SCREEN CREATOR 5
User's Manual

Vol. 5
CONTROL
REFERENCE

■ Contents

How This Manual Is Organized

This Screen Creator 5 facilitates you to create screens by arranging parts such as lamps, switches, numeral displays, etc.   Each of those parts is created by combining members having desired functions.   Each of the members has a basic function which is referred to as a control.   This manual explains each of those controls.

This manual is divided into the following two chapters.

CHAPTER 1   GENERAL DESCRIPTION OF CONTROL
  This chapter explains the concept of control.
  Be sure to read this chapter before using this manual to understand the contents of control.

CHAPTER 2   CONTROL REFERENCE
  This chapter explains individual controls in detail.

It is also recommended to refer to the following manuals when using this equipment.

Vol.1   Screen Creator 5 Manual (Introduction)
  This manual describes the basic operation methods of the Screen Creator 5.

Vol.2   Screen Creator 5 Manual (Operation)
  This manual describes details of each operation of the Screen Creator 5.

Vol.3   Screen Creator 5 Manual (Connection to a PLC/External Devices)
  This manual describes how to communicate with an PLC and a host computer and how to connect this equipment to external devices.

Vol.4   Screen Creator 5 Manual (Standard Parts Catalog)
  This manual explains functions of the standard parts supplied by Koyo.

Vol.5   Screen Creator 5 Manual (Control Reference)
  This is a reference manual for controls used for creating parts.

Vol.6   Screen Creator 5 Manual (K-Basic Program Description)
  This manual explains how to describe operation programs for creating screens, as well as necessary commands for the purpose.

Vol.7   Screen Creator 5 Manual (Troubleshooting and List of Error Codes)
  This manual describes restrictions for creating screens on the Screen Creator 5, how to process troubles, and explains error codes.

Safety Precautions

Be sure to follow the safety precautions listed below in order to use the OIP safely. Koyo Electronics Industries Co,Ltd.. cannot be held liable for any damages incurred if these safety precautions are not followed.

⚠ **WARNING**

- **Design your system so that there are sufficient countermeasures for personnel accidents and major equipment accidents. The system should have an external protection and safety circuit, so that even if the OIP should malfunction or even if there is a defect in the program the safety of the system is assured.**

- **Do not use the touch panel of the OIP to make switches that are related to safety or people or major damages (emergency safety switches, etc.). Be sure that the system is designed so that it can cope with any errors or malfunctions in the touch panel.**

- **Be sure that type 3 grounding is used for the protective-grounding terminal. There is a possibility of electrical shock if the unit is not grounded.**

- **If the OIP should malfunction, immediately turn off the poser and leave it alone.**

- **If there is direct output to external output device such as PLCs, direct output will be driven regardless of the ladder circuit interlock. Output may be used to drive motors and the like, so avoid using direct output because it is dangerous.**

⚠ **CAUTION**

- **Use and store the OIP in the environment described in the specifications (regarding vibration, shock, temperature, humidity, etc.).**

- **Do not use the OIP where it is subjected to inflammable or explosive gas, or steam.**

- **Before turning on the power, be sure that the power voltage rating of the OIP and the voltage rating power supply match. Using a mistaken power supply can damage the unit.**

- **Do not disassemble or modify the OIP. Doing so can cause malfunctions and lead to other problems.**

- **The OIP touch panel is made of glass. Striking it with hard objects or pressing hard on it may break the glass.**

- **Do not push down on the OIP touch panel with mechanical pencils, screwdrivers, or other sharp objects. Doing so can damage the touch panel or cause malfunctions.**

Notations Used In This Manual

This manual uses the following symbol marks for you to use this system comfortably.

⚠	**WARNING**	Describes a peril that may cause operator's death or serious injury in neglecting the WARNING item(s).
⚠	**CAUTION**	Describes a peril that may cause bodily injury or serious device damage in neglecting the CAUTION items(s).
[!]		Describes general note(s) in use.
Note)		Explanations and supplements.

Glossaries used in this manual are as follows.

OIP	Stands for Operator Interfase Panel.
PLC	Stands for programmable controller. It is also called a sequence controller.
Link unit	A link unit is a communication equipment which connects this equipment and the PLC. The nomenclature of the communication equipment is different from each manufacture and the equipment is called a link unit in general.
Device	A device is such equipment that an input/output relay, internal relay, timer, counter, or resister in the PLC.

Notice

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Overseas Division
Koyo Electronics Industries Co.,Ltd.

Address: 1-171 Tenjin-cho, Kodaira, Tokyo 187-0004 Japan
Telephone: 81-42-341-7711
Facsimile: 81-42-342-6871
Mail: OSD@koyoele.co.jp

Version Up

Koyo Electronics Industries Co,Ltd.. has upgraded Screen Creator 5 for adding new functions, operationability and so forth.
Below will be introduced the updated functions.

1.   Version 2.10

   ● Supporting middle size systems (GC53) of GC5x Series

   ● Adding the uploading editing function

      To make this function effective, attach all screen data and K-Basic programs used in the project and download them to the panel.   Then download the uploaded entities from the panel and restore them.   Then you can edit the data and programs.   Note that the data with the project attached increase their size.

   ● The following PLCs have been added.

Omron	SYSMAC α
Fuji Dennki	FLEX-PC NJ-T/NS-T
Fuji Dennki	Computer-link protocol
Fuji Dennki	Loader command protocol
Toyota Koki	PC1
Toyota Koki	PC3
Matsushita Electric Industry	Panadac 7000

   ● Standard components, centered on the parts used for middle size systems (GC53) in the GC5x Series have drastically been added.

CHAPTER 1

# GENERAL DESCRIPTION OF CONTROL

1-1 A Control Means

The Screen Creator 5 allows screens to be created with various parts such as lamps, switches, number indicator, etc. arranged on them.   Each of those parts is created by combining members having a basic function referred to as a control individually to realize the desired function of the object part. In other words, a control means a member to realize the most basic function for forming a desired OIP screen.   The member functions to display a lamp and a numeral, as well as to turn on/off a switch.

A part can be provided with two or more such controls.   In addition, controls can be arranged in a part so that they are put on top of another.

Switches and lamps are often arranged side by side.   To realize such a way of usage of parts, therefore, some controls are provided with an "array" function respectively.   One control can thus realize the same function as that realized by two or more controls arranged in every direction.   To use such an array function, it must be specified that how many controls should be arranged horizontally (X direction) and/or vertically (Y direction), as well as the spacing of those controls in each direction using the attributes.

A control was referred to as a primitive in GCSGP3.
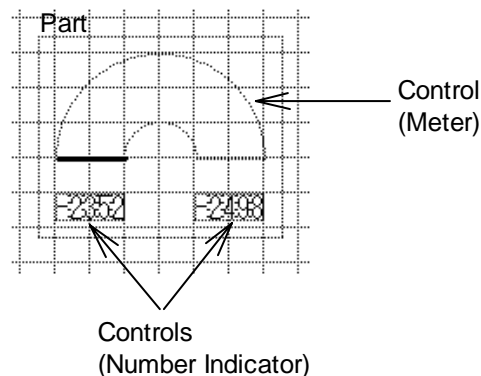
The controls and their functions prepared for each OIP at present are as shown below.

Control Name	Function	Array
Switch	OIP touch switch realizing a switching function	○
Selector switch	OIP touch switch realizing a switch array function that only one switch can be turned on.	○
Number Indicator	Displays a given numeral.	○
Character Indicator	Displays a given text.	○
Clock Indicator	Displays the time of the OIP built-in clock.	
Figure Indicator	Displays a given texture.	○
Plot graph	Plots given 2 data items on a graph as 2-dimentional coordinate values.	

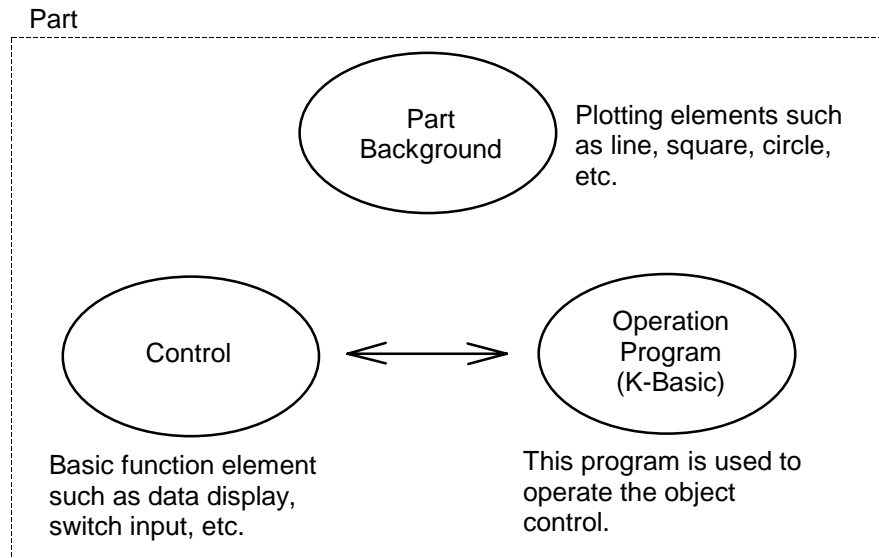| Control Name	Function	Array
Bar graph	Displays each given data as a length of a vertical bar.　Two or more types of bars can be displayed on the horizontal direction.	
Line graph	Displays given data on a line graph.　Two or more lines can be displayed on the graph.	
Band graph	Displays percentages of given two or more data items on a band graph.	
Circle graph	Displays percentages of given two or more data items on a circle graph.	
Free graph	Displays the percentage of each given data item on a bar graph in an area set in a transparent part background figure.　A level meter can be drawn in any patterns.	
Slider	Displays a texture at a position on a line according to given data. A knob, etc. can be displayed for a slide volume.	
Meter	Displays a pointer on a given fan-like meter according to given data.	
Lamp	Changes the background color according to the status of given data.	○
Pipe	Displays the inside color of a pipe according to the status of given data.　The flow, etc. in a pipe can be represented.	

1-2　Control Action

There are two methods for operating each control arranged in a part; one method using an operation program and the other method using operation parameters.　Hereunder, each of the methods will be explained.

1-2-1　Control Action by Program

First method by part operation program: A K-Base command is executed to let a control perform a desired action.　In this case, the dedicated K-Base statement or function prepared for each control is called from the operation program.

The relationship among members of a part is as shown below.

Part

The table below shows the types and functions prepared for each control.   For details of each command, refer to the K-Basic program description manual.

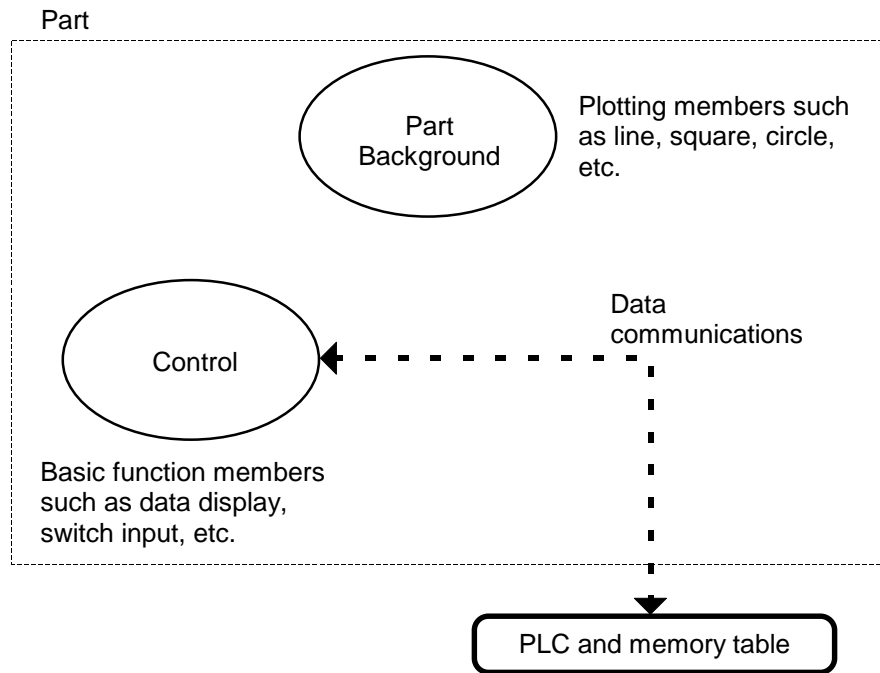| Control Name	Command	
Switch (Selector switch)	SWFIG	Specifies a figure to be displayed at its ON/OFF time.
	SWMODE	Changes the status (normal/input inhibition/half-tone.
	SWREAD	Reads the ON/OFF status.
	SWREV	Specifies whether to display an object in the reverse video at its ON/OFF time.
	SWWRITE	Writes the ON/OFF status.
Number Indicator	NUMCOLOR	Changes the color/background.
	NUMDSP	Displays numeral data.
	NUMFORM	Changes the display format.
Character Indicator	STRCOLOR	Changes the color/background.
	STRDSP	Displays text data.
	STRFORM	Changes the display format.
Clock Indicator	None	
Figure Indicator	FIGCOLOR	Changes the color/background.
	FIGDSP	Displays a texture.
	FIGFORM	Changes the display format.
	ROTATE	Rotates and displays a texture.
Plot graph	PLTCOLOR	Changes the color/background.
	PLTDSP	Plots data.

