.

Indicator only:



If Indicator only is selected, slider is used for Read only. Operator will be not able to move slider in Run time.

If Indicator only is not selected, the slider is used for Read/Write. Operator will be able to move slider in Run time for example: change set point for variable speed drive.

Value Position: Define position for the value to appear in Run time. Available options include Top left, Bottom Right, Both, Internal and None.

General	Advanced	Values	SectionsColors	Common	Events
	SectionCo	unt			
	3	~	\$		
Sec	tion?	Color		N [6	AaximumPercent 0
000	anone 1	Color		h	Aaximum Percent
-		-		8	0
Sec	tion3	Calar		N	AaximumPercent
		C0101			00

Sections colors: It is configure bands for the sections to show different colors for Labels and Ticks in Slider.

Example: Three bands Section 1, Max % = 60 that means, its band is from 0 to 60 % it shows labels and ticks in black color.

Section 2, Max % = 80 that means, its band is from 61 to 80 %, it shows labels and ticks in brown color.

Section 3, Max % = 100 that means, its band is from 81 to 100 %, it shows labels and ticks in Red color.

Note: Band setting is in % for the total Scale defined (Minimum to maximum).

5.3.18.5 Thermometer

This is normally used to view process temperature by operator in Run time. Generally it is linked with Analog type tag (Analog input type tag at PLC, which is received as 4-20 mA signal from field transmitters like Temperature etc...)



Scale Label Divisions= 10 (0, 10, 20... 100)

Scale Divisions = 10 (No.of Big Ticks)

Scale Sub Divisions = 10 (No.of Small ticks between Big Ticks)

Appearance BackColor TankColor Orientation Horizontal	LiquidColor LabelsPosition TopLeft Indent 16
TextFont Name Tahoma Style Bold	Size
Bevel ✓ InnerBorder Style DoubleRaised ▼	☑ OutterBorder
Decimal 0	Rounding

Properties

Back Color: Define back color for the component.

Liquid color: Shows temperature level (mercury) in Thermometer.

Tank Color: Define background color of thermometer without mercury.

LabelsPosition: Define Labels position. Available options include Top Left, Bottom Right, Both, Internal and None. The naming convention is based on selected orientation of component.

Orientation: Horizontal/Vertical. This is orientation of component and in above figure, it is Horizontal direction.

Indent: It is the gap between border and start of scale.

Text Font: It is to set font for the label including Name of Font, Size of font and Style of font. Supported styles include Regular, Bold, Italic, Underline & Strikeout.

Bevel: It is to set border including inner border, outer border and style of border.

- Inner Border: True/False
- Outer Border: True/False

Style: 9 styles are available

None, Flat, Single, Double, Raised, Lowered, Double Raised, Double lowered, Frame Raised, Frame Lowered.

Tag Binding: Select the Analog Tag of process value.

General /	Advanced	Values	SectionsColors	Common	Events
Ticks	TicksPr	sition			Tickel ength
	Both		4	[10
Scale	DL-D				
	ScaleD	IVISIONS		F	SCAIELADEIL/IVISIONS LO
	ScaleS	ubDivisio	ons		ScaleWidth
	10			1	30
Bar					
	BarWid	th			
	12				

Ticks Position: Define ticks position. Available options include Top Left, Bottom Right, Both, Internal and None.

Ticks Length: Set Tick length in pixels

Scale divisions: Define number of scale divisions (Big Ticks) for the component.

Scale Sub Divisions: Define number of Sub divisions between the above scale divisions (Number of Small ticks between any two Big Ticks).

Scale Label Divisions: Define number of Labels to be displayed for component as per Scale Range of process value. For ex: 0, 10, 20, 30õ 100.

Scale Width: Define Scale width. If you have ticks on both sides of component, then, it defines width between Upper (Left) and Lower (Right) scale divisions based on orientation of component.

Bar Width: Define width of Bar in pixels.

General	Advanced	Values	SectionsColors	Common	Events
Scal	e Maximu	Im			Ainimum
	100			0	1
		rseScale	3		
Beh	avior			-	falue.
	O			6	
				Ē	WriteDecignTimeValue
	🗹 Isladi	IcatorUni	У		1 winebesign i nile value
	✓ IsIndi ValuePos	ition	У		1 Wine Design Tune Value

Maximum: This is maximum range of Set point (Analog Tag, Normally Analog input, 20 mA, 10V DC etc.)

Minimum: This is minimum range of Set Point (Analog Tag, Normally Analog input, 4 mA, 0V DC etc.)

Example: If Temperature transmitter range is 0 to 100 Deg.C, set Minimum = 0, Maximum = 100.

Reverse Scale: True/False. Define Scale direction.

Step: It is the minimum value to reflect change of mercury level.

For example: By default, Step = 0, i.e., Mercury level moves in Real time even with minor change in process value.

For example: Step = 5, i.e., Mercury level moves its position in Real time in steps of 5.

Value: It is used to enter process value in design time and check mercury level position in PC.

Indicator only: If selected, then, this component is used for Read only. If it is not selected, then, this component can be used for Write/Read purpose.

Write design time value: If selected, it writes design time value instead of default value defined at tag data base.

Value Position: Define position for the value to appear in Run time. Available options include Top left, Bottom Right, Both, Internal and None. The naming convention is based on orientation of component.