Control Name	Command	

Bar graph	BARCOLOR	Changes the color/background.
	BARDSP	Displays data.
	BARSET	Specifies data.
	BARSHIFT	Shifts a graph to the right/left.
Line graph	LNECOLOR	Changes the color/background.
	LNEDSP	Displays data.
	LNESET	Specifies data.
	LNESHIFT	Shifts a graph to the right/left.
	LNESHIFT2	Shifts graph data to the right/left.
	SETLNEPLOT	Specifies a display range.
Band graph	BLTCOLOR	Changes the color/background.
	BLTDSP	Displays data.
	BLTSET	Specifies data.
Circle graph	CIRCOLOR	Changes the color/background.
	CIRDSP	Displays data.
	CIRSET	Specifies data.
Control name	Command	
Free graph	FRECOLOR	Changes the color/background.
	FREDSP	Displays data.
Slider	SLDDSP	Displays data.
Meter	MTRCOLOR	Changes the color/background.
	MTRDSP	Displays data.
Lamp	LAMPCOLOR	Changes the color/background.
	LAMPDSP	Displays data.
Pipe	PIPCOLOR	Changes the color/background.
	PIPDSP	Displays data.
Common to various controls	CLEAR	Clears the display.
	DSPMODE	Changes the display mode.
	EXECPRCODE	Computes control data.
	PRDSP	Displays the object again.
	PRMCTL	Changes the control attribute.
	PRMSTAT	Reads a control attribute.
	RANGE	Specifies a range.

1-2-2   Control Action by Parameter

The second method for operating each control is a method in which the control functions by operating a PLC device and a value in the memory table (read/write) directly by itself.   When the check box of "Enable" in the control attribute is checked, controls can be operated by operation parameters.   With this, a PLC device and the memory table to which a control is to be connected can be set as operation parameters of the object part.

The above relationship among members of a part is as shown below.

Part

Part Background

Plotting members such as line, square, circle, etc.

Data communications

Control

Basic function members such as data display, switch input, etc.

PLC and memory table

2-1

CHAPTER 2

CONTROL REFERENCE

2-1   Switches

┌─────────────┐
│ Function   │
└─────────────┘

Screen Creator 5 is a piece of software that creates screens to be displayed on the OIP with a personal computer.   This software provides the following features.

A switch has a function for converting an OIP touch switch to a logical input switch on a display screen.

One touch switch has a space of 20×20 dots.

For a screen of 640×480 dots, the screen can have 32×24 touch switches.
For a screen of 640×400 dots, the screen can have 32×20 touch switches.

One switch control can form a logical switch (switch matrix) using two or more touch switches.

One switch control also allows each of switch matrixes arranged horizontally and vertically to function as an independent switch.   Such an arrangement of switch matrixes is referred to as a switch array.
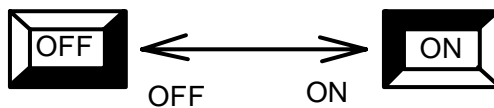
Example: Switch control area

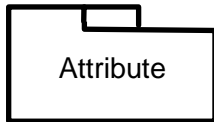3×2 switch matrix
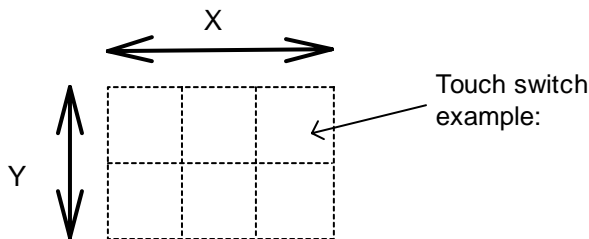
OFF texture: P_OFF22   ON texture: P_ON22

When both ON and OFF texture are specified, the switch texture is displayed according to the switch ON/OFF status.

```
┌──────────────┐
│ ┌──┐         │
│ └──┘         │
│   Attribute  │
└──────────────┘
```

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is
  referenced by the program. Thus, be careful not to change any control
  name unnecessarily. Otherwise, the change will affect the program badly.

- Type
  Select the switch type from operation types of momentary, alternate, and
  auto repeat.

  - Momentary type
    This type switch keeps the ON status while it is held down. When the
    switch is released, the switch enters the OFF status.

  - Alternate type
    This type switch is turned ON/OFF alternately each time the switch is
    pressed.

  - Auto repeat type
    This type switch generates ON events periodically while the switch is
    held down. When "operation parameters" are valid, this type switch
    operation will be the same as that of the momentary type switch.

- Background color mode
  Select how to handle the background of the ON/OFF figure.

  - Draw
    When the switch is turned ON/OFF, the switch control area is painted
    with the background color, then the figure is displayed.

  - Replace
    When the switch is turned OFF, the figure is displayed without painting
    the switch control area. When the switch is turned ON, the specified
    OFF figure background in the part background in the switch control area
    is replaced with the specified ON figure background. After this, the
    figure is displayed. For a monochrome type OIP, when the switch is
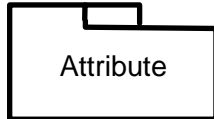   turned ON, the switch area is displayed in the reverse video.

> ⚠ Caution
> "Replace" is performed only for the part background. Even when a
> switch control is put on another control, the color of the bottom control
> does not affect the replacement.

- Reverse video at ON
  Specify whether to display the switch area in the reverse video
  when a touch panel switch is pressed.

> ⚠ Caution
> If [REPLACE] and [REVERSE] are selected together for a monochrome
> type OIP, the switch display is not changed when the switch is turned
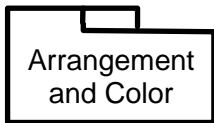> ON/OFF.

| Attribute |

- Buzzer at ON
  Specify whether to make the buzzer sound when a touch panel switch is pressed.

- Initial status
  Specify the initial status of the switch control part (normal/input inhibition/half-tone).   The attribute contents are the same as those of the part.

- PIO output
  Specify a parallel IO module in bits, which outputs "H" when the switch is turned ON.

- Ream step
  Specify the number of switches to be arranged and the switch interval in both X and Y directions.

Change of a switch array may affect the operation program.   To avoid this, change the operation program description accordingly when a switch array is changed.
Note that when switches are arranged in an array, the message data format is changed.   For details, refer to "3-12   Message Format" in the "K-Basic Program Description".

| Arrangement and Color |

- Arrangement information

  - Left Top grid
    Indicates the coordinates of the touch switch positioned in the top left of the switch matrix (for a switch array, it is the upper left matrix defined as a reference) with the upper left grid coordinates of the touch switch.

  - Right Bottom grid
    Indicates the coordinates of the touch switch positioned in the bottom right of the switch matrix (for a switch array, it is the upper left matrix defined as a reference) with the upper left grid coordinates of the touch switch.

- Background
  Specify the texture and the background color to be displayed in the control area when the switch is turned ON/OFF.

  - Texture when ON
    Select the texture to be displayed when the switch is turned ON.

  - Color when ON
    Select the background color to be displayed when the switch is turned ON.

  - Texture when OFF
   Select the texture to be displayed when the switch is turned OFF.

• Color when OFF
  Select the background color to be displayed when the switch is turned
  OFF.

The background decided for the texture is expanded/shrunk automatically
according to the size of the switch matrix.   When this is not specified, no
texture is displayed.

When a complicated figure/bit map figure and a slower display figure
(fan-shape painting, curve) is specified as a texture for ON/OFF time,
the switch response speed is lowered.

• Image
  Specify the ON time image or the OFF time image to be displayed on the
  Screen Creator screen.

Operation
parameters
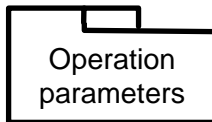
• Enable
  When the check box is checked, operation parameters of each part can be
  used to specify control actions.   The control area is displayed in gray at this
  time.   When operation parameters are invalid, the control area is displayed
  in yellow.

• Station Device
  Specify the name of the PLC device or the memory table in which the switch
  value is to be written when the switch is turned ON/OFF.

• Synchronized operation
  When the check box is checked, the switch ON/OFF status is displayed after
  the switch is pressed and values are written in parameters "station No. ~
  device name".
  When the check box is not checked, the switch ON/OFF status is displayed
  regardless of the writing in devices.

If a device value is changed when in a synchronized operation, the OIP
side switch is also turned on.   Unless a normal value writing is
confirmed, the switch cannot be turned ON/OFF.

• Writing when ON
  Specify the values to be written in "station No. ~ device name" when the
  switch is turned ON.

• Writing when OFF
  Specify the values to be written in "station No. ~ device name" when the
  switch is turned OFF.

If "YES" is specified for "synchronized operation", the "Writing when ON
" and the "Writing when OFF" must be different from each other.   If the
same value is specified for both parameters, "1" is written for ON and "0"
is written for OFF when the OIP begins an operation.
If, when "YES" is selected for "synchronized operation", writing in

"station No. ~ device name" fails, then the switch operation is disabled.

The OIP touch panel switch function determines all the switches of a pressed switch matrix to be ON.   Thus, when two or more switch matrixes are pressed at the same time, a switch control corresponding to each of those switch matrixes is turned ON.
However, note that when 3 or more switch matrixes are turned ON at the same time, a switch matrix that is not pressed may also be turned ON because of the operation characteristics.

2-2 Selector Switches

Function

A selector switch has a function for converting OIP touch switches to logical input switches on the display screen.

A selector control switch has two or more logical switches, but enables only one of them to be turned ON.   This is a difference from a switch control of a switch array.

One touch switch has a space of 20×20 dots.

For a screen of 640×480 dots, the screen can have 32×24 touch switches.
For a screen of 640×400 dots, the screen can have 32×20 touch switches.

One logical switch can use two or more adjacent touch switches arranged horizontally and vertically.   Such an arrangement of switches is referred to as a switch matrix.

Example:

Selector switch control area

Y switch interval

X switch interval
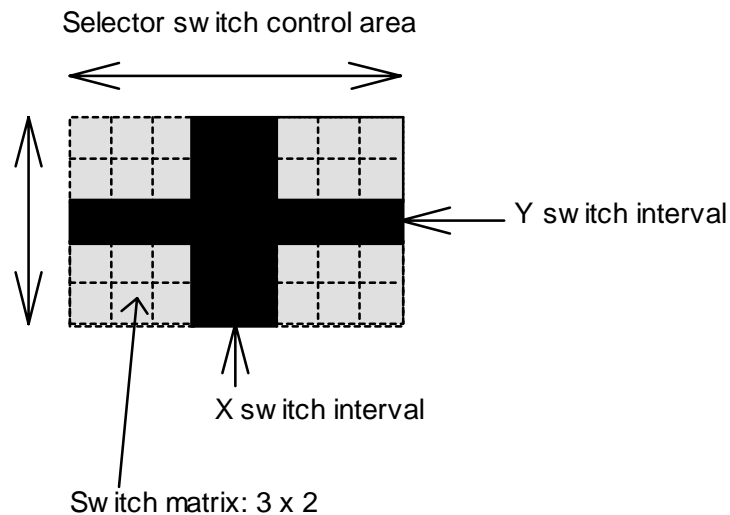
Switch matrix: 3 x 2

Switch matrix setup

Number of switch ream step: 2 x 2

X switch interval: 2

Y switch interval: 1

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Background color mode
  Select how to handle the background of the ON/OFF figure.

  - Draw
    When the switch is turned ON/OFF, the switch control area is painted with the background color, then the figure is displayed.