General	Advanced	Values	SectionsColors	Common	Events
	SectionCo	unt			
	3		\$		
Section2			K	MaximumPercent	
Jet				n	NaximumPercent
UGU		Color		8	10
Sec	tion3	Color		8	10
Sec	tion3	Color		8	10 MaximumPercent

Section Colors: Define bands to display Ticks and Label color accordingly based on value of tag in Run time.

5.3.18.6 Bar Box

Bar Box is a Graphical User Interface widget display bar graph for Analog Tag in Run Time.

Every Bar box should be linked with *Analog* Tag.

Ba	arBox1's Properties	
• <u> </u>	Appearance BackColor BorderStyle	ForeColor Direction
	Behavior RangeHi 100 Value 50	RangeLow 0
	TagBinding TagBinding Tag1	T

Properties

Border Style: Define border style. They include Fixed single, Fixed 3D and None.

Direction: Define direction of Bar graph. Up/Down/Left/Right

Range high: Display scale high.

Range Low: Display scale low.

Value: Default value. It is to check how fore color, back color displays in PC during design time.

Tag Binding: Select the Analog Tag of process value.

General	Bands Common	
	BandCount	
	3	
Ban	d1	
DI	BackColor	ForeColor
BI		PlinkCalor
		Dinkcolui
Ban	d2	
	BackColor	ForeColor
BI	ink	-
	L] Blink	BlinkColor
	Value	
	40	
Ban	d3	
	BackColor	ForeColor
BI	ink 🗔 prati	
		J BlinkColor
	Value	
	90	

Bands

It is to define various bands for the process value to appear and display animation in Run time.

Band count: Use up/down buttons to increase/decrease number of bands. Maximum 32 bands are supported. In each band, it is possible to configure back color, fore color and blink properties.

Back color: Define back color.

Fore Color: Define fore color.

Blink: Select % rue+if blink is required and % alse+if blink is not required.

Blink color: If ‰rue+is selected for blink, then, this property is visible and select required blink color.

Value: It is the band range. For the first band, it is always Range Low value defined for bar box. Band 1 high range is value defined at Band2. Band 2 high range value is value defined at Band3 so on.

5.3.18.7 Scale

Scale is a Graphical User Interface widget used along with bar box if required.

Screen1	Scale1's Properties	
Screen1	Scale 1's Properties General Common Appearance BackColor LineWidth 2 Grids 10 Minimum 0	ForeColor Direction Right Decimal 0 Maximum
	TextFont Tahoma Style Regular	Fit ReverseScale Size [12

Properties

Back color: Define back color

Fore Color: Define fore color

Line width: Define width of line

Grids: Define number of grids

Direction: Define direction of Scale. Up/Down/Left/Right

5.3.18.8 Picture box

Picture box permits the user to link different picture file into Picture box component during design time and then later view them in Run time based on value of Tag. Supported formats includes

Bitmap file (*.bmp)

Windows Metafile (*.wmf) JPEG File (*.jpg) Graphics Interchange format (*.gif) Portable Network Graphic (*.png)

Ceneral Animation Bands Common Ev	ents
Appearance BackColor	
Image BitmapFile Transparent Transparent	ImageLayour. None
Flip None	Rotate
TagBinding TagBinding	

Properties

Bitmap file Select the image to be shown in the object

Flip: It is to flip picture file in design time. Available options are Horizontal, Vertical, Both and None.

Rotate: It is to select direction for the picture file in design time to adjust direction. Available directions include 0 $^{\circ}$, 90 $^{\circ}$, 180 $^{\circ}$ and 270 $^{\circ}$

Tag Binding: Select the Analog tag to be linked with Picture box.

ieneral	Animation Bands	s Common	
Mov	ement		
E	nableMove		
Ste	artPosition X		EndPosition X
	0		0
	Y		Y
	0		0
Tag	Value		
	From		Το
	0		100

Movement: Select Enable Move if it is required to move picture in Run time from Location 1 to Location 2 based on tag Value. Start and End coordinates

for X and Y needs to be configured in Design time and Picture moves in Run time based on Tag value.

Pictured	lox1 Configuration	
General	Animation Bands Common	
	BandCount	
	1	
Ban	di BackColor	✓ Visible
Im	age	
	BitmapFile	ImageLayout
		Nane
17	ransparent	
	Transparent	TransparentColor
	Flip	Rotate
	None	0

Band Count: Define number of bands required.

Back Color: Define back color for the selected picture file in specific band.

Visible: Define visibility for the picture in specific band.

Bitmap file: Select picture file for specific band.

Image Layout: Position of image with in Picture container. Available options include None/Center/Stretch. When stretch is selected, it attempts to fit picture file to the size of container.

Transparent: Select if no back color is required for picture file.

Flip: It is to flip picture file in design time. Available options are Horizontal, Vertical. Both and None.

Rotate: It is to select direction for the picture file in design time to adjust direction. Available directions include 0°, 90°, 180° and 270°

Example: You may take a photo of a section of the factory floor like a tank and use this in Recorder screen instead of default symbols.

If a bitmap file by name sunset.jpg is linked with Picture box1 in screen1. If you wish the same sunset.jpg in screen no2, do not create picture box and link with sunset.jpg again. Since a resource with name sunset already available, if you try to use the same image in other place, it may not allow you to do so and may prompt with error message. If you really need the same image again, copy picture box1 at screen1 and paste it in screen no 2.

5.3.19 Graphics

It is to select a symbol in screen like a Tank, Motor etc... Basic symbols are available in Recorder Editing Software and it includes the following symbol categories.