  - Replace
    When the switch is turned OFF, the figure is displayed without painting the switch control area.   When the switch is turned ON, the specified OFF figure background color in the part background in the switch control area is replaced with the specified ON figure background color.   After this, the figure is displayed.   For a monochrome type OIP, when the switch is turned ON, the switch area is displayed in the reverse video.

"Replace" is performed only for the part background.   Even when a switch control is put on another control, the color of the bottom control does not affect the replacement.

- Reverse video at ON
  Specify whether to display the switch area in the reverse video when a touch panel switch is pressed.

If [REPLACE] and [REVERSE] are selected together for a monochrome type OIP, the switch display is not changed when the switch is turned ON/OFF.

- Buzzer at ON
  Specify whether to make the buzzer sound when a touch panel switch is pressed.

- Initial status
  Specify the initial status of the switch control part (normal/input inhibition/half-tone).   The attribute contents are the same as those of the part.

- Ream step
  Specify the number of switch arrays and the switch interval in both X and Y directions.

The number of switch arrays may depend on the operation program. To change the number of switch arrays, also change the operation program description as needed.

Arrangement and Color

- Arrangement information

  - Left Top grid
    Indicates the coordinates of the touch switch positioned in the top left of the switch matrix (for a switch array, it is the upper left matrix defined as a reference) with the upper left grid coordinates of the touch switch.

  - Right Bottom grid... Indicates the coordinates of the touch switch positioned in the bottom right of the switch matrix (for a switch array, it is the upper left matrix defined as a reference) with the lower right grid coordinates of the touch switch.

- Background
  Specify the texture and the background color to be displayed in the control area when the switch is turned ON/OFF.

  - Texture when ON
    Select the texture to be displayed when the switch is turned ON.

  - Color when ON
    Select the background color to be displayed when the switch is turned ON.

  - Texture when OFF
    Select the texture to be displayed when the switch is turned OFF.

  - Color when OFF
    Select the background color to be displayed when the switch is turned OFF.

  The background decided for the texture is expanded/shrunk automatically according to the size of the switch matrix.　When this is not specified, no texture is displayed.

Caution

When a complicated figure/bit map figure and a slower display figure (fan-shape painting, curve) is specified as a texture for ON/OFF time, the switch response speed is lowered.

- Image
  Specify the ON time image or the OFF time image to be displayed on the Screen Creator screen.

Operation parameters

- Enable
  When the check box is checked, operation parameters of each part can be used to specify control actions.　The control area is displayed in gray at this time.　When operation parameters are invalid, the control area is displayed in yellow.

- Station Device
  Specify the name of the PLC device or the memory table in which the switch value is to be written when the switch is turned ON/OFF.

- Device type

  - Word
    The number of a pressed selector switch is written in the device. When all elements are off, "0" is written.

  - Bit
    The devices specified for "station No. ~ device name" are used by the number of switch elements. "1" is written in a device separated from the "station No. ~ device name" according to the number of the pressed switch. When all the switch elements are OFF, "0" is written. (If a synchronized operation is specified, the number of elements usable for a selector switch depends on the number of devices in which values can be written continuously. Check the number of usable devices in the "Connection to a PLC/External Devices".

- Synchronized operation
  When the check box is checked, the switch ON/OFF status is displayed after the switch is pressed and values are written in parameters "station No. ~ device name".
  When the check box is not checked, the switch ON/OFF status is displayed regardless of the writing in devices.

If a device value is changed when in a synchronized operation, the OIP side switch is also turned on. Unless a normal value writing is confirmed, the switch cannot be turned ON/OFF.
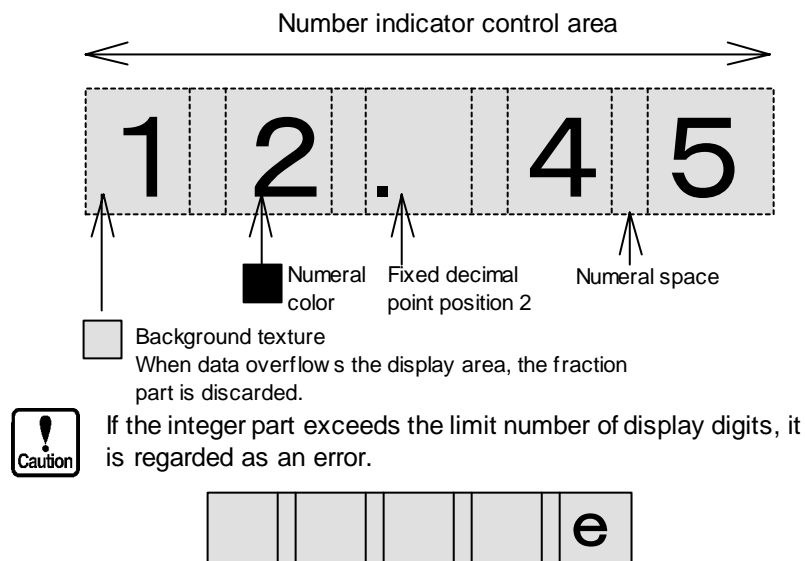
2-3 Number Indicator

Function

A number indicator displays given data as a numeral.   A number indicator has a rectangular area corresponding to the sizes and the number of digits of numerals.

If any data exceeds the limit number of display digits, an "e" is displayed as shown below.

Example:

Number indicator control area

Numeral color

Fixed decimal point position 2

Numeral space

Background texture
When data overflows the display area, the fraction part is discarded.

Caution If the integer part exceeds the limit number of display digits, it is regarded as an error.

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    The fore color of the background is replaced with the object display color.

  - Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the background is kept as is. The cycle is fixed by the system (1 sec).

> [!CAUTION]
> If transparent is specified for the fore color of the background as a reverse video display, no numeral is displayed.

- Decimal point

  - Fixed
    The decimal point is displayed at a fixed position. Unless data is an integer and "0" is set for "decimal point position", data is displayed as a real number.

  - Floating
    The decimal point is float-displayed.

  - Fixed 2
    The decimal point is displayed virtually. For integer data, the decimal point is displayed at the digit specified for "decimal point position".

- Position of point
  This attribute is valid when "Fixed" or "Fixed 2" is specified for "decimal point".
 Specify the number of decimal places (0 to 24).

  Example: If "1" is specified for "decimal point position" when the number of display digits is 5 (fixed),
  123.45 → 123.4
  If "1" is specified for "decimal point position" when the number of display digits is 6 (fixed 2),
  12345 → 1234.5

> [!CAUTION]
> If the limit number of digits is exceeded to specify the decimal point position, an "e" is displayed.
> If the decimal point position value is too large (exceeding the accuracy of floating decimal point type data), the data is not displayed normally.
> The valid decimal point position is within 6 decimal places.

- Font
  Not use

- Not zero-suppression
  Specify zero suppression.
  If the check box is checked, "0" is displayed for the number of upper digits not included in the displayed numeral.

- Cardinal number
Specify the data format for the display.
        For "BIN", "OCT", and "HEX", specify "0" for "decimal point position" and "Fixed" for "decimal point".

  - BIN
  Data is displayed as a binary number.

  - OCT
  Data is displayed as an octal number.

  - DEC
  Data is displayed as a decimal number with sign.

  - uDEC
  Data is displayed as a decimal number without sign.

  - HEX
  Data is displayed as a hexadecimal number.

- Ream step
Specify the number of display arrays and the display interval in both X and Y directions.
When not arranged in arrays, specify "1" for the number of arrays in the X/Y direction.

Arrangement and Color

- Arrangement information

  - Base point
  Indicates the position of the numeral display on the screen with the X and Y coordinate values of the upper left corner of the numeral display.

  - Length and interval
  Specifies the number of display digits (1 to 24) and the numeral interval (0 to 99 dots).

  - Size
  Select the sizes in the X and Y directions from 2, 4, 8, and 16 times.

  - Rotation
  Select the angle (90, 180, and 270 deg.) of the clock-wise rotation around the reference point at the upper left corner of the numeral display.

- Numeral color and background

  - Numeral color
  Select the numeral color to display.

  - Tile
  Select the tile pattern.
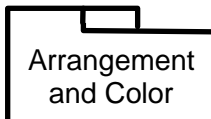
- Fore color
  Select the fore color.   The black portion of the tile pattern becomes the
  fore color.

- Back color
  Select the back color.   The background color becomes the back color.

- Image
  Specify the numeral to be displayed on the Screen Creator.

Operation parameters

- Enable
  When the check box is checked, each control action can be specified with
  operation parameters of the object part.   At this time, the control area is
  displayed in red.   When operation parameters are invalid, the control area is
  displayed in yellow.

- Station Device
  Specify the name of the PLC device or memory table to be displayed on the
  numeral display.

- Device type

  - Word
    The length of the data in the PLC device or the memory table to be
    displayed on the numeral display is specified as a word.

  - Double words
    The length of the data in the PLC device or the memory table to be
    displayed on the numeral display is specified as double words.

- Endian

  - Little
    Select this type when setting word data of the upper device (having the
    larger number) in the upper word of the double words for display.

  - Big
    Select this type when setting the word data of the lower device (having
    the smaller number) in the upper word of the double words for display.

- Data type
  Specify the type of data to be received from the PLC device or the memory
  table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD

BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Filter
  Each device value can be calculated and displayed.   The device value is
  represented by "X".   Symbols, numerals (*, /, +, -, ( ), 0 to 9), and the
  decimal point can be used for calculation.
  If no data calculation is needed, enter no value.

  Example: "X*20+1" means that a device value is multiplied by 20, then 1 is
               added to the result.

When number indicator are arranged in "arrays", devices for the number
of arrays are connected.
If "BCD" is selected for "data type", the result of "data calculation" is
always displayed as an integer even when it has decimal places.
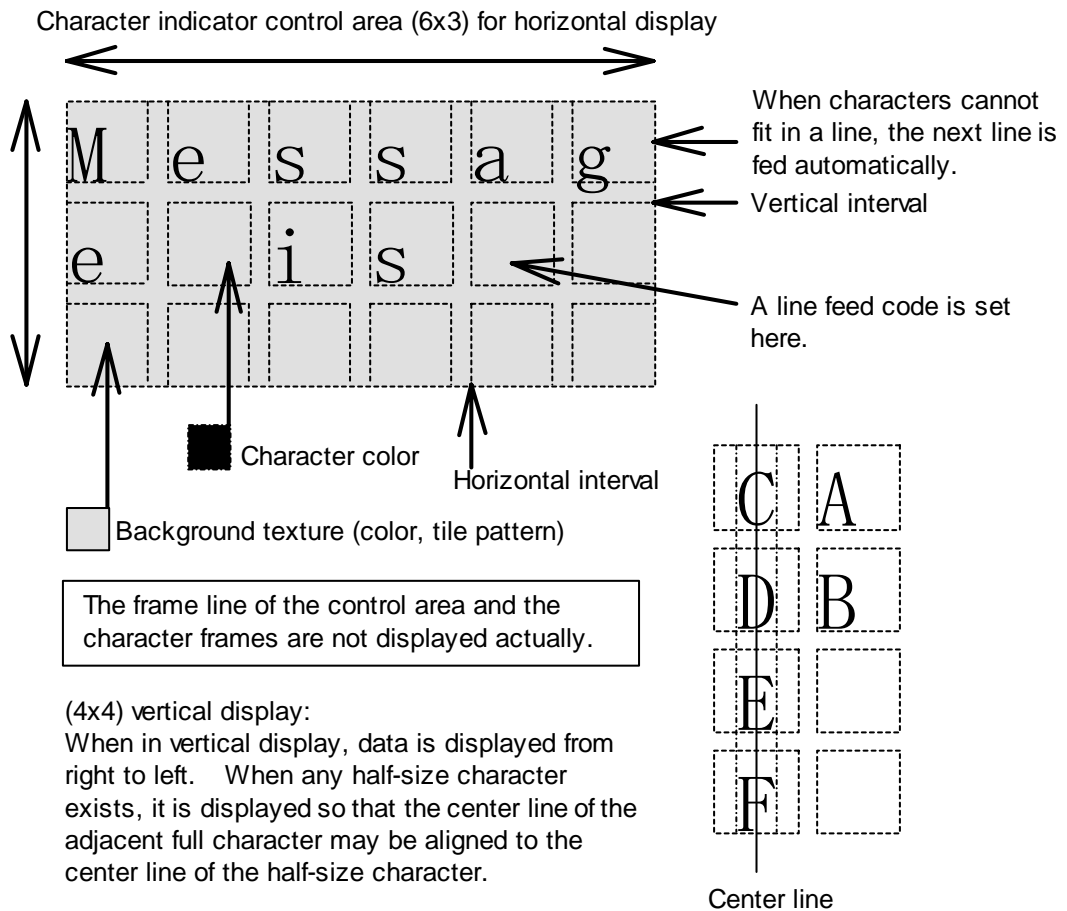
2-4 Character Indicator

Function

A character indicator displays characters corresponding to given character code data.   Usable display codes are JIS and ANK.   If characters overflow a line of the display area, another line is fed automatically.

When operation parameters are enabled, a registered text specified by the value of the PLC device or the memory table is displayed.

Example:

Character indicator control area (6x3) for horizontal display

When characters cannot fit in a line, the next line is fed automatically.

Vertical interval

A line feed code is set here.

Character color

Horizontal interval

Background texture (color, tile pattern)

The frame line of the control area and the character frames are not displayed actually.

(4x4) vertical display:
When in vertical display, data is displayed from right to left.   When any half-size character exists, it is displayed so that the center line of the adjacent full character may be aligned to the center line of the half-size character.

Center line

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

- Reverse video
  The fore color of the background color is replaced with the object display color.

- Blink
  The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for the fore color of the background as reverse video display, no numeral is displayed.

- Display direction

  - Horizontal
    Data is displayed from right to left.

  - Vertical
    Data is displayed from top to bottom.

When in "vertical display", each half-size character is displayed in the center of a full-size area.   Thus, when "1" is set for "number of horizontal characters" to display half-size characters vertically, the characters cannot be displayed normally.   When "vertical display" is specified, specify "number of horizontal character" to EVEN.

- Format

  - Left justification
    Characters are left-justified for display.   When in vertical display, characters are top-justified.

  - Centering
    Characters are displayed in the center.   Also when in vertical display, characters are displayed in the center.

  - Right justification
    Characters are right-justified for display.   When in vertical display, characters are bottom-justified.

- Ream step
  Specify the number of character display arrays and the character display interval in both X and Y directions.   When not arranging character displays in arrays, specify "1" for the number of arrays in the X/Y direction.

```
┌─────────────┐
│ ┌──┐        │
│ Arrangement │
│  and Color  │
└─────────────┘
```

- Arrangement information

  - Base point
    Indicates the position of the character display on the screen with the X and Y coordinate values of the upper left corner of the character display.

  - Length and interval X
    Specifies the number of display characters (1 to 180).   Specify the display character spacing (0 to 99 dots).

  - Length and interval Y
    Specifies the number of display characters (1 to 25).   Specify the display character spacing (0 to 99 dots).

  - Size
    Select the sizes in the X and Y directions from 1, 2, 4, 8, and 16 times.

  - Rotation
    Select the angle (90, 180, and 270 deg.) of the clock-wise rotation around the reference point at the upper left corner of the character display.

- Character color and background

  - Character color
    Select the character color to display.

  - Tile
    Select the tile pattern.

  - Fore color
    Select the fore color.   The black portion of the tile pattern becomes the fore color.

  - Back color
    Select the back color.   The background color becomes the back color.

- Image
  Specify the characters to be displayed on the Screen Creator.

```
┌─────────────┐
│ ┌──┐        │
│  Operation  │
│  parameters │
└─────────────┘
```

- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table having the name of the registered text to be displayed on the character display.

- Continuous devices
  Specify the number of consecutive devices to be connected. The value must be "1" or over.
  If "1" is specified, the registered text number is assumed to be a value of the "station No. ~ device name" value + the "first registered text No.".
  If "2" or over is specified, the registered text number is assumed to be the value 1 + the "first registered text No.". The value 1 indicates how far the device that receives a value other than "0" first of the consecutive devices is separated from "station No. ~ device name".

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal). No sign is used for "BCD" notation.

- Head No. of Text
  Specify a value of "station No. ~ device name" + "first registered text No." as the number of the registered text to display.

When character indicator are arranged in "arrays", devices for the number of arrays are connected.
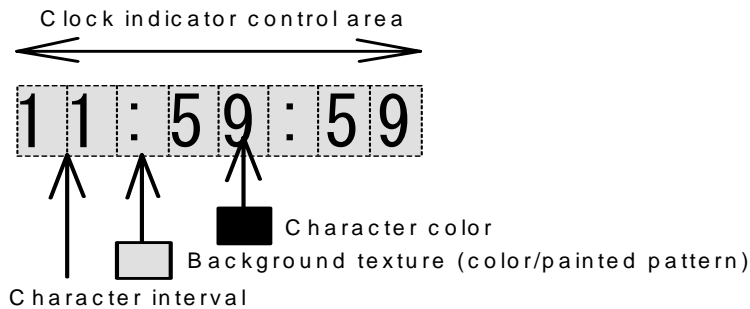
2-5 Clock Indicator

| Function |

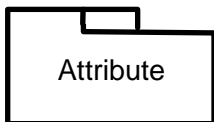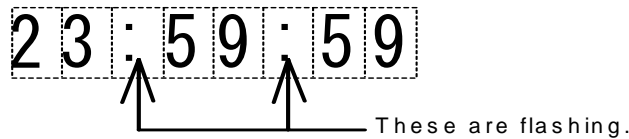A clock indicator displays the time in a preset format.

A clock indicator has a rectangular area corresponding the display format.

Example:

Clock indicator control area

1 1 : 5 9 : 5 9

Character color

Background texture (color/painted pattern)

Character interval

The frame line of the control area and character frames are not displayed actually.

Format: For %H%S% m%S%s

2 3 : 5 9 : 5 9

These are flashing.

| Attribute |

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the
 background is kept as is.　The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the background color
permeating the control background is displayed in the reverse video.
For a color type OIP, the color of the pallet number 15 becomes black
when displayed in the reverse video.

- Font
  not use

- Format
  Specify the clock display format and the time items (hours, minutes, and
  seconds).　Use the following parameters to specify the format.

  - Hour (2-digit integer, 0 is padded to the right.):　%h (12-hour display).
    %H: (24-hour display)

  - Minute (2-digit integer, 0 is padded to the left.):　%m

  - Second (2-digit integer, 0 is padded to the left.):　%s

  - Colong flashing (1-digit symbol): %S

  - Other characters: Describe characters themselves.

Example:

[%H(hour)%m(minute)%s(second)] $\rightarrow$ 23 hours 34 minutes 54 seconds
[%h%S%m%S%s] $\rightarrow$ 11:34:54 (The colon is flashing.)

The [Browse] button can also be used to select the format from representative
ones.

Arrangement
and Color
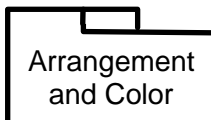
- Arrangement information

  - Base point
    Indicates the position of the clock display on the screen with the X and Y
    coordinate values of the upper left corner of the character display.

  - Interval
    Specify the display character spacing in dots.

  - Size
    Select the sizes in the X and Y directions from 1, 2, 4, 8, and 16 times.

  - Rotation
    Select the angle (90, 180, and 270 deg.) of the clock-wise rotation around
    the reference point at the upper left corner of the clock display.

- Character color and background

    - Character color
      Select the character color to display.

    - Tile
      Select the tile pattern.

    - Fore color
      Select the fore color.   The black portion of the tile pattern becomes the fore color.

    - Back color
      Select the back color.   The background color becomes the back color.
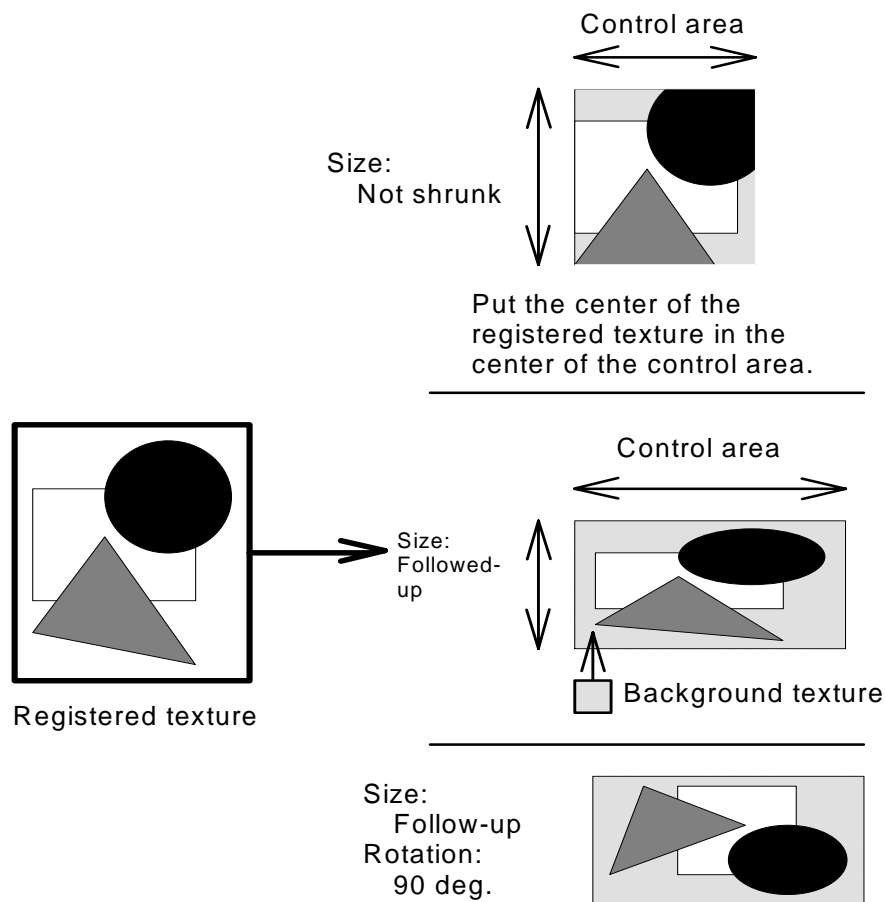
2-6 Figure Indicator

Function

A figure indicator displays a registered texture corresponding to a given texture name or a registered texture number.   A figure indicator has a given rectangular area.

A registered texture may not be displayed normally when it is too large in size (not fit in the screen).   In such a case, register it again with a proper size (after it is shrunk).

Example:

Control area

Size:
   Not shrunk

Put the center of the registered texture in the center of the control area.

Registered texture

Size:
Followed-up

Control area

Background texture

Size:
   Follow-up
Rotation:
   90 deg.

Attribute

• Name
   Enter the control name within 8 alphanumerics.
   This name is used to identify each control in the part from others.
   If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing
    The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

- Trace into frame
  Specify whether to make the display texture size follow up the figure control area.   When the check box is checked, the figure size is changed automatically to match with the size of the texture control area.

For a bit map figure/character, the follow-up specification is invalid. Even when specified, the figure is expanded/shrunk in multiple of an integer.   Thus, it may be offset from other figure elements.

- Internal rotation
  Specify the clockwise rotation angle 0/90/180/270 deg. assuming 0 deg. as the registration status of the display texture.

When any of the width and height of a registered texture is set with an even number of dots, the result of rotation may be offset by one dot from the coordination.   If it is a problem, specify the width/height of the texture with an odd number of dots on the Screen Creator.

- Ream step
  Specify the number of character display arrays and the character display spacing in both X and Y directions.   When not arranging character displays in arrays, specify "1" for the number of arrays in the X/Y direction.

- Arrangement information

Attribute

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the figure display.
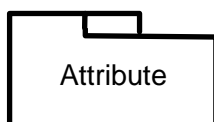
- Right Bottom
  Indicates both X and Y coordinates of the lower right corner of the figure display.

- Background

  - Tile
    Select the tile pattern.

  - Fore color
    Select the fore color.
    The black portion of the tile pattern becomes the fore color.

  - Back color
    Select the back color.   The background color becomes the back color.

- Image
  Specify the texture to be displayed on the Screen Creator.

- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table having the number of the registered texture to be displayed on the figure display.

- Continuous devices
  Specify the number of consecutive devices to be connected.   The value must be "1" or over.
  If "1" is specified, the registered texture number is assumed to be a value of the "station No. ~ device name" value + the "first registered texture No.".
  If "2" or over is specified, the registered texture number is assumed to be the value 1 + the "first registered texture No.".   The value 1 indicates how far the device that receives a value other than "0" first of the consecutive devices is separated from "station No. ~ device name".