Symbol categories

	Category	Symbols	Colors	Qty
1	Arrows	7	6	42
2	Blowers	5	6	30
3	Boilers	4	6	24
4	Conveyors	6	6	36
5	Instruments- True Color	7	С	7
6	Lamps	4	6	24
7	Material handling	8	С	8
8	Motors	4	6	24
9	Nature-True Color	6	С	6
10	Office-True Color	7	С	7
11	Pipes	10	6	60
12	Power-True Color	7	С	7
13	Pumps	5	6	30
14	Push buttons	8	6	48
15	Tanks	5	6	30
16	Valves	8	6	48
17	Vehicles-True Color	6	С	6

C = True Color

Toolbox	
Basic objects	
Enhanced objects	
SymbolFactory	Motors
Graphics	Nature
E C:\Program Files\Panel Studio\Basic Symbols	Office
Arrows	Pipes
Blower	Power
Boilers	Pumps
Conveyors	Push buttons
Instruments	Tanks
Lamps	Valves
- Material Handling	Vehicles



Use these cursor points to change the size

Some symbols are available with 6 different colors in Red, Green, Yellow, Blue, Brown and Grey.

All the symbols are vector graphics, occupies less memory space with high quality.

It is possible to set transparent property for symbol in design time from property grid. Transparent means screen color itself will appear as back ground color. Also, it is possible to change symbol back ground color during design time and Run time.

How to set transparent property to symbol from property grid

	📕 Band Editor				
Properties 7 ×	Members: 0 Bendl		Band2's F ■ 2↓ ■ Appy Back ■ Imag Bitma Flip Rotal ■ Value Visible Visible	roperties color pe pFile e sility e	Transparent arrow1-b.wmf None 0 100 True
 Ž ¥ Beltavior Animatio False;0, 0;0, 0;0;10 Bands (Collection) 	Add	Premaye	BackC	olor	
E Data TaoBindir				IK	Cancel

Click at õ at Bands and then select Back Color = Transparent





Fig: Back color=Transparent

Fig: Back Color=Green color

Since all are vector symbols, if symbol is enlarged, it does not loose quality.

When Recorder Editing Software is installed, all the basic symbols will be installed at default folders C:\Program Files\Recorder Editing Software\Recorder Editing Software\Basic Symbols

However, if applications developer has any additional symbols, they can be arranged in folders and placed along with standard basic symbols and keep them in above path.

Example: Create a folder by name % ustom+and copy it to C:\Program Files\Recorder Editing Software\Recorder Editing Software\Basic Symbols

It is possible to set path for graphic symbols in Recorder software. In Menu bar, Click on ‰ile+, then select ‰nvironment+and then select ‰raphics path+such that all these will appear in a tree structure directly with in Recorder editor such that no need to import these kind of symbols using special component ‰icture Box+.



🔚 Environment		
General Download and Upload Snap and Grid Object default setting	Environment Language English TextFont Microsoft Sans Serit, 9.75pt, style=Bold	
	DateTimeFormat DateFormat dd-MM-yy 26-12-11 TimeFormat h.mm:ss.tt 2:36:37 PM	
	Path Project	
	Graphics Security Password	

Once symbol is selected in Recorder from Graphics, then if required it is possible to change Flip or rotate basic symbols in 0^0 , 90 0 , 180 0 and 270 0

🗄 MyPictu	re1 Configura	ition	
General	Animation	Bands	Common
	TagBindin	g	
			~

Properties

Tag Binding: Select Analog Tag if animation is required for the symbol in Run time.

General	Animation	Bands	Common	
Mov	ement			
ΞE	nableMove			
Ste	rtPosition			EndPosition
	×			×
	0			100
	Y			Y
	0			200
			-	
Tag	Value			
	From			То
	0			100

Movement. Select Enable/Move and then, enter X and Y start and end positions in pixels.

Tag Value: It is linked with Start and End Positions.

Ex: Recorder 7" (High Performance), Screen Resolution = 800 X 480, Horizontal installation, Width=800, Height=480. Move symbol from Left to Right in screen at Run time when tag value changes from 0 to 100

General Animation Bands C	ommon
Movement	
EnableMove	
StartPosition	EndPosition
×	X
0	800
Y	Y
0	0
Tag Value	45
FIOM	10
0	100

To move symbol from Left to Right, set start and end Positions for X coordinate in pixels and there is no need to set Y coordinates.

Tag value = 0 corresponds to Start Position (X)

Tag value = 1000 corresponds to End Position (X)

Ex: Recorder 7" (High Performance), Screen Resolution = 800 X 480, Horizontal installation, Width=800, Height=480. Move symbol from Top to Bottom in screen at Run time when tag value changes from 0 to 100

- was an	
General Animation Bands Common	
Movement	
EnableMove	
StartPosition X	EndPosition X
0	0
Y	Y
0	480
TagValue	
From	To
0	100

Ex: Recorder 7" (High Performance), Screen Resolution = 800 X 480, Horizontal installation, Width=800, Height=480. Move symbol from Left Top to Right Bottom in screen in angle at Run time when tag value changes from 0 to 100

	-
EndPosition	
800	
Ŷ	
480	
	_
To	
100	
	EndPosition × 800 Y 480 To 100

💀 MyPicture1 Configuration	
General Animation Bands Common	
BandCount	
1	
David	
BackColor	Visible
Image Diversitie	laward have a
arrow1-b.wmf	None
Transparent	
Transparent	Transparen(Color
Flip	Rotate
None	0

Band Count: It is to define bands for run time animation of symbol. Max. 32 bands are supported.

Back Color: Define Back Color of symbol to appear in specific band in Run time.

Visible: Define visibility control for symbol in specific band in Run time.

Image: Select different image file if required to display in specific band in Run time.

Flip: Define flip position for the symbol in specific band in Run time. Available options include None, Horizontal, Vertical and Both.



Rotate: Rotate symbol to any predefined direction in specific band at Run time. Available options include 0° , 90° , 180° and 270°

Example: There is Liquid level Tank. When, Tag value =0, an arrow should appear in Down direction indicating discharge of tank is in progress and when Tag value = 1, arrow should appear in Up direction indicating filling of tank is in progress.

eral Animation Bands Common	1
BandCount	
2	
Band1	
BackColor	Visible
Image BitmapEile	In scall and it
arrow5-r.wmf	Wane
Transparent	
Transparoni	TransparentColor
Flip	Rotate
None	0
12	
BackColor	Visible
age	
	ImageLayout
	None
Transparent	TransparentColor
Flip	Rotate
None	180 💌
111	





5.3.20 Symbol Factory

Symbol Factory ® contains more than 4000 symbols in 64 categories.

No.	Category	Symbols	No.	Category	Symbols
1	3-D Pushbuttons	73	35	Machining	90
	Etc.				
2	Air Conditioning	140	36	Maps and Flags	23
3	Architectural	49	37	Material Handling	118
4	Arrows	63	38	Mining	63
5	ASHRAE		39	Misc. Pipes	39
	Controls &	100			
	Equipment				
6	ASHRAE Ducts	86	40	Misc. Symbols 1	57
7	ASHRAE Piping	49	41	Misc. Symbols 2	79
8	Basic Shapes	86	42	Mixers	24
9	Blowers Etc.	34	43	Motors	38
10	Boilers	36	44	Nature	71
11	Buildings	42	45	Operator Interface	28
12	Chemical	50	46	Panels	14
13	Computer	38	47	Pipes	82
	Hardware				
14	Computer Keys	68	48	Plant Facilities	52
15	Containers	56	49	Power	61
16	Controllers	35	50	Process Cooling	20
17	Conveyors, Belt	40	51	Process Heating	61
18	Conveyors, Misc.	26	52	Pulp & Paper	35
19	Conveyors,	56	53	Pumps	99
	Simple				
20	Ducts	51	54	Safety	27
21	Electrical	83	55	Scales	36
22	Finishing	45	56	Segmented Pipes	41
23	Flexible Tubing	24	57	Sensors	55
24	Flow Meters	35	58	Tank Cutaways	23
25	Food	72	59	Tanks	145

26	General Mfg.	68	60	Textures	181
27	Heating	108	61	Valves	73
28	HVAC	74	62	Vehicles	41
29	Icons and	159	63	Water &	112
	Bitmaps			Wastewater	
30	Industrial Misc.	19	64	Wire & Cable	21
31	International	42		Total	4045
	Symbols				
32	ISA Symbols	183			
33	ISA Symbols (3-	123			
	D)				
34	Laboratory	23			

A

With Recorder Editing Software, only first symbol from symbol factory can be selected. If you need all symbols, order Recorder Editing Software Plus software and we will supply USB hardware lock to access more than 4000 symbol factory graphics

It is possible to link Analog Tag with Symbol factory graphic and change colors in Run time. 50 bands are supported





Screen18		Symbol Factor	y .NET Property Page	
Symbol factory	Run time 4:20:15	Symbols Style Animatio	ns	
< 10 : Yellow Blinking 10 to 19 : Yellow steady		AnimationMode BandCount :	AnalogColorFill	
20 to 79 : Green Color 80 to 89 : Red Color	Max.50 band	Band1	Style BlinkShaded	Breakpoints
First Page Next Page	Previous Last Page	Band2	Shaded 💌 📕	90
		Band3	Shaded 💌 🔳	
		Band4	Shaded 💌	20
Julput		Band5	BlinkShaded	

Design Time

In design time it allows to you to change colors of these symbols by application engineer.

Example: Change tank color from standard grey scale to Green color.

Task: Place symbol on a screen

Toolbox	άx
Basic objects	
Enhanced object	ts.
SymbolFactory	
R Pointer	
StandardControl	21

In Tool box, click on Symbol Factory+and then, drag and drop standard control to screen.





Fig 1 Fig2 Fig3

Fig4

Task: Increase size of symbol

Select the symbol in screen and it will be as shown as Fig2

Then, move mouse to a square pointer till arrow appears and then hold left click at mouse and drag to increase size of symbol as per your requirement and then it will be as shown in Fig4. Alternatively, in property grid, enter size in pixels as shown attached.

🖃 Size	120, 100
Height	100
Width	120

Task: Changing symbol to another category



Drag and drop symbol factory component into screen.

Click on **I** and then click on Symbol Factory.NET Properties.

Alternatively, select the symbol factory component using single click (left) by mouse, keep mouse cursor on symbol, then, double click (left) in mouse to open symbol properties, then, it shows following screen.



Select the required category, select the symbol and click on button %K+, then new symbol will be placed in screen.

Click on Help in above screen to open Chm type help file (English) for symbol factory.



If above error message appears, then, it is required to reinstall symbol factory.