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

Operation parameters
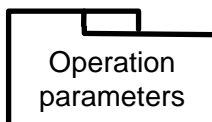
- BCD
  BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Head No. of Texture
  Specify a value of "station No. ~ device name" + "first registered texture
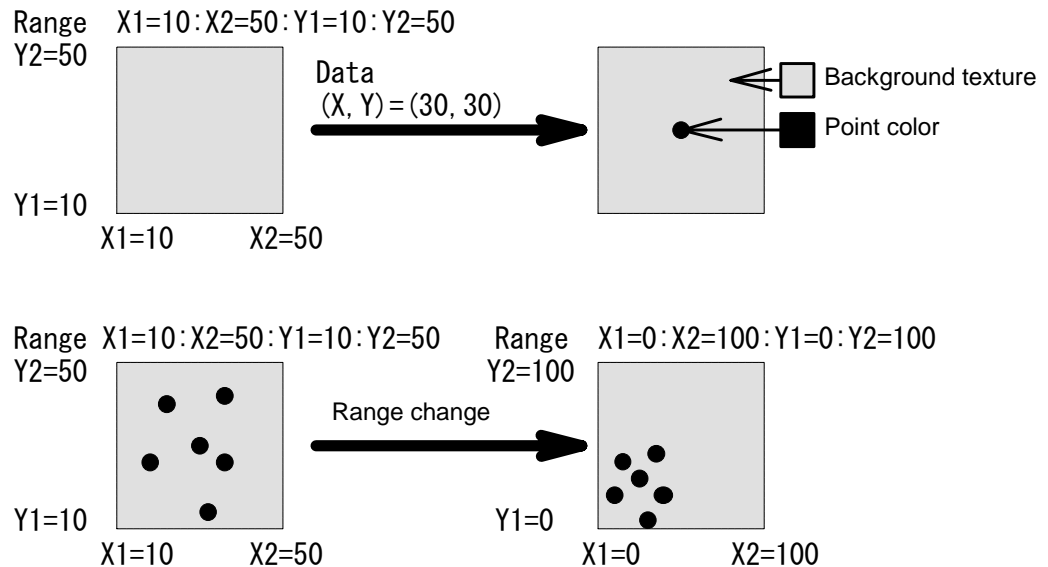 No." as the number of the registered texture to display.

When figure indicator are arranged in "arrays", devices for the number of arrays are connected.

2-7 Plot Graphs

Function

A plot graph displays a plot at the 2-dimentional position corresponding to given data.   A plot graph has a given rectangular area.

Example:

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing
    The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display
  data faster than "floating point" specification.

- Point size
  Specify the size of the plotting point (small/medium/large).

> ⚠ **Caution**
>
> When "large" is specified for the point size, the plot shape may be seen
> like a diamond or star depending on the tile pattern of the background
> color.

- Maximum plots
  Specify the maximum number of plots within 1 to 32767.

> ⚠ **Caution**
>
> If, when K-Basic is used to display data, data is entered over the
> maximum number of plots, then an execution error will occur at the data
> entry.

- Range of X axis
  Specify both the maximum and minimum values of the Y axis range within
  -9999999 to 10000000.   This range corresponds to a section between right
  and left.

- Range of Y axis
  Specify both the maximum and minimum values of the Y axis range within
  -9999999 to 10000000.   This range corresponds to a section between top
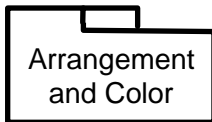 and bottom.

> ⚠ **Caution**
>
> When data is over the specified range, the maximum or minimum value
> is displayed automatically.
> When "calculation format" is "integer", "operation parameters" is
> "Enable", and "data type" is "BCD, do not enter decimal places.   When
> "calculation format" is "integer" and "0" or over is specified for all ranges,
> data is displayed as an integer without sign.

- Internal rotation
  Specify 0/90/180/270 deg. as the clock-wise rotation angle.

> ⚠ **Caution**
>
> When any of the width and height of a registered texture is set with an
> even number of dots, the result of rotation may be offset by one dot from
> the coordination.   If it is a problem, specify the width/height of the
> texture with an odd number of dots on the Screen Creator.

Arrangement and Color

- Arrangement information

    - Left Top
      Indicates both X and Y coordinates of the upper left corner of the plot graph.

    - Right Bottom
      Indicates both X and Y coordinates of the lower right corner of the plot graph.

- Color and background of point

    - Point color
      Select the plot color.

    - Tile
      Select the tile pattern.

    - Fore color
      Select the fore color.   The black portion of the tile pattern becomes the fore color.

    - Back color
      Select the back color.   The background color becomes the back color.

Operation parameters

- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the plot graph display coordinate values are read.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

    - BIN
      Binary data without sign

    - BIN with sign
      Binary data with sign

    - BCD
      BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Sampling time
  Specify "0" to suppress sampling.
  Specify a value other than "0" to display data for the number of seconds x 0.5.

- X axis filter
  Each device X value can be computed and displayed.   A device value is represented by "X".   Symbols, numerals (*, /, +, -, ( ), 0 to 9), and the decimal point can be used for computation.
  Enter nothing when no data computation is needed.

  Example: "X*20+1" means that a device value is multiplied by 20, then 1 is added to the result.

- Y axis filter
  Each device Y value can be computed and displayed.   A device value is represented by "Y".   Symbols, numerals (*, /, +, -, ( ), 0 to 9), and the decimal point can be used for computation.
  Enter nothing when no data computation is needed.

  Example: "X*20+1" means that a device value is multiplied by 20, then 1 is added to the result.

When any control is arranged so that sampling is executed for the object part, a message is issued for the part program at each "sampling time". For details, refer to "INPUT" in the "Screen Creator 5 K-Basic Program Description".
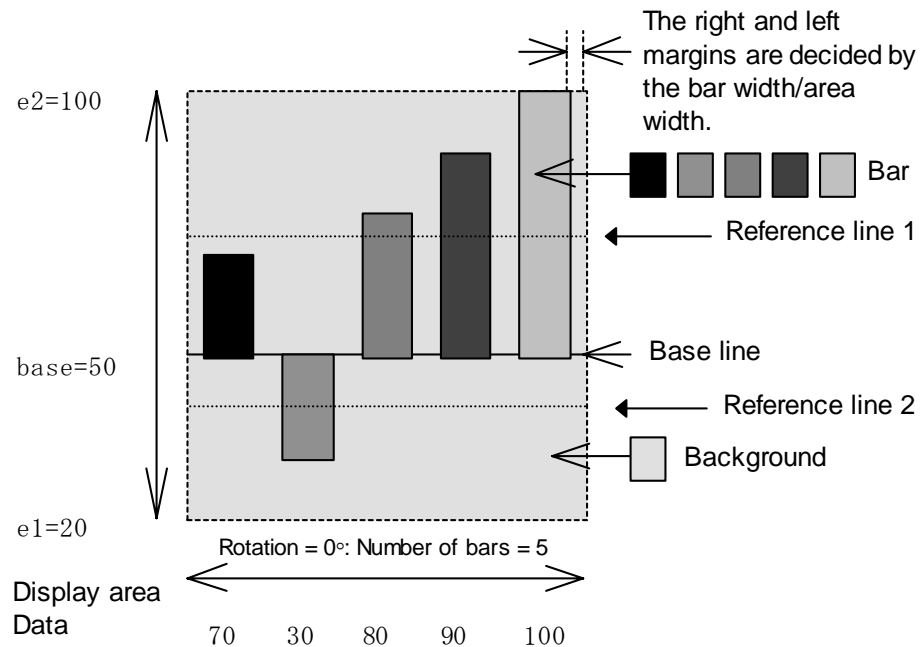When "integer" and "BCD" are specified for "calculation format" and "data type" respectively, decimal places are ignored and the "calculation format" result is converted to an integer.

2-8 Bar Graphs

| Function |

A bar graph displays given data as a bar length and has a given rectangular area.

Example:

$e2=100$

$base=50$

$e1=20$

The right and left margins are decided by the bar width/area width.

Bar

Reference line 1

Base line

Reference line 2

Background

Rotation = 0°: Number of bars = 5

Display area
Data

70   30   80   90   100

| Attribute |

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is
  referenced by the program.   Thus, be careful not to change any control
  name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of
    the color displayed in the control area, the result may become 15.   For
    example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated
    repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing

The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   For a color type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display data faster than "floating point" specification.

- Bars
  Specify the number of bars (1 to 127).

The number of bars may depend on the operation program.   To change the number of bars, therefore, change the program description as needed.

- Bar width
  Specify the bar width within 1 to 640 dots.

- Range
  Specify both maximum and minimum values of the range within -9999999 to 10000000.
  This range corresponds to a section between top and bottom.

When data is over the specified range, the maximum or minimum value is displayed automatically.
When "computation type" is "integer", "operation parameters" is "valid", and "data type" is "BCD", do not enter decimal places.   When "computation type" is "integer" and "0" or over is specified for all ranges, data is displayed as an integer without sign.

- Level of Base line
  Specify the position of the base line in the range.

- Level of line 1
  Specify the position of the reference line 1 in the range.

- Level of line 2
  Specify the position of the reference line 2 in the range.
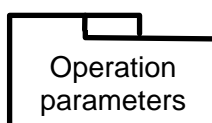
To suppress display of a reference line, specify transparent for the line color or specify the position of the reference line outside the range.

- Intrenal rotation
  Specify 0/90/180/270° as the clock-wise rotation angle.

```
┌─────────────┐
│  ┌──┐       │
│ ┌┘  └──────┐│
│┌┘          ││
││ Arrangement││
││ and Color  ││
│└───────────┘│
└─────────────┘
```

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the bar graph control area.

  - Right Bottom
    Indicates both X and Y coordinates of the lower right corner of the bar graph control area.

- Base line(Color, style)
  Select the color and style of the base line.

- line 1(Color, style)
  Select the color and style of the reference line 1.

- line 2(Color, style)
  Select the color and style of the reference line 2.

- Bar
  Select the bar number and specify the bar tile, the bar fore color, and the bar back color.

  - Bar tile
    Select the tile pattern.

  - Bar fore color
    The black portion of the tile pattern becomes the fore color.

  - Bar back color
    Select the back color.   The background color becomes the back color.

```
┌─────────────┐
│  ┌──┐       │
│ ┌┘  └──────┐│
│┌┘          ││
││ Operation  ││
││ parameters ││
│└───────────┘│
└─────────────┘
```

- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.
  When a value other than "0" is specified for "sampling time", sampling processing is executed.   Sampling processing is also executed on the back screen.   Sampling processing means an operation mode in which a device value specified for "station No. and device name" is read at each "sampling time" and the value is represented by the rightmost bar and the older values are moved to the left bars sequentially.

- Station Device
  Specify the name of the PLC device or the memory table from which the bar graph display data is read.
  When "0" is specified for "sampling time", the devices corresponding to the "number of bars" are used so that one bar corresponds to one device.

When a value other than "0" is specified for "sampling time", one device is used.   In this case, the "number of bars" indicates the number of bars displayed concurrently on a bar graph as the device values from past to present.

- Data type
Specify the type of data to be received from the PLC device or the memory table.

  - BIN
  Binary data without sign

  - BIN with sign
  Binary data with sign

  - BCD
  BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Sampling time
Specify "0" to suppress sampling.
Specify a value other than "0" to display data for the number of seconds x 0.5.

- filter
Each device value can be computed and displayed.   A device value is represented by "X".   Symbols, numerals (*, /, +, -, ( ), 0 to 9), and the decimal point can be used for computation.
Enter nothing when no data computation is needed.

  Example: "X*20+1" means that a device value is multiplied by 20, then 1 is added to the result.