Style

It is to define style of symbol in design time.

Symbol Factory .NET Property Page						
I	Symbols	Style	Animations			

Click on % tyle+, then % ollowing screen will appear.

Symbol Factory .NET Property Page				×
Symbols Style Animations				
	Fill Color			Defaults
	FillColorMode :	Original	*	About
	FilColor			
	Background			
	BackStyle :	Transparent	*	
	Back Lodor			
Orientation	Blink			
Flip : None	BlinkMode :	NoBlink	~	
Rotation : 0	Bird Speed	Medium_900		
Padding: 0	(Bink Golor			
Stretch				
	Ĩ	OK Ca	incel	Apply Help

Fig: Default Style settings

Orientation:

Flip: It is possible to flip symbol in Design time and available options include Horizontal, Vertical, Both and None.





Flip=None

Flip = Horizontal

Rotation: It is possible to rotate symbol in design time and available options include 0^0 , 90^0 , 180^0 and 270^0

Padding: Normally it is 0. It is used to decrease size of symbol with in selected boundaries.

Stretch: It is used to stretch symbol with in selected boundaries.

Fill Color:

Fill color mode: Available options include Original, Shaded, Solid and Hollow.



Fill Color Mode: OriginalShadedSolidHollowFill Color:N.AGreenGreenN.A

Fill color: Define color to be filled in Shaded and Solid fill color mode.

Background:

Back Style: Available options include Transparent & Opaque. Transparent means screen background color will appear for symbol. Opaque means, it is possible to set different background color for specific selected symbol.

Back color: Define background color when back style = Opaque.

Blink:

Blink mode: Available options include No Blink, Blink Invisible, Blink shaded and Blink Solid.

NoBlink: Blink is not required for symbol either in design time or Run time. Blink Speed and Blink color = Not available for selection.

BlinkInvisible: Symbol will appear and disappear cyclically in both design time and Run time as per set Blink speed. Blink color: Not Available for selection.

BlinkShaded: Symbol will flash, total 2 colors, one color at a time on same symbol as per set blink speed in both design time and Run time.

Example

Fill Color mode = Shaded, Color = Green

Blink shaded setting: Blink mode=Blink shaded, Blink speed = Medium_800, Blink color = Blue

Then, green color shaded symbol appears first time, then symbol turns into blue color shade after elapsing time at blink speed setting.

Blink speed: Define blink speed. Available options include Fast_400, Medium_800, Slow_1200. Its period is in *ms*.

Blink color: Define background color

Normally, blink is not used in design time and default settings will be as follows

1. Fill Color Mode = Original. If different color is required for symbol, select Fill color mode = Shaded and then define Fill color

- 2. By default, Back Style = Transparent in Background
- 3. By Default, Blink mode = NoBlink

Animation

It is to define animation for the symbol to appear at Run time in Recorder.

Animation mode:

Define animation mode. Available options include Analog Color Fill, Discrete color fill, Analog integer color fill.

AnalogColorFill: Select this option if you wish to link analog type tag and then define band for the colors. For ex: 0 to 10, Color = Yellow, 10-90, Color = Green, 90-100, Color = Red etc..(See next section % low beak points work for more details)

DiscreteColorFill: Select this option if you wish to pass discrete values like 1,2,30 in Run time to the Tag linked with symbol for display of different colors. See next section How beak points work for more details)

AnalogIntegerColorFill: This is same as Analog color fill, but only integer value is passed to the Tag linked with symbol. See next section ‰ow beak points work for more details)

Band count: Define number of bands required for selected Animation mode

Styles: Define style of symbols. Available options include Original, Shaded, Solid, Blink Invisible, Blink shaded and Blink solid. All definitions are same as explained earlier.

5.3.20.1 How break points work

The idea behind Breakpoints is that certain animation will occur when a property of the component changes. If this change falls within the defined parameters (see below), an animation will be triggered

Please note: The screen shots in the examples below are based upon the Symbol Factory .NET Standard Control, but the same principle applies to the Cutaway control.

Two types of animation can be defined based upon the setting of Animation Mode: Analog Break Points and Discrete Break points

Analog Break points (Animation Mode = Analog integer color fill or Analog color fill)

Analog breakpoints are defined as a value on which an animation will trigger when a property on the component reaches that level. Depending upon your component, different properties will need to be changed depending upon the setting of Animation Mode. These properties are:

Component	Animation Mode Setting	Property that Changes to trigger an Animation	
Standard	AnalogColorFill	AnalogValue1	
Standard	AnalogIntegerColorFill	AnalogIntValue1	
Cutaway	AnalogColorFill	Level	
Cutaway	AnalogIntegerColorFill	LevelInt	

Number and Ordering of Breakpoints

The number of breakpoints available to you is the number of bands defined minus 1. As a breakpoint is defined as the point to which an animation changes, make sure you arrange the breakpoints from high to low. So, for example, suppose you had this screen:

Band1	Style Blink Shaded 💌 🚺	Breakpoints
Band2	Shaded 💌	90
Band3	Original 💌	
Band4	Shaded 💌	
Band5	Blink Shaded	

When the value of your property changes, this is what will happen to the control:

Value of Property	Band that is Active	Appearance of Component
Less than 10	Band5	Blink Shaded Red
10 to < 20	Band4	Display Shaded Yellow
20 to < 80	Band3	Original
80 to < 90	Band2	Display Shaded Yellow
Greater than 90	Band1	Blink Shaded Red

If you do not order your breakpoints in descending order, your results will be unpredictable.