When any control is arranged so that sampling is executed for the object part, a message is issued for the part program at each "sampling time". For details, refer to "INPUT" in the "Screen Creator 5 K-Basic Program Description".
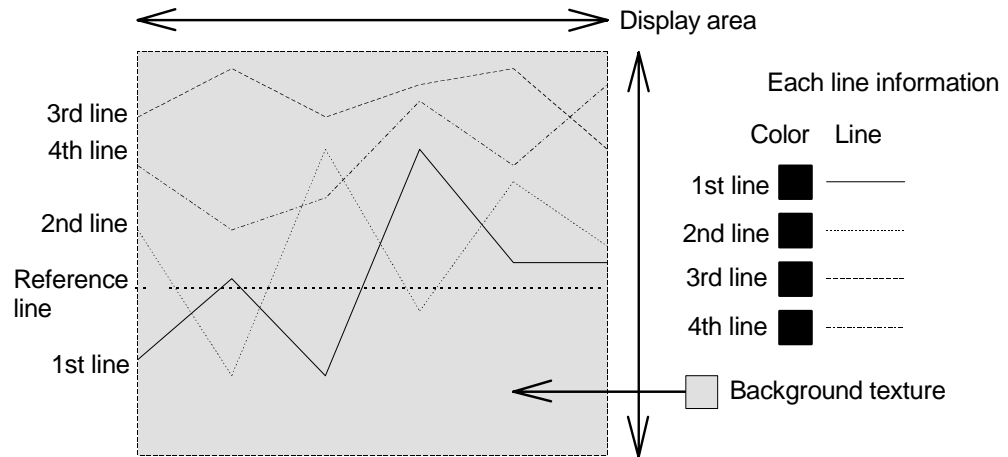When "integer" and "BCD" are specified for "calculation format" and "data type" respectively, decimal places are ignored and the "filter" result is converted to an integer.
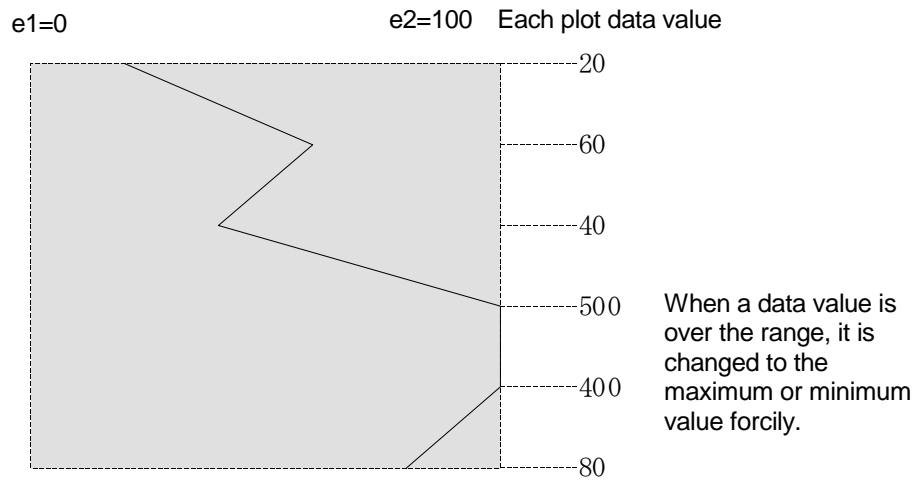
2-9 Line Graphs

Function

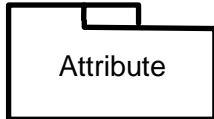A line graph displays points corresponding to given data and has a given rectangular area.

Example:

Number of lines = 4: Number of points = 6　Rotation = 0°

Number of lines = 1: Number of points = 6　Rotation = 90°

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is
  referenced by the program.   Thus, be careful not to change any control
  name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of
    the color displayed in the control area, the result may become 15.   For
    example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated
    repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing
    The object display is turned ON/OFF at a fixed interval while the
    background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated
control background color is displayed in the reverse video.   For a color
type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display
  data faster than "floating point" specification.

- Lines
  Specify the number of lines (1 to 127).

The number of lines may depend on the operation program.   To change
the number of lines, therefore, change the program description as
needed.

- Plot number of line
  Specify the number of points (1 to 640) to plot for a line.

- Range
  Specify both maximum and minimum values of the range within -9999999
  to 10000000.
  This range corresponds to a section between right and left.

When data is over the specified range, the maximum or minimum value is displayed automatically.
When "computation type" is "integer", "operation parameters" is "valid", and "data type" is "BCD", do not enter decimal places.   When "computation type" is "integer" and "0" or over is specified for all ranges, data is displayed as an integer without sign.

- Level of line 1
  Specify the position of the reference line 1 in the range.

- Level of line 2
  Specify the position of the reference line 2 in the range.

To suppress display of a reference line, specify transparent for the line color or specify the position of the reference line outside the range.

- Display start plot
  Specify the plot at which an actual line display is started.

- Display end plot
 Specify the plot at which an actual line display is ended.

The display start plot and the display end plot must satisfy the following relationship.
0 $\leqq$ display start plot $\leqq$ display end plot $\leqq$ number of plots

- Internal rotation
  Specify 0/90/180/270° as the clock-wise rotation angle.
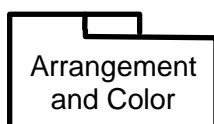
- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the line graph control area.

  - Right Bottom
    Indicates both X and Y coordinates of the lower right corner of the line graph control area.

- line 1(color, style)
  Select the color and style of the reference line 1.

- line 2(color, style)
  Select the color and style of the reference line 2.

- Line
  Select the line number and specify the color and type of the line.

  - Line color
    Select the line color.

Arrangement and Color
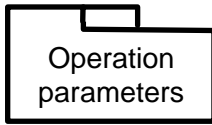
- Line type
  Select the line type.

Operation parameters

- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part. At this time, the control area is displayed in red. When operation parameters are invalid, the control area is displayed in green.
  When a value other than "0" is specified for "sampling time", sampling processing is executed. Sampling processing is also executed on the back screen. Sampling processing means an operation mode in which a device value specified for "station No. and device name" is read at each "sampling time" and the value is represented by the rightmost bar and the older values are moved to the left bars sequentially.

- Station Device
  Specify the name of the PLC device or the memory table from which the line graph display data is read.
  When "0" is specified for "sampling time", the devices corresponding to the "number of lines" × "number of plots" are used so that devices for consecutive "number of lines" are assigned to the first plot and devices for the subsequent consecutive "number of lines" are assigned to the next plot. When a value other than "0" is specified for "sampling time", devices corresponding to the "number of lines" are used. One device corresponds to one line. In this case, the "number of lines" indicates the number of plots displayed concurrently on a line graph as the device values from past to present.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal). No sign is used for "BCD" notation.

- Sampling time
  Specify "0" to suppress sampling.
  Specify a value other than "0" to display data for the number of seconds x 0.5.

- Flowing direction
  Specify the display direction.

- <-
  Displays data by shifting it to the left and the latest data is displayed on the right end.

- ->
  Displays data by shifting it to the right and the latest data is displayed on the left end.

- filter
  Each device value can be computed and displayed.   A device value is represented by "X".   Symbols, numerals such as *, /, +, -, ( ), 0 to 9, and the decimal point can be used for computation.
  Enter nothing when no data computation is needed.

  Example: "X*20+1" means that a device value is multiplied by 20, then 1 is added to the result.

When any control is arranged so that sampling is executed for the object part, a message is issued for the part program at each "sampling time". For details, refer to "INPUT" in the "Screen Creator 5 K-Basic Program Description".
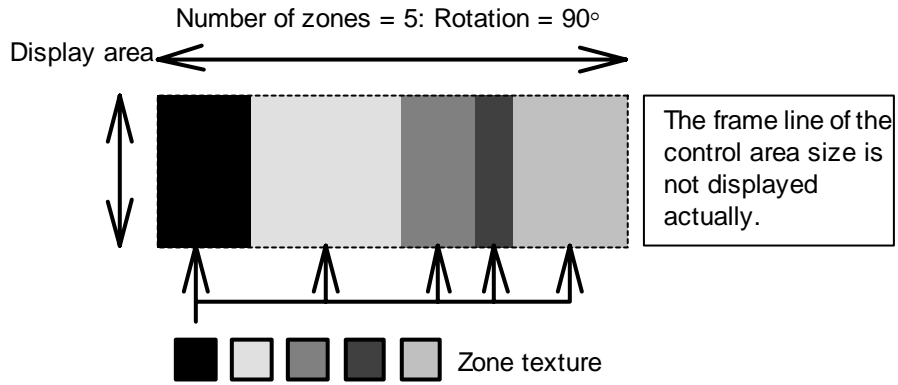When "integer" and "BCD" are specified for "Calculation format" and "data type" respectively, decimal places are ignored and the "filter" result is converted to an integer.

2-10 Band Graphs

Function

A band(belt) graph displays a percentage of each of two or more given data items as a belt-like zone. It has a given rectangular area.

Example:

Number of zones = 5: Rotation = 90°

Display area

The frame line of the control area size is not displayed actually.

Zone texture

Number of zones = 5: Rotation = 0°

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program. Thus, be careful not to change any control name unnecessarily. Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

- Reverse video
  A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

- Blink
  The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   For a color type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for display.   "Integer" specification will display data faster than "floating point" specification.

- Zones
  Specify the number of zones (1 to 127).

The number of zones may depend on the operation program.   To change the number of lines, therefore, change the program description as needed.
When the number of zones is great, smaller value zones may not be displayed.

- Internal rotation
  Specify 0/90/180/270° as the clock-wise rotation angle.

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the band graph control area.

  - Right Bottom
    Indicates both X and Y coordinates of the lower right corner of the band graph control area.

- Color of each zone
  Select the zone number and specify the tile, fore color, and back color of the zone.

  - Zone tile
    Select the tile pattern

Arrangement and Color

- Zone fore color
  Select the fore color.   The black portion of the tile pattern becomes the fore color.

- Zone back color
  Select the back color.   The background color becomes the back color.
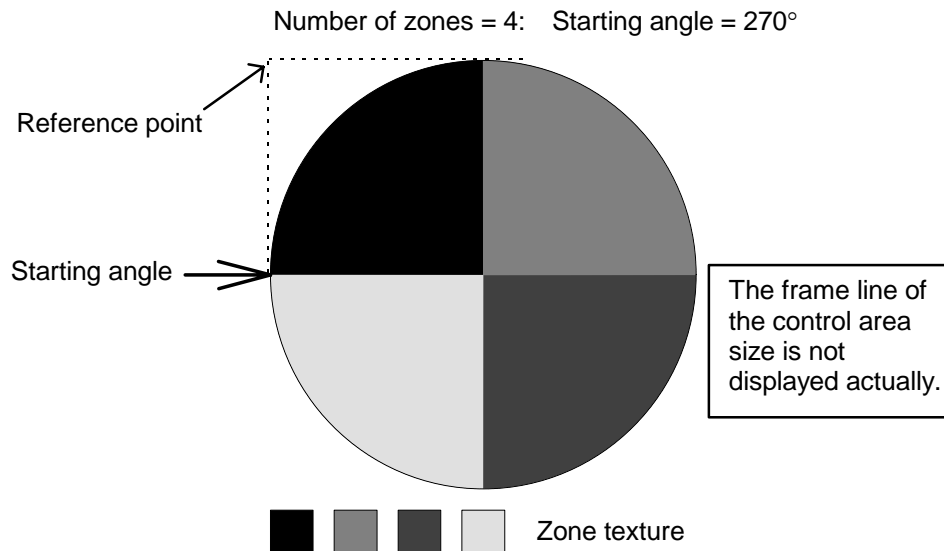
Operation parameters
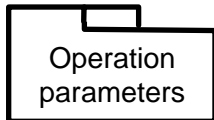
- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the band graph display data is read.
  Consecutive devices corresponding to "number of zones" started at the specified device are used.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.

2-11 Circle Graphs

<div style="float:left; border:1px solid; padding:4px;">Function</div>

A circle graph displays a percentage of each of two or more given data items as a fan-like zone.   It has a given circular area.   Painting a zone begins at the start point clockwise.

Example:

Number of zones = 4:   Starting angle = 270°

Reference point

Starting angle

The frame line of the control area size is not displayed actually.

Zone texture

<div style="float:left; border:1px solid; padding:4px;">Attribute</div>

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   For a color type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for display.   "Integer" specification will display data faster than "floating point" specification.

- Zones
 Specify the number of zones (1 to 127).

The number of zones may depend on the operation program.   To change the number of lines, therefore, change the program description as needed.
When the number of zones is great, smaller value zones may not be displayed.

- Start angle
  Specify the starting angle (0 to 359) for displaying a circle.

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the circle graph control area.

  - Diameter
    Specify the diameter of the circle.

- Color of each zone
  Select the zone number and specify the tile, fore color, and back color of the zone.

  - Zone tile
    Select the tile pattern.

  - Zone fore color
    Select the fore color.   The black portion of the tile pattern becomes the fore color.

  - Zone back color
    Select the back color.   The background color becomes the back color.

Arrangement and Color

Operation parameters
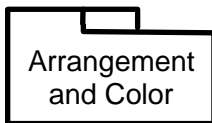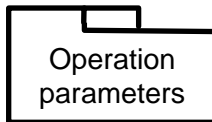
- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the circle graph display data is read.
  Consecutive devices corresponding to "number of zones" started at the specified device are used.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.
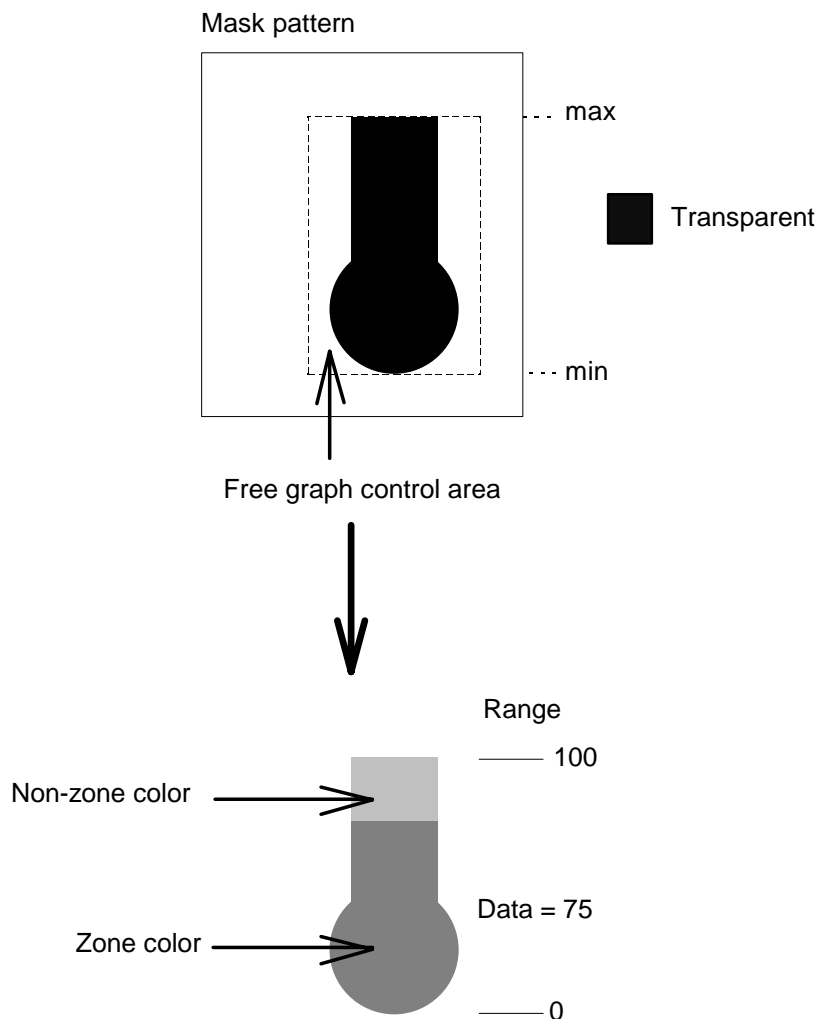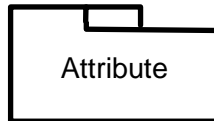
2-12 Free Graphs

Function

A free graph displays a two-divided transparent area included in a freely set rectangular area of a part background with the zone color and the non-zone color according to the percentage of the range data.

Be sure to use "PUT" for drawing a bit map pattern.
Be sure to arrange a mask pattern in the background of a part.
When using the transparent for painting, be sure to put the painting points inside the control.

Example:

Mask pattern

max

min

Transparent

Free graph control area

Range

100

Non-zone color

Data = 75

Zone color

0

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is
  referenced by the program.   Thus, be careful not to change any control
  name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of
    the color displayed in the control area, the result may become 15.   For
    example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated
    repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing
    The object display is turned ON/OFF at a fixed interval while the
    background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated
control background color is displayed in the reverse video.   For a color
type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display
  data faster than "floating point" specification.

- Range
  Specify the maximum and minimum values for the range within -9999999 to
  10000000.
 This range corresponds to a section between top and bottom.

When data is over the specified range, the maximum or minimum value
is displayed automatically.
When "Calculation format" is "integer", "operation parameters" is
"Enable", and "data type" is "BCD", do not enter decimal places.   When
"Calculation format" is "integer" and "0" or over is specified for all ranges,
data is displayed as an integer without sign.

- Internal rotation
  Specify 0/90/180/270° as the clock-wise rotation angle.

```
Arrangement
and Color
```

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the free graph control area.

  - Right Bottom
    Indicates both X and Y coordinates of the lower right corner of the free graph control area.

- Color of each zone
  Select zone or non-zone and specify the tile, fore color, and back color of the zone.

  - Zone tile
    Select the tile pattern.

  - Zone fore color
    Select the fore color.   The black portion of the tile pattern becomes the fore color.

  - Zone back color
    Select the back color.   The background color becomes the back color.

- Image
  Specify the value to be displayed on the Screen Creator.

```
Operation
parameters
```
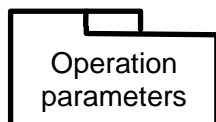
- Enable
  When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the free graph display data is read.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.

- filter

Each device value can be computed and displayed.   A device value is represented by "X".   Symbols and numerals such as *, /, +, -, ( ), 0 to 9, and the decimal point can be used.
Enter nothing when no data computation is needed.

Example: "X*20+1" means that a device value is multiplied by 20, then 1 is added to the result.
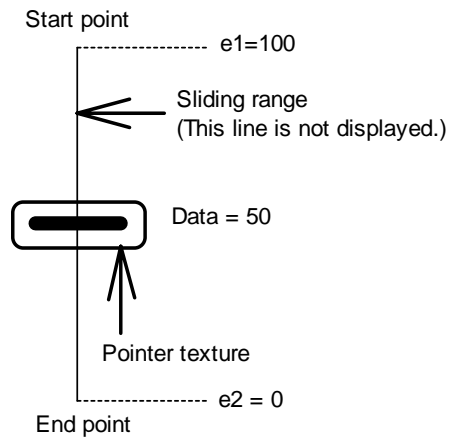
When "integer" and "BCD" are specified for "Calculation format" and "data type" respectively, decimal places are ignored and the "filter" result is converted to an integer.
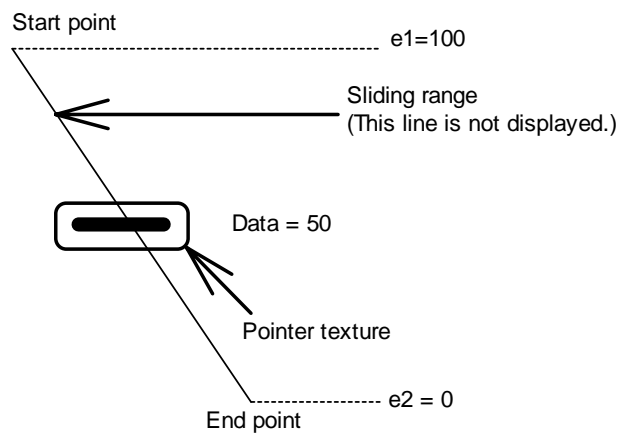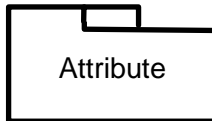
2-13 Sliders

Function

A slider displays a specified pointer pattern at a position on a line, corresponding to given data. It has a line-like moving area. The center of the pointer pattern corresponds to the position on the line.

Example:

Start point

----------------- e1=100

Sliding range
(This line is not displayed.)

Data = 50

Pointer texture

----------------- e2 = 0
End point

The following case is possible.

Start point

-- e1=100

Sliding range
(This line is not displayed.)

Data = 50

Pointer texture

----------------- e2 = 0
End point

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  • Normal
    Normal display type.

  • Reverse video
    A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

  • Blink
    The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  • Flashing
    The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   For a color type OIP, the reverse video color of pallet No.15 becomes black.

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display data faster than "floating point" specification.

- Range
 Specify the maximum and minimum values for the range within -9999999 to 10000000.

When data is over the specified range, the maximum or minimum value is displayed automatically.
When "Calculation format" is "integer", "operation parameters" is "Enable", and "data type" is "BCD", do not enter decimal points.   When "Calculation format" is "integer" and "0" or over is specified for all ranges, data is displayed as an integer without sign.

- Pointer texture
  Select the name of the texture to be displayed as a pointer from the texture library and enter the name.
 Click "SELECT" to display the list of texture libraries.

- Internal rotation
  Specify 0/90/180/270° as the clockwise rotation angle of the pointer texture.

Only the pointer texture is rotated.   The moving position is not rotated.
If any of the width/height of the pointer texture is set with an even
number dots, the pointer may be offset by one dot from the coordinate
after rotation.   If it becomes a problem, change the width/height of the
texture to an odd number of dots on the Screen Creator.

Arrangement and Color
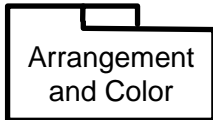
- Arrangement information

  - Start point
    Indicates both X and Y coordinates of the starting point of the slider.

  - End point
    Indicates both X and Y coordinates of the ending point of the slider.

- Image
  Specify the value to be displayed on the Screen Creator.
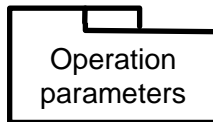
Operation parameters

- Enable
  When the check box is checked, each control action can be specified with
  operation parameters of the object part.   At this time, the control area is
  displayed in red.   When operation parameters are invalid, the control area is
  displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the
  slider position data is read.

- Data type
  Specify the type of data to be received from the PLC device or the memory
  table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Filter
  Each device value can be computed and displayed.   A device value is
  represented by "X".   Symbols and numerals such as *, /, +, -, ( ), 0 to 9, and
  the decimal point can be used for computation.
  Enter nothing when no data computation is needed.

Example: "X*20+1" means that a device value is multiplied by 20, then 1 is
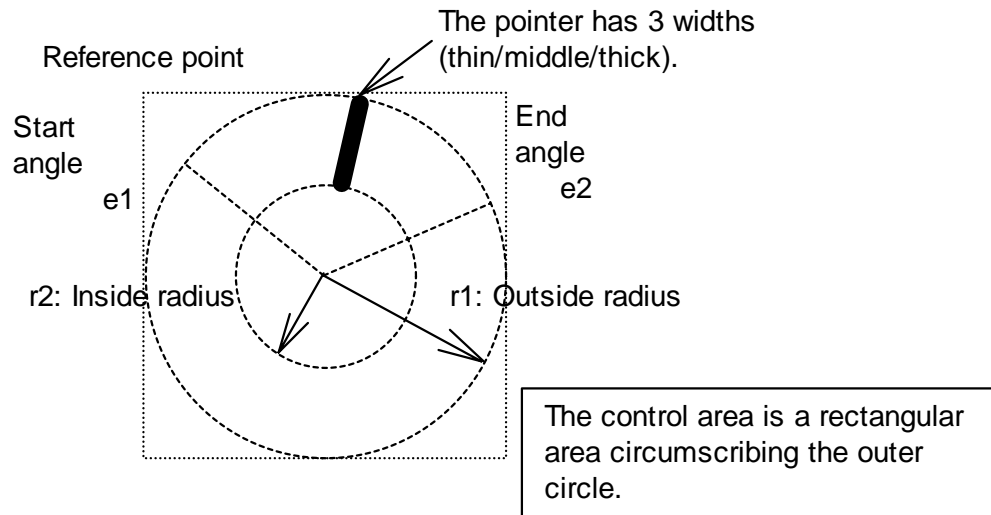added to the result.

When "integer" and "BCD" are specified for "Calculation format" and
"data type" respectively, decimal places are ignored and the "Filter"
result is converted to an integer.
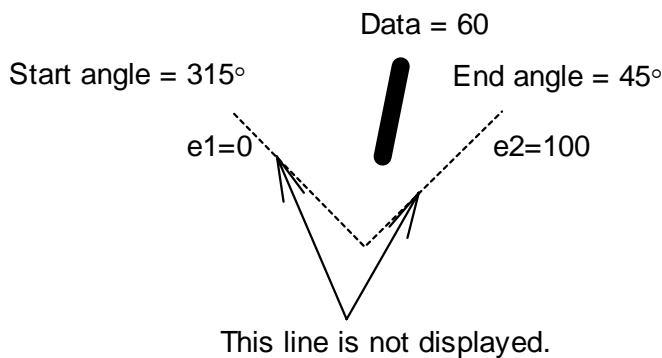
2-14   Meters

Function

A meter displays a linear meter pointer(needle) at a position on a circumference clockwise corresponding to given data.   It has a given fan-like or donut-like area.

Example:

The pointer has 3 widths (thin/middle/thick).