Discrete break points (Animation mode = Discrete color fill)

Discrete Breakpoints aren't really breakpoints - instead, they enable animation if the "DiscreteValue" of an element in the BandsCollection is set to true.

However, since multiple DiscreteValue properties can be set at the same time, how does the component determine the animation to display? What it does is give

priority to the animations based upon their order in the BandsCollection. If the first band in the collection (by default, Band1) has its DiscreteValue set to True, then that animation will be shown no matter which band also has its DiscreteValue set. As another example, if Band2 and Band5 each has their DiscreteValue set, the animation used will be the one defined in Band2.

Band1	Style Blink Shaded	
Band2	Shaded 💌	
Band3	Original	
Band4	Shaded 💌	
Band5	Blink Shaded	

Therefore, given the following definition of five bands:

Here is what the animations will be shown based upon different values of Discrete Value

Discrete Value for Band1	Discrete Value for Band2	Discrete Value for Band3	Discrete Value for Band4	Discrete Value for Band5	Appearance of Component
True	False	False	False	False	Blink Shaded Red (Band1)
False	True	False	False	False	Shaded Yellow (Band2)
False	False	True	False	False	Original (Band 3)
False	False	False	True	False	Shaded Orange (Band 4)
False	False	False	False	True	Blink Shaded Black (Band 5)
True	True	True	True	True	Blink Shaded Red

					(Band 1)
False	True	True	True	True	Shaded Yellow (Band 2)
True	False	False	False	True	Blink Shaded Red (Band 1)
False	False	False	False	False	Original (No bands active)

5.3.21 Project Tools

Project	Help							
Build	1	F6						
Build	And Offline Simulation	F7						
Build	And Online Simulation	F8						
Onlin	e Simulation							
Stop	Stop							
Build	And Download							
Dow	nload							
Proje	ect Status							

5.3.22 Build

Once project is compiled successfully, it creates build and this file need to be transferred to Recorder. If any errors during preparation of build, it shows at output window just below to screen working area. If Output is not visible below screen working area, select it via Menu, %/iew+, and then click at %/output+or apply %/leset window layout+from the Menu-%/iew+

Culput Screens preparing... Screen1 images 0 / 0 objects 0 / 0 UserScripts checking... Objects checking... Alarms checking... Scheduler checking... Datalogs checking... Becipes checking... Build started.... Build succeeded.

After creating build, if any errors are shown at Output window, do not attempt to download application from PC to Recorder or PC to USB flash disk for

transferring it to Recorder. First clear the errors and make sure that compilation errors are not present before transferring application to Recorder.

5.3.23 Build & Offline Simulation

First it creates build and then Run Offline simulation.

It is to test application in PC before downloading application to the Recorder, without connecting PLC to either PC or Recorder. It is possible to enter some values for the tags via table to check how the application appears in run time at PC itself with out downloading application to Recorder or connecting PLC.

🔡 OffLine		
Tag	CurrentVal	SetVal
Tag1	12.	
Tag2	0	
Tag3	0	
Tag4	0.0788529868553987	
Tag5	58.4416722356357	-
Tag6	0	
Tag7	0.39426493427699	
Tag8	0.39426493427699	
Tag9	0	
Tag10	0	2

Enter value at SetVal+caulmn and then press enter key in keyboard, then, it accepts and shows at SurrentVal+, then, you will be able to see these values in objects linked with specific tag.

It is better to run offline simulation frequently say once in couple of hours or after completing specific screen editing by application engineer to verify how it works in Recorder such that if there are any compilation errors, it is easy to locate and rectify them to save time.

5.3.24 Stop

It is used to stop simulation program in PC. When Offline simulation is running in PC, click on log lcon in PC to stop the current running simulation.

File	Edit	Format	View	Objects	Project	Help	-
🗊 • 🖻		8 0			🐴 🛗 📂	🕨 🔕 🛃 100%	6 -
(* 51)		후 킠	का गा	目前日		만 만 만 불 불	왕 학 두 관

If Offline simulation or online simulation is already running in PC and user attempts to run it again, build will fail. It prompts error message similar to the following

Screen1 Build Started.... Could not write to Output file "C:\Program Files\Project\Recorder\Panel.exe" "The process cannot access the file because it is being used by another process" Build Failed

In case if the above message is prompted, click on Stop icon 2 couple of times and make sure that icon 3 is not available in Task bar. Again click on Suild+once and then run simulation.

5.3.25 Build & Download

It is to build first and then download application from PC to Recorder.

5.3.26 Download

It is to download application from PC to Recorder

Available options

- i) PC to Recorder via Ethernet
- ii) Removable Disk to Recorder via USB flash disk

PC to Recorder via Ethernet:

After creating application, create build in PC and make sure there are no compilation errors.

Connect Ethernet cable between PC and Recorder

In editor software, set Environment for Download via Ethernet and enter IP address of Recorder. In Environment, Select ‰thernet+at Download and then, Click at ‰K+ button.

In editor software, click at % roject+, then click at % ownload+or click at 堡 icon.

It builds and transfers application from PC to Recorder. If there are any errors during compilation, it needs to fix compilation errors first and then download it again.

🔜 Environment		
General Download and Upload		
Object default setting	Connection	Ethernet
	Ethernet	192.168.0.203

Removable disk to Recorder

After creating application, create build in PC and make sure there are no compilation errors.

Connect USB flash disk in to PC via USB port.

In Recorder editor software, set Environment for Download via Removable disk. In Environment, Select Removable disk+at Download and then, Click at %2K+button.

In Recorder editor software, click at % Rroject+, then click at % Ownload+or click at sicon.

It transfers application from PC to USB flash disk.

Insert USB flash disk in Recorder.

Switch on Power supply to Recorder. Press at ‱ad+, select Path of project files and then press at ‰oad+button near path selection.

It transfers application from USB flash disk to Recorder.

PC to Recorder via USB to Ethernet Converter

For Low cost Recorder models, now Ethernet is an option. You can purchase USB to Ethernet converter and then it is possible to download application from PC to Recorder via Ethernet. Once USB to Ethernet converter is connected to Recorder, you can see IP address at the Recorder itself via system information similar to onboard Ethernet port

Note: The purpose of USB to Ethernet converter is to download application from PC to Recorder only.

🔚 Project Status		_ 🗆 🗙	
	Tota	đ	
Tag	٥		
Objects	1		
Image	Ō		
Connection	Q		
Alarm	0		
Recipe	0		
DataLog	ũ		
Scheduler	0		
UserScript	α		
Security	1		
Language	1		
Project designed time			
0 Days	0 Hours	D Minutes	

5.3.27 Project status

It is for project management purpose to know limits and usage of objects.

Project used time: It shows how much time project opened for editing purpose.

6. WEBSERVER

It is to view Paperless Recorder from Remote location via Internet.



6.1 Requirements

6.1.1 Hardware

Recommended hardware: PC with 3G GHz processor, 512 MB RAM. 5.0GB free space in the hard disk. Ethernet port, RJ 45 female.

6.1.2 Operating system

Windows based Operating systems, Windows XP, Windows 7, Windows 8 etc.. 32 bit and 64 bit operating systems are supported.

6.1.3 Browser Requirements

Internet Explorer 10 or higher. Google Chrome.

6.1.4 IP Address Requirements

Static IP address Required for the Recorder.

Obtain Static IP address from your Internet solution Provider (ISP). This IP address should be unique at Internet.

Once IP address configured in the Recorder, use Ping Instruction from the dos prompt first to verify if there is successful communication between Recorder and PC via Internet.



Fig: Response from the Recorder for the Ping instruction from PC

6.2 How to configure Web server Settings

For using Web server application in the PR series Recorder, Configure the Recorder for static IP address and Enable Web server.

mem 54% 3;10;00 Configuration τþ. 10/22/13 Configuration Channel AI DI Save Math AO External Load Display Timer Clock Default Communication Instrument Password: ******** Demo: Enable Auto-Output System Information

6.2.1 How to Configure Static IP Address

In Configuration, select "Communication" and then press "Enter" soft key

Communication	78% 100% 03/10/14
Communication	
Ethernet IP: User Define IP Address: 192.168.0.111 Subnet Mask: 255.255.255.0 Default Gateway: 192.168.0.1 DNS Server: 168.95.1.1 Modbus Server Modbus TCP Port: 502 Web Server: Enable Serial RS232/485 Protocol: Modbus Slave Address: 1 Baud Rate: 115200 Data Format: No,8,1	
Email Test	Back

Select IP type = User Define.

Enter the IP Address, Subnet Mask, Default Gateway, DNS Server Settings in the Ethernet Settings.

Note: Make sure to enter Global, Unique, static fix IP address received from Internet solution provider.

6.2.2 How to Enable Web Server

Communication		mem SD 15:13:46 77% 100% 03/10/14
Communication		
Ethernet IP: User Define IP Address: 192.168.0.11 Subnet Mask: 255.255.25 Default Gateway: 192.16 DNS Server: 168.95.1.1 Modbus Server Modbus TCP Port: 502 Web Server: Enable	11 55.0 58.0.1	
-Serial -RS232/485 -Protocol: Modbus Slav -Address: 1 -Baud Rate: 115200 -Data Format: No,8,1	e	
Email Test		Back

Select Web Server Menu in the Communication Menu.

Enable the Web Server for using Web Server application in the Recorder.

Configura	tion	Mem SD 14:43:07 78% 100% 03/10/14						
	Configuration							
Save	Channel AI DI							
Load	Do Display Timer	-						
Default	 Clock Communication Instrument Password: ******* Demo: Enable Auto-Output 							
	System Information	*						

After completing the above steps, press "BACK" key first then "Home" key to return to main menu. It will save the configuration settings in the Recorder.

Now the Recorder is ready for the Web Server Applications.

6.3 How to View Recorder Data in PC Via Webserver :

Connect Paperless Recorder to the Internet



Enter the IP address of the Recorder in the address bar of the browser.

Format: http://192.168.1.111

Now you can see Paperless Recorder screens in browser as shown below

				ALS					AIG				
0/14 15:14	03/10/14 15:36:54	03/10/14 15:38:34	03/10/14 15:40:14	03/10/14 15:41:54	03/10/14 15:43:34	03/10/14 15:45:14	03/10/14 15:46:54	03/10/14 15:48:34	03/10/14 15:50:14	03/10/14 15:51:54	03/10/14 15:53:34	03/10/14 15:55:14	03/10/1 15:56:
Sta	tus												
Ala	m					1 Se	ec/Dot						
Real	time de	668.8		"C		88	i2.3		TC		163.5		
	m			Realtime					419	Pagel			
			_										

The display includes Real time values of all channels like AI,Math,Counters,Totalizers, Real time alarms, historical alarms, status of Digital Inputs, Digital Outputs, Analog Outputs, Counters, Totalizers etc..