Reference point

Start angle

End angle

e1

e2

r2: Inside radius

r1: Outside radius

The control area is a rectangular area circumscribing the outer circle.

Display example:

Data = 60

Start angle = 315°

End angle = 45°

e1=0

e2=100

This line is not displayed.

Attribute

• Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

• Action
  Specify the initial status of the display type.

  • Normal
    Normal display type.

- Reverse video
  A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

- Blink
  The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

- Flashing
  The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   The color of the pallet No.15 (16 colors) is black.

- Calculation format
  Specify the data format for plotting.   "Integer" specification will display data faster than "floating point" specification.

- Range
  Specify the maximum and minimum values for the range within -9999999 to 10000000.

When data is over the specified range, the maximum or minimum value is displayed automatically.
When "Calculation format" is "integer", "operation parameters" is "Enable", and "data type" is "BCD", do not enter decimal points.   When "Calculation format" is "integer" and "0" or over is specified for all ranges, data is displayed as an integer without sign.

- Thickness of needle
  Select the thickness of the pointer to be displayed from thin/medium/thick.

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left reference point of the slider.

  - Diameter of outside
    Specify the diameter of the outer circle of the meter.

  - Diameter of inside
    Specify the inner diameter of the meter.

  - Start angle
    Specify the starting angle of the circle display.

Arrangement
and Color

- End angle
  Specify the ending angle of the circle display.
  When both starting and ending angles are the same, the meter is displayed
  360° clockwise.

- Needle color
  Specify the color of the pointer to display.

- Image
  Specify the value of the meter pointer to be displayed on the Screen Creator.

Operation
parameters

- Enable
  When the check box is checked, each control action can be specified with
  operation parameters of the object part.   At this time, the control area is
  displayed in red.   When operation parameters are invalid, the control area is
  displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the
  meter position data is read.

- Data type
  Specify the type of data to be received from the PLC device or the memory
  table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.

- Filter
  Each device value can be computed and displayed.   A device value is
  represented by "X".   Symbols and numerals such as *, /, +, -, ( ), 0 to 9, and
  the decimal point can be used for computation.
  Enter nothing when no data computation is needed.

  Example: "X*20+1" means that a device value is multiplied by 20, then a is
            added to the result.

When "integer" and "BCD" are specified for "Calculation format" and
"data type" respectively, decimal places are ignored and the "Filter"
result is converted to an integer.
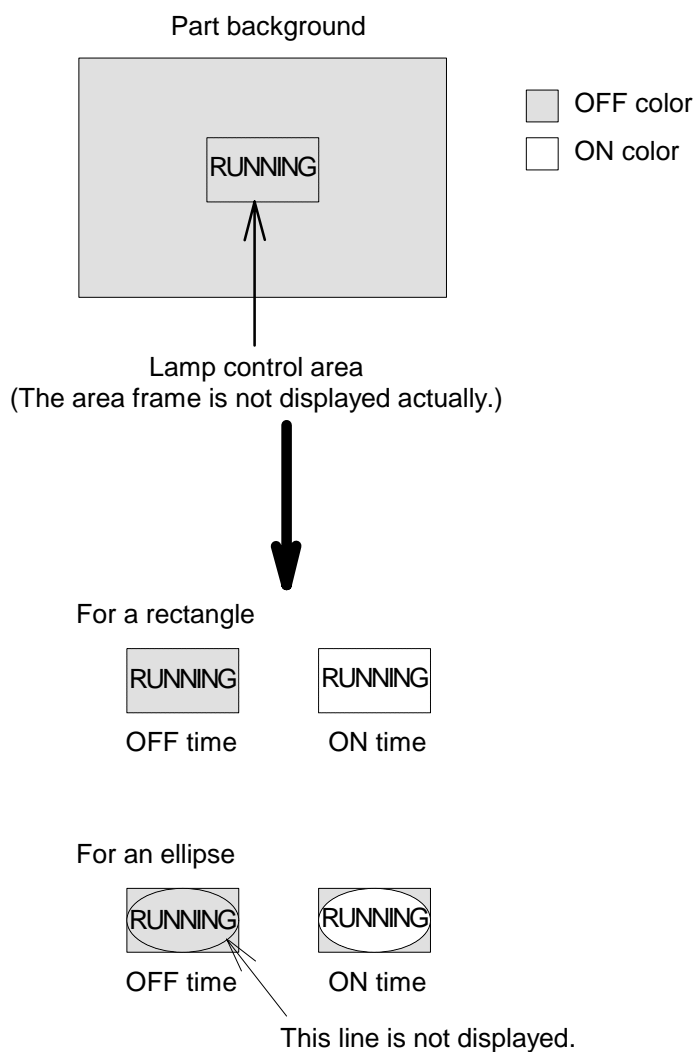
2-56   CONTROL REFERENCE

2-15   Lamps

Function

A lamp replaces the background color of a part specified in the lamp control area according to the change of the given data status.   A rectangular or ellipse shape can be selected for the lamp control area.

For a color OIP, the OFF color must be registered for the background of the part beforehand.   For a monochrome OIP, the area is displayed in the reverse video when the part is turned on.

Example:

Part background

☐ OFF color

☐ ON color

RUNNING

Lamp control area
(The area frame is not displayed actually.)

For a rectangle

RUNNING   RUNNING

OFF time   ON time

For an ellipse

RUNNING   RUNNING

OFF time   ON time

This line is not displayed.

Attribute

- Name
  Enter the control name within 8 alphanumerics.
  This name is used to identify each control in the part from others.
  If the part operation program is already created, the control name is
  referenced by the program.   Thus, be careful not to change any control
  name unnecessarily.   Otherwise, the change will affect the program badly.

- Action
  Specify the initial status of the display type.

  - Normal
    Normal display type.

  - Reverse video
    A pallet number is taken so that when it is added to the pallet number of
    the color displayed in the control area, the result may become 15.   For
    example, 0 is taken to assume 15 and 3 is taken to assume 12.

  - Blink
    The reverse video display and the normal display are alternated
    repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

  - Flashing
    The object display is turned ON/OFF at a fixed interval while the
    background is kept as is.   The cycle is fixed by the system (1 sec).

Caution

If transparent is specified for reverse video display, the permeated
control background color is displayed in the reverse video.   The color of
the pallet No.15 (16 colors) is black.
The display remains the same even when the lamp display flashes when
it is OFF.   When the lamp display is ON, the ON and OFF colors are
displayed alternately.

- Shape
  Select rectangle or ellipse as the lamp shape.

- Initial phase
  Select ON or OFF as the initial phase of the lamp.

- Ream step
  Specify the number of arrays and the lamp display spacing in both X and Y
  directions.
  When not arranging lamp displays in arrays, enter "1" for the number of
  arrays in the X/Y direction.

Arrangement
and Color

- Arrangement information

  - Left Top
    Indicates both X and Y coordinates of the upper left corner of the lamp
   control area.
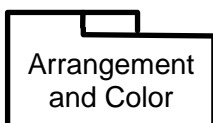
- Right Bottom
Indicates both X and Y coordinates of the lower right corner of the lamp control area.

- Color
This parameter is valid only for color OIP.

  - When ON
Specify the color of the part background specified for "OFF time color" in the lamp control area to be replaced when the lamp is turned on.

  - When OFF
Specify the color to be replaced when the lamp is turned on.   Select the color from the colors used for the part background in the lamp control area to be replaced when the lamp is turned on.

For a color OIP, note that "When ON" and "When OFF" are not displayed when the lamp display is turned on and off.   Unless the "When OFF" must be included in the color of the part background, the display is not changed even when the lamp is turned on.

- Image
Specify the status of the lamp to be displayed on the Screen Creator.

Operation parameters

- Enable
When the check box is checked, each control action can be specified with operation parameters of the object part.   At this time, the control area is displayed in red.   When operation parameters are invalid, the control area is displayed in green.

- Station Device
Specify the name of the PLC device or the memory table from which the lamp status is read.   When the value is not 0, the lamp is turned on.   When the value is 0, the lamp is turned off.

- Data type
Specify the type of data to be received from the PLC device or the memory table.

  - BIN
Binary data without sign

  - BIN with sign
Binary data with sign

  - BCD
BCD (binary coded decimal).   No sign is used for "BCD" notation.
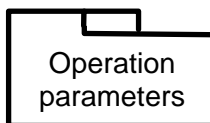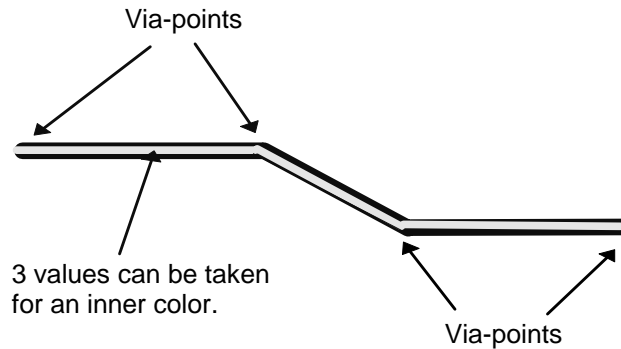
2-16   Pipes

| Function |

A pipe displays the inner color of a pipe according to the change of the given data status.   Up to 8 points can be specified for via-points of a pipe.

Example:

Via-points

3 values can be taken
for an inner color.

Via-points

| Attribute |

• Name
Enter the control name within 8 alphanumerics.
This name is used to identify each control in the part from others.
If the part operation program is already created, the control name is referenced by the program.   Thus, be careful not to change any control name unnecessarily.   Otherwise, the change will affect the program badly.

• Action
Specify the initial status of the display type.

• Normal
Normal display type.

• Reverse video
A pallet number is taken so that when it is added to the pallet number of the color displayed in the control area, the result may become 15.   For example, 0 is taken to assume 15 and 3 is taken to assume 12.

• Blink
The reverse video display and the normal display are alternated repetitively at a fixed interval.   The cycle is fixed by the system (1 sec).

• Flashing
The object display is turned ON/OFF at a fixed interval while the background is kept as is.   The cycle is fixed by the system (1 sec).

If transparent is specified for reverse video display, the permeated control background color is displayed in the reverse video.   For a color OIP, the color of the pallet No.15 (16 colors) is black.
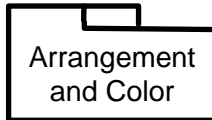
- Thickness of pipe
  Select the thickness of the pipe from 1/3/5/7 (dots).

- Initial phase
  Select the initial phase of the lamp from OFF/ON1/ON2.

Arrangement
and Color

- Arrangement information

  - Passed point
    Specify the number of via-points for the pipe.   Up to 8 points including
    the starting and ending points can be specified.

  - 1st point to 8th point
    Specify the coordinates of the via-points for the pipe for up to the number
    of points specified for "number of via-points".

- Color

  - Pipe color
    Specify the color of the pipe.

  - When OFF
    Specify the inner color of the pipe to be displayed when the pipe is turned
    off.

  - When ON1
    Specify the inner color of the pipe to be displayed when the pipe is turned
    on (ON1).

  - When ON2
    Specify the inner color of the pipe to be displayed when the pipe is turned
    on (ON2).   When ON2 is not used, specify transparent (pallet No.0) for
    the ON2 color.

Caution

The pipe color is not displayed when "1" is specified for thickness of the
pipe.
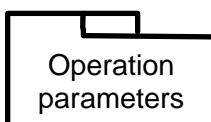
- Image
  Specify the status of the pipe to be displayed on the Screen Creator.

Operation
parameters

- Enable
  When the check box is checked, each control action can be specified with
  operation parameters of the object part.   At this time, the control area is
  displayed in red.   When operation parameters are invalid, the control area is
  displayed in green.

- Station Device
  Specify the name of the PLC device or the memory table from which the
  pipe status is read.

- Device type

Specify the type of the device from which the pipe status is read.

- Word
  The word device type is assumed.   When the value is 0, 1, or 2, the pipe is regarded to be OFF, ON1, or ON2.

- Bit
  The bit device type is assumed.   3 consecutive devices started at the specified one are used (when the ON2 color is the pallet No.2 one, 2 devices are used).   How far the first device whose value becomes other than 0 (among the consecutive devices) is separated from the specified one is found and when the value is 0, 1, or 2, the status of the pipe is regarded to be OFF, ON1, or ON2.

- Data type
  Specify the type of data to be received from the PLC device or the memory table.

  - BIN
    Binary data without sign

  - BIN with sign
    Binary data with sign

  - BCD
    BCD (binary coded decimal).   No sign is used for "BCD" notation.