•

Menu			Realtime						Pagel			
Realtime	Pagel		#2		į	304.6		A13		147.7		
Mode	Page2		°C		1	Sec/Dot		76				
Alarm	Page3											
Status	Page4											
	Page5											
	Page6											
	Page7											
	Page8											
	Overview											
4 03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/14	03/10/

Menu		Realtime		Overview	
AII	159.4	A12 257.3	^{АВ} - 33.5	A14 274.7	AI5 758.0
A16	810.1	AI7 1495.3	ec AI8 1869.2	°C A19 426. 7	AI10 AI10 1051.7
A111	2033.6	AII2 AII2 1799.6	°F A113 16.60	°F All4 27.70	-*F A115 38.86
AII6	83.40	°F All7 72.26	A118 61.13	- 48.4	A120 65.8
A121	-170.5	A122 362.5	A123 1197.4	AI24 1393.4	Counter9
Math2	1611.9	Math ³ 460.2	Math4 777.0	Math5 1275.6	Math6 989.5
Math7	61.1	Math8 72.3	Math9 83.4	Math10 83.4	Math11 72.3

Press Overview to view the summary of all datas in single screen

Pressing Mode You can view the datas in Bar Graph, Trend and Digital Values.



By Pressing Trend you can view the datas in trends.

Menu			Realtime					Pagel		
Realtime	6.8		22		78.9		AIS		-92.	5
Mode	T	1370.0	°C	-400.0	T	900.0	78 T	1820.0	T	1767.8
Alarm	-	- 1213.0	-	- 335.0	-	- 800.0	-	- 1638.0	-	- 1591.0
Status	-	- 1056.0	-	- 270.0	-	- 700.0	-	- 1456.0	-	- 1414.2
- 664.0	-	- 899.0	-	205.0	-	- 600.0	-	- 1274.0	-	- 1237.5
- 552.0	-	- 742.0	-	- 140.0	-	- 500.0	-	- 1092.0	-	- 1060.7
- 440.0	-	- 585.0	-	- 75.0		- 400.0	-	- 910.0	-	- 883.9
- 328.0	-	- 428.0	-	- 10.0	-	- 300.0		- 728.0	-	- 707.1
- 216.0	-	- 271.0	-	55.0		- 200.0		- 546.0	-	- 530.3
- 104.0	-	- 114.0	-	-120.0	-	- 100.0	-	- 364.0	-	- 353.6
8.0		43.0		-185.0	-	- 0.0	-	- 182.0	-	- 176.8
-120.0		-200.0		-250.0		-100.0		0.0		0.0

By Pressing Bar You can view the datas in Bar Graph

By pressing the Digit You can view the Datas in the digital format



♂ C 192.168.0.111/#						
Menu	Alarm		m			
Active Time	Acked	Туре	Name	Value		

Pressing Alarm You can view the List of Alarms with the details

Pressing Status you can view the status of the Analog outputs, Digital Inputs, Digital Outputs, Counters and Totalizers.

Web	Viewer ×				
← →	C 192.168.0.111/#				☆ =
	Menu	Status		DI	
DI D	0 A0 Counter Totalizer				
No.	Name	Value	Description		
1	DI1	Hi			
2	DI2	3			
3	DI3	Hi			
4	DI4	3			
5	DI5	Hi			
6	DI6	3			

By Pressing DI you can view the status of the Digital Inputs

🕒 Web	Viewer ×				
€ ⇒	C 192.168.0.111/#				☆ =
	Menu	Status		DO	4
DI D	00 AO Counter Totalizer				
No.	Name	Value	Description		
1	DO1	Off			
2	DO2	Off			
3	DO3	Off			
4	DO4	Off			
5	DO5	Off			
6	DO6	Off			

By Pressing DO you can view the status of the Digital outputs

By Pressing AO you can view the status of the Analog Outputs

Web	o Viewer ×	And the second s			- 0 ×
€ ⇒	C 192.168.0.111/#				☆ =
	Menu	Status		AO	
DI	DO AO Counter Totalizer				
No.	Name	Value	Description		
1	AO1	4.106			
2	AO2	5.421			
3	AO3	6.737			
4	AO4	8.051			
5	AO5	9.368			
6	AO6	10.684			

Menu	Status	Counter	
DI DO AO Counter Totaliz	er		
No. Name	Value	Description	
Counter9	0		
2 Counter1	0		
3 Counter2	0		
4 Counter3	0		
5 Counter4	0		
6 Counter5	0		
7 Counter6	0		
8 Counter7	0		
O Counter8	0		

By pressing Counters you can view the status of the counters

By Pressing Totalizers you can view the status of the totalizers.

W	'eb Viewer 🛛 🔪 🔲			
(-	C 192.168.0.111/#			값 =
	Menu	Status		Totalizer
DI	Realting Counter Totalizer			
No.	Name	Value	Description	
1	Totalizer1	0.000		
2	Totalizer2	5.064e+5		
3	Totalizer3	1.347e+5		
4	Totalizer4	2.765e+5		
5	Totalizer5	5.656e+5		
6	Totalizer6	5.433e+5		
7	Totalizer7	5.559e+4		
8	Totalizer8	5.464e+4		